Project Plans

A

APPENDIX

VERTIS PROCESS WATER TREATMENT

100 DON BATES WAY, KING CITY, CALIFORNIA 93930

PROJECT CONTACTS

NAME: JOHN SKARDON
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TITLE: CONTRACTOR
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NAME: EDWIN LOFINK
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TITLE: SENIOR MECHANICAL ENGINEER
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TITLE: ELECTRICAL ENGINEER
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NAME: MIKE SHICK
COMPANY: ME DESIGNS
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NAME: JODY HORN
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TITLE: SURVEYOR
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VICINITY MAP

INDEX OF DRAWINGS

BASIS OF DESIGN

DESIGN CONDITIONS:

KING CITY, CA:

LONGITUDE: 121.1 LATITUDE: 36.1 ELEVATION: 320 FT

0.1% COOLING CONDITIONS: 94°F DRY BULB 67°F WET BULB

WINTER MEDIAN OF EXTREMES: 20°F DRY BULB

LIST OF GOVERNING CODES:

2022 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24, C.C.R.
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24, C.C.R.
2022 CALIFORNIA ELECTRICAL CODE, PART 3, TITLE 24, C.C.R.
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24, C.C.R.
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24, C.C.R.
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24, C.C.R.
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24, C.C.R.
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24, C.C.R.
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24, C.C.R.
TITLE 19, C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

LOCATION MAP

NORTH

PROJECT DESCRIPTION

1. THE PROCESSES PRESENTED IN THIS DRAWING SET PRESENT THE PROPOSED PROPREITARY WATER TREATMENT SYSTEMS AS DESIGNED AND SPECIFIED BY TAILWATER SYSTEMS. SPECIFICALLY, THE AQUARECLAIM PROCESS THAT UTILIZES TWO PROPREITARY SYSTEMS TO PROCESS THE WATER: THE YIELDMAX SYSTEM FOR ANION AND CHLORIDE REMOVAL AND THE PHYTOVAP SYSTEM FOR PROCESSING OF WATER UTILIZING A HYDROPONIC PROCESS.
2. THE TREATMENT SYSTEM AS PRESENTED BY TAILWATER SYSTEMS IS DESIGNED TO COLLECT AND TREAT IRRIGATION DRAIN WATER FROM GROW OPERATIONS AS WELL AS TREAT THE COOLING WATER BLOWDOWN FROM THE ONSITE COMBINED HEAT AND POWER (CHP) SYSTEMS. THE RESULTING TREATED WATER WILL BE USED AS MAKE-UP FOR THE CHP COOLING SYSTEM.
3. THE PROJECT INCLUDES THE INSTALLATION OF TANKS, IRON/MANGANESE FILTER, NANOFILTRATION, ION EXCHANGE, CLARIFIER, AND VARIOUS CHEMICAL FEEDERS, WASTE COLLECTION, PIPING, AND PUMPS TO CREATE A COMPLETE SYSTEM.
4. CIVIL, STRUCTURAL, ELECTRICAL, AND CONTROLS ENGINEERING IS NOT INCLUDED IN THIS PLAN SET AND IS TO BE PROVIDED BY OTHERS.

REGISTERED PROFESSIONAL ENGINEER
EDWIN B. LOFINK
No. M 27878
EXP. 06/30/2026
MECHANICAL
STATE OF CALIFORNIA

COLEBREIT ENGINEERING

BEND | EUGENE | MEDFORD
MONTEREY | NAPA | SANTA CRUZ

VERTIS PROCESS WATER TREATMENT
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100 DON BATES WAY
KING CITY, CA 93930

REVISION SCHEDULE

1 ADD PHYTOVAP AND BUILD. DEPT. SUBMITTAL 1/29/25

DATE: 1/29/2025
JOB NUMBER: 20240366

TITLE SHEET

SHEET NUMBER
T0.1

AIR STRIPPER

MARK	GPM	BLOWER HP	SKID SIZE	V/PH	MOCP	MAKE & MODEL	REMARKS
AS-1	5-45	5	4' X 6'	480/3	30	PRM FILTRATION AST 233 SERIES	1 2 3

1. INSTALL PER MANUFACTURER'S INSTRUCTIONS
2. CT10 PUMP PACKAGE WITH CONTROL PANEL
3. DEMISTER ELEMENT AT DISCHARGE
4. SKID SIZE: 5' X 6'

CLARIFIER/ MIXER

MARK	GPM	WT LBS		MAKE & MODEL	REMARKS
		OPERATING	DRY		
CL-1	15	14,000	4,700	METCHEM INCLINED PLATE LAMELLA CLARIFIER	1 2 3 4 5

1. STEEL BODY, 1 SETTLING CONE, 1 PLATE PACK 60 DEGRESS
2. SLIDE GATE DISCHARGE VALVE
3. FLOCK TANK AND MIXER WITH MANUAL SLUDGE BLOWDOWN
4. 24 VDC
5. CONTROL PANEL 110V, 1ø, 5 AMP

NANOFILTRATION SYSTEM

MARK	GPD	DIMENSIONS L"xW"xH"	V/PH/HZ/A	WT LBS	MAKE & MODEL	REMARKS
NF-1	32,400	230x43x61	480/3/60/7	2,350	PURE AQUA NF-32K-1580	1 2 3

1. INSTALL PER MANUFACTURER'S INSTRUCTIONS
2. PROVIDE OUTDOOR ENCLOSURE FOR CONTROL PANEL
3. WITH PUREAQUA CS8-1 CIP, 480V/3ø/60HZ, 7 AMPS, 3 HP

PROCESS PIPING

1. SCOPE : PROVIDE PLUMBING SYSTEMS, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS AND SERVICES.
2. COORDINATION : COORDINATE WITH GENERAL CONTRACTOR AND ALL OTHER TRADES.
3. CODES : THIS WORK SHALL CONFORM TO ALL LOCAL CODES, CALIFORNIA BUILDING CODE, CALIFORNIA MECHANICAL CODE AND CALIFORNIA PLUMBING CODE.
4. FEES : CONTRACTOR SHALL PAY ALL FEES IN CONNECTION WITH THIS WORK. CONNECTION CHARGES BY OWNER.
5. DRAWINGS : DRAWINGS ARE SCHEMATIC. ALL EQUIPMENT LOCATIONS SHALL BE VERIFIED IN THE FIELD AND APPROVED BY OWNER OR OWNER REPRESENTATIVE.
6. CUTTING : REPAIR ALL SURFACES CUT IN THIS WORK TO MATCH ORIGINAL. NO CUTTING OF STRUCTURAL ELEMENTS IS ALLOWED WITHOUT PRIOR WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
7. MAINTENANCE : ALL EQUIPMENT SHALL BE ACCESSIBLE FOR MAINTENANCE.
8. GUARANTEE : ALL WORKMANSHIP, EQUIPMENT AND MATERIALS SHALL BE GUARANTEED FOR ONE YEAR AFTER DATE OF ACCEPTANCE.
9. SUBMITTALS : WITHIN 15 DAYS AFTER SIGNING A CONTRACT, PROVIDE SUBMITTALS ON ALL PLUMBING EQUIPMENT.
10. STRUCTURAL : CONTRACTOR SHALL CONSULT AND OBTAIN DIRECTION FROM THE STRUCTURAL ENGINEER ON STRUCTURAL SUPPORT OF ALL PROCESS PIPING AND PLUMBING EQUIPMENT.
11. TESTING, ADJUSTING AND CLEANING : TEST ALL PIPING, CLEAN OUTS, ETC. AS LISTED BELOW AND PROVIDE THE ARCHITECT WITH CERTIFIED COPIES OF TEST RESULTS. THE INSPECTION AUTHORITY HAVING JURISDICTION AND THE SUPERVISING ARCHITECT SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO PERFORMANCE OF ALL TESTS SO THAT THEY MAY BE WITNESSED.

    ALL WATER PIPING SHALL BE TESTED TO 100 PSIG WITH POTABLE WATER AND HELD FOR 2 HOURS WITHOUT DROP IN PRESSURE BEFORE IT IS COVERED AND CONCEALED. EQUIPMENT AND PERSONNEL SHALL BE PROTECTED FROM THIS TEST PRESSURE.

    ALL PARTS OF THE DRAINAGE SYSTEM SHALL BE TESTED HYDRAULICALLY BY FILLING A STANDPIPE 10' HIGH WITH WATER. PIPING MAY BE TESTED IN SECTIONS BUT SHALL BE SUBJECTED TO A HEAD NOT LESS THAN 10 FEET. STAND PIPE INSTALLED FOR A HEAD TEST SHALL BE 2 INCH MINIMUM. TEST PRESSURE SHALL BE HELD FOR 15 MINUTES BEFORE INSPECTION STARTS AND WATER LEVEL SHALL REMAIN STATIONARY FOR NOT LESS THAN 1 HOUR. ADJUST AND REGULATE ALL PUMPS, VALVES, PRESSURE SWITCHES, ETC. AND TURN OVER TO THE OWNER IN PERFECT WORKING ORDER.

    UPON COMPLETION OF WORK, CLEAN ALL EQUIPMENT.
12. VERIFICATION OF EXISTING CONDITIONS : IT SHALL BE ONE OF THE RESPONSIBILITIES UNDER THIS SECTION TO EXAMINE THE SITE OF WORK AND, AFTER INVESTIGATION, TO DETERMINE THE CHARACTER OF THE MATERIALS TO BE ENCOUNTERED AND THE EXISTING CONDITIONS AFFECTING THE WORK.
13. EXCAVATION AND BACKFILLING : EXCAVATION SHALL BE UNCLASSIFIED AND SHALL INCLUDE THE REMOVAL OF ALL BURIED OBSTRUCTIONS WITHIN THE AREA TO BE EXCAVATED. TRENCH TO REQUIRED DEPTHS. TRENCH TO BE FREE OF WATER.

    TAMP BOTTOM OF TRENCH. EXCAVATE BELL HOLES SO PIPE SHALL REST FOR ENTIRE LENGTH ON SOLID GROUND. REMOVE ALL ROCKS AND TAMP AND COMPACT ½" TO 1-½" BROKEN STONE OR GRAVEL SAND ON BOTTOM OF TRENCH BEFORE LAYING PIPE. INSTALLED PIPING TO BE TESTED, INSPECTED AND APPROVED FOR BACKFILL MATERIAL. MATERIAL: IMPORTED SANDY SOIL IN LAYERS NOT EXCEEDING 8". MOISTEN AND MACHINE TAMP TO ORIGINAL CONDITION. BACKFILL SHALL BE COMPACTED TO A DENSITY OF 95% AS DETERMINED BY THE LABORATORY TEST PROCEDURE IN ASTM D1557.
14. STERILIZATION : BEFORE BEING PLACED IN SERVICE, ALL DOMESTIC COLD WATER DISTRIBUTION SYSTEMS SHALL BE STERILIZED IN ACCORDANCE WITH THE MONTEREY COUNTY HEALTH DEPARTMENT REQUIREMENTS. AFTER STERILIZATION, THE SYSTEM SHALL BE FLUSHED WITH POTABLE WATER UNTIL THE STERILIZATION RESIDUE IS WITHIN THE TOLERABLE LIMITS FOR DOMESTIC WATER.
15. MATERIALS : WATER PIPING:

    ABOVE GRADE: SCHEDULE 80 PVC WITH SOLVENT WELD OR THREADED FITTINGS.

    BELOW GRADE: SCHEDULE 80 PVC WITH SOLVENT WELD FITTINGS.

    PAINT EXPOSED EXTERIOR PVC PIPING WITH GRAY SEMI-GLOSS EXTERIOR LATEX PAINT. TO MATCH PIPING.

    INSTRUMENT AND SAMPLE PORT PIPING: SCHEDULE 80 PVC WITH SOLVENT WELD OR THREADED FITTINGS. OPTIONAL - 304 STAINLESS STEEL WITH THREADED FITTINGS, 1"ø MAX.

    RISERS AT BUILDINGS: COPPER TYPE "L"

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DRY FEED & SLURRY SYSTEM

MARK	NOMINAL CAPACITY	GPM		V/PH/HZ	AMPS	WT LBS	MAKE & MODEL	REMARKS
		PEAK	CONTINUOUS					
DFS-1	1	50	35	480/3/60	20	2,900	PURE AQUA DM-6100 SERIES	1 2 3

1. SYSTEM CAPACITY:
    - GYPSUM, DRY CONSUMPTION 23 LBS/HR FOR 1,000 GAL PER 8H
    - BULK DENSITY OF 81.16 LB/FT^3
    - SLURRY CONCENTRATION 2%
    - VOLUMETRIC SCREW FEEDER THROUGHPUT: 45 LBS/HR
    - SLURRY TANKS: 66 GALLONS, 19 MINUTES MIXING TIME
    - VOLUMETRIC HOSE PUMP: 2.26 GPM OF CONTINUOUS INJECTION
    - WATER SUPPLY FLOWRATE: 4.49 FOR BATCH TANK
2. SYSTEM EQUIPMENT:
    - HOPPER
    - ROTATING PADDLE
    - AGITATOR
    - VOLUMETRIC FEEDER
    - MOISTURE ISOLATION INJECTOR
    - GYPSUM SLURRY TANK
    - SKID MOUNT
3. MANUFACTURER CONTROL PANEL, GYPSUM INJECTION SYSTEM NEMA 3R ENCLOSURE

PUMPS

MARK	GPM	TDH FT	BHP	MOTOR			WT LBS	MAKE & MODEL	REMARKS
				RPM	HP	V/PH			
P-1	45	25		3450	1	115/1	60.5	DAYTON 5RWH6	1
P-2	45	25		3450	1	115/1	60.5	PURE AQUA	2
P-3	45	25		3450	1	115/1	60.5	DAYTON 5RWH6	1
P-4	45	25		3450	1	115/1	60.5	DAYTON 5RWH6	1
P-5	50	64.6		3450	2	115/1	85.9	DAYTON 5RWG9	1
P-7	45	25		3450	1	115/1	60.5	DAYTON 5RWH6	1
(F)P-8	45	25		3450	1	115/1	60.5	MET CHEM	2 3
P-9	45	25		3450	1	115/1	60.5	DAYTON 5RWH6	1
P-10	45	25		3450	1/3	115/1	60.5	DAYTON 5RWH6	1

1. INSTALL PER MANUFACTURER'S INSTRUCTIONS
2. PROVIDED WITH MANUFACTURE EQUIPMENT, SEE SHEET PP5.1
3. PROVIDE ELECTRIC CIRCUIT FOR FUTURE PUMP

STORAGE TANK

MARK	GALLONS	DIM	HEIGHT	MAKE	WEIGHT	REMARKS
T-1	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-1A	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-2	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-3	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-4A	5,000	8'Ø	13'-3"	SNYDER	42,100	1 2 3
T-5	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-5A	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-6	1,000	72"Ø	66"	SNYDER	8,464	2 3 5 6
T-7	1,000	72"Ø	66"	SNYDER	8,464	2 3 4 6
T-8	275	48X40	46"	U-LINE	2,500	2 3 4 6
T-9	1,000	72"Ø	66"	SNYDER	8,464	2 3 4 6

1. STANDARD GREEN WATER TANK
2. PROVIDE MANUF. STD. RESTRAINT SYSTEM, SEE DETAIL X/XXX
3. FITTINGS PER PLAN AND SCHEMATIC
4. COLLECTION, DISPOSAL BY OTHERS
5. BACK WASH COLLECTION
6. STANDARD WHITE WATER TANK

FILTER

MARK	TANK SIZE D" x H"	WT LBS	GPM		V/ø/Hz	MOCP	MAKE & MODEL	REMARKS
			AVERAGE	PEAK				
F-1	30 x 60	1705	49.1	73.7	120/1/60	20 AMP	PURE AQUA 31F30150MM-SS	1 2 3 4

1. SEDIMENT AND FE/MN FILTER SUBSYSTEM
2. 316L STAINLESS STEEL, EPOXY COATED
3. FILTER MEDIA: KATALOX
4. PURE AQUA BFS-4C, BAG SIZE #4

ANTISCALANT SYSTEM

MARK	GPD	MAX PSI	TANK SIZE GAL	V/PH	AMPS	MAKE & MODEL	REMARKS
CDS-1	36	145	35	120/1/60	15	PURE AQUA CDS-36-G-35	1

1. INSTALL PER MANUFACTURER'S INSTRUCTIONS

PROCESS PIPING LEGEND

SYMBOL	ABBRV.	IDENTIFICATION	ABBRV.	IDENTIFICATION
—IW—	IW	INDUSTRIAL WASTE (ABOVE GROUND)	ENT	ENTERING
— IW —	IW	INDUSTRIAL WASTE (BELOW GROUND)	EQUIP	EQUIPMENT
—SS—	SS	SANITARY SEWER (ABOVE GROUND)	EXP	EXPANSION
— SS —	SS	SANITARY SEWER (BELOW GROUND)	EXT	EXTERIOR
—SD—	SD	STORM DRAIN (ABOVE GROUND)	FFE	FINISHED FLOOR ELEVATION
— SD —	SD	STORM DRAIN (BELOW GROUND)	FLA	FULL LOAD AMPS
—ID—	ID	INDIRECT DRAIN	FLEX	FLEXIBLE
—CW—	CW	COLD WATER (DOMESTIC)	FLR	FLOOR
—HW—	HW	HOT WATER	FPM	FEET PER MINUTE
—HWR—	HWR	HOT WATER RETURN	FT	FEET
—IRR—	IRRIG	IRRIGATION WATER	FT HD	FEET HEAD
—F—	F	FIRE WATER	FTR	FLUE THROUGH ROOF
—G—	G	GAS (7"WC)	GPM	GALLONS PER MINUTE
—MPG—	MPG	MEDIUM PRESSURE GAS (15"WC-5PSI)	GALV	GALVANIZED
—HPG—	HPG	HIGH PRESSURE GAS (>5PSI)	GA	GAUGE
—G(PG&E)—	G(PG&E)	GAS (PROVIDED OR OWNED BY PG&E)	GC	GENERAL CONTRACTOR
—FOS—	FOS	FUEL OIL SUPPLY	HP	HORSEPOWER
—FOR—	FOR	FUEL OIL RETURN	HR	HOUR
—FOV—	FOV	FUEL OIL VENT	HZ	HERTZ
—UG—	UG	UNLEADED GASOLINE	ID	INSIDE DIAMETER
— —UGV— —	UGV	UNLEADED GASOLINE VENT	IE	INVERT ELEVATION
—DSL—	DSL	DIESEL FUEL	IN	INCH
—LO—	LO	LUBRICATING OIL	INT	INTERIOR
—WO—	WO	WASTE OIL	INV	INVERT
—ELEC—	ELEC	ELECTRICAL SERVICE	KW	KILOWATTS
—GCO/FCO—	GCO/FCO	GRADE C.O. / FLOOR C.O.	LBS	POUNDS
		GAS SHUT-OFF VALVE	LG	LONG
	BV	BALL VALVE	LRA	LOCKED ROTOR AMPS
	CHVA	CHECK VALVE	LVG	LEAVING
		GATE VALVE	MAX	MAXIMUM
	T&PRV	TEMP & PRESS RELIEF VALVE	MBH	1000 BTU PER HOUR
	GV	GLOBE VALVE	MC	MECHANICAL CONTRACTOR
	DCBP	DOUBLE CHECK BACKFLOW PREVENTER	MCA	MINIMUM CIRCUIT AMPS
	RPBP	REDUCE PRESS BACKFLOW PREVENTER	MECH	MECHANICAL
			MFR	MANUFACTURER
		UNION	MIN	MINIMUM
	FH	FIRE HYDRANT	MOCP	MAXIMUM OVERCURRENT PROTECTION
	PIV	POST INDICATING VALVE	(N)	NEW
	HB	HOSE BIBB	NC	NORMALLY CLOSED
	P.O.C.	POINT OF CONNECTION	NIC	NOT IN CONTRACT
		CENTERLINE	NO	NORMALLY OPEN
	MH	MANHOLE	NTS	NOT TO SCALE
AD	AD	ACCESS DOOR	OC	ON CENTER
ø	DIA	DIAMETER	OD	OUTSIDE DIAMETER
	&	AND	PC	PLUMBING CONTRACTOR
	@	AT	PD	PRESSURE DROP
	°F	DEGREES FAHRENHEIT	PH	PHASE
	AC	AIR CONDITIONER	P/N	PART NUMBER
	AD	AREA DRAIN	PRESS	PRESSURE
	AFF	ABOVE FINISH FLOOR	PSI	POUNDS PER SQUARE INCH
	AGGR	AGGREGATE	P/T	PRESSURE/TEMPERATURE
	AMP	AMPERE	QTY	QUANTITY
	APPROX	APPROXIMATE	REQD	REQUIRED
	ARCH	ARCHITECT/ARCHITECTURAL	REQS	REQUIREMENTS
	BHP	BRAKE HORSEPOWER	RLA	RATED/RUNNING LOAD AMPS
	BLDG	BUILDING	RM	ROOM
	BTU	BRITISH THERMAL UNIT	RPM	REVOLUTIONS PER MINUTE
	CI	CAST IRON	SM	SHEETMETAL
	CIRC	CIRCULATING	SOV	SHUT-OFF VALVE
	CLG	CEILING	SPEC	SPECIFICATION
	CONC	CONCRETE	SQ	SQUARE
	CONN	CONNECTION	STD	STANDARD
	CONT	CONTINUED	STRUCT	STRUCTURAL
	COORD	COORDINATE	STSL	STAINLESS STEEL
	CONST	CONSTRUCTION	TEMP	TEMPERATURE
	DF	DRINKING FOUNTAIN	TYP	TYPICAL
	DISPL	DISPLACEMENT	UL	UNDERWRITER'S LABORATORIES
	DN	DOWN	UON	UNLESS OTHERWISE NOTED
	DWGS	DRAWINGS	V	VOLT
	(E)	EXISTING	VTR	VENT THROUGH ROOF
	EC	ELECTRICAL CONTRACTOR	W/	WITH
	ELEC	ELECTRICAL	WB	WET BULB
	ELEV	ELEVATION	WC	WATER COLUMN
	EMBT	EMBEDMENT	WT	WEIGHT

ION EXCHANGE SYSTEM

MARK	NOMINAL CAPACITY (GRAINS)	GPM		V/PH/HZ	AMPS	WT LBS	MAKE & MODEL	REMARKS
		PEAK	CONTINUOUS					
IX-1	300,000	50	35	120/1/60	10	2,900	PURE AQUA DM-6100 SERIES	1 2 3 4

1. INSTALL PER MANUFACTURER'S INSTRUCTIONS
2. MINERAL TANK 30" X 72"
3. RESIN QUANTITY: ANION: 15, CATION 15

REGISTERED PROFESSIONAL ENGINEER — ERWIN B. LOFTIN — No. M 27878 — EXP. 06/30/2026 — MECHANICAL — STATE OF CALIFORNIA

COLEBREIT ENGINEERING

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PROCESS WATER TREATMENT

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1 ADD PHYTOVAP AND BUILD. DEPT. SUBMITTAL 1/29/25

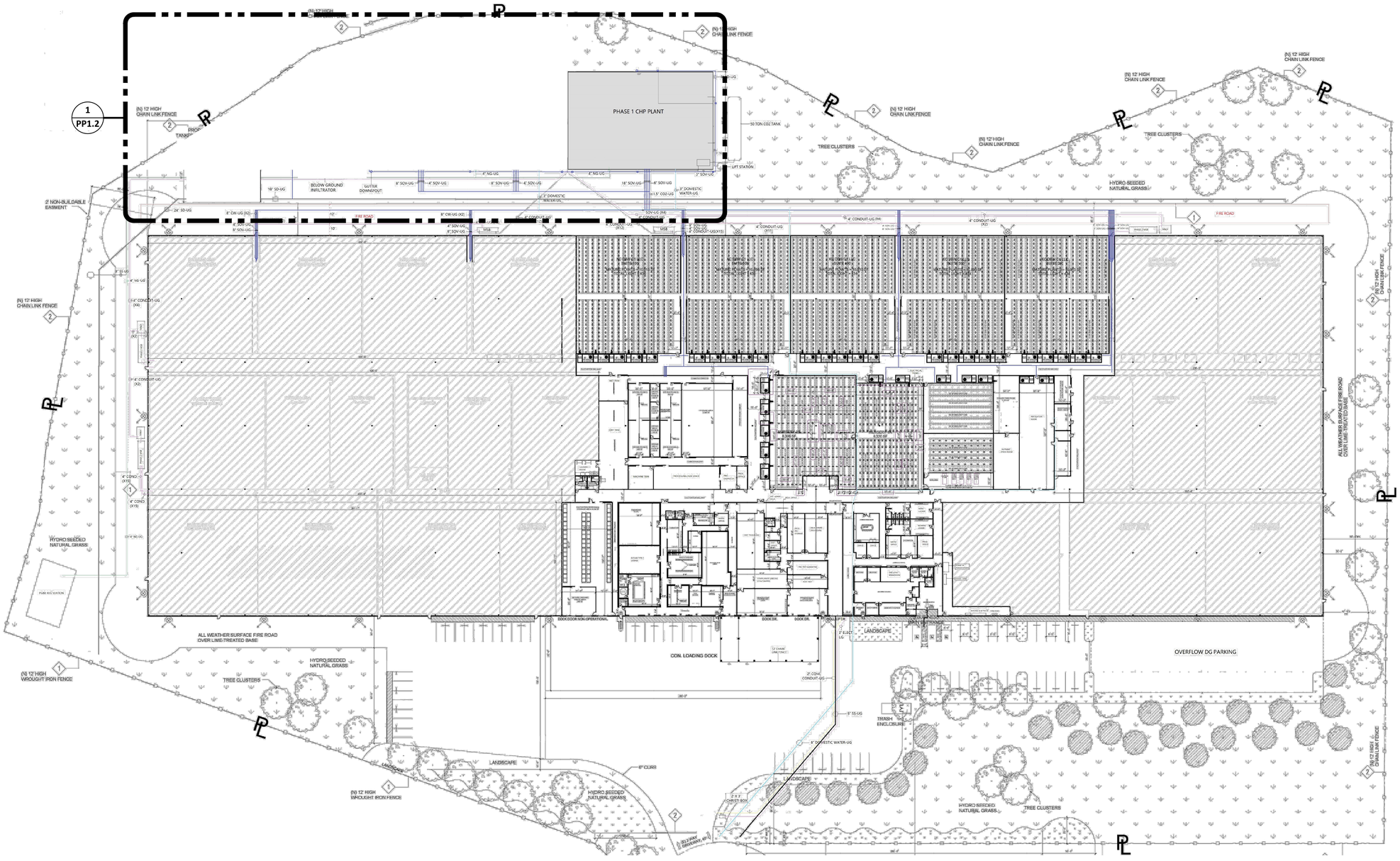
DATE: 1/29/2025

JOB NUMBER: 20240366

LEGEND, SCHEDULES, AND NOTES - PROCESS PIPING

SHEET NUMBER

PP0.1



OVERALL SITE PLAN - PROCESS PIPING

SCALE: NONE - FOR REFERENCE ONLY

NORTH

REGISTERED PROFESSIONAL ENGINEER
EDWIN B. LOFTIN
No. M 27878
EXP. 06/30/2026
MECHANICAL
STATE OF CALIFORNIA

COLEBREIT ENGINEERING

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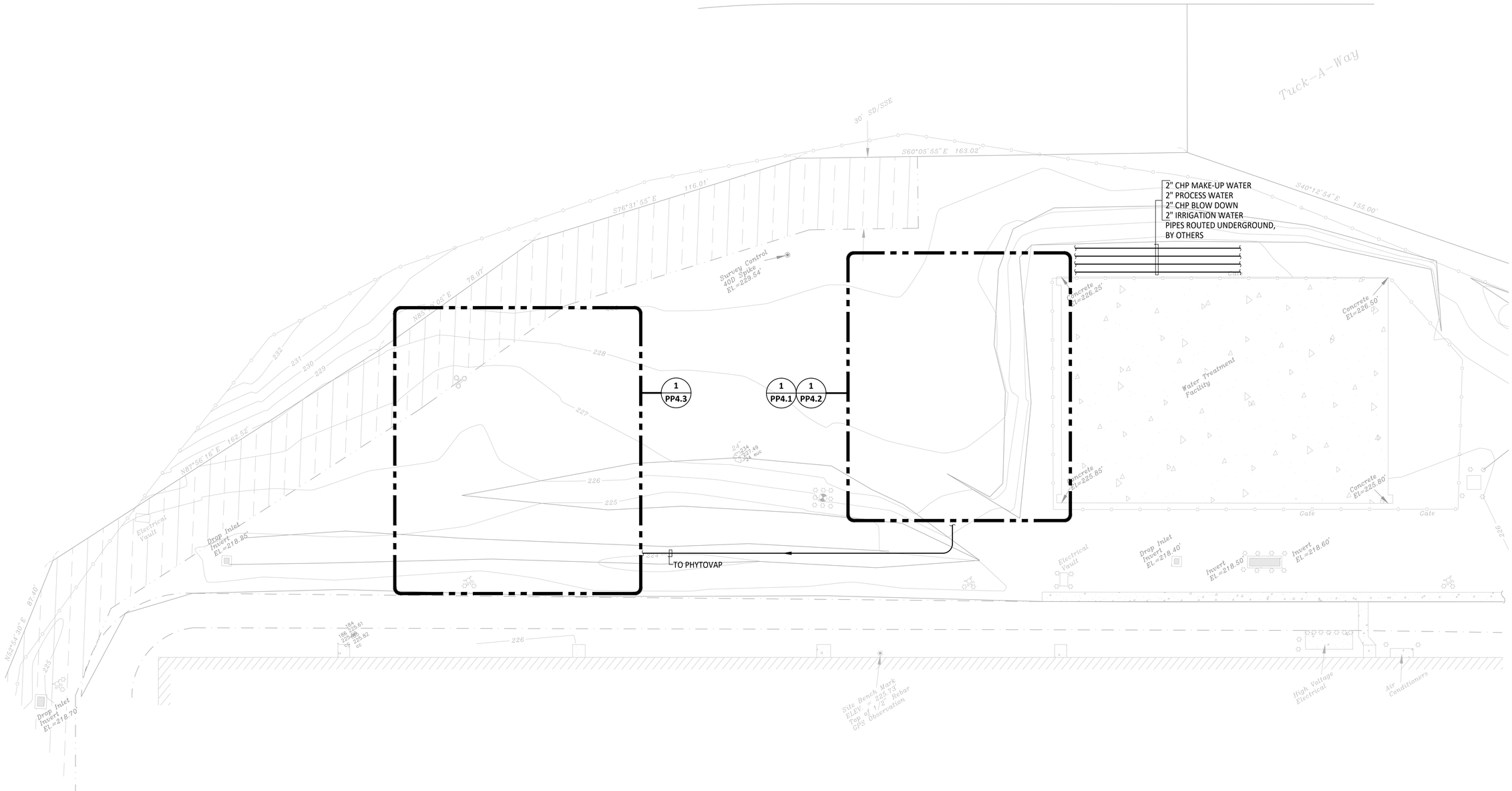
SITE PLAN - PROCESS PIPING

SHEET NUMBER

PP1.1



1 PP1.2 **SITE PLAN - PROCESS PIPING** NORTH

SCALE: 1" = 20'-0"

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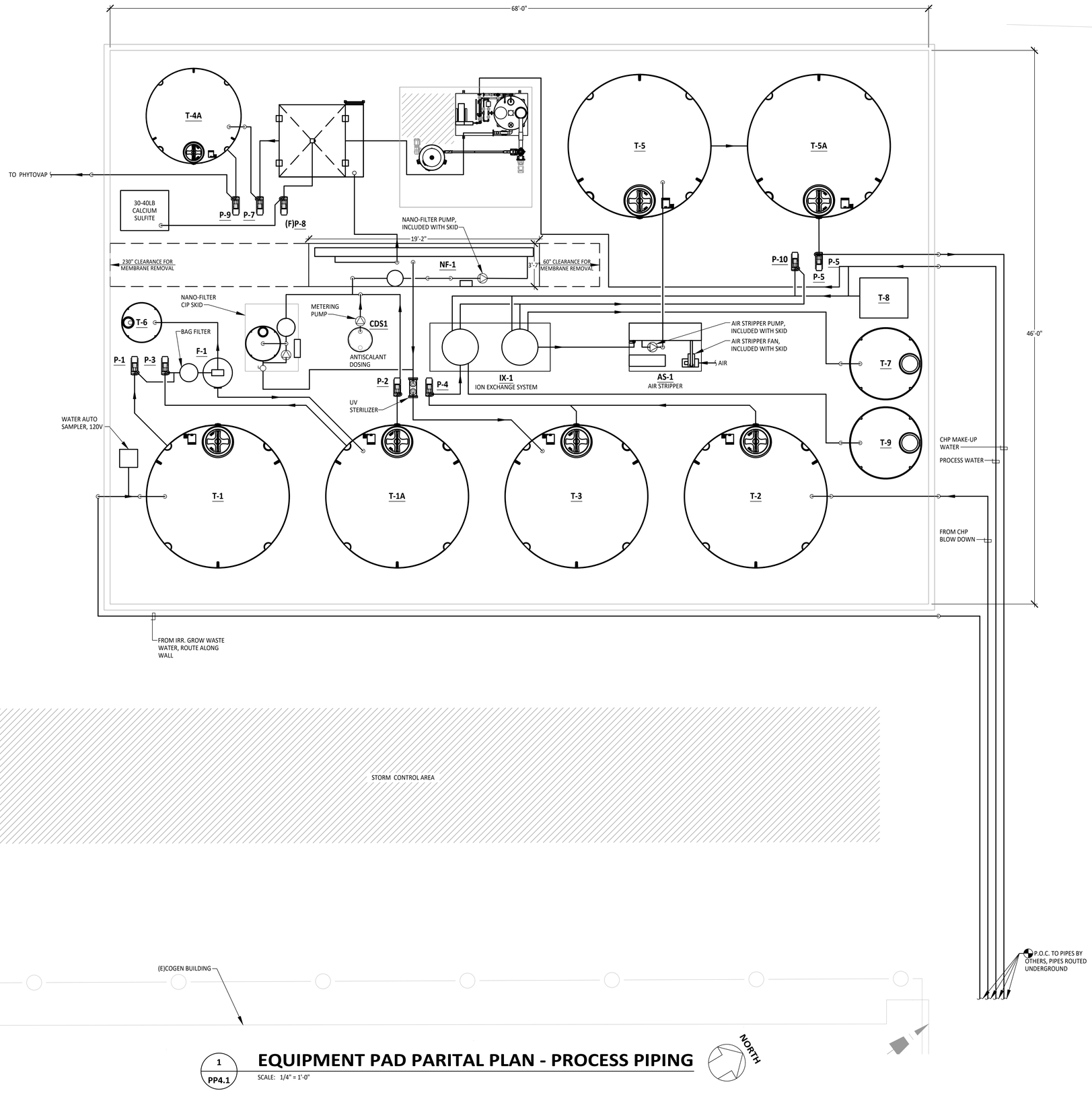
ENLARGED SITE PLAN - PROCESS PIPING

SHEET NUMBER

PP1.2



1 PP4.1 **EQUIPMENT PAD PARITAL PLAN - PROCESS PIPING**

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

NORTH

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COLEBREIT ENGINEERING

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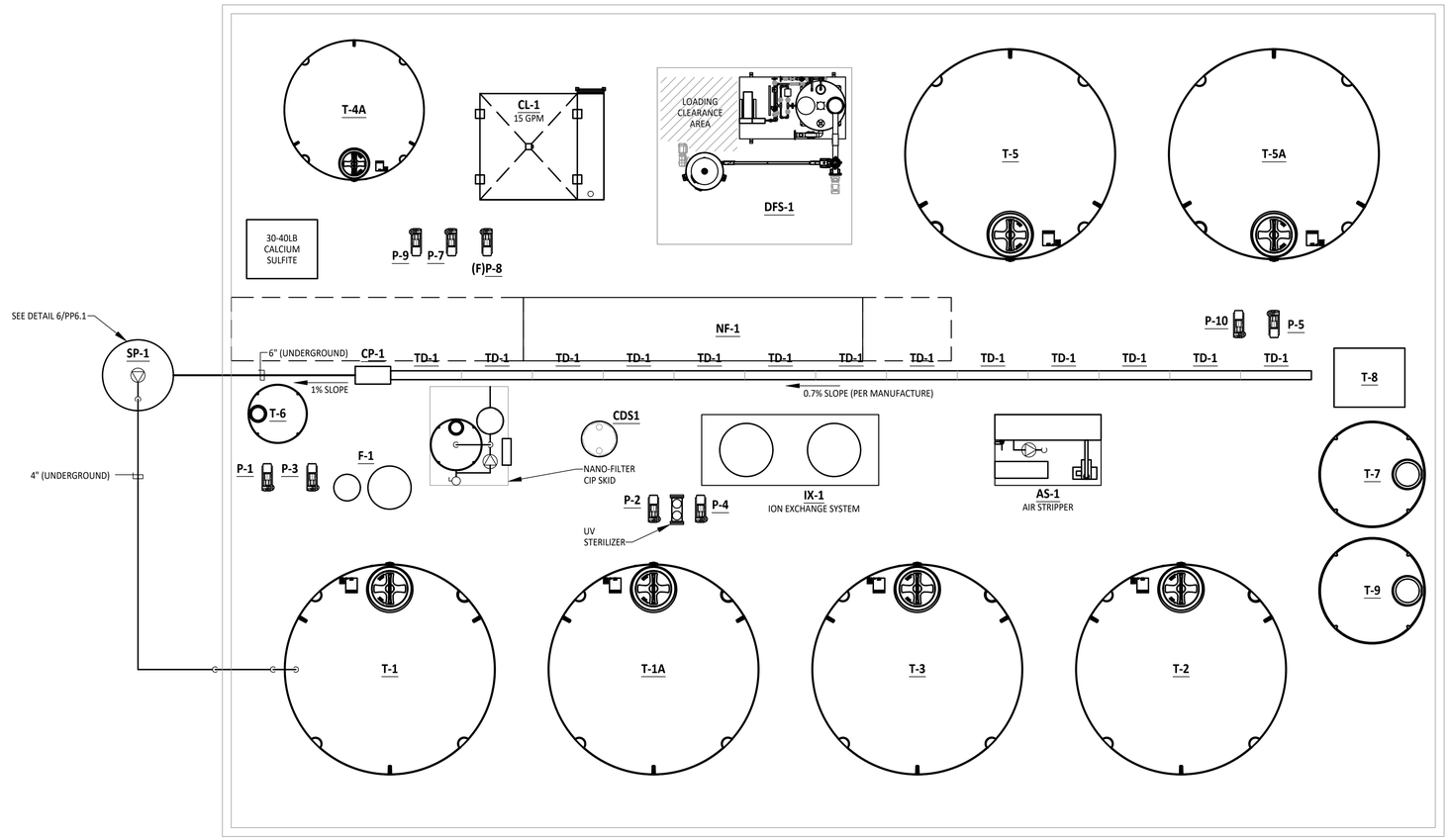
JOB NUMBER: 20240366

EQUIPMENT PAD FLOOR PLAN - PROCESS PIPING

SHEET NUMBER

PP4.1



SUMP PUMPS

MARK	GPM	TDH FT	MOTOR RPM	MOTOR HP	MOTOR V/PH	WT LBS	MAKE & MODEL	REMARKS
SP-1	100	40	3600	3	480/3ø	57	EBARA 50DWXF-U62.24SS	(1) (2) (3)

(1) 25 FT SUBMERSIBLE CABLE
(2) STAINLESS STEEL
(3) FLANGED CONNECTION

PLUMBING FIXTURES

FIXT. NO.	FIXTURE	MAKE & MODEL	REMARKS
TD-1	TRENCH DRAIN	NDS DURA SLOPE	(1) (2)
CB-1	CATCH BASIN	NDS DURA SLOPE CATCH BASIN	(2)

(1) ONE CONTINUOUS SLOPE TO CB-1
(2) HEAVY GRADE

1 / PP4.2 **EQUIPMENT PAD STORM DRAIN - PROCESS PIPING**
SCALE: 1/4" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER
EDWIN B. LOFTIN III
No. M 27878
EXP. 06/30/2026
MECHANICAL
STATE OF CALIFORNIA

COLEBREIT ENGINEERING
BEND | EUGENE | MEDFORD
MONTEREY | NAPA | SANTA CRUZ

VERTIS PROCESS WATER TREATMENT

VERTIS PROCESS WATER TREATMENT
100 DON BATES WAY
KING CITY, CA 93930

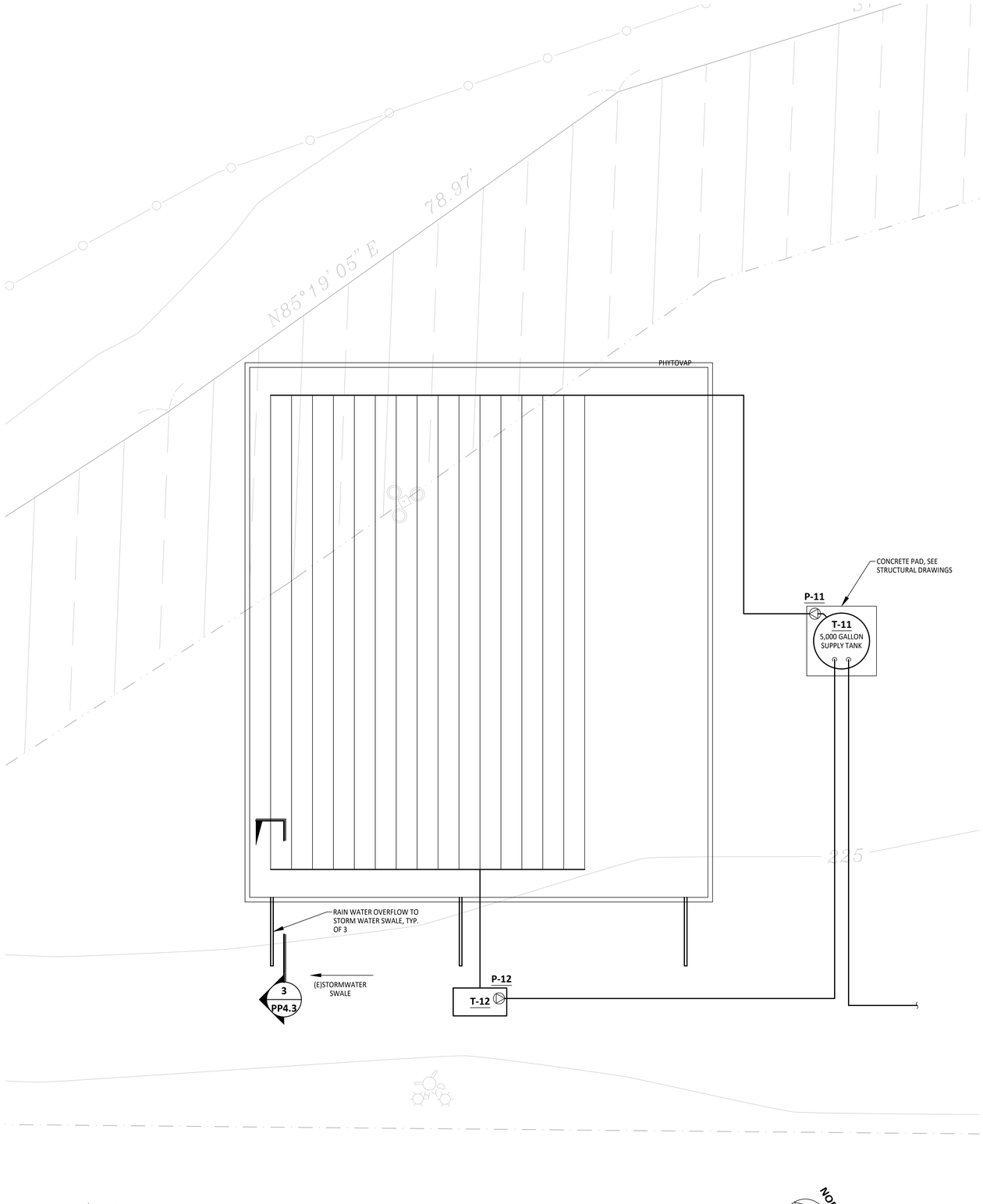
REVISION SCHEDULE

1 ADD PHYTOVAP AND BUILD. DEPT. SUBMITTAL 1/29/25

DATE: 1/29/2025
JOB NUMBER: 20240366

EQUIPMENT PAD STORM DRAIN - PROCESS PIPING

SHEET NUMBER
PP4.2



PHYTOVAP

FEATURE	SIZE
DRIPPER COUNT	1000
LINES	16
LINE LENGTH	72'
BUCKET SPACING	20"
WIDTH BETWEEN LINES	36"
BLOCK WALL WIDTH	65'
BLOCK WALL LENGTH	76'
GRADE (TOP TO BOTTOM)	1%
DRIPPER FLOW	16 LPH
TOTAL FLOW PER HOUR	16,000 LPH
IRRIGATION PUMP FLOW RATE	70 GPM
RETURN FLOW PER LINE	4.3 GPM
IRRIGATION TUBING	3/4"
DRAIN TUBING	1.5" PVC SCHED. 40 (PAINTED), 1/2" HOLES, 16" O.C.

PHYTOVAP TANK SCHEDULES

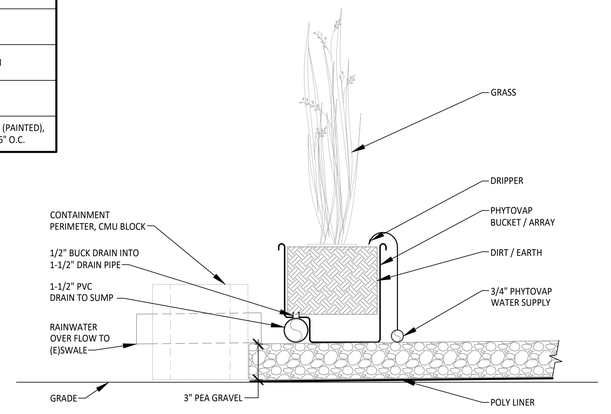
MARK	GALLONS	DIM	HEIGHT	MAKE	WEIGHT	REMARKS
T-11	5,000	8' Ø	180"	-	-	1 2 3 4 5
T-12	500	92"X48"	30"	-	-	4 5

1. STANDARD GREEN WATER TANK
2. PROVIDE MANUF. STD. RESTRAINT SYSTEM
3. FITTINGS PER PLAN AND SCHEMATIC
4. PHOTOVAP TANKS SUPPLIED BY IRRIGATION CONTRACTOR
5. RETURN WATER SUMP

PHYTOVAP PUMP SCHEDULES

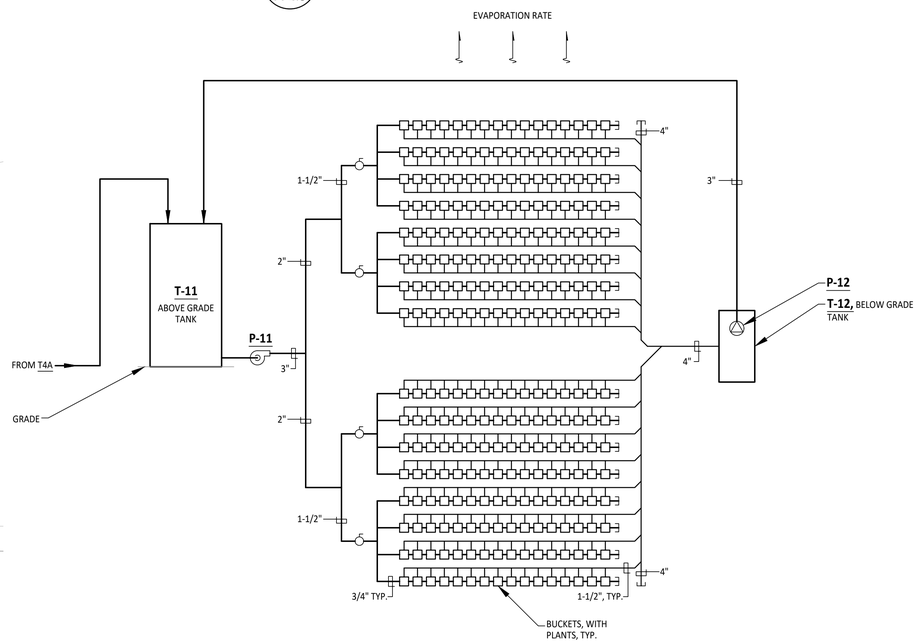
MARK	GPM	TDH FT	BHP	MOTOR RPM	MOTOR HP	MOTOR V/PH	WT LBS	MAKE & MODEL	REMARKS
P-11	70	-		-	-	-	-	DAYTON	1
P-12	70	-		-	-	-	-	DAYON	1 2

1. PUMP BY LANDSCAPE CONTRACTOR
2. SUBMERSIBLE



3 / PP4.3 **PHYTOVAP BUCKET DETAIL - PROCESS PIPING**

SCALE: NONE



1 / PP4.3 **PHYTOVAP FLOOR PLAN - PROCESS PIPING**

SCALE: 1/8" = 1'-0"

NORTH

2 / PP4.3 **PHYTOVAP PROCESS FLOW DIAGRAM - PROCESS PIPING**

SCALE: NONE

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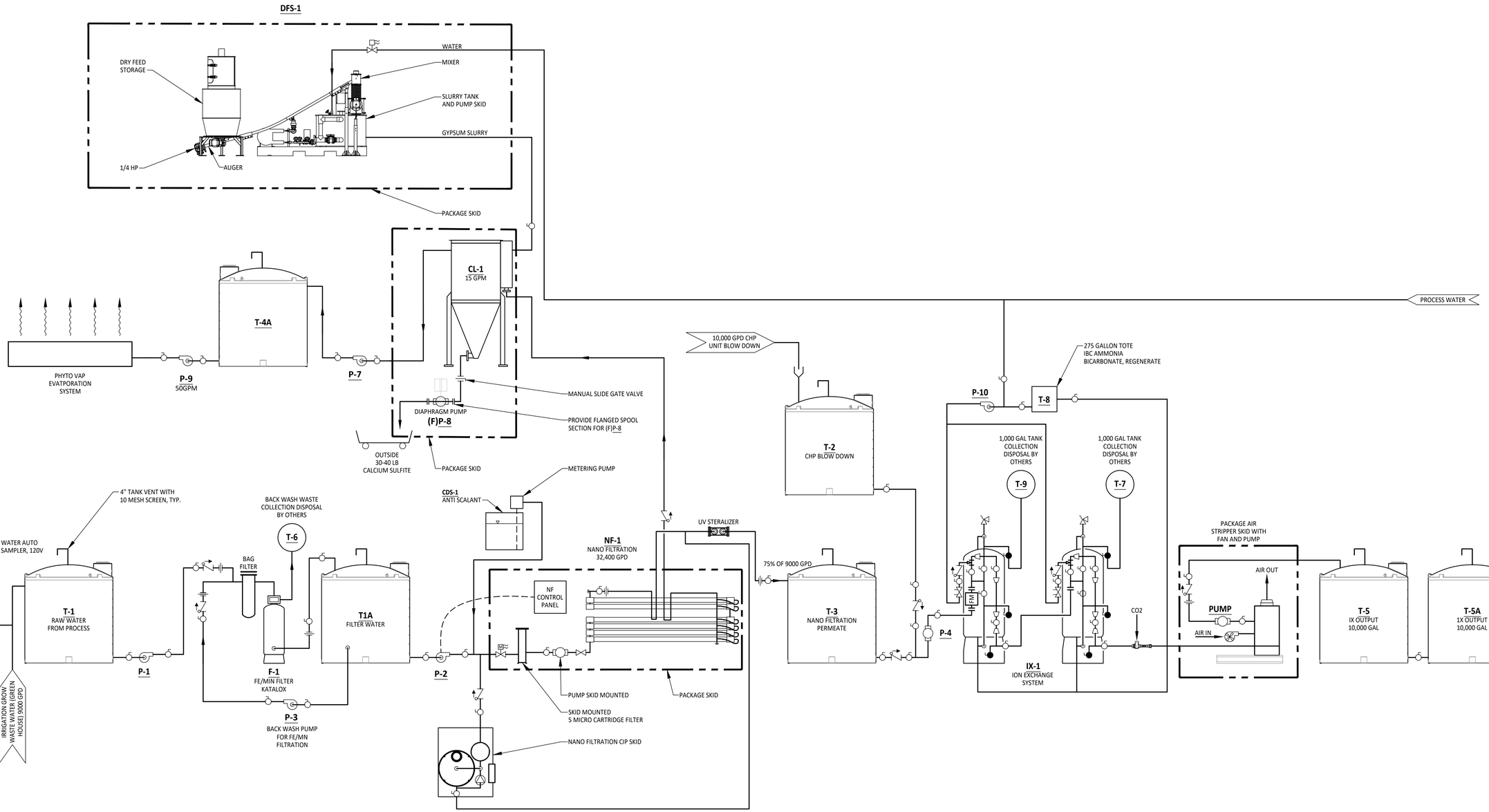
PHYTOVAP AREA - PROCESS PIPING

SHEET NUMBER

PP4.3



PIPING DIAGRAM - PROCESS PIPING

SCALE: NONE

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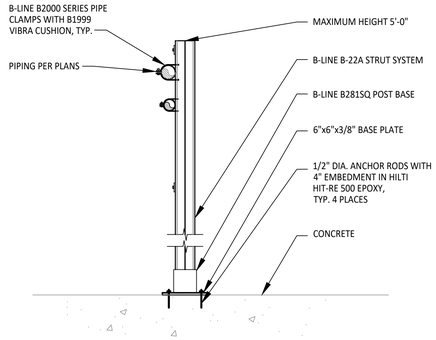
PIPING DIAGRAM - PROCESS PIPING

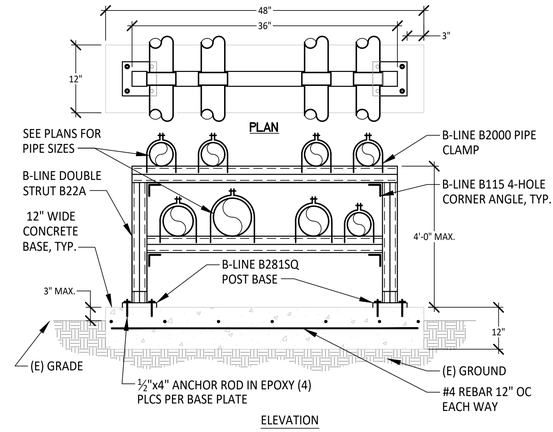
SHEET NUMBER

PP5.1



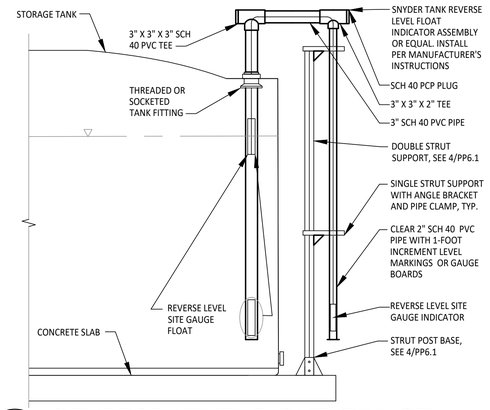
4 PP6.1 PIPE SUPPORT

NO SCALE



1 PP6.1 STRUT PIPE SUPPORT

NO SCALE

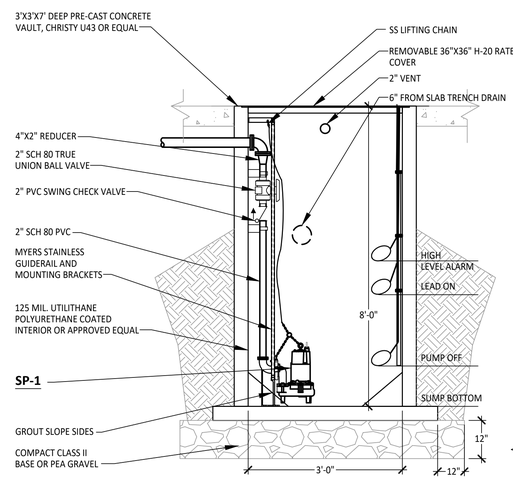


5 PP6.1 REVERSE LEVEL SIGHT GAUGE

NO SCALE

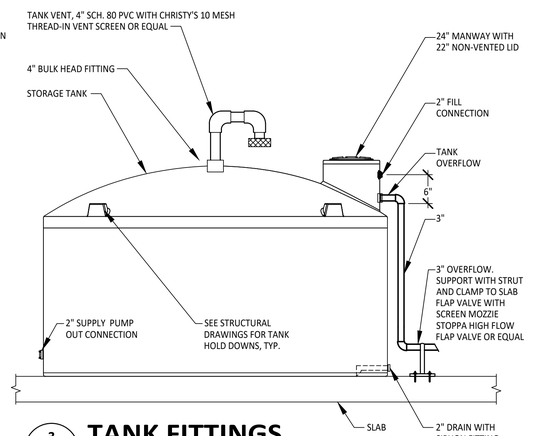
2 PP6.1 PUMP MOUNTING DETAIL

NO SCALE



6 PP6.1 PUMP LIFT STATION SECTION

NO SCALE



3 PP6.1 TANK FITTINGS

NO SCALE

REGISTERED PROFESSIONAL ENGINEER
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DETAILS - PROCESS PIPING

SHEET NUMBER

PP6.1

GENERAL CONSTRUCTION NOTES

A CONTRACTOR SHALL VERIFY THE LOCATION OF ALL CONDUITS, PANELS, ETC. AND COORDINATE THEIR INSTALLATIONS WITH THE OTHER TRADES PRIOR TO STARTING ANY WORK. SEE APPROPRIATE ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL FIRE SPRINKLER, AND ELECTRICAL DRAWINGS.

B CONTRACTOR SHALL VERIFY REQUIREMENTS FOR ALL MECHANICAL, ELECTRICAL, AND OWNER FURNISHED EQUIPMENT PRIOR TO STARTING ANY WORK. THIS INCLUDES EXACT LOCATION, AMPS, VOLTAGE, AND PHASE. OBTAIN EQUIPMENT SUBMITTALS TO VERIFY EXACT STUB UP LOCATIONS.

C PROVIDE #12 THWN PULL LINES IN ALL EMPTY AND SYSTEMS CONDUITS. CAP ALL CONDUIT STUBS AND TAG AS THE USAGE (IE: TELEPHONE, DATA, ETC.). THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND CONDUIT STUBS SHALL BE CLEARLY NOTED ON THE AS-BUILT PLANS.

D ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE LATEST ADOPTED VERSIONS OF THE FOLLOWING CODES : NATIONAL ELECTRICAL CODE WITH CA AMENDMENTS, UBC WITH CA AMENDMENTS, UMC WITH CA AMENDMENTS, UFC WITH CA AMENDMENTS, CAL/OSHA LOW VOLTAGE ELECTRICAL SAFETY ORDERS, NFPA 72 NATIONAL FIRE ALARM CODE, NECA NATIONAL ELECTRICAL INSTALLATION STANDARDS, AND ALL APPLICABLE LOCAL LAWS AND REGULATIONS.

E SEE PLANS AND SPECIFICATIONS FOR ADDITIONAL ELECTRICAL WORK.

F ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED.

G ALL ELECTRICAL EQUIPMENT TO BE UL (OR EQUAL) LISTED AND APPROVED.

H ALL WORK TO BE DONE BY A STATE OF CALIFORNIA LICENSED C-10 ELECTRICAL CONTRACTOR.

J ALL FEEDER CONDUITS TO BE ROUTED UNDERGROUND TO ALL PANELS AS SHOWN ON THE PLANS.

K ALL UNDERGROUND CONDUIT TO HAVE 24" MINIMUM COVER IN ALL AREAS.

L MAINTAIN 6" CLEARANCE BETWEEN POWER AND SYSTEMS CONDUITS IN TRENCHES.

M ALL RECEPTACLE CIRCUITS USING A COMMON NEUTRAL TO HAVE #10 WIRING FOR THE NEUTRAL CONDUCTOR.

N PROVIDE MULTI POLE BREAKERS OR HANDLE TIES ON BREAKERS FOR ALL MULTI WIRE BRANCH CIRCUITS PER NEC 210.4.

P NEATLY TYRAP UNGROUNDED AND NEUTRAL CONDUCTORS FOR ALL MULTI WIRE BRANCH CIRCUITS OR PROVIDE LABELING WITH CIRCUIT NUMBER ON EACH CONDUCTOR & NEUTRAL PER CEC 210-4.

Q PROVIDE 'ARC FLASH' WARNING SIGNS ON ALL EQUIPMENT PER CEC ARTICLE 110.16 AND 110.21. THIS INCLUDES SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, METER SOCKET ENCLOSURES, & MOTOR CONTROL CENTERS.

R POWER AND SYSTEMS CUTOVERS TO BE DONE WHEN BUSINESS IS NOT OPERATING. NO OUTAGES AFFECTING POWER AND SYSTEMS DURING BUSINESS HOURS WILL BE PERMITTED.

S LOCATE ALL (E) UNDERGROUND UTILITIES BEFORE CONSTRUCTION BEGINS. MARK ROUTE OF ALL NEW UTILITIES AND POTHOLE LOCATIONS WHERE CONFLICTS OCCUR. REPAIR OR REPLACEMENT OF DAMAGED UNDERGROUND UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.

T PROVIDE BREAKER PADLOCK ATTACHMENT LOCK OFF'S FOR ALL LIGHTING CIRCUITS.

U ALL LIGHTING BALLASTS TO HAVE INTEGRAL DISCONNECT DEVICES PER CEC 30-308(4).

V LABEL ALL EXTERIOR EQUIPMENT OUTLETS AND DISCONNECT SWITCHES WITH ENGRAVED PHENOLIC LABELS. LABELS TO INCLUDE PANEL AND CIRCUIT NUMBER.

W LABEL ALL INTERIOR EQUIPMENT, OUTLETS, AND SWITCHES WITH P-TOUCH LABELING. LABELS TO INCLUDE PANEL AND CIRCUIT NUMBER. WHITE LABELS .5" WIDE WITH BLACK LETTERING

X LABEL ALL PANELBOARDS, SWITCHBOARDS, MCC'S, FEEDER BREAKERS, TRANSFORMERS, AND DISCONNECT SWITCHES WITH PHENOLIC LABELS.

Y PROVIDE FAULT CURRENT LABELING FOR ALL EQUIPMENT PER CEC ARTICLE 110.24. USE FAULT CURRENT INFORMATION ON PLANS TO PRODUCE LABELS.

Z GROUND FAULT CIRCUIT INTERRUPTER (GFI) AND SPECIAL PURPOSE GROUND FAULT CIRCUIT INTERRUPTER PROTECTION IS REQUIRED FOR ALL SINGLE PHASE RECEPTACLES 150 VOLTS OR LESS / 50 AMP OR LESS AND THREE PHASE RECEPTACLES 150 VOLTS TO GROUND / 100 AMP OR LESS RECEPTACLES AT BATHROOMS, KITCHENS, UNFINISHED BASEMENTS, LAUNDRY ROOMS, ROOFTOPS, AT ALL HAVC EQUIPMENT, OUTDOORS, WITHIN 6' OF ANY SINKS, INDOOR WET LOCATIONS, LOCKER ROOMS, GARAGES, ACCESORY BUILDINGS, EV CHARGING, AND SERVICE BAYS PER C.E.C. ARTICLES 100, 210, AND 422. GROUND FAULT CIRCUIT INTERRUPTERS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS PER ARTICLE 210.8. IF NOT IN ACCESSIBLE LOCTION PROVIDE GFI BREAKERS IN LIEU OF GFI RECEPTACLES.

AA GROUND FAULT PROTECTION OF EQUIPMENT SHALL CONFORM TO CEC 230-95. A WRITTEN RECORD OF THE PERFORMANCE TESTING SHALL BE MADE AND SHALL BE AVAILABLE TO THE BUILDING INSPECTOR PER CEC 230-95 (c).

BB ALL CONDUITS TO CONTAIN CODE SIZED, THWN, GREEN GROUND WIRE AND ALL PANELS TO CONTAIN GROUND BUSS.

CC ALL CONDUCTORS TERMINATION AND SPLICING SHALL BE TORQUED AND TIGHTENED PER CEC ARTICLE 110.14.

16000 ELECTRICAL

1.1 GENERAL REQUIREMENTS

A. Review all drawings for interfaces and special requirements of other trades. Coordinate and cooperate with other trades. Obtain and pay for required permits and inspections. Collect parts lists, installation instructions, wiring diagrams, control diagrams, sequence of operations, maintenance information, shop drawings and catalog cuts during the course of construction. Bind such data and index, submit 2 copies prior to acceptanceGround all switch boxes, outlet boxes, fixtures, devices, motors and other equipment. The entire system shall be free from short circuits and improper grounds. Upon completion of the work, inspect all equipment for proper operation, correct all defects, and replace defective lamps. Legibly mark panelboard circuits corresponding to equipment names shown on plans/

1.2 BASIC MATERIALS & METHODS

A. Raceways

1. Rigid steel conduit for exposed outdoors.
2. PVC Schedule 80 for exposed outdoors.
3. PVC Schedule 40 for underground.

B. Conductors

1. Branch circuits, copper #12 THHN / THWN minimum.
2. Feeders THHN /THWN copper.

C. Wiring Devices

1. Switches: Leviton #1221, 20 amp series.
2. Receptacles: Leviton #5352, 20 amp series.
3. WP Duplex Receptacles: Leviton #GFNT2-W with Hubbell #ML500Z cover.
4. Special receptacles as shown on drawings.
5. Color: Ivory.

D. Disconnect Switches

1. Heavy duty, quick make, quick break, horsepower rated.
2. Provide thermal motor protection for all fractional horsepower motors not internally protected.

E. Lighting Fixtures

1. As scheduled on drawings. Complete with lamps, ready for service
2. Submit 6 copies of fixture cuts for approval/

F. Panelboard & Terminal Cabinet

1. Panelboard, Square D or equal, NQOB with QOB breakers.
2. Submit 6 copies of panel cuts for approval.

END OF SECTION 16000

PANEL SCHEDULE HP2 (E) PANEL

PHASE	3		VOLT	480		TYPE	SIEMENS		LOCATION			CO-GEN AREA
WIRE	3		KVA	98		MTG.	SURFACE		BKR. RATING			65 KAIC
FED FROM	MAIN SWBD.		AMPS	120		MAIN	200 AMP LUGS		BUS BRACE			65 KA
USE	A	B	C	TRIP	CKT. #	CKT. #	TRIP	A	B	C		USE
(E) LOAD	0			20/3	1	2	20/3	0				(E) LOAD
/		0		/	3	4	/		0			/
/			0	/	5	6	/			0		/
AS-1 AIR STRIPPER	5812			30/3	7	8	*20/3	2100				CIP-1 CLEAN IN PLACE
/		5812		/	9	10	/		2100			/
/			5812	/	11	12	/			2100		/
SPARE	0			125/3	13	14	*20/3	1330				SUMP PUMP
/		0		/	15	16	/		1330			/
/			0	/	17	18	/			1330		/
TRANSFORMER 'TW'	15000			*60/3	19	20		0				SPACE
/		15000		/	21	22			0			SPACE
/			15000	/	23	24				0		SPACE
NF-1 NANO FILTRATION	1330			*20/3	25	26		0				SPACE
/		1330		/	27	28			0			SPACE
/			1330	/	29	30				0		SPACE
DFS-1 DRY FEED SYSTEM	3875			*30/3	31	32		0				SPACE
/		3875		/	33	34			0			SPACE
/			3875	/	35	36				0		SPACE
IX-1 ION EXCHANGE SYSTEM	3044			*20/3	37	38		0				SPACE
/		3044		/	39	40			0			SPACE
/			3044	/	41	42				0		SPACE
	29061	29061	29061		TOTAL LOAD			3430	3430	3430		97473

(E) SIEMENS LGB3B BREAKERS * INDICATES NEW BREAKER IN (E) SPACE

PANEL SCHEDULE LW (N) PANEL

PHASE	3		VOLT	120/208		TYPE	SQ D NQOB		LOCATION			PROCESS WATER PAD
WIRE	4		KVA	24		MTG.	NEMA 3R		BKR. RATING			10 KAIC
FED FROM	TRANS. TW		AMPS	67		MAIN	125 AMP BKR		BUS BRACE			10 KA
USE	A	B	C	TRIP	CKT. #	CKT. #	TRIP	A	B	C		USE
PUMP P-1	1920			30/1	1	2	20/1	720				C-1 CLARIFIER
PUMP P-2		1920		30/1	3	4	25/1		1920			CDS-1 ANTI-SCALENT
PUMP P-3			1920	30/1	5	6	20/1			360		ST-1 SAMPLING STATION
PUMP P-4	1920			30/1	7	8	20/1	360				F-1 FILTER
PUMP P-5		1920		30/1	9	10	20/1		1236			LIGHTING
PUMP P-7			1920	30/1	11	12	20/1			400		RECEPTACLES
PUMP P-8	1920			30/1	13	14	20/1	400				RECEPTACLES
PUMP P-9		1920		30/1	15	16			0			SPACE
PUMP P-10			1920	30/1	17	18				0		SPACE
PUMP P-11	864			15/1	19	20		0				SPACE
SPACE		0			21	22			0			SPACE
SPACE			0		23	24				0		SPACE
SPACE	0				25	26		0				SPACE
SPACE		0			27	28			0			SPACE
SPACE			0		29	30				0		SPACE
SPACE	0				31	32		0				SPACE
SPACE		0			33	34			0			SPACE
SPACE			0		35	36				0		SPACE
SPACE	0				37	38		0				SPACE
SPACE		0			39	40			0			SPACE
SPACE			0		41	42				0		SPACE
	6624	5760	5760		TOTAL LOAD			1480	3156	760		23540

SYMBOLS AND ABBREVIATIONS

LIGHT FIXTURES

- RECESSED FLUORESCENT OR INCAND.
- FLUORESCENT, T-BAR GRID
- FLUORESCENT, SURFACE MOUNT
- SURFACE MOUNT
- WALL BRACKET
- EMERGENCY LIGHT
- SITE LIGHT ARM MOUNT
- EXIT LIGHT

SWITCHES

- S SPST +48"
- S2 2-POLE +48"
- S3 3-WAY +48"
- S4 4-WAY +48"
- (S) WALL OCCUPANT SENSOR +48"
- Sk KEY OPERATED SWITCH +48"
- Sd INCANDESCENT DIMMER +48"
- (O) OCCUPANT SENSOR

OUTLETS

- SINGLE RECEPTACLE +18"
- DUPLEX RECEPTACLE +18"
- GFI DUPLEX RECEPTACLE +18"
- FOURPLEX RECEPTACLE +18"
- FLOOR RECEPTACLE
- POWER OUTLET +18"
- CLOCK OUTLET +8' TO CENTER
- WALL TELEPHONE OUTLET +48"
- FLOOR TELEPHONE OUTLET
- CATV OUTLET +18"
- FLOOR CATV OUTLET
- DATA/TELEPHONE OUTLET +18"
- FLOOR DATA/COMPUTER OUTLET
- MULTI MEDIA OUTLET +18"
- FLOOR MULTI MEDIA OUTLET
- THERMOSTAT +48"
- JUNCTION BOX
- RECEPT. MT. ABOVE COUNTER +46" UON
- GFI RECEPT. MT. ABOVE COUNTER +46" UON
- (S) SPEAKER +8' TO CENTER
- INTERCOM CALL BUTTON +48"
- (M) MICROPHONE & OUTLET

FIRE ALARM

- MANUAL PULL STATION +48" A .F.F.
- HEAT DETECTOR
- SMOKE DETECTOR
- HORN +90"
- HORN STROBE +84"
- DUCT DETECTOR
- TAMPER SWITCH
- FLOW SWITCH
- STROBE +84" AFF
- BELL
- M(S) SMOKE/CARBON MON. DET.

CONDUIT / WIRING

- CONCEALED IN WALLS OR CEILING
- EXPOSED
- UNDER SLAB OR UNDERGROUND
- HOMERUNS TO PANEL
- CROSSLINES INDICATE # OF WIRES

MISCELLANEOUS / ABBREVIATIONS

- MOTOR CONNECTION
- DISCONNECT SWITCH
- MAGNETIC MOTOR STARTER
- COMBINATION MAG. STARTER & DISC. SW.
- SHEET NOTE I.D. TAG
- EQUIPMENT I.D. TAG
- SWITCHGEAR OR MCC
- PANEL BOARD
- S_o SUBSCRIPT INDICATES CONTROL
- 3 # ADJACENT TO SYMBOL IS CIRCUIT

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ARCH	ARCHITECT
C	CONDUIT
CO	CONDUIT ONLY
CONT.	CONTRACTOR
DISC.	DISCONNECT
(E)	EXISTING
EC	ELECTRICAL CONTRACTOR
ELEC.	ELECTRIC
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS, INSTALLED BY EC
FLOUR	FLOURESCENT
GR	GROUND
GFI/g	GROUND FAULT INTERRUPTER
MECH	MECHANICAL
(N)	NEW
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
PROVIDE	FURNISH AND INSTALL
Ø	PHASE
SW	SWITCH
SWBD	SWITCH BOARD
TELE	TELEPHONE
TV	TELEVISION
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF
XFMR	TRANSFORMER

INTRUSION/SECURITY SYSTEM

- CEILING MOUNT MOTION DETECT.
- WALL MOUNT MOTION DETECT.
- KEYPAD CONTROL +48"
- DOOR CONTACT SWITCH
- INTRUSION ALARM HORN
- (C) CAMERA

* SYMBOLS SHOWN ARE FOR GENERAL USE. DISREGARD THOSE WHICH DO NOT APPEAR ON THE PLANS.
* ALL MEASUREMENTS ARE TO TOP OF OUTLET BOX AFF UON.
* T-1 ADJACENT TO K| OUTLET INDICATES # OF TELEPHONE PORTS.
* D-1 ADJACENT TO K| OUTLET INDICATES # OF DATA PORTS.
* RECEPTACLES TO BE MINIMUM 15" TO BOTTOM OF OUTLET BOX.
* SWITCHES AND RECEPTACLES ABOVE COUNTERS TO BE 46" MAX TO TOP OF OUTLET BOX.
* ALL MOUNTING HEIGHTS TO COMPLY WITH CBC 11B-308.

DRAWING INDEX

REVISIONS

LIGHTWORKS, INC.
26403 LUCIE LANE SALINAS, CA. 93908
PHONE (831) 596-3667 E-MAIL LTWKS@AOL.COM

NOTES, SPECS, PANEL SCHED, SYMBOLS, AND DWG INDEX

VERTIS PROCESS WATER TREATMENT
100 DON BATES WAY
KING CITY, CA. 93930

DRAWN	GP
CHECKED	GP
DATE	11/14/24
SCALE	AS NOTED
JOB #	-

IN ASSOCIATION WITH:
LIGHTWORKS, INC.
26403 Lucie Lane
Salinas, CA 93908
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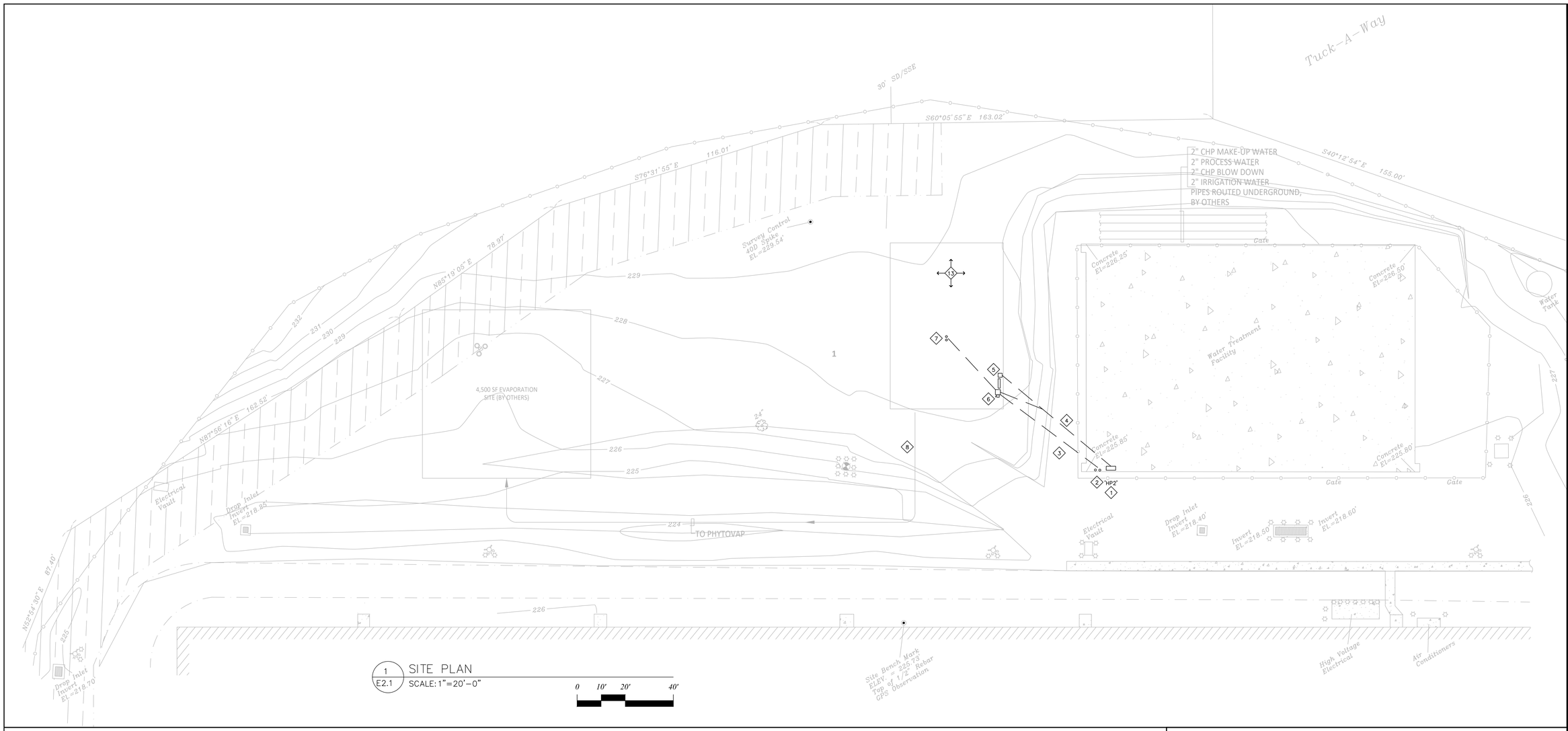
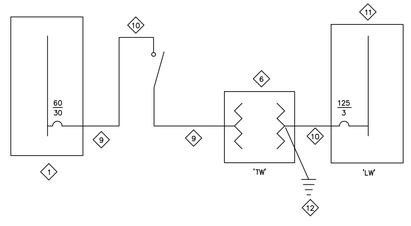
E0.1



1 SITE PLAN
E2.1 SCALE: 1"=20'-0"

0 10' 20' 40'



2 SINGLE LINE DIAGRAM
E2.1 NOT TO SCALE

◇ KEYED ELECTRICAL NOTES SHEET E2.1

1 (E) PANEL 'HP2'. SEE DETAIL 2/E2.1 AND PANEL SCHEDULES.
2 STUB 2-1" CONDUITS UP SIDE OF COLUMN TO CEILING.
3 2-1" UG DATA CONDUITS FROM NOTE 2 TO NOTE 7.
4 3-1" POWER CONDUITS FROM NOTE 1 TO NOTE 5 EACH WITH 6 #10 THWN CU. AND #2 CU. GR. AND 1" UG CONDUIT FROM NOTE 1 TO NOTE 6 WITH 3 #6 THWN CU. & #8 CU. GR.
5 POWER PULL BOX SEE DETAILS 1/E2.2 AND 2/E4.1.
6 TRANSFORMER 'TW' WITH 60 AMP DISCONNECT. SEE DETAILS 2/E2.1, 1/E2.2 AND 2/E4.1.
7 LOCATION OF STUB UPS FOR DATA CONDUITS. SEE NOTE 27 SHEET E2.2.
8 .75" UG CONDUIT FROM PUMP P-9 CONTROLLER NOTE 16 SHEET E2.2 TO IRRIGATION CONTROLLER AT POND WITH 4 #12 THWN CU. & #12 CU. GR. VERIFY LOCATION OF IRRIGATION CONTROLLER WITH OWNER AND CONNECT AS REQUIRED.
9 1" CONDUIT WITH 3 #6 THWN CU. & #8 CU. GR.
10 60 AMP, 3 POLE, NEMA 3R, 600 VOLT, NON FUSED DISCONNECT SWITCH.
11 PANEL 'LW'. SEE PANEL SCHEDULES.
12 #3/0 COPPER GROUND TO U-FER GROUND.
13 SEE SHEET E2.2 FOR WORK IN THIS AREA.

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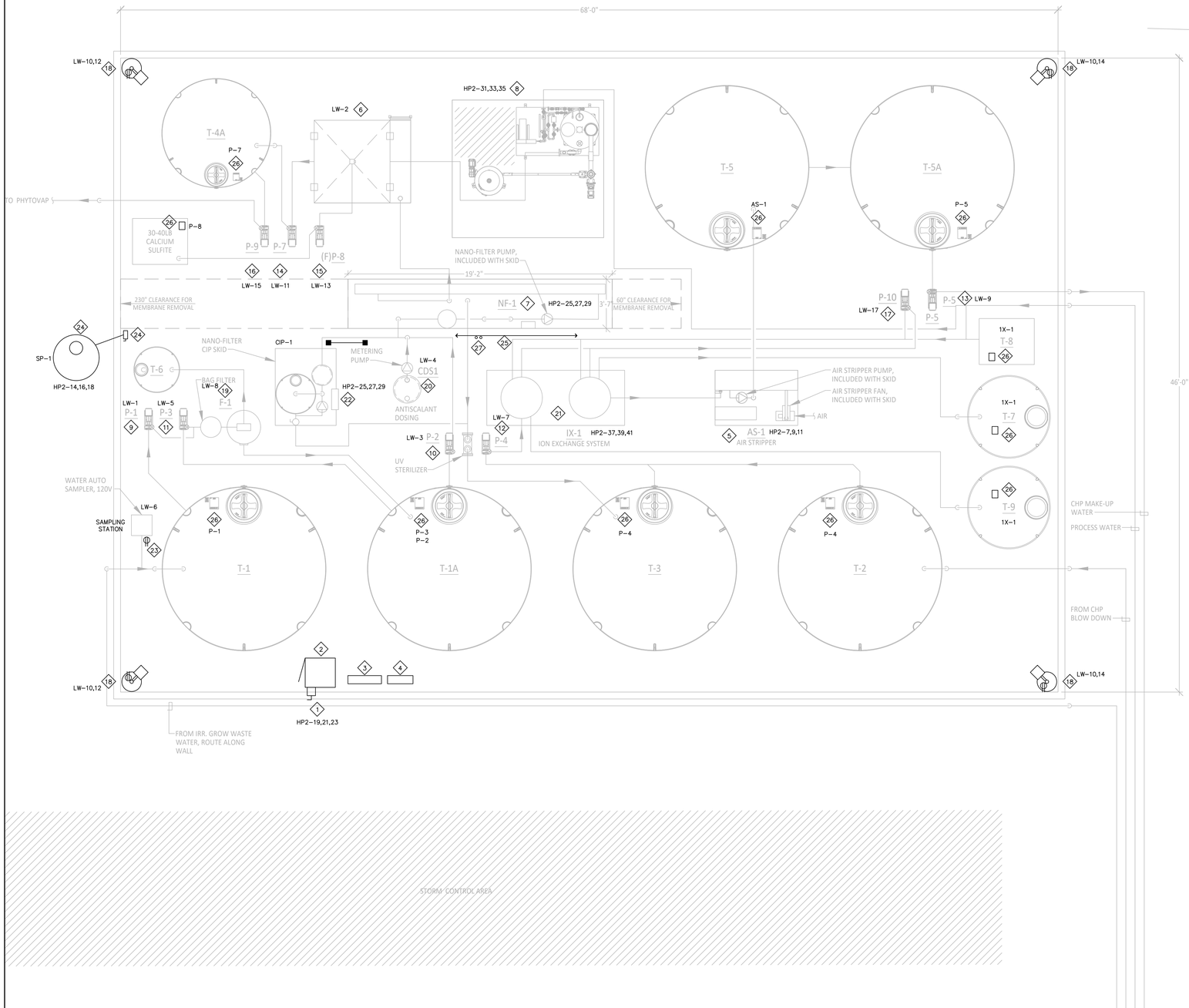
SITE PLAN AND SINGLE LINE DIAGRAM

VERTIS PROCESS WATER TREATMENT
100 DON BATES WAY
KING CITY, CA. 93930

DRAWN	GP
CHECKED	GP
DATE	11/14/24
SCALE	AS NOTED
JOB #	-

E2.1



1 E2.2 EQUIPMENT PAD
SCALE: 1/4"=1'-0"
0 2' 4' 8'

KEYED ELECTRICAL NOTES SHEET E2.2

1 60 AMP, 600 VOLT, NEMA 3R, NON FUSED DISCONNECT SWITCH FOR TRANSFORMER. SEE DETAL 2/E2.1.
2 TRANSFORMER 'TW'. 45 KVA, NEMA 3R, 480 VOLT, 3 PHASE, 3 WIRE TO 120/208 VOLT, 3 PHASE, 4 WIRE. SEE DETAIL 2/E2.1 AND 3/E4.1.
3 PANEL 'LW'. 225 AMP, 120/208 VOLT, 3 PHASE, 4 WIRE. SEE DETAILS 2/E2.1, 2/E4.1, AND PANEL SCHEDULES.
4 480 VOLT JUNCTION BOX. 18" X 18" X 6" DEEP NEMA 4X PVC. SEE DETAIL2/E4.1.
5 AS-1 AIR STRIPPER. 15 HP, 480 VOLT, 3 PHASE, 21 FLA. .75" UG CONDUIT TO PANEL 'HP2' VIA NOTE 4 WITH 3 #10 THWN CU, #10 CU. GR. CONNECT TO CONTROL PANEL AS REQUIRED.
6 CL-1 CLARIFIER. 120 VOLTS, 5 AMPS. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #12 THWN CU. & #12 CU. GR.
7 NF-1 NANO FILTRATION SYSTEM. 3 HP, 480 VOLT, 3 PHASE. 4.8 FLA. .75" UG CONDUIT TO PANEL 'HP2' VIA NOTE 4 WITH 3 #10 THWN CU. & #12 CU. GR. .75" UG CONDUIT TO NOTE 10 PUMP CONTROLLER WITH 2 #12 THWN CU, & #12 CU. GR. FOR CONTROL OF PUMP. CONNECT TO CONTROL PANEL AS REQUIRED.
8 DFS-1 DRY FEED AND SLURRY SYSTEM. 10 HP, 480 VOLT, 3 PHASE, 14 FLA. .75" UG CONDUIT TO PANEL 'HP2' VIA NOTE 4 WITH 3 #10 THWN CU, #12 CU. GR. CONNECT TO CONTROL PANEL AS REQUIRED.
9 P-1 PUMP. 120 VOLT, 16 FLA. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #10 THWN CU. & #12 CU. GR. AND .75" UG CONDUIT WITH 3 #12 THWN CU. AND #12 CU. GR. TO FLOAT SWITCH ON TANKS T-1 AND T1-A. SEE DETAIL 4/E4.1.
10 P-2 PUMP. 120 VOLT, 16 FLA. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #10 THWN CU. & #12 CU. GR. AND .75" UG CONDUIT WITH 3 #12 THWN CU. AND #12 CU. GR. TO CONTROL PANEL ON NOTE 7. SEE DETAIL 4/E4.1.
11 P-3 PUMP. 120 VOLT, 16 FLA. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #10 THWN CU. & #12 CU. GR. AND 75" UG CONDUIT WITH 3 #12 THWN CU. AND #12 CU. GR. TO CONTROLLER ON NOTE 19. SEE DETAIL 4/E4.1.
12 P-4 PUMP. 120 VOLT, 16 FLA. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #10 THWN CU. & #12 CU. GR. AND .75" UG CONDUIT WITH 3 #12 THWN CU. AND #12 CU. GR. TO FLOAT SWITCH ON TANKS T-2 AND T-3. SEE DETAIL 4/E4.1.
13 P-5 PUMP. 120 VOLT, 16 FLA. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #10 THWN CU. & #12 CU. GR. AND .75" UG CONDUIT WITH 3 #12 THWN CU. AND #12 CU. GR. TO FLOAT SWITCH ON TANK T-5A. SEE DETAIL 4/E4.1.
14 P-7 PUMP. 120 VOLT, 16 FLA. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #10 THWN CU. & #12 CU. GR. AND .75" UG CONDUIT WITH 3 #12 THWN CU. AND #12 CU. GR. TO FLOAT SWITCH ON TANK T-4A. SEE DETAIL 4/E4.1.
15 P-8 PUMP FUTURE. 120 VOLT, 16 FLA. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #10 THWN CU. & #12 CU. GR. .75" UG CONDUIT WITH 3 #12 THWN CU. AND #12 CU. GR. TO FLOAT SWITCH ON TANK T-6. SEE DETAIL 4/E4.1.
16 P-9 PUMP. 120 VOLT, 16 FLA. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #10 THWN CU. & #12 CU. GR. SEE DETAIL 4/E4.1. INTERLOCK THROUGH IRRIGATION CONTROLLER WITH .75" CONDUIT WITH 2 #12 THWN CU. & #12 CU. GR.
17 P-10 PUMP. 120 VOLT, 7.2 FLA. .75" UF CONDUIT TO PANEL 'LW' WITH 2 #10 THWN CU. & #12 CU. GR. .75" UG CONDUIT WITH 3 #12 THWN CU. AND #12 CU. GR. TO FLOAT SWITCH ON TANK T-7 AND ALSO TO NOTE 21. SEE DETAIL 4/E4.1.
18 POLE BASE PER DETAIL 7/E4.1 WITH GFI RECEPTACLE MOUNTED ON POLE. .75" UG CONDUIT BETWEEN POLES TO PANEL 'LW' WITH 3 #10 THWN CU. & #12 CU. GR.
19 F-1 FILTER. 120 VOLT, 3 AMPS. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #12 THWN CU. & #12 CU. GR. SEE DETAIL 4/E4.1. .5" CONDUIT TO NOTE 11 PUMP CONTROLLER WITH 2 #12 THWN CU, & #12 CU. GR. FOR CONTROL OF PUMP. CONNECT TO CONTROL PANEL AS REQUIRED.
20 CDS-1 ANTI SCALENT SYSTEM. 120 VOLT, 16 FLA. .75" UG CONDUIT TO PANEL 'LW' WITH 2 #12 THWN CU. & #12 CU. GR.
21 IX-1 ION EXCHANGE SYSEM. 7.5 HP, 480 VOLT, 3 PHASE, 11 FLA. .75" UG CONDUIT TO PANEL 'HP2' VIA NOTE 4 WITH 3 #10 THWN CU. & #12 CU. GR. .75" CONDUIT TO NOTE 12 PUMP CONTROLLER WITH 2 #12 THWN CU, & #12 CU. GR. FOR CONTROL OF PUMP AND TO FLOAT SWITCH ON TANKS T-7 AND T-9. CONNECT TO CONTROL PANEL AS REQUIRED.
22 CIP-1 CLEAN IN PLACE SYSTEM. 5 HP, 480 VOLT, 3 PHASE, 7.6 FLA. .75" UG CONDUIT TO PANEL 'HP2' VIA NOTE 4 WITH 3 #10 THWN CU. & #12 CU. GR. CONNECT TO CONTROL PANEL AS REQUIRED.
23 SAMPLING STATION. 2 AMPS, 120 VOLT. PROVIDE RECEPTACLE AND .75" UG CONDUIT TO PANEL 'LW' WITH 2 #12 THWN CU. & #12 CU. GR. SEE DETAIL 4/E4.1.
24 SP-1 SUMP PUMP. 3 HP, 480 VOLT, 3 PHASE, 4.8 FLA. .75" UG CONDUIT TO PANEL 'HP2' VIA NOTE 4 WITH 3 #10 THWN CU. & #12 CU. GR. SEE DETAIL 5/E4.1. PROVIDE 1" CONDUIT TO PIT FOR POWER CABLE FURNISHED WITH PUMP, AND 2" CONDUIT FOR FLOAT SWITCH CABLES FURNISHED AND INSTALLED BY OTHERS. SEE DETAIL 6/PP6.1.
25 PIPE RACK DOWN CENTER FURNISHED AND INSTALLED BY OTHERS. SEE DETAIL 6/E4.1 AND MECHANICAL DRAWINGS DETAIL 1/PP6.1.
26 FLOAT SWITCHES ON TANKS FURNISHED AND INSTALLED BY OTHERS AND CONNECTED BY ELECTRICAL CONTRACTOR. ADJACENT NUMBER INDICATES PUMP OR EQUIPMENT CONTROLED BY.
27 2-1" CONDUITS FROM CO-GEN BUILDING FOR FUTURE DATA WIRING. STUB UP UNDER PIPE RACK FOR FUTURE CONNECTION.

GENERAL NOTES

A LETTER AND NUMBER ADJACENT TO OUTLET / EQUIPMENT INDICATES PANEL AND CIRCUIT NUMBER.
B ROUTE ALL CONDUIT ON STRUT RACKS.
C CONNECT ALL EQUIPMENT AS REQUIRED.
D CONDUITS AND WIRING CAN BE COMBINED IF THEY MEET THE DERATING FACTORS IN THE CEC.
E PROVIDE OVERLOAD HEATERS IN MANUAL AND COMBINATION STARTERS PER MOTOR DATA.

FIXTURE SCHEDULE

TYPE	DESCRIPTION	LAMP	MANUFACTURER AND CAT. NUMBER
A	20' POLE AND 1 HEAD ON 2' HIGH BAS	309W LED	COOPER #GLAN-SA5D-740-U-T4FT-BZ-MS/DIM-
	309 WATTS	4000K	L40
			LUMARK #SS5M20SFN1-E+TMP1 POLE
	PROVIDE 2 PROGRAMMING TOOLS		
	COOPER #FSIR-100		
.			

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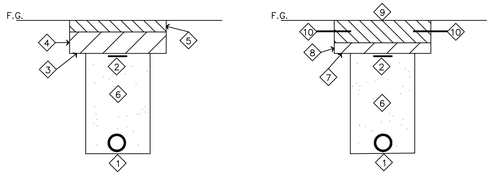
SITE PLAN AND SINGLE LINE DIAGRAM

VERTIS PROCESS WATER TREATMENT
100 DON BATES WAY
KING CITY, CA. 93930

DRAWN	GP
CHECKED	GP
DATE	11/14/24
SCALE	AS NOTED
JOB #	-

THE USE OF THESE PLANS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY WERE PREPARED AND PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE. RE-USE, REPRODUCTION OR PUBLICATION BY ANY METHOD IN WHOLE OR IN PART IS PROHIBITED. TITLE TO THE PLANS AND SPECIFICATIONS REMAINS WITH LIGHTWORKS, INC., AND VISUAL CONTACT WITH THEM CONSTITUTES PRIMA FACIE EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS.

E2.2



ASPHALT PAVING CONCRETE PAVING

◇ KEYED ELECTRICAL NOTES FOR TRENCH SECTIONS

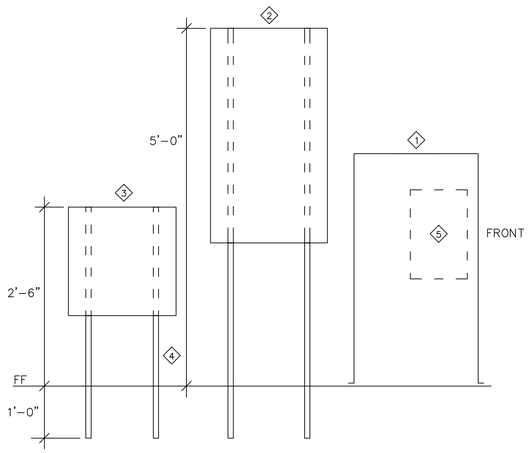
1 ELECTRICAL OR SYSTEMS CONDUIT PER PLANS. PROVIDE CLEARANCES PER ALL APPLICABLE CODES, PLANS, AND SPECIFICATIONS, MINIMUM 6" SPACING BETWEEN SYSTEMS & POWER CONDUITS, AND DUCT BANK SPACING PER NEC ARTICLE 310. TRENCH TO BE 2" WIDER THAN CONDUIT ON ALL SIDES WITH 2" SAND UNDER CONDUIT.
2 PROVIDE DETECTABLE MARKER TAPE FULL LENGTH OF TRENCH 12" ABOVE CONDUIT.
3 CUT PAVING 6" WIDER THAN ACTUAL WIDTH OF TRENCH ON EACH SIDE.
4 4" OF CLASS 4 BASEROCK COMPACTED TO 95%.
5 2" AC PAVING.
6 COMPACTED SAND BACKFILL TO 95%.
7 CUT CONCRETE 3" WIDER THAN ACTUAL WIDTH OF TRENCH ON EACH SIDE.
8 2" OF SAND.
9 4" OF 3,000 LB. CONCRETE.
10 12" OF #4 RE-BAR DOWELS AT 6" O.C. DRILL 6" INTO (E) CONCRETE AND SET WITH EPOXY GROUT.

GENERAL NOTES:

A PROVIDE 5/8" CANE FIBER EXPANSION JOINTS AT 20' O.C. IN CONCRETE PAVING.
B NATIVE SOIL MAY BE USED AS BACKFILL IN TRENCHES NOT UNDER ASPHALT, CONCRETE, OR ANY TYPE OF PAVING. NATIVE SOIL SHALL BE COMPACTED TO 95%.
C ALL UNDERGROUND CONDUIT TO HAVE 24" MINIMUM COVER IN ALL AREAS.

TRENCH SECTION DETAIL
NOT TO SCALE

1

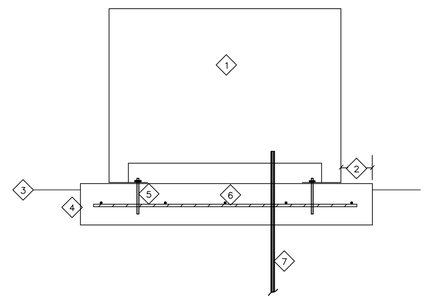


◇ KEYED ELECTRICAL NOTES FOR PANEL/PULLBOX/TRANSFORMER DETAIL

1 TRANSFORMER 'TW'. SCHNEIDER #EX45TRH WITH NEMA 3R HOOD. 35"H X 25"W X 20" D. SEE DETAIL 3/E4.1.
2 PANEL 'LW'. SEE PANEL SCHEDULES.
3 18" X 18" X 6" DEEP NEMA 4X PVC BOX.
4 B-LINE #B22A DOUBLE STRUT SUPPORTS.
5 60 AMP DISCONNECT MOUNTED ON BACK SIDE OF TRANSFORMER.
6 PROVIDE SPRING NUTS AND GALVANIZED BOLTS AT ALL ATTACHMENTS.
7 ALL STRUT AND FITTINGS TO BE GALVANIZED.

PANEL/PULLBOX/TRANSFORMER DETAIL
SCALE 1" = 1'-0"

2

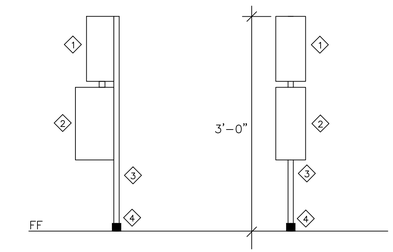


◇ KEYED ELECTRICAL NOTES FOR TRANSFORMER INSTALLATION

1 TRANSFORMER SIZED PER PLANS WITH NEMA 3R ENCLOSURE.
2 PAD TO BE 6" LARGER THAN TRANSFORMER ON ALL 4 SIDES.
3 PAD TO BE 1" HIGHER THAN FINISHED GRADE.
4 8" THICK, 2500 PSI CONCRETE PAD.
5 3/8" X 6" GALVANIZED HILTI KWIK BOLT 3. LOCATE 2" FROM EACH CORNER OF TRANSFORMER (4 REQUIRED).
6 #3 REBAR 18" ON CENTER IN EACH DIRECTION AND 2" FROM EDGE OF PAD.
7 3/4" X 10' GROUND ROD THROUGH PAD STUBBED INTO TRANSFORMER. GROUND CENTER TAP OF TRANSFORMER TO GROUND ROD WITH CU. WIRE SIZED PER CEC ARTICLE 250.

TYPICAL TRANSFORMER INSTALLATION
NOT TO SCALE

3



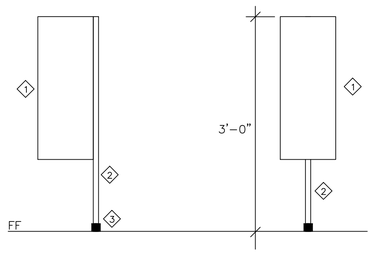
SIDE ELEVATION FRONT ELEVATION

◇ KEYED ELECTRICAL NOTES FOR MANUAL STARTER DETAIL

1 SCHNEIDER #MBWI MANUAL MOTOR STARTER. 10"H X 6"W X 5"D. PROVIDE OVERLOADS PER MOTOR FLA.
2 SCHNEIDER #SCW11VO2 CONTACTOR. 12"H X 6.5"W X 6.5"D. .75" CONDUIT AND HUB BETWEEN NOTES 1 & 2. PROVIDE HAND / OFF / AUTOMATIC CENTERED IN COVER.
3 B-LINE #B22A B-LINE DOUBLE STRUT.
4 B-LINE #B281SQ 6" X 6" BASE. 4-1/2" x 6" HILTI QUIK BOLTS PER BASE.
5 PROVIDE SPRING NUTS AND GALVANIZED BOLTS AT ALL ATTACHMENTS.
6 ALL STRUT AND FITTINGS TO BE GALVANIZED.
7 TACK WELD NOTE 3 TO NOTE 4 AS REQUIRED.

MANUAL STARTER DETAIL
SCALE 1" = 1'-0"

4



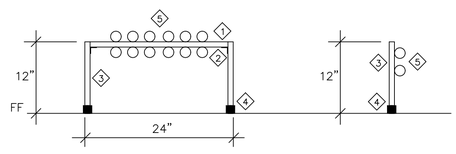
SIDE ELEVATION FRONT ELEVATION

◇ KEYED ELECTRICAL NOTES FOR COMBINATION STARTER DETAIL

1 SCHNEIDER #8539SCASPC COMBINATION MOTOR STARTER. 24"H X 8.75"W X 9.5"D. PROVIDE OVERLOADS PER MOTOR FLA. HOA IN COVER IS STANDARD.
2 B-LINE #B22A B-LINE DOUBLE STRUT.
3 B-LINE #B281SQ 6" X 6" BASE. 4-1/2" x 6" HILTI QUIK BOLTS PER BASE.
4 PROVIDE SPRING NUTS AND GALVANIZED BOLTS AT ALL ATTACHMENTS.
5 ALL STRUT AND FITTINGS TO BE GALVANIZED.
6 TACK WELD NOTE 2 TO NOTE 3 AS REQUIRED.

COMBINATION STARTER DETAIL
SCALE 1" = 1'-0"

5



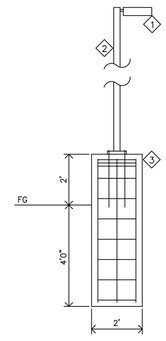
CONDUIT RACK HORIZONTAL CONDUIT RACK VERTICAL

◇ KEYED ELECTRICAL NOTES FOR CONDUIT RACKS

1 B-LINE #B22A DOUBLE STRUT. ADJUST WIDTH TO MATCH CONDUIT REQUIREMENTS.
2 B-LINE #B115 4 HOLE CORNER ANGLE.
3 B-LINE #B222A DOUBLE STRUT.
4 B-LINE #B281SQ 6" X 6" BASE. 4-1/2" x 6" HILTI QUIK BOLTS PER BASE.
5 CONDUITS PER PLANS WITH B-LINE STRAPS.
6 PROVIDE SPRING NUTS AND GALVANIZED BOLTS AT ALL ATTACHMENTS.
7 ALL STRUT AND FITTINGS TO BE GALVANIZED.
8 TACK WELD NOTE 3 TO NOTE 4 AS REQUIRED.

CONDUIT RACKS DETAIL
SCALE 1" = 1'-0"

6



◇ KEYED ELECTRICAL NOTES FOR LIGHT POLE, FIXTURE AND BASE

1 FIXTURE PER FIXTURE SCHEDULE.
2 POLE PER FIXTURE SCHEDULE.
3 24" DIAMETER CONCRETE BASE WITH THE FOLLOWING:
BASE TO BE 5'6" BELOW FINISHED GRADE.
BASE TO BE FORMED 2" ABOVE FINISHED GRADE USING SONO TUBE.
BASE TO BE FORMED 6" BELOW FINISHED GRADE USING SONO TUBE.
6 #5 VERTICAL RE-BAR AT QUARTER POINTS.
3 #3 TIES AT TOP 6" THEN 12" ON CENTER TO BOTTOM.
RE-BAR SPACED 3" FROM OUTSIDE OF FORMS, TYPICAL.
RE-BAR SPACED 3" FROM TOP AND BOTTOM OF BASE.
ANCHOR BOLTS PER MANUFACTURER.
USE 5 SACK CONCRETE AND CONCRETE VIBRATOR WHEN POURING.
GROUT TOP OF POLE BASE AFTER POLE IS SET IN PLACE.

POLE BASE DETAIL
NOT TO SCALE

7

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DRAWN	GP
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E4.1

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

Vertis Process Water Facility
100 Don Bates Way
King City, Ca. 93930

Project Designer:

Miracles Unlimited
5568 Woodbine Road #450
Pace, Florida 32571
831-688-8013

Report Prepared by:

Mills Miracle
Lightworks, Inc.
5568 Woodbine Road #450
Pace, Florida 32571
831-688-8013

Job Number:

6699

Date:

11/10/2024

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2022 Building Energy Efficiency Standards.

This program developed by EnergySoft, LLC – www.energysoft.com.

TABLE OF CONTENTS

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Vertis Process Water Facility	**Report Page:**	**(Page 1 of 7)**
Project Address: 100 Don Bates Way	**Date Prepared:**	11/10/2024

This document is used to demonstrate compliance with requirements in 110.9, 130.0, 130.2, 140.7, and 141.0(b)2L for outdoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in 160.5, 170.2(e)6, 180.1(a) and 180.2(b)4Bv for outdoor lighting scopes using the prescriptive path for multifamily and mixed-use occupancies. Multifamily includes dormitory and senior living facilities.

A. GENERAL INFORMATION

01	Project Location (city)	King City	04	Total Illuminated Hardscape Area (ft²)	0
02	Climate Zone	4			
03	Outdoor Lighting Zone per Title 24 Part 1 10.114 or as designated by Authority Having Jurisdiction (AHJ):				
☐	LZ-0: Very Low - Undeveloped Parkland	☒	LZ-2: Moderate - Urban Clusters	☐	LZ-4: High - Must be reviewed by CA Energy Commission for Approval
☐	LZ-1: Low - Rural Areas	☐	LZ-3: Moderately High - Urban Areas		
05	Occupancy Types within Project				
•	All Other Occupancies				

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.7 / 170.2(e)6 or 141.0(b)2L / 180.2(b)4Bv for alterations.

My Project Consists of:

01	02
☒ New Lighting System	Must Comply with Allowances from 140.7 / 170.2(e)6
☐ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)? ○ Yes ○ No

03	04	05
% of Existing Luminaires Being Altered[1]	Sum Total of Luminaires Being Added or Altered	Calculation Method
☐ <10% ☐ >= 10% and < 50% ☐ >= 50%		

Please proceed to Table E. Outdoor Lighting Fixture Schedule to define the project's luminaires.

[1] *FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.*

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Vertis Process Water Facility	**Report Page:**	**(Page 2 of 7)**
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C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through N. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D, Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) 140.7 / 170.2(e)6 or 141.0(b)2L / 180.2(b)4Bv											Compliance Results		
01		02		03		04		05		06	07	08	09
General Hardscape Allowance 140.7(d)1 / 170.2(e)6 (See Table I)	+	Per Application 140.7(d)2 / 170.2(e)6 (See Table J)	+	Sales Frontage 140.7(d)2 (See Table K)	+	Ornamental 140.7(d)2 / 170.2(e)6 (See Table L)	+	Per Specific Area 140.7(d)2 / 170.2(e)6 (See Table M)	OR	Existing Power Allowance 141.0(b)2L / 180.2(b)4Bv (See Table N)	**Total Allowed** (Watts)	≥	**Total Actual** (Watts)	**07 must be >= 08**
0	+	---	+	---				1,280	OR	---	1,280	≥	1,280	COMPLIES
										Shielding Compliance (See Table G for Details)				N/A
										Controls Compliance (See Table H for Details)				COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with unedittable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

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E. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)6 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)2L only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie. existing luminaires remaining or existing luminaires being moved are not included). Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H, and are not included here. All other multifamily outdoor lighting is included here.

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire[1,2]	How Is Wattage determined	Total Number Luminaires[2]	Luminaire Status[3]	Excluded per 140.7(a) / 170.2(e)6A	Design Watts	Cutoff Req. > 6,200 initial lumen output 130.2(b) / 160.5(c)1[4]	Field Inspector	
										Pass	Fail
A	309w LED	☐ Linear	320	Mfr. Spec	4	New	☐	1,280	NA; < 6200 lumens	☐	☐
							Total Design Watts:	1280			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX: Luminaire is lighting a statue; EXCEPTION 2 to 130.2(b)

[1] *FOOTNOTES: Authority Having Jurisdiction may ask for luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b)*
[2] *For linear luminaires, wattage should be indicated as W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.*
[3] *Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.*
[4] *Compliance with mandatory shielding requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by 130.2(b)i/ 160.5(c)*

G. SHIELDING REQUIREMENTS (BUG)

This section does not apply to this project.

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H. OUTDOOR LIGHTING CONTROLS

This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
Outdoor lighting for nonresidential buildings, parking garages and common service areas in multifamily buildings must be documented separately from outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit

Mandatory Controls for Nonresidential Occupancies, Parking Garages & Common Areas in Multifamily Buildings

01	02	03	04	05	
Area Description	Shut-Off 130.2(c)1 / 160.5(c)	Auto-Schedule 130.2(c)2 / 160.5(c)	Motion Sensor 130.2(c)3 / 160.5(c)	Field Inspector	
				Pass	Fail
Process Water Pad	Photocontrol	Provided	Provided	☐	☐

[1] *FOOTNOTE: Text has been abbreviated, please refer to Table 160.5-A to confirm compliance with the specific light source technologies listed.*
[2] *Authority having jurisdiction may ask for cutsheets or other documentation to confirm compliance of light source.*
[3] *Recessed luminaires marked for use in fire-rated installations, and recessed luminaires installed in non-insulated ceilings are excepted from ii and iii.*

I. LIGHTING POWER ALLOWANCE (per 140.7 / 170.2(e))

This table includes areas using allowance calculations per 140.7 / 170.2(e). General Hardscape Allowance is per Table 140.7-A/Table 170.2-R while "Use it or lose it" Allowances are per Table 140.7-B /Table 170.2-S. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.
Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

	01				
	"Use it or lose it" Allowance (select all that apply) (select all that apply)				
☐ General Hardscape Allowance Table I (below)	☐ Per Application Table J	☐ Sales Frontage Table K	☐ Ornamental Table L	☒ Per Specific Area Table M	

J. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

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K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This table includes areas using the wattage allowance per specific area from Table 140.7-B /Table 170.2-S. More than one specific area allowance may be taken in a single project, if applicable. However, multiple specific area allowances may not be taken for the exact same area on the site.

01	02	03	04	05	06	07	08	09	10
		CALCULATED ALLOWANCE (Watts)			DESIGN WATTS				
Area Description	Specific Area Type per Table 140.7-B	Specific Area (ft²)[2]	Allowed Density (W/ft²)	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire	# of Luminaires	Design Watts	Additional Allowance (Watts)
Filter Area Lighting	SalesLot	6300	0.2	1323	A	320	4	1,280	1280
							Total Design Watts for this Area		1280
							Total Allowance (Watts) All Areas:		1280

[1] *FOOTNOTES: See Table 140.7-B /Table 170.2-S for rules for calculating the specific areas (ft²) for these additional lighting allowances.*
[2] *For luminaires indicated in Table F as linear, wattage in column 07 is W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 08 instead of number of luminaires.*

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

STATE OF CALIFORNIA
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O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-LTO-E - Must be submitted for all buildings

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	Process Water Pad;

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Vertis Process Water Facility	**Report Page:**	**(Page 7 of 7)**
Project Address: 100 Don Bates Way	**Date Prepared:**	11/10/2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Mills Miracle	Documentation Author Signature:
Company: Lightworks, Inc.	Signature Date:
Address: 5568 Woodbine Road #450	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Pace Florida 32571	Phone: 831-688-8013

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Mills Miracle	Responsible Designer Signature:
Company: Miracles Unlimited	Date Signed: 2024-11-10
Address: 5568 Woodbine Road #450	License:
City/State/Zip: Pace Florida 32571	Phone: 831-688-8013

REVISIONS

LIGHTWORKS, INC.
26403 LUCIE LANE SALINAS, CA. 93908
PHONE (831) 596-3667 E-MAIL LTWKS@AOL.COM

TITLE 24

VERTIS PROCESS WATER TREATMENT
100 DON BATES WAY
KING CITY, CA. 93930

DRAWN	GP
CHECKED	GP
DATE	11/14/24
SCALE	AS NOTED
JOB #	–

IN ASSOCIATION WITH:

LIGHTWORKS, INC.
26403 Lucie Lane
Salinas, CA 93908
PH. 831-596-3667
ltwks@aol.com

MIRACLES UNLIMITED, INC.
PO Box 1808
Aptos, CA 95001-1808
PH. 831-688-8013
Fax. 831-688-0201

E4.2

STRUCTURAL PLANS

- FOR -

VERTIS PROCESS WATER TREATMENT

100 DON BATES WAY
KING CITY, CA

- BY -

M.E. Designs

Civil & Structural Engineering
Drafting & Design

SHEET INDEX

PROJECT DESIGN CRITERIA

GOVERNING BUILDING CODE
2022 CALIFORNIA BUILDING CODE

GEOTECHNICAL PARAMETERS (ASSUMED)

BEARING PRESSURE	1500	PSF
LATERAL PASSIVE PRESSURE	250	PCF
EFP (REST / ACTIVE)	60 / 45	PCF
FRICTION COEFFICIENT	0.35	

WIND DESIGN PARAMETERS

DESIGN PROCEDURE	SIMPLIFIED, LRFD
BASIC WIND SPEED	105 MPH
EXPOSURE	C
RISK CATEGORY	II
INTERNAL PRESSURE COEFF.	N/A
DESIGN LATERAL WIND PRESSURE	16.3 PSF (H=15')
DESIGN VERTICAL WIND PRESSURE	N/A PSF

SEISMIC DESIGN PARAMETERS

DESIGN PROCEDURE	EQUIV. FORCE	
SITE CLASS	D	
IMPORTANCE FACTOR	1.00	
RISK CATEGORY	II	
MAPPED SPECTRAL RESPONSE	SS = 1.50	S1 = 0.531
SPECTRAL RESPONSE COEFFICIENT	SDS = 1.20	SD1 = N/A
SEISMIC DESIGN CATEGORY	SDC = D	
SEISMIC FORCE RESISTING SYSTEM	FLAT BOTTOM SELF ANCHORED GROUND SUPPORTED TANK	
RESPONSE MODIFICATION FACTOR	R = 2.5	
DESIGN BASE SHEAR	PER ASCE SECTION 15.7.6.1	
PROCEDURE USED	LRFD	

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM WITH THE:
   2022 CBC 2022 CEC
   2022 CMC 2022 CPC
   2022 CAL GREEN 2022 CFC
   2022 CENC AND T-24
2. THESE NOTES SHALL APPLY TO ALL DRAWINGS UNLESS OTHERWISE NOTED OR SHOWN. FEATURES OF CONSTRUCTION SHOWN ARE TYPICAL AND THEY SHALL APPLY GENERALLY THROUGHOUT SIMILAR CONDITIONS. ALL OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR GENERAL NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ ENGINEER BY THE GENERAL CONTRACTOR BEFORE PROCEEDING WITH ANY WORK SO INVOLVED. SPECIFICATIONS WHICH REFERENCE CONDITIONS NOT IN THIS SCOPE OF THE PROJECT MAY BE OMITTED.
3. ALL WORK AND CONSTRUCTION METHODS AND MATERIALS SHALL COMPLY WITH ALL PROVISIONS OF THE BUILDING CODES AND OTHER RULES, REGULATIONS AND ORDINANCES GOVERNING THE CONSTRUCTION SITE. BUILDING CODE REQUIREMENTS IN ALL CASES TAKE PRECEDENCE OVER THE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF ANYONE SUPPLYING LABOR AND/OR MATERIALS TO BRING TO THE ATTENTION OF THE ARCHITECT/ENGINEER ANY DISCREPANCIES OR CONFLICTS BETWEEN THE REQUIREMENTS OF THE CODE AND THE DRAWINGS.
4. DO NOT SCALE THE DRAWINGS. DIMENSIONS SHOWN SHALL TAKE PRECEDENCE OVER DRAWING SCALE OR PROPORTION. LARGE SCALE DRAWINGS SHALL TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS.
5. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE SHOWN, THEY DO NOT INDICATE METHOD OF CONSTRUCTION. CONTRACTOR SHALL SUPERVISE AND DIRECT WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE ARCHITECT/ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES REQUIRED FOR SAME, WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY SUPPORT SERVICES PERFORMED BY THE ARCHITECT/ENGINEER DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS, AND THEREFORE THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
6. CONTRACTOR HEREBY GUARANTEES TO THE OWNER AND THE ARCHITECT/ENGINEER THAT ALL MATERIALS, FIXTURES, AND EQUIPMENT FURNISHED TO THE PROJECT ARE NEW UNLESS OTHERWISE SPECIFIED. CONTRACTOR ALSO WARRANTS THAT ALL WORK WILL BE OF GOOD QUALITY AND FREE FROM ANY FAULTS AND DEFECTS FOR A PERIOD OF ONE YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION, UNLESS A GREATER WARRANTY OR GUARANTEE IS REQUIRED BY THE PROJECT SPECIFICATIONS.
7. ANYONE SUPPLYING LABOR AND/OR MATERIALS TO THE PROJECT SHALL CAREFULLY EXAMINE ALL SUBSURFACES TO RECEIVE WORK. ANY CONDITIONS DETRIMENTAL TO WORK SHALL BE REPORTED IN WRITING TO THE CONTRACTOR AND DESIGN PROFESSIONAL(S) OF RECORD PRIOR TO BEGINNING WORK. COMMENCEMENT OF WORK SHALL IMPLY ACCEPTANCE OF ALL SUBSURFACES.
8. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR DEPRESSED SLABS CURB, FINISHES, TEXTURES, CLIPS, GROUNDS, ETC., NOT SHOWN ON STRUCTURAL DRAWINGS.
9. ANY MATERIALS STORED AT THE SITE SHALL BE COMPLETELY SUPPORTED FREE OF THE GROUND, COVERED AND OTHERWISE PROTECTED TO AVOID DAMAGE FROM THE ELEMENTS.
10. MORE DETAILED INFORMATION SHALL TAKE PRECEDENCE OVER LESSER DETAILED INFORMATION. SPECIFICATIONS SHALL TAKE PRECEDENCE OVER DRAWINGS.
11. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL APPLICABLE CODES AND LOCAL ORDINANCES.
12. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE OR DISBURSE ANY EXCESS MATERIAL FROM PROJECT SITE.
13. THIS SET OF PLANS TO BE ON JOB SITE AT ALL TIMES DURING CONSTRUCTION. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED PLANS. NO CHANGES OR REVISIONS TO THE APPROVED PLANS OR SPECIFICATIONS SHALL BE PERMITTED UNLESS SUBMITTED TO AND APPROVED BY THE BUILDING OFFICIAL. THE ISSUANCE OF A PERMIT SHALL NOT PREVENT THE BUILDING OFFICIAL FROM REQUIRING THE CORRECTION OF ERRORS OR OMISSIONS FROM THE APPROVED PLANS AND SPECIFICATIONS. [CBC 108]
14. ALL CONTRACTORS AND SUB-CONTRACTORS MUST HAVE ON FILE WITH THE BUILDING DEPARTMENT, A LIST OF ALL SUCH CONTRACTORS AND SUB-CONTRACTORS WITH APPROPRIATE CURRENT BUSINESS LICENSE NUMBERS.
15. UNLESS NOTED OTHERWISE, ALL VESTIBULES, CLOSETS, COLUMNS, PROJECTIONS, RECESSES, OR OTHER ADJACENT AREAS WITHIN SCHEDULED AREA SHALL HAVE FINISHES AS SCHEDULED FOR THE RESPECTIVE SPACES IN WHICH THEY OCCUR.
16. CONTRACTOR SHALL VERIFY ALL SETBACKS, EASEMENTS, CONTOURS, AND BUILDING PAD PRIOR TO CONSTRUCTION.
17. TRUSS CALCULATIONS FOR APPROVED PROJECTS ARE REQUIRED TO BE ON THE JOB SITE AT TIME OF FRAMING INSPECTION WITH THE APPROPRIATE REQUIRED SIGNATURES AND STATEMENT AS FOLLOWS: TRUSS CALCULATIONS SHALL INCLUDE THE WET-STAMP AND SIGNATURE OF THE TRUSS DESIGN ENGINEER. IN ADDITION, THEY SHALL INCLUDE ON THE COVER SHEET A WET- SIGNED STATEMENT FROM THE PROJECT'S DESIGN ENGINEER THAT TRUSS CALCULATIONS AND LAYOUTS ARE IN SUBSTANTIAL CONFORMANCE WITH THE STRUCTURAL DESIGN AND INTENT OF THE STRUCTURE. FAILURE TO PROVIDE THEM AS STATED WILL RESULT IN A CORRECTION AND A FAILURE TO PASS FRAMING INSPECTION.
18. VERIFY LOCATION OF ALL UTILITY TIE-INS AT STREET AND POINT OF CONNECTIONS AT BUILDING PRIOR TO CONSTRUCTION.
19. IF A PROJECT SOILS REPORT IS REQUIRED OR SUPPLIED, A COPY OF THE REPORT SHALL BE ON SITE DURING FOUNDATION INSPECTION.
20. ALL PROPERTY CORNERS SHOULD BE ESTABLISHED AT THE TIME OF FOUNDATION INSPECTION WITH THE MARK OF A LICENSED SURVEYOR.

M.E. Designs
Civil & Structural Engineering
Drafting & Design
610 10th Street, SUITE B Paso Robles, CA 93446
805.610.9545 (office) 805.237.0480 (fax)
www.medesigns.us

PRELIMINARY

REGISTERED PROFESSIONAL ENGINEER — JOHN F. WAGG — C 42515 Exp. 03-31-26 — CIVIL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

PLAN PREPARED FOR:

VERTIS PROCESS WATER TREATMENT
100 DON BATES WAY
KING CITY, CA

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ---
FILE NAME S-1.1 STRUCTURAL TITLE SHEET.DWG
DRAWN BY JPM
DATE 11/14/2024 2:03 AM

SHEET TITLE:
STRUCTURAL TITLE SHEET

SHEET NUMBER:
S-1.1

P:\Vertis\Structural\Architectural\Dwg\Vertis\Sheets\S-1.1 STRUCTURAL TITLE SHEET.dwg John 11/14/2024 2:03:40 AM

STATEMENT OF SPECIAL INSPECTIONS

PROJECT ADDRESS: #####; ##### PERMIT NO: XXX

COLUMN HEADERS

C	INDICATES CONTINUOUS INSPECTION IS REQUIRED.
P	INDICATES PERIODIC INSPECTIONS ARE REQUIRED. THE NOTES AND OR CONTRACT DOCUMENTS SHOULD CLARIFY.
NOTES	APPLICABLE STANDARDS AS REFERENCED FROM THE CALIFORNIA BUILDING CODE

BOX ENTRIES

X	IS PLACED IN THE APPROPRIATE COLUMN TO DENOTE EITHER "C" CONTINUOUS OR "P" PERIODIC INSPECTIONS.
---	DENOTES AN ACTIVITY THAT IS EITHER A ONE-TIME ACTIVITY OR ONE WHOSE FREQUENCY IS DEFINED IN SOME OTHER MANNER.

Table 1705.3 – Concrete

Verification and Inspection	C	P	Notes
2. Reinforcing bar welding:			
a. Verify weldability of reinforcing bars other than ASTM A706;	---	X	AWS D1.4 ACI 318: 26.6.4
b. Inspect single-pass fillet welds, maximum 5/16"; and	---	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.c	X	---	ACI 318: 17.8.2.4
b. Mechanical anchors and adhesive anchors not defined in 4.a	---	X	ACI 318: 17.8.2
5. Verify use of required design mix.	---	X	ACI 318: Ch. 19, 26.4.3, 26.4.4 CBC 1904.1, 1904.2

SPECIAL INSPECTORS FOR THIS PROJECT

THE FOLLOWING ARE THE TESTING AGENCIES AND SPECIAL INSPECTORS THAT WILL BE RETAINED TO CONDUCT THE MAJORITY OF THE TESTS AND INSPECTION ON THIS PROJECT

RESPONSIBILITY	CONTACT INFORMATION
POST INSTALLED CONCRETE ANCHORS	TO BE DETERMINED

STRUCTURAL OBSERVATION

WHERE STRUCTURAL OBSERVATION OR TESTING IS REQUIRED BY SECTION 1709.4, THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE SHALL PREPARE A STATEMENT OF STRUCTURAL OBSERVATION IN ACCORDANCE WITH SECTION 1709.4 FOR SUBMITTAL BY THE PERMIT APPLICANT.

ITEM	REMARKS
FOUNDATION REINFORCING	N/A
STRUCTURAL MASONRY / RETAINING WALLS	N/A
ANCHOR BOLTS / UPLIFT (TENSION) ANCHORS	N/A
SHEARWALL / DIAPHRAGMS / COLLECTORS	N/A
STRUCTURAL WOOD FRAMING MEMBERS	N/A
WALL TO DIAPHRAGM TIES	N/A
MOMENT FRAME ATTACHMENT TO FRAMING	N/A
STRUCTURAL STEEL	N/A
UPON COMPLETION OF STRUCTURAL WORK FOR CONFORMANCE TO PLANS AND SPECIFICATIONS	N/A
OTHER	N/A

C = CONTINUOUS / P = PERIODIC

STRUCTURAL OBSERVATION NOTES

1. STRUCTURAL OBSERVATION IS REQUIRED FOR THE STRUCTURAL SYSTEM IN ACCORDANCE WITH COUNTY PLANNING & BUILDING'S STRUCTURAL OBSERVATION PROGRAM. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION AT THE CONSTRUCTION SITE OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETE STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED BY COUNTY PLANNING & BUILDING OR ANY OF THE SPECIAL INSPECTORS.
2. THE OWNER SHALL EMPLOY A STATE OF CALIFORNIA REGISTERED CIVIL OR STRUCTURAL ENGINEER OR LICENSED ARCHITECT TO PERFORM THE STRUCTURAL OBSERVATION.
3. THE OWNER OR OWNER'S REPRESENTATIVE SHALL COORDINATE A CALL FOR A MEETING, AS DESCRIBED IN SECTION 5.A.
4. THE STRUCTURAL OBSERVER OF RECORD (SOR) OR DESIGNATED STRUCTURAL OBSERVER (DSO) SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE LISTED ITEMS ON FORM BLD-1036 REQUIRE SITE VISITS, OBSERVATIONS AND A REPORT FROM THE SOR.
5. THE SOR SHALL PREPARE FORM BLD-1037 FOR EACH SIGNIFICANT CONSTRUCTION STAGE OBSERVED. THE ORIGINAL STRUCTURAL OBSERVATION REPORT SHALL BE SIGNED AND SEALED WITH A WET STAMP BY THE EOR/AOR AND SHALL BE SENT OR DELIVERED TO A COUNTY BUILDING OFFICIAL. A COPY OF THE OBSERVATION REPORT SIGNED AND SEALED WITH A WET STAMP BY THE RESPONSIBLE SOR SHALL BE RETAINED AT THE PROJECT SITE FOR THE USE OF THE OWNER, CONTRACTOR, AND INSPECTORS. ANY DEFICIENCY NOTED ON THE OBSERVATION REPORT WILL BECOME THE RESPONSIBILITY OF THE SOR TO VERIFY ITS COMPLETION BY HIM/HER, OR BY A REGISTERED SPECIAL INSPECTOR AT THE DISCRETION OF THE SOR.
6. A FINAL OBSERVATION REPORT MUST BE SUBMITTED THAT STATES ALL OBSERVED DEFICIENCIES ARE RESOLVED, AND THE STRUCTURAL SYSTEM GENERALLY CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. COUNTY PLANNING & BUILDING WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THAT OF THE APPROVED SPECIAL INSPECTOR, INCLUDING THE CORRECTION OF SPECIFIC DEFICIENCIES NOTED BY A COUNTY BUILDING INSPECTOR.
7. THE SOR SHALL PROVIDE THE FINAL WET STAMPED AND SIGNED FORM BLD-1037 TO COUNTY PLANNING & BUILDING.
8. WHEN THE OWNER ELECTS TO CHANGE THE SOR, THE OWNER SHALL:
   - 8.1. NOTIFY THE BUILDING OFFICIAL IN WRITING BEFORE THE NEXT INSPECTION BY SUBMITTING A REVISED FORM BLD-1036;
   - 8.2. CALL AN ADDITIONAL PRECONSTRUCTION MEETING; AND
   - 8.3. FURNISH THE REPLACEMENT STRUCTURAL OBSERVER WITH A COPY OF ALL PREVIOUS OBSERVATION REPORTS.

   THE REPLACEMENT SOR SHALL APPROVE THE CORRECTION OF ALL THE ORIGINAL OBSERVED DEFICIENCIES UNLESS OTHERWISE APPROVED BY A COUNTY BUILDING OFFICIAL. THE POLICY OF THE COUNTY PLANNING & BUILDING SHALL BE TO CORRECT ANY PROPERLY NOTED DEFICIENCIES WITHOUT CONSIDERATION OF THEIR SOURCE.

THE EOR/AOR SHALL PREPARE ALL CHANGES RELATING TO THE STRUCTURAL SYSTEMS. COUNTY PLANNING & BUILDING STAFF SHALL REVIEW AND APPROVE ALL CHANGES TO THE APPROVED PLANS AND SPECIFICATIONS.

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Paso Robles, CA 93446 805.237.0480 (fax)
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PRELIMINARY

REGISTERED PROFESSIONAL ENGINEER
JOHN P MAGGI
C 42515
Exp. 03-31-26
CIVIL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

PLAN PREPARED FOR:

VERTIS PROCESS WATER TREATMENT
100 DON BATES WAY
KING CITY, CA

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ---
FILE NAME SPECIAL INPSECTION-OBSERVATION NOTES.DWG
DRAWN BY JPM
DATE 11/14/2024 2:03 AM

SHEET TITLE:
SPECIAL INSPECTION

SHEET NUMBER:
S-1.2

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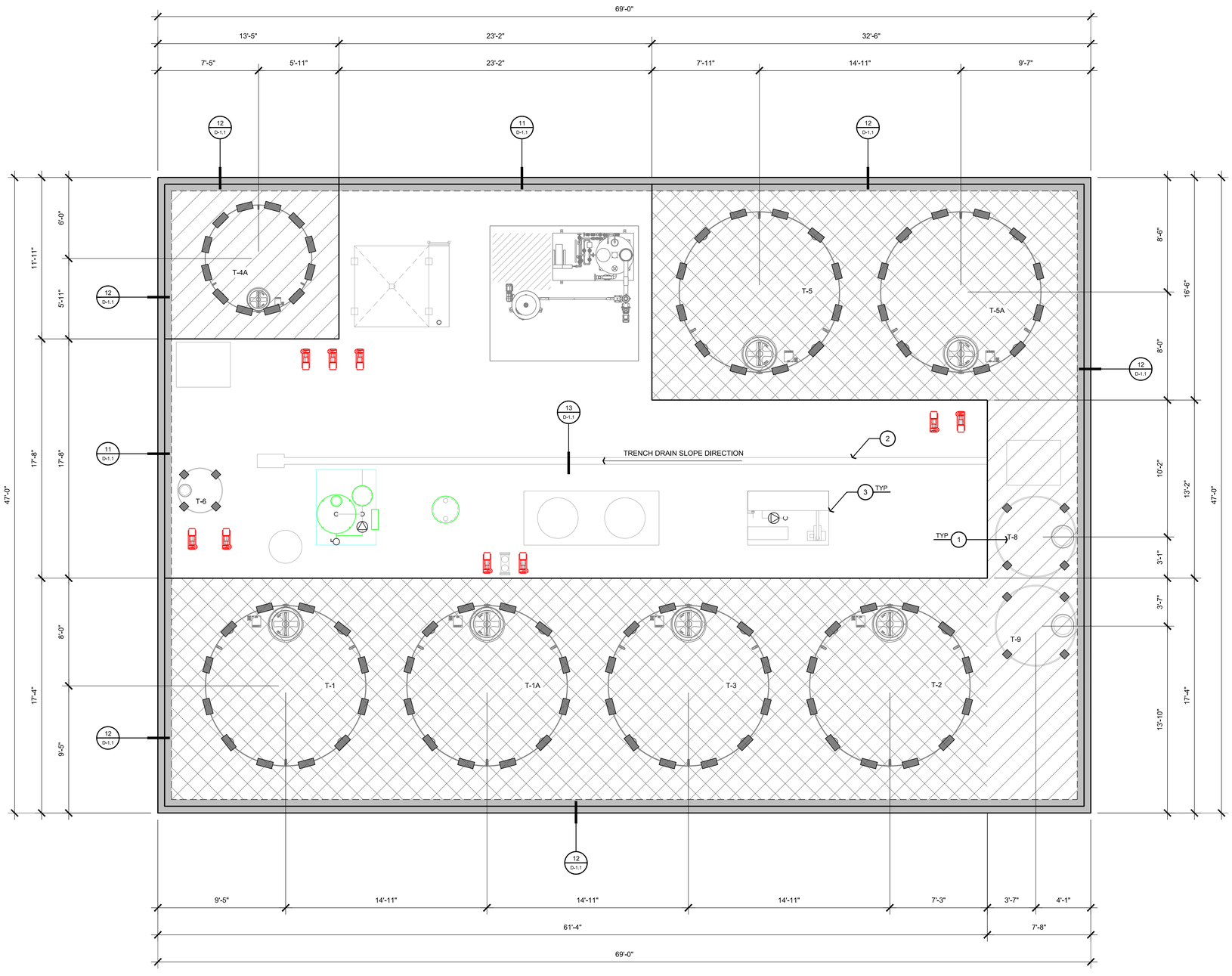

FOUNDATION PLAN
1/4" = 1'

FOUNDATION CALLOUTS

1. TANK REFERENCE NUMBER - REFER TO STORAGE TANK LEGEND 43/D-1.1
2. PREFABRICATED TRENCH DRAIN w/ 7% SLOPE
3. REFER TO MECHANICAL DRAWINGS FOR SLAB MOUNTED EQUIPMENT (ANCHORAGE BY OTHERS)

FOUNDATION NOTES

1. CONCRETE TO WITHSTAND 3500 PSI WITHIN 28 DAYS
2. ALL ANCHOR INSERTS TO BE PLACED IN CONCRETE PRIOR TO INSPECTION
3. FOUNDATION EXCAVATIONS SHALL BE INSPECTED BY THE BUILDING OFFICIAL AFTER EXCAVATION, BUT PRIOR TO PLACING REINFORCING STEEL OR FORMS
4. M.E. DESIGNS RECOMMENDS THAT A SOILS ENGINEER BE CONSULTED PRIOR TO FOUNDATION CONSTRUCTION TO DETERMINE APPROPRIATE FOUNDATION RECOMMENDATIONS
5. ALL CONSTRUCTION DIMENSIONS SHOULD BE VERIFIED WITH THE MECHANICAL SET OF PLANS

SOIL NOTE

SOILS EXPANSION INDEX IS ASSUMED HIGH
VERIFICATION MAY BE REQUIRED BY THE BUILDING OFFICIAL

CONCRETE NOTE

UNLESS NOTED IN SLAB LEGEND BELOW CONCRETE SLAB SHALL BE 8" THICK MINIMUM WITH #4 BARS @ 12" O.C. EACH WAY. SET REINFORCING MID-DEPTH OF SLAB. THE TOP 12" OF SUBGRADE SHOULD BE COMPACTED TO A RELATIVE DENSITY OF 95 PERCENT. SLOPE SLAB TO TRENCH DRAIN.

SOILS SHOULD BE MAINTAINED IN A MOIST CONDITION WITH NO DESICCATION CRACKS PRESENT UNTIL CONCRETE IS PLACED. CONCRETE SLABS SHALL BE SAW CUT 3/4" DEEP @ 15' O/C. GRIDS WITHIN 24 HOURS OF SLAB POUR.

SLAB / FOOTING LEGEND

- 12" THICK CONCRETE SLAB w/ #4 @ 6" O.C. EACH WAY TOP AND BOTTOM OF SLAB
- 12" THICK CONCRETE SLAB w/ #4 @ 8" O.C. EACH WAY TOP AND BOTTOM OF SLAB
- PROVIDE (2) #4 BARS AT BOTTOM INTO 12" WIDE x 24" DEEP FOOTING

HOLDOWN KEY

- (12) EMBEDDED HOLDOWN ANCHOR PLATES w/ PREFABRICATED TANK ANCHOR BRACKETS EQUALLY SPACED AS SHOWN (DESIGNED BY OTHERS). DESIGN TENSION = 15,800 # (LRFD LOADS). SHEAR NOT REQUIRED DUE TO TANK FRICTION w/ SLAB. ANCHOR BRACKETS TO BE INSTALLED TIGHT AGAINST TANK. SEE 21/D-1.1
- (4) PREFABRICATED TANK ANCHOR BRACKETS EQUALLY SPACED AS SHOWN (DESIGNED BY OTHERS). DESIGN TENSION = 13300 # (LRDF LOADS). SHEAR BOLTING NOT REQUIRED DUE TO TANK FRICTION w/ SLAB. ANCHOR BRACKETS TO BE INSTALLED TIGHT AGAINST TANK. SEE 22/D-1.1

EPOXY ANCHOR NOTE

ANCHORS PER PLANS TO (E) CONCRETE w/ THREADED ROD, HOLE DIAMETER AND DEPTH PER DETAILS. THOROUGHLY CLEAN OUT HOLES W/ COMPRESSED AIR & NYLON BRUSH OR USE SIMPSON VACUUM SPEED CLEAN DXS. VERIFY HOLES ARE CLEAN & DRY PRIOR TO STRUCTURAL OBSERVATION.

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REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ---
FILE NAME S-2.1 FOUNDATION PLAN.DWG
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DATE 11/14/2024 2:03 AM

SHEET TITLE:
FOUNDATION PLAN

SHEET NUMBER:
S-2.1

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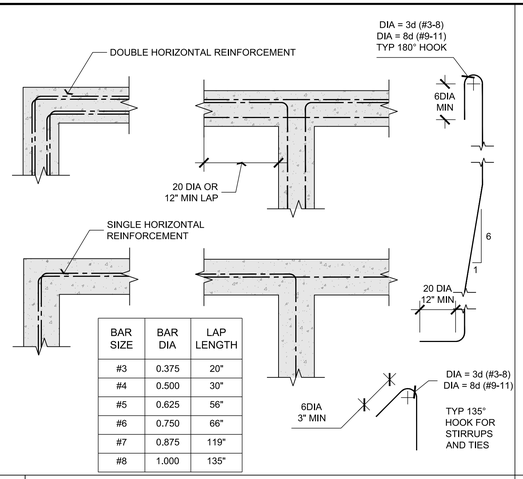
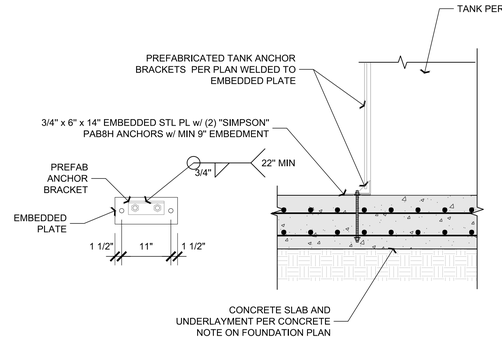


BAR SIZE	BAR DIA	LAP LENGTH
#3	0.375	20"
#4	0.500	30"
#5	0.625	56"
#6	0.750	66"
#7	0.875	119"
#8	1.000	135"

41 TYPICAL HORIZONTAL REINFORCING

NOT USED

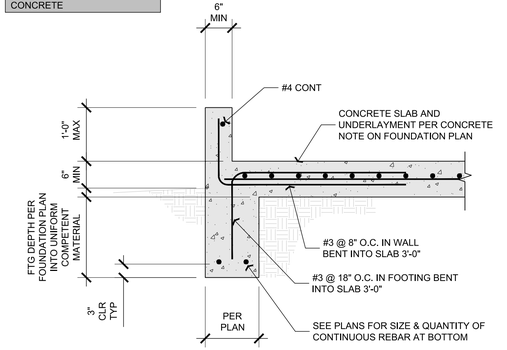
31 NOT USED



SEE DETAIL 12/D-1.1 FOR ALL NOTES AND DIMENSIONS NOT SHOWN HERE.

21 EMBEDDED HOLDOWN PLATE

SEE FOUNDATION PLAN / SOILS REPORT FOR SUBGRADE SOIL CONDITIONING REQUIREMENTS PRIOR TO PLACEMENT OF CONCRETE



11 PERIMETER FOOTING - SINGLE MAT

STORAGE TANK

MARK	GALLONS	DIM	HEIGHT	MAKE	WEIGHT	REMARKS
T-1	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-1A	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-2	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-3	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-4A	5,000	8'Ø	13'-3"	SNYDER	42,100	1 2 3
T-5	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-5A	10,000	12' Ø	13'-8"	SNYDER	85,300	1 2 3
T-6	1,000	72"Ø	66"	SNYDER	8,464	2 3 5 6
T-7	1,000	72"Ø	66"	SNYDER	8,464	2 3 4 6
T-8	275	48X40	46"	U-LINE	2,500	2 3 4 6
T-9	1,000	72"Ø	66"	SNYDER	8,464	2 3 4 6

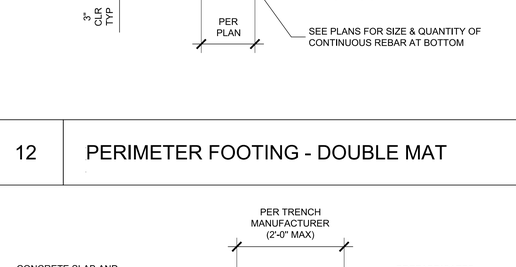
1 STANDARD GREEN WATER TANK
2 PROVIDE MANUF. STD. RESTRAINT SYSTEM, SEE DETAIL X/XXX
3 FITTINGS PER PLAN AND SCHEMATIC
4 COLLECTION, DISPOSAL BY OTHERS
5 BACK WASH COLLECTION
6 STANDARD WHITE WATER TANK

43 STORAGE TANK LEGEND (FOR REFERENCE ONLY)

SEE DETAIL 11/D-1.1 FOR ALL NOTES AND DIMENSIONS NOT SHOWN HERE.

22 PREFABRICATED TANK ANCHOR

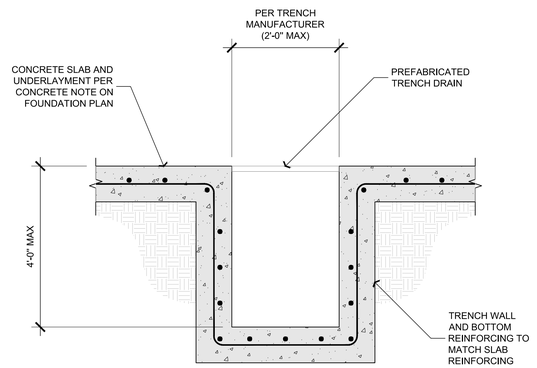
SEE FOUNDATION PLAN / SOILS REPORT FOR SUBGRADE SOIL CONDITIONING REQUIREMENTS PRIOR TO PLACEMENT OF CONCRETE



12 PERIMETER FOOTING - DOUBLE MAT

NOT USED

23 NOT USED



13 TRENCH DRAIN

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REV.	DESCRIPTION	DATE

PROJECT NO. ---
FILE NAME STRUCTURAL DETAILS.DWG
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DATE 11/14/2024 2:04 AM

SHEET TITLE:
DETAILS

SHEET NUMBER:
D-1.1

GENERAL NOTES

1. THE FOLLOWING NOTES, DETAILS, SCHEDULES & SPECIFICATIONS SHALL APPLY TO ALL PHASES OF THIS PROJECT UNLESSSS SPECIFICALLY OTHERWISE NOTED (UON). NOTES AND DETAILS ON THE STRUCTURAL PLANS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK. SPECIFICATIONS THAT REFERENCE CONDITIONS OUTSIDE THE SCOPE OF THIS PROJECT MAY BE OMITTED.
2. ALL DRAWINGS ARE CONSIDERED TO BE PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY APPLICABLE CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER OR ENGINEER.
3. REFER TO THE ARCHITECTURAL PLANS FOR THE FOLLOWING:
   - 3.1. DIMENSIONS
   - 3.1. SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR WALL LOCATIONS.
   - 3.2. SIZE AND LOCATION OF ALL FLOOR, ROOF AND WALL OPENINGS
   - 3.3. SIZE AND LOCATION OF ALL DRAINS, SLOPES, DEPRESSIONS, STEPS, ETC.
   - 3.4. SPECIFICATION OF ALL FINISHES & WATERPROOFING
   - 3.5. ALL OTHER NON-STRUCTURAL ELEMENTS
4. REFER TO THE MECHANICAL, ELECTRICAL AND PLUMBING PLANS FOR THE FOLLOWING:
   - 4.1. SIZE AND LOCATION OF ALL EQUIPMENT
   - 4.2. PIPE RUNS, SLEEVES, HANGERS AND TRENCHES
   - 4.3. ALL OTHER MECHANICAL, ELECTRICAL OR PLUMBING RELATED ELEMENTS
5. DO NOT SCALE STRUCTURAL PLANS. CONTRACTOR SHALL USE ALL WRITTEN DIMENSIONS ON ARCHITECTURAL PLANS.
6. CONSTRUCTION MATERIALS SHALL BE UNIFORMLY SPREAD OUT IF PLACED ON FLOOR OR ROOF SO AS TO NOT OVERLOAD THE FRAMING. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE SHORING AND/OR BRACING AS REQUIRED.
7. SPECIFICATIONS AND DETAILING OF ALL WATERPROOFING AND DRAINAGE ITEMS, WHILE SOMETIMES SHOWN ON THE STRUCTURAL PLANS FOR GENERAL INFORMATION PURPOSES ONLY, ARE SOLELY THE DESIGN RESPONSIBILITY OF OTHERS.
8. THE ENGINEER WILL NOT BE RESPONSIBLE FOR AND WILL NOT HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION DELINEATED BY THESE PLANS. IT SHOULD BE UNDERSTOOD THAT THE CONTRACTOR OR HIS/HER AGENT(S) SHALL SUPERVISE AND DIRECT ALL WORK AND SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. PERIODIC OBSERVATIONS BY THE ENGINEER, HIS STAFF OR REPRESENTATIVES ARE NOT INTENDED TO INCLUDE VERIFICATION OF DIMENSIONS OR REVIEW THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES ON OR NEAR THE CONSTRUCTION SITE.
9. MODIFICATIONS OF THE PLANS, NOTES, DETAILS AND SPECIFICATIONS SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
10. ALL WORKMANSHIP SHALL CONFORM TO THE BEST PRACTICE PREVAILING IN THE VARIOUS TRADES PERFORMING THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ONLY APPROVED STRUCTURAL PLANS ARE USED DURING THE COURSE OF CONSTRUCTION. THE USE OF UNAPPROVED DOCUMENTS SHALL BE AT THE CONTRACTOR'S OWN RISK. CORRECTIONS OF ALL WORK BASED ON SUCH DOCUMENTS SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE.
12. THESE PLANS AND SPECIFICATIONS REPRESENT THE STRUCTURAL DESIGN ONLY. NO INFORMATION NOR WARRANTY IS PROVIDED FOR THE WORK OF ANY OTHER CONSULTANT (ARCHITECT, MECHANICAL, ELECTRICAL, ETC.). THIS INCLUDES, BUT IS NOT LIMITED TO, WATERPROOFING, DRAINAGE, VENTILATION, ACCESSIBILITY, OR DIMENSIONS.

FOUNDATIONS

1. REFER TO STRUCTURAL DESIGN PARAMETERS SECTION ON SHEET S-1.1 FOR ALL SOIL DESIGN VALUES USED IN CALCULATIONS.
2. SOILS VALUES PER GEOLOGIC/GEOTECHNICAL REPORT REFERENCED ON FOUNDATION PLAN. THIS REPORT AND ALL RECOMMENDATIONS CONTAINED THEREIN ARE TO BE CONSIDERED A PART OF THESE PLANS.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COPY OF THE SOILS REPORT FROM THE OWNER. A COPY OF THE SOILS REPORT SHALL BE ON THE JOB SITE DURING THE COURSE OF CONSTRUCTION.
4. UNEXPECTED SOIL CONDITIONS: ALLOWABLE VALUES AND SUBSEQUENT FOUNDATION DESIGNS ARE BASED ON SOIL CONDITIONS WHICH ARE SHOWN BY TEST BORINGS. ACTUAL SOIL CONDITIONS WHICH DEVIATE APPRECIABLY FROM THAT SHOWN IN THE TEST BORINGS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
5. ALL COMPACTION, FILL, BACKFILLING AND SITE PREPARATION SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SOILS REPORT OR CBC APPENDIX CHAPTER J. ALL SUCH WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF THE PROJECT SOILS ENGINEER.
6. EXCAVATE TO REQUIRED DEPTHS AND DIMENSIONS (AS INDICATED IN THE DRAWINGS), CUT SQUARE AND SMOOTH WITH FIRM LEVEL BOTTOMS. CARE SHALL BE TAKEN NOT TO OVER-EXCAVATE FOUNDATION AT LOWER ELEVATION AND PREVENT DISTURBANCE OF SOILS AROUND HIGH ELEVATION.
7. FOUNDATIONS SHALL BE POURED IN NEAT EXCAVATIONS.
8. EXCAVATE ALL FOUNDATIONS TO REQUIRED DEPTHS INTO COMPACTED FILL (AS PER PLANS AND DETAILS) AND AS VERIFIED BY THE BUILDING OFFICIAL AND/OR SOILS ENGINEER.
9. ALL FOUNDATIONS SHALL BE INSPECTED AND APPROVED BY THE APPROPRIATE BUILDING OFFICIAL AND/OR A REPRESENTATIVE OF THE SOILS ENGINEER PRIOR TO FORMING AND PLACEMENT OF REINFORCING OR CONCRETE.
10. FOUNDATIONS SHALL NOT BE POURED UNTIL ALL REQUIRED REINFORCING STEEL, FRAMING HARDWARE, SLEEVES, INSERTS, CONDUITS, PIPES, ETC. AND FORMWORK IS PROPERLY PLACED AND INSPECTED BY THE APPROPRIATE BUILDING OFFICIAL/INSPECTOR(S).
11. IT IS THE RESPONSIBILITY OF THE CONTRACTOR IN CHARGE OF FRAMING TO PROPERLY POSITION ALL HOLDOWN BOLTS, ANCHOR BOLTS, COLUMN BASES, AND ALL OTHER CAST-IN-PLACE HARDWARE. REFER TO TYPICAL DETAILS. ALL HARDWARE TO BE SECURED PRIOR TO FOUNDATION INSPECTIONS.
12. THE SIDES AND BOTTOMS OF DRY EXCAVATIONS MUST BE MOISTENED JUST PRIOR TO PLACING CONCRETE; CONVERSELY, DE-WATER FOOTINGS AS REQUIRED TO REMOVE STANDING WATER AND TO MAINTAIN OPTIMUM WORKING CONDITIONS.
13. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, AND THE PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS, AND UTILITIES IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL SAFETY ORDINANCES. THE CONTRACTOR SHALL PROVIDE FOR THE DESIGN AND INSTALLATION OF ALL CRIBBING, BRACING AND SHORING REQUIRED.

CONCRETE

1. ALL CONCRETE SHALL HAVE:
   - 1.1. AN ULTIMATE COMPRESSIVE STRENGTH (F'C) OF 2500 PSI AT 28 DAYS (UON).
   - 1.2. A MAXIMUM SLUMP OF 5" AT POINT OF PLACEMENT FOR SLABS AND FOOTINGS. CAISSONS SHALL HAVE A 4" TO 6" SLUMP AT "DRY" HOLES AND A 6" - 8" SLUMP AT "WET" HOLES.
   - 1.3. A W/C RATIO OF 0.55 OR LESS FOR ALL SLABS, WALLS, AND COLUMNS, AND 0.60 OR LESS FOR ALL FOUNDATIONS.
   - 1.4. A NORMAL DRY-WEIGHT DENSITY (UON)
2. SPECIAL INSPECTION IS NOT REQUIRED, EXCEPT WHERE SPECIFIED HEREIN, ON THE STRUCTURAL PLANS, OR BY THE BUILDING DEPARTMENT. AS A MINIMUM, SPECIAL INSPECTION IS ALWAYS REQUIRED ON:
   - 2.1. STRUCTURAL SLABS, FLAT PLATES
   - 2.2. WALLS, COLUMNS, BEAMS
   - 2.3. PILES, CAISSONS
   - 2.4. WELDING OF REINFORCEMENT, INSTALLATION OF MECHANICAL BAR SPLICE DEVICES, EPOXY APPLICATIONS

   WHEN REQUIRED OR SPECIFIED, SPECIAL INSPECTION SERVICES SHALL CONFORM TO CBC CHAPTER 17 AND SHALL BE PROVIDED BY AN ICC CERTIFIED INSPECTOR OR BUILDING DEPARTMENT APPROVED ENGINEER.

   THE BUILDING DEPARTMENT RESERVES THE RIGHT TO WAIVE OR REQUIRE THE SPECIAL INSPECTION REQUIREMENTS [CBC 1704.1 AND 1704.4] . NOTHING IN THESE PLANS WAIVES THE BUILDING DEPARTMENT RIGHT TO REQUIRE SPECIAL INSPECTION ON AT ANY POINT AND ON ANY MATERIAL.
3. TESTING OF MATERIALS USED IN CONCRETE CONSTRUCTION MUST BE PERFORMED AS NOTED ON STRUCTURAL PLANS OR AT THE REQUEST OF THE BUILDING DEPARTMENT TO DETERMINE IF MATERIALS ARE QUALITY SPECIFIED. TESTS OF MATERIALS AND OF CONCRETE SHALL BE MADE BY AN APPROVED AGENCY AND AT THE EXPENSE OF THE OWNER; SUCH TESTS SHALL BE MADE IN ACCORDANCE WITH THE STANDARDS LISTED IN CBC TABLE 1705.3.

   WHEN TESTING OF CONCRETE IS REQUIRED, FOUR (4) TEST CYLINDERS SHALL BE TAKEN FROM EACH 150 YARDS, OR FRACTION THEREOF, POURED IN ANY ONE DAY. ONE (1) CYLINDER SHALL BE TESTED AT SEVEN (7) DAYS; TWO (2) AT 28 DAYS; ONE (1) SHALL BE HELD IN RESERVE. IF CONTRACTOR ELECTS TO HAVE ADDITIONAL TESTS PERFORMED FOR "EARLY-BREAK" RESULTS, ADDITIONAL TEST CYLINDERS MUST BE TAKEN. AT NO TIME SHALL THE CONTRACTOR INSTRUCT THE TESTING AGENCY TO PERFORM TESTS ON A SCHEDULE DIFFERENT THAT ABOVE WITHOUT THE PRIOR AUTHORIZATION OF THE ENGINEER.

   CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH APPLICABLE TESTING REQUIREMENTS OF THE BUILDING DEPARTMENT. COPIES OF ALL TEST REPORTS SHALL BE PROVIDED TO ENGINEER AND BUILDING DEPARTMENT FOR REVIEW IN A TIMELY MANNER.
4. THE CONTRACTOR SHALL REMOVE AND REPLACE ANY CONCRETE WHICH FAILS TO ATTAIN SPECIFIED 28 DAY COMPRESSIVE STRENGTH IF SO DIRECTED BY THE ENGINEER. ANY DEFECTS IN THE HARDENED CONCRETE SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND/OR ARCHITECT OR THE HARDENED CONCRETE SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL CONCRETE WORK SHALL CONFORM WITH CBC CHAPTER 19.
6. ALL CEMENT SHALL BE PORTLAND CEMENT TYPE I OR II AND SHALL CONFORM TO ASTM C 150.
7. ALL AGGREGATES SHALL CONFORM TO ASTM C33. MAXIMUM AGGREGATE SIZES:
   - 7.1. FOOTINGS: 1-1/2"
   - 7.2. ALL OTHER WORK: 1"
8. WHERE NOT SPECIFICALLY DETAILED, THE MINIMUM CONCRETE COVER ON REINFORCING STEEL SHALL BE:
   - 8.1. PERMANENTLY EXPOSED TO EARTH OR WEATHER
     - 8.1.1. CAST AGAINST EARTH: 3"
     - 8.1.2. CAST AGAINST FORMS: 2"
   - 8.2. NOT EXPOSED TO EARTH OR WEATHER
     - 8.2.1. SLABS, WALLS, JOISTS: 3/4"
     - 8.2.2. BEAMS, GIRDERS, COLUMNS: 1-1/2"
9. MINIMUM LAP SPLICE LENGTH FOR ALL REINFORCING STEEL SHALL BE 48 BAR DIAMETER (UON) ON THE STRUCTURAL PLANS AND/OR DETAILS. ALL LAP SPLICES TO BE STAGGERED.
10. ALL ANCHOR BOLTS USED IN CONCRETE CONSTRUCTION SHALL HAVE A MINIMUM TOTAL EMBEDMENT AS FOLLOWS (UON):
    - 10.1. 5/8" DIA.: 7"
    - 10.2. 3/4" DIA.: 8"
    - 10.3. 7/8" DIA.: 9"
    - 10.4. 1" DIA.: 10"

    OVERALL LENGTH OF ANCHOR BOLTS SHALL BE COORDINATED WITH SILL PLATE REQUIREMENTS AS INDICATED ELSEWHERE IN THESE SPECIFICATIONS. ALL ANCHOR BOLTS IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL.
11. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, INSERTS, AND ANY OTHER HARDWARE TO BE CAST IN CONCRETE SHALL BE WELL SECURED IN POSITION PRIOR TO FOUNDATION INSPECTION. ALL HARDWARE TO BE INSTALLED IN ACCORDANCE WITH RESPECTIVE MANUFACTURER'S SPECIFICATIONS. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR LOCATIONS OF EMBEDDED ITEMS.
12. LOCATIONS OF ALL CONSTRUCTION JOINTS, OTHER THAN SPECIFIED ON THE STRUCTURAL PLANS, SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER PRIOR TO FORMING. CONSTRUCTION JOINTS SHALL BE THOROUGHLY AIR AND WATER CLEANED AND HEAVILY ROUGHENED SO AS TO EXPOSE COARSE AGGREGATES. ALL SURFACES TO RECEIVE FRESH CONCRETE SHALL BE MAINTAINED CONTINUOUSLY WET AT LEAST THREE (3) HOURS IN ADVANCE OF CONCRETE PLACEMENT.

    UNLESSSS SPECIFICALLY DETAILED OR OTHERWISE NOTED, CONSTRUCTION AND CONTROL JOINTS SHALL BE PROVIDED IN ALL CONCRETE SLABS-ON-GRADE. JOINTS SHALL BE LOCATED SUCH THAT THE AREA DOES NOT EXCEED 400 SQ. FEET.
13. THE ARCHITECT, ENGINEER AND APPROPRIATE INSPECTORS SHALL BE NOTIFIED IN A TIMELY MANNER FOR A REINFORCEMENT INSPECTION PRIOR TO THE PLACEMENT OF ANY CONCRETE.
14. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ARCHITECT AND THE ENGINEER PRIOR TO PLACING SLEEVES,PIPES, DUCTS, CHASES, CORING AND OPENING ON OR THROUGH STRUCTURAL CONCRETE BEAMS, WALLS, FLOORS, AND ROOF SLABS UNLESSSS SPECIFICALLY DETAILED OR NOTED ON THE PLANS. ALL PILES OR CONDUITS PASSING THROUGH CONCRETE MEMBERS SHALL BE SLEEVED WITH STANDARD STEEL PIPE SECTIONS.
15. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN, INSTALLATION, MAINTENANCE AND REMOVAL OF ALL FORMWORK. FORMS SHALL BE PROPERLY CONSTRUCTED, SUFFICIENTLY TIGHT TO PREVENT LEAKAGE, SUFFICIENTLY STRONG, AND BRACED TO MAINTAIN THEIR SHAPE AND ALIGNMENT UNTIL NO LONGER NEEDED FOR CONCRETE SUPPORT. JOINTS IN FORMWORK SHALL BE TIGHTLY FITTED AND BLOCKED, AND SHALL PRODUCE A FINISHED CONCRETE SURFACE THAT IS TRUE AND FREE FROM BLEMISHES. FORMS FOR EXPOSED CONCRETE SHALL BE PRE-APPROVED BY THE ARCHITECT TO ENSURE CONFORMANCE WITH DESIGN INTENT.
16. REMOVE FORM WORK IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:
    - 16.1. FORMS AT SLAB EDGE: 1 DAY
    - 16.2. SIDE FORMS AT FOOTINGS: 2 DAYS
    - 16.3. ALL OTHER VERTICAL SURFACES: 7 DAYS
    - 16.4. BEAMS, COLUMNS, GIRDERS: 15 DAYS
    - 16.5. ELEVATED SLABS: 28 DAYS

    ENGINEER RESERVES THE RIGHT TO MODIFY REMOVAL SCHEDULE ABOVE BASED ON FIELD OBSERVATIONS, CONCRETE CONDITIONS, AND/OR CONCRETE TEST RESULTS.
17. ALL CONCRETE (EXCEPT SLABS-ON-GRADE 6" OR LESS) SHALL BE MECHANICALLY VIBRATED AS IT IS PLACED. VIBRATOR TO BE OPERATED BY EXPERIENCED PERSONNEL. THE VIBRATOR SHALL BE USED TO CONSOLIDATE THE CONCRETE. THE VIBRATOR SHALL NOT BE USED TO CONVEY CONCRETE, NOR SHALL IT BE PLACED ON REINFORCING AND/OR FORMS. CONCRETE IN CAISSONS SHALL BE PLACED AND CONSOLIDATED IN AN APPROVED MANNER.
18. CONCRETE SHALL BE MAINTAINED IN A MOIST CONDITION FOR A MINIMUM OF FIVE (5) DAYS AFTER PLACEMENT.
19. CONCRETE SHALL NOT BE PERMITTED TO FREE FALL MORE THAN SIX (6) FEET. FOR HEIGHTS GREATER THAN SIX (6) FEET, USE TREMIE, PUMP OR OTHER METHOD CONSISTENT WITH APPLICABLE STANDARDS.
20. CONTRACTOR SHALL SUBMIT MIX DESIGNS FOR ALL CONCRETE WITH ULTIMATE COMPRESSIVE STRENGTH GREATER THAN 2500 PSI TO ARCHITECT AND ENGINEER FOR APPROVAL SEVEN (7) DAYS PRIOR TO PLACEMENT. MIX DESIGNS SHALL BE PREPARED B AN APPROVED TESTING LABORATORY. SUFFICIENT DATA MUST BE PROVIDED FOR ALL ADMIXTURES.
21. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF ALL DIMENSIONS, SLAB DEPRESSIONS, SLOPES, DRAINS, CURBS, AND CONTROL JOINTS.

REINFORCEMENT

1. REINFORCING STEEL SHALL BE TO DEFORMED, CLEAN, FREE OF RUST, GREASE OR ANY OTHER MATERIAL LIKELY TO IMPAIR CONCRETE BOND.
2. ALL BARS SHALL CONFORM TO ASTM A615, GRADE 60 MINIMUM (UON ON STRUCTURAL PLANS), EXCEPT THAT #3 & #4 BARS MAY BE GRADE 40. ALL WELD WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185.
3. REINFORCING STEEL THAT IS TO BE WELDED SHALL CONFORM TO ASTM A706. ALL WELDING OF REINFORCEMENT SHALL BE SUBJECT TO SPECIAL INSPECTION.
4. 4. CONTRACTOR SHALL TAKE NECESSARY STEPS (STANDARD TIES, ANCHORAGE DEVICES, ETC.) TO SECURE ALL REINFORCING STEEL IN THEIR TRUE POSITION AND PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT.
5. FABRICATION, PLACEMENT AND INSTALLATION OF REINFORCING STEEL SHALL CONFORM TO:
   - 5.1. CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE
6. SHOP DRAWINGS FOR FABRICATION OF REINFORCING STEEL SHALL BE APPROVED BY THE CONTRACTOR AND SUBMITTED TO THE ARCHITECT AND ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. SHOP DRAWINGS ARE NOT REQUIRED FOR SLABS-ON-GRADE OR FOUNDATIONS UON ON THE STRUCTURAL PLANS.
7. HEATING OF REINFORCING STEEL TO AID IN BENDING AND SHAPING OF BARS IS NOT PERMITTED. ALL BENDS IN REINFORCING STEEL ARE TO BE MADE COLD. ALL BEND RADII SHALL CONFORM TO CRSI MANUAL OF STANDARD PRACTICE.
8. REFER TO CONCRETE AND MASONRY NOTES FOR SPECIFIC MINIMUM SPLICE LENGTH AND SPLICE STAGGERING REQUIREMENTS. LAP WELDED WIRE FABRIC (WWF) REINFORCEMENT TWO (2) MODULES MINIMUM (UON). ALL SPLICES ARE TO BE STAGGERED.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL AND CONNECTIONS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS, SEISMIC PROVISIONS SUPPLEMENTS NO. 1 AND 2, AND CODE OF STANDARD PRACTICE AS AMENDED TO DATE.
2. STEEL FABRICATION SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION.
3. MATERIALS:
   - 3.1. TUBE SECTIONS ("TS" OR "HSS") SHALL CONFORM TO ASTM A500 GR. C.
   - 3.2. PIPE SECTIONS SHALL BE WELDED SEAMLESS PIPE CONFORMING TO ASTM A53 GR. B OR ASTM A501.
     - 3.2.1. STD INDICATES STANDARD WALL
     - 3.2.2. EXT INDICATES EXTRA STRONG
     - 3.2.3. DBL INDICATES DOUBLE EXTRA STRONG
   - 3.3. ALL OTHER MATERIAL (PLATE, BARS, ETC.) SHALL CONFORM TO ASTM A36 (UON)
4. BOLTS:
   - 4.1. ALL BOLTS SHALL BE ASTM F1554 GRADE 36 (UON) ON THE STRUCTURAL PLANS.
   - 4.2. HIGH STRENGTH BOLTS COMPLYING WITH ASTM A325 AND A490, WHEN SPECIFIED, SHALL REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CBC SECTION 1705.2.
   - 4.3. THREADED ROD, WHERE SPECIFIED, SHALL CONFORM WITH ASTM F1554 GRADE 36 (UON) ON THE STRUCTURAL PLANS.
5. BOLT HOLES SHALL BE DRILLED 1/32" TO 1/16" LARGER THAN THE SPECIFIED BOLT DIAMETER.
   - 5.1. WELDING:
   - 5.2. ALL WELDING SHALL BE PERFORMED USING SMAW, GMAW OR FCAW PROCESSES.
   - 5.3. ALL WELDED CONNECTIONS TO BE WELDED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS D1.1.
   - 5.4. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
   - 5.5. ALL WELDING SHALL BE PERFORMED WITH E70XX ELECTRODES WITH A MINIMUM CVN TOUGHNESS OF 20 FTLB AT -20OF.
   - 5.6. WELD LENGTHS SPECIFIED ON THE PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE FILLET WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE, USE THE MINIMUM SIZE WELDS AS SPECIFIED IN SECTION 1.17.2 OF THE AISC MANUAL OF STEEL CONSTRUCTION 9TH EDITION.
   - 5.7. NO FIELD WELDING SHALL BE PERMITTED UON ON THE PLANS OR DETAILS.
6. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. BURNING OR TORCHING OF HOLES IS NOT PERMITTED UNDER ANY CIRCUMSTANCES.
7. ALL STRUCTURAL STEEL SHALL BE PAINTED ONE SHOP COAT AND TOUCHED-UP IN THE FIELD WITH READ LEAD (OR APPROVED ZINC CHROMATE PRIMER) AS NECESSARY.
8. ANY STEEL MEMBER INTERFACING WITH WOOD FRAMING SHALL HAVE 1/2" DIAMETER STUDS WELDED AT 24" O.C. FOR ATTACHMENT OF WOOD NAILERS. THRU-BOLTING OF NAILERS SHALL NOT BE PERMITTED UON ON THE PLANS OR DETAILS.
9. PROVIDE HOT DIP GALVANIZING OR 3" MINIMUM CONCRETE COVER AROUND ALL STRUCTURAL STEEL BELOW GRADE.

MASONRY

1. SPECIAL INSPECTION IS REQUIRED FOR MASONRY WALLS PER CBC 1704.5
2. MASONRY UNITS: SHALL CONFORM TO ASTM C90, GRADE N, TYPE I, MEDIUM-WEIGHT. THE COMPRESSIVE STRENGTH OF THE MASONRY, F'M, SHALL BE 1500 PSI MINIMUM. REFER TO CBC 2103.
3. MORTAR: SHALL BE TYPE S, WITH A STRENGTH OF 1800 PSI MINIMUM @ 28 DAYS, PROPORTIONED IN CONFORMANCE WITH CBC TABLE 21-A. WHEN THE SPECIFIED MASONRY STRENGTH, F'M, IS GREATER THAN 2000 PSI, THEN THE MORTAR SHALL BE TYPE M. MORTAR STRENGTH SHALL BE EQUAL TO OR GREATER THAN THE MASONRY STRENGTH, F'M. NO MORTARS SHALL BE USED THAT HAVE STOOD FOR MORE THAN ONE-HOUR.
4. GROUT: STRENGTH SHALL BE NO LESS THAN 2500 PSI@ 28 DAYS. CEMENT CONTENT OF THE GROUT SHALL BE INCREASED, AS NECESSARY, TO ACHIEVE THE SPECIFIED MASONRY ASSEMBLY STRENGTH, F'M, AND ADEQUATE WORKABILITY. GROUT COMPRESSIVE STRENGTH, WHEN TESTED PER UBC STANDARD NO. 21-18 SHALL EQUAL OR EXCEED THE CONCRETE MASONRY UNIT STRENGTH. ALL GROUT ADDITIVES SHALL RECEIVE THE PRIOR APPROVAL OF THE ENGINEER AND THE BUILDING OFFICIAL.
5. ADMIXTURES: SHALL NOT BE PERMITTED IN MORTAR OR GROUT UNLESS SUSTAINING DATA HAS BEEN SUBMITTED TO AND APPROVED BY THE ENGINEER. FIRE CLAY, DIRT AND OTHER DELETERIOUS MATERIALS ARE PROHIBITED.
6. AGGREGATES: SAND FOR MORTAR SHALL CONFORM TO ASTM C144 EXCEPT THAT NOT LESS THAN 3% OF THE SAND SHALL PASS THE NUMBER 100 SIEVE. SAND AND PEA GRAVEL FOR GROUT SHALL CONFORM TO ASTM C404, TABLE 1, COARSE AGGREGATE, EXCEPT WHEN OTHER GRADINGS ARE SPECIFICALLY APPROVED BY THE ENGINEER.
7. WATER USED FOR MORTAR AND GROUT SHALL BE CLEAN AND FREE FROM DELETERIOUS AMOUNTS OF ACIDS, SALTS, ALKALI, AND ORGANIC MATERIALS.
8. STEEL REINFORCING: SHALL CONFORM TO ASTM A615, GRADE 60, CLEAN AND FREE OF RUST, EXCEPT THAT #3 BARS MAY BE GRADE 40. REINFORCING STEEL THAT IS TO BE WELDED SHALL CONFORM TO ASTM A706, AND THE WELDING SHALL BE SPECIAL INSPECTED.
9. ANCHOR BOLTS: SEE THE "STRUCTURAL STEEL" SPECIFICATIONS SECTION HEREIN.
10. ALL CELLS SHALL BE SOLID GROUTED (OR "FULLY" GROUTED). MASONRY UNITS SHALL BE LAID IN RUNNING BOND. SURFACES TO BE CLEANED OF ALL LOOSE DEBRIS PRIOR TO SETTING BLOCK. CELLS TO BE IN VERTICAL ALIGNMENT SUCH THAT MINIMUM VERTICAL UNOBSTRUCTED CORE (EXCLUDING HORIZONTAL BARS) IS 2½"X 3" FOR GROUT POURS UP TO 4 FEET AND 3"X3" FOR GROUT POURS UP TO 6 FEET.
11. ALL BED JOINTS ARE TO BE FULL-BEDDED IN MORTAR. END WALLS AND CROSS WEBS FORMING CELLS TO BE FILLED SHALL BE FULL-BEDDED IN MORTAR TO PREVENT LEAKAGE OF GROUT. ALL HEAD JOINTS ARE TO BE SOLIDLY FILLED AT LEAST 1½" BELOW TOP OF MASONRY. HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE GROUT POUR 1½" BELOW TOP OF MASONRY.
12. GROUT LIFTS SHALL NOT EXCEED 5 FEET 4 INCHES. GROUT SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION IMMEDIATELY AFTER PLACING TO HELP ENSURE FILLING OF ALL VOIDS. RECONSOLIDATION BY VIBRATION MUST BE DONE AFTER THE INITIAL WATER LOSS AND BEFORE INITIAL SET. FOR GROUT POURS EXCEEDING 5 FEET 4 INCHES, CLEANOUT OPENINGS SHALL BE PROVIDED AT THE BOTTOM OF EACH CELL WITH A VERTICAL BAR FOR EACH POUR, CONFORMING TO MSJC 3.2 F. CLEANOUTS SHALL BE SEALED AFTER INSPECTION AND BEFORE GROUTING. WHERE CLEANOUTS ARE NOT PROVIDED, SPECIAL PROVISIONS MUST BE MADE TO KEEP THE BOTTOM AND SIDES OF THE GROUT SPACES, AS WELL AS THE MINIMUM TOTAL CLEAR AREA REQUIRED, CLEAN AND CLEAR PRIOR TO GROUTING. FOR GROUT POURS EXCEEDING 4 FEET, CONFORM TO CBC HIGH-LIFT GROUTING REQUIREMENTS.
13. REINFORCEMENT PLACEMENT:
    - 13.1. REINFORCING SHALL BE HELD SECURELY IN POSITION. VERTICAL BARS SHALL BE HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT MORE THAN 200 BAR DIAMETERS
    - 13.2. LAP SPLICES SHALL BE 40 BAR DIAMETERS MINIMUM (UON). ADJACENT BAR LAPS SHALL BE STAGGERED 3'-0" MINIMUM. HOOKS SHALL BE 16 BAR DIAMETERS (UON)
    - 13.3. REINFORCING BARS TO HAVE GROUT COVERAGE OF AT LEAST ONE BAR DIAMETER (½" MINIMUM) FROM INSIDE FACE OF SHELL, HOWEVER THE CLEAR DISTANCE FROM OUTSIDE FACE OF MASONRY TO THE REINFORCING SHALL NOT BE LESS THAN 2" WHEN MASONRY IS EXPOSED TO SOIL OR 1½" FOR OTHER CONDITIONS.
    - 13.4. THE CLEAR DISTANCE BETWEEN PARALLEL BARS IS 1" MINIMUM AND (AND SHALL NOT BE LESS THAN 1 BAR DIAMETER), EXCEPT THAT THE TWO BARS IN A CONTACT SPLICE SHALL BE IN CONTACT. THIS CLEAR DISTANCE REQUIREMENT ALSO APPLIES TO THE CLEAR DISTANCE BETWEEN A CONTACT SPLICE AND ADJACENT SPLICES OR BARS. [EXCEPTION: THE MINIMUM CLEAR DISTANCE BETWEEN PARALLEL BARS IN COLUMNS AND PILASTERS IS 2.5 BAR DIAMETERS.
14. REFER TO THE STRUCTURAL DETAILS FOR WALL REINFORCING. AT A MINIMUM, BLOCK WALL VERTICAL REINFORCING SHALL BE #4 @ 18" O.C. AND HORIZONTAL REINFORCING SHALL BE #4 @ 16" O.C. AT LEAST ONE CONTINUOUS HORIZONTAL #4 BAR OR LARGER SHALL BE PLACED IN BOTH THE BOTTOM AND THE TOP COURSE OF MASONRY WALL, (UON).
15. SEE STRUCTURAL SHEETS FOR TYPICAL WALL DETAILS. AT A MINIMUM, DOOR AND WINDOW JAMBS SHALL HAVE 2 - #5 BARS, AND HEADERS (OR "LINTELS") SHALL HAVE 2 - #5 BARS, UON ON THE PLANS. JAMB AND LINTEL BARS SHALL EXTEND A MINIMUM OF 40 BAR DIAMETERS PAST THE OPENING.
16. JAMB REINFORCING STEEL SHALL EXTEND INTO THE FOUNDATION (OR DECK) BELOW WITH LAP BARS OF THE SAME DIAMETER BENT WITH 90-DEGREE STANDARD HOOKS INTO THE FOOTING OR DECK. JAMB STEEL SHALL CONTINUE TO THE TOP OF THE WALL, UNLESS DETAILED OTHERWISE ON THE PLANS, BUT SHALL NOT EXTEND LESS THAN 40 BAR DIAMETERS PAST THE OPENING.
17. MASONRY COLUMNS & PILASTERS: REFER TO THE STRUCTURAL DETAILS FOR REINFORCEMENT REQUIREMENTS. PROVIDE AT LEAST 4 - #3 TIES IN THE TOP 5" OF THE COLUMN, AND ENGAGE AT LEAST FOUR VERTICAL BARS AND/OR ANCHOR BOLTS WITH THE TIES. THE UPPERMOST TIE SHALL BE WITHIN 2" OF THE TOP OF THE COLUMN. BARS SHALL BE PLACED NOT LESS THAN 1½" AND NOT MORE THAN 5" FROM THE SURFACE OF THE COLUMN.
18. ANCHOR BOLT INSTALLATION: SECURE IN PLACE PRIOR TO GROUTING. PROVIDE 1" MINIMUM GROUT COVERAGE.
19. CONDUIT SLEEVES SHALL NOT BE SPACED CLOSER THAN THREE SLEEVE DIAMETERS CENTER-TO-CENTER. CONDUIT AND OTHER OBSTRUCTIONS SHALL BE STRATEGICALLY LOCATED SO AS TO AVOID CONFLICT WITH WALL REINFORCING AND CELL GROUT SPACES AND THE REQUIRED CLEARANCES.
20. WATERPROOFING SHALL TO BE PROVIDED ON THE FACE OF ALL MASONRY WALLS EXPOSED TO EARTH, PER THE ARCHITECTURAL PLANS AND SPECIFICATIONS.
21. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES WHOSE WORK RELATES TO THE MASONRY INSTALLATION FOR PLACING OF ALL REQUIRED FRAMING. THIS INCLUDES, BUT IS NOT LIMITED TO, PLACING ANCHORS, BOLTS, PIPES, SLEEVES, NAILERS, BLOCKOUTS, REGLETS, FITTINGS, CONDUITS, ETC., PROVIDED BY OTHER TRADES WITHIN THE MASONRY CONSTRUCTION.
22. RETAINING WALLS SHALL NOT BE BACKFILLED UNTIL GROUT HAS SET A MINIMUM OF 14 DAYS (28 DAYS PREFERRED). ALL WALLS ARE TO BE FULLY BACKFILLED PRIOR TO FRAMING BEING PLACED ON OR AGAINST THE WALL. PER THE SOILS REPORT, ALL BACKFILL IS TO BE INSPECTED BY THE SOILS/GEOTECHNICAL ENGINEER AT THE TIME OF PLACEMENT.
23. HOT WEATHER CONSTRUCTION: MASONRY CONSTRUCTION IS NOT PERMITTED WHEN THE AMBIENT AIR TEMPERATURE EXCEEDS 100°F, OR IF IT EXCEEDS 90°F WITH A WIND VELOCITY OF 8 MPH OR GREATER. (EXCEPTION: IF PRECISE AND PROPER HOT WEATHER CONSTRUCTION AND PROTECTION REQUIREMENTS OF THE APPROPRIATE PRACTICE ARE IMPLEMENTED WHEN TEMPERATURES ARE FORECASTED TO REACH OR DO REACH THE LIMITS FOR NORMAL CONSTRUCTION. IF SUCH CONSTRUCTION IS NECESSARY, CONTACT THE ENGINEER FOR REQUIREMENTS.) CHECK LOCAL WEATHER REPORTS BEFORE THE START OF EACH DAY AND PERIODICALLY MEASURE AIR TEMPERATURE AND WIND SPEED DURING THE DAY. FOG SPRAY ALL NEWLY CONSTRUCTED MASONRY UNTIL DAMP, AT LEAST THREE TIMES A DAY UNTIL THE MASONRY IS THREE DAYS OLD.
24. COLD WEATHER CONSTRUCTION: COMPLY WITH CBC SECTION 2104.1.

TIMBER / LUMBER

1. ALL STRUCTURAL LUMBER SHALL BE DOUGLAS FIR-LARCH, S4S AND SHALL CONFORM TO CBC SECTION 2303.1.
2. THE MINIMUM LUMBER GRADE OF EACH MEMBER SHALL BE AS FOLLOWS UON ON PLANS AND DETAILS:
   - 2.1. 2X STUDS, BLOCKING, PLATES: STUD
   - 2.2. 2X JOISTS #2 OR BETTER
   - 2.3. 4X4 BEAMS OR POSTS #2 OR BETTER
   - 2.4. 4X6 OR LARGER BEAMS OR POSTS #1 OR BETTER

   IT IS RECOMMENDED (BUT NOT REQUIRED) THAT ALL EXPOSED MEMBERS BE SELECT STRUCTURAL OR BETTER AND FREE OF HEART CENTER DUE TO VISUAL CHARACTERISTICS.
3. ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY SHALL BE REDWOOD OR PRESSURE TREATED DOUGLAS FIR. CONTRACTOR SHALL COORDINATE WITH EOR IF PRESSURE TREATED MATERIAL UTILIZES A CORROSIVE TREATMENT GREATER THAN "DOT" PRIOR TO INSTALLATION. WHENEVER IT IS NECESSARY TO CUT, NOTCH, BORE OR SPLICE PRESSURE TREATED MATERIAL, ALL NEWLY CUT SURFACES SHALL BE THOROUGHLY PAINTED WITH THE SAME PRESERVATIVE.
4. MAXIMUM MOISTURE CONTENT FOR ALL STRUCTURAL MEMBERS SHALL NOT EXCEED 19%.

ALL PLYWOOD SHEATHING SHALL BE CDX GRADE (OR BETTER) DOUGLAS FIR WITH EXTERIOR GLUE. ALL SHEATHING SHALL CONFORM TO CBC STANDARD 23-2 AND GRADE-MARKED BY THE AMERICAN PLYWOOD ASSOCIATION (APA). PANEL INDEX TO BE 48/24 FOR FLOORS AND 24/0 FOR ROOFS (UON) ON THE PLANS AND DETAILS.

FASTENERS

1. NAILS:
   - 1.1. SHALL BE WITH "COMMON" NAILS (UON).
   - 1.2. SHALL NOT BE DRIVEN CLOSER THAN ½ THEIR LENGTH NOR CLOSER THAN ¼ OF THEIR LENGTH TO THE EDGE OR END OF A MEMBER, EXCEPT FOR SHEATHING.
   - 1.3. SHALL BE INSTALLED IN PRE-DRILLED LEAD HOLES IF NECESSARY TO AVOID SPLITTING.
   - 1.4. IN CONTACT WITH PRESERVATIVE-TREATED WOOD OR WHERE EXPOSED TO WEATHER SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL.
   - 1.5. ALL NAILING CONFORM TO 2022 CBC TABLE 2304.10.1.
2. LAG SCREWS:
   - 2.1. SHALL BE INSTALLED INTO PRE-DRILLED LEAD HOLES. LUBRICANT (OR SOAP) SHALL BE USED TO FACILITATE INSTALLATION AND PREVENT DAMAGE TO THE SCREWS.
   - 2.2. IN CONTACT WITH PRESERVATIVE-TREATED WOOD OR WHERE EXPOSED TO WEATHER SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL.
3. BOLTS:
   - 3.1. SHALL CONFORM TO ASTM F1554 GRADE 36 (UON) ON PLANS AND DETAILS.
   - 3.2. SHALL BE INSTALLED IN PRE-DRILLED HOLES A MAXIMUM OF 1/16" LARGER THAN THE SPECIFIED BOLT DIAMETER.
   - 3.3. WHEN INSTALLED AGAINST WOOD SURFACES, SHALL HAVE STANDARD WASHERS UNDER THE HEADS AND NUTS.
   - 3.4. IN CONTACT WITH PRESERVATIVE-TREATED WOOD OR WHERE EXPOSED TO WEATHER SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL.
4. ANCHOR BOLTS:
   - 4.1. SHALL BE 5/8" DIAMETER WITH 3X3X0.229" STEEL PLATE WASHERS AT SHEARWALLS.
   - 4.2. SHALL HAVE 7" MINIMUM EMBEDMENT. (CONTRACTOR TO COORDINATE LENGTH OF BOLTS WITH SILL PLATE THICKNESSES)
   - 4.3. SHALL CONFORM TO ASTM F1554 GRADE 36
   - 4.4. SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL
   - 4.5. SHALL NOT BE SPACED GREATER THAN 72" O.C. REFER TO SHEARWALL SCHEDULE FOR SPECIFIC ANCHOR BOLT SPACING REQUIREMENTS.
   - 4.6. SHALL BE PLACED A MAXIMUM OF 12" FROM WALL CORNERS, WALL ENDS, AND SILL PLATE SPLICES (BUT NOT LESS THAN 7 DIAMETERS), AND A MINIMUM OF TWO BOLTS PER PIECE OF SILL PLATE IS REQUIRED.
   - 4.7. SHALL BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION

CARPENTRY

1. REFER TO 2022 CBC TABLE 2304.10.1. FOR ALL MINIMUM NAILING REQUIREMENTS.
2. REFER TO INDIVIDUAL SECTIONS FOR APPLICABLE MATERIAL SPECIFICATIONS.
3. FABRICATE, SIZE, INSTALL, CONNECT, FASTEN, BORE, NOTCH, AND CUT WOOD AND PLYWOOD WITH JOINTS TRUE, TIGHT, AND WELL-NAILED, SCREWED OR BOLTED AS REQUIRED, ALL MEMBERS TO HAVE SOLID BEARING WITHOUT BEING SHIMMED (UON). SET HORIZONTAL MEMBERS SUBJECT TO BENDING WITH THE CROWN UP. INSTALL FRAMING PLUMB, SQUARE, TRUE AND CUT FOR FULL BEARING. SPLICES ARE NOT PERMITTED BETWEEN BEARINGS. USE FULL LENGTHS (UON)
4. METAL FRAMING ANGLES, ANCHOR, CLIPS, STRAPS, TIES, HOLDOWNS, ETC. SHALL BE MANUFACTURED BY SIMPSON STRONG-TIE CO. NO SUBSTITUTIONS SHALL BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
5. ALL WALLS ARE TO HAVE CONTINUOUS DOUBLE 2X TOP PLATES SPLICED AS FOLLOWINGS (UON) ON THE PLANS AND DETAILS.
6. WALL STUDS:
   - 6.1. (UON) USE THE FOLLOWING GUIDELINES FOR WALL FRAMING:
   - 6.2. USE 2X4 STUDS AT 16" O.C. FOR WALLS LESS THAN 9'-0" TALL.
   - 6.3. WALLS 9'-0" TO 16'-0" TALL SHALL BE CONSTRUCTED OF 2X6 STUDS AT 16" O.C.
   - 6.4. REQUEST SPECIFICALLY ENGINEERED WALL DETAILS FOR WALLS GREATER THAT 16'-0" TALL.
7. BLOCKING:
   - 7.1. PROVIDE MIN. ONE ROW OF NOMINAL 2" THICK BLOCKING OF SAME WIDTH AS STUD, FITTED SNUGLY AND SPIKED INTO STUDS AT MID-HEIGHT OF PARTITIONS OR WALLS OVER EIGHT FEET HIGH.
   - 7.2. ALL CRIPPLE WALLS (OR "PONY WALLS") LESS THAN 14" IN HEIGHT SHALL BE SOLID BLOCKING.
   - 7.3. REFER TO SHEARWALL SECTION FOR ADDITIONAL BLOCKING REQUIREMENTS.
8. NOTCHING:
   - 8.1. IS NOT PERMITTED OF ANY STRUCTURAL MEMBER WITHOUT PRIOR APPROVAL
   - 8.2. IN EXTERIOR AND BEARING WALLS, NOTCHES SHALL NOT EXCEED 25% OF THE STUD DEPTH.
   - 8.3. NON-BEARING PARTITION WALLS, NOTCHES SHALL NOT EXCEED 40% OF THE STUD DEPTH.
   - 8.4. SUCCESSIVE NOTCHES IN THE SAME MEMBER SHALL BE SPACED A MINIMUM OF 18" APART.
9. BORING:
   - 9.1. IS NOT PERMITTED OF ANY STRUCTURAL MEMBER WITHOUT PRIOR APPROVAL
   - 9.2. IN EXTERIOR AND BEARING WALLS, HOLES SHALL NOT EXCEED 40% OF THE STUD DEPTH.
   - 9.3. NON-BEARING PARTITION WALLS, SHALL MAY BE DRILLED NOT GREATER THAN 60% OF THE STUD DEPTH.
   - 9.4. SUCCESSIVE HOLES IN THE SAME MEMBER SHALL BE SPACED A MINIMUM OF 18" APART.
10. BEARING:
    - 10.1. PROVIDE A MINIMUM OF 1½" OF BEARING FOR ALL 2X JOISTS AND ALL 4X10 / 6X8 HEADERS & SMALLER.
    - 10.2. PROVIDE A MINIMUM OF 3" OF BEARING FOR ALL BEAMS AND HEADERS 4X12 / 6X10 & LARGER (UON).
    - 10.3. MEMBERS BEARING ON PREFABRICATED HANGERS ARE TO HAVE FULL BEARING AND NAILING PER MANUFACTURER'S SPECIFICATIONS.
11. POSTS:
    - 11.1. POSTS INSIDE WALLS SHALL BEAR ON SILL PLATES AND SHALL BE CONTINUOUS BETWEEN TOP AND BOTTOM PLATES, (UON).
    - 11.2. PROVIDE POSTS UNDER ALL BEAMS, GIRDERS OR DOUBLE JOISTS EQUAL TO THE WIDTH OF THE SUPPORTED MEMBER.
    - 11.3. POSTS ON UPPER LEVELS ARE TO BE STACKED ON POSTS OF EQUAL SIZE AT LEVELS BELOW, UNLESS A LARGER POST IS SPECIFIED ON THE PLANS.
    - 11.4. VERTICAL BLOCKING ("SQUASH BLOCKS") SHALL BE USED TO FULLY TRANSFER THE POST AREA THROUGH FLOORS TO FOUNDATION. VERTICAL BLOCKING SHALL BE EQUAL TO FLOOR THICKNESS PLUS 1/16".
    - 11.5. HEADERS FRAMING INTO CONTINUOUS POSTS WITHOUT TRIMMER STUDS SHALL BE SUPPORTED IN SIMPSON HUC HANGERS (UON).
    - 11.6. POSTS WHEN ISOLATED, SHALL BE SEATED IN SIMPSON POST OR COLUMN BASES (UON)
12. FLOOR FRAMING:
    - 12.1. PROVIDE WOOD JOISTS, AS SPECIFIED, LAID WITH THE CROWN UP AND SPACED AS INDICATED.
    - 12.2. PROVIDE A MINIMUM OF 1½" END BEARING UNLESSSS OTHERWISE SHOWN.
    - 12.3. PROVIDE FULL DEPTH SOLID 2X BLOCKING OR CROSS-BRIDGING BETWEEN THE JOISTS AT 8'-0" O.C. MAX. FOR FLOORS FRAMED WITH I JOISTS, REFER TO THE MANUFACTURER'S SPECIFICATIONS FOR BLOCKING REQUIREMENTS.
    - 12.4. PROVIDE FULL DEPTH SOLID 2X BLOCKING BETWEEN THE JOISTS UNDER ALL WALLS AND PARTITIONS WHERE THE WALL OR PARTITION IS PERPENDICULAR TO THE FLOOR FRAMING (INCLUDING FLOORS FRAMED WITH I JOISTS)
    - 12.5. INSTALL 3/4" PLYWOOD SHEATHING WITH THE FACE GRAIN ACROSS SUPPORTS, END SUPPORTS STAGGERED AND THE EDGES OF SHEETS CENTERED OVER SUPPORTS. IF T&G PLYWOOD IS NOT USED, PROVIDE BLOCKING AT ALL PLYWOOD EDGES. GLUE TO JOISTS AND FULLY NAIL WITH COMMON NAILS PER THE PLANS.
13. ROOF FRAMING:
    - 13.1. PROVIDE WOOD JOISTS, AS SPECIFIED, LAID WITH THE CROWN UP AND SPACED AS INDICATED.
    - 13.2. PROVIDE A MINIMUM OF 1½" END BEARING (UON).
    - 13.3. PROVIDE FULL DEPTH SOLID 2X BLOCKING OR CROSS-BRIDGING BETWEEN THE JOISTS AT 8'-0" O.C. MAX.
    - 13.4. PROVIDE ALL CRICKET FRAMING REQUIRED TO ACHIEVE POSITIVE DRAINAGE PER ARCHITECTURAL DRAWINGS.
    - 13.5. INSTALL PLYWOOD PANELS WITH THE FACE GRAIN ACROSS THE FRAMING AND CLOSE JOINTS AND NAIL AT EACH SUPPORT. FULLY NAIL WITH COMMON NAILS PER THE PLANS.
    - 13.6. PROVIDE SIMPSON "PSCL" CLIPS AT ALL PLYWOOD JOINTS PERPENDICULAR TO FRAMING. PROVIDE CLIPS MIDWAY BETWEEN FRAMING MEMBERS AT THE UNSUPPORTED EDGES OF PLYWOOD WHEN MEMBERS ARE SPACED AT 24" O.C. OR GREATER. IF CLIPS ARE NOT USED, PROVIDE SOLID BLOCKING FOR JOINTS PERPENDICULAR TO FRAMING.
14. SHEARWALLS:
    - 1.1. REFER TO PLANS FOR ALL SHEARWALL LOCATIONS, LENGTH TYPE AND NAILING.
    - 1.2. REFER TO SHEARWALL SCHEDULE ON TITLE SHEET FOR ADDITIONAL INFORMATION.
    - 1.3. SHEARWALL LENGTHS SPECIFIED ON PLANS ARE MINIMUM REQUIRED.
    - 1.4. SHEARWALLS TO BE NAILED WITH COMMON NAILS. ALL NAILS TO HAVE MINIMUM 3/8" EDGE DISTANCE TO PANEL OR FRAMING MEMBER.
    - 1.5. IF 3X FRAMING IS REQUIRED, STAGGER EDGE NAILING. 3X FRAMING IS REQUIRED AT:
      - 1.5.1. ALL PANEL JOINTS
      - 1.5.2. ALL SILL PLATES ON CONCRETE OR MASONRY
      - 1.5.3. ALL SILL PLATES AT DOUBLE-SIDED SHEARWALLS
    - 1.6. OSB MAY BE USED IN LIEU OF PLYWOOD.

ENGINEERED LUMBER

1. GLU-LAMINATED BEAMS
   - 1.1. SHALL BE 24F-V4 FOR SIMPLE SPANS AND 24F-V8 FOR BEAMS WITH CANTILEVERS WITH THE FOLLOWING MINIMUM PROPERTIES:
     - 1.1.1. FB = 2400 PSI
     - 1.1.2. FV = 165 PSI
     - 1.1.3. FC = 450 PSI
     - 1.1.4. E = 1800 PSI
   - 1.2. SHALL NOT BE NOTCHED, CUT OR DRILLED WITHOUT PRIOR APPROVAL FROM THE ENGINEER
   - 1.3. SHALL HAVE EXTERIOR GLUE AND WEATHER-TREATMENT PRIOR TO INSTALLATION
   - 1.4. SHALL BE FABRICATED BY AN APPROVED MANUFACTURER. AN A.I.T.C. CERTIFICATE OF COMPLIANCE SHALL BE GIVEN TO THE BUILDING INSPECTOR PRIOR TO INSTALLATION
   - 1.5. SHALL HAVE FACTORY STANDARD CAMBER, EXCEPT WHERE NOTED OTHERWISE ON THE PLANS
2. LAMINATED VENEER LUMBER (LVL):
   - 2.1. SHALL BE 1-3/4" MINIMUM THICKNESS WITH THE FOLLOWING MINIMUM PROPERTIES:
   - 2.2. E = 1900 KSI
   - 2.3. FB = 2600 PSI
   - 2.4. FV = 285 PSI
   - 2.5. FC (PARALLEL) = 2500 PSI
   - 2.6. FC (PERP.) = 750 PSI
   - 2.7. FT (PARALLEL) = 1500 PSI
   - 2.8. SPECIFIC GRAVITY = 0.50
   - 2.9. SHALL BE FABRICATED BY AN APPROVED MANUFACTURER
   - 2.10. SHALL BEAR A MINIMUM OF 3-1/2" ON SPECIFIED SUPPORTS. PROVIDE FULL DEPTH SOLID BLOCKING AT ALL BEARING POINTS
   - 2.11. SHALL BE NAILED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. UNLESSSS OTHERWISE APPROVED, NAILING INTO THE TOP EDGE SHALL NOT BE SPACED ANY CLOSER THAN:
     - 2.11.1. 16D 6"
     - 2.11.2. 10D 4"
     - 2.11.3. 8D 3"
     - 2.11.4. WHEN NAILING MUST BE REDUCED, STAGGER ROWS A MINIMUM OF 1/2" APART WHILE MAINTAINING PROPER EDGE DISTANCES
   - 2.12. SHALL BE, WHEN COMPRISED OF MULTIPLE MEMBERS, CONNECTED WITH 16D NAIL, 1/2" BOLTS OR 1/4" LAG SCREWS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
   - 2.13. SHALL NOT BE CUT, NOTCHED OR DRILLED WITHOUT SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.
3. PARALLEL STRAND LUMBER (PSL):
   - 3.1. SHALL BE 2-1/2" MINIMUM THICKNESS WITH THE FOLLOWING MINIMUM PROPERTIES:
     - 3.1.1. E = 2000 KSI
     - 3.1.2. FB = 2900 PSI
     - 3.1.3. FV = 290 PSI
     - 3.1.4. FC (PARALLEL) = 2900 PSI
     - 3.1.5. FC (PERP.) = 750 PSI
     - 3.1.6. FT (PARALLEL) = 2025 PSI
     - 3.1.7. SPECIFIC GRAVITY = 0.50
   - 3.2. SHALL BE FABRICATED BY AN APPROVED MANUFACTURER
   - 3.3. SHALL BEAR A MINIMUM OF 3-1/2" ON SPECIFIED SUPPORTS. PROVIDE FULL DEPTH SOLID BLOCKING AT ALL BEARING POINTS
   - 3.4. SHALL BE NAILED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. UNLESS OTHERWISE APPROVED, NAILING SHALL NOT BE SPACED ANY CLOSER THAN:
     - 3.4.1. NARROW FACE: 6" FOR 16D COMMON, 4" FOR 10D COMMON, AND 3" FOR 8D COMMON
     - 3.4.2. WIDE FACE: 8" FOR 16D COMMON, 6" FOR 10D & 8D COMMON
     - 3.4.3. WHEN NAILING MUST BE REDUCED, STAGGER ROWS A MINIMUM OF 1/2" APART WHILE MAINTAINING PROPER EDGE DISTANCES
   - 3.5. SHALL NOT BE CUT, NOTCHED OR DRILLED WITHOUT SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.
4. PLYWOOD I JOISTS:
   - 4.1. TYPE AND MANUFACTURER SHALL BE CLEARLY NOTED ON THE PLANS. SUBSTITUTIONS SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
   - 4.2. SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODE APPROVALS AND MANUFACTURER'S SPECIFICATIONS.
   - 4.3. SHALL BEAR A MINIMUM OF 1-3/4" AT ALL END SUPPORTS, AND 3-1/2" AT INTERMEDIATE SUPPORTS. PROVIDE FULL DEPTH SOLID BLOCKING AT ALL BEARING POINTS.
   - 4.4. SHALL BE INSTALLED WITH INTERMEDIATE BLOCKING OR BRIDGING AS SPECIFIED BY THE MANUFACTURER. ONLY OMIT INTERMEDIATE BLOCKING WHEN SPECIFICALLY ALLOWED BY THE MANUFACTURER.
   - 4.5. SHALL NOT BE CUT, NOTCHED OR DRILLED WITHOUT SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.

TRUSSES

1. REFER TO THE STRUCTURAL AND ARCHITECTURAL PLANS FOR ADDITIONAL DESIGN LOADS AND CONDITIONS. BOTTOM CHORDS SHALL BE DESIGNED TO RESIST A MINIMUM CEILING LIVE LOAD OF 10 PSF.
2. TRUSS CALCULATIONS AND DETAILS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER AND THE BUILDING DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
3. ALL TRUSSES SHALL BE FABRICATED IN THE SHOP OF A LICENSED FABRICATOR APPROVED BY THE GOVERNING BUILDING DEPARTMENT.
4. EACH TRUSS SHALL BE LEGIBLY BRANDED, MARKED OR OTHERWISE HAVE PERMANENTLY AFFIXED THERETO THE FOLLOWING INFORMATION LOCATED WITHIN 2 FEET OF THE CENTER OF THE SPAN ON THE FACE OF THE BOTTOM CHORD:
   - 4.1. IDENTITY OF THE COMPANY MANUFACTURING THE TRUSS
   - 4.2. THE DESIGN LOAD, AND
   - 4.3. THE SPACING OF THE TRUSSES.
5. WALLS:
   - 5.1. TRUSSES SHALL BEAR ON EXTERIOR WALLS ONLY (UON).
   - 5.2. ALL INTERIOR WALLS SHALL BE NON-BEARING (UON).
   - 5.3. ALL APPROVED INTERIOR BEARING LOCATIONS SHALL BE SPECIFICALLY NOTED ON THE STRUCTURAL PLANS.
6. BEARING:
   - 6.1. SECURING OF BEARING WALLS (UON) TRUSSES SHALL BE SECURED AT ALL BEARING POINTS WITH SIMPSON SEISMIC ANCHORS (E.G. H1).
   - 6.2. INTERIOR NON-BEARING WALLS SHALL BE ISOLATED FROM THE TRUSSES WITH SIMPSON TRUSS CLIPS (E.G. STC, DTC, HTC4) OR APPROVED EQUAL.
   - 6.3. TRUSSES TO BE MANUFACTURED WITH NECESSARY CAMBER TO ACCOUNT FOR DEAD LOAD DEFLECTIONS AND ELIMINATE ACCIDENTAL BEARING ON INTERIOR NON-BEARING WALLS.
7. BLOCKING AND BRACING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. AS A MINIMUM, THE TRUSSES SHALL BE BLOCKED AT THE FOLLOWING LOCATIONS:
   - 7.1. ALL BEARING POINTS
   - 7.2. ALONG RIDGE
8. ERECT TRUSSES ACCORDING TO THE APPROVED SHOP DRAWINGS. LIFT MEMBERS ONLY AT DESIGNATED LIFT POINTS. PROVIDE ERECTION BRACING TO KEEP THE MEMBERS STRAIGHT AND PLUMB AS REQUIRED TO ASSURE ADEQUATE LATERAL SUPPORT FOR INDIVIDUAL MEMBERS AND THE ENTIRE SYSTEM UNTIL THE SHEATHING IS APPLIED.

SPECIAL INSPECTION REQUIREMENTS

1. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND THE COORDINATION INVOLVED IN THE EXECUTION OF THE FOLLOWING INSPECTIONS. REQUESTS FOR INSPECTIONS SHALL BE MADE NO LATER THAN 48 HOURS PRIOR TO THEIR NECESSITY.
2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO INSURE THAT THE FOLLOWING ELEMENTS ARE VISIBLE AND AVAILABLE FOR INSPECTION:
   - 2.1. EPOXY ANCHORS
   - 2.2. WELDING (REFER TO STRUCTURAL STEEL SECTION FOR SPECIFIC REQUIREMENTS)
   - 2.3. ALL BOLTED CONNECTIONS EXCEPT F1554 GRADE 36 BOLTS
3. A PRE-CONSTRUCTION MEETING INCLUDING THE SPECIAL INSPECTOR, ENGINEER OF RECORD (EOR), ARCHITECT RESPONSIBLE FOR THE STRUCTURAL OBSERVATIONS, THE CONTRACTOR, AND ALL APPROPRIATE SUBCONTRACTORS SHALL BE HELD TO REVIEW THE DETAILS OF THE STRUCTURAL SYSTEM TO BE STRUCTURALLY OBSERVED.
4. DURING THE COURSE OF CONSTRUCTION THE SPECIAL INSPECTOR SHALL VISUALLY REVIEW THE STRUCTURAL ELEMENTS FOR GENERAL CONFORMANCE WITH THE APPROVED PLANS. ANY OBSERVED DEFICIENCIES SHALL HE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, TO THE CONTRACTOR, AND TO THE BUILDING DEPARTMENT.
5. UPON COMPLETION OF THE APPLICABLE SHEARWALLS AND/OR ANCHORAGE SYSTEM AND PRIOR TO COVERING THE SHEARWALL/ANCHORAGE SYSTEM, THE SPECIAL INSPECTOR SHALL SUBMIT A LETTER TO THE EOR AND BLDG. DEPARTMENT WITH HIS/HER SIGNATURE ATTESTING TO (1) THE DATES ON WHICH VISUAL REVIEWS WERE CONDUCTED, (2) DEFICIENCIES OBSERVED, AND (3) CORRECTIONS TAKEN. THE LETTER SHALL CERTIFY THAT ALL REPORTED DEFICIENCIES WHICH, TO THE BEST OF THE OBSERVER'S KNOWLEDGE, HAVE BEEN RESOLVED.
6. PRIOR TO COVERING THE WORK, THE SHEARWALLS AND/OR ANCHORAGE SYSTEM SHALL BE INSPECTED AND APPROVED BY THE DEPARTMENT INSPECTION STAFF ASSIGNED TO THE PROJECT. SUCH APPROVAL BY THE DEPARTMENT IS REQUIRED PRIOR TO COVERING. THE SPECIAL INSPECTOR IS NOT AUTHORIZED TO APPROVE THE COVERING OF THE SHEARWALLS OR ANCHORAGE SYSTEM. THE OBSERVATIONS OF THE SPECIAL INSPECTOR ARE ADVISORY ONLY AND THEY DO NOT IN ANY WAY BIND THE INSPECTOR OR CONSTITUTE A CERTIFICATION THAT THE SHEARWALLS WILL PASS DEPARTMENT INSPECTION.

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STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

PLAN PREPARED FOR:

VERTIS PROCESS WATER TREATMENT
100 DON BATES WAY
KING CITY, CA

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ----
FILE NAME STRUCTURAL SSP.DWG
DRAWN BY JPM
DATE 11/14/2024 2:04 AM

SHEET TITLE:
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FLOOR

21.	Joist to sill, top plate, or girder	4-8d box (2 ½″ × 0.113″); or 3-8d common (2 ½″ x 0.131″); or floor 3-10d box (3″ x 0.128″); or 3-3″ x 0.131″ nails; or 3-3″14 gage staples, 7/16″ crown	Toenail
22.	Rim joist, band joist, or blocking to top plate, sill or other framing below	8d box (2 ½″ x 0.113″); or	4" o.c., toenail
		8d common (2 ½″ x 0.131″); or 10d box (3″ x 0.128″); or 3″ x 0.131″ nails; or 3″ 14 gage staples, 7/16″ crown	6" o.c., toenail
23.	1″ x 6″ subfloor or less to each joist	3-8d box (2 ½″ × 0.113″); or 2-8d common (2 ½″ × 0.131″); or 3-10d box (3″ × 0.128″); or 2-1 ¾″ 16 gage staples, 1″ crown	Face nail
24.	2″ subfloor to joist or girder	3-16d box (3 ½″ x 0.135″); or 2-16d common (3 ½″ x 0.162″)	Blind and face nail
25.	2″ planks (plank & beam – floor & roof)	3-16d box (3 ½″ x 0.135″); or 2-16d common (3 ½″ x 0.162″)	Each bearing, face nail
26.	Built-up girders and beams, 2″ lumber layers	20d common (4″ x 0.192″)	32" o.c., face nail at top and bottom staggered on opposite sides
		10d box (3″ x 0.128″); or 3″ x 0.131″ nails; or 3″ 14 gage staples, 7/16″ crown	24" o.c. face nail at top and bottom staggered on opposite sides
		And: 2-20d common (4″ x 0.192″); or 3-10d box (3″ x 0.128″); or 3-3″ x 0.131″ nails; or 3-3″ 14 gage staples, 7/16″ crown	Ends and at each splice, face nail
27.	Ledger strip supporting joists or rafters	3-16d common (3 ½″ x 0.162″); or 4-16d box (3 ½″ x 0.135″); or 4-10d box (3″ x 0.128″); or 4-3″ x 0.131″ nails; or 4-3″ 14 gage staples, 7/16″ crown	Each joist or rafter, face nail
28.	Joist to band joist or rim joist	3-16d common (3 ½″ x 0.162″); or 4-10d box (3″ x 0.128″); or 4-3″ x 0.131″ nails; or 4-3″ 14 gage staples, 7/16″ crown	End nail
29.	Bridging or blocking to joist, rafter or truss	2-8d common (2 ½″ x 0.131″); or 2-10d box (3″ x 0.128″); or 2-3″ x 0.131″ nails; or 2-3″ 14 gage staples, 7/16″ crown	Each end, toenail

WOOD STRUCTURAL PANELS (WSP), SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING[a]

			Edges (inches)	Intermediate supports (inches)
30.	3/8" - ½"	6d common or deformed (2″ x 0.113″); or 2 3/8" x 0.113" nail (subfloor and wall)	6	12
		8d common or deformed (2 ½″ x 0.113″ x 0.281″ head) (roof); or RSRS-01 (2 3/8" x 0.133") nail (roof)[d]	6[e]	6[e]
		1 ¾″ 16 gage staple, 7/16″ crown (subfloor and wall)	4	8
		2 3/8″ x 0.113 x 0.266" head nail (roof)	3[f]	3[f]
		1 ¾″ 16 gage staple, 7/16″ crown (roof)	3[f]	3[f]
31.	19/32" - ¾"	8d common (2 ½″ x 0.131″); or deformed (2″ × 0.113″) (subfloor and wall)	6	12
		8d common or deformed (2 ½″ x 0.131″ x 0.281" head) (roof); or RSRS-01 (2 3/8" x 0.113") nail (roof)	6[e]	6[e]
		2 3/8″ x 0.113″ x 0.266" head nail; or 2″ 16 gage staple, 7/16″ crown	4	8
32.	7/8" - 1 ¼"	10d common (3″ x 0.148″); or deformed (2 ½″ x 0.131″ x 0.281" head)	6	12

OTHER EXTERIOR WALL SHEATHING

33.	½" fiberboard sheathing[b]	1 ½″ x 0.120" galvanized roofing nail (7/16″ head diameter); or 1 ¼″ 16 gage staple with 7/16″ or 1″ crown	3	6
34.	25/32" fiberboard sheathing[b]	1 ¾″ x 0.120" galvanized roofing nail (7/16″ diameter head); or 1 ½″ 16 gage staple with 7/16″ or 1″ crown	3	6

WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING

			Edges (inches)	Intermediate supports (inches)
35.	¾" and less	8d common (2 ½″ x 0.131″); or deformed (2″ x 0.113″); or deformed (2″ x 0.120″)	6	12
36.	7/8" - 1"	8d common (2 ½″ x 0.131″); or deformed (2″ x 0.113″); or deformed (2″ x 0.120″)	6	12
37.	1 1/8" - 1 ¼"	10d common (3" x 0.148"); or deformed (2 ½″ x 0.131″); or deformed (2 ½″ x 0.120″)	6	12

PANEL SIDING TO FRAMING

38.	½" or less	6d corrosion-resistant siding (1 7/8" x 0.106″); or 6d corrosion-resistant casing (2″ x 0.099″)	6	12
39.	5/8"	8d corrosion-resistant siding (2 3/8" x 0.128″); or 8d corrosion-resistant casing (2 ½″ × 0.113″)	6	12

INTERIOR PANELING

40.	¼"	4d casing (1 ½″ x 0.080″); or 4d finish (1 ½″ x 0.072″)	6	12
41.	3/8"	6d casing (2″ x 0.099″); or 6d finish (2″ x 0.092″) (Panel supports at 24 inches)	6	12

For SI: 1 inch = 25.4 mm.

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to Section 2305. Nails for wall sheathing are permitted to be common, box or casing.
b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).
c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with this schedule, the number of toenails in the rafter shall be permitted to be reduced by one nail.
d. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.
e. Tabulated fastener requirements apply where the ultimate design wind speed is less than 140 mph. For wood structural panel roof sheathing attached to gable-end roof framing and to intermediate supports within 48 inches of roof edges and ridges, nails shall be spaced at 4 inches on center where the ultimate design wind speed is greater than 130 mph in Exposure B or greater than 110 mph in Exposure C. Spacing exceeding 6 inches on center at intermediate supports shall be permitted where the fastening is designed per the AWC NDS.
f. Fastening is only permitted where the ultimate design wind speed is less than or equal to 110 mph.
g. Nails and staples are carbon steel meeting the specifications of ASTM F1667. Connections using nails and staples of other materials, such as stainless steel, shall be designed by acceptable engineering practice or approved under Section 104.11.

ROOF

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[g]	SPACING AND LOCATION
1.	Blocking between ceiling joists, rafters or trusses to top plate or other framing below	4-8d box (2 ½" x 0.113"); or 3-8d common (2 ½" x 0.131"): or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each end, toenail
	Blocking between rafters or truss not at the wall top plate, to rafter or truss	2-8d common (2 ½" x 0.131") 2-3" x 0.131" nails 2-3"14 gage staples	Each end, toenail
		2-16 d common (3 ½" × 0.162") 3-3" × 0.131" nails 3-3" 14 gage staples	End nail
	Flat blocking to truss and web filler	16d common (3 ½" x 0.162") @ 6" o.c. 3" × 0.131" nails @ 6" o.c. 3" × 14 gage staples @ 6".c	Face nail
2.	Ceiling joists to top plate	4-8d box (2 ½" x 0.113"); or 3-8d common (2 ½" × 0.131"); or 3-10d box (3" x 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each joist, toenail
3.	Ceiling joist not attached to parallel rafter, laps over partitions (no thrust) (see Section 2308.7.3.1, Table 2308.7.3.1)	3-16d common (3 ½" x 0.162"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
4.	Ceiling joist attached to parallel rafter (heel joint) (see Section 2308.7.3.1, Table 2308.7.3.1)	Per Table 2308.7.3.1	Face nail
5.	Collar tie to rafter	3-10d common (3" x 0.148"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
6.	Rafter or roof truss to top plate (See Section 2308.7.5, Table 2308.7.5)	3-10 common (3" x 0.148"); or 3-16d box (3 ½" x 0.135"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131 nails; or 4-3" 14 gage staples, 7/16" crown	2 toenails on one side and 1 toenail on opposite of rafter or truss[c]
7.	Roof rafters to ridge valley or hip rafters; or roof rafter to 2-inch ridge beam	2-16d common (3 ½" x 0.162"); or 3-16d box (3 ½" x 0.135"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown; or	End nail
		3-10d common (3 ½" x 0.148"); or 4-16d box (3 ½" x 0.135"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Toenail

WALL

8.	Stud to stud (not at braced wall panels)	16d common (3 ½" x 0.162")	24" o.c. face nail
		10d box (3" x 0.128"); or 3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	16" o.c. face nail
9.	Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common (3 ½" x 0.162"); or	16" o.c. face nail
		16d box (3 ½" x 0.135"); or 3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	12" o.c. face nail
10.	Built-up header (2" to 2" header)	16d common (3 ½" x 0.162"); or	16" o.c. each edge, face nail
		16d box (3 ½" x 0.135")	12" o.c. each edge, face nail
11.	Continuous header to stud	4-8d common (2 ½" x 0.131"); or 4-10d box (3" x 0.128"); or 5-8d box (2 ½" x 0.162")	Toenail
12.	Top plate to top plate	16d common (3 ½" × 0.162"); or	16" o.c. face nail
		10d box (3" × 0.128"); or 3" x 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
13.	Top plate to top plate, at end joints	8-16d common (3 ½" x 0.162"); or 12-16d box (3 ½" x 0.135"); or 12-10d box (3" x 0.128"); or 12-3"x 0.131" nails; or 12-3" 14 gage staples, 7/16" crown	Each side of end joint, face nail (minimum 24" lap splice length each side of end joint)
14.	Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3 ½" x 0.162"); or	16" o.c. face nail
		16d box (3 ½" x 0.135"); or 3" x 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
15.	Bottom plate to joist, rim joist, band joist or blocking at braced wall panels	2-16d common (3 ½"× 0.162"); or 3-16d box (3 ½" x 0.135"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	16" o.c. face nail
16.	Stud to top or bottom plate	3-16d box (3 ½" x 0.135"); or 4-8d common (2 ½" x 0.131"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-8d box (2 ½" x 0.113"); or 4-3" 14 gage staples, 7/16" crown; or	Toenail
		2-16d common (3 ½" x 0.162"); or 3-16d box (3 ½" x 0.135"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	End nail
17.	Top plates, laps at corners and intersections	2-16d common (3 ½" x 0.162"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Face nail
18.	1" brace to each stud and plate	3-8d box (2 ½" x 0.113"); or 2-8d common (2 ½" x 0.131"); or 2-10d box (3" x 0.128"); or 2-3" × 0.131" nails; or 2-3" 14 gage staples, 7/16" crown	Face nail
19.	1" x 6" sheathing to each bearing	3-8d box (2 ½" x 0.113"); or 2-8d common (2 ½" x 0.131"); or 2-10d box (3" x 0.128"); or 2-3" x 0.131" nails; or 2-3" 14 ga staples, 7/16" crown	Face nail
20.	1" x 8" and wider sheathing to each bearing	3-8d common (2 ½" × 0.131"); or 3-8d box (2 ½" x 0.113"); or 3-10d box (3" × 0.128"); or 3-1 ¾" 16 gage staples, 1" crown	Face nail
		Wider than 1" x 8" 3-8d common (2 ½" x 0.131"); or 4-8d box (2 ½" × 0.113"); or 3-10d box (3" x 0.128"); or 4-1 ¾" 16 gage staples, 1" crown	

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SHEET TITLE:
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SHEET NUMBER:
SSP.2