



























LEGEND

	MANUAL VALVE (FOR TYPE, SEE MECHANICAL DWGS)
	MOTOR OPERATED VALVE (OPEN/CLOSE TYPE)
	MOTOR OPERATED VALVE (MODULATING TYPE)
	2-WAY SOLENOID VALVE
	PUMP
	PROPORTIONING OR METERING PUMP
	MIXER/FAN/AGITATOR
	GATE
	MOTOR
	GRINDER
	ISOLATING DIAPHRAGM SEAL
	BAR SCREEN
	HYDRAULIC GATE
	STOP LOGS
	CHECK VALVE
	OPEN CHANNEL WEIR


GENERAL INSTRUMENT SYMBOLS		
	FIELD MOUNTED	
	FRONT-PANEL MOUNTED DEVICE (LOCAL CONTROL PANEL)	
	PROGRAMMABLE LOGIC CONTROLLER SYSTEM FUNCTION BLOCK	
	OPERATIONAL INTERLOCK	
	CONTROL STRATEGY DESCRIPTION	

INSTRUMENT IDENTIFICATION LETTERS					
LETTER	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM OR PLC/DCS DISCRETE INPUT		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	BYPASS
C	CONDUCTIVITY (ELECTRICAL)			CONTROLLER	CLOSE
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			DRIVE (VFD)
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS		
H	HAND SWITCH (SELECTOR SWITCH)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE OR PLC/DCS ANALOG INPUT		
J	POWER	SCAN			
K	TIME OR TIME-SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		NOTIFY OR PLC/DCS DISCRETE INPUT	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY		INTEGRATE OR TOTALIZE		
R	RADIATION	REMOTE CONTROL	RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	PLC COMMAND		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE			RELAY OR COMPUTE	
Z	POSITION, DIMENSION			DRIVE, ACTUATOR OR UNCLASSIFIED FINAL CONTROL ELEMENT	




INSTRUMENT MODIFIER / ABBREVIATIONS

INSTRUMENT NUMBERING CONVENTION		AUTO : AUTO STATUS DOB : DRIVE/OFF/BY-PASS/DRIVE : VARIABLE FREQUENCY DRIVE STATUS BYPASS : ACROSS-THE-LINE STARTER OR REDUCED VOLTAGE STARTER STATUS FAIL : FAIL STATUS H-O-A : HAND/OFF/AUTO H-O-R : HAND/OFF/REMOTE OPEN : OPEN COMMAND CLOSE : CLOSE COMMAND REMOTE : REMOTE STATUS START/ : REMOTE START & STOP STOP : RUN : EQUIPMENT RUN STATUS F-O-R : FORWARD/OFF/REVERSE RAISE : RAISE STATUS LOWER : LOWER STATUS 0-100% : SPEED INDICATION OR CONTROL FWD : FORWARD STATUS REV : REVERSE STATUS OPENED : OPEN STATUS CLOSED : CLOSE STATUS
		CL2 : CHLORINE GAS CLR : CHLORINE RESIDUAL MAG : MAGNETER ORP : OXIDATION-REDUCTION POTENTIAL pH : pH VFD : VARIABLE FREQUENCY DRIVE US : ULTRASONIC OCM : OPEN CHANNEL FLOW MONITOR O2 : OXYGEN H2S : HYDROGEN SULFIDE CG : COMBUSTIBLE GAS TTM : TRANSIT-TIME METER SO2 : SULFUR DIOXIDE DO : DISSOLVED OXYGEN DPLR : DOPPLER BLR : BUBBLER MCC : MOTOR CONTROL CENTER





LOGIC AND SEQUENTIAL CONTROL ABBREVIATIONS

	DEC - DECISION
	DIFF - DIFFERENCE
	$\Sigma$ - SUM
	SEL - SELECTOR
	RAT. - RATIO

OPERATIONAL INTERLOCK ABBREVIATIONS

	- OR LOGIC
	- AND LOGIC
	- DIRECT INTERLOCK OR COMPLEX LOGIC

INSTRUMENT LINE SYMBOLS

	ELECTRICAL SIGNAL (HARDWIRED)
	INTERNAL SYSTEM LINK (SOFTWARE)
	HYDRAULIC LINE
	PROCESS PIPES OR CHANNELS OR INSTRUMENT PROCESS CONNECTION

NOTE  
(\*) ASTERISK IDENTIFIES FIELD INSTRUMENTS FURNISHED BY EQUIPMENT SUPPLIERS.  
⊗ ASTERISK IDENTIFIES LOCAL CONTROL PANELS FURNISHED BY EQUIPMENT SUPPLIERS

				DESIGNED _____ DMC
				DRAWN _____ DMC
				CHECKED _____
	RECORD DRAWINGS	MAR 2008	RLT	PROJ. ENGR. _____ DAN
	CONSTRUCTION	MAR 2004	RLT	
	REGULATORY APPROVAL	NOV 2003	RLT	
	PRELIMINARY DESIGN	NOV 2002	RLT	
NO.	ISSUED FOR	DATE	BY	APPROVED _____

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RECORD DRAWING

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CITY OF ROANOKE  
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REGIONAL WATER POLLUTION CONTROL PLANT  
WET WEATHER IMPROVEMENTS

INSTRUMENTATION AND CONTROL  
LEGEND AND GENERAL NOTES

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE JULY 2003
	H & S JOB NUMBER 30788A
	CONTRACT NUMBER A
	DRAWING NUMBER 11