LAKE HAVASU CITY, ARIZONA
WATER TREATMENT PLANT IMPROVEMENT
CITY PROJECT NO. PW-B25-108025-500XXY

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UTILITY CONTACTS

LAKE HAVASU CITY (WASTEWATER)	(928) 855-3999
LAKE HAVASU CITY (WATER)	(928) 855-2618
SUDDENLINK	(928) 855-9855
ALLO FIBER	(928) 899-3300, EXT 2
FRONTIER COMMUNICATION	(928) 358-1977
UNISOURCE ENERGY SERVICES (GAS)	(928) 226-2269
UNISOURCE ENERGY SERVICES (ELECTRIC)	(928) 505-7030

PREPARED BY:

Kimley»Horn

RECORD DRAWING CERTIFICATION

I HEREBY CERTIFY, TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THIS PROJECT HAS BEEN COMPLETED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED PLANS, SPECIFICATIONS AND REFERENCED STANDARDS, EXCEPT AS SHOWN HEREON; THAT THESE AS-BUILT PLANS REFLECT THE POSITION OF CONSTRUCTED IMPROVEMENTS BASED ON FIELD MEASUREMENTS; AND THAT THE MATERIALS USED IN CONSTRUCTION ARE AS SHOWN BASED ON FIELD OBSERVATION AND TEST RESULTS.

THIS CERTIFICATION DOES NOT WARRANT MATERIALS, WORKMANSHIP, METHODS OF CONSTRUCTION, OR OTHER ITEMS AFFECTING THE WARRANTY OF THIS PROJECT, TO LAKE HAVASU CITY. USERS OF THIS INFORMATION ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ACTUAL CONDITIONS.

REGISTERED PROFESSIONAL ENGINEER (CIVIL) DATE

CITY OFFICIALS

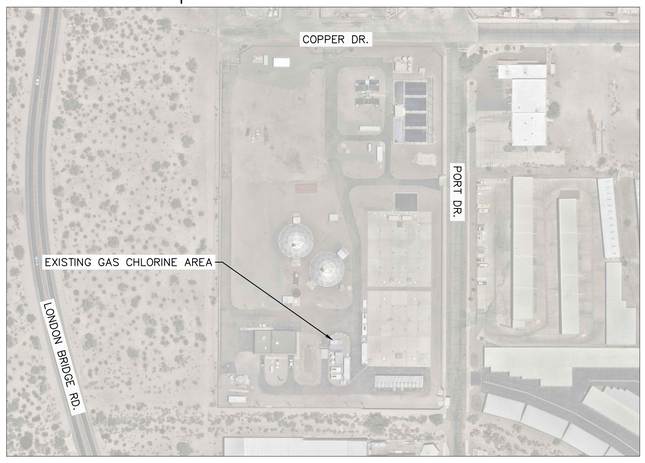
MAYOR	CAL SHEEHY
VICE MAYOR	MICHELE LIN
COUNCIL MEMBER	DAVID DIAZ
COUNCIL MEMBER	JENI COKE
COUNCIL MEMBER	CAMERON MOSES
COUNCIL MEMBER	JIM DOLAN
COUNCIL MEMBER	NANCY CAMPBELL
CITY MANAGER	JESS KNUDSON
PUBLIC WORKS DIRECTOR	RON FOGGIN
PROJECT MANAGER	JASON HART

PROJECT ENGINEER

KIMLEY-HORN
1661 EAST CAMELBACK ROAD
SUITE 400
PHOENIX, AZ 85016
PHONE: (602) 944-5500

CONTACT: CRAIG WENGER, P.E.

LOCATION
SCALE: 1"=150'



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LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	MARCH 2025
DESIGNED BY:	VC
DRAWN BY:	AC
REVIEWED BY:	CW
KH PROJECT NO:	191245024

COVER SHEET

Craig Wenger
Registered Professional Engineer (Civil)
CERTIFICATE NO.
77523
Craig Wenger
Date Signed 08/17/25
ARIZONA, U.S.A.

Sheet Number:
G-00
Sheet 1 of 52

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GENERAL NOTES

1. ALL WATER UTILITY CONSTRUCTION TO CONFORM TO AAC R18-5-502 AND AAC R18-4-119 WATER SYSTEM STANDARDS, ADEQ BULLETIN 10, LAKE HAVASU CITY STANDARDS AND SPECIFICATIONS, MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) STANDARD SPECIFICATIONS AND DETAILS UNLESS SPECIFICALLY MODIFIED ON THE PLANS.

2. VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO STARTING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

3. VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO STARTING WORK.

4. THE ENGINEER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION.

5. ANY WORK PERFORMED WITHOUT THE KNOWLEDGE AND APPROVAL BY THE ENGINEER AND/OR ALL WORK MATERIAL NOT IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

6. NO JOB WILL BE CONSIDERED COMPLETE UNTIL ALL CURBS, PAVEMENT AND SIDEWALKS (NEW AND EXISTING) HAVE BEEN SWEPT CLEAN OF ALL DIRT AND DEBRIS.

7. ALL QUANTITIES SHOWN ON PLANS ARE APPROXIMATE, ARE NOT VERIFIED BY THE ENGINEER, AND ARE FURNISHED SOLELY FOR THE CONTRACTOR'S CONVENIENCE. THEY DO NOT NECESSARILY CORRESPOND TO BID SCHEDULE ITEMS. PAYMENT WILL BE BASED ON BID SCHEDULE ITEMS. THE CONTRACTOR SHALL NOT BE RELIEVED OF HIS RESPONSIBILITY FOR INDEPENDENTLY ESTIMATING WORK QUANTITIES PRIOR TO BIDDING.

8. BACKFILL COMPACTION SHALL BE PER MAG 301, UNLESS OTHERWISE NOTED. SUBGRADE PREPARATION SHALL MEET THE LHC STANDARD SPECIFICATION SECTION 02600.

9. REMOVAL OF STRUCTURES AND OBSTRUCTIONS AS NECESSARY TO COMPLETE THE WORK, OTHER THAN SPECIFICALLY SCHEDULED IN THE BID, IS INCIDENTAL TO THE CONTRACT. NO SEPARATE MEASUREMENT OF PAYMENT FOR UNSCHEDULED REMOVAL ITEMS WILL BE MADE.

10. CONSTRUCTION STAKING SHALL BE BY THE CONTRACTOR'S SURVEYOR WITH CONTROL PROVIDED BY THE DESIGN ENGINEER WHO STAMPED THE PLANS.

11. THE LAKE HAVASU CITY MAY ORDER ANY OR ALL WORKMANSHIP AND MATERIALS TO BE TESTED ACCORDING TO APPLICABLE STANDARDS.

12. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL REWORK AND/OR REMOVAL AND REPLACEMENT OF ALL MATERIALS AND/OR WORKMANSHIP REPRESENTED BY A FAILING TEST.

13. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS OF TESTING AND QUALITY ASSURANCE/QUALITY CONTROL AS DELINEATED IN THE CITY'S PROJECT SPECIFICATIONS. THE COST OF TESTING IS INCIDENTAL TO EACH ITEM OF WORK. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE COST OF ANY CITY INSPECTION AND CITY INSPECTION TIME IF THE CONTRACTOR'S WORK IS BEING PERFORMED IN OVERTIME, AT NIGHT, OR ON WEEKENDS.

14. APPROVAL OF A PORTION OF THE WORK IN PROGRESS DOES NOT GUARANTEE ITS FINAL ACCEPTANCE. TESTING AND EVALUATION MAY CONTINUE UNTIL WRITTEN FINAL ACCEPTANCE OF A COMPLETE AND WORKABLE UNIT.

15. LAKE HAVASU CITY MAY SUSPEND THE WORK BY WRITTEN NOTICE WHEN, IN ITS JUDGEMENT, PROGRESS IS UNSATISFACTORY, WORK BEING DONE IS UNAUTHORIZED OR DEFECTIVE, WEATHER CONDITIONS ARE UNSUITABLE, OR THERE IS A DANGER TO THE PUBLIC HEALTH OR SAFETY.

16. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED ON FIELD DATA AND MAP RECORDS. THE CONTRACTOR SHALL CONTACT 1-800-STAKE-IT PRIOR TO ANY CONSTRUCTION ACTIVITY TO VERIFY THE ACTUAL LOCATION OF ALL UTILITIES. THE CONTRACTOR SHALL DETERMINE WHICH UTILITIES DO NOT PARTICIPATE IN 1-800-STAKE-IT AND CONTACT THEM DIRECTLY TO VERIFY THE LOCATION OF THOSE UTILITIES. ANY DAMAGE TO EXISTING UTILITIES CAUSED BY CONTRACTOR'S OPERATION SHALL BE REPORTED TO THE UTILITY OWNER IMMEDIATELY AND REPAIRED OR REPLACED AT NO COST TO THE CITY. IN CASES WHEN THE EXISTING UTILITIES ARE NOT AS DEPICTED ON THE PLANS SOME MINOR DEVIATION TO THE PROPOSED ALIGNMENT MAY BE ALLOWED TO MAINTAIN MINIMUM SEPARATION DISTANCES BETWEEN UTILITIES. ANY PROPOSED CHANGES TO THE ALIGNMENT MUST BE SUBMITTED TO THE CITY'S REPRESENTATIVE FOR REVIEW. NO CHANGES WILL BE ALLOWED WITHOUT PRIOR APPROVAL.

17. THE CONTRACTOR SHALL GRADE AND RESURFACE ALL AREAS DISTURBED BY CONSTRUCTION, INCLUDING LANDSCAPE ROCK, IN ACCORDANCE WITH THE SPECIFICATIONS AND TO A CONDITION EQUAL TO, OR BETTER THAN, THE PRE-CONSTRUCTION CONDITION.

18. THE CONTRACTOR SHALL PROTECT ALL CONCRETE STRUCTURES TO REMAIN. ALL CONCRETE REPLACEMENT SHALL BE FROM JOINT TO JOINT (WALLS, SIDEWALK) AND SHALL BE REPLACED WITH 4000 PSI CONCRETE. ALL DAMAGED CONCRETE PANELS MUST BE REPLACED AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

19. THE CONTRACTOR SHALL PROVIDE PROTECTION TO PREVENT UNDERMINING OR DAMAGING THE STRUCTURAL INTEGRITY OF ALL FENCES, MAILBOXES, RETAINING WALLS, STREET SIGNS, OTHER UTILITY POLES, OR OTHER PRIVATE OR PUBLIC IMPROVEMENTS WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OWNER OR OWNING UTILITY AS NECESSARY TO PROVIDE TEMPORARY SUPPORT, OR PROTECTION DURING CONSTRUCTION WORK, AND SHALL NEATLY REMOVE AND PROMPTLY REPLACE NON UTILITY IMPROVEMENTS WITHOUT UNDUE DISRUPTION. THE COST OF ALL SUCH PROTECTION, REMOVAL, AND REPLACEMENT REQUIRED TO COMPLETE THE PROJECT SHALL BE SUBSIDIARY TO OTHER BID ITEMS.

20. THE CONTRACTOR SHALL REMOVE ALL FENCING, ASPHALT AND CONCRETE ROADS AND DRIVEWAYS, CURB AND GUTTER, RIP-RAP, DRAINAGE CULVERTS AND ASSOCIATED APPURTENANCES AS REQUIRED FOR CONSTRUCTION PURPOSES. ALL ITEMS DAMAGED OR REMOVED SHALL BE RESTORED IN ACCORDANCE WITH THE SPECIFICATION TO A CONDITION EQUAL TO, OR BETTER THAN, THEIR CONDITION PRIOR TO THE START OF THE PROJECT. ITEMS OF WORK NOT SPECIFICALLY INCLUDED IN THE MEASUREMENTS AND PAYMENT SECTION OF THE SPECIFICATIONS SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS AND SHALL NOT BE PAID FOR SEPARATELY.

21. IT IS NOT THE INTENTION OF THE SPECIFICATIONS TO SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAWS, REGULATIONS AND/OR ORDINANCES; THEY SHALL GOVERN IN ALL INSTANCES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SHOW A GOOD FAITH EFFORT AND TO PROTECT ALL EXISTING UTILITY TIES AND STRUCTURES AND TO ABIDE BY ALL FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES IN THIS RESPECT.

22. THE CONTRACTOR SHALL PROTECT ALL EXISTING INFRASTRUCTURE NOT SPECIFICALLY CALLED OUT FOR DEMOLITION AND REMOVAL. ALL ITEMS DAMAGED OR REMOVED SHALL BE RESTORED IN ACCORDANCE WITH THE SPECIFICATION TO A CONDITION EQUAL TO, OR BETTER THAN, THEIR CONDITION PRIOR TO THE START OF THE PROJECT.

23. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS AS WELL AS THE LATEST ADDITION OF MAG STANDARDS AND DETAILS AND THE LHC ENGINEERING SPECIFICATIONS.

24. ALL FITTINGS SHALL BE RESTRAINED MECHANICAL JOINT UNLESS OTHERWISE SPECIFIED USING JOINT RESTRAINT TABLE.

25. PAVEMENT REPAIR WIDTH SHALL BE IN ACCORDANCE WITH LHC DETAIL NO. 200. PAVEMENT REPAIR MATERIAL SHALL MATCH THE EXISTING PAVEMENT MATERIAL AND THICKNESS SHALL BE IN ACCORDANCE WITH LHC DETAIL NO. 200.

26. THE CONTRACTOR SHALL TAKE ALL APPROPRIATE STEPS TO MAINTAIN CONTINUOUS PLANT OPERATION AND UTILITY SERVICE. SHUTDOWN OF THE EXISTING DISINFECTION SYSTEM SHALL NOT BE PERMITTED. COORDINATION WITH THE UTILITY OWNER'S WILL BE NECESSARY TO AVOID DAMAGE. PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.

27. THE CONTRACTOR SHALL TAKE APPROPRIATE STEPS TO PREVENT EROSION OF MATERIAL FROM THE WORK AREA AND DEPOSITION OF SEDIMENTS INTO WATER COURSES OR DRAINAGE SWALES, THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN PRIOR TO THE START OF ANY EXCAVATION. ALL EROSION AND SEDIMENT CONTROL WORK SHALL BE INCIDENTAL TO THE OTHER PAY ITEMS.

28. ALL STREET CENTERLINES HAVE EXISTING PINS AT THE INTERSECTION OF THE STREET CENTERLINES AND SHALL BE PROTECTED IN PLACED. IF A PIN IS DISTURBED OR REMOVED, THE CONTRACTOR SHALL ARRANGE AND PAY FOR AN ARIZONA REGISTERED LAND SURVEYOR TO DETERMINE THE COORDINATES FOR EACH PIN PRIOR TO CONSTRUCTION AND TO REPLACE THE PINS WITH 412" X 3 8" MAG NAIL WITH WASHER AND SURVEYOR INFORMATION STAMPED ON WASHER TO THE SAME LOCATION AFTER RESURFACING. ALL REQUIRED SURVEY WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE SUBSIDIARY TO OTHER PAY ITEMS.

29. ALL PIPE, FITTINGS, FIRE HYDRANTS & OTHER APPURTENANCES IN DIRECT CONTACT WITH POTABLE WATER SHALL BE NATIONAL SANITATION FOUNDATION (NSF) 61 CERTIFIED. PLASTIC PIPE SHALL BEAR THE NSF SEAL FOR POTABLE WATER USE (NSF-PW).

30. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW THE MINIMUM COVER SHOWN WITH EXCEPTION TO THE LOCATIONS WHERE CONNECTING TO EXISTING MAIN LINE. ANY CHANGES MUST BE APPROVED BY ENGINEER. MINIMUM COVER SHALL MEET LHC STANDARDS.

31. IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODE, SECTION R18-5-502, "MINIMUM DESIGN CRITERIA", WATER AND SEWER MAINS SHALL BE SEPARATED IN ORDER TO PROTECT PUBLIC WATER SYSTEMS FROM POSSIBLE CONTAMINATION. ALL DISTANCES ARE MEASURED PERPENDICULARLY FROM THE OUTSIDE OF THE SEWER MAIN TO THE OUTSIDE OF THE WATER MAIN. SEPARATION REQUIREMENTS ARE AS FOLLOWS:

    31.1. A WATER MAIN SHALL NOT BE PLACED:

        31.1.1. WITHIN 6 FEET, HORIZONTAL DISTANCE, AND BELOW 2 FEET, VERTICAL DISTANCE, ABOVE THE TOP OF A SEWER MAIN UNLESS EXTRA PROTECTION IS PROVIDED. EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE SEWER MAIN WITH MECHANICAL JOINT DUCTILE IRON PIPE WITH SLIP-JOINT DUCTILE IRON PIPE IF JOINT RESTRAINT IS PROVIDED. ALTERNATE EXTRA PROTECTION SHALL CONSIST OF ENCASING BOTH THE WATER AND SEWER MAINS IN AT LEAST 6 INCHES OF CONCRETE FOR AT LEAST 10 FEET BEYOND THE AREA OF COVERED BY THE SUBSECTION (C)(1)(a).
        31.1.2. WITHIN 2 FEET HORIZONTALLY AND 2 FEET BELOW THE SEWER MAIN.
        31.1.3. NO WATER PIPE SHALL PASS THROUGH OR COME INTO CONTACT WITH ANY PART OF A SEWER MANHOLE. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAINS AND MANHOLES SHALL BE 6 FEET, MEASURED FROM THE CENTER OF THE MANHOLE.

    31.2. THE MINIMUM SEPARATION BETWEEN FORCE MAINS OR PRESSURE SEWER AND WATER MAINS SHALL BE 2 FEET VERTICALLY AND 6 FEET HORIZONTALLY UNDER ALL CONDITIONS. WHERE A SEWER FORCE MAIN CROSSES ABOVE OR LESS THAN 6 FEET BELOW A WATER LINE, THE SEWER MAIN SHALL BE ENCASED IN A T LEAST 6 INCHES OF CONCRETE OR CONSTRUCTED USING MECHANICAL JOINT DUCTILE IRON PIPE FOR 10 FEET ON EITHER SIDE OF THE WATER MAIN.

32. CONTRACTOR SHALL PERFORM ALL TESTING (INCLUDING PRESSURE TESTING) AND DISINFECTING OF THE WATER LINES PER THE CITY OF LAKE HAVASU SPECIFICATION 02550 AND THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) REGULATIONS IN BULLETIN NO. 8.

33. ACCESS TO THE SITE IS LIMITED TO 5:30 AM TO 2:00 PM UNLESS SPECIAL ARRANGEMENTS HAVE BEEN MADE WITH THE PROJECT MANAGER AND UTILITY SUPERVISOR.

ACRONYM / ABBREVIATION

A	ABANDONED	H	HEIGHT	RT	RIGHT
AB	AGGREGATE BASE	INV	INVERT	R	RADIUS
ABC	AGGREGATE BASE COURSE	LI	LANDSCAPE ISLAND	R/W	RIGHT-OF-WAY
AC	ASPHALTIC CONCRETE	LT	LEFT	RDWY	ROADWAY
BP	BEGIN PROJECT	LF	LINEAR FEET	SHT	SHEET
C	CONCRETE	M.A.G.	MARICOPA ASSOCIATION OF GOVERNMENTS	SM	SURVEY MARKER
CHLR	CHLORINE			S	SANITARY SEWER
℄	CENTERLINE	MH	MANHOLE	ST	STREET
CST	CONSTRUCTION	MIN	MINIMUM	STA	STATION
COMM	COMMUNICATION	N	NORTHING	STD	STANDARD
DET	DETAIL	NAOH	SODIUM HYDROXIDE	STRUCT	STRUCTURAL
DP	DRIVE PATH	NO	NUMBER	SIDEWALK	SW
E	EASTING	OHE	OVERHEAD ELECTRIC	TBC	TOP OF CURB
EA	EACH	P	PAVEMENT	TELE	TELEPHONE
EOP	EDGE OF PAVEMENT	PC	POINT OF CURVE	TEMP	TEMPORARY
ELEV	ELEVATION	PCC	PORTLAND CEMENT CONCRETE	TOP	TOP OF PIPE
EP	END PROJECT	PI	POINT OF INTERSECTION	TYP	TYPICAL
ESMT	EASEMENT	POB	POINT OF BEGINNING	UGE	UNDERGROUND ELECTRIC
EXIST	EXISTING	POE	POINT OF ENDING		
FC	FACE OF CURB	PROP	PROPERTY		
FH	FIRE HYDRANT	PT	POINT OF TANGENCY		
FL	FLOW LINE	QC	QUAD CITY		
FT.	FEET				

LEGEND

- 5520 — EXISTING CONTOUR
- W — EXISTING WATER LINE
- EXISTING STORM DRAIN
- SS — EXISTING SANITARY SEWER LINE
- OHE — EXISTING OVERHEAD ELECTRIC
- UGE — EXISTING UNDERGROUND ELECTRIC
- COMM — EXISTING COMM
- RW — EXISTING RECLAIM WATER
- EXISTING WALL
- PROPOSED ABOVE GRADE CHLORINE LINE
- PROPOSED BELOW GRADE CHLORINE LINE
- W — PROPOSED WATER LINE
- PROPOSED DEMOLITION

- JB — EXISTING JUNCTION BOX
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- S — EXISTING MANHOLE
- EXISTING ELECTRIC POLE
- EXISTING SIGN
- SURVEY BENCHMARK
- WM — EXISTING WATER METER
- ICV — EXISTING IRRIGATION CONTROL VALVE
- PROPOSED WATER VALVE

Kimley»Horn

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LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE: MARCH 2025
DESIGNED BY: VC
DRAWN BY: AC
REVIEWED BY: CW
KH PROJECT NO: 191245024

GENERAL NOTES

Registered Professional Engineer
CERTIFICATE NO.
77523
Craig Weniger
Date Signed 09/17/25
ARIZONA, USA

Sheet Number:
G-01
Sheet 2 of 52

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GRAPHIC SCALE IN FEET
0 100 200 400

POINT TABLE				
POINT #	ELEVATION	NORTHING	EASTING	DESCRIPTION
99	474.85	1273581.34	316900.23	60D BASE
101	463.40	1272854.84	316864.89	RR SPIKE DOVR/PORT
102	464.70	1272854.69	316909.38	RR SPIKE DOVR CURV
103	482.10	1272988.19	317251.02	RR SPIKE
104	514.57	1273378.16	317670.97	RR SPIKE
105	515.32	1273336.68	317714.33	RR SPIKE
1000	NOT SURVEYED	1272855.94	316477.39	RR SPIKE
1006	NOT SURVEYED	1273727.83	317529.76	RR SPIKE
1007	NOT SURVEYED	1274939.68	316369.21	RR SPIKE
1008	NOT SURVEYED	1274921.30	319008.45	RR SPIKE
1009	NOT SURVEYED	1272281.59	318992.78	RR SPIKE
70000	476.75	1273723.39	316791.50	ST 70000
70001	476.75	1273723.39	316791.51	ST 70001
70002	472.08	1273684.38	316608.17	ST 70002
70003	465.32	1273241.00	316529.56	ST 70003
70004	468.09	1273238.54	316814.51	ST 70004
70005	481.04	1276012.48	316348.01	3" BCSM DEPT OF INT

BASIS OF BEARING:

THE MONUMENTED CENTERLINE OF DOVER AVENUE AS SHOWN ON THE RECORDED SUBDIVISION PLAT TRACT NO. 2290 LAKE HAVASU CITY, ARIZONA, AS MEASURED BETWEEN THE FOUND SPIKE & WASHER APPROXIMATELY 18 FEET SOUTHWEST OF THE CENTERLINE OF THE "PORT DRAIN" PARCEL AND THE FOUND SPIKE & WASHER AT THE CENTERLINE INTERSECTION OF DOVER AVENUE AND KIOWA AVENUE, WITHIN THE NORTHWEST QUARTER OF SECTION 4, TOWNSHIP 13 NORTH, RANGE 20 WEST, GILA AND SALT RIVER MERIDIAN, MOHAVE COUNTY, ARIZONA: SAID BEARING BEING NORTH 47°07'34" EAST A DISTANCE OF 538.01 FEET.

BASIS OF ELEVATION:

NATIONAL GEODETIC SURVEY BENCHMARK

PID: BBJP67

DESIGNATION: T14N R20W AP2 S33

STAMPING: T14N R20W AP2 S33 1987

DESCRIPTION: MARK IS APPROXIMATELY 0.2 MILE SOUTH OF INTERSECTION OF KIRK DRIVE AND LONDON BRIDGE ROAD IN HAVASU AZ, ±45 FEET EAST OF CENTER ROADWAY.

ELEVATION: 485.17 NAVD 88

Kimley»Horn

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LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978 •

NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	MARCH 2025
DESIGNED BY:	VC
DRAWN BY:	AC
REVIEWED BY:	CW
KH PROJECT NO:	191245024

HORIZONTAL CONTROL

Registered Professional Engineer
CERTIFICATE NO.
77523
Craig Wenger
Date Signed 09/17/25
(Unit)
ARIZONA, U.S.A.

Sheet Number:
C-01
Sheet 3 of 52

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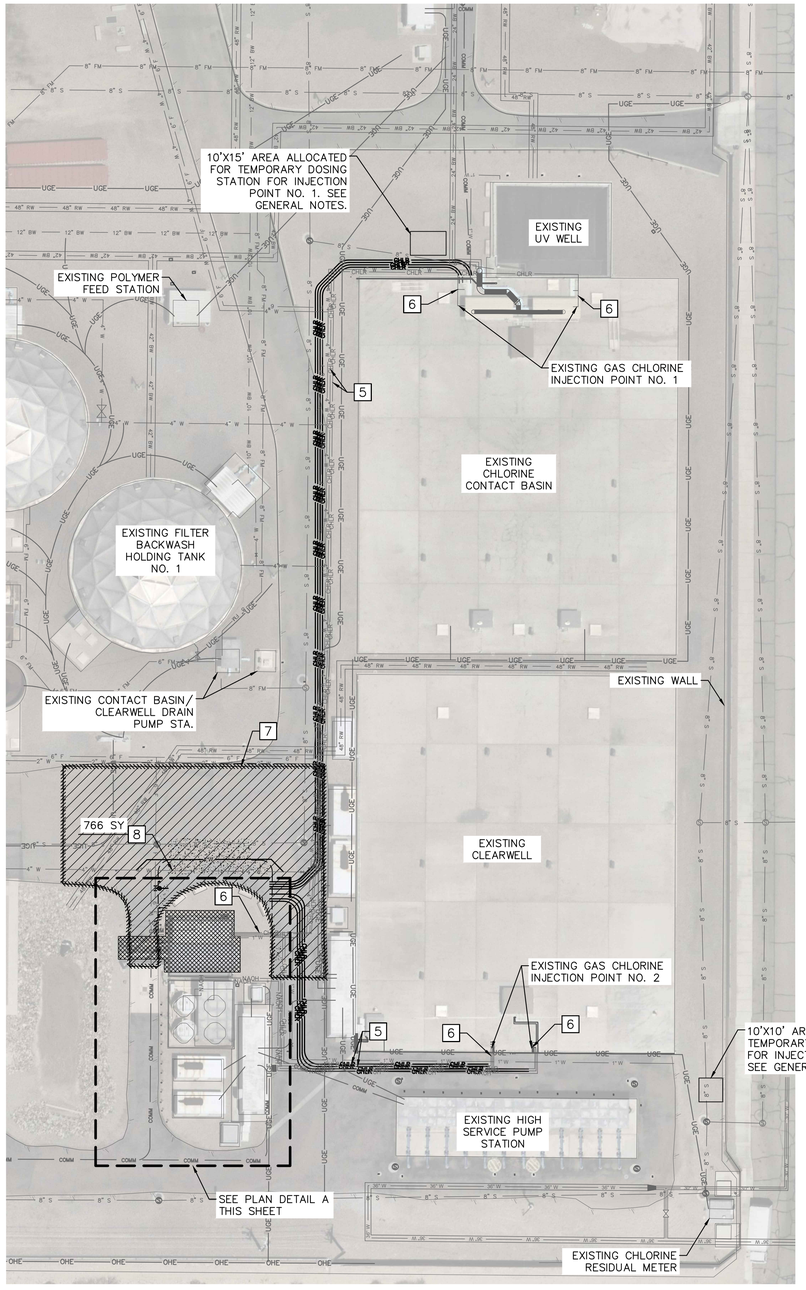
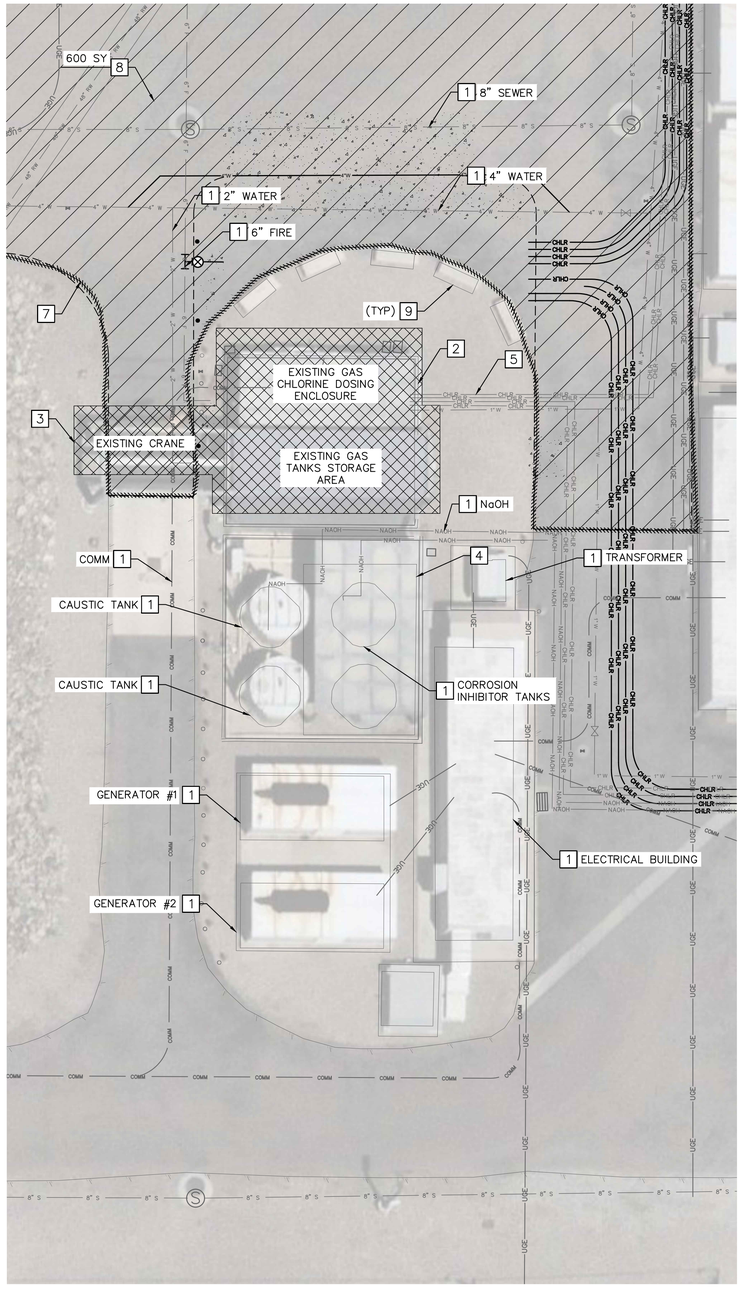


1 C1 DEMOLITION PLAN
SCALE: 1"=30'

GRAPHIC SCALE IN FEET
0 15 30 60
NORTH



A C1 PLAN DETAIL
SCALE: 1"=10'

GRAPHIC SCALE IN FEET
0 5 10 20
NORTH

	REMOVAL AND ABANDONMENT NOTES
1	PROTECT-IN-PLACE, UNLESS OTHERWISE NOTED.
2	DEMOLISH EXISTING STEEL SUNSHADE STRUCTURE AND ASSOCIATED FOUNDATION ELEMENTS.
3	DEMOLISH EXISTING CRANE STRUCTURE AND ASSOCIATED FOUNDATION ELEMENTS.
4	CONTRACTOR SHALL NOT UNDERMINE EXISTING FOUNDATION ELEMENTS OF STRUCTURES TO REMAIN WHILE PERFORMING DEMOLITION OPERATIONS. ANY TEMPORARY SHORING OR UNDERPINNING THAT MAY BE REQUIRED SHALL BE DESIGNED BY AN ENGINEER REGISTERED IN THE STATE OF ARIZONA.
5	REMOVE EXISTING GAS CHLORINE LINES PER LHC TECH. SPEC. 02550 AFTER PURGING.
6	CUT AND CAP EXISTING GAS CHLORINE PIPELINE AFTER PURGING PER LHC TECH. SPEC. 02550.
7	ALL SAWCUTS SHALL BE FULL DEPTH OF PAVEMENT.
8	REMOVE EXISTING AC PAVEMENT. SEE GRADING PLAN ON SHEET C-04 FOR DETAIL.
9	REMOVE EXISTING DECORATIVE BLOCKS AND RETURN TO OWNER FOR SALVAGE.

GENERAL NOTES:

1. CONTRACTOR SHALL CONDUCT A SITE SAFETY ASSESSMENT AND DEVELOP A HAZARD MITIGATION PLAN TO ADDRESS CHLORINE RESIDUALS IN THE EXISTING CLEARWELL, VENTILATION REQUIREMENTS, AND EMERGENCY RESPONSE PROTOCOLS. CONTRACTOR SHALL FOLLOW 29 CFR 1910.119 AND ADEQ REQUIREMENTS.
2. CONTRACTOR SHALL SUBMIT METHOD OF PROCEDURE (MOP) OF SHUTDOWN OF EXISTING CHLORINE GAS SUPPLY SYSTEM, CHLORINE GAS INJECTION SYSTEM, AND TIE-IN OF TEMPORARY LIQUID CHLORINE (SODIUM HYPOCHLORITE) SYSTEM AT EACH INJECTION LOCATION TO OWNER AND ENGINEER FOR APPROVAL. MOP SHALL INCLUDE SHUTDOWN OF CHLORINE GAS FEED, PURGING AND NEUTRALIZING REMAINING CHLORINE IN PIPING AND EQUIPMENT, DISCONNECTING AND REMOVING GAS CYLINDERS FROM SITE, ISOLATING AND REMOVING REMAINING GAS FEED LINES, REGULATORS, VACUUM INJECTORS AND ASSOCIATED MECHANICAL AND ELECTRICAL EQUIPMENT. EXISTING GAS CHLORINE DISINFECTION SYSTEM SHALL NOT BE SHUTDOWN AND DECOMMISSIONED UNTIL TEMPORARY SODIUM HYPOCHLORITE SYSTEM IS TESTED AND APPROVED. CONTRACTOR SHALL BE REPSONSIBLE FOR MAINTAINING CONTINUOUS CHEMICAL DOSING AND COORDINATING TRANSITION TO NEW CHEMICAL DOSING SYSTEM DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH THE OWNER'S OPERATOR(S) TO ENSURE DELIVERY OF WATER MEETING FINAL WATER QUALITY REQUIREMENTS.
3. ALL HAZARDOUS WASTE SHALL BE STORED, HANDLED, AND DISPOSED OF IN ACCORDANCE WITH ADEQ HAZARDOUS WASTE REQUIREMENTS.
4. ALL WASTE AND DEBRIS NOT CLASSIFIED AS HAZARDOUS WASTE SHALL BE DISPOSED OF PROPERLY OFF-SITE AT AN ADEQ APPROVED LANDFILL.
5. INSTALL TEMPORARY SODIUM HYPOCHLORITE STORAGE TANK, METERING SKIDS, AND DOSING LINES AT INJECTION POINT. INSTALL CHEMICAL METERING SKIDS INSIDE 2-DOOR FRP CONTAINMENT ENCLOSURES, 64" X 58" X 45" MINIMUM SIZE, PEABODY ENGINEERING 253-CONENC MODEL OR APPROVED EQUAL. CONTRACTOR SHALL COORDINATE WITH OWNER ON LOCATION OF TEMPORARY INJECTION POINT AND FIELD ROUTE TEMPORARY INJECTION LINES. CONTRACTOR SHALL COORDINATE WITH OWNER FOR PROGRAMMING AUTOMATIC DOSING ON METERING PUMPS TO ACHIEVE DESIRED FREE CHLORINE RESIDUALS. IT IS NOT RECOMMENDED TO RE-PURPOSE EXISTING GAS INJECTION LINES.
6. PROVIDE APPROPRIATE SECONDARY CONTAINMENT PER 40 CFR 267.195 FOR SODIUM HYPOCHLORITE CHEMICAL.
7. CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT-IN-PLACE ALL INFRASTRUCTURE THAT IS NOT EXPLICITLY CALLED OUT FOR DEMOLITION AND REMOVAL. IF SUCH DAMAGE IS MADE, CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING SITE BACK TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION VERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE: MARCH 2025
DESIGNED BY: VC
DRAWN BY: AC
REVIEWED BY: CW
KH PROJECT NO: 191245024

DEMO PLAN

Registered Professional Engineer
CERTIFICATE NO.
77523
Craig Wenger
Date Signed 09/17/25
ARIZONA, USA

Sheet Number:
C-02
Sheet 4 of 52

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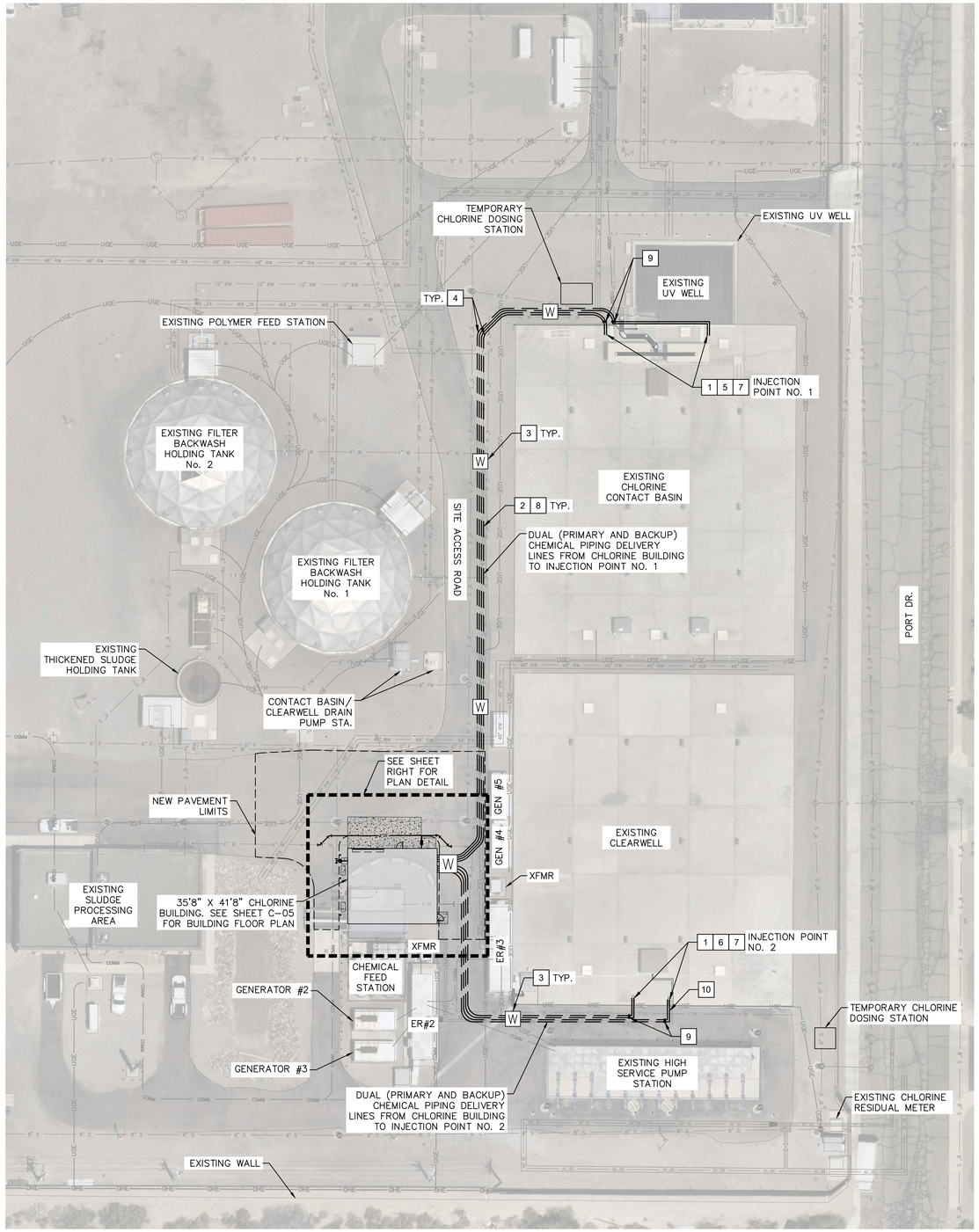

1 / C1 YARD PIPING
SCALE: 1"=30'

NORTH

GRAPHIC SCALE IN FEET
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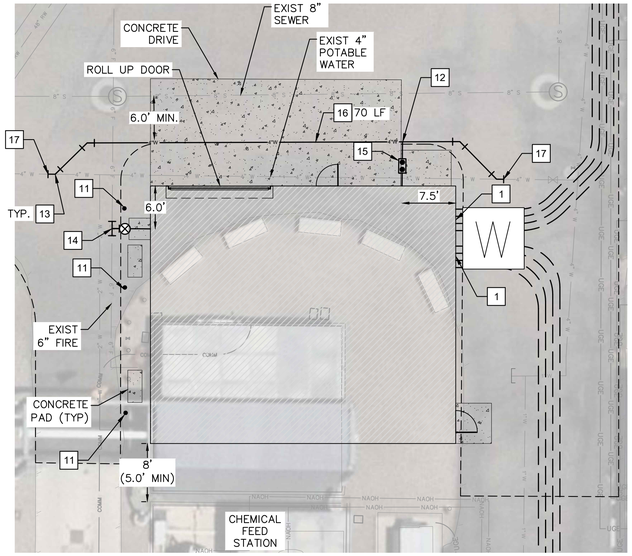

A / C1 PLAN DETAIL
SCALE: 1"=10'

NORTH

GRAPHIC SCALE IN FEET
0 5 10 20

GENERAL NOTES:

1. SEE LHC DETAIL 200 ON SHEET 13 FOR TYPICAL TRENCH DETAIL.
2. MINIMUM COVER IS 3.0' PER LHC TECHNICAL SPECIFICATION 02550.
3. SEE LHC DETAIL 318 ON SHEET 13 FOR TYPICAL UTILITY CROSSING DETAIL.
4. UNLESS OTHERWISE SHOWN ON THE PLANS, CONDUITS ARE SHOWN FOR INFORMATION ONLY. EXACT CONDUIT ROUTING SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR. NEW CHEMICAL CONDUIT SHALL BE LOCATED WHERE REMOVED GAS CHEMICAL PIPING IS. SEE DEMOLITION SHEET ON C-02 FOR REFERENCE.
5. SEE SHEET C-04 FOR SITE GRADING PLAN
6. TEMPORARY CHLORINE DOSING STATIONS SHALL REMAIN IN OPERATION DURING THE DURATION OF THE CONSTRUCTION PHASE. ONCE NEW IMPROVEMENTS HAVE BEEN CONSTRUCTED, INSTALL,ED TEST, AND ACCEPTED BY THE ENGINEER AND OWNER, CONTRACTOR MAY THEN BEGIN TO SWITCH-OVER OF TEMPORARY SYSTEMS TO PERMANENT SYSTEMS.
7. SEE SHEETS S-01 TO S-12 FOR STRUCTURAL DETAILS.
8. SEE SHEET C-02 FOR TEMPORARY DOSING STATION LOCATIONS.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING THE LOCATION, DEPTH, AN ALIGNMENT OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION ACTIVITIES.

CONSTRUCTION NOTES:

1. CONDUIT WALL PENETRATION SEAL PER DETAIL F ON SHEET E-05.
2. 1/2" VIRGIN POLYTETRAFLUOROETHYLENE (PTFE) CHEMICAL RESISTANT TUBING INSIDE 2" SCH 80 PVC (LENGTH TO SUIT). PTFE TUBING SHALL BE ONE CONTINUOUS LENGTH.
3. CONTRACTOR TO PROVIDE 3'W X 3'L X 3'D TRAFFIC-RATED, CHEMICAL RESISTANT FRP PULLBOX OR APPROVED EQUAL. CHEMICAL RATING SHALL BE RESISTANT TO SODIUM HYPOCHLORITE. PULLBOX TO BE FLUSH WITH GRADE AND CONDUITS TO PENETRATE THROUGH SIDE OF BOX. PULLBOX COVER SHALL READ "WATER".
4. PROVIDE LONG-RADIUS SWEEPS FOR ALL CONDUIT BENDS. CONDUIT BENDS SHALL BE INSTALLED TO PROTECT INTERNAL PTFE TUBING, AND TO ALLOW FUTURE PULL-THROUGH OR MAINTENANCE ACTIVITIES WITHOUT OBSTRUCTION.
5. CONNECT TO EXISTING CHLORINE CONTACT BASIN. SEE DETAIL 1 ON SHEET C-11 FOR CHEMICAL DIFFUSER DETAIL.
6. CONNECT TO EXISTING CLEARWELL. SEE DETAIL A ON SHEET C-11 FOR CHEMICAL DIFFUSER DETAIL.
7. CHEMICAL CONDUIT SHALL STUB UP OUTSIDE OF EXISTING STRUCTURE FOR FURTHER PIPE ROUTING ABOVE GRADE ALONG BUILDING.
8. 2" SCH 80 PVC CONDUIT CONTAINING PTFE TUBING TO BE BURIED PER DETAIL A, SHEET E-05.
9. CONDUIT STUB UP ABOVE GRADE TO BE PVC COATED RIGID CONDUIT. PROVIDE SUPPORTS AT A MINIMUM EVERY 5-FEET PER DETAIL 3 ON SHEET 10.
10. CONTRACTOR SHALL FIELD ROUTE ABOVE GRADE PIPING TO CONNECTION POINT.
11. TYPE 2 REMOVABLE BOLLARD. REFER TO MAG STD. DET. 140 ON SHEET C-10.
12. 1-1/2" WATER SERVICE PER LHC DETS. 301, 304, AND 309 ON SHEET C-11. REFER TO SHEET P-100 FOR PLUMBING PLAN.
13. 4" 45° BEND. FITTINGS SHALL BE RESTRAINED MECHANICAL JOINT UNLESS OTHERWISE SPECIFIED USING JOINT RESTRAINT TABLE.
14. 4" DIP TEE AND 4" DIP GATE VALVE. 4" PVC C900 TO BUILDING FIRE RISER. REFER TO SHEET FRP-02 FOR FIRE PROTECTION PLAN.
15. 1-1/2" BACKFLOW PREVENTER. REFER TO MAG STD. DET. 611-1 ON SHEET C-11.
16. RELOCATE EXISTING WATER. CONTRACTOR SHALL MAINTAIN 6 FEET MINIMUM SEPARATION BETWEEN WATER AND SEWER WHEN RELOCATING EXISTING 4" WATER LINE.
17. TIE-IN TO EXISTING WATER.

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LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XY

DATE:	MARCH 2025
DESIGNED BY:	VC
DRAWN BY:	AC
REVIEWED BY:	CW
KH PROJECT NO:	191245024

SITE PLAN AND YARD PIPING

Craig Wenger
Registered Professional Engineer
CERTIFICATE NO.
77523
Craig Wenger
Date Signed 09/17/25
(Civil)
ARIZONA, USA

Sheet Number:
C-03
Sheet 5 of 52

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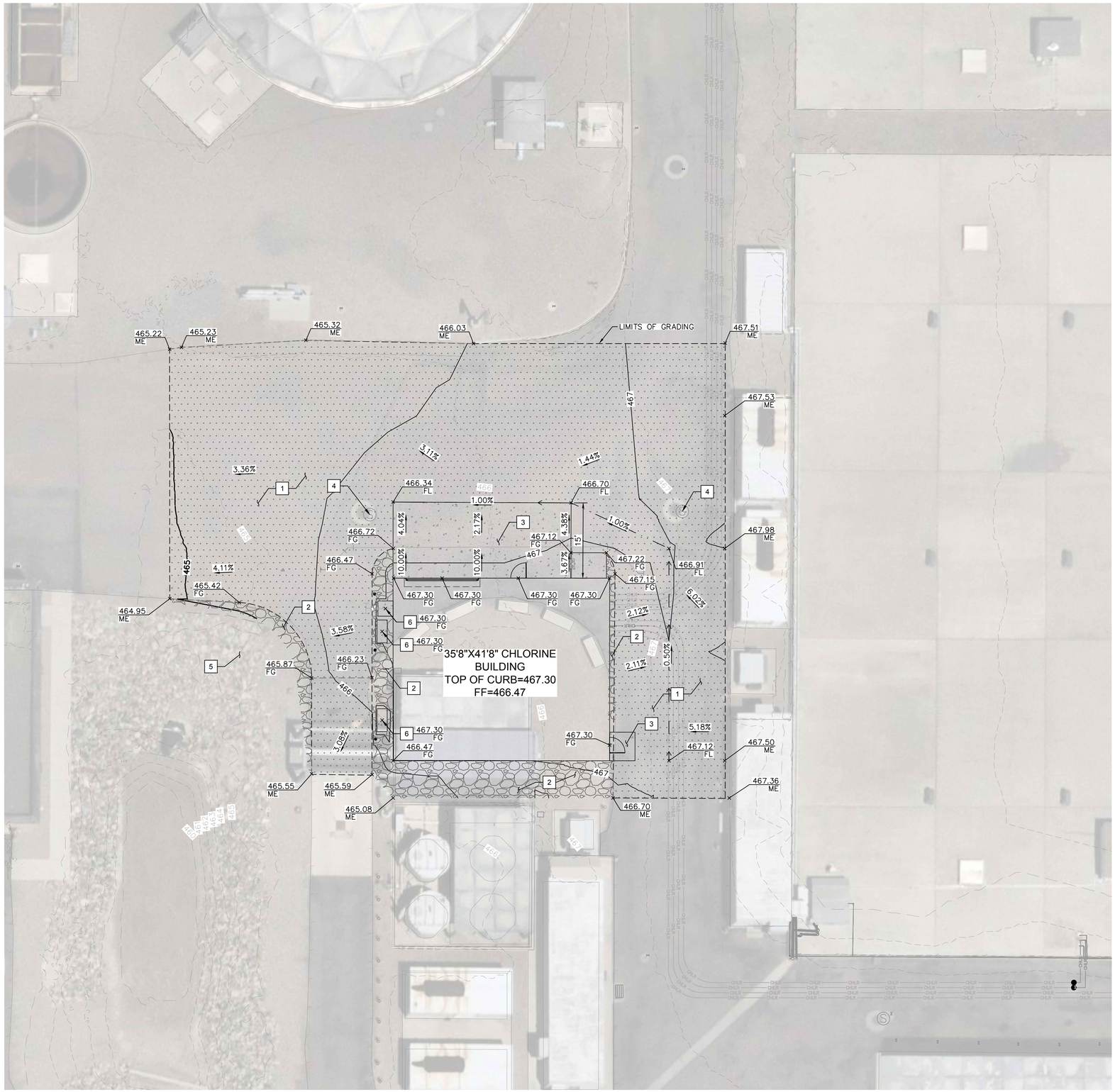
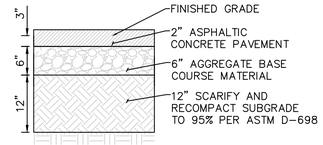


GRADING AND PAVING NOTES:

1. CONSTRUCT 3" AC PAVEMENT ON 6" ABC WITH 12" PROCESSED SUBGRADE PER DETAIL BELOW.
2. CONSTRUCT DECOMPOSED GRANITE AREA.
3. CONSTRUCT 4" THICK CONCRETE.
4. ADJUST EXISTING MANHOLE TO GRADE.
5. EXISTING RIP-RAP TO REMAIN IN PLACE.
6. ELEVATED MECHANICAL PAD. ELEVATION PER PLAN.

NORTH

GRAPHIC SCALE IN FEET
0 5 10 20



PAVEMENT SECTION PER GEOTECH REPORT BY SUNBELT ENGINEERING AND TESTING, DATED 3/24/2025.

TYPICAL PAVEMENT SECTION
(NTS)

LEGEND

- AC PAVEMENT
- DECOMPOSED GRANITE
- CONCRETE PAVING

ENGINEER'S NOTES

1. THE EARTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH THE WATER TREATMENT PLANT IMPROVEMENT PLANS AND SPECIFICATIONS.
2. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
3. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS TO NEARBY STORM DRAIN CATCH BASIN/ RETENTION BASIN FOR ALL NATURAL AND PAVED AREAS.
4. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL BLUESTAKE AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
5. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
6. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
8. CONTRACTOR IS RESPONSIBLE FOR VERIFYING HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
9. TOPOGRAPHIC INFORMATION WAS TAKEN FROM A TOPOGRAPHIC SURVEY DATED 02/26/2025 BY DARLING GEOMATICS. IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THE CONTRACTOR SHALL HAVE MADE, AT THEIR OWN EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.
10. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
11. ALL PROPOSED ELEVATIONS ARE TO FINISHED SURFACE.
12. PROPOSED ELEVATIONS AND CONTOURS REPRESENT PAVEMENT SURFACE ELEVATION, UNLESS OTHERWISE NOTED.
13. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY ELEVATION DISCREPANCIES DISCOVERED DURING CONSTRUCTION. ANY DEMOLITION AND REWORK ASSOCIATED WITH ELEVATION DISCREPANCIES NOT REPORTED TO THE ENGINEER, SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR.
14. ALL WORK PERFORMED WITHOUT THE APPROVAL OF THE OWNER AND MATERIAL NOT IN CONFORMANCE WITH ALL NATIONAL AND LOCAL CODES AND SPECIFICATIONS ISSUED BY THE OWNER IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
15. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY THE PRESENCE AND LOCATION OF ANY AND ALL EXISTING OVERHEAD AND/OR UNDERGROUND UTILITIES THAT MAY INTERFERE WITH THE CONSTRUCTION, WHETHER OR NOT SAID UTILITIES ARE SHOWN ON THE CONSTRUCTION PLANS FOR THIS PROJECT. CONTRACTOR SHALL ADEQUATELY PROTECT AND MAINTAIN SUCH UTILITIES.
16. CONSTRUCTION SHALL CONFORM TO THE LATEST LAKE HAVASU CITY STANDARD DETAILS AND SPECIFICATIONS.
17. ALL CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4000 PSI, UNLESS OTHERWISE NOTED.

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LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-10802S-500XXY

DATE:	MARCH 2025
DESIGNED BY:	VC
DRAWN BY:	AC
REVIEWED BY:	CW
KH PROJECT NO:	191245024

GRADING PLAN

Registered Professional Engineer
CERTIFICATE EXPIRES (Civil)
77523
Craig Wenger
Date Signed 09/17/25
ARIZONA, USA

Sheet Number:
C-04
Sheet 6 of 52

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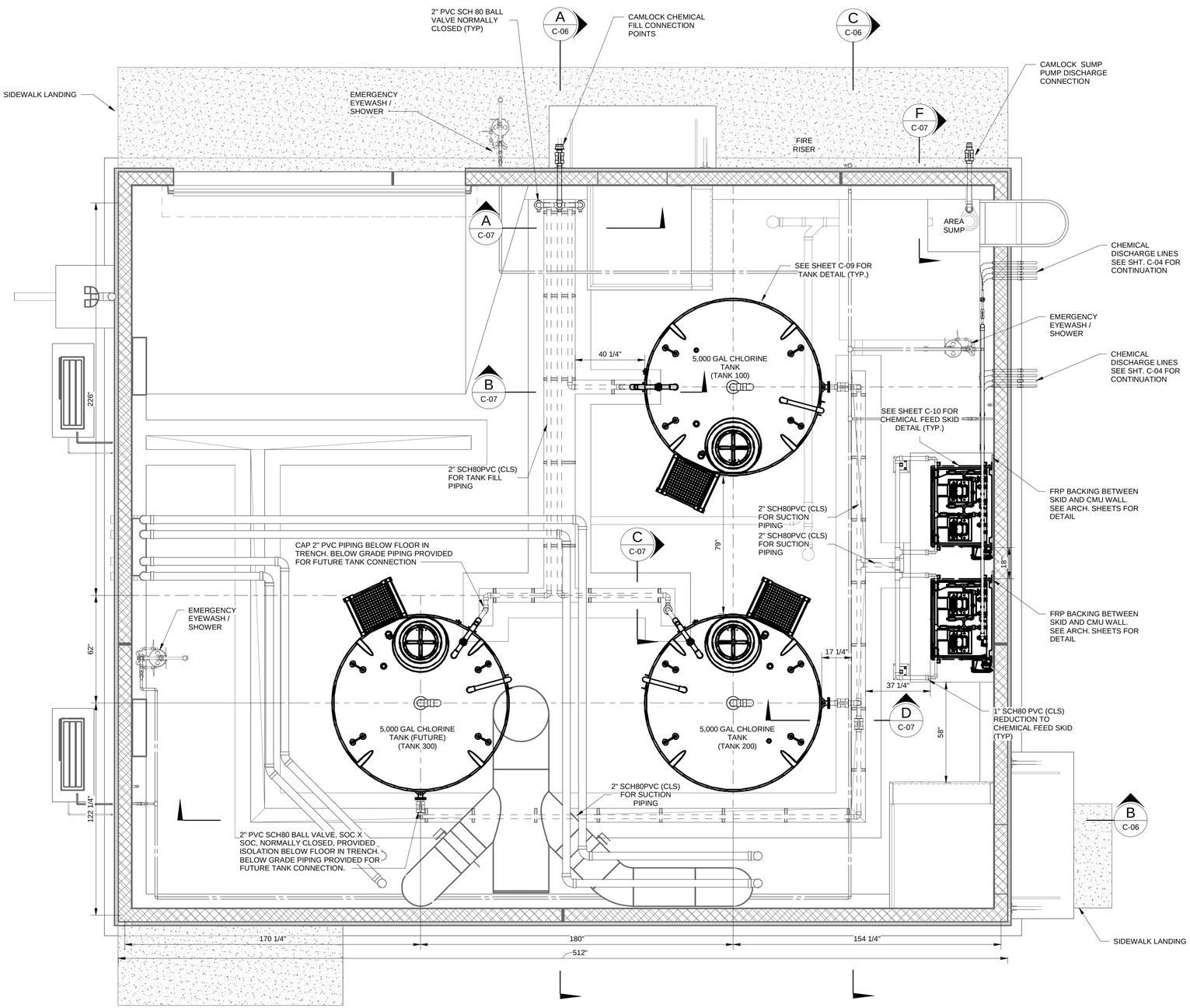

CHEMICAL BUILDING FLOOR PLAN

3/8" = 1'-0"

GENERAL NOTES:

1. SEE SHEETS S-01 TO S-14 FOR STRUCTURAL DETAILS.
2. SEE SHEETS M-01 TO M-04 FOR MECHANICAL HVAC PLAN.
3. SEE SHEETS P-01 TO P-04 FOR PLUMBING PLAN.
4. SEE SHEETS E-01 TO E-05 FOR ELECTRICAL DETAILING INSIDE BUILDING.
5. SEE SHEETS A-02 TO A-08 FOR ARCHITECTURAL PLAN.
6. CONTRACTOR SHALL PROVIDE AND INSTALL ALL PROCESS PIPING AND VALVING AS SHOWN.
7. ALL PIPE GALLERIES SHALL BE COATED WITH DURA-PLATE 8200 EPOXY COATING OR APPROVED EQUAL.
8. ALL BALL VALVES AND GASKETS LOCATED SHALL BE VITON BRAND. ALL BALL VALVES SHALL BE TRUE UNION STYLE

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CITY PROJECT NO.
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DATE:	SEPT 2025
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DRAWN BY:	AC
REVIEWED BY:	CW
KH PROJECT NO:	191245024

BUILDING FLOOR PLAN

Registered Professional Engineer (Civil) CERTIFICATE NO. 77523 Craig Wenger Date Signed 09/17/25 ARIZONA, USA

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Sheet Number:

C-05

Sheet 7 of 50

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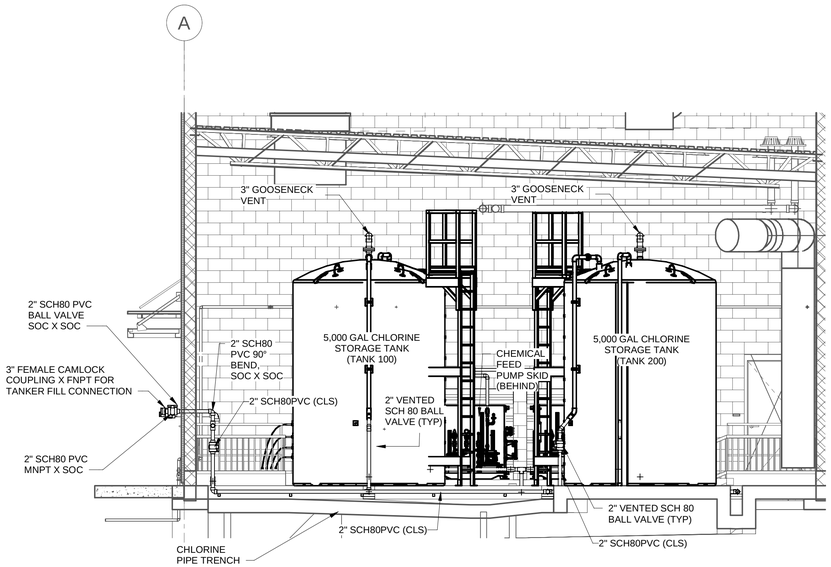
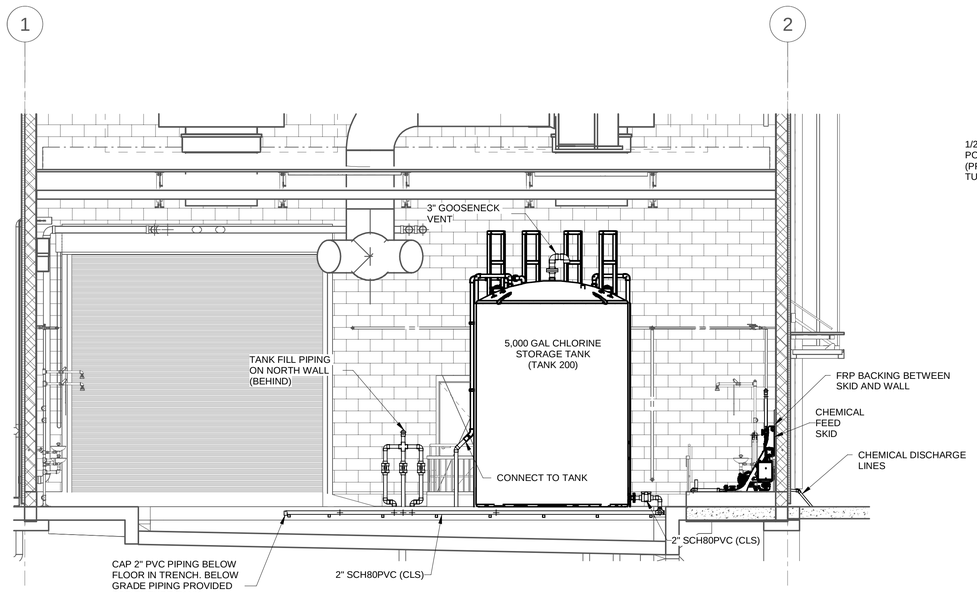


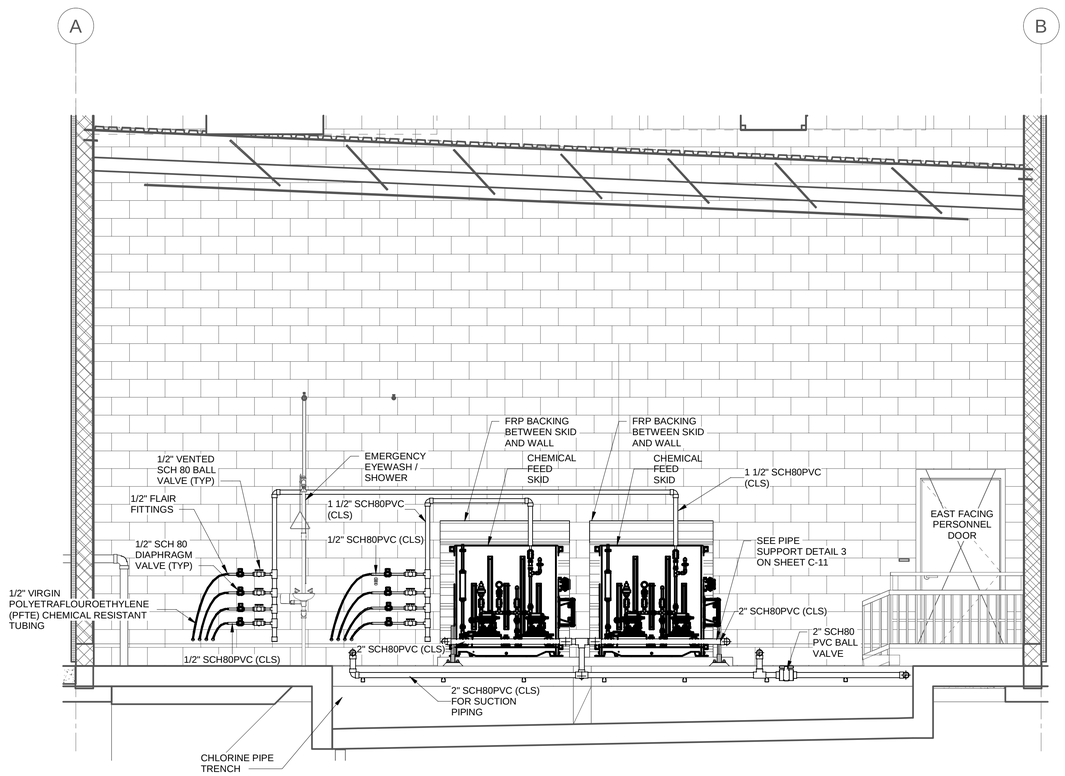
A C-05 CHEMICAL BUILDING EAST FACING
1/4" = 1'-0"



B C-05 CHEMICAL BUILDING NORTH FACING
1/4" = 1'-0"

NOTES:

1. ALL PIPE GALLERIES SHALL BE COATED WITH DURA-PLATE 8200 EPOXY COATING OR APPROVED EQUAL.
2. ALL BALL VALVES LOCATED ON CHEMICAL SUCTION AND DISCHARGE PIPING SHALL BE VENTED SCH80 BALL VALVES.
3. ALL BALL VALVES AND GASKETS LOCATED SHALL BE VITON BRAND. ALL BALL VALVES SHALL BE TRUE UNION STYLE.



C C-05 CHEMICAL PUMP SKID
3/8" = 1'-0"

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LHC CHLORINE CONVERSION
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CITY PROJECT NO.
PW-B25-108025-500XXY

DATE: SEPT 2025
DESIGNED BY: VC
DRAWN BY: AC
REVIEWED BY: CW
KH PROJECT NO: 191245024

BUILDING SECTIONS

Craig Wenger
Registered Professional Engineer (Civil)
CERTIFICATE NO.
77523
Craig Wenger
Date Signed 09/17/25
ARIZONA, USA

Sheet Number:
C-06
Sheet 8 of 50

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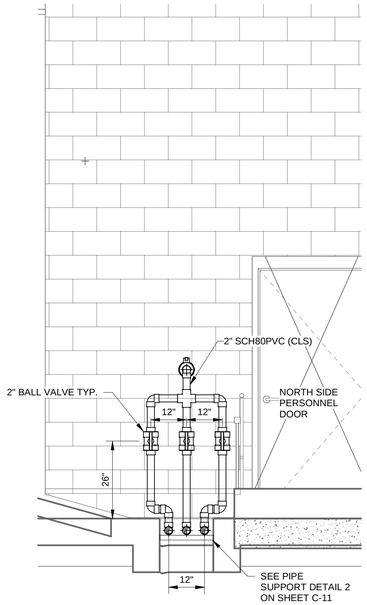
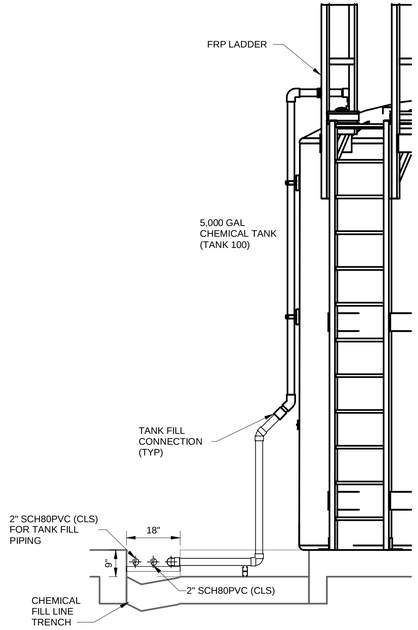
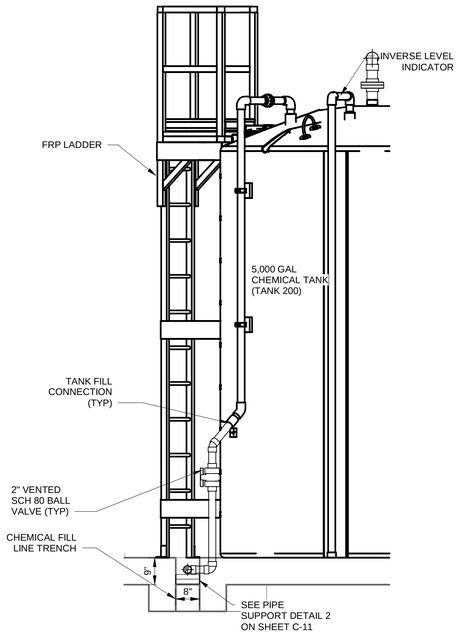


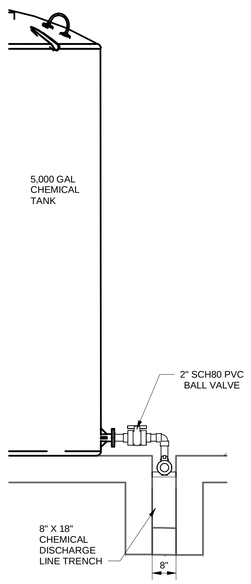
A C-05 CHEMICAL FILL LINES INSIDE BUILDING
1/2" = 1'-0"



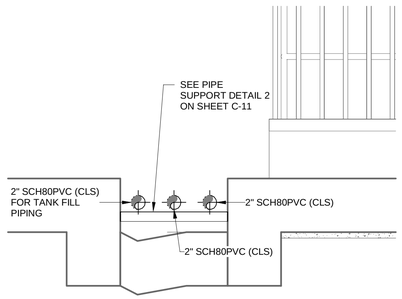
B C-05 CHEMICAL TANK FILL CONNECTION
1/2" = 1'-0"



C C-05 CHEMICAL TANK FILL CONNECTION TANK 2
1/2" = 1'-0"



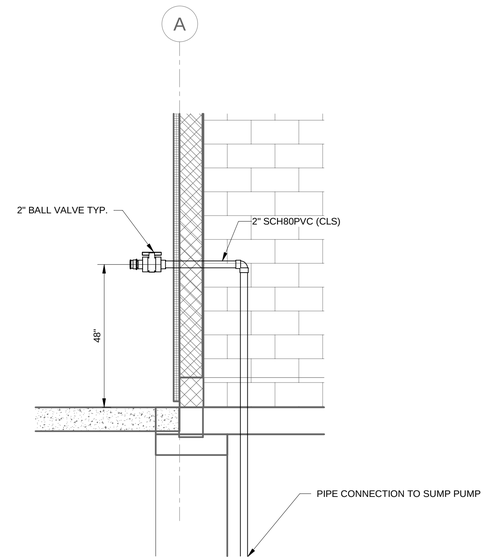
D C-05 CHEMICAL TANK DISCHARGE (TYP.)
1/2" = 1'-0"



E CHEMICAL PIPE SUPPORT TRENCH
1" = 1'-0"

NOTES:

1. ALL PIPE GALLERIES SHALL BE COATED WITH DURA-PLATE 8200 EPOXY COATING OR APPROVED EQUAL.
2. ALL BALL VALVES LOCATED ON CHEMICAL SUCTION AND DISCHARGE PIPING SHALL BE VENTED SCH80 BALL VALVES.
3. ALL BALL VALVES AND GASKETS LOCATED SHALL BE VITON BRAND. ALL BALL VALVES SHALL BE TRUE UNION STYLE.



F C-05 SUMP PUMP DRAIN CONNECTION
1/2" = 1'-0"

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LHC CHLORINE CONVERSION
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DATE:	SEPT 2025
DESIGNED BY:	VC
DRAWN BY:	AC
REVIEWED BY:	CW
KH PROJECT NO:	191245024

BUILDING SECTIONS SHEET 2

Registered Professional Engineer
CERTIFICATE NO.
77523
Craig Wenger
Date Signed 09/17/25
ARIZONA, U.S.A.

Sheet Number:
C-07
Sheet 9 of 50

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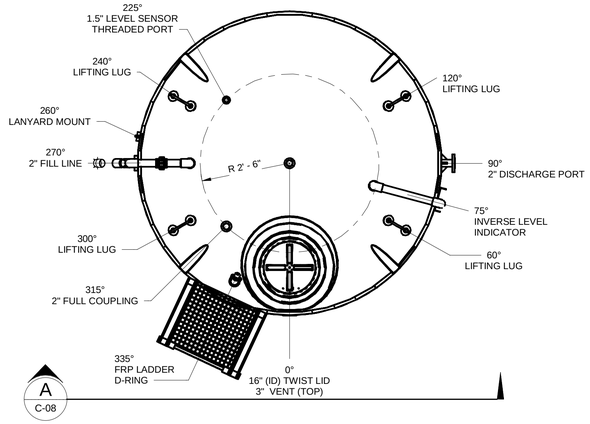
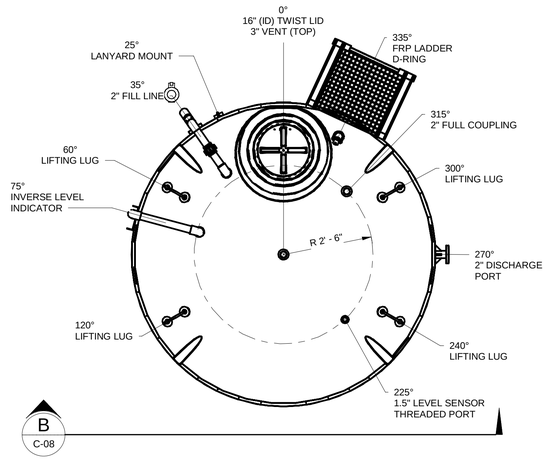


5,000 GAL CHEMICAL TANK 100

1/2" = 1'-0"



5,000 GAL CHEMICAL TANK 200

1/2" = 1'-0"

NOTES:

1. PEABODY ENGINEERING 5,000 GAL SINGLE WALL TANK OR APPROVED EQUAL
   A. MATERIAL: POLYETHYLENE LPE HD 1.9
   B. ADDITIONAL ACCESSORIES:
      a. FRP ACCESS LADDER
      b. INVERSE LEVEL GAUGE
         • LEVEL TRANSMITTER SHALL HAVE A 1.5" NPT CONNECTION
      c. DROP FILE LINE
      d. INJECTION LANCE WITH 2" BALL VALVE
2. ALL BALL VALVES LOCATED ON CHEMICAL SUCTION AND DISCHARGE PIPING SHALL BE VENTED SCH80 BALL VALVES.
3. ALL BALL VALVES AND GASKETS SHALL BE VITON BRAND. ALL BALL VALVES SHALL BE TRUE UNION STYLE
4. ALL TANK FITTINGS SHALL BE SPIN WELDED OR APPROVED EQUAL.

A 5,000 GAL CHLORINE TANK 100 FRONT VIEW

1/2" = 1'-0"

B 5,000 GAL CHLORINE TANK 200 BACK VIEW

1/2" = 1'-0"

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1661 E CAMELBACK RD # 400, PHOENIX, AZ 85016
PHONE: (602) 944-5500
WWW.KIMLEY-HORN.COM

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION

100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	SEPT 2025
DESIGNED BY:	VC
DRAWN BY:	AC
REVIEWED BY:	CW
KH PROJECT NO:	191245024

TANK DETAILS

Registered Professional Engineer
CERTIFICATE NO.
77523
Craig Wenger
Date Signed 09/17/25
ARIZONA, U.S.A.

Sheet Number:

C-08

Sheet 10 of 50

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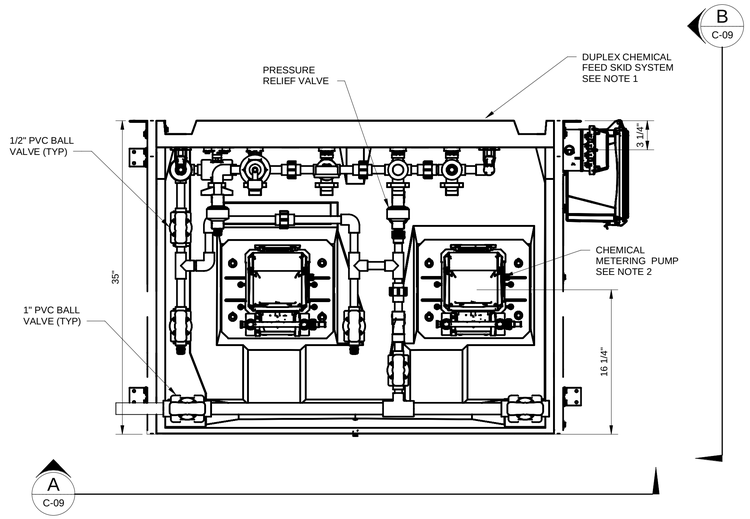
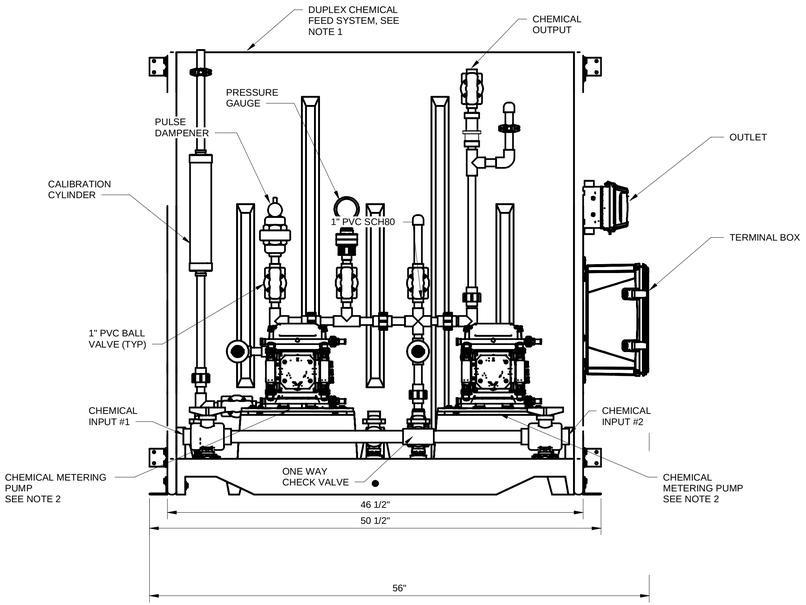


CHEMICAL FEED SKID PLAN

1 1/2" = 1'-0"

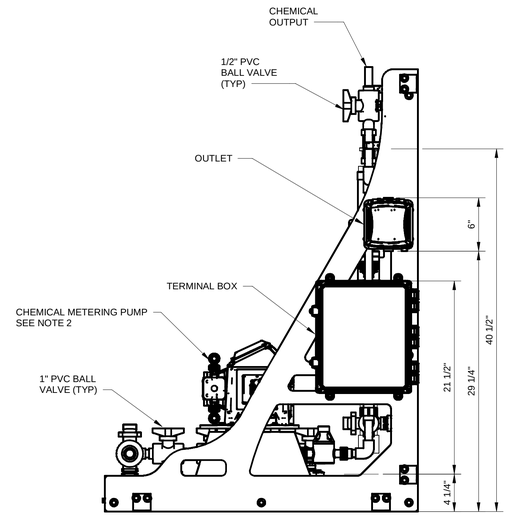
NOTES:

1. EQUIPMENT SHOWN ON THIS DETAIL SHEET SHALL BE PROVIDED AS PART OF THE PRE-PACKAGED DUPLEX CHEMICAL PUMP SKID
2. ALL BALL VALVES AND GASKETS LOCATED SHALL BE VITON BRAND. ALL BALL VALVES SHALL BE TRUE UNION STYLE.
3. DUPLEX PUMP SKID MODEL: BLUEWHITE CFPS-2 CHEM-FEED, OR APPROVED EQUAL.
   A. SCH80 PVC PIPING AND VALVES, VITON ELASTOMERS FOR ALL INTERCONNECTING PIPING
4. CHEMICAL METERING PUMP MODEL:
   A. BLUE-WHITE M4 PERISTALTIC PUMPS, OR APPROVED EQUAL.
      a. CAPACITY: 0.02-54 GPH
      b. 100PSI



A CHEMICAL FEED SKID FRONT

1 1/2" = 1'-0"



B CHEMICAL FEED SKID PROFILE

1 1/2" = 1'-0"

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION

100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	MARCH 2025
DESIGNED BY:	VC
DRAWN BY:	AC
REVIEWED BY:	CW
KH PROJECT NO:	191245024

CHEMICAL FEED SKID DETAIL

Registered Professional Engineer
CERTIFICATE OF REGISTRATION
77523
Craig Wenger
Date Signed 09/17/25
ARIZONA, U.S.A.

Sheet Number:

C-09

Sheet 11 of 33

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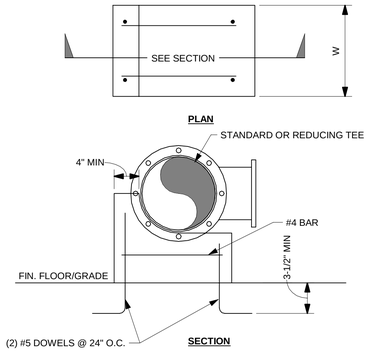
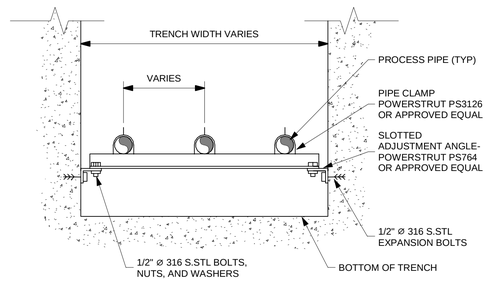


NOTES:
1. PROVIDE CONCRETE FOOTING BELOW GRADE FOR ALL FINISHED GRADE APPLICATIONS.

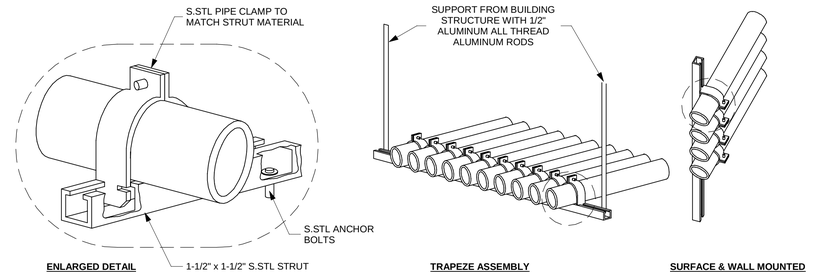
PIPE DIAMETER "D" (INCHES)	MINIMUM SUPPORT WIDTH "W" (INCHES)
< 12	6
< 16	8
< 24	12
30, 36, & 42	16
48	20
54 & 60	24

1 CONCRETE TEE SUPPORT
1" = 1'-0"

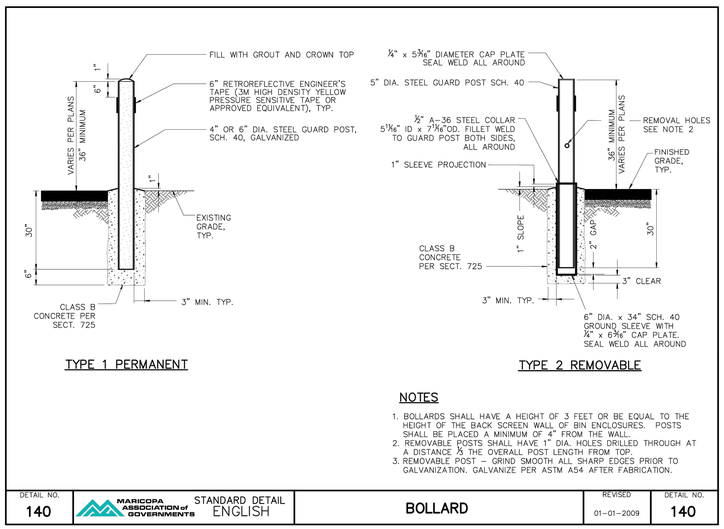


NOTES:
1. SUPPORTS SHALL BE SPACED IN ACCORDANCE WITH SPECIFICATIONS.
2. PROVIDE GALVANIZED P-STRUT MEMBERS.

2 IN-TRENCH PIPE SUPPORT
1" = 1'-0"



3 PIPE SUPPORTS
1" = 1'-0"



NOTES

1. BOLLARDS SHALL HAVE A HEIGHT OF 3 FEET OR BE EQUAL TO THE HEIGHT OF THE BACK SCREEN WALL OF BIN ENCLOSURES. POSTS SHALL BE PLACED A MINIMUM OF 4" FROM THE WALL.
2. REMOVABLE POSTS SHALL HAVE 1" DIA. HOLES DRILLED THROUGH AT A DISTANCE ⅓ THE OVERALL POST LENGTH FROM TOP.
3. REMOVABLE POST – GRIND SMOOTH ALL SHARP EDGES PRIOR TO GALVANIZATION. GALVANIZE PER ASTM A54 AFTER FABRICATION.

DETAIL NO.	MARICOPA ASSOCIATION of GOVERNMENTS	STANDARD DETAIL ENGLISH	BOLLARD	REVISED 01-01-2009	DETAIL NO. 140
140					

4 BOLLARD
NOT TO SCALE

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE: SEPT 2025
DESIGNED BY: VC
DRAWN BY: AC
REVIEWED BY: CW
KH PROJECT NO: 191245024

STANDARD DETAILS

Craig Wenger
Registered Professional Engineer
77523
Craig Wenger
Date Signed 09/17/25
ARIZONA, USA

Sheet Number:
C-10
Sheet 12 of 50

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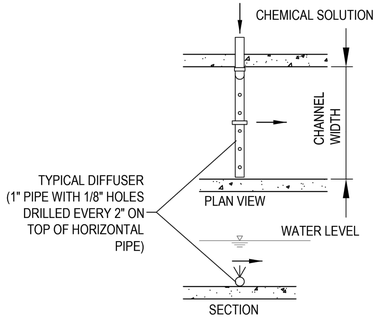
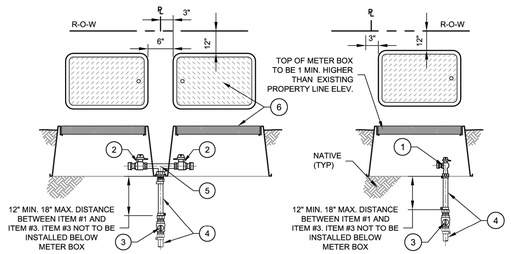


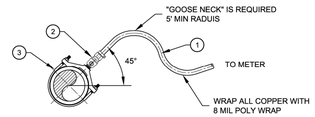
A CHEMICAL DIFFUSER DETAIL

N.T.S.



SERVICE TERMINATION DETAIL TABLE			
ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECIFICATIONS	REMARKS
1	1" ANGLE METER STOP	FORD BA43-342W-NL	OR EQUAL
2	1" BALL METER VALVE	FORD B13-332W-NL	OR EQUAL
3	1" CURB STOP	FORD B44-444-NL	OR EQUAL
4	1" x REQUIRED LENGTH	COPPER TUBE TYPE "K"	OR EQUAL
5	1" SERVICE TEE	FORD T884-334-9-NL	OR EQUAL
6	METER BOX	CARSON METER BOX 1220 (25 3/8"x19"x12") TRAFFIC RATED BOX USE CHRISTY MAG 2 (25 1/2"x 17 3/4"x12")	OR EQUAL

SERVICE TERMINATION DETAILS

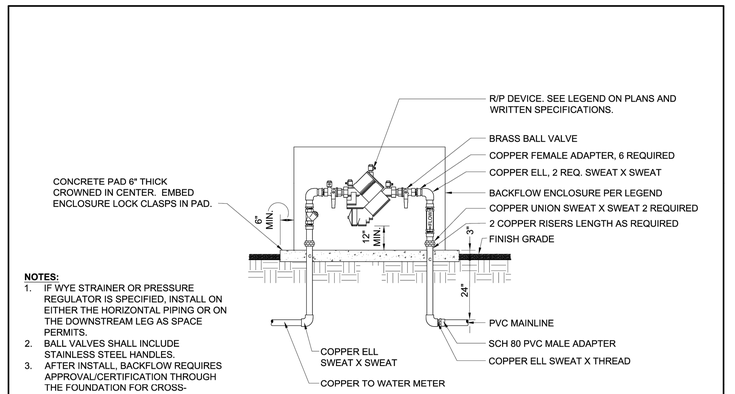


SERVICE CONNECTION DETAIL TABLE			
ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECIFICATIONS	REMARKS
1	1" x REQUIRED LENGTH	COPPER TUBE TYPE "K"	OR EQUAL
2	1" CORP STOP	FORD 1" FB1100-4-NL	OR EQUAL
3	1" x MAIN SIZE BRASS STRAP SADDLE	FORD 202B-xxx-IP4 (AC) OR S91-xx4 (C900) SADDLE W/ 1" IP THREAD	OR EQUAL

SERVICE CONNECTION DETAILS

LAKE HAVASU CITY	Standard Details / Water Improvements	1" Service Connection	Scale: N.T.S. / Detail No. 301

A:\City Operations and Development\Engineering\Programs\Standards\Developing Public Works Standards\LHC Standard Details\LHC Series 300 Water\DWG\DETAIL 301.dwg

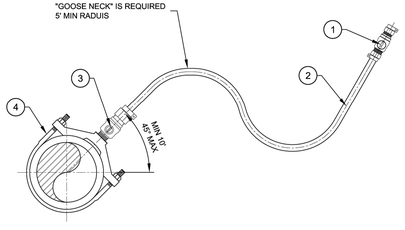


NOTES:

1. IF WYE STRAINER OR PRESSURE REGULATOR IS SPECIFIED, INSTALL ON EITHER THE HORIZONTAL PIPING OR ON THE DOWNSTREAM LEG AS SPACE PERMITS.
2. BALL VALVES SHALL INCLUDE STAINLESS STEEL HANDLES.
3. AFTER INSTALL, BACKFLOW REQUIRES APPROVAL/CERTIFICATION THROUGH THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (USC), OR A THIRD-PARTY CERTIFYING ENTITY THAT IS UNRELATED TO THE PRODUCT'S MANUFACTURER OR VENDOR, THAT IS APPROVED BY THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY.

DETAIL NO.			REVISED	DETAIL NO.
611-1	MARICOPA ASSOCIATION of GOVERNMENTS — STANDARD DETAIL ENGLISH	BACKFLOW PREVENTER ASSEMBLY (2" DIA. & SMALLER)	01-01-2023	611-1

Issued: 02/01/2019



SERVICE TERMINATION DETAIL TABLE			
ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECIFICATIONS	REMARKS
1	1.5" or 2" CURB STOP	FORD 1.5" B44-666-NL - 2" B44-777-NL	OR EQUAL
2	1.5" or 2" POLY TUBING	POLYETHYLENE PLASTIC TUBING (CTS)(200 PSI) STAINLESS STEEL INSERTS MUST BE USED (1.5" FORD INSERT #54)(2" FORD INSERT #55)	
3	1.5" or 2" CORP STOP	FORD 1.5" FB1100-6-NL - 2" FB1100-7-NL	OR EQUAL
4	1.5" or 2" x MAIN SIZE BRASS SADDLE	FORD 202B-xxx-IP6 (AC) OR S91-xx6 (C900) SADDLE WITH IP THREAD FORD 202B-xxx-IP7 (AC) OR S91-xx7 (C900) SADDLE WITH IP THREAD	OR EQUAL

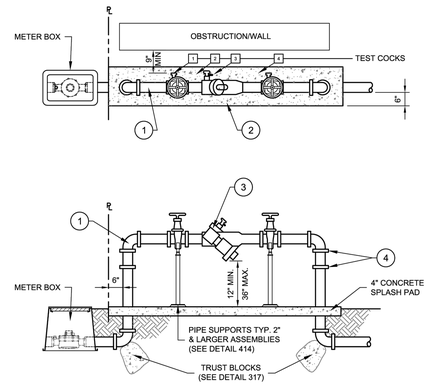
NOTE:

1. ALL PARTS ARE FROM FORD METER BOX COMPANY, EXCEPT THE COPPER PIPING.
2. ALL ASSEMBLIES TO BE LOCATED WITHIN CITY RIGHT-OF-WAY.

LAKE HAVASU CITY	Standard Details / Water Improvements	1.5" - 2" Single Service Tap	Scale: N.T.S. / Detail No. 304

A:\City Operations and Development\Engineering\Programs\Standards\Developing Public Works Standards\LHC Standard Details\LHC Series 300 Water\DWG\DETAIL 304.dwg

Issued: 02/01/2019



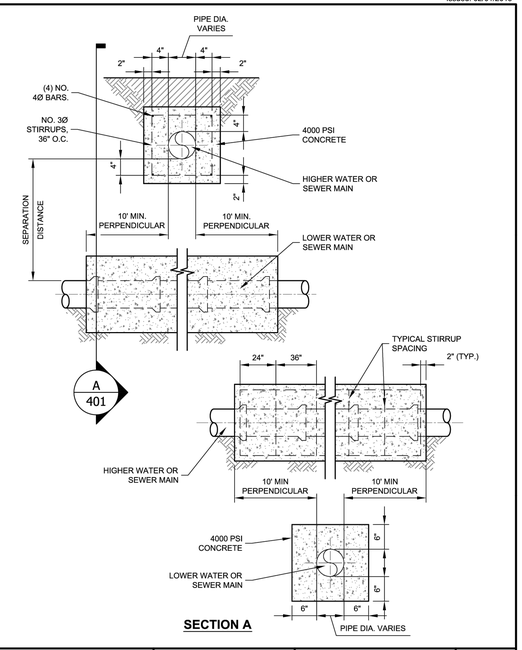
PRESSURE REDUCING ASSEMBLY DETAIL TABLE	
ITEM NO.	SIZE AND DESCRIPTION
1	ALL 2" OR 3" PIPING ABOVE GROUND TO BE BRASS OR COPPER (TYPE K). ASSEMBLIES 4" AND LARGER TO BE DUCTILE IRON.
2	4" THICKCONCRETE PAD TO BE 2500 PSI FOR 1 1/2 INCH ASSEMBLIES AND ABOVE; NOT REQUIRED FOR LESS THAN 1 1/2 INCH ASSEMBLIES.
3	USC-FCCCHR APPROVED ASSEMBLY.
4	UNION/FLANGE REQUIRED FOR REMOVAL.

NOTE: ALL ASSEMBLIES TO BE LOCATED ON PRIVATE PROPERTY.

LAKE HAVASU CITY	Standard Details / Water Improvements	Double Check Valve Assembly	Scale: N.T.S. / Detail No. 309

A:\City Operations and Development\Engineering\Programs\Standards\Developing Public Works Standards\LHC Standard Details\LHC Series 300 Water\DWG\DETAIL 309.dwg

Issued: 02/01/2019



SECTION A

LAKE HAVASU CITY	Standard Details / Wastewater Improvements	Water/Sewer Separation & Encasement for Pipe Crossing	Scale: N.T.S. / Detail No. 401C

A:\City Operations and Development\Engineering\Programs\Standards\Developing Public Works Standards\LHC Standard Details\LHC Series 400 Wastewater\DWG\DETAIL 401C.dwg

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION

100% DRAWINGS

CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	MARCH 2025
DESIGNED BY:	VC
DRAWN BY:	AC
REVIEWED BY:	CW
KH PROJECT NO:	191245024

STANDARD DETAILS

Registered Professional Engineer — CERTIFICATE NO. 77523 — Craig Wenger — Date Signed 09/17/25 — ARIZONA, U.S.A.

Sheet Number: C-11

Sheet 13 of 52

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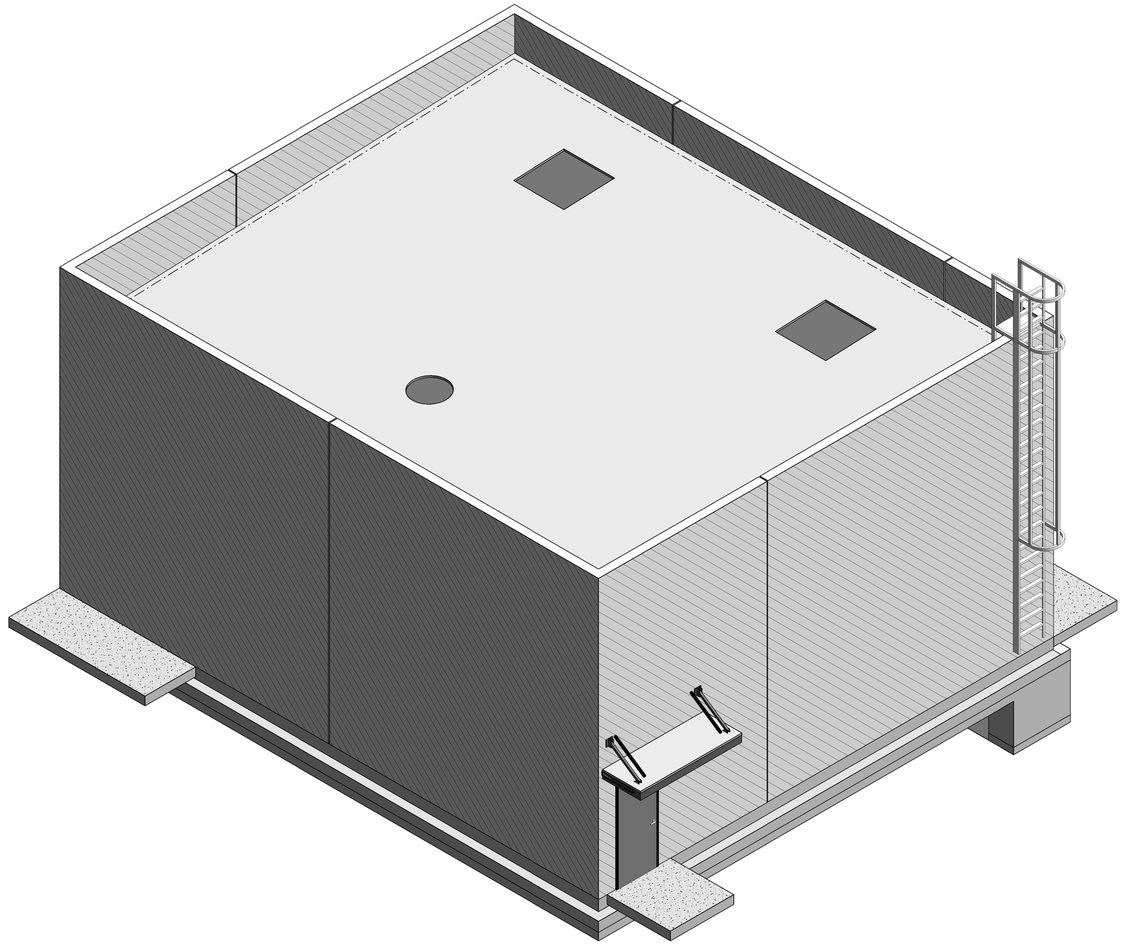
KH - Sheet List

S-01	COVER SHEET
S-02	GENERAL STRUCTURAL NOTES
S-03	GENERAL STRUCTURAL NOTES
S-04	SPECIAL INSPECTION MATRICES
S-05	TYPICAL DETAILS T1 - T12
S-06	TYPICAL DETAILS T13 - T24
S-07	TYPICAL DETAILS T25 - T36
S-08	TYPICAL DETAILS T37 - T48
S-09	ABBREVIATIONS/PLAN LEGENDS
S-10	SITE PLAN
S-11	ENLARGED FOUNDATION AND FRAMING PLAN
S-12	FOUNDATION DETAILS
S-13	FOUNDATION DETAILS
S-14	FRAMING DETAILS
S-15	FRAMING DETAILS

Grand total: 15



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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
108025

DATE:	JULY 18, 2025
DESIGNED BY:	CP
DRAWN BY:	DM
REVIEWED BY:	NMA
KH PROJECT NO:	191245024

COVER SHEET

Registered Professional Engineer (Structural)
CERTIFICATE NO.
57855
NICOLE ALLENDER
Date Signed 7/18/2025
ARIZONA U.S.A.

Sheet Number:
S-01
Sheet of

GENERAL STRUCTURAL NOTES

GENERAL

1. THESE GENERAL NOTES SUPPLEMENT THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. IN CASE OF CONFLICT WITH THE SPECIFICATIONS, CONTACT THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.

2. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE SITE AND LOCAL CONDITIONS.

3. CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL BUILDING CODES, CODES OF APPLICABLE REGULATORY AGENCIES, AND WITH PROJECT SPECIFICATIONS AND DRAWINGS.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL TRADES AND FOR CHECKING ALL DIMENSIONS. REPORT DISCREPANCIES TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK.

5. THE CONTRACTOR SHALL COMPLY WITH LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING UPON THE PERFORMANCE OF THE WORK.

6. SUBJECT TO THE STRUCTURAL ENGINEER'S ACCEPTANCE, UTILIZE DETAILS FOR SIMILAR CONDITIONS WHEN DETAILS FOR CONSTRUCTION ARE NOT INDICATED FOR A SPECIFIC CONDITION.

7. DETAILS ON SHEETS TITLED "TYPICAL DETAILS" APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. TYPICAL DETAILS ARE NOT NOTED AT EACH LOCATION AT WHICH THEY ARE APPLICABLE.

8. WHERE NOT INDICATED ON THE STRUCTURAL DRAWINGS, SEE THE ARCHITECTURAL, CIVIL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND ANY OTHER DRAWINGS FOR:

ELEVATIONS AND SLOPES.
SIZE, LOCATION AND EXTENT OF CURBS, FLOOR DEPRESSIONS, AND TOPPING SLABS.
SIZE AND LOCATION OF DRAINS, TRENCHES, SLAB OPENINGS, AND WALL OPENINGS.
CONCRETE AND STEEL FINISHES.
SIZE AND LOCATION OF SLEEVES AND HANGERS.
ITEMS EMBEDDED IN THE STRUCTURE OR PENETRATING THE STRUCTURE.
CONNECTION OF ARCHITECTURAL, CIVIL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION OR ANY OTHER ITEMS TO THE STRUCTURE AND CONNECTION OF ITEMS NOT TYPICALLY DETAILED ON THE STRUCTURAL DRAWINGS.
WATERPROOFING AND DAMP PROOFING.
SITE AND SUBGRADE DRAINAGE SYSTEMS AND DETAILS

9. CONNECTIONS OF ALL TRADES TO THE STRUCTURE SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR. CONNECTIONS TO STRUCTURAL MEMBERS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW. RESPONSIBILITY FOR THE PERFORMANCE OF THE SUPPLIED SYSTEM AND ASSOCIATED CONNECTIONS SHALL REMAIN THAT OF THE CONTRACTOR. ALL CONNECTIONS SHALL BE DESIGNED BY AN ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

10. OPENINGS AND PENETRATIONS THROUGH STRUCTURAL ELEMENTS AND ITEMS EMBEDDED IN STRUCTURAL ELEMENTS THAT ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE REVIEWED BY STRUCTURAL ENGINEER PRIOR TO IMPLEMENTING WORK.

11. DO NOT SCALE DRAWINGS TO DETERMINE DIMENSIONAL INFORMATION.

12. DO NOT PLACE MATERIALS OR EQUIPMENT ON UNFINISHED FLOORS OR ROOFS IN EXCESS OF 20 PSF NOR ON FINISHED FLOORS OR ROOFS IN EXCESS OF THE INDICATED DESIGN LIVE LOADS. AVOID IMPACT LOADING.

13. THE STRUCTURE WAS DESIGNED FOR THE IN-SERVICE CONDITIONS ONLY. THE METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.

14. DRAWINGS DO NOT INDICATE TEMPORARY REQUIREMENTS. NEED FOR TEMPORARY SHORING AND BRACING, TEMPORARY DEWATERING, TEMPORARY EARTH RETENTION, TEMPORARY WATER CUTOFF OR OTHER TEMPORARY MEASURES MAY BE INDICATED ON DRAWINGS AT SELECTED AREAS AS SUGGESTIONS FOR THE CONTRACTOR'S CONVENIENCE. THE DRAWINGS DO NOT IDENTIFY ALL AREAS OR CONDITIONS REQUIRING TEMPORARY MEASURES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM TEMPORARY MEASURES INDICATED ON THE DRAWINGS, IDENTIFY OTHER AREAS OR CONDITIONS REQUIRING TEMPORARY MEASURES, DETERMINE MOST EFFICIENT TEMPORARY SYSTEMS, AND DESIGN AND CONSTRUCT REQUIRED TEMPORARY SYSTEMS. ALL TEMPORARY SYSTEMS SHALL BE DESIGNED BY A LICENSED ENGINEER IN THE STATE IN WHICH THE PROJECT IS LOCATED.

15. INFORMATION RELATED TO EXISTING CONDITIONS REPRESENTS KNOWLEDGE BASED UPON INFORMATION PROVIDED BY THE OWNER BUT WITHOUT GUARANTEE OF ACCURACY. REPORT EXISTING CONDITIONS THAT VARY FROM THOSE SHOWN ON THE CONTRACT DOCUMENTS TO THE OWNER'S REPRESENTATIVE. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE OWNER'S REPRESENTATIVE.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING CONSTRUCTION WHILE PERFORMING WORK. THE CONTRACTOR SHALL PROPERLY REINSTATE EXISTING FINISHES, FIREPROOFING OR ITEMS THAT ARE REMOVED OR DAMAGED WHILE PERFORMING WORK.

DESIGN CRITERIA

1. ALL CONSTRUCTION SHALL CONFORM TO THE MORE RESTRICTIVE OF THE FOLLOWING CODES, THE MOST RECENT EDITIONS OF THE STANDARDS ADOPTED BY THE AUTHORITY HAVING JURISDICTION AS REFERENCED THROUGHOUT THE STRUCTURAL GENERAL NOTES, AND THE FOLLOWING DESIGN CRITERIA:

2. BUILDING CODE: 2018 INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS

3. BUILDING RISK CATEGORY (IBC TABLE 1604.5): III

4. DESIGN DEAD LOADS: SELF-WEIGHT OF MATERIALS AND SYSTEMS
ROOFS: 18 PSF
CANOPY: 6 PSF

5. DESIGN LIVE LOADS (REDUCIBLE WHERE ALLOWED PER BUILDING CODE):
ROOFS: 20 PSF

6. DESIGN WIND LOADS:
LATERAL LOAD RESISTANCE SYSTEM (ASCE 7):
BASIC WIND SPEED: 106 MILES PER HOUR
WIND EXPOSURE: C
INTERNAL PRESSURE COEFFICIENT: +0.18, -0.18
COMPONENTS AND CLADDING: SEE TYPICAL DETAIL

7. DESIGN SEISMIC LOADS:
SITE CLASS: C
SEISMIC IMPORTANCE FACTOR, Ie: 1.25
MAPPED SPECTRAL RESPONSE ACCELERATION, Ss: 0.19g
MAPPED SPECTRAL RESPONSE ACCELERATION, S1: 0.113g
DESIGN SPECTRAL RESPONSE ACCELERATION, Sds: 0.165g
DESIGN SPECTRAL RESPONSE ACCELERATION, Sd1: 0.113g
SEISMIC DESIGN CATEGORY: B

BASIC SEISMIC-FORCE-RESISTING SYSTEM: INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
SEISMIC RESPONSE COEFFICIENT, Cs: 0.059
DESIGN BASE SHEAR: 0.059W
RESPONSE MODIFICATION FACTOR, R: 3.5
ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE (ASCE 7 SECTION 12.8)

NON-STRUCTURAL COMPONENTS: PER ASCE7, THE SEISMIC DESIGN CATEGORY OF B EXEMPTS SEISMIC DESIGN REQUIREMENTS FOR MECHANICAL AND ELECTRICAL COMPONENTS WITH IMPORTANCE FACTORS OF 1.0. REFER TO RESPECTIVE DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

DEFERRED SUBMITTALS

1. DEFERRED SUBMITTALS ARE DEFINED AS THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE PERMIT APPLICATION AND THAT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITHIN A SPECIFIED PERIOD.

2. DEFERRAL OF ANY SUBMITTAL ITEMS SHALL HAVE THE PRIOR APPROVAL OF THE BUILDING OFFICIAL. THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE SHALL LIST THE DEFERRED SUBMITTALS ON THE CONSTRUCTION DOCUMENTS FOR REVIEW BY THE BUILDING OFFICIAL.

3. DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE WHO SHALL REVIEW THEM AND FORWARD THEM TO THE GENERAL CONTRACTOR TO SUBMIT TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING.

4. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

5. ALL DEFERRED SUBMITTAL ITEMS ARE TO BE DESIGNED BY THE VENDOR AND SHALL BE DESIGNED BY AN ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

6. DEFERRED SUBMITTAL ITEMS INCLUDE:

ALUMINUM PIPE AND TUBE RAILINGS
PREFABRICATED OPEN WEB TRUSSES
MISCELLANEOUS METALS SHOWN ON THE ARCHITECTURAL DRAWINGS
FRP HIGH LOAD CAPACITY GRATING
VIBRATION AND SEISMIC CONTROLS FOR PROCESS SYSTEMS
ALUMINUM LADDERS
SEISMIC RESTRAINT OF TANKS

MODIFICATIONS TO EXISTING CONSTRUCTION

1. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE SITE AND LOCAL CONDITIONS.

2. THE EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS IS PROVIDED FOR REFERENCE ONLY. EXISTING CONSTRUCTION SHALL BE VERIFIED IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ALL NEW CONSTRUCTION.

3. ANY EXISTING FINISHES REMOVED OR DAMAGED TO ACCOMPLISH ANY STRUCTURAL MODIFICATIONS SHALL BE REINSTATED AT THE COMPLETION OF MODIFICATION WORK, TYPICAL UNLESS NOTED OTHERWISE.

4. WHERE NEW CONCRETE IS TO BE CAST AGAINST EXISTING CONCRETE, THE CONTACT SURFACE SHALL BE ROUGHENED AND CLEANED WITH A HIGH PRESSURE WATER SPRAY. ALLOW TO DRY THOROUGHLY PRIOR TO APPLICATION OF EPOXY BONDING AGENT.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING CONSTRUCTION WHILE PERFORMING WORK. THE CONTRACTOR SHALL PROPERLY REINSTATE EXISTING FINISHES, FIREPROOFING OR ITEMS THAT ARE REMOVED OR DAMAGED WHILE PERFORMING WORK.

FOUNDATIONS - GENERAL

1. FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS INCLUDED IN GEOTECHNICAL ENGINEERING REPORT NO. AZ25018 BY SUNBELT ENGINEERING & TESTING, LLP DATED MARCH 24, 2025.

2. ALL SUBGRADES AND EXCAVATIONS SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING REINFORCING AND CONCRETE. NOTIFY THE GEOTECHNICAL ENGINEER WHEN THE SUBGRADES AND EXCAVATIONS ARE READY FOR INSPECTION.

3. ALL SUBGRADES SHALL BE PREPARED AND ALL FILL SHALL BE COMPACTED, AND MOISTURE CONTROLLED AS SPECIFIED IN THE GEOTECHNICAL REPORT AND THE PROJECT SPECIFICATIONS.

4. ALL SLAB ON GRADE AREAS SHALL BE INSPECTED BY A SOILS TESTING LABORATORY AND BE PROOF ROLLED. ALL SOFT SPOTS ENCOUNTERED SHALL BE REMOVED AND REPLACED TO FINISHED GRADE WITH APPROVED FILL MATERIAL AS SPECIFIED IN THE GEOTECHNICAL REPORT AND THE PROJECT SPECIFICATIONS.

5. NO FOUNDATIONS SHALL BE PLACED ONTO OR AGAINST SUBGRADES CONTAINING FREE WATER, FROST OR ICE.

6. PLACE BACKFILL BEHIND RETAINING WALLS AFTER CONCRETE OR MASONRY HAS ATTAINED FULL DESIGN STRENGTH. BRACE RETAINING WALLS UNTIL ATTACHED FLOORS AND SLABS ON GRADE ARE COMPLETE AND HAVE ATTAINED FULL DESIGN STRENGTH. NO HEAVY EQUIPMENT SHALL BE ALLOWED WITHIN A 1H:1V SLOPE AS MEASURED FROM THE BASE OF THE WALL.

7. THE CONTRACTOR SHALL NOTIFY THE OWNER S REPRESENTATIVE IMMEDIATELY IN THE EVENT THAT THE SOILS CONDITIONS ENCOUNTERED VARY FROM THOSE SHOWN ON THE BORING LOGS OF THE GEOTECHNICAL ENGINEERING REPORT.

8. THE CONTRACTOR SHALL DESIGN AND CONSTRUCT ALL TEMPORARY CASING, PROTECTION, SHORING, BRACING, DEWATERING, AND UNDERPINNING NECESSARY TO COMPLETE THE WORK. ALL TEMPORARY SYSTEMS SHALL BE DESIGNED BY AN ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

9. LOCATE AND PROTECT EXISTING UTILITIES TO REMAIN DURING AND AFTER CONSTRUCTION.

10. REMOVE ABANDONED FOUNDATIONS AND UTILITES WHICH INTERFERE WITH NEW CONSTRUCTION UNLESS OTHERWISE INDICATED.

11. CONCRETE WORK BELOW GRADE SHALL BE DETAILED AS WATERTIGHT CONSTRUCTION. CONSTRUCTION JOINTS BELOW GRADE SHALL BE WATERTIGHT.

SHALLOW FOUNDATIONS

1. ALL FOUNDATIONS SHALL BEAR ON MOISTURE CONDITIONED AND COMPACTED ENGINEERED FILL THAT EXTENDS 2' - 0" BELOW THE EXISTING GRADE AND EXTEND 5' - 0" BEYOND THE BUILDING FOOTPRINT HAVING A MINIMUM ALLOWABLE BEARING CAPACITY OF 2500 PSF AT A MINIMUM DEPTH OF 1' - 3" BELOW FINISHED GRADE.

2. LATERAL EARTH PRESSURES ARE AS FOLLOWS:

ACTIVE PRESSURE (UNRESTRAINED WALLS): 35 PCF
PASSIVE PRESSURE: 250 PCF
COEFFICIENT OF FRICTION: 0.35

3. FINISHED GRADE IS DEFINED AS TOP OF SLAB FOR INTERIOR FOOTINGS AND LOWEST ADJACENT GRADE WITHIN 5 FEET OF EXTERIOR FOOTINGS.

MASONRY

1. ALL MASONRY CONSTRUCTION SHALL BE IN ACCORDANCE WITH TMS 402/ACI 530 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" AND TMS 602/ACI 530.1 "SPECIFICATION FOR MASONRY STRUCTURES".

2. SUMBIT SHOP DRAWINGS FOR REVIEW PRIOR TO INSTALLATION INCLUDING REINFORCING BAR PLACEMENT, LENGTHS, QUANTITIES, SIZES AND TEST REPORT DOCUMENTATION RELATED TO THE APPROPRIATE ASTM STANDARDS.

3. DESIGN MASONRY ASSEMBLAGE STRENGTH f'm = 2000 PSI. NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS SHALL BE A MINIMUM OF 2000 PSI.

4. CONCRETE MASONRY UNITS SHALL BE MEDIUM-WEIGHT UNITS CONFORMING TO ASTM C90. UNITS SHALL BE LAID IN RUNNING BOND, TYPICAL UNLESS NOTED OTHERWISE. VERTICAL ALIGNMENT OF CELLS SHALL MAINTAIN A CONTINUOUS CLEAR, UNOBSTRUCTED CELL NOT LESS THAN 3 INCHES SQUARE. MINIMUM DEPTH OF HORIZONTAL BOND BEAM CHANNEL BELOW TOP OF UNIT SHALL BE 1-1/2 INCHES, AND CHANNEL SHALL BE 3 INCHES WIDE MINIMUM. ALL UNITS SHALL BE FREE OF DUST AND DIRT AT THE TIME OF LAYING.

5. GROUT SHALL CONFORM TO ASTM C476. THE ADDITIONS OF ADMIXTURES IN THE FIELD IS NOT PERMITTED. GROUT SHALL ATTAIN A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2000 PSI. MORTAR SHALL BE TYPE S CONFORMING TO ASTM C270 AND WITH PROPORTIONS PER TABLE SC-1 OF TMS 602/ACI 530.1.

6. ALL GROUT SHALL BE MECHANICALLY VIBRATED. GROUT POURS SHALL BE STOPPED 1-1/2 INCHES BELOW THE TOP OF A COURSE TO FORM A KEY AT POURED JOINTS.

7. PROVIDE CLEANOUTS IF GROUT POUR EXCEEDS 5'-0" IN HEIGHT. IF CLEANOUTS ARE PROVIDED, GROUT POUR MAXIMUM HEIGHT EQUALS 10'-0", IN LIFTS NOT TO EXCEED 6'-0".

8. REINFORCEMENT SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 AND SHALL HAVE FABRICATION TOLERANCES IN ACCORDANCE WITH ACI 315. REINFORCING STEEL THAT IS TO BE WELDED SHALL CONFORM TO ASTM A706, GRADE 60. SHOP FABRICATE REINFORCING BARS WHICH ARE INDICATED TO BE BENT OR HOOKED.

9. VERTICAL REINFORCEMENT SIZE AND SPACING AS SHOWN ON PLAN AND IN MASONRY WALL SCHEDULE WITH ONE BAR MINIMUM AT ALL CORNERS, INTERSECTIONS, WALL ENDS, BEAM BEARING, JAMBS, AND EACH SIDE OF CONTROL JOINTS. TIE AT 8'-0" VERTICALLY WITH SINGLE WIRE LOOP TIE BY A.A. PRODUCTS COMPANY. UNLESS NOTED OTHERWISE, LAP SPLICES SHALL BE PER LAP SPLICE SCHEDULE.

10. PROVIDE STANDARD WEIGHT (NO. 9 GAGE WIRE) DUR-O-WALL OR DUR-O-WIRE LADDER TYPE JOINT REINFORCING THAT CONFORMS TO ASTM A951. LOCATE HORIZONTAL JOINT REINFORCEMENT 16 INCHES ON CENTER VERTICALLY. PROVIDE ADDITIONAL HORIZONTAL JOINT REINFORCEMENT AT THE TOP OF ALL FOUNDATIONS AND IN THE TWO JOINTS IMMEDIATELY ABOVE AND BELOW ALL OPENINGS. EXTEND JOINT REINFORCEMENT A MINIMUM OF 24 INCHES BEYOND THE OPENING ON EACH SIDE. LAP REINFORCEMENT A MINIMUM OF 6 INCHES.

11. REMOVE UNLESS SPECIFICALLY APPLIES [AT SOILD GROUTED WALLS ONLY (UNLESS NOTED OTHERWISE), HORIZONTAL REINFORCEMENT SHALL BE #5 AT 48" O.C. (6 INCH AND 8 INCH WALLS), #5 AT 40" O.C. (10 INCH WALLS), AND #5 AT 32" O.C. (12 INCH WALLS) IN LIEU OF THE LADDER TYPE JOINT REINFORCING. BAR LAP SPLICES SHALL BE PER LAP SPLICE SCHEDULE. STAGGER ALTERNATE SPLICES A MINIMUM OF 4'-0".]

12. HORIZONTAL REINFORCEMENT (UNLESS NOTED OTHERWISE) SHALL BE 2#4 (6 INCH WALLS) AND 2#5 (8 INCH TO 12 INCH WALLS) BARS IN MINIMUM 8 INCH DEEP GROUTED CONTINUOUS BOND BEAM AT ROOF AND ELEVATED FLOOR LINES. PLACE #4 (6 INCH WALLS) AND #5 (8 INCH TO 12 INCH WALLS) BAR IN MIMIMUM 8 INCH DEEP GROUTED CONTINUOUS BOND BEAM AT TOP OF PARAPET OR TOP OF FREE-STANDING WALL. PLACE #4 (6 INCH AND 8 INCH WALLS) AND #5 (10 INCH AND 12 INCH WALLS) BAR IN MINIMUM 8 INCH DEEP GROUTED CONTINUOUS BOND BEAM AT GRADE LEVEL FLOOR LINE. PLACE THESE BARS CONTINUOUS THROUGH CONTROL JOINT. WRAP MASTIC TAPE FOR 1'-6" EACH SIDE OF CONTROL JOINT. PROVIDE BENT BARS TO MATCH HORIZONTAL BOND BEAM REINFORCING AT CORNERS AND WALL INTERSECTIONS TO MAINTAIN BOND BEAM CONTINUITY. UNLESS NOTED OTHERWISE, LAP SLICES SHALL BE PER LAP SPLICE SCHEDULE. STAGGER ALTERNATE SPLICES A MINIMUM OF 4'-0".

13. STEEL ANCHORS INTO MASONRY SHALL CONFORM TO THE DETAILS SHOWN IN THE DRAWINGS. J-BOLTS ARE NOT ACCEPTABLE.

14. PLACE PIPES AND CONDUITS PASSING HORIZONTALLY THROUGH MASONRY IN STEEL SLEEVES.

15. ALUMINUM CONDUITS, PIPES, AND ACCESSORIES SHALL NOT BE EMBEDDED IN MASONRY GROUT OR MORTAR, UNLESS EFFECTIVELY COATED OR COVERED TO PREVENT ALUMINUM-CEMENT CHEMICAL REACTION OR ELECTROLYTIC REACTION BETWEEN ALUMINUM AND STEEL.

16. UNLESS OTHERWISE NOTED OR DETAILED, CENTER WALL REINFORCEMENT IN BLOCK CELLS. USE NONMETALLIC BAR POSITIONERS. GROUT ALL CELLS CONTAINING REINFORCING. SOLID GROUT ALL WALLS BELOW GRADE AND WHERE INDICATED ON DRAWINGS.

17. PROVIDE DOWEL REINFORCEMENT FROM FOUNDATION OF SAME SIZE AND SPACING AS VERTICAL WALL REINFORCEMENT. LAP WALL REINFORCEMENT AS INDICATED IN THE TYPICAL DETAILS.

18. BRACE THE TOP OF INTERIOR NON-LOAD BEARING MASONRY WALLS TERMINATING AT THE UNDERSIDE OF FLOOR OR ROOF STRUCTURE AGAINST OUT-OF-PLANE MOVEMENT IN ACCORDANCE WITH TYPICAL DETAILS.

19. UNLESS NOTED OTHERWISE ON THE PLANS, PLACE CONTROL JOINTS IN MASONRY WALLS SUCH THAT NO STRAIGHT RUN OF WALL EXCEEDS 24'-0". CONTROL JOINTS SHALL NOT OCCUR AT WALL CORNERS, INTERSECTIONS, ENDS, WITHIN 24 INCHES OF CONCENTRATED POINTS OF BEARING OR JAMBS, OR OVER OPENINGS.

20. HORIZONTAL JOINT AND HORIZONTAL BOND BEAM REINFORCING SHALL BE DISCONTINUOUS THROUGH ALL CONTROL JOINTS EXCEPT THOSE AT STEEL BEARING ELEVATIONS AND FLOOR AND ROOF CONNECTIONS.

NON-SHRINK GROUT

1. ALL GROUT AT THE FOLLOWING LOCATIONS SHALL BE NON-METALLIC, SHRINKAGE-RESISTANT GROUT CONFORMING TO ASTM C1107:

EQUIPMENT BASE PLATES
JOIST BEARING PLATES

2. GROUT SHALL BE FACTORY-PACKAGED WITH NONMETALLIC AGGREGATE, NONCORROSIVE AND NONSTAINING, MIXED WITH WATER TO CONSISTENCY SUITABLE FOR APPLICATION AND A 30-MINUTE WORKING TIME.

3. COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS FOR SHRINKAGE-RESISTANT GROUTS.

4. NON-METALLIC, SHRINKAGE-RESISTANT GROUT SHALL HAVE A COMPRESSIVE STRENGTH AT 28 DAYS EQUAL TO OR GREATER THAN THE COMPRESSIVE STRENGTH OF THE SUPPORTING CONCRETE OR MASONRY ELEMENT, 5000 PSI MINIMUM.

5. NON-METALLIC, SHRINKAGE-RESISTANT GROUT SHALL BE INSTALLED PRIOR TO LOAD BEING APPLIED.

ALUMINUM LADDERS AND RAILINGS

1. DESIGN OF LADDER ASSEMBLIES SHALL SATISFY APPLICABLE SECTIONS OF CURRENT EDITIONS OF THE BUILDING CODE, FEDERAL REGULATIONS OF OSHA, AND AMERICANS WITH DISABILITIES ACT.

2. ALL HANDRAIL AND GUARDRAIL SYSTEMS SHALL BE DESIGNED TO RESIST A SINGLE CONCENTRATED LOAD OF 200 LB APPLIED IN ANY DIRECTION AT ANY POINT ON THE HANDRAIL OR TOP RAIL, OR 50 LB/FT APPLIED IN ANY DIRECTION ALONG THE HANDRAIL OR TOP RAIL, AND TO TRANSFER THIS LOAD THROUGH THE SUPPORTS TO THE STRUCTURE TO PRODUCE THE MAXIMUM LOAD EFFECT ON THE ELEMENT BEING CONSIDERED.

3. INTERMEDIATE RAILS (ALL THOSE EXCEPT THE HANDRAIL), AND PANEL FILLERS SHALL BE DESIGNED TO WITHSTAND A HORIZONTALLY APPLIED NORMAL LOAD OF 50 LB ON AN AREA NOT TO EXCEED 12 IN. BY 12 IN. INCLUDING OPENINGS AND SPACE BETWEEN RAILS AND LOCATED SO AS TO PRODUCE THE MAXIMUM LOAD EFFECTS.

4. ALUMINUM RAILINGS ARE A DEFERRED SUBMITTAL ITEM.

5. ALL PIPE AND TUBE RAILINGS TO BE ALUMINUM. FOR ADDITIONAL INFORMATION ON FASTENERS AND FINISHES, SEE SPECIFICATIONS.

FRP GRATING

1. ALL GRATING SHALL COMPLY WITH NAAMM MBG 531 "METAL BAR GRATING MANUAL" OR NAAMM MBG 532 "HEAVY DUTY METAL BAR GRATING MANUAL" AS APPLICABLE.

2. 1.5" DEEP PULTRUDED HIGH LOAD CAPACITY FRP GRATING, HI5815 BY GRATING PACIFIC OR APPROVED EQUIVALENT

3. FOR LOCATIONS OF PLAIN, SERRATED, AND OTHER NON-SLIP TOP SURFACES, SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

4. FOR ADDITIONAL INFORMATION ON FASTENERS AND FINISHES, SEE SPECIFICATIONS.

5. FRP GRATINGS ARE A DEFERRED SUBMITTAL ITEM.

6. GRATING SHALL BE ERECTED AND ATTACHED PER MANUFACTURER'S RECOMMENDATIONS.

7. UNLESS NOTED OTHERWISE, ALL GRATING SHALL BE DESIGNED FOR 250PSF LIVE LOAD OR 16KIPS CONCENTRATED LIVE LOAD, WITH A MAXIMUM DEFLECTION OF 1/4".

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
108025

DATE: JULY 18, 2025
DESIGNED BY: CP
DRAWN BY: DM
REVIEWED BY: NMA
KH PROJECT NO: 191245024

GENERAL STRUCTURAL NOTES

Registered Professional Engineer (Structural)
CERTIFICATE NO.
57855
NICOLE ALLENDER
Date Signed 7/18/2025
ARIZONA U.S.A.

Sheet Number:
S-02
Sheet of

Autodesk Docs://LHC Chlorine Conversion v24/LHC Chlorine Conversion_STRUCT_R24.rvt

GENERAL STRUCTURAL NOTES

CONCRETE

1. ALL CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". ALL ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES SHALL BE IN ACCORDANCE WITH THE MORE STRINGENT REQUIREMENTS OF ACI 318 AND ACI 350 "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES".

2. CONCRETE DETAILING SHALL BE IN ACCORDANCE WITH THE ACI DETAILING MANUAL SP-66 AND ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT". SUBMIT SHOP DRAWINGS FOR REVIEW.

3. CONCRETE PLACEMENT AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".

4. PROVIDE ASTM C150 TYPE I OR TYPE II CEMENT UNLESS NOTED OTHERWISE. THE CEMENTITIOUS MATERIAL CONTENT SHALL BE ADEQUATE FOR THE SPECIFIED REQUIREMENTS FOR STRENGTH, WATER-CEMENTITOUS MATERIAL RATIO, DURABILITY, WORKABILITY, AND FINISHABILITY.

5. PROVIDE NORMAL-WEIGHT CONCRETE WITH 28-DAY COMPRESSIVE STRENGTHS AS INDICATED:

FOOTINGS:	5000 PSI (W/CM = 0.40)
SLAB ON GRADE:	4500 PSI (W/CM = 0.45)
EQUIPMENT PADS AND CONCRETE CURBS:	4000 PSI (W/CM = 0.50)

6. ALL CONCRETE REQUIRING LOW PERMEABILITY SHALL HAVE A MAXIMUM WATER-CEMENTITIOUS MATERIAL RATIO OF 0.50 AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI.

7. ALL CONCRETE SUBJECT TO FREEZING AND THAWING SHALL HAVE A MAXIMUM WATER-CEMENTITIOUS MATERIAL RATIO OF 0.45 AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI.

8. ALL CONCRETE SUBJECT TO FREEZING AND THAWING AND DEICING CHEMICALS SHALL HAVE A MAXIMUM WATER-CEMENTITIOUS MATERIAL RATIO OF 0.40 AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI.

9. ALL CONCRETE SLABS ON GRADE SHALL HAVE A MAXIMUM WATER-CEMENTITIOUS MATERIAL RATIO OF 0.45.

10. CONCRETE SHALL HAVE, AT THE POINT OF DELIVERY, A SLUMP OF 4 INCHES AS DETERMINED BY ASTM C143. SLUMP TOLERANCES SHALL MEET THE REQUIREMENTS OF ACI 117. WHEN A PLASTICIZING ADMIXTURE OR HIGH-RANGE WATER-REDUCING ADMIXTURE CONFORMING TO ASTM C494 IS PERMITTED TO INCREASE THE SLUMP OF CONCRETE, CONCRETE SHALL HAVE BEEN PROPORTIONED TO A SLUMP OF 2 TO 4 IN. BEFORE THE ADMIXTURE IS ADDED AND A MAXIMUM SLUMP OF 8 IN. AT THE POINT OF DELIVERY AFTER THE ADMIXTURE IS ADDED.

11. ADDITION OF WATER TO A CONCRETE BATCH WITH INSUFFICIENT SLUMP WILL NOT BE PERMITTED, UNLESS THE SUPPLIER HAS SPECIFICALLY WITHHELD WATER FROM THE BATCH AT THE PLANT. IN SUCH CASE, THE MIX DESIGN AND TRUCK TICKET MUST CLEARLY STATE THE MAXIMUM AMOUNT OF WATER THAT CAN BE ADDED TO THE CONCRETE BATCH ON SITE. IN NO CASE SHALL THE MAXIMUM WATER-CEMENTITIOUS MATERIAL RATIO BE EXCEEDED.

12. ALL EXTERIOR CONCRETE SUBJECT TO FREEZING AND THAWING SHALL BE AIR ENTRAINED SO AS TO RESULT IN A TOTAL AIR CONTENT OF 6% +/- 1.5% FOR CONCRETE USING 3/4-INCH AND 1-INCH MAXIMUM AGGREGATE SIZE.

13. COLD WEATHER CONCRETING SHALL BE DONE IN ACCORDANCE WITH ACI 306 "COLD WEATHER CONCRETING". HOT WEATHER CONCRETING SHALL BE DONE IN ACCORDANCE WITH ACI 305 "HOT WEATHER CONCRETING".

14. NO CHLORIDES AND/OR ADMIXTURES CONTAINING CHLORIDES SHALL BE USED IN ANY CONCRETE.

15. UNLESS A GREATER CONCRETE COVER IS REQUIRED FOR FIRE RESISTANCE, THE MINIMUM CONCRETE COVER FOR CAST-IN-PLACE CONCRETE REINFORCING STEEL SHALL CONFORM TO THE COVERS AS INDICATED:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3 INCHES
CONCRETE EXPOSED TO EARTH, LIQUID, OR WEATHER:
SLABS, WALLS: 2 INCHES
CONCRETE NOT EXPOSED TO WEATHER, LIQUID, OR IN CONTACT WITH GROUND:
SLABS, WALLS:
NO. 11 BAR AND SMALLER: 3/4 INCHES

16. CHAMFER ALL EXPOSED CORNERS WITH 3/4 INCH, 45 DEGREE CHAMFERS.

17. PROVIDE FINISHES AS INDICATED IN THE PROJECT SPECIFICATIONS AND IN THE ARCHITECTURAL DRAWINGS.

18. JOINTS NOT INDICATED SHALL BE MADE AND LOCATED TO LEAST IMPAIR THE STRENGTH AND APPEARANCE OF THE STRUCTURE. HORIZONTAL JOINTS ARE NOT PERMITTED IN CONCRETE EXCEPT WHERE THEY NORMALLY OCCUR OR WHERE INDICATED. VERTICAL JOINTS SHALL OCCUR ONLY AT LOCATIONS ACCEPTED BY STRUCTURAL ENGINEER.

19. ROUGHEN CONCRETE SURFACES OF CONSTRUCTION JOINTS TO 1/4" INCH AMPLITUDE AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES. LOCATE CONSTRUCTION JOINTS AS SHOWN ON THE DRAWINGS. SUBMIT ALTERNATE JOINT LOCATIONS OR JOINTS NOT SHOWN TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO PROCEEDING WITH THE WORK.

20. AT LOCATIONS WHERE CONCRETE IS CAST AGAINST EXISTING CONCRETE, ROUGHEN CONTACT SURFACES TO 1/4 INCH AMPLITUDE AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES.

21. AT LOCATIONS WHERE CONCRETE IS CAST AGAINST EXISTING MASONRY, THOROUGHLY ROUGHEN CONTACT SURFACES BY LIGHT SANDBLASTING OR OTHER SUITABLE MEANS AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES.

22. CONTROL JOINTS FOR SLABS ON GRADE SHALL BE AS NOTED IN PLAN, OR, IF NOT NOTED, IN A SQUARE PATTERN AND BE NOT MORE THAN 15 FEET ON CENTER, UNLESS OTHERWISE NOTED. IF CONTROL JOINTS ARE CUT, THEY SHALL BE CUT WITHIN 12 HOURS AFTER THE CONCRETE IS PLACED.

23. PITCH CONCRETE SLABS AS REQUIRED TO FLOOR DRAINS. SLAB ON GRADE MINIMUM THICKNESS SHALL BE MAINTAINED AT SLOPED SLABS.

24. THE CONCRETE CONTRACTOR SHALL REVIEW ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND CONSULT WITH OTHER CONTRACTORS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, INSERTS, SLAB DEPRESSIONS AND OTHER ITEMS RELATED TO THE CONCRETE WORK AND SHALL ASSUME RESPONSIBILITY FOR THEIR PROPER LOCATION. NO CORING OF CAST-IN-PLACE CONCRETE IS ALLOWED WITHOUT PRIOR APPROVAL BY THE STRUCTURAL ENGINEER.

25. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PROCESS AND PLUMBING DRAWINGS FOR MISCELLANEOUS PADS. FURNISH AND INSTALL AS REQUIRED.

26. NO STRUCTURAL CONCRETE SHALL BE PLACED UNTIL THE CONCRETE DESIGN MIXES, THE CONCRETE PLACEMENT PROCEDURE, THE LOCATION OF CONSTRUCTION JOINTS AND THE SETTING OF REINFORCING STEEL IS REVIEWED BY THE STRUCTURAL ENGINEER AND ARCHITECT AS APPLICABLE.

27. CHECKED SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, LAPS, SPACING AND PLACEMENT, LOCATIONS AND DETAILS OF ALL CONSTRUCTION JOINTS, SLAB DEPRESSIONS, OPENINGS, CURBS, AND ANY OTHER DETAILING REQUIRED TO DETAIL THE WORK SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.

28. NO ALUMINUM OF ANY TYPE SHALL BE ALLOWED IN THE CONCRETE, UNLESS COATED TO PREVENT ALUMINUM-CONCRETE REACTION. THIS INCLUDES PUMPING THROUGH ALUMINUM PIPE.

29. FORMWORK, SHORING, AND RESHORING SHALL BE IN ACCORDANCE WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" AND ACI 347 "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK". DESIGN AND DETAILING OF FORMWORK, SHORING, AND RESHORING SYSTEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL FORMWORK, SHORING, AND RESHORING SYSTEMS SHALL BE DESIGNED BY AN ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

30. DO NOT REMOVE FORMWORK PRIOR TO CONCRETE BEING SUFFICIENTLY CURED TO PREVENT DAMAGE BY FORMWORK REMOVAL OR PRIOR TO CONCRETE ATTAINING 75% OF THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH.

31. CONCRETE FILL THICKNESS SHOWN ON THE DRAWINGS ARE MINIMUM THICKNESSES. NO ALLOWANCES HAVE BEEN SHOWN FOR ADDITIONAL CONCRETE REQUIRED TO COMPENSATE FOR FRAME, DECK, OR FORMWORK DEFLECTIONS TO MAINTAIN SURFACE TOLERANCES SPECIFIED.

32. HEADED CONCRETE ANCHORS SHALL BE MANUFACTURED BY NELSON STUD WELDING CO., LORAIN, OHIO, OR OTHER MANUFACTURER ACCEPTABLE TO STRUCTURAL ENGINEER. SEE DRAWINGS FOR DIAMETER AND NOMINAL LENGTH. INSTALLATION AND TESTING SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MATERIAL SHALL CONFORM TO ASTM A108.

CONCRETE CONTINUED

33. DEFORMED BAR ANCHORS SHALL BE MANUFACTURED BY NELSON STUD WELDING CO., LORAIN, OHIO, OR OTHER MANUFACTURER ACCEPTABLE TO STRUCTURAL ENGINEER. INSTALLATION AND TESTING SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MATERIAL SHALL CONFORM TO ASTM A496.

34. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED. ENSURE FULL CONSOLIDATION OF CONCRETE AROUND REINFORCING STEEL, POST-TENSIONING STEEL, DOWELS, ANCHOR BOLTS, DEFORMED BAR ANCHORS, HEADED CONCRETE ANCHORS AND OTHER SIMILAR ITEMS DURING CONCRETE PLACEMENT.

35. CONCRETE SLABS ON GRADE AND CONCRETE TOPPING SLABS SHALL BE CONSTRUCTED PER ACI 302.1R "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION" AND ACI 302.2R "GUIDE FOR CONCRETE SLABS THAT RECEIVE MOISTURE-SENSITIVE FLOORING MATERIALS". THE SLABS SHALL BE PLACED IN STRIP POURS. CONCRETE AGGREGATE MATERIALS SHALL BE SUFFICIENTLY GRADED AND CONCRETE SLABS-ON-GRADE SHALL BE CURED AS REQUIRED TO MINIMIZE POSSIBILITY OF SLAB CURLING.

36. CONTINUOUSLY MOIST CURE CONCRETE SLABS ON GRADE FOR 7 DAYS MINIMUM. WATER FOG SPRAYS, PONDING, SATURATED ABSORPTIVE COVERS, OR MOISTURE RETAINING COVERS MAY BE USED. CURING COMPOUNDS ARE NOT ACCEPTABLE.

37. TEST CYLINDERS SHALL BE MADE AND TESTED IN ACCORDANCE WITH ACI 318 SECTION 5.6.

CONCRETE REINFORCING STEEL

1. FABRICATE AND PLACE REINFORCING STEEL IN ACCORDANCE WITH ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".

2. UNLESS NOTED OTHERWISE, REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. REINFORCING STEEL THAT IS TO BE WELDED SHALL CONFORM TO ASTM A706, GRADE 60.

3. WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A1064 AND SHALL BE PLAIN WIRE. SUPPLY IN FLAT SHEETS. ROLLS SHALL NOT BE PERMITTED. UNLESS NOTED OTHERWISE, LAPS OF WELDED WIRE REINFORCEMENT SHALL BE A MINIMUM OF TWO WIRE MESHES.

4. SMOOTH STEEL DOWELS IN SLABS ON GRADE SHALL CONFORM TO ASTM A36.

5. ALL FIELD BENDING OF REINFORCING SHALL BE PERFORMED COLD. HEATING OF BARS SHALL NOT BE PERMITTED.

6. UNLESS NOTED OTHERWISE, "CONTINUOUS" REINFORCEMENT SHALL HAVE MINIMUM TENSION LAP OF CLASS "B" PER ACI 318 AT SPLICES AND SHALL HOOK AT DISCONTINUOUS ENDS. REINFORCEMENT SPECIFIED AS CONTINUOUS SHALL BE CONTINUOUS THROUGH COLUMNS, PIERS, FOUNDATION CAPS OR OTHER INTERSECTING ELEMENTS. ALTERNATIVELY, REINFORCEMENT SPECIFIED AS CONTINUOUS SHALL BE LAP SPLICED WITH A CLASS "B" LAP SPLICE TO DOWELS IN THE INTERSECTING ELEMENTS THAT DEVELOP THE FULL YIELD STRENGTH OF THE CONTINUOUS REINFORCEMENT. FOR REQUIRED LAP SPLICE LENGTHS, SEE TYPICAL DETAIL.

7. REINFORCEMENT SHALL BE CONTINUOUS ACROSS JOINTS AND AROUND CORNERS OR SPLICE BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315 OR ACI 315R. CORNER BARS SHALL BE PROVIDED AT ALL WALL CORNERS, EQUAL TO THE HORIZONTAL WALL REINFORCEMENT.

8. DO NOT CUT OR WELD REINFORCING STEEL WITHOUT PRIOR ACCEPTANCE OF STRUCTURAL ENGINEER. WHEN WELDING IS INDICATED ON THE DRAWINGS, PROCEDURES SHALL BE IN ACCORDANCE WITH AWS D1.4.

9. PROVIDE REBAR CHAIRS FOR REINFORCING STEEL. PROVIDE ADDITIONAL LONGITUDINAL SUPPORT BARS AS REQUIRED TO ASSURE PROPER SUPPORT FOR REINFORCING STEEL AND WELDED WIRE REINFORCEMENT.

10. PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCEMENT AT POSITIONS SHOWN ON THE PLANS AND DETAILS. PLASTIC COATED ACCESSORIES SHALL BE USED IN ALL EXPOSED CONCRETE WORK.

EMBEDDED ITEMS IN CONCRETE

1. INSTALL ANCHOR RODS, ACCURATELY LOCATED, TO ELEVATIONS REQUIRED AND COMPLYING WITH TOLERANCES IN SECTION 7.5 OF AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

2. EMBEDMENTS (CONDUITS, PIPES, SLEEVES, ETC.) OF ANY MATERIAL NOT HARMFUL TO CONCRETE, AND WITHIN LIMITATIONS NOTED BELOW, SHALL BE PERMITTED IN CONCRETE WITH APPROVAL OF THE STRUCTURAL ENGINEER, PROVIDED THEY ARE NOT CONSIDERED TO STRUCTURALLY REPLACE THE DISPLACED CONCRETE.

3. ANY ALUMINUM EMBEDMENTS IN STRUCTURAL CONCRETE SHALL BE COATED OR COVERED TO PREVENT ALUMINUM-CONCRETE REACTION OR ELECTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.

4. CONDUITS, PIPES, AND SLEEVES PASSING THROUGH A SLAB, WALL OR BEAM SHALL NOT IMPAIR SIGNIFICANTLY THE STRENGTH OF THE CONSTRUCTION.

5. CONDUITS AND PIPES, WITH THEIR FITTINGS, EMBEDDED WITHIN A COLUMN SHALL NOT DISPLACE MORE THAN 4 PERCENT OF THE CROSS-SECTIONAL AREA ON WHICH STRENGTH IS CALCULATED OR WHICH IS REQUIRED FOR FIRE PROTECTION.

6. CONDUITS AND PIPES EMBEDDED WITHIN A SLAB, WALL, OR BEAM, OTHER THAN THOSE MERELY PASSING THROUGH, SHALL SATISFY THE FOLLOWING:

THEY SHALL NOT BE LARGER IN OUTSIDE DIMENSION THAN 1/3 THE OVERALL THICKNESS OF SLAB, WALL, OR BEAM IN WHICH THEY ARE EMBEDDED;
THEY SHALL NOT BE SPACED CLOSER THAN THREE (3) DIAMETERS OR WIDTHS ON CENTER;
THEY SHALL NOT IMPAIR SIGNIFICANTLY THE STRENGTH OF THE CONSTRUCTION.

7. NO ELECTRICAL CONDUIT SHALL BE PLACED ABOVE THE WELDED WIRE REINFORCEMENT IN SLABS ON GRADE.

8. NO LIQUID, GAS, OR VAPOR, EXCEPT WATER NOT EXCEEDING 90 DEGREES FAHRENHEIT NOR 50 PSI PRESSURE, SHALL BE PLACED IN THE PIPES UNTIL THE CONCRETE HAS ATTAINED ITS DESIGN STRENGTH.

9. IN SOLID SLABS, PIPING, EXCEPT FOR RADIANT HEATING OR SNOW MELTING, SHALL BE PLACED BETWEEN TOP AND BOTTOM REINFORCEMENT.

10. SPECIFIED CONCRETE COVER FOR PIPES, CONDUITS, AND FITTINGS SHALL NOT BE LESS THAN 1-1/2 INCH FOR CONCRETE EXPOSED TO EARTH OR WEATHER, NOR LESS THAN 3/4 INCH FOR CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND.

11. REINFORCEMENT WITH AN AREA NOT LESS THAN 0.002 TIMES THE GROSS AREA OF THE CONCRETE SECTION SHALL BE PROVIDED AND PLACED PERPENDICULAR TO THE PIPING.

12. PIPING AND CONDUIT SHALL BE SO FABRICATED AND INSTALLED THAT CUTTING, BENDING, OR DISPLACEMENT OF REINFORCEMENT FROM ITS PROPER LOCATION WILL NOT BE REQUIRED.

POST-INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS SHALL NOT BE SUBSTITUTED FOR CAST-IN ANCHORS WITHOUT PRIOR APPROVAL OF THE ENGINEER OF RECORD.

2. CONCRETE WEDGE EXPANSION ANCHORS, MADE OF STEEL, SHALL BE HILTI KWIK-BOLT TZ2 WEDGE ANCHOR (ICC-ES ESR-4266), SIMPSON STRONG-BOLT 2 WEDGE ANCHOR (ICC-ES ESR-3037), DEWALT POWER-STUD+SD2 WEDGE EXPANSION ANCHOR (ICC-ES ESR-2502) OR APPROVED EQUAL.

3. CONCRETE ADHESIVE ANCHORS SHALL BE HILTI HIT-RE 500 V3 ADHESIVE ANCHORAGE SYSTEMS (ICC-ES ESR-3814), SIMPSON SET-3G ADHESIVE ANCHORAGE SYSTEMS (ICC-ES ESR-4057), DEWALT PURE110+ ADHESIVE ANCHORAGE SYSTEMS (ICC-ES ESR-3298) OR APPROVED EQUAL. THREADED RODS USED IN ADHESIVE ANCHORAGE SYSTEMS SHALL MEET THE REQUIREMENTS OF ASTM F1554, GRADE 36 FOR BASE PLATE ANCHOR RODS AND ASTM A193, GRADE B7 FOR ALL OTHER THREADED RODS UNLESS NOTED OTHERWISE. REINFORCING BARS USED IN ADHESIVE ANCHORAGE SYSTEMS SHALL BE ASTM A615, GRADE 60 REINFORCING BARS. REMOVE GREASE, OIL, RUST, AND OTHER LAITANCE FROM RODS AND DOWELS PRIOR TO INSTALLATION.

4. CONCRETE SCREW ANCHORS, MADE OF STEEL, SHALL BE HILTI KH-EZ (ICC-ES ESR-3027), SIMPSON TITEN HD (ICC-ES ESR-2713), DEWALT SCREW-BOLT (ICC-ES ESR-3889) OR APPROVED EQUAL.

5. MASONRY WEDGE EXPANSION ANCHORS, MADE OF STEEL, INSTALLED IN GROUT-FILLED CONCRETE BLOCK SHALL BE HILTI KWIK BOLT 1 EXPANSION ANCHOR (IAMPO-UES ER-677), SIMPSON STRONG-BOLT 2 (IAPMO-UES ER-240), DEWALT POWER-STUD+SD1 EXPANSION ANCHOR (ICC-ES ESR-2966) OR APPROVED EQUAL.

POST-INSTALLED ANCHORS CONTINUED

6. MASONRY ADHESIVE ANCHORS TO BE INSTALLED IN GROUT-FILLED CONCRETE BLOCK SHALL BE HILTI HIT-HY 270 ADHESIVE ANCHORAGE SYSTEMS (ICC-ES ESR-4143), SIMPSON SET-XP ADHESIVE ANCHORAGE SYSTEMS (IAPMO-UES ER-265), DEWALT AC100+GOLD ADHESIVE ANCHORAGE SYSTEMS (ICC-ES ESR-3200) OR APPROVED EQUAL. THREADED RODS USED IN ADHESIVE ANCHORAGE SYSTEMS SHALL MEET THE REQUIREMENTS OF ASTM A193, GRADE B7. REINFORCING BARS USED IN ADHESIVE ANCHORAGE SYSTEMS SHALL BE ASTM A615, GRADE 60 REINFORCING BARS. REMOVE GREASE, OIL, RUST, AND OTHER LAITANCE FROM RODS AND DOWELS PRIOR TO INSTALLATION.

7. MASONRY SCREW ANCHORS, MADE OF STEEL, INSTALLED IN GROUT-FILLED CONCRETE BLOCK SHALL BE HILTI KH-EZ (ICC-ES ESR-3056), SIMPSON TITEN HD (ICC-ES ESR-1056), DEWALT SCREW-BOLT+ (ICC-ES ESR-4042) OR APPROVED EQUAL.

8. PROVIDE STAINLESS STEEL FASTENERS FOR EXTERIOR USE OR WHEN EXPOSED TO WEATHER. PROVIDE GALVANIZED CARBON STEEL ANCHORS AT OTHER LOCATIONS, UNLESS OTHERWISE NOTED.

9. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED, THE ENGINEER WILL DETERMINE A NEW LOCATION.

10. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL ANCHORS.

11. ALL POST-INSTALLED ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE APPLICABLE ICC EVALUATION SERVICES REPORT.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED BY A FABRICATOR WITH ONE OF THE FOLLOWING MINIMUM QUALIFICATIONS AND BE APPROVED BY AUTHORITY HAVING JURISDICTION (AHJ). QUALIFICATIONS SHALL BE IN EFFECT AT TIME OF BID.

INTERNATIONAL ACCREDITATION SERVICE, INC. (IAS) APPROVED FABRICATOR
AISC CERTIFIED BUILDING FABRICATOR (BU)
AHJ CERTIFIED FABRICATOR

2. ALL STEEL SHALL BE ERECTED BY AN AISC CERTIFIED ERECTOR (CSE).

3. FABRICATOR SHALL SUBMIT DOCUMENTATION OF THEIR CERTIFICATION WITH THE FIRST SHOP DRAWING SUBMITTAL.

4. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" USING LOAD AND RESISTANCE FACTOR DESIGN (LRFD).

5. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING DESIGNATED ASTM STANDARDS:

WIDE FLANGES: ASTM A992
HOLLOW STRUCTURAL SECTIONS (HSS): ASTM A500, GRADE C
CHANNELS AND ANGLES: ASTM A36
PLATES: ASTM A36, TYPICAL U.N.O.
PIPE: ASTM A53, GRADE B
ANCHOR RODS: ASTM F1554, GRADE 36 (J-BOLTS AND L-BOLTS ARE NOT ACCEPTABLE)

6. BOLTED CONNECTIONS SHALL BE DESIGNED AND INSTALLED USING HIGH-STRENGTH BOLTS IN ACCORDANCE WITH THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". USE ASTM A325 BOLTS IN BEARING-TYPE CONNECTIONS WITH THREADS PERMITTED IN THE SHEAR PLANE (TYPE N), UNLESS OTHERWISE NOTED. WASHERS SHALL CONFORM TO ASTM F436. CONNECTIONS MAY BE SNUG-TIGHTENED, UNLESS NOTED OTHERWISE.

7. ALL CONNECTION FORCES INDICATED ON THE DRAWINGS ARE FACTORED LOADS ACCORDING TO THE LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD.

8. UNLESS NOTED OTHERWISE, THE STEEL FABRICATOR SHALL DETAIL ALL CONNECTIONS PER THE CONSTRUCTION DOCUMENT CONNECTION DESIGN DETAILS. SUBSTITUTION OR MODIFICATION TO THE CONSTRUCTION DOCUMENT CONNECTION DETAILS IS ACCEPTABLE AS LONG AS THEY ARE SUBMITTED WITH SEALED CALCULATIONS PROVIDED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE IN WHICH THE PROJECT IS LOCATED. CONNECTION DETAILS MAY BE SELECTED OR COMPLETED USING DETAILS INDICATED ON THE DRAWINGS AND THE SECTIONS REGARDING CONNECTIONS IN THE AISC "MANUAL OF STEEL CONSTRUCTION" AND DESIGNED USING THE LRFD METHOD TO WITHSTAND THE REACTION FORCES INDICATED. JOINTS THAT ARE NOT SHOWN IN THE CONSTRUCTION DOCUMENTS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW THROUGH A REQUEST FOR INFORMATION OR CLOUDED AND DETAILED IN THE SHOP DRAWINGS.

9. WELDING SHALL CONFORM TO STANDARDS OF AWS D1.1 "STRUCTURAL WELDING CODE—STEEL: TYPICAL AND AWS D1.8 "STRUCTURAL WELDING CODE—SEISMIC SUPPLEMENT" WHERE SPECIFIED. ELECTRODES FOR FIELD AND SHOP WELDING SHALL CONFORM TO AWS RECOMMENDATIONS. WELDS NOT INDICATED ON THE DRAWINGS SHALL BE AWS MINIMUM OR AS REQUIRED TO SATISFY STRENGTH CRITERIA, WHICHEVER IS GREATER. FOLLOW PREHEAT REQUIREMENTS OF AWS.

10. ARC-WELDING ELECTRODES AND FILLER METALS TO BE LOW HYDROGEN TYPES E7XTX, E7XTXX OR E70XXX MINIMUM AS APPLICABLE.

11. WELDERS SHALL BE CERTIFIED BY AWS AND THE APPLICABLE AUTHORITY HAVING JURISDICTION.

12. GENERALLY, DRAWINGS DO NOT DISTINGUISH BETWEEN SHOP-WELDING AND FIELD-WELDING. THE CONTRACTOR SHALL DETERMINE THE MOST ECONOMICAL, EFFICIENT AND PRACTICAL COMBINATIONS OF SHOP-WELDING AND FIELD-WELDING.

13. SPLICING STRUCTURAL MEMBERS WHERE NOT DETAILED ON STRUCTURAL DRAWINGS IS PROHIBITED WITHOUT PRIOR ACCEPTANCE BY THE STRUCTURAL ENGINEER.

14. OPENINGS AND SLEEVES IN STRUCTURAL STEEL MEMBERS SHALL BE SHOP CUT ONLY. FIELD BURNING, CUTTING, RE-DRILLING OR OTHER FIELD MODIFICATION IS NOT PERMITTED ON STRUCTURAL STEEL MEMBERS WITHOUT PRIOR ACCEPTANCE OF THE STRUCTURAL ENGINEER.

15. SEE ARCHITECTURAL DRAWINGS FOR FIREPROOFING REQUIREMENTS. FOR FIREPROOFING PURPOSES, FRAMING SHALL BE CONSIDERED EITHER "UNRESTRAINED" OR "RESTRAINED" DEPENDING ON STRUCTURAL SYSTEM AS DEFINED IN ASTM E119 AND UL 263.

16. ALL STRUCTURAL STEEL EXCEPT EMBEDDED STEEL WHICH IS IN CONTACT WITH CONCRETE, STEEL TO BE FIREPROOFED, AND STEEL TO BE GALVANIZED SHALL BE CLEANED AND SHOP-PRIMED AS INDICATED IN THE PROJECT SPECIFICATIONS. SEE THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FINISH PAINTING REQUIREMENTS.

17. UNLESS SPECIFICALLY SHOWN TO BE PAINTED, GALVANIZE ALL EXTERIOR STRUCTURAL STEEL. PROVIDE GALVANIZING AS INDICATED IN THE PROJECT SPECIFICATIONS. TOUCH-UP GALVANIZING WITH GALVANIZING REPAIR PAINT AS INDICATED IN THE PROJECT SPECIFICATIONS.

18. AT GALVANIZED BOLTED CONNECTIONS, THE NUT SHALL BE OVERTAPPED TO ACCOMADATE VARIATION IN COATING THICKNESS ON THE BOLT THREAD. BOLT HOLES SHALL NOT BE ENLARGED TO ACCOMMODATE COATING THICKNESS. THE PROOF LOAD FOR THE NUT MUST BE HIGHER THAN THE TENSILE STRENGTH OF THE BOLT. ASTM A563 GRADES DH AND DH3 AND ASTM A194 GRADE 2H NUTS SHALL BE USED AS GALVANIZED NUTS FOR OVERTAPPING.

NONDESTRUCTIVE TESTING (NDT) OF WELDED JOINTS:

19. FOR STRUCTURES IN RISK CATEGORY III AND IV, ULTRASONIC TESTING (UT) SHALL BE PERFORMED BY A QUALIFIED MATERIALS TESTING LABORATORY ON ALL CJP GROOVE WELDS IN BUTT, T- AND CORNER JOINTS IN MATERIALS 5/16" THICK OR GREATER.

STEEL DECK

1. ALL STEEL DECK SHALL BE DETAILED, FABRICATED, AND INSTALLED IN ACCORDANCE WITH THE STEEL DECK INSTITUTE SPECIFICATIONS, LATEST EDITION.

2. ALL STEEL DECK SHALL BE CONTINUOUS OVER THREE OR MORE SPANS, EXCEPT WHERE THE STEEL LAYOUT DOES NOT PERMIT.

3. MINIMUM SECTION PROPERTIES OF STEEL ROOF DECK SHALL BE AS FOLLOWS:
1 1/2" X 20GA (TYPE B): Ip = 0.197 IN4/FT, In = 0.217 IN4/FT, Sp = 0.224 IN3/FT, Sn = 0.229 IN3/FT

4. STEEL ROOF DECK SHALL CONFORM TO ASTM A653, STRUCTURAL STEEL GRADE WITH A MINIMUM YIELD STRENGTH OF 50 KSI. STEEL FLOOR DECK SHALL CONFORM TO ASTM A653, STRUCTURAL STEEL GRADE WITH A MINIMUM YIELD STRENGTH OF 50 KSI.

5. GALVANIZE STEEL ROOF DECK IN ACCORDANCE WITH ASTM A653, G60. GALVANIZE COMPOSITE STEEL FLOOR DECK IN ACCORDANCE WITH ASTM A653, G60.

6. THE STEEL ROOF DECK IS PART OF THE MAIN LATERAL LOAD RESISTING SYSTEM. STRUCTURAL DIAPHRAGM ACTION SHALL BE PROVIDED BY THE STEEL ROOF DECK. DECK DIAPHRAGM ATTACHMENT REQUIREMENTS INDICATED BELOW SHALL BE INCREASED AS REQUIRED FOR THE SPECIFIED UPLIFT LOADING INDICATED OR AS REQUIRED BY ROOF SYSTEM MANUFACTURER TO CONFORM TO SYSTEM REQUIREMENTS. THE DECK AND ITS ATTACHMENTS TO THE STRUCTURE SHALL BE CAPABLE OF RESISTING THE HORIZONTAL SHEAR FORCE LISTED BELOW OR AS INDICATED ON THE DRAWINGS, WITH A MINIMUM SAFETY FACTOR AS PRESCRIBED IN THE STEEL DECK INSTITUTE DIAPHRAGM DESIGN MANUAL. MINIMUM ATTACHMENT OF THE STEEL ROOF DECK SHALL BE AS LISTED BELOW OR AS INDICATED ON THE DRAWINGS, WHICHEVER IS MORE STRINGENT.

7. MINIMUM ROOF DECK ATTACHMENT TO SUPPORTS:

36/4 WELD PATTERN AT SUPPORTS, WITH 1 1/4" X 3/8" ARC SEAM WELD AT SUPPORTS ADJACENT TO SIDELAP AND 5/8" VISIBLE DIAMETER ARC SPOT WELDS AT INTERIOR FLUTES, PNEUMATIC PUNCH SIDELAPS AT 24" O.C
1 1/2" X 20GA: MINIMUM DIAPHRAGM SHEAR CAPACITY = 630 PLF (9'-0" MAXIMUM SPAN)

8. CONNECT ROOF DECK T

STEEL JOISTS AND JOIST GIRDERS

1. THE DESIGN, FABRICATION, AND INSTALLATION OF ALL JOISTS, JOIST GIRDERS, BRIDGING, CONNECTIONS, AND ACCESSORIES SHALL CONFORM TO THE STEEL JOIST INSTITUTE'S "STANDARD SPECIFICATIONS, LOAD TABLES AND WEIGHT TABLES FOR STEEL JOISTS AND JOIST GIRDERS".

2. THE STEEL JOIST MANUFACTURER SHALL BE RESPONSIBLE FOR THE DESIGN, MANUFACTURE AND INSTALLATION OF THEIR PRODUCT INCLUDING ALL BRIDGING, ACCESSORIES AND CONNECTIONS, NECESSARY FOR THE COMPLETE INSTALLATION. JOISTS SHALL BE DESIGNED FOR ALL LOADING CONDITIONS REQUIRED BY THE GOVERNING BUILDING CODES IN ADDITION TO ANY SPECIFIC LOADINGS SHOWN ON THE DRAWINGS.

3. WHERE CONCENTRATED OR NON-UNIFORM LOADS OCCUR, THE JOISTS AND JOIST GIRDERS MUST BE DESIGNED TO CARRY THE FULL COMBINATION OF UNIFORM AND NON-UNIFORM LOADS. THE NON-UNIFORM LOADS ARE SPECIFIED ON THE PLANS AND/OR LOADING DIAGRAMS SHOWN. THE JOIST MANUFACTURER SHALL BE RESPONSIBLE FOR THE JOIST AND JOIST GIRDER DESIGNS BASED ON THE GIVEN LOADINGS AND SHALL SUBMIT CALCULATIONS FOR ALL JOISTS AND JOIST GIRDERS PREPARED UNDER THE SUPERVISION OF AN ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

4. JOIST SIZES AND LOADS ARE INDICATED ON PLANS. LOADS NOTED ARE TO BE APPLIED TO THE TOP CHORD OF THE JOIST EXCEPT WHERE INDICATED OTHERWISE. TYPICAL CALLOUTS ARE AS FOLLOWS:

TYPICAL STEEL JOIST – 24LH 300/150

24 INDICATES JOIST DEPTH (INCHES)
LH INDICATES JOIST TYPE
300 INDICATES TOTAL LOAD (PLF) – LOADS SHOWN ARE AT SERVICE LEVEL (ASD)
150 INDICATES LIVE LOAD (PLF)

STEEL JOISTS AND JOIST GIRDERS CONTINUED

5. JOIST GIRDER SIZES AND LOADS ARE INDICATED ON PLANS. LOADS NOTED ARE TO BE APPLIED TO THE TOP CHORD OF THE JOIST GIRDER EXCEPT WHERE INDICATED OTHERWISE. TYPICAL CALLOUTS ARE AS FOLLOWS:

TYPICAL JOIST GIRDER – 48G7N10.1

48 INDICATES JOIST GIRDER DEPTH (INCHES)
G INDICATES GIRDER TYPE
7N INDICATES NUMBER OF JOIST SPACES
10.1 INDICATES SERVICE LEVEL (ASD) LOAD (K) AT EACH PANEL POINT

6. ALL JOISTS SHALL BE DESIGNED FOR AN ADDITIONAL 500 LB POINT LOAD ANYWHERE ALONG THE SPAN APPLIED TO THE BOTTOM CHORD PANEL POINT.

7. JOIST MANUFACTURER TO DESIGN ALL JOISTS AND JOIST GIRDERS, JOIST SEATS AND ANY COMPONENTS OF THE SYSTEM FOR ADEQUATE WIND UPLIFT FORCES AS LISTED IN THE LOAD TABLE INE THE TYPICAL DETAILS

8. ALL STEEL JOISTS AND JOIST GIRDERS SHALL BE CAMBERED PER SJI'S "SPECIFICATIONS".

9. THE DEFLECTION DUE TO LIVE LOADS OR SERVICE LEVEL WIND LOADS SHALL NOT EXCEED 1/240 OF THE SPAN.

10. ALL JOISTS AND JOIST GIRDERS SHALL BE WELDED TO THEIR STEEL SUPPORT MEMBERS, PER SJI SPECIFICATIONS UNLESS OTHERWISE NOTED.

11. PROVIDE SLOPED END BEARINGS AT THE SLOPE SHOWN ON THE DRAWINGS. PROVIDE EXTENDED ENDS AND TOP CHORD EXTENSIONS WHERE INDICATED ON THE DRAWINGS.

12. PROVIDE ALL ACCESSORIES NECESSARY FOR COMPLETE INSTALLATION OF ALL STEEL JOISTS, INCLUDING BRIDGING, AS REQUIRED BY THE DRAWINGS AND THE STEEL JOIST INSTITUTE SPECIFICATIONS.

13. NO HOLES SHALL BE DRILLED OR BURNED INTO TOP OR BOTTOM CHORDS OR WEB MEMBERS OF JOISTS.

14. STEEL EQUIPMENT HANGERS SHALL BE LOCATED AT JOIST PANEL POINTS. SUSPENDED LOADS SHALL BE AVOIDED BETWEEN PANEL POINTS. IF SUSPENDED LOADS MUST OCCUR BETWEEN PANEL POINTS, SECONDARY FRAMING SHALL BE UTILIZED TO FRAME TO JOIST PANEL POINTS. NO LOADS SHALL BE SUPPORTED FROM BRIDGING LINES. FOR SECONDARY FRAMING AT JOIST PANEL POINTS, SEE TYPICAL DETAILS.

15. ALL STEEL JOISTS AND JOIST GIRDERS SHALL BE CLEANED AND SHOP-PRIMED AS INDICATED IN THE PROJECT SPECIFICATIONS. SEE THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FINISH PAINTING REQUIREMENTS. DO NOT PRIME PAINT STEEL JOISTS AND JOIST GIRDERS THAT ARE TO RECEIVE FIREPROOFING.

16. ANCHOR BRIDGING LINES AT ENDS SECURELY TO STEEL BEAMS OR WALLS. IN ADDITION TO STANDARD BRIDGING, PROVIDE X-BRIDGING IN END SPACE OF ALL BRIDGING RUNS.

17. AT ALL COLUMNS, EXTEND BOTTOM CHORD OF JOISTS TO CLIP ANGLE FIELD WELDED TO COLUMN. DO NOT WELD BOTTOM CHORD TO CLIP ANGLE. AT ALL COLUMNS, PROVIDE A MINIMUM OF TWO 1/2" DIAMETER ERECTION BOLTS AT JOIST SEATS AND FIELD WELD JOIST TO SEAT AFTER FRAME HAS BEEN PLUMBED.

18. THE JOIST MANUFACTURER SHALL DESIGN ALL JOISTS AND JOIST GIRDERS IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE UNDERWRITERS LABORATORIES (UL) ASSEMBLIES IN ORDER TO ACHIVE THE FIRE RATINGS SPECIFIED ON THE ARCHITECTURAL DRAWINGS.

19. STEEL JOISTS AND JOIST GIRDERS ARE A DEFERRED SUBMITTAL ITEM.

SHOP DRAWINGS

1. SHOP DRAWINGS ARE TO BE SUBMITTED FOR ALL STRUCTURAL ITEMS AND AS REQUIRED BY THE SPECIFICATIONS. CONTRACT DRAWINGS SHALL NOT BE REPRODUCED FOR USE AS SHOP DRAWINGS.

2. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE ENGINEER OF RECORD PRIOR TO FABRICATION.

3. CONTRACTOR SHALL REVIEW AND STAMP ALL SHOP DRAWINGS AND PRODUCT DATA FOR CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS PRIOR TO SUBMITTAL. ALL ITEMS NOT IN ACCORDANCE WITH THE CONTRACT SHALL BE SO NOTED UPON THE CONTRACTOR'S REVIEW. ANY SHOP DRAWINGS OR PRODUCT DATA NOT REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR WILL BE RETURNED WITHOUT REVIEW.

4. ANY SHOP DRAWING NOT CHECKED AND INITIALED BY THE SUPPLIER/DETAILER PRIOR TO SUBMITTING FOR ARCHITECTURAL AND ENGINEERING REVIEW WILL BE RETURNED WITHOUT REVIEW.

5. ANY CHANGE FROM THE ORIGINAL DRAWINGS SHALL BE NOTED BY THE SUBMITTING PARTY. ANY CHANGES NOT CALLED OUT SHALL BE CONSIDERED NOT APPROVED UNLESS SPECIFICALLY NOTED OTHERWISE. THE SHOP DRAWING STAMP SHALL NOT BE CONSIDERED IMPLIED APPROVAL OF ANY CHANGES.

6. SHOP DRAWINGS SHALL NOT REPLACE THE CONTRACT DRAWINGS. ITEMS OMITTED OR SHOWN INCORRECTLY AND NOT NOTED BY THE REVIEWER ARE NOT TO BE CONSIDERED CHANGES TO THE CONTRACT DRAWINGS. REVIEW IS INTENDED AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT ITEMS ARE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

7. ANY ENGINEERING DESIGN PERFORMED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF AN ENGINEER REGISTERED IN THE APPROPRIATE JURISDICTION AND DISCIPLINE. COMPLETE DESIGN CALCULATIONS FOR EACH MEMBER SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE ENGINEER OF RECORD. THE ADEQUACY OF DESIGNS AND LAYOUTS PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING PARTY.

STRUCTURAL OBSERVATIONS

1. STRUCTURAL OBSERVATIONS SHALL BE REQUIRED FOR THIS PROJECT IN ACCORDANCE WITH IBC 1704.6. THE OWNER SHALL EMPLOY A REGISTERED DESIGN PROFESSIONAL TO PROVIDE STRUCTURAL OBSERVATIONS. CONTRACTOR SHALL NOTIFY THE STRUCTURAL OBSERVER AT LEAST 48 HOURS PRIOR TO A REQUIRED OBSERVATION AS NOTED BELOW:

a. STRUCTURAL OBSERVATION SHALL BE PERFORMED AFTER INSTALLATION OF REINFORCING STEEL BUT PRIOR TO CONCRETE PLACEMENT AT FOUNDATIONS SUPPORTING LATERAL FORCE-RESISTING ELEMENTS.

b. STRUCTURAL OBSERVATION SHALL BE PERFORMED AFTER PLACEMENT REINFORCING BUT PRIOR CONCRETE PLACEMENT AT THE FIRST ELEVATED DECK.

c. STRUCTURAL OBSERVATIONS SHALL BE PERFORMED ON THE COMPLETED STRUCTURE, PRIOR TO CONCEALING STRUCTURAL ELEMENTS.

2. THE STRUCTURAL OBSERVER SHALL PROVIDE THE CONTRACTOR WITH A WRITTEN REPORT AFTER EACH OBSERVATION WHICH IDENTIFIES ANY DEFICIENCIES NOTED WHICH HAVE NOT BEEN RESOLVED.

3. AT THE CONCLUSION OF THE PROJECT, THE STRUCTURAL OBSERVER WILL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES THAT, TO THE BEST OF THE OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

SPECIAL INSPECTIONS

1. THE OWNER SHALL EMPLOY SPECIAL INSPECTORS, QUALIFIED TO THE SATISFACTION OF THE BUILDING OFFICIAL, WHO SHALL PROVIDE SPECIAL INSPECTIONS DURING CONSTRUCTION FOR THE WORK INDICATED BY THE SPECIAL INSPECTIONS TABLES ON THE APPROVED DESIGN DRAWINGS.

2. SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY. INSPECTORS FOR EACH SYSTEM AND MATERIAL SHALL BE INTERNATIONAL CODE COUNCIL (ICC) CERTIFIED OR OTHERWISE APPROVED BY THE BUILDING OFFICIAL.

3. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE TO THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.

4. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, CONTRACTOR, OWNER, AND ENGINEER OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE PROPER DESIGN AUTHORITY AND TO THE BUILDING OFFICIAL.

5. SEE PROJECT SPECIFICATIONS AND REFERENCED STANDARDS FOR FREQUENCY OF TESTING.

6. AT THE CONCLUSION OF CONSTRUCTION, A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF PREVIOUSLY NOTED DISCREPANCIES SHALL BE SUBMITTED.

7. THE FOLLOWING TYPES OF WORK SHALL BE INSPECTED BY A SPECIAL INSPECTOR IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE:

(2018 IBC) REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION TABLE 1705.3

[a]: SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

[b]: WHERE APPLICABLE, SEE SECTION 1705.12, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [b]	IBC REFERENCE
1. INSPECT REINFORCEMENT AND VERIFY PLACEMENT	---	X	ACI 318: CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING:				
- VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	---	X	AWS D1.4	---
- INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"	---	X	ACI 318: 26.6.4	
- INSPECT ALL OTHER WELDS	X	---		
3. INSPECT ANCHORS CAST IN CONCRETE	---	X	ACI 318: 17.8.2	---
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS [a]:				
- ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X	---	ACI 318: 17.8.2.4	---
- MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE	---	X	ACI 318: 17.8.2	
5. VERIFY USE OF REQUIRED DESIGN MIX	---	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	---	ASTM C172 ASTM C31 ACI 318: 26.5, 26.12	1908.10
7. INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	---	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	---	X	ACI 318: 26.5.3 - 26.5.5	1908.9
9. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	---	X	ACI 318: 26.11.1.2(b)	---

(2018 IBC) REQUIRED SPECIAL INSPECTIONS OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS TABLE 1705.2.3

[a]: WHERE APPLICABLE, SEE SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]
INSTALLATION OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS			
- END CONNECTIONS - WELDING OR BOLTED	---	X	SJI SPECIFICATIONS LISTED IN SECTION 2207.1
- BRIDGING - HORIZONTAL OR DIAGONAL	---	---	---
• STANDARD BRIDGING	---	X	SJI SPECIFICATIONS LISTED IN SECTION 2207.1
• BRIDGING THAT DIFFERS FROM THE SJI SPECIFICATIONS LISTED IN SECTION 2207.1	---	X	---

(2018 IBC) REQUIRED SPECIAL INSPECTION OF MASONRY CONSTRUCTION - LEVEL 2 QUALITY ASSURANCE FOR RISK CATEGORY I, II, AND III

VERIFICATION TASK	REQUIRED	NOT REQUIRED	REFERENCE FOR CRITERIA
			TMS 602/ACI 530.1/ASCE 6
PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS	X	---	ART. 1.5
PRIOR TO CONSTRUCTION, VERIFICATION OF f'm, EXCEPT WHERE SPECFICALLY EXEMPTED BY THE CODE	X	---	ART. 1.4B
DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE	X	---	ART. 1.5, 1.6.3
DURING CONSTRUCTION, VERIFICATION OF f'm FOR EVERY 5,000 SQ. FT	---	X	ART. 1.4B
DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR, GROUT, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT	---	X	ART. 1.4B

INSPECTION TASK	CONTINUOUS	PERIODIC	REFERENCE FOR CRITERIA	
			TMS 402/ACI 530/ASCE 5	TMS 602/ACI 530.1/ASCE 6
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN...				
- PROPORTIONS OF SITE-PREPARED MORTAR	---	X	---	ART. 2.1, 2.6A, 2.6C
- GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	---	X	---	ART. 3.4
- SAMPLE PANEL CONSTRUCTION	---	X	---	ART. 1.6D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
- GROUT SPACE	---	X	---	ART. 3.2D, 3.2F
- PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	---	X	SECT. 6.1, 6.3.1, 6.3.6, 6.3.7	ART. 3.2E, 3.4
- PROPORTIONS OF SITE-PREPARED GROUT	---	X	---	ART. 2.6B, 2.4G.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSRTUCTION:				
- MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	---	X	---	ART. 1.5
- PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	---	X	---	ART. 3.3B
- SIZE AND LOCATION OF STRUCTURAL MEMBERS	---	X	---	ART. 3.3F
- TYPE, SIZE AND LOCATION OF ANCHORS INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	---	X	SECT. 1.2.1(e), 6.2.1, 6.3.1	---
- WELDING OF REINFORCEMENT	X	---	SECT. 6.1.6.1.2	---
- PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40 DEG F) OR HOT WEATHER (TEMPERATURE ABOVE 90 DEG F)	---	X	---	ART. 1.8C, 1.8D
- PLACEMENT OF GROUT	X	---	---	ART. 3.5, 3.6C
4. OBSERVE PREPARATION OF GROUT SPECIMENTS, MORTAR SPECIMENS, AND/OR PRISMS	---	X	---	ART. 1.4B.2.a.3, 1.4B.2.b.3, 1.4B.2.c.3, 1.4B.3, 1.4B.4

(2018 IBC) REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS TABLE 1705.6

[a]: THE APPROVED GEOTECHNICAL REPORT AND THE CONSTRUCTION DOCUMENTS PREPARED BY THE REGISTERED DESIGN PROFESSIONALS SHALL BE USED TO DETERMINE COMPLIANCE

[b]: THE SPECIAL INSPECTOR SHALL VERIFY THAT PROPER MATERIALS AND PROCEDURES ARE USED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT DURING FILL PLACEMENT

VERIFICATION AND INSPECTION [a]	CONTINUOUS	PERIODIC	IBC REFERENCE
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	---	X	1705.6
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	---	X	1705.6
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	---	X	1705.6
VERIFY THE USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL [b]	X	---	1705.6
PRIOR TO PLACEMENT OF CONTROLLED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	---	X	1705.6

(2018 IBC) REQUIRED INSPECTIONS AND TESTS OF COLD-FORMED STEEL DECK PER SDI QA/QC

QUALITY CONTROL (QC): INSPECTION TASKS SHALL BE PERFORMED BY THE INSTALLER'S QUALITY CONTROL INSPECTOR (QCI). FOR QC INSPECTION, THE CONTRUCTION DOCUMENTS, INSTALLATION DRAWINGS, SHOP DRAWINGS, DESIGN DOCUMENTS AND THE APPLICABLE REFERENCED STANDARDS SHALL BE UTILIZED.

QUALITY ASSURANCE (QA): INSPECTION TASKS SHALL BE PERFORMED BY THE QUALITY ASSURANCE INSPECTOR (QAI). INSPECTION OF THE DECK SHALL BE MADE AT THE PROJECT SITE. THE OWNER'S DESIGNATED REPRESENTATIVE FOR CONSTRUCTION SHALL SCHEDULE THIS WORK WITH THE QAI AND THE INSTALLER TO MINIMIZE INTERRUPTIONS TO THE WORK OF THE INSTALLER. THE QAI SHALL REVIEW THE MATERIAL TEST REPORTS AND CERTIFICATIONS AS LISTED IN SECTION 2.2 OF SDI QA/QC FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. CONCURRENT WITH THE SUBMITTAL REPORTS TO THE AHJ, DESIGNER OR OWNER, THE QAI SHALL SUBMIT TO THE OWNER'S DESIGNATED REPRESENTATIVE FOR CONSTRUCTION AND THE INSTALLER LISTS OF NONCONFORMING ITEMS.

OBSERVE (O): INSPECT THESE ITEMS ON AN INTERMITTENT BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS. FREQUENCY OF OBSERVATIONS SHALL BE ADEQUATE TO CONFIRM THAT THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPLICABLE DOCUMENTS.

PERFORM (P): PEFORM THESE TASKS PRIOR TO FINAL ACCEPTANCE FOR EACH ITEM OR ELEMENT.

INSPECTION OR EXECUTION TASKS PRIOR TO DECK PLACEMENT (SDI QA/QC TABLE 1.1)	QC	QA
A. VERIFY COMPLIANCE OF MATERIALS (DECK AND ALL ACCESSORIES) WITH CONSTRUCTION DOCUMENTS, INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE METAL THICKNESS	P	P
B. DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES	P	P
INSPECTION OR EXECUTION TASKS AFTER DECK PLACEMENT (SDI QA/QC TABLE 1.2)	**QC**	**QA**
A. VERIFY COMPLIANCE OF DECK AND ALL DECK ACCESSORIES INSTALLATION WITH CONSTRUCTION DOCUMENTS	P	P
B. VERIFY DECK MATERIALS ARE REPRESENTED BY THE MILL CERTIFCATIONS THAT COMPLY WITH THE CONSTRUCTION DOCUMENTS	-	P
C. DOCUMENTS ACCEPTANCE OR REJECTION OF INSTALLATION OF DECK AND DECK ACCESSORIES	P	P
INSPECTION OR EXECUTION TASKS PRIOR TO WELDING (SDI QA/QC TABLE 1.3)	**QC**	**QA**
A. WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE	O	O
B. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	O	O
C. MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
D. CHECK WELDING EQUIPMENT	O	O
INSPECTION OR EXECUTION TASKS DURING WELDING (SDI QA/QC TABLE 1.4)	**QC**	**QA**
A. USE OF QUALIFIED WELDERS	O	O
B. CONTROL AND HANDLING OF WELDING CONSUMABLES	O	O
C. ENVIRONMENTAL CONDITIONS (WIND SPEED, MOISTURE, TEMPERATURE)	O	O
D. WPS FOLLOWED	O	O
INSPECTION OR EXECUTION TASKS AFTER WELDING (SDI QA/QC TABLE 1.5)	**QC**	**QA**
A. VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP, AND PERIMETER WELDS	P	P
B. WELDS MEET VISUAL ACCEPTANCE CRITERIA	P	P
C. VERIFY REPAIR ACTIVITIES	P	P
D. DOCUMENT ACCEPTANCE OR REJECTION OF WELDS	P	P
INSPECTION OR EXECUTION TASKS PRIOR TO MECHANICAL FASTENING (SDI QA/QC TABLE 1.6)	**QC**	**QA**
A. MANUFACTURER INSTALLATION INSTRUCTIONS AVAILABLE FOR MECHANICAL FASTENERS	O	O
B. PROPER TOOLS AVAILABLE FOR FASTENER INSTALLATION	O	O
C. PROPER STORAGE FOR MECHANICAL FASTENERS	O	O
INSPECTION OR EXECUTION TASKS DURING MECHANICAL FASTENING (SDI QA/QC TABLE 1.7)	**QC**	**QA**
A. FASTENERS ARE POSITIONED AS REQUIRED	O	O
B. FASTENERS ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS	O	O
INSPECTION OR EXECUTION TASKS AFTER TO MECHANICAL FASTENING (SDI QA/QC TABLE 1.8)	**QC**	**QA**
A. CHECKING SPACING, TYPE, AND INSTALLATION OF SUPPORT FASTENERS	P	P
B. CHECKING SPACING, TYPE, AND INSTALLATION OF SIDELAP FASTENERS	P	P
C. CHECKING SPACING, TYPE, AND INSTALLATION OF PERIMETER FASTENERS	P	P
D. VERIFY REPAIR ACTIVITIES	P	P
E. DOCUMENT ACCEPTANCE OR REJECTION OF MECHANICAL FASTENERS	P	P

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
108025

DATE: JULY 18, 2025
DESIGNED BY: CP
DRAWN BY: DM
REVIEWED BY: NMA
KH PROJECT NO: 191245024

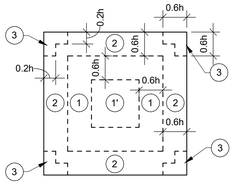
SPECIAL INSPECTION MATRICES

Registered Professional Engineers Specialty (Structural) CERTIFICATE NO. 57855 NICOLE ALLENDER Date Signed 7/18/2025 Arizona U.S.A.

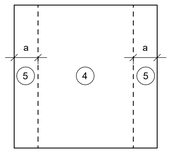
Sheet Number: S-04
Sheet of

Autodesk Docs://LHC Chlorine Conversion v24/LHC Chlorine Conversion_STRUCT_R24.rvt

ULTIMATE WIND SURFACE PRESSURES (PSF)						
ZONE	EFFECTIVE WIND AREA (SQ. FT)					
	10	20	50	100	200	500
1'	-23.8 16.0	---	-23.8 16.0	-23.8 16.0	---	-23.8 16.0
1	-41.5 16.0	---	-35.1 16.0	-32.4 16.0	---	-32.4 16.0
2	-54.7 16.0	---	-46.5 16.0	-43.0 16.0	---	-43.0 16.0
3	-54.7 16.0	---	-46.5 16.0	-43.0 16.0	---	-43.0 16.0
4	-28.2 26.0	---	---	-24.3 22.1	-23.2 21.0	-21.6 19.4
5	-34.8 26.0	---	---	-27.1 22.1	-24.7 21.0	-21.6 19.4
PARAPET	-55.0 75.6	-51.3 70.7	-46.5 64.3	-42.9 59.4	-39.2 54.6	-34.4 48.1



SCHEMATIC ROOF PLAN



SCHEMATIC WALL ELEVATION

NOTES:

1. WIND DESIGN PARAMETERS PER GENERAL STRUCTURAL NOTES.

2. POSITIVE AND NEGATIVE VALUES SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE SURFACES, RESPECTIVELY.

3. h INDICATES THE MEAN ROOF HEIGHT.

4. WALL AND ROOF WIND FORCES ARE CALCULATED FOR MEAN ROOF HEIGHT = 20' - 2".

5. a = 10% OF LEAST HORIZONTAL DIMENSION OR 0.4h, WHICHEVER IS SMALLER BUT NOT LESS THAN 4% OF THE LEAST HORIZONTAL DIMENSION OR 3'-0".

6. WALL AND PARAPET FORCES SHALL BE APPLIED INWARD AND OUTWARD AS ALTERNATIVE LOAD CASES.

7. BUILDING SKETCHES SHOWN DO NOT REPRESENT THE ACTUAL BUILDING SHAPE, BUT ARE INTENDED TO SHOW ZONES OF PRESSURE VARIATION.

T10 / S-05 TYPICAL DETAIL - COMPONENT AND CLADDING WIND FORCES PER ASCE 7-16 (h ≤ 60'-0" AT GABLE ROOFS WITH SLOPE ≤ 7° OR MONOSLOPE ROOFS WITH SLOPE ≤ 3°)

SCALE: NTS

STRAIGHT BAR DEVELOPMENT LENGTH TABLE																					
CASE	DEVELOPMENT LENGTH (INCHES)																				
	BAR SIZE	#3		#4		#5		#6		#7		#8		#9		#10		#11			
	BAR DIAMETER	0.375"		0.500"		0.625"		0.750"		0.875"		1.000"		1.128"		1.270"		1.410"			
	CASTING POSITION	T	O	T	O	T	O	T	O	T	O	T	O	T	O	T	O	T	O	T	O
1	3000 PSI	22	17	29	22	36	28	43	33	63	48	72	55	81	62	91	70	101	78		
	4000 PSI	19	15	25	19	31	24	37	29	54	42	62	48	70	54	79	61	87	67		
	5000 PSI	17	13	23	17	28	22	34	26	49	38	56	43	63	48	70	54	78	60		
	6000 PSI	16	12	21	16	26	20	31	24	45	34	51	39	57	44	64	50	71	55		
2	3000 PSI	32	25	43	33	54	42	65	50	94	72	107	83	121	93	136	105	151	116		
	4000 PSI	28	22	37	29	47	36	56	43	81	63	93	72	105	81	118	91	131	101		
	5000 PSI	25	20	34	26	42	32	50	39	73	56	83	64	94	72	106	81	117	90		
	6000 PSI	23	18	31	24	38	29	46	35	67	51	76	59	86	66	96	74	107	82		

CASE 1:
CLEAR SPACING OF BARS BEING DEVELOPED IS NOT LESS THAN 1 BAR DIAMETER, CLEAR COVER IS NOT LESS THAN 1 BAR DIAMETER, AND TIES OR STIRRUPS ARE PRESENT THROUGHOUT THE DEVELOPMENT LENGTH
OR
THE CLEAR SPACING OF BARS BEING DEVELOPED IS NOT LESS THAN 2 BAR DIAMETERS AND CLEAR COVER IS NOT LESS THAN 1 BAR DIAMETER

CASE 2:
ALL OTHER CASES

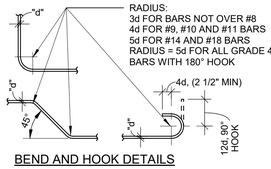
NOTES:

1. TOP BARS, "T", ARE HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW THE BAR. OTHER BARS, "O", ARE ALL VERTICAL BARS AND HORIZONTAL BARS WITH LESS THAN 12" OF FRESH CONCRETE CAST BELOW THE BAR.

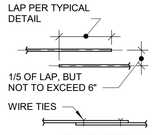
2. STRAIGHT BAR DEVELOPMENT LENGTH SHALL NOT BE USED AS LAP SPLICE LENGTHS. SEE CLASS "B" TENSION LAP SPLICE TYPICAL DETAIL T9 / S-05 FOR LAP SPLICE LENGTHS.

T4 / S-05 TYPICAL DETAIL - STRAIGHT BAR DEVELOPMENT LENGTHS FOR UNCOATED GRADE 60 REINFORCING STEEL IN NORMAL WEIGHT CONCRETE

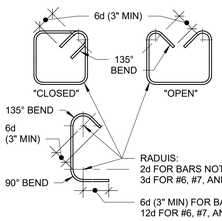
SCALE: NTS



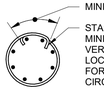
BEND AND HOOK DETAILS



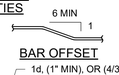
SPLICE DETAIL



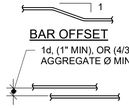
COLUMN TIES / BEAM STIRRUPS / CROSSTIES



CIRCULAR COLUMN / DRILLED PIER TIES



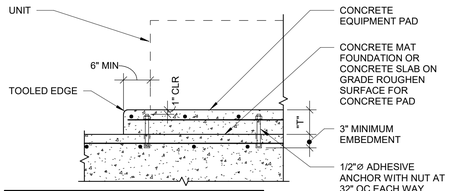
BAR OFFSET



BAR CLEARANCE

T11 / S-05 TYPICAL DETAIL - CONCRETE REINFORCING BARS

SCALE: NTS



EQUIPMENT PAD REINFORCING	
"T"	REINFORCING
4"	#4 AT 18" OC EACH WAY
6"	#4 AT 16" OC EACH WAY
8"	#4 AT 12" OC EACH WAY
10"	#4 AT 10" OC EACH WAY
1'-0"	#4 AT 18" OC EACH WAY TOP AND BOTTOM
1'-2"	#4 AT 14" OC EACH WAY TOP AND BOTTOM
1'-6"	#4 AT 12" OC EACH WAY TOP AND BOTTOM

NOTE:

EQUIPMENT PAD THICKNESS, SIZE AND LOCATION PER ARCHITECTURAL, MECHANICAL AND ELECTRICAL - EXACT DIMENSIONS AND LOCATIONS ARE SUBJECT TO VERIFICATION PRIOR TO CONSTRUCTION DUE TO VENDOR SPECIFIC INFORMATION

T12 / S-05 TYPICAL DETAIL - CONCRETE EQUIPMENT PAD

SCALE: NTS

HOOKED BAR DEVELOPMENT LENGTH TABLE										
CASE	DEVELOPMENT LENGTH (INCHES)									
	BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
	BAR DIAMETER	0.375"	0.500"	0.625"	0.750"	0.875"	1.000"	1.128"	1.270"	1.410"
1	3000 PSI	6	8	10	12	14	16	20	23	27
	4000 PSI	6	7	9	10	13	15	18	22	26
	5000 PSI	6	6	8	10	12	15	18	21	25
	6000 PSI	6	6	7	10	12	15	17	21	24
2	3000 PSI	9	11	14	17	20	22	25	29	34
	4000 PSI	8	10	12	15	17	19	23	27	32
	5000 PSI	7	9	11	13	15	18	22	26	31
	6000 PSI	6	8	10	12	15	18	22	26	30

CASE 1:
A. THE SIDE COVER (NORMAL TO THE PLANE OF HOOK) OF BARS BEING DEVELOPED IS NOT LESS THAN 6 BAR DIAMETERS, 2 1/2" MINIMUM, OR BARS TERMINATING INSIDE COLUMN CORE WITH SIDE COVER (NORMAL TO PLANE OF HOOK) IS NOT LESS THAN 2 1/2"

B. THE END COVER ON BAR EXTENSION BEYOND HOOK FOR HOOKED BARS BEING DEVELOPED IS NOT LESS THAN 2"

CASE 2:
ALL OTHER CASES

NOTES:

1. THE HOOKED BAR DEVELOPMENT LENGTHS SHALL BE INCREASED BY 160% WHERE HOOKED BARS ARE SPACED LESS THAN 6 BAR DIAMETERS APART

2. HOOKED BAR DEVELOPMENT LENGTH SHALL NOT BE USED AS LAP SPLICE LENGTH. SEE CLASS "B" TENSION LAP SPLICE TYPICAL DETAIL T9 / S-05 FOR LAP SPLICE LENGTHS.

T5 / S-05 TYPICAL DETAIL - HOOKED BAR DEVELOPMENT LENGTHS FOR UNCOATED GRADE 60 REINFORCING STEEL IN NORMAL WEIGHT CONCRETE

SCALE: NTS

CLASS B TENSION LAP SPLICE TABLE																					
CASE	SPLICE LENGTH (INCHES)																				
	BAR SIZE	#3		#4		#5		#6		#7		#8		#9		#10		#11			
	BAR DIAMETER	0.375"		0.500"		0.625"		0.750"		0.875"		1.000"		1.128"		1.270"		1.410"			
	CASTING POSITION	T	O	T	O	T	O	T	O	T	O	T	O	T	O	T	O	T	O	T	O
1	3000 PSI	28	22	38	29	47	36	56	43	81	63	93	72	105	81	118	91	131	101		
	4000 PSI	25	19	33	25	41	31	49	37	71	54	81	62	91	70	102	79	114	87		
	5000 PSI	22	17	29	23	36	28	44	34	63	49	72	56	81	63	92	71	102	78		
	6000 PSI	20	16	27	21	33	26	40	31	58	45	66	51	74	57	84	64	93	71		
2	3000 PSI	42	33	56	43	70	54	84	65	122	94	139	107	157	121	177	136	196	151		
	4000 PSI	37	28	49	37	61	47	73	56	106	81	121	93	136	105	153	118	170	131		
	5000 PSI	33	25	44	34	54	42	65	50	95	73	108	83	122	94	137	106	152	117		
	6000 PSI	30	23	40	31	50	38	59	46	86	67	99	76	111	86	125	96	139	107		

CASE 1:
CLEAR SPACING OF BARS BEING SPLICED IS NOT LESS THAN 1 BAR DIAMETER, CLEAR COVER IS NOT LESS THAN 1 BAR DIAMETER, AND TIES OR STIRRUPS ARE PRESENT THROUGHOUT THE SPLICE LENGTH NOT LESS THAN THE CODE MINIMUM
OR
THE CLEAR SPACING OF BARS BEING SPLICED IS NOT LESS THAN 2 BAR DIAMETERS AND CLEAR COVER IS NOT LESS THAN 1 BAR DIAMETER

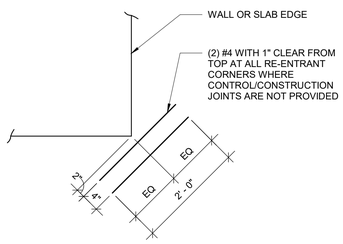
CASE 2:
ALL OTHER CASES

NOTE:

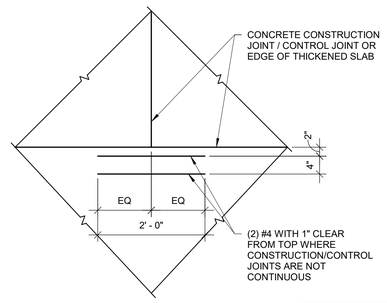
TOP BARS, "T", ARE HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW THE BAR. OTHER BARS, "O", ARE ALL VERTICAL BARS AND HORIZONTAL BARS WITH LESS THAN 12" OF FRESH CONCRETE CAST BELOW THE BAR

T9 / S-05 TYPICAL DETAIL - CLASS "B" TENSION LAP SPLICE LENGTHS FOR UNCOATED GRADE 60 REINFORCING STEEL IN NORMAL WEIGHT CONCRETE

SCALE: NTS



RE-ENTRANT CORNER



CONSTRUCTION OR CONTROL JOINT INTERSECTION

NOTE:

PROVIDE BOTTOM REINFORCEMENT FOR SLABS GREATER OR EQUAL TO 6" THICK WITH 3" CLEAR FROM BOTTOM

T6 / S-05 TYPICAL DETAIL - PLAN VIEW - REINFORCING IN SLAB ON GRADE AT RE-ENTRANT CORNERS AND INTERSECTION OF SLAB JOINTS

SCALE: NTS

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LHC CHLORINE CONVERSION
100% DRAWINGS
108025

DATE: JULY 18, 2025
DESIGNED BY: CP
DRAWN BY: DM
REVIEWED BY: NMA
KH PROJECT NO: 191245024

TYPICAL DETAILS T1 - T12

Professional Engineer Certificate No. 57855 Nicole Allender Arizona U.S.A. My Signed 11/20/2025

Sheet Number:

S-05

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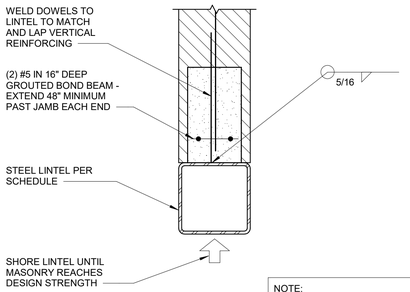
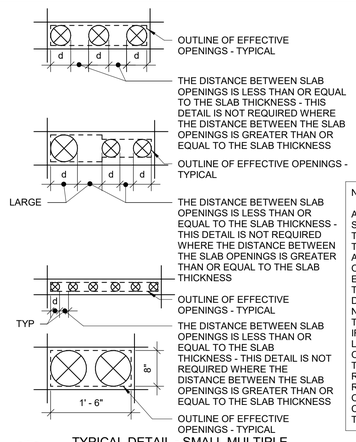


NOTE:

STEEL LINTEL SHALL EXTEND 16" MINIMUM PAST EDGE OF OPENING

T22 / S-06 STEEL LINTEL AT OVERHEAD DOOR

SCALE: NTS

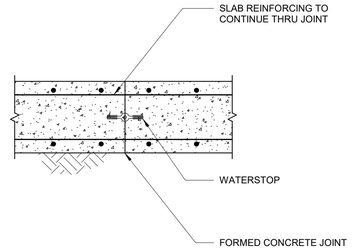


NOTE:

ALL CONDITIONS SHOWN NEED (1) #5 TOP AND BOTTOM - TRIM BARS ALL AROUND EFFECTIVE OPENING WITH 12" EMBEDMENT PAST THE OPENING EDGE - DIAGONAL BARS ARE NOT NECESSARY AT THESE CONDITIONS - IF THE EFFECTIVE LENGTH OF AN OPENING IS LARGER THAN 36", FOLLOW REINFORCING REQUIREMENTS PER OPENING IN CONCRETE SLAB TYPICAL DETAIL

T19 / S-06 TYPICAL DETAIL - SMALL MULTIPLE OPENINGS IN CONCRETE SLAB OR WALL

SCALE: NTS



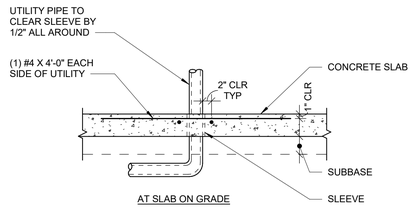
CONSTRUCTION JOINT

NOTES:

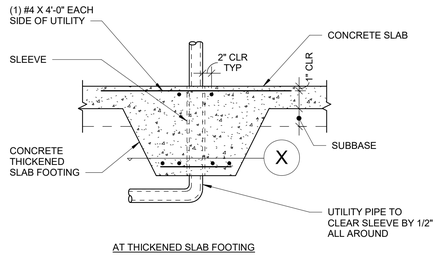
1. LOCATION OF CONSTRUCTION JOINTS NOT SHOWN ON PLANS TO BE APPROVED BY STRUCTURAL ENGINEER.

T16 / S-06 TYPICAL DETAIL - CONSTRUCTION JOINT IN CONCRETE SLAB

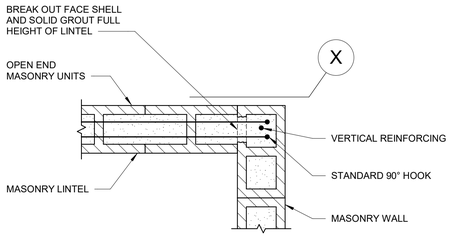
SCALE: NTS



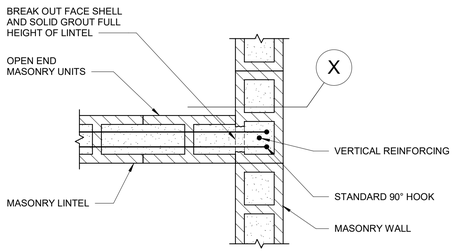
AT SLAB ON GRADE



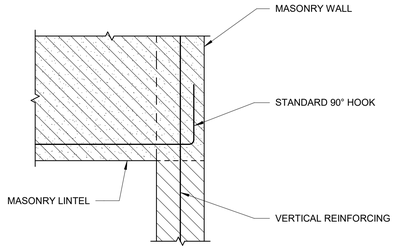
AT THICKENED SLAB FOOTING



WALL CORNER



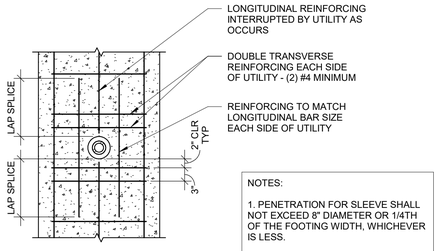
WALL INTERSECTION



X SECTION

T23 / S-06 TYPICAL DETAIL - PLAN VIEW - MASONRY WALL INTERSECTION AT MASONRY LINTEL

SCALE: NTS



X SECTION

NOTES:

1. PENETRATION FOR SLEEVE SHALL NOT EXCEED 8" DIAMETER OR 1/4TH OF THE FOOTING WIDTH, WHICHEVER IS LESS.

2.STUD WALL NOT SHOWN FOR CLARITY.

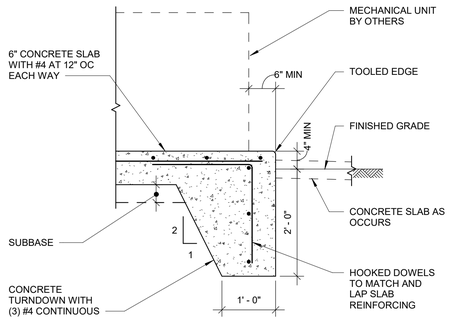
3. NO UTILITIES BELOW COLUMNS.

4. ADDITIONAL INFORMATION PER MECHANICAL, ELECTRICAL AND CIVIL.

5. WIDEN FOUNDATIONS AS REQUIRED TO ACHIEVE CLEARANCE.

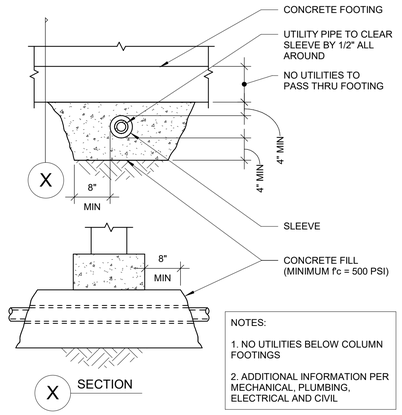
T14 / S-06 TYPICAL DETAIL - UTILITY THROUGH CONCRETE SLAB

SCALE: NTS



T24 / S-06 TYPICAL DETAIL - CONCRETE EQUIPMENT PAD

SCALE: NTS



X SECTION

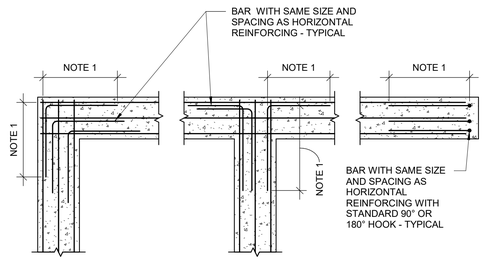
NOTES:

1. NO UTILITIES BELOW COLUMN FOOTINGS

2. ADDITIONAL INFORMATION PER MECHANICAL, PLUMBING, ELECTRICAL AND CIVIL

T21 / S-06 TYPICAL DETAIL - UTILITY BELOW WALL FOOTING

SCALE: NTS



CORNER INTERSECTION FREE END

NOTE:

CLASS "B" TENSION LAP SPLICE OR 24", WHICHEVER IS GREATER

T18 / S-06 TYPICAL DETAIL - PLAN VIEW - REINFORCING IN CONCRETE FOOTING

SCALE: NTS

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LHC CHLORINE CONVERSION

100% DRAWINGS

108025

DATE: JULY 18, 2025
DESIGNED BY: CP
DRAWN BY: DM
REVIEWED BY: NMA
KH PROJECT NO: 191245024

TYPICAL DETAILS T13 - T24

Registered Professional Engineer (Individual) CERTIFICATE NO. 57855 NICOLE ALLENDER Date Signed 7/18/2025 ARIZONA U.S.A.

Sheet Number:

S-06

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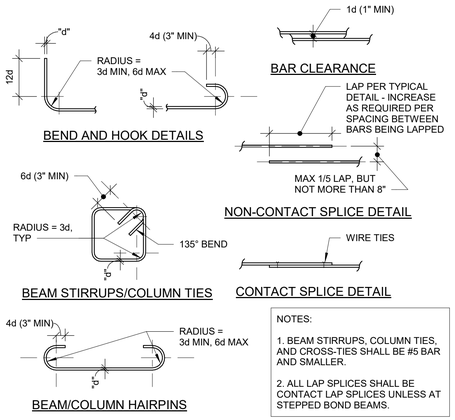


NOTES:

1. BEAM STIRRUPS, COLUMN TIES, AND CROSS-TIES SHALL BE #5 BAR AND SMALLER.

2. ALL LAP SPLICES SHALL BE CONTACT LAP SPLICES UNLESS AT STEPPED BOND BEAMS.

T34 / S-07 TYPICAL DETAIL - MASONRY REINFORCING BARS

SCALE: NTS

DEVELOPMENT LENGTH AND LAP SPLICE TABLE			
BAR SIZE	VERTICAL REINFORCING (SINGLE) CENTERED	VERTICAL REINFORCING (SINGLE) EDGE AND (DOUBLE)	HORIZONTAL REINFORCING (SINGLE) AND (DOUBLE)
#3	1' - 4"	1' - 4"	1' - 4"
#4	2' - 0"	2' - 0"	2' - 0"
#5	2' - 6"	3' - 0"	3' - 0"
#6	3' - 8"	4' - 6"	4' - 6"
#7	5' - 0"	5' - 3"	5' - 3"
#8	6' - 0"	6' - 0"	6' - 0"

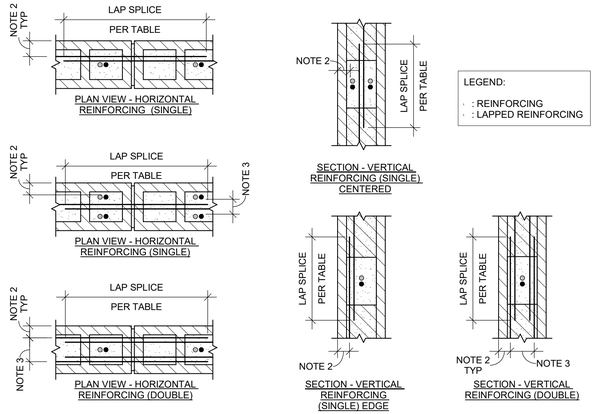
NOTES:

1. MASONRY ASSEMBLAGE SHALL HAVE A COMPRESSIVE STRENGTH, f'm, OF 2,000 PSI MINIMUM.

2. CLEAR COVER FOR REINFORCING SHALL BE 2" MINIMUM.

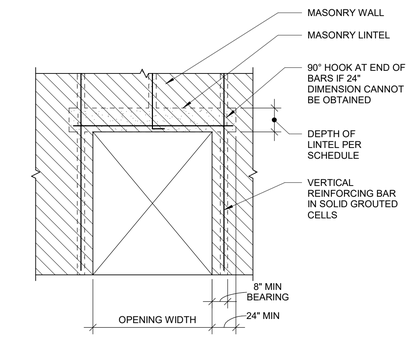
3. CLEAR SPACING BETWEEN REINFORCING SHALL BE 2" MINIMUM.

4. MASONRY SHALL HAVE A MINIMUM THICKNESS OF 8".



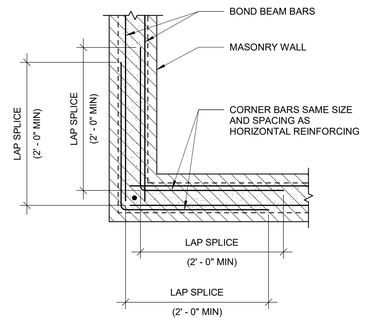
T31 / S-07 TYPICAL DETAIL - DEVELOPMENT LENGTHS AND SPLICES FOR UNCOATED GRADE 60 REINFORCED STEEL IN MASONRY

SCALE: NTS



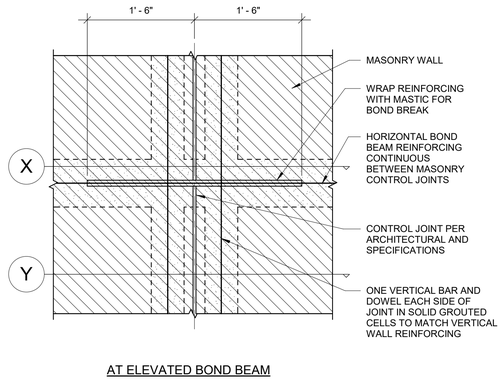
T25 / S-07 TYPICAL DETAIL - MASONRY LINTEL ELEVATION

SCALE: NTS

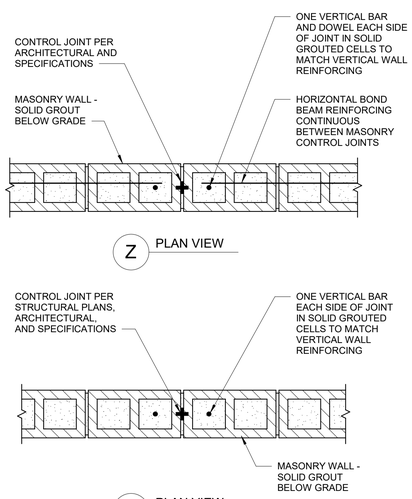


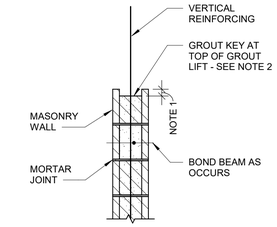
T35 / S-07 TYPICAL DETAIL - PLAN VIEW - BOND BEAM REINFORCING AT WALL CORNER

SCALE: NTS



AT ELEVATED BOND BEAM





NOTES:

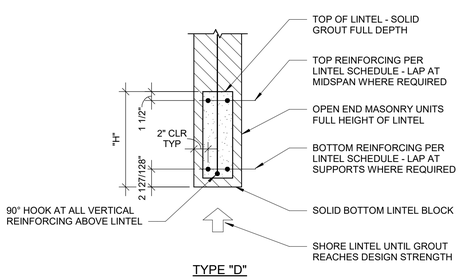
1. FORM GROUT KEY BY TERMINATING THE GROUT A MINIMUM OF 1-1/2" BELOW A MORTAR JOINT

2. DO NOT FORM KEYS WITHIN BEAMS OR LINTELS, OR AT TOP OF WALL

3. AT BEAMS OR LINTELS WITH CLOSED BOTTOM UNITS, TERMINATE THE GROUT POUR AT THE BOTTOM OF THE BEAM OR LINTEL WITHOUT FORMING A GROUT KEY

T26 / S-07 TYPICAL DETAIL - GROUT KEY AT MASONRY WALL

SCALE: NTS



TYPE "D"

NOTES:

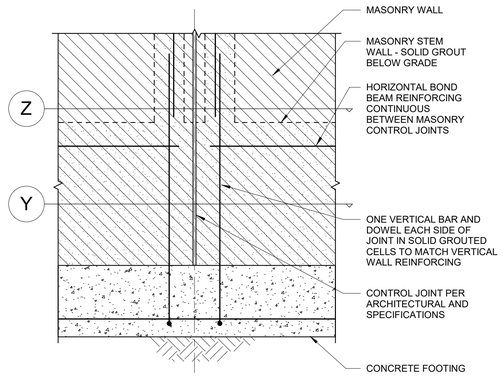
1. LINTEL HEIGHT "H" PER LINTEL SCHEDULE

2. WHERE THE LINTEL INTERSECTS AT PERPENDICULAR MASONRY WALL, BREAK OUT THE FACE SHELLS OF THE MASONRY WALL FULL HEIGHT OF THE LINTEL - HOOK LINTEL REINFORCING 90° AND GROUT SOLID

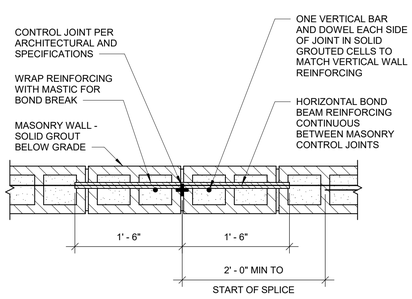
3. EXTEND GROUT, OPEN END MASONRY UNITS, AND REINFORCING 24" PAST EACH JAMB

T36 / S-07 TYPICAL DETAIL - MASONRY LINTEL

SCALE: NTS



AT STEM WALL BOND BEAM



NOTE:

BOND BEAM BARS SHALL NOT BE LAPPED WITHIN 2'-0" MINIMUM EACH SIDE OF THE CONTROL JOINT

T33 / S-07 TYPICAL DETAIL - CONTROL JOINT IN MASONRY WALL

SCALE: NTS

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REVIEWED BY:	NMA
KH PROJECT NO:	191245024

TYPICAL DETAILS T25 - T36

Professional Engineer (Industrial) CERTIFICATE NO. 57855 NICOLE ALLENDER Date Signed 11/6/2025 ARIZONA

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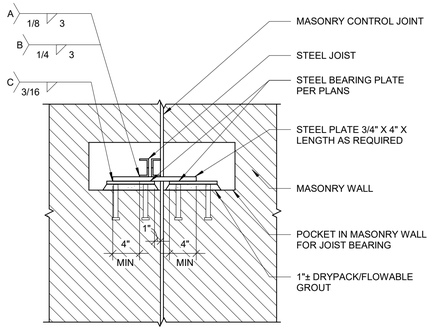


WELD NOTES:

A. WELD AT K SERIES STEEL JOIST.

B. WELD AT LH SERIES STEEL JOIST.

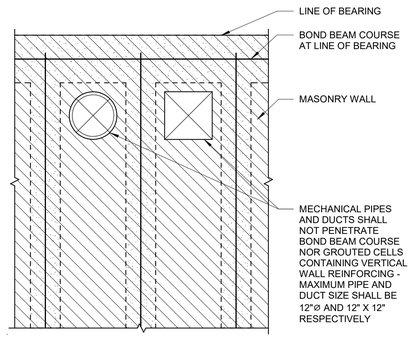
C. WELD 2 SIDES.

NOTE:

WELD STEEL PLATE TO BEARING PLATE ON ONE SIDE OF CONTROL JOINT ONLY

T46 / S-08 TYPICAL DETAIL - STEEL JOIST BEARING AT MASONRY CONTROL JOINT

SCALE: NTS

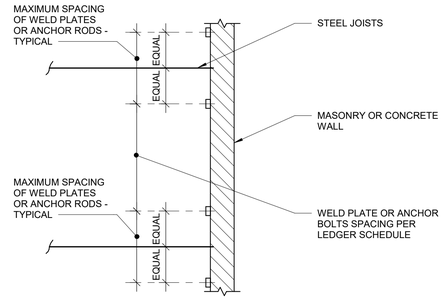


NOTE:

NO PENETRATIONS WILL BE ALLOWED THROUGH MASONRY LINTELS WITHOUT PRIOR APPROVAL OF STRUCTURAL ENGINEER

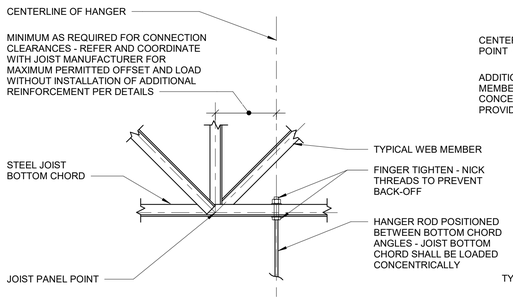
T43 / S-08 TYPICAL DETAIL - MECHANICAL PENETRATIONS IN MASONRY WALL

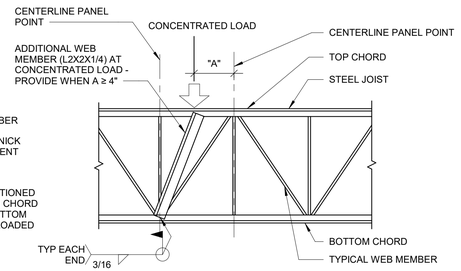
SCALE: NTS

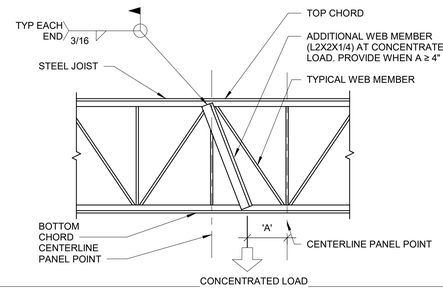


T40 / S-08 TYPICAL DETAIL - PLAN VIEW - WELD PLATES OR ANCHOR BOLTS TO WALL

SCALE: NTS





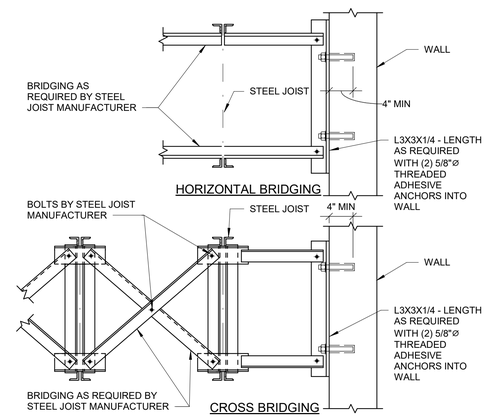


NOTES:

1. APPLY CONCENTRATED LOADS TO PANEL POINTS OF JOIST - CONCENTRATED LOADS SHALL BE APPLIED CONCENTRICALLY TO TOP OR BOTTOM CHORDS AS APPLICABLE
2. REINFORCE JOIST AS SHOWN FOR CONCENTRATED LOADS NOT APPLIED AT PANEL POINTS
3. DO NOT SUSPEND UTILITIES OR CEILING FROM ROOF DECK OR JOIST BRIDGING

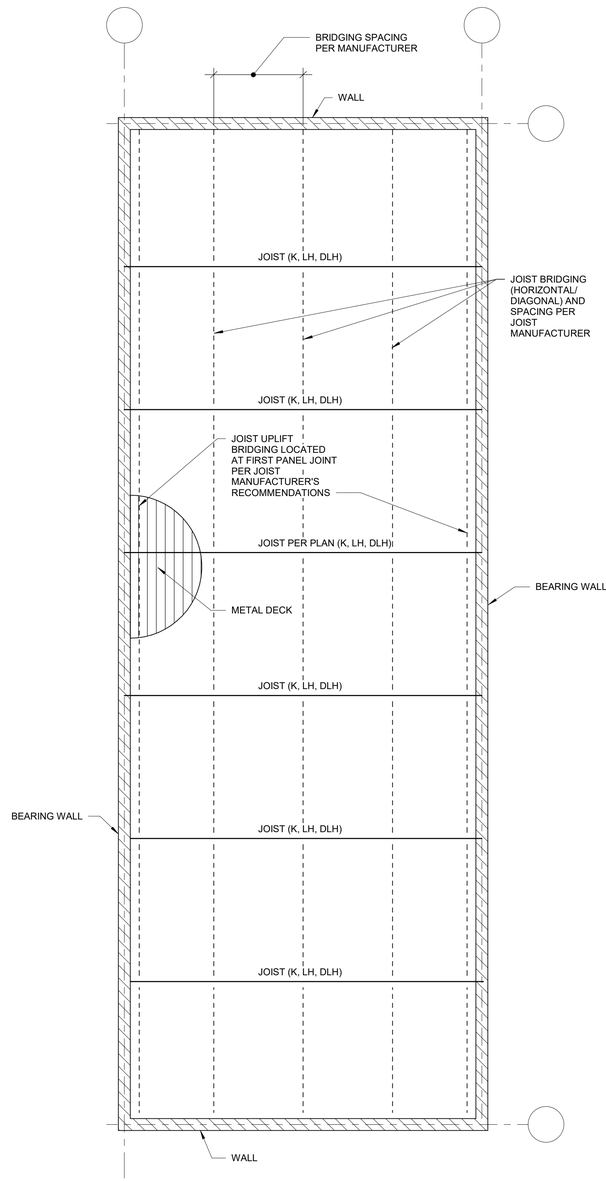
T47 / S-08 TYPICAL DETAIL - CONCENTRATED LOADS AT STEEL JOIST

SCALE: NTS



T42 / S-08 TYPICAL DETAIL - STEEL JOIST BRIDGING CONNECTION TO WALL

SCALE: NTS



T39 / S-08 TYPICAL DETAIL - STEEL JOIST SCHEMATIC BRIDGING AND DETAIL REFERENCE

SCALE: NTS

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LHC CHLORINE CONVERSION

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108025

DATE:	JULY 16, 2025
DESIGNED BY:	CP
DRAWN BY:	DM
REVIEWED BY:	NMA
KH PROJECT NO:	191245024

TYPICAL DETAILS T37 - T48

Professional Engineer Signature (Required) CERTIFICATE NO. 57855 NICOLE ALLENDER Date Signed 7/16/2025 ARIZONA U.S.A.

Sheet Number:

S-08

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PLAN LEGEND

SYMBOL	DESCRIPTION	REMARKS
1	KEYNOTE REFERENCE	PER KEYED NOTES ON PLAN
A	MECHANICAL EQUIPMENT	PER MECHANICAL EQUIPMENT SCHEDULE
	OPENING IN FLOOR OR ROOF	PER TYPICAL DETAILS U.N.O.
	MASONRY WALL	SIZE AND REINFORCING PER WALL (W) SCHEDULE
	CONCRETE WALL	SIZE AND REINFORCING PER WALL (W) SCHEDULE
	WALL BELOW THAT DOES NOT EXTEND TO STRUCTURE	———
	WALL BELOW THAT EXTENDS TO STRUCTURE	———
	CONCRETE SLAB	PER PLANS
	STEEL DECK	PER PLANS AND GENERAL STRUCTURAL NOTES
	STEEL GRATING	PER PLANS AND GENERAL STRUCTURAL NOTES

ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE
ABC	AGGREGATE BASE COURSE
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISH FLOOR
AGG	AGGREGATE
AHJ	AUTHORITY HAVING JURISDICTION
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ARCH	ARCHITECT OR ARCHITECTURAL DOCUMENTS
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BP	BASE PLATE
BOD	BOTTOM OF DECK
CC	CONCRETE COLUMN
CB	CONCRETE BEAM
CALCS	CALCULATIONS
CJ	CONTROL JOINT OR CONSTRUCTION JOINT
CJP	COMPLETE JOINT PENETRATION WELD
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
C	COLUMN
DEG	DEGREE
DIA, Ø	DIAMETER
DIM	DIMENSION
DL	DEAD LOAD
DN	DOWN
DP	DRILLED PIER
E	MODULUS OF ELASTICITY
EOD	EDGE OF ROOF DECK
EOS	EDGE OF SLAB
EOR	ENGINEER OF RECORD
EJ	EXPANSION JOINT
EL	ELEVATION
EQ	EQUAL
EXT	EXTERIOR
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FT	FOOT (FEET)
F	FOOTING
FY	YIELD STRESS STEEL
G	GRATING
GA	GAGE OR GAUGE
GB	GRADE BEAM
GSN	GENERAL STRUCTURAL NOTES
HP	HIGH POINT
HS	HIGH STRENGTH
HT	HEIGHT
I (IN4)	MOMENT OF INERTIA
IBC	INTERNATIONAL BUILDING CODE
ICC	INTERNATIONAL CODE COUNCIL
ID	INSIDE DIAMETER
IN	INCH
K	KIP = 1000 LBS
KSI	KIPS PER SQUARE INCH
L	LEDGER
LBS	POUND(S)
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
LT	LINTEL
LP	LOW POINT
MAX	MAXIMUM
MCJ	MASONRY CONTROL JOINT
MIN	MINIMUM
NAAMM	NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
PCI	PRESTRESSED CONCRETE INSTITUTE
PC	PILE/PIER CAP
PCF	POUNDS PER CUBIC FOOT
PJP	PARTIAL JOINT PENETRATION WELD
PLF	POUNDS PER LINEAR FOOT
PSI	POUNDS PER SQUARE INCH
PT, P/T	POST-TENSIONED
PSF	POUNDS PER SQUARE FOOT
SDI	STEEL DECK INSTITUTE
SL	SNOW LOAD
SIB	STRUCTURAL ISOLATION BREAK
SIM	SIMILAR
SJI	STEEL JOIST INSTITUTE
SS	STAINLESS STEEL
STD	STANDARD
SW	SHEARWALL
TL	TOTAL LOAD
TOC	TOP OF CONCRETE
TODP	TOP OF DRILLED PIER
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UT	ULTRASONIC TESTING
WP	WORK POINT
WWR	WELDED WIRE REINFORCEMENT
WF	WALL FOOTING
W	WALL
W/CM	WATER-CEMENT RATIO
X-STRONG	EXTRA STRONG
XX-STRONG	DOUBLE EXTRA STRONG
#	NUMBER

LINTEL (LT) SCHEDULE

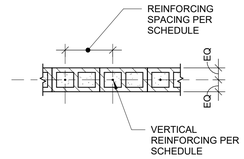
NOTE:

LINTEL TYPE PER TYPICAL DETAILS.

MARK	LINTEL TYPE	LINTEL SIZE	REMARKS
LT1	TYPE C PER TYPICAL DETAIL T22 / S-06	HSS16X8X3/8	-
LT2	TYPE D PER TYPICAL DETAIL T22 / S-06	H = 24" (2) #5 TOP AND BOTTOM	EXTEND FULL WIDTH OF CANOPY, WHERE OCCURS

MASONRY WALL (MW) SCHEDULE

ADDITIONAL INFORMATION PER TYPICAL DETAILS.



SINGLY REINFORCED WALLS

MARK	THICKNESS	TYPE	REINFORCING		REMARKS
			VERTICAL	HORIZONTAL	
MW1	0' - 7 5/8"	CMU	#5 AT 24" OC	-	FINISH PER ARCH

MECHANICAL EQUIPMENT WEIGHTS

VERIFY ALL WEIGHTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL ENGINEER AND ARCHITECT

MARK	EQUIPMENT WEIGHT	REMARKS
A	64,000 LBS	-
B	64,000 LBS	FUTURE TANK
C	240 LBS	-
D	700 LBS	-

LEDGER (L) SCHEDULE

WELD PLATE NOTE:

THE JOIST OR BEAM IS NOT CONSIDERED A SUPPORT POINT FOR A STEEL LEDGER ANGLE AND MAY NOT BE USED IN PLACE OF A WELD PLATE. REQUIRED LAYOUT OF WELD PLATES OR ANCHOR RODS AT MASONRY WALL PER TYPICAL DETAILS. J-BOLTS ARE NOT ACCEPTABLE.

MARK	LEDGER SIZE	CONNECTION
L1	L3 1/2 X 3 1/2X1/4	WELD PLATES AT 48" OC
L2	L3 1/2 X 3 1/2X1/4	WELD PLATES AT 24" OC

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LHC CHLORINE CONVERSION
100% DRAWINGS
108025

DATE: JULY 18, 2025
DESIGNED BY: CP
DRAWN BY: DM
REVIEWED BY: NMA
KH PROJECT NO: 191245024

ABBREVIATIONS/PLAN LEGENDS

Registered Professional Engineer (Structural) CERTIFICATE NO. 57855 NICOLE ALLENDER Date Signed 7/18/2025 STATE OF ARIZONA

Sheet Number:
S-09
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GENERAL FOUNDATION AND FRAMING PLAN NOTES

A. VERIFY ALL ELEVATIONS AND DIMENSIONS WITH CIVIL, MECHANICAL AND ELECTRICAL. RESOLVE ANY DISCREPANCY WITH CIVIL, MECHANICAL AND ELECTRICAL. NOTIFY KIMLEY-HORN THROUGH CIVIL, MECHANICAL AND ELECTRICAL OF ANY VARIATIONS FROM DIMENSIONS AND CONDITIONS SHOWN BY THIS DRAWING.

B. THE ARCHITECT FURNISHES ALL ELEVATIONS AND DIMENSIONS. RESOLVE ANY DISCREPANCY WITH ARCHITECT. NOTIFY KIMLEY-HORN THROUGH ARCHITECT OF ANY VARIATIONS FROM DIMENSIONS AND CONDITIONS SHOWN BY THIS DRAWING.

C. COORDINATE SLAB DEPRESSIONS FOR FLOOR FINISHES AND SLOPES WITH ARCHITECTURAL.

D. EXISTING CONDITIONS SHOWN ARE BASED UPON INFORMATION FURNISHED BY THE OWNER. WHERE CONDITIONS DIFFER FROM THOSE SHOWN, NOTIFY KIMLEY-HORN THROUGH ARCHITECT. DIMENSIONS AND LOCATIONS OF EXISTING ELEMENTS SHALL BE VERIFIED WHERE NECESSARY FOR CONNECTIONS TO NEW CONSTRUCTION.

E. ALL OPENINGS THROUGH FLOORS, WALLS OR ROOF ARE NOT SHOWN ON PLANS. COORDINATE ALL OPENING LOCATIONS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL. COORDINATE ADDITIONAL FRAMING REQUIREMENTS OR REINFORCING WITH TYPICAL DETAILS.

F. REFER TO SHEETS S-01 THRU S-04 AND S-09 FOR GENERAL STRUCTURAL NOTES, ABBREVIATIONS, LEGENDS, AND SPECIAL INSPECTION REQUIREMENTS.

G. REFER TO SHEETS S-05 THRU S-08 FOR TYPICAL DETAILS. TYPICAL DETAILS APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. TYPICAL DETAILS ARE NOT NOTED AT EACH LOCATION AT WHICH THEY ARE APPLICABLE.

H. REFER TO SHEET S-09 FOR FOUNDATION AND FRAMING SCHEDULES.

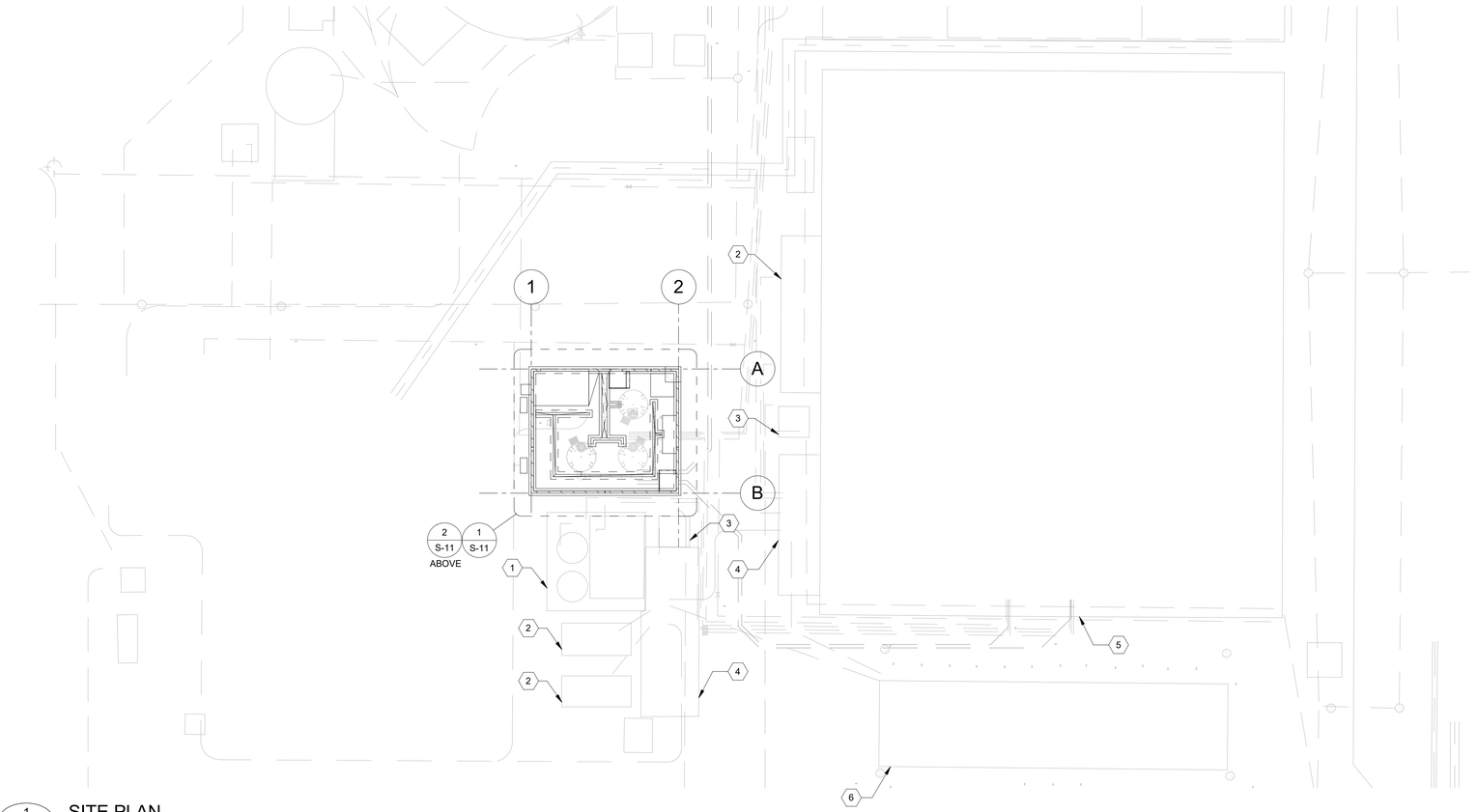
I. ALL JOISTS SHALL BE DESIGNED FOR AN ADDITIONAL 3310 LB AXIAL LOAD APPLIED TO THE TOP CHORD.

J. FOR STEEL JOIST BRIDGING REQUIREMENTS, SEE SHEET S-08.

K. ALL JOIST LH SERIES BEARING SEATS SHALL HAVE A MINIMUM DEPTH OF 5".

KEYED NOTES

1	EXISTING CHEMICAL FEED STATION.
2	EXISTING GENERATOR.
3	EXISTING XFMR.
4	EXISTING ER.
5	EXISTING CLEARWELL.
6	EXISTING PUMP STATION.



1 / S-10 SITE PLAN
SCALE: 1" = 20'-0"

NORTH

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DATE: JULY 18, 2025
DESIGNED BY: CP
DRAWN BY: DM
REVIEWED BY: NMA
KH PROJECT NO: 191245024

SITE PLAN

Registered Professional Engineer (Structural)
CERTIFICATE NO.
57855
NICOLE ALLENDER
Date Signed 7/18/2025
ARIZONA U.S.A.

Sheet Number:
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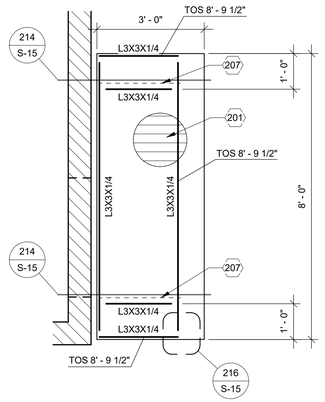


3 S-11 ENLARGED CANOPY FRAMING PLAN

SCALE: 1/2" = 1'-0"

GENERAL FOUNDATION AND FRAMING PLAN NOTES

A. VERIFY ALL ELEVATIONS AND DIMENSIONS WITH CIVIL, MECHANICAL AND ELECTRICAL. RESOLVE ANY DISCREPANCY WITH CIVIL, MECHANICAL AND ELECTRICAL. NOTIFY KIMLEY-HORN THROUGH CIVIL, MECHANICAL AND ELECTRICAL OF ANY VARIATIONS FROM DIMENSIONS AND CONDITIONS SHOWN BY THIS DRAWING.

B. THE ARCHITECT FURNISHES ALL ELEVATIONS AND DIMENSIONS. RESOLVE ANY DISCREPANCY WITH ARCHITECT. NOTIFY KIMLEY-HORN THROUGH ARCHITECT OF ANY VARIATIONS FROM DIMENSIONS AND CONDITIONS SHOWN BY THIS DRAWING.

C. COORDINATE SLAB DEPRESSIONS FOR FLOOR FINISHES AND SLOPES WITH ARCHITECTURAL.

D. EXISTING CONDITIONS SHOWN ARE BASED UPON INFORMATION FURNISHED BY THE OWNER. WHERE CONDITIONS DIFFER FROM THOSE SHOWN, NOTIFY KIMLEY-HORN THROUGH ARCHITECT. DIMENSIONS AND LOCATIONS OF EXISTING ELEMENTS SHALL BE VERIFIED WHERE NECESSARY FOR CONNECTIONS TO NEW CONSTRUCTION.

E. ALL OPENINGS THROUGH FLOORS, WALLS OR ROOF ARE NOT SHOWN ON PLANS. COORDINATE ALL OPENING LOCATIONS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL. COORDINATE ADDITIONAL FRAMING REQUIREMENTS OR REINFORCING WITH TYPICAL DETAILS.

F. REFER TO SHEETS S-01 THRU S-04 AND S-09 FOR GENERAL STRUCTURAL NOTES, ABBREVIATIONS, LEGENDS, AND SPECIAL INSPECTION REQUIREMENTS.

G. REFER TO SHEETS S-05 THRU S-08 FOR TYPICAL DETAILS. TYPICAL DETAILS APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. TYPICAL DETAILS ARE NOT NOTED AT EACH LOCATION AT WHICH THEY ARE APPLICABLE.

H. REFER TO SHEET S-09 FOR FOUNDATION AND FRAMING SCHEDULES.

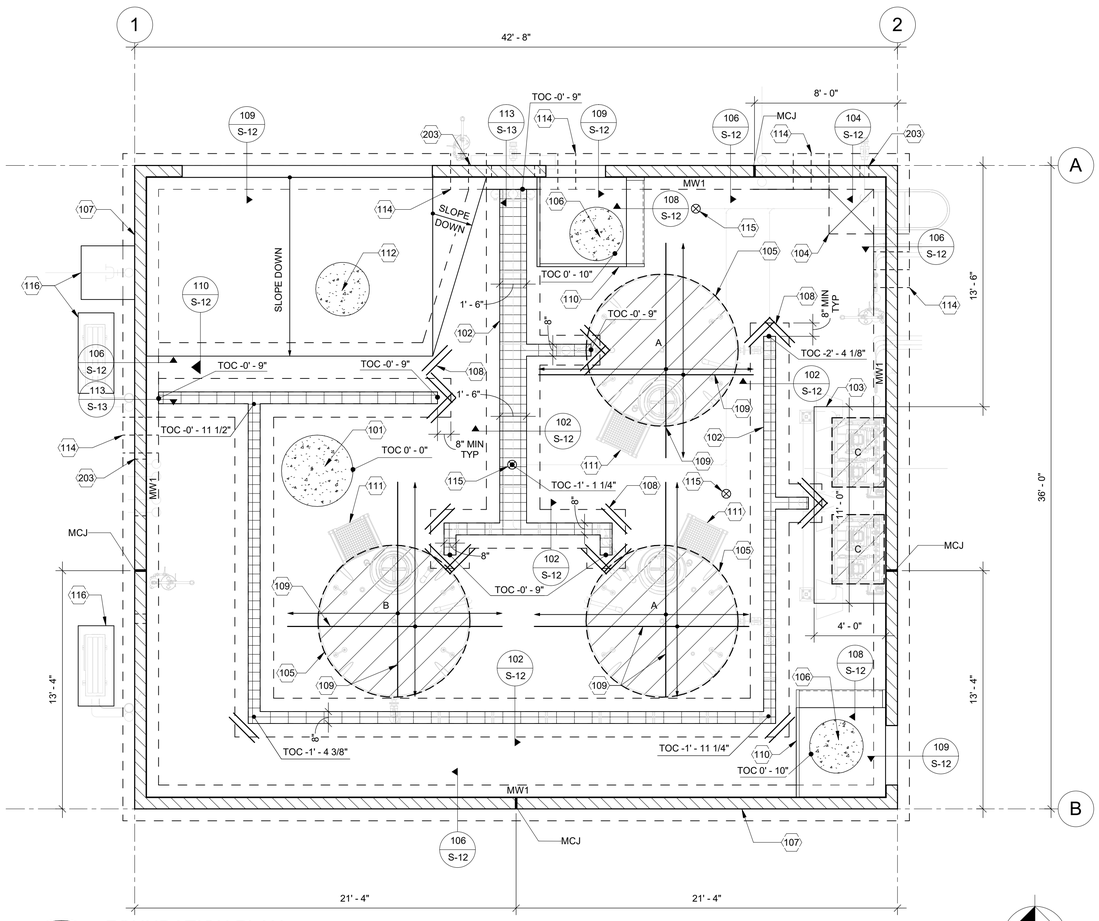
I. ALL JOISTS SHALL BE DESIGNED FOR AN ADDITIONAL 3310 LB AXIAL LOAD APPLIED TO THE TOP CHORD.

J. FOR STEEL JOIST BRIDGING REQUIREMENTS, SEE SHEET S-08.

K. ALL JOIST LH SERIES BEARING SEATS SHALL HAVE A MINIMUM DEPTH OF 5".

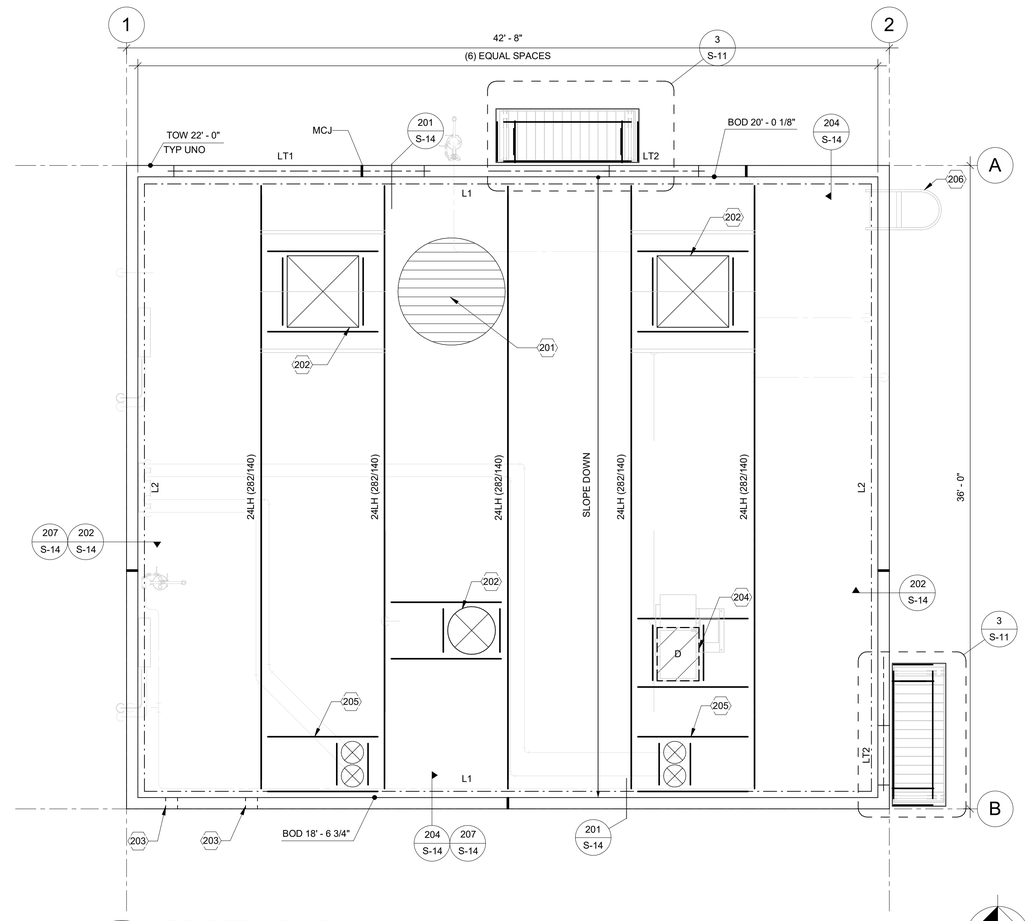
KEYED NOTES

101	9" THICK CONCRETE SLAB WITH #5 AT 12" OC EACH WAY OVER 6" ABC FILL. PROVIDE COATING ON CONCRETE SLAB PER PROCESS DRAWINGS.
102	CONCRETE TRENCH WITH 1 1/2" DEEP PULTRUDED HIGH LOAD CAPACITY FRP GRATING, HI5815 BY GRATING PACIFIC OR APPROVED EQUIVALENT. COORDINATE WITH ARCHITECTURAL AND PROCESS DRAWINGS.
103	8" THICK EQUIPMENT PAD PER DETAIL T24 / S-06. COORDINATE SIZE AND LOCATION WITH PROCESS DRAWINGS.
104	2'-6" X 2'-6" X 4'-6" DEEP SUMP PIT PER DETAIL 104 / S-12. SIZE AND LOCATION TO BE COORDINATED WITH PROCESS DRAWINGS.
105	8' - 6"Ø 5000 GALLON TANK PER PROCESS. ANCHORAGE TO CONCRETE SLAB PER MANUFACTURER. SEE DETAIL 105 / S-12.
106	10" THICK CONCRETE SLAB WITH #4 AT 12" OC TOP AND BOTTOM EACH WAY.
107	8" THICK X 10" HIGH CONCRETE CURB PER DETAILS 106 / S-12 AND 109 / S-12.
108	(2) #4 X 24" LONG WHERE SHOWN ON PLANS PER TYPICAL DETAIL T6 / S-05.
109	PROVIDE ADDITIONAL #5 X 12' - 0" AT 12" OC BOTTOM BARS. CENTERED BELOW TANK TYPICAL, OFFSET AS REQUIRED AT TRENCHES.
110	ALUMINUM RAILING - DEFERRED SUBMITTAL.
111	ALUMINUM LADDER BY TANK MANUFACTURER.
112	MINIMUM 6" THICK CONCRETE RAMP WITH #4 AT 12" OC EACH WAY OVER CONCRETE SLAB.
114	STEP FOOTING AS REQUIRED SO WALL FOOTING AND TRENCH/SUMP PIT SLAB ARE FOUNDED AT SAME ELEVATION. SEE DETAIL 112 / S-12.
115	OPENING IN SLAB PER TYPICAL DETAIL T19 / S-06 - COORDINATE OPENING LOCATION WITH PROCESS DRAWINGS.
116	6" CONCRETE SLAB ON GRADE WITH #4 AT 12" OC EACH WAY OVER 4" ABC FILL. HOOK REINFORCING AT SLAB EDGE - TYPICAL.
201	1 1/2" X 20 GALVANIZED STEEL DECK. ATTACH PER GENERAL STRUCTURAL NOTES.
202	COORDINATE ROOF OPENING LOCATION AND SIZE PER MECHANICAL. PROVIDE FRAMING AROUND PENETRATION PER DETAIL 212 / S-14.
203	COORDINATE MASONRY WALL OPENING LOCATIONS AND SIZE PER MECHANICAL. PROVIDE FRAMING PER DETAIL T43 / S-08.
204	COORDINATE MECHANICAL UNIT LOCATION PER MECHANICAL. PROVIDE FRAME SUPPORT UNDER MECHANICAL UNITS PER DETAIL 210 / S-14.
205	COORDINATE ROOF DRAIN LOCATION AND SIZE PER MECHANICAL. PROVIDE FRAMING PER DETAIL 211 / S-14.
206	ALUMINUM LADDER - DEFERRED SUBMITTAL.
207	1"Ø SOLID ROD BRACE.



1 S-11 FOUNDATION PLAN

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



2 S-11 ROOF FRAMING PLAN

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

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KH PROJECT NO: 191245024

ENLARGED FOUNDATION AND FRAMING PLAN

Registered Professional Engineers (Structural) CERTIFICATE NO. 57855 NICOLE ALLENDER Date Signed 7/18/2025 ARIZONA U.S.A.

Sheet Number: S-11

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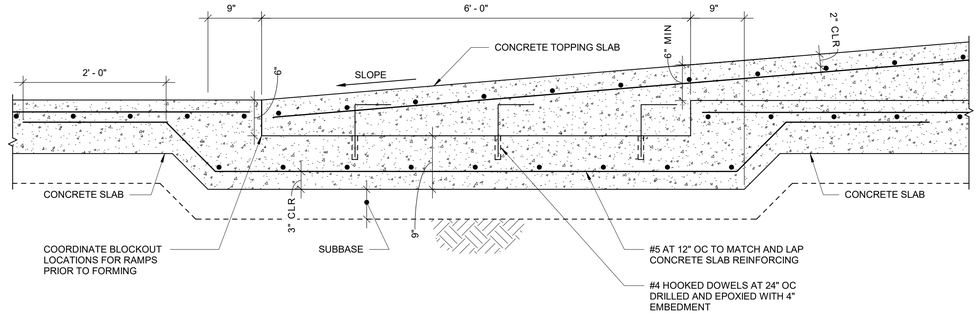
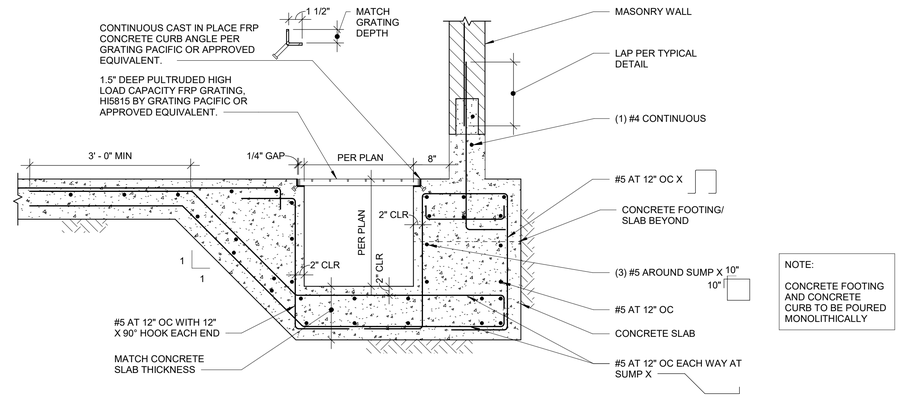


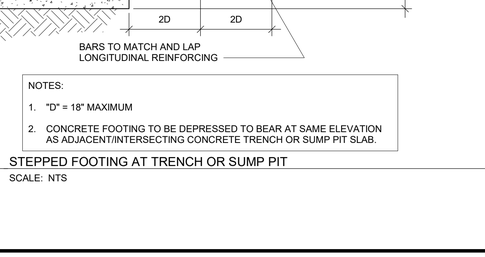
110 S-12 TOPPING SLAB RAMP

SCALE: NTS



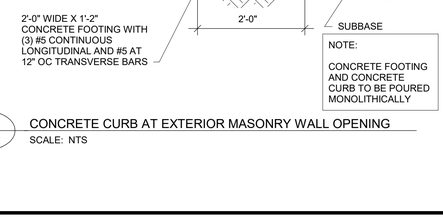
104 S-12 SUMP PIT AT EXTERIOR MASONRY WALL FOOTING

SCALE: NTS



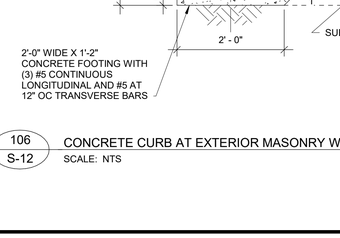
111 S-12 TRENCH DRAIN AT CONCRETE SLAB

SCALE: NTS



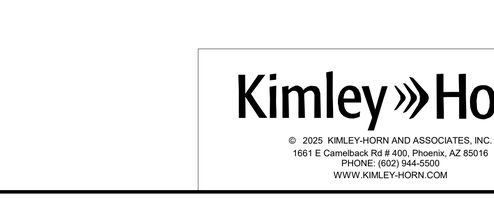
108 S-12 CONCRETE STEPS AT CONCRETE SLAB

SCALE: NTS



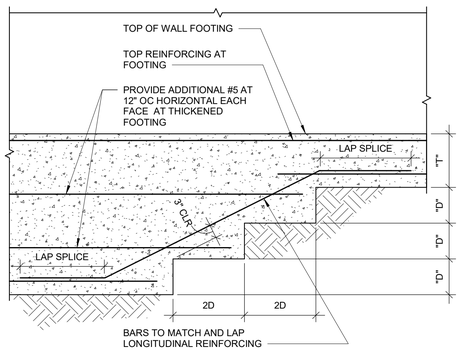
105 S-12 TANK ANCHORAGE AT CONCRETE SLAB

SCALE: NTS



102 S-12 TRENCH DRAIN AT CONCRETE SLAB

SCALE: NTS

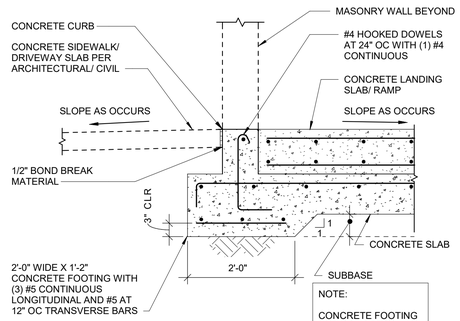


NOTES:

1. "D" = 18" MAXIMUM
2. CONCRETE FOOTING TO BE DEPRESSED TO BEAR AT SAME ELEVATION AS ADJACENT/INTERSECTING CONCRETE TRENCH OR SUMP PIT SLAB.

112 S-12 STEPPED FOOTING AT TRENCH OR SUMP PIT

SCALE: NTS

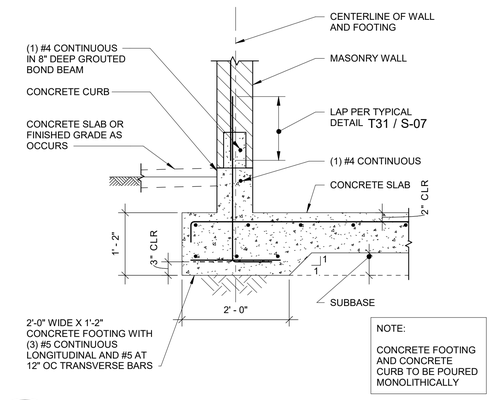


NOTE:

CONCRETE FOOTING AND CONCRETE CURB TO BE POURED MONOLITHICALLY

109 S-12 CONCRETE CURB AT EXTERIOR MASONRY WALL OPENING

SCALE: NTS



NOTE:

CONCRETE FOOTING AND CONCRETE CURB TO BE POURED MONOLITHICALLY

106 S-12 CONCRETE CURB AT EXTERIOR MASONRY WALL

SCALE: NTS

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LHC CHLORINE CONVERSION
100% DRAWINGS
108025

DATE:	JULY 18, 2025
DESIGNED BY:	CP
DRAWN BY:	DM
REVIEWED BY:	NMA
KH PROJECT NO:	191245024

FOUNDATION DETAILS

Registered Professional Engineers (Structural) CERTIFICATE NO. 57855 NICOLE ALLENDER Date Signed 7/18/2025 ARIZONA U.S.A.

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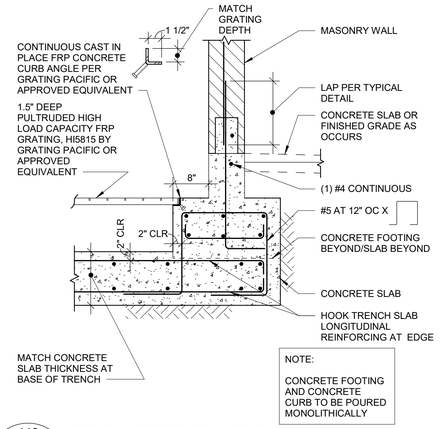

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TRENCH AT EXTERIOR MASONRY WALL FOOTING

SCALE: NTS

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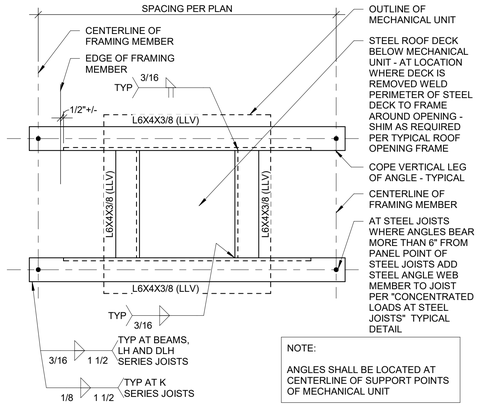
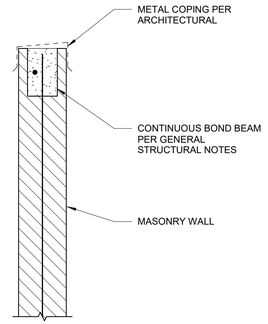
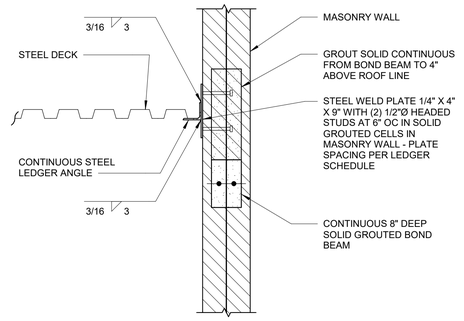


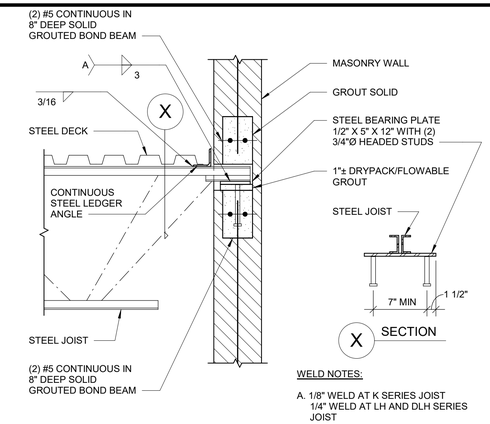
210 S-14 TYPICAL DETAIL - FRAME AT MECHANICAL UNIT SUPPORT
SCALE: NTS



207 S-14 TYPICAL DETAIL - MASONRY PARAPET
SCALE: NTS



204 S-14 STEEL LEDGER ANGLE AND STEEL DECK AT MASONRY WALL
SCALE: NTS



WELD NOTES:

A. 1/8" WELD AT K SERIES JOIST
1/4" WELD AT LH AND DLH SERIES JOIST

201 S-14 STEEL JOIST BEARING AT MASONRY WALL
SCALE: NTS

TYPICAL ROOF DRAIN OPENING FRAME AT FRAMING MEMBERS

TYPICAL ROOF DRAIN OPENING FRAME AT WALL

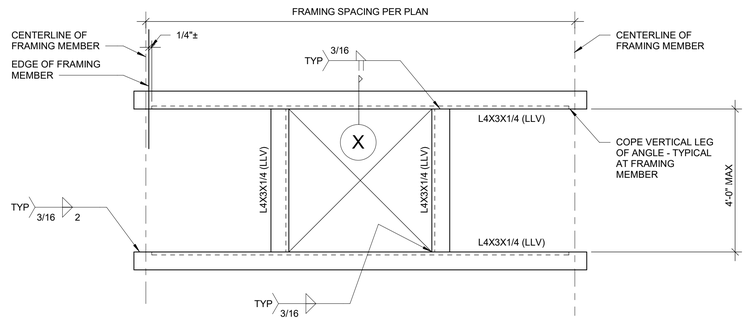
ALTERNATE

WELD NOTES:

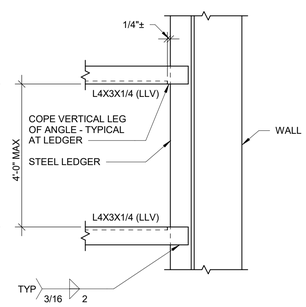
A. PUDDLE WELD OR FASTENER PER GENERAL STRUCTURAL NOTES

X SECTION

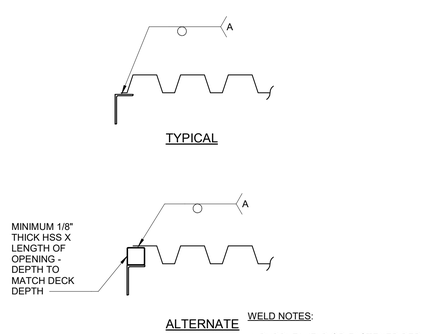
211 S-14 TYPICAL DETAIL - ROOF DRAIN OPENING FRAME
SCALE: NTS



TYPICAL ROOF OPENING FRAME AT FRAMING MEMBERS



TYPICAL ROOF OPENING FRAME AT WALL



ALTERNATE

WELD NOTES:

A. PUDDLE WELD OR FASTENER PER GENERAL STRUCTURAL NOTES

X SECTION

212 S-14 TYPICAL DETAIL - ROOF OPENING FRAME
SCALE: NTS

202 S-14 STEEL DECK AND LEDGER AT MASONRY WALL
SCALE: NTS

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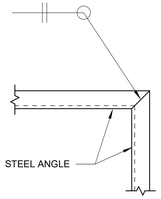

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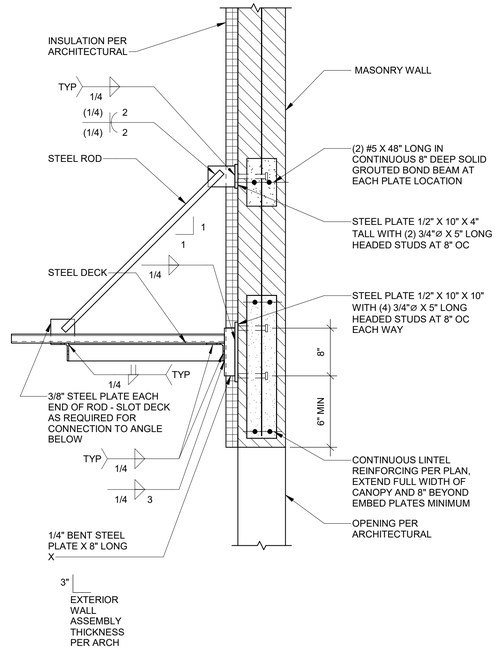
PLAN VIEW - STEEL BEAM CORNER CONNECTION

SCALE: NTS



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STEEL CANOPY AT MASONRY WALL

SCALE: NTS

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PLUMBING SYMBOLS AND LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	BV	BALL VALVE
	CS	CIRCUIT SETTER OR FLOW CONTROL VALVE
	BFV	BUTTERFLY VALVE
	GV	GATE VALVE
	CHV	CHECK VALVE
	GLV	GLOBE VALVE
	ANV	ANGLE VALVE
	TDV	TRIPLE DUTY VALVE
	HB	HOSE BIB
	HV	3/4" HOSE END DRAIN VALVE
	BP	BACKFLOW PREVENTOR
	GPR	GAS PRESSURE REGULATOR
	STR	STRAINER
	STR	STRAINER WITH 3/4" HOSE END DRAIN VALVE
	PTR	PRESSURE - TEMPERATURE RELIEF VALVE
	RV	PRESSURE RELIEF VALVE
		2-WAY CONTROL VALVE
		3-WAY CONTROL VALVE
		UNION
		REDUCER
	WHA	WATER HAMMER ARRESTOR
P	PG	PRESSURE GAGE WITH GAUGE COCK
	TH	THERMOMETER
	FCO/GCO	FLOOR OR GRADE CLEANOUT
	WCO	WALL CLEANOUT
	PD	PIPING TEE DOWN
	PU	PIPING TEE UP
	PU	PIPING ELBOW UP
	PD	PIPING ELBOW DOWN
		BRANCH - TOP CONNECTION
		BRANCH - BOTTOM CONNECTION
	COP	CAP ON END OF PIPE
		ARROW INDICATES DIRECTION OF EACH FLOW
	FLS	FLOOR SINK
	FD	FLOOR DRAIN
	VTR	PLUMBING VENT THRU ROOF

PLUMBING PIPING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
—— – ——	CW	DOMESTIC COLD WATER
—— – ——	HW	DOMESTIC HOT WATER
—— – – ——	HWC	HOT WATER CIRCULATION
—— — ——	W	SANITARY WASTE
————	W	SANITARY WASTE (ABOVE GRADE)
—— · ——	GW	GREASE WASTE
————	V	VENT PIPING
– – ST – –	ST	STORM OR ROOF DRAIN PIPING
—— ST ——	ST	STORM OR ROOF DRAIN PIPING (ABOVE GRADE)
– – ODL– –	OST	OVERFLOW ROOF DRAIN PIPING
—— ODL ——	OST	OVERFLOW ROOF DRAIN PIPING (ABOVE GRADE)
——CD——	CD	CONDENSATE DRAIN PIPING
——TW——	TW	TEMPERED WATER (105° F)
—— G ——	G	GAS - LOW PRESSURE (7"-14" WC)
—— MPG ——	MPG	GAS - MEDIUM PRESSURE (2-3 PSI)
—— HPG ——	HPG	GAS - HIGH PRESSURE (5 PSI AND ABOVE)
—— LPG ——	LPG	GAS - LIQUIFIED PETROLEUM
—— CA ——	CA	COMPRESSED AIR PIPING

PLUMBING ANNOTATIONS

SYMBOL	ABBREVIATION	DESCRIPTION
		MECHANICAL EQUIPMENT - (SEE MECHANICAL SCHEDULE)
1 M6.1		DETAIL REFERENCE CALLOUT, DETAIL NUMBER AND SHEET
1 M3.1		SECTION VIEW CALLOUT, DETAIL NUMBER AND SHEET
	POC	POINT OF CONNECTION - NEW ITEMS TO EXISTING ITEMS
XX-##		PLUMBING FIXTURE SCHEDULE - (SEE SCHEDULE)
?		SHEET NOTES
	AP	ACCESS PANEL

PLUMBING ABBREVIATIONS

ABBREVIATION	DESCRIPTION
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AV	ACID VENT
AW	ACID WASTE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BHP	BRAKE HORSE POWER
BOP	BOTTOM OF PIPE
BTU/H	BRITISH THERMAL UNIT PER HOUR
CO	CLEANOUT
CP	CONDENSATE PYMP
CPVC	CHLORINATED POLYVINLY CHLORIDE
CU	COPPER
(D)	DEMOLISHED
DIA	DIAMETER
DFU	DRAINAGE FIXTURE UNIT
DN	DOWN
(E)	EXISTING
EFF	EFFICIENCY
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
°F	DEGREES FAHRENHEIT
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
GA	GAGE OR GAUGE
GAL	GALLONS
GI	GREASE INTERCEPTOR
GPF	GALLONS PER FLUSH
GPM	GALLONS PER MINUTE
HD	HEAD PRESSURE
HP	HORSEPOWER
IBC	INTERNATIONAL BUILDING CODE
IMC	INTERNATIONAL MECHANICAL CODE
IPC	INTERNATIONAL PLUMBING CODE
IE	INVERT ELEVATION BELOW FINISHED FLOOR
KW	KILOWATT
L	LAVATORY
LBS	POUNDS
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	ONE THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPS
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
N/A	NOT APPLICABLE
N/C	NORMALLY CLOSED
N/O	NORMALLY OPEN
NEC	NATIONAL ELECTRIC CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIS	NOT IN SCOPE
NTS	NOT TO SCALE
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RD	ROOF DRAIN
RPM	REVOLUTIONS PER MINUTE
S	SINK
SOI	SAND OIL INTERCEPTOR
SP	SUMP PUMP
SS	STAINLESS STEEL
TDH	TOTAL DYNAMIC HEAD
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UL	UNDERWRITERS LABORATORIES, INC.
UMC	UNIFORM MECHANICAL CODE
UNO	UNLESS NOTED OTHERWISE
UPC	UNIFORM PLUMBING CODE
VFD	VARIABLE FREQUENCY DRIVE
WC	WATER COLUMN
WG	WATER GAUGE
WSFU	WATER SUPPLY FIXTURE UNIT
WVS	WASTE VENT STACK

PLUMBING GENERAL NOTES

1. PLUMBING WORK SHALL CONFORM WITH THE LATEST ADOPTED LOCAL CODES, ORDINANCES AND DESIGN REQUIREMENTS.
2. CONTRACTOR SHALL COORDINATE WITH STRUCTURAL REQUIREMENTS BEFORE DRILLING OR CUTTING ANY CMU WALLS, CEILING JOISTS OR STRUCTURAL ELEMENTS.
3. PLUMBING DRAWING ARE INHERENTLY DIAGRAMMATIC AND ONLY SERVE TO SHOW INTENT, SYSTEM CONNECTIONS, AND GENERAL ROUTING. THE CONTRACTOR IS RESPONSIBLE FOR ALL FOR ALL COMPONENTS FOR A COMPLETE OPERABLE AND CODE COMPLIANT SYSTEM.
4. LOCATIONS OF UTILITES SHOWN ARE FOR INFORMATION/COORDINATION PURPOSES ONLY. DETERMINE EXACT LOCATIONS OF EXISTING UTILITES IN FIELD. VERIFY INVERTS AND ELEVATIONS PRIOR TO CONSTRUCTION AND INSTALLATION.
5. CONTRACTOR TO PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT, AND INSURANCES TO COMPLETE THE DESIGN PER THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO THE SATISFACTION OF THE ENGINEER/ARCHITECT.
6. CONTRACTOR TO PROVIDE ALL REQUIRED PERMITS AND FEES TO COMPLETE THE PROJECT.
7. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR ONE YEAR.
8. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH DRAWINGS PROVIDED BY OTHER DISCIPLINES. CONSTRUCTION CONFLICTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT.
9. DUE TO THE SMALL SCALE OF THE DRAWINGS, IT IS NOT FEASIBLE TO SHOW ALL REQUIRED ROUTING, ELEVATIONS, ETC., IT IS THEREFORE THE CONTRACTORS RESPONSIBILITY TO VERIFY THE REQUIRED ROUTING, ELEVATION, AND PLACEMENT OF EQUIPMENT AND FIXTURES. DEVIATIONS ARE TO BE INSTALLED IN ACCORDANCE WITH CURRENT CODES AND THE SPECIFICATIONS TO MEET THE INTENT OF THE DESIGN.
10. ALL INFORMATION SHOWN ON SCHEDULES ARE BASED ON AVAILABLE PRODUCT INFORMATION AT THE TIME OF DESIGN.
11. THE CONTRACTOR SHALL KEEP INSTALLATION INSTRUCTIONS FOR ALL LISTED EQUIPMENT ON THIS PROJECT AT THE JOBSITE AND SHALL HAVE THEM ACCESSIBLE FOR THE FIELD INSPECTOR UPON REQUEST.
12. PROVIDED DRAWINGS BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PROVIDE AN INSTALLATION SUITABLE IN DIMENSION, CONSTRUCTION, FUNCTION AND FINISH FOR THE PURPOSE INTENDED.
13. ANY DISCREPANCIES DURING BID SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT AND RESOLVED PRIOR TO FINALIZATION OF THE CONSTRUCTION CONTRACT.
14. ALL PRODUCTS SHALL BE INSTALLED CONFORMING TO MANUFACTURERS' REQUIREMENTS AND RECOMMENDATIONS.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION WITH ALL OTHER TRADES.
16. PROVIDE ACCESS PANELS FOR ANY EQUIPMENT THAT REQUIRES REGULAR MAINTENANCE. EXACT LOCATION OF ACCESS PANELS SHALL BE COORDINATED WITH FINAL PLACEMENT OF ALL VALVES, DAMPERS, AND ANY OTHER COMPONENT IDENTIFIED ON THE DRAWINGS.
17. ALL ABOVE GRADE PIPING SHALL BE SUPPORTED PROPERLY FROM THE STRUCTURE AND SHALL NOT HANG OR REST ON ANY CEILING TILES, DUCTWORK, PIPING ETC.
18. FLOOR DRAINS SHALL BE INSTALLED FLUSH WITH THE FINSIHED FLOOR.
19. PROVIDE ISOLATION VALVES ON ALL BRANCH PIPING AND ALL EQUIPMENT AND FIXTURE PIPE INLETS. ALL VALVES SHALL BE ACCESSIBLE.
20. INSTALL VENTS AT POINTS AND DRAIN VALVES AT LOW POINTS IN THE PIPING SYSTEMS.
21. NO PIPING SHALL BE ROUTED OVER ELECTRICAL PANELS OR EQUIPMENT.
22. CONTRACTOR SHALL PROVIDE DIELECTRIC FITTINGS FOR DISSIMILAR METAL CONNECTIONS.
23. ALL VALVES SHALL BE LINE SIZE UNLESS NOTED OTHERWISE.
24. CONTRACTOR SHALL PERFORM TESTING AND ADJUSTING AS REQUIRED FOR ALL EQUIPMENT AND/OR SYSTEMS WITHIN THIS SCOPE OF WORK PER THE SPECIFICATIONS.
25. PER THE INTERNATIONAL PLUMBING CODE, CONTRACTOR SHALL FLUSH AND DISINFECT ALL POTABLE WATER LINES AFTER CONSTRUCTION IS COMPLETE BUT PRIOR TO BUILDING OCCUPANCY.

APPLICABLE PROJECT CODES

- 2018 IBC - INTERNATIONAL BUILDING CODE
- 2018 IMC - INTERNATIONAL MECHANICAL CODE
- 2018 IPC - INTERNATIONAL PLUMBING CODE
- 2018 IFGC - INTERNATIONAL FUEL GAS CODE

PLUMBING SHEET LIST

SHEET #	SHEET NAME
P-01	PLUMBING SYMBOLS, ABBREVIATIONS, AND NOTES
P-02	PLUMBING PLANS
P-03	PLUMBING DETAILS
P-04	PLUMBING SCHEDULES

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LHC CHLORINE CONVERSION

100% DRAWINGS

CITY PROJECT NO.
PW-B25-108025-500XXY

DATE: 07/18/2025
DESIGNED BY: CRN
DRAWN BY: CRN
REVIEWED BY: JDS
KH PROJECT NO:

PLUMBING SYMBOLS, ABBREVIATIONS, AND NOTES

Registered Professional Engineer
Jeffrey Smith
06899
JEFFREY SMITH
Date Signed
ARIZONA, U.S.A.

Sheet Number:

P-01

Sheet of

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GENERAL NOTES:

1. SLOPE ALL WASTE / DRAIN PIPING AT 2%
2. ABOVE GRADE PIPING SHALL BE ROUTED HIGH AND TIGHT TO STRUCTURE.
3. PROVIDE SHUTOFF VALVES TO EMERGENCY FIXTURES AND INDIVIDUAL HOSE BIBBS. SHUTOFF VALVES SHALL BE LOCATED IN ACCESSIBLE AREAS.
4. DO NOT ROUTE PIPING OVER ELECTRICAL GEAR OR ANY INSTRUMENTATION.

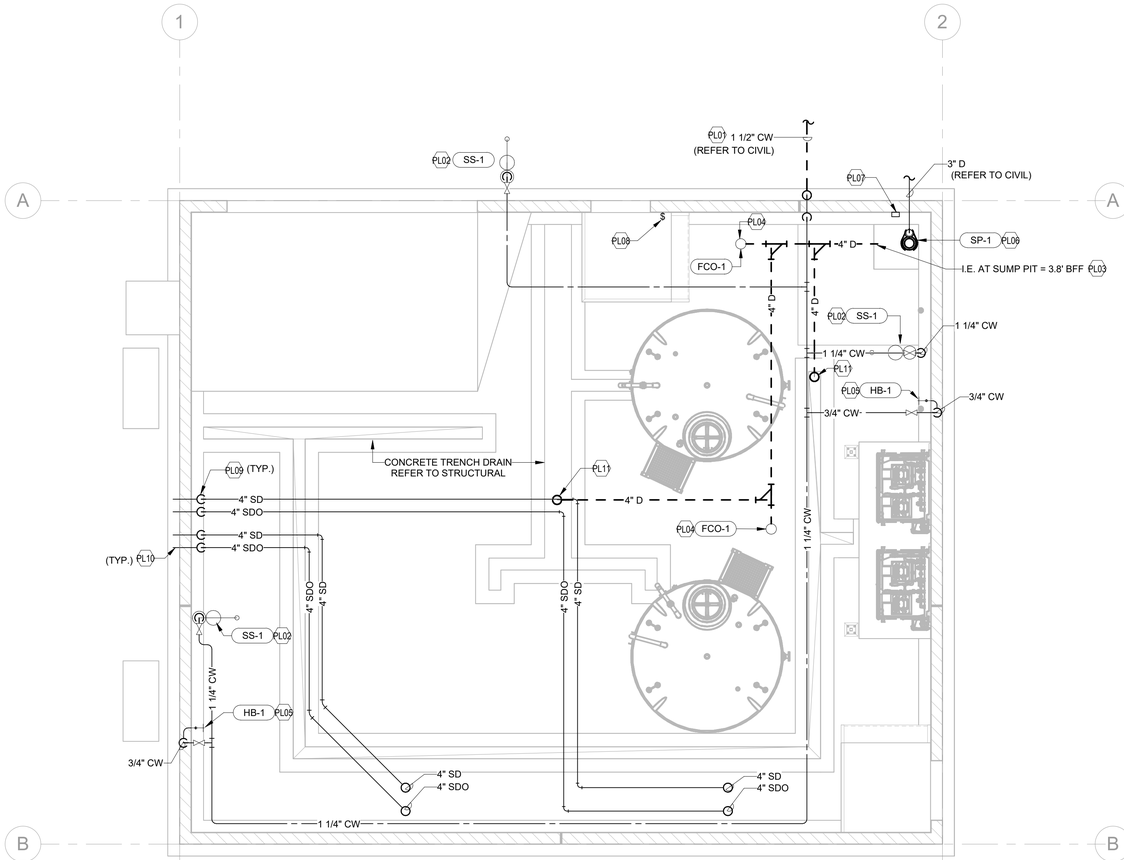
KEYNOTES

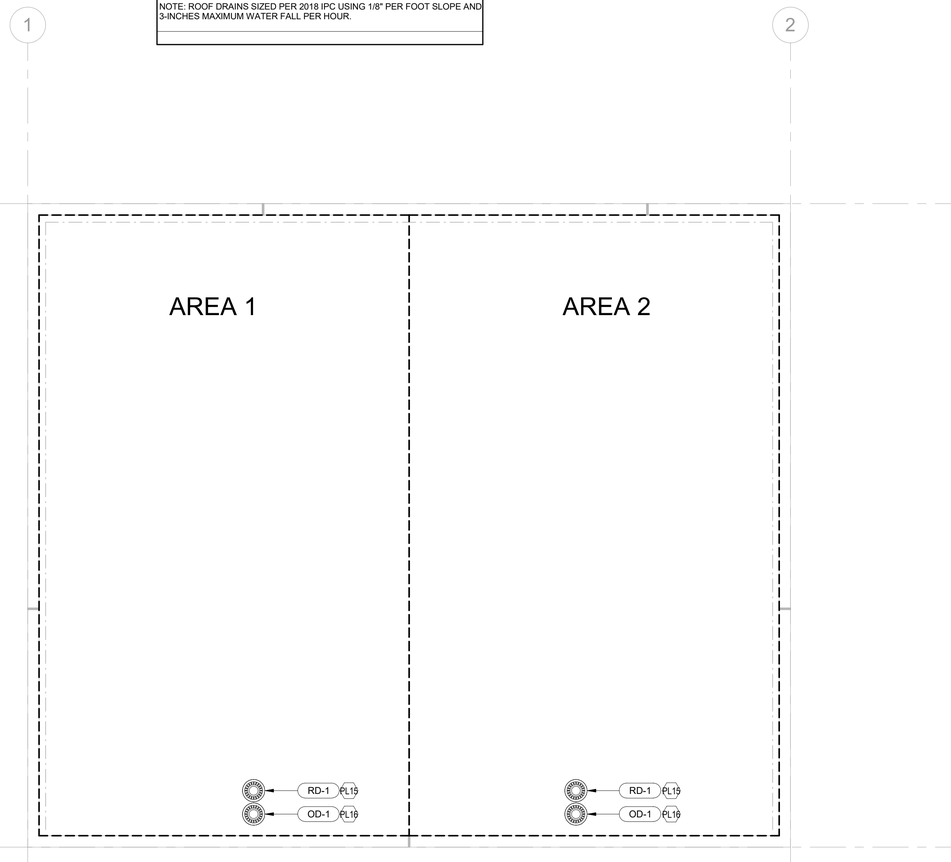
PL01	DOMESTIC COLD WATER SERVICE LINE, REFER TO CIVIL FOR CONTINUATION.
PL02	PROVIDE COMBINATION EYE/FACE WASH AND EMERGENCY SHOWER, STAINLESS STEEL CONSTRUCTION. GUARDIAN MODEL G1996 OR EQUAL.
PL03	STUB DRAIN PIPE INTO SUMP PIT.
PL04	PROVIDE FLOOR CLEANOUT.
PL05	PROVIDE WALL-MOUNTED HOSE BIBB FOR GENERAL WASH-DOWN.
PL06	PROVIDE CORROSION RESISTANT SUMP PUMP, REFER TO SCHEDULE AND DETAIL.
PL07	SWITCHED RECEPTACLE FOR SUMP PUMP POWER. SUMP PUMP SHALL BE ENABLED/DISABLED MANUALLY VIA EXTERIOR WALL SWITCH. REFER TO ELECTRICAL.
PL08	EXTERIOR SWITH FOR SUMP PUMP POWER. REFER TO ELECTRICAL.
PL09	ROOF DRAIN / OVERFLOW DRAIN PIPING DOWN INTERIOR SIDE OF WALL. STRAP PIPING TO WALL.
PL10	ROOF DRAIN / OVERFLOW DRAIN PIPING THRU EXTERIOR WALL. TERMINATE 18" AFG WITH DOWNSPOUT NOZZLE AND SPLASH BLOCK. REFER TO ARCHITECTURAL.
PL11	4" DRAIN PIPE STUBBED UP TO LOW POINT OF TRENCH DRAIN.
PL15	PROVIDE ROOF DRAIN. REFER TO PLUMBING FIXTURE SHCEDULE.
PL16	PROVIDE OVERFLOW ROOF DRAIN. REFER TO PLUMBING FIXTURE SCHEDULE.

ROOF DRAIN CALCULATION

LOCATION	AREA (SQFT)	GPM	DRAIN SIZE (REQUIRED)	DRAIN SIZE (PROVIDED)
AREA 1	750	23	3"	4"
AREA 2	750	23	3"	4"

NOTE: ROOF DRAINS SIZED PER 2018 IPC USING 1/8" PER FOOT SLOPE AND 3-INCHES MAXIMUM WATER FALL PER HOUR.





1 PLUMBING FLOOR PLAN

1/4" = 1'-0"

2 PLUMBING ROOF PLAN

1/4" = 1'-0"

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LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	07/18/2025
DESIGNED BY:	CRN
DRAWN BY:	CRN
REVIEWED BY:	JDS
KH PROJECT NO:	

PLUMBING PLANS

Professional Engineer
Registered
068967
JEFFREY SMITH
Date Signed
STATE OF ARIZONA, U.S.A.

Sheet Number:
P-02
Sheet of

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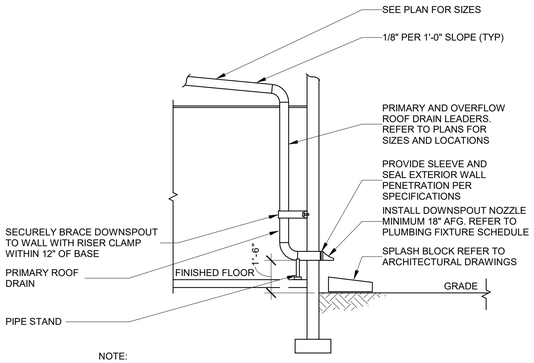
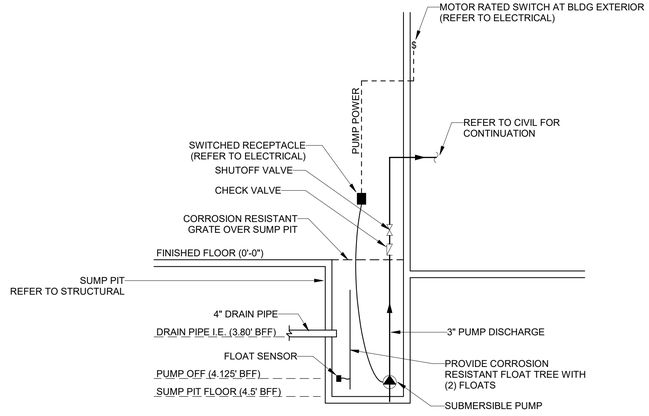


NOTE:

ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. REFER TO SPECIFICATIONS FOR DOWNSPOUT NOZZLE, AND TYPE OF PIPE, FITTINGS, AND CONNECTORS.

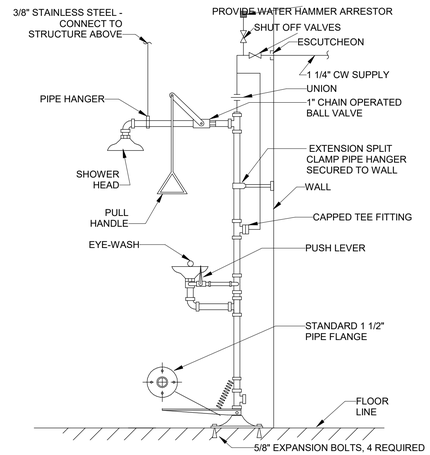
3 ROOF DRAIN LEADER DETAIL

NOT TO SCALE



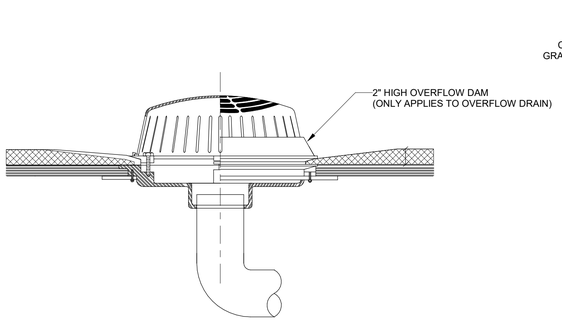
2 SUMP PUMP DETAIL

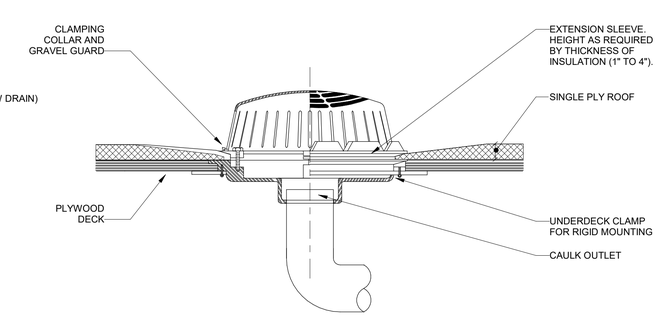
NOT TO SCALE



1 EMERG. EYEWASH/SHOWER DETAIL

NOT TO SCALE





5 ROOF DRAIN DETAIL

NOT TO SCALE

NOTES:

1. USE CLEVIS HANGER FOR 1/2" UP TO 4" .
2. USE ROLL SUPPORT HANGER FOR 6" TO 8".
3. PIPE 10" AND LARGER SHALL HAVE ROLLER. SUPPORT HANGER WITH DUAL RODS. FASTEN TO TOP CHORD OF STRUCTURAL ELEMENTS.

4 PIPE HANGER FOR UNINSULATED PIPE

NOT TO SCALE

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Registered Professional Engineer
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07/18/2025
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ARIZONA, U.S.A.

Sheet Number:

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PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE TYPE	DESCRIPTION	MANUFACTURER	MODEL	ROUGH-IN			
					W	V	CW	HW
FCO-1	FLOOR CLEANOUT	FLOOR CLEANOUT, REFER TO PLANS FOR SIZE. LOCATE IN ACCESSIBLE AREA. ACID RESISTING EPOXY COATED FINISH, CAST IRON BODY WITH GAS AND WATER TIGHT CLEANOUT PLUG, NO-HUB OUTLET, AND STAINLESS STEEL TOP.	ZURN	Z1400	SEE PLANS	-	-	-
RD-1	ROOF DRAIN (PRIMARY)	15" DIAMETER PRIMARY ROOF DRAIN WITH DURA-COATED CAST IRON BODY, NO-HUB CONNECTION, COMBINATION MEMBRANE FLASHING CLAMP,GRAVEL GUARD, UNDERDECK CLAMP, ROOF SUMP RECEIVER, AND DURA-COATED CAST IRON DOME. REFER RO PLANS FOR OUTLET / LEADER SIZES. PROVIDE WITH DOWNSPOUT NOZZLE PER ARCHITECTURAL DRAWINGS.	ZURN	Z-100	SEE PLANS	-	-	-
OD-1	ROOF OVERFLOW DRAIN (SECONDARY)	15" DIAMETER OVERFLOW ROOF DRAIN WITH DURA-COATED CAST IRON BODY, NO-HUB CONNECTION, COMBINATION MEMBRANE FLASHING CLAMP,GRAVEL GUARD, UNDERDECK CLAMP, ROOF SUMP RECEIVER, AND DURA-COATED CAST IRON DOME. REFER RO PLANS FOR OUTLET / LEADER SIZES. PROVIDE WITH 2" HIGH EXTERNAL WATER DAM. PROVIDE WITH DOWNSPOUT NOZZLE PER ARCHITECTURAL DRAWINGS.	ZURN	Z-100	SEE PLANS	-	-	-
HB-1	HOSE BIBB, INTERIOR	RECESSED HOSE BIBB, STAINLESS STEEL CONSTRUCTION. PROVIDE WITH STAINLESS STEEL HOSE BOX, STAINLESS STEEL DOOR, WITH INTEGRAL VACUUM BREAKER.	ACORD	8151-SSLF	-	-	3/4"	-
SS-1	SAFETY STATION (EMERGENCY FIXTURE)	COMBINATION EYE/FACE WASH AND EMERGENCY SHOWER, STAINLESS STEEL CONSTRUCTION. PROVIDE EYE/FACE WASH WITH STAINLESS STEEL BOWL, 3.2 GPM INTEGRAL FLOW CONTROL, FLIP TOP DUST COVERS, AND STAINLESS STEEL STAY-OPEN BALL VALVE. PROVIDE EMERGENCY SHOWER WITH STAINLESS STEEL HEAD, 20 GPM INTEGRAL FLOW CONTROL, STAINLESS STEEL STAY-OPEN BALL VALVE, STAINLESS STEEL ACUATING ARM WITH PULL ROD, AND ANSI COMPLIANT INDENTIFICATION SIGN.	GUARDIAN	G1996	-	-	1-1/4"	-

SUMP PUMP SCHEDULE

MARK	EQUIPMENT TYPE	LOCATION	DESIGN FLOW (GPM)	HEAD (FT)	DISCHARGE SIZE (INCH)	ELECTRICAL							MANUFACTURER	MODEL	NOTES
						MOTOR HP	CONTROLLER / STARTER		DISCONNECT		VOLTAGE	PHASE	HZ			
							BY	TYPE	BY	TYPE						
SP-1	SUMP PUMP	SUMP PIT	25	20	1-1/4"	0.5	FACTORY	FULL VOLTAGE	EC	NON-FUSED	120	1	60	DAYTON	3YU59	1 - 4

NOTES:
1. PROVIDE WITH MANUFACTURER'S FLOAT TREE WITH FLOAT. FLOAT AND FLOAT TREE SHALL BE MADE OF CORROSION RESISTANT MATERIALS.
2. TRANSITION FROM 1-1/4" TO 3" AT PUMP DISCHARGE. PROVIDE WITH 3" NON-CLOG CHECK VALVE AND 3" FULL PORT SHUT OFF VALVE.
3. PUMP POWER SHALL BE ENABLED / DISABLED VIA A SWITCHED RECEPTACLE AND A MOTOR RATED SWITCH. REFER TO PLANS FOR LOCATION.
4. PUMP MATERIAL SHALL BE POLYPROPYLENE.

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CITY PROJECT NO.
PW-B25-108025-500XXY

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PLUMBING SCHEDULES

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FIRE PROTECTION SYMBOLS & LEGENDS

FIRE PROTECTION PIPING SYMBOLS & LEGENDS

SYMBOL	ABBREVIATION	DESCRIPTION
F	F	FIRE PROTECTION WATER SUPPLY
SP	SP	AUTOMATIC FIRE SPRINKLER PIPING
DS	DS	DRY SPRINKLER SYSTEM PIPING
S	ASD	AUTOMATIC SPRINKLER DRAIN PIPING
	P.D.	PIPING TEE DOWN
	P.U.	PIPING TEE UP
	P.U.	PIPING ELBOW UP
	P.D.	PIPING ELBOW DOWN
		BRANCH - TOP CONNECTION
		BRANCH - BOTTOM CONNECTION
		BRANCH - SIDE CONNECTION
	P.T.	PLUGGED TEE
	C.O.P.	CAP ON END OF PIPE
OR		ARROW INDICATES DIRECTION OF FLOW
	P.O.C.	POINT OF CONNECTION - NEW ITEMS TO EXISTING ITEMS
		RISER LOCATION
	A.P.	ACCESS PANEL
	F.H.R.	FIRE HOSE RACK
	F.H.C.	FIRE HOSE CABINET
	F.V.C.	FIRE VALVE CABINET
	F.H.	FIRE HYDRANT
OR	F.D.C.	FIRE DEPARTMENT CONNECTION
	U.S.	UPRIGHT SPRINKLER HEADS
	P.F.S.H.	PENDANT FIRE SPRINKLER HEADS
	S.S.	SIDEWALL FIRE SPRINKLER HEADS
		ALARM BELL
PIV	P.I.V.F.	POST INDICATOR VALVE - FREE STANDING
PIV	P.I.V.	POST INDICATOR VALVE
	O.S.& Y.	OUTSIDE STEM & YOKE VALVE
FS	F.S.	FLOW SWITCH
TS	T.S.	TAMPER SWITCH
	C.H.V.	CHECK VALVE
	B.P.	BACKFLOW PREVENTION ASSEMBLY
	R.P.B.P.	REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
(E)	EXISTING
G.P.M.	GALLONS PER MINUTE
MAX.	MAXIMUM
MIN.	MINIMUM
(N.)	NEW
PSI	POUNDS PER SQUARE INCH
R.P.	RESIDUAL PRESSURE
S.P.	STATIC PRESSURE
SPKRS.	SPRINKLERS
TYP.	TYPICAL

FIRE PROTECTION FLOW TEST DATA

STATIC HYDRANT	FLOW HYDRANT	DATE - TBD
STATIC - TBD RESIDUAL - TBD	TBD	TIME - TBD
LOCATION - TBD		
TEST CONDUCTED BY - TBD		

FIRE PROTECTION GENERAL NOTES

1. THE ENTIRE FIRE PROTECTION SYSTEM SHALL CONFORM TO THE LATEST APPLICABLE REQUIREMENTS OF THE INTERNATIONAL FIRE CODE, THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA 13), LOCAL AND STATE AUTHORITIES, AND THE OWNER'S FIRE INSURANCE UNDERWRITERS.
2. THE INFORMATION SHOWN ON THE DRAWINGS AND LISTED IN THE SPECIFICATIONS SHALL NOT BE INTERPRETED AS TO INSTRUCT THE CONTRACTOR TO NOT FOLLOW THE APPLICABLE CODES OR LOCAL AMENDMENTS. WHERE THE INFORMATION PROVIDED IS BELIEVED NOT TO BE IN CONFORMANCE WITH THE CODE REQUIREMENTS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER FOR CLARIFICATION PRIOR TO THE SUBMISSION OF THIS BID PROPOSAL.
3. REFERENCES IN THIS PERFORMANCE CRITERIA OR IN THE SPECIFICATIONS TO NFPA STANDARDS AS DESIGN AND INSTALLATION GUIDANCE OF FIRE PROTECTION SYSTEMS, INVOKE ALL OF THE SECTIONS, SUBSECTIONS, EXCEPTIONS AND ADVISORY PROVISION OF THE STANDARDS THAT ARE APPLICABLE TO THE PROJECT'S REQUIREMENTS; THEY ARE HEREBY INCLUDED IN THE PROJECT CRITERIA AND SPECIFICATIONS AS IF REPEATED IN THEIR ENTIRETY, AND ARE REFERENCED TO CONVEY THE MINIMUM ACCEPTABLE PERFORMANCE AND INSTALLATION REQUIREMENTS.
4. REFERENCES TO PROVIDING SPRINKLERS PER THE REQUIREMENTS OF NFPA MANDATES THAT ALL BUILDING AREAS SHALL BE PROVIDED WITH COMPLETE, FULL SPRINKLER PROTECTION, UNLESS SPECIFIC NOTATION IS MADE TO THE CONTRARY ON THE DRAWINGS OR IN THE SPECIFICATIONS.
5. FINAL FIRE PROTECTION SYSTEM DESIGN AND LAYOUT (INCLUDING SPRINKLER HEAD QUANTITIES AND LOCATIONS THEIR SPECIFIC SPACING REQUIREMENTS) IS THE SOLE RESPONSIBILITY OF THE FIRE PROTECTION CONTRACTOR.
6. THE FIRE PROTECTION CONTRACTOR SHALL PREPARE INSTALLATION DRAWINGS SHOWING THE ENTIRE FIRE PROTECTION SYSTEM. THE FIRE PROTECTION CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR THE BUILDING'S ARCHITECTURAL AND STRUCTURAL FEATURES.
7. "HYDRAULICALLY DESIGNED SYSTEM" IS DEFINED AS A CALCULATED SPRINKLER SYSTEM IN WHICH PIPE SIZES ARE SELECTED ON A PRESSURE LOSS BASIS TO PROVIDE A PRESCRIBED MINIMUM WATER DENSITY, IN GALLONS PER MINUTE PER SQUARE FOOT, OR A PRESCRIBED MINIMUM DISCHARGE PRESSURE OR A FLOW PER SPRINKLER, DISTRIBUTED WITH A REASONABLE DEGREE OF UNIFORMITY OVER A SPECIFIED AREA.
8. HYDRAULIC CALCULATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE HYDRAULIC CALCULATION PROCEDURES AS DEFINED BY NFPA 13 IN CHAPTER 27 "PLANS AND CALCULATIONS."
9. EACH SPRINKLER SYSTEM ZONE SHALL BE PROVIDED WITH A COMBINATION DRAIN/INSPECTOR'S TEST STATION AND PIPED TO GRADE.
10. SPRINKLER SYSTEMS SHALL BE PROVIDED WITH DRAINS AS REQUIRED BY NFPA 13. AUXILIARY DRAINS SHALL BE PROVIDED FOR ALL SYSTEM LOW POINTS. PIPING SHALL BE EXTENDED AS REQUIRED (WITH SUFFICIENT SLOPE) FROM THE DRAIN CONNECTION TO THE BUILDING EXTERIOR. IF PHYSICAL CONSTRAINTS WITHIN THE BUILDING WILL NOT ALLOW DRAIN LINES TO BE EXTENDED TO THE EXTERIOR, THEY SHALL BE PIPED TO A DRAIN CONNECTION WITHIN THE BUILDING CAPABLE OF RECEIVING SYSTEM DRAINAGE FLOW WHEN THE DRAIN VALVE IS IN THE FULL OPEN POSITION. EXISTING SYSTEM AUXILIARY DRAINS AFFECTED BY THE SCOPE OF RENOVATION WORK SHALL BE MAINTAINED IN SERVICE AND EXTENDED TO ALTERNATE LOCATIONS AS REQUIRED DURING THE COURSE OF CONSTRUCTION.
11. COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS FOR LIGHT FIXTURES, SPEAKERS, DIFFUSERS, GRILLES AND OTHER CEILING MOUNTED DEVICES.
12. COORDINATE SPRINKLER PIPING, EQUIPMENT, HEADS, APPURTENANCES, ETC. WITH THAT OF OTHER TRADES SO THAT SPRINKLER WORK WILL BE INSTALLED IN THE MOST DIRECT MANNER AND SO THAT INTERFERENCE BETWEEN PIPING, DUCTS, EQUIPMENT, AND ARCHITECTURAL OR STRUCTURAL FEATURES WILL BE AVOIDED. SPRINKLER PIPING, EQUIPMENT, HEADS, APPURTENANCES, ETC. INSTALLED IN AN ARBITRARY MANNER WITHOUT REGARD FOR WORK OF OTHER TRADES WILL BE REJECTED IN ANY SITUATION WHERE AN UNDESIRABLE CONDITION OR AN UNFAIR HARDSHIP FOR OTHER TRADES, OR OWNER, RESULTS.
13. SPRINKLER SHOP DRAWINGS AND HYDRAULIC CALCULATIONS BEARING THE DESIGNER'S SIGNATURE AND EITHER A PROFESSIONAL ENGINEER'S SEAL OR NICET III CERTIFICATION NUMBER SHALL BE PREPARED AND SUBMITTED TO THE FOLLOWING:
    A. LOCAL FIRE MARSHAL
    B. OWNER'S FIRE INSURANCE UNDERWRITER
14. COPIES OF SUBMITTAL LETTER REQUESTING PLANS REVIEW AND APPROVAL ADDRESSED TO THE AGENCIES IDENTIFIED ABOVE SHALL BE SUBMITTED WITH SHOP DRAWINGS AND HYDRAULIC CALCULATIONS TO THE ARCHITECT. SHOP DRAWINGS WILL NOT BE REVIEWED UNTIL SUBMITTAL LETTERS HAVE BEEN RECEIVED. SUBMIT COPIES OF INSURANCE COMPANY AND FIRE MARSHAL'S LETTERS OF APPROVAL AND ANY ADDITIONAL REVIEW COMMENTS TO THE ARCHITECT.
15. ALL VALVES SHALL BE PROVIDED WITH TAMPER SWITCHES AND ALL ZONES SHALL BE PROVIDED WITH FLOW SWITCHES WIRED TO THE FIRE ALARM SYSTEM.

FIRE PROTECTION SHEET LIST

#	SHEET NAME
FP-01	FIRE PROTECTION SYMBOLS, ABBREVIATIONS, AND NOTES
FP-02	FIRE PROTECTION PLAN

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FIRE PROTECTION
SYMBOLS, ABBREVIATIONS,
AND NOTES

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ARIZONA, U.S.A.
Date Signed

Sheet Number:
FP-01
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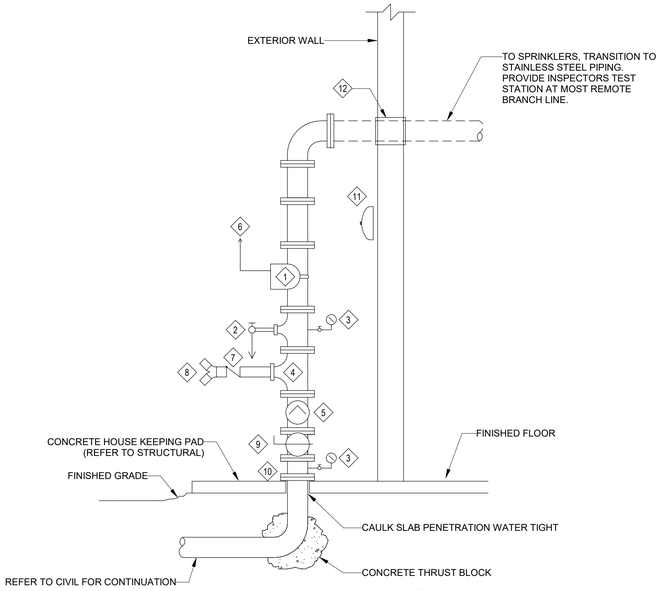
FIRE PROTECTION LEGEND	
(NO FILL)	LIGHT HAZARD
	ORDINARY HAZARD GROUP 1
	ORDINARY HAZARD (GROUP 2)

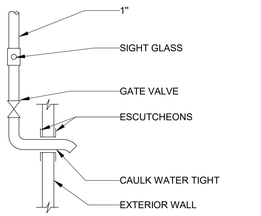
GENERAL NOTES:

1. FIRE PROTECTION CONTRACTOR SHALL PROVIDE SPRINKLER SYSTEM TO COMPLY WITH NFPA 13.
2. THE FIRE PROTECTION SYSTEM SHALL BE HYDRAULICALLY DESIGNED TO DETERMINE PIPE SIZES. THE CONTRACTOR SHALL PROVIDE HYDRAULIC CALCULATIONS AND DRAWINGS PER THE SPECIFICATION FOR REVIEW.
3. THE FIRE PROTECTION SYSTEM SHALL INCLUDE A COMPLETE WET PIPE AUTOMATIC SPRINKLER SYSTEMS FOR ALL AREAS SHOWN ON THE PLANS INCLUDING CONCEALED SPACES, ATTIC SPACES, AND OVERHANGS.
4. CONTRACTOR TO PERFORM A FLOW TEST TO DETERMINE CURRENT FLOW AND PRESSURE READINGS AT THE SITE PRIOR TO DESIGN AND MAKE ADJUSTMENTS ACCORDINGLY.
5. ALL SPRINKLER HEADS IN EXTERIOR CANOPIES ARE TO BE EITHER DRY SIDEWALL OR RECESSED OR SEMI-RECESSED PEDANTS WITH CHROME ESCUTCHEONS.

KEYNOTES

FP01	4" FIRE LINE BELOW GRADE. REFER TO CIVIL FOR CONTINUATION AND BACKFLOW PREVENTER LOCATION.
FP02	4" EXTERIOR RISER. RISER AND ALL ASSOCIATE EXTERIOR PIPING SHALL BE SCHEDULE 40 BLACK STEEL.
FP03	4" FIRE PROTECTION (WET) THRU EXTERIOR WALL. TRANSITION TO STAINLESS STEEL PIPING AFTER WALL PENETRATION. PROVIDE DIELETRIC UNION.
FP04	THIS BUILDING IS A CORROSIVE ENVIRONMENT. SPINKLER HEADS SHALL BE SOLID STAINLESS STEEL CONSTRUCTION. SPRINKLER HEADS SHALL BE UL LISTED AND FM APPROVED.
FP05	PROVIDE FDC AT EXTERIOR RISER.
FP06	REFER TO STRUCTURAL DRAWINGS FOR CONCRETE HOUSEKEEPING PAD.





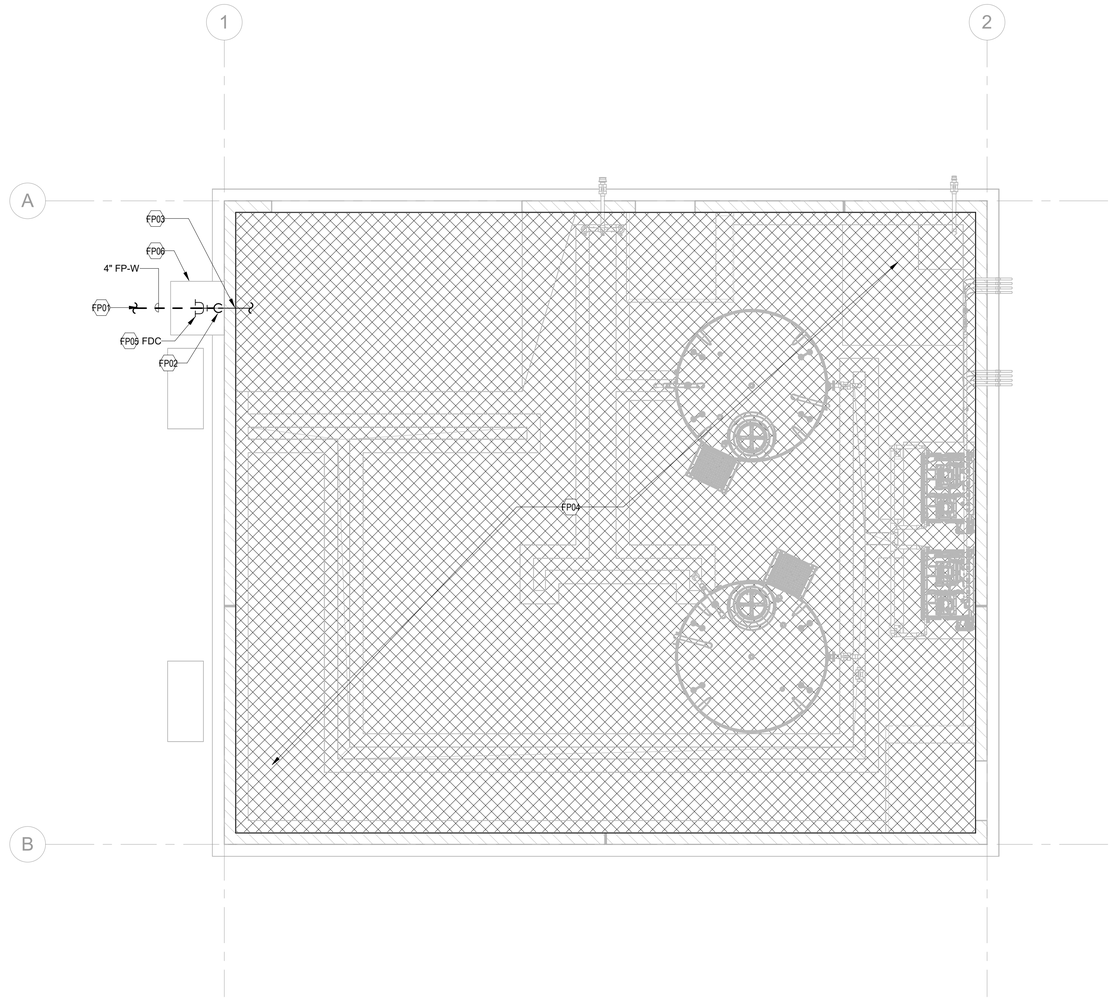
INSPECTORS TEST STATION

LEGEND

1	WATER FLOW INDICATOR	8	2-½" X 2-½" X 4" FIRE DEPT. CONNECTION
2	MAIN DRAIN	9	SERVICE SHUTOFF VALVE w/ VALVE SUPERVISION SWITCH
3	0-100 PSI PRESSURE GUAGE	10	FLANGE AT 6" A.F.F.
4	TEE FOR FIRE DEPT. CONNECTION	11	REMOTE ALARM BELL @ +10'-0 AFG ON WALL
5	TESTABLE DOUBLE CHECK VALVE ASSEMBLY	12	STEEL SLEEVE THRU WALL CAULK WEATHER TIGHT
6	LOCAL-ALARM CIRCUIT		
7	CHECK VALVE		

NOTES

1. INSTALL WET PIPE FIRE SPRINKLER SYSTEMS ACCORDING TO ALL STATE & LOCAL CODES AND NFPA 13.
2. LINE SIZES PER FIRE SPRINKLER CONTRACTOR. HYDRAULIC CALCULATIONS BY FIRE SPRINKLER CONTRACTOR.
3. PROVIDE ESCUTCHEON PLATES AT ALL EXTERIOR WALL PENETRATIONS & SEAL OPENINGS WATER TIGHT w/ MASTIC.



2 EXTERIOR FIRE SPRINKLER RISER DETAIL

1/8" = 1'-0"

1 FIRE PROTECTION FLOOR PLAN

1/4" = 1'-0"

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FIRE PROTECTION PLAN

Professional Engineer
Registered
No. 68067
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ARIZONA, U.S.A.

Sheet Number:

FP-02

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MECHANICAL ANNOTATIONS

SYMBOL	ABBREVIATION	DESCRIPTION
1 / M6.1		DETAIL REFERENCE CALLOUT: TOP-DETAIL NUMBER, BOTTOM- DRAWING NUMBER SHOWN ON
1 / M6.1		SECTION VIEW CALLOUT: TOP-DETAIL NUMBER, BOTTOM- DRAWING NUMBER SHOWN ON
	POC	CONNECT TO EXISTING
?		DEMOLITION KEYNOTES
?		NEW KEY NOTES
1		REVISION TAG
	AP	ACCESS PANEL
T	TSTAT	THERMOSTAT
H	HSTAT	HUMIDISTAT
CO		CARBON MONOXIDE SENSOR
CO2		CARBON DIOXIDE SENSOR
NO2		NITROGEN DIOXIDE SENSOR
BD		BACKDRAFT DAMPER
SD		DUCT MOUNTED SMOKE DETECTOR
TCP		TEMPERATURE CONTROL PANEL
TS		TEMPERATURE SENSOR
HS		HUMIDITY SENSOR
DP		DIFFERENTIAL PRESSURE SENSOR
SP		STATIC PRESSURE SENSOR
FS		FLOW SWITCH
ES		EMERGENCY SHUTDOWN SWITCH
100 UC		AIRFLOW DOOR UNDERCUT

SOME SYMBOLS AND ABBREVIATIONS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT

MECHANICAL SYMBOLS AND LEGEND - AIR SIDE

SYMBOL	ABBREVIATION	DESCRIPTION
	CD-1 6"Ø/50	SUPPLY AIR CEILING DIFFUSER, NECK SIZE AND AIR QUANTITY
	RG-1 10"x10"/50	RETURN AIR CEILING GRILL, NECK SIZE AND AIR QUANTITY
	EG-1 10"x10"/50	EXHAUST AIR CEILING GRILL, NECK SIZE AND AIR QUANTITY
	WD-1 24"x6"/50	SUPPLY AIR SIDEWALL DIFFUSER, NECK SIZE AND AIR QUANTITY
		ROUND FLEX DUCT
	FD	FIRE DAMPER
	SD	SMOKE DAMPER
	FSD	COMBINATION FIRE/SMOKE DAMPER
14"x8"		RECTANGULAR DUCT SIZE, FIRST DIMENSION IS SIDE SHOWN
14"/8"		OVAL DUCT SIZE, FIRST DIMENSION IS SIDE SHOWN
14"Ø		ROUND DUCT SIZE
(E)18"x8"	(E)	EXISTING DUCT
	MVD	MANUAL VOLUME/BALANCING DAMPER
MD	MD	MOTORIZED DAMPER
AFMS	AFMS	AIRFLOW MONITORING STATION
		DUCT WITH INTERNAL INSULATION
		SQUARE TO ROUND DUCT TRANSITION
		MITERED ELBOW WITH TURNING VANES
	SA	SUPPLY AIR DUCT UP/DOWN
	RA	RETURN AIR DUCT UP/DOWN
	EA	EXHAUST AIR DUCT UP/DOWN
	VAV	VAV BOX WITH ELECTRIC HEATING COIL
		VAV BOX WITH HOT WATER COIL
		VAV BOX WITH NO HEATING COIL

MECHANICAL EQUIPMENT TAGS

DIFFUSER / GRILLE / REGISTER TAG

EXAMPLE: **CD-1** / **12"Ø / 500** DESCRIPTION: (TYPE) / (NECK SIZE) / (CFM)

AHU TAG

EXAMPLE: **AHU-1** DESCRIPTION: AHU - (UNIT NUMBER)

VAV BOX TAG

EXAMPLE: **VAV-1-1** DESCRIPTION: VAV - (AHU NUMBER) - (VAV BOX NUMBER)

APPLICABLE PROJECT CODES

- 2018 IBC - INTERNATIONAL BUILDING CODE
- 2018 IMC - INTERNATIONAL MECHANICAL CODE
- 2018 IPC - INTERNATIONAL PLUMBING CODE
- 2018 IFGC - INTERNATIONAL FUEL GAS CODE

MECHANICAL ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AABC	AMERICAN AIR BALANCE COUNCIL
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AFMS	AIRFLOW MONITORING STATION
APD	AIR PRESSURE DROP
BAS	BUILDING AUTOMATION SYSTEM
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BHP	BRAKE HORSE POWER
BMS	BUILDING MANAGEMENT SYSTEM
BTU/H	BRITISH THERMAL UNIT PER HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
COP	COEFFICIENT OF PERFORMANCE
CT	COOLING TOWER
CU	CONDENSING UNIT
CV	CONSTANT AIR VOLUME
(D)	DEMOLISHED
DB	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROLS
DIA	DIAMETER
DL	DOOR LOUVER
DN	DOWN
DOAS	DEDICATED OUTSIDE AIR HANDLING UNIT
(E)	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
°F	DEGREES FAHRENHEIT
FA	FROM ABOVE
FB	FROM BELOW
FCU	FAN COIL UNIT
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
GA	GAGE OR GAUGE
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD PRESSURE
HP	HORSEPOWER
HSPF	HEATING SEASONAL PERFORMANCE FACTOR
IBC	INTERNATIONAL BUILDING CODE
IMC	INTERNATIONAL MECHANICAL CODE
IPC	INTERNATIONAL PLUMBING CODE
IE	INVERT ELEVATION BELOW FINISHED FLOOR
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	ONE THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPS
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
N/A	NOT APPLICABLE
N/C	NORMALLY CLOSED
N/O	NORMALLY OPEN
NEC	NATIONAL ELECTRIC CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIS	NOT IN SCOPE
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF TOP AIR HANDLING UNIT
SA	SUPPLY AIR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SP	STATIC PRESSURE
SS	STAINLESS STEEL
TDH	TOTAL DYNAMIC HEAD
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UC	UNDER CUT
UL	UNDERWRITERS LABORATORIES, INC.
UMC	UNIFORM MECHANICAL CODE
UPC	UNIFORM PLUMBING CODE
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP

MECHANICAL GENERAL NOTES

1. MECHANICAL WORK SHALL CONFORM WITH THE LATEST ADOPTED LOCAL CODES, ORDINANCES, AND DESIGN REQUIREMENTS UNLESS OTHERWISE APPROVED BY THE AUTHORITY HAVING JURISDICTION (AHJ).
2. CONTRACTOR SHALL COORDINATE WITH STRUCTURAL REQUIREMENTS BEFORE DRILLING OR CUTTING ANY CMU WALLS, CEILING JOISTS OR STRUCTURAL ELEMENTS.
3. CONTRACTOR TO PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT, AND INSURANCES TO COMPLETE THE DESIGN PER THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO THE SATISFACTION OF THE ENGINEER/ARCHITECT.
4. CONTRACTOR TO PROVIDE ALL REQUIRED PERMITS AND FEES TO COMPLETE THE PROJECT.
5. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH DRAWINGS PROVIDED BY OTHER DISCIPLINES. CONSTRUCTION CONFLICTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT.
6. DUE TO THE SMALL SCALE OF THE DRAWINGS, IT IS NOT FEASIBLE TO SHOW ALL REQUIRED OFFSETS, ELEVATIONS, ETC., IT IS THEREFORE THE CONTRACTORS RESPONSIBILITY TO VERIFY THE REQUIRED ROUTING, ELEVATION, AND PLACEMENT OF EQUIPMENT AND PROVIDE REQUIRED OFFSETS INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS AND THE SPECIFICATIONS TO MEET THE INTENT OF THE DESIGN. ALL DIMENSIONS AND MEASUREMENTS SHALL BE VERIFIED ONSITE BEFORE FABRICATION AND/OR INSTALLATION OF THE EQUIPMENT.
7. ALL INFORMATION SHOWN ON SCHEDULES ARE BASED ON AVAILABLE PRODUCT INFORMATION AT THE TIME OF DESIGN.
8. THE CONTRACTOR SHALL KEEP INSTALLATION INSTRUCTIONS FOR ALL LISTED EQUIPMENT ON THIS PROJECT AT THE JOBSITE AND SHALL HAVE THEM ACCESSIBLE FOR THE FIELD INSPECTOR UPON REQUEST.
9. PROVIDED DRAWINGS BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PROVIDE AN INSTALLATION SUITABLE IN DIMENSION, CONSTRUCTION, FUNCTION AND FINISH FOR THE PURPOSE INTENDED.
10. ANY DISCREPANCIES DURING BID SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT AND RESOLVED PRIOR TO FINALIZATION OF THE CONSTRUCTION CONTRACT.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL TRADE.
12. EXACT LOCATION OF ACCESS PANELS SHALL BE COORDINATED WITH FINAL PLACEMENT OF ALL VALVES, DAMPERS, AND ANY OTHER COMPONENT IDENTIFIED ON THE DRAWINGS.
13. FINISH AND COLOR OF EXTERNAL SURFACES FOR EXPOSED UNITS, DUCTWORK, OR PIPING SHALL BE APPROVED BY THE ARCHITECT.
14. CONTRACTOR SHALL PERFORM TESTING AND ADJUSTING AS REQUIRED FOR ALL EQUIPMENT AND/OR SYSTEMS WITHIN THIS SCOPE OF WORK PER THE SPECIFICATIONS.

MECHANICAL SHEET LIST

SHEET #	SHEET NAME
M-01	MECHANICAL SYMBOLS, ABBREVIATIONS, AND NOTES
M-02	MECHANICAL PLANS
M-03	MECHANICAL DETAILS
M-04	MECHANICAL SCHEDULES

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LHC CHLORINE CONVERSION

100% DRAWINGS

CITY PROJECT NO.

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DRAWN BY: CRN

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KH PROJECT NO:

MECHANICAL SYMBOLS, ABBREVIATIONS, AND NOTES

Sheet Number:

M-01

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SEQUENCE OF OPERATION

ROOF MOUNTED EXHAUST FAN (EF-1)

1. GENERAL DESCRIPTION:

A. EXHAUST FAN SHALL VENTILATE THE SPACE AT A RATE OF 30 AIR CHANGES PER HOUR.
B. WHEN ENABLED, THE FAN MOTOR SHALL START AND RAMP UP TO THE DESIGN SET POINT AND OPERATE AT A CONSTANT VOLUME UNTIL DISABLED.

2. SAFETIES, OVERRIDES, AND INTERLOCKS

A. FAN MOTOR SHALL BE CONTROLLED VIA MOTOR STARTER LOCATED AT BUILDING EXTERIOR.
B. WHEN ENABLED AT THE MOTOR STARTER, THE FAN MOTOR SHALL START.
C. WHEN DISABLED AT THE MOTOR STARTER, THE FAN MOTOR SHALL STOP.

3. ALARMS

A. PROVIDE AIRFLOW PROVING SWITCH IN EXHAUST DUCTWORK. AN ALARM SIGNAL SHALL BE TRIGGERED AT CONTROL PANEL IF:

(i). FAN IS ENABLED BUT FAILS TO START OR MEET AIRFLOW SET POINT.
(ii). FAN IS DISABLED BUT FAILS TO STOP.

SPLIT SYSTEM (ID/OD-1, 2)

1. GENERAL DESCRIPTION:

A. SPLIT SYSTEM SHALL CYCLE TO MAINTAIN SPACE TEMPERATURE SET POINT.

2. SAFETIES, OVERRIDES, AND INTERLOCKS

A. SPLIT SYSTEM SHALL BE INTERLOCKED WITH LOCAL THERMOSTAT.

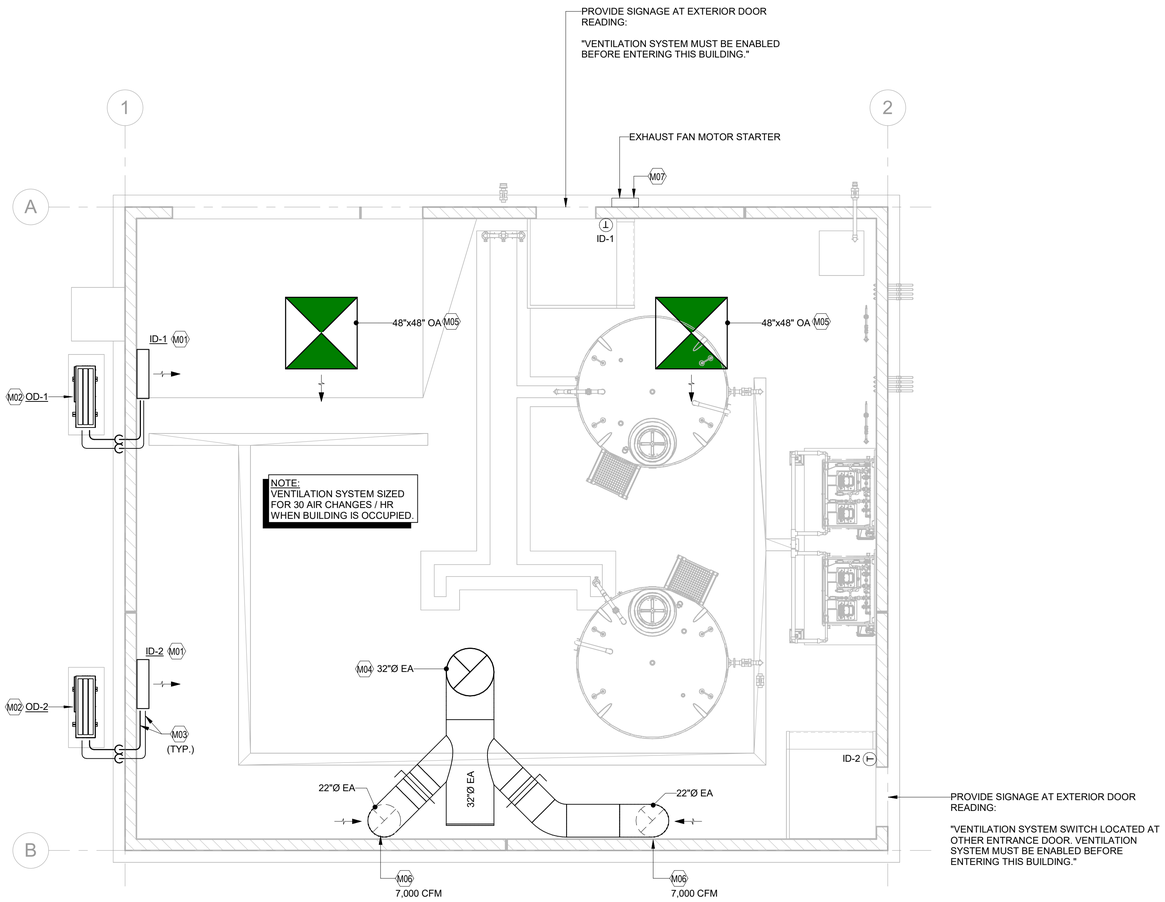
(i). COOLING SET POINT SHALL BE 85 DEG F (ADJ).
(ii). HEATING SET POINT SHALL BE 60 DEG F (ADJ).

GENERAL NOTES

1. DUCTWORK SHALL BE FRP CONSTRUCTION WITH STAINLESS STEEL SUPPORTS AND HARDWARE.
2. VENTILATION SYSTEM SHALL BE OPERATED VIA MANUAL SWITCH AT BUILDING EXTERIOR ENTRANCE.
3. REFRIGERANT PIPING SHALL BE INSULATED WITH 1/2" CLOSED CELL FOAM INSULATION.
4. PROVIDE ALUMINUM JACK OVERT INSULATION EXPOSED TO DIRECT SUNLIGHT.

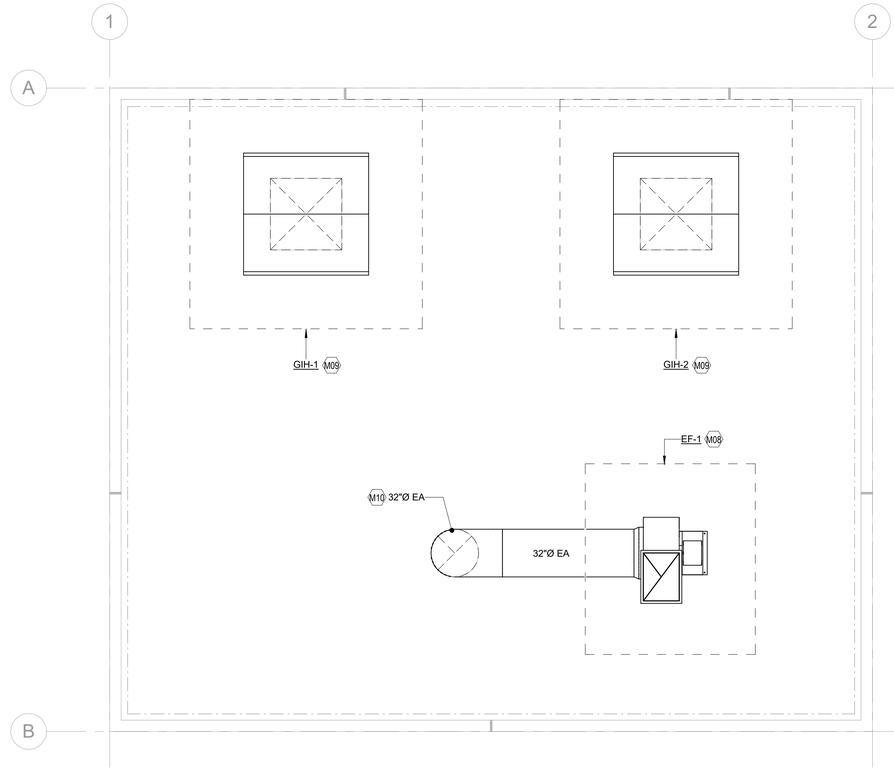
KEYNOTES

M01 PROVIDE WALL MOUNTED MINI-SPLIT INDOOR UNIT. REFER TO EQUIPMENT SCHEDULE.
M02 PROVIDE SPLIT SYSTEM HEAT PUMP OUTDOOR UNIT. REFER TO STRUCTURAL DRAWINGS FOR CONCRETE HOUSEKEEPING PAD.
M03 REFRIGERANT SUPPLY/RETURN FROM OUTDOOR UNIT TO INDOOR UNIT.
M04 EXHAUST DUCT UP TO FAN ON ROOF.
M05 OUTSIDE AIR DUCT UP TO GRAVITY INTAKE HOOD ON ROOF.
M06 EXHAUST DUCT DOWN TO 12" AFF. COVER OPEN END OF DUCT WITH 1/4" ALUMINUM WIRE GRID.
M07 EXHAUST FAN MOTOR STARTER LOCATED AT ENTRANCE. WHEN SWITCH IS ACTIVATED, EF-1 SHALL BE ENABLED.
M08 PROVIDE ROOF MOUNTED EXHAUST FAN. FAN SHALL BE ALL ALUMINUM CONSTRUCTION. REFER TO SCHEDULE.
M09 PROVIDE GRAVITY INTAKE HOOD WITH BACKDRAFT DAMPER AND MANUFACTURER'S INSULATED ROOF CURB.
M10 EXHAUST AIR DUCT DN THRU ROOF. SEAL ROOF PENETRATION WEATHER-TIGHT.



1 MECHANICAL FLOOR PLAN

1/4" = 1'-0"



2 MECHANICAL ROOF PLAN

1/4" = 1'-0"

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MECHANICAL PLANS

Registered Professional Engineer
JEFFREY SMITH
068903
Date Signed
ARIZONA, U.S.A.

Sheet Number:
M-02
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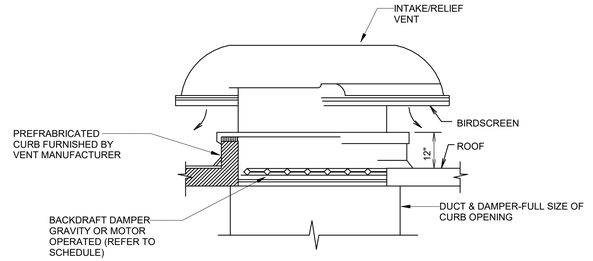
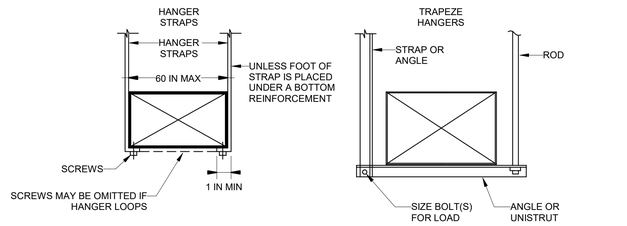
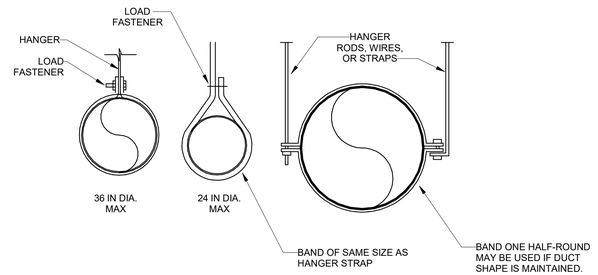


2 TYPICAL ROOF MOUNTED INTAKE/RELIEF VENT

NOT TO SCALE





1 LOWER HANGER ATTACHMENTS

NOT TO SCALE

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MECHANICAL DETAILS

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Registered
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JEFFREY
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Date Signed
MECHANICAL
ARIZONA, U.S.A.

Sheet Number:

M-03

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SPLIT SYSTEM INDOOR FAN COIL UNIT SCHEDULE

MARK	UNIT TYPE	MOUNTING	SUPPLY FAN						ELECTRICAL								ASSOCIATED UNIT	WEIGHT (LBS)	MANUFACTURER	MODEL	NOTES
			TOTAL AIRFLOW (CFM)	WATTS	LAT		EAT		EAT (°F)	LAT (°F)	VOLTAGE	PHASE	HZ	FLA	MCA	MOCP	DISCONNECT					
					DB (°F)	WB (°F)	DB (°F)	WB (°F)									BY	TYPE				
ID-1	DUCTLESS	WALL	775	70	55	54	80	67	60	85	(POWERED BY OUTDOOR UNIT)						EC	NON-FUSED	OD-1	50	TRANE MITSUBISHI	PKA-AK30NL	1 THRU 4
ID-2	DUCTLESS	WALL	775	70	55	54	80	67	60	85	(POWERED BY OUTDOOR UNIT)						EC	NON-FUSED	OD-1	50	TRANE MITSUBISHI	PKA-AK30NL	1 THRU 4

NOTES:

1. ASSOCIATED CONDENSING UNIT SHALL BE BY THE SAME MANUFACTURER.
2. PROVIDE UNIT WITH MANUFACTURER WASHABLE FILTER.

SPLIT SYSTEM CONDENSING UNIT SCHEDULE

MARK	LOCATION	UNIT TYPE	REF TYPE	COOLING						HEATING				ELECTRICAL								WEIGHT (LBS)	MANUFACTURER	MODEL	NOTES
				TOTAL CAP (MBH)	SENS CAP (MBH)	AMBIENT		MIN EFF.		TOTAL CAP (MBH)	AMBIENT	MIN EFF.		VOLTAGE	PHASE	HZ	MCA	MOCP	DISCONNECT		SCCR (kA)				
						DB...	WB...	EER2	SEER2		DB...	HSPF2	COP @ 17 (°F)						BY	TYPE					
OD-1	GRADE MOUNTED	HEAT PUMP	R-454B	24.9	20	115	70	11.7	20.5	29.6	43	9.2	2.7	208-230	1	60	22	25	EC	NON-FUSED	5	170	TRANE MITSUBISHI	MUZ-AH30NL	1 THRU 4
OD-2	GRADE MOUNTED	HEAT PUMP	R-454B	24.9	20	115	70	11.7	20.5	29.6	43	9.2	2.7	208-230	1	60	22	25	EC	NON-FUSED	5	170	TRANE MITSUBISHI	MUZ-AH30NL	1 THRU 4

NOTES:

1. FOR COOLING, EQUIPMENT SIZED FOR 115 °F AMBIENT TEMPERATURE. FOR HEATING, EQUIPMENT SIZED FOR 43 °F AMBIENT TEMPERATURE.
2. FINAL INSTALLATION SHALL COMPLY WITH MANUFACTURER'S CLEARANCE RECOMMENDATIONS.
3. COORDINATE WITH ELECTRICAL CONTRACTOR FOR FINAL QUANTITIES AND SIZES OF ELECTRICAL CONNECTIONS.
4. ELECTRICAL CONTRACTOR TO PROVIDE NEMA 3R OUTDOOR RATED SERVICE RECEPTACLE WITHIN 25' OF EQUIPMENT FOR MAINTENANCE AND SERVICE.

FAN SCHEDULE

MARK	LOCATION	AIRFLOW (CFM)	ESP (IN W.C.)	DRIVE	ELECTRICAL										WEIGHT (LBS)	MANUFACTURER	MODEL	NOTES
					MOTOR		FLA	VOLTAGE	PHASE	HZ	DISCONNECT		CONTROLLER/STARTER		SCCR			
					BHP	HP					BY	TYPE	BY	TYPE				
EF-1	ROOF	14,000	1.0"	BELT	5.6	7.5	24.2	208	3	60	EC	NON-FUSED	MC	FULL-VOLTAGE	5 kA	700	GREENHECK	USF-30	1 THRU 5

NOTES:

1. PROVIDE INSULATED ROOF CURB WITH MINIMUM HEIGHT REQUIRED TO MAINTAIN BOTTOM OF EQUIPMENT A MINIMUM OF 8INCHES ABOVE FINISHED ROOF.
2. PROVIDE FAN WITH ALL ALUMINUM CONSTRUCTION. PROVIDE WITH MANUFACTURER'S CORROSION RESISTANT COATINg.
3. PROVIDE FAN WITH MANUFACTURER'S MOTOR STARTER.
4. PROVIDE FAN WITH EXTERIOR RATED VIBRATION ISOLATOR SPRING MOUNTS.
5. NOMINAL MOTOR HP SHALL BE NO LARGER THAN THE FIRST AVAILABLE NOMINAL MOTOR SIZE GREATER THAN THE BHP.

GRAVITY INTAKE HOOD SCHEDULE

MARK	SERVICE	THROAT SIZE		AIRFLOW (CFM)	THROAT VEL. (FPM)	MAX. P.D. (IN)	MANUFACTURER	MODEL	NOTES
		LENGTH	WIDTH						
GIH-1	INTAKE	48"	48"	7,000	450	0.15	GRENNHECK	FGI	1 THRU 6
GIH-2	INTAKE	48"	48"	7,000	450	0.15	GRENNHECK	FGI	1 THRU 6

NOTES:

1.PROVIDE WITH ALUMINUM BIRD SCREEN.
2. PROVIDE WITH MANUFACTURER'S CORROSION RESISTANT COATING.
3. PROVIDE WITH ALUMINUM INSET SCREEN.
4. PROVIDE WITH MANUFACTURER'S 12" TALL BASE.
5. PROVIDE WITH INTEGRAL LOW-LEAKAGE ALUMINUM BACKDRAFT DAMPER
6. INTAKE HOOD SHALL BE ALUMINUM CONSTRUCTION.

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MECHANICAL SCHEDULES

Registered Professional Engineer (Mechanical) 68957 JEFFREY SMITH Date Signed 07/18/25 ARIZONA, U.S.A.

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ELECTRICAL SYMBOLS

SINGLE LINE DIAGRAMS

- (A) AMMETER
- (V) VOLTMETER
- (M) METER
- (G) GENERATOR
- (KWH) KILOWATT HOUR METER
- [AS] AMMETER SWITCH
- [VS] VOLTMETER SWITCH
- GROUND CONNECTION
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- POWER TRANSFORMER
- CONTROL TRANSFORMER
- DRAW OUT TYPE EQUIPMENT
- DRAW OUT TYPE HIGH VOLTAGE MOTOR STARTER
- PLUG-IN TYPE EQUIPMENT
- CIRCUIT BREAKER
- DISCONNECT SWITCH, 3 POLE UNLESS OTHERWISE INDICATED
- OIL FUSE CUTOUTS
- FUSE
- TRANSFER SWITCH, AUTOMATIC
- RV SIZE 1 — MAGNETIC MOTOR STARTER."1" INDICATES SIZE 1. RV INDICATES REDUCED VOLTAGE. 2S INDICATES 2 SPEED. R INDICATES REVERSING.
- MAGNETIC CONTACTOR
- ELECTRONIC OVER LOAD
- [E-###] — CONDUIT NUMBER E-###. SEE CONDUIT AND WIRING SCHEDULE FOR SIZES AND QUANTITIES OF CONDUIT AND WIRES.
- GROUND
- (K) KIRK KEY INTERLOCKING OF EQUIPMENT
- [PFR] PHASE FAILURE RELAY
- [SA] SURGE ARRESTER
- (#) EXISTING MOTOR (# = HP)
- (#) NEW MOTOR (# = ESTIMATED HP)
- (#) FUTURE MOTOR (# = ESTIMATED HP)
- EYS SEAL

CONTROL WIRING DIAGRAMS

NORMALLY OPEN	NORMALLY CLOSED	DEVICE
		CONTACT
		LIMIT SWITCH
		LIMIT SWITCH HELD CLOSED
		LIMIT SWITCH HELD OPEN
		PRESSURE OR VACUUM SWITCH
		LIQUID LEVEL SWITCH
		TEMPERATURE ACTUATED SWITCH
		FLOW SWITCH (AIR, WATER, ETC.)
		PUSH BUTTON SINGLE CIRCUIT MOMENTARY CONTACT.
		PUSH BUTTON SINGLE CIRCUIT LOCK-OUT(LOCATED AT MOTOR UNLESS OTHERWISE NOTED)
		TIMED CONTACT- CONTACT ACTION RELAY ON ENERGIZATION.
		TIMED CONTACT- CONTACT ACTION RELAY ON DE-ENERGIZATION.
		ON-OFF SWITCH.
ESB		EMERGENCY STOP PUSH BUTTON (MAINTAINED CONTACT)
STOP	START	STOP -START PUSH-BUTTON STATION (MAINTAINED CONTACTS).
		HAND-OFF-AUTO SELECTOR SWITCH SEE NOTE 3. (THREE POSITION).
		TWO POSITION SELECTOR SWITCH SEE NOTE 3.
		PILOT LIGHT, Y=YELLOW, R=RED, A=AMBER, SEE NOTE 3. B=BLUE, W=WHITE, G=GREEN.
		BELL
		HORN OR SIREN
		CONTROL RELAY
		STARTER COIL.
		TIME DELAY RELAY. (0-30 SECONDS UNLESS OTHERWISE NOTED).
	OL'S	MOTOR STARTER OVERLOAD RELAY CONTACTS
		CONTROL TRANSFORMER
		MANUAL MOTOR STARTER
		SOLENOID OPERATED CONTROL VALVE
		120 VOLT, 1 PHASE, MOTOR (UNLESS OTHERWISE NOTED)
		RUNNING TIME METER. (ELAPSED TIME METER)
		SPACE HEATERS. (LOCATED AT MOTOR UNLESS OTHERWISE NOTED).
		TERMINALS IN MOTOR CONTROL CENTER/MCP
		CONTACT OR DEVICE REMOTE FROM MOTOR CONTROL CENTER/MCP
		TERMINALS IN MOTOR CONTROL CENTER/MCP
		CONTACT IN MOTOR CONTROL CENTER FOR CONNECTION TO REMOTE DEVICE/MCP
		DEVICE SIGNAL OUTPUT
		DEVICE SIGNAL INPUT

PLANS

- CONDUIT RUN CONCEALED UNDER SLAB OR BELOW GRADE. (CONCEALED IN SLAB WHERE SO NOTED OR WHERE ALLOWED PER SPECIFICATIONS).
- CONDUIT RUN EXPOSED UNLESS OTHERWISE NOTED
- EXISTING CONDUIT RUN
- GROUND WIRE
- CONDUIT UP (OUT TOP OF EQUIPMENT)
- CONDUIT DOWN (OUT BOTTOM OF EQUIPMENT)
- CONDUIT STUBBED OUT AND CAPPED
- CEILING MOUNTED LIGHTING FIXTURE
- BRACKET MOUNTED LIGHTING FIXTURE
- FLOODLIGHT
- FLUORESCENT LIGHTING FIXTURE
- POLE MOUNTED LIGHT FIXTURE
- EXIT LIGHT
- LIGHTING FIXTURES CONNECTED TO EMERGENCY CIRCUITS
- A 1/100 — LIGHTING FIXTURE TYPE A, 100 WATTS, WITH 1 LAMP. SEE LIGHTING FIXTURE SCHEDULE
- $ — SINGLE POLE, SINGLE THROW TOGGLE SWITCH
- $2 — DOUBLE POLE, SINGLE THROW TOGGLE SWITCH
- $3 — THREE-WAY TOGGLE SWITCH
- $4 — FOUR-WAY TOGGLE SWITCH
- $M — MANUAL MOTOR STARTER

  (AT +48" OR AS NOTED)
- DUPLEX CONVENIENCE RECEPTACLE AT +12" OR AS NOTED
- SINGLE CONVENIENCE RECEPTACLE AT +12" OR AS NOTED
- SPECIAL PURPOSE RECEPTACLE AT +12" OR AS NOTED, RATING AS INDICATED
- JUNCTION BOX, SIZE AS REQUIRED BY CODE
- THERMOSTAT OUTLET AT +54"
- CLOCK OUTLET AT +7'-6" OR AS NOTED
- TELEPHONE OUTLET AT +12" OR AS NOTED
- HORN
- XX-### — CONTROL DEVICE
  PD = PRESSURE TRANSDUCER
  FS = FLOAT SWITCH
  L = LEVEL SWITCH
  V = CONTROL VALVE
- CONTROL STATION: PUSH-BUTTON STATION OR SELECTOR SWITCH. SEE CONTROL WIRING DIAGRAMS FOR REQUIREMENTS.
- GROUND WELL
- GROUND ROD
- EXOTHERMIC WELD
- DISCONNECT SWITCH. SEE SINGLE LINE DIAGRAM FOR SIZE.
- LIGHTING PANEL. SURFACE MOUNTED.
- ELECTRICAL GEAR (SWITCHBOARD, DISTRIBUTION PANEL MOTOR CONTROL CENTER, ETC.)
- EQUIPMENT BY OTHERS
- (1) — INDICATES TO REFER TO NOTE (1) ON DRAWING
- W.P. — WEATHERPROOF. PROVIDE GASKETS AS REQUIRED
- C.O. — CONDUIT ONLY
- [E] [C] — PULL BOX (SIZE AS REQUIRED)
- OUTPUT TERMINAL
- INPUT TERMINAL
- [T] — PROPOSED TRANSFORMER
- YAGI DIRECTIONAL ANTENNA
- REMOVABLE BOLLARD
- POLE MOUNTED TRANSFORMER

ELECTRICAL ABBREVIATIONS

AG	ABOVE GROUND
AMP	AMPERE
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BRK	BREAKER
CAT	CATALOG
CR	CARD READER
CIRC.	MIL CIRCULAR MILS (AWG)
C.O.	CONDUIT ONLY
CKT	CIRCUIT
CP	CONTROL PANEL
DIA	DIAMETER
DS	DOOR SWITCH
DWG	DRAWING
EA	EACH
ELECT	ELECTRICAL
ELEV	ELEVATION
EXIST	EXISTING
FLA	FULL LOAD AMPS
FUT	FUTURE
FVNR	FULL VOLTAGE, NON-REVERSING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HP	HORSE POWER
HZ	HERTZ (CYCLES PER SECOND)
IC	INTERRUPTING CAPACITY
ID	INTERNAL DIAMETER
KV	KILOVOLTS
LCL	LONG CONTINUOUS LOAD
LED	LIGHT EMITTING DIODE
LTG	LIGHTING
LS	LEVEL SWITCH
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
MCM	THOUSAND CIRCULAR MIL (AWG)
MFR	MANUFACTURER
MIN	MINIMUM
MIS	MISCELLANEOUS
MOV	MOTOR OPERATED VALVE
MPZ	MINI POWER ZONE
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
N.O.	NORMALLY OPEN
NO.	NUMBER
O.L.	OVERLOAD
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PQM	POWER QUALITY METER
PR	PAIR
PVC	POLYVINYL CHLORIDE
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RTU	REMOTE TERMINAL UNIT
SCE	SOUTHERN CALIFORNIA EDISON
SCHED	SCHEDULE
SES	SERVICE ENTRANCE SECTION
SPECS	SPECIFICATIONS
SS	SOFT STARTER
SSS	SOLID STATE STARTER
TEL	TELEPHONE
TDR	TIME DELAY RELAY
TRX	TRANSITION
TSP	TWISTED SHIELDED PAIR
TTB	TELEPHONE TERMINAL BACKBOARD
TYP	TYPICAL
US	ULTRASONIC SENSOR
UG	UNDER GROUND
UCP	UNIT CONTROL PANEL
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFMR	TRANSFORMER

GENERAL ELECTRICAL REQUIREMENTS

1. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE ORDINANCES AND REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE, FINISHED AND SAFE MANNER, ACCORDING TO THE LATEST PUBLISHED N.E.C.A. STANDARDS OF INSTALLATION, UNDER COMPETENT SUPERVISION. INSTALL GROUNDING AS REQUIRED BY THE CODE(S).
2. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND ALL OTHER FACTORS WHICH MAY AFFECT THE EXECUTION OF THIS WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.
3. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH NEMA, ANSI, U.L. OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURER'S NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS AND BID PRICE. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING AND REVIEWED BY THE ENGINEER BEFORE ORDERING.
4. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED UNDER DIVISION 6 AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS OR ANY OTHER CAUSES. EQUIPMENT FOUND DAMAGED OR IN OTHER THAN NEW CONDITION WILL BE REJECTED AS DEFECTIVE.
5. LEAVE THE SITE CLEAN, REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK.
6. CIRCUIT CONDUCTORS #2 AWG OR SMALLER TO BE COPPER TYPE "XHHW" FOR BELOW GRADE INSTALLATION OR COPPER TYPE THHN/THWN FOR ABOVE GRADE INSTALLATIONS. #1 AWG OR LARGER SHALL BE COPPER TYPE "XHHW-2" STRANDED COPPER. MINIMUM CONDUCTOR SIZE TO BE #12 AWG WITH #12 GND.
7. UNDERGROUND CONDUITS TO BE SCHEDULE 40 PVC. MINIMUM DEPTH 30", MINIMUM SIZE 1", UNLESS OTHERWISE SHOWN ON THE PLANS. CONDUITS AS SHOWN ARE FOR INFORMATION ONLY. EXACT CONDUIT ROUTING SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR.
8. OUTDOOR CONDUITS EXPOSED TO BE PVC COATED RGS, MINIMUM SIZE 3/4", UNLESS OTHERWISE NOTED ON THE PLANS. GRS CONDUIT SHALL EXTEND BELOW GRADE TO THE FIRST ELBOW. ALL GRS CONDUIT EXPOSED TO EARTH SHALL BE HALF LAPPED WRAPPED IN SCOTCHRAP 50 10 MIL TAPE OR EQUAL. EXTEND WRAP TO A HEIGHT OF 12" ABOVE GRADE. INDOOR CONDUITS SHALL BE IMC OR EMT UNLESS OTHERWISE SHOWN ON PLAN.
9. ALL SAFETY SWITCHES AND OTHER DISTRIBUTION AND CONTROL ELECTRICAL EQUIPMENT SHALL BE U.L. LISTED AND RATED FOR HEAVY DUTY SERVICE.
10. ALL ELECTRICAL EQUIPMENT, CONDUIT, WIRING, BOXES, ETC. SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING. THE SUBMITTALS SHALL BE NEATLY GROUPED AND ORGANIZED. PERTINENT INFORMATION SHALL BE HIGHLIGHTED, AND THE SPECIFIC PRODUCT SHALL BE IDENTIFIED. ALL SUBMITTALS SHALL BE COMPLETE, AND PRESENTED IN ONE PACKAGE. THE SUBMITTAL SHALL INCLUDE A COMPLETE LIST OF THE EQUIPMENT AND MATERIALS, INCLUDING THE MANUFACTURER'S NAME, PRODUCT SPECIFICATION, DESCRIPTIVE DATA, TECHNICAL LITERATURE, PERFORMANCE CHARTS, CATALOG CUTS, INSTALLATION INSTRUCTIONS, AND SPARE PART RECOMMENDATIONS FOR EACH DIFFERENT ITEM OF THE EQUIPMENT SPECIFIED.
11. IT IS THE OBLIGATION OF THE CONTRACTOR TO ORGANIZE HIS WORK, SO THAT A COMPLETE ELECTRICAL, INSTRUMENTATION, AND CONTROL SYSTEM FOR THE FACILITY WILL BE PROVIDED, AND WILL BE SUPPORTED BY ACCURATE SHOP AND RECORD DRAWINGS, AND O & M MANUALS.
12. CONTRACTOR SHALL PROVIDE AND INSTALL 1250LB MULE TAPE IN ALL EMPTY CONDUITS.

Kimley»Horn

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	MARCH 2025
DESIGNED BY:	YSH
DRAWN BY:	YSH
REVIEWED BY:	EG
KH PROJECT NO:	191245024

ELECTRICAL COVER

Registered Professional Engineer (Electrical)
CERTIFICATE NO.
68010
Erkan Gungor
Date Signed 07/18/2025
ARIZONA U.S.A.

Sheet Number:

E-01

Sheet 38 of 52

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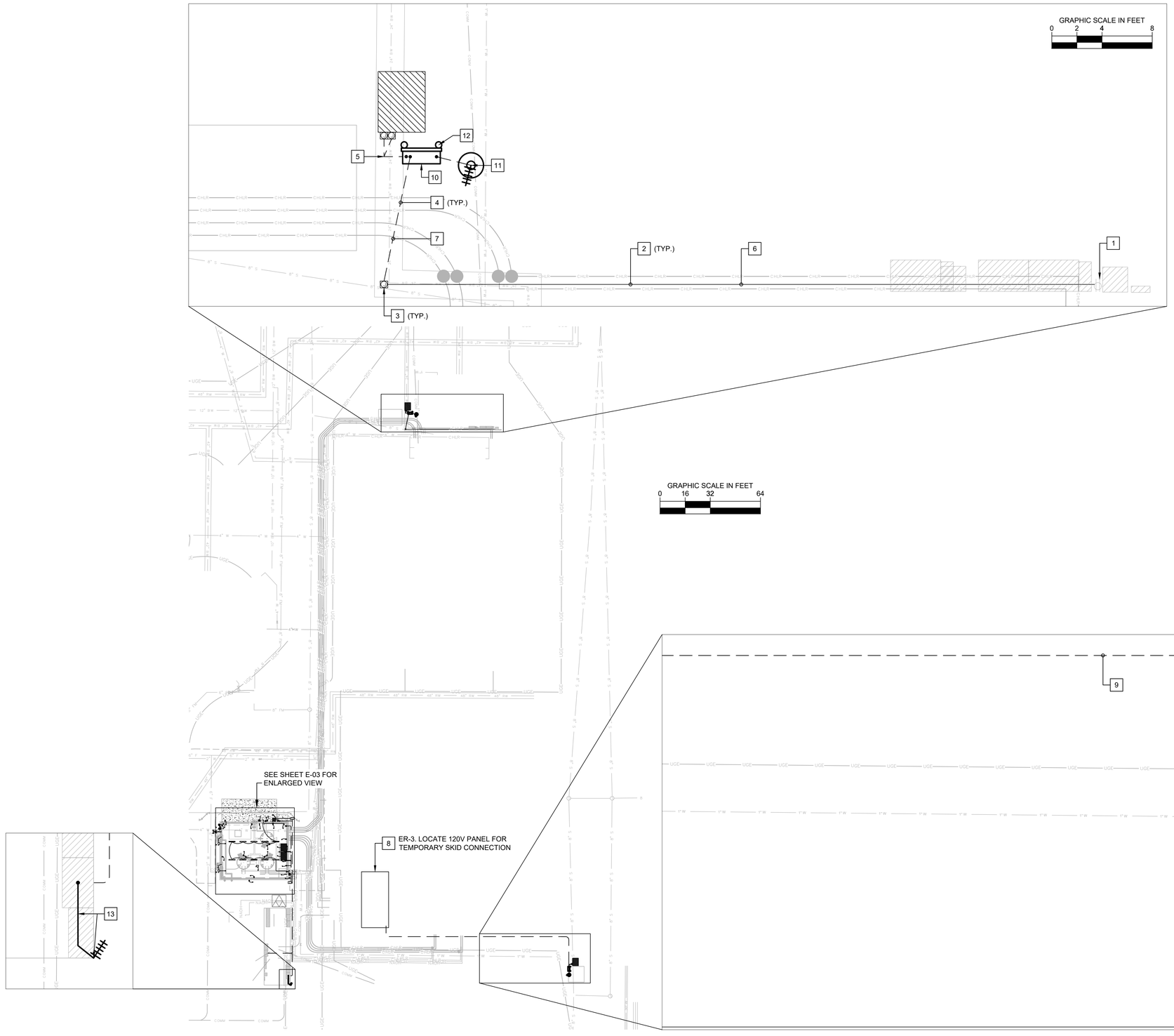

ELECTRICAL NOTES

1. CONTRACTOR SHALL FIELD LOCATE EXISTING 120V-20A RECEPTACLE AND TIE INTO EXISTING CIRCUIT FOR TEMPORARY POWER TO THE CHEMICAL PUMP SKID. VERIFY POWER TO THE EXISTING EQUIPMENT IS TURNED OFF PRIOR TO COMMENCING WORK.
2. REFER TO WALL MOUNTED CONDUIT DETAIL ON SHEET E-05 DETAIL E.
3. PROVIDE 1-4"X4"X2"D JUNCTION BOX FOR POWER CONNECTIONS TO THE TEMPORARY CHEMICAL SKID PUMP.
4. SEE DETAIL A ON SHEET E-05 FOR TYPICAL TRENCH DETAIL. SEE SHEET E-04 DETAIL C FOR CONDUIT/CONDUCTOR INFORMATION.
5. CONTRACTOR TO MAKE FINAL CONNECTION FROM TEMPORARY PUMP SKID RTU PANEL TO TEMPORARY PUMP SKID. PROVIDE 1" LTFMC CABLE WITH 2-#10, 1-#10 AWG GND FROM RTU PANEL TO PUMP SKID FOR POWER. PROVIDE 2-1" LTFMC CONDUITS FOR CONTROLS, 1-1" WITH 4-PR #16 AWG, 1-1" WITH 2-PR TSH #16 AWG. SEE PID DIAGRAM FOR SIGNALS TO BE WIRED FROM RTU TO PUMP SKID, AND SIGNALS TO BE TRANSMITTED VIA ANTENNA TO EXISTING PLANT PLC.
6. INSTALL 1" RGS CONDUIT FROM RECEPTACLE TO JUNCTION BOX WITH 2-#10 AWG + 1-#10 GND.
7. INSTALL 1" SCHEDULE 40 UG PVC CONDUIT FROM JUNCTION BOX TO RTU WITH 2-#10 AWG + 1-#10 GND.
8. CONTRACTOR SHALL FIELD LOCATE EXISTING 120V PANEL AND SPARE 20A, 1P BREAKER AND UTILIZE BREAKER TO POWER THE TEMPORARY CHEMICAL PUMP SKID. VERIFY POWER TO THE EXISTING EQUIPMENT IS TURNED OFF PRIOR TO COMMENCING WORK.
9. INSTALL 1" RGS CONDUIT WITH 2-#12 AWG + 1-#12 GND FROM PANEL 120V PANEL TO OUTSIDE PENETRATION. TRANSITION CONDUIT TO SCHEDULE 40 UNDERGROUND PVC FROM BUILDING OUTSIDE TO TEMPORARY CHEMICAL SKID PUMP.
10. TEMPORARY PUMP SKID RTU PANEL. PROVIDE 3'WX3'HX12"D NEMA 4X PANEL WITH INTERNAL 20A MAIN BREAKER AND 2-10A 120V SUBFEED BREAKERS FOR PLC AND TEMPORARY PUMP SKID. PANEL IS USED TO DISTRIBUTE POWER TO RTU AND TEMPORARY PUMP SKID. PROVIDE 6DI/4DO COMPACT IO MODULE 1769-IQ6XOW4. PROVIDE 4AI/2AO COMPACT MODULE 1769-IF4XOF2. PROVIDE REMOTE IO ADAPTER 1769-AENTR. PROVIDE GE MDS ORBIT MCR-900 RADIO AND SUPPORTING ANTENNA FOR CLEAR SIGHT TO EXISTING PLC BUILDING ANTENNA. CONTRACTOR TO SUBMIT TEMPORARY PUMP SKID RTU PANEL TO ENGINEER FOR REVIEW.
11. CONTRACTOR TO SUBMIT ANTENNA AND POLE IN COORDINATION WITH RADIO PATH SURVEY. COORDINATE RADIO ANTENNA AND POLE SUBMITTAL WITH TEMPORARY PUMP SKID RTU PANEL SUBMITTAL.
12. SUBMIT RTU UNISTRUT STYLE RACK TO ENGINEER FOR APPROVAL.
13. CONTRACTOR TO INSTALL GE MDS ORBIT MCR-900 RADIO IN EXISTING PLC CABINET AND SUPPORTING ANTENNA ON ROOF OF EXISTING BUILDING. PROVIDE 1" RGS CONDUIT WITH MANUFACTURER ANTENNA CABLE FROM RADIO TO ANTENNA ON ROOF. SUBMIT ANTENNA AND RADIO TO ENGINEER FOR APPROVAL.

A OVERALL SITE PLAN AND TEMPORARY STATIONS
SCALE: AS NOTED

NORTH

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	MARCH 2025
DESIGNED BY:	YSH
DRAWN BY:	YSH
REVIEWED BY:	EG
KH PROJECT NO:	191245024

OVERALL ELECTRICAL SITE PLAN

Registered Professional Engineer (Electrical)
CERTIFICATE NO.
68010
Erkan Gungor
Date Signed 07/18/2025
ARIZONA, U.S.A.

Sheet Number:
E-02
Sheet 39 of 52

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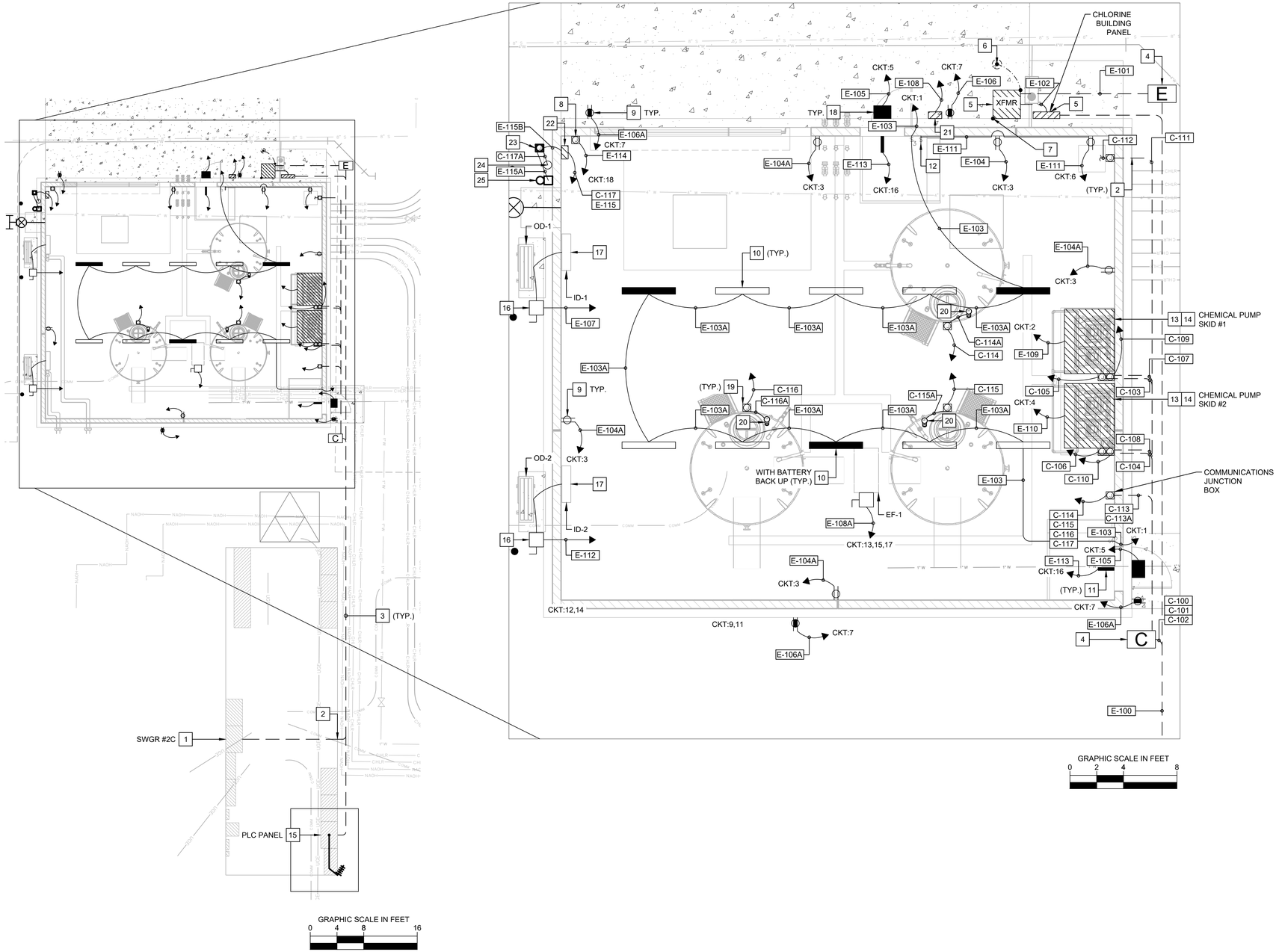

ELECTRICAL NOTES

1. CONTRACTOR TO FIELD LOCATE SWGR #2C AND VERIFY PROVISIONS EXIST TO INSTALL (1) 3-POLE 50A 277/480V, BREAKER FOR PROPOSED 'CHLORINE BUILDING PANEL'.
2. CONDUIT WALL PENETRATION SEAL PER DETAIL F, SHEET E-05.
3. SEE DETAIL A ON SHEET E-05 FOR TYPICAL TRENCH DETAIL. SEE SHEET E-04 DETAIL C FOR CONDUIT/CONDUCTOR INFORMATION.
4. PROVIDE PULLBOX PER DETAIL C ON SHEET E-05. SIZE PER NEC 314.28(A)(1). PULLBOX TO BE FLUSH WITH GRADE AND CONDUITS TO PENETRATE THROUGH BOTTOM OF BOX.
5. SEE SINGLE LINE DIAGRAM E-04 DETAIL A FOR ELECTRICAL EQUIPMENT INFORMATION. REFER TO PANEL SCHEDULE FOR ADDITIONAL DETAIL.
6. PROVIDE CAD WELD TYPE GROUNDING CONNECTION TO SITE GROUNDING ELECTRODE PER SHEET E-05 DETAIL B. GROUNDING ELECTRODE TO BE GROUND WELL TYPE BOX WITH 10' COPPER GROUND ROD EMBEDDED IN EARTH. SEE DETAIL D ON SHEET E-05 FOR GROUND ROD NOT IN WELL. CONTRACTOR TO MAKE NECESSARY BONDS AS REQUIRED BY NEC250.
7. CONNECT STRUCTURE AND EQUIPMENT TO GROUND RING CONSISTING OF BARE COPPER CODUCTOR NOT SMALLER THAN #2 AWG AT NO LESS THAN 30" OF THE SURFACE OF THE EARTH. GROUND FENCE PER NEC ARTICLE 250.194.
8. PROVIDE 1-4"X4"X2"D JUNCTION BOX FOR ELECTRIC ROLL-UP GATE CONNECTIONS. INSTALL PER MANUFACTURER RECOMMENDATIONS.
9. PROVIDE GFCI DUPLEX WEATHERPROOF RECEPTACLE AT 18" ABOVE GROUND.
10. INSTALL (1) 4' LONG VAPORTIGHT LED STRIP FIXTURE. FIXTURES TO BE EQUIDISTANT PER DRAWINGS AND PANEL SCHEDULE. PROVIDE (1) 3-WAY 120V 20A RATED SWITCH AT EACH ENTRANCE, MOUNTED AT 48" AFG IN CHLORINATION BUILDING. CONTRACTOR TO ROUTE CONDUIT AND CONDUCTORS THROUGH LIGHT SWITCH FOR A COMPLETE SYSTEM.
11. INSTALL (1) EXIT SIGN LIGHTS WITH BATTERY BACK UP AS SHOWN ON PLANS.
12. INSTALL SWITCH TO CONTROL SUMP PUMP EQUIPMENT AND INSTALL PER MANUFACTURER'S INSTRUCTIONS.
13. CHEMICAL PUMP SKID. CONTRACTOR TO STUB POWER FEEDER CONDUIT INTO SKID MOUNTED EQUIPMENT AND MAKE POWER CONNECTION. CONTRACTOR TO MAKE FINAL CONNECTION FROM IN FIELD PUMPS TO PLC AND ASSOCIATED TANKS WITH MANUFACTURER RECOMMENDED WIRING.
14. PROVIDE SEPARATE CONDUITS FOR POWER AND CONTROL WIRES TO THE VENDOR SKID, AND SEPARATE COVERED WIREWAYS INTERNALLY FOR WIRES CARRYING DIFFERENT VOLTAGES.
15. CONTRACTOR SHALL FURNISH AND INSTALL I/O CARDS AND ALL REQUIRED ACCESSORIES TO INTERCONNECT THE CHEMICAL SKIDS TO PLC PANEL. SEE PID DIAGRAM ON SHEET I-02 FOR SIGNALS BEING PROVIDED BY EACH SKID AND FOR MORE INFORMATION.
16. VERIFY FINAL DISCONNECT SIZING AND WIRING WITH MECHANICAL EQUIPMENT.
17. INDOOR UNIT POWERED FROM OUTDOOR UNIT.
18. INSTALL (1) OUTDOOR WALL PACK LIGHT FIXTURE AT EACH ENTRANCE. OUTDOOR WALL PACK LIGHTING TO BE WEATHER PROOF AND PHOTOCELL CONTROLLED.
19. PROVIDE 1-4"X4"X2"D JUNCTION BOX FOR COMMUNICATIONS CONDUIT AND CONDUCTORS. INSTALL PER MANUFACTURER RECOMMENDATIONS.
20. PROVIDE FMR20-AAPBMVCEVEE3+R3 ENDRESS AND HAUSER RADAR LEVEL SENSOR WITH INTEGRAL BLUETOOTH OPTION.
21. CONTRACTOR TO PROVIDE 7.5HP 3-PHASE RATED MOTOR CONTROL PANEL WITH ON, OFF PUSHBUTTONS AND OVERLOAD/FAN ERROR INDICATION LIGHT. PROVIDE NEMA 4X PANEL 1.5'WX1.5'HX8"D.
22. FIRE ALARM CONTROL PANEL. SEE FIRE PROTECTION PLANS FOR DETAIL.
23. NEMA 4X FIRE PROTECTION JUNCTION BOX. PROVIDE 6"WX6"HX4"D JUNCTION BOX.
24. FIRE RISER FLOW SWITCH.
25. FIRE ALARM SYSTEM ALARM BELL.

A BUILDING INTERIOR
SCALE: AS NOTED

NORTH

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LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	MARCH 2025
DESIGNED BY:	YSH
DRAWN BY:	YSH
REVIEWED BY:	EG
KH PROJECT NO:	191245024

CHLORINE ROOM ELECTRICAL PLAN

Registered Professional Engineer (Retired)
CERTIFICATE NO.
68010
Erkan Gungor
Date Signed 07/18/2025
ARIZONA, U.S.A.

Sheet Number:
E-03
Sheet 40 of 52

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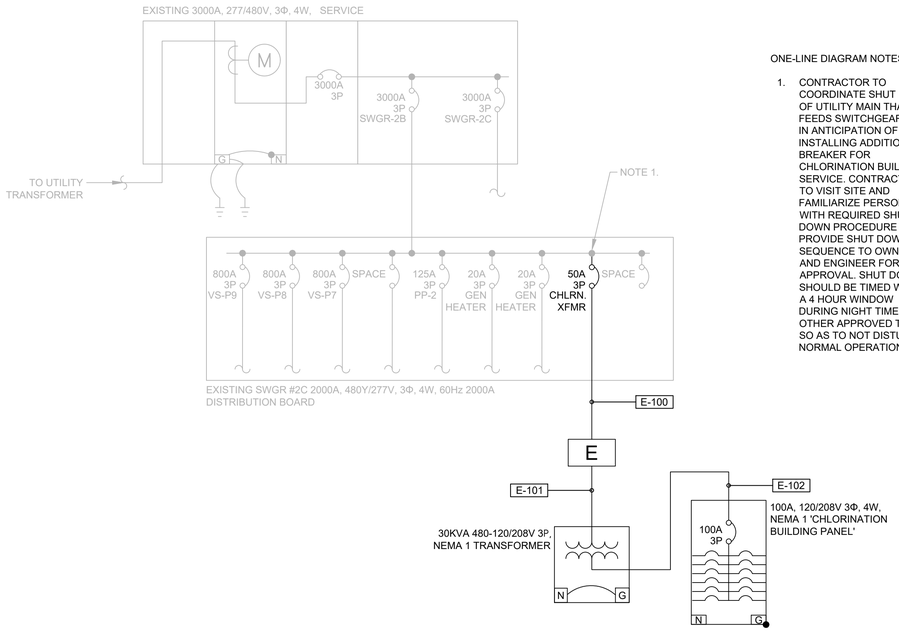

ONE-LINE DIAGRAM NOTES:

1. CONTRACTOR TO COORDINATE SHUT DOWN OF UTILITY MAIN THAT FEEDS SWITCHGEAR #2C IN ANTICIPATION OF INSTALLING ADDITIONAL BREAKER FOR CHLORINATION BUILDING SERVICE. CONTRACTOR TO VISIT SITE AND FAMILIARIZE PERSONNEL WITH REQUIRED SHUT DOWN PROCEDURE AND PROVIDE SHUT DOWN SEQUENCE TO OWNER AND ENGINEER FOR APPROVAL. SHUT DOWN SHOULD BE TIMED WITHIN A 4 HOUR WINDOW DURING NIGHT TIME OR OTHER APPROVED TIME SO AS TO NOT DISTURB NORMAL OPERATION.

A SINGLE LINE DIAGRAM
N.T.S.

PANEL NAME: CHLORINE PANEL

LOCATION: CHLORINE BUILDING
SUPPLY FROM: 30KVA XFMR
MOUNTING: SURFACE
ENCLOSURE: NEMA 1

VOLTS: 120/208V
PHASES: 3
WIRES: 4

AIC RATING: 22K
MAINS TYPE: MCB
MAINS RATING: 125 A
MCB RATING: 100 A

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	TRIP	POLES	A (VA)		B (VA)		C (VA)		POLES	TRIP	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1	INTERIOR LIGHTS	L	20	1	450	500					1	20	M	CHLORINATION SKID #1	2
3	INTERIOR RECEPTS	R	20	1			900	500			1	20	M	CHLORINATION SKID #2	4
5	EXTERIOR LTG	L	20	1					250	552	1	20	M	SUMP PUMP SP-1	6
7	EXTERIOR RECEPTS	R	20	1	720	552								SPACE	8
9	OD-1	M	25	2			2,288	552						SPACE	10
11		M							2,288	2,288	2	25	M	OD-2	12
13	EXHAUST FAN	M	30	3	2,904								M		14
15		M					2,904	360			1	20	L	EXIT LIGHTS	16
17		M							2,904	500	1	20	E	ELECTRIC ROLLUP GATE	18
19	FIRE ALARM PANEL	E	20	1	100										20
21															22
23															24
				TOTAL LOAD:	5,226 VA		7,504 VA		8,782 VA						
				TOTAL AMPS:	43.6 A		62.5 A		73.2 A						

LOAD CLASSIFICATION	CONNECTED LOAD: (VA)	DEMAND FACTOR	EST. DEMAND (VA)	PANEL TOTALS	
LARGEST MOTOR LOAD (M)	8712	125.00%	10890	TOTAL CONN. LOAD (VA):	21512
HVAC (H) & ALL OTHER MOTORS (M)	8416	100.00%	8416	TOTAL EST. DEMAND (VA):	22851
RECEPTACLE (R)	1620	100.00%	1620	TOTAL CONN. (A):	59.7
LIGHTING (L)	1060	125.00%	1325	TOTAL EST. DEMAND (A):	63.4
EQUIPMENT (E)	600	100.00%	600		
OTHER (O) (SEE NOTES)	0	0.00%	0		
			0		

B CHLORINE PANEL - PANEL SCHEDULE
N.T.S.

COMMUNICATIONS CONDUIT SCHEDULE

CONDUIT TAG	CONDUIT TYPE	CONDUIT SIZE	FROM	TO	CONDUCTOR (EACH CONDUIT)	COMMENTS
C-100	UG SCHED 40 PVC	2"	PLC ENCLOSURE	COMMUNICATIONS PULLBOX	24-PR #16 AWG	(4) PAIRS TO EACH PUMP ON SKIDS, LEAK DETECTION SENSORS, FIRE ALARM PANEL
C-101	UG SCHED 40 PVC	2"	PLC ENCLOSURE	COMMUNICATIONS PULLBOX	12-TSH-PR #16 AWG	(2) PAIRS TO EACH PUMP ON SKIDS
						(1) PAIR TO EACH TANK FOR LEVEL INDICATING TRANSMITTER
C-102	UG SCHED 40 PVC	2"	PLC ENCLOSURE	COMMUNICATIONS PULLBOX	MULE TAPE	SPARE CONDUIT
C-103	UG SCHED 40 PVC/ AG RGS	1.5"	COMMUNICATIONS PULLBOX	SKID #1 COMMS JUNCTION BOX #1	8-PR #16 AWG	(4) PAIRS TO EACH PUMP ON SKID: PUMP RUNNING, ERROR, START/STOP, SPARE
C-104	UG SCHED 40 PVC/ AG RGS	1.5"	COMMUNICATIONS PULLBOX	SKID #2 COMMS JUNCTION BOX #1	8-PR #16 AWG	(4) PAIRS TO EACH PUMP ON SKID: PUMP RUNNING, ERROR, START/STOP, SPARE
C-105	AG PVC COATED RIGID	1.5"	SKID #1 COMMS JUNCTION BOX #1	SKID #1	8-PR #16 AWG	(4) PAIRS TO EACH PUMP ON SKID: PUMP RUNNING, ERROR, START/STOP, SPARE
C-106	AG PVC COATED RIGID	1.5"	SKID #2 COMMS JUNCTION BOX #1	SKID #2	8-PR #16 AWG	(4) PAIRS TO EACH PUMP ON SKID: PUMP RUNNING, ERROR, START/STOP, SPARE
C-107	UG SCHED 40 PVC/ AG RGS	1"	COMMUNICATIONS PULLBOX	SKID #1 COMMS JUNCTION BOX #2	4-PR #16 TSP	(2) PAIRS TO EACH PUMP ON SKID: PUMP INDICATION, SET SPEED
C-108	UG SCHED 40 PVC/ AG RGS	1"	COMMUNICATIONS PULLBOX	SKID #2 COMMS JUNCTION BOX #2	4-PR #16 TSP	(2) PAIRS TO EACH PUMP ON SKID: PUMP INDICATION, SET SPEED
C-109	AG PVC COATED RIGID	1"	SKID #1 COMMS JUNCTION BOX #2	SKID #1	4-PR #16 TSP	(2) PAIRS TO EACH PUMP ON SKID: PUMP INDICATION, SET SPEED
C-110	AG PVC COATED RIGID	1"	SKID #2 COMMS JUNCTION BOX #2	SKID #2	4-PR #16 TSP	(2) PAIRS TO EACH PUMP ON SKID: PUMP INDICATION, SET SPEED
C-111	UG SCHED 40 PVC/ AG RGS	1"	COMMUNICATIONS PULLBOX	LEAK DETECTION JUNCTION BOX	2-PR #12 AWG	LEAK DETECTION SENSOR
C-112	AG PVC COATED RIGID	1"	LEAK DETECTION JUNCTION BOX	LEAK DETECTION SENSOR	2-PR #12 AWG	LEAK DETECTION SENSOR
C-113	UG SCHED 40 PVC/ AG RGS	1"	COMMUNICATIONS PULLBOX	COMMUNICATIONS JUNCTION BOX	3-PR #16 TSP	(1) PAIR TO EACH TANK FOR LEVEL INDICATING TRANSMITTER, FIRE ALARM PANEL SIGNALS
C-113A	UG SCHED 40 PVC/ AG RGS	1"	COMMUNICATIONS PULLBOX	COMMUNICATIONS JUNCTION BOX	6-PR #16 TSP	FIRE ALARM CONTROL PANEL SIGNALS
C-114	AG PVC COATED RIGID	1"	COMMUNICATIONS JUNCTION BOX	'LIT-100' COMMS JUNCTION BOX	1-PR #16 TSP	(1) PAIR TO CL STORAGE TANK LEVEL INDICATING TRANSMITTER: LIT-100
C-114A	AG PVC COATED RIGID	1"	'LIT-100' COMMS JUNCTION BOX	LE-100	1-PR #16 TSP	(1) PAIR TO CL STORAGE TANK LEVEL INDICATING TRANSMITTER: LIT-100
C-115	AG PVC COATED RIGID	1"	COMMUNICATIONS JUNCTION BOX	'LIT-200' COMMS JUNCTION BOX	1-PR #16 TSP	(1) PAIR TO CL STORAGE TANK LEVEL INDICATING TRANSMITTER: LIT-200
C-115A	AG PVC COATED RIGID	1"	'LIT-200' COMMS JUNCTION BOX	LE-200	1-PR #16 TSP	(1) PAIR TO CL STORAGE TANK LEVEL INDICATING TRANSMITTER: LIT-100
C-116	AG PVC COATED RIGID	1"	COMMUNICATIONS JUNCTION BOX	'LIT-300' COMMS JUNCTION BOX	1-PR #16 TSP	(1) PAIR TO CL STORAGE TANK LEVEL INDICATING TRANSMITTER: LIT-300
C-116A	AG PVC COATED RIGID	1"	'LIT-300' COMMS JUNCTION BOX	LE-300	1-PR #16 TSP	(1) PAIR TO CL STORAGE TANK LEVEL INDICATING TRANSMITTER: LIT-300
C-117	AG PVC COATED RIGID	1"	FIRE ALARM CONTROL PANEL	COMMUNICATIONS JUNCTION BOX	6-PR #16 TSP	FIRE ALARM CONTROL PANEL SIGNALS
C-117A	AG PVC COATED RIGID	1"	FIRE ALARM CONTROL PANEL	FIRE RISER FLOW SWITCH	1-PR #16 TSP	FIRE ALARM CONTROL PANEL SIGNALS

POWER CONDUIT SCHEDULE

CONDUIT TAG	CONDUIT TYPE	CONDUIT SIZE	FROM	TO	CONDUCTOR (EACH CONDUIT)	COMMENTS
E-100	UG SCHED 40 PVC	2"	SWGR #2C	ELECTRICAL PULLBOX	(4) #6 AWG + (1) #10 GND	PRIMARY SIDE OF TRANSFORMER
E-101	UG SCHED 40 PVC	2"	ELECTRICAL PULLBOX	TRANSFORMER	(4) #6 AWG + (1) #10 GND	PRIMARY SIDE OF TRANSFORMER
E-102	UG SCHED 40 PVC/ AG RGS	2"	TRANSFORMER	CHLORINE BUILDING PANEL	(4) #1 AWG + (1) #6 GND	SECONDARY SIDE OF THE TRANSFORMER
E-103	AG PVC COATED RIGID	1"	CHLORINE BUILDING PANEL	INTERIOR LIGHT	(2) #12 AWG + (1) #12 GND	INTERIOR LIGHTS POWER
E-103A	AG PVC COATED RIGID	1"	INTERIOR LIGHT	INTERIOR LIGHT	(2) #12 AWG + (1) #12 GND	INTERIOR LIGHTS POWER
E-104	AG PVC COATED RIGID	1"	CHLORINE BUILDING PANEL	INTERIOR RECEPTACLE	(2) #12 AWG + (1) #12 GND	INTERIOR RECEPTACLES POWER
E-104A	AG PVC COATED RIGID	1"	INTERIOR RECEPTACLE	INTERIOR RECEPTACLE	(2) #12 AWG + (1) #12 GND	INTERIOR RECEPTACLES POWER
E-105	AG PVC COATED RIGID	1"	CHLORINE BUILDING PANEL	EXTERIOR LIGHT	(2) #12 AWG + (1) #12 GND	EXTERIOR LIGHTS POWER
E-106	AG PVC COATED RIGID	1"	CHLORINE BUILDING PANEL	EXTERIOR RECEPTACLE	(2) #12 AWG + (1) #12 GND	EXTERIOR RECEPTACLES POWER
E-106A	AG PVC COATED RIGID	1"	EXTERIOR RECEPTACLE	EXTERIOR RECEPTACLE	(2) #12 AWG + (1) #12 GND	EXTERIOR RECEPTACLES POWER
E-107	UG SCHED 40 PVC/ AG RGS	1"	CHLORINE BUILDING PANEL	OD-1	(2) #10 AWG + (1) #10 GND	POWER TO OD-1
E-108	AG PVC COATED RIGID	1"	CHLORINE BUILDING PANEL	EXHAUST FAN CONTROL PANEL	(3) #10 AWG + (1) #10 GND	CONTROL PANEL POWER
E-108A	AG PVC COATED RIGID	1"	EXHAUST FAN CONTROL PANEL	EXHAUST FAN EF-1	(3) #10 AWG + (1) #10 GND	EF-1 POWER
E-109	AG PVC COATED RIGID	1.5"	CHLORINE BUILDING PANEL	CHLORINATION SKID #1	(4) #12 AWG + (1) #12 GND	POWER TO EACH PUMP ON SKID: (2) #12 AWG + (1) #12 GND TO BOTH PUMPS P-100 AND P-101
E-110	AG PVC COATED RIGID	1.5"	CHLORINE BUILDING PANEL	CHLORINATION SKID #2	(4) #12 AWG + (1) #12 GND	POWER TO EACH PUMP ON SKID: (2) #12 AWG + (1) #12 GND TO BOTH PUMPS P-200 AND P-201
E-111	AG PVC COATED RIGID	1"	CHLORINE BUILDING PANEL	SUMP	(2) #12 AWG + (1) #12 GND	SUMP POWER ROUTED THROUGH SWITCH, SUMP TO BE GROUNDED BY SWITCH
E-112	UG SCHED 40 PVC/ AG RGS	1"	CHLORINE BUILDING PANEL	OD-2	(2) #10 AWG + (1) #10 GND	POWER TO OD-2
E-113	AG PVC COATED RIGID	1"	CHLORINE BUILDING PANEL	EMERGENCY LIGHTS	(2) #12 AWG + (1) #12 GND	POWER TO EXIT LIGHTS, LIGHTS TO BE ON BATTERY BACKUP
E-114	AG PVC COATED RIGID	1"	CHLORINE BUILDING PANEL	ELECTRIC ROLLUP GATE	(2) #12 AWG + (1) #12 GND	POWER TO ELECTRIC ROLLUP GATE, POWER TO BE THROUGH JUNCTION BOX
E-115	AG PVC COATED RIGID	1"	FIRE ALARM CONTROL PANEL	CHLORINE BUILDING PANEL	(2) #12 AWG + (1) #12 GND	POWER TO ELECTRIC ROLLUP GATE, POWER TO BE THROUGH JUNCTION BOX
E-115A	AG PVC COATED RIGID	1"	FIRE ALARM CONTROL PANEL	FIRE ALARM BELL	(2) #12 AWG + (1) #12 GND	FIRE ALARM BELL POWER FROM FIRE ALARM CONTROL PANEL
E-115B	AG PVC COATED RIGID	1"	FIRE ALARM CONTROL PANEL JUNCTION BOX	FIRE ALARM CONTROL PANEL	(2) #12 AWG + (1) #12 GND	FIRE ALARM BELL POWER FROM FIRE ALARM CONTROL PANEL
					1-PR #16 AWG	FLOW SWITCH CONTACT COMMS

C CONDUIT SCHEDULE
N.T.S.

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978 •

NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE: MARCH 2025
DESIGNED BY: YSH
DRAWN BY: YSH
REVIEWED BY: EG
KH PROJECT NO: 191245024

ELECTRICAL SCHEDULES

Registered Professional Engineer (Electrical) CERTIFICATE NO. 68010 Erkan Gungor Date Signed 07/18/2025 ARIZONA, U.S.A.

Kimley»Horn

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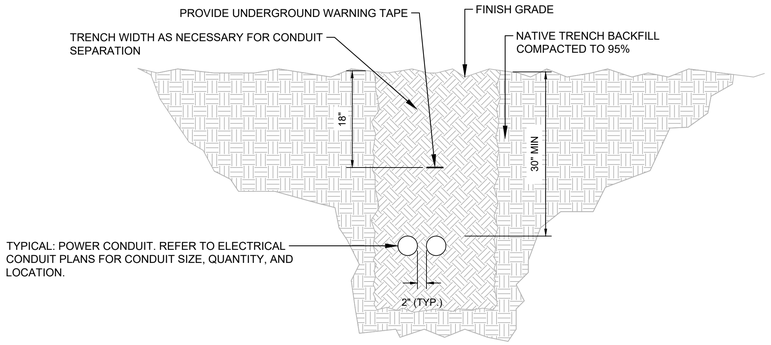

A TRENCH DETAIL

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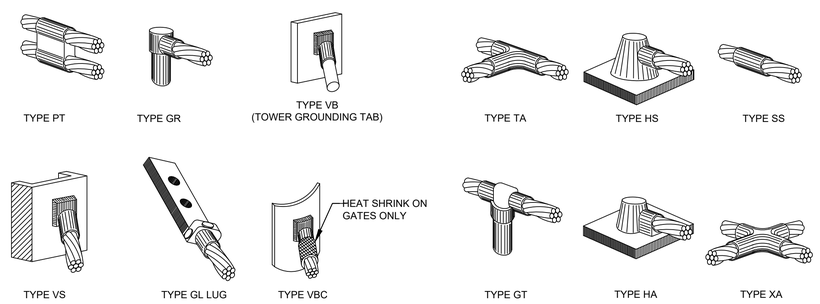

NOTES:

1. CADWELD "TYPES" SHOWN ABOVE ARE EXAMPLES. PROVIDE APPROPRIATE TYPES AS REQUIRED.

B TYPICAL CAD WELDS

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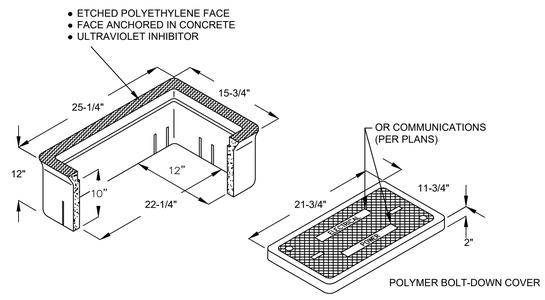

C ELECTRICAL PULLBOX DETAIL

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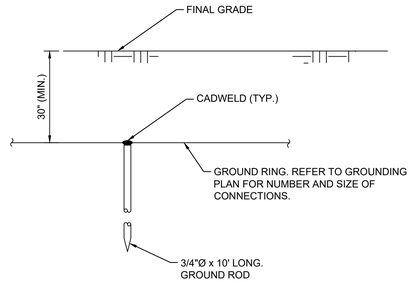

D GROUND ROD DETAIL

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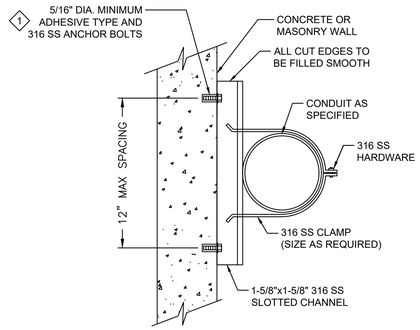

NOTES:

1. CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING THE CORRECT SIZE ANCHOR BOLTS BASED ON LOAD.
2. FOR SINGLE CONDUITS 2" AND LARGER, USE SLOTTED CHANNEL AND ADHESIVE ANCHORS AS SHOWN.
3. FOR SINGLE CONUITS 1-1/2" AND SMALLER, SLOTTED CHANNEL MAY BE OMITTED AND USE OF NON-ADHESIVE ACHORS ARE PERMITTED.

E WALL CONDUIT INSTALLATION

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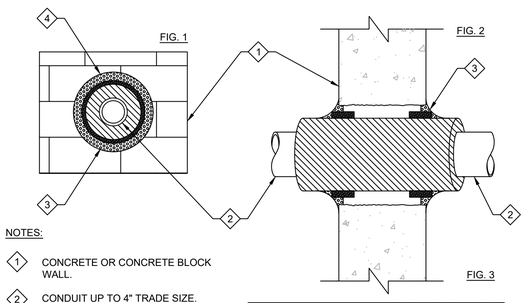

NOTES:

1. CONCRETE OR CONCRETE BLOCK WALL.
2. CONDUIT UP TO 4" TRADE SIZE.
3. SPECSEAL SERIES 100 SEALANT. INSTALL 1/4" BEAD AROUND WRAP STRIP/ CONCRETE WALL ANNULUS AFTER INSTALLATION OF WRAP STRIP(S) SHALL RANGE FROM POINT OF CONTACT TO 1/4" MAXIMUM.
4. SPECSEAL (SSW12 OR SSWRED) WRAP STRIP. WRAP PRODUCT AROUND CONDUIT, SECURE STEEL TIE WIRE, AND RECESS 1-3/4" INTO WALL CAVITY. SEE FIG. 3 FOR THE NUMBER OF LAYERS REQUIRED.

LAYERS OF WRAP STRIP	1	1	1	2	2

NOTE:

THE PRODUCTS USED IN THIS DESIGN SYSTEM HAVE BEEN TESTED AS FOLLOWS:

- ASTM E814 (UL1479)
- ASTM E119 (TIME/ TEMP. EXPOSURE) (COTTON WASTE IGNITION)
- ANNULAR SPACE REQUIREMENTS

F CONDUIT THROUGH BLOCK WALL

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LHC CHLORINE CONVERSION
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ELECTRICAL DETAILS

Registered Professional Engineer (Electrical) CERTIFICATE NO. 68010 Erkan Gungor Date Signed 07/31/2025 ARIZONA, U.S.A.

Sheet Number:

E-05

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ELECTRICAL SYMBOLS

- CONTACT
- LIMIT SWITCH
- LIMIT SWITCH HELD CLOSED
- LIMIT SWITCH HELD OPEN
- PRESSURE OR VACUUM SWITCH
- LIQUID LEVEL SWITCH
- TEMPERATURE ACTUATED SWITCH
- FLOW SWITCH (AIR, WATER, ETC.)
- PUSH BUTTON SINGLE CIRCUIT MOMENTARY CONTACT.
- PUSH BUTTON SINGLE CIRCUIT LOCK-OUT(LOCATED AT MOTOR UNLESS OTHERWISE NOTED)
- TIMED CONTACT- CONTACT ACTION RELAY ON ENERGIZATION.
- TIMED CONTACT- CONTACT ACTION RELAY ON DE-ENERGIZATION.
- ON-OFF SWITCH.
- ESB — EMERGENCY STOP PUSH BUTTON (MAINTAINED CONTACT)
- STOP START — STOP -START PUSH-BUTTON STATION (MAINTAINED CONTACTS).
- H — HAND-OFF-AUTO SELECTOR SWITCH SEE NOTE 3. (THREE POSITION).
- A — TWO POSITION SELECTOR SWITCH SEE NOTE 3.
- R — PILOT LIGHT, Y=YELLOW, R=RED, A=AMBER, SEE NOTE 3. B=BLUE, W=WHITE, G=GREEN.
- BELL
- HORN OR SIREN
- CR — CONTROL RELAY
- M — STARTER COIL.
- TDR — TIME DELAY RELAY. (0-30 SECONDS UNLESS OTHERWISE NOTED).
- OL'S — MOTOR STARTER OVERLOAD RELAY CONTACTS
- CONTROL TRANSFORMER
- MANUAL MOTOR STARTER
- SOLENOID OPERATED CONTROL VALVE
- 1 — 120 VOLT, 1 PHASE, MOTOR (UNLESS OTHERWISE NOTED)
- RTM — RUNNING TIME METER. (ELAPSED TIME METER)
- SPACE HEATERS. (LOCATED AT MOTOR UNLESS OTHERWISE NOTED).
- TERMINALS IN MOTOR CONTROL CENTER/MCP
- CONTACT OR DEVICE REMOTE FROM MOTOR CONTROL CENTER/MCP
- TERMINALS IN MOTOR CONTROL CENTER/MCP
- CONTACT IN MOTOR CONTROL CENTER FOR CONNECTION TO REMOTE DEVICE/MCP
- DEVICE SIGNAL OUTPUT
- DEVICE SIGNAL INPUT
- DISCONNECT SWITCH, 3 POLE UNLESS OTHERWISE INDICATED

INSTRUMENT SYMBOLS

- FLOATING MIXER OR AERATOR
- MIXER
- M — SUBMERSIBLE MIXER
- HORN
- PARSHALL FLUME
- WIER
- AIR COMPRESSOR
- CENTRIFUGAL BLOWER
- CENTRIFUGAL PUMP
- CHEMICAL METERING PUMP
- PROGRESSIVE CAVITY PUMP
- ROTARY LOBE BLOWER OR PUMP
- SUBMERSIBLE PUMP
- VERTICAL TURBINE PUMP
- DOPPLER TYPE ULTRASONIC (PRIMARY FLOW ELEMENT)
- FE — INSERTION TYPE MAGNETIC FLOW METER (PRIMARY FLOW ELEMENT)
- ROTAMETER (PRIMARY FLOW ELEMENT)
- THERMAL DISPERSION ELEMENT (PRIMARY FLOW ELEMENT)
- PITOT TUBE (PRIMARY FLOW ELEMENT)
- LE — RADAR LEVEL SENSOR
- LE — LEVEL PROBE
- MM — MAGNETIC FLOW METER (FLOW TUBE)
- EXHAUST FAN

- PROPELLER FLOWMETER
- AIR RELIEF VALVE
- AIR RELIEF/VACUUM BREAK VALVE
- BLOCK AND BLEED 3-WAY VALVE
- GATE VALVE (NORMALLY OPENED)
- GATE VALVE (NORMALLY CLOSED)
- AIR RELIEF VALVE
- AIR RELIEF/VACUUM BREAK VALVE
- BLOCK AND BLEED 3-WAY VALVE
- BALL VALVE (NORMALLY CLOSED)
- AIR RELIEF/VACUUM BREAK VALVE
- BLOCK AND BLEED 3-WAY VALVE
- PLUG VALVE (NORMALLY CLOSED)
- PLUG VALVE (NORMALLY OPEN)
- BLOCK AND BLEED 3-WAY VALVE
- DIAPHRAM VALVE (NORMALLY OPENED)
- DIAPHRAM VALVE (NORMALLY CLOSED)
- YAGI DIRECTIONAL ANTENNA
- OMNI DIRECTIONAL ANTENNA
- REDUCER
- STATIC MIXER
- M — MOTOR OPERATOR
- S — SOLENOID OPERATOR
- HAND OPERATOR
- FLOAT SWITCH
- M — MOTORIZED VALVE

ELECTRICAL ABBREVIATIONS

AI	ANALOG INPUT
AO	ANALOG OUTPUT
CLL	CHLORINE LIQUID
CLS	CHLORINE SOLUTION
CV	CONTROL VALVE
D	DECANT WATER
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DS	DIGESTED SLUDGE
ES	EMERGENCY STOP
ETM	ELAPSED TIME METER
EX	EXISTING
FC	FAIL CLOSED
FE	FINAL EFFLUENT
FeCL3	FERRIC CHLORIDE
F/S	FAST/SLOW
GEN	GENERATOR
GR	GRIT
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HS	HYDRAULIC SUPPLY
HMI	HUMAN MACHINE INTERFACE
I/O	INPUT/OUTPUT
IAS	INSTRUMENT AIR SUPPLY
L/R	LOCAL/REMOTE
LAN	LOCAL AREA NETWORK
LCP	LOCAL CONTROL PANEL
LOR	LOCAL-OFF-REMOTE
M/A	MANUAL/AUTO
MCC	MOTOR CONTROL CENTER
ML	MIXED LIQUOR
MLR	MIXED LIQUOR RECYCLE
MMI	MAN MACHINE INTERFACE
MH	MANHOLE
NaOCl	SODIUM HYPOCHLORITE
NaOH	SODIUM HYDROXIDE
NS	NITROGEN SUPPLY
NaHSO3	SODIUM BISULFITE
NG	NATURAL GAS
NTU	TURBIDITY
OF	OVER FLOW
OIT	OPERATOR INTERFACE TERMINAL
OL	OVERLOAD
OR	OVERRIDE
OR	OVERTORQUE
O/O	ON/OFF(MAINTAINED)
PCP	PROCESS CONTROL PANEL
PE	PRIMARY EFFLUENT
PFS	PRIMARY FINE SCREENINGS
PI	PROCESS INFLUENT
PLC	PROGRAMMABLE LOGIC CONTROLLER
POT	SPEED POTENTIOMETER
PS	PRIMARY SLUDGE
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RF	RADIO FREQUENCY
RIO	REMOTE INPUT/OUTPUT
RS	RAW SEWAGE
RST	RESET
RVSS	REDUCED VOLTAGE SOFT STARTER
SBR	SEQUENCING BATCH REACTOR
SD	SANITARY DRAIN
SE	SECONDARY EFFLUENT
SLC	SINGLE LOOP CONTROLLER
SP	SET POINT
SPD	SPEED
SPC	SET POINT CONTROL
S/S	START/STOP (MOMENTARY)
STR	START
SW	SEAL WATER
TPS	THICKENED PRIMARY SLUDGE
TWAS	THICKENED WASTE ACTIVATED SLUDGE
UW	UTILITY.PROCESS WATER
VFD	VARIABLE FREQUENCY DRIVE
WAS	WASTE ACTIVATED SLUDGE
1/2/B	PUMP1/PUMP2/BOTH

	FIRST LETTER	SUCCEEDING LETER(S)	
	MEASURED VARIABLE	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	ALARM	
B	BURNER, COMBUSTION		
C	CONDUCTIVITY	CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL, DETECTION	
E	VOLTAGE	PRIMARY ELEMENT	
F	FLOW RATE	FAILURE	FAST
G	GAUGE	GLASS, VIEWING DEVICE	
H	HAND (MANUAL)		HIGH
I	CURRENT (ELECTRICAL)	INDICATE	
J	POWER		
K	TIME, RATE OF CHANGE		
L	LEVEL, LEAK	LIGHT	LOW
M	MOTION		MIDDLE
N	INTRUSION		NORMAL
O	TORQUE		OPEN
P	PRESSURE, VACUUM		
Q	QUANTITY	INTEGRATE, TOTALIZE	
R	RADIATION	RECORD OR PRINT	
S	SPEED, FREQUENCY	SWITCH	SLOW
T	TEMPERATURE	TRANSMIT	
U	MULTIVARIABLE	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION	VALVE, LOUVER	
W	WEIGHT, FORCE	WELL	
X	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	RELAY, COMPUTE, CONVERT	
Z	POSITION	DRIVER, ACTUATOR	

INSTRUMENT SYMBOLS

- DEVICE FUNCTION (SEE ABBREVIATIONS)
- HS 105 HOA — DEVICE IDENTIFICATION (SEE IDENTIFICATION TABLE)
- DEVICE TAG NUMBER (LOOP NUMBER REFERENCE)
- XX XX pH — ADDITIONAL INSTRUMENT IDENTIFICATION SEE FUNCTION DESIGNATIONS AND ABBREVIATIONS.
- XX XX* — FIELD MOUNTED DEVICE - ASTERISK INDICATES DEVICE FURNISHED BY EQUIPMENT VENDOR
- XX XX — FRONT PANEL MOUNTED DEVICE
- XX XX — BACK PANEL MOUNTED DEVICE
- XX XX — INDICATOR LIGHT
- XX XX # — GRAPHIC DISPLAY FUNCTION ON MAN-MACHINE INTERFACE - NUMBER DENOTES ALARM LEVEL
- VARIABLE FREQUENCY DRIVE (VFD) OR RVSS (REDUCED VOLTAGE SOFT STARTER)
- HUMAN MACHINE INTERFACE (HMI)
- I — GENERALIZED, UNDEFINED COMPLEX INTERLOCK LOGIC
- OIT — OPERATOR INTERFACE TERMINAL
- DIGITAL I/O, ANALOG I/O — PLC INPUT/OUTPUT
- DATA I/O — SOFTWARE LINK
- DESKTOP MONITOR
- ## — CONTINUATION ARROW # REFERENCES SHEET OF CONTINUANCE

INSTRUMENT LINES

- ELECTRICAL DIRECTION ARROW
- ELECTRICAL SIGNAL
- SOFTWARE LINK
- WATER LINE
- 1 / 1 — SIGNAL / PROCESS CONTINUATION

GENERAL ELECTRICAL REQUIREMENTS

1. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE ORDINANCES AND REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE, FINISHED AND SAFE MANNER, ACCORDING TO THE LATEST PUBLISHED N.E.C.A. STANDARDS OF INSTALLATION, UNDER COMPETENT SUPERVISION. INSTALL GROUNDING AS REQUIRED BY THE CODE(S).
2. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND ALL OTHER FACTORS WHICH MAY AFFECT THE EXECUTION OF THIS WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.
3. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH NEMA, ANSI, U.L. OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURER'S NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS AND BID PRICE. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING AND REVIEWED BY THE ENGINEER BEFORE ORDERING.
4. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS OR ANY OTHER CAUSES. EQUIPMENT FOUND DAMAGED OR IN OTHER THAN NEW CONDITION WILL BE REJECTED AS DEFECTIVE.
5. LEAVE THE SITE CLEAN, REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK.
6. CIRCUIT CONDUCTORS #2 AWG OR SMALLER TO BE COPPER TYPE "XHHW" FOR BELOW GRADE INSTALLATION OR COPPER TYPE THHN/THWN FOR ABOVE GRADE INSTALLATIONS. #1 AWG OR LARGER SHALL BE COPPER TYPE "XHHW-2" STRANDED COPPER. MINIMUM CONDUCTOR SIZE TO BE #12 AWG WITH #12 GND.
7. UNDERGROUND CONDUITS TO BE SCHEDULE 40 PVC. MINIMUM DEPTH 30", MINIMUM SIZE 1", UNLESS OTHERWISE SHOWN ON THE PLANS. CONDUITS AS SHOWN ARE FOR INFORMATION ONLY. EXACT CONDUIT ROUTING SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR.
8. OUTDOOR CONDUITS EXPOSED TO BE GALVANIZED RIGID STEEL, MINIMUM SIZE 3/4", UNLESS OTHERWISE NOTED ON THE PLANS. GRS CONDUIT SHALL EXTEND BELOW GRADE TO THE FIRST ELBOW. ALL GRS CONDUIT EXPOSED TO EARTH SHALL BE HALF LAPPED WRAPPED IN SCOTCHRAP 50 10 MIL TAPE OR EQUAL. EXTEND WRAP TO A HEIGHT OF 12" ABOVE GRADE. INDOOR CONDUITS SHALL BE IMC OR EMT UNLESS OTHERWISE SHOWN ON PLAN.
9. ALL SAFETY SWITCHES AND OTHER DISTRIBUTION AND CONTROL ELECTRICAL EQUIPMENT SHALL BE U.L. LISTED AND RATED FOR HEAVY DUTY SERVICE.
10. ALL ELECTRICAL EQUIPMENT, CONDUIT, WIRING, BOXES, ETC. SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING. THE SUBMITTALS SHALL BE NEATLY GROUPED AND ORGANIZED. PERTINENT INFORMATION SHALL BE HIGHLIGHTED, AND THE SPECIFIC PRODUCT SHALL BE IDENTIFIED. ALL SUBMITTALS SHALL BE COMPLETE, AND PRESENTED IN ONE PACKAGE. THE SUBMITTAL SHALL INCLUDE A COMPLETE LIST OF THE EQUIPMENT AND MATERIALS, INCLUDING THE MANUFACTURER'S NAME, PRODUCT SPECIFICATION, DESCRIPTIVE DATA, TECHNICAL LITERATURE, PERFORMANCE CHARTS, CATALOG CUTS, INSTALLATION INSTRUCTIONS, AND SPARE PART RECOMMENDATIONS FOR EACH DIFFERENT ITEM OF THE EQUIPMENT SPECIFIED.
11. IT IS THE OBLIGATION OF THE CONTRACTOR TO ORGANIZE HIS WORK, SO THAT A COMPLETE ELECTRICAL, INSTRUMENTATION, AND CONTROL SYSTEM FOR THE FACILITY WILL BE PROVIDED, AND WILL BE SUPPORTED BY ACCURATE SHOP AND RECORD DRAWINGS, AND O & M MANUALS.

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LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

DATE:	MARCH 2025
DESIGNED BY:	YSH
DRAWN BY:	YSH
REVIEWED BY:	EG
KH PROJECT NO:	191245024

PID COVER/SYMBOLS

Registered Professional Engineer (Electrical) CERTIFICATE NO. 68010 Erkan Gungor Date Signed 07/18/2025 ARIZONA U.S.A.

Kimley»Horn

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1661 E CAMELBACK RD #400, PHOENIX, AZ 85016
PHONE: 602-944-5500
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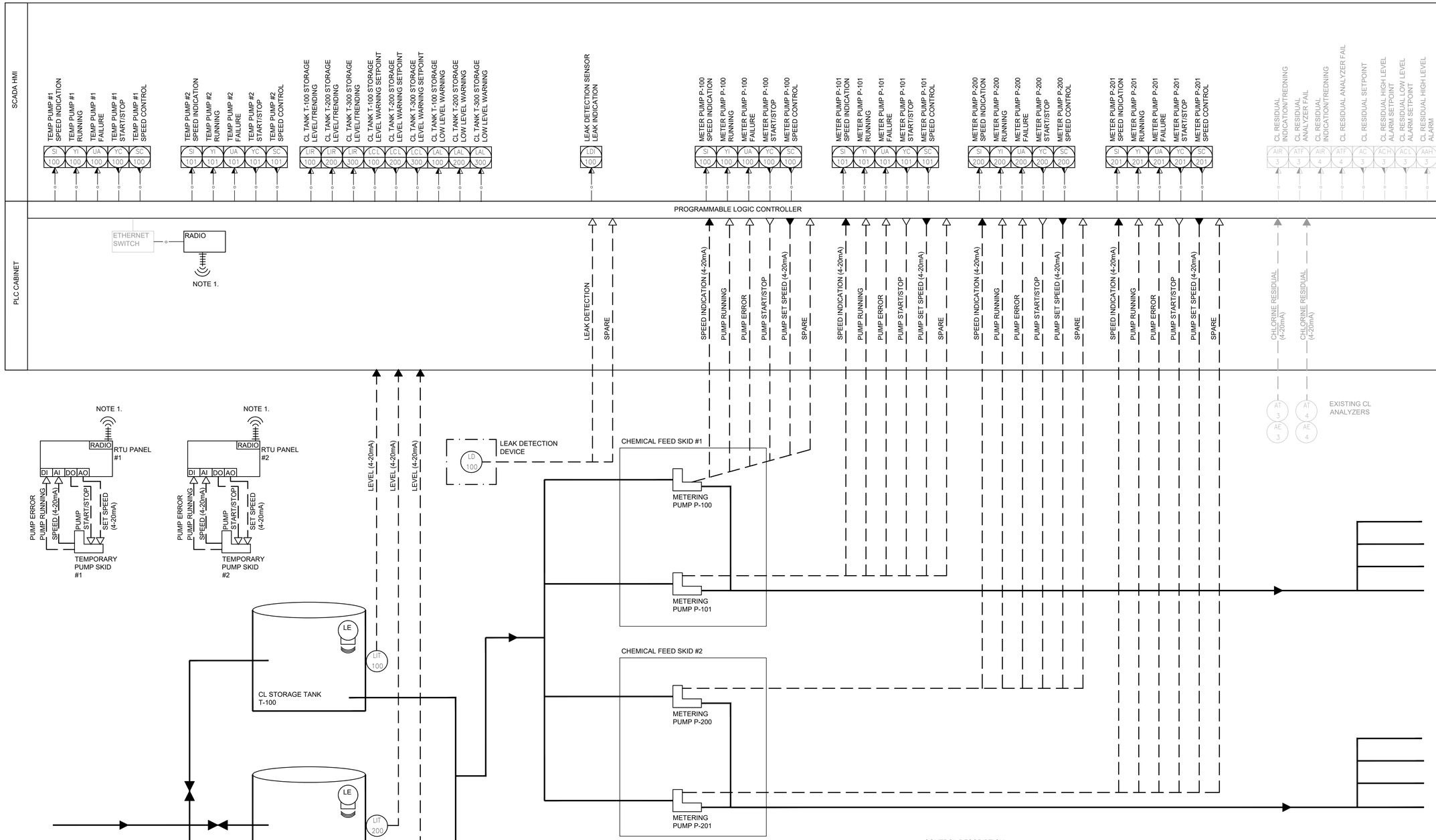
Sheet Number: I-01

Sheet 43 of 52

\\kimley-horn.com\SW_PHX\PHX_Utility\Projects\191245024-LHC Chlorine Conversion\DWG\Sheets\03-Plan & Profile\Electrical_191245024.dwg 9/15/2025 1:29 PM GUNGOR, ERKAN



CONTROL DESCRIPTION:

EXISTING BASIN CHLORINE SENSORS AND TRANSMITTERS ARE UTILIZED TO DETERMINE EXISTING CL CONCENTRATION LEVELS. EXISTING SCADA VARIABLES FOR CL INJECTION, TRENDING AND ALARMING ARE ASSUMED. CONCENTRATION TO BE COMPARED BETWEEN BOTH EXISTING BASIN CL SENSORS AND AVERAGED OR GIVE PRECEDENCE TO MOST EFFLUENT SENSOR.

CHEMICAL FEED SKID #1 TO INJECT INTO EXISTING CL CONTACT BASIN. DOSING SPEED IS DICTATED BY USER SPECIFIED CL CONCENTRATION. PROVIDE USER ALARM IF PUMP SKID GENERATES AN INTERNAL FAULT. USER TO CLEAR FAULT AT PLC.

CHEMICAL FEED SKID #2 TO INJECT INTO EXISTING CLEARWELL. DOSING SPEED IS DICTATED BY USER SPECIFIED CL CONCENTRATION. PROVIDE USER ALARM IF PUMP SKID GENERATES AN INTERNAL FAULT. USER TO CLEAR FAULT AT PLC.

PUMPS WITHIN EACH SKID TO BE ALTERNATED ON EACH CYCLE. PROGRAM PLC TO PROVIDE PUMP RUN TIMES AND ALTERNATE EACH PUMP WITH EACH DOSING CYCLE.

EACH CL TANK RADAR TRANSMITTER TO PROVIDE LEVEL TRENDING. PLC TO GENERATE USER ALARM UPON LOW LEVEL. PROVIDE USER ALARM FOR LOW/LOW LEVEL IN ADDITION TO LOW LEVEL ALARM. LOW/LOW LEVEL ALARM TO INTERLOCK PUMP SKID #1 AND #2 OFF UNTIL LOW/LOW LEVEL ALARM CLEARED IN SCADA.

PID NOTES:

NOTE 1:

CONTRACTOR TO PROVIDE AND INSTALL GE MDS ORBIT MCR-900 RADIO AND SUPPORTING CABLE/SWITCH AS REQUIRED TO RECEIVE/TRANSMIT SIGNALS SHOWN TO TEMPORARY PUMP SKIDS. ANTENNA TO BE INSTALLED AT BOTH TEMPORARY PUMP SKID RTU LOCATIONS AS WELL AS ON ROOF OF EXISTING PLC BUILDING. PROVIDE LINE OF SIGHT SURVEY AND MATERIAL SUBMITTAL TO ENGINEER FOR APPROVAL.

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LHC CHLORINE CONVERSION
100% DRAWINGS
CITY PROJECT NO.
PW-B25-108025-500XXY

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KH PROJECT NO:	191245024

PID DIAGRAM

Registered Professional Engineer (Electrical)
CERTIFICATE NO.
68010
Erkan Gungor
Date Signed 07/18/2025
ARIZONA USA

Sheet Number:

I-02

Sheet 44 of 52

\\kimley-horn.com\SW_PHX\PHX_Utility\Projects\191245024-LHC Chlorine Conversion\DWG\Sheets\03-Plan & Profile\Electrical_I_191245024.dwg 9/15/2025 1:29 PM GUNGOR, ERKAN

MATERIALS

NEW WALL
EARTH
BASE COURSE
CONCRETE
CONCRETE MASONRY UNIT
BRICK
WOOD STUDS
ROUGH FRAMING
BLOCKING
FINISH LUMBER
PLYWOOD
STRUCTURAL STEEL
BATT INSULATION
RIGID INSULATION
CEMENT PLASTER

SYMBOLS LEGEND

BUILDING SECTION

WALL SECTION

EXTERIOR ELEVATION

INTERIOR ELEVATION

DETAIL REFERENCE

Detail or Section Title
SCALE 0 1 3

Floor Plan
SCALE 0 1 3

SECTION OR DETAIL IDENTIFICATION NUMBER OR LETTER.

NUMBER OF SHEET ON WHICH SECTION OR DETAIL IS DRAWN.

SHEET ON WHICH CONDITION IS REFERENCED.

LHC CHLORINE CONVERSION

LONDON BRIDGE & COPPER DR
LAKE HAVASU CITY AZ, 86403

Project 21.18.06

July 2025

Breckenridge group architects planners

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CONSTRUCTION DOCUMENTS

DATE:
DESIGNED BY: Designer
DRAWN BY: Author
REVIEWED BY: Checker
KH PROJECT NO:

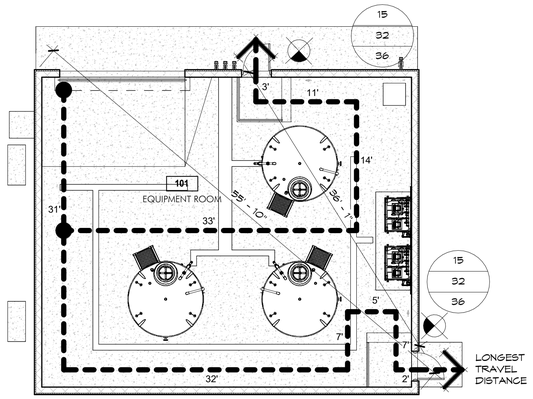
Cover & Project Information

REGISTERED ARCHITECT
CERTIFICATE NO.
17605
KLINDT D.
BRECKENRIDGE
09 / 15 / 20
ARIZONA U.S.A.
REGISTRATION EXPIRATION DATE: 3/31/2026

Sheet Number:
A-01
Sheet 41 of 48

CODE SUMMARY TABLE

CODE SECTION	DESCRIPTION	CODE REQUIREMENT	BUILDING REQUIREMENT	PROVIDED	COMPLIANT
307.6	GROUP H-4 HIGH-HAZARD GROUP	-	H-4	-	YES
504.3	HEIGHT IN FEET	THE MAX HEIGHT, IN FEET, OF A BUILDING SHOULD NOT EXCEED THE LIMITS SPECIFIED IN TABLE 504.3	TYPE III-B HEIGHT 75 FEET	TYPE III-B 22 FEET	YES
506.2 TABLE 506.2	ALLOWABLE AREA FACTOR IN SQUARE FEET	THE ALLOWABLE AREA SHALL BE DETERMINED IN ACCORDANCE WITH SECTIONS 506.2	SPRINKLED / TYPE III-B 70,000 SF ALLOWABLE	SPRINKLED / TYPE III - B 1,538 SF PROVIDED	YES
508.4 TABLE 508.4	REQUIRED SEPARATION OF OCCUPANCES (HOURS)	H-4 SPRINKLERED: NO SEPARATION REQ. H-4 NON SPRINKLERED: NO SEPARATION REQ.	NO SEPARATION REQ.	-	YES
602.3	CONSTRUCTION CLASSIFICATION TYPE III- B	EXTERIOR WALLS ARE OF NON COMBUSTIBLE MATERIALS AND THE INTERIOR BUILDING ELEMENTS PROVIDED BY THIS CODE	-	MASONRY	YES
706 TABLE 706.4 TABLE 707.3	FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE	FIRE SEPARATION DISTANCE = X (FEET) GROUP H-4: 5≤X <10	OCCUPANCY GROUP - FIRE RESITANCE HRS	H-4 OCCUPANCY GROUP - 2 HRS	YES
1004 TABLE 1004.5	MAXIMUM FLOOR AREA ALLOWANCE PER OCCUPANT	FUNCTION: OCCUPANT LOAD FACTOR	15395F / 100 GROSS = 15.39	15 OCCUPANTS	YES
1005.3.2	EGRESS COMPONENTS CAPACITY AND WIDTH	32" CLEAR OR (0.2 X OCCUPNAT LOAD); WHICHEVER IS LARGER	H-4 OCC. = 16 OCCUPANTS 15 OCC. X 0.2 = 3" 1 EXIT = 32" MIN.	H-4 OCCUPANCY 2 EXITS AT 36" EACH	YES
1005.5 REF. 1005.3.2	DISTRIBUTION OF MINIMUM WIDTH AND REQUIRED CAPACITY	LOSS OF ANY EXIT SHALL NOT REDUCE THE AVAILABLE CAPACITY TO LESS THAN 50 PERCENT OF THE REQUIRED WIDTH	TOTAL REQUIRED WIDTH H-4 = 15 OCC. X 0.15 =2.25"	TOTAL EXITING WIDTH = 72"	YES
1006.3.2 TABLE 1006.3.2	MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY	1 - 500 OCCUPANTS = 2 EXITS	2 EXITS REQUIRED	2 EXITS PROVIDED	YES
1007.1.1	TWO EXITS OR EXIT ACCESS DOORWAYS	WHERE TWO EXITS ARE REQUIRED THEY SHALL BE PLACED A DISTANCE APART EQUAL TO NOT LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE AREA SERVED. (EXCEPTION 2)	H-4 OCCUPANCY DIAGONAL DIM. =55'-10" MIN. SEPARATION DISTANCE = 18'-8"	36'-1" DISTANCE	YES
1009.1	ACCESSIBLE MEANS OF EGRESS REQUIRED	ACCESSIBLE SPACES SHALL BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS.	MEANS OF EGRESS SHALL BE CONTINUOUS TO A PUBLIC WAY	ALL SPACES HAVE ACCESSIBLE ROUTES.	YES
1010.1.1	SIZE OF DOORS	SHALL PROVIDE A MINIMUM CLEAR OPENING WIDTH OF 32 INCHES	ALL MEAN OF EGRESS DOORS = 32" MIN.	DOOR 101B = 36" DOOR 101C = 36"	YES
1017.2	EXIT ACCESS TRAVEL DISTANCE	MAX. TRAVEL DISTANCE	H-4 OCC. -175 FEET MAX.	LONGEST TRAVEL DISTANCE H-4 OCC. = 84 FEET	YES



Exiting Legend

- OCCUPANT LOAD
- CALCULATED EXIT WIDTH (INCHES)
- ACTUAL EXIT WIDTH (INCHES)

FEC — FIRE EXTHINGUISHER CABINET WITHIN 75 FT OF TRAVEL DISTANCE FROM ANY POINT IN THE BUILDING

EXIT SIGN

EGRESS PATH

PROJECT CODE DATA

GOVERNING MUNICIPALITY

LAKE HAVASU CITY

APPLICABLE CODES

2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2018 INTERNATIONAL FIRE CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL PLUMBING CODE
2017 NATIONAL ELECTRICAL CODE
2009 ANSI A 117.1 ACCESSIBLE AND USABLE FACILITIES

ARCHITECTURAL INDEX

A-01 COVER & PROJECT INFORMATION
A-02 FLOOR PLAN
A-03 DIMENSIONED FLOOR PLAN
A-04 REFLECTED CEILING PLAN
A-05 ROOF PLAN
A-06 BUILDING SECTIONS
A-07 WALL SECTONS
A-08 SCHEDULES & DETAILS

DEFERRED SUBMITTALS

FIRE ALARM SYSTEM
STEEL JOIST AND JOIST GIRDER FRAMING
PRECAST CONCRETE VAULTS AND SUMP PITS
PREMANUFACTURED TANKS

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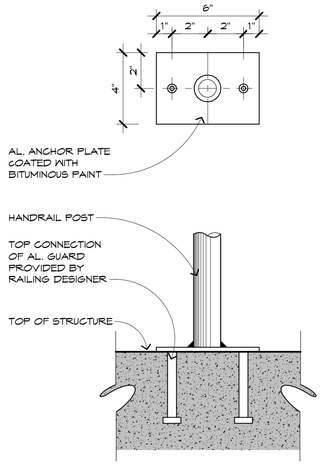
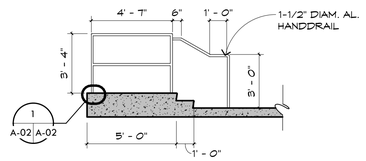


1 A-02 | A-02

Anchor Plate

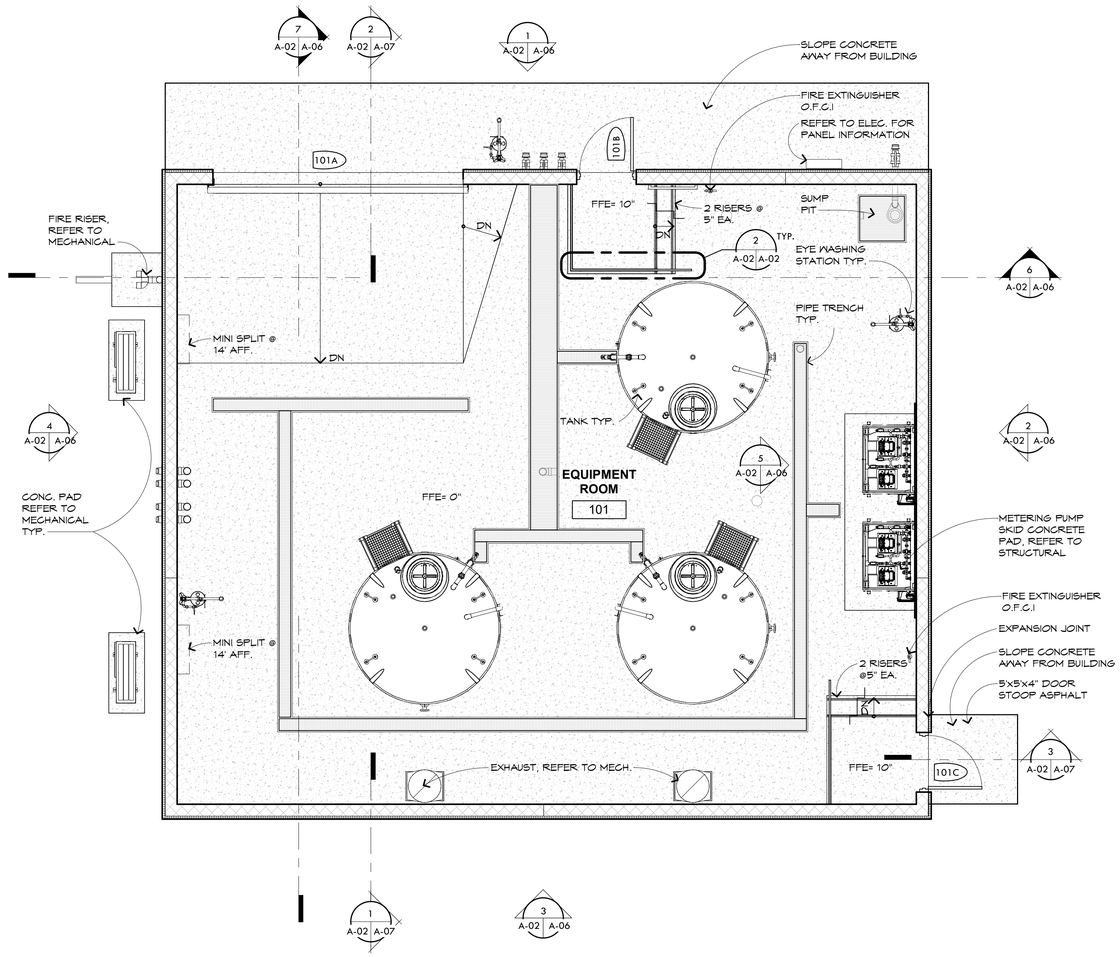
3" = 1'-0" 0 4" 1'



2 A-02 | A-02

Stair Railing

1/4" = 1'-0" 0 4' 12'



Floor Plan

SCALE : 1/4" = 1'-0" 0 4' 12'

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DRAWN BY: Author
REVIEWED BY: Checker
KH PROJECT NO:

Floor Plan

Breckenridge group architects planners

REGISTERED ARCHITECT
CERTIFICATE NO.
17605
KUNDTD
BRECKENRIDGE
DECEMBER 09, 15
ARIZONA U.S.A.
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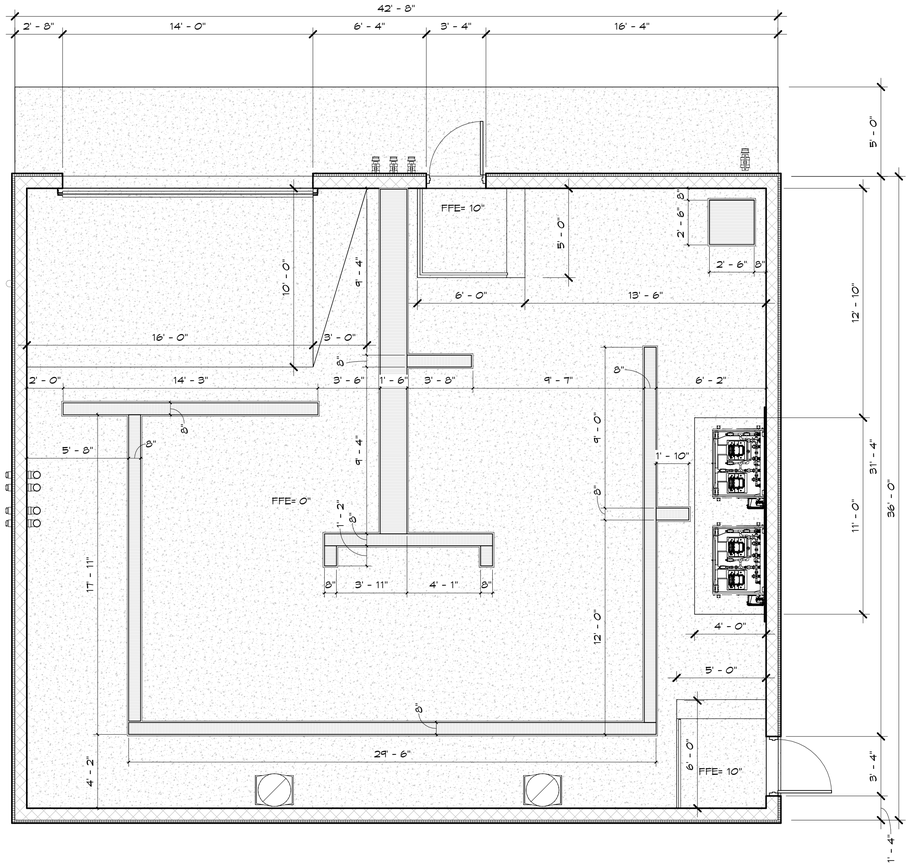

Dimensioned Floor Plan

SCALE : 1/4" = 1'-0" 0 4' 12'

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Dimensioned Floor Plan

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17605
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BRECKENRIDGE
expiration date 09 | 15 | 26
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A-03

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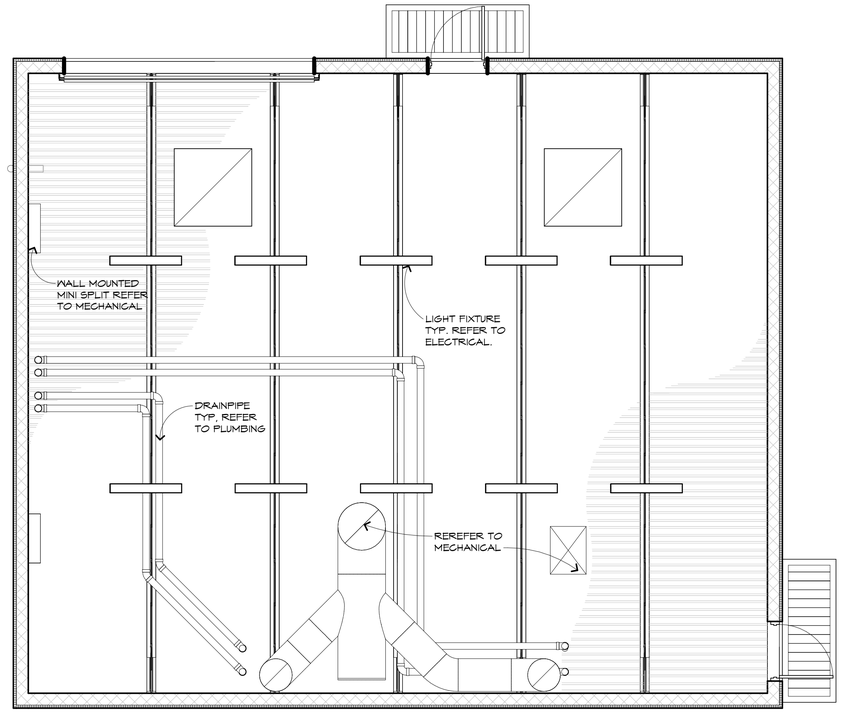

Reflected Ceiling Plan

SCALE : 1/4" = 1'-0" 0 4' 12'

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Reflected Ceiling Plan

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CERTIFICATE NO.
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KUNDT D.
BRECKENRIDGE
DATE OF REGISTRATION 09 | 15 | 2011
ARIZONA U.S.A.

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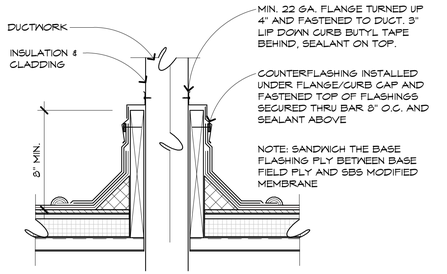
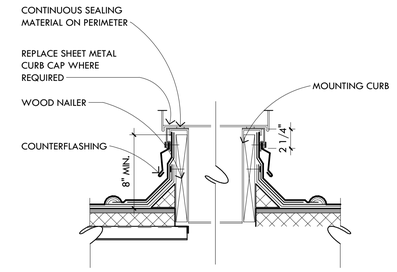


3 A-05 | A-05 **Ductwork Penetration**

1 1/2" = 1'-0" 0 6" 2'



2 A-05 | A-05 **Equipment Curb**

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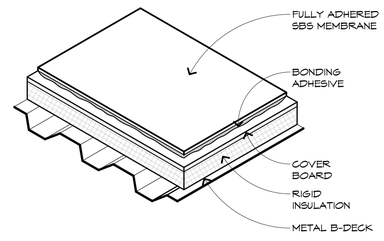

1 A-05 **Typical Section**

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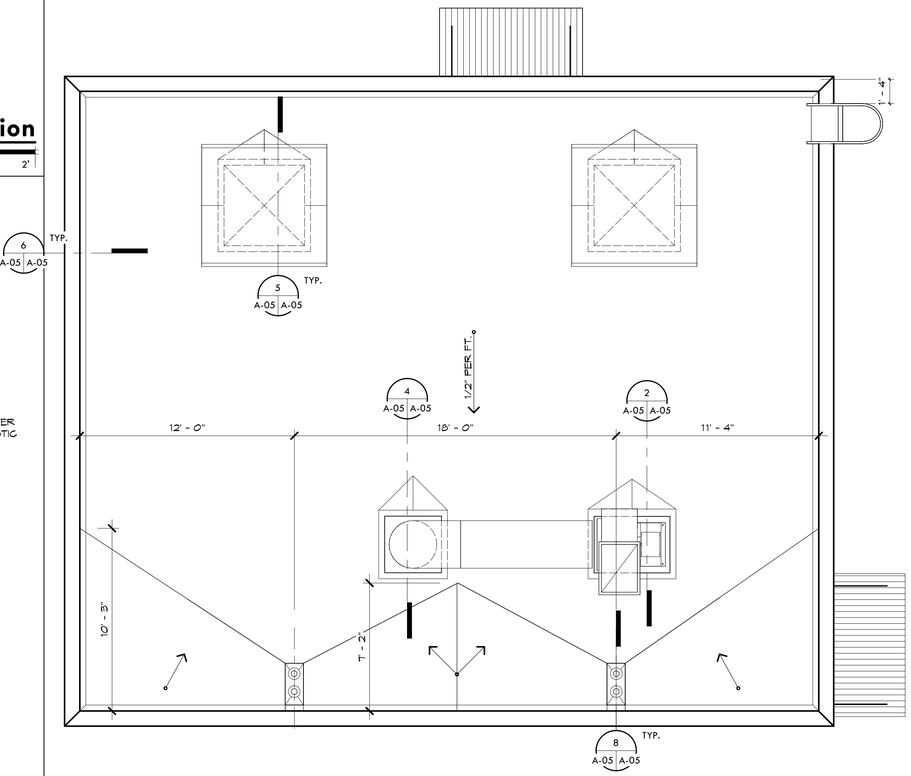
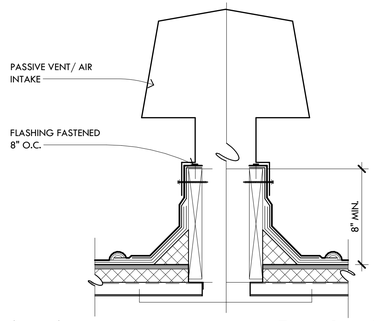


Roof Plan

SCALE : 1/4" = 1'-0" 0 4' 12'



5 A-05 | A-05 **Passive Vent**

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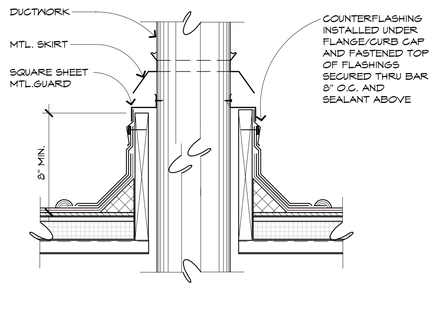

4 A-05 | A-05 **Ductwork Penetration 2**

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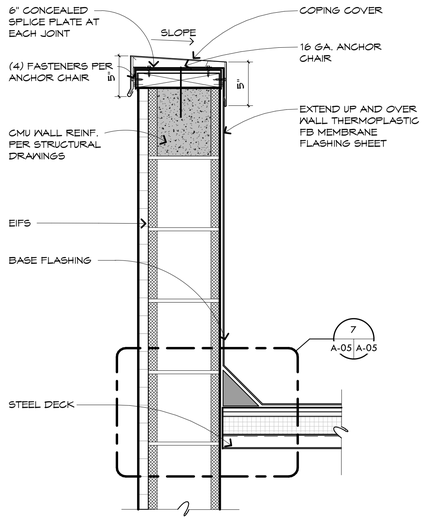
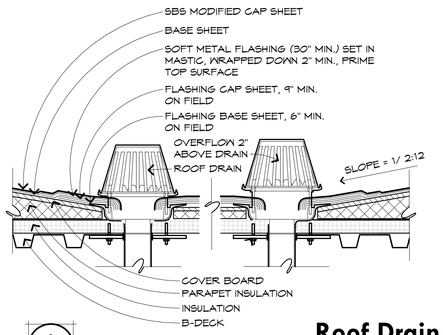


6 A-05 | A-05 **Coping Cap / Parapet Flashing**

1 1/2" = 1'-0" 0 6" 2'



8 A-05 | A-05 **Roof Drain**

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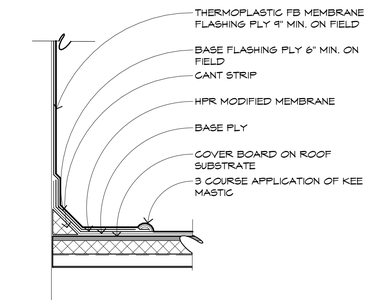

7 A-05 | A-05 **Cant Detail**

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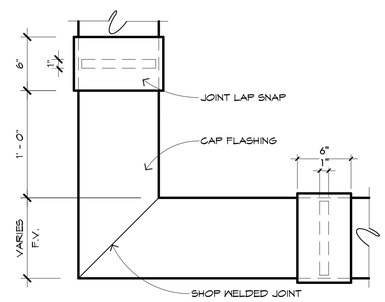

11 A-05 **Coping Cap Corner**

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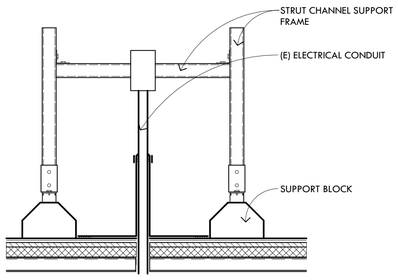

10 A-05 **Electrical Support**

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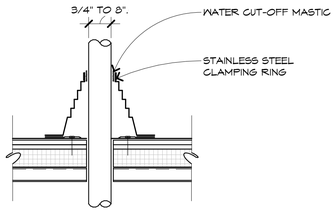

9 A-05 **Conduit Penetration**

1 1/2" = 1'-0" 0 6" 2'

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Roof Plan

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Sheet Number:
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ALL DIMENSIONS ARE NOMINAL

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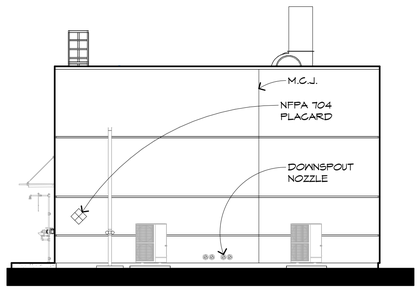
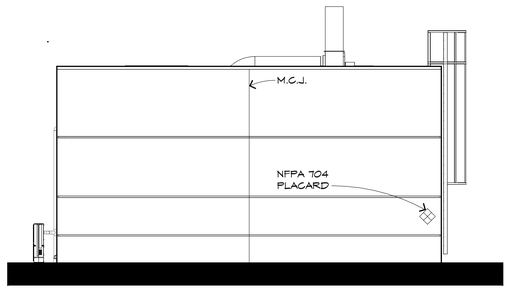


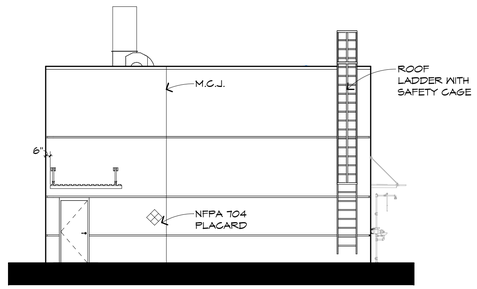
4 A-02 A-06 **West**

1/8" = 1'-0" 0 8' 24'



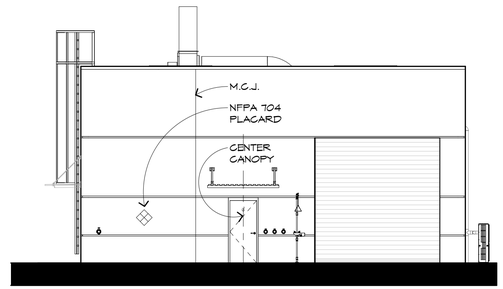
3 A-02 A-06 **South**

1/8" = 1'-0" 0 8' 24'



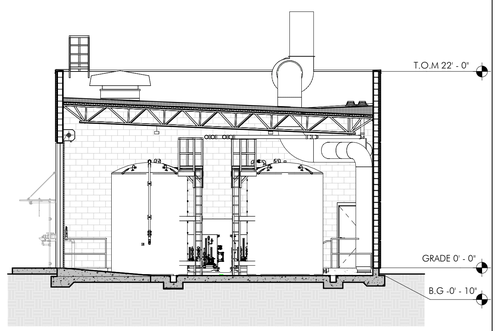
2 A-02 A-06 **East**

1/8" = 1'-0" 0 8' 24'



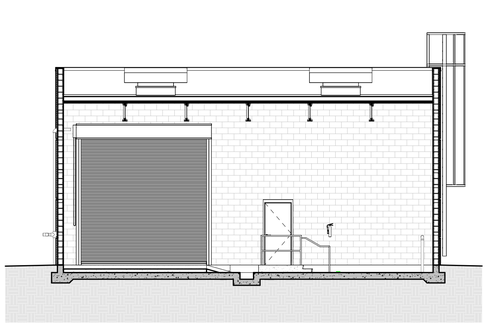
1 A-02 A-06 **North**

1/8" = 1'-0" 0 8' 24'



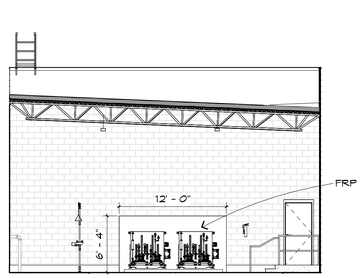
7 A-02 A-06 **Section A**

1/8" = 1'-0" 0 8' 24'



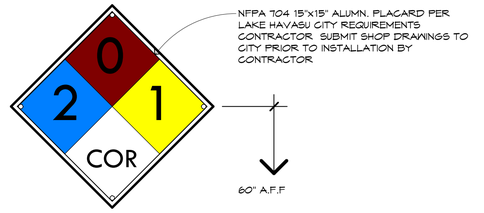
6 A-02 A-06 **Section B**

1/8" = 1'-0" 0 8' 24'



5 A-02 A-06 **Interior Elevation**

1/8" = 1'-0" 0 4' 12'



8 A-06 **NFPA Placard**

1 1/2" = 1'-0" 0 6" 2'

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
CONSTRUCTION DOCUMENTS

DATE:
DESIGNED BY: Designer
DRAWN BY: Author
REVIEWED BY: Checker
KH PROJECT NO:

Building Sections & Elevations

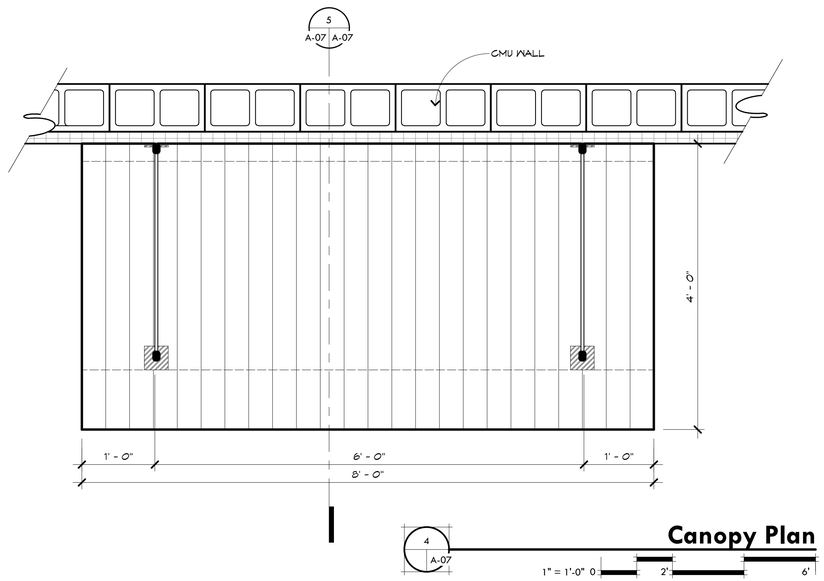
REGISTERED ARCHITECT
CERTIFICATE NO.
17605
KLINDT D.
BRECKENRIDGE
Date Signed 09 / 15 / 25
ARIZONA U.S.A.
REGISTRATION EXPIRATION DATE: 3/31/2026

Sheet Number:

A-06

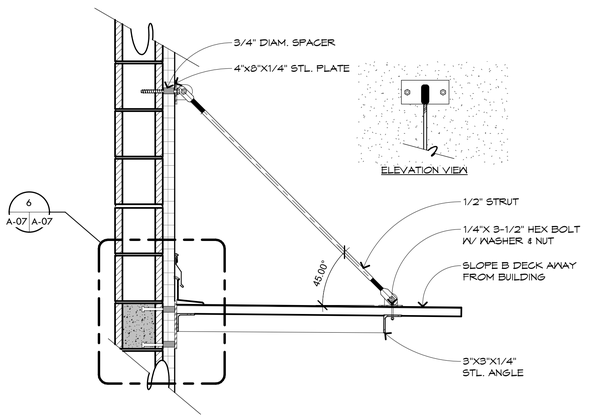
Sheet 46 of 48

Autodesk Docs://Lake Havasu City Chlorine /Lake Havasu City_detached-04.29.25.rvt



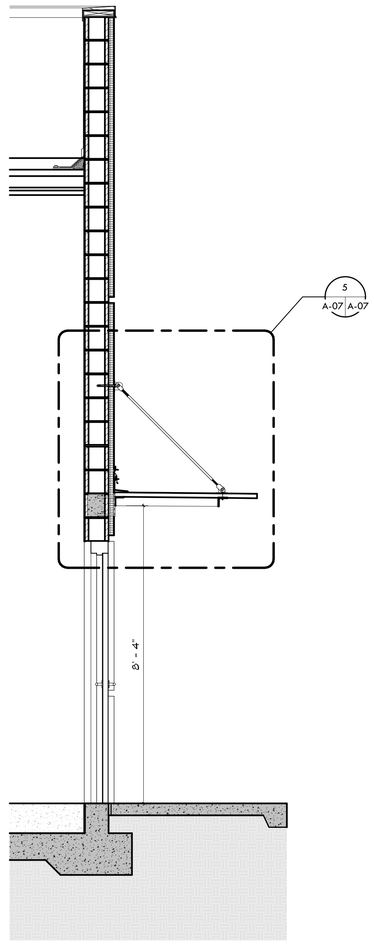
Canopy Plan

4 A-07 — 1" = 1'-0" — 0, 2', 6'



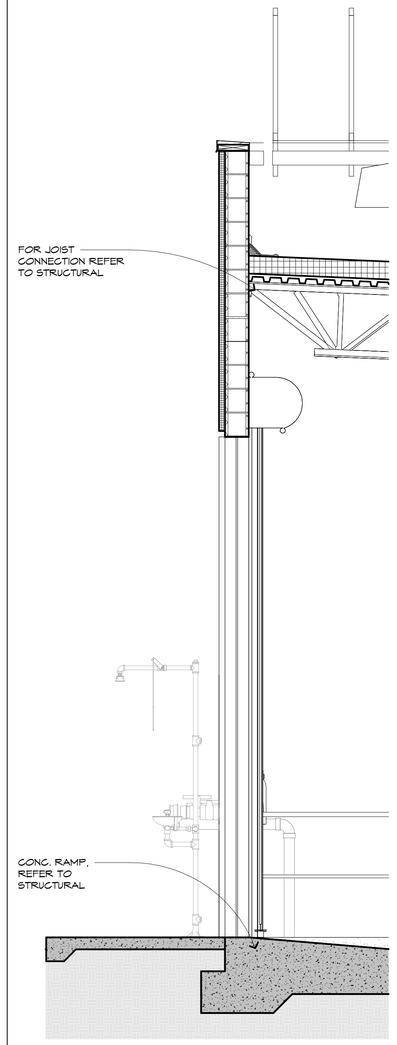
Canopy Section

5 A-07 A-07 — 1" = 1'-0" — 0, 1', 3'



Section 3

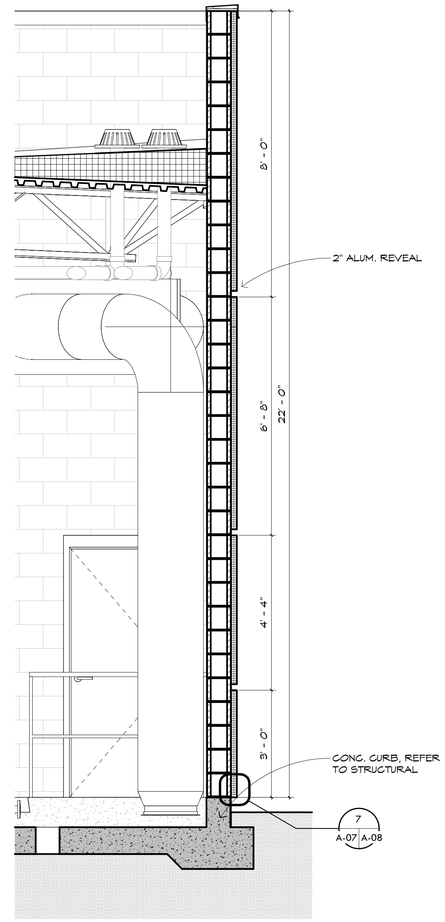
3 A-02 A-07 — 1/2" = 1'-0" — 0, 2', 6'



Section 2

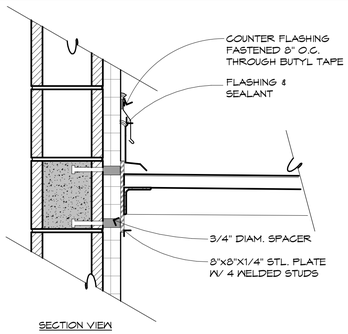
2 A-02 A-07 — 1/2" = 1'-0" — 0, 2', 6'

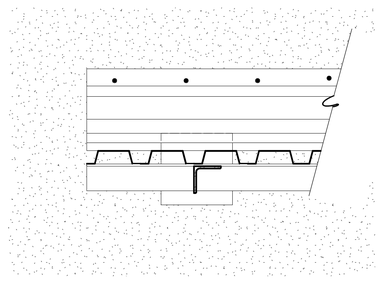
ALL TYPICAL NOTES ARE REFERENCE ON THIS WALL SECTION ONLY AND ARE NOT NOTED ON OTHER WALL SECTIONS



Section 1

1 A-02 A-07 — 1/2" = 1'-0" — 0, 2', 6'





Canopy Anchoring

6 A-07 A-07 — 1 1/2" = 1'-0" — 0, 6", 2'

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NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
CONSTRUCTION DOCUMENTS

DATE: APRIL 2025
DESIGNED BY:
DRAWN BY: JCG
REVIEWED BY: KDB
KH PROJECT NO:

Wall Sections

REGISTERED ARCHITECT
CERTIFICATE NO.
17605
KLINDT D.
BRECKENRIDGE
09 / 15 / 25
ARIZONA U.S.A.

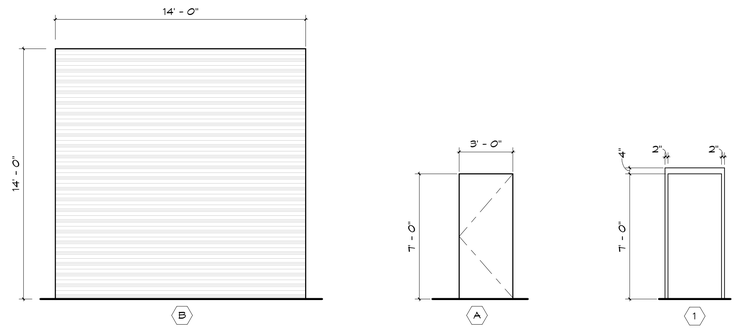
REGISTRATION EXPIRATION DATE: 2/31/2026

Sheet Number:

A-07

Sheet 47 of 48

Autodesk Docs://Lake Havasu City Chlorine /Lake Havasu City_detached-04.29.25.rvt



Door & Frame Types

1 / A-08

1/4" = 1'-0" 0 4' 12'

Opening Schedule

No.	Door Type	Door Material	Frame Type	Frame Material	Details in Sheet A.8.2/A8.3 Head	Jamb	Sill	Hardware	Rating - Fire	Remarks
101A	B	AL	-	-	3/A801	5/A8.1	-	-	-	BY OPENING MANUFACTURER
101B	A	AL	1	AL	2/A8.1	4/A8.1	-	-	-	-
101C	A	AL	1	AL	2/A8.1	4/A8.1	-	-	-	-

Opening Legend

AL ALUMINUM

Opening Notes

Room Finish Schedule

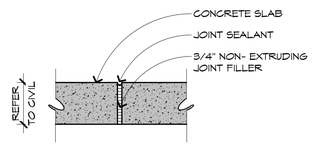
Number	Name	Floor	Base	Walls North	East	South	West	Ceiling Ht.	Matl.	Fin.	Notes
101	EQUIPMENT ROOM	EC	EC	CMU	CMU	CMU	CMU		-		1

Room Finish Legend

EC EXPOSED CONCRETE
CMU EXPOSED CMU
FRP FIBER REINFORCED PLASTIC
P1 PAINT - FIELD COLOR
P2 PAINT - DOOR FRAMES

Room Finish Notes

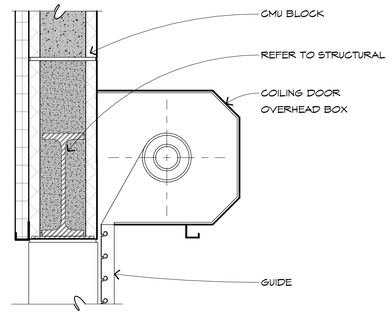
1. FRP ON EAST WALL, REFER TO 5/ A-06



Expansion Joint

4 / A-08

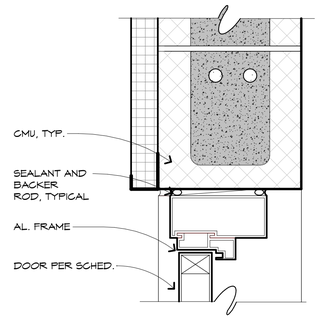
1" = 1'-0" 0 6" 2'



Overhead Door

3 / A-08

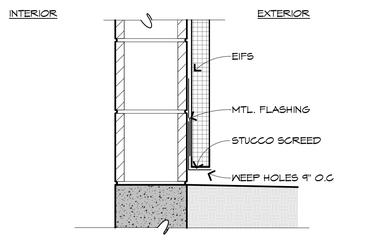
1 1/2" = 1'-0" 0 6" 2'



AL. Door Head

2 / A-08

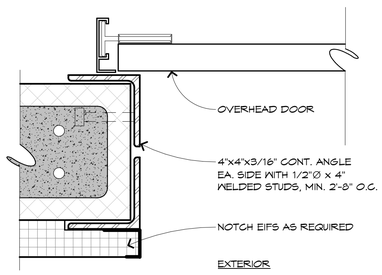
3" = 1'-0" 0 6" 2'



Weep Screed

7 / A-07 | A-08

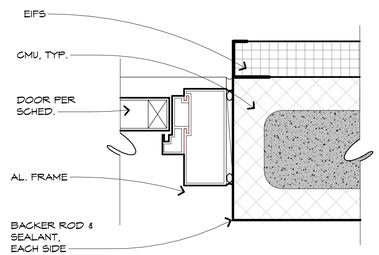
1 1/2" = 1'-0" 0 6" 2'



Overhead Door Jamb

6 / A-08

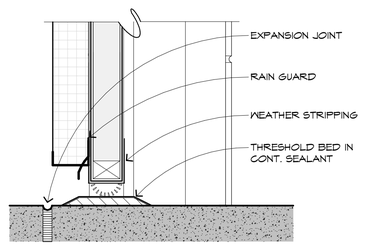
3" = 1'-0" 0 4" 1'



AL. Door Jamb

5 / A-08

3" = 1'-0" 0 6" 2'



Typ. Door Threshold

8 / A-08

3" = 1'-0" 0 4" 1'

Autodesk Docs://Lake Havasu City Chlorine /Lake Havasu City_detached-04.23.25.rvt

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

NO	REVISIONS	DATE	BY

LHC CHLORINE CONVERSION
CONSTRUCTION DOCUMENTS

DATE:
DESIGNED BY: Designer
DRAWN BY: Author
REVIEWED BY: Checker
KH PROJECT NO:

Schedules & Details

Breckenridge group architects planners

Kimley»Horn

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REGISTERED ARCHITECT
CERTIFICATE NO.
17605
KLINDT D. BRECKENRIDGE
09 | 10 | 25
ARIZONA U.S.A.

REGISTRATION EXPIRATION DATE: 3/31/2026

Sheet Number:

A-08

Sheet 48 of 48