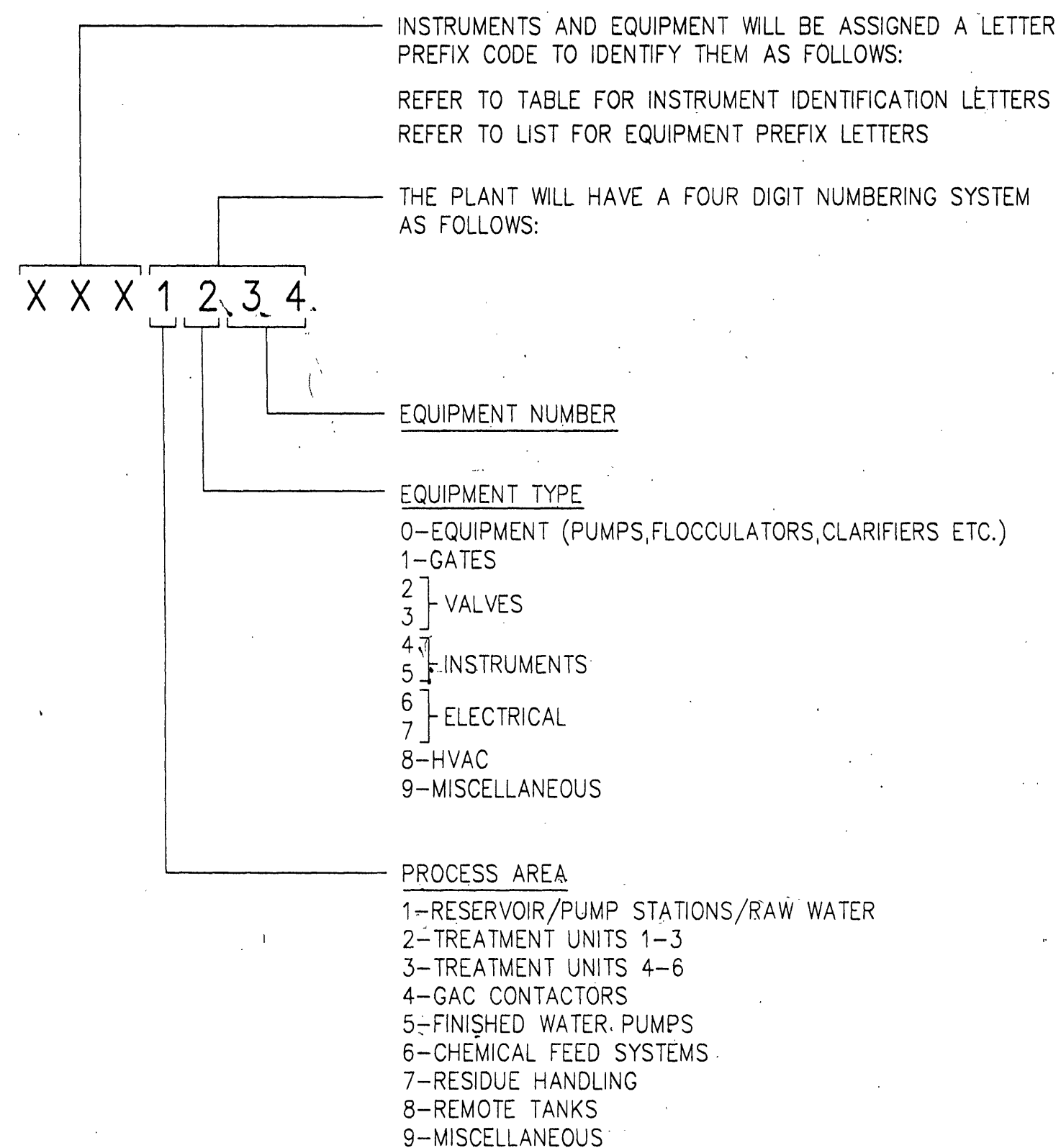


EQUIPMENT NUMBERING

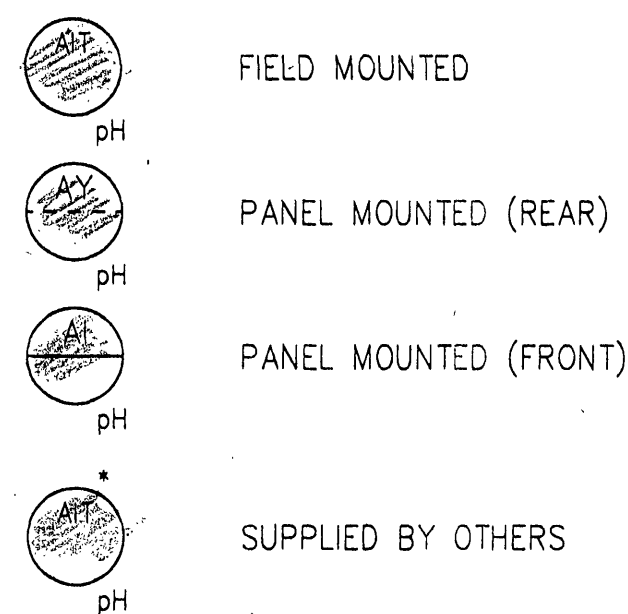


EQUIPMENT PREFIXES

MOV-MOTOR OPERATED VALVE
SP-SAMPLE PUMP
RWP-RAW WATER PUMP
HSP-HIGH SERVICE PUMP
SOV-SOLENOID OPERATED VALVE
SCR-SILICON CONTROLLED RECTIFIER
FMP-FLUORIDE METERING PUMP
VSD-VARIABLE SPEED DRIVE

GENERAL INSTRUMENT SYMBOLS

(SEE BELOW FOR SUBSCRIPTS)



INSTRUMENT SUBSCRIPTS

TURB-TURBIDITY
pH-ACIDITY/ALKALINITY
SCM-STREAMING CURRENT MONITOR
DP-DIFFERENTIAL PRESSURE
LOH-LOSS OF HEAD
CL2-CHLORINE GAS
CLR-CHLORINE RESIDUAL
MAG-MAGNETIC
US-ULTRASONIC
RF-RADIO FREQUENCY (ADMITTANCE)
FL-FLUORIDE

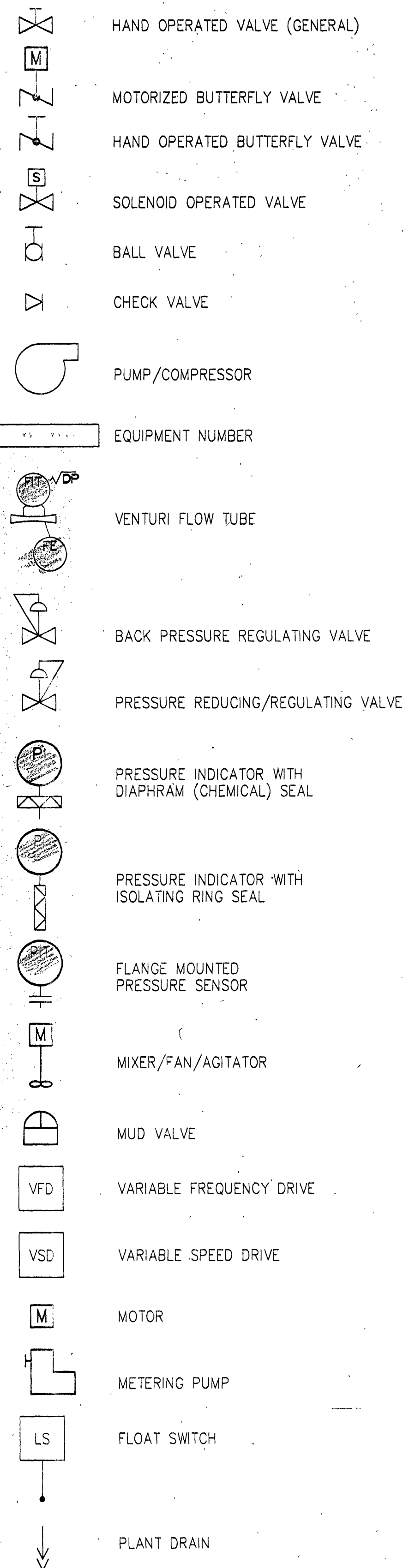
PROCESS CONTROL MODULE LEGEND

ACC-(A,C,I) ACCUMULATION MODULE--(A)VERAGE, (C)OUNTER, (I)NTEGRATE
AND AND
AR ANALOG RECORD
FR-FLOW RECORD
PR-PRESSURE RECORD
ZR-POSITION RECORD
LR-LEVEL RECORD
ETC
AVE AVERAGE
CALC CALCULATION
DEC DECISION
DEL DELAY
EOR EXCLUSIVE OR
LDFW LEAD/FOLLOW SEQUENCE CONTROL MODULE
MINT MOTOR INTERFACE
NOT NOT
OR OR
PID PROPORTIONAL+INTEGRAL+DERIVATIVE
RAT RATIO
SEL SELECTOR
SG SIGNAL GENERATOR
SGAR SIGNAL GENERATOR - RAMPING OUTPUT
SGT SIGNAL GENERATOR TIME BASED
SW SWITCH
TP TIMING PROGRAM
XR DISCRETE EVENT RECORD

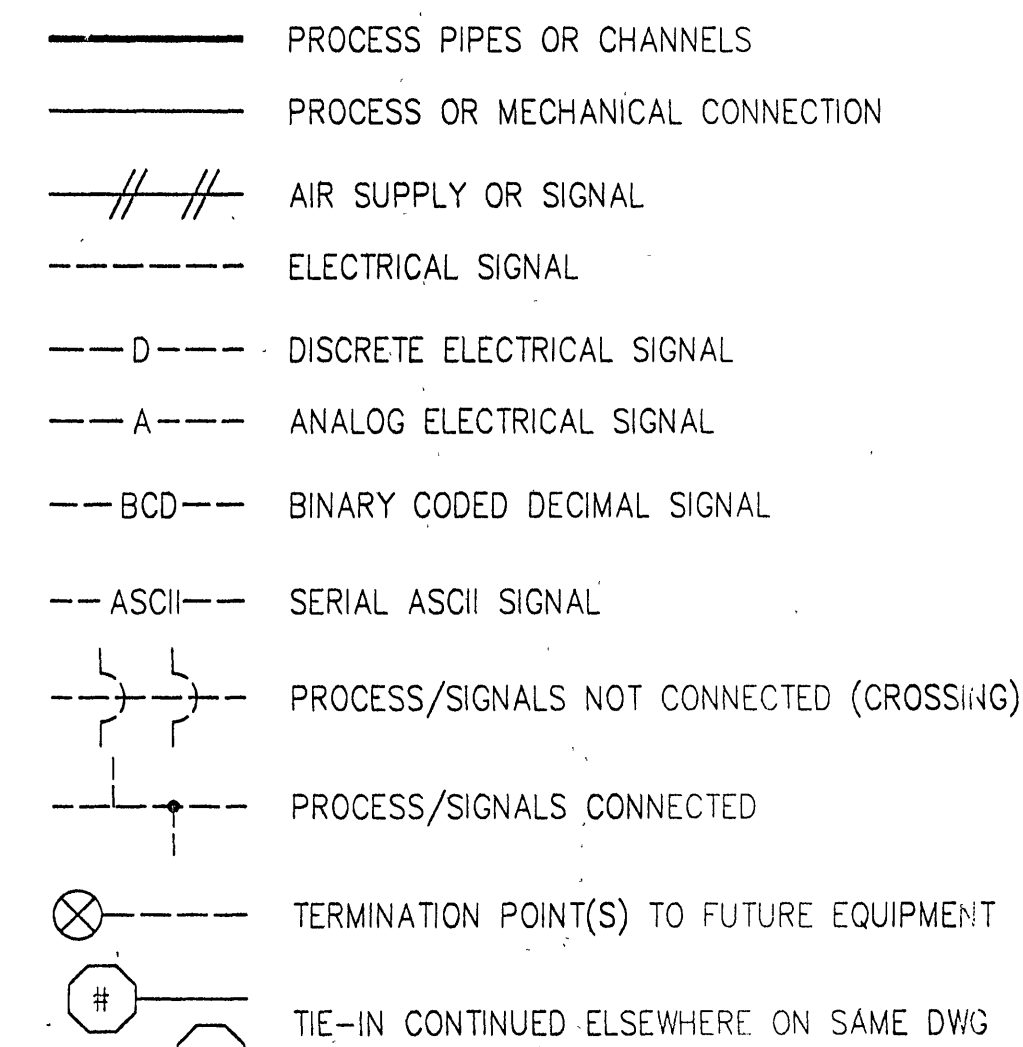
INTERLOCKS

- ◇ GENERALIZED FOR UNDEFINED OR COMPLEX INTERLOCK LOGIC
- ◇ INTERLOCK IS EFFECTIVE ONLY IF ALL INPUTS EXIST
- ◇ INTERLOCK IS EFFECTIVE IF ANY ONE OR MORE INPUTS EXIST
- ◇ INTERLOCK IS EFFECTIVE IF INPUT DOES NOT EXIST

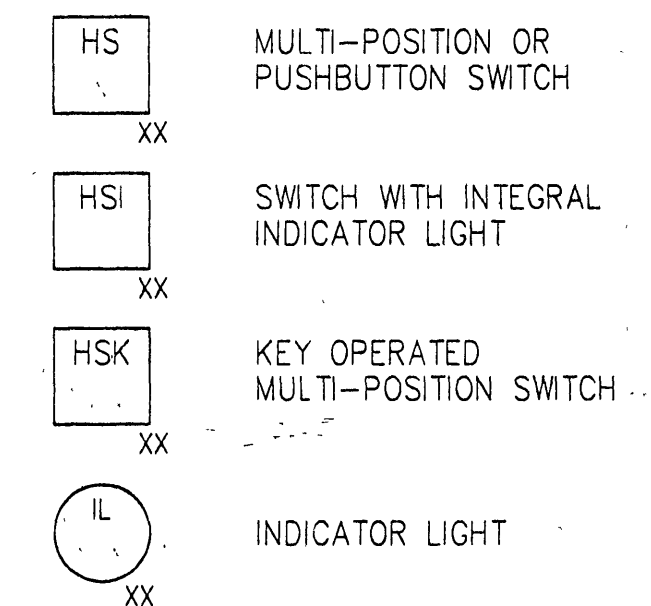
LEGEND



LINE SYMBOLS AND LEGEND



HAND SWITCH SYMBOLS



SUBSCRIPT LEGEND

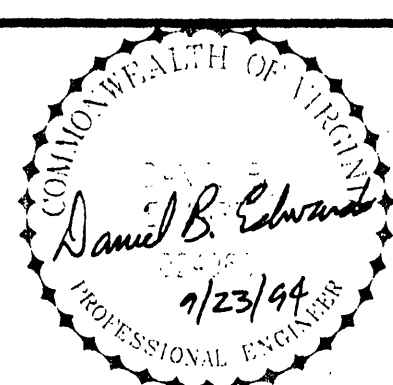
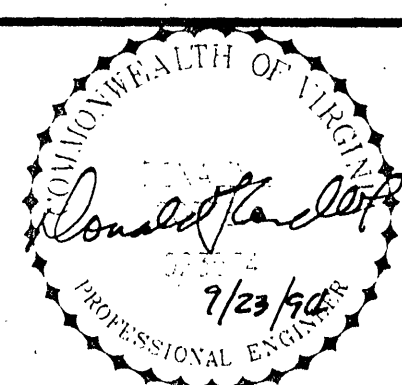
O(S)CA OPEN/(STOP)/CLOSE/AUTO
O(S)C OPEN/(STOP)/CLOSE
LO LOCK OUT
ES EMERGENCY STOP
TOR TEST/OFF/REMOTE
SET SETPOINT
HA HAND/AUTO
HOA HAND/OFF/AUTO
HOR HAND/OFF/REMOTE
UD UP/DOWN
SS START/STOP
SEL SELECTOR
FR FORWARD/REVERSE
OO ON/OFF
OCA OPEN/CLOSE/AUTO
LH LOW/HIGH

INSTRUMENT IDENTIFICATION LETTERS															
MEASURED OR INITIATING VARIABLE	SUCCEEDING LETTERS														
	FIRST LETTER MEASUREMENT VARIABLE	SWITCH (H,I,O,OPEN,CLOSE)	PRIMARY ELEMENT (SENSOR)	INDICATOR	INDICATING CONTROLLER	CONTROL OR CONTR.(BLIND)	RECORDER (INDICATING)	INTEGRATOR	COUNTER (INTEGRATOR)	TRANSMITTER (INDICATING)	TRANSMITTER	VALVE OR ACTUATOR	RELAY	SOURCE	GATE
ANALYSIS	A	ASL	AE	AI			AR			AIT	AT		AY	AAL	
BURN, FL.	B		BE			BC							BY	BA	
CONDUCTIVITY	C	CSH	CE	CI	CIC	CC	CR			CIT	CT		CY	CAH	
DENSITY	D	DSH	DE	DI	DIC	DC	DR			DIT	DT		DY	DX	DAL
VOLTAGE	E		EE	EI						EIT	ET		EY		
FLOW	F	FSL	FE	FI	FIC	FC	FR	FQ	FIQ	FIT	FT	FV	FY	FAL	FG
HAND	H	HS			HIC							HV			HG
CURRENT	I	IS	IE	II	IIC	IC					IT		IY	IAH	
POWER	J	JSH	JE	JI	JIC	JC	JR	JQ	JQI				JY		
TIME	K		KI	KIC	KC		KQ	KQI					KY	KS	
LEVEL	L	LSH	LE	LI	LIC	LC	LIR		LIT	LT	LV		LY	LAL	LS
HUMIDITY	M		ME	MI	MIC	MC	MR			MIT	MT		MY		
PULSE	N												NY		
VENDOR OPTION	O														
PRESSURE/VACUUM	P	PSH	PE	PI	PIC	PC	PR			PIT	PT	PCV	PY	PAH	
VOLUME	Q						QR								
SPEED	S	SS	SE	SI		SC				SIT	ST		SY	SAL	
TEMPERATURE	T	TSL	TE	TI	TIC	TC	TR		TIT	TT	TV		TY	TAH	
MULTIFUNCTION	U		UI				UR						UY	UA	
WEIGHT	W	WS	WE	WI	WIC		WR				WT				
VIBRATION	X		XE	XI									XY	XAH	
ROTATION	Y	YS	YE	YI							YT		YY	YA	
POSITION	Z	ZSO	ZE	ZI	ZIC		ZR			ZIT	ZT		ZY	ZAH	

INSPECTOR'S AS-BUILTS 1995

WWW.ID# 8LDL02

DESIGNED	DBE
DRAWN	AMD
CHECKED	DBE
PROJ. ENGR.	DBE
CONSTRUCTION	9-23-94 DBE
REGULATORY APPROVAL	8-9-94 DBE
ISSUED FOR	DATE BY APPROVED



Hazen and Sawyer
Environmental Engineers & Scientists

RALEIGH, NC CHARLOTTE, NC RICHMOND, VA

ROANOKE COUNTY, VIRGINIA
UTILITY DEPARTMENT

WATER TREATMENT FACILITY

INSTRUMENTATION
LEGEND

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE SEPT 1994
H & S JOB NUMBER 3276	
CONTRACT NUMBER	DRAWING NUMBER 1-1
SHEET	OF