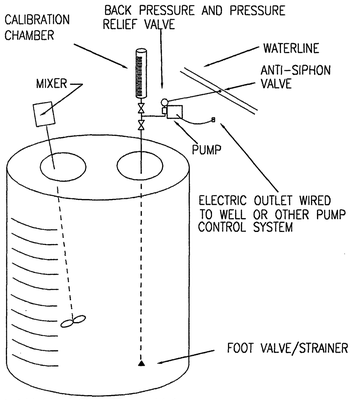
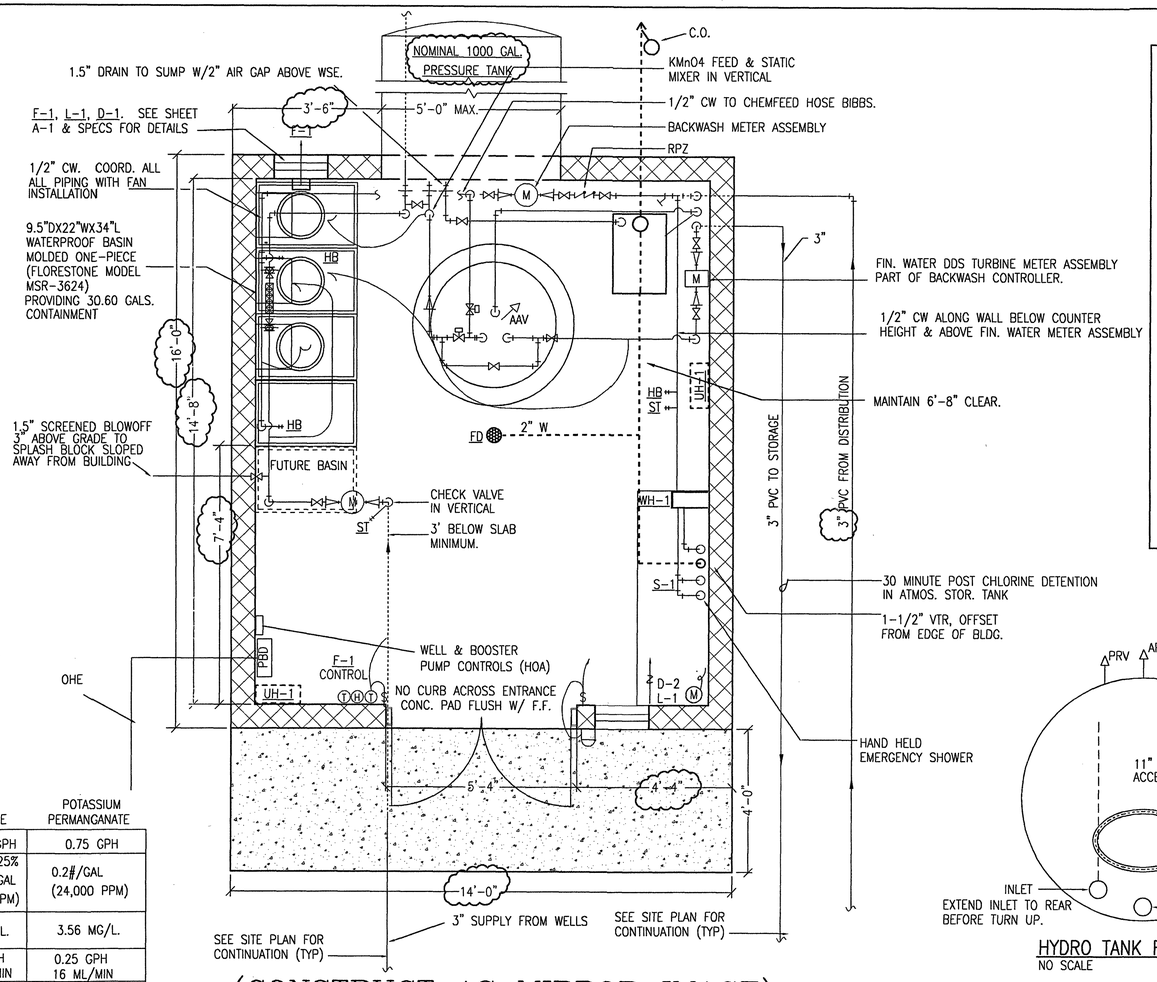


MIXING TANK

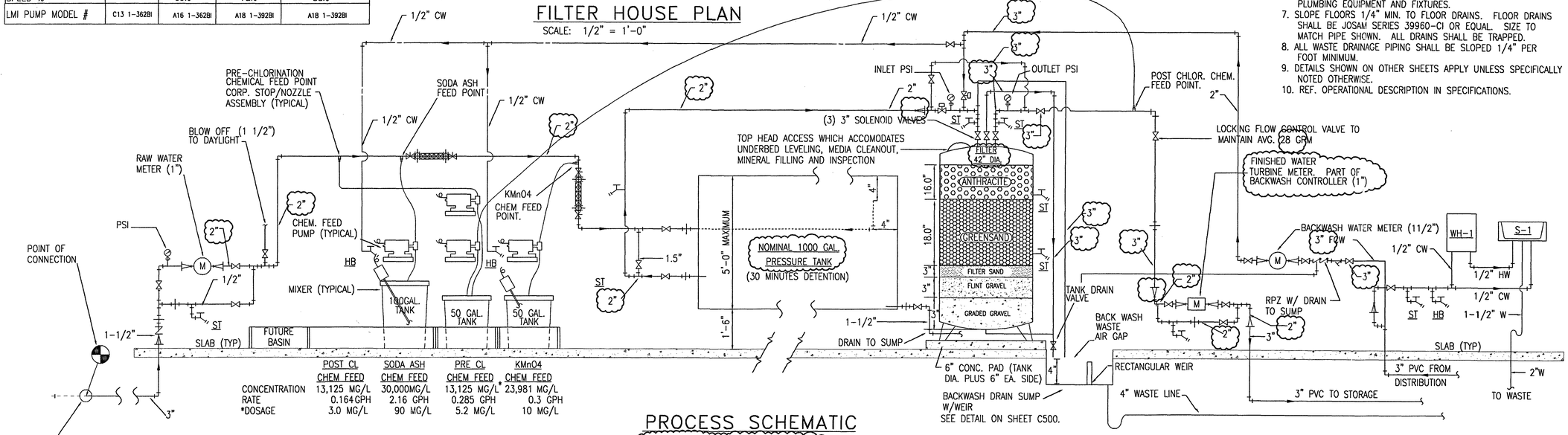
	SODA ASH	PRE-CHLORINE	POST CHLORINE	POTASSIUM PERMANGANATE
MAX. PUMP OUTPUT	8 GPH	2 GPH	0.75 GPH	0.75 GPH
STOCK SOLUTION MIX (CONCENTRATION)	0.25#/GAL 30,000 PPM	1 QT. 5.25% BLEACH/GAL (13,125 PPM)	1 QT. 5.25% BLEACH/GAL (13,125 PPM)	0.2#/GAL (24,000 PPM)
FINAL CONCENTRATION OF CHEMICAL DOSE	30 MG/L.	7.4 MG/L.	3.0 MG/L.	3.56 MG/L.
PUMP FEED RATE GPH & ML/MIN.	1.68 GPH 106 ML/MIN	0.95 GPH 60 ML/MIN	0.38 GPH 24 ML/MIN	0.25 GPH 16 ML/MIN
STROKE-%	46%	69%	72%	58%
SPEED-%	46%	69%	72%	58%
LMI PUMP MODEL #	C13 1-362BI	A16 1-362BI	A18 1-392BI	A18 1-392BI



(CONSTRUCT AS MIRROR IMAGE)

FILTER HOUSE PLAN

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



	POST CL CHEM FEED	SODA ASH CHEM FEED	PRE CL CHEM FEED	KMnO4 CHEM FEED
CONCENTRATION	13,125 MG/L	30,000MG/L	13,125 MG/L*	23,981 MG/L
RATE	0.164 GPH	2.16 GPH	0.285 GPH	0.3 GPH
*DOSAGE	3.0 MG/L	90 MG/L	5.2 MG/L	10 MG/L

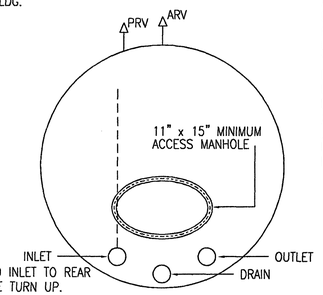
*CHEMICAL DOSAGES ARE SHOWN APPROX.
ACTUAL DOSAGES WILL BE SET IN FIELD BY MANUFACTURER'S REP.

PROCESS SCHEMATIC

NOT TO SCALE

NOTE: CONTROLS AND CONNECTIONS TO FILTER ARE BASED ON CULLIGAN MODEL. SUBSTITUTIONS MUST BE ACCOMPANIED BY SCHEMATIC PIPING DIAGRAM SPECIFICALLY INDICATING CHANGES TO PIPING DESIGN.

NOTE: ALL WATER PIPING BENEATH THE SLAB SHALL BE PVC D2241 CL160 PIPE (TYPICAL)



HYDRO TANK FACE DETAIL

NO SCALE SIZES PER PLAN

ABBREVIATIONS

%CL	–	PERCENT CHLORINE SOLUTION
C.O.	–	CLEANOUT
D-1	–	GRAVITY DAMPER
D-2	–	MOTOR CONTROLLED DAMPER
EX.	–	EXISTING
FD	–	FLOOR DRAIN
F.F.	–	FINISH FLOOR (ELEVAITON)
F-1	–	FAN ASSEMBLY
G/GAL	–	GRAMS PER GALLON
GPH	–	GALLONS PER HOUR
GPM	–	GALLONS PER MINUTE
HB	–	HOSE BIBB
IN	–	INCHES
L-1	–	LOUVER ASSEMBLY
M	–	METER
MG/L	–	MILIGRAMS PER LITER
MIN.	–	MINIMUM
PSI	–	POUNDS PER SQUARE IN
RPZ	–	REDUCED PRESSURE ZONE
SF	–	SQUARE FEET
ST	–	SAMPLE TAP
S-1	–	SINK ASSEMBLY
UH-1	–	UNIT HEATER ASSEMBLY
VF	–	VERTICAL FEET
VTR	–	VENT TO ROOF
W	–	WASTE
WH-1	–	WATER HEATER ASSEMBLY

LEGEND

- BRANCH CONNECTION – BOTTOM OF MAIN
- BRANCH CONNECTION – SIDE OF MAIN
- BRANCH CONNECTION – TOP OF MAIN
- PIPE DOWN OR PIPE FROM BELOW
- PIPE UP OR PIPE FROM ABOVE
- DIRECTION OF FLOW
- DOMESTIC COLD WATER (CW)
- DOMESTIC HOT WATER (HW)
- FS – FLOW SWITCH
- SANITARY SEWER OR DRAIN
- SANITARY VENT
- HOSE BIBBS/SAMPLE TAPS (PLAN & ELEVATION)
- GATE OR BALL VALVE
- BALL VALVE
- PRESSURE GAUGE AND GAUGE COCK
- UNION
- REDUCER, INCREASER
- STRAINER, STRAINER WITH DRAIN
- SOLENOID VALVE
- BACKFLOW PREVENTER (RPZ)
- POINT OF CONNECTION, NEW TO EXISTING
- ARV – PRV – COMB. AIR RELEASE/VACUUM RELIEF VALVE, PRESSURE RELIEF VALVE
- STATIC MIXER

FILTER DATA:

SUPPLY FLOW AVAILABLE (Q) FROM DESIGN CRITERIA __ = 31 GPM
INFLUENT FLOW REGULATED _____ = 28 GPM+/-5%
REQ'D FILTER SURFACE AREA (Ar=Q/3.0 GPM/SF) _____ = 9.62 SQ.FT.
REQ'D FILTER DIAMETER (D=2((Ar/PI)^1/2)) _____ = 42"
USE STD. TANK DIAMETER _____ = 42.0"
TANK AREA (At) _____ = 9.62 SQ.FT.
DESIGN FILTER RATE (Q/At) _____ = 28.86 GPM
BACKWASH FLOW REQ'D @ 14 GPM/SF (REGULATED) ____ = 115.45 GPM
DYNAMIC PRESS. AVAIL. @ BACKWASH FLOW (25 PSI MIN.) = 30
8 MINUTE BACKWASH VOLUME @ BACKWASH FLOW _____ = 577 GALS.
.5 MINUTE REWASH VOLUME @ PUMP FLOW _____ = 140 GALS.
BACKWASH REQ'D AFTER TREATING (FROM PILOT STUDY) _ = N/A
BACKWASH FREQ. (BACKWASH REQ'D*At/Q/60) _____ = DAILY 3AM

GENERAL NOTES:

1. ALL PIPING IS SCHEMATIC.
2. ALLOW 6'-8" CLEARANCE BENEATH ALL OVERHEAD PIPING INCLUDING SUPPORTS WHERE POSSIBLE.
3. SECURELY SUPPORT ALL PIPING WITH STANDARD MANUFACTURED HANGERS, BRACKETS, ETC. TO PREVENT DAMAGE OR MOVEMENT DURING OPERATION.
4. PLACE ALL METERS & VALVES SO THAT THEY MAY BE EASILY ACCESSED AND READABLE.
5. ALL PIPING, FITTINGS, VALVES AND ACCESSORIES MAY NOT APPEAR IN BOTH THE SCHEMATIC AND THE PLAN VIEWS.
6. SEE PROJECT SPECIFICATIONS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT AND FIXTURES.
7. SLOPE FLOORS 1/4" MIN. TO FLOOR DRAINS. FLOOR DRAINS SHALL BE JOSAM SERIES 39960-CI OR EQUAL. SIZE TO MATCH PIPE SHOWN. ALL DRAINS SHALL BE TRAPPED.
8. ALL WASTE DRAINAGE PIPING SHALL BE SLOPED 1/4" PER FOOT MINIMUM.
9. DETAILS SHOWN ON OTHER SHEETS APPLY UNLESS SPECIFICALLY NOTED OTHERWISE.
10. REF. OPERATIONAL DESCRIPTION IN SPECIFICATIONS.

KEY PLAN

GENERAL NOTES

1. CHANGE TO 42" FILTER W/ REQUIRED SYSTEM CHANGES.

SPECTRUM DESIGN
325 MOUNTAIN AVE. ROANOKE, VIRGINIA 24016 540.345.8020
ROANOKE ▪ MARION ▪ VIRGINIA BEACH

Iron & Manganese Removal Filter

LONG ISLAND ESTATES

SPECTRUM DESIGN PROJECT NO. 99007

COMMONWEALTH OF VIRGINIA
GEOFFREY A. STRAUGHN
No. 14190
PROFESSIONAL ENGINEER
4-20-00

DATE	25 February 2000
DESIGN ARCHITECT	
PROJECT ARCHITECT	
PROJECT ENGINEER	GAS
CHECKED BY	
DRAWN BY	GMR

REVISIONS	NUMBER	DATE
1		3/20/02

SHEET TITLE

CIVIL - FILTER SCHEMATIC AND PIPING PLAN

C102R

99007C102.DWG JOB# 99007 DMR 25 Feb 2000 PLOT SCALE: 24 XREF(S): 9007brdr.dwg