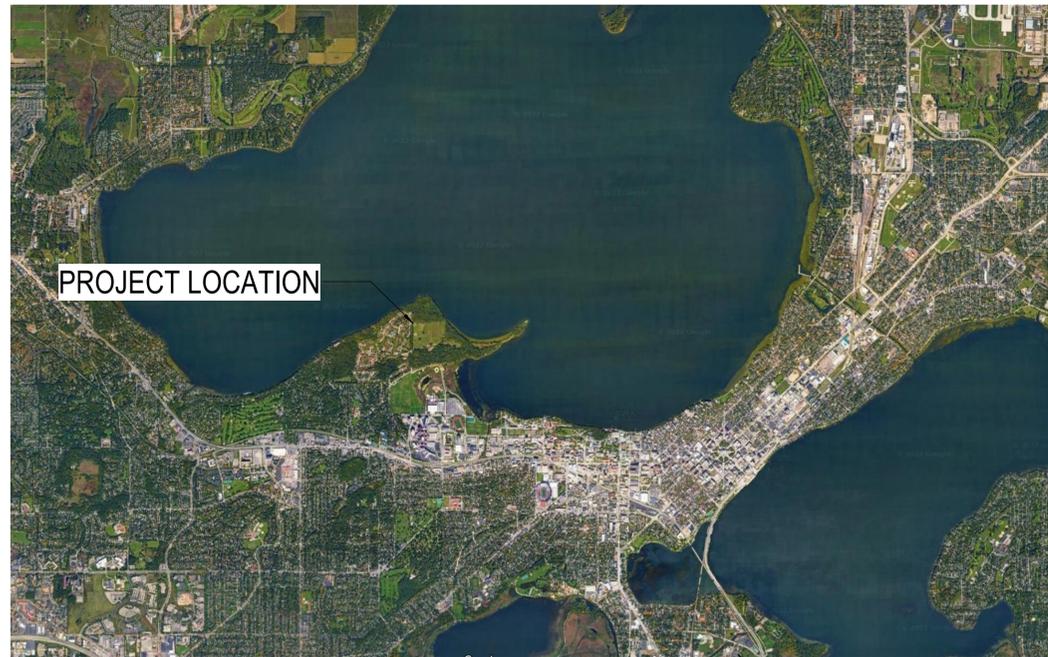


UNIT WELL 19 TREATMENT SYSTEM ADDITION MADISON, WISCONSIN

CONTRACT NO. 9289
PROJECT NO. 10448
MUNIS NO. 10448-86-140



PROJECT LOCATION

PROJECT LOCATION MAP

BID OPENING:
WATER UTILITY
119 E. Olin
Avenue, Madison,
WI 53713-1431



MADISON, WI
DANE

WISCONSIN



Madison Water Utility

PUBLIC IMPROVEMENT
PROJECT APPROVED
FEB. 28, 2023
BY THE COMMON COUNCIL
OF MADISON, WI

BIDDING DOCUMENTS



Project Owner
MADISON WATER UTILITY

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION

2626 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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SEH Project MADWU 167818
Checked By MS
Drawn By LAP

Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

REVISION SCHEDULE
REV. # DESCRIPTION DATE

TITLE SHEET

G001



GENERAL SHEETS

- G001 TITLE SHEET
- G002 SHEET INDEX
- GC001 EXISTING SITE CONDITIONS
- GL001 LANDSCAPE PLAN
- GS001 GENERAL STRUCTURAL ABBREVIATIONS, SYMBOLS AN...
- GS002 GENERAL STRUCTURAL NOTES
- GS003 GENERAL STRUCTURAL NOTES
- GP001 GENERAL PROCESS NOTES
- GP002 PROCESS FLOW DIAGRAM
- GM1 MECHANICAL SYMBOLS AND ABBREVIATIONS
- GM2 MECHANICAL SCHEDULES
- GM3 MECHANICAL SCHEDULES
- GE1 GENERAL ELECTRICAL NOTES

CIVIL SHEETS

- C 100 SITE PLAN
- C 101 STAGING PLAN
- C 102 GRADING PLAN
- C 103 UTILITY PLAN
- C 104 PLAN & PROFILE
- C 105 FIRE ACCESS PLAN
- C 106 EROSION CONTROL PLAN

LANDSCAPE SHEETS

- L101 LANDSCAPE PLAN

(01) WELLHOUSE 19 SHEETS

- 01 S101 FOUNDATION FLOOR PLAN
- 01 S102 ROOF PLAN
- 01 S301 BUILDING SECTIONS
- 01 A001 GENERAL INFORMATION
- 01 A002 CODE PLAN
- 01 A100 DEMOLITION DRAWINGS
- 01 A101 FLOOR AND ROOF PLANS
- 01 A201 EXTERIOR ELEVATIONS
- 01 A301 BUILDING SECTIONS
- 01 A401 ENLARGED PLAN, SCHEDULES AND DETAILS
- 01 A402 DOOR AND WINDOW DETAILS
- 01 A501 WALL TYPES, EXTERIOR DETAILS
- 01 A502 DETAILS
- 01a A801 ALT BID #1 PLANS, SECTIONS AND DETAILS
- 01a A802 ALT BID #1 PANEL REPLACEMENT LOCATIONS
- 01a AR000 ALT BID #1 STR SEG COVER SHEET
- 01a AR100 ALT BID #1 STR SEG OVERALL ROOF PLAN
- 01a AR101 ALT BID #1 STR SEG ROOF REPAIR PLAN
- 01a AR200 ALT BID #1 STR SEG DETAIL REFERENCE ELEVATIONS
- 01a AR500 ALT BID #1 STR SEG ROOFING DETAILS A500-A503
- 01a AR501 ALT BID #1 STR SEG ROOFING DETAILS A504-A507
- 01a AR502 ALT BID #1 STR SEG ROOFING DETAILS A508-A510
- 01 P101 PROCESS FLOOR PLAN
- 01 P301 PROCESS SECTIONS
- 01 P302 PROCESS SECTIONS
- 01 P901 PROCESS ISOMETRIC 3D VIEWS FOR REFERENCE ONLY AND PHOTOS
- 01 FP101 FIRE PROTECTION PLAN
- 01 M071 MECHANICAL DEMOLITION PLAN
- 01 M101 FIRST LEVEL HVAC PLAN
- 01 M102 ROOF MECHANICAL PLAN
- 01 M201 FIRST LEVEL DOMESTIC WATER AND GAS PLAN
- 01 M202 FIRST LEVEL SANITARY WASTE AND VENT PLAN
- 01 M301 RISER DIAGRAMS
- 01 E070 OVERALL REMOVAL PLAN
- 01 E101 ELECTRICAL SITE PLAN - REMOVAL
- 01 E102 ELECTRICAL SITE PLAN
- 01 E201 LIGHTING PLAN
- 01 E301 POWER PLAN
- 01 E401 SYSTEMS PLAN
- 01 E501 ONE-LINE DIAGRAM
- 01 E502 ONE-LINE DIAGRAM
- 01 E503 ONE-LINE DIAGRAM
- 01 E504 ONE-LINE DIAGRAM
- 01 E505 NETWORK DIAGRAM
- 01 E601 SCHEMATICS
- 01 E602 SCHEMATICS
- 01 E701 SCHEDULES

(02) BACKWASH RECLAIM TANK SHEETS

- 02 S101 BACKWASH TANK PLANS
- 02 S301 BACKWASH TANK SECTIONS
- 02 P101 PROCESS FLOOR PLAN
- 02 P301 PROCESS SECTIONS
- 02 E301 POWER PLAN - BACKWAS...

TYPICAL DETAILS

- DC 001 CIVIL DETAILS
- DC 002 CIVIL DETAILS
- DC 003 CIVIL DETAILS
- DC 004 CIVIL DETAILS
- DC 005 CIVIL DETAILS
- DC 006 CIVIL DETAILS
- DC 007 CIVIL DETAILS
- DL001 LANDSCAPE DETAILS
- DS501 FOUNDATION DETAILS
- DS502 FOUNDATION DETAILS
- DS511 FRAMING DETAILS
- DS512 FRAMING DETAILS
- DSS31 STEEL DETAILS
- DP 501 PROCESS PIPING WALL PENETRATION...
- DP 502 PROCESS PIPING DETAILS
- DP 503 PROCESS PIPING SUPPORT DETAILS
- DP 504 MISCELLANEOUS PROCESS DETAILS
- DM1 MECHANICAL DETAILS
- DM2 MECHANICAL DETAILS
- DE01 ELECTRICAL DETAILS
- DE02 ELECTRICAL DETAILS
- DE03 ELECTRICAL DETAILS

Project Owner
MADISON WATER UTILITY

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2626 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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SHEET INDEX

G002

SAN MH
RIM 914.38
8" N 896.95 CLAY
8" S 896.93 CLAY
8" W 897.58 METAL(?)
8" W 904.73 METAL(?)
1.5" E APPROX 905.75 PVC

SAN MH
RIM 912.81
8" N 896.61 CLAY
8" S 896.50 CLAY
8" W 896.92 CLAY

STORM INLET
RIM 911.88
12" W 908.68 CONC

HYDRANT TOP NUT
ELEV 915.81

BUS SHELTER

Save: 10/12/2023 12:31 PM kleehtut.Plot: 10/12/2023 12:33 PM
X:\KJ\MM\DWU\106165-main-dgn\1-drawings\10-communications\sheet\titleblock\SEH_A-223-24.dwg

UW-MADISON LAKESHORE PRESERVE

WATER FACILITY EASEMENT PER DOCUMENT NO. 4811269

EARLY WARNING SIREN EASEMENT PER DOCUMENT NO. 4680236
ELEV @ TOP 900.98

MONITORING WELL
ELEV @ TOP 898.10

CLEANOUT BENCHMARK
ELEV 895.52

TOP OF PUMP
ELEV 896.01

WATER VALVE
TOP NUT
IE 884.98

WATER VALVE
TOP NUT
IE 884.73

BENCHMARK
CORNER OF WALL
ELEV 888.35

ELEV @ FLOOR
896.44

ELEV @ FLOOR
896.41

ELEV @ FLOOR
896.44

PERENNIAL PLANTING AREA SCHEDULE

	NATIVE PRAIRIE MIX - PLUGS @12" O.C. BOUTELOUA CURTIPENDULA / SIDE OATS GRAMA BOUTELOUA GRACILIS / BLUE GRAMA GRASS COREOPSIS LANCEOLATA / LANCELEAF TICKSEED ECHINACEA PURPUREA / CONEFLOWER MONARDA FISTULOSA / BERGAMOT RUDBECKIA TRILOBA / BROWN EYED SUSAN SCHIZACHYRIUM SCOPARIUM / LITTLE BLUESTEM	482 SF 76 76 51 51 51 51 151
	UNDERSTORY MIX 1 PLUGS @ 12" O.C. ASARUM CANADENSE / WILD GINGER MERTENSIA VIRGINICA / VIRGINIA BLUEBELLS POLYGONATUM BIFLORUM / SOLOMON'S SEAL	731 SF 342 76 342
	JOE-PYE WEED PLUGS @ 12" O.C. EUPATORIUM MACULATUM / JOE PYE WEED	158 SF 165
	UNDERSTORY MIX 2 PLUGS @12" O.C. CAREX BICKNELLII / PRAIRIE SEDGE GERANIUM MACULATUM / SPOTTED GERANIUM RUDBECKIA HIRTA / BLACK-EYED SUSAN TRADESCANTIA OHIENSIS / OHIO SPIDERWORT	509 SF 212 159 80 80

SEED MIXES

	NO MOW TURF MIX BASIS OF DESIGN: PRAIRIE NURSERY NO MOW LAWN SEED MIX	1,200 sf
	REINFORCED TURF GRASS SEE 2/L201. TURF SEED TO MATCH TURF GRASS SEEDING AREA.	1,817 sf
	TURF GRASS BASIS OF DESIGN: WISCONSIN DOT NO. 40 SEED MIX	4,804 sf

LANDSCAPE NOTES:

- CONTRACTOR TO VERIFY PLANTS REQUIRED AS REFLECTED ON PLAN. QUANTITIES LISTED IN PLANT SCHEDULE ARE FOR REFERENCE ONLY. IF THERE IS A DISCREPANCY BETWEEN QUANTITIES LISTED IN PLANT SCHEDULE AND QUANTITIES SHOWN ON PLAN SHEETS, PLAN SHEETS SHALL GOVERN.
- CONTRACTOR IS RESPONSIBLE FOR ON-GOING MAINTENANCE OF ALL NEWLY INSTALLED MATERIALS UNTIL TIME OF OWNER ACCEPTANCE. ANY ACTS OF VANDALISM OR DAMAGE WHICH MAY OCCUR PRIOR TO OWNER ACCEPTANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- NO PLANT MATERIAL SUBSTITUTIONS WILL BE ACCEPTED UNLESS PRIOR APPROVAL IS REQUESTED OF THE LANDSCAPE ARCHITECT BY THE LANDSCAPE CONTRACTOR PRIOR TO THE SUBMISSION OF A BID AND/OR QUOTATION.
- CONTRACTOR SHALL VISIT AND INSPECT SITE TO BECOME FAMILIAR WITH EXISTING CONDITIONS RELATING TO THE NATURE AND SCOPE OF WORK PRIOR TO SUBMITTING BID.
- ALL PLANT BEDS SHALL BE EDGED USING SPADED GARDEN EDGE UNLESS OTHERWISE NOTED ON PLANS.
- MULCH SHALL BE INCIDENTAL TO PLANT MATERIALS.
- ALL PLANTING AREAS SHALL RECEIVE 6" DEPTH OF PREPARED TOPSOIL.
- TREE SHALL BE PLANTED IN PITS 3 TIMES THE WIDTH OF THE ROOT BALL WITH ROOT CROWN SET 2" ABOVE FINAL GRADE. BACKFILL WITH TOPSOIL AS SPECIFIED.
- ORNAMENTAL AND SHADE TREE ROOTS SHALL BE B&B OR CONTAINER GROWN.
- SHRUBS AND PERENNIALS SHALL BE CONTAINER GROWN.
- ALL PLANTING AREAS SHALL BE MULCHED WITH SHREDDED HARDWOOD, NATURAL COLOR ACCORDING TO LANDSCAPE DETAILS
- PLANT PERENNIAL PLANTING AREAS AS PLUGS AT 12" O.C. RANDOMIZE PLANTINGS IN GROUPS OF 1-5.

PLANT SYMBOL SCHEDULE

ORNAMENTAL TREES	BOTANICAL / COMMON NAME	SIZE	QTY
PV	Prunus virginiana / Chokecherry	1.5" Cal	11
VL	Viburnum lentago / Nannyberry	1.5" Cal	4
SHADE TREES	BOTANICAL / COMMON NAME	SIZE	QTY
CR	Carpinus caroliniana / American Hornbeam	2.5" CAL	3
QB	Quercus bicolor / Swamp White Oak	2.5" CAL	3
QM	Quercus macrocarpa / Burr Oak	2.5" CAL	3
SHRUBS	BOTANICAL / COMMON NAME	SIZE	QTY
AR	Aralia racemosa / American Spikenard	3 gal.	13
AM	Aronia melanocarpa 'Iroquois Beauty' TM / Black Chokeberry	3 gal.	11
CO	Cornus racemosa / Gray Dogwood	3 gal.	6
CA	Corylus americana / American Hazelnut	3 gal.	8
DI	Diervilla lonicera / Dwarf Bush Honeysuckle	3 gal.	3
PERENNIALS	BOTANICAL / COMMON NAME	SIZE	QTY
cn	Conoclinium coelestinum / Wild Ageratum	1 gal.	16
ep	Echinacea pallida / Pale Purple Coneflower	1 gal.	7
pn	Panicum virgatum 'Northwind' / Northwind Switch Grass	1 gal.	2

TREE REMOVAL TABLE

NO.	SPECIES	SIZE
T1	Picea pungens / Blue Spruce	APPROX 12" DBH, >20 FT HT
T2	Acer sp. / Maple	APPROX 10" DBH, >15 FT HT

Notes
Incidental clearing of small diameter Tilia americana, (American Basswood/Linden), Fraxinus spp (Ash), and Acer negundo (boxwood) may occur in conjunction with driveway construction and hydrant installation. UW Madison Facilities & Development staff have reviewed these locations with the Design Team on-site and determined that no heritage trees exist in these locations.
Tree locations estimated through review of 2020 aerial photography and confirmed by staff site visits. Trees were not included in site survey but locations will be confirmed prior to construction.

**LANDSCAPING & SCREENING CALCULATIONS PER MADISON ORDINANCE 28.142
LANDSCAPING AND SCREENING REQUIREMENTS**

Required	Provided
Landscape Calculations & Distribution: Provide 5 landscape points for each three hundred square feet of developed area	
Developed Area = 10,265 SF (10,265 SF/300) x 5 = 172 Required landscape points	748 Points (See City of Madison Landscape Worksheet)
Planting beds must have at least 75% vegetative cover	Planting beds will have at least 75% vegetative cover as shown on sheet L101.
No single tree species may comprise more than 33% of trees used to meet screening requirements	Maximum percentage of a single tree species: 33%
Development Frontage Landscaping	
1 overstory canopy tree and five shrubs shall be planted for each thirty lineal feet of lot frontage.	
243 LF Lot Frontage, 1 x (243/30)=8 canopy trees; 5 x (243/30) = 40 shrubs	9 canopy trees, 15 ornamental trees, and 41 shrubs are provided along site perimeter in addition to existing mature tree canopy and woodland understory along road frontage. Trees and shrubs are located to provide maximum screening for adjacent trail uses as well as views from roadway.
Interior Parking Lot Landscaping: Pavement is for maintenance access only, no formal parking spaces provided. Plantings at pavement perimeter screen driveway from adjacent trails	
Foundation Plantings	
Foundation plantings shall be installed along building facades	Maintenance activities associated with well infrastructure and filtration equipment preclude planting against building foundations. The existing building currently does not have any foundation plantings. Instead planting has been shifted to the driveway perimeter to more effectively screen the building and site without sacrificing well operations and maintenance,

ABBREVIATIONS

&	AND	FDN	FLOOR DRAIN	PC	PRECAST
L	ANGLE	FDN	FOUNDATION	PCF	POUNDS PER CUBIC FOOT
@	AT	FFE	FINISHED FLOOR ELEVATION	PERIM	PERIMETER
∅	CENTERLINE	FH	FLAT HEAD	PERP	PERPENDICULAR
∅	DIAMETER/ROUND	FL	FLOOR	PL	PLATE
(E)	EXISTING	FR	FRAME	PLYWD	PLYWOOD
#	FOUND/NUMBER	FRP	FIBERGLASS REINFORCED	PNL	PANEL
+/-	PLUS OR MINUS	FS	FIBERGLASS REINFORCED	POLYESTER/PLASTIC	
SQ	SQUARE	FT	FOOTING STEP	PSI	POUNDS PER SQUARE INCH
		FT	FOOT/FEET	PSF	POUNDS PER SQUARE FOOT
AB	ANCHOR BOLT	FTG	FOOTING		
ADD	ADDENDUM	FV	FIELD VERIFY	QT	QUARRY TILE
ADDL	ADDITIONAL				
ADH	ADHESIVE	GA	GAUGE	R	RISER
ADJ	ADJUSTABLE	GAL	GALLON	RAD	RADIUS
ADJA	ADJACENT	GALV	GALVANIZED	REF	REFERENCE/REFER
AGGR	AGGREGATE	GC	GENERAL CONTRACTOR	REINFORCED/REINFORCING	
ALUM	ALUMINUM	GB	GRADE BEAM	REQ	REQUIRED
ALT	ALTER OR ALTERNATE	GEN	GENERATOR	REV	REVISED/REVISION
ANCH	ANCHOR	GP	GUSSET PLATE	RH	ROUND HEAD
ANOD	ANODIZED	GR	GRADE	RLG	RAILING
APPROX	APPROXIMATE	H	HEIGHT/HIGH	RM	ROOM
ARCH	ARCHITECTURAL	HC	HOLLOW CORE	RO	ROUGH OPENING
ASPH	ASPHALT (PAVING)	HD	HEAD	RTU	ROOF TOP UNIT
		HORIZ	HORIZONTAL	S	SOUTH
BITUM	BITUMINOUS	HR	HOUR	SCHED	SCHEDULE
BLDG	BUILDING	HS	HEADED STUD	SECT	SECTION
BLK	BLOCK	HSS	HOLLOW STRUCTURAL SHAPE	SER	STRUCTURAL ENGINEER OF RECORD
BM	BEAM	ID	INSIDE DIAMETER (DIMENSION)	SF	SQUARE FOOT
BOT	BOTTOM	IN	INCH	SHT	SHEET
BRG	BEARING	INFO	INFORMATION	SIM	SIMILAR
BRKT	BRACKET	INSUL	INSULATION	SLNT	SEALANT
BTWN	BETWEEN	INT	INTERIOR	SLH	SHORT LEG HORIZONTAL
		INV	INVERT	SLV	SHORT LEG VERTICAL
		ISF	INSIDE FACE	SM	SQUARE METER
		JBE	JOIST BEARING ELEVATION	SOG	SLAB ON GRADE
		JGBE	JOIST GIRDER BEARING ELEVATION	SPACED	SPECIFICATIONS
		JST	JOIST	SQ	SQUARE
		JT	JOINT	SS	STAINLESS STEEL
		K	KIPS	STD	STANDARD
		KG	KILOGRAM	STL	STEEL
		KM	KILOMETER	STRUC	STRUCTURE/STRUCTURAL
		KO	KNOCK-OUT	SUSP	SUSPEND/SUSPENDED
		KW	KILOWATT	SYM	SYMMETRICAL
		L	LENGTH/LONG	T	TREAD
		LB	POUND	T&B	TOP AND BOTTOM
		LF	LINEAL FOOT	TBE	TOP OF BEAM ELEVATION
		LL	LIVE LOAD	TD	TRENCH DRAIN
		LLH	LONG LEG HORIZONTAL	TDE	TOP OF DECK ELEVATION
		LLV	LONG LEG VERTICAL	TPE	TOP OF FOOTING ELEVATION
		LOC	LOCATION	THK	THICK/THICKNESS
		LONG	LONGITUDINAL	THR	THRESHOLD
		LTL	LINTEL	THR	THREADED
		LVR	LOUVER	TOS	TOP OF STEEL
		MAS	MASONRY	TPE	TOP OF PIER ELEVATION
		MATL	MATERIAL	TRANS	TRANSVERSE
		MAX	MAXIMUM	TSE	TOP OF SLAB ELEVATION
		MECH	MECHANICAL	TWE	TOP OF WALL ELEVATION
		MEMB	MEMBRANE	TYP	TYPICAL
		MFR	MANUFACTURER	UNO	UNLESS NOTED OTHERWISE
		MFG	MANUFACTURING	VAR	VARIES
		MH	MANHOLE	VERT	VERTICAL
		MIN	MINIMUM	VLE	VENEER LEDGE ELEVATION
		MISC	MISCELLANEOUS	VLS	VENEER LEDGE STEP
		MM	MILLIMETER	VOL	VOLUME
		MTL	METAL	W	WEST/WIDTH/WIDE
		N	NORTH	W	WIDE FLANGE (STEEL)
		NIC	NOT IN CONTRACT	WF	WIDE FLANGE (ALUMINUM)
		NO	NUMBER	W	WITH
		NOM	NOMINAL	W/O	WITHOUT
		NS	NO SCALE	WP	WATERPROOF / WORKING POINT
		NTS	NOT TO SCALE	WP	WATERPROOF MEMBRANE
		OA	OVERALL	WS	WATER STOP / WALL STEP
		OC	ON CENTER	WR	WATER RESISTANT
		OD	OUTSIDE DIAMETER (DIMENSION)	WT	WEIGHT
		OPNG	OPENING	WWF	WELDED WIRE FABRIC
		OPP	OPPOSITE		
		OSF	OUTSIDE FACE		
		OVHD	OVERHEAD		

MATERIAL SYMBOLS

	GRANULAR FILL
	SOIL / EARTH
	BASE COURSE, SUB-BASE, GRAVEL, CRUSHED ROCK
	CONCRETE
	BRICK MASONRY
	CUT STONE, SAND, MORTAR, PLASTER
	CLSM
	CONCRETE MASONRY UNITS
	STEEL
	ALUMINUM (OMIT IN THIN MATERIAL)
	INSULATION BOARD
	RIGID INSULATION
	WOOD FRAMING THROUGH MEMBER
	WOOD FRAMING / BLOCKING INTERRUPTED MEMBER
	PLYWOOD
	GYPSUM BOARD
	PARTICLE BOARD

CALLOUT SYMBOLS

	WALL SECTION NUMBER
	WALL SECTION SHEET
	DETAIL NUMBER
	DETAIL SHEET
	BUILDING SECTION NUMBER
	BUILDING SECTION SHEET
	DETAIL OR SECTION NUMBER
	DETAIL OR SECTION SHEET
	EXTERIOR ELEVATION NUMBER
	EXTERIOR ELEVATION SHEET
	INTERIOR ELEVATION NUMBER
	INTERIOR ELEVATION SHEET

ANNOTATION SYMBOLS

	BEAM CONTINUOUS OVER COLUMN
	BEAM SPLICE
	MOMENT CONNECTION
	LEVEL / ELEVATION REFERENCE
	GRID REFERENCE
	SPAN DIRECTION
	REVISION CLOUD & TAG
	WOOD WALL SHEARWALL WITH HOLD-DOWN LOCATIONS
	MASONRY SHEARWALL DESIGNATION
	PLAN KEYNOTE
	KEYNOTE TAG
	EXISTING CONSTRUCTION TO BE DEMOLISHED
	EXISTING CONSTRUCTION TO REMAIN
	NEW CONCRETE CONSTRUCTION
	CONCRETE MASONRY WALL
	PIPE PENETRATION - SEE PROCESS FOR SIZE AND LOCATION. SEE OPENING REINFORCEMENT DETAIL
	ALL DIMENSIONS ARE TO FACE OF FOUNDATION UNLESS NOTED OTHERWISE
	LOCATION OF RE-ENTRANT CORNER BAR
	LOCATION OF CONTROL / CONTRACTION JOINT IN CONCRETE SURFACE
	UNFACTORED WIND SHEAR LOAD
	SNOW DRIFT - NOTATION DIAGRAM
	FOOTING TAG & TOP OF FOOTING ELEVATION
	COLUMN TAG
	PIER TAG

STRUCTURAL TABLES

BAR SIZE	f' _c = 3000 psi (note c)		f' _c = 4000 psi		f' _c = 6000 psi		STD 90° HOOK
	VERTICAL (note a)	HORIZONTAL (note b)	VERTICAL (note a)	HORIZONTAL (note b)	VERTICAL (note a)	HORIZONTAL (note b)	
#3	21"	28"	19"	24"	15"	20"	6"
#4	29"	37"	25"	32"	20"	26"	8"
#5	36"	46"	31"	40"	25"	33"	10"
#6	43"	56"	37"	48"	30"	39"	12"
#7	62"	81"	54"	70"	44"	57"	14"
#8	71"	93"	62"	80"	50"	66"	16"
#9	80"	104"	70"	90"	57"	74"	19"
#10	91"	118"	78"	102"	64"	83"	22"
#11	100"	131"	87"	113"	71"	92"	24"

- Vertical bars; and horizontal or diagonal bars with less than 12" of concrete placed below them.
- Horizontal or diagonal bars with 12" or more of concrete placed below them. (eg. wall horizontals)
- Use f'_c = 3000 psi values for masonry rebar laps. Do not lap splice bars bigger than #8 in masonry. Break off fins in cores of 6" CMU.
- For epoxy coated bars, multiply these values x 1.20.
- For laps between different bar sizes, use the greater of these values based on the smaller bar, or these values based on the bigger bar divided by 1.30.
- Hoop bar laps shall be staggered such that splices do not overlap with bars above, below, or on opposite faces.

DESCRIPTION OF WORK	INSPECTION FREQUENCY		TESTING		
	CONTINUOUS	PERIODIC	YES	NO	N/A
METAL CONSTRUCTION					
1. WELDING		X		X	
2. DETAILS: BRACING, LOCATIONS, ETC.		X		X	
3. BOLTING		X		X	
4. OPEN-WEB STEEL JOISTS AND JOIST GIRDERS					X
5. STEEL DECK INCLUDING WELDING OR MECHANICAL FASTENING			X		
6. COMPOSITE CONSTRUCTION INCLUDING HEADED STUD ANCHORS					X
7. COLD FORMED STEEL TRUSSES SPANNING > 60FT					X
CONCRETE CONSTRUCTION					
1. INSPECT REINFORCEMENT		X		X	
2. REINFORCING BAR WELDING	X		X		
3. INSPECT ANCHORS CAST IN CONCRETE		X		X	
4. INSPECT ANCHORS POST-INSTALLED IN CONCRETE	X		X		
5. VERIFY USE OF REQUIRED DESIGN MIX		X		X	
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE		X	X		
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES		X		X	
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X		X	
9. INSPECT PRESTRESSED CONCRETE MEMBERS	X			X	
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS		X		X	
11. VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO POST-TENSIONING CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS		X	X		
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X		X	
MASONRY CONSTRUCTION - LEVEL A					
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS		X		X	
MASONRY CONSTRUCTION - LEVEL B					
1. REINFORCEMENT: SIZE AND SPACING		X		X	
2. PRISMS					X
3. DETAILS: GROUTING, LINTELS, ETC.		X	X		
WOOD CONSTRUCTION					
1. HIGH LOAD DIAPHRAGMS					X
2. METAL PLATE CONNECTED WOOD TRUSSES SPANNING > 60FT					X
SOILS					
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATION ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		X	X		
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X	X		
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X	X		
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X		X		
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X	X		
CAST-IN-PLACE DEEP FOUNDATIONS					
1. OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT					X
2. VERIFY PLACEMENT LOCATION AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, LENGTHS, EMBEDMENT INTO BEDROCK AND BELL DIAMETERS (IF APPLICABLE), AND ADEQUATE END BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.					X
DRIVEN DEEP FOUNDATION ELEMENTS					
1. VERIFY ELEMENT MATERIALS, SIZES AND LENGTHS COMPLY WITH THE REQUIREMENTS					X
2. DETERMINE CAPACITIES OF TEST ELEMENTS AND CONDUCT ADDITIONAL LOAD TESTS, AS REQUIRED					X
3. INSPECT DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT					X
4. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM TYPE AND SIZE OF HAMMER, RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION, DETERMINE REQUIRED PENETRATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS AND DOCUMENT ANY DAMAGE TO FOUNDATION ELEMENT					X



MADISON WATER UTILITY
CITY OF MADISON WATER UTILITY
119 E OLIN AVE
MADISON, WI 53713

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2626 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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SEH Project MADWU 167818
Checked By NRD, SMJ
Drawn By ALM

Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

GENERAL STRUCTURAL ABBREVIATIONS, SYMBOLS AND TABLES

GS001



MADISON WATER UTILITY
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REVISION SCHEDULE

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GENERAL STRUCTURAL NOTES

GS002

GENERAL STRUCTURAL NOTES

- These notes do not replace the specifications but are to be read in conjunction with them. Any discrepancies or conflicts between the two shall be brought to the attention of the Structural Engineer of Record (SER) for resolution. In these Notes and the Specifications, the word "shall" means "has a duty to."
- These drawings are for this specific project (SEH project number MADJW-167818) and no other use is authorized. Contact SER, Saura Jost 651.302.7663.

GOVERNING BUILDING CODE:

2018 Wisconsin Commercial Building Code
2015 International Building Code as adopted and amended by the state building code

DESIGN CODES AND STANDARDS:

ACI Manual of Concrete Practice
ACI 318, 301 Building Code Requirements & Specifications for Structural Concrete
ACI 350 Environmental Engineering Concrete Structures
ACI 530 / TMS 402 / ASCE 5 Building Code Requirements & Specifications for Masonry Structures
AISC 360, 303 Specification for Structural Steel Buildings
CRSI Manual of Standard Practice
PCI MNL 116 PCI Manual for Quality Control
PCI MNL 120 PCI Design Handbook - Precast and Prestressed Concrete
PCI MNL 123 PCI Connections Manual

DESIGN LOADS PER ASCE 7-10

Risk category III		
1. Live load:		
Floor slabs	150 PSF UNO	
Clear walkways	100 PSF	
Roof live load	20 PSF	
2. Dead load:		
Superimposed roof load	15 PSF	
3. Snow loads:		
Ground snow load	30 PSF	
Importance factor	1.10	
Roof snow load (Wellhouse)	23.1 PSF + drifting & unbalanced	
Roof snow load (Backwash Tank)	25.4 PSF	
Snow exposure factor	1.0	
Thermal factor (Wellhouse)	1.0	
Thermal factor (Backwash Tank)	1.1	
4. Wind loads:		
Wind speed (3 sec gust)	120 mph	
Wind exposure	C	
Mean roof height	15 feet	
Kd	0.85	
Kzt	1.0	
G	0.85 (rigid building)	
Structure is:	Enclosed	
Internal press coef	+0.18	
Interior walls	5 PSF lateral load	
5. Seismic loads:		
Site class	C	
Ss	0.084 g	
S1	0.046 g	
Fa	1.2	
Fv	1.7	
Sds	0.067 g	
Sd1	0.052 g	
Ie	1.25	
Seismic design category	A	
6. Soil criteria:		
Allowable soil bearing pressure (assumed)	2,500 PSF	
Measured groundwater elevation at the time of drilling	NOT ENCOUNTERED AT THE TIME OF DRILLING	
Dewater as required to keep excavations dry		
Frost depth	48 inches (heated building) 60 inches (unheated structure)	
Anticipated max differential settlement	1/2 inch	
Anticipated max total settlement	1 inch	
Sand backfill (assumed/per geotechnical report):		
Wet unit weight	120 PCF	
Angle of Internal Friction	30 degrees	
At-rest pressure coefficient, K0	0.5	
Subgrade modulus Wellhouse	100 PCI	
Subgrade modulus Backwash Tank	150 PCI	
7. Precast plank loading, where not noted on drawings:		
Superimposed dead load indicated above (roofs)	5 PSF	
Roofing live load (suspended MEPP)	10 PSF	
Lifting loads	Loads as shown on the drawings	
Roof live load	20 PSF	
If mechanical units shown on the drawings are greater than 20 PSF within their footprints apply the difference within their footprints.		

DESIGN / CONSTRUCTION CRITERIA

- The contractor shall verify dimensions and conditions before construction and notify the engineer of any discrepancies, inconsistencies, or difficulties affecting the work before proceeding.
- All material, workmanship, and details shall be in accordance with typical competent construction practices, current manufacturer's recommendations, and all applicable codes and government regulations.
- Any material used in contact with drinking water shall be demonstrated to meet NSF 61.
- The contractor shall coordinate all disciplines, verifying size and location of all openings, whether shown on structural drawings or not, as called for on process, architectural, mechanical, electrical or other drawings. All conflicts, inconsistencies, or other difficulties affecting structural work shall be called to the architect and engineer's attention for direction before proceeding.
- Equipment and structural anchor rod sizes, types, embedment, and patterns shall be verified with the manufacturer or fabricator. All anchor patterns shall be templated to ensure accuracy of placement.
- The contractor shall supply all necessary temporary bracing, shoring, guying, or other means to avoid excessive stresses and to hold structural elements in place during construction.
- Job site safety (including excavations) is the sole responsibility of the general contractor and their subcontractors.
- The engineer is not responsible for construction means, methods, techniques or practices. Where drawings and details imply they are provided to show final construction. If contractor desires to use different means and methods than implied by these drawings, submit similar details for review.
- Standard or typical structural details are intended to illustrate design concepts and to specify material and required physical dimensions matching or similar to the referenced locations in the drawing set. Standard details apply whether or not they are cut on the drawings.
- There is no provision for future vertical or horizontal expansion in the design.

EXISTING CONSTRUCTION

- Before proceeding with any work within the existing facility, the contractor shall familiarize himself with existing structural and other conditions. It shall be the contractor's responsibility to design, provide, and erect all necessary bracing, shoring and other safeguards to maintain all parts of the existing work in a safe condition during the process of demolition and construction and to protect from damage those portions of the existing work which are to remain.
- The contractor shall field verify the dimensions, elevations, etc. necessary for the proper construction and alignment of the new portions of the work to the existing work. The contractor shall make all measurements necessary for fabrication and erection of structural members. Any discrepancy shall be immediately brought to the attention of the engineer.
- Any existing construction damaged in the removal of adjacent elements shall be replaced at the contractor's expense. Where existing concrete elements are to be demolished and reinforcing is not required to remain, cut existing reinforcing flush with concrete to remain and coat with epoxy, unless covered with concrete in final construction.

FOUNDATIONS

- CAUTION:** Existing underground utilities may exist anywhere on the site. Notify owner and Digger's hotline (800) 242-8511 prior to disturbing any ground or excavation.
- Material Definitions and Gradients:**
 - Non-frost-susceptible fill**
 - 100% passing 1" sieve
 - < 50% passing #40 sieve
 - < 6% passing #200 sieve
 - < 2% organic content
 - Aggregate Base**
 - 100% passing 1" sieve
 - 70-100% passing 3/4" sieve
 - 45-90% passing 3/8" sieve
 - 35-80% passing #4 sieve
 - 20-65% passing #10 sieve
 - 10-35% passing #40 sieve
 - 3-10% passing #200 sieve
 - < 2% organic content
 - Large aggregates through #4 have minimum 25% fractured faces or crushed (per gradation)
 - Aggregate Filter/Base**
 - 100% passing 1" sieve
 - 85-100% passing 3/4" sieve
 - 45-90% passing 3/8" sieve
 - 20-60% passing #4 sieve
 - 0-10% passing #10 sieve
 - 0-6% passing #200 sieve
 - < 2% organic content
 - Granular Structural Backfill**
 - 100% passing 1" sieve
 - 0-65% passing #10 sieve
 - 0-65% passing #40 sieve
 - 0-10% passing #200 sieve
 - < 2% organic content
- Structural foundations consist of wall and spread footings established on material capable of safely supporting 2,500 PSF as recommended by CEC inc testing in report C22051-10 dated 01/20/2023. The structural engineer is not responsible for the accuracy or content of the subsurface soil conditions described in the specifications, test borings, or geotechnical report. A licensed geotechnical engineer shall be present during construction to test, inspect and verify all assumed soil conditions as required.
- Subgrade tank walls shall be backfilled with Granular Structural Backfill or Non-Frost Susceptible Fill (as defined above) within 2 feet of the wall. Tank walls are not designed to resist lateral load (leak testing or backfilling) until the wall concrete has achieved its full design strength, 14 days minimum. Submit concrete testing verifying this before leak testing or backfilling.
- Foundation walls shall be adequately braced during backfilling and compaction to prevent movement or structural damage. Bracing shall remain in place until permanent bracing is in place and until concrete achieves sufficient strength to resist imposed loads.
- When placing compacted fill adjacent to foundation walls and piers, place backfill at equal rates on both sides to prevent overturning or structural damage.
- Refer to the specifications for a list of structures that require leak testing prior to backfilling.
- Away from walls, place fill in 8 inch loose lifts and compact to 95 percent Modified Proctor beneath foundations. When placing compacted fill adjacent to foundation walls and piers, place backfill at equal rates on both sides to prevent overturning or structural damage.
- Contractor shall provide for dewatering at excavations from either surface water or seepage.
- Moisture content in soils beneath building locations should not be allowed to vary after footing excavations and after grading for slabs on grade are completed to a degree that would de-stabilize the compacted soil. If subgrade materials become desiccated or softened by water or other conditions, remove and replace with engineered fill as recommended by the geotechnical engineer. Do not place concrete on frozen ground, nor allow ground beneath foundations to freeze. All foundation work shall be placed on substrate approved and tested by geotechnical engineer of record.
- Do not place backfill on frozen subgrade. Do not place frozen backfill.
- Slabs on grade shall be constructed on a subgrade of native material compacted to at least 95 percent modified proctor, and 6 inches of Aggregate Base or Aggregate Filter/Base (as defined above) or WisDOT base aggregate course (dense) below the slab compacted to 95 percent modified proctor density unless noted otherwise in geotechnical report. In wet or potentially wet situations, use Aggregate Filter/Base (as defined above).
- Grading: where not specifically shown on the plans, it is intended that all excavated and backfilled areas shall be graded to slope away from buildings and other structures.

CONCRETE

- An independent testing agency shall cast 4 six inch test cylinders (5 if 56 day strength is allowed) or an additional cylinder if four inch cylinders are used, for each 75 cubic yards of each concrete mix placed or for each day's operation, whichever is the lesser amount. The testing agency shall cast, cure, and test the specimens in accordance with ASTM C31 and ASTM C39. Air, temperature, and slump shall be tested at minimum for the first truck and every third truck thereafter (1st, 4th, 7th, etc.) or when a change in properties is noticed, at the final location (test after pump, not at truck).
- The contractor shall be responsible for the design of formwork to comply with the dimensions indicated on the plans, maintaining proper alignment during concrete pouring operations. Special care shall be taken with formwork for self-consolidating concrete.
- All concrete except as noted in the following paragraphs shall meet the following requirements:
 - Compressive Strength $f_c = 4,000$ PSI min at 28 days
 - Water / (cement + pozzolan) ratio 0.45 max (0.40 max if exposed to sulfates)
- Concrete used in exterior flatwork and stoop slabs shall meet the following requirements:
 - Compressive Strength $f_c = 4,500$ PSI min at 28 days
 - Water / (cement + pozzolan) ratio 0.45 max
 - Portland cement content 450 pounds per cubic yard min
- Grout fill in hydraulic structures shall meet the following requirements:
 - Compressive Strength $f_c = 3,000$ PSI min at 28 days
 - Water / (cement + pozzolan) ratio 0.45 max
 - Macro-fibers per specifications
- Concrete and grout exposed to frost (including foundation walls) shall be air entrained 6% +/- 1%.
- Slump shall be 4 inches +/- 1 inch without water reducing admixtures. With water reducing admixtures, concrete mix design shall state design slump and field tests shall be +/- 1 inch. Slump is used primarily as a measure of concrete consistency, truck to truck. If slump is outside these ranges, water content (water:cementitious ratio) shall be checked against allowable; and concrete rejected, accepted, or adjusted on that basis.
- Water-reducing admixtures conforming to ASTM C494 added to the mix at manufacturer's dosage rates may be used for improved workability.
- Do not add water to concrete at the jobsite without written approval of the SER, and in no case in excess of the water in the approved mix design.
- No chloride containing admixtures are allowed.
- Concrete used in tank slabs and walls shall have Xypex, Euclid Vandex AM-10, Penetron, or BASF Masterlife 300d admixture added to the mix at manufacturer's dosage rates (minimum 2% of cementitious content; maximum of 2 percent of cementitious content in potable water tanks). Concrete used in areas subject to de-icing salts (including stoop slabs and aprons) shall have Certicor MCI added to the mix at manufacturer's recommended dosage rates.
- All concrete is normal weight unless specifically noted otherwise.
- Cement shall be Portland cement type 1 conforming to ASTM C150 or Portland Limestone Cement type 1L conforming to ASTM C595. Up to 30% cement can be replaced with flyash and up to 50% with GGBFS (50% combined max.). Aggregate for normal weight concrete shall conform to ASTM C33. Water is to be potable or demonstrated to have no harmful effects on concrete. Fly ash shall be demonstrated by test to contain minimum 18 percent CAO except as noted in next paragraph. When fly ash is used in concrete to be air entrained, air entraining shall be adjusted as required for LOI per recent experience of ready mix supplier.
- Measured from the time water and cement are batched together, no more than 90 minutes shall elapse until concrete is placed. This time shall be reduced by two minutes for every degree that concrete temperature exceeds 75 degrees Fahrenheit. These criteria may be relaxed by the use of set-controlling admixtures.
- Protect concrete in accordance with ACI 305 and ACI 306 for hot weather concreting and cold weather concreting respectively. In cold weather, heat is required if outside temperature falls below 30 degrees any time during first three days. Reinforcing shall be 40 degrees or warmer at time of concrete placement. Concrete temperature shall be recorded every morning and shall be kept above 40 degrees in all locations for 7 days. Concrete shall not be exposed to combustion products (use electric heat, ducted heater or ground heat). Keep protection in place minimum 24 hours after cessation of heating to provide gradual cool-down.
- When air temperature is above 85 degrees, provide mist, shading, windscreens and other protection as required for 12 hours after placing.
- Concrete being placed shall be protected from rain. If rain falls on concrete before it has set, or within 3 hours of placement in any event, contractor shall bear cost of testing to prove concrete is unaffected, and shall remove and replace affected concrete to the satisfaction of the engineer.

- Wet cure (poly and burlap or proprietary blankets kept moist daily) for a minimum of 7 days; sides of footings may be buried after 24 hours. Add one day of cure for flyash in excess of 15 percent or GGBFS in excess of 10 percent of cementitious. Contractor is responsible for staining caused by burlap in visible areas. Spray-on curing compounds shall not be used as a substitute for wet curing without written permission of the SER except as follows. Liquid-containing structures must use a wet cure on all surfaces. Spray-on curing compounds may be substituted for wet curing in areas of non-liquid-holding structures that are not visible in the final condition and in liquid holding structures in winter conditions where water curing may be hazardous or difficult. When spray-on curing compounds are used, they should be applied in two layers perpendicular to each other and according to manufacturer's instructions.
- Cementitious grout shall be non-shrink and non-metallic grout. Place according to manufacturer's recommendations and trim neatly where visible.
- Coordinate with other trades for sleeves, conduit, electrical grounding wires, inserts, underground utilities, and other items to be embedded into concrete and verify that they are properly installed and supported before casting concrete. Holes through slab or that will leave minimum 1 inch clear to reinforcing, shift reinforcing as needed. Placement of such items shall be coordinated with reinforcing placement where they would otherwise displace each other. For instance, in areas with a single mat of reinforcing, east-west conduit should be placed with east-west reinforcing and north-south conduit is placed with north-south reinforcing.
- Embedments shall not significantly impair the strength of the structure and shall not reduce fire protection. In no case shall embedments violate the required concrete cover. Conduit and pipes, with their fittings, embedded in concrete shall not be larger in outside dimension than 1/3 the overall thickness of slab, wall, or beam in which they are embedded and shall not be spaced closer than three diameters on center. Conduit and pipes placed within 2 feet below top of slabs and footings shall not be spaced closer than three diameters on center and shall be encased in CLSM or concrete vibrated to flow around conduit.
- No uncured aluminum items shall be embedded in any concrete. All aluminum surfaces in direct contact with concrete shall receive one coat of 8-12 mil dry film thickness bitumastic.
- Unless shown on drawings, concrete shall be placed without construction joints except where specifically shown on shop drawings approved by the engineer. The contractor shall submit shop drawings showing additional or alternate construction joint locations to the engineer for approval.
- Bevel all exposed corners of concrete 3/4"x3/4".
- Verify size and location of all equipment bases and housekeeping pads.
- All cast-in-place concrete floors or grade shall be provided with a min. 1/8" per FT slope to floor drains unless noted otherwise. All interior slabs on grade shall be placed over 10 mil vapor retarder meeting ASTM E1745 class A, with joints welded or lapped and sealed according to manufacturer's recommendations. Vapor retarder shall permit less than 0.01 perm after conditioning. All damage and penetrations shall be sealed according to manufacturer's recommendations.
- All concrete to be trowel finished shall be tested for air content, whether or not it is purposely air entrained. If concrete contains more than 2 percent entrained air, delay start of finishing to preclude weakened air-rich plane just below surface.
- Where placing new concrete against previously existing concrete, bush-hammer existing to leave a profile of 1/8 inch and blow clean with oil-free compressed air or water blast. To the extent possible, leave a smooth zone under hydrophilic waterstop; see next section. This roughening does not apply to recently placed concrete at a keyed construction joint.
- All slabs and stairs not shown otherwise shall be 5" thick with #4 bars at 16" on center each way. All exterior stoops not otherwise detailed may be constructed in any standard manner, solid or hollow, but must be reinforced with epoxy coated #4 bars at 12" on center each way minimum. Porches and stoops shall be dowelled to adjacent walls or grade beams with #4 bars at 16" on center, hooked or embedded 40 diameters into both members. Slope stoops minimum 1/8" per foot for drainage unless noted otherwise.
- Unless specifically noted otherwise, building sections may not illustrate all dowels, keyways, or waterstops required by design. All base slab or footing to wall joints shall have vertical dowels crossing the joint. All elevated slabs (including base slabs above the lowest base slab elevation) to tank or foundation walls shall have horizontal dowels crossing the joint. Slabs on grade may either be independent (with expansion joint) or dowelled in; provide dowels where slabs on grade are shown to bear on walls in sections. Refer to typical details in the drawings for design intent.

JOINTS IN CONCRETE STRUCTURES

- Because of the effects of concrete consolidation, workmanship, detailing, cure, temperature, aggregate size, and other factors; Contractor is responsible for cracking in base slabs and walls of liquid-holding structures, and shall repair any leaking cracks by sealing, injecting, or otherwise filling them. Where sealing is judged necessary by either Contractor or Engineer, Contractor shall submit material and description of sealing to be used for review by Engineer. Note that crystalline waterproofing will heal tight cracks (less than approximately 1/64") over time in warm temperatures, but would cracks or leak tests attempted in cold temperatures will require additional measures. Any wall which is or may be subject to external groundwater is considered liquid holding.
- Contractor is responsible for aggregate larger than 7/8" fiber reinforcing; shrinkage reducing admixtures; crystalline waterproofing; extended moist cure; and other means to reduce shrinkage. If used, crystalline waterproofing shall be used at the manufacturer's recommended dosage.
- Concrete walls in liquid-holding structures:
 - Concrete walls in liquid-holding structures shall have waterstopped construction joints at a maximum spacing of 20 feet for concrete proportioned according to these Notes and the specification. Full horizontal reinforcing shall extend through these joints and be developed each side of joint. At least 36 hours shall pass between adjacent wall pours in liquid-holding structures. Joint spacing in walls shall be measured at the inside surface between corners in a straight line or along a curve, but not around corners. For example, an 18" square box is not required to have wall joints, but a 22" square box is required to have one in each wall. For this purpose, a T-intersection counts as a corner at the intersecting wall but not at the continuing wall.
 - Alternatively, a low-shrinkage mix may be proposed, and shrinkage measured for the specific concrete mix to be used in the walls, and the maximum construction joint spacing determined by the equation: Spacing = 2.0 / (sh + 0.03), where "sh" is the shrinkage in percent from the 35-day shrinkage test described below; and the spacing is limited to 50 feet. Concrete placed in the walls shall have the same or lesser water content as that used in the test. If a Shrinkage Reducing Admixture or Shrinkage Compensating Admixture is used, it shall be used at the manufacturer's recommended dosage. Measurement of shrinkage shall be according to ASTM C157, except that the specimens should be cured in a lime saturated bath for 7 days rather than 28 days. Shrinkage shall be reported based on measurements at the end of the 7-day moist cure, and at 28 days after cessation of curing. If Shrinkage Compensating Admixture is used, measurement shall be 12 hours after placing rather than 7 days; full 7-day time both cure and 28-day drying shall still be followed.
- Concrete base slabs in liquid-holding structures:
 - Concrete base slabs in liquid-holding structures shall have waterstopped construction joints at a maximum spacing of 40 feet in each direction, with full reinforcing through the joint and developed each side of each joint. At least 36 hours shall pass between adjacent slab pours in liquid-holding structures.
 - Alternatively, shrinkage may be measured as specified above for the specific concrete mix to be used in the base slab, and the maximum spacing determined by the equation: Spacing = 4.0 / (sh + 0.03), where "sh" is the shrinkage in percent from the 35-day shrinkage test described above; and the spacing is limited to 100 feet. Concrete placed in the base slab shall have the same or lesser water content as that used in the test. If a Shrinkage Reducing Admixture is used, it shall be used at the manufacturer's recommended dosage.
- Concrete slabs on grade in non-liquid-holding structures:
 - Contraction joint spacing in non-liquid-holding steel-reinforced slabs on grade (building floors) shall be spaced at a maximum of 24 x Thickness, but not more than 15 feet, in each direction. Contraction joint spacing in fiber-reinforced slabs on grade shall be spaced at a maximum of 30 x Thickness, but not more than 18 feet, in each direction. A slab of dimension 20 feet or less does not need to be divided by a contraction joint in that direction except as required by aspect ratio. The aspect ratio of any panel shall not exceed 1.50. Unless noted on drawings, Contractor shall submit proposed contraction joint spacing for review. Joints shall intersect columns. Where slab is reinforced with bars #4 or greater, cut or interrupt every other bar at each contraction joint. Joint depth shall be slab thickness / 4, with a minimum of 1". If sawcut, joints shall be cut as soon as it is possible to do so without releveling the concrete, but no later than 12 hours after placement.
 - Contraction joint spacing in steel-reinforced slabs on grade (building floors) with two mats of reinforcing shall have a 1 1/2" chamfer strip at bottom of slab and a sawcut or formed joint 1 1/2" deep at same location, top of slab. Cut or interrupt every other bar of each mat at each contraction joint.
 - Construction joints in building floor slabs on grade shall provide for shear transfer across the joint, using plate dowels such as Diamond dowels. Round or square dowel rods shall not be used. Reinforcing bars may be used where shown on drawings, e.g. at stoop or apron joints. Plate dowels shall submit proposed contraction joint spacing for review. Plate dowels shall be spaced at manufacturer's recommended spacing (18 inches max for wheeled traffic on slab, 24 inches max otherwise). If subject to de-icing salt, plate dowels shall be galvanized or epoxy coated.
- Concrete in non-liquid-holding structures other than slabs on grade:
 - Concrete walls in non-liquid-holding structures shall have construction or contraction joints at a maximum spacing of 60 feet.
 - Footings carrying such walls shall have construction or contraction joints at a maximum spacing of 120 feet.
 - Half the longitudinal reinforcing shall be interrupted at these joints unless noted otherwise.
 - Space control joints at maximum 10'-0" on center each way for topping slabs on precast plank.

WATERSTOPS

- Waterstops in new construction shall be 6-inch PVC, center bulb, ribbed, unless specifically noted otherwise.
- At splices, miter all intersecting connections at 45 degrees and use a manufacturer approved heating iron to make full contact butt joints. At areas under more than 10 feet of hydrostatic head, all welded field splices shall receive a bead of flowable hydrophilic waterstop such as Adeka P-201 on each side of waterstop at weld.
- For construction joints at hardened concrete, hydrophilic waterstops may be proposed by the contractor in lieu of adhered split-T PVC waterstop. Such material shall be selected considering water head to be resisted, concrete cover in all directions, reinforcing present through the joint, and whether waterstop is continually immersed. Contractor's proposal shall include waterstop installation and contact information for a technical representative of the waterstop supplier along with the representative's written recommendation of the type of waterstop to be used. Hydrophilic waterstop shall not be used unless this process is followed.

PRECAST CONCRETE

- Prior to installation, the precast concrete manufacturer shall submit structural calculations and plans to the architect/engineer for review. The structural calculations shall contain an original Professional Engineer's seal and signature by the design engineer licensed in the state where the project is located. Where precast is used as a structural shear diaphragm, calculations shall include shear capacity data for the members in question, topped or untopped.
- Precast concrete units shall be designed for all potential loading conditions including initial handling and erection stresses, all superimposed dead, live, and lateral loads shown on the contract drawings, and all concentrated loads from mechanical equipment and lifting points. General contractor shall verify mechanical loads with the mechanical contractor and provide to precast designer and SER before design.
- The precast concrete manufacturer shall be responsible for the design and installation of all precast connection hardware including hangers, embed plates, anchors, clip angles, headers at openings, etc. that are cast into or form a part of the precast units. Precast manufacturer shall provide 1/8 inch thick continuous bearing strips beneath hollowcore slabs and masonry or concrete supports.
- All roof and wall opening dimensions and locations shown on the plans shall be verified by the contractor and roof manufacturer. Wall openings not contained within a panel width shall be protected by posts or other means during transport and erection.
- Precast wall panels shall be fully grouted at base.
- Joints between plank shall be pulled flush and grouted. Maximum distance between edges of planks is 4 inches at any joint. Where partial wall planks are required, edge of ripped plank shall be smooth and straight.

- Where topping is called for, plank shall receive a transverse broom finish at plant and shall have keys grouted minimum 4 days before topping is placed. Immediately before placing topping, pressure-wash surface of plank and blow clean with oil-free compressed air, then rub with cement slurry as a curing compound, working just ahead of concrete placement. Surface to be free of standing water but slurry must be wet when topping is placed. Wet cure topping (burlap/poly) for a minimum of 7 days. Topping slabs shall be reinforced with 6x6 - W2.9 x W2.9 welded wire fabric (flat sheets only) macrosynthetic fibrous reinforcing integral to the mix.
 - All horizontal joints and reveals in wall panels shall align within 1/2 inch or 1/2 of joint dimension, whichever is less, at all joints between panels.
 - All exposed connection components shall be stainless steel type 316 / painted steel / steel with three coat paint system: moisture-cured zinc-rich urethane primer, epoxy, urethane. (pick one)
- REINFORCING STEEL**
- All concrete is reinforced concrete unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas. Any details not shown shall be detailed per ACI 315 and meet requirements of ACI 318, current editions.
 - All reinforcing steel shall conform to the requirements of ASTM A615 grade 60 steel. Reinforcing steel shall not be welded without authorization of the SER, and if welded shall be A706 grade 60 steel. Reinforcing to be welded shall only be welded to structural steel, and other reinforcing, unless specifically noted on the drawings. Welded plain wire fabric shall be supplied in sheets, not rolls, and conform to the requirements of ASTM A185.
 - Clear minimum cover of concrete over reinforcing steel shall be as follows unless specifically noted otherwise:
 - 2" Concrete placed against earth
 - 2" Top mat of base slabs to receive waterstops at wall joint
 - 2" All other concrete
 - All reinforcing shall be tied to crossing reinforcing on at least every other bar (every bar at perimeter), and sufficiently to resist displacement from workers and placement of concrete.
 - All footing dowels shall be accurately positioned and wired in place before casting footing concrete. Where not noted, provide and install hooked dowels of same size and spacing as vertical reinforcement in all columns and walls. Position all anchor bolts with templates.
 - Bar lap table can be found on the first general sheet of the structural drawings.
 - Bar lap lengths in concrete and 90 degree and hooks shall be in accordance with the bar lap table unless noted otherwise. This table lists class 'B' laps. For epoxy coated reinforcing steel, increase lap length by 50% with c-c bar spacing < 6db and cover to center of bar < 3db, otherwise increase by 20%. For masonry reinforcing, use fc = 3000 psi values.
 - Bars marked continuous, corner bars, and all vertical steel shall be lapped in accordance with table above at splices and embedments, unless shown otherwise. Splice top bars near midspan and splice bottom bars over supports, unless noted otherwise.
 - Bar support accessories shall be as specified in latest edition of the ACI detailing handbook and the concrete reinforcing steel institute design handbook. Maximum accessory spacing shall be 4'-0" on center, and all accessories on exposed surfaces shall have plastic coated ends. Chairs shall be supported on sand plates as required to keep from sinking into subgrade. WYFF shall be supported by continuous spacers or bars on chairs sufficiently close to prevent sheets from sagging appreciably during concrete placement. Support rebar used at contractor's option shall be extra bar supplied by contractor, not taken from design reinforcing.
 - Where potentially exposed to de-icing salts, stoop, apron, sidewalk and floor reinforcing shall be epoxy coated.

CONCRETE REPAIR

- Locate and remove areas of loose, delaminated, or damaged concrete. Saw cut outside perimeter of damaged areas to a minimum depth of approximately 3/4 inch; do not cut reinforcing. Tally areas removed for payment. Sandblast area to be patched and blow clean. Protect surroundings and workers from dust and hazards associated with this work.
- Where half or more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar to provide minimum 3/4 inch clearance behind bar. Clean and coat exposed surface of bar with bonding agent (Sika Amatec 110, Sonoprep, or Euclid Cor-Bond).
- Dampen patch area and apply mortar scrub coat, keeping moist until patch is applied.
- Patch with polymer-modified cementitious patching mortar (Dayton Superior HD-50, Euclid Verti-coat, Master Builders Emaco R320, Sikatop 102, or Sonopatch 100). Cure according to manufacturer's recommendations.

CONCRETE BLOCK MASONRY

- Concrete block used in exterior walls or load bearing walls shall meet the following minimum requirements:
 - $f_c = 2,000$ PSI
 - Concrete masonry units: 2,000 PSI
 - Mortar, ASTM C-270-10 Type S UNO
 - Grout, ASTM C-476-10 $f_g = 3,000$ PSI, Slump: 8-11 inches
- The contractor shall provide adequate temporary bracing for all masonry walls during construction.
- Concrete block shall be laid in running bond pattern typical unless noted otherwise. No vertical (head) joint shall be continuous for more than one block height. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and foundation walls and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities which are to be reinforced or to be filled with concrete or grout.
- Pilasters and columns shall be laid up in running bond in each direction to provide a monolithic unit.
- All joints shall be concave tooled joints above and below grade.
- Masonry walls shall be reinforced with hot dipped galvanized truss horizontal reinforcing (per ASTM A153) with 9 gage side and cross rods. Reinforcing shall be continuous in horizontal joints every other block course (16 inches OC) in walls, every course (8 inches OC) in parapets, with prefabricated corner and tee sections.
- Unless noted otherwise, concrete block shall be reinforced as follows in 6", 8", 10", and 12" walls:
 - Vertical reinforcing shall be a minimum of (1) #5 bar in 6" and 8" walls and (2) #4 bars in 10" and 12" walls at 4'-0" on center.
 - Provide bar or bars of same size as wall reinforcing at each corner, at each door, window, and opening jamb, each side of control joints and in the end void of each length of wall.
 - Lap splices for masonry vertical reinforcing shall be according to the table above, for "wall top bar."
 - Slack bond CMU shall have continuous horizontal bond beams at 48" OC, reinforced with (2) #4 continuous.
 - Continuous horizontal bond beams shall be included per section or detail in bond beam or optional running bond beam where noted. Where not detailed, use (2) #5 continuous. Where bond beams are continuous at corners of walls, supply corner bars matching size of horizontal bars. All bond beam reinforcing shall have standard laps or hooked development reinforcing bars at wall corners and intersections.
- Grouting and reinforcing. All masonry, grouting, and reinforcing work shall be performed by mason craft workers who have successfully completed the International Masonry Institute (1-800-8MI-0988) training course for grouting and reinforced masonry construction, or equal.
- When grouting is stopped for more than one hour, stop grout approximately 1 1/4 inches below top of CMU to provide key.
- Masonry block cells with vertical reinforcing and bond beams with horizontal reinforcing shall be grouted solid. Mortar is not an acceptable corefill. Provide a cleanout hole at the base of all grouted cells where grout lift exceeds 5'-4". Account for fly ash in grout during winter construction by protecting and heating as required to assure set and strength gain.
- Non-load bearing concrete block walls shall be isolated from adjacent structural elements with vertical 1/2 inch control joints and at the top of the wall with minimum 1/2 inch air space or compressible material and support per details on the drawings.
- Unless otherwise covered on architectural plans or specifications, vertical control joints in masonry construction shall be 3/8" wide, full height of wall. Joints shall be spaced at a maximum of 16'-0" on center and coordinated with the architect/engineer. Install control joints in locations as required and as directed by engineer/architect.
- All horizontal joint reinforcing shall be discontinuous at control joints in masonry. All bond beam horizontal reinforcing shall be continuous through control joints.



MADISON WATER UTILITY
CITY OF MADISON WATER UTILITY
119 E. OLIN AVE.
MADISON, WI 53713

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION

2626 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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SEH Project MADWU 167818
Checked By NRD, SMJ
Drawn By ALM

Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
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GENERAL STRUCTURAL NOTES

GS003

METAL DECK

- Metal deck shall span a minimum of two continuous spans UNO. Deck design is based on products of Vulcraft Corporation, and any substitutions shall meet that standard. Where not explicitly noted, roof deck is wide rib.
- Openings through deck which cut one flute need not be reinforced. Openings which cut two flutes shall be reinforced with a hot rolled equal-leg angle the size of the deck depth, minimum 1/8 inch thick, extending 12 inches past the opening, on each side of the opening, fastened with minimum 2 - #10 screws each side of opening. Openings which cut more than two flutes shall be framed to surrounding supports with frames as detailed in the drawings.
- Manufacturer shall be a member of the Steel Deck Institute (SDI). Detail, manufacture, and install deck and accessories in accordance with SDI and OSHA.
- Welding and welder qualifications shall be in accordance with AWS D1.3.
- Deck shall be fastened to underlying framing with 5/8 inch diameter puddle welds at spacing as indicated on the drawings, unless headed studs are to be applied. Contractor may submit shot pins (PAF) for approval as a substitute for puddle welds. Side lap edges shall be joined with minimum of one #10 screw in each deck span, unless more screws are indicated in the drawings.
- Where spray-on fireproofing is required, the general contractor shall verify that the deck finish is compatible with fireproofing. Coordinate with architect.
- All roof opening dimensions and locations shown on the plans shall be verified by the contractor and roof manufacturer.

SHOP DRAWING REVIEW

- Short Elliott Hendrickson Inc. (SEH) will review the general contractor's (GC) shop drawings and related submittals (as indicated below) with respect to the ability of the detailed work, when complete, to be a properly functioning integral element of the overall structural system designed by SEH. In general, submittals will not be reviewed for correct quantities or construction considerations. SEH shall review shop drawings and related materials with comments provided that each submission has met the requirements herein. SEH shall return without comment unrequired material or submissions without GC approval stamp.
- Any items requiring submittal of calculation packages shall have calculations submitted prior to or as part of the shop drawing submittal they accompany. Shop drawings submitted prior to submittal of required calculations will be rejected. All calculations shall be sealed and signed by an engineer licensed in the state of the project. The supplier's engineer must provide calculations for all systems and connections that differ from the drawings. Design shall comply with the requirements in these notes, the drawings and the specifications. Prior to submittal of a shop drawing or any related material to SEH, the GC shall:
 - Review each submission for conformance with the means, methods, techniques, sequences and operations of construction and safety precautions and programs incidental thereto, all of which are the sole responsibility of the GC.
 - Review and approve each submission.
 - Stamp each submission as approved.
- SEH shall assume that no submission comprises a variation from the contract documents unless the GC advises SEH with written documentation. Should SEH require more than ten (10) working days to perform the review, SEH shall so notify the GC. Submittals shall include drawings and related material (if any) as indicated below.
 - Concrete mix designs and material certificates including admixtures, compounds applied to the concrete after placement, and associated product data. See specifications.
 - Aggregate tests and concrete test history for each mix design, with the submission of concrete mix designs.
 - Reinforcing steel shop drawings including erection drawings and bending details. Bar list will not be reviewed for correct quantities. Include elevations of all reinforced concrete masonry walls and all concrete walls with footing steps or other elevation changes, at a scale no smaller than 1/8" = 1'-0" showing all required reinforcing.
 - Grout mix designs (for CMU) and CMU block certification.
 - Structural steel and metal fabrication shop drawings including erection drawings and piece details.
 - Stairs and railing. Details on the drawings for the following items have been designed by the SER: railing systems, connection of railings and stringers to the primary structure. All other items shall be designed by the supplier's engineer to match intent of the construction drawings.
 - Metal deck shop drawings.
 - Precast shop drawings including reinforcing, bearing details, and design calculations.

REQUIRED INSPECTION

- Required inspection and testing is required according to the table on the first general sheet of the structural drawings. Refer to specification section 01 45 10 for responsibilities. Contractor shall coordinate with SER, testing agency and geotechnical engineer throughout the project.
 - Required Inspections shall be performed in accordance with IBC Chapter 17.
 - Required inspection of reinforcing steel and anchor rod placement shall be performed prior to concrete placement or during anchor rod installation for adhesive anchors.
 - Continuous inspection during concrete placement is required.
 - Conduct concrete slump tests in accordance with ASTM C143.
 - Obtain set of a four (4) concrete test cylinders each time concrete is placed. Make test cylinders in accordance with ASTM C39.
 - See these Notes for testing of Post-Installed anchors and rebar where installation is not witnessed.
 - It is assumed that shop welding will be performed on the premises of a fabricator registered and approved to perform such work without Required Inspection. G/C shall submit fabricator documents, standards, and procedures in accordance with IBC 1705.2.
 - It is assumed that precast concrete will be cast on the premises of a fabricator registered and approved to perform such work without Required Inspection. G/C shall submit fabricator documents, standards, and procedures in accordance with IBC 1705.2.
 - Reports of Required Inspections shall be provided, at the frequency noted above, to the Owner, Contractor, and Engineer of Record by the firm contracted to perform Required Inspections.
 - Special Inspection criteria presented above and in specification shall apply to all footings and foundation walls, but does not apply to non-structural slab on grade and site work concrete.

POST INSTALLED ANCHOR RODS AND DOWELS

- Unless noted otherwise, anchors and reinforcing dowels installed in concrete or concrete masonry shall be as noted below. Post-installed anchors shall only be used where shown on the construction documents. Anchors not shown or noted on the drawings, those required by the contractor solely for his means and methods, or those required by mechanical/electrical and carrying less than 100 pounds of non-safety-related items, do not require special inspection.
- Approved manufacturers are: HILTI, ITW / Redhead, Simpson, Dewalt / Powers, and Rawl.
 - Post installed anchors shall have current ICC approval in accordance with ACI 308 and ICC ES corresponding to anchor base material.
 - Submit product data and current ICC ES report or IAPMO report showing product is compliant with project code requirements for review.
 - Contractor shall arrange for manufacturer's rep to train all installers on the complete installation process. A letter of procedure stating method of drilling, the product for use, the complete installation procedure, manufacturer training date and a list of the personnel trained on anchor installation shall be submitted to the engineer.
 - Substitution requests of alternate products must be approved in writing by structural engineer of record prior to use by providing technical data that the substituted product is capable of meeting performance requirements of specified products including but not limited to the following basis of design parameters ACI 308.2 or ACI 308.4 qualifications.
- Permanent anchors exposed to earth, weather, or corrosive environments, including all anchors in wet areas of WWTP and water treatment plant work, and anchors engaging stainless steel or aluminum members, shall be stainless steel type AISI 304 or 316; anchors in contact with sewage or chloride deicer runoff shall be type 316. Otherwise, anchors shall be zinc plated, minimum ASTM A36 material unless ASTM A193 grade B7 is noted in the drawings, and shall be according to ASTM F1554. Reinforcing dowels shall be of the same size (I.N.O.), material and coating (if any) as the continuing reinforcing.
- Where expansion anchors are called for, contractor may substitute screw type anchors with self-tapping threads or adhesive anchors of the same size and embedment, subject to review of capacity by the engineer for the product substituted. Where adhesive anchors are called for, other types shall not be substituted. Screw type anchors shall not be re-used on permanent work.
- Adhesive shall have a current ICC ES report. Use high viscosity adhesive and placement devices in consultation with the manufacturer for overhead work. Adhesive anchors in overhead or horizontal installation shall be subject to continuous special inspection during installation and shall only be performed by installers certified per ACI/CRSI Adhesive Anchor Certification Program Section 17.8.2 or Engineer approved equivalent. Use low temperature formulations for cold weather work. Do not apply load to anchors until their capacity has been assured.
- Anchors installed in concrete masonry and precast hollow core concrete shall be installed in cores grouted solid. Minimum grout strength $f_g = 3,000$ PSI. Minimum 12 inches of grout each way along horizontal cores from anchor. Vertical cores shall be grouted full height. Anchors installed in masonry shall not be installed within 1 1/2 inches of any head joint unless block are square end and mortared across full width of head joint, or filled bond beam.
- Holes shall be drilled dry, cleaned, and maintained until installation in accordance with manufacturer's recommendations and ICC-ES report using standard rotary-impact bits and oil-free compressed air. Diamond core bits shall not be used unless specifically approved by the manufacturer.
- The general contractor shall engage a testing company to locate existing reinforcing bars, PT tendons, and embedded items, by non-destructive means (GPR, X-ray, or other approved means) prior to drilling for installation of anchors. Notify EOR of any conflicts with existing embedded items. Do not cut or damage existing reinforcing or embedded items unless approved by the EOR.
- Maintain critical spacing and end edge/corner distances as recommended by manufacturer unless specifically noted otherwise in the drawings.
- Unless noted otherwise, anchors shall be installed to the following minimum embedments:

	Diameter	CIP Concrete	Grouted CMU
Expansion:	3/8 inch	3 inches	
	1/2 inch	3 1/4 inches	4 1/2 inches
	5/8 inch	4 inches	5 inches
Screw:	3/4 inch	4 3/4 inches	6 1/4 inches
	3/8 inch	3 inches	
	1/2 inch	4 1/2 inches	
Adhesive*:	5/8 inch	4 3/4 inches	
	3/4 inch	6 1/4 inches	
	3/8 inch	3 3/8 inches	
	1/2 inch	4 1/2 inches	5 1/2 inches
	5/8 inch	5 5/8 inches	5 5/8 inches
	3/4 inch	6 3/4 inches	6 3/4 inches

*For adhesive at reinforcing bars, increase embedment above by 33%.

- Except as noted, all anchors shall have intermittent special structural inspection by one of the following. Load tests shall be to 150 percent of service capacity or 75 percent of ultimate strength, with no appreciable slip, permanent deformation, or concrete damage. Anchors which fail this test shall be replaced at no cost to the project. Two failures in a given installation shall result in mandatory load testing at double the rate noted below.
 - Expansion and screw anchors:
 - Witness installation with torque wrench according to manufacturer's recommendations and requirements of ICC report;
 - Test all anchors with torque wrench after installation (including load test of 5 percent of installed anchors); or
 - Load test of 10 percent of installed anchors by supplier or third party inspector
 - Adhesive anchor rods and dowels:
 - Witness installation according to manufacturer's recommendations and requirements of ICC report; or
 - Load test of 10 percent of installed anchors by supplier or third party inspector

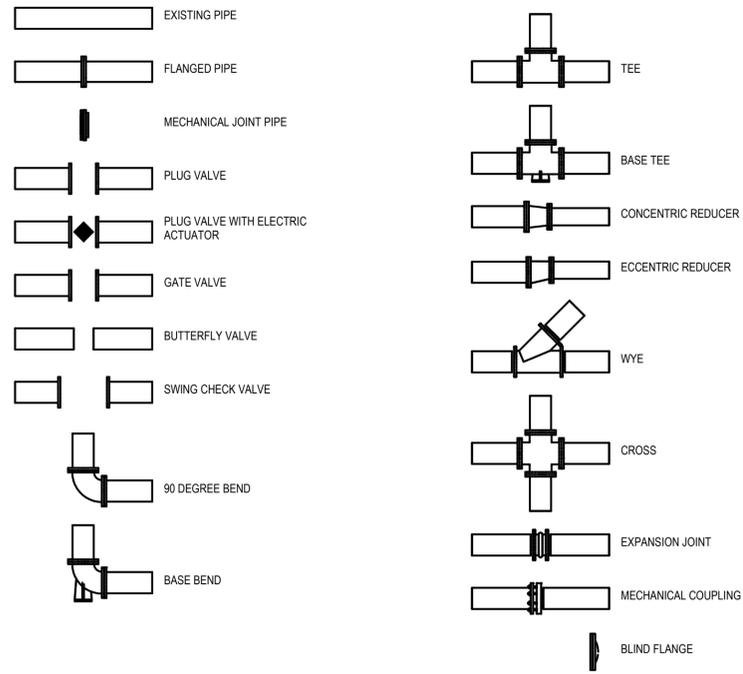
STRUCTURAL METALS/ FRP

- All structural steel shall be as follows:
 - Wide flange beams and columns shall be ASTM A992, grade 50 steel.
 - All miscellaneous steel (angles, channels, plate) shall be ASTM A992, A529, or A36 steel (min. $F_y = 36$ KSI).
 - Rectangular steel tubes (HSS) shall be ASTM A500, grade C steel ($F_y = 50$ KSI).
 - Pipe shall be ASTM A53 ($F_y = 35$ KSI) unless A500 grade C (46 KSI) is noted.
 - Other shapes shall be ASTM A36 (36 KSI).
- Splicing or modification of members in the field is prohibited without prior written approval of the SER.
- All primary member bolted connections shall be two bolt minimum.
- Fabrication and erection shall be in accordance with the latest edition of the AISC Manual of Steel Construction, Code of Standard Practice for Steel Buildings and Bridges, except as follows:
 - To paragraph 3.1, add "The project architectural drawings are a part of the structural steel design drawings by reference and must be used concurrently with the structural steel design drawings for any information not shown on the structural steel design drawings".
 - Delete paragraph 3.2 and insert the following: "architectural, process, electrical and mechanical plans shall be used as a supplement to the structural steel design drawings to define detail configurations and construction information".
 - Paragraph 3.3 modify the last sentence to read, "in case of discrepancies between the structural steel plans and plans of other disciplines or existing conditions, such discrepancies shall be called to the architect / engineer's attention for resolution".
- All aluminum shapes shall be ASTM B209, B308, alloy 6061-T6, except handrail may be 6063-T5 or -T6. All welding shall be performed by a certified welder using compatible electrodes in accordance with the requirements of AWS D1.2 and visually inspected. Where designed by the fabricator, aluminum alloy and temper shall be stated on shop drawings.
- All steel shall receive a primer coat unless galvanized, refer to specification manual.
- Unless galvanized, all steel shall receive a three coat paint system: moisture-cured zinc-rich urethane primer, epoxy, urethane. Existing steel in area to be re-decked / All steel shall be cleaned to SSPC SP-10 (near white blast clean) and maintained in this state until painted. Refer to specification manual.
- All exposed steel shall be galvanized. Damaged galvanizing shall be repaired by application of cold galvanizing compound such as ZRC (minimum 3 coats). Paint finish per architectural.
- All steel welding shall be performed by a certified welder using E70 electrodes in accordance with the requirements of AWS D1.1 "Structural Welding Code" and visually inspected. Full-pen welds shall also be inspected by NDT methods such as ultrasonic, mag particle, or dye pen.
- All field welded connections shall be chipped, ground where required, wire brush cleaned and painted to match the paint system.
- All bolts not otherwise specified shall be 3/4" diameter high strength (ASTM A325-N). All bolts shall be fully pretensioned. Any non-twist off bolts shall have 10 percent checked with a torque wrench by the special inspector. All beam connections shall be designed per the AISC Manual of Steel Construction "Framed Beam Connections" for the indicated reactions but at least 0.60 x beam total shear capacity shown in the allowable uniform load tables, whichever is greater.
- All copes shall be made with a 1 inch minimum radius.
- All anchor rods shall be minimum 3/4" diameter ASTM F1554 grade 36 / ASTM A276 Stainless Steel type 304 OR 306 unless noted otherwise. Where headed rods are noted or specified, bent rods shall not be furnished; rods may be headed or nutted, with the nut tack welded at the bottom end of the anchor or double nutted.
- Metal/FRP stairways, platforms and grates shall be provided and constructed with adequate design characteristics (100 PSF live load capacity UNO) and structural configurations in accordance with the fabricator's shop drawings as approved by the engineer. All stairways, platforms and grates shall satisfy all requirements of the project documents. All stair runs longer than 10 feet between laterally rigid supports, and all two-post bents, shall have diagonal bracing fastened to the bottom flanges of the stringers and center of posts UNO.
- All cut or raw surfaces of FRP shall be coated with compatible epoxy meeting NSF 61.

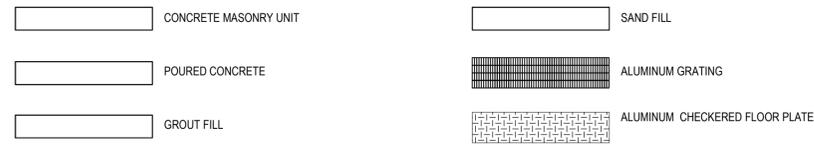
ABBREVIATION LIST

AF	ADAPTER FLANGE	MECH	MECHANICAL
ALUM	ALUMINUM	MFRS	MANUFACTURERS
APPROX	APPROXIMATELY	MIN	MINIMUM
BF	BLIND FLANGE	MV	MUD VALVE
BFV	BUTTERFLY VALVE	N	NORTH
BLDG	BUILDING	N/A	NOT APPLICABLE
BLV	BALL VALVE	NOM	NOMINAL
BF	BLIND FLANGE	NO	NUMBER
BLK	BLOCK	NPW	NON-POTABLE WATER
BOT	BOTTOM	NTS	NOT TO SCALE
CHL	CHLORINE	OC	ON CENTER
CI	CAST IRON	OPNG	OPENING
CKD	CHECKERED	P	PLUG
CL	CENTERLINE	PC	PIPE COUPLING
CMU	CONCRETE MASONRY UNIT	PPC	PRESTRESSED PRECAST CONCRETE
CO	CLEAN-OUT	PR	PRESSURE REDUCER
CONC	CONCRETE	PRV	PRESSURE RELIEF VALVE
CONT	CONTINUOUS	PNT	PAINT
CTE	CONNECT TO EXISTING	PV	PLUG VALVE
CJ	CONTROL JOINT	PV & B	PLUG VALVE & BOX
CPE	CORRUGATED POLYETHYLENE	PVC	POLYVINYL CHLORINE
CV	CHECK VALVE	PW	PLANT WATER
DIP	DUCTILE IRON PIPE	R, RAD	RADIUS
E	EAST	RD	ROOF DRAIN
EL	ELEVATION	RAS	RETURN ACTIVATED SLUDGE
EQUIP	EQUIPMENT	RCP	REINFORCED CONCRETE PIPE
EX	EXISTING	RECIRC	RECIRCULATION
FD	FLOOR DRAIN	REINF	REINFORCE(D)
FFE	FINISHED FLOOR ELEVATION	SEC	SECTION
FM	FORCEMAIN	SHT	SHEET
FRP	FIBERGLASS REINFORCED	SF	SQUARE FOOT / SQUARE FEET
FTG	FITTING/FOOTING	SP	SLIDE PLATE
GV	GATE VALVE	SO	SIDE OUTLET
GV & B	GATE VALVE & BOX	SS	STAINLESS STEEL
H	HIGH	SO	SQUARE
HWL	HIGH WATER LEVEL	TH	THICK
ID	INSIDE DIAMETER	TK	TANK
INS	INSIDE	TOW	TOP OF WEIR
INV	INVERT	TYP	TYPICAL
JT	JOINT	UON	UNLESS OTHERWISE NOTED
L	LONG	W	WIDE
LL	LIQUID LEVEL	WAS	WASTE ACTIVATED SLUDGE
LT	LEFT	WL	WATER LEVEL
M	METER	WSE	WATER SURFACE LEVEL
MAX	MAXIMUM		

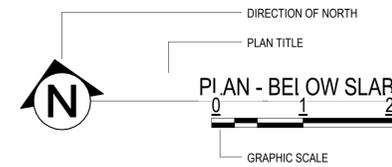
PROCESS PIPE LEGEND



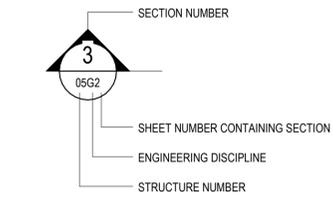
GENERAL CONSTRUCTION LEGEND



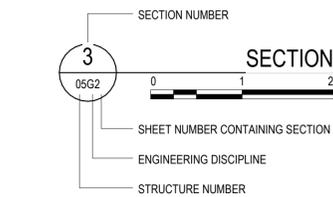
DRAWING SYMBOLS



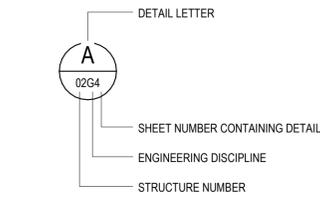
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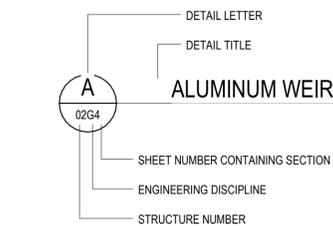
SECTION "CUT" SYMBOL



SECTION TITLE



DETAIL INDICATOR



DETAIL TITLE



KEYNOTE INDICATOR



SPOT ELEVATION

GENERAL NOTES

- SEE STRUCTURAL PLANS FOR ROOF, SLAB, WALL, FOUNDATION, BEAM AND REINFORCING STEEL INFORMATION AND CONCRETE DIMENSIONS.
- ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL RECEIVE 8-12 MIL DRY FILM THICKNESS OF BITUMASTIC.
- ALL ANCHOR BOLTS, NUTS FASTENERS, ETC. SHALL BE 304 STAINLESS STEEL, UNLESS OTHERWISE NOTED.
- ALTHOUGH NOT SPECIFICALLY NOTED ON THE PLANS, CONTRACTOR SHALL INSTALL PIPING USING SUPPORTS, PIPE COUPLINGS AND ANY OTHER PIPING APPURTENANCES REQUIRED FOR COMPLETE AND PROPER INSTALLATION. IN ADDITION, PROVIDE PIPE SUPPORTS IN LOCATIONS SPECIFICALLY IDENTIFIED ON PLANS.
- TYPICAL DETAILS: ARE INTENDED TO SHOW GENERAL DESIGN CONCEPT. SPECIAL INFORMATION CONCERNING ELEVATIONS AND DIMENSIONS SHOWN ON THESE DETAILS PERTAIN TO A PARTICULAR BUILDING OR STRUCTURE.
- INFORMATION REGARDING EXISTING CONSTRUCTION WAS COMPILED FROM THE ORIGINAL CONSTRUCTION DOCUMENTS AND PRELIMINARY FIELD INVESTIGATIONS. ALL CONDITIONS, DIMENSIONS AND SIZES ARE TO BE FIELD VERIFIED BY THE CONTRACTOR TO ENSURE FIT BETWEEN THE NEW AND EXISTING. NOTIFY THE ENGINEER OF DISCREPANCIES NOTED BEFORE AND DURING CONSTRUCTION.
- DRAWINGS SHALL NOT TAKE PRECEDENCE OVER FIELD MEASUREMENTS.
- DUE TO REPRODUCTIVE PROCESSES, DRAWINGS MAY NOT BE ACCURATE TO SCALE. ALL DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN AND IN NON CASE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS, ELEVATIONS OR DETAILS.
- ALL WORK SHALL BE COORDINATED WITH OTHER TRADES. THE CONTRACTOR SHALL CONSULT ALL DRAWINGS AND VARIOUS CONSTRUCTION TRADES TO ACQUAINT SELF WITH THE PROJECT. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES NOTED BEFORE AND DURING CONSTRUCTION. THE ENGINEER RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS IN LAYOUT TO AVOID CONFLICT WITH THE WORK OF OTHER TRADES AND FOR THE PROPER EXECUTION OF THE WORK AT NO ADDITIONAL COST TO THE OWNER.
- ALL WORK SHALL BE CONDUCTED WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTOR SHALL REPAIR AND RESTORE ANY PAVEMENT, UTILITIES, OR OTHER FEATURES OUTSIDE THE LIMITS OF CONSTRUCTION THAT ARE DAMAGED DUE TO THE CONTRACTOR'S ACTS OR NEGLIGENCE AT THE CONTRACTOR'S OWN EXPENSE.
- THE CONTRACTOR SHALL COMPLY WITH ALL CITY, COUNTY, AND STATE ROAD RESTRICTIONS FOR HAULING AND EQUIPMENT MOBILIZATION.
- THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY ADDITIONAL COSTS WHICH MAY RESULT FROM UNAUTHORIZED DEVIATIONS FROM THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL PROTECT ALL EXISTING AND INSTALLED PIPING, EQUIPMENT, AND STRUCTURES DURING CONSTRUCTION NOT NOTED TO BE REMOVED. ALL DAMAGED ITEMS SHALL BE REPAIRED OR REPLACED WITH NO ADDITIONAL COST TO THE OWNER.
- ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES SHALL BE ADHERED TO THROUGHOUT THE CONSTRUCTION PROJECT.
- SIZE OF FITTINGS AND VALVES SHALL CORRESPOND TO THE SIZE OF ADJACENT PIPING. JOINTS AND FITTING MATERIAL SHALL BE AS SHOWN FOR ADJACENT PIPING.
- PROVIDE PROPER PLUGS, CAPS, AND RESTRAINTS WHEN ANY PIPING IS TERMINATED.
- THE EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS NATURAL GAS, TELEPHONE, FIBEROPTIC, ELECTRIC, CABLE TV, AND PIPE LINES ARE UNKNOWN. CONTRACTOR SHALL CONTACT GOPHER STATE ONE, CALL AT (800) 252-1166 BEFORE COMMENCING ANY EXCAVATION.
- SOME ITEMS HAVE BEEN ROTATED INTO THE PLANE OF PROJECTION ON TYPICAL SECTIONS FOR CLARITY.
- 7.5 FOOT COVER MINIMUM UNLESS OTHERWISE NOTED. PIPE BURIED WITH LESS THAN 7.5 FOOT OF COVER SHALL BE INSULATED IN ACCORDANCE WITH SECTION 40 42 13 - PROCESS PIPING INSULATION.

PROCESS PIPE IDENTIFICATION SCHEDULE					
PIPE SERVICE TYPE	CODE	PIPE SERVICE TYPE	CODE	PIPE SERVICE TYPE	CODE
ALUM	AL	PLANT RECYCLE	PE	SEPTAGE RECEIVING FORCEMAIN	SRI
ANAEROBIC INFLUENT	ANI	PUMP INTAKE	PIN	TANK FILL	TF
BACKPULSE TANK INFLUENT	BTI	PUMP DISCHARGE	POU	THICKENED SLUDGE	TSL
COMPRESSED AIR	CAI	RETURN ACTIVATED SLUDGE	RAS	PLANT EFFLUENT	W3
CENTRIFUGE CENTRATE	CEN	RAW SEWAGE FORCEMAIN	RSF	WASTE ACTIVATED SLUDGE	WAS
CONVEYOR DRAIN	CVD	RAW SEWAGE INFLUENT	RSI	WETWELL CLEANING SUCTION	WCS
CENTRIFUGE DRAIN	DCD	INFLUENT SAMPLE	SA	WETWELL INFLUENT	WWI
DECANT	DEC	EFFLUENT SAMPLE	SA		
DAF RECYCLE	DFR	SAMPLE CARRIER	SAC		
DIGESTER INTERCONNECTION	DGI	SCUM FORCEMAIN	SCM		
DIGESTER OVERFLOW	DGO	SODIUM HYPOCHLORITE	SHC		
EFFLUENT	EFF	SLUDGE HOLDING INFLUENT	SHI		
FORCEMAIN DRAIN	DRN	SLUDGE HOLDING SUCTION	SHS		
GRIT DRAIN	GD	SLUDGE PUMP SUCTION	SIN		
GRIT SLURRY	GRT	DIGESTED SLUDGE	SLG		
INTERNAL RECYCLE	IR	SLUDGE LOADOUT	SLO		
PROCESS AIR	PAI	SLUDGE TRANSFER	SLT		

**** SORTED ALPHABETICALLY BY PROCESS PIPE IDENTIFICATION CODE ****



Project Owner
MADISON WATER UTILITY

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENODOTA DRIVE
MADISON, WISCONSIN

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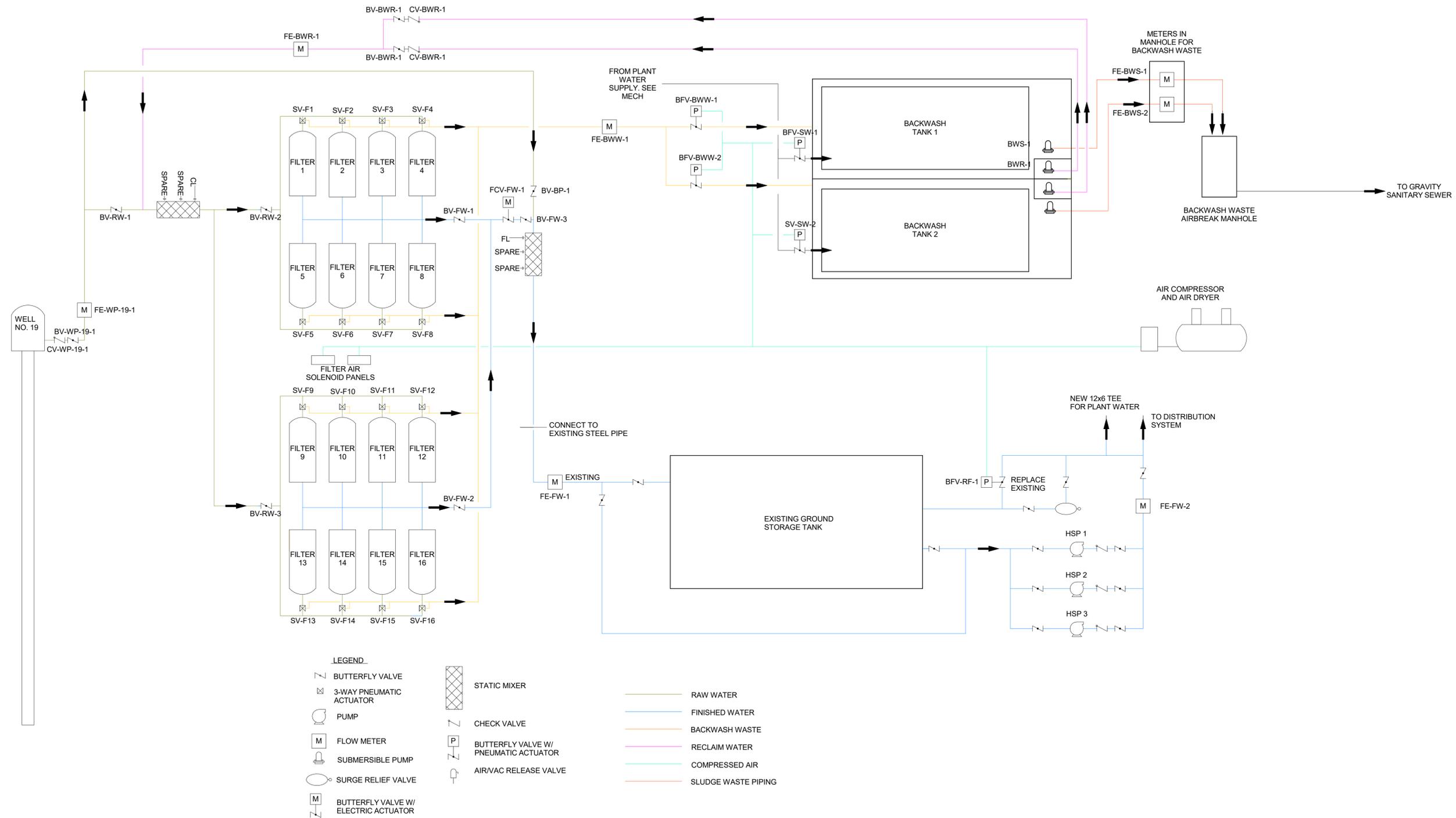
Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
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GENERAL PROCESS INFORMATION

GP001



1 PROCESS FLOW DIAGRAM
GP002

GENERAL NOTES	GENERAL ABBREVIATIONS	MECHANICAL EQUIPMENT	PLUMBING AND PIPING SYMBOLS	GENERAL MECHANICAL SYMBOLS																																																																																																																																																																																																																																																																																																																																		
<p>MECHANICAL GENERAL NOTES</p> <ol style="list-style-type: none"> ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND CURRENT STATE BUILDING, PLUMBING, MECHANICAL, FUEL GAS, FIRE AND ENERGY CODES, ALL LOCAL CODES, STANDARDS, AND REGULATIONS GOVERNING THE WORK. ALL CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH THE MECHANICAL DRAWINGS AND SPECIFICATIONS PRIOR TO BID. PROVIDE ALL EQUIPMENT, MATERIALS, AND LABOR AS REQUIRED FOR THE COMPLETE INSTALLATION FOR ALL WORK AS SHOWN AND PROVIDE FOR A COMPLETE, OPERABLE SYSTEM. ALL WORK SHALL BE PERFORMED IN A CLEAN, RECTILINEAR AND WORKMANLIKE MANNER. THE DRAWINGS ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND TO INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE ROUTING. CERTAIN BASIC ITEMS SUCH AS OFFSETS, FITTINGS, ACCESS PANELS, HANGERS, AND SLEEVES MAY NOT BE SHOWN. WHERE SUCH ITEMS ARE REQUIRED FOR PROPER INSTALLATION OF THE WORK, SUCH ITEMS SHALL BE INCLUDED. CONTRACTOR SHALL VERIFY CONNECTIONS, CLEARANCES, AND SERVICES PRIOR TO INSTALLATION. COORDINATE FINAL LOCATIONS OF DUCTWORK, PIPING AND MECHANICAL EQUIPMENT WITH OTHER TRADES PRIOR TO BEGINNING WORK TO AVOID INTERFERENCES WITH EQUIPMENT, STRUCTURE, PIPING, LIGHTING, CONDUIT, ETC. PROVIDE OFFSETS AS REQUIRED TO MEET SPACE REQUIREMENTS AND TO AVOID INTERFERENCES. NO PIPING SHALL BE RUN OVER THE TOP OF ANY ELECTRICAL PANELS OR ELECTRICAL EQUIPMENT. EQUIPMENT AND MATERIALS SHALL BE PROTECTED FROM WEATHER, PAINTING, PLASTER, ETC. UNTIL THE PROJECT IS COMPLETE. DAMAGE FROM RUST, PAINT, SCRATCHES, ETC., SHALL BE REPAIRED AS REQUIRED TO RESTORE EQUIPMENT TO ORIGINAL CONDITION AT NO COST TO OWNER. CONTRACTOR SHALL COORDINATE ALL WALL AND ROOF OPENINGS AS IT RELATES TO THEIR WORK. CUTTING OF STRUCTURAL SUPPORT MEMBERS WILL NOT BE PERMITTED WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. EXTENT OF CUTTING SHALL BE MINIMIZED TO PROVIDE THE NEAR MINIMUM OPENING REQUIRED PATCHING SHALL MATCH ADJACENT MATERIALS AND SURFACES. TEMPORARY SHUT DOWNS OF MECHANICAL SYSTEMS, IF REQUIRED, SHALL BE COORDINATED WITH THE OWNER IN ORDER TO MINIMIZE THE INTERRUPTIONS TO THE OWNER. NO MECHANICAL SERVICES OR EQUIPMENT SHALL BE LOCATED OVER ELECTRICAL EQUIPMENT, ELEVATOR EQUIPMENT, OR TELEPHONE EQUIPMENT ROOM. CONTRACTOR SHALL INSTALL AS MUCH OF THE NEW SYSTEM AS POSSIBLE, PRIOR TO REMOVING EXISTING SYSTEMS IN ORDER TO MINIMIZE THE AMOUNT OF DOWN TIME. REFER TO SPECIFICATIONS. 	<p>GENERAL ABBREVIATIONS</p> <table border="0"> <tr> <td>ABV ABOVE</td> <td>LB POUND</td> </tr> <tr> <td>AC AIR CONDITIONING</td> <td>LB/HR POUNDS PER HOUR</td> </tr> <tr> <td>AD AREA DRAIN</td> <td>LWT LEAVING WATER TEMPERATURE</td> </tr> <tr> <td>ADD ADDENDUM</td> <td>MAT MIXED AIR TEMPERATURE</td> </tr> <tr> <td>AFF ABOVE FINISHED FLOOR</td> <td>MAX MAXIMUM</td> </tr> <tr> <td>AFUE ANNUAL FUEL UTILIZATION EFF.</td> <td>MBH THOUSAND BTUH</td> </tr> <tr> <td>ALT ALTERNATE</td> <td>MCF THOUSAND CUBIC FEET</td> </tr> <tr> <td>AP ACCESS PANEL</td> <td>MD MOTORIZED DAMPER</td> </tr> <tr> <td>APD AIR PRESSURE DROP</td> <td>MECH MECHANICAL</td> </tr> <tr> <td>ARCH ARCHITECT/ARCHITECTURAL</td> <td>MFR MANUFACTURER</td> </tr> <tr> <td>BCO BUILDING CLEANOUT</td> <td>MIN MINIMUM</td> </tr> <tr> <td>BFF BELOW FINISHED FLOOR</td> <td>MISC MISCELLANEOUS</td> </tr> <tr> <td>BLW BELOW</td> <td>MTR MOTOR</td> </tr> <tr> <td>BTU BRITISH THERMAL UNITS</td> <td>MUA MAKE-UP AIR</td> </tr> <tr> <td>BTUH BTU PER HOUR</td> <td>NC NOISE CRITERIA</td> </tr> <tr> <td>CAP CAPACITY</td> <td>NC NORMALLY CLOSED</td> </tr> <tr> <td>CB CATCH BASIN</td> <td>NIC NOT IN CONTRACT</td> </tr> <tr> <td>CC COOLING COIL</td> <td>NO NORMALLY OPEN</td> </tr> <tr> <td>CFM CUBIC FEET PER MINUTE</td> <td>NTS NOT TO SCALE</td> </tr> <tr> <td>CLG CEILING</td> <td>O OXYGEN</td> </tr> <tr> <td>CO CLEAN OUT</td> <td>ORD OVERFLOW ROOF DRAIN</td> </tr> <tr> <td>D DEGREE</td> <td>Ø ROUND</td> </tr> <tr> <td>DB DRY BULB</td> <td>OA OUTSIDE AIR</td> </tr> <tr> <td>DIA DIAMETER</td> <td>ORD OVERFLOW ROOF DRAIN</td> </tr> <tr> <td>DN DOWN</td> <td>PD PRESSURE DROP</td> </tr> <tr> <td>E, EX EXISTING</td> <td>PIV POST INDICATOR VALVE</td> </tr> <tr> <td>EA EXHAUST AIR</td> <td>PLBG PLUMBING</td> </tr> <tr> <td>EAT ENTERING AIR TEMPERATURE</td> <td>PRESS PRESSURE</td> </tr> <tr> <td>ELEC ELECTRICAL</td> <td>PRV PRESSURE REDUCING VALVE</td> </tr> <tr> <td>EQUIP EQUIPMENT</td> <td>PSI POUNDS PER SQUARE INCH</td> </tr> <tr> <td>EWT ENTERING WATER TEMP.</td> <td>PSIG POUNDS PER SQUARE INCH GAUGE</td> </tr> <tr> <td>F DEGREES FAHRENHEIT</td> <td>RA RETURN AIR</td> </tr> <tr> <td>FCO FLOOR CLEAN OUT</td> <td>RD ROOF DRAIN</td> </tr> <tr> <td>FD FLOOR DRAIN</td> <td>RH RELATIVE HUMIDITY</td> </tr> <tr> <td>FD FIRE DAMPER</td> <td>RM ROOM</td> </tr> <tr> <td>FDV FIRE DEPARTMENT VALVE</td> <td>RPM REVOLUTIONS PER MINUTE</td> </tr> <tr> <td>FL FLOOR</td> <td>SA SUPPLY AIR</td> </tr> <tr> <td>FFM FEET PER MINUTE</td> <td>SD SMOKE DAMPER</td> </tr> <tr> <td>FS FLOOR SINK</td> <td>SF SQUARE FOOT</td> </tr> <tr> <td>FSD FIRE SMOKE DAMPER</td> <td>SK SINK</td> </tr> <tr> <td>FT FEET</td> <td>SP STATIC PRESSURE</td> </tr> <tr> <td>FT HD FEET OF HEAD</td> <td>T THERMOSTAT</td> </tr> <tr> <td>FTR FIN TUBE RADIATION</td> <td>TD TEMPERATURE DROP</td> </tr> <tr> <td>GA GAUGE</td> <td>TD TRENCH DRAIN</td> </tr> <tr> <td>GAL GALLON</td> <td>TEMP TEMPERATURE</td> </tr> <tr> <td>GC GENERAL CONTRACTOR</td> <td>TYP TYPICAL</td> </tr> <tr> <td>GPH GALLONS PER HOUR</td> <td>UG UNDERGROUND</td> </tr> <tr> <td>GPM GALLONS PER MINUTE</td> <td>UR URINAL</td> </tr> <tr> <td>HB HOSE BIB</td> <td>V VENT</td> </tr> <tr> <td>HP HORSE POWER</td> <td>VAC VACUUM</td> </tr> <tr> <td>IN INCH</td> <td>VTR VENT THROUGH ROOF</td> </tr> <tr> <td>INV INVERT</td> <td>WB WET BULB</td> </tr> <tr> <td>LAT LEAVING AIR TEMPERATURE</td> <td>WC WATER CLOSET</td> </tr> <tr> <td>LAV LAVATORY</td> <td>WCO WALL CLEAN OUT</td> </tr> <tr> <td></td> <td>WG WATER GAUGE</td> </tr> <tr> <td></td> <td>WH WALL HYDRANT</td> </tr> <tr> <td></td> <td>WPD WATER PRESSURE DROP</td> </tr> </table>	ABV ABOVE	LB POUND	AC AIR CONDITIONING	LB/HR POUNDS PER HOUR	AD AREA DRAIN	LWT LEAVING WATER TEMPERATURE	ADD ADDENDUM	MAT MIXED AIR TEMPERATURE	AFF ABOVE FINISHED FLOOR	MAX MAXIMUM	AFUE ANNUAL FUEL UTILIZATION EFF.	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<p>PLUMBING GENERAL NOTES</p> <ol style="list-style-type: none"> PIPE OPENINGS THROUGH FIRE RATED WALLS SHALL BE CAULKED WITH AN INTUMESCENT MATERIAL. EXCAVATE UNDER FLOOR TRENCH, INSTALL PIPING AND BACK FILL WITH CLEAN SAND. COMPACT AND REPLACE FLOOR TO MATCH EXISTING. PIPING SHOWN IS SCHEMATIC TO SHOW SIZES AND GENERAL LOCATIONS. ROUTE PIPING AS REQUIRED FOR CLEARANCE WITH STRUCTURAL CONDITIONS. INSTALL PIPING TO MAINTAIN HEADROOM, CONSERVE SPACE, AND NOT INTERFERE WITH USE OF SPACE. GROUP PIPING WHERE PRACTICAL AT COMMON ELEVATIONS. ROUTE PIPING IN A RECTILINEAR, ORDERLY MANNER AND MAINTAIN GRADIENT. ROUTE PIPING PARALLEL AND PERPENDICULAR TO WALL IN CEILING SPACE. COORDINATE ROUGH-IN AND FINAL LOCATIONS OF NEW AND RELOCATED PIPING WITH EXISTING LIGHTING, STRUCTURE, PIPING AND DUCTWORK, ETC. PROVIDE OFFSETS ANIOR EASEMENTS AS REQUIRE TO AVOID CONFLICTS WITH WORK OF ALL OTHER TRADES. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTION PIPING. PROVIDE CLEARANCE IN HANGERS AND FROM STRUCTURE AND OTHER EQUIPMENT FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS. ROUGH-IN AND CONNECT ALL PLUMBING TO FIXTURES AND EQUIPMENT FURNISHED AND INSTALLED BY OTHERS. PROVIDE SHUT-OFF VALVES AT ALL EQUIPMENT AND ALL BRANCH PIPING OFF OF THE MAINS. 	<p>DEMOLITION MECHANICAL GENERAL NOTES</p> <ol style="list-style-type: none"> THESE NOTES SHALL APPLY TO ALL DEMOLITION MECHANICAL SHEETS. ALL CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH THE MECHANICAL DRAWINGS AND SPECIFICATIONS PRIOR TO BID. EXISTING EQUIPMENT, DUCTWORK, AND/OR PIPING, ACCESSORIES, ETC., SHOWN ON THESE PLANS ARE BASED ON FIELD OBSERVATIONS AND PARTIAL REMODEL PLANS. MECHANICAL CONTRACTOR SHALL VERIFY ALL EQUIPMENT, DUCTWORK AND/OR PIPING LOCATIONS AND THE SIZES IN THE FIELD. CONTRACTOR SHALL PERFORM A SITE OBSERVATION SURVEY PRIOR TO BID IN ORDER TO DETERMINE LOCATIONS AND/OR CONFLICTS RELATIVE TO THE EXECUTION OF HIS WORK. VERIFY EXTENT OF DEMOLITION AND EXACT DETAIL OF INSTALLATION REQUIRED TO PROVIDE SYSTEMS SHOWN ON THESE PLANS WITHIN THE INTENDED SPACE. DEMOLITION WORK REQUIRED BY THE WORK INCLUDES, BUT IS NOT NECESSARILY LIMITED TO THE FOLLOWING: PLUMBING FIXTURES AND EQUIPMENT, SANITARY, DOMESTIC, HEATING AND COOLING SYSTEM PIPING, VALVES, OTHER PIPING, ETC., DUCTWORK, HEATING AND/OR COOLING VENTILATION EQUIPMENT, CONTROLS AND ALL ACCESSORIES, CONTROL TUBING AND WIRING. REMOVE EXISTING DUCTWORK TO THE EXTENT INDICATED, CAP OPEN ENDS AND SEAL AIR TIGHT. INSULATE CAPS. ABOVE GROUND PRESSURIZED PIPING, DRAIN WASTE AND VENT PIPING TO BE DEMOLISHED SHALL BE REMOVED TO THE EXTENT INDICATED ON THE PLANS BACK TO THE POINT OF PIPING TO REMAIN IN SERVICE AND SHALL BE CAPPED OR PLUGGED TIGHT, AS APPROPRIATE, AS CLOSE AS POSSIBLE TO THE POINT OF CONNECTION TO THE 'LIVE' PIPE. ALL EXISTING SERVICES SHALL BE MAINTAINED AT ALL TIMES, UNLESS OTHERWISE INDICATED ON THE PLANS. DISRUPTION OF SERVICES SHALL BE COORDINATED WITH GENERAL CONTRACTOR AND THE OWNER IN ORDER TO PROVIDE AN ACCEPTABLE DATE AND TIME FOR SERVICE DISRUPTION. NO CUTTING OF STRUCTURAL MEMBERS OR STRUCTURE WHICH DETERIORATE THE INTEGRITY AND STRENGTH OF THE BUILDING SHALL BE ALLOWED WITH OUT THE WRITTEN APPROVAL OF A STRUCTURAL ENGINEER. SAW CUT OR CORE DRILL OPENING THROUGH WALL AND FLOORS AS REQUIRED TO ACCOMMODATE NEW OR RELOCATED DUCTWORK, PIPING, CONNECTIONS AND ROUTING. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING NEW OPENINGS THROUGH EXISTING WALLS AND/OR FLOORS UNLESS NOTED OTHERWISE ON PLANS. REPAIRS TO MATCH EXISTING AND MAINTAIN 1 HR FIRE RATING. WALL FINISHED BY OTHERS. INSPECT ALL EXISTING DUCTWORK AND HVAC EQUIPMENT. VACUUM EXISTING DUCTWORK FROM DISCHARGE POINT BACK TO MAIN AS FAR AS POSSIBLE. HVAC EQUIPMENT IS TO BE INSPECTED AND BROUGHT UP TO PROPER OPERATING CONDITION. CONTRACTOR SHALL INSTALL AS MUCH OF THE NEW SYSTEM AS POSSIBLE PRIOR TO REMOVING EXISTING SYSTEMS IN ORDER TO MINIMIZE THE AMOUNT OF DOWN TIME. 	<p>HVAC SYMBOLS</p> <table border="0"> <tr> <td>⊠</td> <td>SUPPLY AIR DUCT UP/DOWN</td> </tr> <tr> <td>⊡</td> <td>RETURN AIR DUCT UP/DOWN</td> </tr> <tr> <td>⊠</td> <td>EXHAUST AIR DUCT UP/DOWN</td> </tr> <tr> <td>12x6</td> <td>RECTANGULAR DUCT SIZE TAG (WIDTH / HEIGHT)</td> </tr> <tr> <td>12ø</td> <td>ROUND DUCT SIZE TAG (DIAMETER)</td> </tr> <tr> <td>⊠</td> <td>SUPPLY AIR DIFFUSER</td> </tr> <tr> <td>⊡</td> <td>RETURN AIR/EXHAUST AIR GRILLE</td> </tr> <tr> <td>—</td> <td>LINEAR DIFFUSER</td> </tr> <tr> <td>⊠</td> <td>TEMPERATURE SENSOR / THERMOSTAT</td> </tr> <tr> <td>⊠</td> <td>HUMIDISTAT</td> </tr> <tr> <td>⊠</td> <td>SPEED SWITCH</td> </tr> <tr> <td>CO2</td> <td>CO2 SENSOR</td> </tr> <tr> <td>—</td> <td>FIRE DAMPER</td> </tr> <tr> <td>—</td> <td>SMOKE DAMPER</td> </tr> <tr> <td>—</td> <td>FIRE/SMOKE DAMPER</td> </tr> <tr> <td>—</td> <td>CEILING RADIATION DAMPER</td> </tr> <tr> <td>—</td> <td>VOLUME DAMPER</td> </tr> <tr> <td>—</td> <td>MOTORIZED DAMPER</td> </tr> <tr> <td>—</td> <td>FLEXIBLE DUCT</td> </tr> <tr> <td>⋮</td> <td>TURNING VANES</td> </tr> </table>	⊠	SUPPLY AIR DUCT UP/DOWN	⊡	RETURN AIR DUCT UP/DOWN	⊠	EXHAUST AIR DUCT UP/DOWN	12x6	RECTANGULAR DUCT SIZE TAG (WIDTH / HEIGHT)	12ø	ROUND DUCT SIZE TAG (DIAMETER)	⊠	SUPPLY AIR DIFFUSER	⊡	RETURN AIR/EXHAUST AIR GRILLE	—	LINEAR DIFFUSER	⊠	TEMPERATURE SENSOR / THERMOSTAT	⊠	HUMIDISTAT	⊠	SPEED SWITCH	CO2	CO2 SENSOR	—	FIRE DAMPER	—	SMOKE DAMPER	—	FIRE/SMOKE DAMPER	—	CEILING RADIATION DAMPER	—	VOLUME DAMPER	—	MOTORIZED DAMPER	—	FLEXIBLE DUCT	⋮	TURNING VANES	<p>AIR DEVICES TAGS</p> <table border="0"> <tr> <td>CD</td> <td>CEILING DIFFUSER</td> </tr> <tr> <td>DG</td> <td>DOOR GRILLE</td> </tr> <tr> <td>DL</td> <td>DRUM LOUVER</td> </tr> <tr> <td>EG</td> <td>EXHAUST GRILLE</td> </tr> <tr> <td>L</td> <td>LOUVER</td> </tr> <tr> <td>LBG</td> <td>LINEAR BAR GRILLE</td> </tr> <tr> <td>RD</td> <td>ROUND DIFFUSER</td> </tr> <tr> <td>RG</td> <td>RETURN GRILLE</td> </tr> <tr> <td>SD</td> <td>SLOT DIFFUSER</td> </tr> <tr> <td>SG</td> <td>SUPPLY GRILLE</td> </tr> <tr> <td>TG</td> <td>TRANSFER GRILLE</td> </tr> </table> <p>TYPICAL SUPPLY DIFFUSER TAG</p> <p>DUCT CONNECTION SIZE</p> <p>DIFFUSER MARK</p> <p>AIRFLOW</p> <p>CD1 8" 200 CFM</p> <p>TYPICAL GRILLE TAG</p> <p>GRILLE SIZE</p> <p>GRILLE MARK</p> <p>AIRFLOW</p> <p>RG1 8x8 200 CFM</p>	CD	CEILING DIFFUSER	DG	DOOR GRILLE	DL	DRUM LOUVER	EG	EXHAUST GRILLE	L	LOUVER	LBG	LINEAR BAR GRILLE	RD	ROUND DIFFUSER	RG	RETURN GRILLE	SD	SLOT DIFFUSER	SG	SUPPLY GRILLE	TG	TRANSFER GRILLE	<p>PLUMBING FIXTURES</p> <p>PLUMBING FIXTURE TAG</p> <p>FIXTURE TYPE (SEE TABLE BELOW AND PLUMBING FIXTURE SCHEDULE) FIXTURE NUMBER</p> <p>XXX-1</p> <table border="0"> <tr> <td>BS BEAUTY SINK</td> <td>MB MOP BASIN</td> </tr> <tr> <td>BT BATH TUB</td> <td>SH SHOWER</td> </tr> <tr> <td>BPW BEDPAN WASHER</td> <td>SK SINK</td> </tr> <tr> <td>CSS CLINIC SERVICE SINK</td> <td>SS SAFETY SHOWER</td> </tr> <tr> <td>DF DRINKING FOUNTAIN</td> <td>SSEW SAFETY SHOWER EYE WASH</td> </tr> <tr> <td>DW DISHWASHER</td> <td>SSK SERVICE SINK</td> </tr> <tr> <td>EW EYE WASH STATION</td> <td>UR URINAL</td> </tr> <tr> <td>EWIC ELECTRIC WATER COOLER</td> <td>W LAUNDRY WASHER BOX</td> </tr> <tr> <td>FDC FIRE DEPARTMENT COOL.</td> <td>WC WATER CLOSET</td> </tr> <tr> <td>GD GARBAGE DISPOSAL</td> <td>WDF WASH DOWN FAUCET</td> </tr> <tr> <td>HB HOSE BIBB</td> <td>WDR WASH DOWN REEL</td> </tr> <tr> <td>HS HAND SINK</td> <td>WF WASH FOUNTAIN</td> </tr> <tr> <td>L LAVATORY</td> <td>WH WALL HYDRANT</td> </tr> <tr> <td>LS LAB SINK</td> <td>WO WALL OUTLET (LAMB'S TONGUE)</td> </tr> <tr> <td>LT LAUNDRY TUB</td> <td></td> </tr> </table> <p>DRAIN TAGS</p> <p>DRAIN CONNECTION SIZE DRAIN TYPE (SEE TABLE BELOW AND PLUMBING FIXTURE SCHEDULE)</p> <p>X" XX-1</p> <table border="0"> <tr> <td>AD AREA DRAIN</td> <td>ORD OVERFLOW ROOF DRAIN</td> </tr> <tr> <td>DW DISHWASHER</td> <td>OSD OPEN SIGHT DRAIN</td> </tr> <tr> <td>FD FLOOR DRAIN</td> <td>RD ROOF DRAIN</td> </tr> <tr> <td>FS FLOOR SINK</td> <td>TD TRENCH DRAIN</td> </tr> <tr> <td>FFD FUNNEL FLOOR DRAIN</td> <td>TTFD TELL-TALE FLOOR DRAIN</td> </tr> </table> <p>NOTE</p> <p>ALL GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. 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<p>HVAC GENERAL NOTES</p> <ol style="list-style-type: none"> FABRICATE AND SUPPORT ALL DUCTWORK IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, CURRENT EDITION. ALL DUCTWORK IS SHOWN IN SCHEMATIC FORM. NOT ALL RISES AND DROPS ARE SHOWN. PROVIDE OFFSETS AS REQUIRED TO MEET SPACE REQUIREMENTS AND TO AVOID INTERFERENCES WITH OTHER TRADES. ELBOWS SHALL BE SQUARE ELBOWS CONSTRUCTED WITH TURNING VANES. RADIUS ELBOWS WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 TIMES THE DUCT WIDTH MAY BE USED WHERE SPACE CONDITIONS PERMIT OR WHERE INDICATED ON DRAWINGS. ALL BRANCH DUCT TAPS SHALL BE CONICAL FITTINGS ON ROUND MAINS AND SHALL BE 45 DEG ENTRY FITTINGS ON RECTANGULAR MAINS. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL NOT EXCEED 5'-0" FLEXIBLE DUCT SHALL BE METAL FLEXIBLE FLEXIBLE DUCT WITH 1" EXTERNAL FIBERGLASS INSULATION AND VAPOR BARRIER JACKET. MANUAL VOLUME DAMPERS SHALL BE PROVIDED ON ALL RETURN, SUPPLY AND EXHAUST BRANCH DUCTS. SUPPORT ALL DUCTWORK, EQUIPMENT, ETC., FROM TOP CHORD OF BAR JOISTS OR STEEL FRAMING BEAMS. ALL DUCTWORK IN CHEMICAL STORAGE ROOMS SHALL BE FIBERGLASS (FRP) WITH FIBERGLASS HANGERS AND HARDWARE. ALL DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS. INCREASE SHEET METAL SIZE TO ACCOMMODATE DUCT LINER AS REQUIRED BY THE SPECIFICATIONS. ALL SHEET METAL CONNECTIONS AND JOISTS SHALL BE SEALED TO SMACNA CLASS A. DIFFUSER, GRILLE, AND REGISTER LOCATIONS. SHALL BE COORDINATED WITH THE ARCHITECT'S REFLECTED CEILING PLANS AND ELECTRICAL LIGHTING PLAN. CHANGE DUCT SIZES GRADUALLY. LIMIT SLOPES FOR TRANSITIONS TO A MAXIMUM OF 1 INCH CHANGE IN WIDTH FOR EVERY 3 INCHES OF LENGTH OF APPROXIMATELY 15 DEG. A MAXIMUM OF 30 DEG IS ACCEPTABLE DIRECTLY ADJACENT TO EQUIPMENT. 																																																																																																																																																																																																																																																																																																																																						



ELECTRIC UNIT HEATER SCHEDULE									
EQUIPMENT NUMBER	MANUFACTURER	MODEL	SERVES	FAN			ELECTRICAL	NOTES	
				CFM	KW	V/PH/CY	FLA		
EUH-1	INDEECO	TRIAD	CHLORINE 103	650	5	480/3/60	8.0	1,2,3,4,7	
EUH-2	INDEECO	TRIAD	STORAGE 104	1100	10	480/3/60	14.0	1,2,3,4,7	
EUH-3	INDEECO	TRIAD	FLUORIDE 105	650	5	480/3/60	8.0	1,2,3,4,7	
EWH-1	QMARK	CWH34083F	VESTIBULE 100	65	4	208/3/60	11.1	1,5,6	
EWH-2	QMARK	CWH3408F	TOILET 102	65	2	208/1/60	9.6	1,5,6	

NOTES:

- 1) FACTORY DISCONNECT
- 2) FACTORY WALL MOUNT THERMOSTAT
- 3) SWIVEL WALL BRACKET
- 4) STAINLESS STEEL WASHDOWN CONSTRUCTION
- 5) MOUNT ON WALL WITH SURFACE MOUNTING KIT
- 6) INTEGRAL THERMOSTAT
- 7) ALL COMPONENTS TO BE EPOXY COATED

MOTORIZED DAMPER SCHEDULE									
EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	SERVES	LOUVER/INTAKE	WIDTH (IN.)	HEIGHT (IN.)	CFM	POSITION	NOTES
MD-1	RUSKIN	CD50	CHLORINE ROOM 103	LV-1	22	20	700	N.C.	ALL
MD-2	RUSKIN	CD50	STORAGE 104	LV-2	14	10	220	N.C.	ALL
MD-3	RUSKIN	CD50	FLUORIDE ROOM 105	LV-3	12	8	100	N.C.	ALL

NOTES:

- 1) ALUMINUM, LOW LEAKAGE, OPPOSED BLADE TYPE.
- 2) 120 V NEMA 4X ACTUATOR, POWER OPEN - SPRING RETURN.
- 3) PROVIDE BAKED ENAMEL COATING FOR CORROSION PROTECTION.

FAN SCHEDULE												
EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	TYPE	SERVES	CFM	E.S.P. (IN. W.G.)				WEIGHT (LBS.)	NO...	
							HP/WATTS	RPM	V/PH/CY			
EF-1	GREENHECK	G-098-VG	ROOF MOUNTED UPBLAST EXHAUST	CHLORINE ROOM 103	700	0.5	1/6 HP	1725	115/1/60	32	1,2,3	
EF-2	GREENHECK	GB-097-6	ROOF MOUNTED UPBLAST EXHAUST	STORAGE 104	220	0.5	1/6 HP	1477	115/1/60	54	1,2,3	
EF-3	FANTECH	FR100	INLINE EXHAUST FAN	FLUORIDE ROOM 105	100	0.5	21.5 W	2950	115/1/60	7	2,5	
EF-4	GREENHECK	SP-A110	CEILING EXHAUST FAN	TOILET 102	100	0.2	17 W	950	115/1/60	17	2,4	

NOTES:

- 1) PROVIDE 18" PITCHED ROOF CURB, BIRDSCREEN, BACKDRAFT DAMPER.
- 2) FACTORY MOUNTED AND WIRED DISCONNECT.
- 3) HI-PRO POLYESTER CORROSION RESISTANT COATING.
- 4) PROVIDE DESIGNER CEILING GRILLE.
- 5) CORROSION RESISTANT CONSTRUCTION.

DEHUMIDIFIER SCHEDULE									
EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	SERVES	CFM	MOISTURE REMOVAL (PINTS/DAY @ 80 F, 60% RH)	ELECTRICAL		OPERATING RANGE °F	NOTES
						AMPS	V/PH/CY		
DEH-1	THERMASTOR	HI-E-DRY 195	FILTER ROOM 101	540	192	12	115/1/60	33 - 110	1
DEH-2	THERMASTOR	HI-E-DRY 195	FILTER ROOM 101	540	192	12	115/1/60	33 - 110	1
DEH-3	THERMASTOR	HI-E-DRY 195	FILTER ROOM 101	540	192	12	115/1/60	33 - 110	1
DEH-4	THERMASTOR	HI-E-DRY 195	FILTER ROOM 101	540	192	12	115/1/60	33 - 110	1
DEH-5	THERMASTOR	HI-E-DRY 195	EXISTING PROCESS AREA	540	192	12	115/1/60	33 - 110	1
DEH-6	THERMASTOR	HI-E-DRY 195	EXISTING PROCESS AREA	540	192	12	115/1/60	33 - 110	1

NOTES:

- 1) MERV 8 FILTER

GAS UNIT HEATER											
EQUIPMENT NUMBER	MFR.	SERVES	MODEL NUMBER	SUPPLY AIR (CFM)	INPUT (MBH)	OUTPUT (MBH)	THERMAL EFF. (%)	GAS RATE (CFH)	ELECTRICAL		NOTES
									V/PH/CY	AMPS	
GUH-1	REZTOR	EXISTING PROCESS AREA	UDX-175	1793	175.0	145.2	83	175	115/1/60	9.6	2,4,5,6
GUH-2	REZTOR	FILTER ROOM 101	UDZ-30	769	30.0	24.6	82	30	115/1/60	1.9	1,2,3,4,5
GUH-3	REZTOR	FILTER ROOM 101	UDZ-30	769	30.0	24.6	82	30	115/1/60	1.9	1,2,3,4,5

NOTES:

- 1) POWER VENTED, SEPARATED COMBUSTION.
- 2) STAINLESS STEEL HEAT EXCHANGER AND BURNER.
- 3) MANUFACTURER'S VERTICAL CONCENTRIC VENT KIT.
- 4) WALL MOUNTED NEMA 4X THERMOSTAT.
- 5) FACTORY MOUNTED AND WIRED DISCONNECT.
- 6) POWER VENTED, LOW STATIC BLOWER.

LOUVER SCHEDULE										
EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	SERVES	WIDTH (IN.)	HEIGHT (IN.)	FREE AREA (%)	VELOCITY (FPM)	MATERIAL	SCREEN	NOTES
LV-1	RUSKIN	ELF375DX	CHLORINE ROOM 103	22	20	50	500	ALUMINUM	INSECT SCREEN	1
LV-2	RUSKIN	ELF375DX	STORAGE 104	14	10	50	500	ALUMINUM	INSECT SCREEN	1
LV-3	RUSKIN	ELF375DX	FLUORIDE ROOM 105	12	8	50	500	ALUMINUM	INSECT SCREEN	1
LV-4	RUSKIN	ELF375DX	FLUORIDE ROOM 105	20	20	50	500	ALUMINUM	BIRDSCREEN	1

NOTES:

- 1) KYNAR FINISH. COLOR SELECTED BY ARCHITECT.

Project Owner
MADISON WATER UTILITY

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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MECHANICAL SCHEDULES

GM2



PLUMBING FIXTURE SCHEDULE									
FIXTURE NUMBER	MANUFACTURER	MODEL NUMBER	DESCRIPTION	CONNECTIONS					NOTES
				WASTE MATCH ADJAC.	VENT	C.W.	H.W.	T.W.	
CO-1	ZURN	ZN-1400-HD	CAST IRON FLOOR CLEANOUT WITH ADJUSTABLE COLLAR AND NICKALOY COVER						
ESW-1	GUARDIAN EMERGENCY SHOWER AND EYEWASH	G1992	GUARDIAN CORROSION RESISTANT COMBINATION SHOWER/EYEWASH G1992, 2" PVC SCHEDULE 80 SOCKET WELDED PIPE AND FITTINGS, SUPPLY INLET AND WASTE OUTLET. DRENCH SHOWER, 10" DIAMETER IMPACT RESISTANT PLASTIC SHOWER HEAD, PVC COATED BRASS STAY OPEN BALL VALVE WITH PVC COATED ACTUATING ARM AND PULL ROD. EYE/FACE WASH, 12" DIAMETER IMPACT RESISTANT PLASTIC BOWL WITH CHROME PLATED BRASS SPRAY HEADS, 3 GPM, MOUNTED ON PVC COATED SUPPLY ARMS, PVC COATED BRASS STAY OPEN BALL VALVE, 1/2" SUPPLY WITH EPOXY COATED ALUMINUM FLAG HANDLE.	-	-	-	-	1-1/4"	-
WH-1	WOODFORD	B67	AUTOMATIC DRAINAGE AND FREEZELESS WALL HYDRANT, BACKFLOW PROTECTION AND FLUSH WALL BOX.	-	-	3/4"	-	-	-
TMV-1	GUARDIAN	G-3802LF	EMERGENCY EYEWASH/SHOWER MIXING VALVE, BUILT IN PRIMARY AND SECONDARY CW BYPASS SUITABLE FOR EMERGENCY SHOWER/EYEWASH USE. STAINLESS STEEL SURFACE MOUNT CABINET.	-	-	-	-	1-1/4"	-
WC-1	AMERICAN STANDARD	MADERA	MADERA™ 3043001.02 1.1 - 1.6 GPF (4.2 - 6.0 LPF) CHAIR HEIGHT TOP SPUD ELONGATED BOWL, FLOOR-MOUNT, ELONGATED FLUSHOMETER BOWL, LESS SEAT HIGH EFFICIENCY TOILET (HET) OPERATES IN THE RANGE OF 1.1 GPF - 1.6 GPF (4.2 LPF - 6.0 LPF), MAXIMUM PERFORMANCE (MAP) SCORE OF 1,000 GRAMS AT 1.1 - 1.6 GPF. 16-1/2" (419 MM) CHAIR HEIGHT FOR ACCESSIBLE APPLICATIONS. STATIC WEIGHT LOAD OF 2,500 LBS (1,134 KG), 2-1/8" (54 MM) FULLY-GLAZED TRAPWAY, 10" (254 MM) OR 12" (305 MM) ROUGH-IN, CONDENSATION CHANNEL, POWERFUL DIRECT-FED SIPHON JET ACTION, 1-1/2" (38 MM) INLET SPUD, 1.28 GPF MANUAL FLUSH VALVE, AMERICAN STANDARD MODEL 6047.121.002.	4"	2"	1-1/4"	-	-	1
LAV-1	AMERICAN STANDARD	LUCERN	LUCERN WALL HUNG ADA LAVATORY, VITREOUS CHINA, FAUCET LEDGET, SELF DRAINING DECK WITH BACK AND SIDE SPLASH SHIELDS, FAUCET HOLES ON 4" CENTERS, 6-1/2" BOWL DEPTH, WHITE FINISH, REMOVABLE KEY ANGLE STOPS, BRASS P-TRAP WITH CLEANOUT AND ADA TRAP WRAP INSULATION, INCLUDE AMERICAN STANDARD "MONTERAY" TWO HANDLE ADA FAUCET, VANDAL RESISTANT WRIST BLADE HANDLES, GRID STRAINER DRAIN, AND ASSE 1070 POINT OF USE MIXING VALVE.	1-1/2"	1-1/4"	1/2"	1/2"	-	1
SK-1	SINK PROVIDED BY COUNTERTOP MANUFACTURER	-	EPOXY UNDERMOUNT LAB SINK, POLYPROPYLENE SINK OUTLET SHALL BE PROVIDED WITH POLY STRAINER, INCLUDE CHROME PLATED BRASS RISER TUBES, SPEARS LAB WASTE CPVC 1-1/2" DIAMETER P-TRAP AND WASTE DRAIN, PROVIDE CHICAGO 930-317XKCP, SINGLE-HOLE, DECK MOUNTED MANUFAL LABORATORY FAUCET WITH VACCUUM BREAKER.	1-1/2"	1-1/4"	1/2"	1/2"	-	-
MSB-1	FIAT	MSB 2424	MOP BASIN, ONE PIECE MOLDED STONE MOP BASIN, INTEGRAL 3" DRAIN WITH REMOVABLE STAINLESS STEEL STRAINER, 24"X24" OVERALL DIMENSIONS WITH 10" DEEP BOWL, PROVIDE CHICAGO MODEL 897-RCF FAUCET WITH HOSE CONNECTION AND VACUUM BREAKER.	3"	1-1/2"	3/4"	3/4"	-	-
FD-1	ZURN	Z-550	9" DIA DURA-COATED CAST IRON BODY, FLASHING COLLAR, CAST IRON BAR GRATE, ACID-RESISTANT COATING, SEDIMENT BUCKET.	SEE PLAN	2"	-	-	-	-
FD-2	ZURN	Z-415B	5" DIAMETER DURA-COATED CAST IRON BODY, FLASHING COLLAR, ADJUSTABLE NICKEL BRONZE STRAINER.	3"	2"	-	-	-	-
TD-1	ZURN	ZB12-SF	"FLO-THRU" PRE-SLOPED 12" WIDE HIGH DENSITY POLYETHYLENE DRAINAGE SYSTEM, Z-812-RFS REINFORCED STAINLESS STEEL SLOTTED GRATE, MINIMUM DIN CLASS C FOR GRATING AND CHANNEL.	4"	3"	-	-	-	-
RPZ-1	WATTS	909LF	4" - LEAD FREE REDUCED PRESSURE ZONE BACKFLOW PREVENTER, 1/4 TURN FULL PORT BALL VALVES ON INLET AND OUTLET WITH STRAINER, STAINLESS STEEL CHECK MODULES AND STAINLESS STEEL TRIM, AIR GAP WITH DRAIN PIPED TO NEAREST FLOOR DRAIN, NON-RISING VALVE STEMS.	-	-	4"	-	-	-
HB-1	WOODFORD	26	3/4" BACKFLOW PROTECTED HOSE BIBB, CHROME FINISH, METAL WHEEL HANDLE OPERATOR, 3/4" NPT INLET, AUTOMATIC DRAINING.	-	-	3/4"	-	-	-

NOTES:
1) ADA COMPLIANT

TANKLESS GAS FIRED WATER HEATER SCHEDULE										
EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	CAPACITY GAL'S	RECOVERY AT 67 F RISE	WATER CONNECTION	GAS INPUT MBH	GAS CONNECTION	VIPH/CY	WEIGHT LBS	NOTES
GWH-1	NAVIER	NPE-240A 2	11.2	5.6 GPH	3/4"	200	3/4"	120/1/60	82	1, 2

NOTES:
1) CPVC VERTICAL CONCENTRIC VENT.
2) FACTORY FREEZE PROTECTION TO -20 DEG F.
3) PROVIDE ASME PRESSURE REDUCING VALVE.
4) EXTEND CONDENSATE DRAIN LINE TO NEAREST FLOOR DRAIN.

PUMP SCHEDULE												
EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	SERVES	LOCATION	CONNECTION SIZE	GPM	FT OF HEAD	MOTOR			NOTES	
								HP	RPM	FLA		
RCP-1	BELL & GOSSETT	NBF-12U	HOT WATER RECIRC	FILTER ROOM 101	3/4"	5	8	FRAC	2800	0.48	120 / 1 / 60	1

NOTES:
1) PROVIDE TC-1 TIMER KIT AND AGS AQUASTAT.

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION

2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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MECHANICAL SCHEDULES

GM3

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
LIGHTING		POWER		SECURITY		INSTRUMENTATION	
	SURFACE LIGHT (TYPE DENOTED)		SINGLE RECEPT.		CARD READER		XX = PS (PRESSURE SWITCH)
	WALL MOUNTED FLOODLIGHT (TYPE DENOTED)		DUPLEX RECEPT.		DOOR CONTACT		SV (SOLENOID VALVE)
	RECESSED LIGHT (TYPE DENOTED)		SPLIT DUPLEX RECEPT.		MOTION DETECTOR		LS (LIMIT SWITCH)
	POLE MOUNTED LIGHT (TYPE DENOTED)		ISOLATED GROUND RECEPT (DUPLEX SHOWN)		CCTV		L (FLOAT SWITCH)
	POLE MOUNTED FLOODLIGHT (TYPE DENOTED)		RECEPT ON EMERGENCY CKT (DUPLEX SHOWN)		CCTV-PTZ		FS (FLOW SWITCH)
	SURFACE LINEAR LIGHT (TYPE DENOTED)		QUADPLEX RECEPT.				FD (FLOOR FLOOD FLOAT SWITCH)
	SUSPENDED OR PENDANT LIGHT (TYPE DENOTED)		QUADRAPLEX PLEX RECEPTACLE ON EMERGENCY CIRCUIT				T (THERMOSTAT)
	RECESSED LINEAR LIGHT (TYPE DENOTED)						MV (MOTORIZED VALVE)
	STRIP LIGHT (TYPE DENOTED)						
	TRACK AND TRACK LIGHT (TYPES DENOTED)						
	EMERGENCY BATTERY LIGHT (TYPE DENOTED)						
	EXIT SIGN (TYPE DENOTED)						
	LIGHT FIXTURE ON EMERGENCY CIRCUIT						
	SINGLE POLE SW.						
	2 POLE SINGLE THROW SW.						
	3-WAY SW.						
	4-WAY SW.						
	KEYED SW.						
	SW. WIPILLOT						
	DIMMER SWITCH						
	OCCUPANCY SENSOR SWITCH						
	WEATHER PROOF SWITCH						
	TIMER SWITCH						
	MOMENTARY CONTACT SWITCH						
	TIME DELAY SWITCH						
	OCCUPANCY SENSOR - TYPE DENOTED						
	LIGHT LEVEL SENSOR - TYPE DENOTED						
	PHOTOCELL						
SYSTEMS							
	TELEPHONE OUTLET (TYPE DENOTED)						
	INFORMATION OUTLET (TYPE DENOTED)						
	COMBINATION TELEPHONE/DATA OUTLET						
	WIRELESS ACCESS POINT						
	CLOCK (TYPE DENOTED)						

SCHEMATIC SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	ANTENNA
	FIELD DEVICE
	DEVICE AT PLC (SCP)
	DEVICE AT MCC (STARTER)
	CONNECTION POINT
	EXTERNAL (FIELD) CONNECTION POINT
	GROUND
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER
	SWITCH
	FUSE
	NORMALLY OPEN PUSH-BUTTON
	NORMALLY CLOSED PUSH-BUTTON
	SELECTOR SWITCH
	POTENTIOMETER
	NORMALLY CLOSED CONTACTS
	NORMALLY OPEN CONTACTS
	FIXED CAPACITOR
	MUSHROOM HEAD PUSH-BUTTON
	NORMALLY CLOSED LIMIT SWITCH
	NORMALLY OPEN LIMIT SWITCH
	SOLENOID
	FLOAT SWITCH (OPENING ON RISING LEVEL)
	FLOAT SWITCH (CLOSING ON RISING LEVEL)
	SWITCH (OPENING ON INCREASE) P=PRESSURE, V=VACUUM, DP=DIFFERENTIAL PRESSURE
	SWITCH (CLOSING ON INCREASE) P=PRESSURE, V=VACUUM, DP=DIFFERENTIAL PRESSURE
	TEMPERATURE SWITCH (OPENING ON RISING LEVEL)
	TEMPERATURE SWITCH (CLOSING ON RISING LEVEL)
	ON TIME DELAY SWITCH (TIME DELAY AFTER COIL IS ENERGIZED)
	OFF TIME DELAY SWITCH (TIME DELAY BEFORE COIL IS ENERGIZED)
	FLOW SWITCH (OPENING ON INCREASE IN FLOW)
	FLOW SWITCH (CLOSING ON INCREASE IN FLOW)
	TORQUE SWITCH (NORMALLY CLOSED)
	TORQUE SWITCH (NORMALLY OPEN)
	ENGINE DRIVEN GENERATOR
	MOTOR - NUMBER DENOTES HORSEPOWER
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	METERING DEVICE
	FUSED DISCONNECT
	MAGNETIC STARTER
	THERMAL OVERLOAD RELAY
	SURGE SUPPRESSION
	TRANSFORMER
	ALARM HORN
	KEY INTERLOCK
	PILOT LIGHT
	STARTER, CONTACTOR OR RELAY COIL

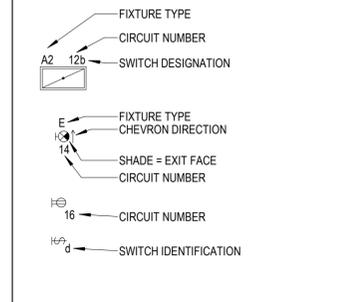
PANELBOARD IDENTIFICATION

EQUIPMENT DESIGNATION	CODE
304W, 480Y/277V	PP
303W, 480	P
304W, 208Y/120V	LP
103W, 240/120V	L

SYSTEMS DESIGNATION	CODE
NORMAL	(BLANK)
EMERGENCY	E
UNINTERRUPTIBLE POWER SOURCE	U

SYSTEM DESIGNATION: LPE-102
 EQUIPMENT DESIGNATION: LPE-102
 FLOOR OF STRUCTURE: 102
 PANEL NUMBER: 102

ELECTRICAL SYMBOL NOTES



ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)	CTR	CENTER	HT	HEIGHT	NEMA	NATIONAL ELECTRICAL	SWBD	SWITCHBOARD
A	AMPERE	CU	COPPER	HTG	HEATING	SYM	MANUFACTURER'S ASSOCIATION	SYM	SYMMETRICAL
AC	ABOVE COUNTER OR AIR	DCP	DOMESTIC WATER CIRCULATING PUMP	HTR	HEATER	NFDS	NON-FUSED SAFETY DISCONNECT	SYS	SYSTEM
ACLG	CONDITIONER	DEPT	DEPARTMENT	HV	HIGH VOLTAGE	NIC	NOT IN CONTRACT	TEL	TELEPHONE
ADO	ABOVE CEILING	DET	DETAIL	HVAC	HEATING, VENTILATING AND AIR	NL	NOT IN CONTRACT	TELEDATA	TELEPHONE/DATA
ADP	AUTOMATIC DOOR OPENER	DIA	DIAMETER	COND	CONDITIONING	NIGHT	NIGHT LIGHT	TERM	TERMINAL
AF	AMP FRAME	DISC	DISCONNECT	HWP	HYDRONIC WATER PUMP	N.O.	NORMALLY OPEN	TL	TWIST LOCK
AFF	ABOVE FINISHED FLOOR	DIST	DISTRIBUTION	IC	INTERRUPTING CAPACITY	NPF	NORMAL POWER FACTOR	TR	TAMPER RESISTANT
AFG	ABOVE FINISHED GRADE	DN	DOWN	IG	ISOLATED GROUND	NTS	NOT TO SCALE	T-STAT	THERMOSTAT
AFI	ARC FAULT CIRCUIT	DPR	DAMPER	IMC	INTERMEDIATE METAL CONDUIT	OH	OVERHEAD	TTC	TELEPHONE TERMINAL CABINET
	INTERRUPTER	DS	SAFETY DISCONNECT SWITCH	INCA	INCANDESCENT	OL	OVERLOADS	TV	TELEVISION
AHU	AIR HANDLING UNIT	DT	DOUBLE THROW	IR	INFRARED	PA	PUBLIC ADDRESS	TVC	TELEVISION TERMINAL CABINET
AL	ALUMINUM	DWG	DRAWING	IW	INTERLOCK WITH	PB	PULL BOX OR PUSHBUTTON	TYP	TYPICAL
ALT	ALTERNATE	EC	ELECTRICAL CONTRACTOR	J-BOX	JUNCTION BOX	PE	PNEUMATIC ELECTRIC	UC	UNDER COUNTER
AMP	AMPERE	ELEC	ELECTRIC, ELECTRICAL	KV	KILOVOLT	PED	PEDESTAL	UE	UNDERGROUND ELECTRICAL
AMPL	AMPLIFIER	ELEV	ELEVATOR	KVA	KILOVOLT-AMPERE	PF	POWER FACTOR	UG	UNDERGROUND
ANNUN	ANNUNCIATOR	EM	EMERGENCY	KVAR	KILOVOLT-AMPERE REACTIVE	PH	PHASE	UH	UNIT HEATER
APPROX	APPROXIMATELY	EMS	ENERGY MANAGEMENT SYSTEM	KW	KILOWATT	PIV	POST INDICATING VALVE	UT	UNDERGROUND TELEPHONE
AQ-STAT	AQUASTAT	EMT	ELECTRICAL METALLIC TUBING	KWH	KILOWATT HOUR	PNL	PANEL	UTIL	UTILITY
ARCH	ARCHITECT, ARCHITECTURAL	EP	ELECTRIC PNEUMATIC	LOC	LOCATE OR LOCATION	PP	POWER POLE	UV	UNIT VENTILATOR OR
AS	AMP SWITCH	EQUIP	EQUIPMENT	LT	LIGHT	PR	PAIR	UV	ULTRAVIOLET
AT	AMP TRIP	EW	ELECTRIC WATER COOLER	LTG	LIGHTING	PRI	PRIMARY	V	VOLT
ATS	AUTOMATIC TRANSFER SWITCH	EXIST	EXISTING	LTNG	LIGHTNING	PROJ	PROJECTION	VA	VOLT-AMPERES
AUTO	AUTOMATIC	EXH	EXHAUST	LV	LOW VOLTAGE	PRV	POWER ROOF VENTILATOR	VD	VIDEO DISPLAY TERMINAL
AUX	AUXILIARY	EXP	EXPLOSION PROOF	MAX	MAXIMUM	PT	POTENTIAL TRANSFORMER	VERT	VERTICAL
AV	AUDIO VISUAL	FA	FIRE ALARM	MAG.S	MAGNETIC STARTER	PVC	POLYVINYL CHLORIDE (CONDUIT)	VFD	VARIABLE FREQUENCY DRIVE
AWG	AMERICAN WIRE GAUGE	FABP	FIRE ALARM BOOSTER POWER	MIC	MOMENTARY CONTACT	PWR	POWER	VOL	VOLUME
BATT	BATTERY	FACP	FIRE ALARM CONTROL PANEL	MC	MECHANICAL CONTRACTOR	QUAN	QUANTITY	W	WATT
BD	BOARD	FACU	FAN COIL UNIT	MCB	MAIN CIRCUIT BREAKER	RCPT	RECEPTACLE	WJ	WITH
BLDG	BUILDING	FCU	FAN COIL UNIT	MCC	MOTOR CONTROL CENTER	REQD	REQUIRED	WG	WIRE GUARD
BMS	BUILDING MANAGEMENT SYSTEM	FX	FIXTURE	MDC	MAIN DISTRIBUTION CENTER	RM	ROOM	WH	WATER HEATER
C	CONDUIT	FLR	FLOOR	MDP	MAIN DISTRIBUTION PANEL	RSC	RIGID STEEL CONDUIT	W/O	WITHOUT
CAB	CABINET	FLUOR	FLUORESCENT	MFR	MANUFACTURER	RTU	ROOF TOP UNIT	WP	WEATHERPROOF
CAT	CATALOG	FU	FUSE	MFS	MAIN FUSED DISCONNECT SWITCH	SC	SURFACE CONDUIT	XFMR	TRANSFORMER
CATV	CABLE TELEVISION	FUDS	FUSED SAFETY DISCONNECT SWITCH	MH	MANHOLE	SEC	SECONDARY	XFR	TRANSFER
CB	CIRCUIT BREAKER	GA	GAUGE	MIC	MICROPHONE	SHT	SHEET		
CCTV	CLOSED CIRCUIT TELEVISION	GAL	GALLON	MIN	MINIMUM	SIM	SIMILAR		
CKT	CIRCUIT	GALV	GALVANIZED	MISC	MISCELLANEOUS	SIN	SOLID		
CLG	CEILING	GC	GENERAL CONTRACTOR	MLO	MAIN LUGS ONLY	SPEC	SPECIFICATION		
COMB	COMBINATION	GEN	GENERATOR	MMS	MANUAL MOTOR STARTER	SPKR	SPEAKER		
CMPR	COMPRESSOR	GFI	GROUND FAULT CIRCUIT INTERRUPTER	MOA	MULTIOUTLET ASSEMBLY	SP	SPARE		
CONN	CONNECTION	GFP	GROUND FAULT PROTECTOR	MSP	MOTOR STARTER PANELBOARD	SR	SURFACE RACEWAY		
CONST	CONSTRUCTION	GND	GROUND	MSBD	MAIN SWITCHBOARD	SS	STAINLESS STEEL		
CONT	CONTINUATION OR CONTINUOUS	GRS	GALVANIZED RIGID STEEL (CONDUIT)	MT	MOUNT	SSW	SELECTOR SWITCH		
CONTR	CONTRACTOR	GYP BD	GYPSONIUM BOARD	MT.C	EMPTY CONDUIT	SS	STOP/START PUSHBUTTONS		
CONV	CONVECTOR	HOA	HANDS-OFF-AUTOMATIC SWITCH	MIS	MISCELLANEOUS	STA	STATION		
CP	CIRCULATING PUMP	HORIZ	HORIZONTAL	MTR	MOTOR, MOTORIZED	STD	STANDARD		
CRT	CATHODE-RAY TUBE	HP	HORSEPOWER	N.C.	NORMALLY CLOSED	SURF	SURFACE MOUNTED		
CT	CURRENT TRANSFORMER	HPF	HIGH POWER FACTOR	NEC	NATIONAL ELECTRICAL CODE	SW	SWITCH		



Project Owner

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
 2526 LAKE MENOTA DRIVE
 MADISON, WISCONSIN

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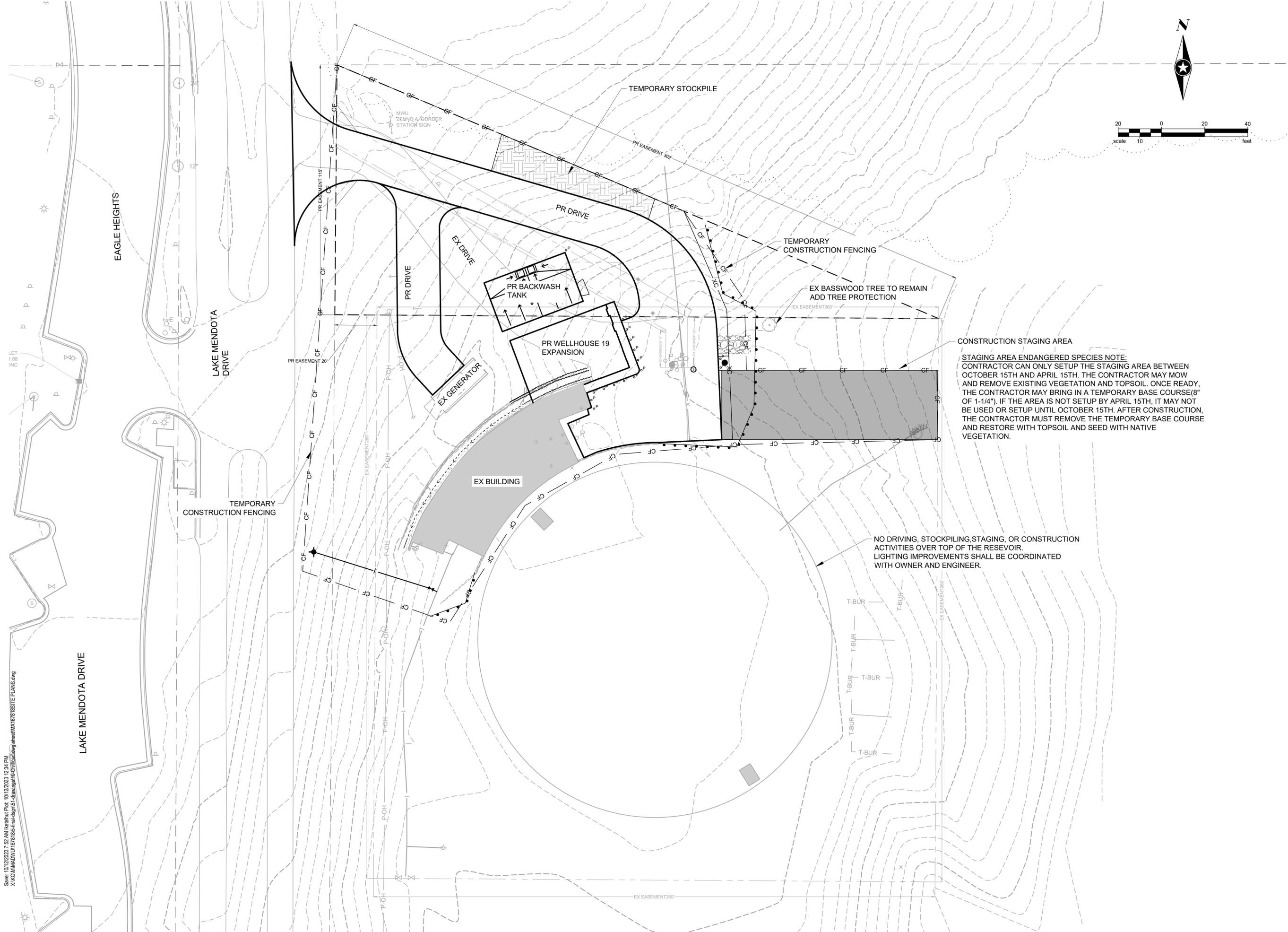
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SYMBOLS, ABBREVIATIONS AND NOTES



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CONSTRUCTION STAGING AREA

STAGING AREA ENDANGERED SPECIES NOTE:
 CONTRACTOR CAN ONLY SETUP THE STAGING AREA BETWEEN OCTOBER 15TH AND APRIL 15TH. THE CONTRACTOR MAY MOW AND REMOVE EXISTING VEGETATION AND TOPSOIL. ONCE READY, THE CONTRACTOR MAY BRING IN A TEMPORARY BASE COURSE (8" OF 1-1/4"). IF THE AREA IS NOT SETUP BY APRIL 15TH, IT MAY NOT BE USED OR SETUP UNTIL OCTOBER 15TH. AFTER CONSTRUCTION, THE CONTRACTOR MUST REMOVE THE TEMPORARY BASE COURSE AND RESTORE WITH TOPSOIL AND SEED WITH NATIVE VEGETATION.

NO DRIVING, STOCKPILING, STAGING, OR CONSTRUCTION ACTIVITIES OVER TOP OF THE RESEVOIR. LIGHTING IMPROVEMENTS SHALL BE COORDINATED WITH OWNER AND ENGINEER.



MADISON WATER UTILITY
 CITY OF MADISON WATER UTILITY
 119 E OLIN AVE
 MADISON, WI 53713

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
 2526 LAKE MENDOTA DRIVE
 MADISON, WISCONSIN

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REV. #	DESCRIPTION	DATE

STAGING PLAN



MADISON WATER UTILITY
 CITY OF MADISON WATER UTILITY
 119 E OLIN AVE
 MADISON, WI 53713

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
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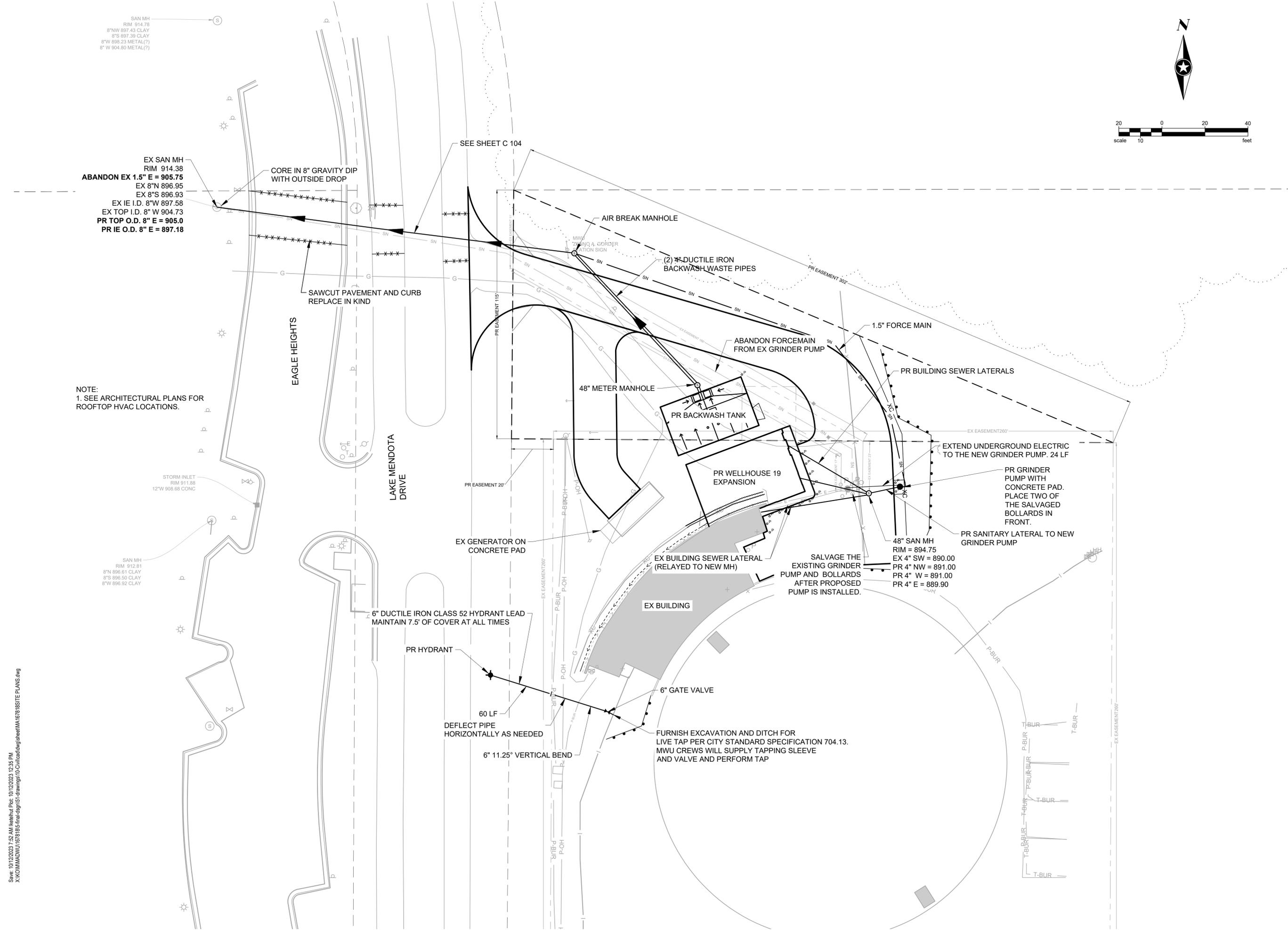
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UTILITY PLAN



EX SAN MH
 RIM 914.38
ABANDON EX 1.5" E = 905.75
 EX 8"N 896.95
 EX 8"S 896.93
 EX IE I.D. 8"W 897.58
 EX TOP I.D. 8"W 904.73
PR TOP O.D. 8" E = 905.0
PR IE O.D. 8" E = 897.18

NOTE:
 1. SEE ARCHITECTURAL PLANS FOR
 ROOFTOP HVAC LOCATIONS.

STORM INLET
 RIM 911.88
 12"W 908.68 CONC

SAN MH
 RIM 912.81
 8"N 896.61 CLAY
 8"S 896.50 CLAY
 8"W 896.92 CLAY

6" DUCTILE IRON CLASS 52 HYDRANT LEAD
 MAINTAIN 7.5' OF COVER AT ALL TIMES

60 LF
 DEFLECT PIPE
 HORIZONTALLY AS NEEDED

6" 11.25° VERTICAL BEND

FURNISH EXCAVATION AND DITCH FOR
 LIVE TAP PER CITY STANDARD SPECIFICATION 704.13.
 MWU CREWS WILL SUPPLY TAPPING SLEEVE
 AND VALVE AND PERFORM TAP

SALVAGE THE
 EXISTING GRINDER
 PUMP AND BOLLARDS
 AFTER PROPOSED
 PUMP IS INSTALLED.

48" SAN MH
 RIM = 894.75
 EX 4" SW = 890.00
 PR 4" NW = 891.00
 PR 4" W = 891.00
 PR 4" E = 889.90

PR GRINDER
 PUMP WITH
 CONCRETE PAD.
 PLACE TWO OF
 THE SALVAGED
 BOLLARDS IN
 FRONT.

EXTEND UNDERGROUND ELECTRIC
 TO THE NEW GRINDER PUMP. 24 LF

PR SANITARY LATERAL TO NEW
 GRINDER PUMP

PR WELLHOUSE 19
 EXPANSION

PR BACKWASH TANK

48" METER MANHOLE

ABANDON FORCEMAIN
 FROM EX GRINDER PUMP

(2) 4" DUCTILE IRON
 BACKWASH WASTE PIPES

AIR BREAK MANHOLE

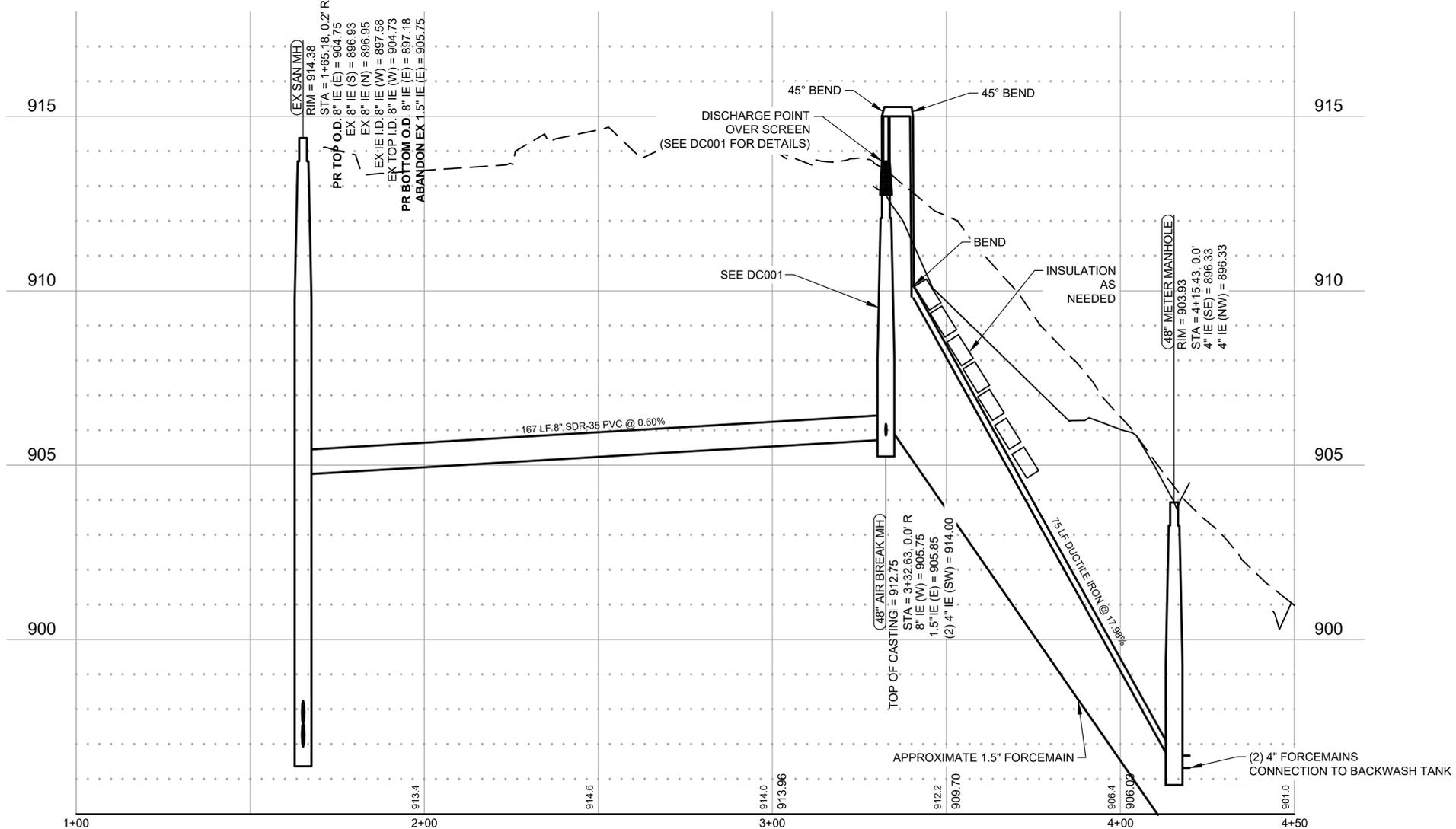
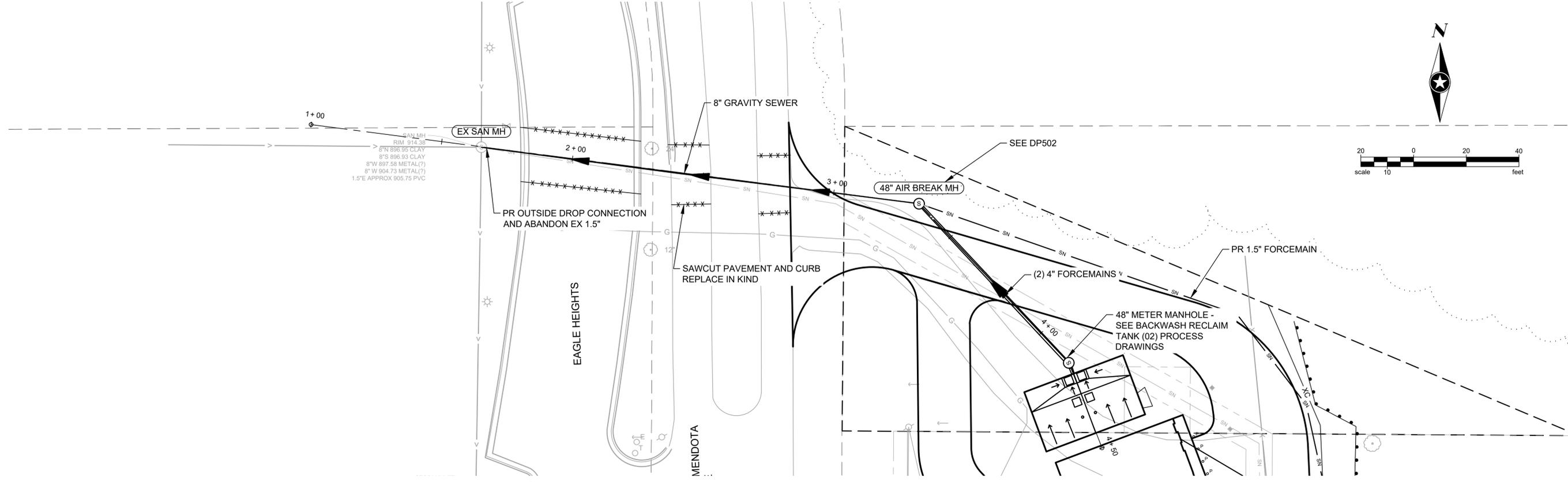
SAWCUT PAVEMENT AND CURB
 REPLACE IN KIND

EAGLE HEIGHTS

LAKE MENDOTA
 DRIVE

SEE SHEET C 104

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MADISON WATER UTILITY
CITY OF MADISON WATER UTILITY
119 E OLIN AVE
MADISON, WI 53713

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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Issue Date OCTOBER 2023

REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

PLAN & PROFILE



MADISON WATER UTILITY
CITY OF MADISON WATER UTILITY
119 E OLIN AVE
MADISON, WI 53713

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
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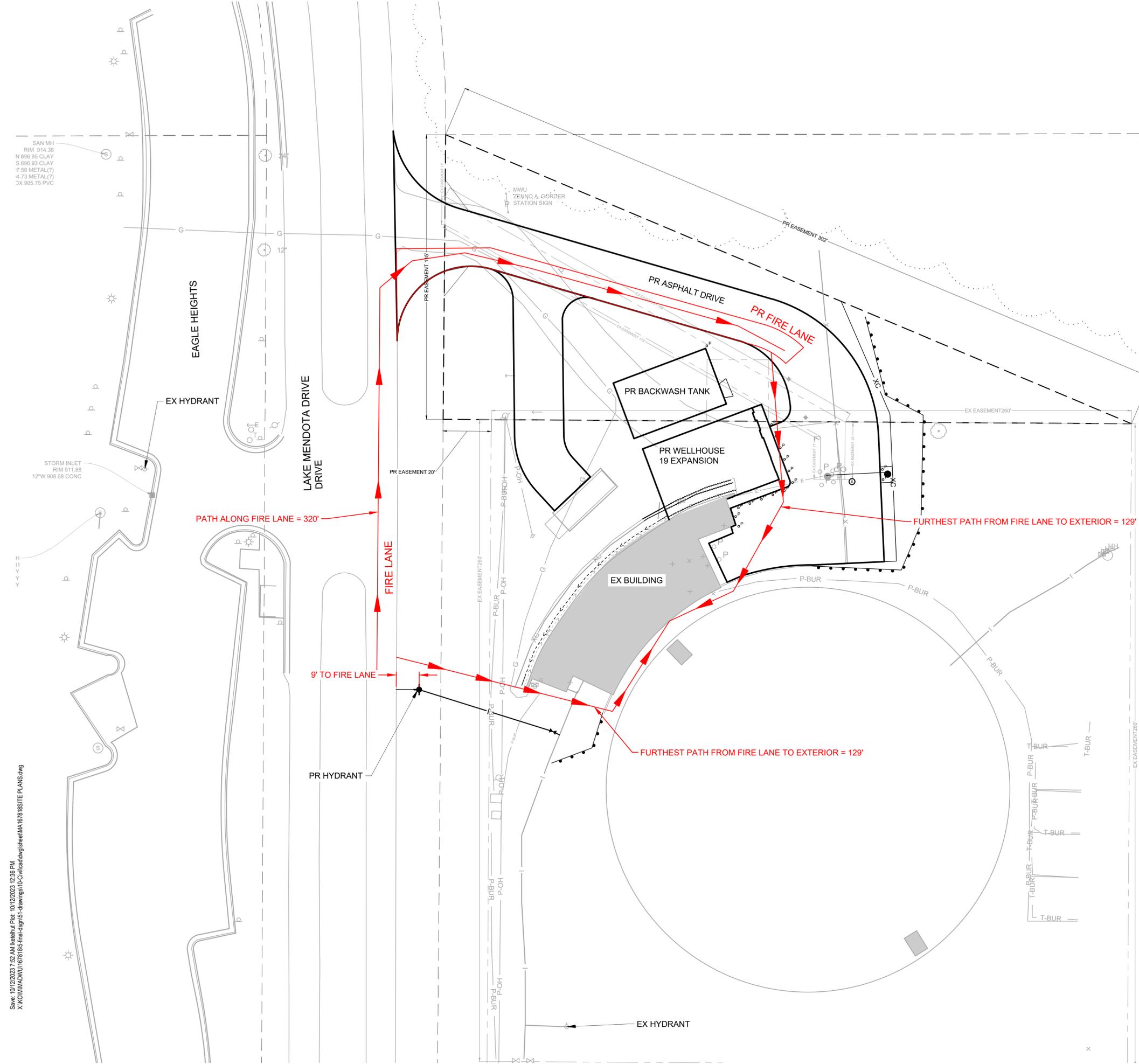
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BIDDING DOCUMENTS OCTOBER 2023

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FIRE ACCESS PLAN

C 105



SAN MH
RIM 914.38
N 896.95 CLAY
S 896.93 CLAY
7.58 METAL(?)
4.73 METAL(?)
DX 905.75 PVC

STORM INLET
RIM 911.88
12"W 908.68 CONC

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Disturbance of Existing Impervious Area (Existing Driveway to be Replaced)	6,150 SF
New Impervious Area	
Asphalt Driveway	8,135 SF
Building Addition	1,660 SF
Backwash Tank	960 SF
Subtotal	10,755 SF
Total Disturbance Area	
Main Site Limits	24,300 SF
Hydrant Connection	1,150 SF
Subtotal	25,450 SF

Land Use Summary Table	Area (SF)
Site Area	67,600
Expansion Building Inside	1,320
Expansion Building Footprint	1,473
Backwash Tank Footprint	960
Ex Building Inside	2,850
Ex Building Footprint	2,887
Lot Coverage	12,381
Dwelling Units	N/A
Usable Open Space	N/A
Landscape Area	3,865

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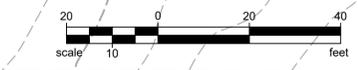
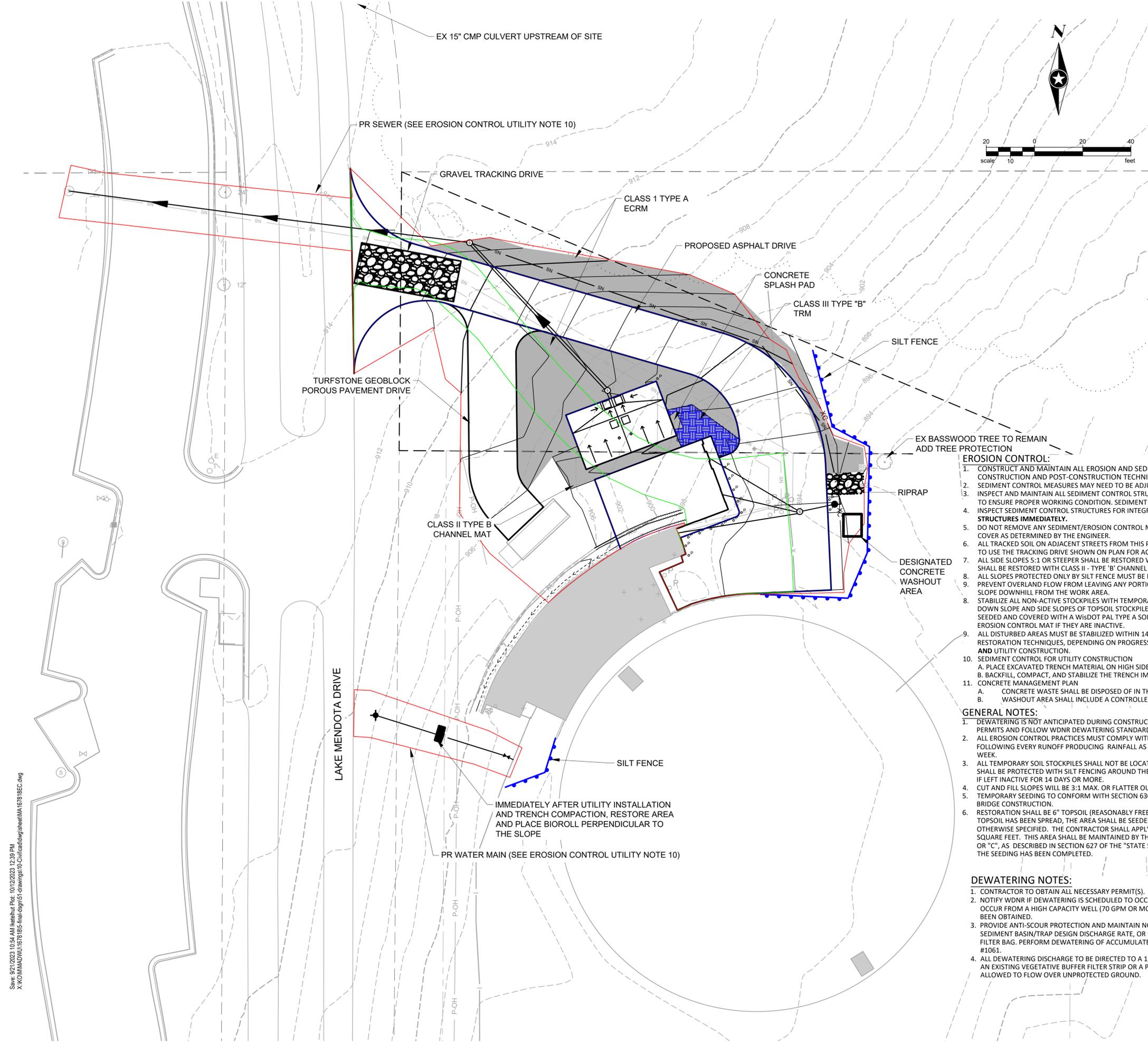
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EROSION CONTROL PLAN



EROSION CONTROL:

- CONSTRUCT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE "WISCONSIN STORMWATER CONSTRUCTION AND POST-CONSTRUCTION TECHNICAL STANDARDS".
- SEDIMENT CONTROL MEASURES MAY NEED TO BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.
- INSPECT AND MAINTAIN ALL SEDIMENT CONTROL STRUCTURES WEEKLY AND AFTER SITE RECEIVES 1/2" OR MORE OF RAIN IN A 24-HOUR PERIOD TO ENSURE PROPER WORKING CONDITION. SEDIMENT CONTROL MEASURES ARE TO BE IN WORKING CONDITION AT THE END OF EACH DAY.
- INSPECT SEDIMENT CONTROL STRUCTURES FOR INTEGRITY AFTER ANY SIGNIFICANT RAINFALL OF 1/2" OR MORE. **CORRECT ANY DAMAGED STRUCTURES IMMEDIATELY.**
- DO NOT REMOVE ANY SEDIMENT/EROSION CONTROL MEASURES UNTIL THE AREAS SERVED HAVE 80% OR MORE ESTABLISHED VEGETATIVE COVER AS DETERMINED BY THE ENGINEER.
- ALL TRACKED SOIL ON ADJACENT STREETS FROM THIS PROJECT MUST BE CLEANED ON A DAILY BASIS, MINIMUM. CONTRACTORS ARE REQUIRED TO USE THE TRACKING DRIVE SHOWN ON PLAN FOR ACCESS TO AND FROM THE SITE.
- ALL SIDE SLOPES 5:1 OR STEEPER SHALL BE RESTORED WITH CLASS I - TYPE 'A' EROSION MATTING, AND ALL AREAS OF CONCENTRATED FLOW SHALL BE RESTORED WITH CLASS II - TYPE 'B' CHANNEL MATTING, UNLESS OTHERWISE NOTED.
- ALL SLOPES PROTECTED ONLY BY SILT FENCE MUST BE FULLY RESTORED WITHIN 30 DAYS OF DISTURBANCE.
- PREVENT OVERLAND FLOW FROM LEAVING ANY PORTION OF THE WORK SITE BY INSTALLING SEDIMENT LOGS OR SILT FENCING PARALLEL TO THE SLOPE DOWNHILL FROM THE WORK AREA.
- STABILIZE ALL NON-ACTIVE STOCKPILES WITH TEMPORARY SEED & MULCH WITHIN 14 DAYS OF INACTIVITY. INSTALL SILT FENCING AROUND ALL DOWN SLOPE AND SIDE SLOPES OF TOPSOIL STOCKPILES. STOCKPILES NOT SHOWING ADEQUATE VEGETATION BY NOV 1 SHOULD BE DORMANT SEEDING AND COVERED WITH A WisDOT PAL TYPE A SOIL STABILIZER (FOR SLOPES 3 FEET HORIZONTAL TO 1 FOOT VERTICAL OR FLATTER) OR EROSION CONTROL MAT IF THEY ARE INACTIVE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 14 DAYS OF INACTIVITY. THIS MAY BE DONE USING TEMPORARY AND/OR PREEMINENT RESTORATION TECHNIQUES, DEPENDING ON PROGRESS OF GRADING ACTIVITIES OF THE AREA(S). THIS INCLUDES AREAS OF SITE DEVELOPMENT AND UTILITY CONSTRUCTION.
- SEDIMENT CONTROL FOR UTILITY CONSTRUCTION
 - PLACE EXCAVATED TRENCH MATERIAL ON HIGH SIDE OF THE TRENCH.
 - BACKFILL, COMPACT, AND STABILIZE THE TRENCH IMMEDIATELY AFTER UTILITY INSTALLATION.
- CONCRETE MANAGEMENT PLAN
 - CONCRETE WASTE SHALL BE DISPOSED OF IN THE DESIGNATED WASHOUT AREA
 - WASHOUT AREA SHALL INCLUDE A CONTROLLED WASTE BOX. GROUND BASED WASHOUT IS NOT PERMITTED.

GENERAL NOTES:

- DEWATERING IS NOT ANTICIPATED DURING CONSTRUCTION. IF DEWATERING IS REQUIRED, CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND FOLLOW WDNR DEWATERING STANDARD #1061.
- ALL EROSION CONTROL PRACTICES MUST COMPLY WITH WDNR TECHNICAL STANDARDS AND BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF PRODUCING RAINFALL AS WELL AS SNOW MELT AND WINTER THAW (1/2" OR MORE), AND AT LEAST ONCE PER WEEK.
- ALL TEMPORARY SOIL STOCKPILES SHALL NOT BE LOCATED WITHIN 25 FEET OF A DRAINAGE WAY OR A WETLAND (NO WETLANDS ON SITE), SHALL BE PROTECTED WITH SILT FENCING AROUND THE DOWNSLOPE AND SIDESLOPES OF THE PILE, AND STABILIZED WITH TEMPORARY SEEDING IF LEFT INACTIVE FOR 14 DAYS OR MORE.
- CUT AND FILL SLOPES WILL BE 3:1 MAX. OR FLATTER OUTSIDE THE ROAD RIGHT-OF-WAY, UNLESS OTHERWISE NOTED.
- TEMPORARY SEEDING TO CONFORM WITH SECTION 630.2.1.5.1.2 OF THE STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
- RESTORATION SHALL BE 6" TOPSOIL (REASONABLY FREE OF STONES, STICKS, ROOTS, AND OTHER OBJECTIONABLE MATTER AND DEBRIS). ONCE TOPSOIL HAS BEEN SPREAD, THE AREA SHALL BE SEEDING WITH SEED MIXTURE NO. 40 IN SECTION 630 OF THE "STATE SPECIFICATIONS", UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL APPLY A FERTILIZER (20-0-0) OVER THE SEEDING AREA AT A RATE OF 7 POUNDS PER 1000 SQUARE FEET. THIS AREA SHALL BE MAINTAINED BY THE CONTRACTOR. STRAW MULCH SHALL BE PLACED IN ACCORDANCE WITH METHODS "B" OR "C", AS DESCRIBED IN SECTION 627 OF THE "STATE SPECIFICATIONS", EXCEPT THAT THE MULCH SHALL BE PLACED WITHIN ONE (1) DAY AFTER THE SEEDING HAS BEEN COMPLETED.

DEWATERING NOTES:

- CONTRACTOR TO OBTAIN ALL NECESSARY PERMIT(S).
- NOTIFY WDNR IF DEWATERING IS SCHEDULED TO OCCUR IN AREAS OF SOIL AND/OR GROUNDWATER CONTAMINATION, OR IF DEWATERING WILL OCCUR FROM A HIGH CAPACITY WELL (70 GPM OR MORE). DEWATER ONLY AFTER THE APPROPRIATE WDNR DEWATERING DISCHARGE PERMIT HAS BEEN OBTAINED.
- PROVIDE ANTI-SCOUR PROTECTION AND MAINTAIN NON-EROSIVE FLOW DURING DEWATERING. LIMIT PUMPING RATES TO EITHER (A) THE SEDIMENT BASIN/TRAP DESIGN DISCHARGE RATE, OR (B) THE BASIN DESIGN RELEASE RATE WITH THE CORRECTLY-FITTED HOSE AND GEOTEXTILE FILTER BAG. PERFORM DEWATERING OF ACCUMULATED SURFACE RUNOFF IN ACCORDANCE WITH WDNR TECHNICAL STANDARD DE-WATERING #1061.
- ALL DEWATERING DISCHARGE TO BE DIRECTED TO A 12"x10' (MIN) TYPE I DEWATERING FILTRATION BAG THEN DISCHARGE SHALL PASS THROUGH AN EXISTING VEGETATIVE BUFFER FILTER STRIP OR A PROTECTIVE LINER SHALL BE PLACED OVER DISTURBED GROUND. DISCHARGE SHALL NOT BE ALLOWED TO FLOW OVER UNPROTECTED GROUND.

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LANDSCAPE PLAN NOTES:

1. SEE LANDSCAPE NOTES ON SHEET GL001 AND DETAILS ON SHEET DL001.
2. SEE CITY OF MADISON LANDSCAPE CALCULATIONS ON SHEET GL001.
3. SEE PLANTING AND SEEDING SCHEDULES ON SHEET GL001.

PLANT SYMBOL LEGEND

ORNAMENTAL TREES	BOTANICAL / COMMON NAME
PV	PRUNUS VIRGINIANA / CHOKECHERRY
VL	VIBURNUM LENTAGO / NANNYBERRY
SHADE TREES	BOTANICAL / COMMON NAME
CR	CARPINUS CAROLINIANA / AMERICAN HORNBEAM
QB	QUERCUS BICOLOR / SWAMP WHITE OAK
QM	QUERCUS MACROCARPA / BURR OAK
SHRUBS	BOTANICAL / COMMON NAME
AR	ARALIA RACEMOSA / AMERICAN SPIKENARD
AM	ARONIA MELANOCARPA 'IROQUOIS BEAUTY'
TM	TM / BLACK CHOKEBERRY
CO	CORNUS RACEMOSA / GRAY DOGWOOD
CA	CORYLUS AMERICANA / AMERICAN HAZELNUT
DI	DIERVILLA LONICERA / DWARF BUSH HONEYSUCKLE
PERENNIALS	BOTANICAL / COMMON NAME
cn	CONOCLINIUM COELESTINUM / WILD AGERATUM
ep	ECHINACEA PALLIDA / PALE PURPLE CONEFLOWER
pn	PANICUM VIRGATUM 'NORTHWIND' / NORTHWIND SWITCH GRASS

SEED MIX LEGEND

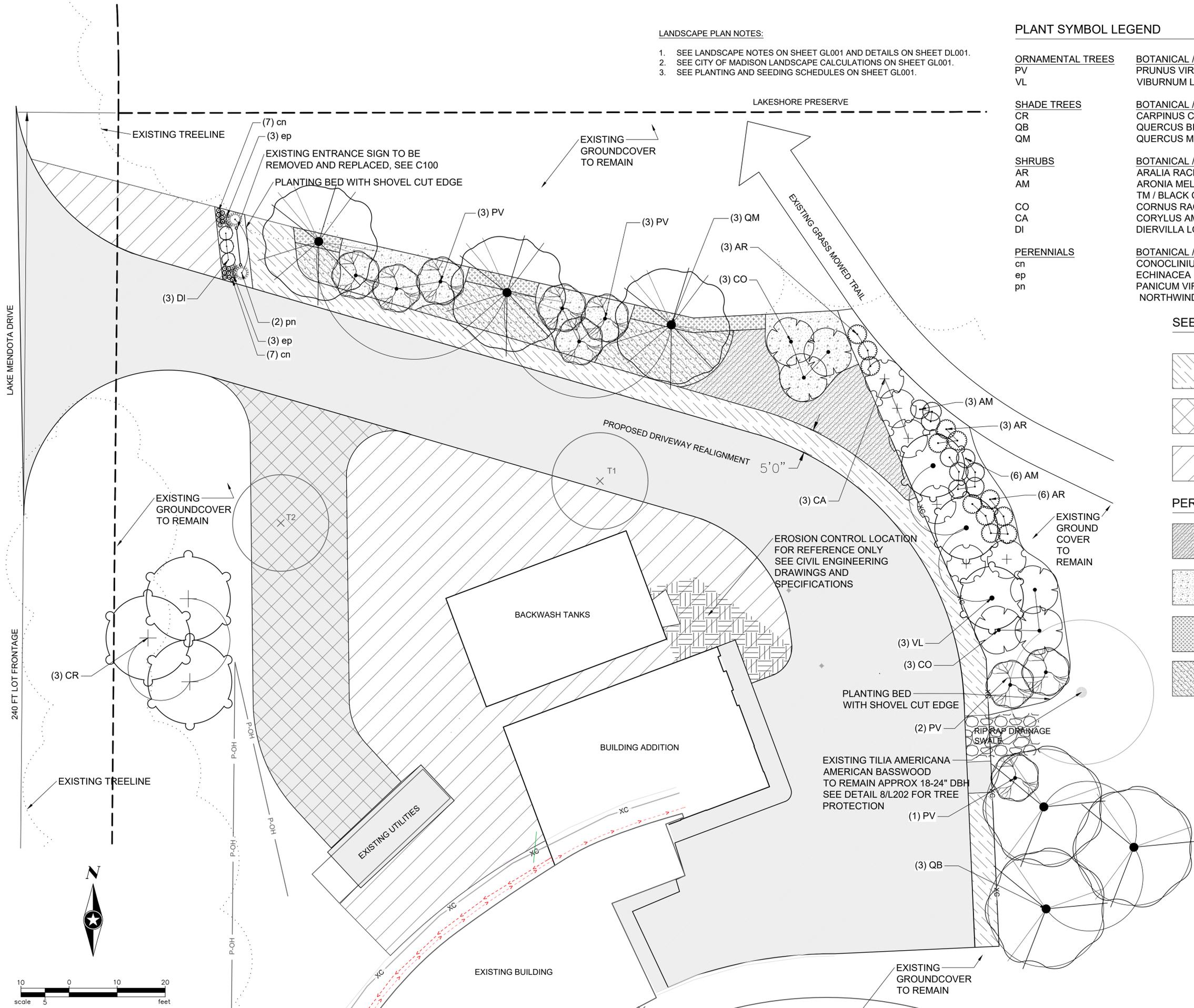
	NO MOW TURF MIX
	REINFORCED TURF GRASS
	TURF GRASS

PERENNIAL PLANTING AREA LEGEND

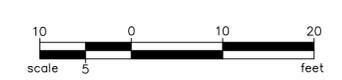
	NATIVE PRAIRIE MIX - PLUGS @ 12" O.C.
	UNDERSTORY MIX 1 PLUGS @ 12" O.C.
	JOE-PYE WEED PLUGS @ 12" O.C.
	UNDERSTORY MIX 2 PLUGS @ 12" O.C.

LEGEND

	EXISTING TREE TO REMAIN
	EXISTING TREE TO REMOVE
	BLACK CHAIN LINK FENCE
	PROPERTY BOUNDARY
	DEVELOPED AREA 10,265 SF AS DEFINED BY CITY OF MADISON ZONING CODE ORD. 28.142 (4)



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CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
 2526 LAKE MENDOTA DRIVE
 MADISON, WISCONSIN

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 Checked By: MGW
 Drawn By: CB

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LANDSCAPE PLAN

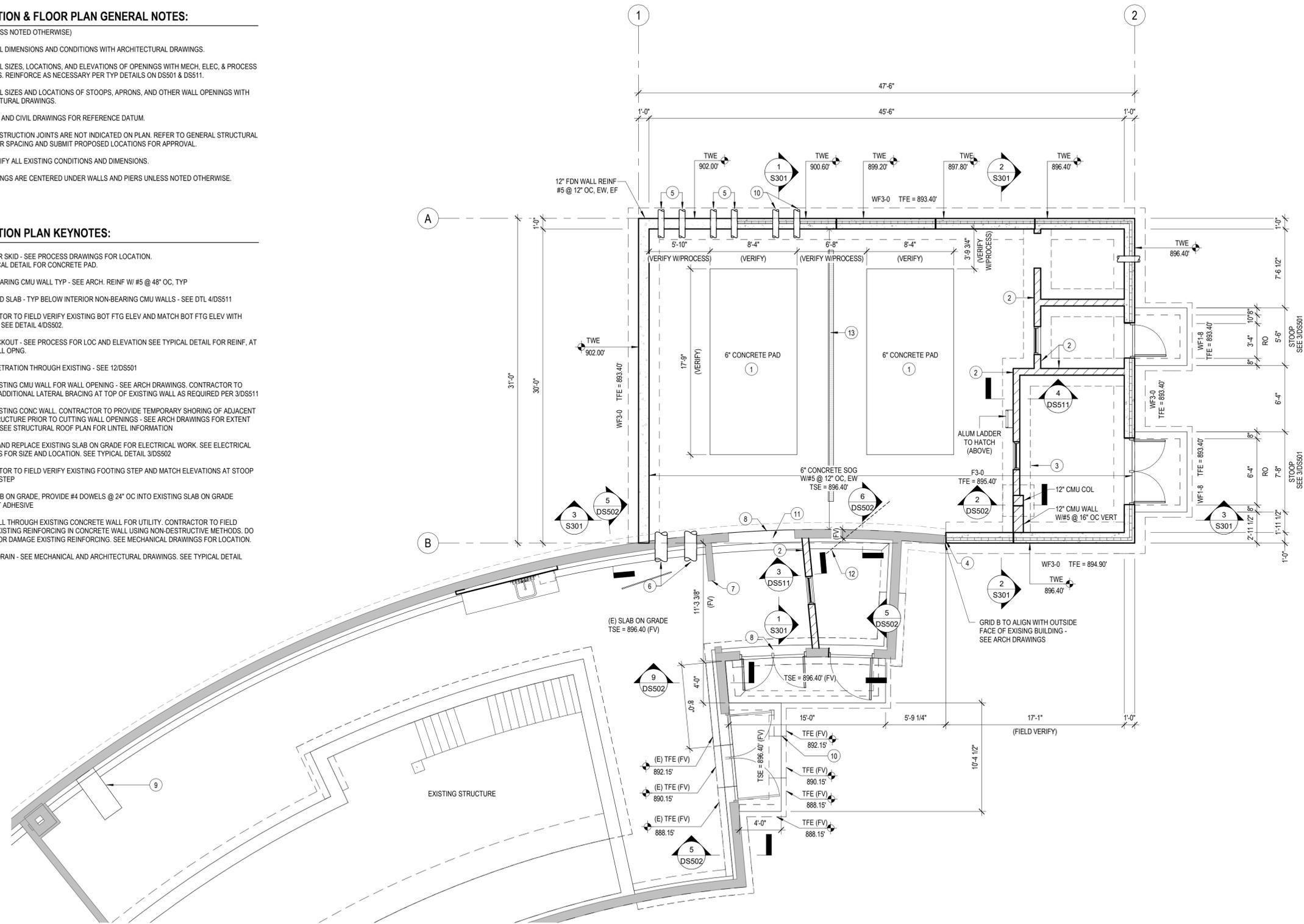
FOUNDATION & FLOOR PLAN GENERAL NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

1. VERIFY ALL DIMENSIONS AND CONDITIONS WITH ARCHITECTURAL DRAWINGS.
2. VERIFY ALL SIZES, LOCATIONS, AND ELEVATIONS OF OPENINGS WITH MECH, ELEC, & PROCESS DRAWINGS. REINFORCE AS NECESSARY PER TYP DETAILS ON DS501 & DS511.
3. VERIFY ALL SIZES AND LOCATIONS OF STOOPS, APRONS, AND OTHER WALL OPENINGS WITH ARCHITECTURAL DRAWINGS.
4. SEE ARCH AND CIVIL DRAWINGS FOR REFERENCE DATUM.
5. SLAB CONSTRUCTION JOINTS ARE NOT INDICATED ON PLAN. REFER TO GENERAL STRUCTURAL NOTES FOR SPACING AND SUBMIT PROPOSED LOCATIONS FOR APPROVAL.
6. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS.
7. ALL FOOTINGS ARE CENTERED UNDER WALLS AND PIERS UNLESS NOTED OTHERWISE.

FOUNDATION PLAN KEYNOTES:

- 1 96K FILTER SKID - SEE PROCESS DRAWINGS FOR LOCATION. SEE TYPICAL DETAIL FOR CONCRETE PAD.
- 2 8" NON-BEARING CMU WALL TYP - SEE ARCH. REINF W/ #5 @ 48" OC, TYP
- 3 THICKENED SLAB - TYP BELOW INTERIOR NON-BEARING CMU WALLS - SEE DTL 4/DS511
- 4 CONTRACTOR TO FIELD VERIFY EXISTING BOT FTG ELEV AND MATCH BOT FTG ELEV WITH EXISTING. SEE DETAIL 4/DS502.
- 5 PIPE BLOCKOUT - SEE PROCESS FOR LOC AND ELEVATION SEE TYPICAL DETAIL FOR REINF, AT CONC WALL OPNG.
- 6 PIPE PENETRATION THROUGH EXISTING - SEE 12/DS501
- 7 DEMO EXISTING CMU WALL FOR WALL OPENING - SEE ARCH DRAWINGS. CONTRACTOR TO PROVIDE ADDITIONAL LATERAL BRACING AT TOP OF EXISTING WALL AS REQUIRED PER 3/DS511
- 8 DEMO EXISTING CONC WALL. CONTRACTOR TO PROVIDE TEMPORARY SHORING OF ADJACENT ROOF STRUCTURE PRIOR TO CUTTING WALL OPENINGS - SEE ARCH DRAWINGS FOR EXTENT AND LOC. SEE STRUCTURAL ROOF PLAN FOR LINTEL INFORMATION
- 9 REMOVE AND REPLACE EXISTING SLAB ON GRADE FOR ELECTRICAL WORK. SEE ELECTRICAL DRAWINGS FOR SIZE AND LOCATION. SEE TYPICAL DETAIL 3/DS502
- 10 CONTRACTOR TO FIELD VERIFY EXISTING FOOTING STEP AND MATCH ELEVATIONS AT STOOP FOOTING STEP
- 11 AT (E) SLAB ON GRADE, PROVIDE #4 DOWELS @ 24" OC INTO EXISTING SLAB ON GRADE W/STRUCT ADHESIVE.
- 12 CORE DRILL THROUGH EXISTING CONCRETE WALL FOR UTILITY. CONTRACTOR TO FIELD VERIFY EXISTING REINFORCING IN CONCRETE WALL USING NON-DESTRUCTIVE METHODS. DO NOT CUT OR DAMAGE EXISTING REINFORCING. SEE MECHANICAL DRAWINGS FOR LOCATION.
- 13 TRENCH DRAIN - SEE MECHANICAL AND ARCHITECTURAL DRAWINGS. SEE TYPICAL DETAIL 12/DS502.



1 FOUNDATION & FLOOR PLAN
S101 3/16" = 1'-0"



FOOTING SCHEDULE		
MARK	SIZE	REINFORCING
	<varies>	<varies>
F3-0	3'-0" x 3'-0" x 1'-0"	(3) #5 EA WAY, BOTTOM
WF1-8	1'-8" WIDE x 1'-0" DEEP x CONTINUOUS	(2) #5 REBAR CONTINUOUS, BOTTOM
WF3-0	3'-0" WIDE x 1'-0" DEEP x CONTINUOUS	(3) #5 REBAR CONTINUOUS, BOTTOM

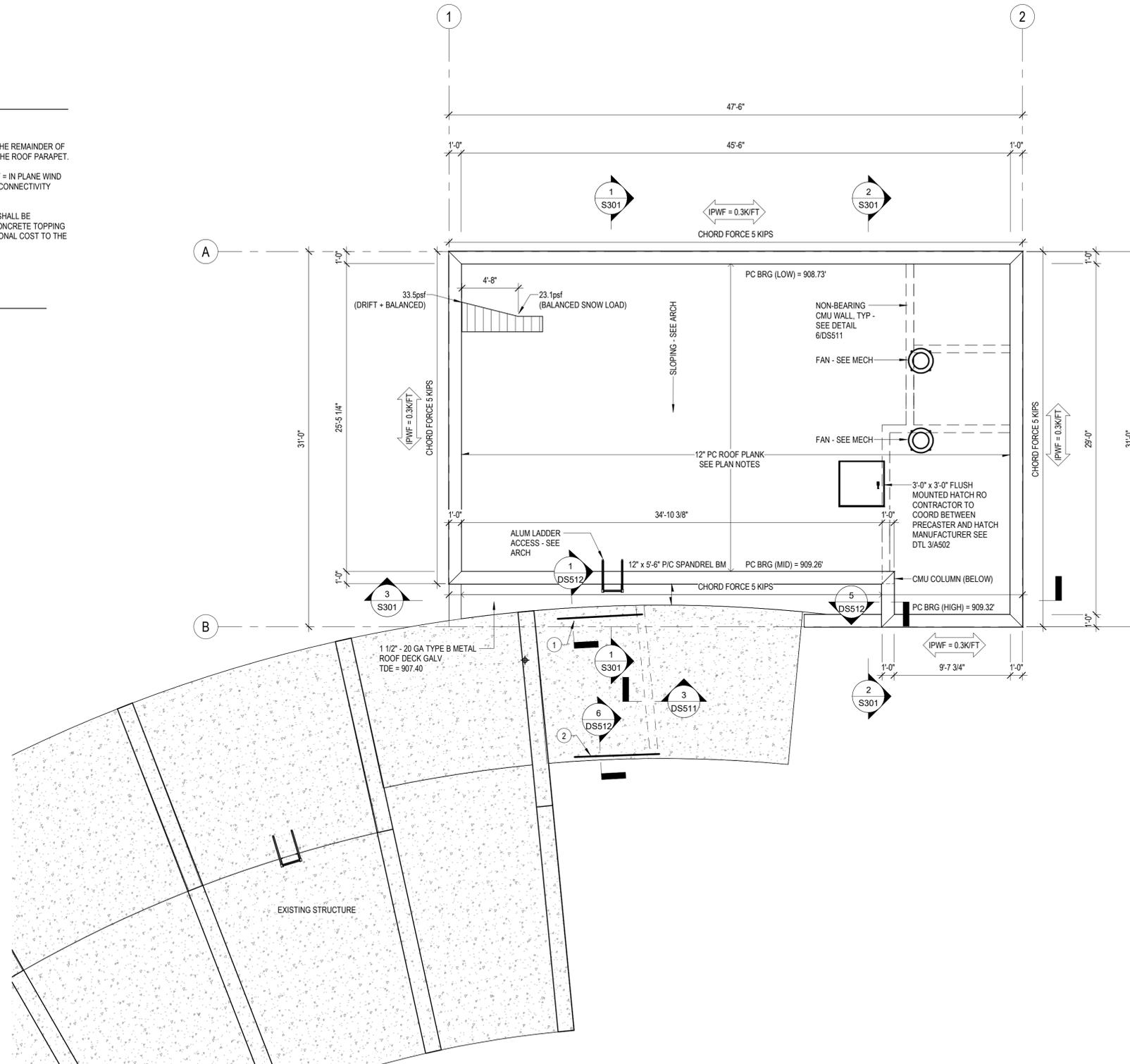
ROOF PLAN GENERAL NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

- LOADS THUS:
- ARE SNOW DRIFT LOADS AND BALANCED OR FLAT ROOF SNOW LOAD FOR THE REMAINDER OF THE ROOF. THEY ARE TYPICAL AROUND THE PERIMETER OF THE ROOF AT THE ROOF PARAPET.
 - PRECAST DESIGN LOADS: - OUT OF PLANE WIND: 27.1 PSF (STRENGTH). IPWF = IN PLANE WIND FORCE PER ASCE 7-10 (STRENGTH LEVEL). MINIMUM PRECAST DIAPHRAGM CONNECTIVITY $T_v = 0.3$ K/FT AND $V_v = 0.3$ K/FT
 - HORIZONTAL PRECAST ROOF TO RECEIVE ADHERED MEMBRANE ROOFING SHALL BE WARRANTABLE BY CONTRACTOR'S ROOF OR SHALL RECEIVE MINIMUM 2" CONCRETE TOPPING SUFFICIENT TO MEET ROOFER'S WARRANTY REQUIREMENTS, AT NO ADDITIONAL COST TO THE OWNER.

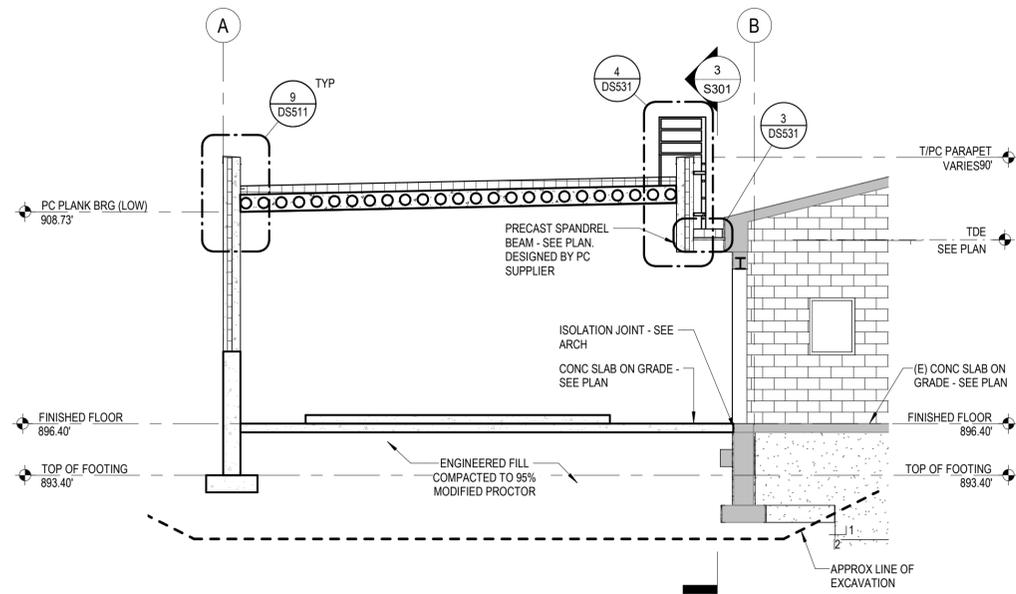
ROOF PLAN KEYNOTES:

- W8x24 GALV LINTEL CURVED TO MATCH (E) CONC WALL.
- (2) HSS 14x4x3/8 GALV LINTEL CURVED TO MATCH (E) CONC WALL.



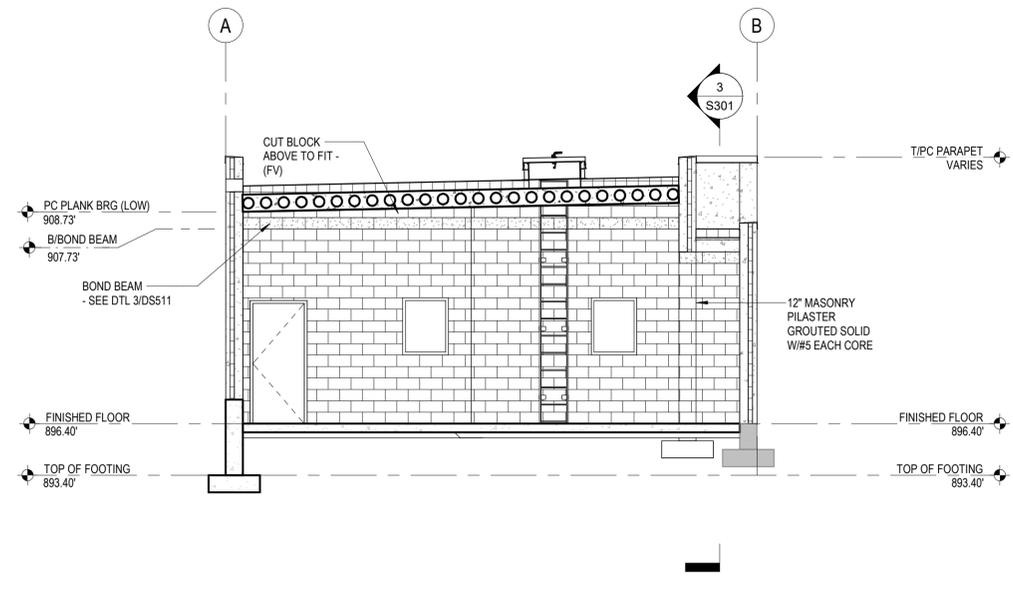
1 ROOF PLAN
S102 3/16" = 1'-0"



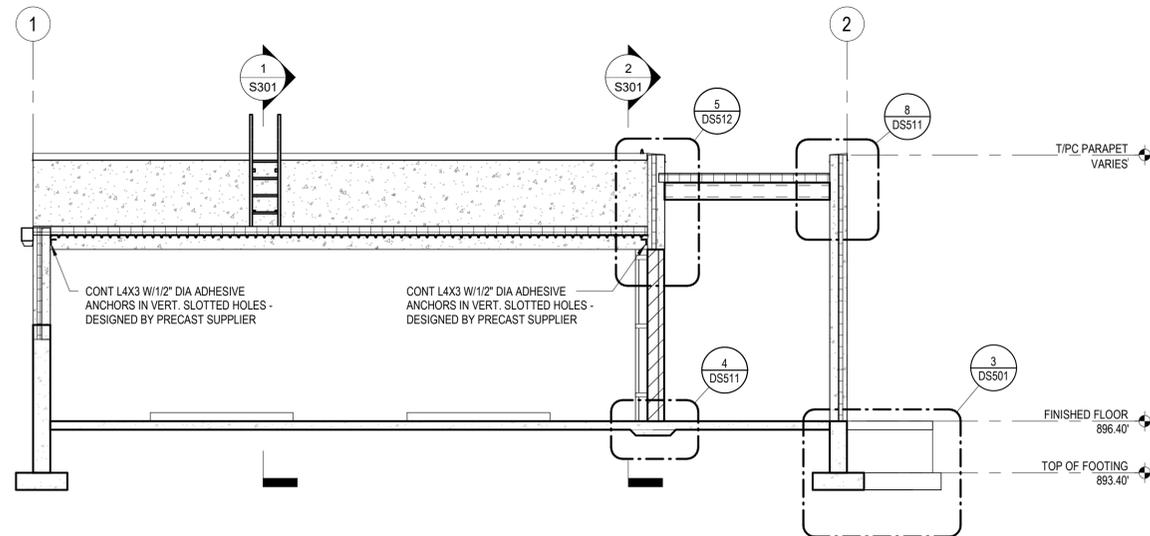


1 BUILDING SECTION
3/16" = 1'-0"
0 4 8 12

- NOTES:
- DO NOT BACKFILL PORTION OF FOUNDATION WALL ABOVE FFE UNTIL SOG IS POURED.
 - SOIL CORRECTION AND EXCAVATION INFO SHOWN IN THIS SECTION IS REPRESENTATIVE OF THE ENTIRE BUILDING. THIS INFORMATION IS NOT SHOWN IN OTHER SECTIONS VIEWS, BUT SHOULD BE ACCOUNTED THERE ALSO. GEOTECHNICAL ENGINEER TO CONFIRM LIMITS OF EXCAVATION.



2 BUILDING SECTION
3/16" = 1'-0"
0 4 8 12

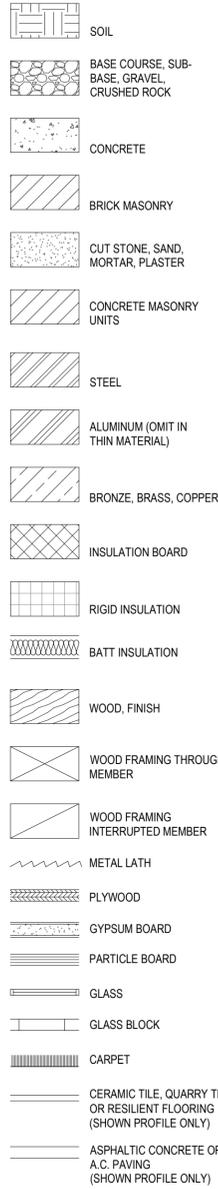


3 BUILDING SECTION
3/16" = 1'-0"
0 4 8 12

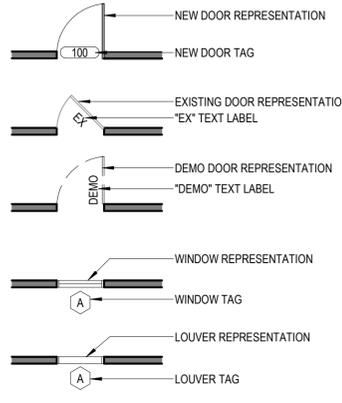
ABBREVIATIONS

& L @ (L) (E) # +/- IL SQ	AND ANGLE AT CENTERLINE DIAMETER/ROUND EXISTING POUND/NUMBER PLUS OR MINUS PROPERTY LINE SQUARE	E. EAST E.A. EACH E.A.R. EXHAUST AIR REGISTER E.C. EXISTING EXPOSED CONSTRUCTION	E.F. EXHAUST FAN E.F.S. EXTERIOR FINISH SYSTEM E.G.C.B. EXTERIOR GYPSUM CEILING BOARD E.G.S.B. EXTERIOR GYPSUM SHEATHING BOARD E.I.F.S. EXTERIOR INSULATION & FINISH SYSTEM E.J. EXPANSION JOINT EL. ELEVATION ELAS. ELASTOMERIC ELEC. ELECTRICAL ELEV. ELEVATOR EMER. EMERGENCY ENCL. ENCLOSURE E.O.S. EDGE OF SLAB E.P. ELECTRIC PANEL EQ. EQUIPMENT EQPT. EQUIPMENT E.W. EACH WAY E.W.C. ELECTRIC WATER COOLER EXH. EXHAUST EXP. EXPANSION EXPO. EXPOSED EXIST. EXISTING EXT. EXTERIOR	JAL. JALOUSIE JAN. JANITOR J.B. JOINT JST. JOIST JT. JOINT K.D. KNOCK DOWN KG. KILOGRAM KIT. KITCHEN KM. KILOMETER K.O. KNOCK-OUT KW. KILOWATT	R.F. RESILIENT FLOORING RFG. ROOFING RGR. REGISTER R.H. ROUND HEAD R.L. RAILING R.M. ROOM R.O. ROUGH OPENING R.W.R. RECESSED WASTE RECEPTACLE REDWOOD R.W.L. RAIN WATER LEADER
A/C AB. ABV. A.C. ACC. ACCUS. A.D. ADD. ADJ. ADJA. A.F. A.F.F. AGGR. A.H.U. ALUM. ALT. ANG. ANOD. A.P. APPROX. ARCH. ASPH. A.T. A.W.	AIR CONDITIONING ANCHOR BOLT ABOVE ASPHALTIC CONCRETE ACCESSIBLE ACQUIS. AREA DRAIN ACCESS DOOR ADDENDUM ADJUSTABLE ADJACENT ACCESS FLOOR ABOVE FINISH FLOOR AGGREGATE AIR HANDLING UNIT ALUMINUM ALTER OR ALTERNATE ANGLE ANODIZED ACCESS PANEL APPROXIMATE ARCHITECTURAL ASPHALT (PAVING) ACOUSTIC TILE ARCHITECTURAL WOODWORK	F. FEMALE F.A. FIRE ALARM FAB. FABRICATE F.A.M. FLUID APPLIED MEMBRANE F.B. FLAT BAR F.C.O. FLOOR CLEAN OUT F.C.U. FAN COIL UNIT F.D. FLOOR DRAIN/ FIRE DAMPER F.E. FIRE EXTINGUISHER F.E.C. FIRE EXTINGUISHER CABINET	M. MALE MATL. MATERIAL MAX. MAXIMUM M.B. MACHINE BOLT M.C. MACHINE CABINET MECH. MECHANICAL MEMB. MEMBRANE MET. METAL MFR. MANUFACTURER MH. MANHOLE MIN. MINIMUM MISC. MISCELLANEOUS MLDG. MILLIMETER M.O. MASONRY OPENING MOD. MODULAR M.R. MOISTURE RESISTANT MTD. MOUNTED MTG. MOUNTING	S. SOUTH S.A. SINGLE ACTING S.C. SOLID CORE SC. SCALE SCHE. SCHEDULE SCUP. SCUPPER S.C.R. SHOWER CURTAIN ROD S.D. SMOKE DETECTOR SECT. SECTION S.F. SQUARE FEET SH. SHELF SH. SHOWER SHT. SHEET SHTG. SHEATHING SIM. SIMILAR SL. SLOPE SLDG. SLIDING SLNT. SEALANT S.M. SQUARE METER S.M.H. SEWER MANHOLE S.N.P.K.N. SANITARY NAPKIN DISPENSER S.N.R. SANITARY NAPKIN RECEPTACLE S.P. SOLID PLASTIC SPEC. SPECIFICATIONS SPKR. SPEAKER SPRKL. SPRINKLER SQ. SQUARE S.S.K. SERVICE SINK S.STL. STAINLESS STEEL ST. STONE STA. STATION STD. STANDARD STL. STEEL STOR. STORAGE STRUCT. STRUCTURE/STRUCTURAL SURR. SURROUND SUSP./SUSPENDED SVC. SERVICE SW. SWITCH SYM. SYMMETRICAL SYS. SYSTEM	
BD. BITUM. BLDG. BLK. BLKG. BEAM B.O.H. BOT. BR. BRG. BRKT. B.S. BSM. BTWN. B.U.R.	BOARD BITUMINOUS BUILDING BLOCK BLOCKING BEAM BACK OF HOUSE BOTTOM BEDROOM BEARING BRACKET BOTH SIDES BASEMENT BETWEEN BUILT-UP ROOFING	F.F.&E. FURNITURE, FIXTURE & EQUIPMENT F.F.S. FINISH FLOOR SEPARATION F.H. FLAT HEAD F.H.C. FIRE HOSE CABINET FIN. FINISH FIXT. FIXTURE FLASH. FLASHING FLDG. FLOORING FLR. FLOOR FLUOR. FLUORESCENT F.N.D. FEMININE NAPKIN DISPOSAL F.N.V. FEMININE NAPKIN VENDOR F.O. FACE OF ... F.O.C. FACE OF CONCRETE F.O.F. FACE OF FINISH F.O.M. FACE OF MASONRY CORNER GUARD F.O.S. FACE OF SLAB/ FACE OF STUD F.O.W. FACE OF WALL FR. FRAME F.R.G. FIBER REINFORCED GYPSUM FIBERGLASS REINFORCED POLYESTER F.R.T. FIRE RETARDANT TREATED WOOD FRZ. FREEZER F.S. FLOOR SINK/FULL SIZE FT. FOOT/FEET F.T.D. FACIAL TISSUE DISPENSER FTG. FOOTING FURR. FURRING/FURRED FUT. FUTURE	N. NORTH NOT IN CONTRACT N.L. NIGHT LIGHT NO. NUMBER NOM. NOMINAL N.S. NO SCALE O. OVER O.C. ON CENTER O.A. OVERALL O.A.G. OUTSIDE AIR GRILLE OBS. OBSERVE O.D. OUTSIDE DIAMETER (DIMENSION) O.F./C.I. OWNER FURNISHED/ CONTRACTOR INSTALLED OFD. OVERFLOW DRAIN OFF. OFFICE O.F./O.I. OWNER FURNISHED/ OWNER INSTALLED OPNG. OPENING OP. OPPOSITE OPQ. OPAQUE OP. OPERABLE OVHD. OVERHEAD PASS. PASSAGE POST CONTRACT P.C. POST CONTRACT ARCHITECTURAL P.C. PIECE P.D. PLANTER DRAIN PERIM. PERIMETER PERP. PERPENDICULAR PH. PENTHOUSE P.I.P. POURED-IN-PLACE	T. TREAD T&G. TONGUE AND GROOVE T./S. TUB/SHOWER TACKBD. TACKBOARD T.B. TOWEL TRENCH DRAIN T.D. TELEPHONE TEMP. TEMPERED/TEMPORARY TER. TERRAZZO TFMR. TRANSFORMER THK. THICK/THICKNESS THR. THRESHOLD TLT. TOILET T.O. TOP OF ... T.O.C. TOP OF CURB T.O.F. TOP OF FLOOR T.O.P. TOP OF PARAPET/ TOP OF PAVEMENT T.O.S. TOP OF STEEL/ TOP OF SLAB T.O.W. TOP OF WALL T.P.B. TELEPHONE POWER BOARD T.P.D. TOILET PAPER DISPENSER T.P.H. TOILET PAPER HOLDER TRAN. TRANSITION TRANS. TRANSPARENT T.S. TUBE STEEL T.S.C.D. TOILET SEAT COVER DISPENSER T.SH. TOWEL SHELF TV. TELEVISION TYP. TYPICAL UC. UNDERCUT UNDERWRITERS LABORATORIES, INC. UNF. UNFINISHED UN.N.O. UNLESS NOTED OTHERWISE U.P. UPHOLSTERED PANELS UR. URINAL VAL. VALANCE VAR. VARIES V.C.T. VINYL COMPOSITION TILE VERT. VERTICAL VEST. VESTIBULE VALV. VALVE VOL. VOLUME VENER. VENEER PLASTER VENT THROUGH ROOF WEST/WIDTH/WIDE/WASHER W. WITH W/O. WITHOUT W.C. WATER CLOSET W.C. WALLCOVERING WOOD W.D.P. WOOD PANELING W.D.W. WINDOW W.G.L. WIRE GLASS WATER HEATER WARNOCK HERSEY W.O. WHERE OCCURS/ WINDOW OPENING W.P. WATERPROOF W.P.M. WATERPROOF MEMBRANE W.S. WOOD SCREWS W.R. WATER RESISTANT WRB. WARDROBE W.SCT. WAINSCOT W.S.P. WET STAND PIPE WT. WEIGHT W.W.F. WELDED WIRE FABRIC	

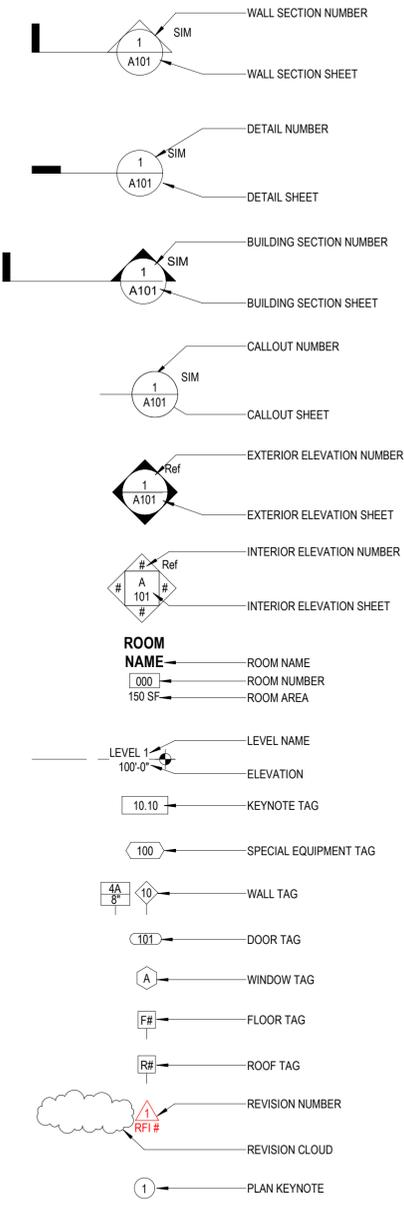
MATERIAL SYMBOLS



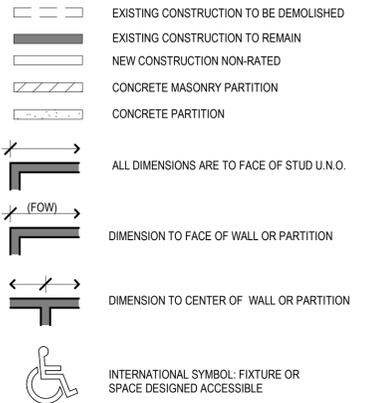
OPENING SYMBOLS



CALLOUT SYMBOLS



GENERAL SYMBOLS



GENERAL NOTES

- THESE DRAWINGS ARE LEGAL INSTRUMENTS OF SERVICE FOR THE USE OF THE OWNER AND ITS AUTHORIZED AGENTS AND VENDORS ON THE DESIGNATED PROJECT ONLY.
- GC RESPONSIBLE FOR KNOWLEDGE OF RELATIVE INFORMATION CONTAINED IN THESE DOCUMENTS AND THE CONDITIONS UNDER WHICH THE WORK WILL BE PERFORMED.
- CAREFULLY AND THOROUGHLY EXAMINE THE PROJECT SITE, FIELD VERIFY ALL CONDITIONS, GRADES, ELEVATIONS AND DIMENSIONS OF THE VARIOUS FEATURES OF THE SITE AND COMPARE DRAWINGS WITH THE EXISTING CONDITIONS. ANY DISCREPANCIES AND/OR CONDITIONS NEEDING CLARIFICATION SHALL BE REPORTED IN WRITING TO THE ARCHITECT BEFORE STARTING WORK.
- ALL CONSTRUCTION, FABRICATION AND INSTALLATION SHALL CONFORM TO THE LATEST LOCALLY ADOPTED EDITIONS OF THE IBC, IPC, IMC, NEC, NFPA, OSHA AND ANY FEDERAL, STATE AND LOCAL CODES, REGULATIONS, STANDARDS AND ORDINANCES OF GOVERNING AGENCIES HAVING JURISDICTION. SUCH APPLICABLE CODES, ETC. ARE THOSE WHICH ARE IN EFFECT AT THE TIME THE PROJECT PERMIT APPLICATION IS RECORDED.
- ALL TRADES ARE CONSIDERED SPECIALISTS IN THEIR RESPECTIVE FIELD/TRADE AND SHALL, BEFORE SUBMISSION OF BID OR PERFORMANCE OF WORK, NOTIFY THE CONTRACTOR IN WRITING OF ANY WORK ON THE DRAWINGS OR IN THE SPECIFICATIONS WHICH CANNOT BE FULLY WARRANTED OR CONSTRUCTED AS DETAILED OR SPECIFIED. THE CONTRACTOR WILL NOTIFY THE ARCHITECT OF SUCH CONDITIONS IN WRITING.
- DUE TO REPRODUCTION PROCESSES, DRAWINGS MAY NOT BE ACCURATE TO SCALE. ALL DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN AND IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS, ELEVATIONS OR DETAILS.
- THE STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS ARE SUPPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. DISCREPANCIES BETWEEN THE VARIOUS DRAWINGS SHALL BE REPORTED BY THE CONTRACTOR TO THE ARCHITECT IN WRITING.
- BEFORE STARTING WORK, COORDINATE WITH THE OWNER'S REPRESENTATIVE FOR INSTALLATION OF EQUIPMENT INDICATED IN I.C. ON DRAWINGS. VERIFY EQUIPMENT LOCATIONS WITH THE OWNER'S REPRESENTATIVE. VERIFY DIMENSIONS, UTILITIES, ETC. WITH EQUIPMENT MANUFACTURERS ROUGH-IN DATA PRIOR TO FORMING THE SLAB.
- PRODUCTS AND MANUFACTURED ITEMS SHALL BE PROVIDED AS SPECIFIED. SUBSTITUTIONS WILL BE PERMITTED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE SPECIFICATIONS.
- WHERE DETAILS ARE NOT SHOWN OR NOTED, GC IS TO PROVIDE A WRITTEN REQUEST FOR INFORMATION TO CLARIFY SPECIFIC DETAIL CONDITIONS.
- ALL INDICATED EXISTING UTILITIES OR STRUCTURES ARE BASED ON INFORMATION OF RECORD. TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES NOT OF RECORD OR NOT SHOWN. BE RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH MAY OCCUR DUE TO FAILURE TO LOCATE AND PROTECT ALL CONCEALED UTILITIES.
- COMPLY WITH ALL JURISDICTIONAL AGENCY REQUIREMENTS AND REGULATIONS. PERFORM ALL WORK ON THIS PROJECT IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS 29 CFR 1910 AND 1926 OF THE U.S. DEPARTMENT OF LABOR AND THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES.
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE AS PER MANUFACTURER'S WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. BE RESPONSIBLE TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
- PROVIDE PERMITS AND INSPECTIONS REQUIRED BY JURISDICTIONAL AGENCIES.
- PROVIDE SET OF RECORD DRAWINGS TO ARCHITECT. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, RETOUCHES, ETC.
- SERVICE SHALL BE MAINTAINED TO EXISTING AREAS DURING CONSTRUCTION. PROVIDE PORTABLE GENERATORS, CABLES, OUTLETS ETC., TO MAINTAIN CONTINUITY OF SERVICE. PLACEMENT OF SUCH PORTABLE EQUIPMENT SHALL BE SUBJECT TO OWNER APPROVAL.
- PATCH AND MATCH ALL NEW WORK W/ EXISTING WHERE NEW TO EXISTING INTERFACE OCCURS.
- SUBMIT SAMPLES OF ALL EXPOSED PRODUCTS, MATERIALS, PAINTING SYSTEMS, ETC. FOR ARCHITECT'S REVIEW, COLOR SELECTION OR COLOR VERIFICATION PRIOR TO ORDERING ITEMS.
- SEAL ALL DUCTS, LOUVERS, VENTS, OPENINGS AND CEILING SPACES BETWEEN CONSTRUCTION AREA AND REMAINDER OF SHELLED SPACES TO PREVENT DUST, DIRT, CONTAMINATION OR DEBRIS FROM ENTERING.
- DO NOT ALLOW DIRT, DEBRIS OR DISCARDED MATERIALS TO ACCUMULATE ON SITE. REMOVE PROMPTLY EACH DAY.
- VERIFY SERVICES TO BE ABANDONED, REMOVED OR CUT HAVE BEEN PROPERLY AND SAFELY SHUT OFF, CAPPED OR SEALED.
- KEEP NOISE AND VIBRATION PRODUCING ACTIVITIES AT A MINIMUM WHEN WORKING WITHIN OR ON THE EXISTING BUILDING. APPROPRIATE TIMES OF SUCH ACTIVITIES SHALL BE COORDINATED WITH OWNER IN WRITING AT BEGINNING OF PROJECT.
- IN THE EVENT THAT NOISE AND VIBRATION PRODUCING ACTIVITIES WILL OCCUR DURING TIMES OTHER THAN THOSE NOTED ABOVE, OBTAIN PERMISSION FROM THE OWNER IN WRITING A MINIMUM OF 72 HOURS PRIOR TO COMMENCEMENT OF ACTIVITIES.
- KEEP UTILITY AND SERVICE OUTAGES TO A MINIMUM. MAKE WRITTEN OUTAGE REQUESTS AT LEAST FIVE DAYS BEFORE DATE OF PROPOSED OUTAGE. STATE IN THE REQUEST HOURS OF OUTAGE, CONFIRM DATE 48 HOURS IN ADVANCE OF STARTING DATE.
- ASSIGN THE WORK OF MOVING, REMOVAL, CUTTING, PATCHING AND REPAIR TO TRADES UNDER CONTRACTOR SUPERVISION TO CAUSE THE LEAST DAMAGE TO EACH TYPE OF WORK ENCOUNTERED.
- PATCHING OF FINISH MATERIALS TO MECHANICS SKILLED IN THE WORK OF THE FINISH TRADE INVOLVED.
- PROTECT REMAINING FINISHES, EQUIPMENT AND ADJACENT WORK FROM DAMAGE CAUSED BY CUTTING, MOVING AND REMOVAL AND PATCHING OPERATIONS. PROTECT SURFACES WHICH WILL REMAIN A PART OF THE FINISHED WORK.
- PROTECT EXISTING AND NEW WORK FROM WEATHER DURING CUTTING, MOVING, REMOVAL CONSTR. PROVIDE WEATHER PROTECTION AND OTHER FACILITIES AND PROTECTION AS NEEDED TO PREVENT DAMAGE TO NEW WORK AND TO REMAINING OLD WORK.
- PROVIDE ADEQUATE SUPPORT OR SUBSTRATE FOR PATCHING FINISHES.
- USE OF HAZARDOUS MATERIALS SHALL CONFORM WITH 29 CFR 1910.120 AND 1926.65 OF THE OSHA CODE.
- REMOVAL OF HAZARDOUS WASTE SHALL COMPLY WITH CURRENT FEDERAL, STATE AND LOCAL REGULATIONS, STANDARDS, LAWS AND REQUIREMENTS.



Project Owner

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
 2626 LAKE MENDOTA DRIVE
 MADISON, WISCONSIN

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SEH Project MADWI 167818
 Checked By
 Drawn By JRL

Project Status Issue Date
 BIDDING DOCUMENTS OCTOBER, 2023

REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

GENERAL INFORMATION

01
A001

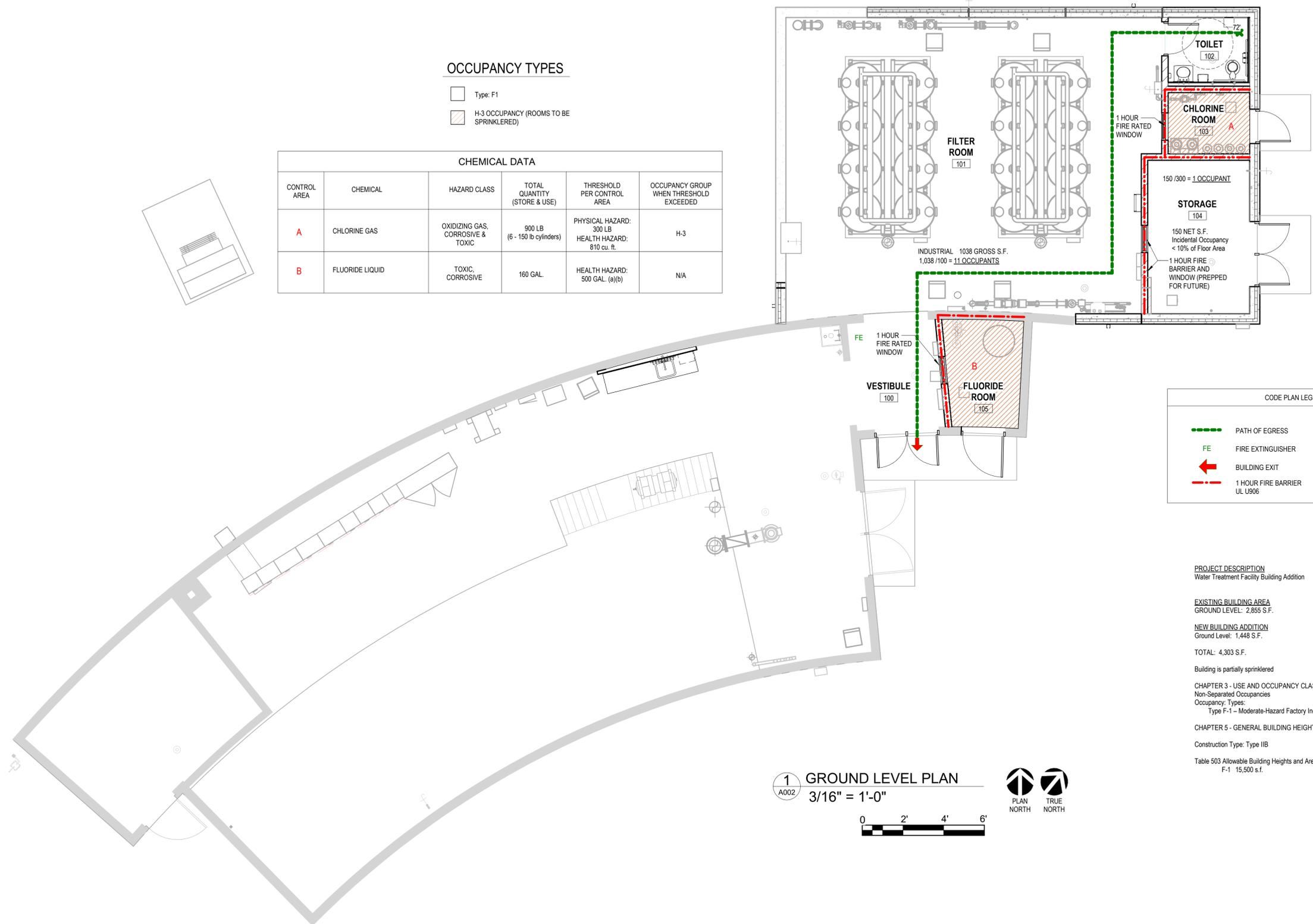
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OCCUPANCY TYPES

- Type: F1
- H-3 OCCUPANCY (ROOMS TO BE SPRINKLERED)

CHEMICAL DATA

CONTROL AREA	CHEMICAL	HAZARD CLASS	TOTAL QUANTITY (STORE & USE)	THRESHOLD PER CONTROL AREA	OCCUPANCY GROUP WHEN THRESHOLD EXCEEDED
A	CHLORINE GAS	OXIDIZING GAS, CORROSIVE & TOXIC	900 LB (6 - 150 lb cylinders)	PHYSICAL HAZARD: 300 LB HEALTH HAZARD: 810 cu. ft.	H-3
B	FLUORIDE LIQUID	TOXIC, CORROSIVE	160 GAL.	HEALTH HAZARD: 500 GAL. (a)(b)	N/A



CODE PLAN LEGEND

- - - PATH OF EGRESS
- FE FIRE EXTINGUISHER
- ← BUILDING EXIT
- - - 1 HOUR FIRE BARRIER UL U906

PROJECT DESCRIPTION
 Water Treatment Facility Building Addition

EXISTING BUILDING AREA
 Ground Level: 2,855 S.F.

NEW BUILDING ADDITION
 Ground Level: 1,448 S.F.

TOTAL: 4,303 S.F.
 Building is partially sprinklered

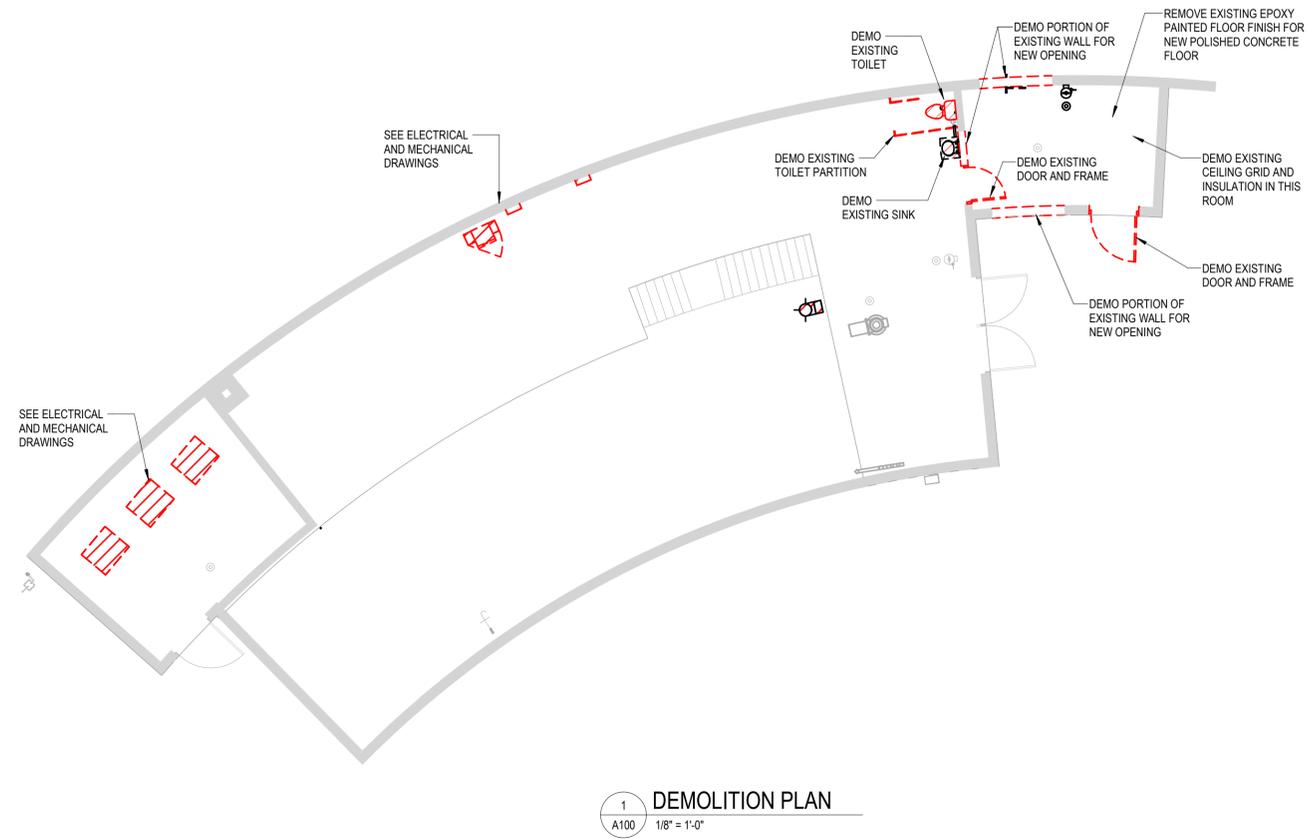
CHAPTER 3 - USE AND OCCUPANCY CLASSIFICATION
 Non-Separated Occupancies
 Occupancy Types:
 Type F-1 - Moderate-Hazard Factory Industrial

CHAPTER 5 - GENERAL BUILDING HEIGHTS AND AREAS
 Construction Type: Type IIB

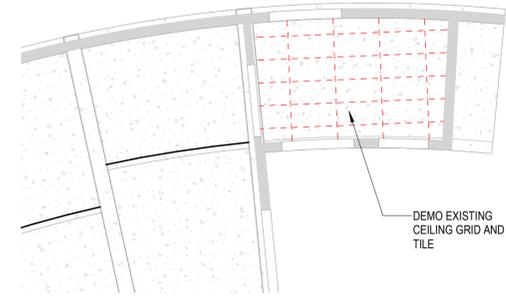
Table 503 Allowable Building Heights and Areas (Type IIB)
 F-1 15,500 s.f.

1
A002
GROUND LEVEL PLAN
 3/16" = 1'-0"
 0 2' 4' 6'

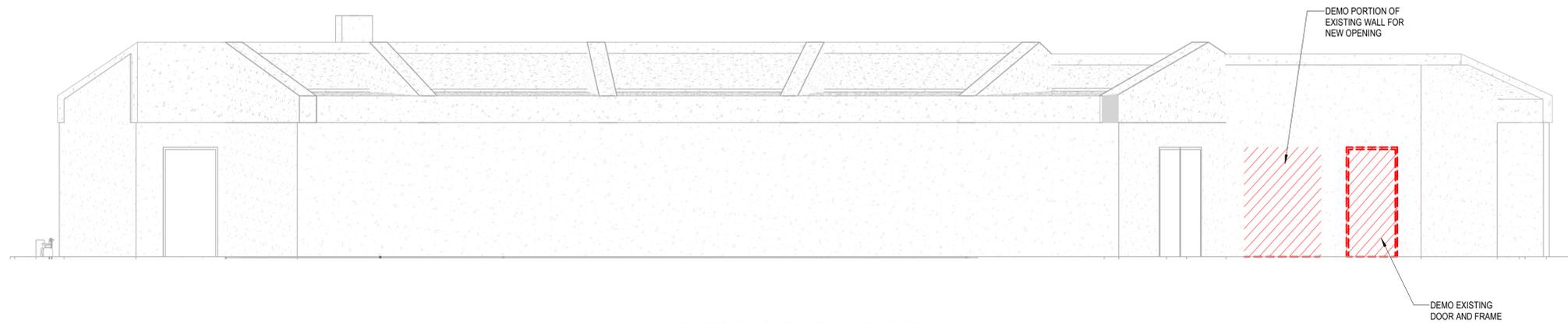




1
A100
1/8" = 1'-0"



3
A100
1/8" = 1'-0"



2
A100
3/16" = 1'-0"

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION

2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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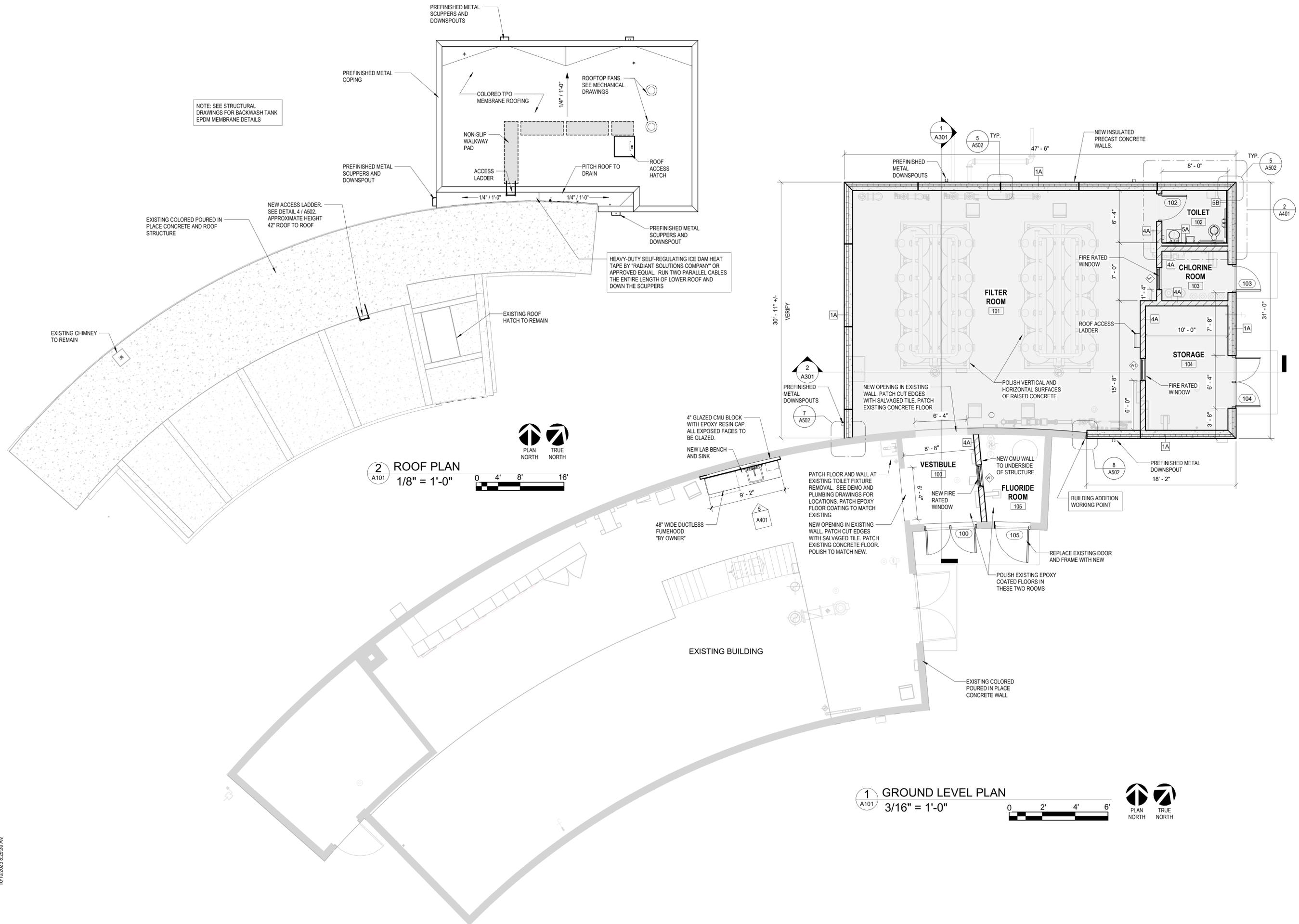
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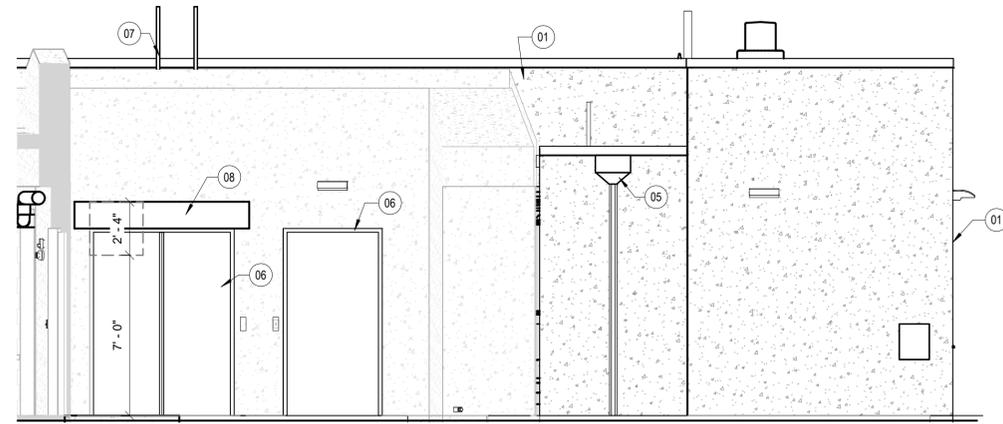
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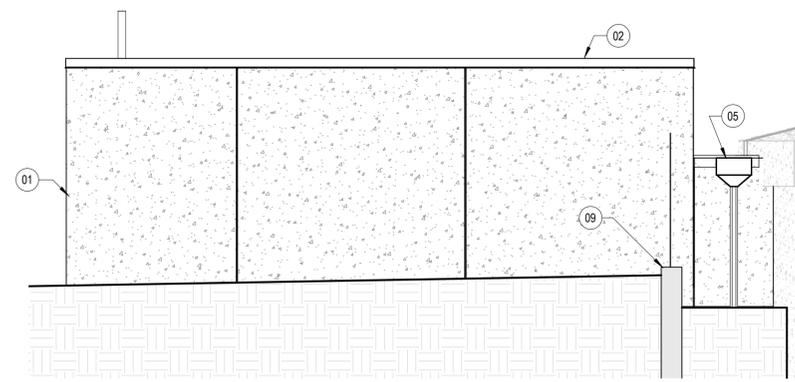
DEMOLITION DRAWINGS

01
A100

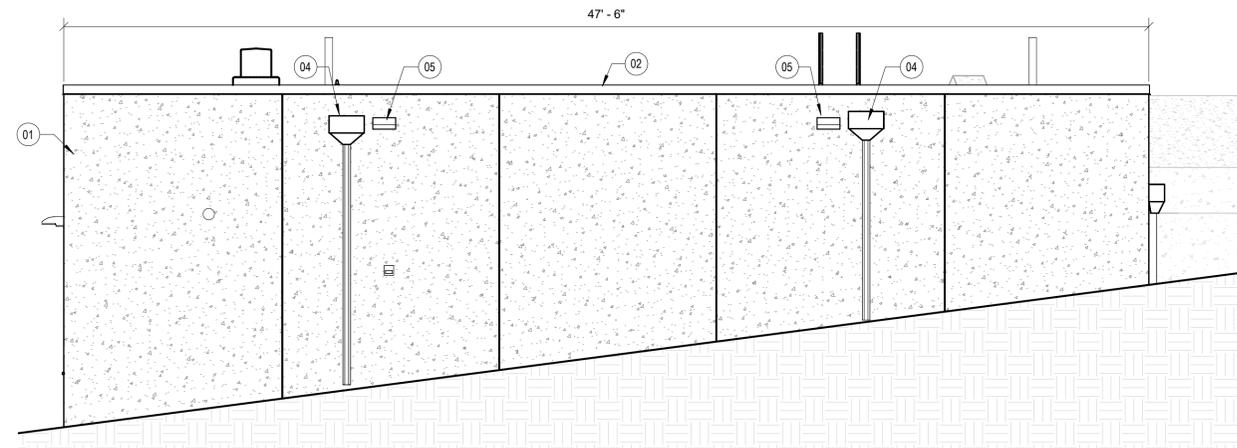




1 EXTERIOR ELEVATION
A201 1/4" = 1'-0"

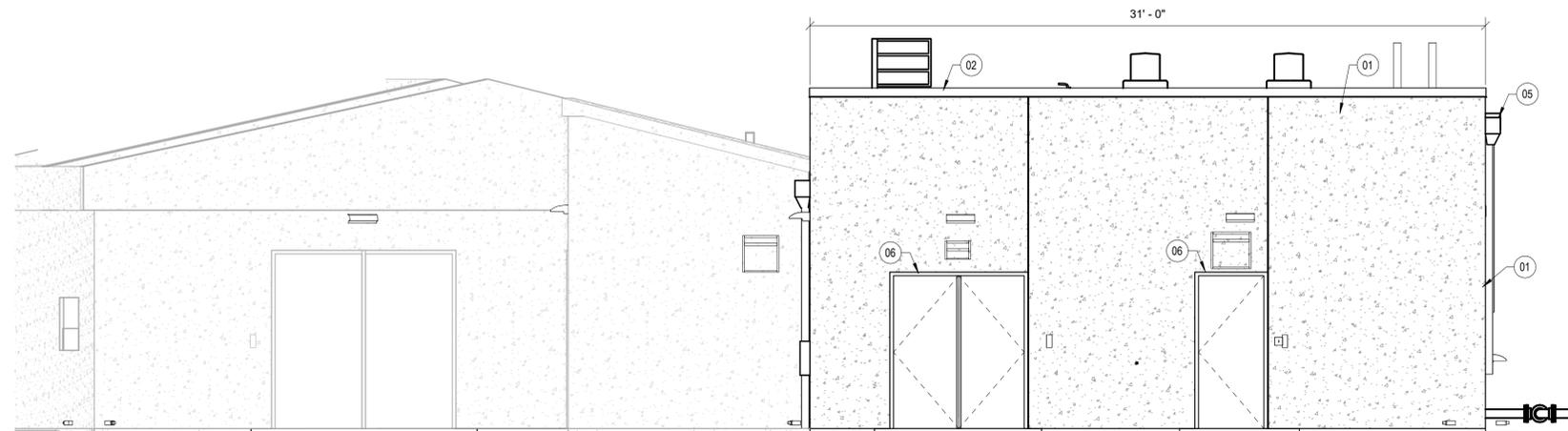


2 EXTERIOR ELEVATION
A201 1/4" = 1'-0"



3 EXTERIOR ELEVATION
A201 1/4" = 1'-0"

- X KEYNOTES
- 01 INSULATED PRECAST CONCRETE WALL PANEL
 - 02 PREFINISHED METAL ROOF COPING- SLOPE TOP FOR DRAINAGE- TYP
 - 04 PREFINISHED METAL THRU-WALL DRAIN SCUPPER WITH OPEN FACED DOWNSPOUT- PROVIDE SPLASH BLOCK AT GRADE DISCHARGE POINT
 - 05 PREFINISHED METAL THRU-WALL OVERFLOW SCUPPER. LOCATED 2" ABOVE THRU WALL DRAIN
 - 06 INSULATED HOLLOW METAL DOOR AND FRAME (PAINT)
 - 07 ALUMINUM ROOF LADDER
 - 08 NEW STEEL LINTEL FOR NEW DOOR. PAINT TO MATCH NEW DOOR AND FRAME. (SEE STRUCTURAL DRAWINGS)
 - 09 SEE CIVIL DRAWING FOR RETAINING WALL AND CHAINLINK FENCE REMOVAL AND RECONSTRUCTION



4 EXTERIOR ELEVATION
A201 1/4" = 1'-0"

Project Owner

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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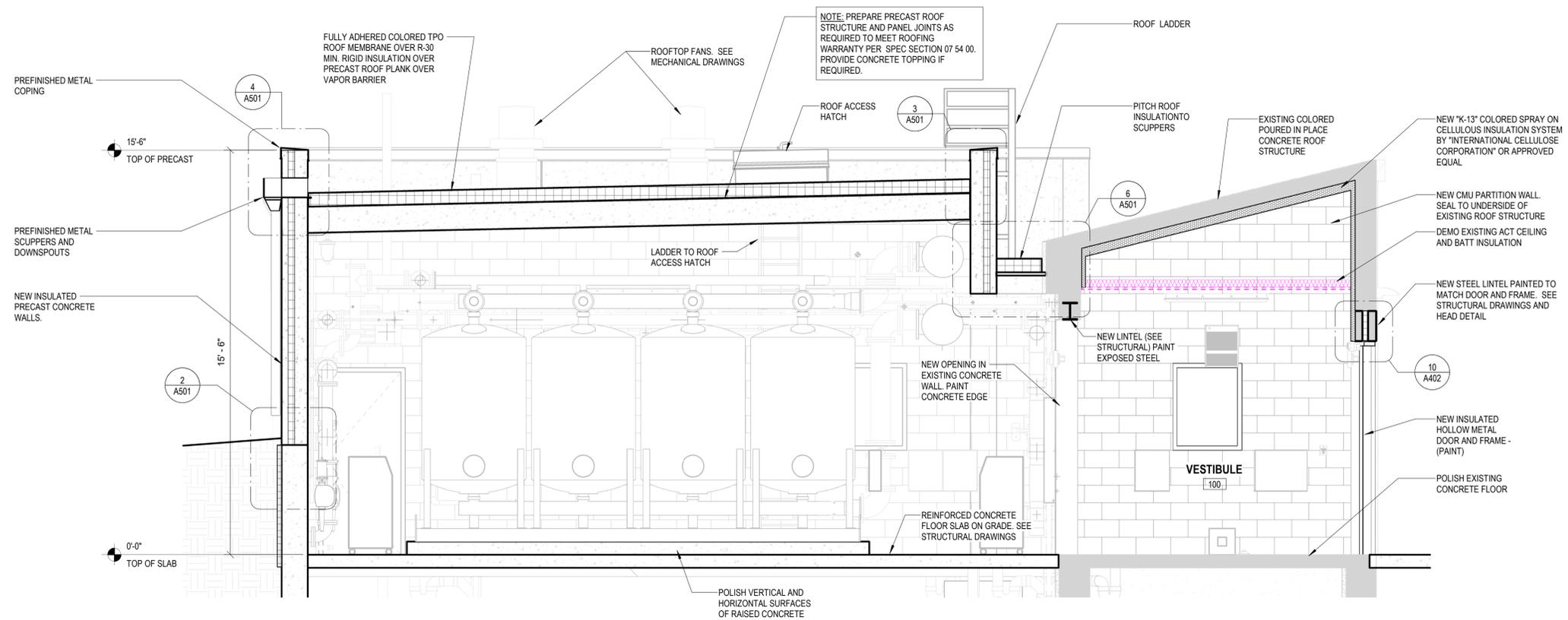
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Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

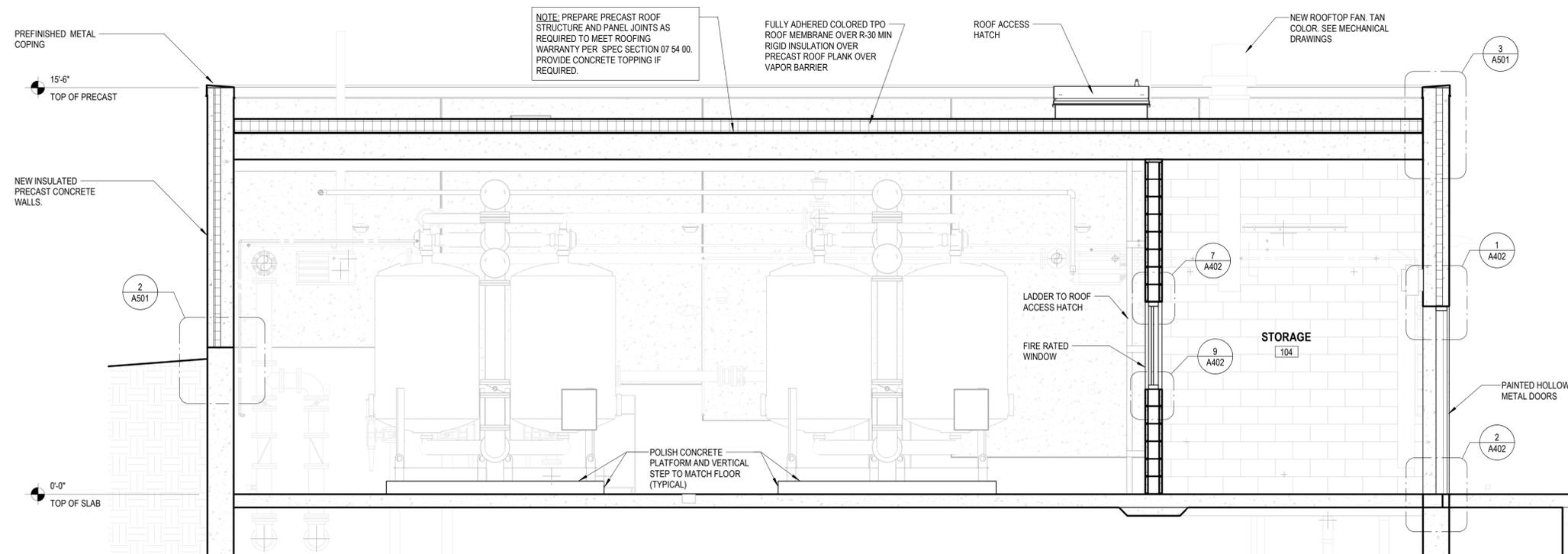
REVISION SCHEDULE
REV. # DESCRIPTION DATE

EXTERIOR ELEVATIONS

01
A201



1 BUILDING SECTION
 A301 3/8" = 1'-0"
 0 2' 4' 6'



2 BUILDING SECTION
 A301 3/8" = 1'-0"
 0 2' 4' 6'

Project Owner

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
 2526 LAKE MENDOTA DRIVE
 MADISON, WISCONSIN

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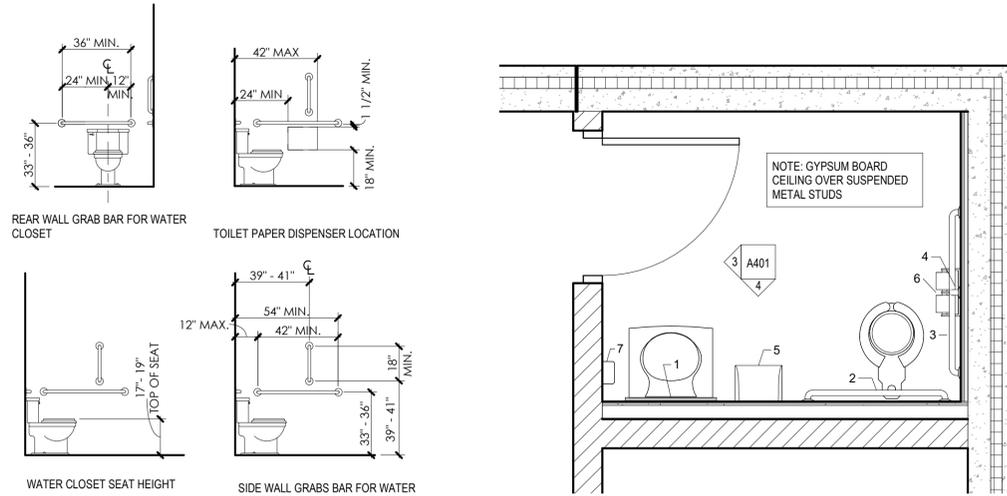
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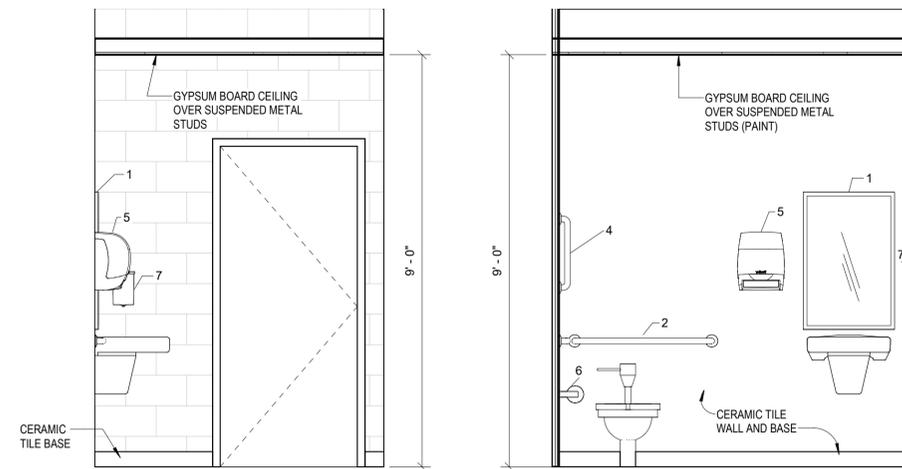
BUILDING SECTIONS

01
 A301



1 TOILET ROOM STANDARDS
1/4" = 1'-0"

2 ENLARGED PLAN
1/2" = 1'-0"



3 TOILET ROOM ELEVATION
1/2" = 1'-0"

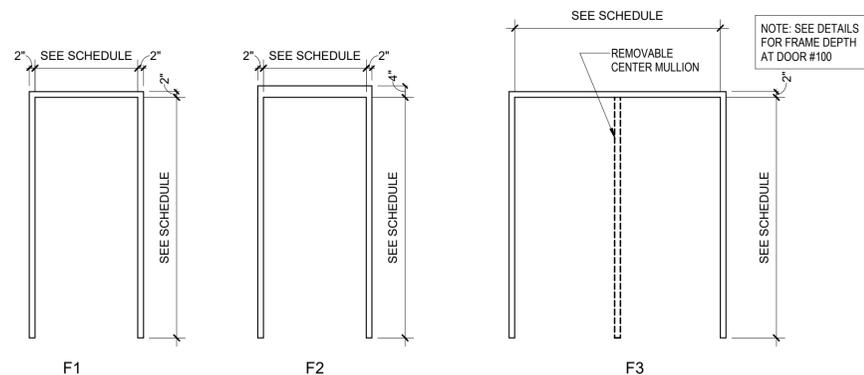
4 TOILET ROOM ELEVATION
1/2" = 1'-0"

SPECIALTIES SCHEDULE	
KEYNOTE	DESCRIPTION
1	24" x 36" MIRROR
2	36" GRAB BAR (HORIZONTAL)
3	42" GRAB BAR (HORIZONTAL)
4	18" GRAB BAR (VERTICAL)
5	PAPER TOWEL DISPENSER
6	TOILET PAPER DISPENSER
7	SOAP DISPENSER

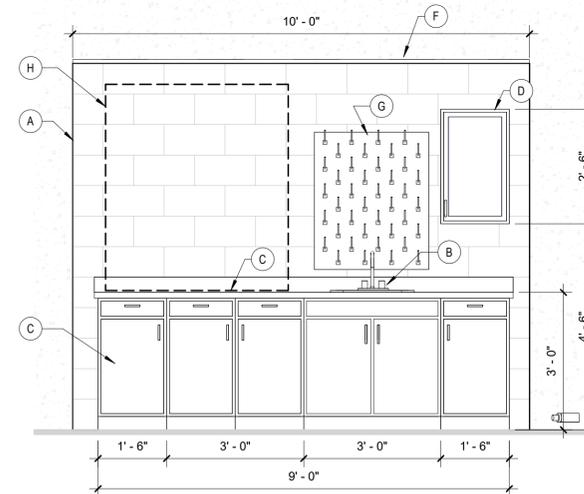
ROOM FINISH SCHEDULE										
ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALL FINISH				CEILINGS		REMARKS
				NORTH	SOUTH	EAST	WEST	FINISH	MATERIAL	
100	VESTIBULE	PLSH	-	PT	PT	PT	PT	-	S.T.I.	POLISH EXISTING CONCRETE FLOOR
101	FILTER ROOM	PLSH	-	PT	PT	PT	PT	PT	STRUCT	
102	TOILET	PLSH	CT	PT	CT	CT	PT	PT	GYP	
103	CHLORINE ROOM	PLSH	-	PT	PT	PT	PT	PT	STRUCT	
104	STORAGE	PLSH	-	PT	PT	PT	PT	PT	STRUCT	
105	FLUORIDE ROOM	PLSH	-	PT	PT	PT	PT	-	S.T.I.	POLISH EXISTING CONCRETE FLOOR

PLSH: POLISHED CONCRETE FLOOR
CT: CERAMIC TILE
PT: PAINT
S.T.I.: SPRAYED CELLULOSE THERMAL INSULATION

DOOR SCHEDULE													
DOOR NUMBER	DOOR				FRAME		FIRE RATING	HW GROUP	DETAILS			REMARKS	
	HEIGHT	WIDTH	MAT'L	TYPE	MAT'L	TYPE			HEAD	JAMB	SILL		
100	8'-0"	6'-0"	HM	F	HM	F3	-	1	10/A402	11/A402	2/A402	REMOVABLE CENTER MULLION (PAINT)	
102	7'-0"	3'-0"	HM	F	HM	F2	-	3	3/A402	4/A402			
103	7'-0"	3'-0"	HM	F	HM	F1	-	2	1/A402	1/A402	2/A402		
104	7'-0"	6'-0"	HM	F	HM	F3	-	1	1/A402	1/A402	2/A402	REMOVABLE CENTER MULLION (PAINT)	
105	8'-0"	4'-0"	HM	F	HM	F1	-	4	5/A402	6/A402	2/A402		



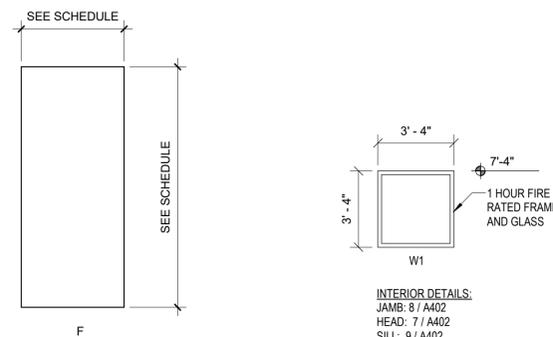
FRAME TYPES



KEY NOTES

- (A) 4" GLAZED CMU BLOCK. ALL EXPOSED FACES TO BE GLAZED.
- (B) UNDER-MOUNT EPOXY RESIN SINK BASIN
- (C) 30" DEEP METAL BASE CABINET-TYP
- (D) METAL UPPER WALL CABINET-TYP
- (E) EPOXY RESIN COUNTERTOP WITH 4" BACKSLASH
- (F) 1" EPOXY RESIN CAP. MATCH THE CURVE OF EXISTING WALL
- (G) LAB PEGBOARD DRYING RACK
- (H) DUCTLESS FUME HOOD (BY OWNER)

5 INTERIOR ELEVATION
1/2" = 1'-0"



DOOR TYPES

WINDOW TYPES

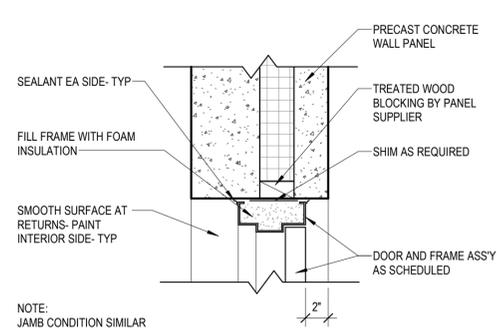
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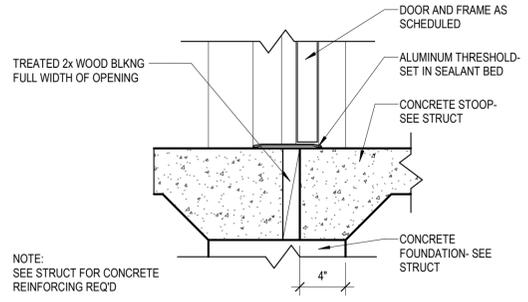
Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

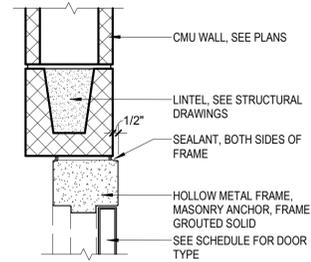
ENLARGED PLAN,
SCHEDULES AND DETAILS



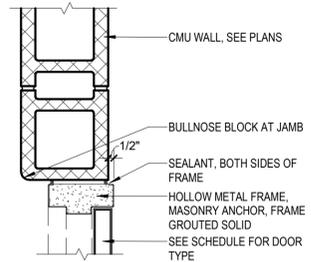
1 DETAIL - DOOR HEAD AT PRECAST
A402 1 1/2" = 1'-0"



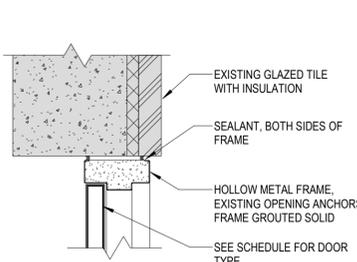
2 DETAIL - DOOR THRESHOLD AT PRECAST
A402 1 1/2" = 1'-0"



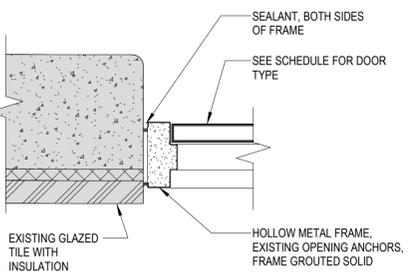
3 HEAD DETAIL
A402 1 1/2" = 1'-0"



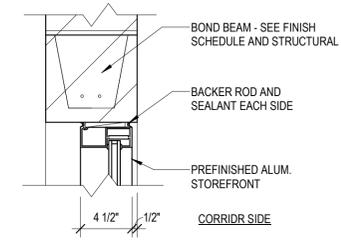
4 JAMB DETAIL
A402 1 1/2" = 1'-0"



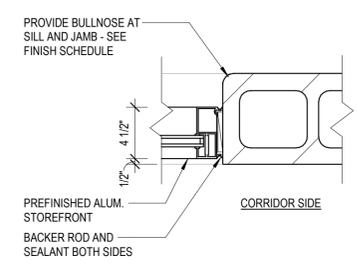
5 HEAD DETAIL
A402 1 1/2" = 1'-0"



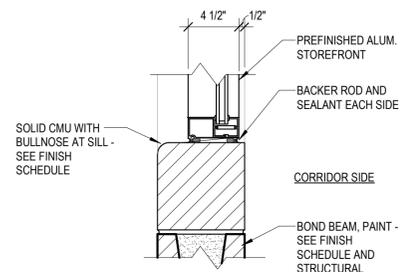
6 JAMB DETAIL
A402 1 1/2" = 1'-0"



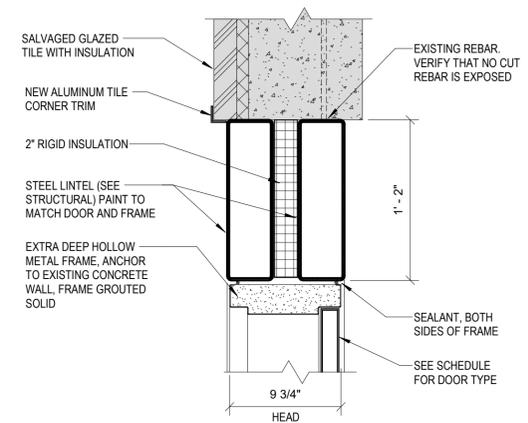
7 INTERIOR WINDOW HEAD
A402 1 1/2" = 1'-0"



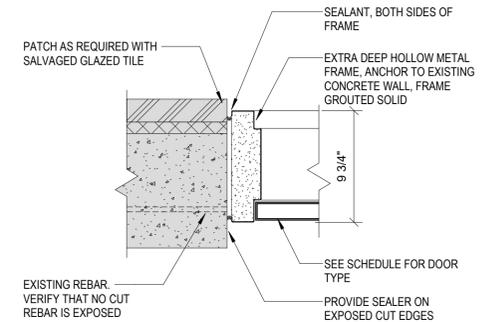
8 INTERIOR WINDOW JAMB
A402 1 1/2" = 1'-0"



9 INTERIOR WINDOW SILL
A402 1 1/2" = 1'-0"



10 HEAD DETAIL
A402 1 1/2" = 1'-0"



11 JAMB DETAIL
A402 1 1/2" = 1'-0"

10/10/2023 8:30:23 AM

Project Owner

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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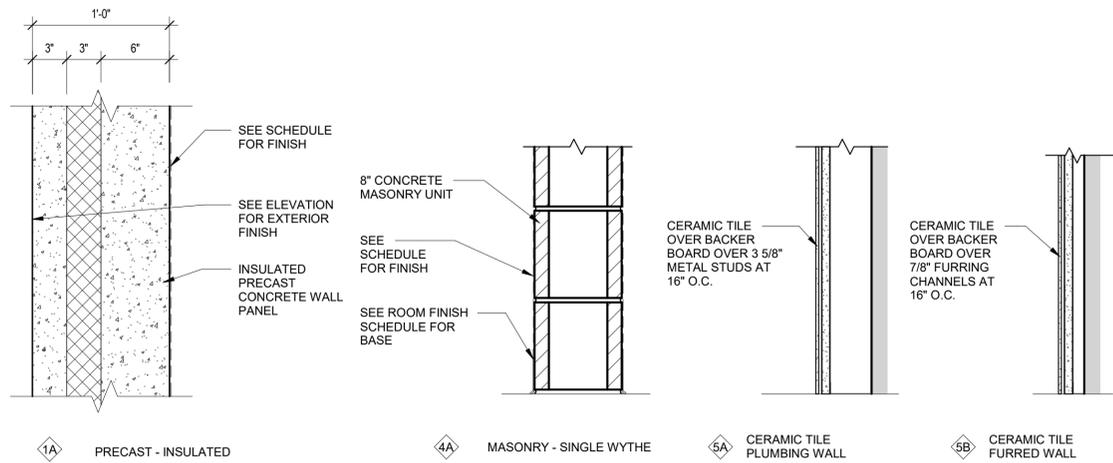
SEH Project MADWU 167818
Checked By
Drawn By JRL

Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

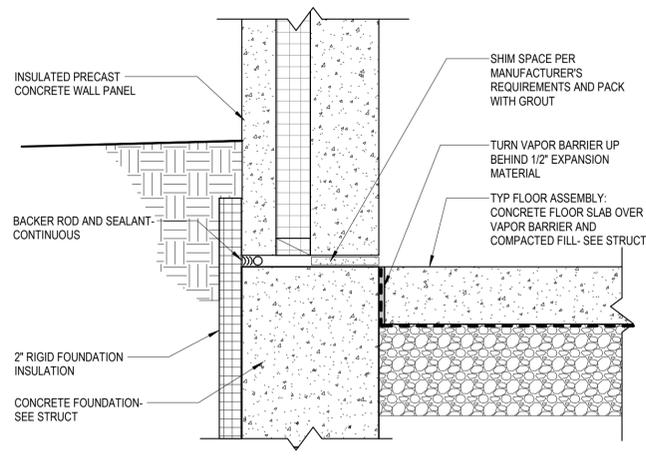
REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

DOOR AND WINDOW DETAILS

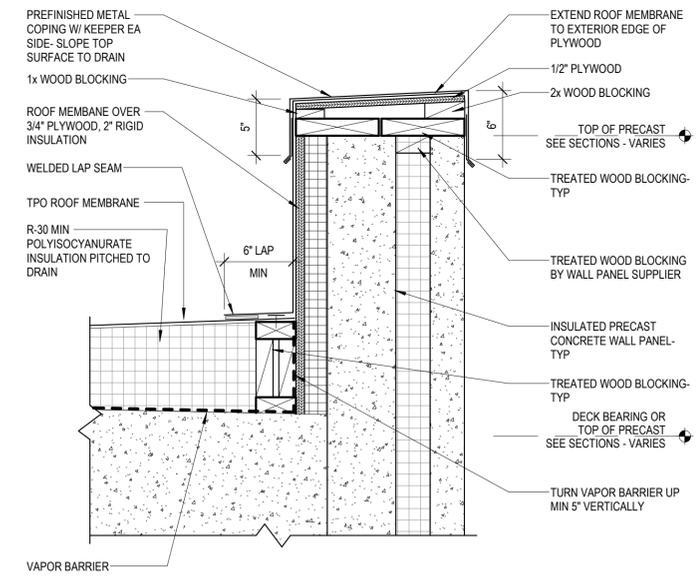
01
A402



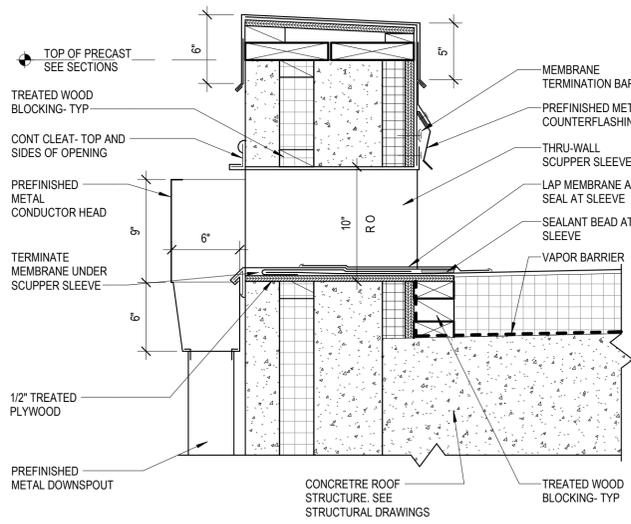
1 WALL TYPES
A501 1 1/2" = 1'-0"



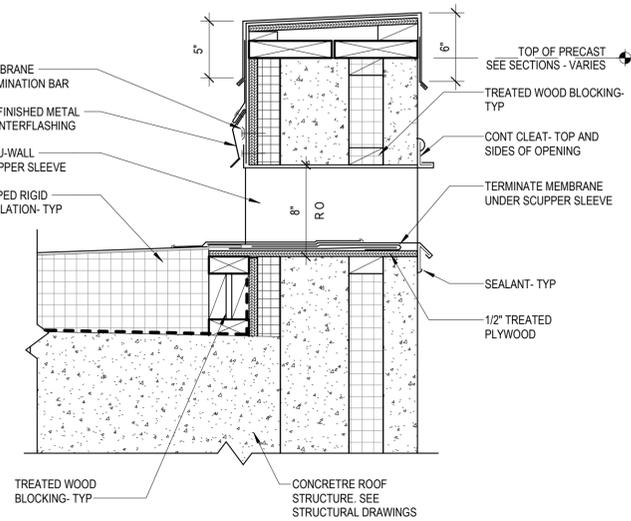
2 DETAIL - TYPICAL BASE OF PRECAST
A501 1 1/2" = 1'-0"



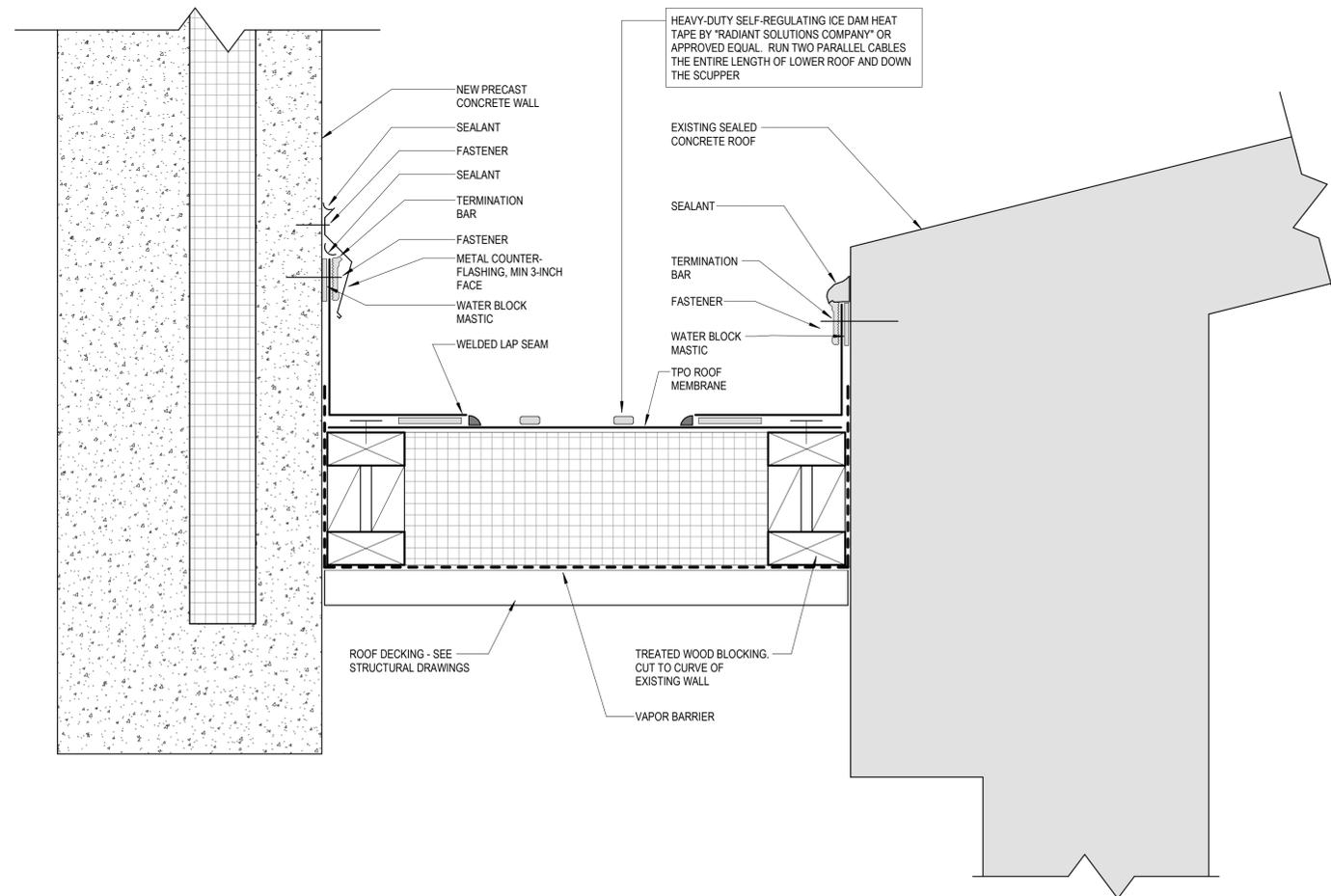
3 DETAIL - TYPICAL PARAPET
A501 1 1/2" = 1'-0"



4 DETAIL - TYPICAL DRAIN SCUPPER
A501 1 1/2" = 1'-0"



5 DETAIL - TYPICAL OVERFLOW SCUPPER
A501 1 1/2" = 1'-0"



6 DETAIL - ROOF TRANSITION
A501 3" = 1'-0"

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION

2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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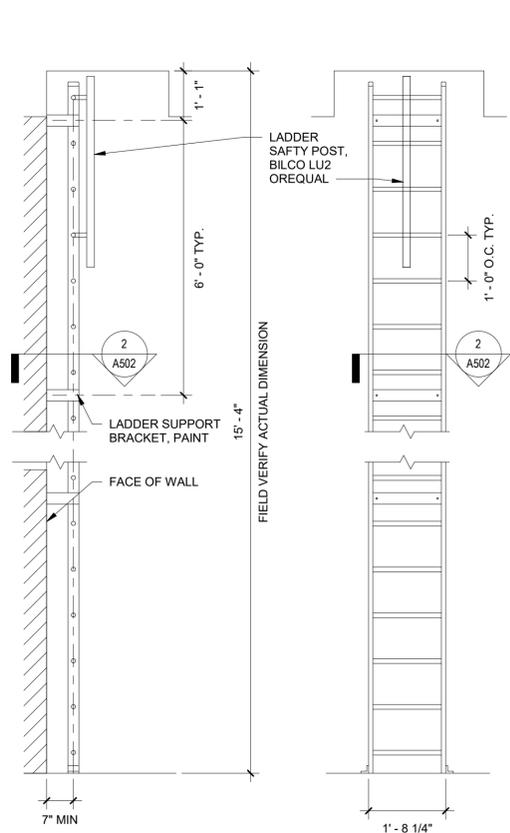
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Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

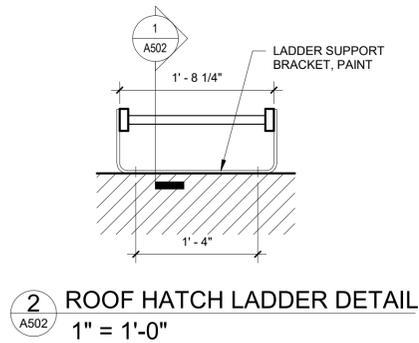
REVISION SCHEDULE
REV. # DESCRIPTION DATE

WALL TYPES, EXTERIOR DETAILS

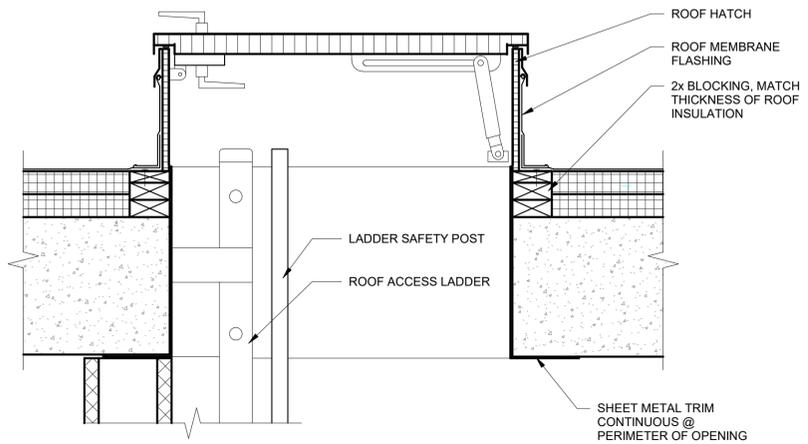
01
A501



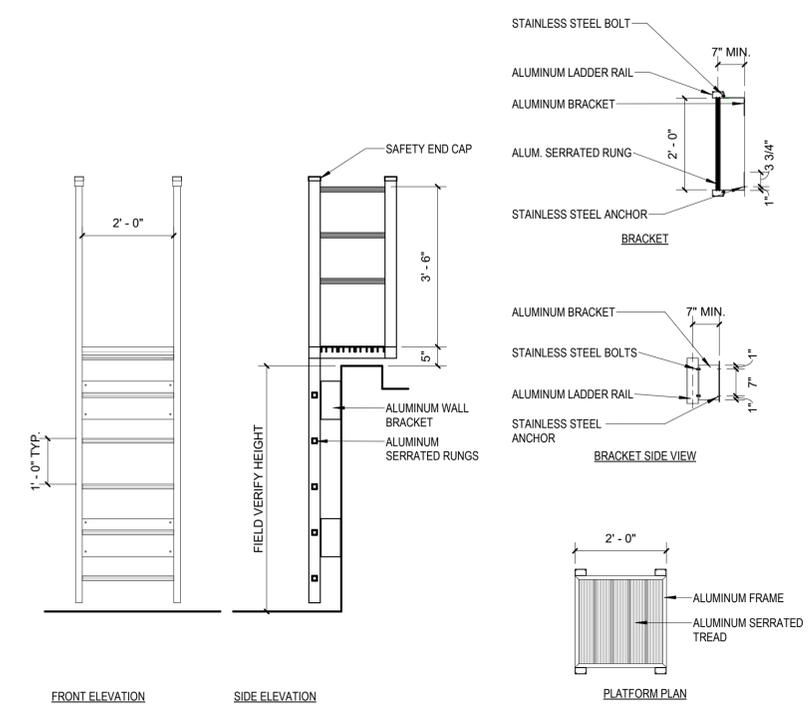
1 ROOF HATCH LADDER SECTION
 1/2" = 1'-0"



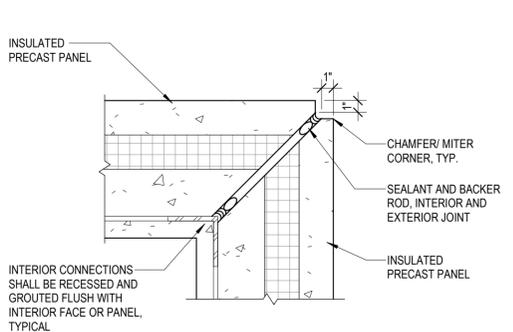
2 ROOF HATCH LADDER DETAIL
 1" = 1'-0"



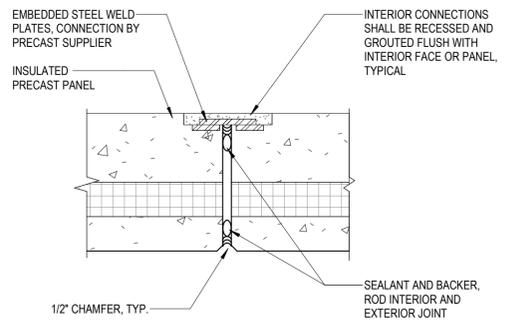
3 ROOF HATCH DETAIL
 1 1/2" = 1'-0"



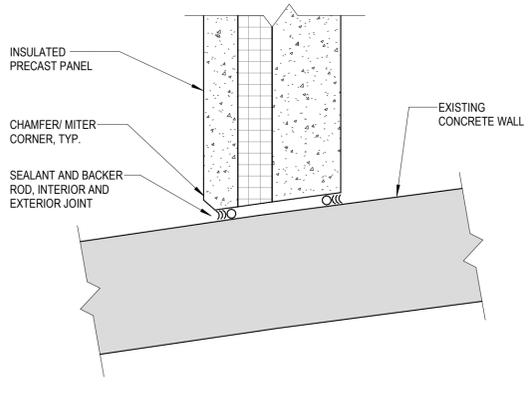
4 ROOF LADDER DETAILS
 1/2" = 1'-0"



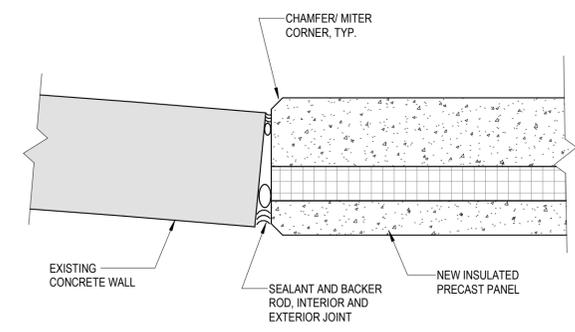
5 PC CORNER JOINT
 1 1/2" = 1'-0"



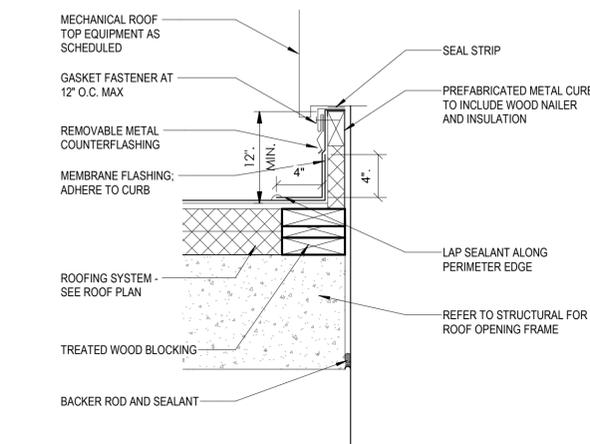
6 PC PANEL JOINT (INTERIOR)
 1 1/2" = 1'-0"



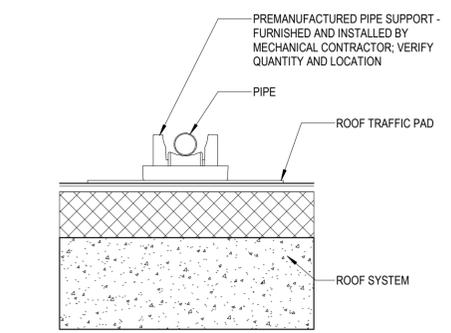
7 WALL DETAIL AT EXISTING
 1 1/2" = 1'-0"



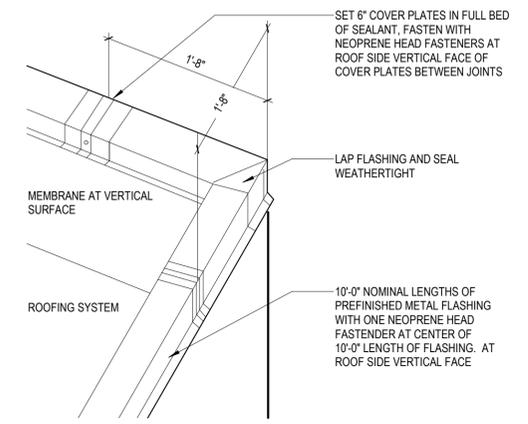
8 WALL DETAIL AT EXISTING
 1 1/2" = 1'-0"



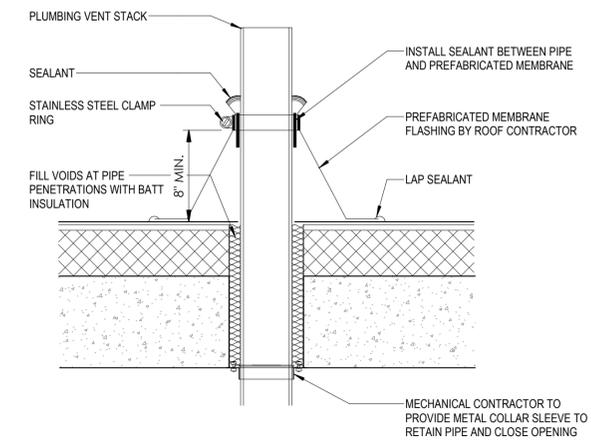
9 TYPICAL EQUIPMENT CURB DETAIL
 1 1/2" = 1'-0"



10 TYPICAL PIPE SUPPORT DETAIL
 1 1/2" = 1'-0"

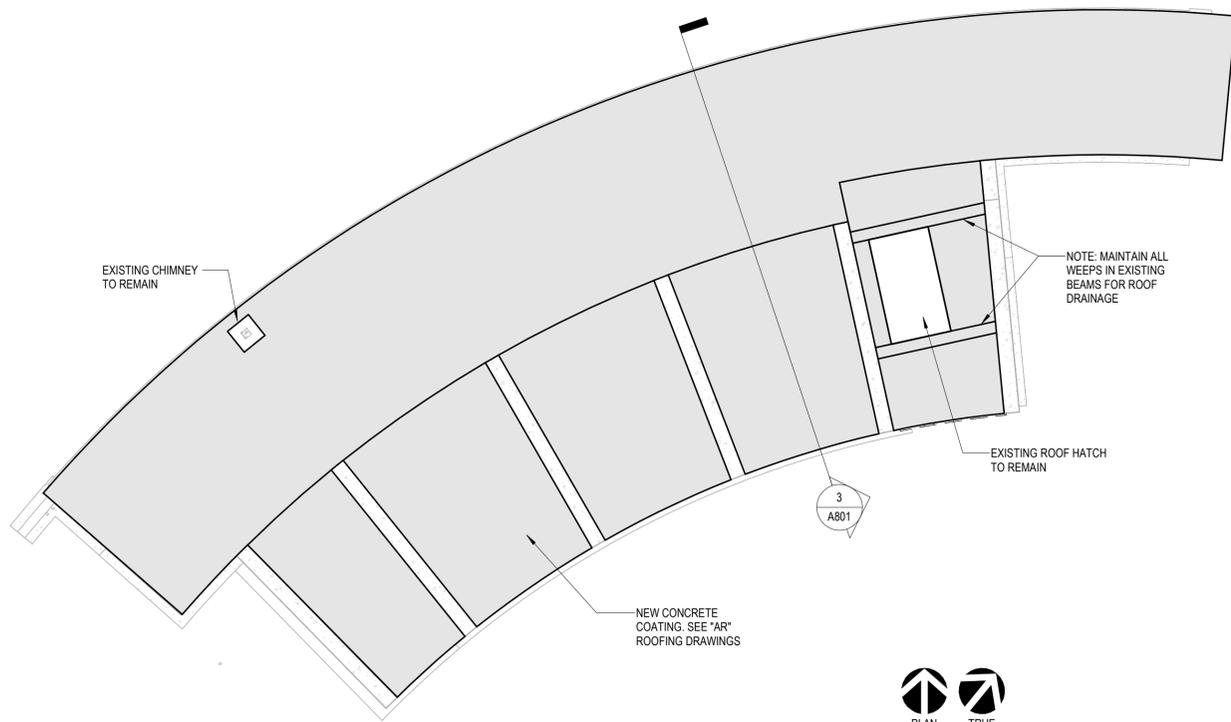


11 TYPICAL ROOF COPING DETAIL
 1 1/2" = 1'-0"

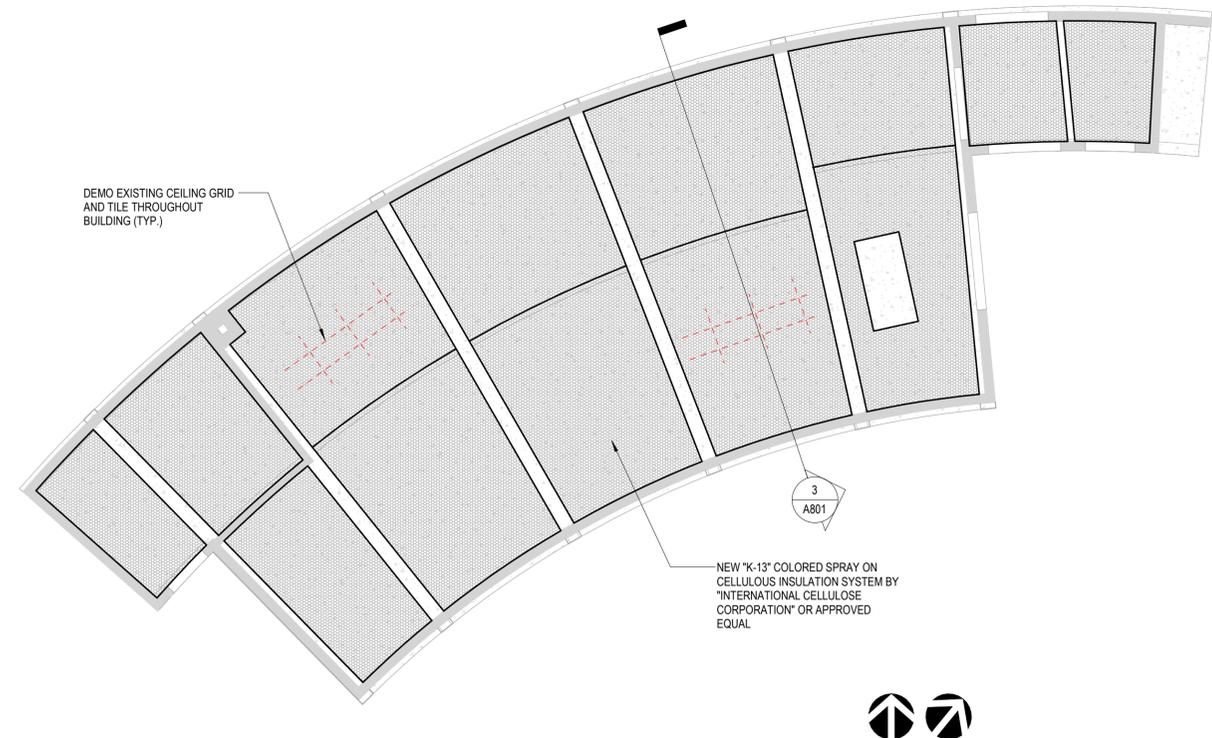


12 TYPICAL PLUMBING VENT PENETRATION
 1 1/2" = 1'-0"

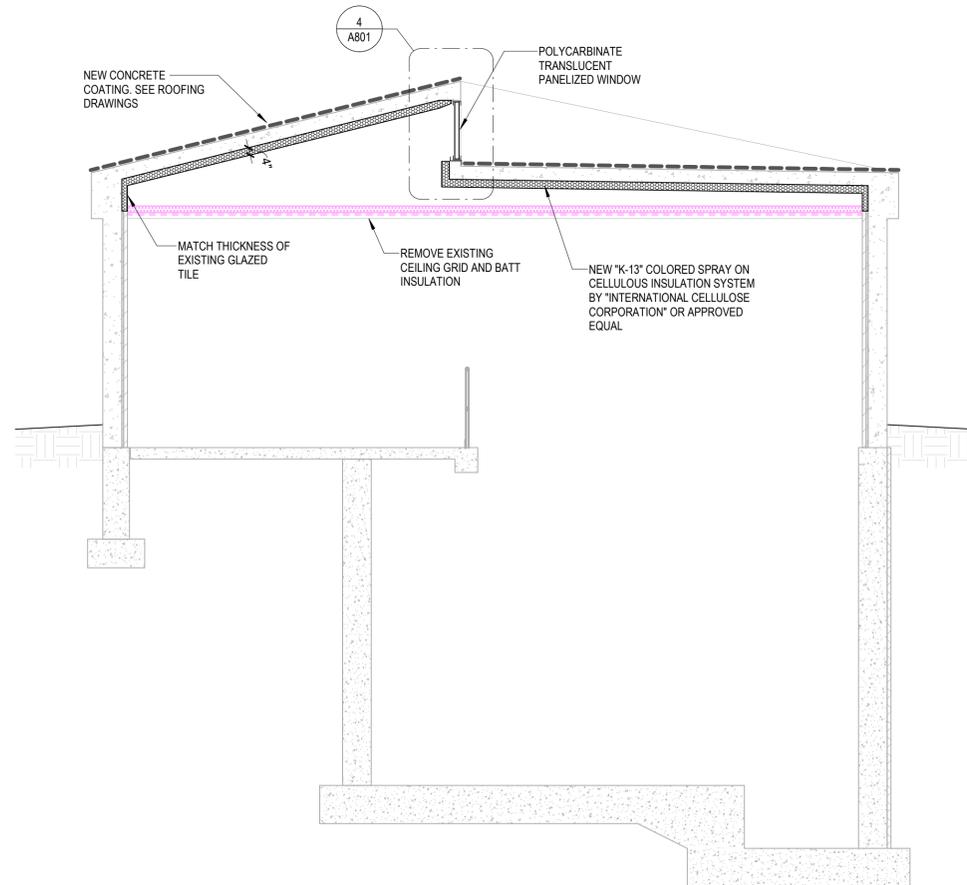
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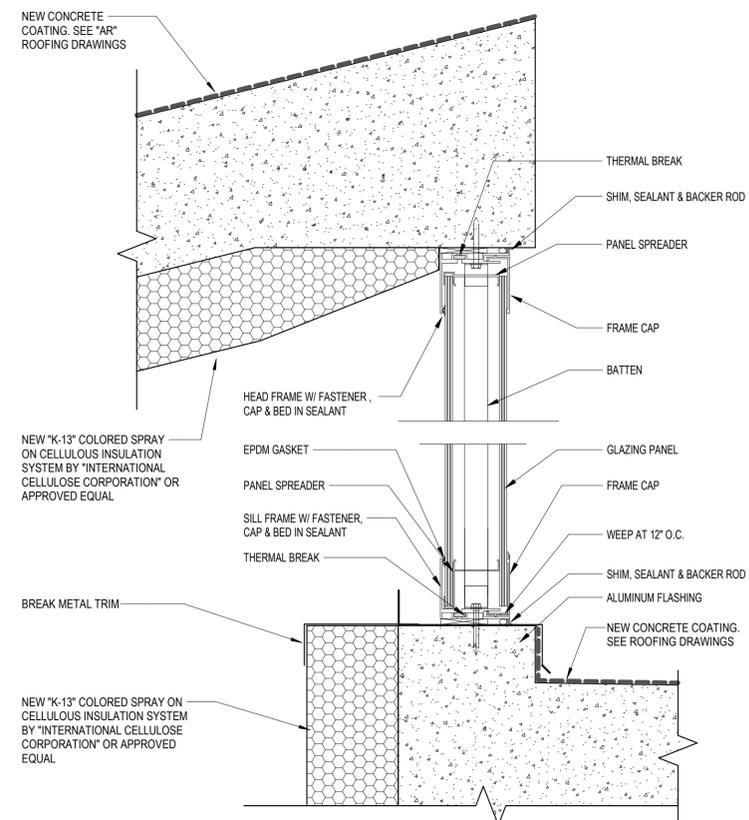
1 ALT BID#1 - ROOF RECOATING PLAN
 1/8" = 1'-0"



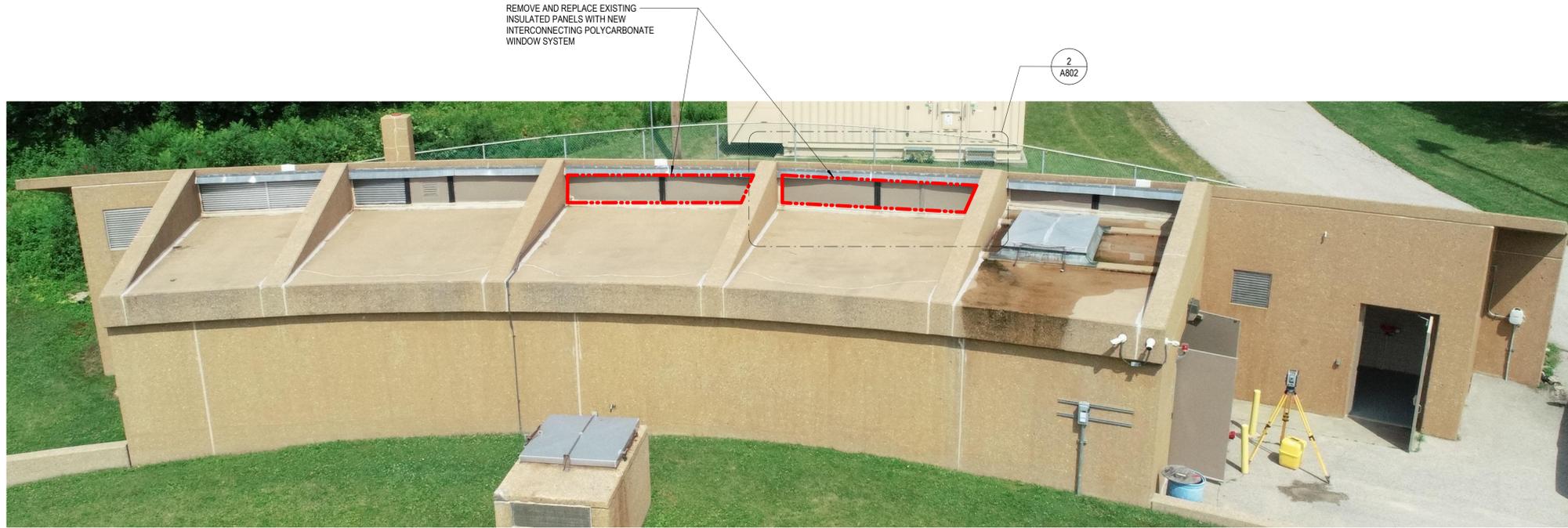
2 ALT BID#1 - CEILING INSULATION PLAN
 1/8" = 1'-0"



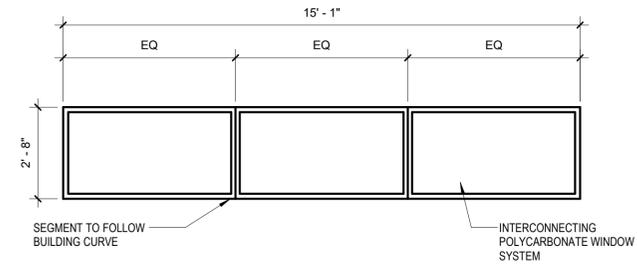
3 ALT BID#1 - EXISTING BUILDING SECTION
 1/4" = 1'-0"



4 ALT BID#1 - TRANSLUCENT WINDOW DETAILS
 3" = 1'-0"



1
A802
EXISTING PHOTO - PANEL REPLACEMENT
NOT TO SCALE



2
A802
WINDOW ELEVATION
3/8" = 1'-0"

Project Owner

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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Project Status Issue Date
BIDDING DOCUMENTS OCTOBER 2023

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REV. # DESCRIPTION DATE

ALT BID #1 PANEL
REPLACEMENT LOCATIONS

01a
A802

Madison Well #19

Project No. 15480

Date: 7/25/23



SPECIALTY ENGINEERING GROUP LLC
122 E. OLIN AVENUE, SUITE 190
MADISON, WI 53713
TEL: 262 253 4700 | www.str-seg.com

Madison Well #19

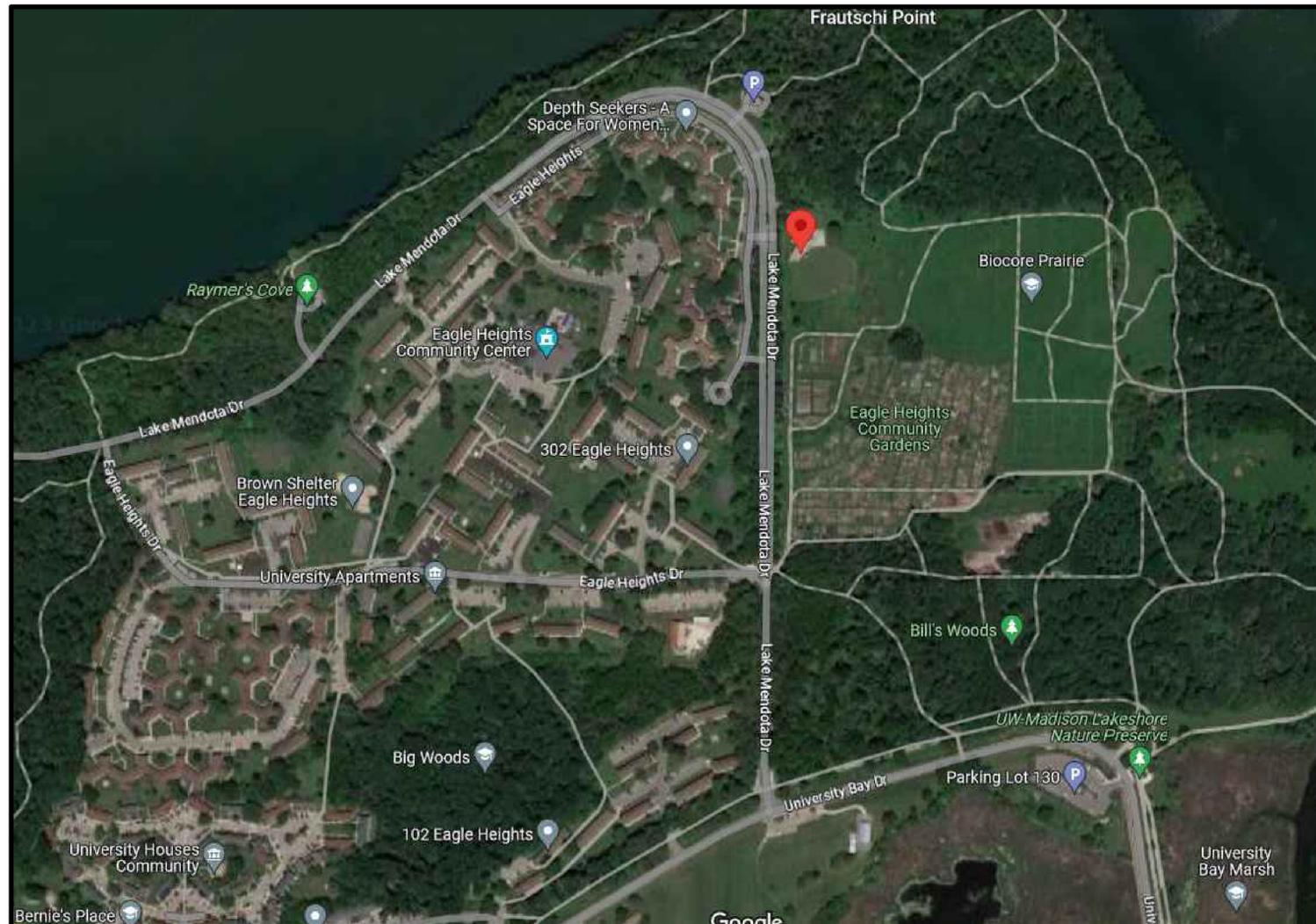
3020 Lake Mendota Dr., Madison, WI 53719

Short Elliot Hendrickson

Project Owner

DRAWING INDEX

COVER SHEET	OVERALL ROOF PLAN
A100	DETAIL REFERENCE ELEVATIONS
A200	ROOFING DETAILS
A500 THRU A510	



LOCATION MAP



AERIAL SITE PHOTO



CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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Project Status Issue Date
BIDDING DOCUMENTS OCTOBER 2023

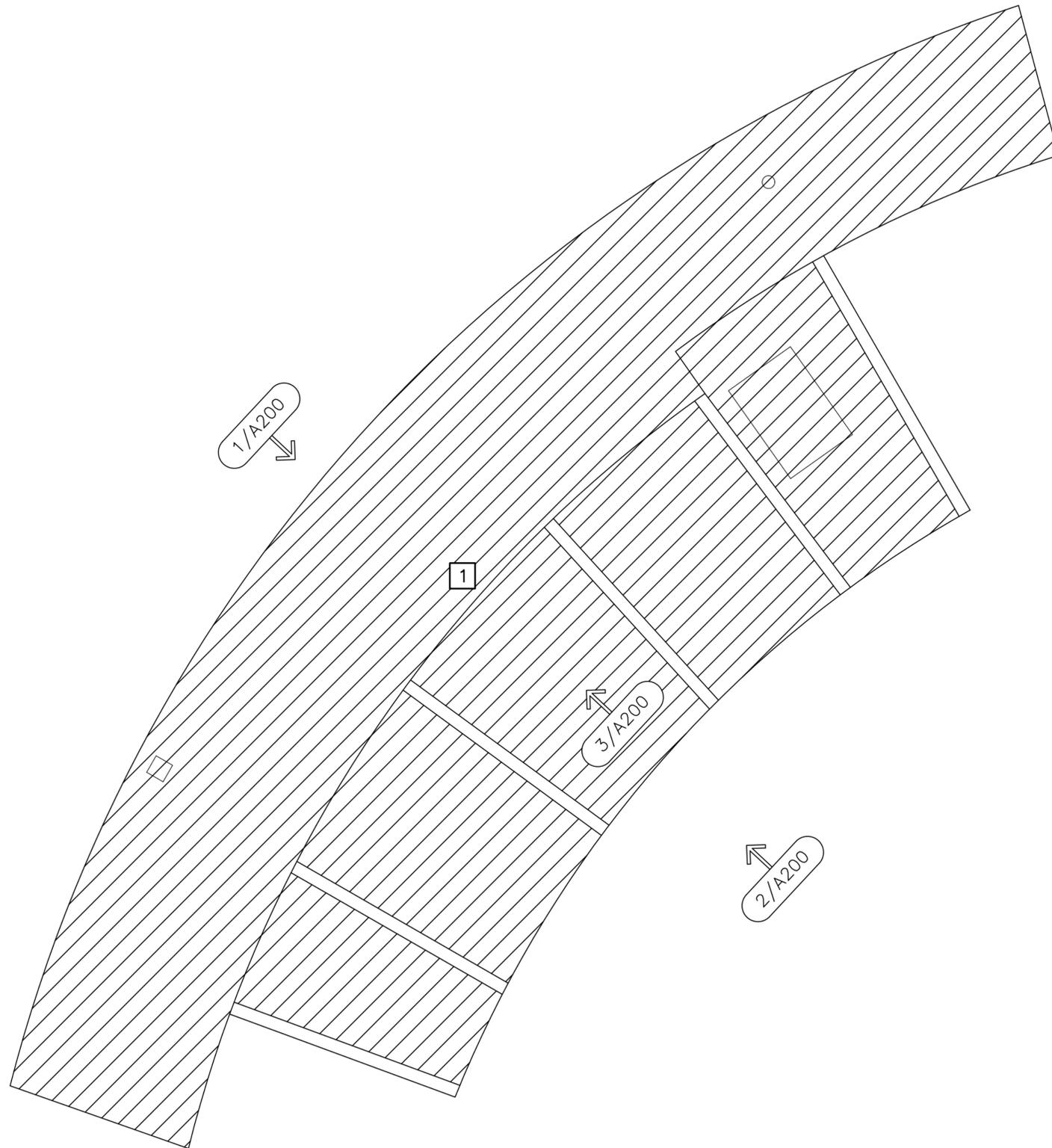
REVISION SCHEDULE
REV. # DESCRIPTION DATE

ALT BID #1 - STR SEG
COVER SHEET

01a
AR000

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE



KEY

- ROOF AREA DESIGNATION
- ROOF DRAIN
- THRU-WALL SCUPPER
- ROOF EDGE SCUPPER
- GUTTER EDGE
- CURBED OPENING
- H.V.A.C. CURB
- ROOF HATCH
- SKYLIGHT
- CURBED STACK
- CHIMNEY
- PIPE PORTAL CURB
- ROOF LADDER
- PIPE VENT
- SOIL STACK
- SMALL PIPE PENETRATION
- PITCH PAN
- EXPANSION JOINT
- SLOPE TRANSITION
- ABANDONED EQUIPMENT

AREA OF WORK

AREA SIZES

AREA NO.	SQ. FT.
1	2,925
TOTAL	2,925



STR SEG | SPECIALTY ENGINEERING GROUP LLC
 122 E. OLIN AVENUE, SUITE 190
 MADISON, WI 53713
 TEL: 262 253 4700 | www.str-seg.com

Short Elliott Hendrickson
 Madison Well #19 Roof Design

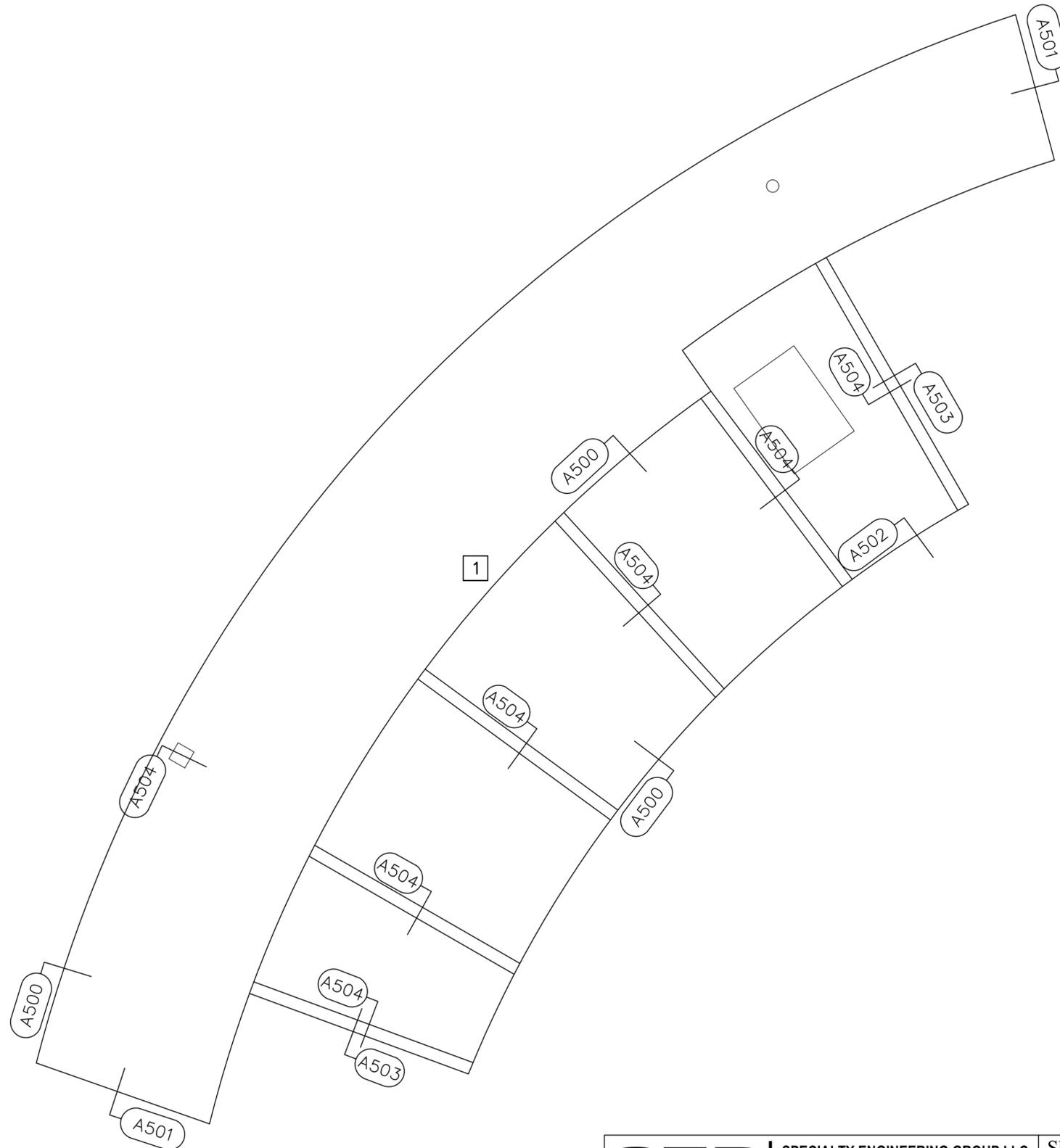
Madison Well #19
 3020 Lake Mendota Dr., Madison, WI 53719

Drawn by
 CLK
 Checked by
 BF

Sheet No.
A100

7/25/23 Project No. 15480

OVERALL ROOF PLAN



KEY

- [X] - ROOF AREA DESIGNATION
- ⊕ - ROOF REPAIR DESIGNATION
- ⊕ - ROOF DRAIN
- ⊕ - THRU-WALL SCUPPER
- ⊕ - ROOF EDGE SCUPPER
- ⊕ - GUTTER EDGE
- ⊕ - CURBED OPENING
- ⊕ - H.V.A.C. CURB
- ⊕ - ROOF HATCH
- ⊕ - SKYLIGHT
- ⊕ - CURBED STACK
- ⊕ - CHIMNEY
- ⊕ - PIPE PORTAL CURB
- ⊕ - ROOF LADDER
- ⊕ - PIPE VENT
- ⊕ - SOIL STACK
- ⊕ - SMALL PIPE PENETRATION
- ⊕ - PITCH PAN
- ⊕ - EXPANSION JOINT
- ⊕ - SLOPE TRANSITION
- AB - ABANDONED EQUIPMENT

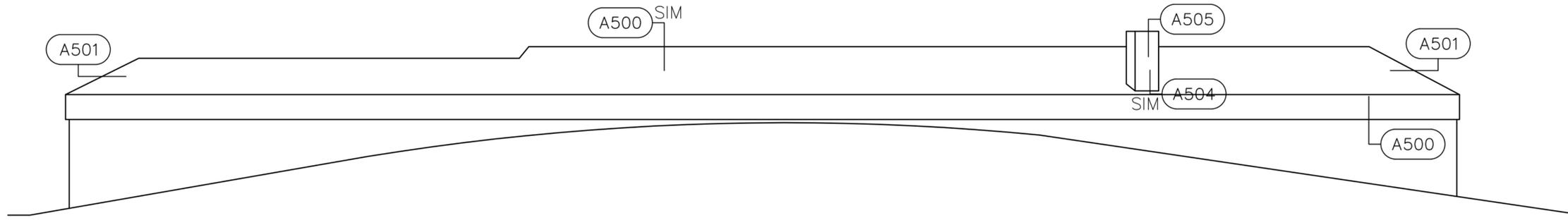
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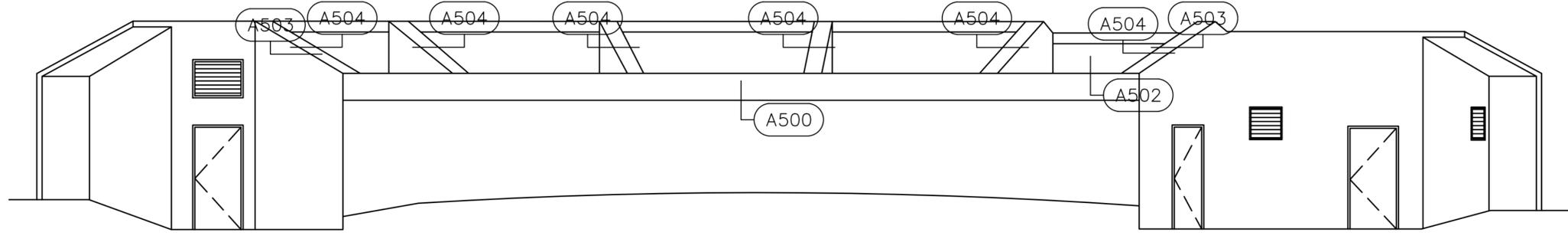
Short Elliott Hendrickson
 Madison Well #19 Bldg Roof Design
 7/25/23 Project No. 15480

Madison Well #19 Building
 3020 Lake Mendota Dr., Madison, WI 53719
ROOF REPAIR PLAN

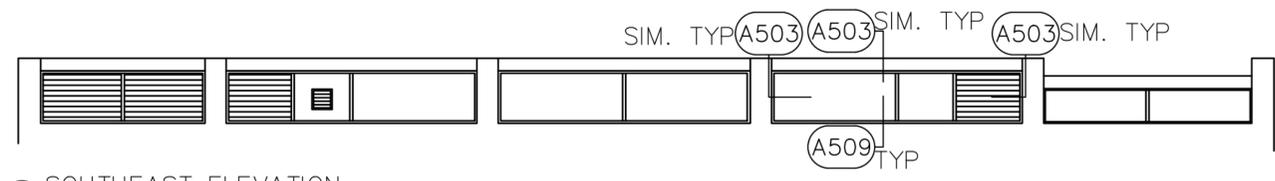
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 Checked by BF
 Sheet No. **A101**



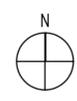
① NORTHWEST ELEVATION



② SOUTHEAST ELEVATION



③ SOUTHEAST ELEVATION



KEY

- ROOF AREA DESIGNATION
- ROOF DRAIN
- THRU-WALL SCUPPER
- ROOF EDGE SCUPPER
- GUTTER EDGE
- CURBED OPENING
- H.V.A.C. CURB
- ROOF HATCH
- SKYLIGHT
- CURBED STACK
- CHIMNEY
- PIPE PORTAL CURB
- ROOF LADDER
- PIPE VENT
- SOIL STACK
- SMALL PIPE PENETRATION
- PITCH PAN
- EXPANSION JOINT
- SLOPE TRANSITION
- ABANDONED EQUIPMENT

CITY OF MADISON WATER UTILITY
UNIT WELL #19 TREATMENT SYSTEM ADDITION

2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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Drawn By JRL

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BIDDING DOCUMENTS OCTOBER 2023

REVISION SCHEDULE

REV. # DESCRIPTION DATE

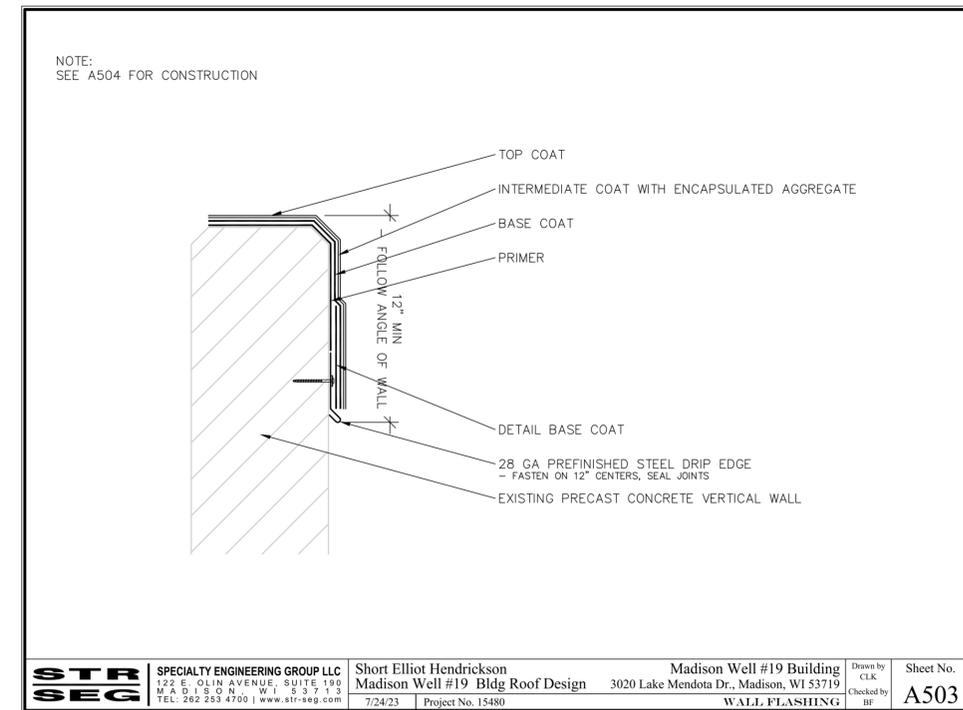
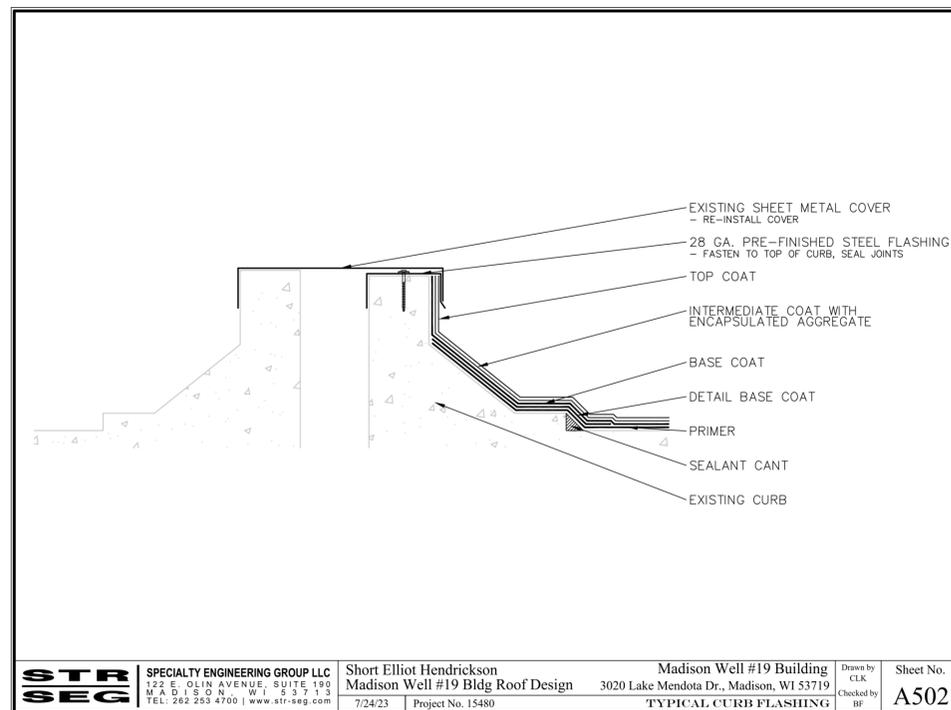
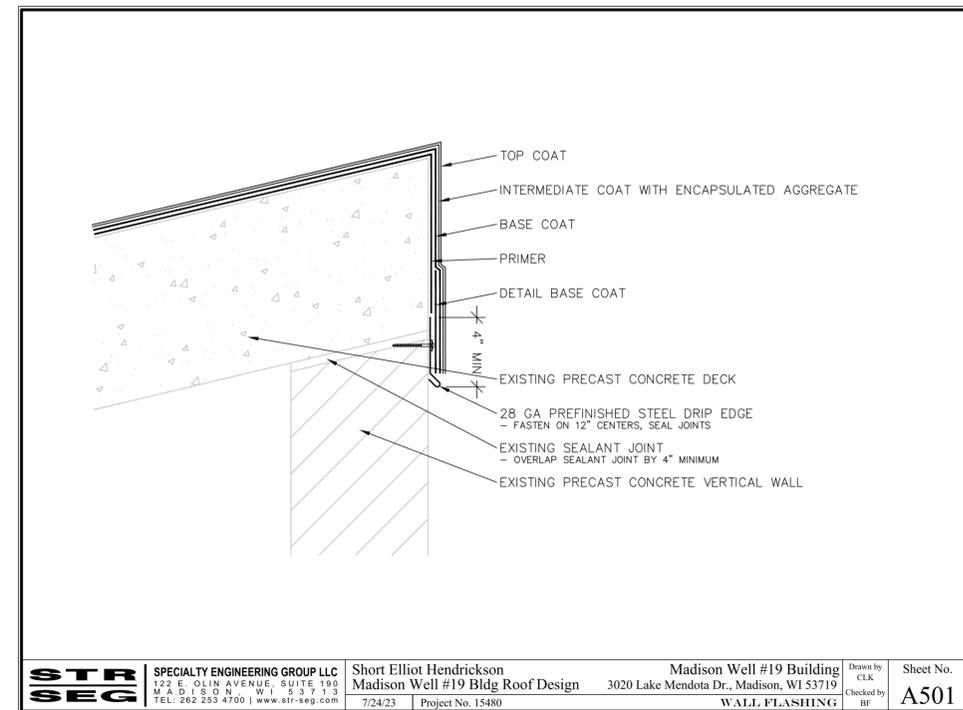
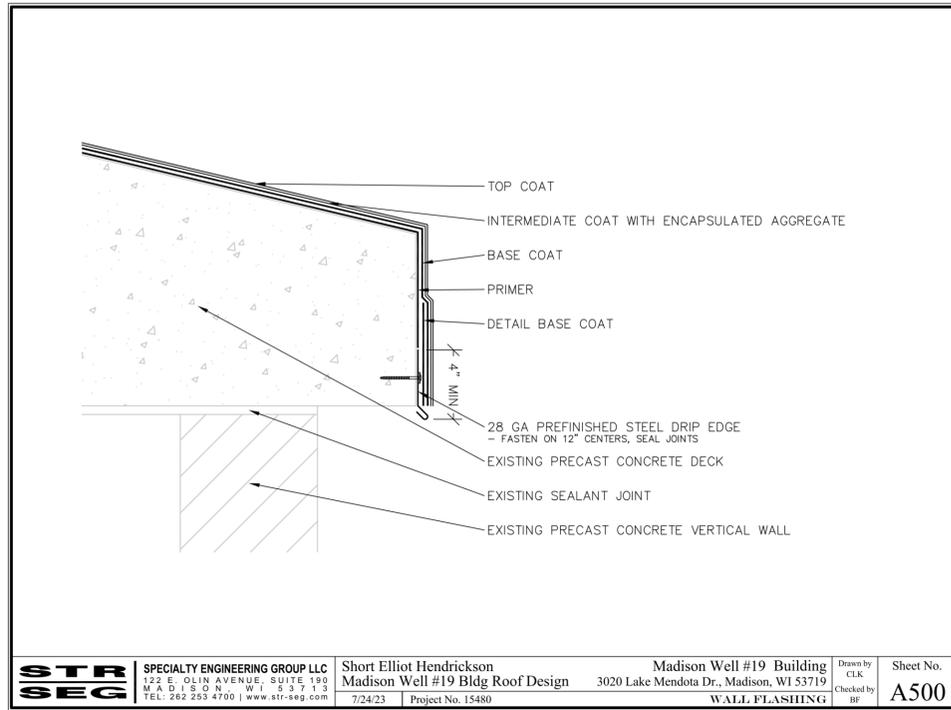
ALT BID #1 - STR SEG
DETAIL REFERENCE
ELEVATIONS

01a
AR200

10/10/2023 9:56:46 AM

	SPECIALTY ENGINEERING GROUP LLC 122 E. OLIN AVENUE, SUITE 190 MADISON, WI 53713 TEL: 262 253 4700 www.str-seg.com	Short Elliott Hendrickson Madison Well #19 Roof Design	Madison Well #19 Building 3020 Lake Mendota Dr., Madison, WI 53719	Drawn by CLK Checked by BF	Sheet No. A200
	7/25/23 Project No. 15480	DETAIL REFERENCE ELEVATIONS			

Project Owner



CITY OF MADISON WATER UTILITY
UNIT WELL #19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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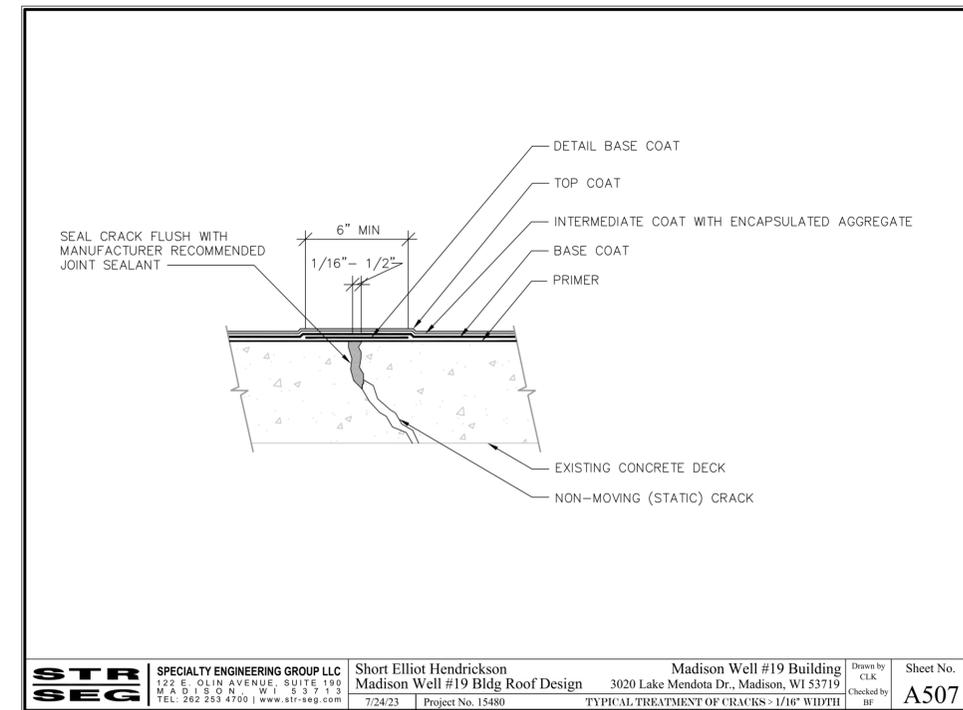
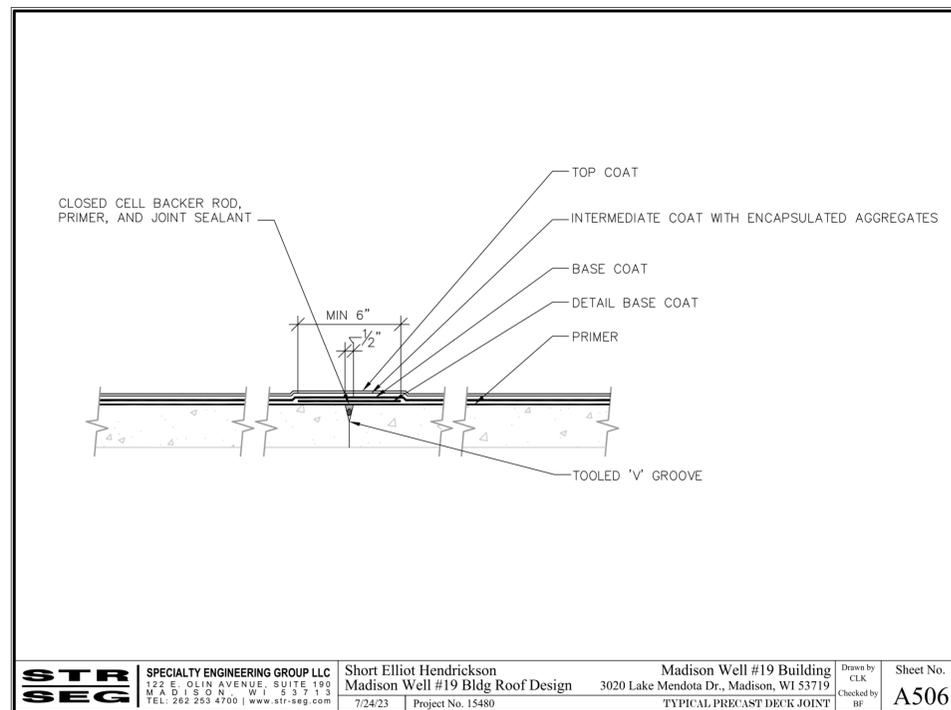
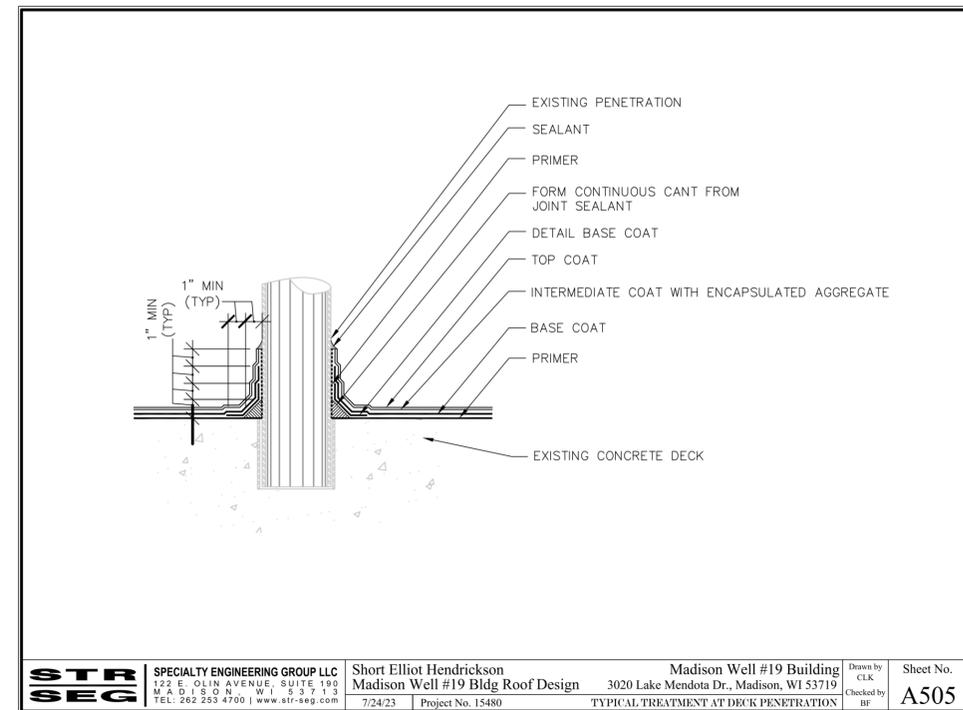
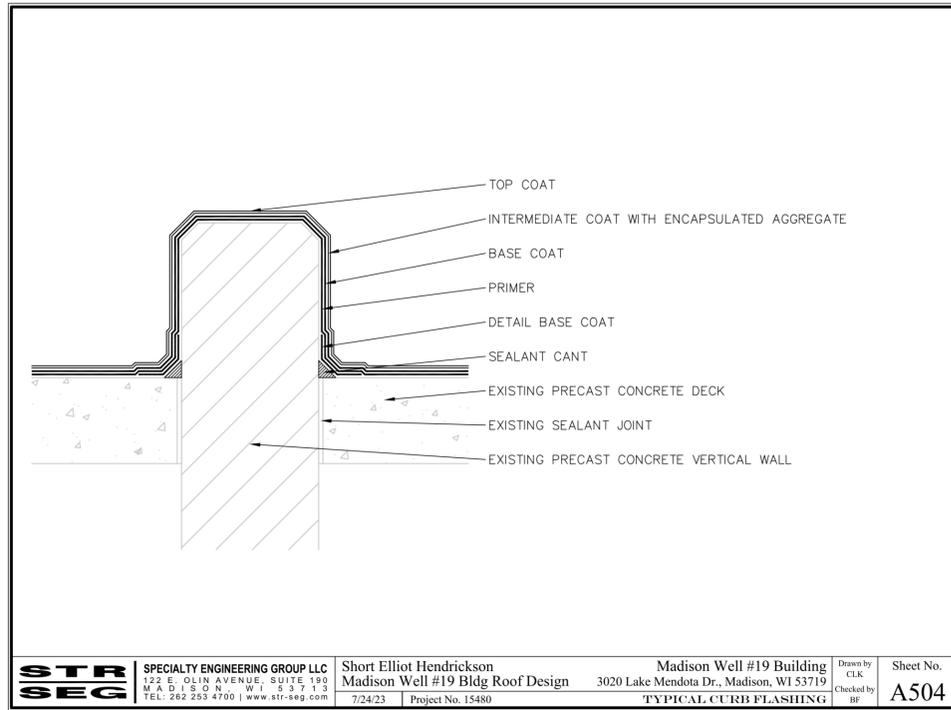
SEH Project MADJWU 167818
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Project Status Issue Date
BIDDING DOCUMENTS OCTOBER 2023

REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

ALT BID #1 - STR SEG
ROOFING DETAILS
A500-A503

01a
AR500



Project Owner

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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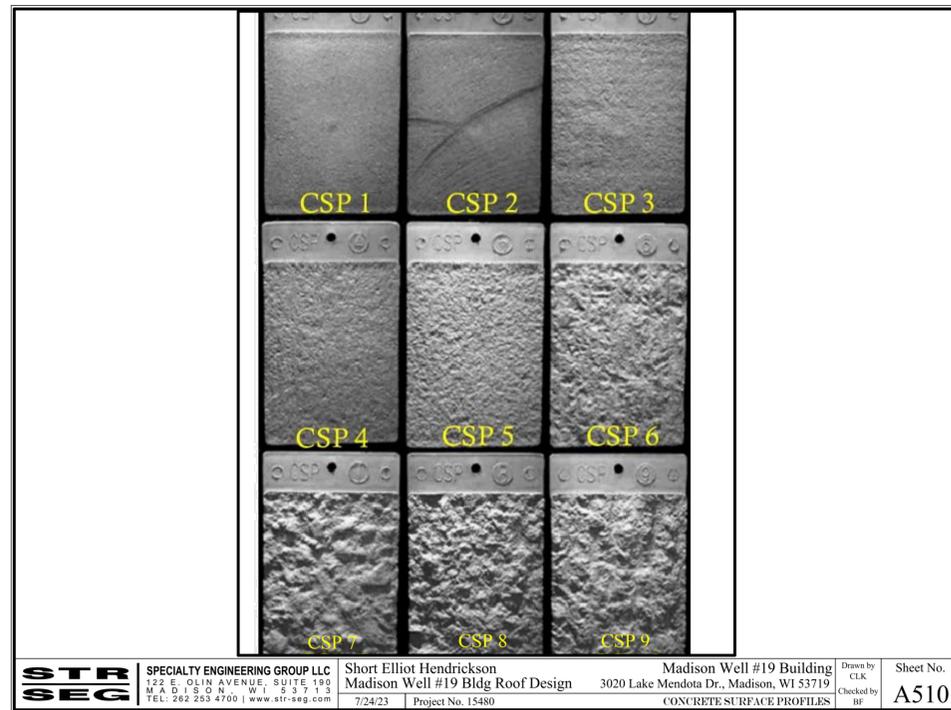
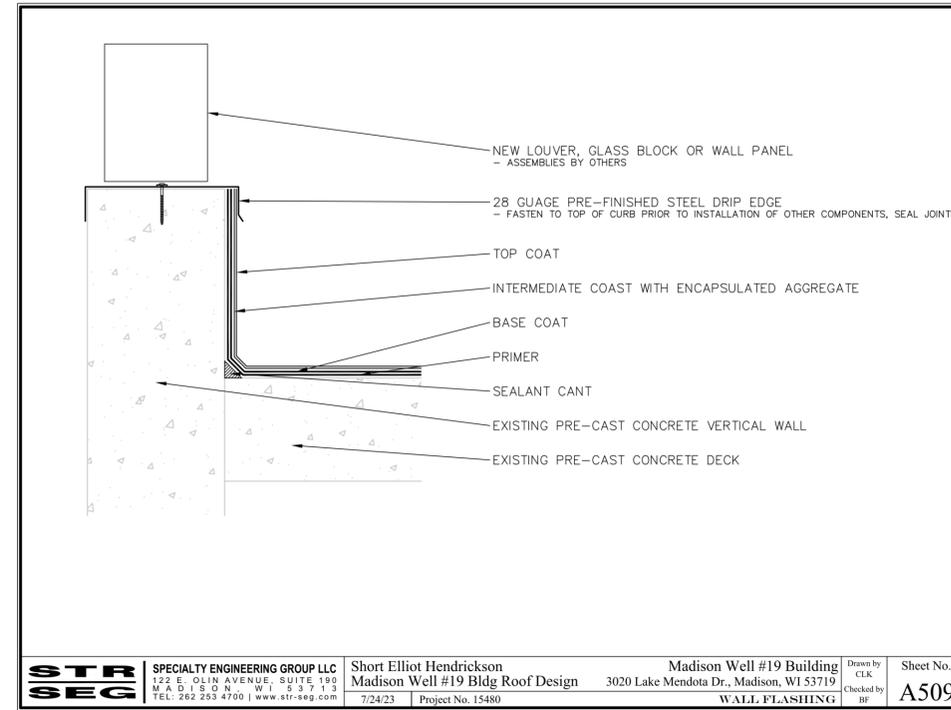
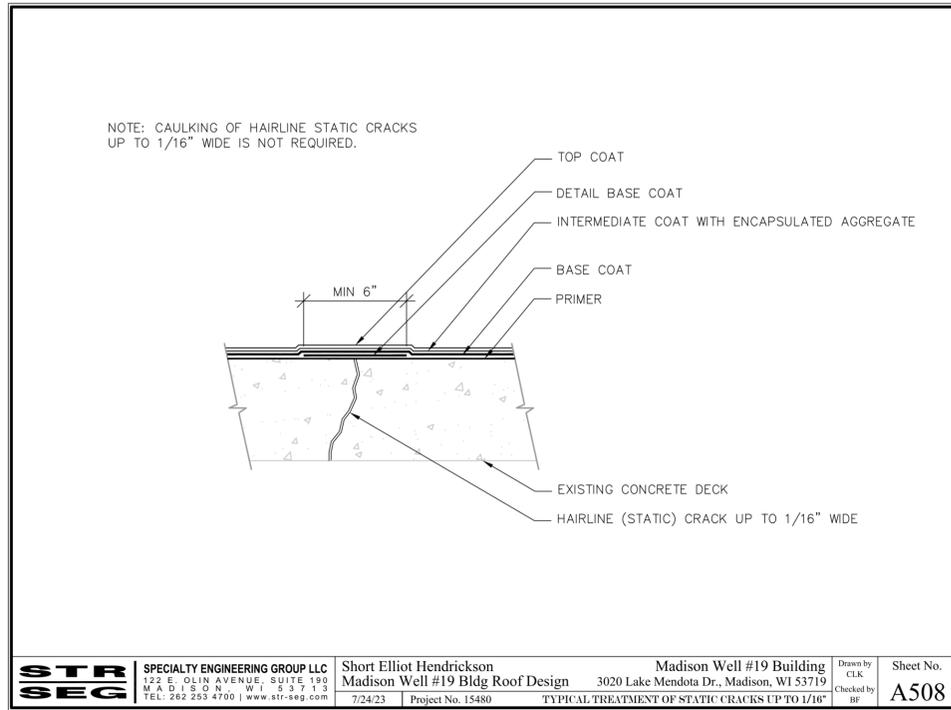
SEH Project MADWU 167818
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Drawn By

Project Status Issue Date
BIDDING DOCUMENTS OCTOBER 2023

REVISION SCHEDULE
REV. # DESCRIPTION DATE

ALT BID #1 - STR SEG
ROOFING DETAILS
A504-A507

01a
AR501



Project Owner

CITY OF MADISON WATER UTILITY
 UNIT WELL 19 TREATMENT SYSTEM ADDITION
 2526 LAKE MENDOTA DRIVE
 MADISON, WISCONSIN

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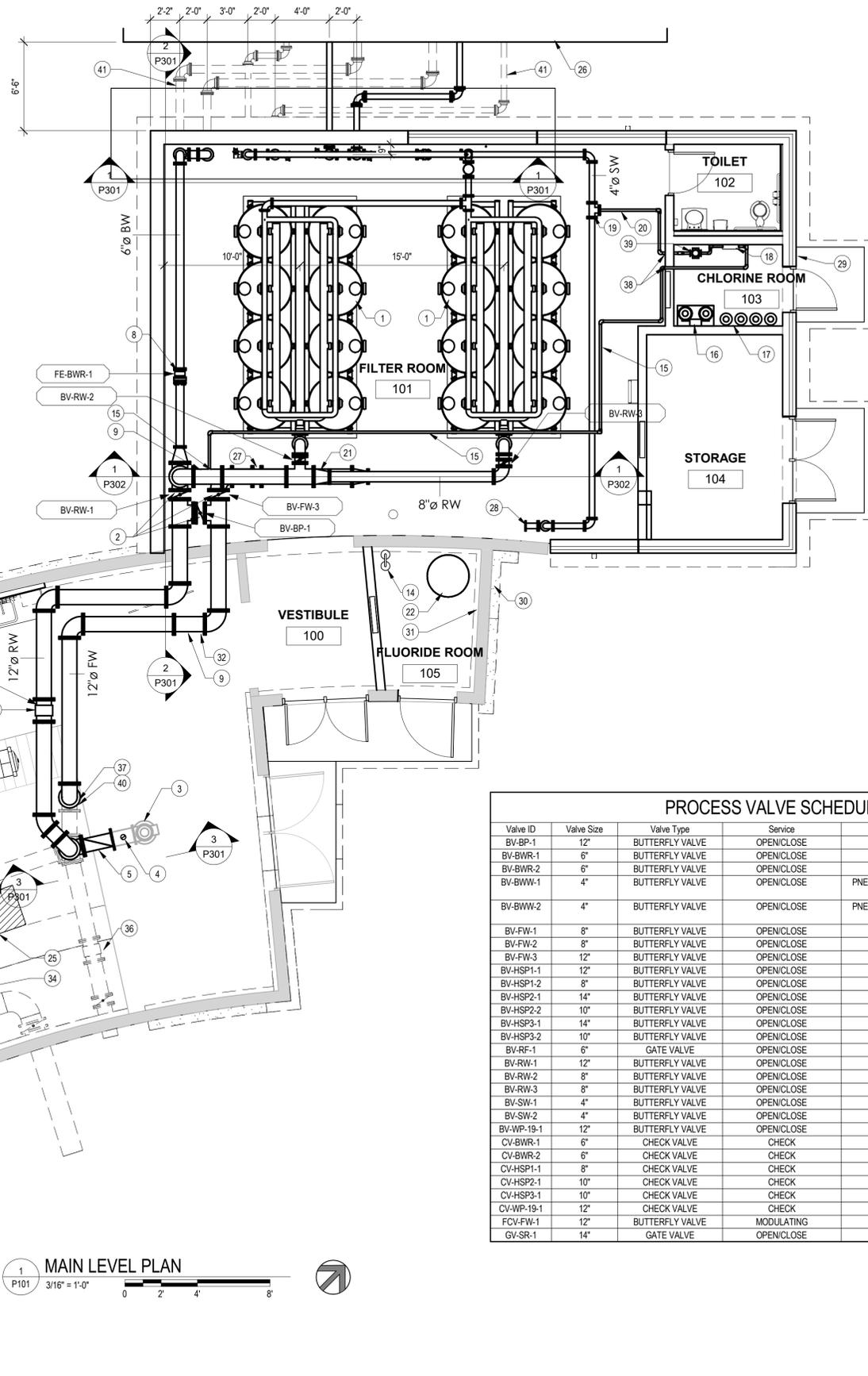
REVISION SCHEDULE
 REV. # DESCRIPTION DATE

ALT BID #1 - STR SEG
 ROOFING DETAILS
 A508-A510

01a
 AR502

KEYNOTES

- 1 FILTER SKID
- 2 12" BUTTERFLY VALVE FILTER BYPASS VALVE w/ CHAINWHEEL OPERATOR
- 3 EXISTING VERTICAL TURBINE WELL PUMP
- 4 TAP PIPE FOR 4" VERTICAL PIPE FOR AIR-VACUUM RELEASE
- 5 INSTALL 12" CHECK VALVE
- 6 REPLACE EXISTING 14" GATE VALVE IN KIND
- 7 12" MAGNETIC FLOW METER w/ REMOTE READOUT
- 8 6" MAGNETIC FLOW METER w/ REMOTE READOUT
- 9 12" FLANGED STATIC MIXER w/ CHEMICAL INJECTION PORTS - ORIENT MIXER SUCH THAT INJECTION PORTS ARE INDEXED 45° DOWN FROM HORIZONTAL - INSTALL VALVE ON FEED LINE TO ALLOW CHEMICAL TUBE REPLACEMENT
- 10 CUT IN 12x6 TEE INTO EXISTING RESERVOIR FILL LINE - SEE MECH. FOR CONT.
- 11 CHEMICAL TANKS. PROVIDE CHAIN RAILING TO ENSURE SECUREMENT OF TANKS. 2 TANKS IN USE, 4 TANKS IN STORAGE.
- 12 COAT THE INSIDE OF THE CONTAINMENT WELL (FLOOR, SIDE WALLS, AND TOPS OF PARTIAL HEIGHT WALLS) WITH CHEMICAL-RESISTANT COATING
- 13 CONTAINMENT CURB
- 14 EMERGENCY EYE WASH STATION- REFER TO PLUMBING DRAWINGS
- 15 1.5" SCH. 80 PVC CHLORINE SOLUTION PIPE
- 16 DUAL 150 POUND CHLORINE GAS CYLINDER SCALE w/ CYLINDER SWITCHING UNIT
- 17 STORAGE AREA FOR FOUR GAS CYLINDERS WITH SAFETY CHAINS
- 18 CHLORINE SOLUTION MAKEUP PANEL.
- 19 4x4 TEE WITH BLIND FLANGE TAPPED FOR 1" SCH 80 PVC MOTIVE WATER
- 20 1.5" SCH 80 PVC NON-POTABLE MOTIVE WATER PIPE
- 21 12x8 ECCENTRIC REDUCER w/ FLAT ON TOP
- 22 160 GALLON FLUORIDE TANK
- 23 REPLACE EXISTING MANUAL 6" BUTTERFLY VALVE WITH 6" PNEUMATICALLY OPERATED BUTTERFLY VALVE - VALVE IN VERTICAL - SEE PAGE 01P901
- 24 REPLACE EXISTING AIR COMPRESSOR AND DRYER LOCATED UNDER STAIRS
- 25 REPLACE EXISTING HIGH SERVICE PUMPS (HSP) - SEE PAGE 01P901
- 26 PROPOSED BACKWASH TANK (STRUCTURE 02)
- 27 12" ELECTRICALLY MODULATING FILTER INFLUENT RATE CONTROL VALVE
- 28 CONNECT 4" TO 4" RPZ - SEE MECHANICAL FOR CONTINUATION
- 29 VENT CHLORINE THROUGH WALL ABOVE DOOR
- 30 2" SCH 40 PVC FLUORIDE TANK VENT THROUGH WALL
- 31 MOUNT FLUORIDE CHEMICAL FEED EQUIPMENT ON WALL SHELF ABOVE CONTAINMENT
- 32 ROUTE FLUORIDE CHEMICAL FEED TUBING TO INJECTION CONNECTION ON STATIC MIXER
- 33 SEE PHOTO 2 ON SHEET 01/P901 FOR EXISTING VALVES REPLACEMENT
- 34 REPLACE TWO BUTTERFLY VALVES AND ONE CHECK VALVE ON EACH PUMP INLET AND OUTLET - SEE PHOTO 3 ON SHEET 01/P901 FOR EXISTING VALVES REPLACEMENT
- 35 CONNECT CHLORINE SOLUTION WATER TO CHEMICAL INJECTION POINT ON THE STATIC MIXER
- 36 EXISTING FLOW METER TO BE USED AS FINISHED WATER FLOW METER
- 37 TAP PIPE WITH 1/2" TAP AND BALL VALVE FOR CHLORINE ANALYSIS. ROUTE TUBE TO ADJACENT EXISTING CHLORINE ANALYZER PANEL.
- 38 SEAL WALL PENETRATIONS w/ FIRE CAULK
- 39 CHLORINE MOTIVE WATER BOOSTER PANEL - SEE DETAIL H1DP504
- 40 INSTALL SMOOTH END SAMPLE TAP ON VERTICAL PIPE WITHIN REACH OF UPPER FLOOR LEVEL
- 41 INSTALL SCHEDULE 10 WELDED CARBON STEEL PIPE SLEEVES AROUND PIPES BETWEEN STRUCTURES IN THIS AREA.



PROCESS VALVE SCHEDULE				
Valve ID	Valve Size	Valve Type	Service	Operator Type
BV-BP-1	12"	BUTTERFLY VALVE	OPEN/CLOSE	CHAIN WHEEL
BV-BWR-1	6"	BUTTERFLY VALVE	OPEN/CLOSE	LEVER
BV-BWR-2	6"	BUTTERFLY VALVE	OPEN/CLOSE	LEVER
BV-BWW-1	4"	BUTTERFLY VALVE	OPEN/CLOSE	PNEUMATIC ACTUATOR w/ HARD STOPS TO BE SET DURING STARTUP
BV-BWW-2	4"	BUTTERFLY VALVE	OPEN/CLOSE	PNEUMATIC ACTUATOR w/ HARD STOPS TO BE SET DURING STARTUP
BV-FW-1	8"	BUTTERFLY VALVE	OPEN/CLOSE	CHAIN WHEEL
BV-FW-2	8"	BUTTERFLY VALVE	OPEN/CLOSE	CHAIN WHEEL
BV-FW-3	12"	BUTTERFLY VALVE	OPEN/CLOSE	CHAIN WHEEL
BV-HSP1-1	12"	BUTTERFLY VALVE	OPEN/CLOSE	HAND WHEEL
BV-HSP1-2	8"	BUTTERFLY VALVE	OPEN/CLOSE	ELECTRIC ACTUATOR
BV-HSP2-1	14"	BUTTERFLY VALVE	OPEN/CLOSE	HAND WHEEL
BV-HSP2-2	10"	BUTTERFLY VALVE	OPEN/CLOSE	ELECTRIC ACTUATOR
BV-HSP3-1	14"	BUTTERFLY VALVE	OPEN/CLOSE	HAND WHEEL
BV-HSP3-2	10"	BUTTERFLY VALVE	OPEN/CLOSE	ELECTRIC ACTUATOR
BV-RF-1	6"	GATE VALVE	OPEN/CLOSE	PNEUMATIC ACTUATOR
BV-RW-1	12"	BUTTERFLY VALVE	OPEN/CLOSE	CHAIN WHEEL
BV-RW-2	8"	BUTTERFLY VALVE	OPEN/CLOSE	HAND WHEEL
BV-RW-3	8"	BUTTERFLY VALVE	OPEN/CLOSE	HAND WHEEL
BV-SW-1	4"	BUTTERFLY VALVE	OPEN/CLOSE	PNEUMATIC ACTUATOR
BV-SW-2	4"	BUTTERFLY VALVE	OPEN/CLOSE	PNEUMATIC ACTUATOR
BV-WP-19-1	12"	BUTTERFLY VALVE	OPEN/CLOSE	CHAIN WHEEL
CV-BWR-1	6"	CHECK VALVE	CHECK	DAMPENED SWING
CV-BWR-2	6"	CHECK VALVE	CHECK	DAMPENED SWING
CV-HSP1-1	8"	CHECK VALVE	CHECK	DAMPENED SWING
CV-HSP2-1	10"	CHECK VALVE	CHECK	DAMPENED SWING
CV-HSP3-1	10"	CHECK VALVE	CHECK	DAMPENED SWING
CV-WP-19-1	12"	CHECK VALVE	CHECK	DAMPENED SWING
FGV-FW-1	12"	BUTTERFLY VALVE	MODULATING	ELECTRIC MODULATOR
GV-SR-1	14"	GATE VALVE	OPEN/CLOSE	HAND WHEEL

1 MAIN LEVEL PLAN
3/16" = 1'-0"
0 2' 4' 8'

Project Owner
MADISON WATER UTILITY

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
WELLHOUSE 19
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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PROCESS PLAN

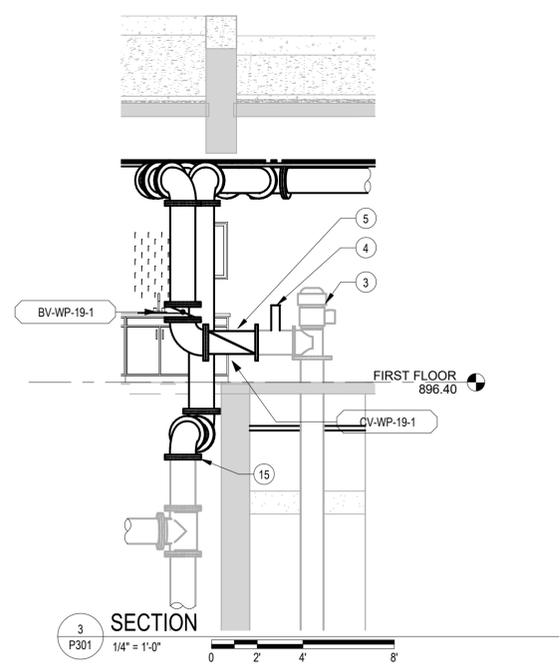
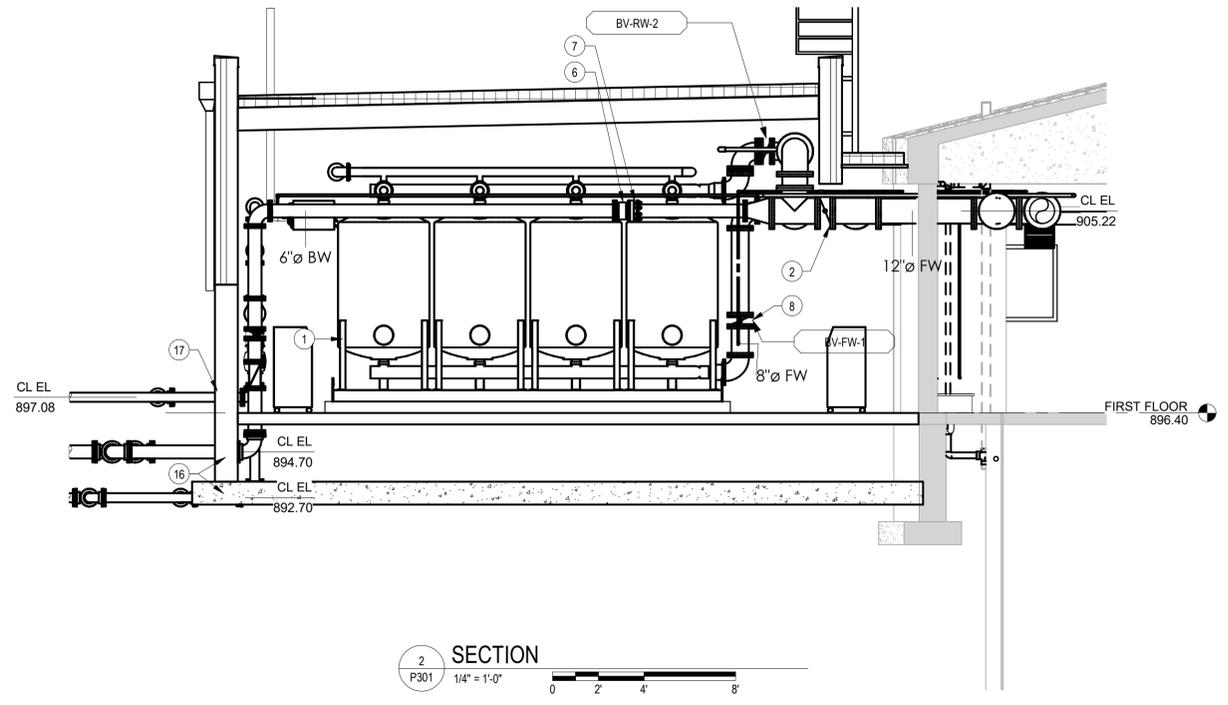
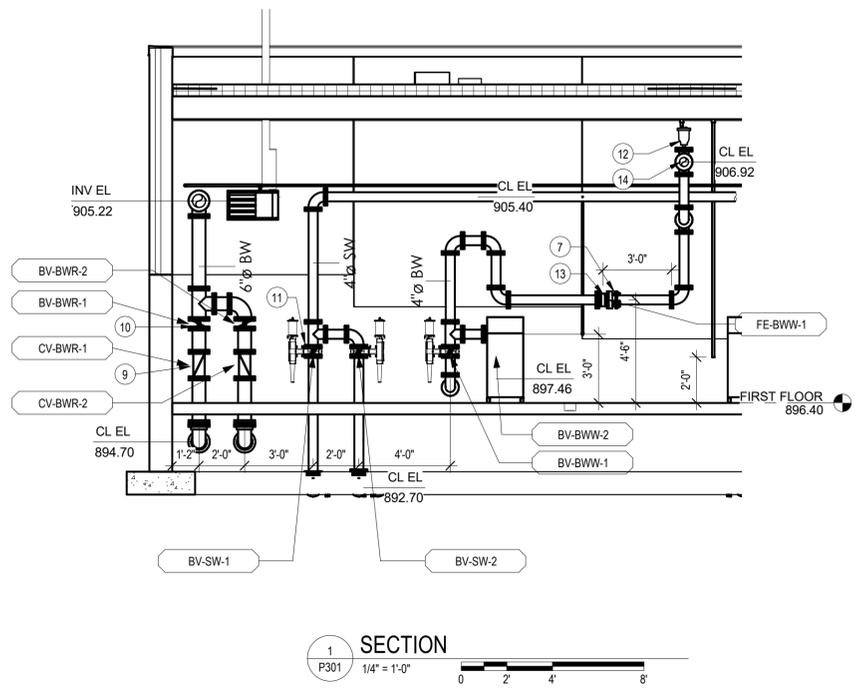
01
P101

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
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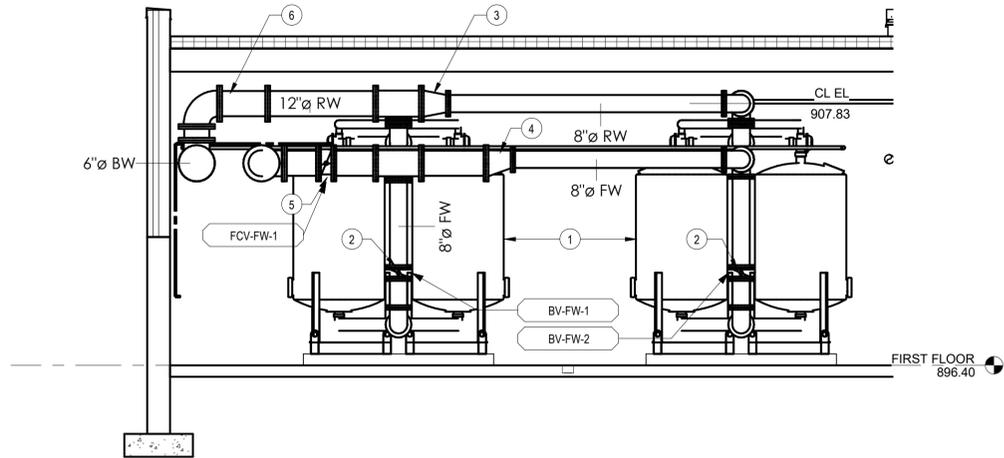
PROCESS SECTIONS

01
P301



KEYNOTES

- 1 FILTER SKID
- 2 12" BUTTERFLY VALVE FILTER BYPASS VALVE w/ CHAINWHEEL OPERATOR
- 3 EXISTING VERTICAL TURBINE WELL PUMP
- 4 TAP PIPE FOR 4" VERTICAL PIPE FOR AIR-VACUUM RELEASE
- 5 INSTALL 12" CHECK VALVE
- 6 6" MAGNETIC FLOW METER w/ REMOTE READOUT
- 7 FLANGED COUPLING ADAPTER
- 8 8" FILTER SHUTOFF BUTTERFLY VALVE w/ HANDWHEEL OPERATOR
- 9 6" SWING CHECK VALVE
- 10 6" PLUG VALVE w/ LEVER OPERATOR
- 11 4" PNEUMATICALLY OPERATED BUTTERFLY VALVE - TYP. FOR BACKWASH WASTE AND SPRAY WASH PIPES
- 12 AIR AND VACUUM RELIEF VALVE
- 13 4" BACKWASH WASTE FLOW METER
- 14 CONTRACTOR TO VERIFY ELEVATION AFTER FILTER EQUIPMENT INSTALLED
- 15 CONNECT TO EXISTING 12" WELDED STEEL WELLHOUSE PIPING
- 16 CONSTRUCT 12" SQUARE BLOCKOUT IN FOUNDATION TO PASS PIPE THROUGH
- 17 FLxMJ WALL PIPE



1 SECTION
P302 1/4" = 1'-0"
0 2 4 8

KEYNOTES

- ① FILTER SKID
- ② 8" BUTTERFLY VALVE FILTER SHUTOFF VALVE w/ HANDWHEEL OPERATOR
- ③ 12"x8" CONCENTRIC REDUCER
- ④ 12"x8" ECCENTRIC REDUCER w/ FLAT ON TOP
- ⑤ 12" ELECTRICALLY MODULATING FILTER RATE CONTROL VALVE
- ⑥ 12" FLANGED STATIC MIXER w/ CHEMICAL INJECTION PORTS

Project Owner
MADISON WATER UTILITY

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
WELLHOUSE 19
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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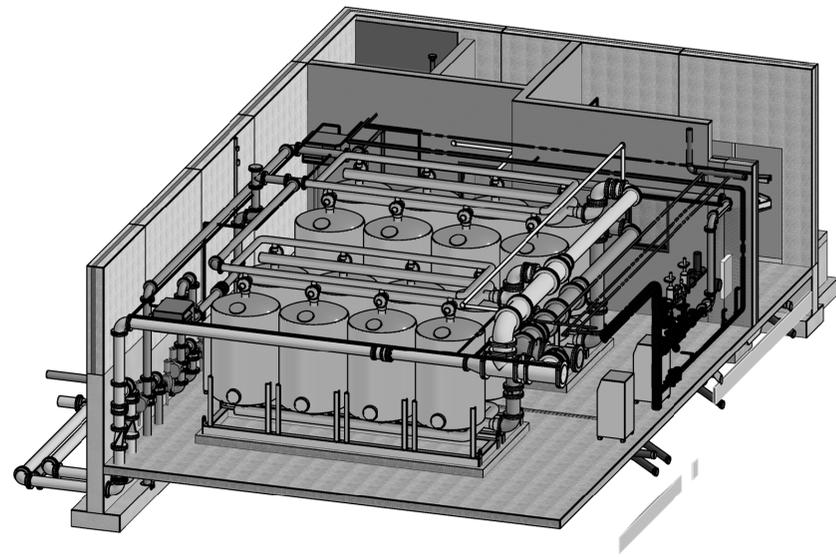
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REV. #	DESCRIPTION	DATE

PROCESS SECTIONS

01
P302



1 FILTER ISOMETRIC FOR REFERENCE ONLY
P901 NOT TO SCALE



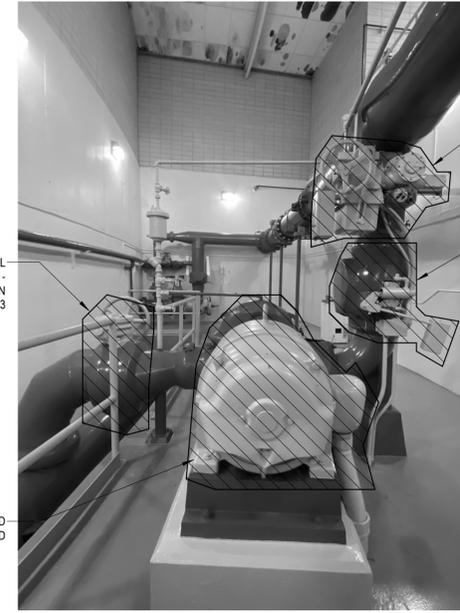
REPLACE EXISTING 6" GATE VALVE WITH 6" GATE VALVE w/ PNEUMATIC ACTUATOR

REPLACE EXISTING 12" MANUAL BUTTERFLY VALVE IN KIND

REPLACE EXISTING 10" SURGE RELIEF VALVE IN KIND

REPLACE EXISTING 14" GATE VALVE IN KIND

2 RESERVIOR FILL VALVE
P901 NOT TO SCALE



REPLACE MANUAL BUTTERFLY VALVE - 12" ON HSP1 & 14" ON HSP2 AND 3

REPLACE ELECTRICALLY ACTUATED BUTTERFLY VALVE - 8" ON HSP1 & 10" ON HSP2 AND 3

REPLACE CHECK VALVE - 8" ON HSP1 & 10" ON HSP2 AND 3

REPLACE PUMP AND MOTOR IN KIND

3 HSP PUMP PHOTO -TYP. OF 3
P901 NOT TO SCALE



SEE PHOTO 3/01P901 FOR TYPICAL REPLACEMENT NOTES

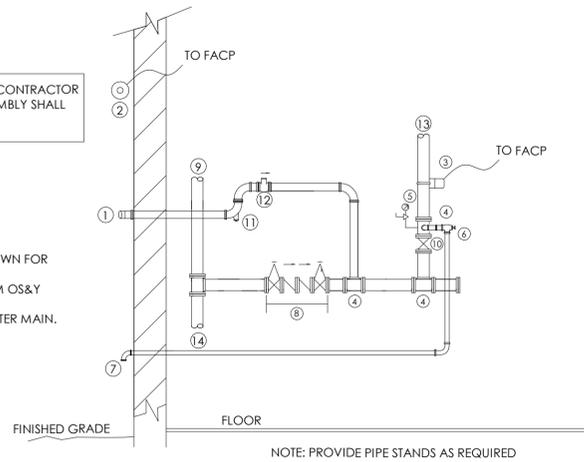
4 THREE HSP'S PHOTO
P901 NOT TO SCALE

GENERAL NOTES:

1. FIRE SPRINKLER PIPING LAYOUT AND SIZING SHALL BE DETERMINED BY HYDRAULIC CALCULATION IN ACCORDANCE WITH NFPA 13 PER SPECIFICATION 21.00.00. FINAL HYDRAULIC CALCULATIONS SHALL BE BASED ON ACTUAL FLOW TEST DATA TO BE PERFORMED BY CONTRACTOR.
2. SPRINKLER SYSTEM SHALL BE DESIGNED AS REQUIRED BY NFPA 13 FOR THE OCCUPANCIES IDENTIFIED. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL NUMBER OF SPRINKLERS AND SPACING REQUIREMENTS TO PROTECT THE AREA IN ACCORDANCE WITH NFPA 13 FOR THE OCCUPANCY HAZARD CLASSIFICATION.
3. RISER TO SERVE THE ZONE SHALL BE COORDINATED WITH THE CONSTRUCTION. DO NOT OBSTRUCT CORRIDORS, DOORWAYS, ETC. INSTALL RISERS AS CLOSE AS PRACTICAL TO ROOM CORNERS, WALLS, ETC. RISER LOCATION SHOWN MAY BE REVISED BY THE CONTRACTOR AS REQUIRED.
4. THE ARCHITECTURAL BACKGROUND PROVIDED ON THIS SHEET IS FOR GENERAL REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL BACKGROUNDS WITH THE ARCHITECTURAL SHEETS. REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATED WALKWAYS, STAIRWAYS, BRIDGES, ETC.
5. COORDINATE SPRINKLER INSTALLATION IN AREAS WITHOUT CEILINGS. PROVIDE ADDITIONAL SPRINKLERS AS REQUIRED TO AVOID OBSTRUCTIONS TO DISCHARGE FORMED BY DUCT WORK, LIGHT FIXTURES, STRUCTURE, WATER TREATMENT EQUIPMENT, MECHANICAL EQUIPMENT, ETC.
6. PROVIDE SPRINKLER GUARDS ON ALL SPRINKLERS LESS THAN 7'-0" AFF.
7. PROVIDE INSPECTORS TEST CONNECTION AT REMOTE POINT FOR EACH ZONE. ROUTE TEST AND DRAIN PIPES TO GRADE. PIPE SHALL TERMINATE WITH SMOOTHER BORE CORROSION RESISTANT OUTLET.
8. COORDINATE LOCATION OF FIRE DEPARTMENT CONNECTION WITH CITY OF MADISON FIRE DEPARTMENT.
9. PROVIDE BALL DRIP VALVE AT BASE OF FIRE DEPARTMENT CONNECTION.
10. INSTALL HIGH TEMPERATURE SPRINKLERS IN CLOSE PROXIMITY TO UNIT HEATERS PER NFPA 13.
11. SPRINKLER HEADS IN CHEM ROOMS SHALL BE WAX COATED AGAINST CORROSION. ALL PIPING SHALL BE FIELD PAINTED IN ACCORDANCE WITH DIVISION 9.
12. SPRINKLER MAINS SHALL BE MINIMUM SCHEDULE 10 STEEL PIPE. BRANCH PIPING SHALL BE MINIMUM SCHEDULE 40 STEEL PIPE. NO THIN WALLED PIPING WILL BE ACCEPTED. REFER TO 21.13.13 FOR DETAILS.
13. ALL PIPING PENETRATIONS SHALL BE SEALED WITH FIRE STOP.
14. AREAS WITH LAY-IN OR GYPSUM CEILINGS SHALL HAVE RECESSED OR SEMI-RECESSED SPRINKLER HEADS.
15. AREAS WITHOUT CEILINGS SHALL HAVE UPRIGHT OR PENDANT TYPE SPRINKLER HEADS.
16. ALL CHEMICAL ROOM SPACES SHALL HAVE WAX COATED UPRIGHT OR PENDANT TYPE SPRINKLER HEADS.

NOTE: THIS DETAIL IS FOR REFERENCE ONLY. FIRE SPRINKLER CONTRACTOR SHALL DESIGN THE SPRINKLER RISER. FINAL SIZING AND ASSEMBLY SHALL BE BY SPRINKLER CONTRACTOR.

1. 4" TO REMOTE FIRE DEPARTMENT CONNECTION.
2. ELECTRIC HORN AND STROBE.
3. WATER FLOW INDICATOR
4. TEE CONNECTION
5. PRESSURE GAUGE
6. 2" MAIN DRAIN VALVE
7. ELBOW OUT THROUGH EXTERIOR AND ELBOW DOWN FOR SYSTEM MAIN DRAIN
8. DOUBLE CHECK DETECTOR ASSEMBLY WITH UL/FM OS&Y VALVES WITH TAMPER SWITCHES.
9. 6" FIRE PROTECTION SERVICE FROM FINISHED WATER MAIN.
10. SUPERVISED BUTTERFLY VALVE
11. BALL DRIP
12. CHECK VALVE
13. WET SYSTEM MAIN
14. 4" COMBINED SERVICE TO NPW AND DOMESTIC WATER (SEE 02/M201)

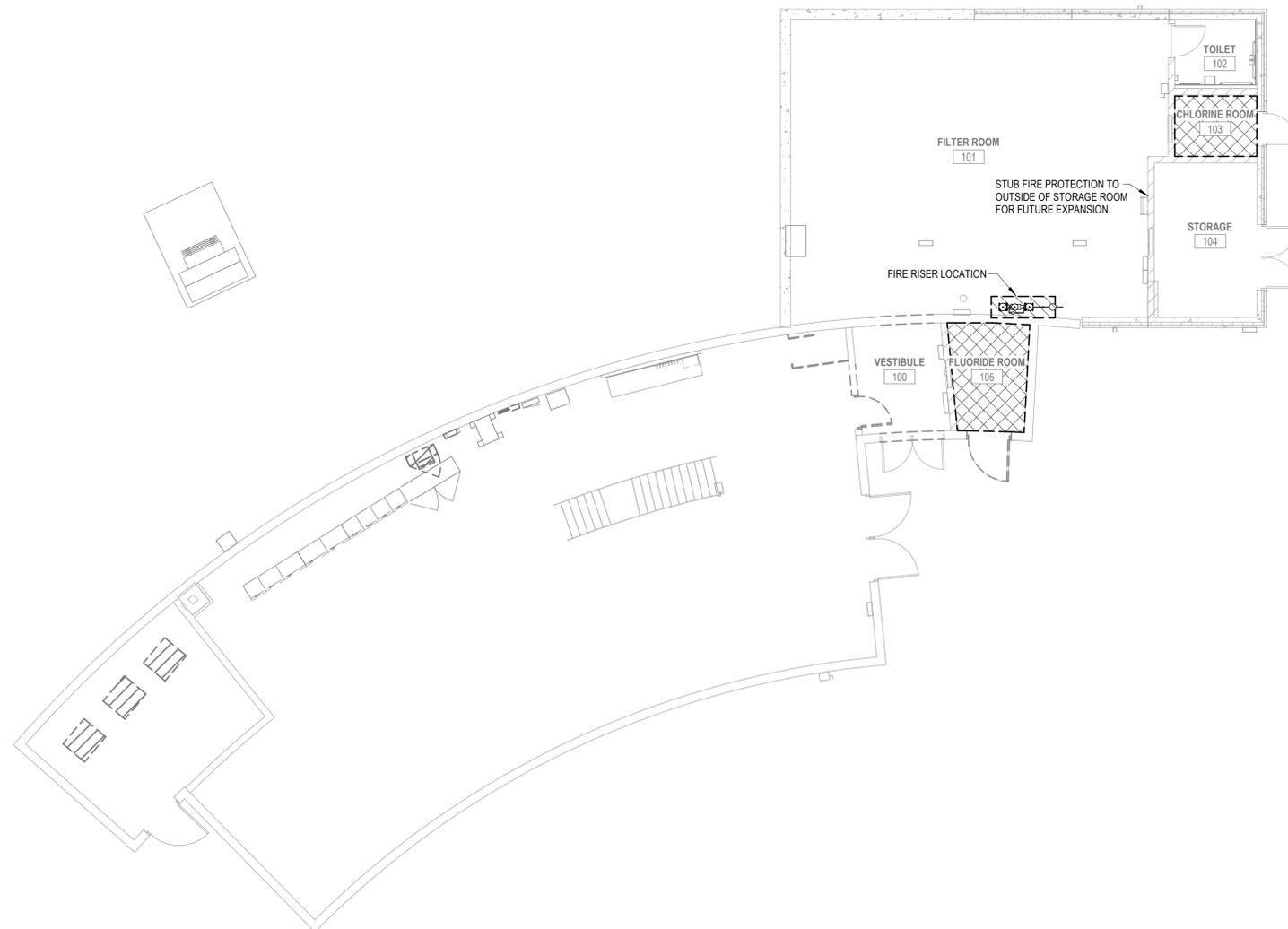


NOTE: PROVIDE PIPE STANDS AS REQUIRED

SPRINKLER SYSTEM SCHEDULE

AREA	HAZARD CLASS	MINIMUM DENSITY (GPM/SQ FT)	MINIMUM SPRINKLER HYDRAULIC DESIGN AREA (SQ. FT)	HOSE STREAM DEMAND (GPM)	DURATION (MIN)	NOTES
	ORDINARY GROUP 2	0.20	1500	250	90	

1 FIRE PROTECTION RISER
FP101 NOT TO SCALE



2 FIRE PROTECTION PLAN
FP101 1/8" = 1'-0"





Project Owner
MADISON WATER UTILITY

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION

2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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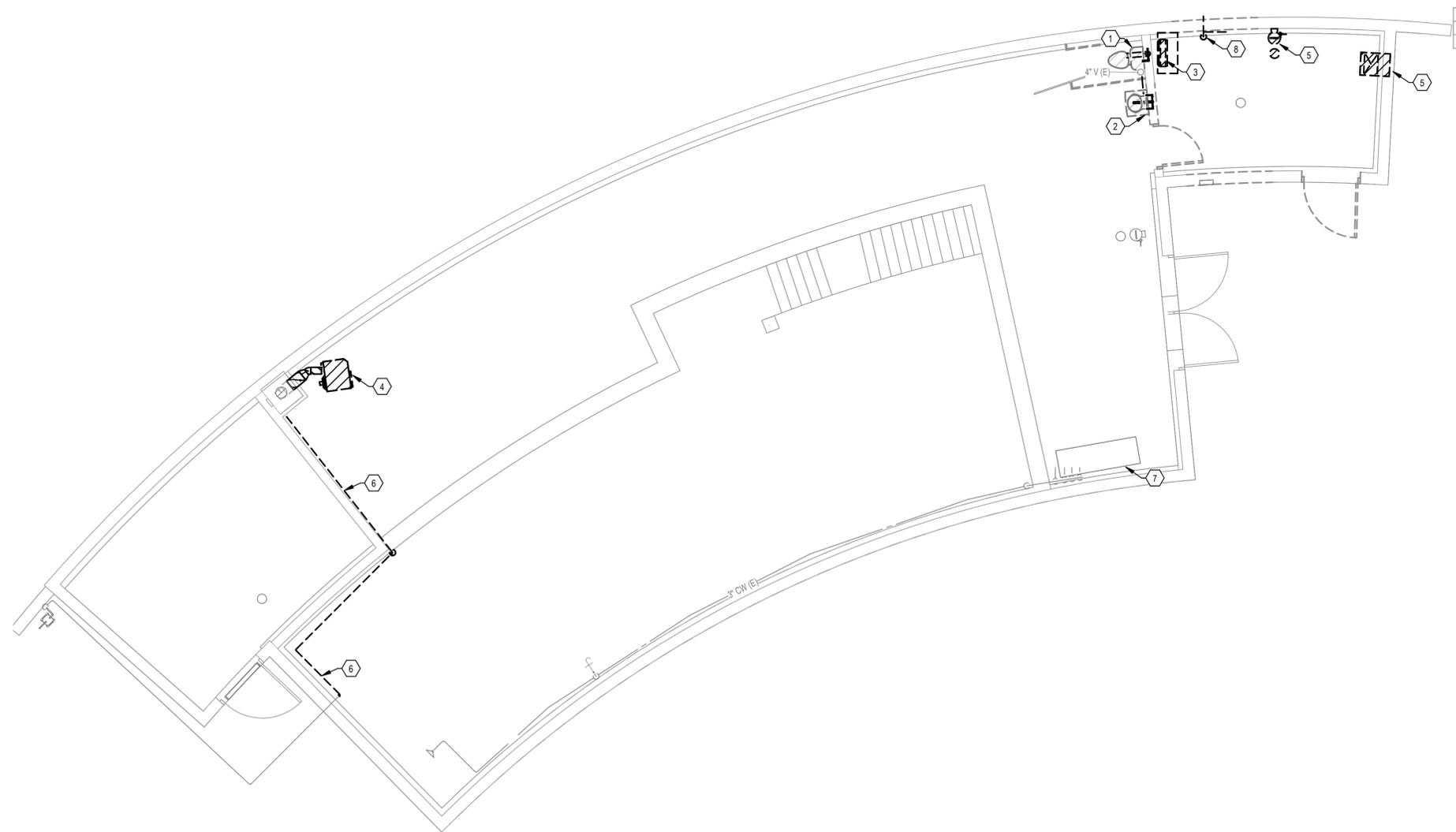
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REV. #	DESCRIPTION	DATE

MECHANICAL REMOVAL
PLAN

01
M071

KEYNOTES:

1. REMOVE EXISTING WATER CLOSET AND ASSOCIATED SUPPORTS. REMOVE ALL ASSOCIATED SUPPLY, WASTE, AND VENT PIPING. VENT PIPING SHALL BE REMOVED BACK TO MAIN AND CAPPED ABOVE CEILING. SUPPLY AND WASTE PIPING SHALL BE REMOVED TO FLOOR LEVEL AND SHALL BE SEALED AIR AND WATER TIGHT BELOW FLOOR. REFER TO ARCHITECTURAL FOR WALL AND FLOOR REPAIR AND FINISHES.
2. REMOVE EXISTING SINK AND ASSOCIATED SUPPORTS. REMOVE ALL ASSOCIATED SUPPLY, WASTE, AND VENT PIPING. VENT PIPING SHALL BE REMOVED BACK TO MAIN AND CAPPED ABOVE CEILING. SUPPLY AND WASTE PIPING SHALL BE REMOVED TO FLOOR LEVEL AND SHALL BE SEALED AIR AND WATER TIGHT BELOW FLOOR. REFER TO ARCHITECTURAL FOR WALL AND FLOOR REPAIR AND FINISHES.
3. REMOVE EXISTING ELECTRIC UNIT HEATER AND ASSOCIATED CONTROLS. REMOVE ASSOCIATED HANGERS AND SUPPORTS AND PREPARE LOCATION FOR INSTALLATION OF NEW UNIT HEATER.
4. REMOVE EXISTING GAS UNIT HEATER AND ASSOCIATED GAS PIPING, VENTING, AND CONTROLS. REMOVE ALL HANGERS AND SUPPORTS. PREPARE LOCATION FOR INSTALLATION OF NEW UNIT HEATER.
5. REMOVE EXISTING EXHAUST FAN AND ASSOCIATED DUCTWORK, LOUVER AND CONTROLS. EXISTING WALL PENETRATION SHALL REMAIN FOR CONNECTION TO NEW FAN, LOUVER, AND DUCT WORK. REMOVE ALL ASSOCIATED HANGERS AND SUPPORTS. REFER TO ARCHITECTURAL FOR WALL REPAIR AND FINISHES.
6. REMOVE EXISTING GAS PIPING TO THE EXTENT SHOWN. REMOVE ALL HANGERS AND SUPPORTS.
7. EXISTING AIR HANDLING UNIT TO REMAIN.
8. REMOVE EXISTING POTABLE WATER AND HOSE BIBBS. REMOVE PIPING TO CHEMICAL FEED EQUIPMENT. SUPPLY PIPING SHALL BE REMOVED TO FLOOR LEVEL AND SHALL BE SEALED AIR AND WATER TIGHT BELOW FLOOR. REFER TO ARCHITECTURAL FOR FLOOR AND WALL REPAIRS AND FINISHES.



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MECHANICAL DEMOLITION PLAN

1 M071 3/16" = 1'-0"



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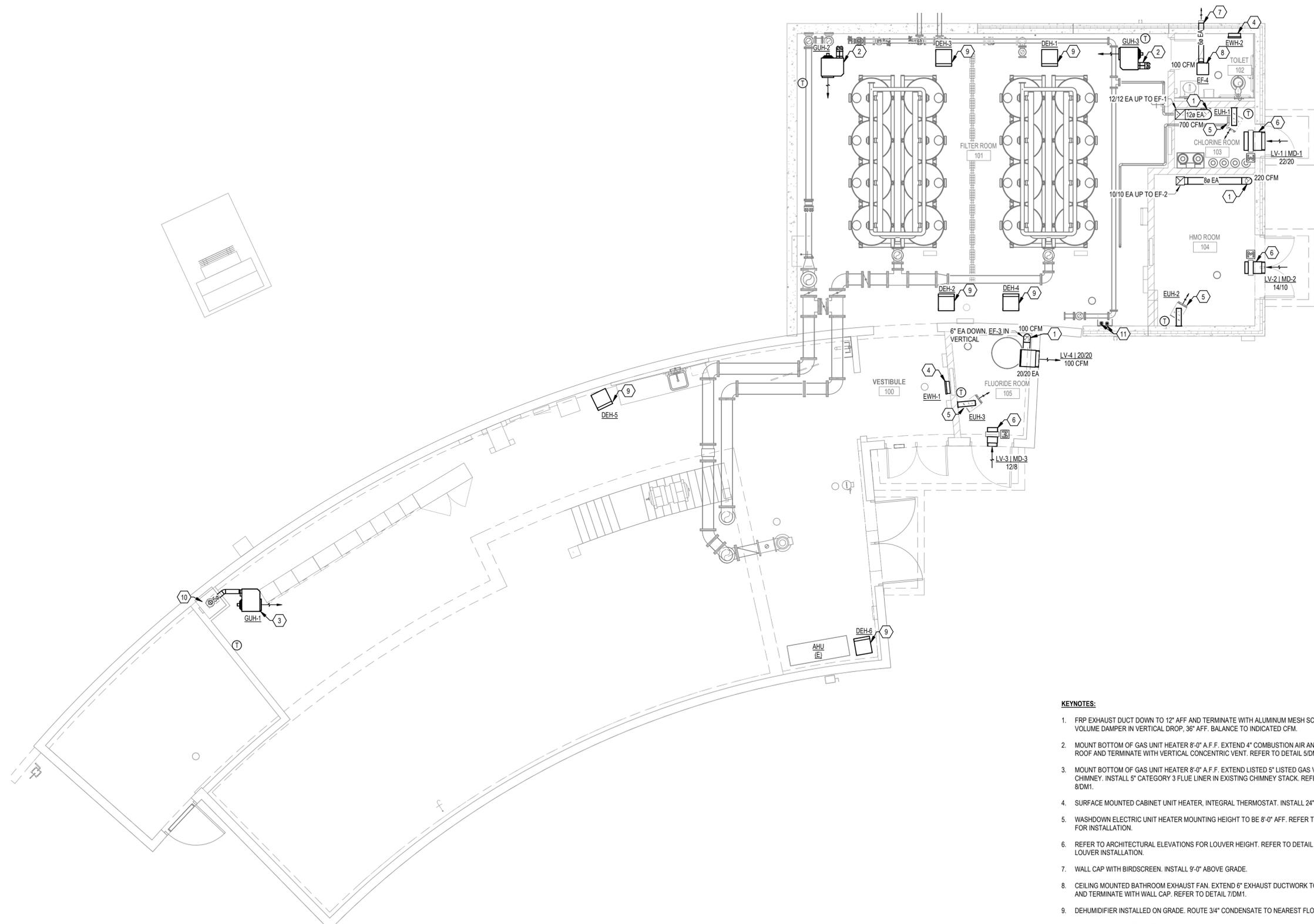
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MECHANICAL REMOVAL
PLAN

01
M071

REVISION SCHEDULE

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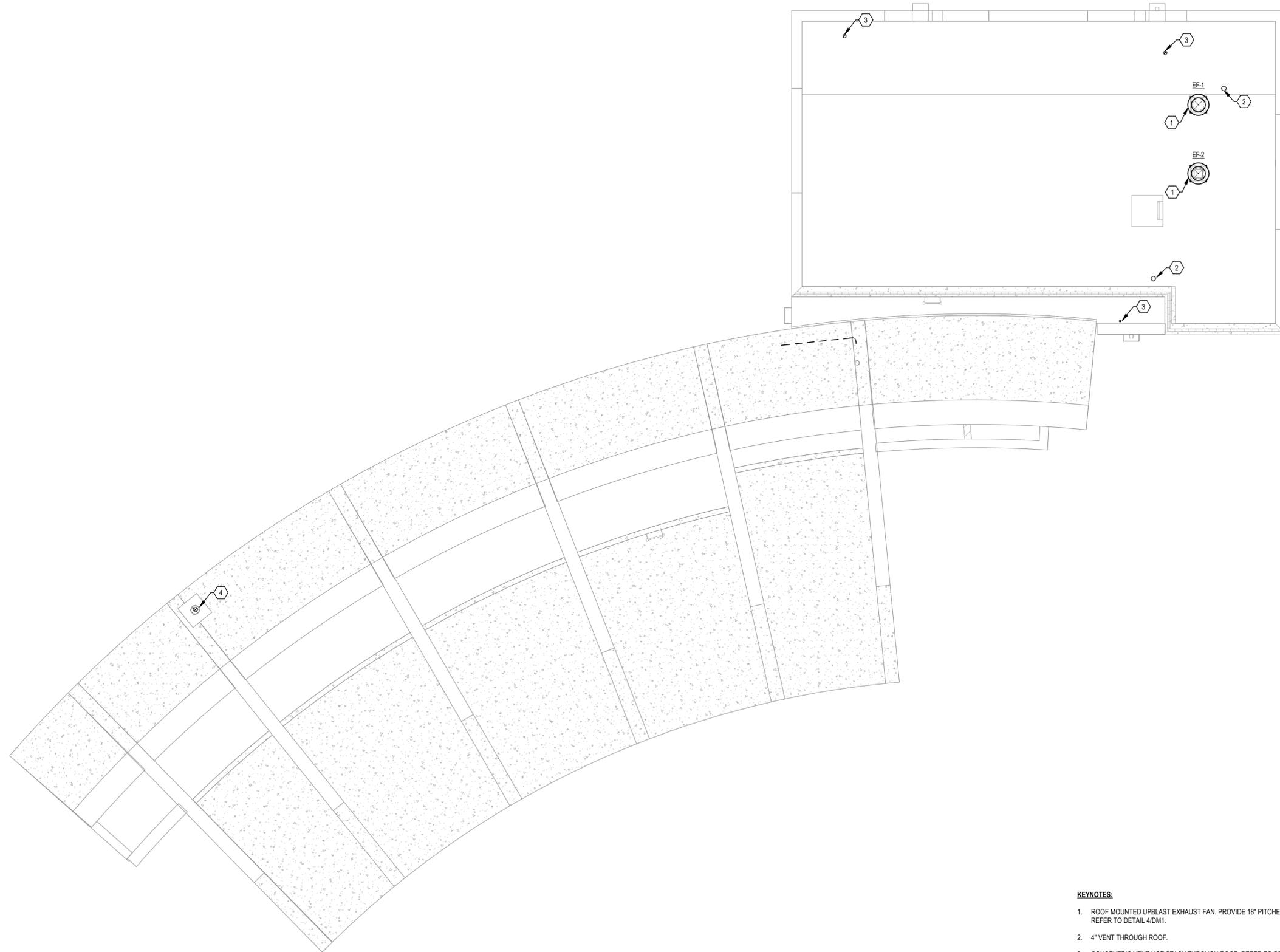
KEYNOTES:

- FRP EXHAUST DUCT DOWN TO 12" AFF AND TERMINATE WITH ALUMINUM MESH SCREEN. PROVIDE VOLUME DAMPER IN VERTICAL DROP, 36" AFF. BALANCE TO INDICATED CFM.
- MOUNT BOTTOM OF GAS UNIT HEATER 8'-0" A.F.F. EXTEND 4" COMBUSTION AIR AND 4" FLUE TO ROOF AND TERMINATE WITH VERTICAL CONCENTRIC VENT. REFER TO DETAIL 5/DM1.
- MOUNT BOTTOM OF GAS UNIT HEATER 8'-0" A.F.F. EXTEND LISTED 5" LISTED GAS VENT TO EXISTING CHIMNEY. INSTALL 5" CATEGORY 3 FLUE LINER IN EXISTING CHIMNEY STACK. REFER TO DETAIL 8/DM1.
- SURFACE MOUNTED CABINET UNIT HEATER, INTEGRAL THERMOSTAT. INSTALL 24" AFF.
- WASHDOWN ELECTRIC UNIT HEATER MOUNTING HEIGHT TO BE 8'-0" AFF. REFER TO DETAIL 2/DM1 FOR INSTALLATION.
- REFER TO ARCHITECTURAL ELEVATIONS FOR LOUVER HEIGHT. REFER TO DETAIL 1/DM1 FOR LOUVER INSTALLATION.
- WALL CAP WITH BIRDSCREEN. INSTALL 9'-0" ABOVE GRADE.
- CEILING MOUNTED BATHROOM EXHAUST FAN. EXTEND 6" EXHAUST DUCTWORK TO EXTERIOR WALL AND TERMINATE WITH WALL CAP. REFER TO DETAIL 7/DM1.
- DEHUMIDIFIER INSTALLED ON GRADE. ROUTE 3/4" CONDENSATE TO NEAREST FLOOR DRAIN.
- INSTALL 5" SEAMLESS CATEGORY 3 FLUE LINER WITHIN EXISTING 8" CLAY PIPE CHIMNEY. REFER TO DETAIL 8/DM1.
- 2" COMBUSTION AIR INTAKE AND EXHAUST FROM GWH-1 UP TO CONCENTRIC VENT THROUGH ROOF.

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1
M101
3/16" = 1'-0"

PROJECT NORTH



KEYNOTES:

1. ROOF MOUNTED UPBLAST EXHAUST FAN. PROVIDE 18" PITCHED ROOF CURB WITH WOOD NAILOR. REFER TO DETAIL 4/DM1.
2. 4" VENT THROUGH ROOF.
3. CONCENTRIC VENT HOT STACK THROUGH ROOF. REFER TO DETAIL 5/DM1 AND 6/DM1.
4. 5" DIA CHIMNEY SLEEVE FROM GUH-1. ROUTE THROUGH EXISTING CHIMNEY.

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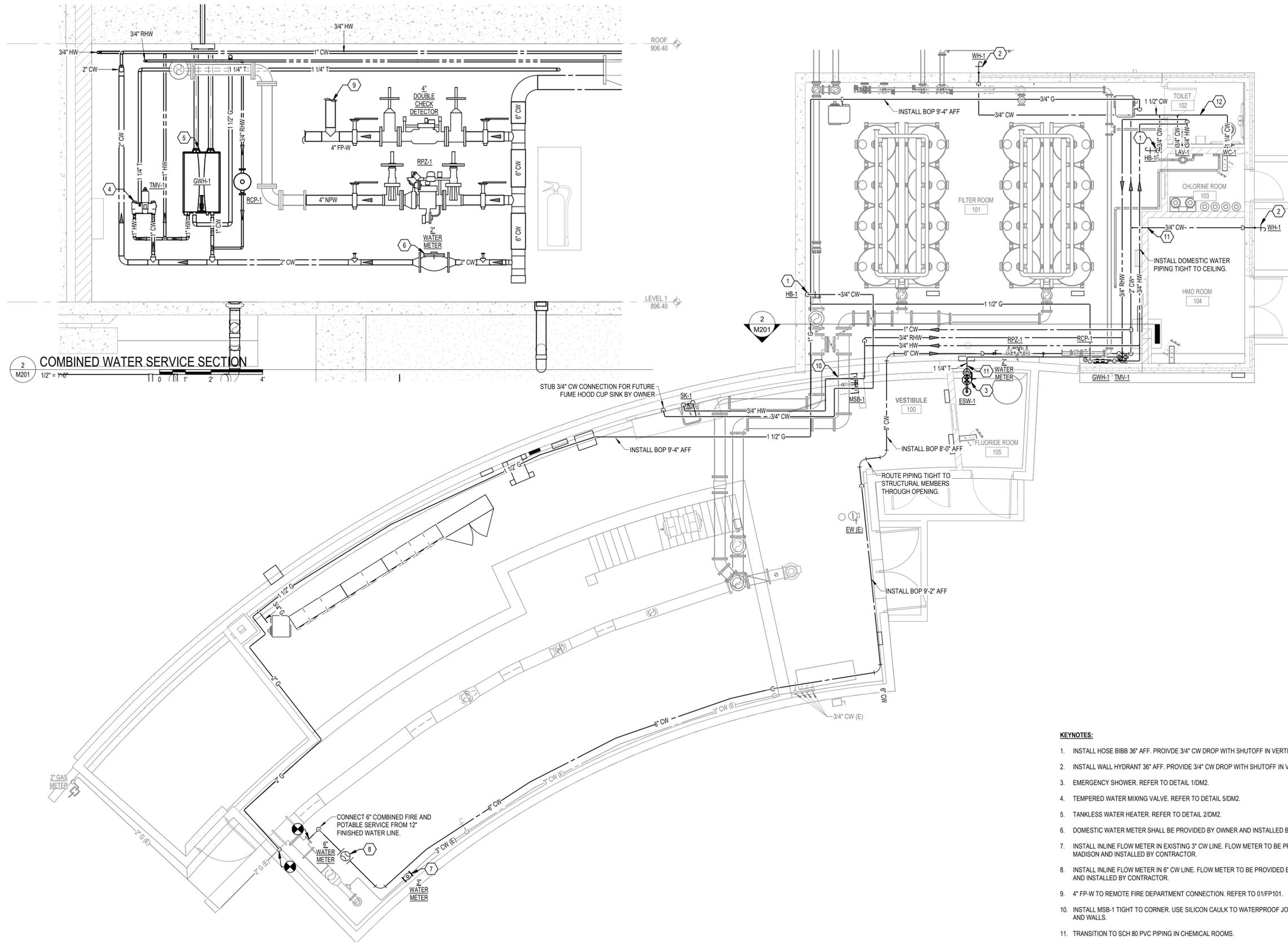


ROOF MECHANICAL PLAN

3/16" = 1'-0"



PROJECT
NORTH

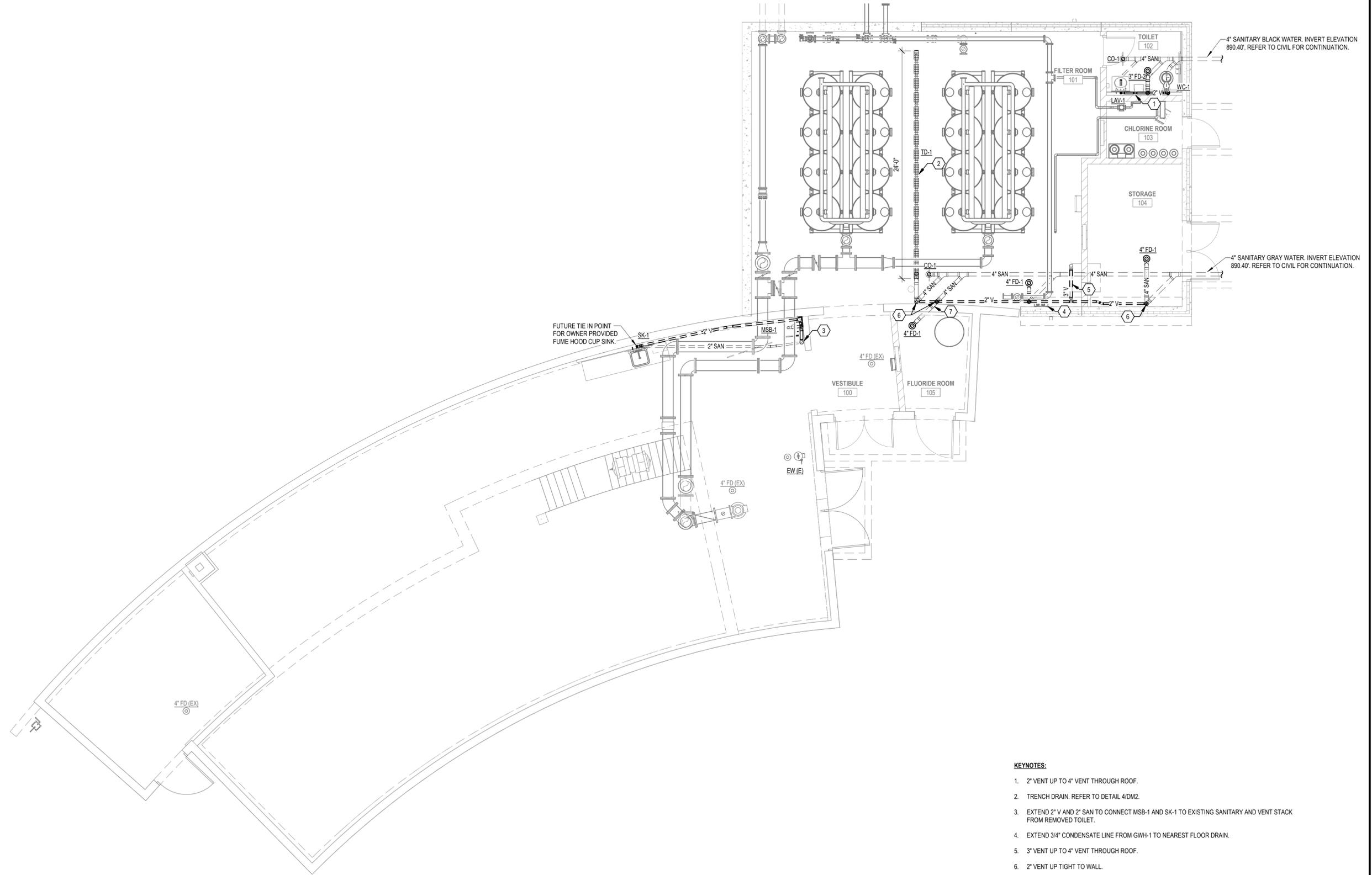


KEYNOTES:

1. INSTALL HOSE BIBB 36" AFF. PROVIDE 3/4" CW DROP WITH SHUTOFF IN VERTICAL.
2. INSTALL WALL HYDRANT 36" AFF. PROVIDE 3/4" CW DROP WITH SHUTOFF IN VERTICAL.
3. EMERGENCY SHOWER. REFER TO DETAIL 1/DM2.
4. TEMPERED WATER MIXING VALVE. REFER TO DETAIL 5/DM2.
5. TANKLESS WATER HEATER. REFER TO DETAIL 2/DM2.
6. DOMESTIC WATER METER SHALL BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR.
7. INSTALL INLINE FLOW METER IN EXISTING 3" CW LINE. FLOW METER TO BE PROVIDED BY CITY OF MADISON AND INSTALLED BY CONTRACTOR.
8. INSTALL INLINE FLOW METER IN 6" CW LINE. FLOW METER TO BE PROVIDED BY CITY OF MADISON AND INSTALLED BY CONTRACTOR.
9. 4" FP-W TO REMOTE FIRE DEPARTMENT CONNECTION. REFER TO 01/FP101.
10. INSTALL MSB-1 TIGHT TO CORNER. USE SILICON CAULK TO WATERPROOF JOINTS BETWEEN MSB-1 AND WALLS.
11. TRANSITION TO SCH 80 PVC PIPING IN CHEMICAL ROOMS.
12. PROVIDE WATER HAMMER ARRESTOR PER SPECIFICATION SECTION 22 11 19.

1 MAIN LEVEL DOMESTIC WATER AND GAS PLAN
3/16" = 1'-0"
PROJECT NORTH

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KEYNOTES:

- 2" VENT UP TO 4" VENT THROUGH ROOF.
- TRENCH DRAIN. REFER TO DETAIL 4/DM2.
- EXTEND 2" V AND 2" SAN TO CONNECT MSB-1 AND SK-1 TO EXISTING SANITARY AND VENT STACK FROM REMOVED TOILET.
- EXTEND 3/4" CONDENSATE LINE FROM GWH-1 TO NEAREST FLOOR DRAIN.
- 3" VENT UP TO 4" VENT THROUGH ROOF.
- 2" VENT UP TIGHT TO WALL.
- CORE DRILL THROUGH EXISTING FOUNDATION WALL ABOVE TOP OF FOOTING.

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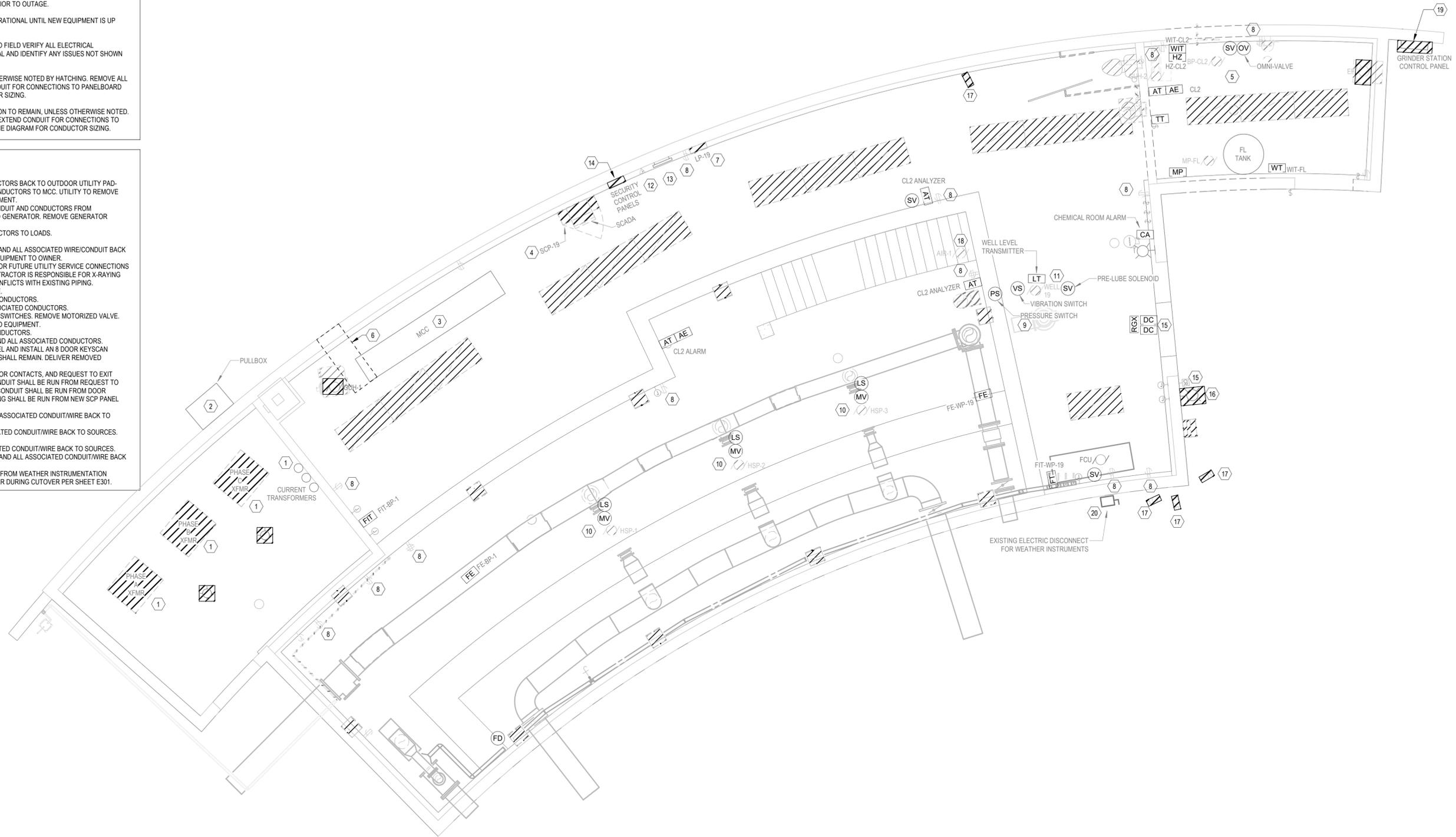
1 MAIN LEVEL SANITARY WASTE AND VENT PLAN
3/16" = 1'-0"
PROJECT NORTH

REMOVAL GENERAL NOTES

- A. SEE SPECIFICATION SECTION 01 12 16 FOR WORK SEQUENCE DETAILS.
- B. SEE SPECIFICATION SECTIONS 26 00 00 AND 26 05 01 FOR ADDITIONAL REMOVAL DETAILS.
- C. COORDINATE ALL REMOVAL WORK WITH ALL OTHER CONTRACTORS.
- D. ALL OUTAGES SHALL BE COORDINATED WITH OWNER, ENGINEER, AND GENERAL CONTRACTOR AT A MINIMUM OF 5 DAYS PRIOR TO OUTAGE.
- E. ALL EXISTING EQUIPMENT TO REMAIN OPERATIONAL UNTIL NEW EQUIPMENT IS UP AND RUNNING.
- F. ELECTRICAL CONTRACTOR IS REQUIRED TO FIELD VERIFY ALL ELECTRICAL EQUIPMENT LOCATIONS PRIOR TO REMOVAL AND IDENTIFY ANY ISSUES NOT SHOWN ON PLANS.
- G. EXISTING LIGHTS TO REMAIN, UNLESS OTHERWISE NOTED BY HATCHING. REMOVE ALL ASSOCIATED CONDUCTORS. EXTEND CONDUIT FOR CONNECTIONS TO PANELBOARD LP-1 IF NEEDED. SEE E701 FOR CONDUCTOR SIZING.
- H. EXISTING MEASUREMENT INSTRUMENTATION TO REMAIN, UNLESS OTHERWISE NOTED. REMOVE ALL ASSOCIATED CONDUCTORS. EXTEND CONDUIT FOR CONNECTIONS TO PANELBOARD LP-1 IF NEEDED. SEE ONE LINE DIAGRAM FOR CONDUCTOR SIZING.

KEYNOTES

- 1. REMOVE TRANSFORMER PRIMARY CONDUCTORS BACK TO OUTDOOR UTILITY PAD-MOUNT SWITCH. REMOVE SECONDARY CONDUCTORS TO MCC. UTILITY TO REMOVE TRANSFORMERS AND CT METERING EQUIPMENT.
- 2. REMOVE UNDERGROUND GENERATOR CONDUIT AND CONDUCTORS FROM CONNECTION AT TRANSFORMERS BACK TO GENERATOR. REMOVE GENERATOR PULLBOX.
- 3. REMOVE MCC AND ALL ASSOCIATE CONDUCTORS TO LOADS.
- 4. REMOVE SCADA CONTROL PANEL SCP-19.
- 5. REMOVE ALL CHEMICAL FEED EQUIPMENT AND ALL ASSOCIATED WIRE/CONDUIT BACK TO SOURCES. DELIVER CHEMICAL FEED EQUIPMENT TO OWNER.
- 6. SAW-CUT CONCRETE TO ALLOW ACCESS FOR FUTURE UTILITY SERVICE CONNECTIONS TO NEW MCC. WIDTH TO BE 24" WIDE. CONTRACTOR IS RESPONSIBLE FOR X-RAYING FLOOR BEFOREHAND TO CONFIRM ANY CONFLICTS WITH EXISTING PIPING.
- 7. REMOVE PANELBOARD LP-19 AND REPLACE.
- 8. REMOVE RECEPTACLE AND ASSOCIATED CONDUCTORS.
- 9. REMOVE PRESSURE SWITCH AND ALL ASSOCIATED CONDUCTORS.
- 10. PUMP TO BE REPLACED ALONG WITH LIMIT SWITCHES. REMOVE MOTORIZED VALVE.
- 11. REPLACE WELL PUMP AND ALL ASSOCIATED EQUIPMENT.
- 12. REMOVE DATA JACK AND ASSOCIATED CONDUCTORS.
- 13. REMOVE OLD ANALOG METERS/GUAGES AND ALL ASSOCIATED CONDUCTORS.
- 14. REMOVE EXISTING 4 DOOR KEYS CAN PANEL AND INSTALL AN 8 DOOR KEYS CAN PANEL. EXISTING POWER SUPPLY PANELS SHALL REMAIN. DELIVER REMOVED KEYS CAN PANEL TO OWNER.
- 15. DOOR ACCESS SYSTEM CARD READER, DOOR CONTACTS, AND REQUEST TO EXIT SENSOR TO REMAIN. NEW WIRING AND CONDUIT SHALL BE RUN FROM REQUEST TO EXIT TO CARD ACCESS. NEW WIRING AND CONDUIT SHALL BE RUN FROM NEW SCP PANEL BACK TO CARD ACCESS.
- 16. REMOVE CHLORINE ALARM LIGHT AND ALL ASSOCIATED CONDUIT/WIRE BACK TO SOURCE(S).
- 17. REMOVE EXISTING CAMERAS AND ASSOCIATED CONDUIT/WIRE BACK TO SOURCES. DELIVER CAMERAS TO OWNER.
- 18. REMOVE VACUUM PUMP AND ALL ASSOCIATED CONDUIT/WIRE BACK TO SOURCES.
- 19. REMOVE GRINDER PUMP CONTROL PANEL AND ALL ASSOCIATED CONDUIT/WIRE BACK TO SOURCES.
- 20. REMOVE CONDUIT/WIRE BACK TO SOURCE FROM WEATHER INSTRUMENTATION DISCONNECT. PROVIDE TEMPORARY POWER DURING CUTOVER PER SHEET E301.



Project Owner

**CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION**

2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

OVERALL REMOVAL PLAN

01
E070

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1 REMOVAL PLAN

E070



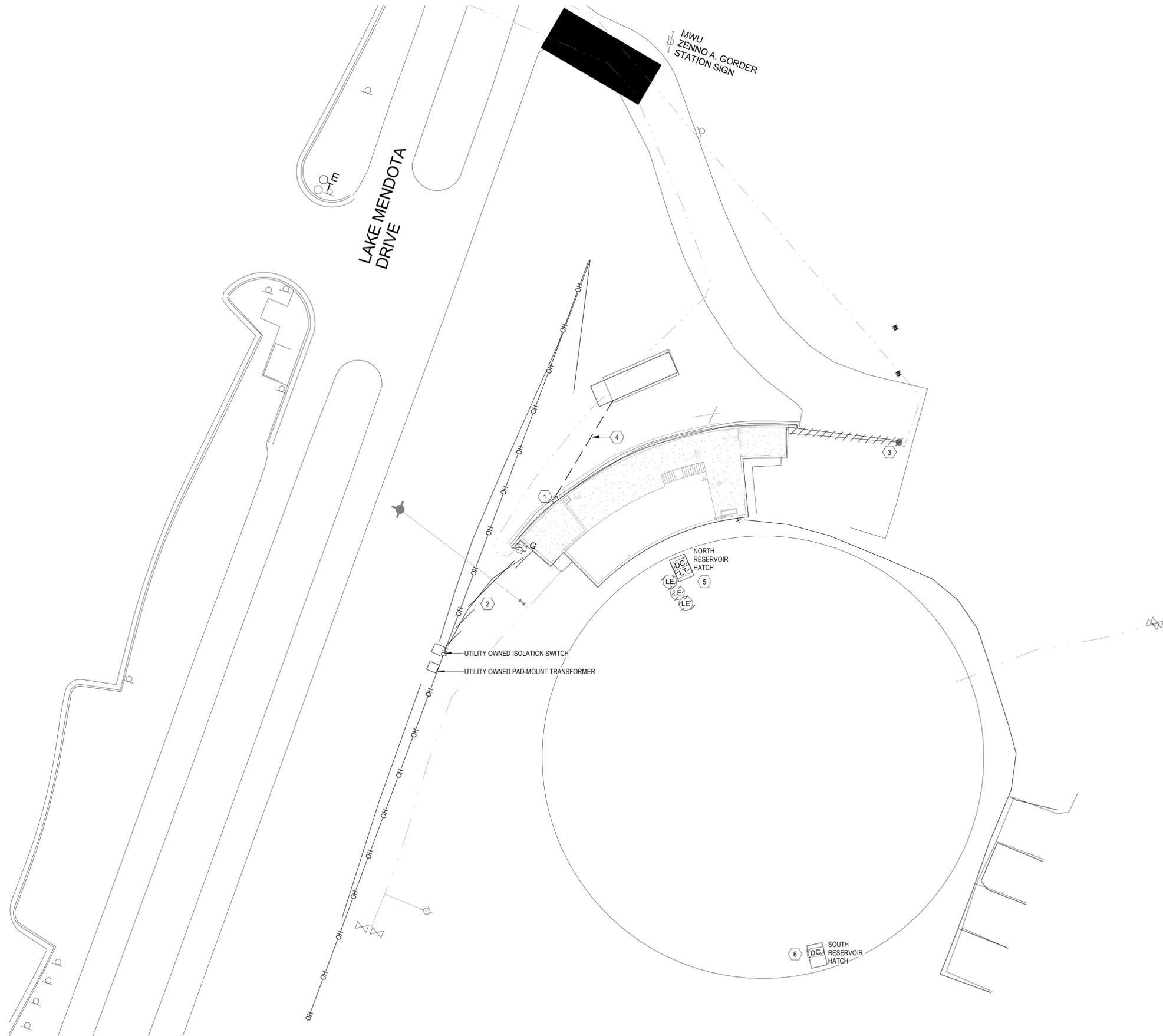


SITE REMOVAL GENERAL NOTES

- A. SEE SPECIFICATION SECTION 01 12 16 FOR WORK SEQUENCE DETAILS.
- B. SEE SPECIFICATION SECTIONS 26 00 00 AND 26 05 01 FOR ADDITIONAL REMOVAL DETAILS.
- C. COORDINATE ALL REMOVAL WORK WITH ALL OTHER CONTRACTORS.
- D. ALL OUTAGES SHALL BE COORDINATED WITH OWNER, ENGINEER, AND GENERAL CONTRACTOR AT A MINIMUM OF 5 DAYS PRIOR TO OUTAGE.
- E. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ELECTRICAL UTILITY ON REMOVAL OF THEIR EQUIPMENT.
- F. ALL EXISTING EQUIPMENT TO REMAIN OPERATIONAL UNTIL NEW EQUIPMENT IS UP AND RUNNING.
- G. ELECTRICAL CONTRACTOR IS REQUIRED TO FIELD VERIFY ALL ELECTRICAL EQUIPMENT LOCATIONS PRIOR TO REMOVAL AND IDENTIFY ANY ISSUES NOT SHOWN ON PLANS.

KEYNOTES

- 1. REMOVE PULLBOX AND ALL ASSOCIATED CONDUCTORS. REPLACE WITH C.T. CABINET.
- 2. REMOVE BURIED CONDUIT AND ASSOCIATED CONDUCTORS BETWEEN THE BUILDING AND EXISTING ISOLATION SWITCH.
- 3. REMOVE GRINDER PUMP AND ALL ASSOCIATED CONDUIT/WIRE BETWEEN WET WELL AND CONTROL PANEL.
- 4. UTILITY OWNED GENERATOR CONDUIT/WIRE. COORDINATE WITH UTILITY TO MAKE CONNECTION IN NEW METERING CABINET. UTILITY WILL PROVIDE CIRCUIT AND MAKE TERMINATIONS TO THE MAIN FEEDER.
- 5. REMOVE EXISTING LEVEL TRANSDUCER, (3) FLOATS, FLOAT TREE MOUNTING ASSEMBLY, AND DOOR CONTACT. REMOVE ALL ASSOCIATED CONDUCTORS BACK TO SOURCES. CONDUIT MAY BE RE-USED BUT EXTENDED INSIDE THE BUILDING TO THE NEW SCP LOCATION.
- 6. REMOVE EXISTING DOOR CONTACT. REMOVE ALL ASSOCIATED CONDUCTORS BACK TO SOURCES. CONDUIT MAY BE RE-USED BUT EXTEND INSIDE THE BUILDING TO THE NEW SCP LOCATION.



Project Owner

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
 2526 LAKE MENDOTA DRIVE
 MADISON, WISCONSIN

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ELECTRICAL SITE PLAN - REMOVAL

01
 E101

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1 ELECTRICAL SITE PLAN - REMOVAL

E101 1" = 20'-0"



SITE LIGHTING GENERAL NOTES

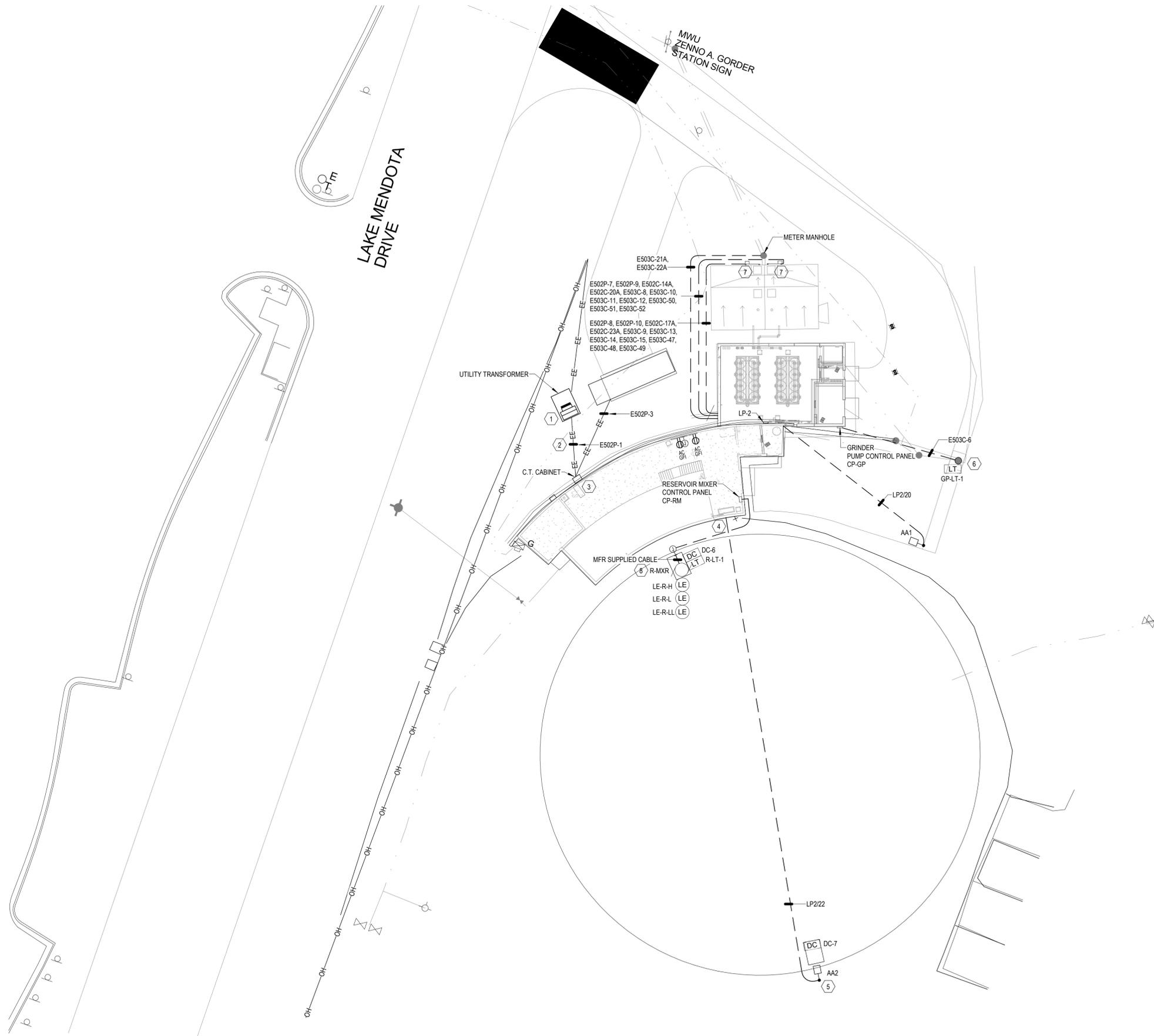
- A. INSTALL 1-1/2" CONDUIT FOR ALL SITE LIGHTING FIXTURES.
- B. SEE LIGHT FIXTURE POLE AND LIGHT FIXTURE POLE CONCRETE BASE DETAILS ON SHEET DE02.
- C. SEE LIGHT FIXTURE SCHEDULE ON SHEET E701
- D. SEE PANELBOARD SCHEDULES ON SHEET E701 FOR ALL CONDUIT AND WIRING REQUIREMENTS.

SITE POWER GENERAL NOTES

- A. ALL CONDUIT SHOWN IS APPROXIMATE. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH ALL OTHER TRADES AND UTILITIES TO AVOID CONFLICTS WITH NEW WORK AND EXISTING CONDITIONS PRIOR TO INSTALLATION.
- B. ALL HANDHOLE LOCATIONS AND QUANTITIES ARE APPROXIMATE. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT HANDHOLE LOCATIONS PRIOR TO INSTALLATION. ELECTRICAL CONTRACTOR SHALL DETERMINE IF ADDITIONAL HANDHOLES ARE REQUIRED DUE TO SITE CONDITIONS OR PULLING REQUIREMENTS. PROVIDE AND INSTALL IF ADDITIONAL HANDHOLES ARE INDEED REQUIRED.
- C. COORDINATE ALL ELECTRICAL SERVICE REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, UTILITY TRANSFORMER, PRIMARY AND SECONDARY CONDUIT AND WIRING, AND METERING WITH ELECTRICAL UTILITY. SEE SPECIFICATION SECTION 26 00 00 FOR MORE INFORMATION.
- D. SEE ONE-LINE DIAGRAMS FOR CONDUIT/WIRE REQUIREMENTS. SEE SHEET E502.
- E. SEE DETAIL 5/DE03 FOR DIRECT BURIED CONDUIT DETAILS.

KEYNOTES ①

1. PROVIDE PAD MOUNTED TRANSFORMER.
2. CONNECT TRANSFORMER TO C.T. CABINET WITH BURIED CONDUIT. ENSURE NO CONFLICT WITH EXISTING GAS AND WATER LINES. COORDINATE WITH OWNER AND UTILITY COMPANY. SEE DETAIL 5/DE03.
3. PROVIDE UNDERGROUND CONNECTION BETWEEN C.T. CABINET AND MCC-1. SEE DETAIL 6/DE03.
4. PROVIDE 2" CONDUIT FOR CONNECTIONS TO RESERVOIR MANWAY INSTRUMENTATION AND LIGHT POLE. ENSURE NO CONFLICT WITH RESERVOIR. COORDINATE WITH OWNER. SEE DETAIL 2/DE02 FOR CONDUIT ENTRY INTO BUILDING.
5. SEE DETAILS 3/DE02 AND 4/DE02 FOR LIGHT POLE AND CAMERA INSTALLATION. CAMERA TO MONITOR SOUTH HATCH. CAMERA TO BE TYPE P3267-LVE. CONFIRM WITH OWNER MOUNTING HEIGHT AND AIMING.
6. PROVIDE CONNECTIONS TO GRINDER CONTROL PANEL AND NEW GRINDER PUMPS.
7. SEE SHEET 02 E301 FOR DEVICES AT THIS TANK.
8. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR RESERVOIR MIXER. CONNECT MIXER TO CONTROL PANEL CP-RM FROM JUNCTION BOX. PROVIDE DIRECT BURIED CONDUIT BETWEEN JUNCTION BOX AND CONTROL PANEL. SEE DETAIL 2/DE02 FOR CONDUIT ENTRY INTO BUILDING.



**CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION**

2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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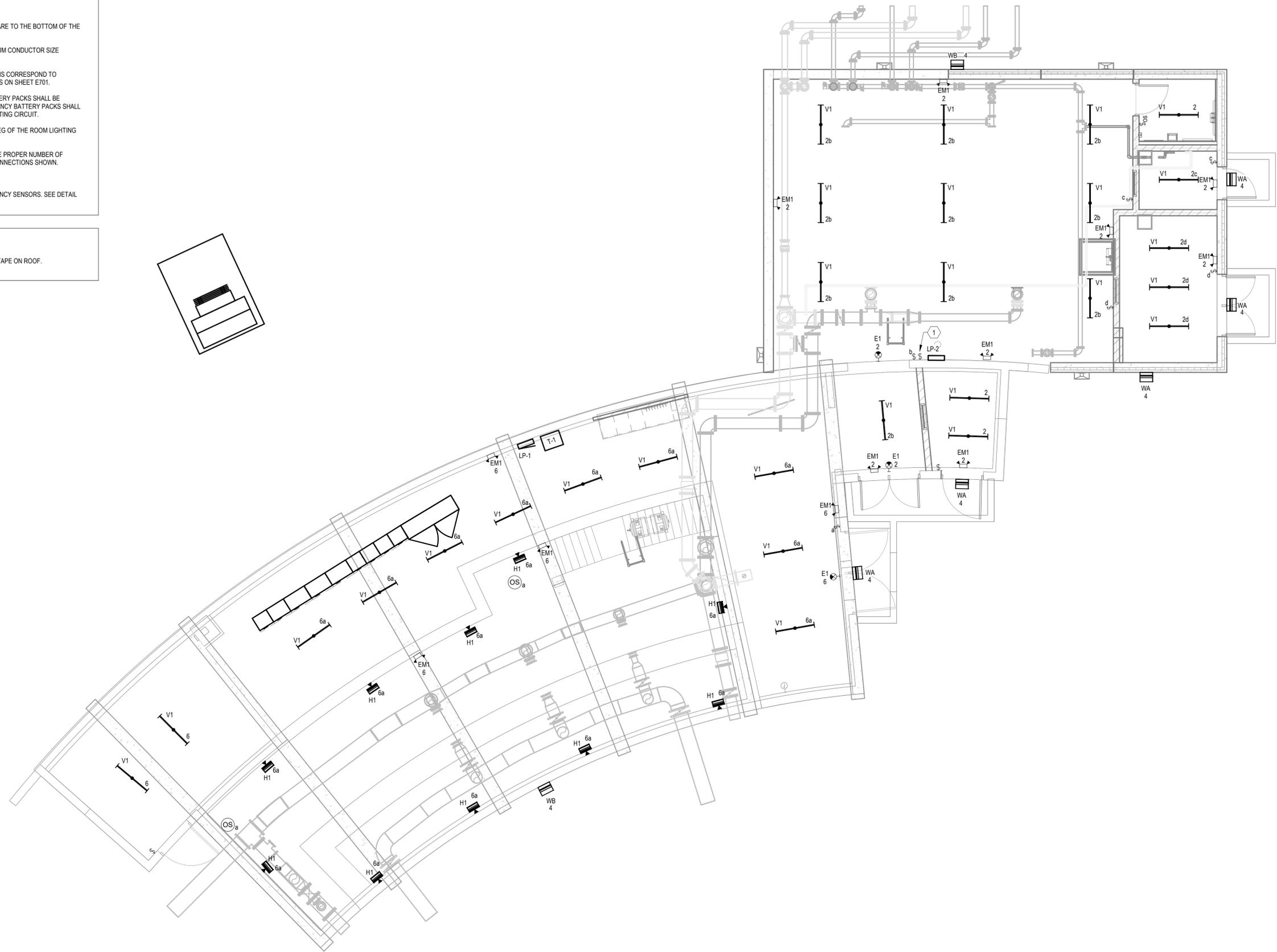
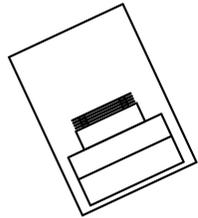
ELECTRICAL SITE PLAN

LIGHTING GENERAL NOTES

- A. ALL MOUNTING HEIGHTS ARE FOR LIGHTING FIXTURES TO THE BOTTOM OF THE FIXTURE UNLESS OTHERWISE NOTED.
- B. REFER TO SPECIFICATION SECTION 26 05 19 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
- C. CIRCUIT NUMBERS SHOWN AT LIGHT FIXTURE LOCATIONS CORRESPOND TO PANELBOARD BREAKERS. SEE PANELBOARD SCHEDULES ON SHEET E701.
- D. ALL ROOM LIGHTING FIXTURES WITH EMERGENCY BATTERY PACKS SHALL BE SWITCHED WITH THE ROOM LIGHTING CIRCUIT. EMERGENCY BATTERY PACKS SHALL BE FED FROM AN UNSWITCHED LEG OF THE ROOM LIGHTING CIRCUIT.
- E. EXIT FIXTURES SHALL BE FED FROM AN UNSWITCHED LEG OF THE ROOM LIGHTING CIRCUIT.
- F. WIRE FOR CIRCUIT CONDUCTORS NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
- G. SEE LIGHT FIXTURE SCHEDULE ON SHEET E701.
- H. INTERIOR LIGHTING SHALL BE INSTALLED WITH OCCUPANCY SENSORS. SEE DETAIL 1/DE03.

KEYNOTES

- 1. PROVIDE SWITCH AND ON INDICATOR LIGHT FOR HEAT TAPE ON ROOF.



Project Owner

**CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION**

2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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LIGHTING PLAN - WELLHOUSE 19

01
E201

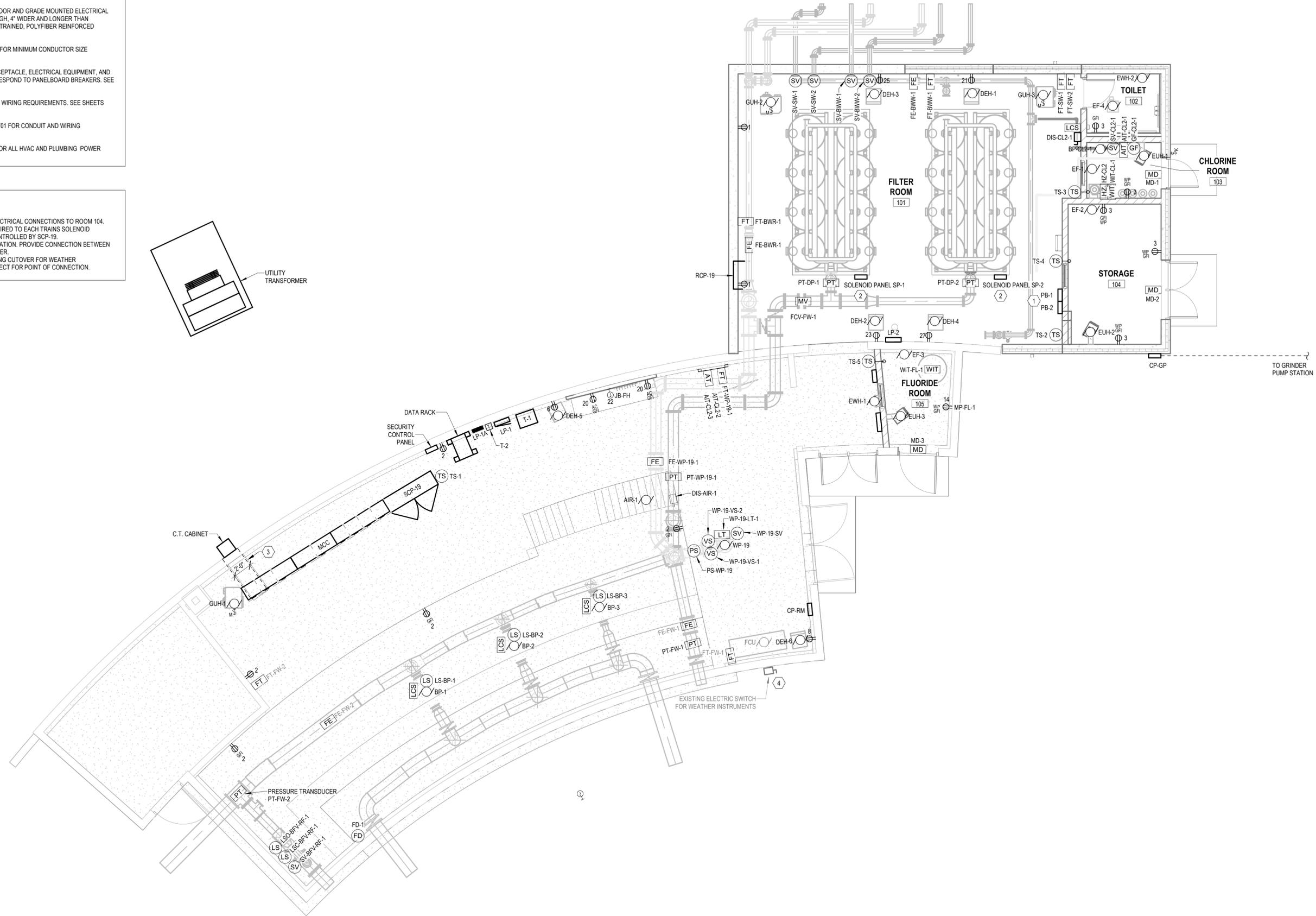
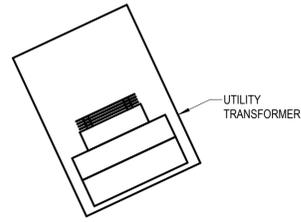
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2 LIGHTING PLAN
E201 3/16" = 1'-0"



- POWER GENERAL NOTES**
- PROVIDE HOUSE KEEPING PADS FOR ALL FLOOR AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4" WIDER AND LONGER THAN EQUIPMENT TO BE PLACED ON IT, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE.
 - REFER TO SPECIFICATION SECTION 26 05 19 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
 - CIRCUIT NUMBERS SHOWN AT GENERAL RECEPTACLE, ELECTRICAL EQUIPMENT, AND MECHANICAL EQUIPMENT LOCATIONS CORRESPOND TO PANELBOARD BREAKERS. SEE PANELBOARD SCHEDULES ON SHEET E701.
 - SEE ONE-LINE DIAGRAMS FOR CONDUIT AND WIRING REQUIREMENTS. SEE SHEETS E502, E503, AND E504.
 - SEE PANELBOARD SCHEDULES ON SHEET E701 FOR CONDUIT AND WIRING REQUIREMENTS.
 - SEE MECHANICAL PLANS AND SCHEDULES FOR ALL HVAC AND PLUMBING POWER REQUIREMENTS AND DETAILS.

- KEYNOTES**
- PROVIDE TWO PULLBOXES FOR FUTURE ELECTRICAL CONNECTIONS TO ROOM 104.
 - FILTER TRAIN VALVE SOLENOIDS ARE PRE-WIRED TO EACH TRAINS SOLENOID TERMINATION PANEL. SOLENOIDS TO BE CONTROLLED BY SCP-19.
 - SEE DETAIL 6/DE03 FOR DUCT BANK INSTALLATION. PROVIDE CONNECTION BETWEEN C.T. CABINET AND MCC MAIN CIRCUIT BREAKER.
 - PROVIDE TEMPORARY UTILITY POWER DURING CUTOVER FOR WEATHER INSTRUMENTATION. USE EXISTING DISCONNECT FOR POINT OF CONNECTION.



CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION

2526 LAKE MENDOTA DRIVE
 MADISON, WISCONSIN

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POWER PLAN - WELLHOUSE
 19

01
 E301

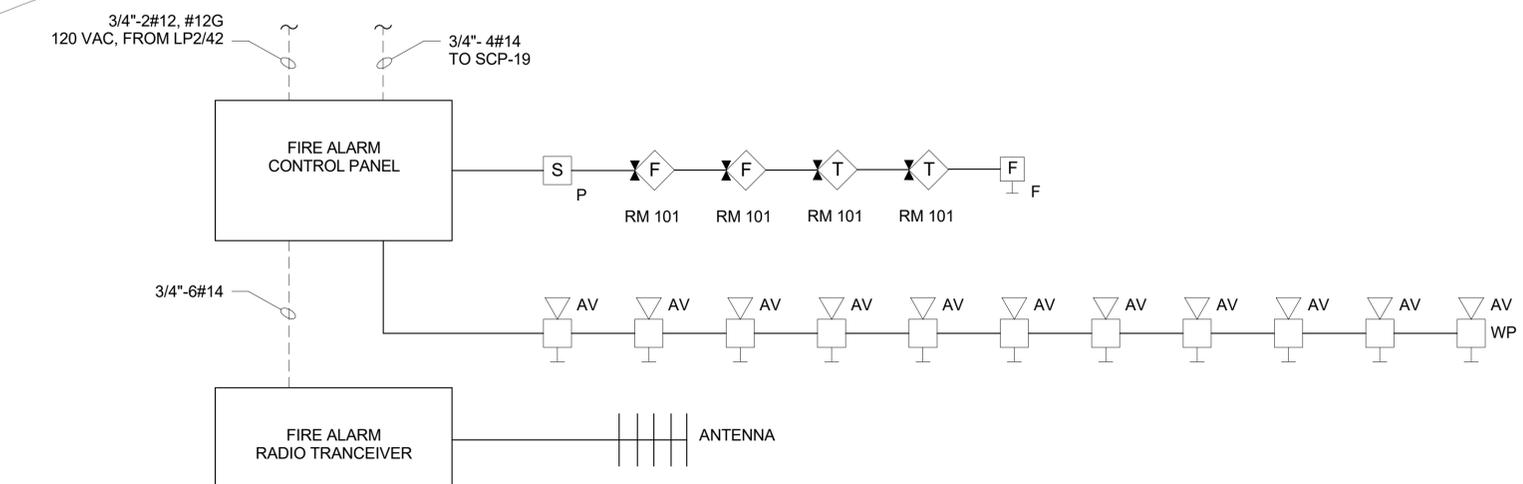
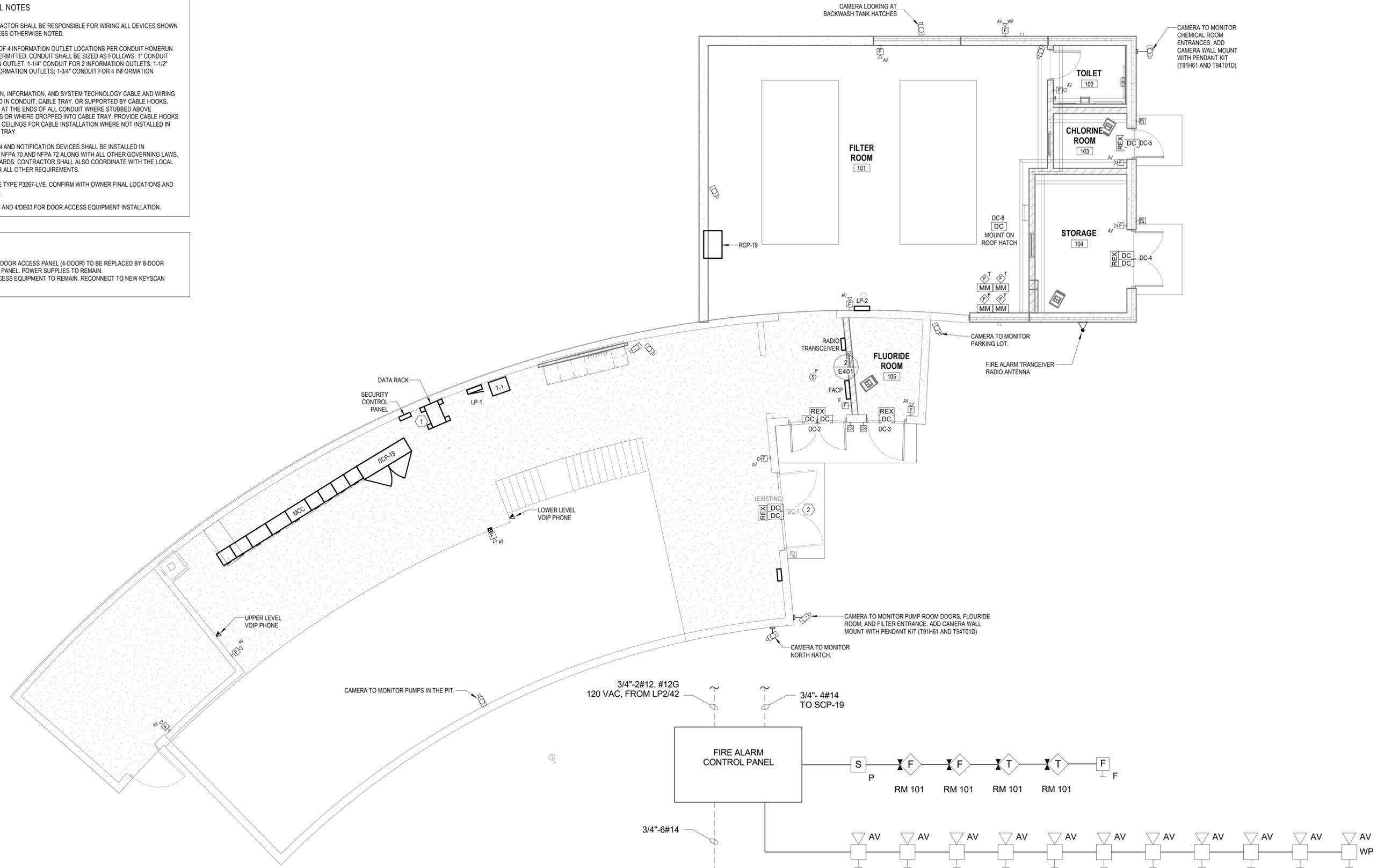
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SYSTEMS GENERAL NOTES

- A. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR WIRING ALL DEVICES SHOWN ON THIS PLAN, UNLESS OTHERWISE NOTED.
- B. MAXIMUM NUMBER OF 4 INFORMATION OUTLET LOCATIONS PER CONDUIT HOMERUN TO MDF OR IDF IS PERMITTED. CONDUIT SHALL BE SIZED AS FOLLOWS: 1" CONDUIT FOR 1 INFORMATION OUTLET; 1-1/4" CONDUIT FOR 2 INFORMATION OUTLETS; 1-1/2" CONDUIT FOR 3 INFORMATION OUTLETS; 1-3/4" CONDUIT FOR 4 INFORMATION OUTLETS.
- C. ALL COMMUNICATION, INFORMATION, AND SYSTEM TECHNOLOGY CABLE AND WIRING SHALL BE INSTALLED IN CONDUIT, CABLE TRAY, OR SUPPORTED BY CABLE HOOKS. PROVIDE BUSHINGS AT THE ENDS OF ALL CONDUIT WHERE STUBBED ABOVE ACCESSIBLE CEILINGS OR WHERE DROPPED INTO CABLE TRAY. PROVIDE CABLE HOOKS ABOVE ACCESSIBLE CEILINGS FOR CABLE INSTALLATION WHERE NOT INSTALLED IN CONDUIT OR CABLE TRAY.
- D. ALL FIRE DETECTION AND NOTIFICATION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70 AND NFPA 72 ALONG WITH ALL OTHER GOVERNING LAWS, CODES, AND STANDARDS. CONTRACTOR SHALL ALSO COORDINATE WITH THE LOCAL FIRE MARSHALL FOR ALL OTHER REQUIREMENTS.
- E. ALL CAMERAS TO BE TYPE P3267-LVE. CONFIRM WITH OWNER FINAL LOCATIONS AND AIMING DIRECTIONS.
- F. SEE DETAILS 3/DE03 AND 4/DE03 FOR DOOR ACCESS EQUIPMENT INSTALLATION.

KEYNOTES

- 1. EXISTING KEYSKAN DOOR ACCESS PANEL (4-DOOR) TO BE REPLACED BY 8-DOOR KEYSKAN CONTROL PANEL. POWER SUPPLIES TO REMAIN.
- 2. EXISTING DOOR ACCESS EQUIPMENT TO REMAIN. RECONNECT TO NEW KEYSKAN PANEL.



2 FIRE ALARM RISER DIAGRAM
E401 NOT TO SCALE

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**CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION**
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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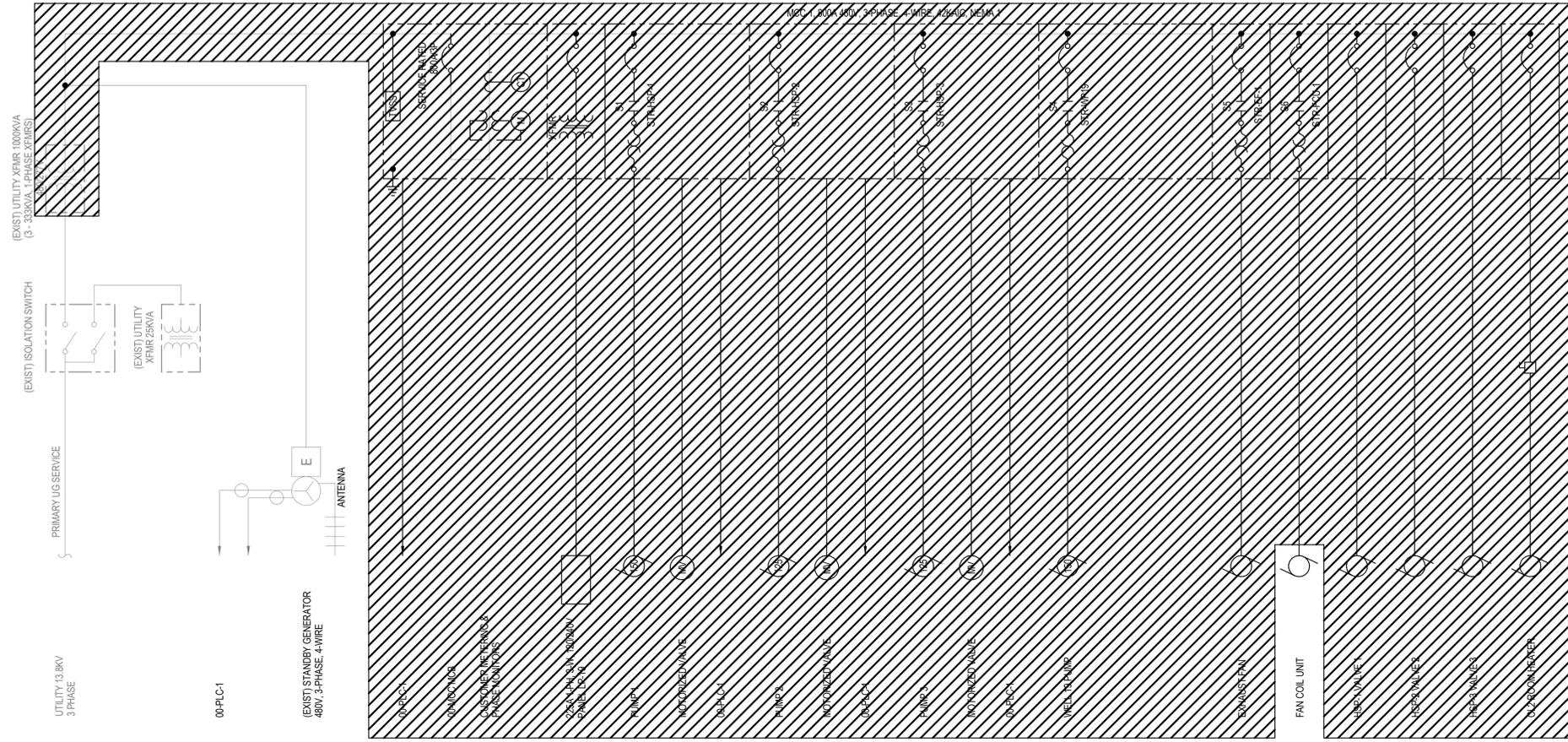
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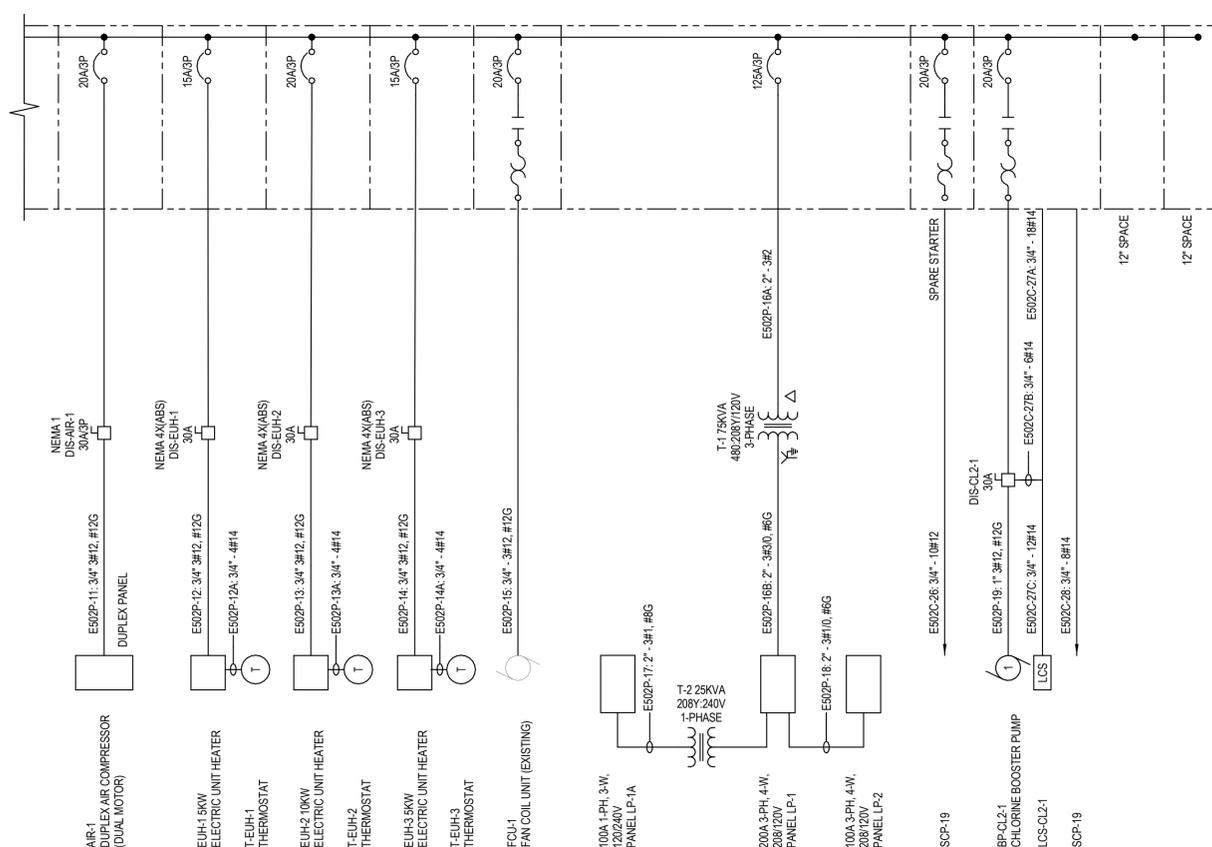
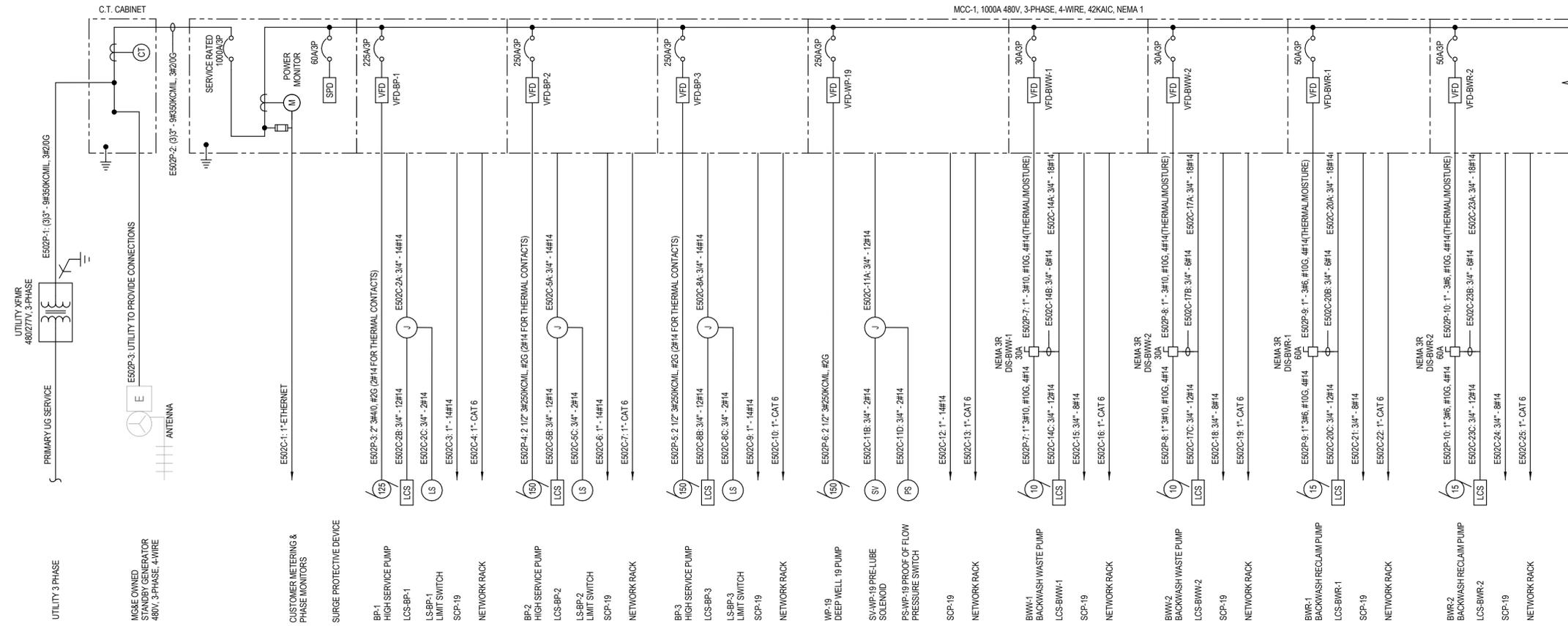
SYSTEMS PLAN - WELLHOUSE 19

01
E401



1
E501 EXISTING MCC ONE-LINE DIAGRAM - REMOVAL
NOT TO SCALE

REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE



Project Owner

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
 2526 LAKE MENODOTA DRIVE
 MADISON, WISCONSIN

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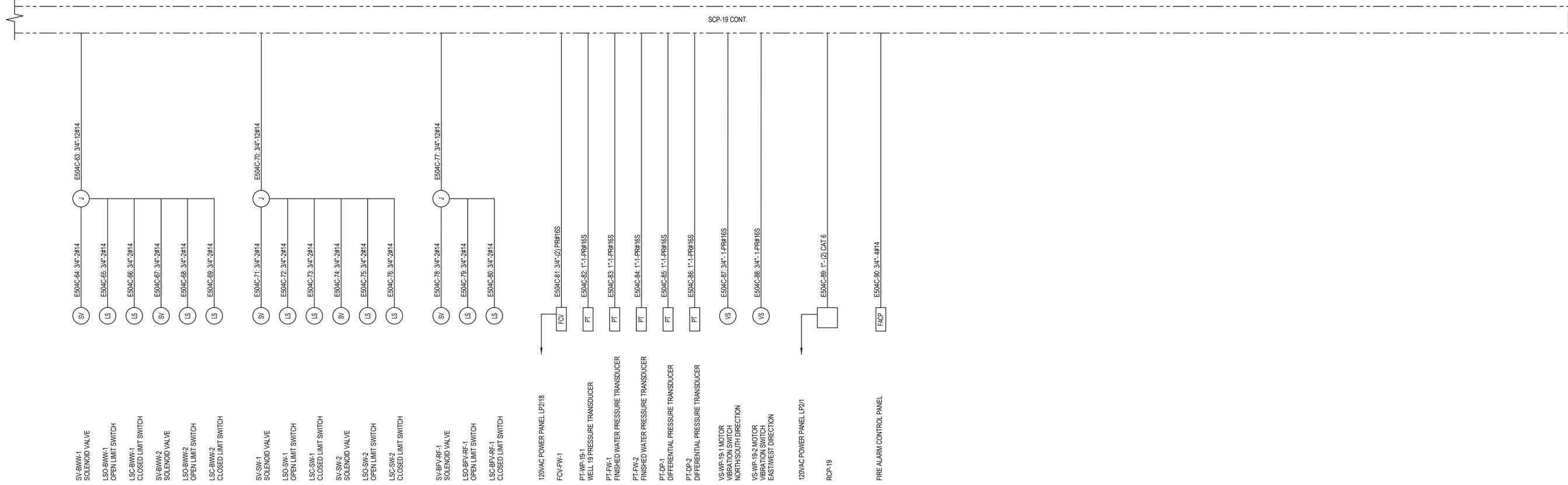
SEH Project MADJWU 167818
 Checked By CBW
 Drawn By DDH

Project Status Issue Date
 BIDDING DOCUMENTS OCTOBER, 2023

REV. #	DESCRIPTION	DATE

ONE-LINE DIAGRAM

1
E504 SCP-19 ONE-LINE DIAGRAM CONTINUED
NOT TO SCALE



- SV-BWW-1 SOLENOID VALVE
- LSO-BWW-1 OPEN LIMIT SWITCH
- LSC-BWW-1 CLOSED LIMIT SWITCH
- SV-BWW-2 SOLENOID VALVE
- LSO-BWW-2 OPEN LIMIT SWITCH
- LSC-BWW-2 CLOSED LIMIT SWITCH
- SV-SW-1 SOLENOID VALVE
- LSO-SW-1 OPEN LIMIT SWITCH
- LSC-SW-1 CLOSED LIMIT SWITCH
- SV-SW-2 SOLENOID VALVE
- LSO-SW-2 OPEN LIMIT SWITCH
- LSC-SW-2 CLOSED LIMIT SWITCH
- SV-BVRF-1 SOLENOID VALVE
- LSO-BVRF-1 OPEN LIMIT SWITCH
- LSC-BVRF-1 CLOSED LIMIT SWITCH



Project Owner

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UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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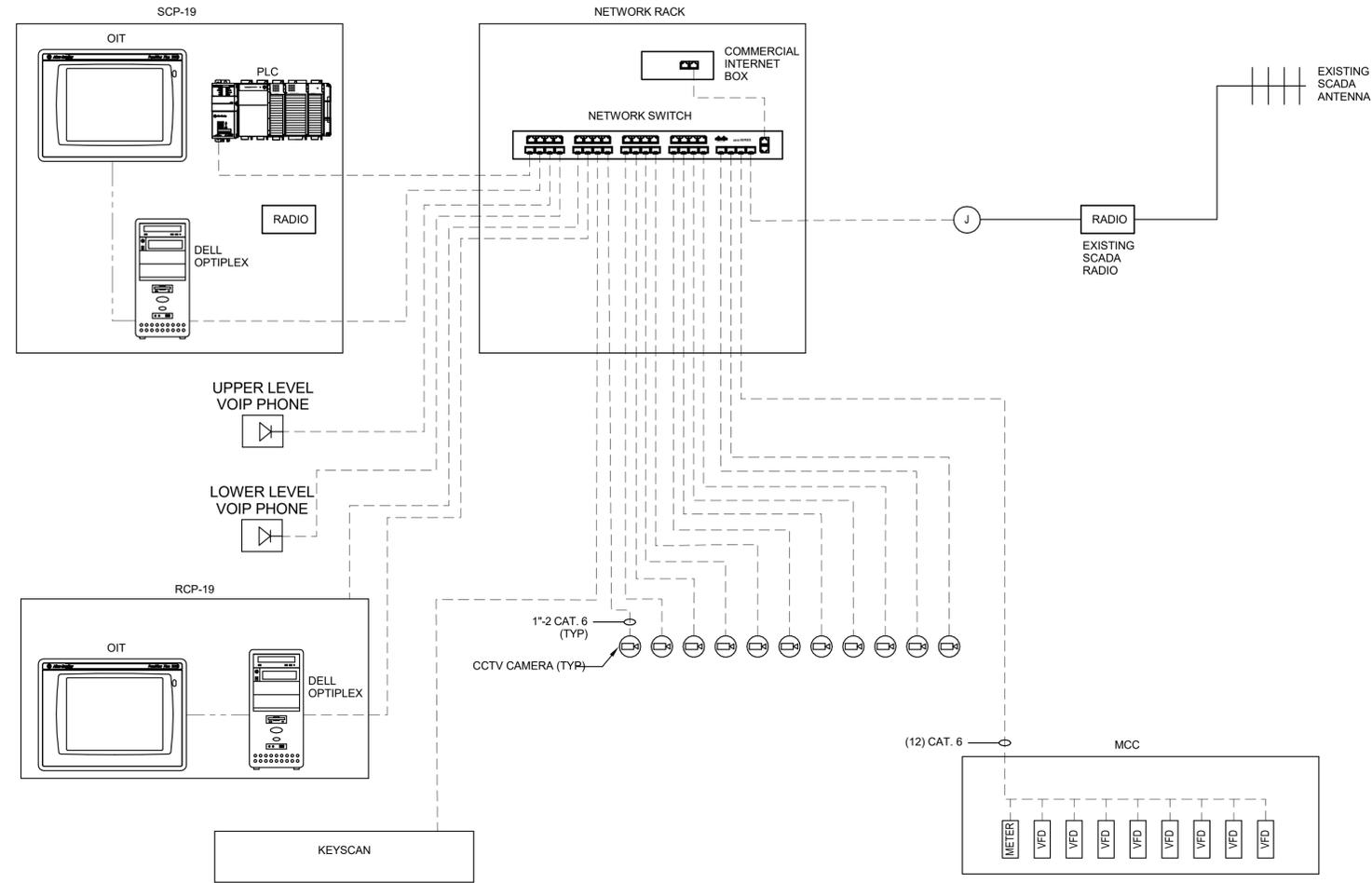
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BIDDING DOCUMENTS OCTOBER, 2023

REV. #	DESCRIPTION	DATE

ONE-LINE DIAGRAM

01
E504



GENERAL NOTES

A. ALL ETHERNET CABLES SHOWN SHALL BE INSTALLED IN MINIMUM 3/4" CONDUITS. WHERE MULTIPLE ETHERNET CABLES ARE RUN IN THE SAME CONDUIT, SIZE CONDUIT PER MANUFACTURERS RECOMMENDATION.

1 NETWORK DIAGRAM
E505 NOT TO SCALE

NETWORK SYMBOLS LEGEND	
-----	HDMI CABLE
-----	EXIST HDMI CABLE
-----	ETHERNET CABLE
-----	EXIST ETHERNET CABLE
-----	FIBER
-----	EXIST FIBER
-----	FIELD WIRING

**CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION**
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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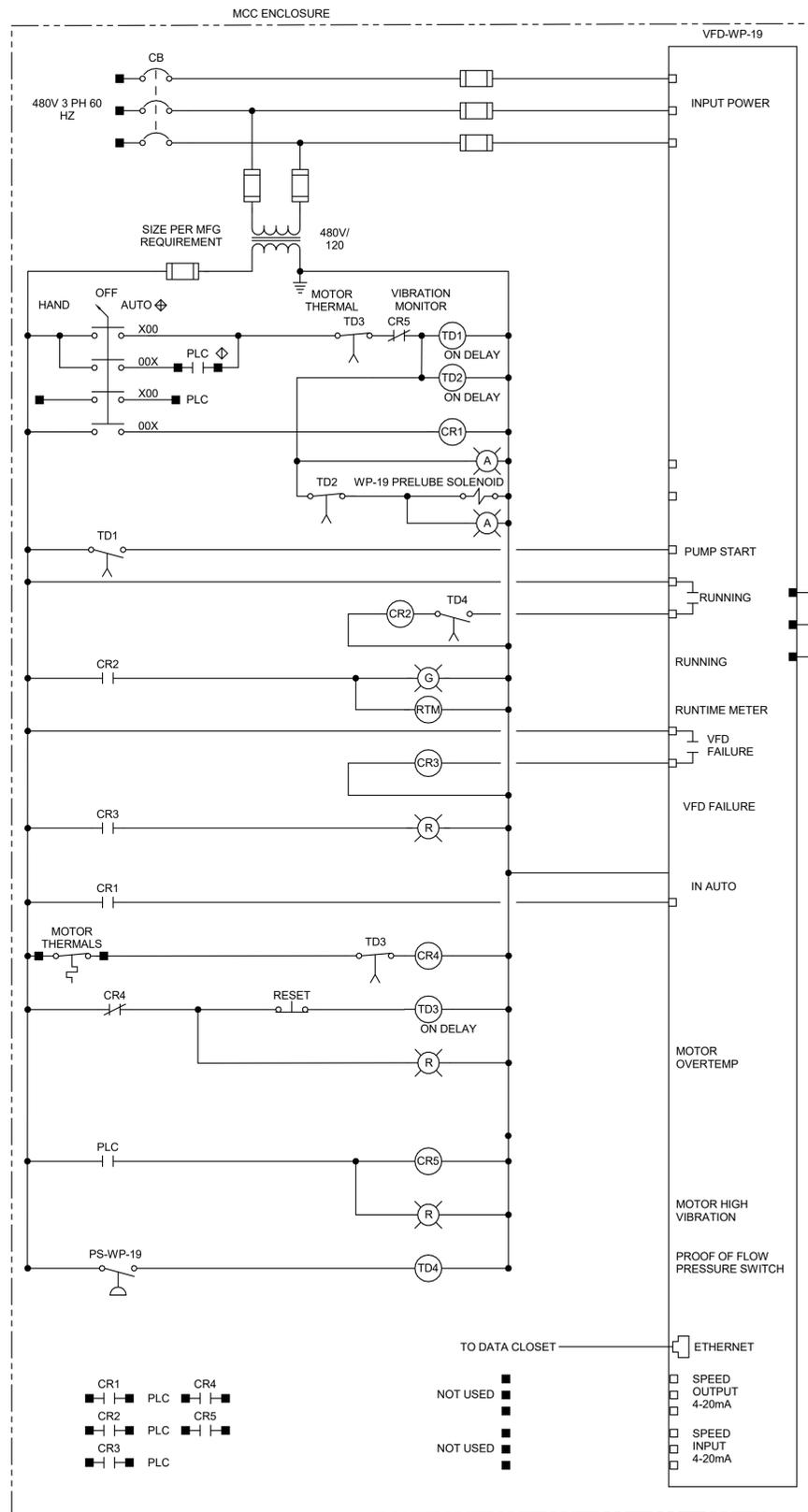
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Project Status BIDDING DOCUMENTS Issue Date OCTOBER, 2023

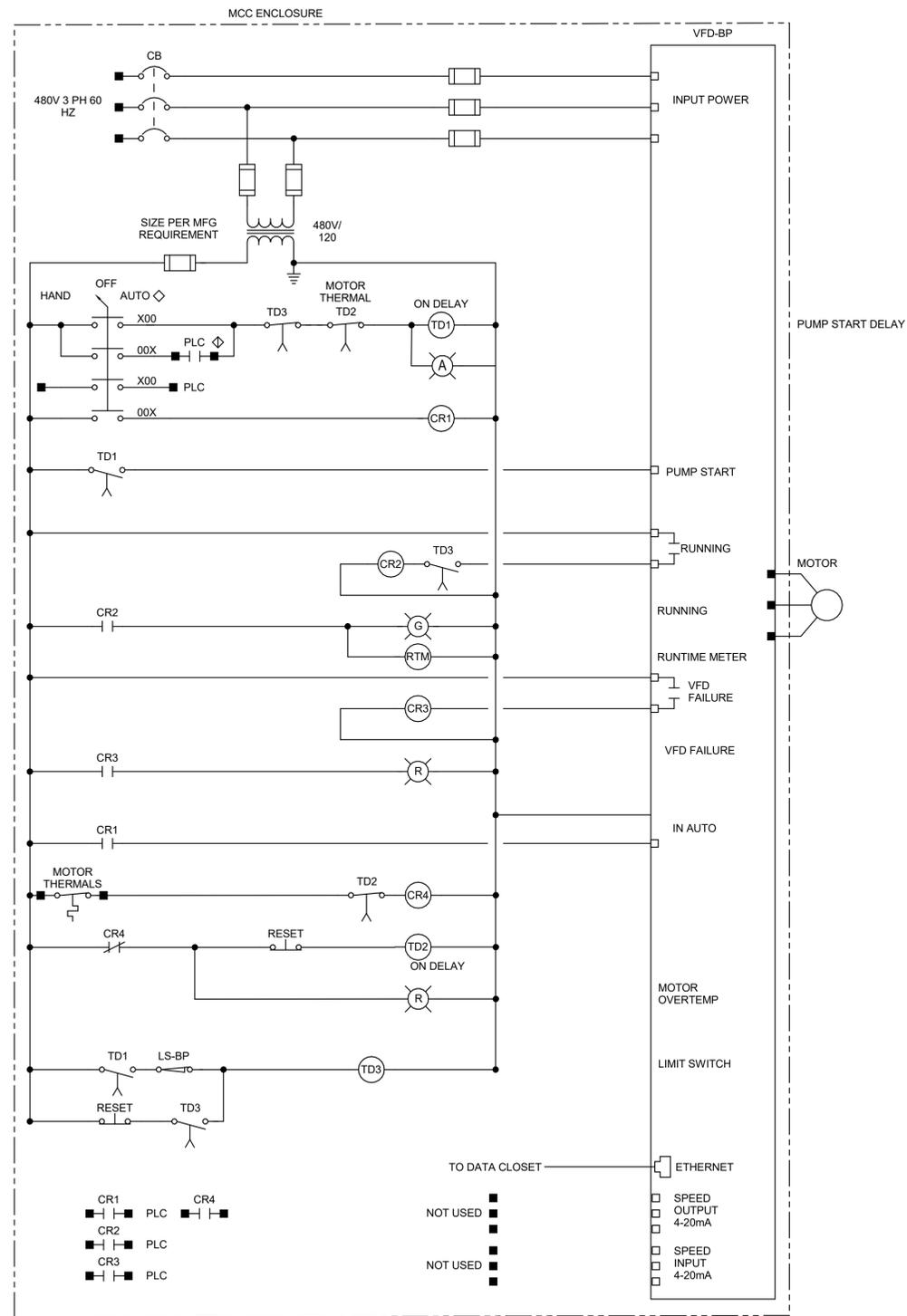
REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

NETWORK DIAGRAM

**01
E505**



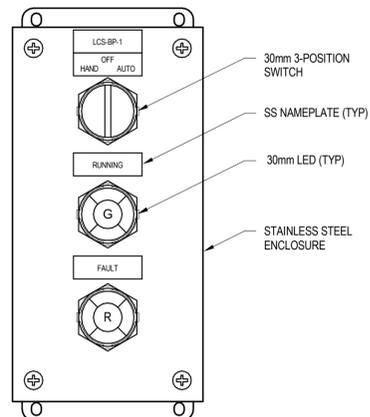
1 WELL PUMP SCHEMATIC WP-19
 E601 NOT TO SCALE



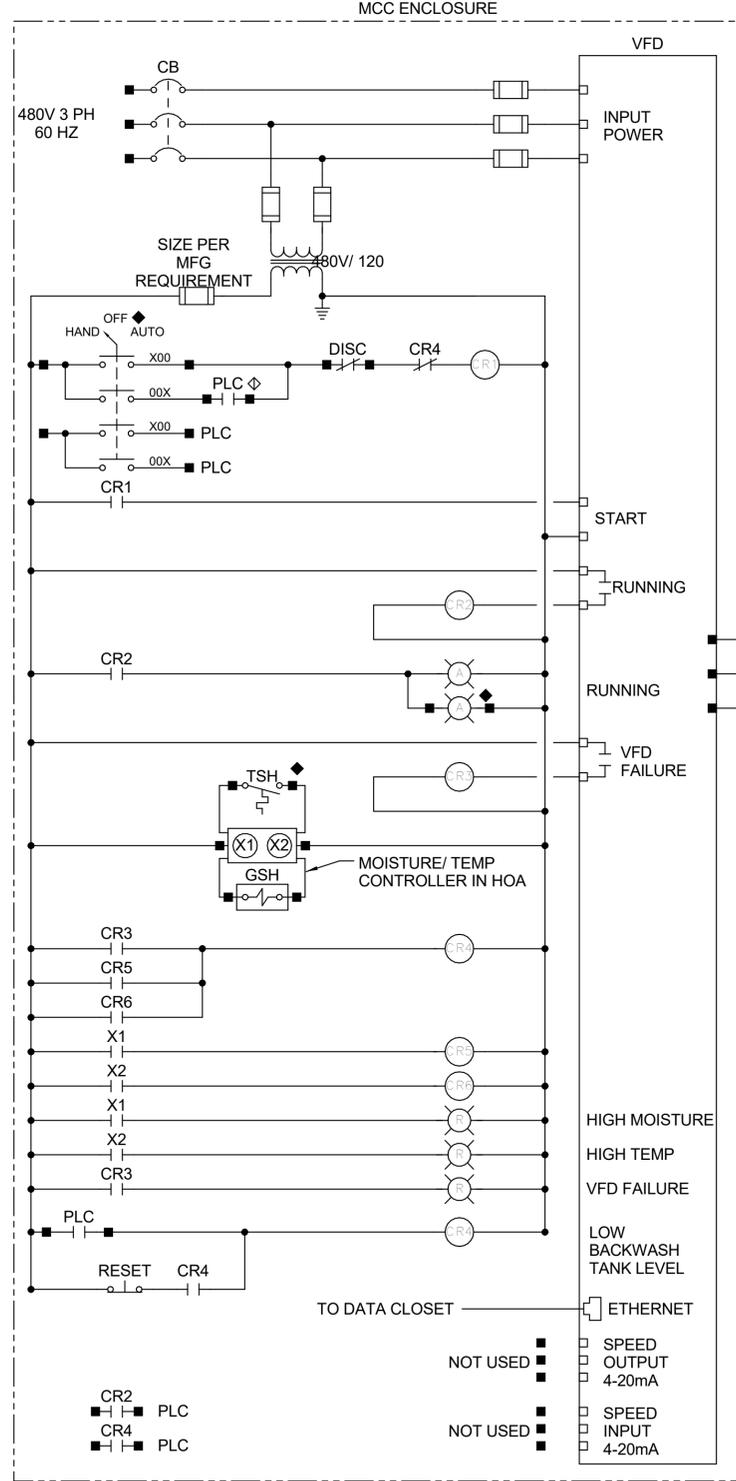
2 HIGH SERVICE PUMP SCHEMATIC BP-1,2,3
 E601 NOT TO SCALE

SCHEMATIC SYMBOLS - LOCATIONS AND CONNECTIONS

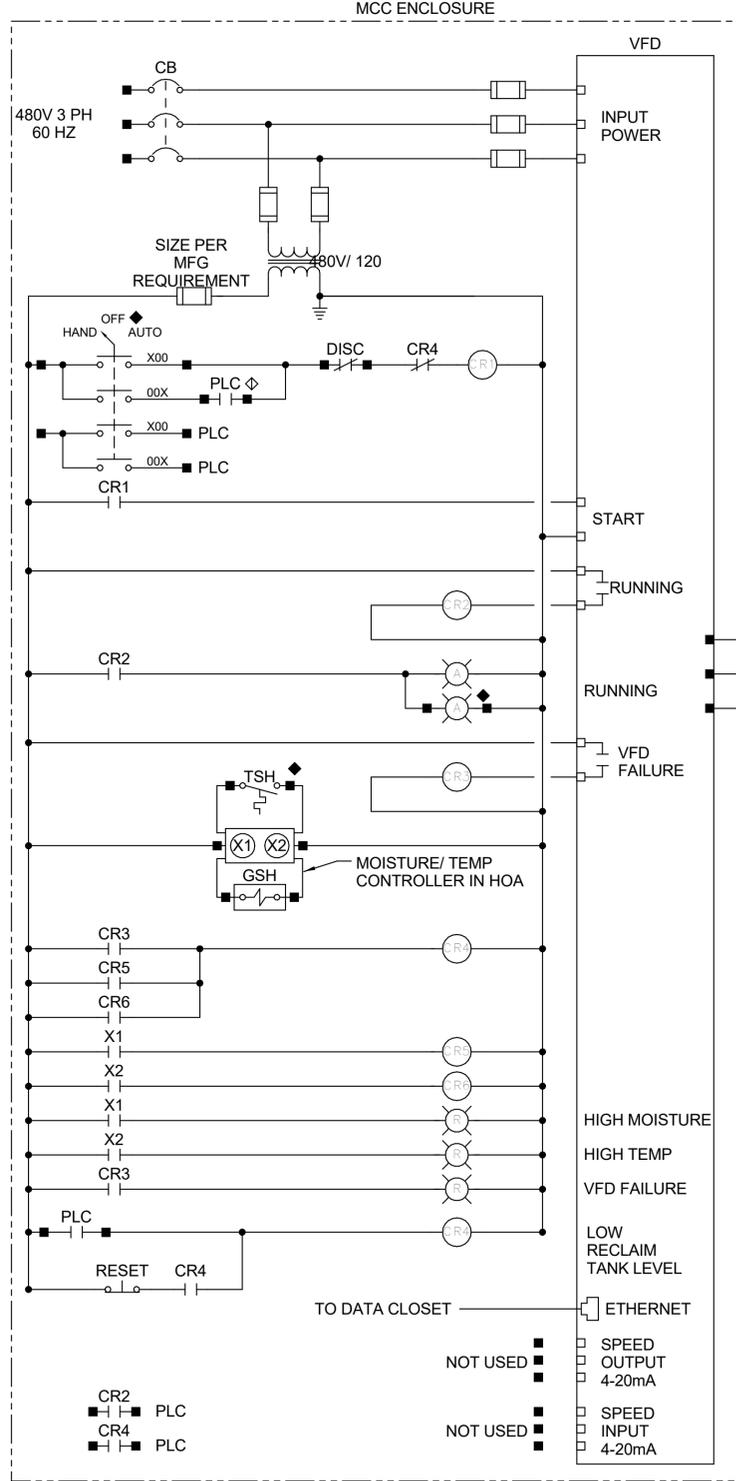
◆	DEVICE AT MOTOR
◇	DEVICE AT PLC
⊕	DEVICE AT MFR CP
●	CONNECTION POINT
■	EXTERNAL CONNECTION POINT



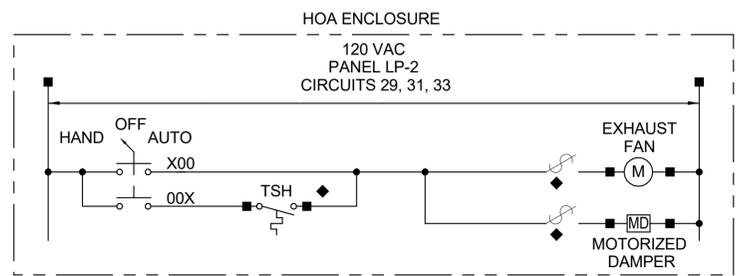
3 LOCAL CONTROL STATION BP-1,2,3
 E601 NOT TO SCALE



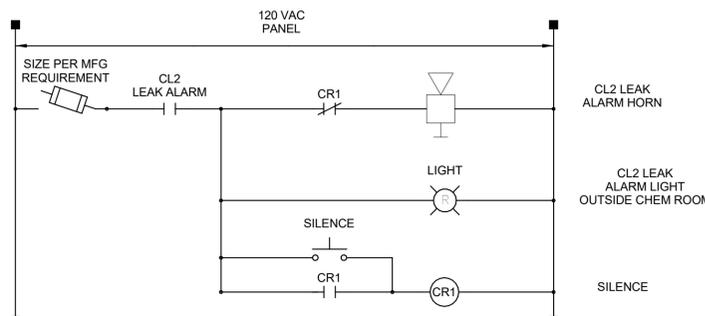
1 BACKWASH WASTE PUMP SCHEMATIC BWW-1,2
E602 NOT TO SCALE



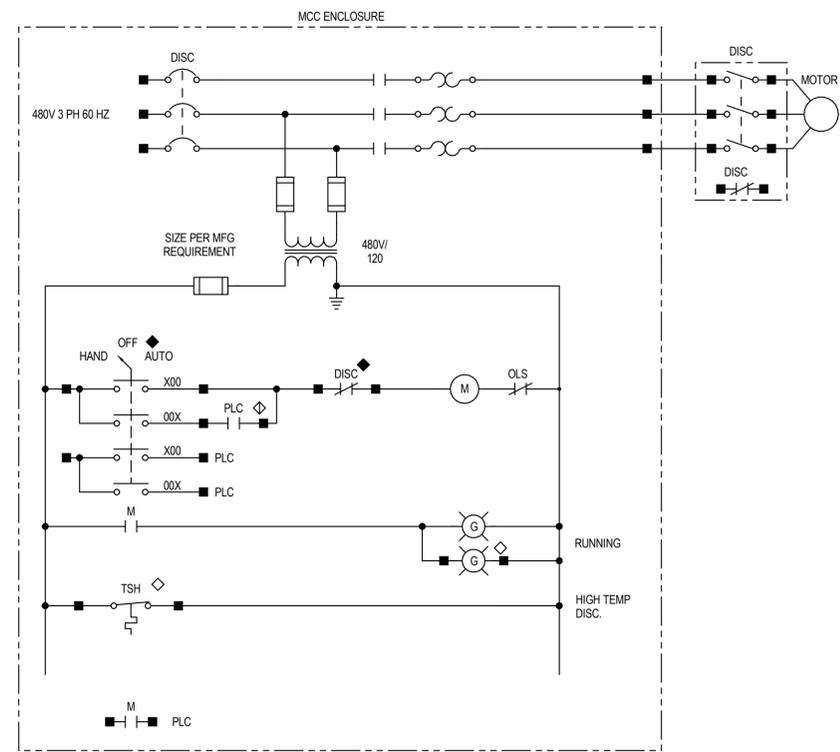
2 RECLAIM PUMP SCHEMATIC BWR-1,2
E602 NOT TO SCALE



6 MOTORIZED DAMPER AND EXHAUST FAN SCHEMATIC
E602 NOT TO SCALE



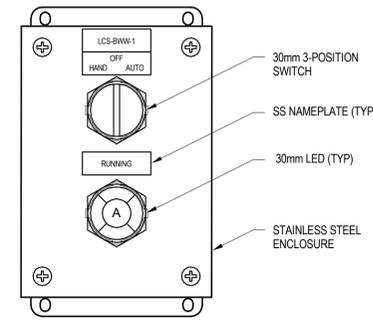
4 CHLORINE ROOM LEAK ALARM SCHEMATIC
E602 NOT TO SCALE



5 CHLORINE BP, FCU, AND SPARE STARTER SCHEMATIC
E602 NOT TO SCALE

SCHEMATIC SYMBOLS - LOCATIONS AND CONNECTIONS

◆	DEVICE AT MOTOR
◇	DEVICE AT PLC
◊	DEVICE AT MFR CP
•	CONNECTION POINT
■	EXTERNAL CONNECTION POINT



3 LOCAL CONTROL STATION BWW-1,2 & BWR-1,2 & BP-CL2-1
E602 NOT TO SCALE



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CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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Issue Date OCTOBER, 2023

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
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SCHEMATICS

01
E602

10/11/2023 11:46:52 AM



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CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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REVISION SCHEDULE
REV. # DESCRIPTION DATE

SCHEDULES

01
E701

PANELBOARD: LP-1

LOCATION: Space 6
MOUNTING: RECESSED NEMA1
MAIN DEVICE: 200.0 A MAIN CB
BUS AMPS: 200 AMPS

VOLTAGE: 208Y/120 V, 3 ø 4 W.
A.I.C. RATING: 10,000 AMPS SYMMETRICAL
SPECIAL:

CONDUIT/ WIRE	LOAD DESCRIPTION	BKR	P	CKT	PHASE A KVA	PHASE B KVA	PHASE C KVA	CKT	P	BKR	LOAD DESCRIPTION	CONDUIT/ WIRE	
3/4" - 2#12, #12G	KEYSCAN POWER SUPPLY	20 A	1	1	0.0	0.0		2	1	20 A	RCPT: WELL 19 BLDG	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	DATA RACK POWER SUPPLY	20 A	1	3		0.0	0.0	4	1	20 A	GUH-1	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	SCP-19	20 A	1	5			0.0	6	1	20 A	DEH-5	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	FT-FW-1, FT-FW-2	20 A	1	7	0.0	0.0		8	1	20 A	DEH-6	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	FT-WP-19-1	20 A	1	9		0.0	0.0	10	1	20 A	AIT-CL2-2	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	SECURITY CONTROL PANEL	20 A	1	11			0.0	12	1	20 A	AIT-CL2-3	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	DATA RACK RECEPTACLE	20 A	1	13	0.0	0.0		14	1	20 A	RCPT: MP-FL-1	3/4" - 2#12, #12G	
	SPARE	20 A	1	15		0.0	0.0	16	1	20 A	WIT-FL-1 FLUORIDE TANK SCALE	3/4" - 2#12, #12G	
	SPARE	20 A	1	17			0.0	18	1	20 A	R-MXR RESERVOIR MIXER	3/4" - 2#12, #12G	
	SPARE	20 A	1	19	0.0	0.0		20	1	20 A	RCPT: FUME HOOD COUNTERTOP	3/4" - 2#12, #12G	
	SPARE	20 A	1	21		0.0	0.0	22	1	20 A	JB-FH FUME HOOD CONNECTION	3/4" - 2#12, #12G	
	SPARE	20 A	1	23			0.0	24	1	20 A	SPARE		
	SPARE	20 A	1	25	0.0	0.0		26	1	20 A	SPARE		
	SPARE	20 A	1	27		0.0	0.0	28	1	20 A	SPARE		
	SPARE	20 A	1	29			0.0	30	1	20 A	SPARE		
	SPARE	20 A	1	31	0.0	0.0		32	1	20 A	SPARE		
1 1/4" - 2#1/0	LP-1A	150 A	2	33		0.0	0.0	34	1	20 A	SPARE		
				35			0.0	36	1	20 A	SPARE		
2" - 3#1/0, #6G	LP-2	100 A	3	37	0.0	0.0		38	1	20 A	SPARE		
				39		0.0	0.0	40	1	20 A	SPARE		
				41			0.0	42	1	20 A	SPARE		
					TOTAL LOAD:	0 kVA	0 kVA	0 kVA					
					TOTAL AMPS:	0 A	0 A	0 A					
LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS									
Other	0 VA	0.00%	0 VA	CONNECTED LOAD:	0 VA								
Receptacle	0 VA	0.00%	0 VA	ESTIMATED DEMAND:	0 VA								
				CONNECTED CURRENT:	0.0 A								
				EST. DEMAND CURRENT:	0.0 A								

NOTES:

PANELBOARD: LP-2

LOCATION: SURFACE NEMA1
MAIN DEVICE: 100.0 A MLO
BUS AMPS: 100 AMPS

VOLTAGE: 208Y/120 V, 3 ø 4 W.
A.I.C. RATING: 10,000 AMPS SYMMETRICAL
SPECIAL:

CONDUIT/ WIRE	LOAD DESCRIPTION	BKR	P	CKT	PHASE A KVA	PHASE B KVA	PHASE C KVA	CKT	P	BKR	LOAD DESCRIPTION	CONDUIT/ WIRE	
3/4" - 2#12, #12G	RCPT: FILTER ROOM	20 A	1	1	0.0	0.3		2	1	20 A	LTS: FILTER/CHEM ROOM	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	RCPT: HMO, CL2, TOILET	20 A	1	3		0.0	0.0	4	1	20 A	EXTERIOR LIGHTING	3/4" - 2#12, #12G	
	SPARE	20 A	1	5			0.0	6	1	20 A	LTS: PUMP ROOM	3/4" - 2#12, #12G	
				7	1.5	0.0		8	1	20 A	SPARE		
3/4" - 3#12, #12G	EW-H-1	20 A	3	9				10	1	20 A	FT-SW-1, FT-SW-2	3/4" - 2#12, #12G	
				11				12	1	20 A	FT-SWR-1, FT-BWW-1	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	EW-H-2	20 A	2	13	1.1	0.0		14	1	20 A	SOLENOID PANEL 1	3/4" - 2#12, #12G	
				15		1.1	0.0	16	1	20 A	SOLENOID PANEL 2	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	GUH-2	20 A	1	17			0.0	18	1	20 A	FCV-FW-1	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	GUH-3	20 A	1	19	0.0	0.0		20	1	20 A	POLE LIGHT AA1	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	DEH-1	20 A	1	21		0.0	0.0	22	1	20 A	POLE LIGHT AA2	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	DEH-2	20 A	1	23			0.0	24	1	20 A	WIT-CL2-1 SCALE	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	DEH-3	20 A	1	25	0.0	0.0		26	1	20 A	GF-CL2-1	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	DEH-4	20 A	1	27		0.0	0.0	28	1	20 A	HZ-CL2-1	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	EF-1 AND MD-1	20 A	1	29			0.0	30	1	20 A	AIT-CL2-1	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	EF-2 AND MD-2	20 A	1	31	0.0	0.0		32	1	20 A	SV-CL2-1	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	EF-3 AND MD-3	20 A	1	33		0.0	0.0	34	1	20 A	SPARE	3/4" - 2#12, #12G	
3/4" - 2#12, #12G	EF-4	20 A	1	35			0.0	36	1	20 A	SPARE		
	SPARE	20 A	1	37	0.0	0.0		38	1	20 A	RCPT: BACKWASH TANKS	3/4" - 2#12, #12G	
	SPARE	20 A	1	39		0.0	0.0	40	1	20 A	REMOTE SCADA PANEL RCP-19	3/4" - 2#12, #12G	
	SPARE	20 A	1	41			0.0	42	1	20 A	FACP	3/4" - 2#12, #12G	
					TOTAL LOAD:	3 kVA	3 kVA	2 kVA					
					TOTAL AMPS:	25 A	21.9 A	20 A					
LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS									
LITES	1284 VA	125.00%	1605 VA	CONNECTED LOAD:	1284 VA								
Receptacle	0 VA	0.00%	0 VA	ESTIMATED DEMAND:	1605 VA								
				CONNECTED CURRENT:	3.6 A								
				EST. DEMAND CURRENT:	4.5 A								

NOTES:

PANELBOARD: LP-1A

LOCATION: Space 6
MOUNTING: SURFACE NEMA 1
MAIN DEVICE: 100.0 A MCB
BUS AMPS: 100 AMPS

VOLTAGE: 120/240 V, 1 ø 3 W.
A.I.C. RATING: 10,000 AMPS SYMMETRICAL
SPECIAL:

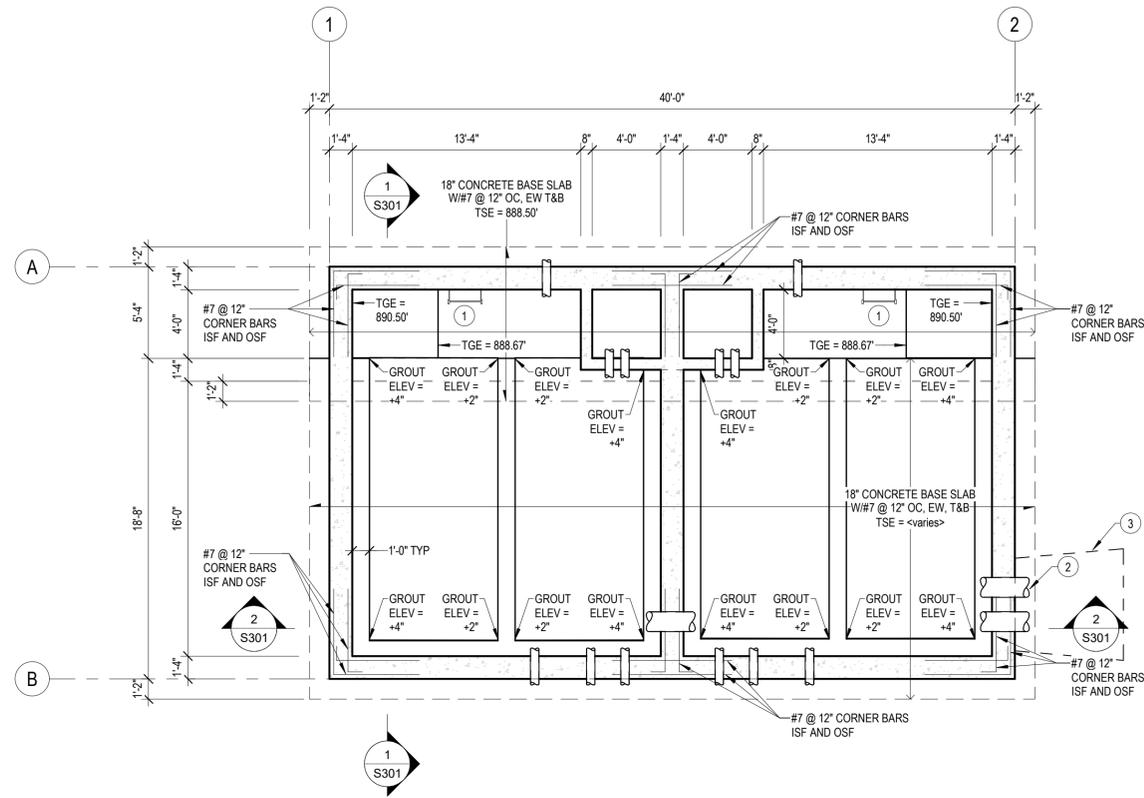
CONDUIT/ WIRE	LOAD DESCRIPTION	BKR	P	CKT	PHASE A KVA	PHASE B KVA	PHASE C KVA	CKT	P	BKR	LOAD DESCRIPTION	CONDUIT/ WIRE	
3/4" - 3#10, #10G	GRINDER PUMPS	30 A	2	1	0.0	0.0		2	1	60 A	WEATHER INSTRUMENTATION	1" - 3#4, #10G	
				3				4	1				
3/4" - 3#12, #12G	CP-GP GRINDER CONTROL PANEL	20 A	1	5	0.0	--	0.0	6	1	--	SPACE		
	SPACE	--	1	7	--	--	--	8	1	--	SPACE		
	SPACE	--	1	9	--	--	--	10	1	--	SPACE		
	SPACE	--	1	11	--	--	--	12	1	--	SPACE		
	SPACE	--	1	13	--	--	--	14	1	--	SPACE		
	SPACE	--	1	15	--	--	--	16	1	--	SPACE		
					TOTAL LOAD:	0 kVA	0 kVA						
					TOTAL AMPS:	0 A	0 A						
LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS									
				CONNECTED LOAD:	0 VA								
				ESTIMATED DEMAND:	0 VA								
				CONNECTED CURRENT:	0.0 A								
				EST. DEMAND CURRENT:	0.0 A								

NOTES:

TYPE	FIXTURE DESCRIPTION	VOLTAGE	MOUNTING	CATALOG NUMBER (OR APPROVED EQUAL)	LUMENS/ WATTS
E1	THERMOPLASTIC EXT. 1 OR 2 FACE, SELF DIAGNOSTIC DRY/DAMP LOCATION (SUPPORTS 6IN OF REMOTE HEADS)	120/277	SURFACE UNIVERSAL	LITHONIA: LHQM LED R HO RD SD	3
EMH	EMERGENCY LIGHT, THERMOPLASTIC (2) 12W LED HEADS, SELF D. 3" SPACING, DAMP LOCATION, SUPPORTS 2 1/2" OF REMOTE)	120/277	WALL/ CEIL	LITHONIA: ELMXL SDRT	2.4
H1	LED WALL PACK	MVOLT	WALL 13'-0" AFF	LITHONIA: TWX2 LED P3 40K MVOLT DWXND	5,250
V1	1" LED VAPORPROOF ACRYLIC LINEAL RIBBED FROSTED LENS, W/OCCUPANCY SENSOR	MVOLT	SURFACE/ SUSPENDED	LITHONIA: FEM L48 3000LM IMAFL MD MVOLT 40K 80CRI SBOR10	2,876
WA	EXTERIOR LED W/ 90 DEG CUTOFF, PHOTOCELL (MAN DOORS/ 10" MOUNTING)	MVOLT	WALL	LITHONIA: DSW1 LED 20C 1000 40K TTFM MVOLT	3,209
WB	EXTERIOR LED W/ 90 DEG CUTOFF, PHOTOCELL, MOTION SENSOR (14" MOUNTING)	MVOLT	WALL	LITHONIA: DSW1 LED 20C 1000 40K TTFM MVOLT PIR	5,861
AA1	LED W/ 90 DEG CUTOFF W/ PC, 25" ROUND TAPPED POLE W/ ARM	MVOLT	POLE	LITHONIA: DSK1 LED P1 40K T3M MVOLT HS POLE=HOLOPHANE	12,582
AA2	LED W/ 90 DEG CUTOFF W/ PC, 25" ROUND TAPPED POLE W/ ARM	MVOLT	POLE	LITHONIA: DSK1 LED P1 40K T4M MVOLT HS POLE=HOLOPHANE	12,582

NOTES:
1. FOR SUSPENDED FIXTURES PROVIDE AIRCRAFT CABLE, BRACKETS AND HARDWARE. CHAIN IS NOT APPROVED.
2. PROVIDE FIXTURES SHOWN OR APPROVED EQUALS.

1
E701
FIXTURE SCHEDULE
NOT TO SCALE



1
S101 BACKWASH TANK PLAN
3/16" = 1'-0"



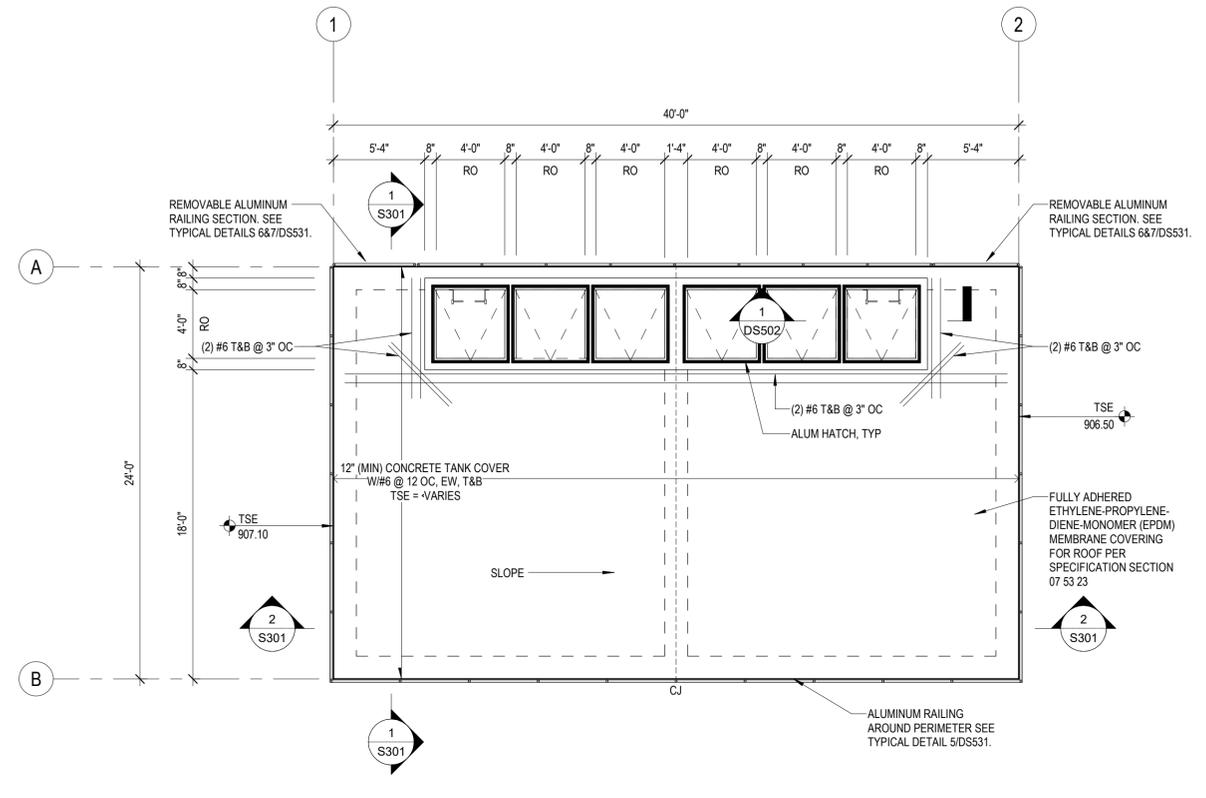
BACKWASH TANK BASE SLAB - GENERAL NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

1. VERIFY ALL SIZES, LOCATIONS, AND ELEVATIONS OF OPENINGS W/ MECHANICAL, ELECTRICAL, AND PROCESS DRAWINGS. REINFORCE AS NECESSARY PER TYPICAL DETAILS.
2. WALL CONSTRUCTION JOINTS ARE NOT INDICATED ON PLAN. REFER TO GENERAL STRUCTURAL NOTES FOR SPACING AND SUBMIT PROPOSED LOCATIONS FOR APPROVAL.
3. ALL CELLS ARE CONSIDERED TO BE LIQUID-TIGHT STRUCTURES MEANING REQUIRING PVC WATERSTOPS AT ALL JOINTS AND LEAK TESTING. LEAK TESTING SHALL OCCUR IN PHASES SO THAT EACH SIDE OF WALL IS ABLE TO BE INSPECTED.

BACKWASH TANK PLAN KEYNOTES:

- 1 FRP LADDER - SEE TYP DETAIL - SEE PROCESS FOR LOC.
- 2 PIPING PENETRATIONS - SEE PROCESS DRAWINGS FOR LOCATION AND INVERT ELEV. SEE TYPICAL DETAIL FOR ADDITIONAL REINFORCING AT CONC. WALL OPENINGS.
- 3 CONCRETE SPLASH PAD - SEE CIVIL & DETAIL 6/DC1.



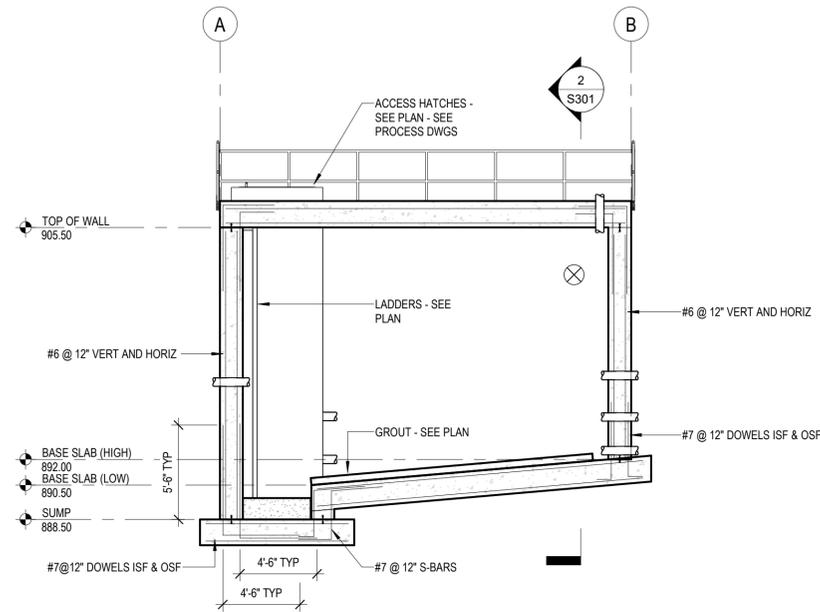
2
S101 BACKWASH TANK COVER PLAN
3/16" = 1'-0"



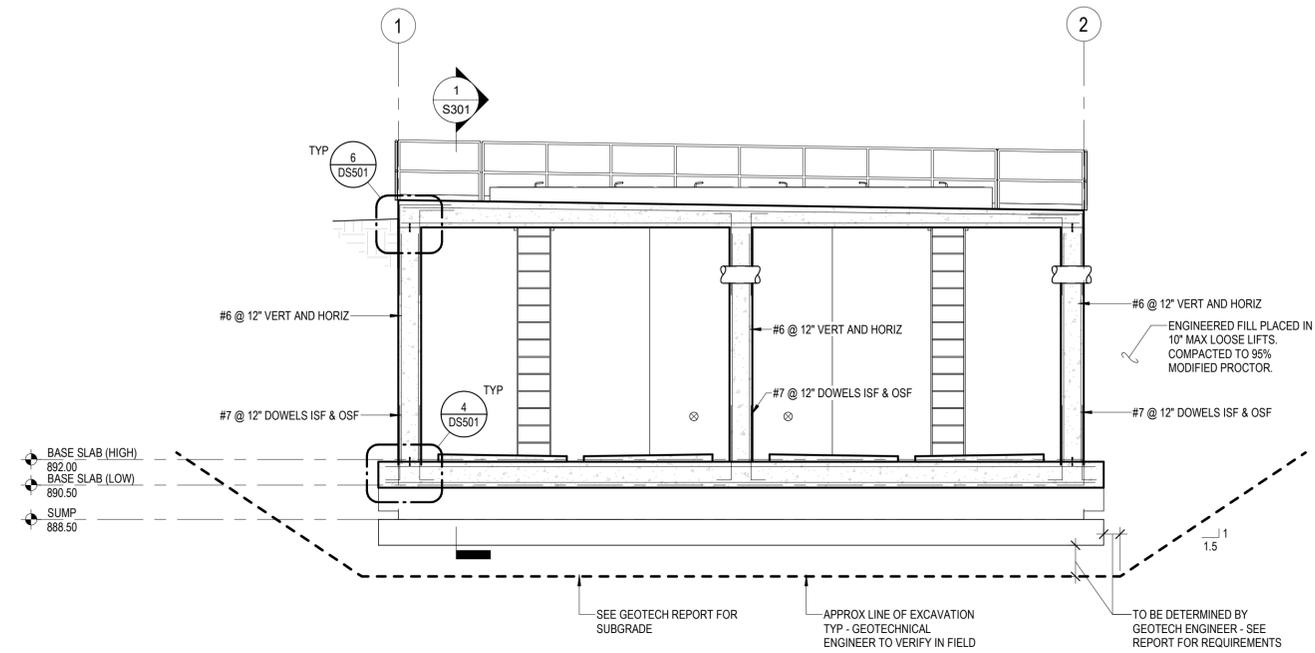
BACKWASH TANK COVER - GENERAL NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

1. ALL REBAR SHOWN ON PLAN IS ADDITIONAL OPENING TOP & BOT REINFORCING (DETAIL 11/DS501)
2. ADD STD HOOK TO ALL BARS INTERRUPTED BY HATCHES.



1
S301 3/16\"/>



2
S301 3/16\"/>

GENERAL NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

- SOIL CORRECTION AND EXCAVATION INFORMATION SHOWN IN THIS DETAIL IS REPRESENTATIVE OF THE ENTIRE BUILDING.

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION

BACKWASH TANK
2626 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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Drawn By ALM

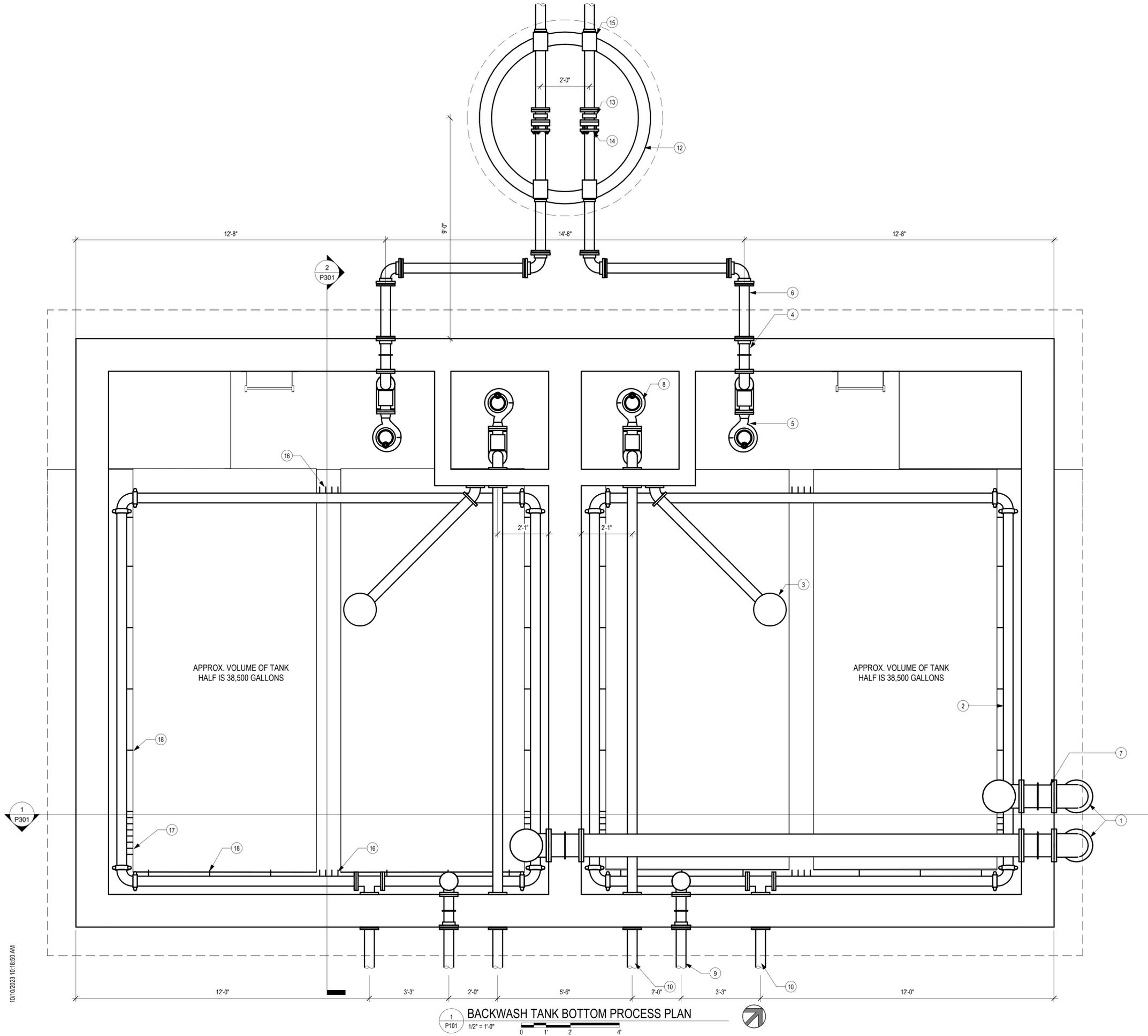
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REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

BACKWASH TANK
SECTIONS

02
S301

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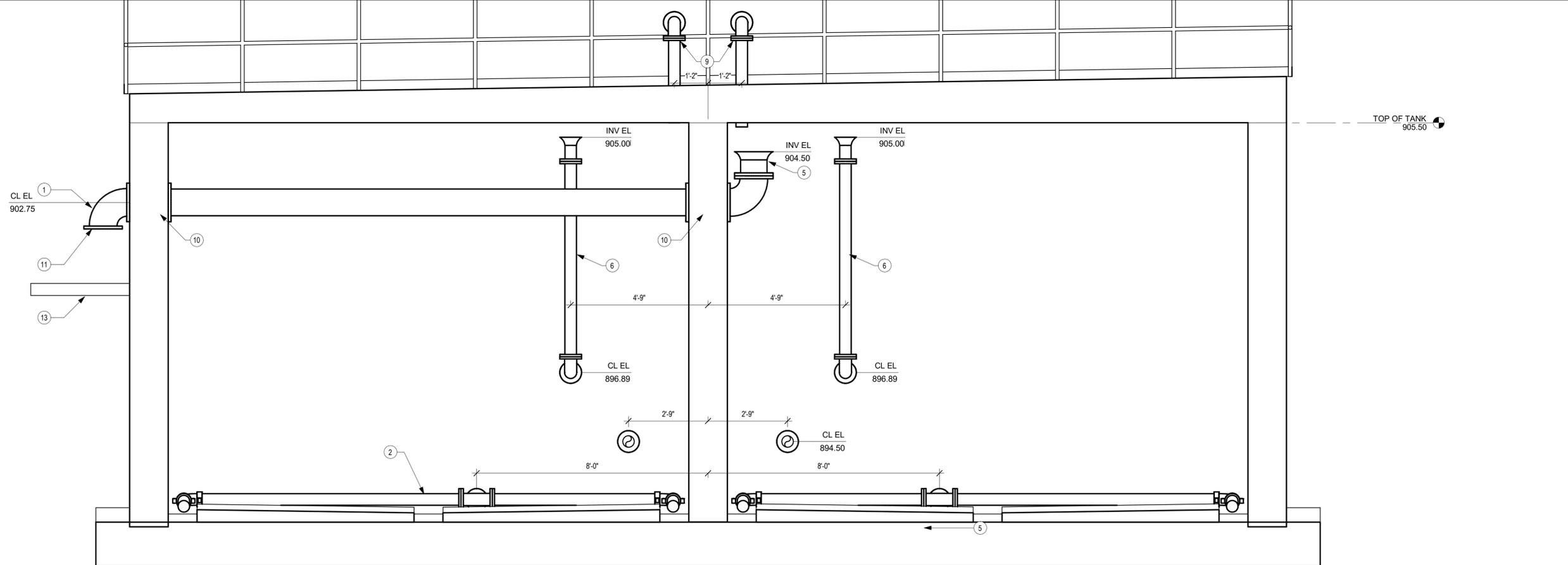


KEYNOTES

- 1 10" OVERFLOW PIPE - TYPICAL FOR EACH CELL - SCREEN OUTLET SIMILAR TO DETAIL 10P1. TERMINATE OVERFLOW NO LESS THAN 24" ABOVE SPLASH PAD.
- 2 4" PERIMETER SPRAYWASH PIPE - TYPICAL FOR EACH CELL. USE VICTAULIC FITTINGS ON ELBOWS TO SPIN WITH SLOPE OF TANK BOTTOM
- 3 FLOATING SUCTION STRAINER - TYPICAL FOR EACH CELL
- 4 4" FLxMJ WALL PIPE
- 5 SLUDGE TO WASTE PUMP - TYPICAL FOR EACH CELL
- 6 4" SLUDGE TO WASTE PIPE - SEE SITE PLAN FOR CONTINUATION - TYPICAL FOR EACH CELL
- 7 10" FLxFL WALL PIPE
- 8 4" BACKWASH RECLAIM PUMP TO WELLHOUSE - SEE SITE PLAN FOR CONTINUATION - TYPICAL FOR EACH CELL
- 9 4" BACKWASH WASTE FROM WELLHOUSE - TYPICAL FOR EACH CELL
- 10 4" SPRAYWASH PIPE FROM WELL HOUSE - TYPICAL FOR EACH CELL
- 11 4" BACKWASH RECLAIM PIPE TO WELL HOUSE - TYPICAL FOR EACH CELL
- 12 6' DIA CONCRETE MH. RIM = 904.50, INV = 894.50. LID TO HAVE 30" SQUARE TRAFFIC RATED HATCH
- 13 4" MAGNETIC FLOW METER - TYP OF TWO
- 14 FLANGED COUPLING ADAPTER - TYP FOR EACH METER
- 15 MANHOLE BOOT
- 16 FOUR NOZZLES @ 3" OC CENTERED ABOVE CENTER GROUT TROUGH
- 17 EIGHT NOZZLES @ 3" OC @ HIGH END OF TANK BOTTOM
- 18 NOZZLES @ 30" OC

1 P101 BACKWASH TANK BOTTOM PROCESS PLAN
1/2" = 1'-0"

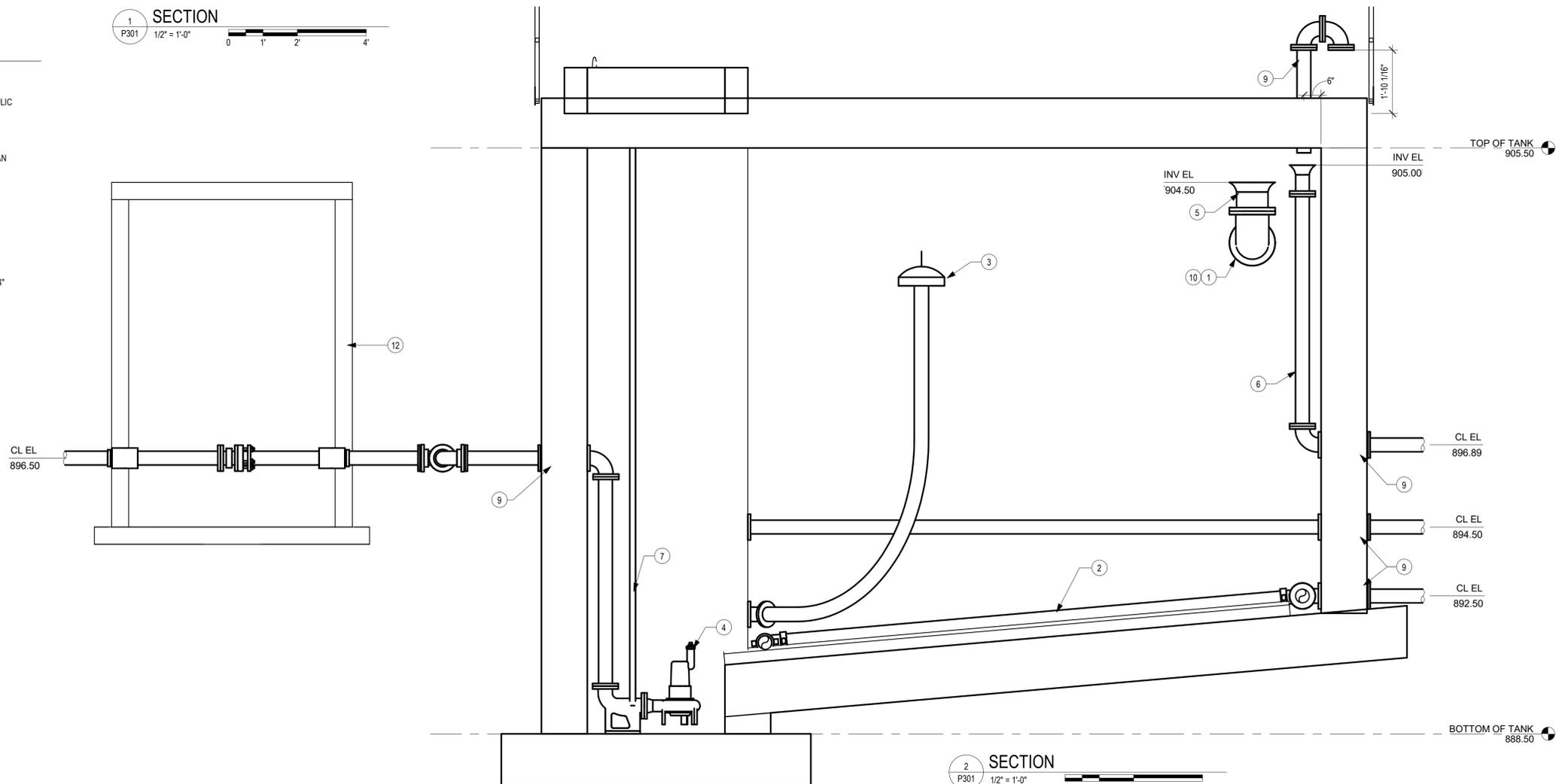
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1 SECTION
P301 1/2" = 1'-0"
0 1' 2' 4'

KEYNOTES

- 1 10" OVERFLOW PIPE - TYPICAL FOR EACH CELL
- 2 4" PERIMETER SPRAYWASH PIPE - TYPICAL FOR EACH CELL. INSTALL VICTAULIC FITTINGS ON ELBOWS TO SLOPE PIPE WITH TANK BOTTOM
- 3 FLOATING SUCTION STRAINER - TYPICAL FOR EACH CELL
- 4 4" BACKWASH SLUDGE TO WASTE PUMP TO SANITARY SEWER - SEE SITE PLAN FOR CONTINUATION - TYPICAL FOR EACH CELL
- 5 10" STRAIGHT FLANGED FLARE
- 6 4" BACKWASH WASTE FROM WELLHOUSE - TYPICAL FOR EACH CELL
- 7 SUBMERSIBLE BACKWASH RECLAIM PUMP - TYPICAL FOR EACH CELL
- 8 GROUT FILLED SLOPED BOTTOM NOT SHOWN IN THIS CELL FOR CLARITY
- 9 4" FLANGED VENT PIPE w/ STAINLESS STEEL #24 SCREEN - TERMINATE MIN 24" ABOVE TANK LID
- 10 FLX MJ WALL PIPE - SEE DETAIL D/DP501
- 11 #24 STAINLESS STEEL SCREEN SEE SIMILAR DETAIL E/DP504
- 12 6" DIA CONCRETE MH. RIM = 905.00, INV = 894.50. LID TO HAVE 30" SQUARE TRAFFIC RATED HATCH
- 13 PROVIDE SPLASH PAD ON EACH OVERFLOW 18" VERTICAL FROM DISCHARGE



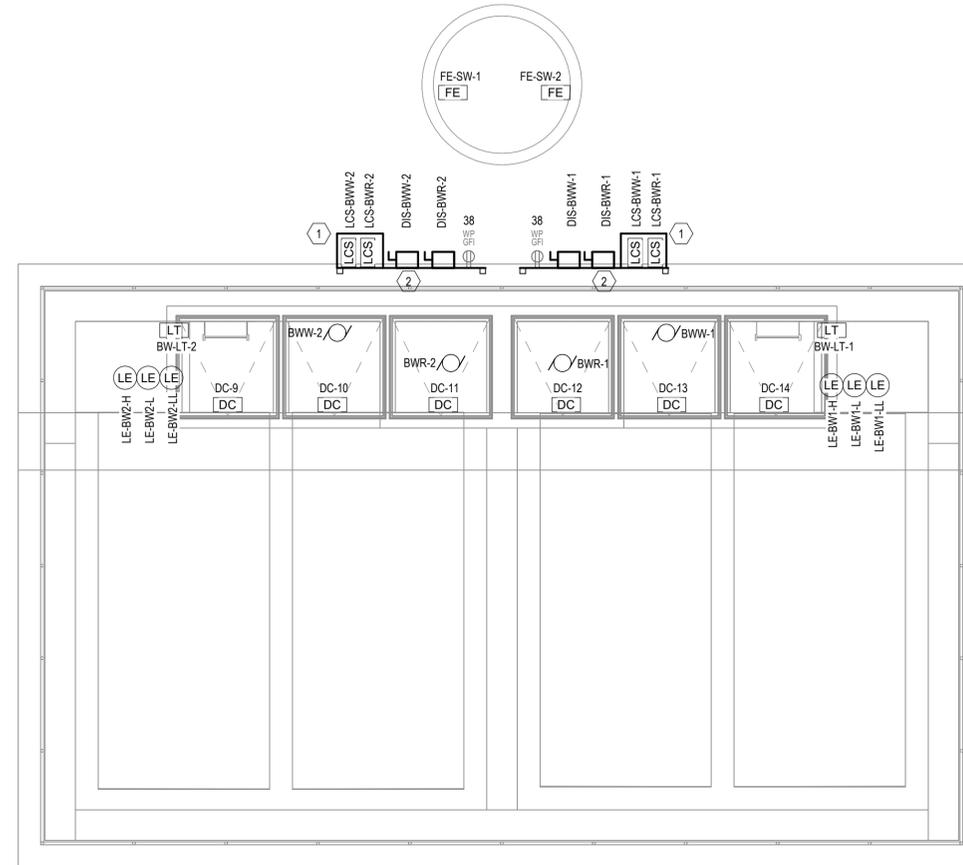
2 SECTION
P301 1/2" = 1'-0"
0 1' 2' 4'

POWER GENERAL NOTES

- A. PROVIDE HOUSE KEEPING PADS FOR ALL FLOOR AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4" WIDER AND LONGER THAN EQUIPMENT TO BE PLACED ON IT, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE.
- B. REFER TO SPECIFICATION SECTION 26 05 19 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
- C. CIRCUIT NUMBERS SHOWN AT GENERAL RECEPTACLE, ELECTRICAL EQUIPMENT, AND MECHANICAL EQUIPMENT LOCATIONS CORRESPOND TO PANELBOARD BREAKERS. SEE PANELBOARD SCHEDULES ON SHEET 01/E701.
- D. SEE ONE-LINE DIAGRAMS FOR CONDUIT AND WIRING REQUIREMENTS. SEE SHEETS 01/E502, 01/E503 AND 01/E504.
- E. SEE PANELBOARD SCHEDULES ON SHEET 01/E701 FOR CONDUIT AND WIRING REQUIREMENTS.
- F. SEE MECHANICAL PLANS AND SCHEDULES FOR ALL HVAC AND PLUMBING POWER REQUIREMENTS AND DETAILS.

KEYNOTES

- 1. PROVIDE DEVICES IN LOCKABLE NEMA 3R ENCLOSURE. MOUNT ON PEDESTAL. SEE DETAIL 04/DE01.
- 2. PEDESTAL. SEE DETAIL 05/DE01.



1 POWER PLAN
E301 1/4" = 1'-0"



CITY OF MADISON WATER UTILITY
MADISON UNIT WELL 19 TREATMENT SYSTEM ADDITION
 2526 LAKE MENDOTA DRIVE
 MADISON, WISCONSIN

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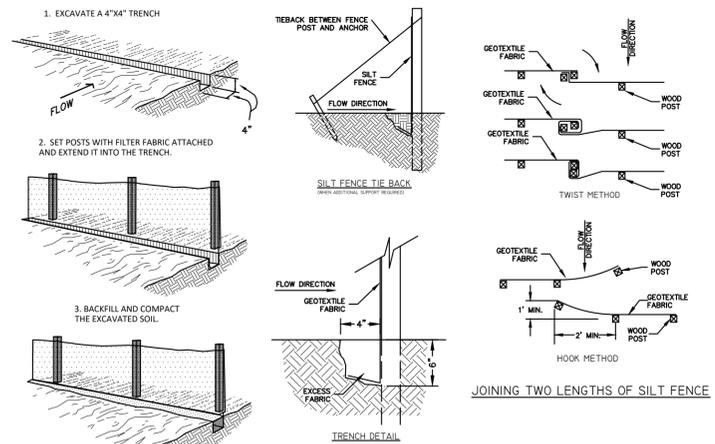
SEH Project MADWU 167818
 Checked By CBW
 Drawn By DDH

Project Status BIDDING DOCUMENTS Issue Date OCTOBER, 2023

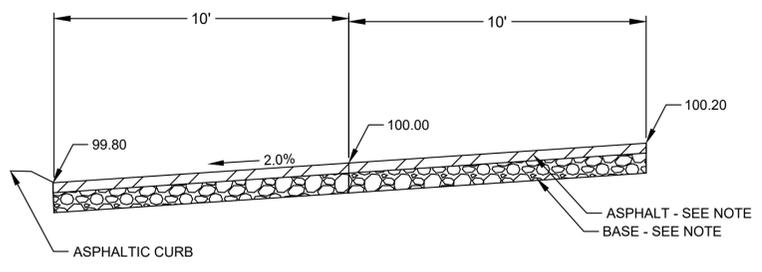
REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

POWER PLAN - BACKWASH TANK

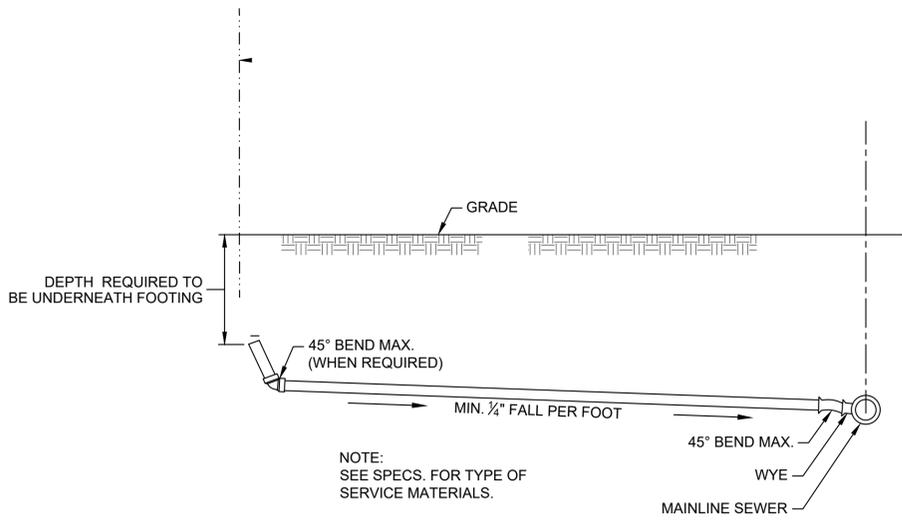
02
E301



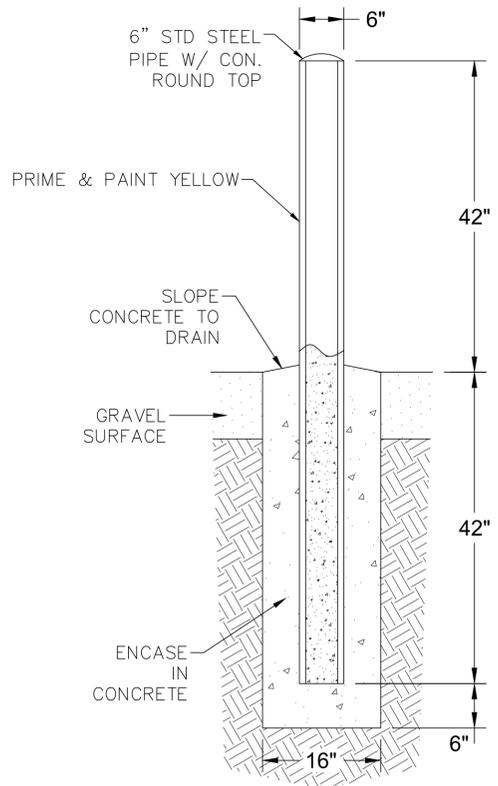
1 SILT FENCE DETAIL
DC1 NOT TO SCALE



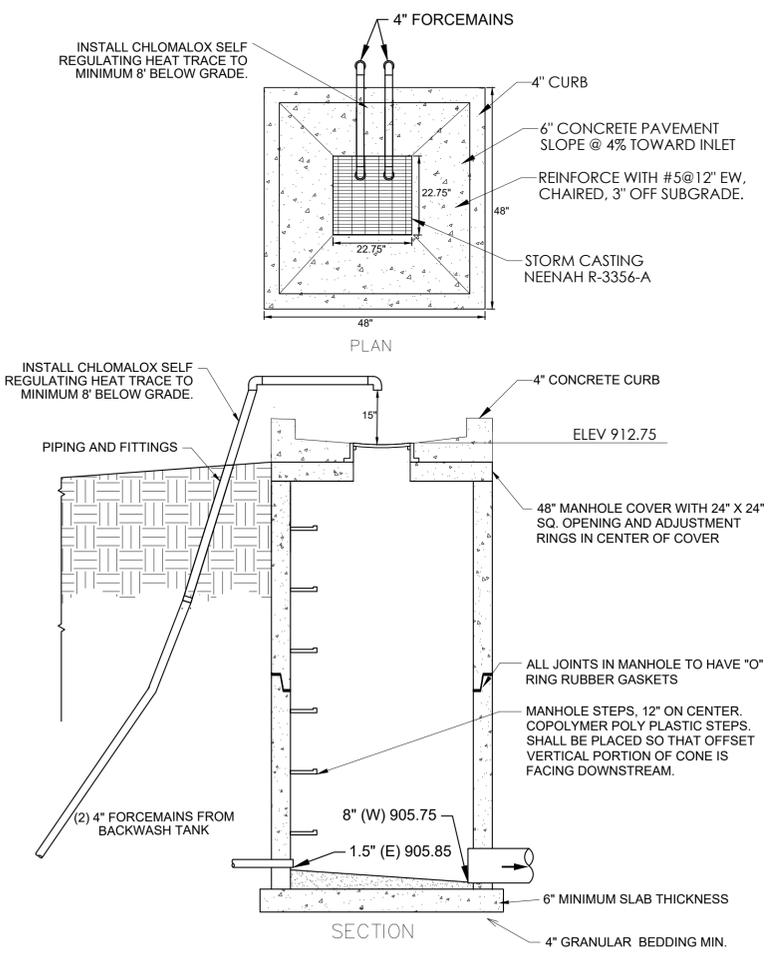
2 ASPHALT DRIVE DETAIL
DC1 NOT TO SCALE



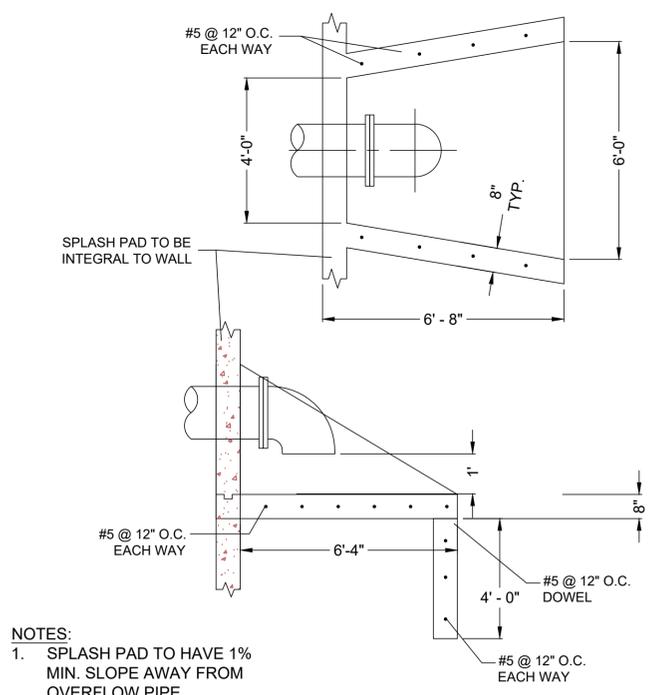
3 SANITARY SEWER SERVICE DETAIL
DC1 NOT TO SCALE



4 BOLLARD DETAIL
DC1 NOT TO SCALE



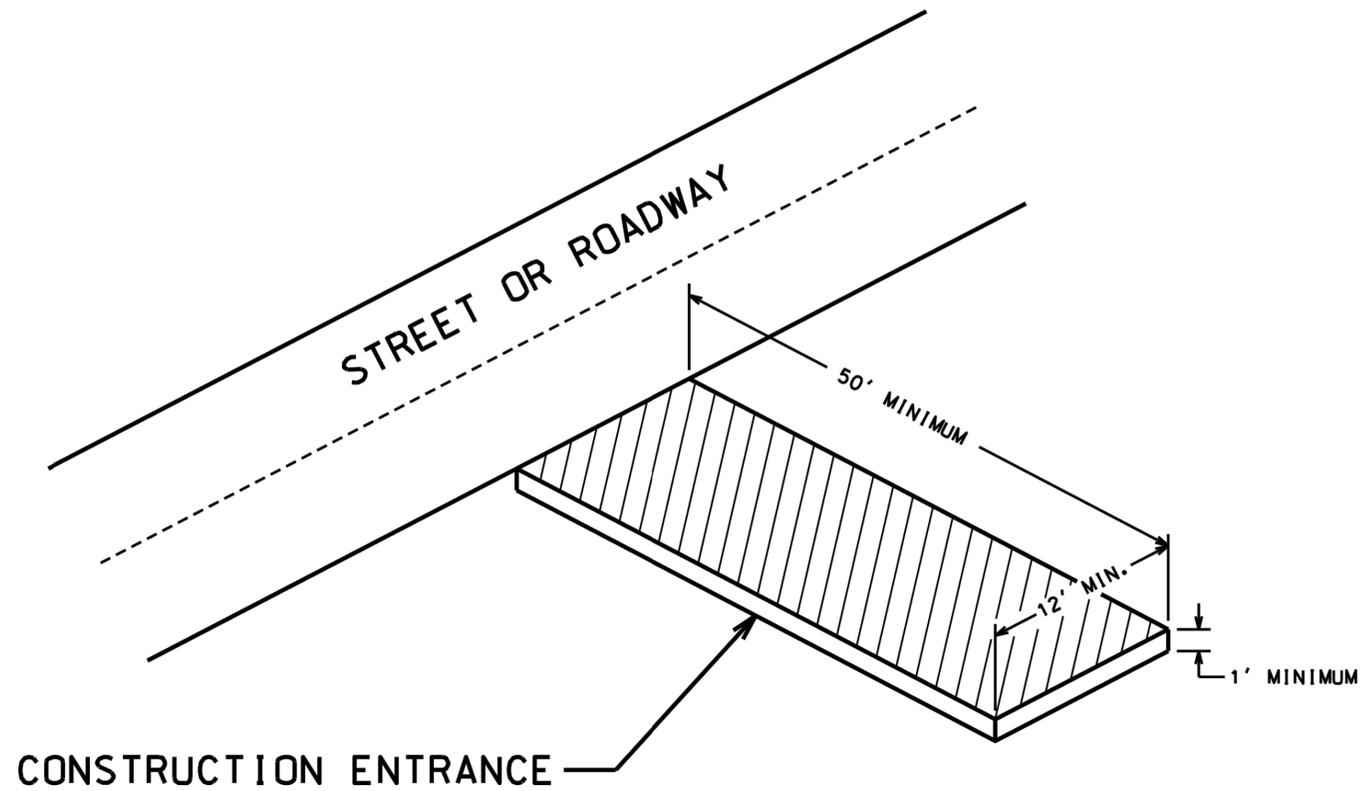
5 48" AIR RELEASE MANHOLE DETAIL
DC1 NOT TO SCALE



6 SPLASH PAD DETAIL
DC1 NOT TO SCALE

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1.07

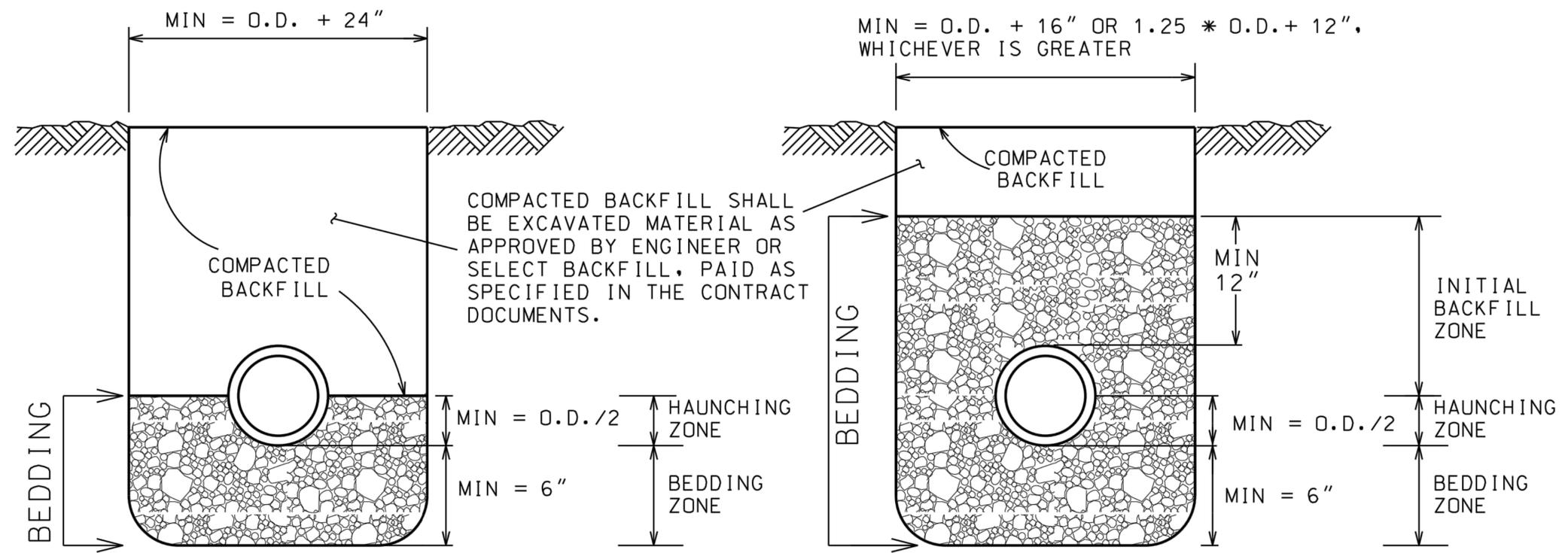


GENERAL NOTES FOR TYPICAL STONE TRACKING PADS:

1. CONSTRUCTION ENTRANCE TRACKOUT CONTROLS MUST BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE SITE.
2. THE AGGREGATE FOR THE CONSTRUCTION ENTRANCE SHALL BE HARD, DURABLE, ANGULAR STONE OR RECYCLED CONCRETE MEETING THE FOLLOWING GRADATION, LISTED BY SIEVE SIZE IN INCHES (PERCENT BY WEIGHT PASSING): 3" (100% PASSING), 2.5" (90-100% PASSING), 1.5" (25-60% PASSING), 3/4" (0-20% PASSING), AND 3/8" (0-5% PASSING).
3. WHERE WARRANTED DUE TO SOIL TYPE OR HIGH GROUNDWATER, UNDERLAY THE STONE TRACKING PAD WITH GEOTEXTILE FABRIC TO MINIMIZE MIGRATION OF UNDERLYING SOIL INTO THE STONE. SELECT FABRIC TYPE HR OR FF GEOTEXTILE FABRIC BASED ON SOIL CONDITIONS AND VEHICLE LOADING. IF UNDERLAY IS REQUIRED IT SHALL BE INCLUDED IN CONSTRUCTION ENTRANCE COST.
4. INSTALL THE STONE TRACKING PAD TO ENSURE VEHICLES THAT DRIVE OVER EXPOSED SOIL EXIT ALONG THE FULL LENGTH OF THE PAD.
5. AGGREGATE SHALL BE PLACED IN A LAYER AT LEAST 12 INCHES THICK. DO NOT COMPACT, GROUT, OR CAUSE SMOOTHING OF TRACKING PAD SURFACE.
6. INSTALL THE TRACKING PAD ACROSS THE FULL WIDTH OF THE ACCESS POINT, OR RESTRICT EXITING TRAFFIC TO A DEDICATED EGRESS LANE WITH A DRIVING SURFACE AT LEAST 12 FEET WIDE.
7. SURFACE WATERS MUST BE PREVENTED FROM PASSING THROUGH THE CONSTRUCTION ENTRANCE. FLOWS SHALL BE DIVERTED AWAY FROM THE CONSTRUCTION ENTRANCE OR CONVEYED UNDER AND AROUND BY USE OF A CULVERT, DIVERSION BERM OR OTHER PRACTICES AS APPROVED BY THE CONSTRUCTION ENGINEER.
8. RUNOFF FROM TRACKING PAD MUST BE DIRECTED TO SEDIMENT CONTROL PRACTICES.
9. MAINTAIN A LOOSENEED, ROUGH SURFACE BY SCRAPING, LOOSENING, OR TOP-DRESSING WITH ADDITIONAL AGGREGATE.
10. ALTERNATIVE TRACKOUT CONTROL DEVICES MUST MEET THE REQUIREMENTS OF WDNR STANDARD FOR TRACKOUT CONTROL PRACTICES (1057) AND HAVE APPROVAL OF CITY OF MADISON ENGINEERING PRIOR TO IMPLEMENTATION.

2018
CITY OF MADISON ENGINEERING DIVISION
CONSTRUCTION ENTRANCE
STANDARD DETAIL DRAWING 1.07

5.2.1



WASHED GRAVEL OR CRUSHED STONE AS SPECIFIED IN SECTION 502.1 (d), BEDDING OF SEWER PIPES

WASHED GRAVEL, CRUSHED STONE, SAND OR LIMESTONE SCREENINGS FOR PIPE SIZES 10" IN DIAMETER OR LESS. WASHED GRAVEL OR CRUSHED STONE FOR PIPE SIZES OVER 10" IN DIAMETER. AS SPECIFIED IN SECTION 502.1 (d), BEDDING OF SEWER PIPES

BEDDING FOR REINFORCED CONCRETE SEWER PIPES

BEDDING FOR SANITARY PIPE

NOTES:

UNLESS OTHERWISE SPECIFIED, ALL SANITARY PIPES, INCLUDING LATERALS AND LEADS, SHALL BE INSTALLED WITH THE TYPE OF BEDDING SHOWN FOR THE TYPE AND SIZE OF PIPE INSTALLED.

THE COSTS OF BEDDING SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PIPE. FOR RCP, BEDDING INCLUDES THE HAUNCHING & BEDDING ZONES. FOR PLASTIC PIPES, THE BEDDING INCLUDES THE HAUNCHING, BEDDING & INITIAL BACKFILL ZONES. THE BEDDING SHALL BE INSTALLED & COMPACTED IN 6" MAXIMUM LIFTS.

ALL TRENCHES SHALL BE HAND BACKFILLED TO A POINT 12" ABOVE THE TOP OF THE PIPE. ALL BEDDING SHALL BE MECHANICALLY COMPACTED.

PAYMENT SHALL NOT BE MADE FOR BACKFILL WITH EXCAVATED MATERIAL, IF APPROVED. SELECT FILL, IF REQUIRED, SHALL BE PAID PER CONTRACT.

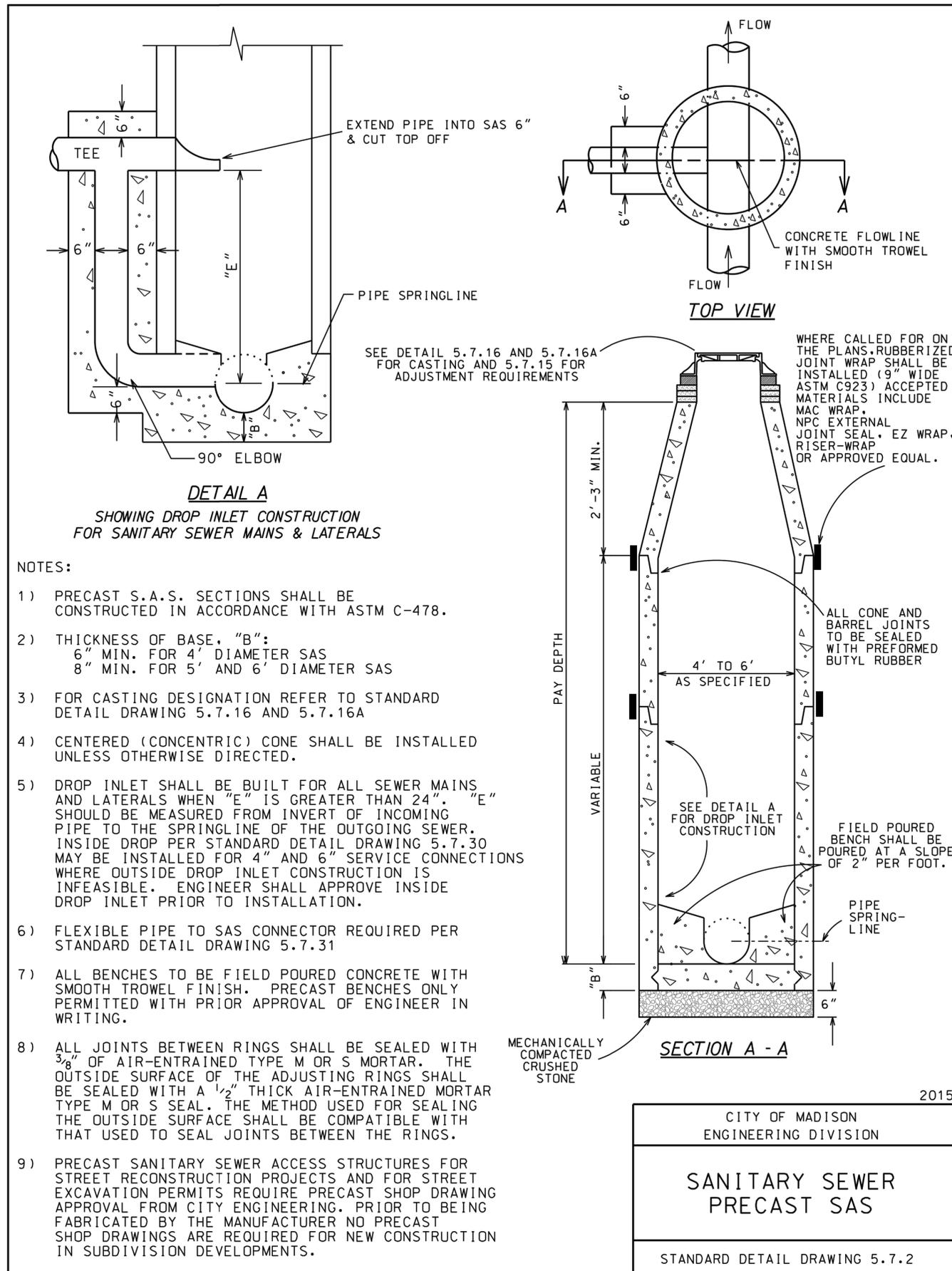
THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE 3 * O.D., THE MINIMUM TRENCH WIDTH AS SPECIFIED, AND SHALL APPLY FROM THE BOTTOM OF THE TRENCH TO A POINT 12" ABOVE THE TOP OF THE PIPE. WHERE THIS WIDTH IS EXCEEDED, THE CONTRACTOR SHALL FURNISH AND INSTALL A HIGHER TYPE OF BEDDING AT **NO EXTRA COST**. THE TYPE OF BEDDING SHALL BE DETERMINED BY THE ENGINEER.

O.D. EQUALS THE OUTSIDE DIAMETER OF THE PIPE.

DRAWING NOT TO SCALE

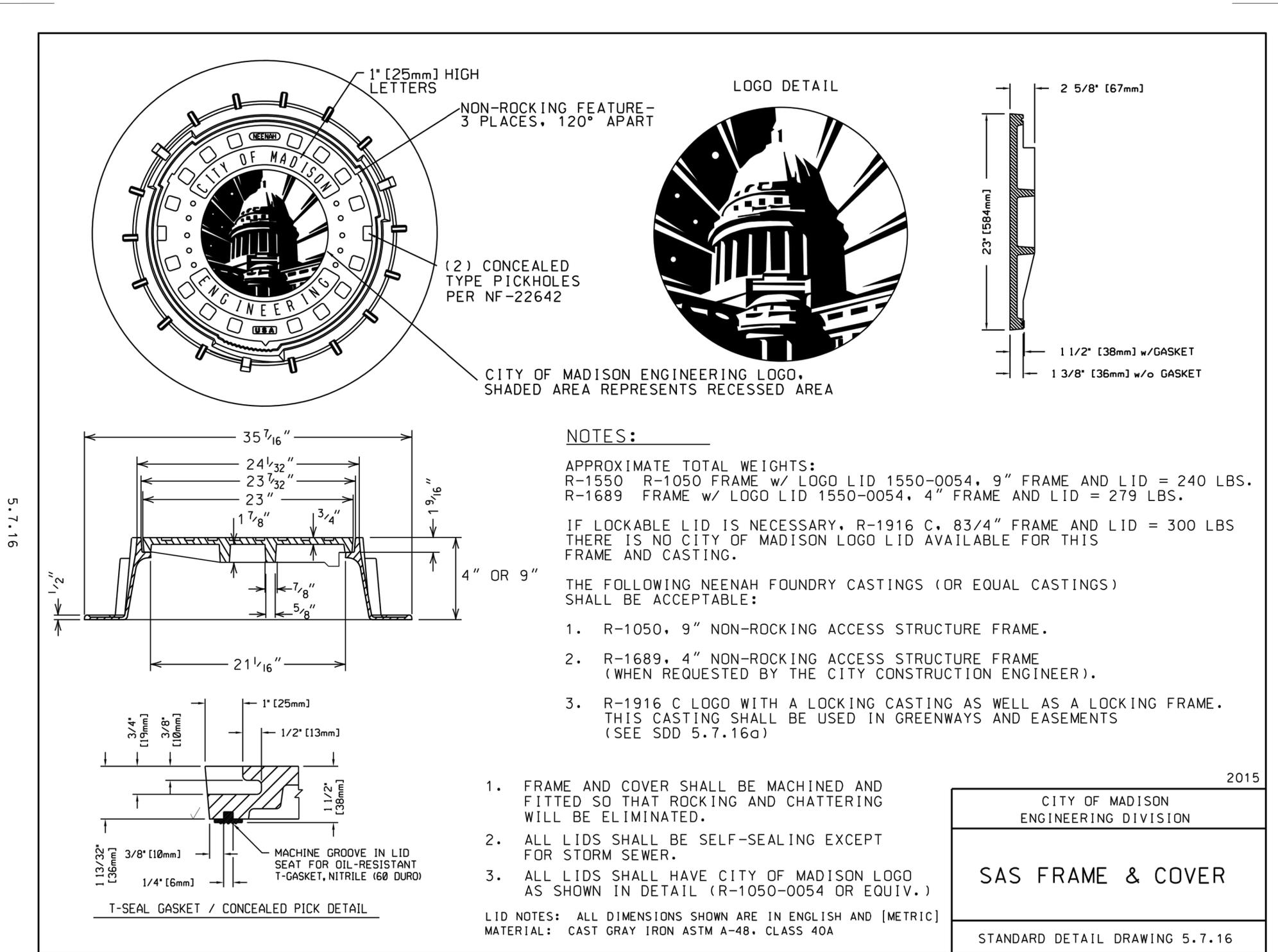
2016

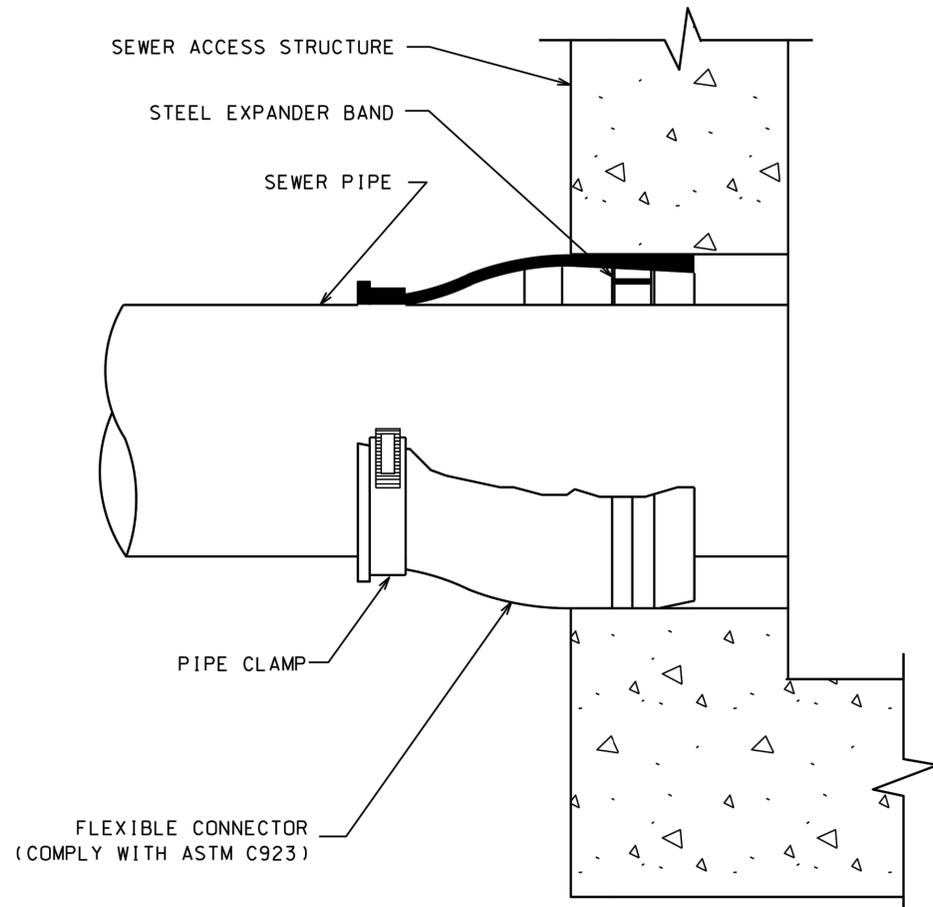
CITY OF MADISON ENGINEERING DIVISION
PIPE BEDDING AND BACKFILL
STANDARD DETAIL DRAWING 5.2.1



NOTES:

- 1) PRECAST S.A.S. SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C-478.
- 2) THICKNESS OF BASE, "B":
6" MIN. FOR 4' DIAMETER SAS
8" MIN. FOR 5' AND 6' DIAMETER SAS
- 3) FOR CASTING DESIGNATION REFER TO STANDARD DETAIL DRAWING 5.7.16 AND 5.7.16A
- 4) CENTERED (CONCENTRIC) CONE SHALL BE INSTALLED UNLESS OTHERWISE DIRECTED.
- 5) DROP INLET SHALL BE BUILT FOR ALL SEWER MAINS AND LATERALS WHEN "E" IS GREATER THAN 24". "E" SHOULD BE MEASURED FROM INVERT OF INCOMING PIPE TO THE SPRINGLINE OF THE OUTGOING SEWER. INSIDE DROP PER STANDARD DETAIL DRAWING 5.7.30 MAY BE INSTALLED FOR 4" AND 6" SERVICE CONNECTIONS WHERE OUTSIDE DROP INLET CONSTRUCTION IS INFEASIBLE. ENGINEER SHALL APPROVE INSIDE DROP INLET PRIOR TO INSTALLATION.
- 6) FLEXIBLE PIPE TO SAS CONNECTOR REQUIRED PER STANDARD DETAIL DRAWING 5.7.31
- 7) ALL BENCHES TO BE FIELD POURED CONCRETE WITH SMOOTH TROWEL FINISH. PRECAST BENCHES ONLY PERMITTED WITH PRIOR APPROVAL OF ENGINEER IN WRITING.
- 8) ALL JOINTS BETWEEN RINGS SHALL BE SEALED WITH $\frac{3}{8}$ " OF AIR-ENTRAINED TYPE M OR S MORTAR. THE OUTSIDE SURFACE OF THE ADJUSTING RINGS SHALL BE SEALED WITH A $\frac{1}{2}$ " THICK AIR-ENTRAINED MORTAR TYPE M OR S SEAL. THE METHOD USED FOR SEALING THE OUTSIDE SURFACE SHALL BE COMPATIBLE WITH THAT USED TO SEAL JOINTS BETWEEN THE RINGS.
- 9) PRECAST SANITARY SEWER ACCESS STRUCTURES FOR STREET RECONSTRUCTION PROJECTS AND FOR STREET EXCAVATION PERMITS REQUIRE PRECAST SHOP DRAWING APPROVAL FROM CITY ENGINEERING. PRIOR TO BEING FABRICATED BY THE MANUFACTURER NO PRECAST SHOP DRAWINGS ARE REQUIRED FOR NEW CONSTRUCTION IN SUBDIVISION DEVELOPMENTS.



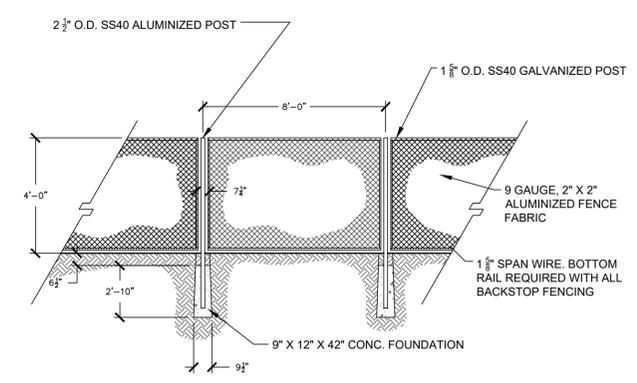


NOTES:

1. S.A.S. CONNECTIONS FOR SEWER MAINS SHALL BE MADE USING FLEXIBLE, WATERTIGHT CONNECTIONS SUCH AS KOR-N-SEAL I OR APPROVED EQUAL, UNLESS DIRECTED OTHERWISE BY ENGINEER.
2. ALL STAINLESS STEEL ELEMENTS OF CONNECTOR SHALL BE TOTALLY NON-MAGNETIC SERIES 304 STAINLESS, EXCLUDING THE WORM SCREW FOR TIGHTENING THE STEEL BAND AROUND THE PIPE WHICH SHALL BE SERIES 305 STAINLESS. THE WORM SCREW FOR TIGHTENING THE STEEL BAND SHALL BE TORQUED BY A BREAK-AWAY TORQUE WRENCH AVAILABLE FOR THE PRECAST S.A.S SUPPLIER AND SET FOR 60 - 70 INCH/LBS.
3. THE CONNECTOR SHALL BE INSTALLED IN THE S.A.S. WALL BY ACTIVATING THE EXPANDING MECHANISM IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE CONNECTOR MANUFACTURER.
4. THE CONNECTOR SHALL BE OF A SIZE SPECIFICALLY DESIGNED FOR THE PIPE MATERIAL AND SIZE BEING UTILIZED ON THE PROJECT.
5. ALL COSTS SHALL BE CONSIDERED INCIDENTAL TO THE S.A.S. AND/OR PIPE. THE ENGINEER RESERVES THE RIGHT TO REQUIRE A "CONCRETE ENCASEMENT" CONNECTION AT NO ADDITIONAL EXPENSE IN THE EVENT OF DESIGN CHANGE.
6. FLEXIBLE, WATERTIGHT CONNECTIONS SHALL ALSO BE USED AS REQUIRED FOR STORM SEWER CONNECTIONS.

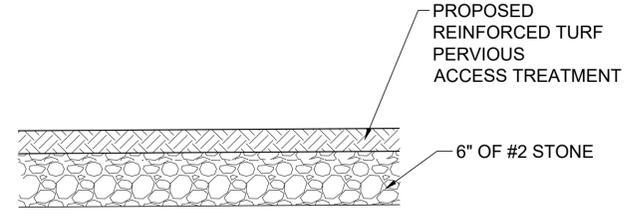
2016

CITY OF MADISON ENGINEERING DIVISION
FLEXIBLE PIPE TO S.A.S. CONNECTOR
STANDARD DETAIL DRAWING 5.7.31



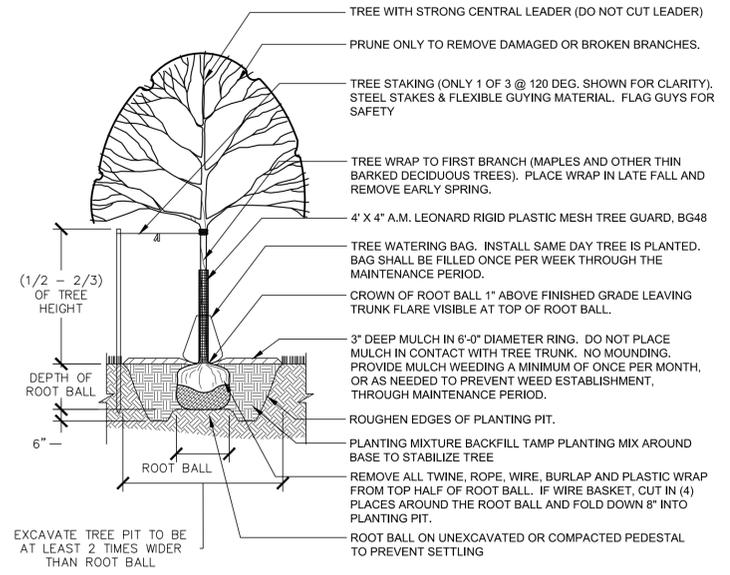
NOTE:
1. ALL TERMINAL POSTS SHALL BE 3" O.D. SS40 GALVANIZED.
2. ALL COMPONENTS SHALL BE COATED WITH PVC WEATHERPROOF COATING PER SPECIFICATIONS AND MANUFACTURER INSTRUCTIONS
3. COLOR: BLACK

1 4 FT FENCE - PVC COATED
1/4" = 1'-0"
323113-07

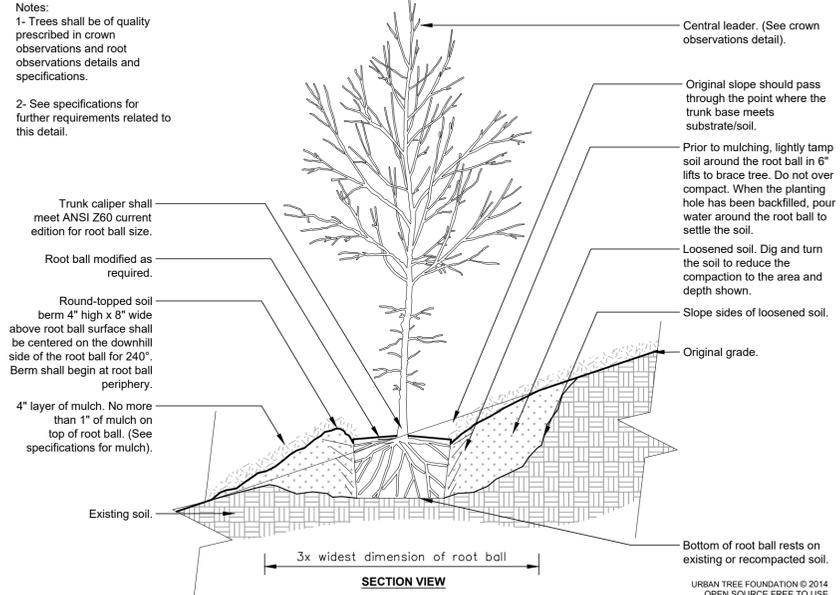


NOTE:
PROPOSED PERVIOUS ACCESS TREATMENT TO BE GB-5150 GEOBLOCK POROUS PAVEMENT SYSTEM OR EQUAL INSTALLED PER MANUFACTURER SPECIFICATIONS FOR HEAVY TRUCK ACCESS AND H-20 LOADING.

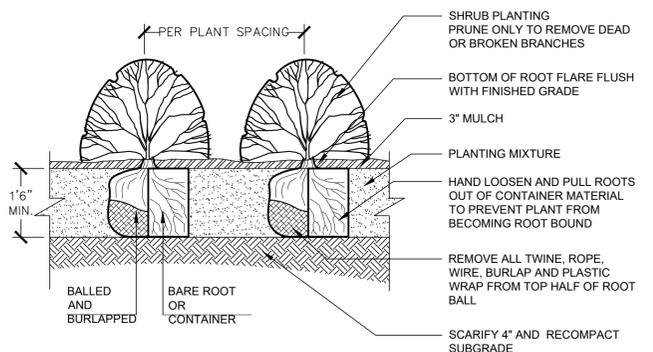
2 TYPICAL REINFORCED TURF GRASS SECTION
1" = 1'-0"
321413-14



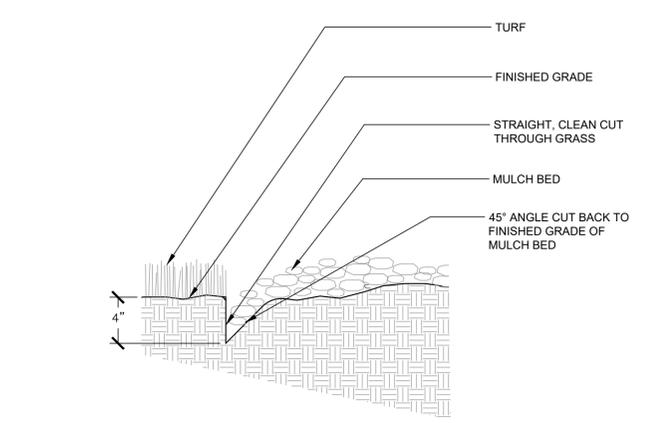
3 TREE PLANTING
1/4" = 1'-0"
329343-01



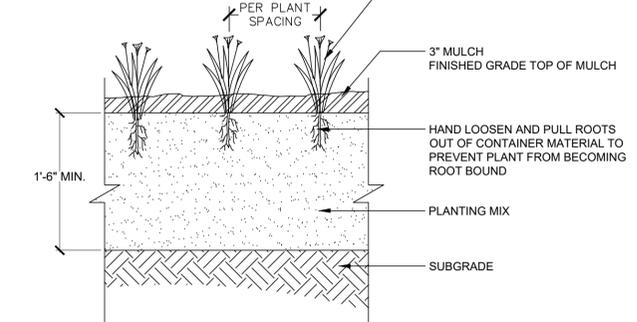
4 TREE ON SLOPE - UNMODIFIED SOIL
1/2" = 1'-0"
SLOPE 5% (20:1) TO 50% (2:1)
FX-PL-FX-TREE-08
URBAN TREE FOUNDATION © 2014
OPEN SOURCE FREE TO USE



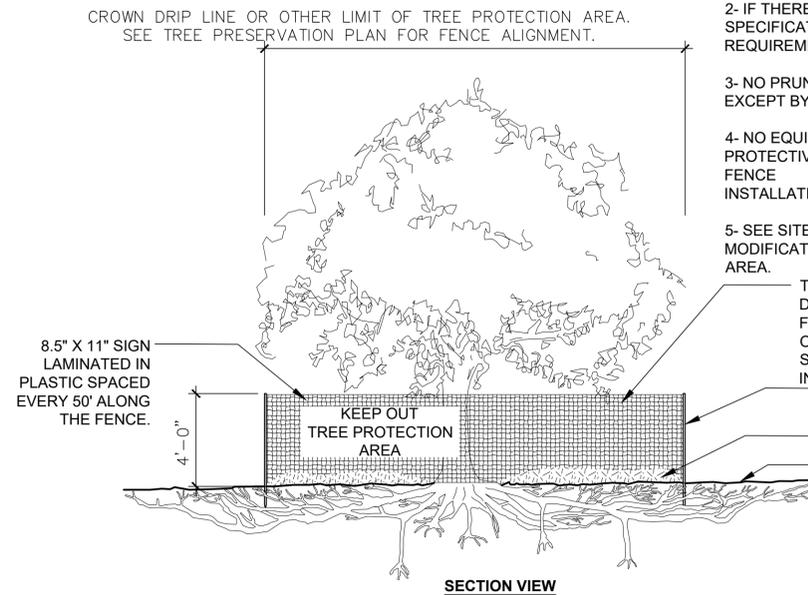
5 SHRUB PLANTING
1/2" = 1'-0"
329333-04



6 TRENCHED EDGE DETAIL
N.T.S.
329413.23-02



7 PERENNIAL PLANTING DETAIL
1" = 1'-0"
3293-01



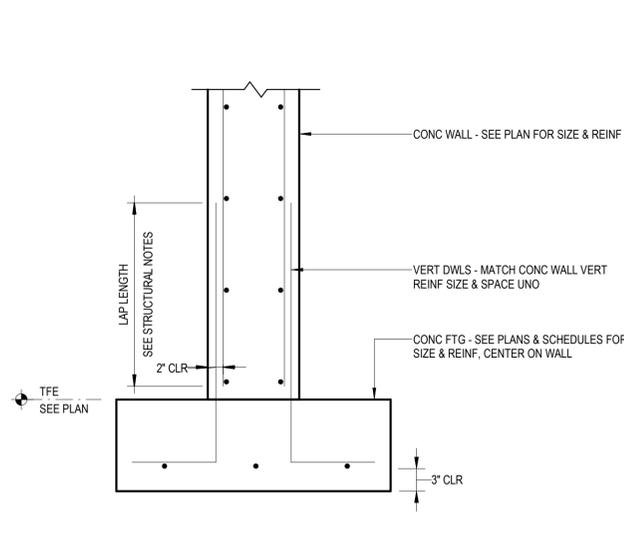
8 TREE PROTECTION
3/16" = 1'-0"
FX-PL-FX-TRMT-02

NOTES:
1- SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
2- IF THERE IS NO EXISTING IRRIGATION, SEE SPECIFICATIONS FOR WATERING REQUIREMENTS.
3- NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
4- NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
5- SEE SITE PREPARATION PLAN FOR ANY MODIFICATIONS WITH THE TREE PROTECTION AREA.

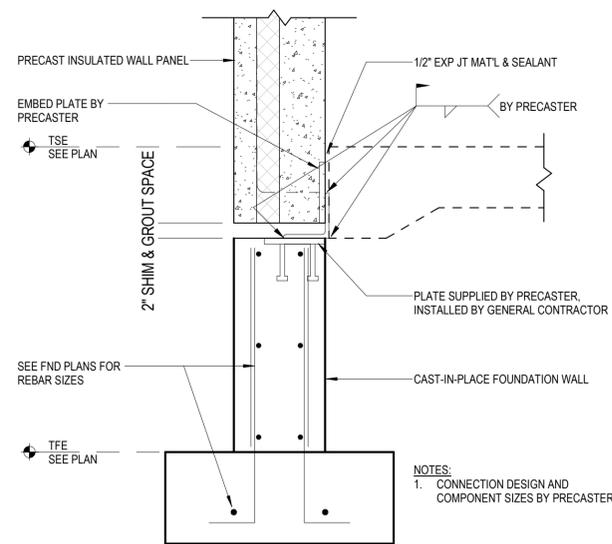
TREE PROTECTION FENCE: HIGH DENSITY POLYETHYLENE FENCING WITH 3.5" X 1.5" OPENINGS; COLOR- ORANGE. STEEL POSTS INSTALLED AT 8' O.C. APPROVED EQUAL.
5" THICK LAYER OF MULCH.
MAINTAIN EXISTING GRADE WITH THE TREE PROTECTION FENCE UNLESS OTHERWISE INDICATED ON THE PLANS.

URBAN TREE FOUNDATION © 2014
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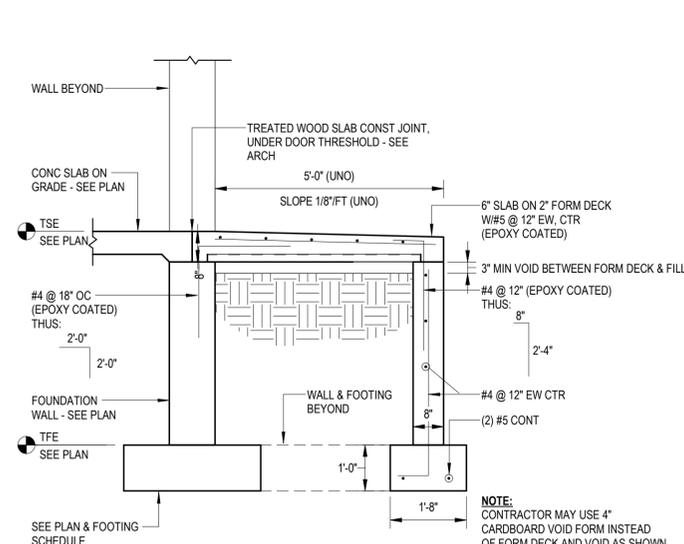
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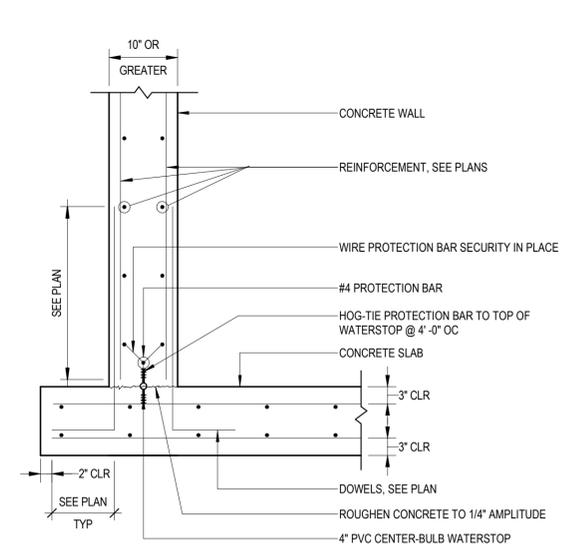
1 TYPICAL CONC WALL TO FTG DETAIL
DS501 NOT TO SCALE



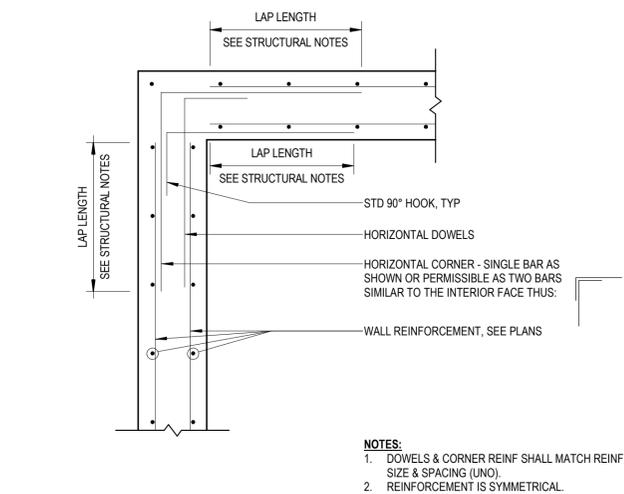
2 FOUNDATION WALL SECTION
DS501 NOT TO SCALE



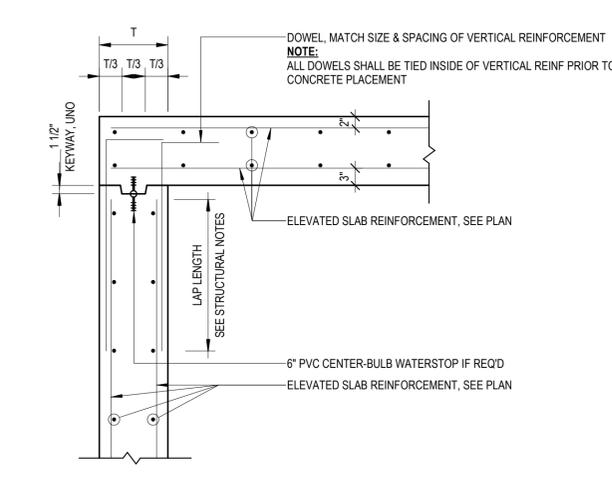
3 CONCRETE STOOP DETAIL
DS501 NOT TO SCALE



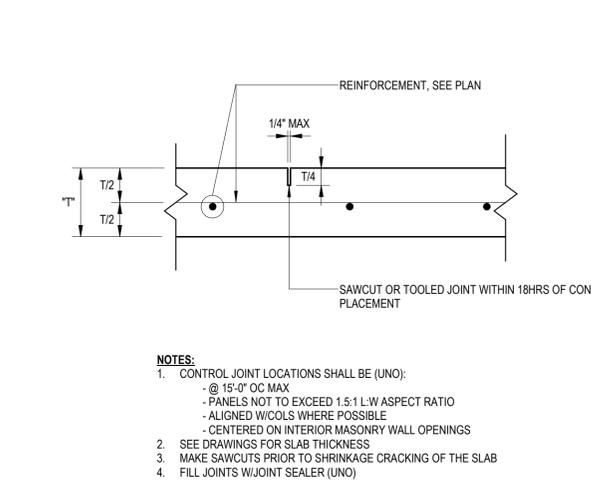
4 WALL TO SLAB JOINT DETAIL
DS501 NOT TO SCALE



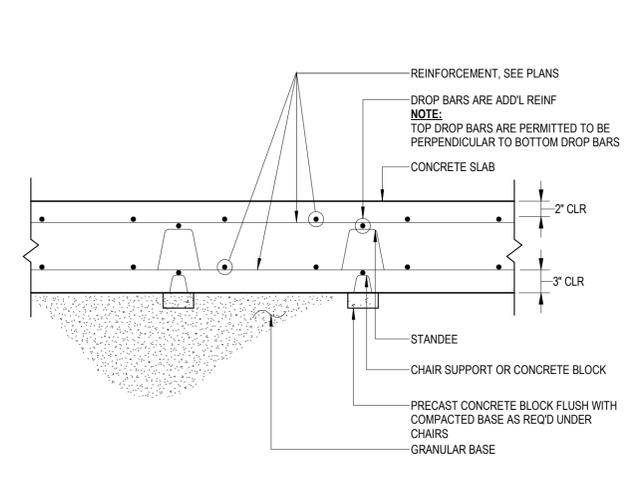
5 WALL CORNER REINFORCEMENT DETAIL
DS501 NOT TO SCALE



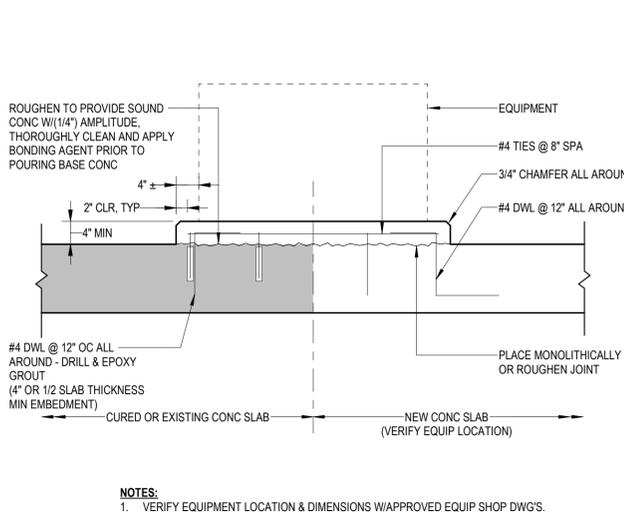
6 ELEVATED SLAB CONNECTION DETAIL
DS501 NOT TO SCALE



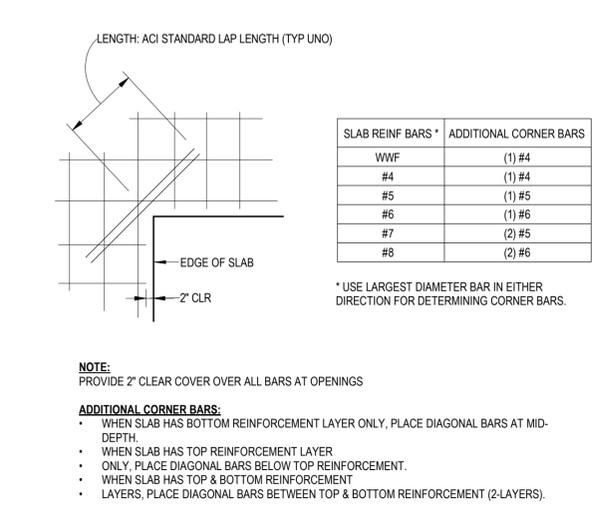
7 SLAB ON GRADE CONTROL JOINT
DS501 NOT TO SCALE



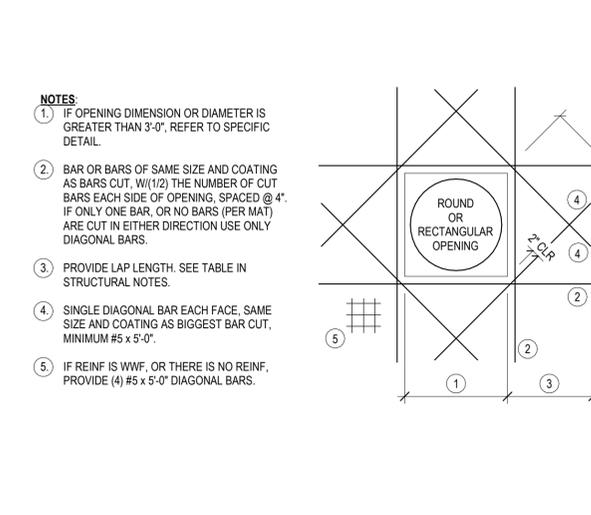
8 SOG REINFORCEMENT SUPPORT DETAIL
DS501 NOT TO SCALE



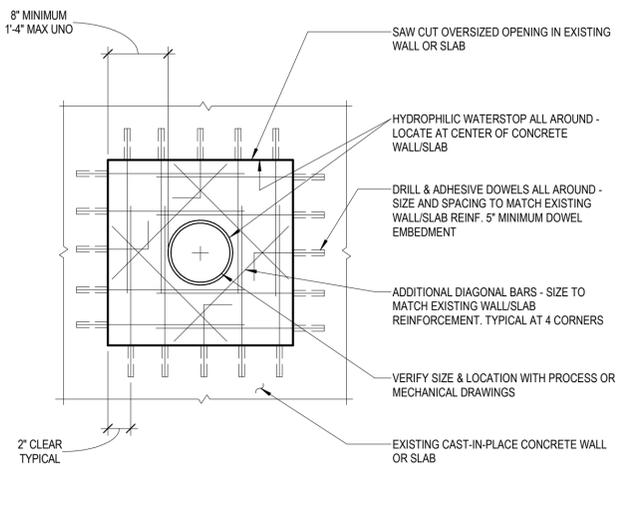
9 CONC EQUIPMENT PAD DETAIL
DS501 NOT TO SCALE



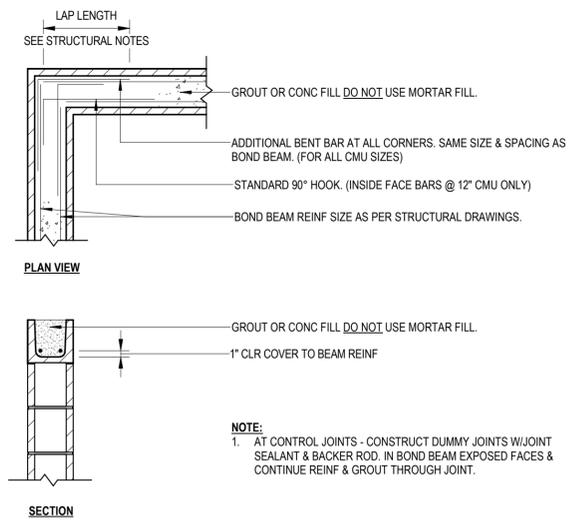
10 SLAB REENRANT CORNER DETAIL
DS501 NOT TO SCALE



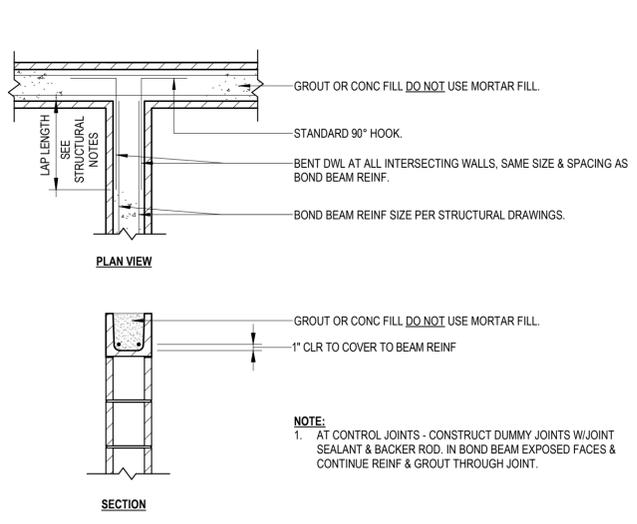
11 OPENING REINFORCEMENT DETAIL
DS501 NOT TO SCALE



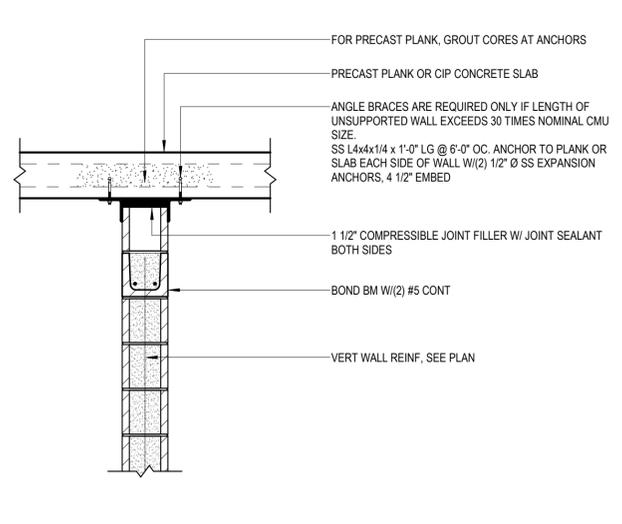
12 PENETRATION AT EXISTING CIP WALL OR SLAB
DS501 NOT TO SCALE



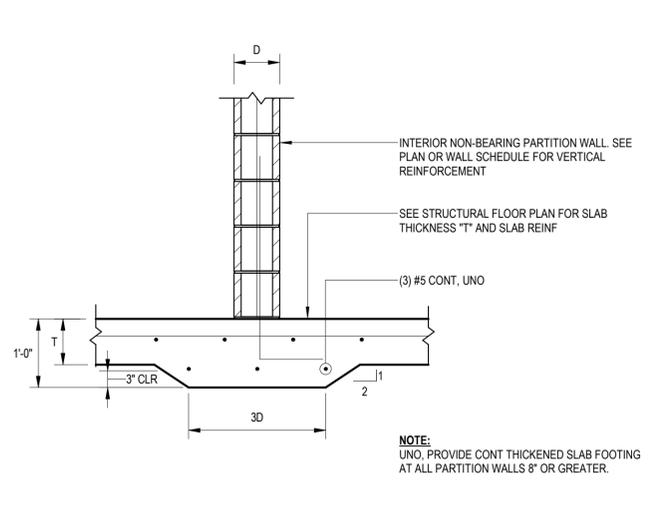
1 BOND BEAM CORNER REINF DETAIL
DS511 NOT TO SCALE



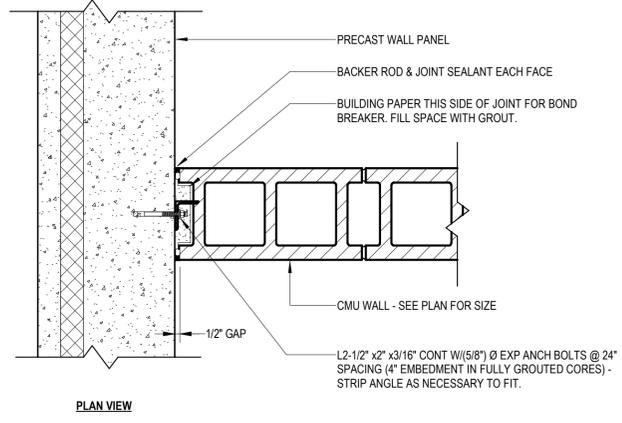
2 BOND BEAM INTERSECTION REINF. DETAIL
DS511 NOT TO SCALE



3 CMU PARTITION WALL TOP DETAIL
DS511 NOT TO SCALE



4 THICKENED SLAB AT NON-BEARING CMU WALL
DS511 NOT TO SCALE

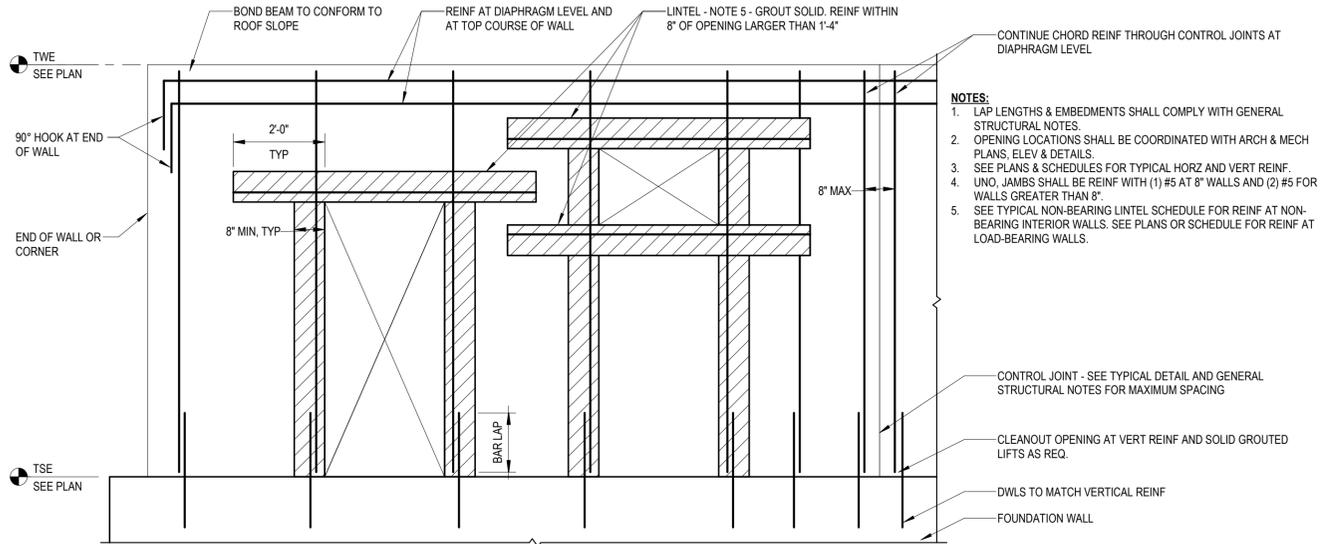


5 CMU TO PRECAST WALL CONNECTION DETAIL
DS511 NOT TO SCALE

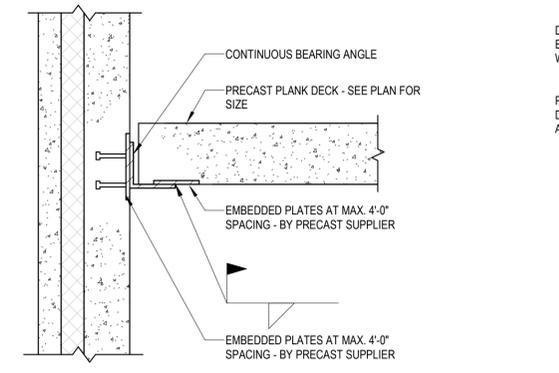
NON-BEARING MASONRY LINTEL SCHEDULE

	6" CMU WALL	8" CMU WALL	12" CMU WALL	16" CMU WALL
ROUGH OPENING WIDTH (LINTEL SPAN)				
0'-0" - 3'-4"	(1) #4	(2) #4	(2) #4	(2) #4
3'-5" - 6'-4"		(2) #4	(2) #4	(2) #4
6'-5" - 8'-4"		(2) #5	(2) #5	(2) #5

MASONRY LINTEL NOTES:
1. LINTEL BLOCKS SHALL BE GROUTED SOLID. DO NOT USE MORTAR. $F'_m = 3000$ PSI MIN
2. 8" MIN BEARING EACH END FOR BLOCK LINTELS. CORES BENEATH LINTEL BEARING SHALL BE GROUTED SOLID. PROVIDE (2) VERTICAL WALL BARS (#5 MIN) BELOW EACH BEARING END UNO.

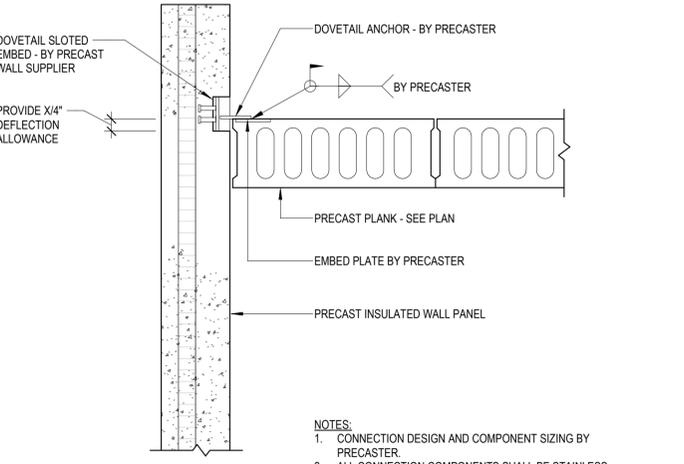


7 CMU WALL REINFORCING SCHEMATIC
DS511 NOT TO SCALE



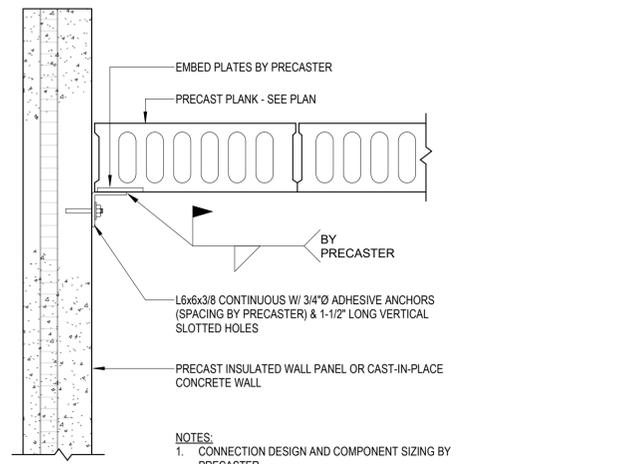
NOTES:
1. CONNECTION DESIGN BY PRECAST CONTRACTOR. SUBMIT CALCS FOR REVIEW.
2. ALL EXPOSED CONNECTION COMPONENTS SHALL BE STAINLESS STEEL TYPE 316
3. HORIZONTAL SHEAR = 215#/FT. SERVICE (WIND) LOAD.
4. VERTICAL SERVICE REACTIONS: DL=679#/FT, LL=2733/FT + POINT LOADS AS SHOWN ON DRAWINGS

8 PLANK TO WALL PANEL BEARING CONNECTION
DS511 NOT TO SCALE



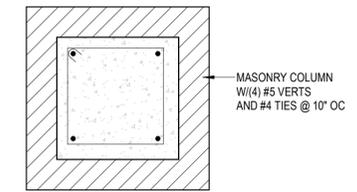
NOTES:
1. CONNECTION DESIGN AND COMPONENT SIZING BY PRECASTER.
2. ALL CONNECTION COMPONENTS SHALL BE STAINLESS STEEL.
3. SEE PLANS FOR LATERAL LOAD TRANSFER REQUIREMENTS

9 WALL PANEL TO ROOF PLANK CONNECTION
DS511 NOT TO SCALE



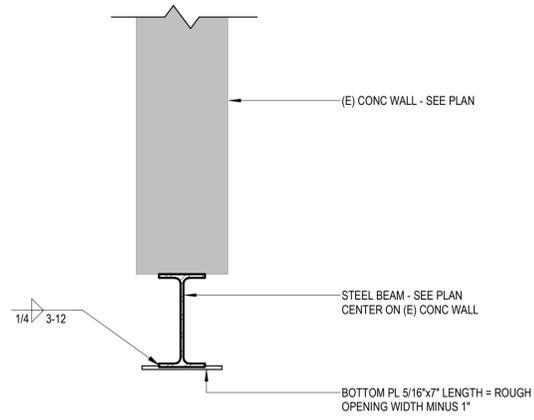
NOTES:
1. CONNECTION DESIGN AND COMPONENT SIZING BY PRECASTER.
2. ALL CONNECTION COMPONENTS SHALL BE STAINLESS STEEL.

10 WALL PANEL TO ROOF PLANK CONNECTION
DS511 NOT TO SCALE

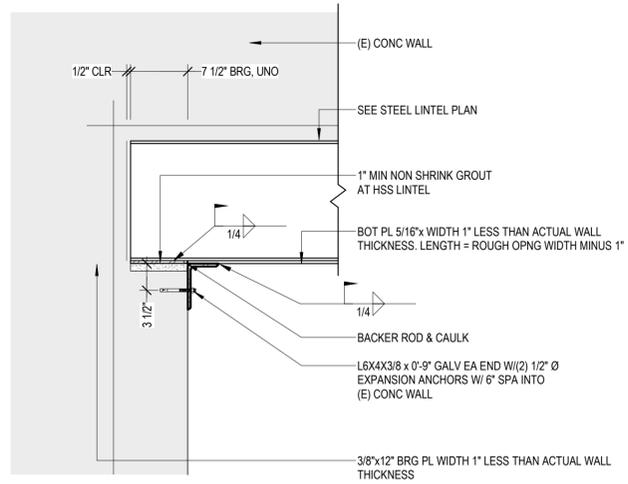


NOTES:
1. PROVIDE HOOKED DOWELS TO FOUNDATION TO LAP WITH VERTICAL REINFORCING. MATCH SIZE AND NUMBER OF VERTICAL REINFORCING BARS.

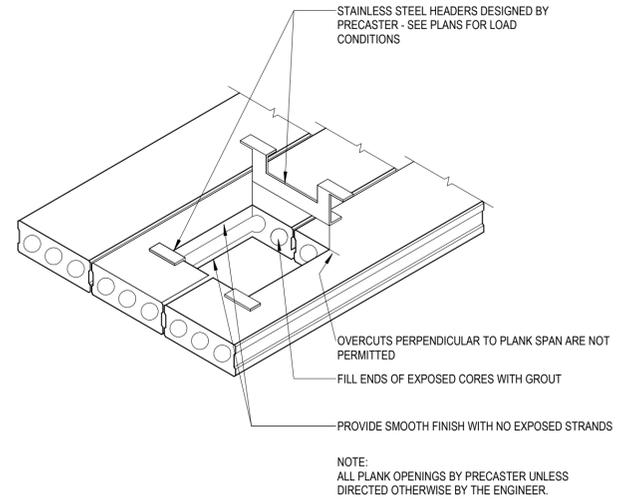
11 MASONRY COLUMN DETAIL
DS511 NOT TO SCALE



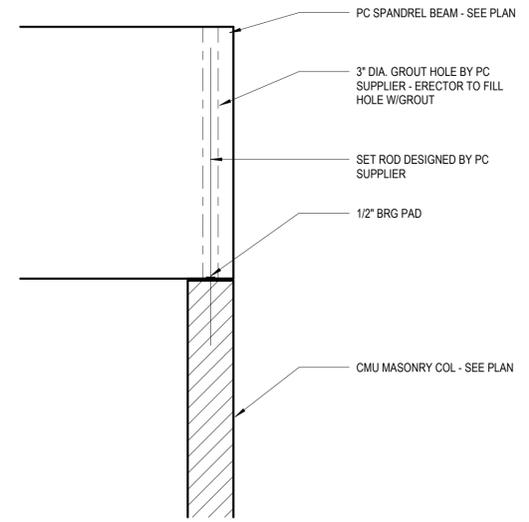
1 STEEL LINTEL SECTION
DS512 NOT TO SCALE



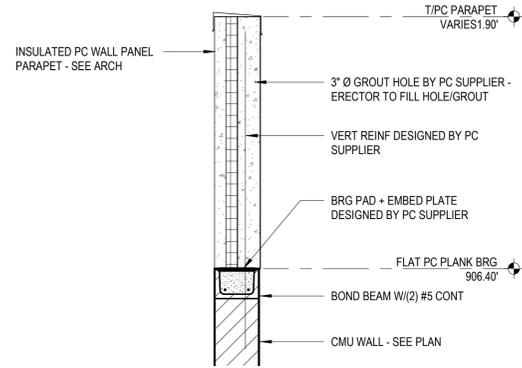
2 STEEL LINTEL ELEVATION
DS512 NOT TO SCALE



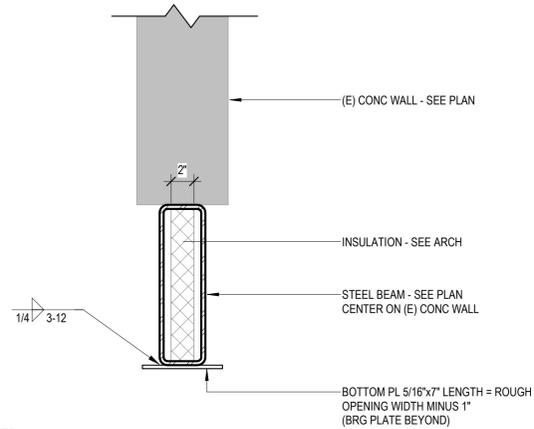
3 TYPICAL PLANK OPENING WITH HEADERS
DS512 NOT TO SCALE



4 PC SPANDREL TO CMU COL
DS512 NOT TO SCALE



5 PC SPANDREL TO CMU WALL
DS512 NOT TO SCALE



6 STEEL LINTEL SECTION
DS512 NOT TO SCALE

NOTES
1. SEE DETAIL 2/DS512 FOR INFO NOT SHOWN



MADISON WATER UTILITY
CITY OF MADISON WATER UTILITY
119 E OLIN AVE
MADISON, WI 53713

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2626 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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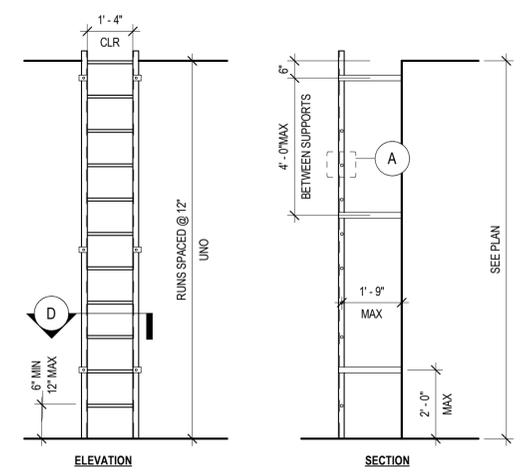
SEH Project MADWU 167818
Checked By NRD, SMJ
Drawn By ALM

Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

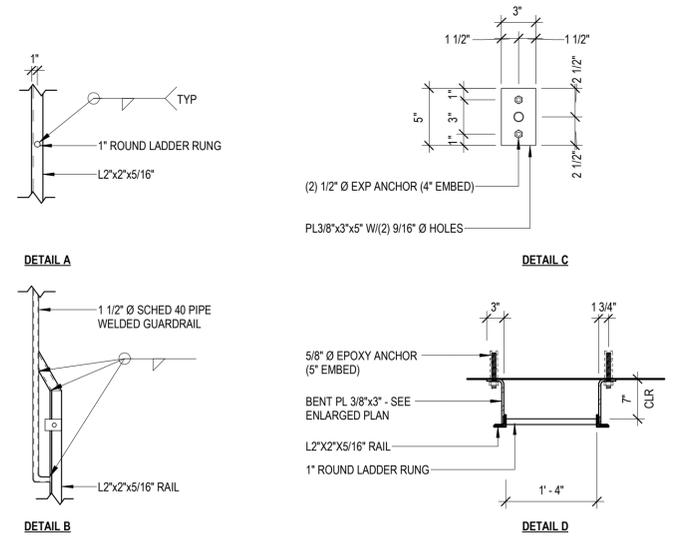
REVISION SCHEDULE
REV. # DESCRIPTION DATE

FRAMING DETAILS

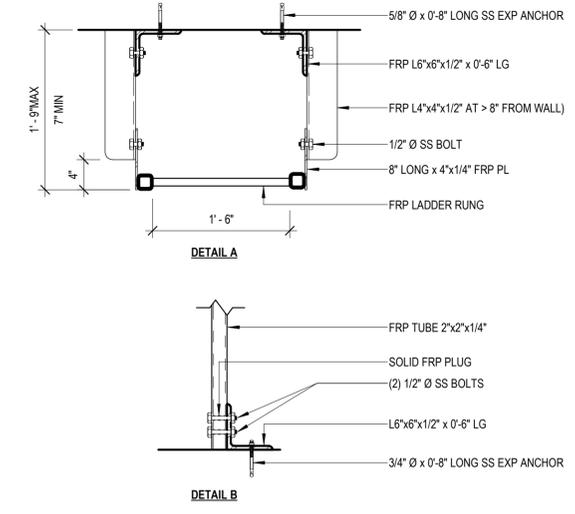
DS512



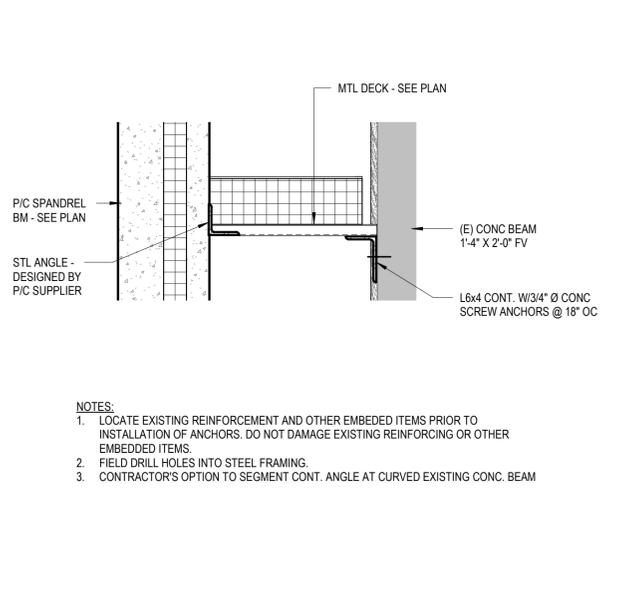
1 ALUMINUM LADDER DETAIL
DS531 NOT TO SCALE



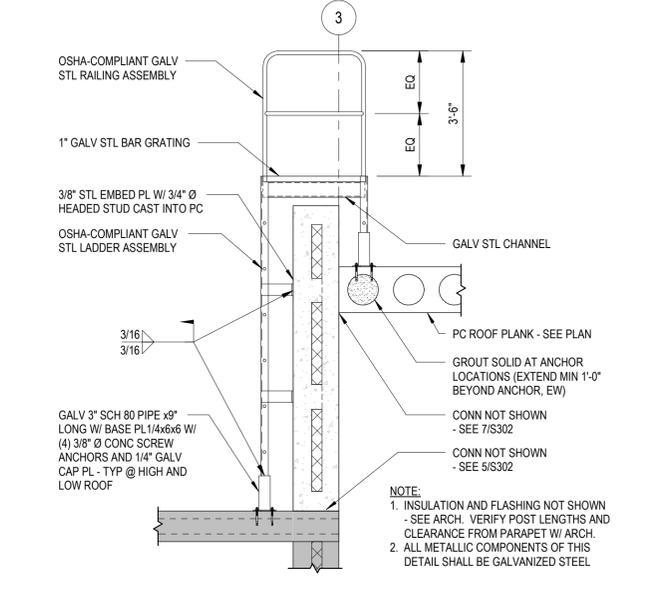
2 FRP LADDER DETAIL
DS531 NOT TO SCALE



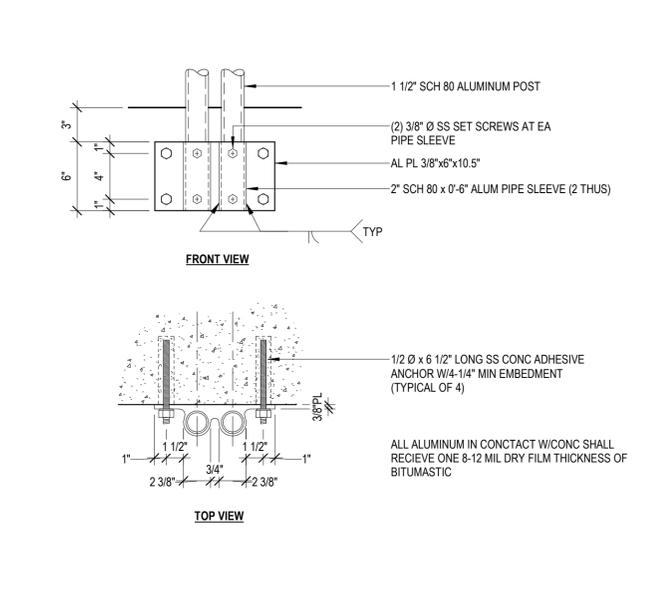
3 SECTION
DS531 NOT TO SCALE



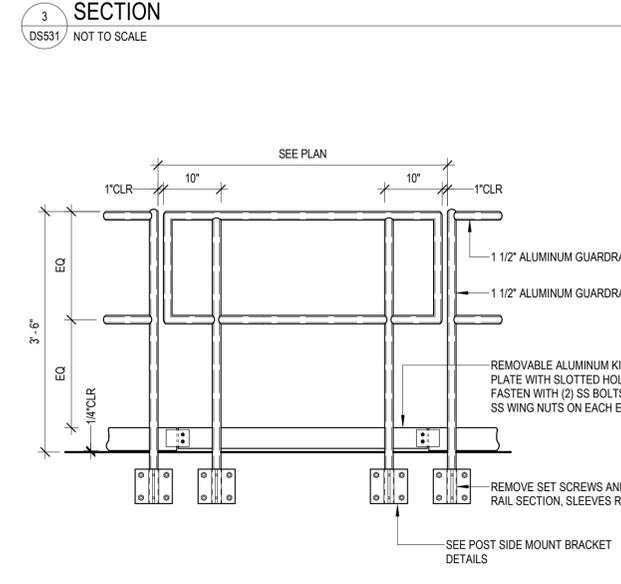
4 LADDER CONNECTION DETAIL
DS531 NOT TO SCALE



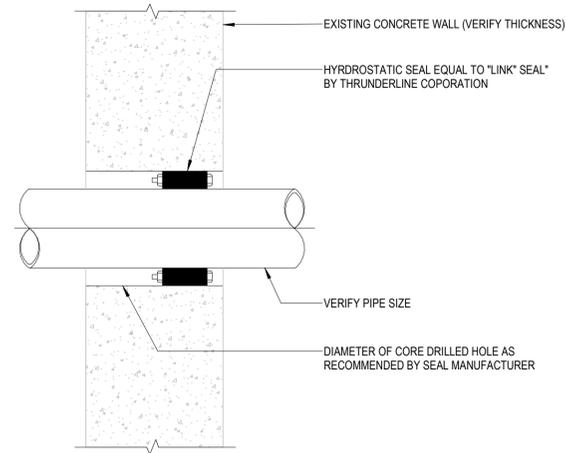
5 ALUM POST SIDE-MOUNT BRACKET
DS531 NOT TO SCALE



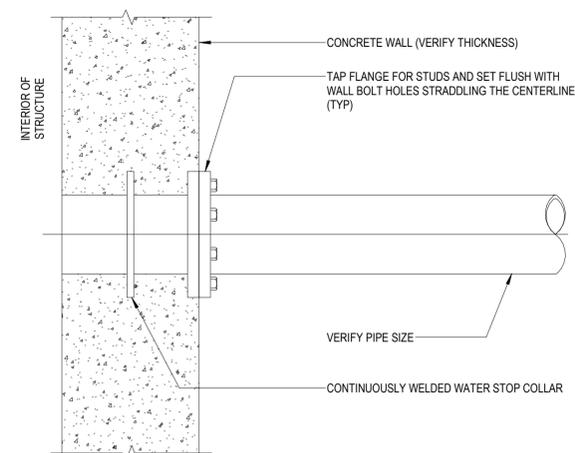
6 ALUM POST SIDE-MOUNT BRACKET AT REMOVABLE SECTION
DS531 NOT TO SCALE



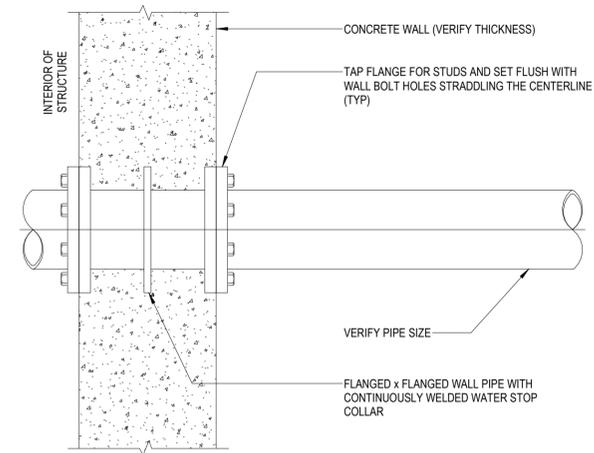
7 ALUMINUM REMOVABLE GUARDRAIL SECTION (2 RAILS)
DS531 NOT TO SCALE



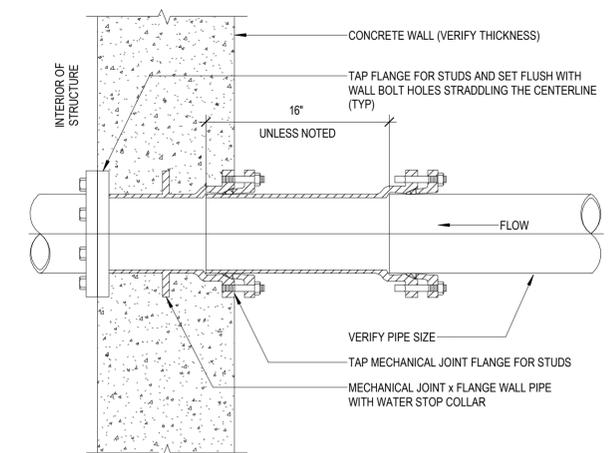
A CORE DRILLED PIPE PENETRATION DETAIL
DP501



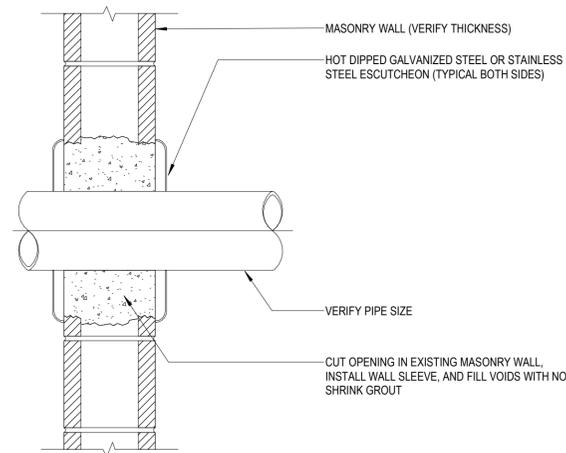
B FL x PE WALL PIPE
DP501



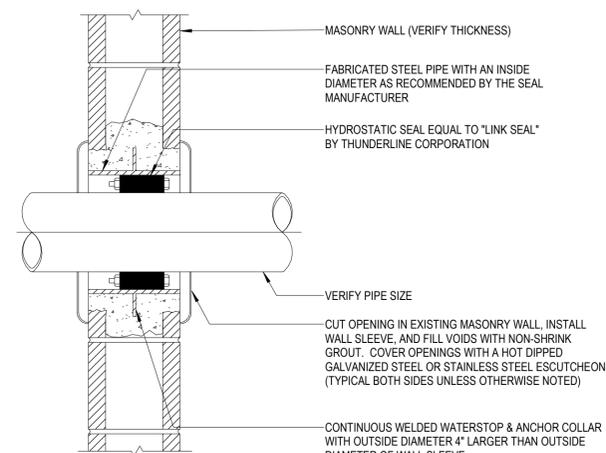
C FL x FL WALL PIPE
DP501



D FL x MJ WALL PIPE
DP501



E SEALED MASONRY WALL PENETRATION DETAIL
DP501



F SEALED MASONRY WALL PENETRATION - TYPE 2 DETAIL
DP501

Project Owner
MADISON WATER UTILITY

CITY OF MADISON WATER UTILITY
UNIT WELL 19 TREATMENT SYSTEM ADDITION
2526 LAKE MENDOTA DRIVE
MADISON, WISCONSIN

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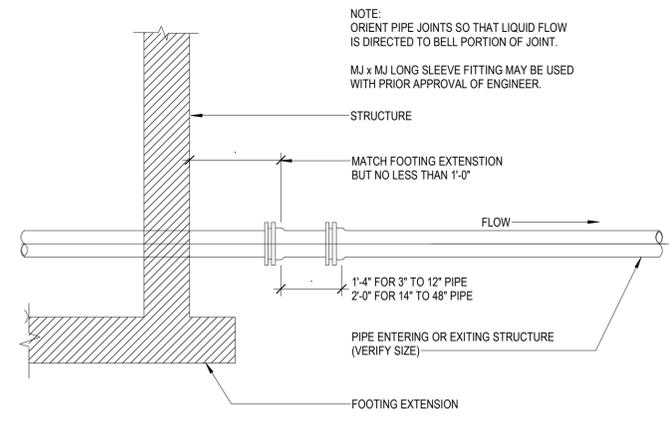
SEH Project MADWU 167818
Checked By MS
Drawn By LAP

Project Status Issue Date
BIDDING DOCUMENTS OCTOBER, 2023

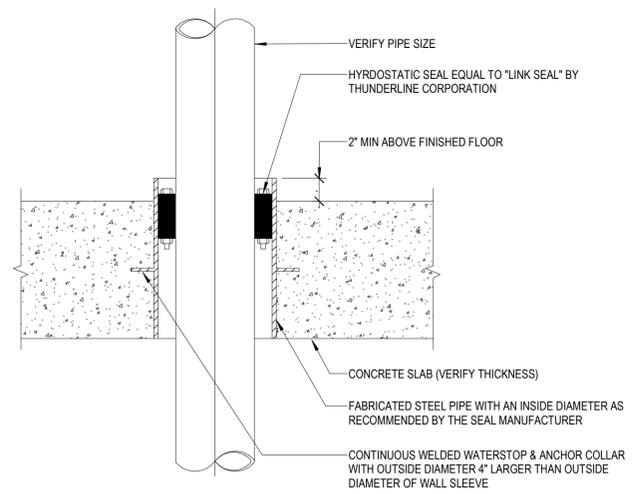
REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE

PROCESS PIPING WALL
PENETRATION DETAILS

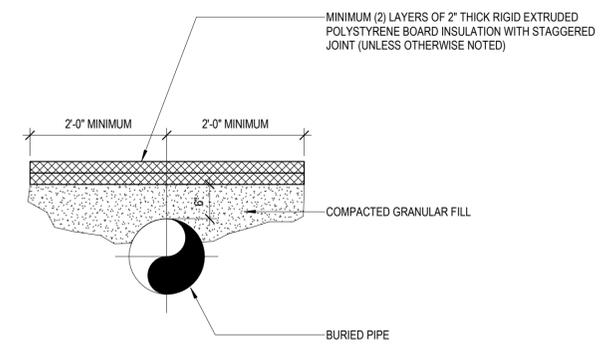
DP501



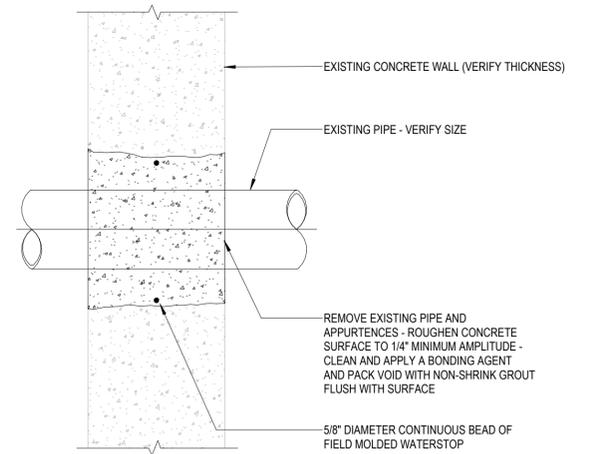
A PIPE CONNECTION - TYPE 2 DETAIL
DP502



B SEALED FLOOR SLEEVE DETAIL
DP502



C PIPE INSULATION DETAIL
DP502



D EXISTING PIPE OPENING PATCH DETAIL
DP502

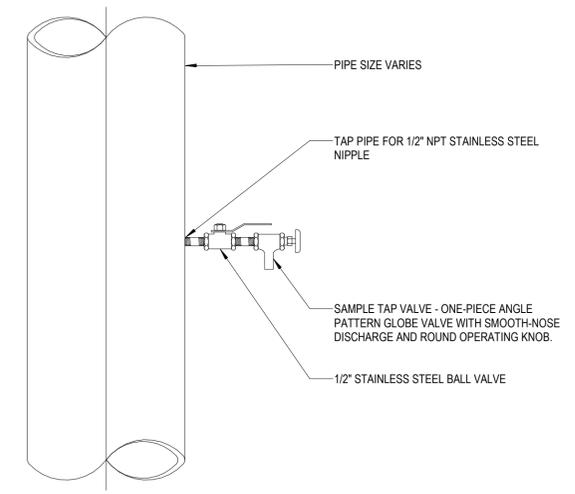


- NOTES:
1. PLACE BETWEEN FITTING AND UNDISTURBED TRENCH WALL
 2. MINIMUM THICKNESS: 12 INCHES
 3. MINIMUM AREA IN SQUARE FEET SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

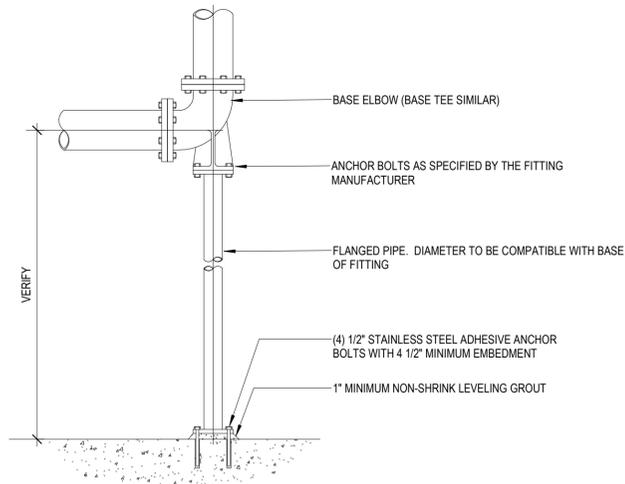
PIPE SIZE	THRUST BLOCKING			
	TEE OR PLUG	1/4 BEND	1/32 AND 1/8 BEND	1/16 BEND
6"	2.9	3.1	1.6	0.8
8"	3.7	5.3	2.9	1.4
10"	5.7	8.1	4.4	2.2
12"	8.1	13.4	6.6	3.2
16"	15.1	21.4	11.6	5.9
20"	23.2	30.2	18.1	9.3
24"	33.6	48.5	26.1	13.3

4. SIZE BLOCKING BASED ON LARGER PIPE
5. VERIFY THAT BOLTS ARE ACCESSIBLE AFTER CONCRETE IS POURED

E CONCRETE THRUST BLOCKING DETAIL
DP502

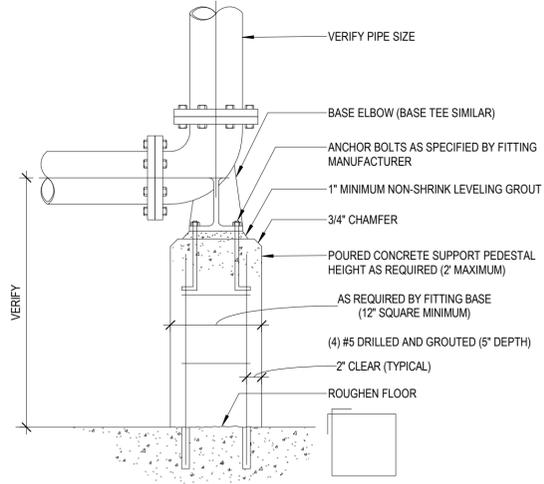


F SAMPLE TAP-1
DP502



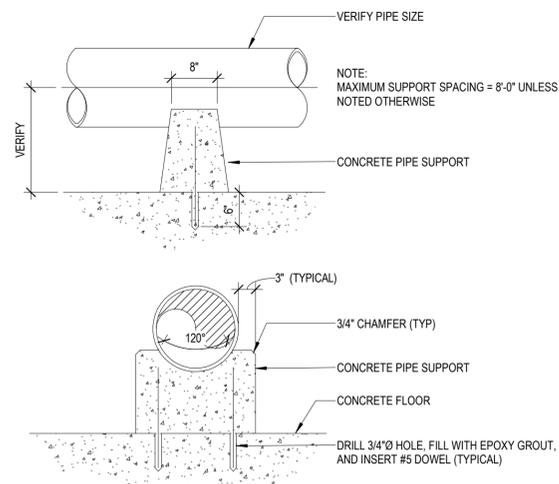
A BASE BEND SUPPORT - TYPE 1 DETAIL

DP503



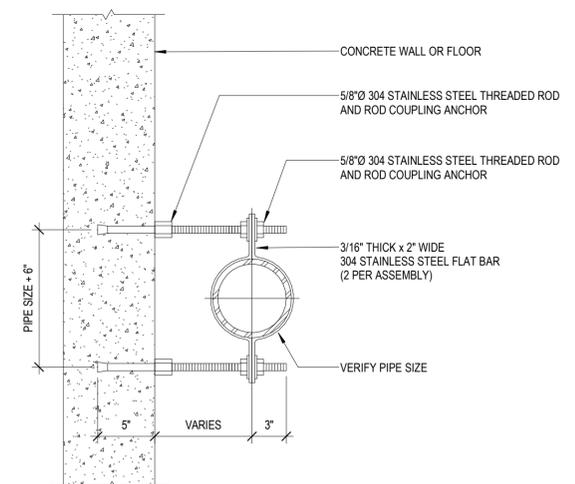
B BASE BEND SUPPORT - TYPE 2 DETAIL

DP503



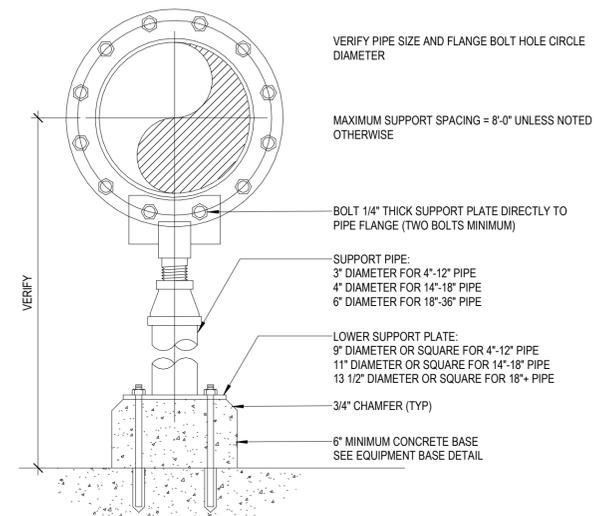
C CONCRETE PIPE SUPPORT DETAIL

DP503



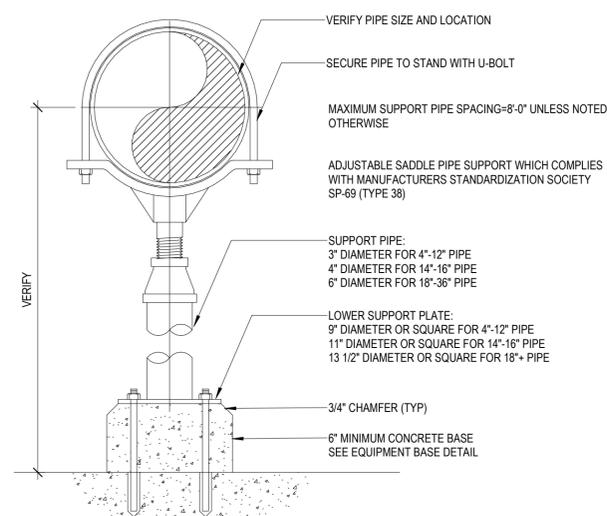
D PIPE SUPPORT FROM WALL DETAIL

DP503



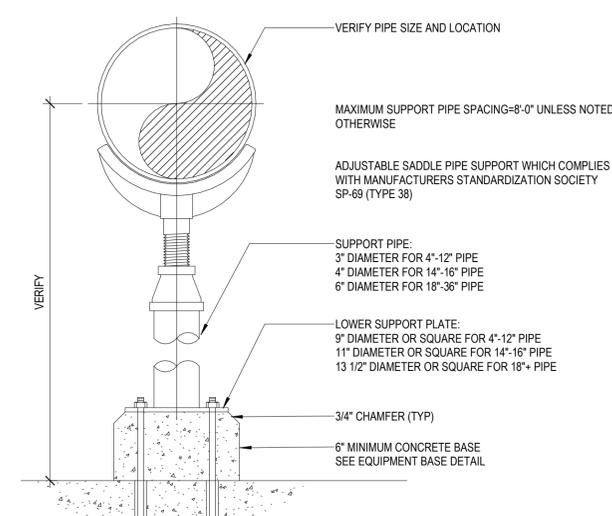
E PIPE SUPPORT FROM FLOOR - TYPE 1 DETAIL

DP503



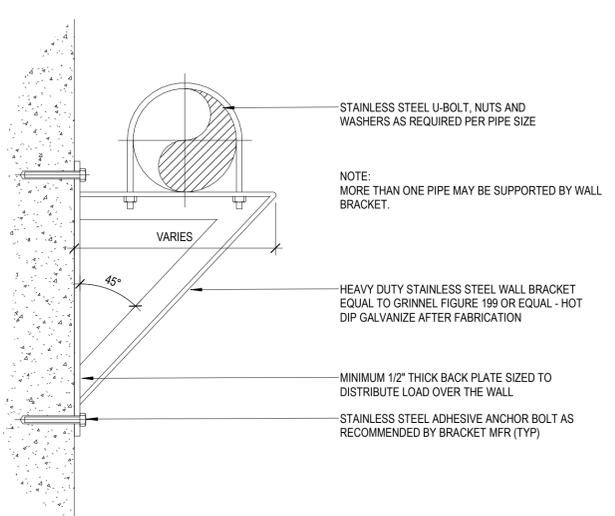
F PIPE SUPPORT FROM FLOOR - TYPE 2 DETAIL

DP503



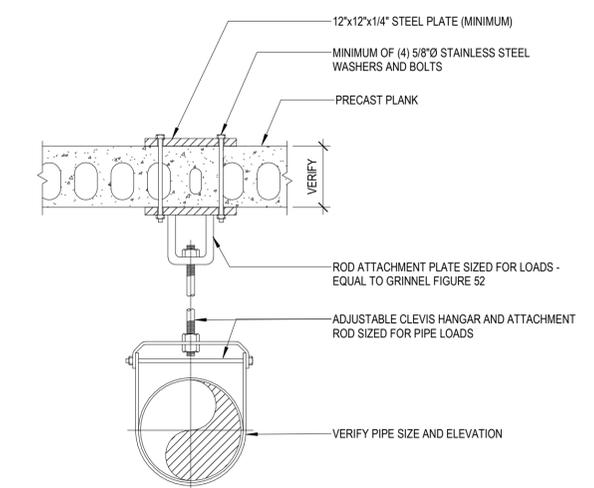
G PIPE SUPPORT FROM FLOOR - TYPE 3 DETAIL

DP503



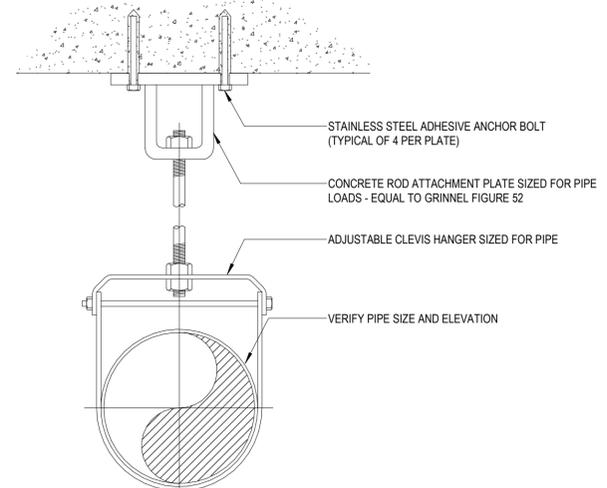
H WALL BRACKET PIPE SUPPORT DETAIL

DP503



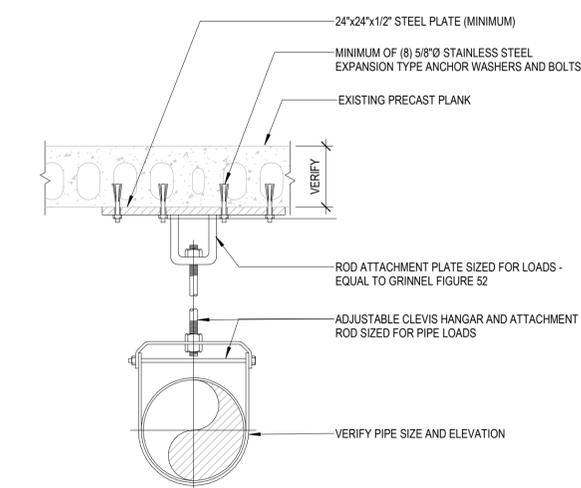
I PIPE SUPPORT FROM CEILING - TYPE 1 DETAIL

DP503



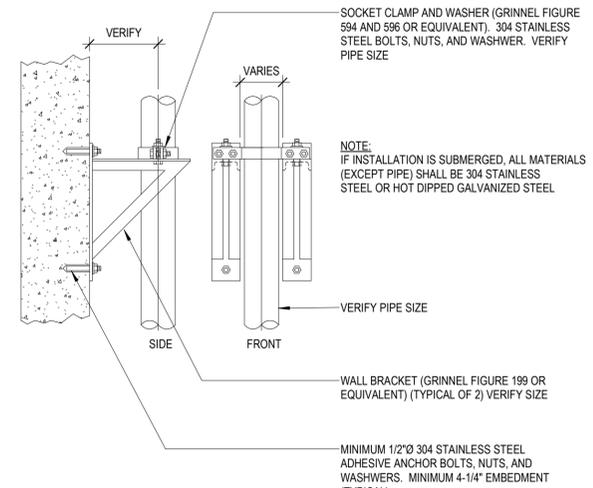
J PIPE SUPPORT FROM CEILING - TYPE 2 DETAIL

DP503



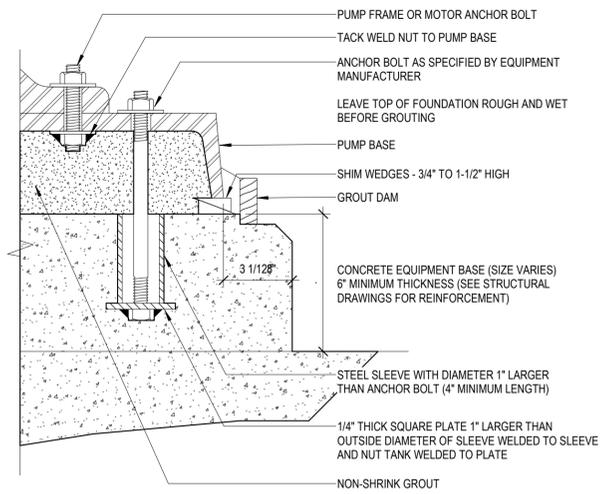
K PIPE SUPPORT FROM CEILING - TYPE 3 DETAIL

DP503



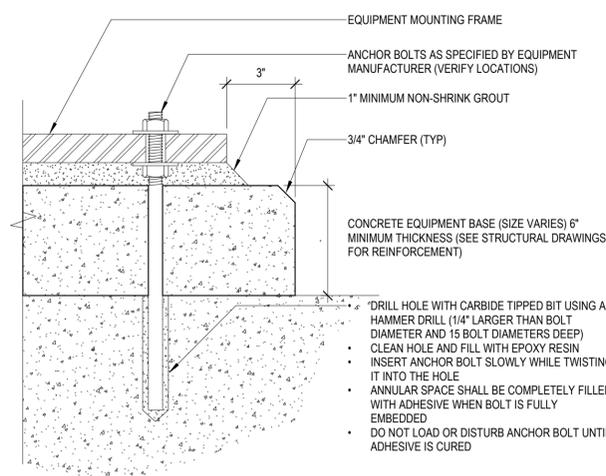
L VERTICAL PIPE SUPPORT DETAIL

DP503



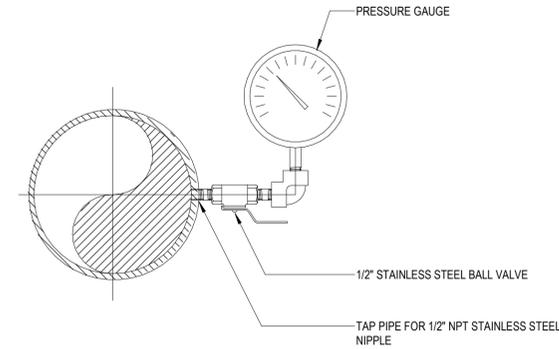
A PUMP BASE DETAIL

DP504



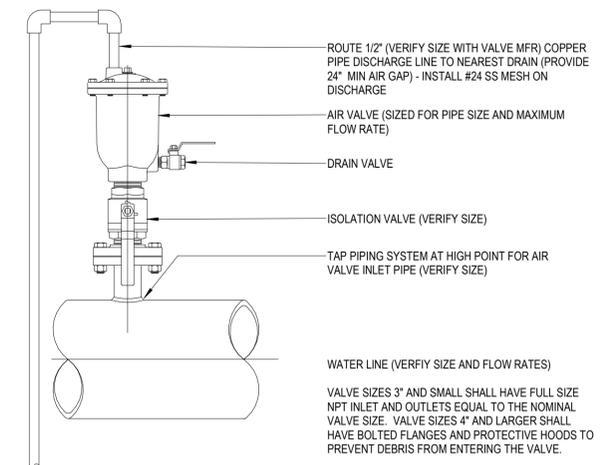
B EQUIPMENT BASE DETAIL

DP504



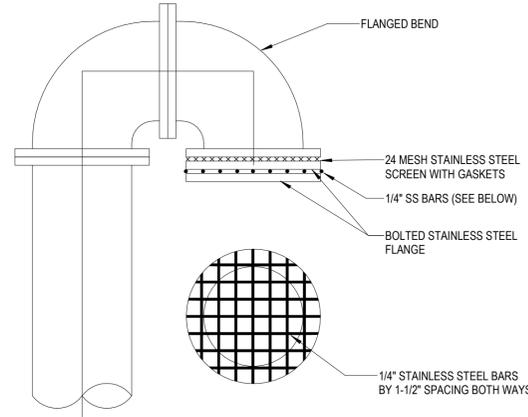
C AIR PIPE PRESSURE GAUGE DETAIL

DP504



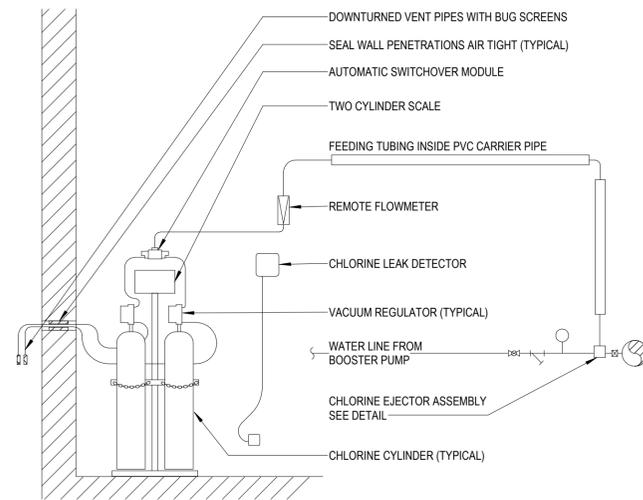
D AIR RELEASE VALVE DETAIL

DP504



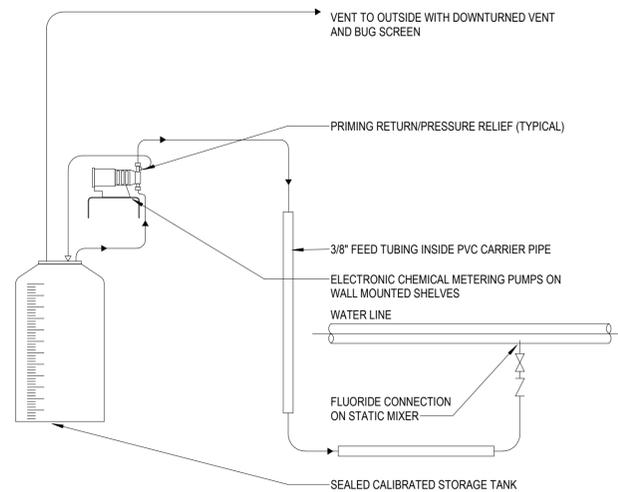
E VENT SCREEN DETAIL

DP504



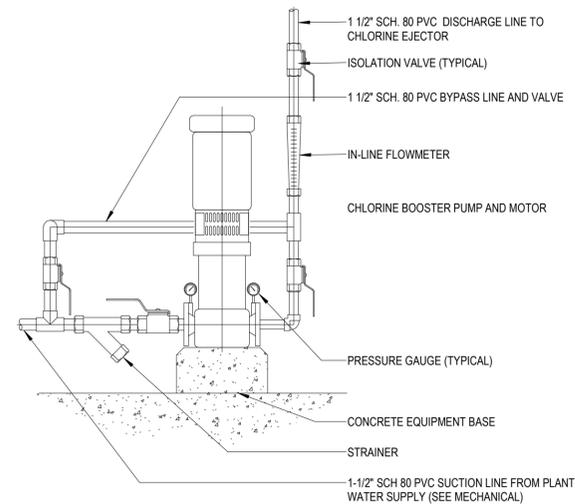
F CHLORINE GAS FEED SYSTEM-2

DP504



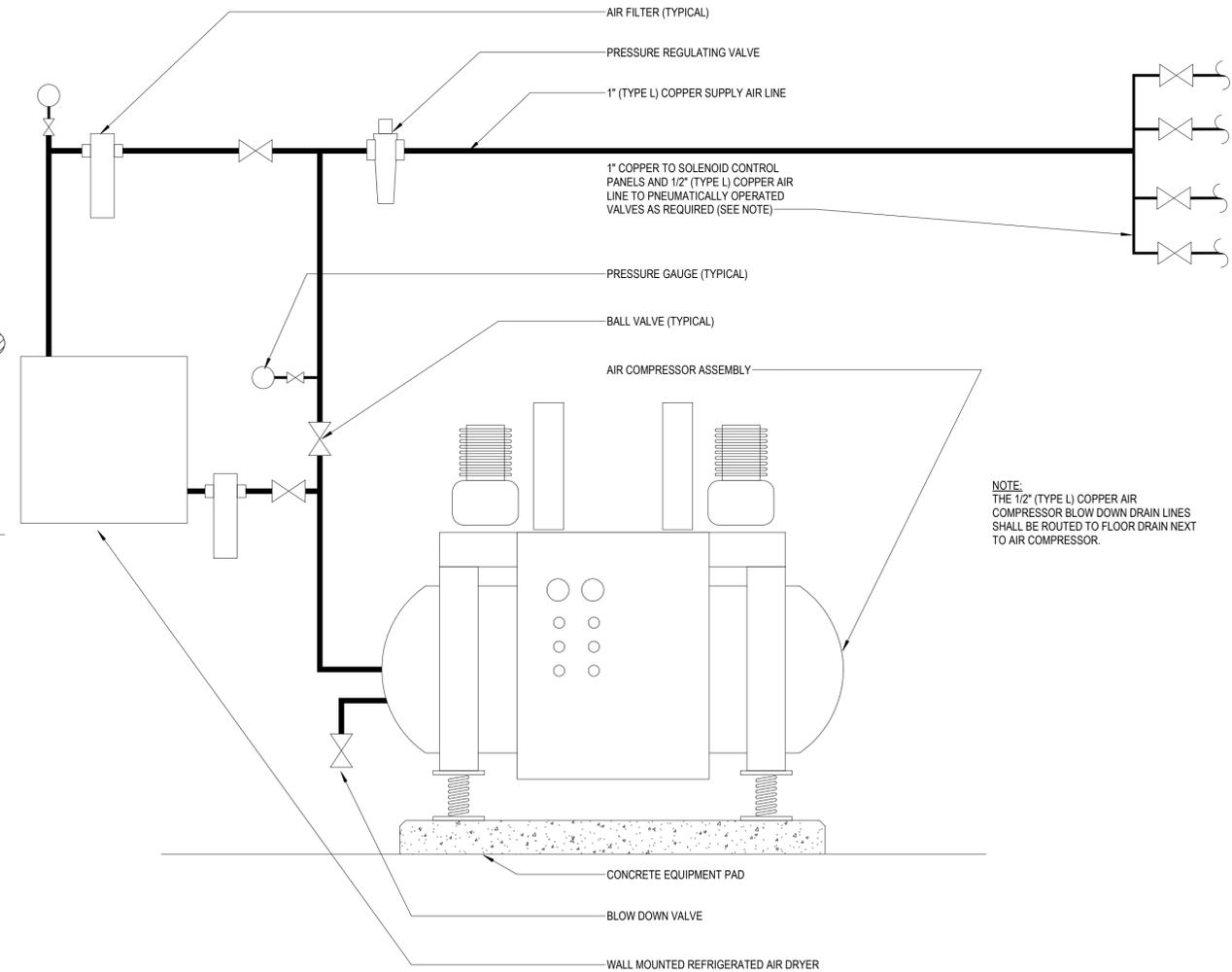
G FLUORIDE FEED SYSTEM

DP504



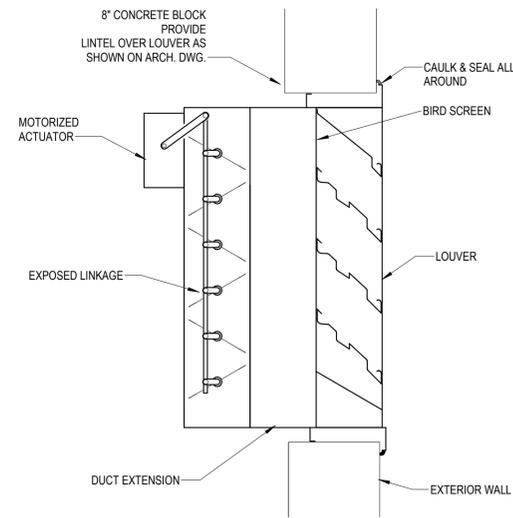
H CHLORINE BOOSTER PUMP

DP504

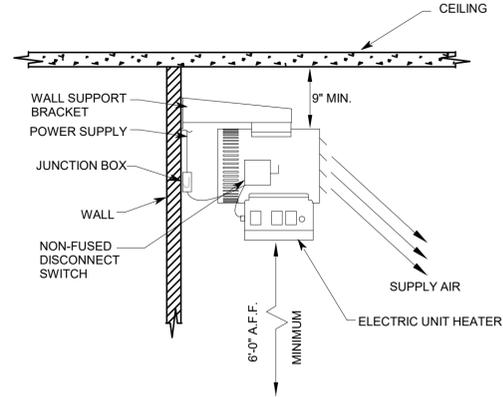


I AIR COMPRESSOR/DRYER ASSEMBLY

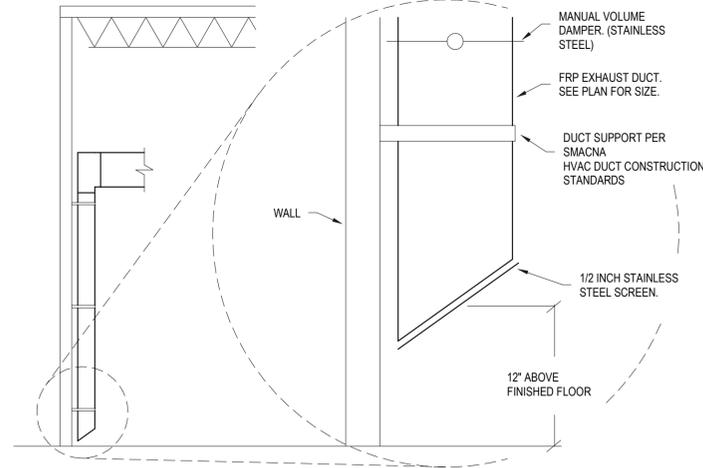
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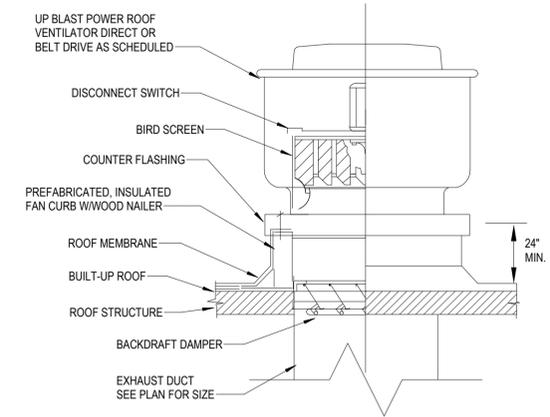
1 LOUVER WITH MOTORIZED DAMPER
DM1 NOT TO SCALE



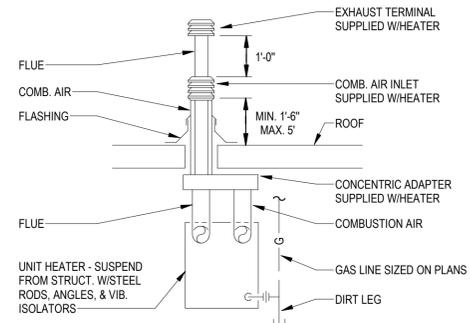
2 WASHDOWN ELECTRIC UNIT HEATER
DM1 NOT TO SCALE



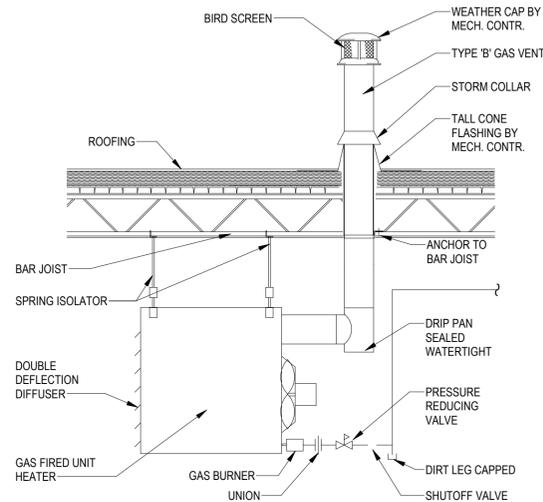
3 FRP EXHAUST DUCT DETAIL
DM1 NOT TO SCALE



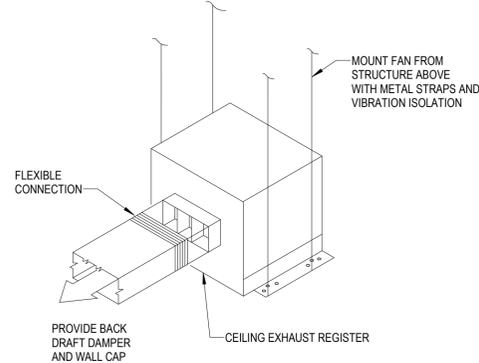
4 ROOF MOUNTED EXHAUST FAN
DM1 NOT TO SCALE



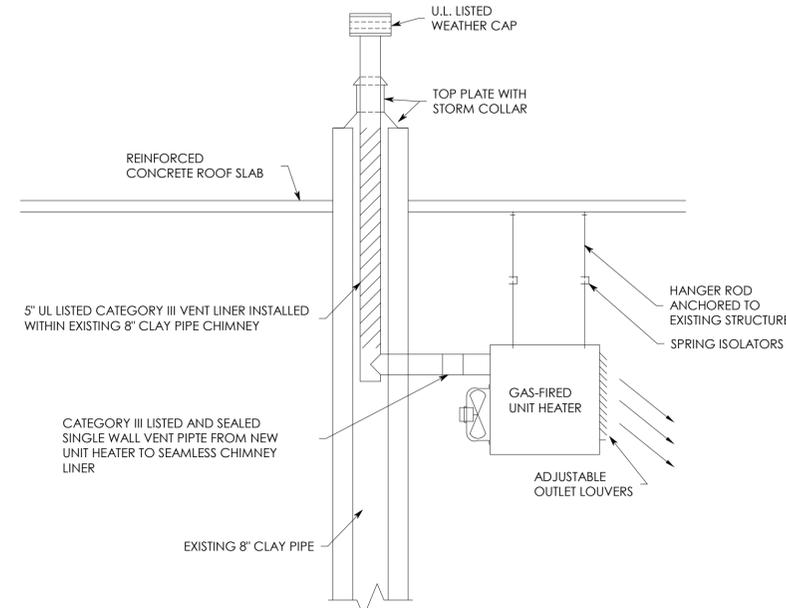
5 GAS FIRED UNIT HEATER DETAIL
DM1 NOT TO SCALE



6 GAS FIRED UNIT HEATER DETAIL
DM1 NOT TO SCALE



7 CEILING EXHAUST FAN
DM1 NOT TO SCALE



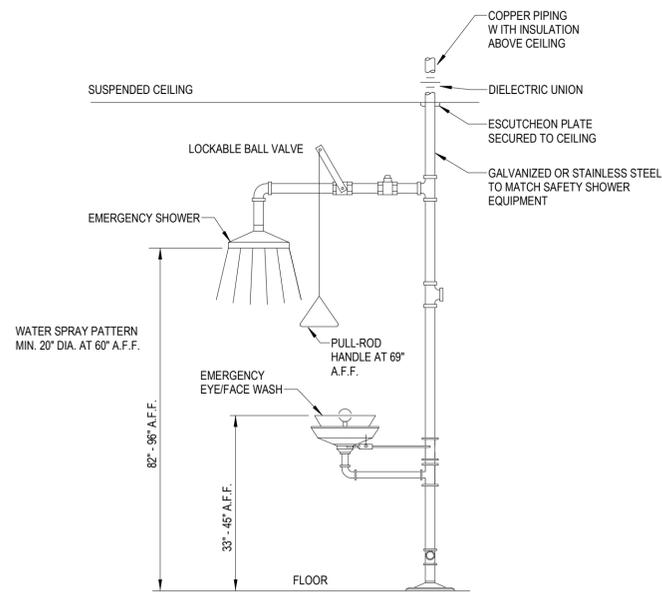
8 UNIT HEATER AND CHIMNEY DETAIL
DM1 NOT TO SCALE

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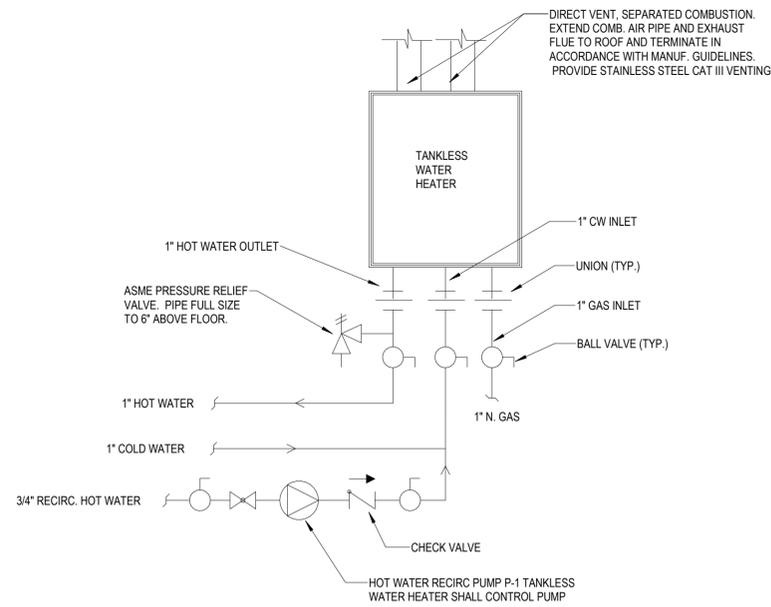
SEH Project MADWU 167818
Checked By NJB
Drawn By OBJ

Project Status BIDDING DOCUMENTS Issue Date OCTOBER, 2023

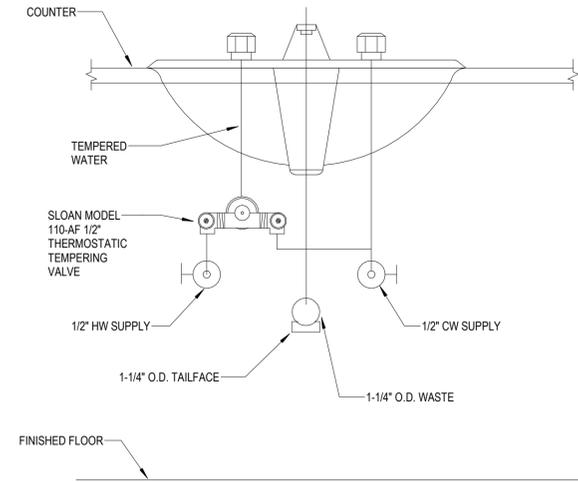
REVISION SCHEDULE		
REV. #	DESCRIPTION	DATE



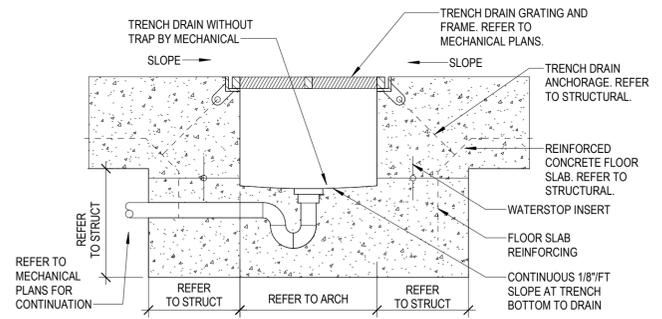
1 SAFETY SHOWER AND EYE WASH
DM2 NOT TO SCALE



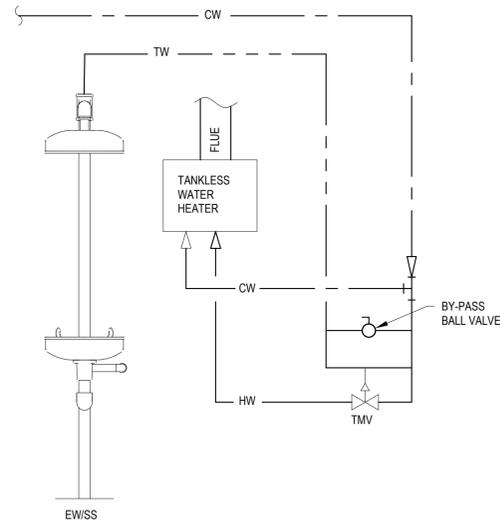
2 TANKLESS WATER HEATER
DM2 NOT TO SCALE



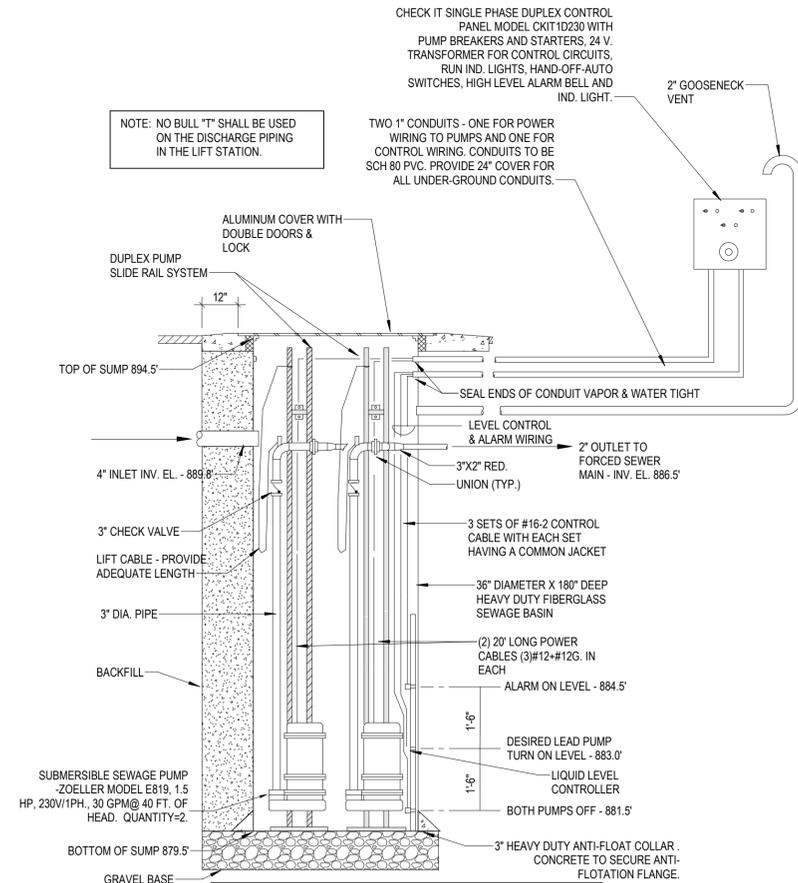
3 LOCAL MIXING VALVE
DM2 NOT TO SCALE



4 TRENCH DRAIN
DM2 NOT TO SCALE

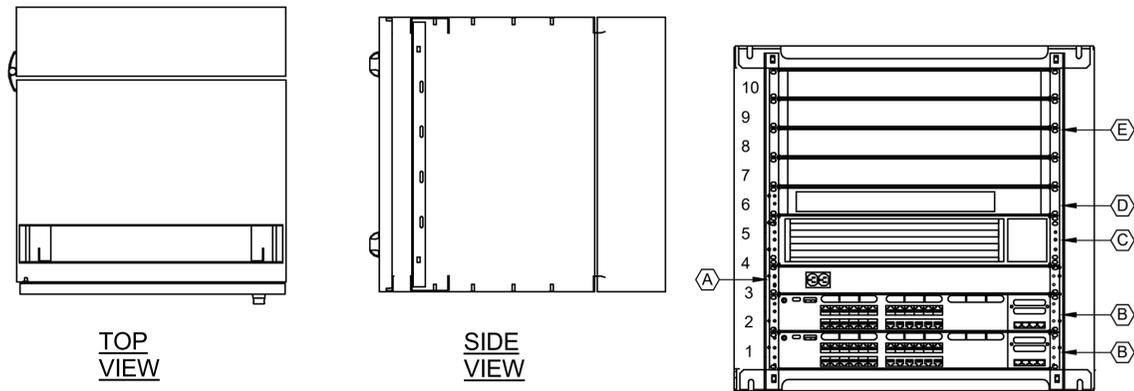


5 TEMPERED WATER MIXING VALVE
DM2 NOT TO SCALE



- NOTE
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF FIBERGLASS BASIN AND ENTIRE PUMPING SYSTEM (INCLUDING CONTROLS) TO ARCHITECT/ ENGINEER FOR REVIEW AND APPROVAL.
 - ONLY ONE PUMP SHALL OPERATE AT A TIME. BOTH PUMPS SHALL NEVER OPERATE SIMULTANEOUSLY.
 - THE SEWAGE LIFT STATION AREA IS CLASSIFIED AS A CLASS II, DIV 2 AREA. PROVIDE CONDUIT SEALS FOR POWER AND CONTROL WIRING GOING TO CONTROL PANEL.

6 GRINDER LIFT STATION
DM2 NOT TO SCALE



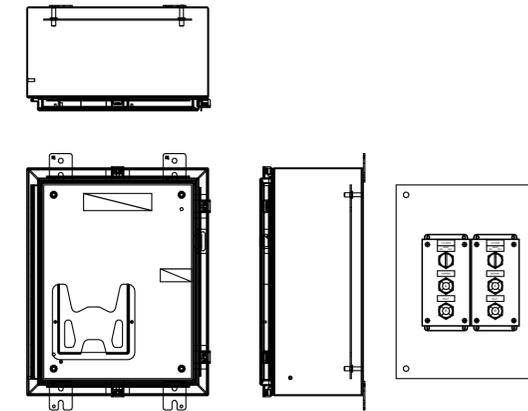
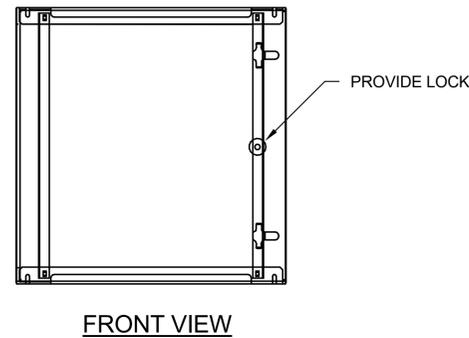
RACK ELEVATION DEVICE SCHEDULE				
SYMBOL	TYPE	RACK UNITS	DESCRIPTION	MISC
A	RECEPTACLE	N/A	PROVIDE SINGLE-GANG OUTLET BOX WITH DUPLEX 120V GFCI RECEPTACLE. ORANGE COLOR	MOUNT TO BACK OF RACK. FEED FROM LP-1.
B	SWITCH	1RU	NETWORK SWITCH: QTY 1 - 48 PORT CISCO SWITCH	NETWORK SWITCH TO BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR.
C	UPS	2RU	RACK MOUNTED 500VA UPS.	1000VA, 120VAC, LCD STATUS DISPLAY
D	LIGHT	N/A	ENCLOSURE MOUNTED LED STRIP LIGHT. ONE LOCATED AT FRONT AND ONE LOCATED AT BACK OF ENCLOSURE.	18" STRIP LIGHT. EACH LIGHT IS ACTIVATED BY A SEPARATE DOOR SWITCH AT FRONT AND BACK OF ENCLOSURE.
E	FUTURE	4RU	PROVIDE 4 RACK UNITS FOR FUTURE NETWORK EQUIPMENT	

GENERAL NOTES:

- A. ALL FIELD WIRING TO BE IN 3/4" RMC CONDUIT MINIMUM.
- B. PROVIDE 3/4"-2#12,#12G FOR POWER WIRING UNLESS NOTED OTHERWISE.
- C. PROVIDE THE FOLLOWING CONTROL WIRING UNLESS NOTED OTHERWISE:
 (1) 1 1/2"-(2)2/C#16SH FOR ANALOG SIGNALS
 (1) 1 1/2"-34#14,#14G FOR DIGITAL SIGNALS.

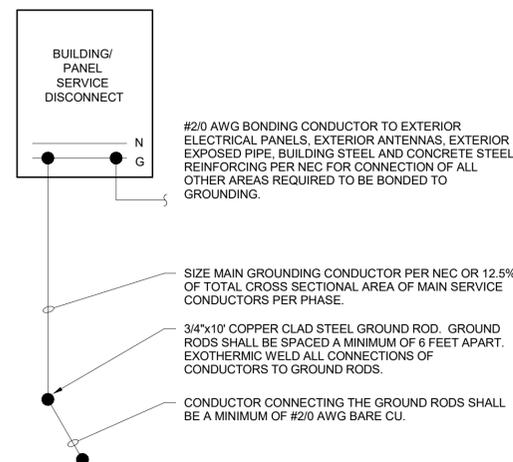
KEYNOTES:

- 1. PROVIDE WITHOUT UPS WHEN INDICATED ON FIELD HUB ENCLOSURE SCHEDULE.



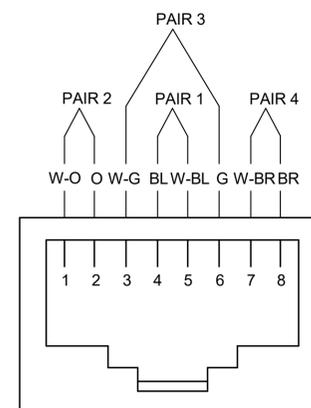
1 WALL MOUNT - DOUBLE HINGE FIELD HUB ENCLOSURE - NEMA 4X
 DE01 SCALE: NONE

4 NEMA ENCLOSURE AT BACKWASH TANK
 DE01 NOT TO SCALE

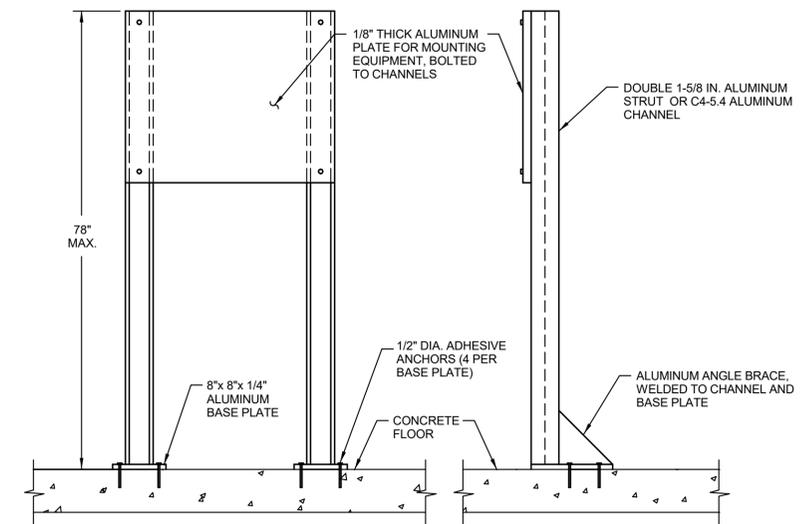


2 SUPPLEMENTAL GROUND
 DE01 NOT TO SCALE

EIA 568B WIRE LEGEND	
PIN NO.	WIRE COLOR
1	WHITE/ORANGE
2	ORANGE
3	WHITE/GREEN
4	BLUE
5	WHITE/BLUE
6	GREEN
7	WHITE/BROWN
8	BROWN



3 8 PIN MODULAR CONNECTION EIA/TIA/568B
 DE01 SCALE: NONE



5 PEDESTAL
 DE01 NOT TO SCALE

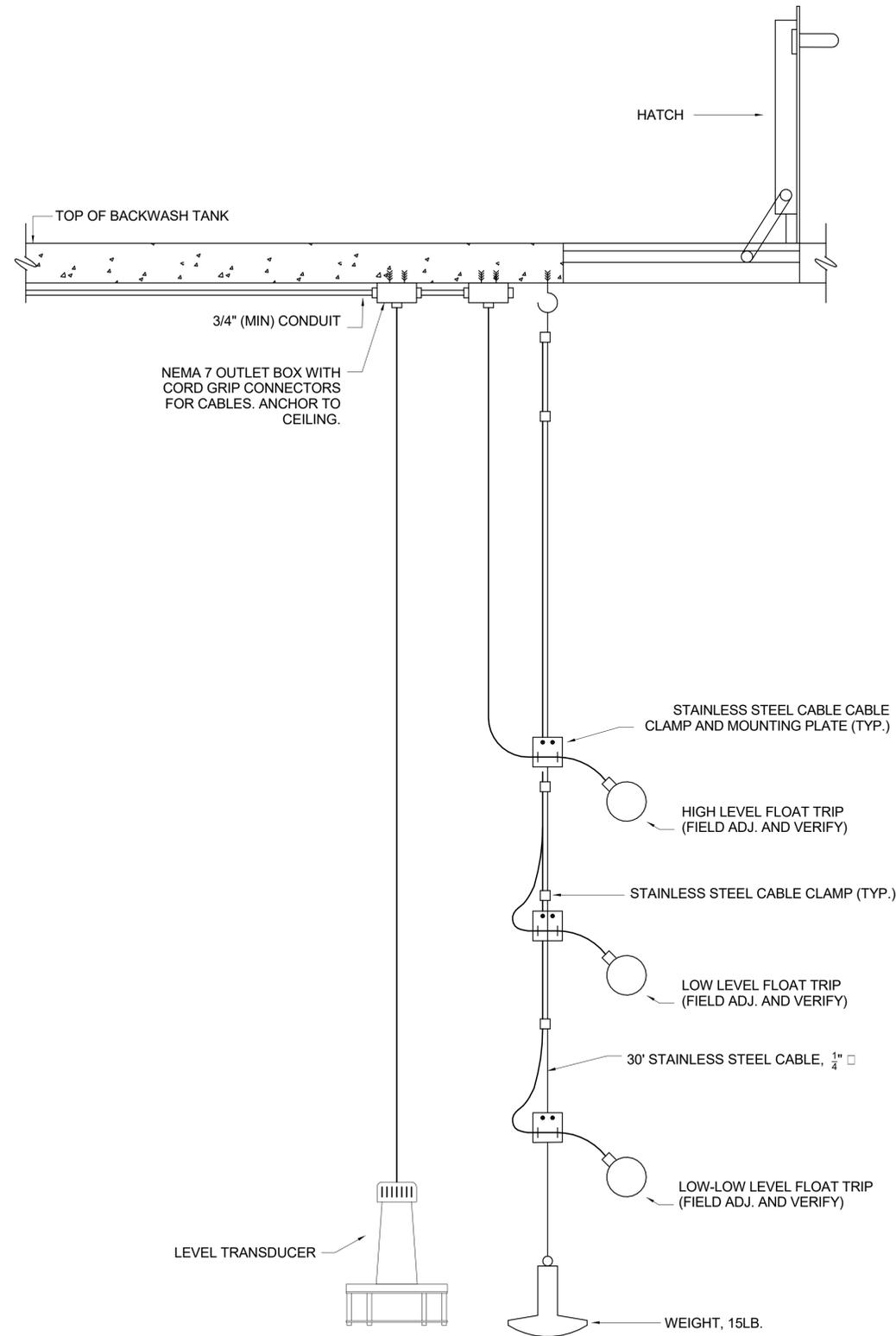
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SEH Project MADWU 167818
 Checked By CBW
 Drawn By DDH

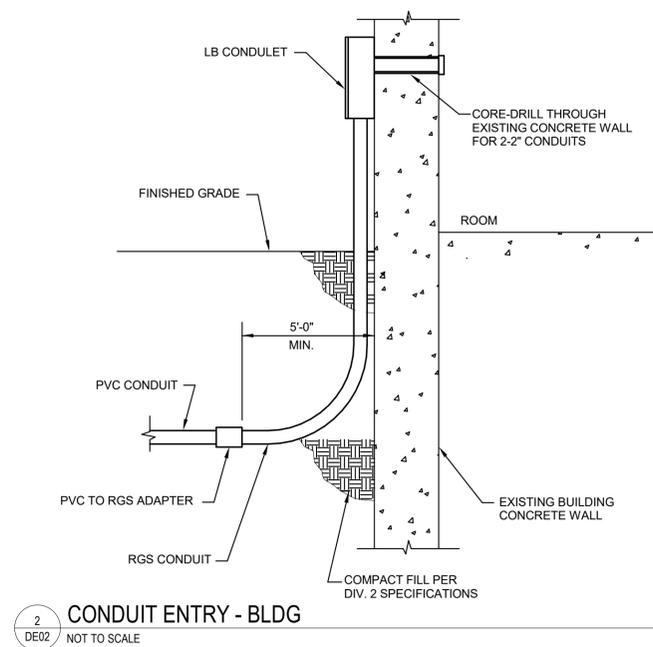
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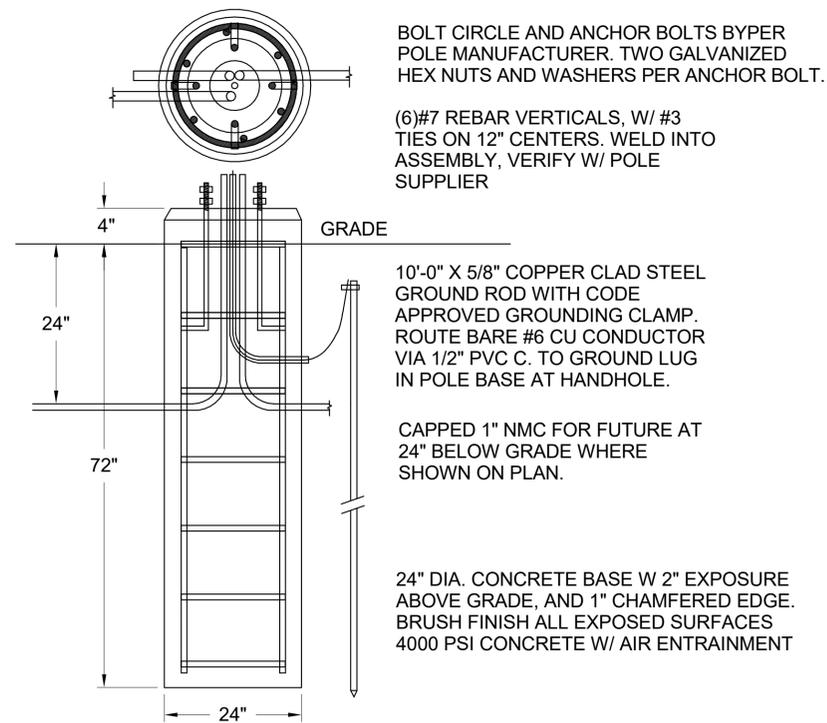
DETAILS



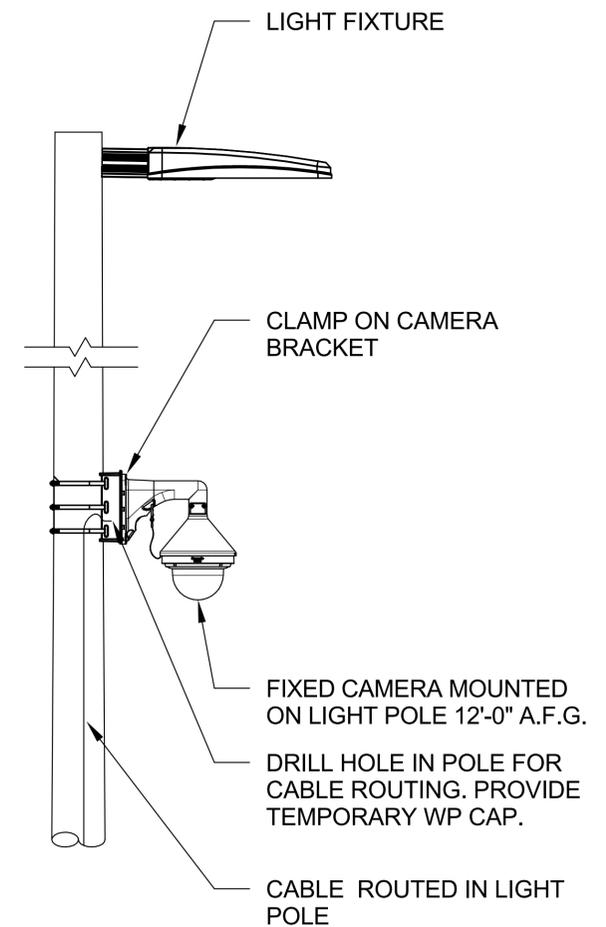
1 BACKWASH TANK LAYOUT
 DE02 NOT TO SCALE



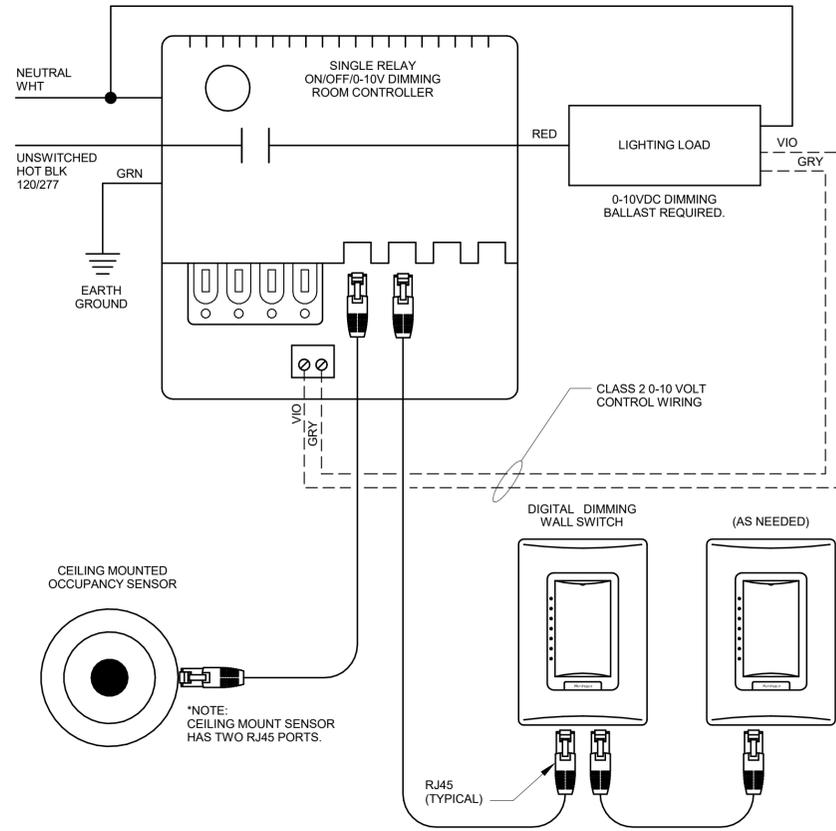
2 CONDUIT ENTRY - BLDG
 DE02 NOT TO SCALE



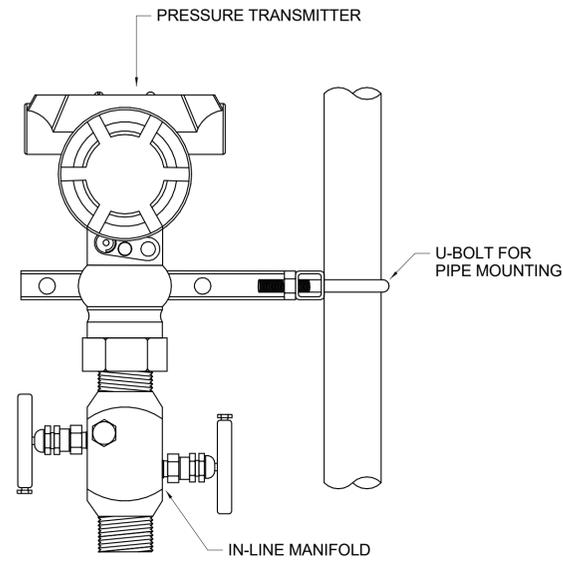
3 LIGHTING UNIT FOUNDATION DETAIL
 DE02 NOT TO SCALE



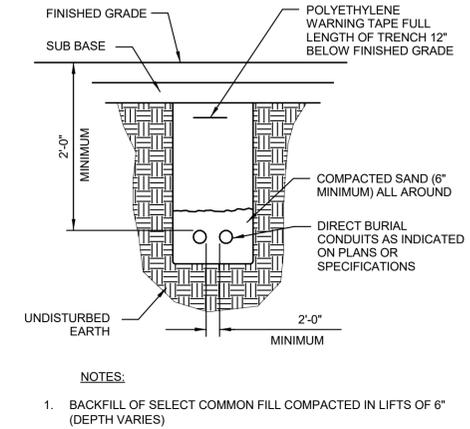
4 POLE MOUNTED MULTI-SENSOR CAMERA
 DE02 NOT TO SCALE



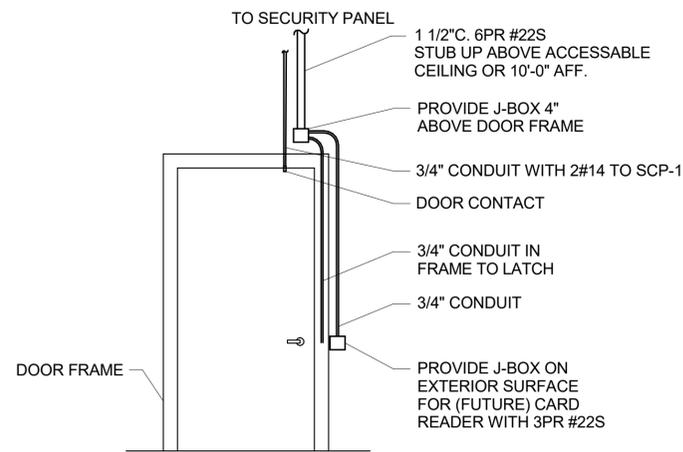
1 WATTSTOPPER DIAGRAM
DE03 NOT TO SCALE



2 PRESSURE TRANSMITTER PIPE MOUNT
DE03 NOT TO SCALE

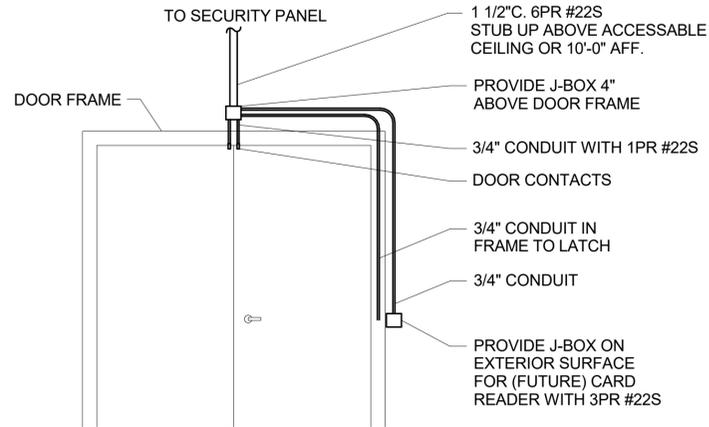


5 DIRECT-BURIED CONDUIT
DE03 NOT TO SCALE



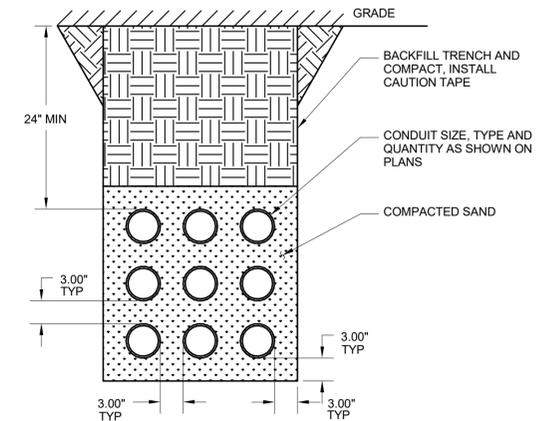
- NOTES:
1. PROVIDE CONDUIT ON SECURED SIDE OF DOOR.
 2. PROVIDE CONDUIT AND CONDUCTORS BACK TO SECURITY PANEL AND SUPERVISORY CONTROL PANEL.

3 SINGLE DOOR SECURITY ROUGH-IN
DE03 NOT TO SCALE



- NOTES:
1. PROVIDE CONDUIT ON SECURED SIDE OF DOOR.
 2. PROVIDE CONDUIT AND CONDUCTORS BACK TO SECURITY PANEL.

4 DOUBLE DOOR SECURITY ROUGH-IN
DE03 NOT TO SCALE



6 DUCT BANK
DE03 NOT TO SCALE