DUBLIN SAN RAMON SERVICES DISTRICT

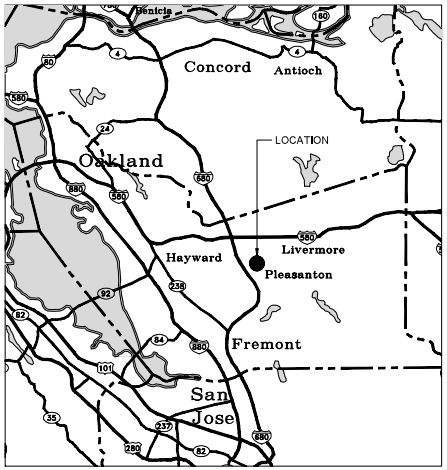
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

7051 DUBLIN BOULEVARD
DUBLIN, CA 94568

WWTP HVAC REPLACEMENTS (CIP 22-P010) PROJECT

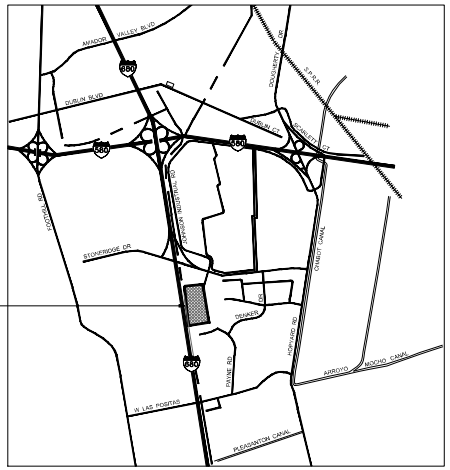
100% CONSTRUCTION DRAWINGS
JANUARY 2026

VOLUME 2 OF 2



VICINITY MAP

PROJECT SITE
DSRSD WASTEWATER TREATMENT PLANT
7399 JOHNSON DRIVE
PLEASANTON, CA 94568



LOCATION MAP

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN		REVIEW	
DRAWN BY	–	PLNNG./DEVL.	
DESIGN BY	–	FIELD OPS.	
CHECKED BY	CC	WWTP OPS.	
PROJ. MGR.	–	MECH./MAINT.	
DSRSD PRINCIPAL ENGINEER		ELECT./INSTR.	

SCALE: AS NOTED DATE: 12/09/2025

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

RECOM'D

SALASOBRIEN
expect a difference
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS Project

COVER SHEET

ACCEPTED BY _____ DATE Jan 15, 2026
STEVEN V. DELIGHT, DISTRICT ENGINEER

CIP NO. 22-P010

G0.0
1 | 66

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SOBE #2304150

GENERAL SHEETS

VOLUME 1 (BUILDING A)

VOLUME 2 (BUILDING C)

VOLUME 3 (BUILDING H)

VOLUME 4 (NOT USED)

DWG. NO.	DESCRIPTION	SHEET

VOLUME 5 (NOT USED)

DWG. NO.	DESCRIPTION	SHEET

VOLUME 6 (BUILDING T)

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

REVIEW

SCALE: AS NOTED | DATE: 12/09/2025

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salasobrien.com

REGISTERED PROFESSIONAL ENGINEER — CARL A. CRITZER — No. M36859 — MECHANICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

CIP NO. 22-P010

WWTP HVAC REPLACEMENTS Project

DRAWING INDEX

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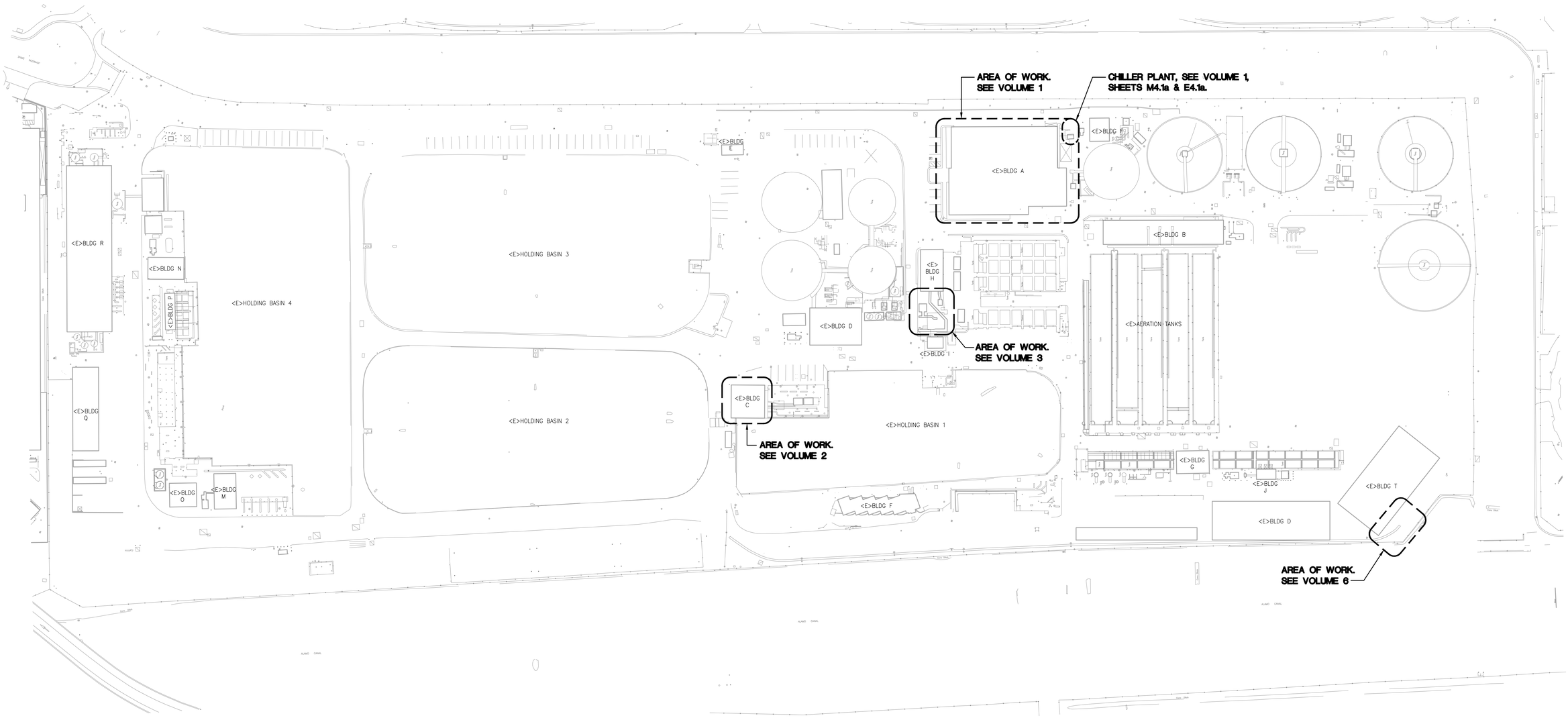
SOBE #2304150



1 SITE PLAN

SCALE: 1" = 50' – 0"

0 50' 100'

N

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN
DRAWN BY –
DESIGN BY –
CHECKED BY CC
PROJ. MGR. –

RECOM'D
DSRSD PRINCIPAL ENGINEER

REVIEW
PLNNG./DEVL.
FIELD OPS.
WWTP OPS.
MECH./MAINT.
ELECT./INSTR.
SCALE: AS NOTED DATE: 12/09/2025

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REGISTERED PROFESSIONAL ENGINEER
CARL A. GRITTER
No. M35859
MECHANICAL
STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
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WWTP HVAC REPLACEMENTS Project

CIP NO. 22–P010

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SITE PLAN

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SOBE #2304150

SEQUENCE OF CONSTRUCTION

1. ISOLATE THE EXISTING ON GRADE ABSORPTION CHILLER AND PUMPS – VALVE OFF AND REMOVE. REMOVE THE EXISTING CHW PIPING FROM THE ABSORPTION CHILLER AND THE PIPING EXTENDING TO THE AIR–COOLED CHILLER ON THE ROOF OF BLDG. "A".
2. CONSTRUCT NEW PLATFORM ON ROOF OF "A" INSTALL NEW AHU–1. REPAIR ROOF.
3. PROVIDE NEW CONCRETE HOUSEKEEPING PADS FOR NEW EQUIPMENT, INSTALL NEW CHILLERS AND SUPPORT EQUIPMENT WHERE ABSORPTION CHILLERS WERE. TEST AND RUN.
4. INSTALL NEW CHWS & CHWR LINES FROM THE CHILLED WATER PLANT TO THE POC WITH THE EXISTING 2 INCH LINES FEEDING AHU–2 AND THEN RUN 3 IN CHWS AND CHWR LINES UP FROM THE LOWER ROOF OF BUILDING "A" UP TO THE UPPER ROOF OF "A" BUILDING. MOUNT THESE NEW CHW AND HHW LINES ON THE EXISTING SCREEN WALL INSIDE OF THE MECHANICAL AREA AND RUN TO LOCATION OF NEW AHU–1 AND VALVE OFF.
5. CONNECT NEW HYDRONIC LINES, DUCTWORK AND DRAINS TO AHU–1, TEST AND RUN.
6. REMOVE AND REPLACE WITH NEW HYDRONIC CHILLED WATER CONTROL VALVE AND INSTALL NEW DIFFERENTIAL PRESSURE SENSORS AND TRANSMITTER AT AHU–2.
7. RUN AS MUCH OF THE NEW EA DUCTWORK AS POSSIBLE WITHOUT DISTURBING THE EXISTING EXHAUST FROM THE HOODS. PROVIDE TEMP EXHAUST FAN TEMPORARILY CONNECT TO NEW EXHAUST DUCT.
8. DISCONNECT HOOD EXHAUST DUCTWORK FROM EXISTING ROOF MOUNTED EXHAUST FANS, REMOVE FANS AND PATCH ROOF. INSTALL NEW AIR VALVES, CONVERT CONTROLS TO ELECTRIC WITH DDC SENSORS. CONNECT TO TEMPORARY EXHAUST DUCT FAN ON ROOF.
9. DEMOLISH EXISTING GENERAL EXHAUST FAN ON ROOF OF BLDG. "A", RECONFIGURE STRUCTURE AND ROOF CURBING TO SUPPORT NEW EXHAUST FAN. INSTALL NEW EXHAUST FAN AND CONTROLS FOR FAN OPERATIONS.
10. DISCONNECT EXISTING AHU–1 FROM SA DROP ON ROOF OF BLDG. "A". START AND RUN NEW AHU–1.
11. DISCONNECT EXISTING PIPING AND CONTROLS FROM EXISTING AHU–1 AND SHUT DOWN EXISTING AIR COOLED CHILLER ON ROOF OF BLDG. "A". REMOVE AHU–1 AND EXISTING CHILLER FROM ROOF. REPAIR ROOF AS REQUIRED.
12. CONNECT EXHAUST DUCTWORK TO NEW EXHAUST FAN PLENUM. TEST AND RUN NEW EXHAUST FAN.
13. REMOVE TEMPORARY EXHAUST FAN FROM ROOF OF BLDG. "A".
14. SET UP CONTROLS FOR LABS ON 2ND FLOOR OF BLDG. "A" AIR BALANCE SHALL BE DONE TO MIMIC "AT REST" AND OPERATIONAL CONDITIONS. INDIVIDUAL HOODS SHALL BE TESTED WITH SASH AT OPERATIONAL LEVELS AND AT WIDE OPEN SASH CONDITIONS.
15. SET LAB AIR FLOW DIFFERENTIAL TO ALLOW LARGE MAIN LAB TO MAINTAIN A SLIGHTLY NEGATIVE PRESSURE RELATIVE TO THE OUTER CORRIDOR. WHERE OTHER SMALLER LABS REQUIRE PRESSURE DIFFERENTIAL TEST AND SET UP CONTROLS.
16. UPGRADE PER PLANS EXISTING VAV BOXES W/HYDRONIC CONTROL COILS. DEMOLISH EXISTING PNEUMATIC CONTROLS FROM CEILING OF 1ST FLOOR OF BUILDING A SECTION AT A TIME. INSTALL NEW DDC CONTROLS AND ROOM TEMPERATURE SENSORS, TEST AND RUN. AIR BALANCE AHU–2.
17. CONTRACTOR SHALL CONDUCT AND LEAD A "METHOD AND PROCEDURES" MEETING PRIOR TO BEGINNING WORK. DURING THIS MEETING THE CONTRACTOR SHALL OUTLINE HIS SCHEDULES FOR CONSTRUCTION WITH SPECIFIC EMPHASIS ON HOW DOWN–TIME IN THE LABORATORIES SHALL BE MINIMIZED.

GENERAL NOTES

1. PRIOR TO SUBMITTING PROPOSAL, BIDDER SHALL EXAMINE CONSTRUCTION DRAWINGS AND SPECIFICATIONS AND SHALL HAVE VISITED THE CONSTRUCTION SITE. HE SHALL BE FAMILIAR WITH THE CONDITIONS UNDER WHICH HE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART. THE SEQUENCE OF CONSTRUCTION SHALL BE CLOSELY COORDINATED AND PRESENTED TO THE OWNER FOR VERIFICATION. DETERMINE THE SEQUENCE OF CONSTRUCTION THROUGHOUT THE PROJECT.
2. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER WORK DUE TO THE INSTALLATION OF WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC., AS REQUIRED.
3. ALL TEMPORARY WORK SHALL BE CONSIDERED A PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.
4. THE PLANS AND SPECIFICATIONS DO NOT UNDERTAKE TO SHOW OR LIST EVERY ITEM TO BE PROVIDED, BUT RATHER TO DEFINE THE REQUIREMENTS FOR A FULL AND WORKING SYSTEM FROM THE STANDPOINT OF THE END USER. FOR THIS REASON, WHEN AN ITEM NOT SHOWN OR LISTED IS CLEARLY NECESSARY FOR PROPER CONTROL/ OPERATION OF EQUIPMENT WHICH IS SHOWN OR LISTED, PROVIDE AN ITEM WHICH WILL ALLOW THE SYSTEM TO FUNCTION PROPERLY AT NO INCREASE IN PRICE.
5. DIMENSIONS ON WORKING DRAWINGS GOVERN. DO NOT SCALE DRAWINGS.
6. ALL CONTRACTORS SHALL REMOVE TRASH AND DEBRIS STEMMING FROM THEIR WORK ON A DAILY BASIS. PROJECT SITE SHALL BE MAINTAINED IN A CLEAN AND ORDERLY CONDITION.
7. PRIOR TO BIDDING, CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONDITIONS WHICH ARE NOT COVERED IN THE CONTRACT DOCUMENTS. DURING CONSTRUCTION, CONTRACTOR SHALL NOTIFY THE ENGINEER AND SEEK CLARIFICATION IF ANY DISCREPANCIES ARE FOUND. CONTRACTOR SHALL BE RESPONSIBLE FOR REMEDIAL WORK IF RELATED WORK IS CONTINUED AFTER A DISCREPANCY IS IDENTIFIED.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT MATERIALS, LABOR, INSTALLATION, ETC., CONFORMS TO ALL CODES AND REQUIREMENTS OF LOCAL GOVERNING AGENCIES.
9. ENGINEER SHALL REVIEW ALL MATERIAL SUBMITTALS FOR COMPLIANCE WITH PROJECT INTENT. NO WORK SHALL COMMENCE WITH UNREVIEWED MATERIALS. ANY WORK DONE WITH UNREVIEWED MATERIALS AND EQUIPMENT IS AT THE CONTRACTOR'S RISK.
10. CONSTRUCTION MATERIALS STORED ON THE SITE SHALL BE PROPERLY STACKED AND PROTECTED SO AS TO PREVENT DAMAGE OR DETERIORATION UNTIL USED. FAILURE IN THIS REGARD MAY BE CAUSE FOR REJECTION OF MATERIAL AND/OR WORK.
11. ALL FINISHES AND CONSTRUCTION SHALL BE PROTECTED BY THE CONTRACTOR FROM POTENTIAL DAMAGE CAUSED BY DEMOLITION ACTIVITY. DAMAGE TO FINISHES OR CONSTRUCTION SHALL BE REPAIRED OR REPLACED (OWNER'S DECISION) BY THE CONTRACTOR WITH IDENTICAL MATERIAL AND/OR FINISHES. CONTRACTOR SHALL MAKE AND MAINTAIN A PHOTOGRAPHIC RECORD NOTEBOOK WITH DATED/INDEXED PHOTOGRAPHS.
12. UNLESS OTHERWISE NOTED, ARRANGE, PAY FOR, COORDINATE AND PROVIDE ALL PERMITS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.
13. SECTIONS OF EXISTING DUCTWORK WHICH SERVES THE 2ND FLOOR LABORATORY SPACES THAT IS EXISTING TO REMAIN, SHALL BE CLEANED PER SPECIFICATION SECTION 23 01 30.51.
14. WORK OF THIS CONTRACT SHALL INCLUDE ISOLATION OF LABS NECESSARY TO MAINTAIN PRESSURE DIFFERENTIALS AND AIR FLOWS WITHIN LABS AS REQUIRED BY OWNER. USE OF TEMPORARY PROTECTIVE ENTRY/EXIT INTO LABS SHALL BE REQUIRED.
15. ALL NEW INSULATED DUCTWORK SHALL BE EXTERNALLY INSULATED.
16. ALL <E>SA DUCTWORK SHALL BE CLEANED, SEE SPECIFICATIONS FOR CLEANING PROCEDURES.

TEST & BALANCE

1. TEST AND BALANCE OF ALL AIR AND HYDRONIC SYSTEMS IS A REQUIREMENT OF THIS CONTRACT. THIS INCLUDES PRESSURE DIFFERENTIALS IN LABORATORY RELATIVE TO OTHER AREAS.
2. SEE SPECIFICATIONS FOR A DETAILED DESCRIPTION OF REQUIREMENTS.
3. TESTING PROCEDURES SHALL BE NEBB OR AABC CERTIFIED PROCEDURES.
4. COORDINATE TAB PROCEDURES WITH PHASING.
5. PROVIDE WRITTEN TESTING PROCEDURES AND REPORT FORMAT FOR PROPOSED TAB REPORT, JOB SPECIFIC FOR REVIEW BY OWNER'S REPRESENTATIVE PRIOR TO BEGINNING TAB WORK.
6. ALL TAB REPORTS AND DATA MUST BE BASED ON CONSTRUCTION DRAWINGS AND APPROVED TAB PROCEDURE.
7. COORDINATION WITH CONTROLS CONTRACTOR IS PART OF THIS WORK.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AP	ACCESS PANEL
ARCH	ARCHITECTURAL (DRAWING)
AS	AIR SEPARATOR
BDD	BACK DRAFT DAMPER
BUR	BUILT–UP ROOFING
CA	COMPRESSED AIR
CDW	CONDENSER WATER
CFM	CUBIC FEET PER MINUTE (AIR FLOW)
CT	COOLING TOWER
CTRL	CONTROL
CHWS&R	CHILLED WATER SUPPLY & RETURN
CW	COLD WATER
CU	COPPER
CVV	CONSTANT VOLUME VALVE
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DI	DIGITAL INPUT
DN	DOWN
DO	DIGITAL OUTPUT
<E>	EXISTING
EFF	EFFICIENCY
EF	EXHAUST FAN
EXV	<N>EXHAUST VALVE
EXH	<E>EXHAUST VALVE
EA	EXTRACTION ARM OR EXHAUST AIR
FACP	FIRE ALARM CONTROL PANEL
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FF	FINISHED FLOOR
FH	FUME HOOD
FSD	FIRE/SMOKE DAMPER
GA.	GAUGE
EFF	EFFICIENCY
GPM	GALLONS PER ,MINW
HWS&R	HOT WATER SUPPLY & RETURN
HP	HORSE POWER
HSP	HOUSE SERVICE PANEL
MAV	MAKEUP AIR VALVE
MCC	MOTOR CONTROL CENTER
MIN	MINIMUM
MTD	MOUNTED
MVD	MANUAL VOLUME DAMPER
<N>	NEW
NG	NATURAL GAS
N.T.S.	NOT TO SCALE
OSA	OUTSIDE AIR
O.C.	ON CENTER
OAD	OUTDOOR AIR DAMPER
PH	PHASE
PNL	PANEL
RA	RETURN AIR
RAD	RETURN AIR DAMPER/DUCT
R.I.P.	RETIRED IN PLACE
RHC	REHEAT COIL
RPBFP	REDUCED PRESSURE BACK–FLOW PREVENTER
<RR>	REMOVE & REPLACE
S	SUPPLY
SA	SUPPLY AIR
SAD	SUPPLY AIR DUCT
SW	SOFT WATER
TBR	TO BE REMOVED
TCP	TEMPERATURE CONTROL PANEL
TG	TRANSFER GRILL
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
UTR	UP THRU ROOF
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
V.I.F.	VERIFY IN FIELD

SYMBOLS

EXTENT OF DEMOLITION

NEW TO EXISTING CONNECTION

REVISION NUMBER

WORK ITEM (ARCHITECTURAL)

WORK ITEM (MECHANICAL)

WORK ITEM (ELECTRICAL)

WORK ITEM (TELECOMMUNICATION)

WORK ITEM (PLUMBING)

WORK ITEM (STRUCTURE)

DETAIL DESIGNATION — DETAIL NUMBER / DRAWING NUMBER (IF BLANK, SAME SHEET)

EQUIPMENT DESIGNATION — EQUIPMENT TYPE / EQUIPMENT NUMBER

SECTION DESIGNATION — SECTION NUMBER / DRAWING NUMBER

TO BE DEMOLISHED — <N> EQUIPMENT

TO BE DEMOLISHED — RELOCATED EQUIPMENT

EXISTING DUCT

NEW DUCT

DUCT TO BE REMOVED

DUCT CAP

12x20 — RECTANGULAR DUCT (FIRST FIGURE IS PLAN DIMENSION)

18ø — ROUND DUCT DIAMETER SIZE

FLEXIBLE DUCT

ROUND DUCT UP

ROUND DUCT DOWN

20x10 / 15x8 — TRANSITION RECTANGULAR TO RECTANGULAR

TRANSITION RECTANGULAR TO ROUND

RECTANGULAR TURNING VANES

RADIUSED RECTANGULAR TURNING VANES

BRANCH TAKE–OFF (ROUND MAIN WITH 45° ROUND TAKE–OFF)

BRANCH TAKE–OFF (ROUND MAIN WITH 90° ROUND TAKE–OFF)

BRANCH TAKE–OFF (RECTANGULAR MAIN WITH 90° ROUNDTAKE–OFF)

BRANCH TAKE–OFF (RECTANGULAR MAIN WITH RECTANGULAR TAKE–OFF)

DUCT SPLIT (ROUND MAIN WITH 180° ROUND BRANCHES)

DUCT SPLIT (RECTANGULAR MAIN WITH 180° RECTANGULAR BRANCHES)

DUCT SPLIT (RECTANGULAR MAIN WITH 90° RECTANGULAR SPLIT)

S / R — STANDARD BRANCH, SUPPLY OR RETURN, NO SPLITTER

R — CHANGE OF ELEVATION RISE (R) DROP (D)

AD 10x10 — ACCESS DOORS, VERTICAL OR HORIZONTAL

ACOUSTICAL LINING (INSULATION)

FLEXIBLE CONNECTION

ST — SOUND TRAP

DETECTORS, FIRE AND/OR SMOKE

VAV TERMINAL UNIT

VAV TERMINAL UNIT W/REHEAT

12x20 — DUCT SECTION, SUPPLY, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.

12x20 — DUCT SECTION, RETURN, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.

12x20 — DUCT SECTION, EXHAUST, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.

12x20 — DUCT SECTION, OUTSIDE, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.

CFM — CUBIC FEET PER MINUTE (CFM – AIR FLOW RATE)

DD — DUCT DETECTOR

T — DUCT TEMPERATURE SENSOR

T — ZONE THERMOSTAT

TS — ZONE TEMP SENSOR

CO2 — CARBON DIOXIDE SENSOR

APPLICABLE CODES

UNLESS OTHERWISE INDICATED OR SPECIFIED, PERFORM THE WORK IN CONFORMANCE WITH THE LATEST EDITIONS OF ALL APPLICABLE REGULATORY REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24): 2022
2. CALIFORNIA BUILDING CODE (PART 2, TITLE 24): 2021 IBC WITH 2022 CA AMENDMENTS
3. CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24): 2020 NEC WITH 2022 CA AMENDMENTS
4. CALIFORNIA MECHANICAL CODE (PART 4, TITLE 24): 2021 UMC WITH 2022 CA AMENDMENTS
5. CALIFORNIA PLUMBING CODE (PART 5, TITLE 24) 2021 UPC WITH 2022 CA AMENDMENTS
6. CALIFORNIA ENERGY CODE (PART 6, TITLE 24): 2022
7. CALIFORNIA HISTORICAL BUILDING CODE, (PART 8, TITLE 24): 2022
8. CALIFORNIA FIRE CODE (PART 9, TITLE 24): 2021 IFC WITH 2022 CA AMENDMENTS
9. CALIFORNIA EXISTING BUILDING CODE (PART 10, TITLE 24): 2022 (2021 INTERNATIONAL EXISTING BUILDING CODE WITH 2022 CA AMENDMENTS)
10. CALIFORNIA GREEN BUILDING STANDARDS CODE OR CAL GREEN (PART 11, TITLE 24): 2022
11. CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24): 2022
12. PUBLIC SAFETY (CCR TITLE 19), STATE FIRE MARSHAL: CURRENT REVISION
13. NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE, 2022 EDITION

SCOPE OF WORK

1. THE SCOPE OF WORK INCLUDES DEMOLITION AND REPLACEMENT OF DESIGNATED MECHANICAL PIPING, DUCTWORK, MECHANICAL EQUIPMENT, AND CONTROLS ON AND IN BUILDING "A". DEMOLITION OF EXISTING ABSORPTION CHILLER AND ITS CONNECTIONS TO THE EXISTING CHILLED WATER PIPING SYSTEM IS PART OF THIS WORK. DEMOLITION OF EXISTING CHILLED WATER AIR COOLED CHILLER PLANT AND AIR HANDLER AHU–1, ASSOCIATED PUMPING AND PIPING SYSTEMS LOCATED ON THE ROOF OF BUILDING "A" IS ALSO REQUIRED. DEMOLISH THE EXISTING HOOD EXHAUST FANS AND DUCTWORK ON THE BUILDING ROOF, REPLACE WITH NEW SINGLE EXHAUST FAN AND DUCTWORK PER THE PLANS. EXECUTION OF DEMOLITION MUST BE DONE WHILE THE EXISTING LABORATORIES ON THE 2ND LEVEL OF BUILDING "A" REMAIN FUNCTIONAL AND SCHEDULING TO ACCOMPLISH MINIMUM DOWN TIME TO BUILDING IS PART OF THIS WORK.
2. REPLACE AHU–1, THE EXISTING AIR COOLED CHILLER ON THE ROOF OF BUILDING "A" WITH NEW EQUIPMENT AS PER THE DRAWINGS AND SPECIFICATIONS. PROVIDE A NEW AIR COOLED CHILLED WATER PLANT, PUMPS AND ACCESSORIES ON GRADE AS SHOWN ON PLANS. THIS INCLUDES NEW HYDRONIC PIPING AND PUMPS WITH SYSTEMS MODIFICATIONS AND ADDITIONS TO CONFORM TO THE PROJECT REQUIREMENT SHOWN ON DRAWINGS AND NECESSARY FOR PERFORMANCE CRITERIA OF THE SYSTEM TO BE MET. AHU–1 SHALL BE 100% OSA INTAKE WITH REDUNDANT FAN SYSTEMS, CHILLED AND HYDRONIC HOT WATER HEAT, FILTRATION AND HUMIDIFICATION AS SHOWN ON PLANS. CONTROL OF THE FANS SHALL BE BY VFD OUTPUT FROM THE NEW LAB CONTROL SYSTEM.
3. BUILDING "A" REQUIRES SELECTIVE DEMOLITION AND REPLACEMENT OF SOME HVAC CONTROL COMPONENTS. ALL NEW CONTROL SYSTEM(S) ON THE FIRST AND SECOND LEVELS OF THE BUILDING. DEMOLITION OF THE EXISTING PNEUMATIC CONTROL SYSTEM WITHIN THIS BUILDING IS PART OF THIS WORK. REPLACEMENT OF THE EXISTING PNEUMATIC CONTROL SYSTEM WITH NEW ELECTRONICALLY DRIVEN DDC CONTROLS IS PART OF THIS WORK. THIS INCLUDES NEW WIRING AND CONTROL HARDWARE AS OUTLINED ON THE PLANS AND ACCORDING TO MODEL CODES AND REGULATIONS.
4. THE LABORATORIES ON THE 2ND FLOOR OF BUILDING "A" REQUIRE REMOVAL OF THE EXISTING PNEUMATIC CONTROLS FROM EACH EXISTING VENTURI VALVE AND THE REPLACEMENT WITH NEW CONTROLS WHILE MAINTAINING EXISTING VENTURI VALVE BODIES. ADDITIONAL VALVES AND CONTROLS ARE ALSO REQUIRED AS INDICATED ON THE DRAWINGS. CONTROL THE 2ND FLOOR LABS USING CFM OFFSET AS THE METRIC. EXISTING CHEMICAL HOOD CONTROL SHALL BE MODIFIED TO REFLECT CFM OFFSET. USING EXISTING AIR VALVE BODIES, UPGRADED WITH NEW DDC CONTROLS FOR EACH HOOD.
5. OFFICE SPACE ON THE FIRST LEVEL SHALL RETAIN THE EXISTING VAV BOXES ON THE FIRST FLOOR, UPDATE THE BOXES WITH NEW ELECTRIC HHW CONTROL VALVE ACTUATORS, ADD DDC CONTROLLERS AND BOX DAMPER ACTUATORS, PROVIDE NEW ELECTRONIC THERMOSTATS IN EACH ZONE, AND WHERE INDICATED ON PLANS.
6. TEST AND AIR BALANCE IS A REQUIREMENT FOR THIS PROJECT AND REQUIRES TESTING OF ALL HOODS, VAV BOXES AND HYDRONIC COILS AT VAV BOXES USING AABC OR NEBB PROCEDURES. ALL HOODS SHALL BE TESTED AT OPERATIONAL AND AT REST CONDITIONS. TEST AND REPORT RESULTS ON ALL CHEMICAL FUME HOODS ACCORDING TO CCR OSHA TITLE 8, SECTION 5154.1AND WITH SASHES CLOSED FOR NON–OCCUPIED MODE. REPORT ALL HOOD FACE VELOCITIES, TOTAL AIR FLOWS, ADJUST THE AIR FLOW MONITORING DEVICES ON EACH HOOD TO ALARM AT LOW FLOW CONDITIONS. TEST AND REPORT DATA IN APPROVED FORMATS SUBMITTED PRIOR TO BEGINNING WORK. ADDITIONAL HYDRONIC AND AIR FLOW MEASUREMENTS, ADJUSTMENTS, AND REPORTING ARE ALSO REQUIRED AS PART OF THIS WORK ON THE 1ST AND 2ND FLOORS. MEASURE, REPORT AND ADJUST AS NECESSARY LABORATORY ROOM PRESSURE DIFFERENTIALS. COORDINATE WITH CONTROLS INSTALLERS TO ACHIEVE PRESSURE GRADIENTS CONFORMING TO THE OWNER'S REQUIREMENT. ADJUST, AND REPORT ON ALL MECHANICAL EQUIPMENT IN THIS CONTRACT INCLUDING AIR HANDLERS, PUMPS, CHILLERS AND VFDS WITHIN OR CONTROLLING EQUIPMENT OF THIS CONTRACT. ADJUST AND REPORT MEDIA FLOW RATES AT ALL ALL HYDRONIC COILS, CHILLERS, PUMPS AND LABORATORY VENTURI VALVES. CONFORM, ADJUST, MEASURE AND REPORT ON THE NEW EXHAUST FAN SYSTEM, TEST AND ADJUST STATIC PRESSURE SENSORS AND CONTROLLERS TO PROMOTE EXHAUST SPECIFICATION FOR THE CHEMICAL HOODS, THE TYPE II HOODS AND THE GENERAL LABORATORY EXHAUST.
7. MISCELLANEOUS MODIFICATIONS OF DUCTWORK AND PIPING FOR CONNECTIONS TO NEW EQUIPMENT SHALL BE CONSIDERED PART OF SCOPE.
8. THERE SHALL BE NO REMOTE ACCESS TO THE SIEMEN'S BUILDING MANAGEMENT SYSTEM (BMS) PER THE OWNER'S DIRECTION. THE CONTACT INFO FOR SIEMENS CONTROLS: DAVID SCARBOROUGH (510) 589–0071.
9. CLEAN ALL <E>SA DUCTWORK.

SALASO'BRIEN
|expect a difference|
305 South 11th Street
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REGISTERED PROFESSIONAL ENGINEER — CARL A. GRUBER — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828–0515

WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
GENERAL NOTES, SYMBOLS & ABBREVIATIONS

CIP NO. 22–P010

M0.1a
4 66

1ST FLOOR VAV SCHEDULE

MARK	MAKE	MODEL	LOCATION/ SERVICE	TYPE	SIZE (IN) INLET	SIZE (IN) OUTLET	CFM MAX	CFM MIN	HEATING COILS NO. ROWS	HEATING COILS MAX CAP (BTUH)	HEATING COILS GPM (MAX)	HEATING COILS HEAD LOSS (PSI)	MAX N.C.	REMARKS
VAV-5	TITUS	DESV	1ST FLOOR GENERAL USE	PRESSURE INDEPENDENT , VAV	6	12 X 8	300	150	1	8500	0.8	0.37	20	SEE NOTES
VAV-6	TITUS	DESV	1ST FLOOR GENERAL USE	PRESSURE INDEPENDENT , VAV	8	12 X 10	500	250	1	12000	1.2	0.51	20	SEE NOTES
VAV-7	TITUS	DESV	1ST FLOOR GENERAL USE	PRESSURE INDEPENDENT , VAV	10	14 X 12-1/2	800	400	1	18000	1.8	0.33	24	SEE NOTES
VAV-8	TITUS	DESV	1ST FLOOR GENERAL USE	PRESSURE INDEPENDENT , VAV	12	16 X 15	1200	600	1	25000	2.5	0.44	24	SEE NOTES

NOTES:
1) RETAIN EXISTING VAV BOXES, DEMOLISH EXISTING PNEUMATIC CONTROLS BACK TO COMMON BOX SEAL TUBING. PROVIDE ROOM SENSORS AS INDICATED ON PLANS AND REQUIRED FOR EACH ZONE. SEE DETAIL 12/M5.2a.
2) MULTIPLE VAV'S USE THE SAME VAV MARK. SEE THE DRAWINGS FOR THE QUANTITIES OF EACH VAV BOX MARK.
3) PROVIDE NEW 24 VAC ELECTRICALL DRIVEN DDC CONTROLLED VAV BOX DAMPER AND CONTROLLERS NEW ELECTRICALLY DRIVEN HHW VALVE ACTUATORS ON EXISTING VAV BOXES.

STROBIC EXHAUST FAN SCHEDULE

MARK	DSRSD EQUIP. TAG	BLDG / RM NO.	ROOM FUNCTION	MAKE	MODEL	INLET CFM PER FAN (DESIGN FLOW RATE)	INLET STATIC PRESSURE (IN. W.G.)	BYPASS CFM	ENTRAINED CFM	TOTAL SYSTEM CFM	FAN CFM	FAN OPER. RPM	FAN MOTOR HP	FAN QUANTITY	STACK NOZZLE EXIT VELOCITY (FPM)	VOLT/ PH/ HZ	OPER. WEIGHT (LBS.)	REMARKS
EF-1	30-940-1804-FAN-01	BLDG A	LAB & OFFICES	STROBIC AIR CORP.	M48A60S150I6	15500	2.5	3670	4517	23687	19170	1200	15	1	3227	460 / 3 / 60	6714	SEE NOTES

NOTES:
1) FAN SHALL BE INTEGRATED INTO SITE'S EXISTING SIEMENS DDC NETWORK.
2) PROVIDE MANUFACTURER'S STANDARD EPOXY COATING.
3) PROVIDE MANUFACTURER'S TS3 FRPP LARGE SILENCER NOZZLE.
4) PROVIDE FAN WITH TOSHIBA 460V MOTORS W/SHAFT GROUNDING TEFC MOTOR ENCLOSURES, VFD RATED MOTORS.
5) PROVIDE NEMA 3R ENCLOSURES FOR ALL CONTROL COMPONENTS AND VFDS.
6) PROVIDE FAN WITH M48 BOTTOM INLET SINGLE WALL PLENUM WITH STANDARD EPOXY COATING.
7) PROVIDE ALUMINUM AIRFOIL OPPOSED BLADE ISOLATION DAMPERS WITH AFBUP-S ELECTRONIC 2 POSITION, BELIMO ACTUATOR, 24-240V. PROVIDE WATER PROOF COVERINGS FOR DAMPER ACTUATORS.
8) ISOLATION DAMPERS SHALL BE PROVIDED WITH MULTI-PURPOSE TRANSFORMER, 50VA.
9) PROVIDE ALUMINUM AIRFOIL OPPOSED BLADE BYPASS DAMPER W/ ACOUSTIC LOUVER.
10) BYPASS DAMPERS SHALL BE PROVIDED WITH 120V TO 24V TRANSFORMER.
11) PROVIDE MANUFACTURER'S ALUMINUM TS3 RAINHOOD.
12) PROVIDE FAN MOTORS WITH ABB VFDS, COMPATIBLE WITH EMS SYSTEM.
13) PROVIDE STROBIC PLENUM FOR FUTURE FAN ADDITION, INCLUDE BYPASS DAMPERS FOR SECOND FAN (FUTURE).

AIR COOLED CHILLER SCHEDULE

MARK	DSRSD EQUIP. TAG	SERVICE	MAKE	MODEL	NOMINAL TONS	REFRIG CAPACITY (TONS)	REFRIG. TYPE	EER	EVAPORATOR GPM	EVAPORATOR EWT (F°)	EVAPORATOR LWT (F°)	EVAPORATOR TOTAL WPD (FT)	CONDENSER TOTAL CFM	CONDENSER # FANS	COMPRESSOR NO. OF COMPS.	COMPRESSOR NO. OF CIRCUITS	VOLT/ PH/ HZ	MCA	MOP	OPER. WEIGHT (LBS.)	NOTES
CH-1	30-940-1620-CHR-01	CHILLED WATER	TRANE	CGAM	60	52.36	R-454B	8.951	69.67	42	60	5.31	52316	6	4	2	460 / 3 / 60	129	175	5232	SEE NOTES
CH-2	30-940-1621-CHR-01	CHILLED WATER	TRANE	CGAM	60	52.36	R-454B	8.951	69.67	42	60	5.31	52316	6	4	2	460 / 3 / 60	129	175	5232	SEE NOTES

NOTES:
1) PROVIDE WITH WATERTIGHT CONTROL ENCLOSURE RATED NEMA 3R - OUTDOOR INSTALLATION
2) PROVIDE EVAPORATOR WITH FREEZE PROTECTION.
3) PROVIDE UNIT WITH LANCED ALUMINUM FINS SUITABLE FOR 110° AMBIENT AIR CONDITIONS.
4) UNIT SHALL BE CAPABLE OF PROVIDING 4:1 TURNDOWN RATIO
5) TOTAL WATER PRESSURE DROP SHOWN INCLUDES EVAP COIL & STRAINER.
6) PROVIDE MANUFACTURER'S GAGE PACKAGE AND BACNET INTERFACE CARD.
7) PROVIDE COMPRESSORS WITH HEAD PRESSURE CONTROL.
8) PROVIDE MANUFACTURER'S OUTDOOR UV RATED PROTECTIVE CONDENSER COIL COATING.
9) PROVIDE TEAO CONDENSER FANS.

<E> 2nd FLOOR LABORATORY VALVE SCHEDULE (for reference only)

MARK	AREA SERVED	VALVE TYPE	MAKE	MODEL	SIZE (IN) INLET	SIZE (IN) OUTLET	CFM MAX	CFM MIN	HEATING NO OF ROWS	HEATING MAX CAP (BTUH)	HEATING GPM (MAX)	HEATING HEAD LOSS (PSI)	REMARKS
MAV-1	MAIN LAB	PRESSURE INDEPENDENT, VAV	PHOENIX	PSV 312M	(3) 12"	(3) 12"	3600	960	2	58500	5.9	0.45	SEE NOTES 1, 2
MAV-2	MAIN LAB	PRESSURE INDEPENDENT, VAV	PHOENIX	PSV 312M	(3) 12"	(3) 12"	3600	960	2	58500	5.9	0.45	SEE NOTES 1, 2
MAV-3	HPLC & GC/MS LABS	PRESSURE INDEPENDENT, VAV	PHOENIX	PSV 312M	(3) 12"	(3) 12"	3000	1120	2	48600	4.9	0.44	SEE NOTES 1 THRU 3
MAV-4	AA LAB	PRESSURE INDEPENDENT, VAV	PHOENIX	PSV 12M	12"	12"	1200	280	1	19500	2	0.45	SEE NOTES 1, 2
MAV-5	BACTERIA LAB	PRESSURE INDEPENDENT, VAV	PHOENIX	PSV 210M	(2) 10"	(2) 10"	1500	540	1	24500	2.5	-	SEE NOTES 1 THRU 3
VAV-1	OFFICE	PRESSURE INDEPENDENT, VAV	PHOENIX	PSV 06M	6"	6"	460	180	1	7900	0.8	0.45	SEE NOTES 1, 2
VAV-2	FILES	PRESSURE INDEPENDENT, VAV	PHOENIX	PSV 06M	6"	6"	180	70	1	3100	0.3	0.45	SEE NOTES 1, 2
VAV-3	ANALYSTS	PRESSURE INDEPENDENT, VAV	PHOENIX	PSV 10M	10"	10"	640	260	1	12000	1.2	0.55	SEE NOTES 1, 2
VAV-4	BOD LAB	PRESSURE INDEPENDENT, VAV	PHOENIX	PSV 10M	10"	10"	810	325	1	14000	1.4	0.33	SEE NOTES 1, 2
CVV-1	STORAGE ROOM / RESTROOMS	PRESSURE INDEPENDENT, CAV	PHOENIX	CVV 12M	12"	12"	1045	-	1	6500	0.3	0.45	SEE NOTES 1, 2
EXV-1	FUME HOOD FH-1	PRESSURE INDEPENDENT	PHOENIX	PEV 212M	(2) 12"	(2) 12"	2400	480	-	-	-	-	SEE NOTES 1, 2
EXV-2	FUME HOOD FH-2	PRESSURE INDEPENDENT	PHOENIX	PEV 212M	(2) 12"	(2) 12"	2400	480	-	-	-	-	SEE NOTES 1, 2
EXV-3	AA LAB / HPLC LAB	PRESSURE INDEPENDENT	PHOENIX	PEV 212M	(2) 12"	(2) 12"	2300	450	-	-	-	-	SEE NOTES 1, 2
EXV-4	BOD / STORAGE	PRESSURE INDEPENDENT	PHOENIX	PEV 12M	12"	12"	1280	250	-	-	-	-	SEE NOTES 1, 2
EXV-5	MAIN LAB	PRESSURE INDEPENDENT	PHOENIX	PEV 412M	(4) 12"	(4) 12"	5000	1000	-	-	-	-	SEE NOTES 1 THRU 3
EXV-6	MAIN LAB FUME HOOD FH-3	PRESSURE INDEPENDENT	PHOENIX	PEV 12M	12"	12"	1200	240	-	-	-	-	SEE NOTES 1, 2
EXV-7	MAIN LAB FUME HOOD FH-3A	PRESSURE INDEPENDENT	PHOENIX	PEV 12M	12"	12"	1200	240	-	-	-	-	SEE NOTES 1, 2
EXV-8	MAIN LAB	PRESSURE INDEPENDENT	PHOENIX	PEV 12M	12"	12"	1100	500	-	-	-	-	SEE NOTES 1, 2

1) PROVIDE EXISTING PHOENIX VALVES AND REHEAT COILS WITH DDC CONTROLS AND INTEGRATE NEW CONTROLS INTO NEW LABORATORY CONTROL SYSTEM.
2) PROVIDE VALVES WITH MANUFACTURER'S HIGH SPEED RESPONSE CONTROL MODULE.
3) EXISTING VALVE HAS BEEN REMODELED. SEE FLOOR PLANS.

CUSTOM AIR HANDLING UNIT SCHEDULE

MARK	DSRSD EQUIP. TAG	LOCATION	SERVES	MAKE	MODEL	SUPPLY FANS CFM	SUPPLY FANS FAN QUANTITY	SUPPLY FANS RPM	SUPPLY FANS ESP	SUPPLY FANS TSP	SUPPLY FANS HP	OSA CFM	CHILLED WATER COIL CAPACITY (BTUH) TOTAL	CHILLED WATER COIL CAPACITY (BTUH) SENSIBLE	CHILLED WATER COIL FACE VEL. (FPM)	CHILLED WATER COIL WATER TEMP (°F) ENT.	CHILLED WATER COIL WATER TEMP (°F) LVG.	CHILLED WATER COIL FLUID PD (FT)	CHILLED WATER COIL GPM	CHILLED WATER COIL VOL. (GAL.)	CHILLED WATER COIL AIR TEMP (°F) EADB / EAWB	CHILLED WATER COIL AIR TEMP (°F) LADB / LAWB	CHILLED WATER COIL AIR PD (IN. W.C.)	HEATING WATER COIL CAPACITY (BTUH)	HEATING WATER COIL WATER TEMP (°F) ENT.	HEATING WATER COIL WATER TEMP (°F) LVG.	HEATING WATER COIL GPM	HUMIDIFIER CFM	HUMIDIFIER VOLTAGE (KW)	HUMIDIFIER CAPACITY (LBS/HR)	VOLT/ PH/ HZ	MCA	MOP	OPER. WEIGHT (LBS.)	REMARKS
AHU-1	30-940-1804-AHU-01	BLDG A - ROOF	2ND FLOOR LABS & OFFICES	UNITED METAL PRODUCTS	CAH-OBO-28	14500	2	1844	2.66	6.1	15	14500	989264	989264	518	42	60	7.74	110.5	34.4	110 / 70	53 / 52	1.16	600000	150	120	40	14500	60	170	460 / 3 / 60	54.67	70.42	8655	SEE NOTES

NOTES:
1) PROVIDE AHU WITH 304 STAINLESS STEEL SECTIONS WITH 4" 1.5PCF FIBERGLASS WITH PERFORATED LINERS.
2) PROVIDE AHU WITH (2) SIDED STRAIGHT ALUMINUM INTAKE HOOD.
3) PROVIDE AHU WITH 304 STAINLESS STEEL MOISTURE ELIMINATOR AND DRAIN PAN WITH DRAIN.
4) PROVIDE PRE- AND FINAL FILTER SECTIONS EACH WITH (8) 4"DEEP x 24"L X 24"W PLEATED MERV15, UPSTREAM LOADING FILTERS.
5) SUPPLY FANS SHALL BE TWIN CITY FANS, MODEL EPFN-24-100-80-II-AL-ARR4-CW
6) PROVIDE SUPPLY FANS WITH BALDOR SUPER-E MOTORS WITH TEFC CONSTRUCTION, MODEL EM2333T-G, 15HP, 1800 RPM, FLA = 18.1A; SUPPLIED BY AHU MANUFACTURER.
7) EACH SUPPLY FAN SHALL BE PROVIDED WITH ABB ACH580-01-023A-4, NEMA-1, 15HP, 460V/3Ph/60Hz, 23A, VFDS. VFDs SHALL BE WIRED TO MOTORS SUPPLIED BY AHU MANUFACTURER
8) CHILLED WATER COIL SHALL BE 10 ROWS, 12FPI WITH 5/8" COPPER TUBES WITH 0.008 ALUMINUM FINS, COAT ALL COILS WITH DIPPED URETHANE COATINGS.
9) PROVIDE CHILLED WATER COIL WITH 16 GAUGE 304 STAINLESS STEEL DRAIN PAN WITH 1-1/2" CONNECTION.
10) PROVIDE AHU WITH HUMIDIFIER SECTION WITH HUMIDIFIER RATED FOR 100% SUPPLY AIRFLOW CONSTRUCTED OF 304STS, 16GAUGE DRAIN PAN, 1-1/2" CONNECTION.
11) PROVIDE INTERNAL LIGHTS INSIDE AIR HANDLER SECTIONS (FANS, FILTERS, COILS) SWITCHED FROM OUTSIDE THE AIR HANDLER. LIGHTS SHALL BE MARINE GRADE LED.
12) PROVIDE GASKETED WATER PROOF AIR TIGHT WINDOWS IN FAN, COIL AND FILTER SECTIONS.
13) SENSORS AND CONTROLLERS FOR CONTROL SYSTEM SHALL BE MOUNTED INSIDE AIR HANDLER BY AHU MFG. IN COORDINATION WITH CONTROLS CONTRACTOR SUBMIT PLAN.
13) ALL WIRING INSIDE THE AIR HANDLER SHALL BE RUN IN CONDUIT.

MECHANICAL EQUIPMENT SCHEDULES

CHILLED WATER PUMP SCHEDULE

MARK	DSRSD EQUIP. TAG	SERVICE	MAKE	MODEL	GPM	TDH (FT.)	HP	RPM	DUTY POINT EFF. (%)	VOLT/ PH/ HZ	NOTES
CHP-1	30-940-1620-PMP-01	PRIMARY CHW	BELL & GOSSETT	E-80 2x2x7B	70	20	1	1800	58.4%	460 / 3 / 60	SEE NOTES 1, 2, 4 THRU 7.
CHP-2	30-940-1621-PMP-01	PRIMARY CHW	BELL & GOSSETT	E-80 2x2x7B	70	20	1	1800	58.4%	460 / 3 / 60	SEE NOTES 1, 2, 4 THRU 7.
CHWP-1	30-940-1622-PMP-01	SECONDARY CHW	BELL & GOSSETT	E-1510 2BD	160	70	7.5	1800	73.8%	460 / 3 / 60	SEE NOTES 1, 3 THRU 7.
CHWP-2	30-940-1623-PMP-01	SECONDARY CHW	BELL & GOSSETT	E-1510 2BD	160	70	7.5	1800	73.8%	460 / 3 / 60	SEE NOTES 1, 3 THRU 7.

NOTES
1) PROVIDE TEFC MOTOR ENCLOSURE
2) PROVIDE CHILLER PUMPS WITHIN PRIMARY CHW LOOP AS SHOWN ON PLANS.
3) PROVIDE BUILDING PUMPS WITHIN SECONDARY CHW LOOP AS SHOWN ON PLANS.
4) ALL PUMP MOTORS SHALL BE VFD CONTROLLED WITH RATED VFD CONSTRUCTION.
5) PUMPS SHALL BE NON OVERLOADING, WITH STD. MECHANICAL SEALS, FLANGE TAPS, AND BE STAINLESS STEEL FITTED.
6) PROVIDE VFD'S FOR ALL PUMPS. INCLUDE NEMA 3R ENCLOSURE FOR VFD'S.
7) PROVIDE PRESSURE GAGES & SHUT OFF COCKS ACROSS FLANGE TAPS FOR EACH PUMP. REFER TO SPECS FOR GAGE SPECS.

MARK	LOCATION	MAKE	MODEL	QUANTITY	ARM DIAMETER (INCHES)	EXHAUST AIRFLOW (CFM)	ESP (IN. W.C.)	WEIGHT (LBS)	CEILING BRACKET MODEL	CEILING BRACKET WEIGHT (LBS)	REMARKS
EA-1	HPLC LAB & SUPPLY RM	MOVEX	MET 2100-100	3	4	180	1.0	15.2	MTF	9.3	SEE NOTES

NOTES
1 EXTRACTION ARM SHALL HAVE A 304L STAINLESS STEEL DAMPER AT DUCT DROP.
2 PROVIDE MANUFACTURER'S DOME HOOD, MEK 351-100.
3 PROVIDE STRUCTURAL ATTACHMENT HARDWARE - SEE STRUCTURAL PLANS FOR DETAILS.

EXPANSION TANK SCHEDULE

MARK	SERVICE	MAKE	MODEL	VOLUME		PRESSURE		DIA. (IN)	HT. (IN)	MOUNTING PROVISION	RIG WEIGHT (LBS.)	REMARKS
				ACCEPT. (GAL)	TANK (GAL)	DESIGN (PSI)	PRECHARGE (PSI)					
ET-1	CHILLED WATER	WESSELS	NLA-50	13	13	125	40	14"	24"	VERTICAL	50	SEE ALL NOTES

NOTES:
1) WATER CONNECTION SIZE SHALL BE 3/4" NPT.

2nd FLOOR LABORATORY AIR FLOW CONTROL VALVE SCHEDULE

MARK	AREA SERVED	EQUIPMENT SERVED	MAKE	MODEL	VALVE BODY	VALVE SIZE	SYSTEM AIRFLOW MINIMUM	SYSTEM AIRFLOW	LOW PRESSURE VALVE CFM RANGE		PRESSURE RANGE (IN. W.C.)	REMARKS
									MIN	MAX		
EXV-9	BACTERIA LAB	CH-01 & CH-02	SIEMENS	Z110	SINGLE	10"	N/A	400	0	700	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-10	HPLC LAB	FH-6	SIEMENS	Z112	SINGLE	12"	110	800	0	1000	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-11	HPLC LAB	SNORKEL #1	SIEMENS	Z106	SINGLE	6"	N/A	180	0	200	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-12	HPLC LAB	SNORKEL #2	SIEMENS	Z106	SINGLE	6"	N/A	180	0	200	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-13	AA LAB	FH-11	SIEMENS	Z112	SINGLE	12"	140	1000	0	1000	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-14	AA LAB	CANOPY HOOD, FH-7	SIEMENS	Z110	SINGLE	10"	N/A	700	0	700	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-15	MAIN LAB	CH-03	SIEMENS	Z210	DUAL	10"	N/A	1300	0	1400	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-16	OFFICE #1	GENERAL EXHAUST	SIEMENS	Z110	SINGLE	10"	N/A	400	0	700	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-17	FILES ROOM	GENERAL EXHAUST	SIEMENS	Z106	SINGLE	6"	N/A	160	0	200	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-18	ANALYSTS	GENERAL EXHAUST	SIEMENS	Z110	SINGLE	10"	N/A	600	0	700	0.3 - 3.0	SEE NOTES 1 THRU 5
EXV-19	SUPPLY ROOM	SNORKEL #3 & GENERAL EXHAUST	SIEMENS	Z110	SINGLE	10"	N/A	400	0	700	0.3 - 3.0	SEE NOTES 1 THRU 5
MAV-4	AA LAB	SUPPLY AIR	SIEMENS	Z112	SINGLE	12"	N/A	965	0	1000	0.3 - 3.0	SEE NOTES 1 THRU 6

NOTES:
1) PROVIDE PRECISION LABORATORY AIR FLOW VALVES INTEGRATED INTO NEW DIRECT DIGITAL CONTROLS INTEGRATED INTO NEW LABORATORY CONTROL SYSTEM - PROVIDE 24 VAC IN CONDUIT TO AIR FLOW CONTROL VALVES.
2) PROVIDE VALVES WITH MANUFACTURER'S HIGH SPEED RESPONSE CONTROL MODULE.
3) VALVE SHALL BE LOW PRESSURE RANGE TYPE.
4) VALVES SHALL HAVE BOTH HORIZONTAL & VERTICAL MOUNTING CAPABILITIES
5) SYSTEM MINIMUM AIRFLOW INDICATES FUME HOOD AT SASH FULLY CLOSED.
6) MAV-4 IS PROVIDED AS AN ADDITIONAL 12" VALVE TO <E> MAV-4 CREATING A DUPLEX SUPPLY AIR VALVE.

AIR TERMINAL SCHEDULE

SUPPLY AIR DIFFUSERS (HPLC LAB & AA LAB)
TITUS, MODEL TRITEC-AL
CONFORM TO THE FOLLOWING SPECIFICATIONS:
NOISE CRITERIA: NC-20 OR LESS
AIR VELOCITY: 500FPM OR LESS
AIRFLOWS PER DIFFUSER: AA LAB: 650 CFM (2 TOTAL); AA LAB: 385 CFM (1 TOTAL); HPLC LAB: 675 CFM (2 TOTAL)
SUPPLY AIR DIFFUSERS SHALL BE 2-WAY, CONSTRUCTED OF ALUMINUM BACKPAN AND 304 STS FACE.
REFER TO DRAWINGS FOR DIFFUSER LOCATIONS.
PROVIDE DUCT TRANSITION FROM DIFFUSER TO DUCTWORK AS REQUIRED.
AA LAB DIFFUSER SPECIFIED AT 385CFM SHALL BE 2'X2', ALL OTHERS SHALL BE 2'X4'.

EXHAUST AIR GRILLES (HPLC LAB, AA LAB)
TITUS, MODEL PAR-AA
CONFORM TO THE FOLLOWING SPECIFICATIONS:
NOISE CRITERIA: NC-20 OR LESS
AIR VELOCITY: 900 FPM OR LESS
AIRFLOWS PER GRILLE: AA LAB: 1200 CFM; HPLC LAB: 1200CFM
EXHAUST AIR GRILLES SHALL BE ALUMINUM, FLUSH FACE PERFORATED CEILING DIFFUSER, 24X24 CEILING MODULE.
PROVIDE (1) EA GRILLE IN EACH OF: BACTERIA LAB, HPLC LAB, AA LAB. REFER TO PLANS FOR LOCATIONS.
PROVIDE GRILLES WITH 16" ROUND DIAMETER NECK CONNECTION.

VALVES, PIPES & FITTINGS SCHEDULE

SERVICE	PIPE MATERIAL	SHUT-OFF VALVE	JOINTS
NITROGEN (N2), ARGON (AR)	TYPE 'L' HARD DRAWN COPPER, ASTM B-88. BRAZED JOINTS, PIPING CLEANED FOR O2 SERVICE	NIBCO MODEL 595 Y-66	BRAZED
LOW PRESSURE COMPRESSED AIR (CA)	TYPE 'L' HARD DRAWN COPPER, ASTM B-88. WROUGHT FITTINGS.	NIBCO MODEL 595 Y-66	NON-LEAD SOLDER
INDUSTRIAL COLD WATER (ICW), DOM. COLD WATER (DCW), CHILLLED WATER (CHW) INDUSTRIAL HOT WATER (IHW), HEATING HOT WATER (HHW), LABORATORY VACUUM (VAC), CONDENSATE (CD)	TYPE 'L' HARD DRAWN COPPER, ASTM B-88. WROUGHT FITTINGS. INSULATE IHW PER SPECIFICATIONS.	NIBCO MODEL 595 Y-66	NON-LEAD SOLDER
HI PURITY WATER (DI), PROCESS CHILLED WATER (PCHW)	SPEARS/HARVEL LXT PIPE	SPEARS, TRUE UNION BALL VALVE, PVC, VITON O RINGS	CHEMICALLY BONDED SOCKET JOINTS
NATURAL GAS (G)	SCHEDULE 40 BLACK STEEL, ASTM A120 OR A53	AGA APPROVED, IRON PLUG VALVE. IRON BODY, BRONZE MOUNTED, 125 PSI, NON-SHOCK, STRAIGHT WAY COOK WITH FLAT OR SQUARE HEAD. THREADED OR FLANGED ENDS.	THREADED JOINTS
ACID WASTE (AW), ACID VENT (AW-V) OR LAB VENT (LV)	SPEARS LABWASTE CPVC CORROSIVE WASTE DRAINAGE SYSTEM OR EQUAL, ASTM F 2618	N/A	CHEMICALLY BONDED SOCKET JOINTS
FLAMMABLE STORAGE CABINET EXHAUST	316L STS, STRIP WOUND, PRESSURE RATED TUBING.	SPEARS STS BUTTERFLY VALVE	FLANGED, OR SECURE WITH VACUUM CLAMPS

TEMPORARY EXHAUST FAN

MARK	MFG. & MODEL	TYPE	AIR FLOW (CFM)	S.P. (in wc)	FAN RPM	BRAKE BHP	V/PH./FREQ.	POWER (HP)	MOTOR RPM	WEIGHT (LB.)	COMMENTS
TEF 1	LOREN-COOK 245 CPA	BELT DRIVE UPBLAST CENTRIFUGAL BLOWER (ARR. 10)	10,000	.250	1426	7.27	460/3/60	7.5	1725	420	PROVIDE FAN MOUNTED SPEED CONTROLLER AND BACKDRAFT DAMPER. MOUNT <N>TEMP. EXHAUST FAN ON REDWOOD SLEEPERS, AND CONNECT VIA <E>VFD TO BE REMOVED UNTIL FAN IS NO LONGER REQUIRED. DISCONNECT PREWIRED L-T NEMA 3R.

AIR SEPARATOR SCHEDULE

MARK	SERVICE	MAKE	MODEL	FLOW (GPM)	WPD (FT)	VOLUME (GAL)	CONN. (IN.)	HT. (IN.)	MOUNTING PROVISION	SHIPPING WT. (LBS.)	FLOODED WT. (LBS)	REMARKS
AS-1	CHILLED WATER	BELL AND GOSSETT	RL-3F	190	1.9	7	3"	26-7/8	IN-LINE	97	173	SEE ALL NOTES

NOTES:
1) AIR SEPARATOR SHALL BE PROVIDED WITH FLANGED CONNECTIONS.
1) AIR SEPARATOR SHALL BE PROVIDED WITHOUT STRAINER.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

SALASO'BRIEN
|expect a difference|
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REGISTERED PROFESSIONAL ENGINEER — CORAL A. CRUZER — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER
RECOM'D
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
EQUIPMENT SCHEDULES

CIP NO. 22-P010

M0.3a
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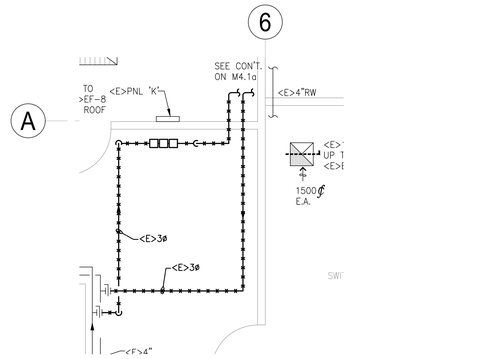
SOBE #2304150.1



2 PARTIAL FIRST FLOOR PLAN-DEMO DETAIL

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

REFERENCE SHEET NOTES

1. REMOVE ALL EXISTING PNEUMATIC CONTROLS SERVING THE FIRST FLOOR VAV BOXES AND REPLACE WITH NEW DDC SYSTEM. PROVIDE VAV DAMPER, HHW VALVE ACTUATORS, AND VAV DDC CONTROLLERS. INTEGRATE THE NEW DDC SYSTEM INTO THE EXISTING SIEMEN'S CONTROL SOFTWARE AT MONITORING STATION.
2. REMOVE AND REPLACE THE <E>HHWS/R CONTROL VALVE ACTUATORS WITH ELECTRIC ACTUATORS AND ON ALL TERMINAL UNITS WITH REHEAT.
3. CONTRACTOR SHALL FIELD VERIFY LOCATION OF <E>ZONE TEMP SENSORS PRIOR TO REMOVAL AS THE LOCATION MAY BE DIFFERENT THAN THOSE SHOWN. PROVIDE <N>ELECTRONIC TEMP SENSORS. TEMP SENSORS IN THE SAME LOCATION OR THE CONTRACTOR MAY RELOCATE TO A LOCATION WHICH IMPROVES THE TEMP FEEDBACK TO THE DDC CONTROLLER. SEE PROJECT SPECS TO FOR ADDITIONAL DETAILS ON TEMP SENSORS. (TYP ALL VAV BOXES)
4. PROVIDE A <N>DIGITAL, CHW, 3-WAY, CONTROL VALVE PER PROJECT SPECS IN THE CHW LOOP SERVING <E>AHU-2. VALVE MUST ENSURE THERE IS ALWAYS MIN. FLOW AT THE UNIT. PROVIDE DIFFERENTIAL PRESSURE MONITORING STATION ACROSS THE CHWS/R PIPING SEE DETAILS 28/M5.2a & 1/M7.1a.

GENERAL SHEET NOTES

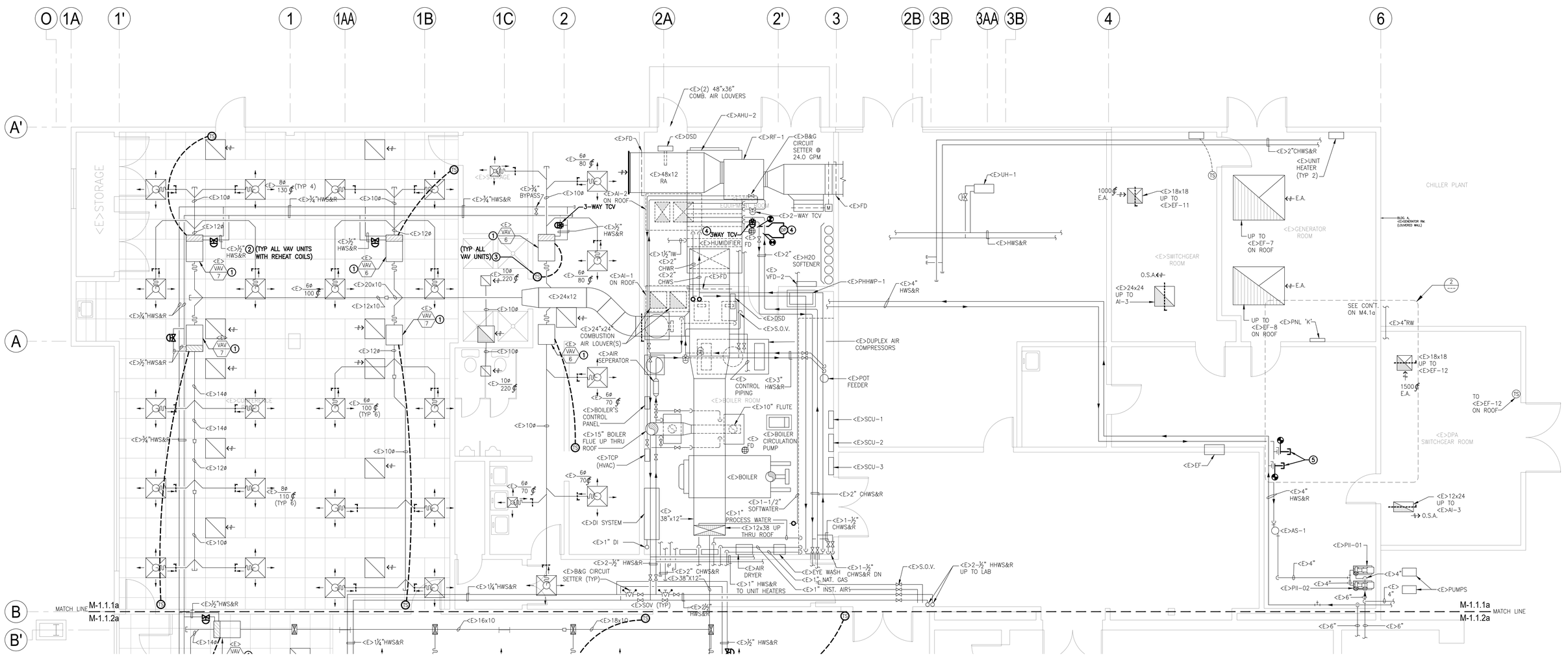
A. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED (UON).

B. THIS CONTRACT REQUIRES THAT THE MAIN LAB ON THE SECOND FLOOR OF BLDG. A BE OPERATION AT ALL TIMES, FOR THE USE OF LAB PERSONNEL DURING CONSTRUCTION. THIS WILL REQUIRE THE USE OF TEMPORARY EQUIPMENT, DUCTWORK, PIPING AND VALVING TO ACCOMPLISH THIS REQUIREMENT. SEE SUGGESTED SEQUENCE OF CONSTRUCTION ON SHEET M0.1a.

C. ALL HVAC COMPONENTS SERVING OFFICE SPACES SHALL HAVE PNEUMATIC CONTROLS REMOVED AND REPLACED WITH SIEMENS DDC CONTROLS AND INTEGRATED INTO THE BUILDING'S EXISTING SIEMENS DDC SYSTEM AS A PART OF THIS PROJECT.

D. CONSTRUCTION OF THIS PROJECT SHALL BE DONE IN PHASES AND WILL REQUIRE COORDINATION WITH THE OWNER AND CONTRACTOR(S) TO MINIMIZE LAB SHUTDOWNS. REFER TO CONSTRUCTION SEQUENCE ON SHEET M0.1a.

E. THE ONSITE CONTRACTORS WHO PERFORM WORK OF THIS CONTRACT SHALL DEVELOP AND MAINTAIN A FALL PROTECTION PLAN FOR THE UPPER AND LOWER ROOF WORK OF THIS CONTRACT. THE PLAN SHALL COMPLY WITH OSHA STANDARD 29 CFR 1926.502(K) FALL PROTECTION SYSTEM CRITERIA AND PRACTICES.



1 BUILDING A PARTIAL FIRST FLOOR PLAN

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

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN		REVIEW	
DRAWN BY	–	PLNNG./DEVL.	
DESIGN BY	–	FIELD OPS.	
CHECKED BY	CC	WWTP OPS.	
PROJ. MGR.	–	MECH./MAINT.	
RECOM'D	DSRSD PRINCIPAL ENGINEER	ELECT./INSTR.	
		SCALE: AS NOTED	DATE: 12/09/2025

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REGISTERED PROFESSIONAL ENGINEER
CARL A. CRITCHFIELD
No. M36859
MECHANICAL
STATE OF CALIFORNIA

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
BUILDING A PARTIAL FIRST FLOOR PLAN

CIP NO. 22-P010

M1.1.1a
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SOBE #2304150.1

REFERENCE SHEET NOTES

1. REMOVE ALL EXISTING PNEUMATIC CONTROLS SERVING THE FIRST FLOOR VAV BOXES AND REPLACE WITH NEW DDC SYSTEM. PROVIDE VAV DAMPER, HHW VALVE ACTUATORS, AND VAV DDC CONTROLLERS. INTEGRATE THE NEW DDC SYSTEM INTO THE EXISTING SIEMEN'S CONTROL SOFTWARE AT MONITORING STATION.
2. REMOVE AND REPLACE THE <E>HHWS/R CONTROL VALVE ACTUATORS WITH ELECTRIC ACTUATORS AND ON ALL TERMINAL UNITS WITH REHEAT.
3. CONTRACTOR SHALL FIELD VERIFY LOCATION OF <E>ZONE TEMP SENSORS PRIOR TO REMOVAL AS THE LOCATION MAY BE DIFFERENT THAN THOSE SHOWN. PROVIDE <N>ELECTRONIC TEMP SENSORS. TEMP SENSORS IN THE SAME LOCATION OR THE CONTRACTOR MAY RELOCATE TO A LOCATION WHICH IMPROVES THE TEMP FEEDBACK TO THE DDC CONTROLLER. SEE PROJECT SPECS TO FOR ADDITIONAL DETAILS ON TEMP SENSORS. (TYP ALL VAV TERMINAL UNITS)

GENERAL SHEET NOTES

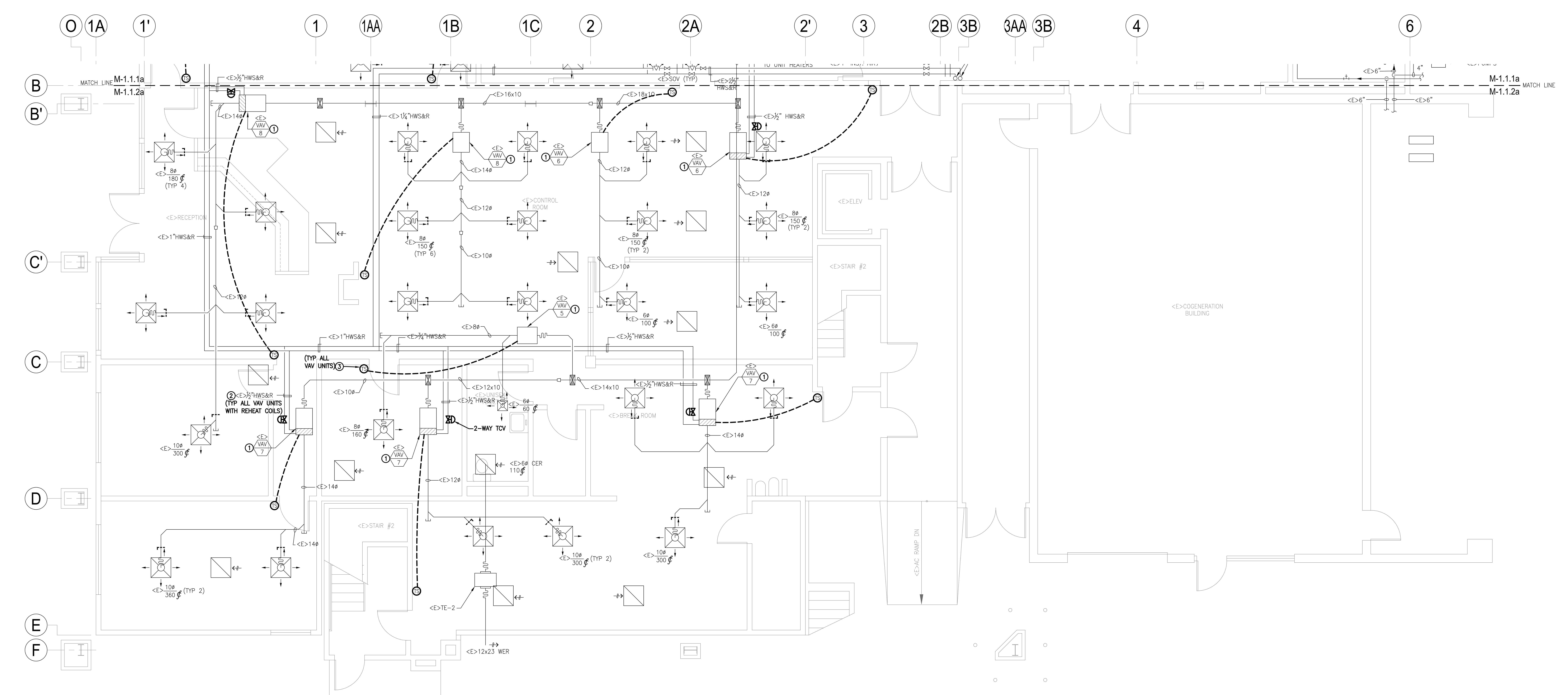
A. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED (UON).

B. THIS CONTRACT REQUIRES THAT THE MAIN LAB ON THE SECOND FLOOR OF BLDG. A BE OPERATION AT ALL TIMES, FOR THE USE OF LAB PERSONNEL DURING CONSTRUCTION. THIS WILL REQUIRE THE USE OF TEMPORARY EQUIPMENT, DUCTWORK, PIPING AND VALVING TO ACCOMPLISH THIS REQUIREMENT. SEE SUGGESTED SEQUENCE OF CONSTRUCTION ON SHEET M0.1a.

C. ALL HVAC COMPONENTS SERVING OFFICE SPACES SHALL HAVE PNEUMATIC CONTROLS REMOVED AND REPLACED WITH SIEMENS DDC CONTROLS AND INTEGRATED INTO THE BUILDING'S EXISTING SIEMENS DDC SYSTEM AS A PART OF THIS PROJECT.

D. CONSTRUCTION OF THIS PROJECT SHALL BE DONE IN PHASES AND WILL REQUIRE COORDINATION WITH THE OWNER AND CONTRACTOR(S) TO MINIMIZE LAB SHUTDOWNS. REFER TO CONSTRUCTION SEQUENCE ON SHEET M0.1a.

E. THE ONSITE CONTRACTORS WHO PERFORM WORK OF THIS CONTRACT SHALL DEVELOP AND MAINTAIN A FALL PROTECTION PLAN FOR THE UPPER AND LOWER ROOF WORK OF THIS CONTRACT. THE PLAN SHALL COMPLY WITH OSHA STANDARD 29 CFR 1926.502(K) FALL PROTECTION SYSTEM CRITERIA AND PRACTICES.

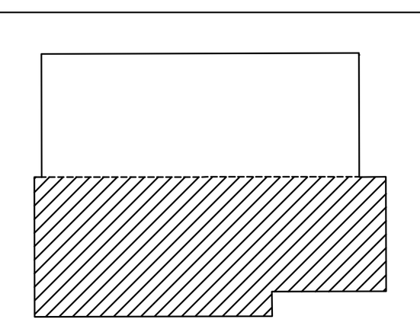


1 **BUILDING A PARTIAL FIRST FLOOR PLAN**
SCALE: 1/4" = 1' - 0"

0 4' 8'

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

KEY PLAN



BUILDING A

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REGISTERED PROFESSIONAL ENGINEER
CARL A. CRIZER
No. M35859
MECHANICAL
STATE OF CALIFORNIA

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	DESIGN BY	–
	CHECKED BY	CC
RECOM'D	PROJ. MGR.	–
	DSRSD PRINCIPAL ENGINEER	

REVIEW	PLNNG./DEVL.
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SCALE: AS NOTED
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DUBLIN SAN RAMON SERVICES DISTRICT
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WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
BUILDING A PARTIAL FIRST FLOOR PLAN

CIP NO. 22-P010

M1.1.2a

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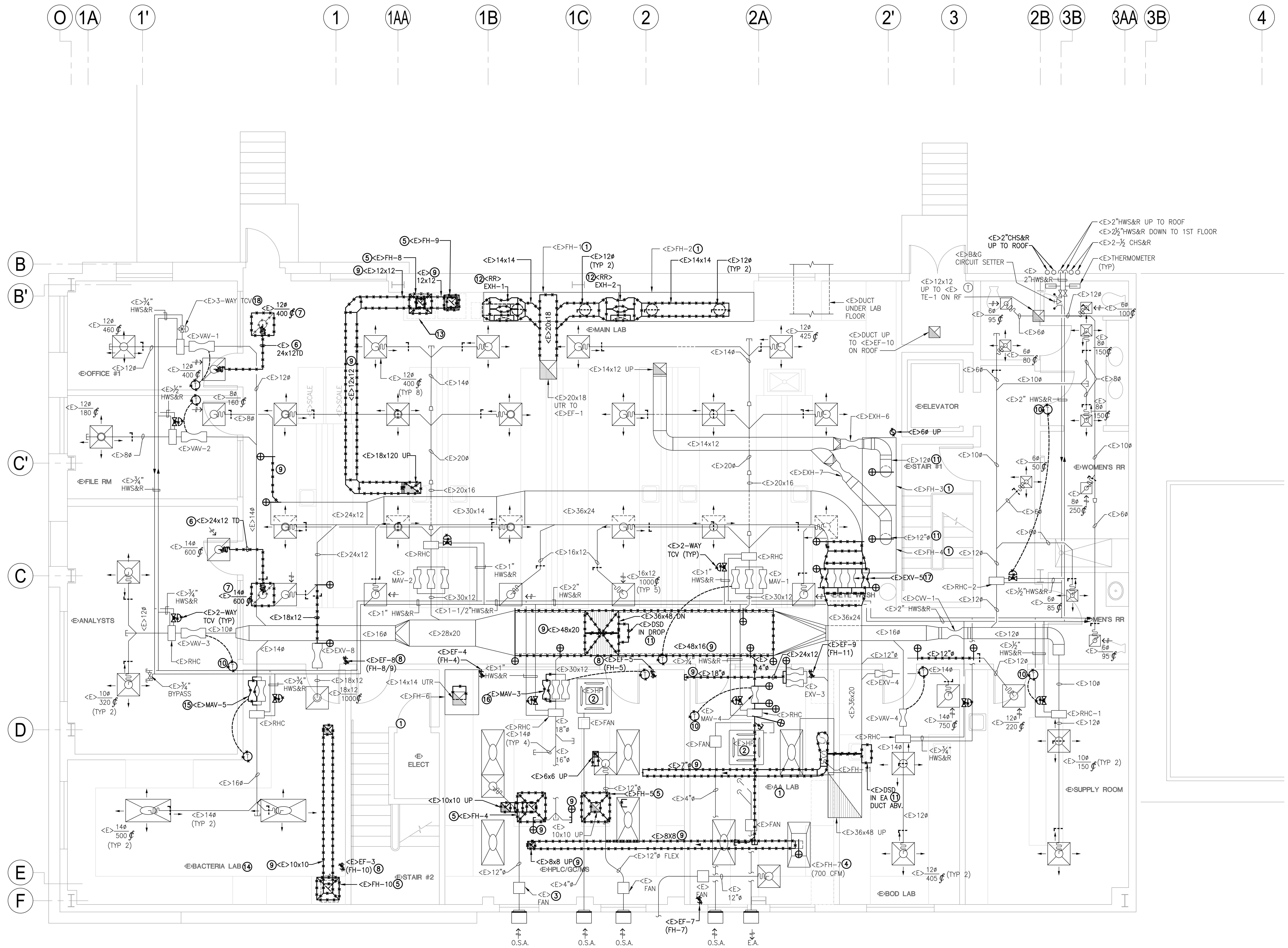

1 BUILDING A SECOND FLOOR PLAN - DEMO
SCALE: 1/4" = 1' - 0"

GENERAL SHEET NOTES

A. ALL EXISTING HVAC EQUIPMENT UTILIZING PNEUMATIC CONTROLS SHALL HAVE PNEUMATIC CONTROLS DEMOLISHED. NEW SIEMENS DDC CONTROLS COMPONENTS SHALL BE PROVIDED IN PLACE OF PNEUMATIC CONTROLS AND SHALL BE TIED INTO THE BUILDING'S EXISTING SIEMENS CONTROLS SYSTEM. HVAC EQUIPMENT AFFECTED BY THIS IS PRIMARILY THE EXISTING PHOENIX VALVES, THERMOSTATS, MAKE-UP AIR VALVES AND EXHAUST AIR VALVES.

B. CHEMICAL FUME HOODS FH-1, 2, 3, 4, 6, 11 SHALL BE DEMOLISHED AND REPLACED AS A PART OF THIS PROJECT. FH-3 & FH-4 EA DUCTWORK CAN BE REUSED WITH THE NOTED CHANGES. FUME HOODS FH-1, FH-2, FH-6, FH-11 EA DUCTWORK WILL BE REMOVED AND REPLACED WITH NEW.

C. EXISTING MAKE-UP AIR VALVES TO REMAIN ARE TO BE RETROFIT WITH NEW SIEMENS DDC CONTROLS AS STATED IN NOTE A, ABOVE. A PART OF THE RETROFIT OF THE MAKE-UP AIR VALVES INCLUDES REMOVING THE EXISTING PNEUMATIC CONTROLS FROM THE HEATING HOT WATER REHEAT VALVES AND UPGRADING THE CONTROLS OF THE HHW REHEAT VALVES TO SIEMENS DDC.

D. THE ONSITE CONTRACTORS WHO PERFORM WORK OF THIS CONTRACT SHALL DEVELOP AND MAINTAIN A FALL PROTECTION PLAN FOR THE UPPER AND LOWER ROOF WORK OF THIS CONTRACT. THE PLAN SHALL COMPLY WITH OSHA STANDARD 29 CFR 1926.502(K) FALL PROTECTION SYSTEM CRITERIA AND PRACTICES.

E. THE CONTRACTOR SHALL PROVIDE REPAIR OF THE <E>ROOF ONCE ALL THE <E>EQUIPMENT AND SUPPORTS HAVE BEEN REMOVED. THE ROOFING CONTRACTOR MUST BE PRE-APPROVED BY THE OWNER PRIOR TO BEGINNING WORK ON THE REPAIRS.

(#) REFERENCE SHEET NOTES

1. RETAIN <E> AIR VALVE BODIES IF THEY EXIST OR ADD NEW AS SHOWN ON PLANS, DEMO <E> FUME HOOD CONTROLS, PROVIDE NEW DDC CONTROLS FOR ALL HOODS.
2. <E>HEAT PUMP TO REMAIN FOR REUSE. PROTECT IN PLACE DURING CONSTRUCTION. (TYP 2)
3. <E>INLINE SUPPLY FAN TO REMAIN FOR REUSE. PROTECT IN PLACE DURING CONSTRUCTION, (TYP 4)
4. <E>INLINE EXHAUST FAN TO REMAIN FOR REUSE. PROTECT IN PLACE DURING CONSTRUCTION,
5. DEMO CANOPY HOOD AND ALL STRUCTURAL SUPPORTS AND DUCTWORK.
6. DEMO <E>TRANSFER DUCT AND SUPPORTS ABOVE CEILING. (TYP)
7. DEMO <E>CEILING GRILLE, AND REPLACE WITH MATCHING CEILING TILE.
8. WALL MOUNTED ON/OFF SWITCH SHALL BE REMOVED, DEMO WIRE AND CONDUIT BACK TO POINT OF ORIGIN. (TYP ALL CANOPY HOOD SWITCHES)
9. DEMO <E>DUCT AND SUPPORTS TO POD. (TYP)
10. DEMO <E>THERMOSTAT, CONDUIT AND WIRING. (TYP ALL T-STATS)
11. DEMO DUCT SMOKE DETECTOR, PATCH AND REPAIR DUCT A/R. (TYP 2)
12. REMOVE AND RELOCATE THE <E>AIR VALVES; PROTECT DURING CONSTRUCTION. (TYP 2) SEE SHEET M1.2a.
13. <E>HEAT PRODUCING OVEN, TO REMAIN FOR REUSE. PROTECT IN PLACE DURING CONSTRUCTION. (TYP 3)
14. THE BACTERIA LAB REQUIRES A TEMPORARY AIRLOCK AND AIR FILTRATION TO MINIMIZE CONTAMINATION DURING CONSTRUCTION. THE CONTRACTOR SHALL PRESENT A SHOP DRAWING SHOWING THE INTENDED AIRLOCK LAYOUT AND CONSTRUCTION, PRIOR TO IMPLEMENTATION. THE OWNER SHALL PROVIDE THE FILTRATION REQUIREMENTS. THIS SHALL BE DONE PRIOR TO THE START OF DEMOLITION ON THE SECOND FLOOR.
15. MODIFY <E>MAV-5 TO REMOVE ONE VALVE BODY DUE TO REDUCED AIR FLOW. SEE M1.2a, M7.3a & M7.4a FOR ADDITIONAL INFORMATION.
16. MODIFY <E>MAV-3 TO REMOVE ONE VALVE BODY DUE TO REDUCED AIR FLOW. SEE M1.2a, M7.3a & M7.4a FOR ADDITIONAL INFORMATION.
17. MODIFY <E>EXV-5 TO REMOVE ONE VALVE BODY DUE TO REDUCED AIR FLOW. SEE M1.2a, M7.3a & M7.4a FOR ADDITIONAL INFORMATION.
18. REPLACE EXISTING PNEUMATIC HHW CONTROL VALVE ACTUATORS AND DDC CONTROL OF ACTUATORS. ALL HHW VALVES TYPICAL.

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DESIGN	
DRAWN BY	-
DESIGN BY	-
CHECKED BY	CC
PROJ. MGR.	-

RECOM'D — DSRSD PRINCIPAL ENGINEER

REVIEW
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DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
BUILDING A SECOND FLOOR PLAN - DEMO

CIP NO. 22-P010

MD1.2a

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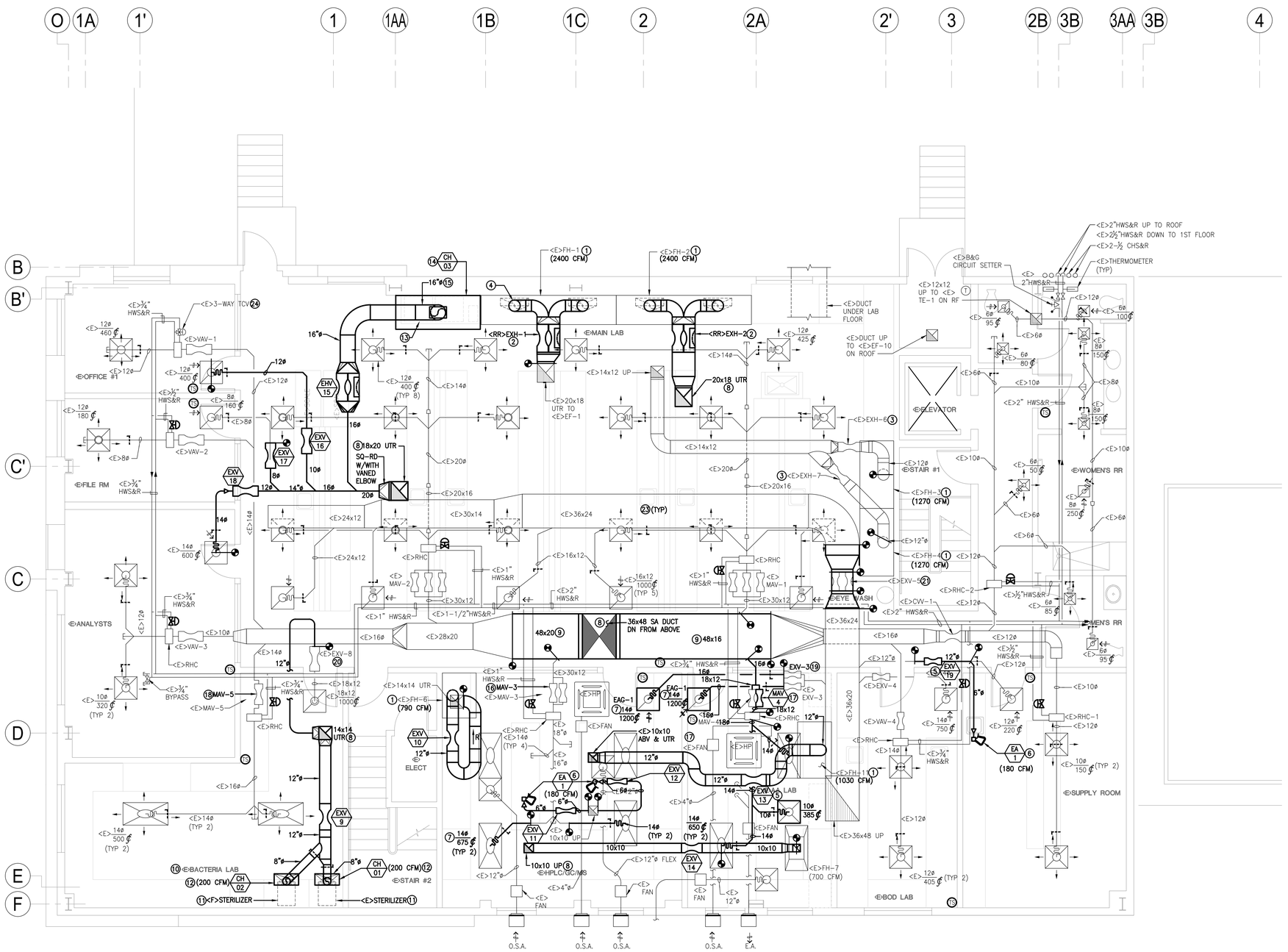

1 BUILDING A SECOND FLOOR PLAN - NEW

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

0 4' 8'

GENERAL SHEET NOTES

A. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED (UON).

B. THIS CONTRACT REQUIRES THAT THE MAIN LAB ON THE SECOND FLOOR OF BLDG. A BE OPERATION AT ALL TIMES, FOR THE USE OF LAB PERSONNEL DURING CONSTRUCTION. THIS WILL REQUIRE THE USE OF TEMPORARY EQUIPMENT, DUCTWORK, PIPING AND VALVING TO ACCOMPLISH THIS REQUIREMENT. SEE SUGGESTED SEQUENCE OF CONSTRUCTION ON SHEET M0.1a.

C. ALL HVAC COMPONENTS SERVING OFFICE SPACES SHALL HAVE PNEUMATIC CONTROLS REMOVED AND REPLACED WITH SIEMENS DDC CONTROLS AND INTEGRATED INTO THE BUILDING'S EXISTING SIEMENS DDC SYSTEM AS A PART OF THIS PROJECT.

D. CONSTRUCTION OF THIS PROJECT SHALL BE DONE IN PHASES AND WILL REQUIRE COORDINATION WITH THE OWNER AND CONTRACTOR(S) TO MINIMIZE LAB SHUTDOWNS. REFER TO CONSTRUCTION SEQUENCE ON SHEET M0.1a.

E. THE ONSITE CONTRACTORS WHO PERFORM WORK OF THIS CONTRACT SHALL DEVELOP AND MAINTAIN A FALL PROTECTION PLAN FOR THE UPPER AND LOWER ROOF WORK OF THIS CONTRACT. THE PLAN SHALL COMPLY WITH OSHA STANDARD 29 CFR 1926.502(K) FALL PROTECTION SYSTEM CRITERIA AND PRACTICES.

Ⓡ REFERENCE SHEET NOTES

1. <E>HOOD TO REMAIN IN PLACE.
2. MOUNT RELOCATED AIR CONTROL VALVE AS SHOWN. SUPPORT PER STRUCTURAL DRAWING 6/S5.3a AND MFG.'S DIRECTIONS. (TYP)
3. <E>AIR CONTROL VALVES (EXV, MAV, VAV, CVV) WILL BE RETROFIT WITH NEW CONTROLS AND BE RE-PURPOSED FOR THIS PROJECT. SOME VALVES ALSO REQUIRE MODIFICATION; SEE M7.2a FOR FURTHER INFO. SEE ALSO PROJECT SPECS AND HOOD CONTROLS DRAWING, M7.4a. (TYP)
4. FIELD VERIFY CHEMICAL FUME DUCT CONNECTION SIZE. RUN FULL SIZE DUCT UP TO AIR VALVE TRANSITION. (TYP)
5. PROVIDE <N>EXHAUST AIR VALVE PER SCHEDULE ON M0.3a. SUPPORT PER STRUCTURAL DRAWING 6/S5.3a AND MFG.'S DIRECTIONS. (TYP)
6. PROVIDE EXTRACTION ARM PER SCHEDULE ON M0.3a. MOUNT ABOVE THE CEILING. CONTRACTOR TO SUBMIT SHOP DRAWING OF THE ARM SUPPORT PRIOR TO INSTALLATION. PROVIDE 4"ø DUCT CONNECTION OVER TO MOUNTING BRACKET TO PROVIDE EXHAUST AIR. SUPPORT DUCT PER 9/M5.1a. AND 5/S5.3a FOR ARM SUPPORT. (TYP 3 EXTRACTION ARMS)
7. PROVIDE 24x24 TITUS PAR-AA EXHAUST AIR GRILLES PER M0.3a AND PROVIDE 16"ø BOOT FOR INCOMING DUCT. INSTALL IN T-BAR TYPE CEILING GRID AND SECURE SAME AS <E>AIR DISTRIBUTION. (TYP 2)
8. PROVIDE DUCT RISER UP THROUGH ROOF. SUPPORT DUCT PER M5.1a. SEE MECHANICAL ROOF PLAN FOR MORE INFO AND STRUCTURAL DRAWING SHEET S5.1a. (TYP)
9. PROVIDE NEW MAIN DUCT BRANCHES AND DROP WITH EXTERIOR INSULATION PER PROJECT SPECS. (NO INTERNAL LINING IS PERMITTED). SUPPORT LARGE DUCTS EVERY 8' AND CHANGES IN DIRECTION PER 8/s5.3a. RECONNECT ALL <E>BRANCH LINES & CONNECT <N>BRANCH LINES AIR TIGHT. PREFABRICATE DUCTWORK PRIOR TO INSTALLATION TO MINIMIZE LAB DOWN TIME (TYP). PROVIDE TURNING VANES AT 90° ELBOWS BOTH SIDES.
10. The BACTERIA LAB REQUIRES A TEMPORARY AIRLOCK AND AIR FILTRATION TO MINIMIZE CONTAMINATION DURING CONSTRUCTION. THE CONTRACTOR SHALL PRESENT A SHOP DRAWING SHOWING THE INTENDED AIRLOCK LAYOUT AND CONSTRUCTION, PRIOR TO IMPLEMENTATION. THE OWNER SHALL PROVIDE THE FILTRATION REQUIREMENTS. THIS SHALL BE DONE PRIOR TO THE START OF DEMOLITION ON THE SECOND FLOOR.
11. OWNER FURNISHED EQUIPMENT SHOWN FOR REFERENCE ONLY. ALIGN CENTERLINE OF HOOD TO CENTERLINE OF AUTOCLAVE. HOOD SHALL BE CENTERED DIRECTLY OVER THE DOOR OPENING TO THE CHAMBER. (TYP 2)
12. PROVIDE 26"X12" 18 GA, 304 S.S. CAPTURE HOODS, CH-01 & CH-02, WITH AN 8" DUCT COLLAR & ROLLED EDGES. FINISH: #4 BRIGHT-POLISHED. SUBMIT SHOP DRAWING FOR HOOD SUPPORT. CONNECT 8"ø EXHAUST DUCT TO HOODS AIR TIGHT; SUPPORT DUCT PER 9/M5.1a. SEE ELEVATION DETAIL 29/M5.2A. BALANCE EACH HOOD TO 200 CFM. (TYP 2)
13. <E>HEAT PRODUCING OVENS TO REMAIN FOR REUSE. PROTECT IN PLACE DURING CONSTRUCTION. (TYP 3)
14. PROVIDE 90"X36" 18 GA, 304 S.S., CAPTURE HOOD, CH-03, WITH 18X12 DUCT COLLAR & ROLLED EDGES. FINISH: #4 BRIGHT-POLISHED. PROVIDE SHOP DRAWING FOR HOOD SUPPORT. FRAME CEILING AROUND HOOD AND SEAL SEE ELEVATION DETAIL 30/M5.2A AND SEE 9/S5.5a FOR HOOD SUPPORT. BALANCE HOOD TO 1300 CFM.
15. PROVIDE 16"ø EXHAUST DUCT ABOVE HOOD WITH A LONG RADIUS ELBOW AND SQ-RD TRANSITION DN TO THE 18X12 OPENING IN THE HOOD. CONNECT TO HOOD AND SEAL AIR TIGHT. SUPPORT DUCT PER 9/M5.1a.
16. <E>MAV-3 SHALL BE MODIFIED TO REMOVE A VALVE BODY DUE TO REDUCED AIR FLOW. PROVIDE TRANSITIONS IN & OUT OF THE MODIFIED VALVE. SEE ALSO M7.3a.
17. <E>MAV-4 AND MAV-4 (PER SCHEDULE ON M0.3a) SHALL BE TWINNED TO PROVIDE THE INCREASED AIR FLOW. PROVIDE TRANSITIONS IN & OUT OF THE MODIFIED VALVE. SEE ALSO M7.3a. SUPPORT VALVE PER S5.3a AND MFG.'S DIRECTIONS.
18. <E>MAV-5 SHALL BE MODIFIED TO ELIMINATE A VALVE BODY DUE TO REDUCED AIR FLOW. PROVIDE TRANSITIONS IN & OUT OF THE MODIFIED VALVE. SEE ALSO M7.3a.
19. <E>EXV-3 SHALL BE SEPARATED INTO TWO VALVES EACH WITH ITS OWN CONTROLS. PROVIDE SUPPORTS FOR EACH VALVE TO MATCH EXISTING. PROVIDE SMOOTH TRANSITIONS IN & OUT OF EACH OF THE SEPARATE VALVES. SEE ALSO M7.3a.
20. <E>EXV-8 COULD NOT BE VERIFIED AND MAY NOT EXIST. THE CONTRACTOR SHALL ATTEMPT TO LOCATE THE VALVE AND IF UNABLE TO SHALL PROVIDE A NEW VALVE, MATCH PERFORMANCE TO ORIGINAL SCHEDULE ON M0.2a. PROVIDE SMOOTH TRANSITIONS IN & OUT OF VALVE BODY. SEE ALSO M7.3a. SUPPORT VALVE PER S5.3a.
21. <E>EXV-5 SHALL BE MODIFIED TO REMOVE TWO (2) VALVE BODIES DUE TO REDUCED AIR FLOW. PROVIDE NEW TRANSITIONS INTO AND OUT OF THE VALVE. SEE ALSO M7.3a.
22. NOT USED.
23. CLEAN ALL <E>DUCTWORK PER SPECIFICATIONS.
24. PROVIDE ELECTRIC ACTUATORS AND DDC CONTROL OF EXISTING HHW CONTROL VALVES, TYPICAL ALL HHW CONTROL VALVES.

KEY PLAN

BUILDING A

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REGISTERED PROFESSIONAL ENGINEER — CARL A. CRITZER — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

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WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
BUILDING A SECOND FLOOR PLAN - NEW

M1.2a
10 66

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SOBE #2304150.1

GENERAL SHEET NOTES

A. ALL EXISTING HVAC EQUIPMENT UTILIZING PNEUMATIC CONTROLS SHALL HAVE PNEUMATIC CONTROLS DEMOLISHED. NEW SIEMENS DDC CONTROLS COMPONENTS SHALL BE PROVIDED IN PLACE OF PNEUMATIC CONTROLS AND SHALL BE TIED INTO THE BUILDING'S EXISTING SIEMENS CONTROLS SYSTEM. HVAC EQUIPMENT AFFECTED BY THIS IS PRIMARILY THE EXISTING PHOENIX VALVES, THERMOSTATS, MAKE-UP AIR VALVES AND EXHAUST AIR VALVES.

B. CHEMICAL FUME HOODS FH-1, 2, 3, 4, 6, 11 SHALL BE DEMOLISHED AND REPLACED AS A PART OF THIS PROJECT. FH-3 & FH-4 EA DUCTWORK CAN BE REUSED WITH THE NOTED CHANGES. FUME HOODS FH-1, FH-2, FH-6, FH-11 EA DUCTWORK WILL BE REMOVED AND REPLACED WITH NEW.

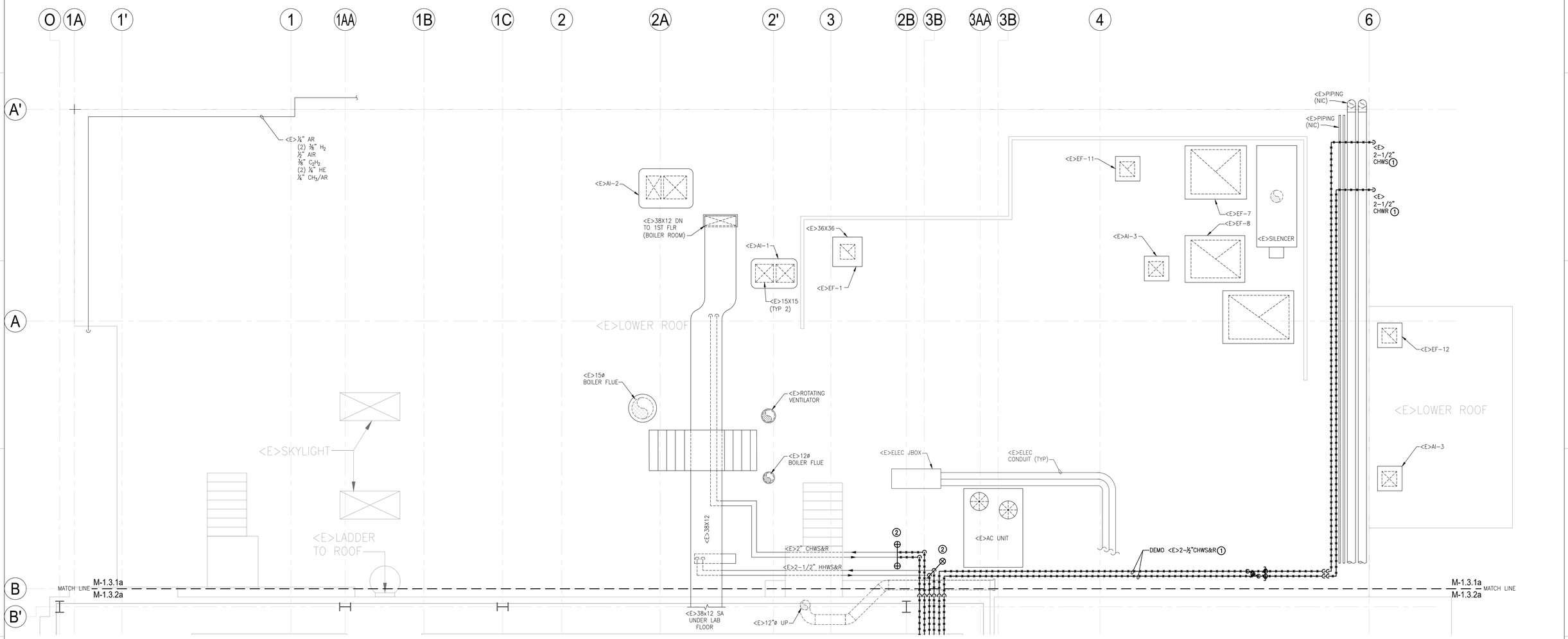
C. EXISTING MAKE-UP AIR VALVES TO REMAIN ARE TO BE RETROFIT WITH NEW SIEMENS DDC CONTROLS AS STATED IN NOTE A, ABOVE. A PART OF THE RETROFIT OF THE MAKE-UP AIR VALVES INCLUDES REMOVING THE EXISTING PNEUMATIC CONTROLS FROM THE HEATING HOT WATER REHEAT VALVES AND UPGRADING THE CONTROLS OF THE HHW REHEAT VALVES TO SIEMENS DDC.

D. THE ONSITE CONTRACTORS WHO PERFORM WORK OF THIS CONTRACT SHALL DEVELOP AND MAINTAIN A FALL PROTECTION PLAN FOR THE UPPER AND LOWER ROOF WORK OF THIS CONTRACT. THE PLAN SHALL COMPLY WITH OSHA STANDARD 29 CFR 1926.502(K) FALL PROTECTION SYSTEM CRITERIA AND PRACTICES.

E. THE CONTRACTOR SHALL PROVIDE REPAIR OF THE <E>ROOF ONCE ALL THE <E>EQUIPMENT AND SUPPORTS HAVE BEEN REMOVED. THE ROOFING CONTRACTOR MUST BE PRE-APPROVED BY THE OWNER PRIOR TO BEGINNING WORK ON THE REPAIRS.

REFERENCE SHEET NOTES

1. DEMO <E>CHW PIPING FROM POD TO POD. <E>PIPE SUPPORTS TO REMAIN FOR REUSE. (TYP)
2. DEMO <E>CHW PIPING TO <E>AHU-2. (TYP)



1 BUILDING A PARTIAL ROOF PLAN - DEMO

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

0 4' 8'

N

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN		RECOM'D		REVIEW	
DRAWN BY	–			PLNNG./DEVL.	
DESIGN BY	–			FIELD OPS.	
CHECKED BY	CC			WWTP OPS.	
PROJ. MGR.	–			MECH./MAINT.	
DSRSD PRINCIPAL ENGINEER				ELECT./INSTR.	
				SCALE: AS NOTED	DATE: 12/09/2025

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REGISTERED PROFESSIONAL ENGINEER — CARL A. CRITZER — No. M36859 — MECHANICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

CIP NO. 22-P010

WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
PARTIAL ROOF PLAN - DEMO

MD1.3.1a
11 | 66

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SOBE #2304150.1

GENERAL SHEET NOTES

A. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED (UON).

B. THIS CONTRACT REQUIRES THAT THE MAIN LAB ON THE SECOND FLOOR OF BLDG. A BE OPERATION AT ALL TIMES, FOR THE USE OF LAB PERSONNEL DURING CONSTRUCTION. THIS WILL REQUIRE THE USE OF TEMPORARY EQUIPMENT, DUCTWORK, PIPING AND VALVING TO ACCOMPLISH THIS REQUIREMENT. SEE SUGGESTED SEQUENCE OF CONSTRUCTION ON SHEET M0.1a.

C. ALL HVAC COMPONENTS SERVING OFFICE SPACES SHALL HAVE PNEUMATIC CONTROLS REMOVED AND REPLACED WITH SIEMENS DDC CONTROLS AND INTEGRATED INTO THE BUILDING'S EXISTING SIEMENS DDC SYSTEM AS A PART OF THIS PROJECT.

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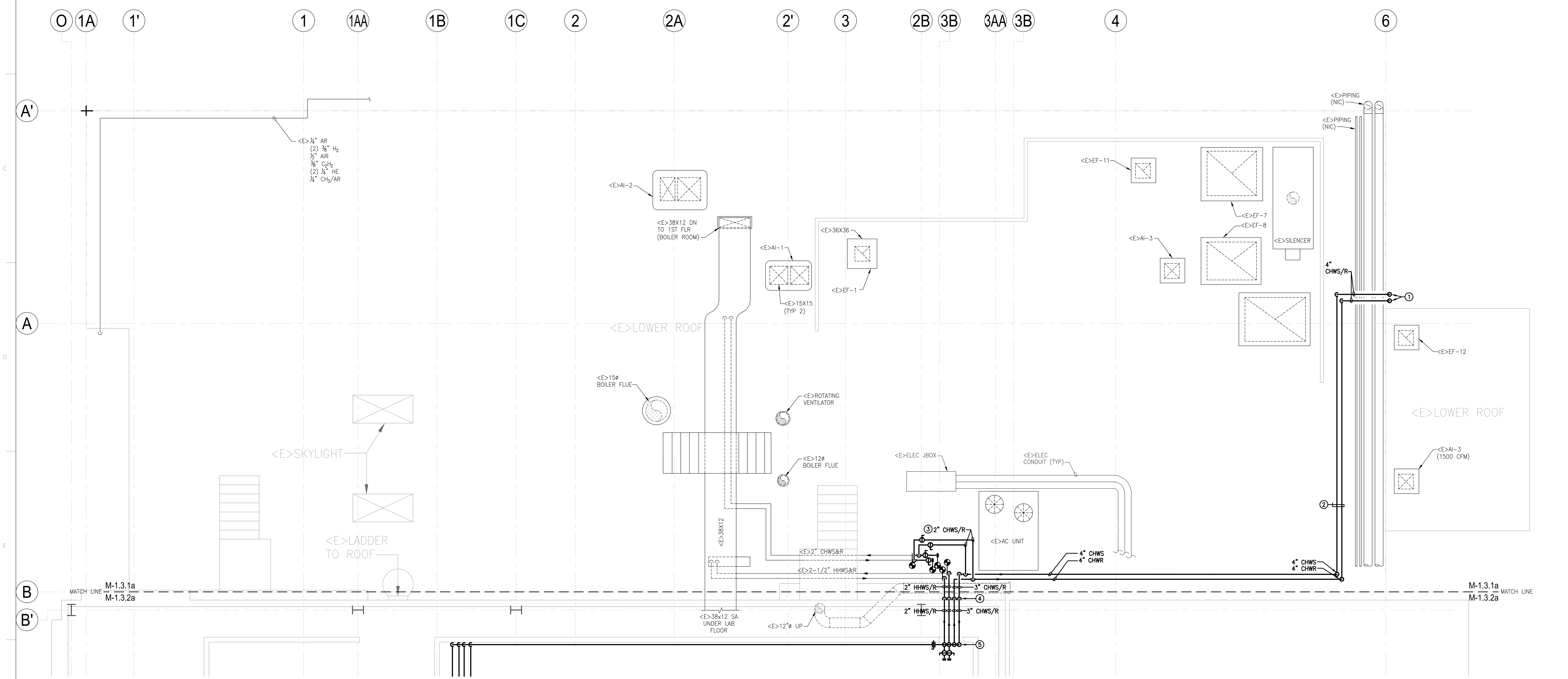
(#) REFERENCE SHEET NOTES

1. HYDRONIC CHILLED WATER PIPING UP FROM CHILLED WATER PLANT SEE M4.1A
2. SUPPORT ROOF MOUNTED PIPING PER DETAIL 3/M5.1A.
3. CONNECT NEW CHILLED WATER LINES FROM CENTRAL PLAN INTO EXISTING CHW LINES PROVIDE SHOP DRAWING OF PROPOSED CONFIGURATION.
4. HYDRONIC WATER PIPING UP ON WALL TO HIGH ROOF ABOVE. SEE STRUCTURAL DETAIL 5/S5.5A FOR ATTACHMENTS.
5. HYDRONIC WATER PIPING ON INSIDE OF SCREENWALL. SEE DETAIL 27/M5.2A AND STRUCTURAL DETAIL 7/S5.2A FOR ATTACHMENT.



1 BUILDING A PARTIAL ROOF PLAN - NEW
SCALE: 1/4" = 1' - 0"

0 4' 8'

N

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DESIGN	DRAWN BY	-	
	DESIGN BY	-	
	CHECKED BY	CC	
RECOM'D	PROJ. MGR.	-	
	DSRSD PRINCIPAL ENGINEER		

REVIEW	PLNNG./DEVL.
	FIELD OPS.
	WWTP OPS.
	MECH./MAINT.
	ELECT./INSTR.
SCALE: AS NOTED	DATE: 12/09/2025

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WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
PARTIAL ROOF PLAN - NEW

CIP NO. 22-P010

M1.3.1a

GENERAL SHEET NOTES

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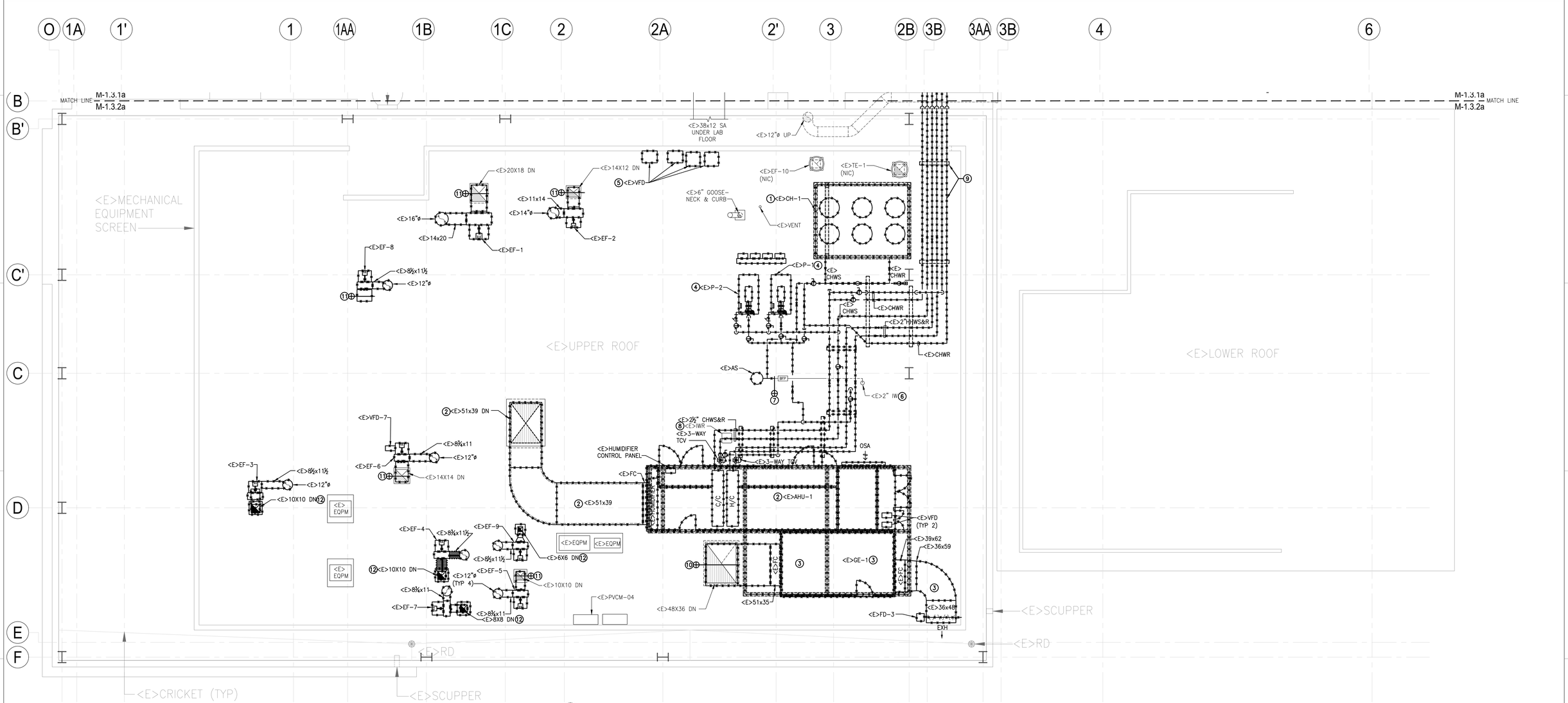
REFERENCE SHEET NOTES

1. DEMO <E>AIR COOLED CHILLER AND SUPPORT STRUCTURE.
2. DEMO <E>AIR HANDLING UNIT AND SUPPORT STRUCTURE.
3. DEMO <E>GENERAL EXHAUST, INCLUDING THE ASSOCIATED DUCTWORK AND SUPPORT STRUCTURE.
4. DEMO <E>CHW PUMPS, INCLUDING SUPPORTS AND ASSOCIATED DISCONNECTS ETC.
5. DEMO <E>VFD FOR EXHAUST FANS BEING REMOVED. SEE ALSO ELECTRICAL PLANS FOR TEMPORARY SUPPORT DURING CONSTRUCTION. (TYP)
6. <E>2" IW IS TO REMAIN FOR REUSE.
7. DEMO <E>2" IW AFTER <E>BFP FOR REUSE. CLEAN AND TEST BFP TO VERIFY IT'S FUNTION. REPLACE IF NECESSARY.
8. <E>IWR TO REMAIN FOR REUSE. CLEAN AND PROVIDE NEW GRATE.
9. DEMO <E>CHW & HHW PIPING INCLUDING SUPPORTS. (TYP)
10. DEMO <E>EXHAUST DUCT RISER AT 24" ABV THE ROOF LEVEL; CURB AROUND PENETRATION SHALL REMAIN FOR REUSE. DO NOT DISTURB.
11. <E>DUCT THRU ROOF AND CURB IS TO BE REUSED. CUT VERTICAL DUCT AS HIGH AS POSSIBLE ABV ROOF AND DO NOT DISTURB <E>CURB. (TYP)
12. DEMO <E>EXHAUST DUCT AND CURB; PROTECT OPENING UNTIL NEW WORK IS COMPLETE. (TYP)



1 BUILDING A PARTIAL ROOF PLAN - DEMO

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

KEY PLAN

BUILDING A

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REGISTERED PROFESSIONAL ENGINEER — CARL A. CRITCHFIELD — No. M36859 — MECHANICAL — STATE OF CALIFORNIA

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LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D / REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

CIP NO. 22-P010

WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
PARTIAL ROOF PLAN - DEMO

MD1.3.2a
13 | 66

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SOBE #2304150.1

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A. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED (UON).

B. THIS CONTRACT REQUIRES THAT THE MAIN LAB ON THE SECOND FLOOR OF BLDG. A BE OPERATION AT ALL TIMES, FOR THE USE OF LAB PERSONNEL DURING CONSTRUCTION. THIS WILL REQUIRE THE USE OF TEMPORARY EQUIPMENT, DUCTWORK, PIPING AND VALVING TO ACCOMPLISH THIS REQUIREMENT. SEE SUGGESTED SEQUENCE OF CONSTRUCTION ON SHEET M0.1a.

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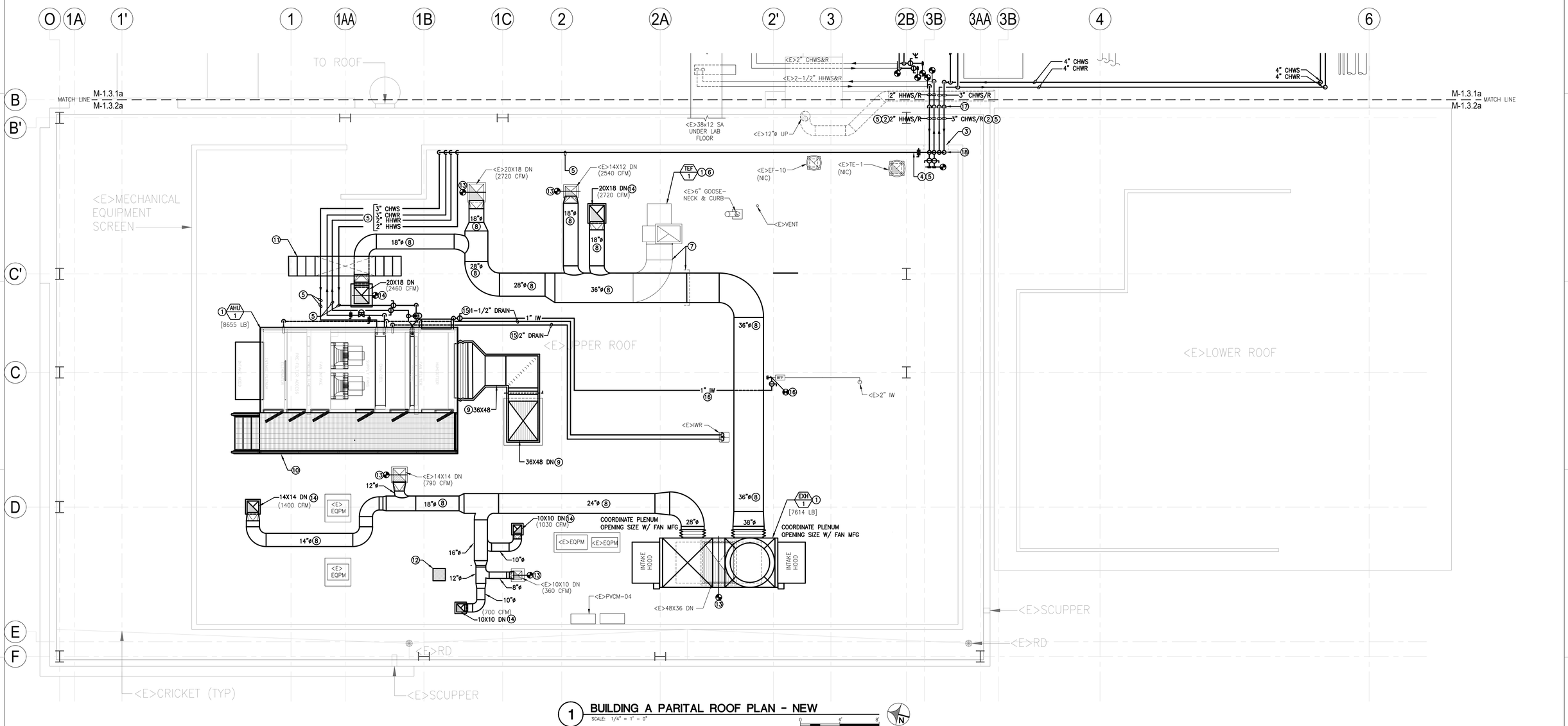
REFERENCE SHEET NOTES

1. PROVIDE THE MECHANICAL EQUIPMENT IDENTIFIED PER SCHEDULE SHEET M0.2a OR M0.3a. (TYP)
2. PROVIDE CROSS-OVER PIPING WITH SOV(S) BETWEEN <E>CHW/HHW PIPING AND <N>CHW/HHW PIPING. <E>AHU-1 MUST BE KEPT OPERATIONAL UNTIL <N>AHU-1 IS INSTALLED AND PROVEN.
3. PROVIDE MODIFICATION TO <E>MECHANICAL SCREEN TO ALLOW THE CHW & HHW TO PASS THRU AT 18" ABOVE THE ROOF.
4. PROVIDE BRANCH LINES MOUNTED VERTICALLY ON INSIDE OF SCREEN WALL. TOP TO BOTTOM PIPING ORDER: 3" CHWS, 3" CHWR, 2"HHWR & 2" HHWS.
5. PROVIDE NEW CHW & HHW PIPING PER PROJECT SPECS AND SUPPORT AT 18" ABOVE THE ROOF UON. SEE 31/M5.2A FOR CHW COIL PIPING AND 32/M5.2A FOR HHW COIL PIPING.
6. PROVIDE TEMPORARY EXHAUST FAN TO SERVE THE MAIN LAB EQUIPMENT DURING CONSTRUCTION. (FH-1, FH-2, FH-3, FH-4, AND CAPTURE HOOD CH-03. SUBMIT SHOP DRAWING AND FAN PERFORMANCE FOR REVIEW. COORDINATE WITH ELECTRICAL FOR POWER.
7. PROVIDE TEMP. ELBOW & CAP ON EXHAUST DUCTWORK TO FACILITATE USE OF THE MAIN LAB PRIOR TO INSTALLATION AND PROVING OF EXH-1 STROBIC EXHAUST ASSEMBLY.
8. PROVIDE EXHAUST DUCTWORK 18" ABOVE THE ROOF AND OVER TO EXH-1. USE <E>ROOF PENETRATIONS, EXCEPT WHERE INDICATED. SEE M5.1a FOR ROOF DUCT SUPPORTS. SSD FOR ENLARGED ROOF OPENINGS (TYP). TRANSITION FROM DUCT SIZE TO EF-1 PLENUM SIZE COORDINATE W/MFG.
9. PROVIDE DOUBLE WALL SUPPLY DUCTWORK PER PROJECT SPECS OVER TO <E>ROOF PENETRATION AND DOWN TO 2ND FLOOR LAB. SEE PROJECT SPECS FOR DUCTWORK DETAILS. SEE M5.1a FOR ROOF DUCT SUPPORTS.
10. PROVIDE MAINTENANCE PLATFORM WITH GUARD RAILS ALL AROUND. MAINTAIN 42" MIN BETWEEN STAIRS AND SCREEN WALL. SSD

REFERENCE SHEET NOTES

11. PROVIDE AL PRE-FAB WALK-OVER FOR MAINTENANCE PERSONNEL.
12. PROVIDE A S.S. CAP AND SEAL THE UNUSED ROOF OPENING WATER TIGHT. RE-FLASH ROOF OPENING UNDER CAP USING AN OWNER APPROVED ROOFINGCONTRACTOR. (TYP)
13. PROVIDE RECONNECTION OF THE <E>DUCT PENETRATION TO <N>ROOF DUCTWORK (OR EQPM). FLASH <E>PENETRATION WATER TIGHT USING AN OWNER APPROVED ROOFING CONTRACTOR. (TYP)
14. PROVIDE CONNECTION OF <N>ROOF DUCTWORK TO <N>ENLARGED DUCT PENETRATING THROUGH ENLARGED ROOF PENETRATION. SEE STRUCTURAL PLANS FOR ENLARGED OPENING. FLASH <N>PENETRATION & DUCT USING AN OWNER APPROVED ROOFING CONTRACTOR. (TYP)
15. PROVIDE TRAPPED AND VENTED DRAIN LINE WITH CODE REQUIRED SLOPE OVER TO APPROVED INDIRECT WASTE RECEPTOR. TURN DOWN AND DISCHARGE INTO RECEPTOR WITH A 1" AIR GAP BETWEEN THE END OF PIPE AND FLOOD RIM OF THE FIXTURE. SUPPORT PIPE PER M5.1a (TYP)
16. PROVIDE 1" ICW LINE W/APPROVED SOV FROM <E>BFP ON ROOF OVER TO THE HUMIDIFICATION UNIT AT AHU-1. SUPPORT PIPE PER M5.1a. (TYP)
17. HYDRONIC PIPING UP ON WALL TO HIGH ROOF ABOVE. SEE STRUCTURAL DETAIL 5/S5.5a FOR ATTACHMENT.
18. HYDRONIC PIPING ON INSIDE OF SCREENWALL; SEE DETAIL 27/M5.2a AND STRUCTURAL DETAIL 7/S5.2A FOR ATTACHMENT.



1 BUILDING A PARITAL ROOF PLAN - NEW

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

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

KEY PLAN

BUILDING A

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REGISTERED PROFESSIONAL ENGINEER
CARL A. CRITCHFIELD
No. M36859
MECHANICAL
STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
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05/06/24	DESIGN DOCUMENT				

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

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DUBLIN SAN RAMON SERVICES DISTRICT
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WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
PARTIAL ROOF PLAN - NEW

CIP NO. 22-P010

M1.3.2a
14 66

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SOBE #2304150.1

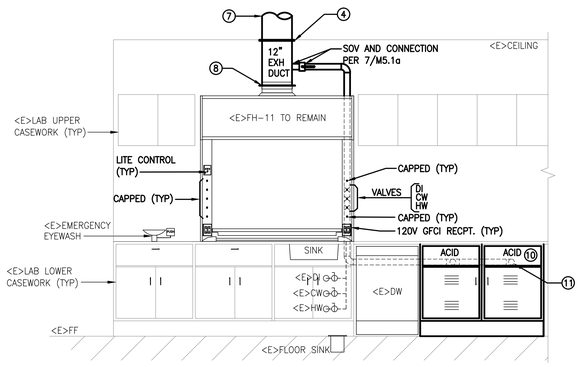
4 NOT USED
SCALE: N.T.S.

2 NOT USED
SCALE: N.T.S.

(f) REFERENCE DETAIL NOTES

1. NOT USED
2. NOT USED
3. NOT USED
4. PROVIDE FINISHING COLLAR AROUND DUCT PASSING THROUGH THE <E>T-BAR CEILING. (TYP)
5. NOT USED
6. HOOD CONTROLS PER M7.4 AND PROJECT SPECS.
7. SEE M1.2a FOR CON'T. OF DUCT. (TYP)
8. PROVIDE VAN STONE FLANGES W/TEFLON SEALS AT THE HOOD-DUCT INTERFACE. (TYP)
9. NOT USED.
10. PROVIDE HOOD MFG.'S METAL BASE CABINETS OF THE TYPE INDICATED. VENT ALL ACID CABINETS WITH PVC FLEX UP THRU WORK-SURFACE PER MFG.'S DIRECTION UON. (TYP)
11. 2" FLEXIBLE PVC VENT FROM BEHIND ACID CABINETS OVER TO HOOD BULKHEAD AND UP TO CONNECT TO EXHAUST DUCT PER 7/M5.1a.

NOTE: CONTRACTOR SHALL COORDINATE ITEMS 10, 11 & 12 WITH THE HOOD MFG. OR HOOD SUPPLIER.



3 FH-11 ELEVATION
SCALE: N.T.S.

1 NOT USED
SCALE: N.T.S.

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REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

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REGISTERED PROFESSIONAL ENGINEER
DANIEL A. GRITZER
No. M35859
MECHANICAL
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RECOM'D

DUBLIN SAN RAMON SERVICES DISTRICT
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WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
LAB CHEMICAL FUME HOOD ELEVATIONS

CIP NO. 22-P010

M2.1a
15 66

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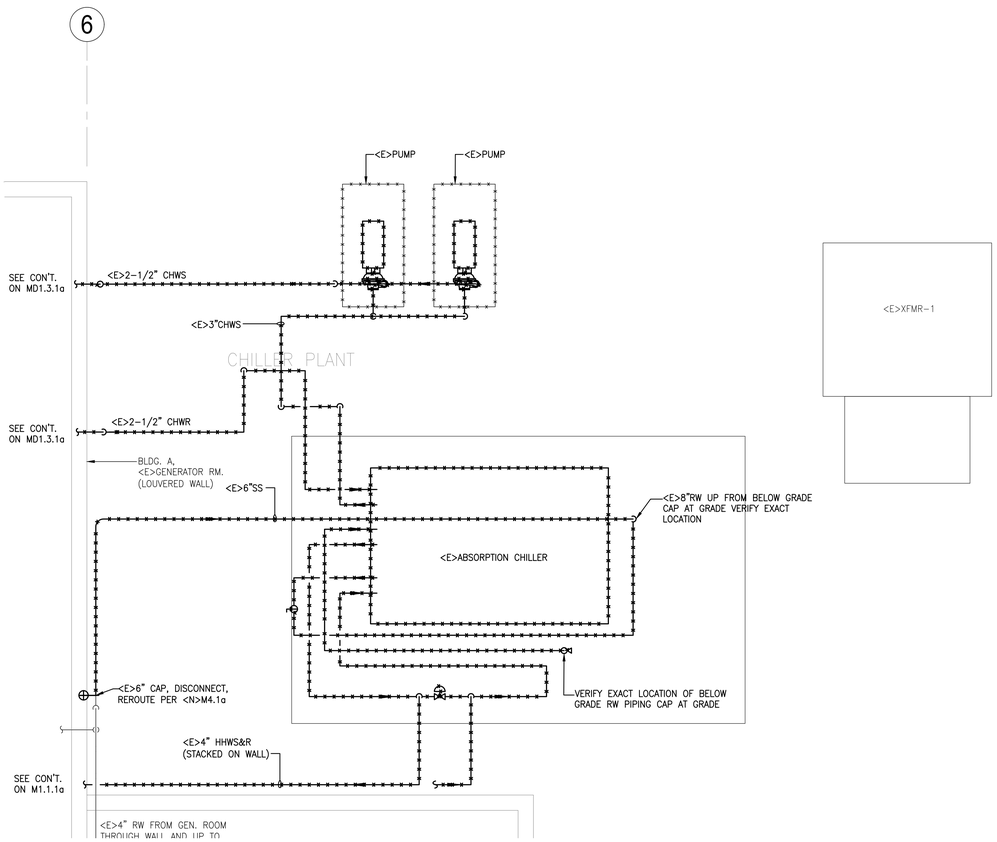
REFERENCE SHEET NOTES

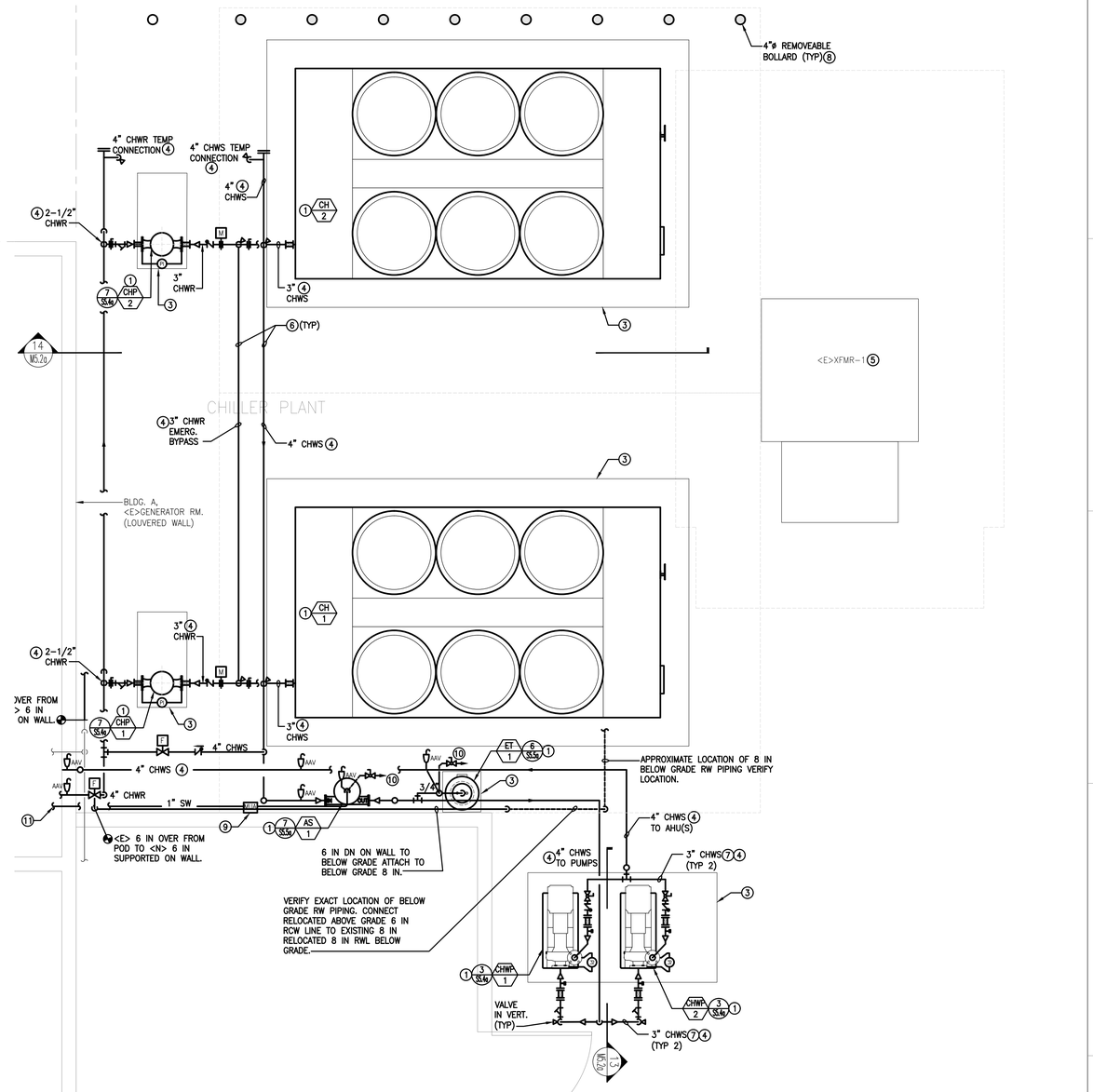
1. PROVIDE MECHANICAL EQUIPMENT PER SCHEDULES ON M0.2 & M0.3. TAG EQUIPMENT PER MECHANICAL PROJECT SPECS. SECURE CHILLED WATER PUMPS PER 6/S5.4a AND CHILLER PUMPS PER 7/S5.4a.
2. THE CHILLER PLANT SITE SHALL PROVIDE ADEQUATE DRAINAGE SUCH THAT SURFACE WATER DOESN'T POOL AROUND THE BASE OF THE EQUIPMENT AND CAN DRAIN AWAY TO <E>STORM DRAINS.
3. PROVIDE 4" THICK CONCRETE HOUSEKEEPING PAD. MECHANICAL AND STRUCTURAL CONTRACTORS SHALL COORDINATE ALL PAD SIZES AND ELEVATIONS SO THE CHANGES OF ELEVATIONS OR CHANGES TO PIPING DIRECTION WILL BE MINIMIZED. PADS SHALL BE LEVEL IN ALL HORIZONTAL PLANES. (TYP)
4. ALL PIPE SUPPORTS IN CHILLER YARD PER S5.5a.
5. <E>ELEC. TRANSFORMER. MAINTAIN CODE REQUIRED CLEARANCES AROUND AND ABOVE THE TRANSFORMER. SEE ELEC. PLANS FOR ADDITIONAL INFO.
6. THE CHILLER PLANT PIPING IS EXTENSIVE AND 95% IS INSULATED, AS SUCH, THE CONTRACTOR MUST ENSURE THAT ALL EQUIPMENT CAN BE ACCESSED AND MAINTAINED WITHOUT DAMAGING THE PIPING OR INSULATION. PROVIDE STEPS, WALK-OVERS, OR OTHER AIDS AS REQUIRED TO CROSS PIPING WITHOUT DAMAGING THE INSULATED PIPING OR EQUIPMENT.

REFERENCE SHEET NOTES

7. THE PIPING FOR THE BUILDING PUMPS, CHWP-1 & CHWP-2 IS SHOWN DIAGRAMMATICALLY AND MAY BE INSTALLED VERTICALLY TO IMPROVE THE ACCESS TO THE APPARATUSES SHOWN.
8. PROVIDE 4"ø REMOVEABLE BOLLARDS TO PREVENT ACCIDENTAL VEHICLE DAMAGE TO <N>CH-2. SEE 34/M5.2a AND 1/S5.4a. (TYP 10)
9. PROVIDE THE COMPONENTS AND PIPING FOR THE MAKEUP WATER ASSEMBLY, MUW, MOUNTED ON THE WALL. SUPPORT PIPING PER 8/M5.1a.
10. ALL DRAINS FROM EQUIPMENT SHALL BE PIPED TO AN APPROVED WASTE RECEPTOR. DO NOT RUN ANY DRAIN LINES TO THE <E>AREA DRAINS.
11. CONTRACTOR SHALL WORK WITH OWNER TO IDENTIFY AN ACCEPTABLE LOCATION TO TAP INTO THE BLDG. SOFTWATER SUPPLY AND ROUTE TO CHILLER YARD.



1 MECHANICAL CHILLER PLANT PLAN - DEMO
SCALE: 1/2" = 1' - 0"



2 MECHANICAL CHILLER PLANT PLAN - NEW
SCALE: 1/2" = 1' - 0"

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN		REVIEW	
	DRAWN BY –		PLNNG./DEVL.
	DESIGN BY –		FIELD OPS.
	CHECKED BY CC		WWTP OPS.
RECOM'D	PROJ. MGR. –		MECH./MAINT.
			ELECT./INSTR.
	DSRSD PRINCIPAL ENGINEER		SCALE: AS NOTED DATE: 12/09/2025

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REGISTERED PROFESSIONAL ENGINEER — CARL A. CRUZEN — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

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WWTP HVAC REPLACEMENTS - BUILDING A

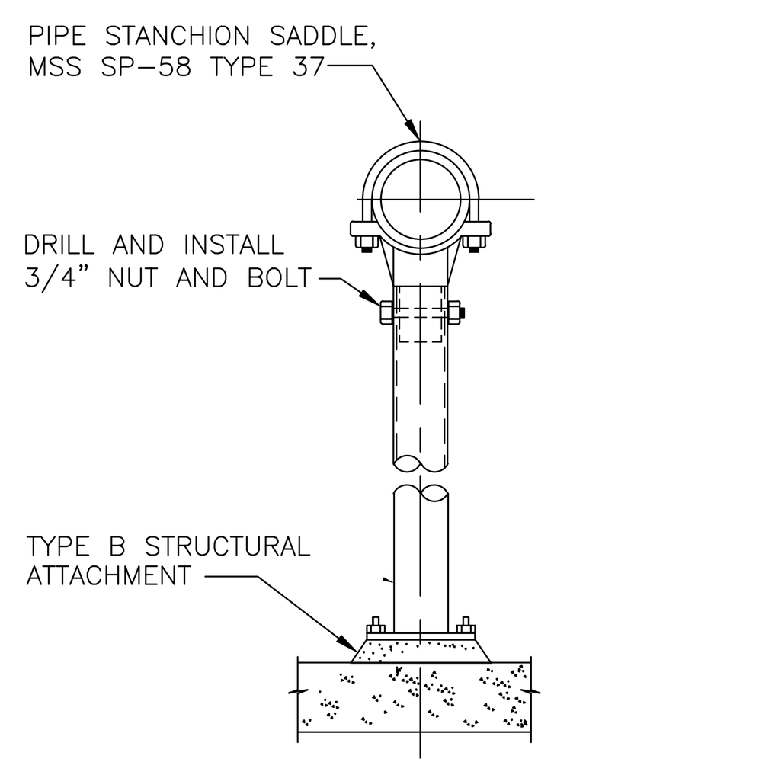
MECHANICAL
CHILLER PLANT PLAN

CIP NO. 22-P010

M4.1a
16 66

K:\drawings\Dublin San Ramon Services District\2304150 RFP WWTP DERWA HVAC Replacements\2304150.1 Building A\2304150.1M4.1a.dwg 12/9/2025 7:28 PM Minh Ong

SOBE #2304150.1



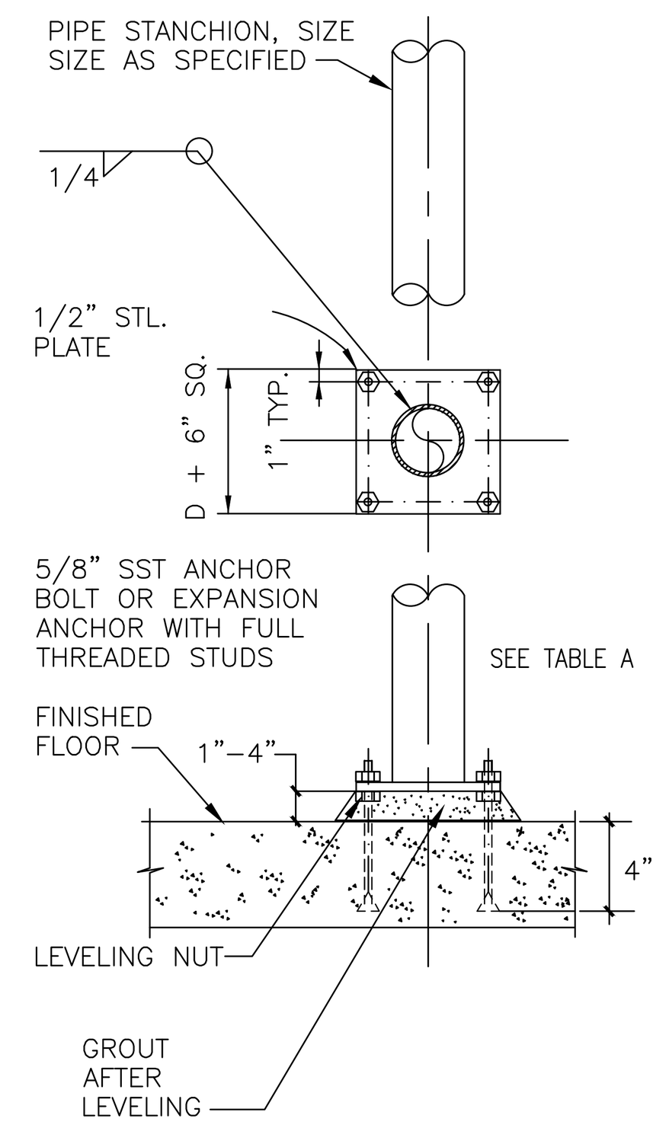
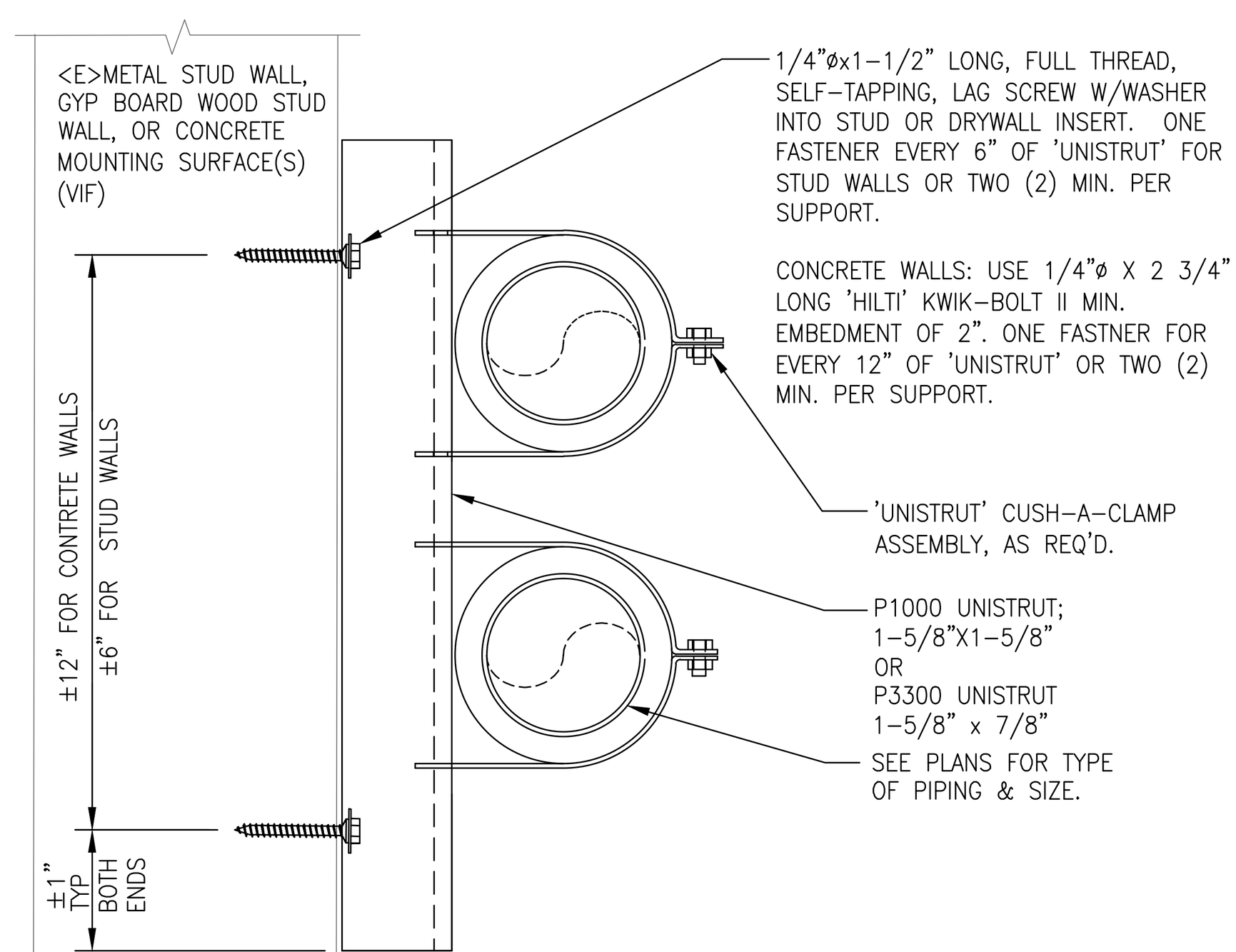


TABLE A – PIPE STANCHION DIAMETER	
PIPE SIZE (INCHES) OR INSULATION SHIELD SIZE)	NOMINAL PIPE STANCHION DIAMETER (D) (SCHEDULE 40 – INCHES)
4	3
6	3
8	3
10	3
12	3
14	4
16	4
18	4
20	6
24	6

11 PIPE SUPPORT, STANTION

SCALE: N.T.S.



NOTE:
1. SUPPORT PIPING EVERY 6'-0" & CHANGES OF DIR. (MIN.)
2. VARY THE LENGTH OF SUPPORT FOR NO. & SIZE OF PIPES.
3. ALL FASTENERS SHALL BE LOAD RATED BY THE MFG.

8 PIPE SUPPORT ON WALL

SCALE: N.T.S.

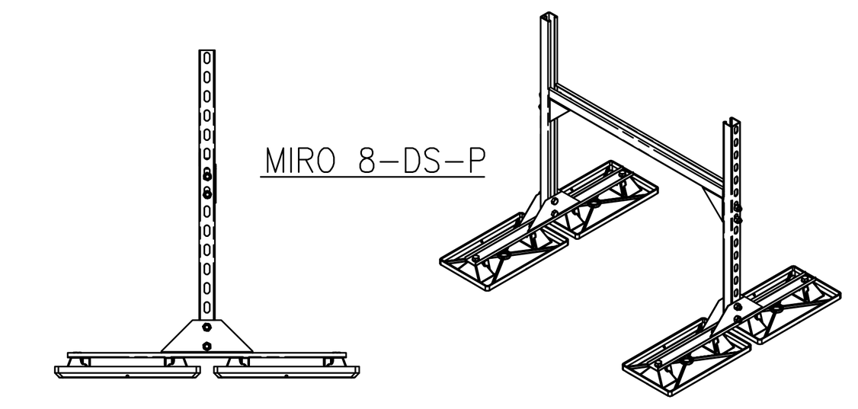
DUCT SUPPORT DETAIL NOTES:

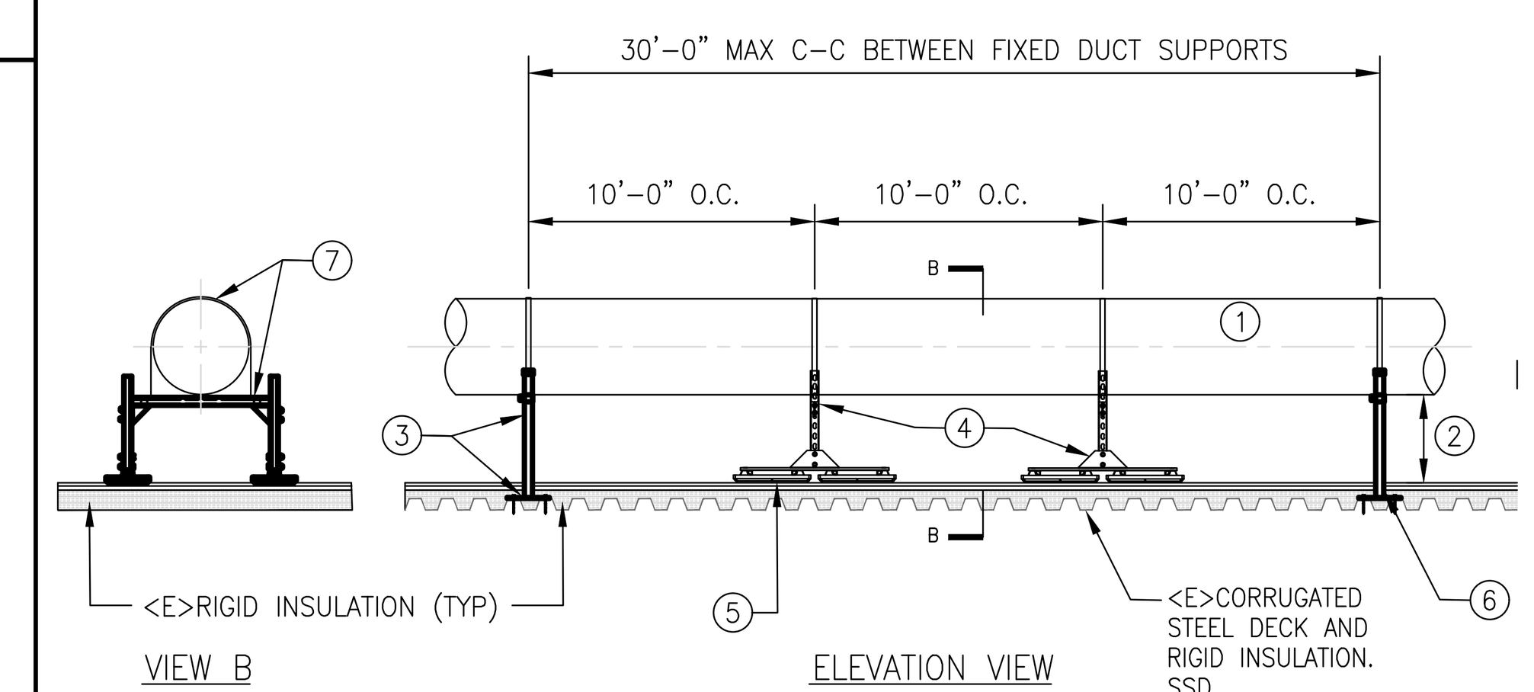
GENERAL:

THE EXACT LOCATION OF THE NEW DUCTWORK MUST BE KNOWN BEFORE THE SEISMIC SUPPORTS CAN BE INSTALLED. FOR THIS REASON, THE ROOFTOP DUCTWORK SHALL BE INITIALLY INSTALLED USING ONLY NON-SEISMIC SUPPORTS. PROVIDE TEMPORARY NON-SEISMIC SUPPORTS NEAR THE LOCATION OF THE SEISMIC SUPPORTS. AFTER THE DUCT IS IN PLACE, REPLACE THE TEMPORARY SUPPORTS WITH THE SEISMIC SUPPORTS.

MECHANICAL:

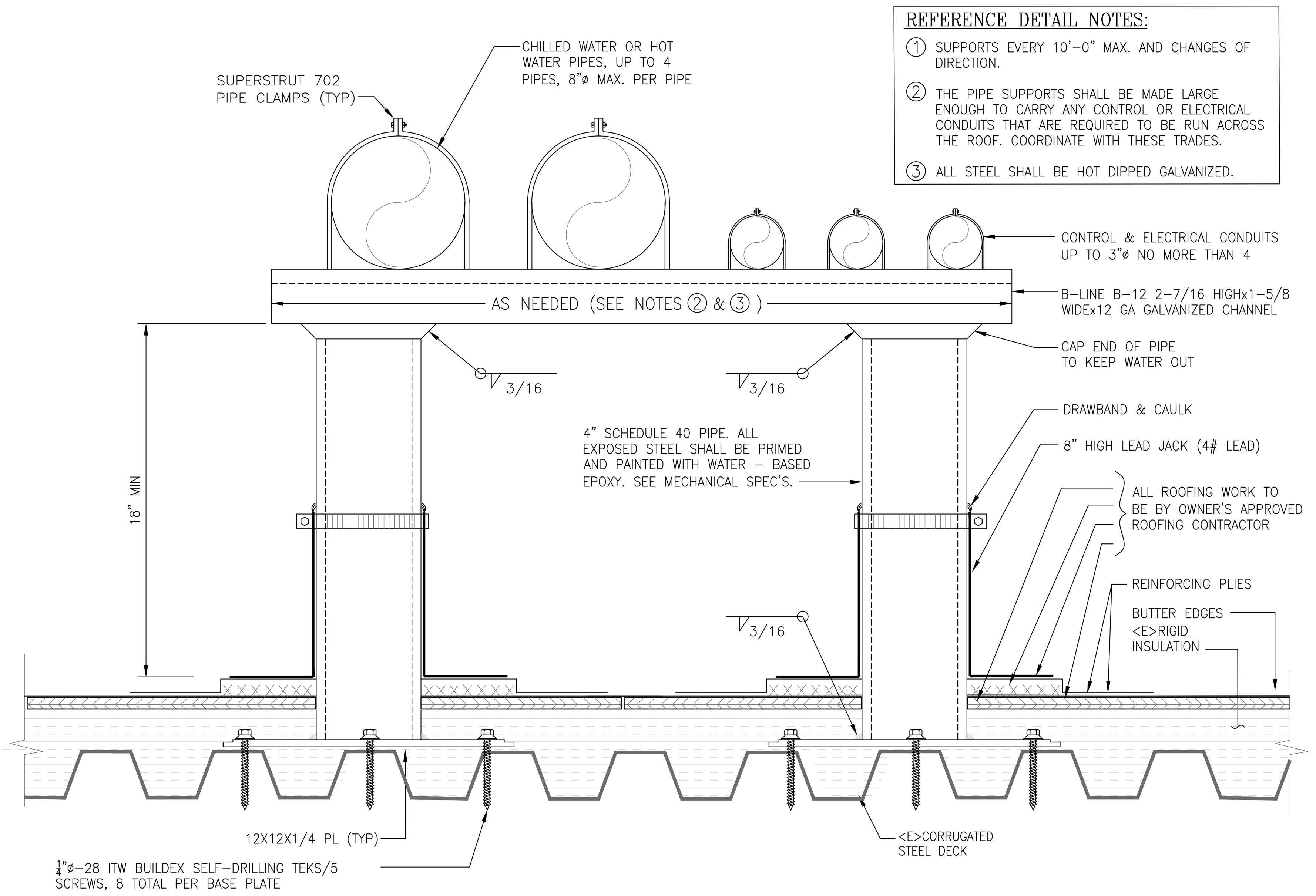
1. SEE ROOF PLAN FOR DUCT SIZES.
2. DUCTS SHALL BE 18" ABOVE THE ROOF, UNLESS OTHERWISE NOTED (UON).
3. TYPICAL SEISMIC SUPPORT: 2"X2" TUBE STEEL W/ 6"X6" WELDED STEEL PLATE ON BOTTOM. ANCHOR USING 1/4"ø-28 ITW BUILDEX SELF-DRILLING TEKS/5 SCREWS, TYP OF (4) PER BASE PLATE.
4. MIRO INDUSTRIES 8-DS-P NON-SEISMIC SUPPORT, STAINLESS STEEL.
5. 12 X 16 POLY-CARBONATE DECK BASE, 4 PER SUPPORT (2 EACH SIDE).
6. ONCE ATTACHED FULLY EMBED THE SUPPORT BASE IN SILICONE.
7. 1" WIDE, SINGLE CONT. PIECE, S.S. STRAP AROUND DUCT, SECURE TO HORIZONTAL SUPPORT USING 1/4"ø S.S. LAG SCREW 2 PLACES EACH SIDE.





5 ROOF TOP RND. DUCT SUPPORT

SCALE: N.T.S.

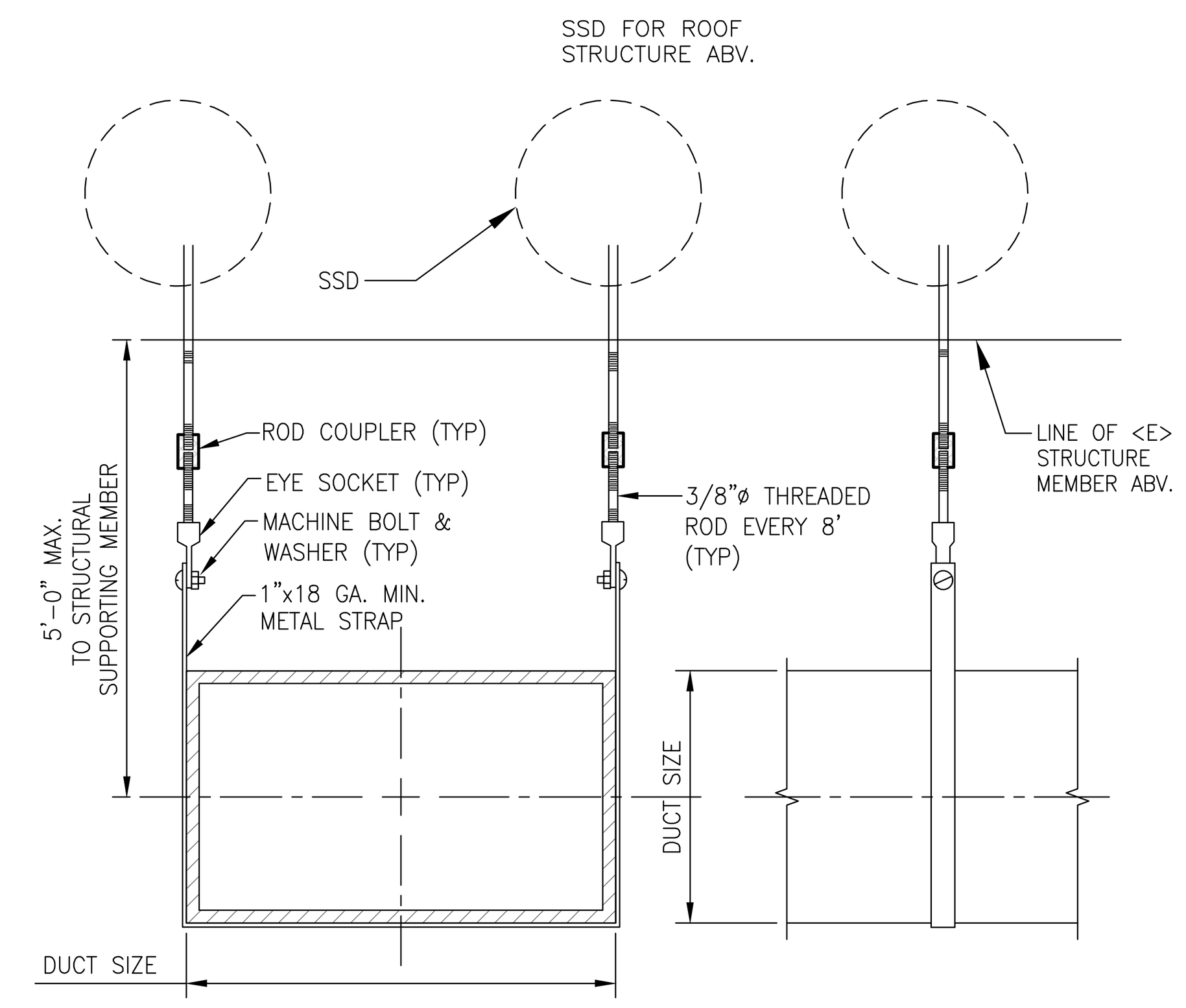


REFERENCE DETAIL NOTES:

1. SUPPORTS EVERY 10'-0" MAX. AND CHANGES OF DIRECTION.
2. THE PIPE SUPPORTS SHALL BE MADE LARGE ENOUGH TO CARRY ANY CONTROL OR ELECTRICAL CONDUITS THAT ARE REQUIRED TO BE RUN ACROSS THE ROOF. COORDINATE WITH THESE TRADES.
3. ALL STEEL SHALL BE HOT DIPPED GALVANIZED.

3 PIPE SUPPORT – DUAL 3" STANCHION FOR PIPES UP TO 8"

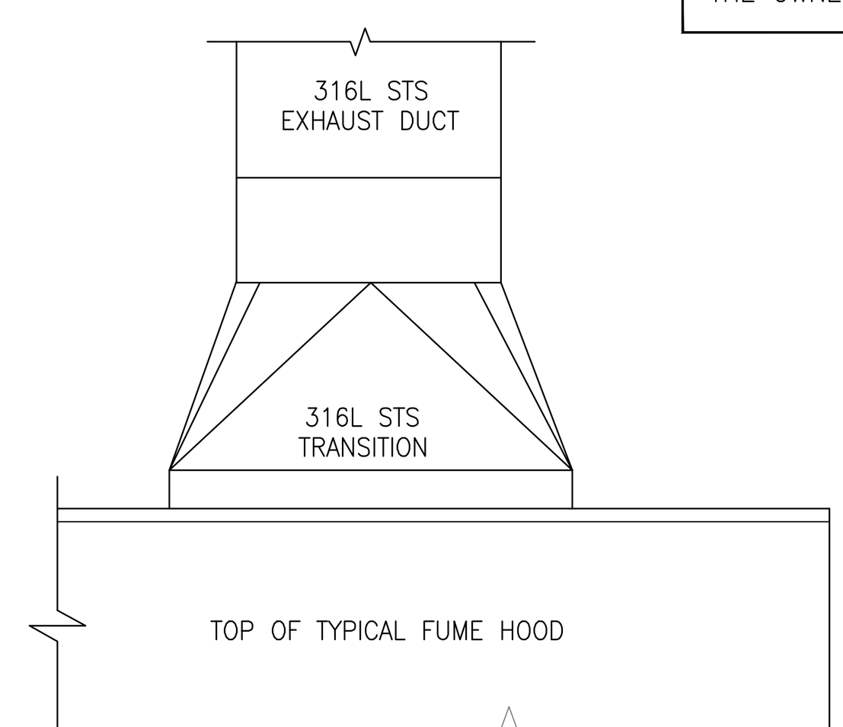
SCALE: N.T.S.



10 RECT. DUCT SUPPORT, ABV CLG.

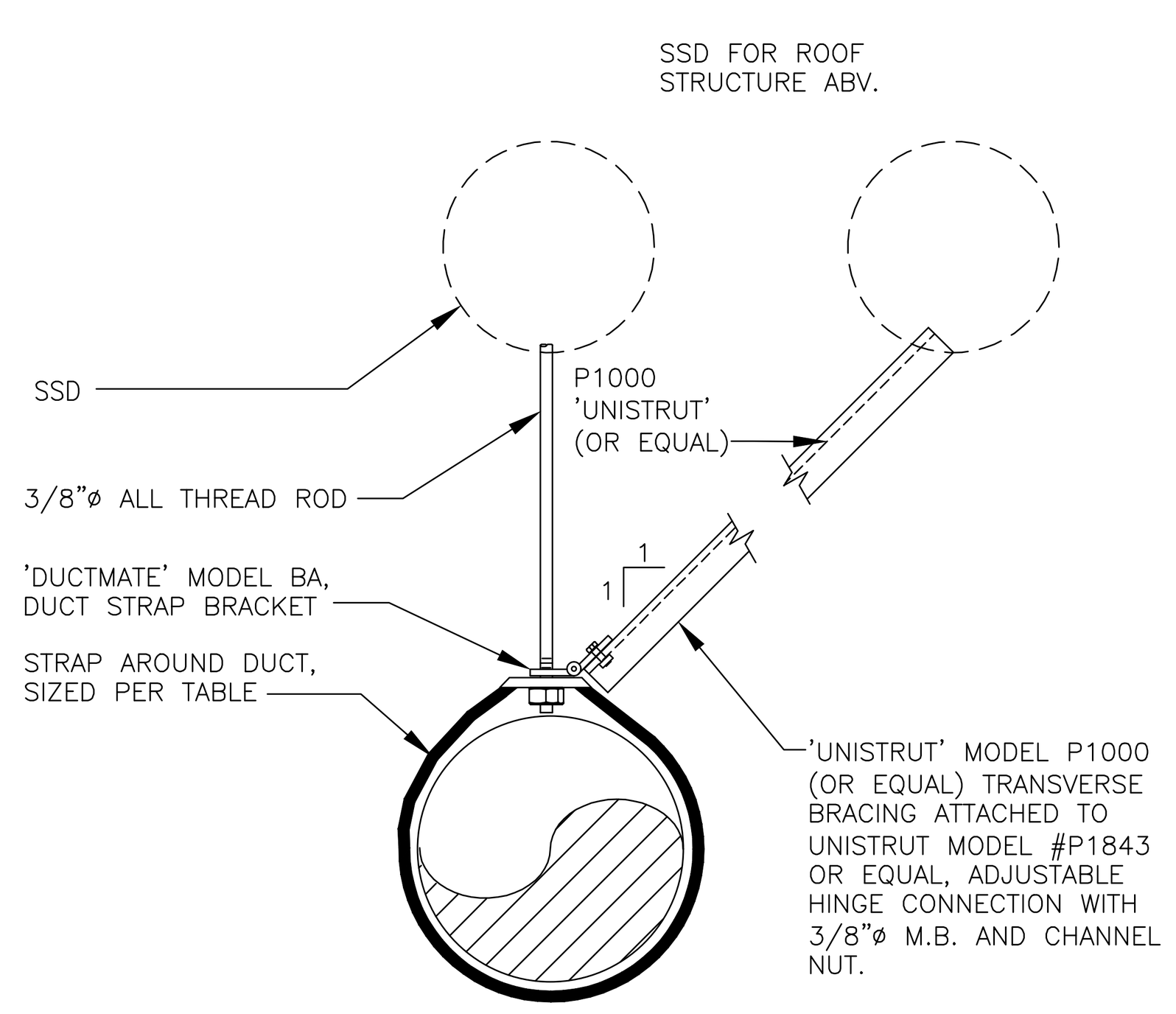
SCALE: N.T.S.

NOTE:
ALL ACID STORAGE BASE CABINETS INSTALLED AS PART OF THIS PROJECT SHALL BE EXHAUSTED PER THE OWNER'S REQUEST.



7 EXHAUST CONNECTION @ HOOD

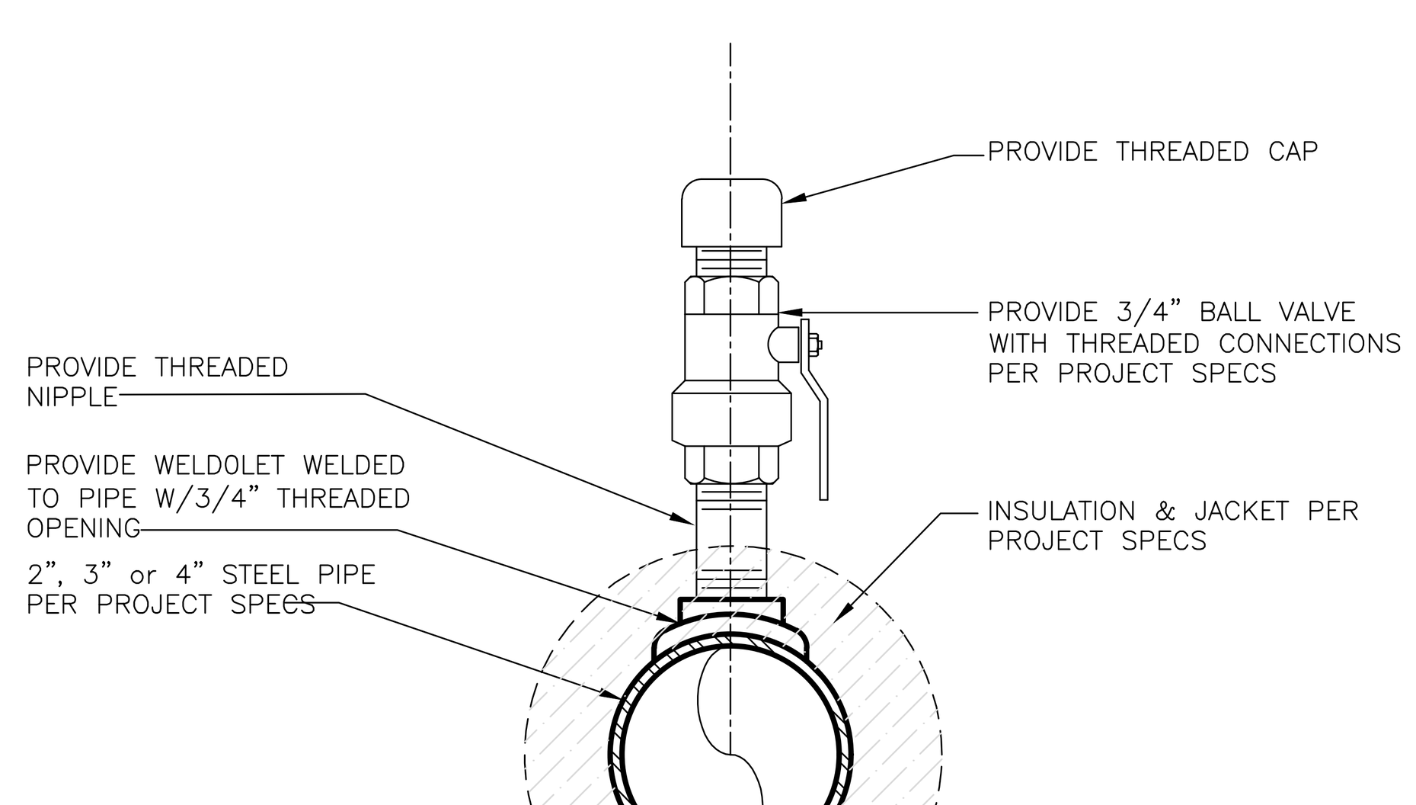
SCALE: N.T.S.



MAX. DIAMETER ROUND DUCT (INCHES)	MIN. STRAP HANGAR SIZE AND GA.	MAX. HANGAR SPACING	MIN. THREADED DIAMETER
6 THRU 12	1" x 22 GA	EVERY 6'	3/8"
14 THRU 18	1" x 20 GA	EVERY 6'	3/8"
20 THRU 24	1" x 18 GA	EVERY 6'	1/2"

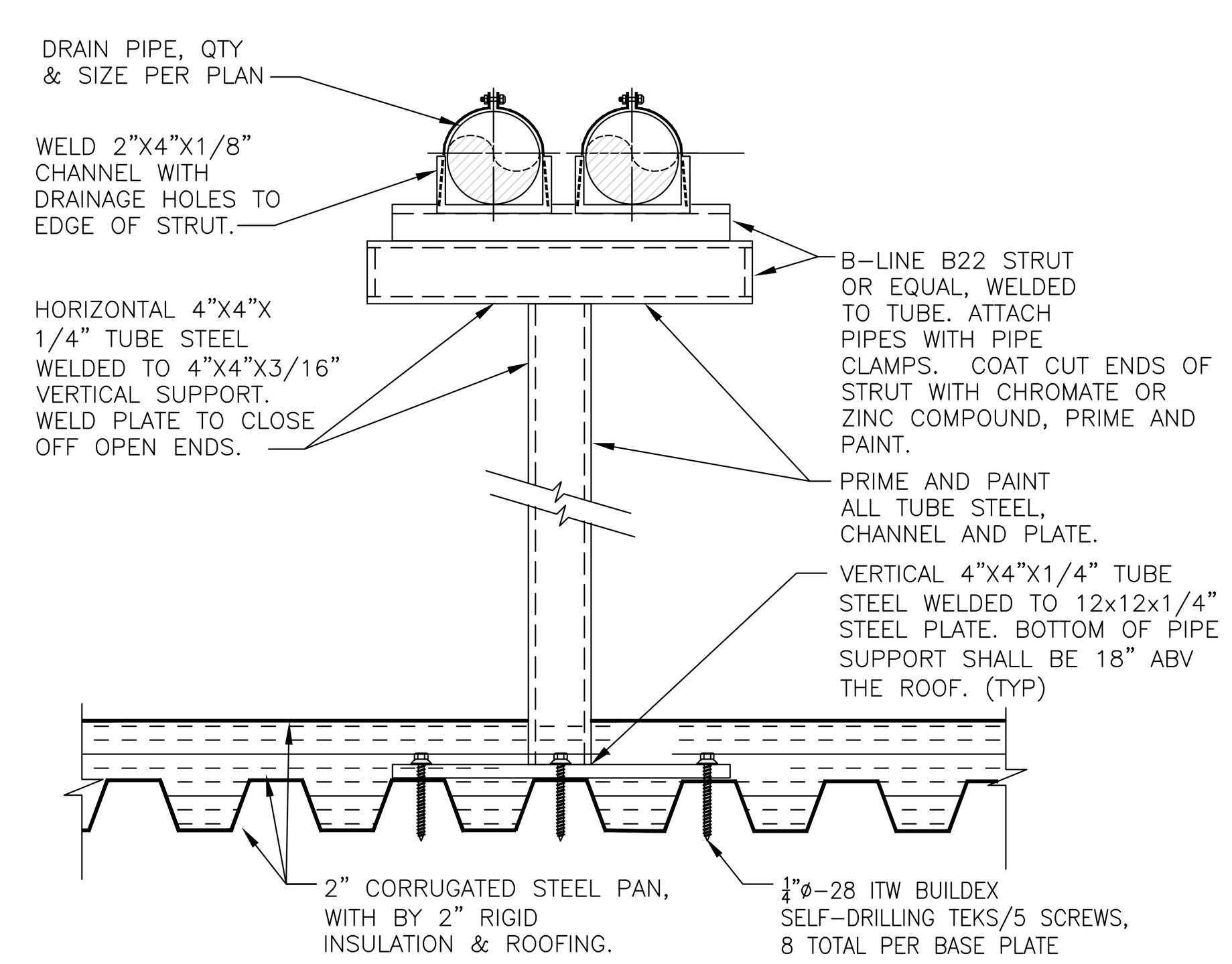
9 ROUND DUCT SUPPORT, ABV CLG.

SCALE: N.T.S.



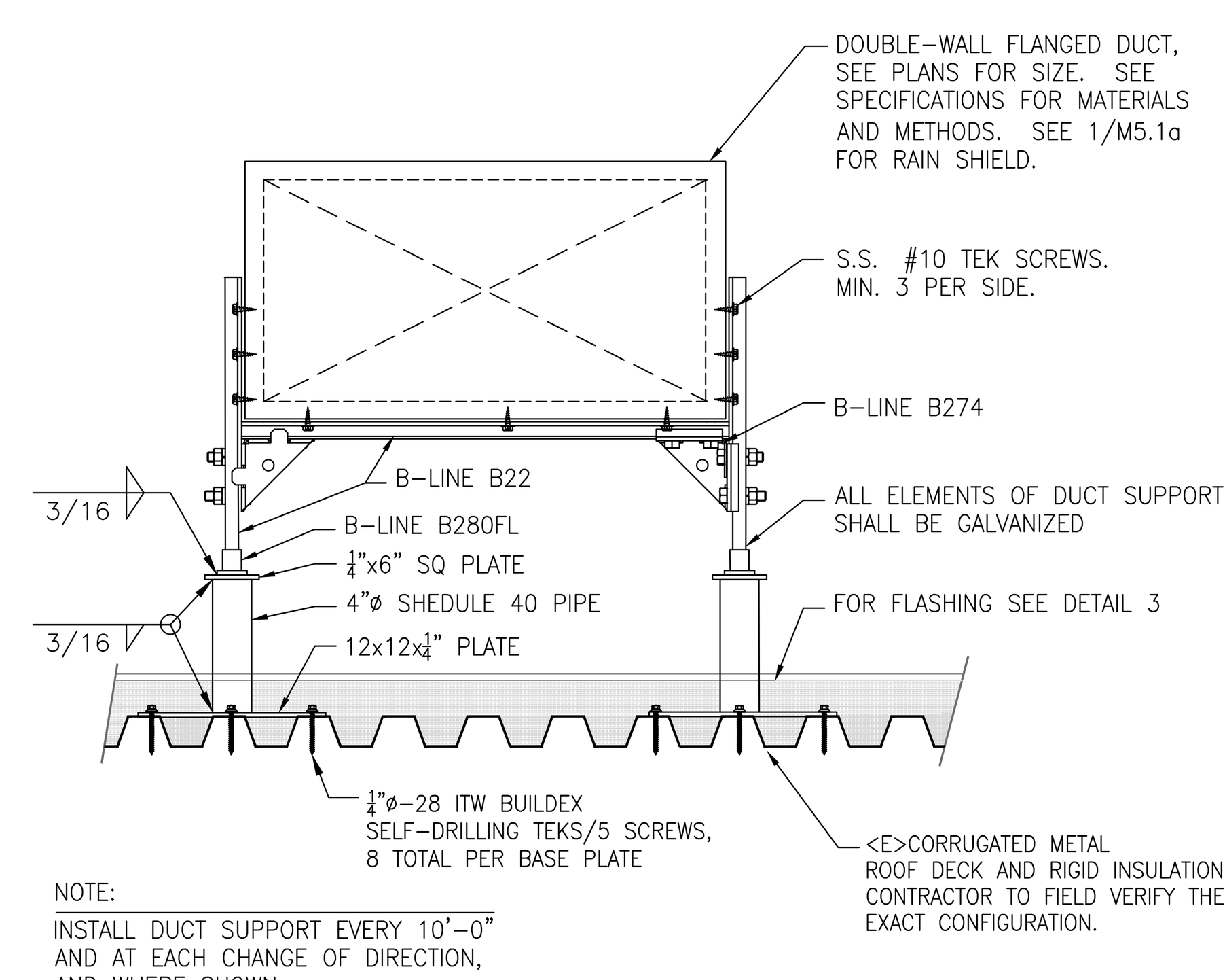
6 MANUAL AIR VENT

SCALE: N.T.S.



4 DRAIN PIPE SUPPORT

SCALE: N.T.S.



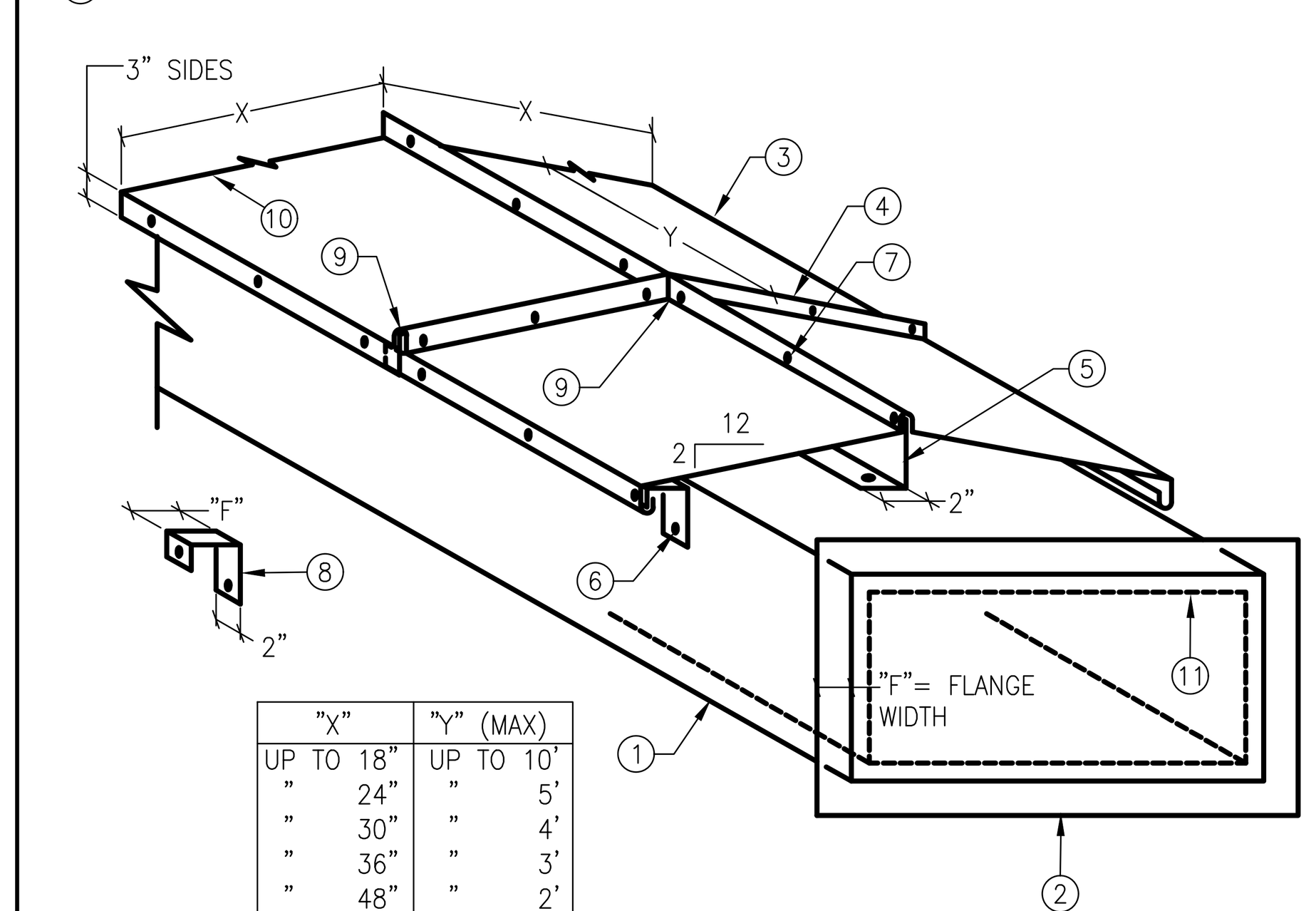
NOTE:
INSTALL DUCT SUPPORT EVERY 10'-0" AND AT EACH CHANGE OF DIRECTION, AND WHERE SHOWN.

2 ROOF TOP RECT. DUCT SUPPORT

SCALE: N.T.S.

REFERENCE DETAIL NOTES:

1. OUTDOOR RECT. DUCTWORK (SINGLE WALL OR DOUBLE WALL)
2. STANDING SEAM, OR 4 BOLT CONNECTION FLANGE ON DUCTWORK.
3. STAINLESS STEEL SHEET METAL DUCT COVERS. DUCT COVERS SHALL BE INSTALLED OVER ALL DUCTWORK THAT IS FLAT OR NEARLY FLAT ON TOP TO PREVENT STANDING WATER ON TOP OF THE DUCTWORK. DUCT COVERS SHALL BE CONSTRUCTED OF 24 GA 304 SS. THE DUCT COVERS SHALL HAVE A MINIMUM PITCH OF 1 ON 12 TO EACH SIDE OF THE DUCT. THE DUCT COVERS SHALL BE MADE TO FIT SNUGGLY OVER THE DUCT'S STANDING SEAMS. THE DISTANCE "Y" BETWEEN TRANSVERSE STANDING SEAMS SHALL BE BASED ON THE WIDTH OF THE PANELS "X".
4. FABRICATE 1-1/2" HIGH STANDING SEAMS.
5. FABRICATE A 22 GA ANGLE TO SUPPORT THE RIDGE OF THE COVERS. THIS ANGLE SHALL RUN CONTINUOUSLY BETWEEN THE DUCTS STANDING SEAMS.
6. INSTALL #10 S.S. SCREWS AT 12" ON CENTER.
7. BUTTON PUNCH OR RIVET AT 12" ON CENTER.
8. HOLD DOWN CLIP. FABRICATE OUT OF 18 GA GALVANIZED. INSTALL AT 12" ON CENTER. ATTACH COVER TO CLIP AND CLIP TO DUCT WITH # 10 SCREWS.
9. CAULK ALL INTERSECTIONS, CORNERS AND ENDS OF THE STANDING SEAMS.
10. PROVIDE END CAPS TO COVERS WHERE THEY TERMINATE.
11. INTERNAL DUCT, IF DOUBLE WALL.



"X"	"Y" (MAX)
UP TO 18"	UP TO 10'
" 24"	" 5'
" 30"	" 4'
" 36"	" 3'
" 48"	" 2'

1 ROOF TOP DUCT COVER

SCALE: N.T.S.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

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REGISTERED PROFESSIONAL ENGINEER — CARL A. CRITZER — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DESIGN	
DRAWN BY	–
DESIGN BY	–
CHECKED BY	CC
PROJ. MGR.	–

RECOM'D: DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL. · FIELD OPS. · WWTP OPS. · MECH./MAINT. · ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

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WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL DETAILS

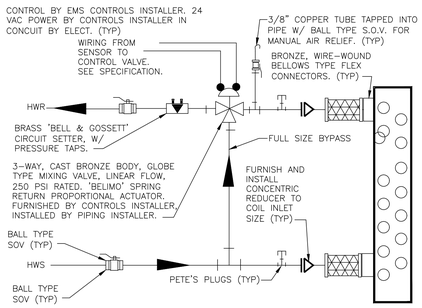
CIP NO. 22-P010

M5.1a

17 66

K:\drawings\Dublin San Ramon Services District\2304150 RFP WWTP DERWA HVAC Replacements\2304150.1 Building A\2304150.1M5.1a.dwg 12/9/2025 7:28 PM Minh Ong

SOBE #2304150.1



32 AHU-1 HOT WATER COIL PIIPING
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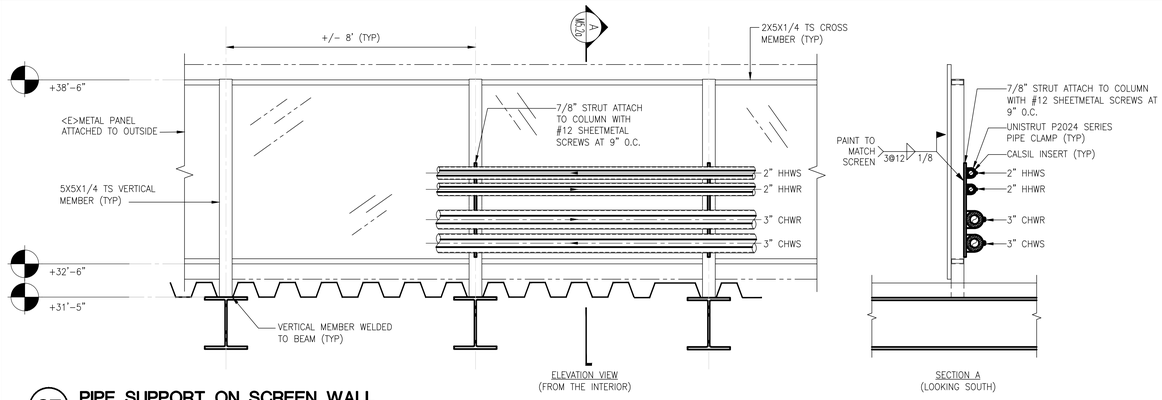

27 PIPE SUPPORT ON SCREEN WALL
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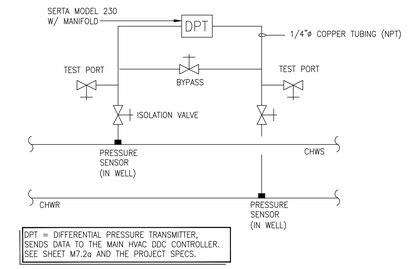
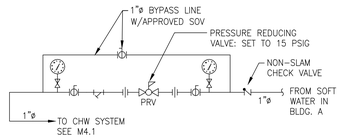


28 DIFFERENTIAL PRESSURE TRANSMITTER
SCALE: N.T.S.



33 MAKEUP WATER ASSY
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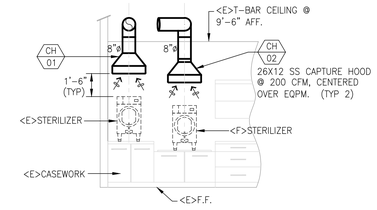
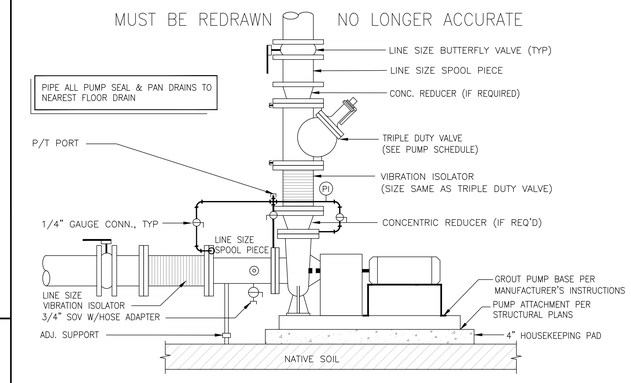


29 BACTERIA LAB CH-01 & CH-02 ELEVATION
SCALE: N.T.S.



13 CHILLED WATER PUMP
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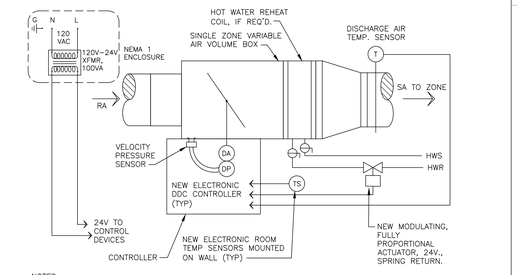

12 VARIABLE AIR VOLUME BOX CONTROL
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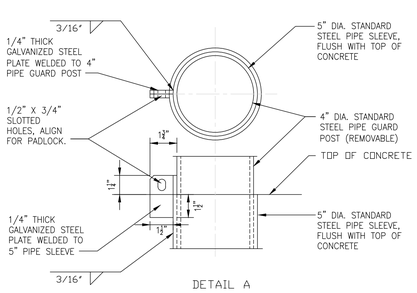
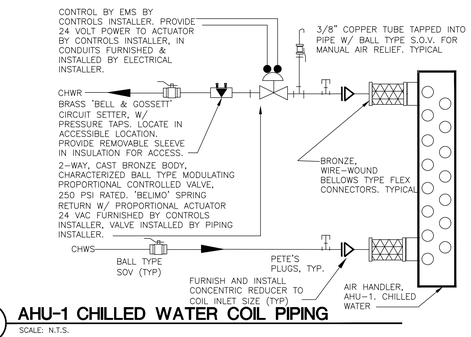
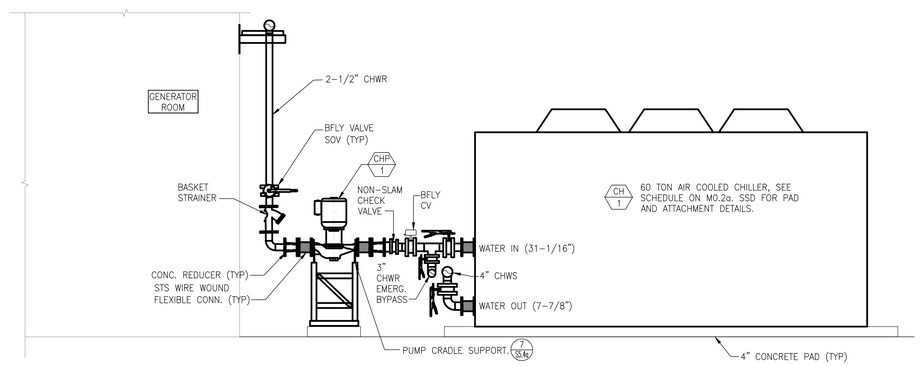
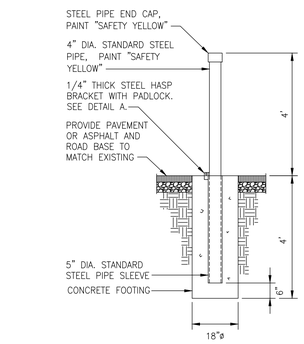




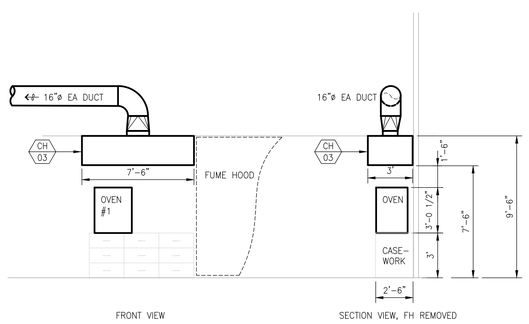
31 AHU-1 CHILLED WATER COIL PIPING
SCALE: N.T.S.



14 CHILLER PUMP PIPING ELEVATION
SCALE: N.T.S.



34 REMOVEABLE BOLLARD, CHILLER PLANT
SCALE: N.T.S.



30 MAIN LAB CAPTURE HOOD, CH-03 ELEVATION
SCALE: N.T.S.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN		RECOM'D		REVIEW	
DRAWN BY	–			PLNNG./DEVL.	
DESIGN BY	–			FIELD OPS.	
CHECKED BY	CC			WWTP OPS.	
PROJ. MGR.	–			MECH./MAINT.	
				ELECT./INSTR.	
	DSRSD PRINCIPAL ENGINEER			SCALE: AS NOTED	DATE: 12/09/2025

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REGISTERED PROFESSIONAL ENGINEER — CORY A. CRITZER — No. M36859 — MECHANICAL — STATE OF CALIFORNIA

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WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL DETAILS

CIP NO. 22-P010

M5.2a
19 66

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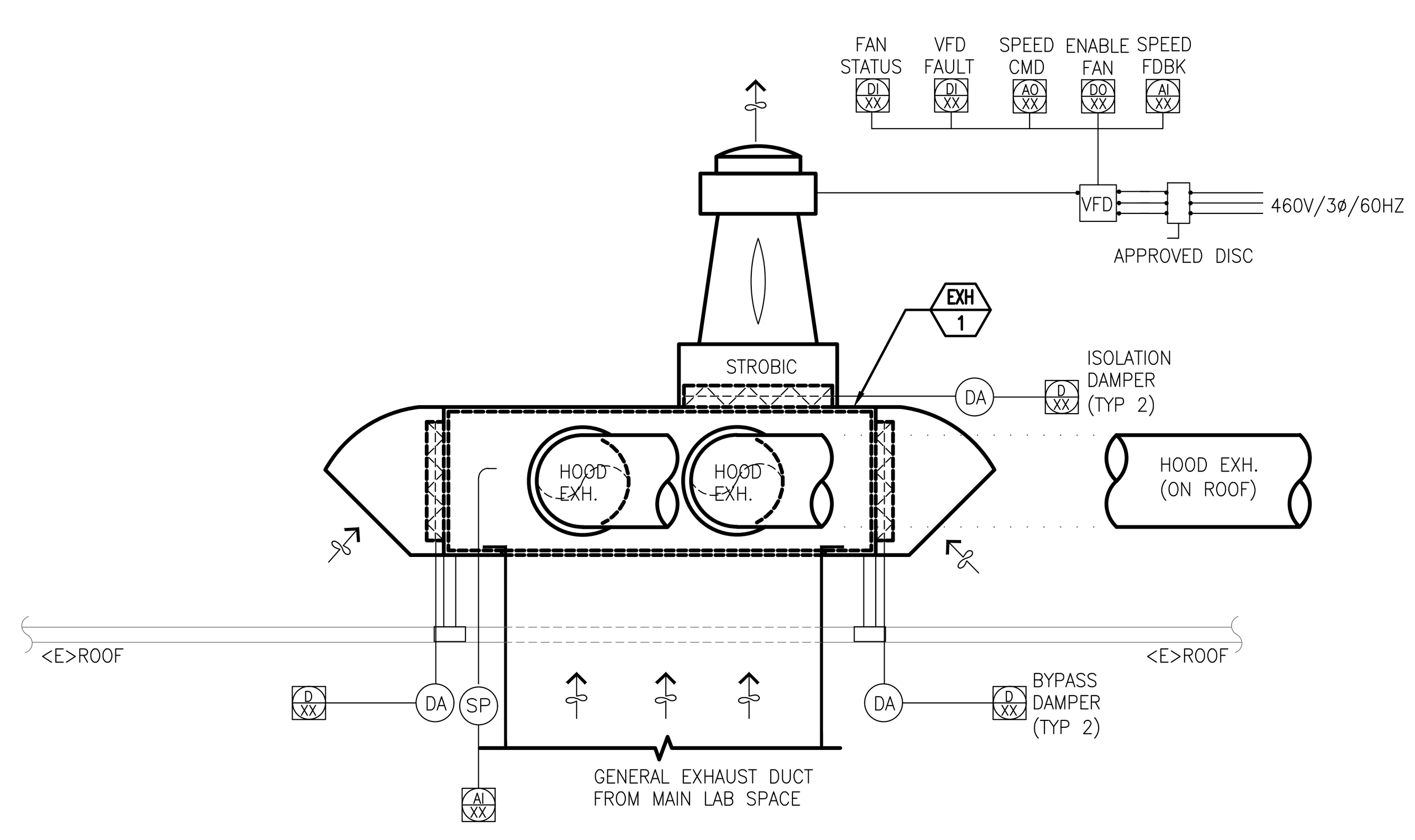
SOBE #2304150.1

GENERAL SHEET NOTES

1. SEE SHEET M7.5 FOR COMPLETE DDC POINTS LIST.

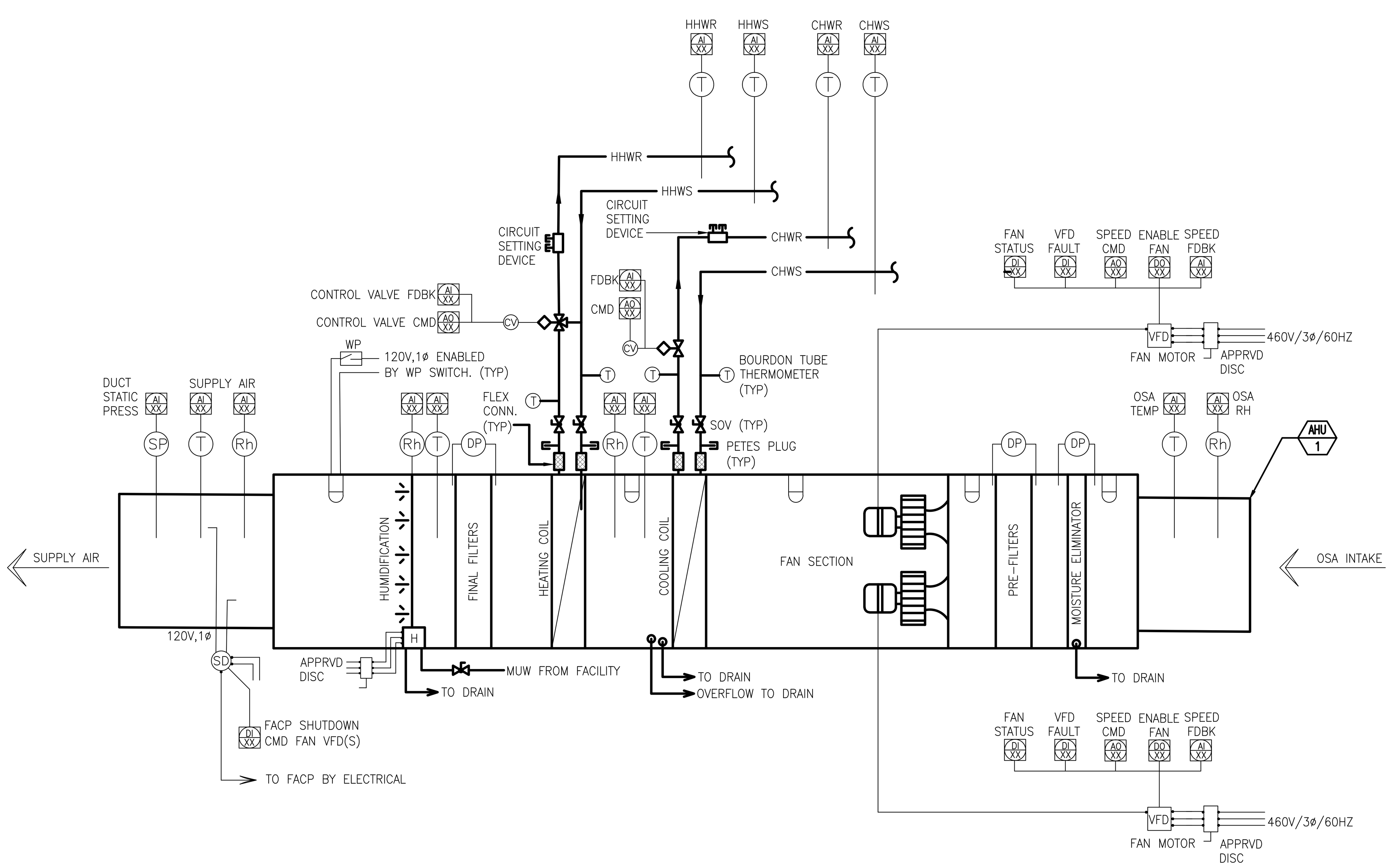
REFERENCE SHEET NOTES

1. PROVIDE PROPORTIONALLY CONTROLLED MODULATING 3-WAY CONTROL VALVE.
2. PROVIDE CIRCUIT SETTING DEVICE.
3. DIFFERENTIAL PRESSURE TRANSDUCER.



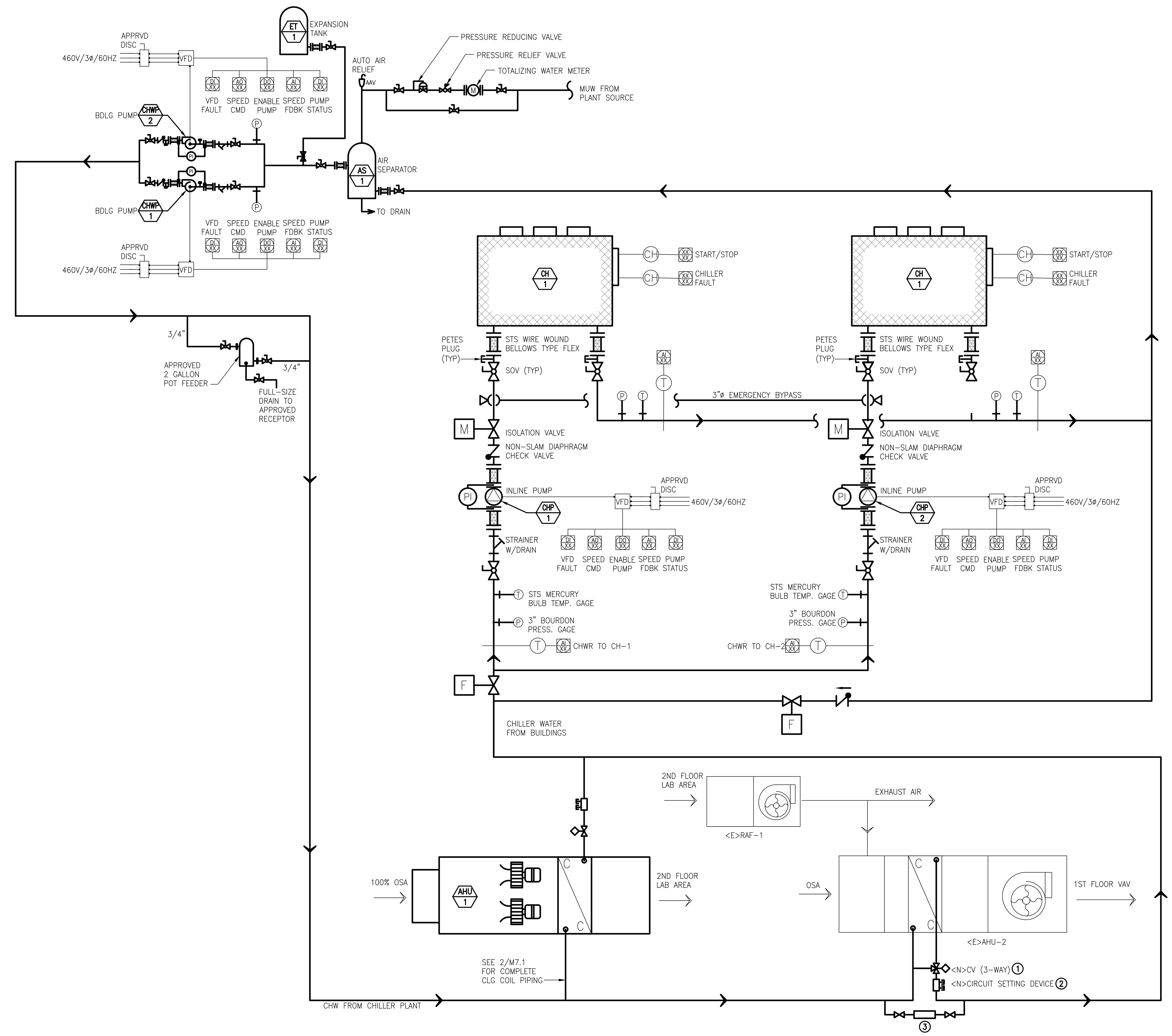
3 STROBIC EXHAUST ASSY P&ID

SCHEMATIC



2 AHU-1 AIR HANDLING UNIT P&ID

SCHEMATIC



1 CHILLED WATER P&ID

SCHEMATIC

LINE IS 2 INCHES AT FULL SCALE

IF NOT 2 INCHES, SCALE ACCORDINGLY

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12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DESIGN	
DRAWN BY	-
DESIGN BY	-
CHECKED BY	CC
PROJ. MGR.	-

RECOM'D — DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL. · FIELD OPS. · WWTP OPS. · MECH./MAINT. · ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

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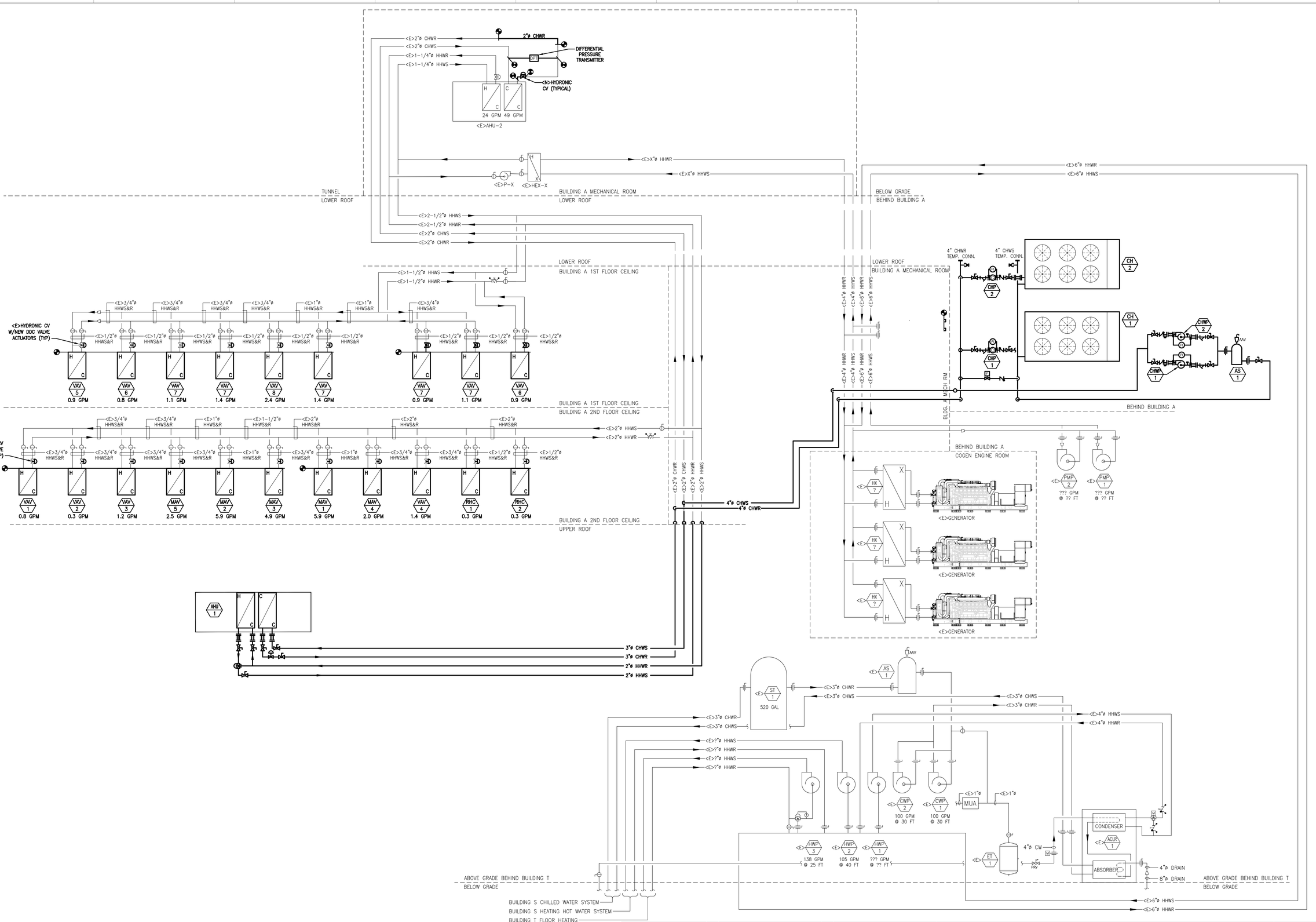
WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
CHILLED WATER, AHU-1 & STROBIC EXHAUST P&ID

CIP NO. 22-P010

M7.1a

19 66



LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

REVIEW

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REGISTERED PROFESSIONAL ENGINEER — CORAL A. CRITZER — No. M36859 — MECHANICAL — STATE OF CALIFORNIA

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WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
CHW & HHW SYSTEM SCHEMATIC

CIP NO. 22-P010

M7.2a
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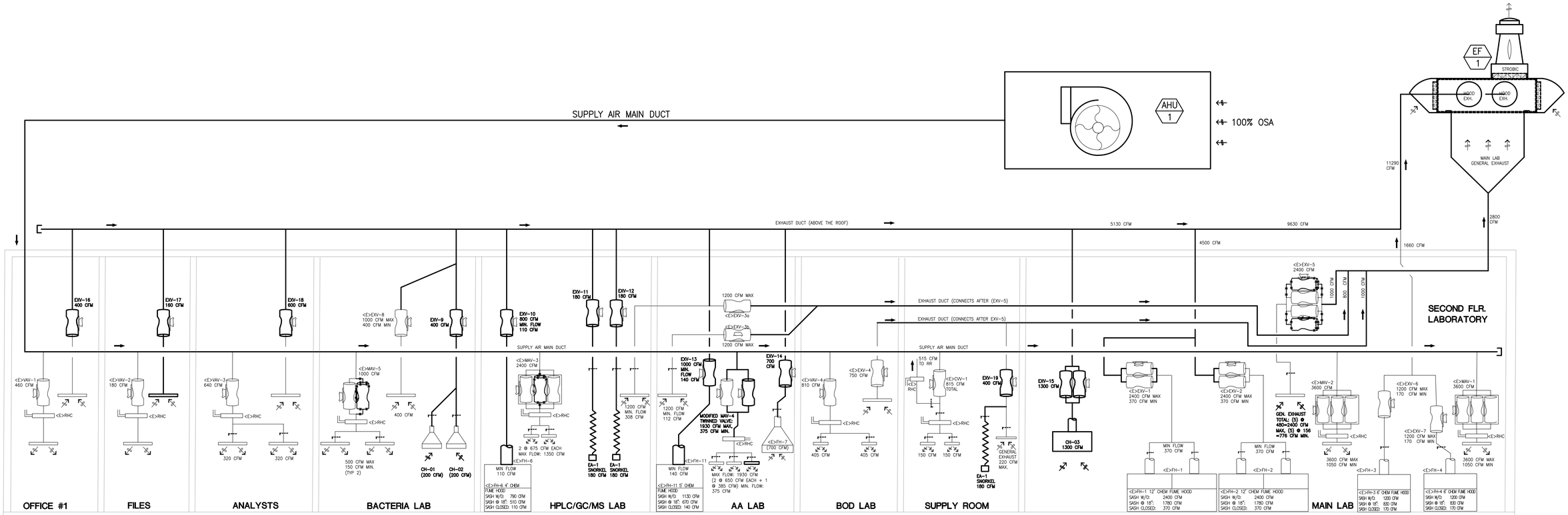

Room Info	Room Info	Room Info	Lab Info	Lab Info	Lab Info	Lab Info	Room Info	Lab Info
A=146 SQ-FT, V=1387 Cu-Ft	A=138 SQ-FT, V=1304 Cu-Ft	A=329 SQ-FT, V=3126 Cu-Ft	A=388 SQ-FT, V=3686 Cu-Ft	A=440 SQ-FT, V=4180 Cu-Ft	(A=265 SQ-FT V=2518 Cu-Ft)	(A=222 SQ-FT, V=2109 Cu-Ft)	(A=300 SQ-FT, V=2850 Cu-Ft)	(A=1954 SQ-FT V=18563 Cu-Ft)
MAINTAIN EXISTING	MAINTAIN EXISTING	MAINTAIN EXISTING	AT REST: 6 ACH, CANOPIES AND GENERAL EXHAUST AIR: 400 CFM, SUPPLY AIR: 300 CFM. OCCUPIED: CANOPIES ON 400 CFM, GENERAL EXHAUST 200 CFM, SUPPLY AIR 400 CFM – MAX 1000 CFM.	AT REST 6 ACH, SNORKELS OFF, 110 CFM WITH HOOD SASH CLOSED, GENERAL EXHAUST 308, SUPPLY AIR: 500 CFM. OCCUPIED: SASH FULL OPEN 790 CFM, SNORKELS 360 CFM TOTAL, EXHAUST TOTAL 1150 CFM, SUPPLY AIR 1350 CFM.	AT REST: 6 ACH, CANOPY OFF, 140 CFM SASH CLOSED, GENERAL EXHAUST 112 CFM, SUPPLY AIR 375 CFM. OCCUPIED: SASH FULL OPEN 1030 CFM, CANOPY ON 700 CFM, TOTAL EXHAUST 1730, SUPPLY AIR 1930 CFM.	CONSTANT: 21 ACH, 750 CFM EXHAUST, SUPPLY AIR 810 CFM	CONSTANT: 6 ACH, 180 CFM EXHAUST SNORKEL, 220 CFM GENERAL EXHAUST, SUPPLY AIR 300 CFM	6 AC/HR – AT REST – UNOCCUPIED – ALL CHEMICAL FUME HOOD SASHES CLOSED 1080 CFM, CANOPY HOOD OFF, GENERAL EXHAUST AIR 776. TOTAL EXHAUST 1,856 CFM. SUPPLY AIR 1,658 CFM ADJUST GEN. EXH / SA AS REQUIRED TO ACHIEVE AC/HR AND PRESSURE GRADIENT. IN USE OCCUPIED – AIR FLOWS AT CHEMICAL HOODS SASH 18 IN. FH-3 OR FH-4 SASH WIDE OPEN. CANOPY HOOD "ON" – TOTAL EA 6,890 CFM, SA – 6,600 CFM. HOOD FLOWS VARY AS SASH POSITION CHANGES. SA MAY VARY AGAINST ROOM TEMPERATURE SIGNAL FROM MAIN LAB.
			NEGATIVE PRESSURE	**POSITIVE PRESSURE**	**POSITIVE PRESSURE**	**NEGATIVE PRESSURE**	**NEGATIVE PRESSURE**	**NEGATIVE PRESSURE**

BUILDING A

1 LABORATORY AIR FLOW SCHEMATIC
SCHEMATIC

KEY PLAN

BUILDING A

SALASO'BRIEN
| expect a difference |
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

REGISTERED PROFESSIONAL ENGINEER CORAL A. GRITZER No. M35859 MECHANICAL STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
LABORATORY AIR FLOW SCHEMATIC

CIP NO. 22-P010

M7.3a
21 66

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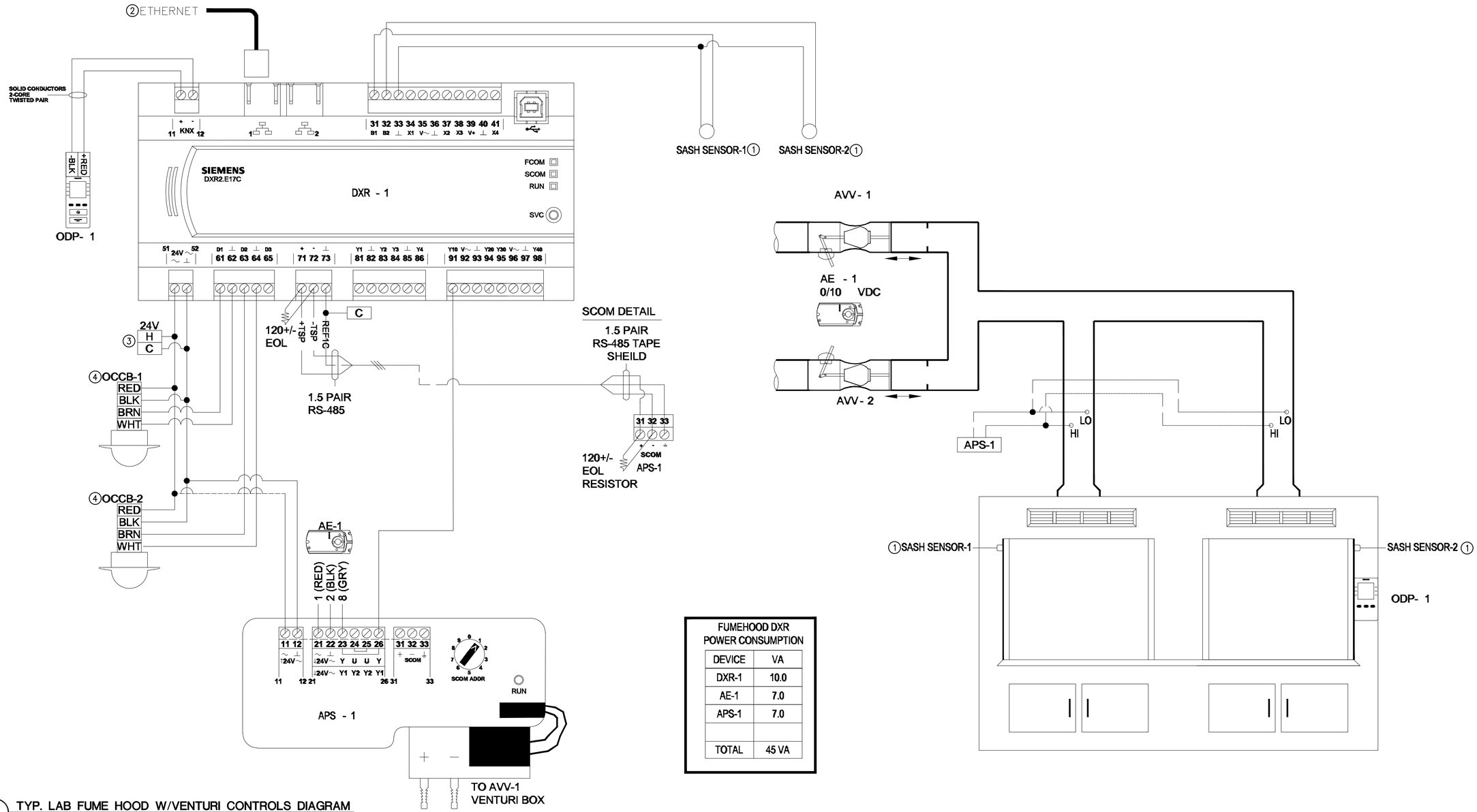
SOBE #2304150.1

Control Device	Qty	Product Number	Manufacturer	Document Number	Description
Field Mounted Devices					
AE 1,2	2	GDE161.1P	SIEMENS	154 011	ACT NSR PLENUM 24/108L 5NM
APS 1,2	2	DXA.S04P1	SIEMENS	N/A	AIR FLOW PRES SENSOR 1"
DXR 1	1	DXR2.E17C-103B	SIEMENS	N/A	DXR2.E17C-103B AUTOMATION STATION
OCCB 1	1	UP 258E22	SIEMENS	N/A	OCCUPANCY SENSOR
ODP 1	1	QMX3.P87-1WSC	SIEMENS	N/A	WALL MOUNT FUME HOOD ODP (PL-LINK)
PNL 1	1	550-002	SIEMENS	N/A	ENCLOSURE ASSY,TEC

REFERENCE SHEET NOTES

1. <E>SASH SENSORS MAY BE REUSED, CONFIRM FUNCTION AND COMPATIBILITY.
2. ETHERNET PROVIDED BY OTHERS.
3. <E>24 VAC POWER IS EXISTING.
4. OCCUPANCY SENSOR AT EACH SASH.



FUMEHOOD DXR POWER CONSUMPTION	
DEVICE	VA
DXR-1	10.0
AE-1	7.0
APS-1	7.0
TOTAL	45 VA

1 TYP. LAB FUME HOOD W/VENTURI CONTROLS DIAGRAM
SCHEMATIC

SALASO'BRIEN
expect a difference
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

REGISTERED PROFESSIONAL ENGINEER — CARL A. CRITZER — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
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DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

REVIEW

SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
LAB FUME HOOD CONTROLS DIAGRAM

CIP NO. 22-P010

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22 66

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SOBE #2304150.1

SEQUENCE OF EVENTS

THE ENERGY MANAGEMENT SYSTEM (EMS) INSTALLED UNDER THIS CONTRACT SHALL BE RESPONSIBLE FOR CONTROL OF THE NEW CHILLED WATER PLANT, PUMPS AND CHILLERS, <N>AHU–1 AND <E>AHU–2. ALL DAMPER AND HYDRONIC VALVE ACTUATORS AND CONTROLLERS ON THE VAV TERMINALS ON THE FIRST FLOOR OF BLDG. "A" SHALL BE REMOVED AND REPLACED WITH NEW ELECTRICALLY DRIVEN DAMPERS AND VALVE ACTUATORS. ROOM AND EXISTING PNEUMATIC SENSORS CONTROLLING AND OPERATING THE HYDRONIC REHEAT VALVES AND AIRFLOW CONTROL DAMPERS ON THE FIRST FLOOR VAV TERMINALS SHALL BE DEMOLISHED AND UPGRADED TO ELECTRIC ACTUATORS W/DDC SENSORS AND CONTROLLERS. THE 2ND FLOOR LABORATORY SYSTEM CONTROLS

OF THE AIR SIDE AND HYDRONIC SIDE VALVES SHALL BE CONVERTED TO ELECTRICALLY DRIVEN ACTUATORS WITH DDC CONTROL AND SENSORS WHICH CONTROL THE CHEMICAL AND TYPE II HOODS. NEW LABORATORY CONTROLS SHALL BE CAPABLE OF CAPTURING AIR FLOW INTO AND OUT OF ALL INDIVIDUAL LABORATORIES ON THE 2ND FLOOR. THE DDC SYSTEM SHALL TRACK AIRFLOWS AND COMPILE THESE DIFFERENTIALS ACTUATING EF–1 AND AHU–1 TO MAINTAIN AIR FLOW OFFSET AS REQUIRED TO MAINTAIN DIFFERENTIAL AIRFLOWS IN EACH LABORATORY. THE UPGRADED SYSTEM SHALL ADJUST AIRFLOWS AND MINIMUM AIR CHANGE RATES DEPENDING ON OCCUPATION AND TIME PARAMETERS, WHICH SHALL BE ADJUSTABLE. EXISTING HOODS SHALL BE PROVIDED WITH SASH POSITION SENSORS AND TRANSMITTERS, LOW AIR FLOW ALARMS, PROXIMITY SENSORS, AND AUTOMATIC SASH CLOSING FEATURES.

AHU–1 SHALL RUN 24/7 MODULATING AIR FLOW ACCORDING TO THE 2ND FLOOR DEMAND, HOA (HAND–OFF–AUTO) SETTING AND OPERATIONAL MODE. ROOM AIR FLOW DIFFERENTIALS SHALL REMAIN CONSTANT ONCE SET INITIALLY BY THE TAB AGENCY AND THE CONTROLS INSTALLERS. AHU–2 SHALL RUN AGAINST AN OWNER SUPPLIED SCHEDULE. THE CHILLED WATER PLANT SHALL BE CAPABLE OF 24/7 OPERATIONS AND WILL BE INITIATED WHEN THE 2ND FLOOR LAB AREAS CALL FOR COOLING, OR AN OPERATIONAL SCHEDULE INDICATES A RUN PERIOD. BUILDING "A" SECOND FLOOR LABORATORIES OPERATE ON A 24/7 SCHEDULE AND ARE CONTROLLED PRIMARILY BY CFM OFFSET WHICH IS DRIVEN BY THE SASH POSITIONING PROTOCOLS AND ROOM TEMPERATURES/HUMIDITY.

THE 2ND FLOOR SHALL OPERATE IN EITHER AN OCCUPIED OR UNOCCUPIED MODE. THE EMS SHALL ALLOW FOR REDUCING AIR FLOWS IN THE LABS WHEN THE LABS ARE IN A UNOCCUPIED OR A REST MODE. IF THE LAB IS IN THE AT UNOCCUPIED MODE, OCCUPANCY SENSORS SHALL OVERRIDE SET T.O.D. SCHEDULES IN EACH LAB SPACE WHEN OCCUPANTS ARE IN THE LAB FOR 5 MINUTES DURING UNOCCUPIED MODE. THE SYSTEM IN THAT LAB SWITCHES TO OCCUPIED MODE. THE EMS SYSTEM SHALL PROVIDE TEMPERATURE CONTROL WITHIN EACH LAB BY A WALL MOUNTD SENSOR OR A EXHAUST DUCT SENSOR. UPON A CALL FOR COOLING TO THE CHILLER PLANT, THE EMS SHALL INITIATE THE CHILLER ISOLATION VALVE(S), PUMP(S) AND CHILLER(S) TO START IN THE CHILLER MFG. RECOMMENDED SEQUENCE. AHU–1 FANS SHALL BE RUN AT ALL TIMES RESPONDING TO 2ND FLOOR LAB HOOD OPERATIONS REGARDLESS OF OTHER CALLS. THE EF–1, EXHAUST FAN SYSTEM AND AHU–1 SHALL MODULATE TO MAINTAIN CFM OFFSET AND TO CONFORM ACH REQUIREMENTS DURING OCCUPIED AND UNOCCUPIED CONDITIONS. THE CHILLER CONTROL PANEL SHALL CONTROL THE CHILLER COMPRESSORS AND PROVIDE MONITORING CAPABILITY TO THE EMS SYSTEMS USING BACNET OPEN PROTOCOL DIRECTLY WITHOUT INTERFACING OTHER TRANSLATION DEVICES OR CARDS FOR INTEGRATION WITH THE EMS. TIME OF USE ROTATIONS SHALL BE PROGRAMMED AND SELECTED BY OWNER AS DESIRED. SHUT DOWN FOR MAINTENANCE OF CHILLERS SHALL BE MANUALLY INITIATED BY THE OWNER ON A PROGRAMMABLE ALERT.

OPERATIONAL MODE

AHU–1 OUTPUT IS COORDINATED TO MAINTAIN A CFM DIFFERENTIAL (EXHAUST VS SA AIR) AT ALL TIMES AND IS ESTABLISHED DURING THE AIR BALANCING PROTOCOL WHEN THE CHILLED WATER PLANT IS CALLED "ON", THE EMS SHALL OPEN THE DESIGNATED LEAD CHILLER ISOLATION VALVE. ONCE THE VALVE IS OPEN START THE LEAD CHILLER CHW PUMP AND ONCE THE PRIMARY CHILLED WATER FLOW IS VERIFIED BY DIFFERENTIAL PRESSURE ACROSS THE CHILLER EVAPORATOR, THE EMS SHALL CALL THE LEAD CHILLER 'ON' AND BEGIN ITS START–UP CYCLE WHICH SHALL BE CONTROLLED BY THE INTERNAL CHILLER CONTROLS. AFTER THE CHILLER START CYCLE IS COMPLETED THE CHILLER COMPRESSOR SHALL START AND CONTROL THE CHILLED WATER TEMPERATURE SET AT THE CHILLER CONTROL PANEL SET BY THE CHILLER MANUFACTURER'S FACTORY START–UP TECHNICIAN AND THE EMS CONTRACTOR. THE OPERATIONAL CHILLERS SHALL LOAD AND UNLOAD THEIR COMPRESSORS AS REQUIRED TO MAINTAIN THE LEAVING CHILLED WATER TEMPERATURE SET–POINT AND FLOW RATES REQUIRED. MONITORING OF THE CHILLED WATER TEMPERATURES AND FLOW RATES SHALL BE VIEWABLE AT THE MAIN EMS CONTROL PANEL.

THE SECONDARY CHILLED WATER PUMP SYSTEM SHALL BE STARTED AND RUN CONTINUOUSLY AGAINST A DIFFERENTIAL PRESSURE SIGNAL AT <E>AHU–2 AND THE CHILLED WATER VALVE POSITIONING AT AHU–1 AND <E>AHU–2. THE NEW CONTROL VALVE AT <E>AHU–2 SHALL BE THREE WAY FULLY PROPORTIONAL MODULATING CONTROL VALVE. THE SECONDARY CHILLED WATER PUMP SHALL MODULATE TO MEET THE CHILLED WATER FLOW NEEDS IN THE TWO AIR HANDLERS. LOCATION OF THE DIFFERENTIAL PRESSURE SENSOR AND TRANSMITTERS AT <E>AHU–2 SHALL BE DETERMINED IN THE FIELD BY THE CONTROLS INSTALLER AND THE CONTRACTOR. FLOW RATES IN THE PRIMARY AND SECONDARY LOOPS SHALL BE SET TO ACCOMMODATE STARTING OF THE SECOND CHILLER WHEN THE FLOW IN THE CHILLER LOOP IS LESS THEN THE FLOW IN THE BUILDING LOOP BY A PREDETERMINED SET POINT. IF THE DIFFERENTIAL PRESSURE SENSOR AT <E>AHU–2 SENSES LOW PRESSURE AND THE THREE WAY CONTROL VALVE AT <E>AHU–2 IS FLOWING WATER THROUGH THE <E>AHU–2 COIL THE BUILDING CHILLED WATER PUMPS SHALL RESPOND ACCORDINGLY. THE SET POINT OF THESE SENSORS WILL BE FIELD DETERMINED AND ADJUSTABLE AS REQUIRED TO MEET THE FLOW REQUIREMENT AT <E>AHU–2.

IN RESPONSE TO CHANGES IN THE CHILLED WATER FLOW DEMAND, PROVIDE FLOW METERS IN THE CHILLED WATER SYSTEM TO CONTROL THE STAGING OF THE CHILLERS AND THE SECONDARY CHILLED WATER PUMPS BY COMPARING THE FLOW WITHIN THE CHILLER LOOP AND THE FLOW IN THE BUILDING CHILLED WATER LOOP. IF THE FLOW IN THE SECONDARY LOOP EXCEEDS THE PRIMARY LOOP, AND THE PRIMARY LOOP CHILLER PUMP IS AT 110% OR GREATER THAN DESIGN FLOW FOR TEN MINUTES AS DETERMINED BY THE FLOW METERS IN PRIMARY AND SECONDARY LOOPS. THEN THE EMS SHALL INITIATE START UP OF THE 2ND CHILLER ACCORDING TO THE ABOVE SEQUENCE. PLOW METERS IN

CHILLER OR PUMP FAILURES

IF, DURING THE CHILLER START–UP SEQUENCE THE LEAD CHILLER DOES NOT START, THE SECOND CHILLER SHALL BE STARTED AS ABOVE AND THE EMS SHALL INITIATE AN ALARM WHICH SHALL BE LOGGED AT THE MAIN CONTROL SCREEN AND A CALL WILL BE PLACED TO MAINTENANCE PERSONNEL. IF THE LEAD CHILLER FAILS TO START, THE SECOND (LAG) CHILLER SHALL BEGIN THE START SEQUENCE AS INDICATED ABOVE. THE LEAD CHILLER SHALL SHALL BE CALLED OFF, THE PRIMARY PUMP FOR THAT CHILLER SHALL BE CALLED OFF, THE ISOLATION VALVE FOR THAT CHILLER SHALL BE CLOSED.

IF THE LEAD SECONDARY CHILLED WATER PUMP DOES NOT START AFTER THE LEAD CHILLER START SEQUENCE IS COMPLETE, AN ALARM SHALL BE SENT TO THE MAIN CONTROL PANEL. WHEN THE BUILDING SECONDARY LEAD PUMP FAILS THE LAG PUMP SHALL START AUTOMATICALLY AND RUN TO MAINTAIN THE REQUIRED DIFFERENTIAL PRESSURE IN THE SECONDARY CHILLED WATER LOOP.

STAGING OFF

IF ALL CHILLERS HAVE BEEN STAGED ON, THE CHILLERS SHALL STAGE DOWN ONLY WHEN THE FLOW IN THE BUILDING CHILLED WATER LOOP FALLS BELOW 90% OF THE FLOW FOR ONE CHILLER (63 GPM) AS MEASURED BY THE FLOW METER IN THE SECONDARY LOOP. ONCE THE OFF DETERMINATION HAS BEEN MADE, BASED ON RUN–HOURS ALLOWED, ONE OF THE CHILLERS SHALL BE CALLED OFF AND ENTER ITS SHUT–DOWN SEQUENCE. IN THIS SEQUENCE, THE CHILLER SHALL BE COMPLETELY SHUT DOWN PRIOR TO THE ASSOCIATED PRIMARY CHILLED WATER PUMP BEING SHUT DOWN BY THE EMS. AFTER THE SHUT DOWN SEQUENCE FOR THE CHILLER IS CONCLUDED, THE ASSOCIATED CHILLED WATER PUMP SHALL RUN FOR A MINIMUM OF FIVE MINUTES. AFTER FIVE MINUTES, THE ASSOCIATED PRIMARY CHILLED WATER PUMP SHALL BE PLACED IN 'OFF' MODE AND THE ASSOCIATED ISOLATION VALVE SHALL BE CALLED CLOSED. THE RUNNING CHILLER SHALL BE ALLOWED TO RAMP UP AND COVER THE CAPACITY LOST BY THE CHILLER THAT STAGED OFF.

PLANT SHUT DOWN

UNDER NORMAL OPERATION, SHUT DOWN OF THE CHILLED WATER PLANT SHALL ONLY OCCUR WHEN THE OPERATION SCHEDULE INDICATES NO REQUIREMENT, THE OUTSIDE AIR TEMPERATURE DROPS BELOW THE PLANT OUTSIDE AIR START SET–POINT FOR A PERIOD OF MORE THAN (1) HOUR AND THERE IS NO CALLS FOR COOLING FROM ANY OF THE LABORATORY OR OFFICE ZONES. IF THE CHILLERS ARE IN OPERATION WHEN SHUT DOWN IS CALLED FOR, THE CHILLERS SHALL STAGE OFF FIRST THE LAG CHILLER SHUTTING DOWN AND THEN THE LEAD CHILLER SHUTTING DOWN. THE SHUT DOWN SEQUENCE FOR EACH CHILLER SHALL BE AS INDICATED IN THE 'STAGING OFF' SECTION ABOVE.

AIR HANDLER CONTROL

AHU–1 AIR FLOW IS CONTROLLED BY THE LAB HOODS SASH POSITIONS PRIMARILY, ALSO THE ROOM DIFFERENTIAL PRESSURE, TEMPERATURE AND HUMIDITY REQUIREMENTS OF THE LABORATORIES MUST BE MAINTAINED AT ALL TIMES, BOTH AHU–1 AND GENERAL EXHAUST FAN RUN 24/7. THE LAB SYSTEM DIFFERENTIAL PRESSURES ARE BASED ON CFM OFFSET BETWEEN THE LAB AND ADJACENT AREAS. THE SUM OF ALL AIR LEAVING THE LAB (GE AND HOOD EXHAUST FLOWS) SHALL BE COMPARED TO THE AIR ENTERING THE LAB (MAKE UP AIR) THE COMPARISON SHOULD SHALL BE MADE AND ADJUSTED BASED BY THE HOOD DEMANDS. EACH LAB HAS A ROOM PRESSURE RELATIONSHIP CONTROLLED BY THEIR INDIVIDUAL LAB AIRFLOW VALVES. AHU–1 HAS A 2–WAY MODULATING, PROPORTIONATELY CONTROLLED CHILLED WATER COIL CONTROL VALVE WHICH RESPONDS TO A LAB TEMPERATURE SENSOR ON THE WALL OF EACH LAB TO KEEP THE LAB AT THE SET–POINT OF THE SENSOR TRANSMITTER. EACH LAB SHALL BE FITTED WITH A NEW HYDRONIC HOT WATER REHEAT VALVE AND TWO WAY FULLY PROPORTIONAL MODULATING HHW CONTROL VALVE. IN ORDER TO ADDRESS DIVERSE TEMPERATURES IN THE LABORATORY PROVIDE HHW TO TEMPER THE TEMPERATURES IN THE DIFFERENT LABS. IF THE LAB AIRFLOW CANNOT MEET THE COOLING LOAD AT THE AIRFLOW REQUIRED BY THE HOODS SASH POSITIONS THEN THE COOLING COIL WILL ADJUST, LOWERING THE SUPPLY AIR TEMPERATURE TO THE LAB. WHEN THE POSITIONING OF THE HOOD SASHES WITHIN THE LAB ARE VARIED AND ARE NOT MEETING THE MINIMUM ACH IN ANY LAB, THE GENERAL EXHAUST VALVE SHALL STAGE OPEN TO MAINTAIN THE REQUIRED ACH BASED ON THE OPERATIONAL TIME. THE FAN WILL ADJUST SPEED TO MAINTAIN SUPPLY AIR FROM AHU–1 QUANTITY WITH THE GENERAL EXHAUST FAN AND SHALL MAINTAIN THE CFM OFFSET, THE AIR FLOW AT THE HOODS FOR THE SASH POSITIONING. THE AIR HANDLER ALSO HAS A HUMIDISTAT ON THE WALL OF THE LAB WHICH RESPONDS TO THE LAB RELATIVE HUMIDITY HOLDING IT AT A MINIMUM OF 40 % BY INJECTING STEAM INTO THE AIR STREAM AT AHU–1. THE HUMIDIFIER IS PROPORTIONALLY CONTROLLED AND MODULATES AGAINST THE SIGNAL FROM THE MAIN LAB. THE AHU–1 AIR HANDLER HAS TWO FANS WHICH OPERATE AS PRIMARY AND SECONDARY AND ARE CONTROLLED AS ABOVE. THE FANS SHALL BE ALTERNATED AGAINST TIME OF USE. FANS SHALL MODULATE TO LOWER ACH RATE DURING UNOCCUPIED TIMES AS SENSED BY ROOM OCCUPANCY SENSORS AND TIME OF DAY. FAN CHANGEOVER SHALL NOT BE MADE DURING LABORATORY OPERATIONAL TIMES. LABORATORY FLOW RATES ARE CONTROLLED BY LAB AIRFLOW VALVES WHICH RESPOND TO SASH POSITION OF THE HOODS BY MAINTAINING REQUIRED AIRFLOW AT ALL SASH POSITIONS WHEN THE PROXIMITY SENSORS INDICATE THE HOOD ARE IN USE. ALL EXISTING CHEMICAL HOODS SHALL BE PROVIDED WITH PROXIMITY SENSORS WHICH ALLOW FOR THE AIR EXHAUST VALVES IN THE LAB TO REDUCE AIR FLOWS IF THERE IS NO OPERATOR WITHIN THE OPERATIONAL ZONE IN FRONT OF THE HOOD OR THE SASH IS COMPLETELY CLOSED. <E>AHU–2 SHALL BE PROVIDED WITH A MODULATING PROPORTIONAL 3–WAY MIXING VALVE. PROVIDE A DIFFERENTIAL PRESSURE CHILLED WATER TRANSMITTER ACROSS THE THE CHWS & CHWR PIPING AT <E>AHU–2 SHALL MAINTAIN FLOW AT <E>AHU–2 CHW CONTROL VALVE. THE DP CONTROLLER SHALL BE ADJUSTED BY THE CONTROLS INSTALLER TO PROVIDE A CONSTANT MIN. DIFFERENTIAL PRESSURE ACROSS THE CHW CONTROL VALVE TO ALLOW MIN. CHW TO FLOW WHEN NO CALL BY <E>AHU–2 TEMPERATURE CONTROL VALVES.

SEQUENCE OF EVENTS (CON'T.)

LAB EXHAUST FAN CONTROL

LAB EXHAUST FROM THE LABORATORY HOODS AND THE GENERAL EXHAUST SOURCES ARE CONTROLLED BY A SIMPLEX LABORATORY EXHAUST FAN SYSTEM WITH PLENUM ON THE ROOF OF BLDG. A. THE EXHAUST FAN CONTROL MAINTAINS THE MINIMUM AIR VELOCITY AT THE DISCHARGE NOZZLE OF THE FAN TO 3000 FPM WHEN IN OPERATIONAL MODE. WHEN UNOCCUPIED, THE LAB EXHAUST AIRFLOW SHALL NOT BE ALLOWED TO GO BELOW THE MIN. SPECIFIED ACH. THE LAB EXHAUST FAN SHALL MAINTAIN A FIXED STATIC PRESSURE WITHIN THE FAN PLENUM AND CFM OFFSET WITHIN ALL LABS. THE LABORATORY EXHAUST FAN SHALL MODULATE TO MAINTAIN THE PRESET CFM OFFSET FOR EACH LAB WHICH OCCURS AS A RESULT OF THE LAB AIR EXHAUST VALVES TO THE SASH POSITIONING SENSORS AND THE OPERATIONAL MODE. THE FAN MAINTAIN A MINIMUM ACH IN THE LABS DURING UNOCCUPIED MODE. THE EXHAUST FAN CONTROL MODULE SHALL MODULATE THE DILUTION DAMPERS TO MAINTAIN THE STACK MINIMUM DISCHARGE VELOCITY. IF THE FAN FAILS AN ALARM WILL BE ISSUED TO THE MAIN CONTROL PANEL.

THE EXHAUST FAN SHALL MODULATE USING VFD DRIVES ON THE FAN MOTOR TO CONFORM TO THE CFM OFFSET CREATED BY THE LAB HOOD SASH POSITIONS, OPERATIONAL MODE AND THE ENVIRONMENTAL SENSORS WITHIN THE LAB SPACES.

WATER REATMENT

THE CHILLED WATER TREATMENT SYSTEM SHALL RUN WHEN THE CHILLER PUMP(S) ARE ACTIVE. ONCE THE ISOLATION VALVES ARE PROVEN OPEN, AT THIS TIME, THE WATER TREATMENT SYSTEM SHALL BE ON TO TREAT THE WATER.

LOGS & TRENDS

THE CONTROLS CONTRACTOR SHALL PROVIDE A COMPLETE GRAPHICS PACKAGE WHICH SHALL ILLUSTRATE GRAPHICALLY AT A FRONT END CPU ALL OPERATIONAL AND NON OPERATIONAL EQUIPMENT WITHIN THE HVAC AND HYDRONIC SYSTEM AND ALLOW RESETTING OF SET POINTS, TRENDING, ALARM FUNCTIONS, TEMPERATURES AND PRESSURES AS MENTIONED ABOVE AND REQUIRED TO TROUBLE SHOOT THE SYSTEM.

START–UP AND COMMISSIONING

THE CONTROLS CONTRACOR SHALL BE RESPONSIBLE FOR ALL SEQUENCES, SHALL TEST, TUNE AND ADJUST AS REQUIRED TO PROVIDE A FULLY FUNCTIONAL CENTRAL PLANT WITH STABLE OPERATION. THE CONTRACTOR SHALL SUBMIT A DETAILED TEST AND BALANCE REPORT AND BE RESPONSIBLE FOR COORDINATION BETWEEN THE CONTROLS CONTRACTOR AND THE TEST AND BALANCE AGENCY. TEST, ADJUST AND REPORT ALL LAB ROM PRESSURE DIFFERENTIALS, RELATIVE TO ADJACENT HALLWAYS. TEST AND ADJUST ALL AIR AND HYDRONIC WATER FLOWS TO ALL TERMINALS, VAV BOXES AND AIR TERMINALS AND DISTRIBUTION DEVICES.

DDC POINTS LIST

DDC POINTS LIST

CONTROL POINT I.D.	CONTROL DEVICE	DESCRIPTION OF CONTROL POINT	DEVICE LOCATION	AI	AO	DI	DO
OAT DB	TEMPERATURE SENSOR	OUTSIDE AIR DRY BULB TEMPERATURE	AHU -1 -ROOF BLDG A	1			
OAT WB	TEMPERATURE SENSOR	OUTSIDE AIR WET BULB TEMPERATURE	AHU -1 -ROOF BLDG A	1			
CWP-1 (IN-LINE CHILLER PUMP)	VFD - RELAY	PUMP START/STOP	ON GRADE CHILLER PLNT				1
CWP-1 (IN-LINE CHILLER PUMP)	VFD	PUMP SPEED CONTROL	ON GRADE CHILLER PLNT	1			
CWP-1 (IN-LINE CHILLER PUMP)	VFD	PUMP SPEED FEEDBACK	ON GRADE CHILLER PLNT	1			
CWP-1 (IN-LINE CHILLER PUMP)	VFD	PUMP VFD FAULT	ON GRADE CHILLER PLNT			1	
CWP-1 (IN-LINE CHILLER PUMP)	VFD - CURRENT SWITCH	PUMP STATUS	ONGRADE CHILLER PUNT			1	
CWP-2 (IN-LINE CHILLER PUMP)	VFD - RELAY	PUMP START/STOP	ON GRADE CHILLER PLNT				1
CWP-2 (IN-LINE CHILLER PUMP)	VFD	PUMP SPEED CONTROL	ON GRADE CHILLER PLNT	1			
CWP-2 (IN-LINE CHILLER PUMP)	VFD	PUMP SPEED FEEDBACK	ON GRADE CHILLER PLNT	1			
CWP-2 (IN-LINE CHILLER PUMP)	VFD	VFD FAULT	ON GRADE CHILLER PLNT			1	
CWP-2 (IN-LINE CHILLER PUMP)	VFD - CURRENT SWITCH	PUMP STATUS	ON GRADE CHILLER PLNT			1	
CHWP-1 (BUILDING CHILLED WATER PUMPS)	VFD - RELAY	PUMP START/STOP	ON GRADE CHILLER PLNT				1
CHWP-1 (BUILDING CHILLED WATER PUMPS)	VFD	PUMP SPEED CONTROL	ON GRADE CHILLER PLNT	1			
CHWP-1 (BUILDING CHILLED WATER PUMPS)	VFD	PUMP SPEED FEEDBACK	ON GRADE CHILLER PLNT	1			
CHWP-1 (BUILDING CHILLED WATER PUMPS)	VFD	VFD FAULT	ON GRADE CHILLER PLNT			1	
CHWP-1 (BUILDING CHILLED WATER PUMPS)	VFD - CURRENT SWITCH	PUMP STATUS	ON GRADE CHILLER PLNT			1	
CHWP-2 (BUILDING CHILLED WATER PUMPS)	VFD - RELAY	PUMP START/STOP	ON GRADE CHILLER PLNT				1
CHWP-2 (BUILDING CHILLED WATER PUMPS)	VFD	PUMP SPEED CONTROL	ON GRADE CHILLER PLNT	1			
CHWP-2 (BUILDING CHILLED WATER PUMPS)	VFD	PUMP SPEED FEEDBACK	ON GRADE CHILLER PLNT	1			
CHWP-2 (BUILDING CHILLED WATER PUMPS)	VFD	VFD FAULT	ON GRADE CHILLER PLNT			1	
CHWP-2 (BUILDING CHILLED WATER PUMPS)	VFD - CURRENT SWITCH	PUMP STATUS	ON GRADE CHILLER PLNT			1	
AHU -1 FAN 1	VFD - RELAY	FAN START/STOP	ROOF BLDG A				1
AHU -1 FAN 1	VFD	FAN SPEED CONTROL	ROOF BLDG A	1			
AHU -1 FAN 1	VFD	FAN SPEED FEEDBACK	ROOF BLDG A	1			
AHU -1 FAN 1	VFD	VFD FAULT	ROOF BLDG A			1	
AHU -1 FAN 1	VFD - CURRENT SWITCH	FAN STATUS	ROOF BLDG A			1	
AHU-1FAN 2	VFD - RELAY	FAN STOP/START	ROOF BLDG A			1	
AHU-1FAN 2	VFD	FAN SPEED CONTROL	ROOF BLDG A				
AHU-1FAN 2	VFD	FAN SPEED FEEDBACK	ROOF BLDG A	1			
AHU-1FAN 2	VFD	VFD FAULT	ROOF BLDG A	1			
AHU-1FAN 2	VFD-CURRENT SWITCH	FAN STATUS	ROOF BLDG A			1	
AHU-1 AIR LVG SP	STATIC PRESSURE SENSOR	AHU-1 LVG AIR STATIC PRESSURE	ROOF BLDG A	1			
AHU-1 DISAT	DRY BULB TEMP SENSOR	AHU-1 DISCHARGE AIR DB TEMP	ROOF BLDG A	1			
AHU-1DISCHARH	RELATIVE HUMIDITY SENSOR	AHU-1 DISCHARGE AIR REL HUMID	ROOF BLDG A	1			
AHU-1HUMID	CARTRIDGE HUMIDIFIER-RELAY	HUMIDIFIER STOP/START	ROOF BLDG A				1
AHU-1HUMID	CARTRIDGE HUMIDIFIER	WET BULB SENSOR	ROOF BUDG A	1			
AHU-1HUMD	CARTRIDGE HUMIDIFIER	RH SETPOINT	ROOF BLDG A		1		
AHU-1	CARTRIDGE HUMIDIFIER	HUMIDIFIER FAIL	BOOF BUILD A			1	
AHU-1FACP	APPROVED DETECTOR	SMOKE & HEAT DETECTOR	ROOF BLDG A			1	1
CHW LOOP DP	DIFF. PRESSURE SENSOR	CHILLED WATER DIFFERENTIAL PRESSURE	AHU-2 MECH ROOM	1			
CHW RETURN	FLOW METER	CHWR FLOW	CHWR PIPE PRIOR TO PLT	1			
CHW BYPASS FLOW	FLOW METER	BYPASS CHW FLOW	CHW BYPASS LOOP	1			
CH-1 CWR ISOVLV	BUTTERFLY ISOLATION VALVE	CH-1 ISOLATION VALVE	ON GRADE CHILLER PLT				1
CH-1 CWR ISOVLV POS	ISOLATION VALVE ACTUATOR	CH-1 ISOLATION VALVE OPEN	ON GRADE CHILLER PLT			1	
CH-1 CWR ISOVLV POS	ISOLATION VALVE END SWITCH	CH-1 ISOLATION VALVE CLOSED	ON GRADE CHILLER PLT			1	
CH-2 CWR ISOVLV	BUTTERFLY ISOLATION VALVE	CH-2 ISOLATION VALVE	CENTRAL PLANT				1
CH-2 CWR ISOVLV OPN	ISOLATION VALVE END SWITCH	CH-2 ISOLATION VALVE OPEN	CENTRAL PLANT			1	
CH-2 CWR ISOVLV CLD	ISOLATION VALVE END SWITCH	CH-2 ISOLATION VALVE CLOSED	CENTRAL PLANT			1	
CH-1 S/S (CHILLER)	RELAY	CH-1 CHILLER START/STOP	CENTRAL PLANT			1	
CH-1 CHWP-1 S/S	RELAY	CH-1 CHILLER PUMP START/STOP	CENTRAL PLANT			1	
CH-1 CHW ISOVLV	BUTTERFLY ISOLATION VALVE	CH-1 CHW ISOLATION VALVE	CENTRAL PLANT				1
CH-1 CHW ISOVLV OPN	ISOLATION VALVE END SWITCH	CH-1 CHW ISOLATION VALVE OPEN	CENTRAL PLANT			1	
CH-1 CHW ISOVLV CLD	ISOLATION VALVE END SWITCH	CH-1 CHW ISOLATION VALVE CLOSED	CENTRAL PLANT			1	
CH-1 CW ISOVLV	BUTTERFLY ISOLATION VALVE	CH-1 CW ISOLATION VALVE	CENTRAL PLANT				1
CH-1 CW ISOVLV OPN	ISOLATION VALVE END SWITCH	CH-1 CW ISOLATION VALVE OPEN	CENTRAL PLANT			1	
CH-1 CW ISOVLV CLD	ISOLATION VALVE END SWITCH	CH-1 CW ISOLATION VALVE CLOSED	CENTRAL PLANT			1	
CH-1 CHW DP	DIFFERENTIAL PRESSURE SENSOR	CHILLED WATER DIFFERENTIAL PRESSURE	CENTRAL PLANT	1			
CH-1 CHWS TS	TEMPERATURE SENSOR	CHILLED WATER SUPPLY TEMPERATURE	CENTRAL PLANT	1			
CH-1 CHWR TS	TEMPERATURE SENSOR	CHILLED WATER RETURN TEMPERATURE	CENTRAL PLANT	1			
CH-2 S/S	RELAY	CH-2 CHILLER START/STOP	CENTRAL PLANT			1	
CH-2 CHWP-2 S/S	RELAY	CH-2 CHILLED WATER PUMP START/STOP	CENTRAL PLANT			1	
CH-2 CHW ISOVLV	BUTTERFLY ISOLATION VALVE	CH-2 CHW ISOLATION VALVE	CENTRAL PLANT				1
CH-2 CHW ISOVLV OPN	ISOLATION VALVE END SWITCH	CH-2 CHW ISOLATION VALVE OPEN	CENTRAL PLANT			1	
CH-2 CHW ISOVLV CLD	ISOLATION VALVE END SWITCH	CH-2 CHW ISOLATION VALVE CLOSED	CENTRAL PLANT			1	
CH-2 CW ISOVLV	BUTTERFLY ISOLATION VALVE	CH-2 CW ISOLATION VALVE	CENTRAL PLANT				1
CH-2 CW ISOVLV OPN	ISOLATION VALVE END SWITCH	CH-2 CW ISOLATION VALVE OPEN	CENTRAL PLANT			1	
CH-2 CW ISOVLV CLD	ISOLATION VALVE END SWITCH	CH-2 CW ISOLATION VALVE CLOSED	CENTRAL PLANT			1	
CH-2 CHW DP	DIFF. PRESSURE SENSOR	CHILLED WATER DIFFERENTIAL PRESSURE	CENTRAL PLANT	1			
CH-2 CHWS TS	TEMPERATURE SENSOR	CHILLED WATER SUPPLY TEMPERATURE	CENTRAL PLANT	1			
CH-2 CHWR TS	TEMPERATURE SENSOR	CHILLED WATER RETURN TEMPERATURE	CENTRAL PLANT	1			
EF-1 EXHAUST FAN	STATIC PRESSURE SENSOR	SHATIC PRESSURE AT STROBIC PLENUM	BLDG. A - ROOF	1			
EF-1 EXHAUST FAN	VELOCITY PRESSURE	VELOCITY PRESSUE AT STROBIC DISCHARGE	BLDG. A - ROOF	1			
EF-1 EXHAUST FAN	ISOLATION DAMPER 1 - STROBIC	FAN ISOLATION SETPOINT	BLDG A - ROOF		1		
EF-1 EXHAUST FAN	ISOLATION DAMPER 1 - STROBIC	DAMPER OPEN END SWITCH	BLDG A - ROOF			1	
EF-1 EXHAUST FAN	ISOLATION DAMPER 1 - STROBIC	DAMPER CLOSE END SWITCH	BLDG A - ROOF			1	
EF-1 EXHAUST FAN	ISOLATION DAMPER 2 - STROBIC	FAN ISOLATION	BLDG A - ROOF		1		
EF-1 EXHAUST FAN	ISOLATION DAMPER 2 - STROBIC	DAMPER OPEN END SWITCH	BLDG A - ROOF			1	
EF-1 EXHAUST FAN	ISOLATION DAMPER 2 - STROBIC	DAMPER CLOSE END SWITCH	BLDG A - ROOF			1	
EF-1 EXHAUST FAN	MIXING DAMPER 1 - STROBIC	VELOCITY PRESSURE SENSOR- SETPOINT	BLDG A - ROOF		1		
EF-1 EXHAUST FAN	MIXING DAMPER 1 - STROBIC	DAMPER POSITION	BLDG A - ROOF	1			
EF-1 EXHAUST FAN	MIXING DAMPER 2 - STROBIC	VELOCIYT PRESSURE SENSOR- SETPOINT	BLDG A - ROOF		1		
EF-1 EXHAUST FAN	MIXING DAMPER 2 - STROBIC	DAMPER POSITION	BLDG A-ROOF	1			
EF-1 FAN - 1	VFD-RELAY	STOP/START	BLDG A-ROOF				1
EF-1 FAN - 1	VFD	FAN SPEED CONTROL	BLDG A-ROOF		1		
EF-1 FAN - 1	VFD	FAN SPEED FEEDBACK	BLDG A-ROOF	1			
EF-1 FAN - 1	VFD	FAULT	BLDG A-ROOF			1	
EF-1 FAN - 1	VFD - CURRENT SWITCH	STATUS	BLDG A-ROOF			1	
EF-1 FAN - 2	VFD-RELAY	STOP/START	BLDG A-ROOF				1
EF-1 FAN - 2	VFD	FAN SPEED CONTROL	BLDG A-ROOF		1		
EF-1 FAN - 2	VFD	FAN SPEED FEEDBACK	BLDG A-ROOF	1			
EF-1 FAN - 2	VFD	FAULT	BLDG A-ROOF			1	
EF-1 FAN - 2	VFD - CURRENT SWITCH	STATUS	BLDG A-ROOF			1	
MAIN LAB OCCUPANCY	ROOM OCCUPANCY SENSOR	ROOM OCCUPANCY SENSOR	MAIN LAB			1	
BOD LAB OCCUPANCY	ROOM OCCUPANCY SENSOR	ROOM OCCUPANCY SENSOR	BOD LAB			1	
AA LAB OCCUPANCY	ROOM OCCUPANCY SENSOR	ROOM OCCUPANCY SENSOR	AA LAB			1	
HPLC/CC/MS LAB OCCUPANCY	ROOM OCCUPANCY SENSOR	ROOM OCCUPANCY SENSOR	HPLC LAB			1	
BACTERIA LAB OCCUPANCY	ROOM OCCUPANCY SENSOR	ROOM OCCUPANCY SENSOR	BACTERIA LAB			1	

DDC POINTS LIST (CON'T.)

INTERNAL CHILLER POINTS REFERENCE ONLY							
CHILLER MODE SETPOINT	CHILLER BACNET POINT	CHILLER MODE SETPOINT					
CHILLER ON OFF	CHILLER BACNET POINT	CHILLER ON OFF					
CHILLER STATUS BACNET	CHILLER BACNET POINT	CHILLER STATUS BACNET					
CHILLER TYPE	CHILLER BACNET POINT	CHILLER TYPE					
COMPRESSOR CURRENT	CHILLER BACNET POINT	COMPRESSOR CURRENT					
COMPRESSOR DISCHARGE TEMP	CHILLER BACNET POINT	COMPRESSOR DISCHARGE TEMPERATURE					
COMPRESSOR PERCENT RLA	CHILLER BACNET POINT	COMPRESSOR PERCENT RLA					
COMPRESSOR POWER	CHILLER BACNET POINT	COMPRESSOR POWER					
COMPRESSOR RUN HOURS	CHILLER BACNET POINT	COMPRESSOR RUN HOURS					
COMPRESSOR SELECT	CHILLER BACNET POINT	COMPRESSOR SELECT					
COMPRESSOR STARTS	CHILLER BACNET POINT	COMPRESSOR STARTS					
COMPRESSOR SUCTION LINE TEMP	CHILLER BACNET POINT	COMPRESSOR SUCTION LINE TEMPERATURE					
COMPRESSOR VOLTAGE	CHILLER BACNET POINT	COMPRESSOR VOLTAGE					
COOL SETPOINT	CHILLER BACNET POINT	COOL SETPOINT					
EVAPORATOR ENTERING WATER TEMP	CHILLER BACNET POINT	EVAPORATOR ENTERING WATER TEMPERATURE					
EVAPORATOR FLOW SWITCH STATUS	CHILLER BACNET POINT	EVAPORATOR FLOW SWITCH STATUS					
EVAPORATOR LWT FOR UNIT	CHILLER BACNET POINT	EVAPORATOR LEAVING WATER TEMPERATURE FOR UNIT					
EVAPORATOR LWT FOR COMP	CHILLER BACNET POINT	EVAPORATOR LEAVING WATER TEMPERATURE FOR COMPRESSOR					
EVAPORATOR PUMP RUN HOURS	CHILLER BACNET POINT	EVAPORATOR PUMP RUN HOURS					
EVAPORATOR REFRIGERANT PRESS	CHILLER BACNET POINT	EVAPORATOR REFRIGERANT PRESSURE					
EVAPORATOR SATURATED RFRG TEMP	CHILLER BACNET POINT	EVAPORATOR SATURATED REFRIGERANT TEMPERATURE					
EVAPORATOR WATER FLOW RATE	CHILLER BACNET POINT	EVAPORATOR WATER FLOW RATE					
EVAPORATOR WATER PUMP STATUS	CHILLER BACNET POINT	EVAPORATOR WATER PUMP STATUS					
LIQUID LINE REFRIGERANT PRESSURE	CHILLER BACNET POINT	LIQUID LINE REFRIGERANT PRESSURE					
LIQUID LINE REFRIGERANT TEMP	CHILLER BACNET POINT	LIQUID LINE REFRIGERANT TEMPERATURE					
OIL FEED PRESSURE	CHILLER BACNET POINT	OIL FEED PRESSURE					
OIL FEED TEMPERATURE	CHILLER BACNET POINT	OIL FEED TEMPERATURE					
OIL SUMP PRESSURE	CHILLER BACNET POINT	OIL SUMP PRESSURE					
OIL SUMP TEMPERATURE	CHILLER BACNET POINT	OIL SUMP TEMPERATURE					
OUTDOOR AIR TEMPERATURE	CHILLER BACNET POINT	OUTDOOR AIR TEMPERATURE					
PUMP SELECT	CHILLER BACNET POINT	PUMP SELECT					
RUN ENABLED	CHILLER BACNET POINT	RUN ENABLED					
WARNING ALARMS, AI OBJ	CHILLER BACNET POINT	WARNING ALARMS, ANALOG INPUT OBJECT					
PROBLEM ALARMS, AI OBJ	CHILLER BACNET POINT	PROBLEM ALARMS, ANALOG INPUT OBJECT					
FAULT ALARMS, AI OBJ	CHILLER BACNET POINT	FAULT ALARMS, ANALOG INPUT OBJECTS					
WARNING ALARMS, MULTI-STATE INPUT OBJ	CHILLER BACNET POINT	WARNING ALARMS, MULTI-STATE INPUT OBJECT					
PROBLEM ALARM, MULTI-STATE INPUT OBJ	CHILLER BACNET POINT	PROBLEM ALARMS, MULTI-STATE INPUT OBJECT					
FAULT ALARMS, MULTI-STATE INPUT OBJ	CHILLER BACNET POINT	FAULT ALARMS, MULTI-STATE INPUT OBJECT					
ALARM DIGITAL OUTPUT	CHILLER BACNET POINT	ALARM DIGITAL OUTPUT					
BACNET CLEAR ALARM	CHILLER BACNET POINT	BACNET CLEAR ALARM					
				33	7	43	15
				98			

1 MECHANICAL DDC POINTS LIST & SEQUENCE OF EVENTS

SCHEMATIC

SALASO'BRIEN
|expect a difference|
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

REGISTERED PROFESSIONAL ENGINEER CARL A. CRIZER No. M35859 MECHANICAL STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY – | DESIGN BY – | CHECKED BY CC | RECOM'D: PROJ. MGR. – | DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL. | FIELD OPS. | WWTP OPS. | MECH./MAINT. | ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828–0515

WWTP HVAC REPLACEMENTS - BUILDING A

MECHANICAL
DDC POINTS LIST & SEQUENCE OF EVENTS

CIP NO. 22–P010

M7.5a
23 | 66

ABBREVIATIONS

&	AND
@	AT
AFF	ABOVE FINISHED FLOOR
A OR AMP	AMPERES
AIC	AMPERE INTERRUPTING CAPACITY
AL, ALUM	ALUMINUM
APPROX	APPROXIMATE
AUX	AUXILIARY
AWG	AMERICAN WIRE GAGE
BAS	BUILDING AUTOMATION SYSTEM
BC	BARE COPPER
BDF	BUILDING DISTRIBUTION FRAME
BKR	BREAKER
BLDG	BUILDING
BLTS	BUILDING LIGHTS
C	CONDUIT
CAM	CAMERA
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CLR	CLEARANCE
CLTS	CANOPY LIGHTS
CMS	COMBINATION MOTOR STARTER
C.O.	CONDUIT ONLY W/PULLROPE
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CTRL	CONTROL
D	DEDICATED
DP	DISTRIBUTION PANEL
DN	DOWN
EA	EACH
EF	EXHAUST FAN
EHH	ELECTRIC HANDHOLE
ELEC	ELECTRICAL
EM	EMERGENCY; ON EMERGENCY POWER SUPPLY/PANEL
EMH	ELECTRIC MANHOLE
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
<E>	EXISTING
<ERR>	EXISTING TO REMAIN AND RECONNECTED
EST	ESTIMATED
EV	ELECTRIC VEHICLE
EX	EXAMPLE
<F>	FUTURE
FA	FORCE AIR
FDR	FEEDER
FIC	FUEL ISLAND CONTROL
FLA	FULL LOAD AMPS
FLC	FULL LOAD CURRENT
FT, '	FEET
GFI	GROUND FAULT CIRCUIT-INTERRUPTER
GND	GROUND
GS	GROUND SENSOR CURRENT TRANSFORMER
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HT	HEIGHT
HV	HIGH VOLTAGE
HZ	HERTZ
", IN	INCHES
INS	INSULATION
IRR	IRRIGATION
ITSS	INFORMATION TECHNOLOGY SUPPORT SERVICE
JB, J	JUNCTION BOX
Kcmil	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KW	KILOWATT
L	LENGTH
LCM	LOCAL CONTROL MODULE
LF	LINEAR FEET
LPB	LIGHTING PULLBOX
LTG	LIGHTING
LTS	PERIMETER LIGHTS
LV	LOW VOLTAGE
MAX	MAXIMUM
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FRAME
MEZZ	MEZZANINE
MFG	MANUFACTURERS
MIN	MINIMUM
MSB	MAIN SWITCHBOARD
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
<N>	**NEW (BOLD)**
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION
NIC	NOT IN CONTRACT
NO	NUMBER
N.T.S.	NOT TO SCALE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OC	ON CENTER
OHE	OVERHEAD ELECTRIC
P	POWER
P#	LIGHT POLE NUMBER
PB	PULLBOX
PPB	POWER PULLBOX
PF	POWER FACTOR
PH OR ø	PHASE
PLTS	PARKING LOT LIGHTS
PNL	PANEL
PNLA	PANEL 'A' FEEDER
PPMH	PRIMARY POWER MANHOLE/ PULLBOX OR VAULT
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PV	PHOTOVOLTAIC
PWR	POWER
<R>	REMOVE
<RRN>	REMOVE & REPLACE W/ <N>
REC	RECEPTACLE
REF	REFERENCE
R/S	REMOVE AND SALVAGE OFF SITE
RM	ROOM
RMC	RIGID METALLIC CONDUIT
RSC	RIGID STEEL CONDUIT
RGS	RIGID GALVANIZED STEEL

S	SIGNAL
SA	SURGE ARRESTER
S.A.D.	SEE ARCHITECTURAL DRAWINGS
SCE	SOUTHERN CALIFORNIA EDISON
S.E.D.	SEE ELECTRICAL DRAWINGS
S.F.D.	SEE FIRE ALARM DRAWINGS
SEC	SECONDARY
SF	SQUARE FEET
SH, SHT	SHEET
SLTS	SITE LIGHTS
SPEC	SPECIFICATIONS
SPB	SIGNAL PULLBOX
SQ	SQUARE
S.S.D.	SEE STRUCTURAL DRAWINGS
STD	STANDARD
SVC	ELECTRIC SERVICE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR OR SWG	SWITCHGEAR
SSW	MV SELECTOR SWITCH
TEL	TELEPHONE
TR	TO REMAIN
TYP	TYPICAL
TX, XFMR	TRANSFORMER
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
WP	WEATHERPROOF

SYMBOLS

- FUSE
- TRANSFORMER
- GROUND CONNECTION
- DRAWOUT OR PLUG-IN CONNECTION
- CIRCUIT BREAKER
- MOLDED CASE BREAKER W/ SOLID STATE TRIP UNIT (LONG, SHORT, INSTANTANEOUS, GROUND) — LSIG
- LOAD INTERRUPTER SWITCH/FUSE (CURRENT LIMITING FUSE)
- PG&E METER W/ CT'S — M
- CUSTOMER OWNED METER W/ CT'S — M
- CURRENT TRANSFORMER, RATIO & QTY AS SHOWN
- DISCONNECT SWITCH
- CONDUIT OR CABLE AS NOTED
- UNDERGROUND ELECTRICAL (OR OTHER UTILITY)
- E — <E> ELECTRICAL
- 21KV — UNDERGROUND 21KV CONDUIT
- T — UNDERGROUND TELECOM CONDUIT
- LV — CONTROLS OR LOW VOLTAGE CONDUIT
- OHE — OVERHEAD ELECTRICAL CABLE – MEDIUM VOLTAGE
- BRANCH CIRCUIT HOME RUN TO PANEL. CONCEALED IN CEILING SPACE OR WHERE POSSIBLE.
- SURFACE RACEWAY.
- # — REFERENCE SHEET NOTE.
- 1 / EST — DETAIL TAG. REFER TO DETAIL 1 ON SHEET E5.1.
- TO BE DEMOLISHED
- Δ , — TRANSFORMER
- PM — POWER MONITORING SYSTEM WITH CONNECTION
- FUSED DISCONNECT, HEAVY DUTY
- DISCONNECT, HEAVY DUTY
- COMBINATION MOTOR STARTER/DISCONNECT WITH HOA & INDICATOR LIGHTS
- M — MOTOR
- FLEX CONNECTION
- CONTACT/STARTER
- G — GROUNDING WELL, CHRISTY G5T WITH METALLIC INSPECTION COVER, UON (WITH ROD ELECTRODE: 3/4"x10' COPPER CLAD STEEL UON)
- J, J, J — JUNCTION BOX – CEILING/FLOOR/ROOF/WALL MOUNTED
- PC — PHOTOCELL
- T — THERMOSTAT
- CONDUIT OPENING
- EMPTY CONDUIT
- FC 1 — EQUIPMENT TAG
- POINT OF CONNECTION <N> TO <E>
- POINT OF DEMOLITION TO <E>
- VFD — VARIABLE FREQUENCY DRIVE, FURNISH BY MECHANICAL CONTRACTOR INSTALLED & CONNECTED BY ELECTRICAL CONTRACTOR
- K — KIRK KEY INTERLOCK
- E — ELECTRICALLY INTERCONNECTION LOCK
- GROUNDING ROD ELECTRODE (3/4" x 10' COPPER CLAD UON)
- NEW TRENCH
- 50/51N — INSTANTANEOUS/ OVERCURRENT/ TIME OVER CURRENT RELAY(S) AND CURRENT TRANSFORMERS
- COPPER GROUND BAR
- 52 — MEDIUM VOLTAGE DRAWOUT CIRCUIT BREAKER
- ELECTRICAL POLE
- DATA OUTLET – (2)RJ-45 DATA PORTS, UON.
- (#) — VOICE OUTLET – "#" DENOTES QUANTITY OF RJ-45 PORTS
- TV — TV OUTLET – (1)COAX CABLE CONNECTION
- (1) RJ-45 DATA OUTLET
  (1) RJ-11 VOICE OUTLET W/ FACE PLATE
- (1) RJ-45 DATA OUTLET
  (1) RJ-11 VOICE OUTLET W/ FACE PLATE } FLOOR MOUNTED
- WIRELESS ACCESS POINT (CEILING MOUNTED)
- WIRELESS ACCESS POINT (WALL MOUNTED)
- ELECTRICAL PANEL BOARD
- PBX — PULLBOX
- WP R — RMS & STROBE

- CR — CARD READER LOCATION INTERGRAL W/ LOCKSET (ACCESS CONTROL). PROVIDE CONDUIT, WIRING, AND ALL EQUIPMENT NECESSARY.
- MG — MOTORIZED GATE OPERATOR
- H — SECURITY SOUNDER (INTRUSION DETECTION). PROVIDE CONDUIT PATH AND JUNCTION BOX.
- K — KEYPAD (INTRUSION DETECTION). PROVIDE CONDUIT PATH AND JUNCTION BOX.
- I — INTERCOM (ACCESS CONTROL). PROVIDE CONDUIT, WIRING, AND ALL EQUIPMENT NECESSARY.
- S — SLIDING GATE SENSOR
- OS — OCCUPANCY SENSOR
- CAMERA LOCATION (SURVEILLANCE SYSTEM). PROVIDE CONDUIT, WIRING, AND ALL EQUIPMENT NECESSARY.
- $ — HALF-SWITCHED CONTROLLED RECEPTACLE. SWITCH PLATE TO BE PROVIDED WITH GFI COMBINATION
- GFI — WALL-MOUNTED RECEPTACLE, ABOVE COUNTER, TYP, +44" A.F.F.
- GFI — GFI RECEPTACLE
- D — DEDICATED RECEPTACLE
- WP GFI — DUPLEX GFI, WEATHER RESISTANT RECEPTACLE WITH WHILE-IN-USE WEATHERPROOF METALLIC COVER, 20A, 125V, 3WG, NEMA 5-20R
- C — CONTROLLED RECEPTACLE, REFER TO WIRING DIAGRAM
- USB — DUPLEX RECEPTACLE WITH BUILT-IN USB PORT
- FLOOR, CEILING, WALL-MOUNTED DUPLEX RECEPTACLE 20A, 125V, 3WG, NEMA 5-20R, +18" A.F.F.
- FLOOR, CEILING, WALL-MOUNTED DOUBLE DUPLEX RECEPTACLE 20A, 125V, 3WG, (2) NEMA 5-20R, +18" A.F.F.
- $ — SINGLE POLE SWITCH, +44" AFF., DIMMER UON.
- $ a — SWITCH – LOWER CASE LETTER INDICATES CIRCUIT SWITCHING
- $ T — SWITCH – TIMER OPERATED
- $ HP — SWITCH – HORSE POWER RATED
- SPK — SPEAKER AND MICROPHONE AUDIO MONITORING SYSTEM. PROVIDE CONDUIT, WIRING, AND ALL EQUIPMENT NECESSARY.
- 3G — FUNCTION BOX THREE GANG – WALL MOUNTED

APPLICABLE CODES

UNLESS OTHERWISE INDICATED OR SPECIFIED, PERFORM THE WORK IN CONFORMANCE WITH THE LATEST EDITIONS OF ALL APPLICABLE REGULATORY REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24): 2022
2. CALIFORNIA BUILDING CODE (PART 2, TITLE 24): 2021 IBC WITH 2022 CA AMENDMENTS
3. CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24): 2020 NEC WITH 2022 CA AMENDMENTS
4. CALIFORNIA MECHANICAL CODE (PART 4, TITLE 24): 2021 UMC WITH 2022 CA AMENDMENTS
5. CALIFORNIA PLUMBING CODE (PART 5, TITLE 24) 2021 UPC WITH 2022 CA AMENDMENTS
6. CALIFORNIA ENERGY CODE (PART 6, TITLE 24): 2022
7. CALIFORNIA HISTORICAL BUILDING CODE, (PART 8, TITLE 24): 2022
8. CALIFORNIA FIRE CODE (PART 9, TITLE 24): 2021 IFC WITH 2022 CA AMENDMENTS
9. CALIFORNIA EXISTING BUILDING CODE (PART 10, TITLE 24): 2022 (2021 INTERNATIONAL EXISTING BUILDING CODE WITH 2022 CA AMENDMENTS)
10. CALIFORNIA GREEN BUILDING STANDARDS CODE OR CAL GREEN (PART 11, TITLE 24): 2022
11. CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24): 2022
12. PUBLIC SAFETY (CCR TITLE 19), STATE FIRE MARSHAL: CURRENT REVISION
13. NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE, 2022 EDITION

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY JG; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SALASO'BRIEN
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REGISTERED PROFESSIONAL ENGINEER — HUGH L. KING — No. E20530 — ELECTRICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL
SYMBOLS & ABBREVIATIONS

SCALE: AS NOTED DATE: 12/09/2025

CIP NO. 22-P010

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K:\drawings\Dublin San Ramon Services District\2304150 RFP WWTP DERWA HVAC Replacements\2304150.1 Building A\2304150.1E0.1a.dwg 12/9/2025 7:28 PM Minh Ong

SOBE #2304150.1

DEMOLITION NOTES

1. REMOVE EXISTING EQUIPMENT IN CONFLICT WITH NEW CONDITIONS. REMOVE ALL WIRE NOT IN SERVICE AND FROM ABANDONED RACEWAYS. PROTECT EXISTING CIRCUITING PASSING THROUGH DEMOLITION AREAS. EXTEND AND/OR RELOCATE AS NECESSARY.

2. ALL ABANDONED EQUIPMENT INCLUDING LIGHT, RECEPTACLES, DATA, FIRE ALARM, ETC., SHALL BE COVERED WITH BLANK METAL PLATES AND PAINTED TO MATCH THE ADJACENT FINISH OF SURROUNDING WALLS OR CEILING TO THE SATISFACTION OF THE ARCHITECT/OWNER.

3. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO DISCONNECT AND REMOVE ALL EXISTING ELECTRICAL EQUIPMENT AFFECTED BY THE PROJECT. THIS INCLUDES REROUTING OR THE EXTENSION OF EXISTING CONDUIT AND FEEDER WHERE NECESSARY TO MAINTAIN OPERATIONAL OF ANY EXISTING EQUIPMENT.

4. CIRCUIT NUMBERS AND CONDUIT HOMERUNS SHOWN ON THESE DRAWINGS WERE TAKEN FROM EXISTING RECORD DRAWINGS. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO VERIFY EXISTING CIRCUITING AND CONDUIT HOMERUNS. ADJUST CIRCUIT NUMBERS ACCORDING TO THE ACTUAL CONDITIONS.

5. WHERE EXISTING CONDUIT IS TO BE ABANDONED OR DEMOLISHED, THE CONDUIT SHALL BE REMOVED IF IT IS EXPOSED, IN A CRAWL SPACE OR IN AN ACCESSIBLE CEILING. ABANDONED OR DEMOLISHED CONDUIT FEEDS UP THROUGH THE FLOOR SHALL BE CUT OFF AND PLUGGED FLUSH WITH THE FLOOR.

6. ALL ELECTRICAL EQUIPMENT INCLUDING LIGHT, RECEPTACLE, DATA, FIRE ALARM, ETC., THAT ARE TO BE REMOVED, SHALL BE REMOVED COMPLETELY, INCLUDING CONDUIT AND WIRING BACK TO THE LAST DEVICE REMAINING IN SERVICE, OR SOURCE.

7. EXISTING CIRCUITS WHICH ARE REMOVED AND NOT REUSED SHALL BE IDENTIFIED ON THE PANEL SCHEDULE AS "SPARE".

8. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO REMOVAL OF EXISTING ELECTRICAL EQUIPMENT AND TURN OVER REMOVED EQUIPMENT THAT THE OWNER REQUESTS IN AN "AS-FOUND" CONDITION.

9. ALL DEMOLITION WORK SHOWN, IF ANY, WAS PREPARED FOR THE CONVENIENCE OF THE CONTRACTOR. NO REPRESENTATION HAS BEEN MADE THAT ALL ITEMS THAT MAY REQUIRE DEMOLITION HAVE BEEN SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CAREFULLY EXAMINE THE SITE AND THE CONTRACT DOCUMENTS AND TO PERFORM ALL DEMOLITION AND RECONSTRUCTION WHICH MAY BE REQUIRED FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK.

10. WHEN CALLED FOR, OR SCOPE OF WORK REQUIRES ELECTRICAL EQUIPMENT TO BE REMOVED, ALL CONDUIT, WIRE, BOXES, HANGERS, ETC. SHALL BE REMOVED COMPLETELY. ALL OPENINGS SHALL BE PATCHED, SEALED AND PAINTED TO MATCH THE ADJACENT FINISH.

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS, ADDENDA, DRAWINGS, AND SPECIFICATIONS. PRIOR TO SUBMITTING PROPOSAL, CONTRACTOR SHALL EXAMINE ARCHITECTURAL, STRUCTURAL AND MECHANICAL CONSTRUCTION DRAWINGS AND SPECIFICATIONS AND SHALL HAVE VISITED THE CONSTRUCTION SITE. HE/SHE SHALL BE FAMILIAR WITH THE EXISTING CONDITIONS UNDER WHICH HE/SHE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION IN BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS/HER PART. DETERMINE THE SEQUENCE OF CONSTRUCTION THROUGHOUT THE PROJECT, INCLUDING TEMPORARY FACILITIES AND CONNECTIONS REQUIRED FOR THE DURATION OF THE PROJECT.

2. ALL TEMPORARY CONNECTIONS SHALL BE CONSIDERED PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY, PERSONAL, AND PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT, AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.

4. THE CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ALL ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.

5. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL, AT THE CONCLUSION OF THE PROJECT, PROVIDE A SET OF REPRODUCIBLE (AUTOCAD), ACCURATE AND NEAT "AS-BUILT" DRAWINGS ACCEPTABLE TO THE ARCHITECT.

6. THESE DRAWINGS DO NOT REPRESENT THE EXACT LOCATIONS, SIZES OR EXTENT OF UTILITIES ON SITE. CONTRACTOR SHALL TAKE STANDARD PRECAUTIONS FOR WORK IN EXISTING FACILITIES.

7. EXISTING ELECTRICAL WIRING WHICH WILL NOT BE MADE OBSOLETE AND WHICH WILL BE DISTURBED DUE TO CONSTRUCTION CHANGES REQUIRED BY THIS CONTRACT SHALL BE RESTORED TO OPERATING CONDITION, AS REQUIRED AND/OR DIRECTED. WHERE REQUIRED, SHOWN AND/OR DIRECTED, OUTLETS AND CONDUIT RUNS SHALL BE RELOCATED. IN SOME CASES IT MAY BE NECESSARY TO EXTEND CONDUITS AND PULL IN NEW WIRING OR INSTALL JUNCTION BOXES AND SPLICE IN NEW WIRING OR REPLACE OLD WIRING WITH NEW.

8. CERTAIN REMODELING OF ELECTRICAL FACILITIES WILL BE REQUIRED IN THE EXISTING BUILDING. EXISTING CONDUIT RUNS ARE GENERALLY NOT SHOWN, ALTHOUGH A FULL ATTEMPT HAS BEEN MADE TO SHOW SOME EXISTING CONDITIONS, OF WHICH INFORMATION HAS BEEN TAKEN FROM EXISTING RECORD DRAWINGS AND/OR LIMITED FIELD INVESTIGATIONS. THE DRAWINGS SHOWING LOCATION OF EXISTING EQUIPMENT, OUTLETS, FIXTURES, ETC., ARE APPROXIMATE ONLY (CONTRACTOR TO FIELD VERIFY).

9. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY AND SHALL BE INSTALLED AS PER LISTING OR LABELING (IE. MAXIMUM FUSE SIZE MEANS FUSE PROTECTION IS REQUIRED).

10. ALL ELECTRICAL EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
    a. AMERICAN STANDARD ASSOCIATION (ASA)
    b. AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)
    c. AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
    d. CALIFORNIA CODE OF REGULATIONS TITLE 24 (CCR)
    e. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
    f. INSULATED POWER CABLE ENGINEERS ASSOCIATIONS (IPCEA)
    g. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONS (NEMA)
    h. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
    i. ALL LOCAL CODE HAVING JURISDICTION

11. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, INSPECTIONS AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK, INCLUDING ALL CHARGES BY STATE, COUNTY AND LOCAL GOVERNMENTAL AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR THE ELECTRICAL UTILITY SYSTEM SHUT-DOWNS AND START-UP. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION REQUIRED WITH OTHER AGENCIES AND UTILITY COMPANIES.

12. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CROSSINGS ON NEW UTILITIES WITH THAT OF EXISTING ON SITE AND IN ADJACENT PROPERTIES. NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS OR DISCREPANCIES FROM THIS PLAN.

13. CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH OTHER TRADE ON SITE. ANY COST TO PERFORM WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE DRAWINGS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATIONS. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT/ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

14. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT. PROVIDE POWER AND CONNECTION TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON ELECTRICAL DRAWINGS AND DRAWINGS OF OTHER TRADES. CONTRACTOR SHALL REVIEW DRAWINGS OF OTHER TRADES FOR CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT. DISCONNECT SWITCHES, STARTERS, AND CONDUITS FOR CONTROL WIRING FOR MECHANICAL AND PLUMBING EQUIPMENT SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUITS TO THIS EQUIPMENT.

15. BEFORE ROUGH-IN, VERIFY ALL MOUNTING HEIGHTS AND EXACT LOCATIONS FOR ALL EQUIPMENT, ELECTRICAL CONNECTIONS, STUB-UPS, RECEPTACLES, OUTLETS, CONDUIT RUNS, ETC. WITH ARCHITECT AND OWNER. PLACE DEVICES LOCATED ABOVE COUNTERS, SHELVING, ETC. AND IN BATHROOMS SO AS NOT TO CONFLICT WITH EDGES OF WAINSCOTING, COUNTER SPLASH, SHELVING, ETC. ARCHITECTURAL DRAWINGS SHALL GOVERN. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS OF ELECTRICAL DEVICES

16. MOUNTING HEIGHTS OF ALL CONTROL DEVICES TO BE USED BY OCCUPANT OF THE ROOM OR AREA SHALL BE MOUNTED AT THE FOLLOWING HEIGHTS:
    RECEPTACLES OUTLETS : +18" (TO BOTTOM OF OUTLETS)
    TELEPHONE/TV/DATA OUTLETS : +18" (TO BOTTOM OF OUTLETS)
    LIGHT SWITCHES : +44" (TO HIGHEST OPERABLE PART)
    OUTLETS ABOVE COUNTER : +44" (TO HIGHEST OPERABLE PART)
    MOUNTING HEIGHTS OF ALL DEVICES AND EQUIPMENT ARE FROM FINISHED FLOOR TO LOCATION OF DEVICE AS NOTED. EQUIPMENT INSTALLED IN LOCATIONS NOT APPROVED BY THE ARCHITECT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

17. COORDINATE ALL OUTLET BOX INSTALLATION WITH ARCHITECTURAL WALL FINISH SCHEDULES. SPACE BETWEEN FACEPLATE AND DEVICE BOX SHALL NOT EXCEED 1/8".

18. FOR RENOVATION WORK, THE CONTRACTOR SHALL CONCEAL ALL WORK WHERE POSSIBLE. ALL EXPOSED RACEWAY AND BOXES IN OCCUPIED AREAS OR ON EXTERIOR WALLS SHALL BE PAINTED TO MATCH ADJACENT FINISHES.

19. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL EXISTING SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER REPAIR DUE TO THE INSTALLATION OF ELECTRICAL WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC., AS REQUIRED.

20. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS AND CEILINGS. FURNISH AND INSTALL FIRE RATED BACKBOXES AS REQUIRED, MAINTAINING FIRE RATING OF CEILING OR WALLS WHERE RECESSED ELECTRIC EQUIPMENT SUCH AS LIGHT FIXTURES, SWITCHES, RECEPTACLES, PANEL, ETC. ARE INSTALLED IN RATED WALL OR CEILINGS. PENETRATIONS OF FIRE RATED WALLS, CEILINGS, OR FLOORS SHALL COMPLY WITH CBC CHAPTER 7 (714) REQUIREMENTS. CONDUIT PENETRATIONS THAT ARE NOT STUBBED-OUT INSIDE THE WALL SHALL MEET F AND T RATING. ALL FIRE PROOFING METHODS SHALL BE UL APPROVED.

21. ALL EXTERIOR EQUIPMENT SHALL BE NEMA 3R RATED. ALL WALL PENETRATIONS TO EXTERIOR WALLS SHALL BE SEALED WATER TIGHT.

22. PULLING TAPES: ALL RACEWAY WITHOUT CABLE OR WIRE SHALL BE INSTALLED WITH A MINIMUM 1100 LBS. STRENGTH TEST POLYESTER PULLING TAPE. PULLING TAPES SHALL BE DETECTABLE MULE-TAPE WITH SEQUENTIAL FOOTAGE MARKING.

23. RUN NO MORE THAN 3 CURRENT CARRYING CONDUCTORS IN ANY WIREWAY UNLESS DE-RATING IS APPROVED BY ENGINEER OR SHOWN ON DRAWINGS.

24. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER, #10 AWG MINIMUM, RATED FOR 600V, THHN/THWN, 75 DEGREE CELSIUS. ALL CONDUCTORS SHALL BE STRANDED, SOFT DRAWN ANNEALED COPPER WIRE 98% CONDUCTIVITY, BEARING THE UL LABEL. SYSTEM VOLTAGE SHALL BE IDENTIFIED AS TO VOLTAGE AND PHASE CONNECTIONS BY MEANS OF COLOR IMPREGNATED INSULATION OR APPROVED COLORED MARKING TAPE.

25. WHERE MULTI-HOMERUNS ARE INDICATED ON DRAWINGS INDICATING THE SAME CIRCUIT NUMBER, PROVIDE A JUNCTION BOX ABOVE THE ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRES TO THE CIRCUIT BREAKER.

26. REFER TO THE SINGLE LINE DIAGRAM FOR THE CONDUIT AND CONDUCTOR SIZES HOMERUN TO ELECTRICAL PANELS. CONDUIT RUNS MAY NOT BE SHOWN ON DRAWINGS, BUT ARE PART OF THIS CONTRACT.

27. ALL CONDUIT RUNS INCLUDING STRAIGHT FEEDER AND BRANCH CIRCUIT SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

28. FINAL CONNECTIONS TO ALL EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIAL AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.

29. DO NOT COMBINE DIFFERENT SYSTEM VOLTAGES IN SAME CONDUIT (EG., 120/208V VS. 277/480V), UNLESS APPROVED BY ENGINEER OR SHOWN ON DRAWINGS.

30. ELECTRICAL SYSTEMS SHALL BE INSTALLED FOR FINAL INSPECTIONS. PROVIDE NEUTRAL TEST AND PROOF OF TORQUE DURING FINAL INSPECTION FOR ALL UNITS. FINAL TERMINATIONS OF CONDUCTORS TO ELECTRICAL EQUIPMENT AND DEVICES SHALL BE TORQUE WRENCH TIGHTENED TO THE MANUFACTURER'S RECOMMENDED SPECIFICATION, NO EXCEPTION.

31. CIRCUIT BREAKER TERMINALS IN SWITCHBOARDS AND LOAD CENTER SHALL BE UL LISTED AND APPROVED FOR USE WITH COPPER 75 DEGREE CELSIUS CONDUCTORS.

32. SIZES OF BREAKERS, SWITCHES, FUSES AND FEEDERS ARE BASED ON DESIGNED EQUIPMENT SIZES. THESE SIZES SHALL BE ADJUSTED TO SATISFY REQUIREMENTS OF ACTUAL INSTALLED OR SUBSTITUTE EQUIPMENT. UP SIZING OR DOWNSIZING OF FEEDERS SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

33. AS REQUIRED ALL OVERSIZED FEEDERS THAT WERE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP SHALL BE PROVIDED WITH ADAPTER LUGS OR SPLICE BOX. ADAPTER LUGS SHALL BE PROVIDED IF SIZE IS AVAILABLE. OTHERWISE PROVIDE CABLE SPLICES IN THE SPLICE BOX TO REDUCE CABLES TO THE MAXIMUM SIZE THAT THE BREAKER LUGS CAN ACCOMMODATE.

34. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAW-CUTTING, TRENCHING, BACKFILLING, COMPACTION AND PATCHING OF CONCRETE AND ASPHALT AS REQUIRED TO COMPLETE WORK. USE EXTREME CAUTION WHEN TRENCHING NEAR EXISTING UNDERGROUND UTILITY LINES. CONTRACTOR SHALL PROVIDE ALL REQUIRED CUTTING, PATCHING, PAINTING, AND REPAIRS NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT THE START OF WORK.

35. ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST HORIZONTAL FORCE ACTING IN ANY DIRECTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST EDITION OF ASCE7.

36. ALL INTERIOR AND ABOVE GRADE EXTERIOR CONDUIT INSTALLATION SHALL BE RIGID GALVANIZED STEEL, UNLESS EXCEPTED BY NOTE 37 BELOW.

37. ELECTRICAL METALLIC TUBING (EMT) MAY BE USED IN THE FOLLOWING CONDITIONS: INTERIOR APPLICATIONS, SMALLER THAN 2" TRADE SIZE DIAMETER AND INSTALLED EIGHT (8) FEET FROM FINISHED FLOOR OR HIGHER, OR INTERIOR APPLICATIONS, SMALLER THAN 2" TRADE SIZE DIAMETER AND ENTERING A PANEL FROM ABOVE.

38. CONNECTIONS TO VIBRATING EQUIPMENT (MOTOR, TRANSFORMER ENCLOSURE, ETC.) AND SEISMIC SEPARATIONS SHALL BE PROVIDED WITH LIQUID-TIGHT FLEXIBLE STEEL CONDUIT WITH WATERTIGHT CONNECTORS. MAXIMUM LENGTH OF CONDUIT SHALL BE SIX FEET, UNLESS OTHERWISE NOTED.

39. POLYVINYL CHLORIDE (PVC) SCHEDULE 40 MAY BE INSTALLED BENEATH SLAB AND UNDERGROUND INSTALLATION. INSTALL PVC COATED RIGID STEEL CONDUIT FOR TRANSITION FROM UNDERGROUND TO ABOVE GRADE INSTALLATION.

40. CONTRACTOR SHALL PROVIDE TERMINATIONS FOR ALL DATA/VOICE CABLES INDICATED AT OUTLET LOCATIONS INDICATED ON DRAWINGS.

41. CONTRACTOR SHALL PROVIDE AND INSTALL ACCESS PANELS IN NON-ACCESSIBLE CEILINGS WHERE REQUIRED TO ACCESS ELECTRICAL EQUIPMENT IN CEILING SPACE. ACCESS DOORS SHALL HAVE FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED.

42. ALL FIRE LIFE SAFETY EQUIPMENT, SUCH AS FIRE ALARM CONTROL PANEL AND REMOTE POWER SUPPLIES SHALL BE PROVIDED WITH DEDICATED CIRCUITS. IDENTIFY CIRCUIT DESIGNATION AND PROVIDE PERMANENT LABELING, "FIRE ALARM CIRCUIT" ON ELECTRICAL PANEL. PROVIDE LOCKABLE CIRCUIT BREAKER.

43. CONTROL CONDUIT FOR ENERGY/BUILDING MANAGEMENT SYSTEM (E/BMS) SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.

44. ROUTE CONDUIT PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

45. WHEN A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT, CIRCUIT BREAKERS, ETC., ARISES ON THE DRAWINGS OR SPECIFICATIONS, CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL REQUIRED BY THE MOST STRINGENT CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO PROVIDE A COMPLETE AND OPERABLE SYSTEM, OR AS DIRECTED BY ENGINEER.

46. FOR SMALL AC MOTORS NOT HAVING BUILT-IN THERMAL OVERLOAD PROTECTION, PROVIDE MANUAL MOTOR STARTERS WITH OVERLOAD HEATER ELEMENTS SIZED PER MANUFACTURER'S RECOMMENDATION. FOR SMALL AC MOTORS WITH BUILT-IN THERMAL OVERLOAD PROTECTION, PROVIDE A HORSEPOWER RATED TOGGLE DISCONNECT SWITCH.

47. DISCONNECT SAFETY SWITCHES SHALL BE HEAVY DUTY AND BE RATED FOR THE NUMBER OF POLES, VOLTAGE, CURRENT AND HORSEPOWER RATING AS REQUIRED. PROVIDE FUSE PROTECTION BASED ON THE MOTOR NAMEPLATE RATINGS.

48. PROVIDE PERMANENT IDENTIFICATION (NAMEPLATES) FOR ALL ELECTRICAL PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, DISCONNECT SWITCHES, TRANSFORMERS, TERMINAL CABINETS, ETC.

49. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO VERIFY TYPE OF CEILING SYSTEMS AND TO FURNISH APPROVED LIGHTING FIXTURES OF THE TYPE REQUIRED FOR MOUNTING IN SUBJECT CEILING. PROVIDE ALL NECESSARY MOUNTING KIT/HARDWARE TO PROVIDE A COMPLETE WORKING LIGHTING SYSTEM.

50. ALL FINAL ELECTRICAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT SHALL BE MADE BY THE ELECTRICAL CONTRACTOR.

51. ALL SPLICES AND TERMINALS SHALL BE COMPRESSION TYPE, OF SEAMLESS PURE COPPER, TIN PLATED, LONG BARREL, INSPECTION WINDOW, TERMINALS WITH TWO-HOLE PAD (WITH NEMA DRILLING). CLEAN ALL SURFACES AND INSTALL WITH OXIDE INHIBITING COMPOUND BURNDY PENETROX-E OR EQUAL. APPLY COMPOUND BETWEEN BUS BAR AND LUG PAD AND BETWEEN CONDUCTOR AND LUG BARREL. INSTALL COMPRESSION CONNECTORS WITH A FULLY CIRCUMFERENTIAL COMPRESSION DIE BURNDY HYPRESS OR EQUAL.

52. LABEL ALL CONDUIT WHERE IT BEGINS, AND WHERE IT TERMINATES INTO A BOX, PANEL, DEVICE, LOAD, OR DISCONNECT. CONDUIT SHALL BE LABELED EVERY 30 FEET OR LESS. CONDUIT SHALL BE LABELED WHERE IT PENETRATES ANY WALL OR FLOOR. LABEL SHALL BE PERMANENT PRINTED LABELS (DESCRIBING SOURCE, CIRCUIT, AND LOAD) LEGIBLE FROM FLOOR WHERE POSSIBLE (STANDING POSITION).

53. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS, EQUIPMENT OR INSTALLATION METHODS.

54. PROVIDE ARC-FLASH HAZARD WARNING LABELS ON ALL AFFECTED ELECTRICAL EQUIPMENT, INCLUDING SWITCHBOARDS, PANEL BOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS. MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS. LABEL SHALL BE FACTORY PRE-PRINTED OR MACHINE-PRINTED SELF-ADHESIVE VINYL MATERIAL; UV, CHEMICAL, WATER, HEAT AND ABRASION RESISTANT; PRODUCED USING MATERIALS RECOGNIZED BY UL 969. MINIMUM SIZE: 3.5 BY 5 INCHES.

55. UNLESS OTHERWISE NOTED, ARRANGE, PAY FOR, COORDINATE AND PROVIDE ALL PERMITS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.

56. ALL WORK IS <N> UNLESS OTHERWISE NOTED.

57. ELECTRICAL CONDUCTORS SERVING EQUIPMENT SUPPLIED BY POWER CONVERSION EQUIPMENT AS PART OF A VARIABLE FREQUENCY DRIVE (VFD) SYSTEM AND/OR A SERVO DRIVE SYSTEM SHALL HAVE THERMOSET INSULATION TYPE XHHW, OR XHHW-2

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

SALAS O'BRIEN
| expect a difference |
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REGISTERED PROFESSIONAL ENGINEER — HENRY L. KING — No. 620630 — ELECTRICAL — STATE OF CALIFORNIA

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DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL
GENERAL NOTES

CIP NO. 22-P010

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SOBE #2304150.1

REFERENCE SHEET NOTES

1. EXISTING EQUIPMENT TO BE MODIFIED. REFER TO NEW WORK AND SINGLE LINE DIAGRAM FOR ADDITIONAL INFORMATION.

GENERAL SHEET NOTES

A. DEVICES SHOWN AS EXISTING SHALL REMAIN CONNECTED UNLESS OTHERWISE NOTED. WIRING DEVICES THAT MAY BE AFFECTED BY DEMOLITION OR REWIRING SHALL BE RECONNECTED.

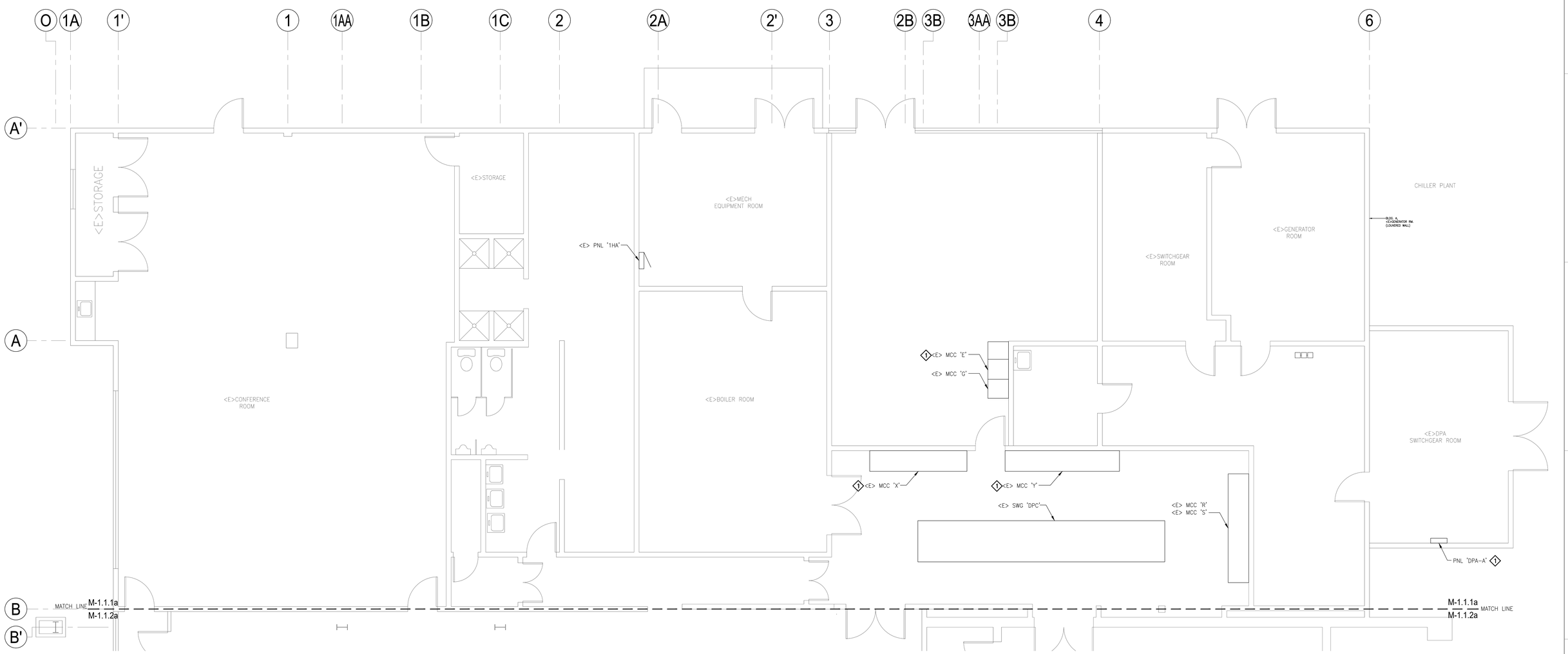
B. DEVICE LOCATIONS SHOWN ARE DIAGRAMMATIC. FIELD VERIFY EXACT LOCATION & COUNT. ADJUST LOCATION +/– 10' AT NO ADDITIONAL COST.

C. WEATHER SEAL ALL BUILDING PENETRATIONS.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ANY SURFACE DISTURBED BY CONSTRUCTION TO THE CONDITION & FINISH OF THE ADJACENT SURFACES.

F. EMT CONDUITS SHALL BE COMPRESSION TYPE FITTINGS. SET SCREW FITTINGS NOT ACCEPTABLE.

G. REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES.



1 **BUILDING A PARTIAL FIRST FLOOR PLAN - DEMO**
SCALE: 1/4" = 1' – 0"

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12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828–0515

WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL
BUILDING A PARTIAL FIRST FLOOR PLAN - DEMO

CIP NO. 22–P010

ED1.1.1a
26 66

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SOBE #2304150.1

REFERENCE SHEET NOTES

1. FURNISH AND INSTALL NEW POWER SUPPLY MODEL#: PSH500A TO POWER NEW VAV BOXES AND VALVES ON FIRST AND SECOND FLOOR. PRIMARY VOLTAGE 480/277V. HOMERUN 3/4"C. – (2) #12 TO CLOSEST VAV BOX; DAISY CHAIN OTHER VAV BOXES.
2. EXISTING EQUIPMENT TO BE MODIFIED. NEW BREAKER TO MATCH EXISTING PANELBOARD/SWITCHBOARD AIC RATING. REFER TO PANEL SCHEDULE FOR ADDITIONAL INFORMATION.

GENERAL SHEET NOTES

A. DEVICES SHOWN AS EXISTING SHALL REMAIN CONNECTED UNLESS OTHERWISE NOTED. WIRING DEVICES THAT MAY BE AFFECTED BY DEMOLITION OR REWIRING SHALL BE RECONNECTED.

B. DEVICE LOCATIONS SHOWN ARE DIAGRAMMATIC. FIELD VERIFY EXACT LOCATION & COUNT. ADJUST LOCATION +/– 10' AT NO ADDITIONAL COST.

C. WEATHER SEAL ALL BUILDING PENETRATIONS.

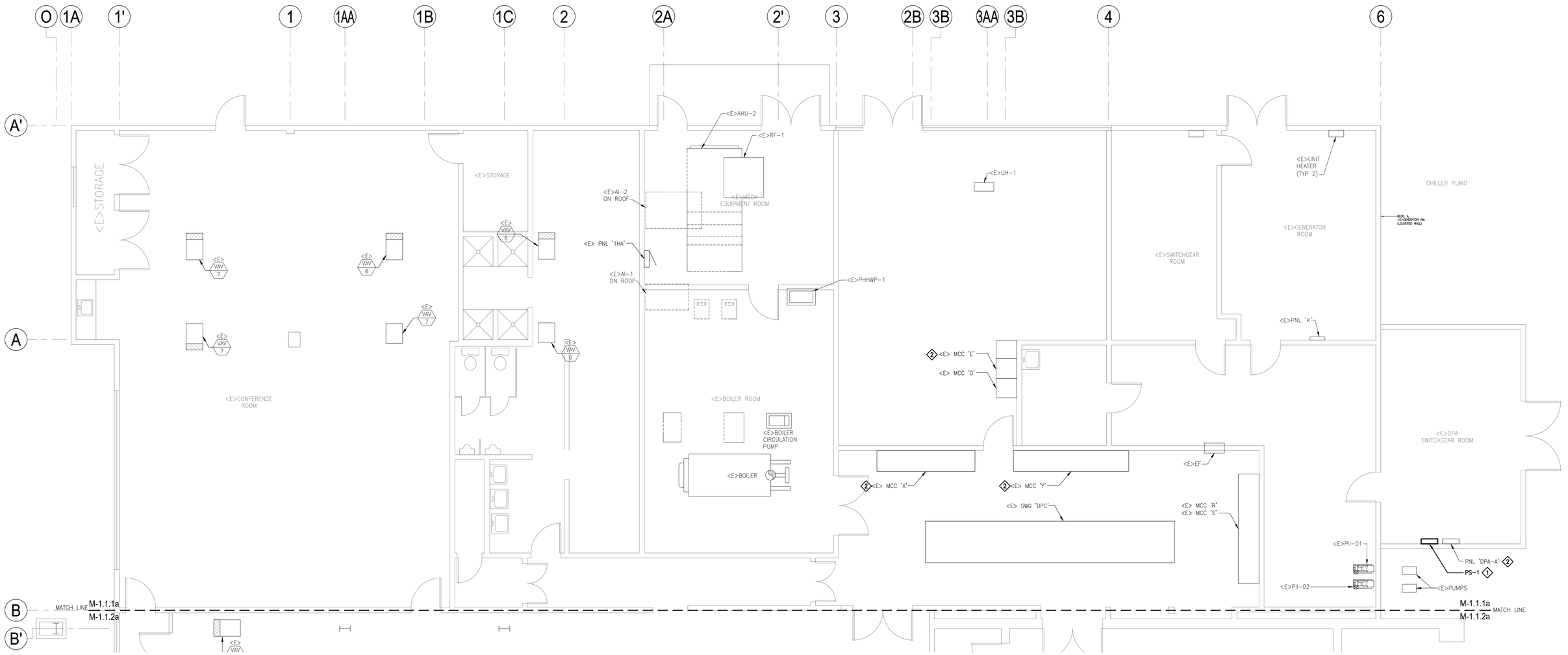
D. CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ANY SURFACE DISTURBED BY CONSTRUCTION TO THE CONDITION & FINISH OF THE ADJACENT SURFACES.

F. EMT CONDUITS SHALL BE COMPRESSION TYPE FITTINGS. SET SCREW FITTINGS NOT ACCEPTABLE.

G. REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES.

H. CONTRACTOR SHALL ADJUST LOCATION OF CEILING LIGHT FIXTURE AS NECESSARY WHERE CEILING IS BEING REMOVED.

I. ALL OUTDOOR EQUIPMENT TO BE NEMA 3R RATED.



1 BUILDING A PARTIAL FIRST FLOOR PLAN - NEW

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

0 4' 8'

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

KEY PLAN

BUILDING A

SALASO'BRIEN
| expect a difference |
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

REGISTERED PROFESSIONAL ENGINEER HUGH L. KING No. E20530 ELECTRICAL STATE OF CALIFORNIA

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12/09/25	100% CD – VALUE ENGINEERING				
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12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

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RECOM'D: DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

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CIP NO. 22-P010

WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL

BUILDING A PARTIAL FIRST FLOOR PLAN - NEW

E1.1.1a

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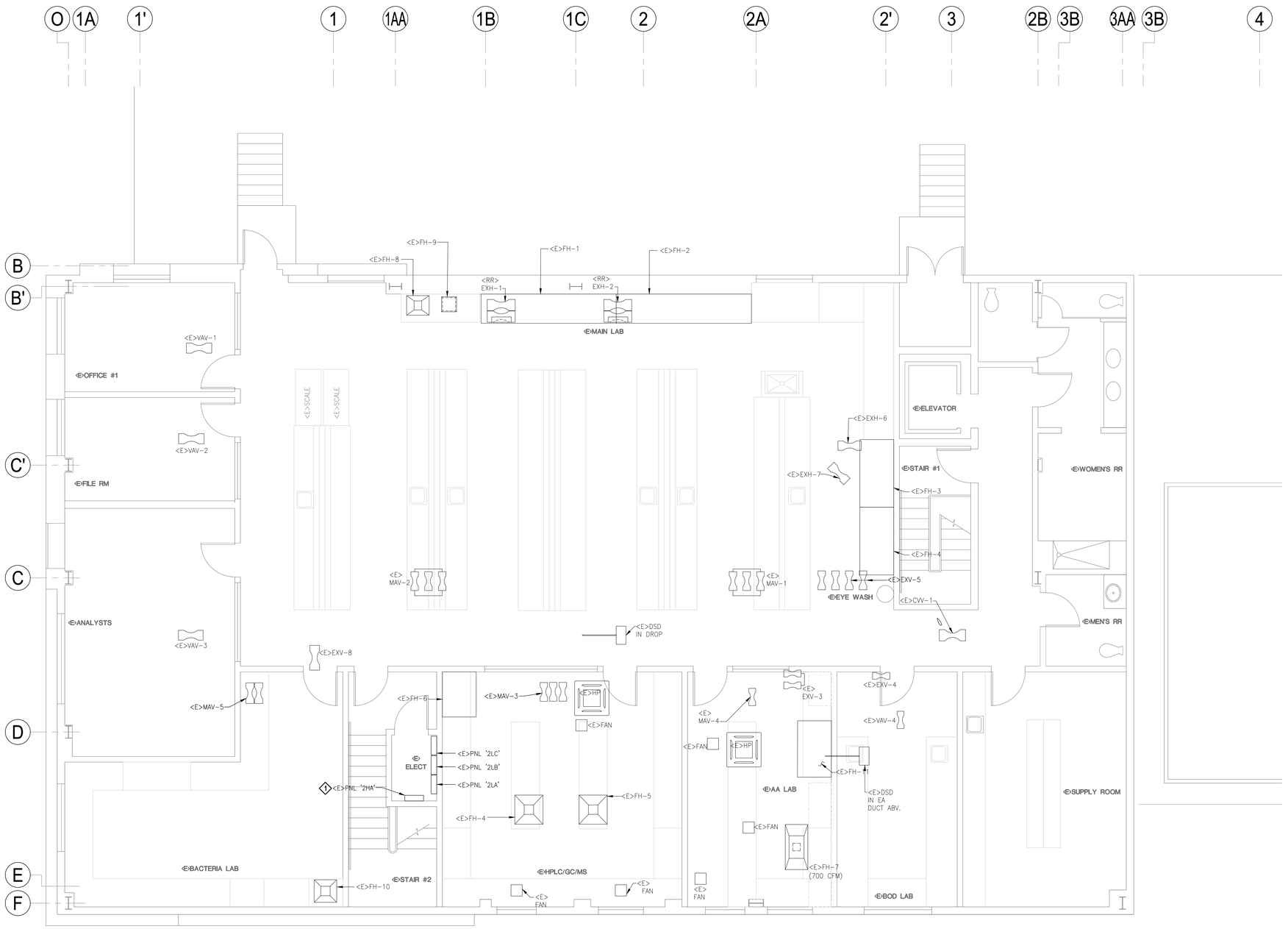

1 BUILDING A SECOND FLOOR PLAN - DEMO

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

0 4' 8'

GENERAL SHEET NOTES

A. DEVICES SHOWN AS EXISTING SHALL REMAIN CONNECTED UNLESS OTHERWISE NOTED. WIRING DEVICES THAT MAY BE AFFECTED BY DEMOLITION OR REWIRING SHALL BE RECONNECTED.

B. DEVICE LOCATIONS SHOWN ARE DIAGRAMMATIC. FIELD VERIFY EXACT LOCATION & COUNT. ADJUST LOCATION +/- 10' AT NO ADDITIONAL COST.

C. WEATHER SEAL ALL BUILDING PENETRATIONS.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ANY SURFACE DISTURBED BY CONSTRUCTION TO THE CONDITION & FINISH OF THE ADJACENT SURFACES.

F. EMT CONDUITS SHALL BE COMPRESSION TYPE FITTINGS. SET SCREW FITTINGS NOT ACCEPTABLE.

G. REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES.

H. CONTRACTOR SHALL ADJUST LOCATION OF CEILING LIGHT FIXTURE AS NECESSARY WHERE CEILING IS BEING REMOVED.

I. ALL OUTDOOR EQUIPMENT TO BE NEMA 3R RATED.

1 REFERENCE SHEET NOTES

1. EXISTING FUME HOOD TO BE DISCONNECTED AND REMOVED. EXISTING POWER CIRCUIT TO BE PROTECTED DURING CONSTRUCTION AND TO BE RE-USED.

2. EXISTING PANEL TO BE MODIFIED. REFER TO NEW WORK FOR ADDITIONAL INFORMATION.

KEY PLAN

BUILDING A

SALASO'BRIEN
| expect a difference |
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
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REGISTERED PROFESSIONAL ENGINEER HUGH L. KING No. E20636 ELECTRICAL STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

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RECOM'D: DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
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WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL
BUILDING A SECOND FLOOR PLAN - DEMO

CIP NO. 22-P010

ED1.2a
28 66

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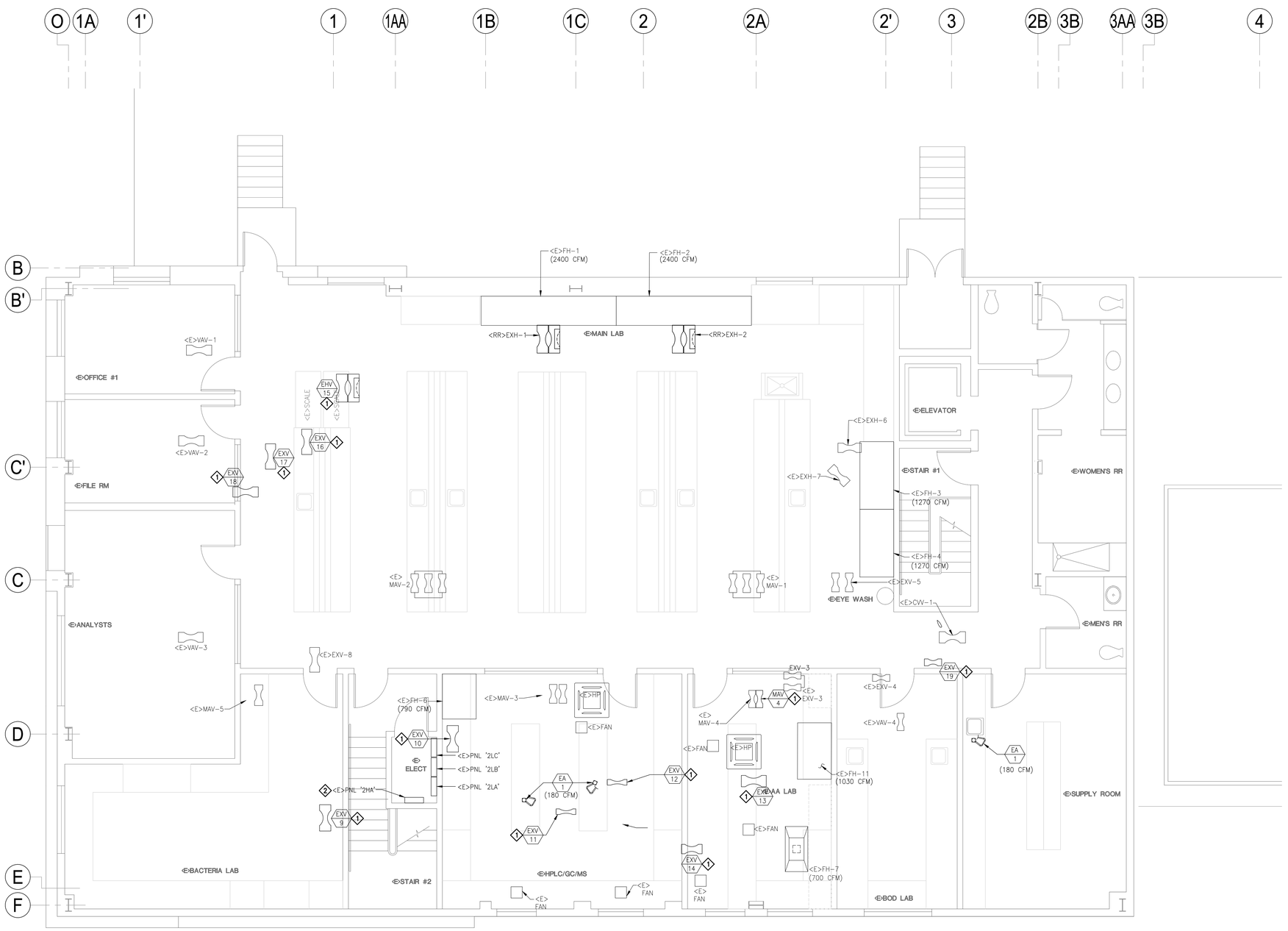
SOBE #2304150.1



GENERAL SHEET NOTES

A. DEVICES SHOWN AS EXISTING SHALL REMAIN CONNECTED UNLESS OTHERWISE NOTED. WIRING DEVICES THAT MAY BE AFFECTED BY DEMOLITION OR REWIRING SHALL BE RECONNECTED.

B. DEVICE LOCATIONS SHOWN ARE DIAGRAMMATIC. FIELD VERIFY EXACT LOCATION & COUNT. ADJUST LOCATION +/– 10' AT NO ADDITIONAL COST.

C. WEATHER SEAL ALL BUILDING PENETRATIONS.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ANY SURFACE DISTURBED BY CONSTRUCTION TO THE CONDITION & FINISH OF THE ADJACENT SURFACES.

F. EMT CONDUITS SHALL BE COMPRESSION TYPE FITTINGS. SET SCREW FITTINGS NOT ACCEPTABLE.

G. REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES.

H. CONTRACTOR SHALL ADJUST LOCATION OF CEILING LIGHT FIXTURE AS NECESSARY WHERE CEILING IS BEING REMOVED.

I. ALL OUTDOOR EQUIPMENT TO BE NEMA 3R RATED.

REFERENCE SHEET NOTES

1. POWER TO NEW VALVES AND VAV BOXES TO BE PROVIDED FROM THE POWER SUPPLY "PS-1" LOCATED ON THE FIRST FLOOR.
2. FURNISH AND INSTALL NEW BREAKERS TO POWER NEW MECHANICAL EQUIPMENT. CONTRACTOR TO MATCH EXISTING PANEL SCCR RATING. REFER TO PANEL SCHEDULES AND SINGLE LINE DIAGRAM FOR ADDITIONAL INFORMATION.

1 BUILDING A SECOND FLOOR PLAN - NEW

SCALE: 1/4" = 1' – 0"

0 4' 8'

KEY PLAN

BUILDING A

SALASO'BRIEN
| expect a difference |
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

REGISTERED PROFESSIONAL ENGINEER
HUGH L. KING
No. E20636
ELECTRICAL
STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
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12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –

RECOM'D: DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL

BUILDING A SECOND FLOOR PLAN - NEW

CIP NO. 22-P010

E1.2a

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SOBE #2304150.1

REFERENCE SHEET NOTES

1. DISCONNECT EXISTING MECHANICAL EQUIPMENT. REMOVE DISCONNECT SWITCHES OR VFDS CONNECTED TO THE DEMOLISHED MECHANICAL EQUIPMENT IF ANY. REMOVE WIRES BACK TO SOURCE. CONDUITS TO BE CAPPED, SEALED AND ABANDONED IN PLACE.
2. DISCONNECT EXISTING PUMPS. REMOVE CONDUIT AND WIRES BACK TO SOURCE. DEMOLISH EXISTING DISCONNECT SWITCHES AND CONTROLS.
3. DISCONNECT EXISTING MECHANICAL EQUIPMENT. EXISTING CIRCUIT TO BE PROTECT AND RE-USED.

GENERAL SHEET NOTES

A. DEVICES SHOWN AS EXISTING SHALL REMAIN CONNECTED UNLESS OTHERWISE NOTED. WIRING DEVICES THAT MAY BE AFFECTED BY DEMOLITION OR REWIRING SHALL BE RECONNECTED.

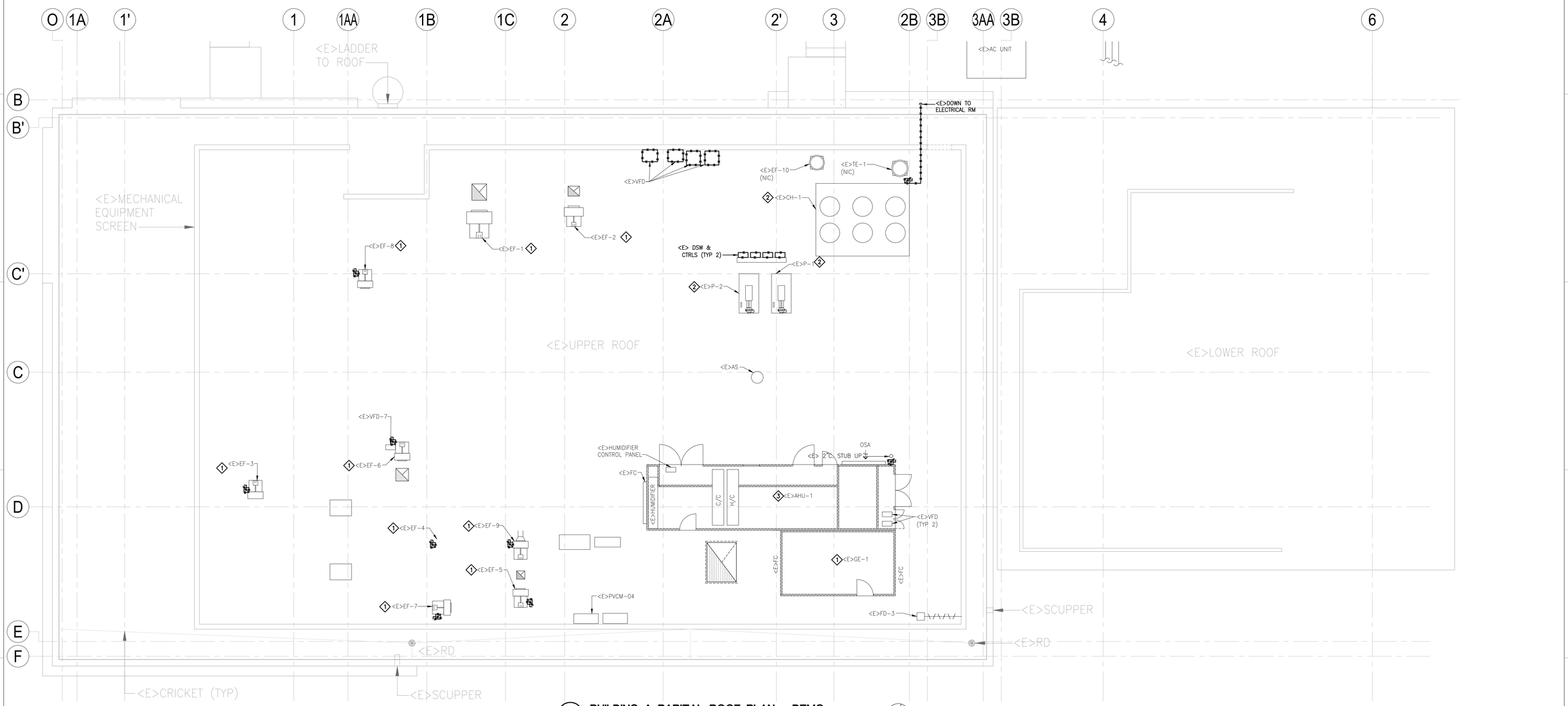
B. DEVICE LOCATIONS SHOWN ARE DIAGRAMMATIC. FIELD VERIFY EXACT LOCATION & COUNT. ADJUST LOCATION +/- 10' AT NO ADDITIONAL COST.

C. WEATHER SEAL ALL BUILDING PENETRATIONS.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ANY SURFACE DISTURBED BY CONSTRUCTION TO THE CONDITION & FINISH OF THE ADJACENT SURFACES.

F. EMT CONDUITS SHALL BE COMPRESSION TYPE FITTINGS. SET SCREW FITTINGS NOT ACCEPTABLE.

G. REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES.



1 BUILDING A PARITAL ROOF PLAN - DEMO

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

0 4' 8'

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

KEY PLAN

BUILDING A

SALASO'BRIEN
| expect a difference |
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
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REGISTERED PROFESSIONAL ENGINEER — HUGH L. KING — No. E20530 — ELECTRICAL — STATE OF CALIFORNIA

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12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
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WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL
BUILDING A PARTIAL ROOF PLAN - DEMO

CIP NO. 22-P010

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SOBE #2304150.1

REFERENCE SHEET NOTES

1. FURNISH AND INSTALL NEW POWER SUPPLY MODEL#: PSH500A TO POWER NEW HVAC CONTROLS ON ROOF. PRIMARY VOLTAGE 480/277V. HOMERUN 3/4"C. – (2) #12.
2. FURNISH AND INSTALL NEW POWER FEEDER TO POWER THE TEMPORARY FAN. TEMPORARY FAN TO BE FED FROM PANEL '2HA' LOCATED IN THE ELECTRICAL ROOM ON THE SECOND FLOOR. TERMINATE CONDUIT IN A NEMA 3R JUNCTION BOX. ELECTRICAL CONTRACTOR TO COORDINATE THE EXACT LOCATION OF THE FAN BEFORE ANY WORK. REFER TO PANEL SCHEDULE AND SINGLE LINE FORE WIRE AND BREAKER SIZES.

GENERAL SHEET NOTES

A. DEVICES SHOWN AS EXISTING SHALL REMAIN CONNECTED UNLESS OTHERWISE NOTED. WIRING DEVICES THAT MAY BE AFFECTED BY DEMOLITION OR REWIRING SHALL BE RECONNECTED.

B. DEVICE LOCATIONS SHOWN ARE DIAGRAMMATIC. FIELD VERIFY EXACT LOCATION & COUNT. ADJUST LOCATION +/– 10' AT NO ADDITIONAL COST.

C. WEATHER SEAL ALL BUILDING PENETRATIONS.

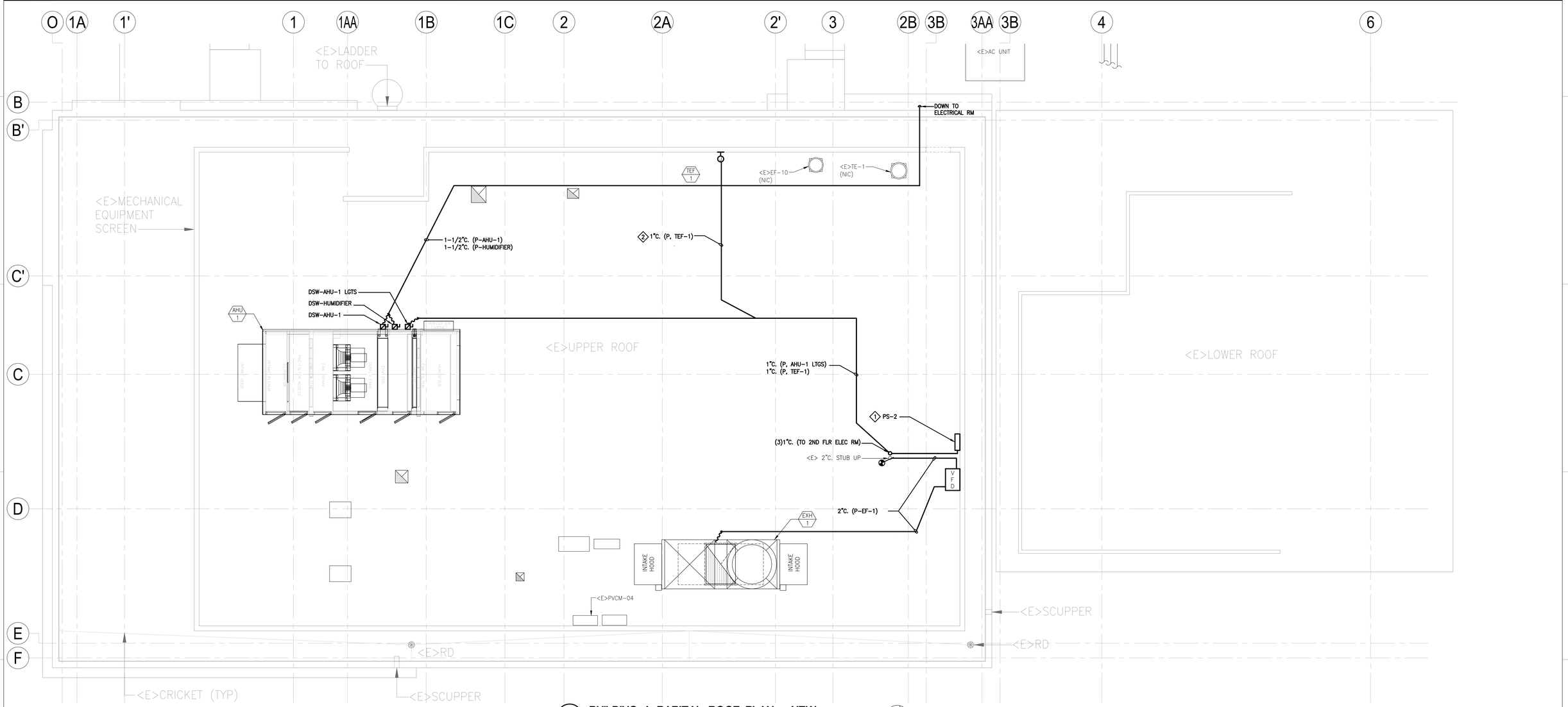
D. CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ANY SURFACE DISTURBED BY CONSTRUCTION TO THE CONDITION & FINISH OF THE ADJACENT SURFACES.

F. EMT CONDUITS SHALL BE COMPRESSION TYPE FITTINGS. SET SCREW FITTINGS NOT ACCEPTABLE.

G. REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES.

H. CONTRACTOR SHALL ADJUST LOCATION OF CEILING LIGHT FIXTURE AS NECESSARY WHERE CEILING IS BEING REMOVED.

I. ALL OUTDOOR EQUIPMENT TO BE NEMA 3R RATED.



1 **BUILDING A PARITAL ROOF PLAN - NEW**
SCALE: 1/4" = 1' – 0"

KEY PLAN — BUILDING A

SALASO'BRIEN
|expect a difference|
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San Jose, California 95112-2218
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REGISTERED PROFESSIONAL ENGINEER — HUGH L. KING — No. E20539 — ELECTRICAL — STATE OF CALIFORNIA

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12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
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WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL

BUILDING A PARTIAL ROOF PLAN - NEW

E1.3.2a
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SOBE #2304150.1

REFERENCE SHEET NOTES

DEMO:

1. DISCONNECT EXISTING CHILLER. REMOVE CONDUITS AND WIRES BACK TO SOURCE.
2. DISCONNECT EXISTING PUMPS. REMOVE CONDUITS AND WIRES BACK TO SOURCE.
3. ABANDON EXISTING GROUND ROD IN PLACE, CUT ROD BELOW GRADE.

NEW:

10. PROVIDE POWER TO VFD FROM PANEL "DPA-A". REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES. HOMERUN 1"C. TO POWER SUPPLY "PS-1" TO POWER VFD CONTROLS.
11. VFDS TO BE PROVIDED BY MECHANICAL CONTRACTOR. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION.
12. FURNISH AND INSTALL NEW GROUND ROD. INTERCEPT AND EXTEND GROUND CONNECTION TO NEW LOCATION. REFER TO DETAIL 9/E5.1a.

GENERAL SHEET NOTES

A. DEVICES SHOWN AS EXISTING SHALL REMAIN CONNECTED UNLESS OTHERWISE NOTED. WIRING DEVICES THAT MAY BE AFFECTED BY DEMOLITION OR REWIRING SHALL BE RECONNECTED.

B. DEVICE LOCATIONS SHOWN ARE DIAGRAMMATIC. FIELD VERIFY EXACT LOCATION & COUNT. ADJUST LOCATION +/- 10' AT NO ADDITIONAL COST.

C. WEATHER SEAL ALL BUILDING PENETRATIONS.

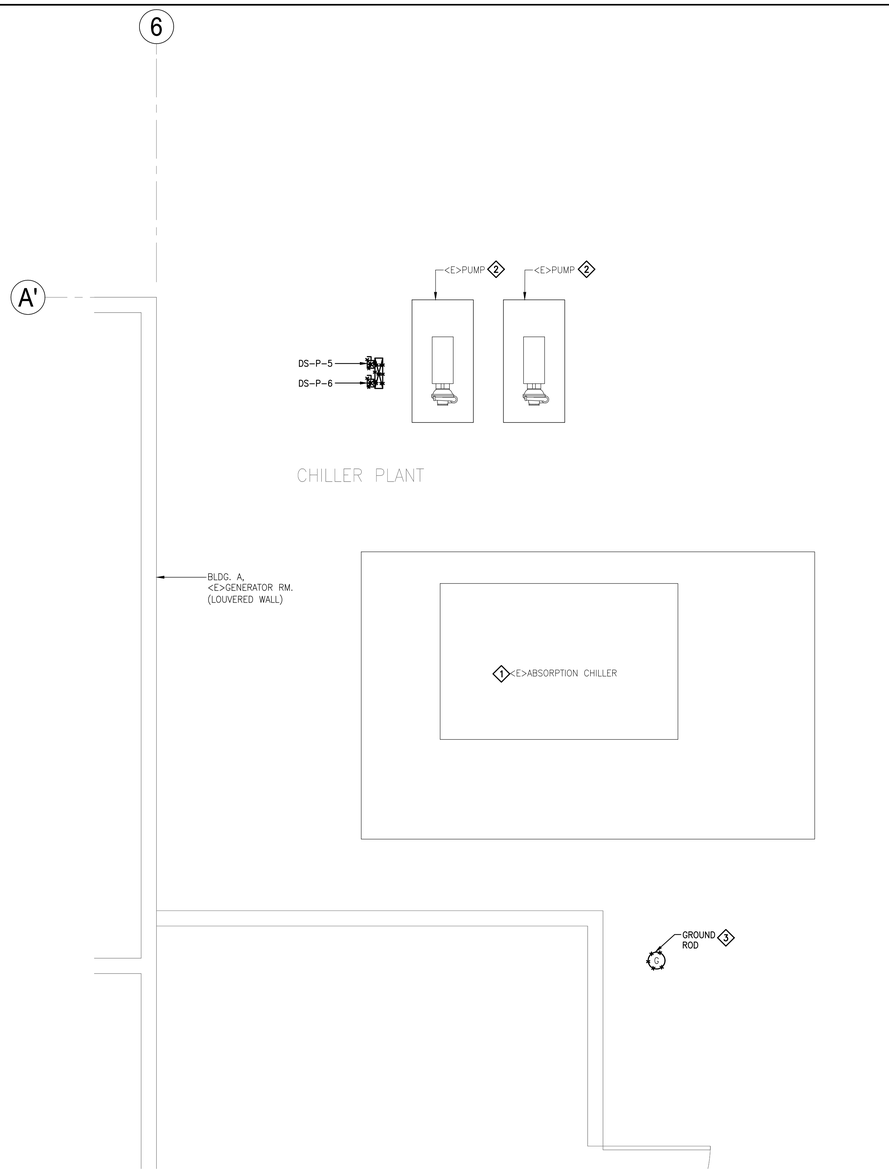
D. CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ANY SURFACE DISTURBED BY CONSTRUCTION TO THE CONDITION & FINISH OF THE ADJACENT SURFACES.

F. EMT CONDUITS SHALL BE COMPRESSION TYPE FITTINGS. SET SCREW FITTINGS NOT ACCEPTABLE.

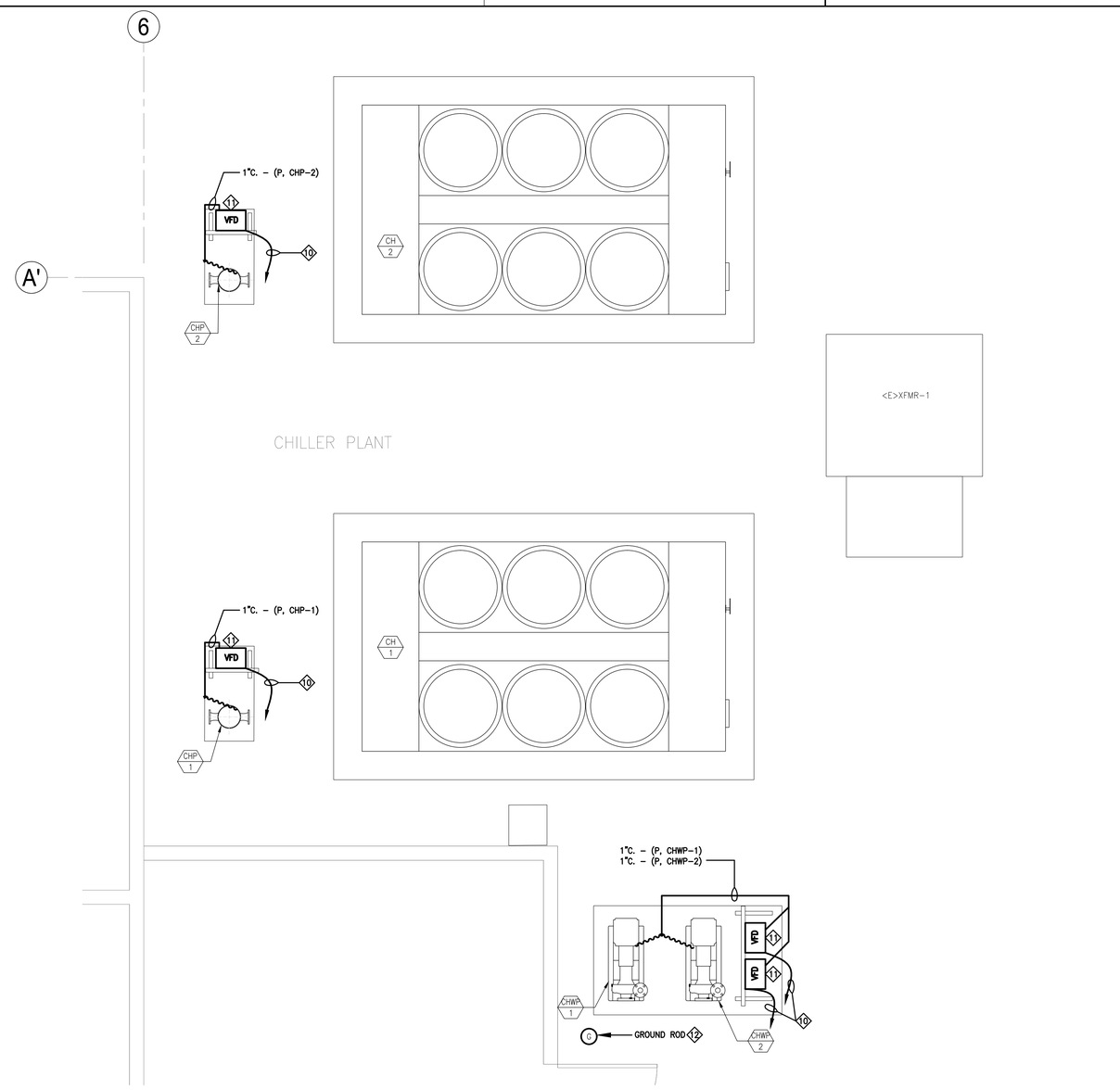
G. REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES.

H. CONTRACTOR SHALL ADJUST LOCATION OF CEILING LIGHT FIXTURE AS NECESSARY WHERE CEILING IS BEING REMOVED.

I. ALL OUTDOOR EQUIPMENT TO BE NEMA 3R RATED.



1 ELECTRICAL CHILLER PLANT PLAN - DEMO
SCALE: 1/2" = 1' - 0"



2 ELECTRICAL CHILLER PLANT PLAN - NEW
SCALE: 1/2" = 1' - 0"

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D / REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

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REGISTERED PROFESSIONAL ENGINEER — HUGH L. KING — No. E20539 — ELECTRICAL — STATE OF CALIFORNIA

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DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

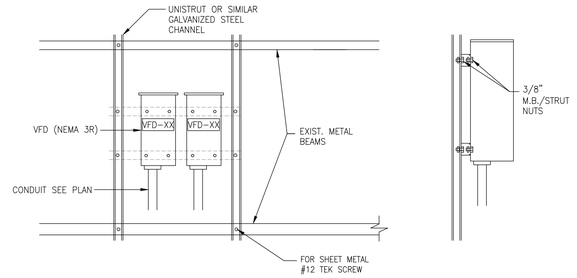
WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL

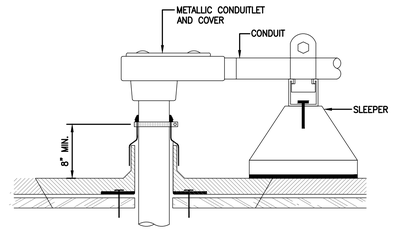
BUILDING A PARTIAL FIRST FLOOR PLAN - NEW

CIP NO. 22-P010

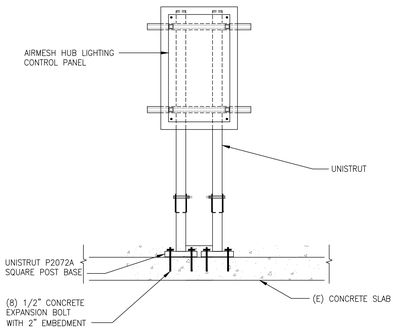
E4.1a
32 66



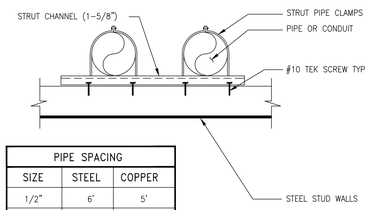
6 VFD MOUNTING
SCALE: N.T.S.



3 ROOFTOP CONDUIT TRANSITION DETAIL
SCALE: N.T.S.

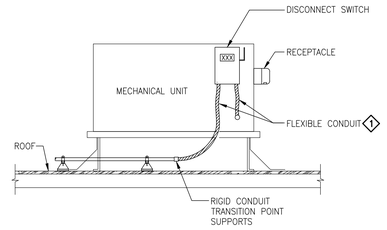


10 PANEL MOUNTING
SCALE: N.T.S



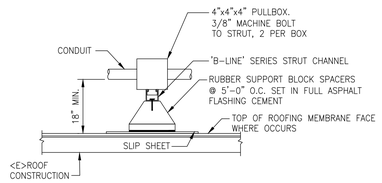
PIPE SPACING		
SIZE	STEEL	COPPER
1/2"	6'	5'
3/4"	6'	5'
1"	7'	6'
1-1/4"	7'	7'
1-1/2"	9'	8'
2"	10'	8'
2-1/2"	10'	9'
3"	10'	10'

NOTE:
RUN ALL PIPING AND CONDUIT ON THE SAME SUPPORT. COORDINATE WITH OTHER TRADES

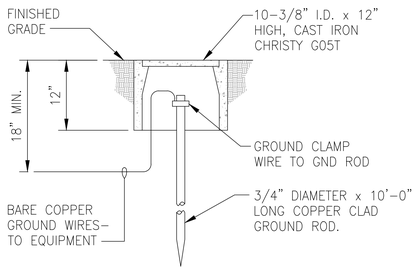


REFERENCE DETAIL NOTE:
1 TYPICAL FLEX CONDUIT CONNECTION SHALL NOT EXCEED 6 FEET.

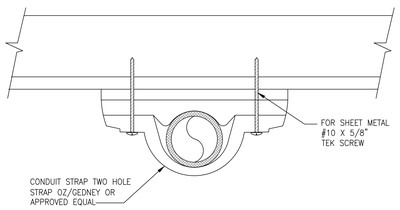
5 DISCONNECT SWITCH UNIT MOUNTING
SCALE: N.T.S.



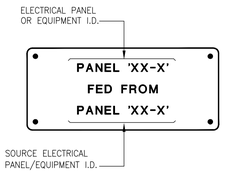
2 ELECTRICAL PULL BOX SUPPORT
SCALE: N.T.S.



9 GROUNDING DETAIL
SCALE: N.T.S.

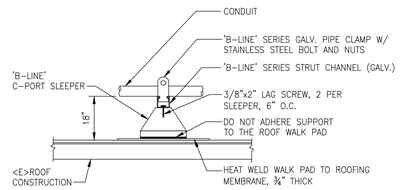


7 CONDUIT SUPPORT
SCALE: N.T.S.



NOTES:
1. ALL NEW ELECTRICAL EQUIPMENT SHALL HAVE A NAMEPLATE.
2. EACH NAMEPLATE SHOULD ALSO INCLUDE ELECTRICAL SOURCE.

4 DEVICE LABELING
SCALE: N.T.S.



1 ROOFTOP CONDUIT SUPPORT
SCALE: N.T.S.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY JG; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
SCALE: AS NOTED DATE: 12/09/2025

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REGISTERED PROFESSIONAL ENGINEER — HUGH L. KING — No. E20539 — ELECTRICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
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05/06/24	DESIGN DOCUMENT				

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

CIP NO. 22-P010

WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL DETAILS

E5.1a
33 66

K:\drawings\Dublin San Ramon Services District\2304150 RFP WWTP DERWA HVAC Replacements\2304150.1 Building A\2304150.1E5.1.dwg 12/9/2025 7:28 PM Minh Ong

SOBE #2304150.1

<E> PANEL 'DPA-A'

VOLTAGE 480 V

LOCATION ELECTRICAL RM IN BASEMENT | TYPE PRL3A | FED FROM DPA

AIC RATING 65 KAIC | PHASE 3 | WIRE 3

	DESCRIPTION	BRKR P	BRKR T	LCL		KVA LOAD A	KVA LOAD B	KVA LOAD C		LCL	BRKR P	BRKR T	DESCRIPTION	
1	-----	-	-	X	1.3	5.0				0.0	-	-	-----	2
3	<E> PUMP-P1 & P2	3	50	X	1.3		5.0			0.0	3	20	SPARE	4
5	-----	-	-	X	1.3			5.0		0.0	-	-	-----	6
7	-----	-	-	X	0.1	0.4				0.0	-	-	-----	8
9	PS-1	3	20	X	0.1		0.4			0.0	3	200	SPARE	10
11	-----	-	-	X	0.1			0.4		0.0	-	-	-----	12
13	-----	-	-	X	0.2	0.6				0.0	-	-	-----	14
15	CHP-2	3	15	X	0.2		0.6			0.0	3	100	SPARE	16
17	-----	-	-	X	0.2			0.6		0.0	-	-	-----	18
19	-----	-	-	X	0.2	0.6				0.0	-	-	-----	20
21	CHP-1	3	15	X	0.2		0.6			0.0	3	100	SPARE	22
23	-----	-	-	X	0.2			0.6		0.0	-	-	-----	24
25	-----	-	-	X	8.6	34.2				0.0	-	-	-----	26
27	CHWP-1	3	200		0.0		34.2			0.0	3	50	SPARE	28
29	-----	-	-	X	8.6			34.2		0.0	-	-	-----	30
31	-----	-	-	X	8.6	34.2				0.0			SPACE	32
33	CHWP-2	3	200	X	8.6		34.2			0.0			SPACE	34
35	-----	-	-	X	8.6			34.2		0.0			SPACE	36
37	SPACE				0.0					0.0			SPACE	38
39	SPACE				0.0					0.0			SPACE	40
41	SPACE				0.0					0.0			SPACE	42
	SUBTOTAL					48	75	75	0 0 0 0				SUBTOTAL	

MCB OR MLO	MCB	TOTAL LOAD PHASE A	75 KVA
MAIN CIRCUIT BREAKER RATING	600 AMPS	TOTAL LOAD PHASE B	75 KVA
BUS RATING	600 AMPS	TOTAL LOAD PHASE C	75 KVA
MOUNTING	SURFACE	TOTAL LCL (NEC/CEC 215.2.A.1)	48 KVA
ENCLOSURE	NEMA 1	TOTAL PANEL LOAD (KVA)	273 KVA
		TOTAL PANEL LOAD (AMPS)	326 AMPS

<E>PANEL '2HA'

VOLTAGE 480 V

LOCATION MECHANICAL REPAIR BAY | TYPE ____ | FED FROM MCC X

AIC RATING 10 KAIC | PHASE 3 | WIRE 3

	DESCRIPTION	BRKR P	BRKR T	LCL		KVA LOAD A	KVA LOAD B	KVA LOAD C		LCL	BRKR P	BRKR T	DESCRIPTION	
1	-----	*	*		0.0	14.5				0.0	-	-	-----	2
3	AHU-1	3	60		0.0		14.5			0.0	3	80	SPARE	4
5	-----	-	-		0.0			14.5		0.0	-	-	-----	6
7	-----	*	*		0.0	23.5				0.0	-	-	-----	8
9	AHU-1 HUMIDIFIER	3	60		0.0		23.5			0.0	3	60	SPARE	10
11	-----	*	*		0.0			23.5		0.0	-	-	-----	12
13	-----	-	-		0.0	5.6				0.0	-	-	SPACE	14
15	EF-1	3	60		0.0		5.6			0.0	-	-	SPACE	16
17	-----	-	-		0.0			5.6		0.0	*	*	SPACE	18
19	-----	-	-		0.0	0.9				0.0	-	-	SPACE	20
21	PS-2 (ROOF)	3	20		0.0		0.9			0.0	-	-	SPACE	22
23	-----	*	*		0.0			0.9		0.0	-	-	SPACE	24
25	-----	-	-		0.0	2.9				0.0	*	*	SPACE	26
27	TEF-1	3	20		0.0		2.9			0.0	-	-	SPACE	28
29	-----	*	*		0.0			2.9		0.0	-	-	SPACE	30
31	-----	-	-		0.0					0.0	*	*	SPACE	32
33	SPARE	3	20		0.0					0.0	-	-	SPACE	34
35	-----	-	-		0.0					0.0	*	*	SPACE	36
37	-----	*	*		0.0					0.0	-	-	SPACE	38
39	SPARE	3	175		0.0					0.0	-	-	SPACE	40
41	-----	-	-		0.0					0.0	*	*	SPACE	42
	SUBTOTAL				0.0	47	47	47	0 0 0 0.0				SUBTOTAL	

MCB OR MLO	MLO	TOTAL LOAD PHASE A	47 KVA
MAIN CIRCUIT BREAKER RATING		TOTAL LOAD PHASE B	47 KVA
BUS RATING	225 AMPS	TOTAL LOAD PHASE C	47 KVA
MOUNTING	SURFACE	TOTAL LCL (NEC/CEC 215.2.A.1)	0 KVA
ENCLOSURE	NEMA 1	TOTAL PANEL LOAD (KVA)	142 KVA
		TOTAL PANEL LOAD (AMPS)	171 AMPS

V.23

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY JG; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

SALASO'BRIEN
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REGISTERED PROFESSIONAL ENGINEER — HUGH L. KING — No. E20539 — ELECTRICAL — STATE OF CALIFORNIA

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DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

CIP NO. 22-P010

WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL
PANEL SCHEDULES

E6.1a
34 | 66

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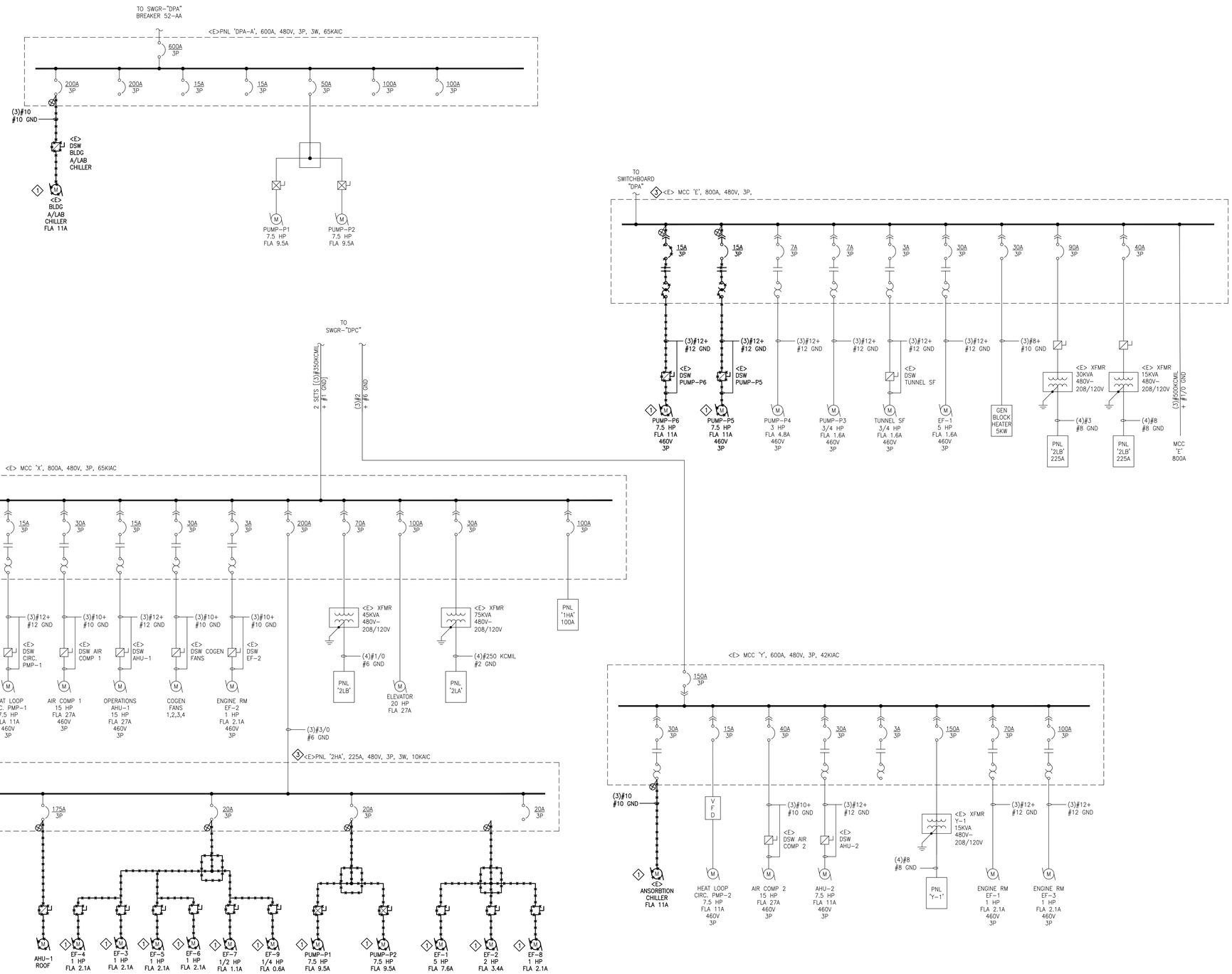
SOBE #2304150.1



1 PARTIAL SINGLE LINE DIAGRAM - DEMO

SCHEMATIC

GENERAL SHEET NOTES

B. FINAL TERMINATIONS OF CONDUCTORS TO ELECTRICAL EQUIPMENT AND DEVICES SHALL BE TORQUE WRENCH TIGHTENED TO THE MANUFACTURER'S RECOMMENDED SPECIFICATION, NO EXCEPTION. PROVIDE NEUTRAL TEST AND PROOF OF TORQUE DURING FINAL INSPECTION FOR ALL UNITS.

C. ELECTRICAL SERVICE DESIGN BASED ON IEM EQUIPMENT. COORDINATE AND ADJUST PER EQUIPMENT SUPPLIED.

D. SIZES OF BREAKERS, SWITCHES, FUSES AND FEEDERS ARE BASED ON DESIGNED EQUIPMENT SIZES. THESE SIZES SHALL BE ADJUSTED TO SATISFY REQUIREMENTS OF ACTUAL INSTALLED OR SUBSTITUTE EQUIPMENT. UP SIZING OR DOWNSIZING OF FEEDERS SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

E. AS REQUIRED ALL OVERSIZED FEEDERS THAT WERE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP SHALL BE PROVIDED WITH ADAPTER LUGS OR SPLICE BOX. ADAPTER LUGS SHALL BE PROVIDED IF SIZE IS AVAILABLE. OTHERWISE PROVIDE CABLE SPLICES IN THE SPLICE BOX TO REDUCE CABLES TO THE MAXIMUM SIZE THAT THE BREAKER LUGS CAN ACCOMMODATE.

(#) REFERENCE SHEET NOTES

1. DISCONNECT EXISTING MECHANICAL EQUIPMENT. REMOVE WIRES AND CONDUIT BACK TO SOURCE.
2. EXISTING CONDUIT TO REMAIN IN PLACE AND TO BE RE-USED. REMOVE WIRES BACK TO SOURCE.
3. EXISTING PANEL TO BE MODIFIED. DISCONNECT AND REPLACE EXISTING CIRCUIT BREAKER.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN		RECOM'D	REVIEW
DRAWN BY	–		PLNNG./DEVL.
DESIGN BY	–		FIELD OPS.
CHECKED BY	JG		WWTP OPS.
PROJ. MGR.	–		MECH./MAINT.
DSRSD PRINCIPAL ENGINEER			ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

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05/06/24	DESIGN DOCUMENT				

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REGISTERED PROFESSIONAL ENGINEER — HUGH L. KING — No. E20530 — ELECTRICAL — STATE OF CALIFORNIA

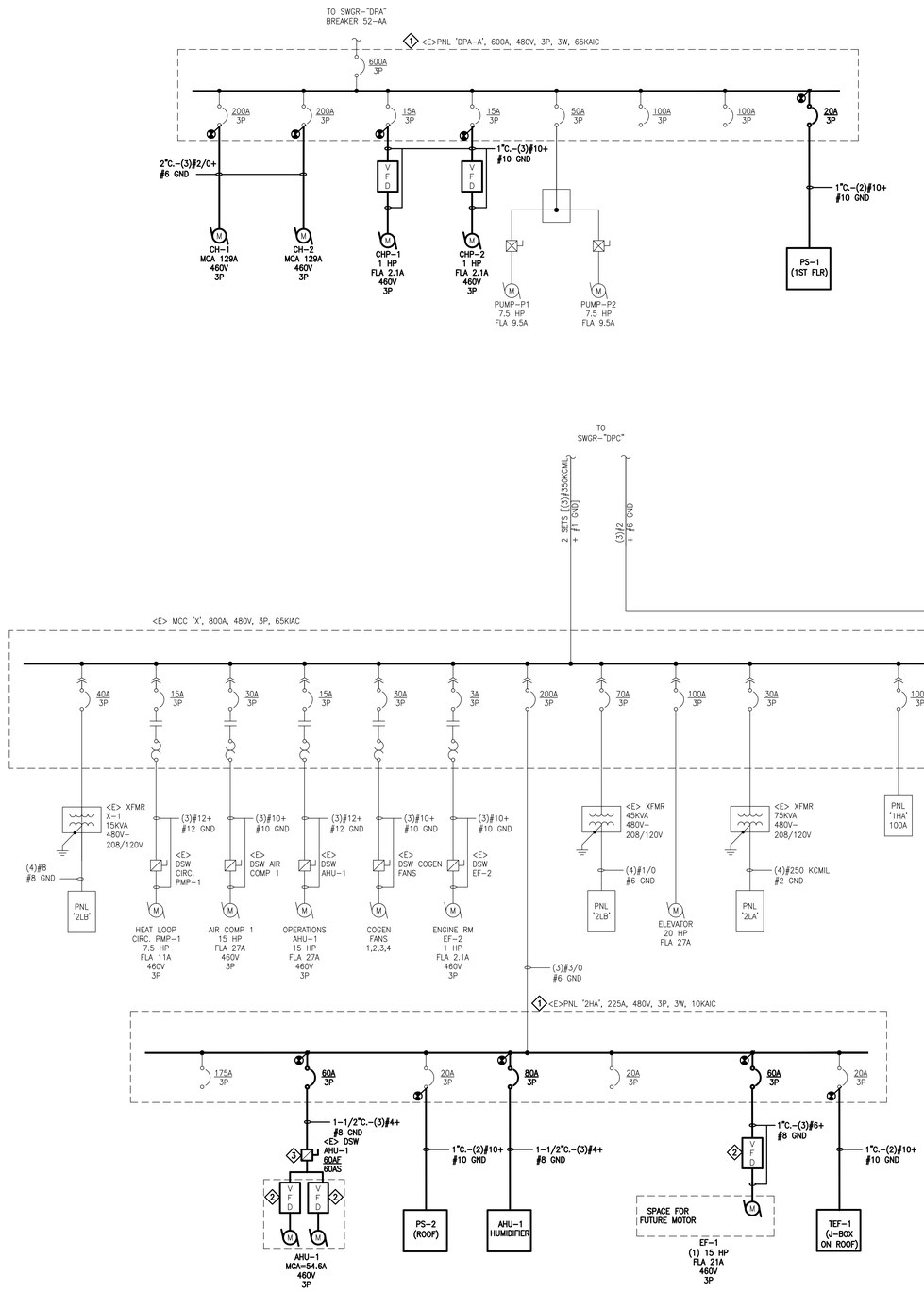
DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

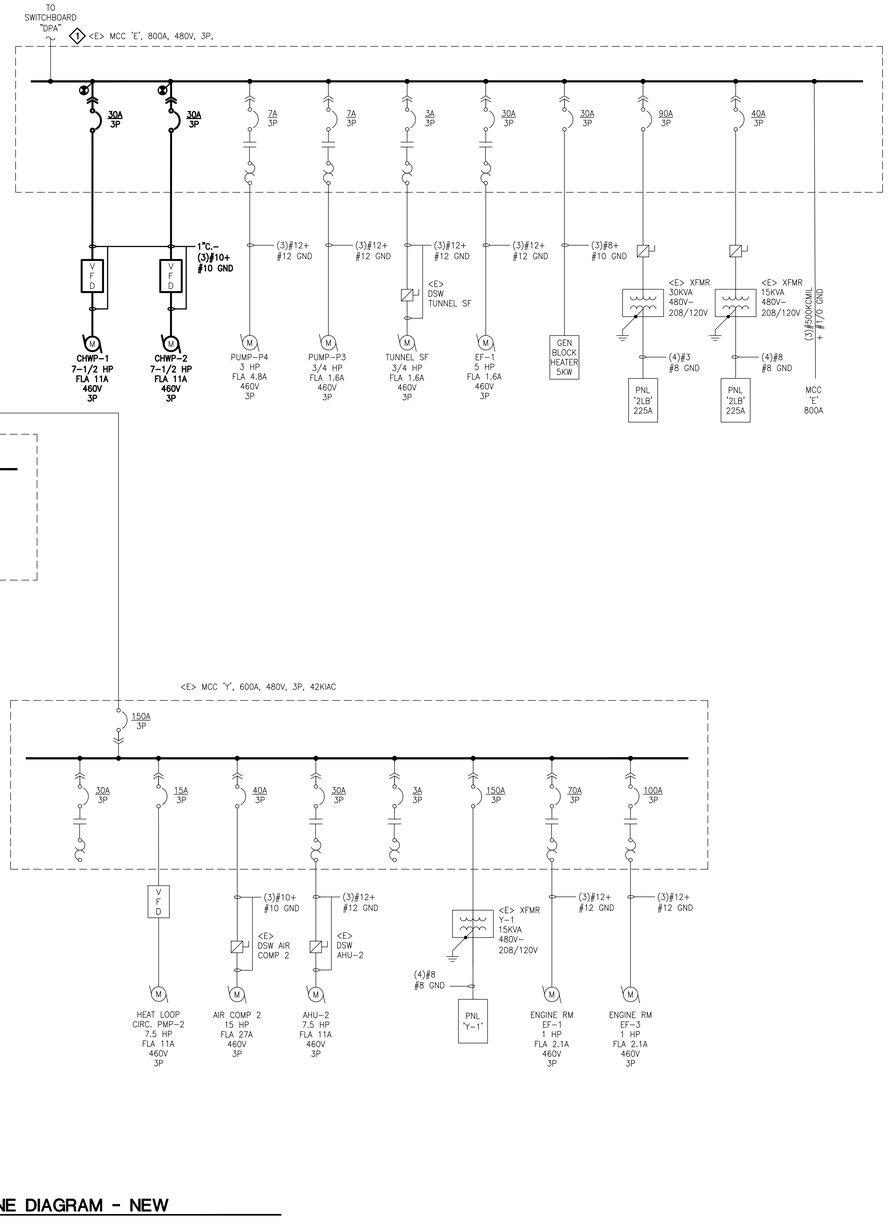
CIP NO. 22-P010

WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL
PARTIAL SINGLE LINE DIAGRAM - DEMO

ED7.1a
35 66





1 PARTIAL SINGLE LINE DIAGRAM - NEW
SCHEMATIC

GENERAL SHEET NOTES

A. FINAL TERMINATIONS OF CONDUCTORS TO ELECTRICAL EQUIPMENT AND DEVICES SHALL BE TORQUE WRENCH TIGHTENED TO THE MANUFACTURER'S RECOMMENDED SPECIFICATION, NO EXCEPTION. PROVIDE NEUTRAL TEST AND PROOF OF TORQUE DURING FINAL INSPECTION FOR ALL UNITS.

B. ELECTRICAL SERVICE DESIGN BASED ON IEM EQUIPMENT. COORDINATE AND ADJUST PER EQUIPMENT SUPPLIED.

C. SIZES OF BREAKERS, SWITCHES, FUSES AND FEEDERS ARE BASED ON DESIGNED EQUIPMENT SIZES. THESE SIZES SHALL BE ADJUSTED TO SATISFY REQUIREMENTS OF ACTUAL INSTALLED OR SUBSTITUTE EQUIPMENT. UP SIZING OR DOWNSIZING OF FEEDERS SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

D. AS REQUIRED ALL OVERSIZED FEEDERS THAT WERE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP SHALL BE PROVIDED WITH ADAPTER LUGS OR SPLICE BOX. ADAPTER LUGS SHALL BE PROVIDED IF SIZE IS AVAILABLE. OTHERWISE PROVIDE CABLE SPLICES IN THE SPLICE BOX TO REDUCE CABLES TO THE MAXIMUM SIZE THAT THE BREAKER LUGS CAN ACCOMMODATE.

E. ALL OUTDOOR EQUIPMENT TO BE NEMA 3R RATED.

(#) REFERENCE SHEET NOTES

1. FURNISH AND INSTALL NEW BREAKER TO POWER NEW MECHANICAL EQUIPMENT. CONTRACTOR TO MATCH EXISTING PANELBOARD SCCR RATING.

2. VFD TO BE PROVIDED BY OTHERS. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY JG; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D / REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

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WWTP HVAC REPLACEMENTS - BUILDING A

ELECTRICAL
PARTIAL SINGLE LINE DIAGRAM - NEW

CIP NO. 22-P010

E7.1a
36 66

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
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REGISTERED PROFESSIONAL ENGINEER – HUGH L. KING – No. E20530 – ELECTRICAL – STATE OF CALIFORNIA

STRUCTURAL GENERAL NOTES

I. SCOPE OF WORK

1. NEW PIPE SUPPORTS AND NEW EQUIPMENT ANCHORAGE.

II. DESIGN CRITERIA

1. APPLICABLE CODES:
   2022 CALIFORNIA BUILDING CODE

2. SEISMIC LOADS:
   RISK CATEGORY: III
   SITE CLASS: D
   IMPORTANCE FACTOR Ie: 1.5
   SITE ACCELERATIONS Ss: 1.577g
   Sms: 1.892g
   Sds: 1.262g

	ap	Rp	Ωo	Fp	Fp vertical
AHU-1:	2.5	6.0	2.0	0.947Wp	0.252Wp
CHILLER:	1.0	2.5	2.0	0.568Wp	0.252Wp
EXHAUST FAN:	2.5	3.0	1.5	1.893Wp	0.252Wp
PUMPS:	1.0	2.5	2.0	0.568Wp	0.252Wp

3. WIND LOAD CRITERIA:
   ULTIMATE DESIGN WIND SPEED 99 MPH
   RISK CATEGORY III
   EXPOSURE C
   HORIZONTAL DESIGN WIND PRESSURE (LRFD) 38.9 PSF
   VERTICAL DESIGN WIND PRESSURE (LRFD) 30.7 PSF

4. GEOTECHNICAL

   CBC 2022 SECT 1806.2
   PRESUMPTIVE BEARING CAPACITY OF SOIL:
   DEAD PLUS LIVE LOAD 1500 PSF
   TOTAL LOAD INCLUDING WIND & SEISMIC 2000 PSF

III. GENERAL

1. ALL MATERIALS AND WORKMANSHIP SHALL BE OF A QUALITY COMPATIBLE WITH THE REQUIREMENTS OF THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE AND ALL LOCAL CITY AND COUNTY ORDINANCES, WHICHEVER MAY APPLY.
2. ALL WORK SHOWN ON THESE DRAWINGS IS NEW UNLESS NOTED EXISTING (E).
3. THE CONDITIONS SHOWN FOR EXISTING CONSTRUCTION REFLECT INFORMATION SHOWN ON THE ORIGINAL CONSTRUCTION DRAWINGS AND DRAWINGS DESCRIBING SUBSEQUENT BUILDING IMPROVEMENTS. THE CONTRACTOR SHALL REFER TO ALL AVAILABLE DRAWINGS AND FIELD OBSERVATIONS FOR VERIFICATION OF EXISTING CONDITIONS AS REQUIRED.
4. THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS AND CONDITIONS BEFORE THE START OF ANY CONSTRUCTION, ORDERING OR FABRICATING ANY MATERIAL. ANY DISCREPANCIES BETWEEN THE CONDITIONS FOUND AND THOSE SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER FOR CLARIFICATION BEFORE WORK PROCEEDS.
5. ALL OMISSION AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
6. IT SHALL BE THE CONTRACTORS SOLE RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING, FORMWORK, ETC., AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION, AND TO HOLD ALL NEW OR REVISED ELEMENTS IN PLACE UNTIL FINAL SUPPORT CONDITIONS ARE COMPLETED.
7. THE CONTRACTOR SHALL PROTECT ALL PIPES, DUCTS, ARCHITECTURAL FINISHES, AND UTILITIES FROM DAMAGE DURING CONSTRUCTION AND RESTORE ALL DAMAGED ITEMS TO ORIGINAL CONDITION, UNLESS NOTED OTHERWISE.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT IN CONJUNCTION WITH THE PROSECUTION OF THIS WORK.
9. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WELDING NEAR WOOD OR OTHER FLAMMABLE MATERIALS.
10. THE CONTRACTOR IS RESPONSIBLE TO FURNISH AND MAINTAIN NECESSARY BARRICADES, COVERINGS OR OTHER PROTECTIVE DEVICES AS NEEDED TO PROTECT EQUIPMENT, ADJACENT SURFACES AND MEET SAFETY REQUIREMENTS. THE CONTRACTOR SHALL REMOVE THESE MATERIALS ONCE THE PROJECT HAS BEEN COMPLETED.
11. WHERE A CONSTRUCTION DETAIL IS NOT SHOWN OR NOTED, THE DETAIL SHALL BE THE SAME AS FOR SIMILAR WORK. THE CONTRACTOR SHALL CONFIRM THE USE OF SIMILAR DETAILS WITH THE STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
12. THE INFORMATION AND DETAILS FOR THE EXISTING STRUCTURE SHOWN ON THE STRUCTURAL DOCUMENTS ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE STRUCTURAL DRAWINGS.
13. THE CONTRACTOR SHALL REVIEW THE EXISTING CONDITIONS PRIOR TO THE START OF WORK AND DURING THE COURSE OF CONSTRUCTION TO DETERMINE THE PRESENCE, IF ANY, OF ASBESTOS OR OTHER HAZARDOUS MATERIALS. IF DISCOVERED, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER AND TAKE APPROPRIATE PRECAUTIONARY MEASURE TO CONTAIN HAZARDOUS MATERIALS UNTIL THE OWNER CAN DEVELOP AN APPROPRIATE DISPOSITION PLAN.
14. THE STRUCTURAL SYSTEMS HAVE BEEN DESIGNED TO CARRY THE SUPERIMPOSED LIVE LOADS AS PRESCRIBED BY THE CALIFORNIA BUILDING CODE AND IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICES, WITH NO SPECIAL PROVISIONS TO CARRY CONCENTRATED LOADS FROM STORAGE AND HANDLING OF CONSTRUCTION MATERIALS OR FROM OPERATION OF CONSTRUCTION EQUIPMENT.

IV. SPECIAL INSPECTION

1. SPECIAL INSPECTIONS AND OBSERVATION SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 1703, 1704 AND 1705 OF THE CBC 2022, AND IS REQUIRED FOR THE FOLLOWING UNLESS SPECIFICALLY NOTED OTHERWISE:
   A. PLACEMENT OF CONCRETE
   B. CONCRETE SLUMP TESTS AND COMPRESSION TEST CYLINDERS
   C. INSTALLATION OF EMBEDDED ANCHOR BOLTS, EXPANSION ANCHORS AND EPOXY ANCHORS – CONTINUOUS INSPECTION REQUIRED
   D. PLACEMENT OF REINFORCING STEEL
   E. STRUCTURAL WELDING
   F. SHOP WELDING UNLESS PERFORMED AT AN I.C.C. CERTIFIED SHOP
2. ALL WELDERS SHALL BEAR CURRENT QUALIFICATION CERTIFICATES FOR THE MATERIAL, WELDING POSITIONS, AND WELDING PROCESSES EMPLOYED IN THE WORK. CERTIFICATES FOR EACH WELDER SHALL BE CHECKED BY THE WELDING INSPECTOR PRIOR TO WELDING.
3. WELDING INSPECTORS SHALL BE QUALIFIED FOR THE METHODS EMPLOYED IN THE WORK AS PER ASNT AND AWS D1.1 REQUIREMENTS.
4. THE SPECIAL INSPECTOR SHALL BRING ALL DISCREPANCIES IMMEDIATELY TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF NOT CORRECTED TO THE SATISFACTION OF THE INSPECTOR, THE DISCREPANCIES SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE STRUCTURAL ENGINEER AND BUILDING OFFICIAL.
5. THE SPECIAL INSPECTOR SHALL FURNISH TIMELY INSPECTION REPORTS TO THE STRUCTURAL ENGINEER, THE OWNER, AND THE BUILDING OFFICIAL FOR REVIEW AND ACCEPTANCE. THE INSPECTOR SHALL ALSO SUBMIT A FINAL REPORT, SIGNED BY HIMSELF AND BEARING THE SEAL AND SIGNATURE OF A CIVIL ENGINEER REGISTERED IN CALIFORNIA, STATING WHETHER THE WORK REQUIRING INSPECTION WAS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CBC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ALL WORK WHICH IS DETERMINED BY TESTING AND INSPECTION NOT TO COMPLY WITH SPECIFIED STANDARDS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE TEST AND INSPECTION FIRM WITH A SCHEDULE TO FACILITATE THE PROPER COORDINATION OF THE WORK.

V. SUBMITTALS

1. PRIOR TO PROCEEDING WITH THE WORK, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE STRUCTURAL ENGINEER FOR REVIEW:
   1.1. CONCRETE MIX DESIGN
   1.2. CONCRETE REINFORCING SHOP DRAWINGS
   1.3. STEEL SHOP DRAWINGS
   1.4. MANUFACTURERS CATALOG DATA, TOGETHER WITH I.C.C. CERTIFIED TEST DATA, FOR ANY PROPRIETARY PRODUCT PROPOSED AS A SUBSTITUTE FOR SPECIFIED MATERIALS.
2. ALLOW 14 DAYS FOR STRUCTURAL ENGINEER'S SHOP DRAWING REVIEW AS PER AISC – CODE OF STANDARD PRACTICE. REVIEW OF SUBMITTALS BY THE STRUCTURAL ENGINEER IS ONLY FOR GENERAL CONFORMANCE WITH DESIGN INTENT. REVIEW OF THE DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLETING THE WORK IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
3. INDICATE PROFILES, SIZES, SPACING, AND LOCATIONS OF STRUCTURAL MEMBERS, CONNECTIONS, ATTACHMENTS, FASTENERS, CAMBERS, HOLES AS PER CONSTRUCTION DRAWINGS.
4. INDICATE WELDED CONNECTIONS USING STANDARD AWS WELDING SYMBOLS. INDICATE WELD SIZES, EFFECTIVE SIZES AND NET LENGTHS.
5. SHOP DRAWINGS SHALL SHOW CONNECTIONS AS INDICATED ON CONSTRUCTION DRAWINGS. WHERE ALTERNATIVE CONNECTIONS ARE SUBSTITUTED FOR THOSE INDICATED ON THE CONSTRUCTION DRAWINGS, SUBMIT DATA (CALCULATIONS OR TEST) DEMONSTRATING THAT THEY ARE OF EQUIVALENT OR SUPERIOR STRENGTH, STIFFNESS AND DUCTILITY TO THOSE SHOWN ON THE CONSTRUCTION DRAWINGS FOR STRUCTURAL ENGINEER'S APPROVAL. CLEARLY INDICATE ALL ALTERNATIVELY DETAILED CONNECTIONS ON SHOP DRAWINGS.
6. SUBMIT THE FOLLOWING TO THE STRUCTURAL ENGINEER FOR RECORD PURPOSES:
   A. MILL CERTIFICATES AND TEST REPORTS FOR ALL STRUCTURAL STEEL
   B MILL CERTIFICATES AND TEST REPORTS FOR ALL REINFORCING STEEL

VI. CONCRETE & REINFORCING

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318–19, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".
2. REINFORCING BARS AND DOWELS SHALL BE DEFORMED BARS AND SHALL CONFORM TO ASTM SPECIFICATION A615 OR A706, GRADE 60.
3. MINIMUM CLEAR DISTANCES BETWEEN REINFORCING STEEL AND FACE OF CONCRETE ARE AS FOLLOWS:
   A. CONCRETE EXPOSED TO EARTH OR WEATHER:
      #5 BAR AND SMALLER 1–1/2"
   B. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:
      #11 BAR AND SMALLER 3/4"
4. WHERE NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE, THE EXISTING SURFACE SHALL BE SOUND, CLEAN, FREE OF PAINT AND LAITANCE, AND ROUGHENED TO EXPOSE AGGREGATE. A BONDING AGENT (SIKA ARMATEC 110 EPOCEM OR APPROVED EQUAL) SHALL BE APPLIED TO EXISTING CONCRETE SURFACES PRIOR TO PLACING NEW CONCRETE AGAINST EXISTING CONCRETE.
5. CONCRETE MIXES TO BE PROVIDED BY CONTRACTOR FOR ENGINEER REVIEW AND SHALL BE DESIGNED BY AND BEAR THE SEAL OF A PROFESSIONAL CIVIL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.
6. CONCRETE SHALL BE NORMAL WEIGHT AGGREGATE CONCRETE & SHALL HAVE A MINIMUM TWENTY–EIGHT DAY COMPRESSIVE STRENGTH (f'c) OF 4,000 PSI.
7. CEMENT SHALL CONFORM TO ASTM C–150, TYPE I OR II.
8. AGGREGATES SHALL BE HARD ROCK AND SHALL CONFORM TO ASTM C–33.
9. READY–MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C–94.
10. PROJECTING CORNERS SHALL BE FORMED WITH A 3/4–INCH CHAMFER UNLESS OTHERWISE NOTED.

VII. CONCRETE ANCHORS

1. INSTALL ALL CONCRETE ANCHORS IN ACCORDANCE WITH THE REQUIREMENTS GIVEN IN THE ICC RESEARCH COMMITTEE RECOMMENDATIONS FOR THE ANCHOR. ALL INSTALLED ANCHORS SHALL HAVE SPECIAL INSPECTION.
2. CONCRETE EXPANSION ANCHORS SHALL BE STAINLESS STEEL HILTI KWIK BOLT TZ2 WEDGE ANCHORS OR EQUAL. INSTALL PER ICC ESR–4266. SPECIAL INSPECTION IS REQUIRED.
3. EPOXY ANCHORS AND DOWELS SHALL BE HILTI HIT–RE 500 V3 OR EQUAL. INSTALL PER ICC ESR–3814. SPECIAL INSPECTION IS REQUIRED.
4. SUBSTITUTIONS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION.
5. WHEN INSTALLING DRILLED–IN ANCHORS IN EXISTING CONCRETE MEMBERS, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED–IN ANCHOR.
6. INSTALLATION OF DRILLED IN EXPANSION–TYPE AND EPOXY ANCHORS SHALL BE CONTINUOUSLY INSPECTED BY THE OWNER'S REPRESENTATIVE. 25 PERCENT OF ALL EXPANSION–TYPE ANCHORS (ALTERNATE BOLTS IN ANY GROUP) AND 10 PERCENT EPOXY ANCHORS SHALL BE TESTED BY THE OWNER'S TESTING LABORATORY FOR THE PULLOUT LOADS OR TORQUE AS INDICATED IN THE TABLES BELOW. IF ANY ANCHOR FAILS, IT SHALL BE REPLACED AND THE IMMEDIATELY ADJACENT BOLTS SHALL ALSO BE TESTED AT CONTRACTOR'S EXPENSE. TESTING SHALL BE PER FOLLOWING SCHEDULES.

WEDGE ANCHOR EXPANSION BOLTS – HILTI KWIK BOLT TZ2

ANCHOR DIAMETER (IN)	MINIMUM NOMINAL EMBEDMENT (IN)	TORQUE TEST PER MANUFACTURER RECOMMENDATIONS (FT–LBS)	
		CARBON STEEL	STAINLESS STEEL
1/4	1 3/4	4	6
3/8	1 7/8	30	30
1/2	2 1/2	50	40
5/8	3 1/4	40	60
3/4	4	110	125

EPOXIED DOWELS

REBAR SIZE (GRADE 60)	MINIMUM EMBEDMENT (IN)	TEST LOAD IN NORMAL WEIGHT CONCRETE (LBS)	
		2,500 PSI CONCRETE	4,000 PSI CONCRETE
No. 3	3.5	2900	3260
No. 4	4	4430	6300
No. 5	5	5820	8340
No. 6	7	9210	11400
No. 7	7.5	11360	13700
No. 8	8	15190	18100

EPOXIED THREADED ROD (ASTM F1554) OR SS (AISI 304/316)

ROD SIZE (IN)	MINIMUM EMBEDMENT (IN)	TEST LOAD IN NORMAL WEIGHT CONCRETE (LBS)	
		2,500 PSI CONCRETE	4,000 PSI CONCRETE
3/8	3	2620	3400
1/2	4	4240	5500
5/8	5	6900	7900
3/4	6	7700	11900
7/8	7	11900	15100
1	8	13250	16800
1 1/4	12	24400	31100

VIII. STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) PUBLICATION "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL BUILDINGS".
2. ALL STEEL MEMBERS SHALL BE MADE IN APPROVED FABRICATORS SHOP, THE APPROVED FABRICATOR SHALL SUBMIT THE CERTIFICATE OF COMPLIANCE TO THE BUILDING INSPECTOR PRIOR TO ERECTION.
3. AT CONTRACTORS OPTION, SHEAR TABS FOR STEEL BEAMS MAY BE FIELD WELDED TO BEAM WEBS TO FACILITATE ERECTION.
4. COMPLETE WELDING PROCEDURE SHALL BE SUBMITTED TO AND APPROVED BY THE STRUCTURAL ENGINEER OF RECORD AND THE BUILDING DEPARTMENT BEFORE ANY WELDING IS COMMENCED.
5. STRUCTURAL STEEL SHALL BE AS FOLLOWS:

BEAMS AND COLUMNS	ASTM A572 GRADE 50 OR ASTM A992
GUSSET PLATE	ASTM A36
ANGLES	ASTM A36
CHANNELS	ASTM A36
TUBE STEEL	ASTM A500 (GRADE B)
CONTINUITY PLATES	ASTM A572 (GRADE 50)
BASE PLATES (LESS THAN 4" THK.)	ASTM A36
BASE PLATES (GREATER THAN 4" THK.)	ASTM A572 (GRADE 42)
MISC. PLATES	ASTM A36
PIPE COLUMNS	ASTM A53 TYP 'E' OR TYPE 'S' (GRADE B)
STIFFENER/SHEAR PLATES	ASTM A36

6. FABRICATE STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS AND AISC CODE OF STANDARD PRACTICE.
7. FABRICATE STRUCTURAL ELEMENTS IN THE LARGEST SECTIONS PRACTICAL, CONSIDERING TRANSPORT AND ERECTION REQUIREMENTS.
8. ALL WELDING SHALL BE PERFORMED UNDER A PRE–QUALIFIED OR QUALIFIED BY TEST WELDING PROCEDURE, PER AWS D1.1. SUBMIT WRITTEN WELDING PROCEDURES FOR EACH CLASS OF WELD (POSITION, PROCESS, MATERIAL TYPE, FILLER METAL TYPE, JOINT PREPARATION, PRE–HEAT, POST–HEAT AND THICKNESS) FOR BOTH PRE–QUALIFIED AND QUALIFIED BY TEST PROCEDURES AS PER AWS D1.1. FOR QUALIFIED BY TEST PROCEDURES, SUBMIT TEST DATA AS PER AWS D1.1.
9. ALL WELDING SHALL BE DONE BY THE SHIELDED ARC PROCESS USING APPROVED ELECTRODES PER AWS SPECIFICATION E70XX (LOW HYDROGEN ELECTRODES). WELDING SHALL CONFORM TO THE LATEST EDITION OF AWS D1.1 AND SHALL BE PERFORMED BY CERTIFIED WELDERS QUALIFIED UNDER THE PROCEDURES CONTAINED THEREIN.
10. ALL BOLT HOLES IN STEEL SHALL BE 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER UNLESS OTHERWISE NOTED.
11. ALL STEEL SHALL BE PRIMED & PAINTED UNLESS OTHERWISE NOTED. SURFACE PREPARATION OF NEW STEEL SHALL BE HAND TOOL CLEANED, SSPC SP–2. PRIMER SHALL BE SSPC PAINT–25 OR EQUAL. FINISH COLOR FOR VISIBLE STEEL TO MATCH (E) STEEL PAINT COLOR.

IX. ERECTION OF FRAMING

1. MAKE PROVISION FOR ERECTION LOADS, AND FOR SUFFICIENT TEMPORARY BRACING TO MAINTAIN STRUCTURE SAFE, PLUMB, AND IN TRUE ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRACING.
2. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF STRUCTURAL ENGINEER UNLESS SPECIFICALLY NOTED ON CONSTRUCTION DRAWINGS.
3. AFTER ERECTION, INSPECTION AND TESTING OF STEEL (EXCEPT GALVANIZED STEEL, OR STEEL TO BE IN CONTACT WITH OR EMBEDDED IN CONCRETE), PRIME WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED, OR DAMAGED. USE A PRIMER COMPATIBLE WITH SHOP COAT.

ERECTION TOLERANCES:
1. MAXIMUM VARIATION FROM PLUMB: 1/8 INCH PER TEN FEET.
2. MAXIMUM OFFSET FROM TRUE ALIGNMENT: 1/4 INCH.

X. STRUT FRAMING

1. ALL MATERIALS FOR STRUT FRAMING TO BE SUPPLIED BY THE FOLLOWING SUPPLIERS (OR APROVED EQUAL):
   A. B–LINE SYSTEMS, INC.
      HIGHLAND, IL 62249
      PHONE: (618) 654–2184
   B. HILTI CORP.
      TULSA, OK 74121
      PHONE: (800) 879–8000
2. ALL COMPONENTS AND FITTINGS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
3. ALL STRUT MEMBERS AND FITTINGS SHALL HAVE A PRE–GALVANIZED FINISH.
4. ALL BOLTS, NUTS AND THREADED RODS FOR THE STRUT METAL FRAMING SYSTEM SHALL HAVE AN ELECTRO–GALVANIZED FINISH.
5. ALL B–LINE STRUT NUTS SHALL BE TIGHTENED WITH THE FOLLOWING TORQUE VALUES USING A PROPERLY CALIBRATED TORQUE WRENCH:

RECOMMENDED TORQUE				
BOLT SIZE	1/4"–20	5/16"–18	3/8"–16	1/2"–13
FOOT–LBS	6	11	19	50
NM	8	15	26	68

ABBREVIATIONS

AB	ANCHOR BOLT
AFF	ABOVE FINISHED FLOOR
ADD'L	ADDITIONAL
AGG	AGGREGATE
ALT	ALTERNATE
ARCH	ARCHITECT OR ARCHITECTURAL
BFF	BELOW FINISHED FLOOR
BDRM	BEDROOM
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BOT	BOTTOM
BTWN	BETWEEN
℄	CENTERLINE
CJ	CEILING JOISTS
CMU	CONCRETE MASONRY UNIT(S)
CALCS	CALCULATIONS
CLG	CEILING
CLR	CLEAR OR CLEARANCE
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUATION OR CONTINUOUS
CONTR	CONTRACTOR
COR	CORNER
DF	DOUGLAS FIR
DL	DEAD LOAD
DS	DOWNSPOUT
DBL	DOUBLE
DET	DETAIL
DIA OR ℗	DIAMETER
DIM	DIMENSION
DN	DOWN
(E)	EXISTING
EJ	EXPANSION JOINT
ELEV	ELEVATION
EN	EDGE NAIL
EA	EACH
ES	EACH SIDE
EQ	EQUAL
EW	EACH WAY
EXT	EXTERIOR
(F)	FUTURE
FJ	FLOOR JOIST
FLR	FLOOR
FS	FAR SIDE
FOUND OR FND	FOUNDATION
FP	FIREPLACE
FT	FLOOR TRUSS
FTG	FOOTING
GSM	GALVANIZED SHEET METAL
GA	GAUGE
GALV	GALVANIZED
GLUE–LAM, GLB	GLUE LAMINATED BEAM
GYP BD	GYPSUM BOARD
HD	HOLDDOWN
HORIZ	HORIZONTAL
HDR	HEADER
HGR	HANGER
INFO	INFORMATION
INSUL	INSULATION OR INSULATED
INT	INTERIOR
INTER	INTERSECTION
JT	JOINT
LB OR #	POUND OR NUMBER
LL	LIVE LOAD
MAX	MAXIMUM
MB	MACHINE BOLT
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MFR OR MANU	MANUFACTURER
MIN	MINIMUM
ML	MICROLLAM
MSTR	MASTER
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O/	OVER
OC	ON CENTER
OPT	OPTIONAL
ℙ OR PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSL	PARALLAM
PT	PRESSURE TREATED
PAR	PARALLEL
PERF	PERFORATED
PERP	PERPENDICULAR
PLHT	PLATE HEIGHT
PLYWD OR PLY	PLYWOOD
PR	PAIR
RCP	REINFORCED CONCRETE PIPE
RECOM OR REC	RECOMMENDATIONS
REINF	REINFORCING
REQ'D	REQUIRED
REBAR	REINFORCING BAR(S)
RJ	ROOF JOIST
RM	ROOM
RR	ROOF RAFTER
RT	ROOF TRUSS
RWD	REDWOOD
SAD	SEE ARCHITECTURAL DRAWINGS
SCD	SEE CIVIL DRAWINGS
SED	SEE ELECTRICAL DRAWINGS
SMD	SEE MECHANICAL DRAWINGS
SCHD	SCHEDULE
SOG	SLAB ON GRADE
SW	SHEARWALL
TEMP	TEMPORARY
TOC	TOP OF CONCRETE
TOW	TOP OF WALL
T/P	TOP PLATE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
W/	WITH

STRUCTURAL DRAWING INDEX

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY TD; DESIGN BY TCE; CHECKED BY TCE; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
SCALE: AS NOTED DATE: 12/09/2025

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

CPS COMPLIANCE PROJECT SOLUTIONS
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CPS Project No.: S1355.02

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305 South 11th Street
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408.282.1500 | 408.297.2995 (f)
salasobrien.com

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828–0515

CIP NO. 22–P010

WWTP HVAC REPLACEMENTS - BUILDING A

STRUCTURAL
GENERAL NOTES & ABBREVIATIONS

S0.1a
37 66

P:\S1300 Salas O'Brien\S1355 Dublin San Ramon HVAC\Drawings\S1355.02 – AHU Roof\+Current\+S01.dwg 12/12/2025 12:29 PM Tony Daza

SOBE #2304150.1

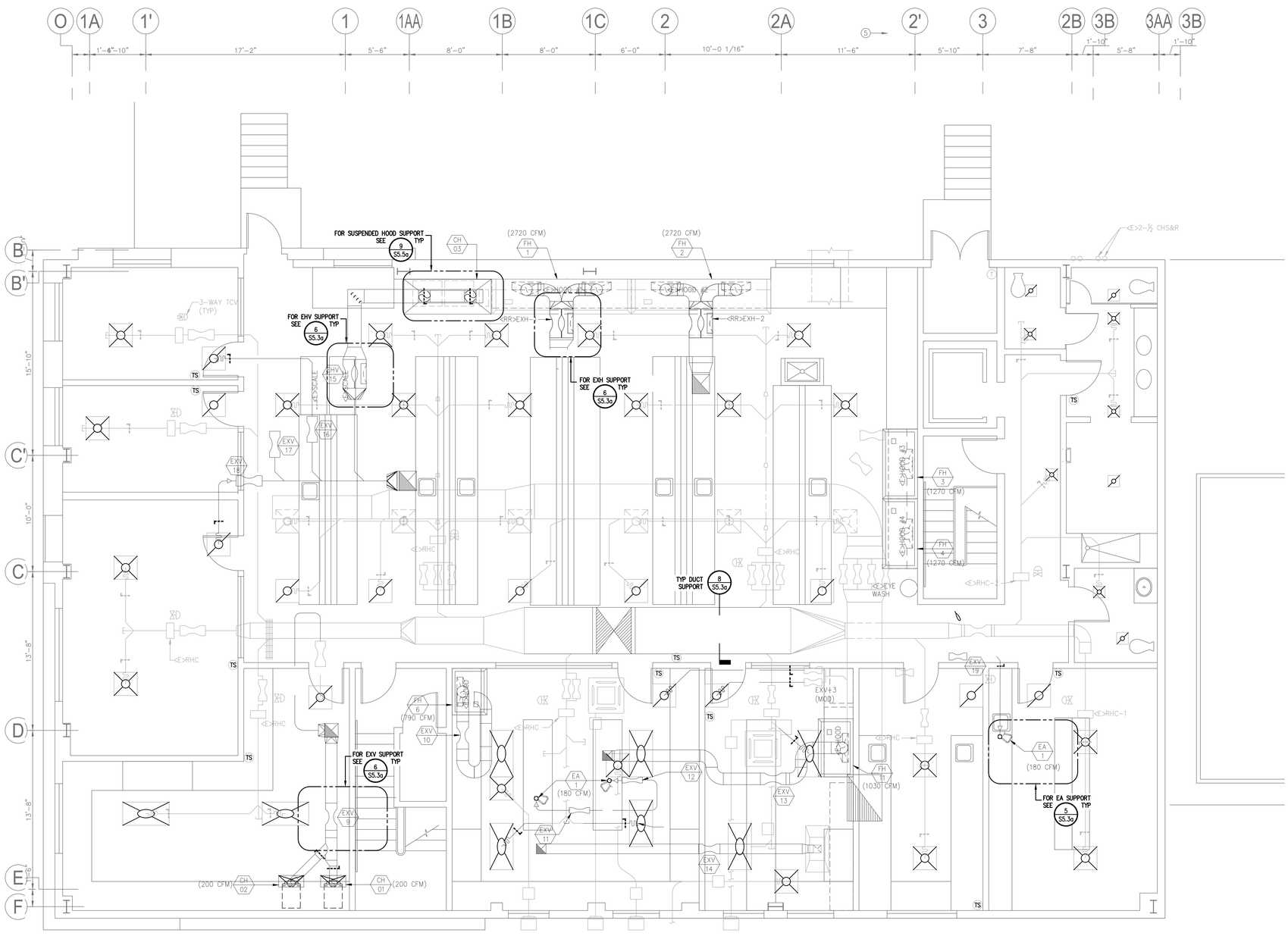
SHEET NOTES

1. FOR STRUCTURAL GENERAL NOTES SEE SHEET S0.1a.

LEGEND

DENOTES (E) STRUCTURE

DENOTES (N) STRUCTURE



A 2ND FLOOR EQUIPMENT SUPPORT PLAN - NEW WORK scale: 1/2"=1'-0"

Reference North

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN		RECOM'D		REVIEW	
DRAWN BY	TD			PLNNG./DEVL.	
DESIGN BY	TCE			FIELD OPS.	
CHECKED BY	TCE			WWTP OPS.	
PROJ. MGR.	–			MECH./MAINT.	
			DSRSD PRINCIPAL ENGINEER	ELECT./INSTR.	
				SCALE: AS NOTED	DATE: 12/09/2025

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02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

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WWTP HVAC REPLACEMENTS - BUILDING A

STRUCTURAL

BUILDING A 2ND FLOOR EQUIPMENT SUPPORT PLAN

CIP NO. 22-P010

S1.2a

38 | 66

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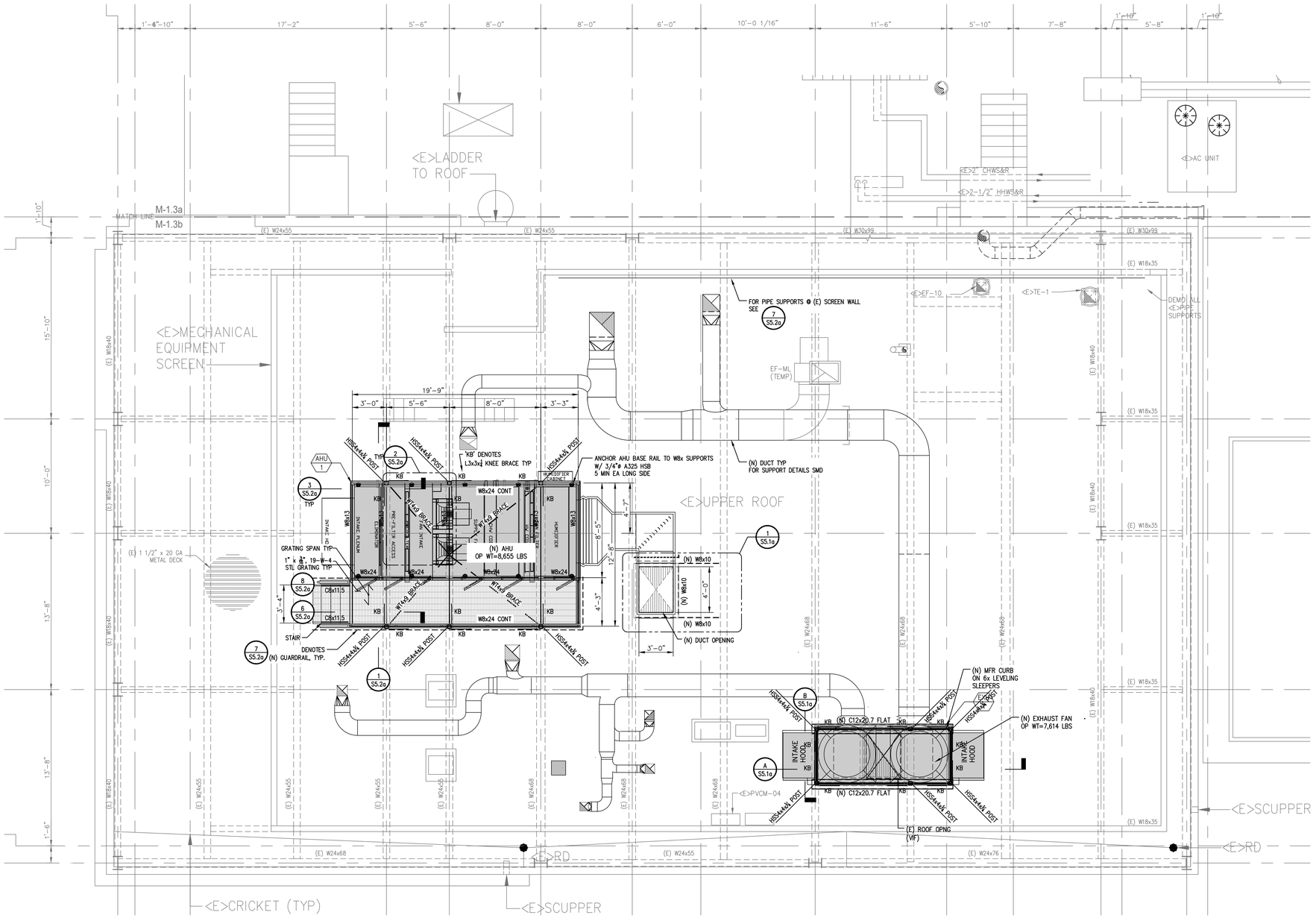
SHEET NOTES

1. FOR STRUCTURAL GENERAL NOTES SEE SHEET S0.1a.

LEGEND

- DENOTES (E) STRUCTURE
- DENOTES (N) STRUCTURE
- DENOTES (N) EQUIPMENT



A - **ROOF FRAMING PLAN - NEW WORK** scale: 1/2"=1'-0"

Reference North

12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				
DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

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DESIGN: DRAWN BY TD; DESIGN BY TCE; CHECKED BY TCE; PROJ. MGR. –

RECOM'D: DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

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WWTP HVAC REPLACEMENTS - BUILDING A

STRUCTURAL

BUILDING A ROOF FRAMING PLAN - NEW WORK

CIP NO. 22-P010

S1.3a
39 | 66

SOBE #2304150.1

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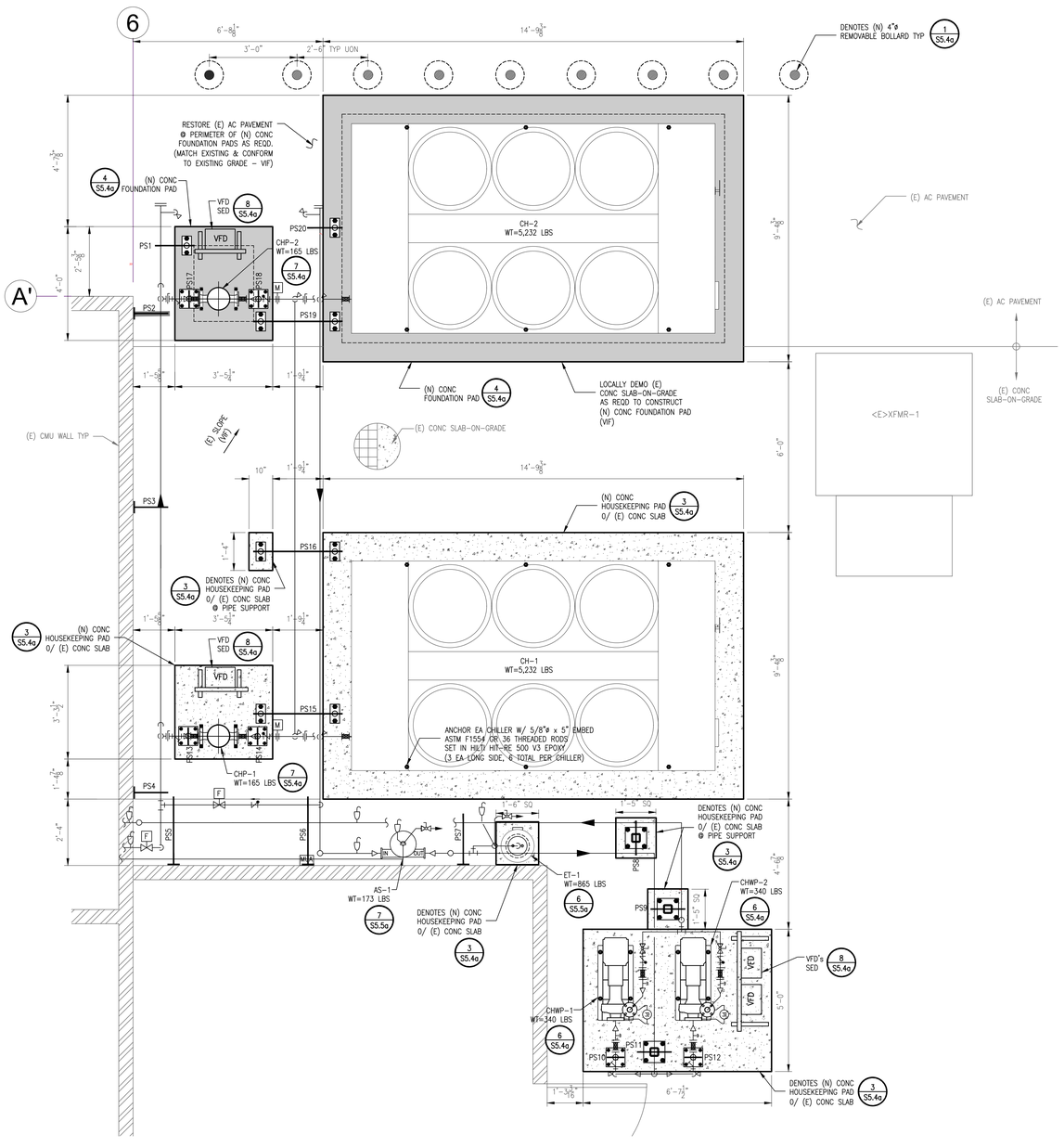


A MECHANICAL CHILLER PLANT PLAN – NEW
SCALE: 1/2" = 1' – 0"

PIPE SUPPORT SCHEDULE

ID	SUPPORT DESCRIPTION	SUPPORTED PIPE SIZE (SMD)	PIPE ELEVATION ABOVE GRADE (SMD)	PIPE SUPPORT DETAIL
PS1	SUPPORT ON FOOTING	(1) 4"	1.5'	8 S5.5a
PS2 PS3 PS4	SUPPORT BRACKET @ WALL	(1) 4"	10'	1 S5.5a
PS5 PS6	SUPPORT BRACKET @ WALL	(2) 4" (1) 1"	10'	1 S5.5a
PS7	SUPPORT BRACKET @ WALL	(1) 4" (1) 4"	10' 9"	1 S5.5a
PS8 PS9	STANCHION ON HOUSEKEEPING PAD	(1) 4" (1) 4"	10' 9"	2 S5.5a
PS10	STANCHION ON HOUSEKEEPING PAD	(1) 3"	1.5'	3 S5.5a
PS11	STANCHION ON HOUSEKEEPING PAD	(1) 4"	9'	4 S5.5a
PS12	STANCHION ON HOUSEKEEPING PAD	(1) 3"	1.5'	3 S5.5a
PS13 PS14	STANCHION ON HOUSEKEEPING PAD	(1) 2½"	2.5'	3 S5.5a
PS15 PS16	SUPPORT ON HOUSEKEEPING PADS	(1) 3" (1) 4"	1.5'	5 S5.5a
PS17 PS18	STANCHION ON FOOTING	(1) 2½"	2.5'	3 S5.5a
PS19	SUPPORT ON FOOTINGS	(1) 3" (1) 4"	1.5'	5 S5.5a
PS20	SUPPORT ON FOOTING	(1) 4"	1.5'	8 S5.5a

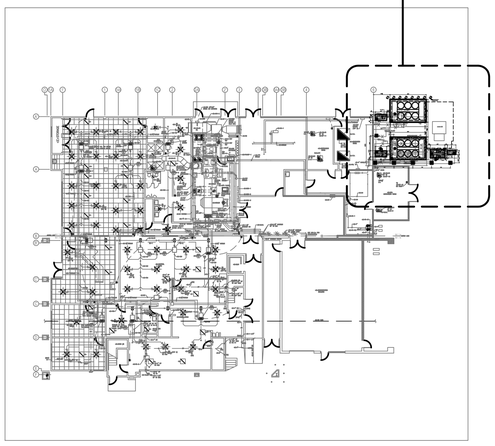
SHEET NOTES

1. FOR STRUCTURAL GENERAL NOTES SEE SHEET S0.1a.

LEGEND

- DENOTES (E) STRUCTURE
- DENOTES (N) STRUCTURE
- DENOTES (N) CONCRETE FOUNDATION PAD — 4 S5.4a
- DENOTES (N) CONCRETE HOUSEKEEPING PAD ON (E) CONCRETE SLAB — 3 S5.4a

AREA OF WORK



KEY PLAN
SCALE: 1 : 300

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY TD; DESIGN BY TCE; CHECKED BY TCE; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
SCALE: AS NOTED DATE: 12/09/2025

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
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02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

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WWTP HVAC REPLACEMENTS - BUILDING A

STRUCTURAL
CHILLER PLANT PLAN

CIP NO. 22-P010

S4.1a
40 66

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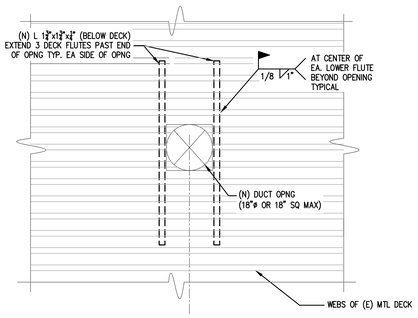
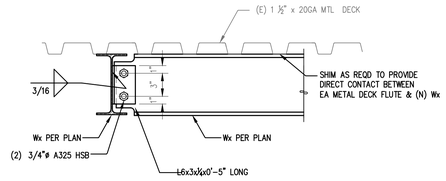
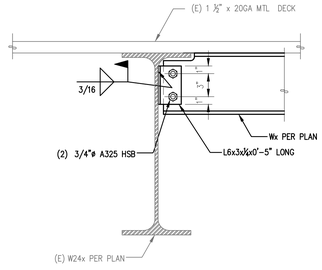
SOBE #2304150.1



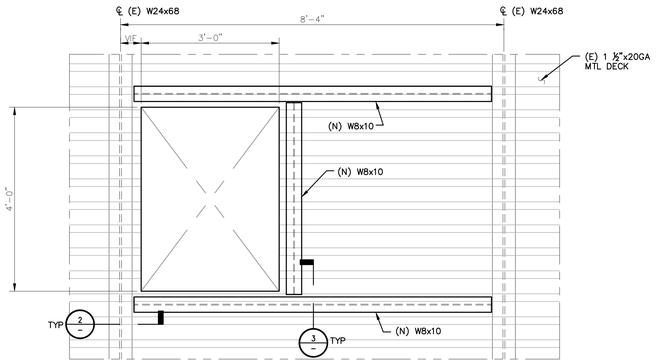
4 — TYPICAL SMALL ROOF OPENINGS
SCALE: NONE



3 — CONNECTION DETAIL
SCALE: 1 1/2"=1'-0"

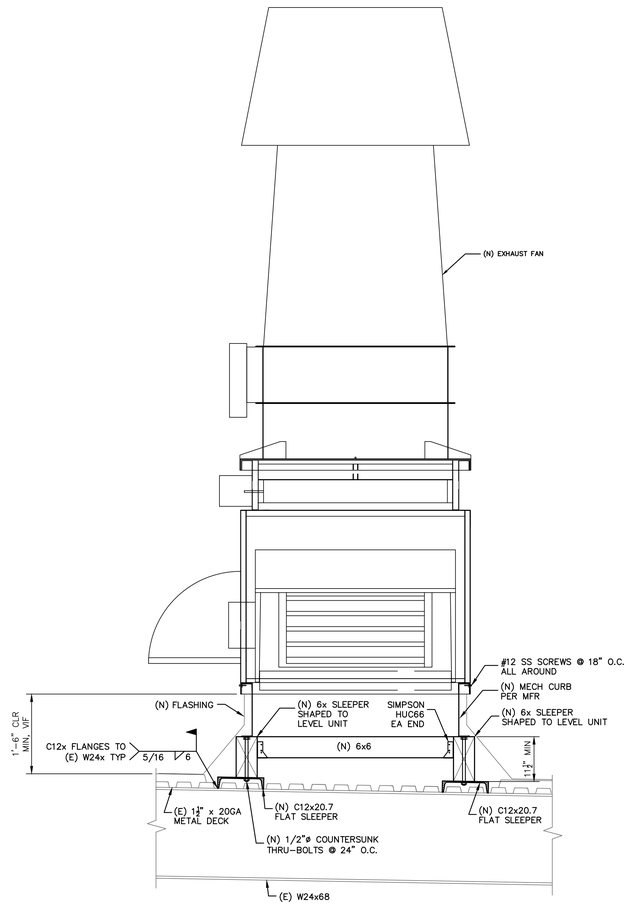


2 — CONNECTION DETAIL
SCALE: 1 1/2"=1'-0"

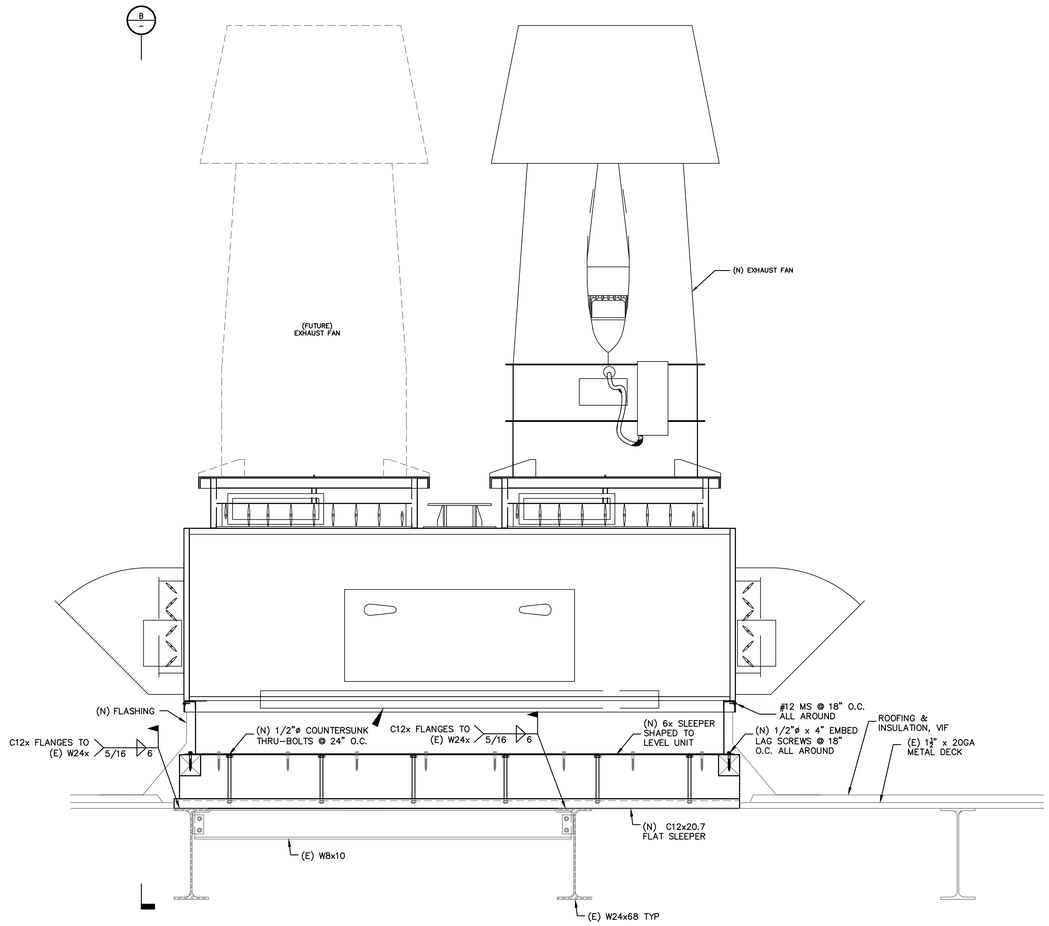


NOTE: APPLY SPRAY-ON FIREPROOFING TO ALL STRUCTURAL STEEL TO MATCH EXISTING AS REQD.

1 — (N) ROOF OPENING DETAIL
SCALE: 3/4"=1'-0"



B — SECTION — EXHAUST FAN SUPPORT
SCALE: 3/4"=1'-0"



A — SECTION — EXHAUST FAN SUPPORT
SCALE: 3/4"=1'-0"

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12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY TD; DESIGN BY TCE; CHECKED BY TCE; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
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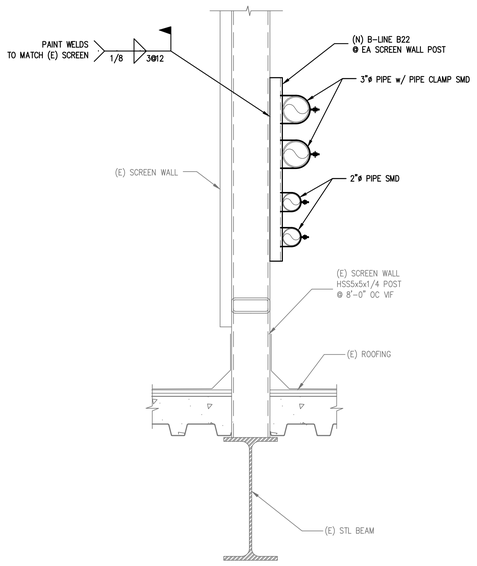
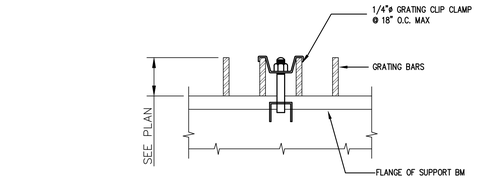
SOBE #2304150.1

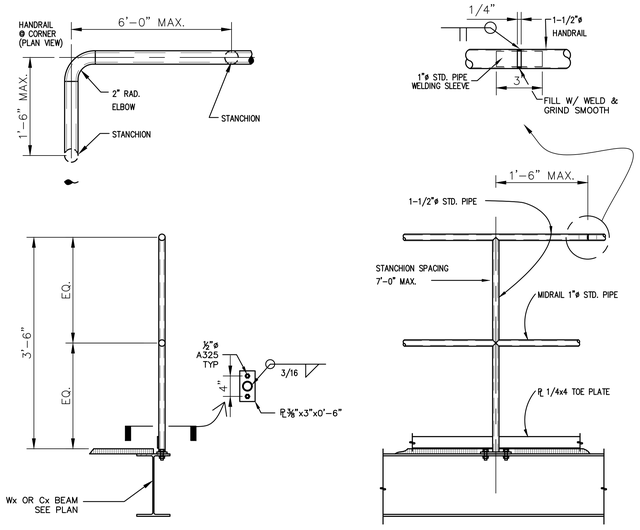


SECTION

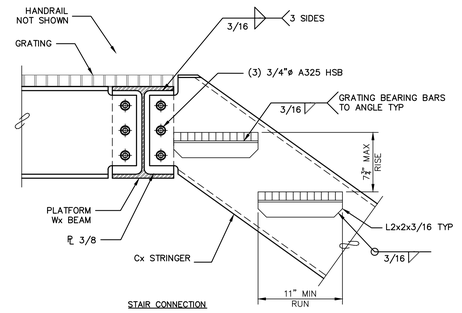
7 — PIPE SUPPORT
SCALE: 1 1/2" = 1'-0"



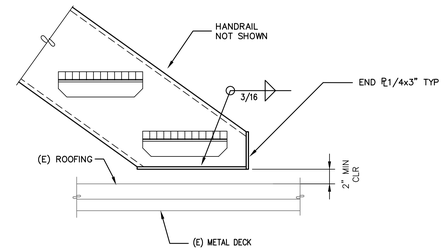
8 — GRATING CLIP DETAIL
SCALE: NONE



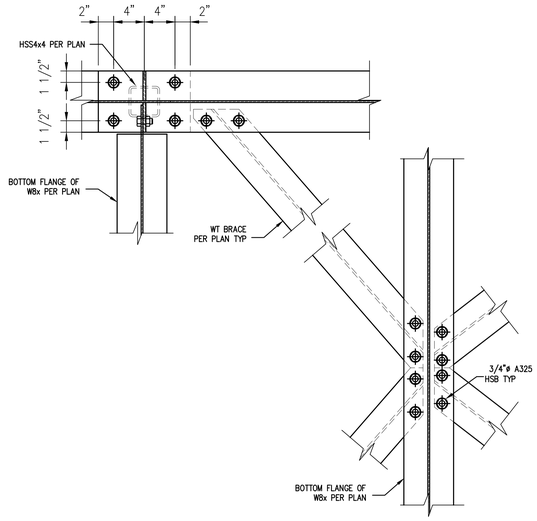
7 — PLATFORM GUARDRAIL
SCALE: NONE



5 — DETAIL
SCALE: NONE

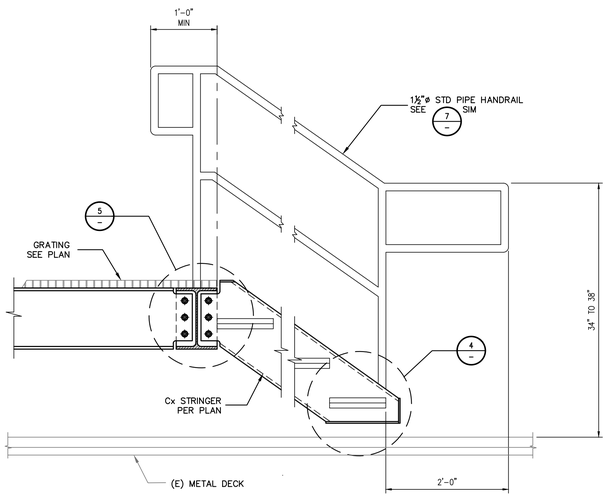


4 — DETAIL
SCALE: NONE

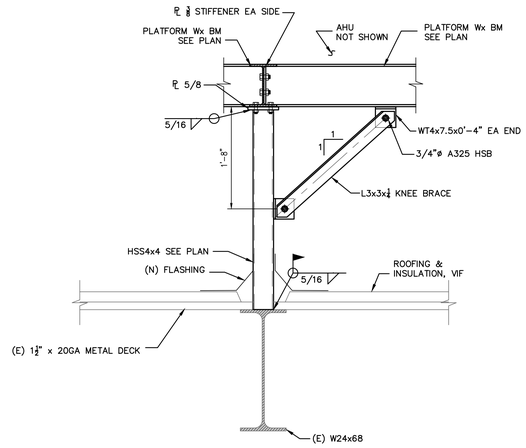


PLAN

2 — DIAGONAL BRACE CONNECTION
SCALE: 1 1/2"=1'-0"



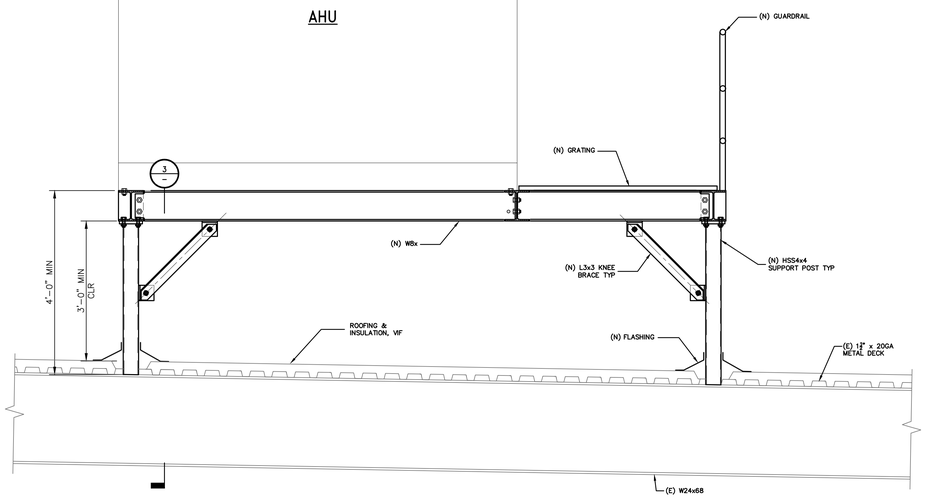
6 — PLATFORM STAIR SECTION
SCALE: 1"=1'-0"



ELEVATION

3 — PLATFORM SUPPORT POST
SCALE: 1"=1'-0"

AHU



1 — SECTION — AHU PLATFORM
SCALE: 3/4"=1'-0"

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN		RECOM'D		REVIEW	
DRAWN BY	TD			PLNNG./DEVL.	
DESIGN BY	TCE			FIELD OPS.	
CHECKED BY	TCE			WWTP OPS.	
PROJ. MGR.	–			MECH./MAINT.	
			DSRSD PRINCIPAL ENGINEER	ELECT./INSTR.	

SCALE: AS NOTED | DATE: 12/09/2025

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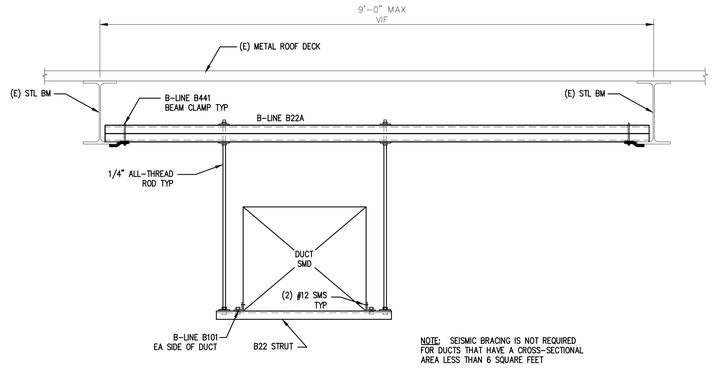
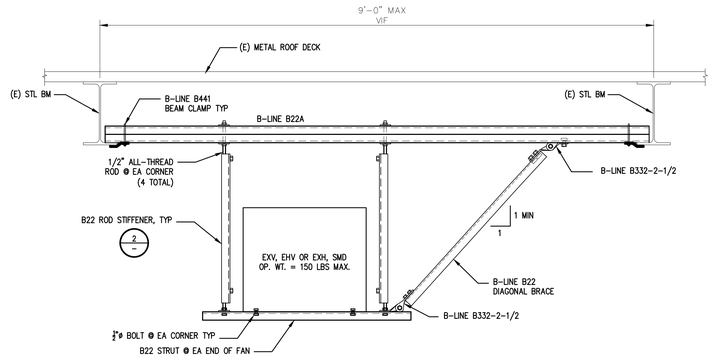
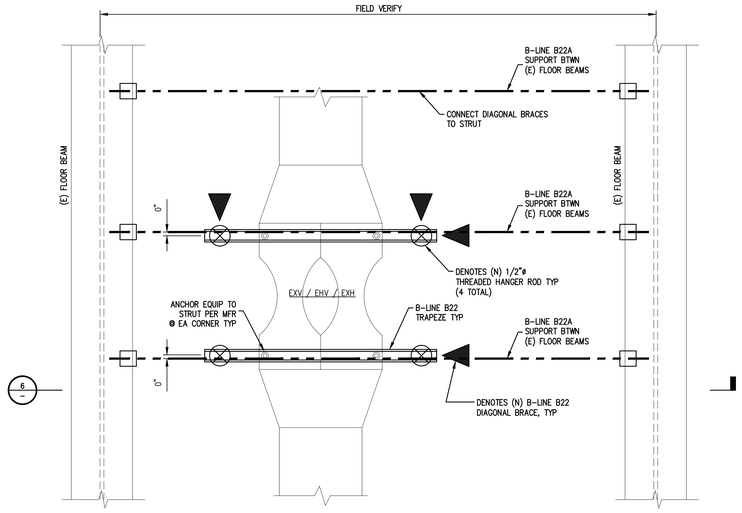


8 — SUSPENDED 2ND FLOOR DUCT SUPPORT SECTION
SCALE: NONE

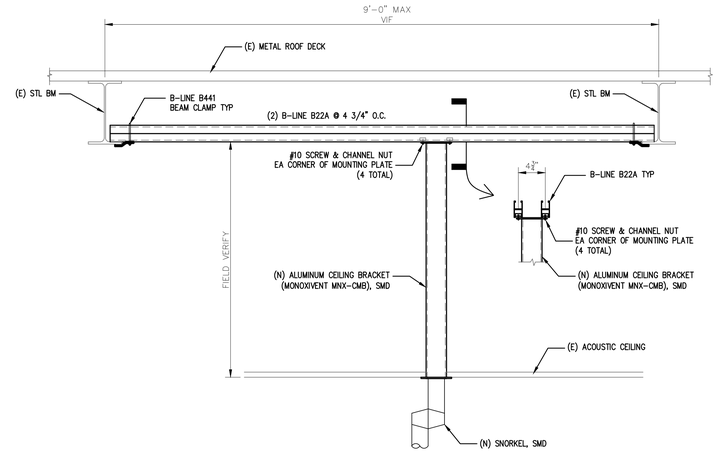


7 — SUSPENDED 2ND FLOOR EHV & EXH SUPPORT SECTION
SCALE: NONE

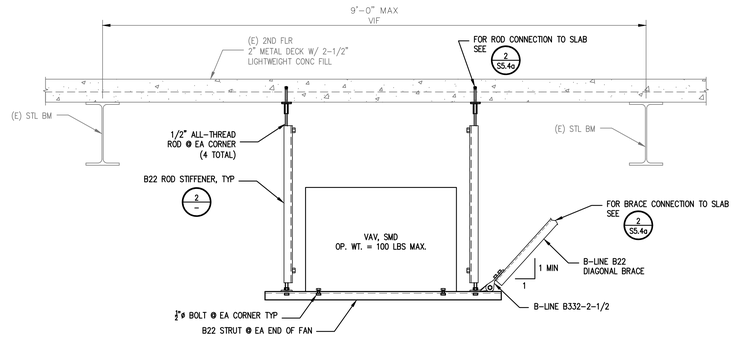


FOR EXV / EHV / EXH LOCATIONS SEE MECHANICAL DRAWINGS

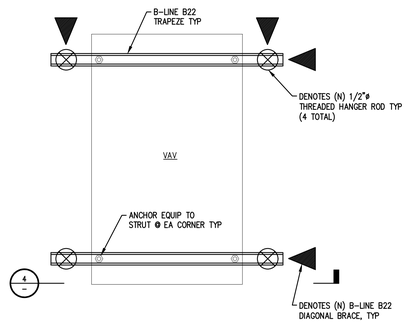
6 — SUSPENDED 2ND FLOOR EXV, EHV, EXH SUPPORT PLAN
SCALE: 1 1/2"=1'-0"



5 — FUME EXTRACTION ARM SUPPORT
SCALE: 1"=1'-0"

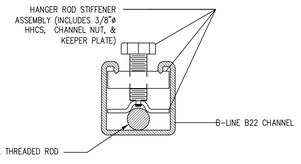


4 — SUSPENDED 1ST FLOOR VAV SUPPORT SECTION
SCALE: NONE



FOR VAV LOCATIONS SEE MECHANICAL DRAWINGS

3 — SUSPENDED 1ST FLOOR VAV SUPPORT PLAN
SCALE: 1 1/2"=1'-0"

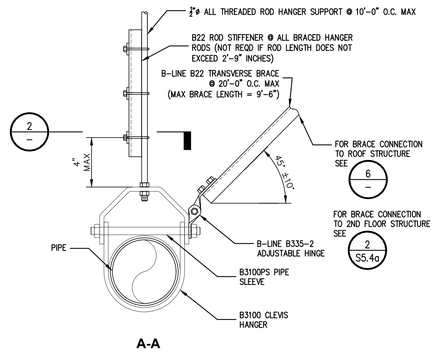


ROD STIFFENER REQUIREMENTS

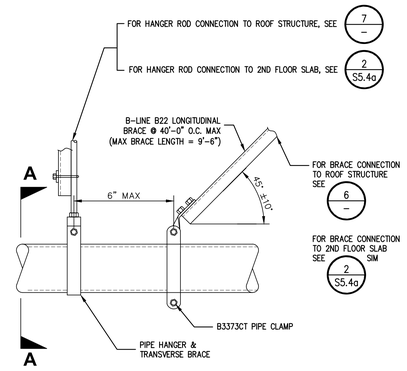
ROD SIZE	MAX ROD LENGTH W/O ROD STIFFENERS	MAX SPACING BETWEEN ROD STIFFENERS
3/8"	19"	13"
1/2"	25"	18"
5/8"	31"	23"
3/4"	37"	28"
7/8"	43"	33"

NOTES:
1. ROD STIFFENERS ARE REQUIRED ONLY ON HANGER AND TRAPEZE ASSEMBLIES THAT HAVE SEISMIC BRACING.
2. A MINIMUM OF TWO ROD STIFFENERS PER ROD MUST BE INSTALLED, IF REQUIRED.

2 — ROD STIFFENER DETAIL
SCALE: NONE



A-A



NOTE: LATERAL BRACING IS NOT REQUIRED FOR PIPES 1" DIAMETER OR LESS, OR CONDUITS LESS THAN 2-1/2" IN DIAMETER

FOR PIPE LOCATIONS, SEE MECHANICAL DRAWINGS

1 — PIPE SUPPORT DETAIL
SCALE: NONE

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY TD; DESIGN BY TCE; CHECKED BY TCE; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

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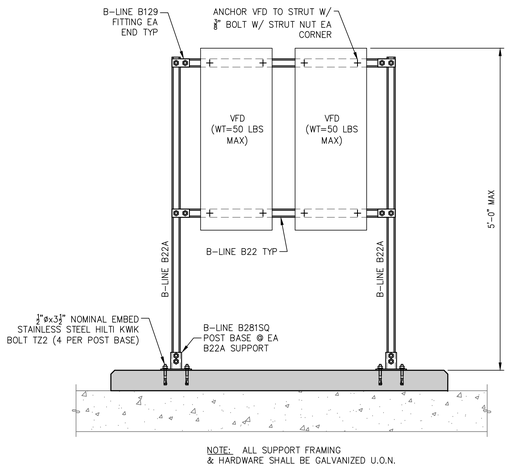
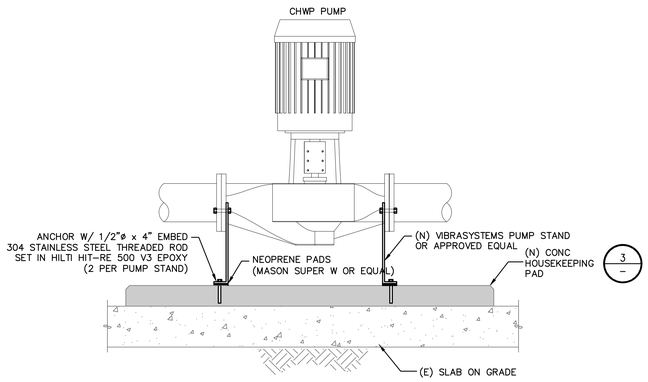
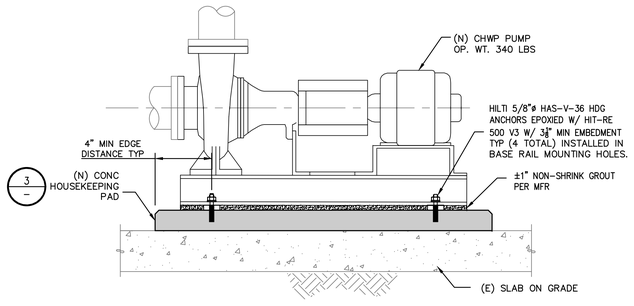


8 — VFD SUPPORT DETAIL
SCALE: 1"=1'-0"



7 — CHWP SUPPORT SECTION
SCALE: 1"=1'-0"

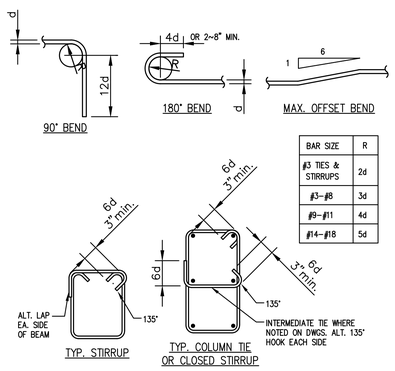


6 — CHWP SUPPORT SECTION
SCALE: 1"=1'-0"

CLASS 'B' SPLICES (f'c = 2,500 PSI)		
BAR SIZE	OTHERS	TOP
#3	19"	25"
#4	25"	33"
#5	31"	41"
#6	37"	49"
#7	54"	71"
#8	62"	81"
#9	70"	91"
#10	79"	102"
#11	87"	114"

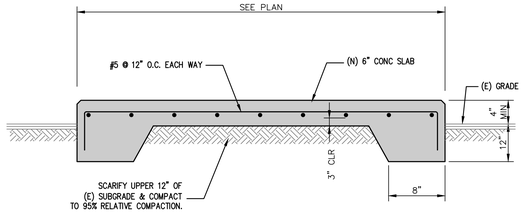
NOTES:
1. LAP LENGTHS SHOWN IN THE SCHEDULE ARE CLASS "B" LAP SPLICES PER THE 2019 CBC (ACI 318-14). THE MINIMUM CONCRETE COVER MUST BE GREATER THAN DB AND THE CENTER TO CENTER SPACING MUST BE GREATER THAN 3DB. WHERE DB IS THE NOMINAL BAR DIAMETER.
2. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW THE BAR.
3. THE SMALLER LAP SPLICE LENGTH MAY BE USED WHEN TWO BARS OF DIFFERENT SIZES ARE TO BE LAPPED.

10 — MIN REINF BAR SPLICES
SCALE: NONE

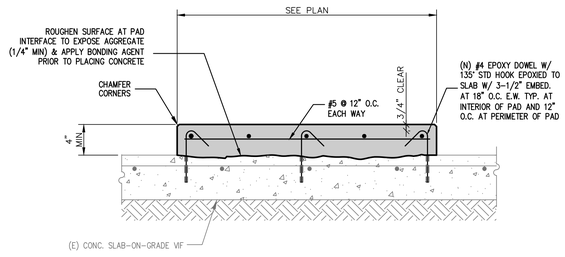


BAR SIZE	R
#3 TIES & STIRRUPS	2d
#3-#8	3d
#9-#11	4d
#14-#18	5d

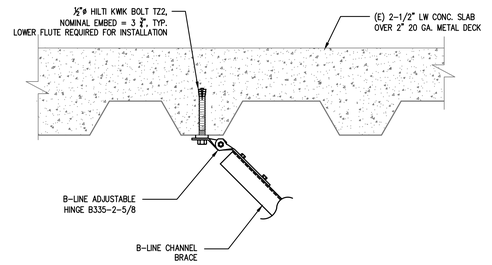
9 — REINF STANDARD BAR HOOKS & BENDS
SCALE: NONE

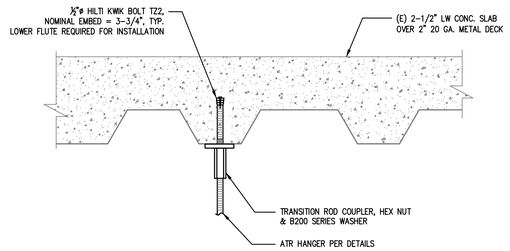


4 — CONC FOUNDATION PAD
SCALE: NONE

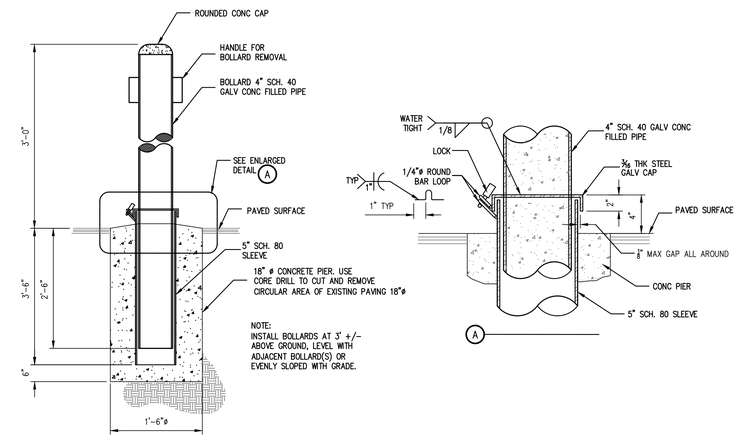


3 — HOUSEKEEPING PAD
SCALE: NONE





2 — SLAB ATTACHMENT DETAILS
SCALE: NONE



1 — REMOVABLE BOLLARD
SCALE: NONE

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN	
DRAWN BY	TD
DESIGN BY	TCE
CHECKED BY	TCE
RECOM'D PROJ. MGR.	–
	DSRSD PRINCIPAL ENGINEER

REVIEW	
PLNNG./DEVL.	
FIELD OPS.	
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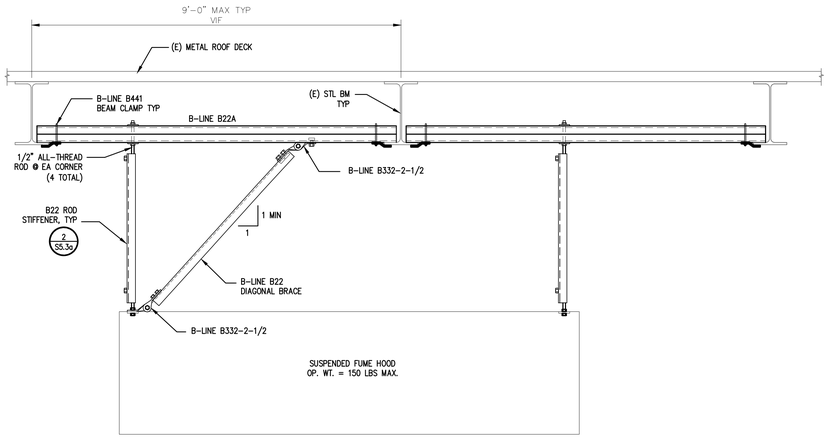
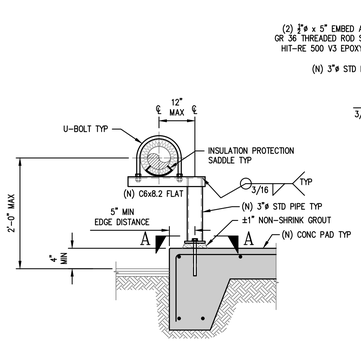
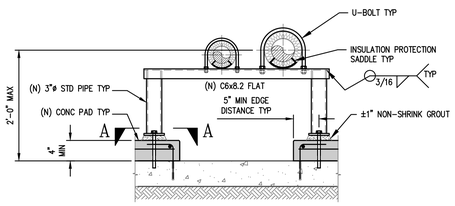


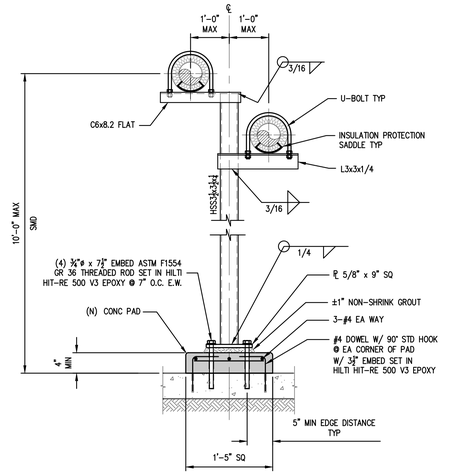
10 SUSPENDED 2ND FLOOR FUME HOOD SUPPORT SECTION
SCALE: 1"=1'-0"



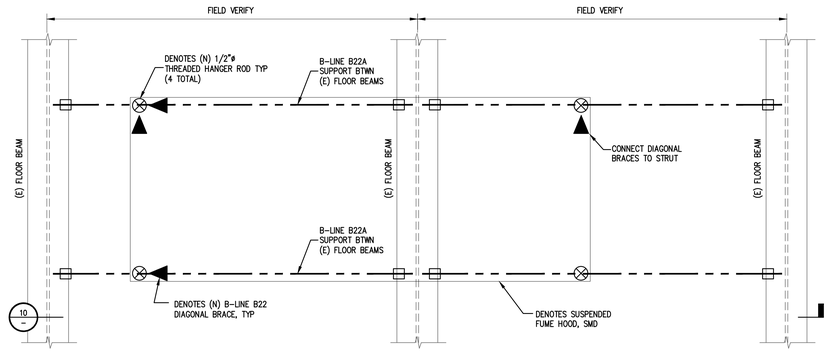
8 PS1 & PS20 PIPE SUPPORT
SCALE: 1"=1'-0"



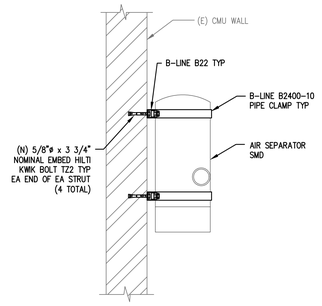
5 PS15, PS16 & PS19 PIPE SUPPORT
SCALE: 1"=1'-0"



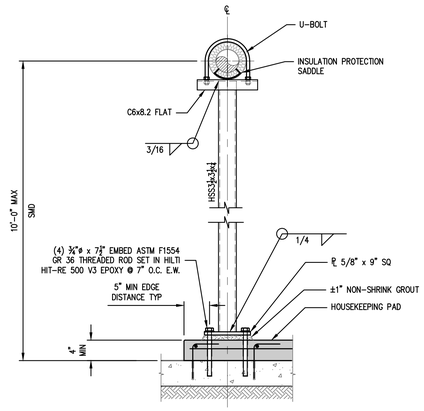
2 PS8 & PS9 PIPE SUPPORT
SCALE: 1"=1'-0"



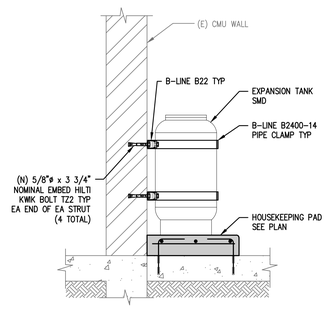
9 SUSPENDED 2ND FLOOR FUME HOOD SUPPORT PLAN
SCALE: 1"=1'-0"



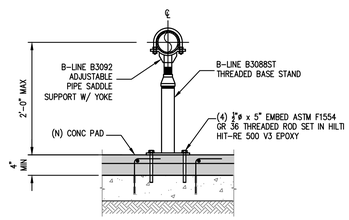
7 AS–1 SUPPORT
SCALE: 1"=1'-0"



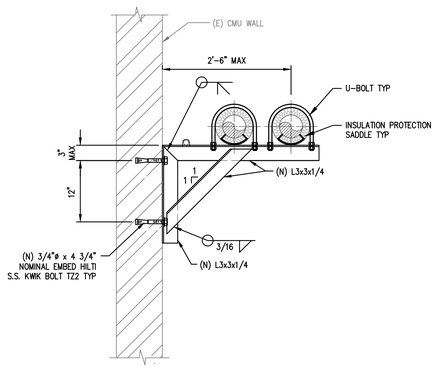
4 PS11 PIPE SUPPORT
SCALE: 1"=1'-0"



6 ET–1 SUPPORT
SCALE: 1"=1'-0"



3 PS10, PS12–PS14, PS17–PS18 PIPE SUPPORT
SCALE: 1"=1'-0"



1 PS2–PS7 PIPE SUPPORT
SCALE: 1"=1'-0"

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN		RECOM'D		REVIEW	
DRAWN BY	TD			PLNNG./DEVL.	
DESIGN BY	TCE			FIELD OPS.	
CHECKED BY	TCE			WWTP OPS.	
PROJ. MGR.	–			MECH./MAINT.	
			DSRSD PRINCIPAL ENGINEER	ELECT./INSTR.	

SCALE: AS NOTED | DATE: 12/09/2025

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

CPS COMPLETE PROJECT SOLUTIONS
3527 MT. DIABLO BOULEVARD #137, LAFAYETTE, CA 94549
(925) 285-2229 WWW.CPS-GLOBAL.COM
CPS Project No.: S1355.02

REGISTERED PROFESSIONAL ENGINEER
THOMAS C. EKER
S 3931
Exp:Dec 31, 2027
STRUCTURAL
STATE OF CALIFORNIA

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408.282.1500 | 408.297.2995 (f)
salasobrien.com

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING A

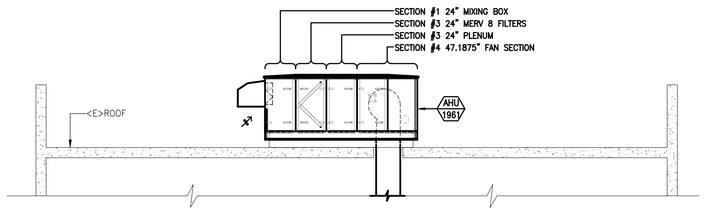
STRUCTURAL DETAILS

CIP NO. 22-P010

S5.5a
45 | 66

SOBE #2304150.1

P:\S1300 Salas O'Brien\S1355 Dublin San Ramon HVAC\Drawings\S1355.02 – AHU Roof\+Current\+S51–S54.dwg 12/12/2025 12:30 PM Tony Daza



3 **BUILDING C SECTION VIEW**
SCALE: 1/4" = 1' - 0"

SCHEDULES

NEW SUPPLY FAN SCHEDULE

MARK	AHU-1961
DSRSD EQUIPMENT TAG	30-111-1961-AHU-01
UNIT SIZE	14W
MANUFACTURER	CARRIER
MODEL	39M1401HFCA-D
WEIGHT W/ OPTIONS (LBS)	2,375 LBS
SUPPLY FAN	
DESIGN CFM / STATIC	8,000 CFM / 1.0" EXTERNAL
FAN RPM / BHP	833 / 4.9
FAN HP	5 HP
ELECTRICAL	
VOLTAGE / Hz / PHASE	460 V / 60/ 3-PHASE
POWER CONNECTION	SINGLE POINT
OPTIONS	
1) 1 YEAR PARTS & LABOR.	
2) SINGLE POINT POWER.	
3) HINGED ACCESS DOORS.	
4) UL LISTING.	
5) FACTORY START-UP.	
6) MERV 8 FILTERS.	
7) HIGH-EFFICIENCY MOTOR (SUPPLY FAN).	
8) SHAFT GROUNDING.	
9) STAINLESS STEEL INTERIOR LINER.	
10) SPRING ISOLATED FAN.	

TEST & BALANCE SUMMARY OF WORK

1. PERFORM A COMPLETE TEST, ADJUST, & BALANCING OF THE NEW OUTSIDE AIR UNITS AHU-1961 INCLUDING MOTOR AMPS, RPM'S, STATIC PRESSURES, & TEMPERATURES.
2. PROVIDE FACTORY START UP REPORTS FOR ALL EQUIPMENT AND A FINAL AIR BALANCING REPORT.
3. ALL ACCEPTANCE WORK SHALL BE PERFORMED BY A CMATT CERTIFIED TECHNICIAN.

SUMMARY OF WORK

1. THE PURPOSE OF THIS WORK IS TO REPLACE THE EXISTING ROOFTOP UNIT LIKE-FOR-LIKE ON THE SAME ROOFTOP CURB.
2. RECONNECT THE ROOFTOP UNIT TO THE EXISTING DUCTS, THERMOSTATS, & ELECTRICAL.

GENERAL SHEET NOTES

A. ALL CURBS AND PENETRATIONS THRU THE ROOF ARE EXISTING & SHALL REMAIN UNDISTURBED.

(F) REFERENCE SHEET NOTES

MECHANICAL

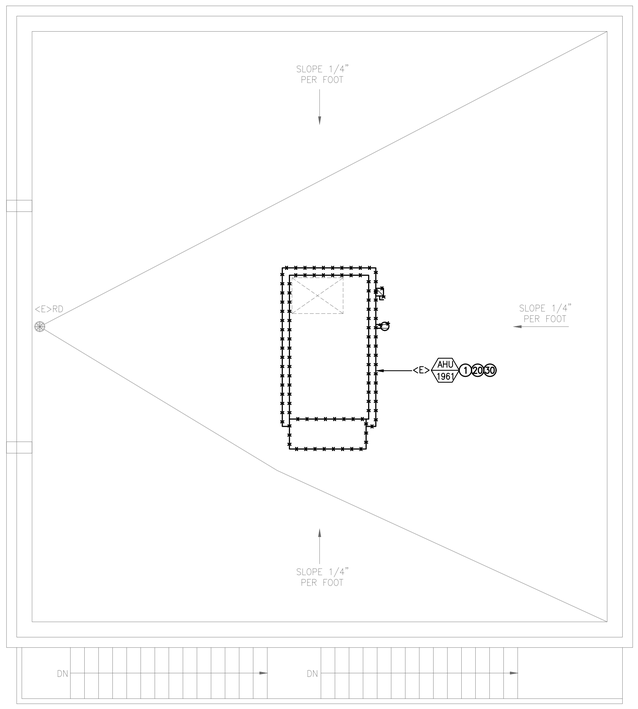
1. DISCONNECT & REMOVE <E> ROOFTOP MAKE UP AIR UNIT FROM THE <E> CURB (CURB TO REMAIN).
2. PROVIDE & INSTALL <N> ROOFTOP MAKE UP AIR UNIT ONTO <E> CURB.

CONTROLS

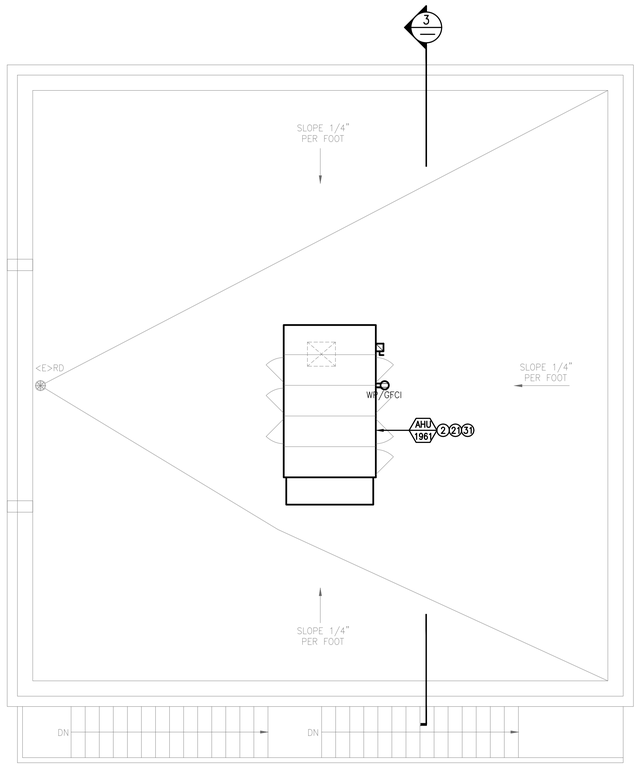
20. DISCONNECT CONTROLS CONNECTED TO THE <E> ROOFTOP MAKE UP AIR UNIT.
21. RECONNECT CONTROLS TO THE <N> ROOFTOP MAKE UP AIR UNIT.

ELECTRICAL

30. DISCONNECT POWER FROM THE <E> ROOFTOP MAKE UP AIR UNIT. <E> CIRCUIT TO BE PROTECTED DURING CONSTRUCTION AND TO BE RE-USED. REMOVE <E> DISCONNECT SWITCH. INTERCEPT & EXTEND <E> CIRCUIT TO <N> MECHANICAL EQUIPMENT. CONTRACTOR TO MATCH <E> WIRE & CONDUIT SIZE. FURNISH AND INSTALL <N> HEAVY DUTY, NEMA 3R FUSED DISCONNECT, FUSE SIZE 12A.
31. DISCONNECT AND REMOVE <E> RECEPTACLE. <E> CIRCUIT TO BE PROTECTED DURING CONSTRUCTION AND TO BE RE-USED. FURNISH AND INSTALL <N> WEATHERPROOF GFCI RECEPTACLE. MOUNT RECEPTACLE TO UNIT. INTERCEPT AND EXTEND CIRCUIT TO <N> RECEPTACLE. MATCH <E> CONDUIT AND WIRES.



1 **BUILDING C ROOF PLAN - DEMO**
SCALE: 1/4" = 1' - 0"



2 **BUILDING C ROOF PLAN - NEW**
SCALE: 1/4" = 1' - 0"

SALASO'BRIEN
|expect a difference|
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

REGISTERED PROFESSIONAL ENGINEER — DANIEL A. GRITZER — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD - VALUE ENGINEERING				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D / REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING C

MECHANICAL
BUILDING C ROOF PLAN

CIP NO. 22-P010

M1.1b
46 | 66

K:\drawings\Dublin San Ramon Services District\2304150 RFP WWTP DERWA HVAC Replacements\2304150.2 Building C\2304150.2M1.1b.dwg 1/8/2026 11:02 AM Minh Ong

SOBE #2304150.2

SCHEDULES

NEW SUPPLY FAN SCHEDULE	
MARK	AHU-2201
DSRSD EQUIPMENT TAG	30-940-2510-AHU-01
UNIT SIZE	14W
MANUFACTURER	CARRIER
MODEL	39M1401HFCA-D
WEIGHT W/ OPTIONS (LBS)	1,959 LBS
SUPPLY FAN	
DESIGN CFM / STATIC	5,100 CFM / 1.0" EXTERNAL
FAN RPM / BHP	791 / 2.3
FAN HP	3 HP
ELECTRICAL	
VOLTAGE / Hz / PHASE	460 V / 60/ 3-PHASE
POWER CONNECTION	SINGLE POINT
OPTIONS	
1) 1 YEAR PARTS & LABOR.	
2) SINGLE POINT POWER.	
3) HINGED ACCESS DOORS.	
4) UL LISTING.	
5) FACTORY START-UP.	
6) MERV 8 FILTERS.	
7) HIGH-EFFICIENCY MOTOR (SUPPLY FAN).	
8) SHAFT GROUNDING.	
9) STAINLESS STEEL INTERIOR LINER.	
10) SPRING ISOLATED FAN.	
11) CLOSURE PANEL ON PLENUM BOX.	

GENERAL NOTES

1. PRIOR TO SUBMITTING PROPOSAL, BIDDER SHALL EXAMINE CONSTRUCTION DRAWINGS AND SPECIFICATIONS AND SHALL HAVE VISITED THE CONSTRUCTION SITE. HE SHALL BE FAMILIAR WITH THE CONDITIONS UNDER WHICH HE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART. THE SEQUENCE OF CONSTRUCTION SHALL BE CLOSELY COORDINATED AND PRESENTED TO THE OWNER FOR VERIFICATION. DETERMINE THE SEQUENCE OF CONSTRUCTION THROUGHOUT THE PROJECT.
2. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER WORK DUE TO THE INSTALLATION OF WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC., AS REQUIRED.
3. ALL TEMPORARY WORK SHALL BE CONSIDERED A PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.
4. THE PLANS AND SPECIFICATIONS DO NOT UNDERTAKE TO SHOW OR LIST EVERY ITEM TO BE PROVIDED, BUT RATHER TO DEFINE THE REQUIREMENTS FOR A FULL AND WORKING SYSTEM FROM THE STANDPOINT OF THE END USER. FOR THIS REASON, WHEN AN ITEM NOT SHOWN OR LISTED IS CLEARLY NECESSARY FOR PROPER CONTROL/ OPERATION OF EQUIPMENT WHICH IS SHOWN OR LISTED, PROVIDE AN ITEM WHICH WILL ALLOW THE SYSTEM TO FUNCTION PROPERLY AT NO INCREASE IN PRICE.
5. DIMENSIONS ON WORKING DRAWINGS GOVERN. DO NOT SCALE DRAWINGS.
6. ALL CONTRACTORS SHALL REMOVE TRASH AND DEBRIS STEMMING FROM THEIR WORK ON A DAILY BASIS. PROJECT SITE SHALL BE MAINTAINED IN A CLEAN AND ORDERLY CONDITION.
7. PRIOR TO BIDDING, CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONDITIONS WHICH ARE NOT COVERED IN THE CONTRACT DOCUMENTS. DURING CONSTRUCTION, CONTRACTOR SHALL NOTIFY THE ENGINEER AND SEEK CLARIFICATION IF ANY DISCREPANCIES ARE FOUND. CONTRACTOR SHALL BE RESPONSIBLE FOR REMEDIAL WORK IF RELATED WORK IS CONTINUED AFTER A DISCREPANCY IS IDENTIFIED.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT MATERIALS, LABOR, INSTALLATION, ETC., CONFORMS TO ALL CODES AND REQUIREMENTS OF LOCAL GOVERNING AGENCIES.
9. ENGINEER SHALL REVIEW ALL MATERIAL SUBMITTALS FOR COMPLIANCE WITH PROJECT INTENT. NO WORK SHALL COMMENCE WITH UNREVIEWED MATERIALS. ANY WORK DONE WITH UNREVIEWED MATERIALS AND EQUIPMENT IS AT THE CONTRACTOR'S RISK.
10. CONSTRUCTION MATERIALS STORED ON THE SITE SHALL BE PROPERLY STACKED AND PROTECTED SO AS TO PREVENT DAMAGE OR DETERIORATION UNTIL USED. FAILURE IN THIS REGARD MAY BE CAUSE FOR REJECTION OF MATERIAL AND/OR WORK.
11. ALL FINISHES AND CONSTRUCTION SHALL BE PROTECTED BY THE CONTRACTOR FROM POTENTIAL DAMAGE CAUSED BY DEMOLITION ACTIVITY. DAMAGE TO FINISHES OR CONSTRUCTION SHALL BE REPAIRED OR REPLACED (OWNER'S DECISION) BY THE CONTRACTOR WITH IDENTICAL MATERIAL AND/OR FINISHES. CONTRACTOR SHALL MAKE AND MAINTAIN A PHOTOGRAPHIC RECORD NOTEBOOK WITH DATED/INDEXED PHOTOGRAPHS.
12. UNLESS OTHERWISE NOTED, ARRANGE, PAY FOR, COORDINATE AND PROVIDE ALL PERMITS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.

UNDERGROUND WORK:

1. CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHILE TRENCHING FOR NEW UTILITIES. THESE DRAWINGS HAVE BEEN COMPILED FROM RECORD DOCUMENTS, FIELD SURVEYS AND OTHER AVAILABLE INFORMATION. NOT ALL UTILITIES AND/OR OBSTRUCTIONS ARE SHOWN. CONTRACTOR SHALL VERIFY THE LOCATIONS OF UTILITIES PRIOR TO EXCAVATION, EITHER BY HAND EXCAVATION OR WITH THE ASSISTANCE OF AN UNDERGROUND UTILITY LOCATION SERVICE (USA WILL NOT LOCATE UTILITIES ON PRIVATE PROPERTY).
2. ASBESTOS-CEMENT PIPE (ACP): ACP MAY BE PRESENT THROUGHOUT THE SITE. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES WHEN ACP IS ENCOUNTERED TO AVOID DISTURBING EXISTING INSTALLATIONS.
3. PROVIDE FOR PEDESTRIAN ACCESS AT ALL TIMES. PROVIDE BARRICADES, WARNING SIGNS, TEMPORARY BRIDGES, ETC. AS REQUIRED TO FULFILL THIS REQUIREMENT.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AH	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AP	ACCESS PANEL
ARCH	ARCHITECTURAL (DRAWING)
AS	AIR SEPARATOR
BDD	BACK DRAFT DAMPER
BUR	BUILT-UP ROOFING
CDW	CONDENSER WATER
CT	COOLING TOWER
CTRL	CONTROL
CW	CHILLED WATER
CU	COPPER
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
<E>	EXISTING
EFF	EFFICIENCY
FACP	FIRE ALARM CONTROL PANEL
FD	FIRE DAMPER
FF	FINISHED FLOOR
FSD	FIRE/SMOKE DAMPER
GA.	GAUGE
GPM	GALLONS PER MINUTE
GSM	GALVANIZED SHEET METAL
HP	HORSE POWER
HSP	HOUSE SERVICE PANEL
MCC	MOTOR CONTROL CENTER
MIN	MINIMUM
MTD	MOUNTED
MTR	MOTOR
MVD	MANUAL VOLUME DAMPER
<N>	NEW
N.T.S.	NOT TO SCALE
OA	OUTDOOR AIR
OAD	OUTDOOR AIR DAMPER
O.C.	ON CENTER
PH	PHASE
PNL	PANEL
RA	RETURN AIR
RAD	RETURN AIR DAMPER/DUCT
R.I.P.	RETIRED IN PLACE
RPBFP	REDUCED PRESSURE BACK-FLOW PREVENTER
S	SUPPLY
SA	SUPPLY AIR
SAD	SUPPLY AIR DAMPER/DUCT
TBR	TO BE REMOVED
TCP	TEMPERATURE CONTROL PANEL
TG	TRANSFER GRILL
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
VAV	VARIABLE AIR VOLUME
V.I.F.	VERIFY IN FIELD

SYMBOLS

- EXTENT OF DEMOLITION
- NEW TO EXISTING CONNECTION
- REVISION NUMBER
- WORK ITEM (ARCHITECTURAL)
- WORK ITEM (MECHANICAL)
- WORK ITEM (ELECTRICAL)
- WORK ITEM (TELECOMMUNICATION)
- WORK ITEM (PLUMBING)
- WORK ITEM (STRUCTURE)
- DETAIL DESIGNATION (M-1) — DETAIL NUMBER / DRAWING NUMBER (IF BLANK, SAME SHEET)
- EQUIPMENT DESIGNATION (CT 1) — EQUIPMENT TYPE / EQUIPMENT NUMBER
- SECTION DESIGNATION (1 / M-1) — SECTION NUMBER / DRAWING NUMBER
- TO BE DEMOLISHED — <N> EQUIPMENT
- TO BE DEMOLISHED — RELOCATED EQUIPMENT
- EXISTING DUCT
- NEW DUCT
- DUCT TO BE REMOVED
- DUCT CAP
- 12x20 — RECTANGULAR DUCT (FIRST FIGURE IS PLAN DIMENSION)
- 18ø — ROUND DUCT DIAMETER SIZE
- FLEXIBLE DUCT
- ROUND DUCT UP
- ROUND DUCT DOWN
- 20x10 / 15x8 — TRANSITION RECTANGULAR TO RECTANGULAR
- TRANSITION RECTANGULAR TO ROUND
- RECTANGULAR TURNING VANES
- RADIUSED RECTANGULAR TURNING VANES
- BRANCH TAKE-OFF (ROUND MAIN WITH 45° ROUND TAKE-OFF)
- BRANCH TAKE-OFF (ROUND MAIN WITH 90° ROUND TAKE-OFF)
- BRANCH TAKE-OFF (RECTANGULAR MAIN WITH 90° ROUNDTAKE-OFF)
- BRANCH TAKE-OFF (RECTANGULAR MAIN WITH RECTANGULAR TAKE-OFF)
- DUCT SPLIT (ROUND MAIN WITH 180° ROUND BRANCHES)
- DUCT SPLIT (RECTANGULAR MAIN WITH 180° RECTANGULAR BRANCHES)
- DUCT SPLIT (RECTANGULAR MAIN WITH 90° RECTANGULAR SPLIT)
- S / R — STANDARD BRANCH, SUPPLY OR RETURN, NO SPLITTER
- R — CHANGE OF ELEVATION RISE (R) DROP (D)
- AD 10x10 — ACCESS DOORS, VERTICAL OR HORIZONTAL
- ACOUSTICAL LINING (INSULATION)
- FLEXIBLE CONNECTION
- ST — SOUND TRAP
- DETECTORS, FIRE AND/OR SMOKE
- 12x20 — DUCT SECTION, SUPPLY, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.
- 12x20 — DUCT SECTION, RETURN, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.
- 12x20 — DUCT SECTION, EXHAUST, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.
- 12x20 — DUCT SECTION, OUTSIDE, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.
- CFM — CUBIC FEET PER MINUTE (CFM – AIR FLOW RATE)
- DD — DUCT DETECTOR
- T — DUCT TEMPERATURE SENSOR
- T — ZONE TEMPERATURE SENSOR
- CO2 — CARBON DIOXIDE SENSOR

SUMMARY OF WORK

1. DISCONNECT & REMOVE SUPPLY FAN AHU-2201 & EXHAUST F-2114.
2. PROVIDE & INSTALL A NEW SUPPLY FAN AHU-2201 & ASSOCIATED CURB.
3. PROVIDE & INSTALL NEW DUCTWORK NECESSARY TO MAKE UP THE SECTION WHERE EXHAUST FAN F-2114 USED TO BE.
4. RECONNECT THE UNIT TO THE EXISTING DUCTS, THERMOSTATS, & ELECTRICAL.

TEST & BALANCE

1. PERFORM A COMPLETE TEST, ADJUST, & BALANCING OF THE NEW OUTSIDE AIR UNITS AHU-2201 INCLUDING MOTOR AMPS, RPM'S, STATIC PRESSURES, & TEMPERATURES.
2. PROVIDE FACTORY START UP REPORTS FOR ALL EQUIPMENT AND A FINAL AIR BALANCING REPORT.
3. ALL ACCEPTANCE WORK SHALL BE PERFORMED BY A CMATT CERTIFIED TECHNICIAN.

APPLICABLE CODES

UNLESS OTHERWISE INDICATED OR SPECIFIED, PERFORM THE WORK IN CONFORMANCE WITH THE LATEST EDITIONS OF ALL APPLICABLE REGULATORY REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24): 2022
2. CALIFORNIA BUILDING CODE (PART 2, TITLE 24): 2021 IBC WITH 2022 CA AMENDMENTS
3. CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24): 2020 NEC WITH 2022 CA AMENDMENTS
4. CALIFORNIA MECHANICAL CODE (PART 4, TITLE 24): 2021 UMC WITH 2022 CA AMENDMENTS
5. CALIFORNIA PLUMBING CODE (PART 5, TITLE 24) 2021 UPC WITH 2022 CA AMENDMENTS
6. CALIFORNIA ENERGY CODE (PART 6, TITLE 24): 2022
7. CALIFORNIA HISTORICAL BUILDING CODE, (PART 8, TITLE 24): 2022
8. CALIFORNIA FIRE CODE (PART 9, TITLE 24): 2021 IFC WITH 2022 CA AMENDMENTS
9. CALIFORNIA EXISTING BUILDING CODE (PART 10, TITLE 24): 2022 (2021 INTERNATIONAL EXISTING BUILDING CODE WITH 2022 CA AMENDMENTS)
10. CALIFORNIA GREEN BUILDING STANDARDS CODE OR CAL GREEN (PART 11, TITLE 24): 2022
11. CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24): 2022
12. PUBLIC SAFETY (CCR TITLE 19), STATE FIRE MARSHAL: CURRENT REVISION
13. NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE, 2022 EDITION

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REGISTERED PROFESSIONAL ENGINEER — CARL A. GRUBER — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING H

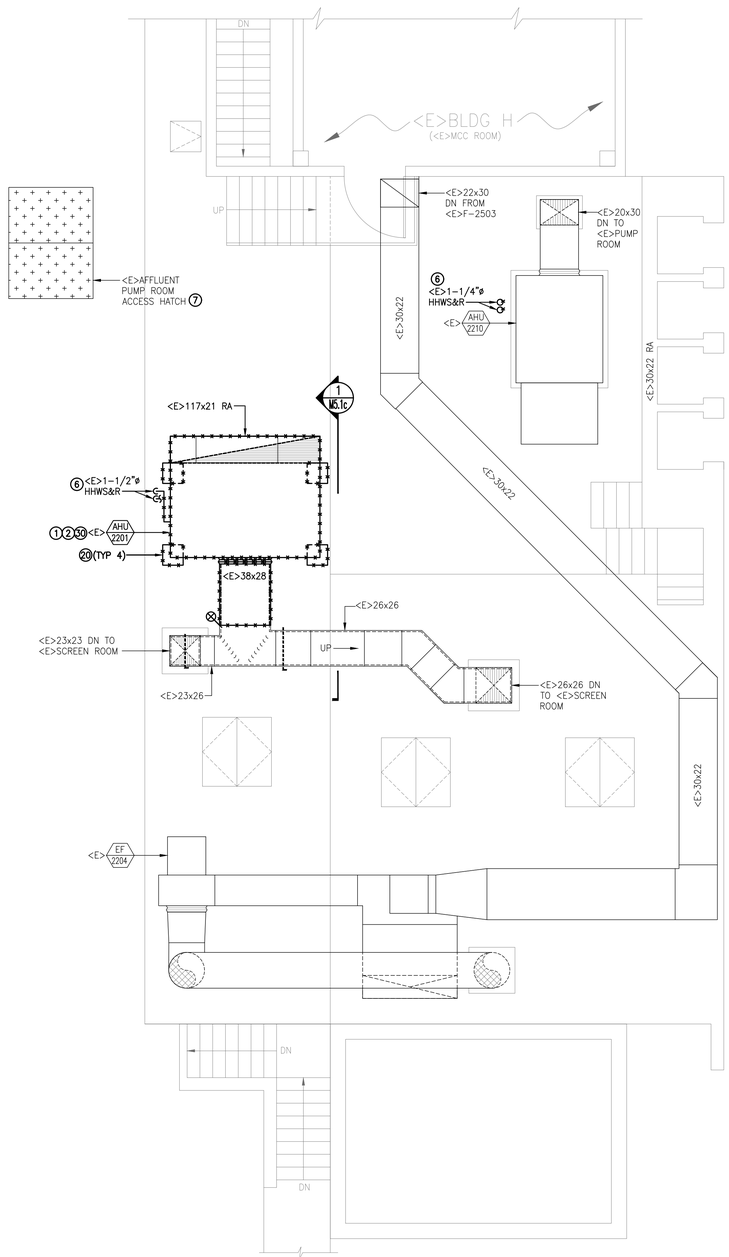
MECHANICAL
GENERAL NOTES, SYMBOLS & ABBREVIATIONS

CIP NO. 22-P010

M0.1c
47 | 66

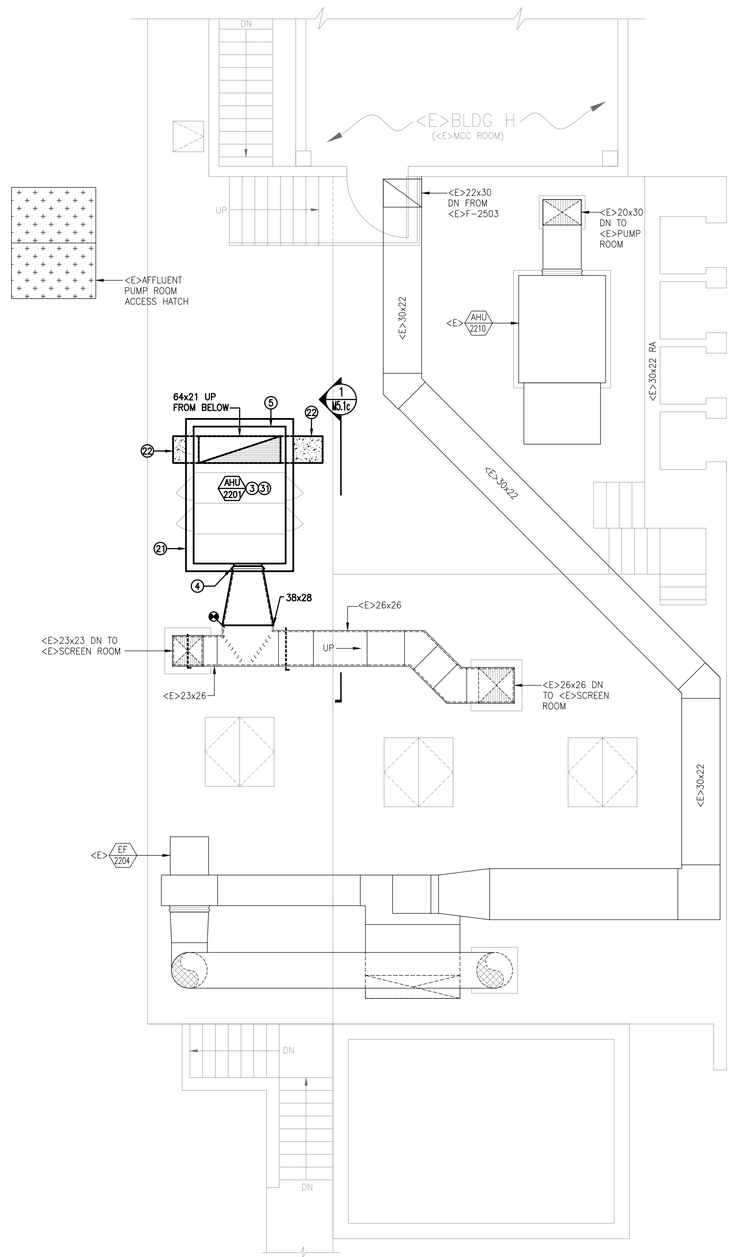
K:\drawings\Dublin San Ramon Services District\2304150 RFP WWTP DERWA HVAC Replacements\2304150.3 Building H\2304150.3M0.1c.dwg 1/8/2026 11:07 AM Minh Ong

SOBE #2304150.3



1 BUILDING H EQUIPMENT YARD PLAN - DEMO

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



2 BUILDING H EQUIPMENT YARD PLAN - NEW

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

GENERAL SHEET NOTES

A. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED (UON).

B. ALL DUCT WORK DIMENSIONS ARE NET INSIDE DIMENSIONS.

C. ALL DUCTWORK OUTSIDE OF THE BUILDING SHALL BE DOUBLE WALL WELDED ALUMINUM DUCT WITH 2" INSULATION (R-8) MINIMUM. THE TOP OF ALL DUCT SHALL HAVE A PITCHED ROOF. ALL CONNECTIONS SHALL BE WITH FLANGES.

D. ALL DUCTWORK INSIDE THE BUILDING SHALL BE WELDED ALUMINUM WITH FLANGES. IT IS EXPOSED IN THE CONDITIONED SPACE & SHALL NOT BE INSULATED UNLESS NOTED OTHERWISE.

E. FILTER MEDIA SHALL BE INSTALLED OVER ALL NEW & EXISTING AIR OUTLETS ON THE FLOOR AT STARTUP TO ENSURE THAT ALL DEBRIS IS CAUGHT.

F. ALL HARDWARE SHALL BE STAINLESS STEEL UNLESS NOTED OTHERWISE.

(#) REFERENCE SHEET NOTES

MECHANICAL:

1. DISCONNECT & REMOVE THE AIR HANDLER.
2. DISCONNECT & REMOVE THE ABANDONED IN PLACE HEATING HOT WATER PIPING.
3. PROVIDE & INSTALL THE NEW AIR HANDLER.
4. PROVIDE & INSTALL A FLEX CONNECTOR WITH A SUN SHADE.
5. BLANK PANEL ON PLENUM BOX.
6. DISCONNECT & REMOVE HEATING HOT WATER PIPING. GROUT THE ABANDONED PIPE PENETRATION SHUT.
7. USABLE ACCESS HATCH DIMENSIONS APPEAR TO BE 6'-3" BY 4'-6". CONTRACTOR TO FIELD VERIFY.

ARCHITECTURAL:

20. DISCONNECT & REMOVE THE CONCRETE FOOTINGS UNDER THE AIR HANDLER.
21. PROVIDE & INSTALL A NEW HOUSE KEEPING PAD FOR THE AIR HANDLER.
22. INFILL CONCRETE OPENING ABANDONED AS A PART OF THIS PROJECT. SEE STRUCTURAL FOR FURTHER INFORMATION. INCLUDE ZYPEX & WATER STOPS TO PROVIDE A WATER TIGHT SEAL.

ELECTRICAL:

30. DISCONNECT POWER FROM EXISTING MECHANICAL UNIT. EXISTING CIRCUIT TO BE PROTECTED DURING CONSTRUCTION AND TO BE RE-USED. REMOVE EXISTING DISCONNECT SWITCH.
31. FURNISH AND INSTALL HEAVY DUTY, NEMA 3R, FUSED DISCONNECT SWITCH, FUSE SIZE 7A, INTERCEPT AND EXTEND EXISTING CIRCUIT TO NEW MECHANICAL UNIT. CONTRACTOR TO MATCH EXISTING WIRE & CONDUIT SIZE.

SALASO'BRIEN
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San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

REGISTERED PROFESSIONAL ENGINEER
CARL A. GRITTER
No. M36859
MECHANICAL
STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
SCALE: AS NOTED | DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING H

MECHANICAL
BUILDING H EQUIPMENT YARD PLAN

CIP NO. 22-P010

M1.1c
48 | 66

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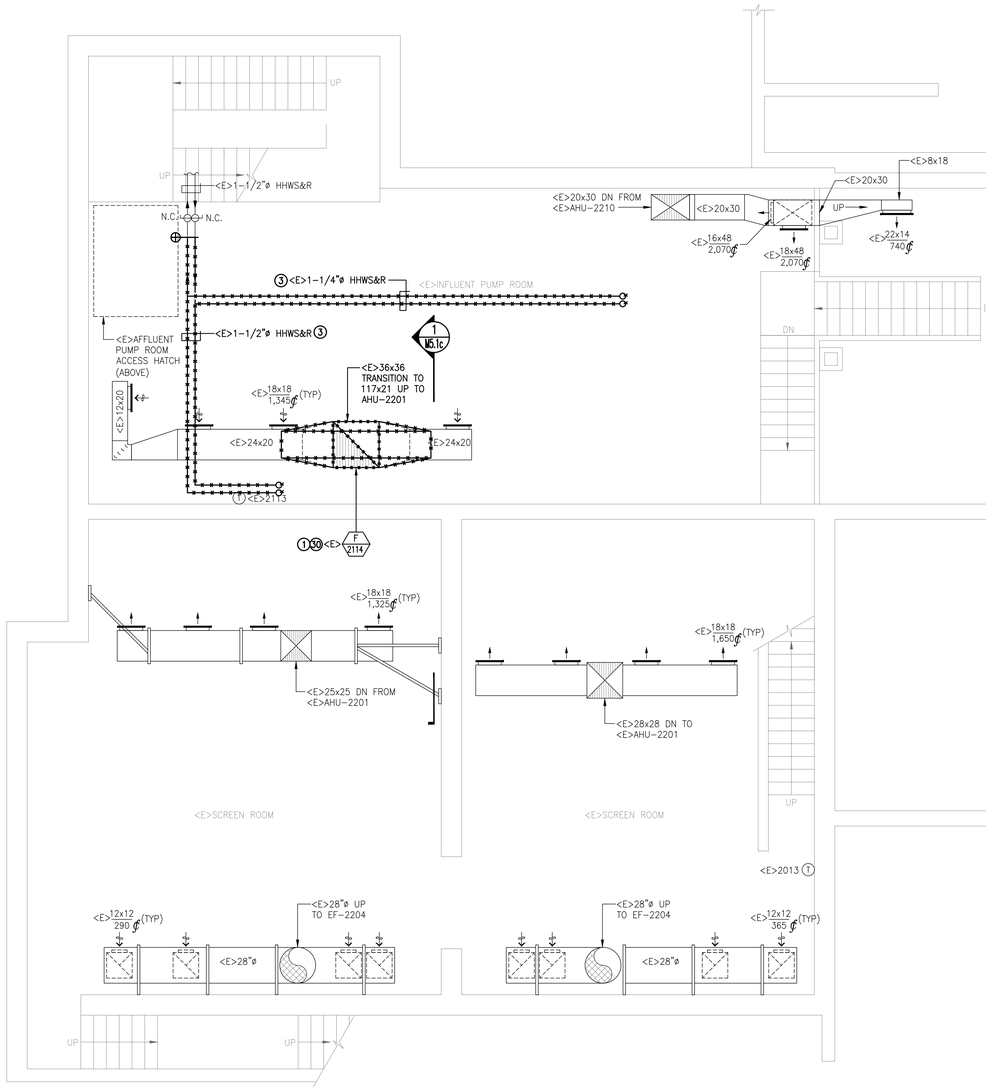
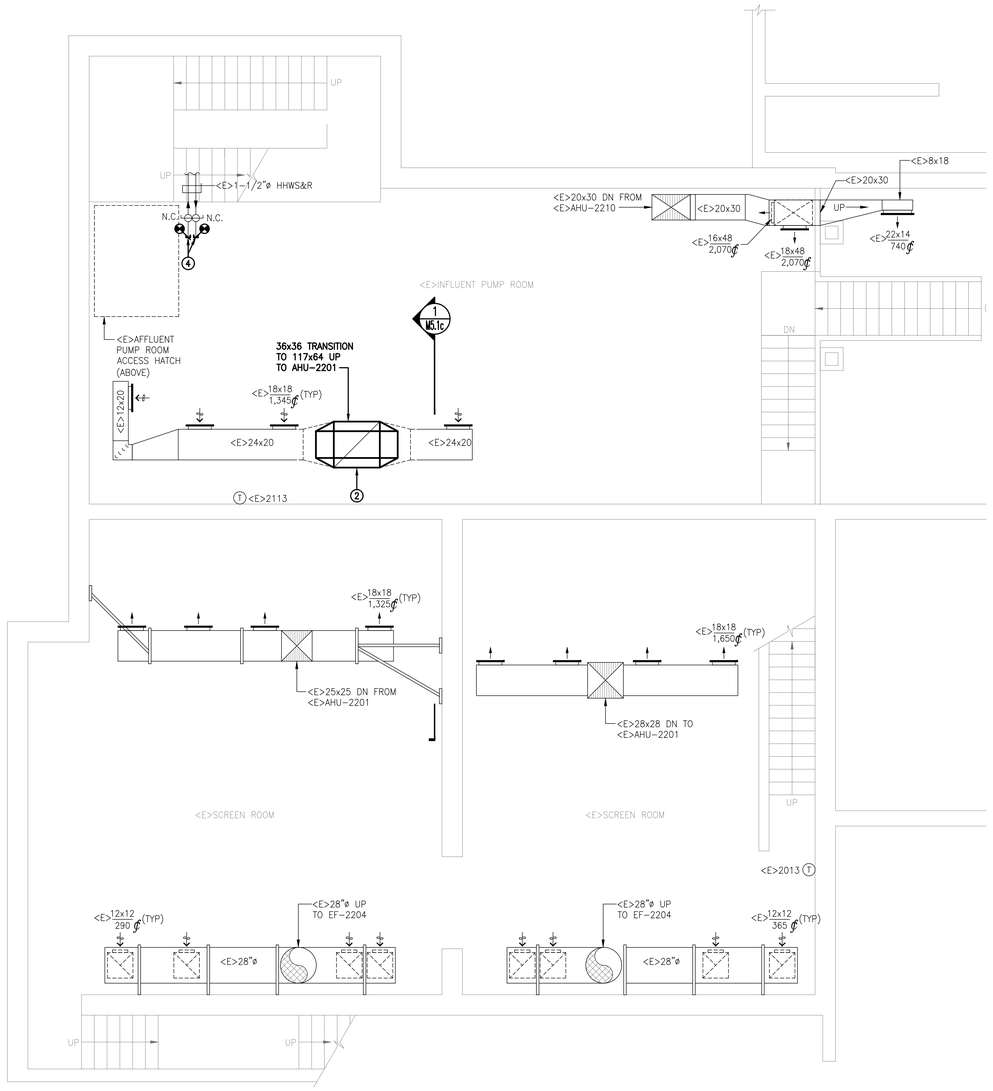
SOBE #2304150.3



1 BUILDING H EQUIPMENT YARD PLAN (LOWER VIEW) - DEMO

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



2 BUILDING H EQUIPMENT YARD PLAN (LOWER VIEW) - NEW

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

GENERAL SHEET NOTES

A. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED (UON).

B. ALL DUCT WORK DIMENSIONS ARE NET INSIDE DIMENSIONS.

C. ALL DUCTWORK OUTSIDE OF THE BUILDING SHALL BE DOUBLE WALL WELDED ALUMINUM DUCT WITH 2" INSULATION (R-8) MINIMUM. THE TOP OF ALL DUCT SHALL HAVE A PITCHED ROOF. ALL CONNECTIONS SHALL BE WITH FLANGES.

D. ALL DUCTWORK INSIDE THE BUILDING SHALL BE WELDED ALUMINUM WITH FLANGES. IT IS EXPOSED IN THE CONDITIONED SPACE & SHALL NOT BE INSULATED UNLESS NOTED OTHERWISE.

E. FILTER MEDIA SHALL BE INSTALLED OVER ALL NEW & EXISTING AIR OUTLETS ON THE FLOOR AT STARTUP TO ENSURE THAT ALL DEBRIS IS CAUGHT.

F. ALL HARDWARE SHALL BE STAINLESS STEEL UNLESS NOTED OTHERWISE.

REFERENCE SHEET NOTES

MECHANICAL:

1. DISCONNECT & REMOVE THE EXHAUST FAN.
2. PROVIDE & INSTALL A NEW DUCT SECTION TO REPLACE THE EXHAUST FAN SECTION.
3. DISCONNECT & REMOVE HEATING HOT WATER PIPING. GROUT THE ABANDONED PIPE PENETRATION SHUT.
4. CAP PIPE.

ELECTRICAL:

30. DISCONNECT POWER FROM EXISTING MECHANICAL UNIT. REMOVE CONDUIT AND WIRES BACK TO SOURCE. UPDATE BREAKER LABELING AT MCC TO SHOW SPARE.

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DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
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WWTP HVAC REPLACEMENTS - BUILDING H

MECHANICAL
BUILDING H EQUIPMENT YARD PLAN - LOWER VIEW

CIP NO. 22-P010

M1.2c
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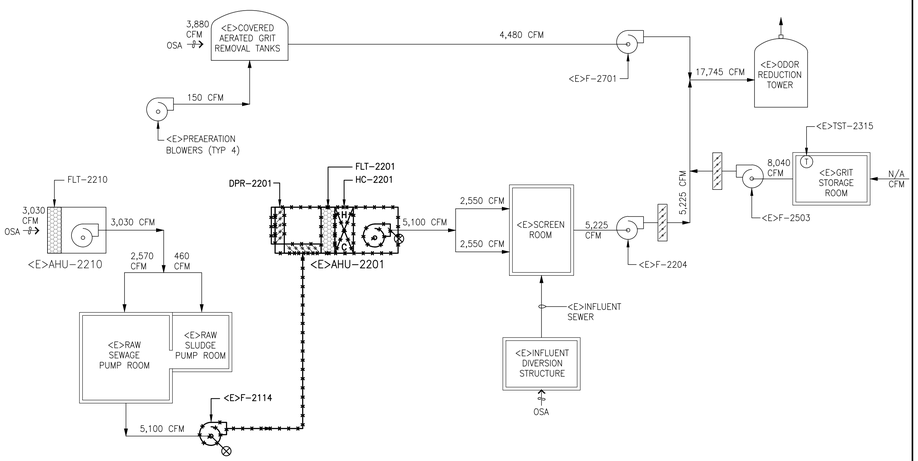
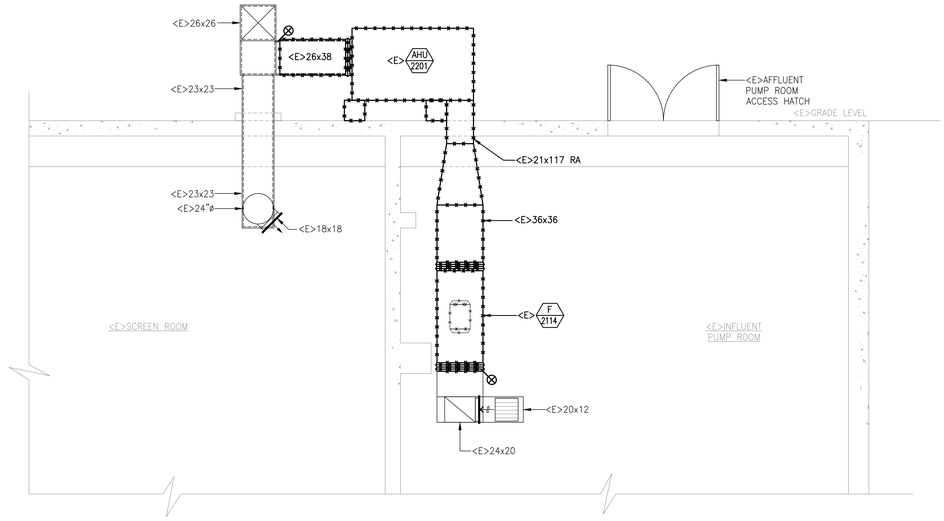


DEMO

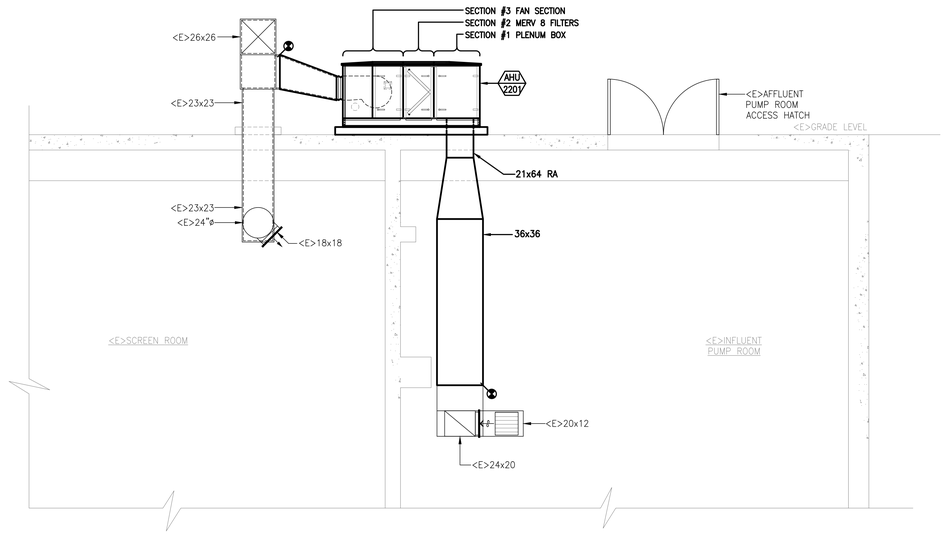
NEW

2 INFLUENT PUMPING STATION AND HEADWORKS BUILDING AIR FLOW SCHEMATIC

SCALE: N.T.S.



DEMO



NEW

1 EQUIPMENT YARD SECTION VIEW

SCALE: N.T.S.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

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WWTP HVAC REPLACEMENTS - BUILDING H

MECHANICAL DETAILS

CIP NO. 22-P010

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SOBE #2304150.3

STRUCTURAL GENERAL NOTES

I. SCOPE OF WORK

1. NEW CONCRETE PAD INFILL AND NEW EQUIPMENT ANCHORAGE.

II. DESIGN CRITERIA

1. APPLICABLE CODES:
   2022 CALIFORNIA BUILDING CODE

2. SEISMIC LOADS:
   RISK CATEGORY: III
   SITE CLASS: D
   IMPORTANCE FACTOR I: 1.5
   SITE ACCELERATIONS Ss: 1.577g
   Sms: 1.892g
   Sds: 1.262g

	op	Rp	Ωo	Fp	Fp vertical
AHU-1:	2.5	6.0	2.0	0.568Wp	0.252Wp

3. WIND LOAD CRITERIA:
   ULTIMATE DESIGN WIND SPEED 99 MPH
   RISK CATEGORY III
   EXPOSURE C
   HORIZONTAL DESIGN WIND PRESSURE (LRFD) 38.9 PSF
   VERTICAL DESIGN WIND PRESSURE (LRFD) 30.7 PSF

4. GEOTECHNICAL
   CBC 2022 SECT 1806.2
   PRESUMPTIVE BEARING CAPACITY OF SOIL:
   DEAD PLUS LIVE LOAD 1500 PSF
   TOTAL LOAD INCLUDING WIND & SEISMIC 2000 PSF

III. GENERAL

1. ALL MATERIALS AND WORKMANSHIP SHALL BE OF A QUALITY COMPATIBLE WITH THE REQUIREMENTS OF THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE AND ALL LOCAL CITY AND COUNTY ORDINANCES, WHICHEVER MAY APPLY.
2. ALL WORK SHOWN ON THESE DRAWINGS IS NEW UNLESS NOTED EXISTING (E).
3. THE CONDITIONS SHOWN FOR EXISTING CONSTRUCTION REFLECT INFORMATION SHOWN ON THE ORIGINAL CONSTRUCTION DRAWINGS AND DRAWINGS DESCRIBING SUBSEQUENT BUILDING IMPROVEMENTS. THE CONTRACTOR SHALL REFER TO ALL AVAILABLE DRAWINGS AND FIELD OBSERVATIONS FOR VERIFICATION OF EXISTING CONDITIONS AS REQUIRED.
4. THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS AND CONDITIONS BEFORE THE START OF ANY CONSTRUCTION, ORDERING OR FABRICATING ANY MATERIAL. ANY DISCREPANCIES BETWEEN THE CONDITIONS FOUND AND THOSE SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER FOR CLARIFICATION BEFORE WORK PROCEEDS.
5. ALL OMISSION AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
6. IT SHALL BE THE CONTRACTORS SOLE RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING, FORMWORK, ETC., AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION, AND TO HOLD ALL NEW OR REVISED ELEMENTS IN PLACE UNTIL FINAL SUPPORT CONDITIONS ARE COMPLETED.
7. THE CONTRACTOR SHALL PROTECT ALL PIPES, DUCTS, ARCHITECTURAL FINISHES, AND UTILITIES FROM DAMAGE DURING CONSTRUCTION AND RESTORE ALL DAMAGED ITEMS TO ORIGINAL CONDITION, UNLESS NOTED OTHERWISE.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT IN CONJUNCTION WITH THE PROSECUTION OF THIS WORK.
9. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WELDING NEAR WOOD OR OTHER FLAMMABLE MATERIALS.
10. THE CONTRACTOR IS RESPONSIBLE TO FURNISH AND MAINTAIN NECESSARY BARRICADES, COVERINGS OR OTHER PROTECTIVE DEVICES AS NEEDED TO PROTECT EQUIPMENT, ADJACENT SURFACES AND MEET SAFETY REQUIREMENTS. THE CONTRACTOR SHALL REMOVE THESE MATERIALS ONCE THE PROJECT HAS BEEN COMPLETED.
11. WHERE A CONSTRUCTION DETAIL IS NOT SHOWN OR NOTED, THE DETAIL SHALL BE THE SAME AS FOR SIMILAR WORK. THE CONTRACTOR SHALL CONFIRM THE USE OF SIMILAR DETAILS WITH THE STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
12. THE INFORMATION AND DETAILS FOR THE EXISTING STRUCTURE SHOWN ON THE STRUCTURAL DOCUMENTS ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE STRUCTURAL DRAWINGS.
13. THE CONTRACTOR SHALL REVIEW THE EXISTING CONDITIONS PRIOR TO THE START OF WORK AND DURING THE COURSE OF CONSTRUCTION TO DETERMINE THE PRESENCE, IF ANY, OF ASBESTOS OR OTHER HAZARDOUS MATERIALS. IF DISCOVERED, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER AND TAKE APPROPRIATE PRECAUTIONARY MEASURE TO CONTAIN HAZARDOUS MATERIALS UNTIL THE OWNER CAN DEVELOP AN APPROPRIATE DISPOSITION PLAN.
14. THE STRUCTURAL SYSTEMS HAVE BEEN DESIGNED TO CARRY THE SUPERIMPOSED LIVE LOADS AS PRESCRIBED BY THE CALIFORNIA BUILDING CODE AND IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICES, WITH NO SPECIAL PROVISIONS TO CARRY CONCENTRATED LOADS FROM STORAGE AND HANDLING OF CONSTRUCTION MATERIALS OR FROM OPERATION OF CONSTRUCTION EQUIPMENT.

IV. SPECIAL INSPECTION

1. SPECIAL INSPECTIONS AND OBSERVATION SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 1703, 1704 AND 1705 OF THE CBC 2022, AND IS REQUIRED FOR THE FOLLOWING UNLESS SPECIFICALLY NOTED OTHERWISE:
   A. PLACEMENT OF CONCRETE
   B. CONCRETE SLUMP TESTS AND COMPRESSION TEST CYLINDERS
   C. INSTALLATION OF EMBEDDED ANCHOR BOLTS, EXPANSION ANCHORS AND EPOXY ANCHORS – CONTINUOUS INSPECTION REQUIRED
   D. PLACEMENT OF REINFORCING STEEL
   E. STRUCTURAL WELDING
   F. SHOP WELDING UNLESS PERFORMED AT AN I.C.C. CERTIFIED SHOP
2. ALL WELDERS SHALL BEAR CURRENT QUALIFICATION CERTIFICATES FOR THE MATERIAL, WELDING POSITIONS, AND WELDING PROCESSES EMPLOYED IN THE WORK. CERTIFICATES FOR EACH WELDER SHALL BE CHECKED BY THE WELDING INSPECTOR PRIOR TO WELDING.
3. WELDING INSPECTORS SHALL BE QUALIFIED FOR THE METHODS EMPLOYED IN THE WORK AS PER ASNT AND AWS D1.1 REQUIREMENTS.
4. THE SPECIAL INSPECTOR SHALL BRING ALL DISCREPANCIES IMMEDIATELY TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF NOT CORRECTED TO THE SATISFACTION OF THE INSPECTOR, THE DISCREPANCIES SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE STRUCTURAL ENGINEER AND BUILDING OFFICIAL.
5. THE SPECIAL INSPECTOR SHALL FURNISH TIMELY INSPECTION REPORTS TO THE STRUCTURAL ENGINEER, THE OWNER, AND THE BUILDING OFFICIAL FOR REVIEW AND ACCEPTANCE. THE INSPECTOR SHALL ALSO SUBMIT A FINAL REPORT, SIGNED BY HIMSELF AND BEARING THE SEAL AND SIGNATURE OF A CIVIL ENGINEER REGISTERED IN CALIFORNIA, STATING WHETHER THE WORK REQUIRING INSPECTION WAS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CBC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ALL WORK WHICH IS DETERMINED BY TESTING AND INSPECTION NOT TO COMPLY WITH SPECIFIED STANDARDS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE TEST AND INSPECTION FIRM WITH A SCHEDULE TO FACILITATE THE PROPER COORDINATION OF THE WORK.

V. SUBMITTALS

1. PRIOR TO PROCEEDING WITH THE WORK, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE STRUCTURAL ENGINEER FOR REVIEW:
   1.1. CONCRETE MIX DESIGN
   1.2. CONCRETE REINFORCING SHOP DRAWINGS
   1.3. STEEL SHOP DRAWINGS
   1.4. MANUFACTURERS CATALOG DATA, TOGETHER WITH I.C.C. CERTIFIED TEST DATA, FOR ANY PROPRIETARY PRODUCT PROPOSED AS A SUBSTITUTE FOR SPECIFIED MATERIALS.
2. ALLOW 14 DAYS FOR STRUCTURAL ENGINEER'S SHOP DRAWING REVIEW AS PER AISC – CODE OF STANDARD PRACTICE. REVIEW OF SUBMITTALS BY THE STRUCTURAL ENGINEER IS ONLY FOR GENERAL CONFORMANCE WITH DESIGN INTENT. REVIEW OF THE DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLETING THE WORK IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
3. INDICATE PROFILES, SIZES, SPACING, AND LOCATIONS OF STRUCTURAL MEMBERS, CONNECTIONS, ATTACHMENTS, FASTENERS, CAMBERS, HOLES AS PER CONSTRUCTION DRAWINGS.
4. INDICATE WELDED CONNECTIONS USING STANDARD AWS WELDING SYMBOLS. INDICATE WELD SIZES, EFFECTIVE SIZES AND NET LENGTHS.
5. SHOP DRAWINGS SHALL SHOW CONNECTIONS AS INDICATED ON CONSTRUCTION DRAWINGS. WHERE ALTERNATIVE CONNECTIONS ARE SUBSTITUTED FOR THOSE INDICATED ON THE CONSTRUCTION DRAWINGS, SUBMIT DATA (CALCULATIONS OR TEST) DEMONSTRATING THAT THEY ARE OF EQUIVALENT OR SUPERIOR STRENGTH, STIFFNESS AND DUCTILITY TO THOSE SHOWN ON THE CONSTRUCTION DRAWINGS FOR STRUCTURAL ENGINEER'S APPROVAL. CLEARLY INDICATE ALL ALTERNATIVELY DETAILED CONNECTIONS ON SHOP DRAWINGS.
6. SUBMIT THE FOLLOWING TO THE STRUCTURAL ENGINEER FOR RECORD PURPOSES:
   A. MILL CERTIFICATES AND TEST REPORTS FOR ALL STRUCTURAL STEEL
   B MILL CERTIFICATES AND TEST REPORTS FOR ALL REINFORCING STEEL

VI. CONCRETE & REINFORCING

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-19, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".
2. REINFORCING BARS AND DOWELS SHALL BE DEFORMED BARS AND SHALL CONFORM TO ASTM SPECIFICATION A615 OR A706, GRADE 60.
3. MINIMUM CLEAR DISTANCES BETWEEN REINFORCING STEEL AND FACE OF CONCRETE ARE AS FOLLOWS:
   A. CONCRETE EXPOSED TO EARTH OR WEATHER:
      #5 BAR AND SMALLER 1-1/2"
   B. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:
      #11 BAR AND SMALLER 3/4"
4. WHERE NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE, THE EXISTING SURFACE SHALL BE SOUND, CLEAN, FREE OF PAINT AND LAITANCE, AND ROUGHENED TO EXPOSE AGGREGATE. A BONDING AGENT (SIKA ARMATEC 110 EPOCEM OR APPROVED EQUAL) SHALL BE APPLIED TO EXISTING CONCRETE SURFACES PRIOR TO PLACING NEW CONCRETE AGAINST EXISTING CONCRETE.
5. CONCRETE MIXES TO BE PROVIDED BY CONTRACTOR FOR ENGINEER REVIEW AND SHALL BE DESIGNED BY AND BEAR THE SEAL OF A PROFESSIONAL CIVIL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.
6. CONCRETE SHALL BE NORMAL WEIGHT AGGREGATE CONCRETE & SHALL HAVE A MINIMUM TWENTY-EIGHT DAY COMPRESSIVE STRENGTH (f'_c) OF 4,000 PSI.
7. CEMENT SHALL CONFORM TO ASTM C-150, TYPE I OR II.
8. AGGREGATES SHALL BE HARD ROCK AND SHALL CONFORM TO ASTM C-33.
9. READY-MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C-94.
10. PROJECTING CORNERS SHALL BE FORMED WITH A 3/4-INCH CHAMFER UNLESS OTHERWISE NOTED.

VII. CONCRETE ANCHORS

1. INSTALL ALL CONCRETE ANCHORS IN ACCORDANCE WITH THE REQUIREMENTS GIVEN IN THE ICC RESEARCH COMMITTEE RECOMMENDATIONS FOR THE ANCHOR. ALL INSTALLED ANCHORS SHALL HAVE SPECIAL INSPECTION.
2. CONCRETE EXPANSION ANCHORS SHALL BE STAINLESS STEEL HILTI KWIK BOLT TZ2 WEDGE ANCHORS OR EQUAL. INSTALL PER ICC ESR-4266. SPECIAL INSPECTION IS REQUIRED.
3. EPOXY ANCHORS AND DOWELS SHALL BE HILTI HIT-RE 500 V3 OR EQUAL. INSTALL PER ICC ESR-3814. SPECIAL INSPECTION IS REQUIRED.
4. SUBSTITUTIONS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION.
5. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING CONCRETE MEMBERS, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR.
6. INSTALLATION OF DRILLED IN EXPANSION-TYPE AND EPOXY ANCHORS SHALL BE CONTINUOUSLY INSPECTED BY THE OWNER'S REPRESENTATIVE. 25 PERCENT OF ALL EXPANSION-TYPE ANCHORS (ALTERNATE BOLTS IN ANY GROUP) AND 10 PERCENT EPOXY ANCHORS SHALL BE TESTED BY THE OWNER'S TESTING LABORATORY FOR THE PULLOUT LOADS OR TORQUE AS INDICATED IN THE TABLES BELOW. IF ANY ANCHOR FAILS, IT SHALL BE REPLACED AND THE IMMEDIATELY ADJACENT BOLTS SHALL ALSO BE TESTED AT CONTRACTOR'S EXPENSE. TESTING SHALL BE PER FOLLOWING SCHEDULES.

WEDGE ANCHOR EXPANSION BOLTS – HILTI KWIK BOLT TZ2

ANCHOR DIAMETER (IN)	MINIMUM NOMINAL EMBEDMENT (IN)	TORQUE TEST PER MANUFACTURER RECOMMENDATIONS (FT-LBS)	
		CARBON STEEL	STAINLESS STEEL
1/4	1 3/4	4	6
3/8	1 7/8	30	30
1/2	2 1/2	50	40
5/8	3 1/4	40	60
3/4	4	110	125

EPOXIED DOWELS

REBAR SIZE (GRADE 60)	MINIMUM EMBEDMENT (IN)	TEST LOAD IN NORMAL WEIGHT CONCRETE (LBS)	
		2,500 PSI CONCRETE	4,000 PSI CONCRETE
No. 3	3.5	2900	3260
No. 4	4	4430	6300
No. 5	5	5820	8340
No. 6	7	9210	11400
No. 7	7.5	11360	13700
No. 8	8	15190	18100

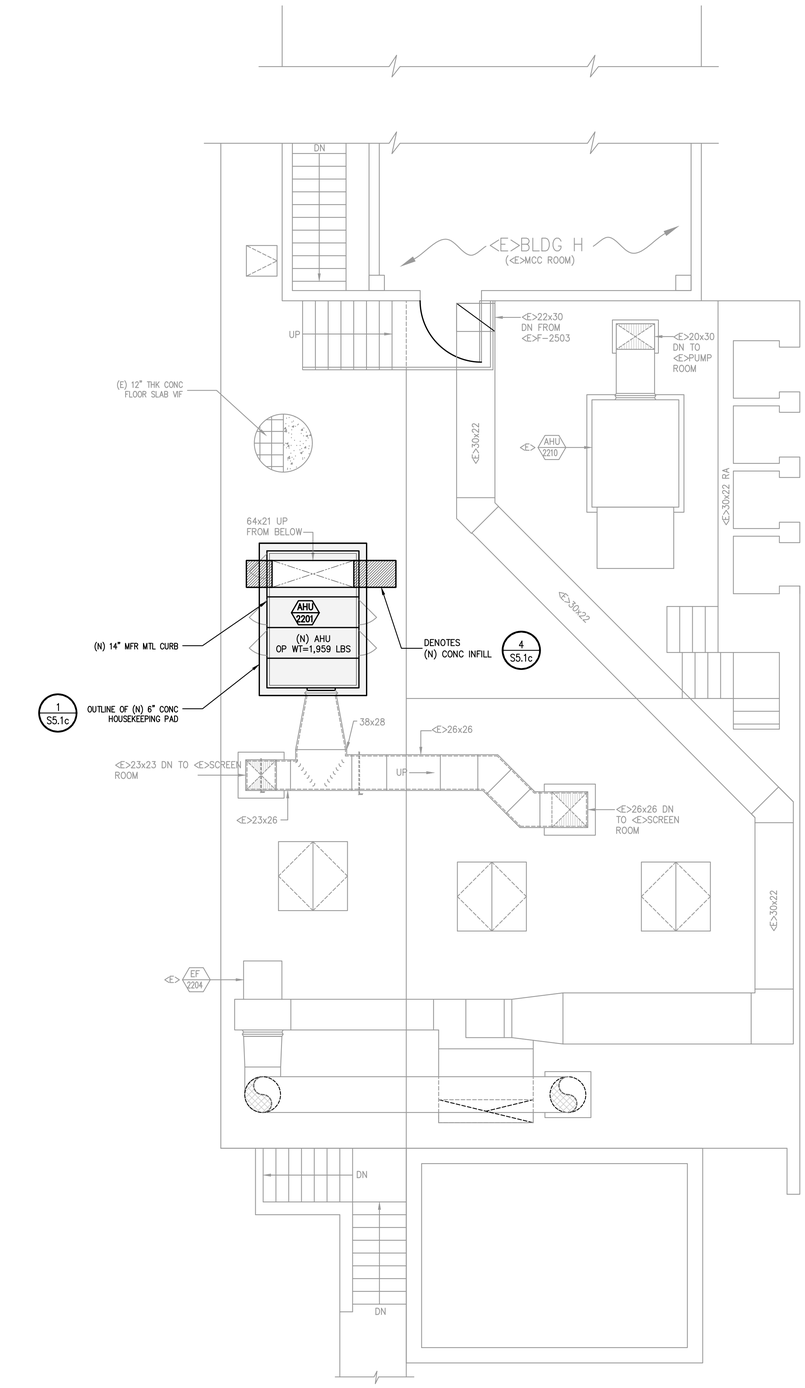
EPOXIED THREADED ROD (ASTM F1554) OR SS (AISI 304/316)

ROD SIZE (IN)	MINIMUM EMBEDMENT (IN)	TEST LOAD IN NORMAL WEIGHT CONCRETE (LBS)	
		2,500 PSI CONCRETE	4,000 PSI CONCRETE
3/8	3	2620	3400
1/2	4	4240	5500
5/8	5	6900	7900
3/4	6	7700	11900
7/8	7	11900	15100
1	8	13250	16800
1 1/4	12	24400	31100

ABBREVIATIONS

AB	ANCHOR BOLT
AFF	ABOVE FINISHED FLOOR
ADD'L	ADDITIONAL
AGG	AGGREGATE
ALT	ALTERNATE
ARCH	ARCHITECT OR ARCHITECTURAL
BFF	BELOW FINISHED FLOOR
BDRM	BEDROOM
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BOT	BOTTOM
BTWN	BETWEEN
℄	CENTERLINE
CJ	CEILING JOISTS
CMU	CONCRETE MASONRY UNIT(S)
CALCS	CALCULATIONS
CLG	CEILING
CLR	CLEAR OR CLEARANCE
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUATION OR CONTINUOUS
CONTR	CONTRACTOR
COR	CORNER
DF	DOUGLAS FIR
DL	DEAD LOAD
DS	DOWNSPOUT
DBL	DOUBLE
DET	DETAIL
DIA OR ⌀	DIAMETER
DIM	DIMENSION
DN	DOWN
(E)	EXISTING
EJ	EXPANSION JOINT
ELEV	ELEVATION
EN	EDGE NAIL
EA	EACH
ES	EACH SIDE
EQ	EQUAL
EW	EACH WAY
EXT	EXTERIOR
(F)	FUTURE
FJ	FLOOR JOIST
FLR	FLOOR
FS	FAR SIDE
FOUND OR FND	FOUNDATION
FP	FIREPLACE
FT	FLOOR TRUSS
FTG	FOOTING
GSM	GALVANIZED SHEET METAL
GA	GAUGE
GALV	GALVANIZED
GLU-LAM, GLB	GLUE LAMINATED BEAM
GYP BD	GYPSUM BOARD
HD	HOLDDOWN
HORIZ	HORIZONTAL
HDR	HEADER
HGR	HANGER
INFO	INFORMATION
INSUL	INSULATION OR INSULATED
INT	INTERIOR
INTER	INTERSECTION
JT	JOINT
LB OR #	POUND OR NUMBER
LL	LIVE LOAD
MAX	MAXIMUM
MB	MACHINE BOLT
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MFR OR MANU	MANUFACTURER
MIN	MINIMUM
ML	MICROLLAM
MSTR	MASTER
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O/	OVER
OC	ON CENTER
OPT	OPTIONAL
℗ OR PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSL	PARALLAM
PT	PRESSURE TREATED
PAR	PARALLEL
PERF	PERFORATED
PERP	PERPENDICULAR
PLHT	PLATE HEIGHT
PLYWD OR PLY	PLYWOOD
PR	PAIR
RCP	REINFORCED CONCRETE PIPE
RECOM OR REC	RECOMMENDATIONS
REINF	REINFORCING
REQ'D	REQUIRED
REBAR	REINFORCING BAR(S)
RJ	ROOF JOIST
RM	ROOM
RR	ROOF RAFTER
RT	ROOF TRUSS
RWD	REDWOOD
SAD	SEE ARCHITECTURAL DRAWINGS
SCD	SEE CIVIL DRAWINGS
SED	SEE ELECTRICAL DRAWINGS
SMD	SEE MECHANICAL DRAWINGS
SCHD	SCHEDULE
SOG	SLAB ON GRADE
SW	SHEARWALL
TEMP	TEMPORARY
TOC	TOP OF CONCRETE
TOW	TOP OF WALL
T/P	TOP PLATE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
W/	WITH

STRUCTURAL DRAWING INDEX



A BUILDING H EQUIPMENT YARD PLAN – NEW WORK
SCALE: 1/4" = 1'-0"
0 4' 8'
N

SHEET NOTES

1. FOR STRUCTURAL GENERAL NOTES SEE THIS SHEET.

LEGEND

- DENOTES (E) STRUCTURE
- DENOTES (N) STRUCTURE
- DENOTES (N) CONCRETE SLAB INFILL
- DENOTES (E) WALL

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY TD; DESIGN BY TCE; CHECKED BY TCE; PROJ. MGR.
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

CPS COMPLETE PROJECT SOLUCIONS
3527 MT. DIABLO BOULEVARD #137, LAFAYETTE, CA 94549
(925) 285-2229 WWW.CPS-GLOBAL.COM

REGISTERED PROFESSIONAL ENGINEER THOMAS C. EBERT S 3931 Exp:Dec 31, 2027 STRUCTURAL STATE OF CALIFORNIA

CPS Project No: A1355.03

SALASO'BRIEN
|expect a difference|
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
02/18/25	ADDENDUM #2				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING H

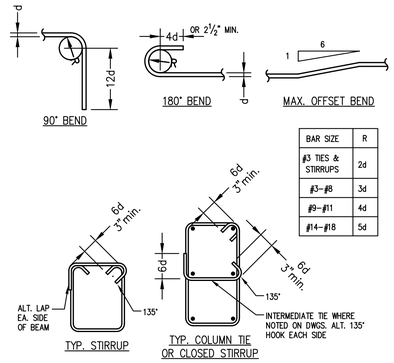
STRUCTURAL
GENERAL NOTES & EQUIPMENT YARD PLAN

CIP NO. 22-P010

S1.1c
51 66

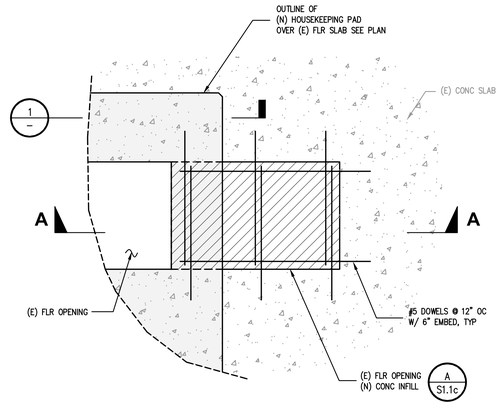
SOBE #2304150.3

P:\S1300 Salas O'Brien\S1355 Dublin San Ramon HVAC\Drawings\S1355.03 – DSRSD Building H Fan Replacement\+Current\+S11.dwg 12/12/2025 12:32 PM Tony Daza

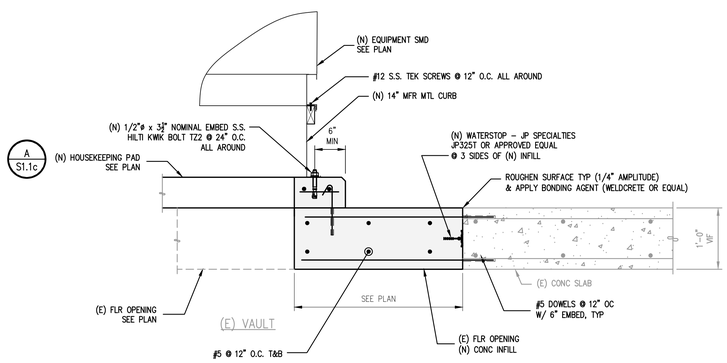


BAR SIZE	R
#3 TIES & STIRRUPS	2d
#3–#8	3d
#9–#11	4d
#14–#18	5d

3 TYP — REINF STANDARD BAR HOOK AND BEND scale:NTS



PLAN



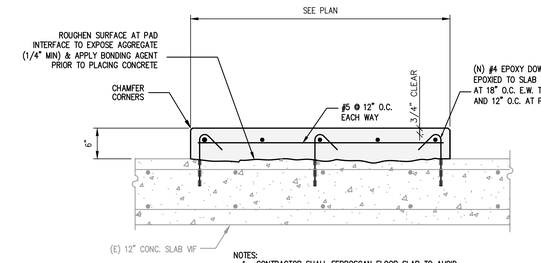
A-A SECTION

4 – (N) CONCRETE INFILL scale: 1"=1'–0"

CLASS 'B' SPLICES (f'c = 2,500 PSI)		
BAR SIZE	OTHERS	TOP
#3	19"	25"
#4	25"	33"
#5	31"	41"
#6	37"	49"
#7	54"	71"
#8	62"	81"
#9	70"	91"
#10	79"	102"
#11	87"	114"

NOTES:
1. LAP LENGTHS SHOWN IN THE SCHEDULE ARE CLASS "B" LAP SPLICES PER THE 2019 CBC (ACI 318–14). THE MINIMUM CONCRETE COVER MUST BE GREATER THAN DB AND THE CENTER TO CENTER SPACING MUST BE GREATER THAN 3DB. WHERE DB IS THE NOMINAL BAR DIAMETER.
2. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW THE BAR.
3. THE SMALLER LAP SPLICE LENGTH MAY BE USED WHEN TWO BARS OF DIFFERENT SIZES ARE TO BE LAPPED.

2 TYP — MIN REINF BAR SPLICES scale:NTS



NOTES:
1. CONTRACTOR SHALL FERROSCAN FLOOR SLAB TO AVOID DAMAGING (E) REINF. STEEL WHILE DRILLING.
2. CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO AVOID SPALLING UNDERSIDE OF SLAB WHILE DRILLING.
3. MAINTAIN MIN 6" OUTSIDE EDGE DISTANCE.

1 – (N) HOUSEKEEPING PAD scale: NTS

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY TD; DESIGN BY TCE; CHECKED BY TCE; PROJ. MGR.
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
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OPS Project No: A1355.03
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7051 Dublin Blvd., Dublin, CA 94568 (925) 828–0515

CIP NO. 22–P010

WWTP HVAC REPLACEMENTS - BUILDING H

STRUCTURAL DETAILS

S5.1c
52 | 66

SOBE #2304150.3

P:\S1300 Salas O'Brien\S1355 Dublin San Ramon HVAC\Drawings\S1355.03 – DSRSD Building H Fan Replacement\+Current\+S51.dwg 12/12/2025 12:33 PM Tony Daza

SCHEDULES

NEW HOT WATER PUMP SCHEDULE

MARK	P-3
DSRSD EQUIPMENT TAG	30-940-0013-PMP-01
APPLICATION	HOT WATER PUMP
LOCATION	OUTDOOR
PUMP TYPE	BASE MOUNTED CENTRIFUGAL
MANUFACTURER	PATTERSON
TYPE	SERIES e-1510
MODEL	2AD
IMPELLER SIZE	6.75"
GPM	167 GPM
TOTAL HEAD (FT)	30 FT
RPM	1,750
BHP	1.76
MOTOR HP/TYPE	2HP / TEFC
VOLTAGE / PHASE	480/ 3
PUMP EFFICIENCY	77.8%
MOTOR EFFICIENCY	PREMIUM
INVERTER RATED	YES
CONSTRUCTION	BRONZE FITTED
WEIGHT	182 LBS (APPROX)
SEALS	EPDM / TUNGSTEN CARBIDE
NOTE:	

NEW CHILLED WATER PUMP SCHEDULE

MARK	P-4 & 5
DSRSD P-4 EQUIP. TAG	30-940-0001-PMP-01
DSRSD P-5 EQUIP. TAG	30-940-0002-PMP-01
QUANTITY	2
APPLICATION	CHILLED WATER PUMP
LOCATION	OUTDOOR
PUMP TYPE	BASE MOUNTED CENTRIFUGAL
MANUFACTURER	PATTERSON
TYPE	SERIES e-1510
MODEL	1.5AD
IMPELLER SIZE	6.25"
GPM	93 GPM
TOTAL HEAD (FT)	42 FT
RPM	1,750
BHP	1.24
MOTOR HP/TYPE	2HP / TEFC
VOLTAGE / PHASE	480/ 3
PUMP EFFICIENCY	72.0%
MOTOR EFFICIENCY	PREMIUM
INVERTER RATED	YES
CONSTRUCTION	BRONZE FITTED
WEIGHT	173 LBS (APPROX)
SEALS	EPDM / TUNGSTEN CARBIDE
NOTE:	

CHILLER SCHEDULE

MARK		ACLR-1
DSRSD EQUIPMENT TAG		30-940-0006-CHR-01
APPLICATION		CHILLED WATER
TYPE		ABSORPTION CHILLER
MANUFACTURER		THERMAX
MODEL		TAC L1 N4 XP
COMPRESSOR TYPE		ABSORPTION
TONS (NOMINAL)		40 TONS
EVAPORATOR		3+3 PASS
GENERATOR		4 PASS
EVAPORATOR DESIGN CONDITONS		
CONDITION	#1	#2
EVAPORATOR FLOW RATE (GPM)	93.0 GPM	93.0 GPM
EVAPORATOR PRESSURE DROP (FT)	12.8 FT	12.8 FT
EVAPORATOR ENTERING WATER TEMP	55.0 F	70.0 F
EVAPORATOR LEAVING WATER TEMP	45.0 F	60.0 F
COOLING WATER CIRCUIT DESIGN CONDITIONS		
COOLING WATER FLOW RATE (GPM)	246 GPM	246 GPM
COOLING WATER PRESSURE DROP (FT)	14.4 FT	14.4 FT
COOLING WATER ENTERING WATER TEMP	78.0 F	78.0 F
COOLING WATER LEAVING WATER TEMP	86.9 F	86.5 F
HOT WATER CIRCUIT DESIGN CONDITIONS		
HOT WATER FLOW RATE (GPM)	167 GPM	167 GPM
HOT WATER PRESSURE DROP (FT)	9.8 FT	9.8 FT
HOT WATER ENTERING WATER TEMP	147.0 F	130.0 F
HOT WATER LEAVING WATER TEMP	139.5 F	123.1 F
OPERATING WEIGHT (LBS)		14,230 LBS
ELECTRICAL		
VOLTAGE / HZ / PHASE		460V / 60Hz / 3Ø
MCA (AMPS)		11.7 A
OPTIONS		
1) 1 YEAR PARTS & LABOR.		
2) FACTORY START UP.		
3) SINGLE POINT POWER.		
4) BACNET CONTROLS.		
5) UL LISTING.		
6) FIELD INSTALLED INSULATION (TO BE INSTALLED BY THE MECHANICAL CONTRACTOR).		
7) UNIT MOUNTED DISCONNECT.		
8) RUPTURE SEAL REFRIGERANT PRESSURE RELIEF.		
9) TITANIUM EVAPORATOR, ABSORBER, & CONDENSER.		
10) COPPER HOT WATER GENERATOR.		
11) THIS SELECTION WAS MADE WITH THERMAX-USA. CONTACT VIJAY SHARMA (248) 207-6086.		

SYSTEM PRESSURE REQUIRMENTS

SYSTEM	PRESSURE REQUIREMENT
CHILLED WATER PIPING	150 PSI VIC.
HEATING HOT WATER PIPING	150 PSI VIC.
3W WATER PIPING	150 PSI VIC.
DRAIN WATER PIPING	150 PSI VIC.

GENERAL NOTES

1. PRIOR TO SUBMITTING PROPOSAL, BIDDER SHALL EXAMINE CONSTRUCTION DRAWINGS AND SPECIFICATIONS AND SHALL HAVE VISITED THE CONSTRUCTION SITE. HE SHALL BE FAMILIAR WITH THE CONDITIONS UNDER WHICH HE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART. THE SEQUENCE OF CONSTRUCTION SHALL BE CLOSELY COORDINATED AND PRESENTED TO THE OWNER FOR VERIFICATION. DETERMINE THE SEQUENCE OF CONSTRUCTION THROUGHOUT THE PROJECT.
2. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER WORK DUE TO THE INSTALLATION OF WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC., AS REQUIRED.
3. ALL TEMPORARY WORK SHALL BE CONSIDERED A PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.
4. THE PLANS AND SPECIFICATIONS DO NOT UNDERTAKE TO SHOW OR LIST EVERY ITEM TO BE PROVIDED, BUT RATHER TO DEFINE THE REQUIREMENTS FOR A FULL AND WORKING SYSTEM FROM THE STANDPOINT OF THE END USER. FOR THIS REASON, WHEN AN ITEM NOT SHOWN OR LISTED IS CLEARLY NECESSARY FOR PROPER CONTROL/ OPERATION OF EQUIPMENT WHICH IS SHOWN OR LISTED, PROVIDE AN ITEM WHICH WILL ALLOW THE SYSTEM TO FUNCTION PROPERLY AT NO INCREASE IN PRICE.
5. DIMENSIONS ON WORKING DRAWINGS GOVERN. DO NOT SCALE DRAWINGS.
6. ALL CONTRACTORS SHALL REMOVE TRASH AND DEBRIS STEMMING FROM THEIR WORK ON A DAILY BASIS. PROJECT SITE SHALL BE MAINTAINED IN A CLEAN AND ORDERLY CONDITION.
7. PRIOR TO BIDDING, CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONDITIONS WHICH ARE NOT COVERED IN THE CONTRACT DOCUMENTS. DURING CONSTRUCTION, CONTRACTOR SHALL NOTIFY THE ENGINEER AND SEEK CLARIFICATION IF ANY DISCREPANCIES ARE FOUND. CONTRACTOR SHALL BE RESPONSIBLE FOR REMEDIAL WORK IF RELATED WORK IS CONTINUED AFTER A DISCREPANCY IS IDENTIFIED.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT MATERIALS, LABOR, INSTALLATION, ETC., CONFORMS TO ALL CODES AND REQUIREMENTS OF LOCAL GOVERNING AGENCIES.
9. ENGINEER SHALL REVIEW ALL MATERIAL SUBMITTALS FOR COMPLIANCE WITH PROJECT INTENT. NO WORK SHALL COMMENCE WITH UNREVIEWED MATERIALS. ANY WORK DONE WITH UNREVIEWED MATERIALS AND EQUIPMENT IS AT THE CONTRACTOR'S RISK.
10. CONSTRUCTION MATERIALS STORED ON THE SITE SHALL BE PROPERLY STACKED AND PROTECTED SO AS TO PREVENT DAMAGE OR DETERIORATION UNTIL USED. FAILURE IN THIS REGARD MAY BE CAUSE FOR REJECTION OF MATERIAL AND/OR WORK.
11. ALL FINISHES AND CONSTRUCTION SHALL BE PROTECTED BY THE CONTRACTOR FROM POTENTIAL DAMAGE CAUSED BY DEMOLITION ACTIVITY. DAMAGE TO FINISHES OR CONSTRUCTION SHALL BE REPAIRED OR REPLACED (OWNER'S DECISION) BY THE CONTRACTOR WITH IDENTICAL MATERIAL AND/OR FINISHES. CONTRACTOR SHALL MAKE AND MAINTAIN A PHOTOGRAPHIC RECORD NOTEBOOK WITH DATED/INDEXED PHOTOGRAPHS.
12. UNLESS OTHERWISE NOTED, ARRANGE, PAY FOR, COORDINATE AND PROVIDE ALL PERMITS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.

UNDERGROUND WORK:

1. CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHILE TRENCHING FOR NEW UTILITIES. THESE DRAWINGS HAVE BEEN COMPILED FROM RECORD DOCUMENTS, FIELD SURVEYS AND OTHER AVAILABLE INFORMATION. NOT ALL UTILITIES AND/OR OBSTRUCTIONS ARE SHOWN. CONTRACTOR SHALL VERIFY THE LOCATIONS OF UTILITIES PRIOR TO EXCAVATION, EITHER BY HAND EXCAVATION OR WITH THE ASSISTANCE OF AN UNDERGROUND UTILITY LOCATION SERVICE (USA WILL NOT LOCATE UTILITIES ON PRIVATE PROPERTY).
2. ASBESTOS-CEMENT PIPE (ACP): ACP MAY BE PRESENT THROUGHOUT THE SITE. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES WHEN ACP IS ENCOUNTERED TO AVOID DISTURBING EXISTING INSTALLATIONS.
3. PROVIDE FOR PEDESTRIAN ACCESS AT ALL TIMES. PROVIDE BARRICADES, WARNING SIGNS, TEMPORARY BRIDGES, ETC. AS REQUIRED TO FULFILL THIS REQUIREMENT.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AH	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AP	ACCESS PANEL
ARCH	ARCHITECTURAL (DRAWING)
AS	AIR SEPARATOR
BDD	BACK DRAFT DAMPER
BUR	BUILT-UP ROOFING
CDW	CONDENSER WATER
CT	COOLING TOWER
CTRL	CONTROL
CW	CHILLED WATER
CU	COPPER
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
<E>	EXISTING
EFF	EFFICIENCY
FACP	FIRE ALARM CONTROL PANEL
FD	FIRE DAMPER
FF	FINISHED FLOOR
FSD	FIRE/SMOKE DAMPER
GA.	GAUGE
GPM	GALLONS PER MINUTE
GSM	GALVANIZED SHEET METAL
HP	HORSE POWER
HSP	HOUSE SERVICE PANEL
MCC	MOTOR CONTROL CENTER
MIN	MINIMUM
MTD	MOUNTED
MTR	MOTOR
MVD	MANUAL VOLUME DAMPER
<N>	NEW
N.T.S.	NOT TO SCALE
OA	OUTDOOR AIR
OAD	OUTDOOR AIR DAMPER
O.C.	ON CENTER
PH	PHASE
PNL	PANEL
RA	RETURN AIR
RAD	RETURN AIR DAMPER/DUCT
R.I.P.	RETIRED IN PLACE
RPBFP	REDUCED PRESSURE BACK-FLOW PREVENTER
S	SUPPLY
SA	SUPPLY AIR
SAD	SUPPLY AIR DAMPER/DUCT
TBR	TO BE REMOVED
TCP	TEMPERATURE CONTROL PANEL
TG	TRANSFER GRILL
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
VAV	VARIABLE AIR VOLUME
V.I.F.	VERIFY IN FIELD
3W	NO.3 WATER (SECONDARY EFFLUENT)

SYMBOLS

EXTENT OF DEMOLITION

NEW TO EXISTING CONNECTION

REVISION NUMBER

WORK ITEM (ARCHITECTURAL)

WORK ITEM (MECHANICAL)

WORK ITEM (ELECTRICAL)

WORK ITEM (TELECOMMUNICATION)

WORK ITEM (PLUMBING)

WORK ITEM (STRUCTURE)

DETAIL DESIGNATION — DETAIL NUMBER / DRAWING NUMBER (IF BLANK, SAME SHEET)

EQUIPMENT DESIGNATION — EQUIPMENT TYPE / EQUIPMENT NUMBER

SECTION DESIGNATION — SECTION NUMBER / DRAWING NUMBER

TO BE DEMOLISHED — <N> EQUIPMENT

TO BE DEMOLISHED — RELOCATED EQUIPMENT

EXISTING DUCT

NEW DUCT

DUCT TO BE REMOVED

DUCT CAP

12x20 — RECTANGULAR DUCT (FIRST FIGURE IS PLAN DIMENSION)

18ø — ROUND DUCT DIAMETER SIZE

FLEXIBLE DUCT

ROUND DUCT UP

ROUND DUCT DOWN

20x10 / 15x8 — TRANSITION RECTANGULAR TO RECTANGULAR

TRANSITION RECTANGULAR TO ROUND

RECTANGULAR TURNING VANES

RADIUSED RECTANGULAR TURNING VANES

BRANCH TAKE-OFF (ROUND MAIN WITH 45° ROUND TAKE-OFF)

BRANCH TAKE-OFF (ROUND MAIN WITH 90° ROUND TAKE-OFF)

BRANCH TAKE-OFF (RECTANGULAR MAIN WITH 90° ROUNDTAKE-OFF)

BRANCH TAKE-OFF (RECTANGULAR MAIN WITH RECTANGULAR TAKE-OFF)

DUCT SPLIT (ROUND MAIN WITH 180° ROUND BRANCHES)

DUCT SPLIT (RECTANGULAR MAIN WITH 180° RECTANGULAR BRANCHES)

DUCT SPLIT (RECTANGULAR MAIN WITH 90° RECTANGULAR SPLIT)

S / R — STANDARD BRANCH, SUPPLY OR RETURN, NO SPLITTER

R — CHANGE OF ELEVATION RISE (R) DROP (D)

AD 10x10 — ACCESS DOORS, VERTICAL OR HORIZONTAL

ACOUSTICAL LINING (INSULATION)

FLEXIBLE CONNECTION

ST — SOUND TRAP

DETECTORS, FIRE AND/OR SMOKE

12x20 — DUCT SECTION, SUPPLY, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.

12x20 — DUCT SECTION, RETURN, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.

12x20 — DUCT SECTION, EXHAUST, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.

12x20 — DUCT SECTION, OUTSIDE, FIRST FIGURE IS DIMENSION THAT LEADER POINTS TO.

CFM — CUBIC FEET PER MINUTE (CFM = AIR FLOW RATE)

DD — DUCT DETECTOR

T — DUCT TEMPERATURE SENSOR

T — ZONE TEMPERATURE SENSOR

CO2 — CARBON DIOXIDE SENSOR

SUMMARY OF WORK

1. DISCONNECT & REMOVE THE <E> ABSORPTION CHILLER ACLR-1.
2. DISCONNECT & REMOVE THE <E> HOT WATER PUMP P-3.
3. DISCONNECT & REMOVE THE <E> CHILLED WATER PUMPS P-4 & 5.
4. PROVIDE & INSTALL NEW CONCRETE PAD EXTENSION.
5. PROVIDE & INSTALL NEW ABSORPTION CHILLER ACLR-1.
6. PROVIDE & THE NEW HOT WATER PUMP P-3.
7. PROVIDE & THE NEW CHILLED WATER PUMPS P-4 & 5.
8. MODIFY ALL PIPING AS REQUIRED.
9. ALL MISC. ELECTRICAL, & CONTROLS WORK AS REQUIRED.
10. PROVIDE & INSTALL A NEW SHADE STRUCTURE OVER THE NEW CHILLER.

TEST & BALANCE

1. PERFORM A COMPLETE TEST, ADJUST, & BALANCE OF THE NEW CHILLED WATER PUMPS P-4 & 5. SEE THE PUMP SCHEDULE FOR FLOWS. MEASUREMENTS SHALL INCLUDE MOTOR AMPS, PUMP PRESSURES, & FLOWS.
2. PERFORM A COMPLETE TEST, ADJUST, & BALANCE OF THE NEW HOT WATER PUMP P-3. SEE THE PUMP SCHEDULE FOR FLOWS. MEASUREMENTS SHALL INCLUDE MOTOR AMPS, PUMP PRESSURES, & FLOWS.
3. PERFORM A COMPLETE TEST, ADJUST, & BALANCE OF CHILLER ACLR-1. SEE THE CHILLER SCHEDULE FOR FLOWS. MEASUREMENTS SHALL INCLUDE MOTOR AMPS, PUMP PRESSURES, & FLOWS.
4. ALL ACCEPTANCE WORK SHALL BE PERFORMED BY A CMATT CERTIFIED TECHNICIAN.

APPLICABLE CODES

UNLESS OTHERWISE INDICATED OR SPECIFIED, PERFORM THE WORK IN CONFORMANCE WITH THE LATEST EDITIONS OF ALL APPLICABLE REGULATORY REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24): 2022
2. CALIFORNIA BUILDING CODE (PART 2, TITLE 24): 2021 IBC WITH 2022 CA AMENDMENTS
3. CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24): 2020 NEC WITH 2022 CA AMENDMENTS
4. CALIFORNIA MECHANICAL CODE (PART 4, TITLE 24): 2021 UMC WITH 2022 CA AMENDMENTS
5. CALIFORNIA PLUMBING CODE (PART 5, TITLE 24) 2021 UPC WITH 2022 CA AMENDMENTS
6. CALIFORNIA ENERGY CODE (PART 6, TITLE 24): 2022
7. CALIFORNIA HISTORICAL BUILDING CODE, (PART 8, TITLE 24): 2022
8. CALIFORNIA FIRE CODE (PART 9, TITLE 24): 2021 IFC WITH 2022 CA AMENDMENTS
9. CALIFORNIA EXISTING BUILDING CODE (PART 10, TITLE 24): 2022 (2021 INTERNATIONAL EXISTING BUILDING CODE WITH 2022 CA AMENDMENTS)
10. CALIFORNIA GREEN BUILDING STANDARDS CODE OR CAL GREEN (PART 11, TITLE 24): 2022
11. CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24): 2022
12. PUBLIC SAFETY (CCR TITLE 19), STATE FIRE MARSHAL: CURRENT REVISION
13. NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE, 2022 EDITION

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REGISTERED PROFESSIONAL ENGINEER — CARL A. GRUBER — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

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12/20/24	100% CD				
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IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

RECOM'D

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING T

MECHANICAL
SCHEDULES GENERAL NOTES, SYMBOLS & ABBREVIATIONS

CIP NO. 22-P010

M0.1f
53 | 66

K:\drawings\Dublin San Ramon Services District\2304150 RFP WWTP DERWA HVAC Replacements\2304150.6 Building T\2304150.6M0.1f.dwg 1/8/2026 11:17 AM Minh Ong

SOBE #2304150.6

GENERAL SHEET NOTES

A. INSULATE ALL EXTERIOR HEATING HOT WATER PIPING WITH 2" INSULATION WITH ALUMINUM COVER INCLUDING ELBOWS & TEES.

B. INSULATE ALL EXTERIOR CHWS&R PIPING WITH 1-1/2" FIBERGLASS INSULATION WITH ALUMINUM COVER INCLUDING ELBOWS & TEES.

C. PAINT ALL THE 3W PIPING. PROVIDE & INSTALL NEW LABELS AFTER PAINTING IS COMPLETE. THIS PIPING SHALL BE PAINTED GRAY TO MATCH THE <E> PIPING. USE SHERWIN-WILLAIMS PRO-CRYL PRIMER WITH A DIRECT TO METAL TOP COAT.

D. BLEED ALL AIR OUT OF THE CHILLED WATER & HEATING HOT WATER SYSTEMS.

E. ALL STEEL COMPONENTS OUTSIDE SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL UNLESS NOTED OTHERWISE.

F. PROVIDE NEW FLEXIBLE CONNECTIONS TO ANY NEW PUMPS INSTALLED.

(#) REFERENCE SHEET NOTES

MECHANICAL:

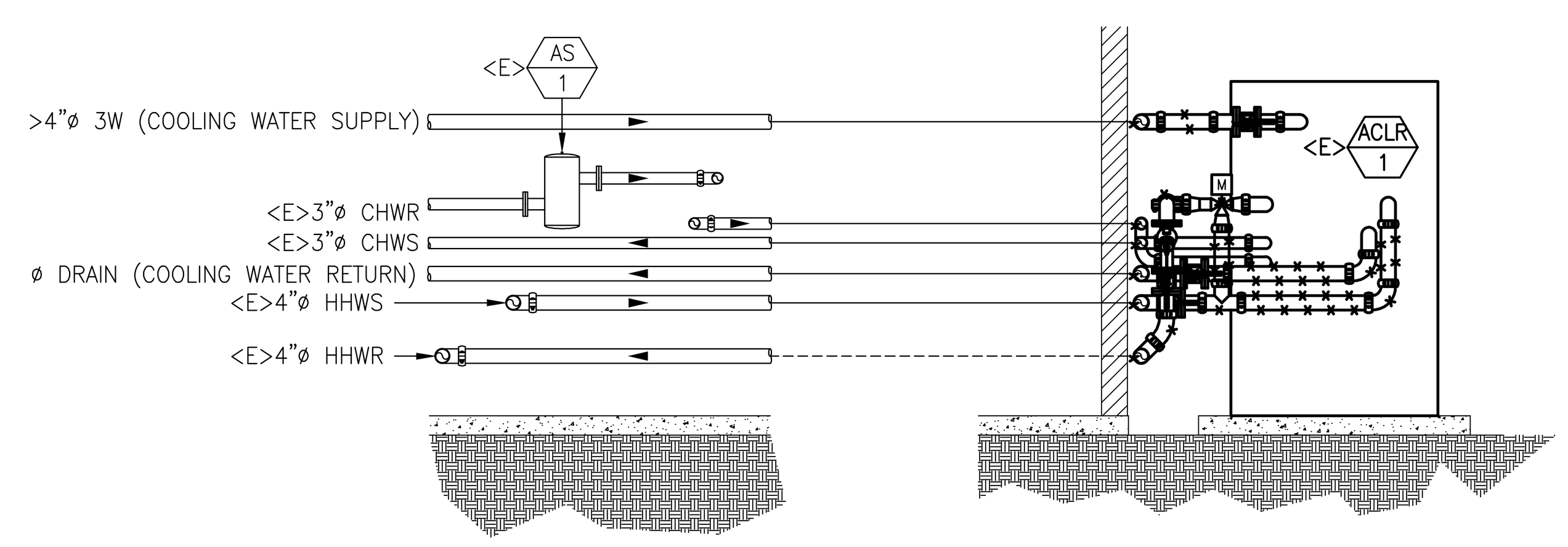
1. DISCONNECT & REMOVE THE <E> ABSORPTION CHILLER.
2. PROVIDE & INSTALL THE NEW ABSORPTION CHILLER. SEE THE SCHEDULE ON SHEET M0.1f.
3. PROVIDE & INSTALL NEW PIPING.
4. DISCONNECT & REMOVE THE <E> HOT WATER PUMP.
5. PROVIDE & INSTALL THE NEW HOT WATER PUMP. SEE THE SCHEDULE ON SHEET M0.1f. SEE DETAIL 3/M5.1f FOR MOUNTING. MODIFY THE PIPING AS REQUIRED.
6. DISCONNECT & REMOVE THE <E> CHILLED WATER PUMP.
7. PROVIDE & INSTALL THE NEW CHILLED WATER PUMP. SEE THE SCHEDULE ON SHEET M0.1f. SEE DETAIL 3/M5.1f FOR MOUNTING. MODIFY THE PIPING AS REQUIRED.

CONTROLS:

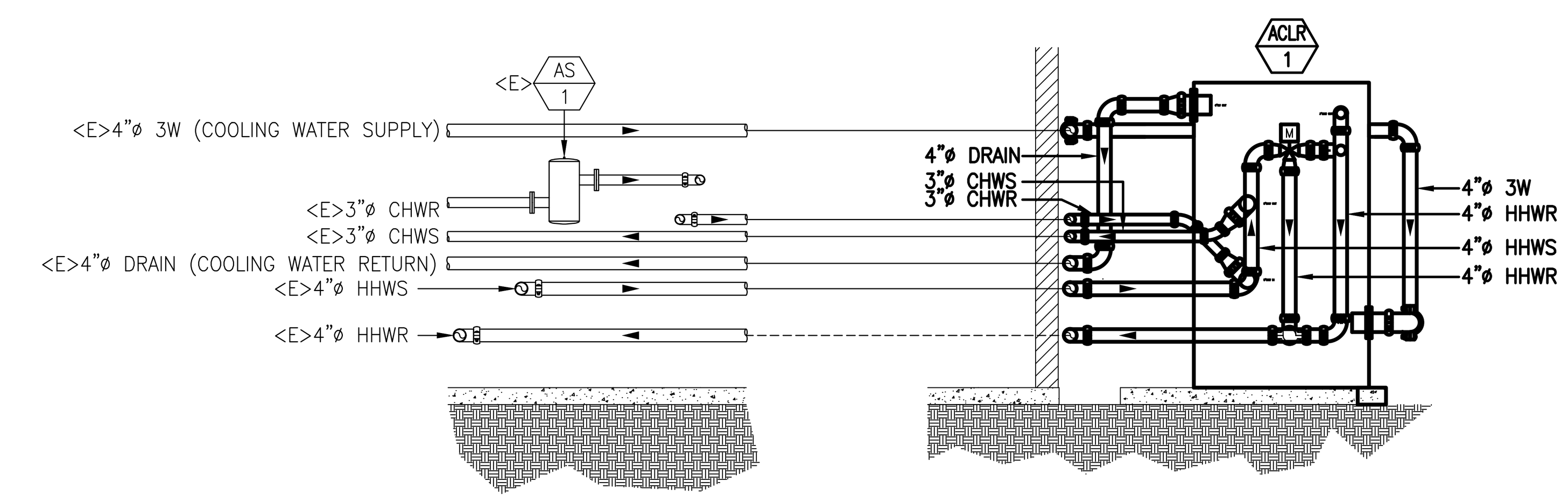
20. DISCONNECT CONTROLS FROM THE <E> ABSORPTION CHILLER.
21. PROVIDE & INSTALL CONTROLS FOR THE NEW ABSORPTION CHILLER.
22. DISCONNECT CONTROLS FROM THE <E> PUMP.
23. PROVIDE & INSTALL CONTROLS FOR THE NEW PUMP.

ARCHITECTURAL:

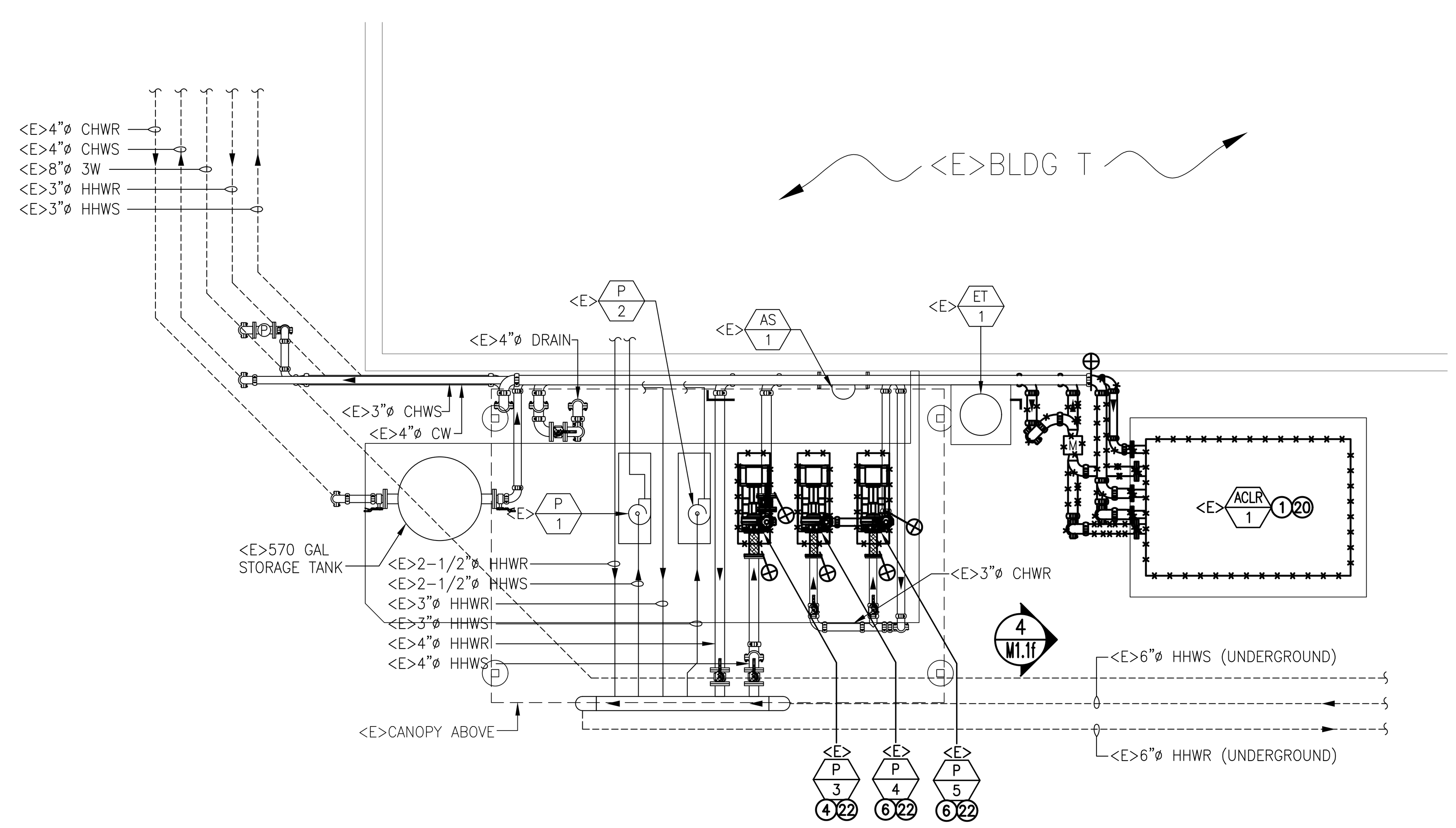
30. PROVIDE & INSTALL NEW HOUSE KEEPING PAD. SEE DRAWING SHEETS S1.1f & S5.1f FOR FURTHER INFORMATION.
31. PROVIDE A CANOPY SIMILAR TO THE ONE FOR THE PUMPS. THIS WILL BE ON A DESIGN BUILD BASIS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRODUCING STRUCTURAL CALCULATIONS. STRUCTURAL CANOPY DRAWINGS ARE PRESENT ON STRUCTURAL DRAWING SHEETS S1.1f & S5.1f



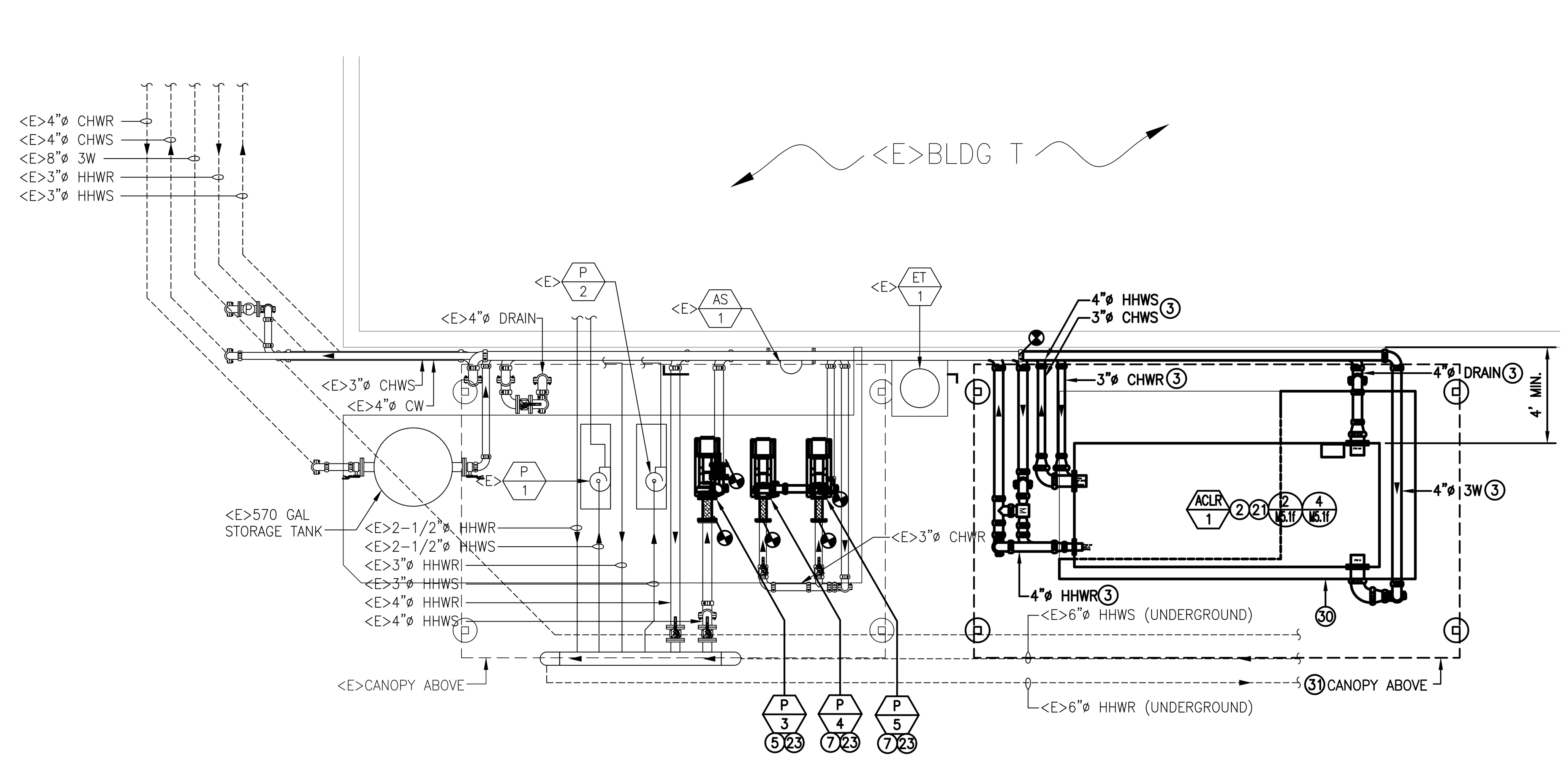
4 BUILDING T CHILLER ELEVATION - DEMO
SCALE: 1/4" = 1' - 0"



2 BUILDING T CHILLER ELEVATION - NEW
SCALE: 1/4" = 1' - 0"



3 BUILDING T CHILLER PLAN - DEMO
SCALE: 1/4" = 1' - 0"



1 BUILDING T CHILLER PLAN - NEW
SCALE: 1/4" = 1' - 0"

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

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REGISTERED PROFESSIONAL ENGINEER
CARL A. CRIZER
No. M35859
MECHANICAL
STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD - VALUE ENGINEERING				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

DESIGN		
DRAWN BY	-	
DESIGN BY	-	
CHECKED BY	CC	
PROJ. MGR.	-	
RECOM'D	DSRSD PRINCIPAL ENGINEER	

REVIEW	
PLNNG./DEVL.	
FIELD OPS.	
WWTP OPS.	
MECH./MAINT.	
ELECT./INSTR.	

SCALE: AS NOTED DATE: 12/09/2025

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WWTP HVAC REPLACEMENTS - BUILDING T

MECHANICAL
BUILDING T CHILLER PLAN

CIP NO. 22-P010

M1.1f

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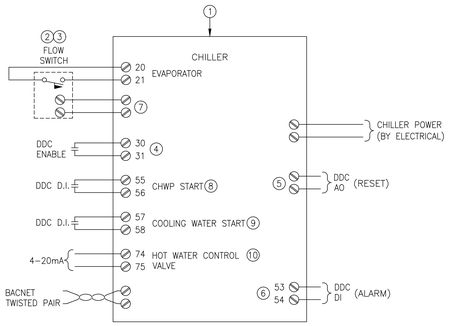
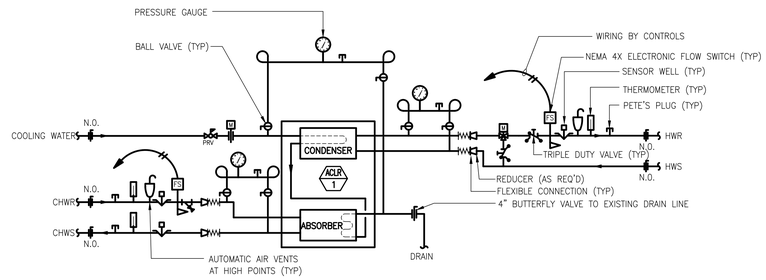


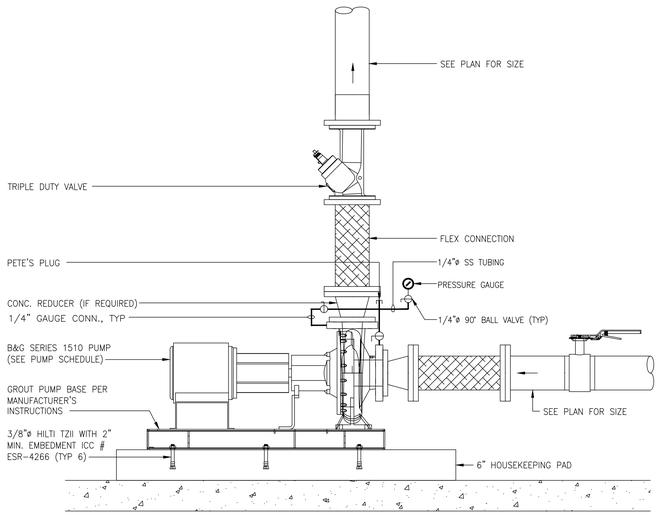
CHILLER WIRING SCHEMATIC

1. INSTALL WIRING PER MANUFACTURER'S INSTRUCTIONS & WIRING DIAGRAMS. THE INFORMATION SHOWN HERE IS INTENDED TO CONVEY THE SCOPE OF CONTROL WORK.
2. WIRE AMERITROL FX ELECTRONIC FLOW SWITCH ACROSS THE CHILLER'S PROOF OF CHILLED WATER FLOW CIRCUIT.
3. THERMAL DISPERSION FLOW SWITCH PROVIDED WITH THE CHILLER.
4. CHILLER ENABLE CIRCUIT. CHILLER SHALL BE ENABLED BY THE DDC SYSTEM.
5. CHILLED WATER SUPPLY SETPOINT RESET (VIA BACNET).
6. CHILLER ALARM CONTACTS (VIA BACNET).
7. 24VAC FROM CHILLER CONTROLS TRANSFORMER.
8. CHILLED WATER PUMP START.
9. COOLING WATER ISOLATION VALVE OPENS.
10. HOT WATER CONTROL VALVE.

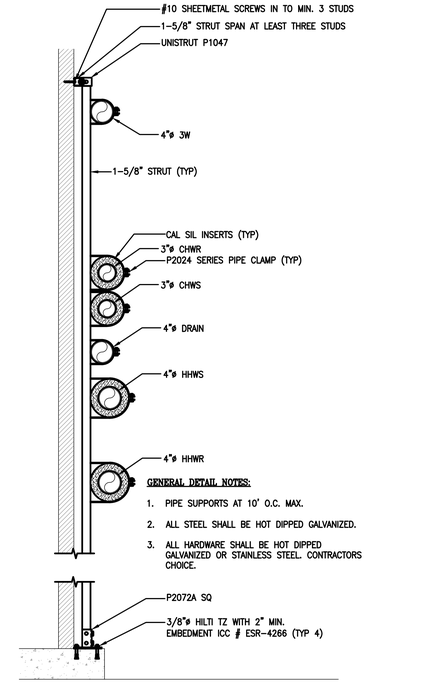
2 CHILLER WIRING DETAIL
SCALE: N.T.S.



4 CHILLER PIPING SCHEMATIC
SCALE: N.T.S.



3 PUMP MOUNTING DETAIL
SCALE: N.T.S.



GENERAL DETAIL NOTES:

1. PIPE SUPPORTS AT 10' O.C. MAX.
2. ALL STEEL SHALL BE HOT DIPPED GALVANIZED.
3. ALL HARDWARE SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL. CONTRACTORS CHOICE.

1 WALL MOUNTED PIPE SUPPORT DETAIL
SCALE: N.T.S.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.; SCALE: AS NOTED; DATE: 12/09/2025

RECOM'D

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12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

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REGISTERED PROFESSIONAL ENGINEER — CARL A. CRUZEN — No. M35859 — MECHANICAL — STATE OF CALIFORNIA

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

CIP NO. 22-P010

WWTP HVAC REPLACEMENTS - BUILDING T

MECHANICAL DETAILS

M5.1f
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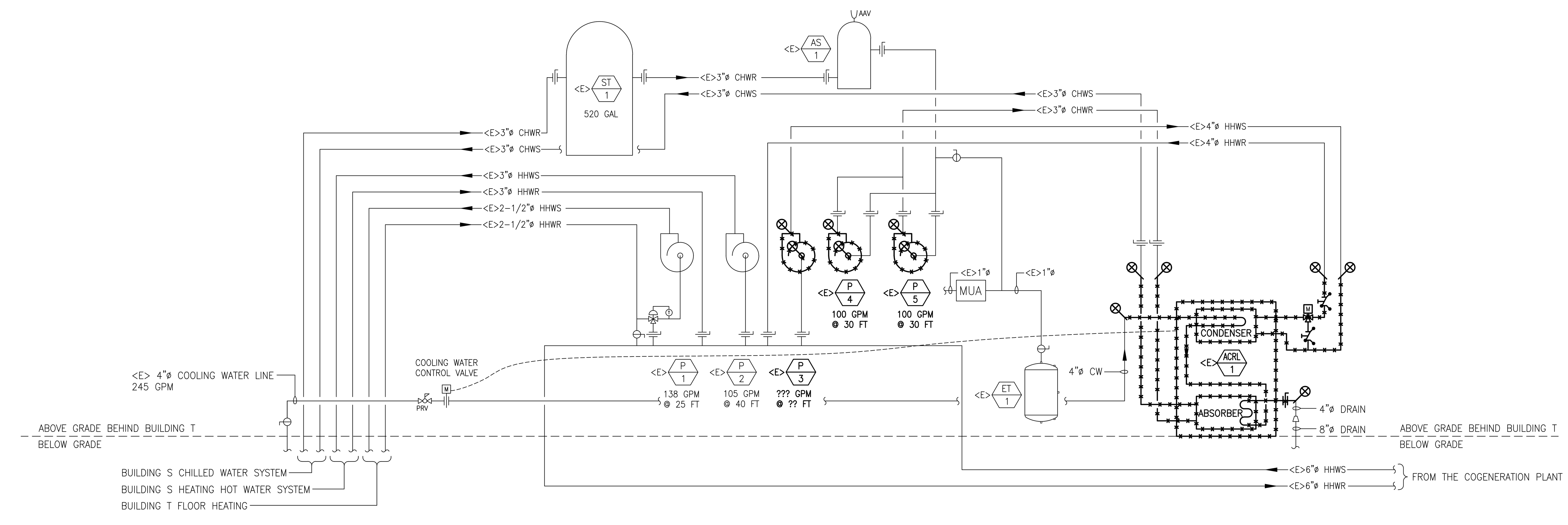
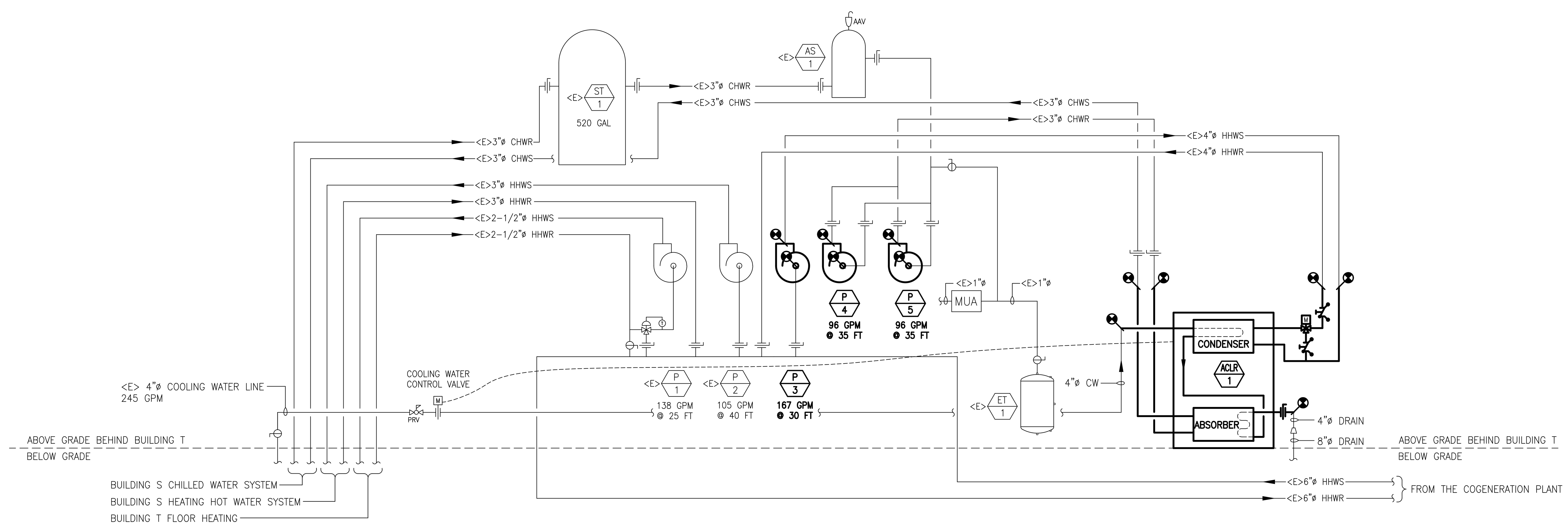


2 CHILLER PIPING SCHEMATIC - DEMO

SCALE: N.T.S.



1 CHILLER PIPING SCHEMATIC - NEW

SCALE: N.T.S.

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REGISTERED PROFESSIONAL ENGINEER CARL A. GRIZER No. M35859 MECHANICAL STATE OF CALIFORNIA

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REVIEW	PLNNG./DEVL.
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SCALE: AS NOTED | DATE: 12/09/2025

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WWTP HVAC REPLACEMENTS - BUILDING T

MECHANICAL
PIPING SCHEMATIC

CIP NO. 22-P010

M6.1f

SOBE #2304150.6

POINTS LIST

NEW DDC POINTS

POINT NAME	POINT TYPE	CONTROL DEVICE	CONTROL DESCRIPTION	CONTROL DEVICE LOCATION	COMMENTS
CHILLER					
ACLR1	DO	RELAY	ACLR-1 START / STOP	ACLR-1	1
ACLR1AL	DI	RELAY	ACLR-1 ALARM CONTACTS	ACLR-1	1
ACLR1RT	VIRT	VIRTUAL POINT	ACLR-1 RUN TIME	ACLR-1	3
ACLR1A	AI	CT	ACLR-1 AMPS	ACLR-1	1
ACLR1RS	AO	RELAY	ACLR-1 CHW RESET	ACLR-1	3
ACLR1CHWS	AI	TEMPERATURE SENSOR	ACLR-1 LEAVING CHW TEMP	PIPING NEAR ACLR-1	1
ACLR1CHWR	AI	TEMPERATURE SENSOR	ACLR-1 ENTERING CHW TEMP	PIPING NEAR ACLR-1	1
ACLR1CHWFLW	DI	FLOW SWITCH	ACLR-1 CHW FLOW SWITCH FLOW	PIPING NEAR ACLR-1	1, 2
ACLR1HWS	AI	TEMPERATURE SENSOR	ACLR-1 LEAVING HW TEMP	PIPING NEAR ACLR-1	1
ACLR1HWR	AI	TEMPERATURE SENSOR	ACLR-1 ENTERING HW TEMP	PIPING NEAR ACLR-1	1
ACLR1HWFLW	DI	FLOW SWITCH	ACLR-1 HW FLOW SWITCH FLOW	PIPING NEAR ACLR-1	1, 2
ACLR1CHWPS	DI	CHILLER RELAY	ACLR-1 CALL FOR CHWP	ACLR-1	1
ACLR1HWPS	DI	CHILLER RELAY	ACLR-1 CALL FOR HWP	ACLR-1	1
ACLR1COOL	DI	COOLING WATER RELAY	ACLR-1 CALL FOR COOL	ACLR-1	1
ACLR1CWS	AI	TEMPERATURE SENSOR	ACLR-1 ENTERING COOLING WATER TEMP	PIPING NEAR ACLR-1	1
ACLR1CWR	AI	TEMPERATURE SENSOR	ACLR-1 LEAVING COOLING WATER TEMP	PIPING NEAR ACLR-1	1
CHILLED WATER PUMPS					
PSS4	DO	RELAY	P-4 START / STOP	P-4	1
P4A	AI	CT	P-4 AMPS	P-4	1
PSS5	DO	RELAY	P-5 START / STOP	P-5	1
P5A	AI	CT	P-5 AMPS	P-5	1
HOT WATER PUMP					
PSS3	DO	RELAY	P-3 START / STOP	P-3	1
P3A	AI	CT	P-3 AMPS	P-3	1

COMMENTS
1) HARDWIRED POINT.
2) FLOW SWITCH SHALL BE AMERITROL FX 24 VOLT 1" MNPT. POWER BY CONTROLS.
3) BACNET POINT.

SEQUENCE OF OPERATIONS

CHILLERS:

THE CHILLER SHALL BE STARTED WHEN THE AIR HANDLER CONTROLS VALVE IS OPEN 50% OR MORE.

1. THE CHILLER SHALL HAVE A MINIMUM RUN TIME OF 15 MINUTES (USER ADJUSTABLE).
2. IF A CHILLER FAILS START GENERATE AN ALARM TO ALERT A BUILDING ENGINEER.

   A CHILLER FAULT SHALL BE DEFINED AS:
   - THE CHILLER GENERATE A FAULT.
   - A CHILLER FAILS TO START.
   - LOSS OF FLOW TO THE CHILLER ON THE CONDENSER (HOT WATER), COOLING WATER, OR EVAPORATOR CIRCUITS.
3. THE CHILLED WATER TEMPERATURE SHALL BE RESET BASED ON AIR HANDLER CONTROL VALVES. IF ALL OF THE CONTROL VALVES (EXCEPT FOR THOSE SERVING THE VHO) ARE OPEN LESS THEN 10% THE CHILLED WATER SUPPLY TEMPERATURE (CWST) SHALL BE AT IT'S HIGHEST 55 DEGREES (USER ADJUSTABLE). WHEN ANY CONTROL VALVE IS OPEN 90% OR MORE, THE CHWST SET POINT SHALL BET ITS LOWEST VALVE OF 45 DEGREES (USER ADJUSTABLE). THE VHO ROOM TEMPERATURE (COLD AISLE TEMPERATURE) SHALL ALSO BE USED TO LIMIT THE MAXIMUM CHILLED WATER SUPPLY TEMPERATURE, SO THAT VHO ROOM TEMPERATURE NEVER EXCEEDS 78 F (USER ADJUSTABLE).

PRIMARY CHILLED WATER PUMPS:

1. THIS CHILLER IS REQUIRED TO CONTROL THE CHILLED WATER PUMP. THE CONTROLS SYSTEM WILL ONLY BE USED TO PASS THE SIGNAL TO THE PUMP & ALTERNATE THE PUMPS.
2. THE CHILLER HAS TWO CHILLED WATER PUMPS. ONE PUMP SHALL BE STARTED WHENEVER THE CHILLER IS ENABLED.
3. IF THE LEAD PUMP FAILS, THE LAG PUMP SHALL BE STARTED.
4. THE LEAD PRIMARY PUMP SHALL BE ALTERNATED WITH EVERY CHILLER START.

COOLING WATER VALVE:

1. THIS CHILLER IS REQUIRED TO CONTROL THE COOLING WATER VALVE. THE CONTROLS SYSTEM WILL ONLY BE USED TO PASS THE SIGNAL TO THE COOLING WATER VALVE.

HOT WATER PUMPS:

1. THE CHILLER HAS ONE HOT WATER PUMP. THIS PUMP SHALL BE STARTED WHENEVER THE CHILLER IS ENABLED.
2. THE HOT WATER PUMP SHALL CONTINUE TO OPERATE FOR A MINIMUM OF TEN (10) MINUTES AFTER THE CHILLER IT SERVES IS SHUT OFF.
3. THE CHILLER HAS A HOT WATER BYPASS VALVE. THIS VALVE SHALL BE CONTROLLED DIRECTLY BY THE CHILLER.

SUMMARY OF CONTROLS WORK

GENERAL:

INSTALL NEW CONTROLS PER THE POINTS LIST, SEQUENCE OF OPERATION, & "CONTROL" SHEET NOTES ON THE MECHANICAL DRAWINGS.

ALL CONTROLS WORK SHALL BE BY SIEMENS. CONTACT DAVID SCARBOROUGH AT (510) 589-0071.

COORDINATE WITH BALANCE CONTRACTOR. PROVIDE CONTROLS ACCESS AS REQUIRED ALLOWING THE BALANCERS TO COMPLETE THEIR WORK.

DISCONNECT & REMOVE ALL CONTROLS ASSOCIATED WITH CHILLER ACLR-1 TO BE REMOVED.

PROVIDE & INSTALL ALL NEW CONTROLS FOR THE NEW CHILLER ACLR-1.

PROVIDE COMPLETE RECORD CONTROL DRAWINGS.

PROVIDE COMPLETE COMMISSIONING TESTING WITH BUILDING SPECIALIST & ENGINEER. COMMISSIONING CHECKLIST WILL BE PROVIDED DURING TESTING.

EACH NEW OR AFFECTED POINT WILL BE TESTED TO PERFORM AS INTENDED PER THE SEQUENCE OF OPERATION.

PROVIDE 4 HOURS TRAINING TO BUILDING SPECIALIST.

UPDATE GRAPHICS TO REFLECT NEW WORK.

UPON PROJECT COMPLETION PROVIDE ATT A CD CONTAINING A BACK-UP COPY OF THE ENTIRE BUILDINGS PROGRAMMING.

CONTROLLERS:

ALL NEW CONTROLLERS SHALL HAVE THE OPTIONAL MANUAL OVERRIDE CAPABILITY.

ALL NEW CONTROLLERS SHALL HAVE BUILT IN BATTERIES OR NON-VOLATILE MEMORY.

DISCONNECT & RECONNECT THE POWER TO ALL CONTROLLERS REPLACED AS PART OF THIS PROJECT. UNLESS OTHERWISE NOTED, USE THE SAME POWER SOURCE. HIRE AN ELECTRICAL CONTRACTOR AS REQUIRED. THE DDC CONTROLS CONTRACTOR IS RESPONSIBLE FOR POWERING ALL WORK INSTALLED ON THIS PROJECT.

PROVIDE A ONE (1) YEAR PARTS & LABOR WARRANTY ON ALL DDC CONTROLLERS.

ALL CONTROLLERS SHALL BE SERVED BY A UPS. IF A UPS CIRCUIT IS NOT AVAILABLE A SMALL STAND ALONE UPS SHALL BE PROVIDED TO SERVE THE CONTROLLER.

THE UPS SHALL PROVIDE AN ALARM THE BMS INDICATING THAT THE BATTERY HAS FAILED.

ALL POWER WIRING SHALL BE RUN IN A DEDICATED CONDUIT SEPARATE FROM CONTROLS WIRING.

PROVIDE NEW WHITE ON BLACK ENGRAVED NAME PLATES ON EACH CABINET WITH 1" HIGH LETTERING. LABELS SHALL INCLUDE ENCLOSURE NUMBER, ELECTRICAL PANEL, & CIRCUIT NUMBER OF 120 VAC & 48 VDC CIRCUITS.

WIRING & CONDUIT:

ALL SYSTEM COMPONENTS MOUNTED OUTSIDE OF THE BUILDING SHALL BE IN NEMA 4 OUTDOOR RATED ENCLOSURES.

ALL CONTROLS WIRING SHALL BE IN CONDUIT. ¾" EMT WITH STEEL COMPRESSION FITTINGS MINIMUM. THE CONDUIT SHALL BE ORANGE STRIPED WITH TAPE EVERY 10FEET & ALL J-BOX COVERS SHALL BE PAINTED ORANGE.

LABEL EACH POINT (ON THE CONTROLLER) & EACH WIRE (AT THE CONTROLLER) FOR EACH POINT WITH THE POINT ID. USE A NAMING CONVENTION WHICH IS DESCRIPTIVE OF THE BUILDING, FLOOR, & POINT. A LEGIBLE LIST SHALL BE LEFT WITHIN THE ENCLOSURE SHOWING FROM WHICH FIELD DEVICE EACH CABLE IS PULLED.

ALL POWER WIRING FROM THE UPS SHALL BE #12 AWG THHN STRANDED WIRE. THE GROUND SHALL BE A #10 AWG THHN.

ALL NEW BMS INPUT CABLING SHALL BE #22 AWG STRANDED, LOW CAPACITANCE TWO CONDUCTORS (OR NUMBER OF CONDUCTORS REQUIRED BY THE BMS VENDOR) AT A MAXIMUM LENGTH OF 183M / 600FT. THE INPUT CABLING SHALL HAVE A SHIELD & HAVE AN ORANGE JACKET (PLENUM RATED WHERE REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ). NO SUBSTITUTIONS SHALL BE MADE FOR THIS CABLE.

All OUTPUT CABLING SHALL BE THE SAME AS INPUT CABLING EXCEPT IT SHALL BE #18 AWG WITHOUT A SHIELD.

YPICAL INPUT / OUTPUT CABLES ARE RATED FOR 300 VOLTS. IT IS A VIOLATION OF THE NEC TO PULL CABLES INTO ANY MOTOR CONTROL OR PANEL BOARD WITH VOLTAGE EXCEEDING 300 VOLTS. UNDER THIS CONDITION CONDUCTORS SHALL BE EXTENDED BY USING 600 VOLT RATED INSULATION SUCH AS THHN OR THERMOPLASTIC FLEXIBLE FIXTURE-WIRE NYLON-JACKETED (TFFN).

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REGISTERED PROFESSIONAL ENGINEER
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No. M35859
MECHANICAL
STATE OF CALIFORNIA

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DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –
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WWTP HVAC REPLACEMENTS - BUILDING T

MECHANICAL CONTROLS

CIP NO. 22-P010

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SOBE #2304150.6

ABBREVIATIONS

&	AND
@	AT
AFF	ABOVE FINISHED FLOOR
A OR AMP	AMPERES
AIC	AMPERE INTERRUPTING CAPACITY
AL, ALUM	ALUMINUM
APPROX	APPROXIMATE
AUX	AUXILIARY
AWG	AMERICAN WIRE GAGE
BAS	BUILDING AUTOMATION SYSTEM
BC	BARE COPPER
BDF	BUILDING DISTRIBUTION FRAME
BKR	BREAKER
BLDG	BUILDING
BLTS	BUILDING LIGHTS
C	CONDUIT
CAM	CAMERA
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CLR	CLEARANCE
CLTS	CANOPY LIGHTS
CMS	COMBINATION MOTOR STARTER
C.O.	CONDUIT ONLY W/PULLROPE
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CTRL	CONTROL
D	DEDICATED
DP	DISTRIBUTION PANEL
DN	DOWN
EA	EACH
EF	EXHAUST FAN
EHH	ELECTRIC HANDHOLE
ELEC	ELECTRICAL
EM	EMERGENCY; ON EMERGENCY POWER SUPPLY/PANEL
EMH	ELECTRIC MANHOLE
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
<E>	EXISTING
<ERR>	EXISTING TO REMAIN AND RECONNECTED
EST	ESTIMATED
EV	ELECTRIC VEHICLE
EX	EXAMPLE
<F>	FUTURE
FA	FORCE AIR
FDR	FEEDER
FIC	FUEL ISLAND CONTROL
FLA	FULL LOAD AMPS
FLC	FULL LOAD CURRENT
FT, '	FEET
GFI	GROUND FAULT CIRCUIT-INTERRUPTER
GND	GROUND
GS	GROUND SENSOR CURRENT TRANSFORMER
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HT	HEIGHT
HV	HIGH VOLTAGE
HZ	HERTZ
", IN	INCHES
INS	INSULATION
IRR	IRRIGATION
ITSS	INFORMATION TECHNOLOGY SUPPORT SERVICE
JB, J	JUNCTION BOX
Kcmil	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KW	KILOWATT
L	LENGTH
LCM	LOCAL CONTROL MODULE
LF	LINEAR FEET
LPB	LIGHTING PULLBOX
LTG	LIGHTING
LTS	PERIMETER LIGHTS
LV	LOW VOLTAGE
MAX	MAXIMUM
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FRAME
MEZZ	MEZZANINE
MFG	MANUFACTURERS
MIN	MINIMUM
MSB	MAIN SWITCHBOARD
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
<N>	**NEW (BOLD)**
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION
NIC	NOT IN CONTRACT
NO	NUMBER
N.T.S.	NOT TO SCALE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OC	ON CENTER
OHE	OVERHEAD ELECTRIC
P	POWER
P#	LIGHT POLE NUMBER
PB	PULLBOX
PPB	POWER PULLBOX
PF	POWER FACTOR
PH OR ø	PHASE
PLTS	PARKING LOT LIGHTS
PNL	PANEL
PNLA	PANEL 'A' FEEDER
PPMH	PRIMARY POWER MANHOLE/ PULLBOX OR VAULT
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PV	PHOTOVOLTAIC
PWR	POWER
<R>	REMOVE
<RRN>	REMOVE & REPLACE W/ <N>
REC	RECEPTACLE
REF	REFERENCE
R/S	REMOVE AND SALVAGE OFF SITE
RM	ROOM
RMC	RIGID METALLIC CONDUIT
RSC	RIGID STEEL CONDUIT
RGS	RIGID GALVANIZED STEEL
S	SIGNAL
SA	SURGE ARRESTER
S.A.D.	SEE ARCHITECTURAL DRAWINGS
SCE	SOUTHERN CALIFORNIA EDISON
S.E.D.	SEE ELECTRICAL DRAWINGS
S.F.D.	SEE FIRE ALARM DRAWINGS
SEC	SECONDARY
SF	SQUARE FEET
SH, SHT	SHEET
SLTS	SITE LIGHTS
SPEC	SPECIFICATIONS
SPB	SIGNAL PULLBOX
SQ	SQUARE
S.S.D.	SEE STRUCTURAL DRAWINGS
STD	STANDARD
SVC	ELECTRIC SERVICE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR OR SWG	SWITCHGEAR
SSW	MV SELECTOR SWITCH
TEL	TELEPHONE
TR	TO REMAIN
TYP	TYPICAL
TX, XFMR	TRANSFORMER
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
WP	WEATHERPROOF

SYMBOLS

FUSE

TRANSFORMER

GROUND CONNECTION

DRAWOUT OR PLUG-IN CONNECTION

CIRCUIT BREAKER

LSIG — MOLDED CASE BREAKER W/ SOLID STATE TRIP UNIT (LONG, SHORT, INSTANTANEOUS, GROUND)

LOAD INTERRUPTER SWITCH/FUSE (CURRENT LIMITING FUSE)

M — PG&E METER W/ CT'S

M — CUSTOMER OWNED METER W/ CT'S

CURRENT TRANSFORMER, RATIO & QTY AS SHOWN

DISCONNECT SWITCH

CONDUIT OR CABLE AS NOTED

UNDERGROUND ELECTRICAL (OR OTHER UTILITY)

E — <E> ELECTRICAL

21KV — UNDERGROUND 21KV CONDUIT

T — UNDERGROUND TELECOM CONDUIT

LV — CONTROLS OR LOW VOLTAGE CONDUIT

OHE — OVERHEAD ELECTRICAL CABLE – MEDIUM VOLTAGE

BRANCH CIRCUIT HOME RUN TO PANEL. CONCEALED IN CEILING SPACE OR WHERE POSSIBLE.

SURFACE RACEWAY.

— REFERENCE SHEET NOTE.

1 / EST — DETAIL TAG. REFER TO DETAIL 1 ON SHEET E5.1.

TO BE DEMOLISHED

TRANSFORMER

PM — POWER MONITORING SYSTEM WITH CONNECTION

FUSED DISCONNECT, HEAVY DUTY

DISCONNECT, HEAVY DUTY

COMBINATION MOTOR STARTER/DISCONNECT WITH HOA & INDICATOR LIGHTS

M — MOTOR

FLEX CONNECTION

CONTACT/STARTER

G — GROUNDING WELL, CHRISTY G5T WITH METALLIC INSPECTION COVER, UON (WITH ROD ELECTRODE: 3/4"x10' COPPER CLAD STEEL UON)

J, J, J — JUNCTION BOX – CEILING/FLOOR/ROOF/WALL MOUNTED

PC — PHOTOCELL

T — THERMOSTAT

CONDUIT OPENING

EMPTY CONDUIT

FC / 1 — EQUIPMENT TAG

POINT OF CONNECTION <N> TO <E>

POINT OF DEMOLITION TO <E>

VFD — VARIABLE FREQUENCY DRIVE, FURNISH BY MECHANICAL CONTRACTOR INSTALLED & CONNECTED BY ELECTRICAL CONTRACTOR

K — KIRK KEY INTERLOCK

E — ELECTRICALLY INTERCONNECTION LOCK

GROUNDING ROD ELECTRODE (3/4" x 10' COPPER CLAD UON)

NEW TRENCH

INSTANTANEOUS/ OVERCURRENT/ TIME OVER CURRENT RELAY(S) AND CURRENT TRANSFORMERS

COPPER GROUND BAR

52 — MEDIUM VOLTAGE DRAWOUT CIRCUIT BREAKER

ELECTRICAL POLE

DATA OUTLET – (2)RJ-45 DATA PORTS, UON.

(#) — VOICE OUTLET – "#" DENOTES QUANTITY OF RJ-45 PORTS

TV — TV OUTLET – (1)COAX CABLE CONNECTION

(1) RJ-45 DATA OUTLET
(1) RJ-11 VOICE OUTLET W/ FACE PLATE

(1) RJ-45 DATA OUTLET
(1) RJ-11 VOICE OUTLET W/ FACE PLATE } FLOOR MOUNTED

WIRELESS ACCESS POINT (CEILING MOUNTED)

WIRELESS ACCESS POINT (WALL MOUNTED)

ELECTRICAL PANEL BOARD

PBX — PULLBOX

WP / R — RMS & STROBE

CR — CARD READER LOCATION INTERGRAL W/ LOCKSET (ACCESS CONTROL). PROVIDE CONDUIT, WIRING, AND ALL EQUIPMENT NECESSARY.

MG — MOTORIZED GATE OPERATOR

H — SECURITY SOUNDER (INTRUSION DETECTION). PROVIDE CONDUIT PATH AND JUNCTION BOX.

K — KEYPAD (INTRUSION DETECTION). PROVIDE CONDUIT PATH AND JUNCTION BOX.

I — INTERCOM (ACCESS CONTROL). PROVIDE CONDUIT, WIRING, AND ALL EQUIPMENT NECESSARY.

S — SLIDING GATE SENSOR

OS — OCCUPANCY SENSOR

CAMERA LOCATION (SURVEILLANCE SYSTEM). PROVIDE CONDUIT, WIRING, AND ALL EQUIPMENT NECESSARY.

$ — HALF-SWITCHED CONTROLLED RECEPTACLE. SWITCH PLATE TO BE PROVIDED WITH GFI COMBINATION

GFI — WALL-MOUNTED RECEPTACLE, ABOVE COUNTER, TYP, +44" A.F.F.

GFI — GFI RECEPTACLE

D — DEDICATED RECEPTACLE

WP GFI — DUPLEX GFI, WEATHER RESISTANT RECEPTACLE WITH WHILE-IN-USE WEATHERPROOF METALLIC COVER, 20A, 125V, 3WG, NEMA 5-20R

C — CONTROLLED RECEPTACLE, REFER TO WIRING DIAGRAM

USB — DUPLEX RECEPTACLE WITH BUILT-IN USB PORT

FLOOR, CEILING, WALL-MOUNTED DUPLEX RECEPTACLE 20A, 125V, 3WG, NEMA 5-20R, +18" A.F.F.

FLOOR, CEILING, WALL-MOUNTED DOUBLE DUPLEX RECEPTACLE 20A, 125V, 3WG, (2) NEMA 5-20R, +18" A.F.F.

$ — SINGLE POLE SWITCH, +44" AFF., DIMMER UON.

$ a — SWITCH – LOWER CASE LETTER INDICATES CIRCUIT SWITCHING

$ T — SWITCH – TIMER OPERATED

$ HP — SWITCH – HORSE POWER RATED

SPK — SPEAKER AND MICROPHONE AUDIO MONITORING SYSTEM. PROVIDE CONDUIT, WIRING, AND ALL EQUIPMENT NECESSARY.

3G — FUNCTION BOX THREE GANG – WALL MOUNTED

APPLICABLE CODES

UNLESS OTHERWISE INDICATED OR SPECIFIED, PERFORM THE WORK IN CONFORMANCE WITH THE LATEST EDITIONS OF ALL APPLICABLE REGULATORY REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24): 2022
2. CALIFORNIA BUILDING CODE (PART 2, TITLE 24): 2021 IBC WITH 2022 CA AMENDMENTS
3. CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24): 2020 NEC WITH 2022 CA AMENDMENTS
4. CALIFORNIA MECHANICAL CODE (PART 4, TITLE 24): 2021 UMC WITH 2022 CA AMENDMENTS
5. CALIFORNIA PLUMBING CODE (PART 5, TITLE 24) 2021 UPC WITH 2022 CA AMENDMENTS
6. CALIFORNIA ENERGY CODE (PART 6, TITLE 24): 2022
7. CALIFORNIA HISTORICAL BUILDING CODE, (PART 8, TITLE 24): 2022
8. CALIFORNIA FIRE CODE (PART 9, TITLE 24): 2021 IFC WITH 2022 CA AMENDMENTS
9. CALIFORNIA EXISTING BUILDING CODE (PART 10, TITLE 24): 2022 (2021 INTERNATIONAL EXISTING BUILDING CODE WITH 2022 CA AMENDMENTS)
10. CALIFORNIA GREEN BUILDING STANDARDS CODE OR CAL GREEN (PART 11, TITLE 24): 2022
11. CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24): 2022
12. PUBLIC SAFETY (CCR TITLE 19), STATE FIRE MARSHAL: CURRENT REVISION
13. NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE, 2022 EDITION

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY JG; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING T

ELECTRICAL
SYMBOLS & ABBREVIATIONS

CIP NO. 22-P010

E0.1f
58 66

SALASO'BRIEN
| expect a difference |
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com

REGISTERED PROFESSIONAL ENGINEER — HUGH L. KING — No. E20530 — ELECTRICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT				

RECOM'D

DEMOLITION NOTES

1. REMOVE EXISTING EQUIPMENT IN CONFLICT WITH NEW CONDITIONS. REMOVE ALL WIRE NOT IN SERVICE AND FROM ABANDONED RACEWAYS. PROTECT EXISTING CIRCUITING PASSING THROUGH DEMOLITION AREAS. EXTEND AND/OR RELOCATE AS NECESSARY.

2. ALL ABANDONED EQUIPMENT INCLUDING LIGHT, RECEPTACLES, DATA, FIRE ALARM, ETC., SHALL BE COVERED WITH BLANK METAL PLATES AND PAINTED TO MATCH THE ADJACENT FINISH OF SURROUNDING WALLS OR CEILING TO THE SATISFACTION OF THE ARCHITECT/OWNER.

3. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO DISCONNECT AND REMOVE ALL EXISTING ELECTRICAL EQUIPMENT AFFECTED BY THE PROJECT. THIS INCLUDES REROUTING OR THE EXTENSION OF EXISTING CONDUIT AND FEEDER WHERE NECESSARY TO MAINTAIN OPERATIONAL OF ANY EXISTING EQUIPMENT.

4. CIRCUIT NUMBERS AND CONDUIT HOMERUNS SHOWN ON THESE DRAWINGS WERE TAKEN FROM EXISTING RECORD DRAWINGS. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO VERIFY EXISTING CIRCUITING AND CONDUIT HOMERUNS. ADJUST CIRCUIT NUMBERS ACCORDING TO THE ACTUAL CONDITIONS.

5. WHERE EXISTING CONDUIT IS TO BE ABANDONED OR DEMOLISHED, THE CONDUIT SHALL BE REMOVED IF IT IS EXPOSED, IN A CRAWL SPACE OR IN AN ACCESSIBLE CEILING. ABANDONED OR DEMOLISHED CONDUIT FEEDS UP THROUGH THE FLOOR SHALL BE CUT OFF AND PLUGGED FLUSH WITH THE FLOOR.

6. ALL ELECTRICAL EQUIPMENT INCLUDING LIGHT, RECEPTACLE, DATA, FIRE ALARM, ETC., THAT ARE TO BE REMOVED, SHALL BE REMOVED COMPLETELY, INCLUDING CONDUIT AND WIRING BACK TO THE LAST DEVICE REMAINING IN SERVICE, OR SOURCE.

7. EXISTING CIRCUITS WHICH ARE REMOVED AND NOT REUSED SHALL BE IDENTIFIED ON THE PANEL SCHEDULE AS "SPARE".

8. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO REMOVAL OF EXISTING ELECTRICAL EQUIPMENT AND TURN OVER REMOVED EQUIPMENT THAT THE OWNER REQUESTS IN AN "AS-FOUND" CONDITION.

9. ALL DEMOLITION WORK SHOWN, IF ANY, WAS PREPARED FOR THE CONVENIENCE OF THE CONTRACTOR. NO REPRESENTATION HAS BEEN MADE THAT ALL ITEMS THAT MAY REQUIRE DEMOLITION HAVE BEEN SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CAREFULLY EXAMINE THE SITE AND THE CONTRACT DOCUMENTS AND TO PERFORM ALL DEMOLITION AND RECONSTRUCTION WHICH MAY BE REQUIRED FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK.

10. WHEN CALLED FOR, OR SCOPE OF WORK REQUIRES ELECTRICAL EQUIPMENT TO BE REMOVED, ALL CONDUIT, WIRE, BOXES, HANGERS, ETC. SHALL BE REMOVED COMPLETELY. ALL OPENINGS SHALL BE PATCHED, SEALED AND PAINTED TO MATCH THE ADJACENT FINISH.

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS, ADDENDA, DRAWINGS, AND SPECIFICATIONS. PRIOR TO SUBMITTING PROPOSAL, CONTRACTOR SHALL EXAMINE ARCHITECTURAL, STRUCTURAL AND MECHANICAL CONSTRUCTION DRAWINGS AND SPECIFICATIONS AND SHALL HAVE VISITED THE CONSTRUCTION SITE. HE/SHE SHALL BE FAMILIAR WITH THE EXISTING CONDITIONS UNDER WHICH HE/SHE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION IN BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS/HER PART. DETERMINE THE SEQUENCE OF CONSTRUCTION THROUGHOUT THE PROJECT, INCLUDING TEMPORARY FACILITIES AND CONNECTIONS REQUIRED FOR THE DURATION OF THE PROJECT.

2. ALL TEMPORARY CONNECTIONS SHALL BE CONSIDERED PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY, PERSONAL, AND PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT, AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.

4. THE CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ALL ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.

5. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL, AT THE CONCLUSION OF THE PROJECT, PROVIDE A SET OF REPRODUCIBLE (AUTOCAD), ACCURATE AND NEAT "AS-BUILT" DRAWINGS ACCEPTABLE TO THE ARCHITECT.

6. THESE DRAWINGS DO NOT REPRESENT THE EXACT LOCATIONS, SIZES OR EXTENT OF UTILITIES ON SITE. CONTRACTOR SHALL TAKE STANDARD PRECAUTIONS FOR WORK IN EXISTING FACILITIES.

7. EXISTING ELECTRICAL WIRING WHICH WILL NOT BE MADE OBSOLETE AND WHICH WILL BE DISTURBED DUE TO CONSTRUCTION CHANGES REQUIRED BY THIS CONTRACT SHALL BE RESTORED TO OPERATING CONDITION, AS REQUIRED AND/OR DIRECTED. WHERE REQUIRED, SHOWN AND/OR DIRECTED, OUTLETS AND CONDUIT RUNS SHALL BE RELOCATED. IN SOME CASES IT MAY BE NECESSARY TO EXTEND CONDUITS AND PULL IN NEW WIRING OR INSTALL JUNCTION BOXES AND SPLICE IN NEW WIRING OR REPLACE OLD WIRING WITH NEW.

8. CERTAIN REMODELING OF ELECTRICAL FACILITIES WILL BE REQUIRED IN THE EXISTING BUILDING. EXISTING CONDUIT RUNS ARE GENERALLY NOT SHOWN, ALTHOUGH A FULL ATTEMPT HAS BEEN MADE TO SHOW SOME EXISTING CONDITIONS, OF WHICH INFORMATION HAS BEEN TAKEN FROM EXISTING RECORD DRAWINGS AND/OR LIMITED FIELD INVESTIGATIONS. THE DRAWINGS SHOWING LOCATION OF EXISTING EQUIPMENT, OUTLETS, FIXTURES, ETC., ARE APPROXIMATE ONLY (CONTRACTOR TO FIELD VERIFY).

9. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY AND SHALL BE INSTALLED AS PER LISTING OR LABELING (IE. MAXIMUM FUSE SIZE MEANS FUSE PROTECTION IS REQUIRED).

10. ALL ELECTRICAL EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
    a. AMERICAN STANDARD ASSOCIATION (ASA)
    b. AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)
    c. AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
    d. CALIFORNIA CODE OF REGULATIONS TITLE 24 (CCR)
    e. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
    f. INSULATED POWER CABLE ENGINEERS ASSOCIATIONS (IPCEA)
    g. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONS (NEMA)
    h. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
    i. ALL LOCAL CODE HAVING JURISDICTION

11. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, INSPECTIONS AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK, INCLUDING ALL CHARGES BY STATE, COUNTY AND LOCAL GOVERNMENTAL AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR THE ELECTRICAL UTILITY SYSTEM SHUT-DOWNS AND START-UP. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION REQUIRED WITH OTHER AGENCIES AND UTILITY COMPANIES.

12. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CROSSINGS ON NEW UTILITIES WITH THAT OF EXISTING ON SITE AND IN ADJACENT PROPERTIES. NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS OR DISCREPANCIES FROM THIS PLAN.

13. CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH OTHER TRADE ON SITE. ANY COST TO PERFORM WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE DRAWINGS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATIONS. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT/ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

14. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT. PROVIDE POWER AND CONNECTION TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON ELECTRICAL DRAWINGS AND DRAWINGS OF OTHER TRADES. CONTRACTOR SHALL REVIEW DRAWINGS OF OTHER TRADES FOR CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT. DISCONNECT SWITCHES, STARTERS, AND CONDUITS FOR CONTROL WIRING FOR MECHANICAL AND PLUMBING EQUIPMENT SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUITS TO THIS EQUIPMENT.

15. BEFORE ROUGH-IN, VERIFY ALL MOUNTING HEIGHTS AND EXACT LOCATIONS FOR ALL EQUIPMENT, ELECTRICAL CONNECTIONS, STUB-UPS, RECEPTACLES, OUTLETS, CONDUIT RUNS, ETC. WITH ARCHITECT AND OWNER. PLACE DEVICES LOCATED ABOVE COUNTERS, SHELVING, ETC. AND IN BATHROOMS SO AS NOT TO CONFLICT WITH EDGES OF WAINSCOTING, COUNTER SPLASH, SHELVING, ETC. ARCHITECTURAL DRAWINGS SHALL GOVERN. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS OF ELECTRICAL DEVICES

16. MOUNTING HEIGHTS OF ALL CONTROL DEVICES TO BE USED BY OCCUPANT OF THE ROOM OR AREA SHALL BE MOUNTED AT THE FOLLOWING HEIGHTS:
    RECEPTACLES OUTLETS : +18" (TO BOTTOM OF OUTLETS)
    TELEPHONE/TV/DATA OUTLETS : +18" (TO BOTTOM OF OUTLETS)
    LIGHT SWITCHES : +44" (TO HIGHEST OPERABLE PART)
    OUTLETS ABOVE COUNTER : +44" (TO HIGHEST OPERABLE PART)
    MOUNTING HEIGHTS OF ALL DEVICES AND EQUIPMENT ARE FROM FINISHED FLOOR TO LOCATION OF DEVICE AS NOTED. EQUIPMENT INSTALLED IN LOCATIONS NOT APPROVED BY THE ARCHITECT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

17. COORDINATE ALL OUTLET BOX INSTALLATION WITH ARCHITECTURAL WALL FINISH SCHEDULES. SPACE BETWEEN FACEPLATE AND DEVICE BOX SHALL NOT EXCEED 1/8".

18. FOR RENOVATION WORK, THE CONTRACTOR SHALL CONCEAL ALL WORK WHERE POSSIBLE. ALL EXPOSED RACEWAY AND BOXES IN OCCUPIED AREAS OR ON EXTERIOR WALLS SHALL BE PAINTED TO MATCH ADJACENT FINISHES.

19. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL EXISTING SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER REPAIR DUE TO THE INSTALLATION OF ELECTRICAL WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC., AS REQUIRED.

20. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS AND CEILINGS. FURNISH AND INSTALL FIRE RATED BACKBOXES AS REQUIRED, MAINTAINING FIRE RATING OF CEILING OR WALLS WHERE RECESSED ELECTRIC EQUIPMENT SUCH AS LIGHT FIXTURES, SWITCHES, RECEPTACLES, PANEL, ETC. ARE INSTALLED IN RATED WALL OR CEILINGS. PENETRATIONS OF FIRE RATED WALLS, CEILINGS, OR FLOORS SHALL COMPLY WITH CBC CHAPTER 7 (714) REQUIREMENTS. CONDUIT PENETRATIONS THAT ARE NOT STUBBED-OUT INSIDE THE WALL SHALL MEET F AND T RATING. ALL FIRE PROOFING METHODS SHALL BE UL APPROVED.

21. ALL EXTERIOR EQUIPMENT SHALL BE NEMA 3R RATED. ALL WALL PENETRATIONS TO EXTERIOR WALLS SHALL BE SEALED WATER TIGHT.

22. PULLING TAPES: ALL RACEWAY WITHOUT CABLE OR WIRE SHALL BE INSTALLED WITH A MINIMUM 1100 LBS. STRENGTH TEST POLYESTER PULLING TAPE. PULLING TAPES SHALL BE DETECTABLE MULE-TAPE WITH SEQUENTIAL FOOTAGE MARKING.

23. RUN NO MORE THAN 3 CURRENT CARRYING CONDUCTORS IN ANY WIREWAY UNLESS DE-RATING IS APPROVED BY ENGINEER OR SHOWN ON DRAWINGS.

24. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER, #10 AWG MINIMUM, RATED FOR 600V, THHN/THWN, 75 DEGREE CELSIUS. ALL CONDUCTORS SHALL BE STRANDED, SOFT DRAWN ANNEALED COPPER WIRE 98% CONDUCTIVITY, BEARING THE UL LABEL. SYSTEM VOLTAGE SHALL BE IDENTIFIED AS TO VOLTAGE AND PHASE CONNECTIONS BY MEANS OF COLOR IMPREGNATED INSULATION OR APPROVED COLORED MARKING TAPE.

25. WHERE MULTI-HOMERUNS ARE INDICATED ON DRAWINGS INDICATING THE SAME CIRCUIT NUMBER, PROVIDE A JUNCTION BOX ABOVE THE ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRES TO THE CIRCUIT BREAKER.

26. REFER TO THE SINGLE LINE DIAGRAM FOR THE CONDUIT AND CONDUCTOR SIZES HOMERUN TO ELECTRICAL PANELS. CONDUIT RUNS MAY NOT BE SHOWN ON DRAWINGS, BUT ARE PART OF THIS CONTRACT.

27. ALL CONDUIT RUNS INCLUDING STRAIGHT FEEDER AND BRANCH CIRCUIT SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

28. FINAL CONNECTIONS TO ALL EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIAL AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.

29. DO NOT COMBINE DIFFERENT SYSTEM VOLTAGES IN SAME CONDUIT (EG., 120/208V VS. 277/480V), UNLESS APPROVED BY ENGINEER OR SHOWN ON DRAWINGS.

30. ELECTRICAL SYSTEMS SHALL BE INSTALLED FOR FINAL INSPECTIONS. PROVIDE NEUTRAL TEST AND PROOF OF TORQUE DURING FINAL INSPECTION FOR ALL UNITS. FINAL TERMINATIONS OF CONDUCTORS TO ELECTRICAL EQUIPMENT AND DEVICES SHALL BE TORQUE WRENCH TIGHTENED TO THE MANUFACTURER'S RECOMMENDED SPECIFICATION, NO EXCEPTION.

31. CIRCUIT BREAKER TERMINALS IN SWITCHBOARDS AND LOAD CENTER SHALL BE UL LISTED AND APPROVED FOR USE WITH COPPER 75 DEGREE CELSIUS CONDUCTORS.

32. SIZES OF BREAKERS, SWITCHES, FUSES AND FEEDERS ARE BASED ON DESIGNED EQUIPMENT SIZES. THESE SIZES SHALL BE ADJUSTED TO SATISFY REQUIREMENTS OF ACTUAL INSTALLED OR SUBSTITUTE EQUIPMENT. UP SIZING OR DOWNSIZING OF FEEDERS SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

33. AS REQUIRED ALL OVERSIZED FEEDERS THAT WERE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP SHALL BE PROVIDED WITH ADAPTER LUGS OR SPLICE BOX. ADAPTER LUGS SHALL BE PROVIDED IF SIZE IS AVAILABLE. OTHERWISE PROVIDE CABLE SPLICES IN THE SPLICE BOX TO REDUCE CABLES TO THE MAXIMUM SIZE THAT THE BREAKER LUGS CAN ACCOMMODATE.

34. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAW-CUTTING, TRENCHING, BACKFILLING, COMPACTION AND PATCHING OF CONCRETE AND ASPHALT AS REQUIRED TO COMPLETE WORK. USE EXTREME CAUTION WHEN TRENCHING NEAR EXISTING UNDERGROUND UTILITY LINES. CONTRACTOR SHALL PROVIDE ALL REQUIRED CUTTING, PATCHING, PAINTING, AND REPAIRS NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT THE START OF WORK.

35. ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST HORIZONTAL FORCE ACTING IN ANY DIRECTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST EDITION OF ASCE7.

36. ALL INTERIOR AND ABOVE GRADE EXTERIOR CONDUIT INSTALLATION SHALL BE RIGID GALVANIZED STEEL, UNLESS EXCEPTED BY NOTE 37 BELOW.

37. ELECTRICAL METALLIC TUBING (EMT) MAY BE USED IN THE FOLLOWING CONDITIONS: INTERIOR APPLICATIONS, SMALLER THAN 2" TRADE SIZE DIAMETER AND INSTALLED EIGHT (8) FEET FROM FINISHED FLOOR OR HIGHER, OR INTERIOR APPLICATIONS, SMALLER THAN 2" TRADE SIZE DIAMETER AND ENTERING A PANEL FROM ABOVE.

38. CONNECTIONS TO VIBRATING EQUIPMENT (MOTOR, TRANSFORMER ENCLOSURE, ETC.) AND SEISMIC SEPARATIONS SHALL BE PROVIDED WITH LIQUID-TIGHT FLEXIBLE STEEL CONDUIT WITH WATERTIGHT CONNECTORS. MAXIMUM LENGTH OF CONDUIT SHALL BE SIX FEET, UNLESS OTHERWISE NOTED.

39. POLYVINYL CHLORIDE (PVC) SCHEDULE 40 MAY BE INSTALLED BENEATH SLAB AND UNDERGROUND INSTALLATION. INSTALL PVC COATED RIGID STEEL CONDUIT FOR TRANSITION FROM UNDERGROUND TO ABOVE GRADE INSTALLATION.

40. CONTRACTOR SHALL PROVIDE TERMINATIONS FOR ALL DATA/VOICE CABLES INDICATED AT OUTLET LOCATIONS INDICATED ON DRAWINGS.

41. CONTRACTOR SHALL PROVIDE AND INSTALL ACCESS PANELS IN NON-ACCESSIBLE CEILINGS WHERE REQUIRED TO ACCESS ELECTRICAL EQUIPMENT IN CEILING SPACE. ACCESS DOORS SHALL HAVE FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED.

42. ALL FIRE LIFE SAFETY EQUIPMENT, SUCH AS FIRE ALARM CONTROL PANEL AND REMOTE POWER SUPPLIES SHALL BE PROVIDED WITH DEDICATED CIRCUITS. IDENTIFY CIRCUIT DESIGNATION AND PROVIDE PERMANENT LABELING, "FIRE ALARM CIRCUIT" ON ELECTRICAL PANEL. PROVIDE LOCKABLE CIRCUIT BREAKER.

43. CONTROL CONDUIT FOR ENERGY/BUILDING MANAGEMENT SYSTEM (E/BMS) SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.

44. ROUTE CONDUIT PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

45. WHEN A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT, CIRCUIT BREAKERS, ETC., ARISES ON THE DRAWINGS OR SPECIFICATIONS, CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL REQUIRED BY THE MOST STRINGENT CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO PROVIDE A COMPLETE AND OPERABLE SYSTEM, OR AS DIRECTED BY ENGINEER.

46. FOR SMALL AC MOTORS NOT HAVING BUILT-IN THERMAL OVERLOAD PROTECTION, PROVIDE MANUAL MOTOR STARTERS WITH OVERLOAD HEATER ELEMENTS SIZED PER MANUFACTURER'S RECOMMENDATION. FOR SMALL AC MOTORS WITH BUILT-IN THERMAL OVERLOAD PROTECTION, PROVIDE A HORSEPOWER RATED TOGGLE DISCONNECT SWITCH.

47. DISCONNECT SAFETY SWITCHES SHALL BE HEAVY DUTY AND BE RATED FOR THE NUMBER OF POLES, VOLTAGE, CURRENT AND HORSEPOWER RATING AS REQUIRED. PROVIDE FUSE PROTECTION BASED ON THE MOTOR NAMEPLATE RATINGS.

48. PROVIDE PERMANENT IDENTIFICATION (NAMEPLATES) FOR ALL ELECTRICAL PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, DISCONNECT SWITCHES, TRANSFORMERS, TERMINAL CABINETS, ETC.

49. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO VERIFY TYPE OF CEILING SYSTEMS AND TO FURNISH APPROVED LIGHTING FIXTURES OF THE TYPE REQUIRED FOR MOUNTING IN SUBJECT CEILING. PROVIDE ALL NECESSARY MOUNTING KIT/HARDWARE TO PROVIDE A COMPLETE WORKING LIGHTING SYSTEM.

50. ALL FINAL ELECTRICAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT SHALL BE MADE BY THE ELECTRICAL CONTRACTOR.

51. ALL SPLICES AND TERMINALS SHALL BE COMPRESSION TYPE, OF SEAMLESS PURE COPPER, TIN PLATED, LONG BARREL, INSPECTION WINDOW, TERMINALS WITH TWO-HOLE PAD (WITH NEMA DRILLING). CLEAN ALL SURFACES AND INSTALL WITH OXIDE INHIBITING COMPOUND BURNDY PENETROX-E OR EQUAL. APPLY COMPOUND BETWEEN BUS BAR AND LUG PAD AND BETWEEN CONDUCTOR AND LUG BARREL. INSTALL COMPRESSION CONNECTORS WITH A FULLY CIRCUMFERENTIAL COMPRESSION DIE BURNDY HYPRESS OR EQUAL.

52. LABEL ALL CONDUIT WHERE IT BEGINS, AND WHERE IT TERMINATES INTO A BOX, PANEL, DEVICE, LOAD, OR DISCONNECT. CONDUIT SHALL BE LABELED EVERY 30 FEET OR LESS. CONDUIT SHALL BE LABELED WHERE IT PENETRATES ANY WALL OR FLOOR. LABEL SHALL BE PERMANENT PRINTED LABELS (DESCRIBING SOURCE, CIRCUIT, AND LOAD) LEGIBLE FROM FLOOR WHERE POSSIBLE (STANDING POSITION).

53. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS, EQUIPMENT OR INSTALLATION METHODS.

54. PROVIDE ARC-FLASH HAZARD WARNING LABELS ON ALL AFFECTED ELECTRICAL EQUIPMENT, INCLUDING SWITCHBOARDS, PANEL BOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS. MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS. LABEL SHALL BE FACTORY PRE-PRINTED OR MACHINE-PRINTED SELF-ADHESIVE VINYL MATERIAL; UV, CHEMICAL, WATER, HEAT AND ABRASION RESISTANT; PRODUCED USING MATERIALS RECOGNIZED BY UL 969. MINIMUM SIZE: 3.5 BY 5 INCHES.

55. UNLESS OTHERWISE NOTED, ARRANGE, PAY FOR, COORDINATE AND PROVIDE ALL PERMITS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.

56. ALL WORK IS <N> UNLESS OTHERWISE NOTED.

57. ELECTRICAL CONDUCTORS SERVING EQUIPMENT SUPPLIED BY POWER CONVERSION EQUIPMENT AS PART OF A VARIABLE FREQUENCY DRIVE (VFD) SYSTEM AND/OR A SERVO DRIVE SYSTEM SHALL HAVE THERMOSET INSULATION TYPE XHHW, OR XHHW-2

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY JG; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER
RECOM'D
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
SCALE: AS NOTED DATE: 12/09/2025

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REGISTERED PROFESSIONAL ENGINEER — HENRY L. "KING" — No. E20539 — ELECTRICAL — STATE OF CALIFORNIA

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
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05/06/24	DESIGN DOCUMENT				

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WWTP HVAC REPLACEMENTS - BUILDING T

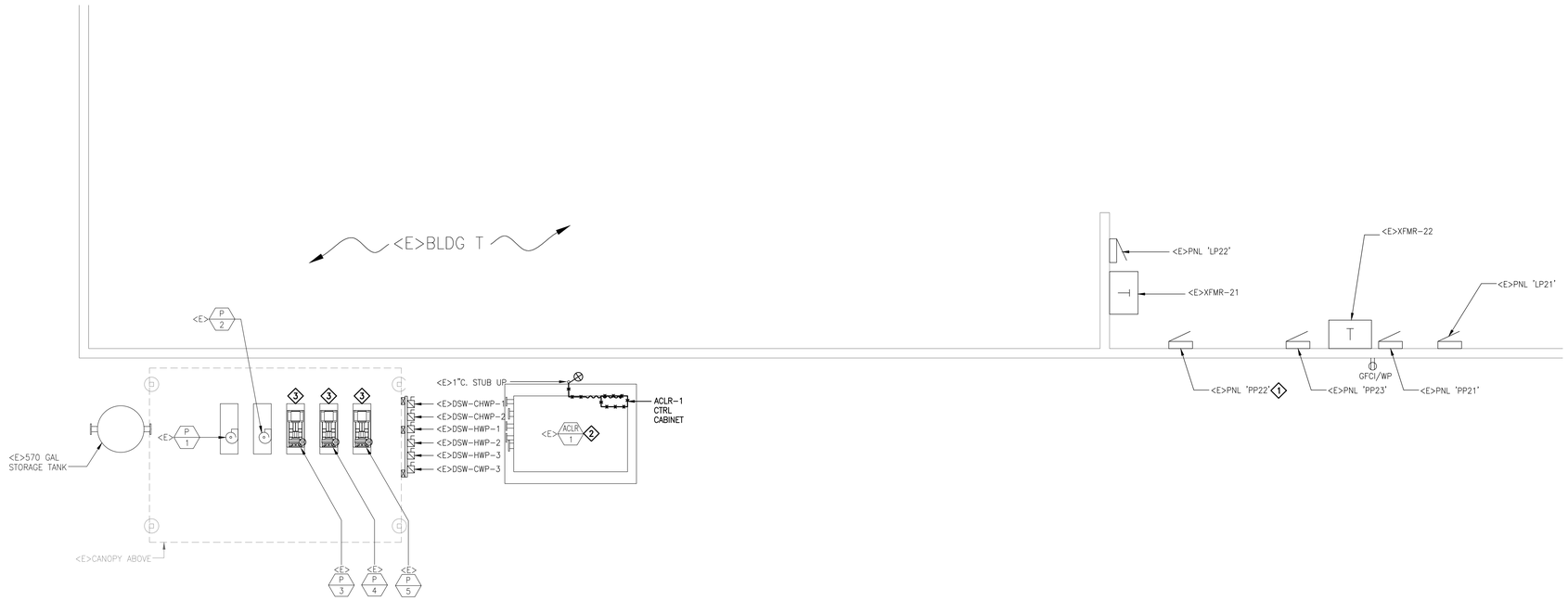
ELECTRICAL
GENERAL NOTES

CIP NO. 22-P010

E0.2f
59 | 66

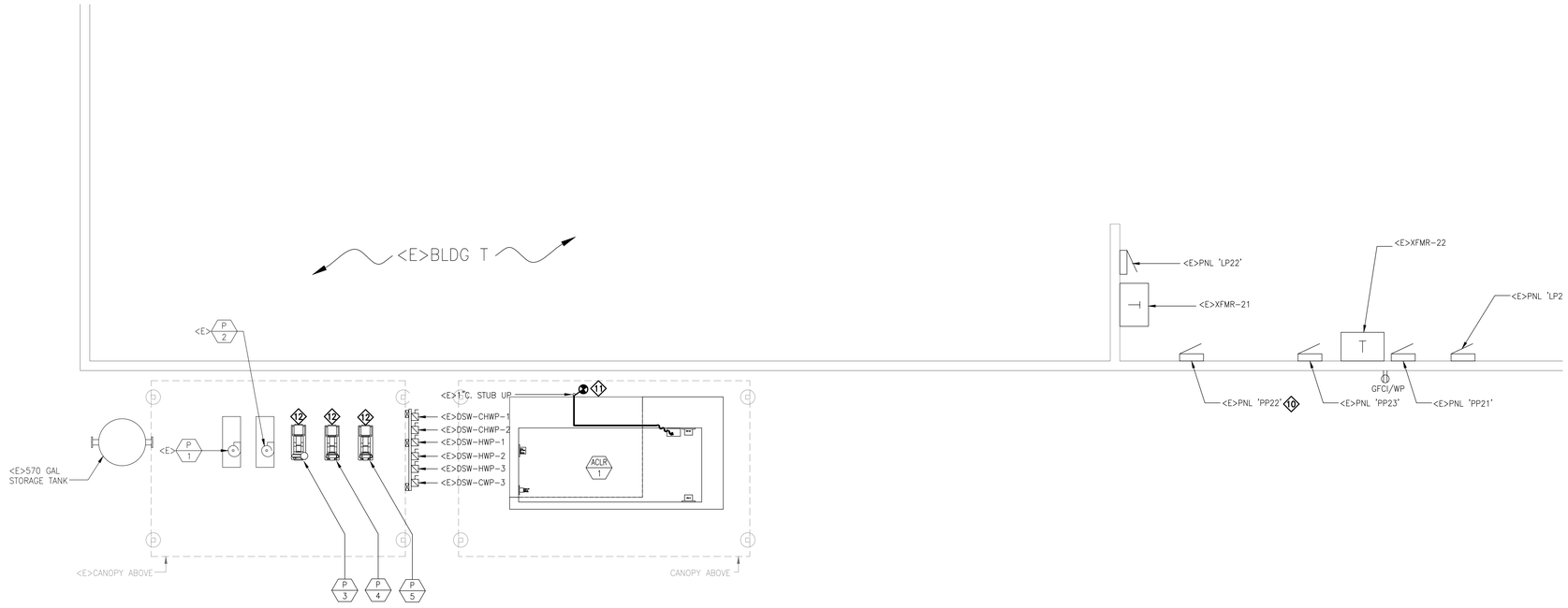
K:\drawings\Dublin San Ramon Services District\2304150 RFP WWTP DERWA HVAC Replacements\2304150.6 Building T\2304150.6E0.2f.dwg 1/8/2026 11:19 AM Minh Ong

SOBE #2304150.6



1 BUILDING T CHILLER PLAN - DEMO

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



2 BUILDING T CHILLER PLAN - NEW

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

GENERAL SHEET NOTES

A. DEVICES SHOWN AS EXISTING SHALL REMAIN CONNECTED UNLESS OTHERWISE NOTED. WIRING DEVICES THAT MAY BE AFFECTED BY DEMOLITION OR REWIRING SHALL BE RECONNECTED.

B. DEVICE LOCATIONS SHOWN ARE DIAGRAMATIC. FIELD VERIFY EXACT LOCATION & COUNT. ADJUST LOCATION +/- 10' AT NO ADDITIONAL COST.

C. WEATHER SEAL ALL BUILDING PENETRATIONS.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ANY SURFACE DISTURBED BY CONSTRUCTION TO THE CONDITION & FINISH OF THE ADJACENT SURFACES.

F. EMT CONDUITS SHALL BE COMPRESSION TYPE FITTINGS. SET SCREW FITTINGS NOT ACCEPTABLE.

G. REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES.

H. HOMERUN 3/4"C. - (2)#10 + #10GND MIN., U.O.N.

REFERENCE SHEET NOTES

DEMO:

1. EXISTING PANEL TO BE MODIFIED. REFER TO PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
2. DISCONNECT EXISTING CHILLER. DEMO CONDUIT FROM CONTROLLER TO STUB UP. FROM STUB UP TO PANELBOARD, CONDUIT TO REMAIN IN PLACE AND TO BE RE-USED. PULL WIRES BACK TO SOURCE.
3. DISCONNECT EXISTING CIRCUIT TO PUMPS. CIRCUIT TO BE PROTECT AND TO BE RE-USED. REFER TO NEW WORK.

NEW:

10. FURNISH AND INSTALL NEW CIRCUIT BREAKER TO POWER NEW CHILLER. CONTRACTOR TO MATCH EXISTING PANEL SCCR RATING. REFER TO PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
11. INTERCEPT AND EXTEND EXISTING CONDUIT TO NEW CHILLER CONTROLLER. CONTRACTOR TO MATCH EXISTING CONDUIT. REFER TO SINGLE LINE DIAGRAM FOR WIRE SIZES.
12. INTERCEPT AND EXTEND EXISTING CIRCUIT TO NEW PUMPS. CONTRACTOR TO MATCH EXISTING CONDUIT AND WIRE SIZES.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY CC; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

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REGISTERED PROFESSIONAL ENGINEER – HUGH L. KING – No. E20539 – ELECTRICAL – STATE OF CALIFORNIA

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WWTP HVAC REPLACEMENTS - BUILDING T

ELECTRICAL
BUILDING T CHILLER PLAN

CIP NO. 22-P010

E1.1f
60 | 66

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SOBE #2304150.6

<E>PANEL 'PP22'

VOLTAGE 277/ 480 V

LOCATION MECHANICAL REPAIR BAY

TYPE NQOD

FED FROM PNL PP21

AIC RATING 10 KAIC

PHASE 3

WIRE 4

	DESCRIPTION	BRKR P	BRKR T	LCL	KVA LOAD A	KVA LOAD B	KVA LOAD C		KVA LOAD A	KVA LOAD B	KVA LOAD C	LCL	BRKR P	BRKR T	DESCRIPTION	
1	-----	-	-	0.0	1.4				1.4			0.0	-	-	-----	2
3	<E>IEC1	3	20	0.0		1.4				1.4		0.0	3	20	<E>IEC2	4
5	-----	-	-	0.0			1.4				1.4	0.0	-	-	-----	6
7	-----	-	-	0.0	0.4				0.9			0.0	-	-	-----	8
9	<E>SF-1	3	15	0.0		0.4				0.9		0.0	3	15	<E>EF-7	10
11	-----	-	-	0.0			0.4				0.9	0.0	-	-	-----	12
13	-----	-	-	0.0	2.9				2.9			0.0	-	-	-----	14
15	<E>HWP-1	3	20	0.0		2.9				2.9		0.0	3	20	<E>HWP-2	16
17	-----	-	-	0.0			2.9				2.9	0.0	-	-	-----	18
19	-----	-	-	0.0	0.9				0.9			0.0	-	-	-----	20
21	<E>CHWP-1	3	15	0.0		0.9				0.9		0.0	3	20	<E>CHWP-2	22
23	-----	-	-	0.0			0.9				0.9	0.0	-	-	-----	24
25	-----	-	-	0.0	2.0				**1.8**			**0.0**	-	-	-----	26
27	<E>HWP-3	3	20	0.0		2.0				**1.8**		**0.0**	**3**	**20**	**ACLR-1**	28
29	-----	-	-	0.0			2.0				**1.8**	**0.0**	-	-	-----	30
31	-----	-	-	0.0	2.0				2.0			0.0	-	-	-----	32
33	<E>AHU-2	3	15	0.0		2.0				2.0		0.0	3	20	<E>CMP-3	34
35	-----	-	-	0.0			2.0				2.0	0.0	-	-	-----	36
37	-----	-	-	0.0	0.9				0.7			0.0	-	-	-----	38
39	<E>EF-6	3	15	0.0		0.9				0.7		0.0	3	15	<E>EF-8	40
41	-----	-	-	0.0			0.9				0.7	0.0	-	-	-----	42
	SUBTOTAL			0.0	11	11	11		11	11	11	0.0			SUBTOTAL	

MCB OR MLO	MCB	TOTAL LOAD PHASE A	21 KVA
MAIN CIRCUIT BREAKER RATING	100 AMPS	TOTAL LOAD PHASE B	21 KVA
BUS RATING	100 AMPS	TOTAL LOAD PHASE C	21 KVA
MOUNTING	SURFACE	TOTAL LCL (NEC/CEC 215.2.A.1)	0 KVA
ENCLOSURE	NEMA 1	TOTAL PANEL LOAD (KVA)	63 KVA
		TOTAL PANEL LOAD (AMPS)	76 AMPS

V.23

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DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY JG; PROJ. MGR. –

RECOM'D: DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

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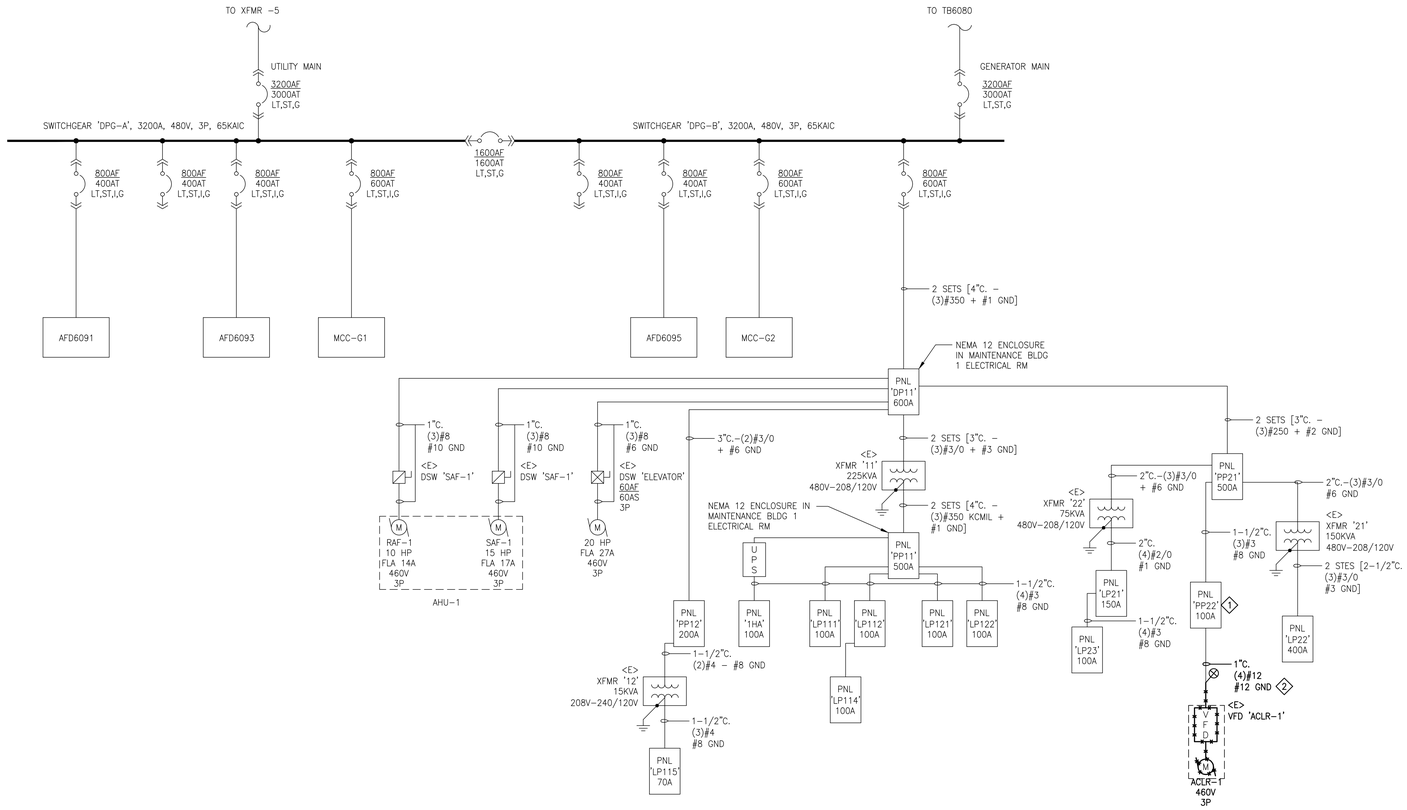
WWTP HVAC REPLACEMENTS - BUILDING T

ELECTRICAL
PANEL SCHEDULES

CIP NO. 22-P010

E6.1f
61 | 66



1 SINGLE LINE DIAGRAM - DEMO

SCHEMATIC

REFERENCE SHEET NOTES

1. EXISTING PANEL TO BE MODIFIED. DISCONNECT AND REPLACE EXISTING 15A BREAKER FEEDING ACLR-1.
2. CONDUIT FROM PANELBOARD UP TO STUB UP AT CHILLER TO REMAIN, DEMOLISH CONDUIT FROM STUB UP TO CHILLER. WIRES TO BE PULLED BACK TO SOURCE.

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RECOM'D

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

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CIP NO. 22-P010

WWTP HVAC REPLACEMENTS - BUILDING T

ELECTRICAL
SINGLE LINE DIAGRAM - DEMO

ED7.1f
62 | 66

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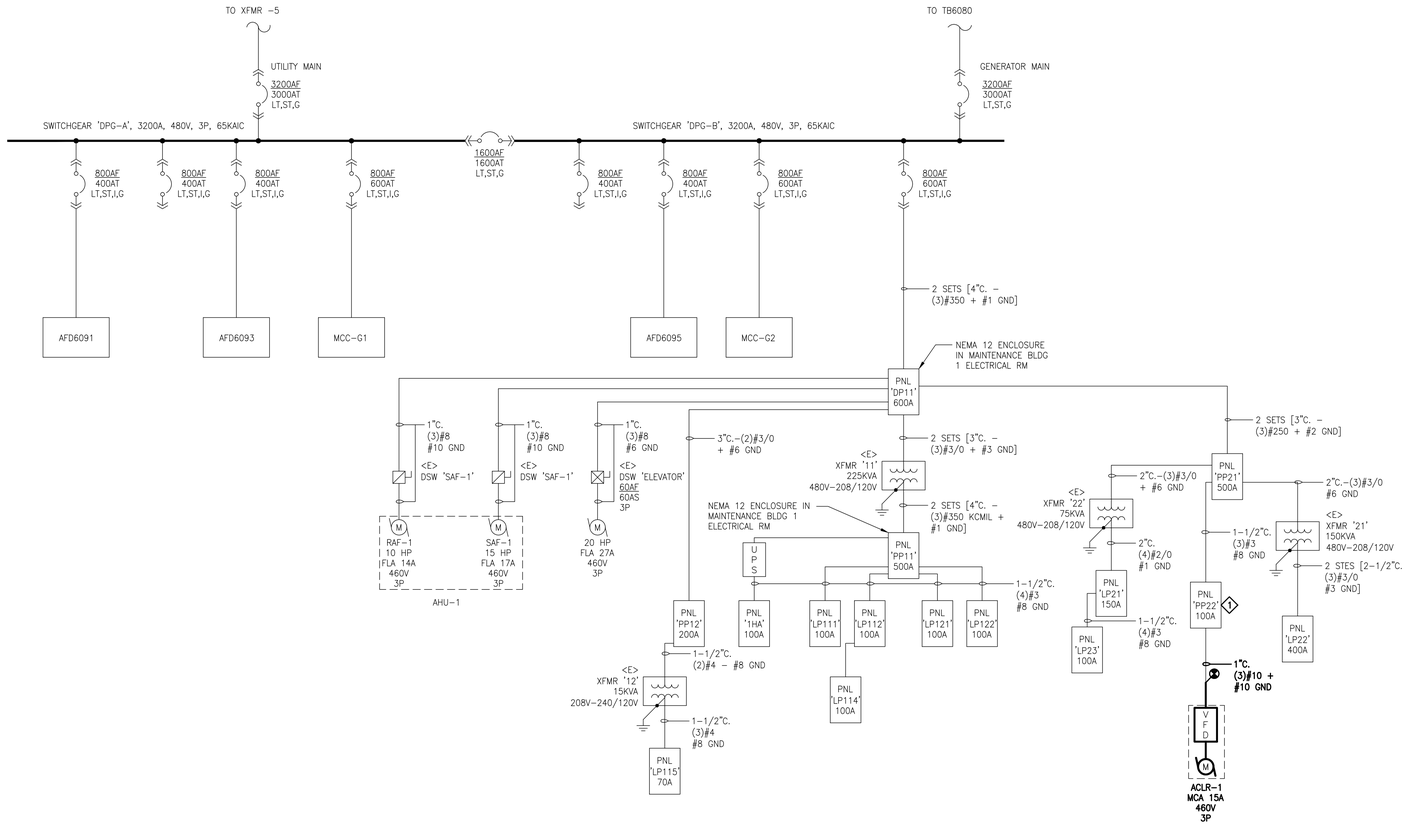

1 SINGLE LINE DIAGRAM - NEW

SCHEMATIC

REFERENCE SHEET NOTES

1. EXISTING PANEL TO BE MODIFIED. FURNISH AND INSTALL 20A CIRCUIT BREAKER TO POWER NEW MECHANICAL EQUIPMENT. CONTRACTOR TO MATCH EXISTING PANELBOARD SCCR RATING.

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY –; DESIGN BY –; CHECKED BY JG; PROJ. MGR. –; DSRSD PRINCIPAL ENGINEER

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ELECTRICAL
SINGLE LINE DIAGRAM - NEW

CIP NO. 22-P010

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SOBE #2304150.6

STRUCTURAL GENERAL NOTES

I. SCOPE OF WORK

1. NEW CONCRETE PAD EXTENSIONS AND NEW EQUIPMENT ANCHORAGE.

II. DESIGN CRITERIA

1. APPLICABLE CODES:
   2022 CALIFORNIA BUILDING CODE

2. SEISMIC LOADS:
   RISK CATEGORY: III
   SITE CLASS: D
   IMPORTANCE FACTOR I: 1.5
   SITE ACCELERATIONS Ss: 1.577g
   Sms: 1.892g
   Sds: 1.262g

	ap	Rp	Ωo	Fp	Fp vertical
CHILLER:	1.0	2.5	2.0	0.568Wp	0.252Wp

3. WIND LOAD CRITERIA:
   ULTIMATE DESIGN WIND SPEED 99 MPH
   RISK CATEGORY III
   EXPOSURE C
   HORIZONTAL DESIGN WIND PRESSURE (LRFD) 38.9 PSF
   VERTICAL DESIGN WIND PRESSURE (LRFD) 30.7 PSF

4. GEOTECHNICAL
   CBC 2022 SECT 1806.2
   PRESUMPTIVE BEARING CAPACITY OF SOIL:
   DEAD PLUS LIVE LOAD 1500 PSF
   TOTAL LOAD INCLUDING WIND & SEISMIC 2000 PSF

III. GENERAL

1. ALL MATERIALS AND WORKMANSHIP SHALL BE OF A QUALITY COMPATIBLE WITH THE REQUIREMENTS OF THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE AND ALL LOCAL CITY AND COUNTY ORDINANCES, WHICHEVER MAY APPLY.
2. ALL WORK SHOWN ON THESE DRAWINGS IS NEW UNLESS NOTED EXISTING (E).
3. THE CONDITIONS SHOWN FOR EXISTING CONSTRUCTION REFLECT INFORMATION SHOWN ON THE ORIGINAL CONSTRUCTION DRAWINGS AND DRAWINGS DESCRIBING SUBSEQUENT BUILDING IMPROVEMENTS. THE CONTRACTOR SHALL REFER TO ALL AVAILABLE DRAWINGS AND FIELD OBSERVATIONS FOR VERIFICATION OF EXISTING CONDITIONS AS REQUIRED.
4. THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS AND CONDITIONS BEFORE THE START OF ANY CONSTRUCTION, ORDERING OR FABRICATING ANY MATERIAL. ANY DISCREPANCIES BETWEEN THE CONDITIONS FOUND AND THOSE SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER FOR CLARIFICATION BEFORE WORK PROCEEDS.
5. ALL OMISSION AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
6. IT SHALL BE THE CONTRACTORS SOLE RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING, FORMWORK, ETC., AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION, AND TO HOLD ALL NEW OR REVISED ELEMENTS IN PLACE UNTIL FINAL SUPPORT CONDITIONS ARE COMPLETED.
7. THE CONTRACTOR SHALL PROTECT ALL PIPES, DUCTS, ARCHITECTURAL FINISHES, AND UTILITIES FROM DAMAGE DURING CONSTRUCTION AND RESTORE ALL DAMAGED ITEMS TO ORIGINAL CONDITION, UNLESS NOTED OTHERWISE.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT IN CONJUNCTION WITH THE PROSECUTION OF THIS WORK.
9. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WELDING NEAR WOOD OR OTHER FLAMMABLE MATERIALS.
10. THE CONTRACTOR IS RESPONSIBLE TO FURNISH AND MAINTAIN NECESSARY BARRICADES, COVERINGS OR OTHER PROTECTIVE DEVICES AS NEEDED TO PROTECT EQUIPMENT, ADJACENT SURFACES AND MEET SAFETY REQUIREMENTS. THE CONTRACTOR SHALL REMOVE THESE MATERIALS ONCE THE PROJECT HAS BEEN COMPLETED.
11. WHERE A CONSTRUCTION DETAIL IS NOT SHOWN OR NOTED, THE DETAIL SHALL BE THE SAME AS FOR SIMILAR WORK. THE CONTRACTOR SHALL CONFIRM THE USE OF SIMILAR DETAILS WITH THE STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
12. THE INFORMATION AND DETAILS FOR THE EXISTING STRUCTURE SHOWN ON THE STRUCTURAL DOCUMENTS ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE STRUCTURAL DRAWINGS.
13. THE CONTRACTOR SHALL REVIEW THE EXISTING CONDITIONS PRIOR TO THE START OF WORK AND DURING THE COURSE OF CONSTRUCTION TO DETERMINE THE PRESENCE, IF ANY, OF ASBESTOS OR OTHER HAZARDOUS MATERIALS. IF DISCOVERED, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER AND TAKE APPROPRIATE PRECAUTIONARY MEASURE TO CONTAIN HAZARDOUS MATERIALS UNTIL THE OWNER CAN DEVELOP AN APPROPRIATE DISPOSITION PLAN.
14. THE STRUCTURAL SYSTEMS HAVE BEEN DESIGNED TO CARRY THE SUPERIMPOSED LIVE LOADS AS PRESCRIBED BY THE CALIFORNIA BUILDING CODE AND IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICES, WITH NO SPECIAL PROVISIONS TO CARRY CONCENTRATED LOADS FROM STORAGE AND HANDLING OF CONSTRUCTION MATERIALS OR FROM OPERATION OF CONSTRUCTION EQUIPMENT.

IV. SPECIAL INSPECTION

1. SPECIAL INSPECTIONS AND OBSERVATION SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 1703, 1704 AND 1705 OF THE CBC 2022, AND IS REQUIRED FOR THE FOLLOWING UNLESS SPECIFICALLY NOTED OTHERWISE:
   A. PLACEMENT OF CONCRETE
   B. CONCRETE SLUMP TESTS AND COMPRESSION TEST CYLINDERS
   C. INSTALLATION OF EMBEDDED ANCHOR BOLTS, EXPANSION ANCHORS AND EPOXY ANCHORS – CONTINUOUS INSPECTION REQUIRED
   D. PLACEMENT OF REINFORCING STEEL
   E. STRUCTURAL WELDING
   F. SHOP WELDING UNLESS PERFORMED AT AN I.C.C. CERTIFIED SHOP
2. ALL WELDERS SHALL BEAR CURRENT QUALIFICATION CERTIFICATES FOR THE MATERIAL, WELDING POSITIONS, AND WELDING PROCESSES EMPLOYED IN THE WORK. CERTIFICATES FOR EACH WELDER SHALL BE CHECKED BY THE WELDING INSPECTOR PRIOR TO WELDING.
3. WELDING INSPECTORS SHALL BE QUALIFIED FOR THE METHODS EMPLOYED IN THE WORK AS PER ASNT AND AWS D1.1 REQUIREMENTS.
4. THE SPECIAL INSPECTOR SHALL BRING ALL DISCREPANCIES IMMEDIATELY TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF NOT CORRECTED TO THE SATISFACTION OF THE INSPECTOR, THE DISCREPANCIES SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE STRUCTURAL ENGINEER AND BUILDING OFFICIAL.
5. THE SPECIAL INSPECTOR SHALL FURNISH TIMELY INSPECTION REPORTS TO THE STRUCTURAL ENGINEER, THE OWNER, AND THE BUILDING OFFICIAL FOR REVIEW AND ACCEPTANCE. THE INSPECTOR SHALL ALSO SUBMIT A FINAL REPORT, SIGNED BY HIMSELF AND BEARING THE SEAL AND SIGNATURE OF A CIVIL ENGINEER REGISTERED IN CALIFORNIA, STATING WHETHER THE WORK REQUIRING INSPECTION WAS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CBC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ALL WORK WHICH IS DETERMINED BY TESTING AND INSPECTION NOT TO COMPLY WITH SPECIFIED STANDARDS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE TEST AND INSPECTION FIRM WITH A SCHEDULE TO FACILITATE THE PROPER COORDINATION OF THE WORK.

V. SUBMITTALS

1. PRIOR TO PROCEEDING WITH THE WORK, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE STRUCTURAL ENGINEER FOR REVIEW:
   1.1. CONCRETE MIX DESIGN
   1.2. CONCRETE REINFORCING SHOP DRAWINGS
   1.3. STEEL SHOP DRAWINGS
   1.4. MANUFACTURERS CATALOG DATA, TOGETHER WITH I.C.C. CERTIFIED TEST DATA, FOR ANY PROPRIETARY PRODUCT PROPOSED AS A SUBSTITUTE FOR SPECIFIED MATERIALS.
2. ALLOW 14 DAYS FOR STRUCTURAL ENGINEER'S SHOP DRAWING REVIEW AS PER AISC – CODE OF STANDARD PRACTICE. REVIEW OF SUBMITTALS BY THE STRUCTURAL ENGINEER IS ONLY FOR GENERAL CONFORMANCE WITH DESIGN INTENT. REVIEW OF THE DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLETING THE WORK IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
3. INDICATE PROFILES, SIZES, SPACING, AND LOCATIONS OF STRUCTURAL MEMBERS, CONNECTIONS, ATTACHMENTS, FASTENERS, CAMBERS, HOLES AS PER CONSTRUCTION DRAWINGS.
4. INDICATE WELDED CONNECTIONS USING STANDARD AWS WELDING SYMBOLS. INDICATE WELD SIZES, EFFECTIVE SIZES AND NET LENGTHS.
5. SHOP DRAWINGS SHALL SHOW CONNECTIONS AS INDICATED ON CONSTRUCTION DRAWINGS. WHERE ALTERNATIVE CONNECTIONS ARE SUBSTITUTED FOR THOSE INDICATED ON THE CONSTRUCTION DRAWINGS, SUBMIT DATA (CALCULATIONS OR TEST) DEMONSTRATING THAT THEY ARE OF EQUIVALENT OR SUPERIOR STRENGTH, STIFFNESS AND DUCTILITY TO THOSE SHOWN ON THE CONSTRUCTION DRAWINGS FOR STRUCTURAL ENGINEER'S APPROVAL. CLEARLY INDICATE ALL ALTERNATIVELY DETAILED CONNECTIONS ON SHOP DRAWINGS.
6. SUBMIT THE FOLLOWING TO THE STRUCTURAL ENGINEER FOR RECORD PURPOSES:
   A. MILL CERTIFICATES AND TEST REPORTS FOR ALL STRUCTURAL STEEL
   B MILL CERTIFICATES AND TEST REPORTS FOR ALL REINFORCING STEEL

VI. CONCRETE & REINFORCING

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318–19, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".
2. REINFORCING BARS AND DOWELS SHALL BE DEFORMED BARS AND SHALL CONFORM TO ASTM SPECIFICATION A615 OR A706, GRADE 60.
3. MINIMUM CLEAR DISTANCES BETWEEN REINFORCING STEEL AND FACE OF CONCRETE ARE AS FOLLOWS:
   A. CONCRETE EXPOSED TO EARTH OR WEATHER:
      #5 BAR AND SMALLER 1–1/2"
   B. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:
      #11 BAR AND SMALLER 3/4"
4. WHERE NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE, THE EXISTING SURFACE SHALL BE SOUND, CLEAN, FREE OF PAINT AND LAITANCE, AND ROUGHENED TO EXPOSE AGGREGATE. A BONDING AGENT (SIKA ARMATEC 110 EPOCEM OR APPROVED EQUAL) SHALL BE APPLIED TO EXISTING CONCRETE SURFACES PRIOR TO PLACING NEW CONCRETE AGAINST EXISTING CONCRETE.
5. CONCRETE MIXES TO BE PROVIDED BY CONTRACTOR FOR ENGINEER REVIEW AND SHALL BE DESIGNED BY AND BEAR THE SEAL OF A PROFESSIONAL CIVIL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.
6. CONCRETE SHALL BE NORMAL WEIGHT AGGREGATE CONCRETE & SHALL HAVE A MINIMUM TWENTY–EIGHT DAY COMPRESSIVE STRENGTH (f'c) OF 4,000 PSI.
7. CEMENT SHALL CONFORM TO ASTM C–150, TYPE I OR II.
8. AGGREGATES SHALL BE HARD ROCK AND SHALL CONFORM TO ASTM C–33.
9. READY–MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C–94.
10. PROJECTING CORNERS SHALL BE FORMED WITH A 3/4–INCH CHAMFER UNLESS OTHERWISE NOTED.

VII. CONCRETE ANCHORS

1. INSTALL ALL CONCRETE ANCHORS IN ACCORDANCE WITH THE REQUIREMENTS GIVEN IN THE ICC RESEARCH COMMITTEE RECOMMENDATIONS FOR THE ANCHOR. ALL INSTALLED ANCHORS SHALL HAVE SPECIAL INSPECTION.
2. CONCRETE EXPANSION ANCHORS SHALL BE STAINLESS STEEL HILTI KWIK BOLT TZ2 WEDGE ANCHORS OR EQUAL. INSTALL PER ICC ESR–4266. SPECIAL INSPECTION IS REQUIRED.
3. EPOXY ANCHORS AND DOWELS SHALL BE HILTI HIT–RE 500 V3 OR EQUAL. INSTALL PER ICC ESR–3814. SPECIAL INSPECTION IS REQUIRED.
4. SUBSTITUTIONS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION.
5. WHEN INSTALLING DRILLED–IN ANCHORS IN EXISTING CONCRETE MEMBERS, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED–IN ANCHOR.
6. INSTALLATION OF DRILLED IN EXPANSION–TYPE AND EPOXY ANCHORS SHALL BE CONTINUOUSLY INSPECTED BY THE OWNER'S REPRESENTATIVE. 25 PERCENT OF ALL EXPANSION–TYPE ANCHORS (ALTERNATE BOLTS IN ANY GROUP) AND 10 PERCENT EPOXY ANCHORS SHALL BE TESTED BY THE OWNER'S TESTING LABORATORY FOR THE PULLOUT LOADS OR TORQUE AS INDICATED IN THE TABLES BELOW. IF ANY ANCHOR FAILS, IT SHALL BE REPLACED AND THE IMMEDIATELY ADJACENT BOLTS SHALL ALSO BE TESTED AT CONTRACTOR'S EXPENSE. TESTING SHALL BE PER FOLLOWING SCHEDULES.

WEDGE ANCHOR EXPANSION BOLTS – HILTI KWIK BOLT TZ2

ANCHOR DIAMETER (IN)	MINIMUM NOMINAL EMBEDMENT (IN)	TORQUE TEST PER MANUFACTURER RECOMMENDATIONS (FT–LBS)	
		CARBON STEEL	STAINLESS STEEL
1/4	1 3/4	4	6
3/8	1 7/8	30	30
1/2	2 1/2	50	40
5/8	3 1/4	40	60
3/4	4	110	125

EPOXIED DOWELS

REBAR SIZE (GRADE 60)	MINIMUM EMBEDMENT (IN)	TEST LOAD IN NORMAL WEIGHT CONCRETE (LBS)	
		2,500 PSI CONCRETE	4,000 PSI CONCRETE
No. 3	3.5	2900	3260
No. 4	4	4430	6300
No. 5	5	5820	8340
No. 6	7	9210	11400
No. 7	7.5	11360	13700
No. 8	8	15190	18100

EPOXIED THREADED ROD (ASTM F1554) OR SS (AISI 304/316)

ROD SIZE (IN)	MINIMUM EMBEDMENT (IN)	TEST LOAD IN NORMAL WEIGHT CONCRETE (LBS)	
		2,500 PSI CONCRETE	4,000 PSI CONCRETE
3/8	3	2620	3400
1/2	4	4240	5500
5/8	5	6900	7900
3/4	6	7700	11900
7/8	7	11900	15100
1	8	13250	16800
1 1/4	12	24400	31100

VIII. STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) PUBLICATION "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL BUILDINGS".
2. ALL STEEL MEMBERS SHALL BE MADE IN APPROVED FABRICATORS SHOP, THE APPROVED FABRICATOR SHALL SUBMIT THE CERTIFICATE OF COMPLIANCE TO THE BUILDING INSPECTOR PRIOR TO ERECTION.
3. AT CONTRACTORS OPTION, SHEAR TABS FOR STEEL BEAMS MAY BE FIELD WELDED TO BEAM WEBS TO FACILITATE ERECTION.
4. COMPLETE WELDING PROCEDURE SHALL BE SUBMITTED TO AND APPROVED BY THE STRUCTURAL ENGINEER OF RECORD AND THE BUILDING DEPARTMENT BEFORE ANY WELDING IS COMMENCED.
5. STRUCTURAL STEEL SHALL BE AS FOLLOWS:

BEAMS AND COLUMNS	ASTM A572 GRADE 50 OR ASTM A992
GUSSET PLATE	ASTM A36
ANGLES	ASTM A36
CHANNELS	ASTM A36
TUBE STEEL	ASTM A500 (GRADE B)
CONTINUITY PLATES	ASTM A572 (GRADE 50)
BASE PLATES (LESS THAN 4" THK.)	ASTM A36
BASE PLATES (GREATER THAN 4" THK.)	ASTM A572 (GRADE 42)
MISC. PLATES	ASTM A36
PIPE COLUMNS	ASTM A53 TYP 'E' OR TYPE 'S' (GRADE B)
STIFFENER/SHEAR PLATES	ASTM A36

6. FABRICATE STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS AND AISC CODE OF STANDARD PRACTICE.
7. FABRICATE STRUCTURAL ELEMENTS IN THE LARGEST SECTIONS PRACTICAL, CONSIDERING TRANSPORT AND ERECTION REQUIREMENTS.
8. ALL WELDING SHALL BE PERFORMED UNDER A PRE–QUALIFIED OR QUALIFIED BY TEST WELDING PROCEDURE, PER AWS D1.1. SUBMIT WRITTEN WELDING PROCEDURES FOR EACH CLASS OF WELD (POSITION, PROCESS, MATERIAL TYPE, FILLER METAL TYPE, JOINT PREPARATION, PRE–HEAT, POST–HEAT AND THICKNESS) FOR BOTH PRE–QUALIFIED AND QUALIFIED BY TEST PROCEDURES AS PER AWS D1.1. FOR QUALIFIED BY TEST PROCEDURES, SUBMIT TEST DATA AS PER AWS D1.1.
9. ALL WELDING SHALL BE DONE BY THE SHIELDED ARC PROCESS USING APPROVED ELECTRODES PER AWS SPECIFICATION E70XX (LOW HYDROGEN ELECTRODES). WELDING SHALL CONFORM TO THE LATEST EDITION OF AWS D1.1 AND SHALL BE PERFORMED BY CERTIFIED WELDERS QUALIFIED UNDER THE PROCEDURES CONTAINED THEREIN.
10. ALL BOLT HOLES IN STEEL SHALL BE 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER UNLESS OTHERWISE NOTED.
11. ALL STEEL SHALL BE PRIMED & PAINTED UNLESS OTHERWISE NOTED. SURFACE PREPARATION OF NEW STEEL SHALL BE HAND TOOL CLEANED, SSPC SP–2. PRIMER SHALL BE SSPC PAINT–25 OR EQUAL. FINISH COLOR FOR VISIBLE STEEL TO MATCH (E) STEEL PAINT COLOR.

IX. ERECTION OF FRAMING

1. MAKE PROVISION FOR ERECTION LOADS, AND FOR SUFFICIENT TEMPORARY BRACING TO MAINTAIN STRUCTURE SAFE, PLUMB, AND IN TRUE ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRACING.
2. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF STRUCTURAL ENGINEER UNLESS SPECIFICALLY NOTED ON CONSTRUCTION DRAWINGS.
3. AFTER ERECTION, INSPECTION AND TESTING OF STEEL (EXCEPT GALVANIZED STEEL, OR STEEL TO BE IN CONTACT WITH OR EMBEDDED IN CONCRETE), PRIME WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED, OR DAMAGED. USE A PRIMER COMPATIBLE WITH SHOP COAT.

ERECTION TOLERANCES:
1. MAXIMUM VARIATION FROM PLUMB: 1/8 INCH PER TEN FEET.
2. MAXIMUM OFFSET FROM TRUE ALIGNMENT: 1/4 INCH.

X. STRUT FRAMING

1. ALL MATERIALS FOR STRUT FRAMING TO BE SUPPLIED BY THE FOLLOWING SUPPLIERS (OR APROVED EQUAL):
   A. B–LINE SYSTEMS, INC.
      HIGHLAND, IL 62249
      PHONE: (618) 654–2184
   B. HILTI CORP.
      TULSA, OK 74121
      PHONE: (800) 879–8000
2. ALL COMPONENTS AND FITTINGS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
3. ALL STRUT MEMBERS AND FITTINGS SHALL HAVE A PRE–GALVANIZED FINISH.
4. ALL BOLTS, NUTS AND THREADED RODS FOR THE STRUT METAL FRAMING SYSTEM SHALL HAVE AN ELECTRO–GALVANIZED FINISH.
5. ALL B–LINE STRUT NUTS SHALL BE TIGHTENED WITH THE FOLLOWING TORQUE VALUES USING A PROPERLY CALIBRATED TORQUE WRENCH:

RECOMMENDED TORQUE				
BOLT SIZE	1/4"–20	5/16"–18	3/8"–16	1/2"–13
FOOT–LBS	6	11	19	50
NM	8	15	26	68

XI. STRUCTURAL WOOD

1. ALL FRAMING LUMBER SHALL BE DOUGLAS FIR–LARCH, AND SHALL BE STAMPED WITH A GRADEMARK WITH THE FOLLOWING GRADES, BY AN APPROVED GRADING AGENCY, U.O.N.
   A. STUDS AND PLATES – #1 GRADE MINIMUM, U.O.N.
   B. JOISTS AND RAFTERS – #1 GRADE MINIMUM, U.O.N.
   C. HEADERS, BEAMS, GIRDERS – #1 GRADE & BETTER U.O.N.
   D. COLUMNS: #1 GRADE & BETTER, U.O.N.
   E. EXPOSED DECKING: WESTERN RED CEDAR U.O.N.
2. ALL BEARING ON CONCRETE OR MASONRY IF LESS THAN 4'–0" ABOVE GRADE SHALL BE PRESSURE TREATED DOUGLAS FIR OR REDWOOD.
3. BOLT HOLES SHALL BE NOMINAL DIAMETER OF BOLT PLUS 1/16 INCH.
4. ALL WOOD BOLT CONNECTIONS SHALL HAVE A WASHER UNLESS STEEL PLATE IS SPECIFIED. HOLES SHALL BE PROPERLY ALIGNED. OVERSIZED HOLES ARE NOT ALLOWED. NUTS SHALL BE SNUG TIGHTENED. BOLTS SHALL BE 1/2 INCH DIAMETER, MINIMUM AND SHALL BE A–307 OR BETTER.
5. WOOD CONNECTIONS:
   A. NAILING: MINIMUM NAILING REQUIREMENTS FOR STANDARD CONNECTIONS SHALL BE IN ACCORDANCE WITH 2022 CBC TABLE 2304.9.1, SEE SCHEDULE.
   B. FASTENING OF BUILT–UP BEAMS: USE (2) 16D NAILS AT 6" O.C. AT DOUBLE 2X MEMBERS, USE 3/4" DIAMETER BOLTS AT 16" O.C. AT ALL OTHER BUILT–UP MEMBERS.
   C. ALL MANUFACTURED CONNECTION HARDWARE SHALL BE AS DESIGNATED ON DRAWINGS AND INSTALLED (WITH ALL NAIL HOLES FILLED) IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPLICABLE ICC APPROVALS.
   D. INSTALL SCREWS WITH 3/8" AND GREATER, WHERE SPECIFIED, IN DRILLED LEAD HOLES WITH A DIAMETER EQUAL TO 3/4 OF THE SHANK DIAMETER. LAG SCREWS SHALL NOT BE HAMMERED IN. PROVIDE WASHERS UNDER HEADS BEARING ON WOOD. HOLES SHALL BE PROPERLY ALIGNED. USE GALVANIZED LAG SCREWS FOR PRESSURE TREATED WOOD.
   E. ALL FASTENERS AND CONNECTORS TO BE HOT DIP GALVANIZED OR STAINLESS STEEL.
   F. ALL SIMPSON HARDWARE IN CONTACT WITH PRESSURE TREATED WOOD SHALL BE STAINLESS STEEL OR ZMAX HOT DIP GALVANIZED.

ABBREVIATIONS

AB	ANCHOR BOLT
AFF	ABOVE FINISHED FLOOR
ADD'L	ADDITIONAL
AGG	AGGREGATE
ALT	ALTERNATE
ARCH	ARCHITECT OR ARCHITECTURAL
BFF	BELOW FINISHED FLOOR
BDRM	BEDROOM
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BOT	BOTTOM
BTWN	BETWEEN
℄	CENTERLINE
CJ	CEILING JOISTS
CMU	CONCRETE MASONRY UNIT(S)
CALCS	CALCULATIONS
CLG	CEILING
CLR	CLEAR OR CLEARANCE
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUATION OR CONTINUOUS
CONTR	CONTRACTOR
COR	CORNER
DF	DOUGLAS FIR
DL	DEAD LOAD
DS	DOWNSPOUT
DBL	DOUBLE
DET	DETAIL
DIA OR ℗	DIAMETER
DIM	DIMENSION
DN	DOWN
(E)	EXISTING
EJ	EXPANSION JOINT
ELEV	ELEVATION
EN	EDGE NAIL
EA	EACH
ES	EACH SIDE
EQ	EQUAL
EW	EACH WAY
EXT	EXTERIOR
(F)	FUTURE
FJ	FLOOR JOIST
FLR	FLOOR
FS	FAR SIDE
FOUND OR FND	FOUNDATION
FP	FIREPLACE
FT	FLOOR TRUSS
FTG	FOOTING
GSM	GALVANIZED SHEET METAL
GA	GAUGE
GALV	GALVANIZED
GLU–LAM, GLB	GLUE LAMINATED BEAM
GYP BD	GYPSUM BOARD
HD	HOLDDOWN
HORIZ	HORIZONTAL
HDR	HEADER
HGR	HANGER
INFO	INFORMATION
INSUL	INSULATION OR INSULATED
INT	INTERIOR
INTER	INTERSECTION
JT	JOINT
LB OR #	POUND OR NUMBER
LL	LIVE LOAD
MAX	MAXIMUM
MB	MACHINE BOLT
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MFR OR MANU	MANUFACTURER
MIN	MINIMUM
ML	MICROLLAM
MSTR	MASTER
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O/	OVER
OC	ON CENTER
OPT	OPTIONAL
ℙ OR PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSL	PARALLAM
PT	PRESSURE TREATED
PAR	PARALLEL
PERF	PERFORATED
PERP	PERPENDICULAR
PLHT	PLATE HEIGHT
PLYWD OR PLY	PLYWOOD
PR	PAIR
RCP	REINFORCED CONCRETE PIPE
RECOM OR REC	RECOMMENDATIONS
REINF	REINFORCING
REQ'D	REQUIRED
REBAR	REINFORCING BAR(S)
RJ	ROOF JOIST
RM	ROOM
RR	ROOF RAFTER
RT	ROOF TRUSS
RWD	REDWOOD
SAD	SEE ARCHITECTURAL DRAWINGS
SCD	SEE CIVIL DRAWINGS
SED	SEE ELECTRICAL DRAWINGS
SMD	SEE MECHANICAL DRAWINGS
SCHD	SCHEDULE
SOG	SLAB ON GRADE
SW	SHEARWALL
TEMP	TEMPORARY
TOC	TOP OF CONCRETE
TOW	TOP OF WALL
T/P	TOP PLATE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
W/	WITH

STRUCTURAL DRAWING INDEX

CPS COMPLEXE PROJECT SOLUTIONS
3527 MT. DIABLO BOULEVARD #137, LAFAYETTE, CA 94549
(925) 385–2229 WWW.CPS–GLOBAL.COM
CPS Project No.: A1355

REGISTERED PROFESSIONAL ENGINEER THOMAS C. EWERT S 3931 Exp:Dec 31, 2027 STRUCTURAL STATE OF CALIFORNIA

SALAS O'BRIEN
|expect a difference|
305 South 11th Street
San Jose, California 95112–2218
408.282.1500 | 408.297.2995 (f)
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LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT		TD	TCE	

DESIGN: DRAWN BY TD; DESIGN BY TCE; CHECKED BY TCE; PROJ. MGR. –
RECOM'D: DSRSD PRINCIPAL ENGINEER
REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.
SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828–0515

CIP NO. 22–P010

WWTP HVAC REPLACEMENTS - BUILDING T

STRUCTURAL
GENERAL NOTES & ABBREVIATIONS

S0.1f
64 | 66

P:\S1300 Salas O'Brien\S1355 Dublin San Ramon HVAC\Drawings\S1355.01 – Chiller Basement\+Current\+S01.dwg 12/12/2025 12:11 PM Tony Daza

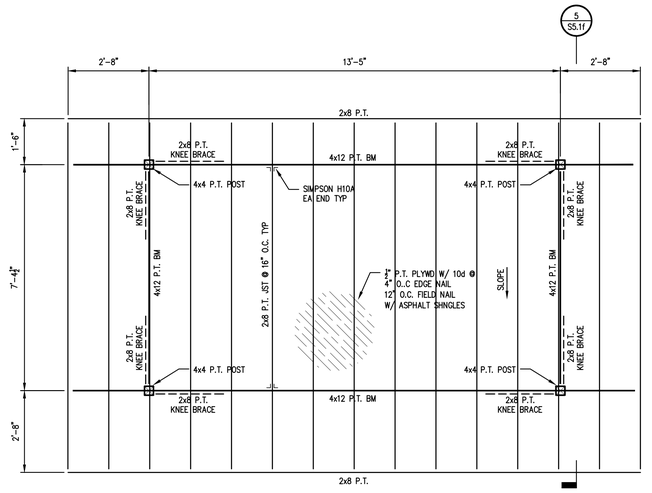
SOBE #2304150.6

SHEET NOTES

1. FOR STRUCTURAL GENERAL NOTES SEE SHEET S0.1f.
2. CONTRACTOR SHALL FERROSCAN EXISTING CONCRETE AT ALL NEW PENETRATIONS AT BOTH FACES OF CONCRETE ELEMENT. ADJUST PENETRATION LOCATION TO AVOID DAMAGING EXISTING REBAR. OBTAIN CONCURRENCE FROM STRUCTURAL ENGINEER IF MORE THAN 1 REBAR IN EACH DIRECTION MUST BE CUT. MAINTAIN AT LEAST 12" CONCRETE BETWEEN ADJACENT PENETRATIONS, AND AT LEAST 24" CONCRETE TO EXISTING OPENINGS.

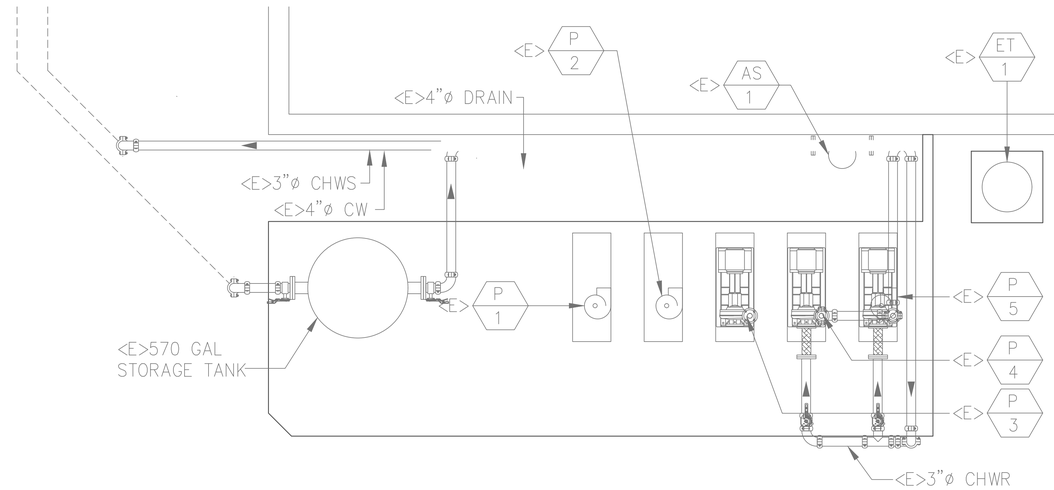
LEGEND

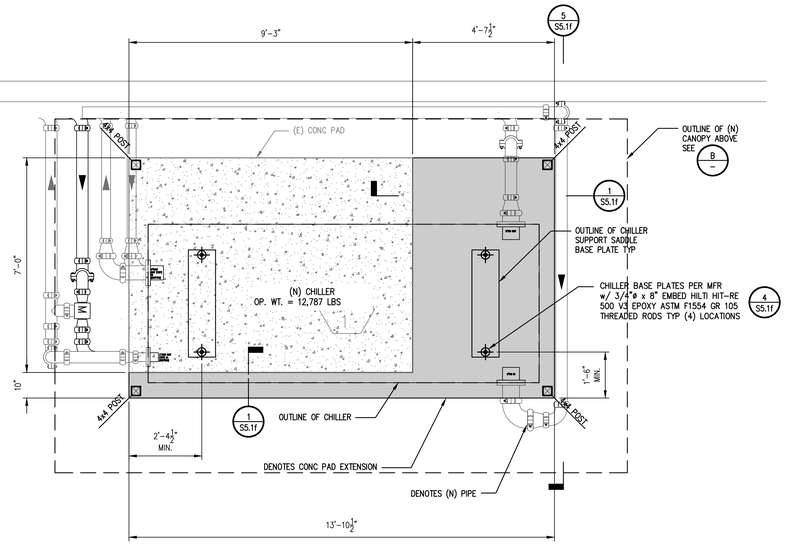
- DENOTES (E) STRUCTURE
- DENOTES (N) STRUCTURE
- DENOTES (N) CONC PAD EXTENSION
- DENOTES (E) WALL



B - (N) CANOPY PLAN scale: 1/2"=1'-0"

Reference North





A - FOUNDATION / 1ST FLOOR PLAN - NEW WORK scale: 1/2"=1'-0"

Reference North

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN	
DRAWN BY	TD
DESIGN BY	TCE
CHECKED BY	TCE
PROJ. MGR.	–

DSRSD PRINCIPAL ENGINEER

RECOM'D

REVIEW: PLNNG./DEVL. | FIELD OPS. | WWTP OPS. | MECH./MAINT. | ELECT./INSTR.

SCALE: AS NOTED | DATE: 12/09/2025

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WWTP HVAC REPLACEMENTS - BUILDING T

STRUCTURAL

EQUIPMENT PAD & CANOPY FRAMING PLAN - NEW WORK

CIP NO. 22-P010

S1.1f
65 | 66

SOBE #2304150.6

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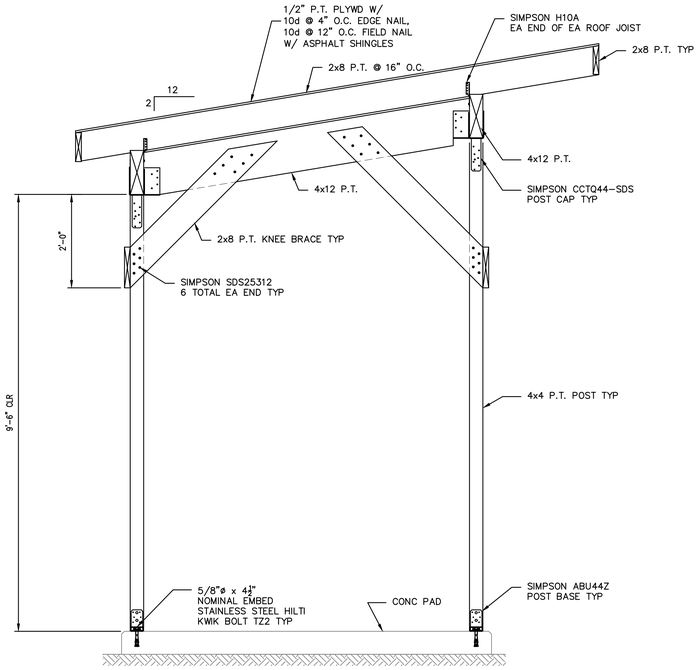
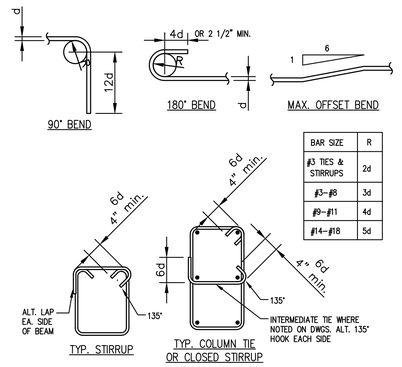


5 TYP — CANOPY SECTION
SCALE: 3/4"=1'-0"



BAR SIZE	R
#3 TIES & STIRRUPS	2d
#3–#8	3d
#9–#11	4d
#14–#18	5d

3 TYP — STANDARD HOOKS & BENDS
SCALE: NTS

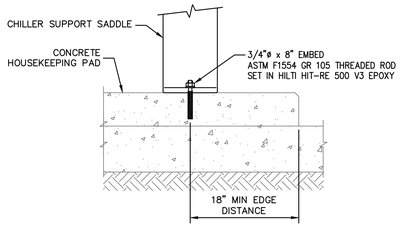
CLASS 'B' SPLICES (f'c = 3,000 PSI)		
BAR SIZE	OTHERS	TOP
#3	19"	25"
#4	25"	33"
#5	31"	41"
#6	37"	49"
#7	54"	71"
#8	62"	81"
#9	70"	91"
#10	79"	102"
#11	87"	114"

USE CLASS 'B' SPLICES U.O.N.

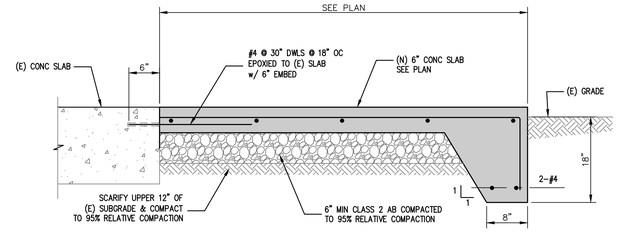
NOTES:

1. LAP LENGTHS SHOWN IN THE SCHEDULE ARE CLASS "B" LAP SPLICES PER THE 2022 CBC (ACI 318-19). THE MINIMUM CONCRETE COVER MUST BE GREATER THAN DB AND THE CENTER TO CENTER SPACING MUST BE GREATER THAN 3DB. WHERE DB IS THE NOMINAL BAR DIAMETER.
2. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW THE BAR.
3. THE SMALLER LAP SPLICE LENGTH MAY BE USED WHEN TWO BARS OF DIFFERENT SIZES ARE TO BE LAPPED.

2 TYP — REINF LAP SPLICE SCHEDULE
SCALE: NONE



4 — CHILLER ANCHORAGE DETAIL
SCALE: NONE



1 — CONCRETE PAD EXTENSION
SCALE: NONE

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

DESIGN: DRAWN BY TD; DESIGN BY TCE; CHECKED BY TCE; PROJ. MGR. –

RECOM'D: DSRSD PRINCIPAL ENGINEER

REVIEW: PLNNG./DEVL.; FIELD OPS.; WWTP OPS.; MECH./MAINT.; ELECT./INSTR.

SCALE: AS NOTED DATE: 12/09/2025

DUBLIN SAN RAMON SERVICES DISTRICT
7051 Dublin Blvd., Dublin, CA 94568 (925) 828-0515

WWTP HVAC REPLACEMENTS - BUILDING T

STRUCTURAL
DETAILS

CIP NO. 22-P010

S5.1f
66 | 66

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12/09/25	100% CD – VALUE ENGINEERING				
12/20/24	100% CD				
05/06/24	DESIGN DOCUMENT		TD	TCE	

CPS COMPLIANCE PROJECT SOLUTIONS
3527 MT. DIABLO BOULEVARD #137, LAFAYETTE, CA 94549
(925) 265-2229 WWW.CPS-GLOBAL.COM
REGISTERED PROFESSIONAL ENGINEER THOMAS C. EWERT S 3931 Exp:Dec 31, 2027 STRUCTURAL STATE OF CALIFORNIA
CPS Project No: A1355

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San Jose, California 95112-2218
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P:\S1300 Salas O'Brien\S1355 Dublin San Ramon HVAC\Drawings\S1355.01 – Chiller Basement\+Current\+S51.dwg 12/12/2025 12:12 PM Tony Daza

SOBE #2304150.6