

Watertown City Council

February 24, 2026

Agenda Item:	Municipal Water Treatment Facility – Roof and Wall Repairs
Request for Action:	Authorization to Proceed with Investigation and Corrective Actions
Employee/Dept.:	Philip Schrupp, Engineering

Background:

City staff have observed ongoing water infiltration at the Municipal Water Treatment Facility located at 409 Carter Street NE. These issues have resulted in visible interior staining, corrosion of structural steel components, and damage to building finishes and equipment. The infiltration has been reported to occur during measurable or prolonged rain events and represents an ongoing risk to the integrity and operation of this critical facility. On February 3, 2026, Bolton & Menk conducted a moisture infiltration assessment of the facility to evaluate reported concerns. The findings of this assessment were documented in a memorandum dated February 5, 2026, which is attached for Council reference.

Summary of Findings:

The assessment identified continued moisture infiltration consistent with City staff observations. Key findings include:

- **Interior Impacts:** Concentrated water damage and staining were observed along the interior wall between the pumping room and the storage tank, particularly at door and window header locations. Steel header support plates in these areas exhibit significant corrosion.
- **Roof Conditions:** Portions of the roof membrane and flashing visible at the time of inspection appeared generally serviceable; however, the inspection was limited due to snow cover. Some membrane terminations and sealants show signs of separation. While no single direct roof failure was identified, the roof is at or near the end of its service life and cannot be ruled out as a contributing factor.
- **Wall Conditions:** Multiple large cracks, missing grout joints, and loose flashing were observed in the exterior concrete masonry unit (CMU) walls. The roof-to-wall transition appears to be missing required through-wall flashing and weep systems. These deficiencies are considered a more likely primary source of water infiltration than the roof membrane alone.
- **Concealed Conditions:** Evidence suggests that the wall cavity may contain bridged mortar, preventing proper drainage and drying. This condition increases the risk of continued moisture intrusion and freeze-thaw damage

Recommended Actions:

Bolton & Menk recommends the following next steps:

1. **Selective Demolition and Investigation:** Retain a qualified masonry contractor to perform selective demolition of exterior wall sections to confirm concealed conditions, including the presence and condition of through-wall flashing, weeps, and potential mortar bridging.
2. **Professional Observation:** Authorize Bolton & Menk to observe the demolition work and document findings.
3. **Corrective Action Planning:** Following confirmation of concealed conditions, reconvene with City staff and consultants to review findings and develop appropriate corrective action options, including cost estimates and phasing recommendations.

These actions are intended to mitigate ongoing damage, protect critical water treatment infrastructure, and inform longer-term capital planning for the facility

Budget Impact:

Based on the anticipated scope, the cost associated with selective demolition, professional observation, and evaluation of moisture infiltration is expected to be less than \$2,500. The final cost will be dependent on the extent of investigation required and the conditions encountered during demolition.

Sufficient funding is available within the Water Capital Fund to complete this work. Should the investigation identify the need for more extensive repairs or capital improvements, staff will return to the City Council with detailed cost estimates and a separate request for authorization.

Water Treatment Plant Roof:	UC#087	\$400,000
Total Budget:		\$400,000

Funding Source:

Water Capital Fund

Recommendation:

Staff recommends authorizing selective demolition, professional observation, and follow-up evaluation at the Municipal Water Treatment Facility to confirm sources of moisture infiltration and develop appropriate corrective action options. This proactive approach will help limit continued damage to the facility, protect critical water infrastructure, and provide the City Council with the information necessary to make informed decisions regarding future repairs or capital improvements.

Motion Type:

Simple majority vote of members present.

Requested Action/Motion:

"I move to authorize staff to proceed with selective demolition, professional evaluation, and development of corrective action options related to moisture infiltration at the Municipal Water Treatment Facility."

Attachments:

- 2001 - Water Treatment Facility
- 2026-02-06_Watertown_Water Treatment Roof Assessment - Memo

WATERTOWN, MINNESOTA

WATER TREATMENT
FACILITY

CONTRACT DRAWINGS
2001

WILLIAM R. ENGLEHARDT ASSOCIATES, INC.

CONSULTING ENGINEERS

CHASKA, MINNESOTA

IN ASSOCIATION WITH

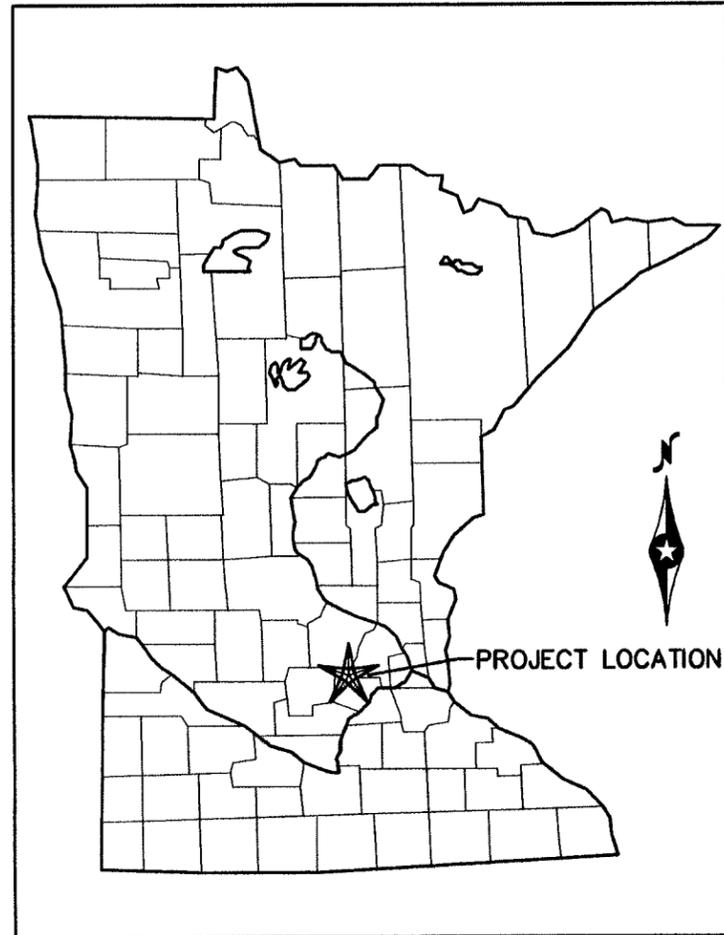
BOLTON & MENK, INC.

CONSULTING ENGINEERS AND LAND SURVEYORS

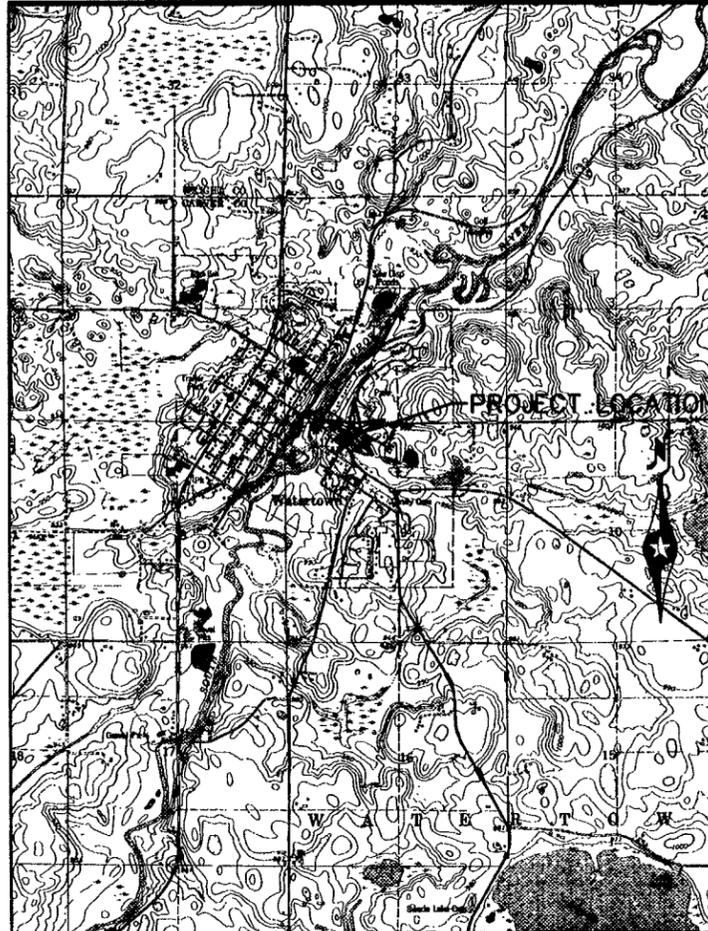
MANKATO, MINNESOTA

I HEREBY CERTIFY THAT THIS PLAN,
SPECIFICATION OR REPORT WAS PRE-
PARED BY ME OR UNDER MY DIRECT
SUPERVISION, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER
UNDER THE LAWS OF THE STATE OF
MINNESOTA

SIGNATURE Jon D. Peterson
TYPED OR PRINTED NAME JON D. PETERSON
DATE 9-10-2001 REG. NO. 21309



VICINITY MAP
NO SCALE



LOCATION MAP
NO SCALE

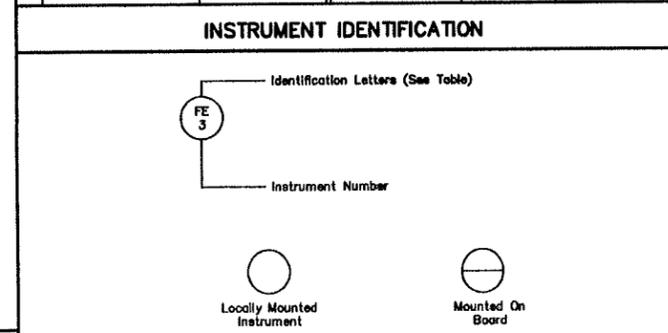
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7.07	WELL NO. 4 AND TOWER LEVEL PANEL SCHEMATICS

PIPING & FITTINGS	
—AC Air Cock	—ST Sediment Trap
—BP Backflow Preventer	—SS Service Sink
—B Blind Flange	—SH Shower
—D Drip Trap	—SIF Sight Flow Indicator
—E Exhaust to Atmosphere (Inside)	—S/W Soil or Waste (Above Grade)
—E Exhaust to Atmosphere (Outside)	—S/B Soil or Waste (Below Grade)
—FT Flame Trap	—U Union
—FC Flame Cell	—UR Urinal
—FCA Flanged Coupling Adapter (F.C.A.)	
—FH Flexible Hose	
—FD Floor Drain - Size	
—HSC Harness Sleeve Coupling (H.S.C.)	
—SC Sleeve Coupling (S.C.)	
—HB Hose Bib	
—HG 1-1/2" Hose Gate	
—HWR Hot Water Recirculation (H.W.R.)	
—L Lavatory	
—M Meter	
—N.C. Normally Closed	
—N.O. Normally Open	
—O Orifice	
—P&J Pipe & Joint Designations	
—B&S Bell & Spigot Joint	
—C Cold Water	
—FA Flanged Adapter	
—FJF Flanged Joint Fitting	
—H Hot Water	
—M&JF Mechanical Joint Fitting	
—WP Wall Pipe	
—WS Wall Sleeve	
—QDC Quick Disconnect Coupling	
—R Reducer	
—RC Removable Cap	
—RP Removable Plug	
—RD Roof Drain (Above Grade)	
—RD- Roof Drain (Below Grade)	
—RD- Roof Drain - Size	
—RD- Rupture Disc	
—SST Service Sink	
—SH Shower	
—SIF Sight Flow Indicator	
—S/W Soil or Waste (Above Grade)	
—S/B Soil or Waste (Below Grade)	
—U Union	
—UR Urinal	
—V Valves	
—AV Angle Valve	
—BV Ball Valve	
—BV Butterfly Valve	
—CV Check Valve	
—DGV Diaphragm Valve	
—GV Gate Valve	
—GLOV Globe Valve	
—HGV Hose Gate Valve	
—KGV Knife Gate Valve	
—NV Needle Valve	
—PV Pinch Valve	
—PV Plug Valve	
—PRV Pressure Regulating Valve	
—PRV Pressure/Temperature Relief Valve	
—RSV Relief or Safety Valve	
—SSV Shear, Slide, Sluice or Stop Gate	
—3WPV 3-Way Plug Valve (2-Port)	
—3WPV 3-Way Plug Valve (3-Port)	
—3WPV 3-Way Valve	
—3WPV 3-Way Plug Valve (4-Port)	
—V Vent	
—VTR Vent Through Roof	
—WH Wall Hydrant	
—WC Water Closet	
—WH Water Heater	
—WC Welded Cap	
—YH Yard Hydrant	
—Y-YS Y-Type Strainer	

HEATING, VENTILATING & AIR CONDITIONING	
—AD Adjustable Extracting Device	—RA Return Air
—ASD Adjustable Splitter Damper	—RE Return or Exhaust Air Duct Section
—BOD Bottom of Duct	—RD Round Diffuser
—CC Cooling Coil	—12# Round Duct Dimension
—D Damper	—SRA Sidewall RA or EA Grille or Register
—DRA Drop in Respect to Air Flow	—SRA Sidewall SA Register or Grille
—EA Exhaust Air	—SD Splitter Damper (Adjustable)
—F Fan	—SRA Square or Rectangular Diffuser
—FDC Flexible Duct Connection	—SRA Square or Rectangular to Round Transition
—HC Heating Coil	—SA Supply Air
—HWR Hot Water Return	—S/OAS Supply or Outside Air Duct Section
—HWS Hot Water Supply	—TTS Tee With Turning Vanes
—LSD Linear or Slot Diffuser	—T Thermostat
—OA Outside Air	—TOD Top of Duct
—P Pump	—UH Unit Heater
—24x12 Rectangular Duct Dimension (1st Figure is Side Shown, 2nd Figure is Side Not Shown)	
—RE Rectangular Elbow With Turning Vanes	

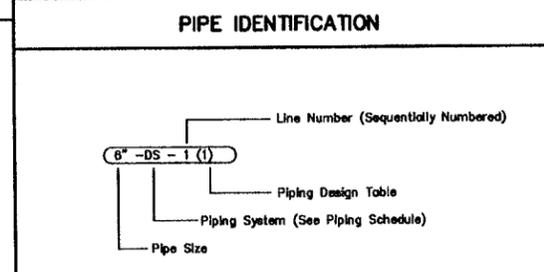
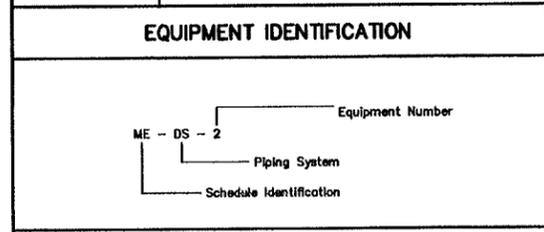
INSTRUMENT IDENTIFICATION LETTERS				
FIRST LETTER		SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A Analyze		Norm		
B Burner Flame				
C Conductivity (Electrical)			Control	
D Density (Mass) or Specific Gravity	Differential			
E Voltage (EMF)		Primary Element		
F Flow Rate	Ratio (Fraction)			
G Gaging (Dimensional)		Glass		
H Hand (Manually Initiated)				High
I Current (Electrical)		Indicate		
J Power	Scan			
K Time or Time-Schedule			Control Station	
L Level		Light (Pilot)		Low Middle or Intermediate
M Moisture or Humidity				
N		Orifice (Restriction)		
O		Point (Test Connection)		
P Pressure or Vacuum				
Q Quantity or Event	Integrate or Totalize	Water Record or Print		
R Radioactivity				
S Speed or Frequency			Switch	
T Temperature		Totalizing	Transmit	
U Viscosity			Valve, Damper or Louver	
W Weight or Force		Well		
X			Relay or Compute Drive, Actuate or Unclassified Final Control Element	
Y				
Z Position				



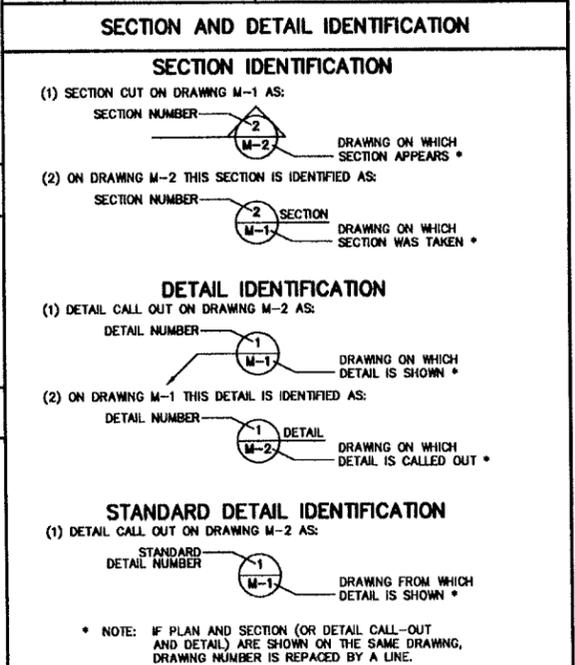
VALVE OPERATORS	
—C Cylinders	
—CW Chainwheel	
—D Diaphragm	
—E Electric	
—F Float	
—H Hydraulic	
—HW Handwheel	
—L Lever	
—M Motor	
—P Pneumatic	
—S Solenoid	
—SB Soil Boring	

PIPING SCHEDULE	
PIPING SYSTEM DESIGNATION	FLUID
AE	Aerator Effluent
AA	Aqueous Ammonia
AW	Filter Air Wash
BW	Filter Backwash
CD	Chemical Drain and Vent
CL	Chlorine (Gas or Liquid State)
CLS	Chlorine Solution
CLV	Chlorine Gas Under Vacuum
CS	Caustic Soda
CV	Chlorinator Vent and Detection Line
DW	Demineralized Water
FI	Filter Influent
FE	Filtered Effluent
FTW	Filtered Water to Waste
HF	Hydrofluoric Acid
HR	Heating Water Return
HS	Heating Water Supply
IA	Instrument Air
LA	Liquid Alum
NG	Natural Gas
PA	Plant Air
PD	Plant Drain
PEA	Polymer - Anionic
PEC	Polymer - Cationic
PEN	Polymer - Non-Ionic
PO	Plant Overflow
PP	Process Piping
PPH	Poly Phosphate
PPM	Potassium Permanganate
PW	Potable Water
RW	Raw Water
SA	Sample Line
SD	Sanitary Drain and Vent
SDR	Storm Drain
SI	Sodium Silicate
SL	Sludge
SPD	Sump Pump Discharge
SS	Sanitary Sewer
SW	Filtered Surface Washwater
UW	Utility Water (Non-Potable Water)
V	Vacuum
WW	Filter Waste Washwater
WWR	Washwater Return

EQUIPMENT SCHEDULE	
DESIGNATION	EQUIPMENT TYPE
F	Fan
ME	Miscellaneous Equipment
P	Pump
S	Special
SG	Stop Gate, shear gate, sluice gate, slide gate, flap gate
UH	Unit Heater
V	Valve (Valves 4" Diameter and Larger Included in Schedule)



PIPE DESIGN TABLE		
PDT NO.	PIPE MATERIAL	FITTING MATERIAL
1	Class 50 Ductile Iron ANSI A21.51 (AWWA C151) Flanged or Mechanical Joints as Indicated. Class 53 for Threaded Flange	Class 125 Ductile or Cast Iron, ANSI A21.10 (AWWA C110) Flanged or Mechanical Joint as Indicated
2	Standard Weight Carbon Steel, ASTM A120, Black	3-Inch and Smaller - 150 lb. Malleable Iron, ANSI B16.3 Bonded, Screwed, 3-1/2 Inch and Larger - Standard Weight - ASTM A234 ANSI B16.9 Welded Steel or 125 lb. Flanged Cast Iron as Indicated
3	Standard Weight Carbon Steel, ASTM A120, Galvanized	3-Inch and Smaller - 150 lb. Malleable Iron, ANSI B16.3 Bonded, Screwed, Galvanized 3-1/2 Inch and Larger - 125 lb. Cast Iron Flanged or Mechanical Coupling as Indicated
4	Copper, ASTM B88 Burred Service Type K, Soft Temper Exposed Service - Type L, Hard Temper	Wrought Copper or Cast Bronze Solder Joint, ANSI B16.22, 150 psi
5	Polyvinyl Chloride, Schedule 80, Normal Impact ASTM D1785	Schedule 80 Polyvinyl Chloride, Socket Solvent Weld Joints, ASTM D2467
6	Fiberglass Reinforced Plastic (FRP) ASTM D2998	Epoxy Resin Fragment Wound or Molded Type - 150 psi @ 200 F
7	Flexible Teflon Tubing, Vacuum Rated, Installed Inside 2" Schedule 80 PCV Pipe	Compression Fitting or Solvent Weld
8	Cast Iron Soil ANSI A112.5.1, Service Weight, Bell and Spigot or Hubless	Cast Iron Soil ANSI A112.5.1, Service Weight, Bell and Spigot or Hubless
9	Class 50 Ductile Iron ANSI A21.51 (AWWA C151) Bell and Spigot	Class 125 Ductile or Cast Iron, ANSI A21.10 (AWWA C110), Mechanical Joint
10	Polyvinyl Chloride Sewer Pipe, Bell and Spigot ASTM D-3034	Polyvinyl Chloride, Bell and Spigot, ASTM D-3034
11	Standard Weight Steel, ASTM A53, Seamless, (10 MI Polyethylene or PVC Coated @ Exterior)	Standard Weight, Butt Weld Steel ANSI B16.9 ASTM A234
12	Polyvinyl Chloride Pressure Pipe ASTM D2241 with Bell & Spigot Ends, Wall Thickness as Specified	Class 125 Ductile Iron or ANSI A21.10 (AWWA C110) Flanged or Mechanical Joints as Indicated
13	Polypropylene, ASTM D2146 Schedule 40 with Heat Fused Joints	Polypropylene, Schedule 40 Drainage Type with Heat Fused Socket Joints
14	Stainless Steel AISI Type 304, ASTM A312 Schedule 5S	Stainless Steel AISI Type 316 ANSI B16.9 Butt-Welded Schedule 5S or 150 lb Flanged
15	Welded Steel, AWWA C200 with Specified Wall Thickness, Epoxy/Carment Mortar Lined for Potable Water Service	ASTM A234, Grade B, Seamless or Butt-welded, Fittings 14-inches and Larger Mitered to Conform to AWWA C208 Table 2 with Butt-Weld Ends



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *Jon D. Peterson* TYPED OR PRINTED NAME: JON D. PETERSON
DATE: 6-10-2001 REG. NO. 21309

BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
CONSULTING ENGINEERS
CHASKA, MINNESOTA

REV	BY	DATE
A	NWS	5-18-2001
O	NWS	8-17-01

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
LEGEND

ABBREVIATIONS

AB	ANCHOR BOLT	E	EAST	ID	INSIDE DIAMETER	P	POLE OR PAGE	T	THERMOSTAT, TREAD OF STAIR, TOP OR TANGENT
ASBR	ABBREVIATION	EA	EACH	IF	INSIDE FACE	PAVMT	PAVEMENT	TB	TACK BOARD
AC	ACTIVATED CARBON OR ASPHALT CONCRETE	EC	END CURVE	IN	INCH	PC	PRIMARY CLARIFIER OR PORTLAND CEMENT	T & B	TOP AND BOTTOM
A/C	AIR CONDITIONING	ECC	ECCENTRIC	INCL	INCLUDE	PCOTG	PRESSURE CLEANOUT TO GRADE	TBE	THREAD BOTH ENDS
ACOUS	ACOUSTIC OR ACOUSTICAL	ECL	END CURB RETURN	INFL	INFLUENT	PE	PLANT EFFLUENT, POLYELECTROLYTE OR POLYMER	TBM	TEMPORARY BENCH MARK
ACP	ASPHALTIC CONCRETE PAVEMENT OR ASBESTOS CEMENT PIPE	ECR	EACH FACE OR EXHAUST FAN	INP	INPLACE	PER PERIM	PERIMETER	TC	TOP OF CURB
ADJ	ADJUST, ADJACENT	EF	EFFLUENT	INSL	INSULATION OR INSULATED	PERMISS	PERMISSIBLE	T.F.	TOP OF FOOTING
AER	AERATION	EG	EXHAUST GRILLE	INSUL	INSULATION	PG	PRESSURE GAGE	TFE	TOP OF FOOTING ELEVATION
AGG	AGGREGATE	EL	ELEVATION	INSTR	INSTRUMENT	pH	HYDROGEN ION CONCENTRATION	TEL	TELEPHONE
AL	ALUMINUM OR ALUM	ELEC	ELECTRICAL OR ELECTRONIC	INV	INVERT ELEVATION	PI	PLANT INFLUENT OR POINT OF INTERSECTION	T & G	TONGUE AND GROOVE
ALT	ALTERNATE	ELEV	ELEVATION	IP	IRON PIPE	PL	PLATE, PROPERTY LINE OR PLACE	THR'D	THREADED
ALUM	ALUMINUM	ENG	ENGINE	IPS	IRON PIPE SIZE	PLY WD	PLYWOOD	TK	TANK
AMB	AMBIENT	EQ	EQUAL	IRRG	IRRIGATION	PLAS	PLASTER OR PLASTIC	TOE	THREAD ONE END
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE (FORMERLY A.S.A.)	EQUIP	EQUIPMENT	JAN	JANITOR	PNEU	PNEUMATIC	TP	TELEPHONE POLE OR TELEGRAPH POLE
API	AMERICAN PETROLEUM INSTITUTE	EVAP	EVAPORATOR	J & A	JACK AND AUGER	PP	POWER POLE	TRANS	TRANSITION OR TRANSMITTED
APPD	APPROVED	EVC	END VERTICAL CURVE	JNT, JT	JOINT	PLF	POUNDS PER LINEAR FOOT	TRANSV	TRANSVERSE
APPROX	APPROXIMATE	EW	EACH WAY OR EYE WASH	JSTS	JOISTS	PLT	PLANT	TV	THERMOSTATIC VALVE
ARCH	ARCHITECTURAL	EXH	EXHAUST	KG	KILOGRAM	PPD	POUNDS PER DAY	TYP	TOP OF WALL OR THERMOMETER WELL
ASA	AMERICAN STANDARDS ASSOCIATION (NOW ANSI)	EX-HY	EXTRA HEAVY	KM	KILOMETER	PPH	POUNDS PER HOUR		
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	EXIST	EXISTING	KV	KILOVOLT	PPM	PARTS PER MILLION		
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIAL	EXP JT	EXPANSION JOINT	KW	KILOWATT	PR	PAIR		
ASSY	ASSEMBLY	EXT	EXTERIOR OR EXTENSION	KWH	KILOWATT HOUR	PRESS	PRESSURE	UBC	UNIFORM BUILDING CODE
ATM	ATMOSPHERE	F	FARENHEIT OR FINISH	L	LITER OR LENGTH	PRV	PRESSURE REGULATING, RELIEF OR REDUCING VALVE	UC	UNDER-CROSSING
AVAR	AIR VACUUM AND AIR RELEASE VALVE	FABR	FABRICATION, OR FABRICATE OR FABRICATED	LAB	LABORATORY	PS	PRESSURE SWITCH	UG	UNDERGROUND
AWWA	AMERICAN WATER WORKS ASSOCIATION	FAI	FRESH AIR INTAKE	LAV	LAVATORY	PSF	POUNDS PER SQUARE FOOT	UGC	UNDERGROUND CONDUIT
		FB	FLAT BAR, FLOOR BEAM OR FIELD BOOK	LB	POUND	PSI	POUNDS PER SQUARE INCH	UH	UNIT HEATER
BC	BEGIN CURVE, BOLT CIRCLE OR BETWEEN CENTERS	FCO	FLOOR CLEANOUT	LDG	LOADING	PSIA	POUNDS PER SQUARE INCH ABSOLUTE	UL	UNDERWRITERS LABORATORIES
BCR	BEGIN CURVE RETURN	FD	FLOOR DRAIN	LEV	LEVEL	PSIG	POUNDS PER SQUARE INCH GAUGE	UR	URINAL
BD	BOARD	FDN	FOUNDATION	LF	LINEAR FEET	PTDF	PRESSURE TREATED DOUGLAS FIR	UW	UTILITY
BF	BLIND FLANGE	FDR	FEEDER	LOC	LOCATION	PV	PLUG VALVE		
BFD	BACK FLOW PREVENTER	FE	FIRE EXTINGUISHER OR FINAL EFFLUENT	LT	LEFT				
BHP	BRAKE HORSEPOWER	FF	FLAT FACE OR FAR FACE	LWL	LOW WATER LEVEL				
BIT	BITUMINOUS	F TO F	FACE TO FACE	LWR	LOWER				
BLDG	BUILDING	FG	FINISHED GRADE	M	METER	R	RADIUS, RISER, RETURN OR RATE OF SLOPE, RING		
BLD FLG	BLIND FLANGE	FH	FIRE HYDRANT	MAG	MAGNETIC	RAD	RADIALLY	V	VACUUM, VALVE, VERTICAL, VENT, VOLT OR VOLUME
BLK	BLACK OR BLOCK	F & I	FURNISH AND INSTALL	MAN	MANUAL	RAG	RETURN AIR GRILLE	VAR	VARIABLE
BLKG	BLOCKING	FIG	FIGURE	MACH	MACHINE	RC	REINFORCED CONCRETE	VB	VAPOR BARRIER
BM	BEAM OR BENCH MARK	FIN	FINISHED	MAS	MASONRY	RCP	REINFORCED CONCRETE PIPE	VCP	VITRIFIED CLAY PIPE
BO	BLOW OFF ASSEMBLY	FL	FLOWLINE OR FLOOR	MAX	MAXIMUM	RD	ROOF DRAIN, ROUND, OR ROAD	VERT	VERTICAL
BOD	BIOCHEMICAL OXYGEN DEMAND	FLEX	FLEXIBLE	MCC	MOTOR CONTROL CENTER	RDWD	REDWOOD	VOL	VOLUME
BOT	BOTTOM	FLOCC	FLOCCULATOR OR FLOCCULATION	MECH	MECHANICAL	RECIRC	RECIRCULATING	VTC	VENT TO CEILING
BPV	BACK PRESSURE VALVE	FLG	FLANGE	MEMB	MEMBRANE	RECONST.	RECONSTRUCT	VTR	VENT THROUGH ROOF
BRG	BEARING	FLGD	FLANGED	MET	METAL	RED	REDUCER OR REDUCING		
B & S	BELL AND SPIGOT	FLR	FLOOR	MFR, MFRG	MANUFACTURER	REF	REFERENCE OR REFER	W	WEST OR WASTE
BSMT	BASEMENT	FMH	FLEXIBLE METAL HOSE	MOD	MILLION GALLONS PER DAY	REFR	REFRIGERATOR	W/	WITH
BTM PL	BOTTOM PLATE	FOC	FACE OF CONCRETE	MH	MANHOLE	RF	ROOF	WC	WATER COLUMN OR WATER CLOSET
BTU	BRITISH THERMAL UNIT	FOM	FACE OF MASONRY	MI	MALLEABLE IRON	REG	REGULATING	WCO	WALL CLEANOUT
BV	BUTTERFLY VALVE	FOS	FACE OF STUDS	MISC	MISCELLANEOUS	REINF	REINFORCE OR REINFORCED	WD	WOOD
BVC	BEGIN VERTICAL CURVE	FOW	FACE OF WALL	MK	MARK	REM	REMOVE	WDW	WINDOW
BWV	BACK WATER VALVE	FPC	FLEXIBLE PIPE COUPLING	MNDOT	MINNESOTA DEPARTMENT OF TRANSPORTATION	RE-STL	REINFORCING STEEL	WMN	WATERMAIN
		FPM	FEET PER MINUTE	MO	MOTOR OPERATED OR MASONRY OPENING	REQ, REQD	REQUIRED	W/O	WITHOUT
		FPS	FEET PER SECOND	MOD	MODEL	REV	REVISION	WS	WATER SURFACE
		FS	FAR SIDE, FLOOR SINK, FINISHED SURFACE, FORGED STEEL OR FROTH SPRAY	MS	MOP SINK	RM	ROOM	WSTP	WATER STOP
		FT	FEET OR FOOT	MTC	MECHANICAL-TYPE-COUPLING	RPM	REVOLUTIONS PER MINUTE OR REINFORCED PLASTIC MORTAR	WT	WEIGHT
		FTG FTNG	FOOTING	MTD	MOUNTED	RR	RAILROAD	WWM	WELDED WIRE MESH
		FUT	FUTURE	MTR	MOTOR	RT	RIGHT		
				N	NORTH	R/W	RIGHT OF WAY	XS	EXTRA STRONG
				NAT	NATURAL	RWL	RAINWATER LEADER	YD	YARD HYDRANT
				NBS	NATIONAL BUREAU OF STANDARDS			YH	YARD
				NC	NORMALLY CLOSED	S	SOUTH, SCUM, SINK, SECOND OR SLOPE		
				NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	SA	SAMPLE		
				NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	SAN	SANITARY		
				NF	NEAR FACE	SC	SPARE CHEMICAL OR SECONDARY CLARIFIER		
				NIC	NOT IN CONTACT	SCD	SCREWED		
				NO	NUMBER OR NORMALLY OPEN	SCFM	STANDARD CUBIC FEET PER MINUTE		
				NPS	NOMINAL PIPE SIZE (FORMERLY I.P.S.)	SCH	SCHEDULE		
				NPT	NATIONAL PIPE THREAD	SCHD	SCHEDULE		
				NRS	NON-RISING STEM	SDR	STORM DRAINS		
				NS	NEAR SIDE	SEC	SECONDARY		
				NTS	NOT TO SCALE	SECT	SECTION		
						SER	SERIES		
						SETT	SETTLING		
						SFCE	SURFACE		
						SH	SHOWER		
						SHT	SHEET		
						SIM	SIMILAR		
						SL	SLUDGE OR SLOPE		
						SO	SOUTH		
						SP	STATIC PRESSURE		
						SPEC	SPECIFICATION		
						SPEC'D	SPECIFIED		
						SQ	SQUARE		
						SS	SANITARY SEWER, STAINLESS STEEL OR SERVICE SINK		
						SSU	SECONDS SAYBOLT UNIVERSAL		
						STA	STATION		
						STC	SLEEVE-TYPE COUPLING		
						STD	STANDARD		
						STL	STEEL		
						STN	STAINLESS		
						STN STL	STAINLESS STEEL		
						STRUCT	STRUCTURAL OR STRUCTURE		
						SUCT	SUCTION		
						SUPP	SUPPLIER, SUPPLY		
						SV	SOLENOID VALVE		
						SWR	SIDEWALL REGISTER, SEWER		
						SYM	SYMMETRICAL OR SYMBOL		
						SYST	SYSTEM		
DAMP	DAMPER	H/B	HOSE BIBB	OC	OVER CROSSING OR ON CENTER				
DET	DETAIL	HDR	HEADER	O.C.E.W.	ON CENTER EACH WAY				
DF	DRINKING FOUNDATION	HEX	HEXAGONAL	OD	OUTSIDE DIAMETER				
DG	DOOR GRILLE	Hg	MERCURY	OF	OVERFLOW OR OUTSIDE FACE				
DI	DUCTILE IRON	HMS	HOLLOW METAL STEEL	OH	OVERHEAD				
DIA	DIAMETER	H,HOR	HORIZONTAL	OPER	OPERATOR OR OPERATING				
DIAPH	DIAPHRAGM	HORIZ	HORIZONTAL	OPNG	OPENING				
DIP	DUCTILE IRON PIPE	HP	HORSEPOWER OR HIGH PRESSURE	OS & Y	OUTSIDE SCREW AND YOKE				
DISCH	DISCHARGE	HR	HEATING RETURN OR HOUR	OWG	OIL, WATER, GAS				
DISP	DISPENSER	HTG	HEATING	OZ	OUNCE				
DN	DOWN OR DECANT	HTR	HEATER						
DO	DISSOLVED OXYGEN	H & V	HEATING AND VENTILATION						
DR	DOOR OR DRAIN	HW	HOT WATER						
DS	DRENCH SHOWER AND EYE WASH	H.W. EL.	HIGH WATER ELEVATION						
DWG	DRAWING	H.W.L.	HIGH WATER LEVEL						
DIFF	DIFFUSER OR DIFFERENTIAL	HWR	HOT WATER RETURN						
		HWS	HOT WATER SUPPLY						
		HWO	HANDWHEEL OPERATED						
		HYD	HYDRAULIC OR HYDRANT						

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE: *Jon D. Peterson* TITLE OR PRINTED NAME: **JON D. PETERSON**

DATE: *9-10-2001* REG. NO.: **21309**

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CONSULTING ENGINEERS & SURVEYORS

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BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

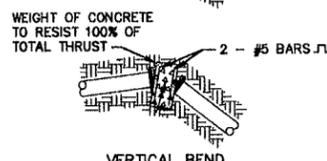
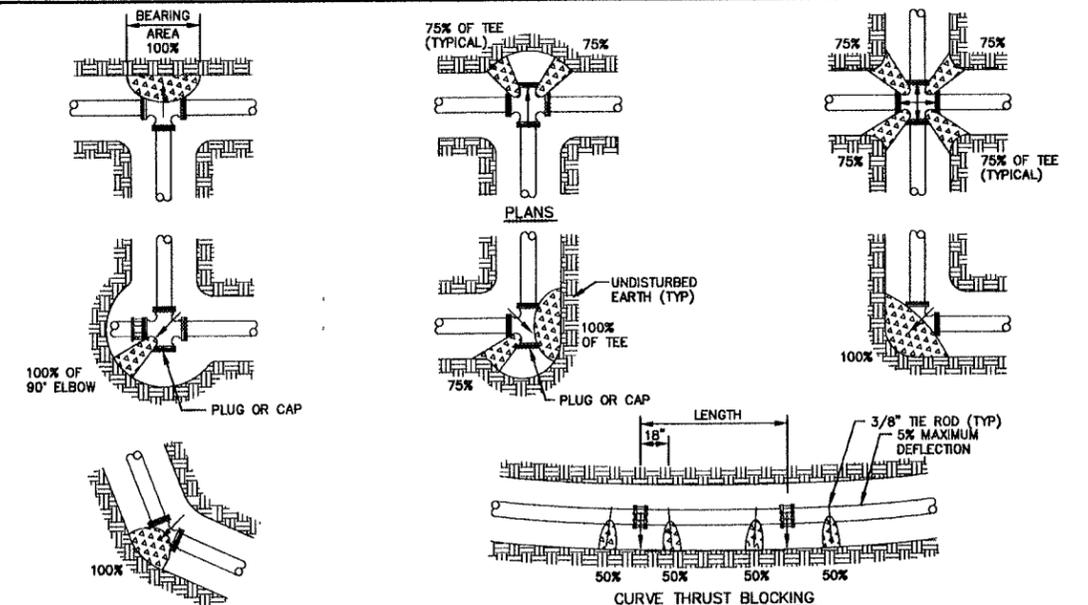
WILLIAM R. ENGELHARDT ASSOC.
CONSULTING ENGINEERS

CHASKA, MINNESOTA

REV	BY	DATE
A	NWS	5-18-2001
0	NWS	8-17-01

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
ABBREVIATION LEGEND

SHEET
1.04



100% BEARING AREA (SQ. FT.)

PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 1/2° ELBOW
4	2.4	3.4	1.9	0.9
6	4.9	6.9	3.8	1.9
8	8.4	11.8	6.4	3.4
10	13.7	19.3	10.5	5.4
12	19.4	27.3	14.9	7.7
14	26.3	37.0	20.1	10.3
16	34.0	47.9	26.2	13.3
18	43.9	61.8	33.7	17.2
20	54.3	76.4	41.7	21.2
24	77.9	109.8	59.8	30.5

NOTE: FIGURE (100%) AT THRUST BLOCK INDICATES PER CENT OF TOTAL THRUST TO BE APPLIED FOR BEARING AREA.

NOTE: ARROWS (→) INDICATE THRUST DIRECTION.

NOTE: CONCRETE FOR THRUST BLOCKS TO BE 2000 P.S.I.

NOTES:

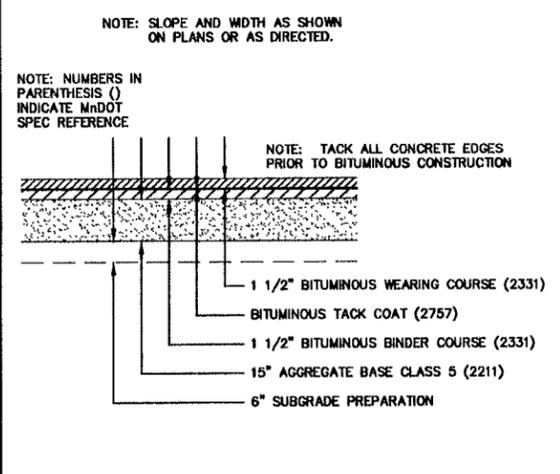
1. RESTRAINING RODS ARE REQUIRED AT ALL TEES AND AT BENDS DEFLECTING 22 1/2° OR MORE.
2. WRAP THE PIPE WITH POLYETHYLENE WRAPPING PRIOR TO POURING THE THRUST BLOCK.
3. SEE SOILS REPORT FOR BEARING STRENGTH OF SOIL. IN ABSENCE OF A SOILS REPORT, AN AVERAGE SOIL (SPADABLE MEDIUM CLAY) CAN BE ASSUMED TO HAVE A BEARING STRENGTH OF 2000 P.S.I.
4. THRUST BLOCKS ARE NOT REQUIRED ON P.V.C. WITH SOLVENT WELDED JOINTS.

SIDE THRUST PER 100 LB./SQ. IN. PRESSURE PER DEGREE OF DEFLECTION

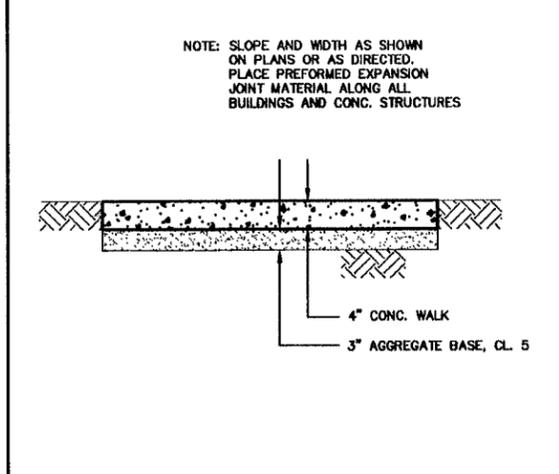
PIPE SIZE	SIDE THRUST-lb.	PIPE SIZE	SIDE THRUST-lb.
4	35	14	377
6	72	16	486
8	122	18	665
10	197	20	790
12	278	24	1150

MULTIPLY THRUST BY DEGREE OF DEFLECTION TO OBTAIN TOTAL THRUST

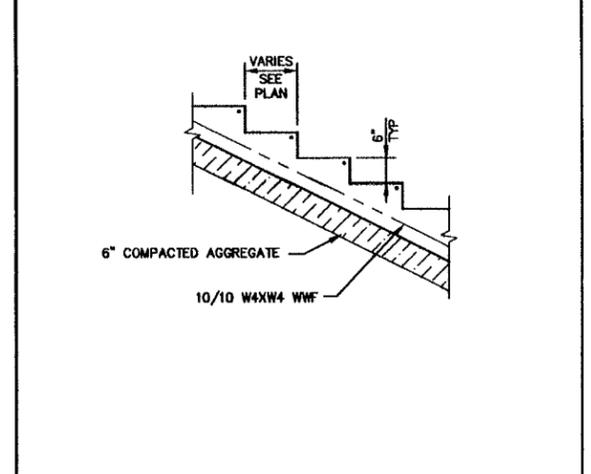
2 BITUMINOUS ROADWAY SECTION
1.05 NO SCALE



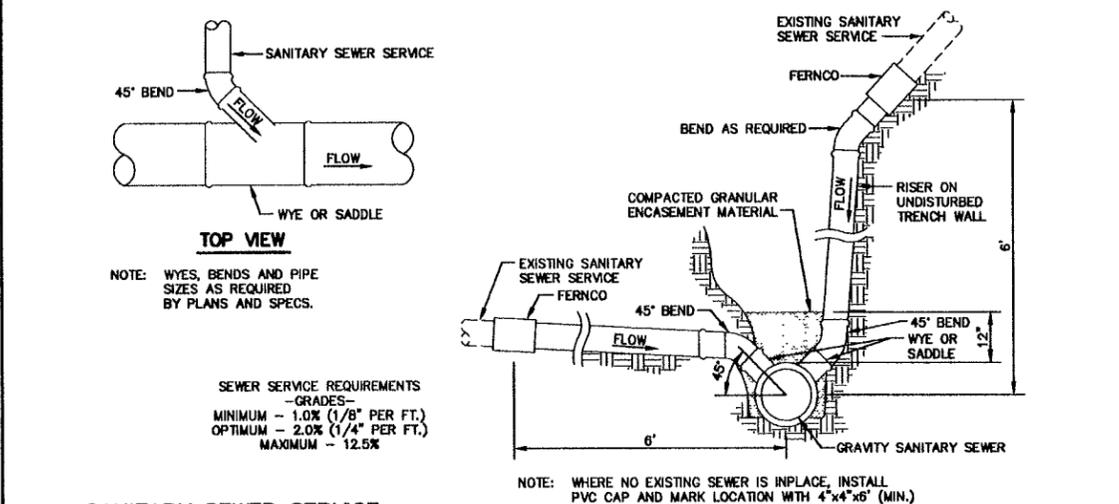
3 CONCRETE WALK SECTION
1.05 NO SCALE



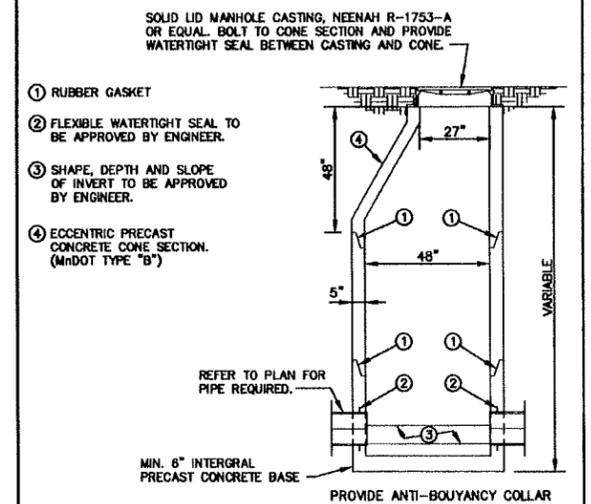
4 TYPICAL EXTERIOR STEPS
1.05 SCALE: 1 1/2"=1'-0"



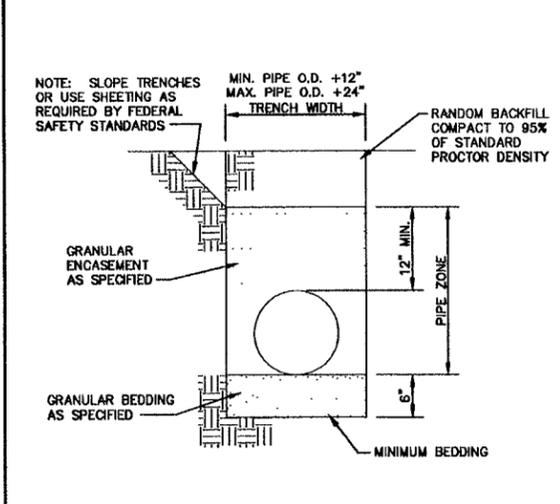
5 SANITARY SEWER SERVICE AND SERVICE RISER
1.05 NO SCALE



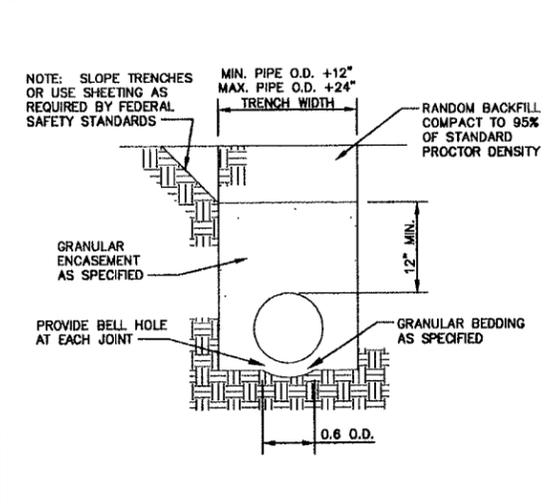
6 MANHOLE DETAIL
1.05 SCALE: 3/8"=1'-0"



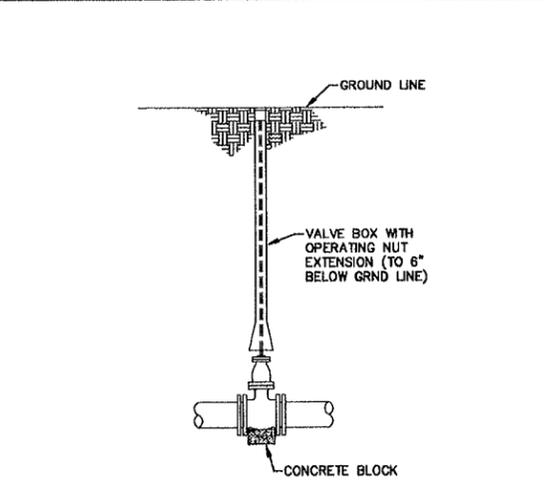
9 TRENCH DETAIL PVC PIPE
1.05 SCALE: 1"=1'-0"

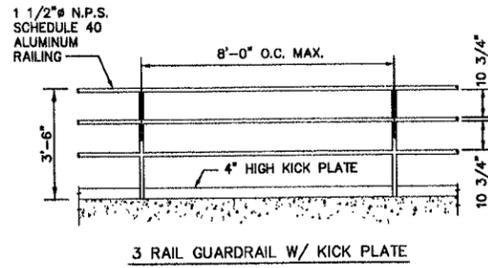


8 TRENCH DETAIL DUCTILE IRON PIPE
1.05 SCALE: 1"=1'-0"



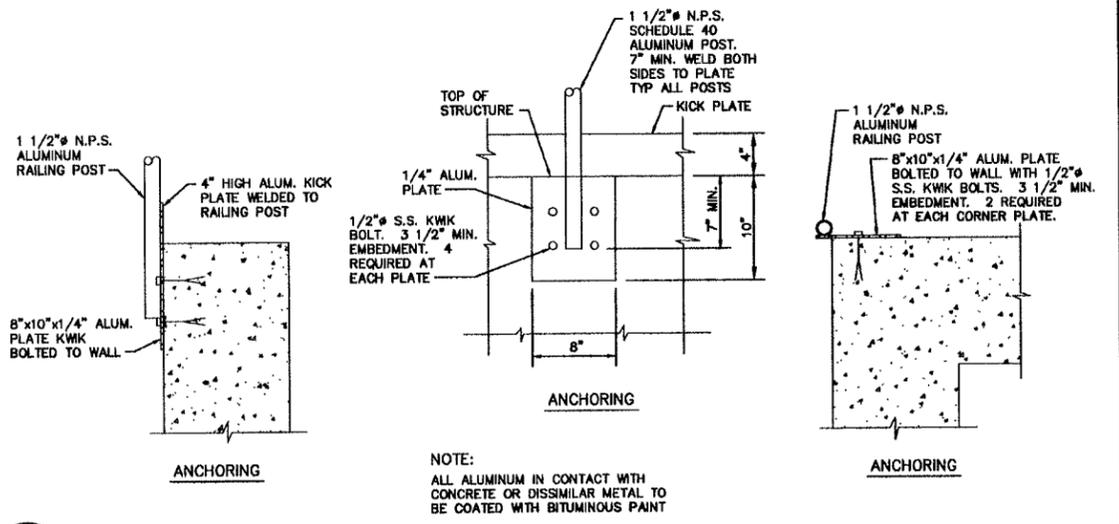
7 TYPICAL BURIED VALVE
1.05 SCALE: 1/2"=1'-0"





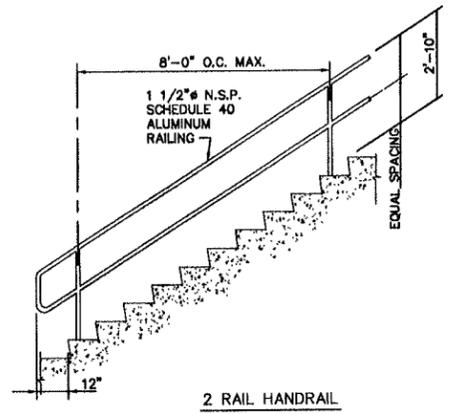
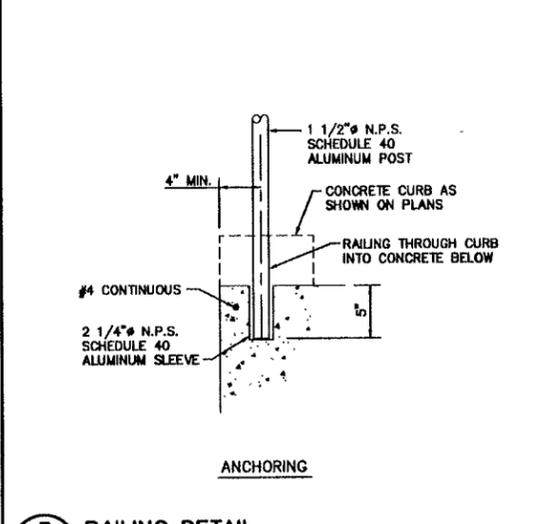
3 RAIL GUARDRAIL W/ KICK PLATE

2 RAILING DETAILS
1.06 SCALE: 1 1/2"=1'-0"



NOTE:
ALL ALUMINUM IN CONTACT WITH
CONCRETE OR DISSIMILAR METAL TO
BE COATED WITH BITUMINOUS PAINT

3 RAILING DETAIL
1.06 SCALE: 1 1/2"=1'-0"



2 RAIL HANDRAIL

1 RAILING DETAILS
1.06 SCALE: 3/8"=1'-0"

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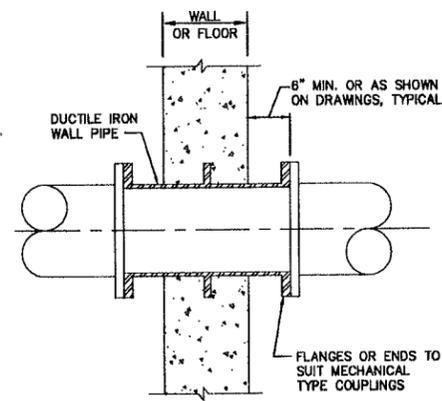
SIGNATURE: *Jon D. Peterson* TYPED OR PRINTED NAME: **JON D. PETERSON**
DATE: **9-10-2001** REG. NO. **21309**

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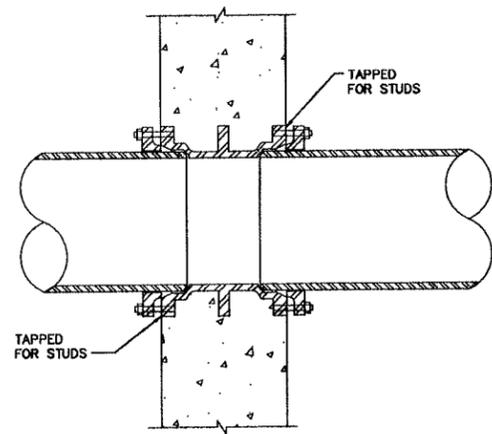
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CHASKA, MINNESOTA

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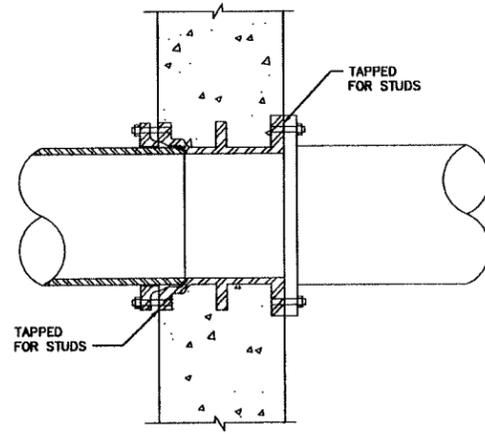
WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
STANDARD DETAILS



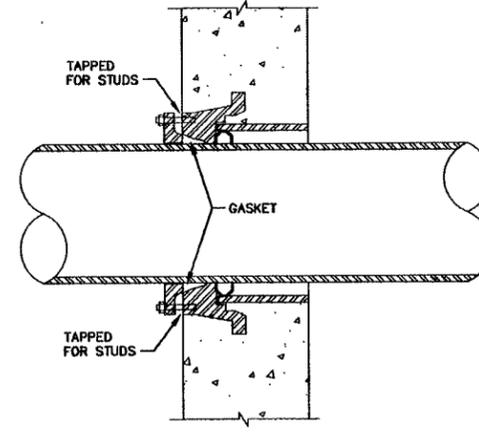
1 DUCTILE IRON WALL PIPE
1.07 SCALE: 1"=1'-0"



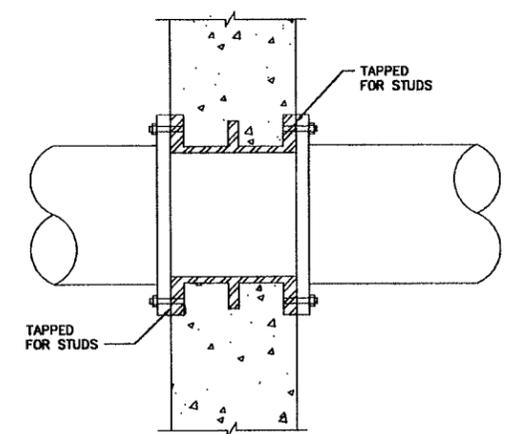
2 M.J.-M.J. WALL PIPE DETAIL
1.07 SCALE: 1 1/2"=1'-0"



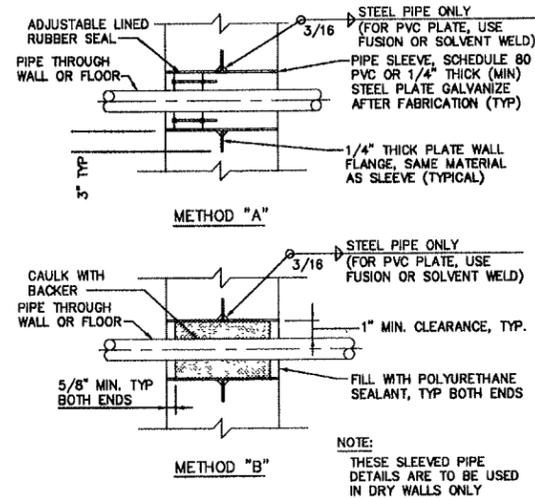
3 F-M.J. WALL PIPE DETAIL
1.07 SCALE: 1 1/2"=1'-0"



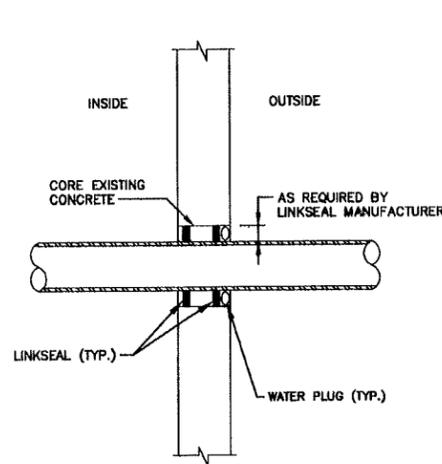
4 EXTERIOR WALLS (GRADE ONE SIDE)
M.J.-M.J. WALL PIPE DETAIL
1.07 SCALE: 1 1/2"=1'-0"



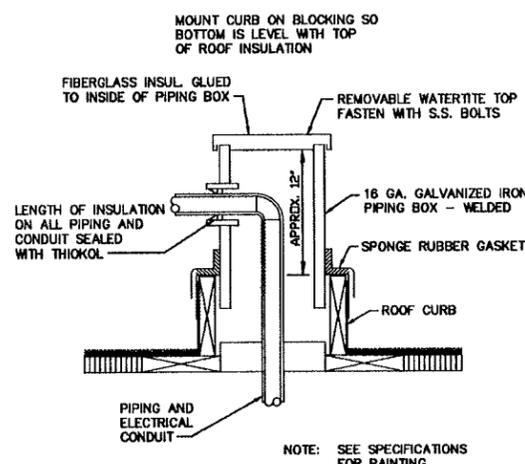
5 F-F WALL PIPE DETAIL
1.07 SCALE: 1 1/2"=1'-0"



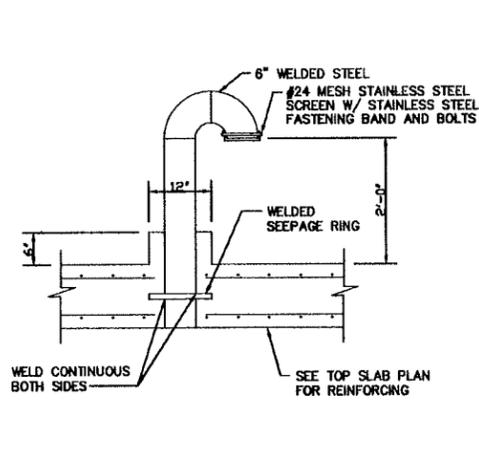
6 SLEEVED PIPE OPENING 3" AND SMALLER
1.07 SCALE: 1"=1'-0"



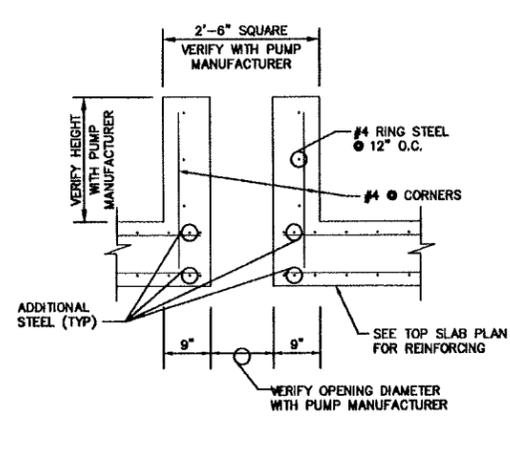
7 WALL PIPES IN EXISTING STRUCTURES
1.07 SCALE: 3/4"=1'-0"



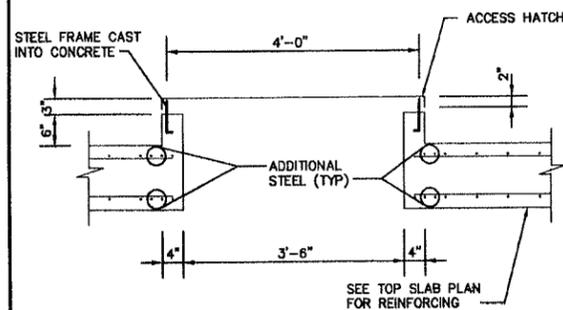
8 ROOF PIPING BOX
1.07 SCALE: 1 1/2"=1'-0"



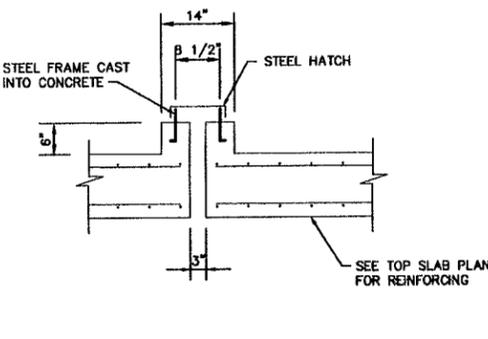
9 VENT
1.07 SCALE: 3/4"=1'-0"



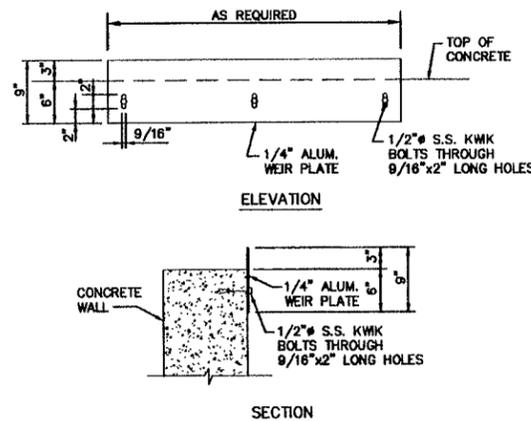
10 PUMP BASE
1.07 SCALE: 3/4"=1'-0"



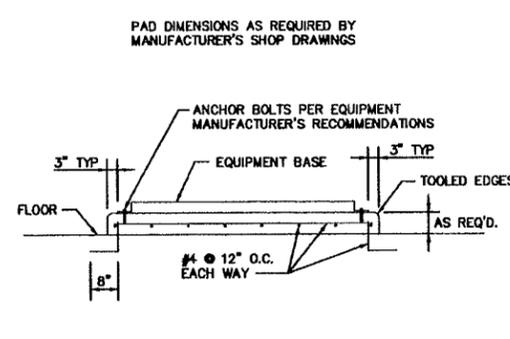
11 ACCESS HATCH (POTABLE WATER)
1.07 SCALE: 3/4"=1'-0"



12 VALVE OPERATOR CURB
1.07 SCALE: 3/4"=1'-0"



13 WEIR PLATE
1.07 SCALE: 1"=1'-0"



14 CONCRETE EQUIPMENT BASE
1.07 SCALE: 1/2"=1'-0"

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SIGNATURE: *J. D. Peterson* TYPED OR PRINTED NAME: **JON D. PETERSON**
DATE: 4-10-2011 REG. NO.: 21309

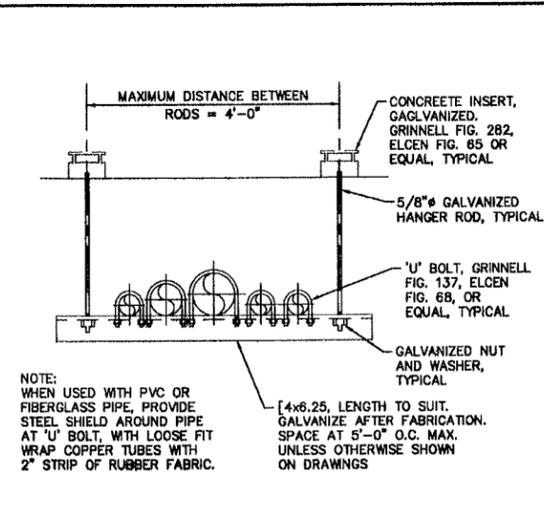
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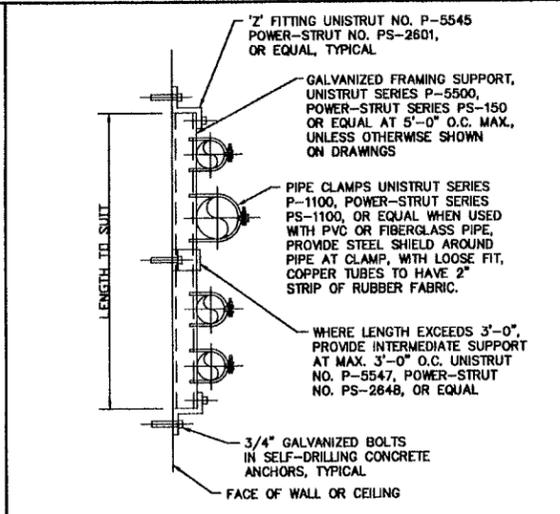
REV.	BY	DATE
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WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
STANDARD DETAILS

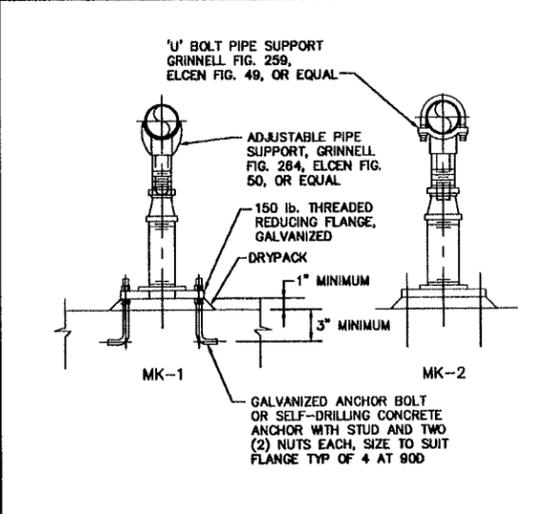
SHEET
1.07



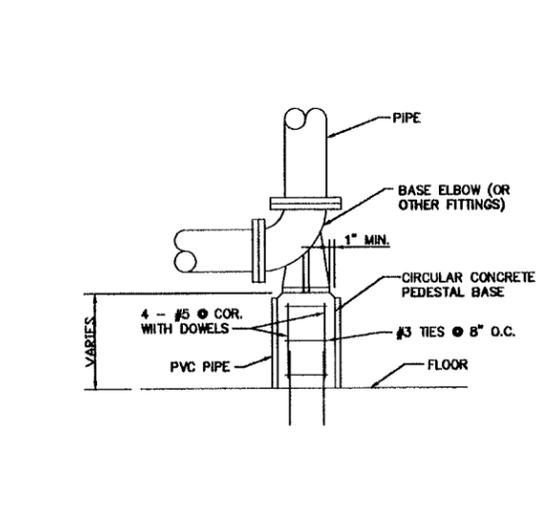
1 TRAPEZE PIPE HANGER
1.08 SCALE: 3/4"=1'-0"



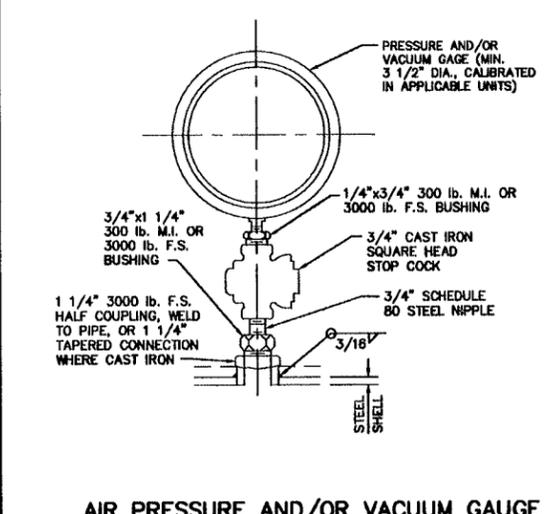
2 FLUSH MOUNTED PIPE SUPPORT
1.08 SCALE: 1"=1'-0"



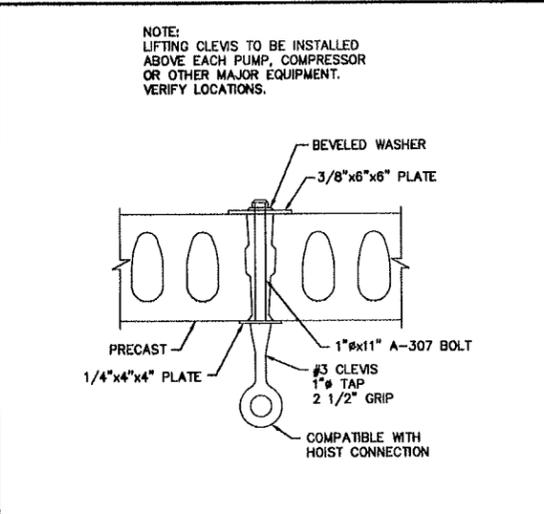
3 ADJUSTABLE PIPE SUPPORT
1.08 SCALE: 1 1/2"=1'-0"



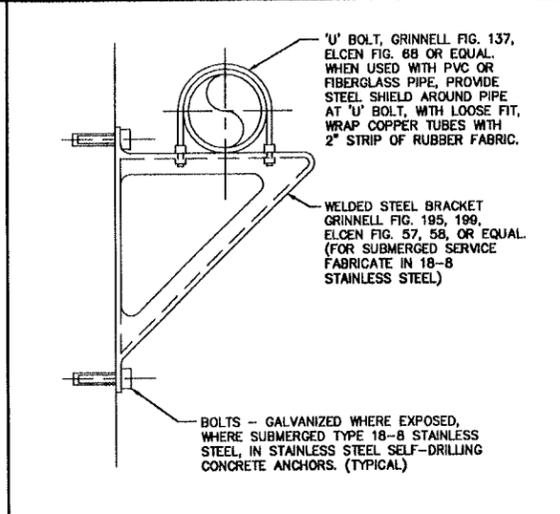
4 CONCRETE PEDESTAL BASE
1.08 SCALE: 3/4"=1'-0"



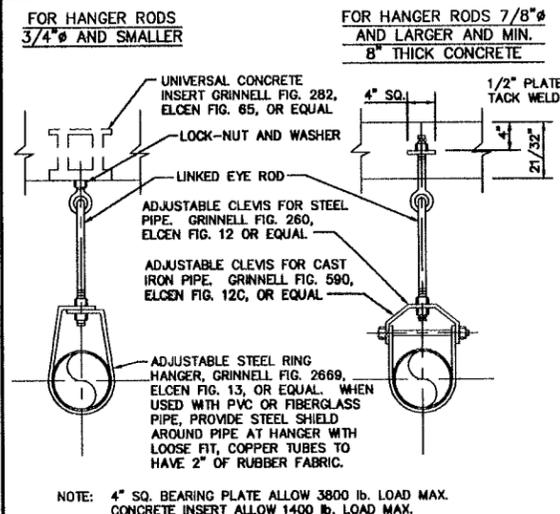
5 AIR PRESSURE AND/OR VACUUM GAUGE IN STEEL PIPE
1.08 SCALE: 3"=1'-0"



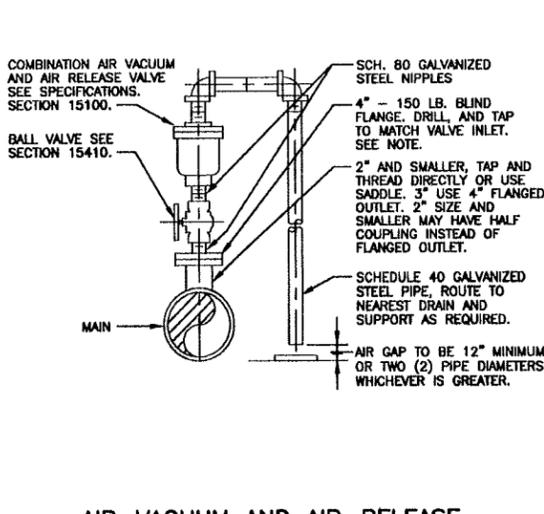
6 LIFTING HOOK
1.08 SCALE: 1 1/2"=1'-0"



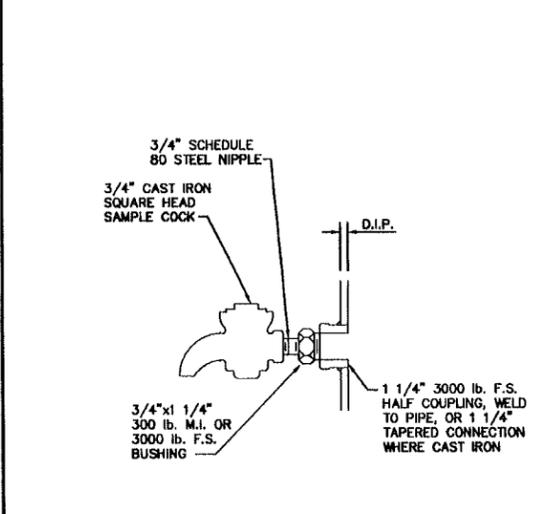
7 PIPE BRACKET
1.08 SCALE: 3"=1'-0"



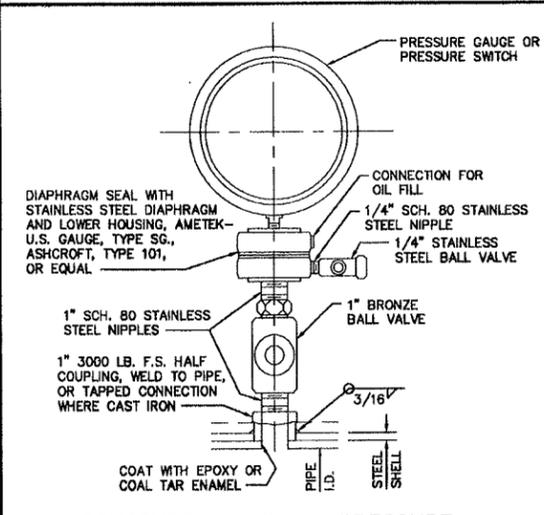
8 PIPE BRACKET
1.08 SCALE: 1 1/2"=1'-0"



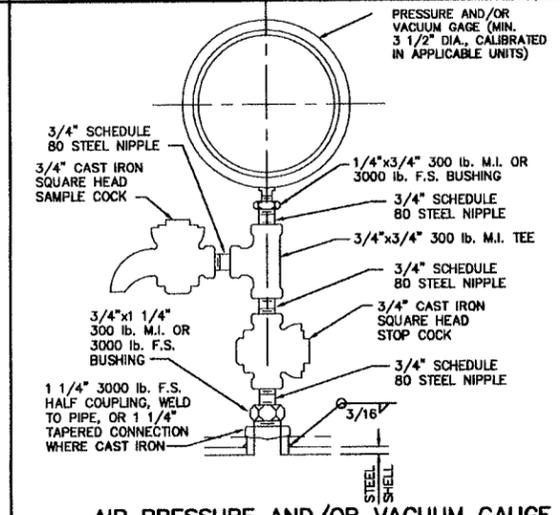
9 AIR-VACUUM AND AIR-RELEASE VALVE ASSEMBLY 3" AND SMALLER
1.08 SCALE: 3/4"=1'-0"



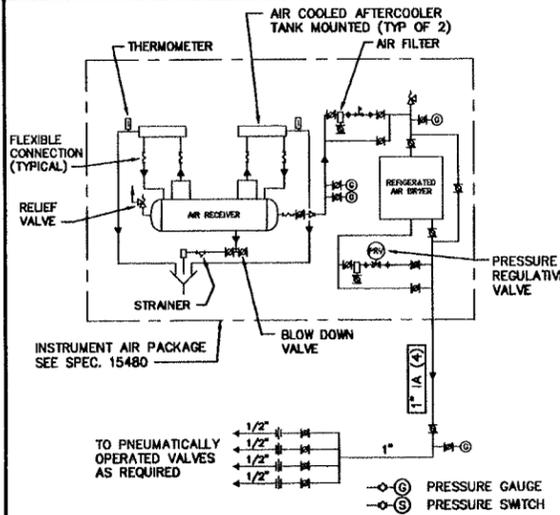
10 SAMPLE COCK
1.08 SCALE: 3"=1'-0"



11 PRESSURE GAUGE OR PRESSURE SWITCH WITH DIAPHRAGM SEAL
1.08 SCALE: 3"=1'-0"



12 AIR PRESSURE AND/OR VACUUM GAUGE IN STEEL PIPE WITH SAMPLE TAP
1.08 SCALE: 3"=1'-0"



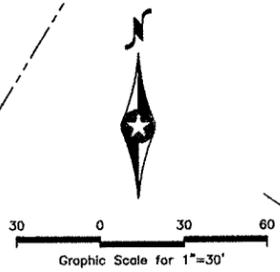
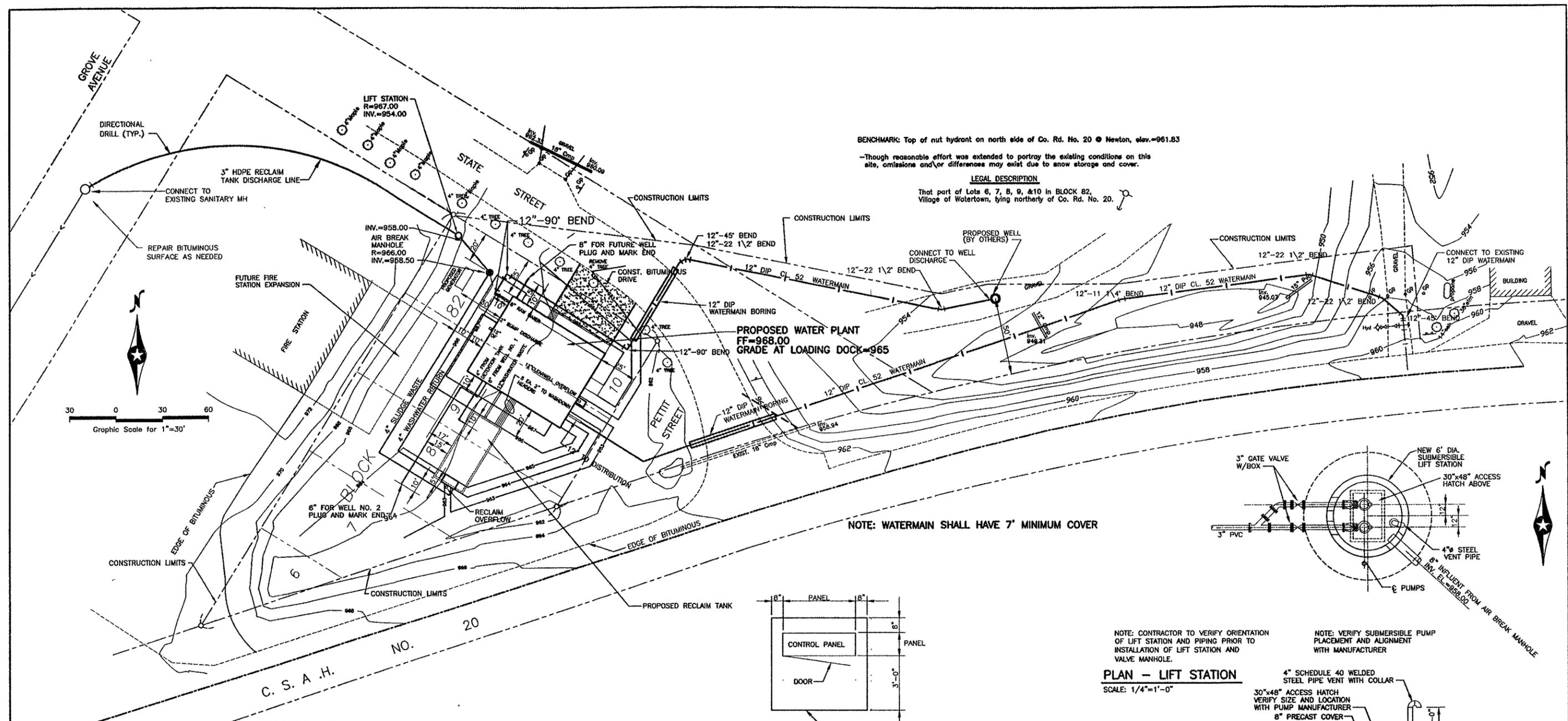
13 INSTRUMENT/PLANT AIR SCHEMATIC
1.08 NO SCALE

BENCHMARK: Top of nut hydrant on north side of Co. Rd. No. 20 @ Newton, elev.=961.83

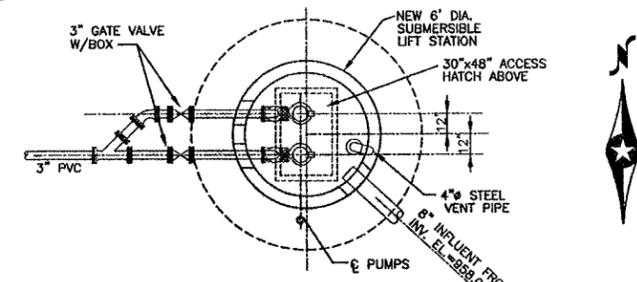
-Though reasonable effort was extended to portray the existing conditions on this site, omissions and/or differences may exist due to snow storage and cover.

LEGAL DESCRIPTION

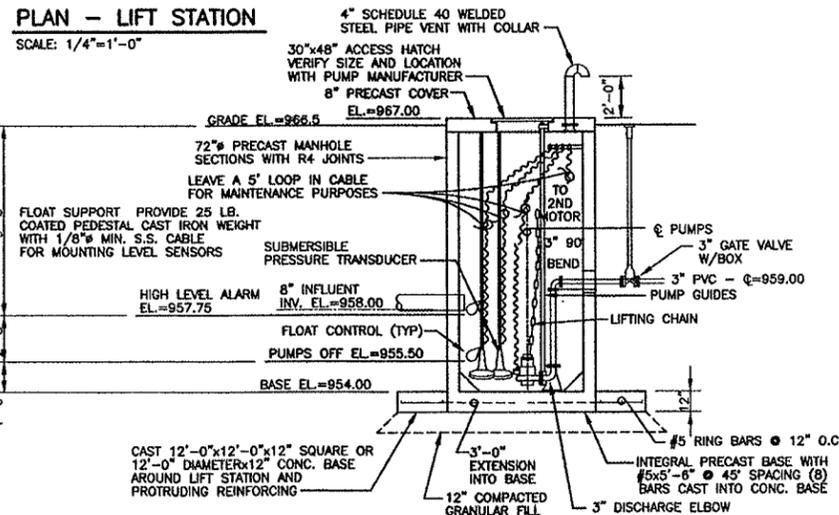
That part of Lots 6, 7, 8, 9, & 10 in BLOCK 82, Village of Watertown, lying northerly of Co. Rd. No. 20.



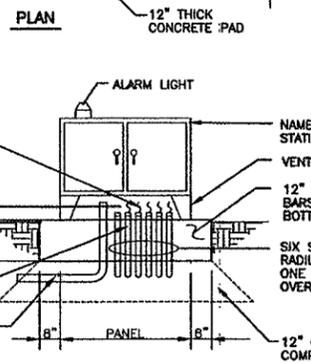
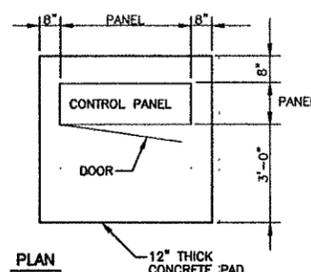
NOTE: WATERMAIN SHALL HAVE 7' MINIMUM COVER



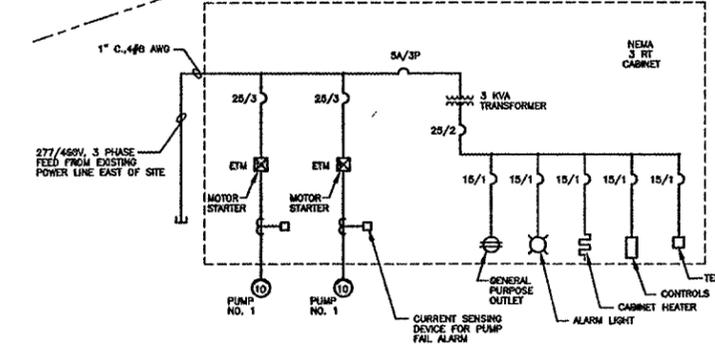
PLAN - LIFT STATION
SCALE: 1/4"=1'-0"



SECTION - LIFT STATION
SCALE: 1/4"=1'-0"



CONTROL PANEL DETAIL
N.T.S.



ELECTRICAL ONE LINE DIAGRAM
N.T.S.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 SIGNATURE: *Jan D. Peterson* TYPED OR PRINTED NAME: **Jan D. Peterson**
 DATE: 10-21-2001 REG. NO.: 21309

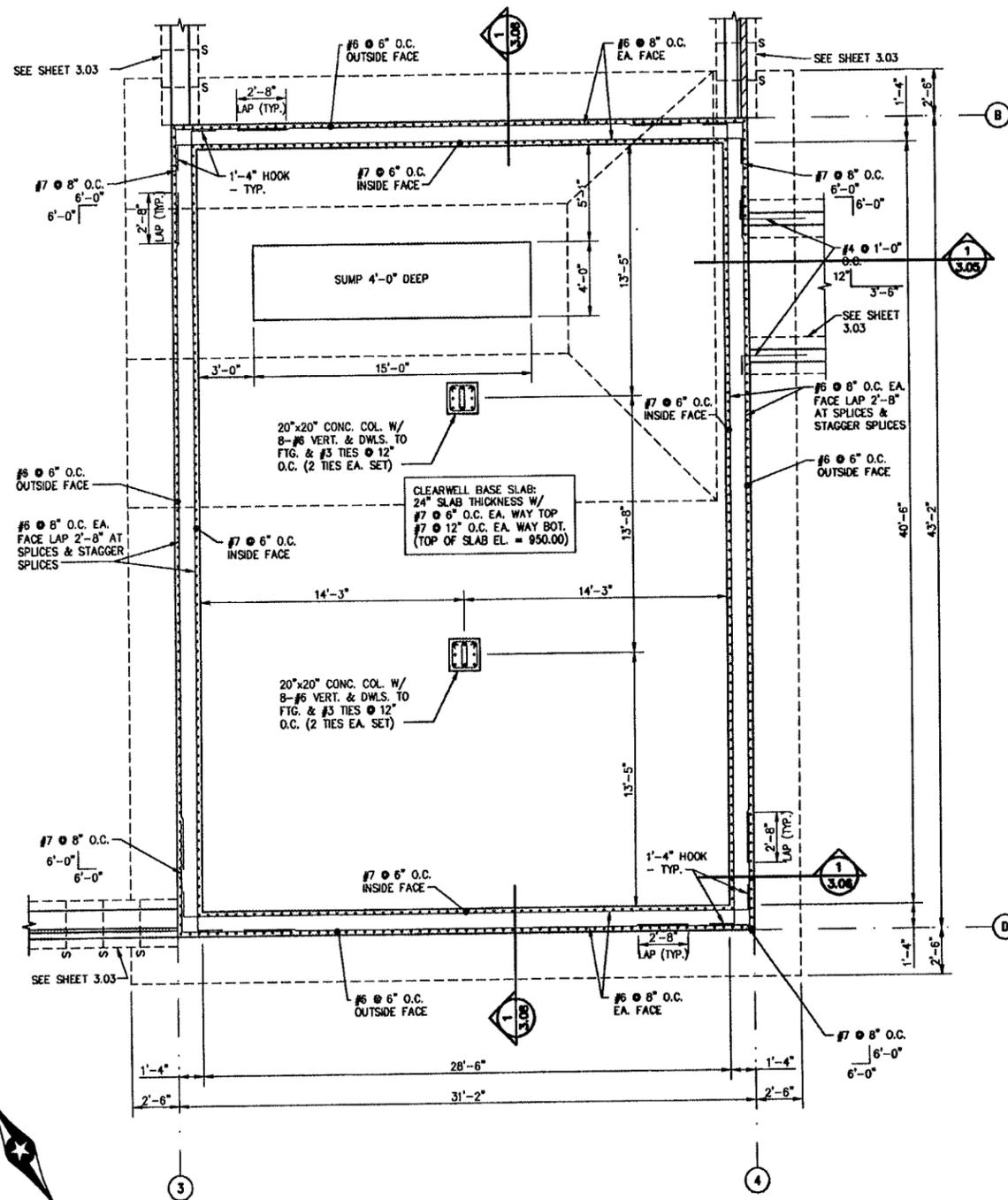
BOLTON & MENK, INC
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV.	BY	DATE
1	JP	9-21-01

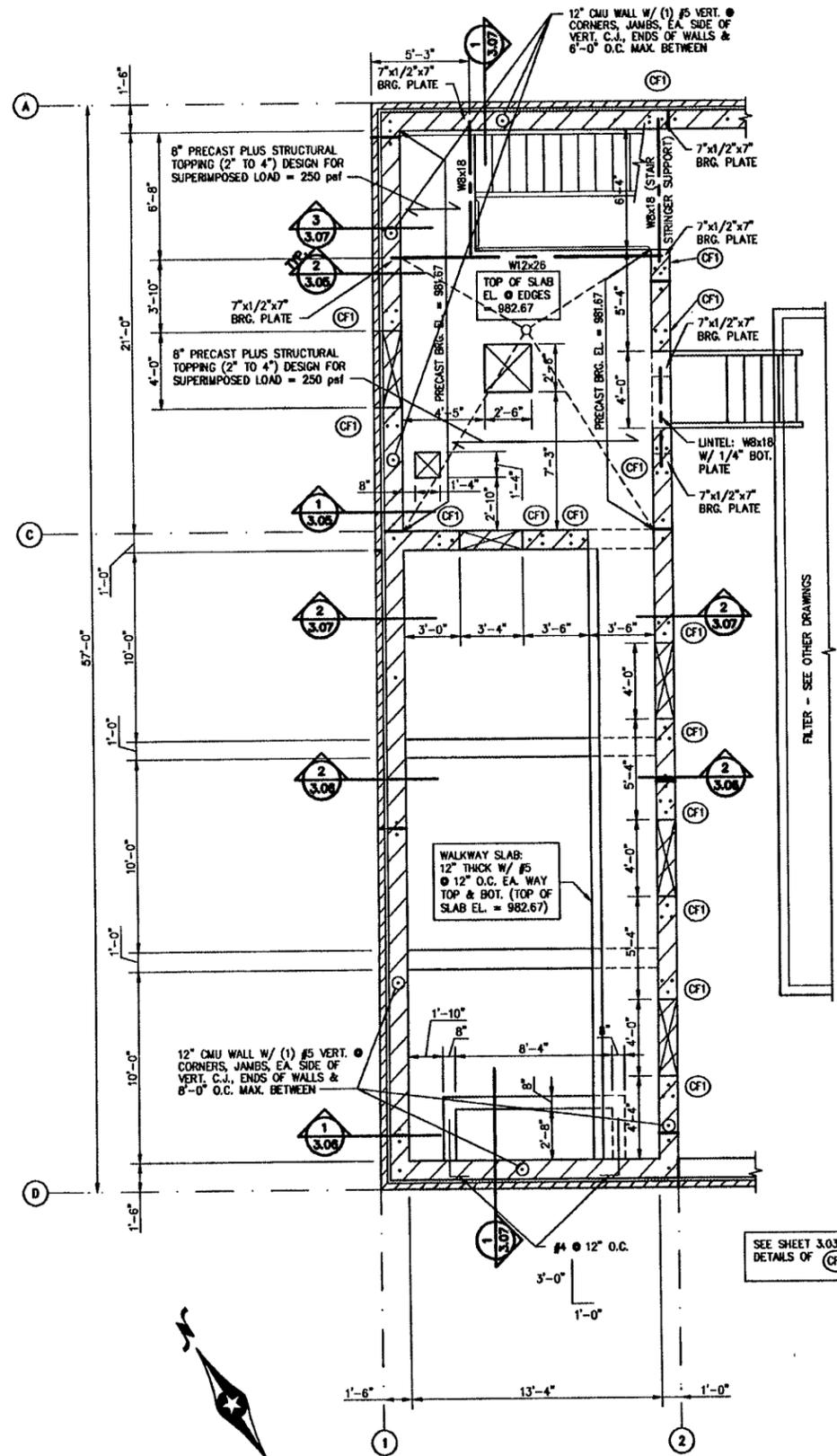
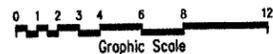
WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 SITE PLAN

SHEET
2.01



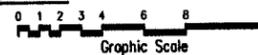
CLEARWELL FOUNDATION PLAN

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



MEZZANINE PLAN

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



LS ENGINEERS
 LS 0024 01-2017
 200 S. High St.
 LaSalle, MN 56008

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE: 8-17-01
 REG. NO.: 14965

BOLTON & MENK, INC.
 CONSULTING ENGINEERS & SURVEYORS

MANKATO, MN
 BURNSVILLE, MN

FARMONT, MN
 WILLMAR, MN

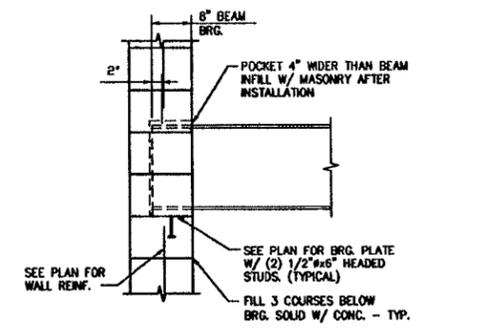
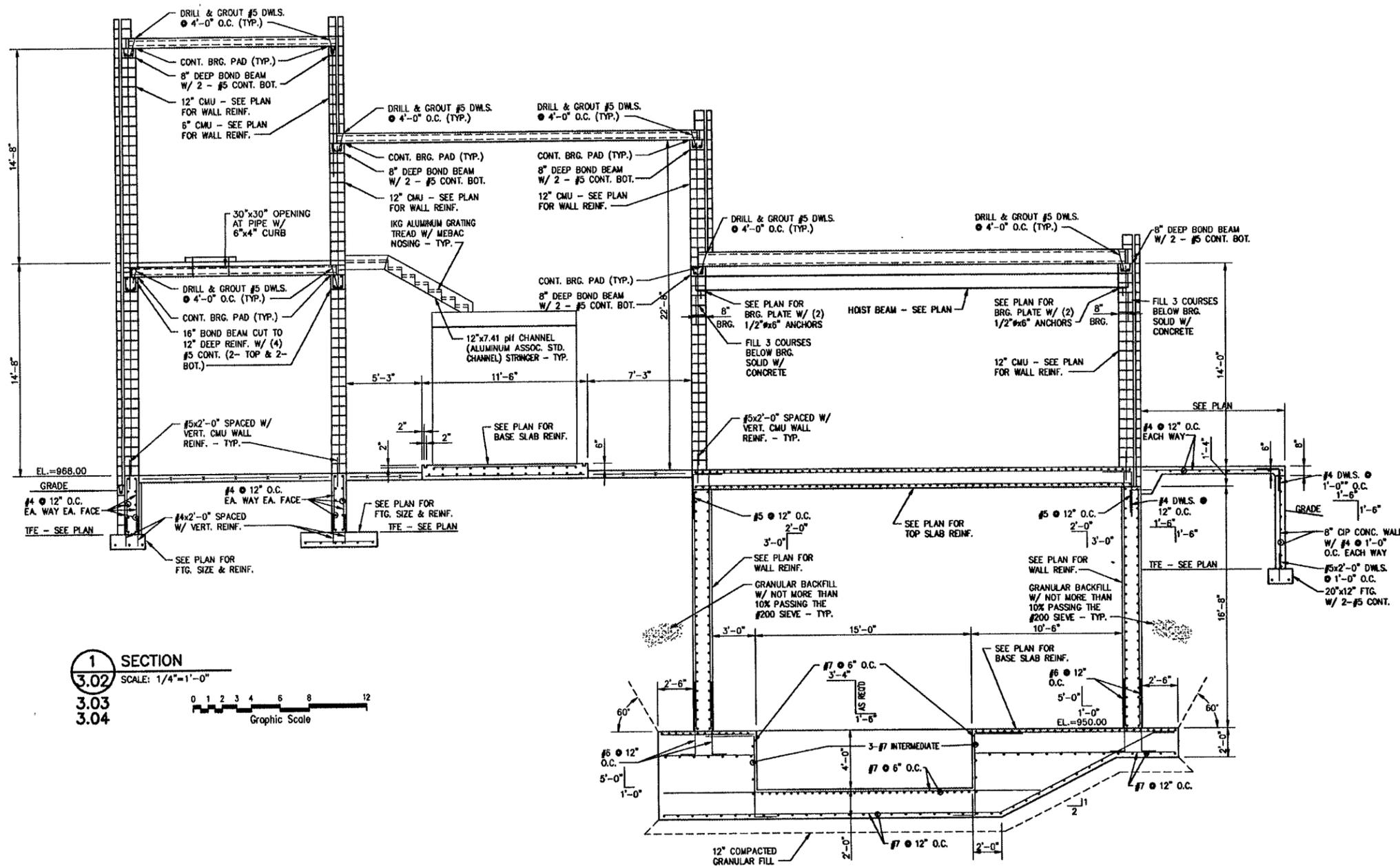
SLEEPY EYE, MN
 AMES, IA
 LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS

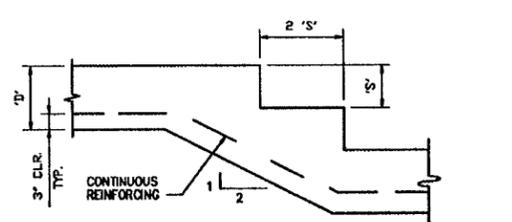
CHASKA, MINNESOTA

REV.	BY	DATE	WATERTOWN, MINNESOTA	
A	MEK	5-18-2001	WATER TREATMENT FACILITY	
D	JT	8-17-01	CLEARWELL FOUNDATION PLAN AND MEZZANINE PLAN	

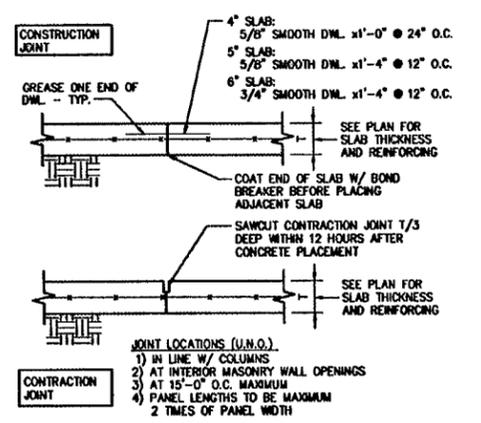
SHEET
3.02



2 SECTION
3.02 3/4" = 1'-0"
Graphic Scale

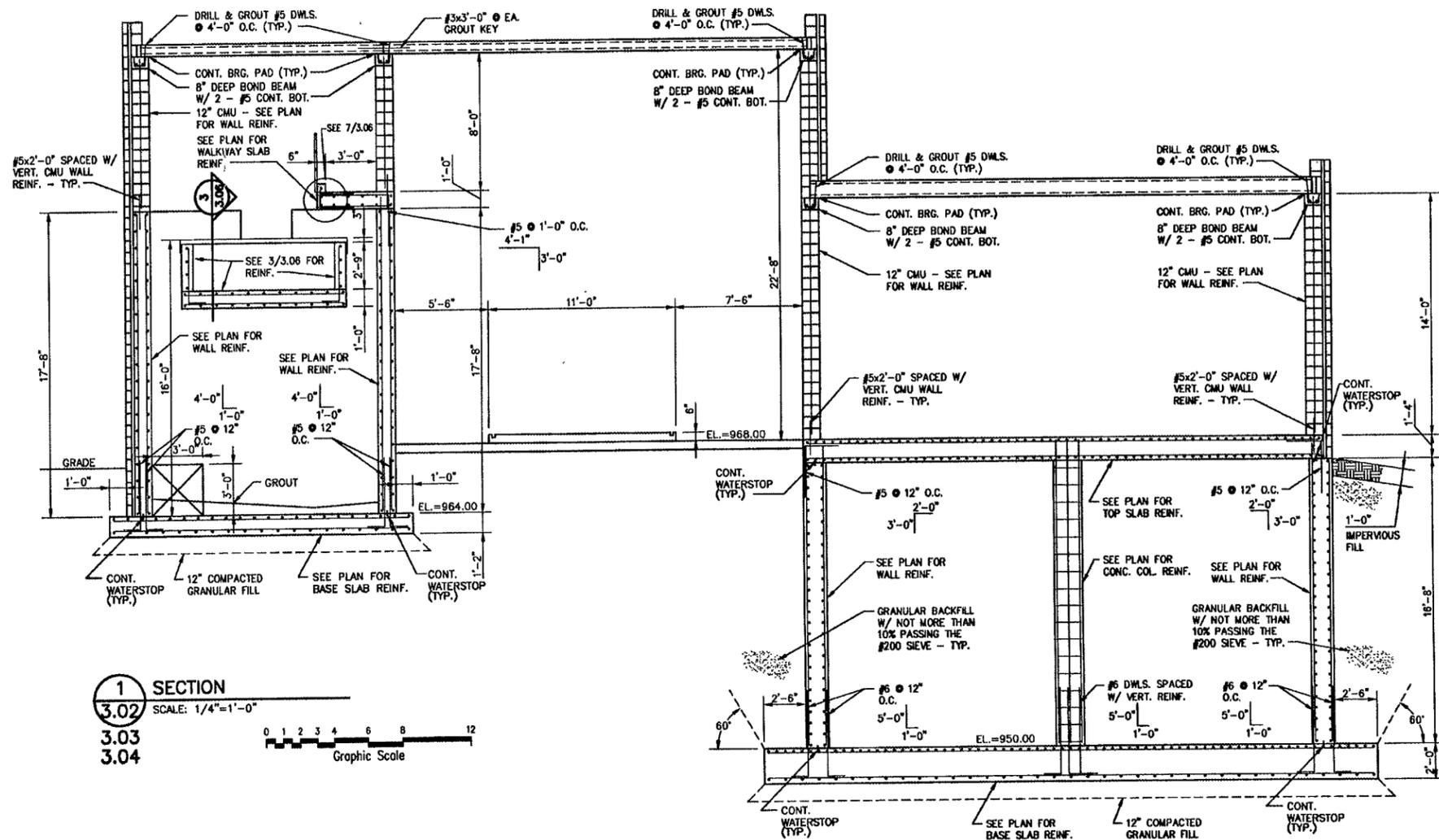


3 DETAIL
3.05 NO SCALE

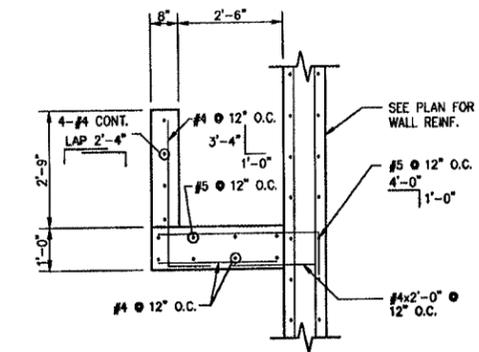
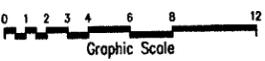


4 SECTION
3.05 3/4" = 1'-0"
Graphic Scale

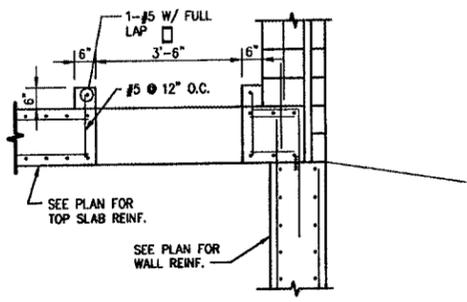
1 SECTION
3.02 SCALE: 1/4" = 1'-0"
3.03
3.04
Graphic Scale



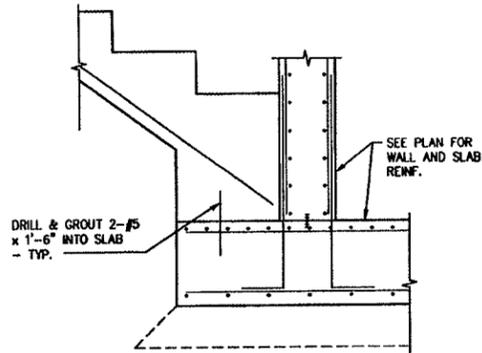
1 SECTION
3.02 SCALE: 1/4"=1'-0"
3.03
3.04



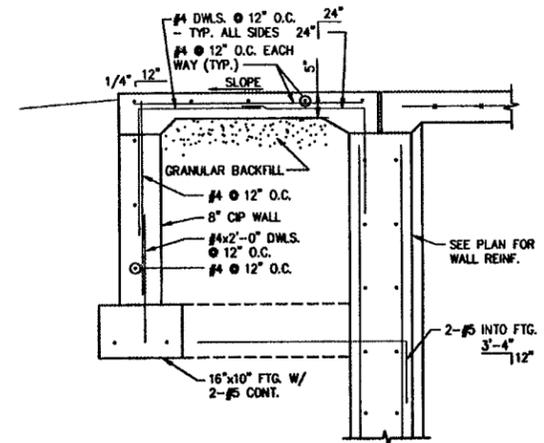
3 SECTION
3.06 SCALE: 1/2"=1'-0"
3.07



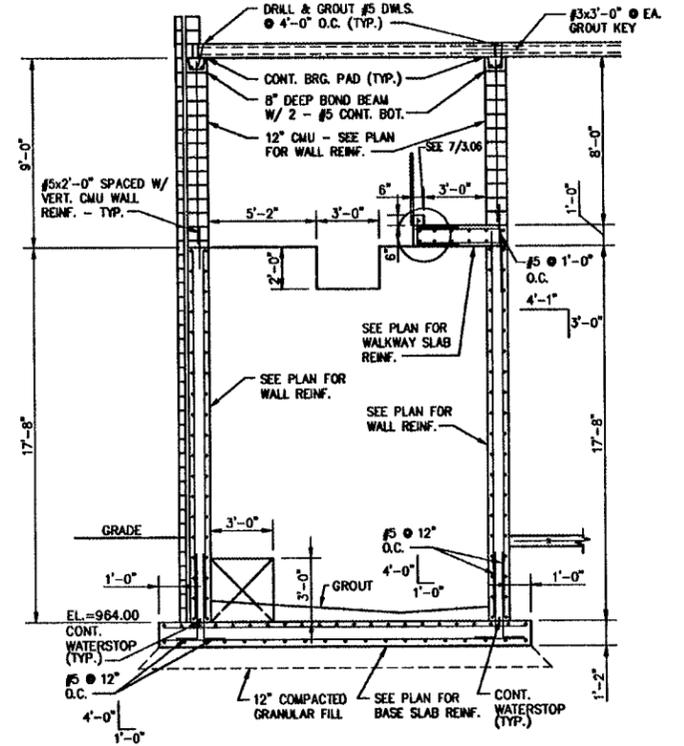
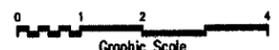
4 SECTION
3.03 SCALE: 1/2"=1'-0"
3.04



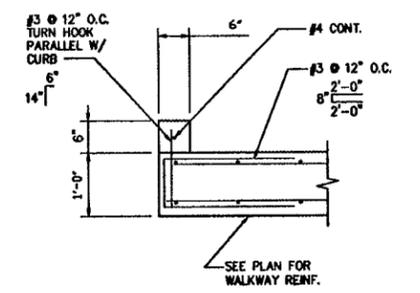
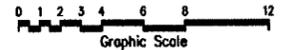
5 SECTION
3.03 SCALE: 1/2"=1'-0"
3.04



6 SECTION
3.03 3/4" = 1'-0"
3.04



2 SECTION
3.02 SCALE: 1/4"=1'-0"
3.03
3.04



7 SECTION
3.06 SCALE: 3/4"=1'-0"
3.07



LS ENGINEERS
 200 S. Main St.
 LAWRENCE, MN 56056

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 SIGNATURE: *William P. Lehnartz* TYPED OR PRINTED NAME: William P. Lehnartz
 DATE: 8-17-01 REG. NO.: 14965

BOLTON & MENK, INC.
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

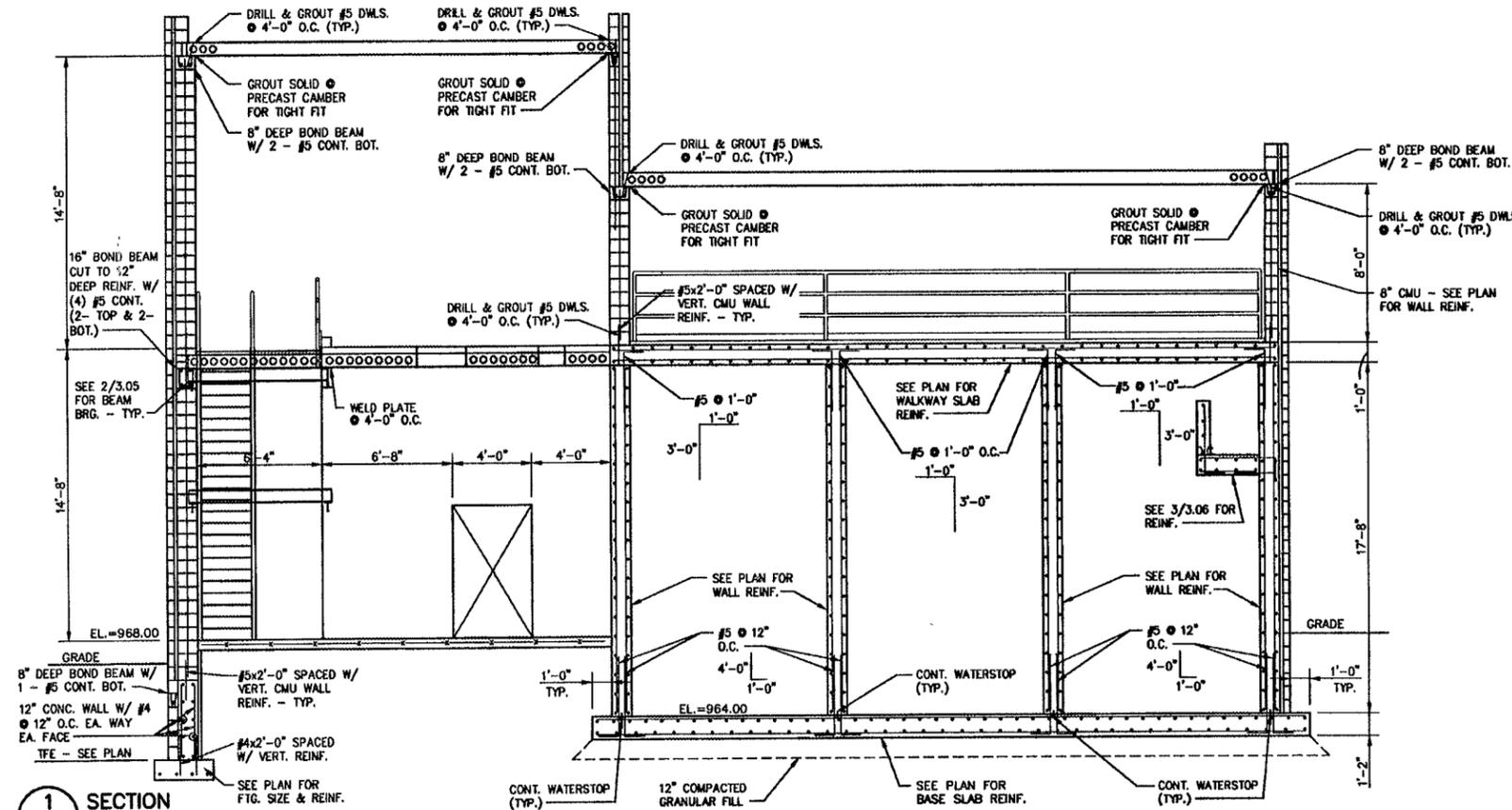
WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV.	BY	DATE
A	MLK	5-18-2001
0	JIT	8-17-01

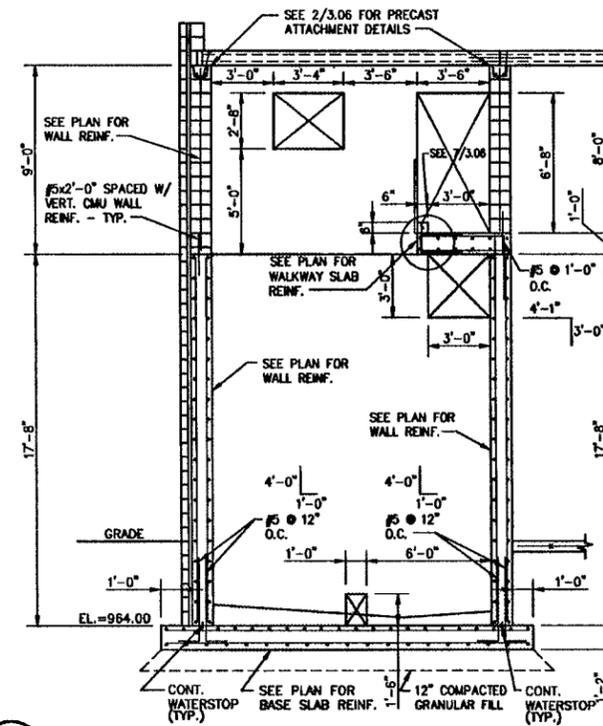
WATERTOWN, MINNESOTA	
WATER TREATMENT FACILITY	
BUILDING SECTIONS	

SHEET
3.06

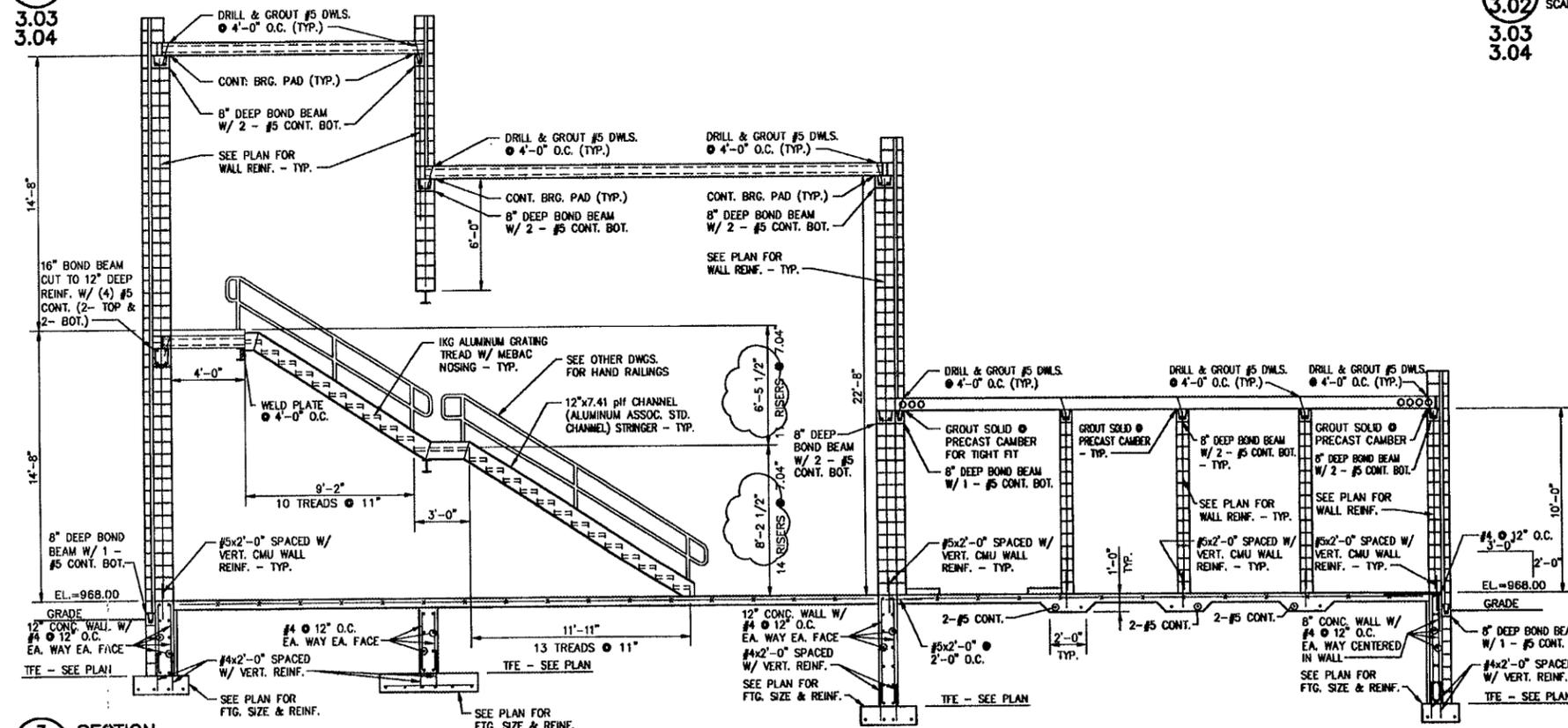
15027827.00



1 SECTION
3.02 SCALE: 1/4"=1'-0"
3.03
3.04



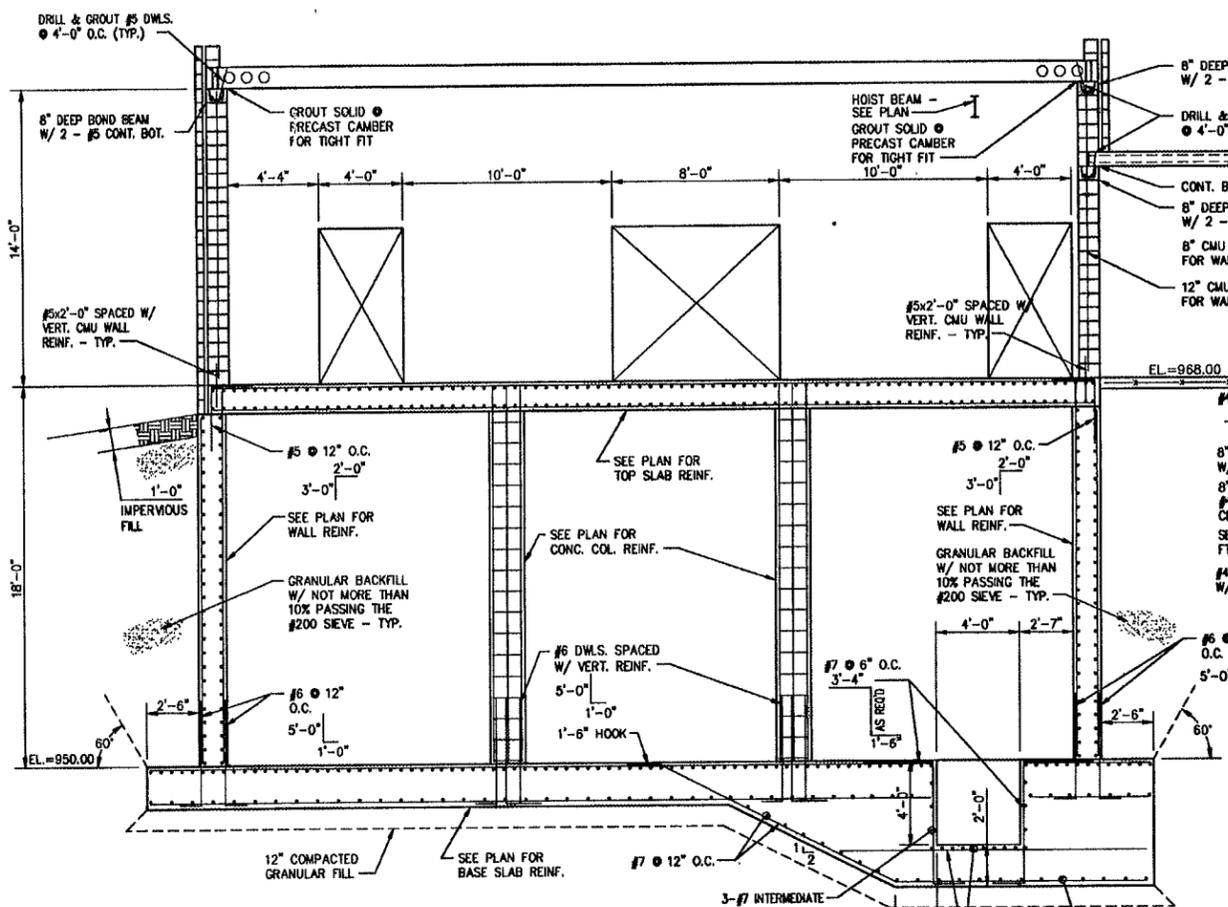
2 SECTION
3.02 SCALE: 1/4"=1'-0"
3.03
3.04



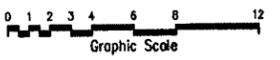
3 SECTION
3.02 SCALE: 1/4"=1'-0"
3.03
3.04



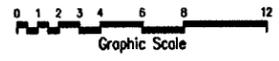
01/23/2001 14:52:11 10/27/2001



1 SECTION
 3.02 SCALE: 1/4"=1'-0"
 3.03
 3.04



2 SECTION
 3.03 SCALE: 1/4"=1'-0"
 3.04



LS 0094 01-207
LS ENGINEERS
 200 S. Main St.
 LeSueur, MN 56058

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *William P. Lehnertz* TITLE: **William P. Lehnertz**
 DATE: 8-17-01 REG. NO.: 14965

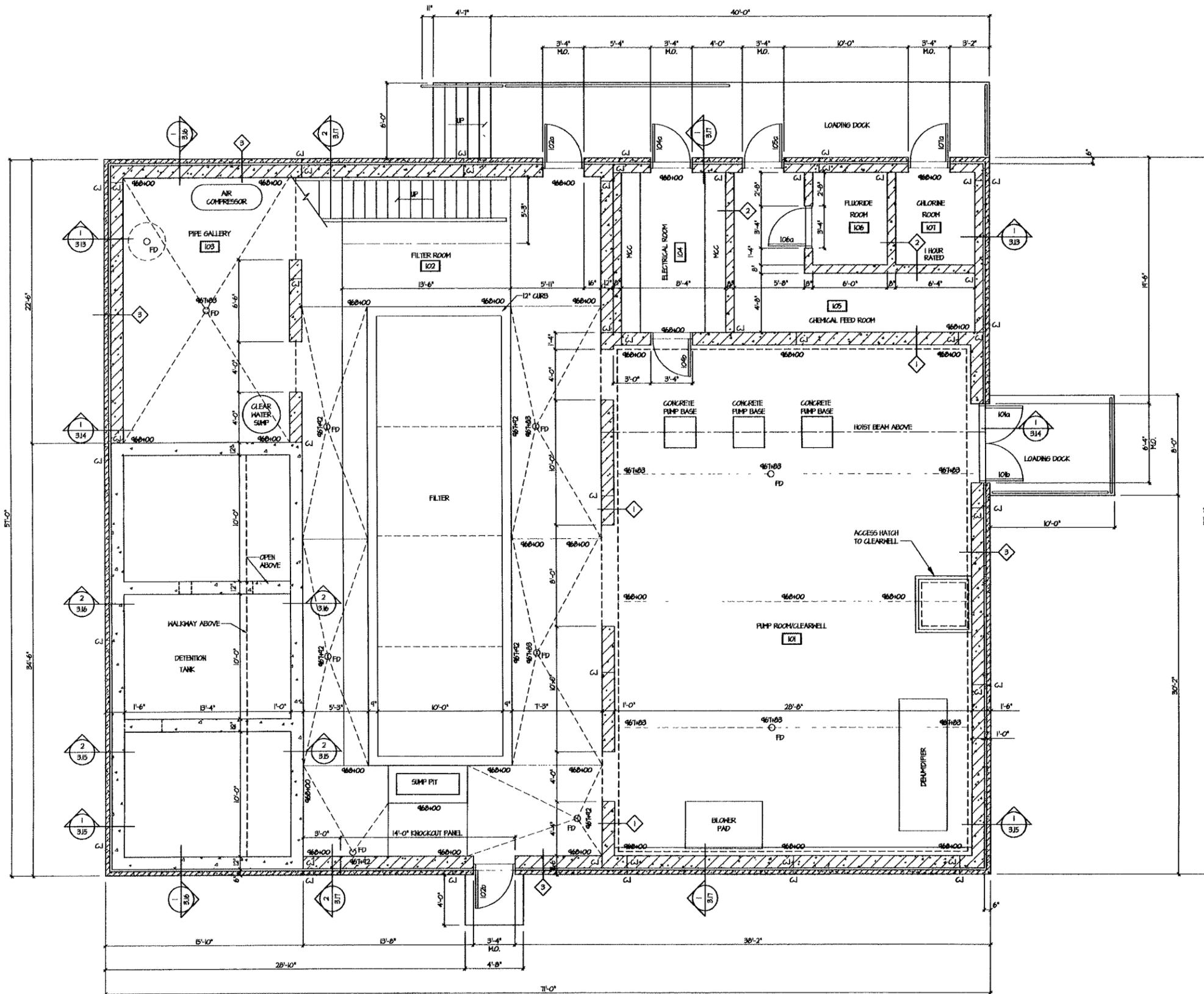
BOLTON & MENK, INC
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV	BY	DATE
A	MLK	5-18-2001
0	JLT	8-17-01

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
BUILDING SECTIONS

SHEET
3.08

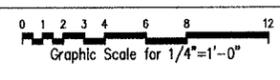


HALL TYPES

- 1 12" CONG. BLOCK HALL TO DECK ABOVE. GULK HALL @ TOP PRIME/PAIN
- 2 8" CONG. BLOCK HALL TO DECK ABOVE. GULK HALL @ TOP PRIME/PAIN
- 3 12" CONG. BLOCK W/ 1-1/2" RIGID INSULATION 1-1/4" AIR SPACE - 4" CONG. BLOCK

--- CONTROL JOINTS
 - - - FLOOR SLOPE LINES
 460+00 FINISHED FLOOR ELEVATIONS

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



HTG ARCHITECTS
HICKEY THORSTENSON GROVER LTD
 9300 HENNEPIN TOWN ROAD
 EDEN PRAIRIE, MN. 55347 612-278-8880
 JOB #: 01162
 DRAWN BY: DRH CHECKED BY: BJH

I HEREBY CERTIFY THAT THIS PLAN SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
James R. Grover
 REGISTERED ARCHITECT
 NO. 12197

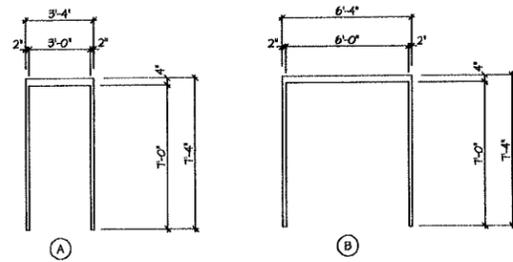
BOLTON & MENK, INC
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

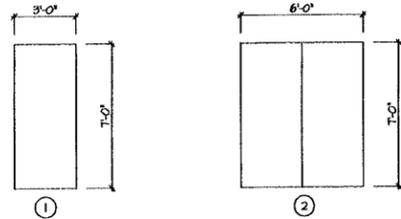
REV	BY	DATE
A	NWS	5-18-2001
0	BH	8-17-01

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
FLOOR PLAN

SHEET
3.09



FRAME TYPES (HOLLOW METAL)
SCALE: 1/4"=1'-0"

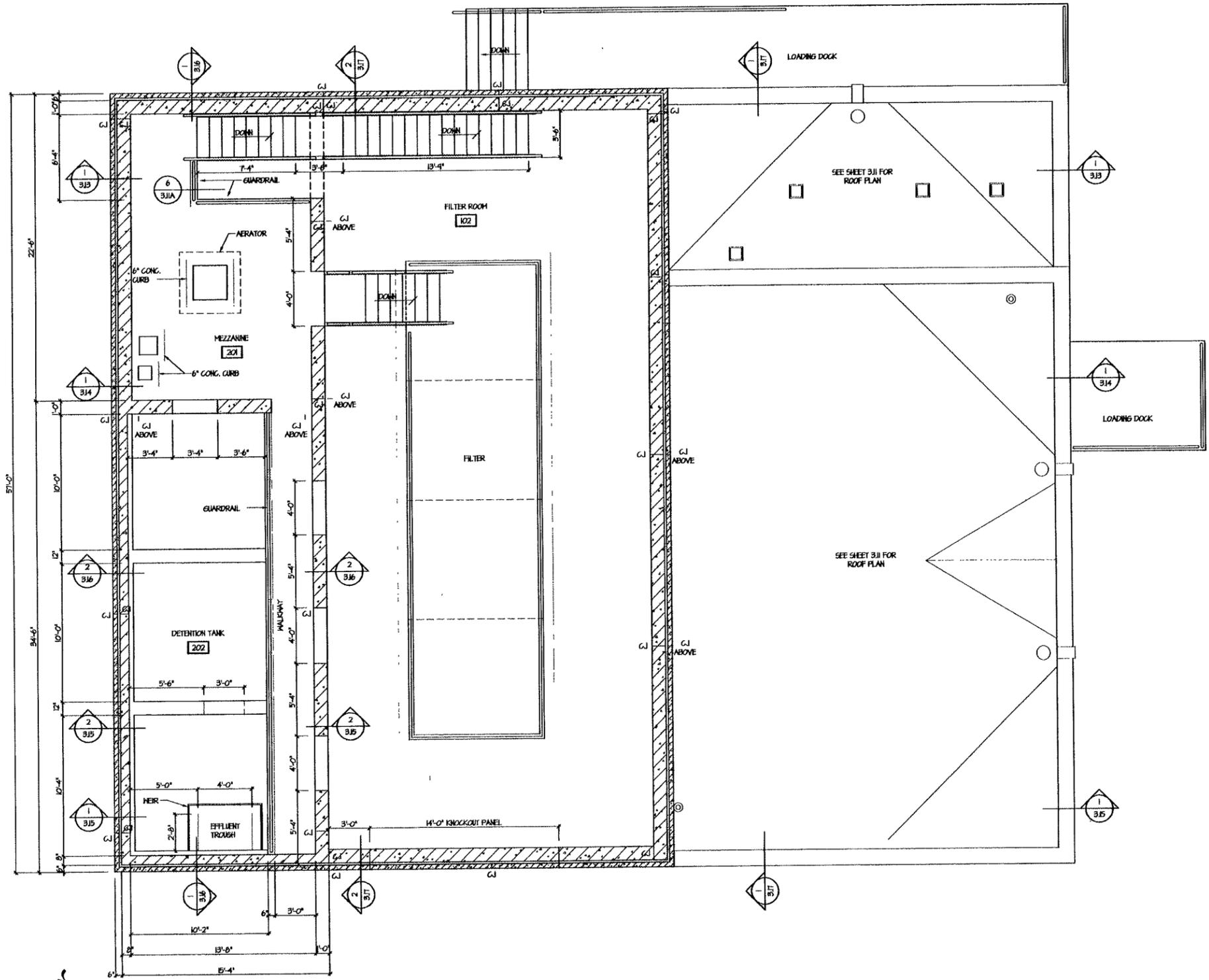


DOOR TYPES (HOLLOW METAL)
SCALE: 1/4"=1'-0"

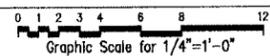
ROOM FINISH SCHEDULE					
ROOM NO. AND NAME	FLOOR	BASE	HALLS	CEILING	NOTES
	SEALED CONCRETE	NOSE	PAINTED CHU PAINTED CONCRETE CHU	PREFABT PLANK - PAINT	
101 PUMP ROOM/CLEARWELL	•	•	•	•	
102 FILTER ROOM	•	•	•	•	
103 PIPE GALLERY	•	•	•	•	
104 ELECTRICAL ROOM	•	•	•	•	
105 CHEMICAL FEED ROOM	•	•	•	•	
106 FLUORIDE ROOM	•	•	•	•	
107 CHLORINE ROOM	•	•	•	•	
201 MEZZANINE	•	•	•	•	
202 DETENTION TANK	•	•	•	•	

DOOR AND FRAME SCHEDULE										
DOOR INFORMATION				FRAME INFO		DETAIL NO.'S			NOTES	
DOOR # FRAME NO.	WIDTH	HEIGHT	TYPE	MATERIAL	TYPE	MATERIAL	HEAD	JAMB		SILL
101a & b	3'-0"	7'-0"	2	H.M.S.	B	H.M.S.				INSULATED
102a	3'-0"	7'-0"	1	H.M.S.	A	H.M.S.				INSULATED
102b	3'-0"	7'-0"	1	H.M.S.	A	H.M.S.				INSULATED
104a	3'-0"	7'-0"	1	H.M.S.	A	H.M.S.				INSULATED
104b	3'-0"	7'-0"	1	H.M.S.	A	H.M.S.				INSULATED
105a	3'-0"	7'-0"	1	H.M.S.	A	H.M.S.				INSULATED
106a	3'-0"	7'-0"	1	H.M.S.	A	H.M.S.				INSULATED
107a	3'-0"	7'-0"	1	H.M.S.	A	H.M.S.				INSULATED

SEE SPECIFICATION FOR HARDWARE GROUPS



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



HTG ARCHITECTS
HICKEY THORSTENSON GROVER LTD
 9300 HENNEPIN TOWN ROAD
 EDEN PRAIRIE, MN. 55347 612-278-8880
 JOB #: 01162
 DRAWN BY: DRH CHECKED BY: BJH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DAILY LICENSED REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
 DATE: 8/29/01
 TYPED OR PRINTED NAME: JAMES R. HICKEY
 REG. NO. 12859

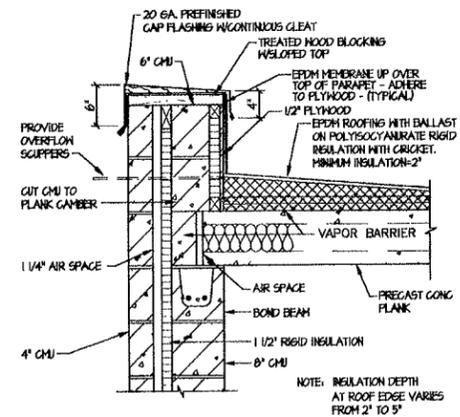
BOLTON & MENK, INC
 MANKATO, MN
 BURNSVILLE, MN
 FAIRMONT, MN
 WILLMAR, MN
 SLEEPY EYE, MN
 AMES, IA
 LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

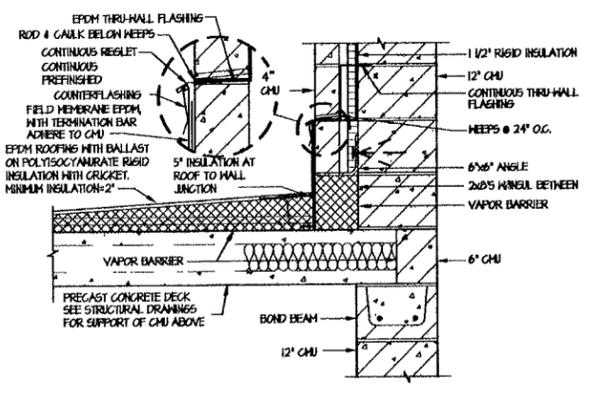
REV	BY	DATE
A	NWS	5-18-2001
0	BH	8-17-01

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 MEZZANINE PLAN

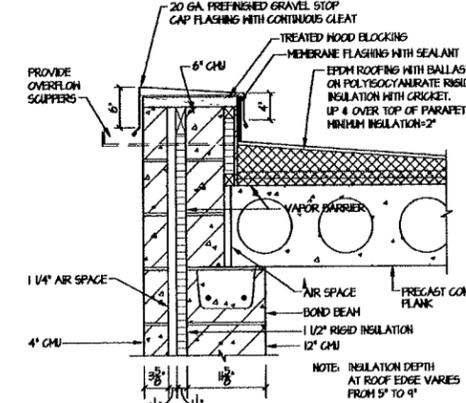
SHEET
3.10



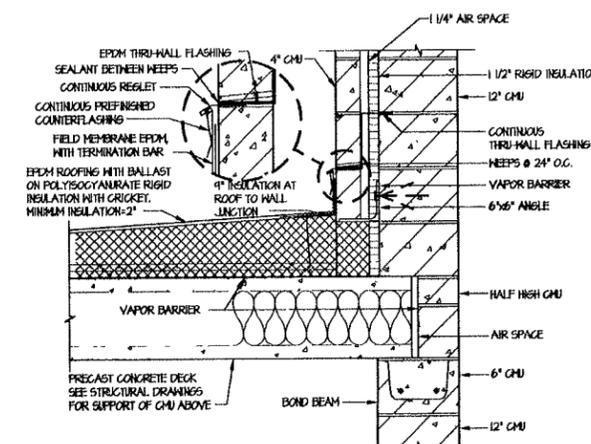
1 ROOF EDGE DETAIL
1/4\"/>



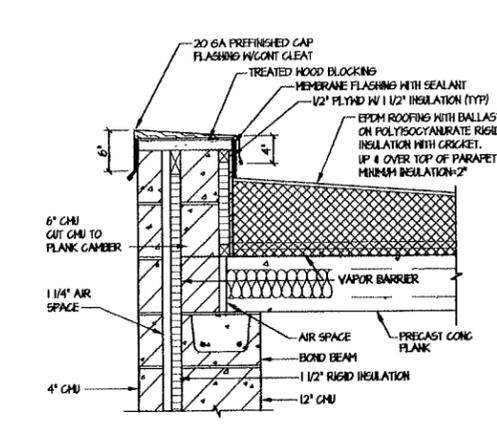
2 ROOF TRANSITION DETAIL
1/4\"/>



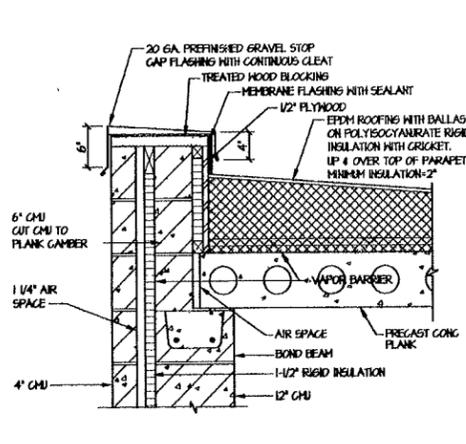
3 ROOF EDGE DETAIL
1/4\"/>



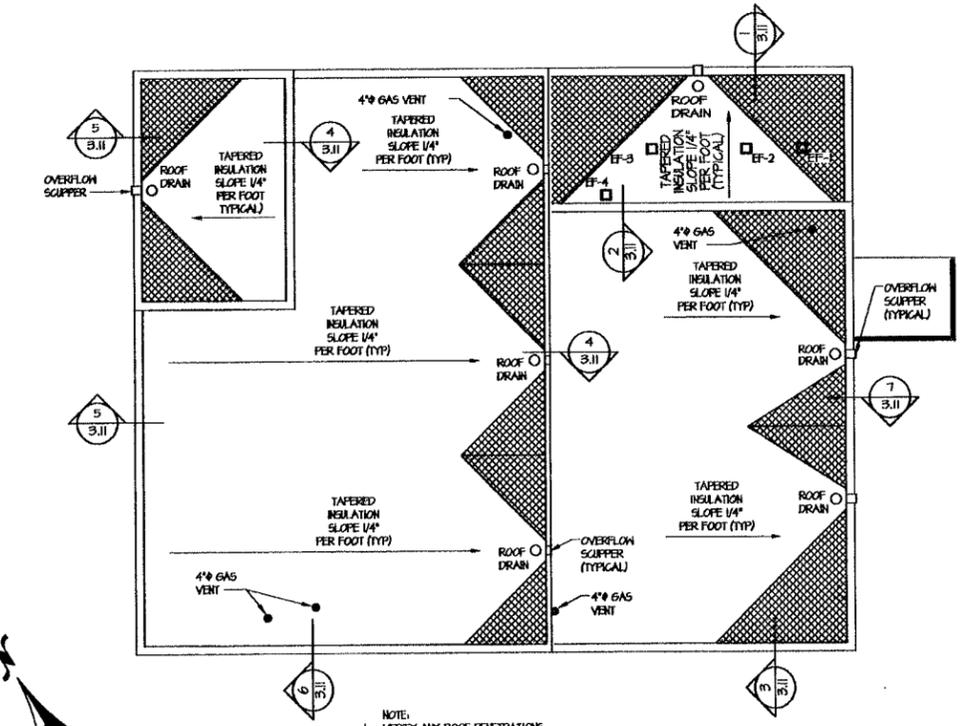
4 ROOF TRANSITION DETAIL
1/4\"/>



5 ROOF EDGE DETAIL
1/4\"/>

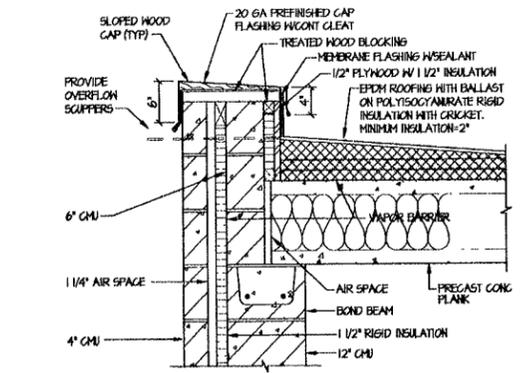


6 ROOF EDGE DETAIL
1/4\"/>

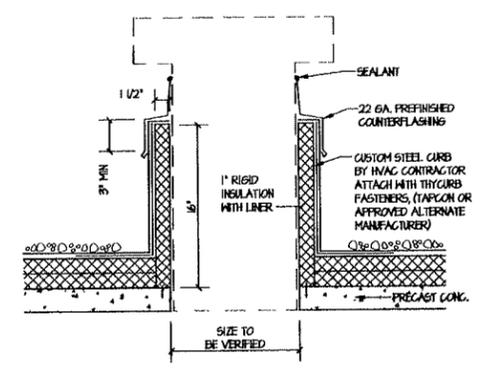


7 ROOF PLAN
1/8\"/>

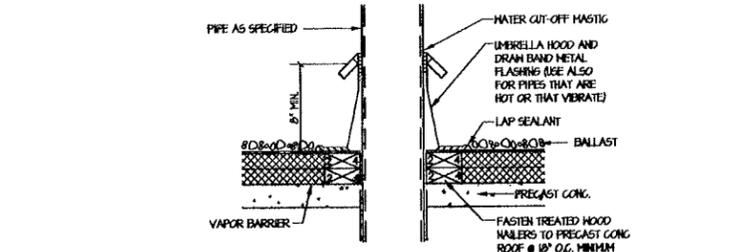
- NOTE:
1. VERIFY ANY ROOF PENETRATIONS WITH PRECAST SUPPLIER. SEE DETAIL 8-4-10B.11
2. SEE SITE PLAN FOR CONNECTION OF ROOF DRAINS TO STORM SEWER SYSTEM.
3. PROVIDE MANUFACTURED ROOF CURB AND FLASHING TO ACCOMMODATE MECHANICAL EXHAUST FANS.
- NOTE:
ALL ROOF SLOPES 1/4\"/>
- NOTE:
RUN ROOF DRAINS INSIDE BUILDING AND CONNECT BELOW GRADE TO STORM SEWER (TYPICAL)
- NOTE:
OVERFLOW SCUPPERS AT EACH ROOF DRAIN



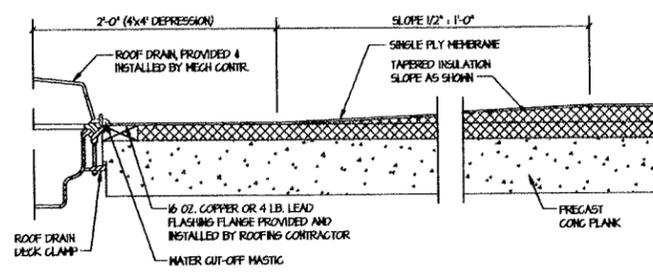
8 ROOF EDGE DETAIL
1/4\"/>



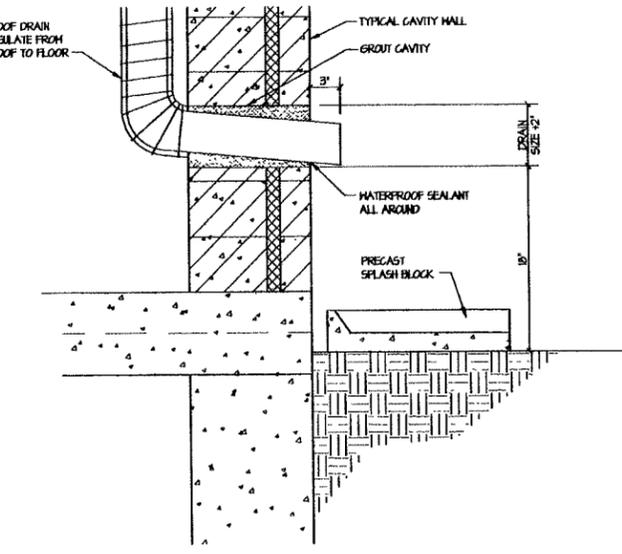
9 ROOF PENETRATION
1/2\"/>



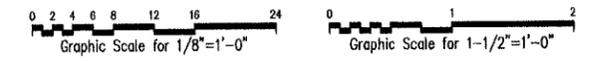
10 ROOF PENETRATION
1/2\"/>



11 ROOF DRAIN
1/2\"/>



12 EXTERIOR WALL PENETRATION
1/2\"/>



HTG ARCHITECTS
HICKEY THORSTENSON GROVER LTD
 9300 HENNEPIN TOWN ROAD
 EDEN PRAIRIE, MN. 55347 612-278-8880
 JOB #: 01162 DRAWN BY: BLJ CHECKED BY: BJH

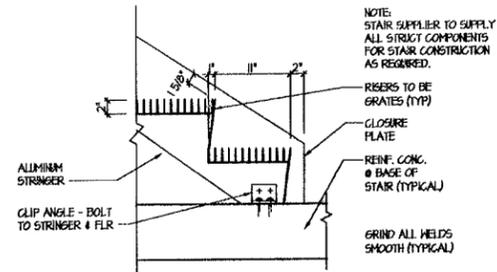
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A FULLY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. REGISTRATION NUMBER: 82555 *BLJ*
 DATE: *5/18/01*

BOLTON & MENK, INC
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

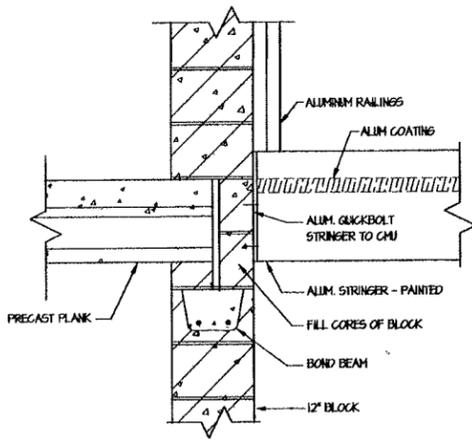
WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV	BY	DATE
A	NWS	5-18-2001
0	BH	8-17-01

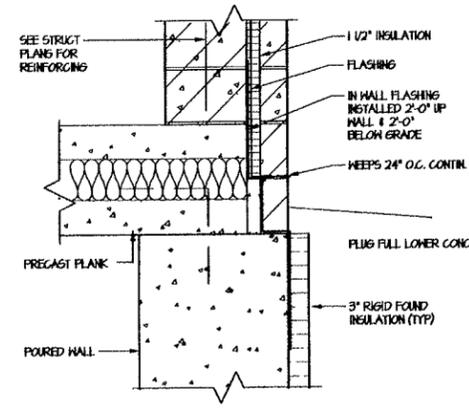
WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
 ROOF PLAN AND DETAILS



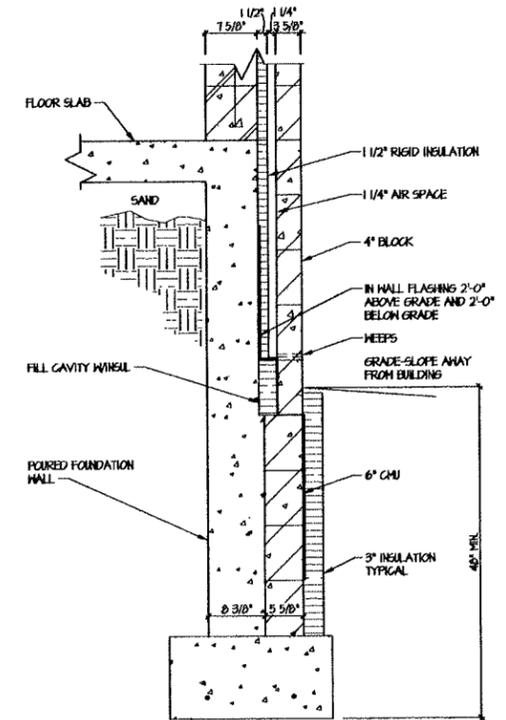
1 STAIR DETAIL
3/16" 1/4"=1'-0"



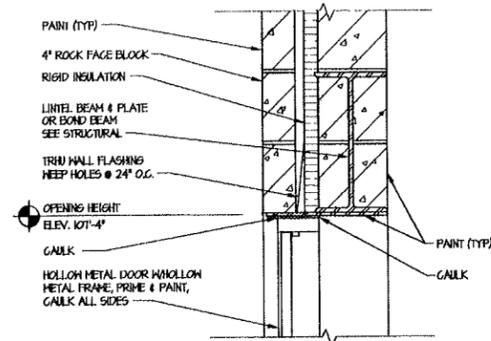
2 DETAIL
3/16" 1/4"=1'-0"



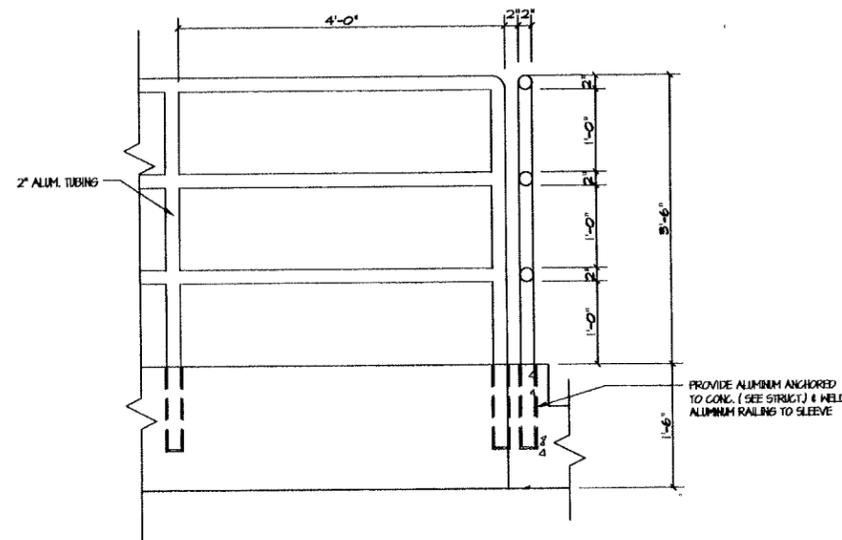
3 DETAIL
3/16" 1/4"=1'-0"



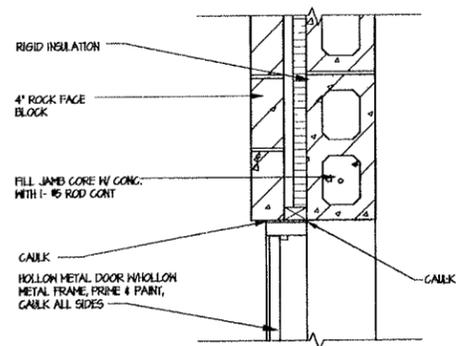
4 DETAIL
3/16" 1/4"=1'-0"



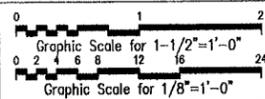
5 HOLLOW METAL HEAD DETAIL
3/16" 1/4"=1'-0"



6 RAILING DETAIL
3/16" 1/4"=1'-0"



7 HOLLOW METAL JAMB DETAIL
3/16" 1/4"=1'-0"



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE: 8/17/01
 DRAWN BY: BLI
 CHECKED BY: BJH

HTG
 ARCHITECTS

HICKEY THORSTENSON GROVER LTD
 9300 HENNEPIN TOWN ROAD
 EDEN PRAIRIE, MN. 55347 952-278-8880
 JOB #: 01162
 DRAWN BY: BLI CHECKED BY: BJH

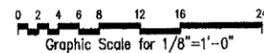
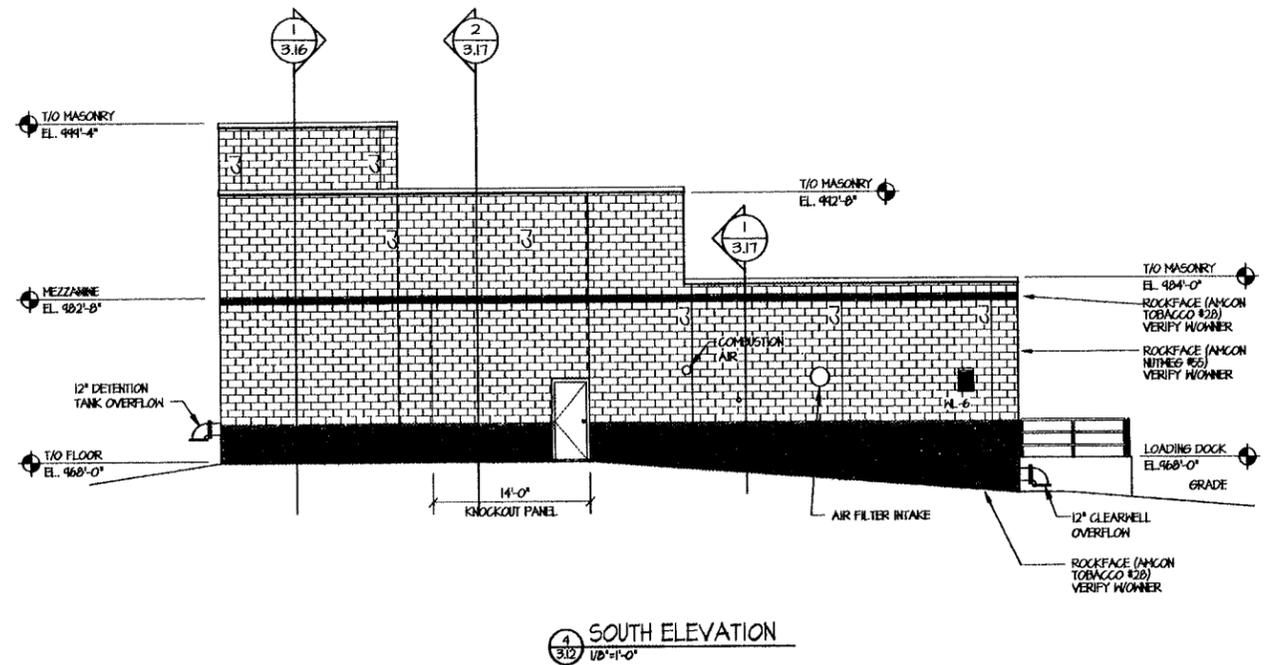
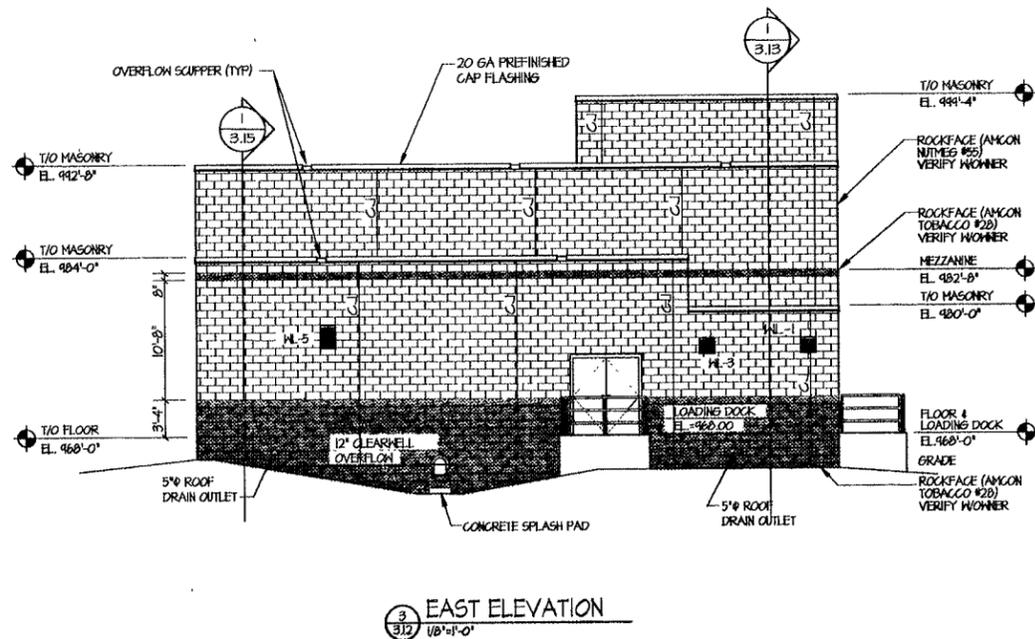
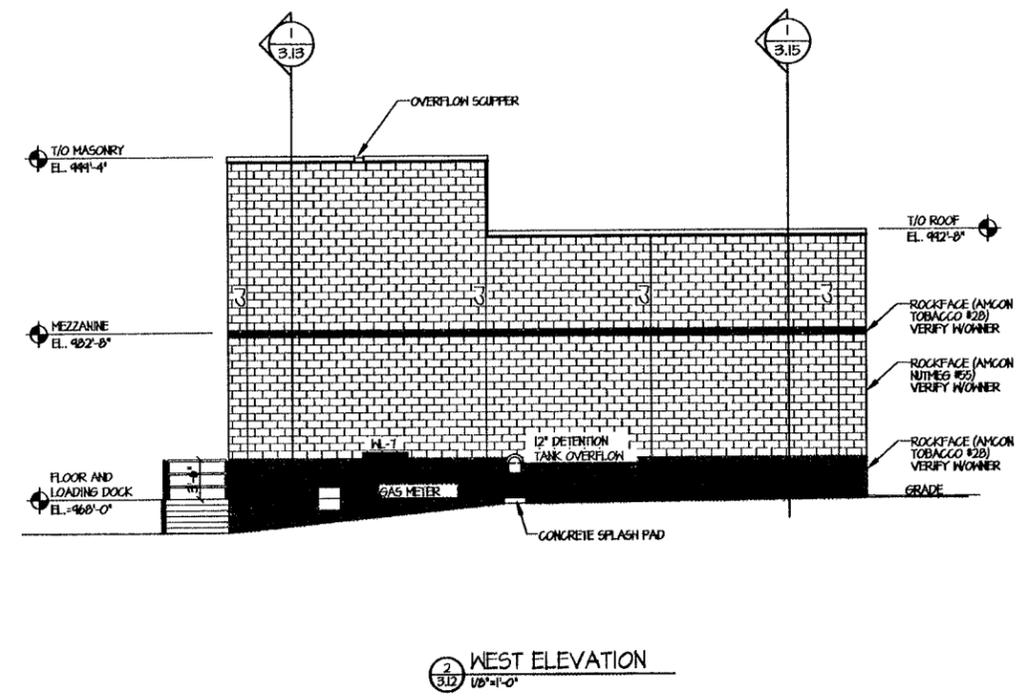
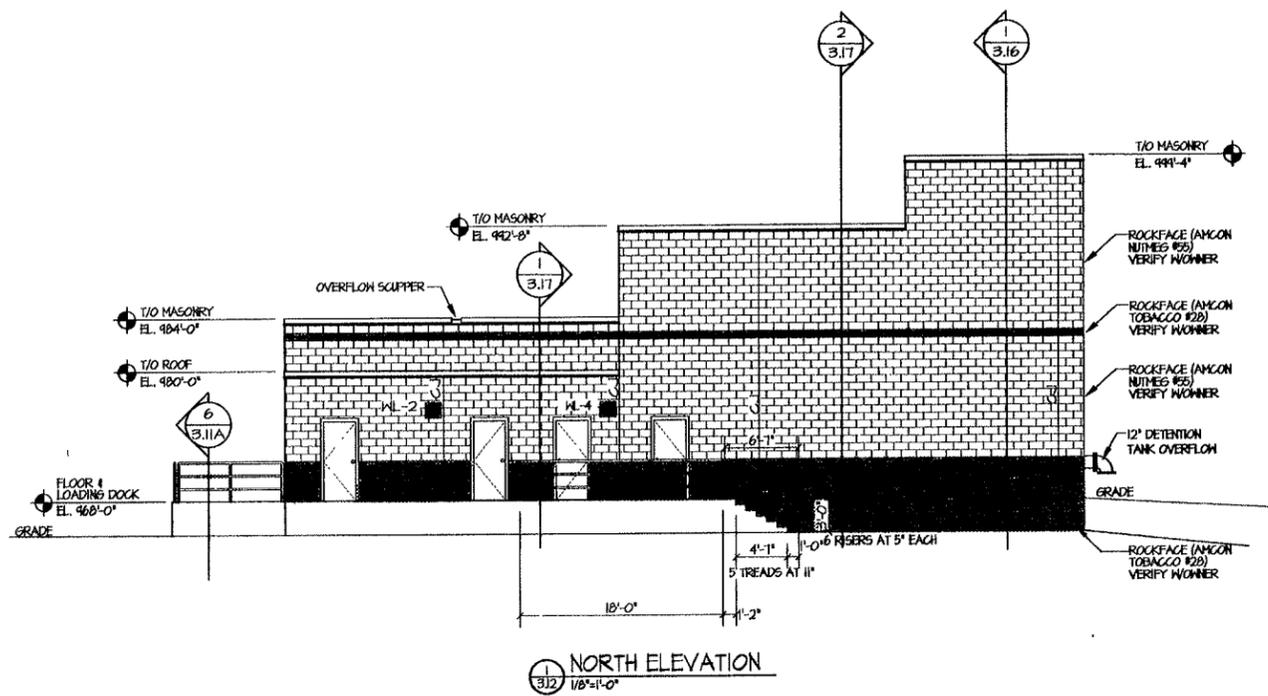
BOLTON & MENK, INC
 CONSULTING ENGINEERS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV	BY	DATE
0	BH	8-17-01

WATERTOWN, MINNESOTA	
WATER TREATMENT FACILITY	
DETAILS	

SHEET
 3.11A



HTG
ARCHITECTS

HICKEY THORSTENSON GROVER LTD
9300 HENNEPIN TOWN ROAD
EDEN PRAIRIE, MN. 55347 612-278-8880
JOB #. 01162
DRAWN BY: BLJ CHECKED BY: BJH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA. REGISTRATION NUMBER **12487**
Andersen
DATE **8/24/01**

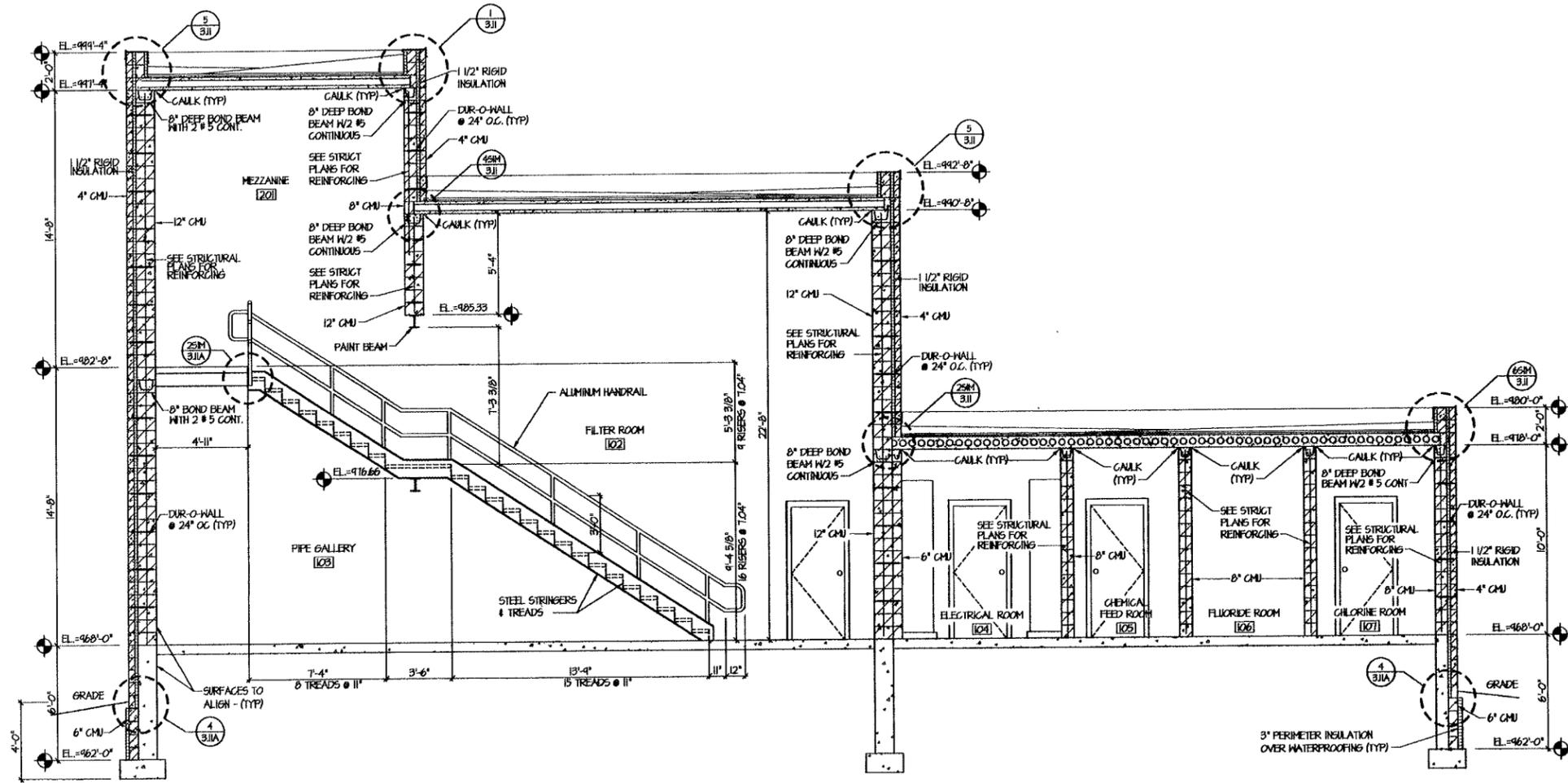
BOLTON & MENK, INC
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
CONSULTING ENGINEERS
CHASKA, MINNESOTA

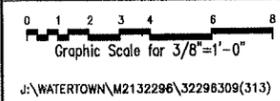
REV	BY	DATE
A	NRE	5-18-2001
0	BH	8-17-01

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
EXTERIOR ELEVATIONS

SHEET
3.12



SECTION 3.13 SCALE: 1/4"=1'-0"



HTG ARCHITECTS
HICKEY THORSTENSON GROVER LTD
 9300 HENNEPIN TOWN ROAD
 EDEN PRAIRIE, MN. 55347 612-278-8880
 JOB #: 01162
 DRAWN BY: DRH CHECKED BY: BJH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
James R. Grover
 DATE: 5/21/01 REG. NO. 12847

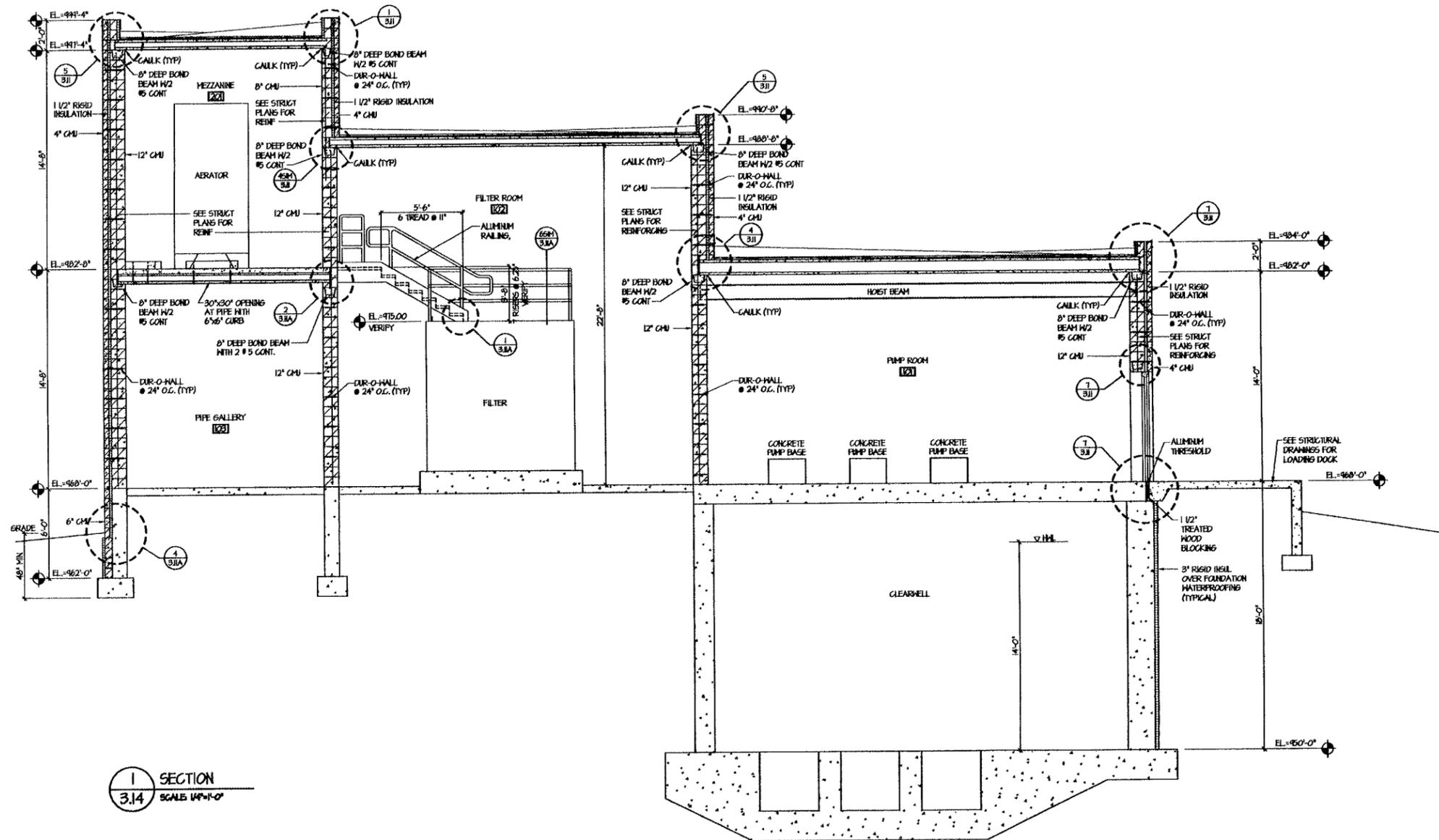
BOLTON & MENK, INC
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

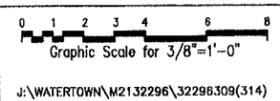
REV	BY	DATE
A	NWS	5-18-2001
C	BH	8-17-01

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 BUILDING SECTION

SHEET
3.13



SECTION
3.14
SCALE 1/4"=1'-0"



HITG ARCHITECTS
HICKEY THORSTENSON GROVER LTD
 9300 HENNEPIN TOWN ROAD
 EDEN PRAIRIE, MN. 55347 612-278-8880
 JOB #: 01162
 DRAWN BY: DRH CHECKED BY: BJH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
Donald J. Hickey
 DATE: 9/17/01 REG. NO. 12887

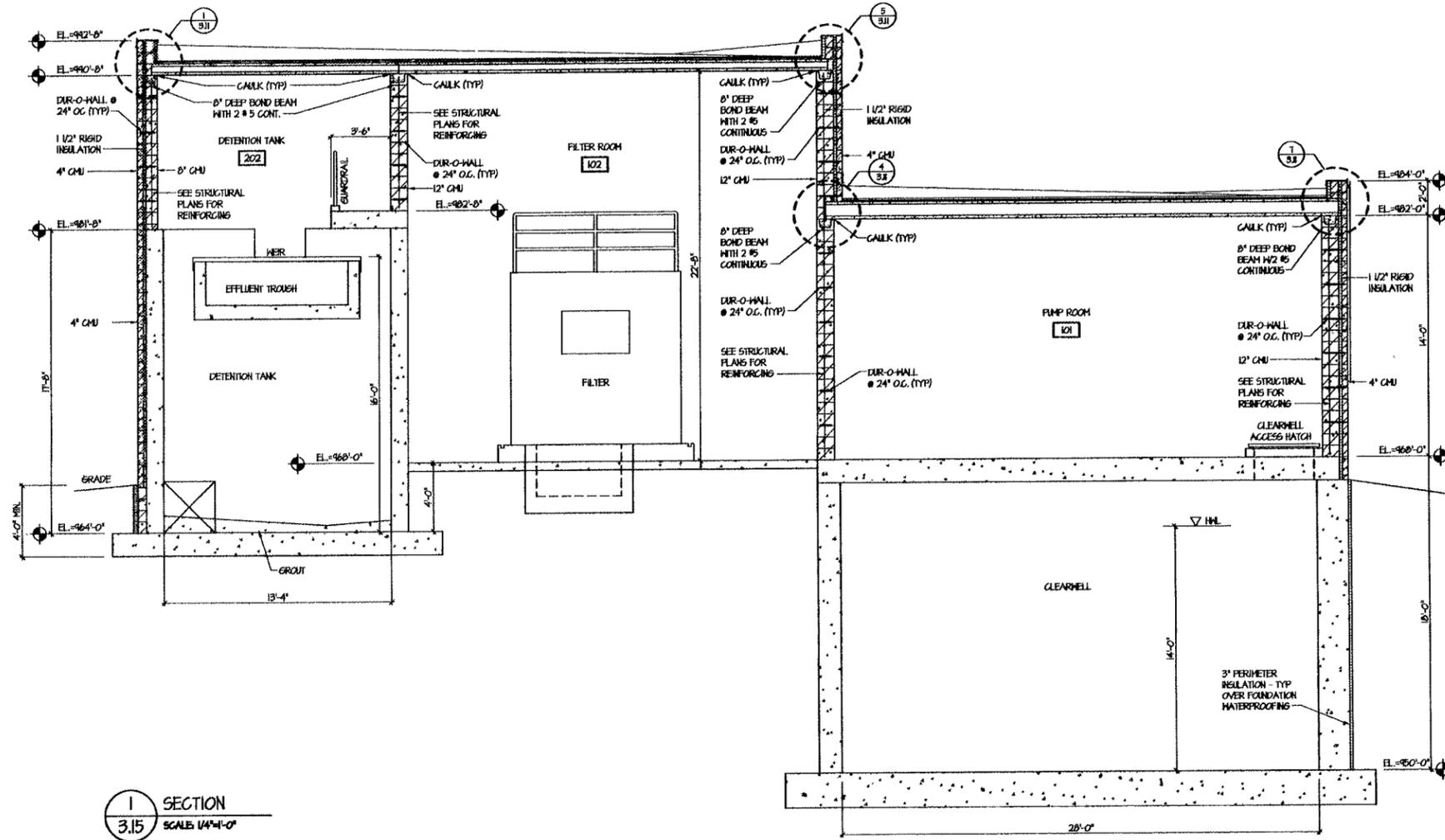
BOLTON & MENK, INC
 CONSULTING ENGINEERS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

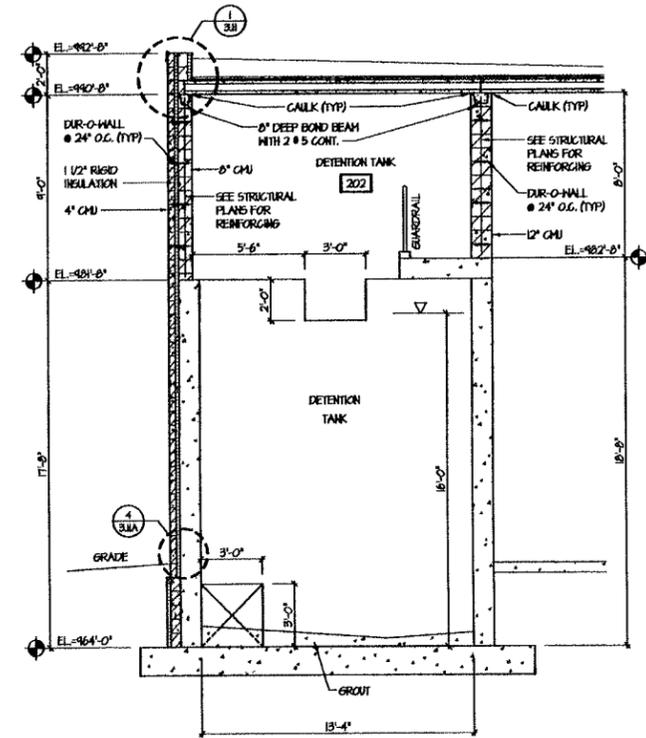
REV	BY	DATE
A	NWS	5-18-2001
0	BH	8-17-01

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 BUILDING SECTION

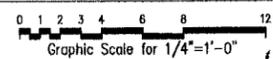
SHEET
 3.14



1 SECTION
3.15 SCALE 1/4"=1'-0"



2 SECTION
3.15 SCALE 1/4"=1'-0"



HTG
ARCHITECTS

HICKEY THORSTENSON GROVER LTD
9300 HEAINEPIN TOWN ROAD
EDEN PRAIRIE, MN. 55347 612-278-8880
JOB #: 01162
DRAWN BY: DRH CHECKED BY: BJH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Paul A. ...
DATE: 12/17/01 REG. NO. 12277

BOLTON & MENK, INC
CONSULTING ENGINEERS & ARCHITECTS
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

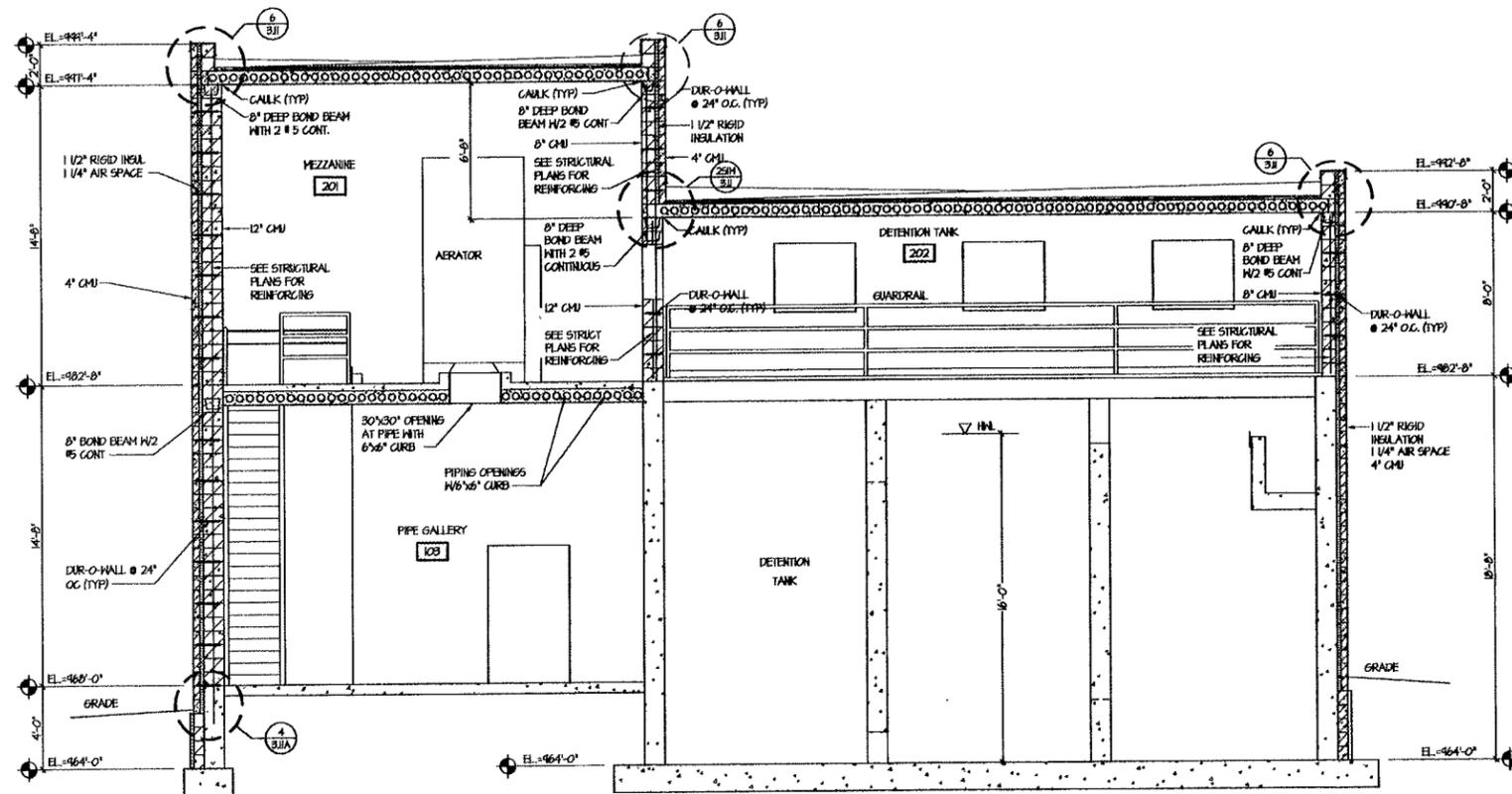
WILLIAM R. ENGELHARDT ASSOC.
CONSULTING ENGINEERS
CHASKA, MINNESOTA

REV	BY	DATE
A	NWS	5-18-2001
D	BH	8-17-01

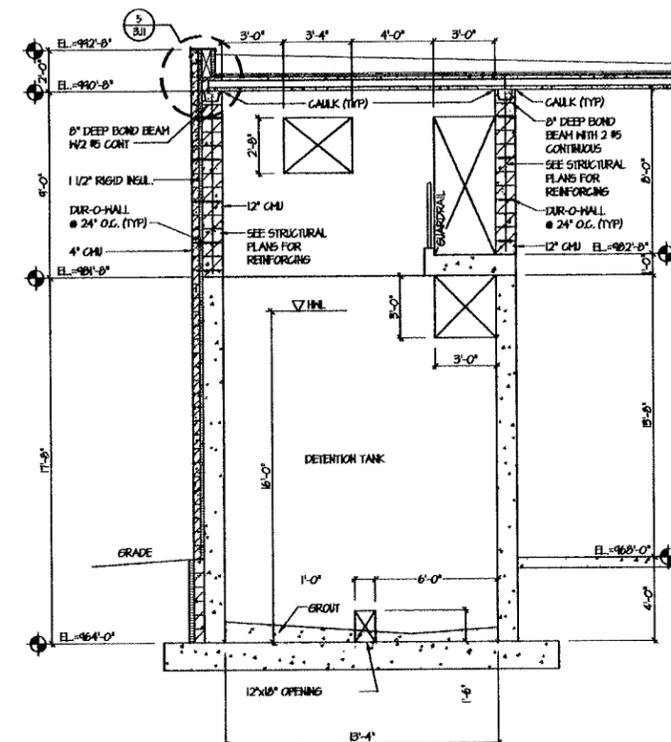
WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
BUILDING SECTIONS

SHEET

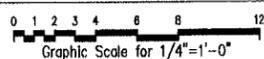
3.15



1 SECTION
3.16 SCALE 1/4"=1'-0"



2 SECTION
3.16 SCALE 1/4"=1'-0"



HICKEY THORSTENSON GROVER LTD
 9300 HENNEPIN TOWN ROAD
 EDEN PRAIRIE, MN. 55347 612-278-8880
 JOB #: 01162
 DRAWN BY: DRH CHECKED BY: BJH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
James R. Grover
 ARCHITECT
 REG. NO. 12909

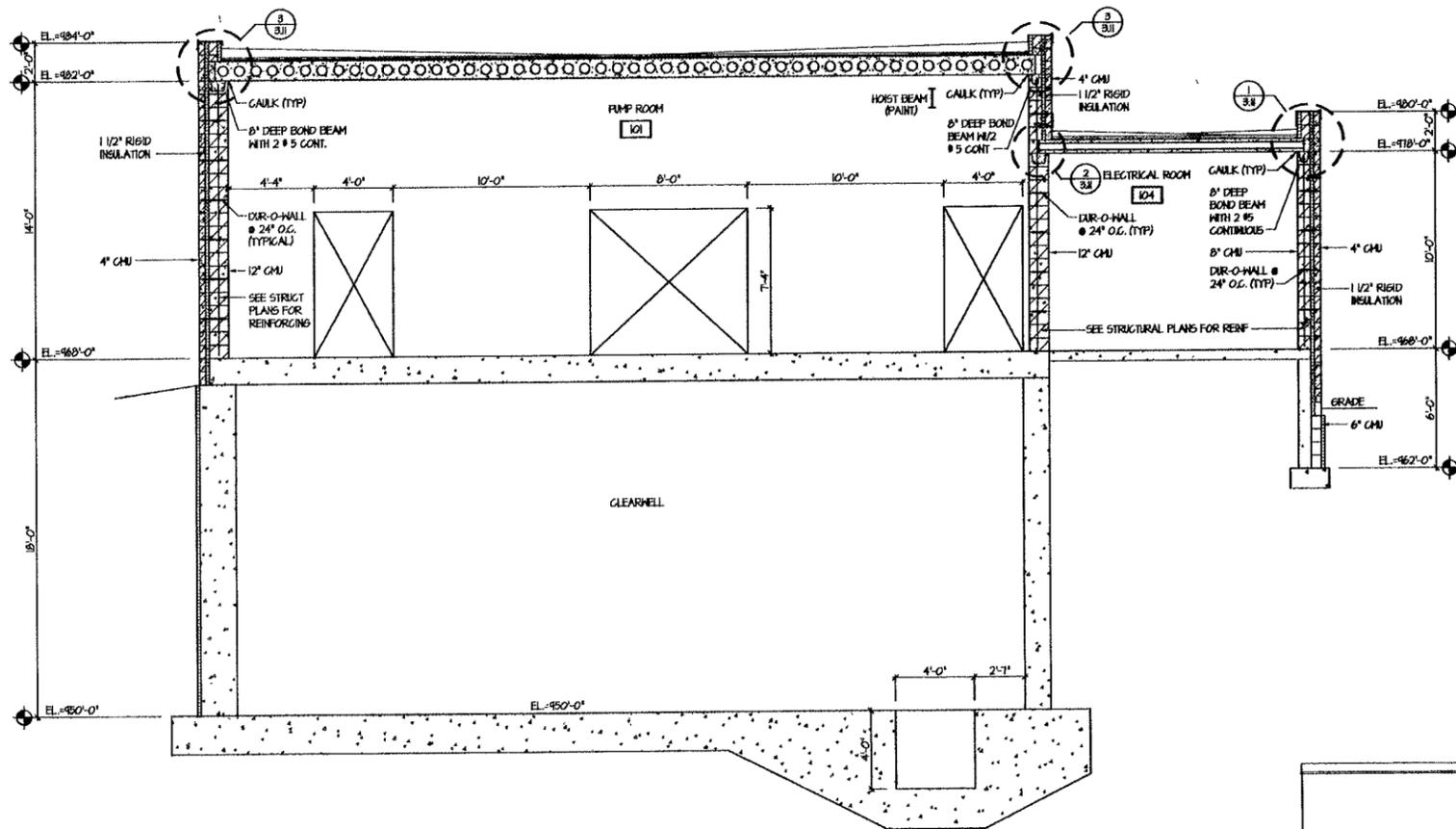
BOLTON & MENK, INC
 ARCHITECTS
 MARKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

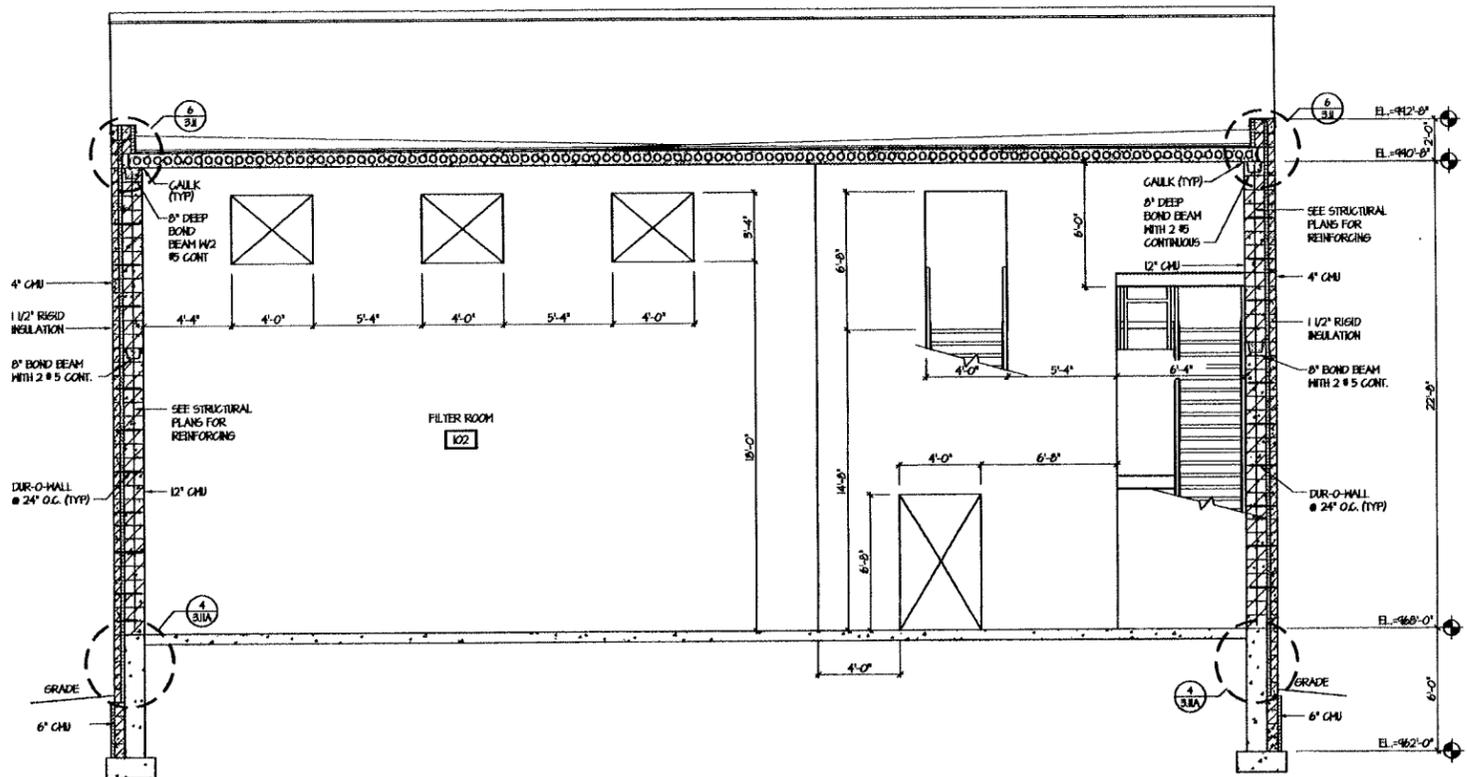
REV	BY	DATE
A	NWS	5-18-2001
D	BH	8-17-01

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 BUILDING SECTIONS

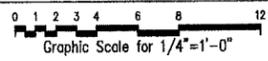
SHEET
 3.16



1 SECTION
3.17 SCALE 1/4"=1'-0"



2 SECTION
3.17 SCALE 1/4"=1'-0"



HICKEY THORSTENSON GROVER LTD
9300 HENNEPIN TOWN ROAD
EDEN PRAIRIE, MN. 55347 612-278-8880
JOB #: 01162
DRAWN BY: DRH CHECKED BY: BJH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE: 8/24/01 REG. NO. 12987

BOLTON & MIENK, INC
CONSULTING ENGINEERS
MANKATO, MN BURNSVILLE, MN
FARMONT, MN WELLMAR, MN
SLEEPY EYE, MN AMES, IA LIBERTY, MO

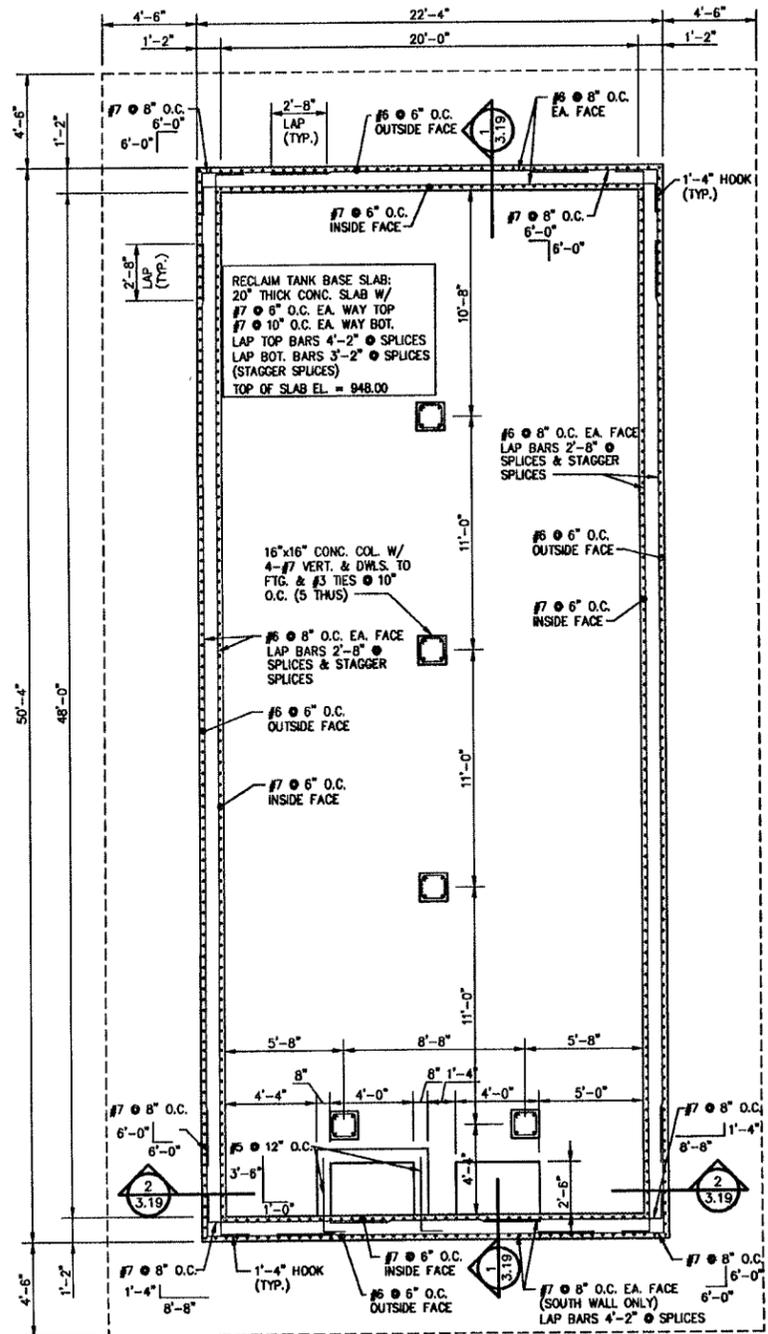
WILLIAM R. ENGELHARDT ASSOC.
CONSULTING ENGINEERS
CHASKA, MINNESOTA

REV	BY	DATE
A	NWS	5-18-2001
0	BH	8-17-01

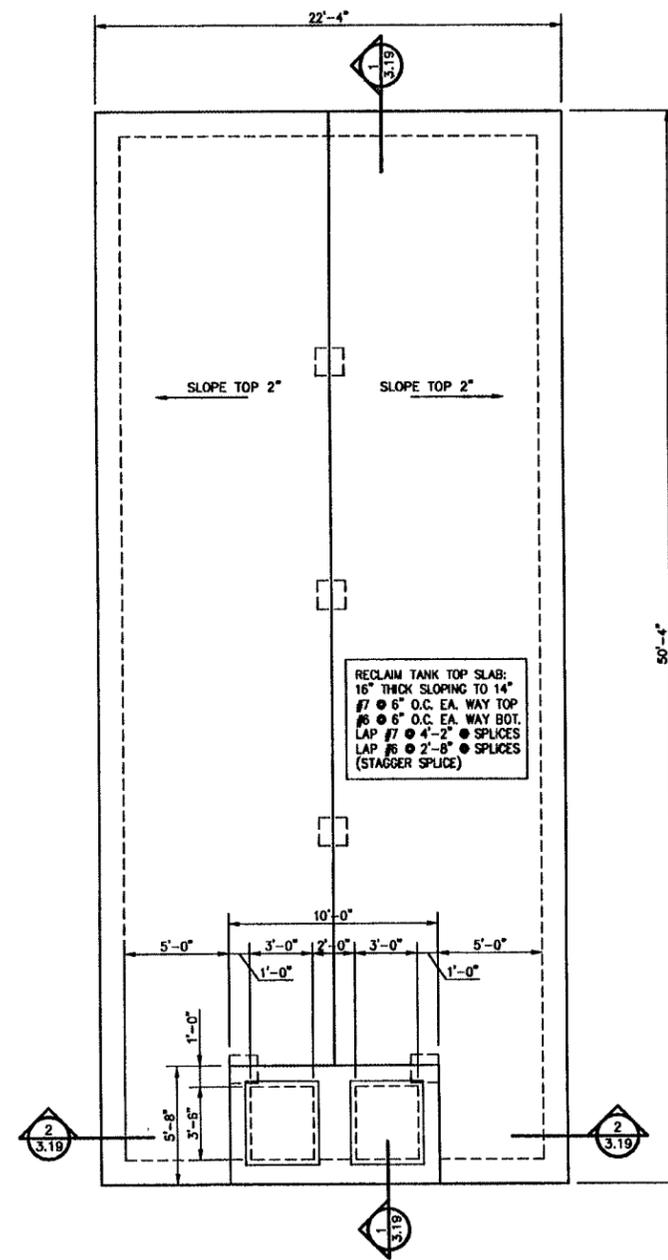
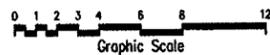
WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
BUILDING SECTIONS

SHEET
3.17

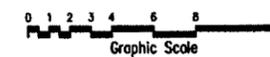
DATE PLOTTED: 05/18/2001 10:42:24 AM



1 FOUNDATION PLAN
3.18 SCALE: 1/4"=1'-0"



2 TOP SLAB PLAN
3.18 SCALE: 1/4"=1'-0"



LS JOB# 01-207
LS ENGINEERS
200 S. Main St.
LeSueur, MN 56006

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
SIGNATURE: *William P. Lehnertz* TYPED OR PRINTED NAME: William P. Lehnertz
DATE: 8-17-01 REG. NO.: 14985

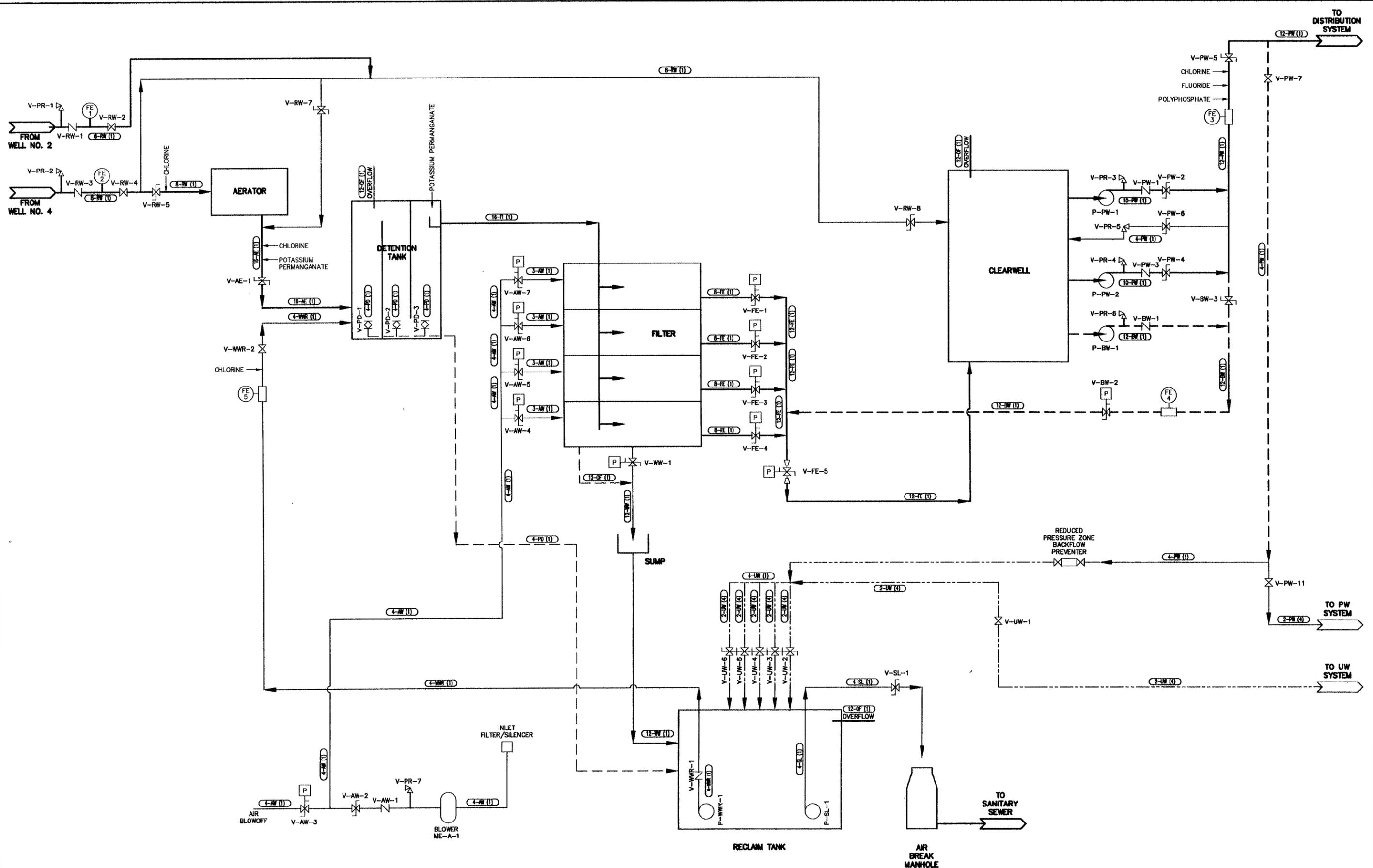
BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FARMONT, MN SLEEPY EYE, MN
BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
CONSULTING ENGINEERS
CHASKA, MINNESOTA

REV.	BY	DATE
A	MLK	5-18-2001
0	JT	8-17-01

WATERTOWN, MINNESOTA	
WATER TREATMENT FACILITY	
RECLAIM TANK	
FOUNDATION PLAN & ROOF PLAN	

SHEET
3.18



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

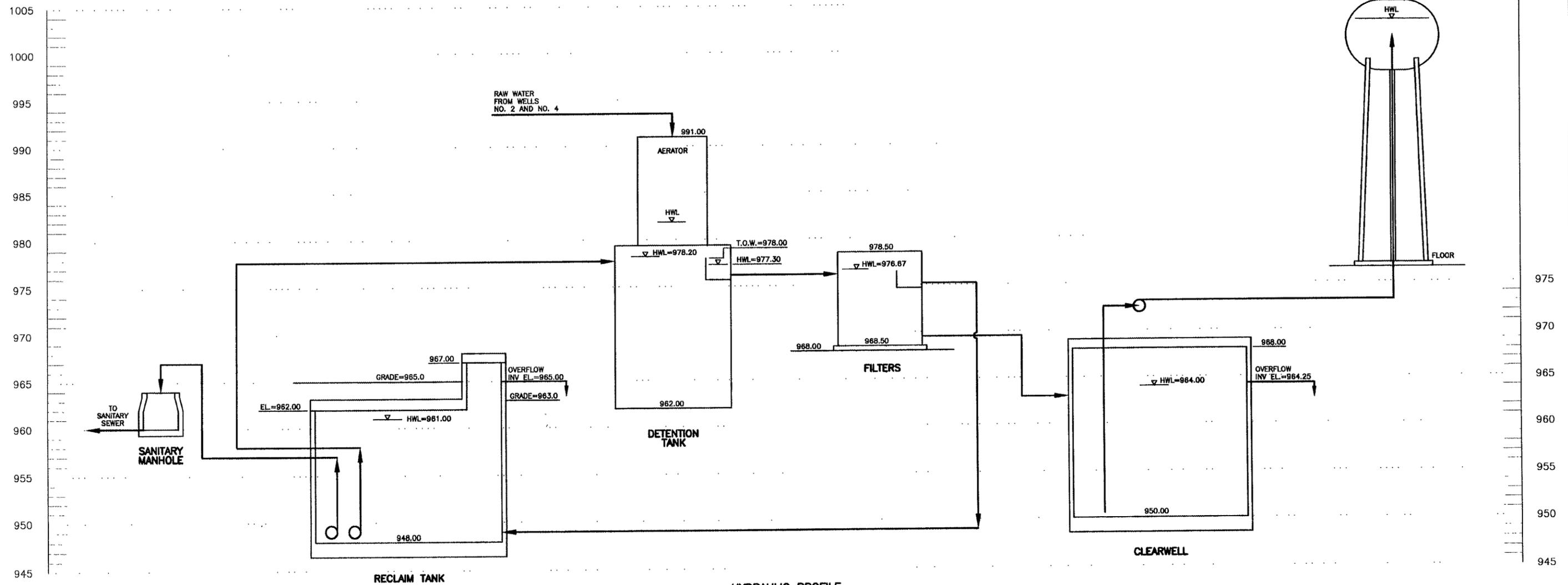
DATE: 9-10-2001
 TYPED OR PRINTED NAME: JON D. PETERSON
 REG. NO.: 21309

BOLTON & MENK, INC
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV.	BY	DATE
A	NWS	5-22-2001
0	NWS	8-17-01

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 FLOW DIAGRAM



HYDRAULIC PROFILE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

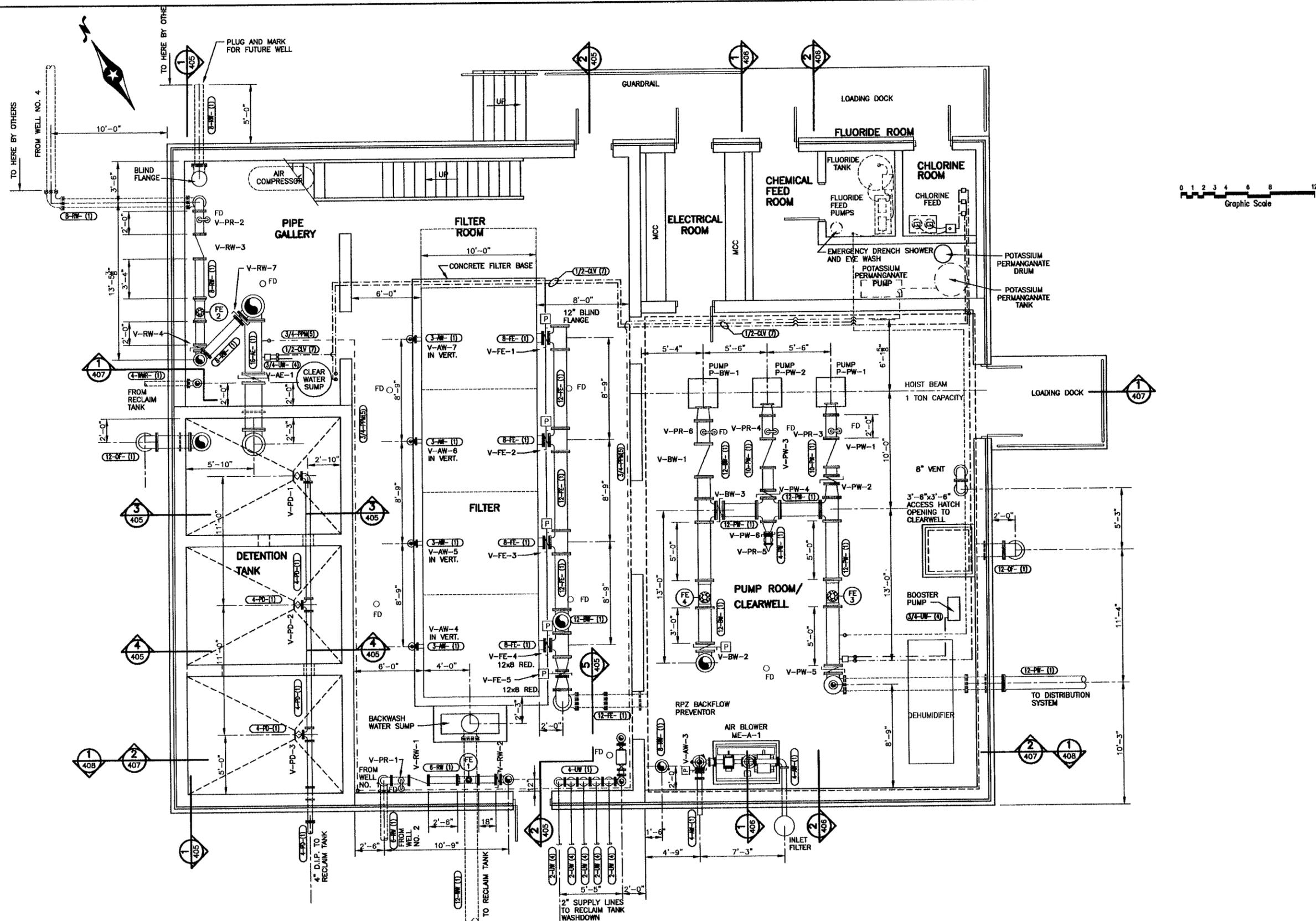
SIGNATURE: *Jon D. Peterson* TYPED OR PRINTED NAME: JON D. PETERSON
 DATE: 9-10-2001 REG. NO.: 21309

BOLTON & MENK, INC
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV.	BY	DATE
A	NWS	5-22-2001
O	NWS	8-17-01

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 HYDRAULIC PROFILE
 AND DESIGN DATA



PLAN - GROUND LEVEL
SCALE: 1/4"=1'-0"

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

DATE: 9-18-2001
 SIGNED OR PRINTED NAME: JON D. PETERSON
 REG. NO.: 21309

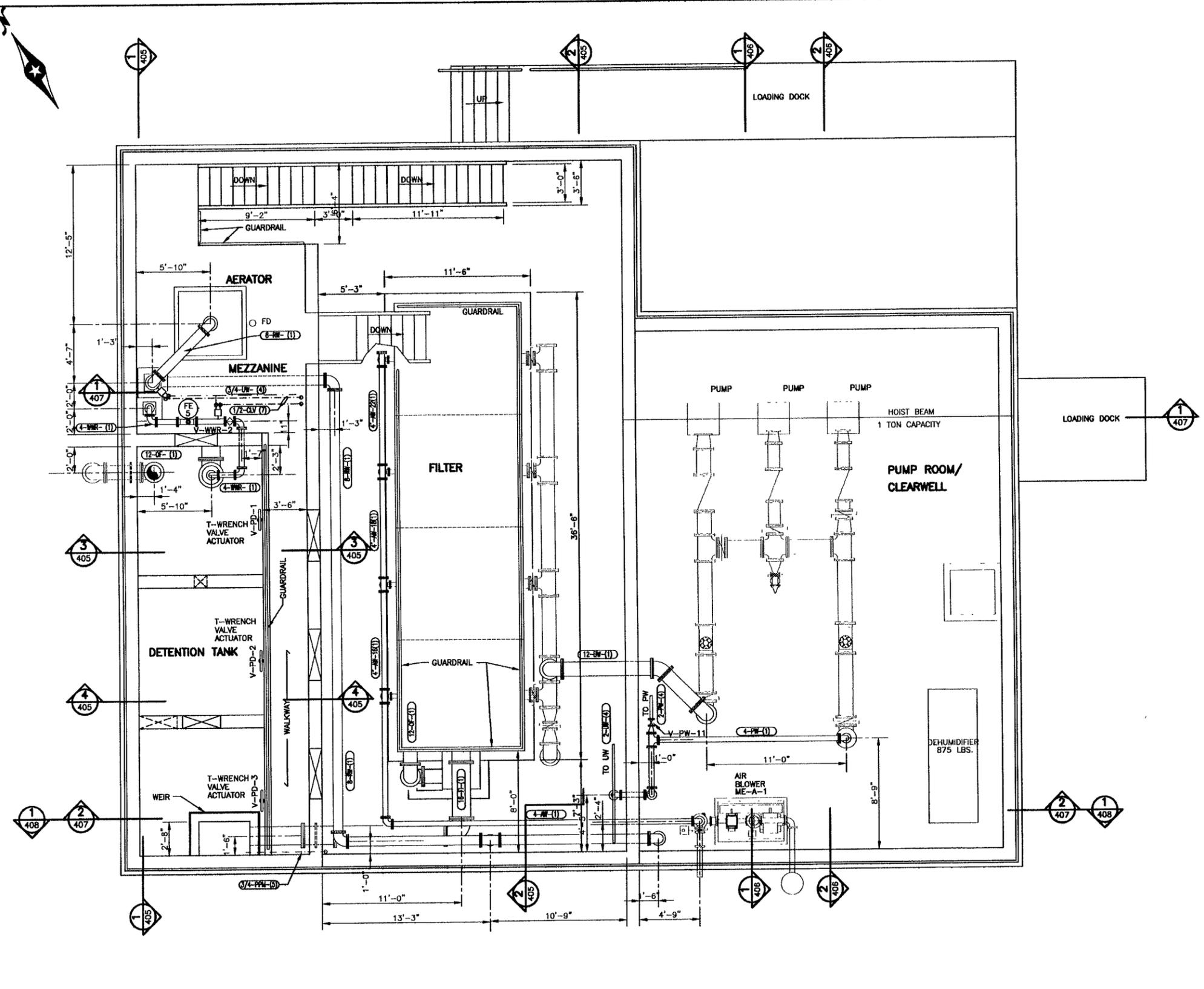
BOLTON & MENK, INC.
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV	BY	DATE
A	JP	4-18-01
0	JP	8-17-01

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
GROUND FLOOR PLAN

SHEET
4.03



PLAN - UPPER LEVEL
SCALE: 1/4"=1'-0"



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE: *Jon D. Peterson* TYPED OR PRINTED NAME: **JON D. PETERSON**
DATE: 8-10-01 REG. NO.: 21309

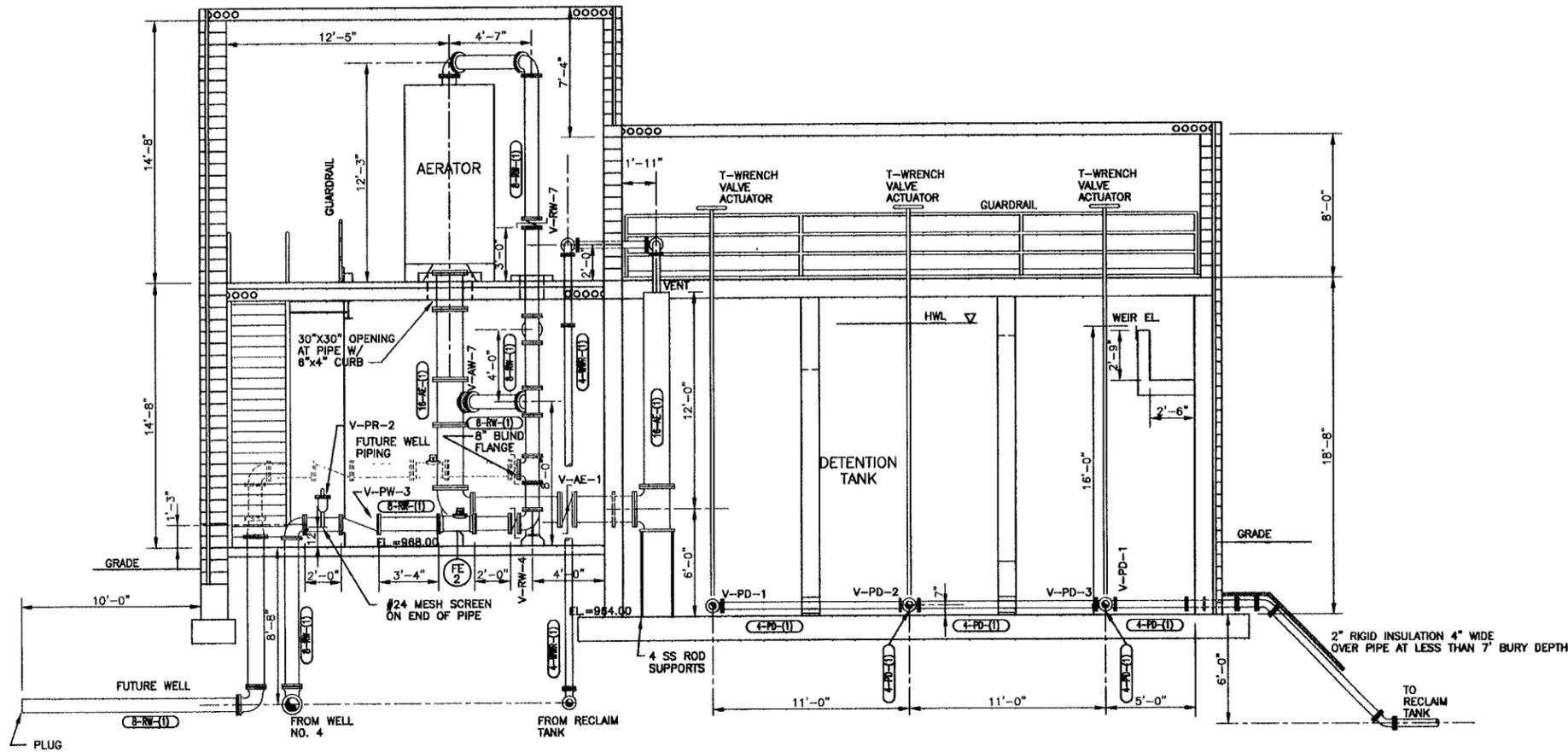
BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
CONSULTING ENGINEERS
CHASKA, MINNESOTA

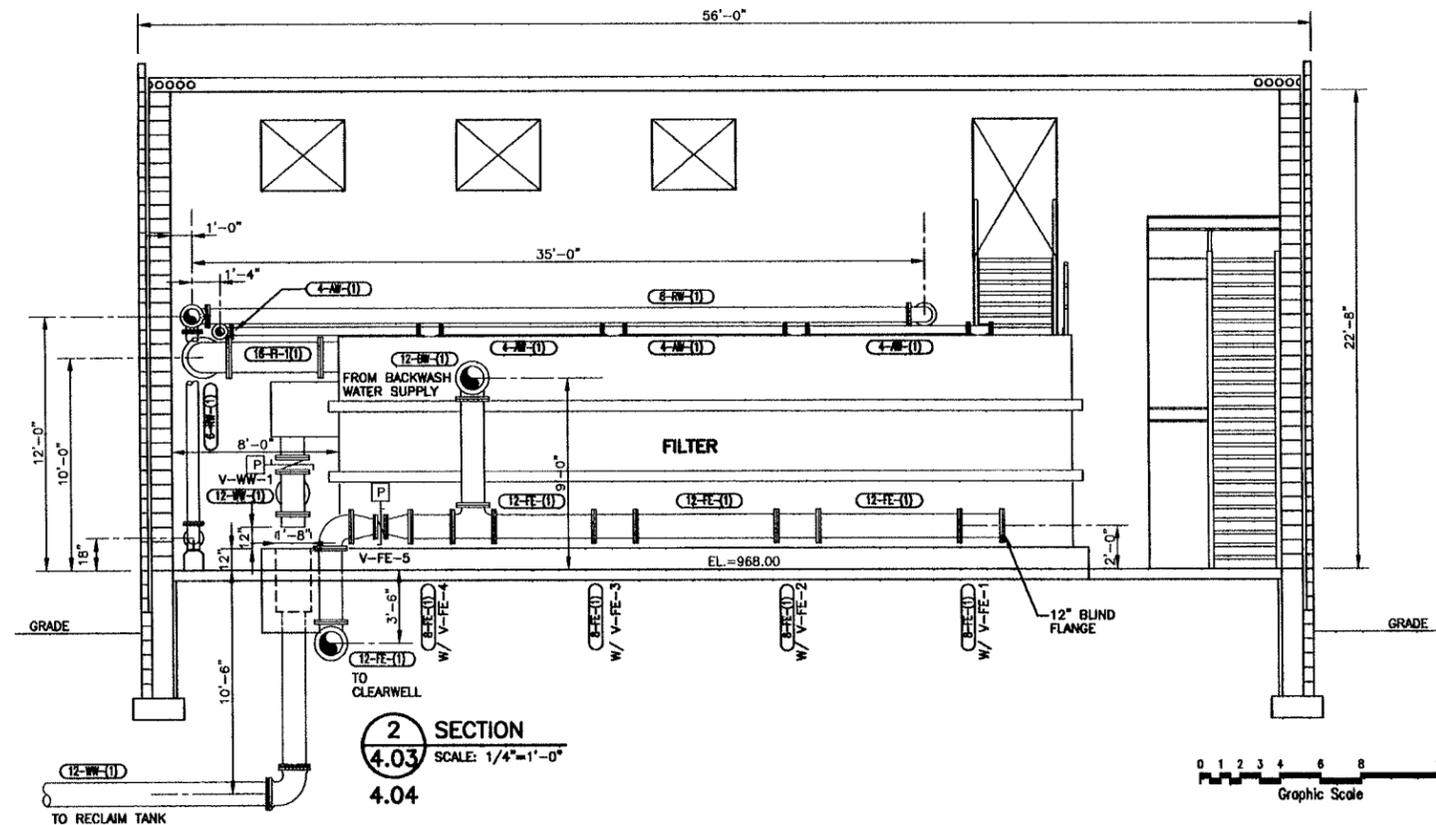
REV.	BY	DATE
A	JP	4-18-01
O	JP	8-17-01

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
UPPER LEVEL PLAN

SHEET
4.04



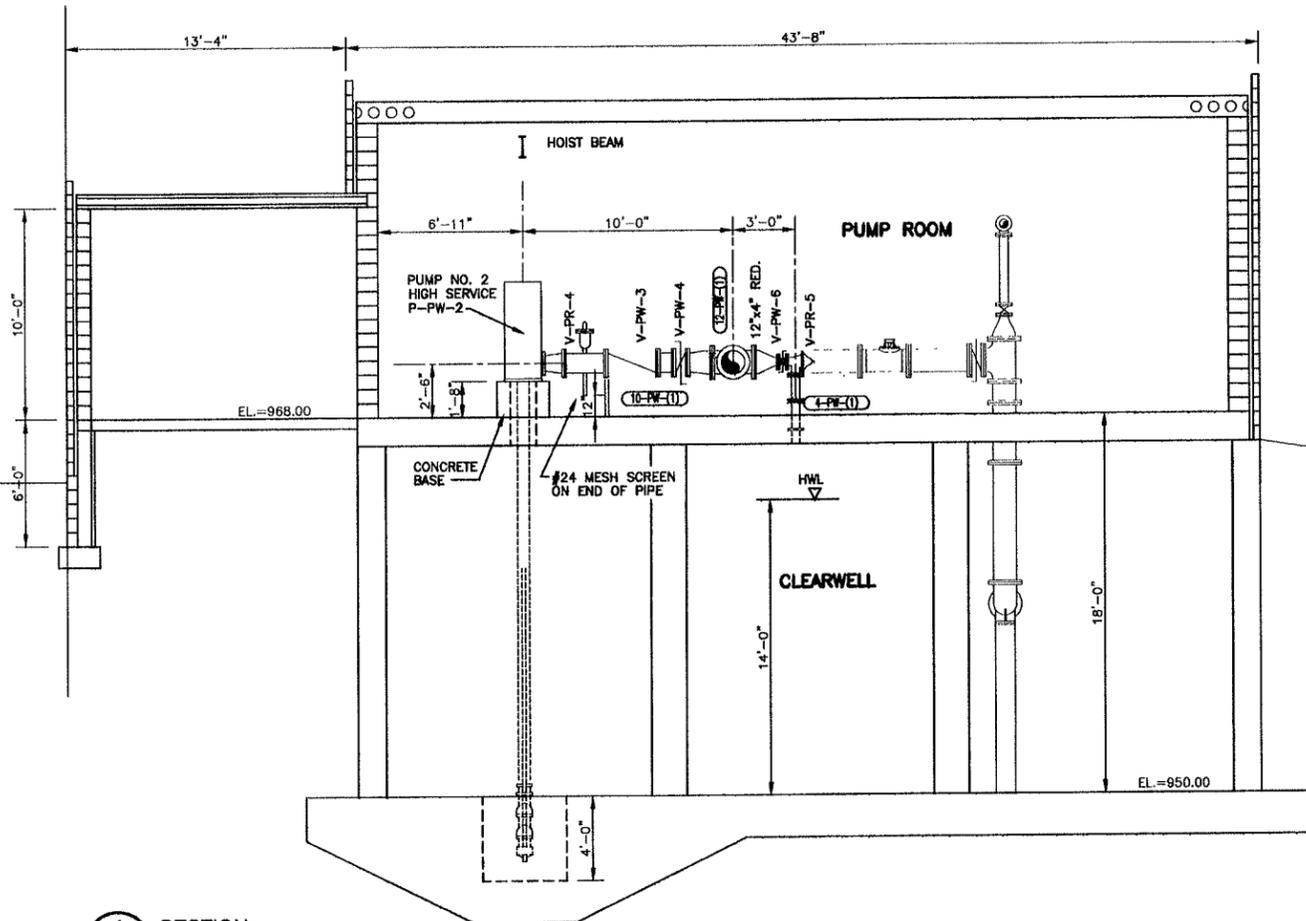
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4.03 SCALE: 1/4"=1'-0"
4.04



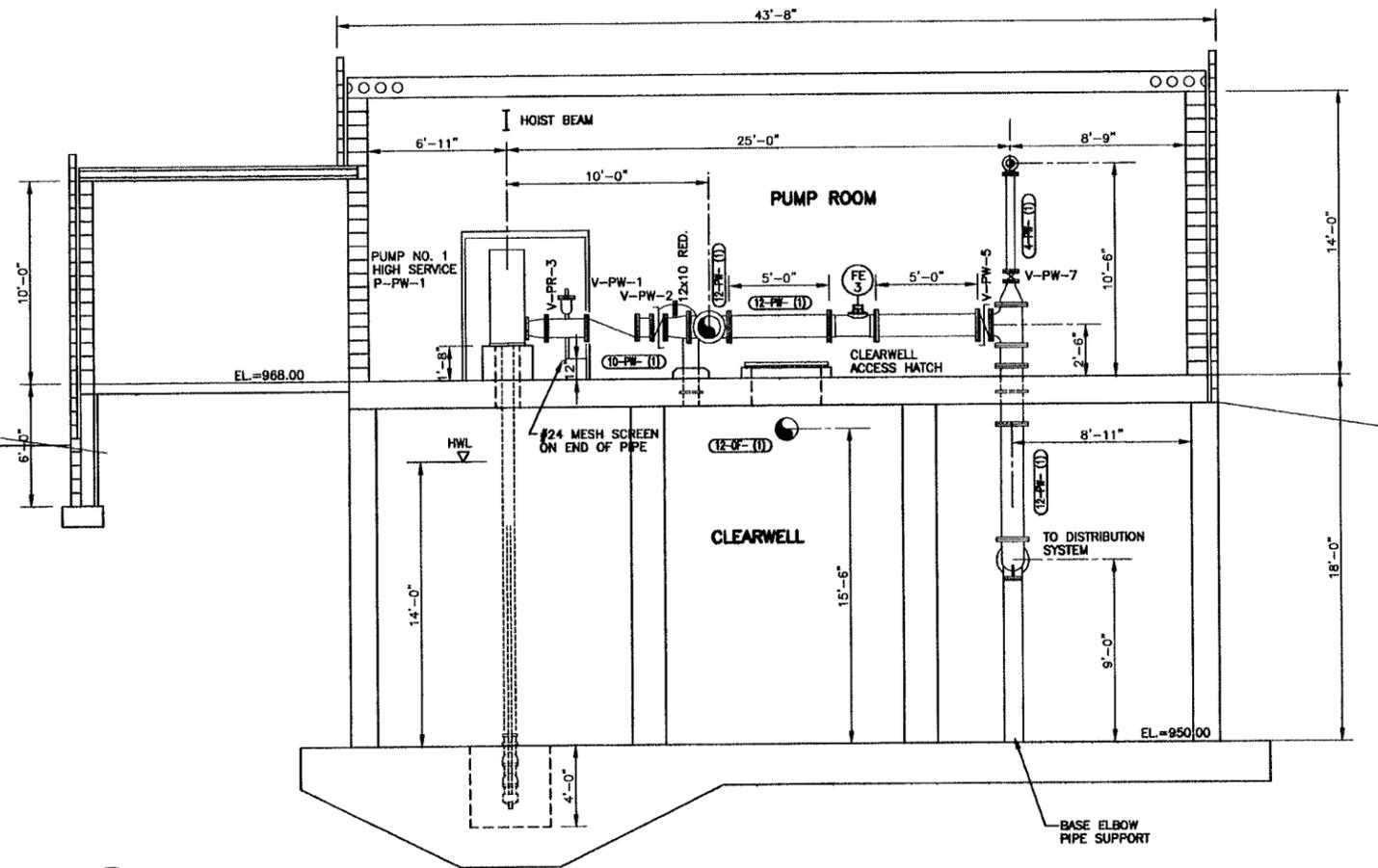
2 SECTION
4.03 SCALE: 1/4"=1'-0"
4.04



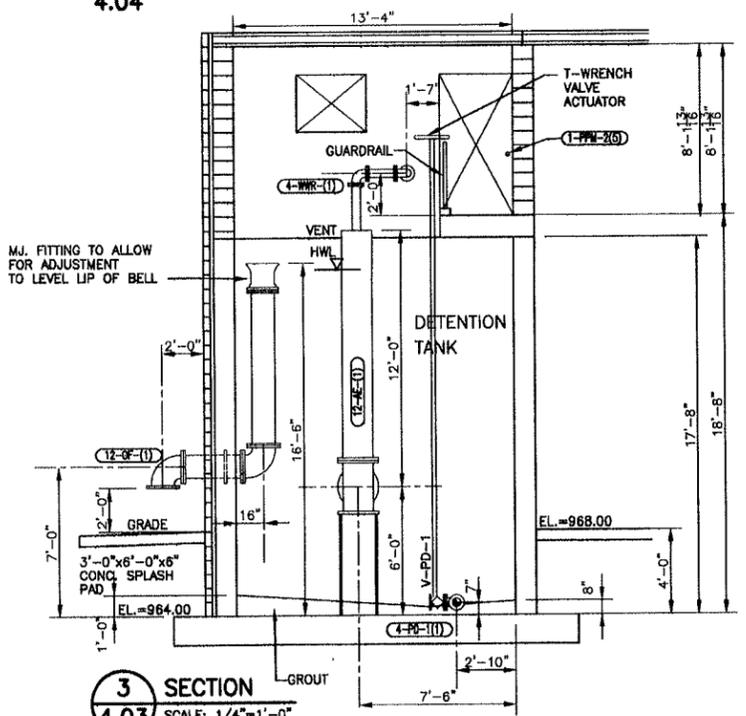
REV.	BY	DATE
A	JP	4-18-01
O	JP	8-17-01



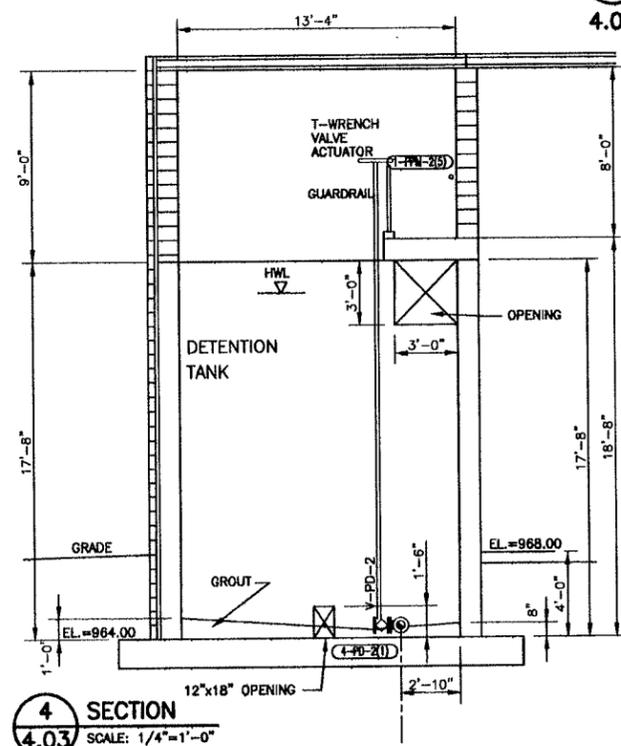
1 SECTION
4.03 SCALE: 1/4"=1'-0"
4.04



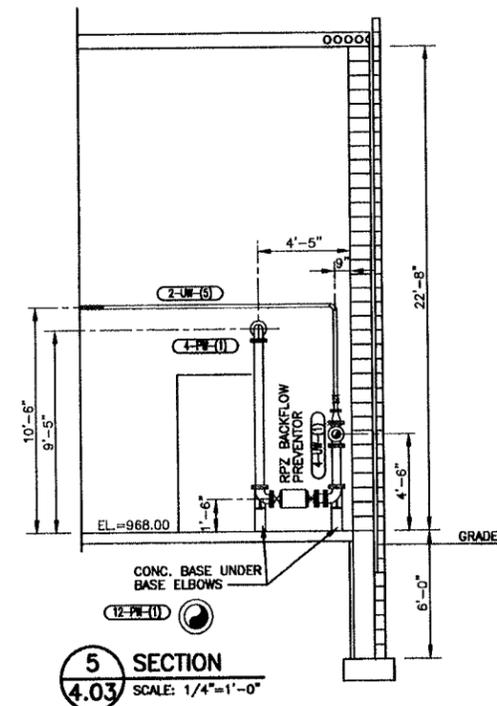
2 SECTION
4.03 SCALE: 1/4"=1'-0"
4.04



3 SECTION
4.03 SCALE: 1/4"=1'-0"
4.04



4 SECTION
4.03 SCALE: 1/4"=1'-0"
4.04



5 SECTION
4.03 SCALE: 1/4"=1'-0"
4.04



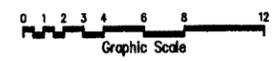
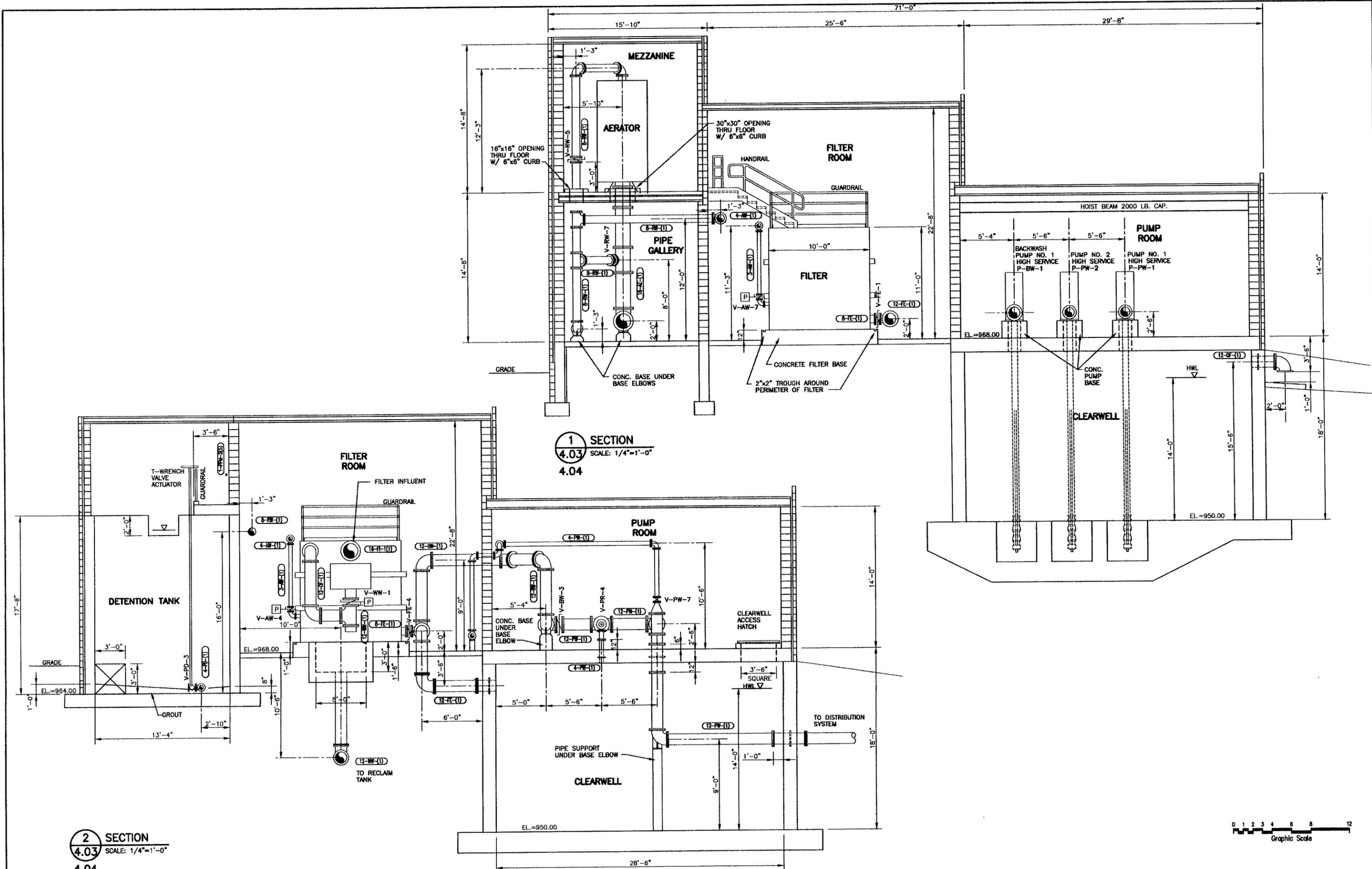
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 SIGNATURE: *Jon D. Peterson* TYPED OR PRINTED NAME: **JON D. PETERSON**
 DATE: 9-18-2011 REG. NO.: 21309

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 CHASKA, MINNESOTA

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A	JP	4-18-01
0	JP	8-17-01

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 SECTIONS



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SIGNATURE: *Jon D. Peterson* TYPED OR PRINTED NAME: **JON D. PETERSON**
DATE: 9-10-2001 REG. NO: 21309

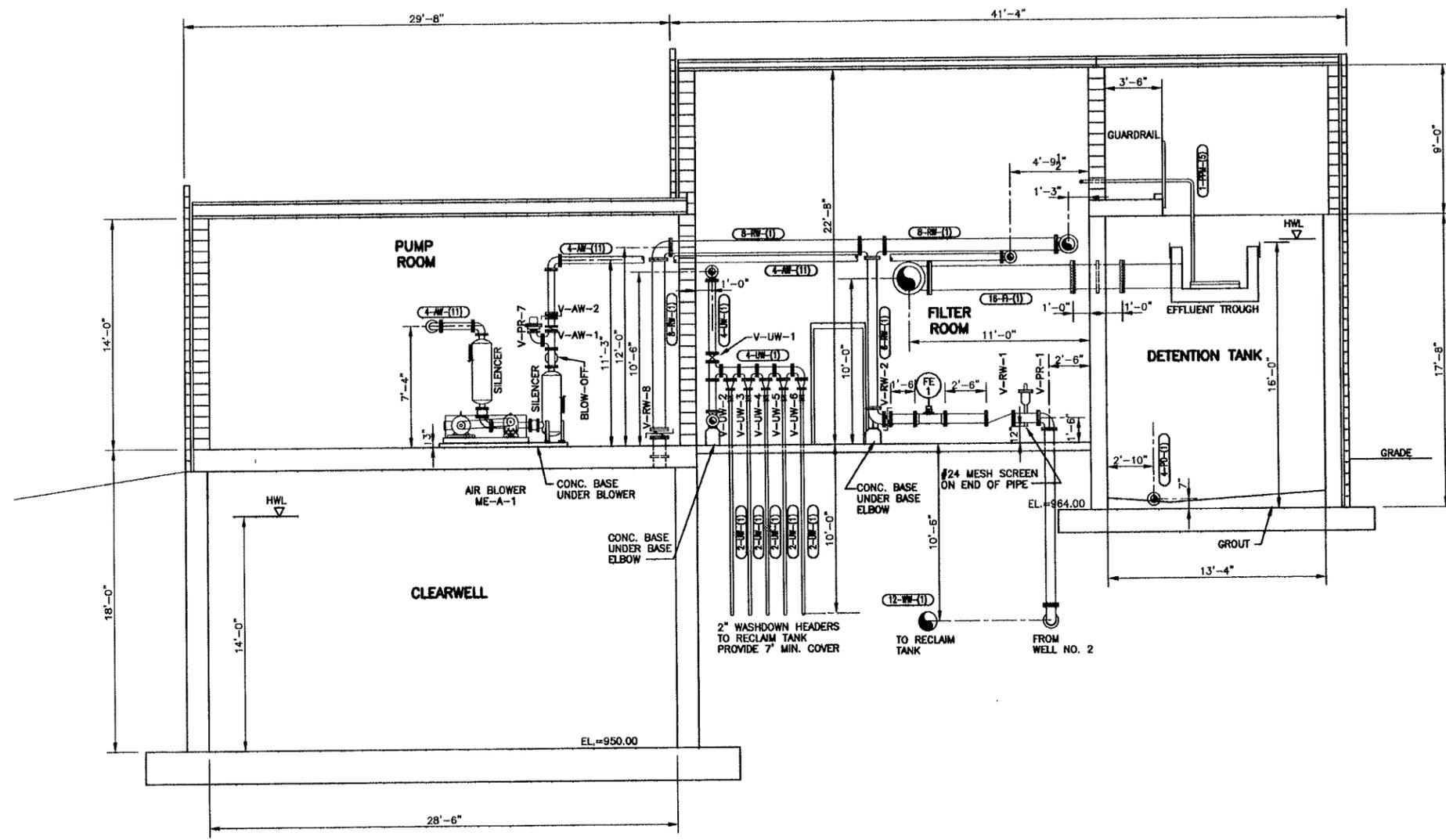
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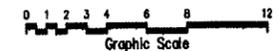
REV.	BY	DATE
A	JP	4-18-01
0	JP	8-17-01

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
SECTIONS

SHEET
4.07



1 SECTION
 4.03 SCALE: 1/4"=1'-0"
 4.04



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 DATE: 9-10-2001 REG. NO. 21309

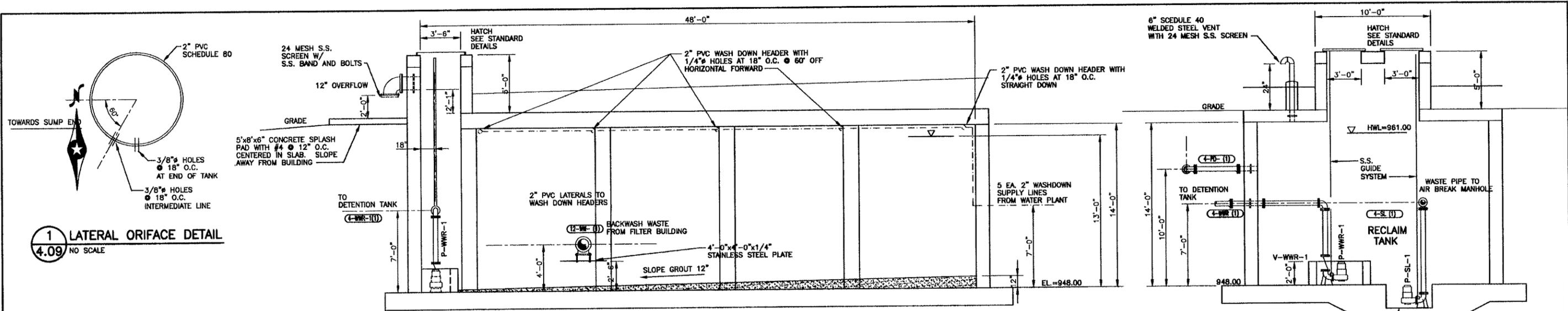
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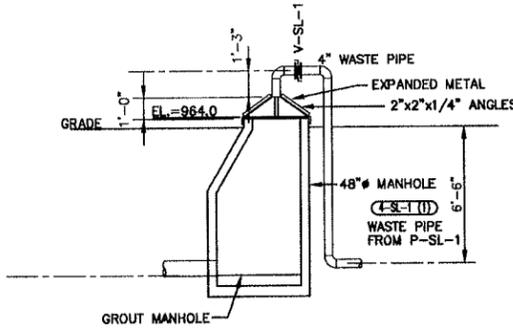
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0	JP	8-17-01

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 SECTION

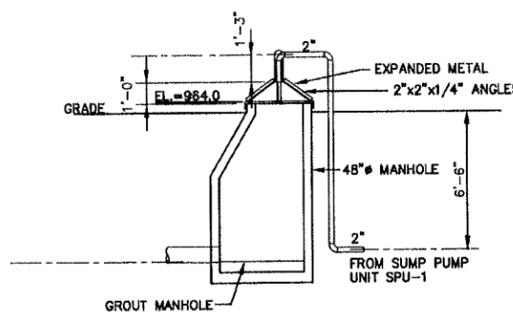
SHEET
 4.08



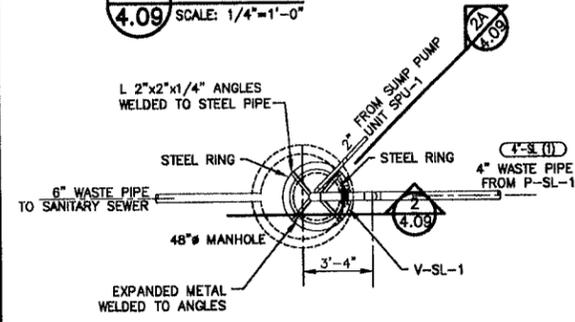
1 LATERAL ORIFACE DETAIL
4.09 NO SCALE



2 SECTION
4.09 SCALE: 1/4\"=1'-0\"

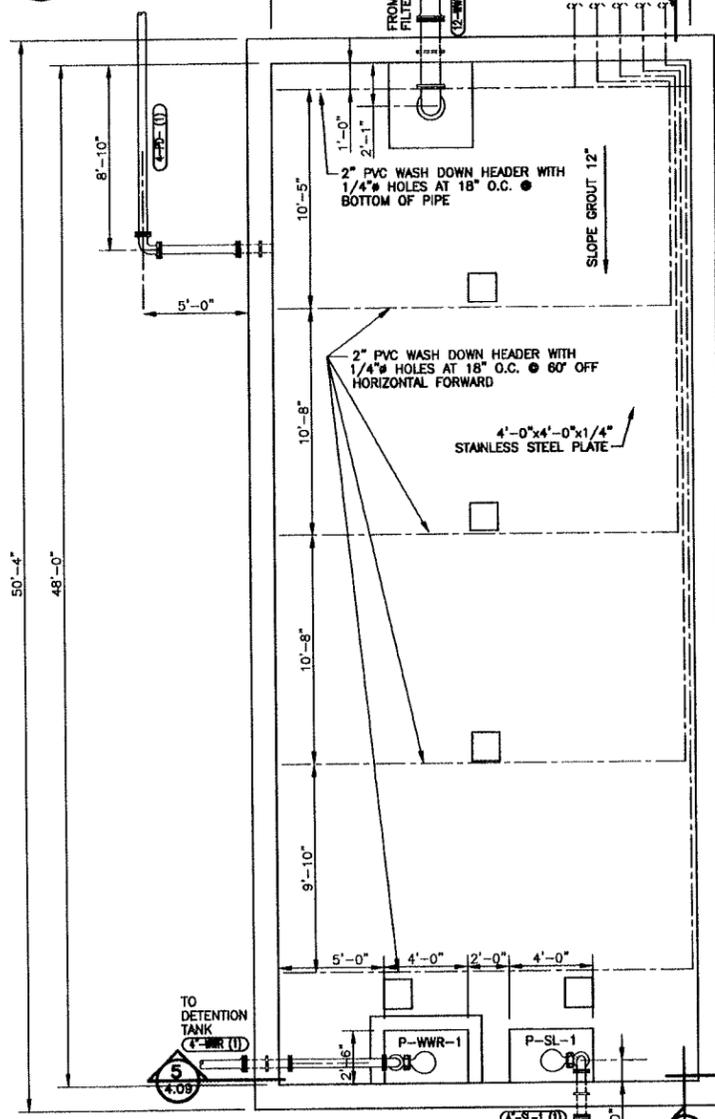


2A SECTION
4.09 SCALE: 1/4\"=1'-0\"



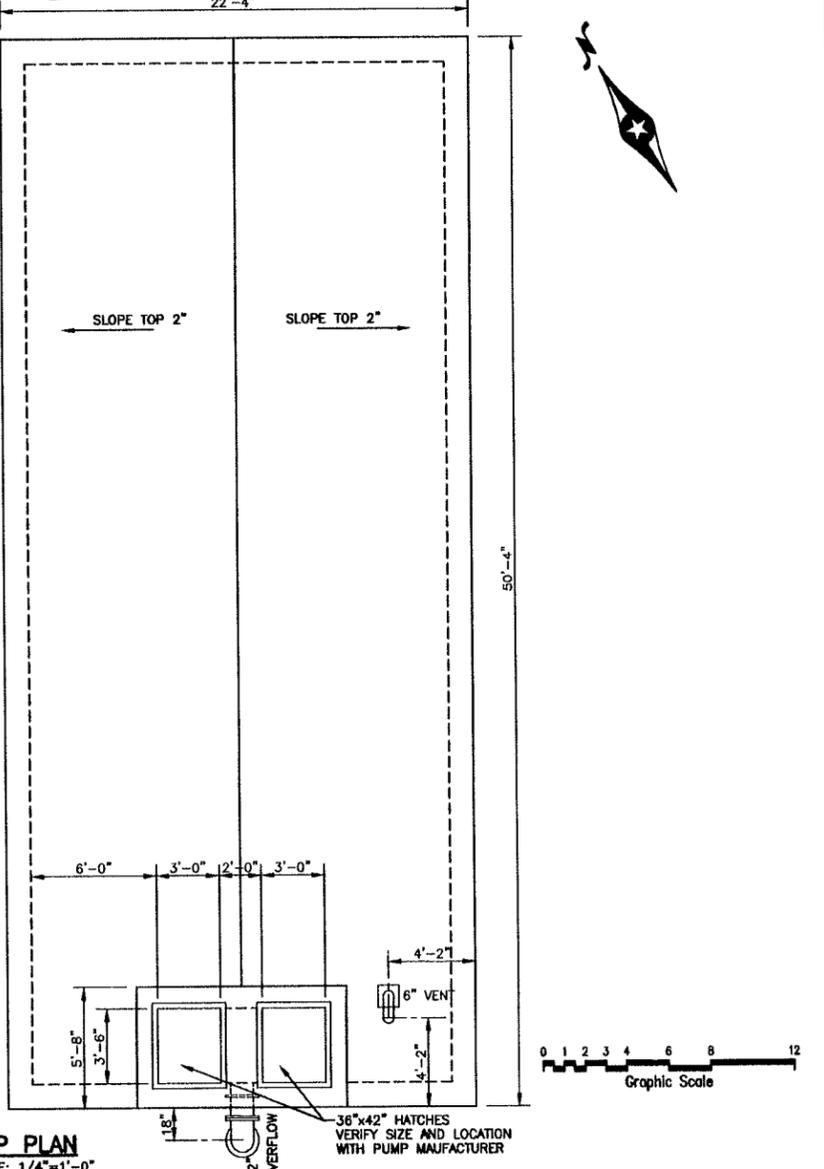
PLAN
SCALE: 1/4\"=1'-0\"

4 SECTION
4.09 SCALE: 1/4\"=1'-0\"



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

5 SECTION
4.09 SCALE: 1/4\"=1'-0\"



TOP PLAN
SCALE: 1/4\"=1'-0\"

NOTE: VERIFY PUMP INFORMATION AND LOCATION WITH PUMP MANUFACTURER.



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SIGNATURE: *[Signature]* PRINTED NAME: JON D. PETERSON
DATE: 9-10-2001 REG. NO.: 21309

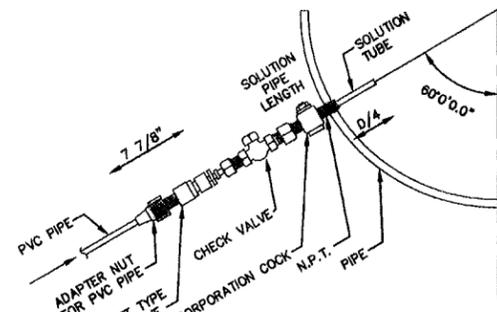
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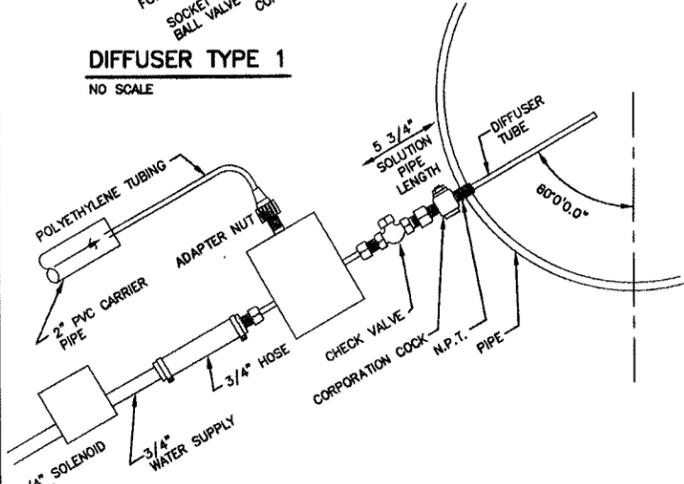
REV	BY	DATE
0	NWS	5-22-2001
1	NWS	8-17-01

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
RECLAIM TANK
PLANS AND SECTIONS

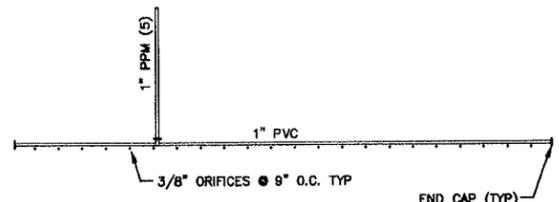
SHEET
4.09



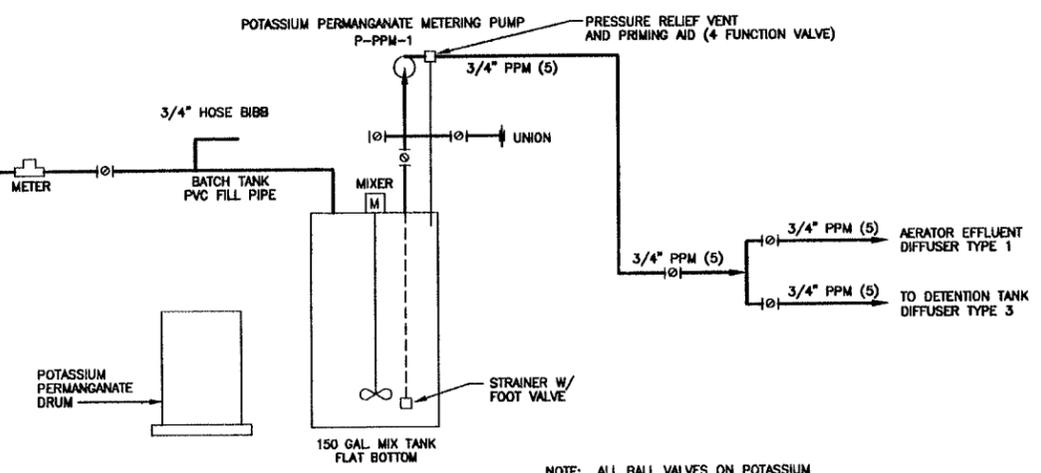
DIFFUSER TYPE 1
NO SCALE



DIFFUSER TYPE 2
NO SCALE

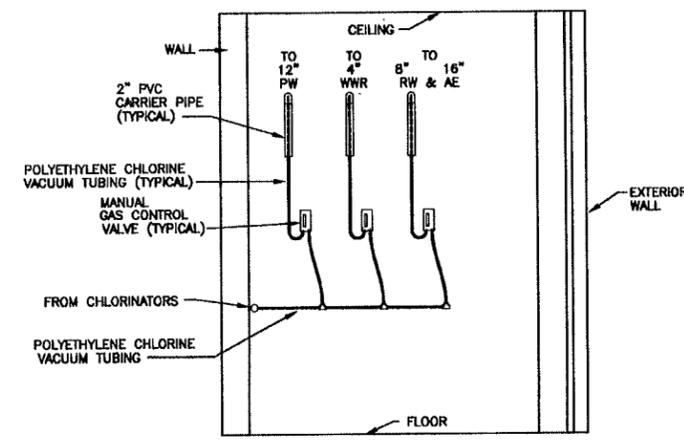


DIFFUSER TYPE 3
NO SCALE

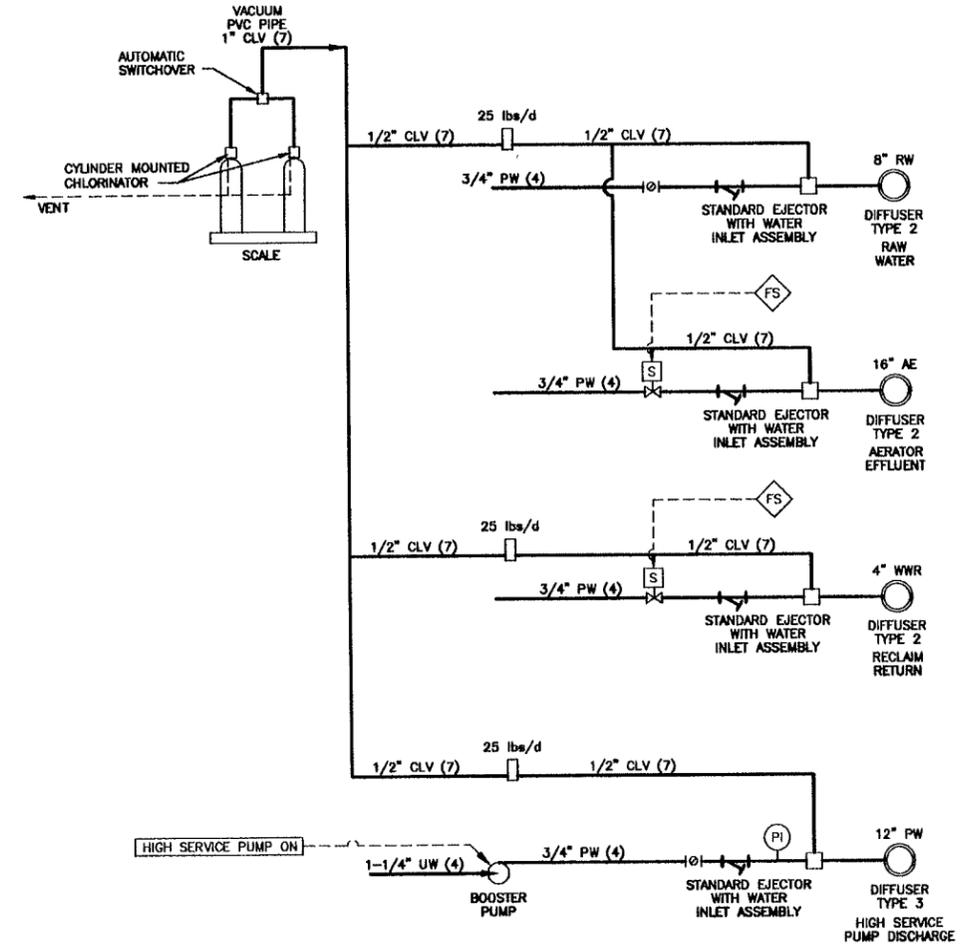


POTASSIUM PERMANGANATE FEED SYSTEM
NO SCALE

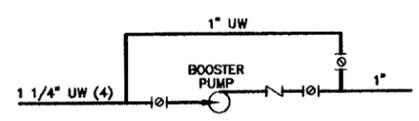
NOTE: ALL BALL VALVES ON POTASSIUM PERMANGANATE FEED SYSTEM SHALL BE 304 STAINLESS STEEL BALL VALVE.



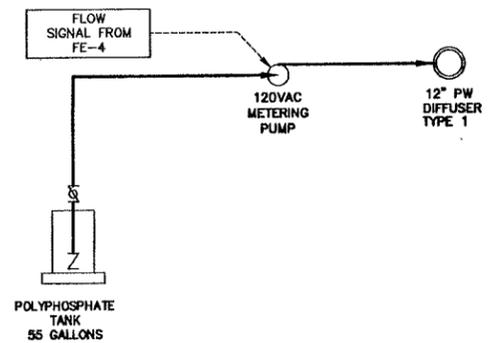
ELEVATION-CHLORINE FEEDERS
SCALE: 1/2"=1'-0"



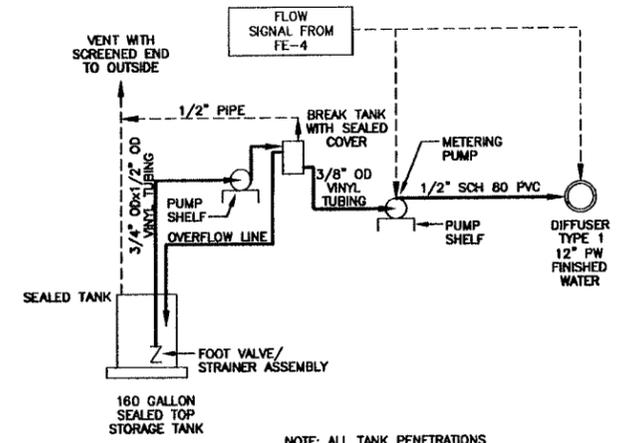
CHLORINE FEED SYSTEM
NO SCALE



CHLORINE BOOSTER SCHEMATIC
NO SCALE



POLYPHOSPHATE FEED SYSTEM
NO SCALE



FLUORIDE FEED SYSTEM
NO SCALE

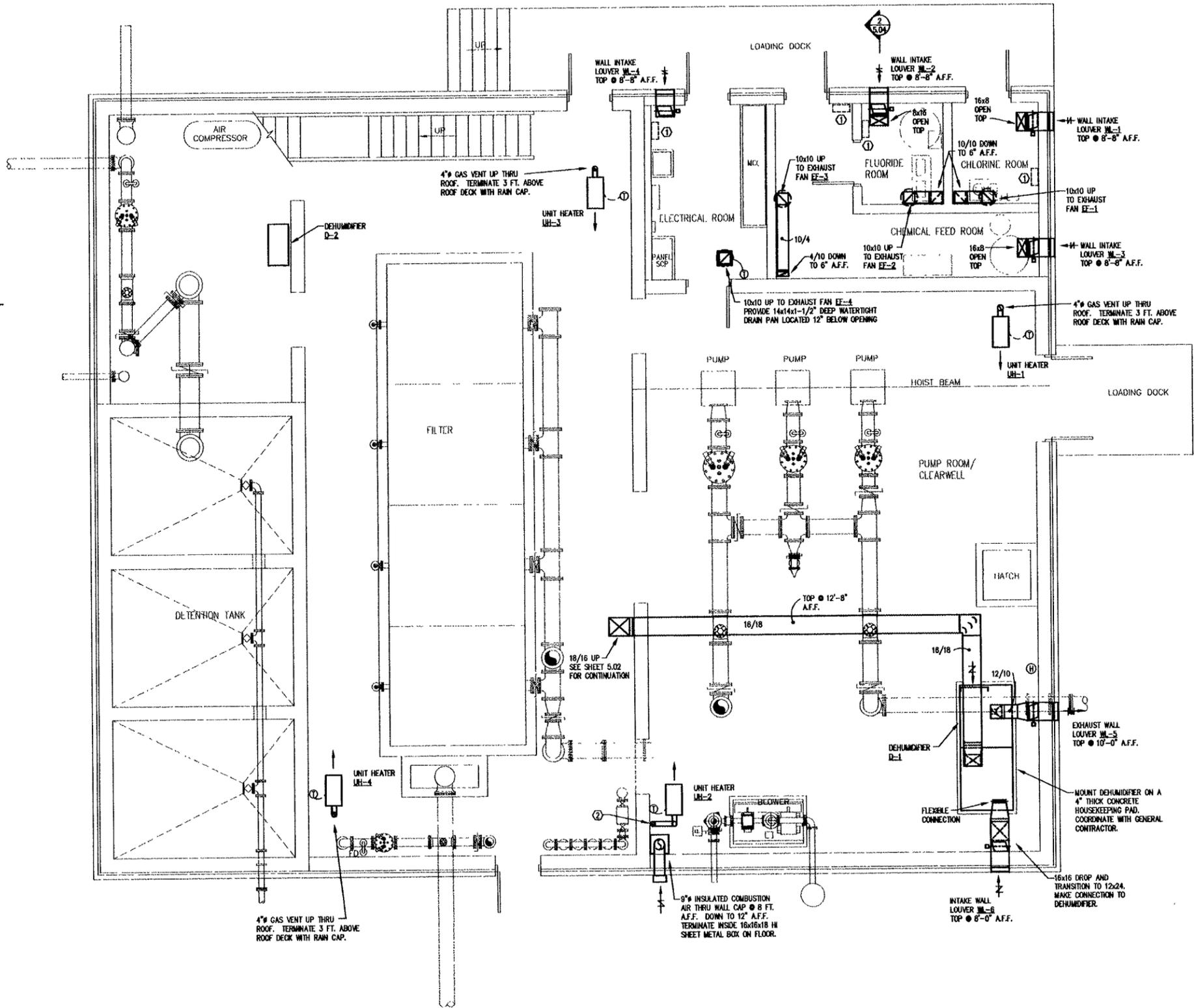
NOTE: SEE SHEET 1.03 FOR PIPE MATERIAL

GENERAL NOTES

- 1 - MAKE ALL DUCT CONNECTIONS TO AERATOR AND DEHUMIDIFIER WITH FLEXIBLE DUCT CONNECTIONS.
- 2 - MOUNT ALL UNIT HEATERS WITH BOTTOM AT 8 FT. A.F.F.
- 3 - HANG ALL GAS PIPING AS HIGH AS POSSIBLE.
- 4 - COORDINATE INSTALLATION OF ALL HEATING, VENTILATING AND AIR CONDITIONING WITH OTHER TRADES.
- 5 - MAINTAIN MINIMUM OF 10 FT CLEARANCE FROM OUTSIDE AIR INTAKE TO ANY PLUMBING VENT, EXHAUST VENT OR GAS FLUE.
- 6 - PROVIDE GAS PRESSURE REGULATORS ON ALL GAS FIRED EQUIPMENT.
- 7 - MOUNT DEHUMIDIFIER D-1 ON 4" HIGH CONCRETE HOUSEKEEPING PAD.

NUMBERED NOTES

- ① 3 KW ELECTRIC UNIT HEATER BY DIVISION 16.
- ② 4" GAS VENT UP THRU ROOF. TERMINATE 3 FT. ABOVE PARAPET OF ADJACENT BUILDING WALL WITH RAIN CAP. SECURE GAS VENT TO BUILDING WALL.



LOWER LEVEL HVAC PLAN
 SCALE: 1/4"=1'-0"
 Graphic Scale

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 SIGNED: *Thomas A. Wentz* TITLE OR PRINTED NAME: THOMAS A. WENTZ
 DATE: 17 AUG 01 REG. NO. 18859

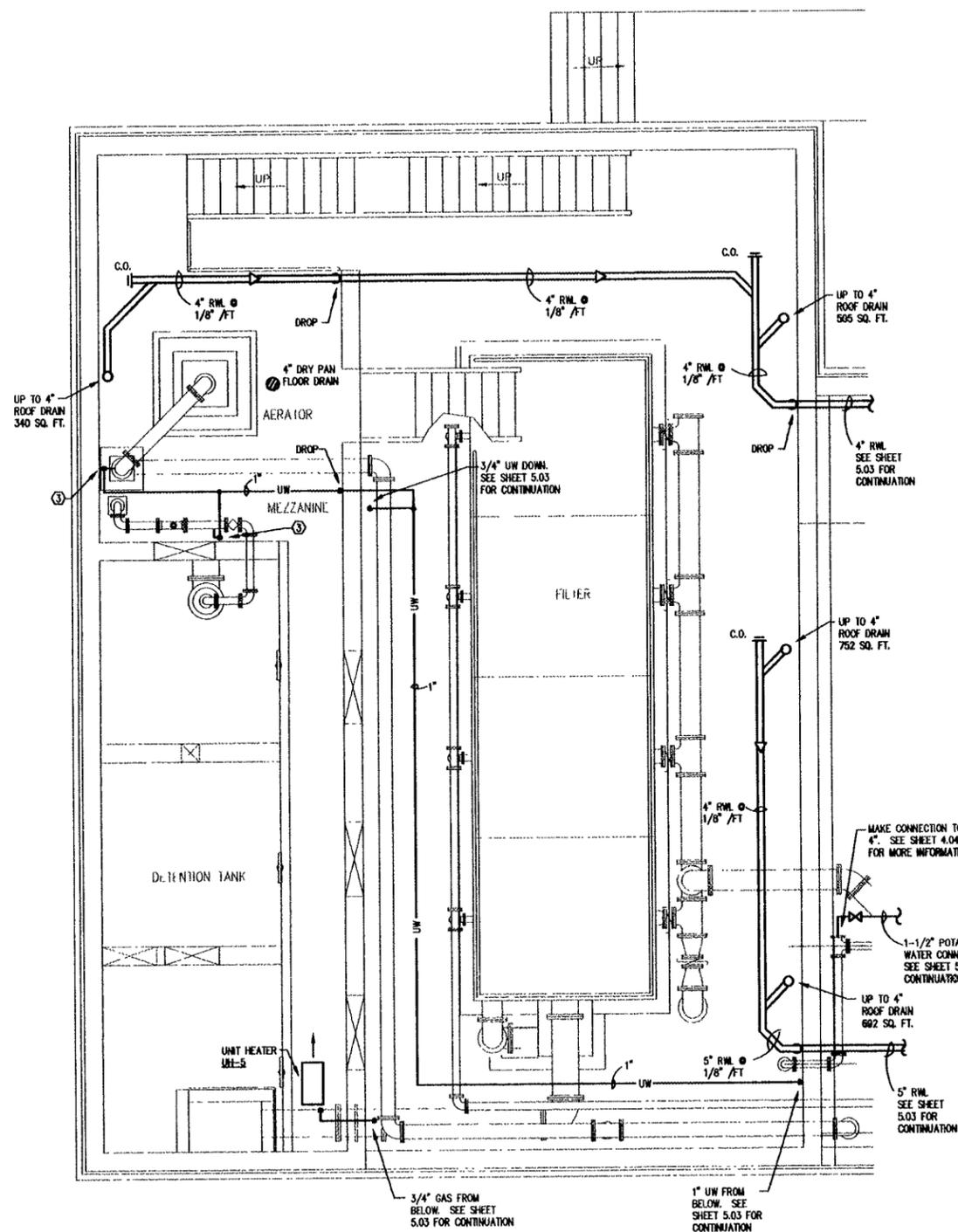
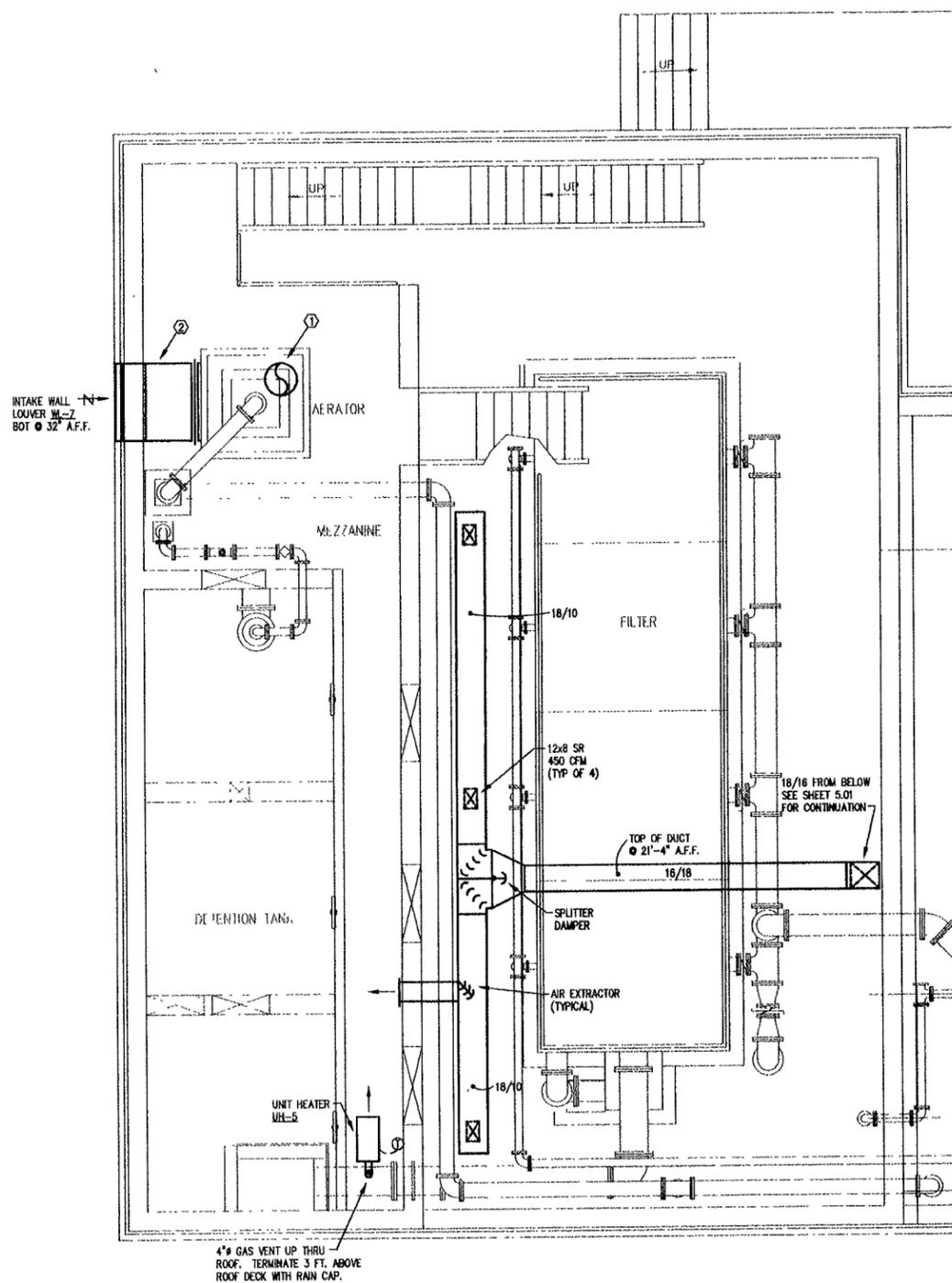
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REV	BY	DATE
0	TAW	8-17-2001

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 LOWER LEVEL HVAC PLAN

SHEET
5.01



GENERAL NOTES

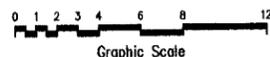
- 1 - MAKE ALL DUCT CONNECTIONS TO AERATOR AND DEHUMIDIFIER WITH FLEXIBLE DUCT CONNECTIONS.
- 2 - MOUNT UNIT HEATER UH-5 WITH BOTTOM AS HIGH AS POSSIBLE
- 3 - HANG ALL GAS PIPING AS HIGH AS POSSIBLE.
- 4 - COORDINATE INSTALLATION OF ALL HEATING, VENTILATING, AIR CONDITIONING, PLUMBING AND PIPING WITH OTHER TRADES.
- 5 - MAINTAIN MINIMUM OF 10 FT CLEARANCE FROM OUTSIDE AIR INTAKE TO ANY PLUMBING VENT, EXHAUST VENT OR GAS FLUE.
- 6 - HANG ALL RAINWATER LEADERS (R.W.L.) AS HIGH AS POSSIBLE

NUMBERED NOTES

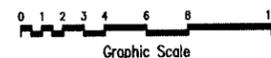
- ① 20" ALUMINUM DUCT FROM AERATOR EXHAUST FAN OUTLET UP THRU ROOF. PROVIDE FLEXIBLE CONNECTIONS AT FAN. TERMINATE 3 FT. ABOVE ROOF WITH RAIN CAP. PROVIDE 24" SQ., 12" HIGH INSULATED ROOF CURB AND FLASHING. VERIFY EXACT SIZE AND LOCATION OF AERATOR EXHAUST FAN.
- ② 48x16 ALUMINUM DUCT FROM INTAKE WALL LOUVER M-7. MAKE TRANSITION DOWN AND CONNECT TO AERATOR INTAKE WITH FLEXIBLE CONNECTION. INSULATE INTAKE AIR DUCT.
- ③ 3/4" UTILITY WATER DOWN TO CHLORINE EJECTOR. VERIFY EXACT LOCATION. SECURE PIPING AT TOP AND BOTTOM. SEE SHEET 4.04 FOR MORE INFORMATION.



UPPER LEVEL HVAC PLAN
SCALE: 1/4"=1'-0"



UPPER LEVEL PLUMBING & PIPING PLAN
SCALE: 1/4"=1'-0"



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THOMAS A. WENTZ
 17 AUG 01
 19609

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REV	BY	DATE
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WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
UPPER LEVEL MECHANICAL PLAN

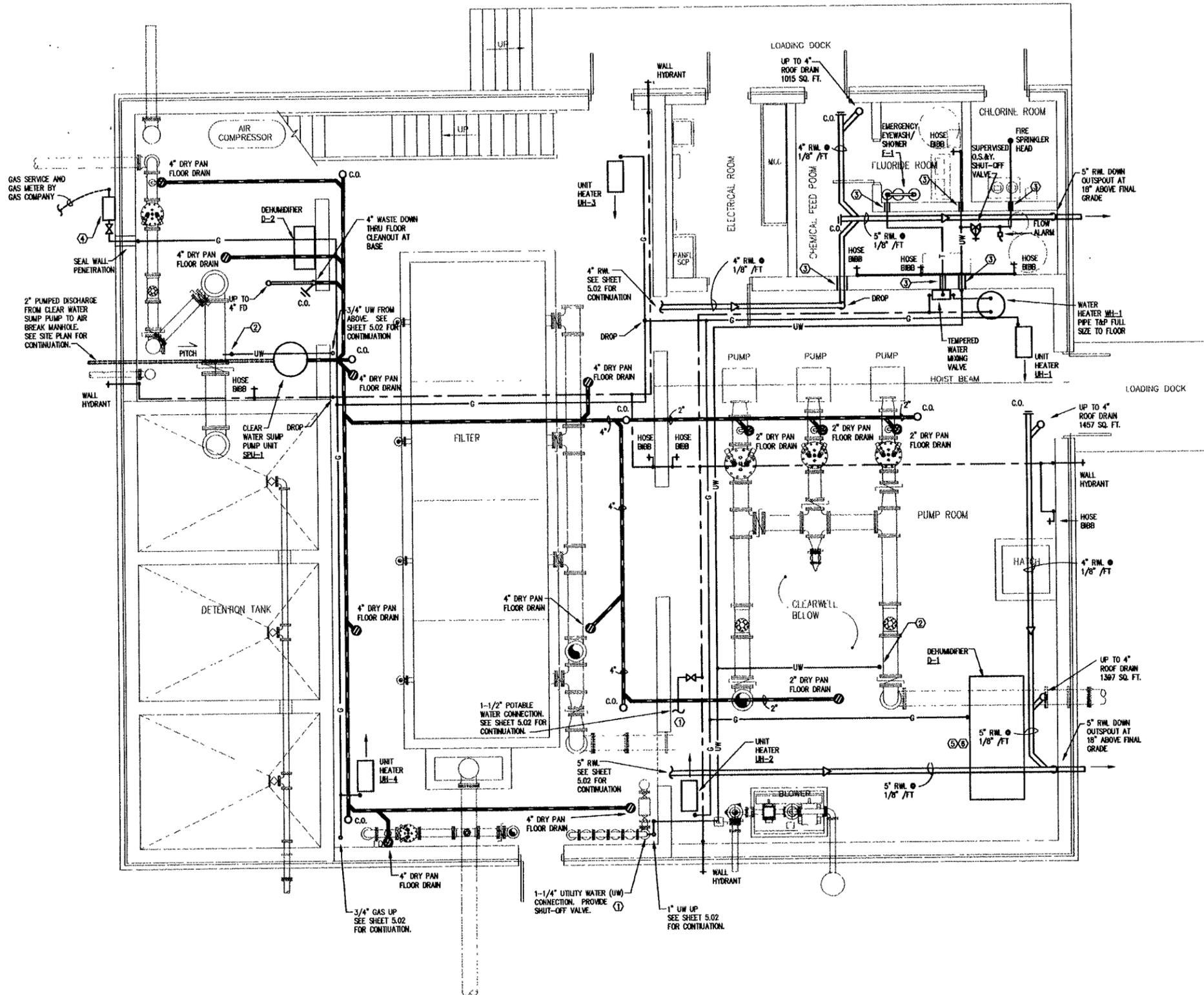
SHEET
5.02

GENERAL NOTES

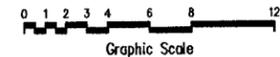
- 1 - ALL WATER PIPING IN CHEMICAL ROOMS TO BE PVC. ALL PIPING HANGERS AND SUPPORTS TO BE TYPE 316 STAINLESS STEEL. NO COPPER OR MALLEABLE IRON MATERIALS.
- 2 - HANG ALL PIPING AS HIGH AS POSSIBLE.
- 3 - MAINTAIN MINIMUM OF 10 FT CLEARANCE FROM OUTSIDE AIR INTAKE TO ANY PLUMBING VENT, EXHAUST VENT OR GAS FLUE.
- 4 - COORDINATE INSTALLATION OF ALL PLUMBING AND PIPING WITH OTHER TRADES.
- 5 - MOUNT WALL HYDRANTS AT 24" ABOVE FINAL GRADE AND HOSE BIBBS AT 36" A.F.F.
- 6 - ROUTE CONDENSATE FROM DEHUMIDIFIER TO NEAREST FLOOR DRAIN.
- 7 - PROVIDE 3/4" GAS SUPPLY TO EACH UNIT HEATER
- 8 - ALL MECHANICAL EQUIPMENT IN CHEMICAL ROOMS TO BE EITHER CONSTRUCTED OF CORROSION RESISTANT MATERIALS OR COATED WITH A CORROSION RESISTANT EPOXY COATING.
- 9 - ALL FLOOR DRAINS IN PUMP ROOM AND WASTE PIPING FROM THEM ARE TO BE EMBEDDED WITHIN CONCRETE FLOOR ABOVE CLEARWELL. COORDINATE WITH OTHER TRADES.
- 10 - SUMP PUMP DISCHARGE PIPING IS TO BE PITTED TOWARD THE SUMP BASIN AT 1" / 10 FT. FOR POSITIVE DRAINAGE.

NUMBERED NOTES

- ① SEE PROCESS PIPING SHEET 4.03 FOR EXACT LOCATION OF CONNECTION.
- ② 3/4" UTILITY WATER DOWN TO CHLORINE EJECTOR. VERIFY EXACT LOCATION. SECURE PIPING AT TOP AND BOTTOM. SEE SHEET 4.03 FOR MORE INFORMATION.
- ③ THOROUGHLY SEAL WALL PENETRATIONS
- ④ GAS METER AND 2 PSI OUTLET PRESSURE MAIN REGULATOR BY GAS COMPANY. CAPACITY TO BE 255 CFH. COORDINATE INSTALLATION OF SERVICE AND METER WITH GAS COMPANY.
- ⑤ 3/4" VENT FROM GAS SOLENOID VALVE UP THRU ROOF AND TERMINATE WITH SCREENED OUTLET 18" ABOVE ROOF DECK.
- ⑥ 3/4" VENT MANIFOLD FROM PRESSURE REGULATOR AND (2) 1/8" VENTS ON GAS TRAIN. ROUTE UP THRU ROOF AND TERMINATE WITH SCREENED GOOSENECK OUTLET 18" ABOVE ROOF DECK.



LOWER LEVEL PLUMBING & PIPING PLAN
SCALE: 1/4"=1'-0"



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SIGNATURE: *Thomas A. Wentz* PRINTED NAME: THOMAS A. WENTZ
DATE: 17 AUG 01 REG. NO.: 18809

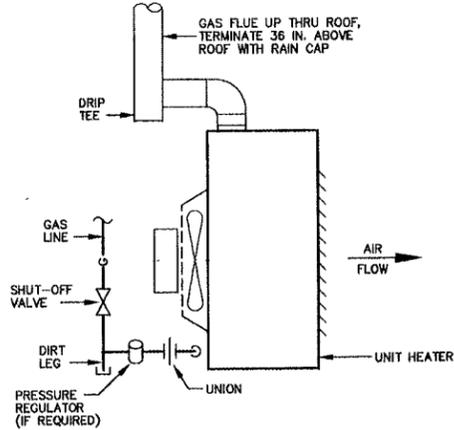
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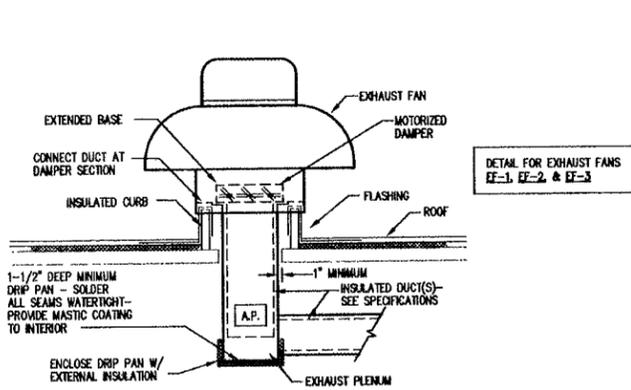
REV	BY	DATE
0	TAW	8-17-2001

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
LOWER LEVEL PLUMBING & PIPING PLAN

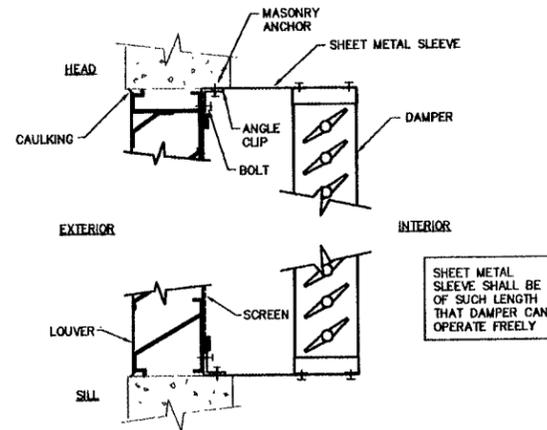
SHEET
5.03



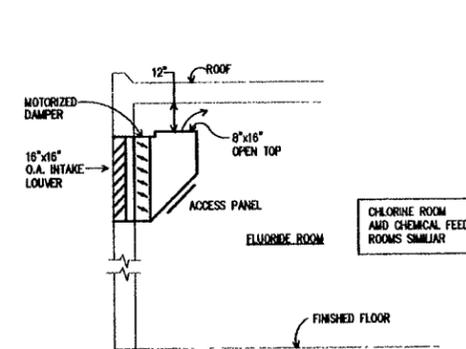
1 UNIT HEATER DETAIL
5.03 NO SCALE



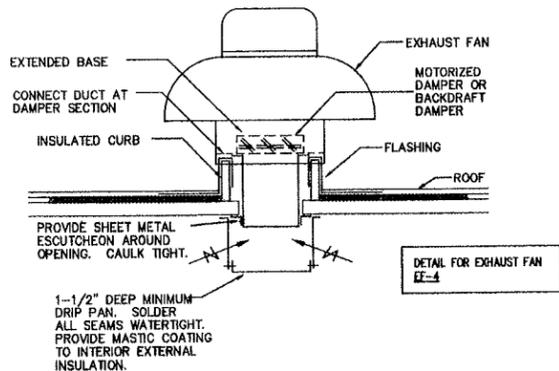
2 ROOF MOUNTED EXHAUST FAN DETAIL
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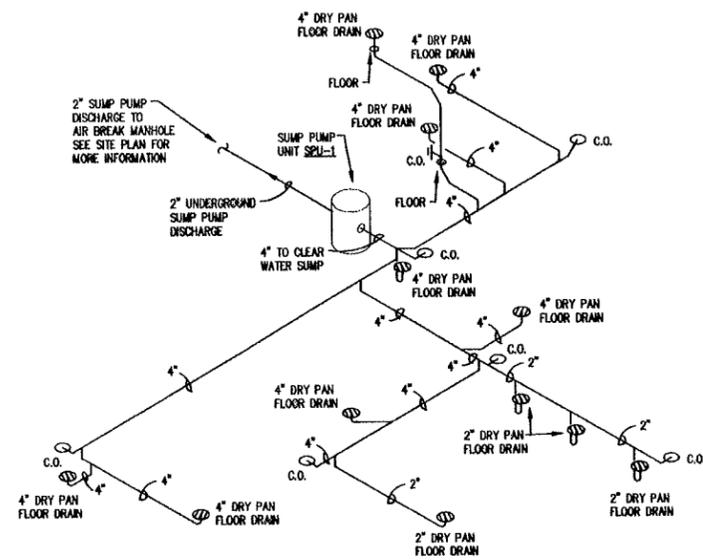
3 LOUVER INSTALLATION DETAIL
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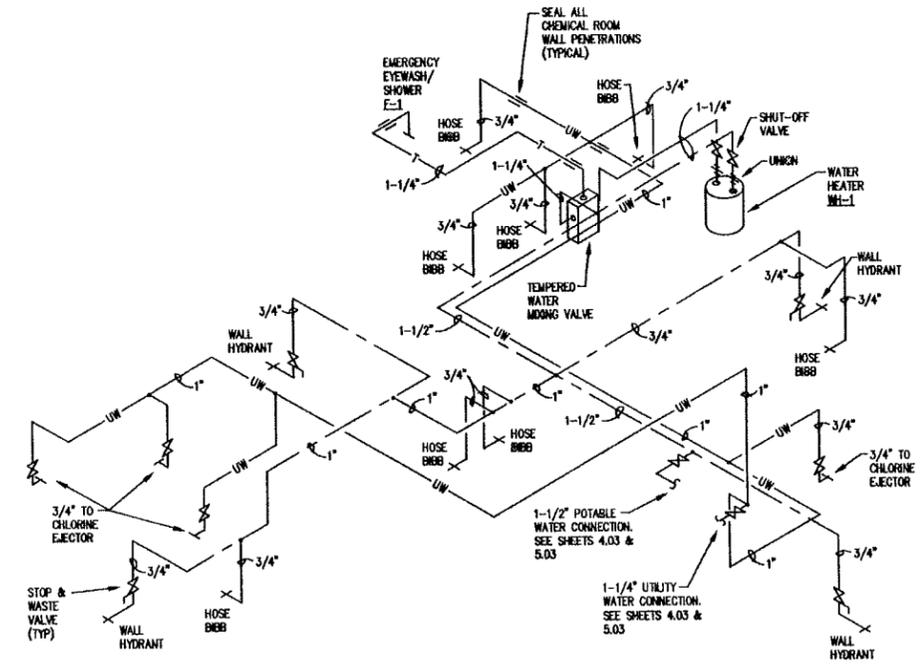
4 AIR INTAKE DETAIL
5.03 NO SCALE



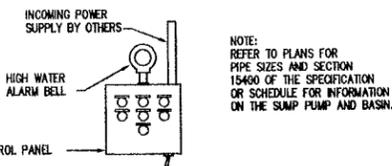
5 ROOF MOUNTED EXHAUST FAN
5.03 NO SCALE



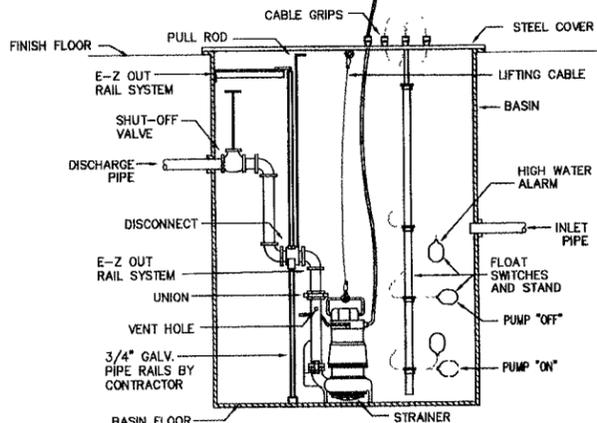
7 WASTE & VENT PIPING DIAGRAM
5.03 NO SCALE



8 WASTE & VENT PIPING DIAGRAM
5.03 NO SCALE



NOTE: REFER TO PLANS FOR PIPE SIZES AND SECTION 15400 OF THE SPECIFICATION OR SCHEDULE FOR INFORMATION ON THE SUMP PUMP AND BASIN.



6 CLEAR WATER SUMP PUMP DETAIL
5.03 NO SCALE
(SIMPLEX - UNDERGROUND DISCHARGE)

EXHAUST FANS																			
FAN NO.	LOCATION	SERVICE	MODEL NO. *	FAN TYPE	CAPACITY CFM	S.P. *W.G.	ROOF OPENING SQ.	TIP SPEED FPM	EST. FAN RPM	SONES	DRIVE	MOTOR				ELECTRICAL CHARACTERISTICS	ACCESSORIES	REMARKS	INTER-LOCK WITH
												TYPE	H.P.	R.P.M.					
EF-1	ROOF	CHLORINE RM	G-85-D	PRV	450	0.25	12-1/2	4413	1550	7.5	DIRECT	ODP	1/20	1550	115/60/1	ROOF CURB, MOTORIZED DAMPER, EXTENDED BASE WITH SIDE ACCESS, UNIT MOUNTED SPEED CONTROLLER		WL-1, LIGHTS	
EF-2	ROOF	FLUORIDE RM	G-85-D	PRV	450	0.25	12-1/2	4413	1550	7.5	DIRECT	ODP	1/20	1550	115/60/1	ROOF CURB, MOTORIZED DAMPER, EXTENDED BASE WITH SIDE ACCESS, UNIT MOUNTED SPEED CONTROLLER		WL-2, LIGHTS	
EF-3	ROOF	CHEM FEED RM	G-80-E	PRV	135	0.25	12-1/2	2989	1050	4.0	DIRECT	ODP	1/40	1050	115/60/1	ROOF CURB, MOTORIZED DAMPER, EXTENDED BASE WITH SIDE ACCESS, UNIT MOUNTED SPEED CONTROLLER		WL-3, LIGHTS	
EF-4	ROOF	ELECTRICAL RM	GB-90-6	PRV	600	0.25	12-1/2	3553	1213	6.7	BELT	ODP	1/6	1750	115/60/1	ROOF CURB, MOTORIZED DAMPER, EXTENDED BASE WITH SIDE ACCESS		WL-4	

* BASED ON: GREENHECK

SUMP PUMP UNIT																			
UNIT NO.	LOCATION	SERVICE	MODEL NO. *	TYPE	PUMP			MOTOR			SUMP			VENT SIZE	COVER MATERIAL	ACCESSORIES	REMARKS		
					GPM EACH	DISCH. HEAD FT.	DISCH. SIZE IN.	H.P.	R.P.M.	ELECTRICAL CHARACTERISTICS	BASIN MATERIAL	SIZE DIA. IN.	DEPTH IN.					INLETS NO.	SIZE IN.
SPU-1	FILTER ROOM	CLEAR WATER	N267	SUBMERS	60	15	2	1/2	1725	115/60/1	FIBERGLASS	30	96	1	4	72	—	STEEL	VLFS FLOATS, HIGH WATER ALARM, E-2 OUT GALVANIZED RAIL SYSTEM, 10-0323 CONTROL PANEL.

* BASED ON: ZOELLER

GAS-FIRED UNIT HEATERS																			
UNIT NO.	LOCATION	MODEL NO. *	UNIT TYPE	FAN TYPE	CFM	AIR ENT. °F.	LP GAS			MOTOR			ELECTRICAL CHARACTERISTICS	CONTROLS	ACCESSORIES	REMARKS			
							INLET PRESSURE W.G.	INPUT MBH	OUTPUT MBH	POWER VENTER	H.P.	RPM							
UH-1	PUMP ROOM	FE-25	HORIZ	PROPELLER	380	60	11	25.0	20.0	YES	1/50	1550	115/60/1	REMOTE T-STAT	STAINLESS STEEL HEAT EXCHANGER & BURNER	BOTTOM AT 8 FT. A.F.F.			
UH-2	PUMP ROOM	FE-25	HORIZ	PROPELLER	380	60	11	25.0	20.0	YES	1/50	1550	115/60/1	REMOTE T-STAT	STAINLESS STEEL HEAT EXCHANGER & BURNER	BOTTOM AT 8 FT. A.F.F.			
UH-3	FILTER ROOM	FE-25	HORIZ	PROPELLER	380	60	11	25.0	20.0	YES	1/50	1550	115/60/1	REMOTE T-STAT	STAINLESS STEEL HEAT EXCHANGER & BURNER	BOTTOM AT 8 FT. A.F.F.			
UH-4	FILTER ROOM	FE-25	HORIZ	PROPELLER	380	60	11	25.0	20.0	YES	1/50	1550	115/60/1	REMOTE T-STAT	STAINLESS STEEL HEAT EXCHANGER & BURNER	BOTTOM AT 8 FT. A.F.F.			
UH-5	MEZZANINE	FE-25	HORIZ	PROPELLER	380	60	11	25.0	20.0	YES	1/50	1550	115/60/1	REMOTE T-STAT	STAINLESS STEEL HEAT EXCHANGER & BURNER	BOTTOM HIGH AS POSSIBLE			

* BASED ON: REZNOR

DESICCANT DEHUMIDIFIERS																	
UNIT NO.	LOCATION	SERVICE	MODEL NO. *	PROCESS AIR				REACTIVATION AIR/GAS				ELECTRICAL CHARACTERISTICS	MCA	REMARKS			
				CFM	STATIC PRESS. *W.G.	MOISTURE REMOVAL LB./HR.	INLET AIR °F. DB	°F. DP	GR./LB.	CFM	STATIC PRESS. *W.G.				TYPE	INLET PRESS. PSI	INPUT MBH
D-1	PUMP ROOM	FILTER ROOM	VFB-18	1800	1.5	38.9	60	41	49	600	0.75	NAT	2	130	480/60/3	9.0	HUMIDISTAT

* BASED ON: BRY-AIR

ELECTRIC WATER HEATERS												
WATER HEATER NO.	LOCATION	SERVICE	MODEL NO. *	STORAGE CAPACITY GALLONS	ELECTRIC			CAPACITY GPH	TEMP. RISE °F.	WORKING PRESSURE P.S.I.	ELECTRICAL CHARACTERISTICS	REMARKS
					UPPER ELEM. KW	LOWER ELEM. KW	ELEMENT OPERATION					
WH-1	PUMP RM	DOMESTIC HW	DEN-80	80	3	3	NON-SIMULT.	15	80	150	208/60/1	T&P VALVE, CONCRETE PAD

* BASED ON: A.O. SMITH

REFRIGERANT DEHUMIDIFIERS									
UNIT NO.	LOCATION	SERVICE	MODEL NO. *	PROCESS AIR			ELECTRICAL CHARACTERISTICS	REMARKS	
				CFM	MOISTURE REMOVAL LB./DAY	INLET AIR °F. DB REL HUM %			
D-2	FILTER RM	FILTER RM	HI-E DRY 100	255	70	70	50	115/60/1	

* BASED ON: THERMA-STOR

WALL LOUVERS										
LOUVER NO.	LOCATION	TYPE	SERVING	WIDTH INCHES	HEIGHT INCHES	DEPTH INCHES	FRAME TYPE	BLADE TYPE	SQ. FT. FREE AREA	REMARKS
WL-2	N. WALL	INTAKE	FLUORIDE RM	16	16	4	CHANNEL	DRAINABLE	0.70	MOTORIZED DAMPER
WL-3	E. WALL	INTAKE	CHEM FEED RM	16	16	4	CHANNEL	DRAINABLE	0.70	MOTORIZED DAMPER
WL-4	N. WALL	INTAKE	ELECTRICAL RM	16	16	4	CHANNEL	DRAINABLE	0.70	MOTORIZED DAMPER
WL-5	E. WALL	EXHAUST	DEHUMIDIFIER D-1	16	24	4	CHANNEL	DRAINABLE	1.22	MOTORIZED DAMPER
WL-6	S. WALL	INTAKE	DEHUMIDIFIER D-1	16	24	4	CHANNEL	DRAINABLE	1.22	MOTORIZED DAMPER
WL-7	W. WALL	INTAKE	AERATOR	48	16	4	CHANNEL	DRAINABLE	2.34	

* BASED ON: RUSKIN ELF3750X

SEQUENCE OF OPERATIONS

- A. UNIT HEATERS:
 - Unit heaters UH-1 thru UH-5 shall cycle off and on as called for from remote wall mounted thermostat. Thermostat locations are indicated on the Drawings.
 - The thermostats will be furnished with the unit heaters and installed and wired by the T.C. contractor. All power wiring to be by Division 16.
- B. CHLORINE ROOM VENTILATION SYSTEM:
 - Exhaust fan EF-1 & motorized damper at wall louver WL-1:
 - Exhaust fan shall operate and normally closed motorized damper shall open when lights are switched on or door switch on Chlorine Room door is opened.
 - All interlocks, damper actuators and control wiring to be furnished and installed by the T.C. contractor. All power wiring to be by Division 16.
- C. CHEMICAL FEED ROOM VENTILATION SYSTEM:
 - Exhaust fan EF-3 & motorized damper at wall louver WL-3:
 - Exhaust fan shall operate and normally closed motorized damper shall open when lights are switched on.
 - All interlocks, damper actuators and control wiring to be furnished and installed by the T.C. contractor. All power wiring to be by Division 16.
- D. FLUORIDE ROOM VENTILATION SYSTEM:
 - Exhaust fan EF-2 & motorized damper at wall louver WL-2:
 - Exhaust fan shall operate and normally closed motorized damper shall open when lights are switched on.
 - All interlocks, damper actuators and control wiring to be furnished and installed by the T.C. contractor. All power wiring to be by Division 16.
- E. ELECTRICAL ROOM:
 - Exhaust fan EF-4 & motorized damper at wall louver WL-4:
 - Exhaust fan shall operate and normally closed motorized damper shall open when called for from a remote wall mounted cooling only thermostat reaches its setpoint, 85 degrees (adjustable)
 - All interlocks, thermostat, damper actuators and control wiring to be furnished and installed by the T.C. contractor. All power wiring to be by Division 16.
- F. DEHUMIDIFIER:
 - Dehumidifier D-1:
 - The dehumidifier D-1 shall operate as called for from a remote wall mounted humidistat.
 - Motorized dampers at wall louvers WL-5 and WL-6 shall fully open whenever dehumidifier is operating.
 - The humidistat shall be furnished with the dehumidifier and installed by the T.C. contractor.
 - All interlocks, damper actuators and control wiring to be furnished and installed by the T.C. contractor. All power wiring to be by Division 16.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Signature: *Thomas A. Wentz* TYPED OR PRINTED NAME: THOMAS A. WENTZ
 DATE: 17 AUG 01 REG. NO.: 19809

BOLTON & MENK, INC
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV.	BY	DATE
0	TAW	8-17-2001

WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 MECHANICAL EQUIPMENT SCHEDULES

SHEET
5.05

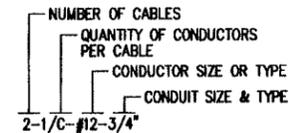
ABBREVIATIONS

A	AMPERES	M	MOTOR STARTER OPERATING COIL
ACK	ACKNOWLEDGE	MAX	MAXIMUM
AM	AMMETER	MCM	THOUSAND CIRCULAR MILS
ANN	ANNUNCIATOR	MCP	MOTOR CIRCUIT PROTECTOR
AS	AMMETER SWITCH	MECH	MECHANICAL
AWG	AMERICAN WIRE GAGE	MFR	MANUFACTURER
		MH	METAL HALIDE
BKR	BREAKER	MIN	MINUTE OR MINIMUM
BLDG	BUILDING	MTD	MOUNTED
		NF	NON-FUSED
CKT	CIRCUIT	NC	NORMALLY CLOSED
CL	CENTER LINE	NO	NORMALLY OPEN
CO	CONVENIENCE OUTLET	NTC	NOT CONNECTED
CONN	CONNECTIONS		
CONTR	CONTRACTOR	OL(S)	OVERLOAD RELAY CONTACT(S)
CP	CONTROL PANEL		
CPT	CONTROL POWER TRANSFORMER	PF	POWER FACTOR
CS	CURRENT STATION	PVC	POLYVINYLCHLORIDE CONDUIT
CT	CURRENT TRANSFORMER		
CU	COPPER	REQ'D	REQUIRED
		RS	RIGID STEEL CONDUIT
DE	DUAL ELEMENT	RTM	RUNNING TIME METER
DISC	DISCONNECT		
DP	DISTRIBUTION PANEL	SDS	SPECIFIED IN OTHER DIVISION OF SPECIFICATIONS
		SE	SERVICE ENTRANCE
ELEC	ELECTRICAL	SEC	SECOND OR SECONDARY
EMT	ELECTRICAL METALLIC TUBING	SIG	SIGNAL
EP	EXPLOSION PROOF	SOL VV	SOLENOID VALVE
EQUIP	EQUIPMENT	SP	SINGLE POLE
		SPECS	SPECIFICATIONS
F & I	FURNISH AND INSTALL	SSNR	"SOFT START" NON-REVERSING
FU	FUSE OR FUSIBLE	SSR	"SOFT START" REVERSING
		SW	SWITCH
GFI	GROUND FAULT INTERRUPTER	TD	TIME DELAY
GND	GROUND	TEMP	TEMPERATURE
GRS	GALVANIZED RIGID STEEL CONDUIT	T*STAT	THERMOSTAT
		UH	UNIT HEATER
HD	HEAVY DUTY		
HP	HORSEPOWER	V	VOLTS
HPS	HIGH PRESSURE SODIUM	VM	VOLTMETER
HTR	HEATER	VS	VOLTMETER SWITCH
HZ	HERTZ (CYCLES/SECOND)	VV	VALVE
		W	WATTS OR WIRE
IMC	INTERMEDIATE METAL CONDUIT	W/	WITH
INCAND	INCANDESCENT	WHM	WATT-HOUR METER
IND	INDICATING OR INDICATOR	WM	WATT METER
		WW	WIREWAY
JB	JUNCTION BOX	WP	WEATHERPROOF
		XFMR	TRANSFORMER
KVA	KILOVOLT-AMPERES		
KVAR	KILOVOLT-AMPERES REACTIVE		
KW	KILOWATTS		
LT	LIGHT		
LMF	LIQUID-TIGHT METALLIC CORE FLEXIBLE CONDUIT		

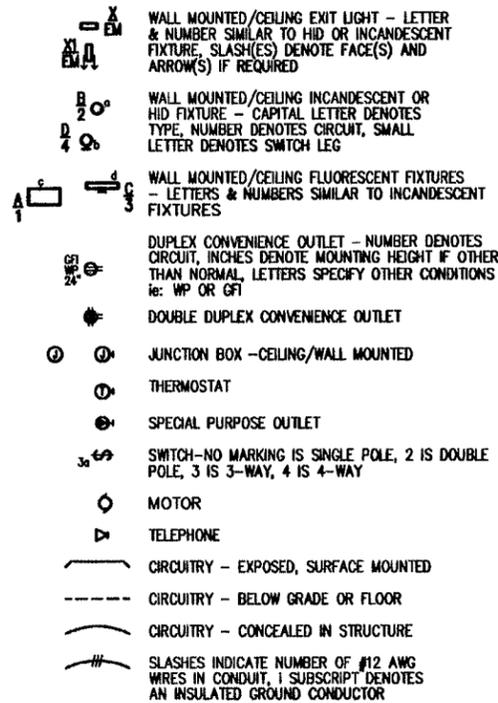
COLORS

A	AMBER	O	ORANGE
BK	BLACK	R	RED
BR	BROWN	V	VIOLET
BU	BLUE	W	WHITE
GRN	GREEN	Y	YELLOW
GY	GRAY		

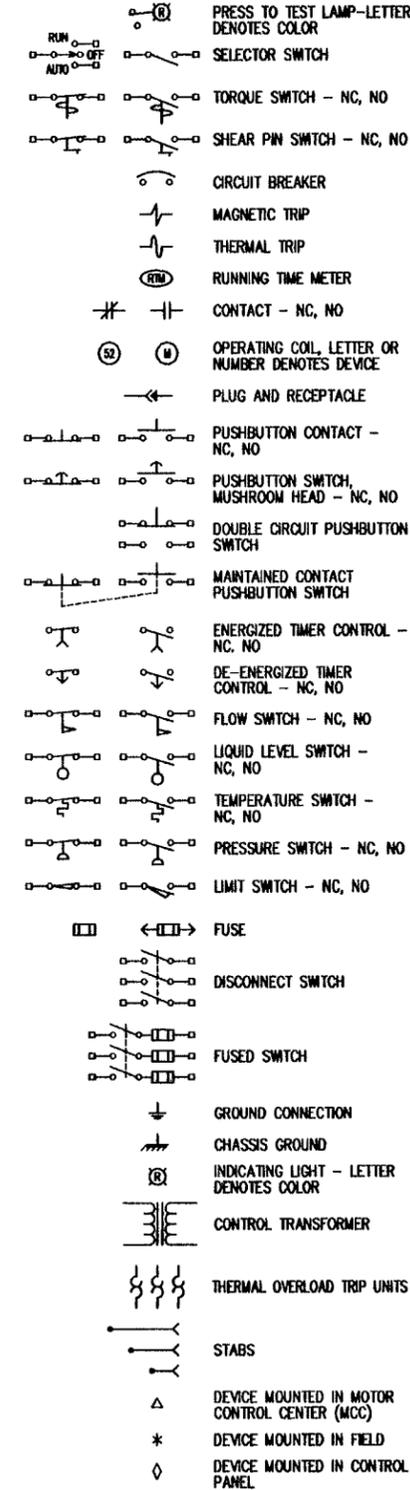
CIRCUIT LEGEND



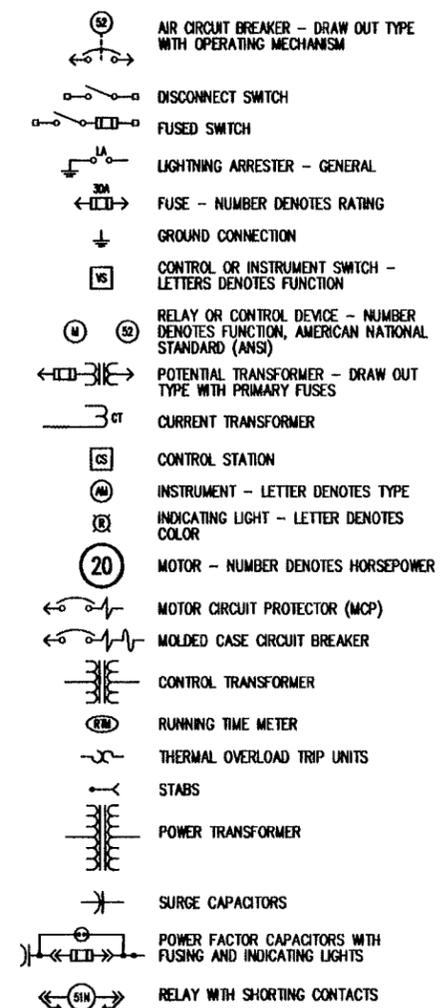
DEVICE SYMBOLS



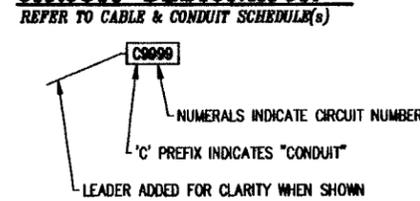
SCHEMATIC SYMBOLS

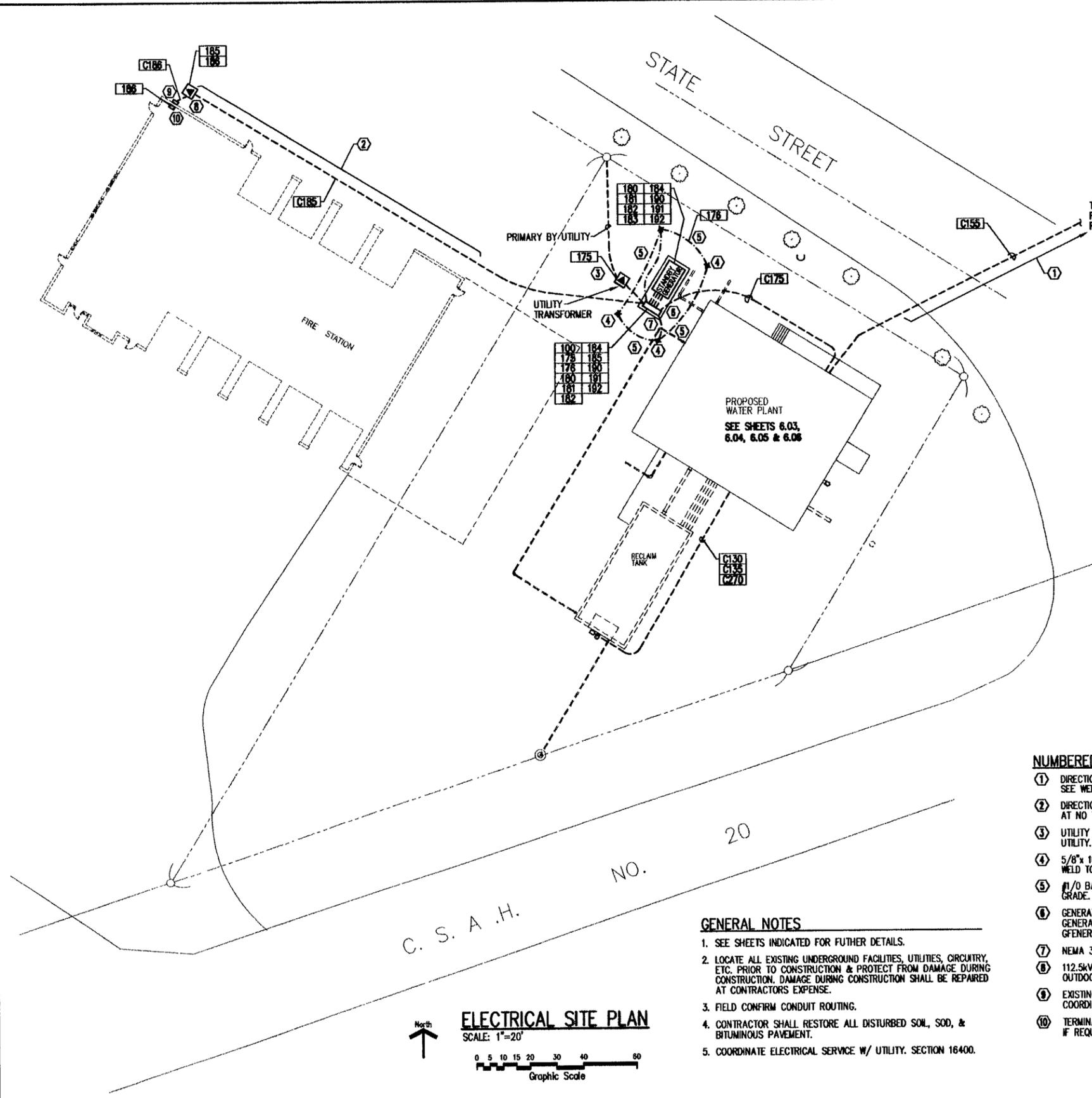


ONE-LINE DIAGRAM SYMBOLS



CIRCUIT DESIGNATOR





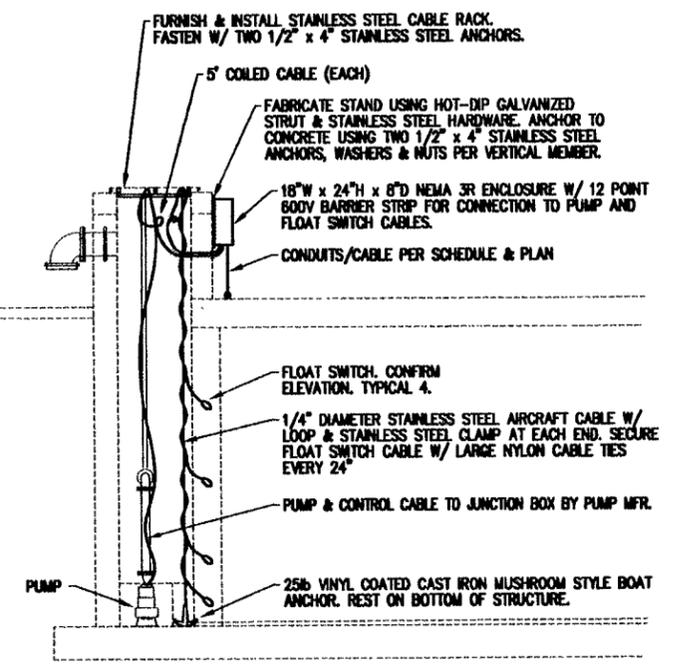
C. S. A. H. NO. 20



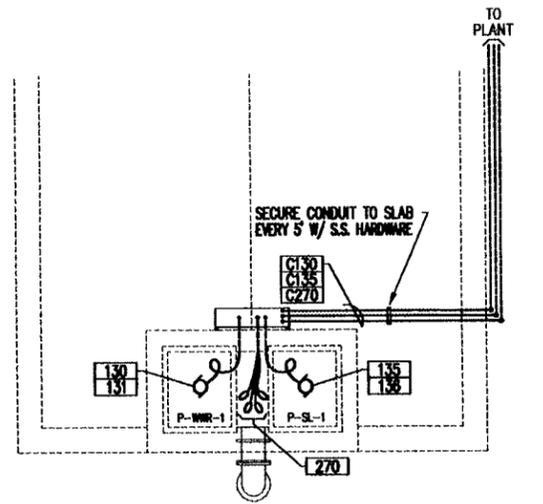
ELECTRICAL SITE PLAN
SCALE: 1"=20'
Graphic Scale

- GENERAL NOTES**
- SEE SHEETS INDICATED FOR FUTURE DETAILS.
 - LOCATE ALL EXISTING UNDERGROUND FACILITIES, UTILITIES, CIRCUITRY, ETC. PRIOR TO CONSTRUCTION & PROTECT FROM DAMAGE DURING CONSTRUCTION. DAMAGE DURING CONSTRUCTION SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.
 - FIELD CONFIRM CONDUIT ROUTING.
 - CONTRACTOR SHALL RESTORE ALL DISTURBED SOIL, SOD, & BITUMINOUS PAVEMENT.
 - COORDINATE ELECTRICAL SERVICE W/ UTILITY. SECTION 16400.

- NUMBERED NOTES**
- DIRECTIONAL BORE CONDUIT 36" UNDER STREET AND TO WELL. SEE WELL CONNECTION DETAIL.
 - DIRECTIONAL BORE CONDUIT 36" UNDER PAVEMENT/CONCRETE. AT NO TIME SHALL FIRE STATION TRAFFIC BE IMPEDED.
 - UTILITY TRANSFORMER. COORDINATE EXACT LOCATION WITH UTILITY. SEE SECTION 16400.
 - 5/8" x 10' COPPER-CLAD STEEL GROUND ROD W/ EXOTHERMIC WELD TO CONDUCTOR SHOWN. SET TOP AT 18" BELOW GRADE.
 - #1/0 BARE STRANDED GROUND CONDUCTOR AT 18" BELOW GRADE. CONNECT TO SWITCHBOARD GROUND.
 - GENERATOR/SWITCHBOARD SLAB. PROVIDE CLEARANCE BETWEEN GENERATOR AND SWITCHBOARD AS RECOMMENDED BY GENERATOR MFR.
 - NEMA 3R GENERATOR SWITCHBOARD. SEE SECTION 16200.
 - 112.5kVA, 480/208V, 3Ø, 4 WIRE, NEMA 3R, PAD-MOUNT, OUTDOOR, DRY-TYPE TRANSFORMER.
 - EXISTING CT CABINET. REMOVE CT'S AND USE AS PULLBOX. COORDINATE WITH UTILITY.
 - TERMINATE FEEDER ON EXISTING PANEL. PROVIDE NEW LUGS IF REQUIRED. GROUND PER CODE.



RECLAIM TANK SECTION
SCALE: 1/4" = 1'-0"



RECLAIM TANK ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

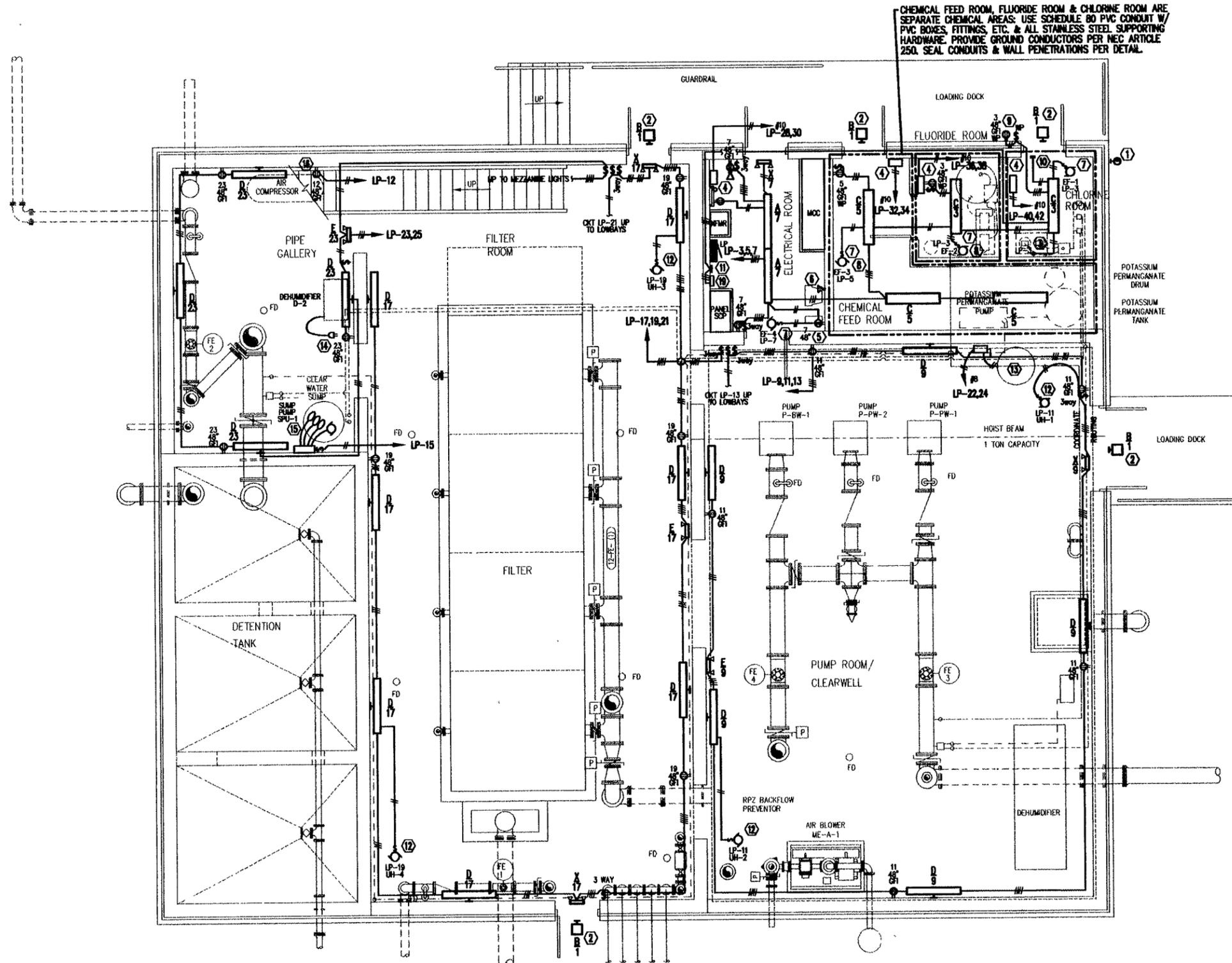
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SIGNATURE: *William R. Engelhardt* TYPED OR PRINTED NAME: WILLIAM R. ENGELHARDT
DATE: 10 SEP 01 REG. NO.: 18825

BOLTON & MIENK, INC
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WILLIAM R. ENGELHARDT ASSOC.
CONSULTING ENGINEERS
CHASKA, MINNESOTA

REV.	BY	DATE
0	P.L.	9-10-2001

WATERTOWN, MINNESOTA	SHEET
WATER TREATMENT FACILITY	
ELECTRICAL SITE PLAN & RECLAIM TANK PLAN	6.02



CHEMICAL FEED ROOM, FLUORIDE ROOM & CHLORINE ROOM ARE SEPARATE CHEMICAL AREAS. USE SCHEDULE 80 PVC CONDUIT W/ PVC BOXES, FITTINGS, ETC. & ALL STAINLESS STEEL SUPPORTING HARDWARE. PROVIDE GROUND CONDUCTORS PER NEC ARTICLE 250. SEAL CONDUITS & WALL PENETRATIONS PER DETAIL.

GENERAL NOTES

1. FIELD COORDINATE CONDUIT ROUTING. CONDUIT NOT ALLOWED ON EXTERIOR OF BUILDING, UNLESS SPECIFICALLY INDICATED.
2. HVAC POWER CIRCUITRY BY DIV. 16. INTERLOCK, DAMPER ACTUATORS, & CONTROL CIRCUITRY BY T.C. CONTRACTOR.
3. CONNECT ALL TELEPHONE JACKS BACK TO TELEPHONE BOARD.
4. FIELD CONFIRM CONDUIT ROUTING.

NUMBERED NOTES

- 1 TORK #2101, OR EQUAL, 1800VA PHOTOCONTROL AT 120" FOR EXTERIOR LIGHTING. SEAL PENETRATION. AIM NORTH.
- 2 INTERCONNECT EXTERIOR FIXTURES THRU BUILDING. ROUTE 2-1/C-#12-1/2" TO LP-1 VIA PHOTOCONTROL.
- 3 CONNECT CHLORINE SCALE (DIV. 11) TO LP-3 AS SHOWN. CONFIRM CONNECTION DETAILS.
- 4 3kW, 208V, WALL HEATER W/ SURFACE MOUNTING FRAME, THERMOSTAT, & DISCONNECT SWITCH. Q-MARK LFK-404, WITH OPTIONS AS INDICATED, OR EQUAL.
- 5 DUPLEX OUTLET FOR COMPUTER. CONFIRM LOCATION.
- 6 TELEPHONE OUTLET FOR COMPUTER CONFIRM LOCATION. ROUTE 4-PAIR #22AWG TELEPHONE CABLE IN 1/2" CONDUIT TO TELEPHONE BOARD.
- 7 EXHAUST FAN (DIV. 15). FURNISH & INSTALL DISCONNECT SWITCH AND MAKE CONNECTIONS.
- 8 INTERLOCK WITH LIGHTING CIRCUIT.
- 9 MOMENTARY CONTACT SWITCH. SEE SCHEMATIC ON SHEET 6.11. FURNISH & INSTALL PASS & SEYMOUR #4600-1, OR EQUAL, WP FLUSH LOCKING BOX.
- 10 MOUNT LIMIT SWITCH ON DOOR. SEE SCHEMATIC ON SHEET 6.11.
- 11 CHLORINE RELAY ENCLOSURE. SEE SCHEMATIC ON SHEET 6.11 FOR WIRING REQUIREMENTS.
- 12 GAS-FIRED UNIT HEATER (DIV. 15). FURNISH AND INSTALL DISCONNECT SWITCH.
- 13 WATER HEATER (DIV. 15). FURNISH & INSTALL 240V, 2 POLE, 60A, HEAVY DUTY, NON-FUSED DISCONNECT & MAKE UNIT CONNECTIONS AS SHOWN.
- 14 DEDICATED RECEPTACLE FOR CORD CONNECTED DEHUMIDIFIER.
- 15 SUMP PUMP, FLOATS & CONTROL PANEL (DIV. 15). FURNISH & INSTALL DISCONNECT AND MAKE CONNECTIONS.
- 16 OUTLET FOR AIR DRYER. FIELD LOCATE.
- 17 2"W x 4'H x 3/4" PAINTED PLYWOOD BOARD FOR TELEPHONE EQUIPMENT. FIELD LOCATE.
- 18 STUB OUT 2" PVC CONDUIT FOR TELEPHONE COMPANY USE.
- 19 CHLORINE LEAK DETECTOR (DIV. 11). MOUNT AT 54".

North
LOWER LEVEL LIGHTING & GENERAL POWER PLAN
 SCALE: 1/4"=1'-0"
 0 1 2 3 4 5 6 8 12
 Graphic Scale

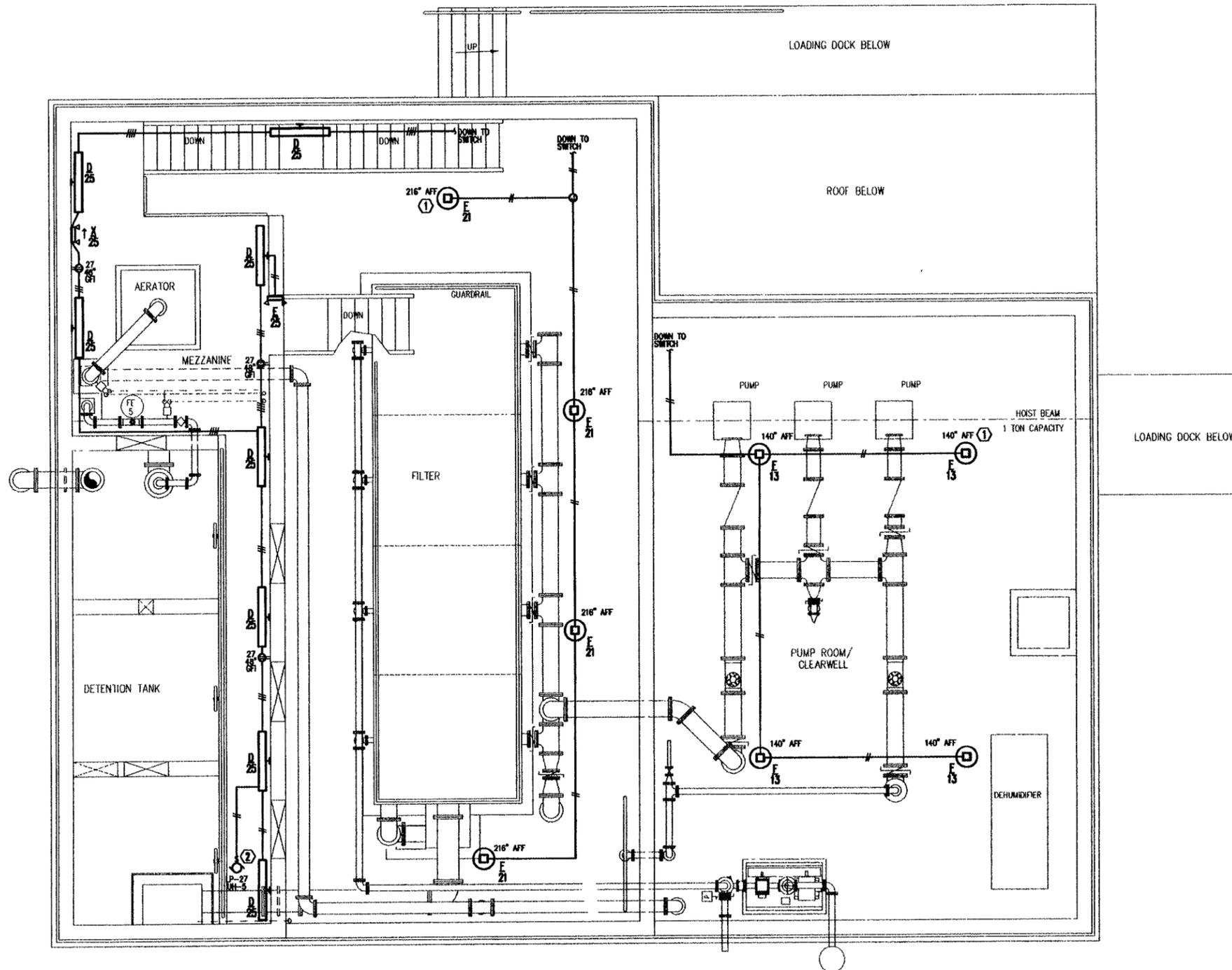
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 SIGNATURE: *William R. Engelhardt*
 PRINTED NAME: WILLIAM R. ENGELHARDT
 DATE: 10 SEP 01 REG. NO.: 18922

BOLTON & MENK, INC
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FARMONT, MN SLEEPY EYE, MN
 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV	BY	DATE
0	P.L.	9-10-2001

WATERTOWN, MINNESOTA	SHEET
WATER TREATMENT FACILITY	
LOWER LEVEL LIGHTING & GENERAL POWER PLAN	6.03



GENERAL NOTES

1. FIELD COORDINATE CONDUIT ROUTING. CONDUIT NOT ALLOWED ON EXTERIOR OF BUILDING, UNLESS SPECIFICALLY INDICATED.
2. SEE LOWER LEVEL LIGHTING & GENERAL POWER PLAN FOR CONTINUATION OF CIRCUITRY AND ADDITIONAL REQUIREMENTS.

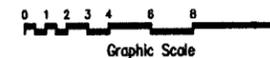
NUMBERED NOTES

- ① FIELD COORDINATE EXACT FIXTURE LOCATION & MOUNTING HEIGHT (FOR BEST LIGHTING SPREAD, RELAMPING, ETC). TYPICAL.
- ② GAS-FIRED UNIT HEATER (DIV. 15). FURNISH AND INSTALL DISCONNECT SWITCH.



UPPER LEVEL LIGHTING & GENERAL POWER PLAN

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



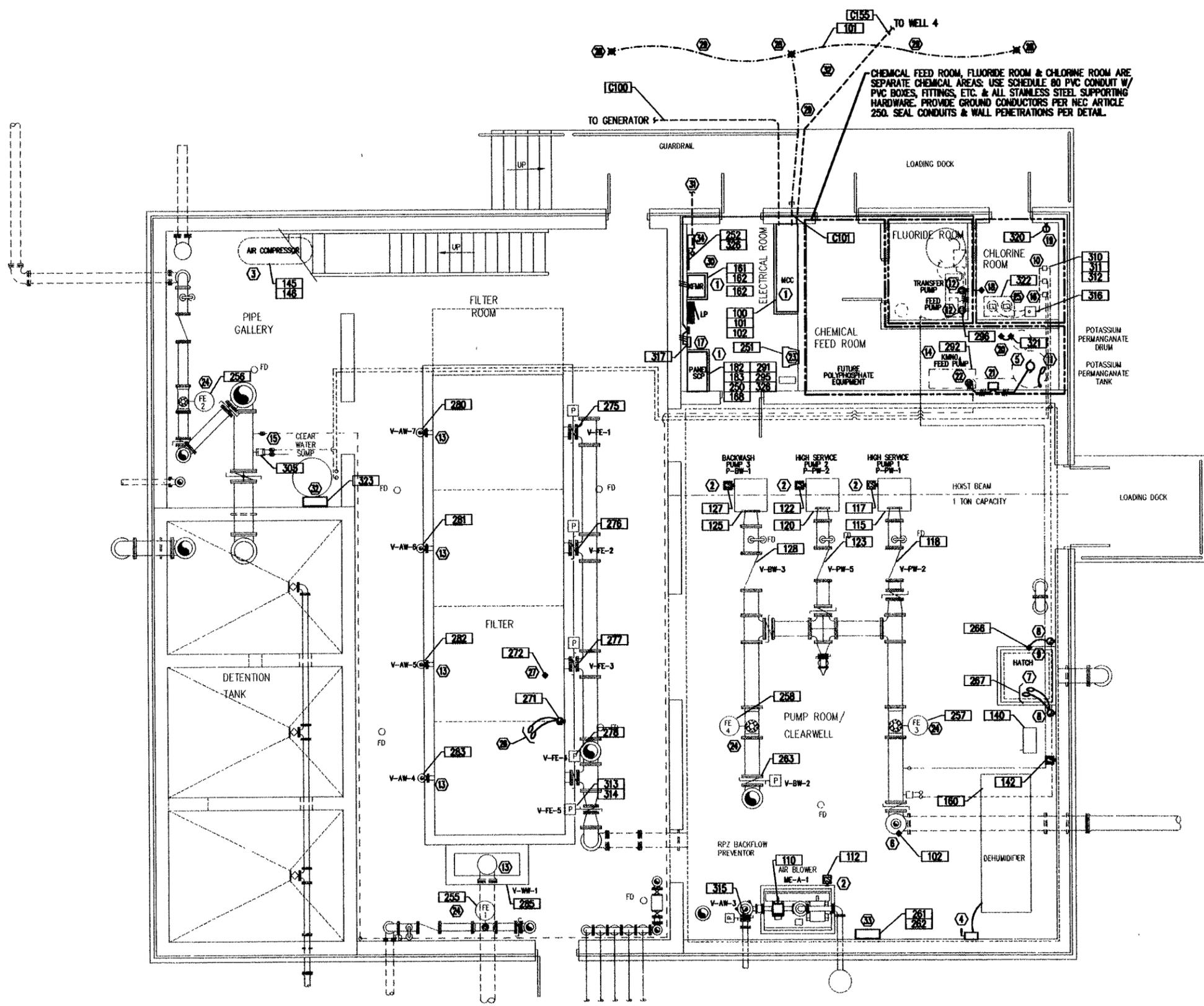
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 SIGNATURE: *Sheldon A. Schmitt*
 PRINTED NAME: SHELDON A. SCHMITT
 DATE: 10 SEP 01 REG. NO.: 18825

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 BURNSVILLE, MN WILLMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV.	BY	DATE
0	P.R.L.	9-10-2001

WATERTOWN, MINNESOTA	
WATER TREATMENT FACILITY	
UPPER LEVEL LIGHTING & GENERAL POWER PLAN	



North
LOWER LEVEL PROCESS ELECTRICAL PLAN
 SCALE: 1/4"=1'-0"
 0 1 2 3 4 6 8 12
 Graphic Scale

- GENERAL NOTES**
1. FIELD CONFIRM CONDUIT ROUTING.
 2. CIRCUITS BETWEEN MCC & PANEL 'A' NOT SHOWN. SEE ONE-LINE DIAGRAM & SCHEMATICS.
 3. SEE SITE PLAN FOR UNDERGROUND CONDUIT ROUTING.
- NUMBERED NOTES**
- 1 2" CONCRETE BASE W/ 3/4" CHAMFER.
 - 2 FABRICATE STRUT STAND FOR CONTROL SWITCH. MOUNT SWITCH AT 48" ABOVE FINISHED FLOOR. SECURE STAND TO CONCRETE BASE USING TWO (2) 1/2" X 4" STAINLESS STEEL ANCHOR BOLTS, WASHERS AND NUTS PER VERTICAL MEMBER. USE HOT-DIPPED GALVANIZED STRUT AND ALL STAINLESS STEEL HARDWARE. COORDINATE LOCATION.
 - 3 PACKAGE AIR COMPRESSOR (DIV. 15). MAKE UNIT CONNECTIONS.
 - 4 DISCONNECT SWITCH PER ONE-LINE DIAGRAM. SECURE WITH STAINLESS STEEL HARDWARE. MAKE UNIT CONNECTIONS.
 - 5 POTASSIUM PERMANGANATE TANK MIXER (DIV. 11). CONFIRM REQUIREMENTS.
 - 6 BOND SERVICE ENTRANCE GROUND TO WATER MAIN FLANGE BOLT.
 - 7 FLOAT SWITCHES (SECTION 16950). INSTALL WITH MANUFACTURER'S STANDARDS ANCHOR MOUNTING KIT USING ALL STAINLESS STEEL HARDWARE. ROUTE CABLES IN SCHEDULE 80 PVC CONDUIT BELOW CONCRETE SLAB TO JUNCTION BOX.
 - 8 NEMA 4X CABLE JUNCTION BOX. MOUNT TO WALL W/ STAINLESS STEEL HARDWARE.
 - 9 ULTRASONIC LEVEL TRANSDUCER (SECTION 16950). INSTALL WITH STAINLESS STEEL HARDWARE. ROUTE CABLE IN SCHEDULE 80 PVC CONDUIT BELOW CONCRETE SLAB. FIELD CONFIRM EXACT LOCATION TO AVOID OBSTRUCTIONS IN THE SIGNAL PATH OF THE TRANSDUCER AND ALLOW ACCESS FOR MAINTENANCE.
 - 10 HSP GAS CONTROL VALVE. (DIV. 11). CONFIRM LOCATION.
 - 11 POTASSIUM PERMANGANATE MIX TANK FLOAT SWITCH (SECTION 16950). SECURE MOUNTING USING ALL PVC COMPONENTS.
 - 12 FLUORIDE PUMP RECEPTACLE. PROVIDE ENGRAVED NAMEPLATES PER PANEL SCP SCHEMATICS. COORDINATE EXACT LOCATION.
 - 13 VALVE LOCATION IN VERTICAL PIPE.
 - 14 POTASSIUM PERMANGANATE FEED PUMP. COORDINATE EXACT DETAILS WITH MANUFACTURER.
 - 15 CHLORINATION WATER SOLENOID VALVE (DIV. 11).
 - 16 CHLORINE SWITCHOVER UNIT. CONFIRM REQUIREMENTS W/ SUPPLIER.
 - 17 CHLORINE LEAK DETECTOR (DIV. 11). MOUNT AT 54".
 - 18 CHLORINE LEAK SENSOR (DIV. 11). MOUNT PER MANUFACTURER'S RECOMMENDATIONS. ROUTE MANUFACTURER SUPPLIED CABLE TO DETECTOR IN 3/4" SCHEDULE 80 PVC CONDUIT.
 - 19 LOW TEMP ALARM THERMOSTAT AT SECTION 16950). MOUNT AT 54".
 - 20 SPRINKLER TAMPER & FLOW SWITCHES (DIV. 15). CONFIRM LOCATION.
 - 21 FURNISH AND INSTALL ATC #306-017-A00-P-X, OR EQUAL, 60 MINUTE REPEAT CYCLE TIMER & AN INDUSTRIAL RELAY W/ 30A, 120VAC LOAD CONTACTS. FLUSH MOUNT IN PVC ENCLOSURE. FOR CONTROL OF POTASSIUM PERMANGANATE MIXER. SEE SCHEMATICS.
 - 22 POTASSIUM PERMANGANATE FEED PUMP OUTLET. PROVIDE ENGRAVED NAMEPLATES PER PANEL SCP SCHEMATICS. COORDINATE MOUNTING HEIGHT.
 - 23 PC, PRINTER & UPS (SECTION 16950). CONFIRM LOCATION WITH OWNER.
 - 24 PROPELLER FLOWMETER (SECTION 16950).
 - 25 CHLORINE SCALE (DIV. 11).
 - 26 FLOAT SWITCHES (DIVISION 11). SUSPEND FROM CABLE RACK. CONFIRM ELEVATION. COORDINATE LOCATION & MOUNTING.
 - 27 ULTRASONIC LEVEL TRANSDUCER (SECTION 16950). INSTALL WITH STAINLESS STEEL HARDWARE. COORDINATE WITH MFR.
 - 28 5/8" X 10' COPPER-CLAD STEEL GROUND ROD W/ EXOTHERMIC WELD TO CONDUCTOR SHOWN. SET TOP AT 18" BELOW GRADE.
 - 29 #1/0 BARE STRANDED GROUND CONDUCTOR AT 18" BELOW GRADE.
 - 30 TELEPHONE BOARD. SEE 6.03.
 - 31 2-INCH SCHEDULE 80 PVC CONDUIT FOR TELEPHONE COMPANY USE. ROUTE IN OR BELOW SLAB. COORDINATE W/ TELEPHONE COMPANY.
 - 32 SUMP PUMP CONTROL PANEL (DIV. 15).
 - 33 BACKWASH AIR BLOWER CONTROL PANEL (DIV. 11).
 - 34 WALL HEATER. SEE 6.03.

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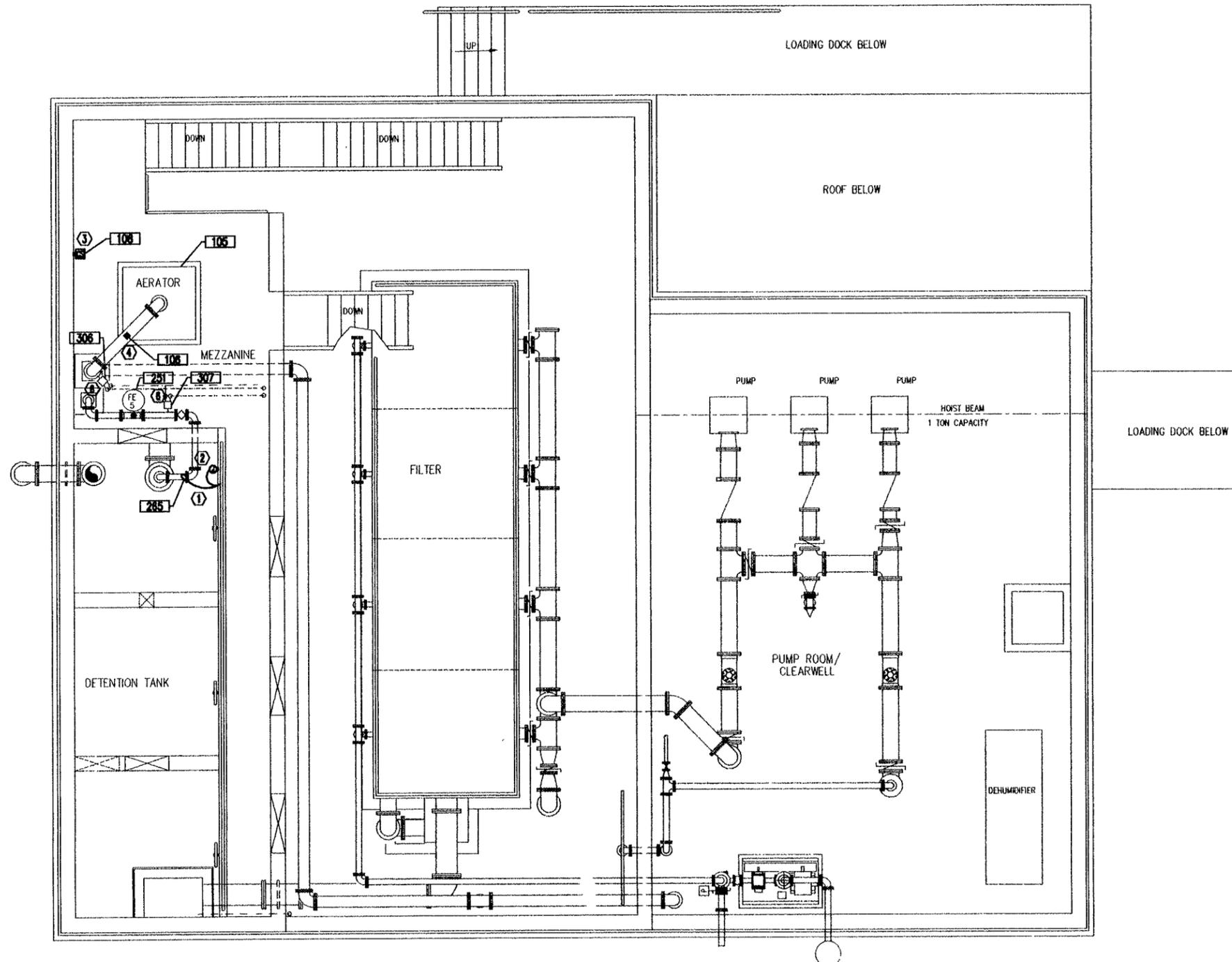
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 CONSULTING ENGINEERS
 CHASKA, MINNESOTA

REV.	BY	DATE
0	P.A.E.	9-10-2001

WATERTOWN, MINNESOTA	
WATER TREATMENT FACILITY	
LOWER LEVEL PROCESS ELECTRICAL PLAN	

SHEET
6.05



- GENERAL NOTES**
1. FIELD CONFIRM CONDUIT ROUTING.
 2. CIRCUITS BETWEEN MCC & PANEL 'A' NOT SHOWN. SEE ONE-LINE DIAGRAM & SCHEMATICS.
 3. SEE SITE PLAN FOR UNDERGROUND CONDUIT ROUTING.

- NUMBERED NOTES**
- ① LOW TRAVEL, GEMS-TYPE FLOAT SWITCH (16950). SECURE FLOAT SWITCH CABLE TO RAIL W/ STAINLESS STEEL HARDWARE.
 - ② NEMA 4X FLOAT SWITCH CABLE JUNCTION BOX. MOUNT TO RAIL WITH STAINLESS STEEL HARDWARE.
 - ③ SECURE CONTROL SWITCH TO WALL WITH STAINLESS STEEL HARDWARE.
 - ④ MOTORIZED AERATOR DAMPER. CONFIRM LOCATION.
 - ⑤ PROPELLER FLOWMETER (SECTION 16950).
 - ⑥ CHLORINATION WATER SOL'N VALVE (DIV. 11).

North
UPPER LEVEL PROCESS ELECTRICAL PLAN
 SCALE: 1/4"=1'-0"
 0 1 2 3 4 6 8 12
 Graphic Scale

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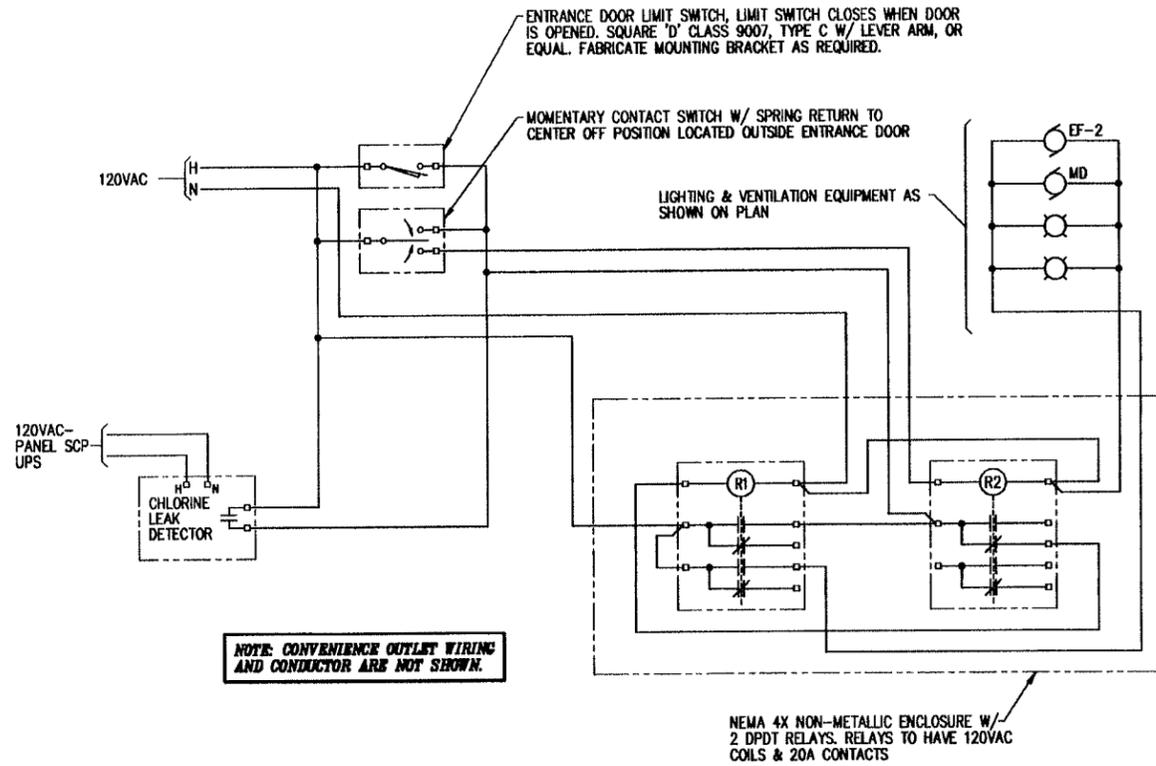
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WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 UPPER LEVEL PROCESS ELECTRICAL PLAN

SHEET
6.06



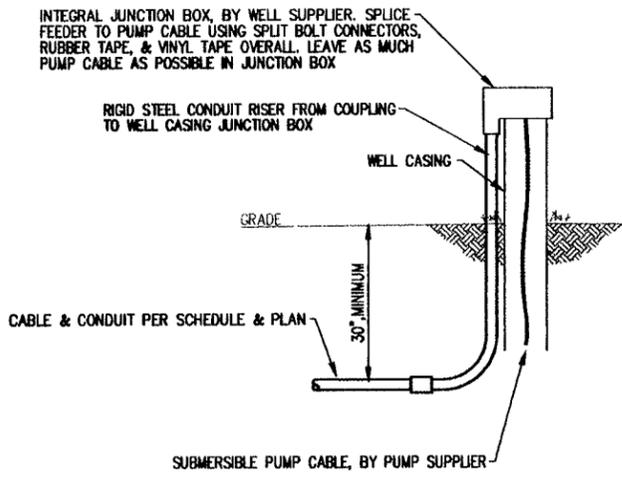
NOTE: CONVENIENCE OUTLET WIRING AND CONDUCTOR ARE NOT SHOWN.

CHLORINE ROOM LIGHTS/EXHAUST SCHEMATIC
NO SCALE

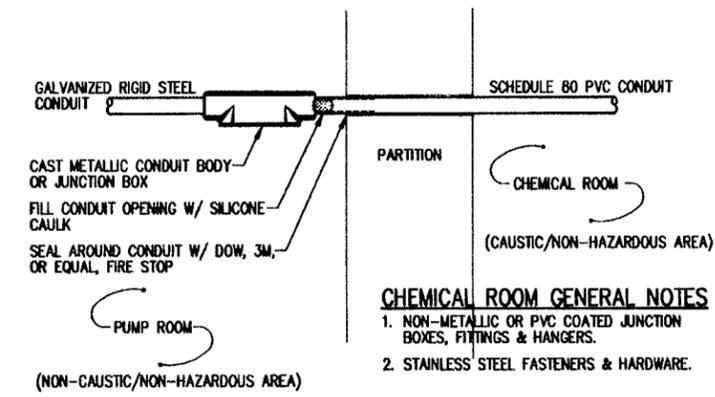
WATER PLANT LIGHTING PANEL--LP										
MOUNTING SURFACE	LOCATION	SERVICE				REMARKS				
		AMPS	VOLTS	PHASE	WIRE	175A MAIN BREAKER				
	ELECTRICAL ROOM	200	120/208	3	4					
CIRCUIT DESCRIPTION	BKR	CKT	ANTICIPATED LOAD IN VA	PHASE			ANTICIPATED LOAD IN VA	CKT	BKR	CIRCUIT DESCRIPTION
				A	B	C				
EXTERIOR LIGHTING & PHOTOCONTROL	20A1P	1	600				1000	2	20A1P	PANEL SCP
LIGHTS & OUTLETS--CHLORINE FLUORIDE	20A1P	3	300				350	4	20A1P	PANEL SCP (POTASSIUM PERMAG. SYSTEM)
LIGHTS & OUTLETS--CHEMICAL ROOM	20A1P	5	400				350	6	20A1P	PANEL SCP (FLUOR & PHOSPHATE SYSTEM)
LIGHTS & OUTLETS--ELEC RM	20A1P	7	500				200	8	20A1P	HSP CHLORINE GAS CONTROL VALVE
FLUOR LIGHTS--PUMP ROOM	20A1P	9	400				300	10	20A1P	BLOWER CONTROL PANEL
OUTLETS--PUMP ROOM	20A1P	11	1000				300	12	20A1P	AIR DRYER
LOWBAY LIGHTS--PUMP ROOM	20A1P	13	1400				---	14	20A1P	SPARE
SUMP PUMP--FILTER ROOM	20A1P	15	500				---	16	20A1P	SPARE
FLUOR LIGHTS--FILTER ROOM	20A1P	17	600				---	18	20A1P	SPARE
OUTLETS--FILTER ROOM	20A1P	19	1000				---	20	20A1P	SPARE
LOWBAY LIGHTS--FILTER ROOM	20A1P	21	1400				3000	22	40A	WATER HEATER
LIGHTS & OUTLETS--PIPE GALLERY	20A1P	23	600				3000	24	2P	"
LIGHTS--MEZZANINE	20A1P	25	500				---	26	20A1P	SPARE
OUTLETS--MEZZANINE	20A1P	27	600				1500	28	30A	ELECTRICAL ROOM UNIT HEATER
SPARE	20A1P	29	---				1500	30	2P	"
SPARE	20A1P	31	---				1500	32	30A	CHEMICAL ROOM UNIT HEATER
SPARE	20A1P	33	---				1500	34	2P	"
SPARE	20A1P	35	---				1500	36	30A	FLUORIDE ROOM UNIT HEATER
SPARE	20A1P	37	---				1500	38	2P	"
SPARE	20A1P	39	---				1500	40	30A	CHLORINE ROOM UNIT HEATER
SPARE	20A1P	41	---				1500	42	2P	"

LIGHT FIXTURE SCHEDULE						
TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	VOLTS	REMARKS
A	SURFACE MTD FLUORESCENT	LITHONIA	EJA232-GE8	2-32W-T8-3500K	120	1,2
B	WALL MTD CUT-OFF HPS	HUBBELL	NRG-317	1-70W-E17-CLEAR	120	2,3,6
C	SURFACE MTD FLUORESCENT	LITHONIA	DM232-GE8	2-32W-T8-3500K	120	1
D	WALL MTD FLUORESCENT	LITHONIA	DM232-GE8	2-32W-T8-3500K	120	1,4
E	STANDBY LIGHTING FIXTURE	LITHONIA	BELM2-H	HALOGEN BY MFR	120	4
F	STEM MTD METAL HALIDE	LITHONIA	TXV 320M A165 PULSE-START	1-320W-PULSE START MH	120	5
X	SINGLE FACE LED EXIT	LITHONIA	LHQM SW 1R H	LED & HALOGEN BY MFR	120	4

- SOLID STATE ELECTRONIC BALLAST.
- MOUNT AT 120", UNLESS NOTED OTHERWISE.
- WET LABEL, -20" BALLAST. CUT-OFF OPTICS.
- MOUNT AT 90", UNLESS NOTED OTHERWISE.
- PULSE-START LAMP & BALLAST TECHNOLOGY, VENTURE OR EQUAL. MOUNT AT HEIGHT INDICATED ON PLANS.
- FIXTURE LISTED FOR BIDDING PURPOSES. CONTRACTOR SHALL FIELD VERIFY & MATCH EXISTING FIXTURES AT ADJACENT FIRE STATION.



WELL PUMP CONNECTION DETAIL
NO SCALE



CHEMICAL ROOM CONDUIT PENETRATION DETAIL
NO SCALE

- CHEMICAL ROOM GENERAL NOTES**
- NON-METALLIC OR PVC COATED JUNCTION BOXES, FITTINGS & HANGERS.
 - STAINLESS STEEL FASTENERS & HARDWARE.

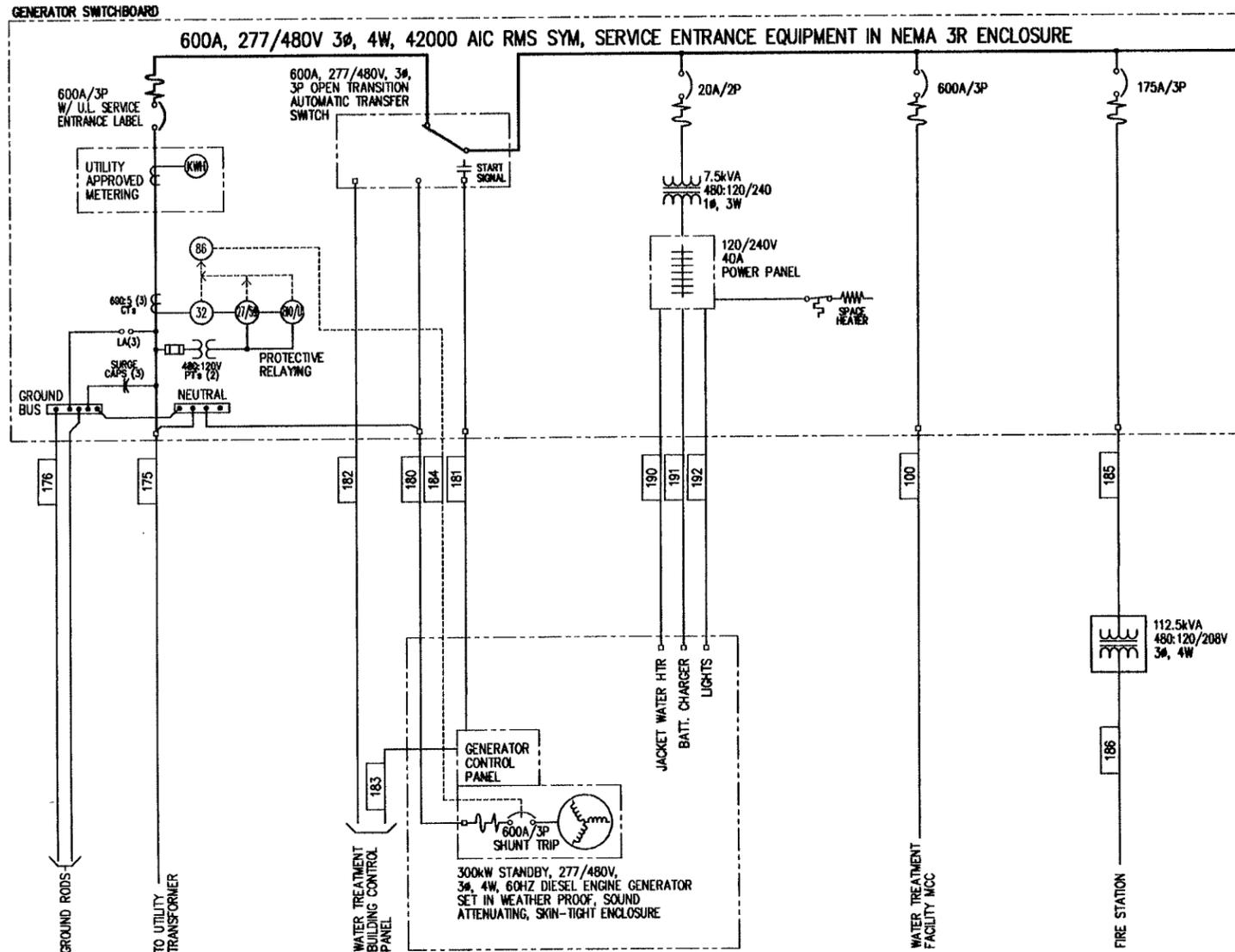
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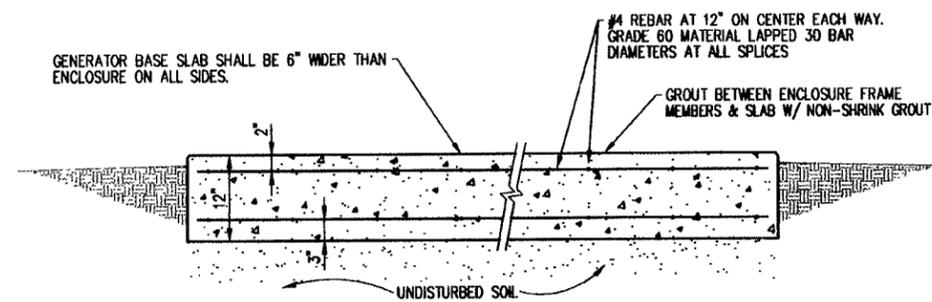
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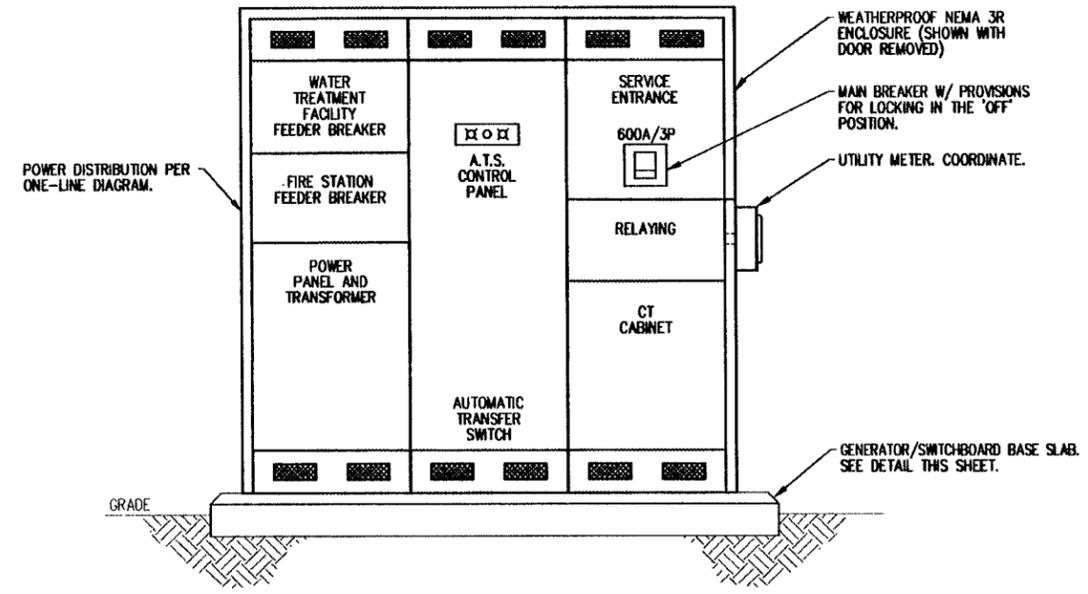
WATERTOWN, MINNESOTA	SHEET 6.07
WATER TREATMENT FACILITY	
SCHEDULES, DETAILS & SCHEMATICS	



ONE-LINE DIAGRAM
NO SCALE

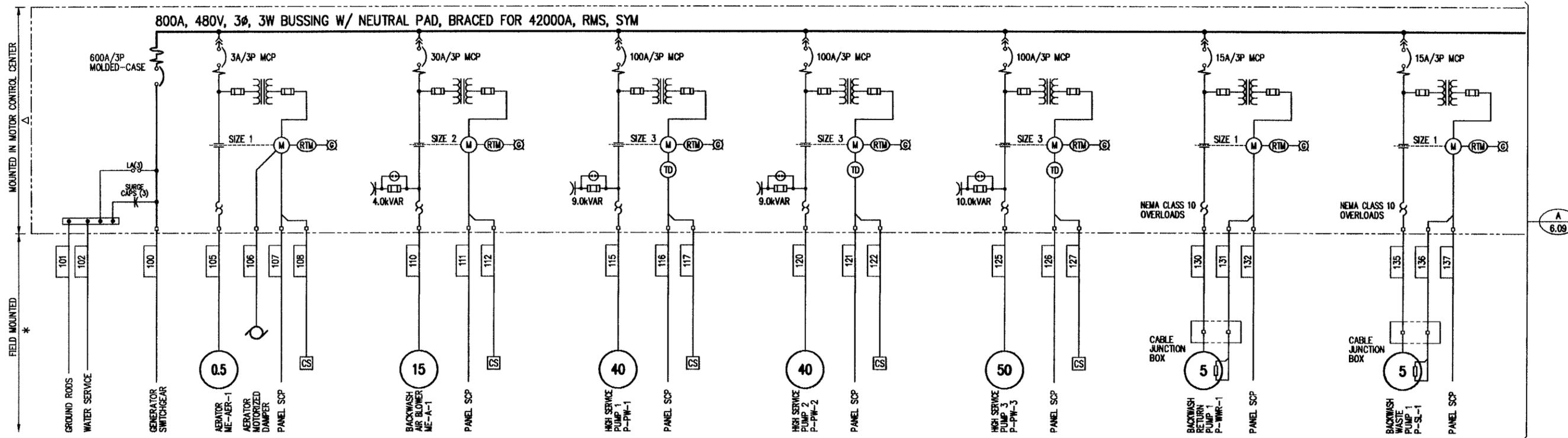


GENERATOR/SWITCHBOARD BASE SLAB
NO SCALE

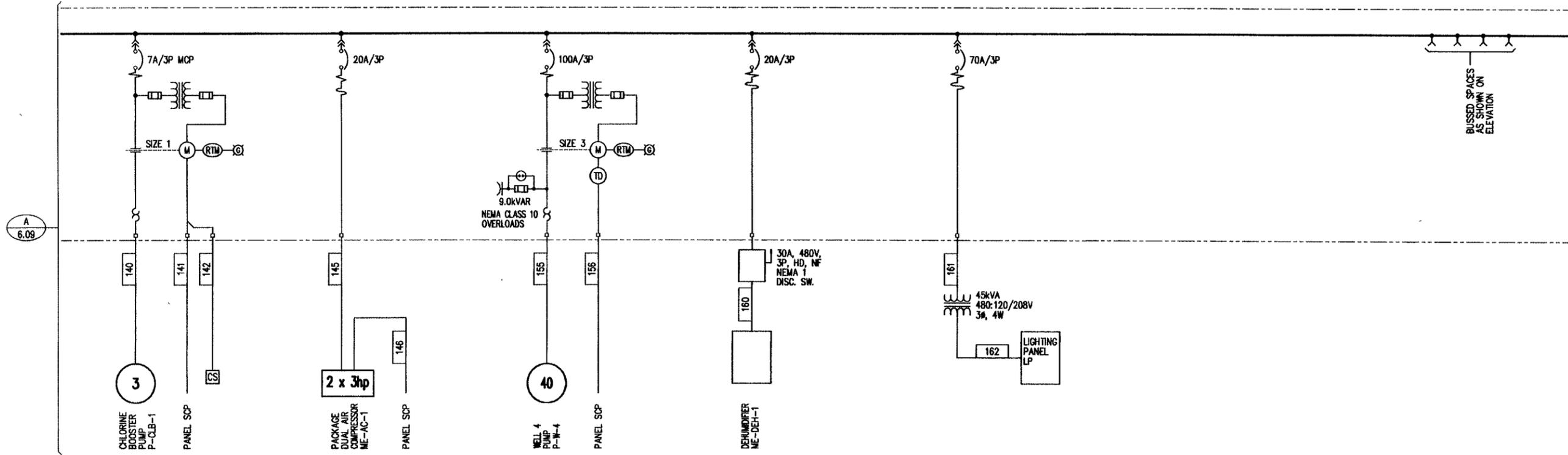


SERVICE ENTRANCE EQUIPMENT ELEVATION
NO SCALE

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MOTOR CONTROL CENTER ONE-LINE DIAGRAM
NO SCALE



MOTOR CONTROL CENTER ONE-LINE DIAGRAM
NO SCALE

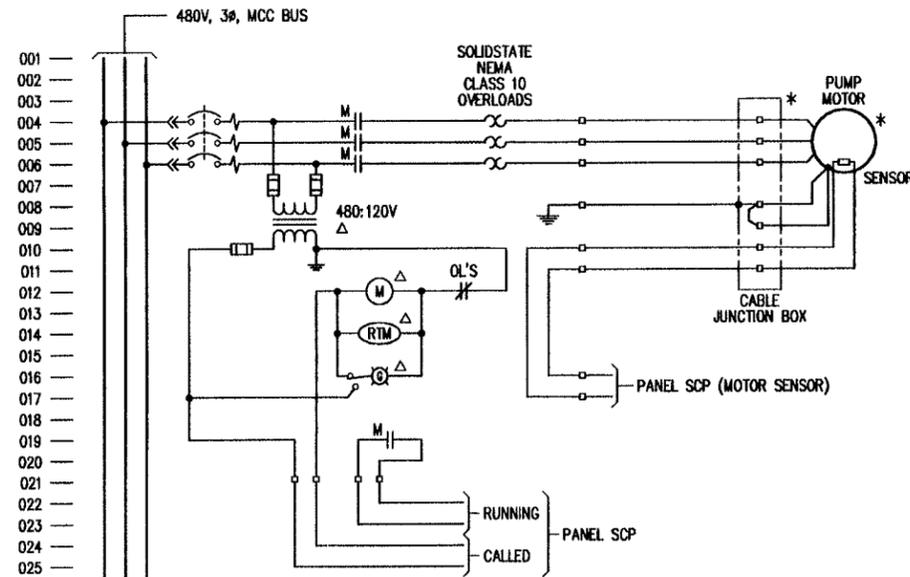
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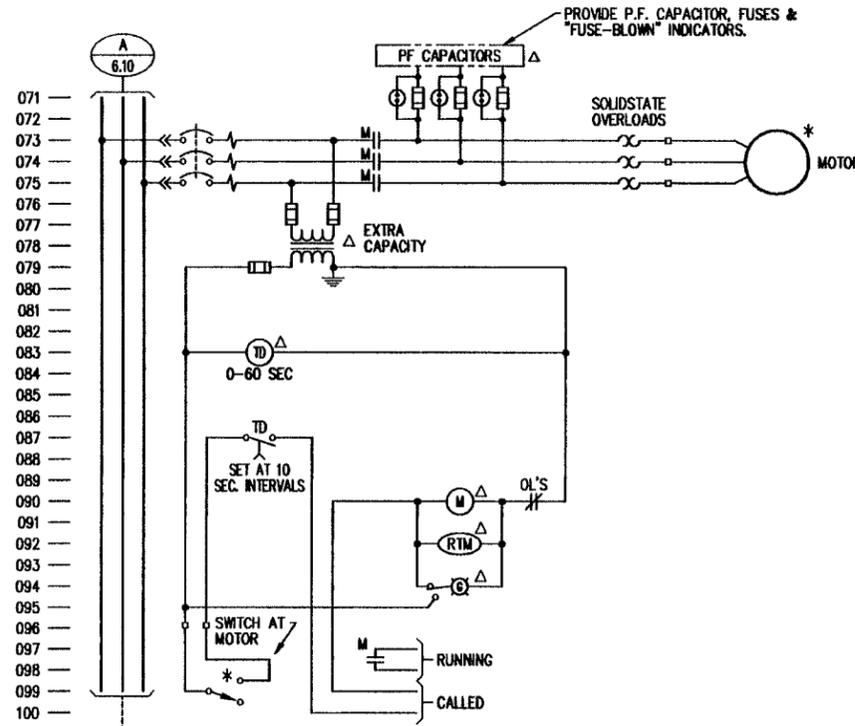
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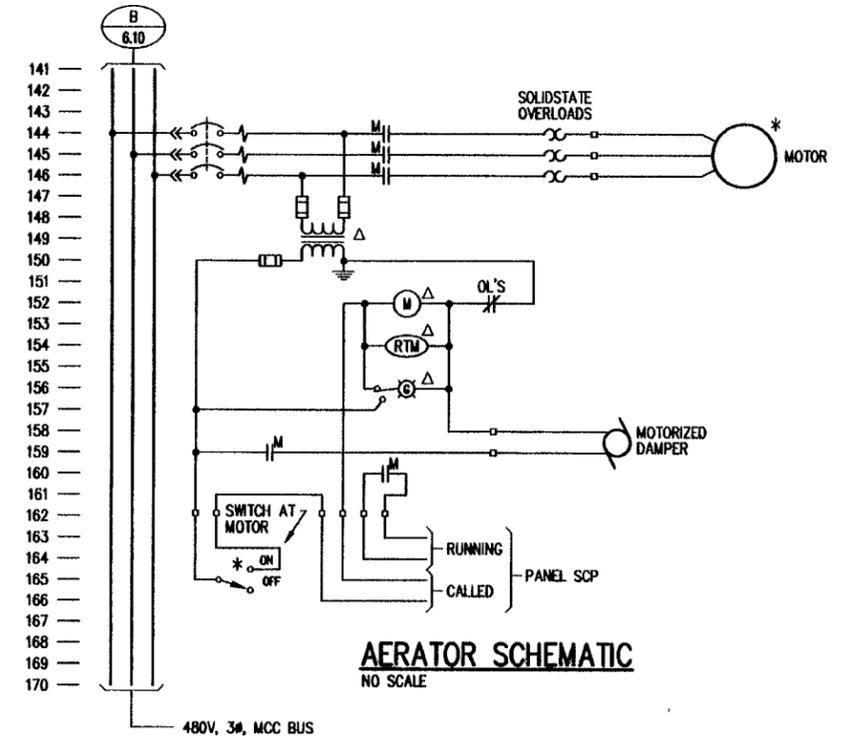
WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
MOTOR CONTROL CENTER ONE-LINE DIAGRAM



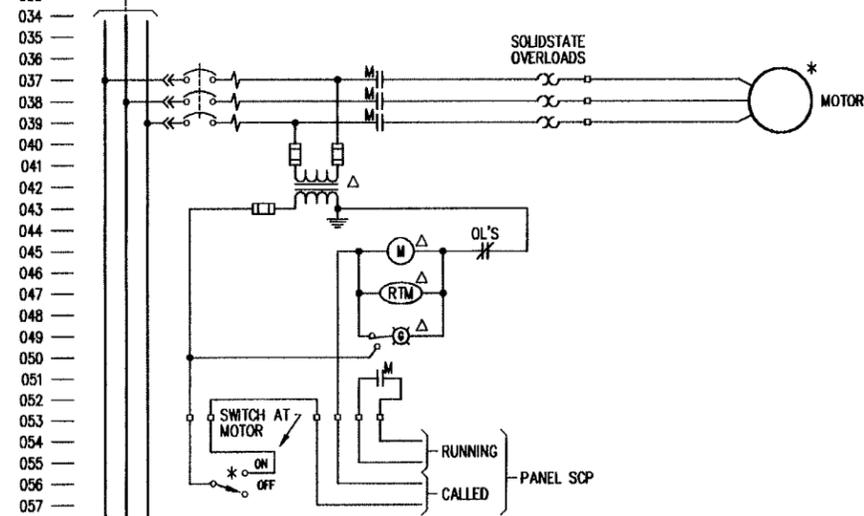
SUBMERSIBLE PUMP SCHEMATIC
NO SCALE TYPICAL: BACKWASH RETURN PUMP 1
BACKWASH WASTE PUMP 1



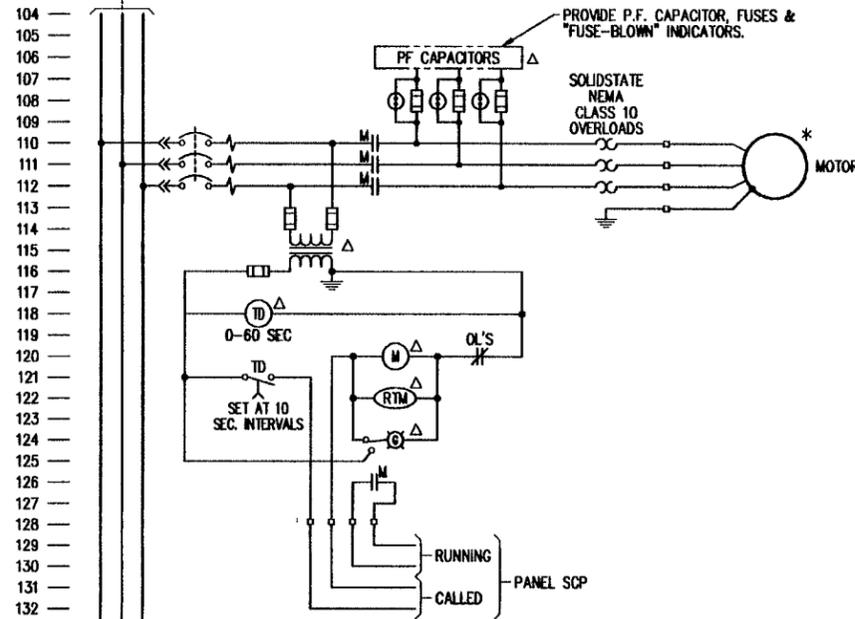
HIGH SERVICE PUMP SCHEMATIC
NO SCALE TYPICAL: PUMPS 1, 2 & 3



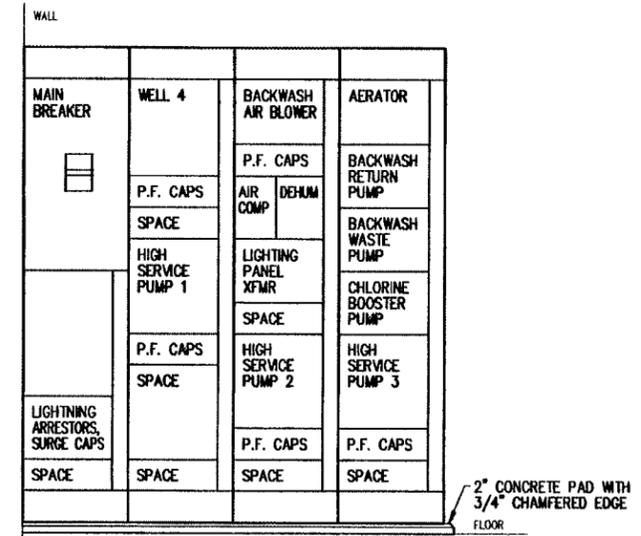
AERATOR SCHEMATIC
NO SCALE



PUMP/BLOWER SCHEMATIC
NO SCALE TYPICAL: BACKWASH AIR BLOWER
CHLORINE BOOSTER PUMP



WELL PUMP SCHEMATIC
NO SCALE TYPICAL: WELL PUMPS 1 & 4



MOTOR CONTROL CENTER ELEVATION
SCALE: 3/4"=1'-0" SUGGESTED LAYOUT

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William R. Engelhardt
SIGNATURE OF PROFESSIONAL ENGINEER: WILLIAM R. ENGELHARDT
DATE: 10 SEP 01 REG. NO.: 12825

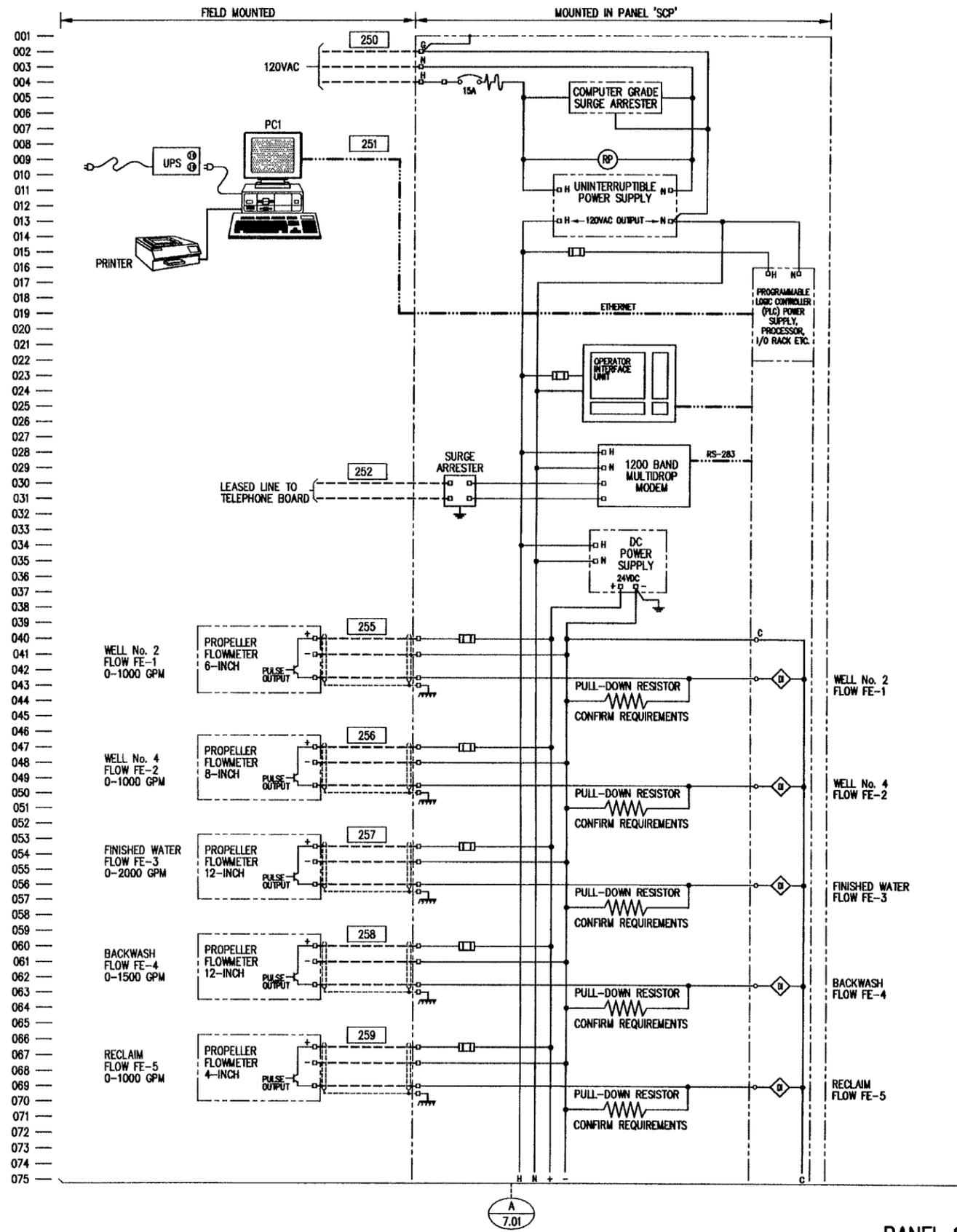
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CHASKA, MINNESOTA

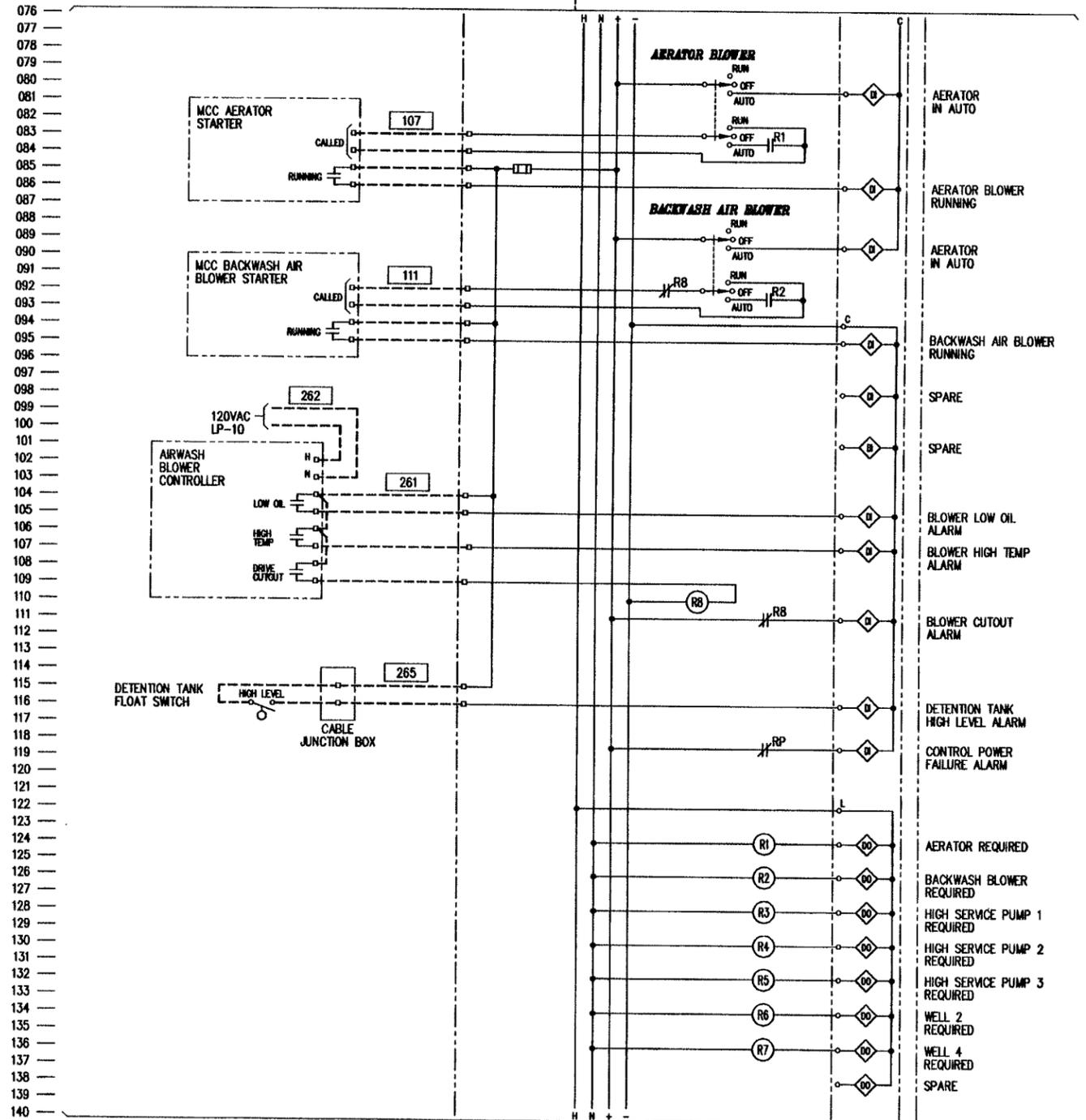
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WATERTOWN, MINNESOTA	
WATER TREATMENT FACILITY	
MOTOR CONTROL CENTER SCHEMATICS	

SHEET
6.10



PANEL SCP SCHEMATIC
NO SCALE



CONTROL PANEL GENERAL NOTES

1. MODIFY SCHEMATICS AS REQUIRED FOR UL508 LABEL AT NO ADDITIONAL COST TO THE OWNER. SEE SPECIFICATION SECTION 16950.
2. ORGANIZE & LACE ALL WIRING USING NYLON CABLE TIES.

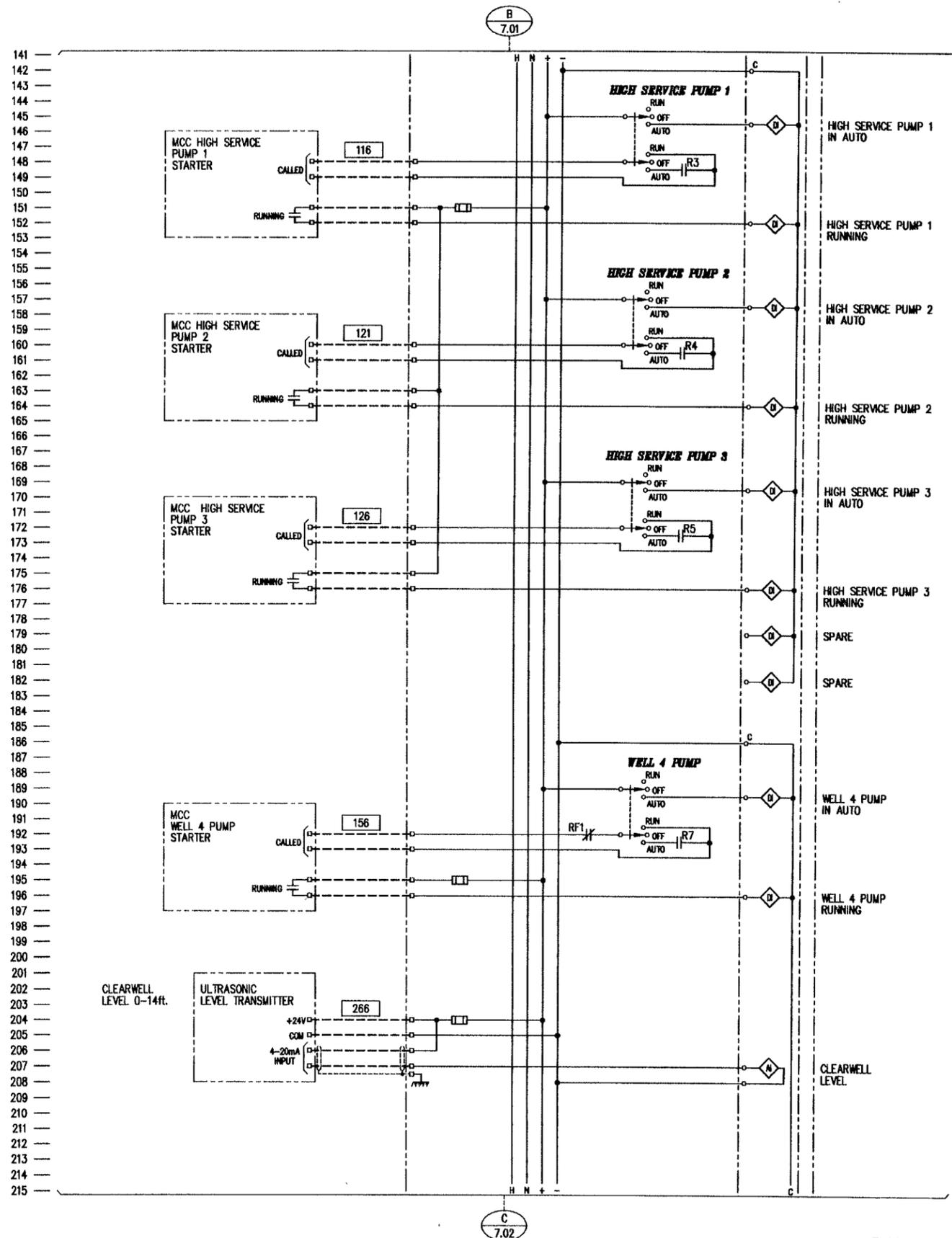
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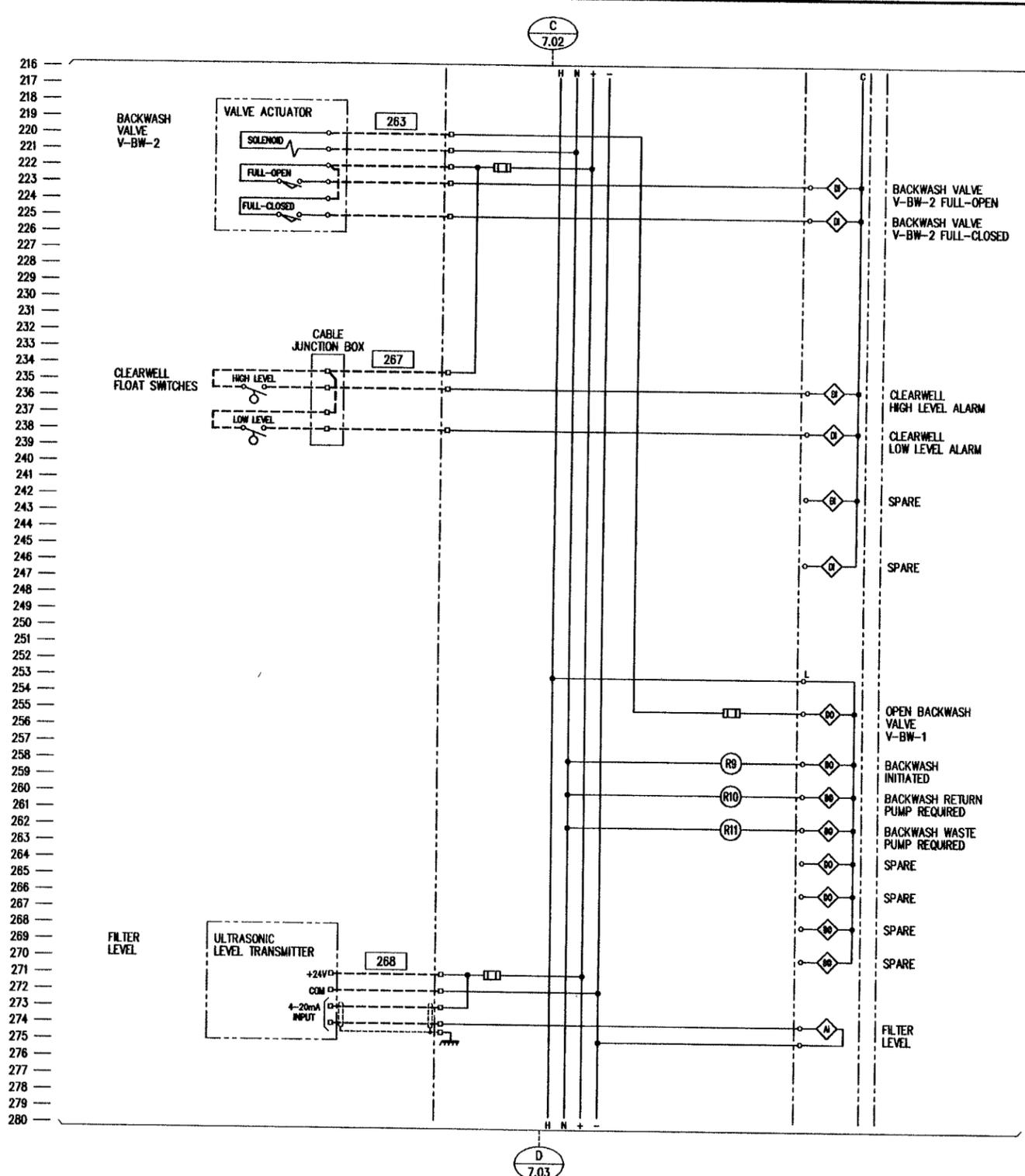
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WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 PANEL SCP SCHEMATIC



PANEL SCP SCHEMATIC
NO SCALE



CONTROL PANEL GENERAL NOTES

1. MODIFY SCHEMATICS AS REQUIRED FOR UL508 LABEL AT NO ADDITIONAL COST TO THE OWNER. SEE SPECIFICATION SECTION 16950.
2. ORGANIZE & LACE ALL WIRING USING NYLON CABLE TIES.

PLC SYMBOLS		LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DIGITAL OUTPUT (CONTACT)		PANEL WIRING
	DIGITAL INPUT, REMOTELY POWERED (24VDC UNLESS NOTED OTHERWISE)		FIELD WIRING
	ANALOG OUTPUT, 4-20mADC (SELF-POWERED)		CONDUCTOR SHIELD
	ANALOG INPUT, 4-20mADC (UNLESS NOTED OTHERWISE)		

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Sheldon J. Bornheim
 ENGINEER
 DATE: 10 SEP 01

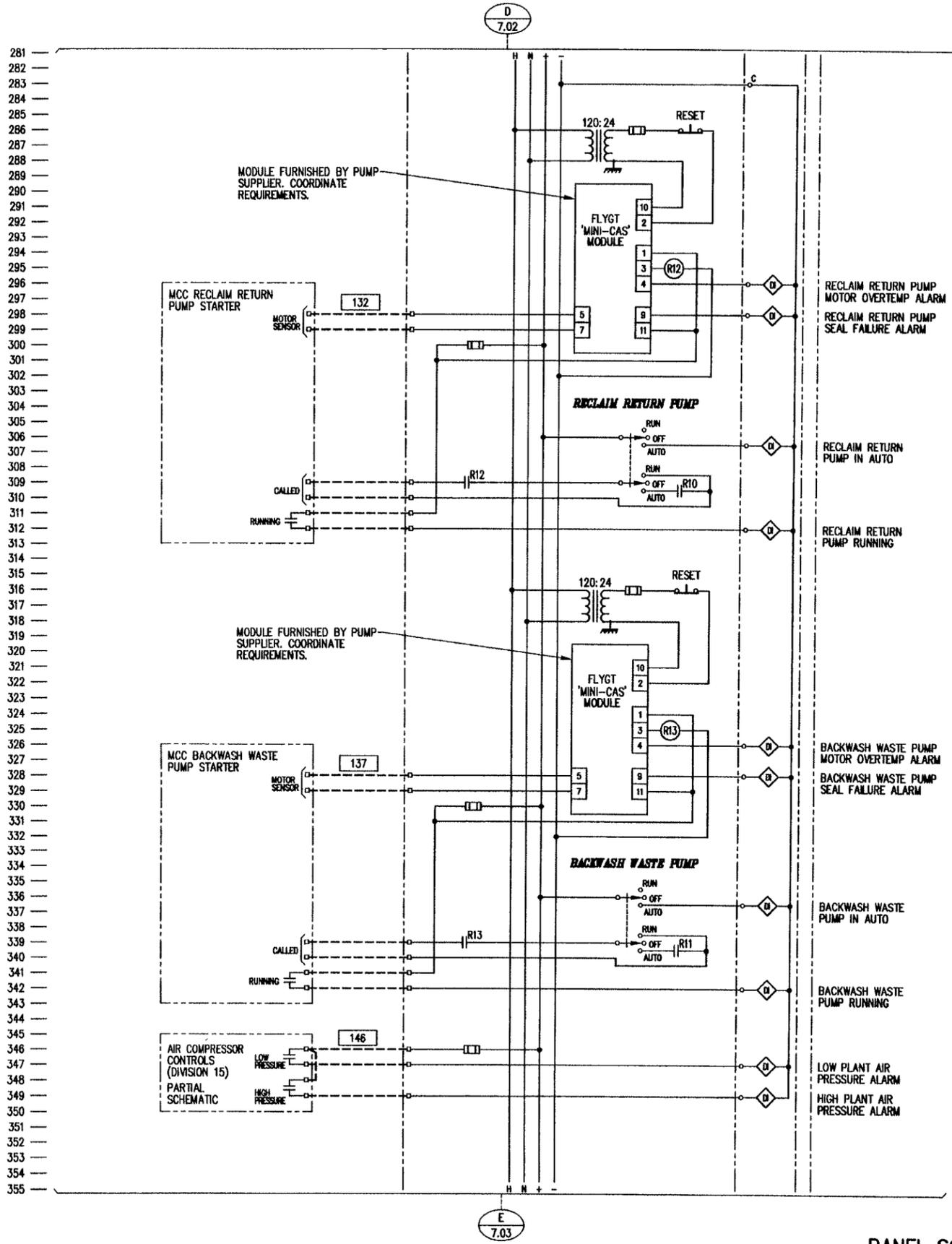
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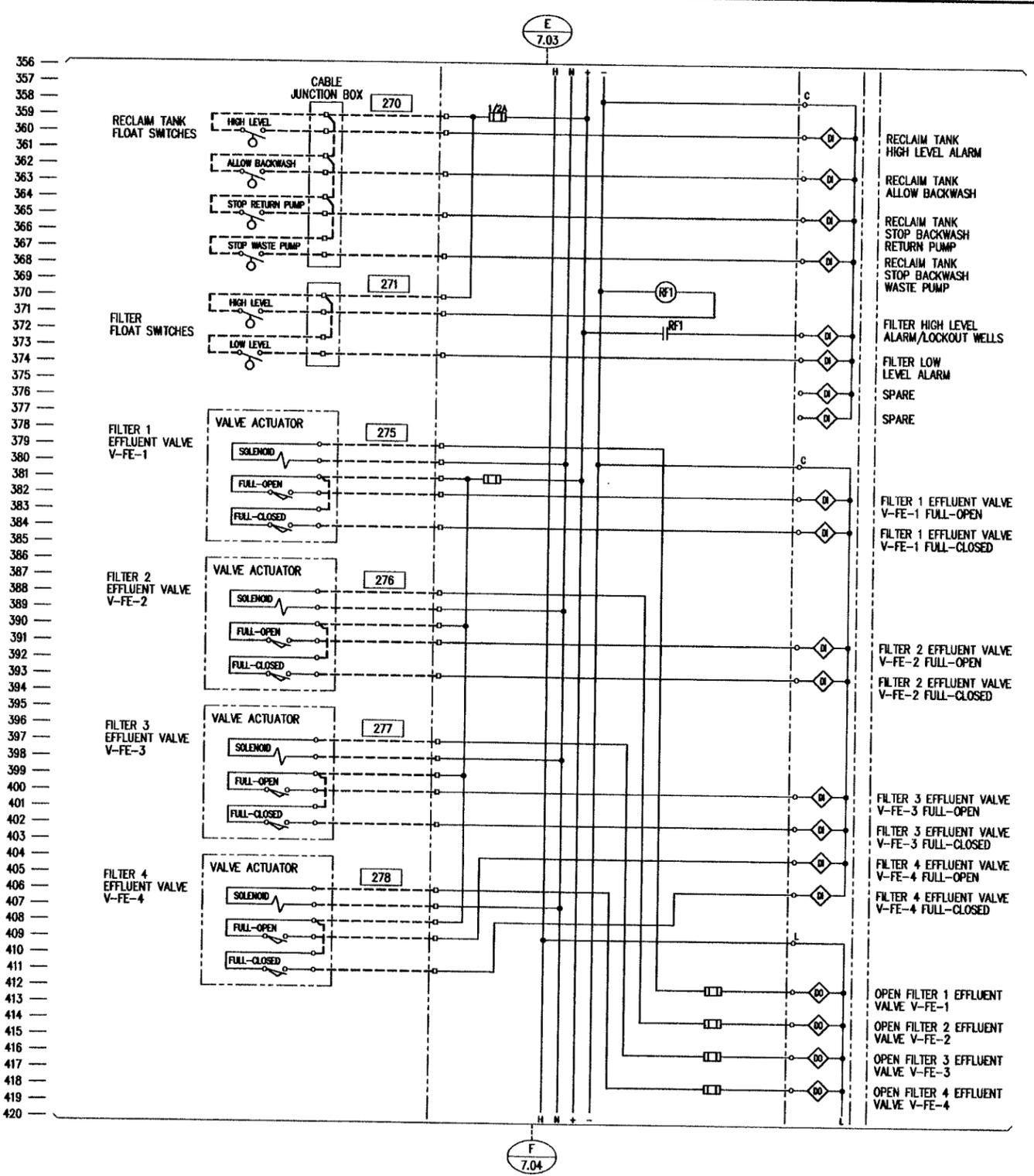
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WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 PANEL SCP SCHEMATIC

SHEET
7.02



PANEL SCP SCHEMATIC
NO SCALE



CONTROL PANEL GENERAL NOTES

1. MODIFY SCHEMATICS AS REQUIRED FOR UL508 LABEL AT NO ADDITIONAL COST TO THE OWNER. SEE SPECIFICATION SECTION 16950.
2. ORGANIZE & LACE ALL WIRING USING NYLON CABLE TIES.

PLC SYMBOLS		LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DIGITAL OUTPUT (CONTACT)		PANEL WIRING
	DIGITAL INPUT, REMOTELY POWERED (24VDC UNLESS NOTED OTHERWISE)		FIELD WIRING
	ANALOG OUTPUT, 4-20mADC (SELF-POWERED)		CONDUCTOR SHIELD
	ANALOG INPUT, 4-20mADC (UNLESS NOTED OTHERWISE)		

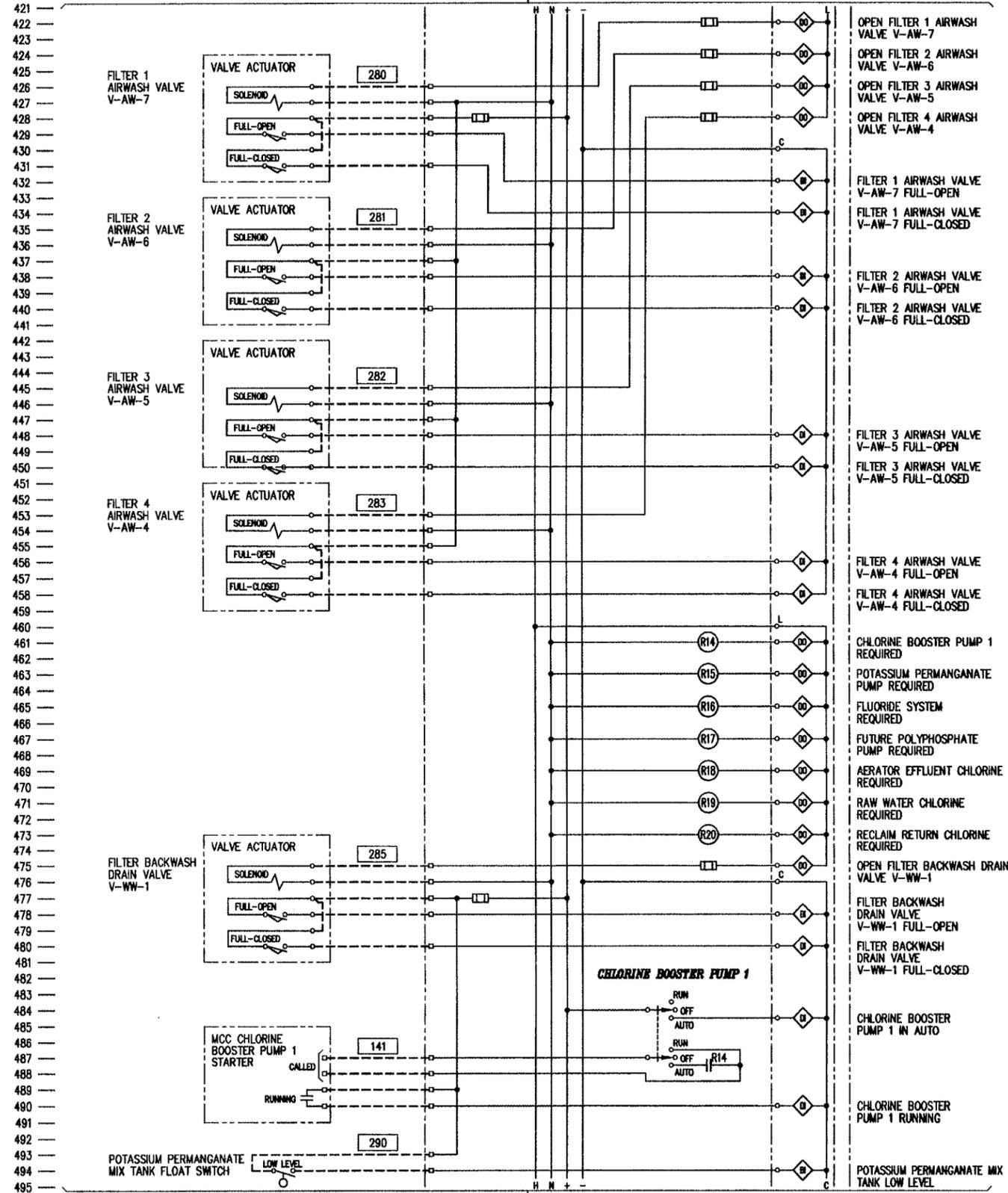
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 DATE: 10 SEP 01 REG. NO.: 19825

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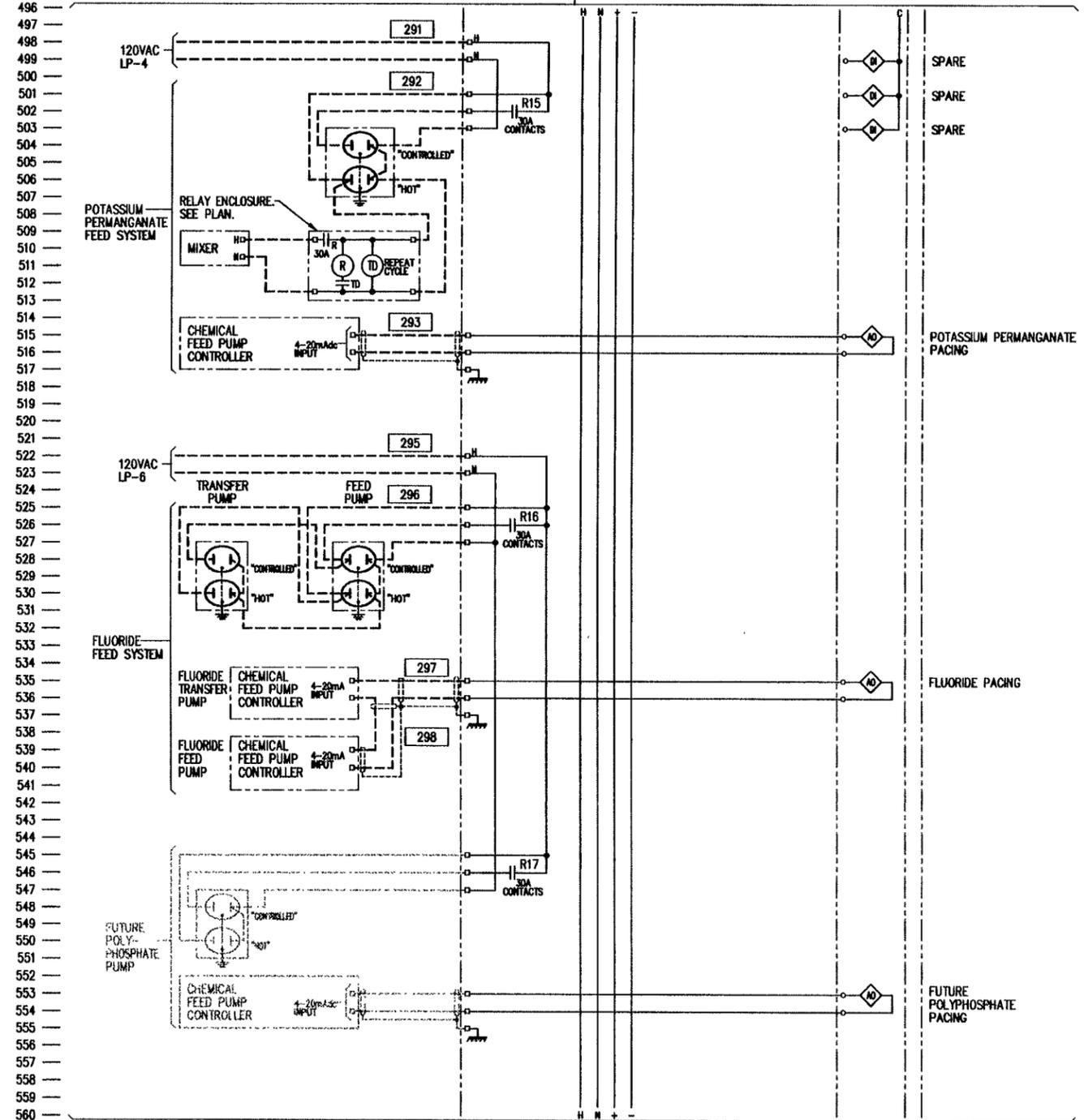
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WATERTOWN, MINNESOTA
 WATER TREATMENT FACILITY
 PANEL SCP SCHEMATIC



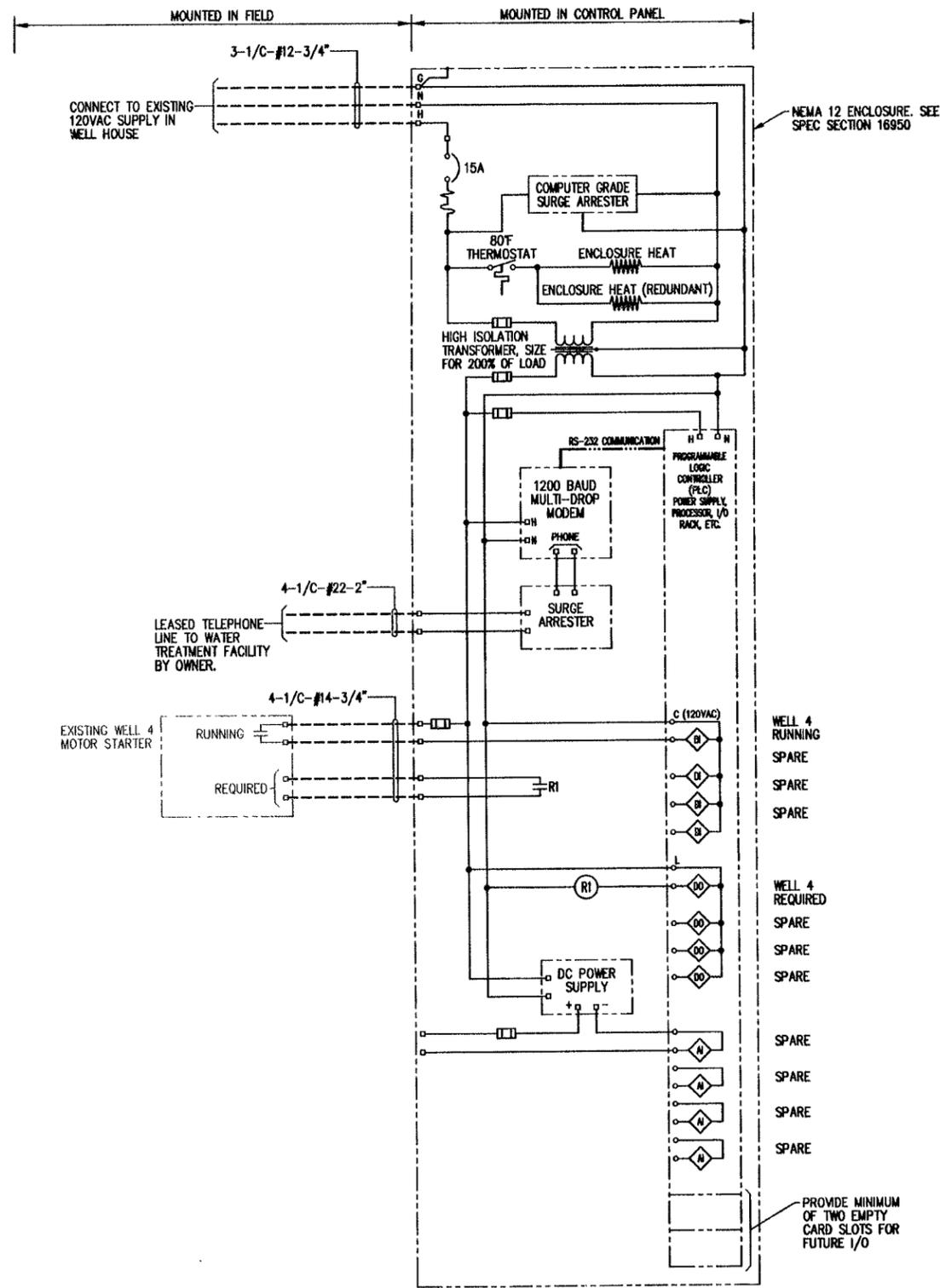
PANEL SCP SCHEMATIC
NO SCALE



CONTROL PANEL GENERAL NOTES

1. MODIFY SCHEMATICS AS REQUIRED FOR UL508 LABEL AT NO ADDITIONAL COST TO THE OWNER. SEE SPECIFICATION SECTION 16950.
2. ORGANIZE & LACE ALL WIRING USING NYLON CABLE TIES.

PIC SYMBOLS		LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DIGITAL OUTPUT (CONTACT)		PANEL WIRING
	DIGITAL INPUT, REMOTELY POWERED (24VDC UNLESS NOTED OTHERWISE)		FIELD WIRING
	ANALOG OUTPUT, 4-20mADC (SELF-POWERED)		CONDUCTOR SHIELD
	ANALOG INPUT, 4-20mADC (UNLESS NOTED OTHERWISE)		

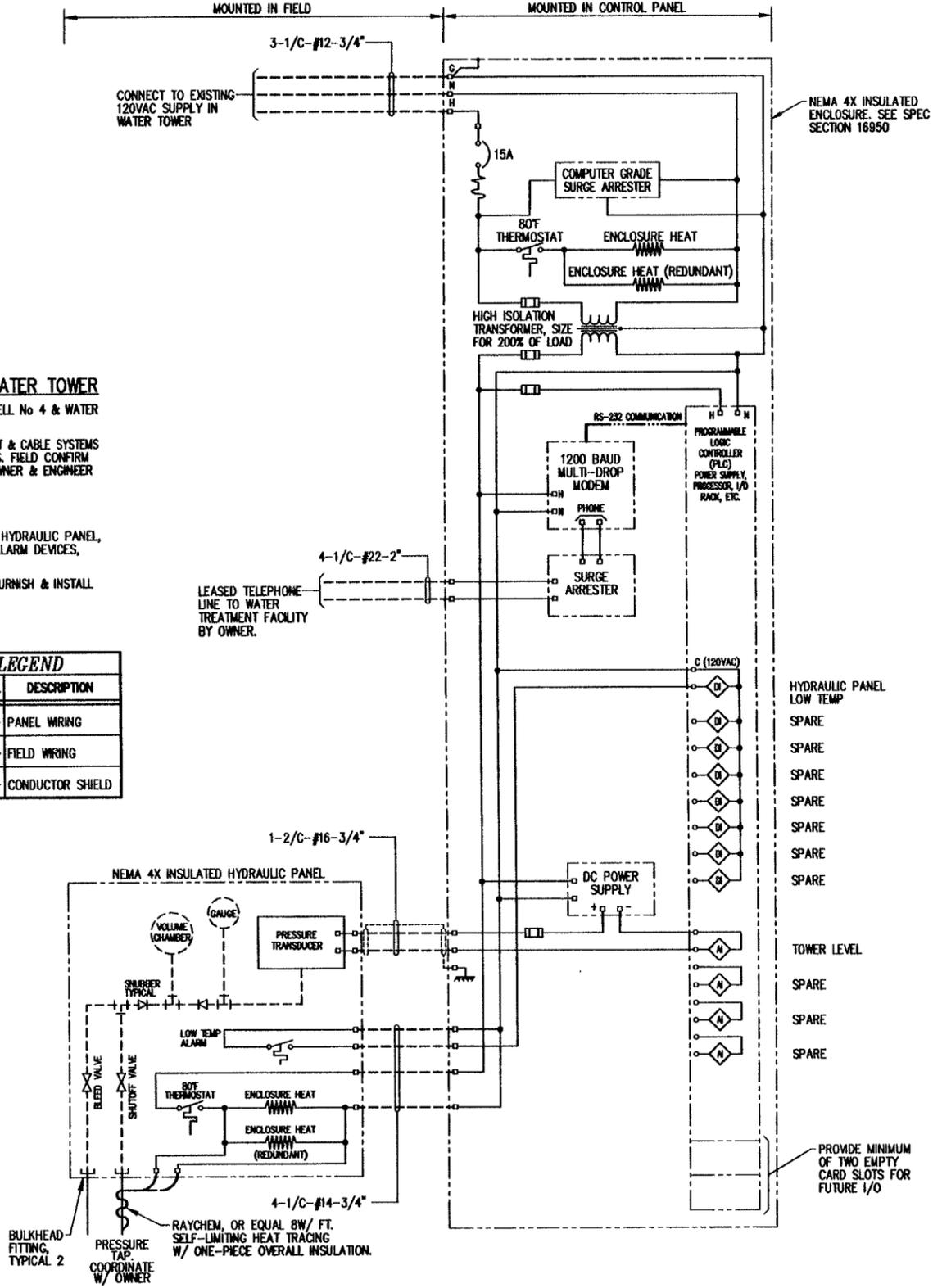


WELL No. 4 CONTROL PANEL SCHEMATIC
NO SCALE

NOTES REGARDING INSTALLATION AT WATER TOWER

- THIS CONTRACT INCLUDES THE INSTALLATION OF THE WELL No 4 & WATER LEVEL PANELS AT THE EXISTING FACILITIES.
- CONTRACTOR SHALL FURNISH & INSTALL COMPLETE CONDUIT & CABLE SYSTEMS AT THESE SITES, AS INDICATED ON THESE SCHEMATICS. FIELD CONFIRM EQUIPMENT LOCATIONS & CONDUIT LAYOUT W/ THE OWNER & ENGINEER DURING CONSTRUCTION.
- WORK GENERALLY INCLUDES:**
 - FURNISH & INSTALL NEW CONTROL PANELS, HYDRAULIC PANEL, TELEMETRY, HEAT TRACING & INSULATION, ALARM DEVICES, CONDUIT, CABLE, & PRESSURE LINE.
 - INTERCEPT TAP AT THE WATER TOWER AND FURNISH & INSTALL SHUTOFF VALVE.

PLC SYMBOLS		LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DIGITAL OUTPUT (CONTACT)		PANEL WIRING
	DIGITAL INPUT, REMOTELY POWERED		FIELD WIRING
	ANALOG OUTPUT, 4-20mADC (SELF-POWERED)		CONDUCTOR SHIELD
	ANALOG INPUT, 4-20mADC (UNLESS NOTED OTHERWISE)		



CONTROL PANEL GENERAL NOTES

- MODIFY SCHEMATICS AS REQUIRED FOR UL508 LABEL AT NO ADDITIONAL COST TO THE OWNER. SEE SPECIFICATION SECTION 16950.
- ORGANIZE & LACE ALL WIRING USING NYLON CABLE TIES.
- GROUND PER NEC ARTICLE 250.

TOWER LEVEL PANEL SCHEMATIC
NO SCALE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Sheldon J. Borshoff
SIGNATURE OF ENGINEER OR PRINTED NAME: SHELDON J. BORSHOFF
DATE: 10 SEP 01

BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FARMONT, MN SLEEPY EYE, MN
BURNSVILLE, MN WILMAR, MN AMES, IA LIBERTY, MO

WILLIAM R. ENGELHARDT ASSOC.
CONSULTING ENGINEERS
CHASKA, MINNESOTA

REV	BY	DATE
0	P.R.	9-10-2001

WATERTOWN, MINNESOTA
WATER TREATMENT FACILITY
WELL No. 2 & TOWER LEVEL PANEL SCHEMATICS

Owner: City of Watertown MN
Building: Municipal Water Treatment Facility
Location: 409 Carter Street NE

Site Visit Date: February 3, 2026
Report Date: February 5, 2026
Weather: 18 F, Sunny
Prepared By: Jordan Lampman
Review by: Adam Luckhardt, AIA

Site Visit Premise:

Bolton & Menk was requested to investigate water infiltration on the interior of the facility. City staff have concerns and reported to Bolton & Menk that several stains and damage was evident on the interior of the structure due to the water infiltration. This water infiltration is understood as an issue during any measurable or prolonged rain events.

Site Visit Impression:

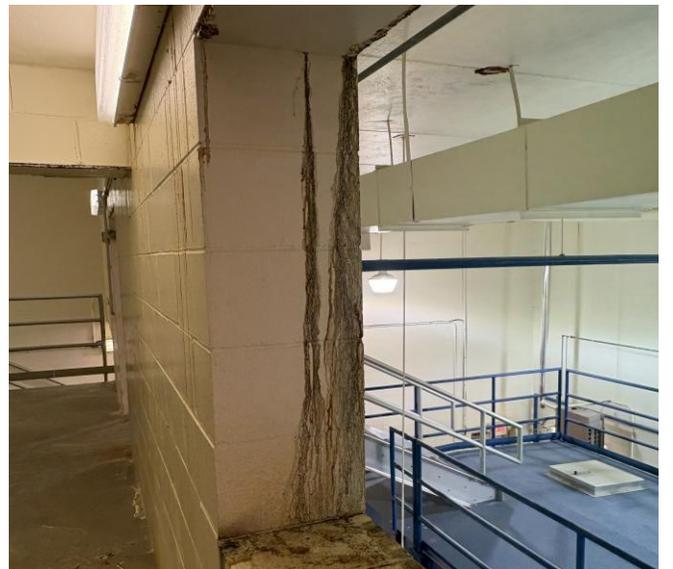
Upon visual inspection of the interior of the facility evidence of continued infiltration of water was noticeable and consistent with the City Staff reports. After reviewing the interior of the facility most of the concentration of damage was the interior wall between the pumping room and storage tank. Primarily at the door/window header locations where the steel header support plates are heavily corroded (see image to the right) and the walls are stained.

Roof:

The exterior assessment of the facility focused on the roof and vertical walls. The roof was partially snow covered at the time of the visit, so the inspection was limited to the visible areas of the roof membrane, penetrations and flashing. The visible portions of the roof membrane and flashing are generally serviceable with no obvious indication



*Steel Header Corrosion
Water leaks below Image 'B'*



*Water Stains
Water Leaks below Image 'A'*

of a direct failure. Some areas of membrane termination and the sealants are beginning to show separation and could use attention but are not obvious contributors to the amount of moisture being experienced within the facility.

However, the roof cannot be fully ruled out as a potential contributor as the roof could not be fully inspected and it is noted as being at or near the end of its service life.

Wall:

Upon inspection of the walls there are several large cracks in the concrete face brick. Several areas of concern include large cracks, missing grout joints, and loose flashing are evident. This is a more obvious source of water infiltration to the interior of the facility which the staff is experiencing when compared to the more minor observations with the roof membrane

Additionally, the roof-to-wall termination appears to be missing through wall flashing and weeps. These elements are critical features in a cavity wall application such as this and would be critical in allowing moisture to exit the wall to the exterior. This is suspected as contributing to the leaks within the facility (image on bottom right of this page).

Lastly, Other areas of the wall indicate moisture attempting to weep out of the face of the brick in otherwise random locations vs only at the base of the wall which would be more typical. This is a potential indicator of an air cavity which has been clogged with mortar from its original installation is suspect of preventing the wall from drying properly and increasing the risk of freeze-thaw cracking failures. (Image on bottom left of next page)

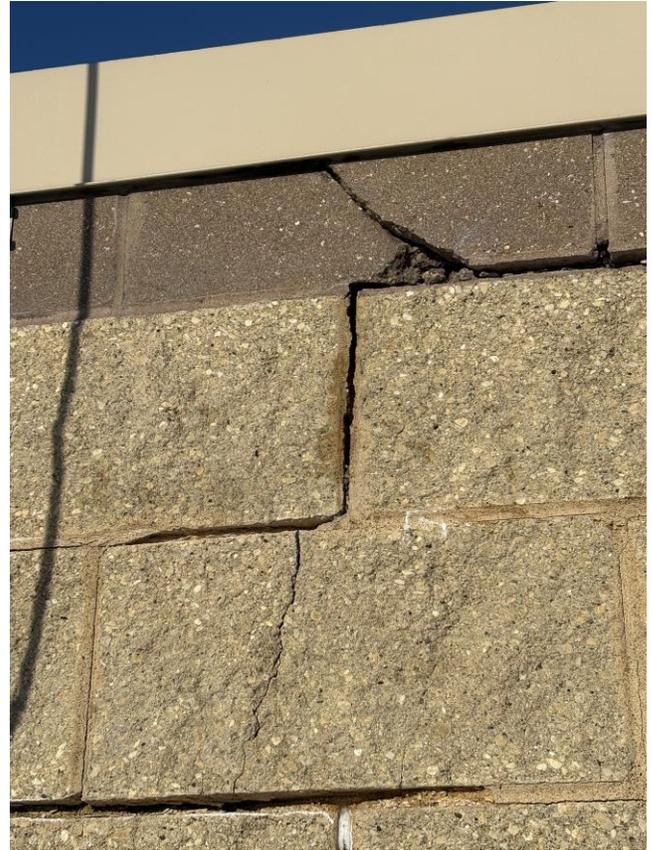


Image B: Crack at top of wall



Base termination at roof-to-wall. No apparent through wall flashing or weeps

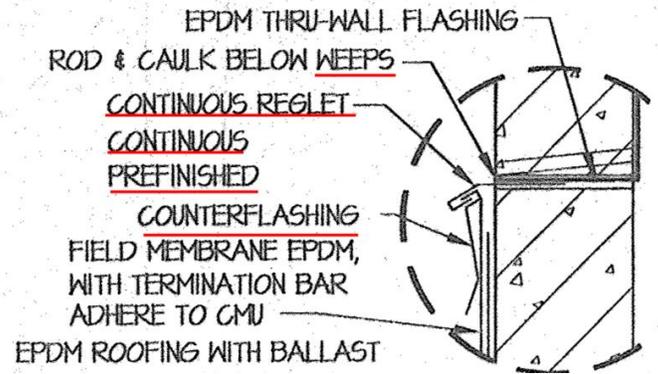
Recommendations:

Recommendation:

Hire a mason to perform selective demolition on the exterior wall to investigate the condition of the wall cavity and confirm suspicions with respect to through-wall flashing, weeps and bridged mortar. Bolton & Menk to observe the demolition and document the concealed conditions.

Recommendation:

Following the Recommendation reconvene to discuss observations and potential options for corrective action.



Construction Drawings from original building indicating through wall flashing and weeps which are not visible in the construction today.



Moisture spots evident on exterior of block suspected bridging mortar preventing wall from drying properly

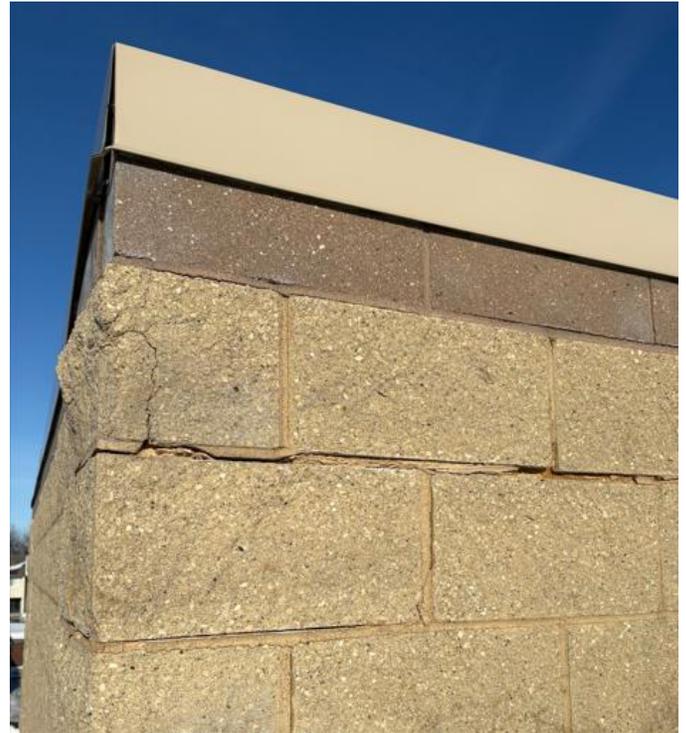
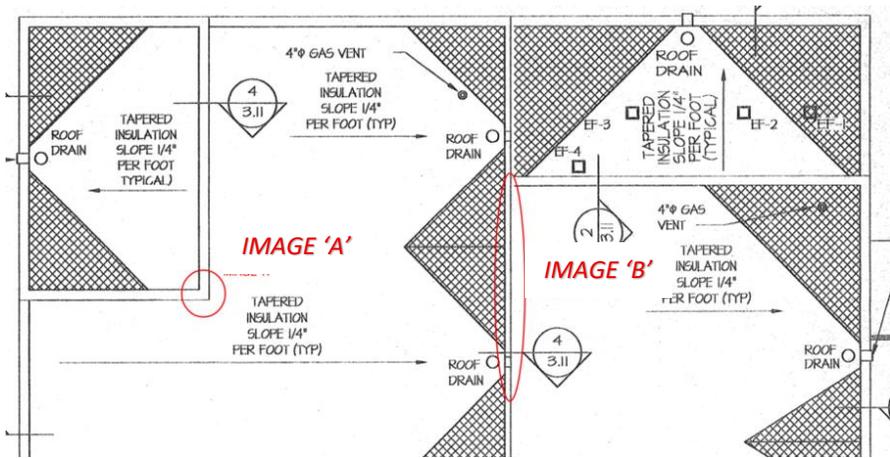
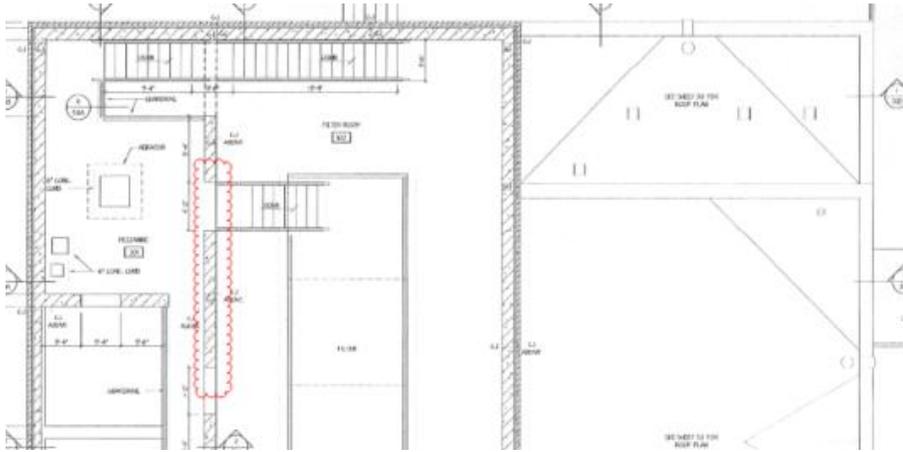


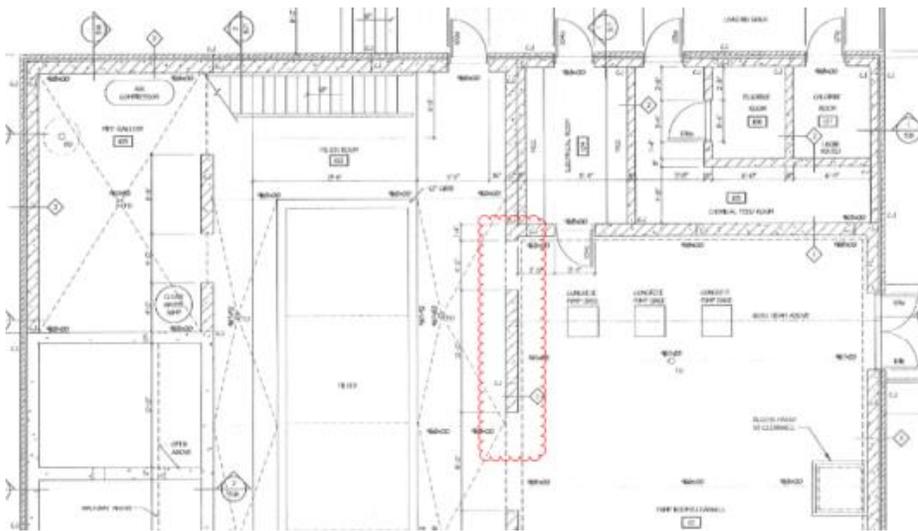
Image 'B'. Crack at top of wall



Roof level locations with observed CMU cracks and suspect leaks



Mezzanine Level area of observed leak below Image A



Main level: Area of observed leak below Image B