Indian River County Purchasing Division
purchasing@ircgov.com

ADDENDUM NO. 2

Issue Date: August 29, 2023

Project Name: Central (Gifford) WWTF Generator and ATS Replacement

Bid Number: 2024003

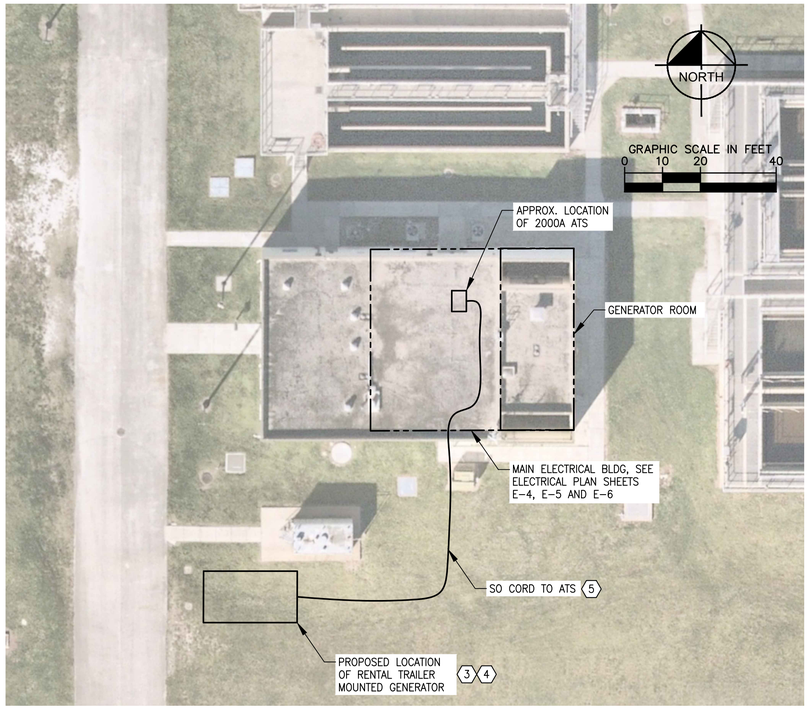
Bid Opening Date: **September 6, 2023**

This addendum is being released to answer questions received to date. The information and documents contained in this addendum are hereby incorporated in the Bid Documents. **This addendum must be acknowledged where indicated on the Bid Form, or the bid may be declared non-responsive.**

Questions and Answers

1.	Sheet E-6 of the plans shows a "proposed ceiling exhaust fan". Page D-1 shows hat we are to repair a roof penetration. Is there a new exhaust fan being installed? If so, please provide detail and specification.
	No changes to the exhaust fan. Refer to updated sheets E-5 and E-6.
2.	Can you please provide drawings/diagrams of the site water piping since there is extensive digging that must be accounted for?
	Record drawings are included in the Addendum response as separate .pdf file
3.	Please verify that bidders are to remove and dispose of the existing generator and ATS, or does the County want them set aside?
	Contractor shall remove and dispose of equipment to be replaced.

Attachments
E-5 Main Electrical Bldg. Generator Demo
E-6 Main Electrical Bldg. Electrical Install Plan
Record Dwg – 2 to 4 MGD Expansion
Record Dwg – IRC Central Region WTP Expansion – 1997 Record Drawings

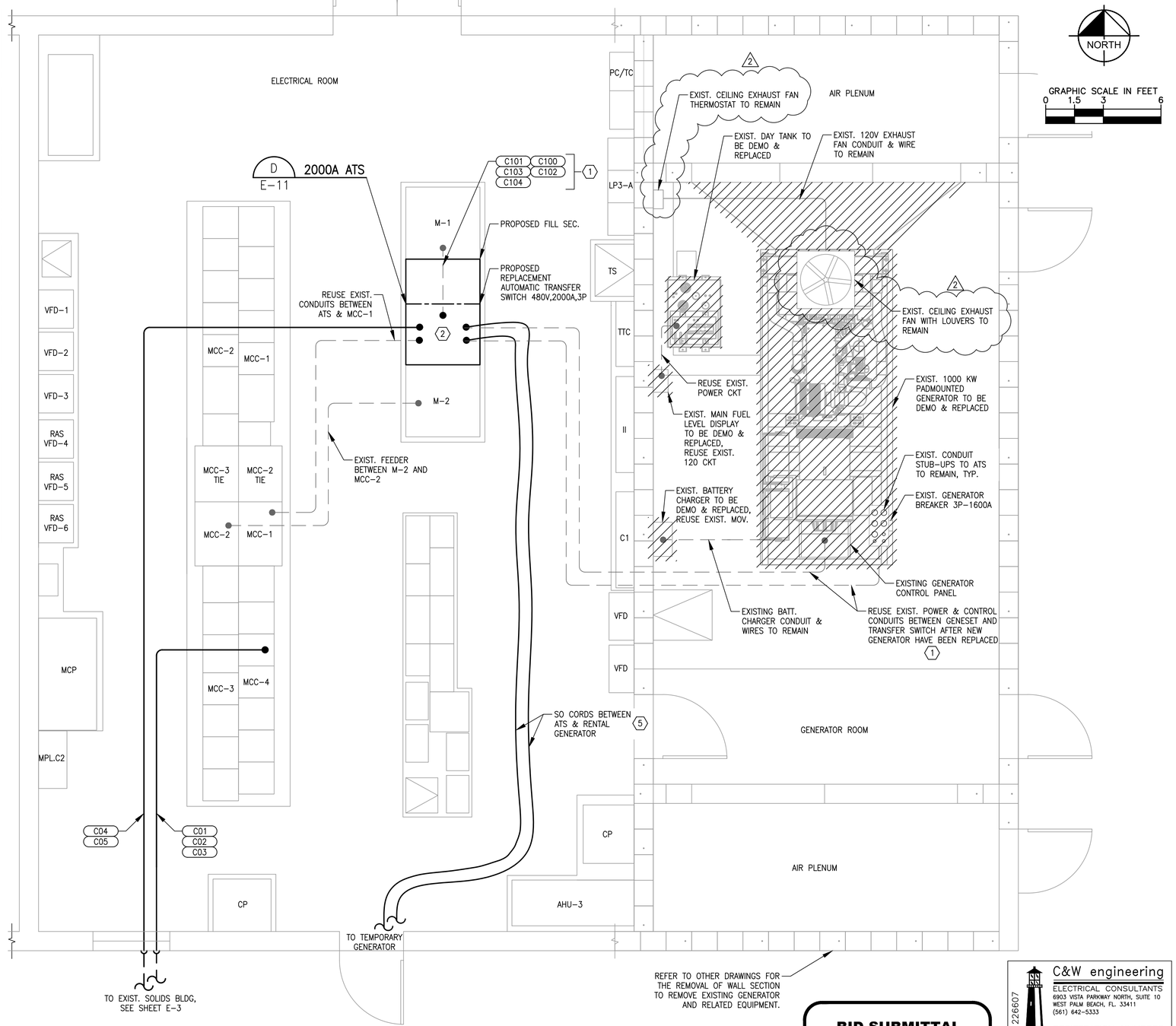


PROPOSED LOCATION OF TEMPORARY GENERATOR

SCALE AS NOTED

SPECIFIC ELECTRICAL NOTES

1. REUSE EXISTING POWER AND CONTROL WIRES IN EXISTING CONDUITS, EXTEND FORMER CIRCUITS AS REQUIRED. PROVIDE POLARIS TAPS OR COMPRESSION SPLICE TYPE TAPS TO EXTEND WIRES.
2. PROVIDE AND INSTALL NEW ATS SWITCH, TERMINATE ALL WIRING FOR POWER & CONTROL AS REQUIRED.
3. PROPOSED LOCATION OF 750KW 480V,3ø,4W WYE RENTAL TRAILER MOUNTED GENERATOR TO BE USED DURING DEMOLITION OF EXISTING GENERATOR & INSTALLATION OF NEW.
4. CONTRACTOR SHALL PROVIDE RENTAL 750KW GENERATOR ALONG WITH TEMPORARY SO PREPARE AND CONNECT THE RENTAL GENERATOR AND TEMPORARY CONNECTIONS TO THE EXISTING ATS (THIS WILL REQUIRE THE TEMPORARY DISCONNECT OF THE POWER AND CONTROL WIRES FROM THE 2000A ATS SWITCH AND THE EXISTING 1000KW GENERATOR.
5. PROVIDE ALL SO CORD CONNECTIONS BETWEEN TEMP RENTAL GENERATOR AND ATS.



BID SUBMITTAL

NOT FOR CONSTRUCTION

226607
C&W engineering
ELECTRICAL CONSULTANTS
6903 VISTA PARKWAY NORTH, SUITE 10
WEST PALM BEACH, FL 33411
(561) 642-5333
REGISTRATION NUMBERS
C & W ENGINEERING INC. CA# 33315
MICHAEL A. GUIDA, P.E. 60755

No.	REVISIONS	DATE	BY
2	ADDENDUM 2	08/29/2023	JLR

Kimley»Horn

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KHA PROJECT 044572075
DATE MAY 2023
SCALE AS SHOWN
DESIGNED BY JLR
DRAWN BY YGC
CHECKED BY MAG

CENTRAL (GIFFORD) WWTF
GENERATOR AND ATS REPLACEMENT
PREPARED FOR
INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
INDIAN RIVER COUNTY FLORIDA

LICENSED PROFESSIONAL
MICHAEL A. GUIDA
FLORIDA LICENSE NUMBER
60755
DATE: ____

MAIN ELECTRICAL BLDG GENERATOR DEMO

SHEET NUMBER
E-5
18 OF 26

Plotted By:Yoon Sheet Set:CENTRAL (GIFFORD) WWTF GENERATOR AND ATS REPLACEMENT Layout:ELEC BLDG GEN DEMO August 29, 2023 02:14:47pm \\10.1.10.28\CW Dropbox\JOBS\68-KHA\226607 IRC CENTRAL WWTP GENERATORS AND ATS REPLACEMENT\DRAWINGS\01 - Electrical Site Plans.dwg
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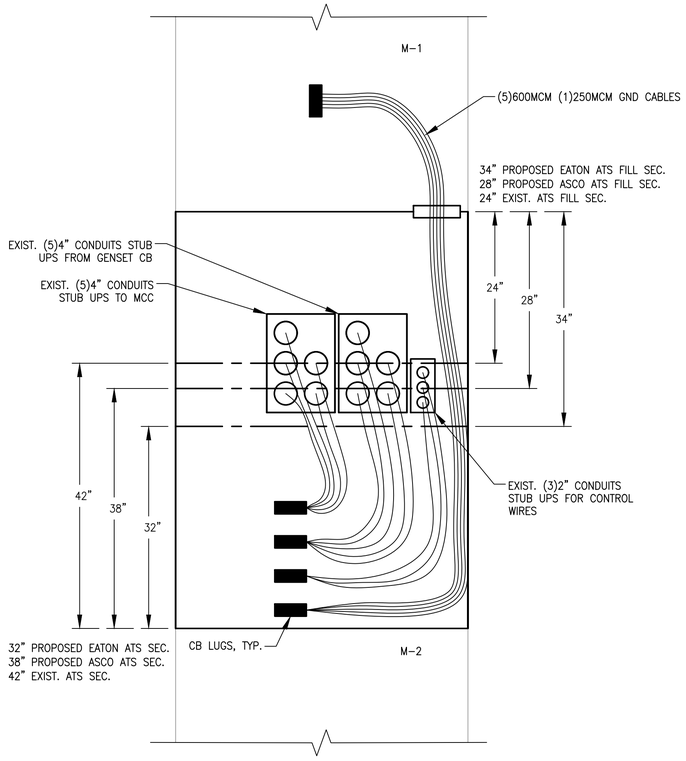
SPECIFIC ELECTRICAL NOTES

1. REUSE EXISTING POWER AND CONTROL WIRES IN EXISTING CONDUITS, EXTEND FORMER CIRCUITS AS REQUIRED. PROVIDE POLARIS TAPS OR COMPRESSION SPLICE TYPE TAPS TO EXTEND WIRES.
2. PROVIDE DIGITAL DISPLAY OF FUEL LEVEL SIMILAR TO EXISTING FUEL LEVEL UNIT.
3. CONTRACTOR SHALL EXTEND EXISTING 208V CIRCUIT FOR GENERATOR JACKET WATER HEATERS.
4. TAGS REPRESENT POWER ONLY, NO CONDUITS.
5. CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE AND EXHAUST PIPE EXTENSIONS AS REQUIRED TO INSTALL A FULLY FUNCTIONING SILENCER AS INDICATED ON DRAWINGS AND SPECS.

ADD ALTERNATIVE BID ITEM

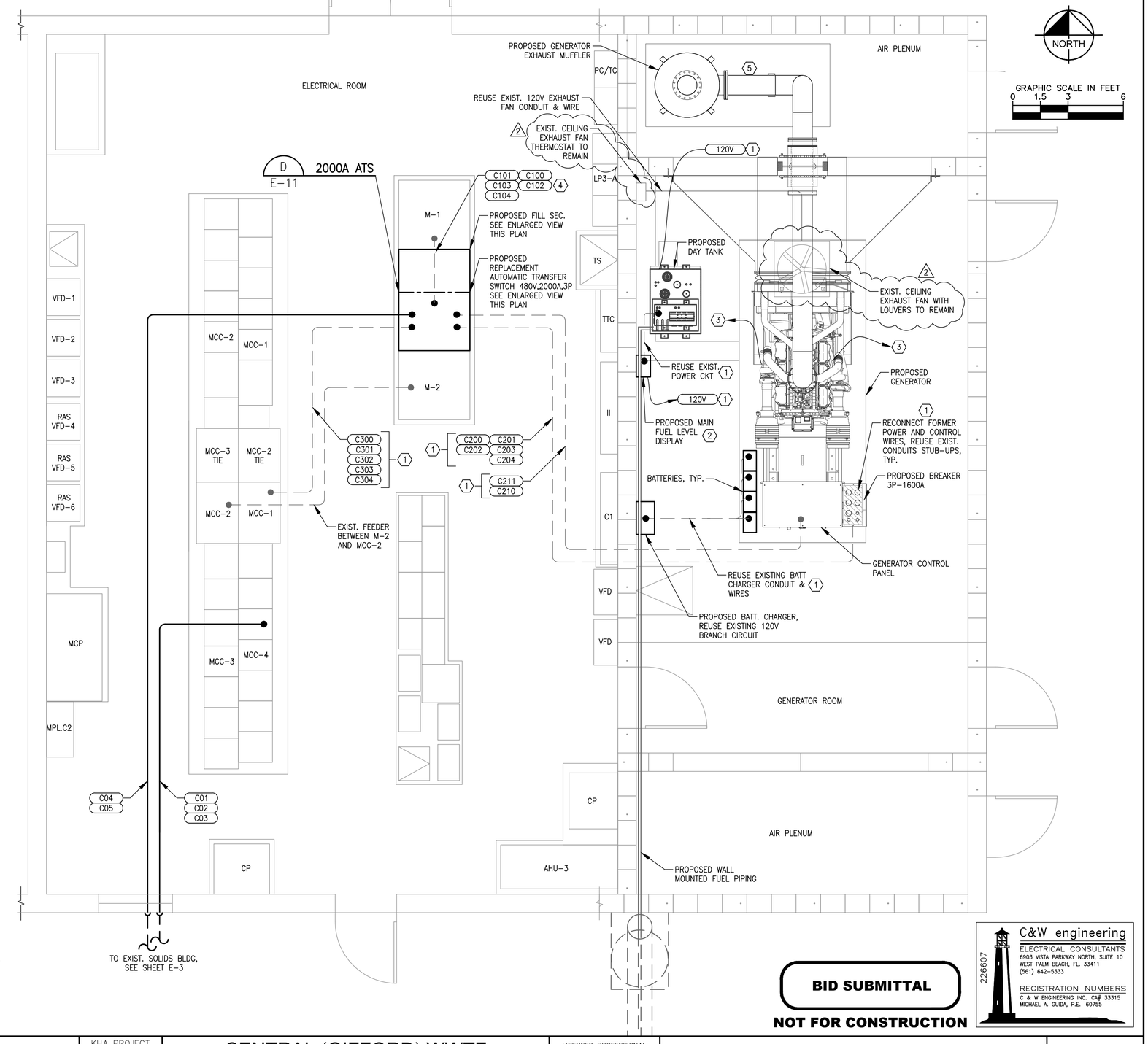
1. CONTRACTOR SHALL PROVIDE AS AN ADD ALTERNATE BID ITEM PER FOOT COST TO REPLACE ANY OF THE POWER OR CONTROL WIRES.



NOTE: ABOVE LOCATIONS OF CONDUIT STUBUPS AND ATS TERMINAL LUGS ARE APPROXIMATE

ENLARGED VIEW OF PROPOSED ATS

NTS



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KHA PROJECT	044572075
DATE	MAY 2023
SCALE	AS SHOWN
DESIGNED BY	JLR
DRAWN BY	YGC
CHECKED BY	MAG

CENTRAL (GIFFORD) WWTF
GENERATOR AND ATS REPLACEMENT
PREPARED FOR
INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
INDIAN RIVER COUNTY FLORIDA

LICENSED PROFESSIONAL
MICHAEL A. GUIDA
FLORIDA LICENSE NUMBER
60755
DATE: _____

MAIN ELECTRICAL BLDG ELECTRICAL INSTALL PLAN

SHEET NUMBER
E-6
19 OF 26

Plotted By: Yoon Sheet Set: CENTRAL (GIFFORD) WWTF GENERATOR AND ATS REPLACEMENT Layout: ELEC BLDG INSTALL August 29, 2023 02:14:52pm \\10.10.20\CW Dropbox\JOBS\66-KHA\226607 IRC CENTRAL WWTP GENERATORS AND ATS REPLACEMENT\DRAWINGS\01 - Electrical Site Plans.dwg
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AS-BUILT PLANS

OF

INDIAN RIVER COUNTY – CENTRAL REGION WASTE WATER TREATMENT PLANT EXPANSION 2.0 MGD TO 4.0 MGD

MARCH, 2007

OWNER: INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES:

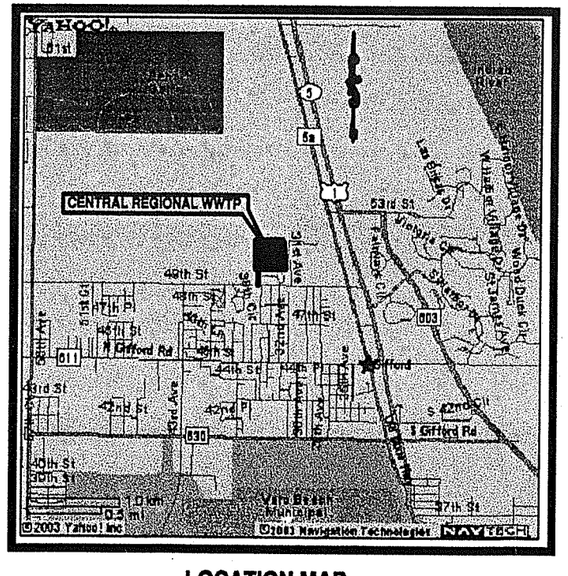
1840 25th Street
VERO BEACH, FL 32960

Call 48 hours before you dig in Florida

It's the Law!
1-800-432-4770
Sunshine State One Call of Florida, Inc.

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED INFORMATION.

NOTE:
ALL EXISTING UNDERGROUND UTILITIES HAVE BEEN SHOWN TO THE BEST OF OUR ABILITY FOR GUIDANCE TO THE CONTRACTOR IN BIDDING AND BUILDING THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING AND VERIFYING ALL EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS IN CONNECTION WITH CONSTRUCTING WITH THIS PROJECT



LOCATION MAP
NOT TO SCALE

INDIAN RIVER COUNTY FLORIDA

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1. INSTRUMENTATION LEGEND
   DIGITAL INPUT WIRING–CHASSIS 3/SLOT 4, REMOTE I/O CONTROL PANEL
2. BACK PANEL LAYOUT–MAIN PLC PANEL 2
   PLC RACK LAYOUT–MAIN PLC PANEL 2
   POWER DISTRIBUTION–MAIN PLC PANEL 2
   ANALOG INPUT WIRING–RACK 0/SLOT 0–MAIN PLC PANEL 2
3. ANALOG OUTPUT WIRING–RACK 0/SLOT 1–MAIN PLC PANEL 2
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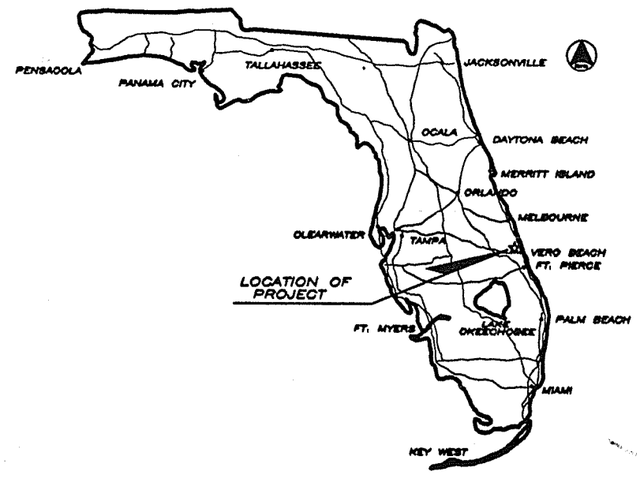
5. FRONT PANEL LAYOUT–PLC 5 CONTROL PANEL
   BACK PANEL LAYOUT–PLC 5 CONTROL PANEL
   PLC RACK LAYOUT–PLC 5 CONTROL PANEL
   POWER DISTRIBUTION–PLC 5 CONTROL PANEL
6. DIGITAL INPUT WIRING–CHASSIS 1/SLOT 1–PLC 5 CONTROL PANEL
   DIGITAL INPUT WIRING–CHASSIS 1/SLOT 2–PLC 5 CONTROL PANEL
   DIGITAL OUTPUT WIRING–CHASSIS 1/SLOT 3–PLC 5 CONTROL PANEL
   DIGITAL OUTPUT WIRING–CHASSIS 1/SLOT 4–PLC 5 CONTROL PANEL
   ANALOG INPUT WIRING–CHASSIS 1/SLOT 5–PLC 5 CONTROL PANEL
   ANALOG INPUT WIRING–CHASSIS 1/SLOT 6–PLC 5 CONTROL PANEL
   ANALOG OUTPUT WIRING–CHASSIS 1/SLOT 7–PLC 5 CONTROL PANEL
   ANALOG OUTPUT WIRING–CHASSIS 1/SLOT 8–PLC 5 CONTROL PANEL
   ANALOG OUTPUT WIRING–CHASSIS 1/SLOT 9–PLC 5 CONTROL PANEL



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REVISIONS

NO	DATE	DESCRIPTION	DR/APP
3	3/07	REVISED PER AS-BUILT	JRP/EHM
2	10/15/04	REVISED FOR BID	JRP/EHM
1	06/17/04	REVISED FOR BID	JRP/EHM

#	NUMBER	CL2L	CHLORINE (LIQUID)	EUH	ELECTRIC UNIT HEATER	IA	INSTRUMENT AIR	OA	OUTSIDE AIR	REF	REFERENCE, REFER, ROOF EXHAUST FAN	THD	THREADED		
&	AND	CL2S	CHLORINE SOLUTION	EW	EACH WAY	ID	INSIDE DIAMETER	OC	ON CENTER	REG	REGISTER	THK	THICK (NESS)		
ø	DIAMETER	CLF	CURRENT LIMITING FUSE	EXA	EXHAUST AIR	IF	INSIDE FACE	OD	OUTSIDE DIAMETER	REINF	REINFORCING	TKD	TANK DRAIN		
@	AT	CLG	CEILING	EXH	EXHAUST	IIR	ISOBUTENE ISOPRENE (BUTYL) RUBBER	OE	OVERHEAD ELECTRIC	REM	REMOVE	TM	TELEMETER OR TIME		
		CLR	CLEAR	EXIST	EXISTING	IN	INCH	OF	OUTSIDE FACE	REQ'D	REQUIRED	TO	TOP OF		
A	AIR (COMPRESSED)	CMP	CORRUGATED METAL PIPE	EXP	EXPANSION	INF	INFLUENT	OG	OZONE OFF-GAS	RES	RESIDUAL	TOB	TOP OF BERM/BANK		
A, AMP	AMPERE	CMU	CONCRETE MASONRY UNITS	EXT	EXTERIOR	INS	INSIDE	OH	OVERHEAD (DOOR)	REV	REVISION	TOC	TOP OF CURB/CONCRETE		
A/C	CONDITIONING UNIT	CNR	CONDENSATE RETURN	EXTD	EXTENDED	INSTR	INSTRUMENT (TATION)	OL	OVERLOAD	RF	ROOF FAN	TOP	TOP OF PIPE		
AA	AERATION AIR	CNS	CONDENSATE SUPPLY	EY	EPOXY	INSUL	INSULATION	OPER	OPERATOR	RH	RELATIVE HUMIDITY	TOS	TOP OF STEEL		
AB	ANCHOR BOLT	CO	CLEAN OUT			INT	INTERIOR	OPNG	OPENING	RIS	RUBBER IN SHEAR	TOW	TOP OF WALL		
ABDN	ABANDON	COL	COLUMN	F	FILTRATE OR FARENHEIT	INV	INVERT	OPP	OPPOSITE	RJ	RESTRAINED JOINT	TOXS	THICKENED OXIDIZED SLUDGE		
ABI	AERATION BASIN INFLUENT	COMB	COMBINATION, COMBUSTION	f'c	CONCRETE COMPRESSION STRESS	IP	IRON PIPE BOUNDARY	OPT	OPTION (AL)	RL	RAIN LEADER	TP	TURNING POINT		
AC	AIR CONDITIONING OR ALTERNATING CURRENT	COMP	COMPRESSIBLE	f'm	MASONRY PRISM STRESS	IR	IRON ROD BOUNDARY	OS	OXIDIZED SLUDGE	RLCI	RUBBER LINED CAST IRON	TPRP	THERMOPLASTIC REINFORCED PIPE		
ACCV	AUTOMATIC CONTROL CHECK VALVE	CONC	CONCRETE	FAB	FABRICATE (OR, ED)	ISOL	ISOLATOR, ISOLATION	OT	OVERHEAD TELEPHONE	RLDI	RUBBER LINED DUCTILE IRON	TPS	THICKENED PRIMARY SLUDGE		
ACP	ABESTOS CEMENT PIPE	COND	CONDUCTIVITY	FAC	FACILITY OR FLANGED ADAPTOR COUPLING			OTV	OVERHEAD TELEVISION	RM	ROOM	TPY	TEMPORARY		
ACU	AIR CONDITIONING UNIT	CONN	CONNECTION	FB	FLOOR BOX (BUSHING TYPE)			OVF	OVERFLOW	RMS	ROOT MEAN SQUARE	TR	TRANSULATION POINT		
AD	ACCESS DOOR	CONST	CONSTRUCTION	FBO	FURNISHED BY OTHERS	JB	JUNCTION BOX	OZA	OZONATED AIR	RND	ROUND	TRAN	TRANSFER		
ADDL	ADDITIONAL	CONT	CONTINUOUS	FC	FLEX CONNECTION	JCT	JUNCTION	OZE	OZONE EXHAUST	RO	ROUGH OPENING	TRANS	TRANSVERSE (TION), TRANSITION		
ADJ	ADJUSTBLE	CORR	CORRUGATED	FD	FLOOR DRAIN	JT	JOINT	O/E	OR EQUAL	ROT	ROTAMETER	TS	STRUCTURAL TUBING (STEEL UNLESS NOTED)		
ADPT	ADAPTER	CPLG	COUPLING	FDMPR	FIRE DAMPER					RPBP	REDUCED PRESSURE BACKFLOW PRECLENTOR	TSL	THICKENED SLUDGE		
AFD	ADJUSTABLE FREQUENCY DRIVE	CPOL	CATIONIC POLYMER	FDN	FOUNDATION					RPM	REVOLUTIONS PER MINUTE	TUBV	TIME UNION BALL VALVE		
AFF	ABOVE FINISHED FLOOR	CPP	CONCRETE PRESSURE PIPE	FE	FLOW ELEMENT (METER)	KO	KNOCKOUT			RR	RAILROAD	TURB	TURBIDITY		
AFG	ABOVE FINISHED GRADE	CPT	CONTROL POWER TRANSFORMER	FEF	FILTER EFFLUENT	KSI	KIPS (1000 POUNDS) PER SQUARE INCH	P	PROTECTED	RS	RAW SEWAGE	TV	TELEVISION		
AHU	AIR HANDLING UNIT	CR	CONTROL RELAY	Fe Cl3	FERRIC CHLORIDE	KTV	KNIFE GATE VALVE	PA	POLYAMIDE	RSL	RAW SLUDGE	TWAS	THICKENED WASTE ACTIVATED SLUDGE		
AI	ANALOG INPUT	CRS	COURSE (S)	FH	FIRE HYDRANT			PAB	PROCESS AERATION BLOWERS	RT	RIGHT	TYP	TYPICAL		
ALT	ALTERNATE (ING)	CS	CARBON STEEL OR CONTROL SWITCH	FHMS	FLATHEAD MACHINE SCREW			PAC	PLANT AIR COMPRESSOR	RTU	REMOTE THERMAL UNIT				
AL, ALUM	ALUMINUM	CSH	CONDITIONED SLUDGE	FHWS	FLATHEAD WOOD SCREW	L	LENGTH OR STRUCTURAL ANGLE DESIGNATION	PAG	AIRGAP PROTECTED WATER	RW	RAW WATER	U	HEAT TRANSFER COEFFICIENT		
ANOD	ANODIZE	CSTG	CASTING	FI	FILTER INFLUENT	LA	LIGHTNING ARRESTER	PAVT	PAVEMENT			UD	UNDERDRAIN		
AO	ANALOG OUTPUT	CT	CURRENT TRANSFORMER	FIG	FIGURE	LAB	LABORATORY	PB	PUSHBUTTON	S	SIGNAL LINE OR STEEL S-SHAPE DESIGNATION	UG	UNDERGROUND		
AP	ACCESS PANEL	CTG	COATING	FIN	FINISH (ED)	LAM	LAMINATED	PBAV	PLASTIC BALL VALVE	SA	SUPPLY AIR	UGTC	UNDERGROUND TELEPHONE CABLE		
APPROX	APPROXIMATE (LY)	CTJ	CONTROL JOINT	FIT	FLOW INDICATING TRANSMITTER	LAT	LEAVING AIR TEMPERATURE	PC	POINT OF CURVE	SAN	SANITARY	UH	UNIT HEATER		
AR	ACID RESISTANT	CTR	CENTER (ED)	FL	FLOOR OR FIRE LINE	LAV	LAVATORY	PCC	POINT OF COMPLEX CURVATURE	SAN S	SANITARY SEWER	UL	UNDERWRITERS LABORATORY		
ARCH	ARCHITECT (URAL) (URE)	CTSK	COUNTERSINK	FLEX/FLX	FLEXIBLE	LB	POUND	PCCP	PRESTRESSED CONCRETE CYLINDER PIPE	SB	STONE MONUMENT BOUNDARY	UNO	UNLESS NOTED OTHERWISE		
ARND	AROUND	CTU	CENTRAL TELEMETRY UNIT	FLG	FLANGE (D)	LBS	POUNDS	PCF	POUND PER CUBIC FOOT	SC	SCUM	UPVC	UN-PLASTICIZED POLYVINYL CHLORIDE		
ARV	AIR RELEASE VALVE	CU	COPPER OR CUBIC	FLR	FLOOR	LCP	LOCAL CONTROL PANEL	PCTFE	POLYCHLOROTRIFLUOROETHYLENE	SCE	SECONDARY CLARIFIER EFFLUENT				
AS	ACTIVATED SLUDGE	CUH	CABINET UNIT HEATER	FLX	FLEXIBLE	LF	LINEAL FEET	PCV	PRESSURE CONTROL VALVE	SCH	SCHEDULE				
ASPH	ASPHALT	CUP	COPPER PIPE	FM	FORCE MAIN	LG	LONG	PD	PUMP DISCHARGE	SCI	SECONDARY CLARIFIER INFLUENT	V	VOLTS		
ASSOC	ASSOCIATION	CV	VALVE FLOW COEFFICIENT	FO	FUEL OIL	LGB	LAG BOLT	PE	PLAIN END	SCV	SILENT CHECK VALVE	VA	VENT AIR		
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS	CV-A	CHECK VALVE (AIR CUSHION)	FOB	FLAT ON BOTTOM	LIME	LIME, DRY	PEFL	PRIMARY EFFLUENT	SD	STORM DRAIN	VA-H	HYDRAULIC VALVE OPERATOR		
ATC	AUTOMATIC TEMPERATURE CONTROL	CV-H	CHECK VALVE (HYDRAULIC CUSHION)	FOR	FUEL OIL RETURN	LIT	LEVEL INDICATING TRANSMITTER	PERF	PERFORATED	SDCV	SLANTING DISC CHECK VALVE	VA-M	MOTOR VALVE OPERATOR		
ATS	AUTOMATIC TRANSFER SWITCH	CVR	CONVECTOR	FOS	FUEL OIL SUPPLY	LL	LIVE LOAD	PF	PHENOL-FORMALDEHYDE	SE	SECONDS OR SECONDARY	VA-P	PNEUMATIC VALVE OPERATOR		
AUTO	AUTOMATIC	CW	COLD WATER	FOT	FLAT ON TOP	LLH	LONG LEG HORIZONTAL	PFU	POLYMER FEED UNIT	SEC	SECTION	VA-S	SOLENOID VALVE OPERATOR		
AUX	AUXILIARY	CWD	CLEARWELL OVERFLOW	FOV	FUEL OIL VENT	LLV	LONG LEG VERTICAL	PGA	PURGE AIR (LIME SILOS)	SF	SUPPLY FAN	VAC	VACUUM		
AVG	AVERAGE	CWR	COOLING WATER RETURN	FP	FILTER PRESS	LNDG	LANDING	pH	HYDROGEN ION CONCENTRATION	SG	SLUICE GATE	VAR	VARIOUS/VARIABLE		
AWG	AMERICAN WIRE GAUGE	CWS	COOLING WATER SUPPLY	FPM	FEET PER MINUTE	LOC	LOCATION/LOCATED	PH	PHASE	SG-C	SLUICE GATE - MANUAL CRANK OPERATOR	VAV	VARIABLE AIR VOLUME		
AWL	AVERAGE WATER LEVEL			FPT	FEMALE PIPE THREAD	LONG	LONGITUDINAL	PHOS	PHOSPHATE	SG-HW	SLUICE GATE - HAND WHEEL OPERATOR	VB	VALVE BOX		
				FRP	FIBERGLASS REINFORCED PLASTIC	LP	LOW POINT OR LOW PRESSURE OR LIGHT POLE	PHW	PROTECTED HOT WATER	SG-M	SLUICE GATE - MOTOR OPERATOR	VBR	VACUUM BREAKER		
B	BRASS	D	DRAIN (STRUCTURE)	FS	FLOOR STAND	LPA	LOW PRESSURE AIR (FROM BLOWERS)	PI	POINT OF INTERSECTION	SHC	SODIUM HYPOCHLORITE	VC	VICTAULIC COUPLING		
B TO B	BACK TO BACK	DA	COMPRESSED DRIED AIR	FT	FEET/FOOT	LPNL	LIGHTING PANEL	PMF	PRIMARY INFLUENT	SHT	SHEET	VCP	VITRIFIED CLAY PIPE		
BCV	BALL CHECK VALVE	DAF	DISSOLVED AIR FLOTATION	FTG	FOOTING/FITTING	LR	LONG RADIUS	PJF	PREMOLDED JOINT FILLER	SIM	SIMILAR	VD	VOLUME DAMPER		
BDD	BACKDRAFT DAMPER	DB	DECIBEL OR DRY BULB	FTR	FINNED TUBE RADIATION	LS	LIME SLURRY	PL	PROPERTY LINE, PLATE DESIGNATION, OR PILOT	SJ	SOLDERED JOINT	VEL	VELOCITY		
BEL	BELOW	DC	DIRECT CURRENT	FTW	FILTER TO WASTE	LT	LIGHT	PLC	PROGRAMMABLE LOGIC CONTROLLER	SL	SLUDGE	VERT	VERTICAL		
BF	BLIND FLANGE	DCU	DISTRIBUTED CONTROL UNIT	FU	FUSE	LVG	LEAVING	PLP	POLYPHOSPHATE	SLG	SLIDE GATE	VFD	VARIABLE FREQUENCY DRIVE		
BFP	BELT FILTER PRESS	DEMO	DEMOLITION	FURN	FURNISHED	LW	LIGHTWEIGHT	PLS	PLASTIC LINED STEEL	SLG-C	SLIDE GATE - MANUAL CRANK OPERATOR	VIB	VIBRATION		
BFV	BUTTERFLY VALVE	DEPT	DEPARTMENT	FW	FILTERED WATER	LWA	LOW WATER ALARM	PLT	PLANT	SLG-HW	SLIDE GATE - HAND WHEEL OPERATOR	VIPA	VIRGIN ISOPROPYL ALCOHOL		
BGO	BURIED GEAR OPERATOR	DET	DETAIL	fy	STEEL YIELD STRESS	LWL	LOW WATER LEVEL	PLW	PLANT WATER	SLG-M	SLIDE GATE - MOTOR	VNBA	VIRGIN N. BUTYL ACETATE		
BHP	BRAKE HORSEPOWER	DG	DIGESTER GAS			LWT	LEAVING WATER TEMPERATUE	PLYWD	PLYWOOD	SLV	SLEEVE	VOL	VOLUME		
BIT	BITMUNOUS	DI	DUCTILE IRON	G	NATURAL GAS			PNL	PANEL	SN	SOLID NEUTRAL	VS	VARIABLE SPEED		
BL	BASELINE	DIA	DIAMETER	GA	GAGE	M	MOTOR	POJ	PUSH ON JOINT	SN	SUPERNATANT	VSD	VARIABLE SPEED DRIVE		
BLDG	BUILDING	DIAG	DIAGONAL	GALV	GALVANIZED	MASY	MASONRY	POL	POLYMER	SO2G	SULFUR DIOXIDE (GAS)	VT	VENT		
BLK	BLOCK	DIFF	DIFFUSER	GE	GROOVED COUPLING (SHOULDERED ENDS)	MATL	MATERIAL	POLYE	POLYETHYLENE	SO2S	SULFUR DIOXIDE SOLUTION	VTR	VENT THROUGH ROOF		
BLKG	BLOCKING	DIGL	DUCTILE IRON GLASS LINED PIPE	GEC	GROUNDING ELECTRODE CONDUCT	MAU	MAKEUP AIR UNIT	POLYP	POLYPROPYLENE	SOJ	SLIP ON JOINT				
BM	BENCHMARK	DIM	DIMENSION	GEN	GENERATOR	MAX	MAXIMUM	POM	POLYOXYMETHYLENE	SOL	SOLUTION				
BOF	BOTTOM OF FOOTING	DIP	DUCTILE IRON PIPE	GF	GROUND FAULT INTERRUPTER	MB	MACHINE BOLTS	POT	POINT OF TANGENCY	SP	STATIC PRESSURE OR SPACE (D)	W	WIDTH		
BOT	BOTTOM	DISCH	DISCHARGE	GI	GALVANIZED IRON	MBH	THOUSAND BTU PER HOUR	POTH	POTASSIUM HYDROXIDE	SPC	SPACE (S, ED)	W/	WITH		
BOW	BOTTOM OF WALL	DIV	DIVISION	GL	GLASS PIPE	MC	STEEL MISCELLANEOUS CHANNEL	POTM	POTASSIUM PERMANGANATE	SPEC	SPECIFICTION, SPECIFIED	W/O	WITHOUT		
BPRV	BACK PRESSURE REGULATING VALVE	DIW	DEIONIZED WATER	GLB	GLASS BLOCK	MCC	MOTOR CONTROL CENTER	PP	POWER POLE	SPG	SPRING	WAP	WALL PIPE		
BRG	BEARING	DL	DEAD LOAD	GOV	GLOBE VALVE	MCJ	MASONRY CONTROL JOINT	PPM	PARTS PER MILLION	SPL	SAMPLE	WAS	WASTE ACTIVATED SLUDGE		
BSMT	BASEMENT	DN	DOWN	GPD	GALLONS PER DAY	ME	METHANOL	PR	PRETREATED WATER SYSTEM	SPR	SPRINKLER LINE	WB	WET BULB		
BSP	BLACK STEEL PIPE	DO	DISSOLVED OXYGEN OR DITTO	GPM	GALLONS PER MINUTE	MECH	MECHANICAL	PRC	POINT OF REVERSE CURVE	SPTC	SEPTAGE	WBW	WSTE BACKWASH WATER		
BTU	BRITISH THERMAL UNIT	DOI	DOOR INTERLOCK	GR	GRADE	MFD	MANUFACTURED	PRCST	PRECAST	SPW	SPRAY WATER	WC	WATER CLOSET		
BTWN	BETWEEN	DR	DRIVE	GRAV	GRAVITY	MFG	MANFACTURING	PREFAB	PRE-FABRICATED	SQ	SQUARE	WF	STEEL WIDE FLANGE		
BUR	BUILT UP ROOF (ING)	DS	DIGESTED SLUDGE	GRND	GROUND	MFR	MANUFACTURER	PRES	PRESSURE	SR	SLUDGE RETURN	WH	WATER HEATER		
BV	BALL VALVE	DV	DIAPHRAGM VALVE	GRTG	GRATING	MG/L	MILLIGRAMS PER LITER	PRIM	PRIMARY	SS	STAINLESS STEEL	WJ	WELDED JOINT		
BVL	BEVEL (ED)	DW	DISTILLED WATER	GSKT	GASKET	MGD	MILLION GALLONS PER DAY	PRV	PRESSURE RELIEF VALVE	SSD	SECONDARY SOUM	WL	WATER LEVEL		
BWR	BACKWASH RETURN	DWG	DRAWING	GSP	GALVANIZED STEEL PIPE	MH	MANHOLE	PRW	PRESSURE WASTE	SSFL	SODIUM SILICO FLUORIDE	WM	WATER MAIN		
BWS	BACKWASH SUPPLY	DWL	DOWEL	GV	GATE VALVE	MHS	METAL HOSE	PS	PUMP STATION	SSL	SODIUM SILICATE	WNBA	WASTE N. BUTYL ACETATE		
BYP	BYPASS	DWTR	DEWATER(ED)			MIN	MINIMUM	PSC	PRIMARY SCUM	SSK	SERVICE SINK	WNC	WASTE NON-CHLORINATED		
				HAS	HEADED ANCHOR STUD	MISC	MISCELLANEOUS	PSF	POUNDS PER SQUARE FOOT	SSL	SECONDARY SLUDGE	WOAS	WASTE OXYGEN ACTIVATED SLUDGE		
C	CHANNEL (STRUCTURAL)	E	EMERGENCY WATER	HB	HOSE BIBB	MJ	MECHANICAL JOINT	PSI	POUNDS PER SQUARE INCH	SSP	STAINLESS STEEL PIPE	WP	WELDED PIPE OR WORKING POINT		
CA	COMPRESSED AIR	EA	EACH	HC	HEATING COIL	ML	MIXED LIQUOR	PSIA	PSI ABSOLUTE	STA	STATION	WPF	WEATHERPROOF		
CAD	COMPRESSED AIR, DRIED	EAT	ENTERING AIR TEMPRATURE	HCL	HYDROCHLORIC ACID	MO	MASONRY OPENING	PSIG	PSI GAGE	STD	STANDARD	WR	WASHWATER RECOVERY		
CAP	CAPACITY	EC	EMPTY CONDUIT	HDPE	HIGH DENSITY POLYETHYLENE	MOD	MOTOR OPERATED DAMPER	PSIG	PSI GAGE	STIFF	STIFFENER	WS	WATERSTOP OR WATER SURFACE		
CATV	CABLE TV	ECC	ECCENTRIC	HDR	HEADER	MON	MONUMENT	PT	POINT	STIR	STIRRUP (S)	WSH	WASHWATER		
CB	CATCH BASIN OR CIRCUIT BREAKER	ED-F	EQUIPMENT DRAIN (FLUSH TYPE)	HDWR	HARDWARE	MPH	MILES PER HOUR	PTFE	POLYTETRAFLUOROETHYLENE	STL	STEEL	WSL	WASTE SLUDGE		
CC	CENTER TO CENTER, COOLING COIL	ED-O	EQUIPMENT DRAIN (EXTENDED TYPE-OPEN)	HES	HIGH EARLY STRENGTH	MRPP	METAL REINFORCED PLASTIC PIPE	PV	PLUG VALVE	STP	SLUDGE TRANSFER PUMP	WSLG	WEIR SLIDE GATE		
CCW	COUNTER CLOCKWISE	ED-S	EQUIPMENT DRAIN (EXTENDED TYPE-SEALED)	HEX	HEXAGON	MTD	MOUNTED	PVC	POLYVINYL CHLORIDE	STRUC	STRUCTURE (S, URAL)	WSV	WALL SLEEVE		
CDT	CONDUIT	EDH	ELECTRIC DUCT HEATER	HFAC	HARNESSED FLANGED ADAPTOR COUPLING	MTG	MOUNTING	PVMT	PAVEMENT	SUSP	SUSPENDED	WT	WEIGHT OR STEEL TEE-SHAPE DESIGNATION		
CENT	CENTRIFUGAL	EF	EACH FACE	HFL	HYDROFLUOSILIC ACID	MTL	METAL	PVRV	PRESSURE VACUUM RELIEF VALVE	SV	SOLENOID VALVE	WTP	WATER TREATMENT PLANT		
CF	CUBIC FOOT	EFF	EFFLUENT	HGR	HANGER	MV	MUD VALVE	PW	POTABLE WATER	SW	SWITCH	WTD	WASHWATER DRAIN		
CFM	CUBIC FEET PER MINUTE	EGC	EQUIPMENT GROUNDING CONDUCTOR	HH	HANDHOLE			PWL	PEAK WATER LEVEL	SWBD	SWITCHBOARD	WW	WASTE WATER		
CFS	CUBIC FEET PER SECOND	EGO	ELEVATED GEAR OPERATOR	HK	HOOK	N	NEUTRAL	PWM	POTABLE WATER METER	SWD	SIDE WATER DEPTH	WWF	WELDED WIRE FABRIC		
CHAMF	CHAMFER	EL	ELEVATION	HOA	HAND-OFF AUTO	N2	NITROGEN			SWGR	SWITCHGEAR	WWTP	WASTEWATER TREATMENT PLANT		
CHKD	CHECKERED	ELEC	ELECTRIC(AL)	HOR	HORIZONTAL	NACL	SODIUM CHLORITE			SWK	SIDEWALK				
CHL	CHLORINATOR	EMERG	EMERGENCY	HP	HIGH POINT OR HORSEPOWER	NAOH	CAUSTIC SODA (SODIUM HYDROXIDE)			SYM	SYMMETRICAL	XFMR	TRANSFORMER		
CHR	CHLOROPRENE RUBBER (NEOPRENE)	ENGR	ENGINEER	HPA	HIGH PRESSURE AIR	NBR	NITRILE RUBBER	QTY	QUANITY/QUALITY			XP	EXPLOSION PROOF		
CI	CAST IRON	ENT	ENTERING	HS	HIGH STRENGTH OR HIGH SERVICE	NC	NORMALLY CLOSED			T	TREAD				
CNL	CAST IRON PIPE GLASS LINED	EOP	EDGE OF PAVEMENT	HSM	HIGH SERVICE MAIN	NEC	NATIONAL ELECTRIC CODE			T&B	TOP AND BOTTOM	YD	YARD		
CIP	CAST IRON PIPE	EP	ELECTROPNEUMATIC OR ELECTRICAL PANEL	HT	HEIGHT	NG	NATURAL GAS	R/W	RIGHT-OF-WAY	T&G	TONGUE AND GROOVE	YR	YEAR		
CIR	CIRCLE	EPDM	ETHYLENE PROPYLENE RUBBER	HTHW	HIGH TEMPERATURE HOT WATER	NIC	NOT IN CONTRACT	RA	RETURN AIR	TAN	TANGENCY				
CIRC	CIRCUMFERENTIAL	EQ	EQUAL (LY)	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	NNO	NORMALLY OPEN	RAD	RADIUS	TAS	THICKENED ACTIVATED SLUDGE				
CIU	CAST IRON PIPE UNLINED	EQIV	EQUIVALENT	HW	HOT WATER	NOM	NOMINAL	RAS	RETURN ACTIVATED SLUDGE	TD	TIME DELAY OR CLOSING				
CJ	CONSTRUCTION JOINT	EQUIP	EQUIPMENT	HWA	HIGH WATER ALARM	NOS	NATIONAL OCEANOGRAPHIC SURVEY	RBH	RUBBER HOSE	TD	TRENCH DRAIN OR TEMPERATURE DIFFERENCE				
CL	CENTER LINE	ES	EACH SIDE	HWL	HIGH WATER LEVEL	NPOL	NONIONIC POLYMER	RC	REINFORCED CONCRETE	TDO	TIME DELAY ON OPENING				
CL2	CHLORINE SYSTEM	ESMT	EASEMENT	HWR	HOT WATER RETURN	NPT	AMERICAN NATIONAL TAPER PIPE THREAD	RCCP	REINFORCED CONCRETE CYLINDER PIPE	TECH	TECHNICAL				
CL2G	CHLORINE (GAS)	EST	ESTIMATE (D)	HWS	HOT WATER SUPPLY	NPW	(NON-POTABLE) RAW WATER	RCP	REINFORCED CONCRETE PIPE	TEL	TELEPHONE				
		ETC	ETCETERA	HWW	HIGH PRESSURE WASH WATER	NR	NATURAL RUBBER	RD	ROOF DRAIN	TEMP	TEMPERATURE/TEMPORARY				
		EVAP	EVAPORATOR (ION)	HZ	HERTZ	NTS	NOT TO SCALE	RDWD	REDWOOD	TF	TOP FACE, TRANSFER FAN				
						NO	NUMBER, NORMALLY OPEN	RED	REDUCER	TFP	TRANSFER PUMP				

AS-BUILT

NO.	DATE	DESCRIPTION	DR/APP
3	3/07	REVISED PER AS-BUILT	JRP/EHM
2	10/15/04	REVISED FOR BID	JRP/EHM
1	08/17/04	REVISED FOR BID	JRP/EHM

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INDIAN RIVER COUNTY

ABBREVIATIONS
CENTRAL REGION
WWTP EXPANSION

FLORIDA

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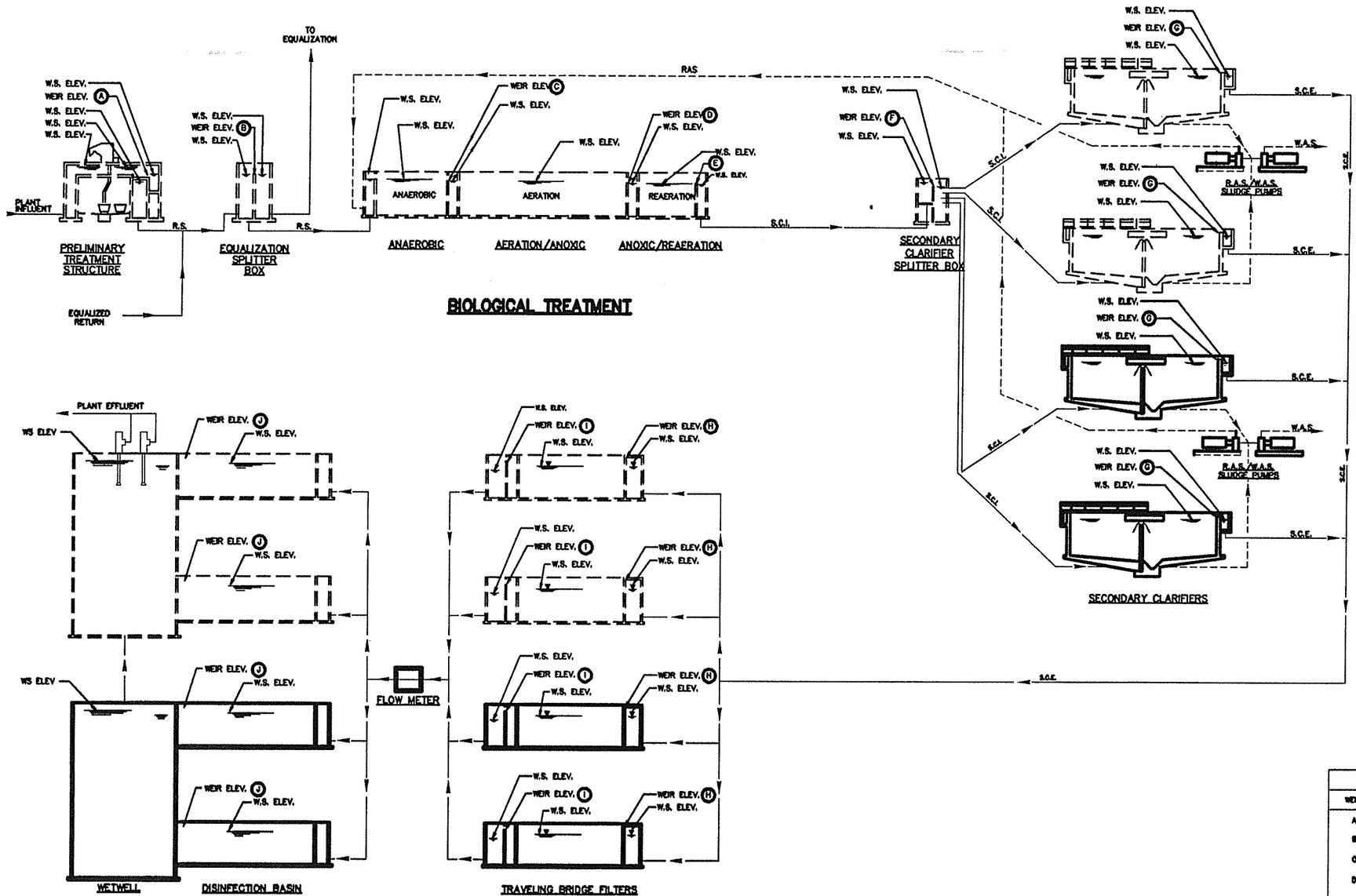
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEET	64 of 5
DWG NO	0525



		WATER SURFACE ELEVATIONS, FT-MSL																				
		PRELIMINARY TREATMENT STRUCTURE				EQUALIZATION SPLITTER BOX		INFLUENT BOX	ANAEROBIC BASIN	AERATION BASIN	REAERATION BASIN		SECONDARY SPLITTER BOX		SECONDARY CLARIFIER		FILTER			DISINFECTION BASIN		
	MGD	INFLUENT	SCREEN OUT	GRIT UNIT	EFFLUENT	INFLUENT	EFFLUENT	SURFACE	SURFACE	SURFACE	SURFACE	EFFLUENT	INFLUENT	EFFLUENT	SURFACE	EFFLUENT	INFLUENT	SURFACE	EFFLUENT	SURFACE	WETWELL
AVERAGE DAILY FLOW	4.0	45.46	44.92	44.92	41.70	41.76	38.29	37.54	37.54	36.66	36.78	33.68	32.79	31.28	31.18	27.54	25.47	23.46	20.76	20.74	20.00
MAXIMUM DAY FLOW	5.0	45.54	43.00	45.00	41.78	41.81	38.60	37.60	37.58	36.71	36.81	34.00	32.88	31.37	31.20	27.80	25.50	23.50	20.81	20.80	20.00
* PEAK HOUR FLOW	12.0	46.16	45.28	46.26	42.46	42.13	41.46	37.90	37.82	36.94	36.02	35.56	33.01	31.97	31.23	27.97	25.70	23.70	21.35	20.92	20.00
**	12.0	45.87	45.65	46.09	43.22	42.13	41.46	37.90	37.82	36.96	36.02	35.56	36.08	32.32	31.27	28.18	25.75	23.75	21.41	21.00	20.00

* BASED ON ACTUAL FLOW ANALYSIS FROM DEC. 02 THRU NOV. 03
** PEAK HOUR FLOW WITH ONE UNIT OUT OF SERVICE

HYDRAULIC PROFILE

* WEIR ELEVATIONS, FT-MSL		
WEIR	DESCRIPTION	ELEVATION
A	GRIT UNIT WEIR	44.59
B	EQUALIZATION SPLITTER BOX	41.43
C	AERATION BASIN INFLUENT WEIR	37.30
D	AERATION BASIN EFFLUENT WEIR	36.43
E	REAERATION BASIN EFFLUENT WEIR	35.56
F	SECONDARY CLARIFIER SPLITTER BOX	32.56
G	SECONDARY CLARIFIER WEIR	31.10
H	FILTER INFLUENT WEIR	25.31
I	FILTER EFFLUENT WEIR	23.31
J	CHLORINE CONTACT BASIN EFFLUENT WEIR	20.50

* THESE WEIRS MUST BE CONSTRUCTED AT THE EXACT SAME ELEVATION AS EXISTING WEIRS IN EXISTING FACILITIES. CONTRACTOR SHALL FIELD VERIFY THESE TOP OF WEIR ELEVATIONS.

AS-BUILT

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP/EHM
3	10/15/04	REVISED FOR BID	JRP/EHM
2	9/17/04	REVISED FOR BID	JRP/EHM
1	8/04	REVISED PER IRCUD COMMENTS	JRP/EHM

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INDIAN RIVER COUNTY

HYDRAULIC PROFILE
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EARL H. MASTELLER, P.E. FL#26658

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DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEET	G-2 OF 5
DWG NO	0525

16" EFF → PLANT EFFLUENT
EFF FLOW METER
16" EFF-DI
MH
12" SAN S-DI
EXISTING CHLORINE CONTACT TANKS
NO. 1
NO. 2
8" REJECT EFF-DI
30" - DI
NO. 3
NO. 4
PROPOSED CHLORINE CONTACT TANKS
16" EFF
12" SAN S-DI
EXISTING FILTERS NO.1
NO.2
PROPOSED FILTERS NO. 3
NO.4
24" SCE-DI
FUTURE SECONDARY CLARIFIER NO. 4
EXISTING SECONDARY CLARIFIER NO. 1
FUTURE SECONDARY CLARIFIER NO. 3
EXISTING SECONDARY CLARIFIER NO. 2
12" RAS/DRAIN-DI
6" SCUM-PVC
6" DRAIN-DI
12" SAN S
16"-DI
RAS METER
8" EFF
16" REJECT EFF-DI
8" WAS-DI
WAS METER
EQUALIZATION
NON-SPEC EFFLUENT
SLUDGE HOLDING
NON-SPEC EFFLUENT
NON-SPEC EFFLUENT
16" EQUALIZATION-DI
12" EQUALIZED RETURN-DI
EQUALIZED RETURN PUMPS
EQUALIZATION SPLITTER BOX
24" ABL-DI
24" DI
PRELIMINARY TREATMENT STRUCTURE
INFLUENT METER
8" FM-DI
24" BY-PASS
FM-DI
TO GRAND HARBOR
10" EFF
12" RAS-DI
EXISTING PLANT SITE LIFT STATION
16" FM
EXISTING AERATION BASIN NO. 2
EXISTING AERATION BASIN NO. 1
AS-BUILT

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP/EHM
3	10/15/04	REVISED FOR BID	JRP/EHM
2	09/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

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INDIAN RIVER COUNTY

PLANT FLOW DIAGRAM
CENTRAL REGION
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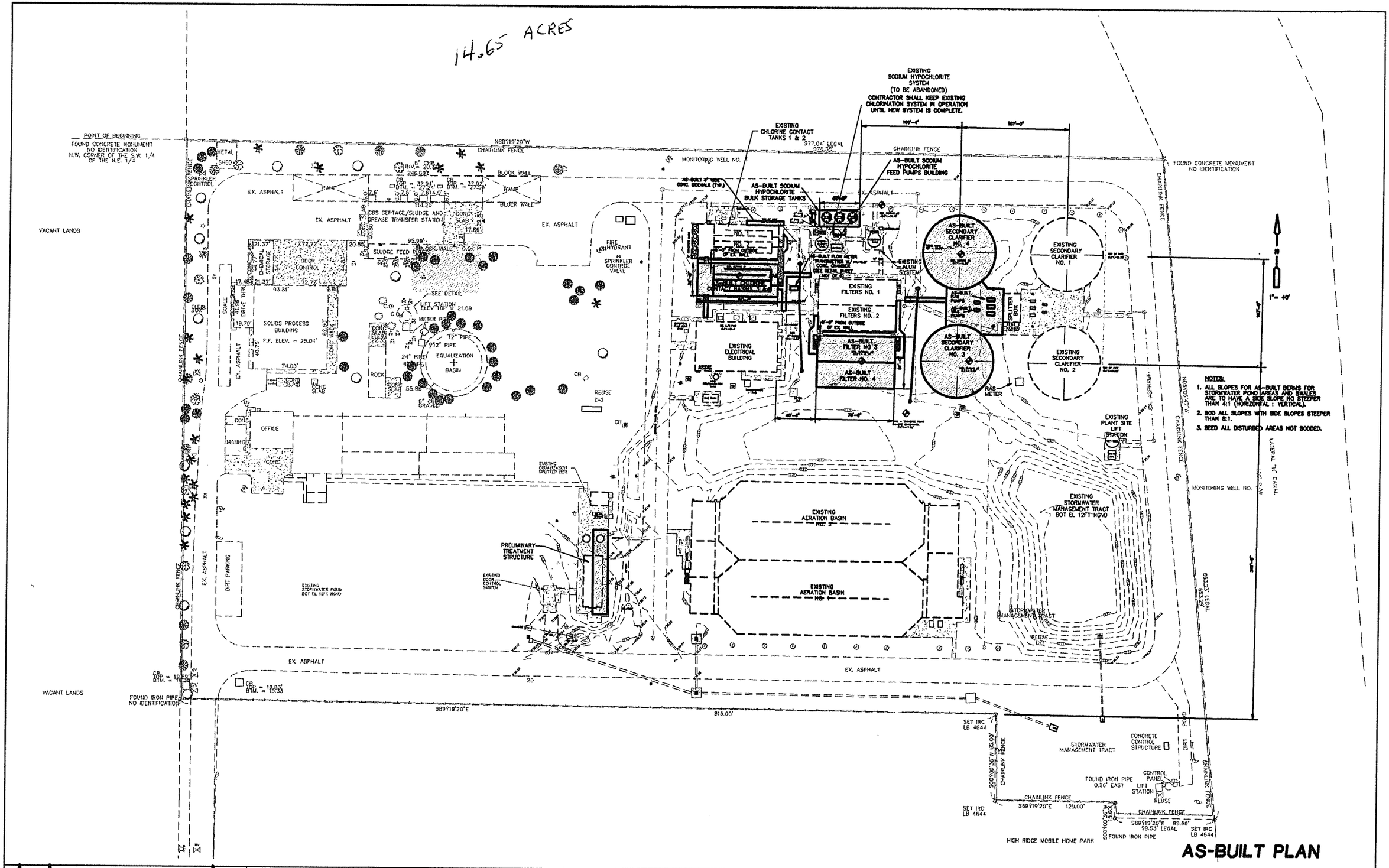
EARL H. MASTELLER, P.E. FL#26650

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	N.T.S.
SHEET	G-5 of 5
JOB NO.	0525

14.65 ACRES



AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED AS-BUILT	JRP/EHM
3	10/18/04	REVISED FOR BID	JRP/EHM
2	08/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

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AS-BUILT PLANT SITE
CENTRAL REGION
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EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEET	C1 OF 4
DWG NO	0525

977.04' LEGAL
976.35'

CHAINLINK FENCE

FOUND

MONITORING WELL NO. 4

EXISTING CHLORINE CONTACT TANKS 1 & 2

AS-BUILT 24"ø PVC INLET GRATE=19.75 8" INVERT IN (S)=18.85

AS-BUILT SODIUM HYPOCHLORITE BULK STORAGE TANKS

AS-BUILT SODIUM HYPOCHLORITE FEED PUMPS BUILDING

EX. ASPHALT

CLEANOUT

NO. 1

NO. 2

AS-BUILT FLOW METER CHAMBER

CONCRETE CURB

SOIL BORING #1 ELEV.=19.53

AS-BUILT CHLORINE CONTACT BASINS

AS-BUILT 50 LF 6"ø PVC DRAIN PIPE @ 0.25%

AS-BUILT 24"ø PVC INLET GRATE=19.80 INVERT=18.67

AS-BUILT 24"ø PVC INLET GRATE=19.90 INVERT=19.00

CONCRETE FLAG POLE BASE

(3) A/C PAD ELEV.=21.4'

AS-BUILT 50 LF 6"ø PVC DRAIN PIPE @ 0.25%

EXISTING ELECTRICAL BUILDING

EXIST. ROOF DRAIN

CONNECT TO PROP. 8"ø PVC

BACKFLOW PREVENTER

ACID NEUTRALIZATION TANK

GAS TANK

TRANSFORMER PAD

AS-BUILT MES INV.=18.50

METER PIT

EXISTING PAVED ROAD

SOIL BORING #2 ELEV.=20.15

EXISTING SODIUM HYPOCHLORITE SYSTEM

HYDRO-CHLORITE TANK

CONTROLS

PUMPS

BULK TANK

ALUMINUM TANK

CONTROLLER

EXISTING ALUM SYSTEM

INV.=19.89'

12" CMP

INV.=19.77'

AS-BUILT 32 LF 8"ø PVC @ 0.30%

AS-BUILT 24"ø PVC INLET GRATE=19.95 6" INVERT IN (W)=18.75 6" INVERT IN (N)=18.75 8" INVERT OUT (S)=18.75

EXISTING FILTERS NO. 1

AS-BUILT 24"ø PVC INLET GRATE=19.50 8" INVERT IN (S)=18.50

EXISTING FILTERS NO. 2

INV.=18.95'

AS-BUILT 110 LF 8"ø PVC @ 0.10%

AS-BUILT FILTER NO. 3

SOIL BORING #3 ELEV.=18.34

AS-BUILT FILTER NO. 4

AS-BUILT MES INV.=18.40

SET NAIL — TRAVERSE POINT ON-SITE BENCHMARK ELEV.=17.23'

EXISTING AERATION BASIN NO. 2

AS-BUILT SECONDARY CLARIFIER NO. 4

SOIL BORING #4 ELEV.=19.03

AS-BUILT SECONDARY CLARIFIER NO. 3

SOIL BORING #5 ELEV.=18.87'

AS-BUILT RAS PUMPS

PROP. TOP OF SLAB 21.3

PAS-BUILT WAS PUMPS

SPLITTER BOX

EXISTING SECONDARY CLARIFIER NO. 1

TOP OF PIPE ELEV.=25.98'

EXIST. TOP OF SLAB 21.3

EXISTING SECONDARY CLARIFIER NO. 2

TOP OF PIPE ELEV.=25.82'

RAS METER

EXISTING PLANT SITE LIFT STATION

WET WELL

VALVE PIT

EXISTING STORMWATER MANAGEMENT TRACT BOT EL 12FT NGVD

N05°08'47"W

EX. ASPHALT

CHAINLINK FENCE

N

1"= 20'

NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

LEGEND

——— AS-BUILT CONTOUR

– – – – EXISTING CONTOUR

NOTES:

1. ALL SLOPES FOR AS-BUILT BERMS FOR STORMWATER POND AREAS AND SWALES ARE TO HAVE A SIDE SLOPE NO STEEPER THAN 4:1 (HORIZONTAL : VERTICAL).
2. SOD ALL SLOPES WITH SIDE SLOPES STEEPER THAN 6:1.
3. SEED ALL DISTURBED AREAS NOT SODDED.

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
6	3/07	REVISED PER AS-BUILT	JRP/EHM
5	06/14/06	REVISED GRADING BETWEEN ELEC. BUILDING AND CHLORINE CONTACT BASIN	JRP/EHM
4	06/03/06	REVISED GRADING BETWEEN ELEC. BUILDING, FILTERS, AND CLARIFIERS	JRP/EHM
3	10/15/04	REVISED FOR BID	JRP/EHM
2	03/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

REVISIONS

MASTELLER & MOLER, INC.
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CERTIFICATE OF AUTHORIZATION #4204
2205 14th AVENUE, VERO BEACH, FLORIDA 32960
(772) 567-5500 / FAX (772) 794-1106

GRADING PLAN
CENTRAL REGION
WWTP EXPANSION

INDIAN RIVER COUNTY — FLORIDA

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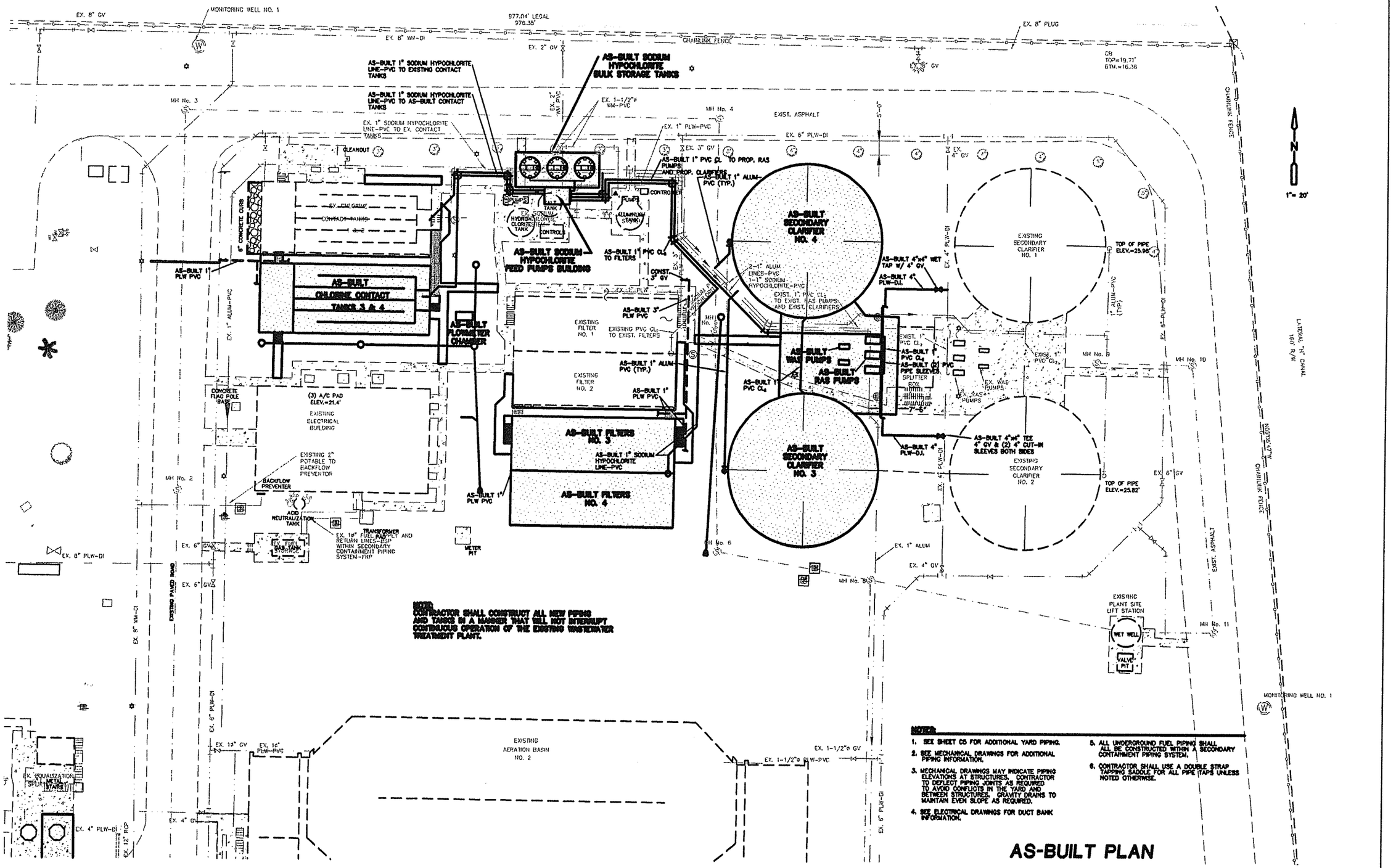
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	1"=20'
SHEET	C2 OF 4
DWG NO	0825



NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

NOTES:

1. SEE SHEET C5 FOR ADDITIONAL YARD PIPING.
2. SEE MECHANICAL DRAWINGS FOR ADDITIONAL PIPING INFORMATION.
3. MECHANICAL DRAWINGS MAY INDICATE PIPING ELEVATIONS AT STRUCTURES. CONTRACTOR TO DEFLECT PIPING JOINTS AS REQUIRED TO AVOID CONFLICTS IN THE YARD AND BETWEEN STRUCTURES. GRAVITY DRAINS TO MAINTAIN EVEN SLOPE AS REQUIRED.
4. SEE ELECTRICAL DRAWINGS FOR DUCT BANK INFORMATION.
5. ALL UNDERGROUND FUEL PIPING SHALL ALL BE CONSTRUCTED WITHIN A SECONDARY CONTAINMENT PIPING SYSTEM.
6. CONTRACTOR SHALL USE A DOUBLE STRAP TAPPING SADDLE FOR ALL PIPE TAPS UNLESS NOTED OTHERWISE.

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILTS	JRP/EHM
3	10/05/04	REVISED FOR BID	JRP/EHM
2	08/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

REVISIONS

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INDIAN RIVER COUNTY

SMALL YARD PIPING PLAN
CENTRAL REGION
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EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEET	C6 of 4
DWG NO	0525

977.04' LEGAL
976.35'

CHAINLINK FENCE

FOUND CONCRETE MONUMENT
NO IDENTIFICATION

MONITORING WELL NO. 4

NOTE:
CONTRACTOR SHALL KEEP EXIST. SODIUM HYPOCHLORITE SYSEM OPERATIONAL UNTIL NEW Cl_2 SYSTEM IS COMPLETE.

EX. ASPHALT

EXIST. EFFLUENT MAIN-DI
16" TEE 16" BFV

EX. MH NO. 3

EX. 12"X6" WYE

EX. 12" SAN S-DI

EX. MH NO. 4

EX. 16" BFV
24" PLUG

CLEANOUT

EX. 24" SCE-DI

EX. 16" EFF-DI

EXIST. METER

FIRE HYDRANT

SPRINKLER CONTROL VALVE

EX. CHLORINE CONTACT TANKS 1 & 2

6" CONCRETE CURB

AS-BUILT 12"x6" WYE

AS-BUILT 6" DI DRAIN

AS-BUILT 30" DI

EX. 1" ALUM-PVC

AS-BUILT CHLORINE CONTACT TANKS 3 & 4

AS-BUILT WAS INV.=18.25

AS-BUILT 6" PVC @ 0.01%

REMOVE EXIST. 30" PLUGS

AS-BUILT (2) 30"ø 45° BENDS

EXIST. 30" TEE IN EXIST. 30" DI

SODIUM HYPOCHLORITE SYSTEM

HYDRO-CHLORITE TANK

CONTROL

AS-BUILT SODIUM HYPOCHLORITE FEED
INV.=19.89'

PUMPS

ALUMINUM TANK

ALUM SYSTEM

CONTROLLER

PUMPS BUILDING

12" DIP

INV.=19.77'

AS-BUILT FLOW METER TRANSMITTER W/ CONC CHAMBER (SEE DETAIL SHEET NO. 1 OF 6)

EX. 12" D-DI

EXISTING FILTER NO. 1

EX. MH NO. 5

EXISTING FILTER NO. 2

AS-BUILT 12" WYE
12" 45° BEND
12"D-DI

AS-BUILT FILTER NO. 3

AS-BUILT FILTER NO. 4

EXIST. 36" W. DUCT BANK

AS-BUILT 30"ø RESTRAINED 45°ø BEND

AS-BUILT 30" DI

INV.=16.05'

INV.=15.93'

(3) A/C PAD ELEV.=21.4'

CONCRETE FLAG POLE BASE

EXISTING ELECTRICAL BUILDING

BACKFLOW PREVENTER

ACID NEUTRALIZATION TANK

4" SCUM-DI

TRANSFORMER PAD

FUEL TANK (UNDER GROUND)

EX. 8" WAS-DI

EX. WAS METER PIT

ABANDON EXIST. 4" ø DI SCUM LINE

EX. 12" SAN S-DI

EX. MH NO. 6

AS-BUILT SECONDARY CLARIFIER NO. 4

AS-BUILT 12" RAS/ DRAIN - DI.

AS-BUILT 6" SCUM LINE - PVC

CONNECT 6" WAS PUMP DISCHARGE TO EX. 8" WAS FORCE MAIN

AS-BUILT 6" DI DRAIN

AS-BUILT WAS PUMPS

AS-BUILT 6" DI DRAIN

AS-BUILT RAS PUMPS

AS-BUILT 20" SCI-DI.

AS-BUILT 8" RAS-DI.

REMOVE 16" PLUG AND 30"x16" REDUCER
T.O.P.=14.73

AS-BUILT 30" SCE-DI

AS-BUILT 16" 90° BEND
30"x16" TEE
30" 90° BEND

AS-BUILT SECONDARY CLARIFIER NO. 3

EX. 8" RAS-DI

EX. 12" SAN S-DI

EXISTING SECONDARY CLARIFIER NO. 1

AS-BUILT 8" RAS-DI.

AS-BUILT 20" SCI-DI.

EX. 8"x6" RED

ABANDON EXIST. 4" ø DI SCUM LINE

TOP OF PIPE ELEV.=25.98'

EX. 24"x16" RED

REMOVE EJECTORS AND AS-BUILT 6" SCUM DISCHARGE PIPES TO MH #9

AS-BUILT 6" PVC SCUM LINE TO MH #9

EX. 6"-DI

EXIST. MH NO. 9

EXIST. MH NO. 10

EX. 12" SAN S-DI

SPLITTER BOX

EX. RAS PUMPS

EXIST. WAS PUMPS

AS-BUILT 12" RAS PUMP DISCHARGE

AS-BUILT 12" TEE, VALVE & SLEEVE

EXISTING SECONDARY CLARIFIER NO. 2

TOP OF PIPE ELEV.=25.82'

EX. 16"SCE-DI

EX. RAS METER

EX. 12"-SAN S-DI

EX. ASPHALT

CHAINLINK FENCE

N05°06'47"W

CHAINLINK FENCE

MONITORING WELL NO.

1" = 20'

REUSE

EX. 4" PV

EXISTING PAVED ROAD

EX. 4" SCUM-DI

EX. 4" PV

EX. MH NO. 2

EX. EQUALIZATION SPLITTER BOX

EXIST. 24" ABL-DI

METAL BUILDING

EXIST. 8" FM-DI

EXIST. 8" D-DI

EXISTING AERATION BASIN NO. 2

EX. 8" D-DI

EX. 12" SAN S-DI

EX. 12" RAS-DI

EXIST. MH NO. 8

EX. PLANT SITE LIFT STATION

WET WELL

VALVE PIT

EX. MH NO.

EX. 8" FM-DI

NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

NOTES:

1. SEE SHEET C4 FOR ADDITIONAL YARD PIPING.
2. SEE MECHANICAL DRAWINGS FOR ADDITIONAL PIPING INFORMATION.
3. MECHANICAL DRAWINGS MAY INDICATE PIPING ELEVATIONS AT STRUCTURES. CONTRACTOR TO DEFLECT PIPING JOINTS AS REQUIRED TO AVOID CONFLICTS IN THE YARD AND BETWEEN STRUCTURES. GRAVITY DRAINS TO MAINTAIN EVEN SLOPE AS REQUIRED.
4. SEE ELECTRICAL DRAWINGS FOR DUCT BANK INFORMATION.
5. ALL UNDERGROUND CHEMICAL AND FUEL PIPING SHALL ALL BE CONSTRUCTED WITHIN A SECONDARY CONTAINMENT PIPING SYSTEM.
6. CONTRACTOR SHALL USE A DOUBLE STRAP TAPPING SADDLE FOR ALL PIPE TAPS UNLESS NOTED OTHERWISE.

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED REVISED PER AS-BUILT	JRP/EHM
3	10/15/04	REVISED FOR BID	JRP/EHM
2	08/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

REVISIONS

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(772) 567-5500 / FAX (772) 794-1106

PLANT PROCESS PIPING PLAN
CENTRAL REGION
WWTP EXPANSION

INDIAN RIVER COUNTY — FLORIDA

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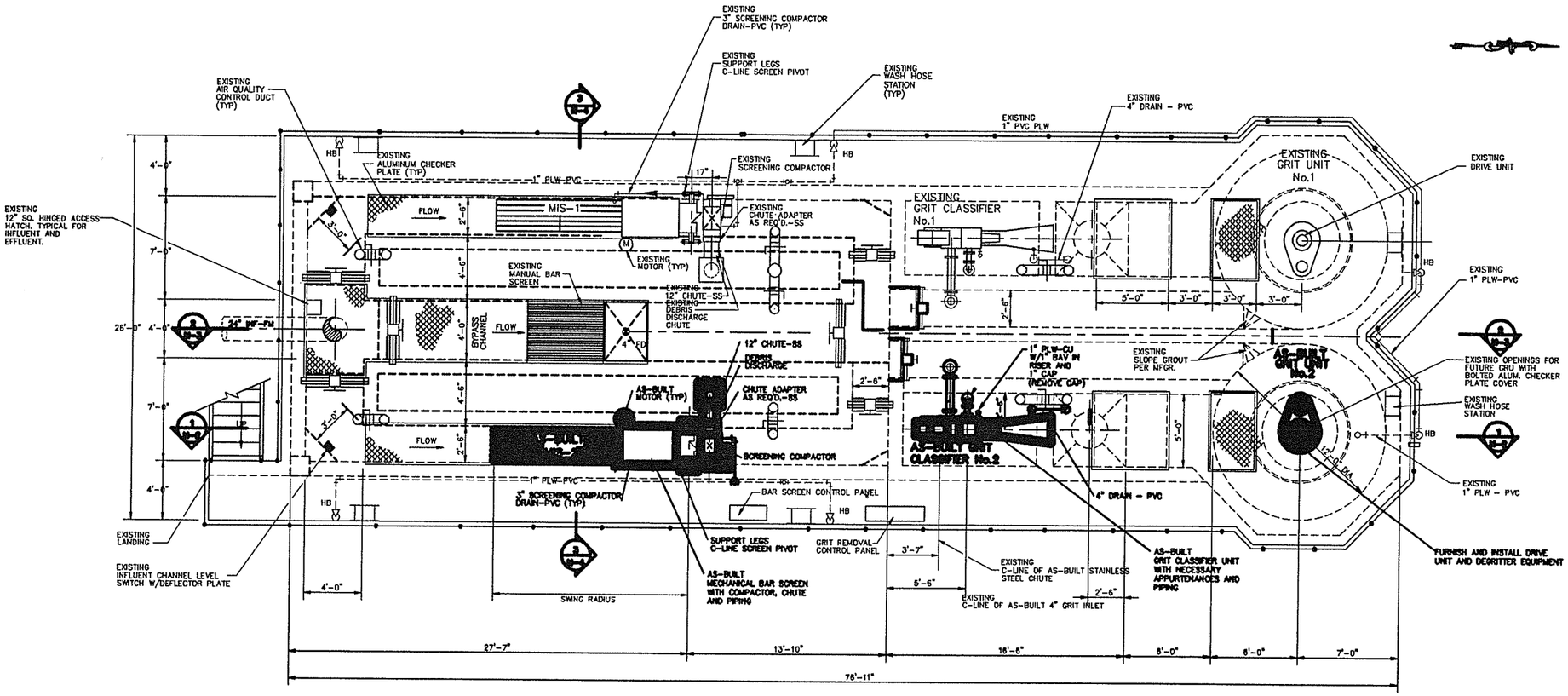
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	1"=20'
SHEET	C4 OF 4
DWG NO.	0825



PRELIMINARY TREATMENT STRUCTURE
PLAN VIEW
1/4"= 1'- 0"

NOTES:
1. FURNISH AND INSTALL ALL PROPOSED EQUIPMENT, PIPING AND ACCESSORIES AS SHOWN AND INCLUDING MECHANICAL BAR SCREEN, DEGRITTER AND GRIT CLASSIFIER TO MATCH THE EXISTING EQUIPMENT.

NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DRAWN
4	3/07	REVISED PER AS-BUILT	JRP/EHM
3	10/15/04	REVISED FOR BID	JRP/EHM
2	09/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCAD COMMENTS	JRP/EHM

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HEADWORKS STRUCTURE - TOP PLAN
CENTRAL REGION
WWTP EXPANSION

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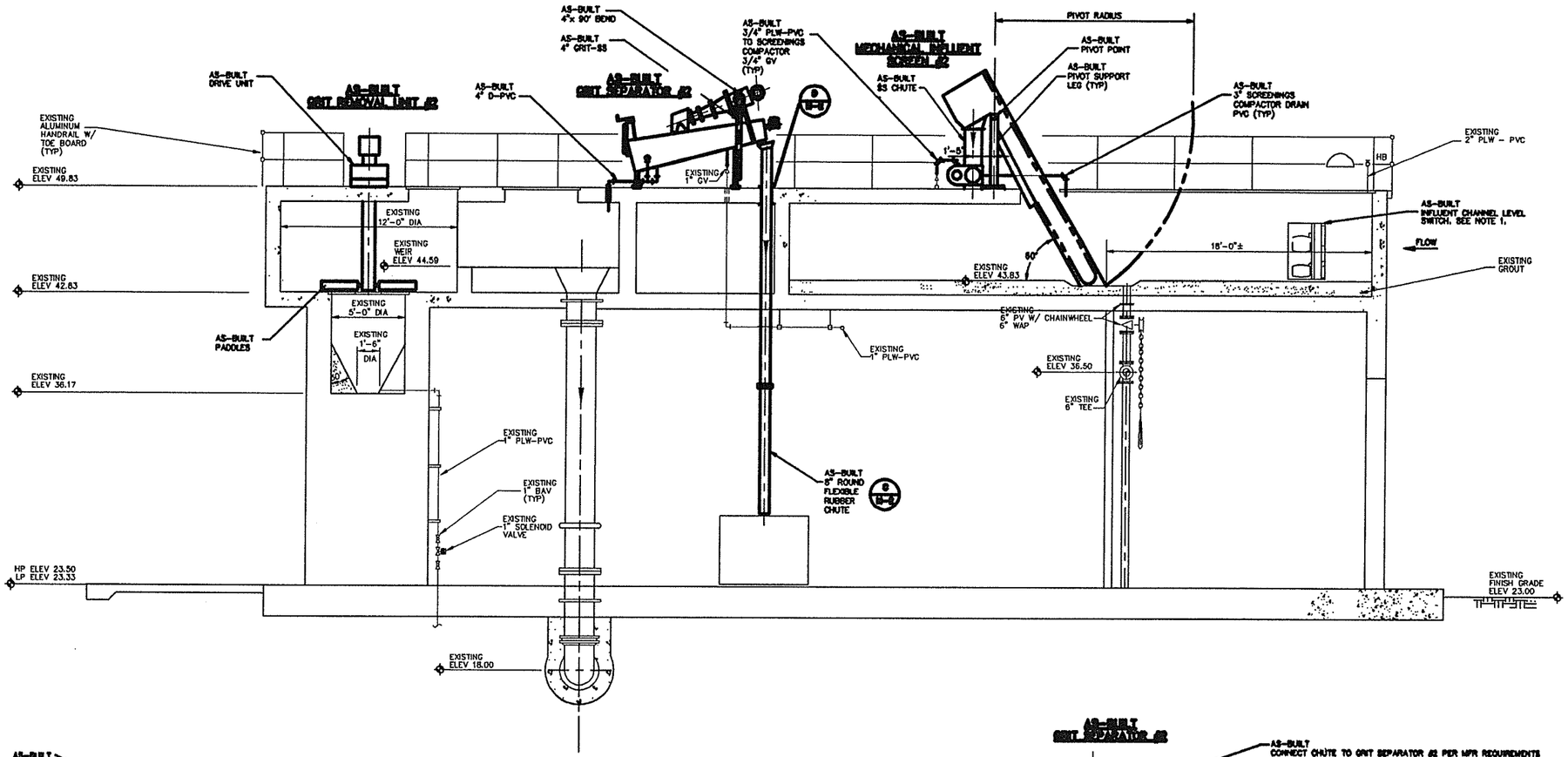
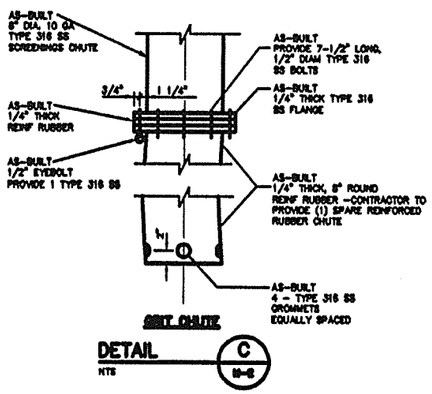
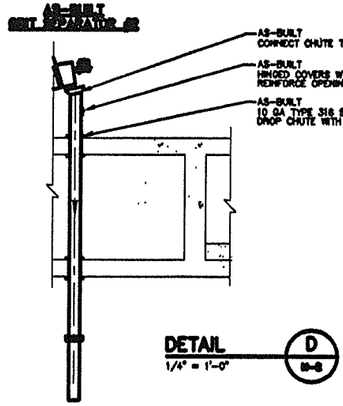
DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEET	M1 OF 16
JOB NO.	0525





DETAIL C
NTS
M-6

SECTION 1
1/4" = 1'-0"
M-1



DETAIL D
1/4" = 1'-0"
M-6

NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

NOTES:

1. INFLUENT CHANNEL LEVEL SWITCH WITH DEFLECTOR PLATE, TO BE SUPPLIED BY SCREEN MANUFACTURER AND FIELD LOCATED CLEAR OF SCREEN WHEN PIVOTED OUT OF THE CHANNEL. MOUNT TO CHANNEL WALL WITH TYPE 316 STAINLESS STEEL ANCHOR BOLTS AND ACCESSORIES. SIZE PER EQUIPMENT MANUFACTURER RECOMMENDATION.
2. * TO SUIT MANUFACTURER EQUIPMENT.
3. CLASSIFIER DRAIN PIPING TO BE SIZED IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS.

SECTIONS AND DETAILS

AS-BUILT PLAN

REVISIONS

NO.	DATE	DESCRIPTION	DRAWN
4	7/17/06	REVISED PER AS-BUILT	DEP/BHH
3	3/31/06	REVISED PER PW	DEP/BHH
2	2/7/06	REVISED PER PW	DEP/BHH
1	12/7/05	REVISED PER MUNICIPALITY COMMENTS	DEP/BHH

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4204
2205 14th AVENUE, VERO BEACH, FLORIDA 32960
(772) 567-5500 / FAX (772) 794-1106

INDIAN RIVER COUNTY

HEADWORK STRUCTURE
CENTRAL REGION
WWTP EXPANSION

FLORIDA

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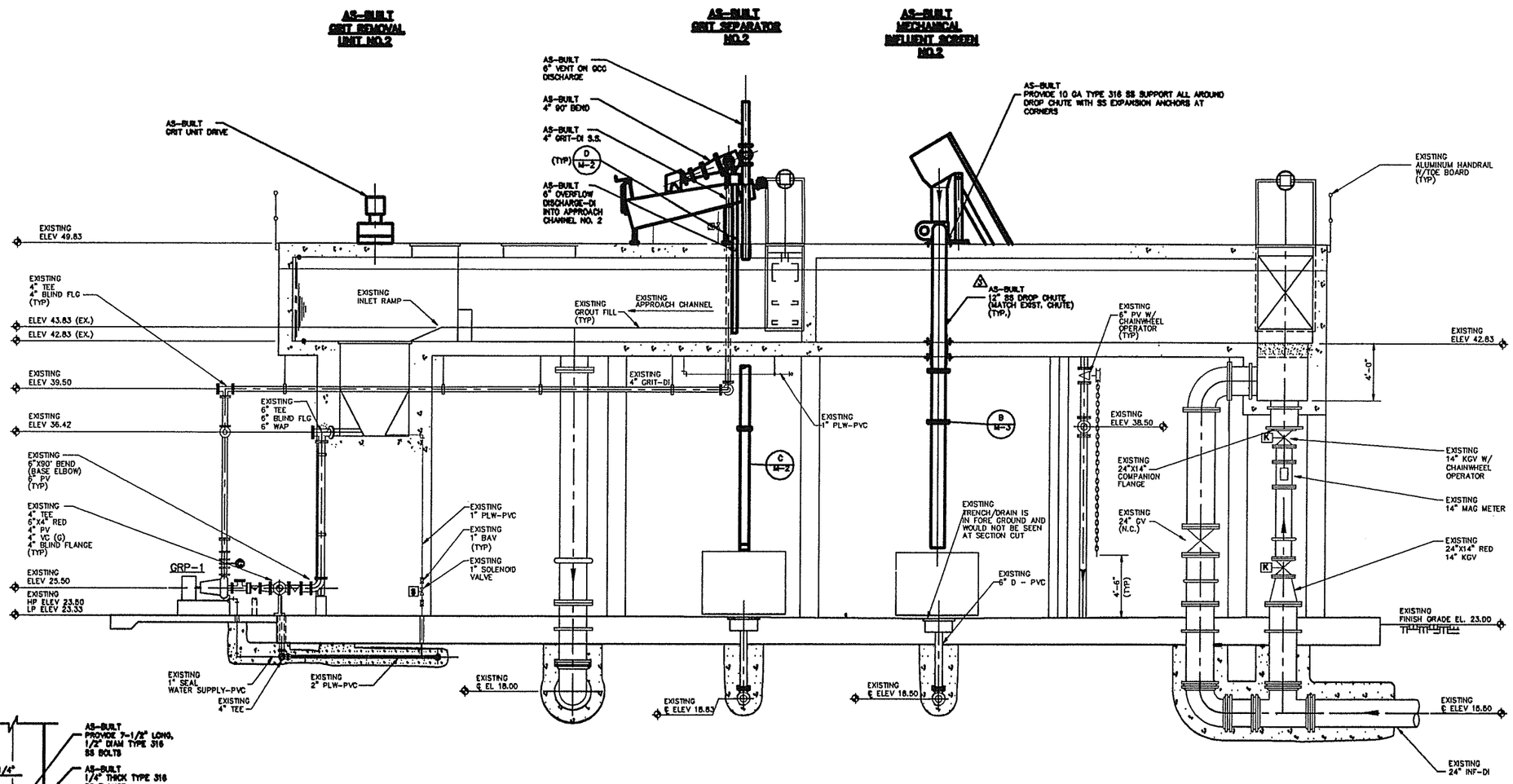
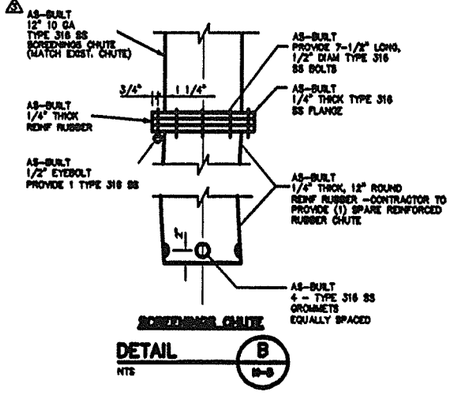
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	BHH
CHECKED	BHH
DATE	1/04
SCALE	AS-NOTED
SHEET	M2 OF 16
JOB NO.	0525



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



DETAIL B M-3
NTS

NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

CONTRACTOR TO CONSTRUCT NEW WEIR AT SAME ELEVATION AS EXISTING WEIR

AS-BUILT PLAN

SECTIONS

NO.	DATE	DESCRIPTION	BY/APP
A	3/07	REVISED PER AS-BUILT	RP/EHM
	12/06	REVISED FOR BID	RP/EHM
	12/06	REVISED PER ADDENDUM #2	RP/EHM
	9/06	REVISED FOR BID	RP/EHM
	7/06	REVISED PER MEETING 7-6-06	RP/EHM

REVISIONS

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HEADWORK STRUCTURE
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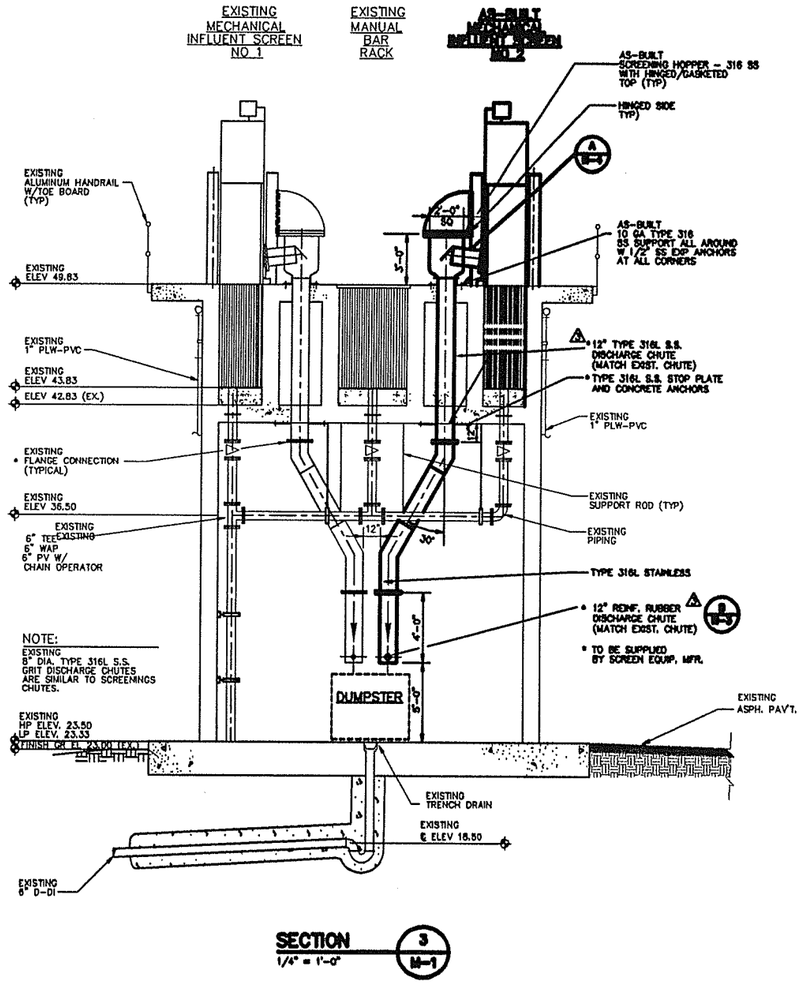
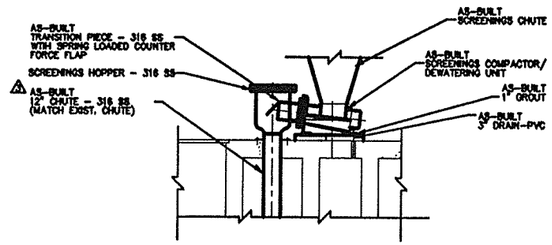
DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEET	M5 OF 16
DWG NO	0525





DETAIL A M-1 — 1/4" = 1'-0"

NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

AS-BUILT PLAN

SECTIONS AND DETAILS

HEADWORK STRUCTURE
CENTRAL REGION
WWTP EXPANSION

INDIAN RIVER COUNTY — FLORIDA

NO.	DATE	DESCRIPTION	DRAWN
5	3.07	REVISED PER AS-BUILT	RP/EHM
4	12.11.06	REVISED PER BID	RP/EHM
3	9.29.06	REVISED PER ADDENDUM #2	RP/EHM
2	9.22.06	REVISED PER BID COMMENTS	RP/EHM
1	9.08.06	REVISED PER BID COMMENTS	RP/EHM

REVISIONS

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4304
2205 14th AVENUE, VERO BEACH, FLORIDA 32960
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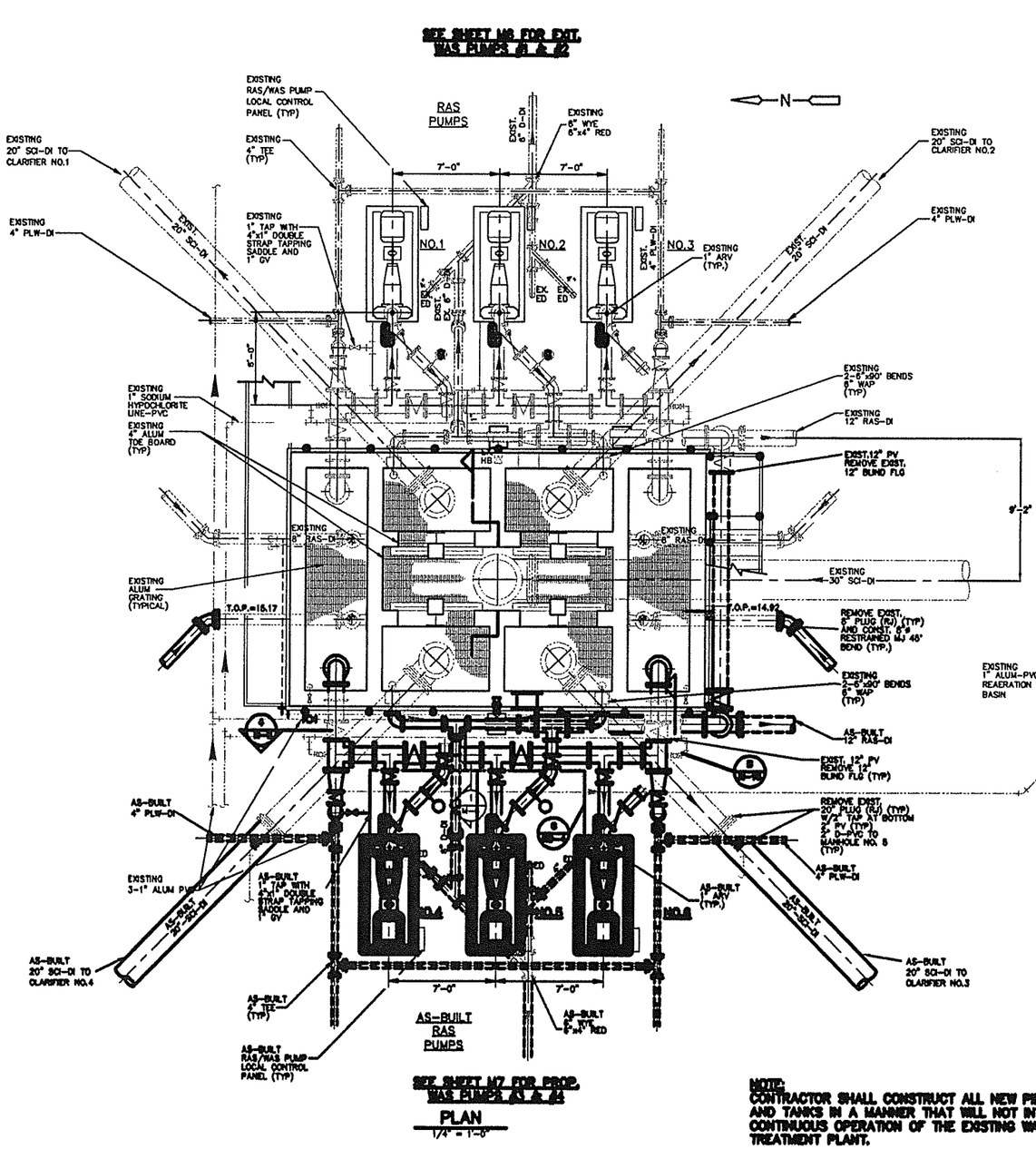
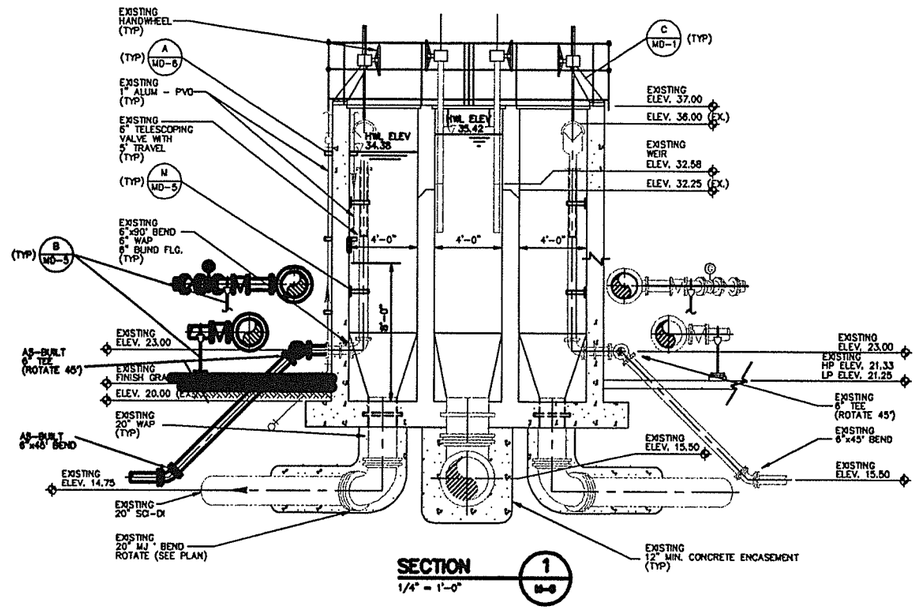
EARL H. MASTELLER, P.E. FL#26658

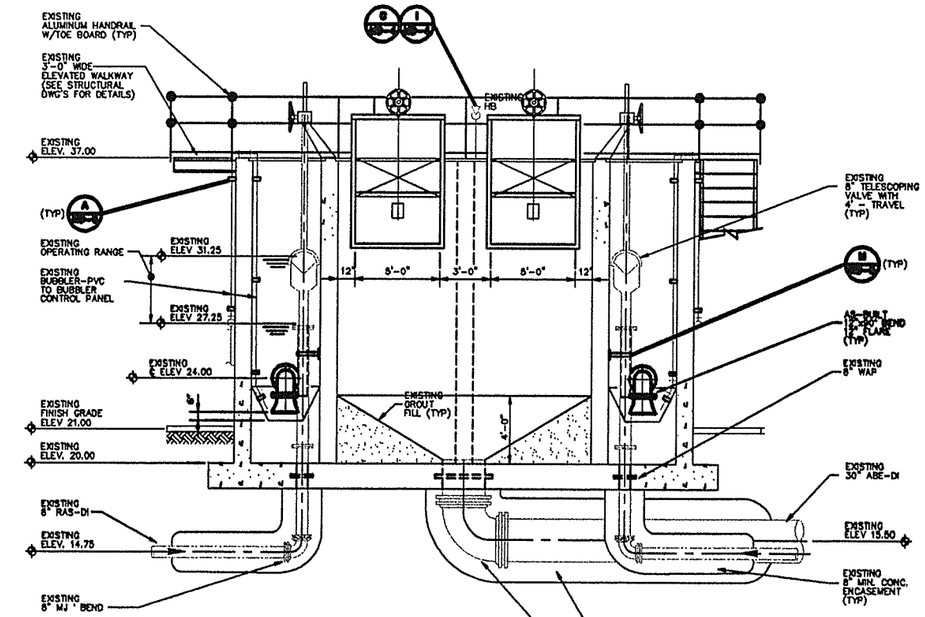
DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEET	M4 of 16
JOB NO	0525



NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.



SECTION 1 M-8
1/4" = 1'-0"



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

PLAN AND SECTIONS

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
4	7/21/04	REVISED PER AS-BUILT	DR/JRP
3	3/17/04	REVISED PER FDH	DR/JRP
2	2/27/04	REVISED PER FDH	DR/JRP
1	2/13/04	REVISED PER AUTH. COMMENTS	DR/JRP

REVISIONS

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2205 14th AVENUE, VERO BEACH, FLORIDA 32960
(772) 567-5500 / FAX (772) 794-1106

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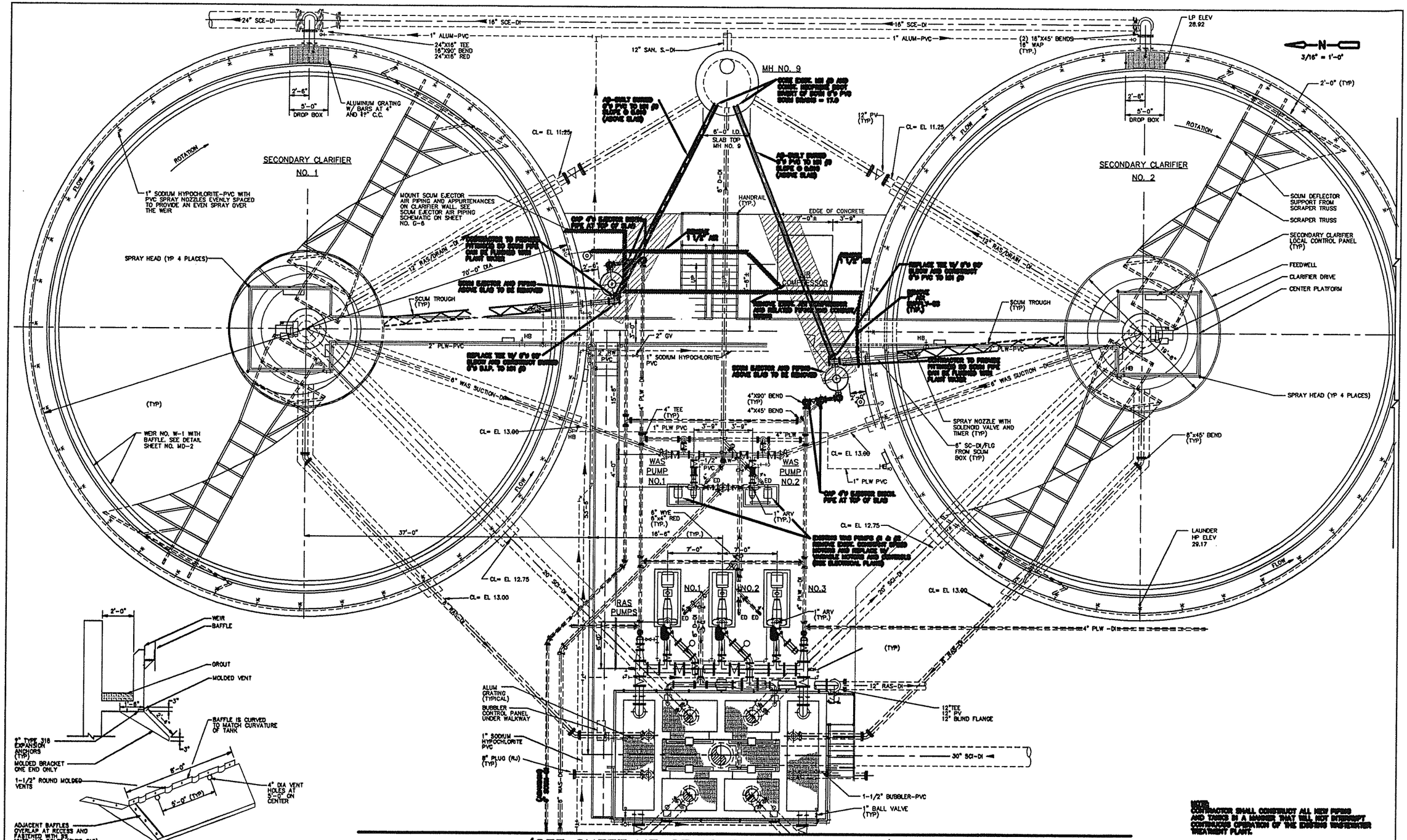
SCALE	AS-NOTED
SHEET	M5 of 16
DWG NO	0525



NOTE
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

(SEE SHEET M7 OF 16 FOR CONTINUATION)

PLAN

AS-BUILT PLAN

REVISIONS

NO.	DATE	DESCRIPTION	BY/APP

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4204
2205 14th AVENUE, VERO BEACH, FLORIDA 32960
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EXISTING SECONDARY CLARIFIERS 1 & 2
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SHEET	M6 OF 16
DWG NO	0525

DETAIL A
1/2" = 1'-0"

3/16" = 1'-0"

NOTE:
ON PROPOSED CLARIFIER #3 THE SUPPORT SYSTEM DESIGN FOR THE SCUM BAFFLE MAY HAVE TO BE MODIFIED TO ALLOW FOR THE INSTALLATION OF THE FORD HALL SWEEP CLEANING SYSTEM FOR THIS PROJECT IN CLARIFIER #3. (SEE DETAIL B SHEET M8 OF M16)

NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

CONTRACTOR SHALL CONSTRUCT NEW WEIRS AT SAME ELEVATION AS EXISTING WEIRS.

PLAN

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	BY/APP'D
5	1/07	REVISED PER AS-BUILT	RP/TMN
4			
3			
2			
1			

REVISIONS

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AS-BUILT SECONDARY CLARIFIERS 3 & 4
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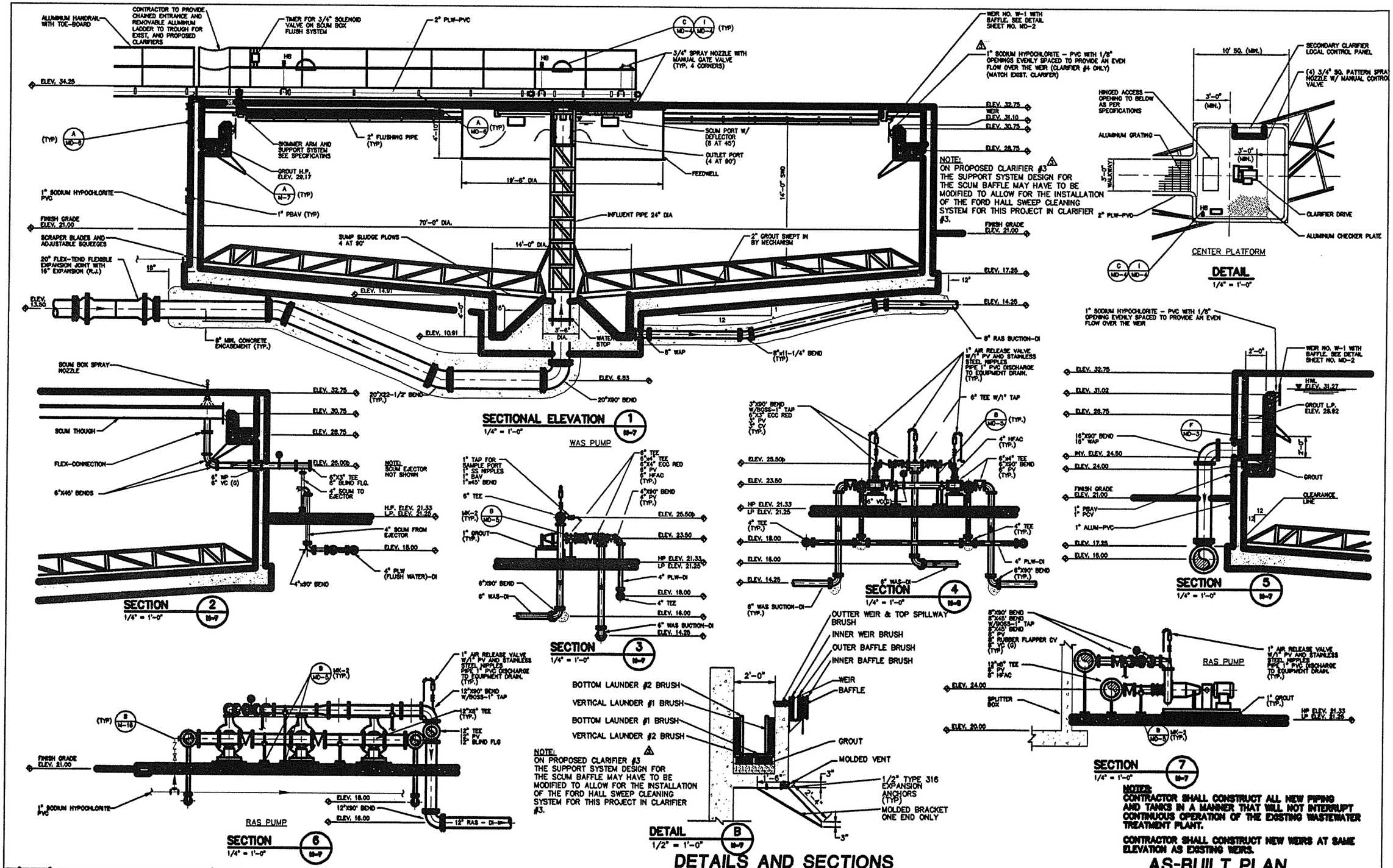
SHEET	M7 of 16
DWG NO	0525



NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

CONTRACTOR SHALL CONSTRUCT NEW WEIRS AT SAME ELEVATION AS EXISTING WEIRS.

DETAILS AND SECTIONS

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
5	3/07	REVISED PER AS-BUILT	JRP/EHM
4	10/15/04	REVISED FOR BID	JRP/EHM
3	07/15/04	REVISED PER ADDENDUM #2	JRP/EHM
2	06/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

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SECONDARY CLARIFIER
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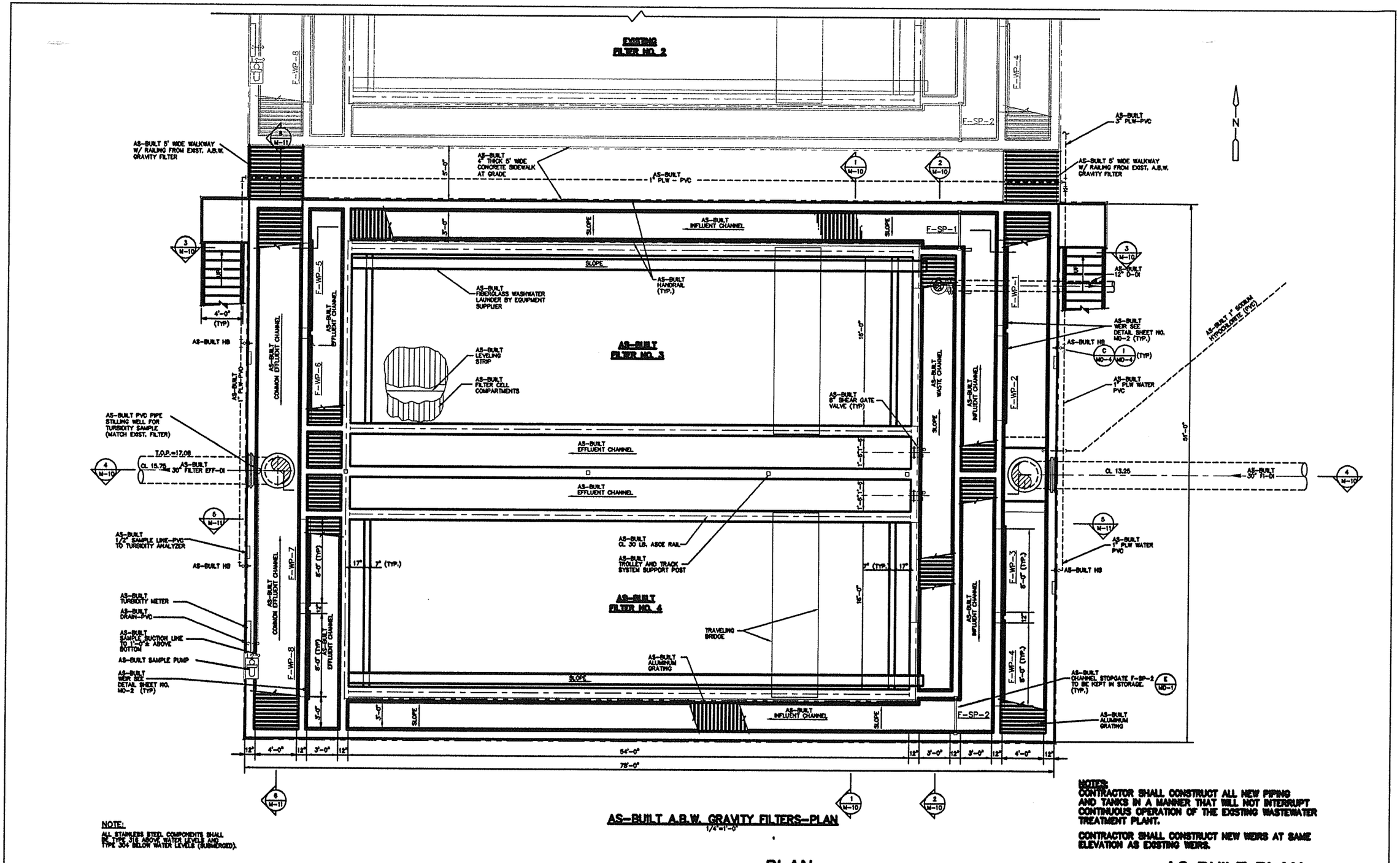
SHEET NO.	16 OF 16
DWG NO.	0525



NOTE:
ALL STAINLESS STEEL COMPONENTS SHALL BE TYPE 316 ABOVE WATER LEVELS AND TYPE 304 BELOW WATER LEVELS (SUBMERGED).

AS-BUILT A.B.W. GRAVITY FILTERS-PLAN
1/4"=1'-0"

NOTES:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

CONTRACTOR SHALL CONSTRUCT NEW WEIRS AT SAME ELEVATION AS EXISTING WEIRS.

PLAN

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP/EHM
3	10/15/04	REVISED FOR BID	JRP/EHM
2	06/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

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AS-BUILT A.B.W. GRAVITY FILTERS
CENTRAL REGION
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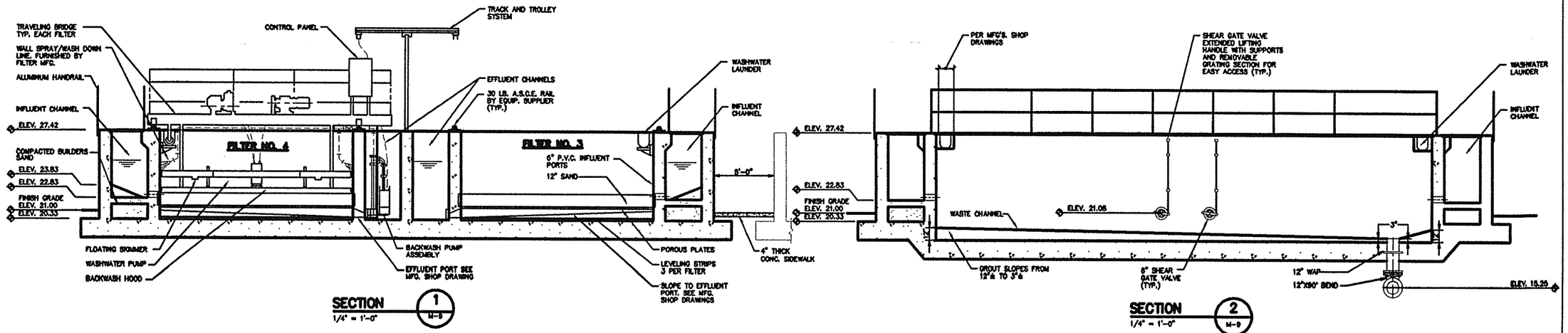
SCALE	AS-NOTED
SHEET	M-11 OF 16
DWG NO	0525



SECTIONS

NOTES:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

CONTRACTOR SHALL CONSTRUCT NEW WEIRS AT SAME ELEVATION AS EXISTING WEIRS.

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP/EHM
3	10/05/04	REVISED FOR BID	JRP/EHM
2	06/07/04	REVISED FOR BID	JRP/EHM
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A.B.W. GRAVITY FILTERS
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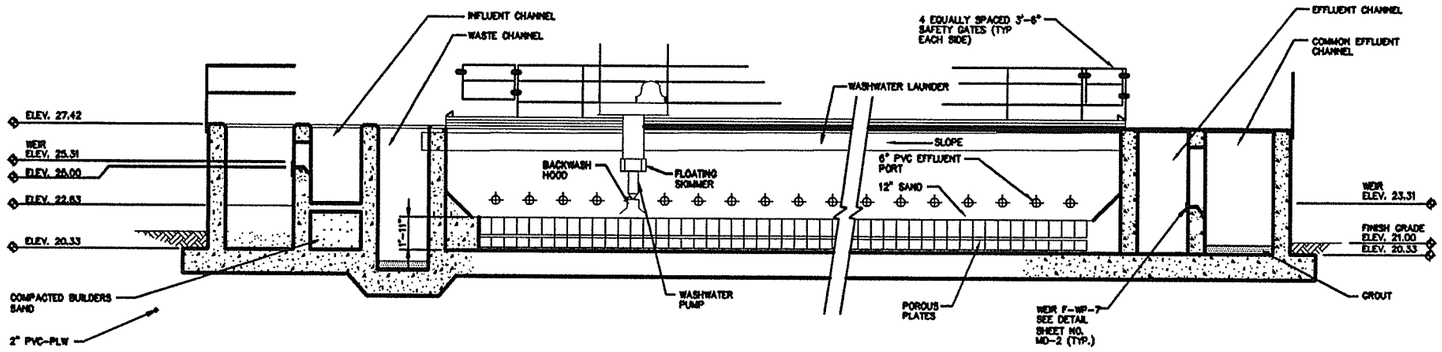
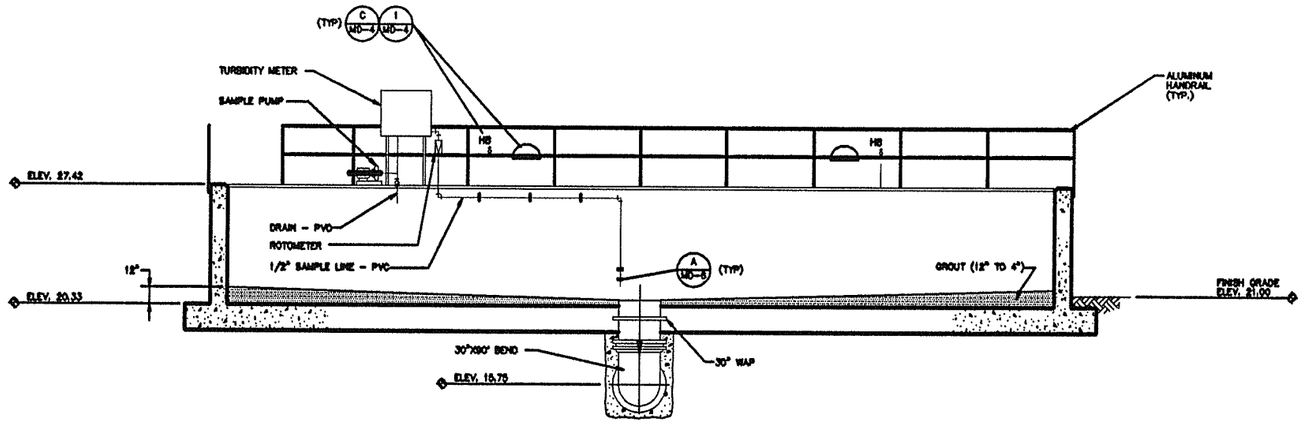
SCALE	AS-NOTED
SHEET	M10 OF 16
JOB NO.	0424



SECTION 5 / M-9
1/4" = 1'-0"



SECTION 6 / M-9
1/4" = 1'-0"

NOTES:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

CONTRACTOR SHALL CONSTRUCT NEW WEIRS AT SAME ELEVATION AS EXISTING WEIRS.

SECTIONS

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
5	3/07	REVISED PER AS-BUILT	JRP/EHM
3	9/05/04	REVISED FOR BID	JRP/EHM
2	08/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

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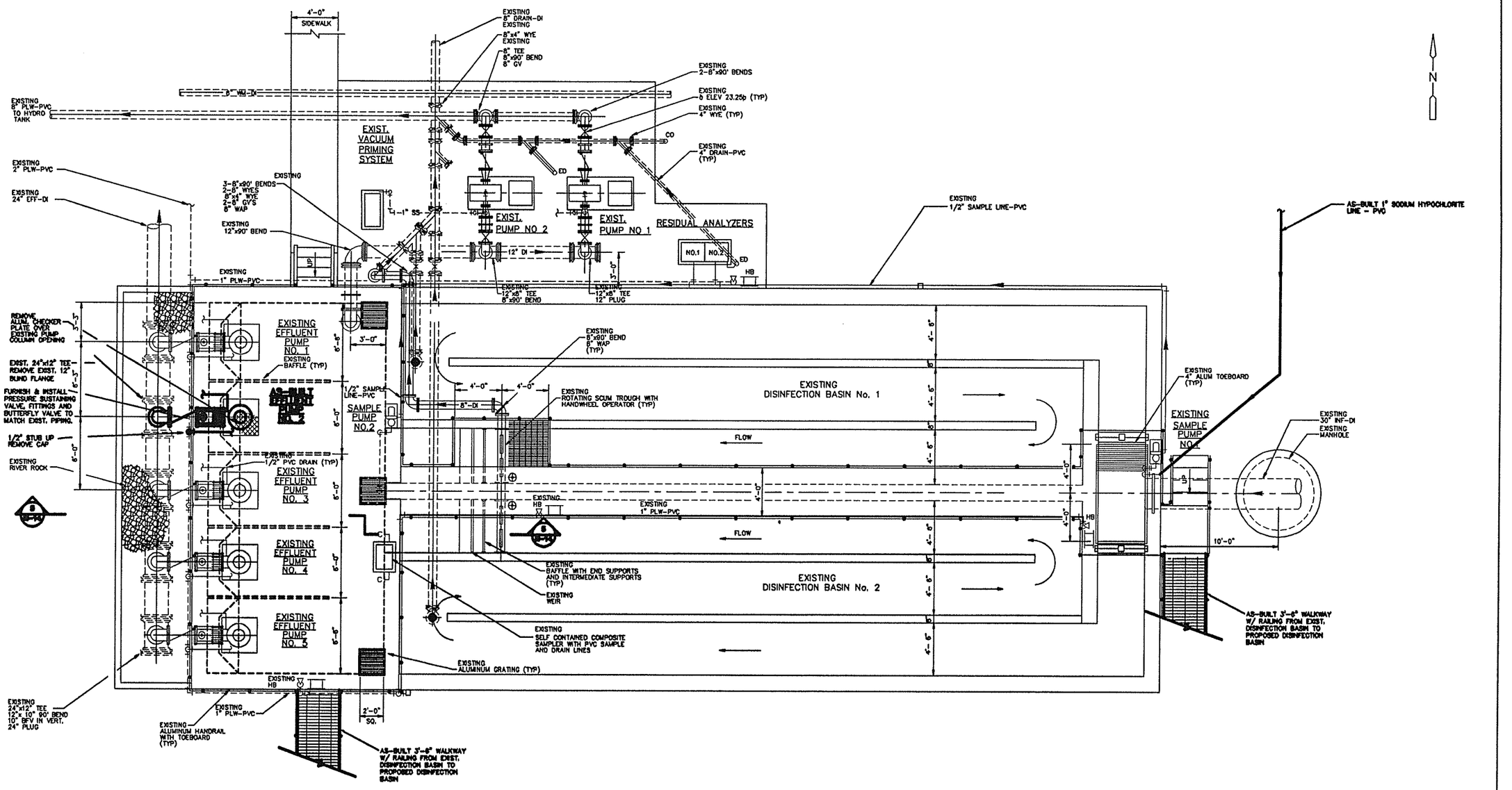
SHEET	M11 OF 16
DWG NO	0525



PLAN
1/4" = 1'-0"

NOTES:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

CONTRACTOR SHALL CONSTRUCT NEW WEIRS AT SAME ELEVATION AS EXISTING WEIRS.

PLAN

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP/EHM
3	10/05/04	REVISED FOR BID	JRP/EHM
2	06/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

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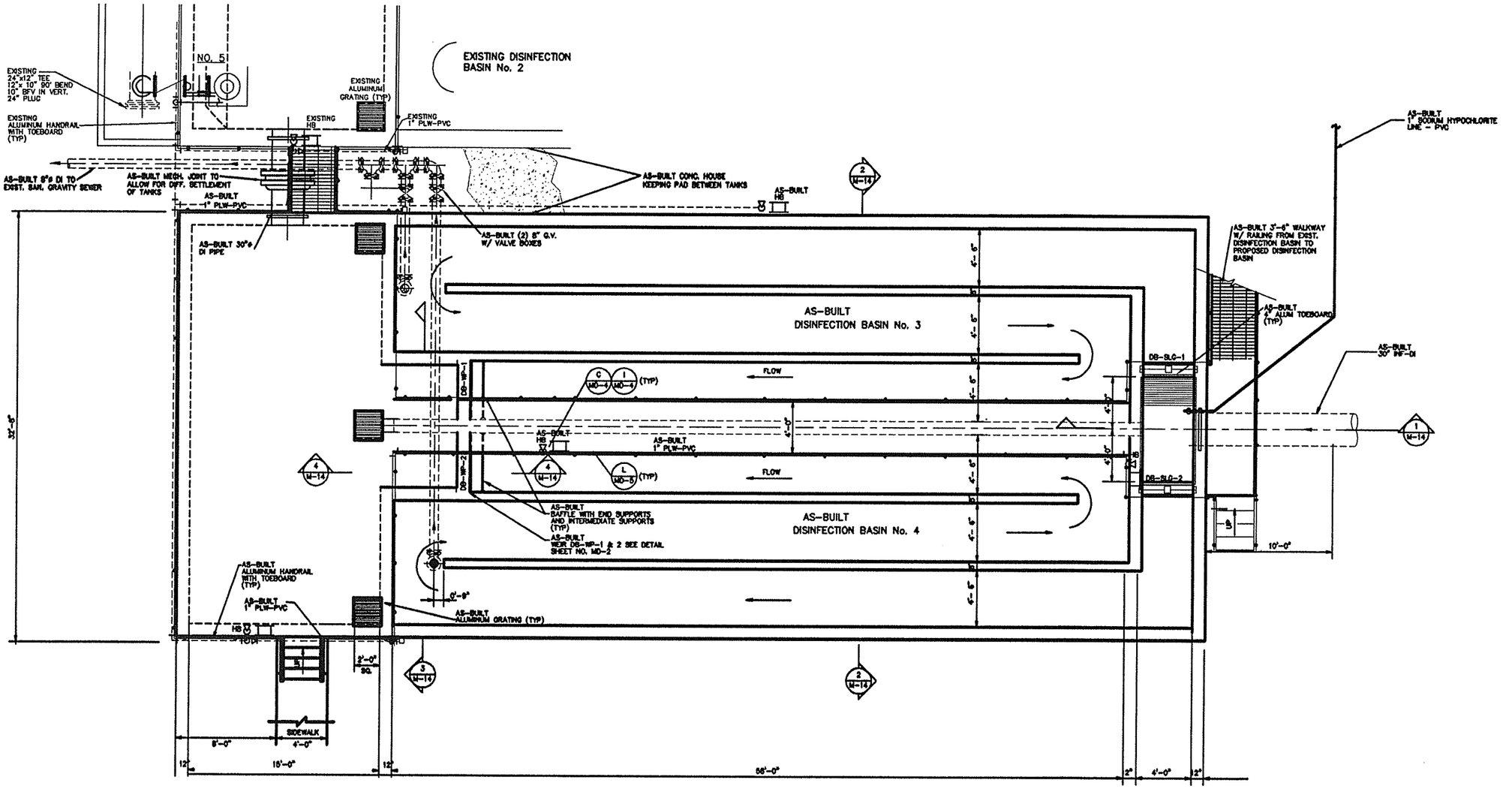
SHEET	M12 OF 16



PLAN
1/4"= 1'-0"

NOTE:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

CONTRACTOR SHALL CONSTRUCT NEW WEIRS AT SAME ELEVATION AS EXISTING WEIRS.

PLAN

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP /EHM
3	10/05/04	REVISED FOR BID	JRP /EHM
2	08/27/04	REVISED FOR BID	JRP /EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP /EHM

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DWG NO	0525

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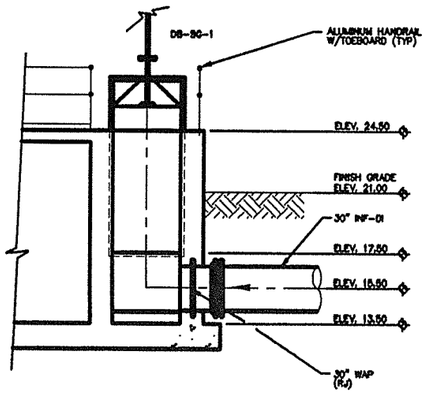
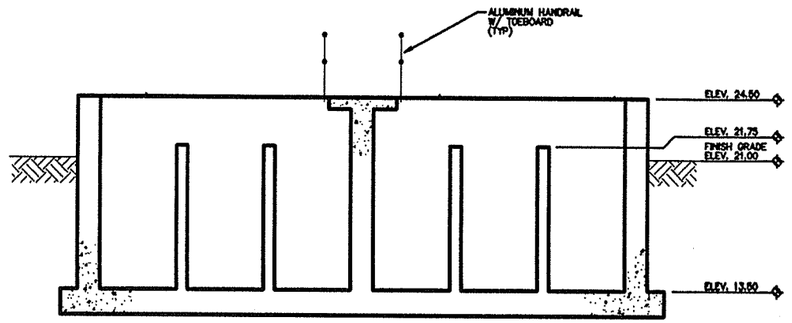
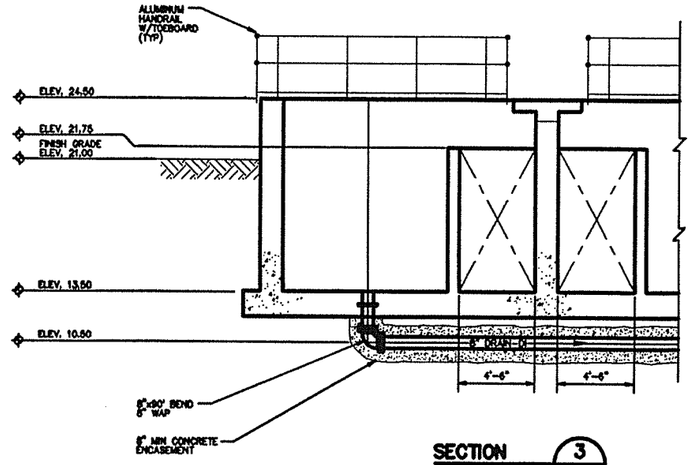


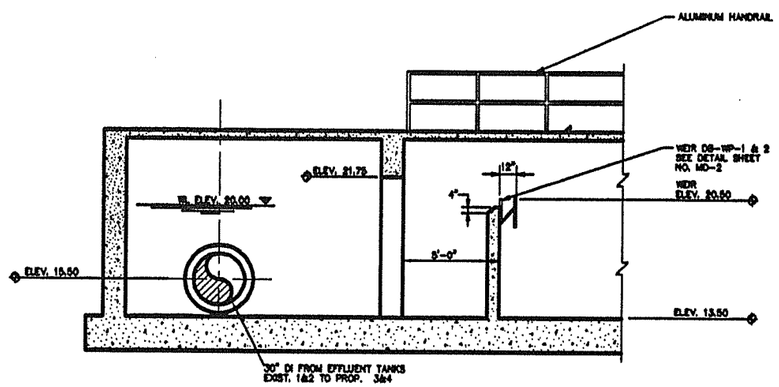
SECTION 1 (M-13)
1/4"= 1'- 0"



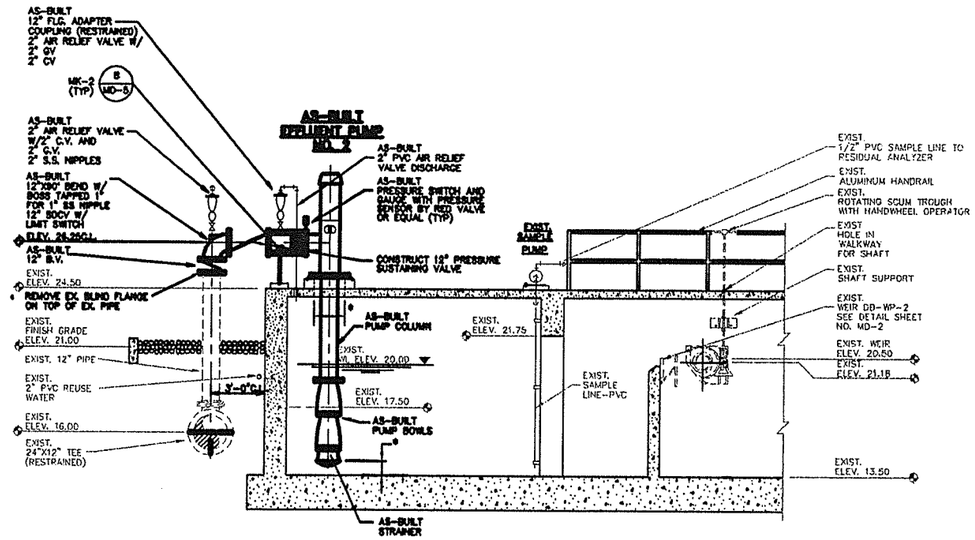
SECTION 2 (M-13)
1/4"= 1'- 0"



SECTION 3 (M-13)
1/4"= 1'- 0"



SECTION 4 (M-13)
1/4" = 1'-0"



SECTION 5 (M-13)
1/4" = 1'-0"

* DIMENSIONS TO BE CONFIRMED BY PUMP MANUFACTURER

NOTES:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

CONTRACTOR SHALL CONSTRUCT NEW WEIRS AT SAME ELEVATION AS EXISTING WEIRS.

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP/EHM
3	10/05/04	REVISED FOR BID	JRP/EHM
2	08/27/04	REVISED FOR BID	JRP/EHM
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INDIAN RIVER COUNTY

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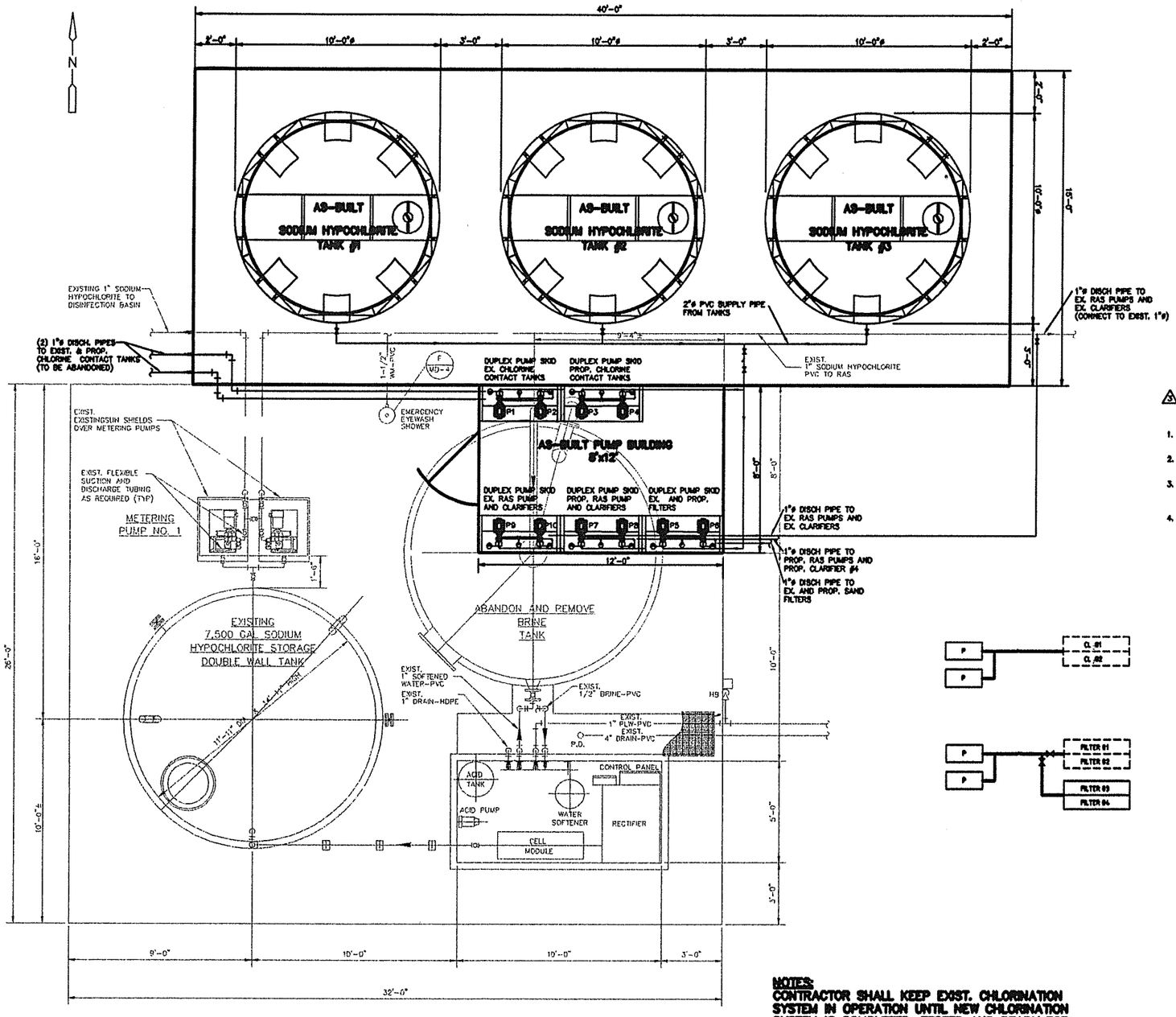
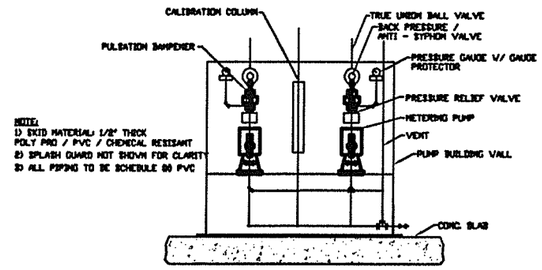
SHEET NO.	M14 OF 16



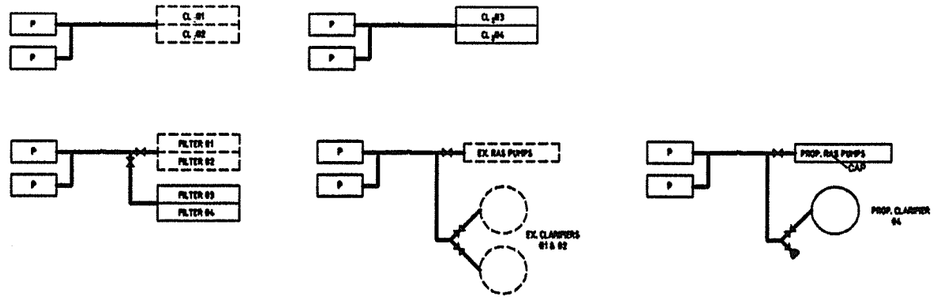
PLAN
3/8" = 1'-0"



TYPICAL DUPLEX PUMP SKID
N.T.S.

SEQUENCE OF CONSTRUCTION:

1. THE CONTRACTOR IS ADVISED THAT AT ALL TIMES, PROPOSED OR EXISTING CHLORINE SYSTEM MUST BE IN OPERATION TO PROVIDE DISINFECTION OF EFFLUENT PRIOR TO DISCHARGE.
2. CONTRACTOR SHALL CONSTRUCT CHLORINE STORAGE TANKS, PUMPS, CONTROLS, BUILDING, PIPING, ETC. WHILE EXISTING CHLORINE SYSTEM IS IN OPERATION.
3. UPON COMPLETION AND TESTING OF PROPOSED CHLORINE STORAGE TANKS AND PUMPING SYSTEM, CONTRACTOR SHALL CHANGE CHLORINATION DOSING FROM EXISTING SYSTEM TO PROPOSED SYSTEM WITHOUT INTERRUPTION OF EFFLUENT CHLORINATION.
4. CONTRACTOR SHALL THEN TOTALLY DISCONNECT EXISTING SYSTEM FROM OPERATION AND REMOVE EXISTING DOSING PUMPS, 7500 GALLON STORAGE TANK AND CHLORINE PRODUCTION SYSTEM WITH ASSOCIATED PIPING ABOVE SLAB (THE BRINE TANK WILL HAVE BEEN PREVIOUSLY REMOVED BY CONTRACTOR IN ORDER FOR THE NEW CHLORINATION DOSING PUMPS AND BUILDING TO BE INSTALLED). CHLORINATION SYSTEM, TANKS, PUMPS, AND PRODUCTION SYSTEM, ONCE REMOVED, SHALL BE STORED AT THE PLANT SITE AT A LOCATION TO BE DESIGNATED BY THE OWNER. ALL REMOVED CHLORINATION TANKS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE OWNER.



SCHEMATIC OF LIQUID CHLORINE DISTRUBUTION SYSTEM
N.T.S.

NOTES:
CONTRACTOR SHALL KEEP EXIST. CHLORINATION SYSTEM IN OPERATION UNTIL NEW CHLORINATION SYSTEM IS COMPLETED, TESTED AND READY FOR OPERATION. EFFLUENT CANNOT BE DISCHARGED FROM PLANT WITHOUT CHLORINATION.

NOTES:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

ALL UNDERGROUND CHEMICAL PIPING SHALL BE CONSTRUCTED WITHIN A SECONDARY CONTAINMENT PIPING SYSTEM.

AS-BUILT PLAN

PLAN AND SECTIONS

NO.	DATE	DESCRIPTION	DR/APP
5	3/07	REVISED PER AS-BUILT	JRP/EHM
4	10/15/04	REVISED FOR BID	JRP/EHM
3	07/16/04	REVISED PER ADDENDUM #2	JRP/EHM
2	05/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

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SODIUM HYPOCHLORITE SYSTEM
CENTRAL REGION
WWTP EXPANSION

INDIAN RIVER COUNTY FLORIDA

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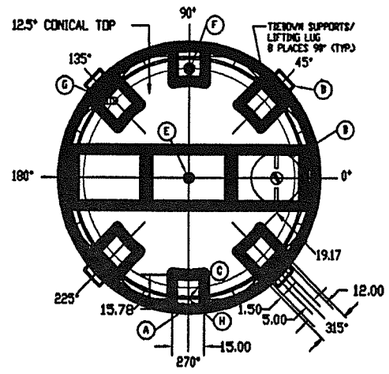
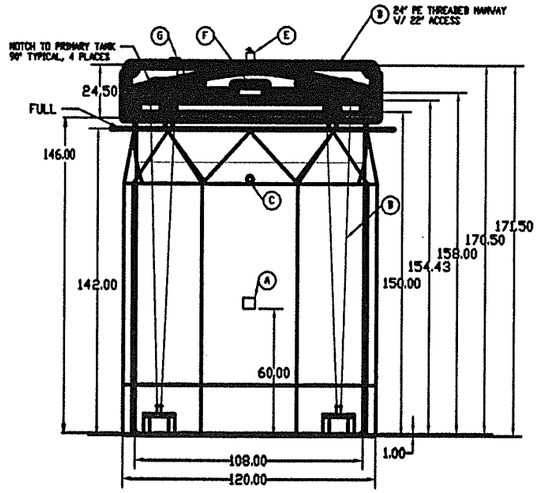
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEET	M15 OF 16
JOB NO	0525



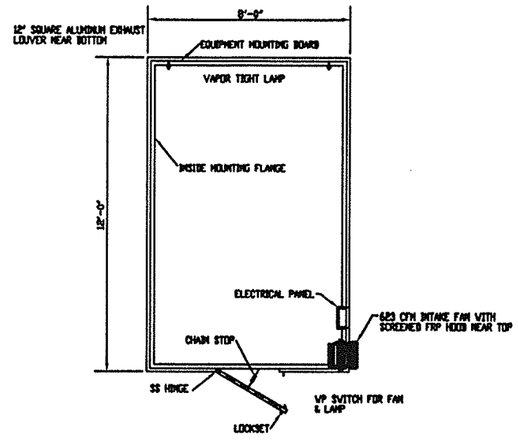
PLAN VIEW



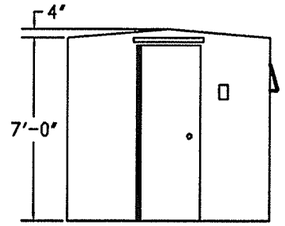
ELEVATION VIEW

A. 304 SS IDENTIFICATION PLATE
B. 24" PE THREADED-VENTED MANWAY W/22" ACCESS (P/N 347352)
C. LEAK DETECTION SENSOR
D. 304 SS SEISMIC CABLE TIE-DOWN SYSTEM (P/N 347259) - 4 PLACES (TYP.)
E. 2" PE THREADED BH FTG W/ VITON GASKETS & PVC ULTRASONIC LEVEL SENSOR (P/N 347103)
F. 6" PVC THREADED BH FXG W/ VITON GASKET (P/N 347238) - FILL
G. 2" PVC THREADED BH U-VENT ASSY. W/ VITON GASKET (P/N 347263) AND BUG SCREEN (P/N 347980)
H. 8" PVC BBL. FLANGED BOLTED FTG W/ VITON GASKETS, ENCAP. TITANIUM BOLTS, 2" PVC SIPHON TUBE UFD TRANSITION FXG W/ VITON GASKETS & SS BOLTS (P/Ns 347687, 3472257, 18742982)

TYPICAL SODIUM HYPOCHLORITE TANK
3/8" = 1'-0"



PLAN VIEW



ELEVATION VIEW

NOTE
1. MATERIALS OF CONSTRUCTION
1/8" FIBERGLASS SKINS WITH 1"
POLYISOCYANURATE FOAM (R=6.7)
FOAM INSULATION CORE.
2. EXTERIOR AND INTERIOR WHITE
GEL COAT.

SODIUM HYPOCHLORITE FEEDS PUMP BUILDING
3/8" = 1'-0"

NOTES:
CONTRACTOR SHALL CONSTRUCT ALL NEW PIPING AND TANKS IN A MANNER THAT WILL NOT INTERRUPT CONTINUOUS OPERATION OF THE EXISTING WASTEWATER TREATMENT PLANT.

ALL UNDERGROUND CHEMICAL PIPING SHALL BE CONSTRUCTED WITHIN A SECONDARY CONTAINMENT PIPING SYSTEM.

AS-BUILT PLAN

PLAN AND SECTIONS

NO.	DATE	DESCRIPTION	DR/APP
4	8/07	REVISED PER AS-BUILT	JRP/EHM
3	10/15/04	REVISED FOR BID	JRP/EHM
2	09/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

REVISIONS

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4204
2205 14th AVENUE, VERO BEACH, FLORIDA 32960
(772) 567-5500 / FAX (772) 794-1106

SODIUM HYPOCHLORITE SYSTEM
CENTRAL REGION
WWTP EXPANSION

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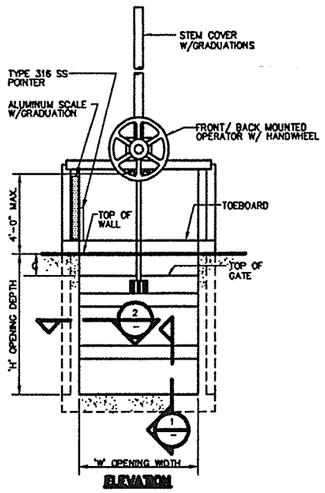
SCALE	AS-NOTED
SHEET	M16 OF 16
DWG NO	0525

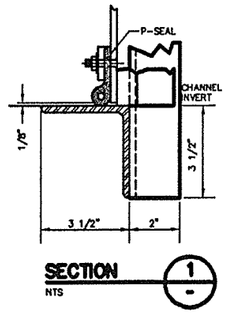
EARL H. MASTELLER, P.E. FL#26658



ELEVATION

EMBEDDED TYPE SLIDE GATE

DETAIL A
NTS



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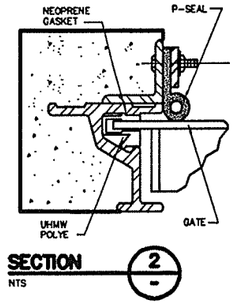

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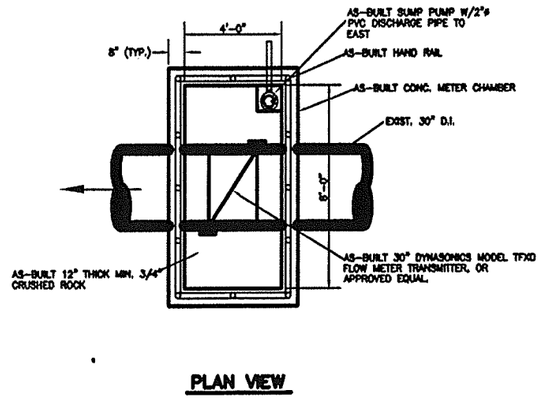
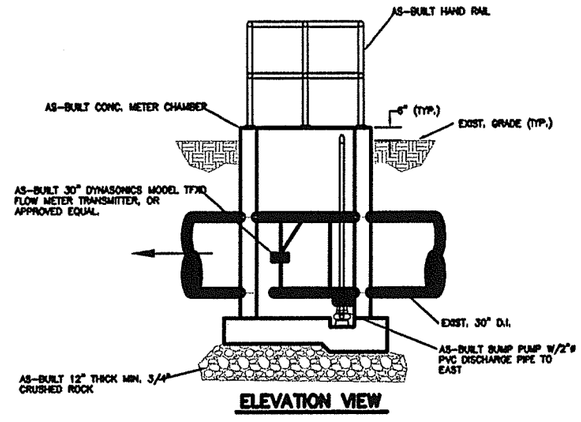


PLAN VIEW



ELEVATION VIEW

ULTRASONIC FLOW METER TRANSMITTER & CONCRETE CHAMBER

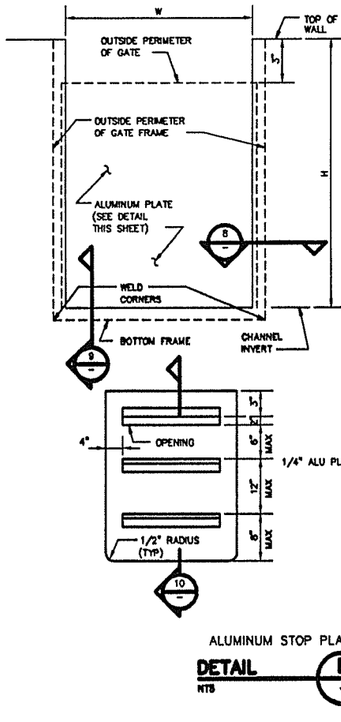
SLIDE GATE SCHEDULE

GATE NO.	LOCATION	MOUNT	DRIVE	STEM	SEATING HEAD (FT)	UNSEATING HEAD (FT)	DIMENSIONS W	H	C	D	REMARKS
F-SP-1	FILTERS	EMBEDDED	-	-			3'-0"	4'-7"	-	-	
F-SP-2	FILTERS	EMBEDDED	-	-			3'-0"	4'-7"	-	-	
DB-SLG-1	DISINFECTION BASIN	EMBEDDED	GEAR	RISING			4'-0"	7'-0"	1'-6"	-	
DB-SLG-2	DISINFECTION BASIN	EMBEDDED	GEAR	RISING			4'-0"	7'-0"	1'-6"	-	

SP = STOP PLATE

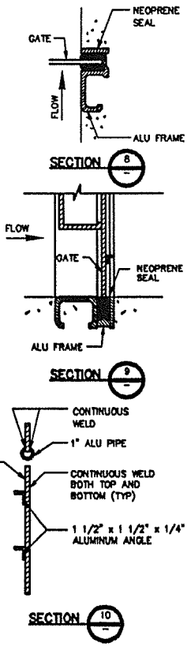
SLG = SLIDE GATE

WSLG = WEIR SLIDE GATE



ALUMINUM STOP PLATE

DETAIL E
NTS



NOTES:

1. SLIDE GATES TO MATCH EXISTING IN FILTERS AND CHLORINE CONTACT TANKS.
2. WEIR SLIDE GATE TYPE SHALL ALSO BE ABLE TO SERVE AS A SHUT-OFF GATE. A RESILIENT P-SEAL PER SPECIFICATIONS SHALL BE PLACED ALONG THE INVERT OF THE OPENING AND UP BOTH SIDES SO THAT THE GATE WILL BE TIGHT IN THE FULLY RAISED POSITION.

EMBED EMBEDDED TYPE
FACE FACE MOUNTED TYPE

DETAILS AND SECTIONS

AS-BUILT

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SLIDE GATE AND METER CHAMBER
CENTRAL REGION
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EARL H. MASTELLER P.E. FL #26659

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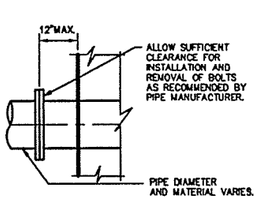
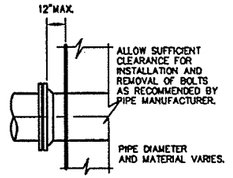
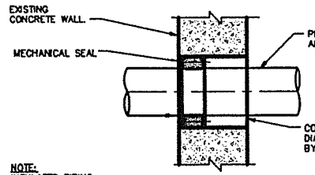
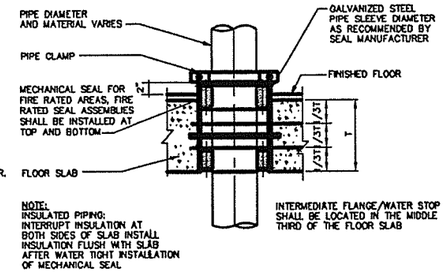
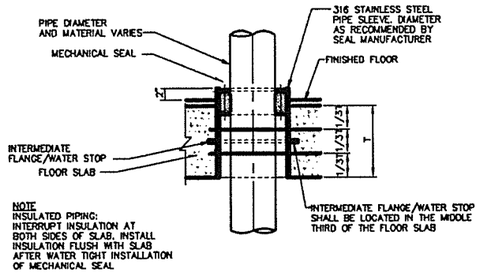
SCALE	AS-NOTED
SHEET NO.	6 OF 6

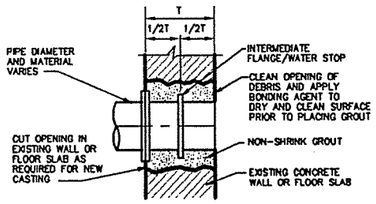


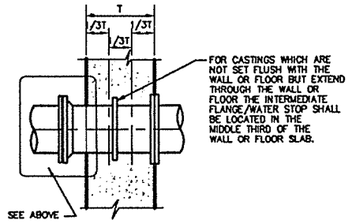












CASTING WITH NON-FLUSH JOINTS

DETAIL A NTS

CORE DRILLED OPENING AND MECHANICAL SEAL PENETRATION THROUGH EXISTING CONCRETE

DETAIL B NTS

FLOOR SLEEVE WITH DUAL MECHANICAL SEAL

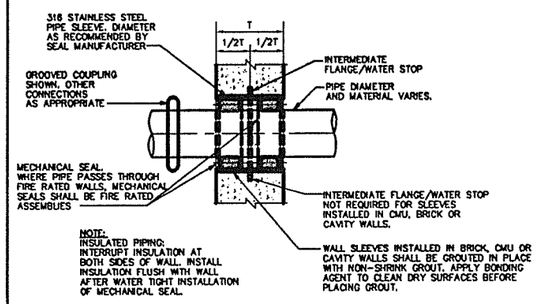
DETAIL C NTS

SLEEVE WITH MECHANICAL SEAL

DETAIL D NTS

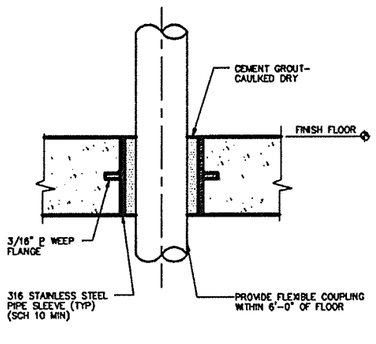
CASTINGS OR SLEEVES TO BE INSTALLED IN EXISTING WALLS OR FLOOR SLABS

DETAIL E NTS



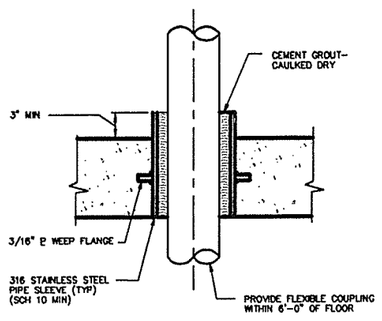
WALL SLEEVE WITH MECHANICAL SEAL FOR CONCRETE, BRICK, CMU OR CAVITY WALLS

DETAIL F NTS



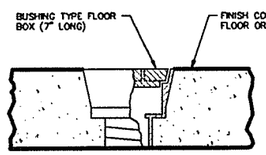
PIPE SLEEVE W/GROUT INTERMEDIATE FLOOR PENETRATION

DETAIL G NTS



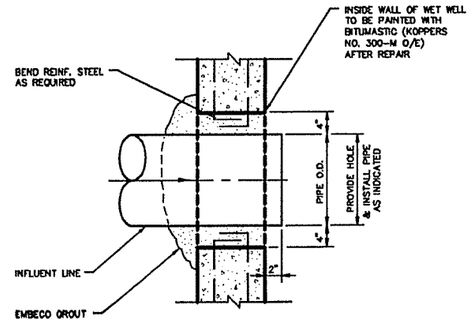
PIPE SLEEVE (WET FLOOR)

DETAIL H NTS



FLOOR BOX

DETAIL I NTS



DETAIL J NTS

DETAILS

AS-BUILT

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP/EHM
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MISCELLANEOUS MECHANICAL
CENTRAL REGION
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INDIAN RIVER COUNTY — FLORIDA

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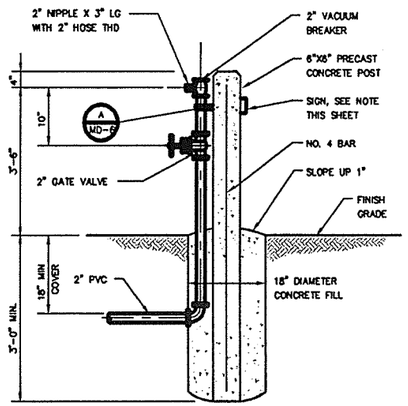
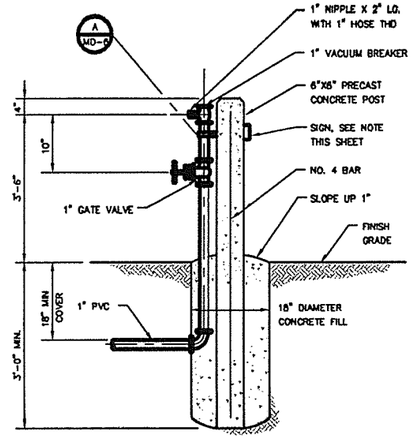
SCALE	AS-NOTED
SHEETS OF	6
JOB NO	0525



POST HYDRANT

DETAIL A
NTS

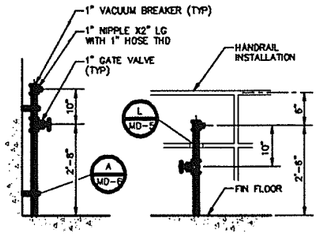


HOSE BIBB

DETAIL B
NTS

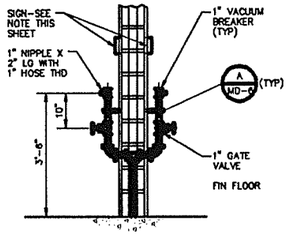
POTABLE/NON-POTABLE WATER SIGN

THE CONTRACTOR SHALL PROVIDE A SIGN ABOVE ALL HOSE BIBBS WHICH SHALL STATE EITHER "POTABLE" OR "NON-POTABLE, DO NOT DRINK." THE SIGN SHELL BE MADE OF LAMINATED PLASTIC WITH A BLACK FACE AND WHITE LETTERS APPROX. 3/4" HIGH. ATTACH THE SIGN TO STRUCTURE, WASH HOSE STATION OR HANDRAIL WITH 304 STAINLESS STEEL HARDWARE AS REQUIRED.



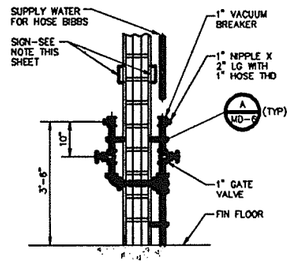
ELEVATION HOSE BIBB

DETAIL C
NTS



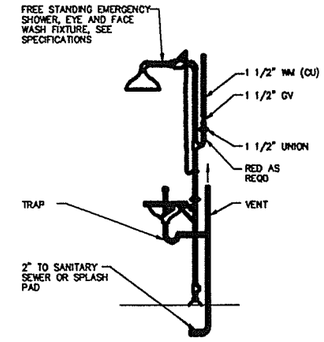
ELEVATION HOSE BIBB

DETAIL D
NTS



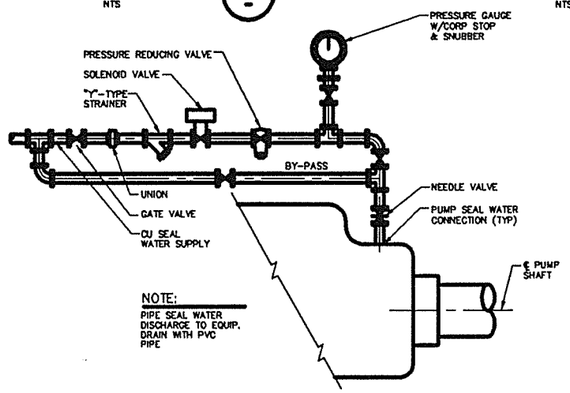
ELEVATION HOSE BIBB

DETAIL E
NTS



EMERGENCY SHOWER/EYE & FACE WASH

DETAIL F
NTS

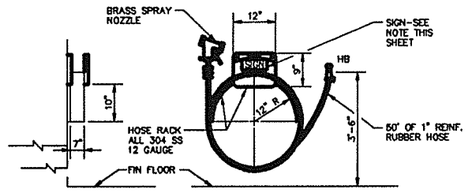


NOTE:
PIPE SEAL WATER DISCHARGE TO EQUIP. DRAIN WITH PVC PIPE

SEAL WATER SYSTEM

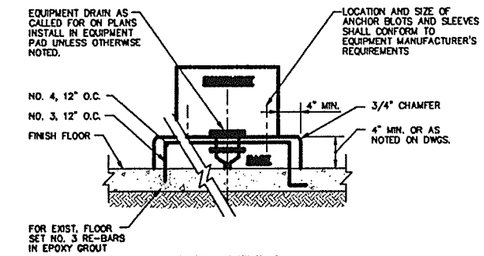
DETAIL G
NTS

NOTE:
ANCHOR WASH HOSE STATION TO WALL OR HANDRAIL WITH STAINLESS STEEL HARDWARE AS REQUIRED



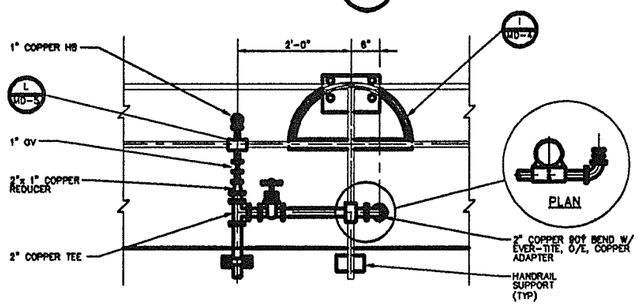
WASH HOSE STATION

DETAIL I
NTS



EQUIPMENT PAD

DETAIL J
N.T.S.



NOTES:
1. PROVIDE 1/16" THICK NEOPRINE SLEEVE ON RW LINE AT ALL SUPPORT CONNECTIONS.
2. PROVIDE 25' OF 2" COLLAPSIBLE DISCHARGE HOSE WITH A COUPLER & AN ADAPTER. COUPLERS & ADAPTERS SHALL BE COMPATIBLE WITH CONNECTIONS SHOWN IN HOSE BIBB DETAIL. HOSE SHANK SHALL BE SECURED TO HOSE WITH SS PIPE CLAMPS.

HOSE BIBB & HIGH VOLUME HOSE CONNECTION

DETAIL K
NTS

DETAILS

AS-BUILT

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MISCELLANEOUS
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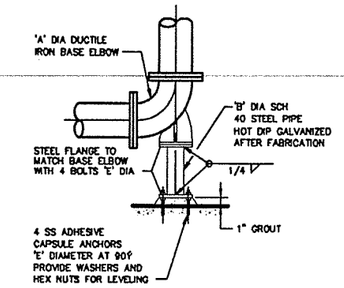
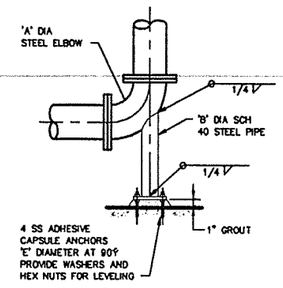
SHEET NO.	4 OF 6
JOB NO.	0525



DUCTILE IRON ELBOW

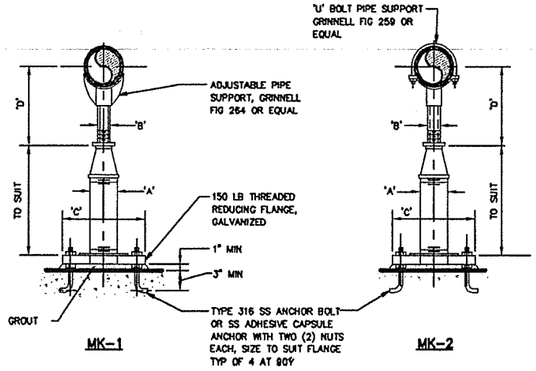


STEEL ELBOW

ELBOW 'A' DIA	DIMENSIONS IN INCHES 'B' DIA	'C' THICK	'D' SQ	'E' DIA
4	2	†	6	†
6	2-1/2	†	7	†
8	4	1/2	9	†
10	4	1/2	9	†
12	6	1/2	11	3/4
14	6	1/2	11	3/4
16	6	1/2	11	3/4
18	8	1/2	13-1/2	3/4
20	8	1/2	13-1/2	3/4
24	8	1/2	13-1/2	3/4
30	10	3/4	16	†
36	12	3/4	19	†
42	16	3/4	23-1/2	1
48	18	3/4	25	1 †

NOTES:
MATERIAL FINISH TO MATCH PIPE
ALTERNATIVE METHOD TO DETAIL "K" THIS SHEET

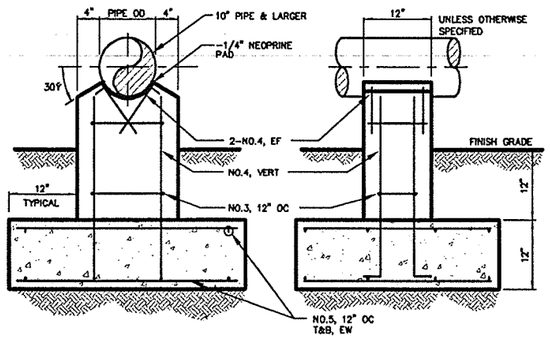
ELBOW SUPPORT
DETAIL A
NTS



MK-1 MK-2

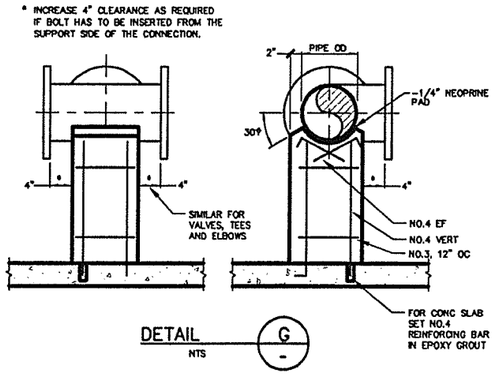
ADJUSTABLE PIPE SUPPORT APPROX DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C	D MIN	D MAX
2-1/2	2-1/2	1-1/2	9	8	11-1/2
3	2-1/2	1-1/2	9	8-1/4	11-3/4
3-1/2	2-1/2	1-1/2	9	8-1/2	12
4	3	2-1/2	9	10-1/4	14
6	3	2-1/2	9	11 †	15-1/4
8	3	2-1/2	9	13 †	16-1/2
10	3	2-1/2	9	14 †	18-1/4
12	3	2-1/2	9	15 †	19-3/4
14	4	3	11	18 †	20-3/4
16	4	3	11	19 †	22-1/4
18	6	3-1/2	13-1/2	21-1/4	24
20	6	3-1/2	13-1/2	23-1/4	25-1/2
24	6	4	13-1/2	26-1/2	28-1/4
30	6	4	13-1/2	29 †	31-1/2
32	6	4	13-1/2	30 †	32-3/4
36	6	4	13-1/2	32 †	34-3/4

NOTE:
1. UNDER VALVES, METERS OR OTHER SPECIAL APPURTENANCES A FABRICATED SUPPORT PIECE MAY BE UTILIZED AS ACCEPTABLE TO ENGINEER

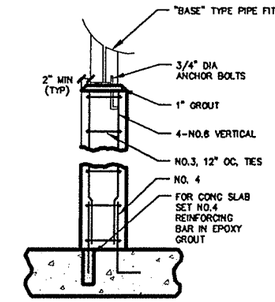


10" PIPE AND LARGER
DETAIL C
NTS

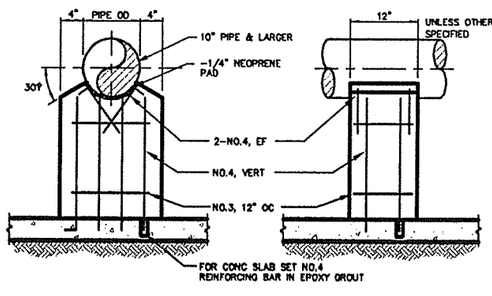
ADJUSTABLE PIPE SUPPORT
DETAIL B
NTS



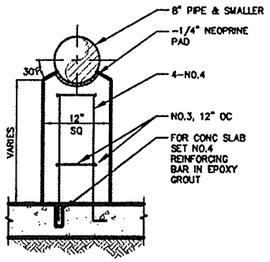
DETAIL G
NTS



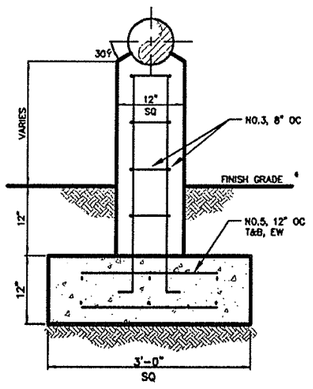
DETAIL H
NTS



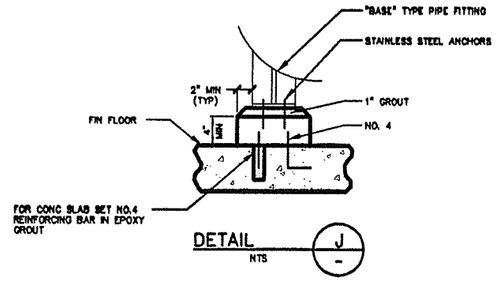
10" PIPE AND LARGER
DETAIL D
NTS



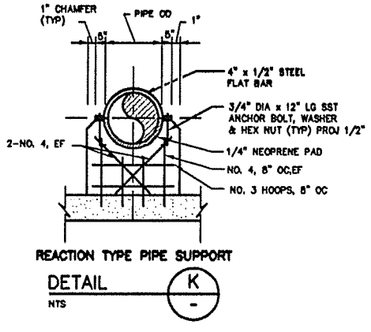
8" PIPE OR SMALLER
DETAIL E
NTS



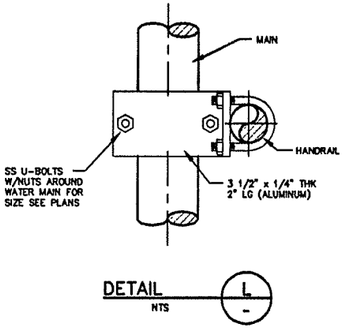
8" PIPE OR SMALLER
DETAIL F
NTS



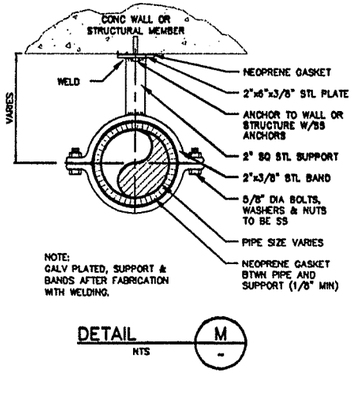
DETAIL J
NTS



REACTION TYPE PIPE SUPPORT
DETAIL K
NTS



DETAIL L
NTS



NOTE:
GALV PLATED, SUPPORT & BANDS AFTER FABRICATION WITH WELDING.

DETAIL M
NTS

NOTES
1. USE WASHERS WITH NUTS AND BOLTS.
2. ALL ANCHORS, FASTENERS, BOLTS, NUTS, WASHERS, SCREWS, ETC. SHALL BE 316 STAINLESS STEEL.
3. DETAILS SHOWN ARE INTENDED TO COVER A WIDE RANGE OF PROJECT SITUATIONS. ALL DETAILS MAY NOT APPLY TO THIS PROJECT.

DETAILS

AS-BUILT

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP/EHM
3	10/15/04	REVISED FOR BID	JRP/EHM
2	09/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

REVISIONS

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CERTIFICATE OF AUTHORIZATION #4204
2205 14th AVENUE, VERO BEACH, FLORIDA 32960
(772) 567-5500 / FAX (772) 794-1106

INDIAN RIVER COUNTY

PIPE SUPPORTS
CENTRAL REGION
WWTP EXPANSION

FLORIDA

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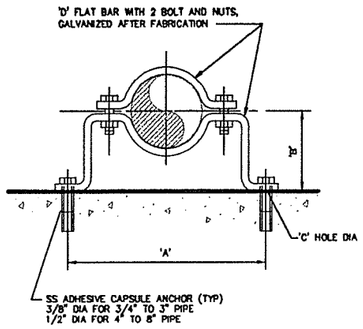
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEETS OF	6
JOB NO	0525

DIMENSIONS IN INCHES					
PIPE DIA.	'A'	'B' SEE NOTE 3 BELOW	'C' HOLE DIA.	'D' FLAT BAR SIZE	LOAD RATING LBS.*
3/4	5-15/16	2-1/2	7/16	3/16 X 1-1/4	300
1	6-1/4	2-5/8	7/16	3/16 X 1-1/4	300
1-1/4	6-11/16	2-3/4	7/16	3/16 X 1-1/4	300
1-1/2	6-15/16	3	7/16	3/16 X 1-1/4	300
2	8-5/16	3-3/16	7/16	1/4 X 1-1/4	500
2-1/2	8-7/8	3-7/16	7/16	1/4 X 1-1/4	500
3	9-1/8	3-3/4	7/16	1/4 X 1-1/4	500
3-1/2	10-1/16	4	7/16	1/4 X 1-1/4	500
4	10-9/16	4-1/4	9/16	1/4 X 1-1/2	600
5	11-3/4	4-3/4	9/16	1/4 X 1-1/2	600
6	14-3/8	5-5/16	9/16	3/8 X 1-1/2	850
8	16-5/8	6-5/16	9/16	3/8 X 1-1/2	850

* SAFETY FACTOR OF 5

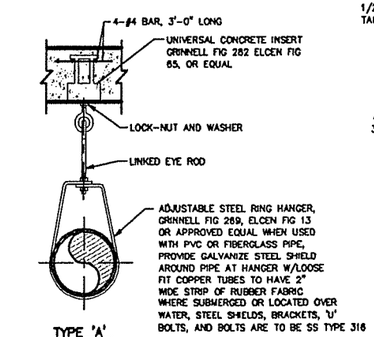


NOTES:

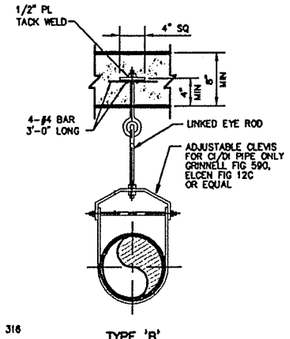
1. WHERE SUBMERGED OR LOCATED ON OR ABOVE TOP OF WALL OF HYDRAULIC STRUCTURE, PIPE CLAMP, WASHER AND SHIELD SHALL BE TYPE 316 STAINLESS STEEL
2. WHEN USED WITH PVC OR FIBERGLASS PIPE PROVIDE GALVANIZE STEEL SHIELD AROUND PIPE AT CLAMP, WITH LOOSE FIT. WRAP COPPER TUBES WITH 2" STRIP OF RUBBER FABRIC
3. FOR FLANGED PIPING INCREASE 'B' DIMENSION AS REQUIRED
4. ALL ANCHOR BOLTS SHALL BE TYPE 316 SS.

PIPE CLAMP FOR INDIVIDUAL PIPES

DETAIL A / NTS



TYPE 'A' FOR HANGER RODS 3/4" DIA AND SMALLER



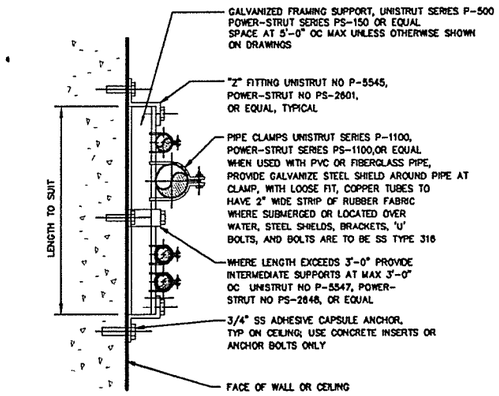
TYPE 'B' FOR HANGER RODS 7/8" DIA AND LARGER, AND MIN 8" THICK CONCRETE

NOTE:
GALVANIZE ALL PARTS AFTER FABRICATION

PIPE HANGER RODS & SUPPORT SPACING					
PIPE DIA (INCHES)	ROD DIA (INCHES)	MAX SUPPORT SPACING (FEET) STL PIPE	MAX SUPPORT SPACING (FEET) CI/DI PIPE	WEIGHT LIMIT (LBS) TYPE 'A'	WEIGHT LIMIT (LBS) TYPE 'B'
1 & SMALLER	3/8	5	MIN 1 HANGER PER PIPE LENGTH AND FITT MAX SPACING 5 FEET- LOCATE HANGER CLOSE TO EACH CONNECTION	610	——
1-1/2 TO 2	3/8	5		610	——
2-1/2 TO 3-1/2	1/2	10		1130	——
4 TO 5	5/8	10		1430	——
6	3/4	10		1430	3800
8,10,12	7/8	10		——	3800
14,16	1	10		——	3800

PIPE HANGER

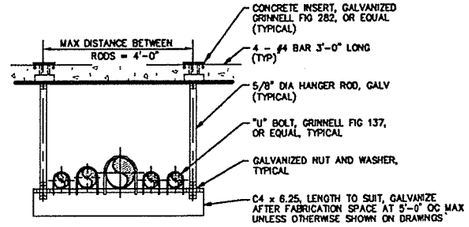
DETAIL B / NTS



NOTE:
WHERE SUBMERGED OR LOCATED ON OR ABOVE TOP OF WALL OF HYDRAULIC STRUCTURE, FRAMING SUPPORT, Z FITTINGS, INTERMEDIATE SUPPORTS, BOLTS, WASHERS AND SHIELD SHALL BE TYPE 316 STAINLESS STEEL

FLUSH MOUNTED PIPE SUPPORT

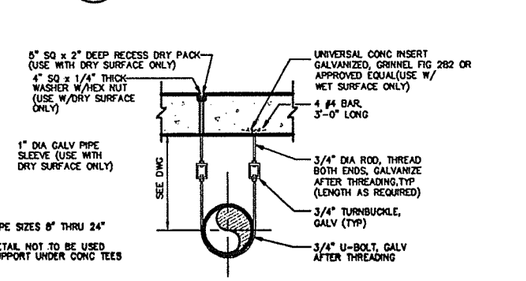
DETAIL C / NTS



NOTE:
WHEN USED WITH PVC OR FIBERGLASS PIPE PROVIDE GALVANIZE STEEL SHIELD AROUND PIPE AT "U" BOLT, WITH LOOSE FIT, WRAP COPPER TUBES WITH 2" WIDE STRIP OF RUBBER FABRIC WHERE SUBMERGED OR LOCATED OVER WATER, STEEL SHIELDS, BRACKETS, 'U' BOLTS, AND BOLTS ARE TO BE SS TYPE 316

TRAPEZE PIPE HANGER

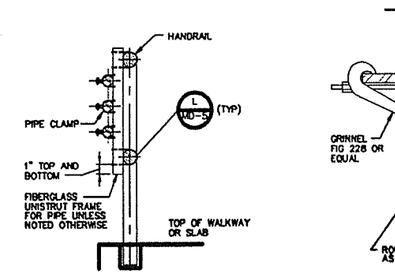
DETAIL D / NTS



NOTES:
1. FOR PIPE SIZES 8" THRU 24"
2. THIS DETAIL NOT TO BE USED FOR SUPPORT UNDER CONC TEES

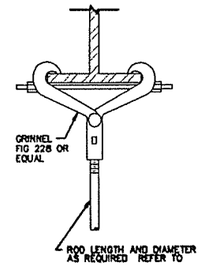
DUAL ROD PIPE HANGER

DETAIL E / NTS



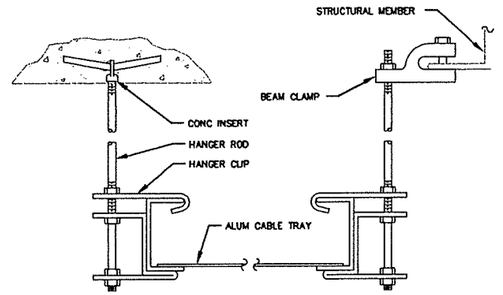
HANDRAIL SUPPORTED PIPE

DETAIL F / NTS



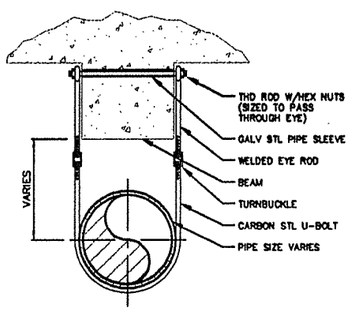
BEAM CLAMP

DETAIL G / NTS

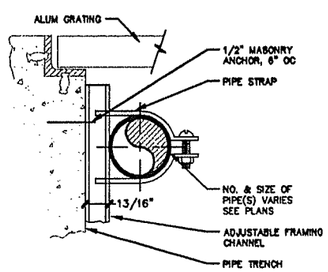


CABLE TRAY

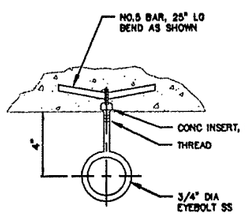
DETAIL H / NTS



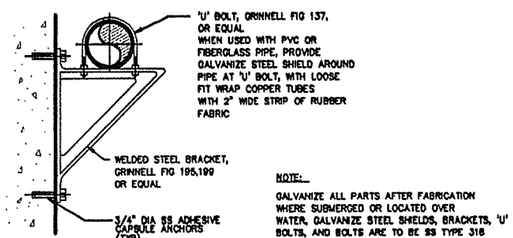
DETAIL J / NTS



DETAIL K / NTS



DETAIL L / NTS



NOTE:
GALVANIZE ALL PARTS AFTER FABRICATION WHERE SUBMERGED OR LOCATED OVER WATER, GALVANIZE STEEL SHIELDS, BRACKETS, 'U' BOLTS, AND BOLTS ARE TO BE SS TYPE 316

PIPE BRACKET

DETAIL M / NTS

NOTES

1. USE WASHERS WITH NUTS AND BOLTS.
2. ALL ANCHORS, FASTENERS, BOLTS, NUTS, WASHERS, SCREWS, ETC. SHALL BE 316 STAINLESS STEEL.
3. DETAILS SHOWN ARE INTENDED TO COVER A WIDE RANGE OF PROJECT SITUATIONS. ALL DETAILS MAY NOT APPLY TO THIS PROJECT.

AS-BUILT

DETAILS

NO.	DATE	DESCRIPTION	DR/APP
4	3/07	REVISED PER AS-BUILT	JRP/EHM
3	10/18/04	REVISED FOR BID	JRP/EHM
2	08/17/04	REVISED FOR BID	JRP/EHM
1	6/04	REVISED PER IRCUD COMMENTS	JRP/EHM

REVISIONS

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CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4304
2205 14th AVENUE, VERO BEACH, FLORIDA 32960
(772) 567-5500 / FAX (772) 794-1106

PIPE HANGERS
CENTRAL REGION
WWTP EXPANSION

INDIAN RIVER COUNTY — FLORIDA

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EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	1/04
SCALE	AS-NOTED
SHEET NO.	6 OF 6
JOB NO.	0525

PLAN SYMBOLS

- HOME RUN. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2 #12 CONDUCTORS OR AS INDICATED ON DRAWINGS.
- CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING
- CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
- CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
- FLEXIBLE CONDUIT WITH EQUIPMENT CONNECTION.
- CONCRETE ENCASED DUCTBANK.
- CEILING MOUNTED LIGHTING FIXTURE, LETTER INDICATES TYPE (TYPICAL).
- WALL MOUNTED LIGHTING FIXTURE.
- FLUORESCENT LIGHTING FIXTURE, CEILING MOUNTED.
- FLUORESCENT LIGHTING FIXTURE, WALL MOUNTED.
- JUNCTION BOX PER N.E.C., FLUSH MOUNTED UNLESS INDICATED OTHERWISE.
- FLUSH OR SURFACE MOUNTED LIGHTING/POWER PANELBOARD.
- DRY TYPE TRANSFORMER. NO. INDICATES KVA RATING.
- POWER DISCONNECT. TYPE & SIZE AS NOTED MOUNTED 72" AFF MAX
- 20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
- 20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR OR 2" ABOVE COUNTER AS REQUIRED.
- 20A, 125V, 3W "HOSPITAL GRADE" DUPLEX RECEPTACLE WITH ISOLATED GROUND CONNECTION.
- 20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH, FLOOR MOUNTED OUTLET BOX.
- 20A, 125V, 3W DUPLEX RECEPTACLE, SURFACE MOUNTED.
- 50A, 250V, 1?, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
- 20A, 250V, 1?, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
- 30A, 250V 1?, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
- NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
- NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS
- (5) ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
- (5) ELECTRIC D.C. MOTOR, NO. INDICATES HORSEPOWER.
- (M) MOTORIZED VALVE
- MAGNETIC MOTOR STARTER
- VFD VARIABLE FREQUENCY DRIVE
- B ALARM BELL

PLAN SYMBOLS (CONTINUED)

- FS FLOW SWITCH
- EG EMERGENCY STOP
- LS LIMIT SWITCH
- XS TORQUE SWITCH
- PS PRESSURE SWITCH
- ZS ZERO SPEED SWITCH
- SV SOLENOID VALVE
- FE FLOW ELEMENT
- LLS LIQUID LEVEL SWITCH
- VS VIBRATION SWITCH
- FIT FLOW INDICATING TRANSMITTER
- LIT LEVEL INDICATING TRANSMITTER
- PIT PRESSURE INDICATING TRANSMITTER
- AIT ANALYZE INDICATING TRANSMITTER

SINGLE LINE DIAGRAM SYMBOLS

- V VOLTMETER
- A AMMETER
- VS THREE PHASE VOLT SWITCH
- AS THREE PHASE AMP SWITCH
- GFI GROUND FAULT INTERRUPTER
- W WATT HOUR METER
- FUSE
- TS TEMPERATURE SWITCH
- MWS MOTOR WINDING SWITCH
- CAPACITOR
- DRAW-OUT CIRCUIT BREAKER
- MOLDED CASE CIRCUIT BREAKER
- TYPICAL SELECTOR SWITCH CONTROL. SEE ELEMENTARY DIAGRAMS FOR EXACT TYPE.
- (5) ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
- (5) ELECTRIC D.C. MOTOR, NO. INDICATES HORSEPOWER.
- SERVICE OR EQUIPMENT GROUND.
- NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
- NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS
- LIGHTING PANEL BOARD
- POWER PANEL BOARD

SINGLE LINE DIAGRAM SYMBOLS (CONTINUED)

- K KIRK KEY INTERLOCK
- CURRENT TRANSFORMERS
- POTENTIAL TRANSFORMERS
- MANUAL OR AUTOMATIC TRANSFER SWITCH
- LIGHTNING ARRESTER & SURGE CAPACITOR

CONTROL DIAGRAM SYMBOLS

- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- LIMIT SWITCH, NORMALLY OPEN
- LIMIT SWITCH, NORMALLY CLOSED
- PRESSURE SWITCH, NORMALLY OPEN
- PRESSURE SWITCH, NORMALLY CLOSED
- FLOAT SWITCH, NORMALLY OPEN
- FLOAT SWITCH, NORMALLY CLOSED
- FLOW SWITCH, NORMALLY OPEN
- FLOW SWITCH, NORMALLY CLOSED
- TEMPERATURE SWITCH, NORMALLY OPEN
- TEMPERATURE SWITCH, NORMALLY CLOSED
- NORMALLY OPEN, TIMED TO CLOSE CONTACT
- NORMALLY CLOSED, TIMED TO OPEN CONTACT
- NORMALLY CLOSED, TIMED TO CLOSE CONTACT
- NORMALLY OPEN, TIMED TO OPEN CONTACT
- LS LIMIT SWITCH
- XS TORQUE SWITCH
- PS PRESSURE SWITCH
- ZS ZERO SPEED SWITCH
- SV SOLENOID VALVE
- LLS LIQUID LEVEL SWITCH
- VS VIBRATION SWITCH
- AR ALARM RELAY
- AT ALARM TIMER
- CR CONTROL RELAY
- M MOTOR STARTER
- TR TIMING RELAY
- A ALARM INDICATING LIGHT
- R RUN INDICATING LIGHT
- MOMENTARY CONTACT PUSHBUTTON
- MOMENTARY BREAK PUSHBUTTON OR RESET
- K KEYED SWITCH
- MAINTAINED CONTACT ON-OFF SWITCH
- START/STOP (S/S) CONTROL SWITCH MAINTAINED CONTACT
- THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH
- FUSE
- MOLDED CASE CIRCUIT BREAKER
- CONTROL POWER TRANSFORMER
- REMOTE TERMINAL BLOCK POINT

ABBREVIATIONS

A	AMPERES
AC	ALTERNATING CURRENT
ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
CIR	CIRCUIT
CONT	CONTROL
CPT	CONTROL POWER TRANSFORMER
CU	COPPER
CWP	COLD WATER PIPE
CP	CONTROL PANEL
DCU	DISTRIBUTED CONTROL UNIT
DIA	DIAMETER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
ELEC	ELECTRICAL
ELR	EMERGENCY LOCK-OUT RELAY
EM	EMERGENCY
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
ESB	ENERGY SAVING BALLAST
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HORC	HAND-OFF-REMOTE-COMPUTER
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
INSTR	INSTRUMENTATION
ISO	ISOLATION
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LDR	LOAD DUMP RELAY
LP	LIGHTING PANEL
LTG	LIGHTING
MA	MILLIAMPERES
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILLS
MCP	MOTOR CIRCUIT PROTECTOR
MFR	MANUFACTURER
MH	METAL HALIDE OR MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MV	MERCURY VAPOR
NEC	NATIONAL ELECTRICAL CODE
NEUT	NEUTRAL
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
OLCP	OUTSIDE LIGHTING CONTROL PANEL
P	POLE
PC	PHOTOELECTRIC CONTROL
PNL	PANEL
P/I	PAGING/INTERCOM
RECPT	RECEPTACLE
RS	RAPID START
STR	STARTER
SW	SWITCH
SWGR	SWITCHGEAR
TC	TIME CLOCK
TTC	TELEPHONE TERMINAL CABINET
TR	TRANSFORMER
TYP	TYPICAL
UG	UNDERGROUND
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE, WITH, WATT
WP	WEATHERPROOF

ELECTRICAL SYMBOLS & ABBREVIATIONS
NTS

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03326
PROJECT NUMBER

NO.	DATE	DESCRIPTION
4	7/12/06	AS-BUILTS

INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.NO.

SHEET TITLE
ELECTRICAL SYMBOLS & ABBREVIATIONS

ENGINEER'S SEAL
Harvey E. Wildschuett, PE
P.E. No. 52862

DATE: 08/18/04
DESIGNED BY: J.L./V.Q
DRAWN: T.B
APPROVED: V.Q

SHEET NUMBER
E1
1 OF 32

ELECTRICAL GENERAL NOTES

1. CONTRACTOR TO INSTALL A COMPLETE ELECTRICAL SYSTEM FOR LIGHT AND POWER FROM THE POINT OF ATTACHMENT TO THE POWER COMPANY TO AND THROUGH THE MAIN SERVICE DISCONNECT, DISTRIBUTION PANELS, BRANCH PANELS TO AND INCLUDING ALL OUTLETS, DEVICES AND EQUIPMENT FURNISHED BY OTHERS AS MAY BE REQUIRED.
2. CONTRACTOR TO COMPLETE ALL WORK INCIDENTAL TO MECHANICAL TRADES FOR A COMPLETE INSTALLATION, INCLUDING CONTROL WIRING, MOTOR STARTERS, DISCONNECT SWITCHES AND EQUIPMENT GROUNDS.
3. MATERIALS AND EQUIPMENT SHALL MEET U.L. REQUIREMENTS.
4. THE TOTAL ELECTRICAL INSTALLATION MUST MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (2002).
5. COLOR CODE FOR 208/120V 3ø SYSTEM SHALL BE: BLACK,RED,BLUE, WHITE, & GREEN. FOR 277/480V 3ø SYSTEM: BROWN, ORANGE, YELLOW, GRAY & GREEN.
6. SHARED NEUTRALS & GROUNDS ARE NOT PERMITTED FOR 1ø CIRCUITS.
7. PANEL BOARDS, SWITCHBOARDS AND DISCONNECT SWITCHES SHALL HAVE COPPER BUS.
8. MAIN DISCONNECTS SHALL HAVE PAD-LOCKING AND SEALING PROVISIONS. THE MAIN BREAKER OR FUSIBLE DISCONNECT SHALL BE QUICK-MAKE, QUICK-BREAK, LOAD-BREAK DEVICE.
9. CONDUCTORS SHALL BE AS PER SPECIFICATIONS
10. NO WIRE SMALLER THAN 12 AWG SHALL BE USED FOR POWER AND LIGHTING. ALL CONDUCTORS SHALL BE COPPER.
11. CONDUIT FOR UNDERGROUND SHALL BE SCHEDULE AS PER SPEC. UNLESS OTHERWISE SHOWN AND/OR REQUIRED BY CODE.
12. CONDUIT FOR ABOVE GRADE SHALL BE "GRC" OR "EMT", "LIQUID-TIGHT" AND FLEX PVC SHALL BE USED FOR CONNECTION TO EQUIPMENT. MC CABLE MAY BE USED FROM "J-BOXES" IN CEILING TO SWITCHES, RECEPTACLES AND BETWEEN DEVICES. SPARE CONDUITS SHALL HAVE A PULL WIRE INSTALLED.
13. ELECTRICAL PANELS SHALL BE LABELED AS PER SPEC.
14. CONTRACTOR SHALL CHECK WITH ARCHITECT FOR DETAILED DIMENSIONS AND LOCATIONS OF OUTLETS AND EQUIPMENT AND FOR ANY CHANGES IN LAYOUT.
15. CONTRACTOR SHALL CONNECT PUMPS, FANS, AND OTHER EQUIPMENT UNDER THIS SECTION.
16. TYPEWRITTEN CIRCUIT IDENTIFICATION MUST BE INSTALLED IN ALL PANEL BOARDS AND SWITCHBOARDS. ALL PANELS, DISCONNECTS, TIMECLOCKS AND CONTACTORS SHALL BE LABELED WITH A PERMANENT ENGRAVED LABEL.
17. MOUNT WALL SWITCHES 44" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED ON DRAWING. GANG SWITCHES WHERE EVER POSSIBLE.
18. MOUNT OUTLETS 18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED ON DRAWINGS.
19. WHERE BOXES ARE MOUNTED ON OPPOSITE SIDES OF WALLS, A MINIMUM SEPARATION OF 24" SHALL BE MAINTAINED.
20. SWITCHES SHALL BE TOGGLE TYPE, SPECIFICATION GRADE, RATED 20 AMPS.
21. RECEPTACLES SHALL BE GROUND TYPE SPECIFICATION GRADE, RATED 20 AMPS.
22. CONTRACTOR SHALL MAKE TESTS AND ADJUSTMENTS AS REQUIRED, UPON COMPLETION OF THE WORK AND BEFORE FINAL ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM IN THE PRESENCE OF THE ENGINEER/ARCHITECT FOR CONTINUITY, FUNCTION, CONTROL, PERFORMANCE, LOAD BALANCE, GROUNDS, SHORTS AND TO INSURE SATISFACTORY OPERATION AND CONFORMANCE TO CONTRACT REQUIREMENTS.
23. EQUIPMENT, LABOR AND MATERIAL REQUIRED FOR TESTING SHALL BE FURNISHED BY THE CONTRACTOR AS PART OF THIS CONTRACT.
24. AFTER COMPLETION OF THE WORK, THE CONTRACTOR SHALL SECURE CERTIFICATES OF FINAL INSPECTION AND APPROVAL FROM AUTHORITIES HAVING JURISDICTION.
25. WORKMANSHIP, MATERIALS AND APPARATUS UNDER THIS CONTRACT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER.
26. MOTORS WITH VFD'S TO HAVE OVERSIZED DISCONNECT SWITCHES AT MOTOR LOCATION TO ACCOMMODATE LARGER CONDUITS.

SCOPE OF WORK:

GENERAL EQUIPMENT LISTING ONLY.

HEADWORKS:

1) NOTE: ALL CONDUITS FROM SECOND FLOOR DOWN TO FIRST FLOOR AND OUT TO C-4, I-4, AND P-4 ARE EXISTING FROM ORIGINAL 2 MG INSTALLATION. ALL CONDUIT IN SECOND FLOOR SLAB STUBBED UP FROM CONTROL PANEL LOCATIONS TO EQUIPMENT IS EXISTING FROM ORIGINAL 2 MG INSTALLATION. CONTRACTOR TO FIELD VERIFY ALL CONDUITS TO AND FROM LOCATIONS.
2) THE FOLLOWING IS NEW EQUIPMENT:
   (1) NEW BAR SCREEN CONTROL PANEL
   (1) NEW GRIT REMOVAL CONTROL PANEL
   (3) 1-HP MOTORS
   LIMIT SWITCHES, SOLENOID VALVES, LEVEL SWITCHES, SPEED SWITCHES, EMERGENCY STOPS, ETC.
3) PROVIDE LABOR AND MATERIALS TO INSTALL ALL EQUIPMENT AND PROVIDE A COMPLETE WORKING SYSTEM.
4) NEW GRIT CLASSIFIER #2 EQUIPMENT TO TERMINATE IN GRIT CLASSIFIER #1 (GCCP-1) CONTROL PANEL

SECONDARY CLARIFIERS:

THE FOLLOWING IS NEW EQUIPMENT:
(2) CONTROL PANELS
(2) 1-HP MOTORS
SOLENOID VALVES, WALK WAY LIGHTING, SITE LIGHTING, ETC.
PROVIDE LABOR AND MATERIALS TO INSTALL ALL EQUIPMENT AND PROVIDE A COMPLETE WORKING SYSTEM

RETURN ACTIVATED SLUDGE PUMPS:

THE FOLLOWING IS NEW EQUIPMENT:
(3) 15 HP MOTORS
(3) VFD UNITS IN THE EXISTING ELECTRICAL ROOM
LIMIT SWITCHES, PRESSURE SWITCHES, LEVEL SWITCHES, ETC.
PROVIDE LABOR AND MATERIALS TO INSTALL ALL EQUIPMENT AND PROVIDE A COMPLETE WORKING SYSTEM

WASTE ACTIVATED SLUDGE PUMPS:

THE FOLLOWING IS NEW EQUIPMENT:
(2) 3 HP MOTORS
(2) 3 HP MOTORS POSSIBLE (SEE NOTE 6 "E-14")
(4) VFD UNITS IN THE EXISTING ELECTRICAL ROOM
LIMIT SWITCHES, PRESSURE SWITCHES, LEVEL SWITCHES, ETC.
PROVIDE LABOR AND MATERIALS TO INSTALL ALL EQUIPMENT AND PROVIDE A COMPLETE WORKING SYSTEM

ABW FILTER UNITS:

THE FOLLOWING IS NEW EQUIPMENT:
(2) NEW TRAVELING BRIDGE UNITS, POWER TO DISCONNECT, INTERFACE WITH FESTOON CABLE ON UNIT.
(1) NEW TURBIDITY ANALYZER UNIT.
LIGHTING AT ABW UNITS, ETC.
PROVIDE LABOR AND MATERIALS TO INSTALL ALL EQUIPMENT AND PROVIDE A COMPLETE WORKING SYSTEM

NEW CHLORINE CONTRACT BASIN/ EFFLUENT PUMP:

THE FOLLOWING IS NEW EQUIPMENT:
(1) 100 HP VFD MOTOR
(1) VFD UNIT IN THE EXISTING ELECTRICAL ROOM
(1) ULTRA SONIC FLOW METER AND TRANSDUCERS
LIGHTING AT CONTACT BASIN UNITS, ETC.
PROVIDE LABOR AND MATERIALS TO INSTALL ALL EQUIPMENT AND PROVIDE A COMPLETE WORKING SYSTEM

NEW CHLORINE DOSING BUILDING/PUMPS:

THE FOLLOWING IS NEW EQUIPMENT:
(1) NEW 125A SERVICE TO NEW CHLORINE BUILDING
(6) DUPLEX PUMP SKIDS, RECEPTACLES, SUPPLY CORDS, AND PLUGS.
(1) REPLACE EXISTING 150A BREAKER IN EXISTING HYPO-CHLORITE BUCKET IN MCC WITH 100A BREAKER.
(1) NEW 480V/120-240V SINGLE PHASE TRANSFORMER IN ELECTRICAL ROOM
(1) NEW PLC-5 CONTROL PANEL IN ELECTRICAL ROOM
(1) TIE IN EXISTING CHLORINE ANALYZER SIGNAL TO NEW PLC-5 FROM MPLC
REESTABLISH DATA HIGHWAY LOOPS FROM PREVIOUS FIELD LOCATIONS
PROVIDE LABOR AND MATERIALS TO INSTALL ALL EQUIPMENT AND PROVIDE A COMPLETE WORKING SYSTEM

MCC ELECTRICAL ROOM:

THE FOLLOWING IS NEW EQUIPMENT:
(1) NEW MCC SECTIONS 7 OF 7 AT MCC 4
(1) NEW CABLE TRAY SYSTEM IN ELECTRICAL ROOM
-NEW BREAKERS/BUCKETS IN MCC3 AND 4
-NEW HOUSEKEEPING PADS FOR NEW VFD'S AND PLC-5/TRANSFORMER

PLC'S:

MAIN PLC
- PROGRAMMING TO ALL NEW POINTS, CARDS, RACKS, ETC.

MAIN PLC PANEL 2
- NEW CHASSIS #5 & RACK #5
- ALL NEW HARDWARE
- ADD NEW EXPANSION POINTS

PLC-4
- NEW SWITCHES
- ADD NEW POINTS TO PLC

PLC-5
- NEW ENCLOSURE
- SALVAGE FROM EXISTING PLC-5: PLC, TOUCH SCREEN, AND LISTED HARDWARE
- NEW HARD WARE
- NEW HYPOCHLORITE DOSING PUMPS AND TANK POINTS
- PROGRAMMING FOR NEW SYSTEM
- NEW ULTRA SONIC FLOW METER

MISC:
- NEW HAND HOLES
- NEW PATCH PANELS C-8 & I-6
- MODIFICATIONS TO EXISTING C-1 & I-1 PATCH PANELS
- ADDITIONAL HARDWARE ADDED TO MAIN PLC PANELS
- ADDITIONAL HARDWARE ADDED TO PLC-4 PANEL
- REUSE OF EXISTING PLC-5 AND COMPONENTS AND MOUNTED IN NEW PANEL
- REMOVAL OF EXISTING HYPO-CHLORITE PANEL (PLC-5 PANEL), AND DOSING PUMP CONTROL PANEL IN FIELD

SCADA:
- UPDATE EXISTING WONDERWARE
- NEW CPU, LAPTOP, PRINTERS, NETWORK CARDS, ETC.
- UPDATE OR REPLACE EXISTING SCADA SOFTWARE
- UTILIZE EXISTING PLC-5 PROGRAMMING, ADD LOGIC.
- PROVIDE LOCAL SUPPORT AND SERVICE
- REFERENCE SPEC. PAGE 301-321

GROUNDING NOTES:

1) NEW GROUNDING GRIDS AT RAS/WAS CLARIFIER LOCATION AND NEW HYPOCHLORITE BUILDING.
2) BOTH GRIDS TO BE TIED BACK TO EXISTING ELECTRICAL/GENERATOR ROOM GROUNDING GRID
3) REFERENCE SPEC. PAGE 373 - 378 FOR EXACT SPECIFICATIONS FOR NEW GROUNDING GRIDS
4) SEE SHEET E-31 FOR EXISTING GROUNDING GRID TIE IN DETAILS
5) IN ALL NEW GROUNDING LOOPS THE GROUNDING RODS SHALL BE EQUALLY SPACED AT A MAXIMUM DISTANCE OF 20FT APART.
6) CONTRACTOR SHALL PROVIDE ENGINEER WITH DOCUMENTED GROUND READS AT EACH ROD AND AT ALL TIE POINTS. READING SHALL NOT EXCEED 25 OHMS AS PER NEC 2002. READINGS TAKEN WITH ENGINEER APPROVED AND CALIBRATED GROUND ROD TEST EQUIPMENT.

WIRING:

1) ALL WIRING LEAVING ELECTRICAL ROOM SHALL BE IN MULTI-CONDUCTOR CABLES, SHALL BE WATER PROOF, OIL RESISTANT, AND RUBBER OR PVC JACKETED
2) RATINGS AS PER ELECTRICAL SPECIFICATIONS AND VFD SPECIFICATIONS.
3) ALL VFD MOTOR WIRING SHALL BE RATED AT 2000V AS PER VFD SPECIFICATIONS.
4) SPACING OF VFD CONDUITS AND MULTI-CONDUCTORS AS PER VFD MANUFACTURER AND VFD SPECIFICATIONS NO EXCEPTIONS.
5) ALL VFD MOTOR CABLES IN DEDICATED CONDUITS TO AND FROM VFD'S AND EQUIPMENT. NO MCC CONTROL & INSTRUMENTATION 4-20 mA OR 120V WIRING SHALL BE IN SAME CONDUIT AND SPACED AS PER VFD MANUFACTURERS SPECIFICATIONS.

MCC SECTIONS:

1) ALL NEW BREAKERS AND BREAKER CONTROLS COMBINATION BUCKETS ADDED TO EXISTING MCC SHALL BE THE SAME MANUFACTURER, RATING, TYPE AS EXISTING, AND MADE BY GE NO EXCEPTIONS.
2) ALL EQUIPMENT REMOVED FROM ELECTRICAL ROOM OR SITE SHALL BE STORED AND RETURNED TO CUSTOMER TO DECIDE IF THEY WANT TO KEEP FOR SPARES OR HAVE CONTRACTOR DISPOSE OF.

UNDERGROUND:

1) CONTRACTOR RESPONSIBLE FOR LOCATING ALL EXISTING PIPING, FUEL LINES, FPL SERVICE INTO BUILDING, AND ANY UNDERGROUND EXISTING INSTALLATIONS
2) ANY DAMAGE BY CONTRACTOR TO ANY EXISTING SERVICES UNDERGROUND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE WITH MATCHING OR GREATER THAN EQUIPMENT, AND MUST BE APPROVED BY ENGINEER.

SERVICE LOAD CALCULATOR
INDIAN RIVER WWTP EXPANSION

CODE RULE	LOAD DESCRIPTION	LOAD
220-35	EXISTING LOAD MEASURED WITH DRAMETE ANALYZER AND 12 MONTHS OF UTILITY BILLS.	488,000
	SITE LIGHTING (ADDITIONAL LOAD)	3,920
220-3(c)(1)	RECEPTACLE (ADDITIONAL LOAD)	1,280
220-3(c)(2)	MCC (ADDITIONAL LOADS) MCC 4 148 HP	148,000
	MCC 3 20HP (22000 W) (CONCURRENT LOAD)	0
	SUBTOTAL ADDITIONAL LOAD	638,800
	APPLICATION OF DEMAND FACTORS	
220-13(a)	LIGHTING 3920 X .25 (GENERAL ILLUMINATION)	980
430-25(a)	LARGEST MOTOR 100 HP X .25	25,000
	SERVICE LOAD	606,880
	SELECTION OF SERVICE EQUIPMENT	
TABLE 310.16	SERVICE ENTRANCE CONDUCTORS = 5-600 MCM PER PHASE = 2000A CAPACITY	606,880/840 = 730A
250.23	NEUTRAL,6-250 MCM CU. GROUND, 5-250 MCM CU.	
230.90(a)	OVER CURRENT PROTECTIVE DEVICE: 2000A FEEDER & BREAKER ARE ADEQUATE FOR THIS NEW LOAD	

ELECTRICAL NOTES & LOAD CALCULATIONS

NTS

03326
PROJECT NUMBER

NO.	DATE	BY	DESCRIPTION
1	07/22/05	MCM	ADDENDUM #1
2	08/22/05	MCM	ADDENDUM #2
3	09/21/05	MCM	ADDENDUM #3

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INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.No.

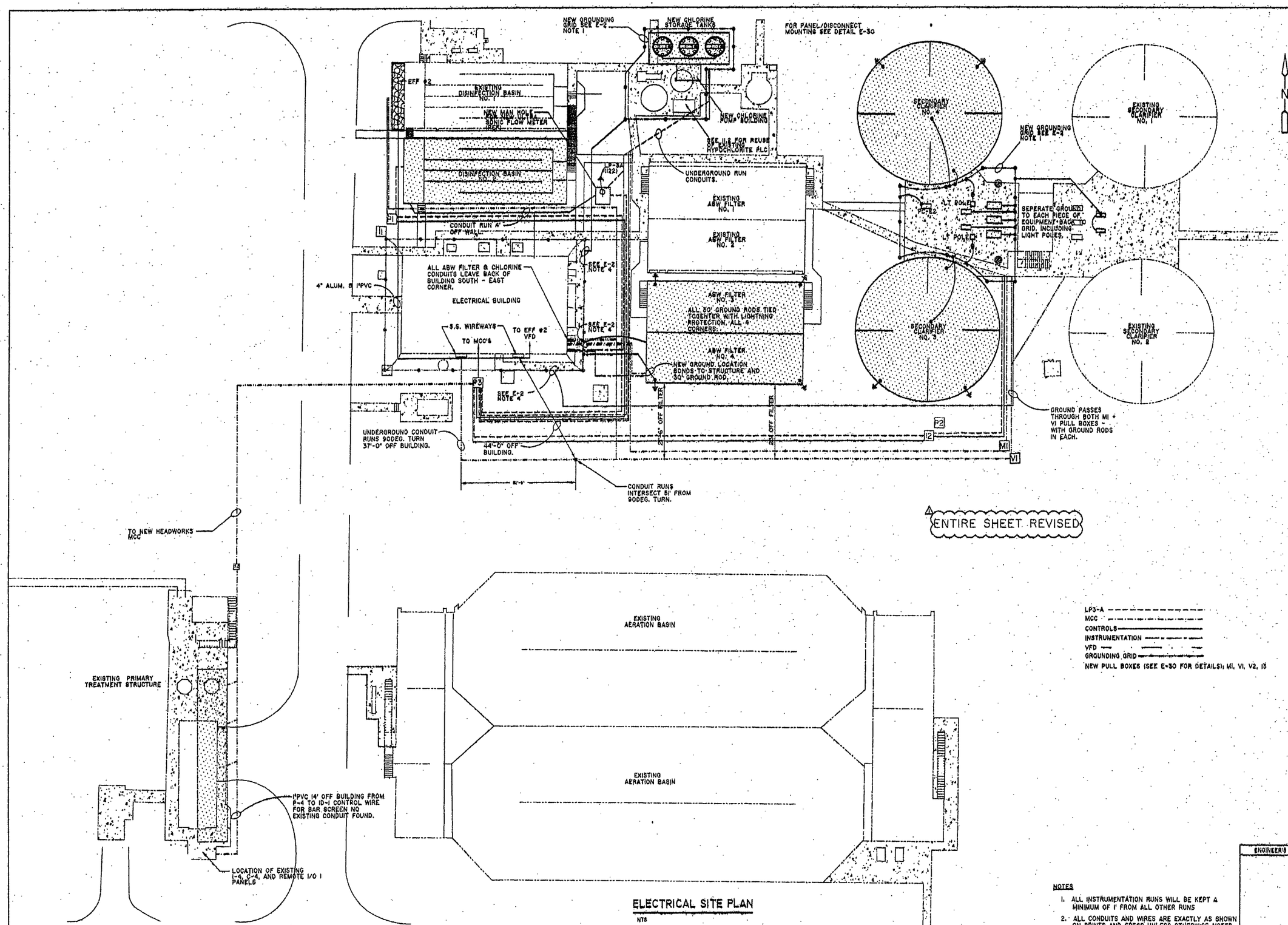
SHEET TITLE
ELECTRICAL NOTES & CALCULATIONS

DATE: 08/18/04
DESIGNED BY: J.L./V.G.
DRAWN: T.B.
APPROVED: V.G.

SHEET NUMBER
E2
2 OF 32

ENGINEER'S SEAL

Harvey F. Wildschutte, PE
P.E. No. 62852



ENTIRE SHEET REVISED

LP3-A
MCC
CONTROLS
INSTRUMENTATION
VFD
GROUNDING GRID
NEW PULL BOXES (SEE E-30 FOR DETAILS); MI, VI, V2, I8

ELECTRICAL SITE PLAN

NTS

NOTES

1. ALL INSTRUMENTATION RUNS WILL BE KEPT A MINIMUM OF 1' FROM ALL OTHER RUNS
2. ALL CONDUITS AND WIRES ARE EXACTLY AS SHOWN ON PRINTS AND SPECS UNLESS OTHERWISE NOTED.

ENGINEER'S SEAL

Harvey F. Wildschuetz, PE P.E. No. 62852

03326
PROJECT NUMBER

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INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

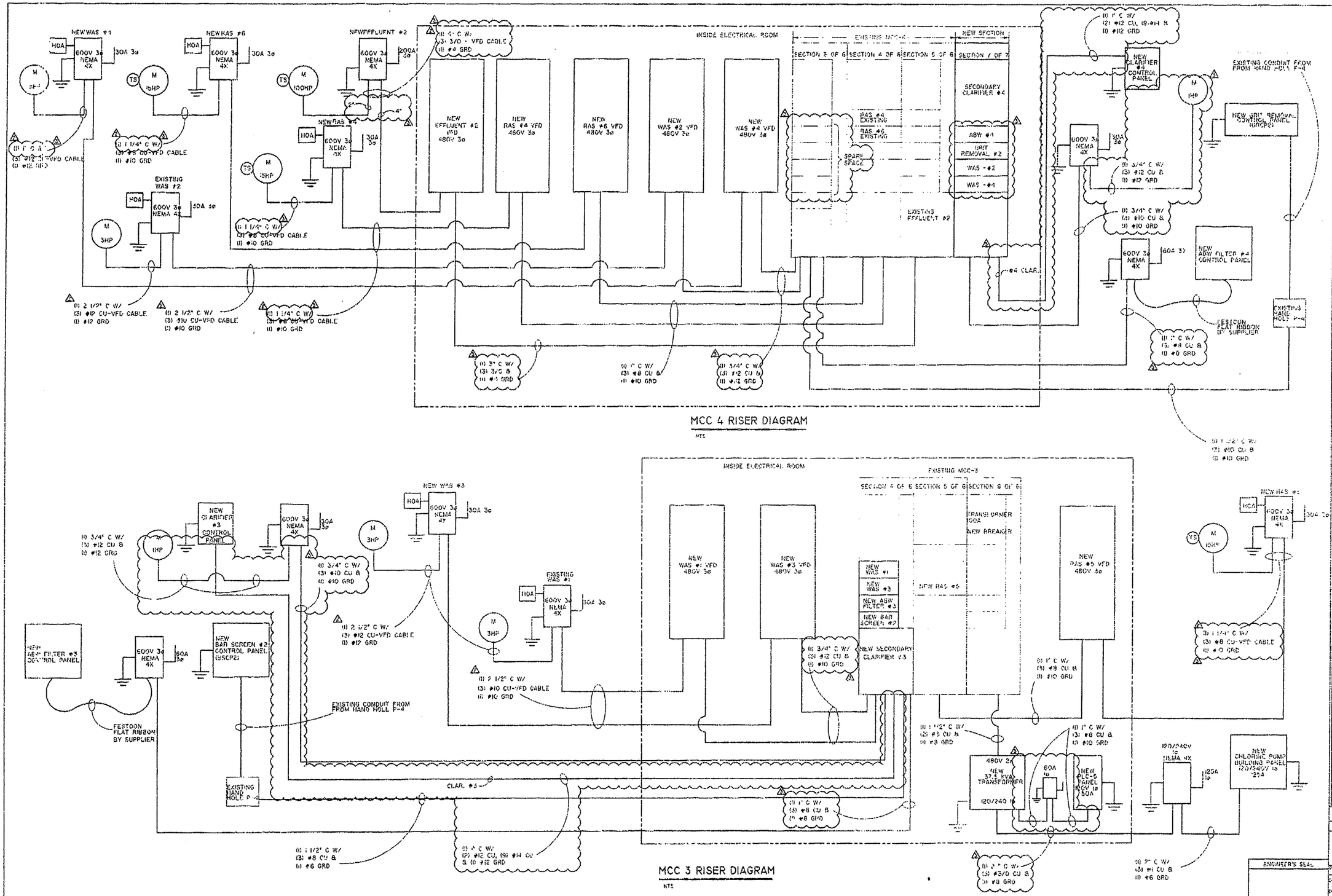
ARCHITECT'S REF. NO.

SHEET TITLE
ELECTRICAL SITE PLAN

DATE: 06/16/04
DESIGNED BY: JJ/Y.Q
DRAWN: T.B
APPROVED: Y.Q

SHEET NUMBER
E3

3 OF 32



03326

PROJECT NUMBER

GARRISON ELECTRICAL CONSULTANTS, INC.
ELECTRICAL ENGINEERS

INDIAN RIVER COUNTY

SHEET TITLE
ELECTRICAL RISER DIAGRAM

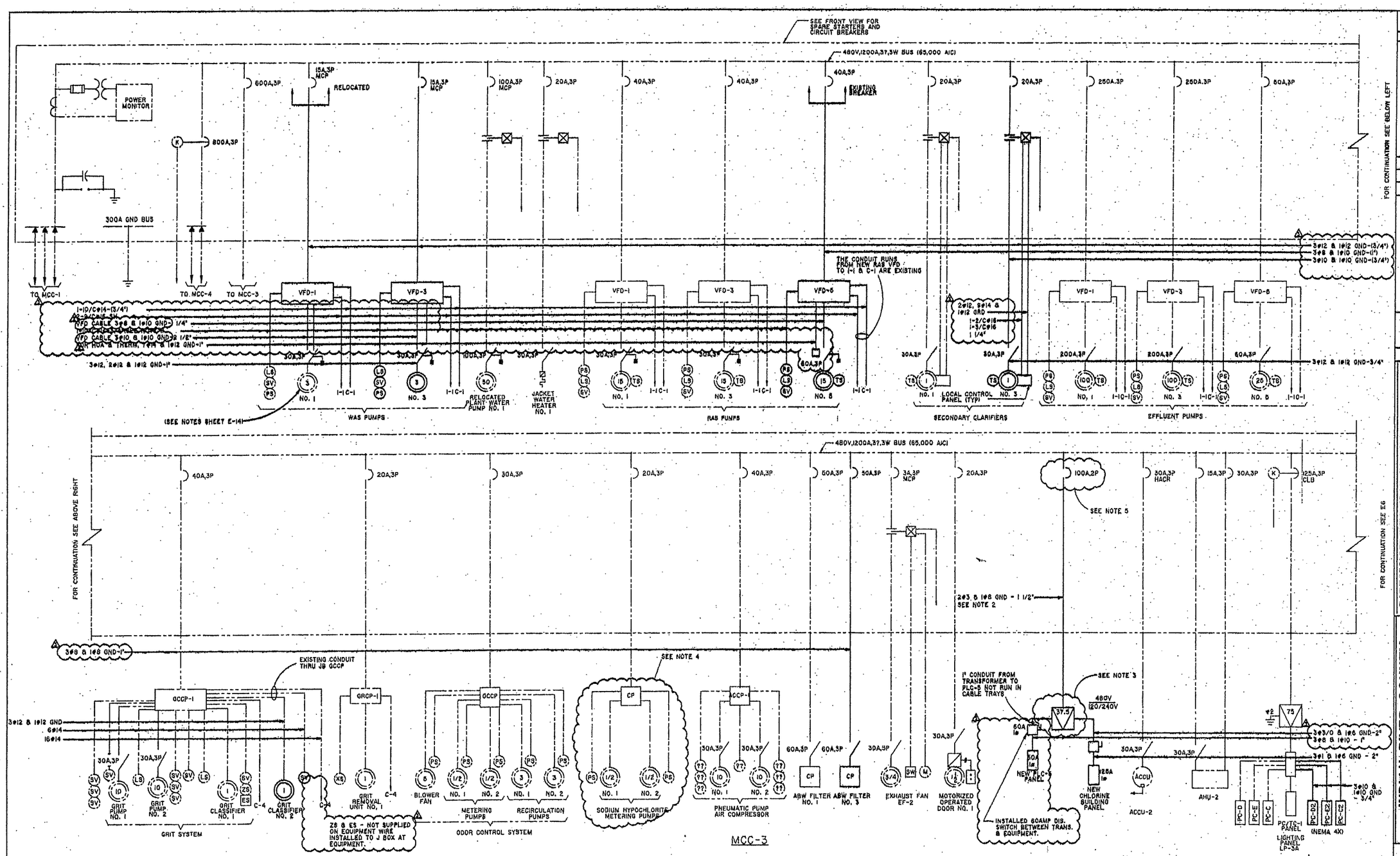
DATE: 08/18/04
DESIGNED BY: M.L./V.G.
DRAWN: T.B.
APPROVED: V.G.

SHEET NUMBER
E-4

4 OF 33

ENGINEER'S SEAL

Harvey E. Wildschutte, PE
P.E. No. 52805



EXISTING MCC-3 SINGLE LINE DIAGRAM

NTS

REF. ORIGINAL INSTALLATION DRAWINGS
MCC-1 SHEET E-6
MCC-2 SHEET E-7
SWITCH GEAR/TIE BREAKERS SHEET E-4
SINGLE LINE POWER SHEET E-3

NOTES:
1. ALL CONDUIT RUNS - DIRECT POINT TO POINT CONDUITS PASS THROUGH BACK TO BACK WIREWAYS ON OUTSIDE WALL TO ELECTRIC ROOM - PER PAGE E-3 ASBUILT.
2. NOT USED.
3. NEW TRANSFORMER FED FROM EXISTING SODIUM HYPOCHLORITE GENERATOR NO. 2 CONTROL PANEL BUCKET
4. ABANDON SODIUM HYPOCHLORITE METERING PUMPS BUCKET. BECOMING A 6" SPARE BUCKET.
5. REPLACE EXISTING 150A BREAKER IN SODIUM HYPOCHLORITE GENERATOR NO. 2 CONTROL PANEL BUCKET WITH A NEW 100A BREAKER

ENGINEER'S SEAL

Harvey F. Hildebrandt, PE
P.E. No. 62852

03326
PROJECT NUMBER

CA No. 6761

NO.	DESCRIPTION	DATE	BY
1	AS-BUILTS	2001	JWH
2	ADDENDUM 3	-	SW
3	REVISIONS	15	APC
4	ADDENDUM		
5	MISC.		

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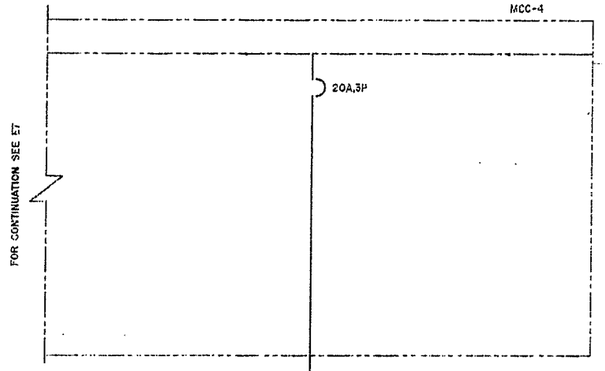
INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

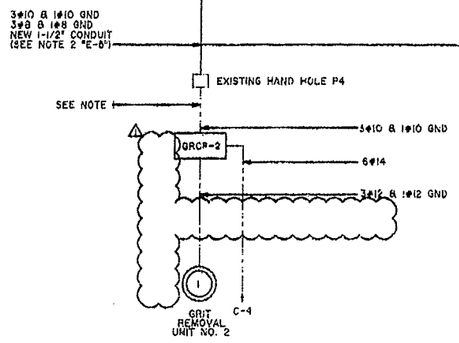
ARCHITECT'S REF. No.

SHEET TITLE
EXISTING MCC-3 SINGLE LINE DIAGRAM

DATE: 08/15/04
DESIGNED BY: J.L/V.G
DRAWN: T.S
APPROVED: V.G

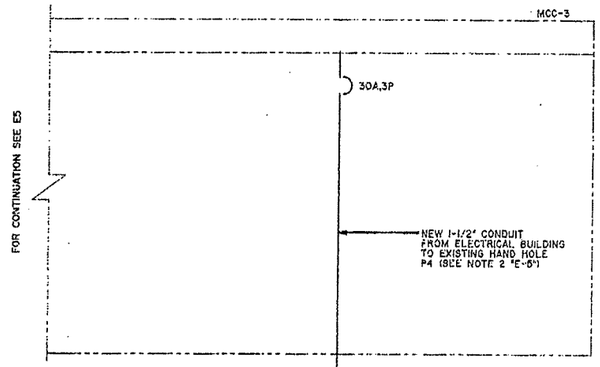
SHEET NUMBER
E5
5 OF 32

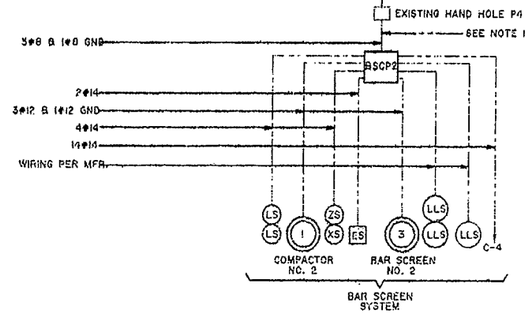




PARTIAL MCC-4 SINGLE LINE DIAGRAM

NTS



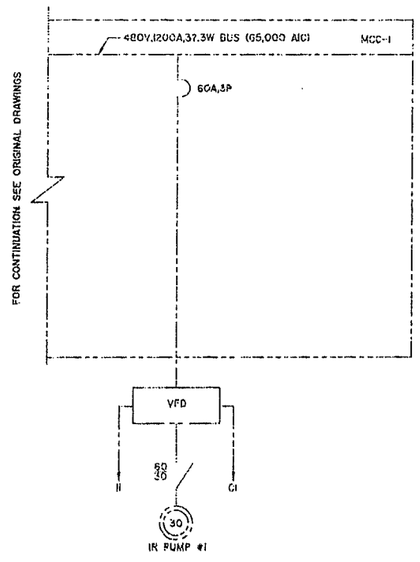


PARTIAL MCC-3 SINGLE LINE DIAGRAM

NTS

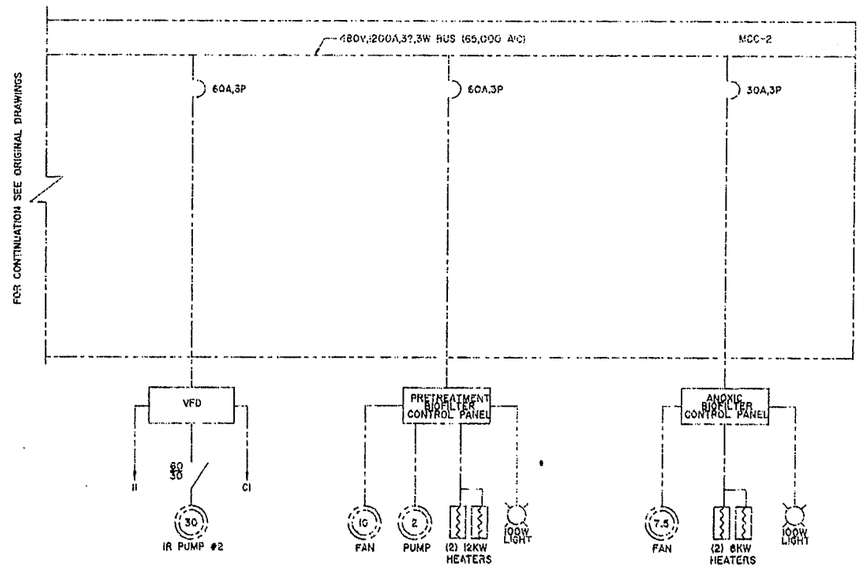
CONTINUATION OF MCC-3, -4

NTS



PARTIAL MCC-1 SINGLE LINE DIAGRAM

NTS



PARTIAL MCC-2 SINGLE LINE DIAGRAM

NTS

REF. NEW ODER CONTROL SYSTEM (BY OTHERS)

NTS

NOTES:
1. ALL CONDUIT TO & FROM HEADWORKS EQUIPMENT & NEW PANEL LOCATIONS ON 2ND FLOOR, AND FROM UPPER LEVEL TO HAND HOLE P4, I4, C4, ARE EXISTING FROM ORIGINAL PLANT DRAWINGS

ENGINEER'S SEAL

Harvey C. Wildschutz, PE
P.E. No. 62852

03326
PROJECT NUMBER

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C.A. No. 0744

NO.	DATE	REVISIONS	BY	CK	APP
1	07/25/05	AS-BUILTS	MPC	DS	JMP

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INDIAN RIVER COUNTY

CENTRAL REGION WWTP EXPANSION

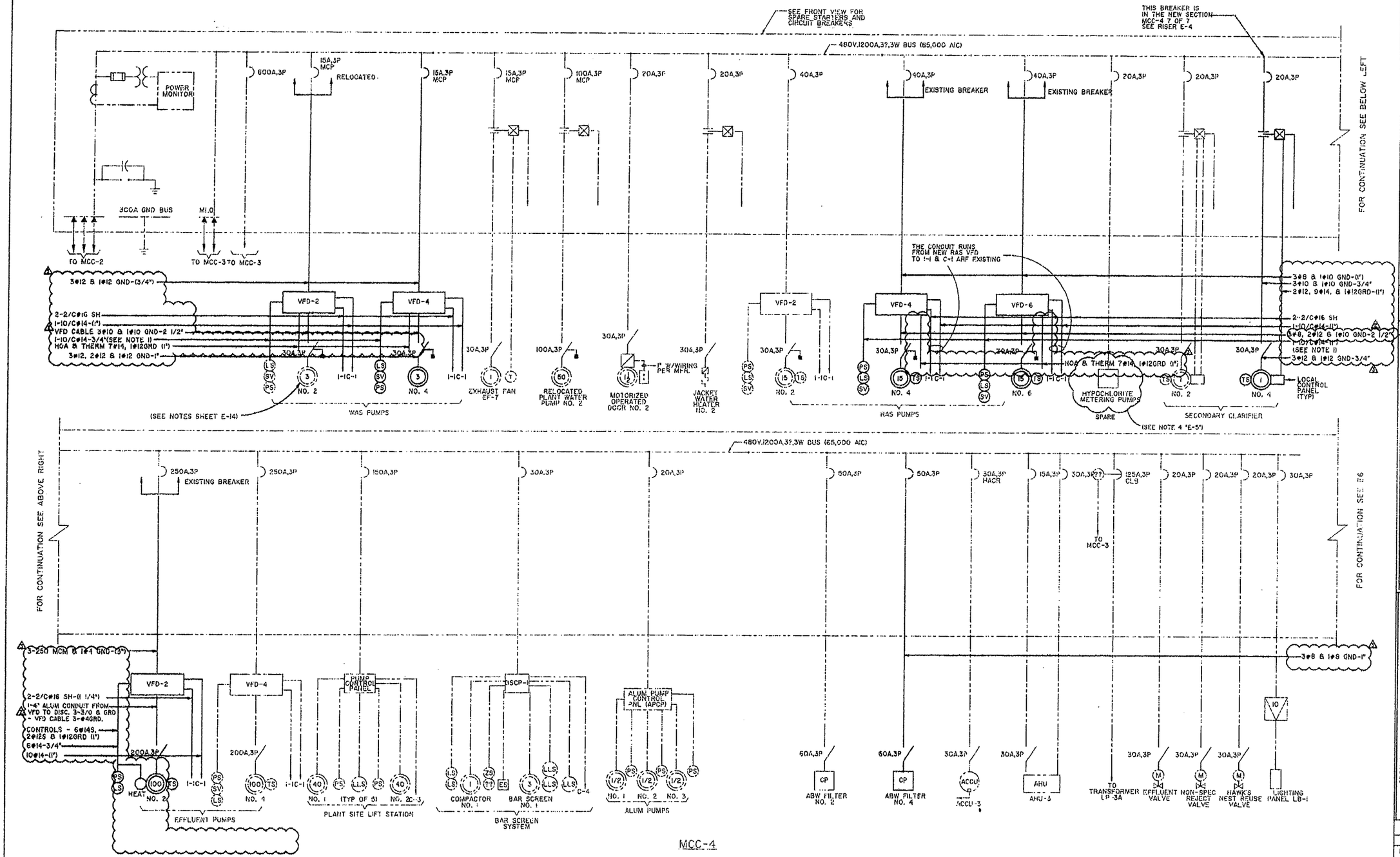
ARCHITECT'S REF.No.

SHEET TITLE
PARTIAL MCC SINGLE LINE DIAGRAM

DATE: 06/18/04
DESIGNED BY: J.L./V.Q
DRAWN: T.B
APPROVED: V.Q

SHEET NUMBER
E6

6 OF 32



MCC-4 SINGLE LINE DIAGRAM

NTS

NOTE 1: ALL CONTROL WIRING FOR WAS/RAS/CLARIFIERS SHALL RUN IN A 4" CONDUIT FROM HAND HOLE P3 TO THE ELECTRICAL BUILDING

ENGINEER'S SEAL

Harvey F. Wildschuetz, PE
P.E. No. 62852

03326
PROJECT NUMBER

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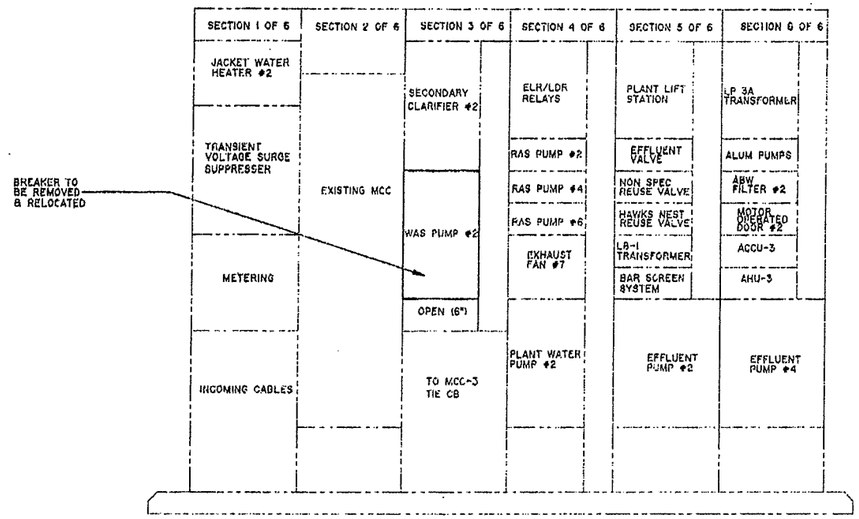
INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.No.

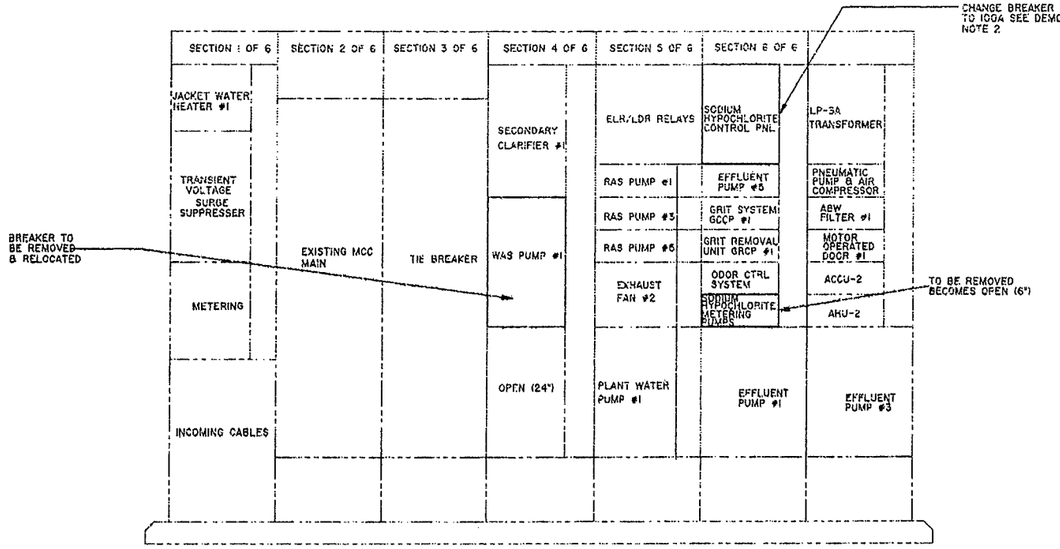
SHEET TITLE
EXISTING MCC-4 SINGLE LINE DIAGRAM

DATE: 08/18/04
DESIGNED BY: JJL/V.G
DRAWN: T.S
APPROVED: V.G

SHEET NUMBER
E7
7 OF 32



EXISTING MCC-4 LAYOUT



EXISTING MCC-3 LAYOUT

DEMOLITION PLANS FOR EXISTING MCC-3 & MCC-4

NTS

DEMOLITION NOTES:

1) REMOVE EXISTING MCC BREAKERS FOR WAS #1 & WAS #2 ALL CONTROL WIRING TO BE REMOVED & REROUTED FROM CI/II TO NEW VFD & PLC AS REQUIRED

2) REMOVE EXISTING SODIUM HYPOCHLORITE CONTROL PANEL 150A BREAKER, AND REPLACE WITH NEW 100A BREAKER OF IDENTICAL PROPERTIES

3) REMOVE EXISTING SODIUM HYPOCHLORITE METERING PUMP BREAKER & WIRING FROM MCC, CI, ETC. AND REPLACE WITH BLANK COVER FOR SPARE.

SHEET E-9 NEW INSTALLATIONS:

MCC-3 & MCC-4
INFORMATION: GE 3000 LINE, 480V, 3ø, 3 WIRE, 60 Hz 1200AMP.

1) MCC-3 INSTALL NEW GE BREAKER BUCKETS TO MATCH EXISTING STYLE:
   A) WAS PUMP #1 - 15A
   B) WAS PUMP #3 - 10A
   C) ABW FILTER #3 - 50A
   D) BAR SCREEN #2 - 30A
   E) SECONDARY CLARIFIER #3 - 20A, WITH CONTROLS AS PER SPECIFICATIONS AND TO MATCH EXISTING CLARIFIERS #1 & #2.

2) MCC-4
   A) INSTALL NEW MCC SECTION 7 OF 7 TO EXISTING SECTIONS, ON EXISTING HOUSEKEEPING PAD
   B) INSTALL NEW GE BREAKER BUCKETS TO MATCH EXISTING STYLE:
      1) WAS PUMP #2 - 15A
      2) WAS PUMP #4 - 15A
      3) GRIT SYSTEM #2 - 40A
      4) GRIT REMOVAL #2 - 20A
   C) SECONDARY CLARIFIER #4 - 20A, WITH CONTROLS AS PER SPECIFICATIONS AND TO MATCH EXISTING CLARIFIERS #1 & #2.
      TYPE - FVNR, M766059 MODEL - 60CU3a

03326
PROJECT NUMBER

THE ARCHITECT, ENGINEER, AND THE CONSULTANTS AND SUBCONSULTANTS SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, AND SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE ARCHITECT, ENGINEER, AND THE CONSULTANTS AND SUBCONSULTANTS SHALL NOT HAVE CONTROL OVER OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR THEIR AGENTS OR EMPLOYEES, OR ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK.

CA No. 6712

NO.	DATE	REVISIONS	BY	CHK	APP
1	2/15/06	AS-BUILTS	JPK	JPK	LS

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INDIAN RIVER COUNTY

CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.No.

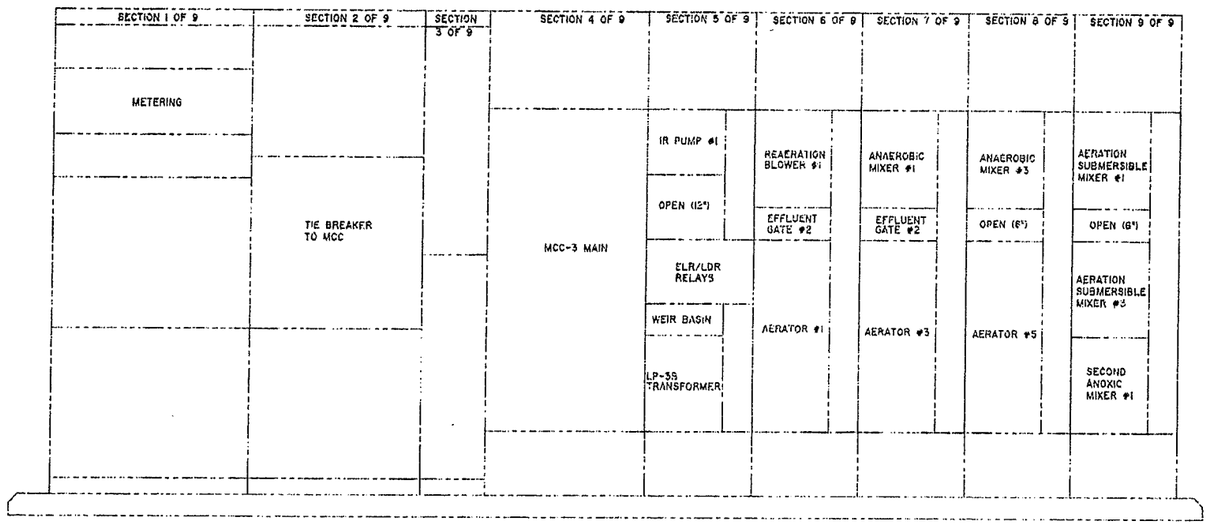
SHEET TITLE
EXISTING MCC DEMOLITION

DATE: 06/15/04
DESIGNED BY: J.L./V.G
DRAWN: T.B
APPROVED: V.G

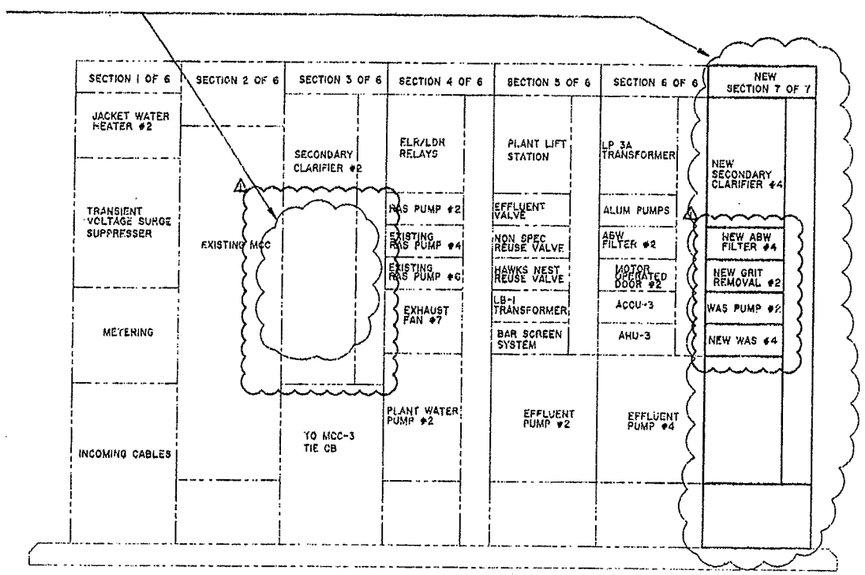
SHEET NUMBER
E8
8 OF 32

ENGINEER'S SEAL

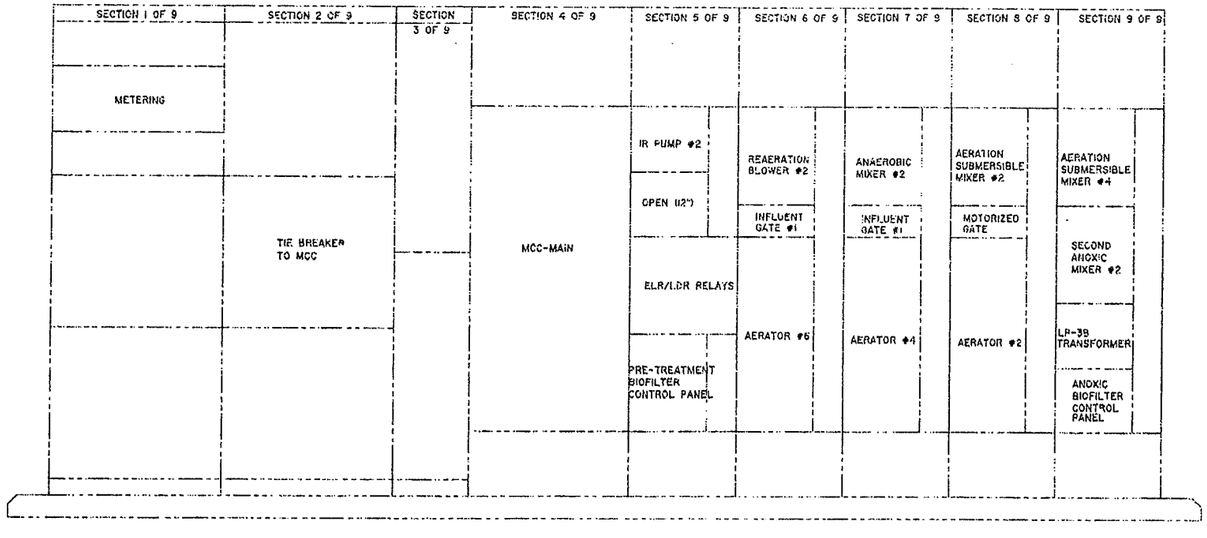
Harvey F. Wildschuetz, PE
P.E. No. 62852



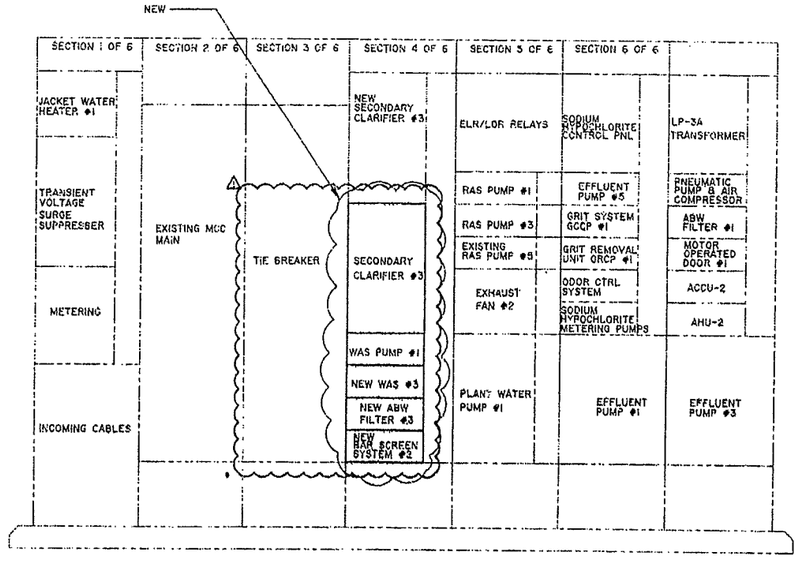
EXISTING MCC-1 (NO CHANGE)



MCC-4 MODIFICATIONS



EXISTING MCC-2 (NO CHANGE)



MCC-3 MODIFICATIONS

03326
PROJECT NUMBER

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CA No. 6244

NO	DATE	DESCRIPTION	BY	CK	APP
1	07/26/05	AS-BUILTS	SPH	CK	LC

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INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REG.NO.

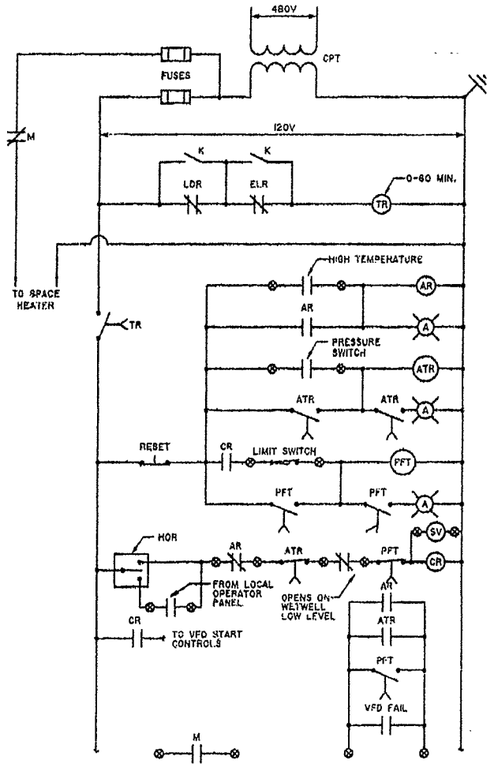
SHEET TITLE
MCC ELEVATION VIEWS

DATE:	05/18/04
DESIGNED BY:	J.L./V.G
DRAWN:	T.B
APPROVED:	V.G

SHEET NUMBER
E9
9 OF 32

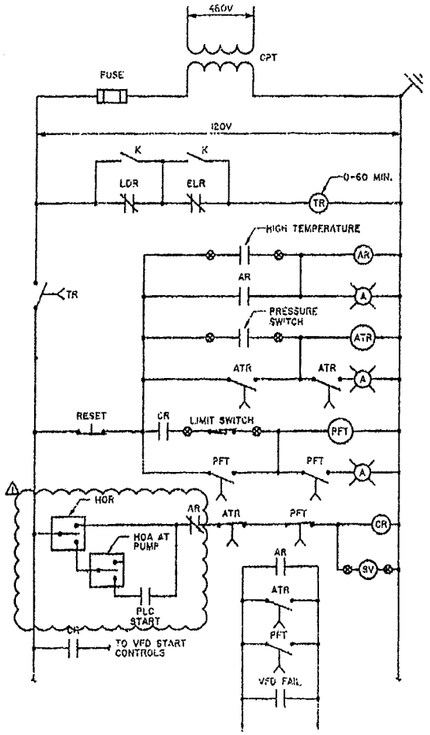
ENGINEER'S SEAL

Harvey F. Wildschuetz, PE
P.E. No. 62852



ADDITIONAL VFD CONTROLS, REFER TO SPECIFICATIONS.

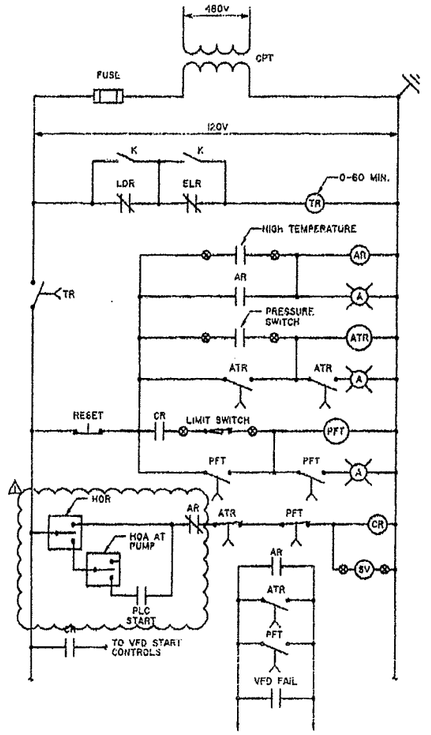
EFFLUENT PUMP VFD'S



ADDITIONAL VFD CONTROLS, REFER TO SPECIFICATIONS.

WAS PUMPS

TYPICAL



ADDITIONAL VFD CONTROLS, REFER TO SPECIFICATIONS.

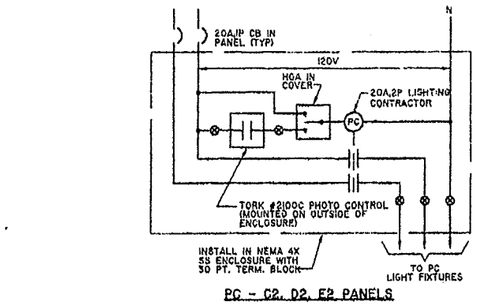
RAS PUMPS

TYPICAL

TERMINAL BLOCK SCHEDULE		
TERMINAL BLOCK #	TERMINAL #'S	USED FOR
TBA	A1 - A2	ALARM HORN
	A3 - A4	ALARM FLASHER
TBI (FOR REMOTE STATUS & CONTROL)	1 - 2	PUMP 1 RUN
	3 - 4	PUMP 1 FAIL
	5 - 6	CLASSIFIER 1 RUN
	7 - 8	CLASSIFIER 1 FAIL
	9 - 10	CLASSIFIER 1 EMERG. STOP
	11 - 12	PUMP 2 RUN
	13 - 14	PUMP 2 FAIL
	15 - 16	CLASSIFIER 2 RUN
	17 - 18	CLASSIFIER 2 FAIL
	19 - 20	CLASSIFIER 2 EMERG. STOP
TB2	1 - 2	CLASSIFIER 1 TORQUE SWITCH N.O. CONTACT
	1A - 2A	CLASSIFIER 1 ZERO SPD. SWITCH N.O. CONTACT
	3 - 4	CLASSIFIER 2 TORQUE SWITCH N.O. CONTACT
	3A - 4A	CLASSIFIER 2 ZERO SPD. SWITCH N.O. CONTACT
	5 - 6	CLASSIFIER 2 SV-C COIL
	7 - 8	CLASSIFIER 2 SV-B COIL
	9 - 10	CLASSIFIER 2 SV-A COIL
	11 - 12	CLASSIFIER 1 SV-C COIL
	13 - 14	CLASSIFIER 1 SV-B COIL
	15 - 16	CLASSIFIER 1 SV-A COIL
TB3	1 - 2	CLASSIFIER 2 EMERG. PULL CORD
	3 - 4	CLASSIFIER 1 EMERG. PULL CORD
	5 - 6	CLASSIFIER 2 FLUSH VALVE
	7 - 8	CHECK VALVE LIMIT SWITCH 2
	9 - 10	SEAL WATER VALVE 2
	11 - 12	CLASSIFIER 1 FLUSH VALVE
	13 - 14	CHECK VALVE LIMIT SWITCH 1
	15 - 16	SEAL WATER VALVE 1

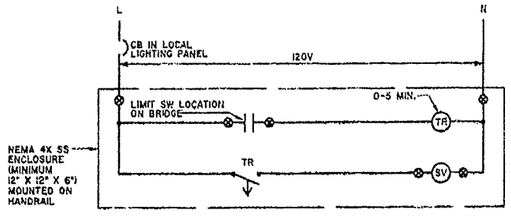
EXISTING GRIT CLASSIFIER# 1 PANEL TERMINAL STRIP SCHEDULE

TERMINAL BLOCK LOCATIONS FOR NEW CLASSIFIER 2 DEVICES

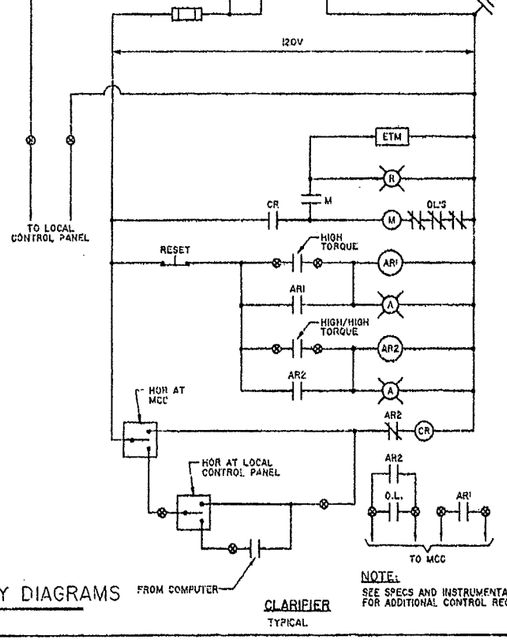


PC - C2, D2, E2 PANELS

- MOUNT RESET PUSHBUTTON & RELAY IN COMMON 4X



SCUM BOX SPRAY

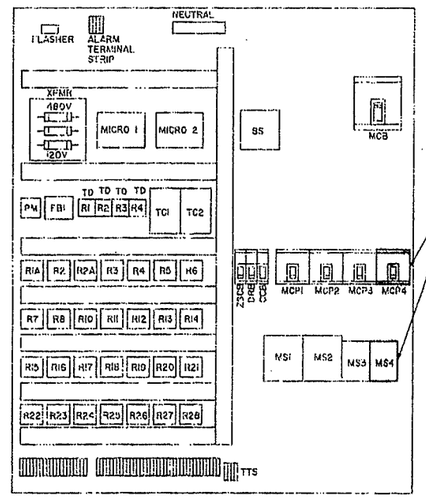


CLARIFIER

TYPICAL

NOTE:

SEE SPECS AND INSTRUMENTATION LOOPS FOR ADDITIONAL CONTROL REQUIREMENTS.



EXISTING GRIT CLASSIFIER# 1 PANEL (INSIDE)

ELEMENTARY DIAGRAMS

NTS

ENGINEER'S SEAL

Harvey E. Wildschuett, PE
P.E. No. 62852

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INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.No.

SHEET TITLE
ELEMENTARY DIAGRAMS

DATE: 08/18/04
DESIGNED BY: J.L./V.G
DRAWN: T.B
APPROVED: V.G

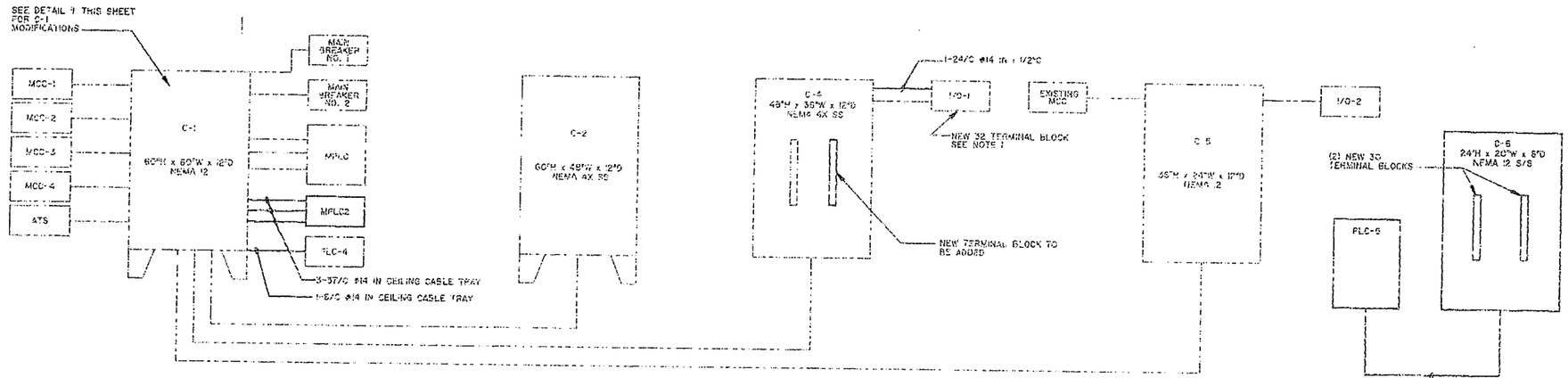
SHEET NUMBER
E10

10 OF 32

03326
PROJECT NUMBER

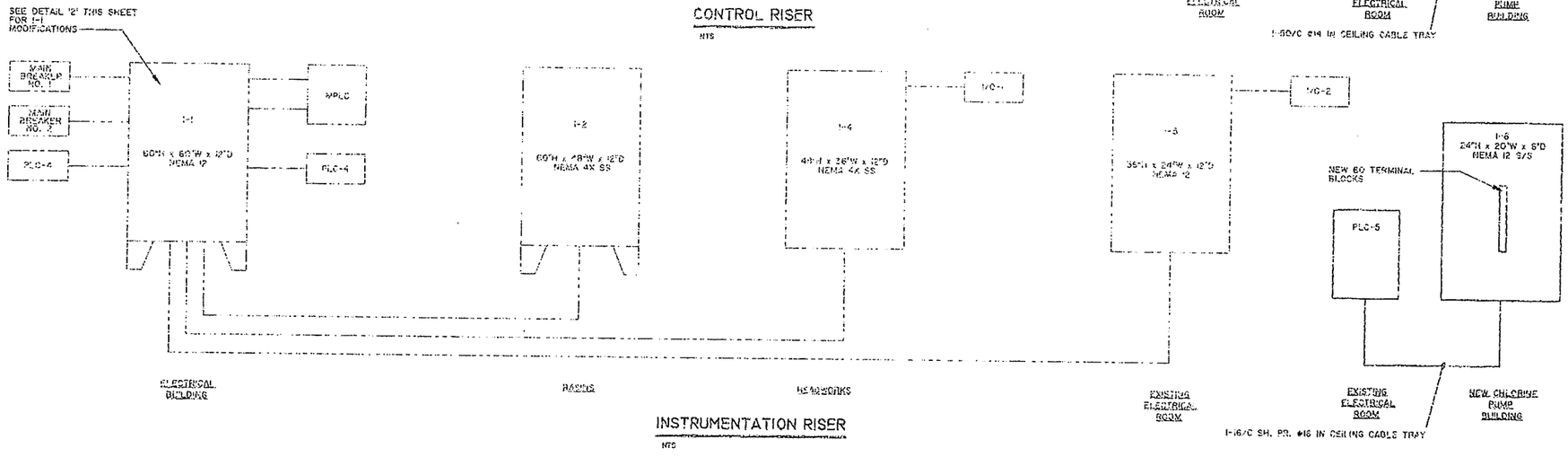
CA No. 0741

NO	DATE	REVISIONS	BY	CK	APP
1	07/26/05	AS-BUILTS			



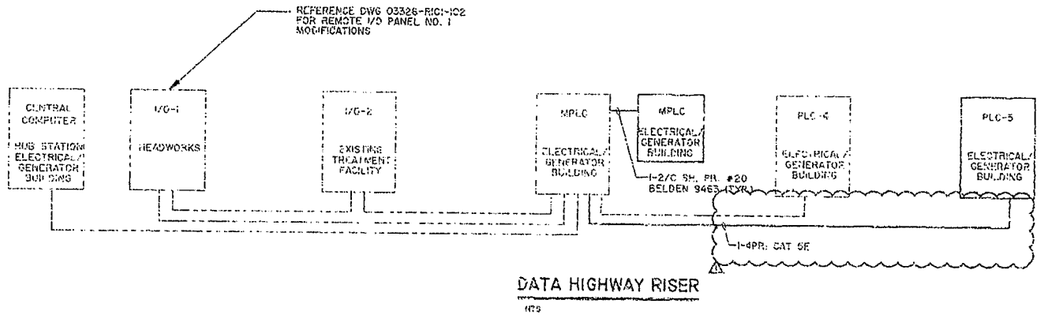
CONTROL RISER

NTS



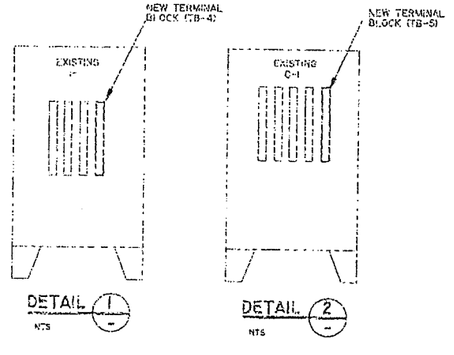
INSTRUMENTATION RISER

NTS



DATA HIGHWAY RISER

NTS



DETAIL 1 — NTS

DETAIL 2 — NTS

NOTE:
1) NEW 2A CIRCUIT BREAKER TO BE ADDED TO REMOTE I/O-1 FOR NEW SURGE SUPPRESSION TERMINAL BLOCK FED FROM 2C2 24VDC POWER SUPPLY REF. ORIGINAL DRAWING 03S416-RIO1-105

03326
PROJECT NUMBER

GARRISON ELECTRICAL CONSULTANTS, INC.
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INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

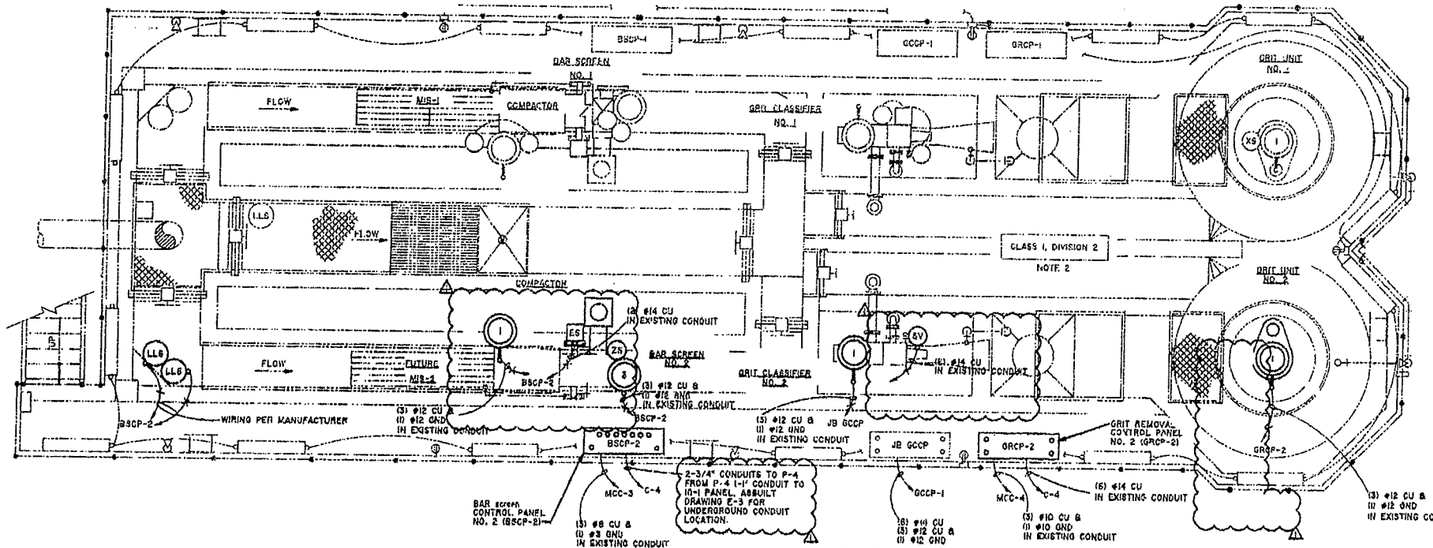
ARCHITECT'S REF No.

SHEET TITLE
INSTRUMENTATION & CONTROL RISER

ENGINEER'S SEAL
Harvey F. Widenhouse, PE P.E. No. 62358

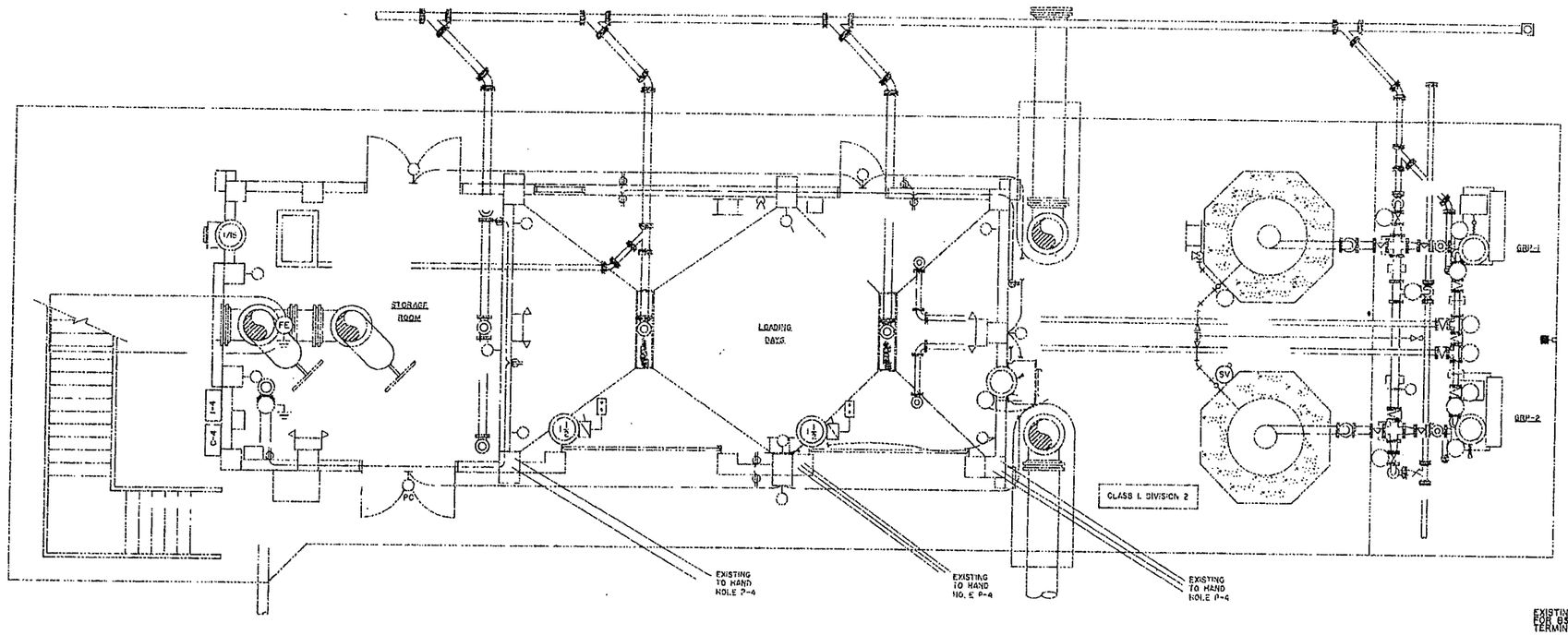
DATE: 08/18/14
DESIGNED BY: JL/V.G
DRAWN: T.B
APPROVED: V.G

SHEET NUMBER
E14
OF 32



TOP PLAN

SCALE 1/4" = 1'



BOTTOM PLAN

NTS

(3) #10 CU & (1) #10 GND
(3) #8 & (1) #8 GND IN NEW (1) 1 1/2" C (TO ADMIN BUILDING)
(1) 1 1/2" C (SPARE)

EXISTING CONDUITS FOR GSCP, GRCP, & GCCP TERMINATE IN P4

P-4

NOTES:

1. ALL EXISTING CONDUIT SHALL BE EXPLOSION RATED CONDUIT SEAL.
2. THIS AREA IS CLASSIFIED HAZARDOUS CLASS I, DIVISION 2, WHERE THE ENVELOPE IS 18 INCHES ABOVE THE TOP OF THE STRUCTURE AND EXTENDING 18 INCHES BEYOND THE EXTERIOR WALLS. THE ENVELOPE IS 18 INCHES ABOVE GRADE EXTENDING 10 FT HORIZONTAL FROM THE STRUCTURE WALLS IS ALSO CLASS I, DIVISION 2.
3. THE ENVELOPE IS 18 INCHES ABOVE GRADE EXTENDING 10 FEET HORIZONTAL FROM THE STRUCTURE WALL IS CLASS I, DIV. 2.
4. ALL EQUIPMENT AND ENCLOSED AREAS THAT ARE ENCOMPASSED IN A CLASS I, DIVISION 2 HAZARDOUS ENVELOPE SHALL BE RATED AS SUCH TO COMPLY WITH THE NFPA 820 GUIDELINES. PROVIDE PROPER EQUIPMENT THAT WILL ACCOMMODATE THESE HAZARDOUS REQUIREMENTS FOR THIS AREA.

GRAPHIC SCALE: 3' 6' 7'

ENGINEER'S SEAL

Harvey F. Wildschuetz, PE
P.E. No. 62052

03326
PROJECT NUMBER

GARRISON ELECTRICAL CONSULTANTS, INC.
ELECTRICAL ENGINEERS
4525 South U.S. 1 • Ft. Pierce, FL 34982
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WEB: WWW.GARRISONENGR.COM

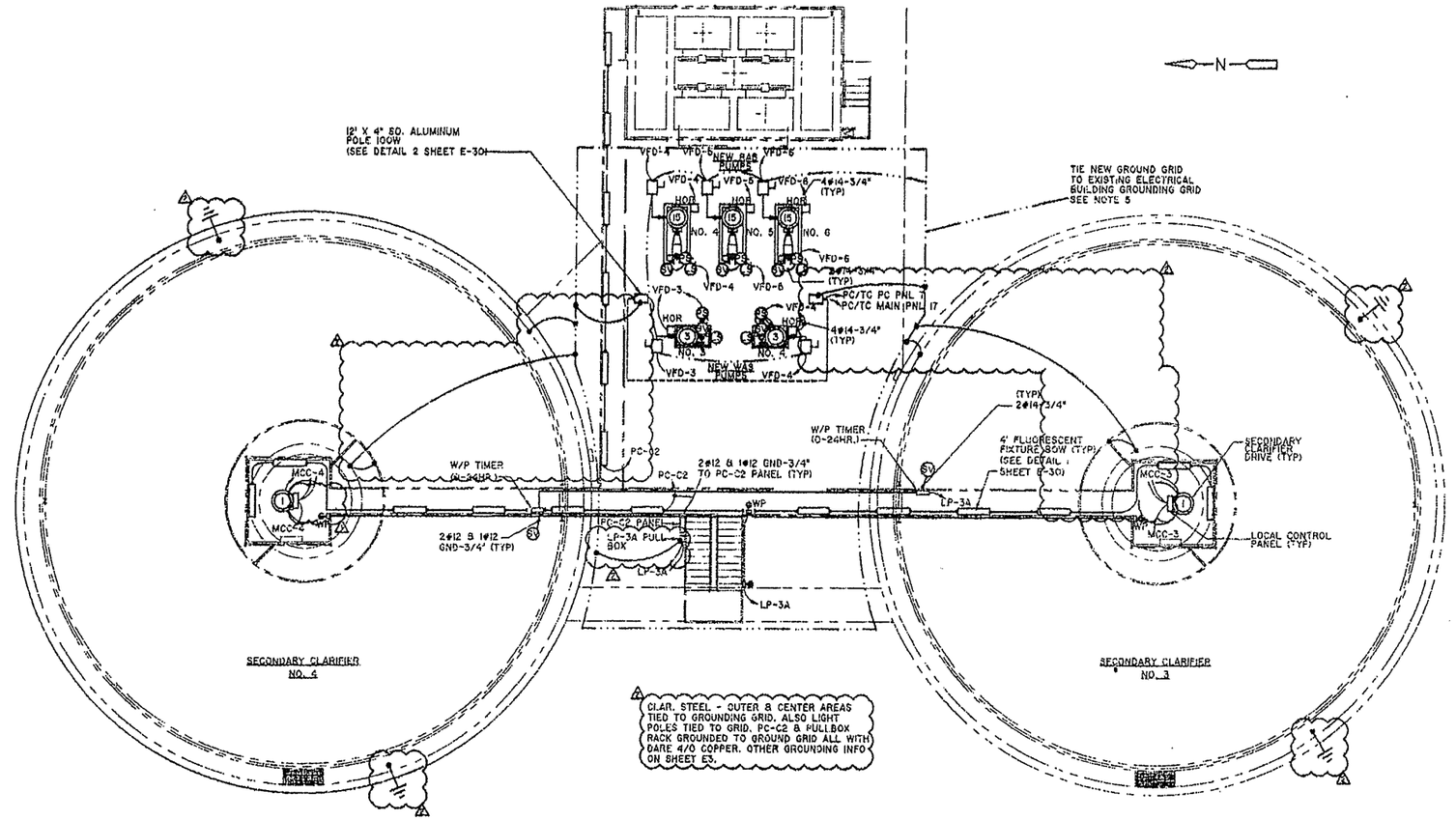
INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF No.

SHEET TITLE
EXISTING HEADWORKS ELECTRICAL PLAN

DATE: 08/18/04
DESIGNED BY: JJ, V.G
DRAWN: T.B
APPROVED: V.G

SHEET NUMBER
E12
12 OF 32



SECONDARY CLARIFIERS PLAN

SCALE 1/8" = 1'

GRAPHIC SCALE: 0' 3' 5' 7' 9' 11' 13' 15'

NOTE:

1. PROVIDE WEATHERPROOF RECEPTACLE COVER (NEMA 3R RATED WHILE IN USE).
2. ALL EQUIPMENT, CONTROLS, ETC. IN THIS AREA SHALL BE RATED AND INSTALLED IN ACCORDANCE WITH CLASS I, GROUP D, DIVISION 2.
3. PROVIDE EXPLOSION PROOF NEMA 7 CONDUIT/WIRE SEAL FITTINGS WHEN ENTERING ANY HAZARDOUS AREA FOR THE CLASS, DIVISION AND GROUPS INDICATED. LOCATE FITTINGS AS SPECIFIED BY THE NEC.
4. CLASS I, GROUP D, DIVISION 2 AREA ENVELOPE IS 18" ABOVE THE TOP OF THE TANK AND EXTENDS 18" BEYOND THE EXTERIOR WALL: AND ENVELOPE IS 18' ABOVE GRADE EXTENDING 10 FEET HORIZONTALLY FROM THE EXTERIOR TANK WALLS.

ENGINEER'S SEAL

Harvey F. Wildschutte, PE
P.E. No. 62852

03326
PROJECT NUMBER

GARRISON ELECTRICAL CONSULTANTS, INC.
ELECTRICAL ENGINEERS
4525 South U.S. 1 • Ft. Pierce, FL 34982
Phone (772) 468-5981 • Fax (772) 468-5990
WEB: WWW.GARRISONDC.COM

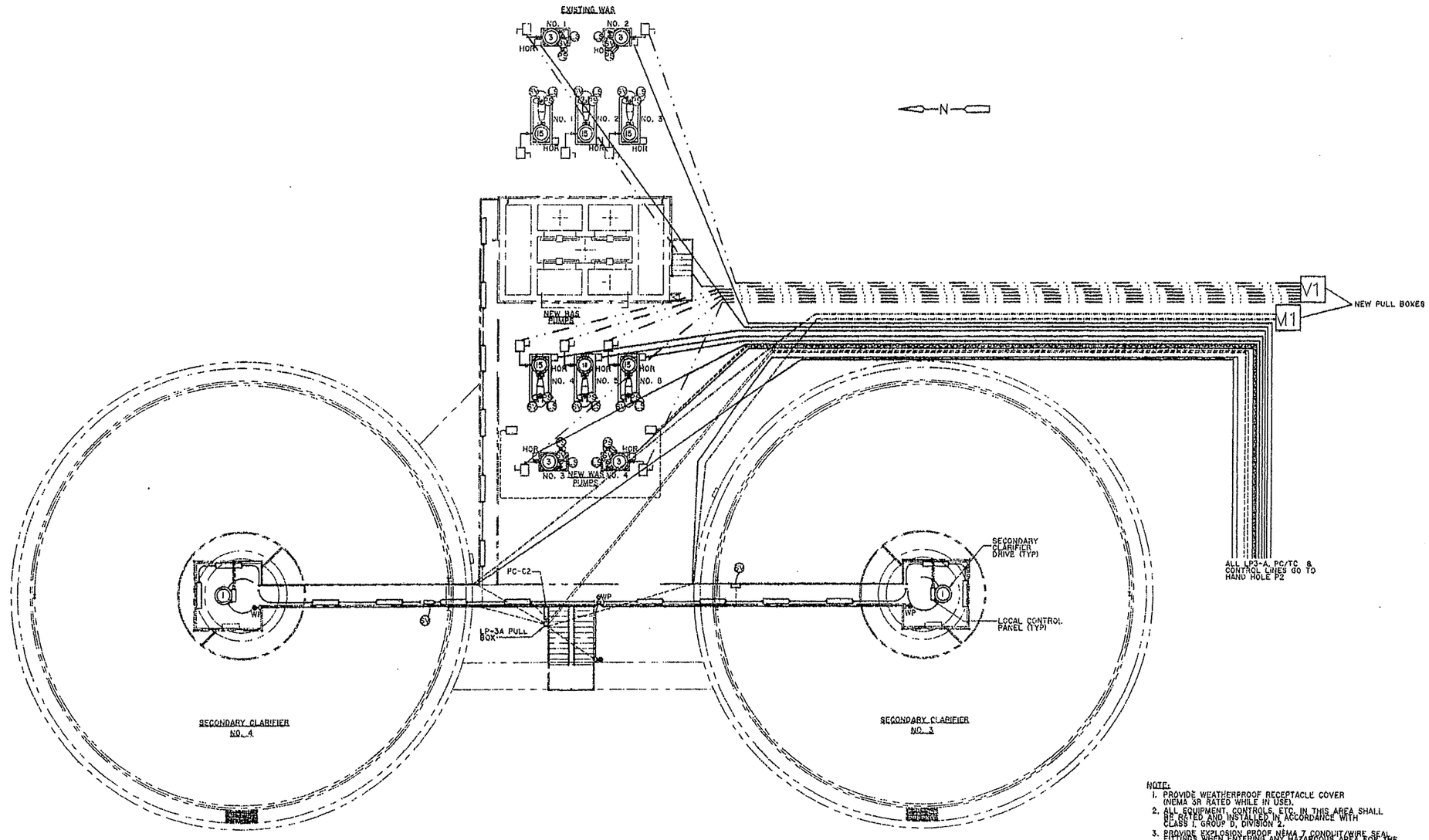
INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.No.

SHEET TITLE
SECONDARY CLARIFIERS ELECTRICAL PLAN

DATE: 06/18/04
DESIGNED BY: J.L./V.Q
DRAWN: T.S
APPROVED: V.Q

SHEET NUMBER
E13
13 OF 32



SECONDARY CLARIFIERS PLAN

SCALE 1/8" = 1'

NOTE:
1. PROVIDE WEATHERPROOF RECEPTACLE COVER (NEMA 3R RATED WHILE IN USE).
2. ALL EQUIPMENT, CONTROLS, ETC. IN THIS AREA SHALL BE RATED AND INSTALLED IN ACCORDANCE WITH CLASS I, GROUP D, DIVISION 2.
3. PROVIDE EXPLOSION PROOF NEMA 7 CONDUIT/WIRE SEAL FITTINGS WHICH ENTERING ANY HAZARDOUS AREA FOR THE CLASS, DIVISION, AND GROUPS INDICATED. LOCATE FITTINGS AS SPECIFIED BY THE REC.
4. CLASS I, GROUP D, DIVISION 2 AREA ENVELOPE IS 10' ABOVE THE TOP OF THE TANK AND EXTENDS 18' BEYOND THE EXTERIOR WALL, AND ENVELOPE IS 18' ABOVE GRADE EXTENDING 10 FEET HORIZONTALLY FROM THE EXTERIOR TANK WALLS.
5. V2, M2 ARE NEW HAND HOLES
   V2 = VFD MOTOR CABLES
   M2 = MCC FEED
6. EXISTING WAS PUMPS 1 & 2 ARE PRESENTLY MOTORS WITH STARTERS IN MCC CONTRACTOR TO DETERMINE IF EXISTING WAS MOTORS ARE VFD INVERTER DUTY.
7. CHANGING WAS 1 & 2 TO VFD CONTROL MOTORS IN ELECTRIC ROOM

1' 3' 5' 7' 9' 11' 13' 15'
GRAPHIC SCALE

LP3-A
MCC
CONTROLS
INSTRUMENTATION
VFD

ENGINEER'S SEAL

Harvey E. Whitehurst, PE
P.E. No. 62852

03326
PROJECT NUMBER

CA NO. 5744

NO.	DATE	BY	CK	APP
1	07/26/04	MPH	ER	LS

AS-BUILT'S
SIGNING
DATE
UNTIL

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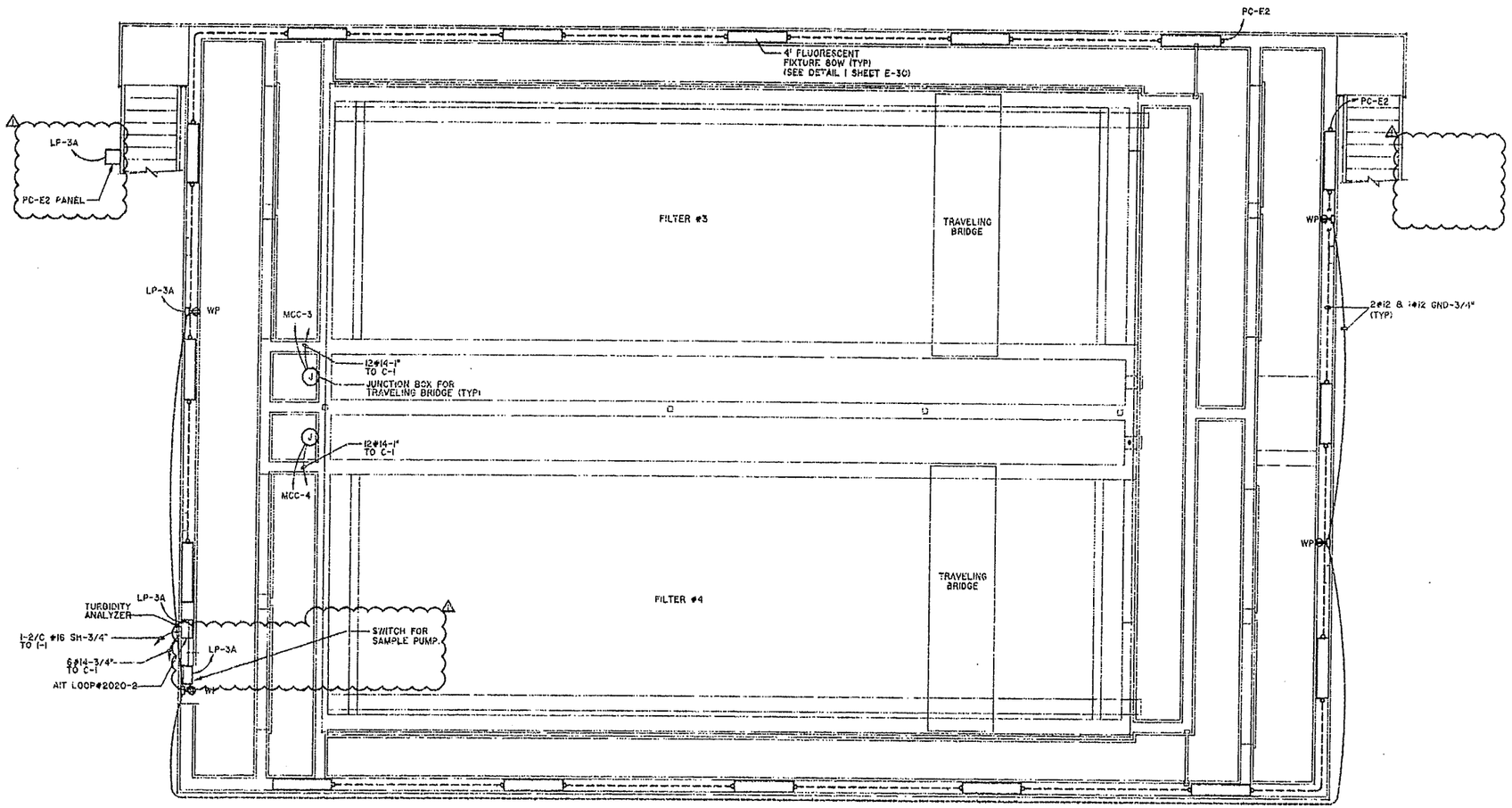
INDIAN RIVER COUNTY
CENTRAL REGION
WWTP EXPANSION

ARCHITECT'S REF.No.

SHEET TITLE
SECONDARY CLARIFIERS ELECTRICAL CONDUIT PLAN

DATE: 06/16/04
DESIGNED BY: JJL/V.G
DRAWN: T.B
APPROVED: V.G

SHEET NUMBER
E14
14 OF 32



ABW FILTER PLAN

SCALE 1/4" = 1'

NOTE:
1. PROVIDE WEATHERPROOF RECEPTACLE COVER (NEMA 3R RATED WHILE IN USE).

GRAPHIC SCALE: 1' 3' 5' 7'

ENGINEER'S SEAL

Harvey E. Wildschutte, PE
P.E. No. 62852

03326
PROJECT NUMBER

GARRISON ELECTRICAL CONSULTANTS, INC.
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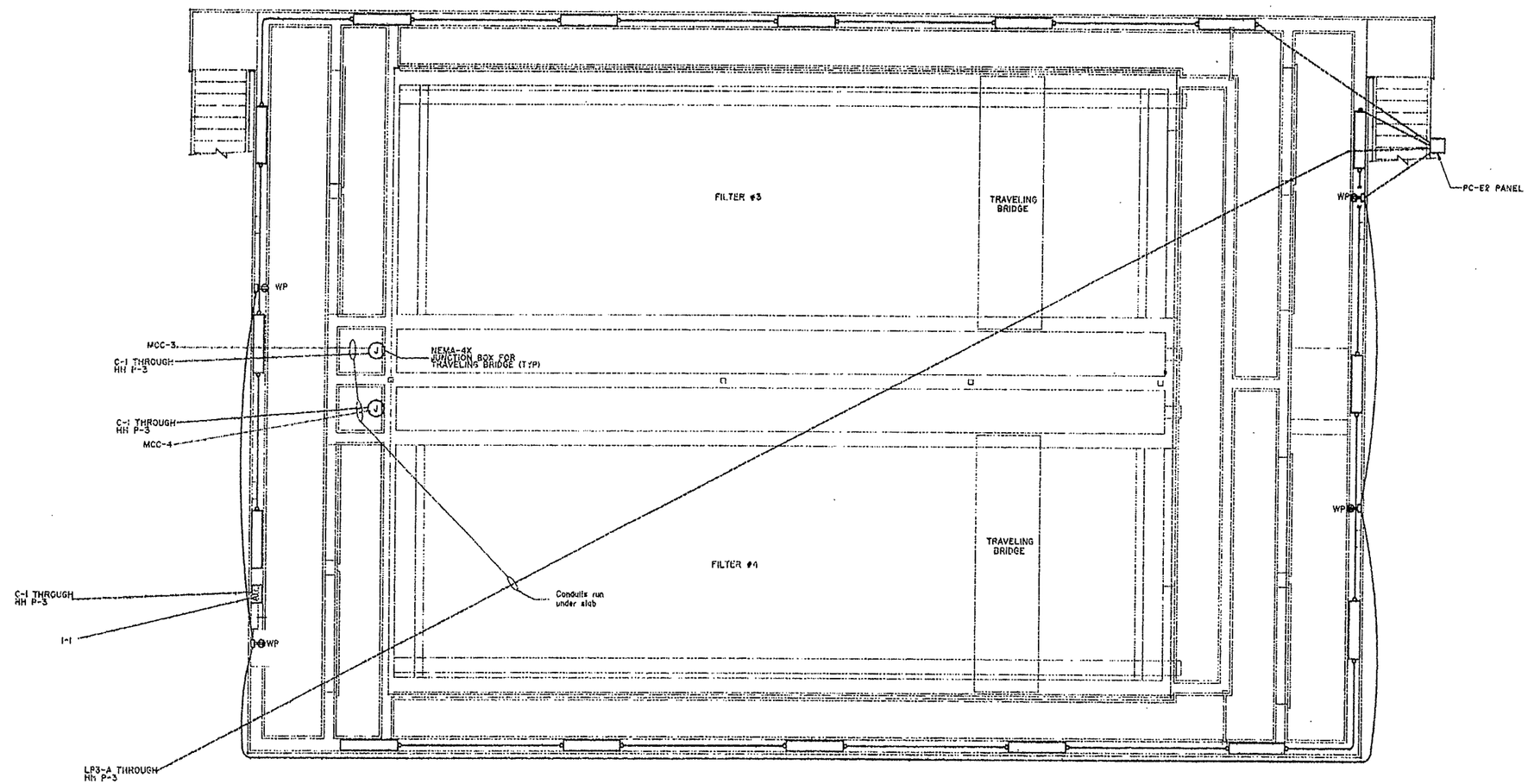
INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.NO.

SHEET TITLE
ABW GRAVITY FILTERS ELEC. PLAN

DATE 08/15/04
DESIGNED BY: J.L./V.Q
DRAWN: T.B
APPROVED: V.Q

SHEET NUMBER
E15
15 OF 32



ABW FILTER CONDUIT RUNS

SCALE 1/4" = 1'

NOTE:
1. PROVIDE WEATHERPROOF RECEPTACLE COVER (NEMA 3R RATED).

LP3-A
MCC
CONTROLS
INSTRUMENTATION
VFD
GROUNDING GRID

GRAPHIC SCALE: 1' 3' 6' 7'

ENGINEER'S SEAL

Harvey E. Wildschutz, PE
P.E. No. 62852

03326
PROJECT NUMBER

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C.O. No. 6743

NO.	DESCRIPTION	DATE	BY
1	ADDENDUM	07/26/04	JJ
	BIDDING	06/18/04	JJ

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INDIAN RIVER COUNTY

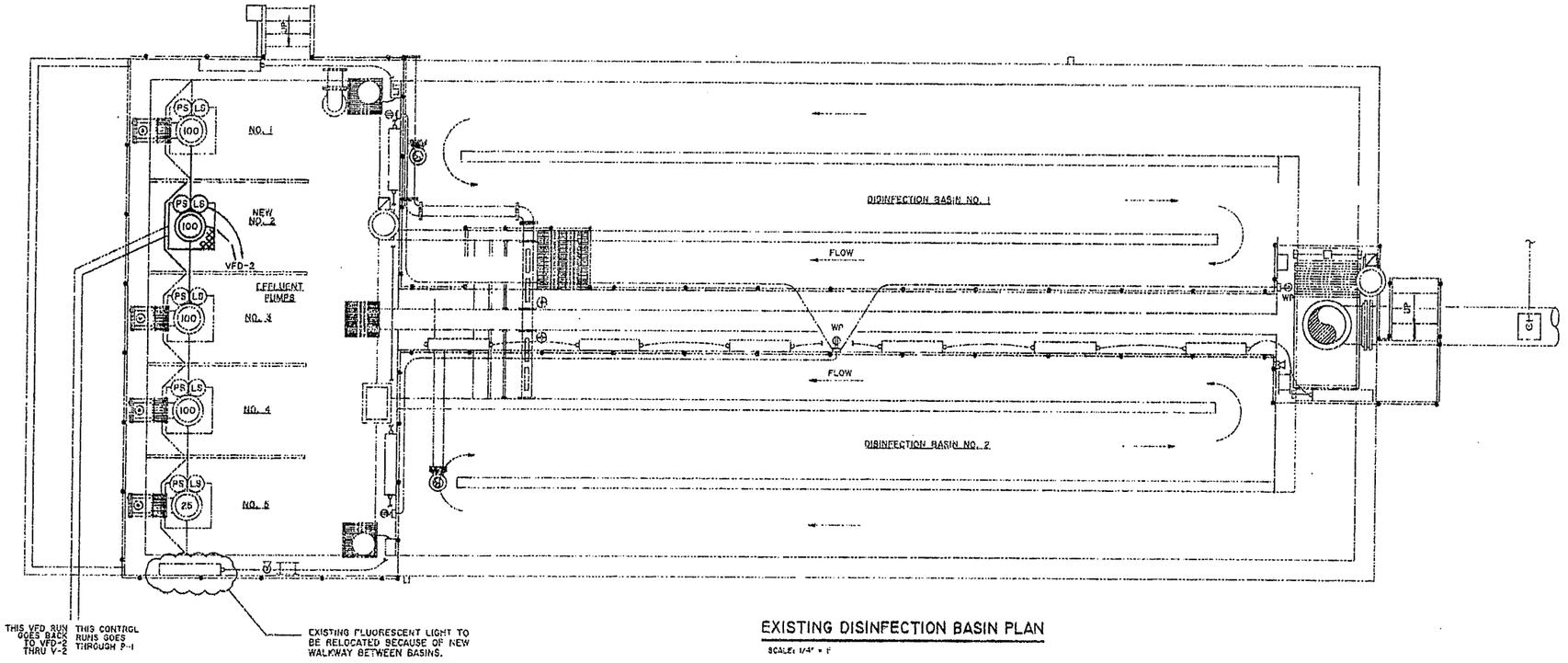
CENTRAL REGION
WWTP EXPANSION

ARCHITECT'S REF. No.

SHEET TITLE
ABW GRAVITY FILTERS ELEC. PLAN

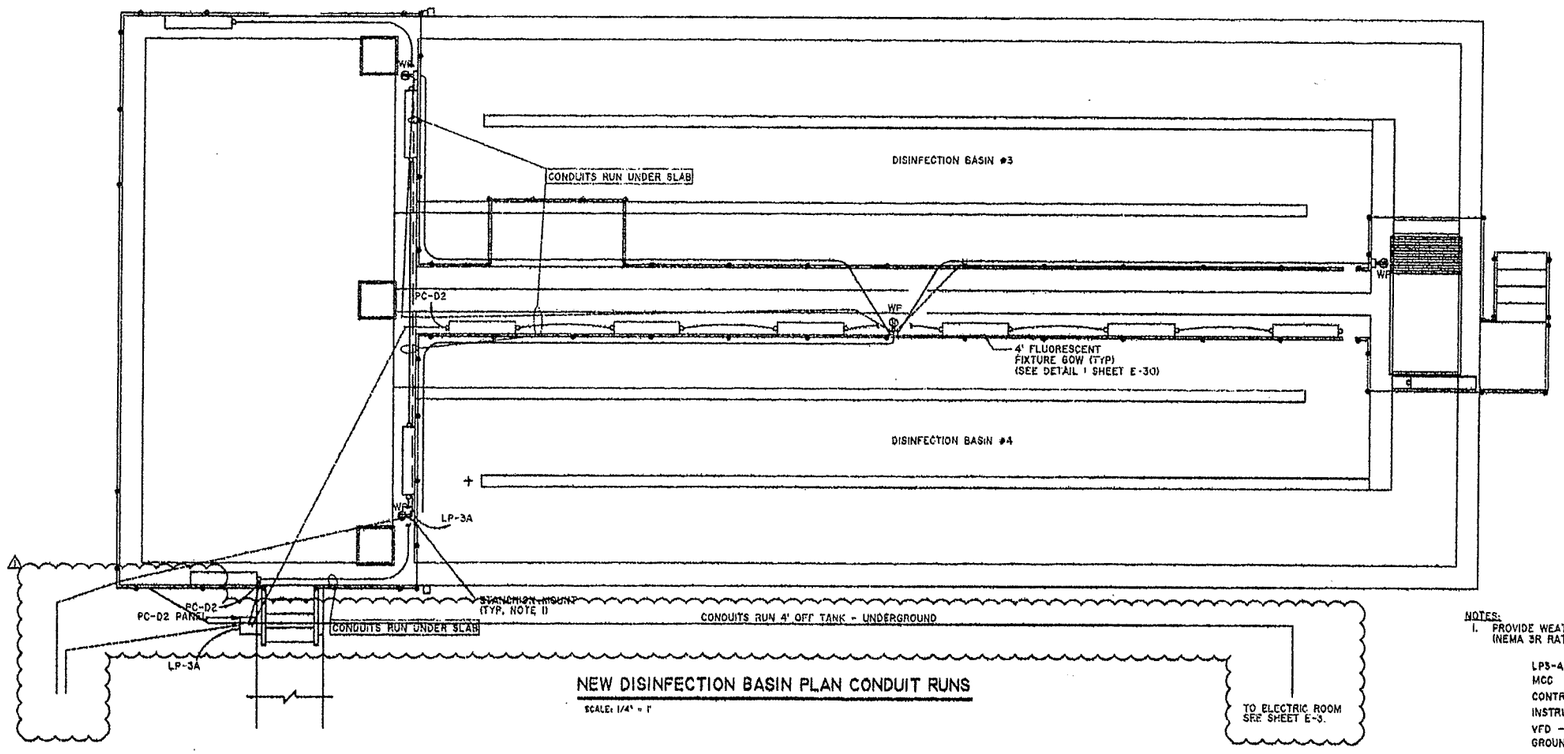
DATE: 06/18/04
DESIGNED BY: JJ./V.G
DRAWN: T.B
APPROVED: V.G

SHEET NUMBER
E16
16 OF 32



EXISTING DISINFECTION BASIN PLAN

SCALE: 1/4" = 1'



NEW DISINFECTION BASIN PLAN CONDUIT RUNS

SCALE: 1/4" = 1'

GRAPHIC SCALE: 1' 3' 5' 7'

NOTES:
1. PROVIDE WEATHERPROOF RECEPTACLE COVERS (NEMA 3R RATED).

LP3-A
MCC
CONTROLS
INSTRUMENTATION
VFD
GROUNDING GRID

ENGINEER'S SEAL

Harvey F. Wildschutte, PE
P.E. No. 62852

03326
PROJECT NUMBER

GARRISON ELECTRICAL CONSULTANTS, INC.
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NO.	DATE	DESCRIPTION	DRN	APP'D	CK.	APP'D
1	07/04/05	AS-BUILTS				

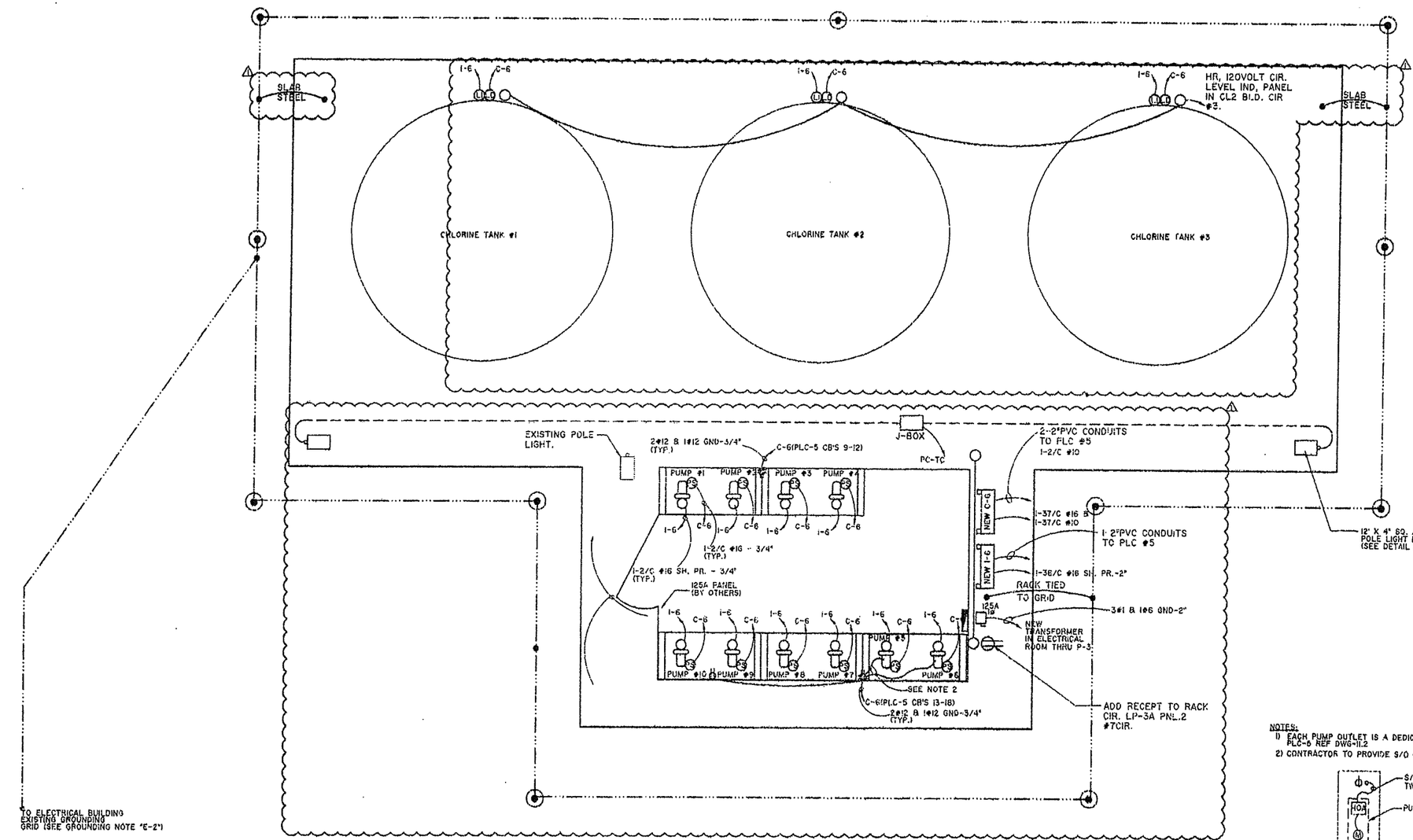
INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.No.

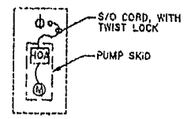
SHEET TITLE
NEW DISINFECTION BASIN ELEC. PLAN

DATE: 08/16/04
DESIGNED BY: J.L./V.G
DRAWN: T.B
APPROVED: V.G

SHEET NUMBER
E17
17 OF 32



NOTES:
1) EACH PUMP OUTLET IS A DEDICATED CIRCUIT OUT OF PLC-5 REF DWG-11.2
2) CONTRACTOR TO PROVIDE S/O CORD, 120V, 20A, WITH TWIST LOCK.



3) CONTRACTOR TO PROVIDE SERVICE TO BUILDING PANEL FROM NEW 125A DISCONNECT ON THE OUTSIDE OF THE BUILDING

GROUNDING GRID CHANGES ON SHEET E3.

HYPOCHLORITE PUMPING AREA SITE PLAN VIEW

NTS

REF:
PLC-5 LOCATION: E-24
PLC-5 PANEL DWGS: 1-1.2
PID: 14

03326
PROJECT NUMBER

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INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

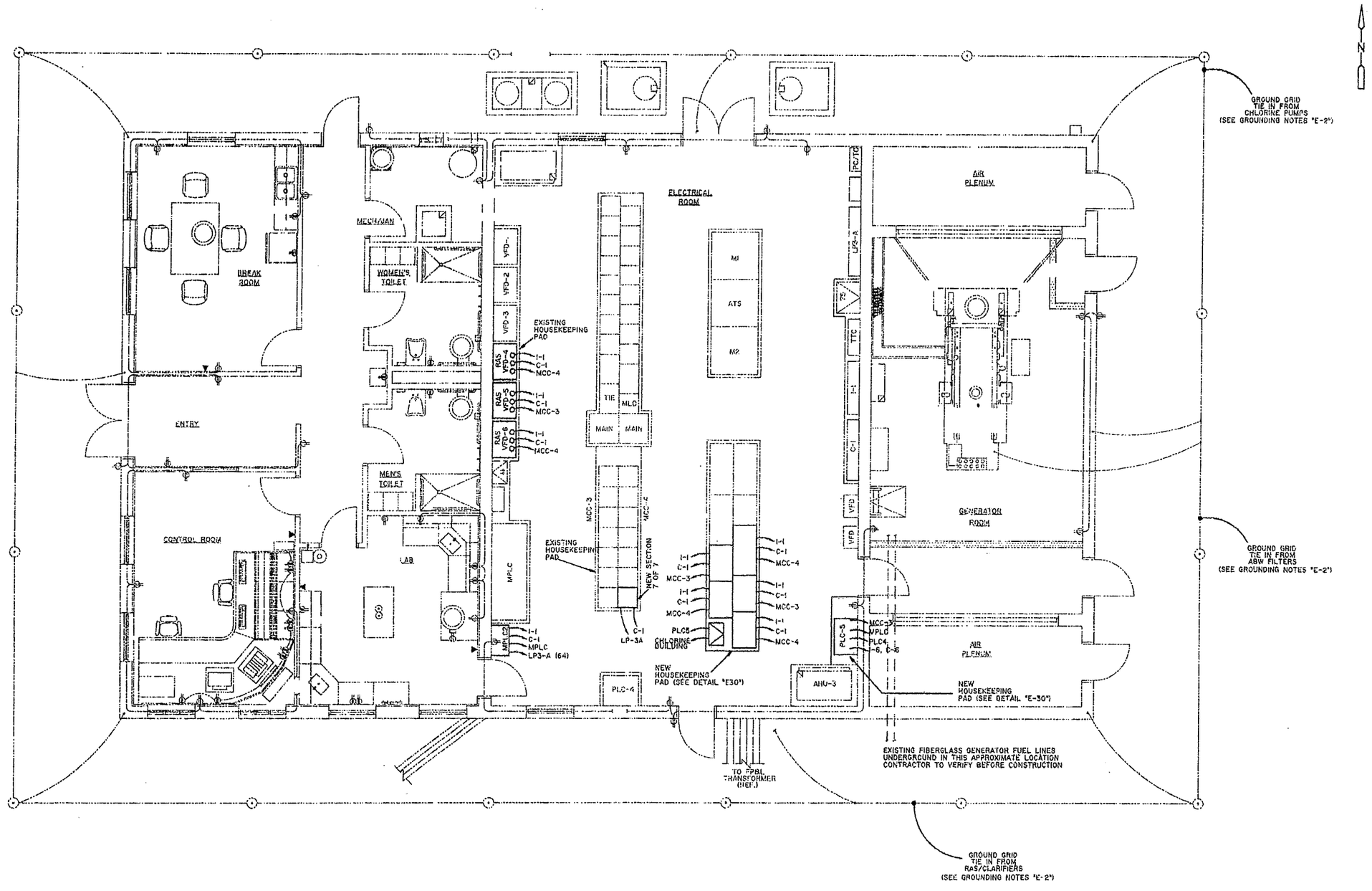
ARCHITECT'S REF.No.

SHEET TITLE
ELECTRICAL PLAN

DATE: 08/18/04
DESIGNED BY: J.L./V.G
DRAWN: T.B
APPROVED: V.G

SHEET NUMBER
E18
18 OF 32

ENGINEER'S SEAL
Harvey E. Wildschuetz, PE
P.E. No. 62652



EQUIPMENT LAYOUT PLAN

SCALE 1/4" = 1'

NOTE:
1) ALL NEW CABLE TRAY INSTALLATIONS FOR THIS EXPANSION UNLESS OTHERWISE NOTED

GRAPHIC SCALE: 0' 2' 4' 7'

ENGINEER'S SEAL

Harvey F. Widdecbuetz, PE
P.E. No. 62652

03326
PROJECT NUMBER

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CA No. 5744

NO.	DATE	BY	CK	APP
1	07/04/04	JPS	JPS	
2	09/24/04	JPS	JPS	

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INDIAN RIVER COUNTY

CENTRAL REGION WWTP EXPANSION

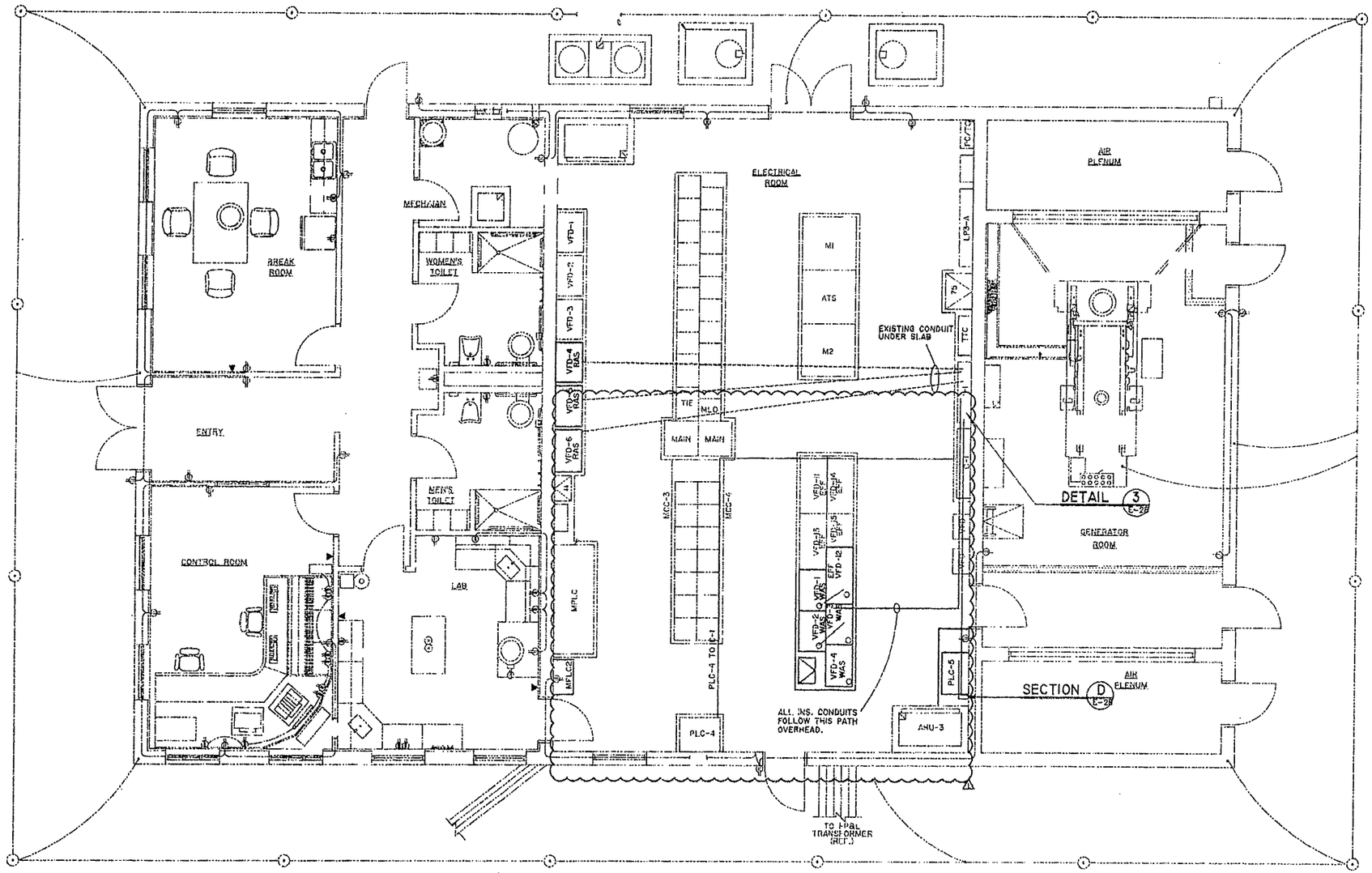
ARCHITECT'S REF No.

SHEET TITLE
CONTROL ROOM EQUIPMENT LAYOUT PLAN

DATE: 08/16/04
DESIGNED BY: JJ.V.G
DRAWN: T.B
APPROVED: V.G

SHEET NUMBER
E19
19 OF 32

4 1/2"



N

INSTRUMENTATION WIRING RUNS

SCALE 1/4" = 1'

GRAPHIC SCALE: 1' 3' 5' 7'

ENGINEER'S SEAL

Harvey F. Wildschuetz, PE
P.E. No. 62852

03326
PROJECT NUMBER

CA No. 6741

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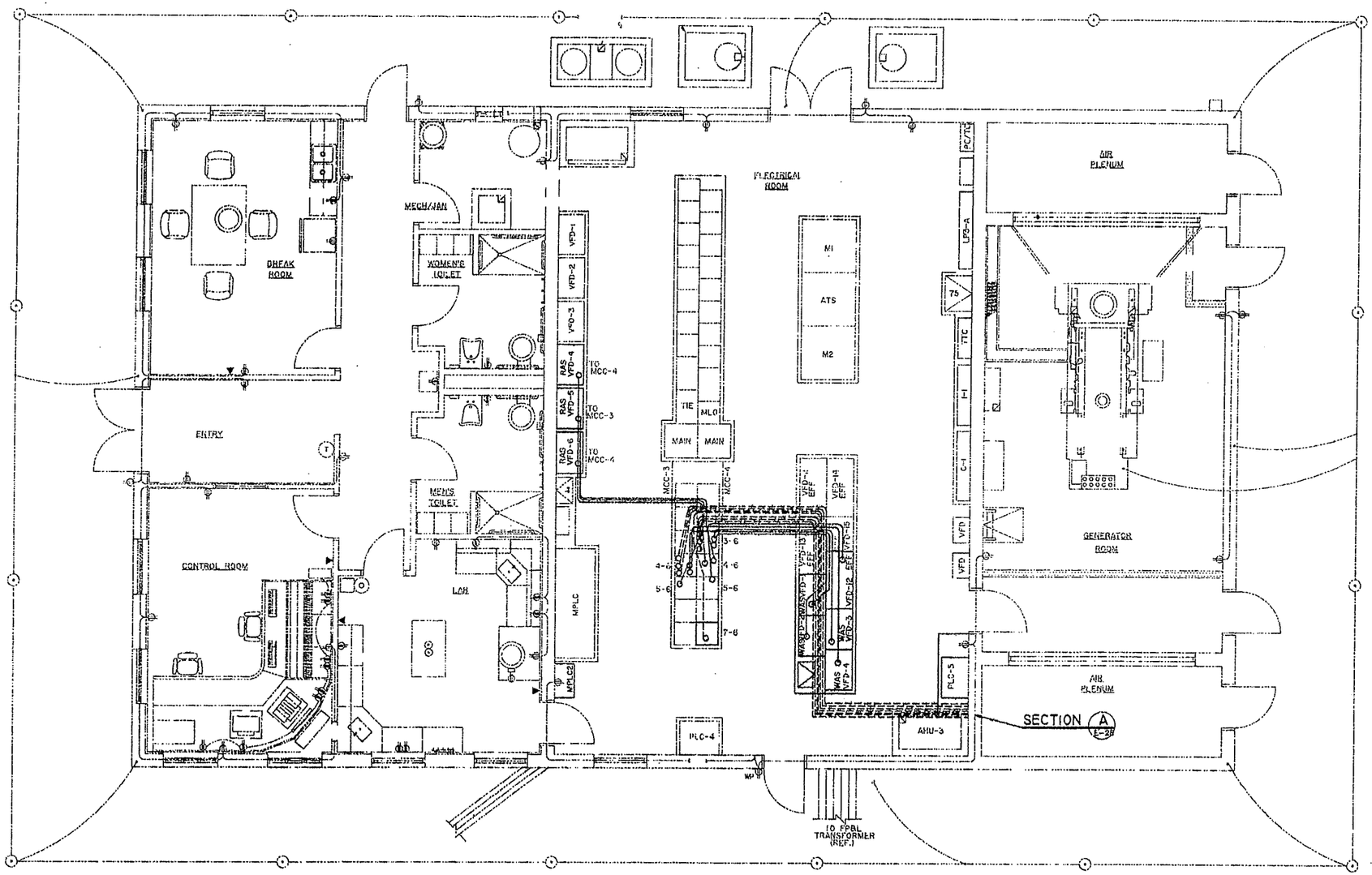
INDIAN RIVER COUNTY
CENTRAL REGION
WWTP EXPANSION

ARCHITECT'S REF.No.

SHEET TITLE
INSTRUMENTATION RUNS

DATE: 06/18/04
DESIGNED BY: J.L./V.G
DRAWN: T.S
APPROVED: V.G

SHEET NUMBER
E20
20 OF 32



MCC WIRING RUNS

SCALE 1/4" = 1'

GRAPHIC SCALE: 1" 3" 5" 7"

ENGINEER'S SEAL

Harvey E. Wildschuetz, PE
P.E. No. 62852

03326
PROJECT NUMBER

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CA. No. 27141

NO.	DATE	REVISIONS	BY	CK.	APP.
1	07/24/06	ADDENDUM	DMV	DMV	

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INDIAN RIVER COUNTY

CENTRAL REGION
WWTP EXPANSION

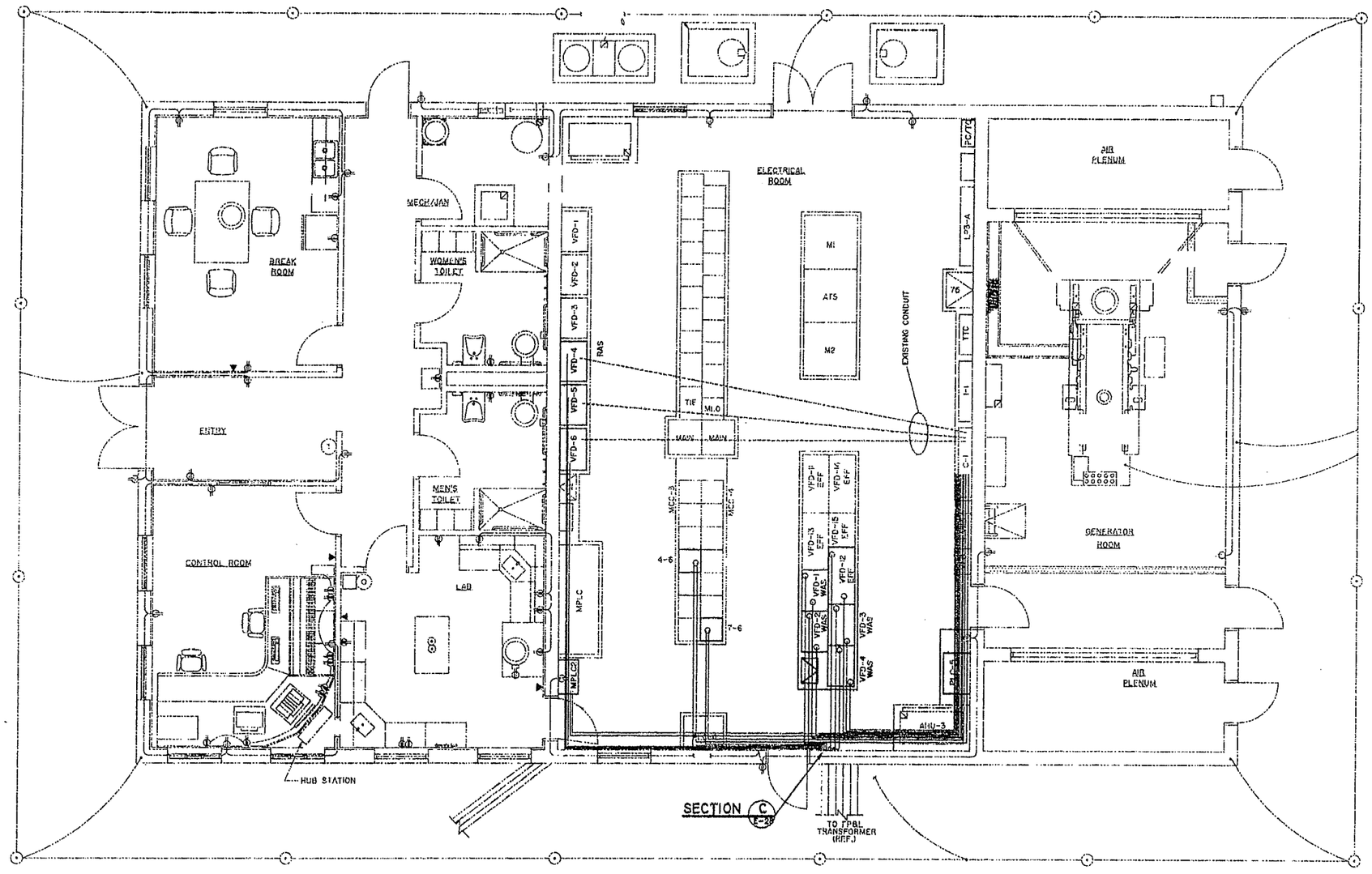
ARCHITECT'S REF.No.

SHEET TITLE
MCC RUNS

DATE: 09/18/06
DESIGNED BY: JJL/V.G
DRAWN: T.S
APPROVED: V.G

SHEET NUMBER
E2.1

21 OF 32



CONTROL WIRING RUNS

SCALE 1/4" = 1'

GRAPHIC SCALE: 1" 3" 6" 1'

ENGINEER'S SEAL

Harvey E. Wilkschontz, PE
P.E. No. 62852

03326
PROJECT NUMBER

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NO.	DATE	REVISIONS	BY	CK.	APP.
1	07/26/05	AS-BUILTS	DRF	JPW	JPW

CAL No. 07-11

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INDIAN RIVER COUNTY

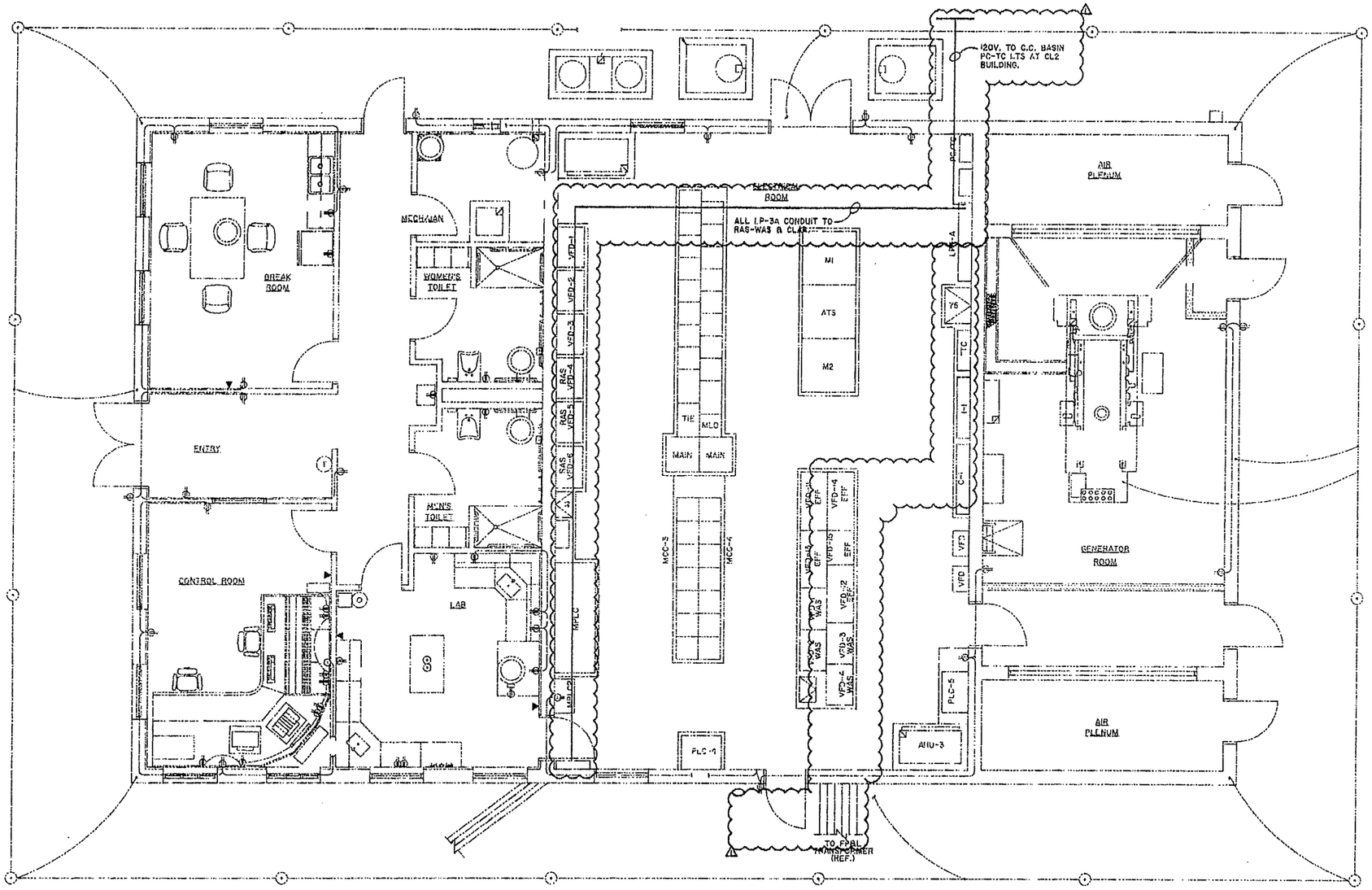
CENTRAL REGION
WWTF EXPANSION

ARCHITECT'S REF.No.

SHEET TITLE
CONTROL RUNS

DATE: 06/18/04
DESIGNED BY: JJ./V.Q
DRAWN: T.B
APPROVED: V.Q

SHEET NUMBER
E22
22 OF 32



N

LP-3A WIRING RUN

SCALE 1/4" = 1'

GRAPHIC SCALE: 1" 3" 6" 7"

03326

PROJECT NUMBER

NO	DATE	REVISIONS	DES	CK	APP
1	3/26/04	CA-RX, CTS			

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INDIAN RIVER COUNTY
CENTRAL REGION
WWTP EXPANSION

ARCHITECT'S REF.No.

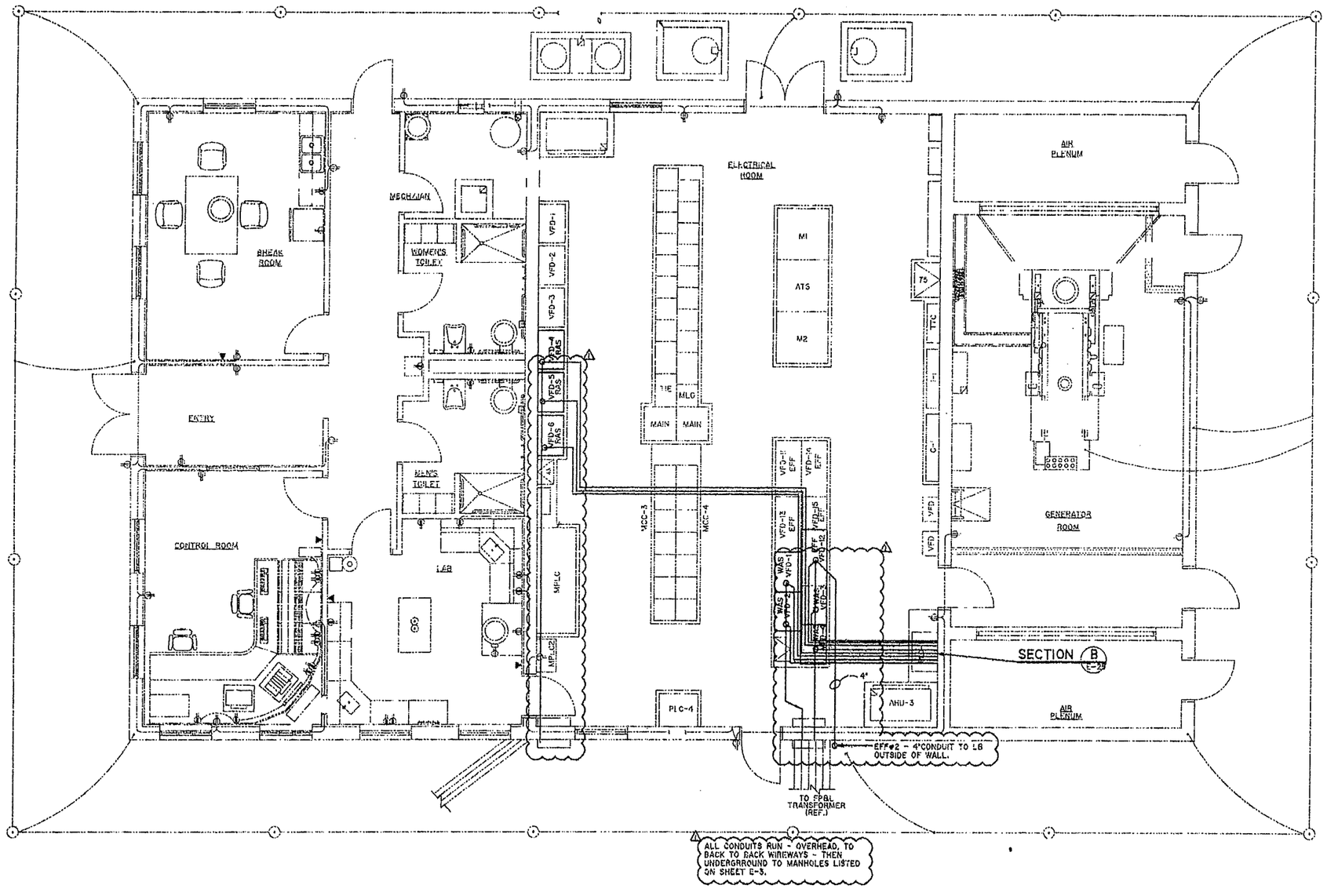
SHEET TITLE
LP-3A RUNS

DATE: 06/18/04
DESIGNED BY: J.L./V.G
DRAWN: T.S
APPROVED: V.G

SHEET NUMBER
E23
23 OF 32

ENGINEER'S SEAL

Harvey E. Wildschutz, PE
P.E. No. 62852



VFD WIRING RUNS

SCALE 1/4" = 1'

GRAPHIC SCALE: 1" 3" 5" 7"

03326

PROJECT NUMBER

GARRISON ELECTRICAL CONSULTANTS, INC.
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Phone (772) 468-9981 • Fax (772) 468-9930
WEB: WWW.GARRISONEC.COM

INDIAN RIVER COUNTY

CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.No.

SHEET TITLE: VFD WIRING RUNS

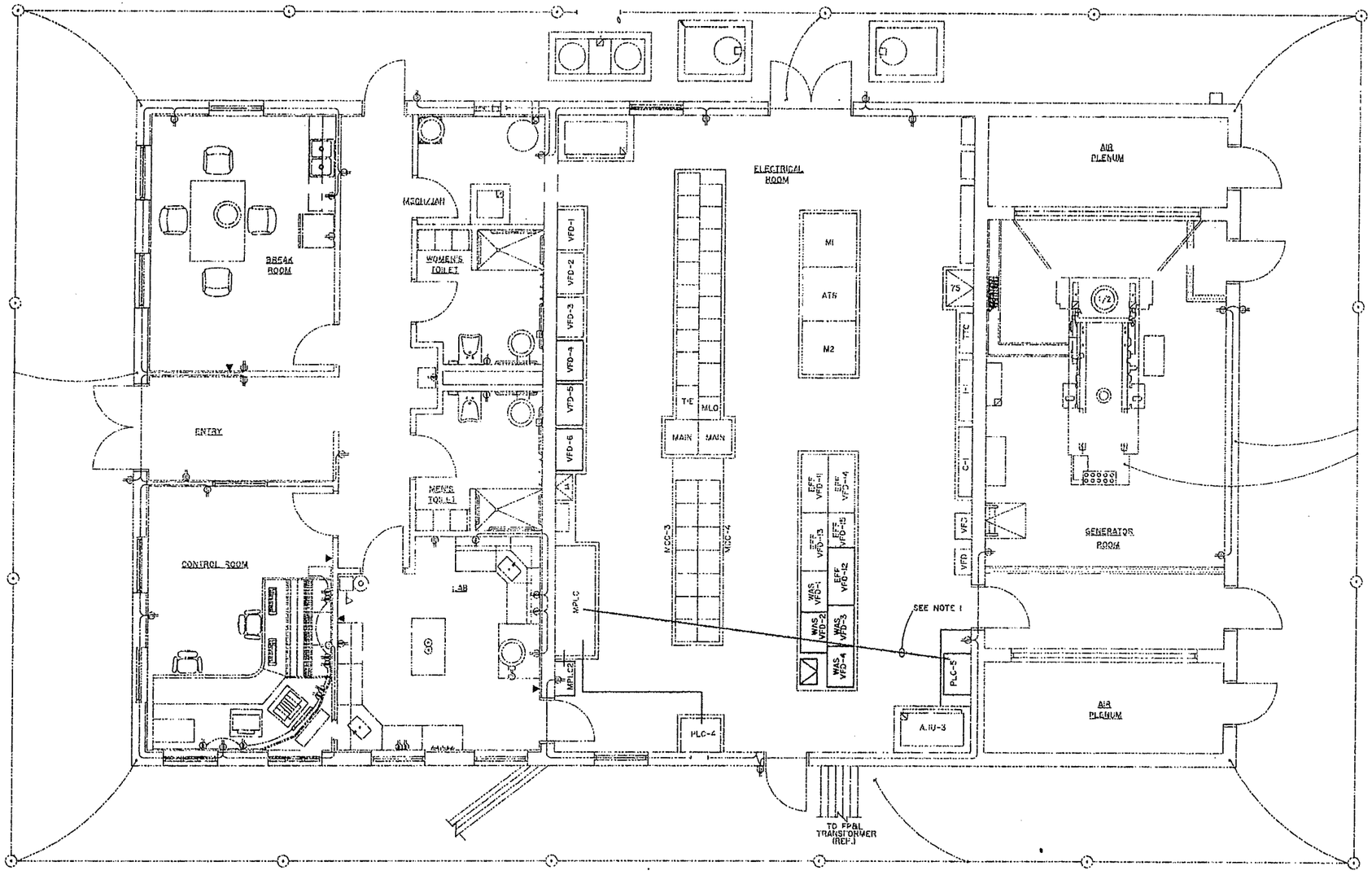
ENGINEER'S SEAL

Harvey F. Wildschetz, PE P.E. No. 62622

DATE: 08/16/04
DESIGNED BY: J.L/V.G
DRAWN: T.S
APPROVED: V.G

SHEET NUMBER: F24

24 OF 32



DATA HIGHWAY WIRING RUNS

SCALE 1/4" = 1'

GRAPHIC SCALE: 1' 3' 6' 7'

NOTE:
1) DATA HIGHWAY RUN WILL BE IN 3/4" CONDUIT ABOVE EXISTING DROP CEILING. THE CONDUIT WILL CONTAIN 2 CABLES. ONE WILL GO TO MAIN PLC AND THE OTHER WILL GO TO PLC-4 VIA MAIN PLC. REF. SHEET "E-11" FOR DATA HIGHWAY LOOPS.

ENGINEER'S SEAL

Harvey F. Wildschutz, PE
P.E. No. 62852

03326
PROJECT NUMBER

NO.	DATE	REVISIONS	DRN	CK
1	2/15/05	AS BUILTS	TH	MPW

CA No. 6741

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ELECTRICAL ENGINEERS
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Phone (772) 468-5981 * Fax (772) 468-5980
WEB: WWW.GARRISONEC.COM

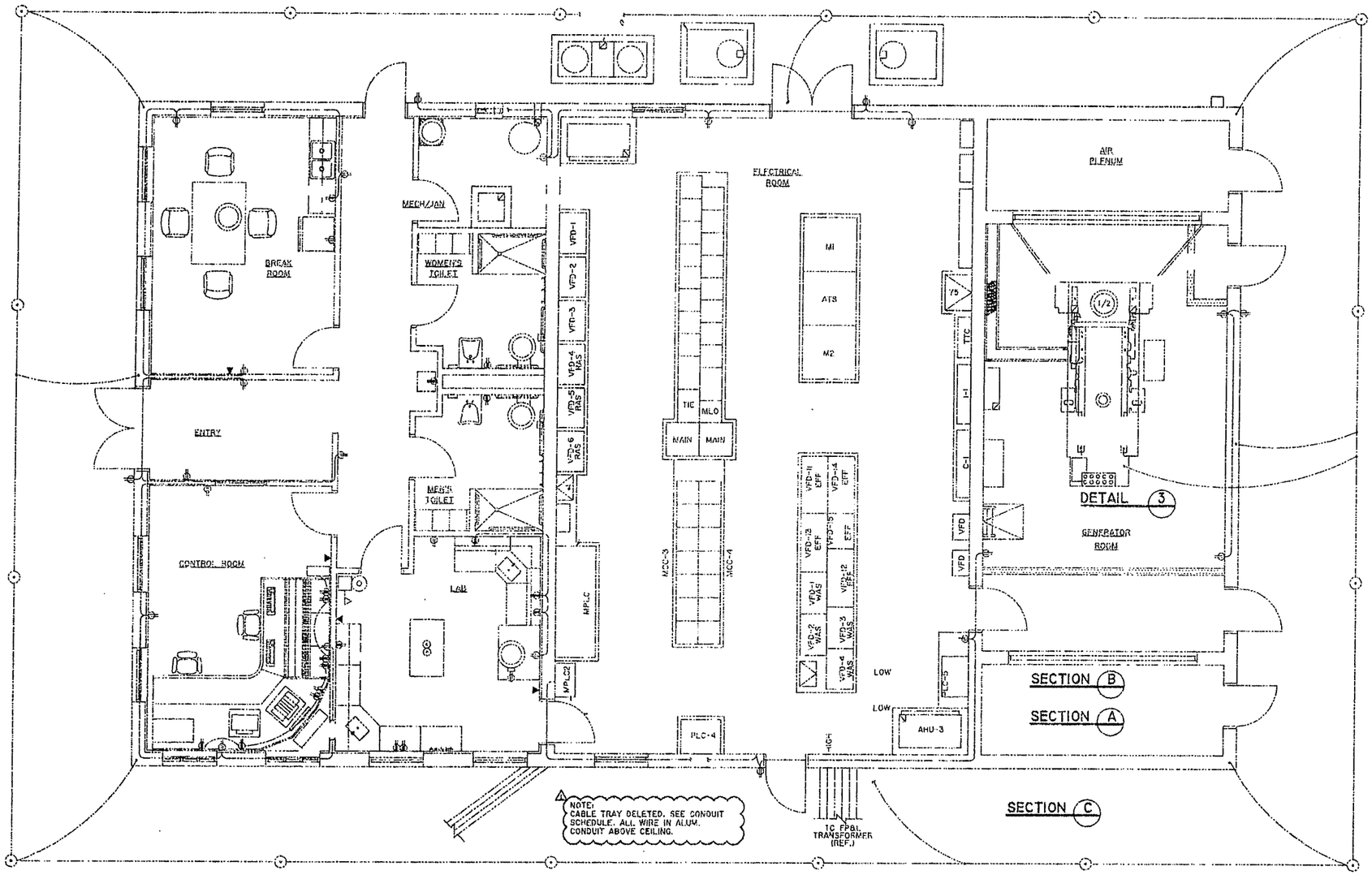
INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REV.No.

SHEET TITLE
DATA HIGHWAY RUNS

DATE: 06/16/04
DESIGNED BY: J.L./V.G
DRAWN: T.B
APPROVED: V.G

SHEET NUMBER
E25
25 OF 32



CABLE TRAY RUNS

SCALE 1/4" = 1'

1' 3' 5' 7'
GRAPHIC SCALE:

03326
PROJECT NUMBER

NO.	DATE	DR	CK	APP
1	7/7/04	TMS	CK	APP

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ELECTRICAL ENGINEERS
4810 South U.S. 1 • Ft. Pierce, FL 34982
Phone: (772) 468-5981 • Fax: (772) 468-5990
WEB: WWW.GARRISONEC.COM

INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.NO.

SHEET TITLE
CABLE TRAY RUNS

DATE: 06/18/04
DESIGNED BY: JJ./V.G
DRAWN: T.S
APPROVED: V.G

SHEET NUMBER
E26
26 OF 32

ENGINEER'S SEAL
Harvey F. Widschwerd, PE
P.E. No. 62662

1 NOTE:
CABLE TRAY DELETED. SEE CONDUIT SCHEDULE. ALL WIRE IN ALUM. CONDUIT ABOVE CEILING.

ENGINEER'S SEAL

Harvey F. Widdecheerz, PE
P.E. No. 62852

03326
PROJECT NUMBER

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CA NO. 0711

NO	DATE	REVISIONS	DR.	APP.
1	2/10/2005	AS BUILTS	DWC	HFW

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4826 South U.S. 1 • Ft. Pierce, FL 34982
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WEB: WWW.GARRISONEC.COM

INDIAN RIVER COUNTY

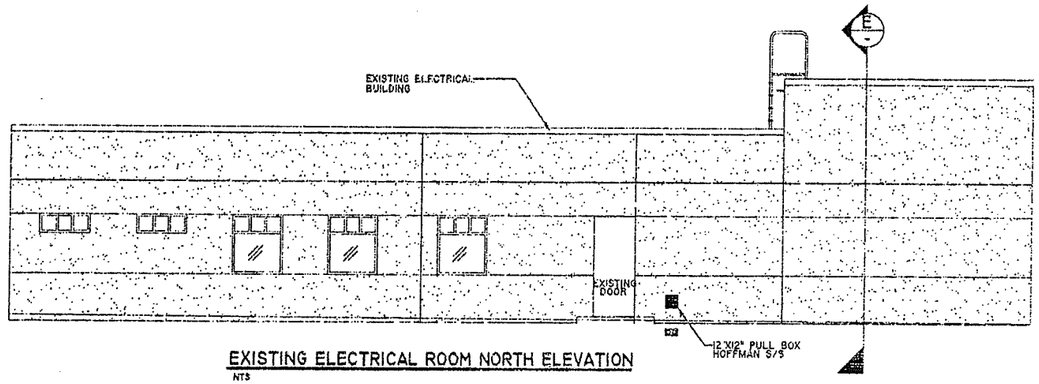
CENTRAL REGION
WWTP EXPANSION

ARCHITECT'S REF.NO.

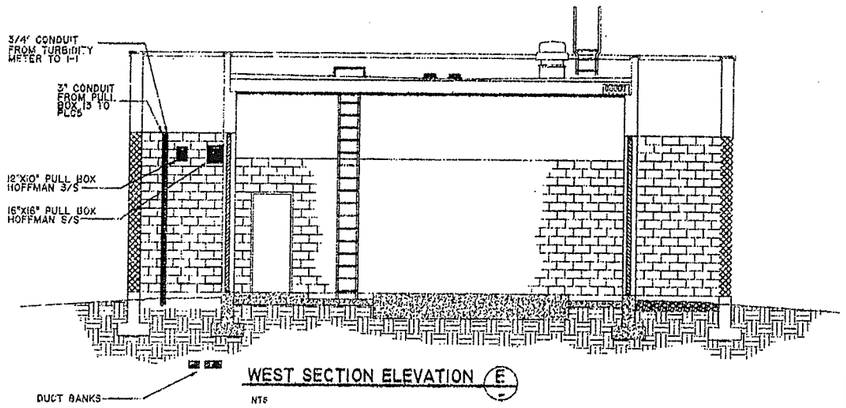
SHEET TITLE
CABLE TRAY
ISOMETRIC VIEWS

DATE 06/15/04
DESIGNED BY J.L./V.G
DRAWN T.S
APPROVED V.G

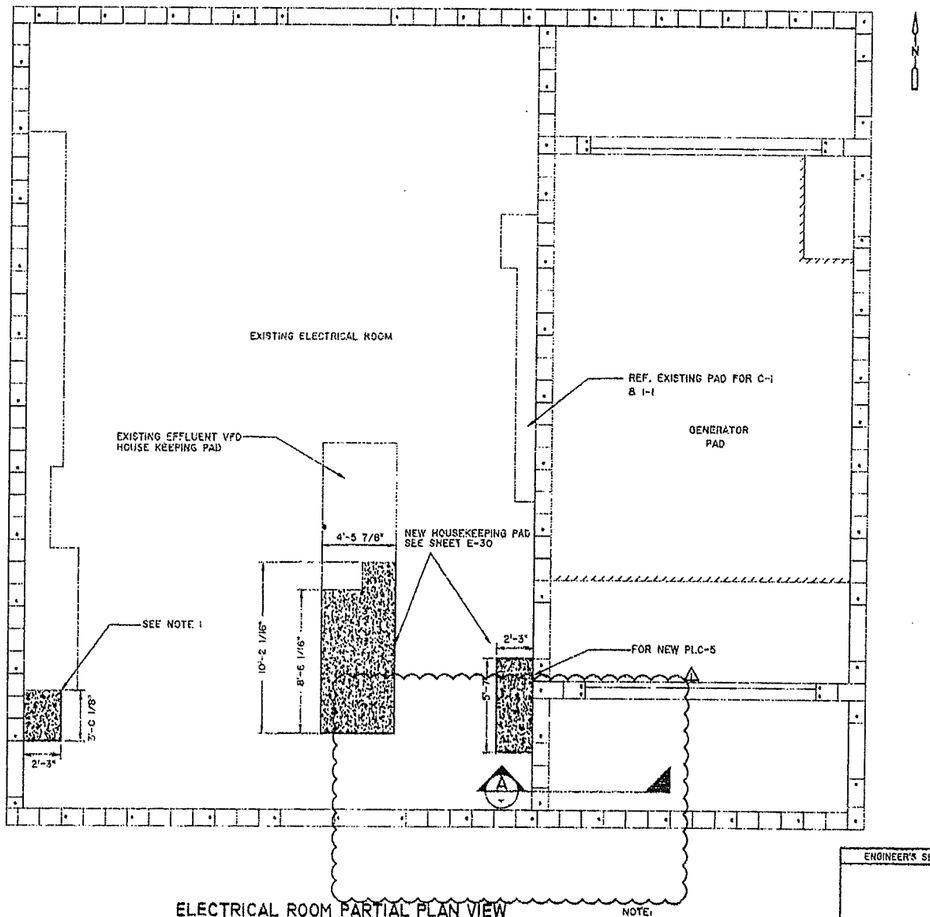
SHEET NUMBER
E27
27 OF 32



EXISTING ELECTRICAL ROOM NORTH ELEVATION
NTS

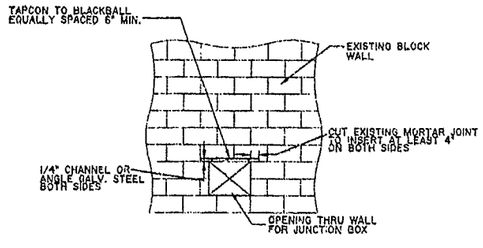


WEST SECTION ELEVATION E
NTS

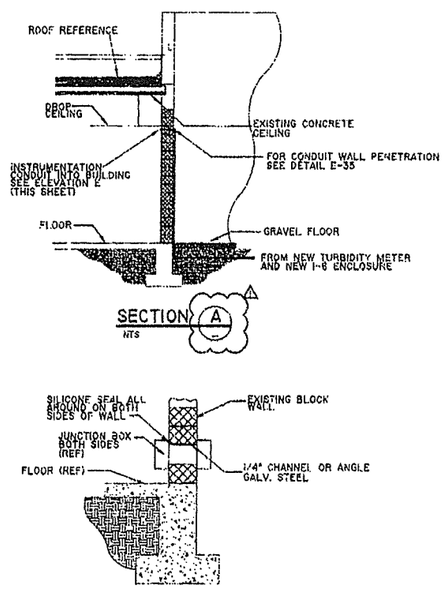


ELECTRICAL ROOM PARTIAL PLAN VIEW
SCALE 1/4" = 1'

NOTE:
1) CONTRACTOR TO DETERMINE IF HOUSEKEEPING PAD IS NECESSARY FOR MPLC2



WALL PENETRATION DETAILS
TYPICAL



WALL PENETRATION SECTION
TYPICAL

ENGINEER'S SEAL

Harvey K. Wildschutz, PE
P.E. No. 62652

03326
PROJECT NUMBER

NO.	DATE	CHANGES	BY	CK.	APP.
1		AS-BUILT'S			

GARRISON ELECTRICAL CONSULTANTS, INC.
ELECTRICAL ENGINEERS
4826 South U.S. 1 * Ft. Pierce, Fl. 34982
Phone (772) 468-9921 * Fax (772) 468-9938
WEB: WWW.GARRISONEC.COM

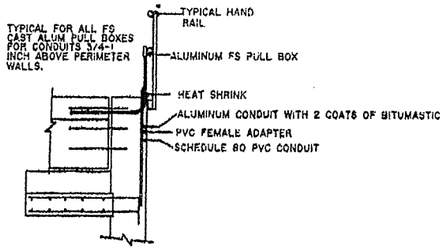
INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.No.

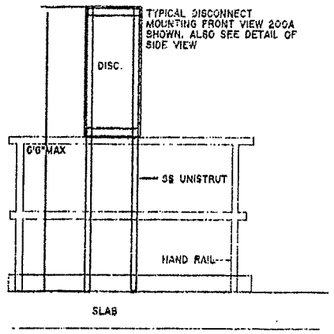
SHEET TITLE
WALL PENETRATION DETAILS

DATE: 06/18/04
DESIGNED BY: J.L./V.G
DRAWN: T.S
APPROVED: V.G

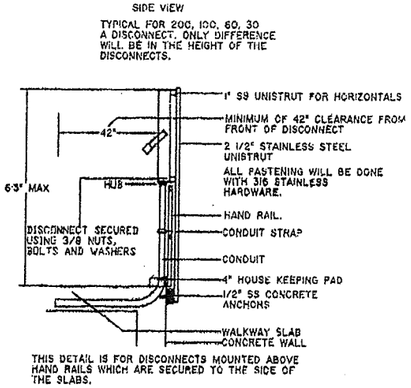
SHEET NUMBER
E28
28 OF 32

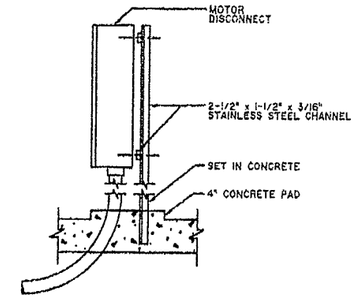


PULL BOX MOUNT DETAIL

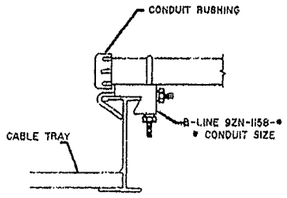


TYPICAL DISCONNECT MOUNTING

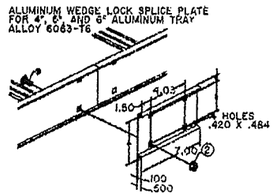




DISCONNECT MOUNT SIDE DETAILS



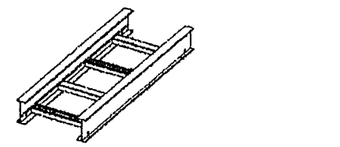
CONDUIT TO TRAY ADAPTER



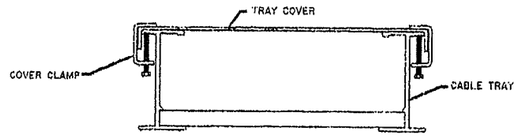
CATALOG NO.	A	B	C	TRAY DEPTH
9A-1004	4.00	2.84	.54	4"
9A-1005	4.88	3.73	.575	5"
9A-1006	6.00	4.84	.54	6"

1. 3/8"-16 X 3/4 SHORT NECK CARRIAGE BOLT.
2. 3/8"-16 FREE SPINNING SERRATED FLANGED LOCK NUT
SPLICE PLATE SNAPS INTO SIDE RAILS AND LOCKS IN PLACE WHILE CARRIAGE BOLTS ARE INSERTED.

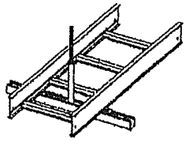
SECTION SPLICE PLATE



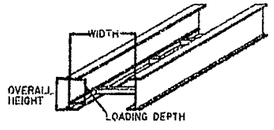
LADDER TRAY WITH STRUT RUNGS (ALUMINUM)



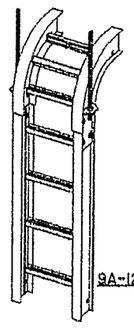
STANDARD COVER CLAMP (INDOOR ONLY)



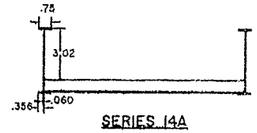
CENTER HUNG TRAY SUPPORT



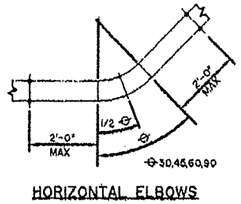
ALUMINUM CABLE TRAY STRAIGHT SECTION



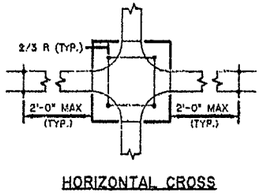
9A-1224 APPLICATION



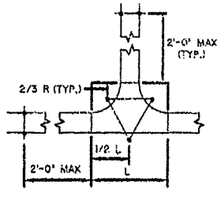
SERIES 14A



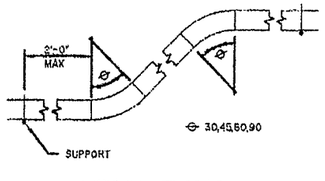
HORIZONTAL ELBOWS



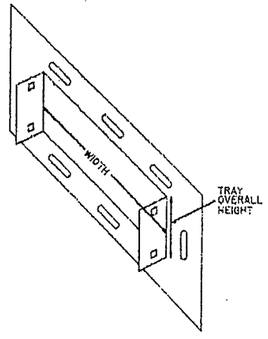
HORIZONTAL CROSS



HORIZONTAL TEE



VERTICAL ELBOWS



FRAME TYPE BOX CONNECTOR

03326
PROJECT NUMBER

GARRISON ELECTRICAL CONSULTANTS, INC.
ELECTRICAL ENGINEERS
4525 South U.S. 1 • Ft. Pierce, FL 34982
Phone (772) 468-9981 • Fax (772) 468-9930
WEB: WWW.GARRISONEC.COM

CA No. 6741

NO.	DATE	REVISIONS	BY	CK
1	07/26/06	AS-BUILTS	DMH	CK

INDIAN RIVER COUNTY
CENTRAL REGION WWTF EXPANSION

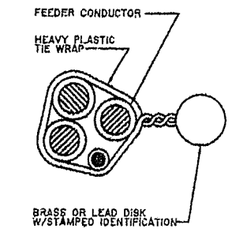
ARCHITECT'S REF.No.

SHEET TITLE
ELECTRICAL DETAILS

DATE: 6/18/04
DESIGNED BY: J.L./V.G
DRAWN: T.B
APPROVED: V.G

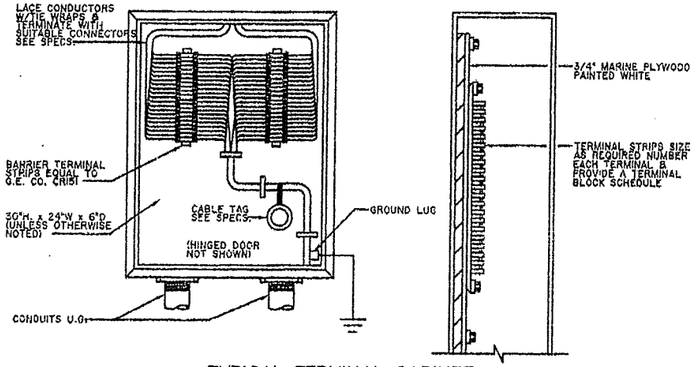
SHEET NUMBER
E29
29 OF 32

ENGINEER'S SEAL
Harvey E. Wildschuetz, PE
P.E. No. 62852

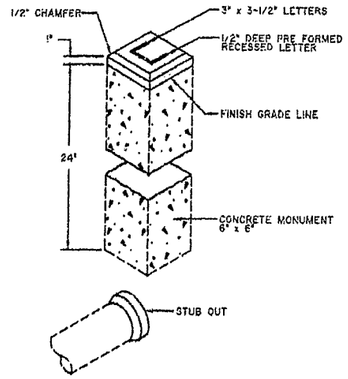


U.G. CABLE TAG DETAIL
NTS

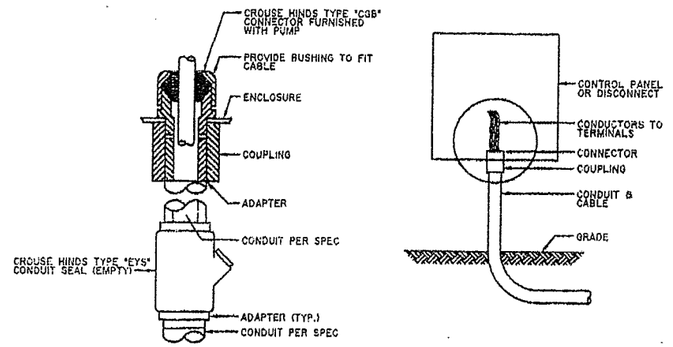
E-ELECTRICAL
T-TELEPHONE
C-CONTROL



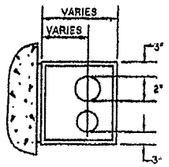
TYPICAL TERMINAL CABINET
NTS

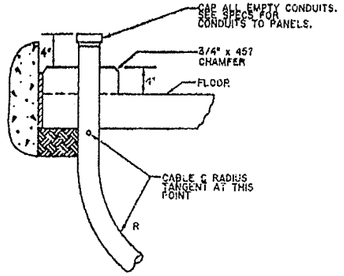


CONDUIT STUB MONUMENT DETAILS
NTS

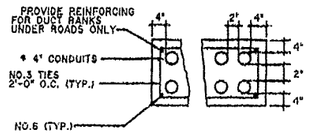


WATER TIGHT CONNECTION DETAIL
NTS





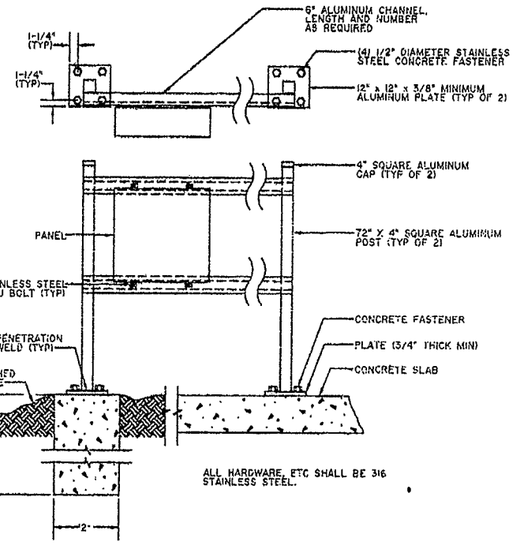
TYPICAL CONDUIT THRU SLAB
NTS



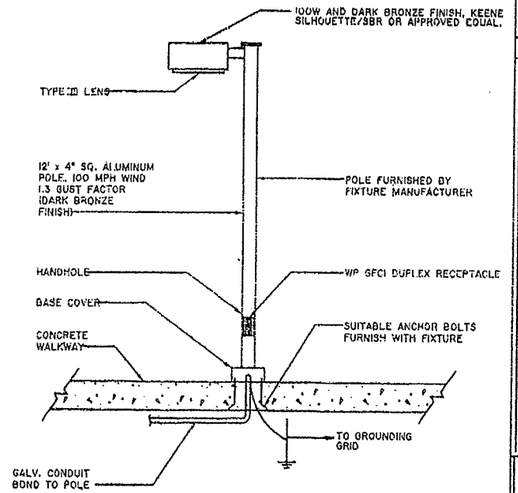
TYPICAL DUCT BANK
NTS

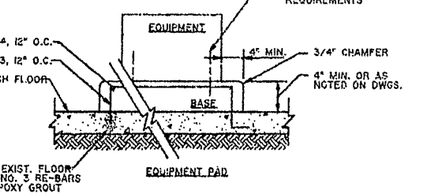
NOTE:

* ALL SHIELDED INSTR. CABLES SHALL BE INSTALLED IN GALVANIZED RIGID STEEL CONDUIT. PROVIDE ONE GALVANIZED CONDUIT IN EACH INSTR. DUCT BANK WITH SPARES FOR FUTURE.

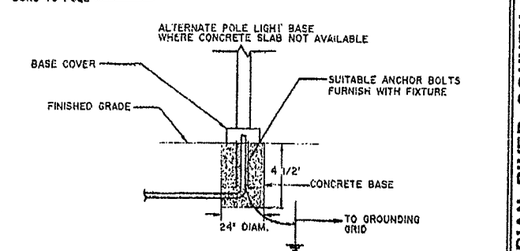


PANEL/DISCONNECT MOUNTING DETAIL
NTS

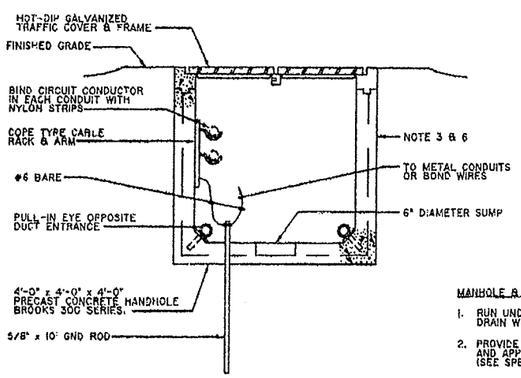




HOUSE KEEPING PAD DETAIL
NTS



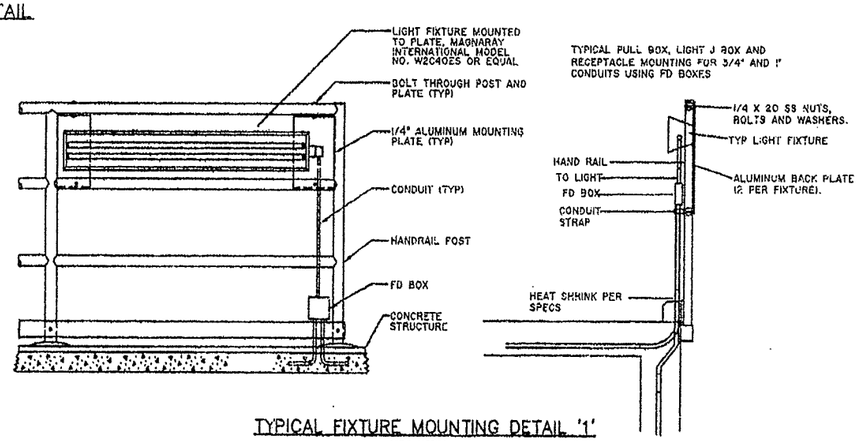
POLE MOUNTED FIXTURE DETAIL
NTS



HANDHOLE DETAIL
NTS

MANHOLE & HANDHOLE NOTES:

1. RUN UNDERGROUND TO NEAREST STORM DRAIN WHEN IN PAVEMENT OR IF WITHIN 100'.
2. PROVIDE ADDITIONAL CABLE RACK ARMS AND APPURTENANCES AS REQUIRED (SEE SPECS).
3. PROVIDE COPE CABLE RACK (SEE SPECS).
4. INSTALL FLUSH WHEN IN PAVEMENT.
5. ALL HARDWARE SHALL BE 316 SS.
6. DO NOT SPLICE CABLES IN MANHOLE OR HANDHOLE, UNLESS OTHERWISE NOTED.



TYPICAL FIXTURE MOUNTING DETAIL '1'
(SEE NOTE)

NOTE:
ALL HARDWARE, ETC SHALL BE 316 STAINLESS STEEL.

MAKE FD BOX 18 INCHES ABOVE SLAB AT ALL CLASS I, DIV 2 HAZARDOUS LOCATIONS.

ENGINEER'S SEAL

Harvey F. Wiseheartz, PE
P.E. No. 62682

03326
PROJECT NUMBER

GARRISON ELECTRICAL CONSULTANTS, INC.
ELECTRICAL ENGINEERS
4826 South U.S. 1 • Ft. Pierce, FL 34982
Phone (772) 468-5931 • Fax (772) 468-5930
WEB: WWW.GARRISONSC.COM

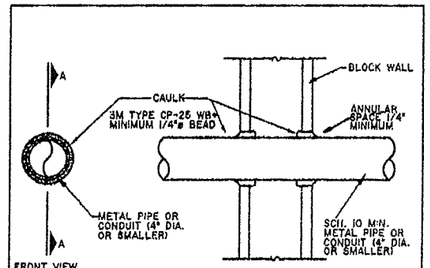
INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

ARCHITECT'S REF.No.

SHEET TITLE
ELECTRICAL DETAILS

DATE: 06/15/04
DESIGNED BY: J.L./V.G
DRAWN: T.S
APPROVED: V.G

SHEET NUMBER
E30
30 OF 32

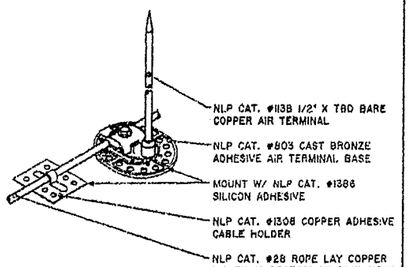


ALL SURFACES SHOULD BE CLEAN, SOUND AND DRY PRIOR TO APPLICATION OF FIRE STOPPING MATERIALS. IF THE OPENING IS NOT SLEEVED, INSTALL A GALVANIZED STEEL SLEEVE AROUND THE PIPE AND ANCHOR IT IN PLACE.

U.L. SYSTEM NO. WL1001

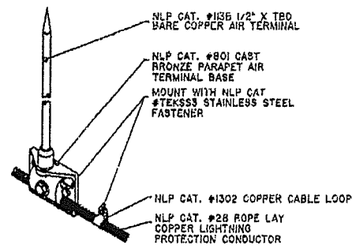
EDET094

WALL PENETRATION
(N.T.S.)



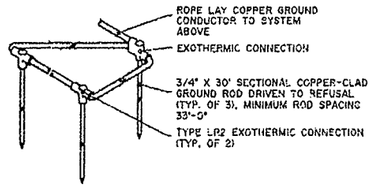
EDET057

AIR TERMINAL
(N.T.S.)



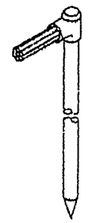
LSD-44

AIR TERMINAL
(N.T.S.)



LSD-40

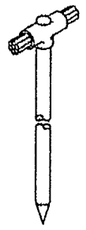
TYPICAL GROUND ARRAY DETAIL
(N.T.S.)



NLP TYPE LR1
TERMINAL CABLE TO GROUND ROD
EXOTHERMIC CONNECTION

EDET052

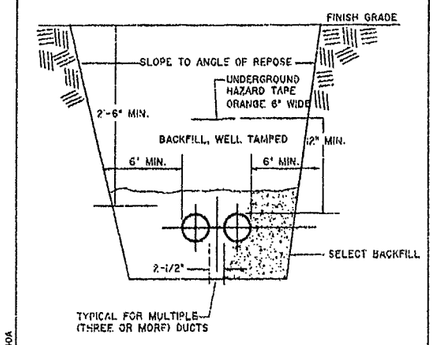
GROUND ROD WITH SINGLE EXOTHERMIC CONNECTION
(N.T.S.)



NLP TYPE LR2
HORIZONTAL CABLE TO GROUND ROD
EXOTHERMIC CONNECTION

EDET053

GROUND ROD WITH DOUBLE EXOTHERMIC CONNECTION
(N.T.S.)



EDET040A

TYPICAL DUCT DETAIL
(N.T.S.)

03326
PROJECT NUMBER

GA No. 0742

NO.	DATE	REVISIONS	BY	APP'D
		AS-BUILTS	DK	JL

GARRISON ELECTRICAL CONSULTANTS, INC.
ELECTRICAL ENGINEERS
4826 South U.S. 1 • Ft. Pierce, FL 34982
Phone: (772) 468-9981 • Fax: (772) 468-9950
WEB: WWW.GARRISONEC.COM

INDIAN RIVER COUNTY
CENTRAL REGION
WWTP EXPANSION

ARCHITECT'S REF.No.

SHEET TITLE
MISC. DETAILS

DATE: 08/16/04
DESIGNED BY: J.L./V.G
DRAWN: T.B
APPROVED: V.G

SHEET NUMBER
E31
31 OF 32

ENGINEER'S SEAL
Harvey E. Widschwerdt, PE
P.E. No. 62052

PANEL: EXISTING LP-3A 1 OF 3 | VOLTAGE: 120/208V | LOCATION: ELECTRICAL/GENERATOR ROOM | AIC RATING: - | MOUNTING: SURFACE | FED FROM: - | RATING: - | MAIN CONNECTION: - | DEVICE FAMILY: TRIPLE PANEL.

DESCRIPTION	WIRE SIZE	CKT BKR	POLES	CONNECTED KVA #A	#B	#C	NO.	NO.	CONNECTED KVA #A	#B	#C	POLES	CKT BKR	WIRE SIZE	DESCRIPTION
SPARE	-	20	1	-			1	2	-			3	30	-	PC/TC PANEL
SPARE	-	20	1		-		3	4		-					
PC-C PNL CLARIFIERS	-	20	1			-	5	6			-				
BREAK ROOM REFRIGERATOR	-	20	1	-			7	8	-			1	20	-	CLARIFIER RECEPTACLES
BREAK ROOM RECEPTACLES	-	20	1		-		9	10		-		1	20	-	ELEC. ROOM RECEPTACLES
ENTRY RECEPTACLES	-	20	1			-	11	12			-	1	20	-	GENERATOR RM. RECEPTACLES
CONTROL ROOM RECEPTACLES	-	20	1	-			13	14	-			1	20	-	ELEC. ROOM RECEPTACLES
UPS SCADA SYSTEM	-	20	1		-		15	16		-		1	20	-	SPARE
DISINFECTION RECEPTACLES	-	20	1			-	17	18			-	1	20	-	BREAK ROOM LIGHTING
WATER COOLER	-	20	1	-			19	20	-			1	20	-	HALLWAY LIGHTING
BATHROOM GFI RECEPTACLES	-	20	1		-		21	22		-		1	20	-	CONTROL ROOM LIGHTING
SPARE	-	20	1			-	23	24			-	1	20	-	LAB LIGHTING
GENERATOR ROOM LIGHTING	-	20	1	-			25	26	-			1	20	-	SPARE
ABW RECEPTACLES	-	20	1		-		27	28		-		1	20	-	SPARE
WEST ELEC. ROOM LIGHTS	-	20	1			-	29	30			-	1	20	-	GENERAL LIGHTING
EAST ELEC. ROOM LIGHTS	-	20	1	-			31	32	-			1	20	-	GENERAL LIGHTING
SPARE	-	20	1		-		33	34		-		1	20	-	PC-C PANEL CLARIFIERS
PC-D PANEL	-	20	1			-	35	36			-	1	20	-	RAS FLOW METER
WAS METER VAULT SUMP	-	20	1	-			37	38	-			1	20	-	SPARE
SPARE	-	20	1		-		39	40		-		1	20	-	SPARE
SPARE	-	20	1			-	41	42			-	1	20	-	TURBIDITY METER AIT GRAVITY
				-	-	-	TOTAL		-	-	-	* TOTAL KVA			

SERVES	CONNECTED LOAD - KVA	DF	CALCULATED DEMAND - KVA
-	-	-	-
-	-	-	-
TOTALS			

NOTES:
- VERIFY ELECTRICAL REQUIREMENTS FOR ALL EQUIPMENT WITH MANUFACTURER'S MANUAL PRIOR TO BIDDING AND INSTALLATION.
- VERIFY SHORT CIRCUIT VALUES WITH POWER COMPANY.

PANEL: EXISTING LP-3A 2 OF 3 | VOLTAGE: 120/208V | LOCATION: ELECTRICAL/GENERATOR ROOM | AIC RATING: - | MOUNTING: SURFACE | FED FROM: - | RATING: - | MAIN CONNECTION: - | DEVICE FAMILY: TRIPLE PANEL

DESCRIPTION	WIRE SIZE	CKT BKR	POLES	CONNECTED KVA #A	#B	#C	NO.	NO.	CONNECTED KVA #A	#B	#C	POLES	CKT BKR	WIRE SIZE	DESCRIPTION
LIT (SODIUM HYPO. SYSTEM)	-	20	1	-			85	86	-			1	20	-	SCUM THRU SPRAY #1
SCUM THRU SPRAY #2	-	20	1		-		87	88		-		1	20	-	SPARE
SCUM THRU SPRAY #3 & 4 TIMER CIRCUITS CLARIFIERS	-	20	1			-	89	90			-	1	20	-	SPARE
NEW CHLORINE AREA-RECPT.	-	20	1	-			91	92	-			1	20	-	PC-E PANEL ABW FILTERS
ABW SAMPLE PUMP	-	20	1		-		93	94		-		1	20	-	PC-E2 PNL-ABW METERS 3/4
SAMP. E PUMP #2 DISINFECTION	-	20	1			-	95	96			-	1	20	-	SPARE
SPARE	-	20	1	-			97	98	-			1	20	-	PC-D2 PNL DISINFECTION
CLARIFIER RECEPTACLES	-	20	1		-		99	100		-			20	-	PC-C2 PNL CLARIFIERS 3/4
SPARE	-	20	1			-	101	102			-	1	20	-	PC-E2
SPARE	-	20	1				103	104	-			1	20	-	TELEPHONE BOARD RECEPTS
MAIN PLC	-	20	1		-		105	106		-			20	-	MAIN PLC PANEL #2
PLC-4	-	20	1			-	107	108			-	1	20	-	SPARE
SPARE	-	20	1	-			109	110	-			1	20	-	ELR/LDR RELAYS
SPARE	-	20	1		-		111	112		-		1	20	-	SPARE
SPARE	-	20	1			-	113	114			-	1	20	-	DAY TANK GENERATOR ROOM
GENERATOR BATTERY CHARGER	20	1	-			115	116	-			1	20	-	SODIUM HYPO EYE WASH	
ALUM EYE WASH	-	20	1		-		117	118		-		1	20	-	RAS METER VAULT SUMP
CLARIFIER CONTROL PANEL #1	-	20	1			-	119	120			-	1	20	-	EFF METER VAULT SUMP
SPARE	-	20	1	-			121	122	-			1	20	-	MAN HOLE #3 SUMP PUMP
WAS METER VAULT	-	20	1		-		123	124		-		1	20	-	MAN HOLE #2 SUMP PUMP
SPARE	-	20	1			-	125	126			-	1	20	-	ACCP PANEL
				-	-	-	TOTAL		-	-	-	* TOTAL KVA			

SERVES	CONNECTED LOAD - KVA	DF	CALCULATED DEMAND - KVA
-	-	-	-
-	-	-	-
TOTALS			

NOTES:
- VERIFY ELECTRICAL REQUIREMENTS FOR ALL EQUIPMENT WITH MANUFACTURER'S MANUAL PRIOR TO BIDDING AND INSTALLATION.
- VERIFY SHORT CIRCUIT VALUES WITH POWER COMPANY.

PANEL: EXISTING LP-3A 3 OF 3 | VOLTAGE: 120/208V | LOCATION: ELECTRICAL/GENERATOR ROOM | AIC RATING: - | MOUNTING: SURFACE | FED FROM: - | RATING: - | MAIN CONNECTION: - | DEVICE FAMILY: TRIPLE PANEL

DESCRIPTION	WIRE SIZE	CKT BKR	POLES	CONNECTED KVA #A	#B	#C	NO.	NO.	CONNECTED KVA #A	#B	#C	POLES	CKT BKR	WIRE SIZE	DESCRIPTION
CLARIFIER CTRL PNL #2	-	20	1	-			85	86	-			1	20	-	SCUM EJECTOR #1
SCUM EJECTOR #2	-	20	1		-		87	88		-		1	40	-	WATER HEATER
AHU 1 HEAT	-	50	1			-	89	90			-				
				-			91	92	-			-	-	-	BLANK
AHU 1 FAN	-	20	1		-		93	94		-		-	-	-	BLANK
						-	95	96			-	-	-	-	BLANK
ACCU 1 COMP	-	50	1	-			97	98	-			-	-	-	BLANK
					-		99	100		-		-	-	-	BLANK
BLANK	-	-	-			-	101	102			-	-	-	-	BLANK
BLANK	-	-	-				103	104	-			-	-	-	BLANK
BLANK	-	-	-			-	105	106		-		-	-	-	BLANK
GEN. FUEL CONTROL PNL	-	20	1			-	107	108			-	1	20	-	PC-D PANEL DISINFECTION
FUEL TANK CONTROL PNL	-	20	1	-			109	110	-			1	20	-	EFFLUENT METER VAULT
RESIDUAL ANALYZER WEST	-	20	1		-		111	112		-		1	20	-	EFFLUENT METER VAULT
RESIDUAL ANALYZER EAST	-	20	1			-	113	114			-	1	20	-	VACUUM PRIMING SYSTEM
PC-D2 PNL (DISINFECTION)	-	20	1	-			115	116	-			1	20	-	NEW OFFICE RECEPTACLES
PC-D2 PNL (DISINFECTION)	-	20	1		-		117	118		-		1	20	-	ABW FILTER RECEPTACLES
DISINFECTION RECEPTACLES	-	20	1			-	119	120			-	1	20	-	TURBIDITY METER AIT GRAV
SPARE	-	30	1	-			121	122	-			1	20	-	NEW FLOW METER SUMP
SPARE	-	30	1		-		123	124		-		-	20	-	ABW- SAMPLE PUMP
SPARE	-	30	1			-	125	126			-	1	20	-	SPARE
				-	-	-	TOTAL		-	-	-	* TOTAL KVA			

SERVES	CONNECTED LOAD - KVA	DF	CALCULATED DEMAND - KVA
-	-	-	-
-	-	-	-
TOTALS			

NOTES:
- VERIFY ELECTRICAL REQUIREMENTS FOR ALL EQUIPMENT WITH MANUFACTURER'S MANUAL PRIOR TO BIDDING AND INSTALLATION.
- VERIFY SHORT CIRCUIT VALUES WITH POWER COMPANY.

PANEL: EXISTING PC/TC MAIN PANEL | VOLTAGE: 120/208V | LOCATION: ELECTRICAL/GENERATOR ROOM | AIC RATING: - | MOUNTING: SURFACE | FED FROM: - | RATING: - | MAIN CONNECTION: - | DEVICE FAMILY: -

DESCRIPTION	WIRE SIZE	CKT BKR	POLES	CONNECTED KVA #A	#B	#C	NO.	NO.	CONNECTED KVA #A	#B	#C	POLES	CKT BKR	WIRE SIZE	DESCRIPTION
PC-IL1	-	20	1	-			1	2	-			1	20	-	SPARE
SPARE	-	20	1		-		3	4		-		1	20	-	RECEPTACLES HEADWORKS
SPARE	-	20	1			-	5	6			-				
PC-IL2	-	20	1	-			7	8	-			-	20	-	CONTROL POWER
SPARE	-	20	1		-		9	10		-		-	20	-	RECEPTACLES RAS PUMPS
SPARE	-	20	1			-	11	12			-	-	20	-	TC-IL2
PC-IL3	-	20	1	-			13	14	-			-	20	-	SPARE
SPARE	-	20	1		-		15	16		-		-	20	-	SPARE
RECEPTACLES RAS/WAS PUMPS	-	20	1			-	17	18			-	-	20	-	TC-IL3
				-	-	-	TOTAL		-	-	-	* TOTAL KVA			

SERVES	CONNECTED LOAD - KVA	DF	CALCULATED DEMAND - KVA
-	-	-	-
-	-	-	-
TOTALS			

NOTES:
- VERIFY ELECTRICAL REQUIREMENTS FOR ALL EQUIPMENT WITH MANUFACTURER'S MANUAL PRIOR TO BIDDING AND INSTALLATION.
- VERIFY SHORT CIRCUIT VALUES WITH POWER COMPANY.

PANEL: EXISTING PC/TC PC PANEL | VOLTAGE: 120/208V | LOCATION: ELECTRICAL/GENERATOR ROOM | AIC RATING: - | MOUNTING: SURFACE | FED FROM: - | RATING: - | MAIN CONNECTION: - | DEVICE FAMILY: -

DESCRIPTION	WIRE SIZE	CKT BKR	POLES	CONNECTED KVA #A	#B	#C	NO.	NO.	CONNECTED KVA #A	#B	#C	POLES	CKT BKR	WIRE SIZE	DESCRIPTION
POLE LIGHTS Model Q NORTH ROAD	-	20	1	-			1	2	-			1	20	-	POLE LIGHTS SOUTH WEST
POLE LIGHTS DISINFECTION	-	20	1		-		3	4		-		1	20	-	POLE LIGHTS RAS PUMPS
OUTSIDE LIGHTS ELEC. BLDG	-	20	1			-	5	6			-	1	20	-	POLE LIGHTS CENTER ROAD
POLE LIGHTS NEW RAS/WAS	-	20	1	-			7	8	-			-	20	-	OUTSIDE LIGHTS HEADWORKS
POLE LIGHTS CHLORINE	-	20	1		-		9	10		-		-	20	-	SPARE
SPARE	-	20	1			-	11	12			-	-	20	-	SPARE
				-	-	-	TOTAL		-	-	-	* TOTAL KVA			

SERVES	CONNECTED LOAD - KVA	DF	CALCULATED DEMAND - KVA
-	-	-	-
-	-	-	-
TOTALS			

NOTES:
- VERIFY ELECTRICAL REQUIREMENTS FOR ALL EQUIPMENT WITH MANUFACTURER'S MANUAL PRIOR TO BIDDING AND INSTALLATION.
- VERIFY SHORT CIRCUIT VALUES WITH POWER COMPANY.

LIGHTING FIXTURE SCHEDULE

TYPE	WATT	DESCRIPTION	MFR (OR APPROVED EQUAL)
A	100	SEE POLE MOUNTED FIXTURE DETAIL 'B' SHEET E-30	
B	80	4'-0" LONG FIXTURE W/2-32 WATT T8 RS FLUORESCENT LAMPS, FULLY-GASKETED REINFORCED POLYESTER HOUSING, HIGH IMPACT ACRYLIC DIFFUSER, CAM-ACTION LATCHES, U.L. LISTED FOR WET LOCATIONS, 120V, ELECTRONIC BALLAST.	LITHONIA: DMW 240

PANEL: EXISTING PC/TC-1 | BUS: 100A,MLO | VOLTAGE: 120/208V,3ø,4W
MOUNTING: SURFACE | POLES: 30
LOCATION: ELECTRICAL ROOM | REMARKS:

CIR. NO.	DESCRIPTION	TRIP	POLES	REMARKS
1,3,5	PC CONTACTOR	30	3	
2,4,6	TC CONTACTOR	30	3	
7-14	RECEPTACLES-GENERAL	20	1	
15-23	PC LIGHTING AND SPARES	20	1	
24-30	TC LIGHTING AND SPARES	20	1	

NEW CIRCUITS

ENGINEER'S SEAL
Harvey F. Wildschutz, PE
P.E. No. 62902

GARRISON ELECTRICAL CONSULTANTS, INC.
ELECTRICAL ENGINEERS
4826 South U.S. 1 • Ft. Pierce, FL 34982
Phone (772) 468-5981 • Fax (772) 468-5930
WEB: WWW.GARRISONEC.COM

INDIAN RIVER COUNTY
CENTRAL REGION WWTP EXPANSION

03326
PROJECT NUMBER

ARCHITECT'S REF.No.

SHEET TITLE
LIGHT FIXTURE & PANEL SCHEDULES

DATE: 06/16/04
DESIGNED BY: J.L/V.G
DRAWN: T.S
APPROVED: V.G

SHEET NUMBER
E32
32 OF 32

TERMINAL AND WIRING SYMBOLS

- NNN — TERMINAL IN PANEL (NUMBER IN TERMINAL)
- WIRE WITH SHIELD
- PLUG-IN CONNECTOR
- PANEL WIRING
- FUTURE WIRING
- FIELD WIRING
- WIRES ARE CONNECTED
- WIRES ARE NOT CONNECTED
- JUMPERED WIRES
- Y — UNKNOWN WIRE MARKERS IN OTHER'S PANEL
- TERMINALS ON EXTERNAL EQUIPMENT

SWITCHES

TYPICAL SELECTOR SWITCH

SW XXX — OFF — HAND — AUTO
- 3XXT — CONTACT CLOSED ONLY IN THE EXTREME LEFT HAND POSITION
- 0XX — CONTACT CLOSED ONLY IN THE EXTREME RIGHT HAND POSITION

SW-NNN
- OXX — CONTACT CLOSED IN RIGHT TWO POSITIONS ONLY

SWITCH ARRANGEMENTS

NOTE: SWITCH POSITION IS TO REFLECT ACTUAL POSITION DURING NORMAL CONDITIONS.

- ZS — NORMALLY OPEN CLOSE ON INCREASE
- ZS — NORMALLY OPEN HELD CLOSED
- ZS — NORMALLY CLOSED OPEN ON INCREASE
- ZS — NORMALLY CLOSED HELD OPEN
- LS — FLOAT SWITCH
- PS — PRESSURE SWITCH
- PS — DIFFERENTIAL PRESSURE SWITCH
- TD — ON DELAY TIMED TO CLOSE
- TD — OFF DELAY TIMED TO OPEN
- CR NNN — NORMALLY OPEN CONTACT OF A DEVICE LOCATED ON RELAY NNN
- CR NNN — NORMALLY CLOSED CONTACT OF A DEVICE LOCATED AT RELAY NNN
- TS — TEMPERATURE SWITCH
- FTS — FOOT SWITCH
- MUSHROOMHEAD PUSHBUTTON
- TD — ON DELAY TIMED TO OPEN
- TD — OFF DELAY TIMED TO CLOSE
- NORMALLY OPEN PUSH BUTTON

REVISION DESCRIPTION: AS-BUILT | DATE: 9/26/06 | REV BY: MRO

DESIGNED MRO	DATE 9/26/06	TITLE	SYMBOL SHEET CONTROL PANEL
DRAWN	DATE		
CHECKED	DATE	CLIENT	INDIAN RIVER, FL
ENGINEER CMJ	DATE 9/26/06		
MANAGER CMJ	DATE 9/26/06	Krüger	KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: LNDR		PROJECT 42090429	CODE PLC
SCALE: NTS		DRAWING SYM SHEET	SHEET 2 OF 2
			REV A

TAGS FOR PANEL EQUIPMENT AND INSTRUMENTS

BASED FROM INDUSTRIES STANDARD, BASICS TYPIC AM

- CR = RELAY
- SW = SWITCH
- FU = FUSE
- LA = LIGHTNING ARRESTOR
- PL = PILOT LIGHT
- CB = CIRCUIT BREAKER
- M = MOTOR
- T = TRANSFORMER
- DC = DC POWER SUPPLY
- HTR = HEATER
- SA = SURGE ARRESTOR
- DS = DISCONNECT SWITCH
- ES = EMERGENCY STOP SWITCH
- HS = HAND SWITCH
- ZS = LIMIT SWITCH
- PB = PUSHBUTTON
- SF = SPEED TRANSMITTER
- FT = FLOW SWITCH
- FE = FLOW ELEMENT
- FI = FLOW INDICATOR
- FT = FLOW TRANSMITTER
- PS = PRESSURE SWITCH
- PI = PRESSURE INDICATOR (OR GAUGE)
- PT = PRESSURE TRANSMITTER
- LS = LEVEL SWITCH
- LE = LEVEL ELEMENT
- LI = LEVEL INDICATOR
- LT = LEVEL TRANSMITTER
- LC = LEVEL MONITOR CONTROLLER
- TS = TEMPERATURE SWITCH
- AE = ANALOGUE SENSORING TRANSMITTER

STANDARD WIRE COLORS:
- BLACK = ENERGIZED 115 VAC
- RED = ENERGIZED 115 VAC
- WHITE = GROUNDED 115 VAC CONTROL
- BLUE/WHITE = DC COMMON
- BLUE = DC
- GREEN = GROUND
- YELLOW = EXTERNALLY POWERED 115VAC
- YELLOW/WHITE = EXTERNALLY POWERED

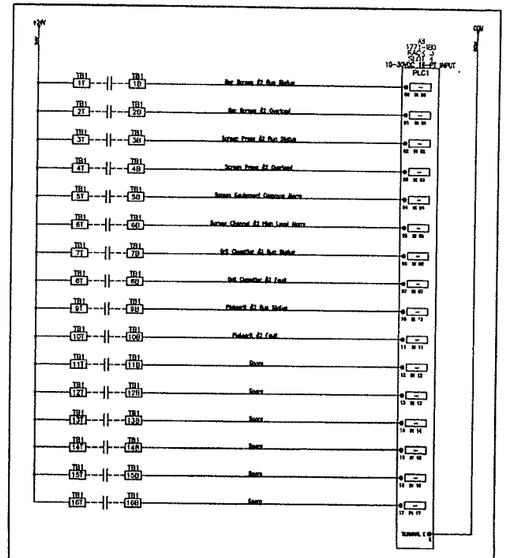
ALL WIRES UNLESS CASED EXCEPT UNSHIELDED POWER, RESISTANCE, AND RIBBON CABLE.

MISCELLANEOUS SYMBOLS

- NOTE 1 30A — 3MA CIRCUIT BREAKER
- 3 PHASE MOTOR CIRCUIT PROTECTOR
- 3 PHASE DISCONNECT
- CIRCUIT BREAKER
- FUSE
- ELECTRICAL TERMINATION
- EQUIPMENT TERMINATION
- 3 PHASE MOTOR
- NOTE 1 — SINGLE PHASE MOTOR
- THERMAL ELEMENT OF MOTOR STARTER
- TRANSFORMER
- SOLENOID VALVE
- [TBD] — INDICATES THE DEVICE SHOWN IS PROVIDED BY OTHER THAN I&C
- PILOT LIGHT ON EXTERNAL PANEL
- PILOT LIGHT IF PROVIDED BY I&C
- SHOCK GROUND
- DUPLEX OUTLET
- POT
- HOA — HOUSE
- HOA — MONITOR

REVISION DESCRIPTION: AS-BUILT | DATE: 9/26/06 | REV BY: MRO

DESIGNED MRO	DATE 9/26/06	TITLE	SYMBOL SHEET CONTROL PANEL
DRAWN	DATE		
CHECKED	DATE	CLIENT	INDIAN RIVER, F..
ENGINEER CMJ	DATE 9/26/06		
MANAGER CMJ	DATE 9/26/06	Krüger	KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: LNDR		PROJECT 42090429	CODE PLC
SCALE: NTS		DRAWING SYM SHEET	SHEET 2 OF 2
			REV A



REVISION DESCRIPTION: ISSUED FOR APPROVAL | DATE: 10/24/06 | REV BY: MRO

DESIGNED MRO	DATE 10/24/06	TITLE	DIGITAL INPUT WIRING - CHASSIS 3/SLOT 4 REMOTE I/O CONTROL PANEL
DRAWN DWR	DATE		
CHECKED	DATE	CLIENT	INDIAN RIVER, FL
ENGINEER CMJ	DATE 10/24/06		
MANAGER CMJ	DATE 10/24/06	Krüger	KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: LNDR		PROJECT 42090429	CODE REMOTE I/O
SCALE: NTS		DRAWING I-001	SHEET 1 OF 1
			REV A

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP

REVISIONS

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4204
1655 27th STREET, SUITE 2
(772) 567-5300 / FAX (772) 794-1106

INSTRUMENT & CONTROL HEADWORKS SIGNAL MCC3
CENTRAL REGION
WWTP EXPANSION

INDIAN RIVER COUNTY — FLORIDA

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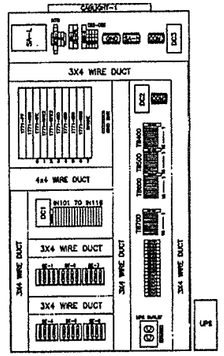
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	2/07
SCALE	AS-NOTED
SHEET	1 OF 6
DMB NO	0325



BACKPANEL, 80"H x 33"W
P/N: A-72P38F1

REVISION DESCRIPTION: AS-BUILT | DATE: 8/29/06 | REV BY: MRO

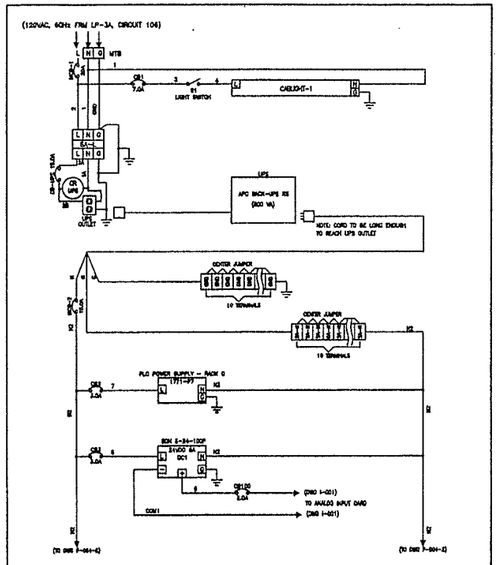
DESIGNER CLW 3/30/06	DATE	TITLE: BACK PANEL LAYOUT MAIN PLC PANEL 2
CHECKED	DATE	
ENGINEER CWJ 3/30/06	DATE	CLIENT: INDIAN RIVER, FL
MANAGER CWJ 3/30/06	DATE	Krüger KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: ENGR		PROJECT 42090429 | CODE MPLC2 | DRAWING P-001 | SHEET 1 OF 1 | REV A
SCALE: NTS		

RACK 0

0	1	2	3	4	5	6	7
1771-P7	1771-ASB	1771-IFE	1771-OFE2	1771-OFE2	1771-IBD	1771-IBD	1771-IBD	1771-OBD	SPARE

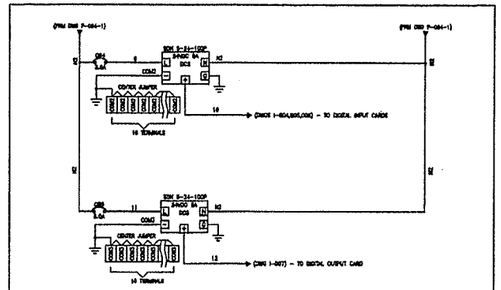
REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/06 | REV BY: MRO

DESIGNER CLW 3/30/06	DATE	TITLE: PLC RACK LAYOUT MAIN PLC PANEL 2
CHECKED	DATE	
ENGINEER CWJ 3/30/06	DATE	CLIENT: INDIAN RIVER, FL
MANAGER CWJ 3/30/06	DATE	Krüger KRUGER PRODUCTS CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: ENGR		PROJECT 42090429 | CODE MPLC2 | DRAWING P-002 | SHEET 1 OF 1 | REV A
SCALE: NTS		



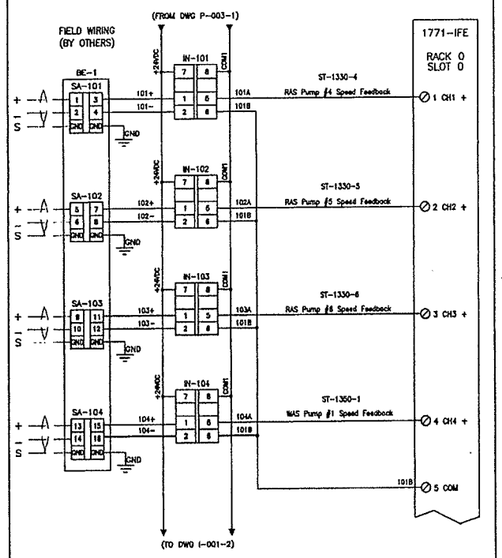
REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/06 | REV BY: MRO

DESIGNER CLW 3/30/06	DATE	TITLE: POWER DISTRIBUTION MAIN PLC PANEL 2
CHECKED	DATE	
ENGINEER CWJ 3/30/06	DATE	CLIENT: INDIAN RIVER, FL
MANAGER CWJ 3/30/06	DATE	Krüger KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: ENGR		PROJECT 42090429 | CODE MPLC2 | DRAWING P-003 | SHEET 1 OF 2 | REV A
SCALE: NTS		



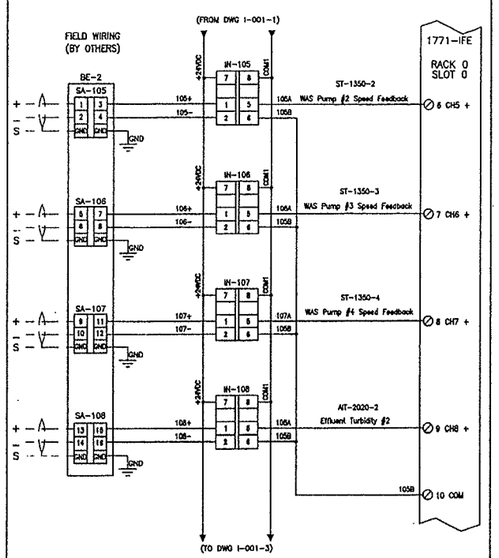
REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/06 | REV BY: MRO

DESIGNER CLW 3/30/06	DATE	TITLE: POWER DISTRIBUTION MAIN PLC PANEL 2
CHECKED	DATE	
ENGINEER CWJ 3/30/06	DATE	CLIENT: INDIAN RIVER, FL
MANAGER CWJ 3/30/06	DATE	Krüger KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: ENGR		PROJECT 42090429 | CODE MPLC2 | DRAWING P-003 | SHEET 2 OF 2 | REV A
SCALE: NTS		



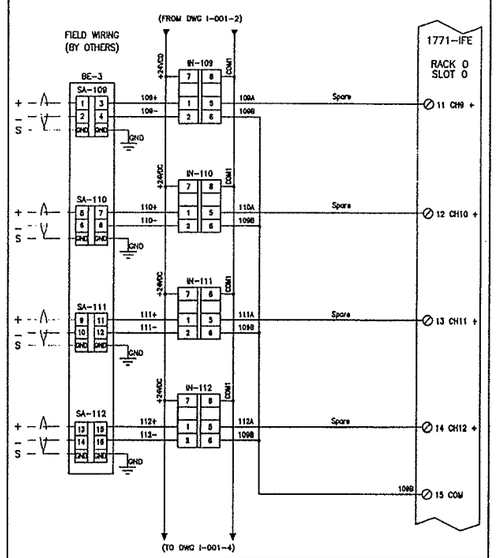
REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/06 | REV BY: MRO

DESIGNER CLW 3/30/06	DATE	TITLE: ANALOG INPUT WIRING – RACK 0/SLOT 0 MAIN PLC PANEL 2
CHECKED	DATE	
ENGINEER CWJ 3/30/06	DATE	CLIENT: INDIAN RIVER, FL
MANAGER CWJ 3/30/06	DATE	Krüger KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: ENGR		PROJECT 42090429 | CODE MPLC2 | DRAWING I-001 | SHEET 1 OF 4 | REV A
SCALE: NTS		



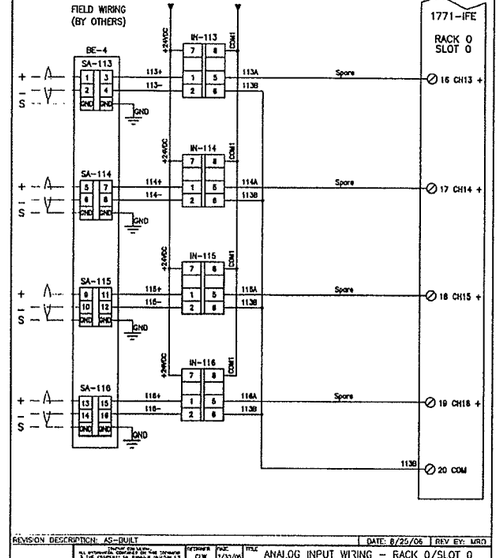
REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/06 | REV BY: MRO

DESIGNER CLW 3/30/06	DATE	TITLE: ANALOG INPUT WIRING – RACK 0/SLOT 0 MAIN PLC PANEL 2
CHECKED	DATE	
ENGINEER CWJ 3/30/06	DATE	CLIENT: INDIAN RIVER, FL
MANAGER CWJ 3/30/06	DATE	Krüger KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: ENGR		PROJECT 42090429 | CODE MPLC2 | DRAWING I-001 | SHEET 2 OF 4 | REV A
SCALE: NTS		



REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/06 | REV BY: MRO

DESIGNER CLW 3/30/06	DATE	TITLE: ANALOG INPUT WIRING – RACK 0/SLOT 0 MAIN PLC PANEL 2
CHECKED	DATE	
ENGINEER CWJ 3/30/06	DATE	CLIENT: INDIAN RIVER, FL
MANAGER CWJ 3/30/06	DATE	Krüger KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
FILE: ENGR		PROJECT 42090429 | CODE MPLC2 | DRAWING I-001 | SHEET 3 OF 4 | REV A
SCALE: NTS		



REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/06 | REV BY: MRO

DESIGNER CLW 3/30/06	DATE	TITLE: ANALOG INPUT WIRING – RACK 0/SLOT 0 MAIN PLC PANEL 2
CHECKED	DATE	
ENGINEER CWJ 3/30/06	DATE	CLIENT: INDIAN RIVER, FL
MANAGER CWJ 3/30/06	DATE	Krüger KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-6316
FILE: ENGR		PROJECT 42090429 | CODE MPLC2 | DRAWING I-001 | SHEET 4 OF 4 | REV A
SCALE: NTS		

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP

REVISIONS

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4204
1655 27th STREET, SUITE 2
(772) 567-5300 / FAX (772) 794-1106

INDIAN RIVER COUNTY

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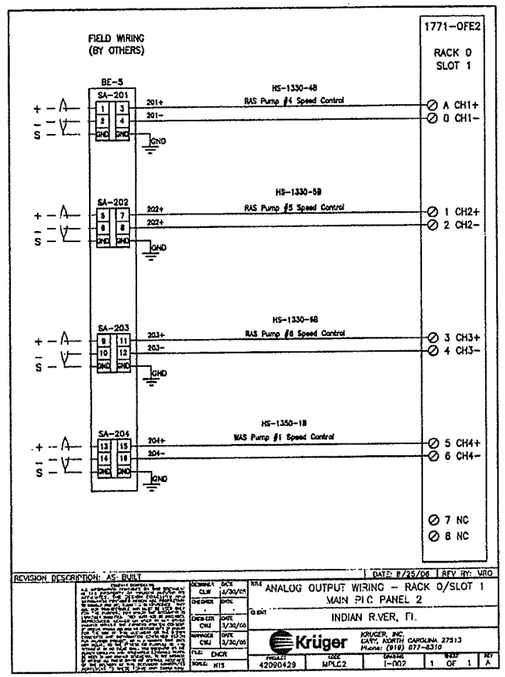
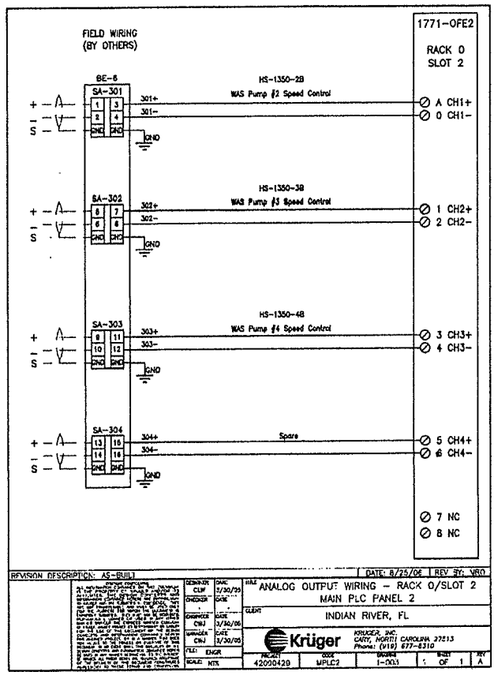
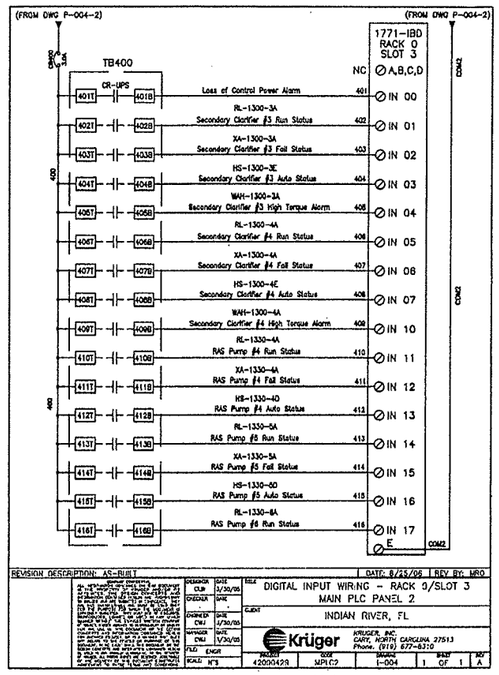
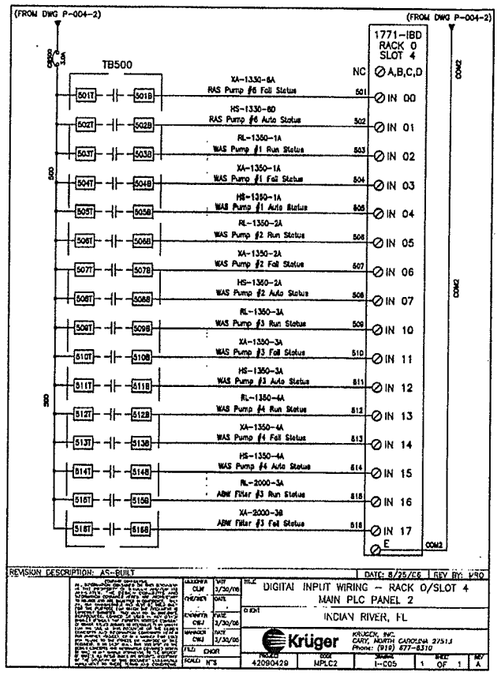
EARL H. MASTELLER, P.E. FL#26658

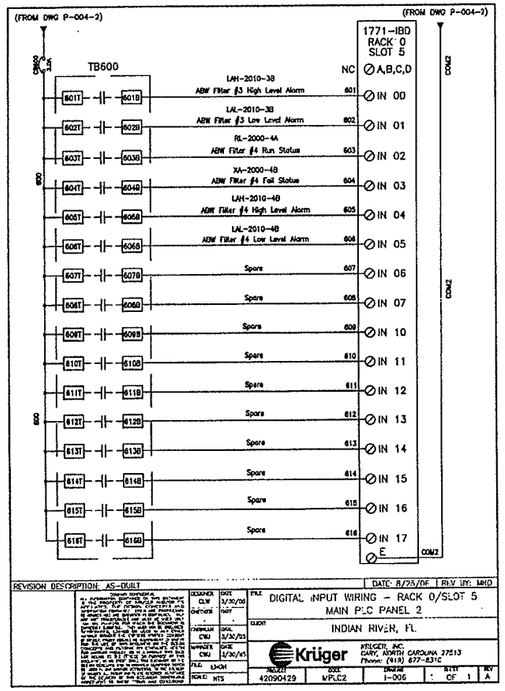
DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	2/07
SCALE	AS-NOTED
SHEET	2 OF 6
DWG NO	0325

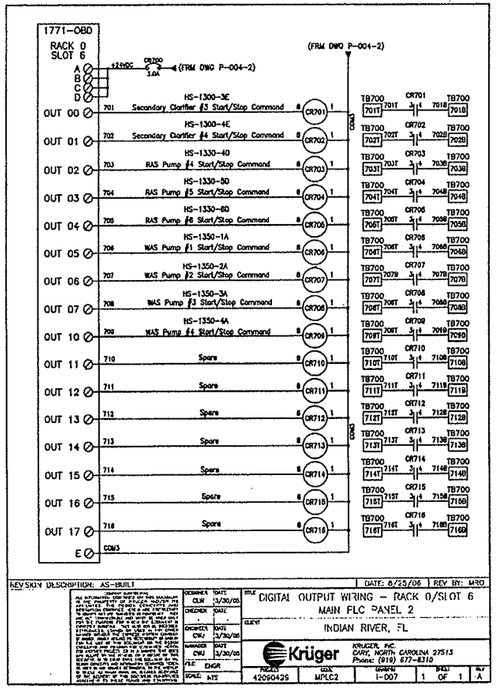


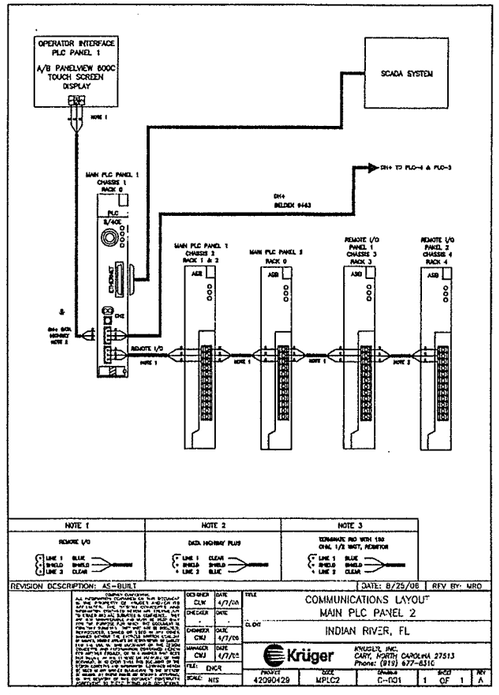












AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP

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MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4204
1655 27th STREET, SUITE 2
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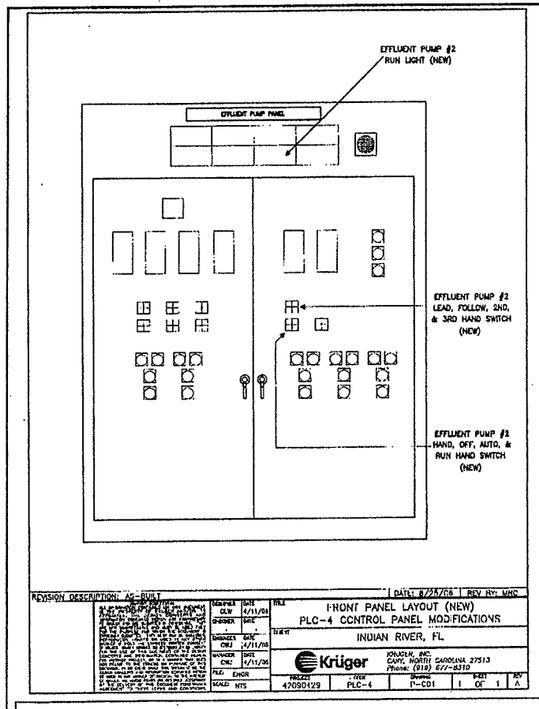
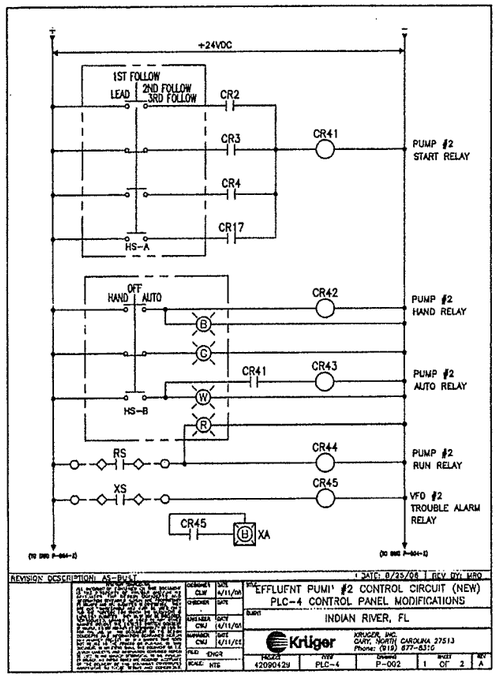
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	2/07
SCALE	AS-NOTED
SHEET	5 OF 6
DRW NO	0325



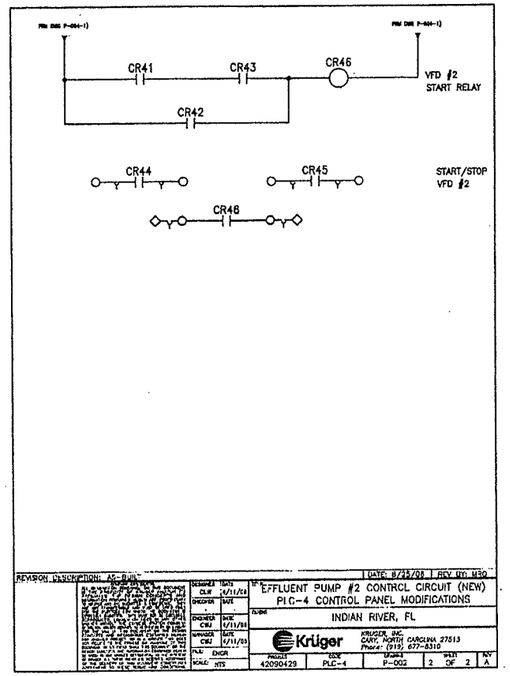
REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/08 | REV BY: MRO

FRONT PANEL LAYOUT (NEW)
PLC-4 CONTROL PANEL MODIFICATIONS
INDIAN RIVER, FL
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
PROJECT 4209042.9 | CODE PLC-4 | DRAWING P-C01 | SHEET 1 OF 1 | REV A



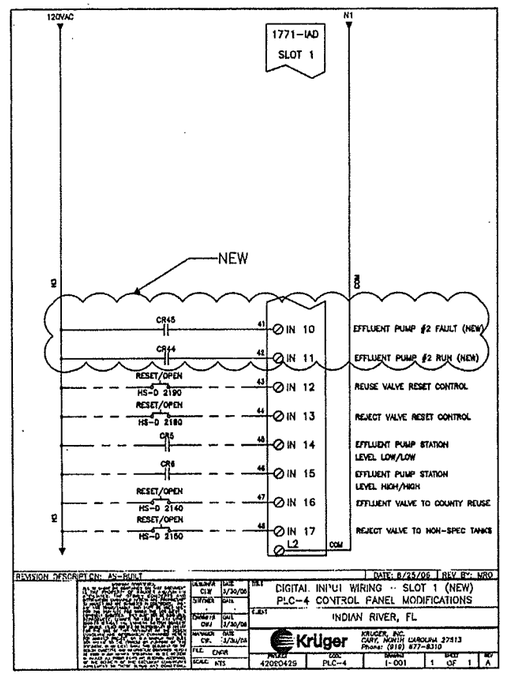
REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/08 | REV BY: MRO

EFFLUENT PUMP #2 CONTROL CIRCUIT (NEW)
PLC-4 CONTROL PANEL MODIFICATIONS
INDIAN RIVER, FL
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
PROJECT 4209042.9 | CODE PLC-4 | DRAWING P-002 | SHEET 1 OF 2 | REV A



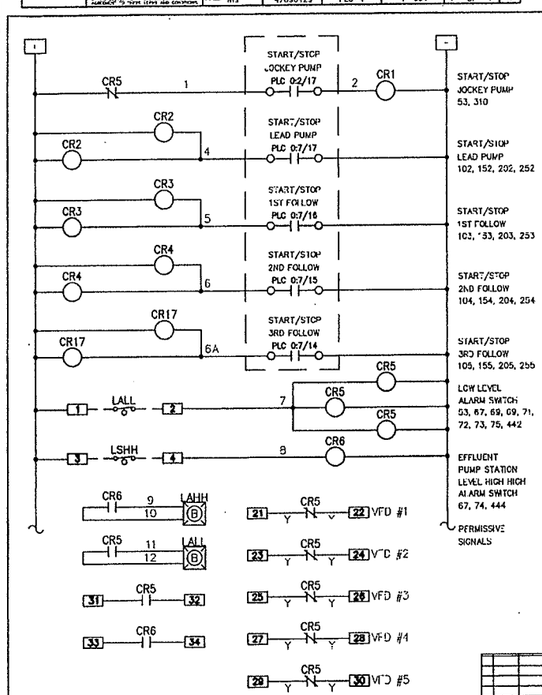
REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/08 | REV BY: MRO

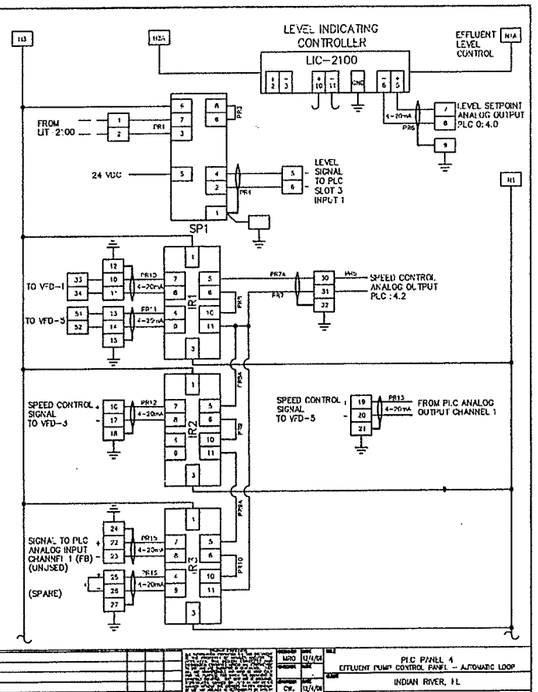
EFFLUENT PUMP #2 CONTRCL CIRCUIT (NEW)
PLC-4 CONTROL PANEL MODIFICATIONS
INDIAN RIVER, FL
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
PROJECT 4209042.9 | CODE PLC-4 | DRAWING P-002 | SHEET 2 OF 2 | REV A



REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/08 | REV BY: MRO

DIGITAL INPUT WIRING - SLOT 1 (NEW)
PLC-4 CONTROL PANEL MODIFICATIONS
INDIAN RIVER, FL
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
PROJECT 4209042.9 | CODE PLC-4 | DRAWING I-001 | SHEET 1 OF 1 | REV A

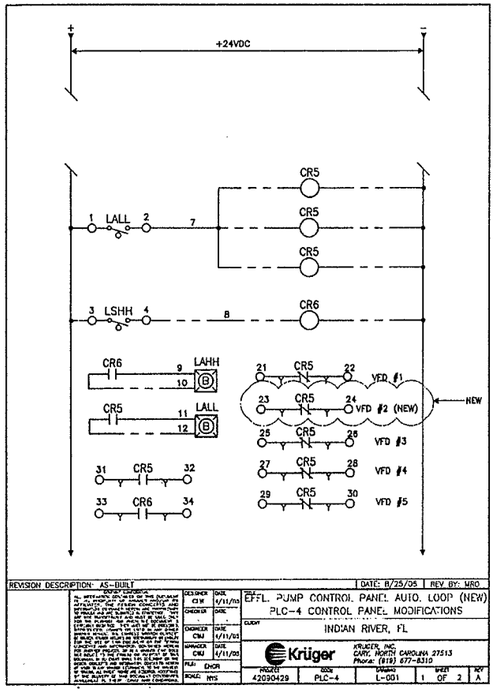




NO.	DATE	DESCRIPTION	DR/APP
A	12/05	ISSUED FOR APPROVAL	MRO

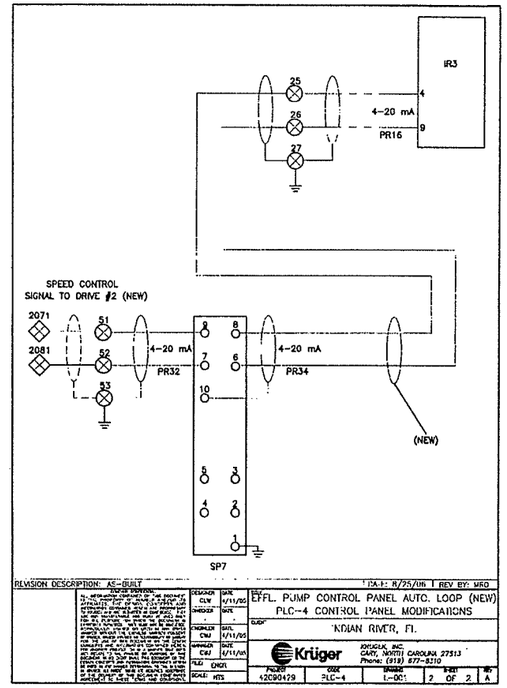
REVISIONS

PLC PANEL 4
EFFLUENT PUMP CONTROL PANEL - AUTOMATIC LOOP
INDIAN RIVER, FL
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
PROJECT 4209042.9 | CODE PLC-4 | DRAWING E-001 | SHEET 1 OF 1 | REV A



REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/05 | REV BY: MRO

EFFL. PUMP CONTROL PANEL AUTO. LOOP (NEW)
PLC-4 CONTROL PANEL MODIFICATIONS
INDIAN RIVER, FL
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
PROJECT 4209042.9 | CODE PLC-4 | DRAWING L-001 | SHEET 1 OF 2 | REV A



REVISION DESCRIPTION: AS-BUILT | DATE: 8/25/05 | REV BY: MRO

EFFL. PUMP CONTROL PANEL AUTO. LOOP (NEW)
PLC-4 CONTROL PANEL MODIFICATIONS
INDIAN RIVER, FL
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310
PROJECT 4209042.9 | CODE PLC-4 | DRAWING L-001 | SHEET 2 OF 2 | REV A

AS-BUILT PLAN

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4204
1655 27th STREET, SUITE 2
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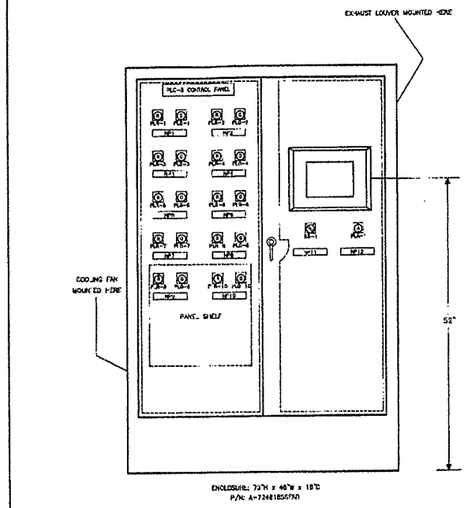
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	2/07
SCALE	AS-NOTED
SHEET	4 OF 6
DWG NO	0325



REVISION DESCRIPTION: AS-BUILT — DATE: 8/25/06 — REV BY: MRO

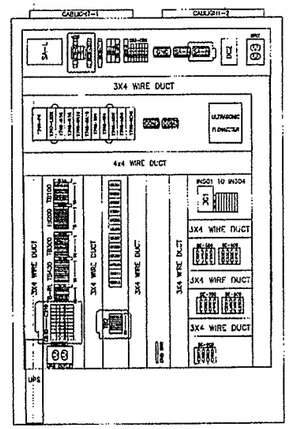
DESIGNER CLW 4/1/05	CHECKED	APPROVED CWJ 4/1/05	DRAWN CWJ 3/31/05
TITLE: FRONT PANEL LAYOUT PLC-5 CONTROL PANEL			
CLIENT: INDIAN RIVER, FL			
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310			
FILE: ENGR	SCALE: NTS	PROJECT 42090429	CODE PLC-5
DRAWING P-001	SHEET 1 OF 2	REV A	

NAME PLATE SCHEDULE

NP1	DOSING PUMP #1 RUNNING LIGHTS
NP2	DOSING PUMP #2 RUNNING LIGHTS
NP3	DOSING PUMP #3 RUNNING LIGHTS
NP4	DOSING PUMP #4 RUNNING LIGHTS
NP5	DOSING PUMP #5 RUNNING LIGHTS
NP6	DOSING PUMP #6 RUNNING LIGHTS
NP7	DOSING PUMP #7 RUNNING LIGHTS
NP8	DOSING PUMP #8 RUNNING LIGHTS
NP9	DOSING PUMP #9 RUNNING LIGHTS
NP10	DOSING PUMP #10 RUNNING LIGHTS
NP11	CONTROL POWER/ ON-OFF
NP12	POWER ON

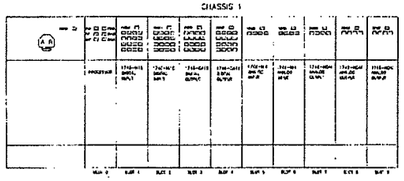
REVISION DESCRIPTION: AS-BUILT — DATE: 8/22/06 — REV BY: MRO

DESIGNER CLW 4/1/05	CHECKED	APPROVED CWJ 4/1/05	DRAWN CWJ 4/1/05
TITLE: FRONT PANEL LAYOUT (NAME PLATE SCHEDULE) PLC-5 CONTROL PANEL			
CLIENT: INDIAN RIVER, FL			
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310			
FILE: ENGR	SCALE: NTS	PROJECT 42090429	CODE PLC-5
DRAWING P-001	SHEET 2 OF 2	REV A	



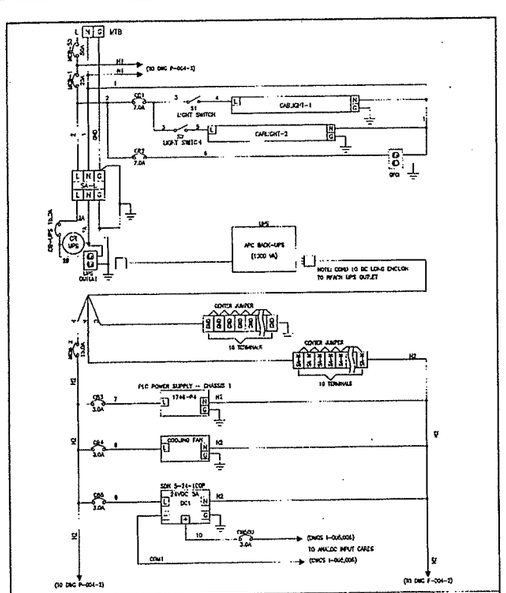
REVISION DESCRIPTION: AS-BUILT — DATE: 8/25/06 — REV BY: MRO
REVISION DESCRIPTION: ADDED BREAKERS AND TERMINALS FOR PUMPS — DATE: 10/14/05 — REV BY: JAM
REVISION DESCRIPTION: CHANGED PER ENGINEERS COMMENTS — DATE: 8/12/05 — REV BY: JKG
REVISION DESCRIPTION: ISSUED FOR APPROVAL — DATE: 4/15/05 — REV BY: CLW

DESIGNER JAM 8/25/06	CHECKED	APPROVED CWJ 8/28/06	DRAWN CWJ 8/28/06
TITLE: BACK PANEL LAYOUT PLC-5 CONTROL PANEL			
CLIENT: INDIAN RIVER, FL			
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310			
FILE: ENGR	SCALE: NTS	PROJECT 42090429	CODE PLC-5
DRAWING P-002	SHEET 1 OF 1	REV 1	



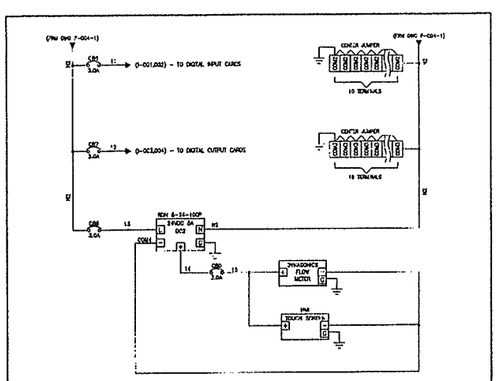
REVISION DESCRIPTION: AS-BUILT — DATE: 8/25/06 — REV BY: MRO

DESIGNER CLW 3/31/05	CHECKED	APPROVED CWJ 3/31/05	DRAWN CWJ 3/31/05
TITLE: PLC RACK LAYOUT PLC-5 CONTROL PANEL			
CLIENT: INDIAN RIVER, FL			
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310			
FILE: ENGR	SCALE: NTS	PROJECT 42090429	CODE PLC-5
DRAWING P-003	SHEET 1 OF 1	REV A	



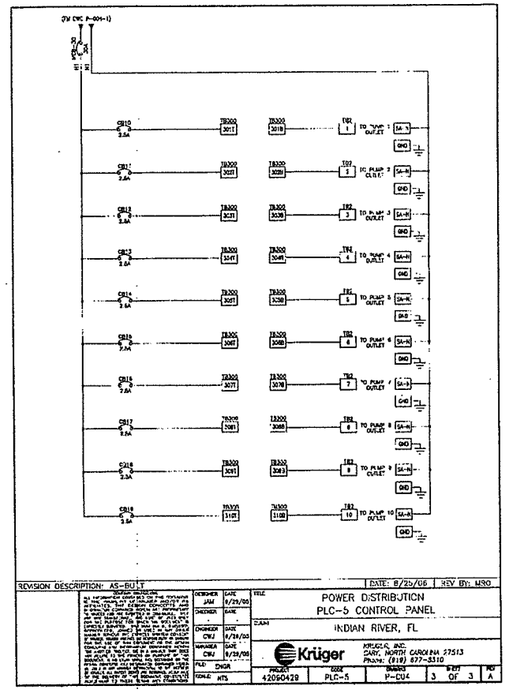
REVISION DESCRIPTION: AS-BUILT — DATE: 8/25/06 — REV BY: MRO

DESIGNER CLW 3/31/05	CHECKED	APPROVED CWJ 3/31/05	DRAWN CWJ 3/31/05
TITLE: POWER DISTRIBUTION PLC-5 CONTROL PANEL			
CLIENT: INDIAN RIVER, FL			
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310			
FILE: ENGR	SCALE: NTS	PROJECT 42090429	CODE PLC-5
DRAWING P-004	SHEET 1 OF 3	REV 0	



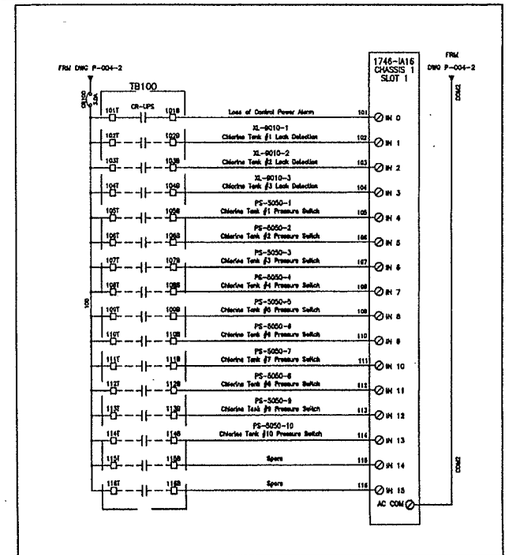
REVISION DESCRIPTION: AS-BUILT — DATE: 8/25/06 — REV BY: MRO

DESIGNER CLW 3/31/05	CHECKED	APPROVED CWJ 3/31/05	DRAWN CWJ 3/31/05
TITLE: POWER DISTRIBUTION PLC-5 CONTROL PANEL			
CLIENT: INDIAN RIVER, FL			
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310			
FILE: ENGR	SCALE: NTS	PROJECT 42090429	CODE PLC-5
DRAWING P-004	SHEET 2 OF 3	REV A	



REVISION DESCRIPTION: AS-BUILT — DATE: 8/25/06 — REV BY: MRO

DESIGNER JAM 8/25/06	CHECKED	APPROVED CWJ 8/28/06	DRAWN CWJ 8/28/06
TITLE: POWER DISTRIBUTION PLC-5 CONTROL PANEL			
CLIENT: INDIAN RIVER, FL			
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310			
FILE: ENGR	SCALE: NTS	PROJECT 42090429	CODE PLC-5
DRAWING P-004	SHEET 3 OF 3	REV A	



REVISION DESCRIPTION: AS-BUILT — DATE: 8/25/06 — REV BY: MRO
REVISION DESCRIPTION: CHANGED PER ENGINEERS COMMENTS — DATE: 8/12/05 — REV BY: JKG
REVISION DESCRIPTION: ISSUED FOR APPROVAL — DATE: 4/15/05 — REV BY: CLW

DESIGNER CLW 3/31/05	CHECKED	APPROVED CWJ 3/31/05	DRAWN CWJ 3/31/05
TITLE: DIGITAL INPUT WIRING - CHASSIS 1/SLOT 1 PLC-5 CONTROL PANEL			
CLIENT: INDIAN RIVER, FL			
Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310			
FILE: LNQ1	SCALE: NTS	PROJECT 42090429	CODE PLC-5
DRAWING I-DG1	SHEET 1 OF 1	REV 0	

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP

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INDIAN RIVER COUNTY

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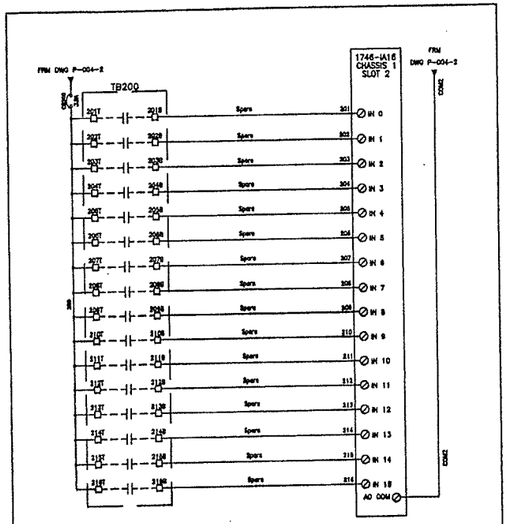
EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	2/07
SCALE	AS-NOTED
SHEET	5 OF 6
DWG NO	0325



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REVISION DESCRIPTION: ISSUED FOR APPROVAL	DATE: 4/15/05	REV BY: CLW

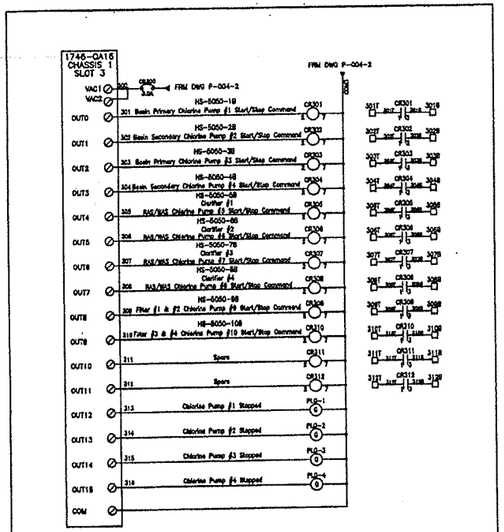
DESIGNED CLW 3/31/05 · DRAWN CLW 3/31/05 · CHECKED - · ENGINEER CNJ 3/31/05 · MANAGER CNJ 3/31/05 · PLC ENGR · SCALE: NTS

TITLE: DIGITAL INPUT WIRING – CHASSIS 1/SLOT 2
PLC-5 CONTROL PANEL

CLIENT: INDIAN RIVER, FL

Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310

PROJECT	CODE	DRAWING	SHEET	REV
42090429	PLC-5	I-002	1 OF 1	A



REVISION DESCRIPTION: AS-BUILT	DATE: 8/25/06	REV BY: MRO
REVISION DESCRIPTION: CHANGED PER ENGINEERS COMMENTS	DATE: 8/12/05	REV BY: JKG
REVISION DESCRIPTION: ISSUED FOR APPROVAL	DATE: 4/15/05	REV BY: CLW

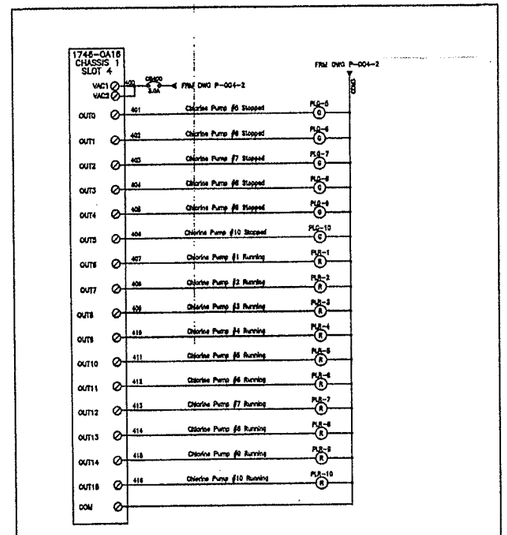
DESIGNED CLW 3/31/05 · DRAWN CLW 3/31/05 · CHECKED - · ENGINEER CNJ 3/31/05 · MANAGER CNJ 3/31/05 · PLC ENGR · SCALE: NTS

TITLE: DIGITAL OUTPUT WIRING – CHASSIS 1/SLOT 3
PLC-5 CONTROL PANEL

CLIENT: INDIAN RIVER, FL

Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310

PROJECT	CODE	DRAWING	SHEET	REV
42090429	PLC-5	I-003	1 OF 1	0



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REVISION DESCRIPTION: ISSUED FOR APPROVAL	DATE: 4/15/05	REV BY: CLW

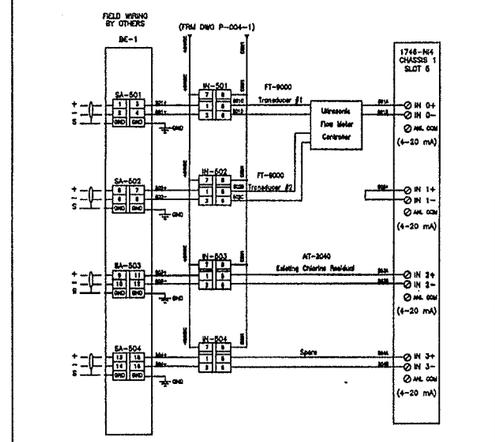
DESIGNED CLW 3/31/05 · DRAWN CLW 3/31/05 · CHECKED - · ENGINEER CNJ 3/31/05 · MANAGER CNJ 3/31/05 · PLC ENGR · SCALE: NTS

TITLE: DIGITAL OUTPUT WIRING – CHASSIS 1/SLOT 4
PLC-5 CONTROL PANEL

CLIENT: INDIAN RIVER, FL

Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310

PROJECT	CODE	DRAWING	SHEET	REV
42090429	PLC-5	I-004	1 OF 1	0



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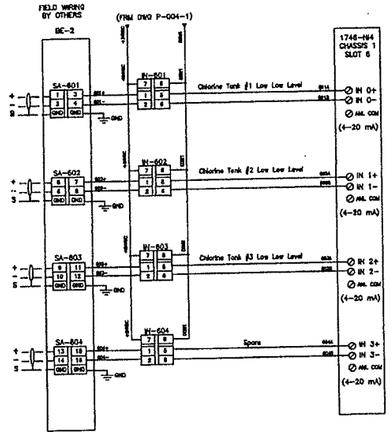
TITLE: ANALOG INPUT WIRING – CHASSIS 1/SLOT 5
PLC-5 CONTROL PANEL

CLIENT: INDIAN RIVER, FL

Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310

PROJECT	CODE	DRAWING	SHEET	REV
42090429	PLC-5	I-005	1 OF 1	A



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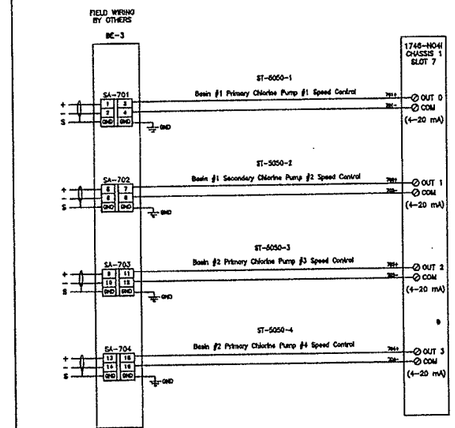
DESIGNED CLW 3/31/05 · DRAWN CLW 3/31/05 · CHECKED - · ENGINEER CNJ 3/31/05 · MANAGER CNJ 3/31/05 · PLC ENGR · SCALE: NTS

TITLE: ANALOG INPUT WIRING – CHASSIS 1/SLOT 6
PLC-5 CONTROL PANEL

CLIENT: INDIAN RIVER, FL

Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310

PROJECT	CODE	DRAWING	SHEET	REV
42CB0429	PLC-5	I-006	1 OF 1	A



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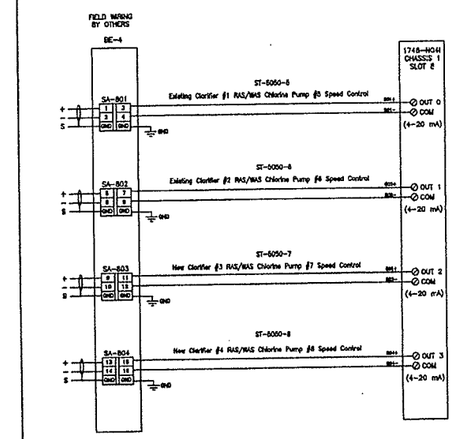
DESIGNED CLW 3/31/05 · DRAWN CLW 3/31/05 · CHECKED - · ENGINEER CNJ 3/31/05 · MANAGER CNJ 3/31/05 · PLC ENGR · SCALE: NTS

TITLE: ANALOG OUTPUT WIRING – CHASSIS 1/SLOT 7
PLC-5 CONTROL PANEL

CLIENT: INDIAN RIVER, FL

Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310

PROJECT	CODE	DRAWING	SHEET	REV
42090429	PLC-5	I-007	1 OF 1	A



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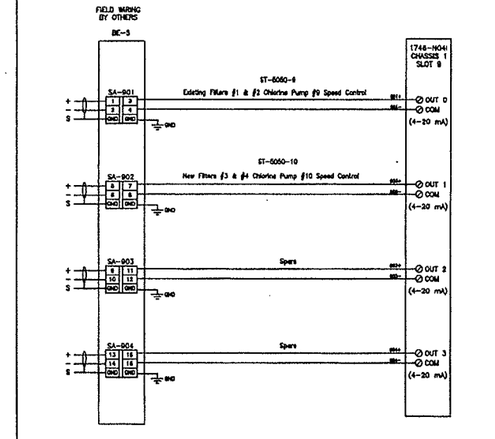
TITLE: ANALOG OUTPUT WIRING – CHASSIS 1/SLOT 8
PLC-5 CONTROL PANEL

CLIENT: INDIAN RIVER, FL

Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310

PROJECT	CODE	DRAWING	SHEET	REV
42090429	PLC-5	I-008	1 OF 1	A



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REVISION DESCRIPTION: ISSUED FOR APPROVAL	DATE: 4/15/05	REV BY: CLW

DESIGNED CLW 3/31/05 · DRAWN CLW 3/31/05 · CHECKED - · ENGINEER CNJ 3/31/05 · MANAGER CNJ 3/31/05 · PLC ENGR · SCALE: NTS

TITLE: ANALOG OUTPUT WIRING – CHASSIS 1/SLOT 9
PLC-5 CONTROL PANEL

CLIENT: INDIAN RIVER, FL

Krüger — KRUGER, INC. CARY, NORTH CAROLINA 27513 Phone: (919) 677-8310

PROJECT	CODE	DRAWING	SHEET	REV
42090429	PLC-5	I-009	1 OF 1	A

AS-BUILT PLAN

NO.	DATE	DESCRIPTION	DR/APP

REVISIONS

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
CERTIFICATE OF AUTHORIZATION #4204
1655 27th STREET, SUITE 2
(772) 567-5300 / FAX (772) 794-1106

PLC-5
CENTRAL REGION
WWTP EXPANSION

INDIAN RIVER COUNTY — FLORIDA

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EARL H. MASTELLER, P.E. FL#26658

DRAWN	JRP
DESIGNED	EHM
CHECKED	EHM
DATE	2/07
SCALE	AS-NOTED
SHEET	6 OF 6
DWG NO	0325

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#	NUMBER
&	AND
ø	DIAMETER
@	AT
	'
A	AIR (COMPRESSED)
A, AMP	AMPERE
A/C	CONDITIONING UNIT
AA	AERATION AIR
AB	ANCHOR BOLT
ABDN	ABANDON
ABI	AERATION BASIN INFLUENT
AC	AIR CONDITIONING OR ALTERNATING CURRENT
ACCV	AUTOMATIC CONTROL CHECK VALVE
ACP	ABESTOS CEMENT PIPE
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
ADDL	ADDITIONAL
ADJ	ADJUSTBLE
ADPT	ADAPTER
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
ALT	ALTERNATE (ING)
AL, ALUM	ALUMINUM
ANOD	ANODIZE
AO	ANALOG OUTPUT
AP	ACCESS PANEL
APPROX	APPROXIMATE (LY)
AR	ACID RESISTANT
ARCH	ARCHITECT (URAL) (URE)
ARND	AROUND
ARV	AIR RELEASE VALVE
AS	ACTIVATED SLUDGE
ASPH	ASPHALT
ASSOC	ASSOCIATION
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
AWL	AVERAGE WATER LEVEL
B	BRASS
B TO B	BACK TO BACK
BCV	BALL CHECK VALVE
BDD	BACKDRAFT DAMPER
BEL	BELOW
BF	BLIND FLANGE
BFP	BELT FILTER PRESS
BFV	BUTTERFLY VALVE
BGO	BURIED GEAR OPERATOR
BHP	BRAKE HORSEPOWER
BIT	BITIMUNOUS
BL	BASELINE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BENCHMARK
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BOW	BOTTOM OF WALL
BPRV	BACK PRESSURE REGULATING VALVE
BRG	BEARING
BSMT	BASEMENT
BSP	BLACK STEEL PIPE
BTU	BRITISH THERMAL UNIT
BTWN	BETWEEN
BUR	BUILT UP ROOF (ING)
BV	BALL VALVE
BVL	BEVEL (ED)
BWR	BACKWASH RETURN
BWS	BACKWASH SUPPLY
BYP	BYPASS
C	CHANNEL (STRUCTURAL)
CA	COMPRESSED AIR
CAD	COMPRESSED AIR, DRIED
CAP	CAPACITY
CATV	CABLE TV
CB	CATCH BASIN OR CIRCUIT BREAKER
CC	CENTER TO CENTER, COOLING COIL
CCW	COUNTER CLOCKWISE
CDT	CONDUIT
CENT	CENTRIFUGAL
CF	CUBIC FOOT
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHAMF	CHAMFER
CHKD	CHECKERED
CHL	CHLORINATOR
CHR	CHLOROPRENE RUBBER (NEOPRENE)
CI	CAST IRON
CIGL	CAST IRON PIPE GLASS LINED
CIP	CAST IRON PIPE
CIR	CIRCLE
CIRC	CIRCUMFERENTIAL
CIU	CAST IRON PIPE UNLINED
CJ	CONSTRUCTION JOINT
CL	CENTER LINE
CL2	CHLORINE SYSTEM
CL2G	CHLORINE (GAS)
CL2L	CHLORINE (LIQUID)
CL2S	CHLORINE SOLUTION
CLF	CURRENT LIMITING FUSE
CLG	CEILING
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNITS
CNR	CONDENSATE RETURN
CNS	CONDENSATE SUPPLY
CO	CLEAN OUT
COL	COLUMN
COMB	COMBINATION, COMBUSTION
COMP	COMPRESSIBLE
CONC	CONCRETE
COND	CONDUCTIVITY
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CORR	CORRUGATED
CPLG	COUPLING
CPOL	CATIONIC POLYMER
CPP	CONCRETE PRESSURE PIPE
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRS	COURSE (S)
CS	CARBON STEEL OR CONTROL SWITCH
CSL	CONDITIONED SLUDGE
CSM	CHLORINE SULPHONILE POLYETHYLENE (HYPALON)
CSTG	CASTING
CT	CURRENT TRANSFORMER
CTG	COATING
CTJ	CONTROL JOINT
CTR	CENTER (ED)
CTSK	COUNTERSINK
CTU	CENTRAL TELEMETRY UNIT
CU	COPPER OR CUBIC
CUH	CABINET UNIT HEATER
CUP	COPPER PIPE
CV	VALVE FLOW COEFFICIENT
CV-A	CHECK VALVE (AIR CUSHION)
CV-H	CHECK VALVE (HYDRAULIC CUSHION)
CVR	CONVECTOR
CW	COLD WATER
CWO	CLEARWELL OVERFLOW
CWR	COOLING WATER RETURN
CWS	COOLING WATER SUPPLY
D	DRAIN (STRUCTURE)
DA	COMPRESSED DRIED AIR
DAF	DISSOLVED AIR FLOTATION
DB	DECIBEL OR DRY BULB
DC	DIRECT CURRENT
DCU	DISTRIBUTED CONTROL UNIT
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DG	DIGESTER GAS
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIFF	DIFFUSER
DIGL	DUCTILE IRON GLASS LINED PIPE
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DIV	DIVISION
DIW	DEIONIZED WATER
DL	DEAD LOAD
DN	DOWN
DO	DISSOLVED OXYGEN OR DITTO
DOI	DOOR INTERLOCK
DR	DRIVE
DS	DIGESTED SLUDGE
DV	DIAPHRAGM VALVE
DW	DISTILLED WATER
DWG	DRAWING
DWL	DOWEL
DWTR	DEWATERIED)
E	EMERGENCY WATER
EA	EACH
EAT	ENTERING AIR TEMPRATURE
EC	EMPTY CONDUIT
ECC	ECCENTRIC
ED-F	EQUIPMENT DRAIN (FLUSH TYPE)
ED-O	EQUIPMENT DRAIN (EXTENDED TYPE-OPEN)
ED-S	EQUIPMENT DRAIN (EXTENDED TYPE-SEALED)
EDH	ELECTRIC DUCT HEATER
EF	EACH FACE
EFF	EFFLUENT
EGC	EQUIPMENT GROUNDING CONDUCTOR
EGO	ELEVATED GEAR OPERATOR
EL	ELEVATION
ELEC	ELECTRIC(AL)
EMERG	EMERGENCY
ENGR	ENGINEER
ENT	ENTERING
EOP	EDGE OF PAVEMENT
EP	ELECTROPNEUMATIC OR ELECTRICAL PANEL
EPDM	ETHYLENE PROPYLENE RUBBER
EQ	EQUAL (LY)
EQIV	EQUIVALENT
EQUIP	EQUIPMENT
ES	EACH SIDE
ESMT	EASEMENT
EST	ESTIMATE (D)
ETC	ETCETERA
EVAP	EVAPORATOR (ION)
EUH	ELECTRIC UNIT HEATER
EW	EACH WAY
EXA	EXHAUST AIR
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
EXTD	EXTENDED
EY	EPOXY
F	FILTRATE OR FARENHEIT
f'c	CONCRETE COMPRESSION STRESS
f'm	MASONRY PRISM STRESS
FAB	FABRICATE (OR, ED)
FAC	FACILITY OR FLANGED ADAPTOR COUPLING
FB	FLOOR BOX (BUSHING TYPE)
FBO	FURNISHED BY OTHERS
FC	FLEX CONNECTION
FD	FLOOR DRAIN
FDMPR	FIRE DAMPER
FDN	FOUNDATION
FE	FLOW ELEMENT (METER)
FEF	FILTER EFFLUENT
Fe CL3	FERRIC CHLORIDE
FH	FIRE HYDRANT
FHMS	FLATHEAD MACHINE SCREW
FHWS	FLATHEAD WOOD SCREW
FI	FILTER INFLUENT
FIG	FIGURE
FIN	FINISH (ED)
FIT	FLOW INDICATING TRANSMITTER
FL	FLOOR OR FIRE LINE
FLD	FUSIBLE LINK DAMPER
FLEX,FLX	FLEXIBLE
FLG	FLANGE (D)
FLR	FLOOR
FLX	FLEXIBLE
FM	FORCE MAIN
FO	FUEL OIL
FOB	FLAT ON BOTTOM
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOT	FLAT ON TOP
FOV	FUEL OIL VENT
FP	FILTER PRESS
FPM	FEET PER MINUTE
FPT	FEMALE PIPE THREAD
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FLOOR STAND
FT	FEET/FOOT
FTG	FOOTING/FITTING
FTR	FINNED TUBE RADIATION
FTW	FILTER TO WASTE
FU	FUSE
FURN	FURNISHED
FW	FILTERED WATER
fy	STEEL YIELD STRESS
G	NATURAL GAS
GA	GAGE
GALV	GALVANIZED
GE	GROOVED COUPLING (SHOULDERED ENDS)
GEC	GROUNDING ELECTRODE CONDUCT
GEN	GENERATOR
GF	GROUND FAULT INTERRUPTER
GI	GALVANIZED IRON
GL	GLASS PIPE
GLB	GLASS BLOCK
GOV	GLOBE VALVE
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GR	GRADE
GRAV	GRAVITY
GRND	GROUND
GRTG	GRATING
GSKT	GASKET
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
HAS	HEADED ANCHOR STUD
HB	HOSE BIBB
HC	HEATING COIL
HCL	HYDROCHLORIC ACID
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDWR	HARDWARE
HES	HIGH EARLY STRENGTH
HEX	HEXAGON
HFAC	HARNESSED FLANGED ADAPTOR COUPLING
HFL	HYDROFLUOSILIC ACID
HGR	HANGER
HH	HANDHOLE
HK	HOOK
HOA	HAND-OFF AUTO
HOR	HORIZONTAL
HP	HIGH POINT OR HORSEPOWER
HPA	HIGH PRESSURE AIR
HS	HIGH STRENGTH OR HIGH SERVICE
HSM	HIGH SERVICE MAIN
HT	HEIGHT
HTHW	HIGH TEMPERATURE HOT WATER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HW	HOT WATER
HWA	HIGH WATER ALARM
HWL	HIGH WATER LEVEL
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HWW	HIGH PRESSURE WASH WATER
HZ	HERTZ
IA	INSTRUMENT AIR
ID	INSIDE DIAMETER
IF	INSIDE FACE
IIR	ISOBUTENE ISOPRENE (BUTYL) RUBBER
IN	INCH
INF	INFLUENT
INS	INSIDE
INSTR	INSTRUMENT (TATION)
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
IP	IRON PIPE BOUNDARY
IR	IRON ROD BOUNDARY
ISOL	ISOLATOR, ISOLATION
JB	JUNCTION BOX
JCT	JUNCTION
JT	JOINT
KO	KNOCKOUT
KSI	KIPS (1000 POUNDS) PER SQUARE INCH
KTV	KNIFE GATE VALVE
L	LENGTH OR STRUCTURAL ANGLE DESIGNATION
LA	LIGHTNING ARRESTER
LAB	LABORATORY
LAM	LAMINATED
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUND
LBS	POUNDS
LCP	LOCAL CONTROL PANEL
LF	LINEAL FEET
LG	LONG
LGB	LAG BOLT
LIME	LIME, DRY
LIT	LEVEL INDICATING TRANSMITTER
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LNDG	LANDING
LOC	LOCATION/LOCATED
LONG	LONGITUDINAL
LP	LOW POINT OR LOW PRESSURE OR LIGHT POLE
LPA	LOW PRESSURE AIR (FROM BLOWERS)
LPNL	LIGHTING PANEL
LR	LONG RADIUS
LS	LIME SLURRY
LT	LIGHT
LVG	LEAVING
LW	LIGHTWEIGHT
LWA	LOW WATER ALARM
LWL	LOW WATER LEVEL
LWT	LEAVING WATER TEMPERATUE
M	MOTOR
MASY	MASONRY
MATL	MATERIAL
MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MB	MACHINE BOLTS
MBH	THOUSAND BTU PER HOUR
MC	STEEL MISCELLANEOUS CHANNEL
MCC	MOTOR CONTROL CENTER
MCJ	MASONRY CONTROL JOINT
ME	METHANOL
MECH	MECHANICAL
MFD	MANUFACTURED
MFG	MANFACTURING
MFR	MANUFACTURER
MG/L	MILLIGRAMS PER LITER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MHS	METAL HOSE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MIXED LIQUOR
MO	MASONRY OPENING
MOD	MOTOR OPERATED DAMPER
MON	MONUMENT
MPH	MILES PER HOUR
MRPP	METAL REINFORCED PLASTIC PIPE
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MV	MUD VALVE
N	NEUTRAL
N2	NITROGEN
NACL	SODIUM CHLORITE
NAOH	CAUSTIC SODA (SODIUM HYDROXIDE)
NBR	NITRILE RUBBER
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NG	NATURAL GAS
NIC	NOT IN CONTRACT
NMO	NORMALLY OPEN
NOM	NOMINAL
NOS	NATIONAL OCEANOGRAPHIC SURVEY
NPOL	NONIONIC POLYMER
NPT	AMERICAN NATIONAL TAPER PIPE THREAD
NPW	(NON-POTABLE) RAW WATER
NR	NATURAL RUBBER
NTS	NOT TO SCALE
NO	NUMBER, NORMALLY OPEN
OA	OUTSIDE AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRIC
OF	OUTSIDE FACE
OG	OZONE OFF-GAS
OH	OVERHEAD (DOOR)
OL	OVERLOAD
OPER	OPERATOR
OPNG	OPENING
OPP	OPPOSITE
OPT	OPTION (AL)
OS	OXIDIZED SLUDGE
OT	OVERHEAD TELEPHONE
OTV	OVERHEAD TELEVISION
OVF	OVERFLOW
OZA	OZONATED AIR
OZE	OZONE EXHAUST
O/E	OR EQUAL
P	PROTECTED
PA	POLYAMIDE
PAB	PROCESS AERATION BLOWERS
PAC	PLANT AIR COMPRESSOR
PAG	AIRGAP PROTECTED WATER
PAVT	PAVEMENT
PB	PUSHBUTTON
PBAV	PLASTIC BALL VALVE
PC	POINT OF CURVE
PCC	POINT OF COMPLEX CURVATURE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PCF	POUND PER CUBIC FOOT
PCTFE	POLYCHLOROTRIFLUORETHYLENE
PCV	PRESSURE CONTROL VALVE
PD	PUMP DISCHARGE
PE	PLAIN END
PEFL	PRIMARY EFFLUENT
PERF	PERFORATED
PF	PHENOL-FORMALDEHYDE
PFU	POLYMER FEED UNIT
PGA	PURGE AIR (LIME SILOS)
pH	HYDROGEN ION CONCENTRATION
PH	PHASE
PHOS	PHOSPHATE
PWH	PROTECTED HOT WATER
PI	POINT OF INTERSECTION
PINF	PRIMARY INFLUENT
PJF	PREMOLDED JOINT FILLER
PL	PROPERTY LINE, PLATE DESIGNATION, OR PILOT
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLP	POLYPHOSPHATE
PLS	PLASTIC LINED STEEL
PLT	PLANT
PLYWD	PLYWOOD
PNL	PANEL
POJ	PUSH ON JOINT
POL	POLYMER
POLYE	POLYETHYLENE
POLYP	POLYPROPYLENE
POM	POLYOXYMETHYLENE
POT	POINT OF TANGENCY
POTH	POTASSIUM HYDROXIDE
POTM	POTASSIUM PERMANGANATE
PP	POWER POLE
PPM	PARTS PER MILLION
PR	PRETREATED WATER SYSTEM
PRC	POINT OF REVERSE CURVE
PRCST	PRECAST
PREFAB	PRE-FABRICATED
PRES	PRESSURE
PRIM	PRIMARY
PRV	PRESSURE RELIEF VALVE
PRW	PRESSURE WASTE
PS	PUMP STATION
PSC	PRIMARY SCUM
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAGE
PSIG	PSI GAGE
PT	POINT
PTFE	POLYTETRAFLUORETHYLENE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PVRV	PRESSURE VACUUM RELIEF VALVE
PW	POTABLE WATER
PWL	PEAK WATER LEVEL
PWM	POTABLE WATER METER
QTY	QUANITY/QUALITY
R/W	RIGHT-OF-WAY
RA	RETURN AIR
RAD	RADIUS
RAS	RETURN ACTIVATED SLUDGE
RBH	RUBBER HOSE
RC	REINFORCED CONCRETE
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RDWD	REDWOOD
RED	REDUCER
REF	REFERENCE, REFER, ROOF EXHAUST FAN
REG	REGISTER
REINF	REINFORCING
REM	REMOVE
REQ'D	REQUIRED
RES	RESIDUAL
REV	REVISION
RF	ROOF FAN
RH	RELATIVE HUMIDITY
RIS	RUBBER IN SHEAR
RJ	RESTRAINED JOINT
RL	RAIN LEADER
RLCI	RUBBER LINED CAST IRON
RLDI	RUBBER LINED DUCTILE IRON
RM	ROOM
RMS	ROOT MEAN SQUARE
RND	ROUND
RO	ROUGH OPENING
ROT	ROTAMETER
RPBP	REDUCED PRESSURE BACKFLOW PRECLENTOR
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RS	RAW SEWAGE
RSL	RAW SLUDGE
RT	RIGHT
RTU	REMOTE THERMAL UNIT
RW	RAW WATER
S	SIGNAL LINE OR STEEL S-SHAPE DESIGNATION
SA	SUPPLY AIR
SAN	SANITARY
SAN S	SANITARY SEWER
SB	STONE MONUMENT BOUNDARY
SC	SCUM
SCE	SECONDARY CLARIFIER EFFLUENT
SCH	SCHEDULE
SCI	SECONDARY CLARIFIER INFLUENT
SCV	SILENT CHECK VALVE
SD	STORM DRAIN
SDCV	SLANTING DISC CHECK VALVE
SE	SECONDS OR SECONDARY
SEC	SECTION
SF	SUPPLY FAN
SG	SLUICE GATE
SG-C	SLUICE GATE - MANUAL CRANK OPERATOR
SG-HW	SLUICE GATE - HAND WHEEL OPERATOR
SG-M	SLUICE GATE - MOTOR OPERATOR
SHC	SODIUM HYPOCHLORITE
SHT	SHEET
SIM	SIMILAR
SJ	SOLDERED JOINT
SL	SLUDGE
SLG	SLIDE GATE
SLG-C	SLIDE GATE - MANUAL CRANK OPERATOR
SLG-HW	SLIDE GATE - HAND WHEEL OPERATOR
SLG-M	SLIDE GATE - MOTOR
SLV	SLEEVE
SN	SOLID NEUTRAL
SN	SUPERNATANT
SO2G	SULFUR DIOXIDE (GAS)
SO2S	SULFUR DIOXIDE SOLUTION
SOJ	SLIP ON JOINT
SOL	SOLUTION
SP	STATIC PRESSURE OR SPACE (D)
SPC	SPACE (S, ED)
SPEC	SPECIFICTION, SPECIFIED
SPG	SPRING
SPL	SAMPLE
SPR	SPRINKLER LINE
SPTG	SEPTAGE
SPW	SPRAY WATER
SQ	SQUARE
SR	SLUDGE RETURN
SS	STAINLESS STEEL
SSC	SECONDARY SCUM
SSFL	SODIUM SILICO FLUORIDE
SSIL	SODIUM SILICATE
SSK	SERVICE SINK
SSL	SECONDARY SLUDGE
SSP	STAINLESS STEEL PIPE
STA	STATION
STD	STANDARD
STIFF	STIFFENER
STIR	STIRRUP (S)
STL	STEEL
STP	SLUDGE TRANSFER PUMP
STRUC	STRUCTURE (S, URAL)
SUSP	SUSPENDED
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWD	SIDE WATER DEPTH
SWGR	SWITCHGEAR
SWK	SIDEWALK
SYM	SYMMETRICAL
T	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TAN	TANGENCY
TAS	THICKENED ACTIVATED SLUDGE
TC	TIME DELAY ON CLOSING
TD	TRENCH DRAIN OR TEMPERATURE DIFFERENCE
TDO	TIME DELAY ON OPENING
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPERATURE/TEMPORARY
TF	TOP FACE, TRANSFER FAN
TFP	TRANSFER PUMP
THD	THREADED
THK	THICK (NESS)
TKD	TANK DRAIN
TM	TELEMETER OR TIME
TO	TOP OF
TOB	TOP OF BERM/BANK
TOC	TOP OF CURB/CONCRETE
TOP	TOP OF PIPE
TOS	TOP OF STEEL
TOW	TOP OF WALL
TOXS	THICKENED OXIDIZED SLUDGE
TP	TURNING POINT
TPRP	THERMOPLASTIC REINFORCED PIPE
TPS	THICKENED PRIMARY SLUDGE
TPY	TEMPORARY
TR	TRIANGULATION POINT
TRAN	TRANSFER
TRANS	TRANSVERSE (ITION), TRANSITION
TS	STRUCTURAL TUBING (STEEL UNLESS NOTED)
TSL	THICKENED SLUDGE
TUBV	TIME UNION BALL VALVE
TURB	TURBIDITY
TV	TELEVISION
TWAS	THICKENED WASTE ACTIVATED SLUDGE
TYP	TYPICAL
U	HEAT TRANSFER COEFFICIENT
UD	UNDERDRAIN
UG	UNDERGROUND
UGTC	UNDERGROUND TELEPHONE CABLE
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UPVC	UN-PLASTICIZED POLYVINYL CHLORIDE
V	VOLTS
VA	VENT AIR
VA-H	HYDRAULIC VALVE OPERATOR
VA-M	MOTOR VALVE OPERATOR
VA-P	PNEUMATIC VALVE OPERATOR
VA-S	SOLENOID VALVE OPERATOR
VAC	VACUUM
VAR	VARIOUS/VARIABLE
VAV	VARIABLE AIR VOLUME
VB	VALVE BOX
VBR	VACUUM BREAKER
VC	VICTAULIC COUPLING
VCP	VITRIFIED CLAY PIPE
VD	VOLUME DAMPER
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VIB	VIBRATION
VIPA	VIRGIN ISOPROPYL ALCOHOL
VNBA	VIRGIN N. BUTYL ACETATE
VOL	VOLUME
VS	VARIABLE SPEED
VSD	VARIABLE SPEED DRIVE
VT	VENT
VTR	VENT THROUGH ROOF
W	WIDTH
W/	WITH
W/O	WITHOUT
WAP	WALL PIPE
WAS	WASTE ACTIVATED SLUDGE
WB	WET BULB
WBW	WSTE BACKWASH WATER
WC	WATER CLOSET
WF	STEEL WIDE FLANGE
WH	WATER HEATER
WJ	WELDED JOINT
WL	WATER LEVEL
WM	WATER MAIN
WNSA	WASTE N. BUTYL ACETATE
WNC	WASTE NON-CHLORINATED
WOAS	WASTE OXYGEN ACTIVATED SLUDGE
WP	WELDED PIPE OR WORKING POINT
WPF	WEATHERPROOF
WR	WASHWATER RECOVERY
WS	WATERSTOP OR WATER SURFACE
WSH	WASHWATER
WSL	WASTE SLUDGE
WSV	WALL SLEEVE
WT	WEIGHT OR STEEL TEE-SHAPE DESIGNATION
WTP	WATER TREATMENT PLANT
WSD	WASHWATER DRAIN
WW	WASTE WATER
WWF	WELDED WIRE FABRIC
WWTP	WASTEWATER TREATMENT PLANT
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
YD	YARD
YR	YEAR

REV. NO.	DATE	DRWN	CK	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ABBREVIATIONS

PROJECT NO. 6705.070
FILE NAME: GART8002

SHEET NO.
G-2

L:\6705_C70\100\GENERAL\ GART8002 03/25/97 11:53:59 M. BANDA

PIPING SYMBOLOGY

DOUBLE LINE SYMBOL	SINGLE LINE SYMBOL	FEATURE
		WELDED JOINT
		FLANGED JOINT SIMPLIFIED REPRESENTATION.
SEE NOTE 2		FLANGED JOINT COMPLEX REPRESENTATION.
		MECHANICAL JOINT SIMPLIFIED REPRESENTATION.
		MECHANICAL JOINT COMPLEX REPRESENTATION.
		MECHANICAL JOINT RESTRAINED
		PUSH ON JOINT OR CAULKED BELL & SPIGOT JOINT SIMPLIFIED REPRESENTATION
		PUSH ON JOINT OR CAULKED BELL & SPIGOT JOINT COMPLEX REPRESENTATION
		PUSH ON JOINT OR CAULKED BELL & SPIGOT JOINT RESTRAINED
		BALL JOINT
		DIRECTION OF FLOW
		PLAIN END x PLAIN END PIPE COUPLING
		PLAIN END x PLAIN END PIPE COUPLING RESTRAINED.
		FLANGE x PLAIN END PIPE COUPLING
		FLEXIBLE COUPLING OR EXPANSION JOINT (SLEEVE TYPE)
(A)(B) TYPE IDENTIFICATION REFER TO SPECS	(A)(B)	
		FLEXIBLE COUPLING OR EXPANSION JOINT (BELLOWS TYPE)
(G) OR (S)		COUPLING FOR VICTAULIC JOINTS: (G) GROOVED (S) SHOULDERED
		FLANGE GUARD
		FLANGE FILLER
		UNION
		QUICK CONNECT COUPLING
		HOSE COUPLING

PIPE AND FITTING SYMBOL NOTES

1. SIMPLIFIED JOINT SYMBOL IS USED FOR ALL SINGLE LINE PIPING SHOWN ON THE INTERIOR AND EXTERIOR PIPING DRAWINGS.

2. BOTH SIMPLIFIED AND COMPLEX JOINT REPRESENTATIONS MAY BE SHOWN ON THE DRAWINGS.

3. UNLESS MODIFIED BY THE GENERAL PROJECT NOTES OR DETAILED ON THE LAYOUT AND SCHEMATIC DRAWINGS PIPE AND FITTING JOINT REQUIREMENTS FOR THE VARIOUS PIPE MATERIALS ARE DEFINED IN THE SPECIFICATIONS.

VALVE SYMBOLOGY

SYMBOL	FEATURE
	UNCLASSIFIED. TYPE AS SHOWN ON THE DRAWINGS ADJACENT TO SYMBOL
	FLOW METER
V	TELESCOPING VALVE
	VALVE WITH HOSE END
	GATE VALVE
	KNIFE GATE VALVE
	GLOBE VALVE
	BALL VALVE
	3-WAY BALL VALVE
	4-WAY BALL VALVE
	CONE VALVE
	NEEDLE VALVE
	PINCH VALVE
	DIAPHRAGM VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	3-WAY PLUG VALVE
	4-WAY PLUG VALVE
	CHECK VALVE, GENERAL SYMBOL
	BALL CHECK VALVE
	DOUBLE DOOR CHECK VALVE
	ANGLE VALVE
S	SOLENOID VALVE
S	THREE WAY SOLENOID VALVE
S	FOUR WAY SOLENOID VALVE
M	MOTOR OPERATED VALVE
	FLAP VALVE
	SHEAR GATE
	MUD VALVE
	FLOOR DRAIN
	OPEN EQUIPMENT DRAIN
	ECCENTRIC REDUCER OR REDUCING BUSHING
	CONCENTRIC REDUCER OR REDUCING BUSHING
	Y-STRAINER
	CALIBRATION CYLINDER
	AIR RELEASE VALVE

VALVE TAG (OPTIONAL)

16"-SBT-BV-4

- 16" — VALVE SIZE
- SBT — PROCESS FLOW STREAM OR STRUCTURE
- BV — ABBREVIATION INDICATING TYPE OF VALVE, i.e. GATE, PLUG, BUTTERFLY, ETC
- 4 — NUMERICAL INDICATOR UNIQUE NUMBER ASSIGNED TO EACH GATE USED (OPTIONAL IF NO SCHEDULE)

PIPELINE APPURTENANCES SYMBOLOGY

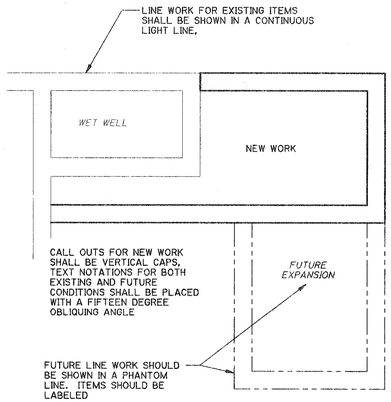
DOUBLE LINE SYMBOL	SINGLE LINE SYMBOL	FEATURE
M	M	FLOW METER, GENERAL SYMBOL
		VENTURI FLOW METER
		FLOOR DRAIN
		OPEN EQUIPMENT DRAIN
		Y-STRAINER
		CALIBRATION CYLINDER

PIPE TAG

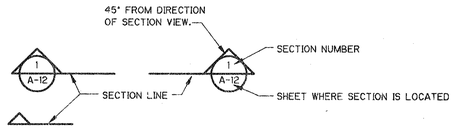
(3) 3/4" SHC-PVC

- (3) — NUMERICAL INDICATOR FOR MULTIPLE IDENTICAL FLOWSTREAMS
- 3/4" — NOMINAL PIPE SIZE
- SHC — ABBREVIATED PROCESS LINE DESCRIPTION
- PVC — PIPE MATERIAL (OPTIONAL)

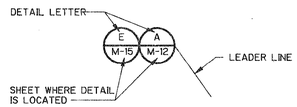
EXISTING OR FUTURE CONDITION DESIGNATION



SECTION CUT SYMBOLS



DETAIL CALL OUT SYMBOLS

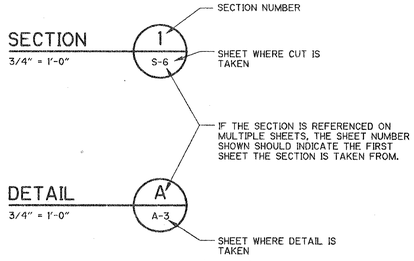


IF MULTIPLE DETAILS REFER TO THE SAME AREA OF THE DRAWING, THE BUBBLES SHOULD BE STACKED SIDE BY SIDE.

DRAWING, SECTION AND DETAIL TITLES

SUBTITLE OR DESCRIPTION (AS REQ'D)

PLAN
1/4" = 1'-0"



GENERAL

	NEW MAIN THIS PROJECT
20" WM	EXISTING WATER MAIN
16" RW	EXISTING RAW WATER MAIN
MH SAN S	EXISTING SANITARY SEWER W/ MANHOLE
10" FM	EXISTING FORCE MAIN
T	EXISTING BURIED TELEPHONE
P	EXISTING POWER DUCTS OR CABLES
OHP	OVERHEAD POWER
CATV	EXISTING CABLE TELEVISION
CB 15" SS	EXISTING STORM SEWER W/CATCH BASIN
FH	FIRE HYDRANT
	R/W - RIGHT OF WAY
	℄ - PROPERTY LINE
	NEW MAIN TO BE CONST. UNDER EXISTING UTILITY
	NEW MAIN TO BE CONST. OVER EXISTING UTILITY
□ or ○ PP	EXISTING POWER POLE
□ or ○ LP	EXISTING LIGHT POLE
SB-1	SOIL BORING
BM 1	BENCH MARK
	EXISTING CHAIN LINK FENCE
	NEW CHAIN LINK FENCE
12.00	EXISTING CONTOUR
12.00	NEW CONTOUR
12.00 +	EXISTING SPOT ELEVATION
12.00	NEW SPOT ELEVATION
	NEW STRUCTURES
	EXISTING STRUCTURES (TO REMAIN)
	EXISTING STRUCTURES (TO BE MODIFIED)
	EXISTING STRUCTURES (TO BE REMOVED)
	NEW CONCRETE SLAB OR SIDEWALKS
EXISTING STRUCTURES	SLANTED TEXT
NEW STRUCTURES	VERTICAL TEXT

M. BANDA
3/30/04
03/29/97 12:02:22
GSYTB003
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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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environmental services offices worldwide

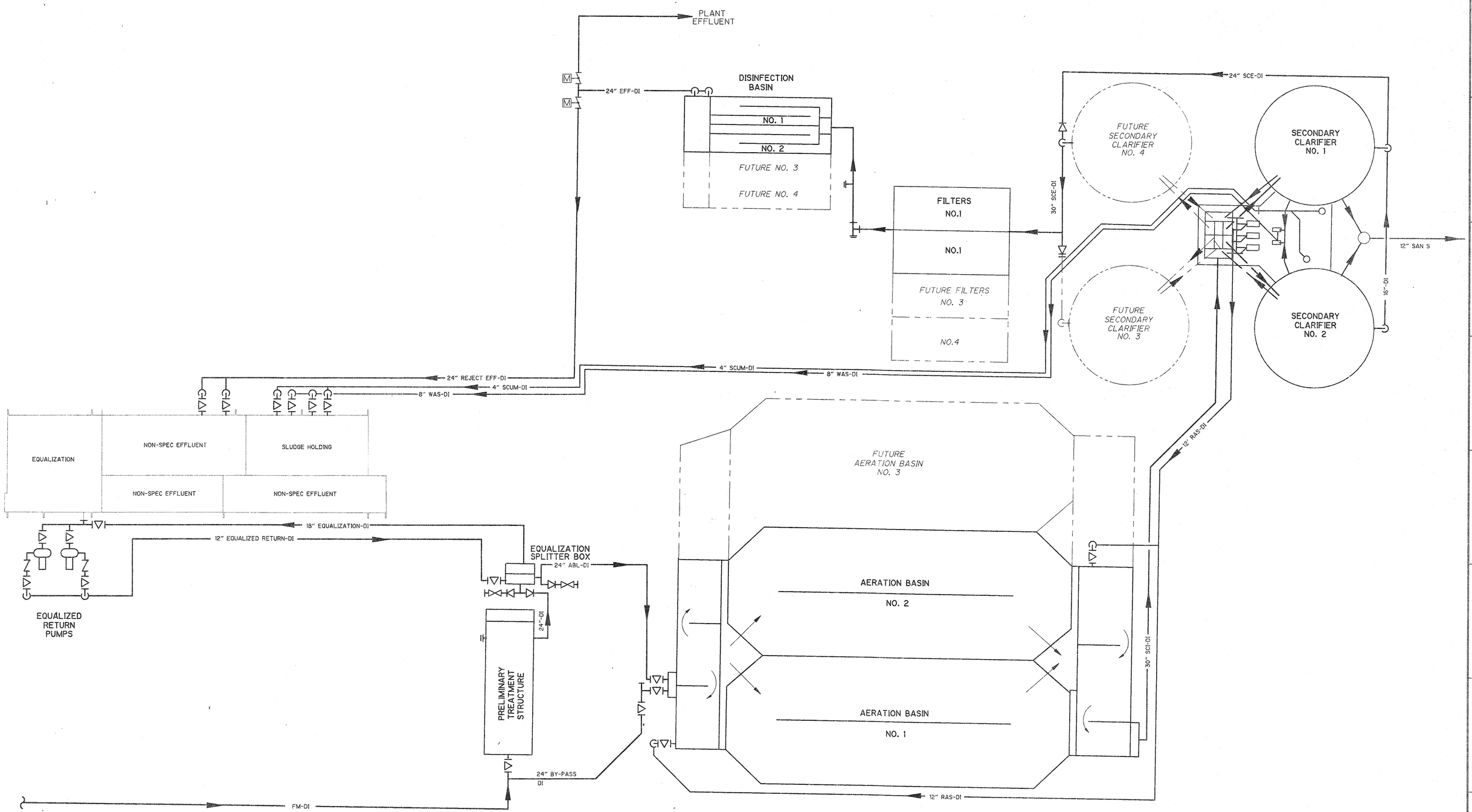
INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

SYMBOLS

PROJECT NO. 6706_070
FILE NAME: GSYTB003

SHEET NO.
G-3



M. BANDA
9:53:07
04/08/97 10:59:28
GPFDIG04
L:\6706.070\DOP\GENERAL\

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
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DATE: APRIL 1997

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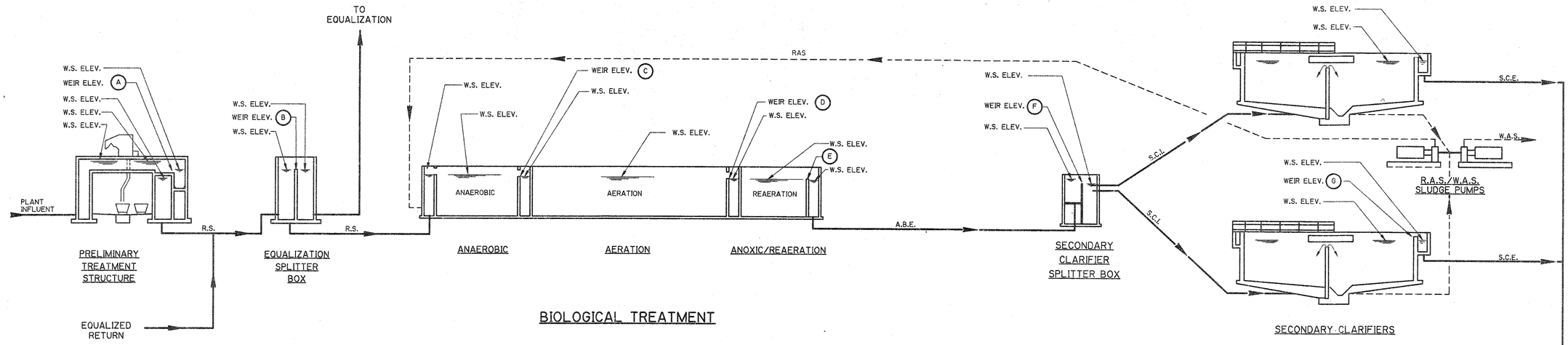
WASTEWATER TREATMENT PLANT EXPANSION

PLANT FLOW DIAGRAM

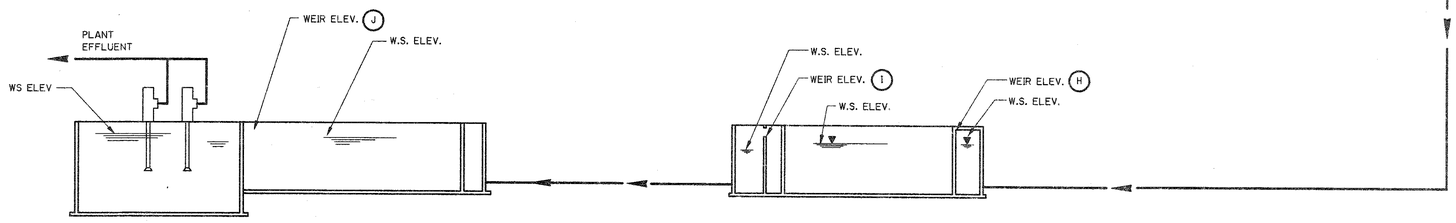
PROJECT NO. 6706_070
FILE NAME: GPFDIG04

SHEET NO.
G-4



BIOLOGICAL TREATMENT

WEIR ELEVATIONS, FT-MSL		
WEIR	DESCRIPTION	ELEVATION
A	GRIT UNIT WEIR	44.59
B	EQUALIZATION SPLITTER BOX	41.43
C	AERATION BASIN INFLUENT WEIR	37.30
D	AERATION BASIN EFFLUENT WEIR	36.43
E	REAERATION BASIN EFFLUENT WEIR	35.56
F	SECONDARY CLARIFIER SPLITTER BOX	32.58
G	SECONDARY CLARIFIER WEIR	31.10
H	FILTER INFLUENT WEIR	25.31
I	FILTER EFFLUENT WEIR	23.31
J	CHLORINE CONTACT BASIN EFFLUENT WEIR	20.50



WETWELL DISINFECTION BASIN TRAVELING BRIDGE FILTERS

HYDRAULIC PROFILE

		WATER SURFACE ELEVATIONS, FT-MSL																				
		PRELIMINARY TREATMENT STRUCTURE				EQUALIZATION SPLITTER BOX		INFLUENT BOX	ANAEROBIC BASIN	AERATION BASIN	REAERATION BASIN		SECONDARY SPLITTER BOX		SECONDARY CLARIFIER		FILTER			DISINFECTION BASIN	
	MGD	INFLUENT	SCREEN OUT	GRIT UNIT	EFFLUENT	INFLUENT	EFFLUENT	SURFACE	SURFACE	SURFACE	SURFACE	EFFLUENT	INFLUENT	EFFLUENT	SURFACE	EFFLUENT	INFLUENT	SURFACE	EFFLUENT	SURFACE	WETWELL
AVERAGE DAILY FLOW	2.0	45.46	44.92	44.92	41.64	41.64	37.68	37.54	37.54	36.66	35.79	33.04	32.91	31.28	31.18	27.54	25.47	23.46	20.76	20.74	20.00
MAXIMUM DAY FLOW	5.0	45.48	45.22	45.20	41.81	41.81	38.60	37.77	37.73	36.86	35.99	34.00	33.19	31.85	31.21	27.77	25.62	23.59	21.06	20.94	20.00
PEAK HOUR FLOW	8.0	46.52	45.47	45.43	41.95	41.95	40.03	37.90	37.82	36.94	36.07	34.67	33.31	32.32	31.23	28.18	25.78	23.69	21.41	21.11	20.00
EXTREME PEAK FLOW	*	46.52	45.47	45.43	41.95	41.95	39.98	37.84	37.76	36.89	36.86	36.40	35.42	34.38	31.27	30.21	26.01	23.92	21.78	21.48	20.00

* EXTREME FLOW DURING PEAK HOUR CONDITIONS WITH ONE UNIT OUT OF SERVICE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

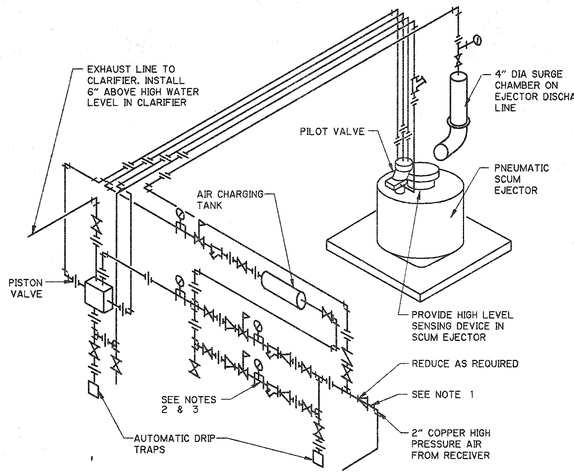
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HYDRAULIC PROFILE

PROJECT NO. 6706_070
FILE NAME: GHPD1008

SHEET NO.
G-5

M. BANDA 15:13:36 03/25/97 13:17:21 GHPD1005 L:\6706_070\DOT\GENERAL\



SCUM EJECTOR AIR PIPING SCHEMATIC

NTS

NOTES:

1. AIR PIPING TO BE TYPE 'L' HARD DRAWN COPPER w/ CAST BRASS FITTINGS SIZE AS DETERMINED BY MANUFACTURER
2. ALL VALVES, FITTINGS & APPURTENANCES MAY NOT BE SHOWN. ANY ADDITIONAL VALVES, FITTINGS AND APPURTENANCES REQUIRED FOR THE PROPER OPERATION OF THE EJECTORS SHALL BE FURNISHED AND INSTALLED AT NO EXTRA COST (SEE SPEC.)
3. SOME VALVES AND APPURTENANCES ARE FURNISHED WITH EJECTORS. (SEE SPECS.)
4. ALL BURIED HIGH PRESSURE AIR PIPING SHALL BE INSTALLED LEVEL OR AT A CONTINUOUS SLOPE TO PERMIT ANY CONDENSATE TO FLOW TO AUTOMATIC DRIP TRAPS
5. PIPE SUPPORTS ARE REQUIRED ON ONE SIDE OF EVERY VALVE AND CHANGE OF DIRECTION WITH A MAXIMUM SPACING OF 5'-0" O.C.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: C. PEAY
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS SCHEMATICS

PROJECT NO. 6706_070
FILE NAME: 0SCDT006

SHEET NO.
G-6

L:\6706_070\100P\GENERAL\ 0SCDT006 03/25/97 13:26:34 0:46:48 M. BANDA

LEGEND

- ⊕ TB-1 STANDARD PENETRATION TEST (SPT) BORING
- ⊞ AB-1 AUGER BORING
- ▲ PZ-1 PIEZOMETER

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. HOFFMAN
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

SITE SURVEY AND SOIL BORING LOCATIONS

PROJECT NO. 6706_070
FILE NAME: CSTPLOC1

SHEET NO.
C-1

M. BANDA
8:11:14
04/08/97 09:21:01
L:\6706_07\c\WDP\CIVIL\ CSTPLOC1

POINT OF BEGINNING
FOUND CONCRETE MONUMENT
NO IDENTIFICATION
N.W. CORNER OF THE S.W. 1/4
OF THE N.E. 1/4

N89°19'20"W
CHAINLINK FENCE

977.04' LEGAL
976.35

FOUND CONCRETE MONUMENT
NO IDENTIFICATION

N

1"= 40'

VACANT LANDS

CHAINLINK FENCE

SPRINKLER CONTROL

METAL SHED

ASPHALT

RAMP

BLOCK WALL

INV. = 20.69'
246.69'

CB TOP = 32.94'
BTM. = 27.74'

CB TOP = 32.92'
BTM. = 27.58'

7.6' C 7.6' C 7.6' C

POINT OF BEGINNING
FOUND CONCRETE MONUMENT
NO IDENTIFICATION
N.W. CORNER OF THE S.W. 1/4
OF THE N.E. 1/4

VACANT LANDS

N89°19'20"W 977.04' LEGAL 976.35'

CHAINLINK FENCE

METAL SHED

SPRINKLER CONTROL

ASPHALT

RAMP

BLOCK WALL

INV. = 20.79
246.69'

CB TOP = 32.94'
BTM. = 27.24'

CB TOP = 32.92
BTM. = 27.56'

CBS SEPTAGE/SLUDGE AND GREASE TRANSFER STATION

CONC. SLAB

17.86'

95.99'

SLUDGE FEED PUMPS

BLOCK WALL

C.O.

FIRE HYDRANT

SPRINKLER CONTROL VALVE

CHEMICAL STORAGE

ODOR CONTROL

72.72'

93.81'

9.89'

DRIVE THRU

CONC. SLAB

41.96'

SOLIDS PROCESS BUILDING
F.F. ELEV. = 25.04'

82.60'

CONC. WALK

SEE DETAIL

ELEVATION 21.69

METER PIT

12" PIPE

24" PIPE

EQUALIZATION 55.86' BASIN

ROCK

CONC. SLAB

REUSE

GRAVEL

OFFICE

MANHOLE

EQUALIZATION SPLITTER BOX

4:1 (TYP)

DIRT PARKING

STORMWATER POND
BOT EL 18FT NGVD

ODOR CONTROL SYSTEM

PRELIMINARY TREATMENT STRUCTURE

INSTALL CB
TOP EL 19.50
INV EL 16.00

INSTALL CB
TOP EL 19.0
INV EL 16.5

INSTALL 180LF
15" CMP

INSTALL 50LF
12" CMP
N INV EL 19.0
S INV EL 18.5
W/FDOT SIDE DRAIN
MES EACH END
(TYP)

REMOVE EXISTING
CATCH BASINS
AND CONNECTIONS
PIPING

INSTALL 50LF
15" CMP

INSTALL CB
TOP EL 18.5
INV EL 15.5

INSTALL 204LF
15" CMP

REGRADE
EXIST SWALE

INSTALL CB
TOP 18.0
W INV EL 15.0
E INV EL 14.5

INSTALL 138LF
15" CMP

INSTALL CB
TOP EL 17.5
INV EL 14.0

REMOVE EXIST CB
REPLACE W/NEW CB
TOP EL 17.5
BOT EL 15.0

INSTALL 70LF
15" CMP

REMOVE EXIST CB
REPLACE W/ NEW CB
TOP EL 17.5
BOT EL 14.5

MODIFY EXIST
CONTROL STRUCTURE

115LF
24" CMP
E INV EL 15.2
W INV EL 14.7
DISCHARGE TO
LATERAL H CANAL

CONCRETE CONTROL STRUCTURE

CONTROL PANEL

PLANT SITE LIFT STATION

FOUND IRON PIPE
0.26' EAST

FOUND IRON PIPE
NO IDENTIFICATION

FOUND CONCRETE MONUMENT
NO IDENTIFICATION

SET IRC
LB 4644

S00°00'35"W 85.00'

S00°00'35"W 1320.00'

589°19'20"E 120.00'

589°19'20"E 99.69'
99.53' LEGAL

693.23' LEGAL
693.29'

MONITORING WELL NO. 4

MONITORING WELL NO. 74

LATERAL 'H' CANAL
150' R/W

HIGH RIDGE MOBILE HOME PARK

PHASE I CHLORINE CONTACT BASIN

SODIUM HYPOCHLORITE SYSTEM

PHASE II & III CHLORINE CONTACT BASINS

ALUM SYSTEM

PHASE II FUTURE SECONDARY CLARIFIER NO. 4

PHASE I WAS PUMPS

SECONDARY CLARIFIER NO. 1

SECONDARY CLARIFIER NO. 2

SPLITTER BOX

4'-0" SIDEWALK (TYP)

RAS PUMPS

FILTERS NO. 1

FILTERS NO. 2

PHASE II FUTURE FILTERS NO. 3

PHASE III FUTURE FILTERS NO. 4

PHASE II FUTURE SECONDARY CLARIFIER NO. 3

ELECTRICAL BUILDING

FUEL STORAGE

PHASE III FUTURE AERATION BASIN NO. 3

AERATION BASIN NO. 2

AERATION BASIN NO. 1

STORMWATER MANAGEMENT TRACT

FLOW

A CD-2 B CD-2 (TYP)

I CD-2

H CD-2

L CD-2 (TYP)

M CD-2

1 C-3

2 C-3

3 C-3

N

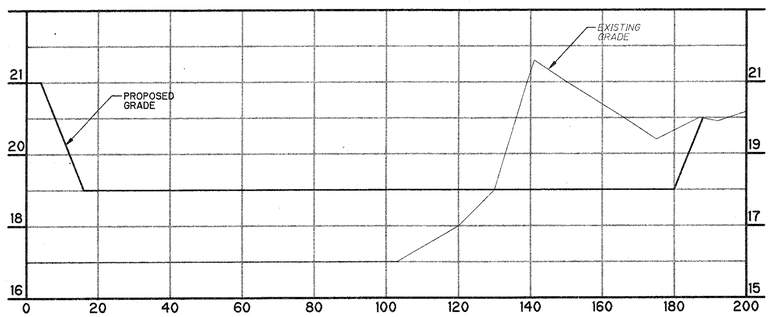
1"= 40'

LEGEND

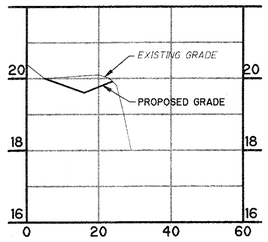
- EXISTING
- FUTURE EXPANSION, PHASE II AND PHASE III
- PROPOSED, PHASE I
- PROPERTY BOUNDARY

NOTE:
ALL SLOPES FOR PROPOSED BERMS FOR STORMWATER POND AREAS AND SWALES ARE TO HAVE A SIDE SLOPE NO STEEPER THAN 4:1 (HORIZONTAL : VERTICAL).

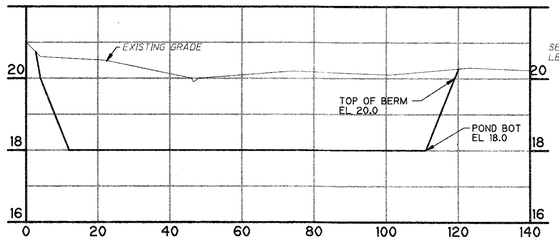
NOTE:
23 PINES LOCATED IN PROPOSED STORMWATER MANAGEMENT TRACT TO BE REMOVED.



SECTION 1
HORIZ 1"=20'
VERT 1"=2'
C-3



SECTION 2
HORIZ 1"=20'
VERT 1"=2'
C-3



SECTION 3
HORIZ 1"=20'
VERT 1"=2'
C-3

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. HOFFMAN
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

PAVING AND GRADING PLAN

PROJECT NO. 6706_070
FILE NAME: CPGPLOC3

SHEET NO.
C-3

LA\6706_070\BD\CIVIL\ CPGPLOC3 05/21/97 07:58:38 10:01:41 Jim S.

POINT OF BEGINNING
FOUND CONCRETE MONUMENT
NO IDENTIFICATION
N.W. CORNER OF THE S.W. 1/4
OF THE N.E. 1/4

VACANT LANDS

N89°19'20"W
977.04 LEGAL
976.42

CHAINLINK FENCE

FOUND CONCRETE MONUMENT
NO IDENTIFICATION

CHAINLINK FENCE

MONITORING WELL NO. 4

MONITORING WELL NO. 3

MONITORING WELL NO. 2

N89°19'44"W
654.25' LEGAL
653.42'

LATERAL "H" CANAL
160' R/W

1" = 40'

REMOVE 8" PLUG AND INSTALL NEW 8" WM-DI

REMOVE 6" PLUG AND INSTALL NEW 6" WM-DI

2" TAP WITH 6"X2" DOUBLE STRAP TAPPING SADDLE 2" G.V.

2" TAP WITH 8"x2" DOUBLE STRAP TAPPING SADDLE 2" GV

8"x6" TEE
6" GV
FH

6"x4" TEE
4" GV

8" PLUG

1" PLW-PVC

3" TAP
3" GV

8" WM-DI

8" FM-PVC

16" EFF-DI

FH

CB
TOP = 19.71'
BTM. = 16.36

6"x45° BEND
(TYP)

1" SODIUM HYPOCHLORITE LINE-PVC

1½" WM-PVC

2" WM-PVC

MH No. 4

12" SCI-DI

6" PLW-DI

2-1" ALUM LINES-PVC
1-1" SODIUM HYPOCHLORITE PVC
FUTURE SECONDARY CLARIFIER NO. 4

SECONDARY CLARIFIER NO. 1

WAS PUMPS

4" PLW-DI

MH No. 10

MH No. 9

MH No. 5

SPLITTER BOX

A
M-22

RAS PUMPS

SECONDARY CLARIFIER NO. 2

6"x45° BEND
6" GV

1" TAP
1" GV

FUTURE SECONDARY CLARIFIER NO. 3

30" SCI-DI

MH No. 8

MH No. 6

PLANT SITE LIFT STATION

MH No. 11

B
MD-4

I
MD-4

6"x4" TEE
2-6"x45° BENDS
4" GV

ASPHALT

CHAINLINK FENCE

MONITORING WELL NO. 1

NO. 1

NO. 2

DISINFECTION BASIN

A
M-22

SODIUM HYPOCHLORITE SYSTEM

ALUM SYSTEM

1" PLW

3" PLW-PVC

30" DI

FILTERS NO. 1

FILTERS NO. 2

FUTURE FILERS NO. 3

FUTURE FILERS NO. 4

1" ALUM-PVC

MH No. 3

MH No. 2

MH No. 1

MH No. 7

ELECTRICAL BUILDING

LEVEL INDICATING TUBING

1½" FUEL SUPPLY AND RETURN LINES-BSP WITHIN SECONDARY CONTAINMENT PIPING SYSTEM-FRP

FUEL STORAGE

6" TEE
2-6" GV'S

FUTURE AERATION BASIN NO. 3

1½" TAP
1½" GV

1½" PLW-PVC

6"x4" TEE
4" GV

AERATION BASIN NO. 2

AERATION BASIN NO. 1

FLOW

1¼" TAP
1¼" GV

STORMWATER MANAGEMENT TRACT

6" TEE
6" PLUG

CB
TOP = 18.91'
BTM. = 15.01

CB
TOP = 18.54'
BTM. = 14.89

REUSE

CONCRETE CONTROL STRUCTURE

CONTROL PANEL

LIFT STATION

CO

FOUND IRON PIPE
0.26' EAST

SET IRC
LB 4644

S00°00'35"W 85.00'

CHAINLINK FENCE

S89°19'20"E 120.00'

S00°00'40"W 30.00'

FOUND IRON PIPE

S89°19'20"E 99.69'
99.53' LEGAL

SET IRC
LB 4644

HIGH RIDGE MOBILE HOME PARK

ROAD

CHAINLINK FENCE

ASPHALT

RAMP

BLOCK WALL

CBS SEPTAGE/SLUDGE AND GREASE TRANSFER STATION

CONC SLAB

17.86

29.83'

95.99'

SLUDGE FEED PUMP

FIRE HYDRANT

SPRINKLER CONTROL VALVE

6"x90° BEND
(TYP)

SCL DETAIL

LIFT STATION
TOP = 21.69

METER PIT

REMOVE 8" PLUG AND INSTALL NEW 8"x6" RED 6" GV

12" FIRE
9½" PIPE

EQUALIZATION BASIN
55.86'

ROCK

REUSE

8" EFF-DI

6" PLW-DI

6"x90° BEND

12" FM-DI

6" SLUDGE-DI

METAL SHED

SPRINKLER CONTROL

CHAINLINK FENCE

ASPHALT

CONC SLAB

CHEMICAL STORAGE
44'-1"

ODOR CONTROL
44.83'

72.72'

21.37'

17.48'

93.81'

9.33'

SCALE

CONC SLAB

DRIVE THR

19.79'

SOLIDS PROCESS BUILDING
F.F. ELEV. = 25.04'

40.75'

82.60'

CONC WALK

74.03'

2" WM

CONC SLAB

CONC SLAB

CONC

OFFICE

MANHOLE

CONC

12" FM-DI

6" WM-DI

EQUALIZATION SPLITTER BOX

18" ODOR CONTROL DUCT-FRP

(TYP.)

ODOR CONTROL SYSTEM

4" PLW-DI

2" PLW-PVC

PRELIMINARY TREATMENT STRUCTURE

12" CMP

1½" TAP WITH 6"x1½" DOUBLE STRAP TAPPING SADDLE 1½" GV

6"x45° BEND
(TYP)

6" PLUG

15" CMP

6" TEE
6" GV
FH

4" FM-PVC

S89°19'20"E

815.00'

20

DIRT PARKING

VACANT LANDS

FOUND IRON PIPE
NO IDENTIFICATION

CB
TOP = 19.93'
BTM. = 16.39

CB
TOP = 19.93'
BTM. = 15.93

SV

W

CB
TOP = 19.13'
BTM. = 16.22

CB
TOP = 18.69'
BTM. = 15.19

FH

CB
TOP = 18.69'
BTM. = 15.19

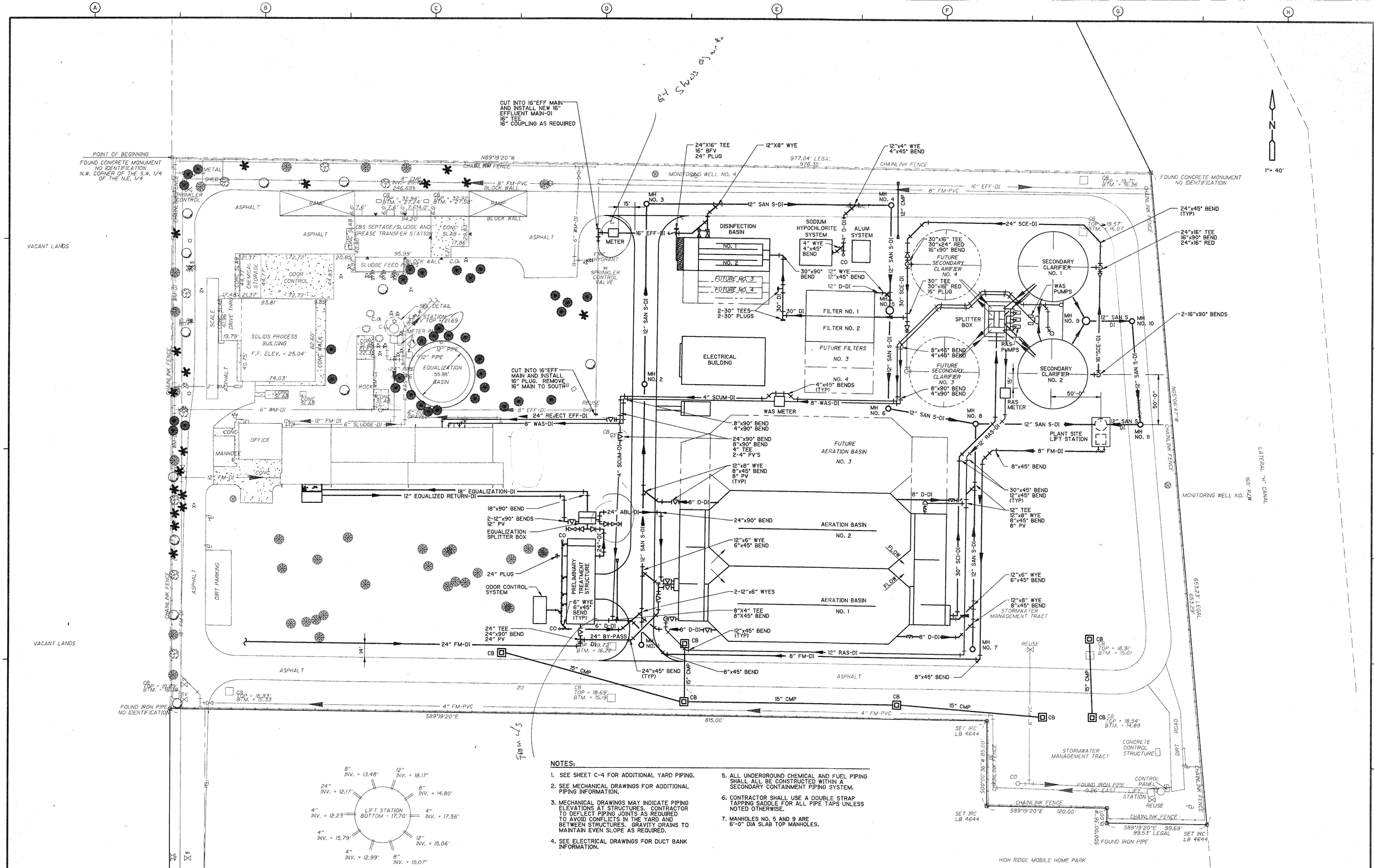
15" CMP

4" FM-PVC

CB

CB

CB



NOTES:

1. SEE SHEET C-4 FOR ADDITIONAL YARD PIPING.
2. SEE MECHANICAL DRAWINGS FOR ADDITIONAL PIPING INFORMATION.
3. MECHANICAL DRAWINGS MAY INDICATE PIPING ELEVATIONS AT STRUCTURES. CONTRACTOR TO DEFLECT PIPING JOINTS AS REQUIRED TO AVOID CONFLICTS IN THE YARD AND BETWEEN STRUCTURES. GRAVITY DRAINS TO MAINTAIN EVEN SLOPE AS REQUIRED.
4. SEE ELECTRICAL DRAWINGS FOR DUCT BANK INFORMATION.
5. ALL UNDERGROUND CHEMICAL AND FUEL PIPING SHALL ALL BE CONSTRUCTED WITHIN A SECONDARY CONTAINMENT PIPING SYSTEM.
6. CONTRACTOR SHALL USE A DOUBLE STRAP TAPPING SADDLE FOR ALL PIPE TAPS UNLESS NOTED OTHERWISE.
7. MANHOLES NO. 5 AND 9 ARE 6'-0" DIA SLAB TOP MANHOLES.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. HOFFMAN
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

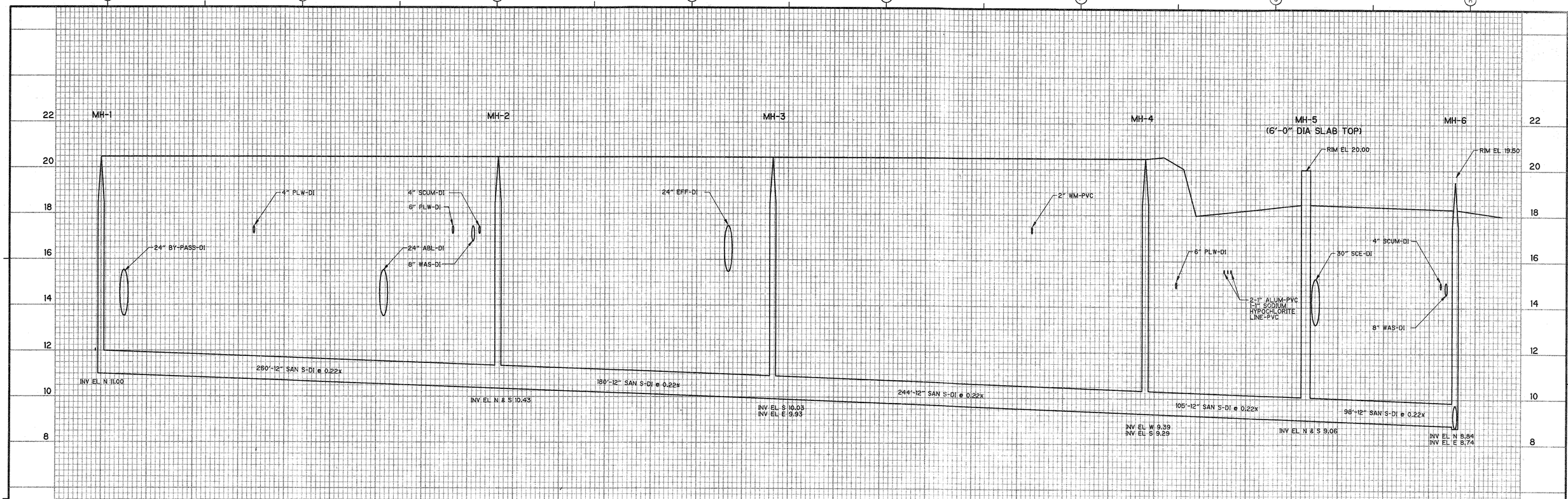
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

PLANT PROCESSING PIPING PLAN

PROJECT NO. 6706_070
FILE NAME: CYPPL0C5

SHEET NO.
C-5

L:\6706_070\SD\CIVIL\CYPPL0C5 05/07/97 09:04:45 2:1:07 Andrew Rooney



SCALE: HORIZ 1" = 30'
VERT 1" = 2'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: D. GARRETT
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

SANITARY SEWER-PROFILE

PROJECT NO. 6706_070
FILE NAME: CSTXSC06

SHEET NO.
C-6

M. BANDA 16:16:47 05/02/97 08:00:15 CSTXSC06 L:\6706_070\BD\CIVIL\

POINT OF BEGINNING
FOUND CONCRETE MONUMENT
NO IDENTIFICATION
N.W. CORNER OF THE S.W. 1/4
OF THE N.E. 1/4

515LF TYPE A BUFFER
30FT WIDE BUFFER

460LF TYPE A BUFFER
20FT WIDE BUFFER ON NORTH SIDE ROAD
10FT WIDE BUFFER ON SOUTH SIDE ROAD

N89°19'20"W 977.04' LEGAL 976.35'

FOUND CONCRETE MONUMENT
NO IDENTIFICATION

VACANT LANDS

TYPE C BUFFER
(EAST BUFFER ONLY)

PLANT MATERIAL / 100'

-CANOPY -UNDERSTORY -SHRUBS

20' — 4.0-CANOPY, 1.6-UNDERSTORY, 16.0-SHRUBS

TYPE A BUFFER
(NORTH & SOUTH BUFFERS)

PLANT MATERIAL / 100'

-CANOPY -UNDERSTORY -SHRUBS

100'

50' — 8.0-CANOPY, 4.0-UNDERSTORY, 24.0-SHRUBS

40' — 10.0-CANOPY, 5.0-UNDERSTORY, 26.0-SHRUBS

30' — 12.0-CANOPY, 6.0-UNDERSTORY, 30.0-SHRUBS

CHAINLINK FENCE

CHAINLINK SPRINKLER CONTROL

METAL SHED

ASPHALT

RAMP

CB TOP = 32.94' BTM. = 27.24' G 7.6' D 7.6
CB TOP = 32.92' BTM. = 27.58' G 14.0' D 6.0

CBS SEPTAGE/SLUDGE AND GREASE TRANSFER STATION

CONC SLAB

BLOCK WALL

SLUDGE FEED

ODOR CONTROL

CHEMICAL STORAGE

CONC SLAB

DRIVE THRU

SCALE 41.96'

SOLIDS PROCESS BUILDING
F.F. ELEV. = 25.04'

CONC WALK

SEE DETAIL

FIRE HYDRANT

SPRINKLER CONTROL VALVE

METER PIT

ELEVATION 21.69

12" PIPE
12" PIPE
24" PIPE

EQUALIZATION 55.86' BASIN

ROCK

CB TOP EL 20.57
BOT EL 18.19

CB TOP EL 20.40
N INV EL 17.92
S INV EL 18.07

REUSE

OFFICE

MANHOLE

EQUALIZATION SPLITTER BOX

PAINTING & PLANKING SPACES

LITTORAL ZONE PLANTING AREA

4:1 (TYP)

STORMWATER POND
BOT EL 18FT NGVD

NOTE: 23 PINES LOCATED IN PROPOSED STORMWATER POND TO BE REMOVED

ODOR CONTROL SYSTEM

PRELIMINARY TREATMENT STRUCTURE

CHLORINE CONTACT BASIN

SODIUM HYPOCHLORITE SYSTEM

NO. 1

NO. 2

4:1 (TYP)

FUTURE CHLORINE CONTACT BASINS

ALUM SYSTEM

FUTURE SECONDARY CLARIFIER NO. 4

SECONDARY CLARIFIER NO. 1

WAS PUMPS

SPLITTER BOX

FILTERS NO. 1

FILTERS NO. 2

4:1 (TYP)

RAS PUMPS

ELECTRICAL BUILDING

FUTURE FILTERS NO. 3

FUTURE FILTERS NO. 4

FUTURE SECONDARY CLARIFIER NO. 3

SECONDARY CLARIFIER NO. 2

FUEL STORAGE

FUTURE AERATION BASIN NO. 3

4:1 (TYP)

AERATION BASIN NO. 2

FLOW

AERATION BASIN NO. 1

STORMWATER MANAGEMENT TRACT

REUSE

MONITORING WELL NO. 4

LATERAL "H" CANAL
160' R/W

650LF TYPE C BUFFER
20FT WIDE BUFFER

N 90°00'00" W 652.74' LEGAL

FOUND IRON PIPE
NO IDENTIFICATION

S89°19'20"E 815.00'

392LF TYPE A BUFFER
10FT WIDE BUFFER ON NORTH SIDE OF ROAD
30FT WIDE BUFFER ON SOUTH SIDE OF ROAD

90LF TYPE A BUFFER
30FT WIDE BUFFER

214LF TYPE A BUFFER
20FT WIDE BUFFER ON NORTH SIDE OF ROAD
30FT WIDE BUFFER ON SOUTH SIDE OF ROAD

80LF TYPE A BUFFER
10FT WIDE BUFFER ON NORTH SIDE OF ROAD
30FT WIDE BUFFER ON SOUTH SIDE OF ROAD

SET IRC LB 4644

S00°00'36"W 85.04'

85LF TYPE A BUFFER
30FT WIDE BUFFER

S89°19'20"E 120.00'

CONCRETE CONTROL STRUCTURE

CONTROL PANEL

LIFT STATION

FOUND IRON PIPE

115LF 24" CMP E INV EL 15.2 W INV EL 14.7 DISCHARGE TO LATERAL H CANAL

S00°00'36"W 15.04'

S89°19'20"E 99.69'
99.53' LEGAL

SET IRC LB 4644

FOUND IRON PIPE

190LF TYPE A BUFFER
20FT WIDE BUFFER ON SOUTH SIDE OF POND
10FT WIDE BUFFER ON NORTH SIDE OF POND

N
1"= 40'

LEGEND

- EXISTING
- FUTURE EXPANSION, PHASE II & PHASE III
- PROPOSED, PHASE I
- PROPERTY BOUNDARY
- PROPOSED BUFFER

NOTE:
ALL SLOPES FOR PROPOSED BERMS FOR STORMWATER POND AREAS AND SWALES ARE TO HAVE A SIDE SLOPE NO STEEPER THAN 4:1 (HORIZONTAL : VERTICAL).

NOTE:
EXISTING NATIVE UPLAND VEGETATION IN LATERAL H CANAL RIGHT OF WAY. MUST NOT BE DISTURBED.

RED MAPLE

EL 20
EL 19
EL 18

BERM — TYPICAL UPLAND BUFFER — POND BOTTOM

TYPICAL LITTORAL ZONE PLANTING

SECTION 1 / C-3
NTS

TABLE 1
TREES REQUIRED
TYPE A BUFFER
(NORTH & SOUTH BUFFER)

BUFFER WIDTH (FT)	TOTAL BUFFER LENGTH (FT)	# CANOPY TREES REQ'D	# UNDERSTORY PLANTS REQ'D	# SHRUBS REQ'D
50	214	18	9	52
40	472	48	24	123
30	1,340	161-6(E)	81-5(E)	402-3(E)
TOTALS		221	109	574

NOTE: 3 SHRUBS, 6 CANOPY & 5 UNDERSTORY ARE EXISTING IN NORTH BUFFER.

TABLE 2
TREES REQUIRED
TYPE C BUFFER
(EAST BUFFER)

CANOPY = 652/100 X 4 = 27

UNDERSTORY = 652/100 X 1.6 = 11

SHRUBS = 652/100 X 16 = 105

TABLE 3
OTHER TREES
(NOT PART OF BUFFER ZONE)

TOTAL NUMBER OF TREES REQUIRED (FOR VEHICULAR AND NON-VEHICULAR OPEN SPACE) = 84

NOTES: TO BE FIELD LOCATED BASED REQUIREMENTS OF SECTION 926.09 & 926.10 OF INDIAN RIVER COUNTY LAND DEVELOPMENT REGULATIONS

(84 TREES = 34 LIVE OAK, 34 CABBAGE PALM AND 16 PIGNUT HICKORY)

TABLE 4
LITTORAL ZONE PLANTING

WATER BODY AREA	= 275FT X 100FT = 27,500SF
30% WATER AREA	= 8,250SF
LINEAR FT SHORELINE	= 750SF
21'SF PER FT SHORELINE	= 15,750SF
TREES REQ'D = 8,250SF / 500	= 17 TREES

PLANT 17 REQ,D RED MAPLE TREES (ACER RUBRUM), 10' HEIGHT, 2" CAL. IN LITTORAL ZONE

TABLE 5
TREES REQUIRED
(INCLUDES TREES LISTED IN TABLES 1-4)

NO	COMMON NAME	SCIENTIFIC NAME	SIZE	COMMENTS
133	LIVE OAK	QUERCUS VIRGINICINA	10' HEIGHT > 2" CAL.	CANOPY
66	PIGNUT HICKORY	CARYAGLABRA	10' HEIGHT > 2" CAL.	CANOPY
133	CABBAGE PALM	SABAL PALMETTO	10' HEIGHT	CANOPY
120	WAX MYRTLE	ILEX CASSINE	5' HEIGHT > 2" CAL.	UNDERSTORY
679	SANDCORD GRASS	SPARTINA BAKERII	CLUMPS	SHRUB
17	RED MAPLE	ACER RUBRURM	10' HEIGHT > 2" CAL.	CANOPY

NOTES:
- IRRIGATION NOT REQUIRED - NATIVE TREES WILL BE USED.
- CYPRESS MULCH ALL SHRUB AREAS 3" CLEAN MULCH.
- SOD ARGENTINE BAHIA FREE FROM WEED.
- LANSCAPE CONTRACTOR RESPONSIBLE FOR FINISH GRADE.
- TREES & PLANTS FLORIDA GRADE #1 OR BETTER.
- LANDSCAPE CONTRACTOR TO PROVIDE WATER HOSES, PUMPS AND ANY OTHER EQUIPMENT REQUIRED TO WATER/ ESTABLISH PLANTS FOR A PERIOD OF 1 MONTH.
- HONEYSUCKLE TO BE PLANTED ON ENTIRE FENCE LENGTH TO PROVIDE 6FT OPAQUE FEATURE. AT TIME OF PLANTING MUST BE MINIMUM OF 18" TALL.
- TREES PLANTED IN SWALES TO BE STAGGERED.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. HOFFMAN
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

LANDSCAPE PLAN

PROJECT NO. 6706_070
FILE NAME: CLSPL0C7

SHEET NO.
C-7

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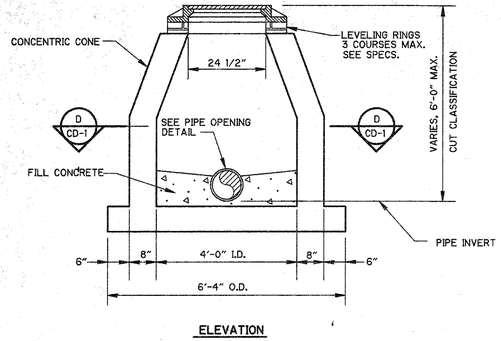

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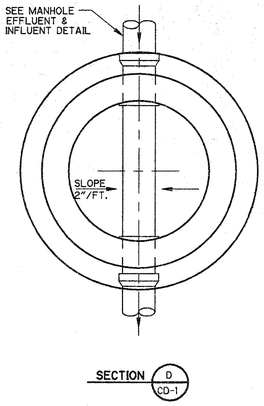
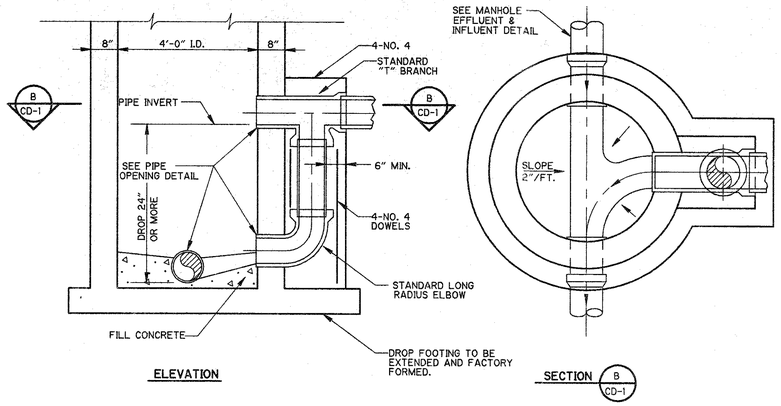


SECTION D CD-1

TO BE USED WHEN CUT CLASSIFICATION IS 6'-0" OR LESS

STANDARD SHALLOW TYPE MANHOLE

NTS



ELEVATION

SECTION B CD-1

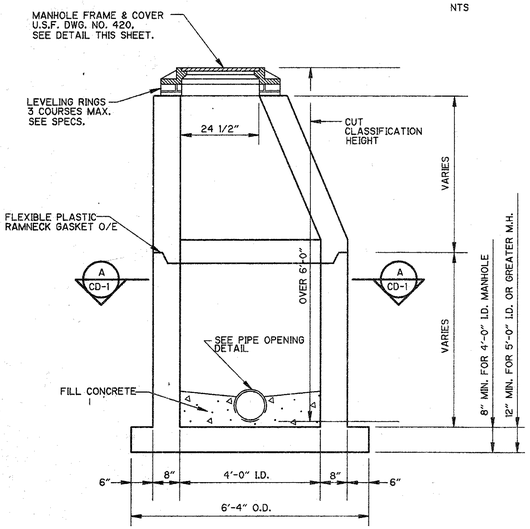
TO BE USED WHERE DROP IS 2' OR MORE

TYPE "A" DROP MANHOLE

NTS

STRUCTURAL NOTES:

1. REINFORCING AREA OF 0.20 SQ. IN./FT. FOR WALL SECTION, MIN. TO MEET OR EXCEED ASTM A 185.
2. ALL CEMENT TO BE TYPE II ACID RESISTANT.
3. ALL CONCRETE FOR PRECAST MANHOLES TO BE 4,000 P.S.I. TO MEET OR EXCEED ASTM C 478.
4. BOTTOMS & CHANNELS OF ALL MANHOLES TO BE OF 2,500 P.S.I. FILL CONCRETE FINISHED SMOOTH WITH STEEL TROWEL.
5. CONCRETE MANHOLES TO HAVE A MIN. WALL THICKNESS OF 8".
6. INSIDE OF MANHOLE SHALL BE COATED WITH TWO COATS OF COAL TAR EPOXY AND ONE COAT OUTSIDE.
7. CHANNELS TO BE FORMED IN ALL MANHOLES TO ACCEPT T.V. CAMERA.
8. WHEN DIRECTIONAL CHANGES EXCEEDING 45° OCCUR, AN EXTRA FLOW LINE ELEVATION DROP OF 1.05 FEET) ACROSS MANHOLE WILL BE PROVIDED.
9. ORIENT ECCENTRIC CONE AS REQUIRED BY ENGINEER IN FIELD.
10. BOTTOM SECTION TO BE MONOLITHIC POUR EXCEPT WHERE DROP CONNECTION IS REQUIRED.



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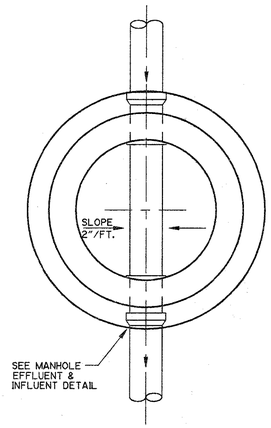
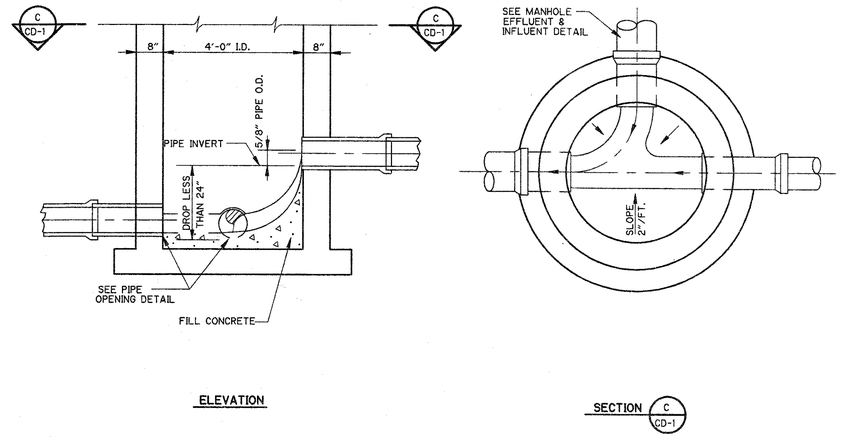


SECTION A CD-1

TO BE USED WHEN CUT CLASSIFICATION IS OVER 6'-0"

STANDARD DEEP TYPE MANHOLE

NTS



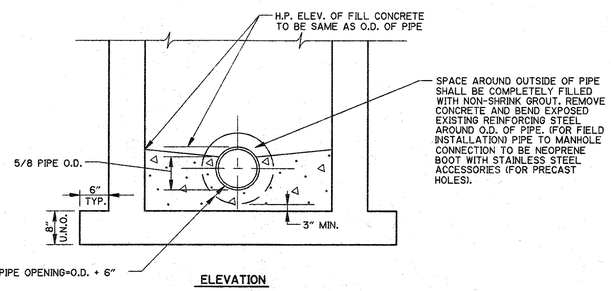
ELEVATION

SECTION C CD-1

TO BE USED WHERE DROP IS LESS THAN 2'

TYPE "B" DROP MANHOLE

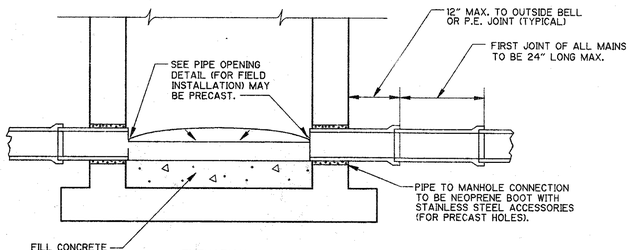
NTS



ELEVATION

PIPE OPENING DETAIL

NTS

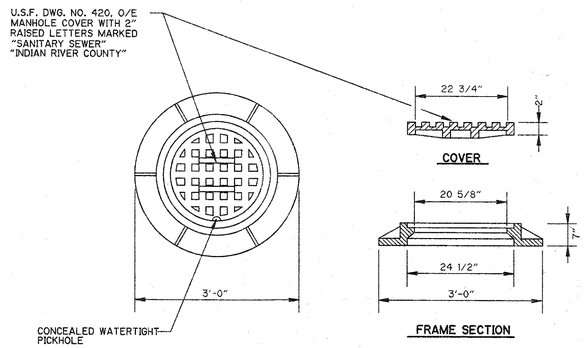


ELEVATION

PIPE JOINT DETAIL AT MANHOLE

MANHOLE EFFLUENT & INFLUENT

NTS



MANHOLE CASTING

NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MANHOLE DETAILS

PROJECT NO. 6706_070
FILE NAME: CSDDTCD1

SHEET NO.
CD-1

M. BANDA
04:15
03/25/97 14:45:60
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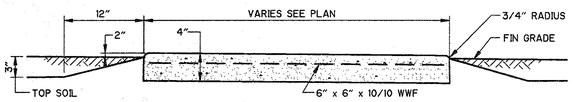
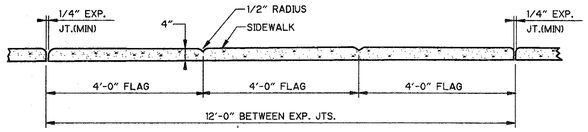


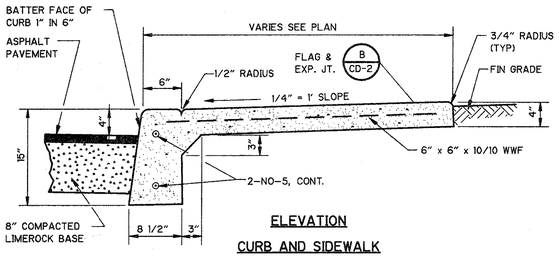
WALK SECTION

DETAIL A / C-3 — NTS



FLAG AND EXPANSION JOINT

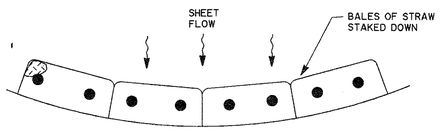
DETAIL B / C-3 — NTS



ELEVATION

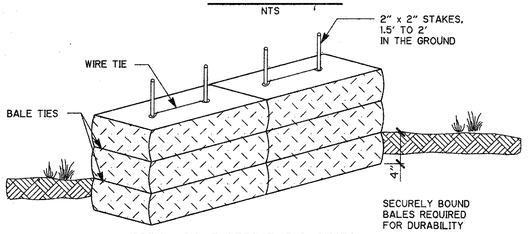
CURB AND SIDEWALK

DETAIL C — NTS



SINGLE ROW OF BALES OF STRAW TO BE PLACED PRIOR TO THE START OF ROUGH GRADING

PLAN — NTS

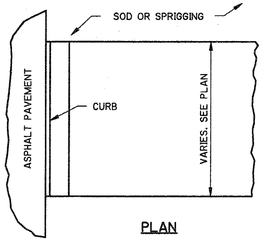


STRAW BALE SEDIMENT BARRIER
DOT INDEX NO. 102

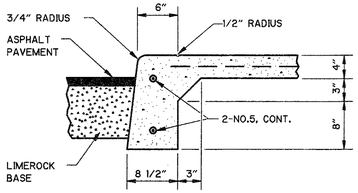
DETAIL K — NTS

NOTE TO CONTRACTOR: EROSION CONTROL MEASURES

REQUIRED EROSION CONTROL MEASURES MUST REMAIN INTACT THROUGHOUT CONSTRUCTION. FAILURE TO INSTALL OR PROPERLY MAINTAIN THESE BARRICADES WILL RESULT IN ENFORCEMENT ACTION WHICH MAY INCLUDE CITATIONS, AS PROVIDED BY ORDINANCE 90-17, AND CHAPTER 400-4 AND 400-40, F.A.C. INITIATION OF CIVIL PENALTY PROCEDURES PURSUANT TO SECTION 373.129 F.A.C., CAN RESULT IN A PENALTY NOT TO EXCEED $10,000 PER OFFENSE WITH EACH DATE DURING WHICH SUCH VIOLATION OCCURS CONSTITUTING A SEPARATE OFFENSE.



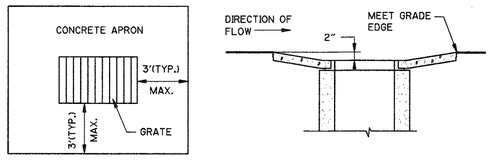
PLAN



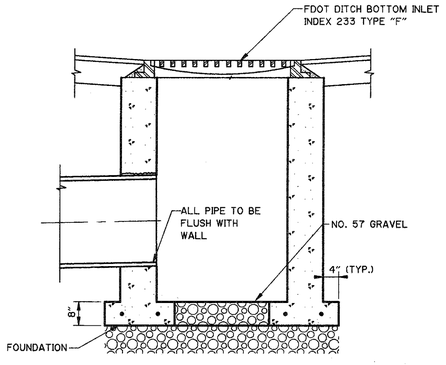
SECTION

END OF WALK CURB

DETAIL D — NTS

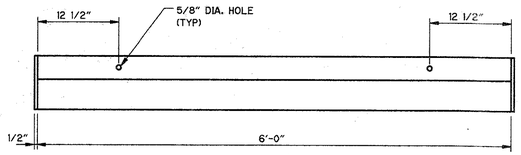


CATCH BASIN APRON



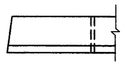
OPEN BOTTOM INLET

DETAIL L / C-3 — NTS

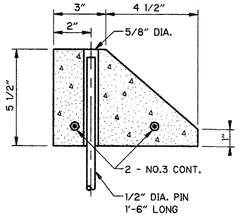


PLAN

NOTE
ALL CONCRETE SHALL BE CLASS "B"



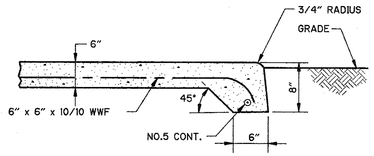
ELEVATION



SECTION

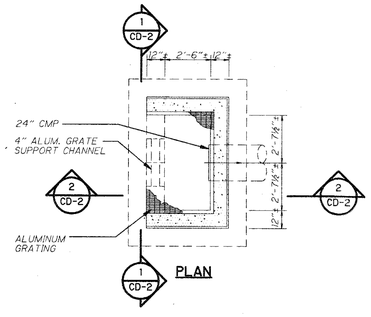
WHEEL STOP

DETAIL E — NTS



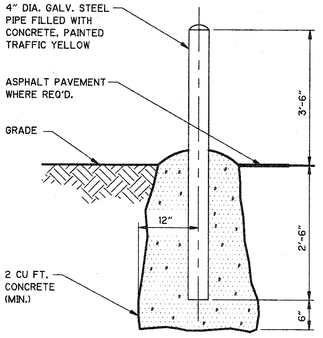
TYPICAL EQUIP. WORK SLAB

DETAIL H — NTS



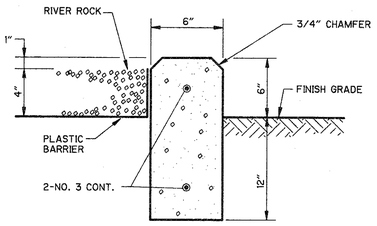
CONTROL STRUCTURE

DETAIL M / C-3 — NTS

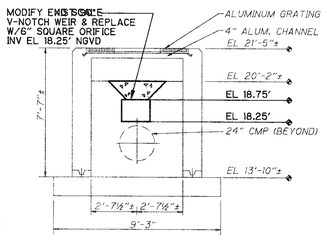


GUARD POST

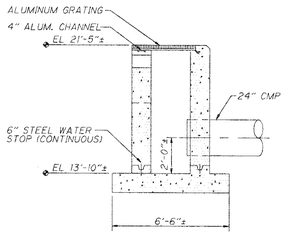
DETAIL F — NTS



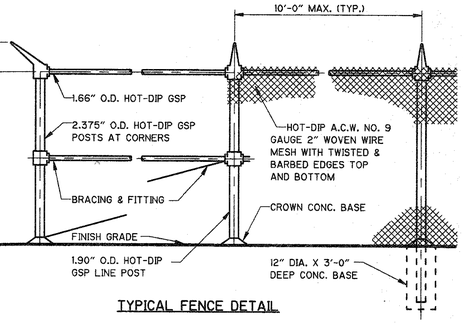
DETAIL I / M-19,20



SECTION 1 / CD-2 — 1/4"=1'

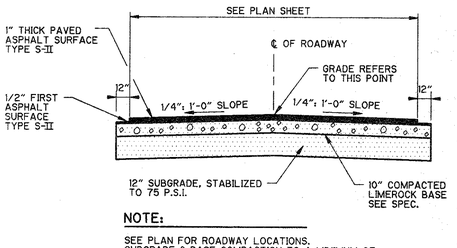


SECTION 2 / CD-2 — 1/4"=1'



TYPICAL FENCE DETAIL

DETAIL G — NTS

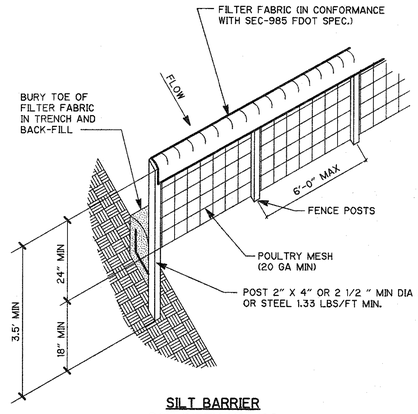


NOTE:

SEE PLAN FOR ROADWAY LOCATIONS.
SUBGRADE & BASE COMPACTION TO A MINIMUM OF 98% MAXIMUM DENSITY AASHTO T-180 METHOD.

TYPICAL ROADWAY DETAIL

DETAIL J / C-3 — NTS



SILT BARRIER
DOT INDEX NO. 102

DETAIL N — NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

PAVING AND GRADING DETAILS

PROJECT NO. 6706_070
FILE NAME: CSDDTCD2

SHEET NO.
CD-2

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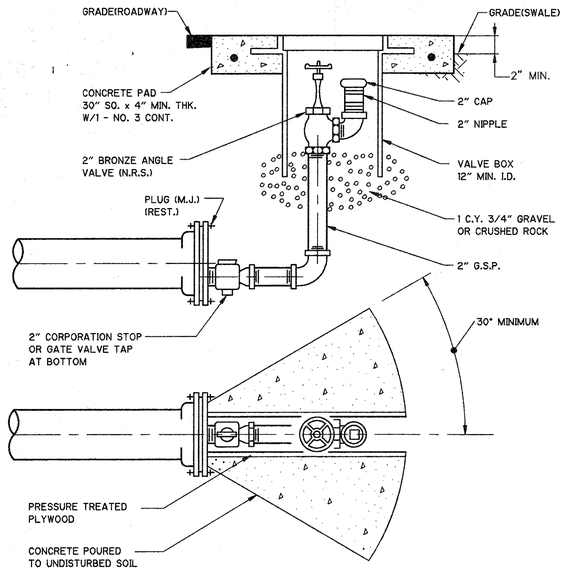


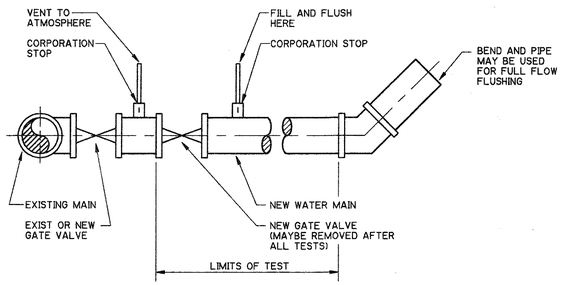
NOTE:

1. COAT ALL EXPOSED THREADS WITH COAL TAR ENAMEL BEFORE BACKFILL.
2. THRUST BLOCK HEIGHT EQUAL TO PIPE DIAMETER.

2" BLOW-OFF
NTS

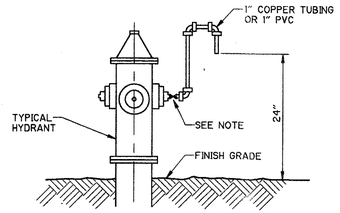
NOTES:

1. REMOVE TEMPORARY CONNECTION AT CORPORATION STOPS ON NEW MAIN AFTER FILLING AND FLUSHING HAS BEEN COMPLETED.
2. DO NOT REMOVE TEMPORARY CONNECTION AT CORPORATION STOP ON NEW MAIN UNTIL ALL TESTING HAS BEEN COMPLETED.
3. COMPLY WITH ALL BROWARD COUNTY HEALTH DEPT. REGULATIONS.
4. PROVIDE ALL NECESSARY THRUST BLOCKS OR OTHER RESTRAINTS.



OTHER METHODS FOR FLUSHING MUST RECEIVE APPROVAL FROM THE UTILITY COMPANY.

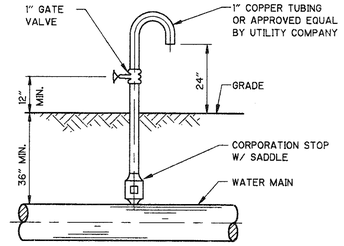
FILLING AND FLUSHING CONNECTION
NTS



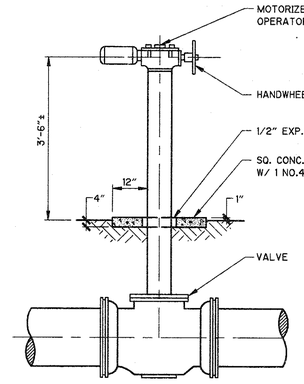
NOTE:
SAMPLE POINTS COMING FROM HYDRANTS TO INCLUDE A SMALL VALVE WITH A REMOVABLE HANDLE. AFTER SATISFACTORY BACTERIOLOGICAL TESTING REMOVE SAMPLE POINT TUBING AND FITTINGS

SAMPLING POINT
DETAIL A
NTS

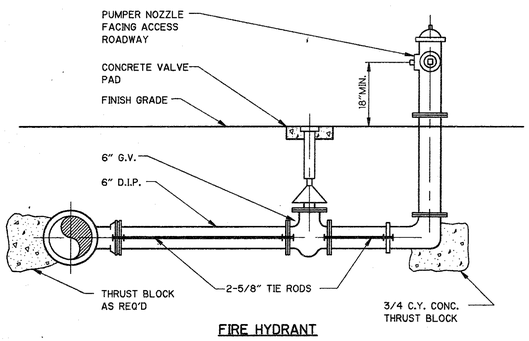
A CORPORATION STOP SHALL BE INSTALLED WITH A LENGTH OF 1" COPPER TUBING EXTENDING ABOVE THE GROUND. THE TUBING SHALL BE INSTALLED WITH A 180° BEND. AFTER SATISFACTORY BACTERIOLOGICAL TESTING CORPORATION IS TO BE SHUT OFF AT MAIN AND ALL TUBING REMOVED



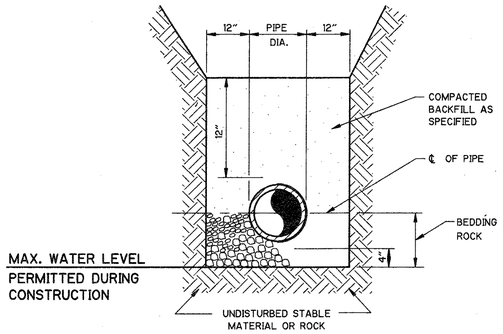
SAMPLING POINT
DETAIL B
NTS



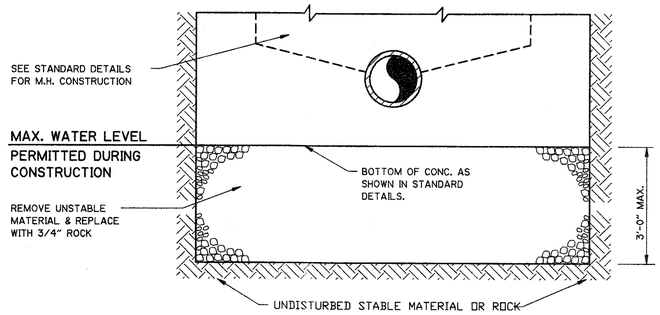
DETAIL C
NTS



FIRE HYDRANT
DETAIL D
NTS



SPECIAL BEDDING
NTS



TYPE 2 MANHOLE FOUNDATION
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

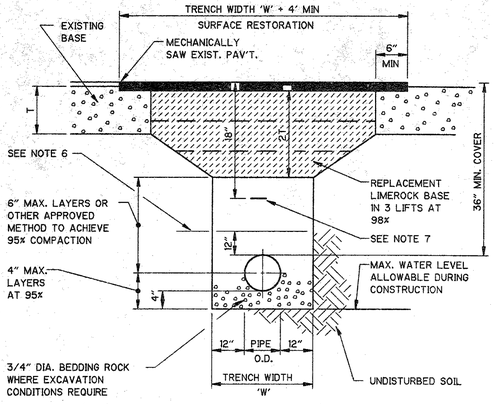
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS YARD DETAILS

PROJECT NO. 6706_070
FILE NAME: CSDDTCD3

SHEET NO.
CD-3

M. BANDA 2:37:35 04/18/97 13:47:33 L:\6706_070\BB\CIVIL\DETAILS\ CSDDTCD3

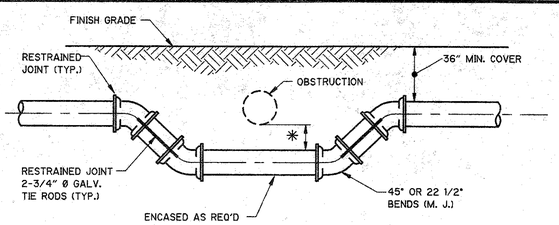


NOTES:

1. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED AND FEATHERED JOINTS (1 1/2" MIN. THK.)
4. COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180.
5. ALL ROADWAY RESTORATION SHALL COMPLY WITH THE RESPECTIVE GOVERNING AUTHORITY.
6. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
7. FOR PVC PIPE ONLY - INSTALL METALLIC TAPE OVER FULL LENGTH OF PIPE. SEE SPECIFICATIONS.

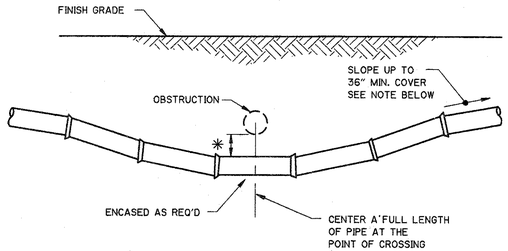
(PAVED AREAS)

TRENCH DETAIL
NTS



SPECIAL UTILITY CROSSING - FITTING TYPE

* 18" MIN. CLEARANCE REQUIRED FOR WATER AND SEWER MAIN CROSSINGS. 12" MIN. CLEARANCE REQUIRED FOR OTHER TYPE UTILITIES CROSSING. SEE WATER AND SEWER SEPARATION STATEMENT ON THIS SHEET.



STANDARD UTILITY CROSSING - DEFLECTION TYPE

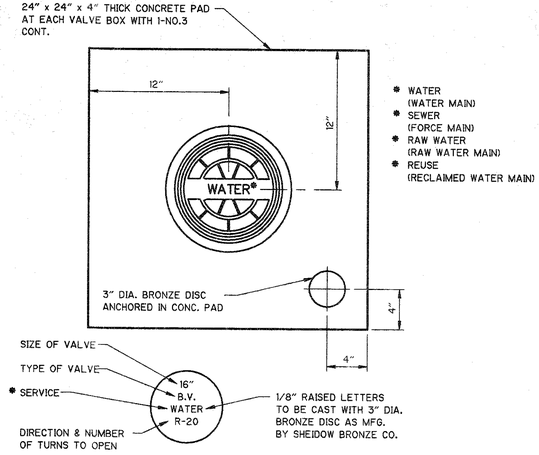
NOTE:

1. THE DEFLECTION TYPE CROSSING SHALL BE USED WHERE EVER POSSIBLE. ONLY UNDER SPECIFIC ORDERS BY THE ENGINEER SHALL THE FITTING TYPE CROSSING BE ALLOWED.
2. CONSTRUCT STANDARD CROSSING USING 75% OF MANUFACTURERS MAXIMUM JOINT DEFLECTION (MAX.)
3. COAT TIE RODS WITH A COAL TAR ENAMEL AFTER ASSEMBLY. (2 COATS MIN.)
4. TIE RODS MAY BE OMITTED WHEN OTHER APPROVED METHODS OF RESTRAINING ARE UTILIZED.

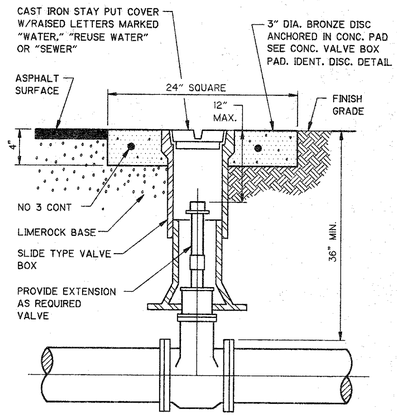
UTILITY CROSSING
NTS

STANDARD WATER AND SEWER SEPARATION STATEMENT

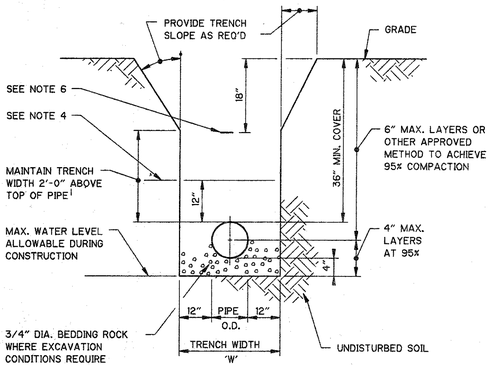
1. STORM AND SANITARY SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF EIGHTEEN (18) INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND WATER MAIN JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN TEN (10) FEET BETWEEN ANY TWO JOINTS AND BOTH PIPES SHALL BE D.I.P. WHERE THERE IS NOT ALTERNATIVE TO SEWER PIPES CROSSING OVER A WATER MAIN. THE CRITERIA FOR MINIMUM SEPARATION BETWEEN LINES AND JOINTS IN THE ABOVE, SHALL BE REQUIRED AND BOTH PIPES SHALL BE D.I.P. IRRESPECTIVE OF SEPARATION. D.I.P. IS NOT REQUIRED FOR STORM SEWERS.
2. MAINTAIN TEN (10) FEET HORIZONTAL DISTANCE BETWEEN WATER MAIN AND STORM OR SANITARY SEWER MAIN, AS A MINIMUM.
3. FORCE MAIN CROSSING WATER MAIN SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF EIGHTEEN (18) INCHES BETWEEN THE OUTSIDE OF THE FORCE MAIN AND OUTSIDE OF THE WATER MAIN WITH WATER CROSSING OVER THE FORCE MAIN.



CONCRETE VALVE PAD/IDENT. DISC.
NTS



VALVE AND BOX
NTS

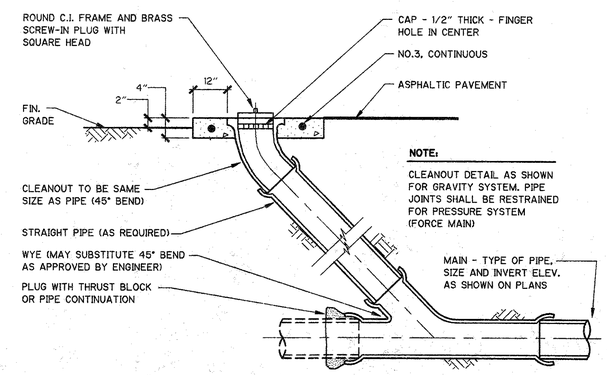


NOTES:

1. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180.
4. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
5. PVC PIPE TO HAVE ROCK BACKFILL TO ℄ OF PIPE.
6. FOR PVC PIPE ONLY - INSTALL METALLIC TAPE OVER FULL LENGTH OF PIPE. SEE SPECIFICATIONS.

(UNPAVED AREAS)

TRENCH DETAIL
NTS



GRAVITY LINE CLEANOUT DETAIL A
NTS -

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services
cities worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS YARD DETAILS

PROJECT NO. 6706_070
FILE NAME: CSDDTCD4

SHEET NO.
CD-4

M. BANDA
0:35:35
03/26/97 15:26:24
L:\6706_070\109\CIVIL\DETAILS\CSDDTCD4

ABBREVIATIONS

&	AND	GA	GAGE, GAUGE	R*S	BACKER ROD & SEALANT
∠	ANGLE	GALV	GALVANIZED	RB	RUBBER BASE
@	AT	GL	GLASS	RD	ROOF DRAIN
AB	ANCHOR BOLT	GB	GLASS BLOCK	RECT	RECEPTACLE
ABV	ABOVE	GRTG	GRATING	REF	ROOF EXHAUST FAN
ACMU	ACOUSTICAL MASONRY UNIT	GYP	GYPSUM	REINF	REINFORCE (D, ING)
ADH	ADHESIVE	HARD	HARDENER	REQD	REQUIRED
AFF	ABOVE FINISHED FLOOR	HD	HEAVY DUTY	REV	REVISION
AL	ALUMINUM	HDWD	HARDWOOD	RF	ROOF FAN
AMP	ACOUSTICAL METAL PANEL	HDWR	HARDWARE	RFG	ROOFING
ANOD	ANODIZE	HGR	HANGER	RGH	ROUGH
ASSY	ASSEMBLY	HGT	HEIGHT	RJ	RUSTICATION JOINT
BD	BOARD	HM	HOLLOW METAL	RL	RAIN LEADER
BEV	BEVEL (ED)	HOR	HORIZONTAL	RLG	RAILING
BLDG	BUILDING	HP	HIGH POINT	RM	ROOM
BLK	BLOCK	HR	HANDRAIL	RO	ROUGH OPENING
BLKG	BLOCKING	IN	INCH	RT	RUBBER TILE
BRG	BEARING	INST	INSTRUMENTATION	RWL	RAIN WATER LEADER
BRK	BRICK	INSUL	INSULATION	S	STEEL S-SHAPE DESIGNATION
BRS	BRASS	JC	JANITOR'S CLOSET	SAT	SUSPENDED ACOUSTICAL TILE
BRZ	BRONZE	JT	JOINT	SB	SEAMLESS BASE
BS	BOTH SIDES	JT FLR	JOINT FILLER	SCHED	SCHEDULE
BTM	BOTTOM	L	LINE OR STRUCTURAL ANGLE DESIGNATION	SCRN	SCREEN(ED)
C TO C	CENTER TO CENTER			SECT	SECTION
CAB	CABINET	LAB	LABORATORY	SF	SEAMLESS FLOORING
CARP	CARPET	LAD	LADDER	SGFT	STRUCTURAL GLAZED FACING TILE
CEM	CEMENT	LAM	LAMINATED	SHT	SHEET
CF	COMPRESSIBLE FILLER	LAV	LAVATORY	SIM	SIMILAR
CGFB	CEMENTITIOUS GLASS FIBER BOARD	LG	LAMINATED GLASS	SK	SINK
CH	CONCRETE HARDENER	LKR	LOCKER	SL	SLOPE
CHAM	CHAMFER	LNTL	LINTEL	SLNT	SEALANT
CHAN	CHANNEL	LP	LIGHT POLE	SPEC	SPECIFICATION, SPECIFIED
CIP	CAST IN PLACE	LP	LOW POINT	SST	STAINLESS STEEL
CJ	CONSTRUCTION JOINT, CONTROL JOINT	LT	LIGHT (S)	STD	STANDARD
CL or ℄	CENTERLINE	MAS	MASONRY	STL	STEEL
CLG	CEILING	MATL	MATERIAL	STOR	STORAGE
CLKG	CAULKING	MAX	MAXIMUM	STRU	STRUCTURE (S, URAL)
CMU	CONCRETE MASONRY UNITS	MEMB	MEMBRANE	STWY	STAIRWAY
COL	COLUMN	MFR	MANUFACTURER	SUPT	SUPERINTENDENT
COMP	COMPRESSIBLE	MIN	MINIMUM	SUSP	SUSPENDED
CONC	CONCRETE	MISC	MISCELLANEOUS	T	TREAD(S)
CONT	CONTINUOUS	MO	MASONRY OPENING	TBM	TRAFFIC BEARING MEMBRANE
CRS	COURSE (S)	MR	MOISTURE RESISTANT	T&G	TONGUE AND GROOVE
CT	CERAMIC TILE	MRAT	MOISTURE RESISTANT ACOUSTICAL TILE	TEMP	TEMPERATURE
DET	DETAIL	MTD	MOUNTED	TEMP	TEMPERED
DF	DRINKING FOUNTAIN	MTG	MOUNTING	TEMP	TEMPORARY
DIA	DIAMETER	MTL	METAL	TER	TERRAZZO
DIAG	DIAGONAL	NIC	NOT IN CONTRACT	TERB	TERRAZZO BASE
DIM	DIMENSION	NOM	NOMINAL	THK	THICKNESS)
DISP	DISPENSER	NTS	NOT TO SCALE	THR	THRESHOLD
DN	DOWN	OC	ON CENTER OR ODOR CONTROL	TKBD	TACKBOARD
DP	DAMPROOFING	OD	OVERFLOW DRAIN	TOIL	TOILET
DR	DRAIN	OFF	OFFICE	TOPG	TOPPING
DWG	DRAWING	OPNG	OPENING	TOS	TOP OF STEEL
EA	EACH	OPP HD	OPPOSITE HAND	TS	STRUCTURAL TUBING (STEEL UNLESS NOTED)
EL	ELEVATION	OV	OVER	TSL	TOP OF SLAB
ELEC	ELECTRICAL	OVHD	OVERHEAD	TWF	THROUGH WALL FLASHING
ELEV	ELEVATOR	PERIM	PERIMETER	TYP	TYPICAL
EO	EQUAL (LY)	PL	PLATE	UC	UNDERCUT
EQPT	EQUIPMENT	PL	PROPERTY LINE	UON	UNLESS OTHERWISE NOTED
EWC	ELECTRIC WATER COOLER	PLAS	PLASTER	UR	URINAL
EXP	EXPANSION	138 PLK	PLANK	VB	VAPOR BARRIER
EXP	EXPOSED	PLYWD	PLYWOOD	VCT	VINYL COMPOSITION TILE
EJ	EXPANSION JOINT	PM	PRESSED METAL	VERT	VERTICAL
EXIST	EXISTING	PR	PAIR	VTR	VENT THRU ROOF
FD	FLOOR DRAIN	PR	PRETREATED WATER SYSTEM	W	WIDE
FE	FIRE EXTINGUISHER	PRD	PROMENADE ROOF DRAIN	W/	WITH
FF	FACTORY FINISH	PRCST	PRECAST	W/A	WHERE APPLICABLE
FGL	FIBERGLASS	PREFAB	PRE-FABRICATED	W/O	WITHOUT
FIN	FINISH(ED)	PT	PRESSURE TREATED	WC	WATER CLOSET
FLG	FLASHING	PRMLD	PREMOLDED	WD	WIDTH
FL	FLOOR	PSF	POUNDS PER SQUARE FOOT	WD	WOOD
FLR	FILLER	PSI	POUNDS PER SQUARE INCH	WDW	WINDOW
FR	FRAME	PTD	PAINTED	WF	WIDE FLANGE
FO	FRAME OPENING	QT	QUARRY TILE	WPG	WATERPROOFING
FV	FIELD VERIFY	QTB	QUARRY TILE BASE	WT	STEEL TEE-SHAPE DESIGNATION
FXD	FIXED	R	RISER(S)	WWF	WELDED WIRE FABRIC

LINETYPES (UNLESS OTHERWISE NOTED)

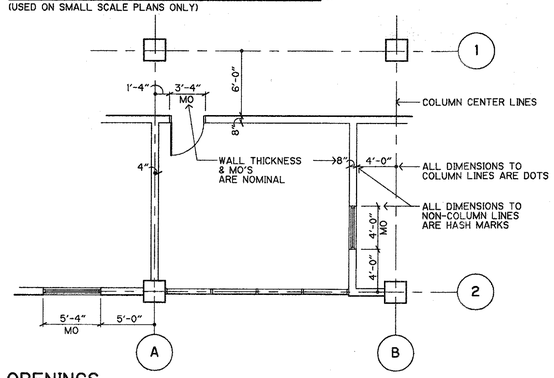
- ——— CONTINUOUS - NEW CONSTRUCTION
- – – – – DASHED ON CONSTRUCTION PLANS/SHEETS - HIDDEN ELEMENTS ABOVE, BELOW, OR BEYOND

MATERIAL SYMBOLS

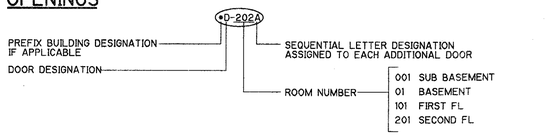
- EARTH, SOIL
- GRAVEL
- BRICK
- CONCRETE BLOCK
- PRECAST CONCRETE
- CONC CAST IN PLACE
- WOOD-BLOCKING
- WOOD-FINISH
- PLYWOOD
- RIGID INSULATION
- BLANKET INSULATION
- STEEL
- ALUMINUM
- GROUT
- CAULK
- GLASS
- STRUCTURAL STEEL
- SHEET METAL, STEEL, GLASS, WATERPROOFING

MODULAR DIMENSIONING SYSTEM

(USED ON SMALL SCALE PLANS ONLY)

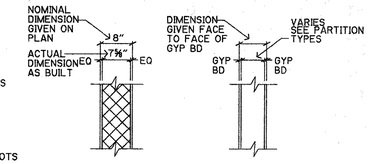


OPENINGS

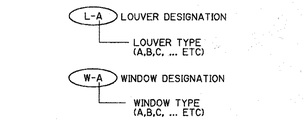


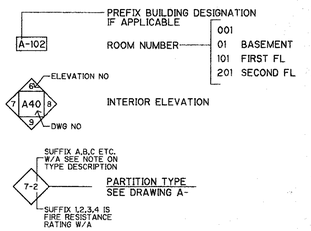
SYMBOLS

UNIT MASONRY DIMENSIONS



WINDOW OR LOUVER OPENING IN PLAN





FINISH SCHEDULE

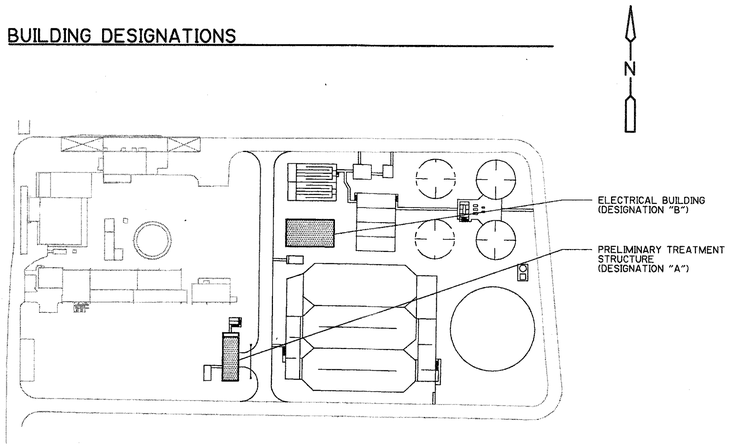
BUILDING DESIGNATION	ROOM NAME	ROOM NUMBER	FLOORS MAT'L	FLOORS FIN	WALLS BASE	WALLS MAT'L	WALLS FIN	CEILINGS MAT'L	CEILINGS FIN	CEILINGS HEIGHT	NOTE NO
PRELIMINARY TREATMENT STRUCTURE (DESIGNATION "A")	STORAGE	A-100	CONC	HARD	-	CMU	PTD	CONC	-	-	
	DUMPSTER LOADING	A-101	CONC	HARD	-	CMU	PTD	CONC	-	-	
GENERATOR BUILDING (DESIGNATION "B")	RECEPTION	B-100	RT	SPEC	RB	CMU/GYP	PTD	SAT	8'-0"	-	-
	MEN'S TOILET	B-101	CT	SPEC	CT	CMU/GYP	SPEC	SAT	8'-0"	-	-
	WOMEN'S TOILET	B-102	CT	SPEC	CT	CMU/GYP	SPEC	SAT	8'-0"	-	-
	MECH/JAN	B-103	RT	SPEC	RB	CMU/GYP	PTD	SAT	8'-0"	-	-
	BREAK ROOM	B-104	RT	SPEC	RB	CMU/GYP	PTD	SAT	8'-0"	-	-
	OFFICE	B-105	RT	SPEC	RB	CMU/GYP	PTD	SAT	8'-0"	-	-
	LAB	B-106	RT	SPEC	RB	CMU/GYP	PTD	SAT	8'-0"	-	-
	CORRIDOR	B-107	RT	SPEC	RB	CMU/GYP	PTD	SAT	8'-0"	-	-
	ELECTRICAL ROOM	B-108	CONC	HARD	-	CMU	PTD	AMP	10'-0"	-	-
	AIR PLENUM	B-109	GRAVEL	SPEC	-	CMU	-	-	-	-	-
	GENERATOR ROOM	B-110	CONC	HARD	-	CMU	PTD	AMP	-	-	-
	AIR PLENUM	B-111	GRAVEL	SPEC	-	CMU	-	-	-	-	-

NOTES

1. PROVIDE ACOUSTICAL METAL CEILING PANELS UNDER HOLLOW CORE PAINT UNDERSIDE OF ROOF STRUCTURE.

GENERAL NOTE:
SEE "E" DWGS FOR SAT LAYOUT

BUILDING DESIGNATIONS



KEY PLAN
NTS

ARCHITECTURAL SHEET INDEX

A-1	ARCHITECTURAL SHEET INDEX, ABBREVIATIONS, SYMBOLS, KEY PLAN, AND FINISH SCHEDULE
A-2	PRELIMINARY TREATMENT STRUCTURE FLOOR PLAN AND WALL SECTION
A-3	PRELIMINARY TREATMENT STRUCTURE ELEVATIONS
A-4	GENERATOR BUILDING FLOOR AND ROOF PLANS
A-5	GENERATOR BUILDING ROOF PLAN AND WALL SECTIONS
A-6	GENERATOR BUILDING ELEVATIONS
A-7	WALL SECTIONS
A-8	GENERATOR BUILDING ENLARGED FLOOR PLANS
AD-1	DOOR SCHEDULE, DOOR TYPES, AND DETAILS
AD-2	WINDOW AND LOUVER TYPES AND DETAILS
AD-3	MISC ARCHITECTURAL DETAILS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

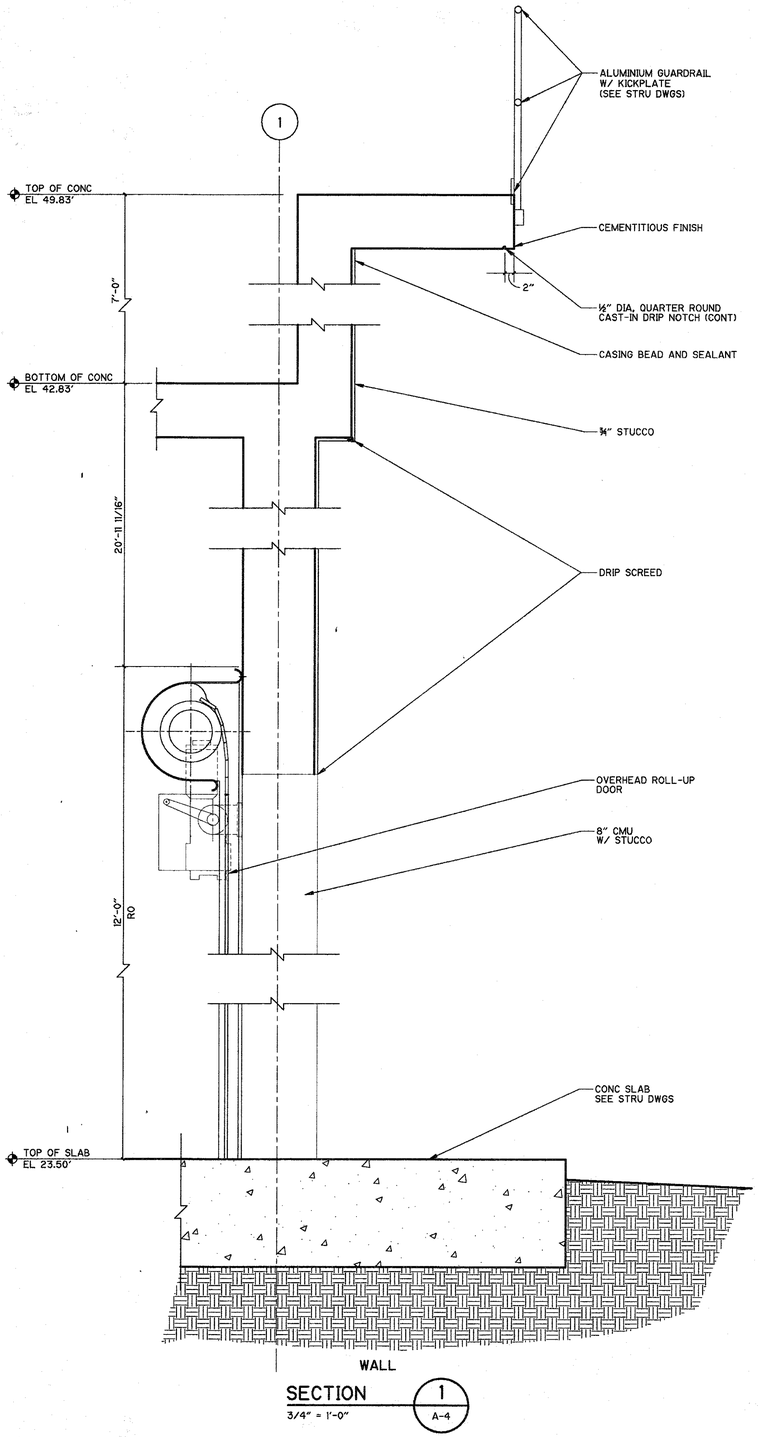
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ARCHITECTURAL SHEET INDEX, ABBREVIATIONS, SYMBOLS, KEY PLAN, AND FINISH SCHEDULE

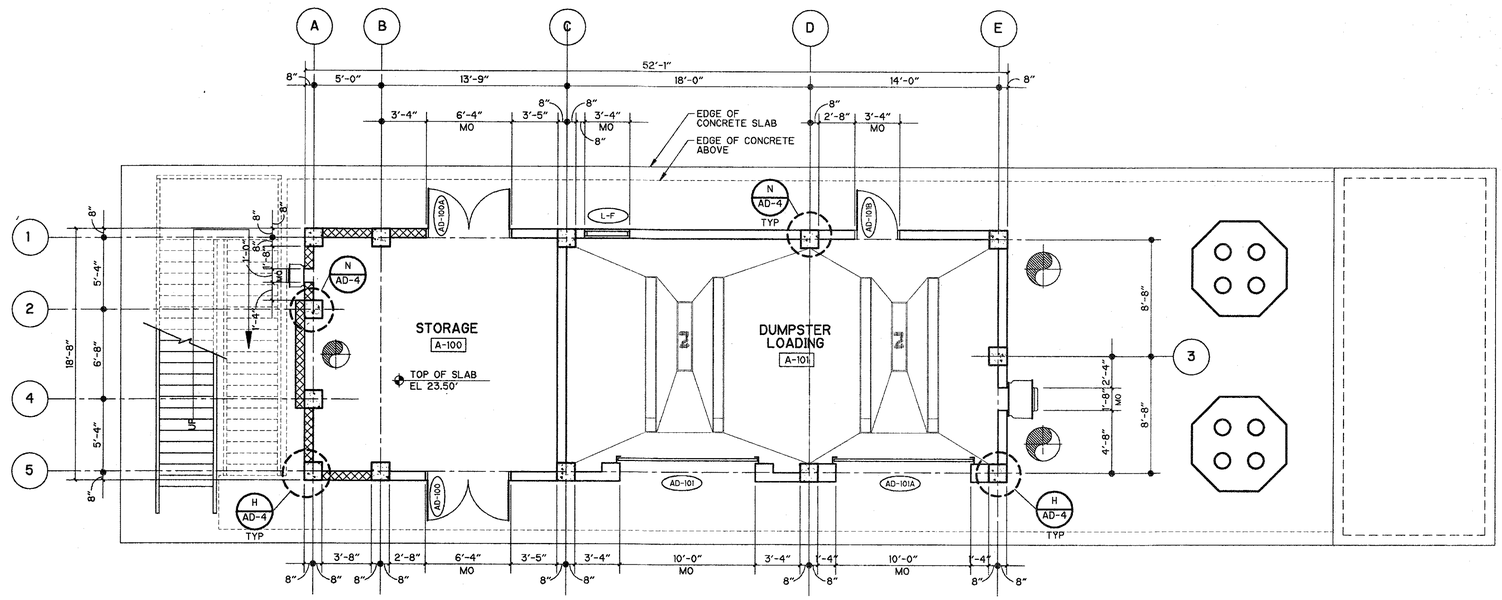
PROJECT NO. 6706_070
FILE NAME: ACOVER1

SHEET NO.
A-1

O:\6706_070\ARCH\ ACOVER1 05/23/97 14:43:32 2:1b/l5 Kenneth D. Potts



SECTION 1 / A-4
3/4" = 1'-0"



FLOOR PLAN
3/16" = 1'-0"

GENERAL NOTES:

DIMENSIONS DO NOT INCLUDE STUCCO

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

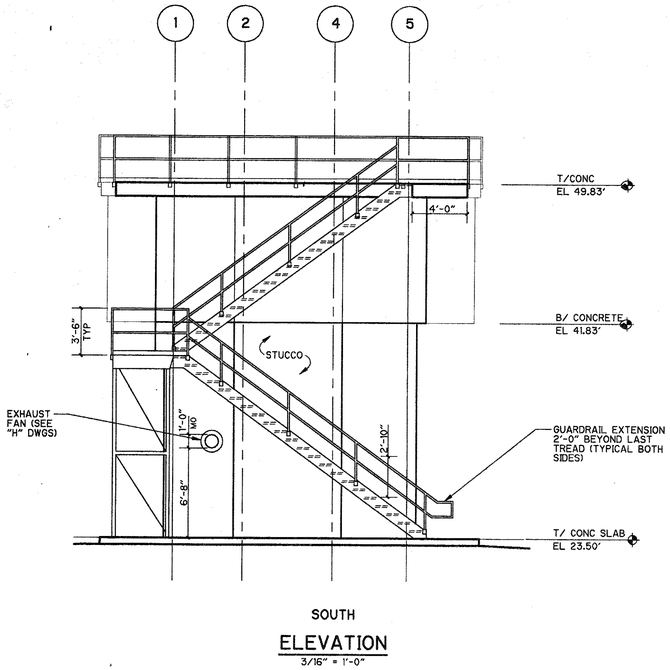
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

PRELIMINARY TREATMENT STRUCTURE
FLOOR PLAN AND WALL SECTION

PROJECT NO. 6706_070
FILE NAME: AHDPL001

SHEET NO.
A-2

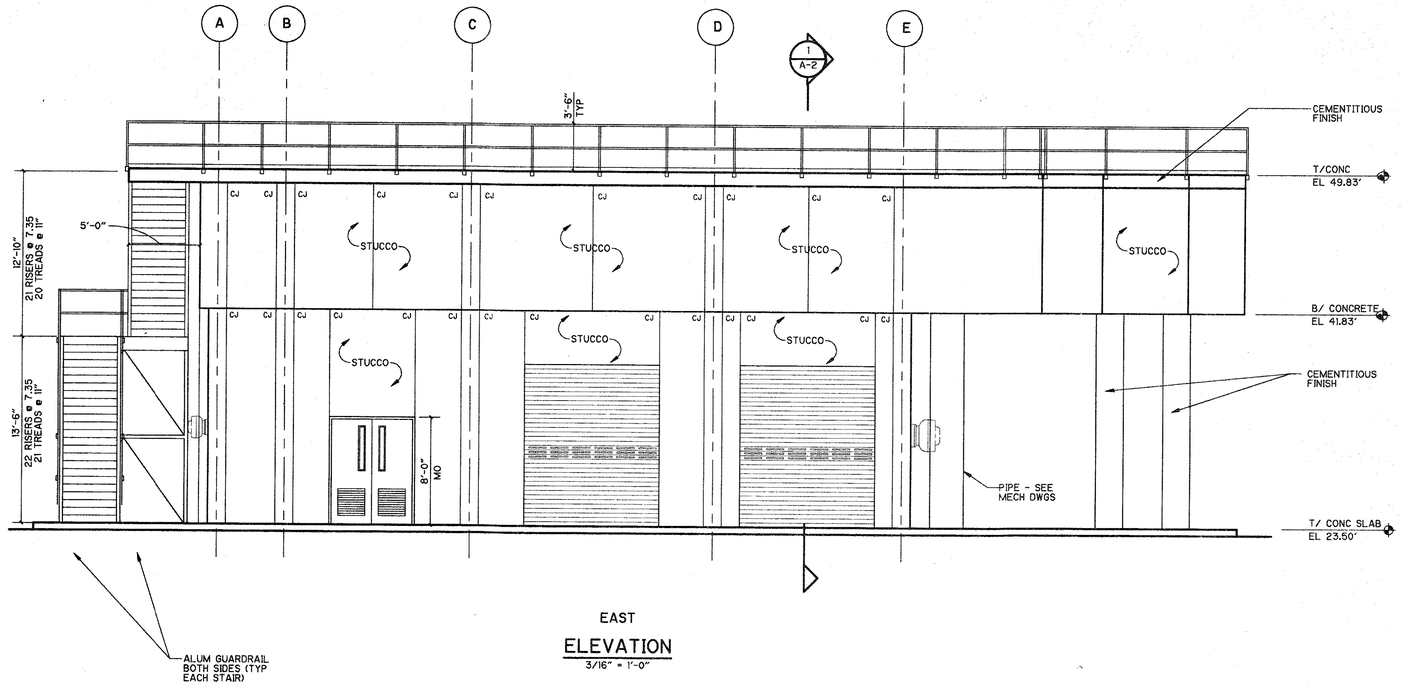
Kenneth D. Potts 2:34:13 05/23/97 14:22:10 AHDPL001 O:\6706_070\ARCH\



SOUTH

ELEVATION

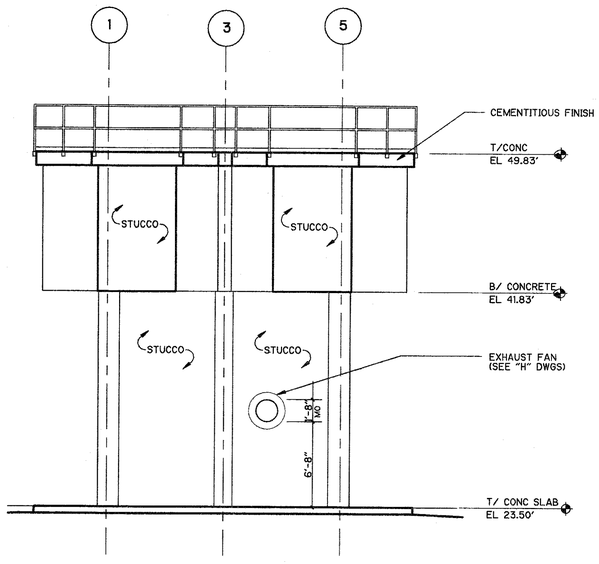
3/16" = 1'-0"



EAST

ELEVATION

3/16" = 1'-0"



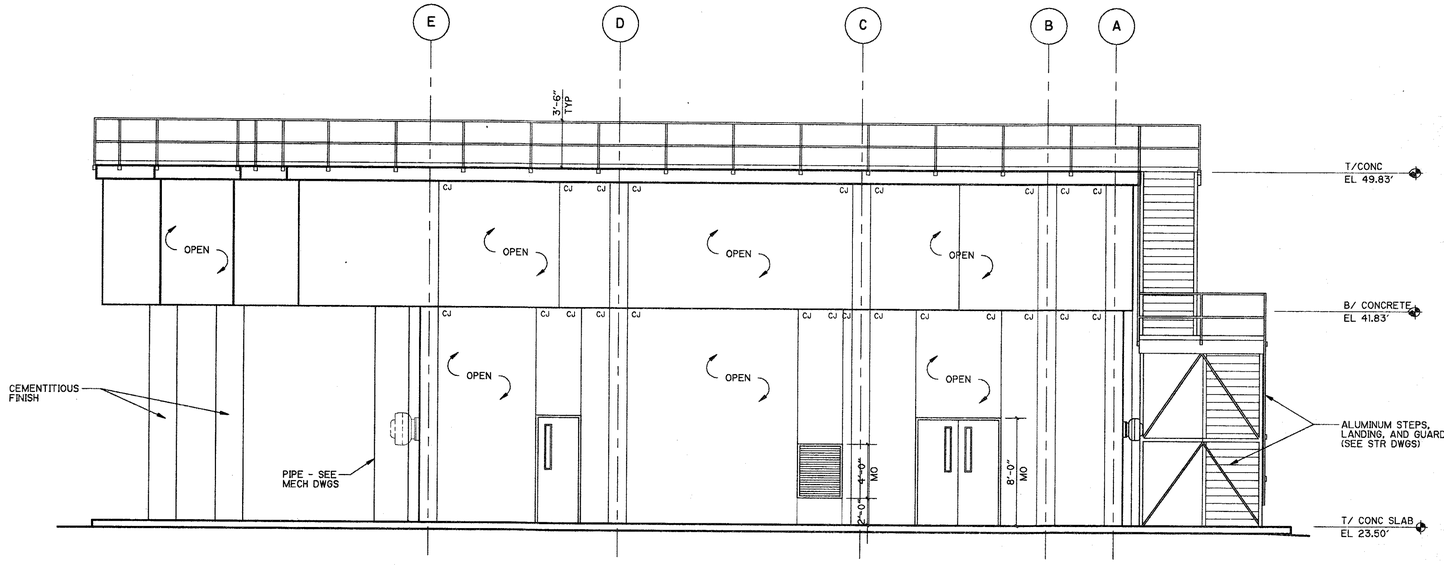
NORTH

ELEVATION

3/16" = 1'-0"

NOTE

PISTA COLUMNS AND PIPES IN FOREGROUND NOT SHOWN FOR CLARITY



WEST

ELEVATION

3/16" = 1'-0"

GENERAL NOTES:

CJ'S AND RJ'S REFER TO STUCCO JOINTS UNLESS OTHERWISE NOTED

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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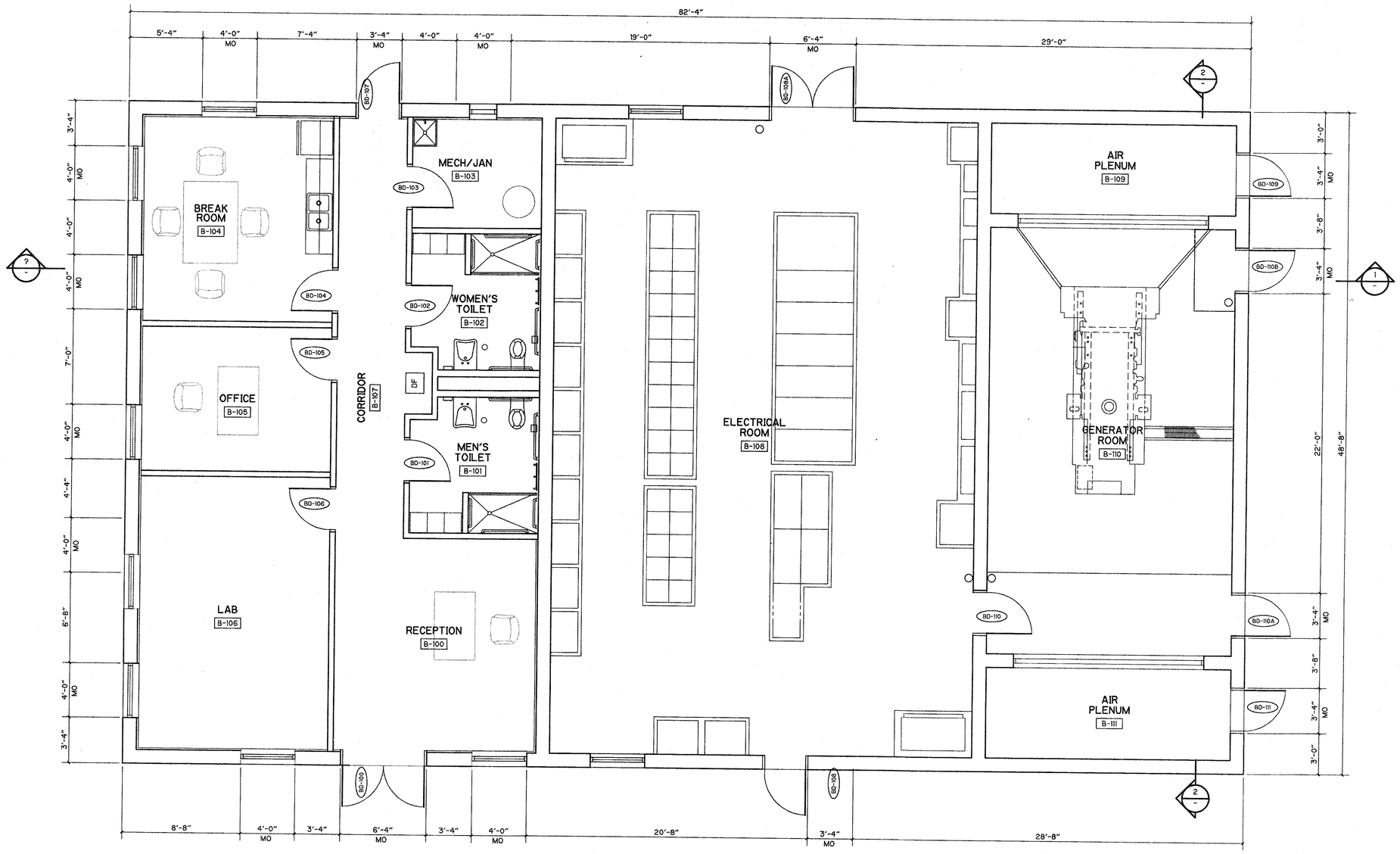
INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

PRELIMINARY TREATMENT STRUCTURE ELEVATIONS

PROJECT NO. 6706-070
FILE NAME: AHDEL002

SHEET NO.
A-3



FLOOR

PLAN

1/4" = 1'-0"

GENERAL NOTES:

1. DIMENSIONS DO NOT INCLUDE STUCCO
2. FURNISHINGS (CHARTS, TABLES, DESKS, AND ETC) SHOWN AS SCREENED LINE(S) ARE NOT IN CONTRACT

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

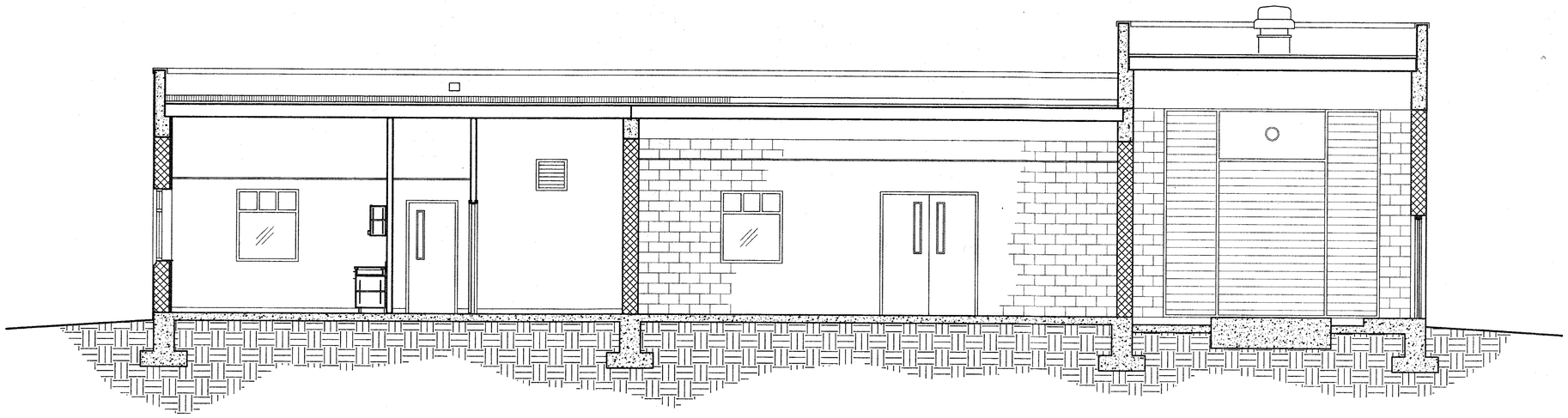
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

GENERATOR BUILDING
FLOOR PLAN

PROJECT NO. 6706.070
FILE NAME:

SHEET NO.
A-4

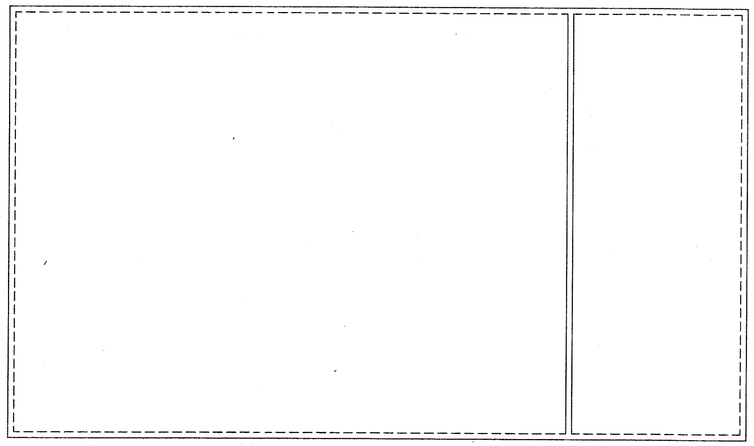
Kevin Hoskins 5/13/24 05/23/97 13:37:45 AGNFL001 O:\6706_070\ARCH\



BUILDING

SECTION 1/A-4

1/4"=1'-0"



ROOF

PLAN

1/8"=1'-0"

GENERAL NOTES:

1. DIMENSIONS DO NOT INCLUDE STUCCO
2. FURNISHINGS (CHARTS, TABLES, DESKS, AND ETC) SHOWN AS SCREENED LINE(S) ARE NOT IN CONTRACT

REV. NO.	DATE	DRWN	CHKD	REMARKS
1				

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

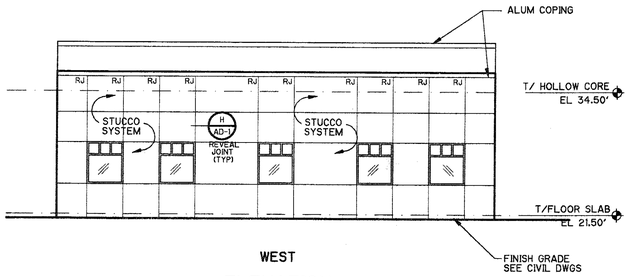
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

GENERATOR BUILDING ROOF PLAN AND WALL SECTIONS

PROJECT NO. 6706_070
FILE NAME:

SHEET NO.
A-5

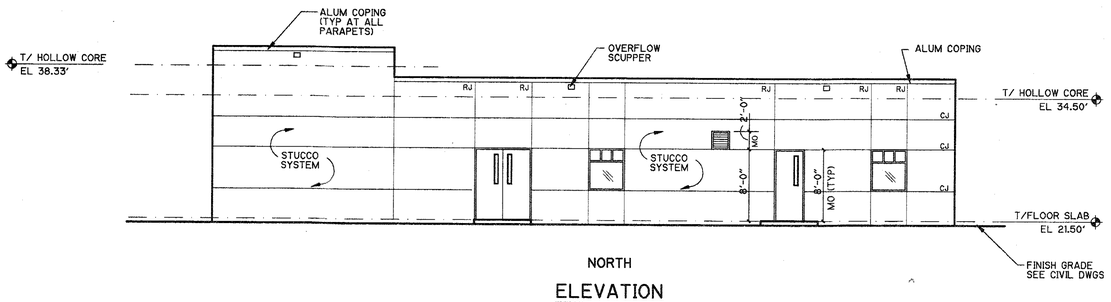
O:\6706_070\ARCH\ AGNPL005 05/23/97 15:16:07 07/22 Kenneth D. Potts



WEST

ELEVATION

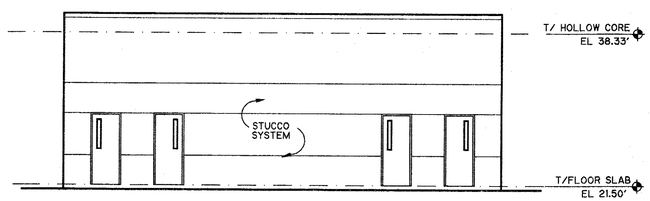
1/8" = 1'-0"



NORTH

ELEVATION

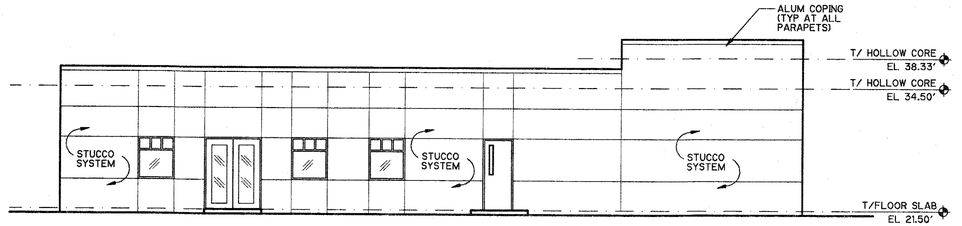
1/8" = 1'-0"



EAST

ELEVATION

1/8" = 1'-0"



SOUTH

ELEVATION

1/8" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

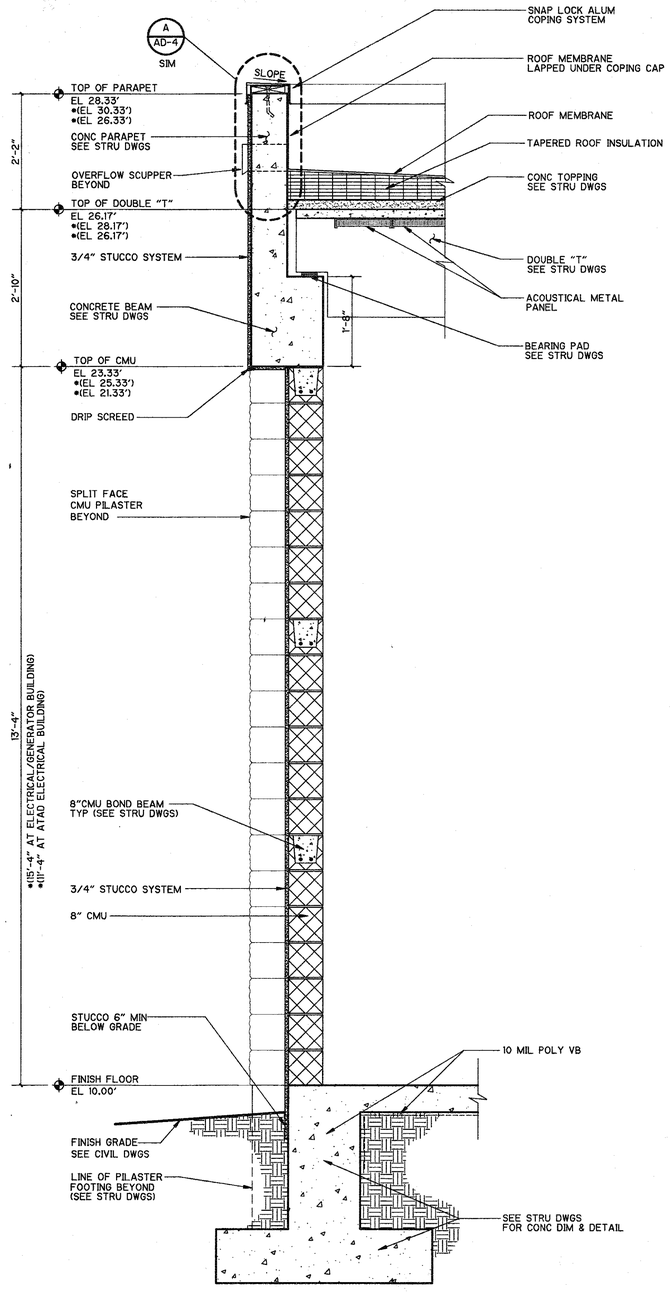
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

GENERATOR BUILDING ELEVATIONS

PROJECT NO. 6706_070
FILE NAME:

SHEET NO.
A-6

D:\6706_070\ARCH\ ABNELSO2 05/23/97 10:13:57 2.27.19 Kenneth D. Potts

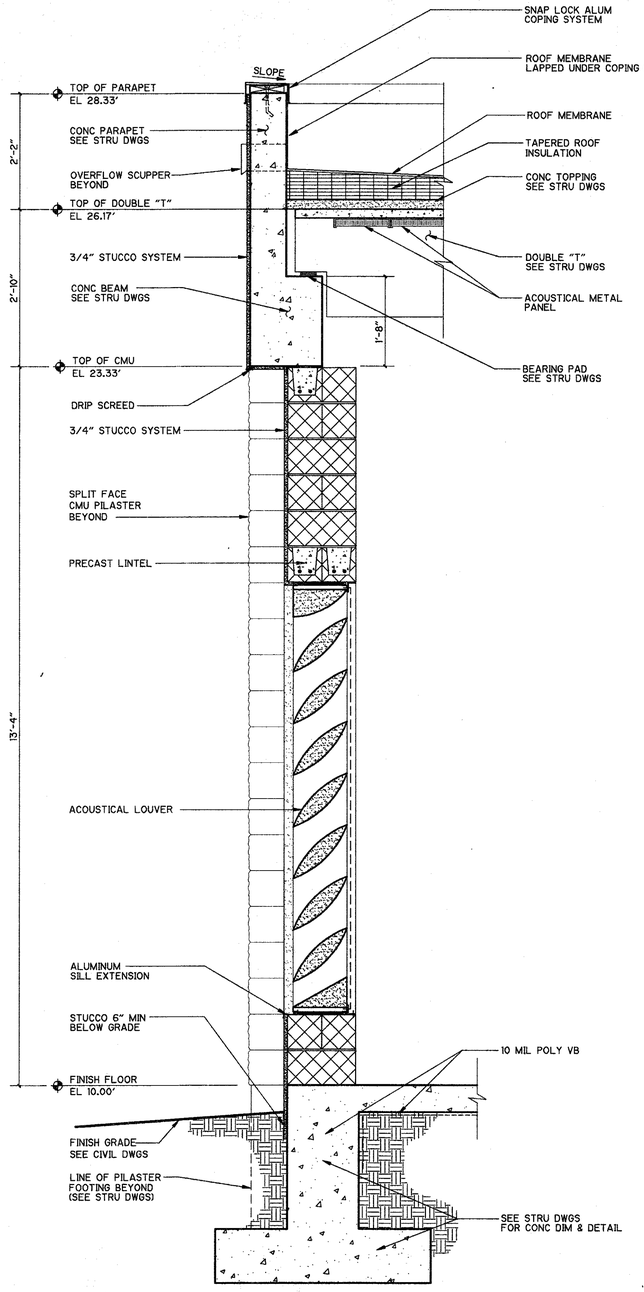


TYPICAL WALL

SECTION 1 (A-6/A-11, A-13)

3/4"=1'-0"

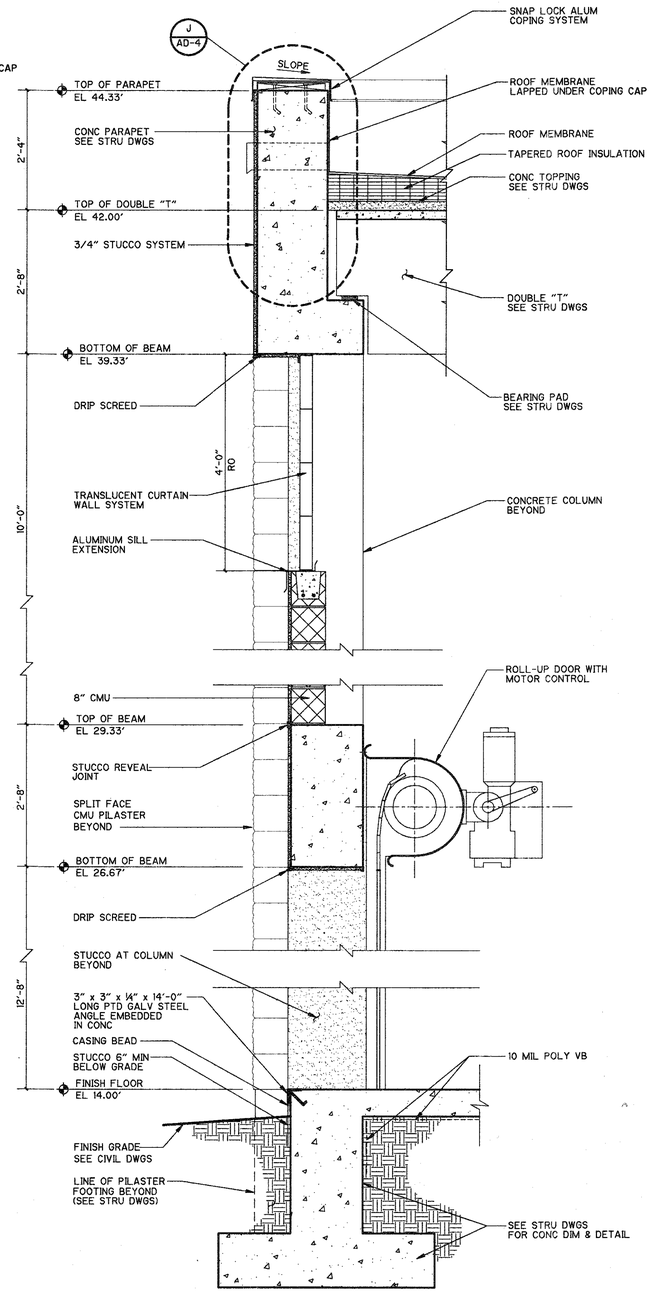
(*) DIMENSIONS AND ELEVATIONS FOR THE ELECTRICAL/GENERATOR BUILDING (BUILDING DESIGNATION "D") AND FOR THE ATAD ELECTRICAL BUILDING (BUILDING DESIGNATION "F")



WALL

SECTION 2 (A-6)

3/4"=1'-0"



WALL

SECTION 3 (A-8)

3/4"=1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
	1/97	KDP	KMH	CONFORMED DRAWING

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

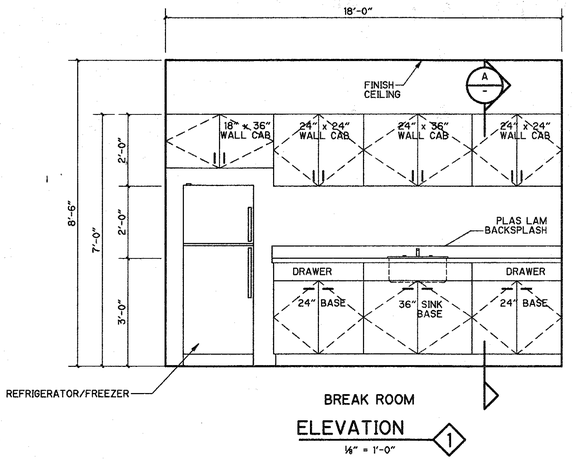
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

WALL SECTIONS

PROJECT NO. 6706_070
FILE NAME: AGNWS003

SHEET NO.
A-7

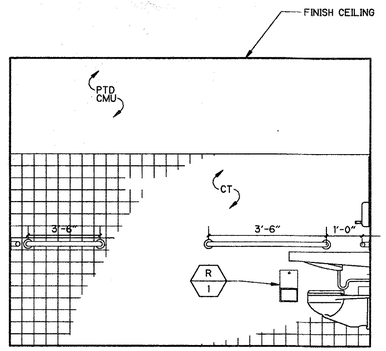
KENNETH D. POTTS
05/23/97 09:40:36
AGNWS003
U:\DWGS\ARCH\



BREAK ROOM

ELEVATION 1

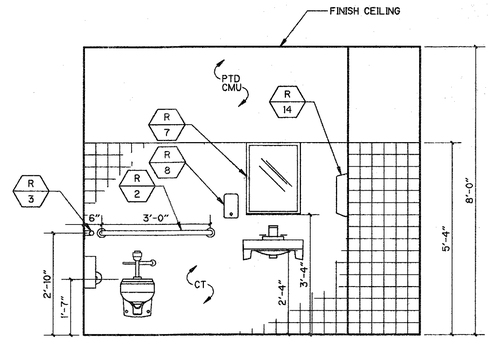
1/4" = 1'-0"



WOMEN'S TOILET ROOM
MEN'S TOILET ROOM (REVERSED)

1 ELEVATION

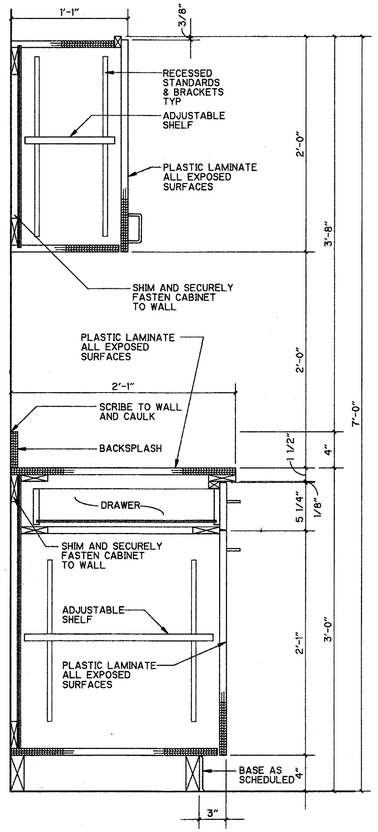
1/2" = 1'-0"



WOMEN'S TOILET ROOM
MEN'S TOILET ROOM (REVERSED)

2 ELEVATION

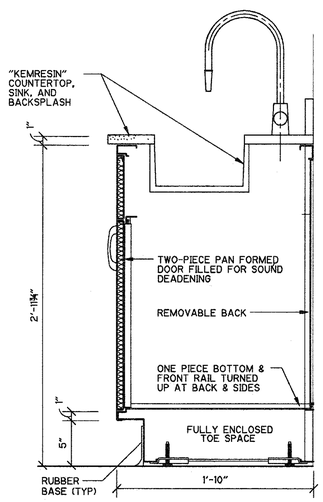
1/2" = 1'-0"



WALL & BASE CABINETS

SECTIONS A

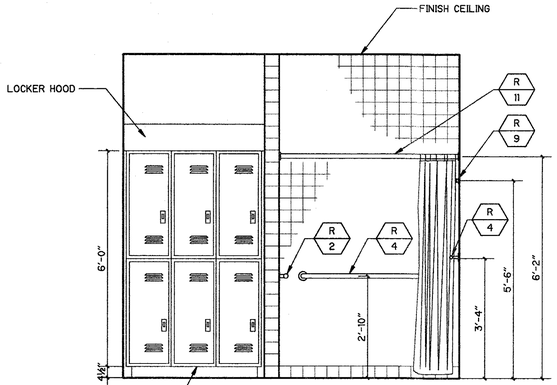
1½" = 1'-0"



CASEWORK

SECTION B

1½" = 1'-0"



WOMEN'S TOILET ROOM
MEN'S TOILET ROOM (REVERSED)

3 ELEVATION

1/2" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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cities worldwide

INDIAN RIVER COUNTY
FLORIDA

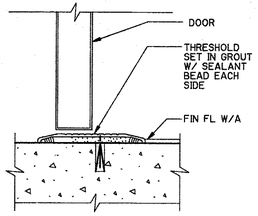
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

GENERATOR BUILDING ENLARGED FLOOR PLANS

PROJECT NO. 6706_070
FILE NAME:

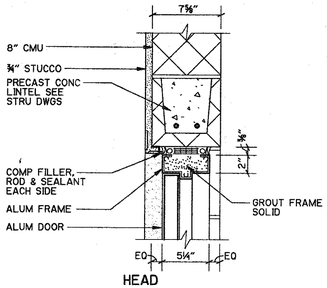
SHEET NO.
A-8

Kenneth D. Potts 6:04:31 05/23/97 AGNPL004 O:\6706_070\ARCH\



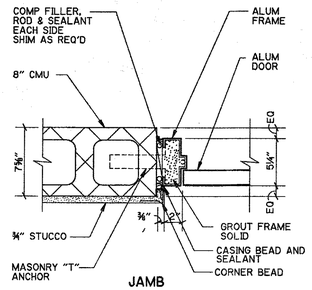
THRESHOLD

DETAIL A
3" = 1'-0"



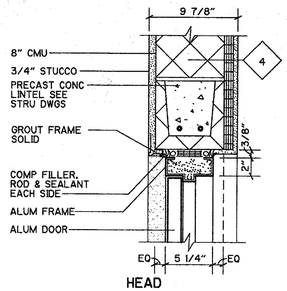
HEAD

DETAIL B
1½" = 1'-0"



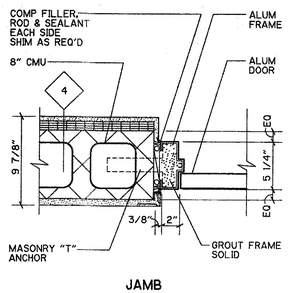
JAMB

DETAIL C
1½" = 1'-0"



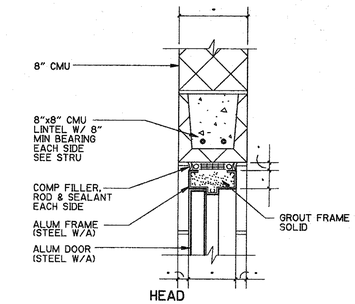
HEAD

DETAIL D
1½" = 1'-0"



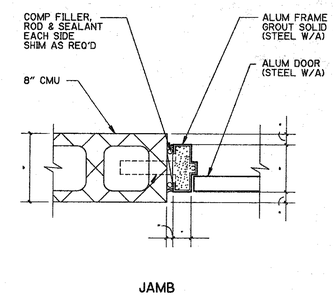
JAMB

DETAIL E
1½" = 1'-0"



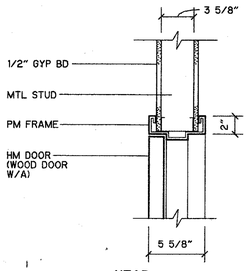
HEAD

DETAIL F
1½" = 1'-0"



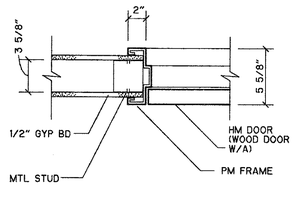
JAMB

DETAIL G
1½" = 1'-0"



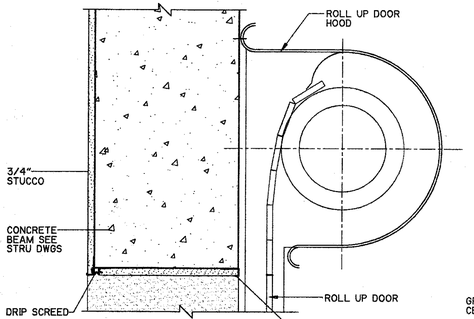
HEAD

DETAIL H
1-1/2" = 1'-0"



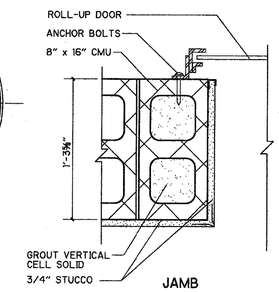
JAMB

DETAIL I
1-1/2" = 1'-0"



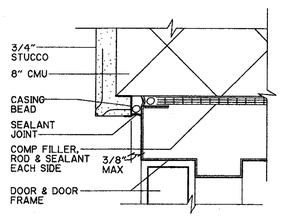
HEAD

DETAIL J
1½" = 1'-0"



JAMB

DETAIL K
1½" = 1'-0"

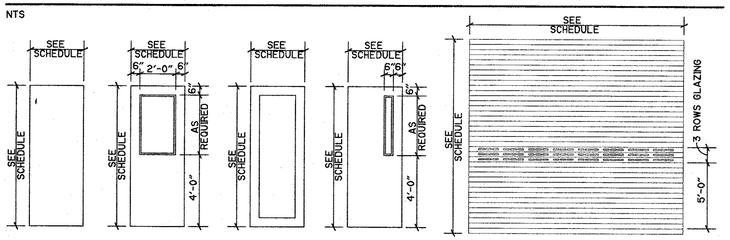


SEALANT JOINT

DETAIL L
1-1/2" = 1'-0"

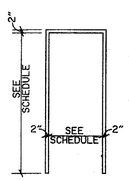
DOOR TYPES

NTS



FRAME TYPES

NTS



DOOR SCHEDULE

BUILDING DESIGNATION	ROOM NAME	DOOR NUMBER	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOORS TYPE	DOORS MAT'L	DOORS FIN	FRAMES TYPE	FRAMES MAT'L	FRAMES FIN	DETAILS HEAD	DETAILS JAMB	DETAILS JAMB	DETAILS THRES-HOLD	RATING MINUTES	HARD-WARE	NOTE NO
INFLUENT STRUCTURE (DESIGNATION "A")	STORAGE	AD-100	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			1
	STORAGE	AD-100A	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			1
	DUMPSTER LOADING	AD-101	10'-0"	12'-0"	D	ALUM	SPEC	-	ALUM	SPEC	-	-	-	-			2
	DUMPSTER LOADING	AD-101A	10'-0"	12'-0"	G	ALUM	SPEC	-	ALUM	SPEC	-	-	-	-			2
BUILDING	DUMPSTER LOADING	AD-101B	3'-0"	7'-10"	G	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
						ALUM	SPEC	A	ALUM	SPEC							
ELECTRICAL/ GENERATOR (DESIGNATION "B")	RECEPTION	BD-100	3'-0"	7'-10"	C	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			1
	MEN'S TOILET	BD-101	3'-0"	7'-10"	A	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	WOMEN'S TOILET	BD-102	3'-0"	7'-10"	A	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	MECH/JAN	BD-103	3'-0"	7'-10"	A	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	BREAK ROOM	BD-104	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	OFFICE	BD-105	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	LAB	BD-106	3'-0"	7'-10"	B	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	CORRIDOR	BD-107	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	ELECTRICAL ROOM	BD-108	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	ELECTRICAL ROOM	BD-108A	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			1
	AIR PLENUM	BD-109	3'-0"	7'-10"	A	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	GENERATOR ROOM	BD-110	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	GENERATOR ROOM	BD-110A	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	GENERATOR ROOM	BD-110B	3'-0"	7'-10"	D	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-
	AIR PLENUM	BD-111	3'-0"	7'-10"	A	ALUM	SPEC	A	ALUM	SPEC	-	-	-	-			-

NOTES

1. PAIR OF EQUAL DOORS
2. ROLL UP DOOR HARDWARE PROVIDED W/ DOOR
3. PROVIDE SOUND/ WEATHER SEALS

GENERAL NOTE

SEE SPECS FOR HARDWARE GROUPS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services
offices worldwide

INDIAN RIVER COUNTY
FLORIDA

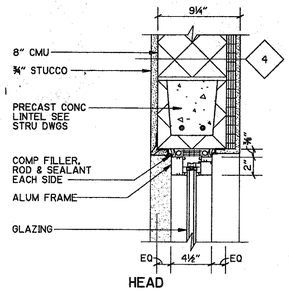
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

DOOR SCHEDULE, DOOR TYPES, AND DETAILS

PROJECT NO. 6706_070
FILE NAME:

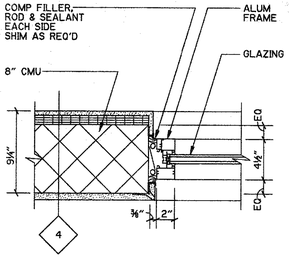
SHEET NO.
AD-1

Kenneth D. Potts 5:10:01 05/23/97 15:09:46 ASDOTADI O:\6706_070\ARCH\



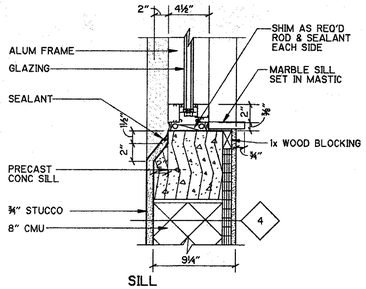
HEAD

DETAIL A
1½" = 1'-0"



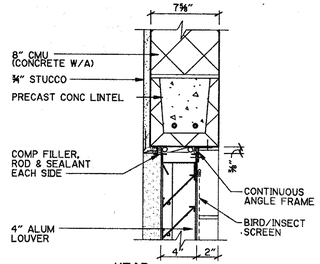
JAMB

DETAIL B
1½" = 1'-0"



SILL

DETAIL C
1½" = 1'-0"



HEAD

DETAIL D
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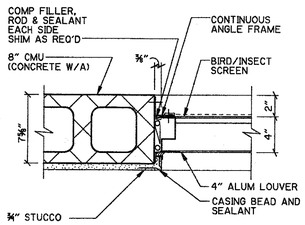
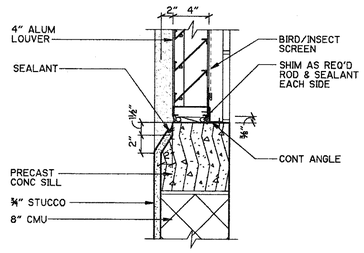


JAMB

DETAIL E
1½" = 1'-0"

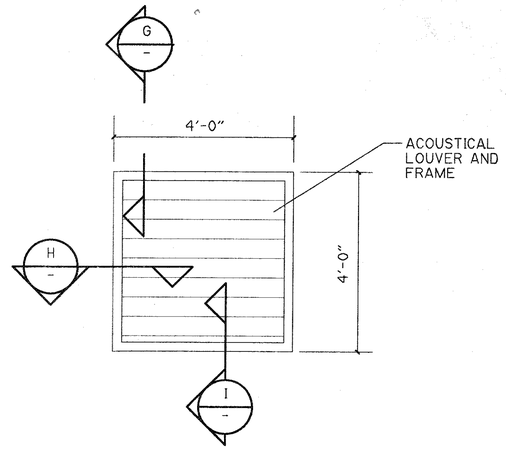


SILL

DETAIL F
1½" = 1'-0"

LOUVER TYPES

NTS

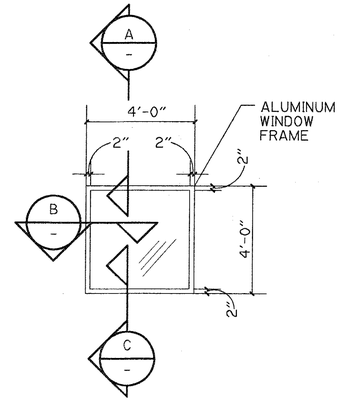


LOUVER TYPE "A"

L-A

WINDOW TYPES

NTS



WINDOW TYPE "A"

W-A

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services
office worldwide

INDIAN RIVER COUNTY
FLORIDA

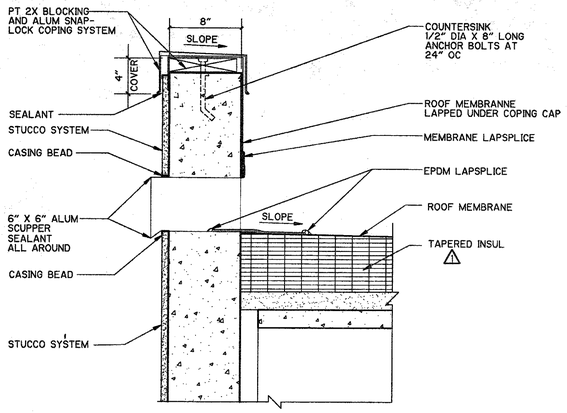
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

WINDOW AND LOUVER TYPES AND DETAILS

PROJECT NO. 6706_070
FILE NAME:

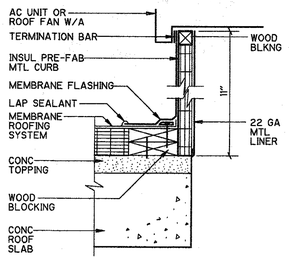
SHEET NO.
AD-2

O:\6706_070\ARCH\ ASD01402 05/8/97 08:47:20 0:42:25 Kenneth D. Potts



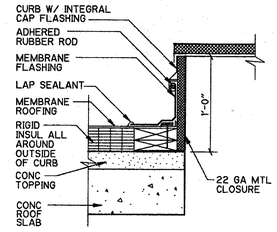
OVERFLOW SCUPPER AND COPING

DETAIL A — 1½" = 1'-0" — AD-3



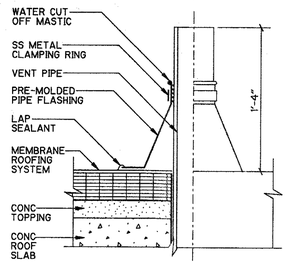
EQUIPMENT CURB

DETAIL B — 1½" = 1'-0" — A-5/A-9 A-10



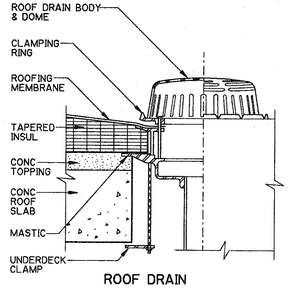
ROOF SCUTTLE

DETAIL C — 1½" = 1'-0" — A-9



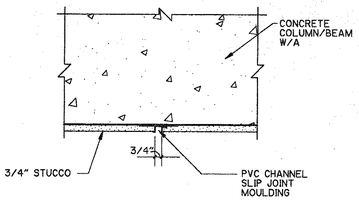
PLUMBING VENT

DETAIL D — 1½" = 1'-0" — A-9



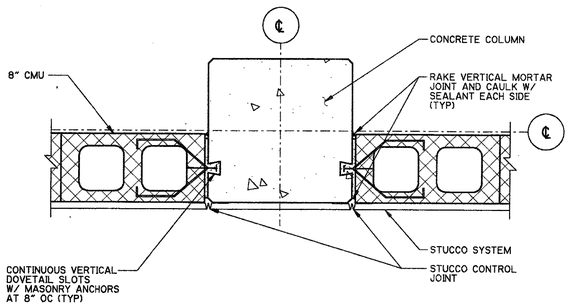
ROOF DRAIN

DETAIL E — 1½" = 1'-0" — A-5, A-9, A-10



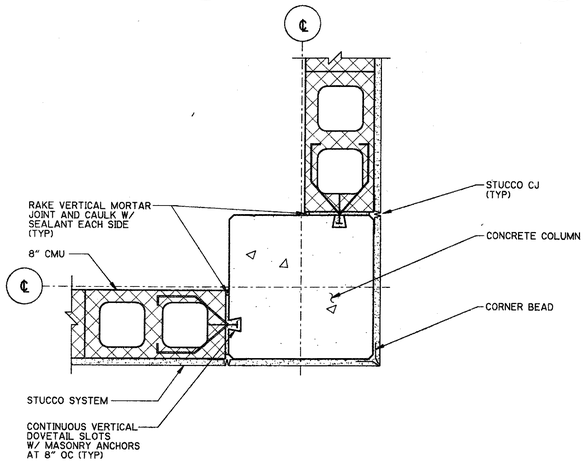
STUCCO REVEAL JOINT

DETAIL F — 1½" = 1'-0" — A-4, A-6, A-8



COLUMN/PILASTER

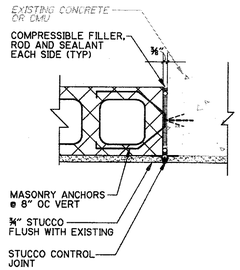
DETAIL G — 1½" = 1'-0" — A-3/A-7



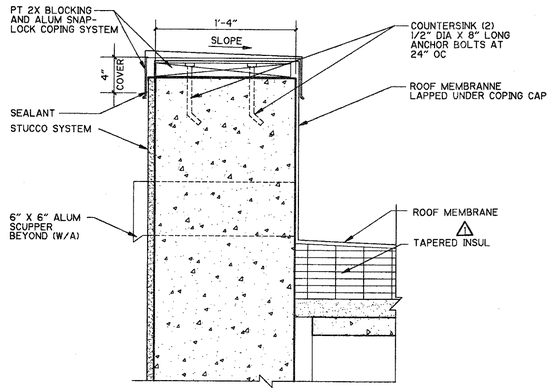
COLUMN/PILASTER

DETAIL H — 1½" = 1'-0" — A-3/A-7

NOTE: ALTERNATE EVERY COURSE (RUNNING BOND)

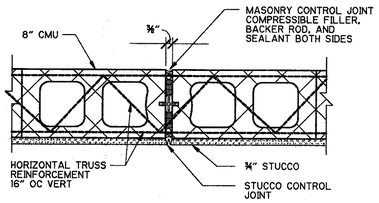


DETAIL I — 1½" = 1'-0" — A-12



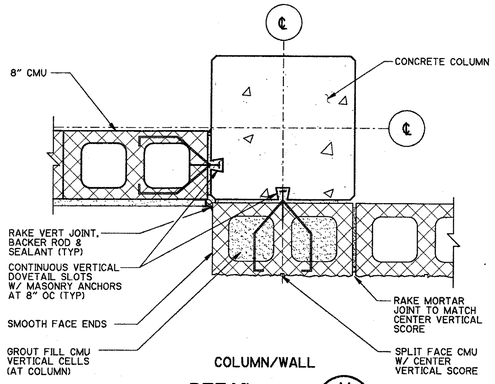
PARAPET/COPING

DETAIL J — 1½" = 1'-0" — A-10/AD-3



CONTROL JOINT

DETAIL L — 1½" = 1'-0" — A-5/A-10



COLUMN/WALL

DETAIL N — 1½" = 1'-0" — A-3

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. HOSKINS
DRAWN BY: K. POTTS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MISC ARCHITECTURAL DETAILS

PROJECT NO. 6706_070
FILE NAME: ASDDTAD3

SHEET NO.
AD-3

Kenneth D. Potts 0.20-42 05/20/97 08:53:39 ASDDTAD3 O:\6706_070\ARCH\

GENERAL NOTES

DESIGN CRITERIA
CODES:

- STANDARD BUILDING CODE (LATEST EDITION)
- SANITARY STRUCTURES: ACI 350R "CONCRETE SANITARY ENGINEERING STRUCTURES"
- OTHER STRUCTURES: ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
- AISC MANUAL OF STEEL CONSTRUCTION, NINTH EDITION
- ACI 530 "BUILDING CODE REQUIREMENTS FOR REINFORCED MASONRY STRUCTURES."

DESIGN LIVE LOADS:

- PROCESS RELATED STRUCTURES:

STAIRWAYS	150 PSF
PROCESS SLABS	200 PSF
STORAGE AREAS	300 PSF

SUPERIMPOSED DEADLOADS

- ROOFS — AS NOTED
- FLOORS — AS NOTED

WINDLOADS

- BASIC WIND SPEED — 110 MPH
- DESIGN PRESSURES: PER SBCCI SECTION 1205 REQUIREMENTS

EARTHQUAKE — N.A.

CONCRETE 28-DAY STRENGTH

- COLUMNS, BEAMS, SLABS, WALLS, FOOTINGS — 4000 PSI
- MASONRY FILLED CELL GROUT — 2500 PSI
- PRESTRESSED ELEMENTS — 5000 PSI

REINFORCING STEEL

- ALL BARS ASTM A615, GRADE 60
- WELDED WIRE FABRIC ASTM A185

STRUCTURAL STEEL

- ALL STRUCTURAL AND MISC. STEEL UNLESS NOTED: A36
- SHOP AND FIELD WELD: E70XX ELECTRODES

FOUNDATIONS

- ALLOWABLE BEARING PRESSURE FOR SPREAD FOOTINGS OVER SUBSURFACE PREPARED AS PER SPECIFICATIONS: 3000 PSF

GENERAL CONDITIONS

ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE MECHANICAL, CIVIL, ELECTRICAL, AND SHOP DRAWINGS AND SPECIFICATIONS.

THE CONTRACTOR SHALL REVIEW AND VERIFY DIMENSIONS SHOWN IN ALL PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FACILITY. SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH THE WORK.

FOR ALL ITEMS EMBEDDED IN OR PASSED THROUGH CONCRETE, THE CONTRACTOR SHALL INITIALLY REFER TO MECHANICAL, HEATING, AND VENTILATION DRAWINGS FOR TYPE, SIZE, LOCATION, AND SPECIAL INSTALLATION REQUIREMENTS FOR THESE ITEMS.

THE CONTRACTOR SHALL TAKE ANY AND ALL NECESSARY MEASURES TO PROTECT EXISTING STRUCTURES FROM DAMAGE WHEN WORKING IN AND AROUND EXISTING STRUCTURES PERFORMING WORK SUCH AS DEMOLITION, FOUNDATION EXCAVATION, AND OTHERS.

SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE PER EQUIPMENT MANUFACTURERS REQUIREMENTS.

ANY EQUIPMENT THAT MAY INDUCE VIBRATION TO THE STRUCTURE SHALL BE ADEQUATELY ISOLATED FROM THE STRUCTURES.

ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

STANDARD DETAILS (SHOWN ON SD1, SD2, AND SD3) APPLY TO ALL SIMILAR SITUATIONS ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

CONCRETE

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318 REQUIREMENTS.

ALL CONCRETE SHALL BE AIR-ENTRAINED WITH 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

WATER REDUCING AGENT SHALL BE IN ACCORDANCE WITH ASTM C494.

ALL CONCRETE SURFACES EXPOSED TO AIR, UNLESS OTHERWISE NOTED IN SPECIFICATIONS, SHALL BE TREATED WITH AN APPROPRIATE CURING COMPOUND AS SOON AS CEMENT FINISHING IS COMPLETED OR FORMS ARE REMOVED.

ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE A MINIMUM CHAMFER OF 3/4" UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR THE LOCATION OF CONSTRUCTION JOINTS THAT ARE NOT SHOWN ON THE DRAWINGS.

REINFORCING STEEL

REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 REQUIREMENTS.

ALL ACCESSORIES SHALL BE IN CONFORMANCE WITH ACI 315 REQUIREMENTS. REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR COVER UNLESS OTHERWISE NOTED:

- CONCRETE CAST AGAINST EARTH — 3"
- FORMED SURFACES IN CONTACT WITH SOIL, SEWAGE, WATER OR EXPOSED TO WEATHER — 2"
- FORMED SURFACES NOT EXPOSED TO WEATHER OR IN CONTACT WITH SOIL:
  - SLABS, WALLS, AND JOISTS — 3/4"
  - BEAMS AND COLUMNS — 1 1/2"

LAP SPLICES SHALL BE AS SHOWN ON THE DRAWINGS. FOR LAP SPLICES NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL OBTAIN ENGINEERS APPROVAL.

THE CONTRACTOR SHALL PREPARE PLACING DRAWINGS AND SCHEDULES IN CONFORMANCE WITH ACI 315 REQUIREMENTS.

PRECAST PRESTRESSED CONSTRUCTION

ALL PRECAST PRESTRESSED MEMBERS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER FOR THE SUPERIMPOSED LOADS SHOWN ON THE DRAWINGS IN CONFORMANCE WITH THE REQUIREMENTS OF APPLICABLE SPECIFICATIONS. EQUIPMENT LOADS OR OTHER LOADING SUCH AS MONORAIL SUPPORT LOADS SHALL BE CONSIDERED AS REQUIRED.

MASONRY

DESIGN CRITERIA:

- DESIGN COMPRESSIVE STRENGTH OF MASONRY AT 28 DAYS — f'm = 1500 PSI
- ALLOWABLE STEEL STRESS — fs = 24,000 PSI

CONTINUOUS INSPECTION IS REQUIRED FOR ALL MASONRY WORK

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS AND:

- THE NATIONAL CONCRETE MASONRY ASSOCIATION "SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF LOAD BEARING STRUCTURES."
- ACI 530 "BUILDING CODE REQUIREMENTS FOR REINFORCED MASONRY STRUCTURES."

MATERIALS:

- BLOCK: CONFORM TO ASTM C90 - GRADE N, TYPE II TWO-CELL, 8"x8"x16" (COMPRESSIVE STRENGTH, GROSS AREA 1000 PSI)
- MORTAR: CONFORM TO ASTM C270, TYPE S . MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS - 1800 PSI UTILIZE TYPE II CEMENT AND TYPE S LIME. MASONRY CEMENT WILL NOT BE CONSIDERED.
- GROUT: CONFORM TO C476, COARSE GROUT. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS - 2500 PSI
- STEEL: DUR-O-WAL OR EQUAL JOINT REINFORCEMENT AT EVERY THIRD COURSE (24" O.C.) BOND BEAM AND FILLED CELL REINFORCEMENT AS PER DRAWINGS (ASTM A615, GRADE 60).

CONSTRUCTION

- ALL FILLED CELLS AND COLUMNS SHALL BE POURED AT LEAST TWO (2) HOURS PRIOR TO POURING LINTEL BLOCK OR TIE BEAMS.
- MAX. CONSTRUCTION HEIGHT OF MASONRY WALLS WITHOUT FILLED CELL OR COLUMN POURS IS TO BE 8'-0". THE CONCRETE FOR FILLED CELLS SHALL BE RODDED OR PUDDLED DURING PLACEMENT TO INSURE COMPLETE FILLING TO THE BLOCK CORE.
- SEE STANDARD DETAILS AND ARCHITECTURAL DRAWINGS FOR LINTEL REQUIREMENTS OVER OPENINGS.
- PROVIDE CLEAN OUT AND INSPECTION BLOCK OUTS IN CELLS CONTAINING REINF.

FLOTATION CONSIDERATION:

STRUCTURES WERE DESIGNED TO BE NON-BUOYANT AFTER THE STRUCTURE IS PLACED INTO SERVICE. THEREFORE, THE STRUCTURE MAY BE BUOYANT DURING CONSTRUCTION. GENERAL CONTRACTOR SHALL PROTECT ALL STRUCTURES (NEW AND EXISTING) FROM FLOTATION DURING CONSTRUCTION, REGARDLESS OF GROUND WATER LEVELS, UNTIL STRUCTURES ARE PLACED IN OPERATION.

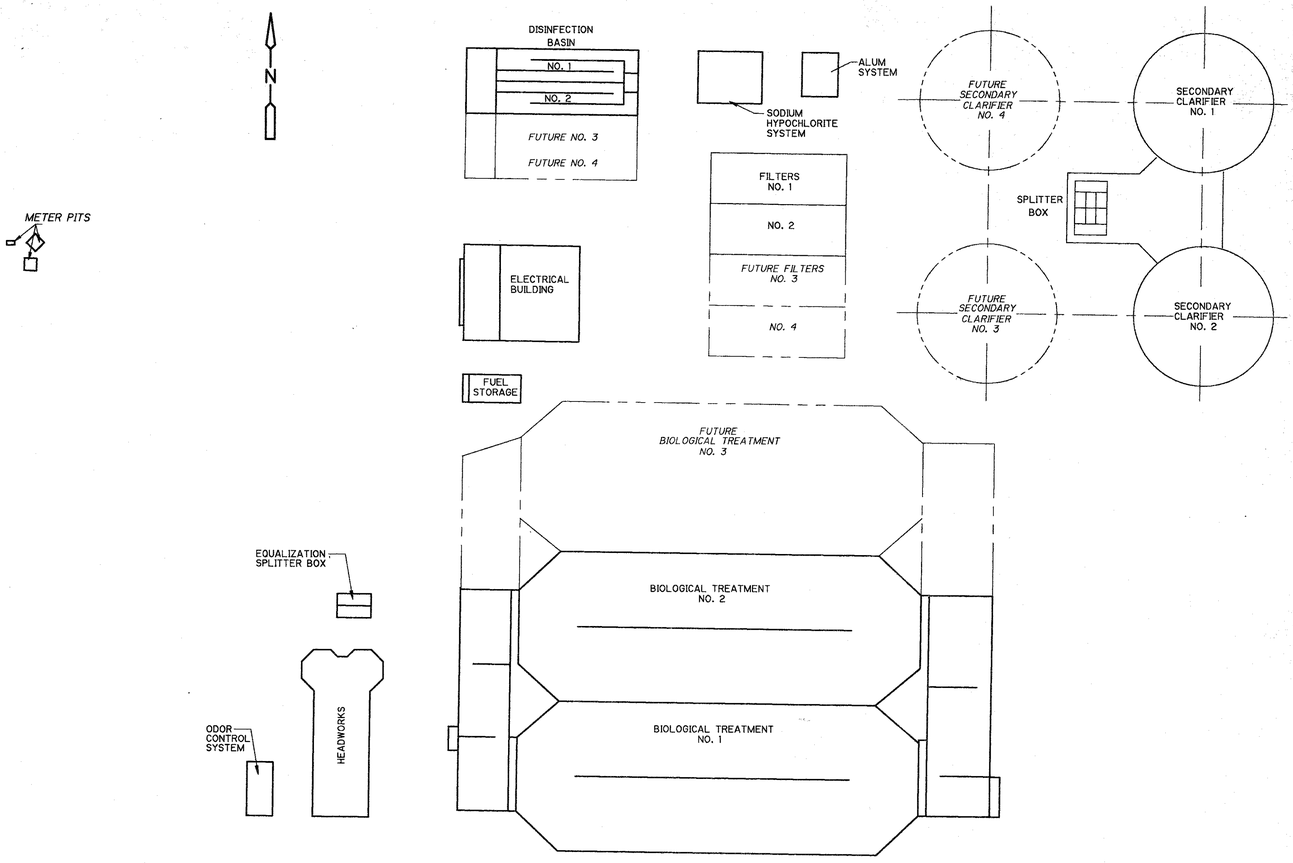
GEOTECHNICAL REPORT:

"GEOTECHNICAL SERVICES, CENTRAL REGION WASTEWATER TREATMENT PLANT (GIFFORD PLANT)" PREPARED BY DUNKELBERGER ENGINEERING & TESTING INC. DATED FEBRUARY 24, 1997.

ABBREVIATIONS:

ALUM	ALUMINUM	MAT'L	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BOT	BOTTOM	MIN	MINIMUM
CJ	CONTROL JOINT	MISC	MISCELLANEOUS
CMU	CONCRETE MASONRY UNIT	NF	NEAR FACE
CONC	CONCRETE	NTS	NOT TO SCALE
CONST JT	CONSTRUCTION JOINT	OC	ON CENTER
CONT	CONTINUOUS	PLF	POUNDS PER LINEAR FOOT
DIA	DIAMETER	PROJ	PROJECTION
DWG	DRAWING	PSF	POUNDS PER SQUARE FOOT
EF	EACH FACE	PSI	POUNDS PER SQUARE INCH
EJ	EXPANSION JOINT	SPECS	SPECIFICATIONS
EL	ELEVATION	SS	STAINLESS STEEL
EW	EACH WAY	STD	STANDARD
FF	FAR FACE	REINF	REINFORCEMENT
FTG	FOOTING	T&B	TOP AND BOTTOM
HORIZ	HORIZONTAL	T/STRUCTURE	TOP OF STRUCTURE
HP	HIGH POINT	TYP	TYPICAL
ID	INSIDE DIAMETER	UN	UNLESS NOTED
LP	LOW POINT	VERT	VERTICAL
		WWF	WELDED WIRE FABRIC

NOTE:
THESE ABBREVIATIONS ARE FOR USE ON STRUCTURAL DRAWINGS ONLY



SITE PLAN
NTS

STRUCTURAL INDEX LIST

S-1	GENERAL NOTES, SITE PLAN AND DRAWING LIST	S-17	SECONDARY CLARIFIER SECTIONS AND DETAIL
S-2	HEADWORKS PLAN	S-18	A.B.W. GRAVITY FILTERS FOUNDATION PLAN
S-3	HEADWORKS INTERMEDIATE PLAN	S-19	A.B.W. GRAVITY FILTERS PLAN AT TOP OF STRUCTURE
S-4	HEADWORKS PLAN AT TOP OF STRUCTURE	S-20	A.B.W. GRAVITY FILTERS SECTIONS
S-5	HEADWORKS SECTIONS 1 OF 2	S-21	A.B.W. GRAVITY FILTERS SECTIONS
S-6	HEADWORKS SECTIONS 2 OF 2	S-22	DISINFECT BASIN FOUNDATION PLAN
S-7	EQUALIZATION SPLITTER BOX PLANS AND SECTIONS	S-23	DISINFECT BASIN PLAN AT TOP OF STRUCTURE
S-8	BIOLOGICAL TREATMENT FOUNDATION PLAN	S-24	DISINFECT BASIN SECTIONS
S-9	BIOLOGICAL TREATMENT FOUNDATION REINFORCING PLAN	S-25	GENERATOR/ELECTRICAL BUILDING PLANS AND SECTIONS
S-10	BIOLOGICAL TREATMENT TOP OF STRUCTRE PLAN	S-26	GENERATOR/ELECTRICAL BUILDING PLAN, SECTIONS AND ELEVATIONS
S-11	BIOLOGICAL TREATMENT ENLARGED PLAN, SECTIONS AND DETAILS	S-27	PLANT SITE LIFT STATION PLANS AND SECTIONS
S-12	BIOLOGICAL TREATMENT SECTIONS AND DETAILS	S-28	MISCELLANEOUS PADS PLANS AND SECTIONS
S-13	BIOLOGICAL TREATMENT PLANS, SECTIONS AND DETAILS	S-29	MISCELLANEOUS STRUCTURES PLANS AND SECTIONS
S-14	BIOLOGICAL TREATMENT WALL REINFORCING SECTIONS AND DETAILS	S-30	STAIRS PLANS AND SECTIONS
S-15	SPLITTER BOX PLANS, SECTIONS AND DETAILS	SD-1	GENERAL NOTES AND STRUCTURAL DETAILS
S-16	SECONDARY CLARIFIER PLANS, SECTIONS AND DETAIL	SD-2	STRUCTURAL DETAILS
		SD-3	STRUCTURAL DETAILS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

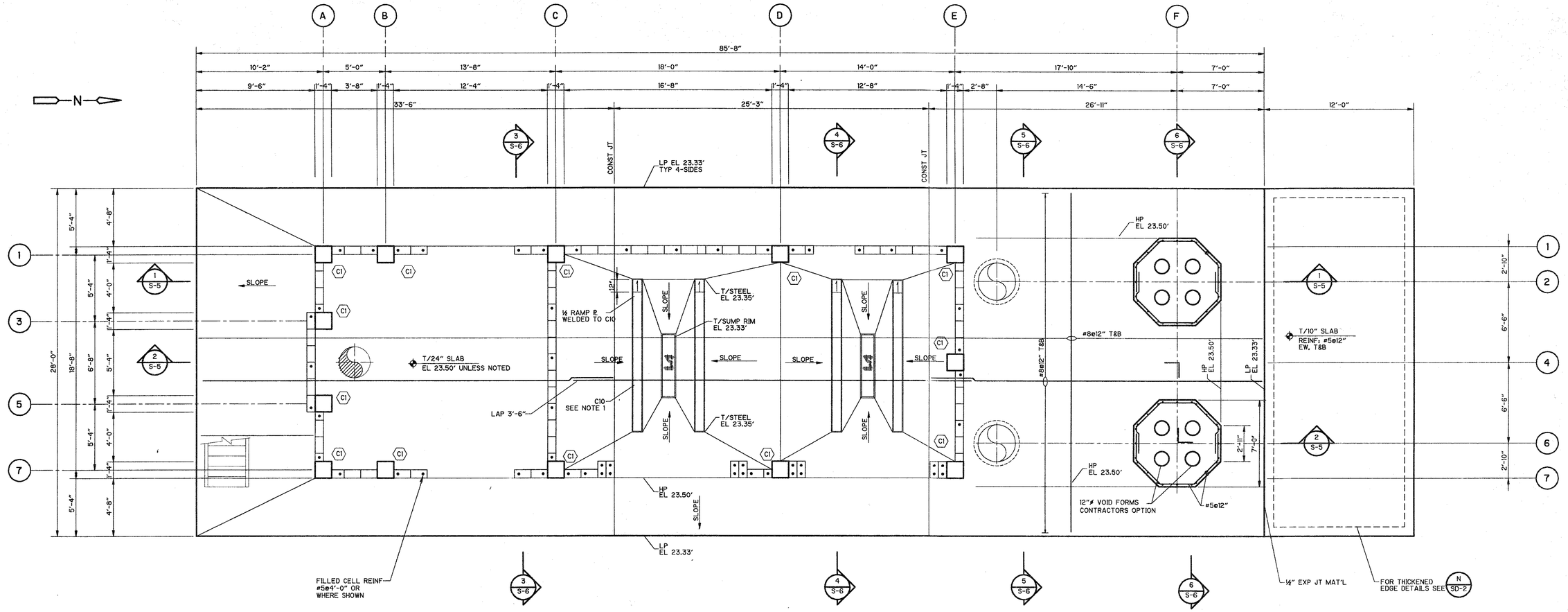
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

GENERAL NOTES, SITE PLAN AND DRAWING LIST

PROJECT NO. 6706_070
FILE NAME: SGNSD101

SHEET NO.
S-1

O:\6706_070\STR\DETAILS\ SGNSD101 05/22/97 15:23:05 7:47:24 Donna Frills



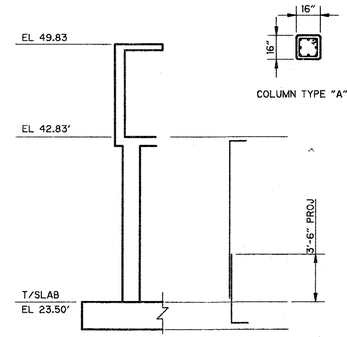
FOUNDATION SLAB AT EL 23.50'

PLAN

1/4" = 1'-0"

NOTES

1- C10x20, GALV CHANNELS EMBEDED IN SLAB TYP. 2-PLACES PROVIDE ½" STUDS W/4" PROJ ALONG BASE @2'-0" O.C.



COLUMN TYPE "A"

COLUMN SCHEDULE	
MARK	C1
SIZE	16"x16"
REINF.	8#7
TYPE	A
DOWEL	8#7
TIES	#3@12

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
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SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
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DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

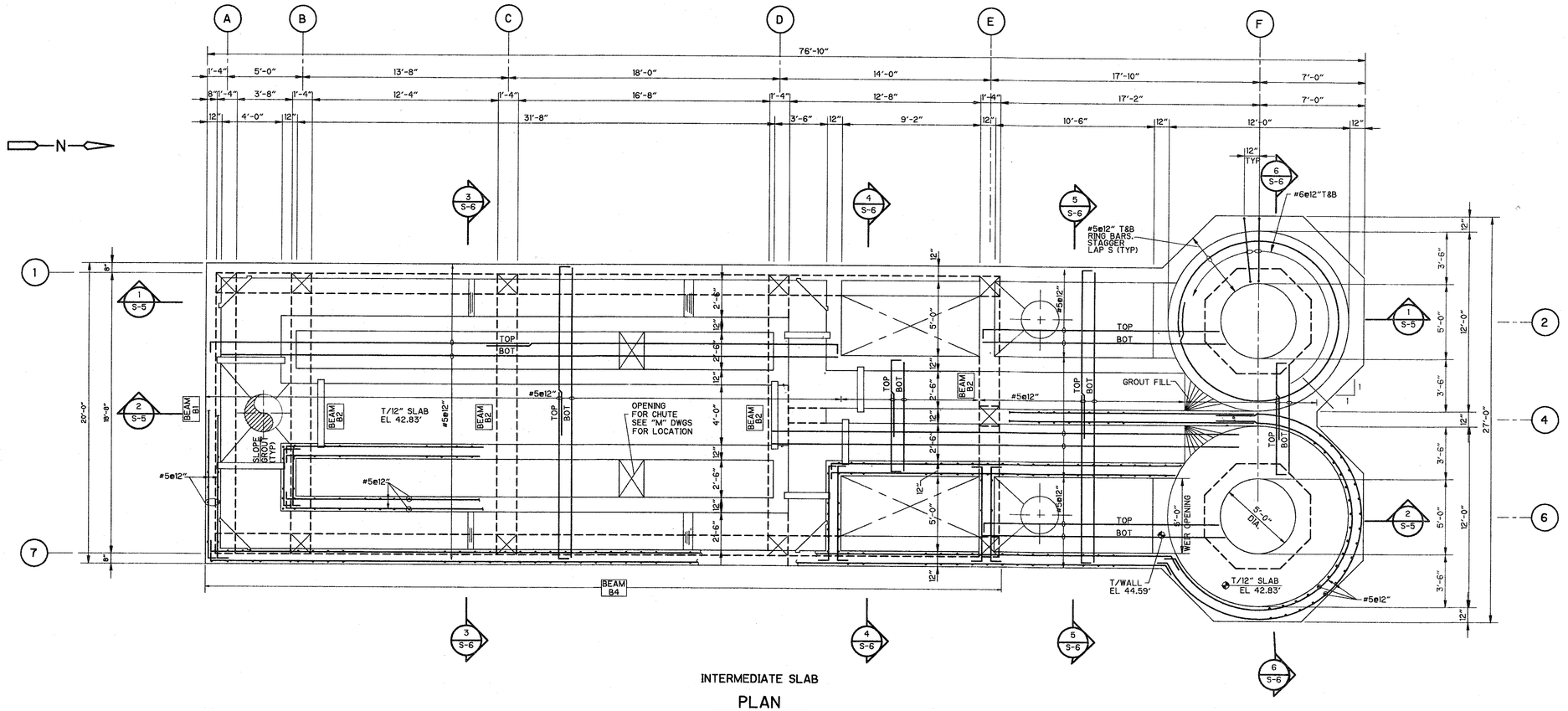
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS PLAN

PROJECT NO. 6706_070
FILE NAME: SPHWI

SHEET NO.
S-2

Tim Verwey 5:00:27 05/15/97 13:51:01 H:\#\ O:\6706_070\STRU\HEADWKS\



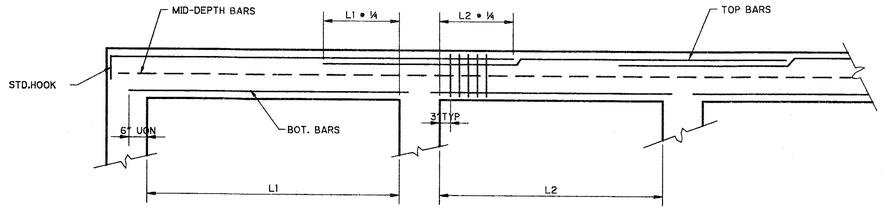
INTERMEDIATE SLAB

PLAN

1/4" = 1'-0"

BEAM SCHEDULE

MARK	ELEV. T/BEAM	SIZE	BOT BARS	TOP BARS	MID-DEPTH BARS	STIRRUPS SIZE	STIRRUPS TYPE	STIRRUPS SPA EA. END	SKETCH ℄ SUPPORT ℄ SUPPORT	REMARKS
B1	EL 42.83'	16x40	4#9	2#9	2#6 E.F.	#4		12" O.C.		TOP BARS LAP=3'-0"
B2	EL 42.83'	16x40	4#9	2#9	2#6 E.F.	#4		12" O.C.		
B3	EL 42.83'	16x40	4#9	2#9	2#6 E.F.	#4		12" O.C.		
B4	EL 42.83'	16x40	4#9	2#9	2#6 E.F.	#4		12" O.C.		
B5	EL 49.83'	12x24	3#6	3#6	1#5 E.F.	#4		12" O.C.		BARS PROJECT 3'-0" INTO SUPPORT



TYPICAL BEAM

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
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FLORIDA

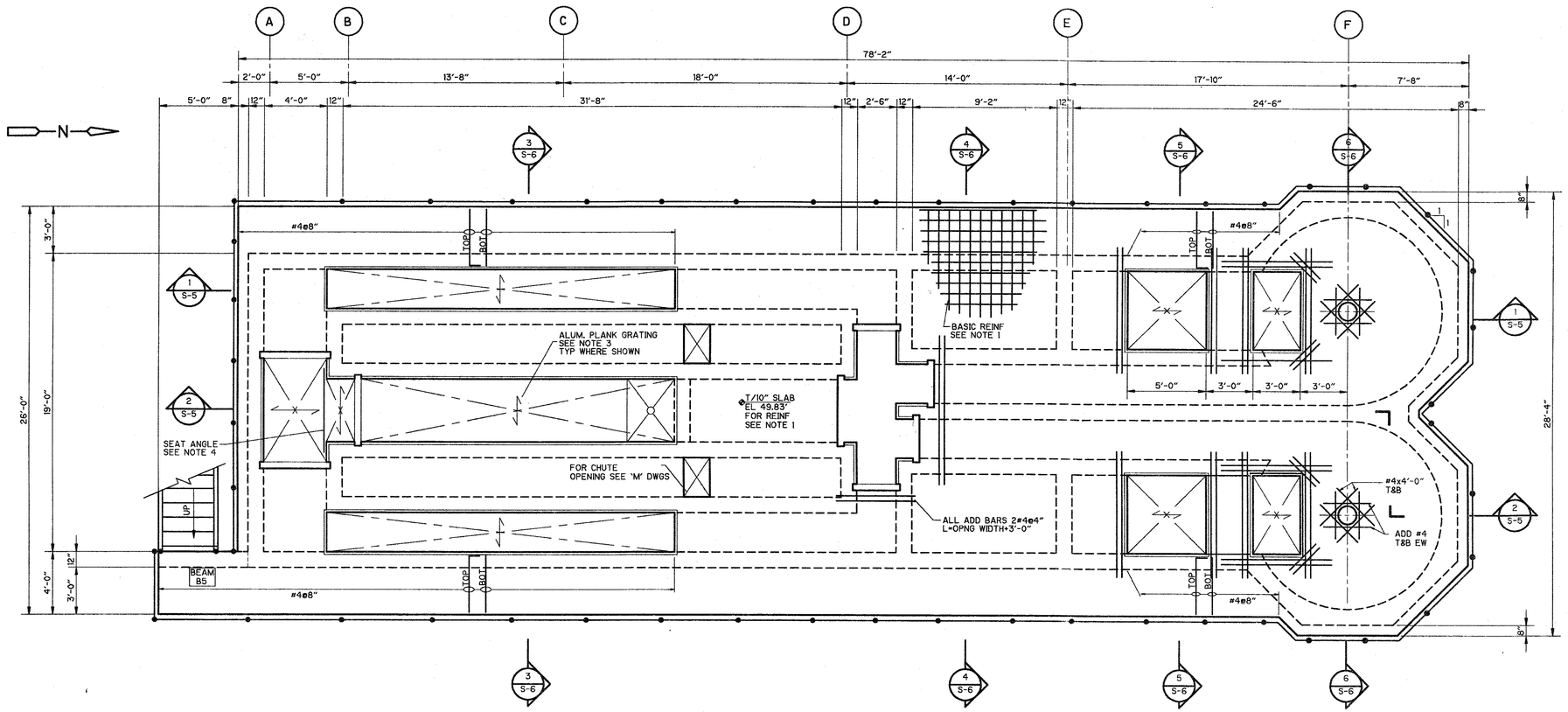
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS INTERMEDIATE PLAN

PROJECT NO. 6706_070
FILE NAME: SPHW2

SHEET NO.
S-3

O:\6706_070\STR\HEADWKS\ HW2 05/14/97 11:11:31 3x45.dB Donna Frits



TOP OF STRUCTURE AT EL 49.83'

PLAN

1/4" = 1'-0"

NOTES:

1. SLAB REINF: #4@8" EW T&B TYP UNLESS OTHERWISE NOTED (ADD BARS AS SHOWN IN PLAN)
2. FOR SLEEVES, SLIDE GATES, SCREENS AND LINER DETAILS, SEE 'M' DWGS.
3. ALUMINUM PLANK GRATINKIG SHALL BE IKG-BORDEN HD-50 (1½) STYLE P (SOLID TOP COVER)
4. SEAT ANDLE L4x3x⅜ LLV - ALUM 2-½ SS CONC. ANCHORS EACH END.

• DIMENSIONS PER EQUIP MFR REQUIREMENTS & COORD. W/ 'M' DWGS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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FLORIDA

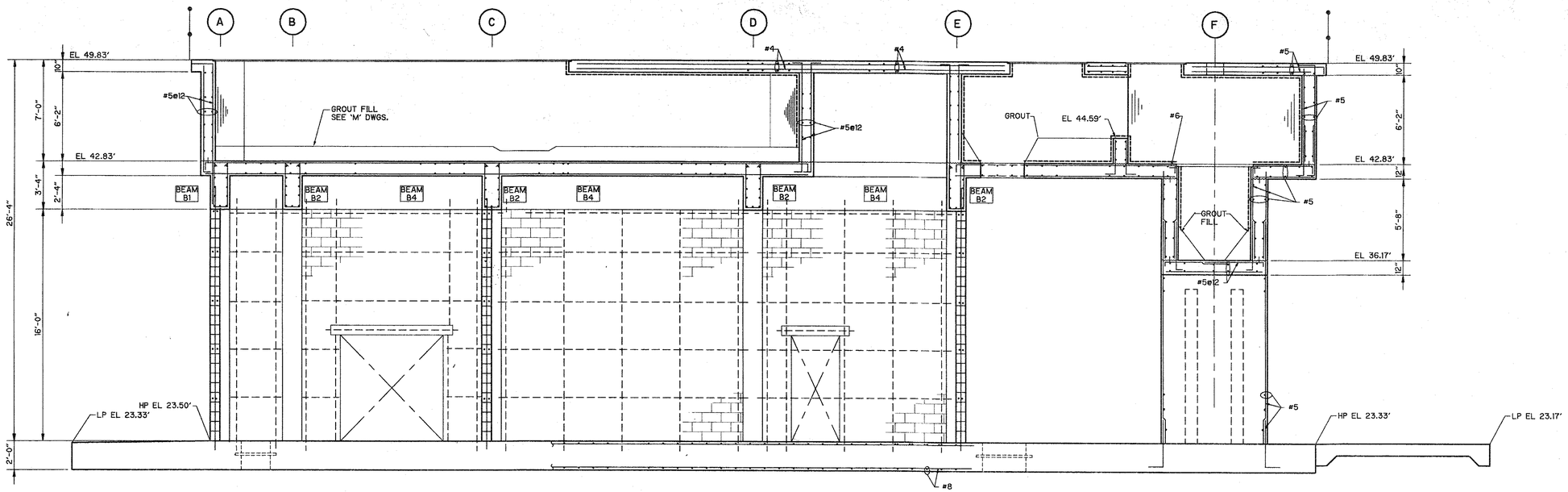
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS
PLAN AT TOP OF STRUCTURE

PROJECT NO. 6706_070
FILE NAME: SPHW3

SHEET NO.
S-4

D:\6706_070\STRUHEADWKS\ HW3 05/14/97 11:34:42 Donna Frits



SECTION 1
1/4" = 1'-0"
S-2,3,4

SECTION 2
1/4" = 1'-0"
S-2,3,4

NOTES:
1. PROVIDE DOWELS DRILLED AND GROUTED INTO COLUMNS 2#6x1'-6" MATCHING LINTEL REINF. LINTEL REINF. PER DETAIL E/SD-1

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
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SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
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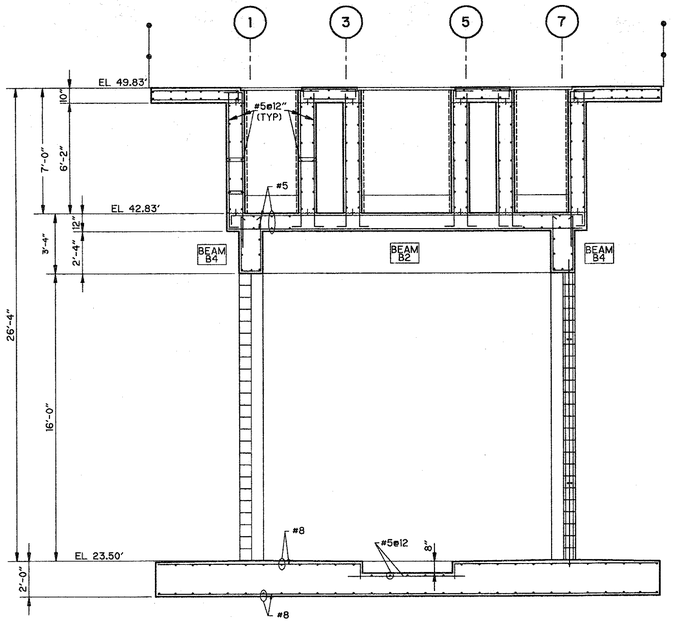
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS
SECTIONS 1 OF 2

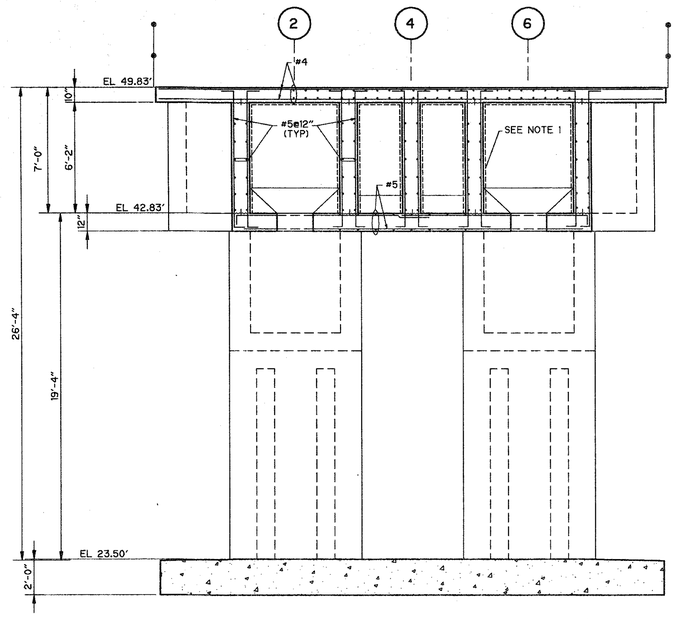
PROJECT NO. 6706_070
FILE NAME: SPHW4

SHEET NO.
S-5

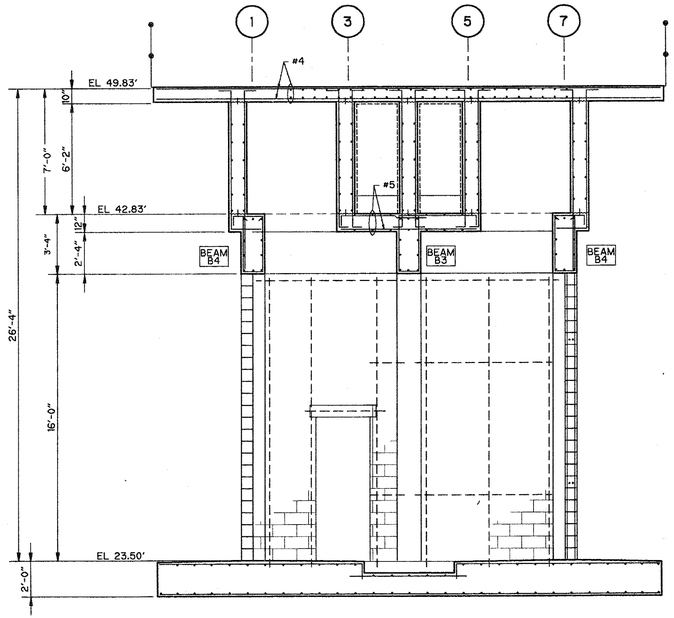
D:\6706_070\STRUJHEADWKS\ HW4 05/14/97 11:57:35 11:22:23 Donna Frilla



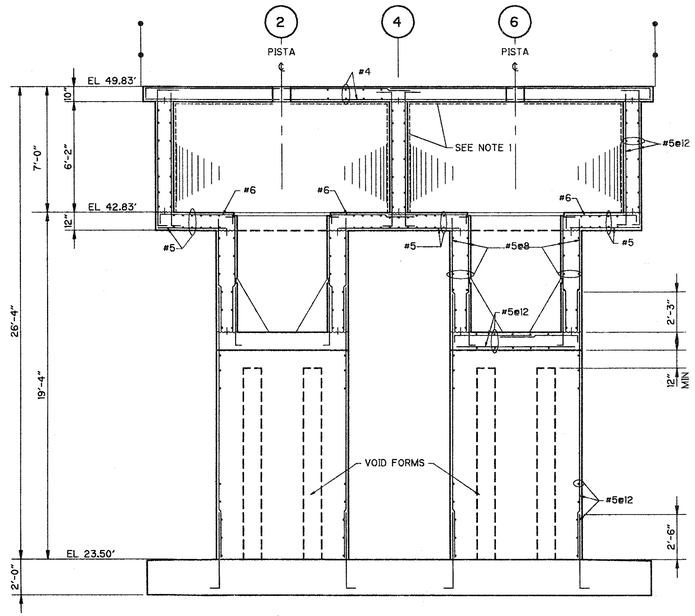
SECTION 3
1/4" = 1'-0"
S-2,3,4



SECTION 5
1/4" = 1'-0"
S-2,3,4



SECTION 4
1/4" = 1'-0"
S-2,3,4



SECTION 6
1/4" = 1'-0"
S-2,3,4

NOTE 1
ALL CONCRETE SURFACES EXPOSED TO INFLUENT INCLUDING UNDERSIDE OF TOP SLAB SHALL BE COATED WITH A CORROSION RESISTANT POLYMOR LINING PER SPECS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

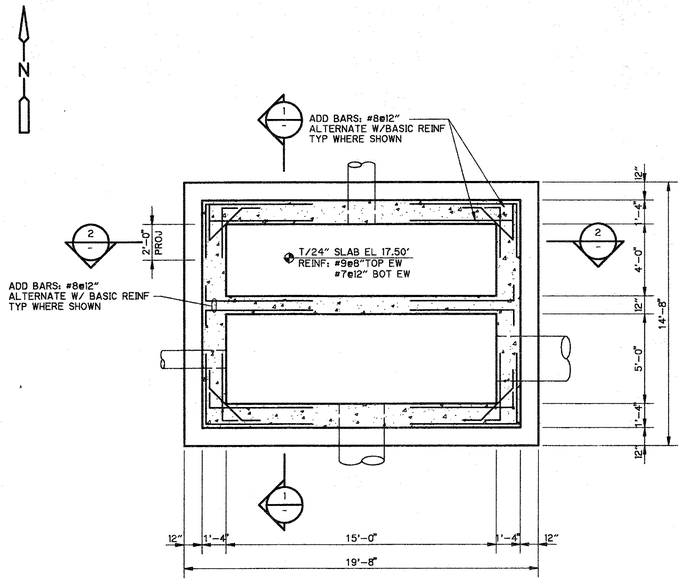
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS
SECTIONS 2 OF 2

PROJECT NO. 6706_070
FILE NAME: SPHW5

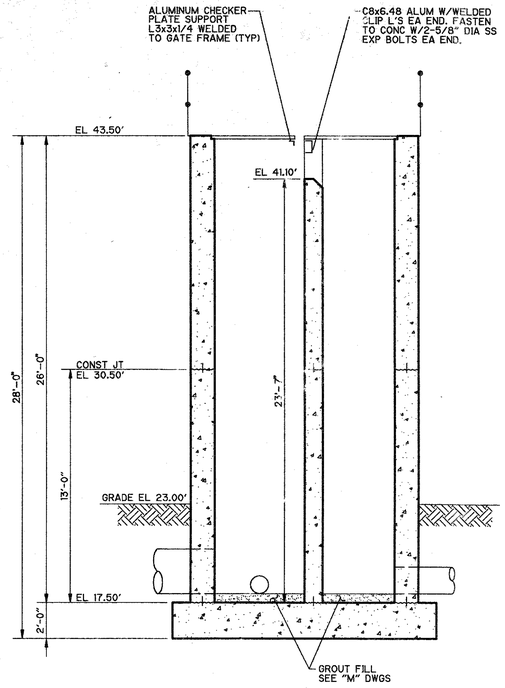
SHEET NO.
S-6

O:\6706_070\STRUCT\HEADWKS\ HW5 05/14/97 14:00:28 11:39:24 Donna Fiha



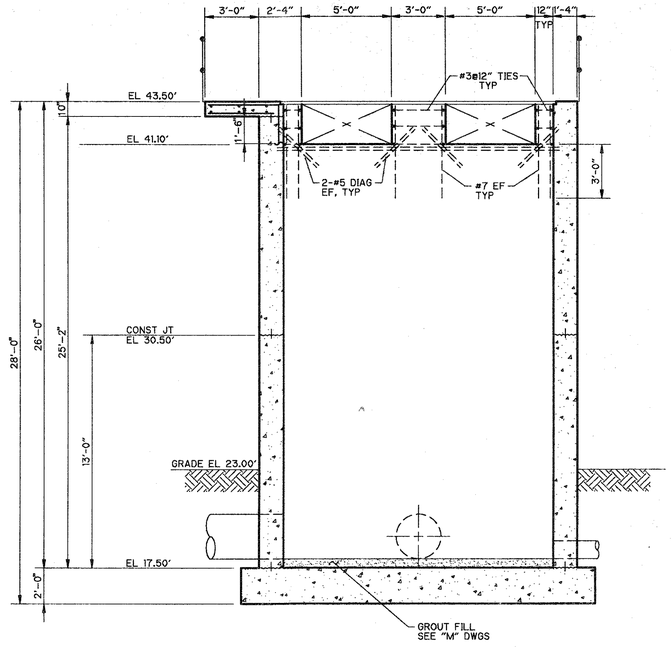
FOUNDATION PLAN

1/4"=1'-0"



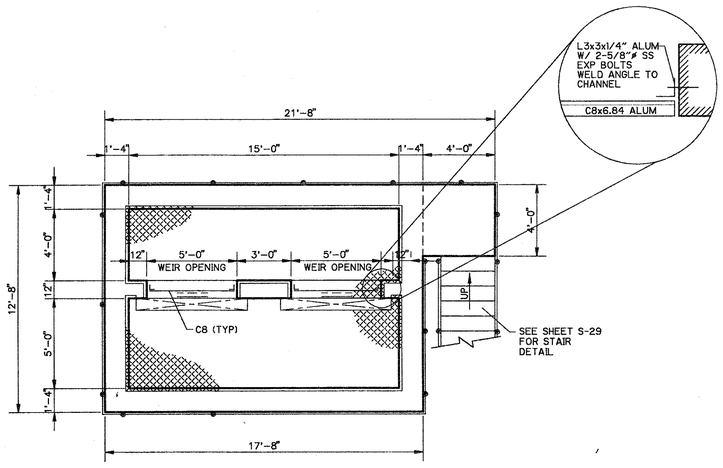
SECTION 1

1/4" = 1'-0"



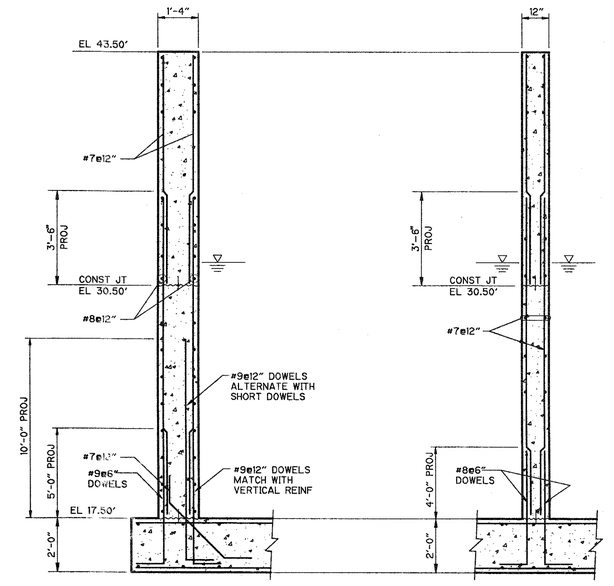
SECTION 2

1/4" = 1'-0"



TOP PLAN

1/4"=1'-0"



TYP EXTERIOR WALL

N.T.S.

TYP INTERIOR WALL

N.T.S.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
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SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

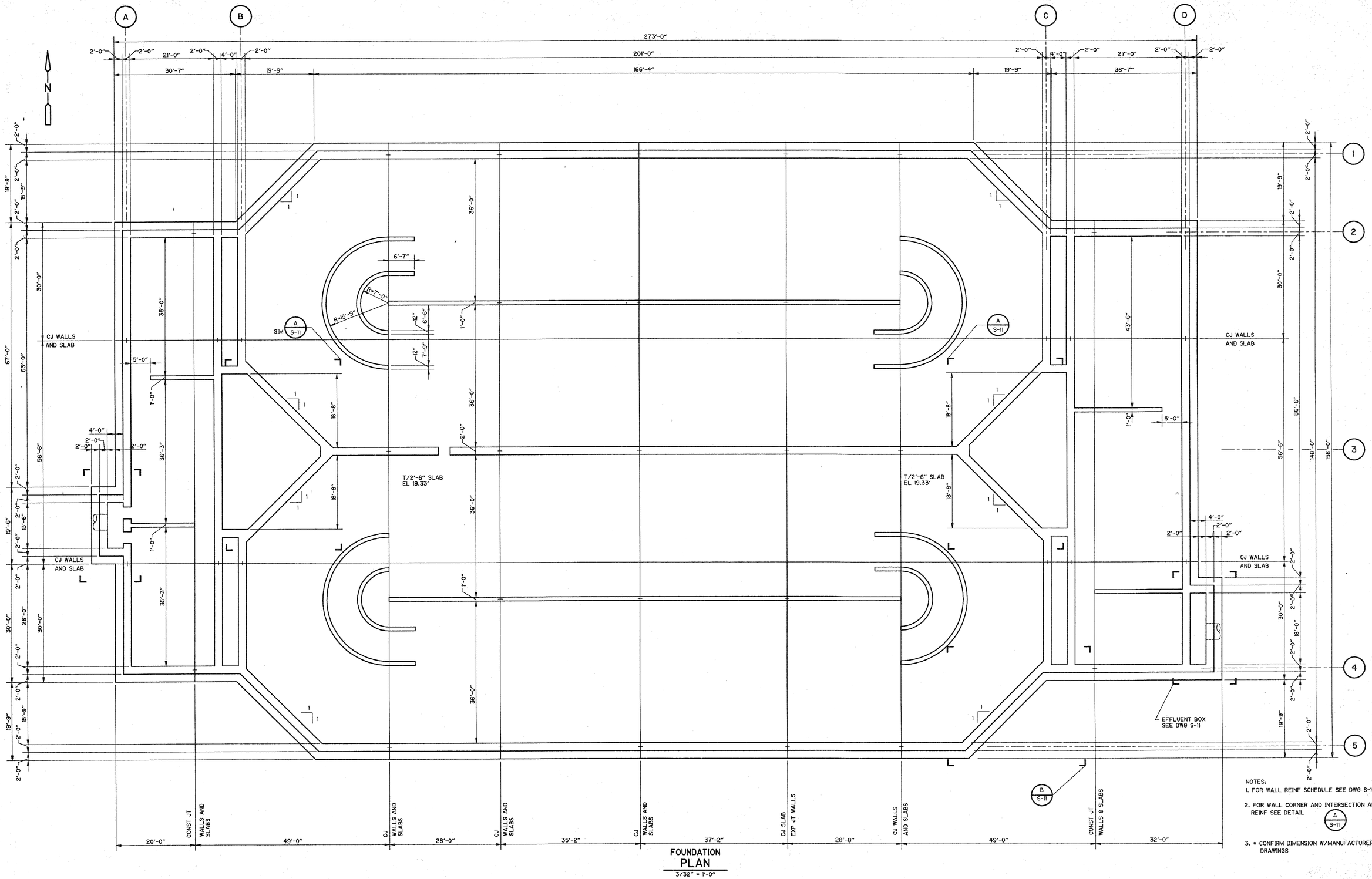
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

EQUALIZATION SPLITTER BOX
PLANS AND SECTIONS

PROJECT NO. 6706_070
FILE NAME: SPLTBXIA

SHEET NO.
S-7

0:\6706_070\STRU\EQBOX\ SPLTBXIA 05/15/97 09:40:21 17:51:34 Donna Frills



FOUNDATION PLAN
3/32" = 1'-0"

NOTES:
1. FOR WALL REINF SCHEDULE SEE DWG S-13
2. FOR WALL CORNER AND INTERSECTION ADDITIONAL REINF SEE DETAIL A/S-11
3. • CONFIRM DIMENSION W/MANUFACTURER'S SHOP DRAWINGS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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FLORIDA

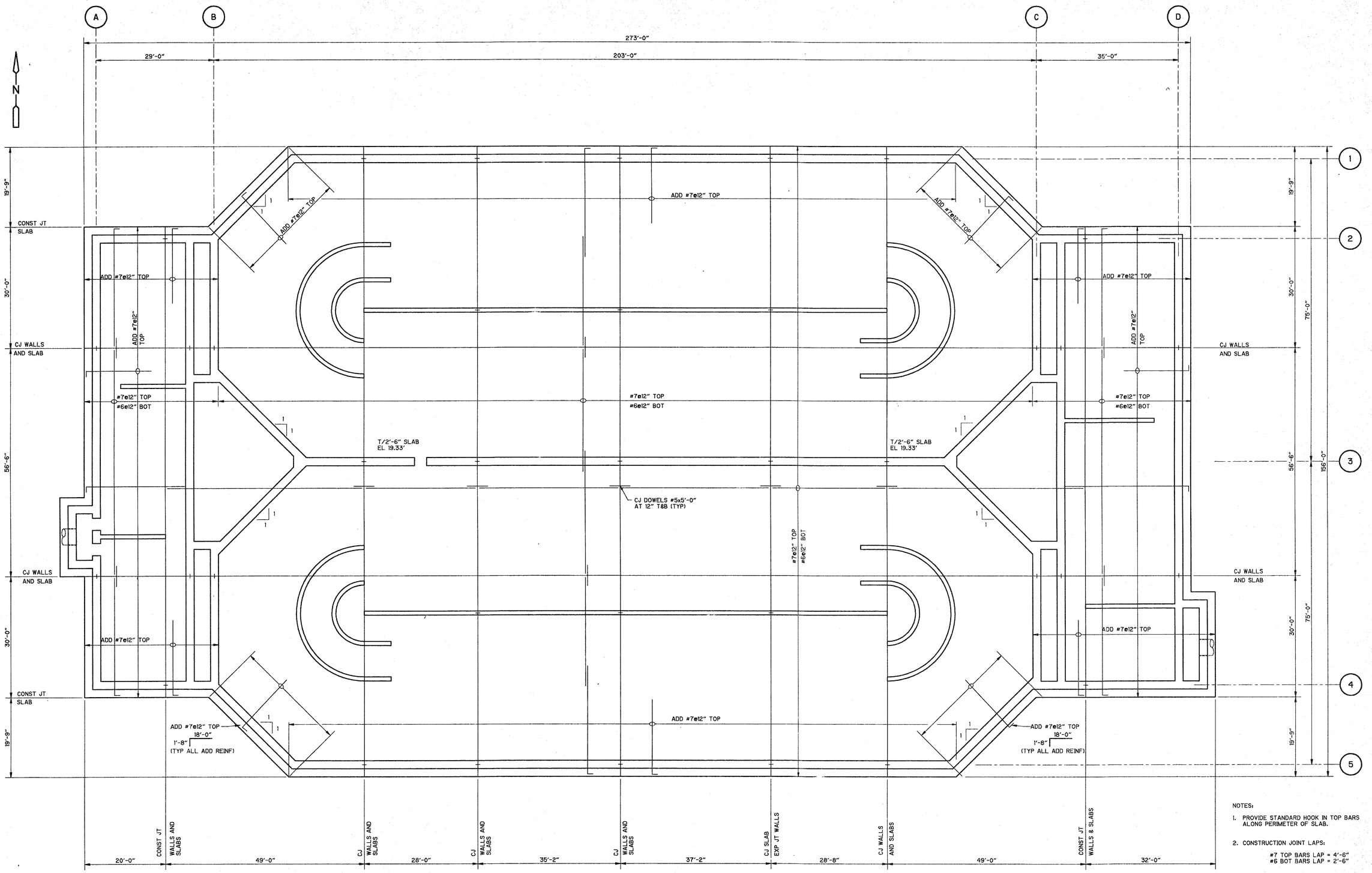
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT
FOUNDATION PLAN

PROJECT NO. 6706_070
FILE NAME: SABPL108

SHEET NO.
S-8

D:\6706_070\STRUCT\SABPL108 05/22/97 15:24:53 6:06:31 Donna Fitts



NOTES:

1. PROVIDE STANDARD HOOK IN TOP BARS ALONG PERIMETER OF SLAB.
2. CONSTRUCTION JOINT LAPS:

   #7 TOP BARS LAP = 4'-6"
   #6 BOT BARS LAP = 2'-6"

FOUNDATION - REINFORCING
PLAN
3/32" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
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DATE: APRIL 1997

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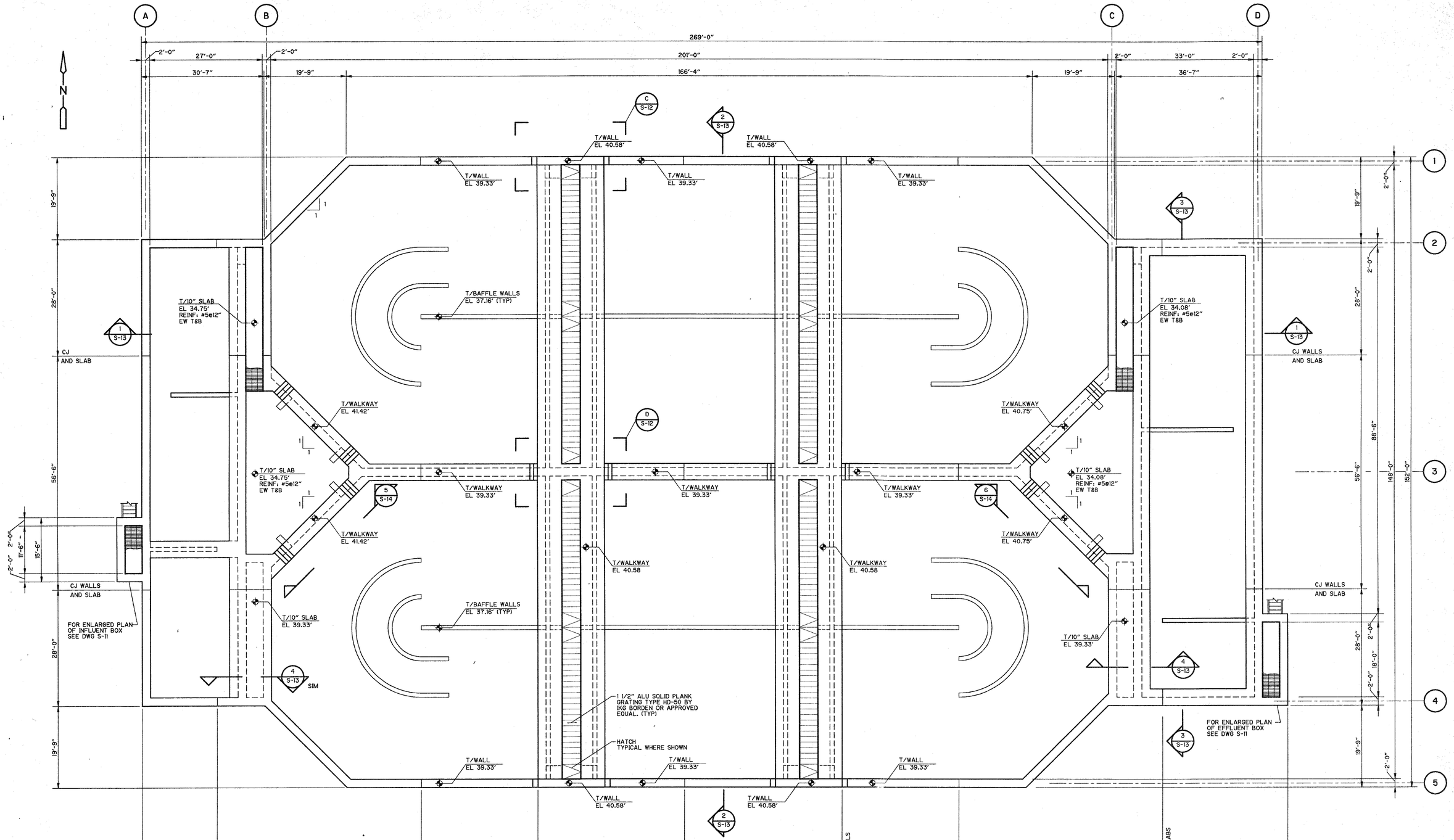
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT
FOUNDATION REINFORCING PLAN

PROJECT NO. 6706_070
FILE NAME: SABPL209

SHEET NO.
S-9

Tim Verwey 1:37:25 05/20/97 SABPL209 O:\6706_070\STRUCT\



TOP OF STRUCTURE
PLAN

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
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FLORIDA

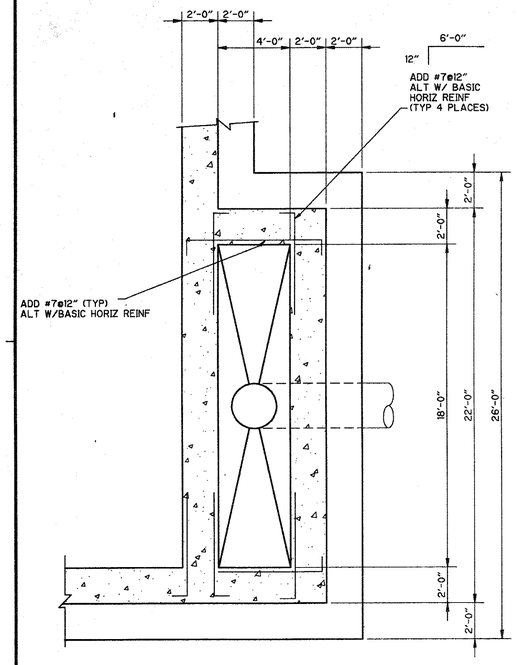
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT TOP OF STRUCTURE PLAN

PROJECT NO. 6706_070
FILE NAME: SABPL310

SHEET NO.
S-10

O:\6706_070\STRU\SB10\ SABPL310 05/22/97 15:29:24 7.1b55 Donna Frills

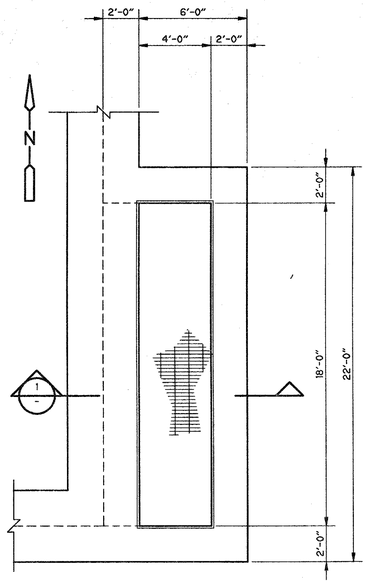


EFFLUENT BOX - FOUNDATION

ENLARGED PLAN

1/4" = 1'-0"

(TYPICAL 2 PLACES)

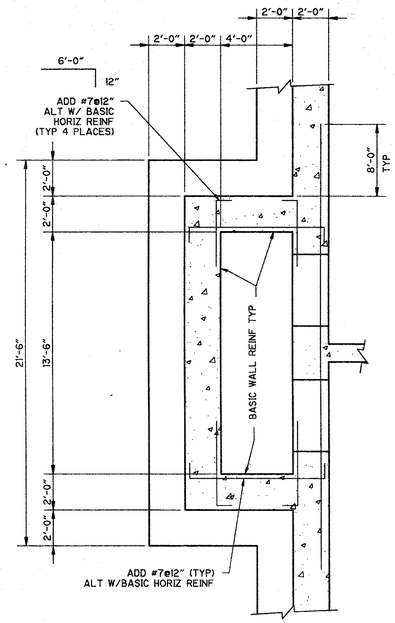


EFFLUENT BOX - TOP

ENLARGED PLAN

1/4" = 1'-0"

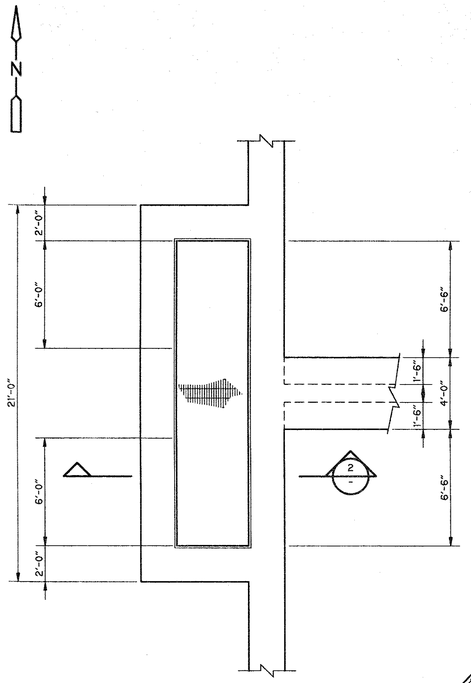
(TYPICAL 2 PLACES)



INFLUENT BOX - FOUNDATION

ENLARGED PLAN

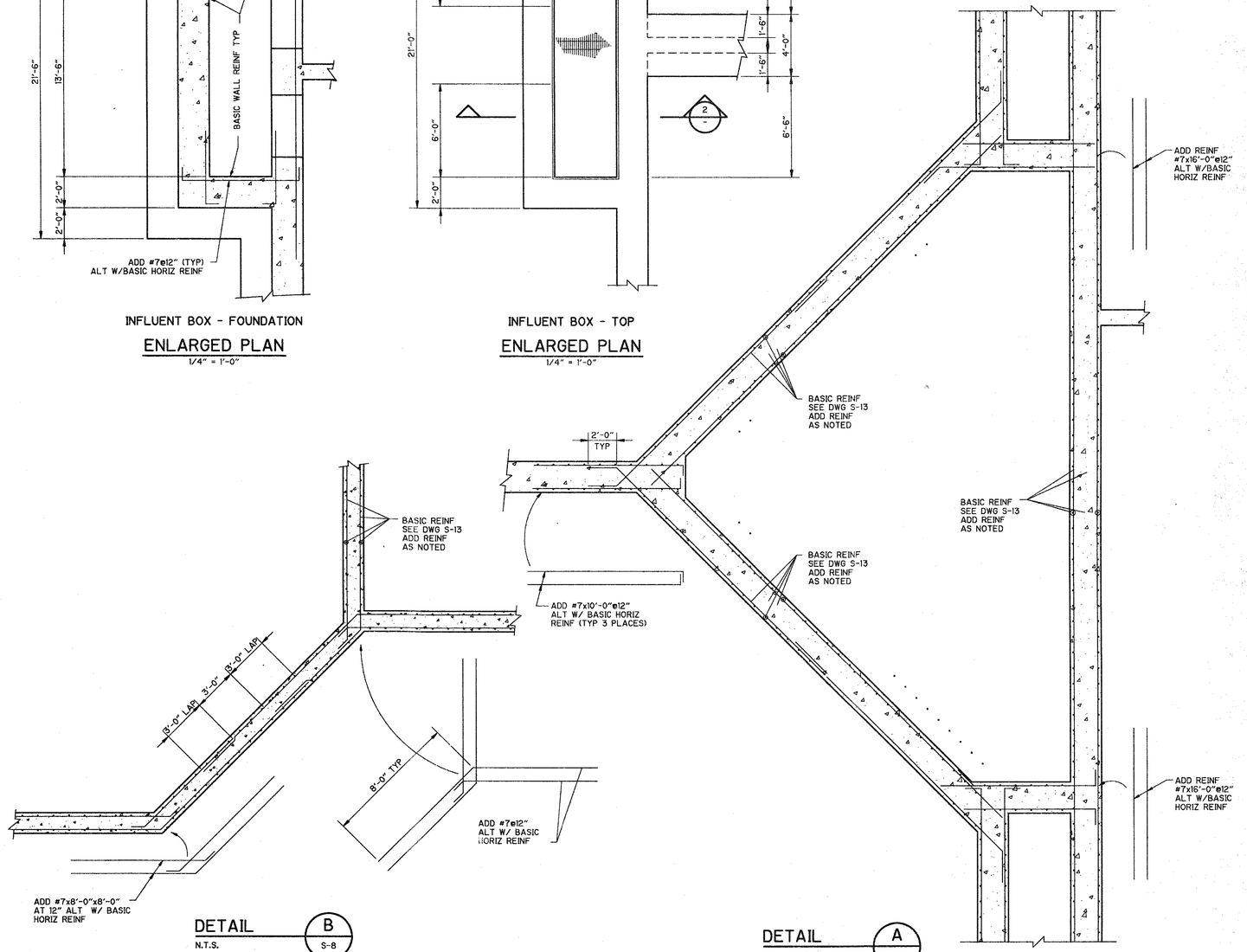
1/4" = 1'-0"



INFLUENT BOX - TOP

ENLARGED PLAN

1/4" = 1'-0"

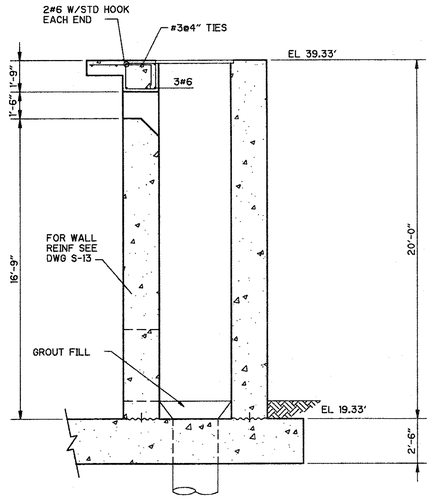


DETAIL B / S-8

N.T.S.

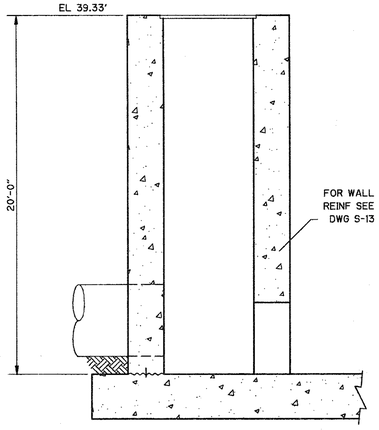
DETAIL A / S-8

1/4" = 1'-0"



SECTION 1 / -

1/4" = 1'-0"



SECTION 2 / -

1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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FLORIDA

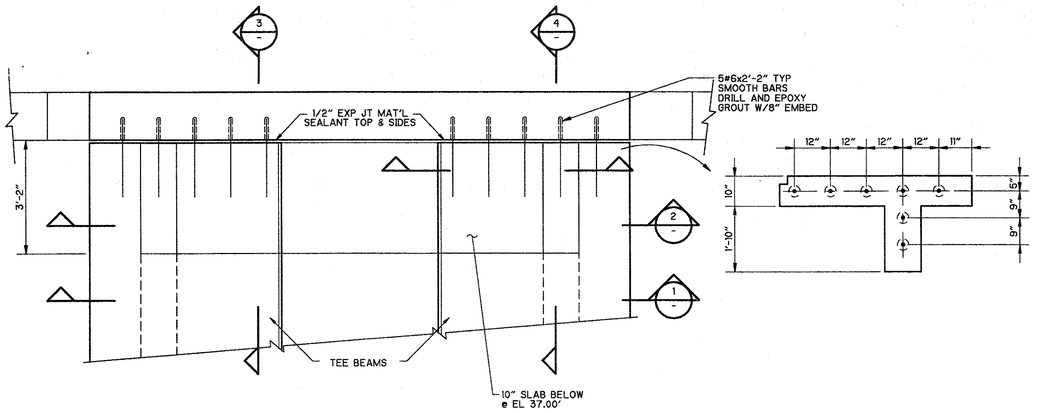
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT PLANS SECTIONS AND DETAILS

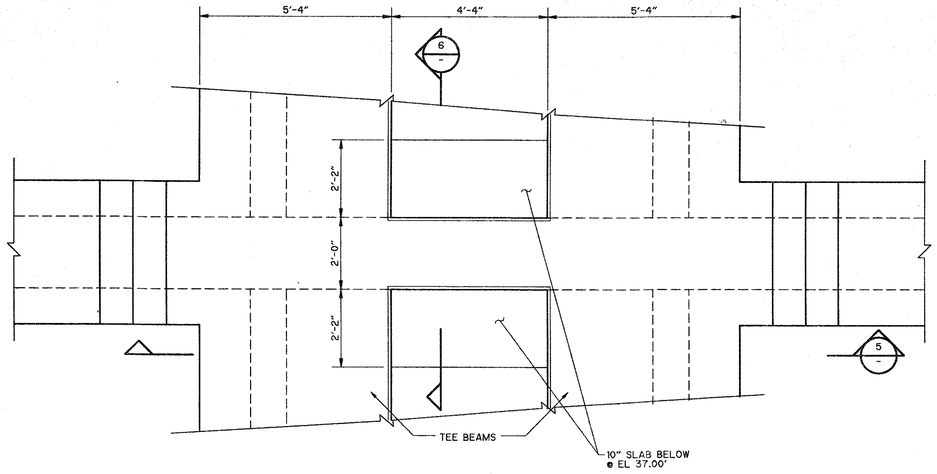
PROJECT NO. 6706_070
FILE NAME: SABPP111

SHEET NO.
S-11

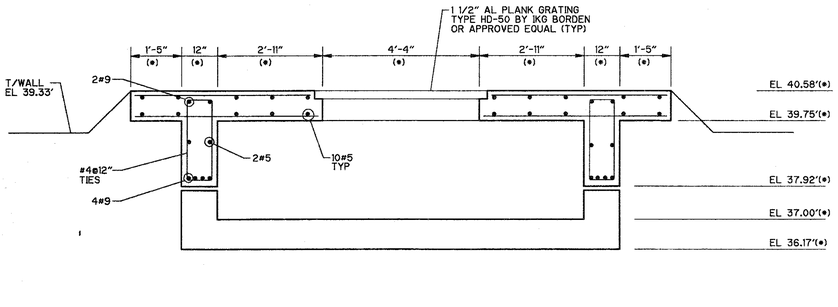
G:\6706_070\STRUCT\SABPP111 Donna Frita 5:22:33 05/22/97 15:33:23



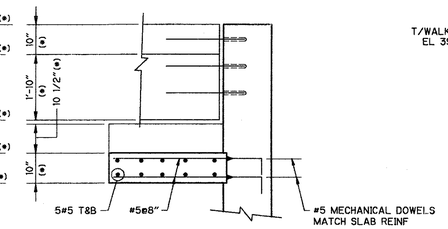
DETAIL C
1/2" = 1'-0"
S-10



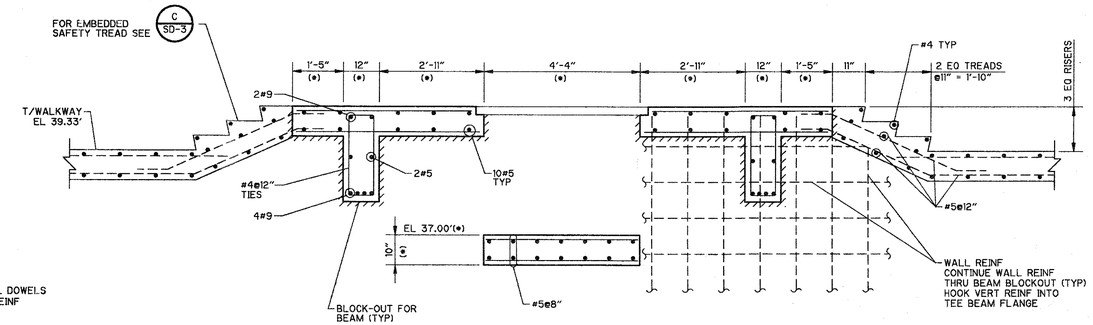
DETAIL D
1/2" = 1'-0"
S-10



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

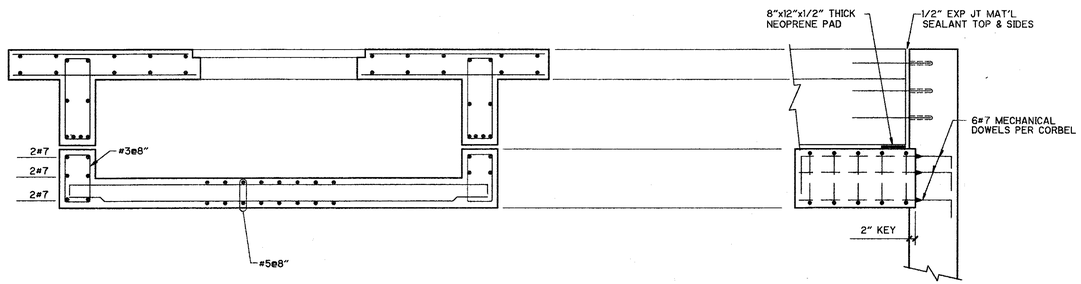


SECTION 3
1/2" = 1'-0"



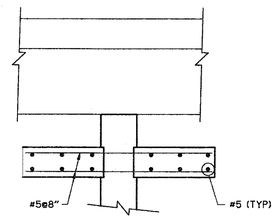
SECTION 5
1/2" = 1'-0"

NOTE:
(•) VERIFY DIMENSIONS AND ELEVATIONS WITH KRUGER INC.



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

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



SECTION 6
1/2" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

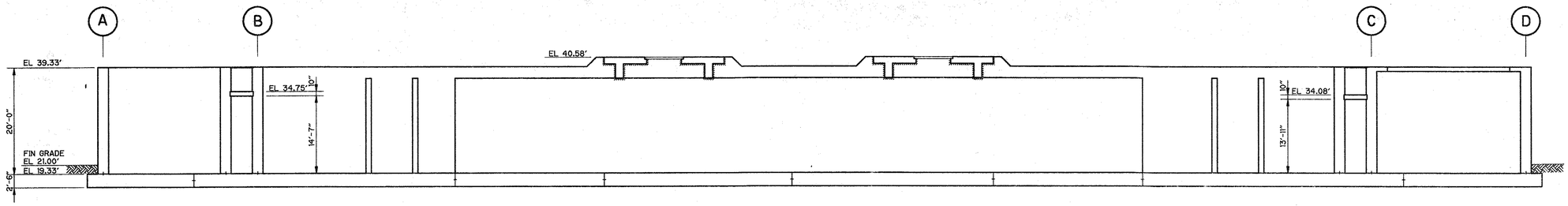
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT
SECTIONS AND DETAILS

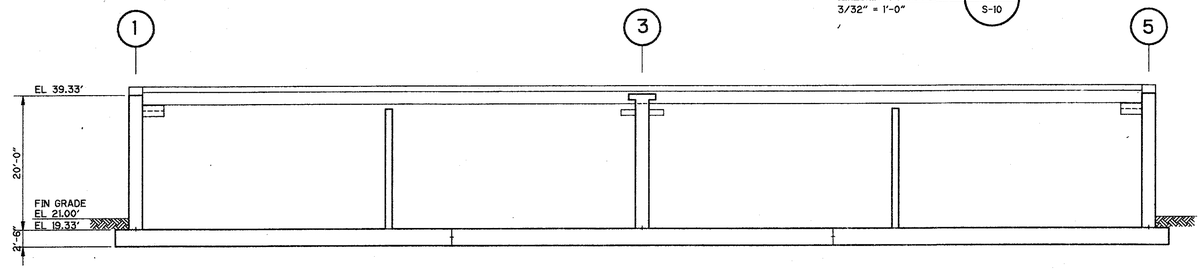
PROJECT NO. 6706_070
FILE NAME: SABPL412

SHEET NO.
S-12

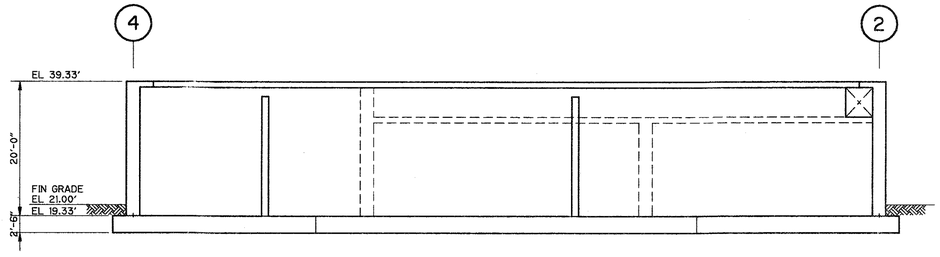
O:\6706_070\STRUCT\ SABPL412 05/22/97 15:42:57 5:31:09 Donna Fritts



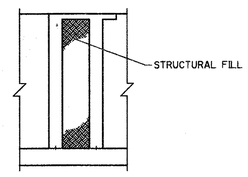
SECTION 1 / S-10
3/32" = 1'-0"



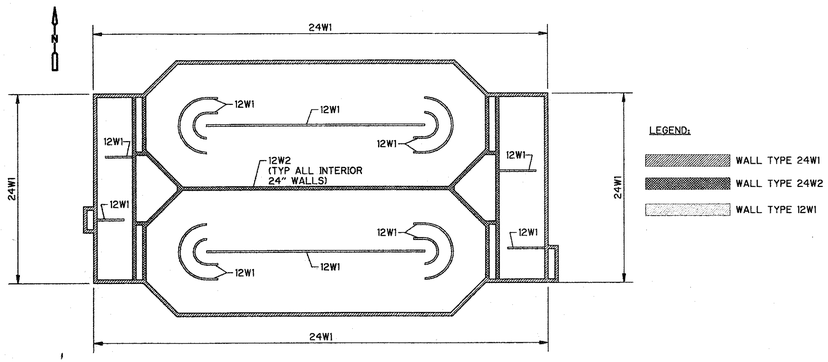
SECTION 2 / S-10
3/32" = 1'-0"



SECTION 3 / S-10
3/32" = 1'-0"



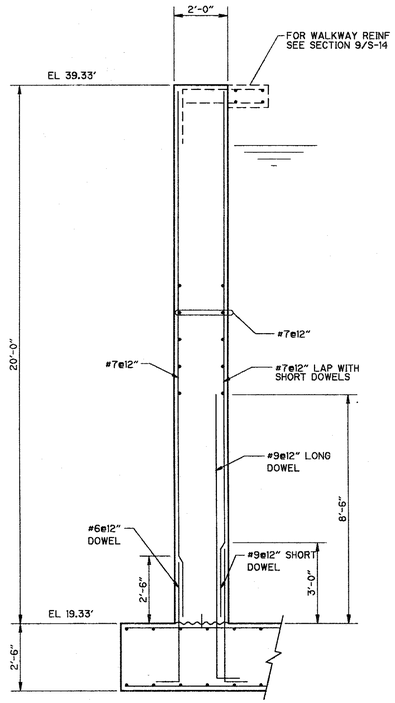
SECTION 4 / S-10
3/32" = 1'-0"



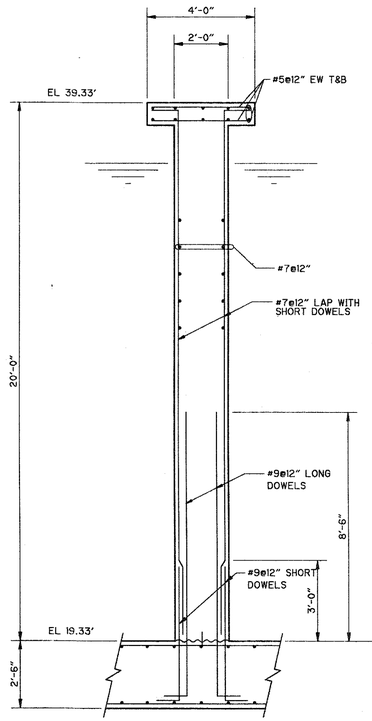
WALL REINFORCING

PLAN
N.T.S.

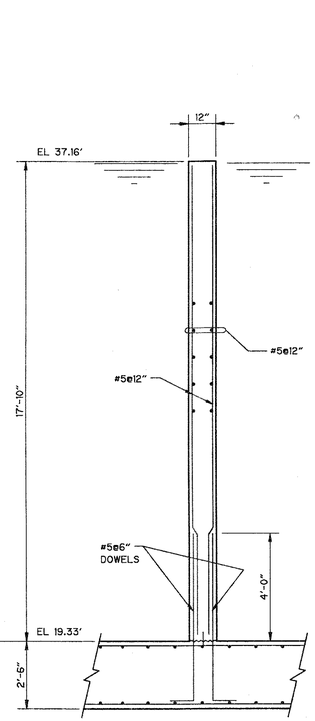
LEGEND:
- WALL TYPE 24W1
- WALL TYPE 24W2
- WALL TYPE 12W1



PERIMETER WALL 1
(24W1)



INTERIOR WALL 1
(24W2)



BAFFLE WALL
(12W1)

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

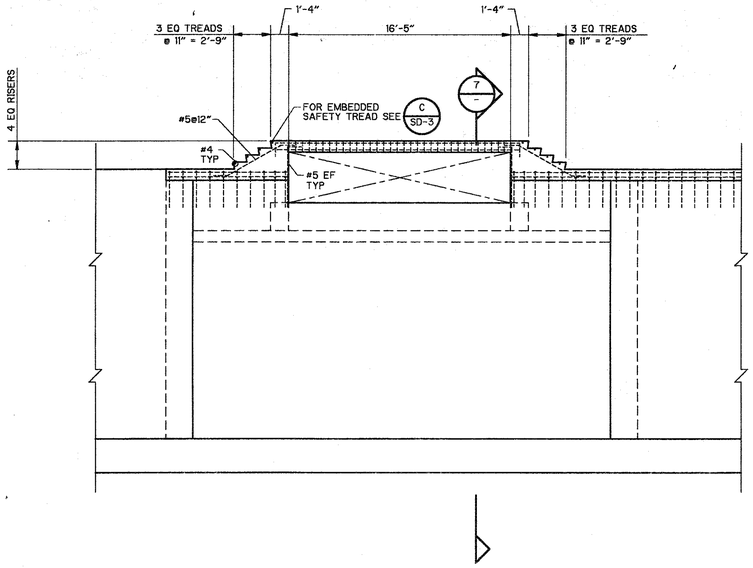
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT SECTIONS

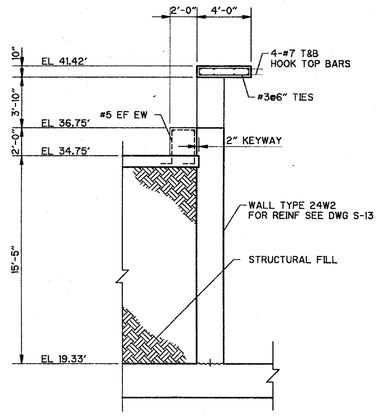
PROJECT NO. 6706_070
FILE NAME: SABSC113

SHEET NO.
S-13

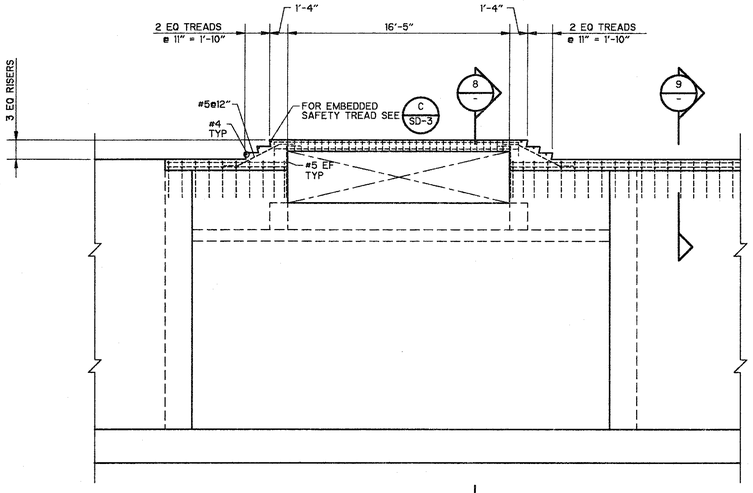
D:\6706_070\STRUCT\SABSC113 05/22/97 16:05:54 6-49x43 Donna Fitts



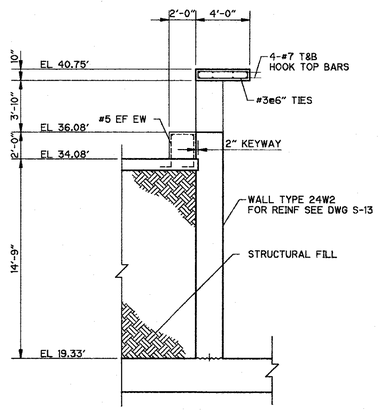
INFLUENT WEIR WALL
SECTION 5
3/16" = 1'-0" S-10



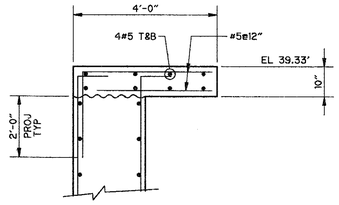
INFLUENT WEIR WALL
SECTION 7
3/16" = 1'-0" -



EFFLUENT WEIR WALL
SECTION 6
3/16" = 1'-0" S-10



EFFLUENT WEIR WALL
SECTION 8
3/16" = 1'-0" -



SECTION 9
1/2" = 1'-0" -

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

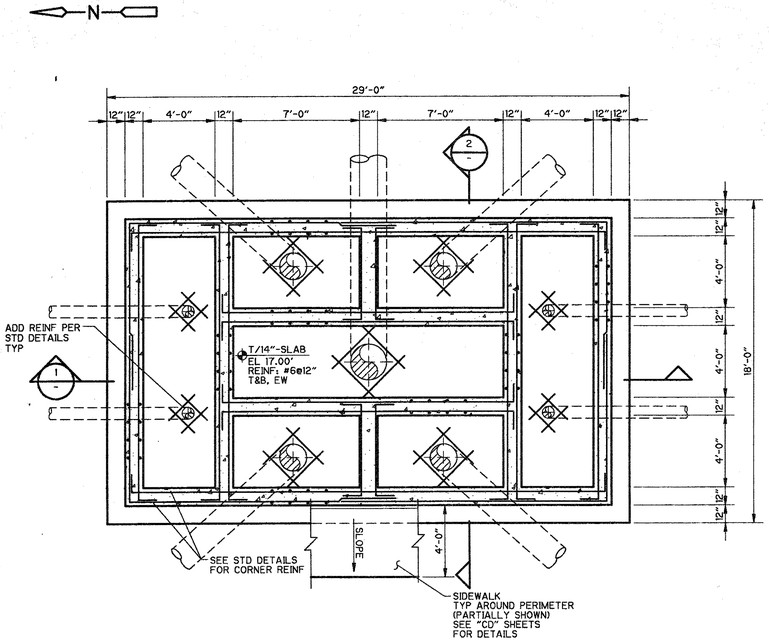
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT SECTIONS

PROJECT NO. 6706_070
FILE NAME: SABSC214

SHEET NO.
S-14

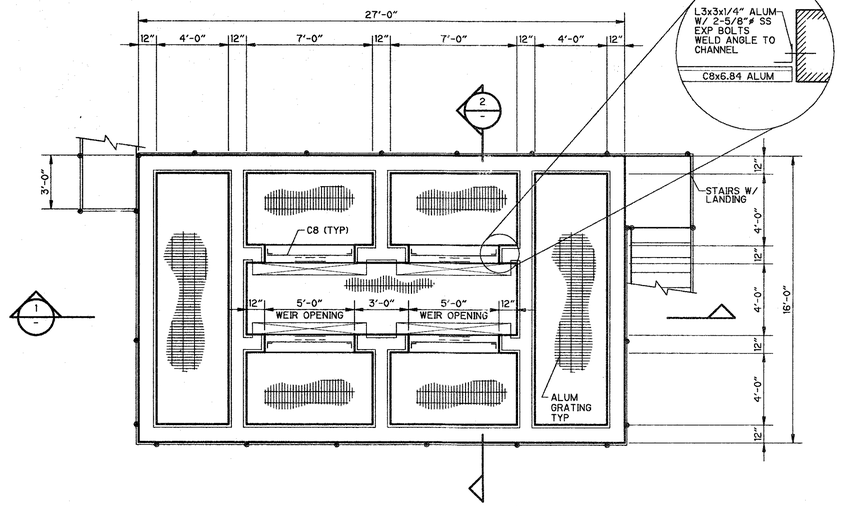
Dgns Frls 8.08.22 05/22/97 15:11:58 SABSC214 O:\6706_070\STRUCT\DGN\



FOUNDATION

PLAN

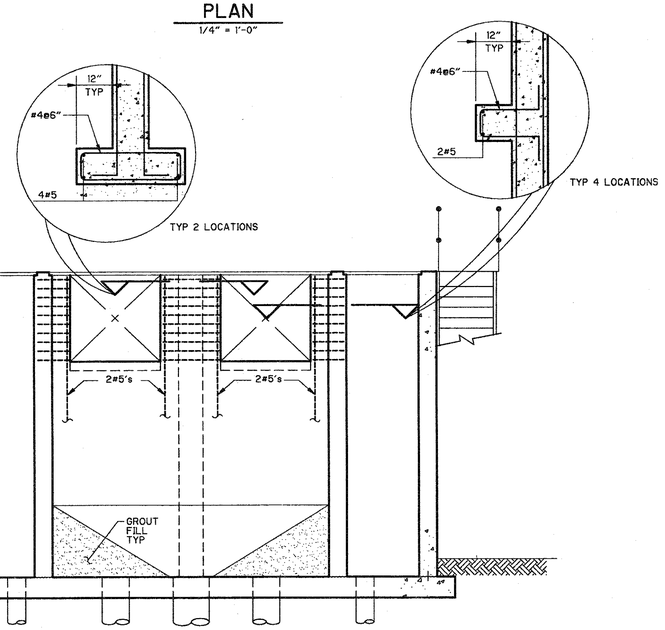
1/4" = 1'-0"



TOP

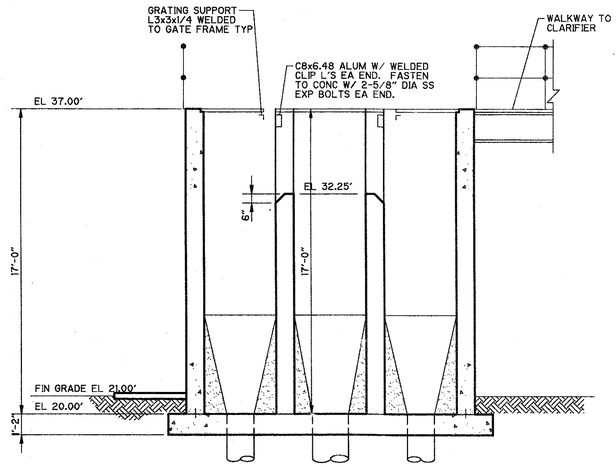
PLAN

1/4" = 1'-0"



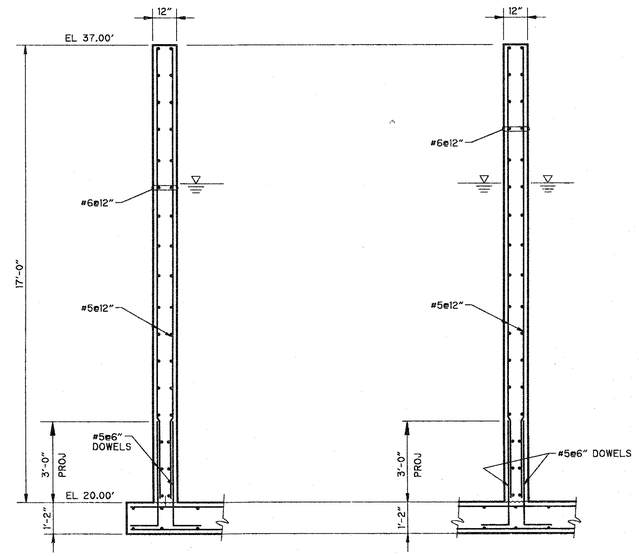
SECTION 1

1/4" = 1'-0"



SECTION 2

1/4" = 1'-0"



TYP EXTERIOR WALL

NTS

TYP INTERIOR WALL

NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

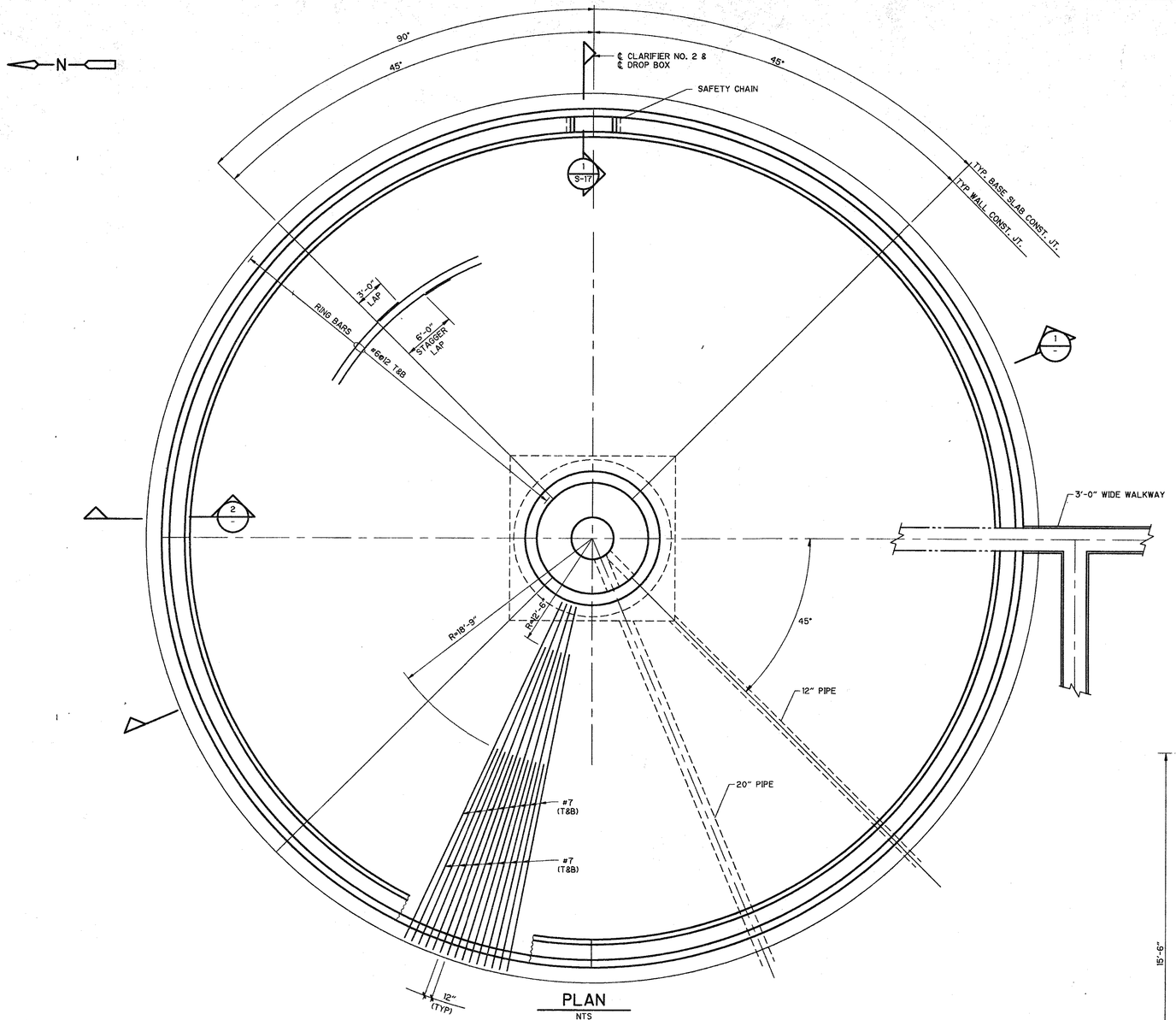
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

SPLITTER BOX
PLANS, SECTIONS AND DETAILS

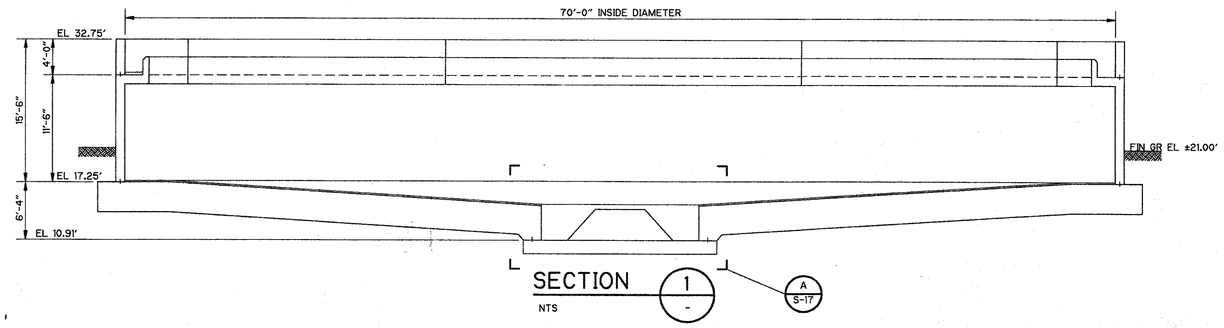
PROJECT NO. 6706_070
FILE NAME: SPLTBX

SHEET NO.
S-15

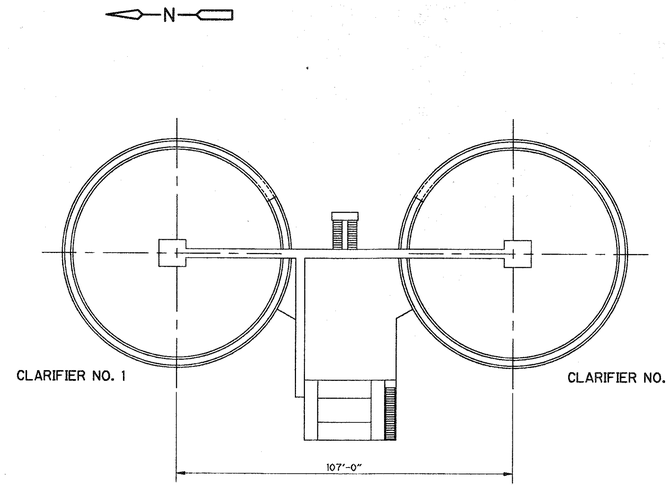
Q:\6706_070\STRU\SPLTBX\ SPLTBX 05/15/97 13:30:01 10:36:50 Donna Fritts



PLAN
NTS

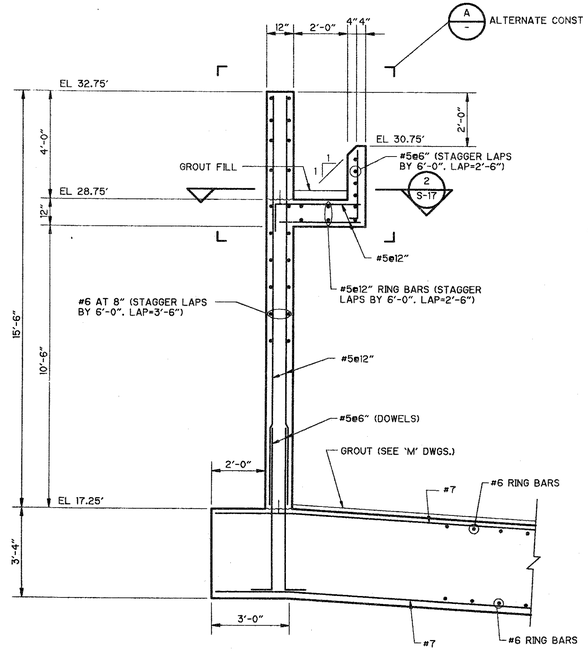


SECTION 1 / A S-17
NTS

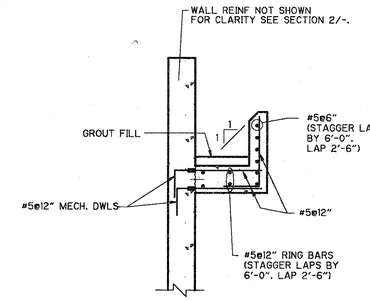


KEY

PLAN
N.T.S.



SECTION 2
3/8" = 1'-0"



(ALTERNATE CONSTRUCTION)

DETAIL A
3/8" = 1'-0"

PRESTRESSED CONSTRUCTION

A PRESTRESSED TANK DESIGNED BY A SPECIALTY CONTRACTOR PER SPECIFICATION IS CONSIDERED EQUAL TO THE DESIGN SHOWN HEREIN.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services
offices worldwide

INDIAN RIVER COUNTY
FLORIDA

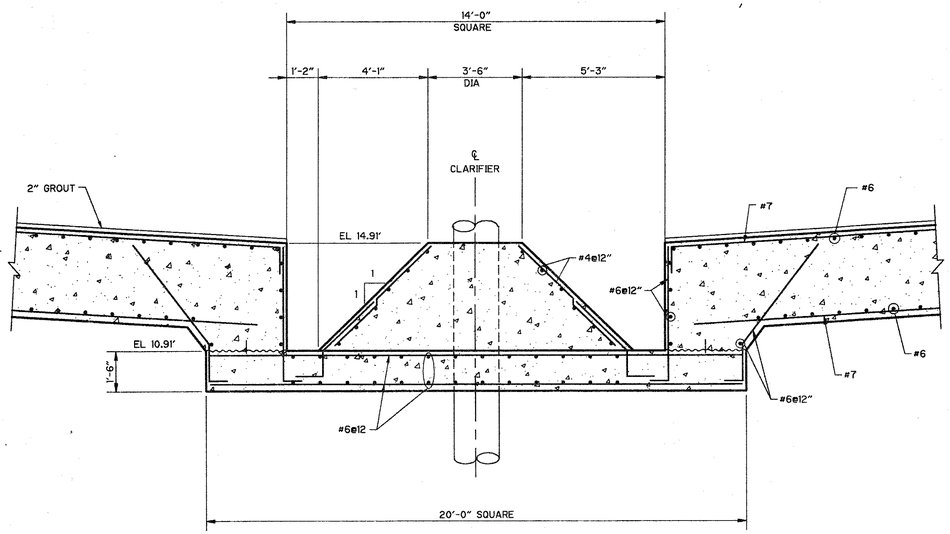
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

SECONDARY CLARIFIER PLANS, SECTIONS AND DETAIL

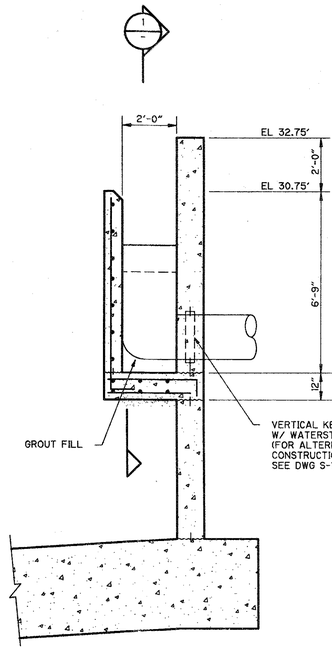
PROJECT NO. 6706_070
FILE NAME: CLARIF1

SHEET NO.
S-16

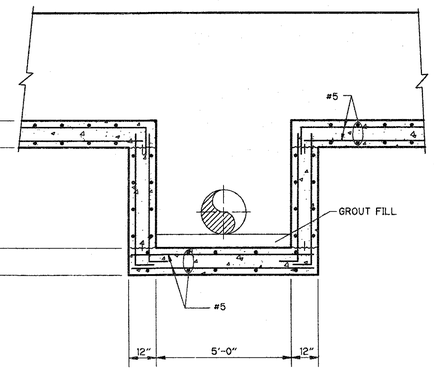
0:\6706_070\STR\CLARIF\ CLARIF1 03/24/97 10:20:43 4:1+05 Donna Frills



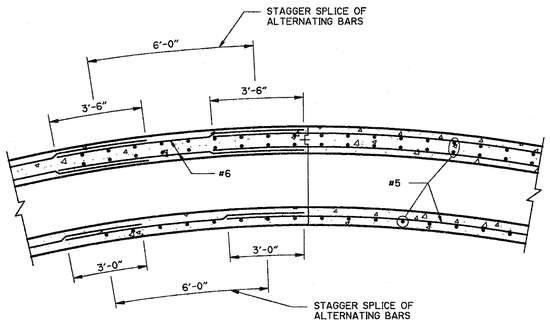
DETAIL A
3/8" = 1'-0"
S-16



SECTION 1
3/8" = 1'-0"
S-16



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



SECTION 2
3/8" = 1'-0"
S-16

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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offices worldwide

INDIAN RIVER COUNTY
FLORIDA

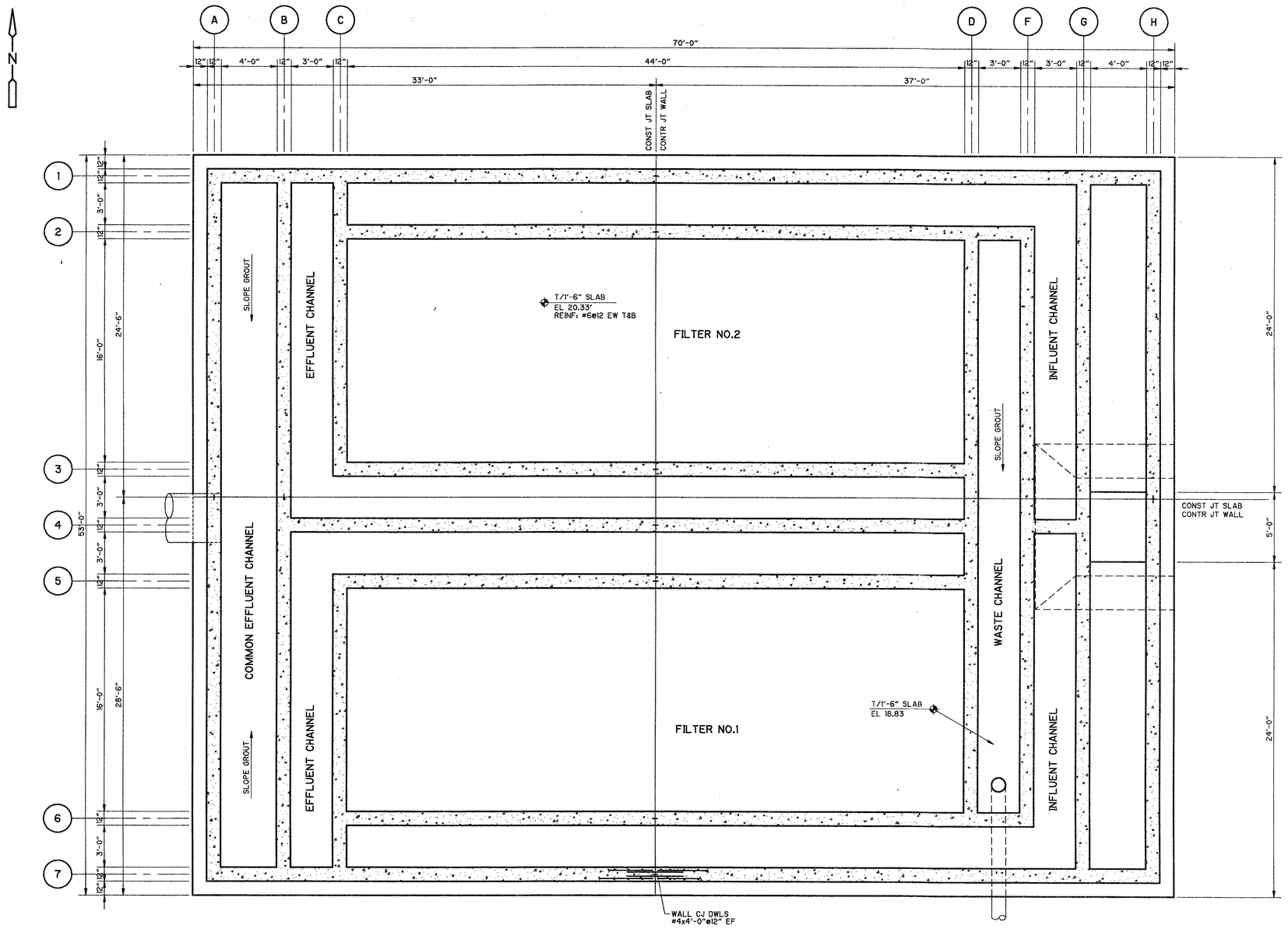
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

SECONDARY CLARIFIER
SECTIONS AND DETAIL

PROJECT NO. 6706_070
FILE NAME: CLARIF2

SHEET NO.
S-17

G:\6706_070\STRUCT\CLARIF\ CLARIF2 03/24/97 10:23:56 Lvl7.30 Donna Frila



FOUNDATION

PLAN

1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

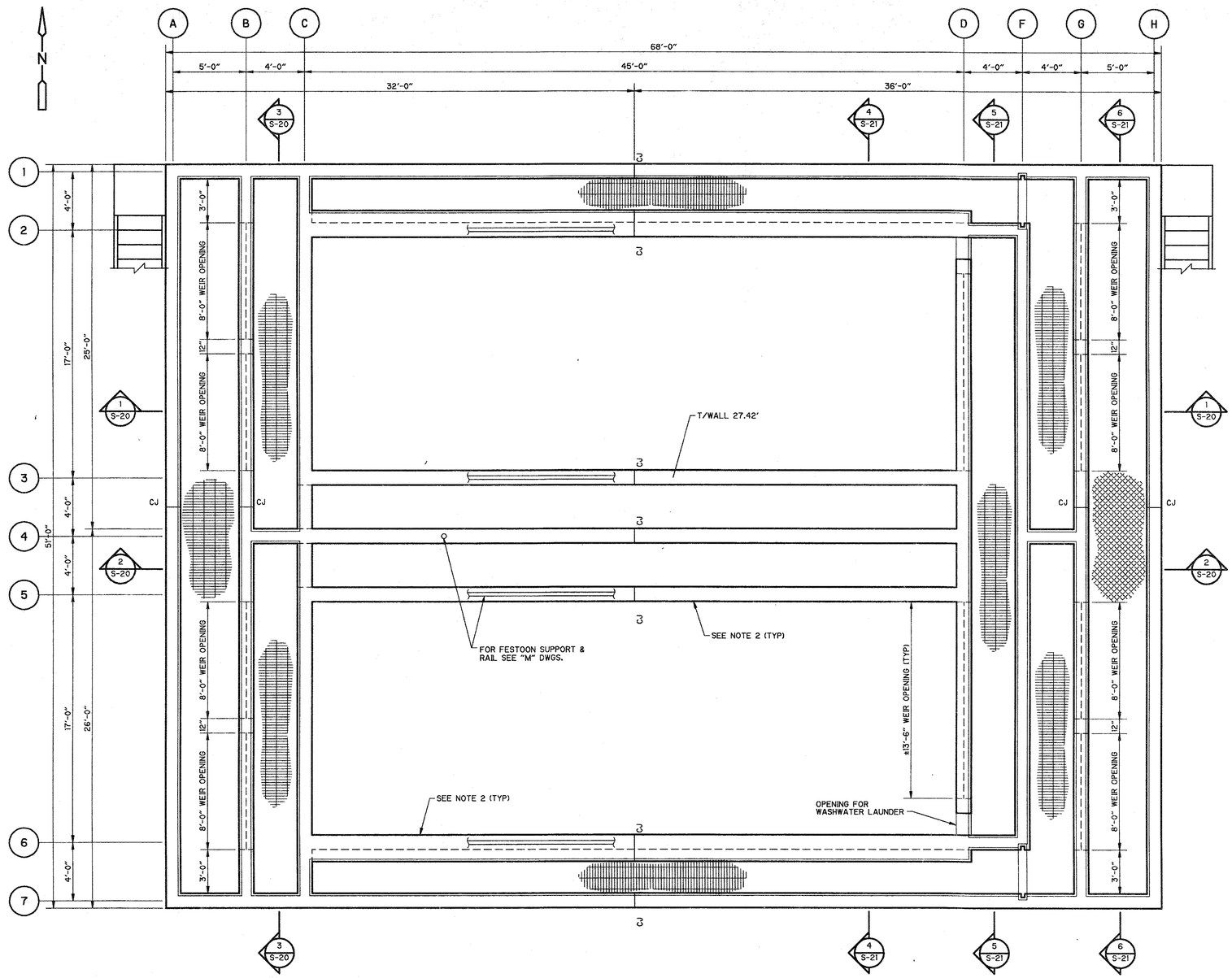
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

A.B.W. GRAVITY FILTERS
FOUNDATION PLAN

PROJECT NO. 6706_070
FILE NAME: ABW1

SHEET NO.
S-18

G:\6706_070\STRUV\FILTERS\ ABW1 03/24/97 10:25:11 Donna Frits



TOP OF STRUCTURE

PLAN

1/4" = 1'-0"

NOTES:

1. CORNER AND INTERSECTION REINFORCEMENT PER STANDARD STRUCTURAL DETAILS
2. SKIMMER ASSEMBLY AND IT'S MOVING CARRIAGE TRAVEL BETWEEN THESE WALLS. THE 12'-6" DIMENSION MUST BE MAINTAINED AND THE WALLS MUST BE STRAIGHT AND PLUMB SO AS NOT TO INTERFERE WITH MECHANICAL EQUIPMENT. SEE "M" DWGS. FOR MANUFACTURER'S TOLERANCES, RAIL LOCATION AND DETAILS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

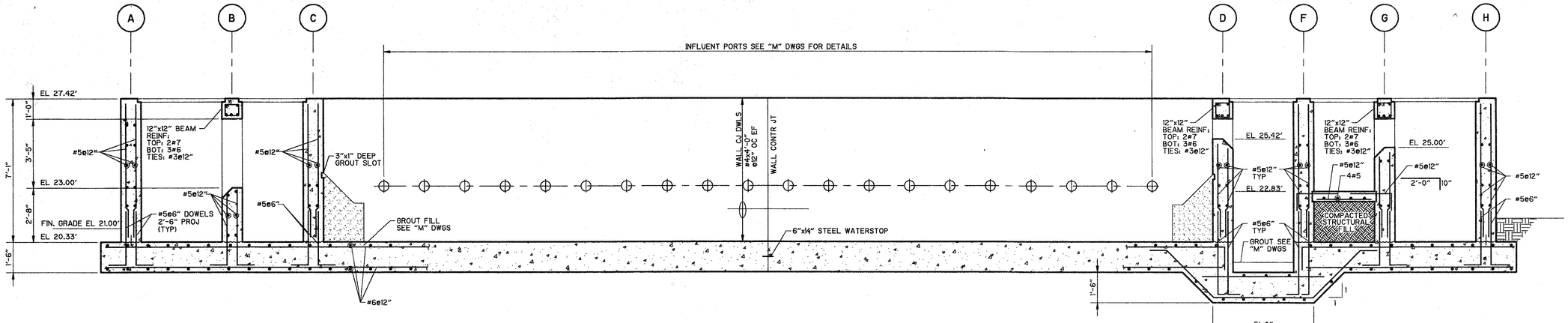
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

A.B.W. GRAVITY FILTERS
PLAN AT TOP OF STRUCTURE

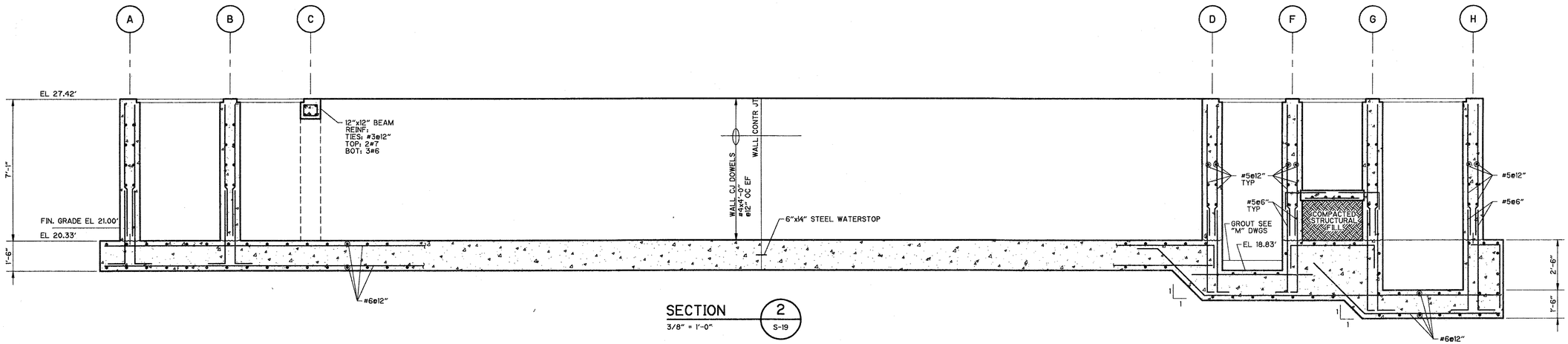
PROJECT NO. 6706_070
FILE NAME: ABW2

SHEET NO.
S-19

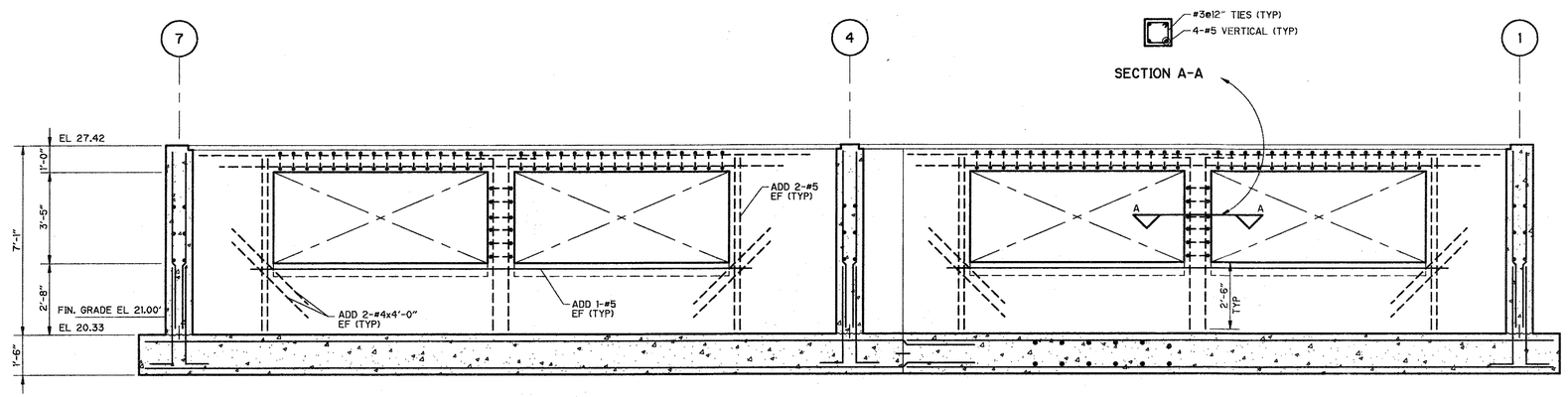
O:\6706_070\STRU\FILTERS\ ABW2 03/24/97 10:26:05 11:54:45 Donna Frits



SECTION 1
3/8" = 1'-0"
S-19



SECTION 2
3/8" = 1'-0"
S-19



SECTION 3
3/8" = 1'-0"
S-19

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

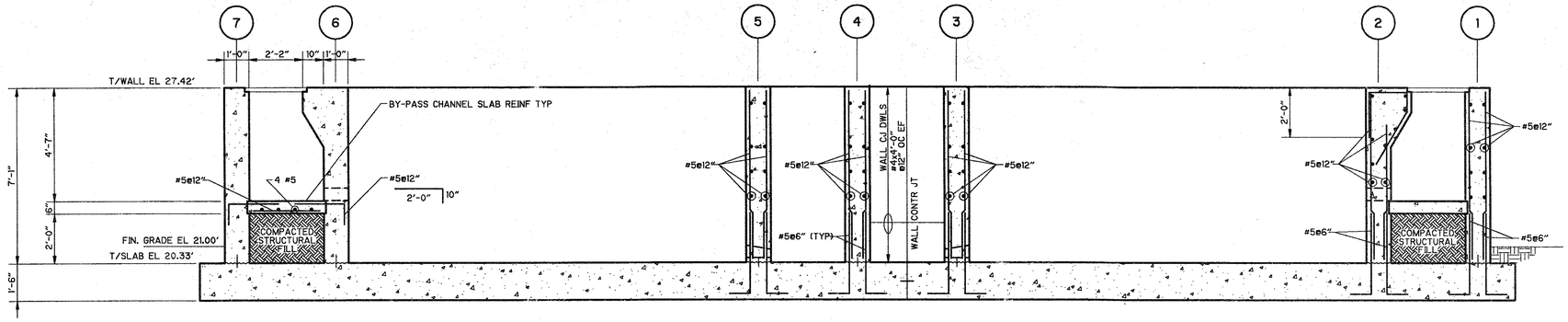
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

A.B.W. GRAVITY FILTERS
SECTIONS

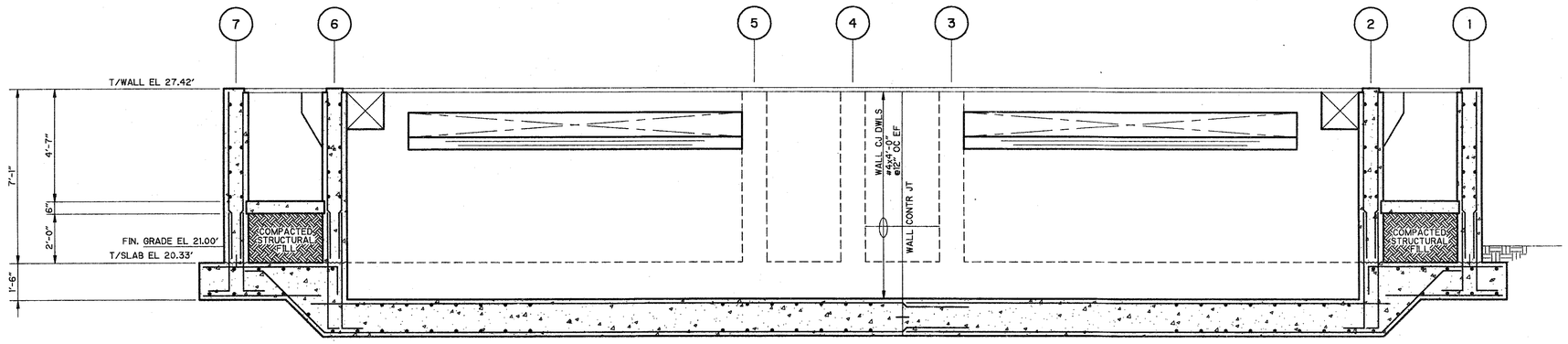
PROJECT NO. 6706_070
FILE NAME: ABW3

SHEET NO.
S-20

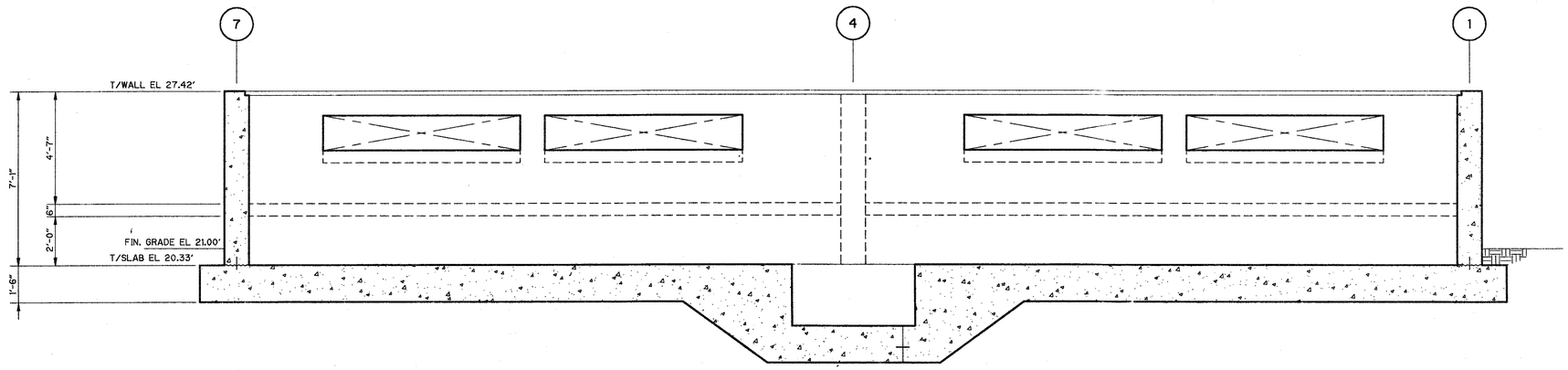
Q:\6706_070\STRUCTURAL\FILTERS\ABW3 03/24/97 10:27:11 8x9.34 Donna Friis



SECTION 4
3/8" = 1'-0"
S-19



SECTION 5
3/8" = 1'-0"
S-19



SECTION 6
3/8" = 1'-0"
S-19

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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environmental services | office worldwide

INDIAN RIVER COUNTY
FLORIDA

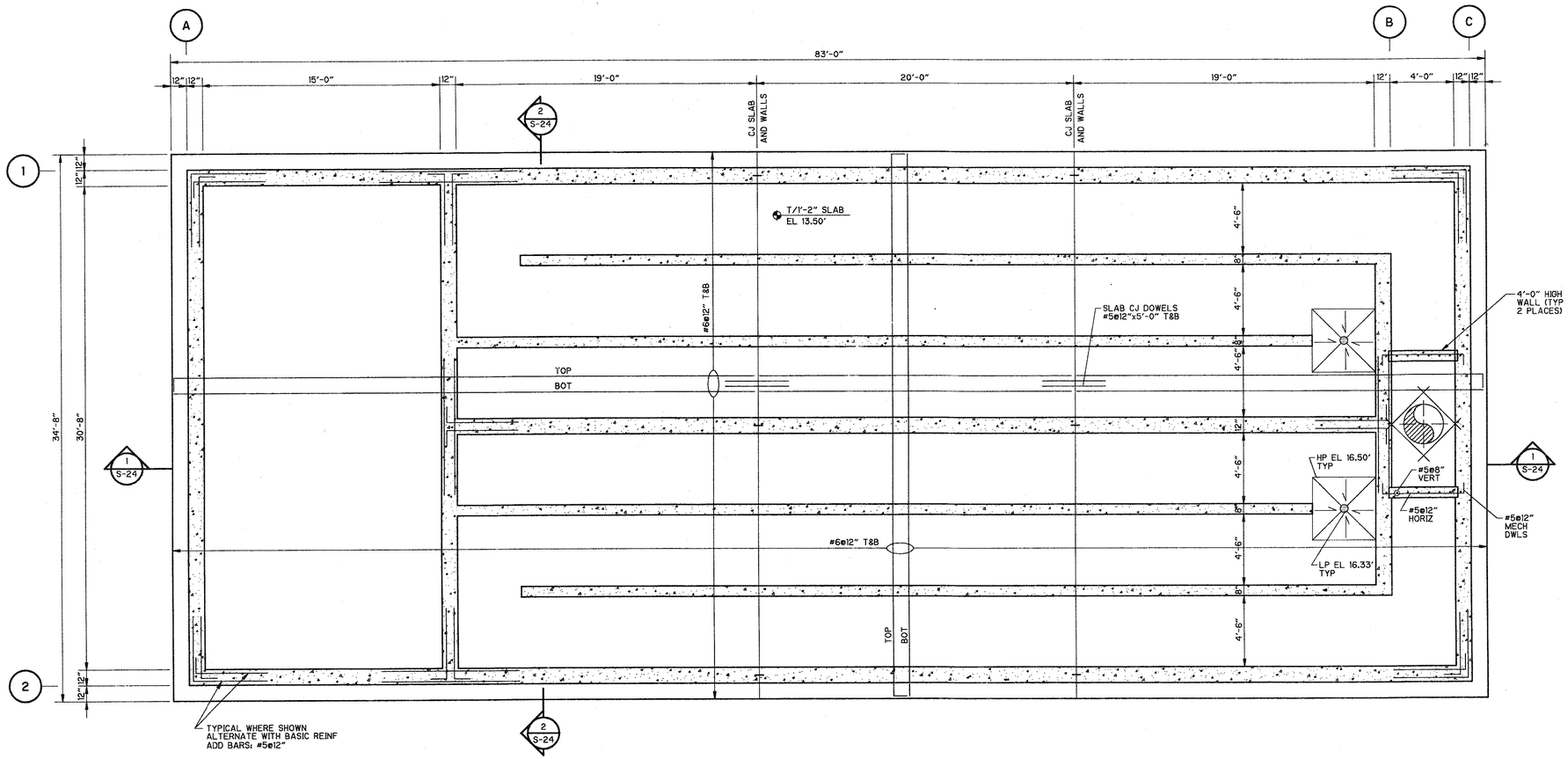
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

A.B.W. GRAVITY FILTERS
SECTIONS

PROJECT NO. 6706_070
FILE NAME: ABW4

SHEET NO.
S-21

D:\6706_070\STRUCTURE\ ABW4 05/22/97 16:03:20 16:03:31 Donna Fifis



FOUNDATION PLAN AT EL 16.50'

PLAN

1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

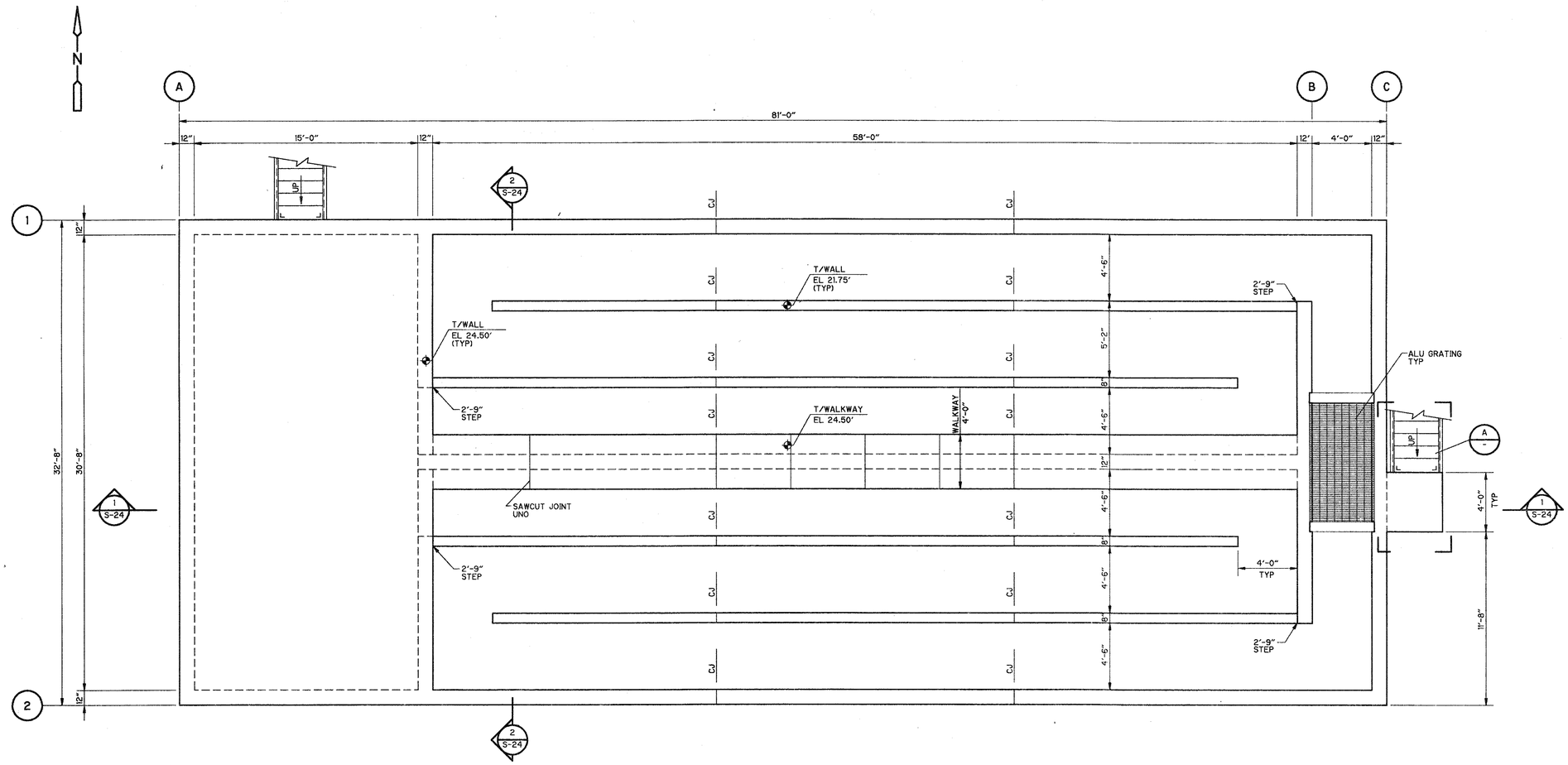
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

DISINFECTION PLAN
FOUNDATION PLAN

PROJECT NO. 6706.070
FILE NAME: SCCPL112

SHEET NO.
S-22

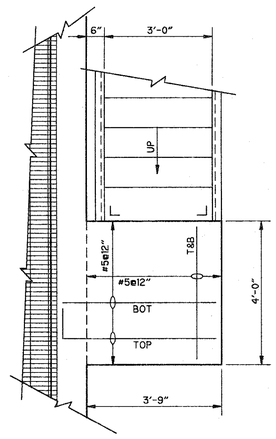
Dense Fills 2.0.22 05/21/97 11:56:29 SCCPL112 D:\6706_070\STRUCT\



PLAN TOP OF STRUCTURE - EL 24.50'

PLAN

1/4" = 1'-0"



TYPICAL LANDING REINFORCEMENT

DETAIL A -

1/2" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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FLORIDA

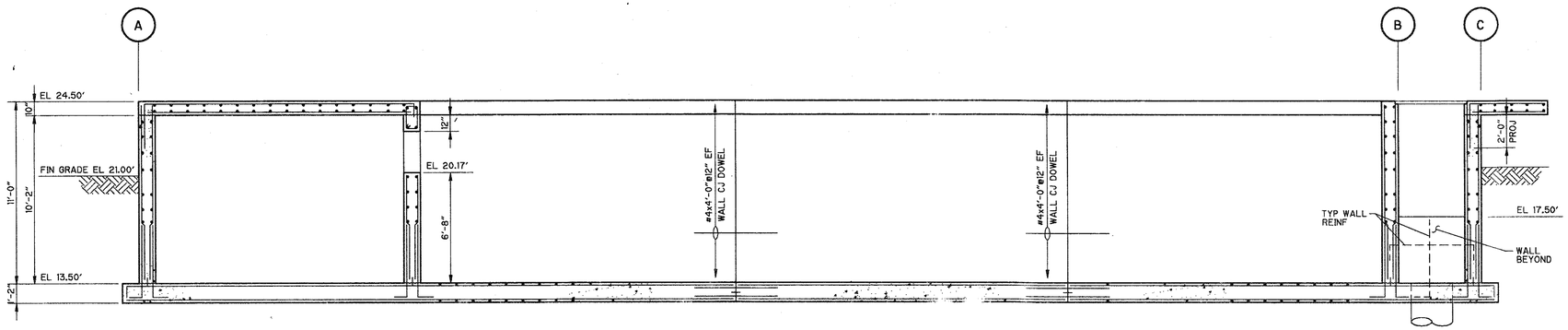
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

DISINFECTION BASIN
TOP OF STRUCTURE PLAN

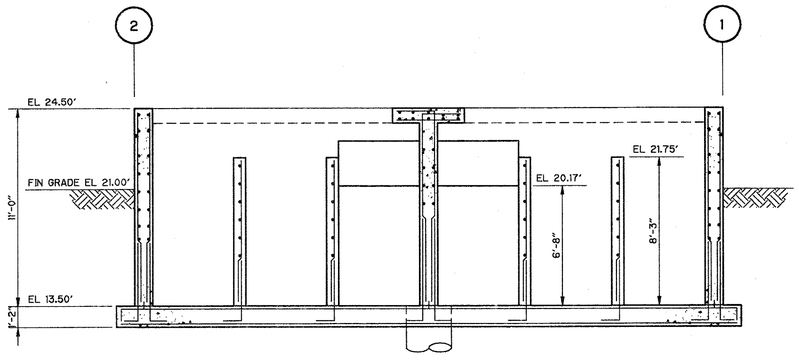
PROJECT NO. 6706.070
FILE NAME: SCCPL213

SHEET NO.
S-23

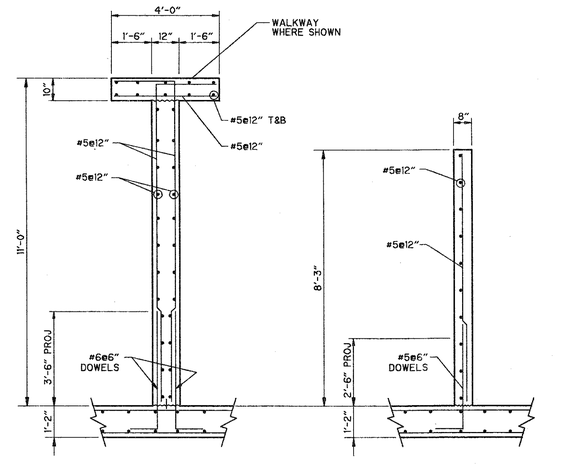
Dana Fifla
18:42:48
05/22/97
SCCPL213
O:\6706.070\STRUCT\



SECTION 1
1/4" = 1'-0"
S-22.23



SECTION 2
1/4" = 1'-0"
S-22.23



TYPICAL 12"- WALL
NTS

TYPICAL 8" INTERIOR WALL
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

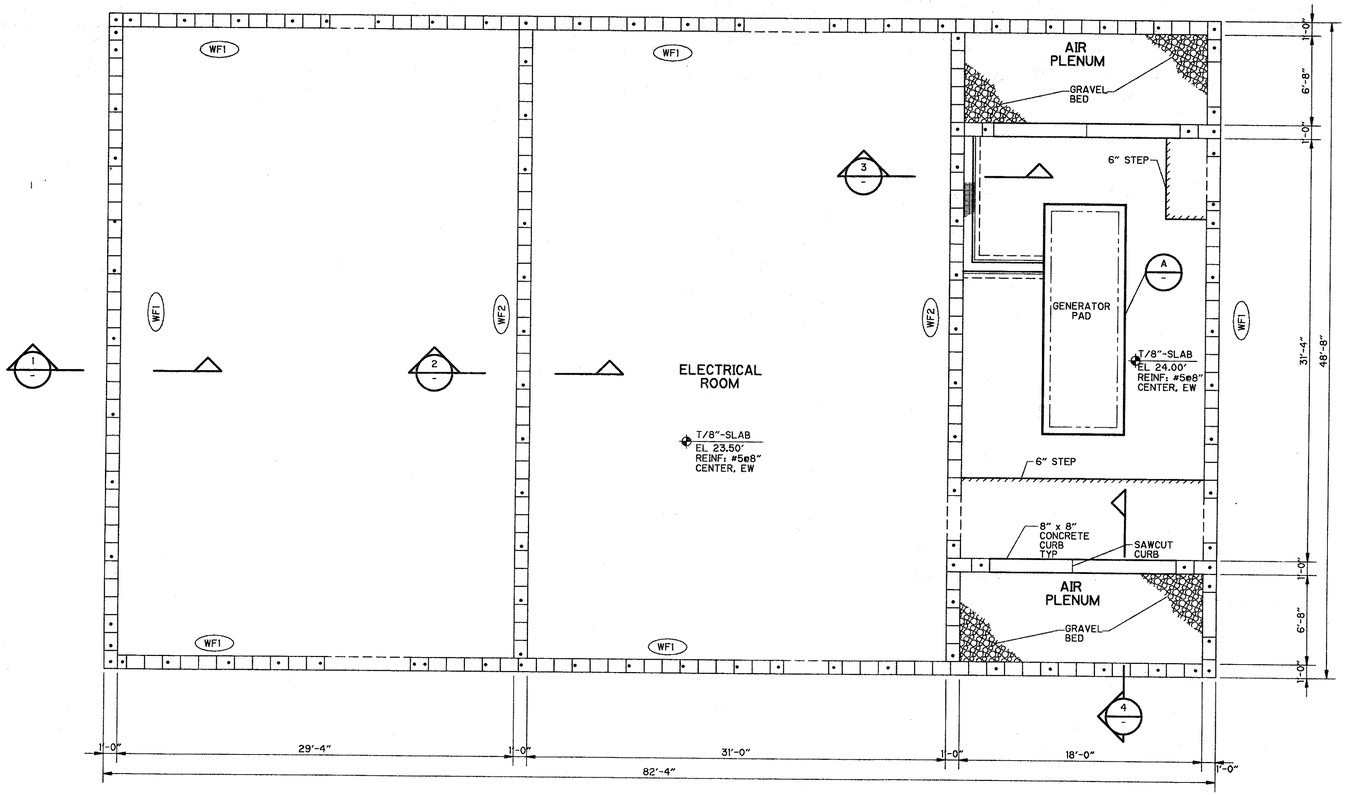
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

DISINFECTION BASIN SECTIONS

PROJECT NO. 6706_070
FILE NAME: SCCPL114

SHEET NO.
S-24

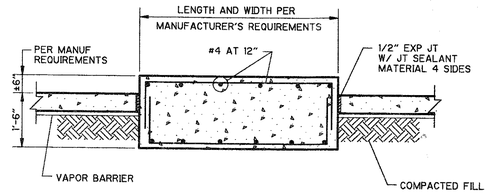
DEBORAH PANDELINE 15:14:02 05/21/97 14:43:17 SCCSC114 O:\6706_070\STRU\CCC\



SLAB

PLAN

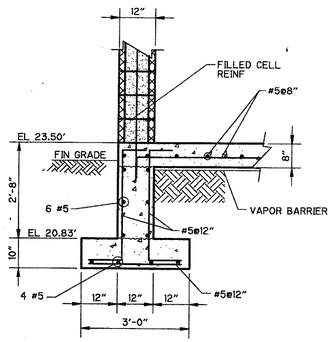
3/16" = 1'-0"



GENERATOR PAD

DETAIL A

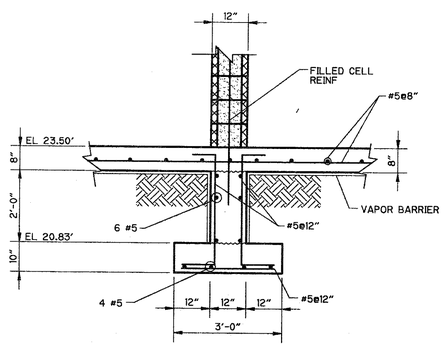
NTS



WALL FOOTING (WF1)

SECTION 1

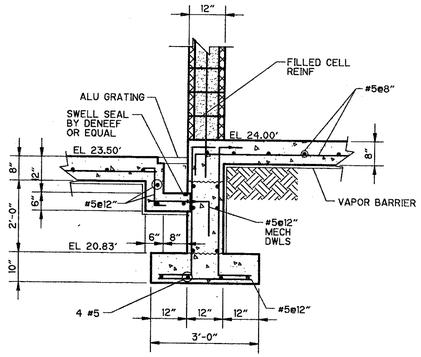
1/2" = 1'-0"



WALL FOOTING (WF2)

SECTION 2

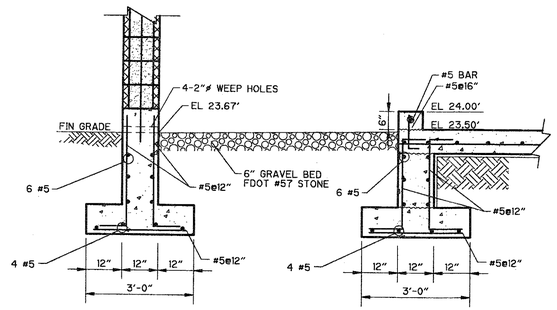
1/2" = 1'-0"



WALL FOOTING (WF2)

SECTION 3

1/2" = 1'-0"



SECTION 4

1/2" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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FLORIDA

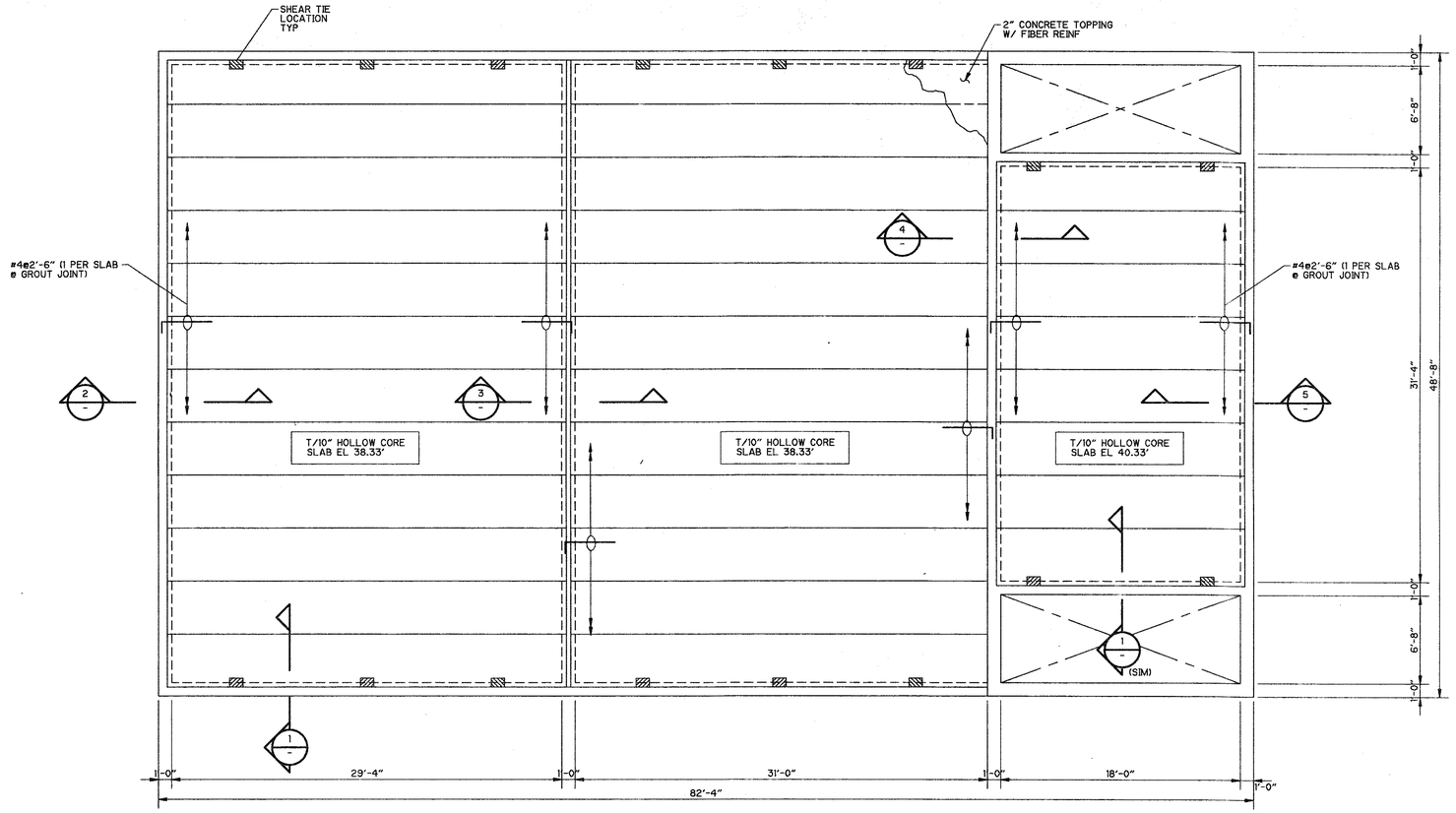
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

GENERATOR/ELECTRICAL BUILDING PLANS, SECTIONS AND DETAILS

PROJECT NO. 6706_070
FILE NAME: SEBPL116

SHEET NO.
S-25

D:\6706_070\STRUCTELEC\SEBPL116 05/22/97 14:49:19 8.30.12 Tim Verwey



ROOF

PLAN

3/16" = 1'-0"

NOTES:

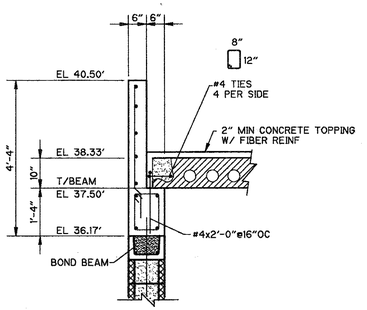
1 - HOLLOW CORE SLABS SHALL BE DESIGNED BY THE PRECAST SUPPLIER FOR THE FOLLOWING LOADS:

SUPERIMPOSED LIVE LOAD: 30 PSF
SUPERIMPOSED DEAD LOAD: 20 PSF (PLUS TOPPING)

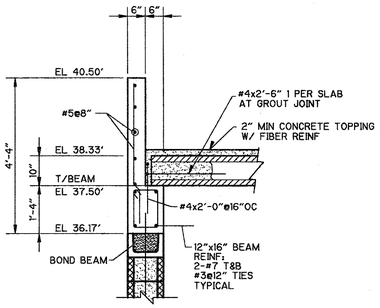
HOLLOW CORE SLABS ADJACENT TO OPENINGS SHALL BE DESIGNED TO SUPPORT ALL LOADS FROM THE INTERRUPTED SLABS.

2 - HOLLOW CORE SLAB CALCULATIONS AND SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A FLORIDA REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED TO ENGINEER FOR REVIEW.

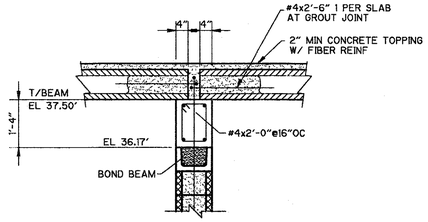
3 - STEEL HANGER ASSEMBLIES AT OPENINGS SHALL BE PROVIDED BY THE HOLLOW CORE SLAB MANUFACTURER.



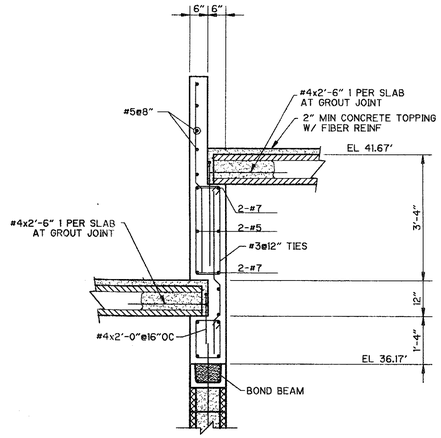
SECTION 1 — 1/2" = 1'-0"



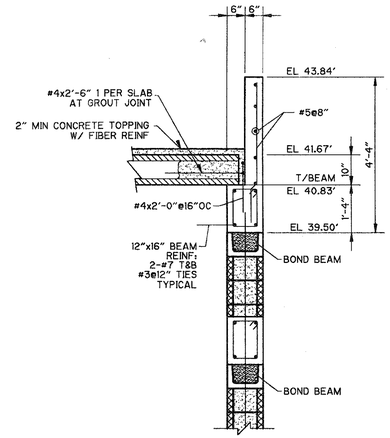
SECTION 2 — 1/2" = 1'-0"



SECTION 3 — 1/2" = 1'-0"



SECTION 4 — 1/2" = 1'-0"



SECTION 5 — 1/2" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

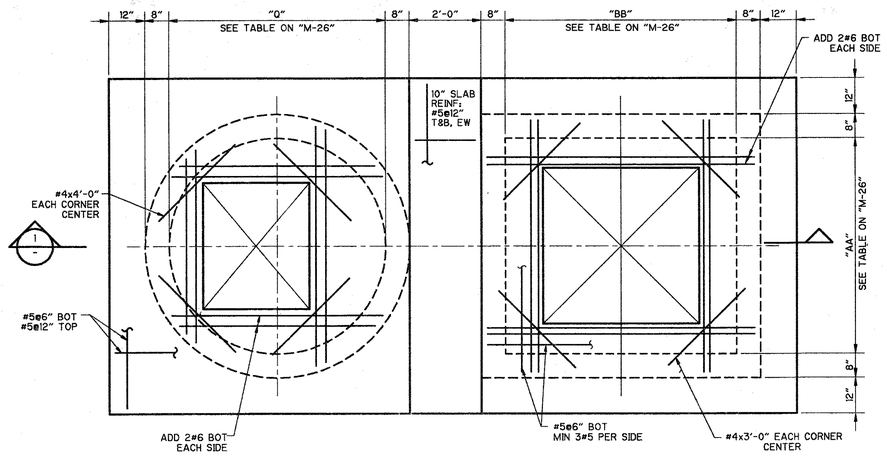
INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ELECTRICAL BUILDING
PLAN AND SECTIONS

PROJECT NO. 6706_070
FILE NAME: SEBPL217

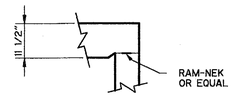
SHEET NO.
S-26

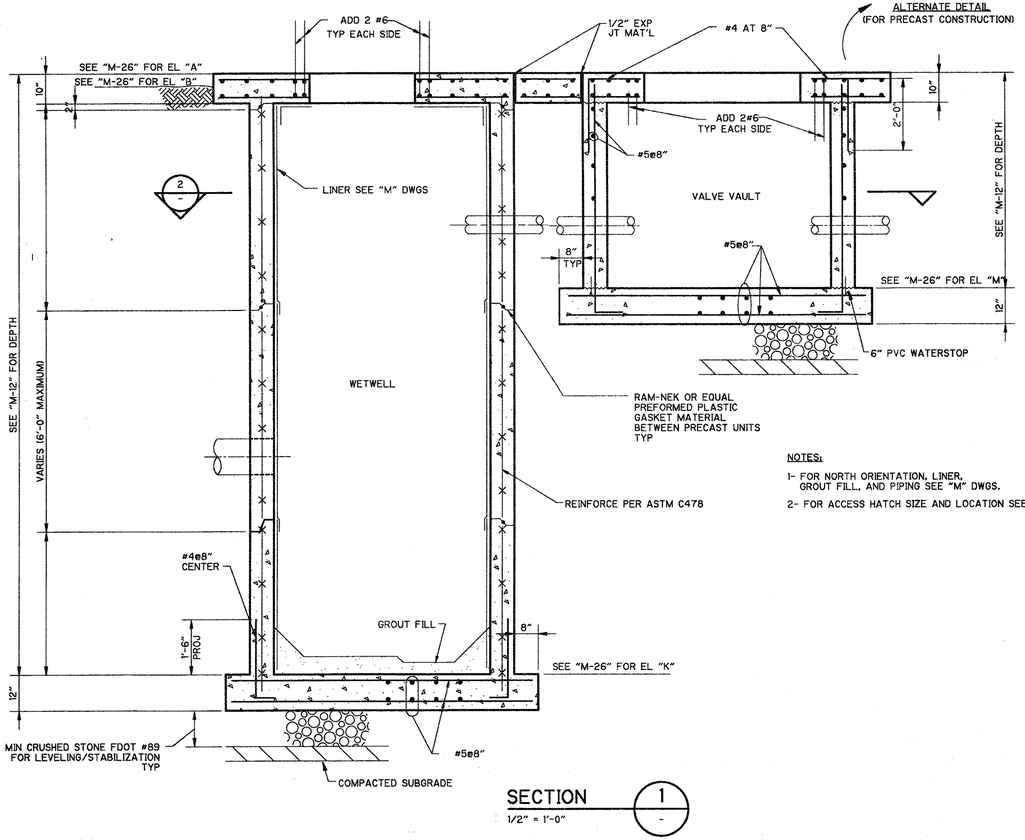


TOP OF STRUCTURE

PLAN

1/2" = 1'-0"





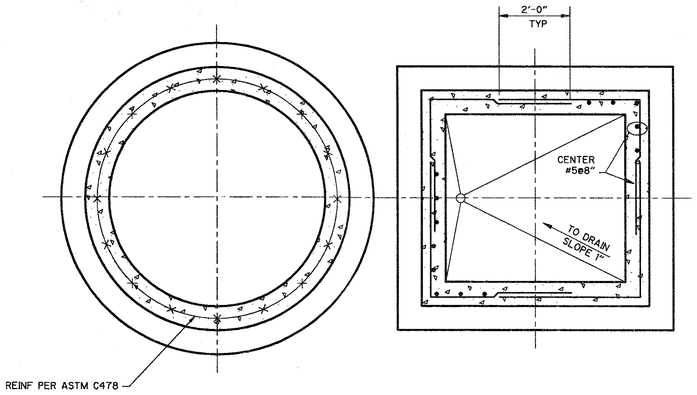
SECTION 1

1/2" = 1'-0"

NOTES:

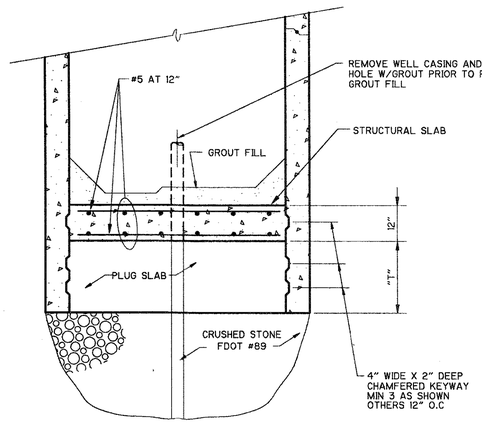
1- FOR NORTH ORIENTATION, LINER, GROUT FILL, AND PIPING SEE "M" DWGS.

2- FOR ACCESS HATCH SIZE AND LOCATION SEE "M" DWGS.



SECTION 2

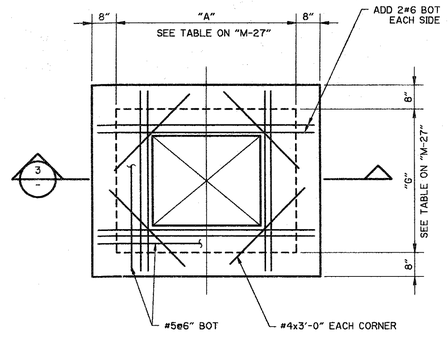
1/2" = 1'-0"



ALTERNATE: BASE SLAB CONSTRUCTION

1/2" = 1'-0"

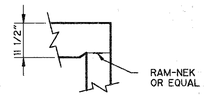
10'-0" I.D. PUMP STATION					
DEPTH OF P.S.	0'-12'	13'-18'	19'-22'	23'-26'	27'-31'
PLUG SLAB "T"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"

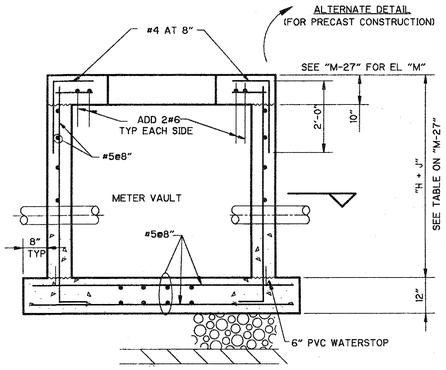


METER/VALVE VAULT

PLAN

1/2" = 1'-0"





SECTION 3

1/2" = 1'-0"

LIFT STATION NOTES:

CAST IN PLACE CONCRETE

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI-350R AND ACI-318 REQUIREMENTS. CONCRETE: 28-DAY COMPRESSIVE STRENGTH-4000 PSI, CEMENT-TYPE II AIR-ENTRAINING WATER REDUCING ADMIXTURES-PER SPECIFICATIONS.

PRE-CAST CONCRETE

MATERIALS AND METHODS OF CONSTRUCTION SHALL BE PER SPECIFICATIONS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PRECAST ELEMENTS FOR ENGINEER'S REVIEW.

REINFORCEMENT

REINFORCEMENT SHALL CONFORM TO ASTM A615-GRADE 60 REQUIREMENTS. ALL ACCESSORIES SHALL BE IN CONFORMANCE WITH ACI-315 REQUIREMENTS. THE CONTRACTOR SHALL PREPARE DETAILED PLACEMENT DRAWINGS AND SCHEDULES IN CONFORMANCE WITH ACI-315 REQUIREMENTS, FOR ENGINEER'S REVIEW.

FOUNDATION DEWATERING/FLOATATION

FOUNDATION DEWATERING SHALL BE MAINTAINED UNTIL FOUNDATION EXCAVATION IS TOTALLY BACKFILLED. CONTRACTOR SHALL PROTECT THE STRUCTURE AGAINST FLOATATION, UNTIL THE STRUCTURE IS PUT INTO SERVICE.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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FLORIDA

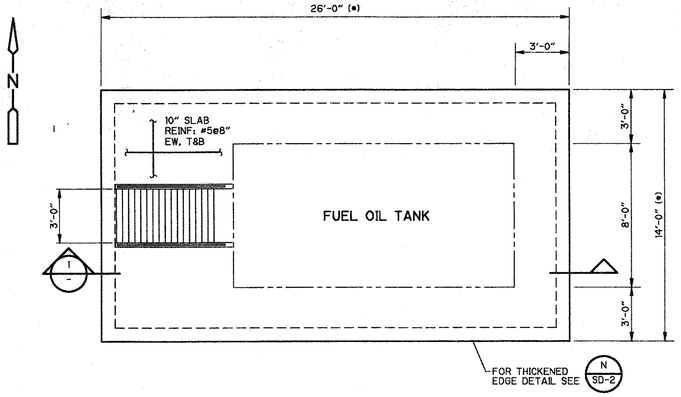
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

PLANT SITE LIFT STATION\
METER AND VALVE PIT
PLANS AND SECTIONS

PROJECT NO. 6706_070
FILE NAME: 10FTPSMV

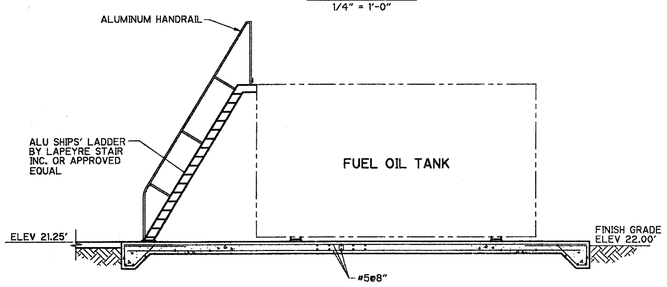
SHEET NO.
S-27

D:\6706_070\STRUCT\PLANTSTN\10FTPSMV 05/21/97 14:09:26 T-43x22 Donna Fritz

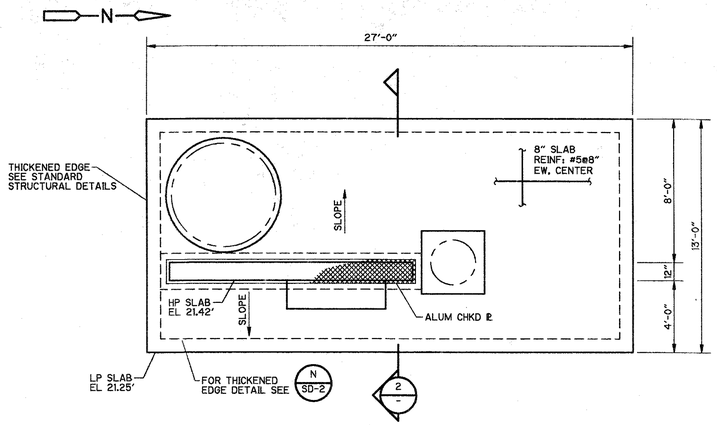


(*) COORDINATE DIMENSION WITH FUEL TANK MANUFACTURER

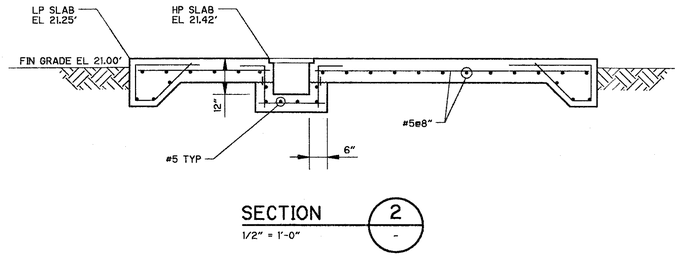
FUEL OIL STORAGE TANK PAD
PLAN
1/4" = 1'-0"



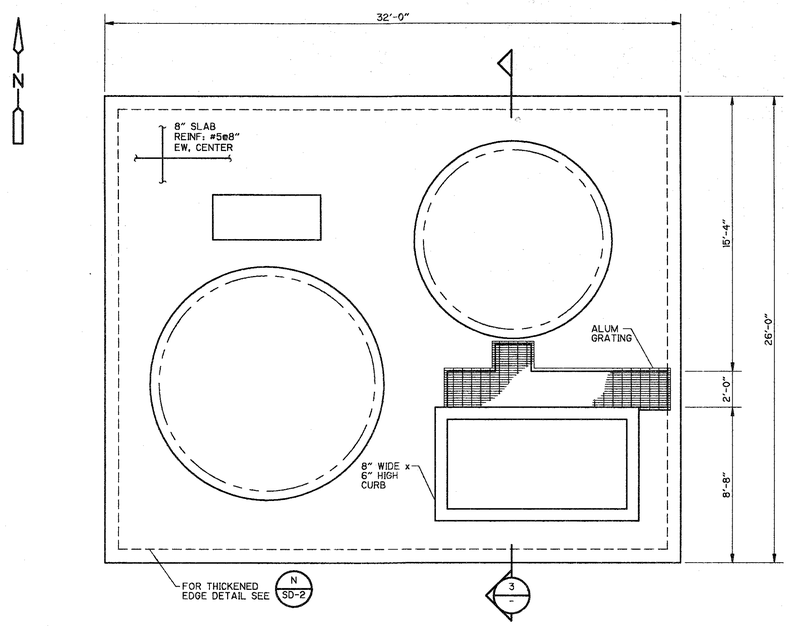
SECTION 1
1/4" = 1'-0"



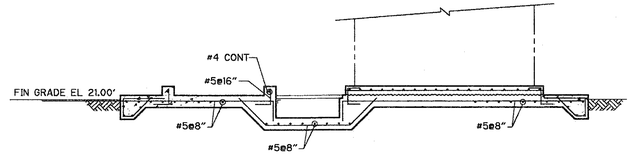
ODOR CONTROL SYSTEM PAD
PLAN
1/4" = 1'-0"



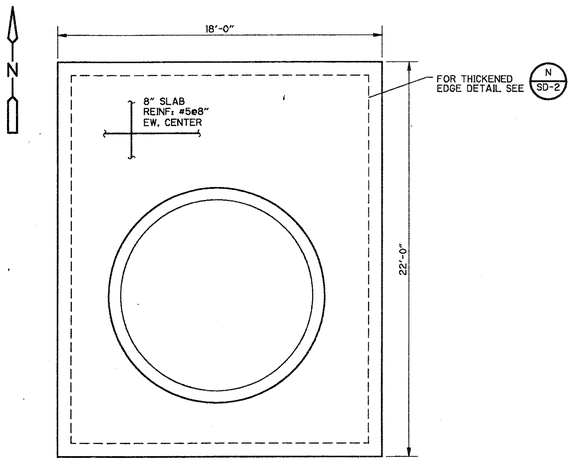
SECTION 2
1/2" = 1'-0"



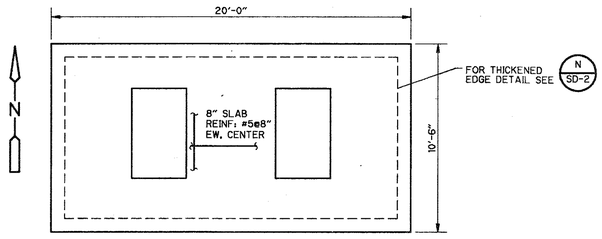
SODIUM HYPOCHLORITE SYSTEM PAD
PLAN
1/4" = 1'-0"



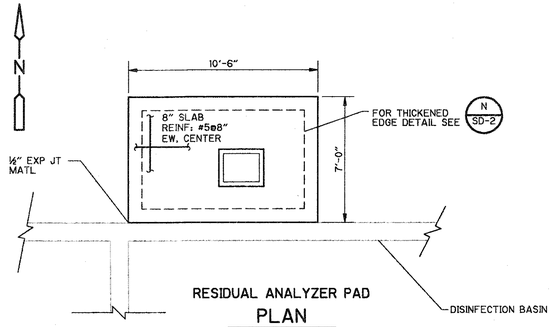
SECTION 3
1/4" = 1'-0"



ALUM STORAGE TANK PAD
PLAN
1/4" = 1'-0"



EQUALIZED RETURN PUMP PAD
PLAN
1/4" = 1'-0"



RESIDUAL ANALYZER PAD
PLAN
1/4" = 1'-0"

NOTE:
COORDINATE ALL EQUIPMENT PAD SIZE, LOCATIONS AND ORIENTATION WITH "M" DWGS AND THE EQUIPMENT MANUFACTURER

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
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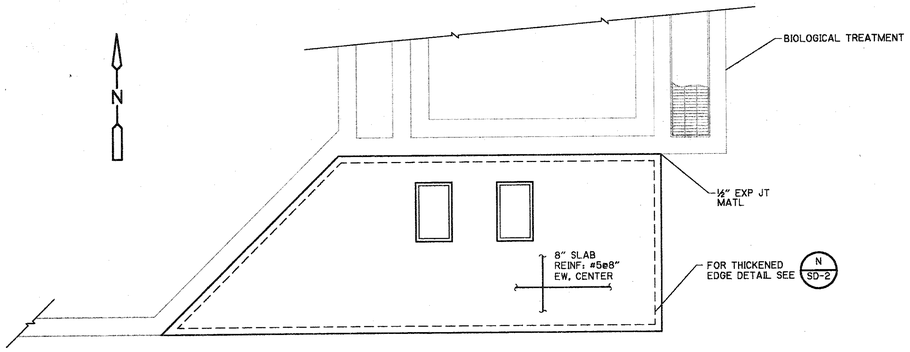
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS PADS
PLANS AND SECTIONS

PROJECT NO. 6706_070
FILE NAME: SMSPL101

SHEET NO.
S-28

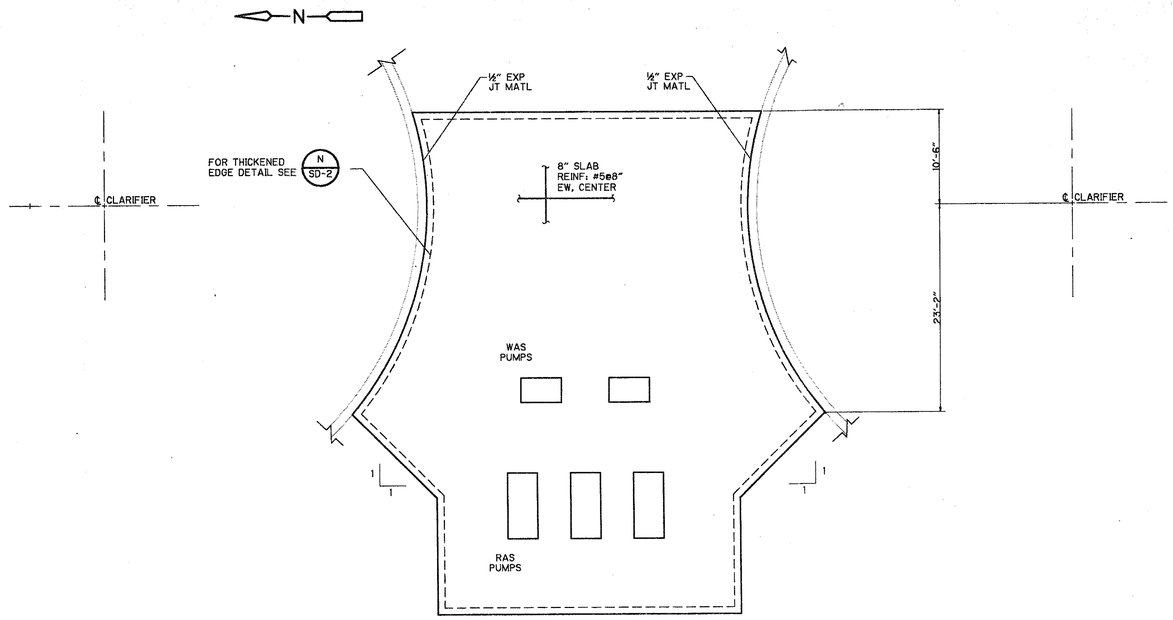
D:\6706_070\STRUMISC\ SMSPL101 05/22/97 16:14:47 6:8.42 Donna Frils



REAERATION BLOWER PAD

PLAN

1/8" = 1'-0"



WAS/RAS PUMP PAD

PLAN

1/8" = 1'-0"

NOTE:
COORDINATE ALL EQUIPMENT PAD SIZE, LOCATIONS AND ORIENTATION WITH "M" DWGS AND THE EQUIPMENT MANUFACTURER

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

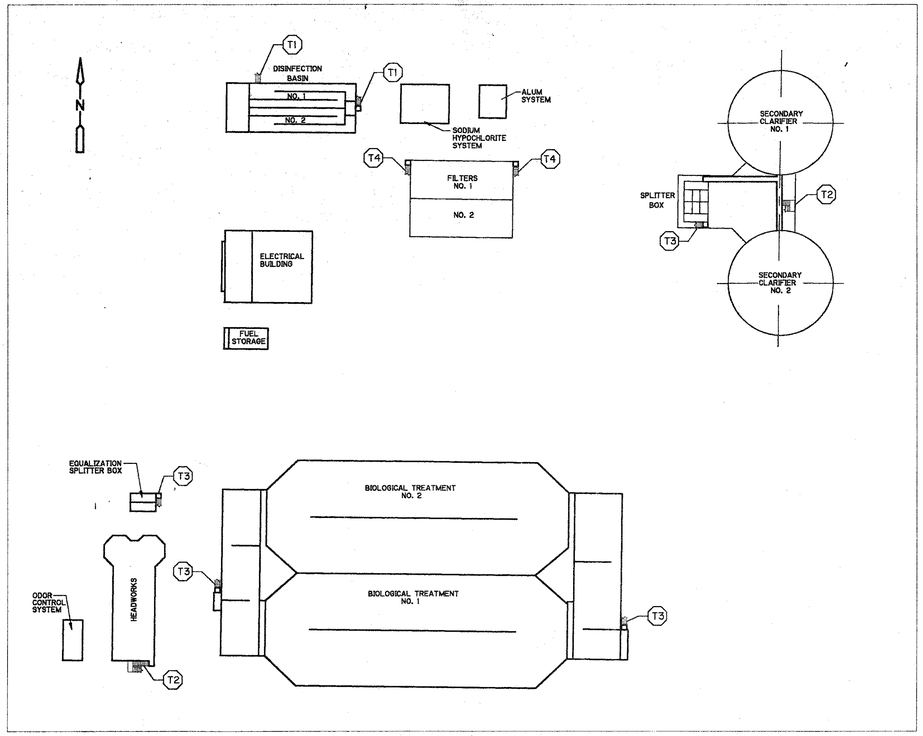
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS STRUCTURES
PLANS AND SECTIONS

PROJECT NO. 6706.070
FILE NAME: SMSPL202

SHEET NO.
S-29

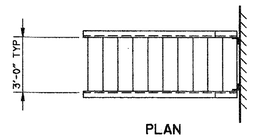
0:\6706_070\STRUCMISC\ SMSPL202 05/22/97 16:17:59 7:28:27 Donna Frilla



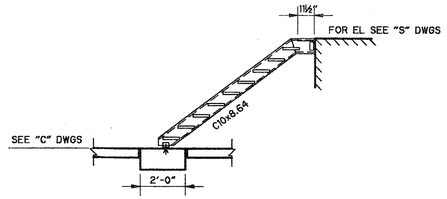
STAIR LOCATION KEY PLAN

NOTES:

1. ALL CONSTRUCTION IS ALUM PER SPEC'S.
2. RISERS: 7" MAX, TREADS: 12"



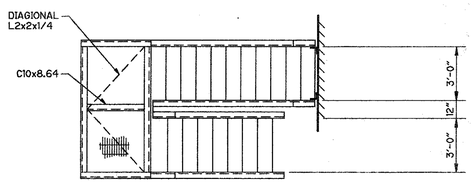
PLAN



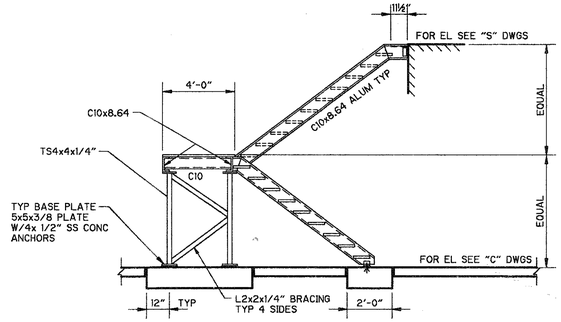
SECTION

TYPE "T-1"

NTS



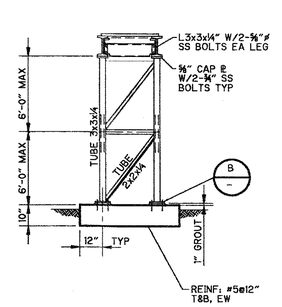
PLAN



SECTION

TYPE "T-2"

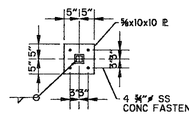
NTS



WALKWAY SUPPORTS

DETAIL A

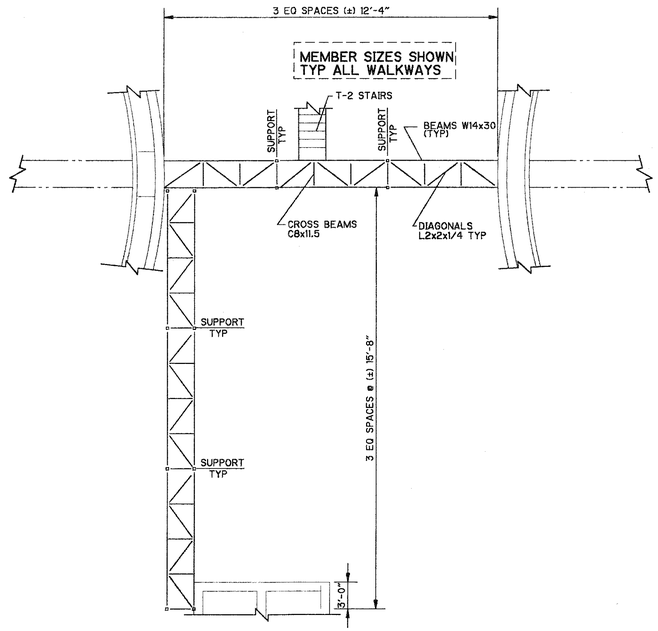
NTS



BASE PLATE

DETAIL B

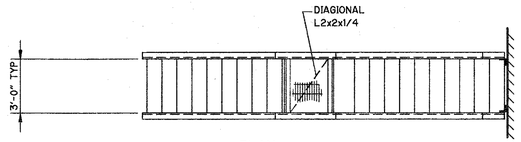
NTS



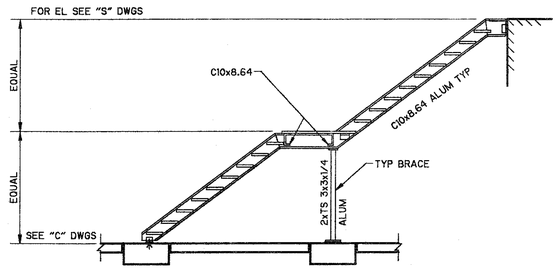
3'-0" WALKWAY

PLAN

1/8" = 1'-0"



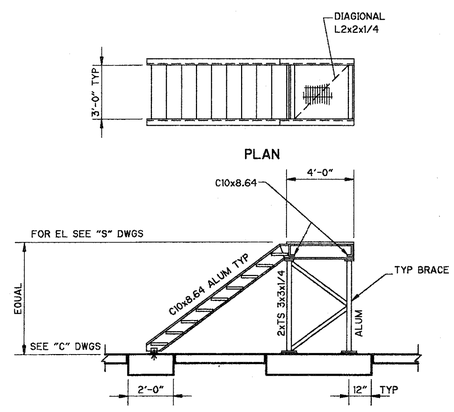
PLAN



SECTION

TYPE "T-3"

NTS



PLAN

SECTION

TYPE "T-4"

NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services office worldwide

INDIAN RIVER COUNTY
FLORIDA

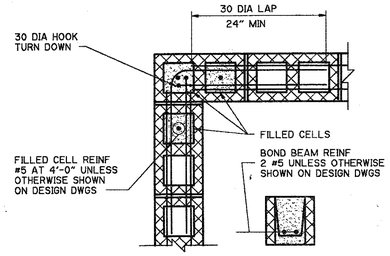
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

STAIRS
PLANS AND SECTIONS

PROJECT NO. 6706_070
FILE NAME: STAIRS

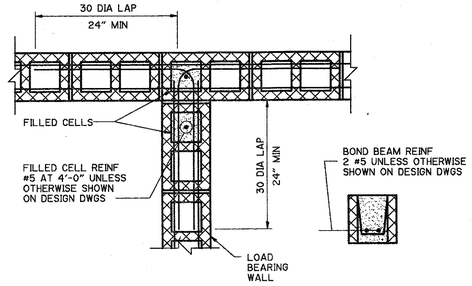
SHEET NO.
S-30

Q:\6706_070\STRU\STAIRS\ STAIRS 05/22/97 09:02:53 7:32:00 Tim Verwey



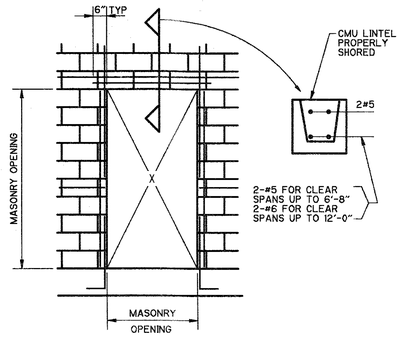
CORNER CMU/BOND BEAM/FILLED CELL

DETAIL A
NTS -



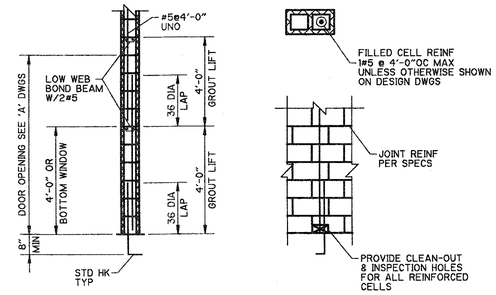
INTERSECTION CMU/BOND BEAM/FILLED CELL

DETAIL B
NTS -



LINTEL WITHOUT STUCCO FINISH

DETAIL C
NTS -



FILLED CELL

DETAIL D
NTS -

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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environmental services offices worldwide

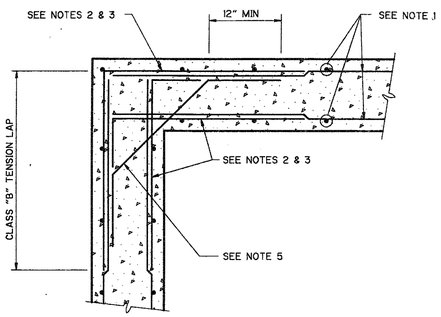
INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

STANDARD STRUCTURAL DETAILS

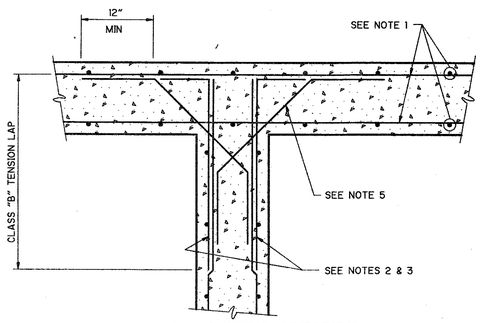
PROJECT NO. 6706_070
FILE NAME: STDDET1

SHEET NO.
SD-1



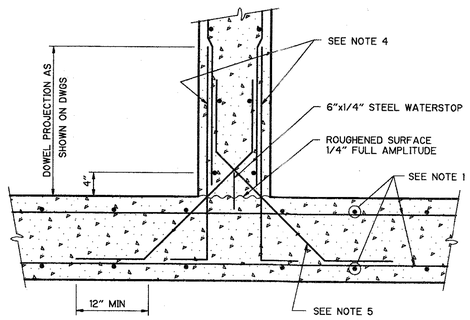
WALL CORNER REINFORCING

DETAIL A — NTS



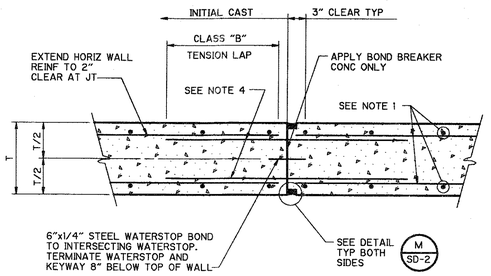
WALL INTERSECTION REINFORCING

DETAIL B — NTS



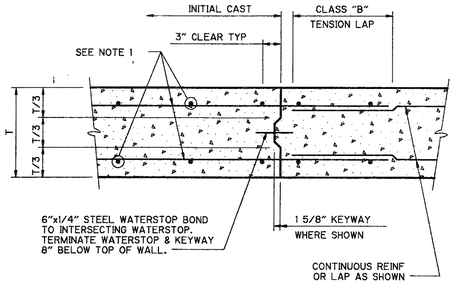
WALL BASE CONSTRUCTION JOINT

DETAIL C — NTS



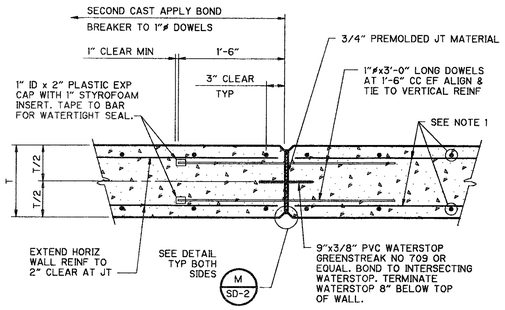
WALL CONTROL JOINT

DETAIL D — NTS



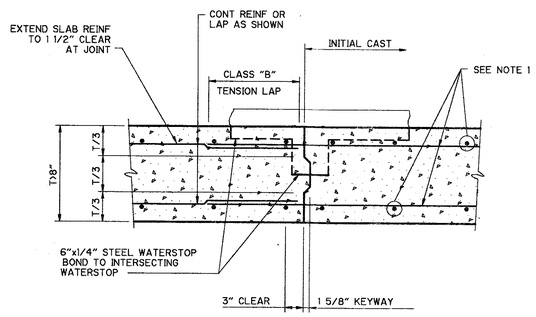
WALL CONSTRUCTION JOINT

DETAIL E — NTS



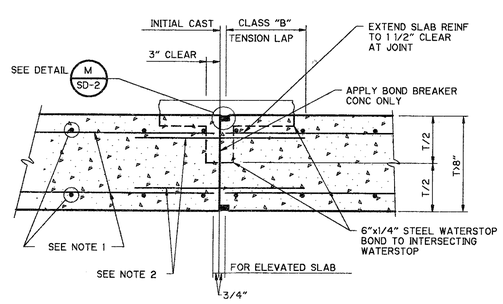
WALL EXPANSION JOINT

DETAIL F — NTS



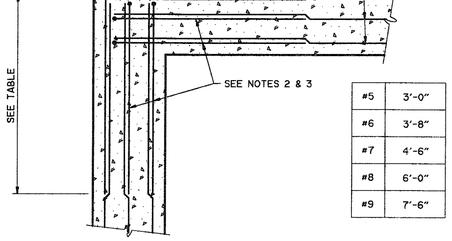
BASE/ELEVATED SLAB CONSTRUCTION JOINT

DETAIL G — NTS



BASE/ELEVATED SLAB CONTROL JOINT

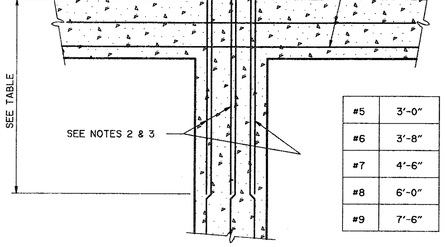
DETAIL H — NTS



#5	3'-0"
#6	3'-8"
#7	4'-6"
#8	6'-0"
#9	7'-6"

BEAM/GRADE BEAM CORNER REINFORCING

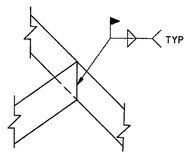
DETAIL J — NTS



#5	3'-0"
#6	3'-8"
#7	4'-6"
#8	6'-0"
#9	7'-6"

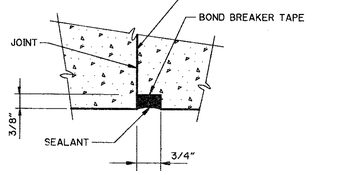
BEAM/GRADE BEAM INTERSECTION REINFORCING

DETAIL K — NTS



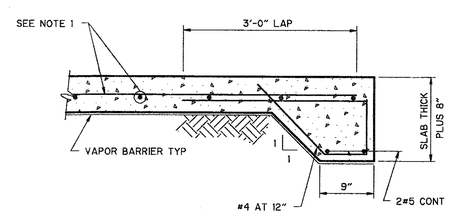
STEEL WATERSTOP

DETAIL L — NTS



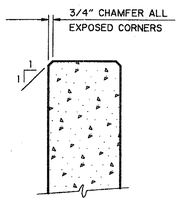
JOINT SEALANT

DETAIL M — NTS



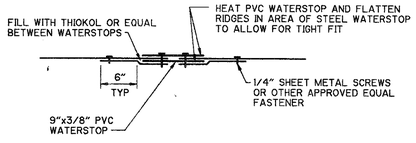
THICKENED EDGE SLAB

DETAIL N — NTS



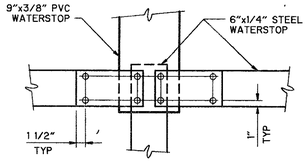
CHAMFER

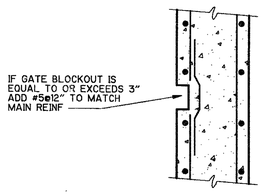
DETAIL O — NTS



WATERSTOP SPLICE STEEL TO PVC

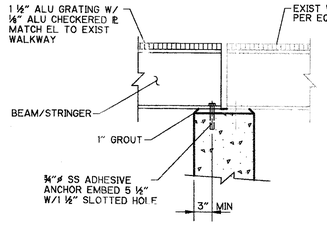
DETAIL P — NTS





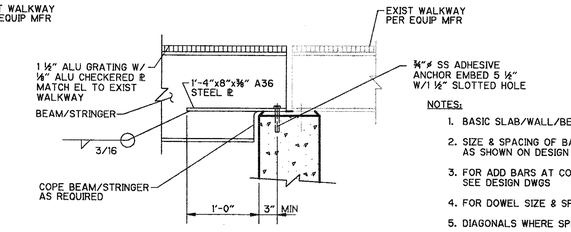
GATE BLOCKOUT

DETAIL R — NTS



SHALLOW STRINGER/BEAM TO CONCRETE

DETAIL S — NTS



DEEP STRINGER/BEAM TO CONCRETE

DETAIL T — NTS

NOTES:

1. BASIC SLAB/WALL/BEAM REINF AS SHOWN ON DESIGN DWGS
2. SIZE & SPACING OF BAR TO MATCH WALL/BEAM REINF AS SHOWN ON DESIGN DWGS
3. FOR ADD BARS AT CORNERS AND INTERSECTIONS SEE DESIGN DWGS
4. FOR DOWEL SIZE & SPACING SEE DESIGN DWGS
5. DIAGONALS WHERE SPECIFIED ON DESIGN DWGS
6. ALL HOOKS SHOWN ARE STANDARD

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

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environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

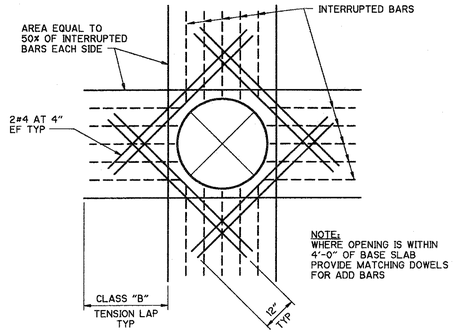
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

STANDARD STRUCTURAL DETAILS

PROJECT NO. 6706_070
FILE NAME: STDDET2

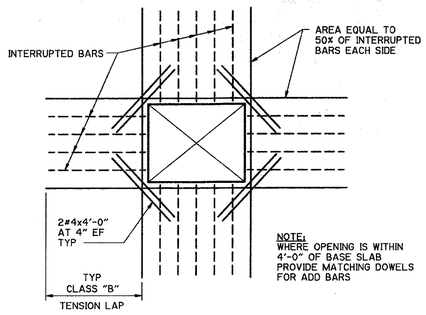
SHEET NO.
SD-2

O:\6706_070\STRUCTDETAILS\ STDDET2 05/21/97 14:24:47 2.32x27



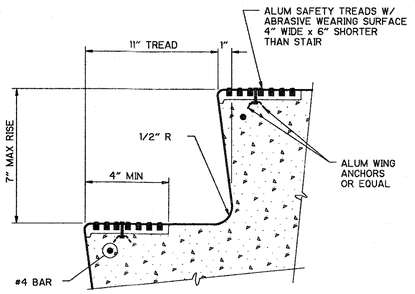
REINF AT CIRCULAR OPENINGS GREATER THAN 12"

DETAIL A
NTS



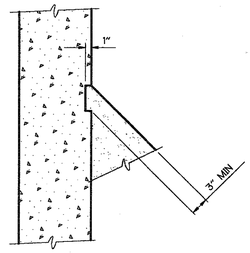
REINF AT RECTANGULAR OPENINGS GREATER THAN 12"

DETAIL B
NTS



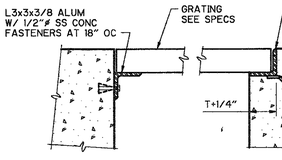
EMBEDDED SAFETY TREAD

DETAIL C
NTS



GROUT FILLET

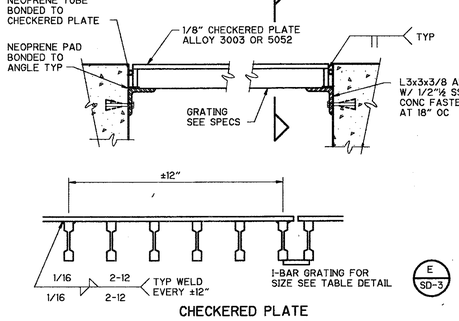
DETAIL D
NTS



MAXIMUM SPAN	DEPTH	BEARING BAR	
		THICKNESS	SPACING
3'-0"	1 1/4"	3/16"	1 3/16"
4'-0"	1 1/2"	3/16"	1 3/16"
5'-0"	2"	3/16"	1 3/16"
6'-0"	2 1/4"	3/16"	1 3/16"

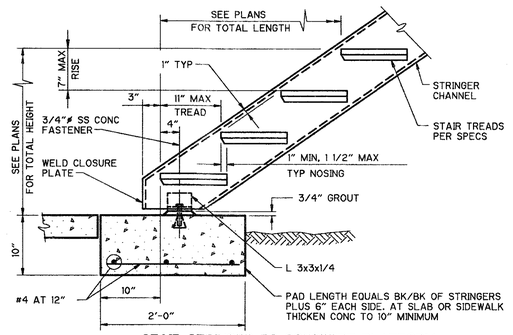
GRATING AND GRATING SUPPORT

DETAIL E
NTS



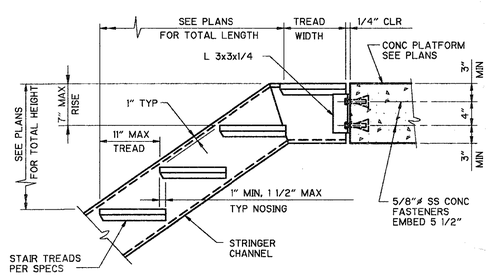
CHECKERED PLATE

DETAIL F
NTS



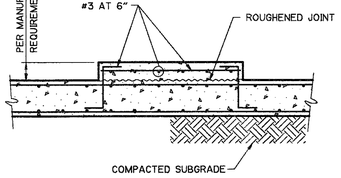
STAIR STRINGER TO CONCRETE PLATFORM

DETAIL G
NTS



STAIR STRINGER TO CONCRETE PLATFORM TOP

DETAIL H
NTS

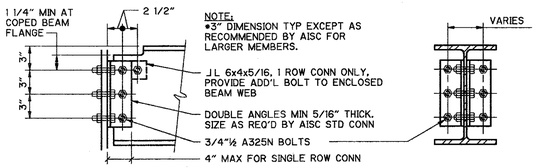


EQUIPMENT PAD

DETAIL J
NTS

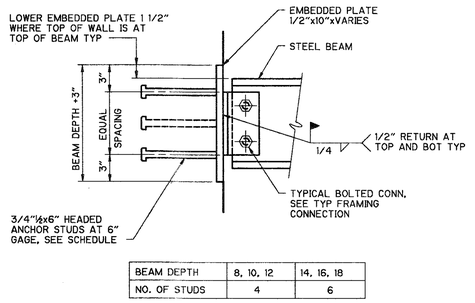
NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	LENGTH (3) OF ANGLE
36	7	1'-8 1/2"
30-33	6	1'-5 1/2"
24-27	5	1'-2 1/2"
16-21	4	11 1/2"
12-15	3	8 1/2"
8-10	2	5 1/2"
6	1	3"

NOTES:
1. NUMBER OF ROWS IS EQUAL TO NUMBER OF BOLTS TO ENCLOSED WEB.
2. ALL FRAMING CONNECTIONS SHALL CONFORM TO SCHEDULE UNLESS DETAILED OTHERWISE ON FRAMING DRAWINGS.
3. ADD 1 1/2" TO ANGLE LENGTH FOR STAGGERED BOLT CONNECTIONS.
4. USE SST BOLTS FOR ALL ALUMINUM FRAMING.



TYPICAL FRAMING CONNECTION

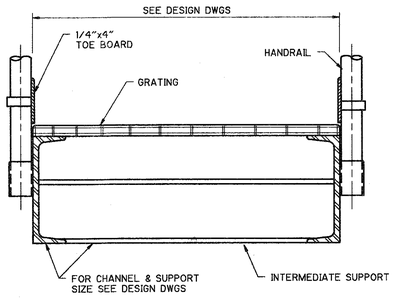
DETAIL K
NTS



BEAM DEPTH	8, 10, 12	14, 16, 18
NO. OF STUDS	4	6

STEEL BEAM TO CONCRETE

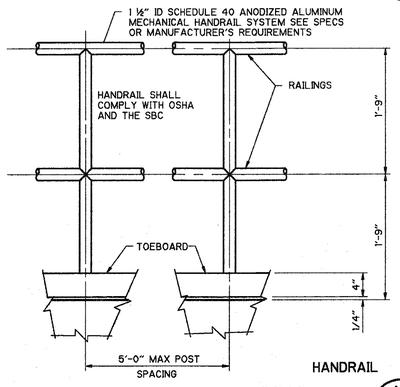
DETAIL L
NTS



TYPICAL PLATFORM SECTION

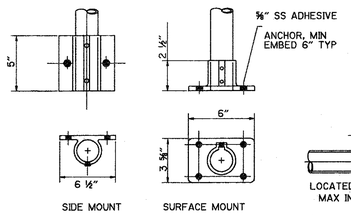
DETAIL M
NTS

NOTES
1. ALUMINUM EMBEDDED IN CONCRETE MUST BE PAINTED WITH ONE SHOP COAT OF HEAVY BITUMASTIC.
2. ALUMINUM SHAPES IN CONTACT WITH CONCRETE MUST BE SEPARATED BY A 1/32" NEOPRENE GASKET OR ANY CASE WHERE TWO DIFFERENT METALS ARE TO BE IN CONTACT. A NEOPRENE GASKET MUST BE PROVIDED.
3. HANDRAILS, GUARDRAILS, POSTS, BRACKETS AND MOUNTINGS SHALL MEET THE STANDARD BUILDING CODE (S.B.C.) AND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) LOADING REQUIREMENTS.
4. TOP OF ALL GUARDRAILS SHOULD BE 42" HIGH ABOVE THE FINISH FLOOR OR WALKWAY, THE INTERMEDIATE RAILS SHALL BE EQUALLY SPACED BETWEEN THE TOP RAIL AND THE TOEBOARD.
5. ALL WALKWAYS SHALL USE GRATING UNLESS CHECKERED PLATE IS SHOWN ELSEWHERE ON THE DRAWINGS.

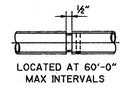


HANDRAIL

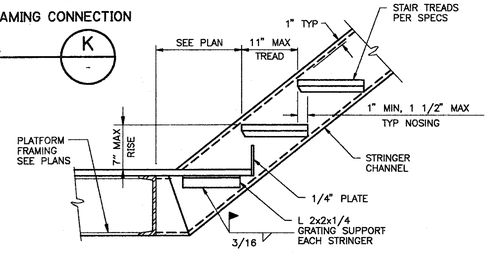
DETAIL N
NTS



CONNECTIONS

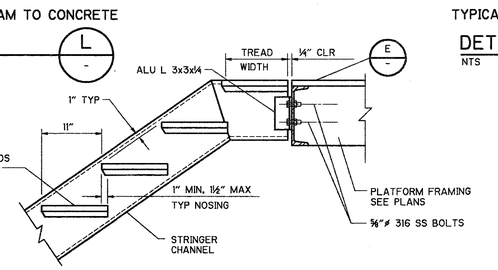


EXPANSION JT



STAIR STRINGER TO PLATFORM

DETAIL O
N.T.S.



STAIR STRINGER TO STEEL PLATFORM TOP

DETAIL P
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. VERWEY
DRAWN BY: J. WILLIAMS
SHEET CHK'D BY: B. EREL
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. EREL
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

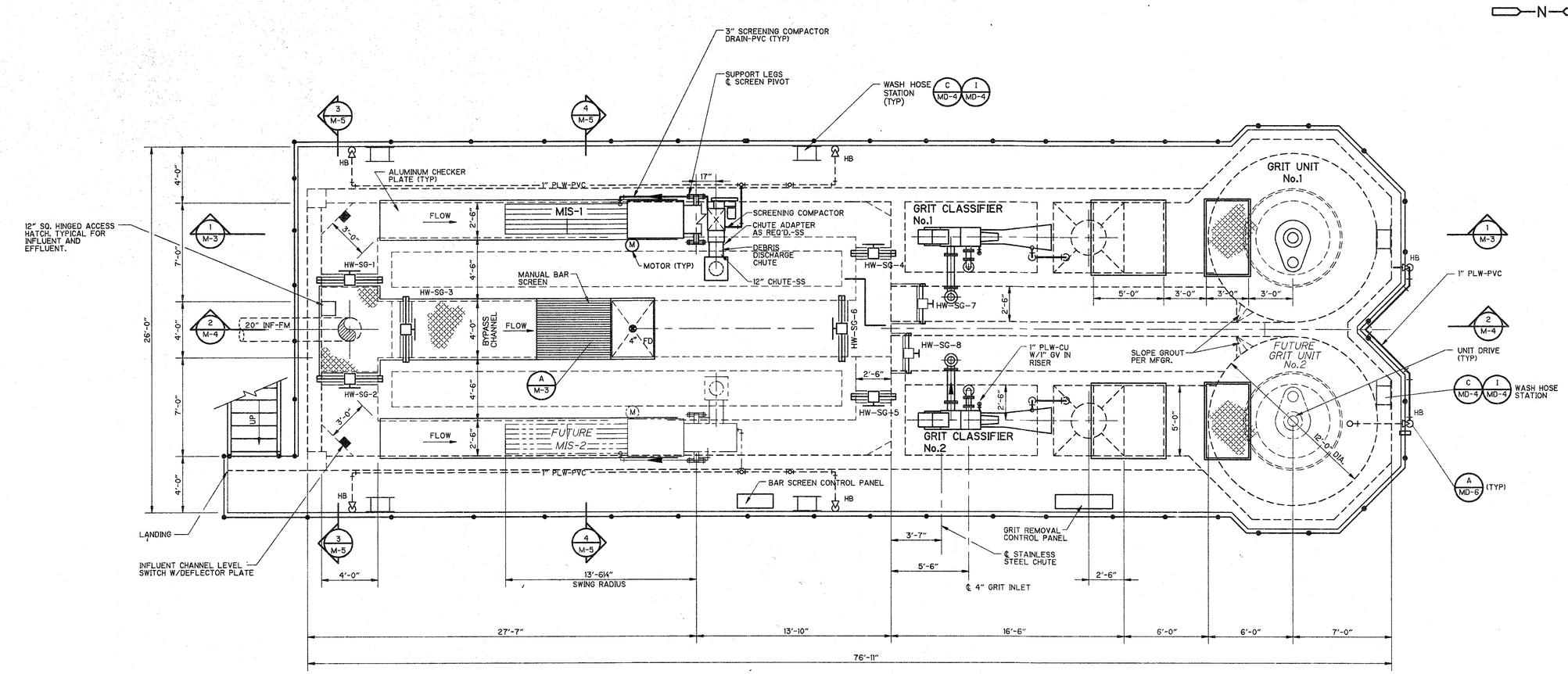
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

STANDARD STRUCTURAL DETAILS

PROJECT NO. 6706_070
FILE NAME: STDDET3

SHEET NO.
SD-3

DEBORAH PANDELINE 4:45:12 03/27/97 11:55:45 STDDET3 O:\6706_070\STR\DETAILS\



TOP PLAN

PLAN

1/4"= 1'- 0"

NOTES:

1. BOTH CHANNELS TO HAVE GROUT AS REQUIRED FOR INFLUENT SCREEN INSTALLATION.
2. EXACT LOCATION OF CLASIFIER CONNECTIONS TO BE DETERMINED DURING SHOP DRAWING REVIEW.
3. STRUCTURAL COATING SHALL BE APPLIED TO ALL VERTICAL CONCRETE CHANNEL AND DEGRITTER WALLS, AND THE UNDERSURFACES OF TOP CONCRETE SLABS THAT ARE OVER WATERBEARING CHANNELS AND BOXES. SEE SPECIFICATIONS.
4. ALL CHANNEL WIDTHS REFER TO CLEAR INSIDE WIDTHS AFTER APPLICATION OF STRUCTURAL COATING.
5. EXACT LOCATION OF MECHANICAL BAR SCREEN ANCHOR BOLTS TO BE DETERMINED DURING SHOP DRAWING REVIEW.
6. ALL ALUMINUM CHECKER PLATE SHALL BE GASKETED WITH NEOPRENE.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: A. NUNES
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

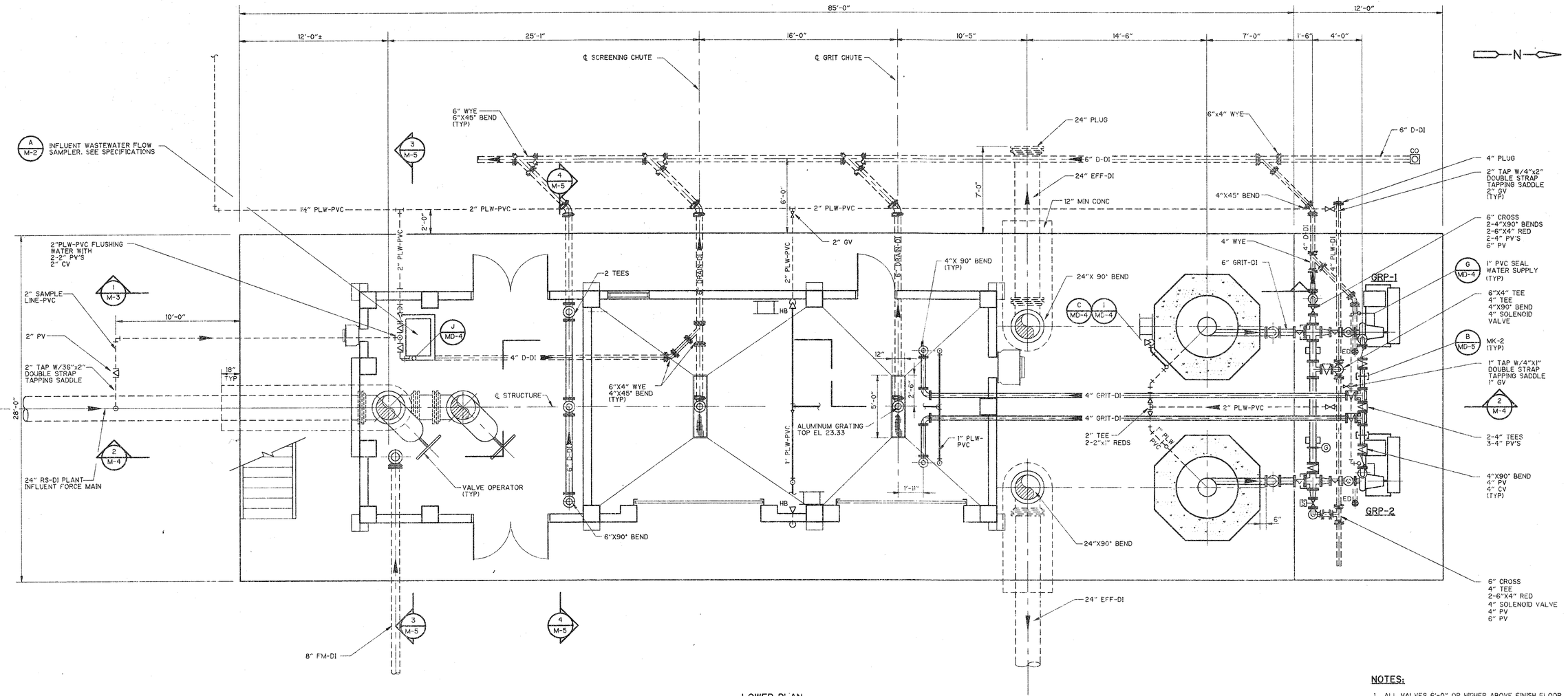
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS STRUCTURE - TOP PLAN

PROJECT NO. 6706_070
FILE NAME: MHDPL001

SHEET NO.
M-1

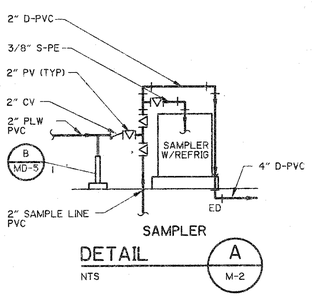
L:\6706_07\100P\MECH\ MHDPL001 03/25/97 16:06:51 8.00.32 M. BANDA



LOWER PLAN

PLAN

1/4"= 1'- 0"



SAMPLER

DETAIL A

NTS — M-2

NOTES:

1. ALL VALVES 6'-0" OR HIGHER ABOVE FINISH FLOOR SHALL BE EQUIPED WITH CHAINWHEEL OPERATOR.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: A. NUNES
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS STRUCTURE - BOTTOM PLAN

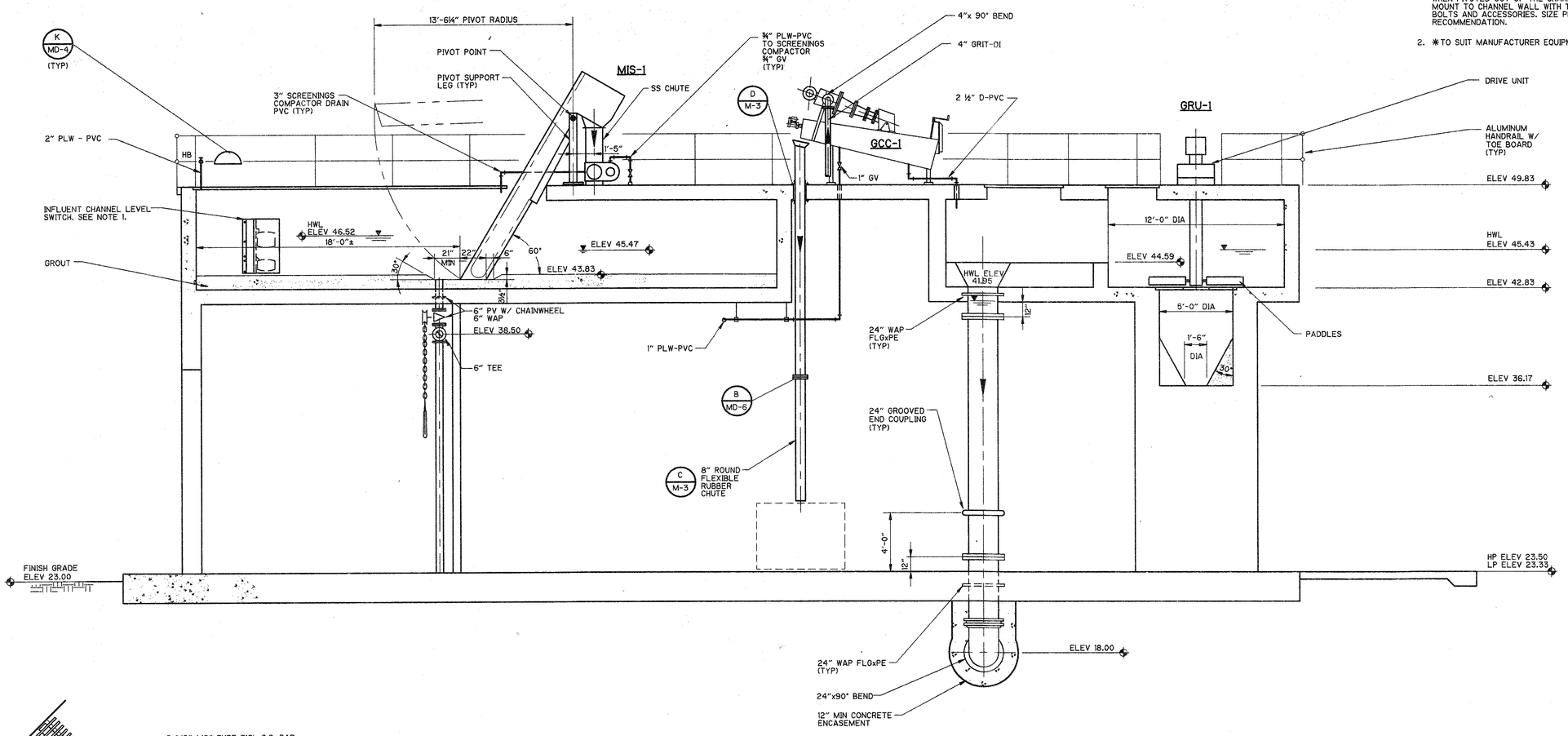
PROJECT NO. 6706_070
FILE NAME: MHDSC002

SHEET NO. **M-2**

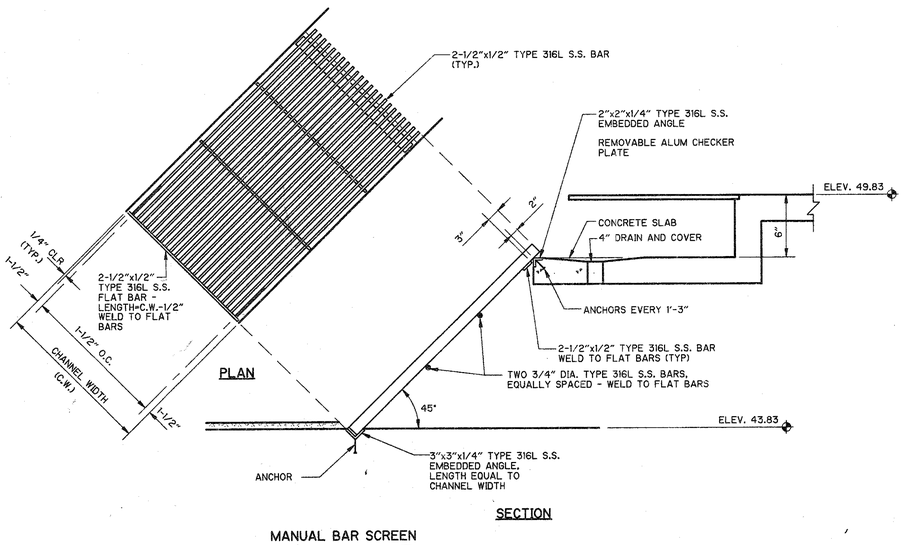
Charles Pevy 19:1:49 05/01/97 02:48:40 MHDSC002 L:\6706_070\BP\MECH\

NOTE:

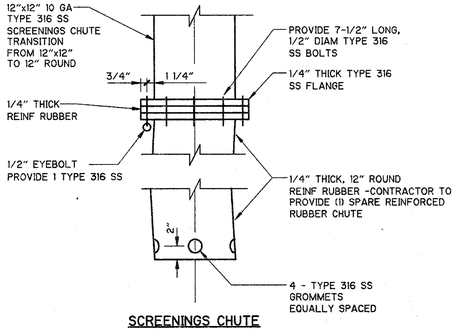
1. INFLUENT CHANNEL LEVEL SWITCH WITH DEFLECTOR PLATE, TO BE SUPPLIED BY SCREEN MANUFACTURER AND FIELD LOCATED CLEAR OF SCREEN WHEN PIVOTED OUT OF THE CHANNEL. MOUNT TO CHANNEL WALL WITH TYPE 316 STAINLESS STEEL ANCHOR BOLTS AND ACCESSORIES. SIZE PER EQUIPMENT MANUFACTURER RECOMMENDATION.
2. ✱TO SUIT MANUFACTURER EQUIPMENT.



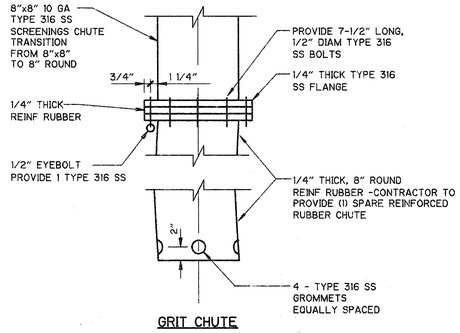
SECTION 1 — 1/4" = 1'-0" — M-3



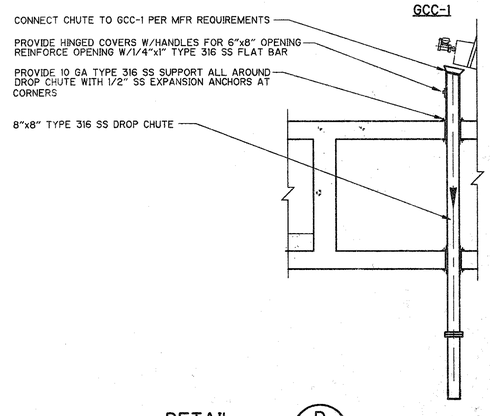
MANUAL BAR SCREEN DETAIL A — NTS — M-1



SCREENINGS CHUTE DETAIL B — NTS — M-4



GRIT CHUTE DETAIL C — NTS — M-4



DETAIL D — 1/4" = 1'-0" — M-3

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: A. NUNES
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

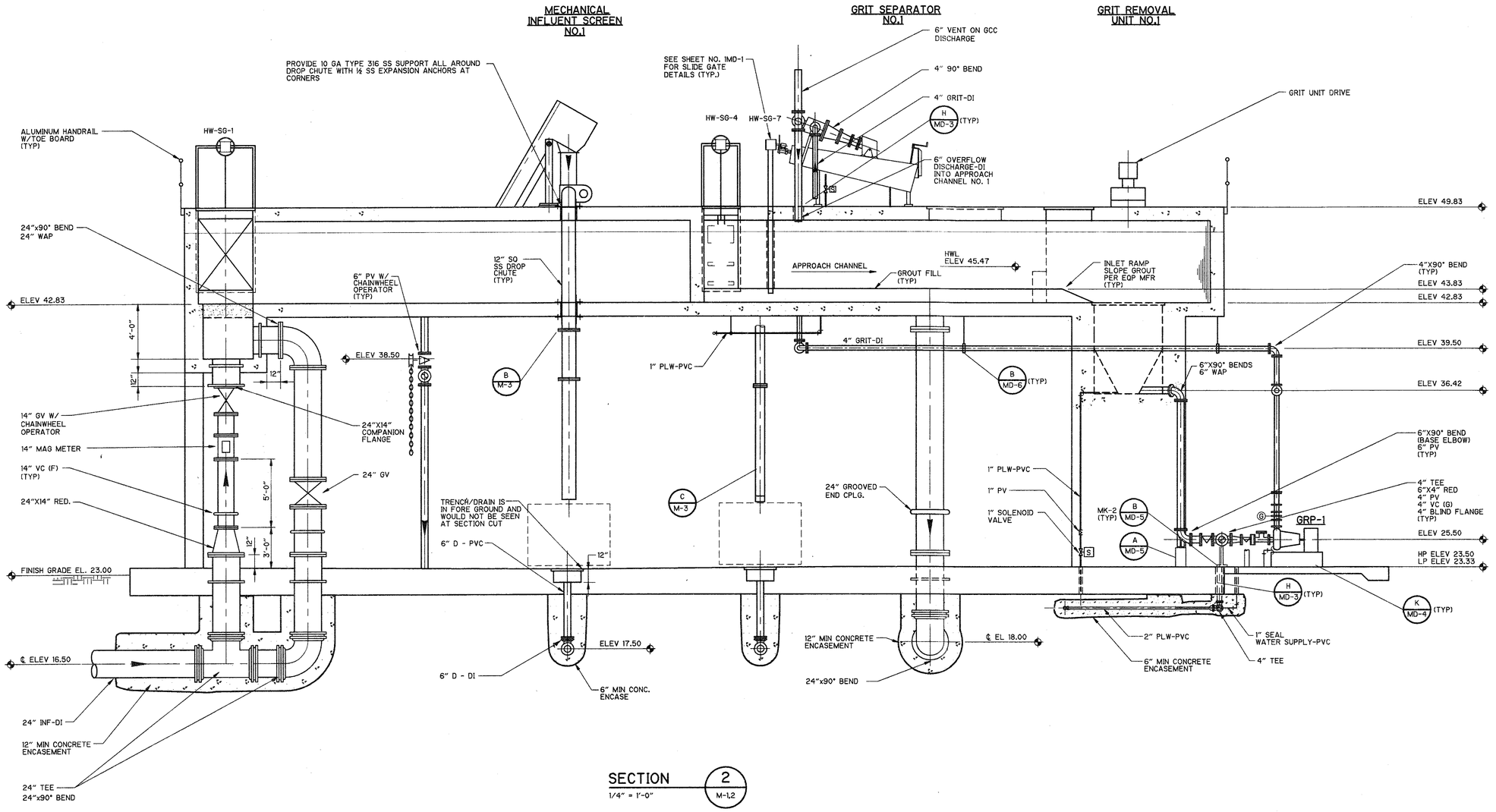
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS STRUCTURE - SECTION AND DETAIL

PROJECT NO. 6706_070
FILE NAME: MHDSC003

SHEET NO. **M-3**

M. BANDA 6-41.07 03/25/97 16:29:22 MHDSC003 L:\6706_070\10\PLMECH\



SECTION 2 (M-1,2)
1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: A. NUNES
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

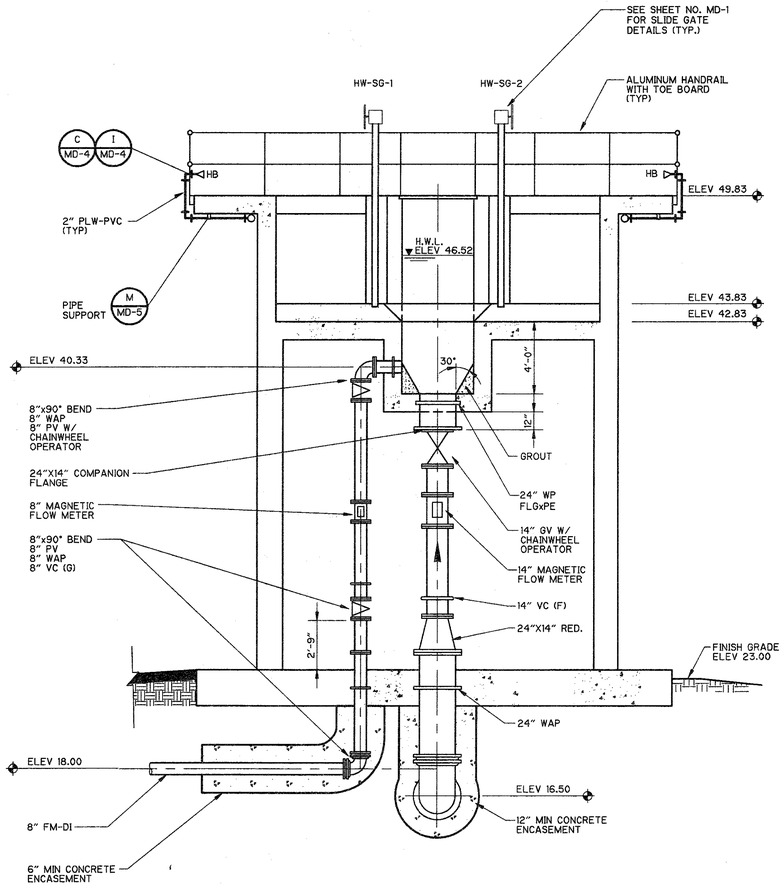
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS STRUCTURE - SECTIONS

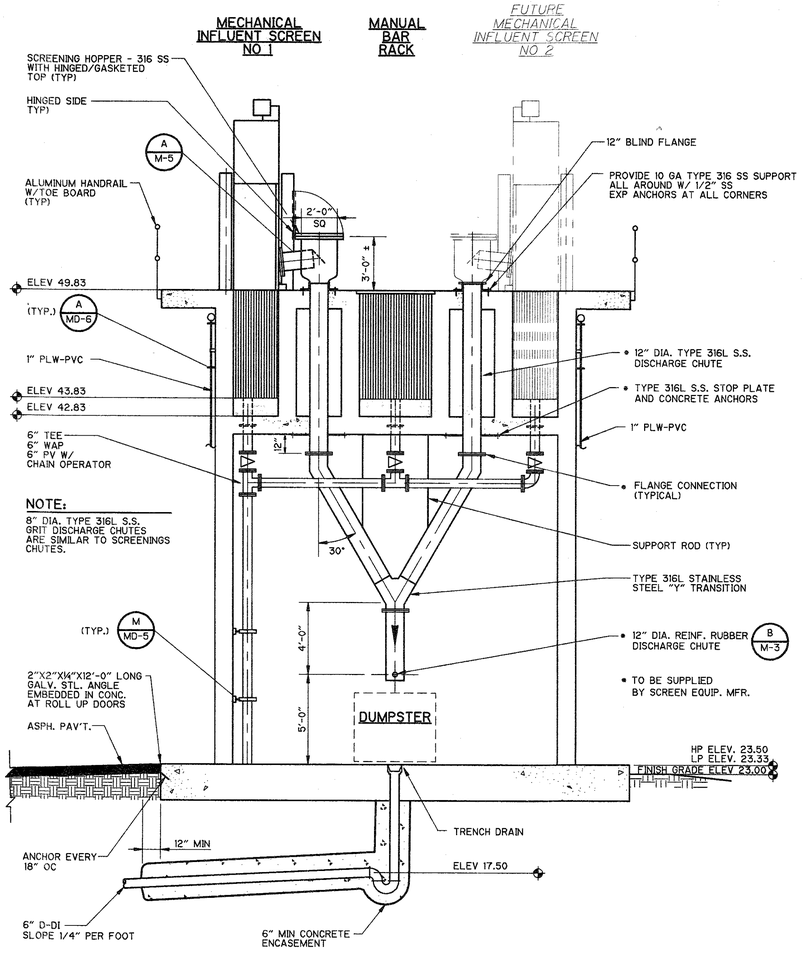
PROJECT NO. 6706_070
FILE NAME: MHDSC004

SHEET NO.
M-4

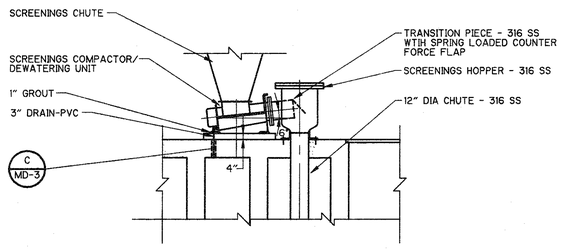
L:\6706_070\BID\MECH\ MHDSC004 05/16/97 14:01:47 11:59:49 Allyson L. Nunes



SECTION 3 (M-2,3)
1/4" = 1'-0"



SECTION 4 (M-2,3)
1/4" = 1'-0"



DETAIL A (M-5)
1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: A. NUNES
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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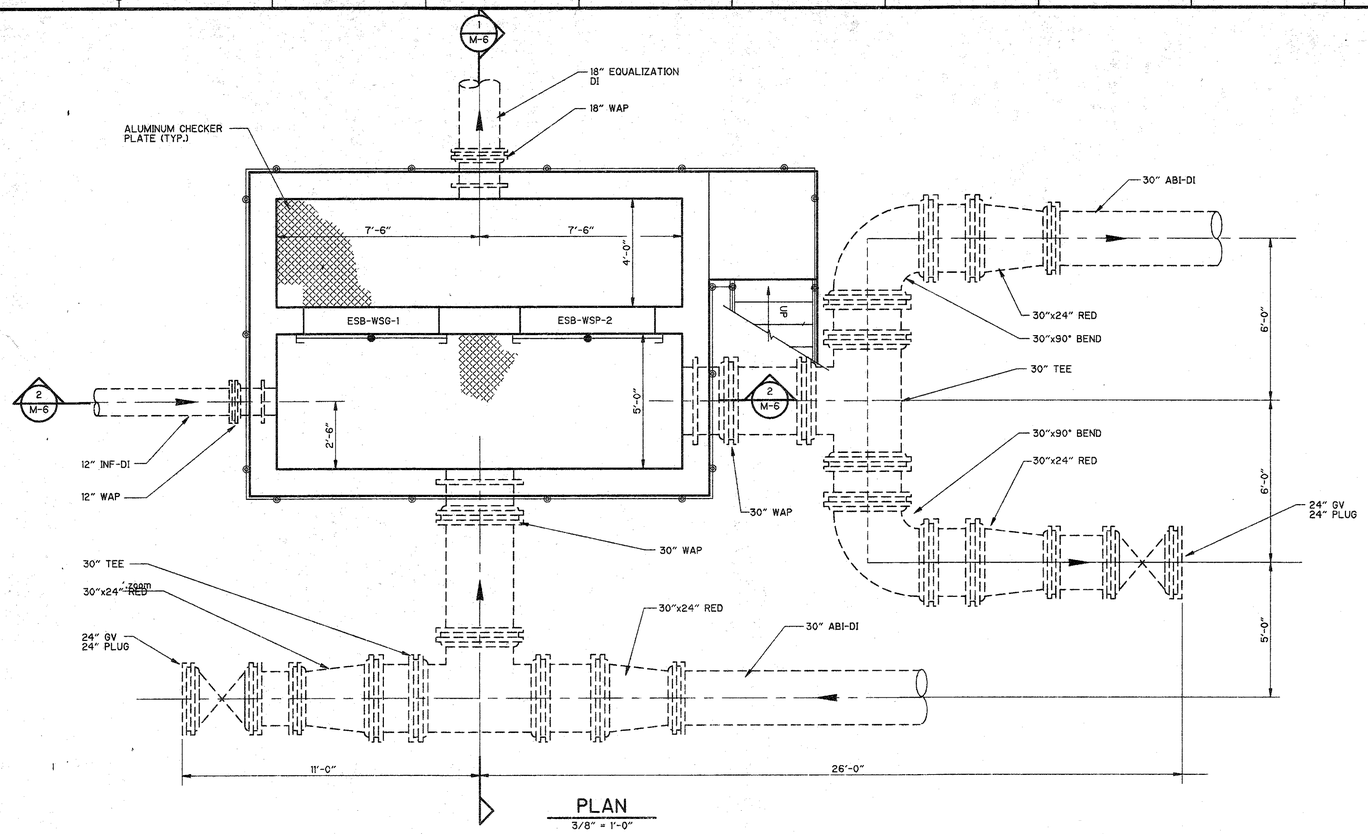
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS STRUCTURE - SECTIONS

PROJECT NO. 6706_070
FILE NAME: MHDSC005

SHEET NO.
M-5

L:\6706_070\BB\MECH\ MHDSC005 05/21/97 10:05:52 10:06:54 Allyson L. Nunes

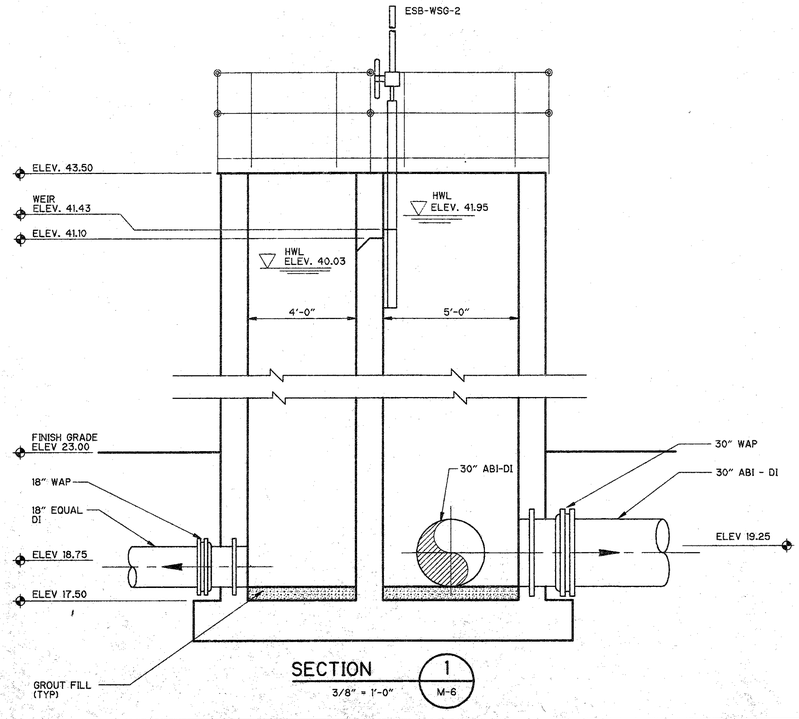


PLAN

3/8" = 1'-0"

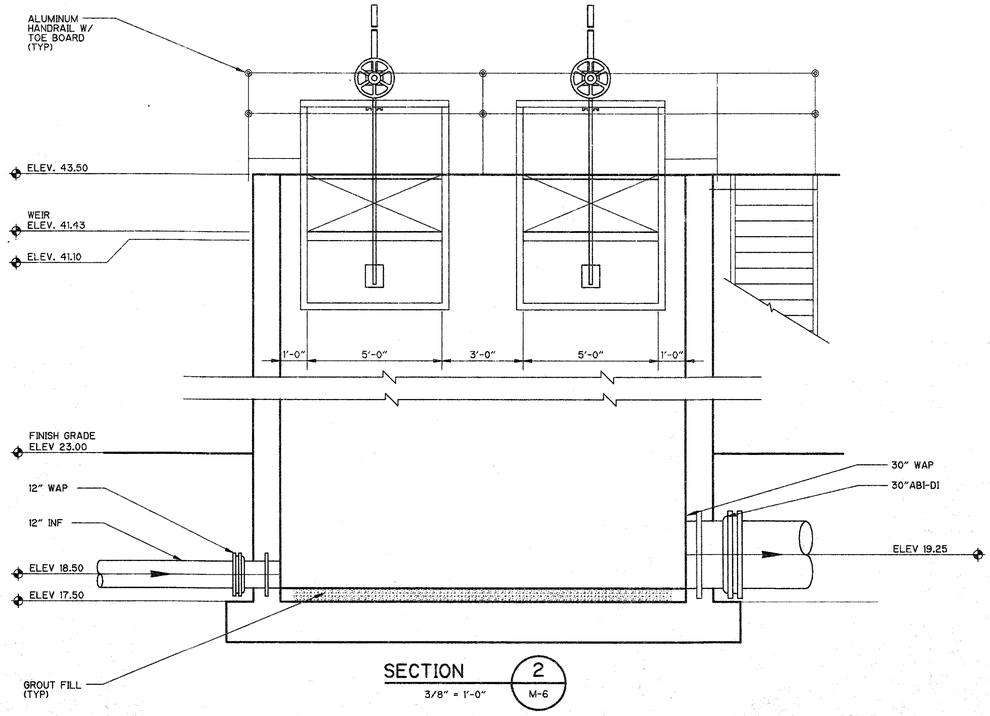
N

NOTE:
INSTALL A NEOPRENE GASKET BETWEEN ALUMINUM CHECKER PLATE AND CONCRETE SURFACES. ANCHOR CHECKER PLATE IN PLACE WITH 3/8" FLAT HEAD STAINLESS STEEL COUNTERSUNK BOLTS. TAP CHECKER PLATE SEAT.



SECTION 1 / M-6

3/8" = 1'-0"



SECTION 2 / M-6

3/8" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: M. BANDA
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

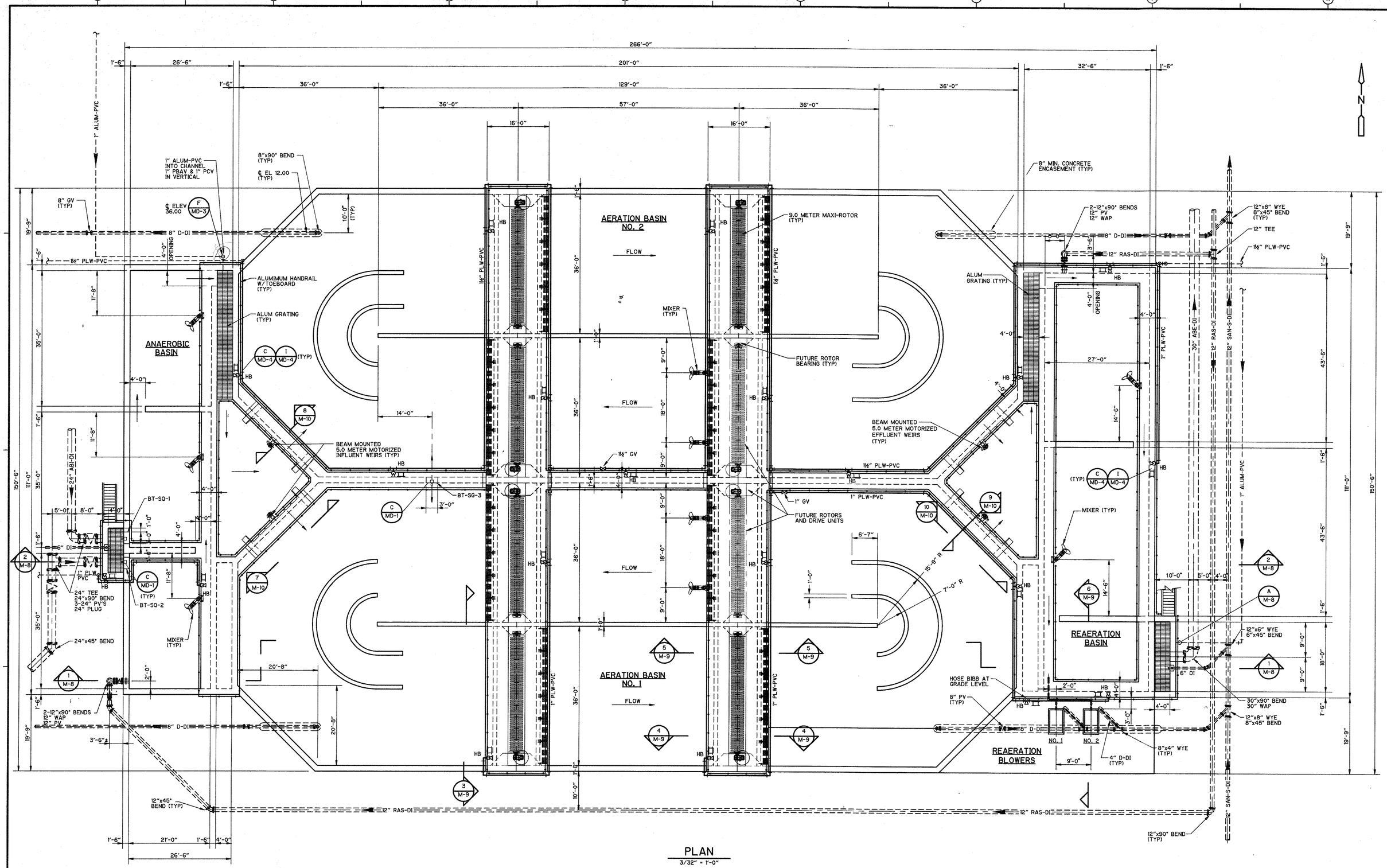
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

EQUALIZATION SPLITTER BOX -
PLAN AND SECTIONS

PROJECT NO. 6706_070
FILE NAME: MESBPM06

SHEET NO.
M-6

L:\6706_070\DGN\MECH\ MESBPM06 03/26/97 08:55:51 2:59:49 M. BANDA



PLAN

3/32" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: C. PEAY
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

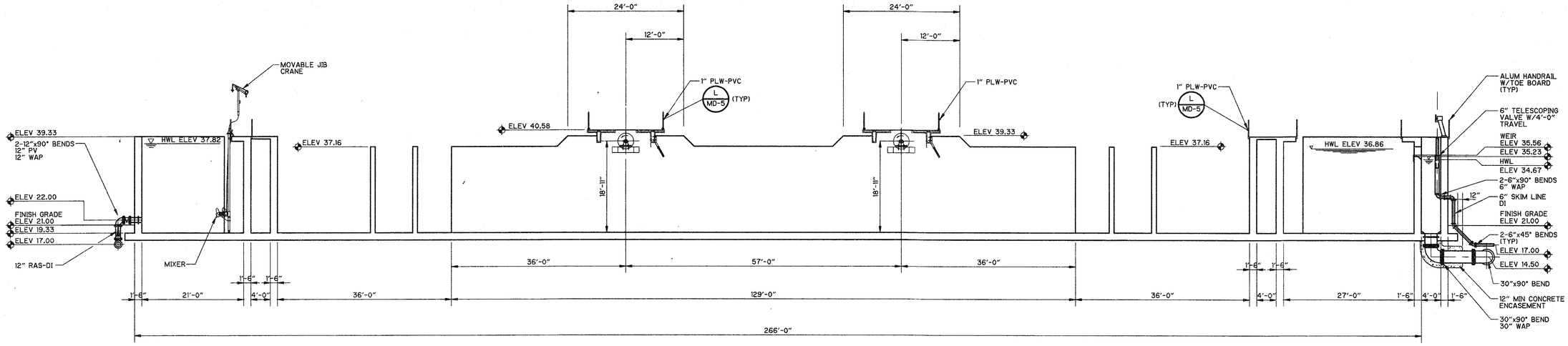
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT - PLAN

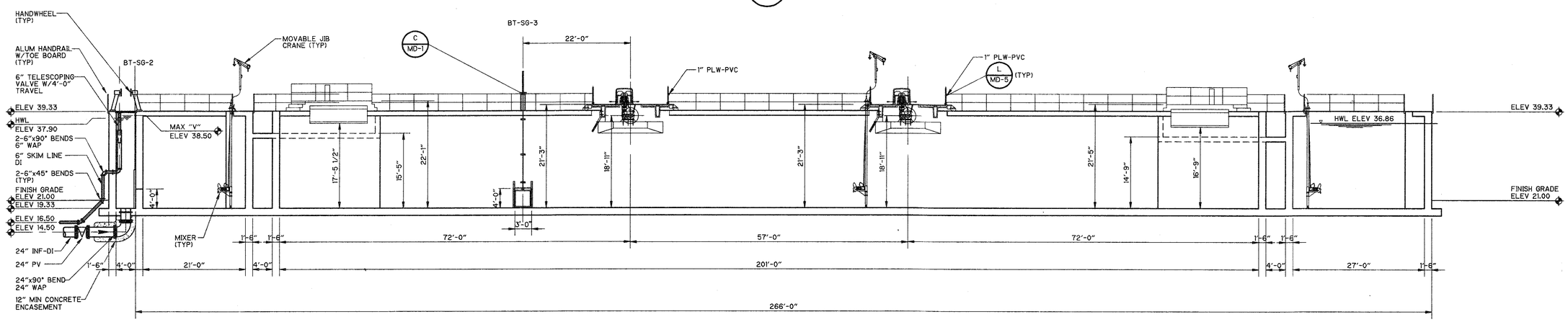
PROJECT NO. 6706_070
FILE NAME: MBTPLM07

SHEET NO.
M-7

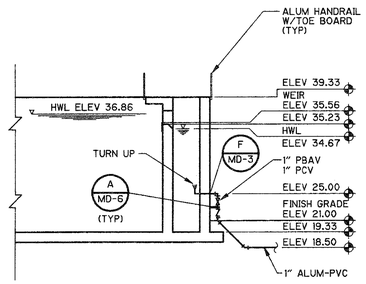
L:\6706_070\BD\MECH\MBTPLM07 05/12/97 12:26:15 22:40:38 M. BANDA



SECTION 1
3/32" = 1'-0"



SECTION 2
3/32" = 1'-0"



DETAIL A
3/32" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: C. PEAY
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

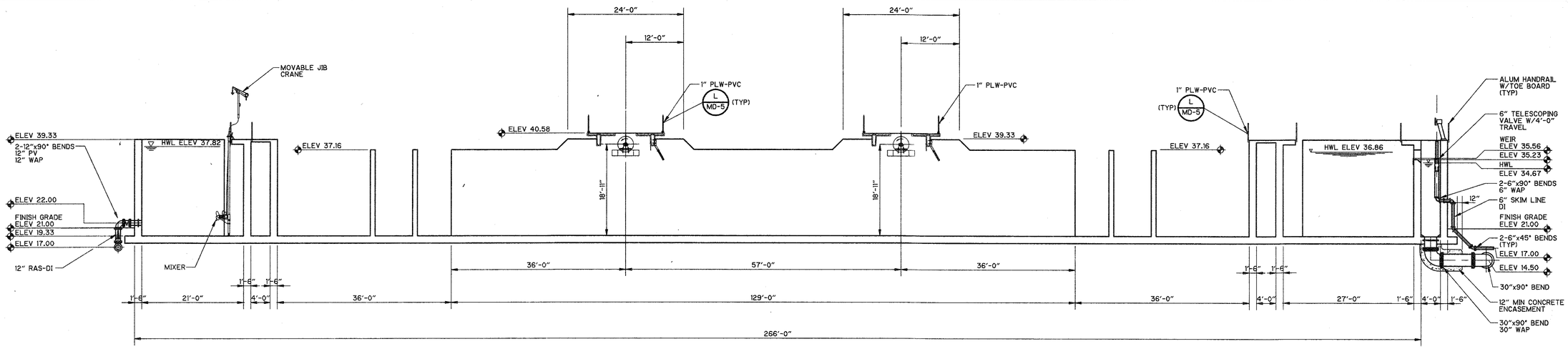
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT - SECTIONS

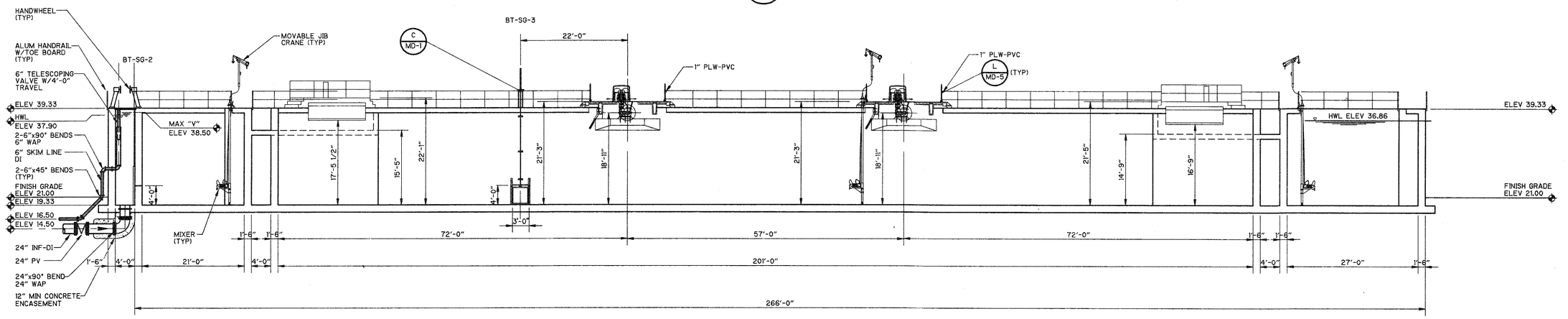
PROJECT NO. 6706_070
FILE NAME: MBTSCM08

SHEET NO.
M-8

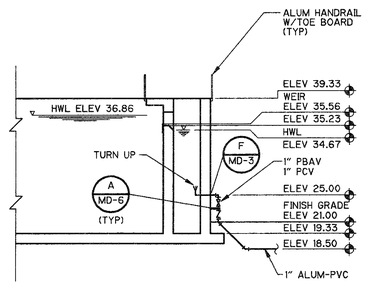
M. BANDA
11:37:31
05/02/97 09:16:36
MBTSCM08
L:\6706_070\BP\MECH\



SECTION 1 / M-7
3/32" = 1'-0"



SECTION 2 / M-7
3/32" = 1'-0"



DETAIL A / M-7
3/32" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: C. PEAY
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

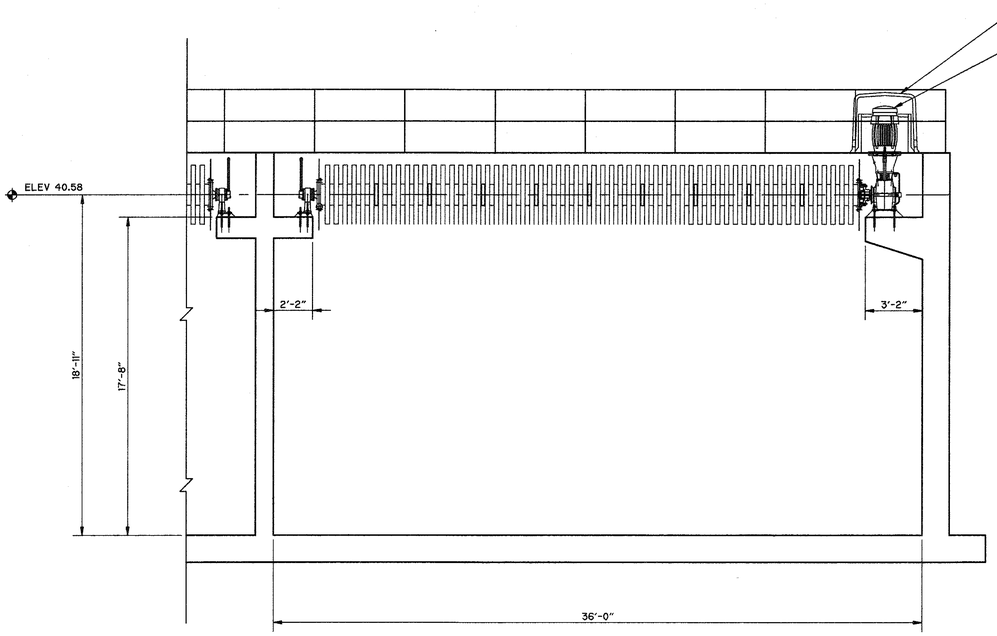
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT - SECTIONS

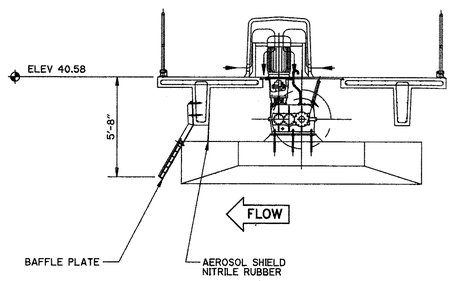
PROJECT NO. 6706_070
FILE NAME: MBTSCM08

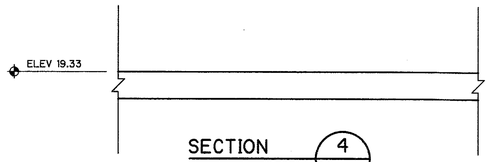
SHEET NO.
M-8

M. BANDA
L:\6706_070\BD\MECH\MBTSCM08 05/02/97 09:18:36
1:37:31

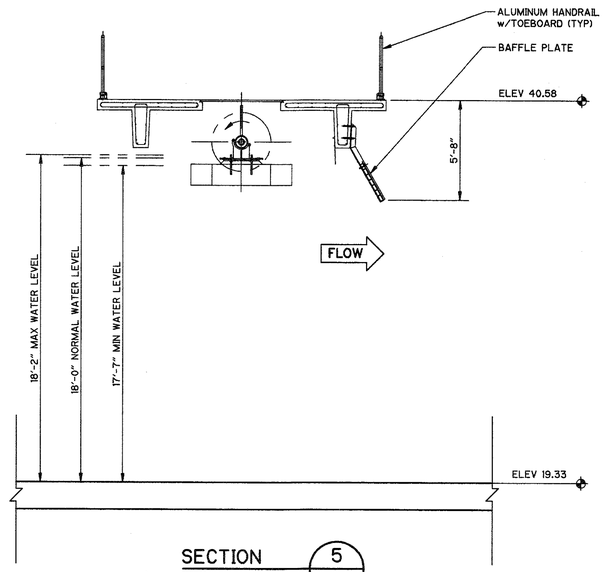


SECTION 3
1/4" = 1'-0"
M-7

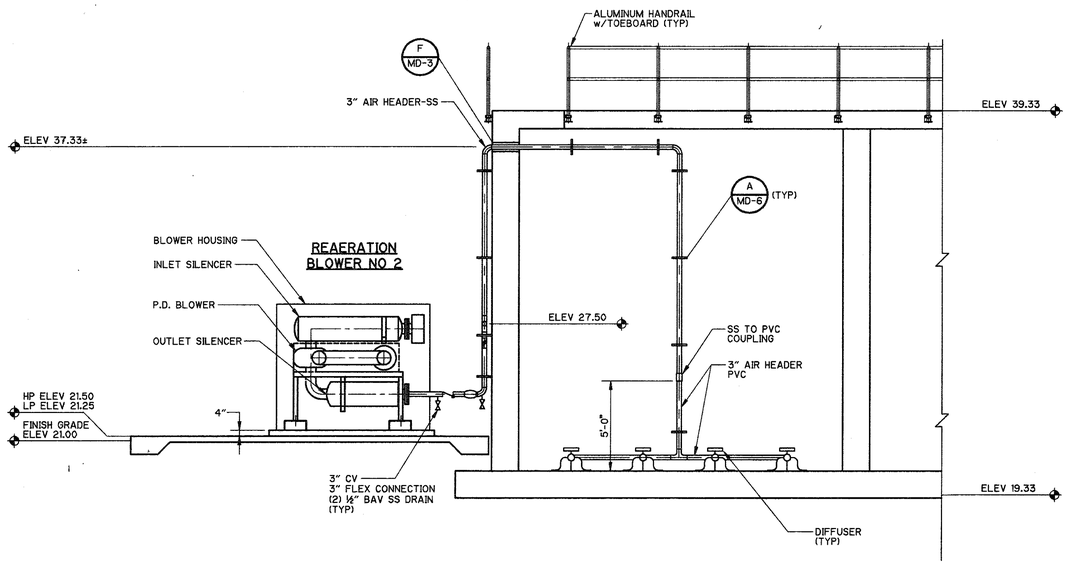




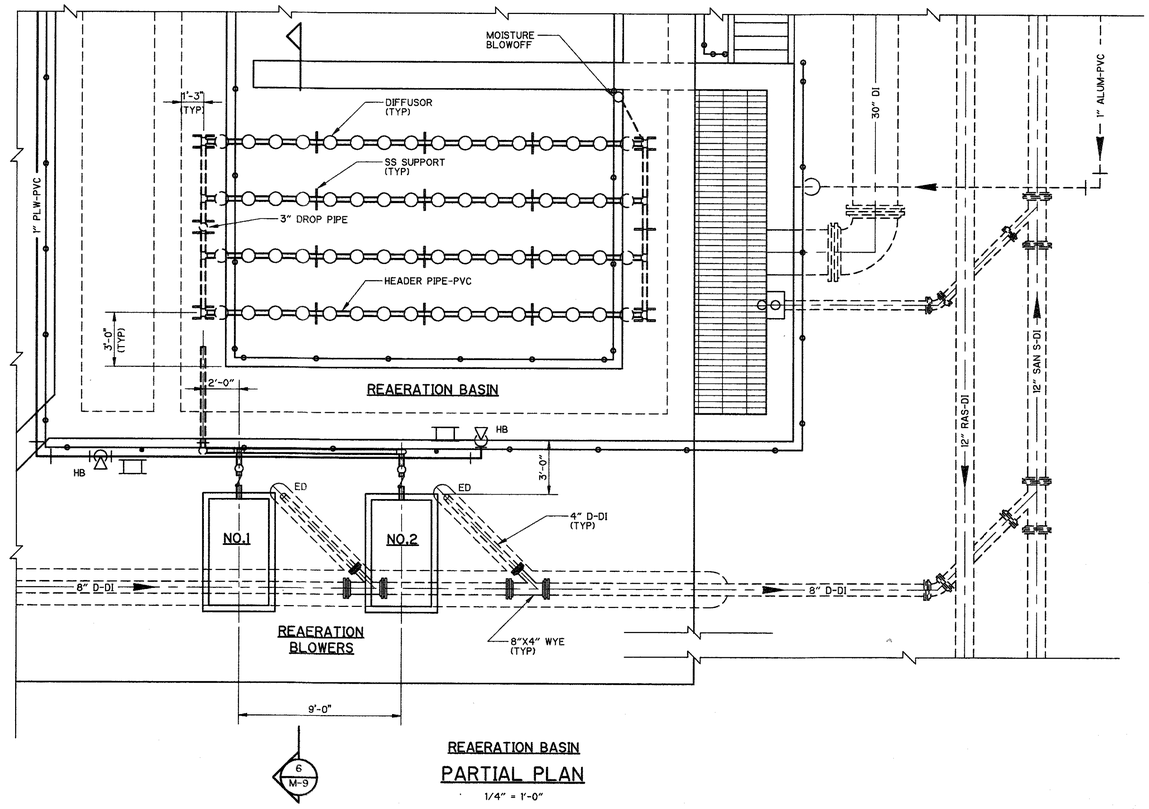
SECTION 4
1/4" = 1'-0"
M-7



SECTION 5
1/4" = 1'-0"
M-7



SECTION 6
1/4" = 1'-0"
M-7.9



6
M-9

REAERATION BASIN
PARTIAL PLAN
1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: C. PEAY
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental
services
offices worldwide

INDIAN RIVER COUNTY
FLORIDA

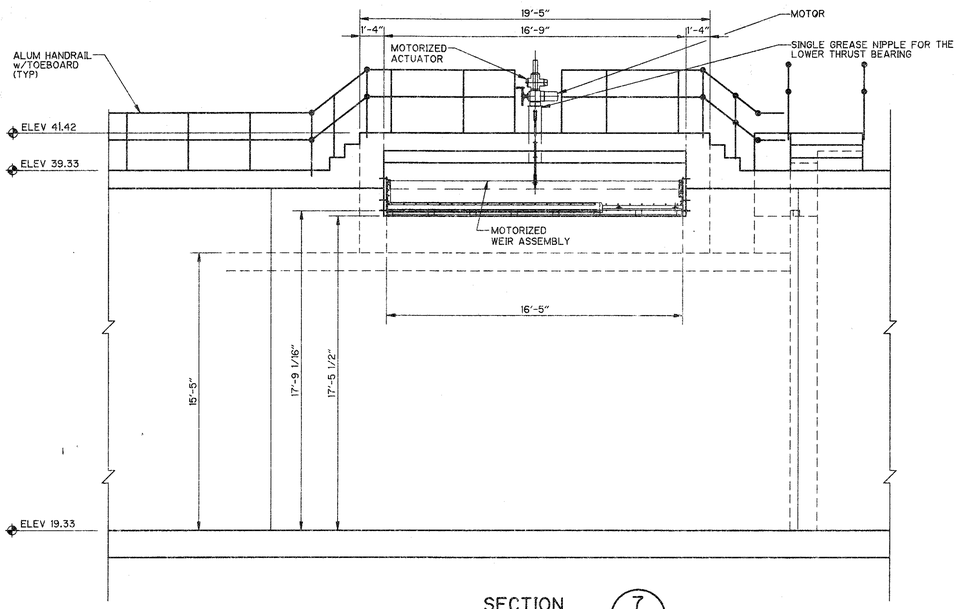
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT - SECTIONS

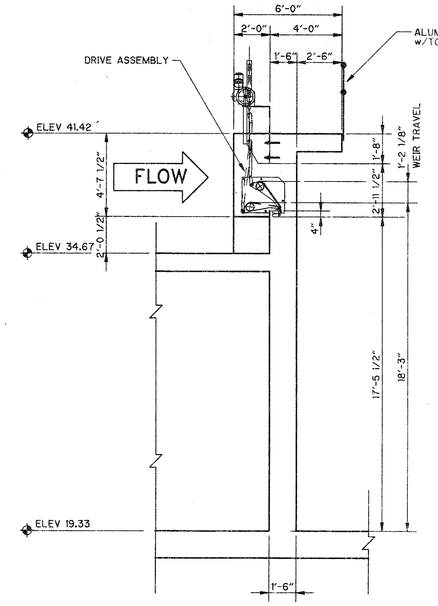
PROJECT NO. 6706_070
FILE NAME: MBLTMSM9

SHEET NO.
M-9

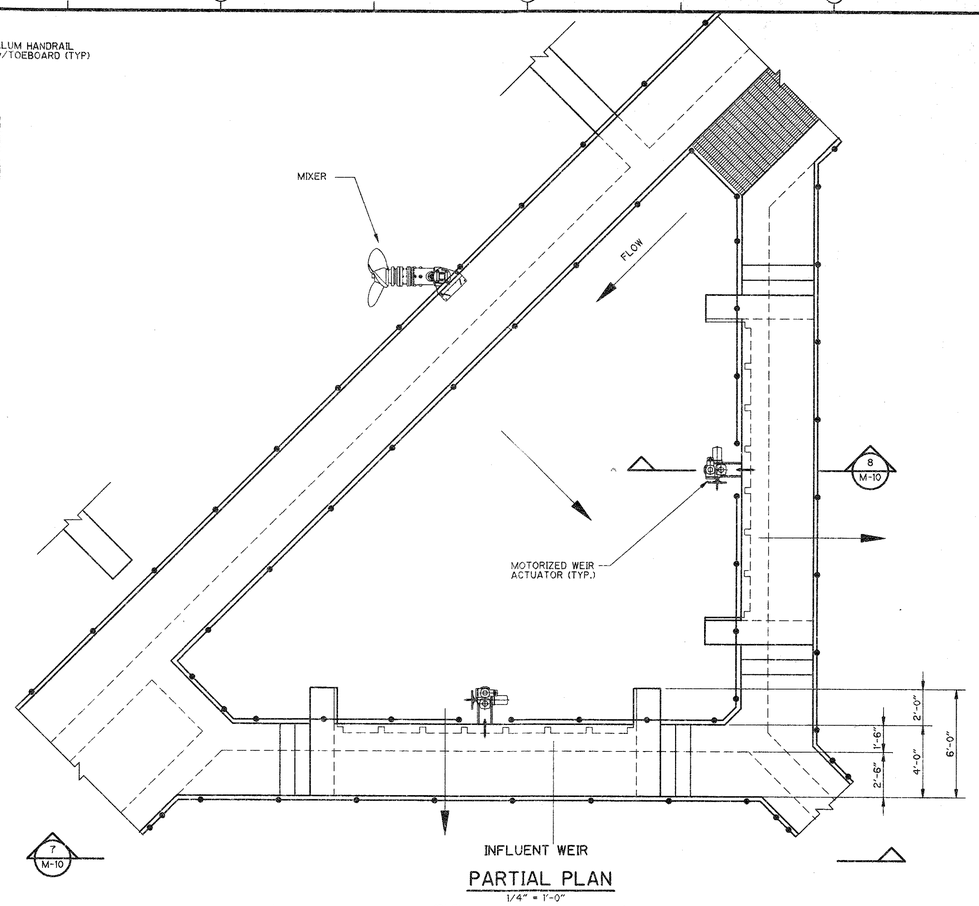
M. BANDA
L\6706_070\BID\MECH\
MBLTMSM9
05/12/97 11:37:38
L:58:38



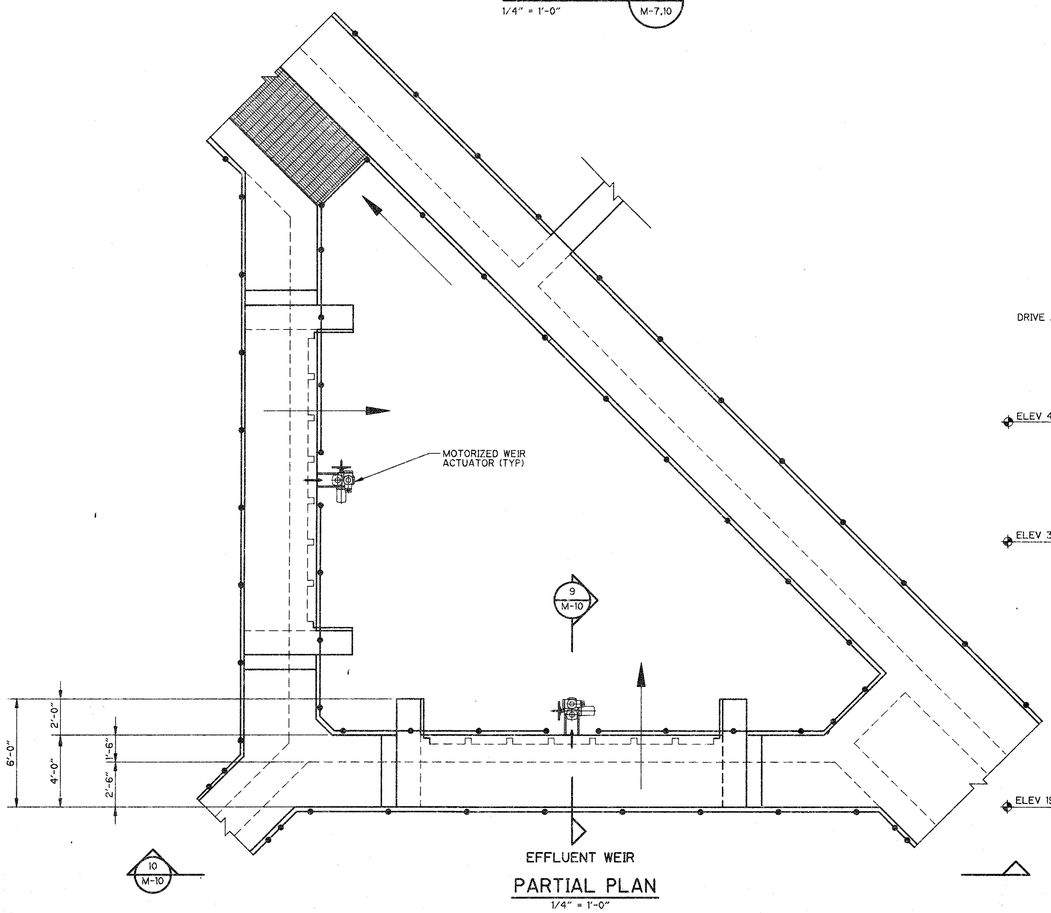
SECTION 7
1/4" = 1'-0"
M-7.10



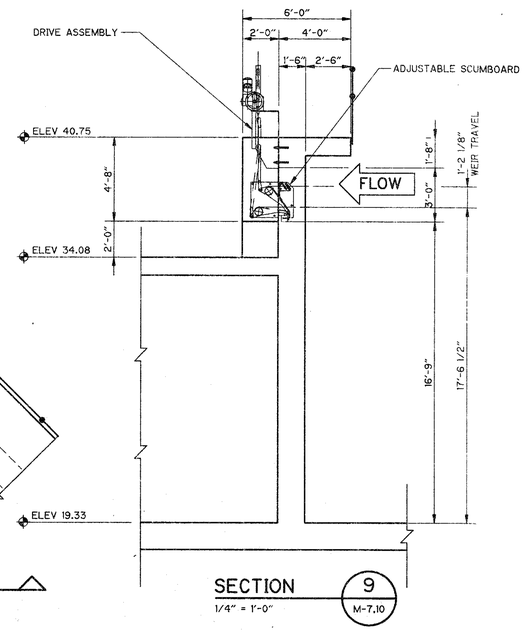
SECTION 8
1/4" = 1'-0"
M-7.10



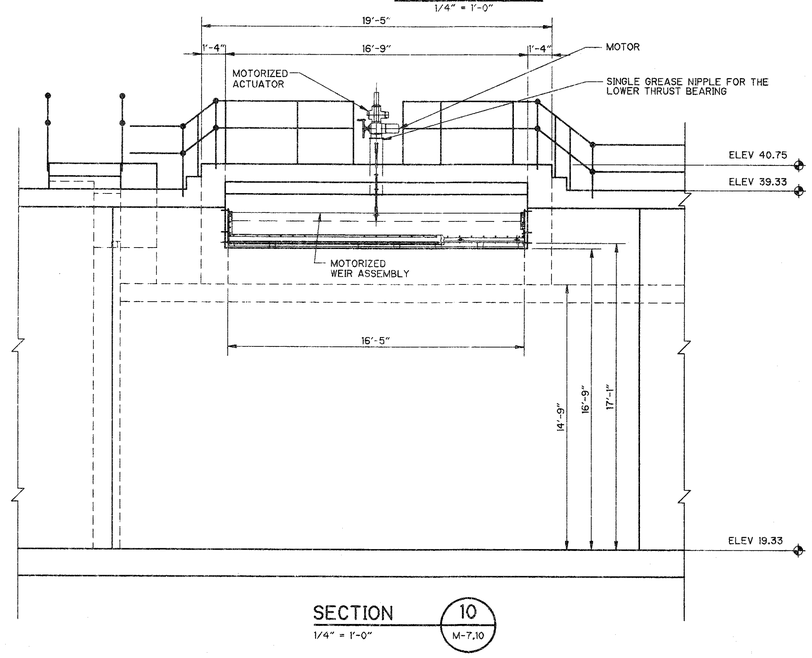
PARTIAL PLAN
1/4" = 1'-0"



PARTIAL PLAN
1/4" = 1'-0"



SECTION 9
1/4" = 1'-0"
M-7.10



SECTION 10
1/4" = 1'-0"
M-7.10

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: C. PEAY
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

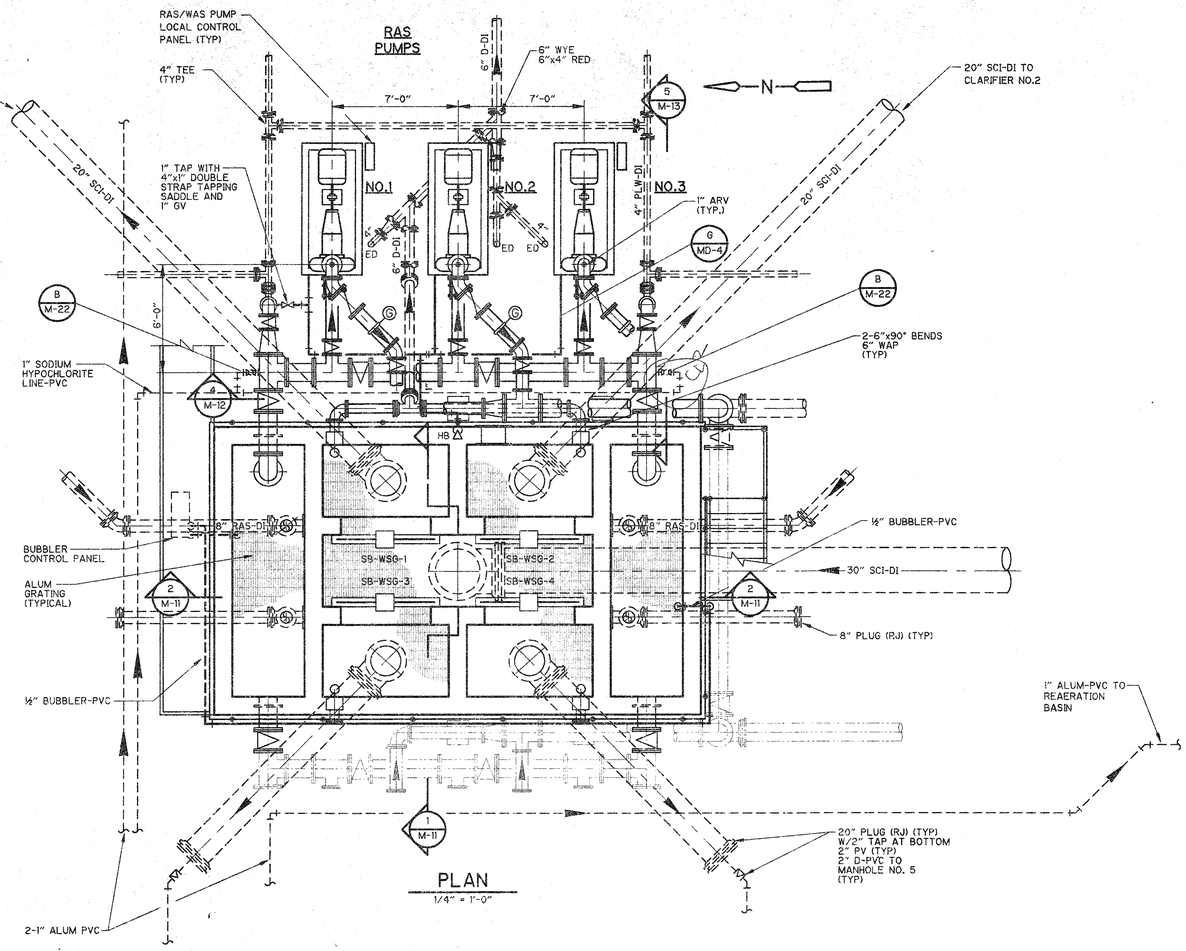
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

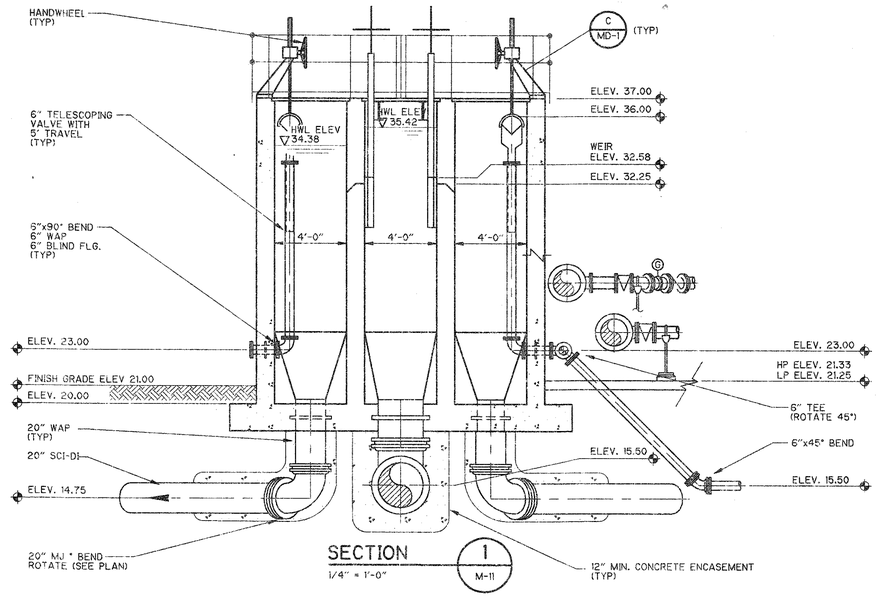
BIOLOGICAL TREATMENT - PLANS AND SECTIONS

PROJECT NO. 6706_070
FILE NAME: MBLTDM10

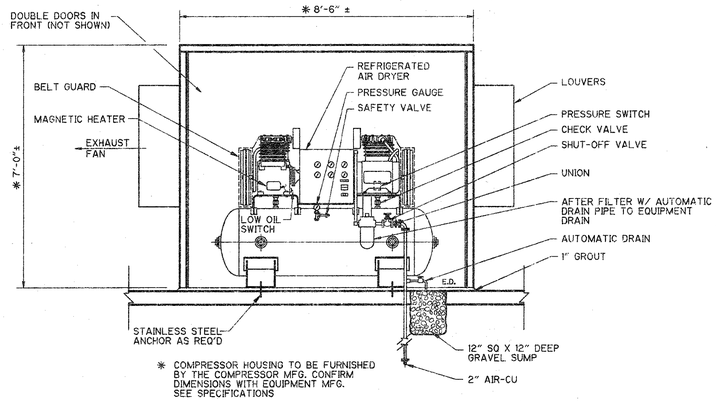
SHEET NO.
M-10

M. BANDA
23:46:04
04/22/97 09:34:49
MBLTDM10
L:\6706_070\BD\MECH\

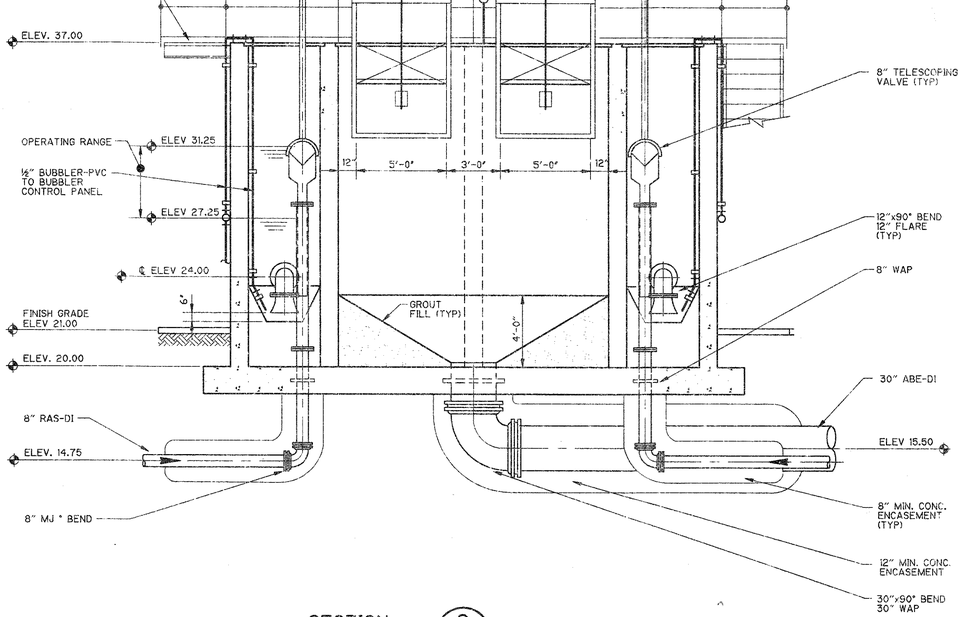




SECTION 1 / M-11
1/4" = 1'-0"



DETAIL A / M-12
NTS



SECTION 2 / M-11
1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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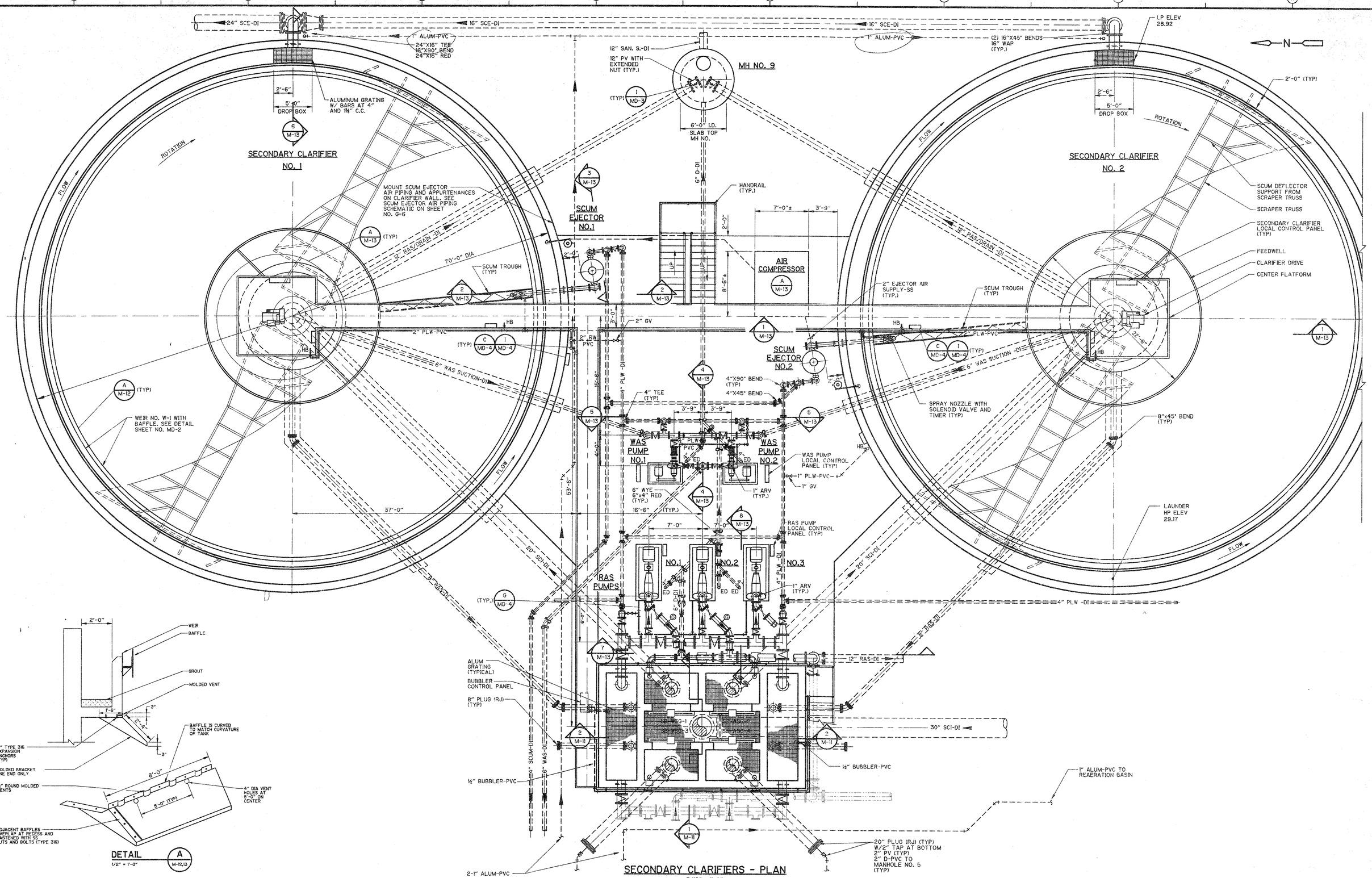
INDIAN RIVER COUNTY
FLORIDA
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

SPLITTER BOX / SLUDGE WELL - PLAN AND SECTIONS

PROJECT NO. 6706_070
FILE NAME: MSBPLM11

SHEET NO.
M-11

M. BANDA 13:51:43 05/05/97 09:08:46 MSBPLM11 L:\6706_070\BZ\MECH\



DETAIL A (M-12,13)
1/2" = 1'-0"

SECONDARY CLARIFIERS - PLAN
3/16" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

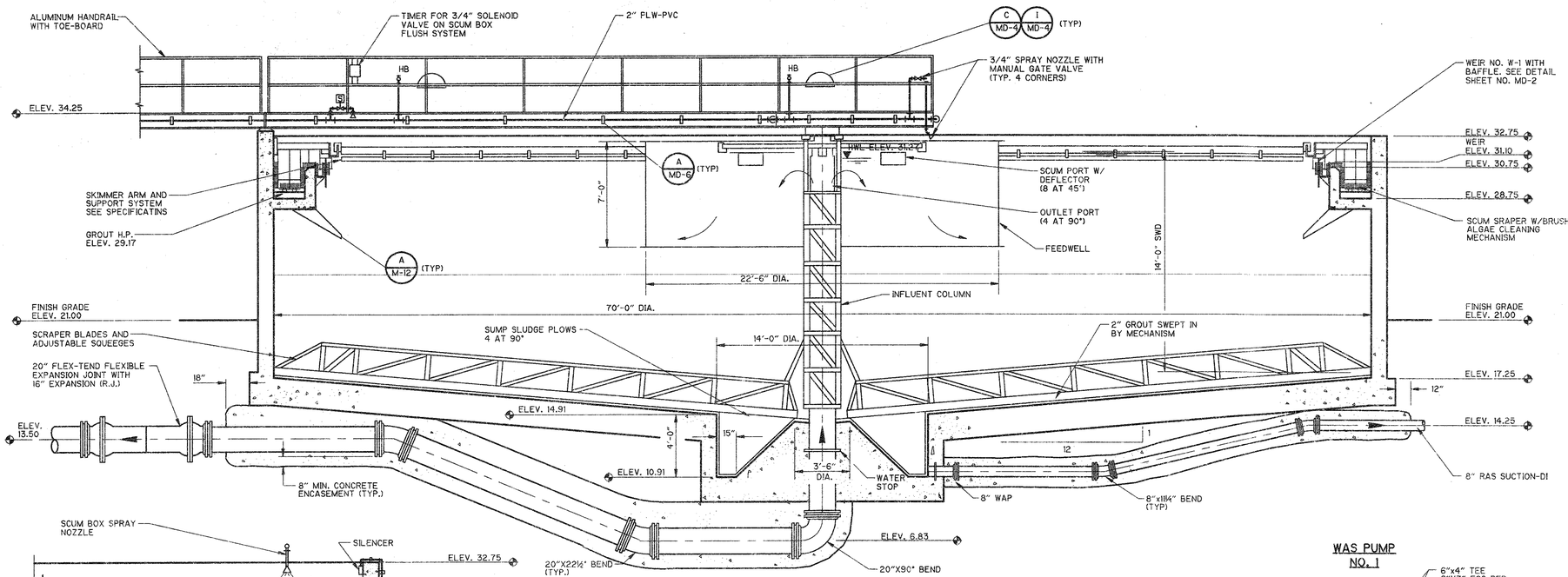
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

SECONDARY CLARIFIERS - PLAN

PROJECT NO. 6706_070
FILE NAME: MSCPLM12

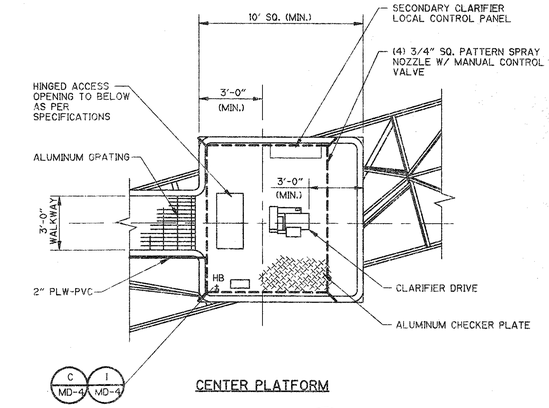
SHEET NO.
M-12

L:\6706_070\BD\MECH\ MSCPLM12 05/01/97 09:04:41 7:33:43 ANDREW ROONEY



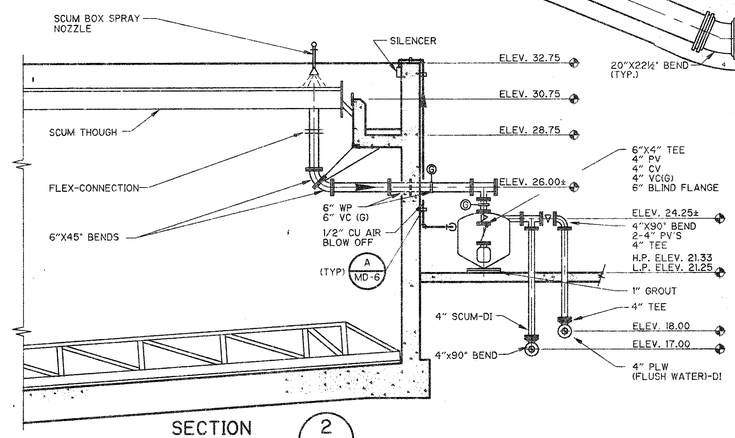
SECTIONAL ELEVATION 1 M-12

1/4" = 1'-0"



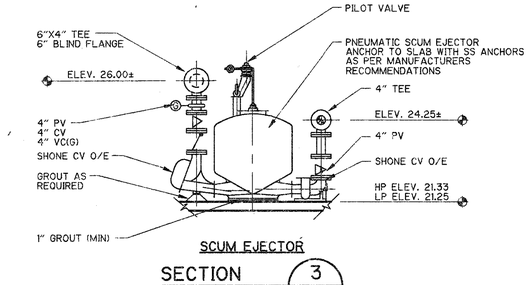
CENTER PLATFORM DETAIL A M-12

1/4" = 1'-0"



SECTION 2 M-12

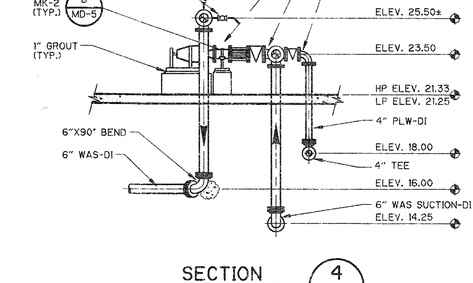
1/4" = 1'-0"



SCUM EJECTOR

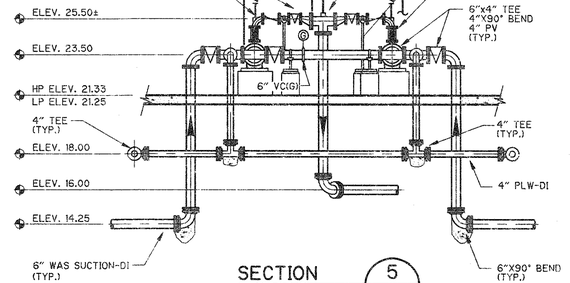
SECTION 3 M-12

3/8" = 1'-0"



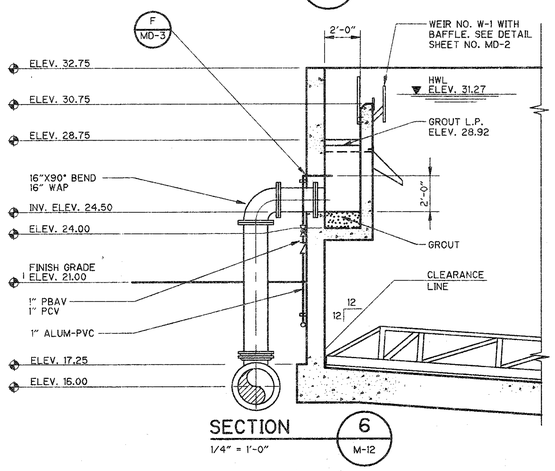
SECTION 4 M-12

1/4" = 1'-0"



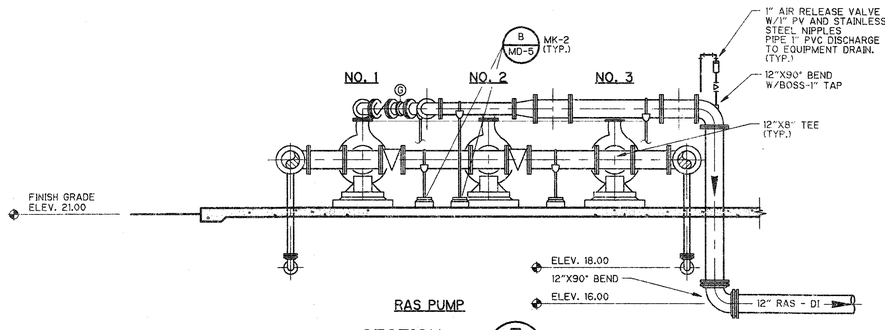
SECTION 5 M-12

1/4" = 1'-0"



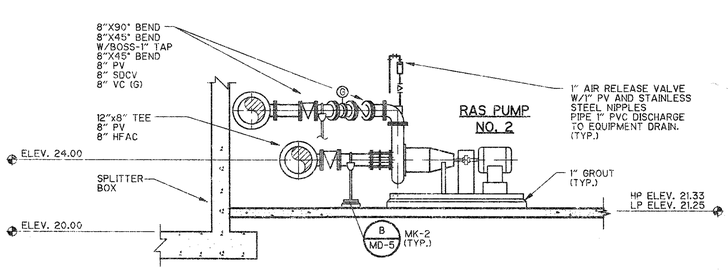
SECTION 6 M-12

1/4" = 1'-0"



SECTION 7 M-12

1/4" = 1'-0"



SECTION 8 M-12

1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

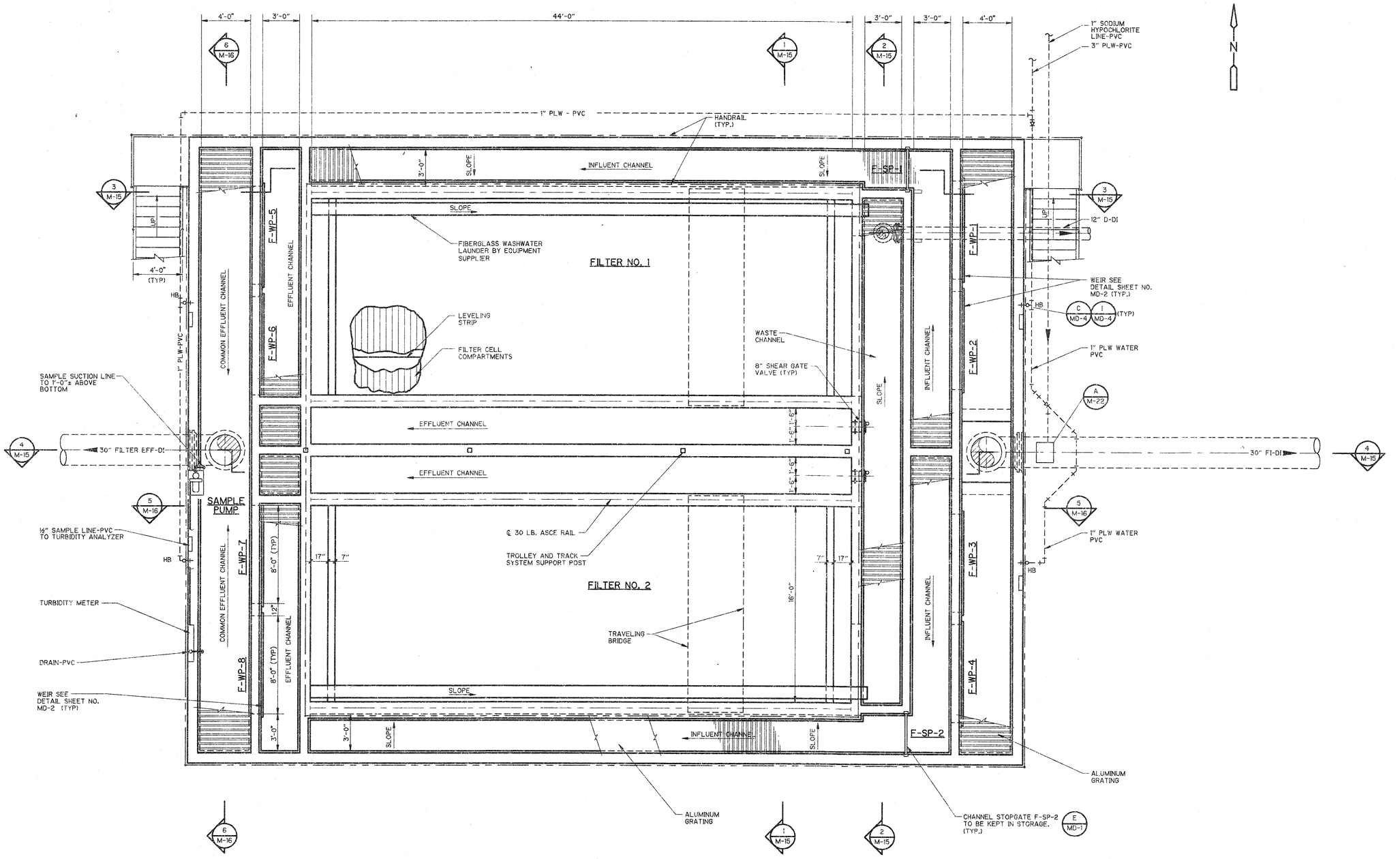
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

SECONDARY CLARIFIER - DETAILS AND SECTIONS

PROJECT NO. 6706_070
FILE NAME: MSCSCM13

SHEET NO.
M-13

LN:6706_070\SD\MSCSCM13 05/01/97 12:18:03 M. BANDA 22:36:10



NOTE:

ALL STAINLESS STEEL COMPONENTS SHALL BE TYPE 316 ABOVE WATER LEVELS AND TYPE 304 BELOW WATER LEVELS (SUBMERGED).

A.B.W. GRAVITY FILTERS-PLAN

1/4"=1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

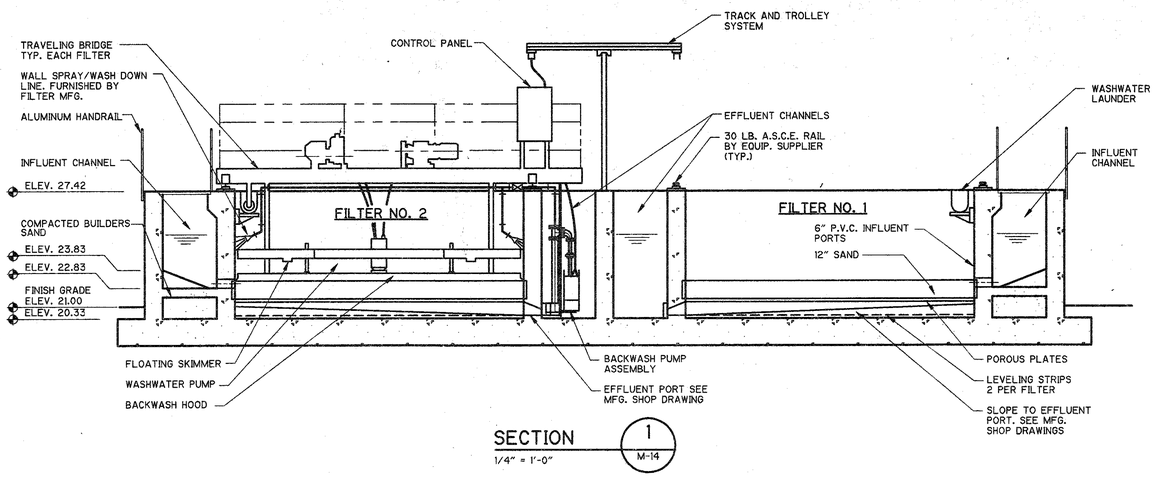
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

A.B.W. GRAVITY FILTERS - PLAN

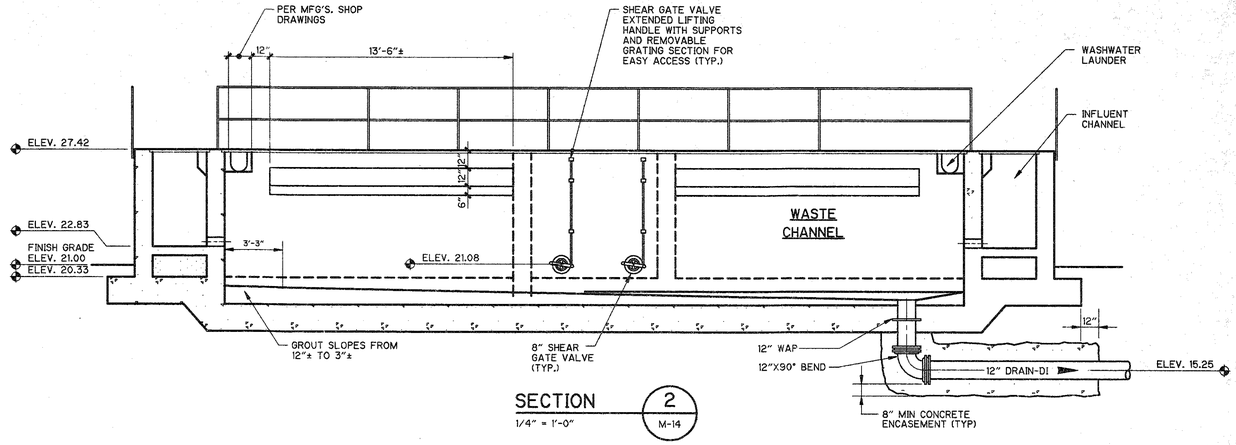
PROJECT NO. 6706_070
FILE NAME: MAFPLM14

SHEET NO.
M-14

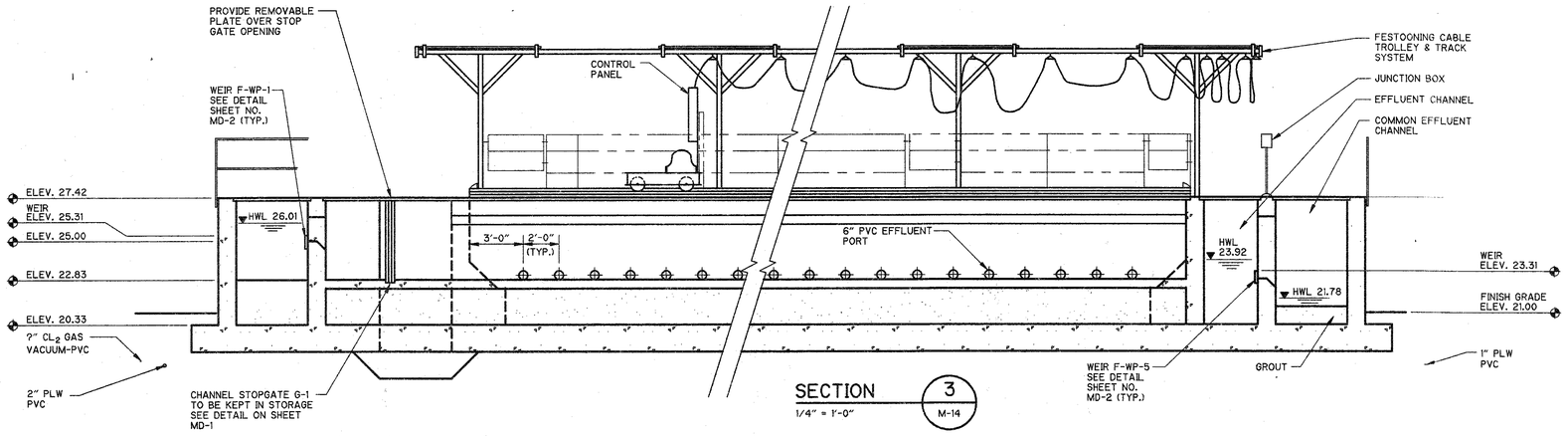
L:\6706_070\BD\MEGA\MAFPLM14 04/28/97 23:17:24 4.50.38 Charles Peay



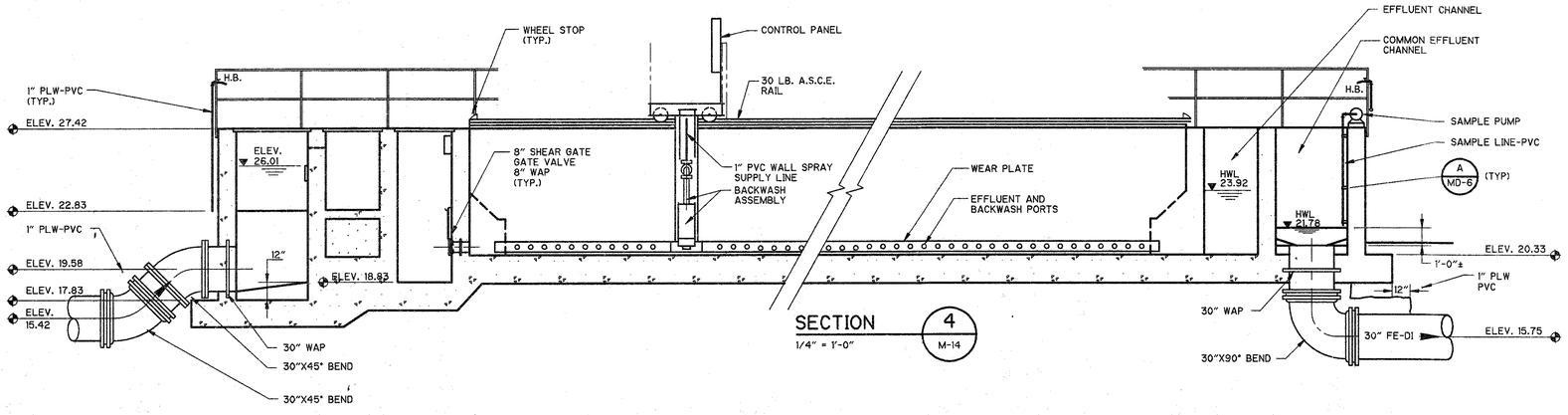
SECTION 1 — M-14
1/4" = 1'-0"



SECTION 2 — M-14
1/4" = 1'-0"



SECTION 3 — M-14
1/4" = 1'-0"



SECTION 4 — M-14
1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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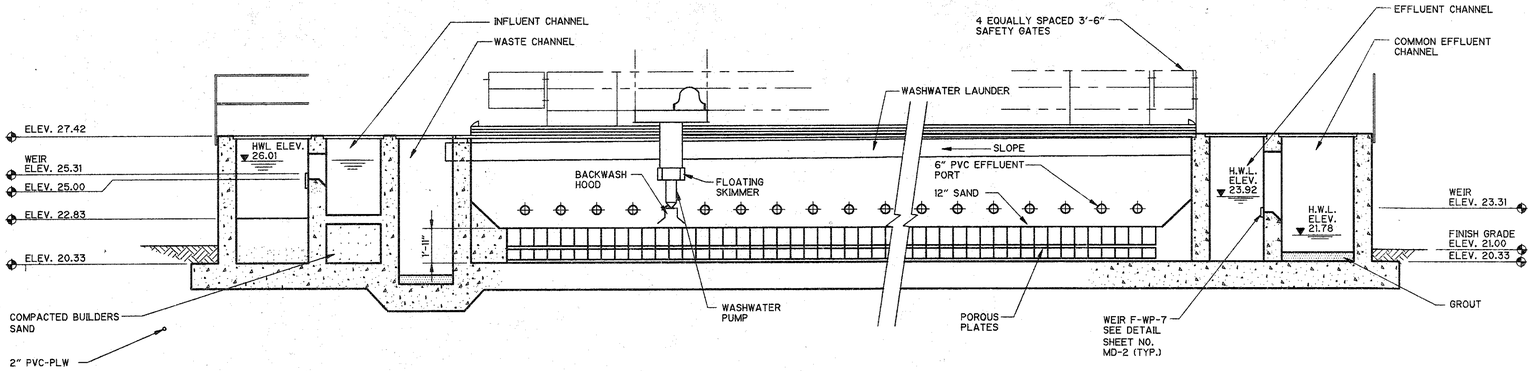
INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

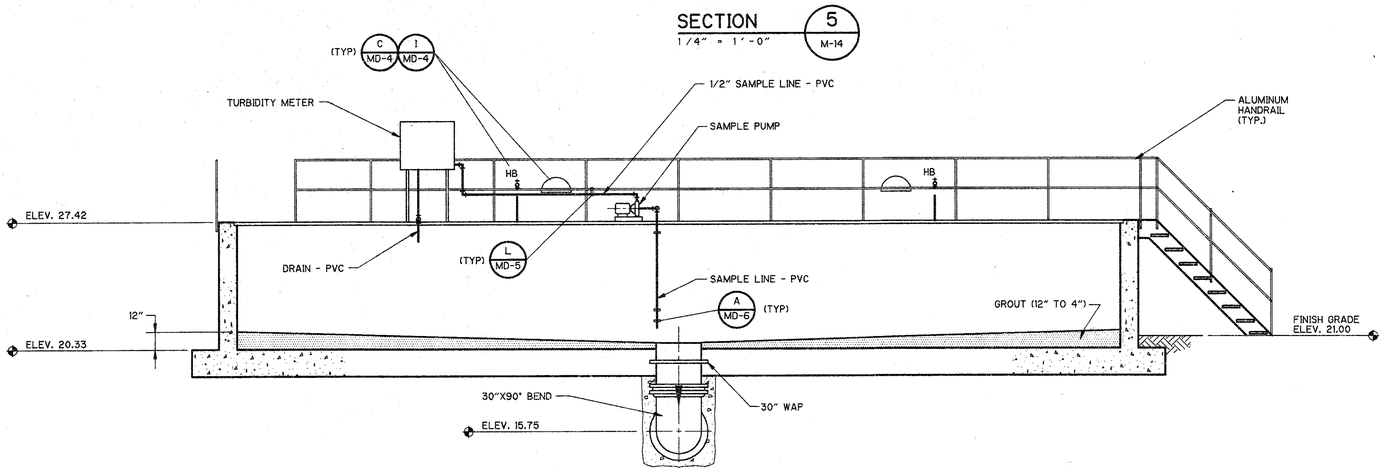
A.B.W. GRAVITY FILTERS - SECTIONS

PROJECT NO. 6706_070
FILE NAME: MAFSCM15

SHEET NO.
M-15



SECTION 5
1/4" = 1'-0" M-14



SECTION 6
1/4" = 1'-0" M-14

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
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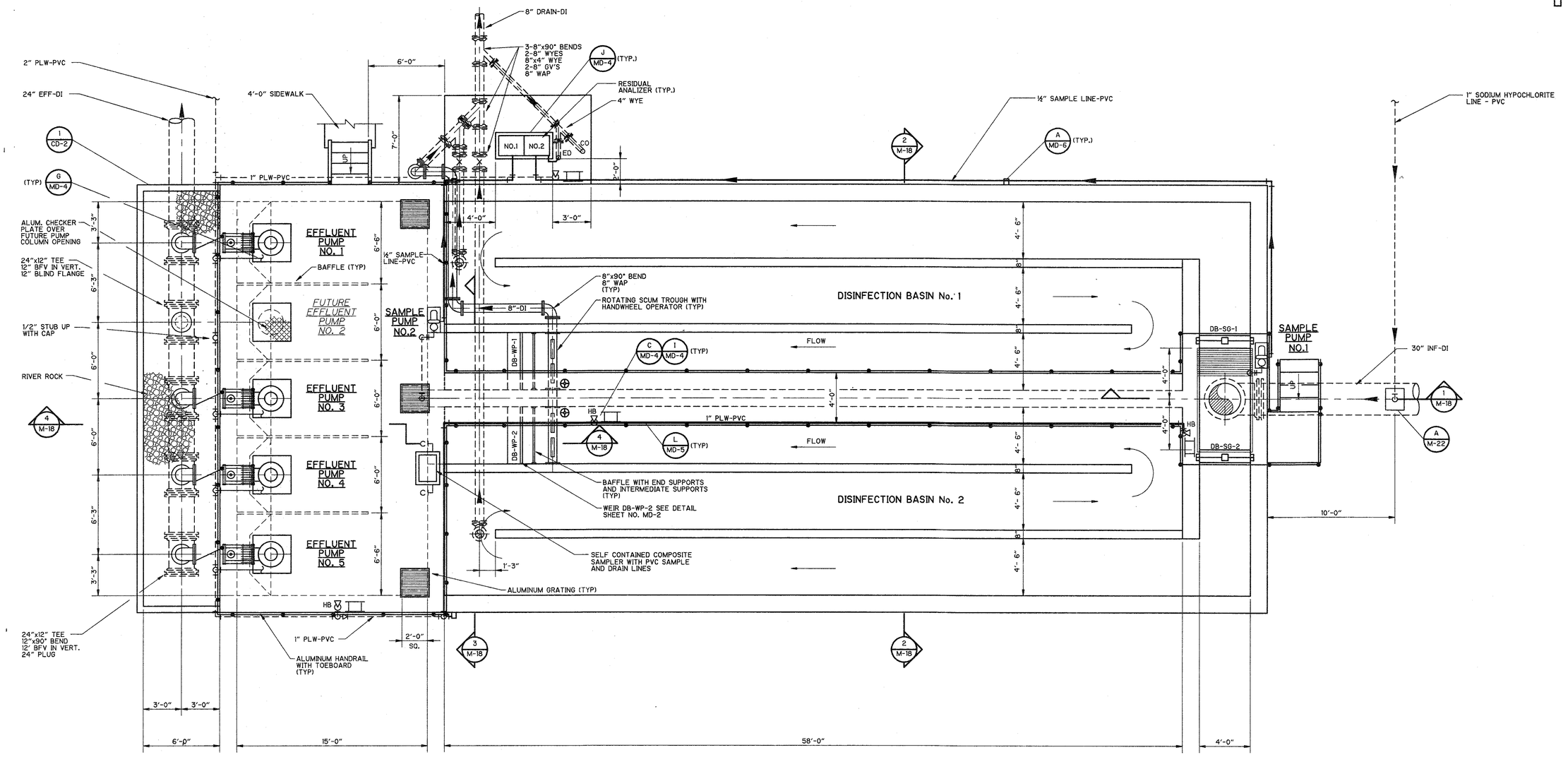
INDIAN RIVER COUNTY
FLORIDA
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

A.B.W. GRAVITY FILTERS-SECTIONS

PROJECT NO. 6706_070
FILE NAME: MAFSCM16

SHEET NO.
M-16

L:\6706_070\000\MECH\ MAFSCM16 03/26/97 11:46:08 5.00.55 M. BANDA



DISINFECTION BASIN

PLAN

1/4"= 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: B. WILLIAMS
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental engineering offices worldwide

INDIAN RIVER COUNTY
FLORIDA

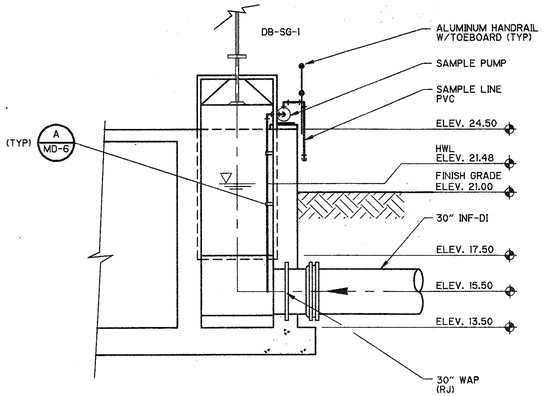
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

DISINFECTION BASIN PLAN

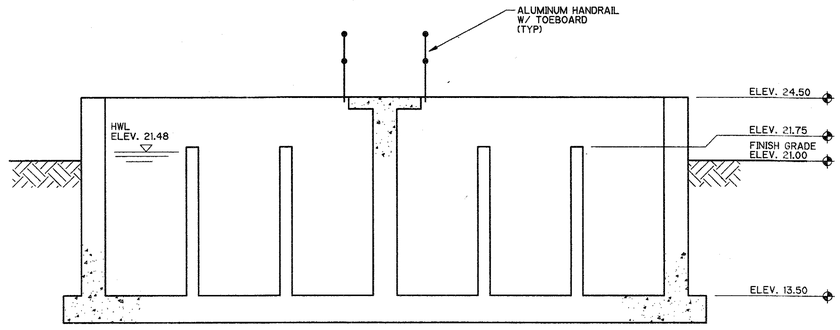
PROJECT NO. 6706_070
FILE NAME: MDBPL017

SHEET NO.
M-17

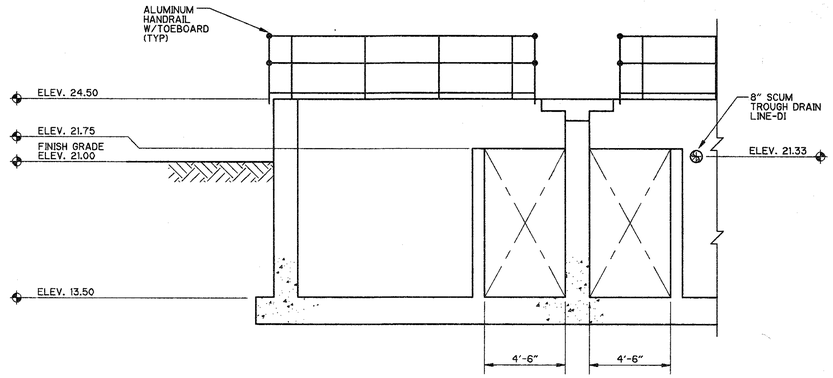
L:\6706_070\BID\MECH\ MDBPLM17 05/23/97 09:23:50 12:20:58 Allyson L. Nunes



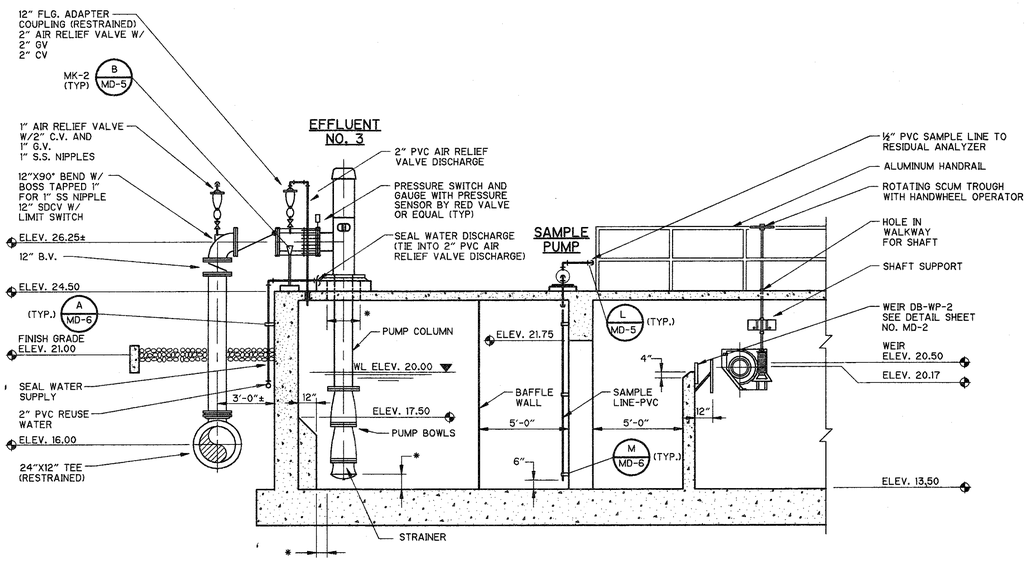
SECTION 1
1/4"= 1'- 0" M-17



SECTION 2
1/4"= 1'- 0" M-17



SECTION 3
1/4"= 1'- 0" M-17



SECTION 4
1/4" = 1'-0" M-17

* DIMENSIONS TO BE CONFIRMED BY PUMP MANUFACTURER

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: B. WILLIAMS
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

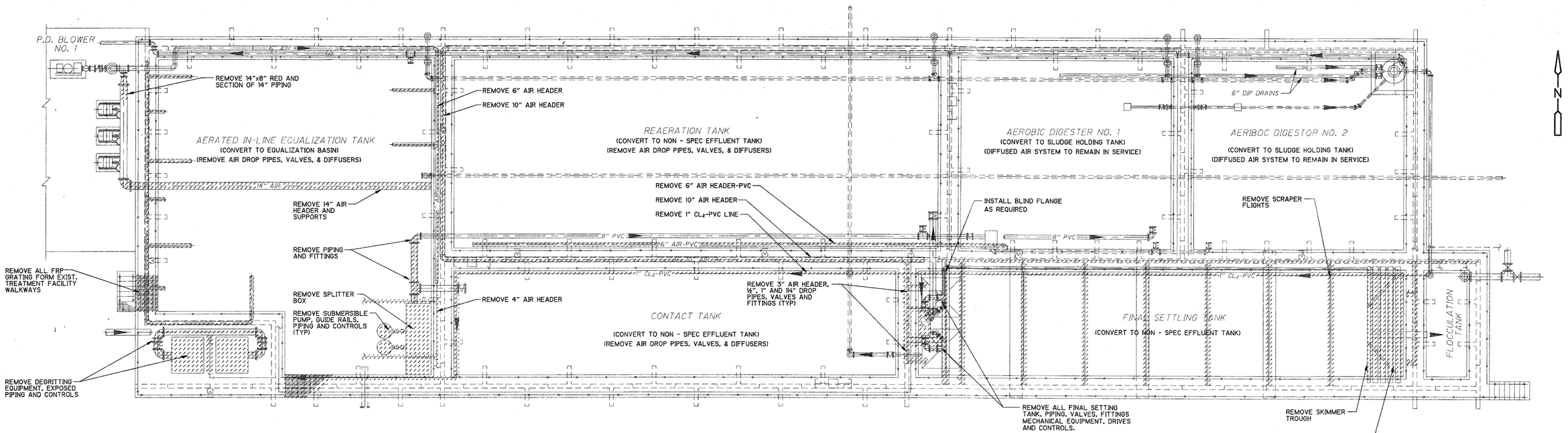
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

DISINFECTION BASIN SECTIONS

PROJECT NO. 6706_070
FILE NAME: MDBSCM18

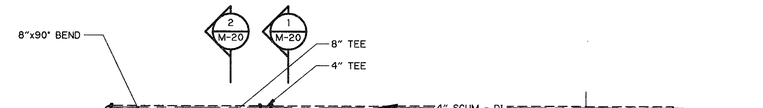
SHEET NO.
M-18

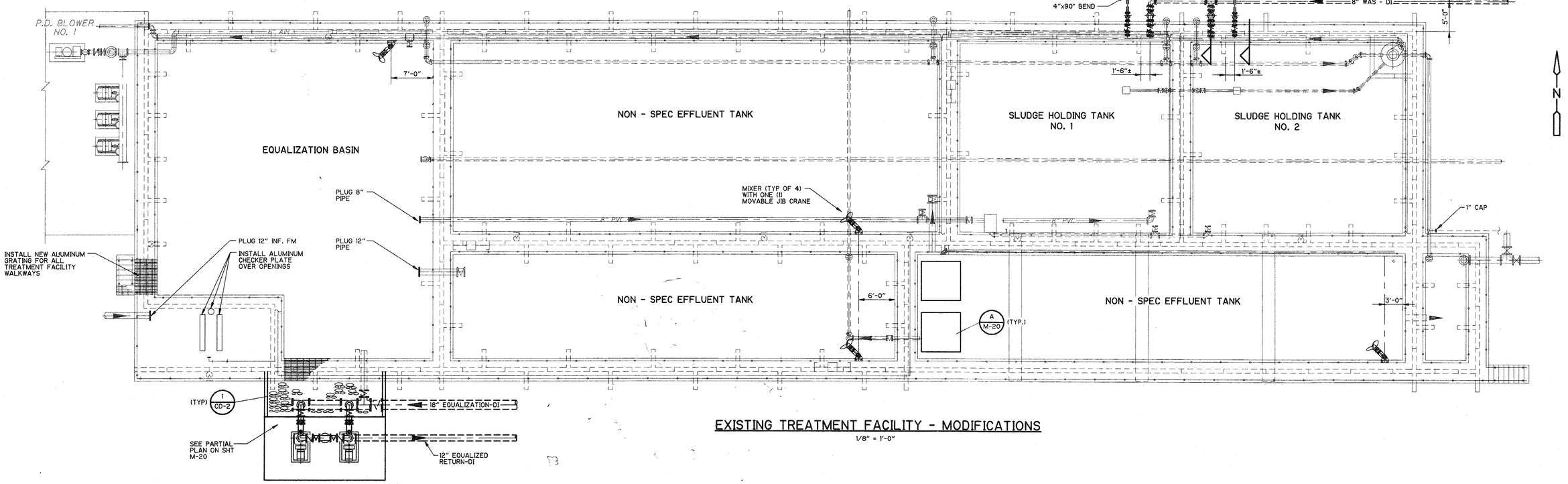
L:\6706_070\BD\MEDIA\ MDBSCM18 05/23/97 09:36:12 7:44:03 Allyson L. Nunes



EXISTING TREATMENT FACILITY -DEMOLITION PLAN

1/8" = 1'-0"





EXISTING TREATMENT FACILITY - MODIFICATIONS

1/8" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: A. NUNES
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: E. GROTKE
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
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INDIAN RIVER COUNTY
FLORIDA

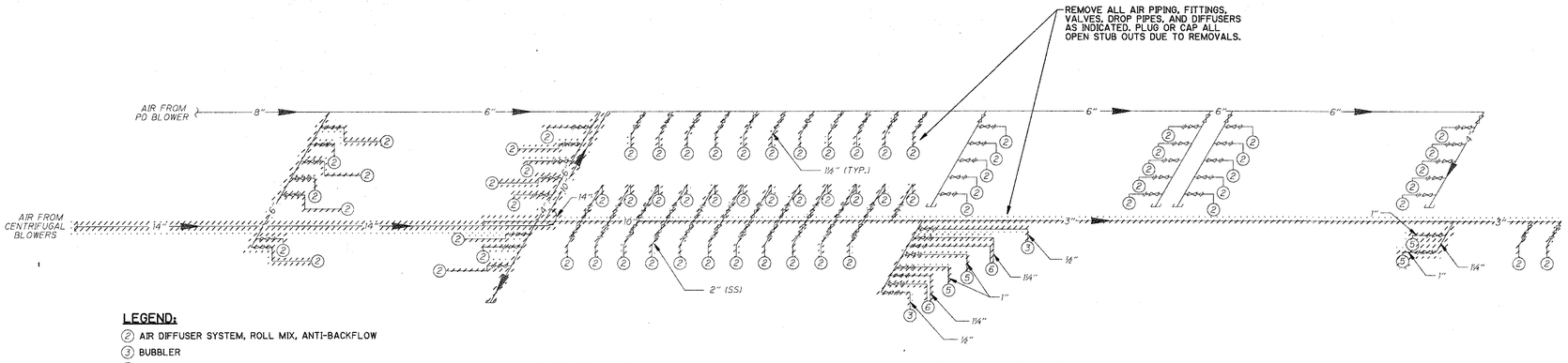
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

EXISTING TREATMENT FACILITY DEMOLITION AND MODIFICATIONS

PROJECT NO. 6706_070
FILE NAME: MABPL019

SHEET NO.
M-19

L:\6706_070\BB\MECH\ MABPL019 05/21/97 09:59:50 11:39:05 Jim S.

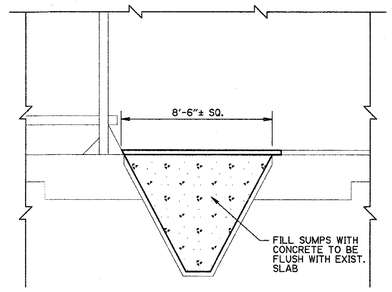


LEGEND:

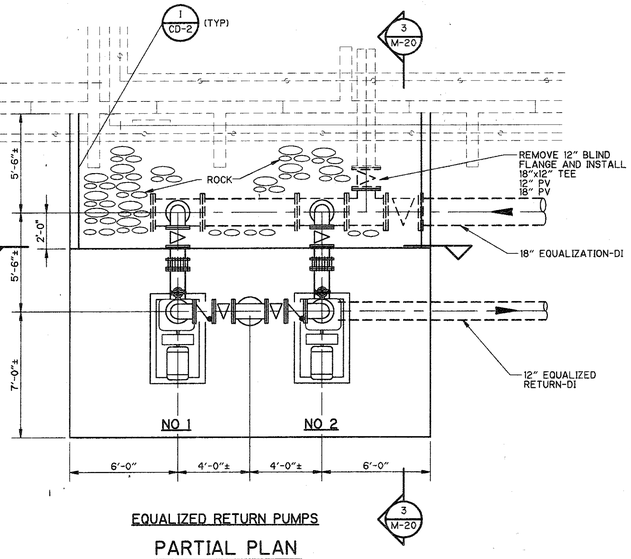
(2) AIR DIFFUSER SYSTEM, ROLL MIX, ANTI-BACKFLOW
(3) BUBBLER
(5) 4" SKIMMER AIR LIFTS
(6) 8" SLUDGE RETURN/WASTE AIR LIFTS

EXISTING TREATMENT FACILITY - AIR SYSTEM MODIFICATIONS

NTS

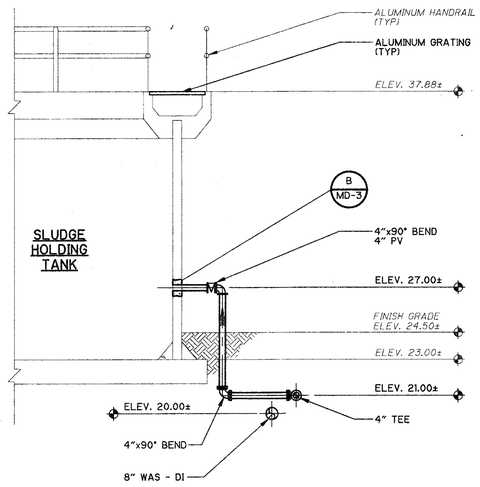


DETAIL A — M-19
1/4" = 1'-0"

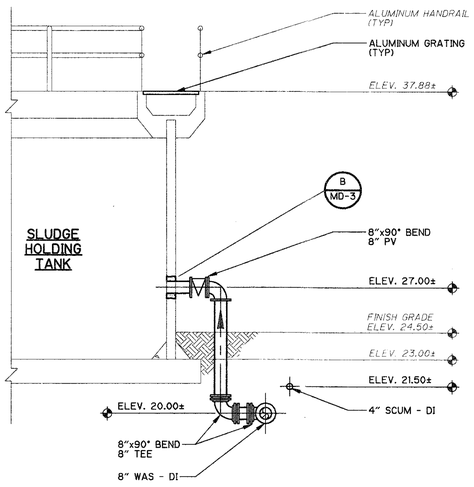


EQUALIZED RETURN PUMPS

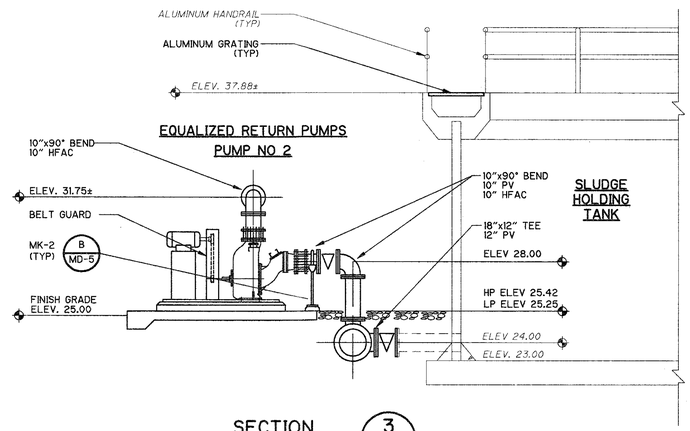
PARTIAL PLAN
1/4" = 1'-0"



SECTION 1 — M-19
1/4" = 1'-0"



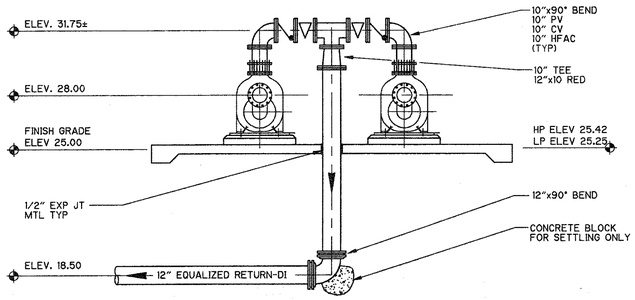
SECTION 2 — M-19
1/4" = 1'-0"



SECTION 3 — M-20
1/4" = 1'-0"

EQUALIZED RETURN PUMPS

NO 2 NO 1



SECTION 4 — M-20
1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: A. CHINNERY
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: E. GROTKE
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

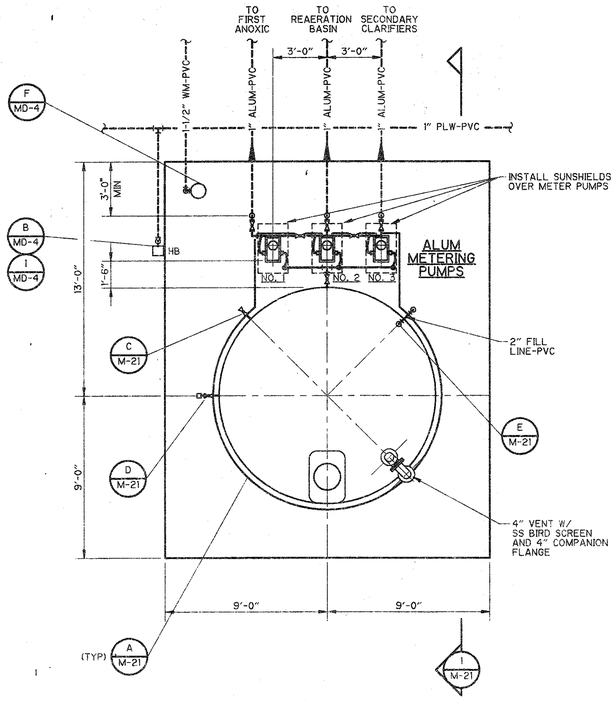
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

EXISTING TREATMENT FACILITY MODIFICATIONS SECTION AND DETAILS

PROJECT NO. 6706_070
FILE NAME: MABPL020

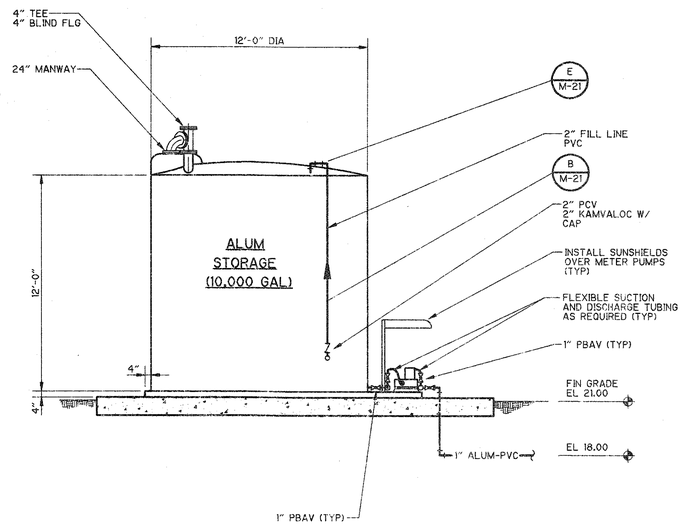
SHEET NO.
M-20

L:\6706_070\BID\MECH\MABPL020 05/21/97 09:44:45 Jim S.

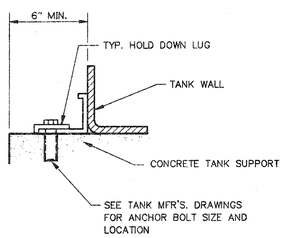


PLAN
1/4" = 1'-0"

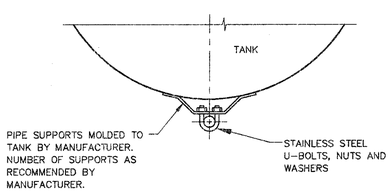
N



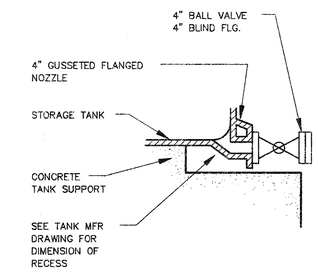
SECTION 1 / M-21
1/4" = 1'-0"



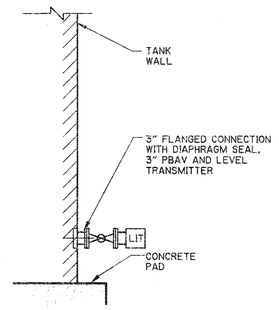
DETAIL A / M-21
NTS



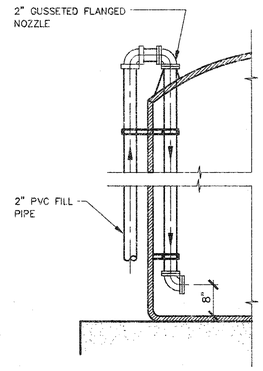
DETAIL B / M-21
NTS



DETAIL C / M-21
N.T.S



DETAIL D / M-21
NTS



DETAIL E / M-21
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: B. WILLIAMS
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

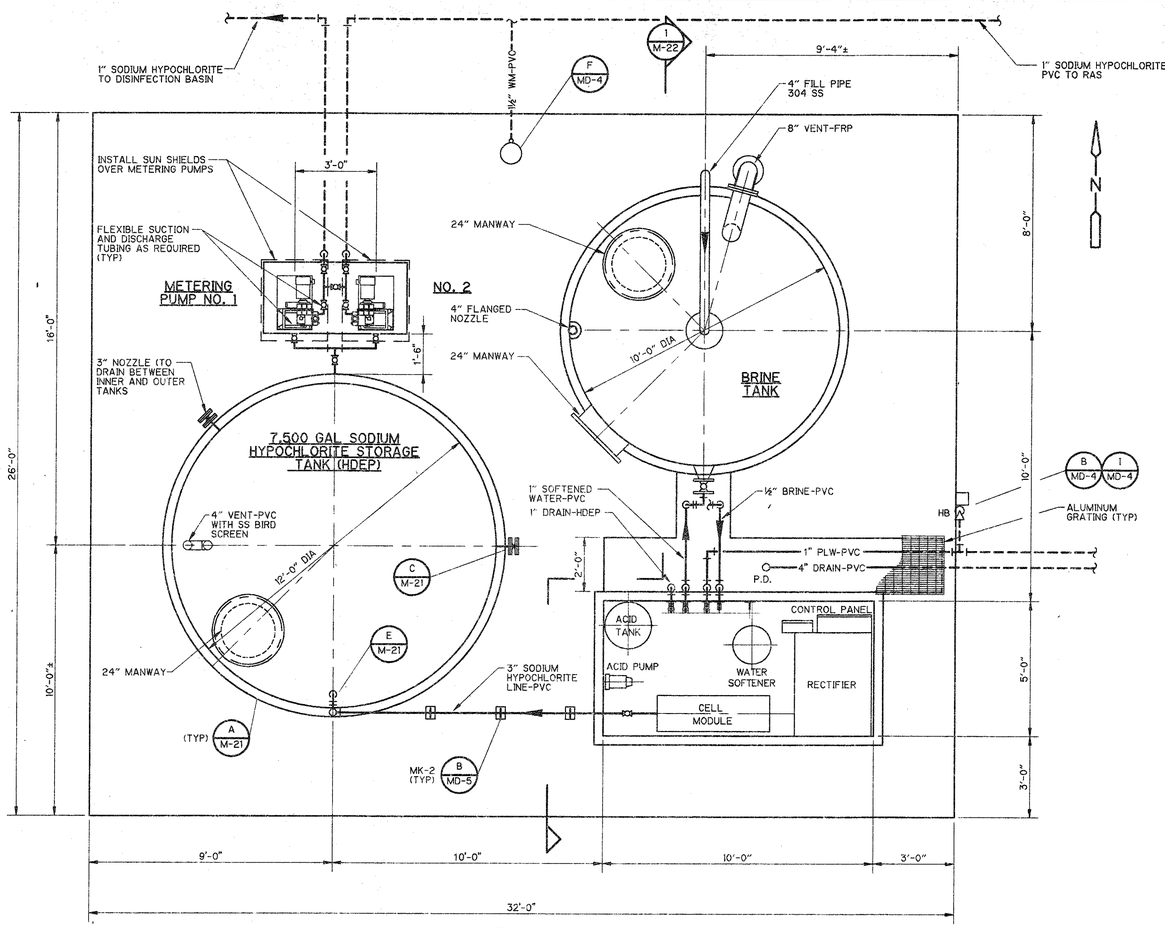
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ALUM SYSTEM
PLAN, SECTIONS AND DETAILS

PROJECT NO. 6706_070
FILE NAME: MALPDM21

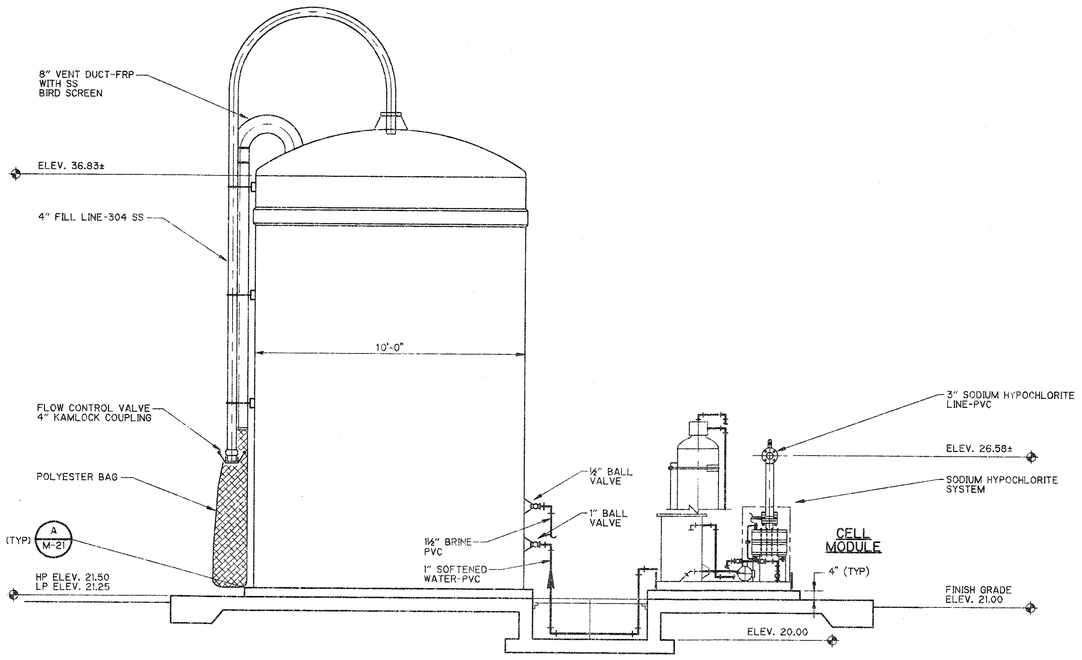
SHEET NO.
M-21

L:\6706_070\BEV\MECH\ MALPDM21 05/01/97 08:04:32 7.03.21 M. BANDA



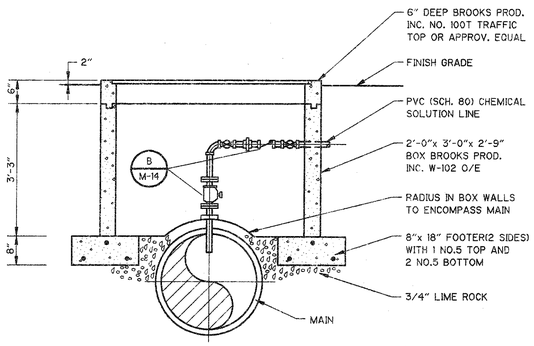
PLAN

3/8" = 1'-0"



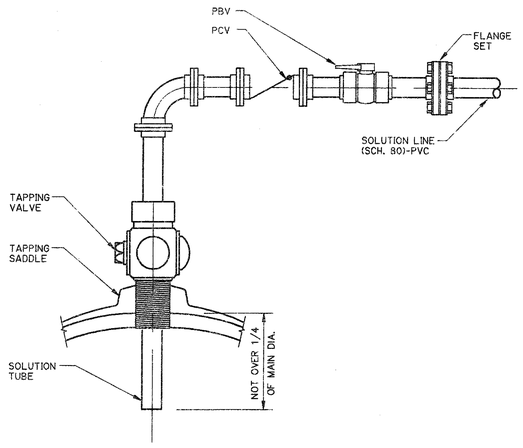
SECTION 1 / M-22

3/8" = 1'-0"



SECTIONAL ELEVATION

DETAIL A / NTS



DETAIL B / M-14 / NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: C. PEAY
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

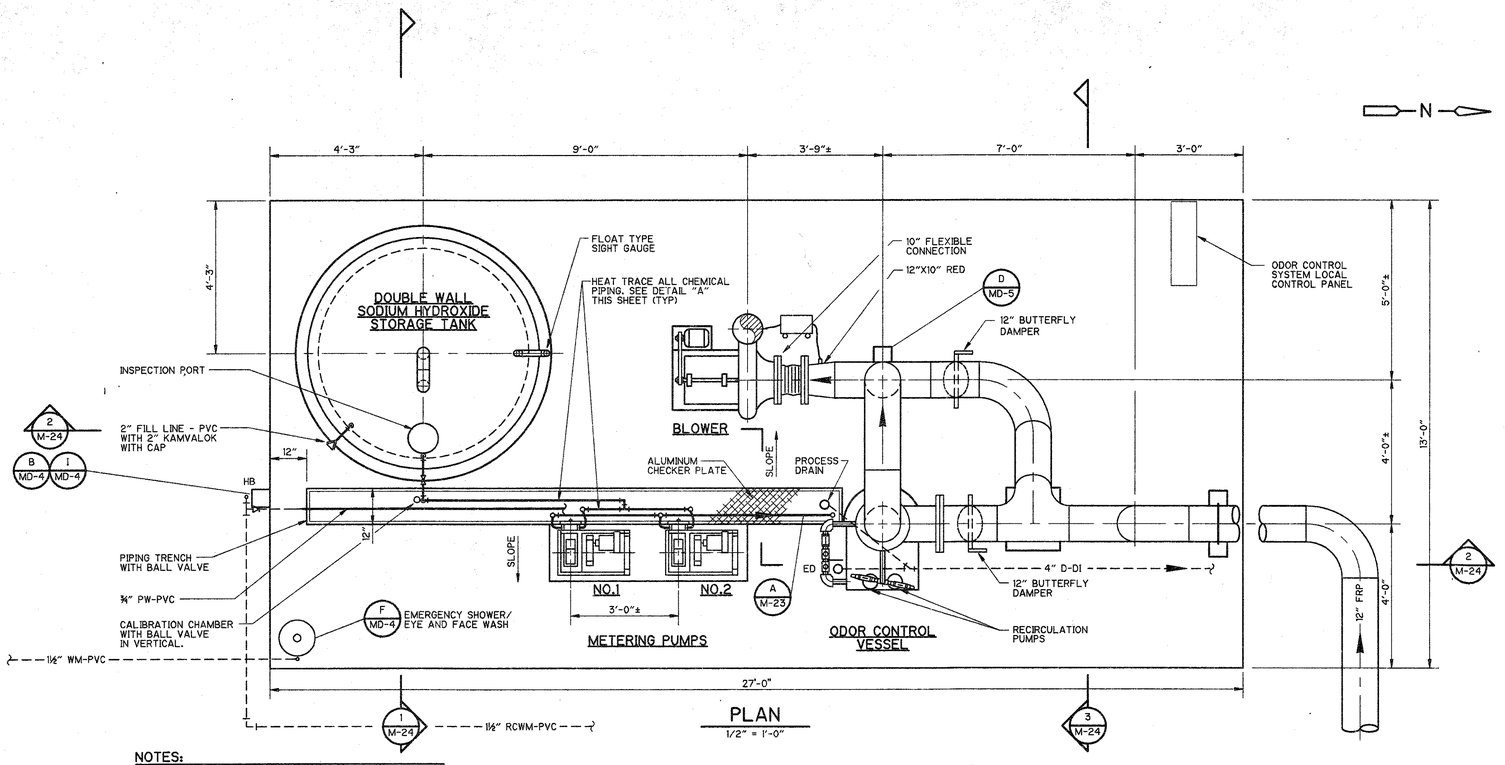
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

SODIUM HYPOCHLORITE SYSTEM

PROJECT NO. 6706_070
FILE NAME: SHCSM022

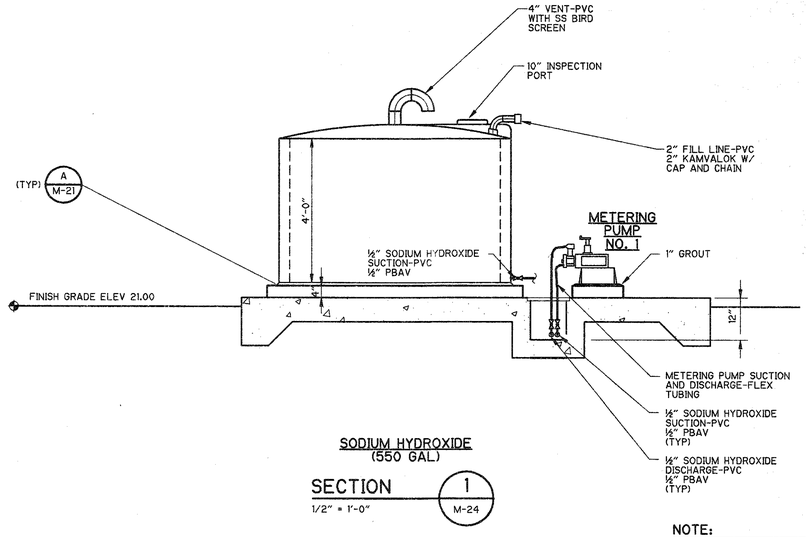
SHEET NO.
M-22

L:\6706_070\BID\MECH\SHCSM022 05/01/97 08:40:37 10:31:04 M. BANDA



PLAN

1/2" = 1'-0"



SODIUM HYDROXIDE (550 GAL)

SECTION 1 — 1/2" = 1'-0" — M-24

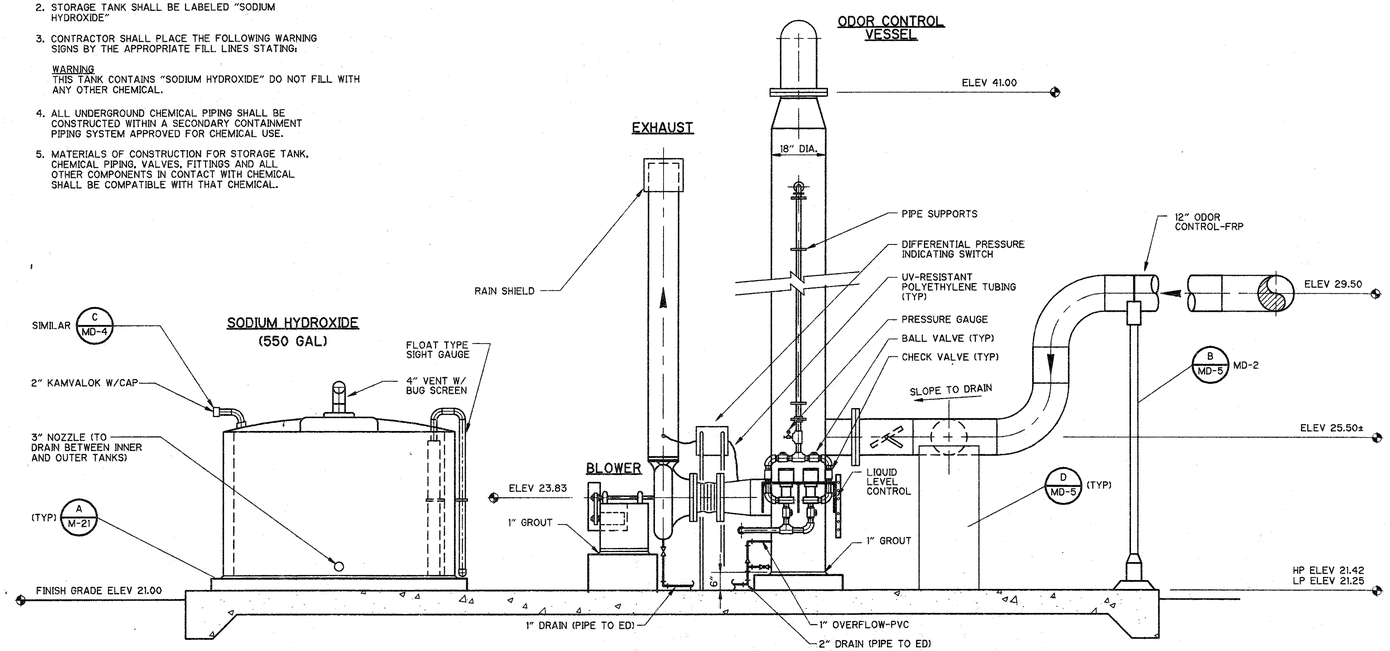
NOTE:

HEAT TRACE ON ALL CHEMICAL PIPING. SEE DETAIL "A" THIS SHEET

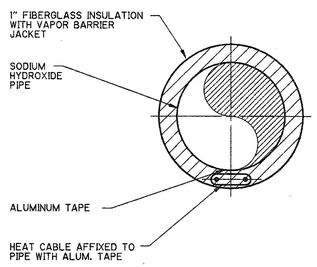
NOTES:

1. PROVIDE STAINLESS STEEL GUY WIRES AS REQUIRED ON ODOR CONTROL VESSEL AND EXHAUST STACK TO WITHSTAND 120 MPH WINDS.
2. STORAGE TANK SHALL BE LABELED "SODIUM HYDROXIDE"
3. CONTRACTOR SHALL PLACE THE FOLLOWING WARNING SIGNS BY THE APPROPRIATE FILL LINES STATING:

   WARNING
   THIS TANK CONTAINS "SODIUM HYDROXIDE" DO NOT FILL WITH ANY OTHER CHEMICAL.
4. ALL UNDERGROUND CHEMICAL PIPING SHALL BE CONSTRUCTED WITHIN A SECONDARY CONTAINMENT PIPING SYSTEM APPROVED FOR CHEMICAL USE.
5. MATERIALS OF CONSTRUCTION FOR STORAGE TANK, CHEMICAL PIPING, VALVES, FITTINGS AND ALL OTHER COMPONENTS IN CONTACT WITH CHEMICAL SHALL BE COMPATIBLE WITH THAT CHEMICAL.

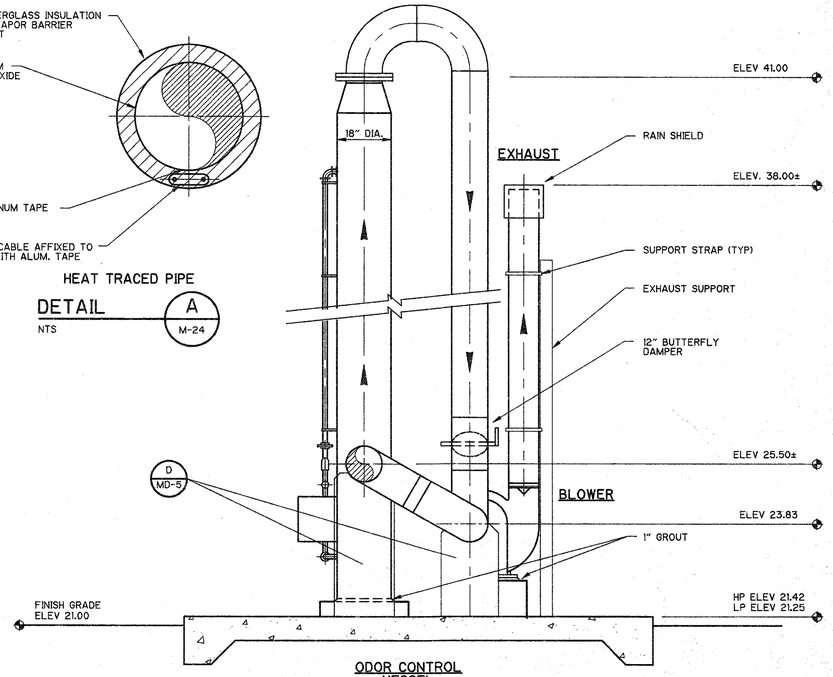


SECTION 2 — 1/2" = 1'-0" — M-24



HEAT TRACED PIPE

DETAIL A — NTS — M-24



SECTION 3 — 1/2" = 1'-0" — M-24

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: D. GARRETT
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

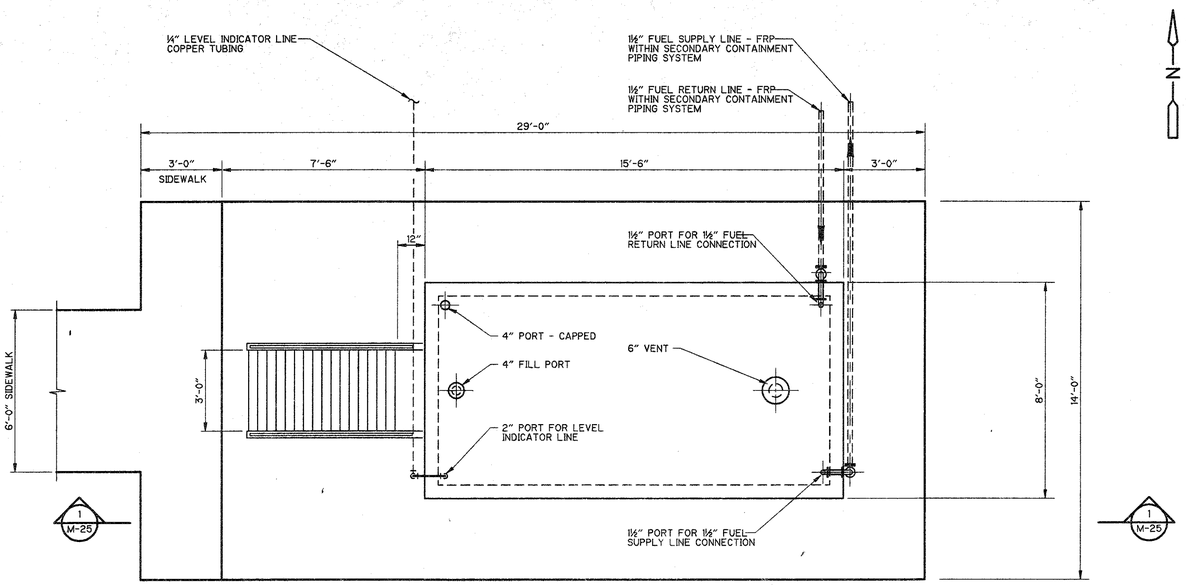
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ODOR CONTROL SYSTEM
PLAN, SECTIONS AND DETAILS

PROJECT NO. 6706_070
FILE NAME: MOCPLM24

SHEET NO.
M-24

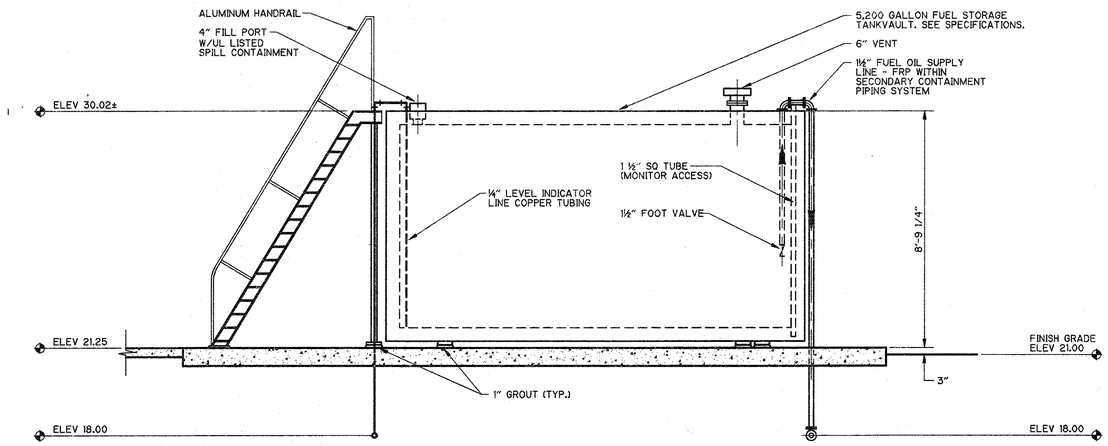
L:\6706_070\DOP\MEDIA\MOCPLM24 03/25/97 23:20:03 1:25=46 Charles Peay



5,200 GAL. FUEL STORAGE TANK

PLAN

3/8" = 1'-0"



SECTION 1

3/8" = 1'-0" M-25

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

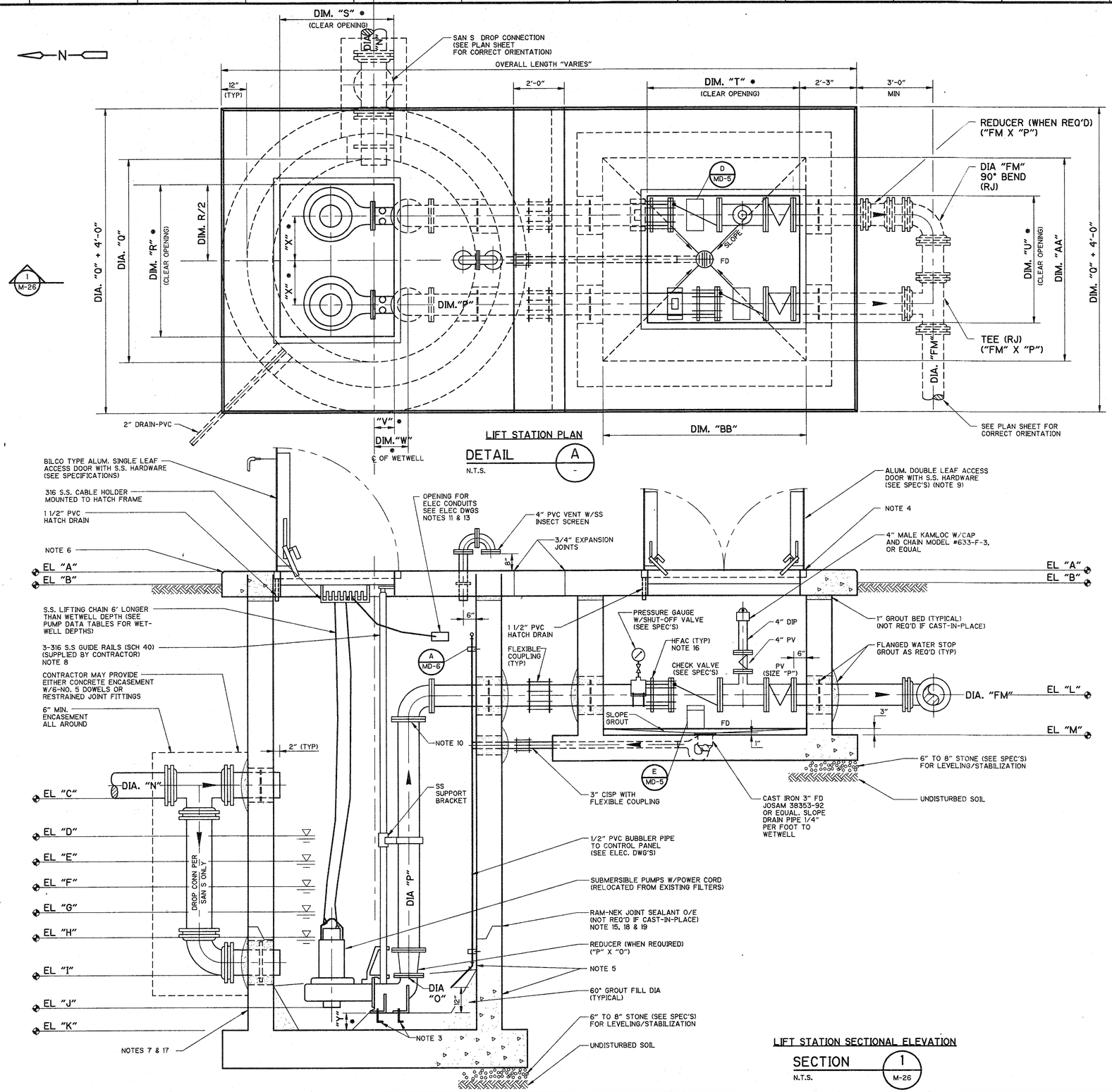
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

FUEL OIL STORAGE TANK

PROJECT NO. 6706_070
FILE NAME: MFUPLM25

SHEET NO.
M-25

L:\6706_070\MDP\MECH\ MFUPLM25 03/25/97 23:18:48 Charles Peay 6:14:55



LIFT STATION SECTIONAL ELEVATION

SECTION 1 / M-26

N.T.S.

LIFT STATION DATA

LIFT STATION		1
INITIAL NUMBER OF PUMPS	EA	2
ULTIMATE NUMBER OF PUMPS	EA	2
INITIAL DESIGN CONDITIONS	GPM/TDH	1300/62
TOP OF SLAB (WET WELL)	EL "A"	20.50
TOP OF SLAB (VALVE VAULT)	EL "A"	20.50
FINISH GRADE	EL "B"	20.00
INVERT OF INFLUENT PIPE	EL "C"	8.19
HIGH LEVEL ALARM	EL "D"	8.10
LAG PUMP - ON	EL "E"	7.90
LEAD PUMP - ON	EL "F"	7.69
ALL PUMPS - OFF	EL "G"	1.94
LOW LEVEL ALARM	EL "H"	1.44
DROP PIPE INVERT	EL "I"	0.50
PUMP SUCTION	EL "J"	(-)4.03
WET WELL BASE SLAB	EL "K"	(-)4.75
EFFLUENT FORCE MAIN PIPE	EL "L"	15.00
VALVE VAULT BASE SLAB	EL "M"	13.50
INFLUENT PIPE	DIA "N"	12"
PUMP DISCHARGE	DIA "O"	6"
DISCHARGE	DIA "P"	8"
FORCE MAIN PIPE	DIA "FM"	8"
WET WELL DIAMETER	DIA "Q"	12'-0"
PUMP HATCH	DIM "R"	5'-0"
PUMP HATCH	DIM "S"	3'-6"
VALVE VAULT HATCH	DIM "T"	6'-0"
VALVE VAULT HATCH	DIM "U"	3'-0"
℄ OF W.W. TO BACK OF HATCH	DIM "V"	4.72"
℄ OF W.W. TO ℄ DISCHARGE	DIM "W"	11.76"
℄ OF W.W. TO ℄ PUMPS	DIM "X"	4⅝"
PUMP BASE TO W.W. BOTTOM	DIM "Y"	0"
VALVE VAULT WIDTH	DIM "AA"	6'-0"
VALVE VAULT LENGTH	DIM "BB"	7'-0"

PUMP STATION GENERAL NOTES

1. SYMBOL (*) DENOTES DIMENSION TO BE CONFIRMED WITH MANUFACTURERS SHOP DRAWINGS.
2. ALL PUMPING STATION WORK SHALL CONFORM TO THE REQUIREMENTS OF THE APPROPRIATE SECTIONS OF THE SPECIFICATIONS.
3. ALL EQUIPMENT, ANCHOR BOLT SIZES, LOCATIONS, CLEARANCES, ETC. SHALL BE IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE APPROVED SHOP DRAWINGS.
4. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL HAVE A BITUMASTIC COATING (2 COATS, 9 MILS EACH COAT DFT).
5. ALL STRUCTURES SHALL BE COATED AS PER SPECIFICATIONS.
6. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" MINIMUM.
7. ALL BACKFILL SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS.
8. TYPE 316 STAINLESS STEEL SHALL BE USED IN THE WETWELL FOR FLANGE BOLTS, BRACKETS, GUIDE RAILS AND ALL OTHER HARDWARE EXCEPT AS OTHERWISE SPECIFIED.
9. PUMP ACCESS HATCH CONFIGURATION AND DIMENSIONS SHALL BE CONFIRMED WITH EQUIPMENT SUPPLIER. DIMENSIONS SHOWN ARE MINIMUM VALUES ONLY.
10. ALL PIPING WITHIN THE PUMP STATION SITE SHALL BE D.I.P. FACTORY TYPE RESTRAINED JOINTS UNLESS OTHERWISE NOTED.
11. SEE STRUCTURAL, ELECTRICAL, INSTRUMENTATION, STANDARD AND MISCELLANEOUS DRAWING DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
12. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL TRADES AND SUBCONTRACTORS.
13. SEE ELECTRICAL PLAN DRAWINGS FOR LOCATION OF ELECTRICAL/ CONTROL PANEL AND CONNECTING CONDUITS.
14. DETAIL CONSTRUCTION PLANS, INCLUDING BUT NOT LIMITED TO EXCAVATION, SHEETING, SHORING, BRACING AND DEWATERING SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO CONSTRUCTION.
15. WETWELL AND VALVE VAULT MAY BE POURED IN PLACE OR PRECAST REINFORCED CONCRETE AT THE CONTRACTORS OPTION.
16. SMITH-BLAIR (TYP 913) OR DRESSER (STYLE 127) O/E, C.I. FLANGE ADAPTER COUPLINGS AND HARNESSED WITH A MINIMUM OF 4 LOCKING PINS. TEST PRESSURE RATING 150 PSI MINIMUM.
17. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS AGAINST FLOTATION OF WETWELL UNTIL ALL BACK FILL IS IN PLACE.
18. ALL CONCRETE SHALL BE CLASS A-A (4,000 PSI FOR PRECAST AND 3,000 PSI FOR CAST-IN-PLACE) UNLESS OTHERWISE SPECIFIED.
19. WETWELL WALL SHALL CONTAIN A MINIMUM OF 0.22 SQ. IN/LINEAR FOOT REINFORCEMENT, IN THE VERTICAL AND HORIZONTAL DIRECTIONS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

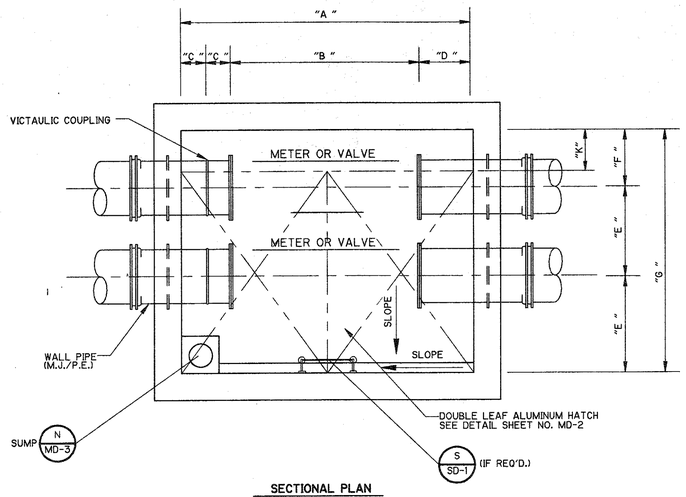
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

PLANT SITE
LIFT STATION

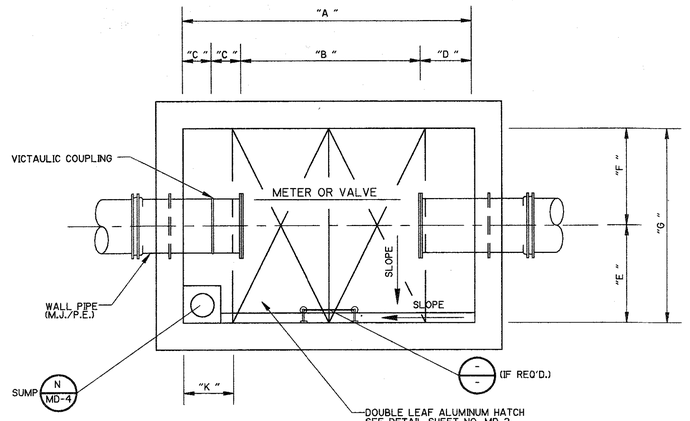
PROJECT NO. 6706_070
FILE NAME: MPSPLM26

SHEET NO.
M-26

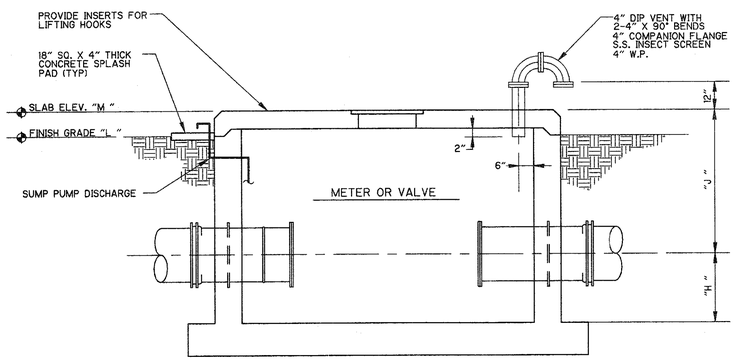
L:\6706_070\BID\MEDIA\ MPSPLM26 05/01/97 15:54:45 2:56:02 M. BANDA



SECTIONAL PLAN

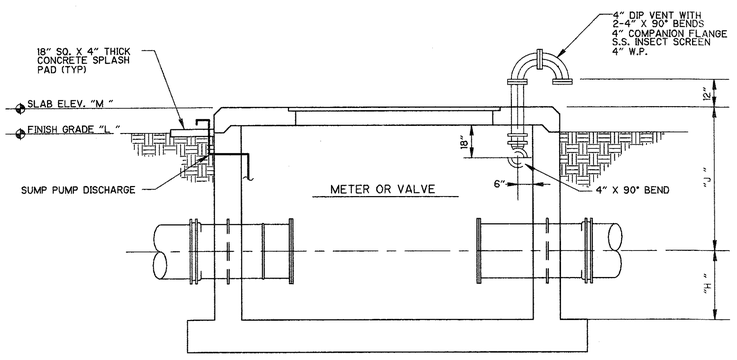


SECTIONAL PLAN



SECTIONAL ELEVATION

BOX TYPE I

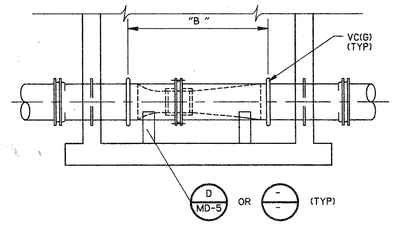


SECTIONAL ELEVATION

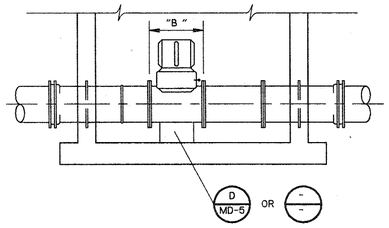
BOX TYPE II

METER AND VALVE PIT DETAILS

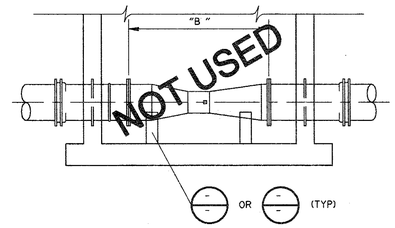
N.T.S.



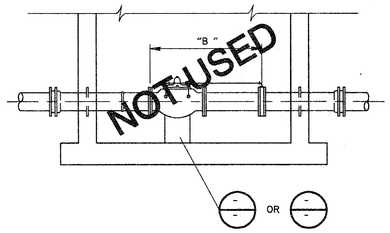
VENTURI INSERT FLOW METER



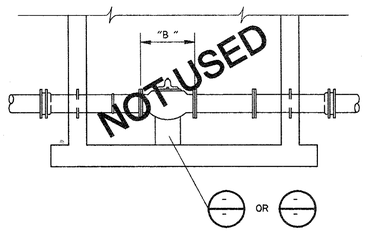
MAG METER



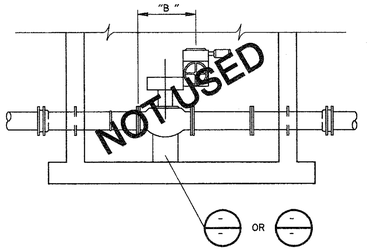
SONIC FLOW TUBE



CONTROL VALVE



CHECK VALVE



MOTORIZED VALVE

METER AND VALVE ARRANGEMENTS

N.T.S.

METER AND VALVE PIT SCHEDULE

NO.	LOCATION	BOX TYPE	METER/VALVE TYPE	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	HATCH SIZE & NO.	LADDER	REMARKS
M-1	RAS LINE	II	MAG METER	12"	5'-0"	2'-0"	1'-0"±	1'-0"	3'-6"	2'-6"	6'-0"	1'-6"	6'-0"	-	19.00	19.50	H-1 5'-0"x6'-0"	REQUIRED	
M-2	WAS LINE	II	MAG METER	8"	5'-0"	20"	1'-0"	1'-2"	3'-6"	2'-6"	6'-0"	1'-6"	5'-0"	-	19.00	19.50	H-2 5'-0"x6'-0"	REQUIRED	
M-3	EFFLUENT LINE	II	VENTURI INSERT	16"	8'-0"	3'-8"	•	1'-0"	3'-6"	2'-6"	6'-0"	1'-6"	5'-0"	1'-6"	22.00	23.00	H-3 5'-0"x6'-0"	REQUIRED	• TOTAL LENGTH 12"

NOTES:

1. CONTRACTOR TO CONFIRM "B" DIMENSION WITH METER OR VALVE MANUFACTURER.
2. CONTRACTOR TO CONFIRM FINAL GRADE AND MAIN ELEVATIONS.
3. PROVIDE (10) PIPE DIAMETERS OF STRAIGHT PIPE UPSTREAM AND DOWNSTREAM OF ALL METERS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: E. GROTKE
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

METER AND VALVE PIT DETAILS

PROJECT NO. 6706_070
FILE NAME: MMVDTM27

SHEET NO.
M-27

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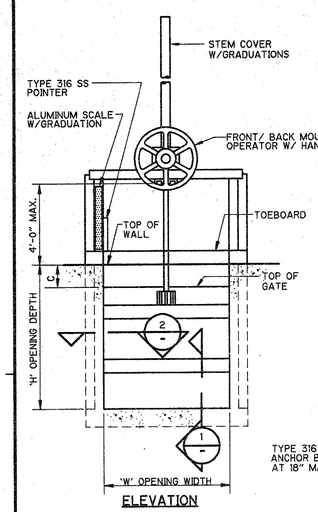
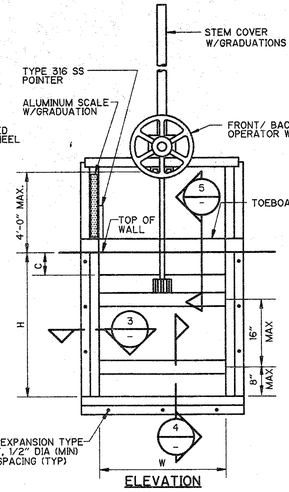


ELEVATION

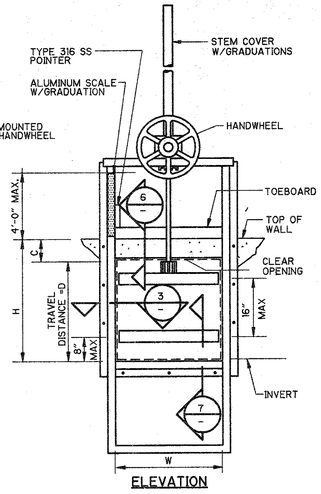
EMBEDDED TYPE



ELEVATION

FACE MOUNTED TYPE

SLIDE GATE

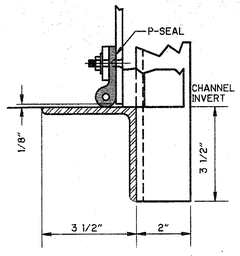


ELEVATION

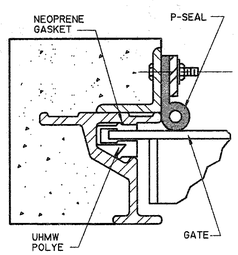
FACE MOUNTED TYPE

WEIR GATE

DETAIL A
NTS



SECTION 1
NTS



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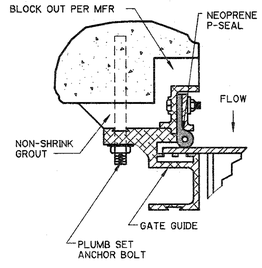

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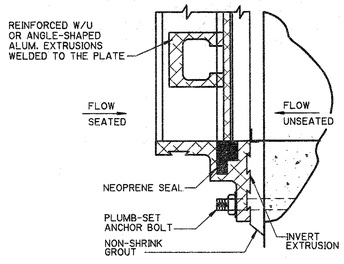

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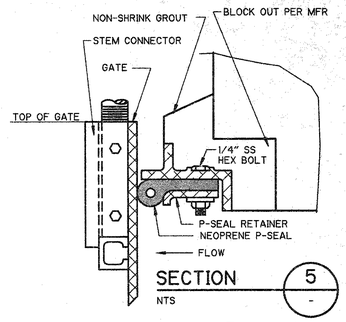

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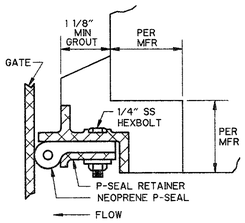
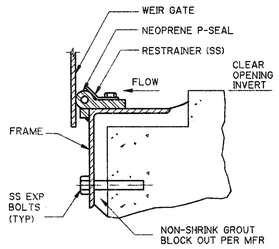
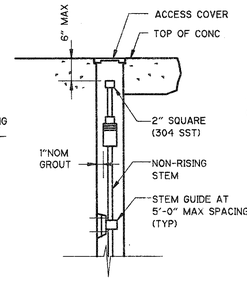


SECTION 6
NTS

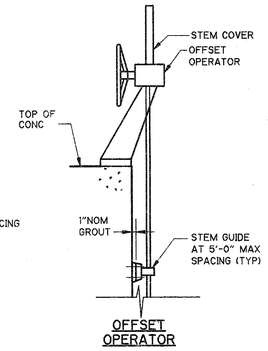


SECTION 7
NTS



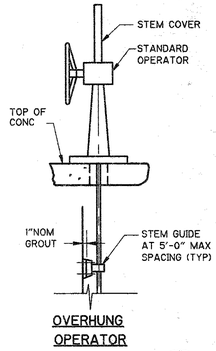
RECESSED OPERATOR

DETAIL B
NTS



OFFSET OPERATOR

DETAIL C
NTS



OVERHUNG OPERATOR

DETAIL D
NTS

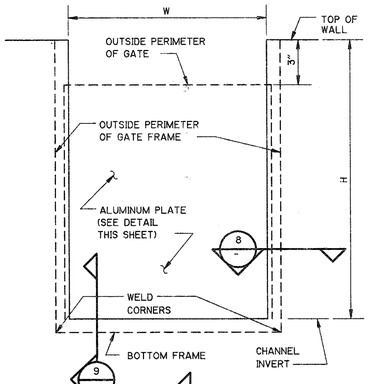
SLIDE GATE SCHEDULE

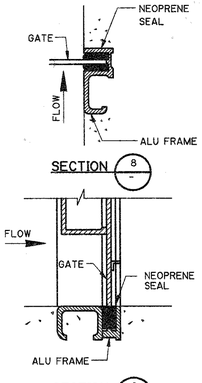
GATE NO.	LOCATION	MOUNT	DRIVE	STEM	SEATING HEAD (FT)	UNSEATING HEAD (FT)	DIMENSIONS W	H	C	D	REMARKS
HD-SG-1	HEADWORKS	EMBEDDED	GEAR	RISING			4'-0"	6'-0"	1'-0"	-	
HD-SG-2	HEADWORKS	EMBEDDED	GEAR	RISING			4'-0"	6'-0"	1'-0"	-	
HD-SG-3	HEADWORKS	EMBEDDED	GEAR	RISING			4'-0"	6'-0"	2'-10"	-	
HD-SG-4	HEADWORKS	EMBEDDED	GEAR	RISING			2'-6"	6'-0"	1'-0"	-	
HD-SG-5	HEADWORKS	EMBEDDED	GEAR	RISING			2'-6"	6'-0"	1'-0"	-	
HD-SG-6	HEADWORKS	EMBEDDED	GEAR	RISING			4'-0"	6'-0"	2'-10"	-	
HD-SG-7	HEADWORKS	EMBEDDED	GEAR	RISING			2'-6"	6'-0"	1'-0"	-	
HD-SG-8	HEADWORKS	EMBEDDED	GEAR	RISING			2'-6"	6'-0"	1'-0"	-	
ESB-WSG-1	EQUAL SPLIT BOX	FACE	GEAR	RISING			5'-0"	2'-5±	6"	1'-11"	
ESB-WSG-2	HEADWORKS	FACE	GEAR	RISING			5'-0"	2'-5±	6"	1'-11"	
ESB-WSG-3	HEADWORKS	FACE	GEAR	RISING			5'-0"	2'-5±	6"	1'-11"	
ESB-WSG-4	HEADWORKS	FACE	GEAR	RISING			5'-0"	2'-5±	6"	1'-11"	
BT-SG-1	BIOLOGICAL TREAT	FACE	GEAR	RISING			3'-0"	4'-0"	-	-	OPERATOR DETAIL "C"
BT-SG-2	BIOLOGICAL TREAT	FACE	GEAR	RISING			3'-0"	4'-0"	-	-	OPERATOR DETAIL "C"
BT-SG-3	BIOLOGICAL TREAT	FACE	GEAR	RISING			3'-0"	4'-0"	-	-	OPERATOR DETAIL "C"
SB-WSG-1	SPLITTER BOX	FACE	GEAR	RISING			5'-0"	4'-9"	6"	4'-3"	
SB-WSG-2	SPLITTER BOX	FACE	GEAR	RISING			5'-0"	4'-9"	6"	4'-3"	
SB-WSG-3	SPLITTER BOX	FACE	GEAR	RISING			5'-0"	4'-9"	6"	4'-3"	
SB-WSG-4	SPLITTER BOX	FACE	GEAR	RISING			5'-0"	4'-9"	6"	4'-3"	
F-SP-1	FILTERS	EMBEDDED	-	-			3'-0"	4'-7"	-	-	
F-SP-2	FILTERS	EMBEDDED	-	-			3'-0"	4'-7"	-	-	
DB-SG-1	DISINFECT BASIN	EMBEDDED	GEAR	RISING			4'-0"	7'-0"	1'-6"	-	
DB-SG-2	DISINFECT BASIN	EMBEDDED	GEAR	RISING			4'-0"	7'-0"	1'-6"	-	

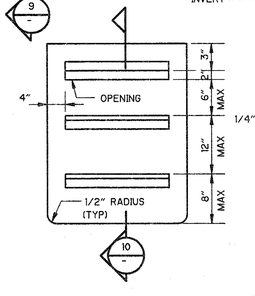
NOTES:

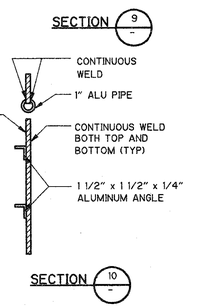
1. HANDWHEELS SHALL BE 18" MIN DIA. FOR HANDWHEEL POSITION, SEE MECHANICAL DRAWINGS.
2. WEIR SLIDE GATE TYPE SHALL ALSO BE ABLE TO SERVE AS A SHUT-OFF GATE. A RESILIENT P-SEAL PER SPECIFICATIONS SHALL BE PLACED ALONG THE INVERT OF THE OPENING AND UP BOTH SIDES SO THAT THE GATE WILL BE TIGHT IN THE FULLY RAISED POSITION.

EMBED EMBEDDED TYPE
FACE FACE MOUNTED TYPE









ALUMINUM STOP PLATE

DETAIL E
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

SLIDE GATE AND STOP PLATE - DETAILS AND SECTIONS

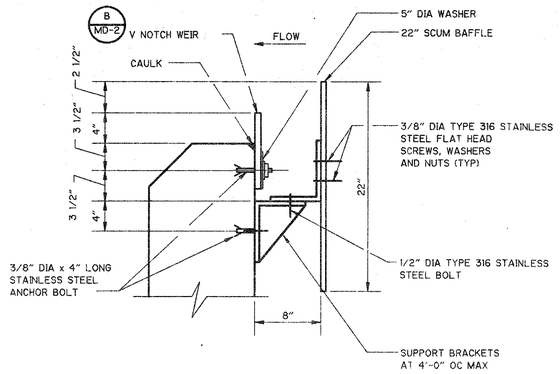
PROJECT NO. 6706_070
FILE NAME: MSDSDMD1

SHEET NO.
MD-1

Charles Peay 7:07:01 03/27/97 04:00:21 L:\6706_070\100P\MECH\DETAILS\MSDSDMD1

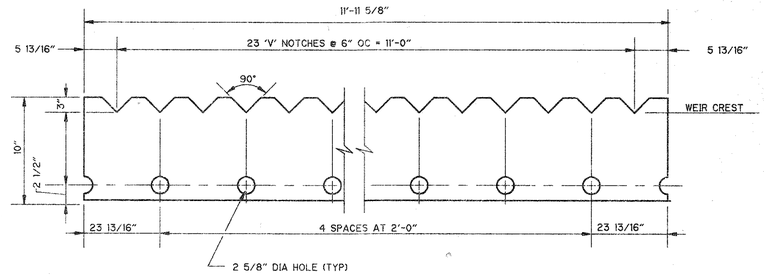
WEIR SCHEDULE

WEIR#	LOCATION	TYPE	HT	CREST EL	W	TOTAL ADJUSTMENT	DETAIL #



V NOTCH WEIR WITH BAFFLE

DETAIL A / MD-2 — NTS



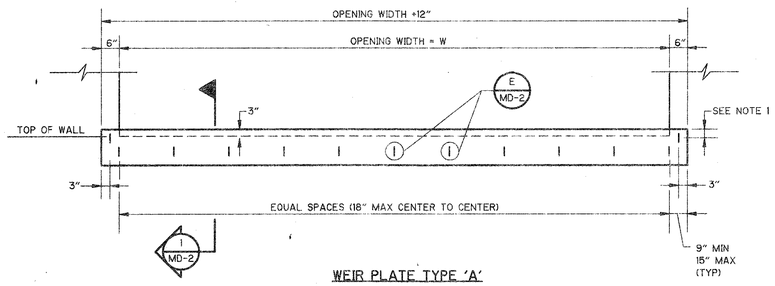
STANDARD V NOTCH WEIR FOR ROUND TANK TYPE 'C'

DETAIL B / MD-2 — NTS

NOTES

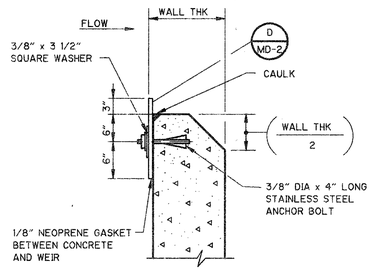
1. WEIR CREST ELEVATION GIVEN IS WITH THE WEIR SET IN THE CENTER OF THE MOUNTING HOLES OR SLOTS.

2. ALL WEIR PLATES, SCUM BAFFLE PLATES, BUTT PLATES, WASHERS & SCUM BAFFLE BRACKET SHALL BE FIBERGLASS REINFORCED POLYESTER PLASTIC MATERIAL UNLESS OTHERWISE NOTED. SEE SPECS.



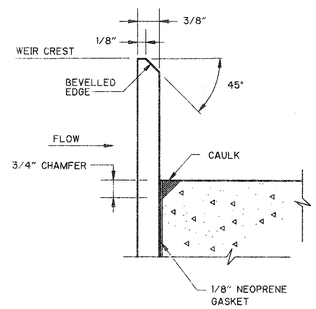
WEIR PLATE TYPE 'A'

DETAIL C / MD-2 — NTS

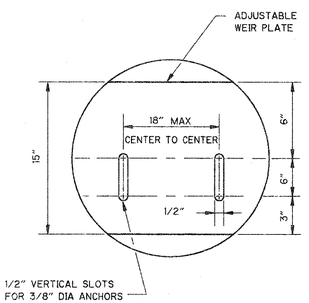


WEIR PLATE

SECTION 1 / MD-2 — NTS



DETAIL D / MD-2 — NTS



DETAIL E / MD-2 — NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: A. NUNES
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: E. GROTKE
DATE: JANUARY 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

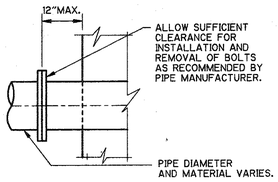
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

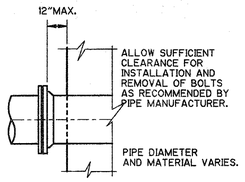
TYPICAL WEIR PLATE DETAILS

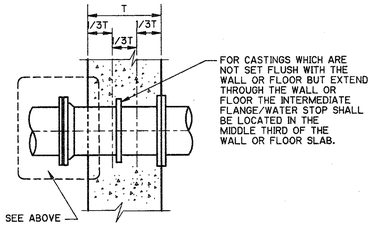
PROJECT NO. 6706_070
FILE NAME: MSDWDMD2

SHEET NO.
MD-2

L:\6706_070\30P\MECH\DETAILS\MSDWDMD2 12/05/96 10:54:35 Dana Garrett 8/05/28

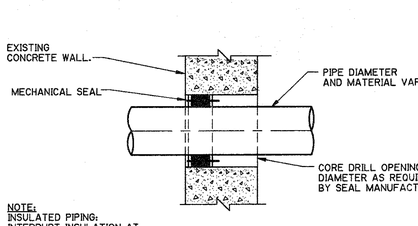






CASTING WITH NON-FLUSH JOINTS

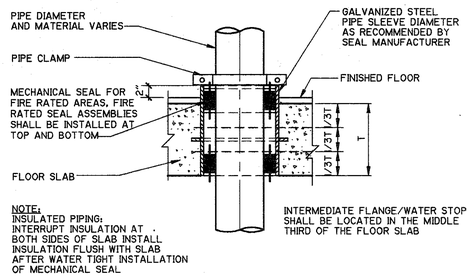
DETAIL A NTS



NOTE:
INSULATED PIPING:
INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.

CORE DRILLED OPENING AND MECHANICAL SEAL PENETRATION THROUGH EXISTING CONCRETE

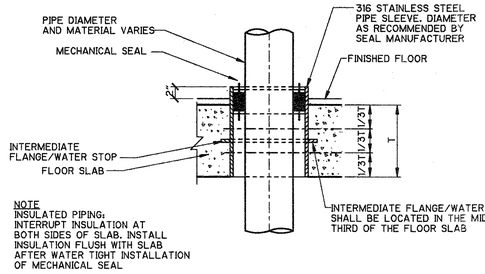
DETAIL B NTS



NOTE:
INSULATED PIPING:
INTERRUPT INSULATION AT BOTH SIDES OF SLAB INSTALL INSULATION FLUSH WITH SLAB AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL

FLOOR SLEEVE WITH DUAL MECHANICAL SEAL

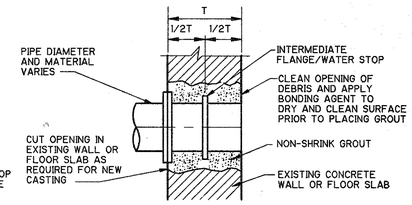
DETAIL C NTS



NOTE
INSULATED PIPING,
INTERRUPT INSULATION AT BOTH SIDES OF SLAB. INSTALL INSULATION FLUSH WITH SLAB AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL

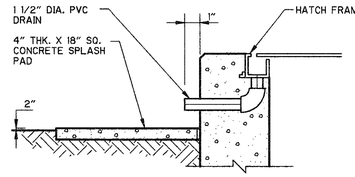
SLEEVE WITH MECHANICAL SEAL

DETAIL D NTS

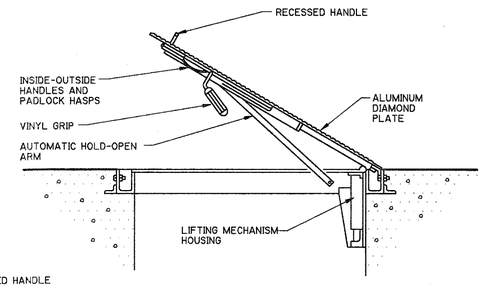


CASTINGS OR SLEEVES TO BE INSTALLED IN EXISTING WALLS OR FLOOR SLABS

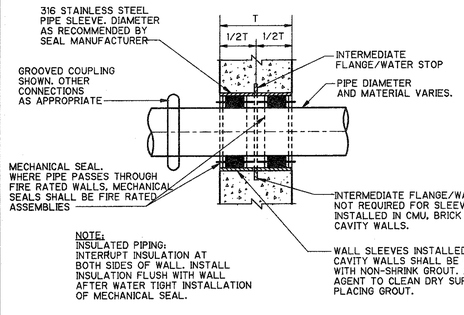
DETAIL E NTS



EXTERIOR HATCH DRAIN



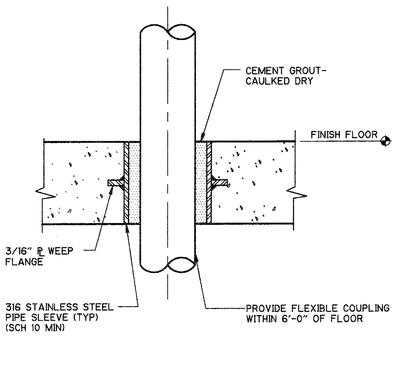
SINGLE LEAF HATCH



NOTE:
INSULATED PIPING:
INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.

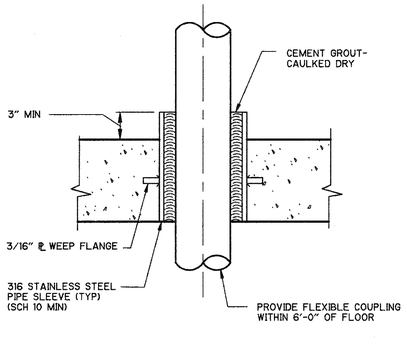
WALL SLEEVE WITH MECHANICAL SEAL FOR CONCRETE, BRICK, CMU OR CAVITY WALLS

DETAIL F NTS



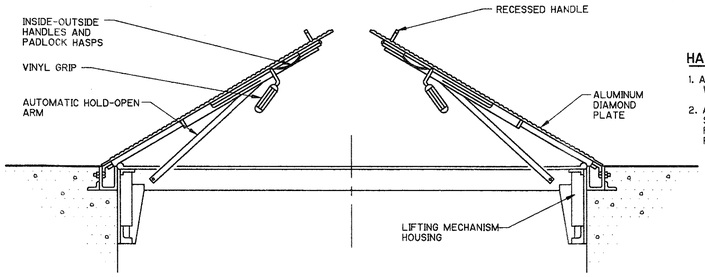
PIPE SLEEVE W/GROUT INTERMEDIATE FLOOR PENETRATION

DETAIL G NTS



PIPE SLEEVE (WET FLOOR)

DETAIL H NTS



DOUBLE LEAF HATCH

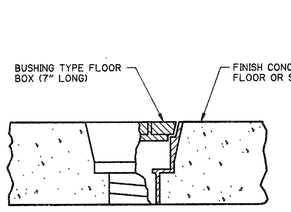
HATCH NOTES

1. ALUMINUM HATCHES TO BE SUPPLIED WITH STAINLESS STEEL HARDWARE.
2. ALL HATCHES TO BE SUPPLIED WITH SAFETY CHAINS. CORNER POST WITH FLOOR INSERTS MUST ALSO BE PROVIDED FOR SINGLE LEAF HATCHES.

HATCH SCHEDULE

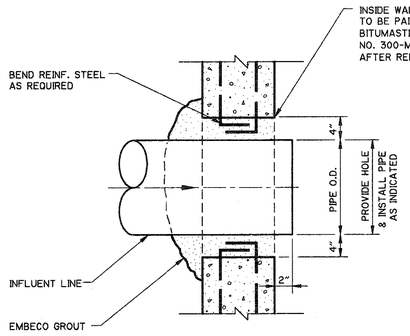
NO.	LOCATION	SIZE	LEAF	DRAIN	REMARKS
H-1	RAS METER PIT	5'-0"X6'-0"	DOUBLE	INTERIOR	
H-2	WAS METER PIT	5'-0"X6'-0"	DOUBLE	INTERIOR	
H-3	EFFLUENT METER	5'-0"X6'-0"	DOUBLE	INTERIOR	

TYPICAL HATCH DETAILS AND SCHEDULE
NTS



FLOOR BOX

DETAIL I NTS



DETAIL J NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: E. GROTKE
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS MECHANICAL DETAILS

PROJECT NO. 6706_070
FILE NAME: MSDDTMD3

SHEET NO.
MD-3

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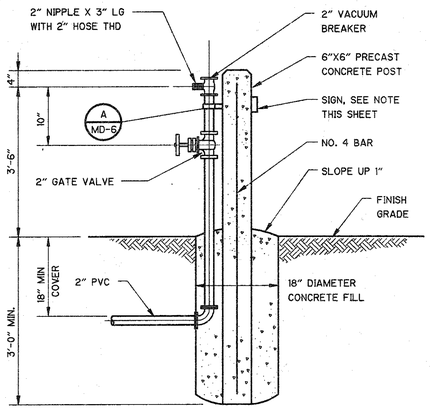
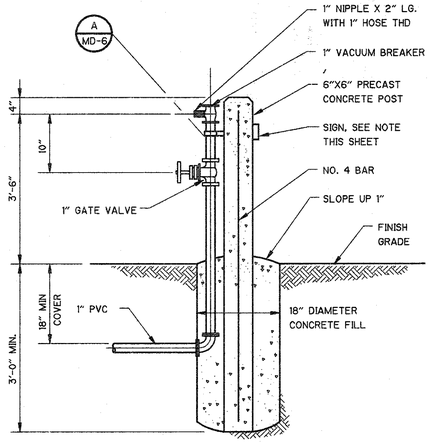


POST HYDRANT

DETAIL A — NTS

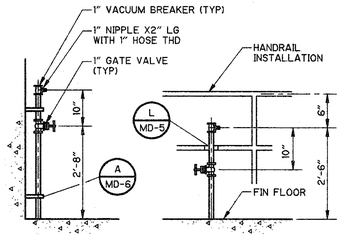


HOSE BIBB

DETAIL B — NTS

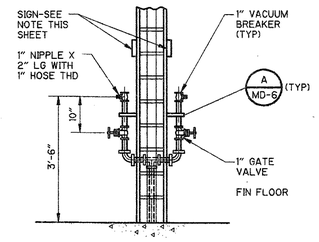
POTABLE/NON-POTABLE WATER SIGN

THE CONTRACTOR SHALL PROVIDE A SIGN ABOVE ALL HOSE BIBBS WHICH SHALL STATE EITHER "POTABLE" OR "NON-POTABLE, DO NOT DRINK." THE SIGN SHELL BE MADE OF LAMINATED PLASTIC WITH A BLACK FACE AND WHITE LETTERS APPROX. 3/4" HIGH. ATTACH THE SIGN TO STRUCTURE, WASH HOSE STATION OR HANDRAIL WITH 304 STAINLESS STEEL HARDWARE AS REQUIRED.



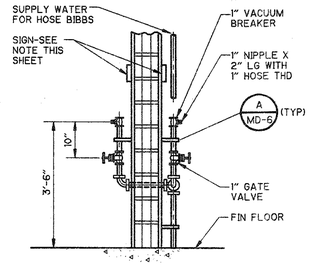
ELEVATION HOSE BIBB

DETAIL C — NTS



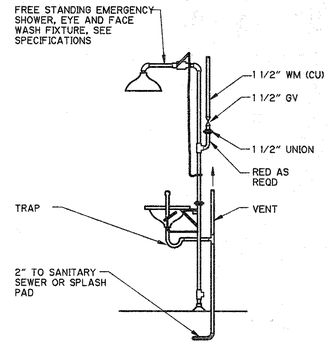
ELEVATION HOSE BIBB

DETAIL D — NTS



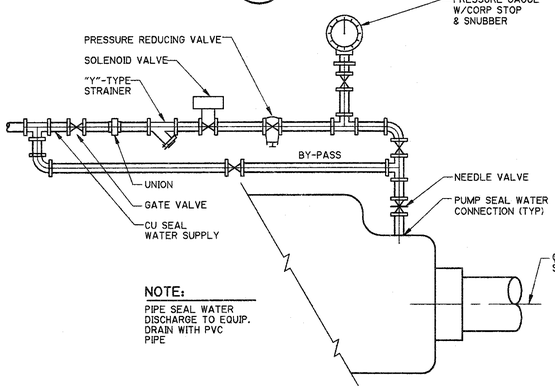
ELEVATION HOSE BIBB

DETAIL E — NTS



EMERGENCY SHOWER/EYE & FACE WASH

DETAIL F — NTS

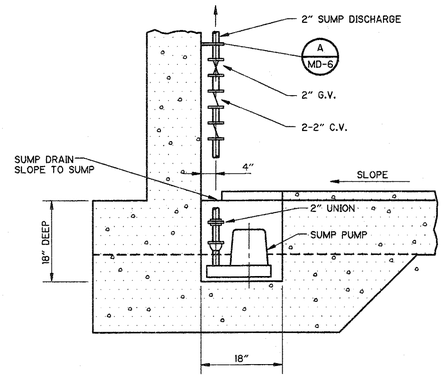


NOTE:

PIPE SEAL WATER DISCHARGE TO EQUIP. DRAIN WITH PVC PIPE

SEAL WATER SYSTEM

DETAIL G — NTS

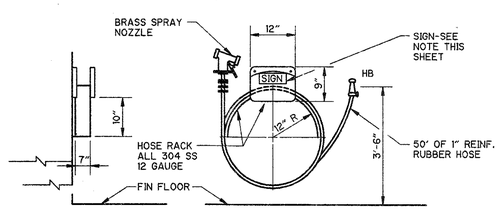


SUMP PUMP-ELEVATION

DETAIL H — N.T.S.

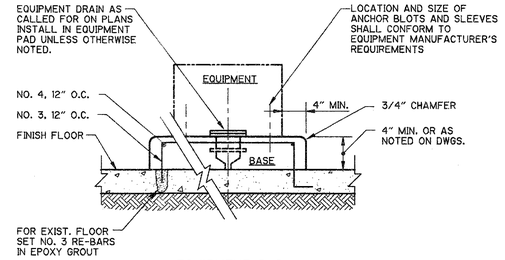
NOTE:

ANCHOR WASH HOSE STATION TO WALL OR HANDRAIL WITH STAINLESS STEEL HARDWARE AS REQUIRED



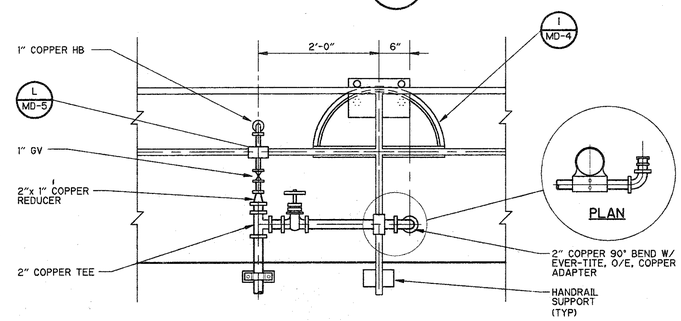
WASH HOSE STATION

DETAIL I — NTS



EQUIPMENT PAD

DETAIL J — N.T.S.



NOTES:

1. PROVIDE 1/16" THICK NEOPRINE SLEEVE ON RW LINE AT ALL SUPPORT CONNECTIONS.
2. PROVIDE 25' OF 2" COLLAPSIBLE DISCHARGE HOSE WITH A COUPLER & AN ADAPTER. COUPLERS & ADAPTERS SHALL BE COMPATIBLE WITH CONNECTIONS SHOWN IN HOSE BIBB DETAIL. HOSE SHANK SHALL BE SECURED TO HOSE WITH SS PIPE CLAMPS.

HOSE BIBB & HIGH VOLUME HOSE CONNECTION

DETAIL K — NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS DETAILS

PROJECT NO. 6706_070
FILE NAME: MSDDTMD4

SHEET NO.
MD-4

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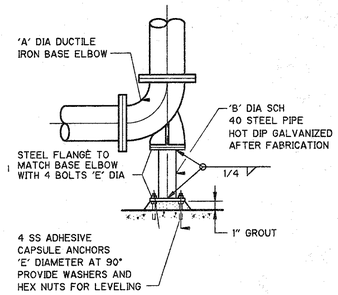
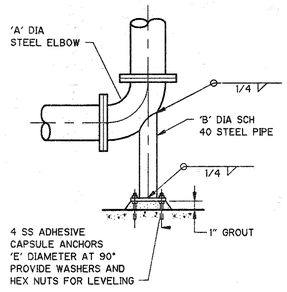


DUCTILE IRON ELBOW

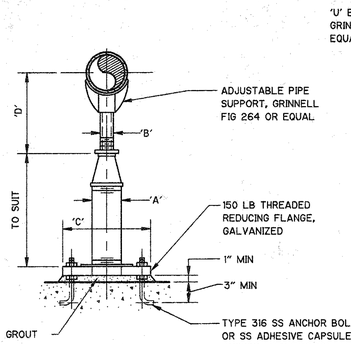


STEEL ELBOW

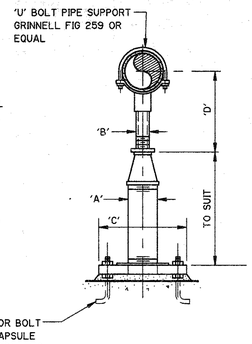
ELBOW 'A' DIA	DIMENSIONS IN INCHES 'B' DIA	'C' THICK	'D' SQ	'E' DIA
4	2	⅜	6	⅝
6	2 ½	⅜	7	⅝
8	4	½	9	⅝
10	4	½	9	⅝
12	6	½	11	¾
14	6	½	11	¾
16	6	½	11	¾
18	8	½	13½	¾
20	8	½	13½	¾
24	8	½	13½	¾
30	10	¾	16	⅞
36	12	¾	19	⅞
42	16	¾	23½	1
48	18	¾	25	1 ⅛

NOTES:
MATERIAL FINISH TO MATCH PIPE
ALTERNATIVE METHOD TO DETAIL "K" THIS SHEET

ELBOW SUPPORT
DETAIL A
NTS



MK-1

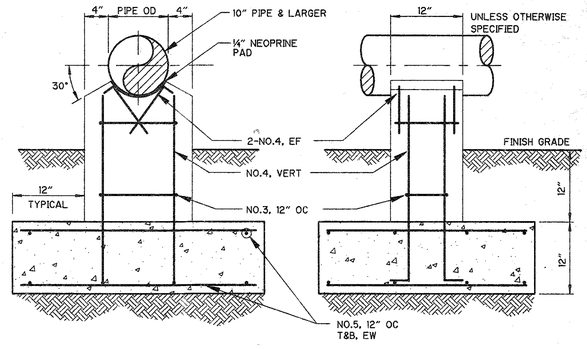


MK-2

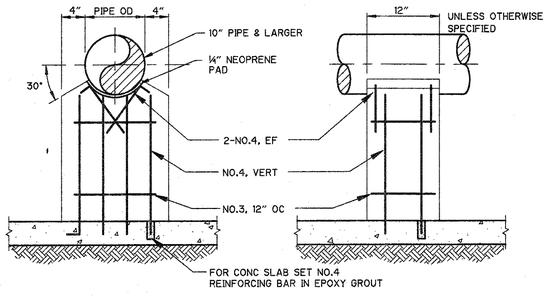
ADJUSTABLE PIPE SUPPORT
DETAIL B
NTS

ADJUSTABLE PIPE SUPPORT APPROX DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C	D MIN	D MAX
2 ½	2 ½	1 ½	9	8	11 ½
3	2 ½	1 ½	9	8 ¼	11 ¾
3 ½	2 ½	1 ½	9	8 ½	12
4	3	2 ½	9	10 ¼	14
6	3	2 ½	9	11 ⅝	15 ¼
8	3	2 ½	9	13 ⅝	16 ½
10	3	2 ½	9	14 ⅝	18 ¼
12	3	2 ½	9	15 ⅝	19 ¾
14	4	3	11	18 ⅜	20 ¾
16	4	3	11	19 ⅜	22 ¼
18	6	3 ½	13 ½	21 ¼	24
20	6	3 ½	13 ½	23 ¼	25 ½
24	6	4	13 ½	26 ½	28 ¼
30	6	4	13 ½	29 ⅜	31 ½
32	6	4	13 ½	30 ⅜	32 ¾
36	6	4	13 ½	32 ⅜	34 ¾

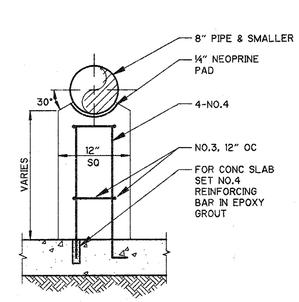
NOTE:
1. UNDER VALVES, METERS OR OTHER SPECIAL APPURTENANCES A FABRICATED SUPPORT PIECE MAY BE UTILIZED AS ACCEPTABLE TO ENGINEER



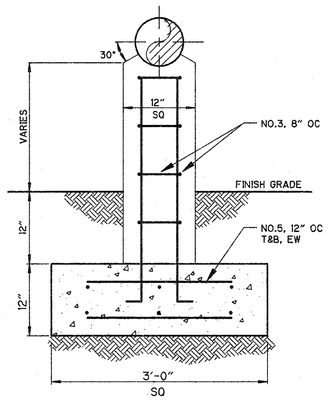
10" PIPE AND LARGER
DETAIL C
NTS



10" PIPE AND LARGER
DETAIL D
NTS

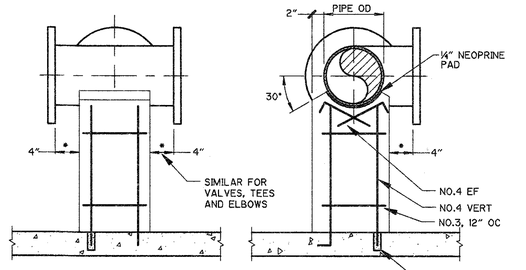


8" PIPE OR SMALLER
DETAIL E
NTS

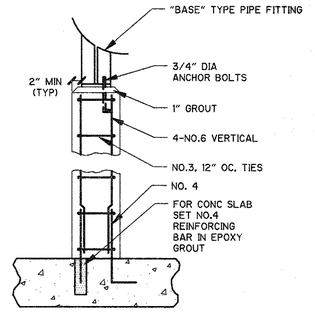


8" PIPE OR SMALLER
DETAIL F
NTS

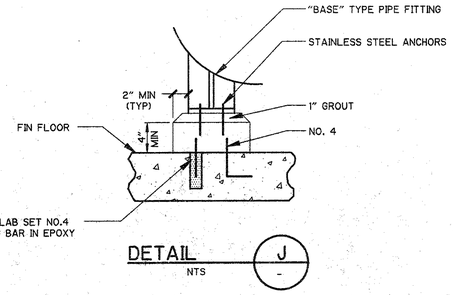
• INCREASE 4" CLEARANCE AS REQUIRED IF BOLT HAS TO BE INSERTED FROM THE SUPPORT SIDE OF THE CONNECTION.



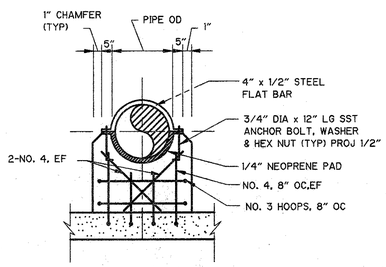
DETAIL G
NTS



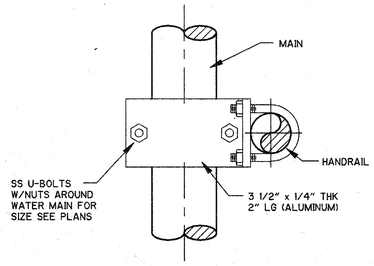
DETAIL H
NTS



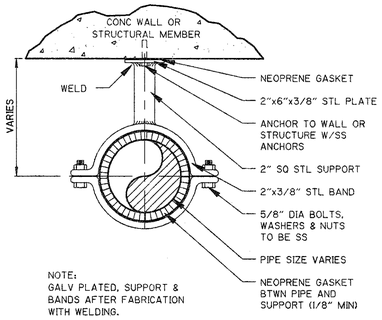
DETAIL J
NTS



REACTION TYPE PIPE SUPPORT
DETAIL K
NTS



DETAIL L
NTS



NOTE:
GALV PLATED, SUPPORT & BANDS AFTER FABRICATION WITH WELDING.

DETAIL M
NTS

NOTES
1. USE WASHERS WITH NUTS AND BOLTS.
2. ALL ANCHORS, FASTENERS, BOLTS, NUTS, WASHERS, SCREWS, ETC. SHALL BE 316 STAINLESS STEEL.
3. DETAILS SHOWN ARE INTENDED TO COVER A WIDE RANGE OF PROJECT SITUATIONS. ALL DETAILS MAY NOT APPLY TO THIS PROJECT.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: A. NUNES
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

PIPE SUPPORT DETAILS

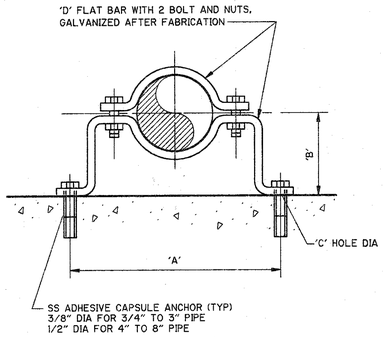
PROJECT NO. 6706_070
FILE NAME: MSDPSMD5

SHEET NO.
MD-5

L:\6706_070\WP\MECH\DETAILS\MSDPSMD5 03/25/97 22:06:18 0:12:03 Charles Peay

DIMENSIONS IN INCHES					
PIPE DIA.	'A'	'B' SEE NOTE 3 BELOW	'C' HOLE DIA.	'D' FLAT BAR SIZE	LOAD RATING LBS.*
3/4	5-15/16	2-1/2	7/16	3/16 X 1-1/4	300
1	6-1/4	2-5/8	7/16	3/16 X 1-1/4	300
1-1/4	6-11/16	2-3/4	7/16	3/16 X 1-1/4	300
1-1/2	6-15/16	3	7/16	3/16 X 1-1/4	300
2	8-5/16	3-3/16	7/16	1/4 X 1-1/4	500
2-1/2	8-7/8	3-7/16	7/16	1/4 X 1-1/4	500
3	9-1/8	3-3/4	7/16	1/4 X 1-1/4	500
3-1/2	10-1/16	4	7/16	1/4 X 1-1/4	500
4	10-9/16	4-1/4	9/16	1/4 X 1-1/2	600
5	11-3/4	4-3/4	9/16	1/4 X 1-1/2	600
6	14-3/8	5-5/16	9/16	3/8 X 1-1/2	850
8	16-5/8	6-5/16	9/16	3/8 X 1-1/2	850

* SAFETY FACTOR OF 5

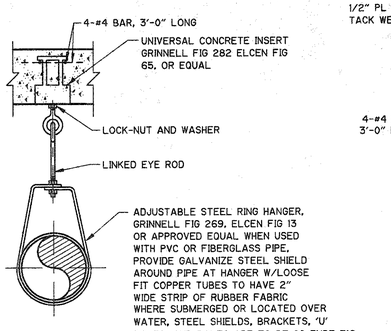


NOTES:

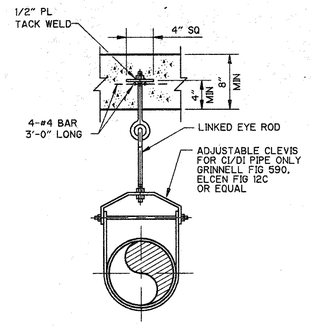
1. WHERE SUBMERGED OR LOCATED ON OR ABOVE TOP OF WALL OF HYDRAULIC STRUCTURE, PIPE CLAMP, WASHER AND SHIELD SHALL BE TYPE 316 STAINLESS STEEL
2. WHEN USED WITH PVC OR FIBERGLASS PIPE PROVIDE GALVANIZE STEEL SHIELD AROUND PIPE AT CLAMP, WITH LOOSE FIT. WRAP COPPER TUBES WITH 2" STRIP OF RUBBER FABRIC
3. FOR FLANGED PIPING INCREASE 'B' DIMENSION AS REQUIRED
4. ALL ANCHOR BOLTS SHALL BE TYPE 316 SS.

PIPE CLAMP FOR INDIVIDUAL PIPES

DETAIL A — NTS



TYPE 'A' FOR HANGER RODS 3/4" DIA AND SMALLER



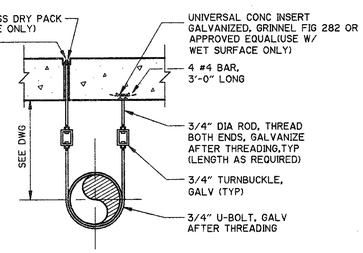
TYPE 'B' FOR HANGER RODS 7/8" DIA AND LARGER, AND MIN 8" THICK CONCRETE

NOTE:
GALVANIZE ALL PARTS AFTER FABRICATION

PIPE HANGER RODS & SUPPORT SPACING					
PIPE DIA (INCHES)	ROD DIA (INCHES)	MAX SUPPORT SPACING (FEET)		WEIGHT LIMIT (LBS)	
		STL PIPE	CI/DI PIPE	TYPE 'A'	TYPE 'B'
1 & SMALLER	3/8	5	MIN 1 HANGER PER PIPE LENGTH AND FITT MAX SPACING 5 FEET - LOCATE HANGER CLOSE TO EACH CONNECTION	610	---
1 1/2 TO 2	3/8	5		610	---
2 1/2 TO 3 1/2	1/2	10		1130	---
4 TO 5	5/8	10		1430	---
6	3/4	10		1430	3800
8,10,12	7/8	10		---	3800
14,16	1	10		---	3800

PIPE HANGER

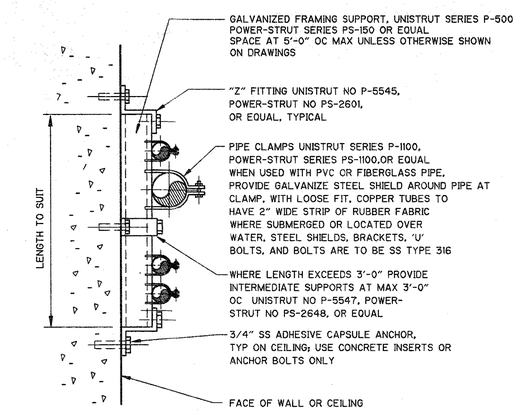
DETAIL B — NTS



NOTES:
1. FOR PIPE SIZES 8" THRU 24"
2. THIS DETAIL NOT TO BE USED FOR SUPPORT UNDER CONC TEES

DUAL ROD PIPE HANGER

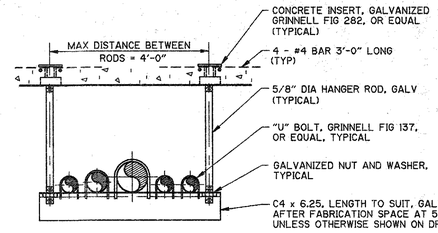
DETAIL E — NTS



NOTE:
WHERE SUBMERGED OR LOCATED ON OR ABOVE TOP OF WALL OF HYDRAULIC STRUCTURE, FRAMING SUPPORT, Z FITTINGS, INTERMEDIATE SUPPORTS, BOLTS, WASHERS AND SHIELD SHALL BE TYPE 316 STAINLESS STEEL

FLUSH MOUNTED PIPE SUPPORT

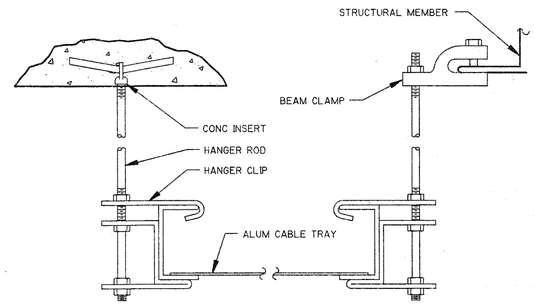
DETAIL C — NTS



NOTE:
WHEN USED WITH PVC OR FIBERGLASS PIPE PROVIDE GALVANIZE STEEL SHIELD AROUND PIPE AT "U" BOLT, WITH LOOSE FIT, WRAP COPPER TUBES WITH 2" WIDE STRIP OF RUBBER FABRIC WHERE SUBMERGED OR LOCATED OVER WATER, STEEL SHIELDS, BRACKETS, 'U' BOLTS, AND BOLTS ARE TO BE SS TYPE 316

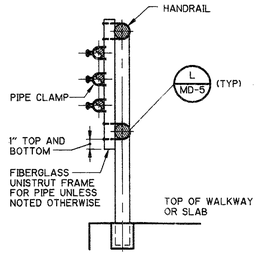
TRAPEZE PIPE HANGER

DETAIL D — NTS



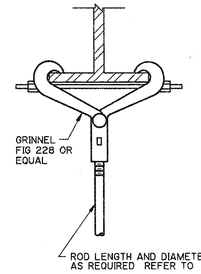
CABLE TRAY

DETAIL H — NTS



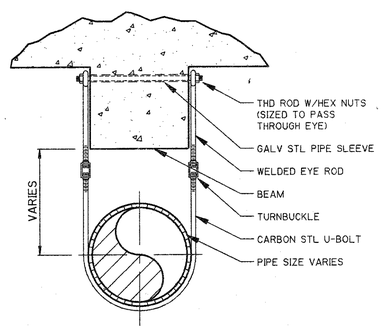
HANDRAIL SUPPORTED PIPE

DETAIL F — NTS

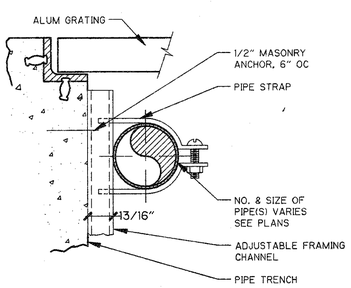


BEAM CLAMP

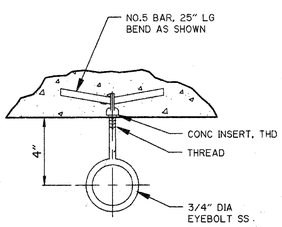
DETAIL G — NTS



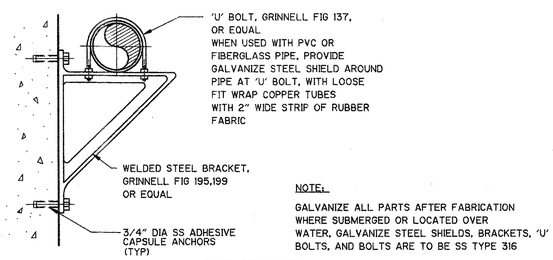
DETAIL J — NTS



DETAIL K — NTS



DETAIL L — NTS



NOTE:
GALVANIZE ALL PARTS AFTER FABRICATION WHERE SUBMERGED OR LOCATED OVER WATER, GALVANIZE STEEL SHIELDS, BRACKETS, 'U' BOLTS, AND BOLTS ARE TO BE SS TYPE 316

PIPE BRACKET

DETAIL M — NTS

NOTES

1. USE WASHERS WITH NUTS AND BOLTS.
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3. DETAILS SHOWN ARE INTENDED TO COVER A WIDE RANGE OF PROJECT SITUATIONS. ALL DETAILS MAY NOT APPLY TO THIS PROJECT.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. SPRIGGS
DRAWN BY: J. SANCIMINO
SHEET CHK'D BY: W. SPRIGGS
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: B. GRAHAM
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

PIPE HANGER DETAILS

PROJECT NO. 6706_070
FILE NAME: MSDPDMD6

SHEET NO.
MD-6

L:\6706_070\KAP\MEP\DETAILS\MSDPSMD6 03/24/97 21:43:59 0:20:54 Charles Pkwy

SYMBOLS

T	THERMOSTAT
H	HUMIDISTAT
SD	SMOKE DETECTOR
	AIR FLOW SENSOR
VD	VOLUME DAMPER
FD	FIRE DAMPER
SD	SMOKE ACTUATED FIRE DAMPER
FC	FLEXIBLE CONNECTION
	ELBOW WITH TURNING VANES
EAG	EXHAUST AIR GRILLE
ER	EXHAUST REGISTER
RG	RETURN GRILLE
SR	SUPPLY REGISTER
	SUPPLY DUCT
	RETURN / EXHAUST DUCT
DG	DOOR GRILLE
TG	TRANSFER GRILLE
RG	TRANSFER DUCT
SD	SPLITTER DAMPER
	SHOE-TAP
	EXTRACTOR
	DAMPER-EXTRACTOR DUCT CONNECTION
	CEILING DIFFUSER - TYPE VARIES
	ROOF MOUNTED EXHAUST FAN
	WALL MOUNTED EXHAUST FAN
VAV	VARIABLE AIR VOLUME REGULATOR W/ OUTLETS
	ROUND FLEXIBLE INSULATED DUCT
	SHEET METAL DUCT
	ELECTRIC UNIT HEATER
	ELECTRIC DUCT HEATER
	ENERGY RECOVERY UNIT
	VVT BOX WITH TRANSITION

ABBREVIATIONS

A	AIR
ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
AD	ACCESS DOOR
ALUM	ALUMINUM
AR	ACID RESISTANT
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AABC	ASSOCIATED AIR BALANCE COUNCIL
AFF	ABOVE FINISHED FLOOR
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS
BDD	BACKDRAFT DAMPER
BEL	BELOW
BLDG	BUILDING
BS	BIRDSCREEN
BTU	BRITISH THERMAL UNITS
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CD	CEILING DIFFUSER
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECTION
CW	CHILLED WATER
CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
DB	DRY BULB
DISC	DISCHARGE
DG	DOOR GRILLE
DN	DOWN
DPR	DAMPER
DS	DISCONNECT SWITCH
DIA	DIAMETER
EA	EACH
EAG	EXHAUST AIR GRILLE
EDH	ELECTRIC DUCT HEATER
EUH	ELECTRIC UNIT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
ER	EXHAUST REGISTER
EVAP	EVAPORATION
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FIN	FINISH
FLA	FULL LOAD AMPS
FL	FLOOR
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET
GA	GAUGE
GALV	GALVANIZED
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GFC	GAS FIRED CHILLER
HP	HORSEPOWER
HR	HOUR
HG	HOT GAS
HW	HOT WATER

ABBREVIATIONS (CONTINUED)

KW	KILOWATT
LD	LINEAR DIFFUSER
LVR	LOUVER
LIQ	LIQUID
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MTD	MOUNTED
MTG	MOUNTING
NOM	NOMINAL
NTS	NOT TO SCALE
O/A	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
PCD	PERFORATED CEILING DIFFUSER
PBD	PARALLEL BLADE DAMPER
PCF	POUNDS PER CUBIC FOOT
PPM	PARTS PER MILLION
PAC	PACKAGED AIR CONDITIONING UNIT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
R/A	RETURN AIR
RG	RETURN GRILLE
REF	REFRIGERANT
RPM	REVOLUTIONS PER MINUTE
RM	ROOM
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SHT	SHEET
SM	SHEET METAL
FT^2	SQUARE FEET
ST	STEAM
SP	STATIC PRESSURE
SS	STAINLESS STEEL
STD	STANDARD
SUCT	SUCTION
S/A	SUPPLY AIR
SR	SUPPLY REGISTER
SW	SWITCH
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
TDH	TOTAL DISCHARGE HEAD
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TSP	TOTAL STATIC PRESSURE
TV	TURNING VANES
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
VAP	VAPOR
W/	WITH
WB	WET BULB
WT	WEIGHT
WTR	WATER
WG	WATER GAUGE

NOTES

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. HAYGOOD
DRAWN BY: P. POULIOT
SHEET CHK'D BY: W. HAYGOOD
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. HAYGOOD
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

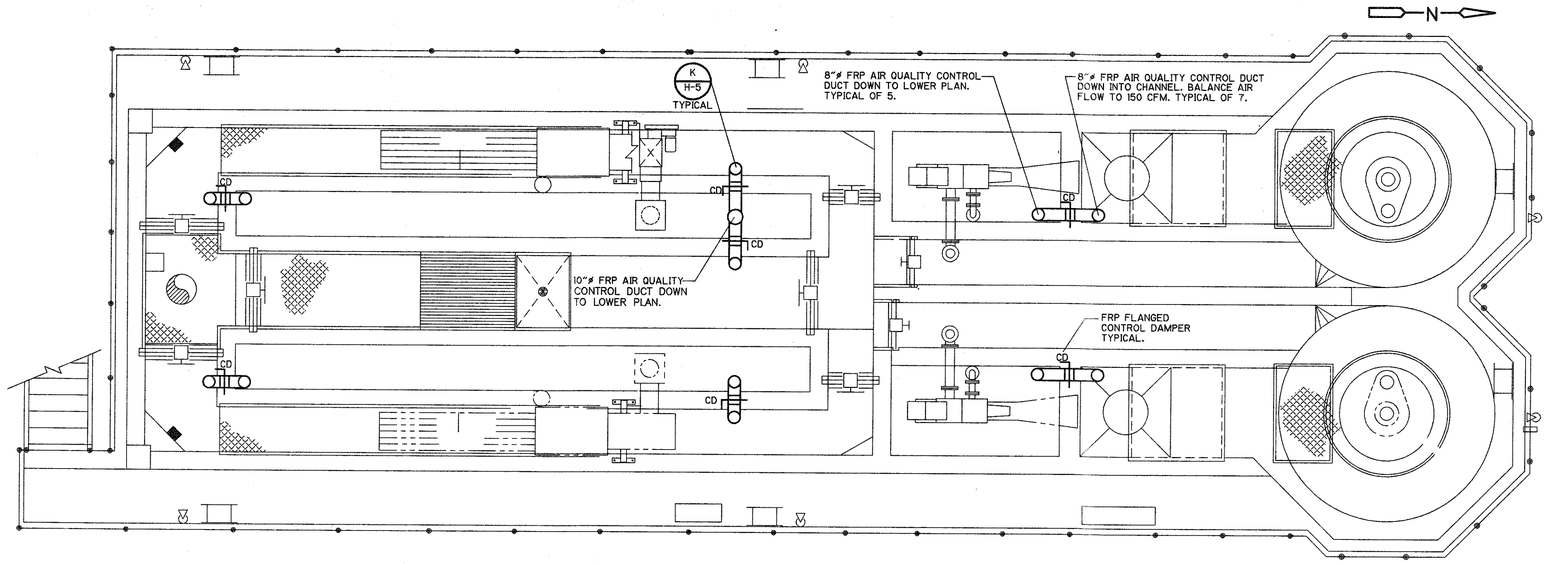
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HVAC SYMBOLS AND ABBREVIATIONS

PROJECT NO. 6706_070
FILE NAME: HSYABH01

SHEET NO.
H-1

PAUL A. POULIOT 05/22/97 HSYABH01 O:\6706_070\HVAC\



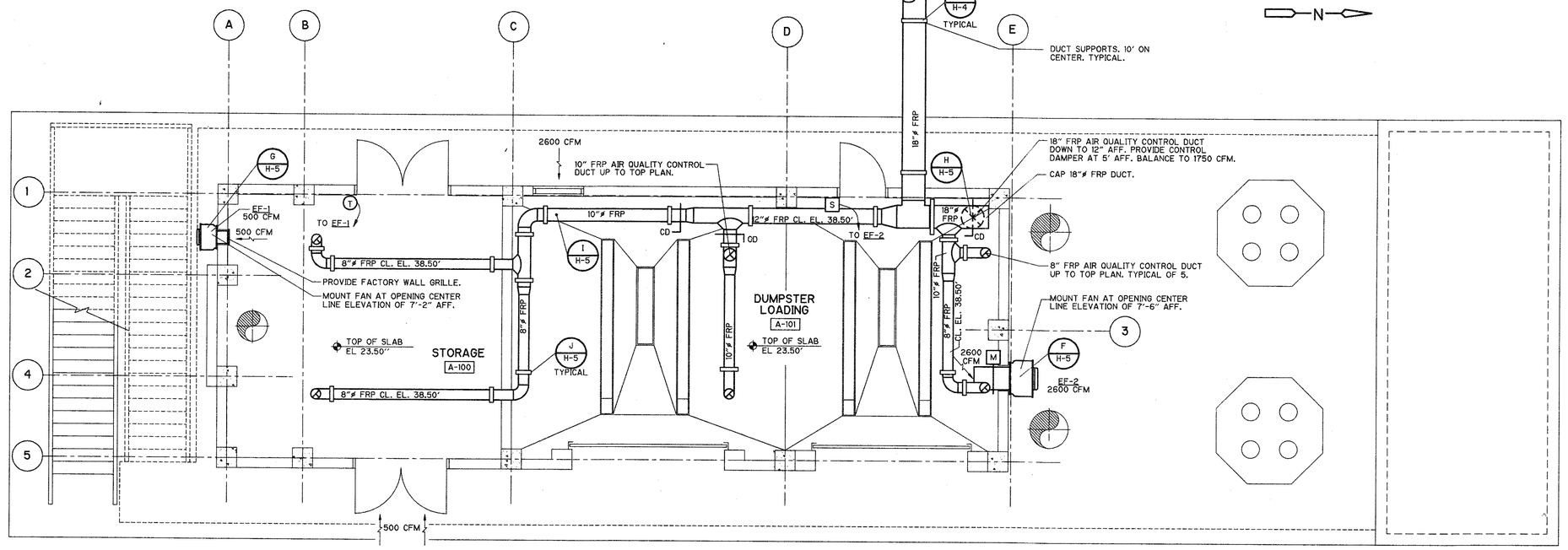
TOP PLAN

PLAN

1/4" = 1'-0"

NOTE:

1. THE LENGTH OF FRP AIR QUALITY CONTROL DUCTS TO BE PROVIDED SHALL BE DETERMINED FROM THE CIVIL SITE LAYOUT DRAWINGS AND THE ACTUAL FIELD CONDITIONS. INCLUDE REASONABLE ALLOWANCES FOR ALTERNATE ROUTING AROUND EXISTING CONDITIONS SUCH AS EXISTING PIPING OR STRUCTURES. ALL DUCTS SHALL BE INSTALLED PARALLEL TO EXISTING BUILDINGS, UNLESS OTHERWISE IMPOSSIBLE DUE TO EXISTING CONDITIONS.



LOWER PLAN

PLAN

1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. HAYGOOD
DRAWN BY: P. POULIOT
SHEET CHK'D BY: W. HAYGOOD
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. HAYGOOD
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

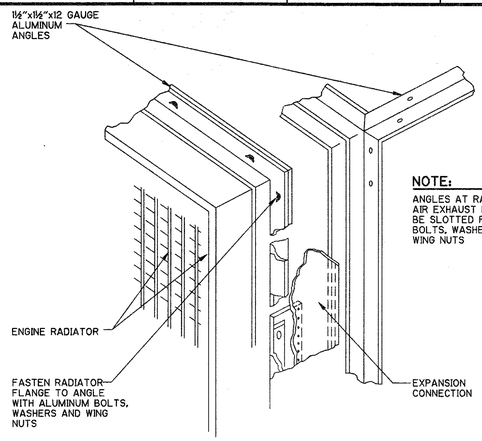
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS STRUCTURE
HVAC PLANS

PROJECT NO. 6706_070
FILE NAME: HHWPLH01

SHEET NO.
H-2

PAUL A. POULIOT 8:07:30 05/23/97 HHWPLH02 O:\6706_070\HVAC\

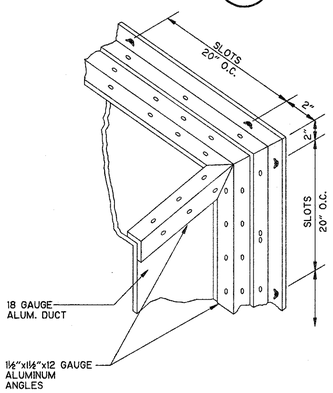


NOTE:

ANGLES AT RADIATOR AND AIR EXHAUST LOUVERS TO BE SLOTTED FOR ALUMINUM BOLTS, WASHERS AND WING NUTS

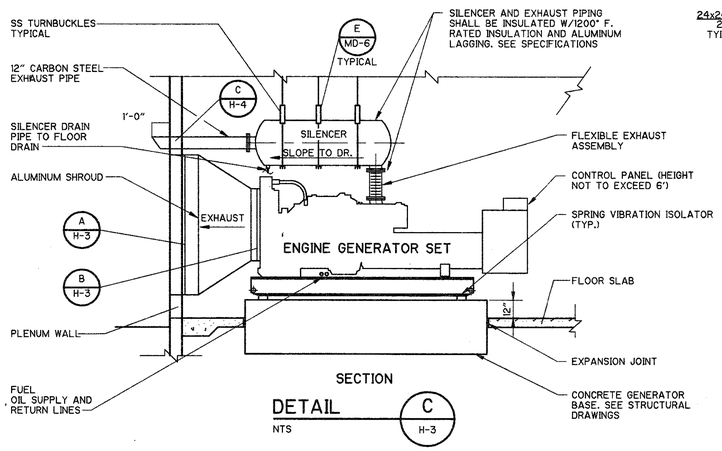
DETAIL A H-3

NTS



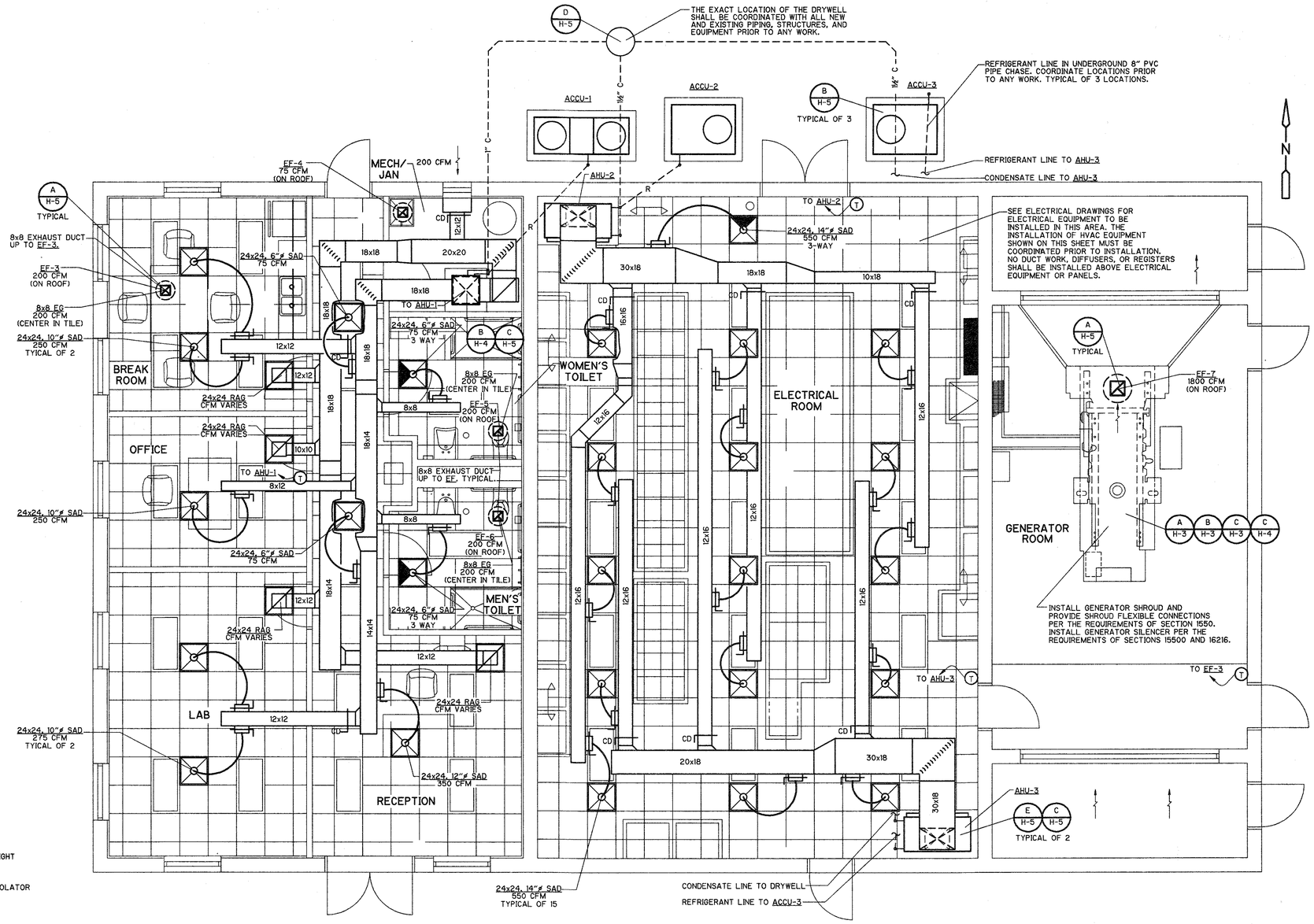
DETAIL B H-3

NTS



DETAIL C H-3

NTS



PLAN

1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. HAYGOOD
DRAWN BY: P. POULIOT
SHEET CHK'D BY: W. HAYGOOD
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. HAYGOOD
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

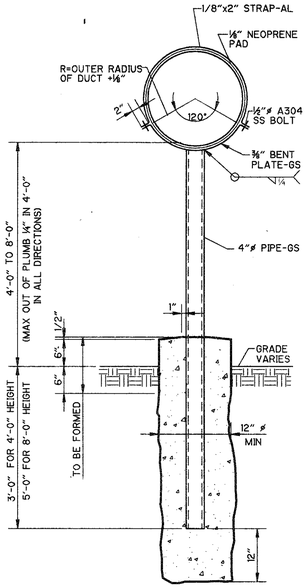
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

GENERATOR/ELECTRICAL BUILDING HVAC PLAN

PROJECT NO. 6706_070
FILE NAME: HGNBLH03

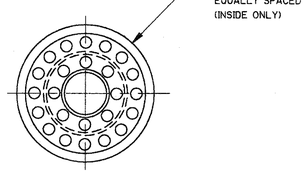
SHEET NO.
H-3

PAUL A. POULIOT 05/23/97 10:07:05 HGNELP03 O:\6706_070\HVAC\

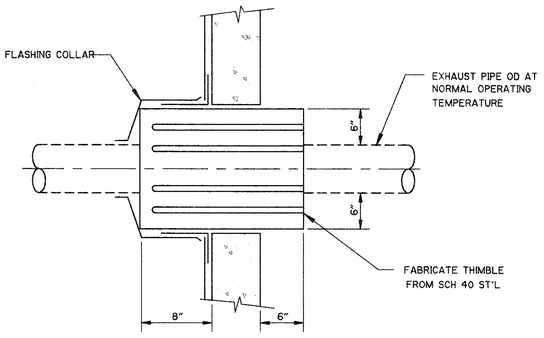


PIPE SUPPORT

DETAIL A
NTS

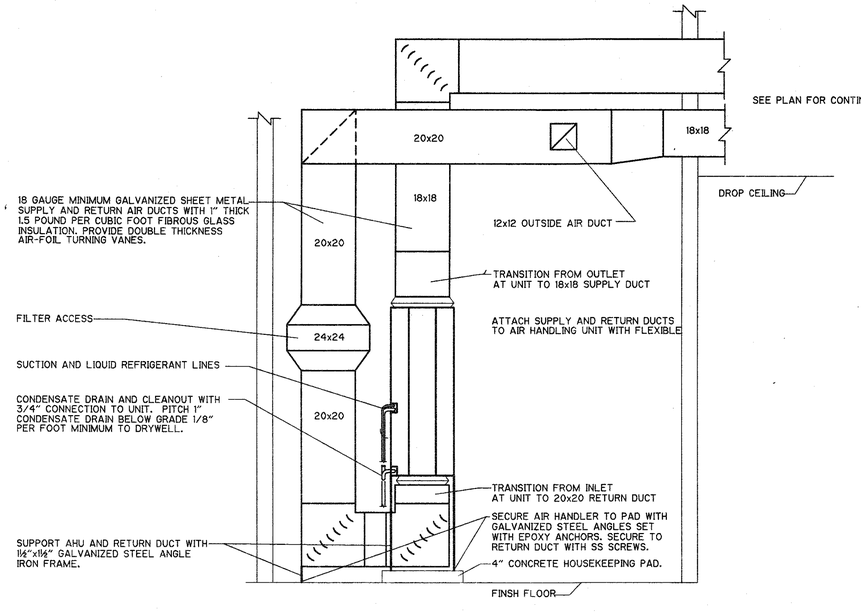


THIMBLE PLAN



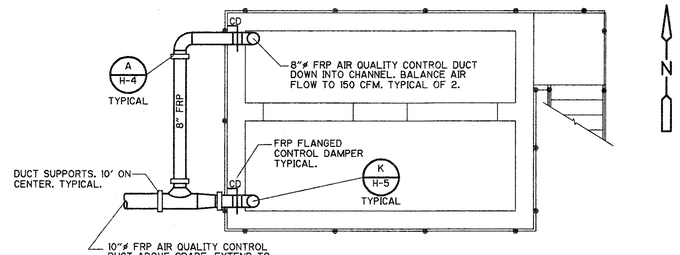
THIMBLE SECTION

DETAIL C
N.T.S.
H-3



AHU-1 MOUNTING

DETAIL B
NTS
H-3

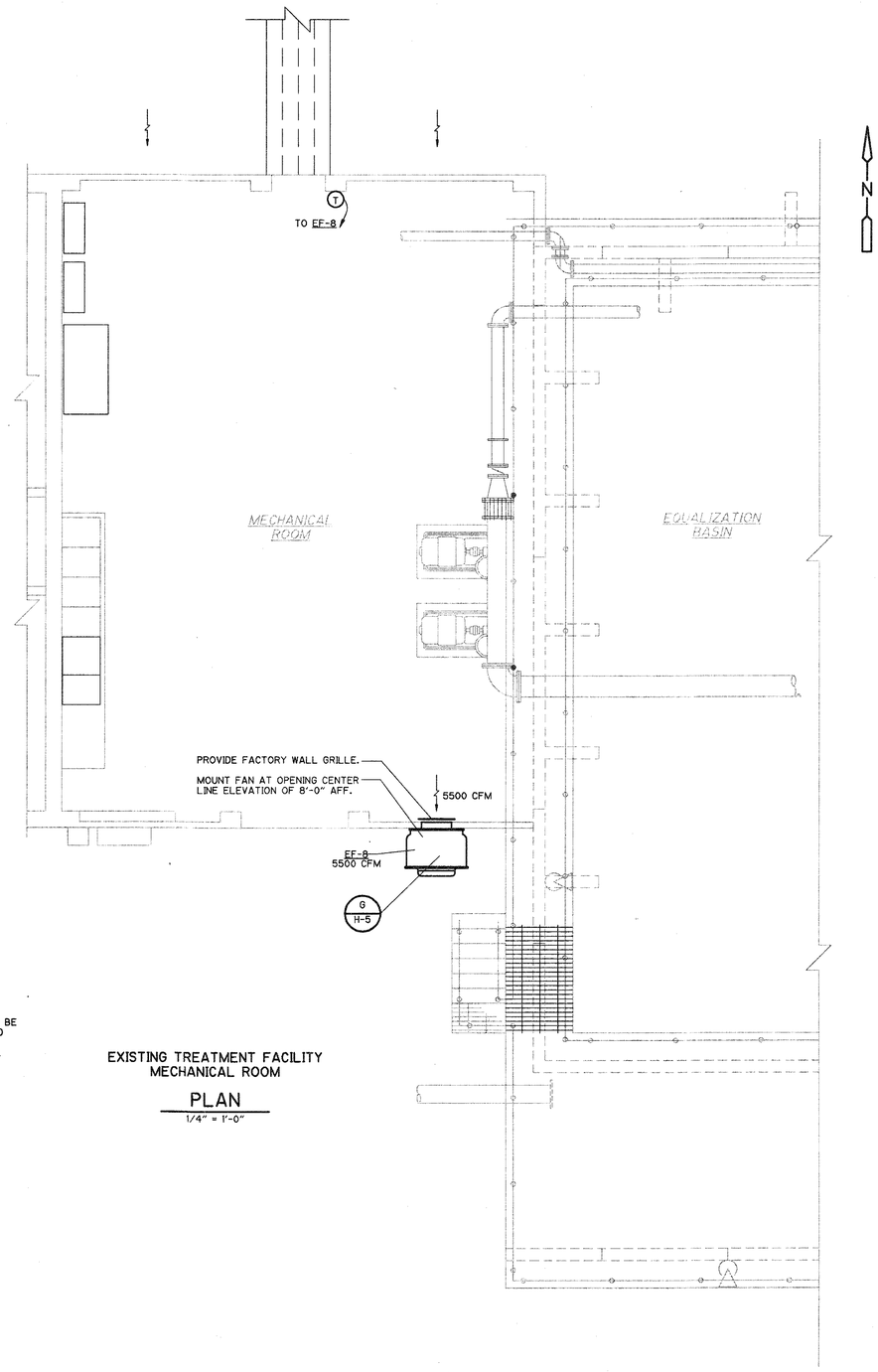


NOTE:

1. THE LENGTH OF FRP AIR QUALITY CONTROL DUCTS TO BE PROVIDED SHALL BE DETERMINED FROM THE CIVIL SITE LAYOUT DRAWINGS AND THE ACTUAL FIELD CONDITIONS. INCLUDE REASONABLE ALLOWANCES FOR ALTERNATE ROUTING AROUND EXISTING CONDITIONS SUCH AS EXISTING PIPING OR STRUCTURES. ALL DUCTS SHALL BE INSTALLED PARALLEL TO EXISTING BUILDINGS, UNLESS OTHERWISE IMPOSSIBLE DUE TO EXISTING CONDITIONS.

EQUALIZATION SPLITTER BOX

PLAN
1/4" = 1'-0"



EXISTING TREATMENT FACILITY MECHANICAL ROOM

PLAN
1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. HAYGOOD
DRAWN BY: P. POULIOT
SHEET CHK'D BY: W. HAYGOOD
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. HAYGOOD
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

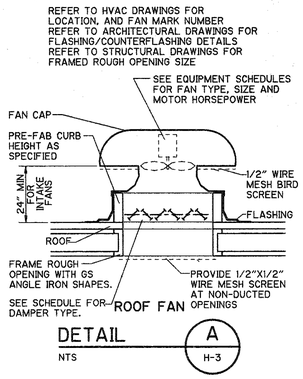
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

EQUALIZATION SPLITTER BOX AND EXISTING TREATMENT FACILITY MECHANICAL ROOM HVAC PLANS

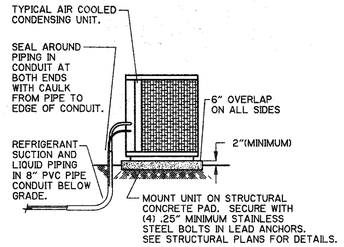
PROJECT NO. 6706_070
FILE NAME: HSBEMH04

SHEET NO.
H-4

O:\6706_070\HVAC\ HSBEMH04 05/23/97 15:03 PAUL A. POULIOT

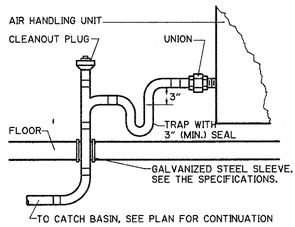


DETAIL A — NTS — H-3



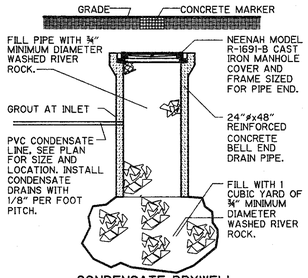
BELOW GRADE PIPING AND CONDENSOR MOUNTING

DETAIL B — NTS — H-3



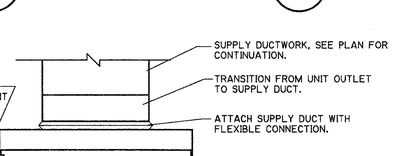
CONDENSATE DRAIN

DETAIL C — NTS — H-3



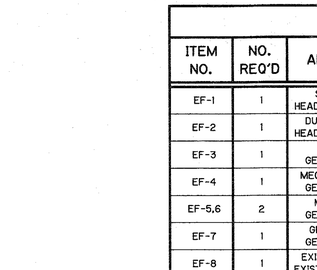
CONDENSATE DRYWELL

DETAIL D — NTS — H-3



AHU-2,3 MOUNTING

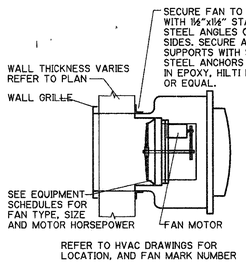
DETAIL E — NTS — H-3



REFER TO HVAC DRAWINGS FOR LOCATION, AND FAN MARK NUMBER

WALL FAN MOUNTING WITH DUCT

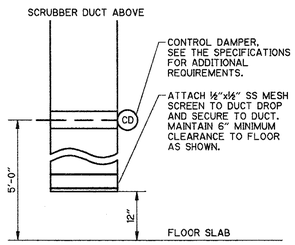
DETAIL F — NTS — H-2



REFER TO HVAC DRAWINGS FOR LOCATION, AND FAN MARK NUMBER

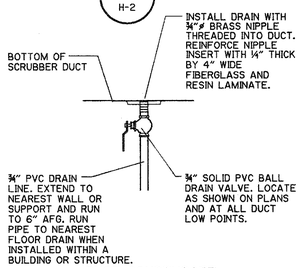
WALL FAN MOUNTING WITHOUT DUCT

DETAIL G — NTS — H-2,4



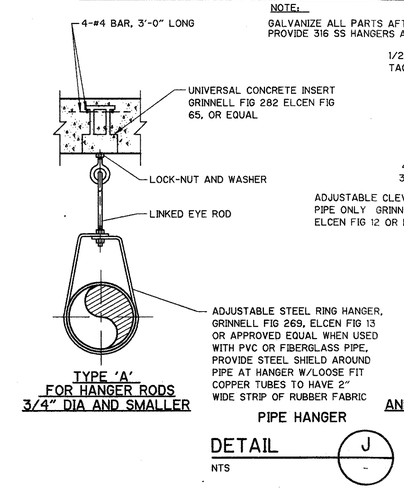
ODOR CONTROL DUCT MOUNTING

DETAIL H — NTS — H-2



DUCT CONDENSATE DRAIN CONNECTION

DETAIL I — NTS — -



TYPE 'A' FOR HANGER RODS 3/4" DIA AND SMALLER

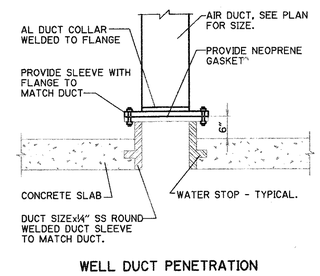
TYPE 'B' FOR HANGER RODS 7/8" DIA AND LARGER, AND MIN 8" THICK CONCRETE

PIPE HANGER

DETAIL J — NTS — -

PIPE HANGER RODS & SUPPORT SPACING					
PIPE DIA (INCHES)	ROD DIA (INCHES)	MAX SUPPORT SPACING (FEET) STL PIPE	MAX SUPPORT SPACING (FEET) CI/DI PIPE	WEIGHT LIMIT (LBS) TYPE 'A'	WEIGHT LIMIT (LBS) TYPE 'B'
1 & SMALLER	3/8	5	MIN 1 HANGER PER PIPE LENGTH AND FITT MAX SPACING 5 FEET- LOCATE HANGER CLOSE TO EACH CONNECTION	610	---
1 ½ TO 2	3/8	5		610	---
2 ½ TO 3 ½	1/2	10		1130	---
4 TO 5	5/8	10		1430	---
6	3/4	10		1430	3800
8,10,12	7/8	10		---	3800
14,16	1	10		---	3800

NOTE:
GALVANIZE ALL PARTS AFTER FABRICATION. PROVIDE 316 SS HANGERS AS SPECIFIED.



WELL DUCT PENETRATION

DETAIL K — NTS — -

EXHAUST FAN SCHEDULE

ITEM NO.	NO. REQ'D	AREA SERVED	SHEET NO.	CFM	S.P.	TYPE: SET	TYPE: WHEEL	TYPE: DRIVE	H.P.	VOLT/PHASE	FAN RPM	MAX SONE VALUE	GREENHECK MODEL NO.	REMARKS	CONTROL
EF-1	1	STORAGE ROOM HEADWORKS STRUCTURE	H-2	500	0.50"	WALL	CENT.	DIRECT	1/15	115 V 1ø	1550	7.4	GW-90-D	BDD,BS,DS,EC,A,TE,T	T'STAT OR HOA SWITCH
EF-2	1	DUMPSTER LOADING HEADWORKS STRUCTURE	H-2	2600	1.0"	WALL	CENT.	BELT	3/4	460 V 3ø	1070	13.6	GWB-18-7	MOD,BS,DS,EC,A,TE	WALL SWITCH
EF-3	1	BREAK ROOM GEN/ELEC BUILDING	H-3	200	0.50"	ROOF	CENT.	DIRECT	1/25	115 V 1ø	1550	4.8	G-75-D	BDD,BS,DS,EC,FC,A,TE	WALL SWITCH
EF-4	1	MECHANICAL/JANITOR GEN/ELEC BUILDING	H-3	75	0.125"	ROOF	CENT.	DIRECT	1/200	115 V 1ø	1050	1.7	G-60-E	BDD,BS,DS,EC,FC,A,TE	LIGHT SWITCH
EF-5,6	2	MEN'S/WOMEN'S GEN/ELEC BUILDING	H-3	200	0.50"	ROOF	CENT.	DIRECT	1/25	115 V 1ø	1550	4.8	G-75-D	BDD,BS,DS,EC,FC,A,TE	LIGHT SWITCH
EF-7	1	GENERATOR ROOM GEN/ELEC BUILDING	H-3	1800	0.50"	ROOF	CENT.	DIRECT	1/2	460 V 3ø	1725	18.5	CUE-120-A	BDD,BS,DS,EC,FC,A,TE,T	T'STAT OR HOA SWITCH
EF-8	1	EXISTING MECH ROOM EXIST. TREATMENT FAC.	H-4	5500	0.50"	WALL	CENT.	BELT	2	460 V 3ø	743	15.2	GWB-24-20	BDD,BS,DS,EC,A,TE,T	T'STAT OR HOA SWITCH

BDD = BACKDRAFT DAMPER
MOD = MOTOR OPERATED DAMPER
BS = PVC COATED ALUMINUM BIRD SCREEN
DS = STAINLESS STEEL NEMA 4X DISCONNECT SWITCH
EC = HERESITE OVEN DRIED PHENOLIC EPOXY COATED
FC = FACTORY ALUMINUM ROOF CURB
A = ALL ALUMINUM CONSTRUCTION
TE = TOTALLY ENCLOSED FAN COOLED MOTOR
T = LINE VOLTAGE THERMOSTAT

AIR COOLED CONDENSING UNIT SCHEDULE

ITEM NO.	NO. REQ'D	LOCATION	MATCH WITH	SYSTEM CAPACITY: BTUH	SYSTEM CAPACITY: SEER	PIPING: SUCT.	PIPING: LIQ.	CONDENSER: OSA F	CONDENSER: CFM	CONDENSER: ROWS	CONDENSER: RLA	COMPRESSOR: NO.	COMPRESSOR: TYPE	COMPRESSOR: RLA	COMPRESSOR: VOLT	COMPRESSOR: PHASE	REMARKS	MANUFACTURER MODEL	HEATING CAP. BTUH @ 47°F	MINIMUM C.O.P.
ACCU-1	1	NORTH WALL GEN/ELEC BUILDING	AHU-1	52,000	13.0	1⅛"	⅜"	95	4,400	2	0.8	1	HERMETIC	24.7	208	1	SEE NOTE A BELOW	WEATHERKING WPGLB-061JA	54,000	3.5
ACCU-2,3	2	NORTH WALL GEN/ELEC BUILDING	AHU-2,3	140,000	9.0	2ø1⅛"	2ø⅜"	95	5,800	4	3.1	2	HERMETIC	8.7/8.7	460	3	SEE NOTE A BELOW	ADDISON RC-134E	-	-

NOTE A: PROVIDE UNIT WITH THE FOLLOWING OPTIONS: LOW PRESSURE CONTROL, LIQUID LINE FILTER-DRIER, AND LOW AMBIENT SWITCH.

AIR HANDLING UNIT SCHEDULE

ITEM NO.	NO. REQ'D	AREA SERVED	SHEET NO.	COIL DATA: ENTERING AIR DB	COIL DATA: ENTERING AIR WB	COIL DATA: LEAVING AIR DB	COIL DATA: LEAVING AIR WB	COIL DATA: TOTAL MBH	COIL DATA: SENSIBLE MBH	COIL DATA: ROWS/FINS	FAN DATA: CFM	FAN DATA: OSA CFM	FAN DATA: ESP	FAN DATA: HP	FAN DATA: DRIVE	FAN DATA: VOLT PHASE	FILTERS: TYPE	FILTERS: SIZE NO.	REMARKS	MANUFACTURER MODEL	ELECTRIC HEATING: KW	ELECTRIC HEATING: VOLT PHASE	ELECTRIC HEATING: NO. OF STAGES
AHU-1	1	ADMINISTRATION AREA GEN/ELEC BUILDING	H-3	80	67	-	-	52.0	40.5	-	1950	200	0.2"	1/2	DIRECT	208 V 1ø	TA	- -	SEE NOTE A BELOW	WEATERKING AHMA-20	10	208 V 1ø	1
AHU-2,3	2	ELECTRICAL ROOM GEN/ELEC BUILDING	H-3	85	67	-	-	140.0	127.0	-	4500	-	1.4"	3	BELT	460 V 3ø	TA	(2)16x25 (1)20x25	SEE NOTE A BELOW	ADDISON VCH-134	-	- -	-

NOTE A: PROVIDE UNIT WITH THE FOLLOWING OPTIONS: 1" FARR 30/30 FILTERS.

LEGEND

SYMBOL	DESCRIPTION
⊠	ROOF MOUNTED EXHAUST FAN
T	HEAVY DUTY, CORROSION RESISTANT LINE VOLTAGE THERMOSTAT
M	MOTOR OPERATED DAMPER

AIR DISTRIBUTION DEVICE SCHEDULE

SYMBOL	DESCRIPTION	MODEL	FRAME TYPE	MATERIAL	FINISH	REMARKS
SAD	SUPPLY AIR DIFFUSER NON-PERFORATED	METAL•AIRE 5000	LAY-IN	ALUMINUM	OFF-WHITE ENAMEL	-
RAG	RETURN GRILLE HEAVY DUTY	METAL•AIRE RH-HD	PLASTER OR LAY-IN	ALUMINUM	OFF-WHITE ENAMEL	-
EG	EXHAUST GRILLE HEAVY DUTY	METAL•AIRE RH-HD	PLASTER OR LAY-IN	ALUMINUM	OFF-WHITE ENAMEL	-

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. HAYGOOD
DRAWN BY: P. POULIOT
SHEET CHK'D BY: W. HAYGOOD
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. HAYGOOD
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HVAC SCHEDULES AND DETAILS

PROJECT NO. 6706_070
FILE NAME: HSCDTH05

SHEET NO.
H-5

PAUL A. POULIOT 2/6/40 05/23/97 HSCDTH05 G:\6706_070\HVAC\

SYMBOLS

	FLOOR DRAIN
	FLOOR CLEANOUT
	WALL CLEANOUT
	YARD CLEANOUT
	HOSE BIBB
	KITCHEN SINK
	COLD WATER
	HOT WATER
	SANITARY
	VENT
RL	RAIN LEADER
	ROOF DRAIN
	GATE VALVE
	CHECK VALVE
	PRESSURE & TEMPERATURE RELIEF VALVE
VTR	VENT THROUGH ROOF
	SHOCK ARRESTOR
	GATE VALVE IN YARD BOX
C	CONDENSATE
	END CAP
AC	ACID RESISTING
F	FIRE PROTECTION

ABBREVIATIONS

A	AIR
ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AR	ACID RESISTANT
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BEL	BELOW
BLDG	BUILDING
BTU	BRITISH THERMAL UNIT
CI	CAST IRON
CLG	CEILING
CO	CLEANOUT
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECTION
CP	CHROME PLATED
CU YD	CUBIC YARD
CW	COLD WATER
CU	COPPER
CV	CIRCUIT VENT
DISCH	DISCHARGE
DN	DOWN
DR	DRAIN
DIA	DIAMETER
EA	EACH
ECO	EXTERIOR CLEANOUT
EL	ELEVATION
ES	EMERGENCY SHOWER
EW	EYE WASH
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EVAP	EVAPORATION
FC	FLEXIBLE CONNECTION
FIN	FINISH
FL	FLOOR
FD	FLOOR DRAIN
FCO	FLOOR CLEANOUT
FT	FEET
FU	FIXTURE UNIT
GA	GAUGE
GALV	GALVANIZED
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GFC	GAS FIRED CHILLER
HD	HEAD
HP	HORSEPOWER
HR	HOUR
HW	HOT WATER
HWR	HOT WATER RECIRCULATION
HG	HOT GAS

ABBREVIATIONS (CONTINUED)

IE	INVERT ELEVATION
KW	KILOWATT
LIQ	LIQUID
LV	LOOP VENT
MFR	MANUFACTURER
MH	MANHOLE
MTD	MOUNTED
MTG	MOUNTING
NOM	NOMINAL
NTS	NOT TO SCALE
P/T	PRESSURE/TEMPERATURE RELIEF
PIV	POST INDICATOR VALVE
PPM	PARTS PER MILLION
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PW	POTABLE WATER
POC	POINT OF CONNECTION
RD	ROOF DRAIN
REF	REFRIGERANT
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RV	RELIEF VENT
SHT	SHEET
SPKLR	SPRINKLER
SS	STAINLESS STEEL
STD	STANDARD
SUCT	SUCTION
SQ FT	SQUARE FEET
ST	STEAM
SV	STACK VENT
TDH	TOTAL DISCHARGE HEAD
TEMP	TEMPERATURE
TSP	TRAP SEAL PRIMER
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
V	VENT
VAP	VAPOR
VB	VALVE BOX
VC	VITREOUS CHINA
VS	VENT STACK
VTR	VENT THROUGH ROOF
W/	WITH
WT	WEIGHT
WTR	WATER
WG	WATER GAUGE
WS	WASTE STACK

NOTES

1. EXPOSED FIXTURE TRAPS SHALL BE CHROME PLATED COPPER OR BRASS.
2. EXPOSED PIPING SHALL BE PRIMED AND PAINTED PER THE SPECIFICATIONS.
3. LEAD CONTAINING SOLDER SHALL NOT BE USED FOR ANY POTABLE WATER PIPING.
4. PIPING SUPPORTS FOR ALL PIPING SYSTEMS SHALL MEET THE APPLICABLE REQUIREMENTS OF THE STANDARD PLUMBING CODE AND THE SPECIFICATIONS. ALL SUPPORTS SHALL BE ATTACHED PERMANENTLY TO THE BUILDING STRUCTURE. NO SUPPORTS SHALL PENETRATE OR BE ATTACHED TO THE METAL ROOF DECKING, STRUCTURAL BEAMS, OR NON-STRUCTURAL ARCHITECTURAL APPURTENANCES WITHOUT WRITTEN PERMISSION.
5. COPPER PIPE HANGERS SHALL BE CONSTRUCTED OF COPPER OR OTHER COPPER COMPATIBLE MATERIALS.
6. ALL PIPING PENETRATING OR IN CONTACT WITH CONCRETE, MASONRY, OR ANY OTHER CORROSIVE MATERIAL SHALL BE SLEEVED PER THE SPECIFICATIONS.
7. ALL DRAIN PIPING SHALL BE INSTALLED AT 1/8" PER FOOT SLOPE UNLESS OTHERWISE NOTED. ALL VENT PIPING SHALL BE INSTALLED LEVEL OR SLOPED AT 1/8" PER FOOT TO NEAREST FIXTURE DRAIN.
8. COORDINATE ACTUAL LOCATIONS AND SIZES OF ALL EQUIPMENT CONNECTIONS, DRAINS, ETC WITH EQUIPMENT SUPPLIERS. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL LOCATIONS OF ALL PLUMBING FIXTURES. MINOR ADJUSTMENTS TO CONDITIONS SHALL BE SUPPLIED AT NO ADDITIONAL COST TO THE OWNER.
9. ALL PIPING SHALL BE INSTALLED PARALLEL TO THE BUILDING STRUCTURE UNLESS OTHERWISE SHOWN ON THE PLANS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. HAYGOOD
DRAWN BY: P. POULIOT
SHEET CHK'D BY: W. HAYGOOD
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. HAYGOOD
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CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

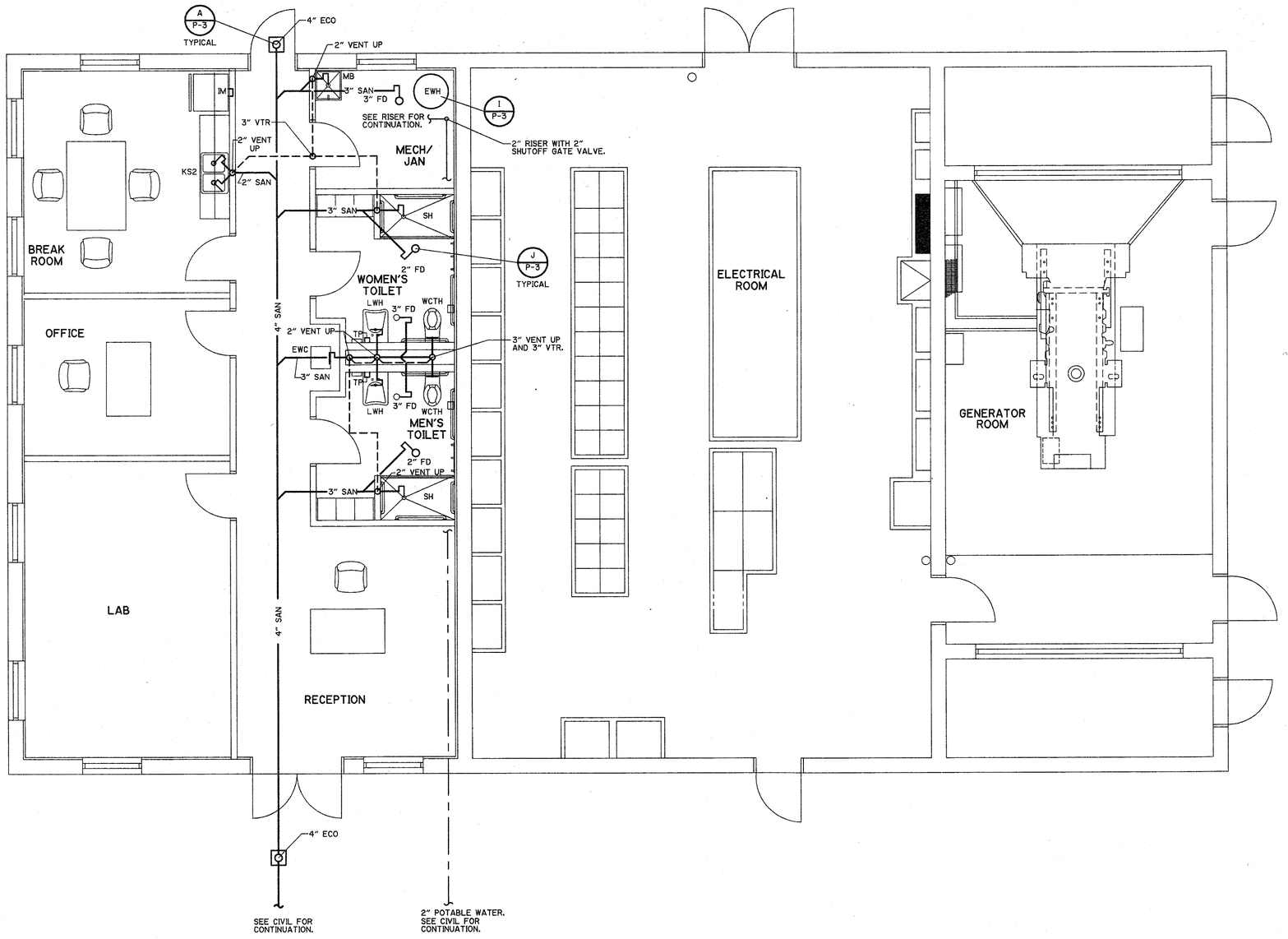
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

PLUMBING SYMBOLS AND ABBREVIATIONS

PROJECT NO. 6706_070
FILE NAME: PSYABH01

SHEET NO.
P-1

PAUL A. POULIOT 02659 05/23/97 PSYABH01 O:\6706_070\HVAC\



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. HAYGOOD
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CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

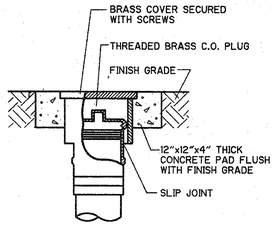
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

GENERATOR/ELECTRICAL BUILDING
PLUMBING PLAN

PROJECT NO. 6706_070
FILE NAME: PGNBLP02

SHEET NO.
P-2

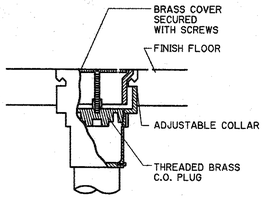
O:\6706_070\HVAC\ PGNBLP02 05/23/97 4:38:19 PAUL A. POULIOT



EXTERIOR CLEANOUT

DETAIL A / P-2

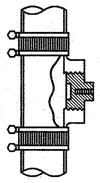
NTS



FLOOR CLEANOUT

DETAIL B / P-2

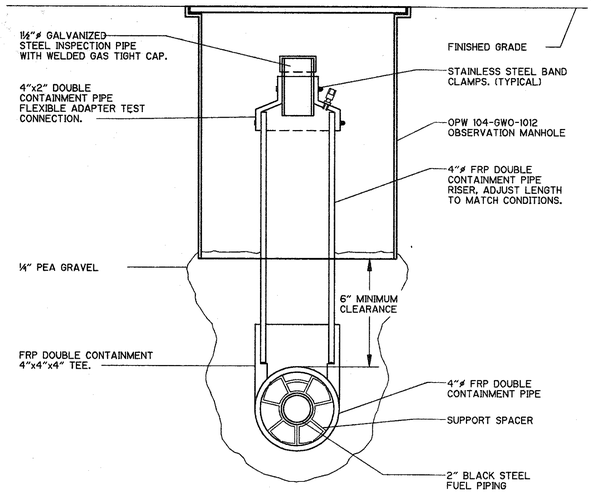
NTS



WALL CLEANOUT

DETAIL C / P-2

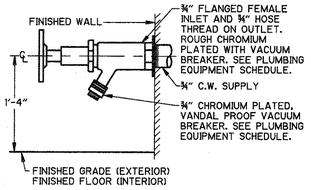
NTS



FUEL PIPING INSPECTION MANHOLE

DETAIL E / P-2

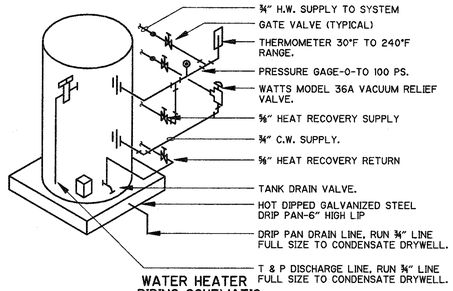
NTS



HOSE BIBB AND WALL HYDRANT MOUNTING

DETAIL D / P-2

NTS



WATER HEATER PIPING SCHEMATIC

DETAIL I / P-2

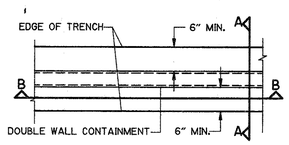
NTS

PLUMBING EQUIPMENT SCHEDULE

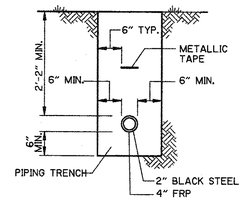
ITEM NO.	ITEM	DESCRIPTION
FCO	FLOOR CLEANOUT	ZURN ZN-1400 SERIES COATED CAST IRON CLEANOUT, ROUND NICKEL-BRONZE ADJUSTABLE TOP, GASKETED COVER, BRONZE PLUG, TOP TO MATCH FLOOR FINISH.
WCO	WALL CLEANOUT	ZURN Z-1460-8 BRONZE PLUG. PROVIDE LINE TEE FOR INSTALLATION OF WALL CLEANOUT.
ECO	EXTERIOR CLEANOUT	PROVIDE CLEANOUT AS DETAILED IN FCO ABOVE, ENCASE IN CONCRETE PAD AT FINISHED GRADE, SEE DETAIL.
VTR	VENT THRU ROOF	-
HB	HOSE BIBB	SEE THE SPECIFICATIONS.
WH	EXTERIOR WALL HYDRANT	SEE THE SPECIFICATIONS.
EWH	ELECTRIC WATER HEATER	SEE THE SPECIFICATIONS.

PLUMBING EQUIPMENT SCHEDULE

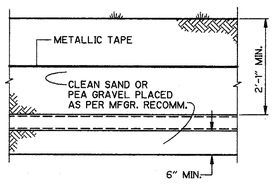
ITEM NO.	ITEM	DESCRIPTION
EWC	ELECTRIC WATER COOLER	SEE THE SPECIFICATIONS.
IM	ICE MAKER	SEE THE SPECIFICATIONS.
KS2	KITCHEN SINK	STAINLESS STEEL TWO COMPARTMENT KITCHEN SINK. SEE THE SPECIFICATIONS.
LWH	LAVATORY WALL MOUNTED	HANDICAPPED ACCESIBLE SLAB TYPE WALL MOUNTED LAVATORY. SEE THE SPECIFICATIONS.
MB	MOP BASIN	TERRAZZO MOP BASIN. SEE THE SPECIFICATIONS.
SH	SHOWER	HANDICAPPED CHROME PLATED BRASS SHOWER CONTROL VALVE AND SHOWER HEAD. SEE THE SPECIFICATIONS.
WCTH	WATER CLOSET FLUSH VALVE	WALL MOUNTED HANDICAPPED HEIGHT TOILET. SEE THE SPECIFICATIONS.



PLAN VIEW



CROSS SECTION VIEW (A-A)

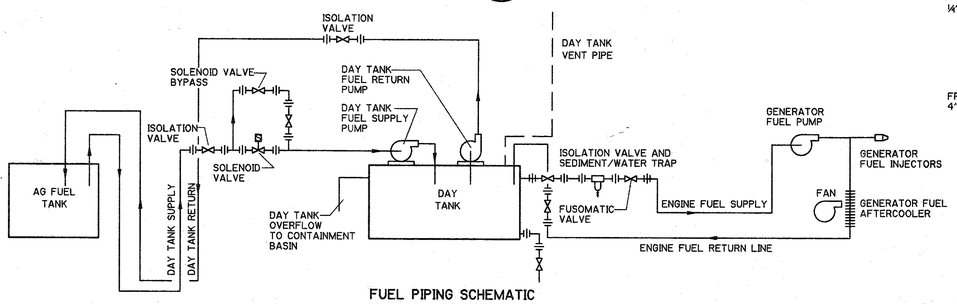


SECTION VIEW (B-B)

FUEL PIPE TRENCH

DETAIL F / P-2

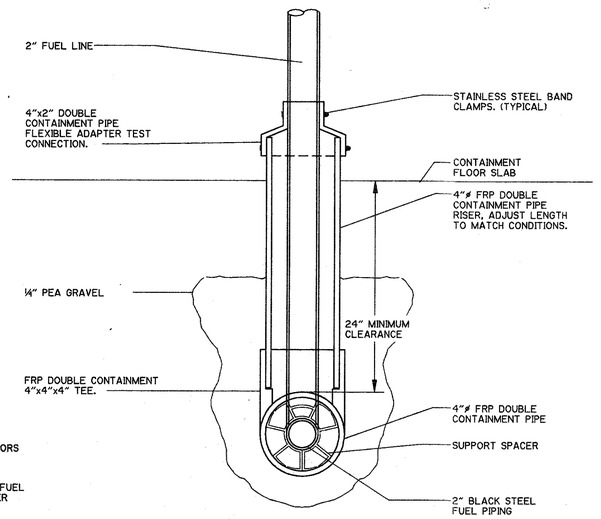
NTS



FUEL PIPING SCHEMATIC

DETAIL G / P-2

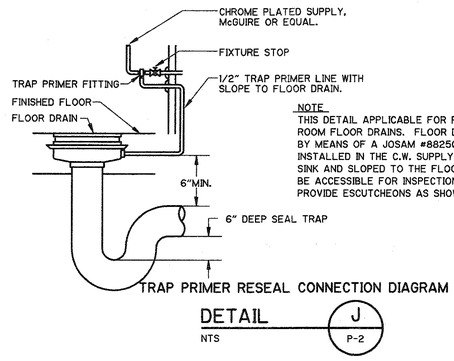
NTS



FUEL CONTAINMENT PIPING TERMINATION

DETAIL H / P-2

NTS



NOTE
THIS DETAIL APPLICABLE FOR RESEALING OF ALL TOILET ROOM FLOOR DRAINS. FLOOR DRAINS SHALL BE RESEALED BY MEANS OF A JOSAM #88250 (CPB) PRIMER VALVE INSTALLED IN THE C.W. SUPPLY LINE OF THE NEAREST SINK AND SLOPED TO THE FLOOR DRAIN. VALVE MUST BE ACCESSIBLE FOR INSPECTION AND REPAIR. PROVIDE ESCUTCHEONS AS SHOWN.

TRAP PRIMER RESEAL CONNECTION DIAGRAM

DETAIL J / P-2

NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: W. HAYGOOD
DRAWN BY: P. POULIOT
SHEET CHK'D BY: W. HAYGOOD
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. HAYGOOD
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

PLUMBING SCHEDULES AND DETAILS

PROJECT NO. 6706_070
FILE NAME: PSCDTP03

SHEET NO.
P-3

PAUL A. POULIOT 1/46/05 05/23/97 PSCDTP03 O:\6706_070\HVAC\

PLAN SYMBOLS

	HOME RUN. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2 #12 CONDUCTORS OR AS INDICATED ON DRAWINGS.
	CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING
	CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
	FLEXIBLE CONDUIT WITH EQUIPMENT CONNECTION.
	CONCRETE ENCASED DUCTBANK.
A	CEILING MOUNTED LIGHTING FIXTURE, LETTER INDICATES TYPE (TYPICAL).
	WALL MOUNTED LIGHTING FIXTURE.
	FLUORESCENT LIGHTING FIXTURE, CEILING MOUNTED.
	FLUORESCENT STRIP FIXTURE.
	EXTERIOR LUMINARE AND MOUNTING STANDARD.
	EMERGENCY BATTERY PACK LIGHTING FIXTURE.
	EMERGENCY EGRESS LIGHTING FIXTURE WITH BATTERY PACK (MASTER).
	EMERGENCY EGRESS LIGHTING FIXTURE WITHOUT BATTERY PACK (SLAVE).
	CEILING OR WALL MOUNTED EXIT LIGHT FIXTURE WITH BATTERY PACK. PROVIDE ARROWS AS REQUIRED.
	EXIT LIGHT FIXTURES WITHOUT BATTERY PACK.
	FLUORESCENT LIGHTING FIXTURE, WALL MOUNTED.
J	JUNCTION BOX PER N.E.C., FLUSH MOUNTED UNLESS INDICATED OTHERWISE.
	FLUSH OR SURFACE MOUNTED LIGHTING PANELBOARD.
	FLUSH OR SURFACE MOUNTED POWER PANELBOARD.
	DRY TYPE TRANSFORMER. NO. INDICATES KVA RATING.
	25A, 208V, 3Ø SINGLE RECEPTACLE.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR OR 2" ABOVE COUNTER AS REQUIRED.
	20A, 125V, 3W "HOSPITAL GRADE" DUPLEX RECEPTACLE WITH ISOLATED GROUND CONNECTION.
	WIREMOLD SURFACE METAL RACEWAY SYSTEM WITH 20A, 125V, 3W RECEPTACLES.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH, FLOOR MOUNTED OUTLET BOX.
	20A, 125V, 3W DUPLEX RECEPTACLE, SURFACE MOUNTED.
	50A, 250V, 1Ø, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	20A, 250V, 1Ø, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	30A, 250V 1Ø, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
S	SINGLE POLE SWITCH IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED (TYPICAL).
S_D	SINGLE POLE SWITCH, SURFACE MOUNTED.
S_3	THREE-WAY SWITCH IN FLUSH OUTLET BOX.
S_4	FOUR-WAY SWITCH IN FLUSH OUTLET BOX.
D	2000 W INCANDESCENT DIMMING SWITCH IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS
5	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
5	ELECTRIC D.C. MOTOR, NO. INDICATES HORSEPOWER.
M	MOTORIZED VALVE
	MAGNETIC MOTOR STARTER
VFD	VARIABLE FREQUENCY DRIVE
R	ELECTRIC CORD REEL
	DOOR SWITCH
B	ALARM BELL

PLAN SYMBOLS (CONTINUED)

C	FLUSH MOUNTED CLOCK OUTLET, 12" BELOW CEILING.
T	THERMOSTAT
	VARIABLE AIR VOLUME BOX (VAV)
	FLUSH OUTLET BOX AND TELEPHONE COVER PLATE 18" ABOVE FINISHED FLOOR.
	FLUSH FLOOR MOUNTED OUTLET BOX AND TELEPHONE COVER PLATE.
	FLUSH OUTLET BOX AND COVER PLATE SUITABLE FOR COMPUTER DEVICE CONNECTION.
	FLUSH MOUNTED BACKBOX FOR INTERCOM STATION.
	FLUSH FLOOR MOUNTED OUTLET BOX FOR REMOTE INTERCOM UNIT.
	FLUSH OUTLET BOX AND COVER PLATE FOR MICROPHONE CONNECTION.
	WALL MOUNTED OUTLET BOX FOR INTERCOM HANDSET AND HOOKSWITCH.
S	FLUSH CEILING MOUNTED PAGING SYSTEM SPEAKER.
S	WALL MOUNTED PAGING SYSTEM SPEAKER.
V	VOLUME CONTROL SWITCH IN FLUSH OUTLET BOX 60" ABOVE FINISHED FLOOR.
SD	CEILING MOUNTED SMOKE DETECTOR.
SD	DUCT MOUNTED SMOKE DETECTOR.
F	FIRE ALARM MANUAL PULL STATION IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR.
H	FIRE ALARM HORN IN FLUSH OUTLET BOX, 12" BELOW CEILING.
FS	FLOW SWITCH
LS	LIMIT SWITCH
XS	TORQUE SWITCH
PS	PRESSURE SWITCH
ZS	ZERO SPEED SWITCH
SV	SOLENOID VALVE
FE	FLOW ELEMENT
LLS	LIQUID LEVEL SWITCH
VS	VIBRATION SWITCH
FIT	FLOW INDICATING TRANSMITTER
LIT	LEVEL INDICATING TRANSMITTER

SINGLE LINE DIAGRAM SYMBOLS

V	VOLTMETER
A	AMMETER
VS	THREE PHASE VOLT SWITCH
AS	THREE PHASE AMP SWITCH
GFI	GROUND FAULT INTERRUPTER
W	WATT HOUR METER
	FUSE
	CAPACITOR
	DRAW-OUT CIRCUIT BREAKER
	MOLDED CASE CIRCUIT BREAKER
	TYPICAL SELECTOR SWITCH CONTROL. SEE ELEMENTARY DIAGRAMS FOR EXACT TYPE.
5	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
5	ELECTRIC D.C. MOTOR, NO. INDICATES HORSEPOWER.
	SERVICE OR EQUIPMENT GROUND.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS
	LIGHTING PANELBOARD
	POWER PANELBOARD

SINGLE LINE DIAGRAM SYMBOLS (CONTINUED)

K	KIRK KEY INTERLOCK
	CURRENT TRANSFORMERS
	POTENTIAL TRANSFORMERS
	MANUAL OR AUTOMATIC TRANSFER SWITCH
	LIGHTNING ARRESTER & SURGE CAPACITOR

CONTROL DIAGRAM SYMBOLS

	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	LIMIT SWITCH, NORMALLY OPEN
	LIMIT SWITCH, NORMALLY CLOSED
	PRESSURE SWITCH, NORMALLY OPEN
	PRESSURE SWITCH, NORMALLY CLOSED
	FLOAT SWITCH, NORMALLY OPEN
	FLOAT SWITCH, NORMALLY CLOSED
	FLOW SWITCH, NORMALLY OPEN
	FLOW SWITCH, NORMALLY CLOSED
	TEMPERATURE SWITCH, NORMALLY OPEN
	TEMPERATURE SWITCH, NORMALLY CLOSED
	NORMALLY OPEN, TIMED TO CLOSE CONTACT
	NORMALLY CLOSED, TIMED TO OPEN CONTACT
	NORMALLY CLOSED, TIMED TO CLOSE CONTACT
	NORMALLY OPEN, TIMED TO OPEN CONTACT
LS	LIMIT SWITCH
XS	TORQUE SWITCH
PS	PRESSURE SWITCH
ZS	ZERO SPEED SWITCH
SV	SOLENOID VALVE
LLS	LIQUID LEVEL SWITCH
VS	VIBRATION SWITCH
AR	ALARM RELAY
AT	ALARM TIMER
CR	CONTROL RELAY
M	MOTOR STARTER
TR	TIMING RELAY
A	ALARM INDICATING LIGHT
R	RUN INDICATING LIGHT
	MOMENTARY CONTACT PUSHBUTTON
	MOMENTARY BREAK PUSHBUTTON OR RESET
K	KEYED SWITCH
	MAINTAINED CONTACT ON-OFF SWITCH
	START/STOP (S/S) CONTROL SWITCH MAINTAINED CONTACT
	THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH
	FUSE
	MOLDED CASE CIRCUIT BREAKER
	CONTROL POWER TRANSFORMER
	REMOTE TERMINAL BLOCK POINT

ABBREVIATIONS

A	AMPERES
AC	ALTERNATING CURRENT
ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
CIR	CIRCUIT
CONT	CONTROL
CPT	CONTROL POWER TRANSFORMER
CU	COPPER
CWP	COLD WATER PIPE
CP	CONTROL PANEL
DCU	DISTRIBUTED CONTROL UNIT
DIA	DIAMETER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
ELEC	ELECTRICAL
ELR	EMERGENCY LOCK-OUT RELAY
EM	EMERGENCY
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
ESB	ENERGY SAVING BALLAST
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HORC	HAND-OFF-REMOTE-COMPUTER
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
INSTR	INSTRUMENTATION
ISO	ISOLATION
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LDR	LOAD DUMP RELAY
LP	LIGHTING PANEL
LTG	LIGHTING
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILLS
MCP	MOTOR CIRCUIT PROTECTOR
MFR	MANUFACTURER
MH	METAL HALIDE OR MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MV	MERCURY VAPOR
NEC	NATIONAL ELECTRICAL CODE
NEUT	NEUTRAL
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
OLCP	OUTSIDE LIGHTING CONTROL PANEL
P	POLE
PC	PHOTOELECTRIC CONTROL
PNL	PANEL
P/I	PAGING/INTERCOM
RECPT	RECEPTACLE
RS	RAPID START
STR	STARTER
SW	SWITCH
SWGR	SWITCHGEAR
TC	TIME CLOCK
TTC	TELEPHONE TERMINAL CABINET
TR	TRANSFORMER
TYP	TYPICAL
UG	UNDERGROUND
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE, WITH, WATT
WP	WEATHERPROOF

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: E. GACHARICH
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

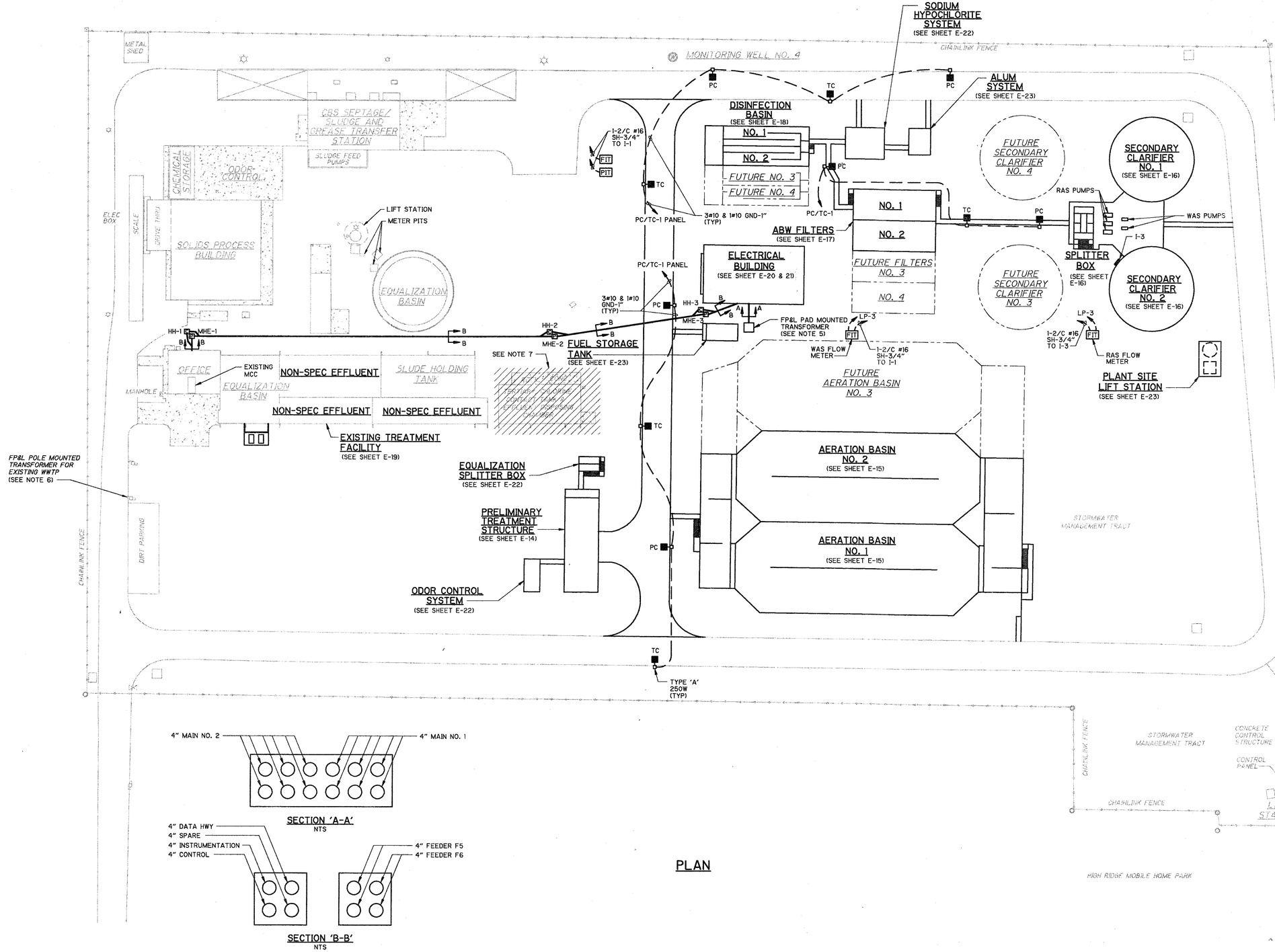
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ELECTRICAL SYMBOLS AND ABBREVIATIONS

PROJECT NO. 6706_070
FILE NAME: ESYSH001

SHEET NO.
E-1

O:\6706_070\ELEC\ESYSH001 05/23/97 15:01:14 k33:42 Robert Carter



PLAN

GENERAL NOTES

1. DO NOT SCALE THE ELECTRICAL DRAWINGS REFER TO THE MECHANICAL, STRUCTURAL DRAWINGS, AND APPROVED MANUFACTURER'S SHOP DRAWINGS FOR THE EXACT LOCATION OF ALL EQUIPMENT.
2. ALL WORK SHALL COMPLY WITH NEC AND LOCAL CODES.
3. CONDUCTORS SHALL NOT BE SPLICED EXCEPT AS NOTED IN SPECS.
4. ALL CONDUITS SHALL HAVE A BOND WIRE SIZED PER TABLE 250-95 OF THE NEC (UNLESS OTHERWISE NOTED).
5. CONTRACTOR SHALL COORDINATE THE LOCATION AND ANY LUGGING REQUIREMENTS WITH FP&L FOR THE FP&L PAD MOUNTED TRANSFORMER.
6. CONTRACTOR SHALL COORDINATE WITH FP&L FOR THE REMOVAL OF THE 75KVA POLE MOUNTED TRANSFORMERS AND PROVISIONS FOR NEW SERVICE. CONTRACTOR SHALL PROVIDE TRENCHING, CONDUIT, MISC HARDWARE, CONCRETE, ETC. AS REQUIRED BY FP&L TO OBTAIN SERVICE TO THE NEW FP&L PAD MOUNTED TRANSFORMER. COORDINATE WITH FP&L FOR EXACT LOCATION OF PRIMARY SERVICE.
7. BUILDING TO BE DEMOLISHED. SEE SPECIFICATIONS FOR REQUIREMENTS.

LEGEND:

DENOTES DEMOLITION

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: R. CARTER
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

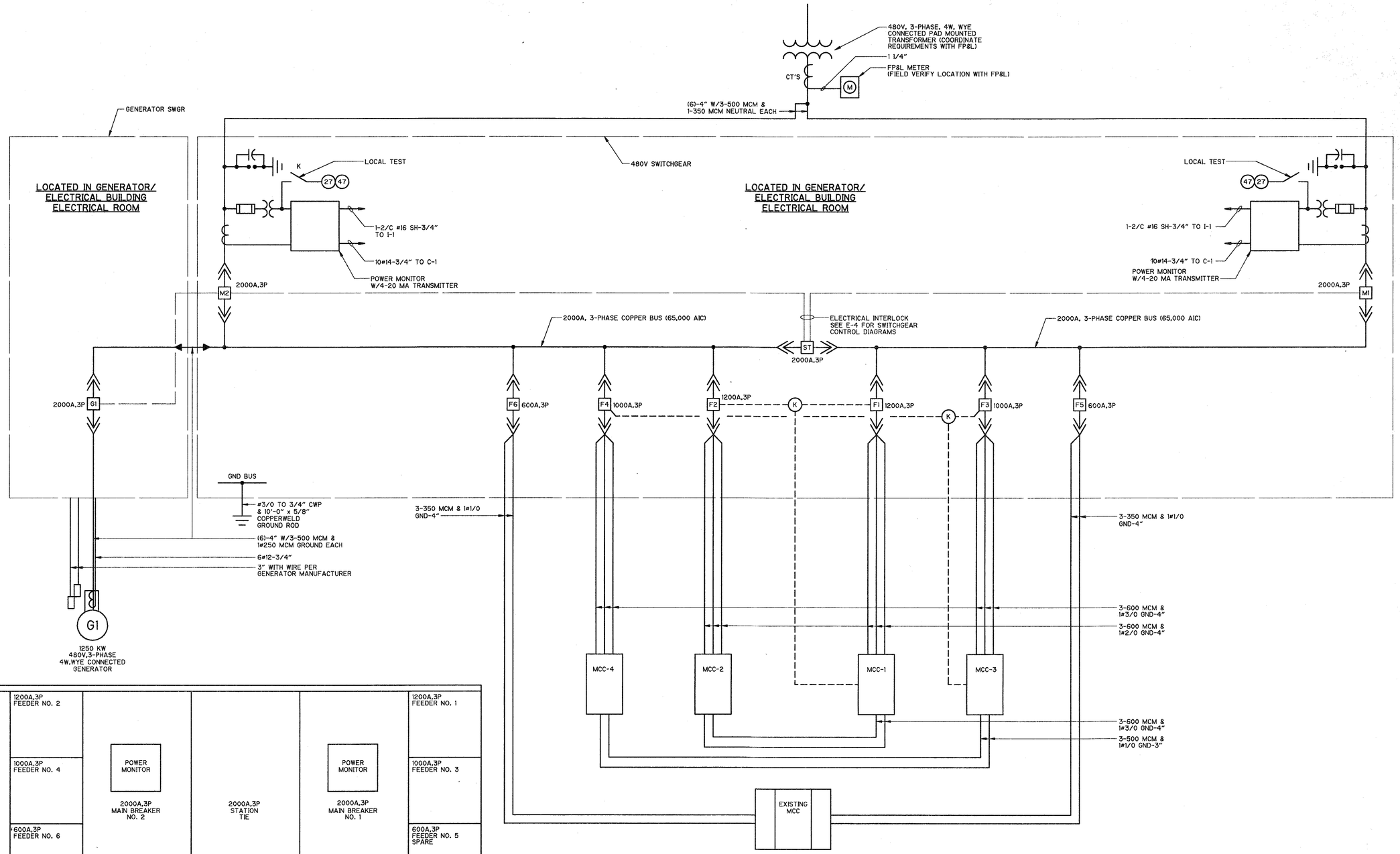
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

ELECTRICAL SITE PLAN

PROJECT NO. 6706_070
FILE NAME: ESTPL002

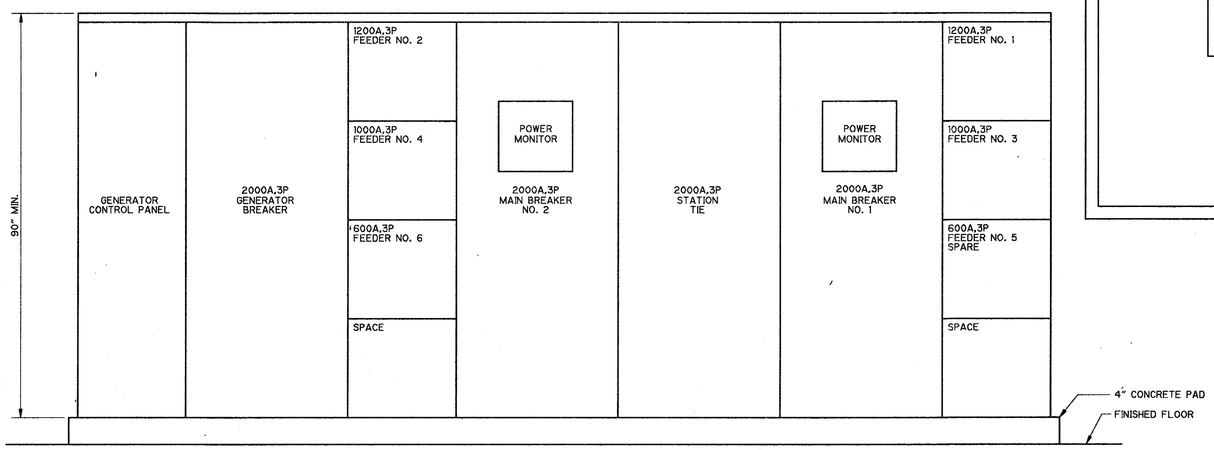
SHEET NO.
E-2

D:\6706_070\ELEC\ ESTPL002 05/23/97 14:05:39 11:33:51 Robert Carter



480 VOLT SINGLE LINE POWER DIAGRAM

(GENERATOR/ELECTRICAL BUILDING)



480V SWITCHGEAR FRONT VIEW

(GENERATOR/ELECTRICAL BUILDING ELECTRICAL ROOM)
NTS

NOTES:

1. MCC-1 MAIN BREAKER AND MCC-2 MAIN BREAKER ARE KEY INTERLOCKED WITH THE TIE BREAKER LOCATED IN MCC-1.
2. PROVIDE SERVICE ENTRANCE RATED EQUIPMENT, 65,000 AIC.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

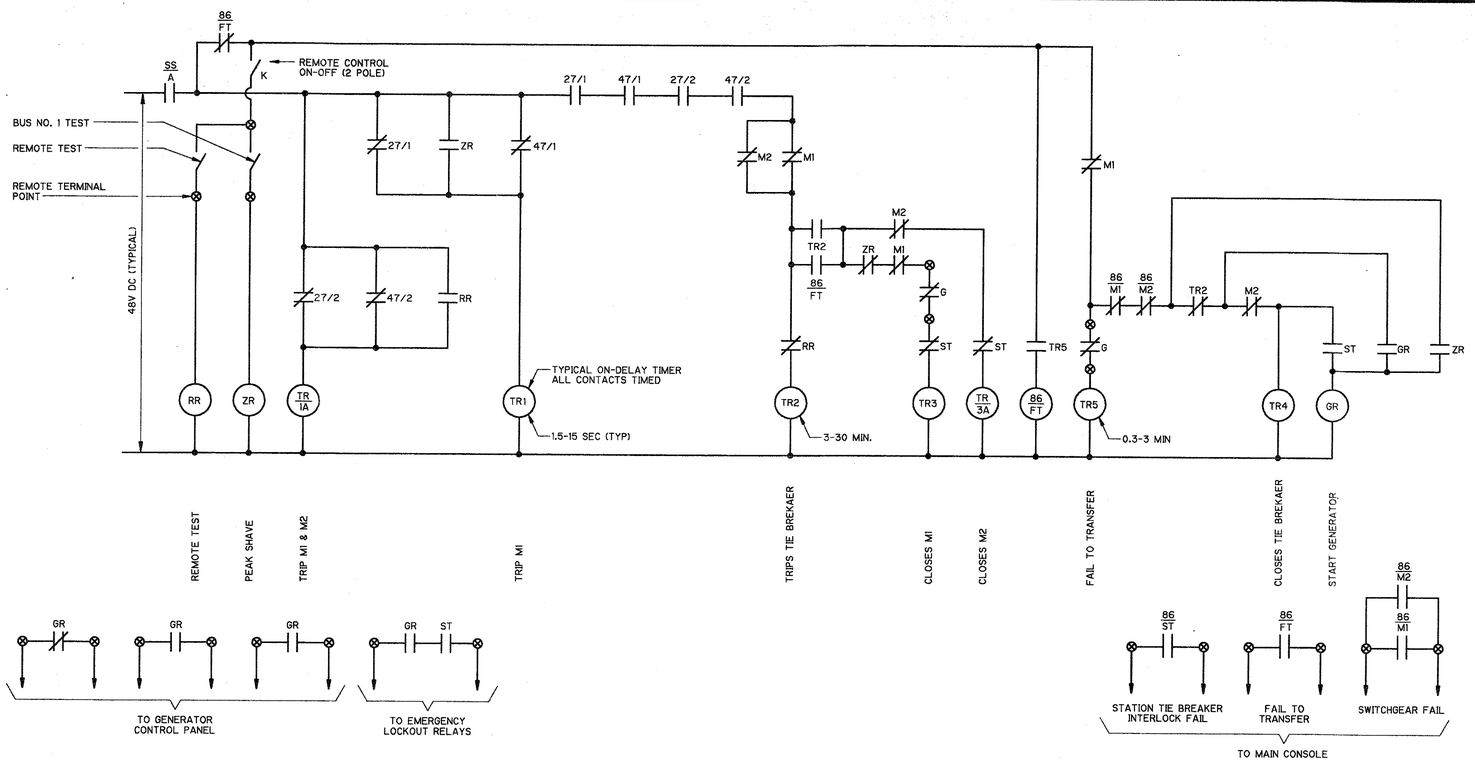
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

480V SINGLE LINE POWER DIAGRAM

PROJECT NO. 6706_070
FILE NAME: EGED1003

SHEET NO.
E-3

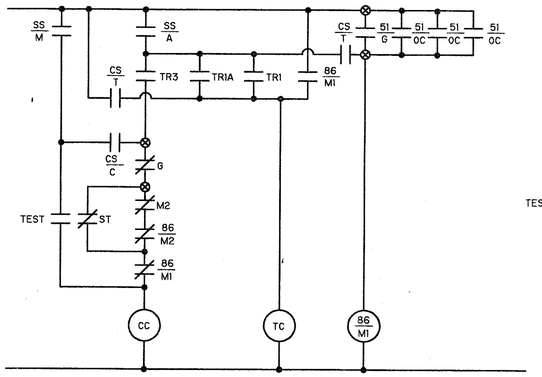
O:\6706_070\ELEC\EGED1003 05/23/97 09:59:21 2:00:43 John Clark



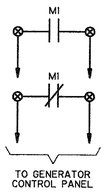
SWGR AUTO CONTROLS

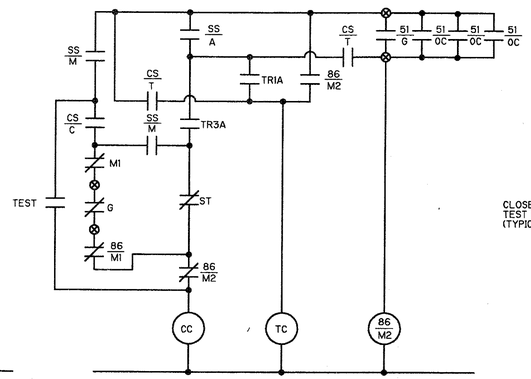
LEGEND

CC	CLOSING COIL
CS	CIRCUIT BREAKER CONTROL SW. (T-TRIP, C-CLOSED)
G	GENERATOR BREAKER
GR	GENERATOR RUN RELAY
GS	GENERATOR SELECTOR SWITCH (MANUAL-OFF-AUTO)
M1	MAIN BREAKER NO. 1
M2	MAIN BREAKER NO. 2
RR	REMOTE TEST RELAY
SS	STATION SWGR SELECTOR SWITCH (AUTO-MANUAL)
ST	STATION TIE BREAKER
TR	PNEUMATIC TIMING RELAY (AGASTAT)
TC	TRIP COIL
ZR	PEAK SHAVE RELAY
ZRX	PEAK SHAVE INTERLOCK RELAY
ZT	PEAK SHAVE TIMING RELAY
27	UNDERVOLTAGE RELAY
47	3 PHASE UNDERVOLTAGE AND PHASE REVERSAL
51G	TIME OVERCURRENT GROUND RELAY
81	FREQUENCY SENSITIVE OVERLOAD TIME DELAY RELAY
86	LOCKOUT RELAY (MANUAL RESET) OVERCURRENT
86X	LOCKOUT RELAY (MANUAL RESET) CIRCUIT BREAKER INTERLOCK FAIL
51/OC	OVERCURRENT RELAY
86/FT	FAIL TO TRANSFER
86/GX	GENERATOR BREAKER INTERLOCK FAIL

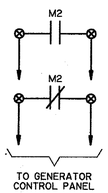


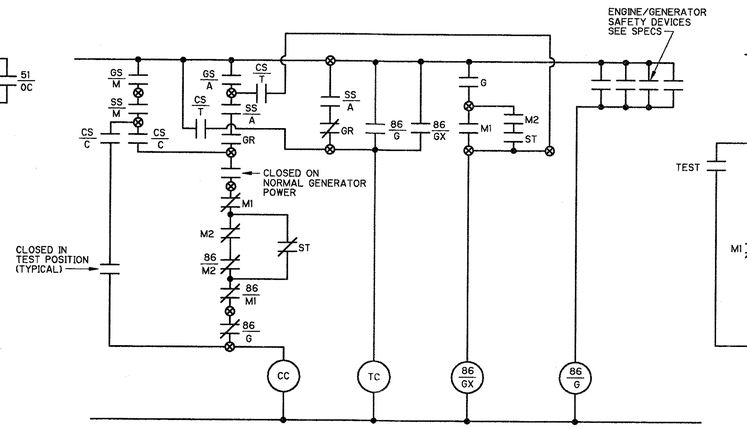
MAIN NO. 1 (M1)



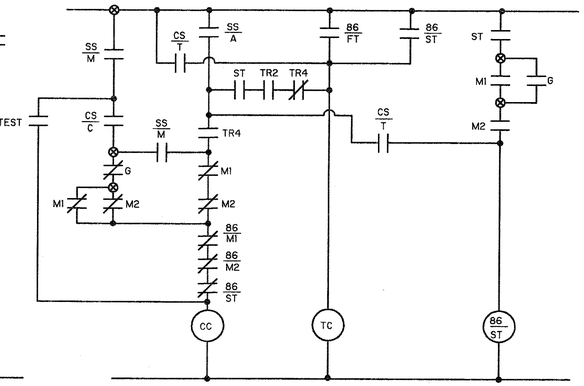


MAIN NO. 2 (M2)

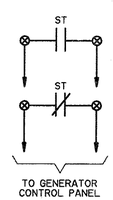




GENERATOR BREAKER (G)



STATION TIE BREAKER (ST)



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

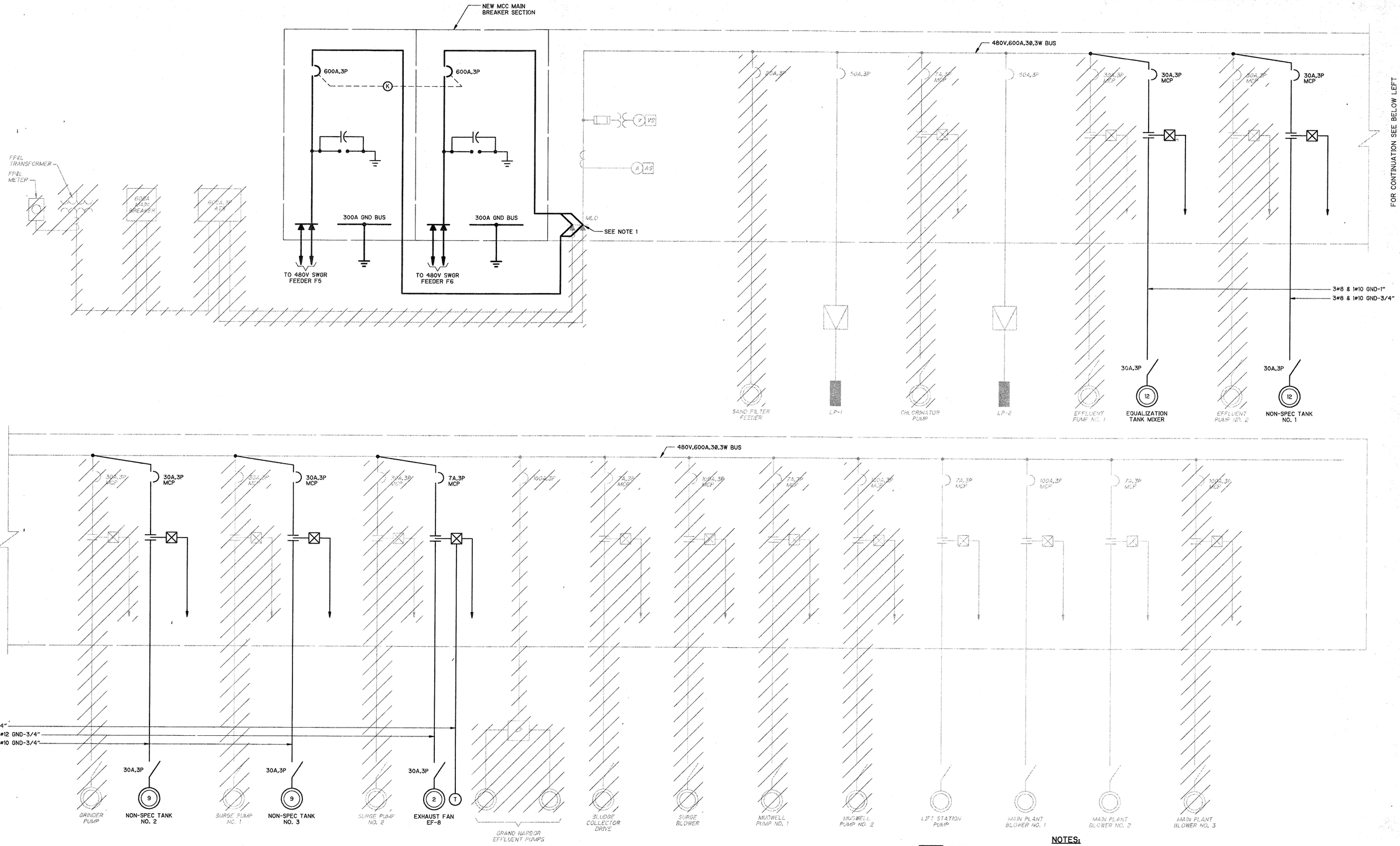
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

SWITCHGEAR CONTROL DIAGRAM

PROJECT NO. 6706_070
FILE NAME: EGED1004

SHEET NO.
E-4

0:\6706_070\ELEC\EGED1004 05/21/97 09:35:02 0:33/8 Michael Miller



EXISTING MCC

NOTES:

1. PROVIDE CABLES, LUGGING HARDWARE, TERMINAL AND ALL APPURTENANCES AS REQUIRED TO CONNECT NEW BREAKER SECTION TO EXISTING MCC BUS. MATCH MANUFACTURER STYLE, AIC RATING ETC.
2. PROVIDE NEW DOORS ON EXISTING MCC FOR SECTIONS WHICH ARE MODIFIED OR REMOVED.

REV. NO.	DATE	DRWN	CHKD	REMARKS
1				

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

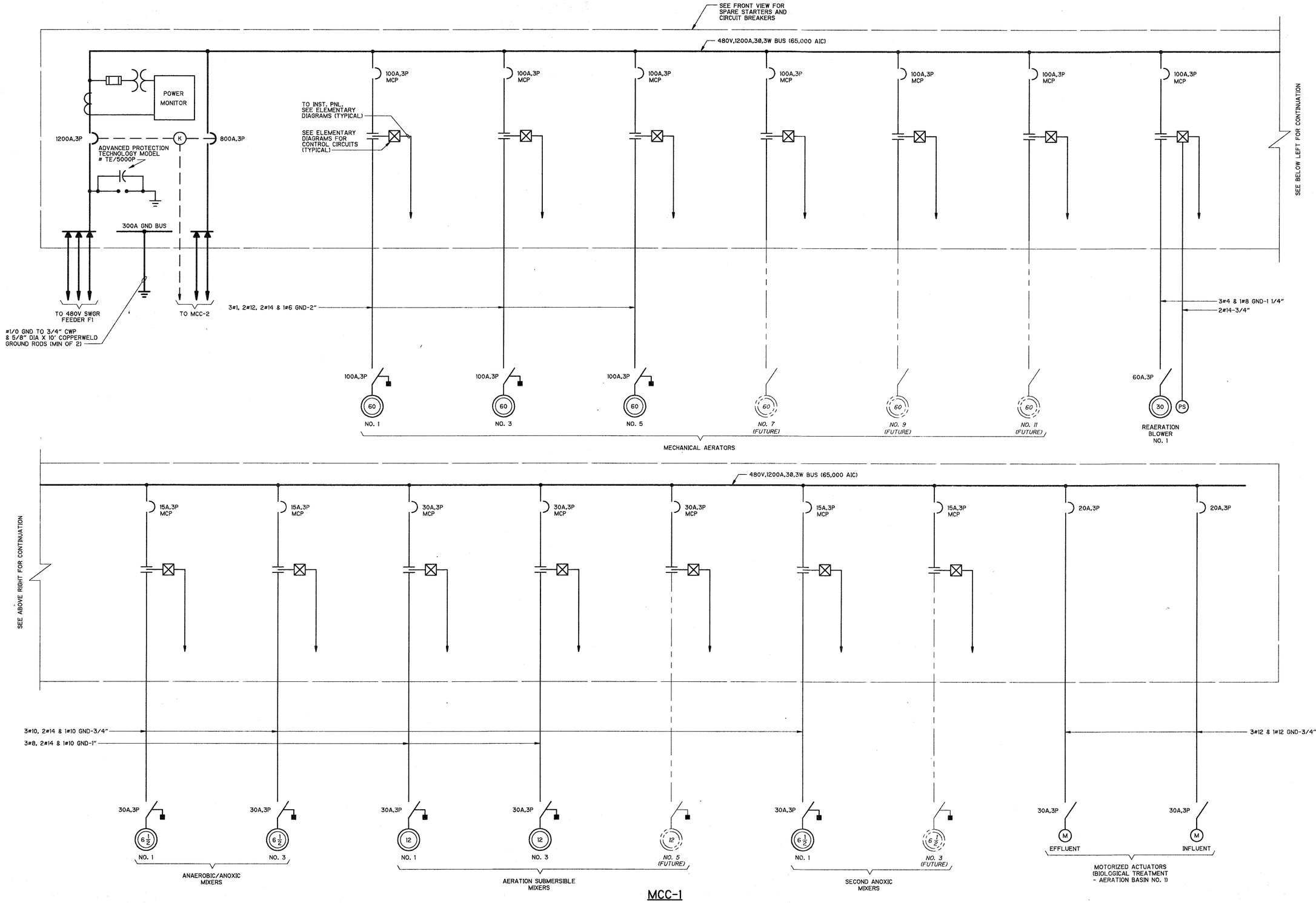
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

EXISTING MCC SINGLE LINE DIAGRAM

PROJECT NO. 6706_070
FILE NAME: EXISTMCC

SHEET NO.
E-5

Q:\6706_070\ELEC\ EXISTMCC 06/23/97 09:53:30 1:59.55 Robert Carter



MCC-1

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MCC-1 SINGLE LINE DIAGRAM

PROJECT NO. 6706_070
FILE NAME: EGED1005

SHEET NO.
E-6

John Clark 3:09:05 05/23/97 11:17:29 EGED1005 Q:\6706_070\ELEC\

SEE FRONT VIEW FOR SPARE STARTERS AND CIRCUIT BREAKERS

480V,1200A,3Ø,3W BUS (65,000 AIC)

POWER MONITOR

1200A,3P

ADVANCED PROTECTION TECHNOLOGY MODEL #TE/5000P

300A GND BUS

MLO

TO 480V SWGR FEEDER F2

TO MCC-1

#1/0 GND TO 3/4" CWP & 5/8" DIA X 10' COPPERWELD GROUND RODS (MIN OF 2)

TO INST. PNL. SEE ELEMENTARY DIAGRAMS (TYPICAL)

SEE ELEMENTARY DIAGRAMS FOR CONTROL CIRCUITS (TYPICAL)

3#1, 2#12, 2#14 & 1#6 GND-2"

100A,3P MCP

100A,3P — 60 TS — NO. 2

100A,3P MCP

100A,3P — 60 TS — NO. 4

100A,3P MCP

100A,3P — 60 TS — NO. 6

100A,3P MCP

100A,3P — 60 TS — NO. 8 (FUTURE)

100A,3P MCP

100A,3P — 60 TS — NO. 10 (FUTURE)

100A,3P MCP

100A,3P — 60 TS — NO. 12 (FUTURE)

MECHANICAL AERATORS

100A,3P MCP

60A,3P — 30 PS — REAERATION BLOWER NO. 2

15A,3P MCP

30A,3P — 6 1/2 — NO. 2

15A,3P MCP

6 1/2 — NO. 4 (FUTURE)

ANAEROBIC/ANOXIC MIXERS

3#4 & 1#8 GND-1 1/4"

2#14-3/4"

3#10, 2#14 & 1#10 GND-3/4"

FOR CONTINUATION SEE BELOW LEFT

480V,1200A,3Ø,3W BUS (65,000 AIC)

FOR CONTINUATION SEE ABOVE RIGHT

30A,3P MCP

30A,3P — 12 — NO. 2

30A,3P MCP

30A,3P — 12 — NO. 4

30A,3P MCP

12 — NO. 6 (FUTURE)

AERATION SUBMERSIBLE MIXERS

15A,3P MCP

30A,3P — 6 1/2 — SECOND ANOXIC MIXERS NO. 2

20A,3P

30A,3P — M — EFFLUENT

20A,3P

30A,3P — M — INFLUENT

MOTORIZED ACTUATORS (BIOLOGICAL TREATMENT - AERATION BASIN NO. 2)

20A,3P

30A,3P — M — MOTORIZED WEIR (AERATION BASIN 1 & 2)

3#10, 2#14 & 1#10 GND-3/4"

3#8, 2#14 & 1#10 GND-1"

3#12 & 1#12 GND-3/4"

MCC-2

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

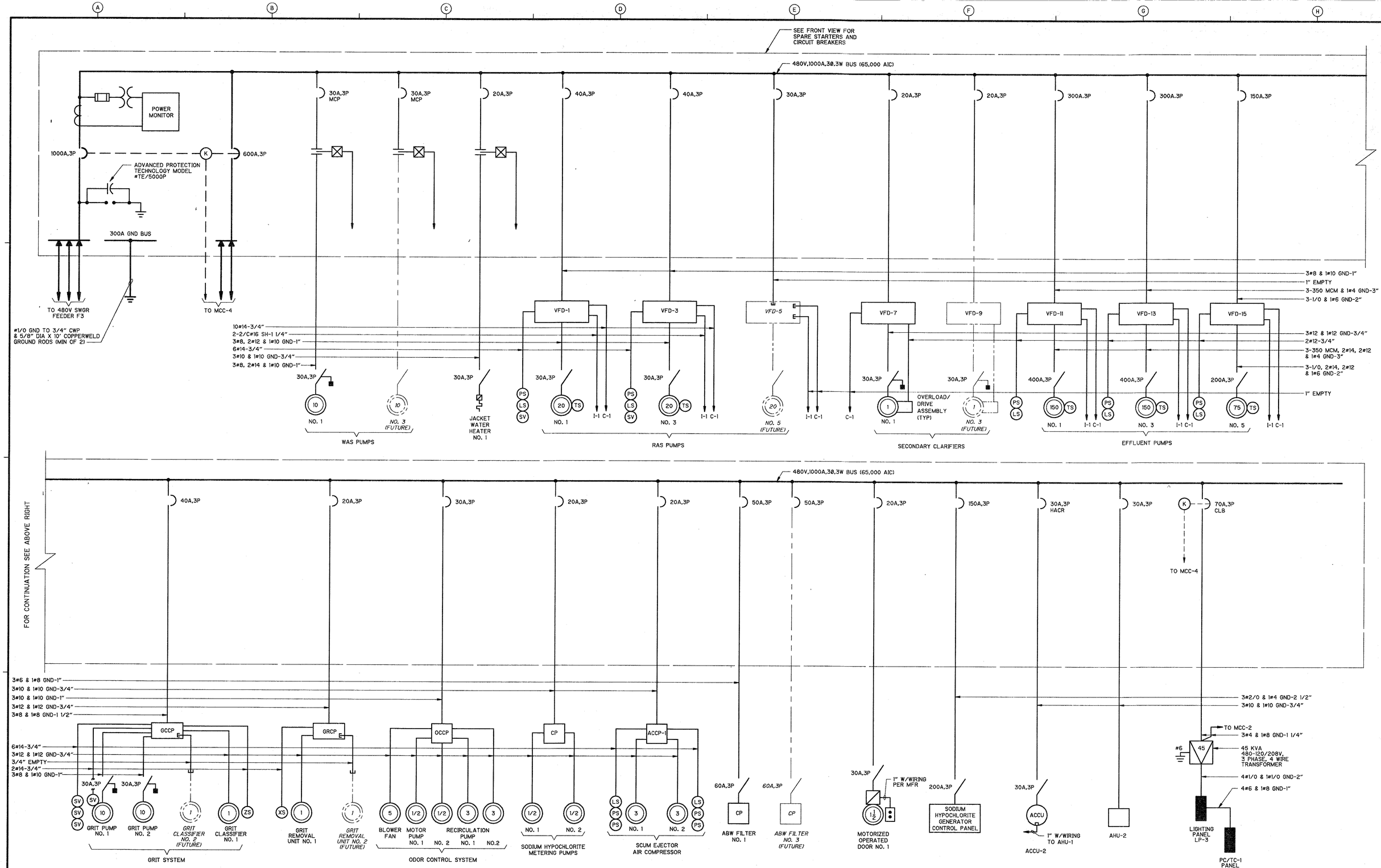
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

MCC-2 SINGLE LINE DIAGRAM

PROJECT NO. 6706_070
FILE NAME: EGED1006

SHEET NO.
E-7

John Clark 0:13:43 05/23/97 tu/8:05 EGED1006 O:\6706_070\ELEC\



MCC-3

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services
cities worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

MCC-3 SINGLE LINE DIAGRAM

PROJECT NO. 6706_070
FILE NAME: EGED1007

SHEET NO.
E-8

Robert Carter 05/23/97 09:58:39 EGED1007 O:\6706_070\ELEC\

SEE FRONT VIEW FOR SPARE STARTERS AND CIRCUIT BREAKERS

480V,1000A,3Ø,3W BUS (65,000 AIC)

POWER MONITOR

1000A,3P

ADVANCED PROTECTION TECHNOLOGY MODEL #TE/5000P

300A GND BUS

TO 480V SWGR FEEDER F4

#1/0 GND TO 3/4" CWP & 5/8" DIA X 10' COPPERWELD GROUND RODS (MIN OF 2)

TO MCC-3

30A,3P MCP — 3#8 & 1#10 GND-1"

30A,3P MCP — 3#12 & 1#12 GND-3/4"

15A,3P MCP — 2#14-3/4"

20A,3P — 3#8, 2#14 & 1#10 GND-1"

20A,3P — 10#14-3/4", 2-2/C#16 SH-1 1/4", 3#8, 2#14 & 1#10 GND-1", 6#14-3/4"

40A,3P — VFD-2

40A,3P — VFD-4

40A,3P — VFD-6

20A,3P — ACCP-2

1" EMPTY

1 1/4" EMPTY

3/4" EMPTY

FOR CONTINUATION SEE BELOW LEFT

30A,3P — 10 — NO. 2

30A,3P — 10 — NO. 4 (FUTURE)

WAS PUMPS

30A,3P — 1 — T — EXHAUST FAN EF-7

30A,3P — 1 1/2 — 1" W/WIRING PER MFR — MOTORIZED OPERATED DOOR NO. 2

30A,3P — JACKET WATER HEATER NO. 2

30A,3P — PS, LS, SV — 20 — TS — NO. 2 — I-1 C-1

30A,3P — 20 — NO. 4 (FUTURE) — I-1 C-1

30A,3P — 20 — NO. 6 (FUTURE) — I-1 C-1

RAS PUMPS

5 — NO. 1

5 — NO. 2

SCUM EJECTOR AIR COMPRESSOR (FUTURE)

FOR CONTINUATION SEE ABOVE RIGHT

480V,1000A,3Ø,3W BUS (65,000 AIC)

100A,3P — 3-350 MCM & 1#4 GND-3"; 3#4 & 1#6 GND-1"

20A,3P — 3#12 & 1#12 GND-3/4"; 4#14-3/4"; 2#14-3/4"; 3#8 & 1#8 GND-1"

3A,3P MCP — 33 — NO. 1 — 33 — NO. 2 — PLANT SITE LIFT STATION

3A,3P MCP — XS, H, ZS, 3 — NO. 1 — LLS, LLS — 3 — NO. 2 (FUTURE) — BAR SCREEN SYSTEM

225A,2P — PUMP CONTROL PANEL — BSCP

300A,3P — VFD-8 — 30A,3P — 1 — NO. 2 — C-1 — OVERLOAD/ DRIVE ASSEMBLY (TYP) — SECONDARY CLARIFIER

VFD-10 — 30A,3P — 1 — NO. 4 (FUTURE)

VFD-12 — 200A,3P — 150 — NO. 2 (FUTURE) — EFFLUENT PUMPS

20A,3P — VFD-14 — 400A,3P — PS, SV — 150 — TS — NO. 4 — I-1 C-1

ALUM PUMP CONTROL PANEL (APCP)

150A,3P — 200A,3P — SODIUM HYPOCHLORITE GENERATOR NO. 2 CONTROL PANEL (FUTURE)

50A,3P — 60A,3P — CP — ABW FILTER NO. 2

50A,3P — 60A,3P — CP — ABW FILTER NO. 4 (FUTURE)

30A,3P HACR — 30A,3P — ACCU — ACCU-3 — 1" W/WIRING PER MFR TO AHU-3

30A,3P — AHU — AHU-3

1/2 — NO. 1; 1/2 — NO. 2; 1/2 — NO. 3 — ALUM PUMPS

70A,3P CLB — K — TO MCC-3

3#12 & 1#12 GND-3/4"; 3#8 & 1#10 GND-1"; 3#10 & 1#10 GND-3/4"; 3#4 & 1#8 GND-1 1/4"; 4#14-3/4"; 3-500 MCM, 2#12, 2#14 & 1#4 GND-3"; 2-2/C#16 SH-1 1/4"; 10#14-3/4"; 3#12 & 1#12 GND-3/4"

TO TRANSFORMER LP-3

MCC-4

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

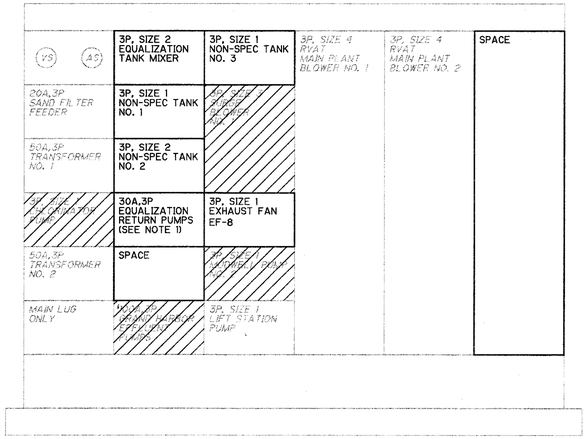
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

MCC-4 SINGLE LINE DIAGRAM

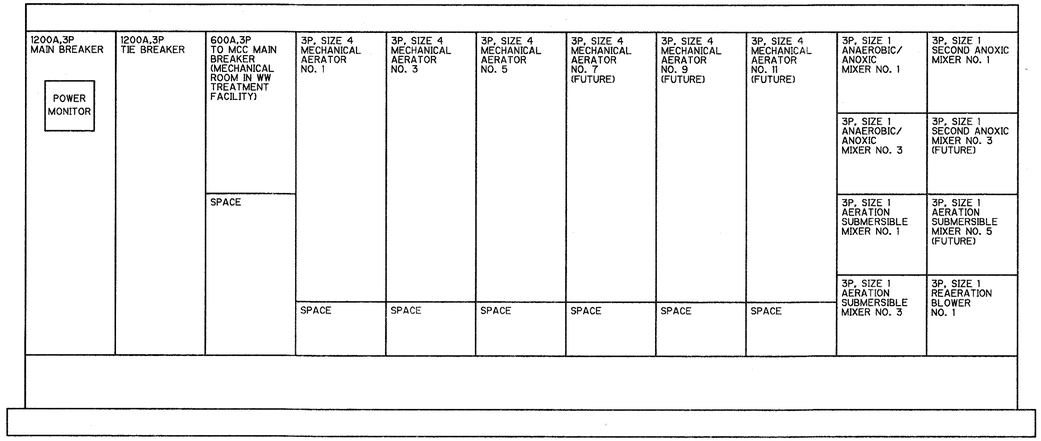
PROJECT NO. 6706_070
FILE NAME: EGEDI009

SHEET NO.
E-9

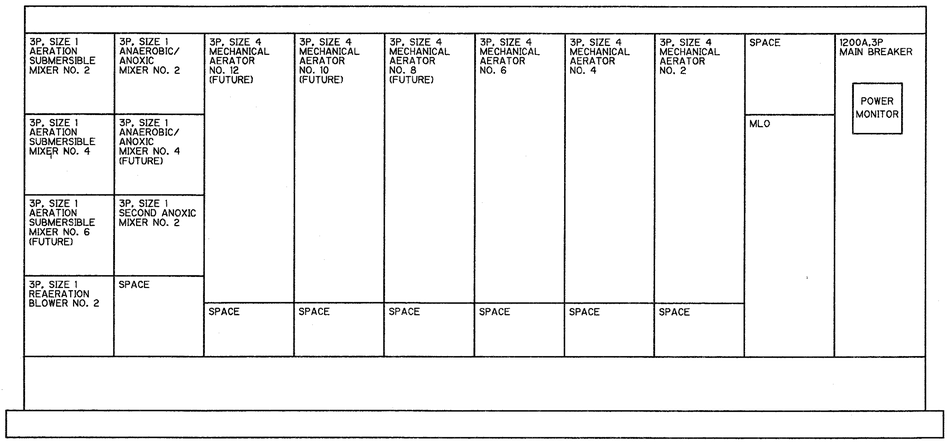
Robert Carter 1/15/00 05/23/97 15:13:02 EGEDI009 Q:\6706_070\ELEC\



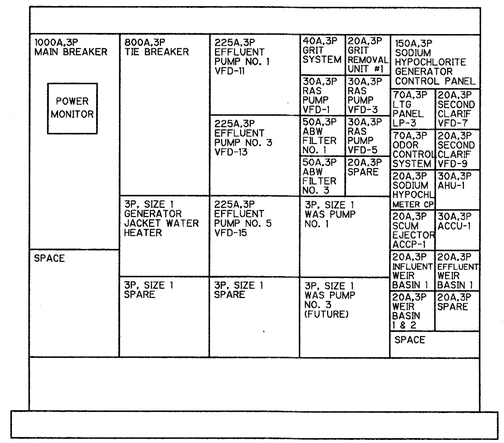
EXISTING MCC FRONT VIEW
(SEE NOTE 3)
NTS



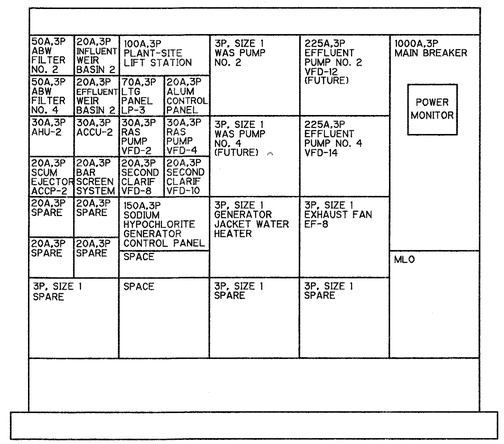
MCC-1 FRONT VIEW
NTS



MCC-2 FRONT VIEW
NTS



MCC-3 FRONT VIEW
NTS



MCC-4 FRONT VIEW
NTS

NOTES

1. CONTRACTOR SHALL MODIFY EXISTING MCC SECTION WITH A 30A, 3P CIRCUIT BREAKER FOR THE EQUALIZATION RETURN PUMP CONTROL PANEL AND AS SHOWN ON EXISTING MCC FRONTVIEW. MODIFY MCC SECTON AS REQUIRED. MATCH EXISTING AIC RATING, PAINT, ETC.
2. CONTRACTOR SHALL REPLACE EXISTING MCC STARTER SECTION WITH NEW MCC STARTER SECTION AS SHOWN ON EXISTING MCC FRONT VIEW. MODIFY MCC SECTION AS REQUIRED. MATCH EXISTING AIC RATING, PAINT, ETC.
3. CONTRACTOR SHALL MODIFY EXISTING MCC AS SHOWN ON THE DRAWINGS AND AS SHOWN ON THE EXISTING MCC FRONT VIEW. MATCH EXISTING PAINT, DOOR, ETC.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

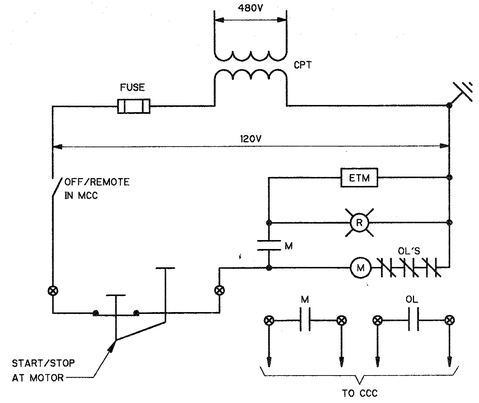
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MCC FRONT VIEWS

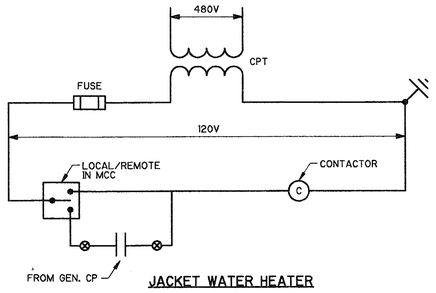
PROJECT NO. 6706_070
FILE NAME: EMCFV009

SHEET NO.
E-10

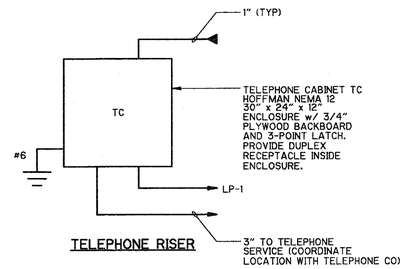
Robert Carter 2:49:08 05/23/97 10:01:12 EMCFV009 O:\6706_070\ELEC\



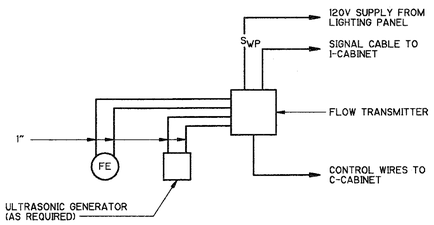
SIZE 1 SPARES



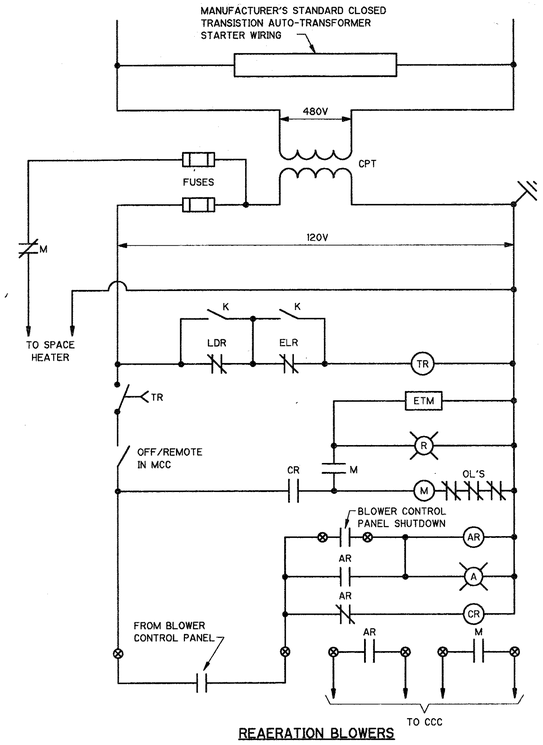
JACKET WATER HEATER



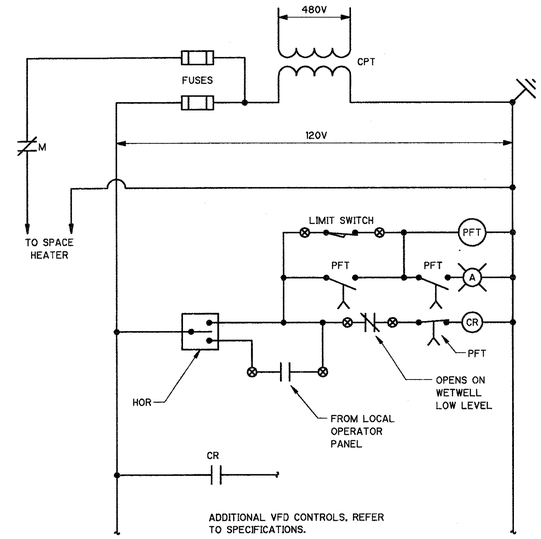
TELEPHONE RISER



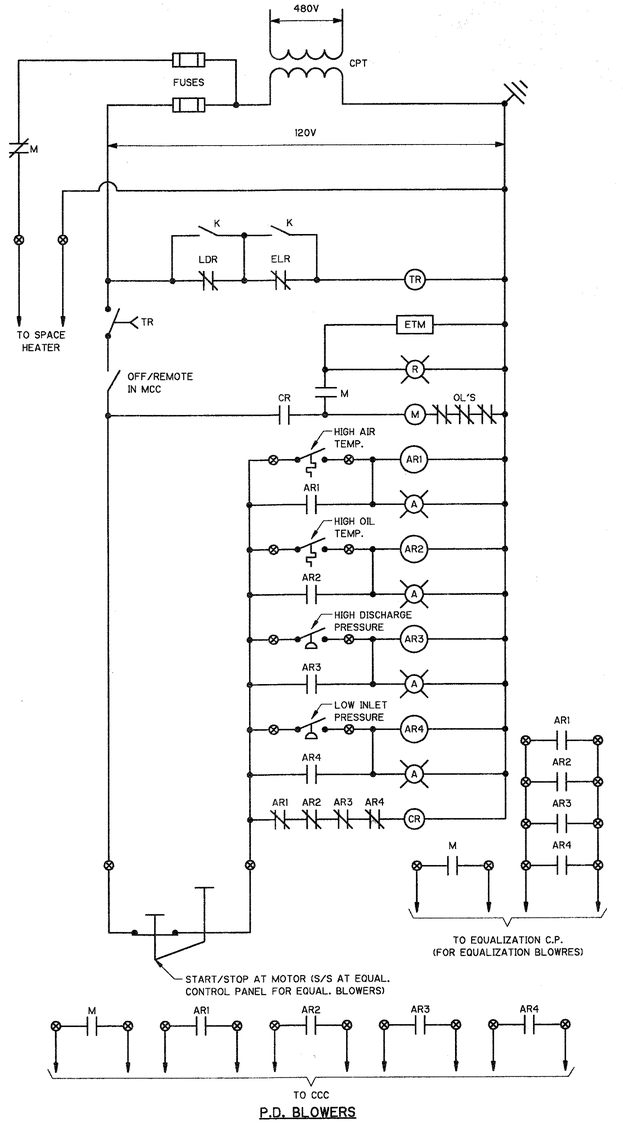
TYPICAL FLOW METER



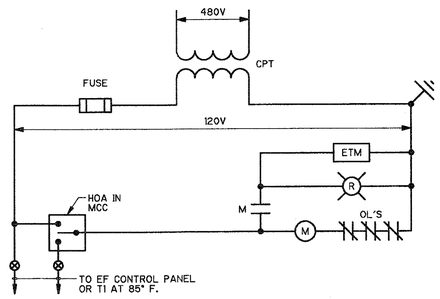
REAERATION BLOWERS



EFFLUENT PUMP VFD'S



P.D. BLOWERS



EXHAUST FANS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: R. CARTER
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

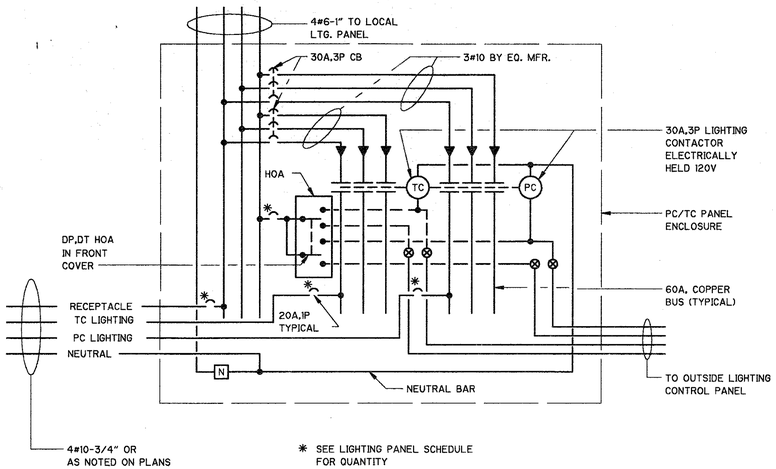
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ELEMENTARY DIAGRAMS

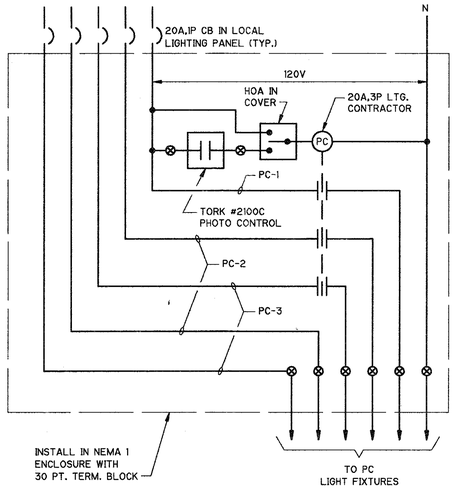
PROJECT NO. 6706_070
FILE NAME: E6ED1010

SHEET NO.
E-11

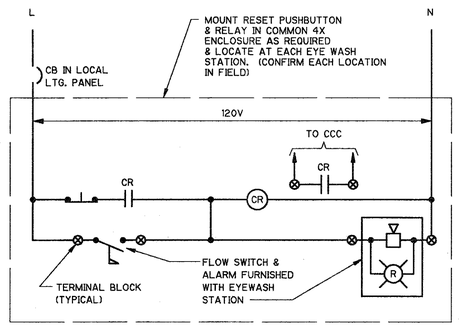
Robert Carter 06/23/97 10:02:20 E6ED1010 O:\6706_070\ELEC\



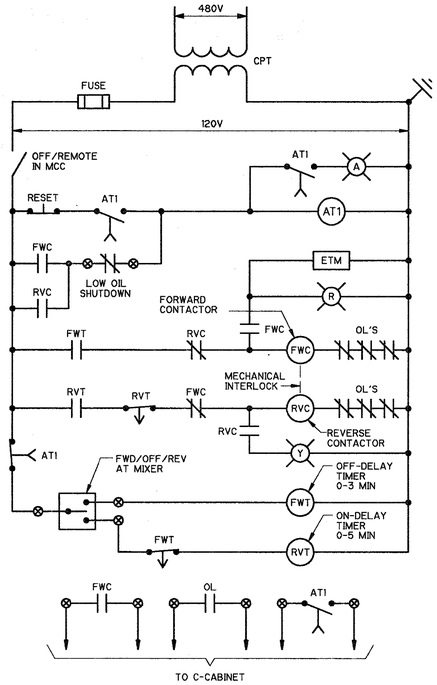
TYPICAL PC/TC PANEL DETAIL



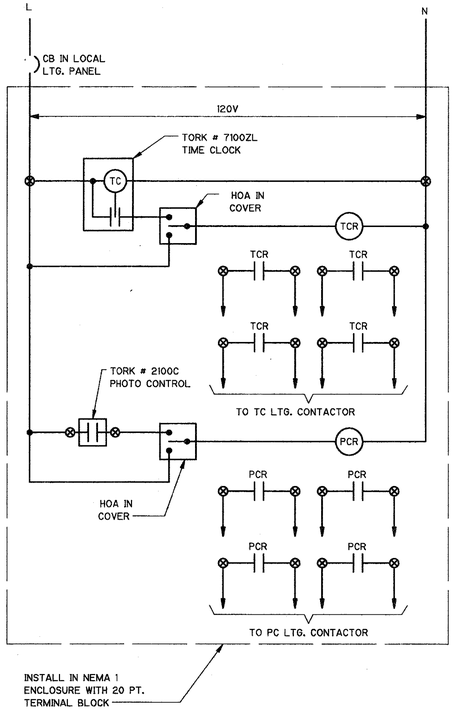
TYPICAL PC PANEL



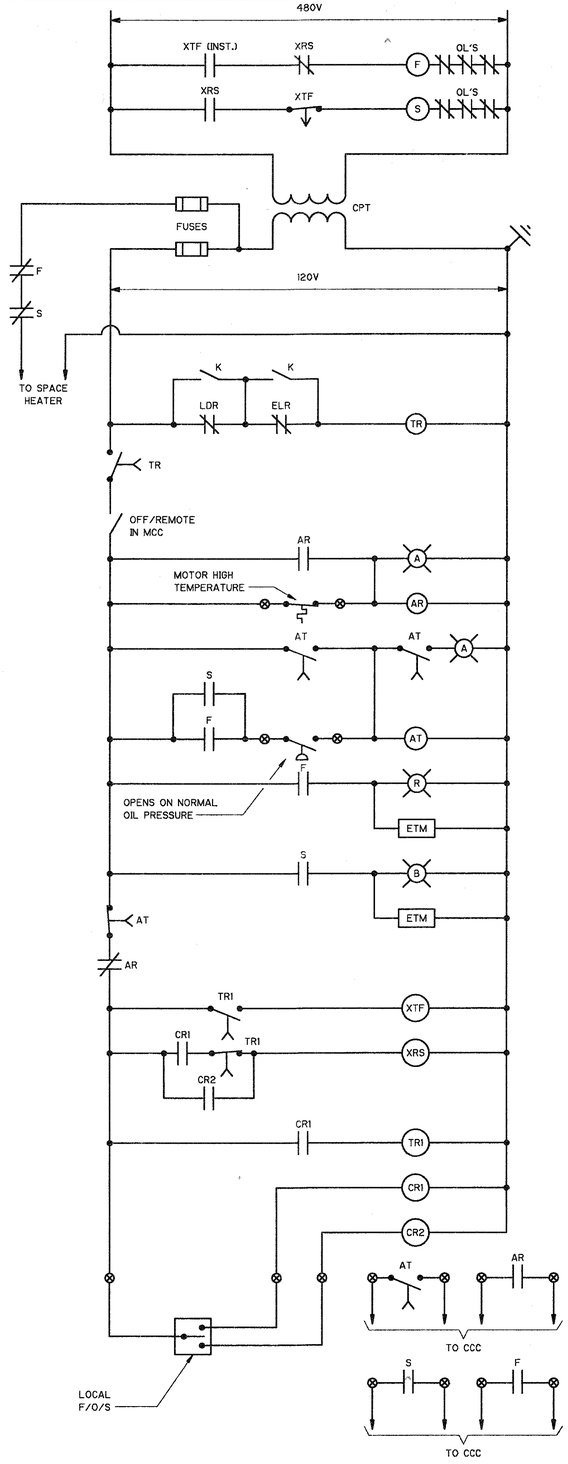
EYE WASH ALARM AND RESET



MIXERS



OUTSIDE LIGHTING CONTROL PANEL



AERATORS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

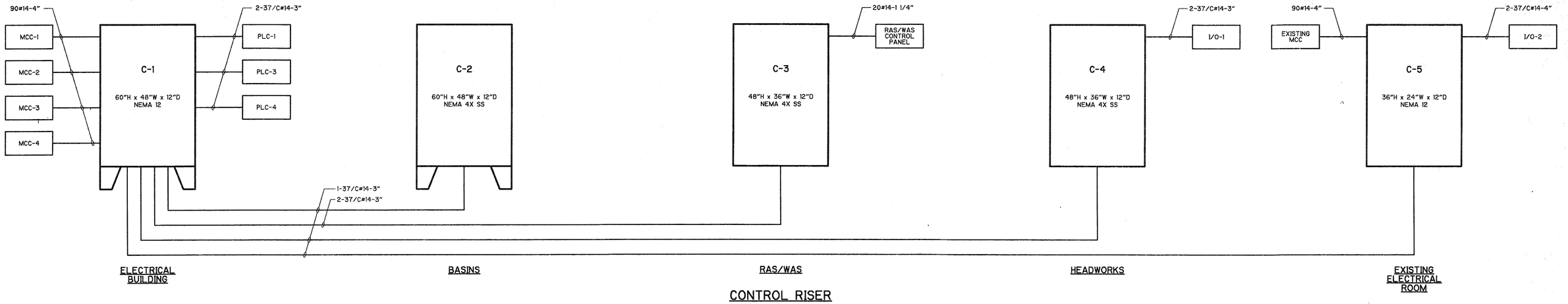
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ELEMENTARY DIAGRAMS

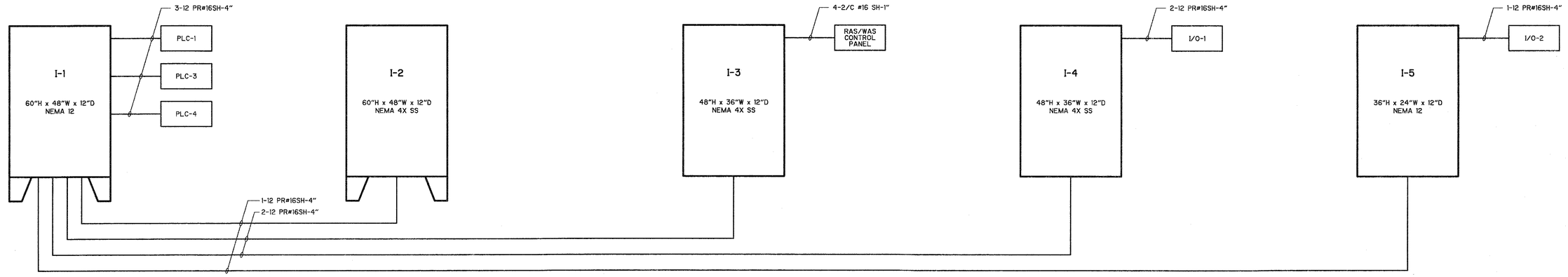
PROJECT NO. 6706_070
FILE NAME: EGED1011

SHEET NO.
E-12

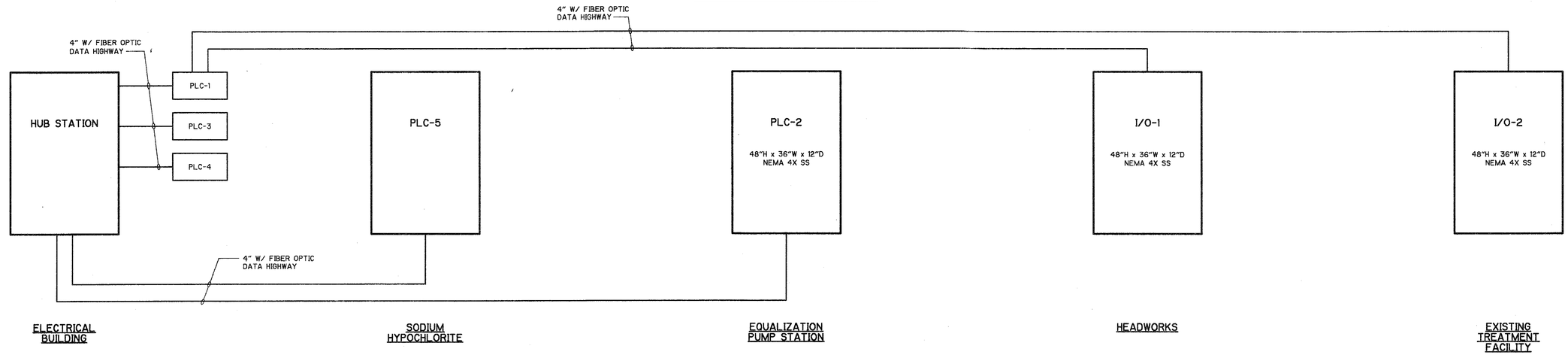
Robert Carter 01:2:56 05/23/97 10:03:11 EGED1011 O:\6706_070\ELEC\



CONTROL RISER



INSTRUMENTATION RISER



INSTRUMENTATION RISER

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

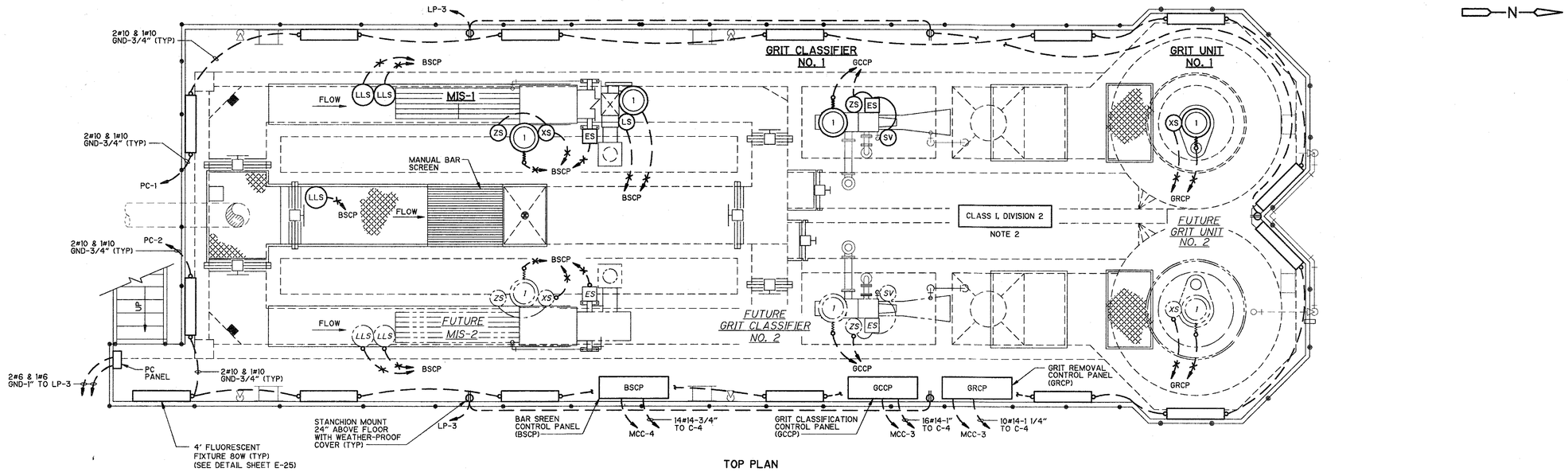
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

CONTROL AND INSTRUMENTATION RISER DIAGRAM

PROJECT NO. 6706_070
FILE NAME: EGEDI012

SHEET NO.
E-13

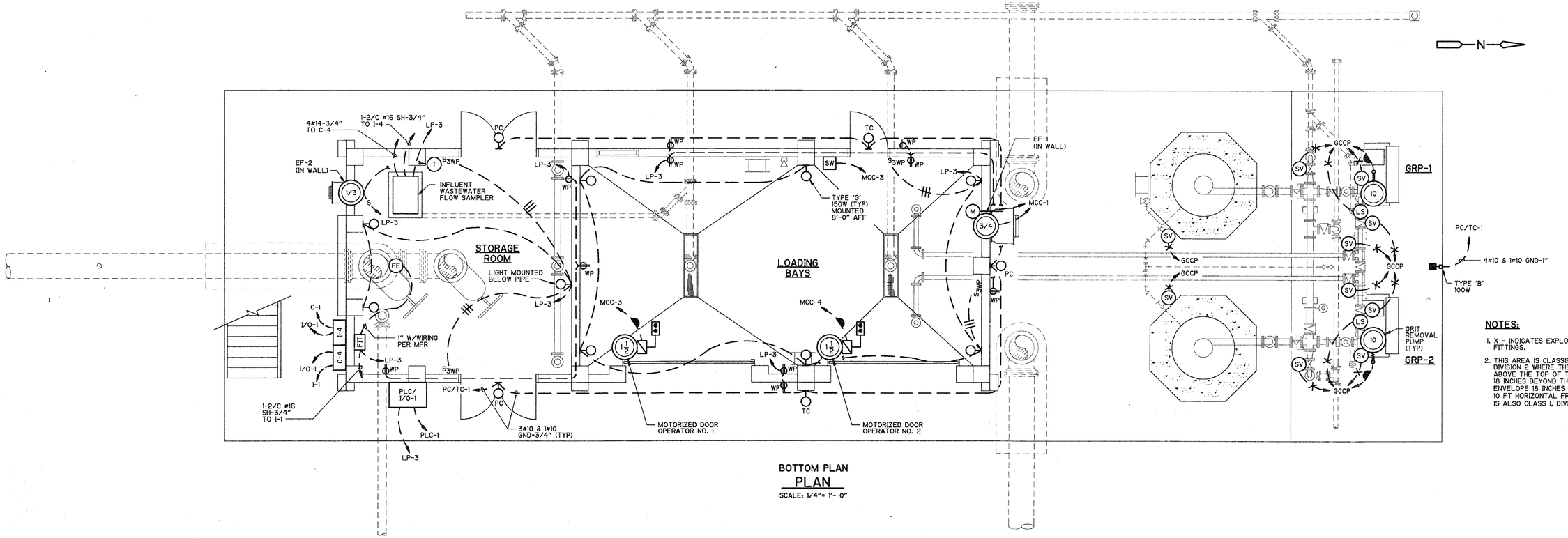
Robert Carter 1:47:19 05/23/97 08:54:42 EGEDI012 O:\6706_070\ELEC\



TOP PLAN

PLAN

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



BOTTOM PLAN

PLAN

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

NOTES:

1. X - INDICATES EXPLOSION RATED CONDUIT SEAL FITTINGS.
2. THIS AREA IS CLASSIFIED HAZARDOUS CLASS I, DIVISION 2 WHERE THE ENVELOPE IS 18 INCHES ABOVE THE TOP OF THE STRUCTURE AND EXTENDING 18 INCHES BEYOND THE EXTERIOR WALL. THE ENVELOPE 18 INCHES ABOVE GRADE EXTENDING 10 FT HORIZONTAL FROM THE STRUCTURE WALLS IS ALSO CLASS I, DIVISION 2.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: R. CARTER
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

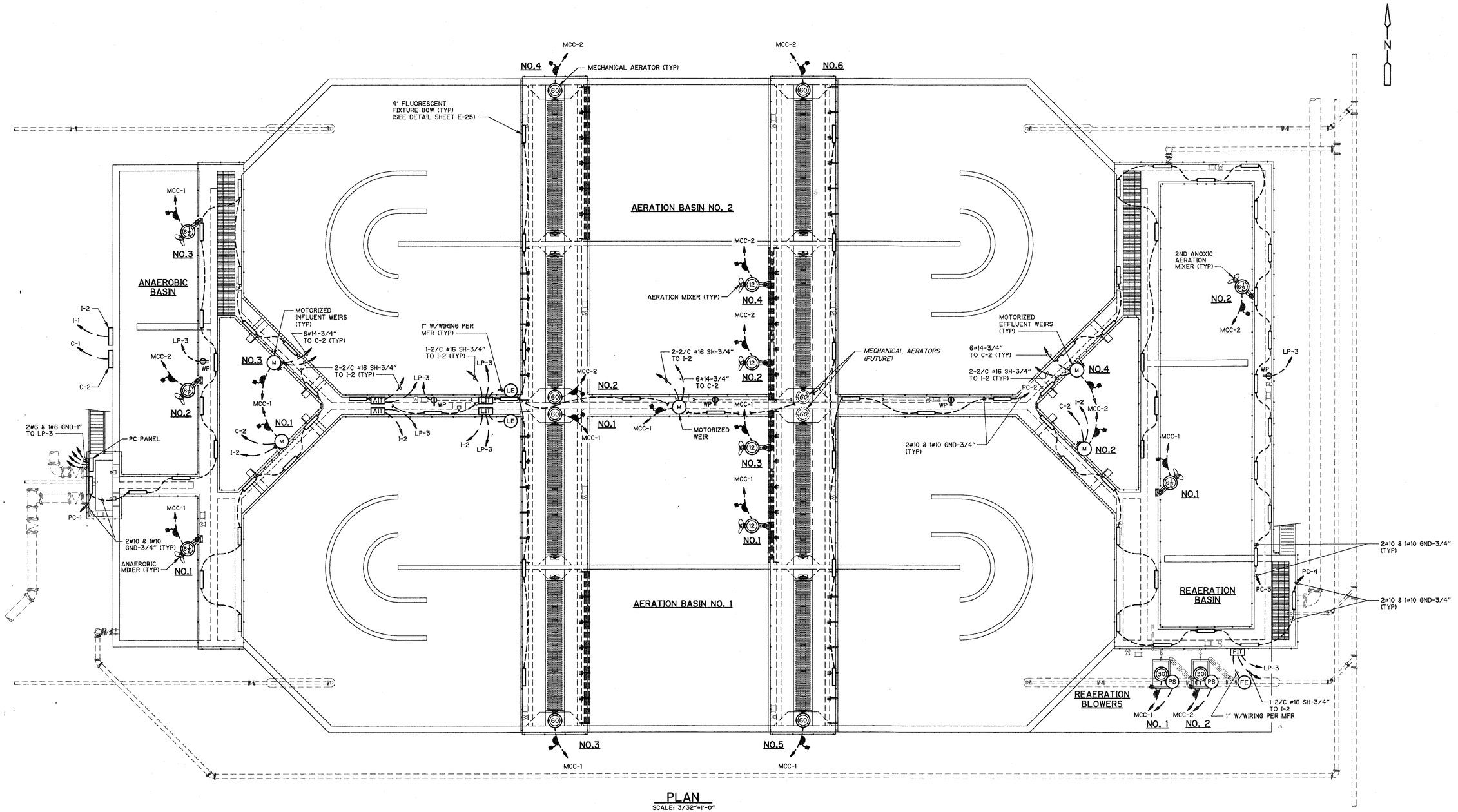
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS STRUCTURE - ELECTRICAL PLAN

PROJECT NO. 6706_070
FILE NAME: EHWPL013

SHEET NO.
E-14

D:\6706_070\ELEC\ EHWPL013 05/23/97 15:47:21 2.50x23 Robert Carter



PLAN
SCALE: 3/32"=1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: R. CARTER
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

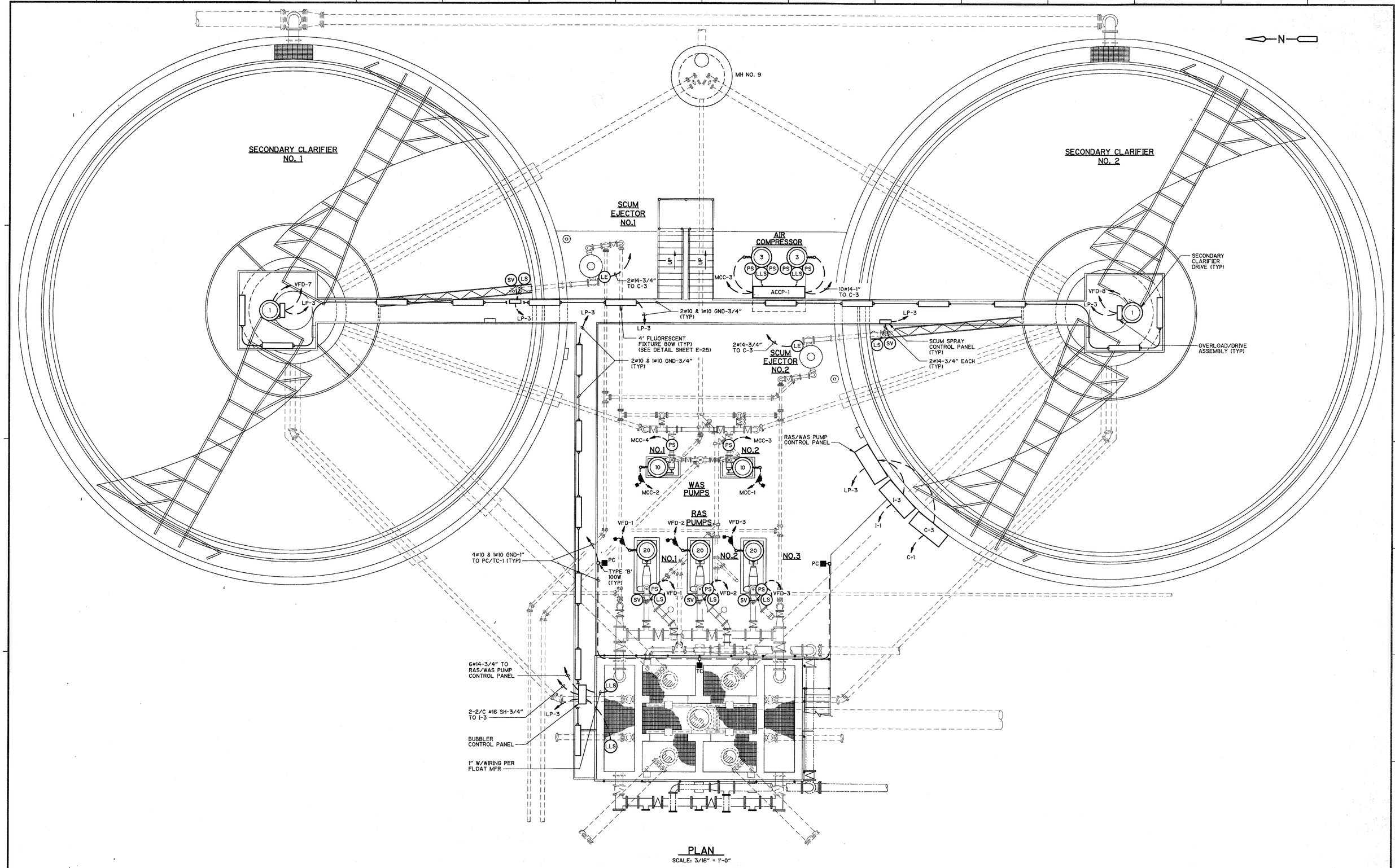
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

BIOLOGICAL TREATMENT PLAN - ELECTRICAL PLAN

PROJECT NO. 6706_070
FILE NAME: EBTPL014

SHEET NO.
E-15

Q:\6706_070\ELEC\ EBTPL014 05/23/97 14:01:04 9:48:09 Robert Carter



PLAN

SCALE: 3/16" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: R. CARTER
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

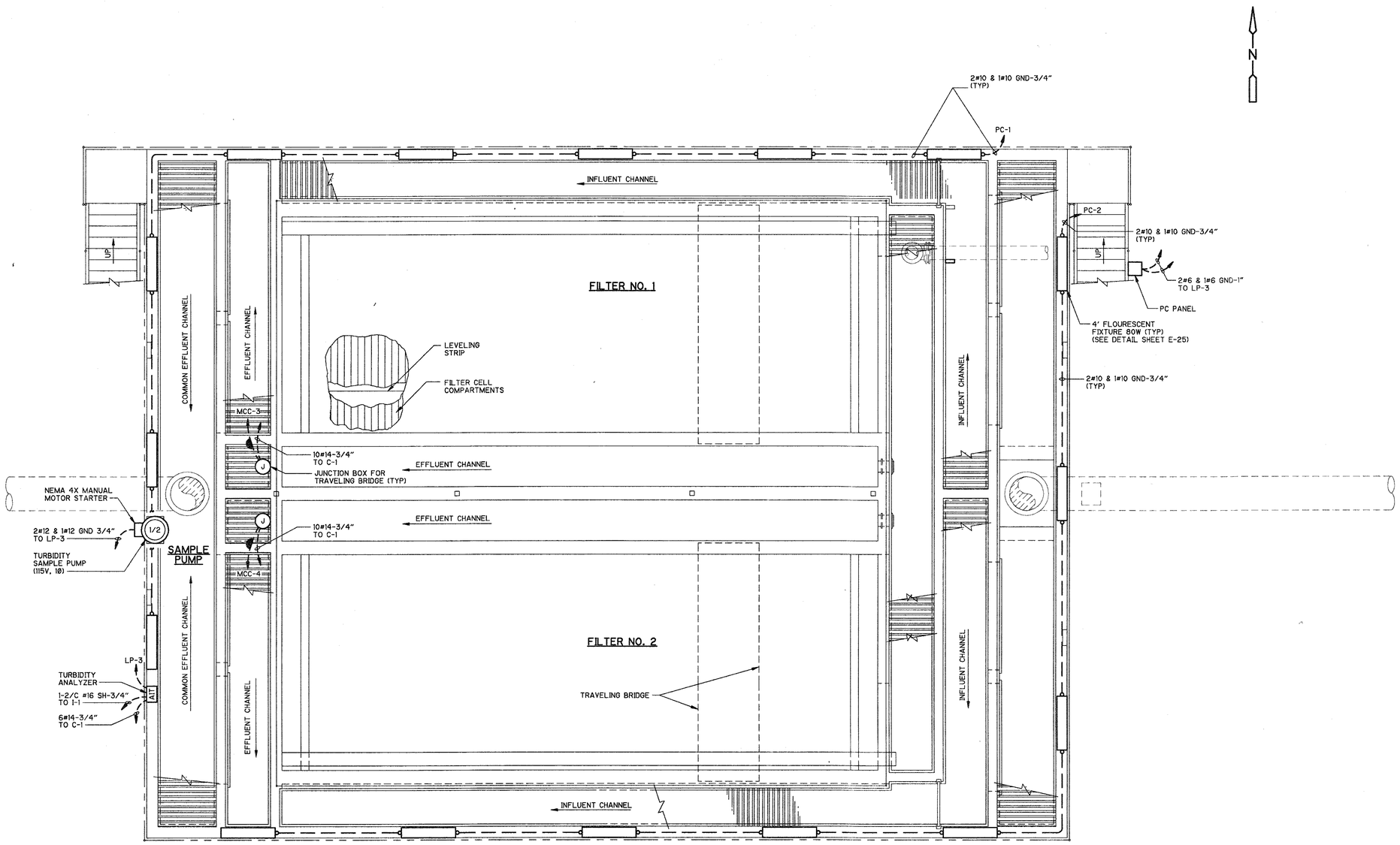
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

SECONDARY CLARIFIERS - ELECTRICAL PLAN

PROJECT NO. 6706_070
FILE NAME: ESCPL015

SHEET NO.
E-16

O:\6706_070\ELEC\ ESCPL015 05/23/97 15:45:25 9/64-42 Robert Carter



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

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

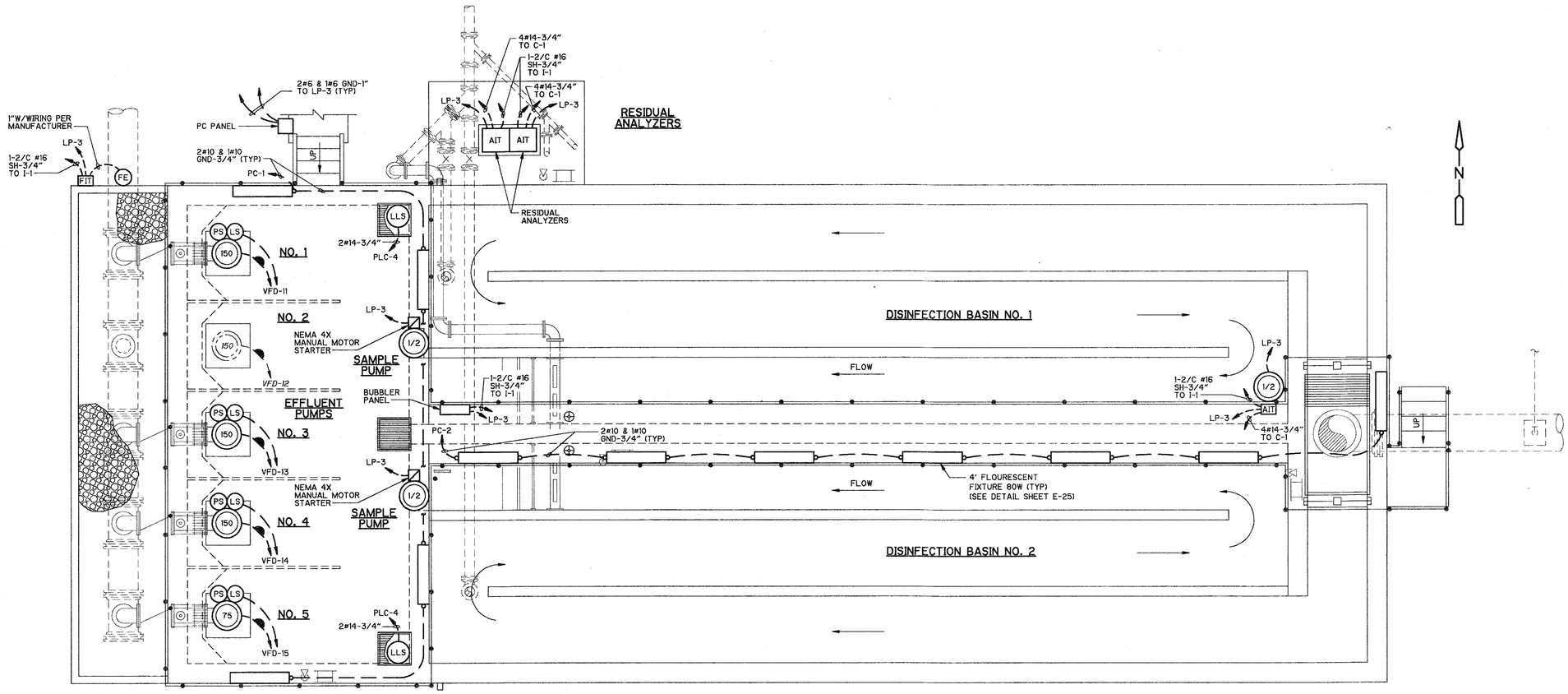
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ABW GRAVITY FILTERS - ELECTRICAL PLAN

PROJECT NO. 6706_070
FILE NAME: EGFPL016

SHEET NO.
E-17

Robert Carter 1:07:16 05/23/97 15:42:39 EGFPL016 O:\6706_070\ELEC\



PLAN

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

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: R. CARTER
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

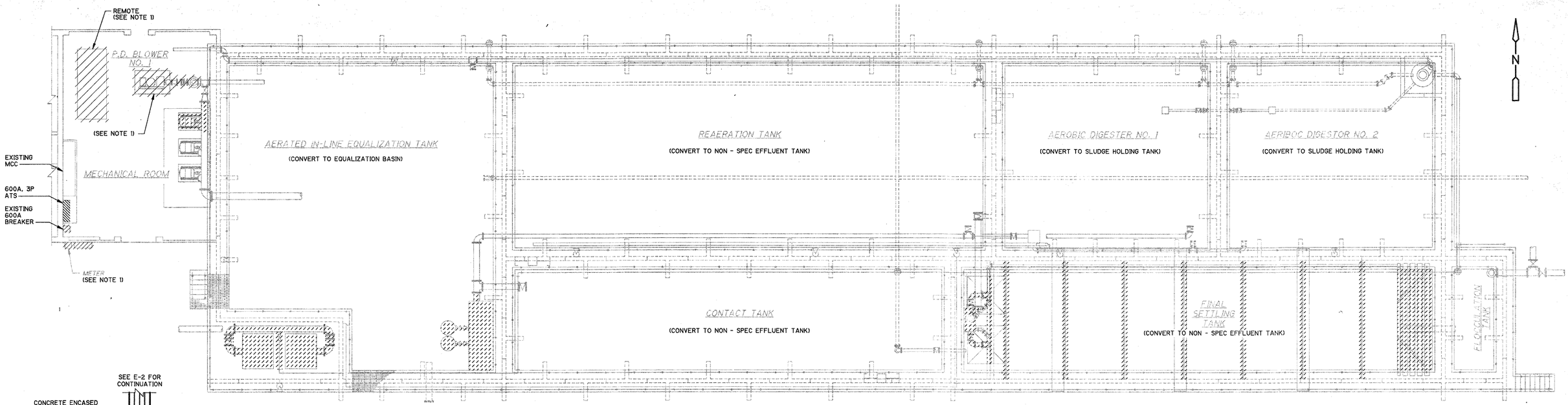
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

DISINFECTION BASIN - ELECTRICAL PLAN

PROJECT NO. 6706_070
FILE NAME: EDBPL017

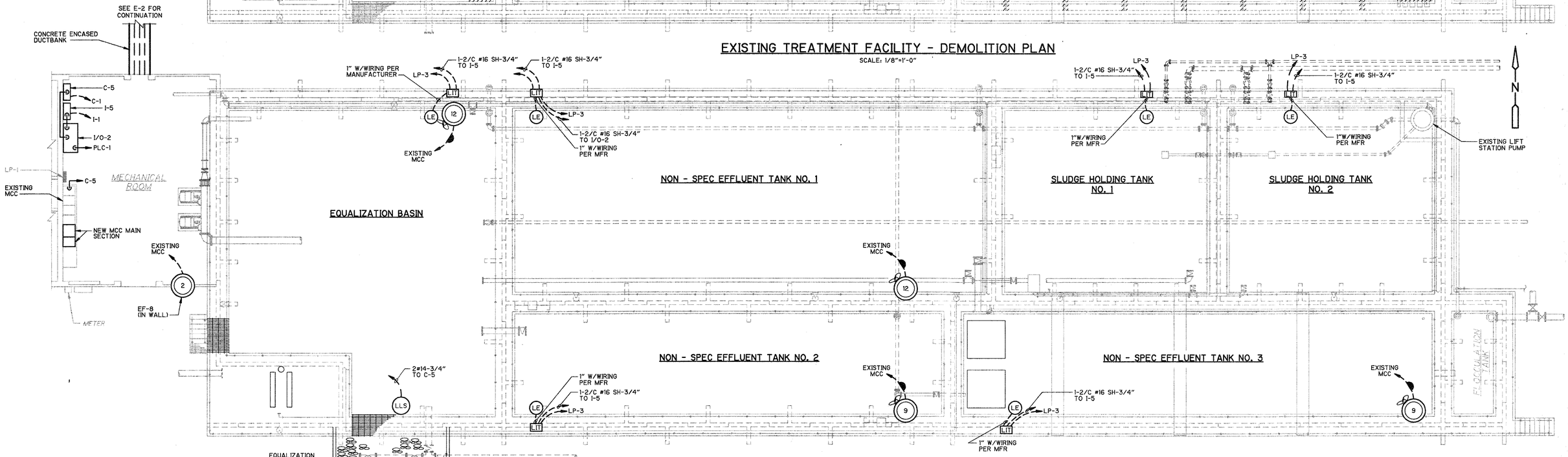
SHEET NO.
E-18

Robert Carter 3:11:13 05/23/97 14:34:42 EDBPL017 O:\6706_070\ELEC\



EXISTING TREATMENT FACILITY - DEMOLITION PLAN

SCALE: 1/8"=1'-0"



EXISTING TREATMENT FACILITY - MODIFICATIONS PLAN

SCALE: 1/8"=1'-0"

NOTES

1. CONTRACTOR SHALL REMOVE EXISTING 600A,3P AUTOMATIC TRANSFER SWITCH, 600A,3P MAIN BREAKER AND RETURN TO OWNER.
2. CONTRACTOR SHALL PROVIDE NEW 600A, 3P MAIN BREAKER SECTION TO EXISTING MCC. PROVIDE NECESSARY HARDWARE, LUGGING WIRE, CONDUIT, ETC. FOR NEW MCC MAIN SECTION TO EXISTING MCC. MATCH AIC RATING, PAINT.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

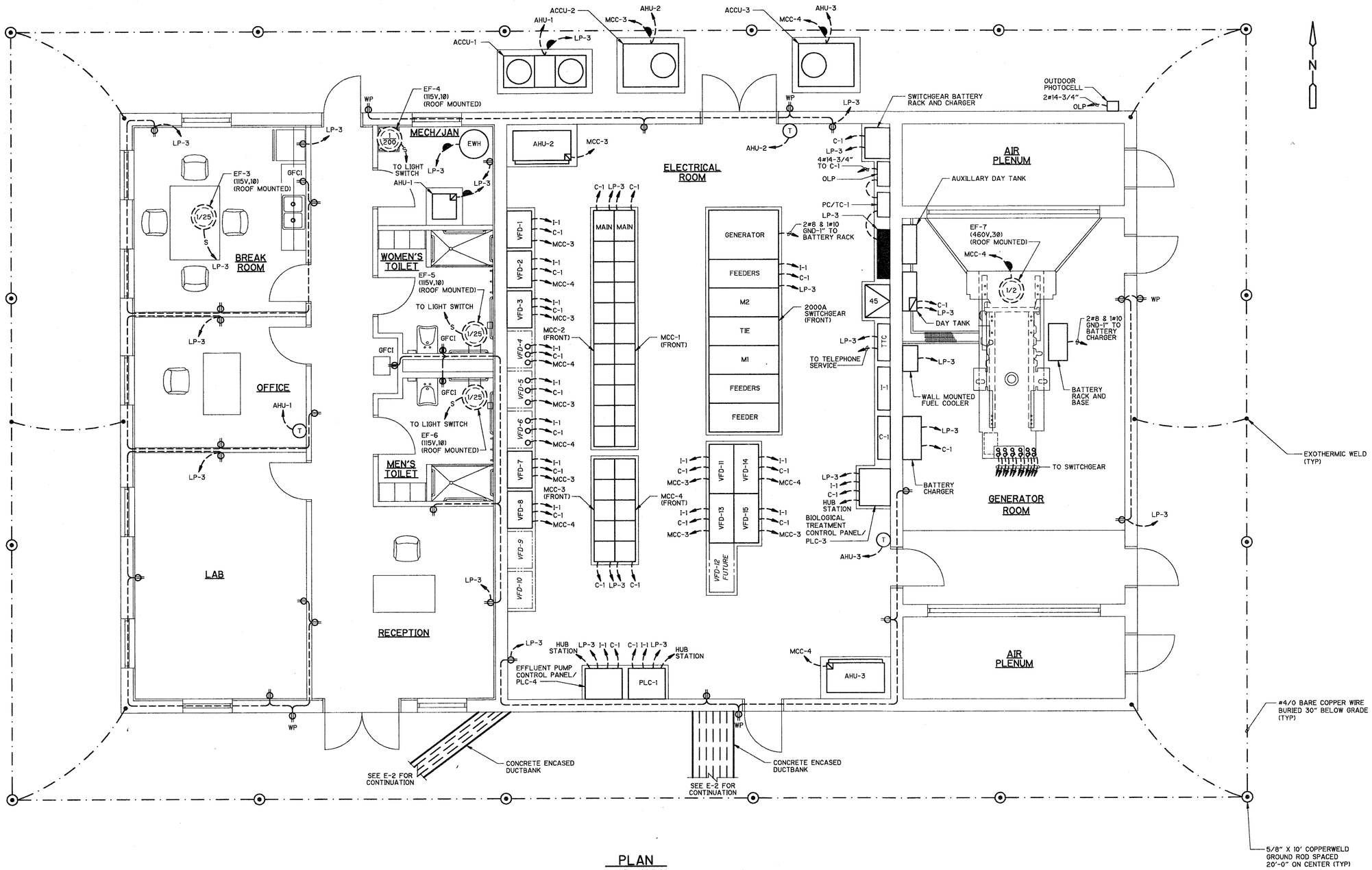
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

EXISTING TREATMENT FACILITY DEMOLITION AND MODIFICATIONS ELECTRICAL PLAN

PROJECT NO. 6706_070
FILE NAME: ETFPL018

SHEET NO.
E-19

O:\6706_070\ELEC\ ETFPL018 05/23/97 15:26:29 4:56:40 Robert Carter



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

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: R. CARTER
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

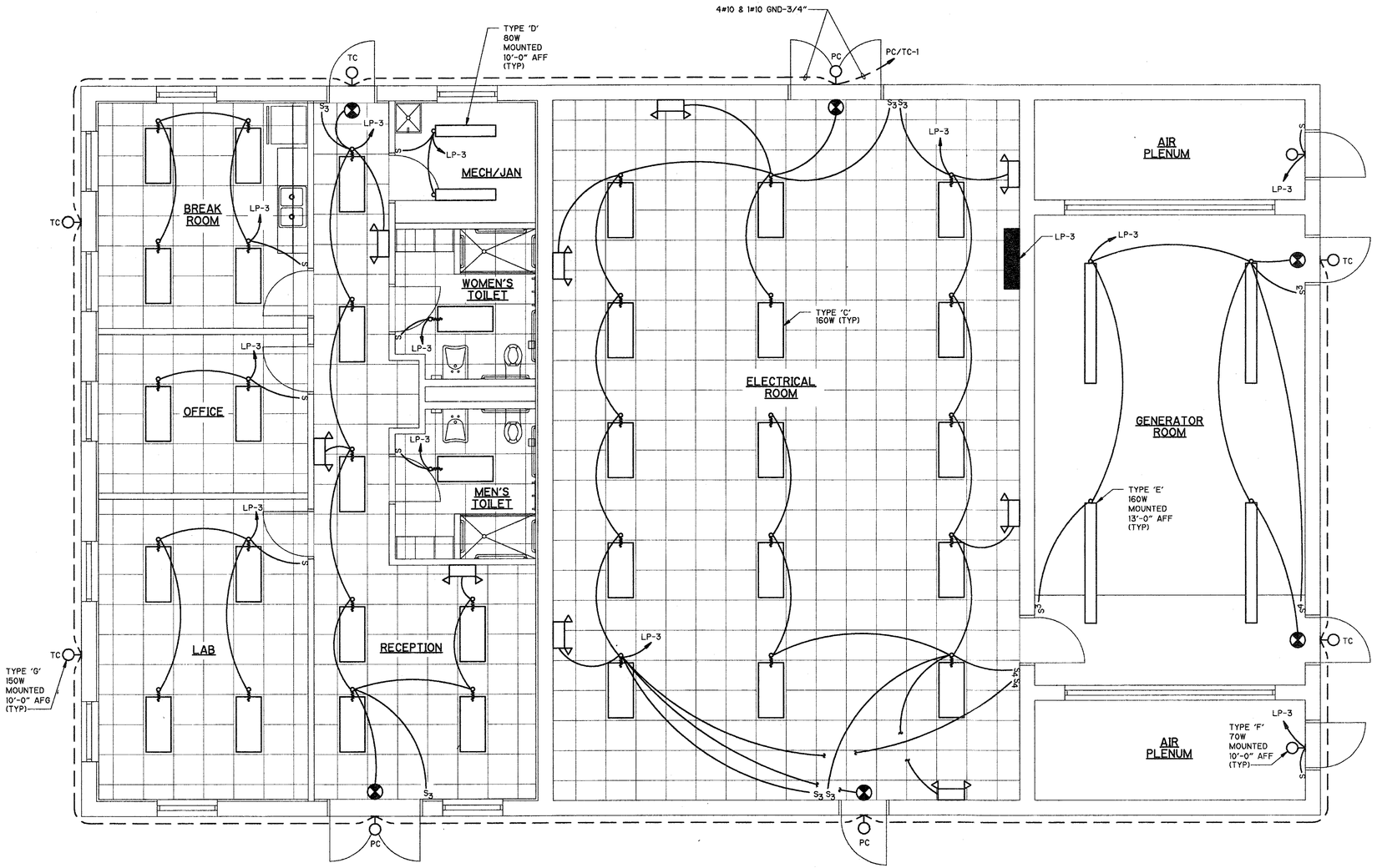
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

GENERATOR/ELECTRICAL BUILDING - POWER PLAN

PROJECT NO. 6706_070
FILE NAME: EELPL019

SHEET NO.
E-20

G:\6706_070\ELEC\EELPL019 05/23/97 11:25:17 2.54.56 John Clark



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

NOTE:

1. EMERGENCY LIGHTING FIXTURES AND EXIT LIGHTS SHALL BE WIRED TO THE NORMAL LIGHTING CIRCUIT OF THE ROOM IT SERVES AND TO THE LINE-SIDE OF THE LIGHT SWITCH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: R. CARTER
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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FLORIDA

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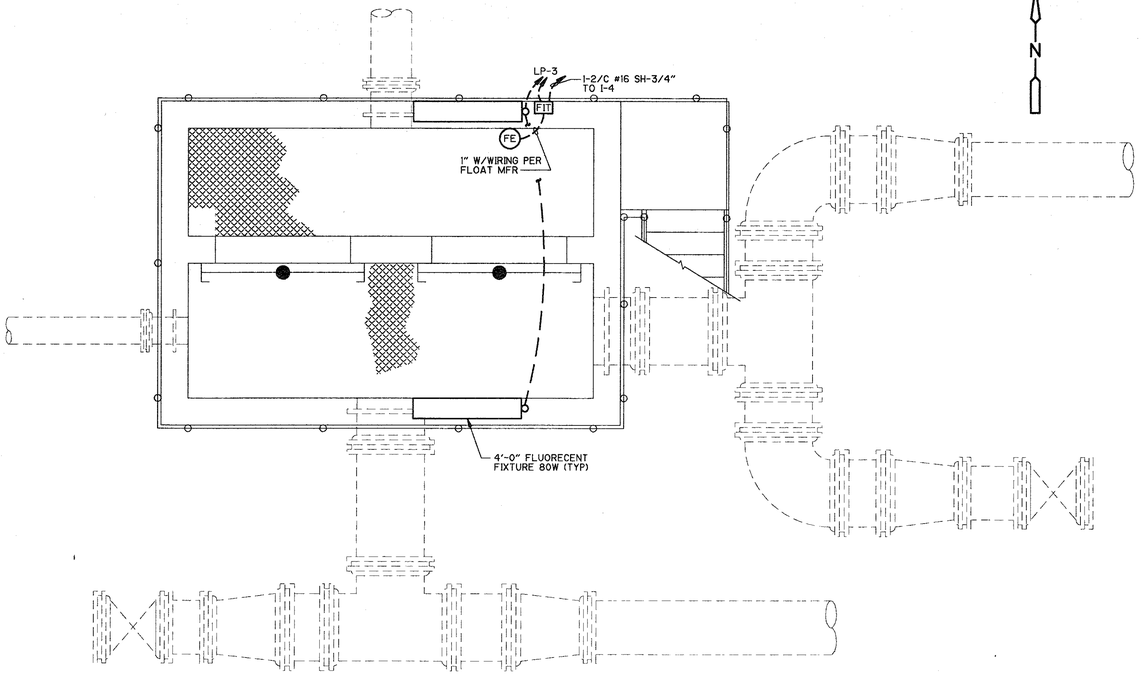
WASTEWATER TREATMENT PLANT EXPANSION

GENERATOR / ELECTRICAL BUILDING - LIGHTING PLAN

PROJECT NO. 6706_070
FILE NAME: EELPL020

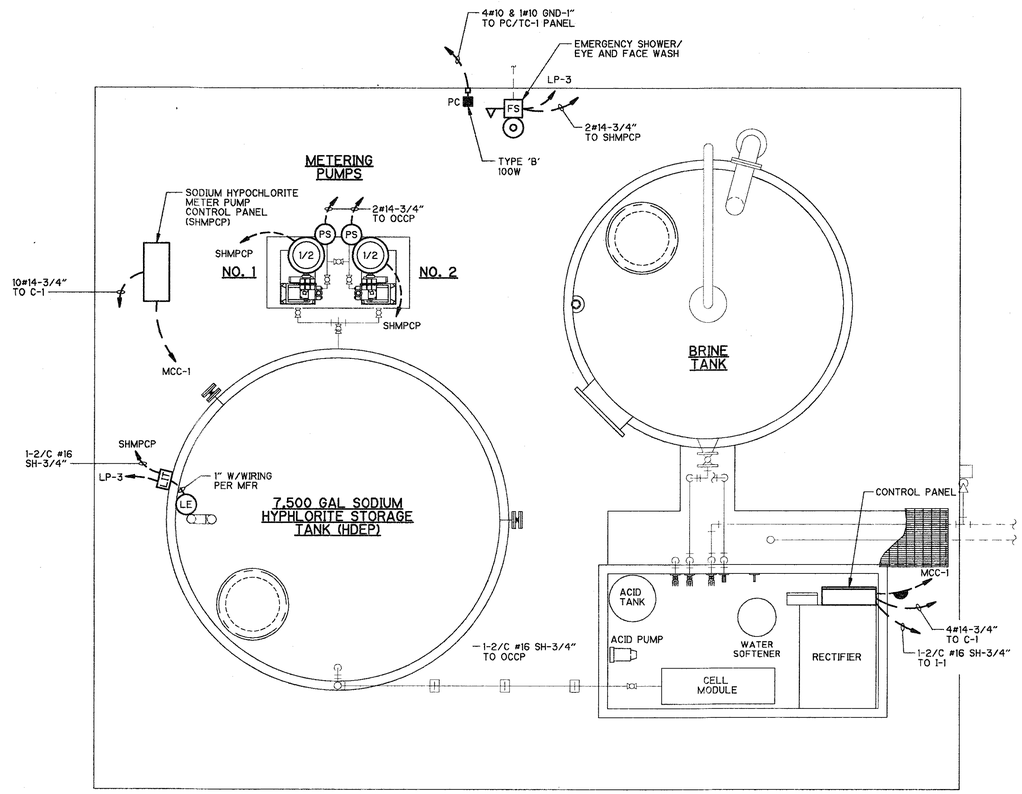
SHEET NO.
E-21

Q:\6706_070\ELEC\ EELPL020 05/23/97 15:33:10 01/9/95 Robert Carter



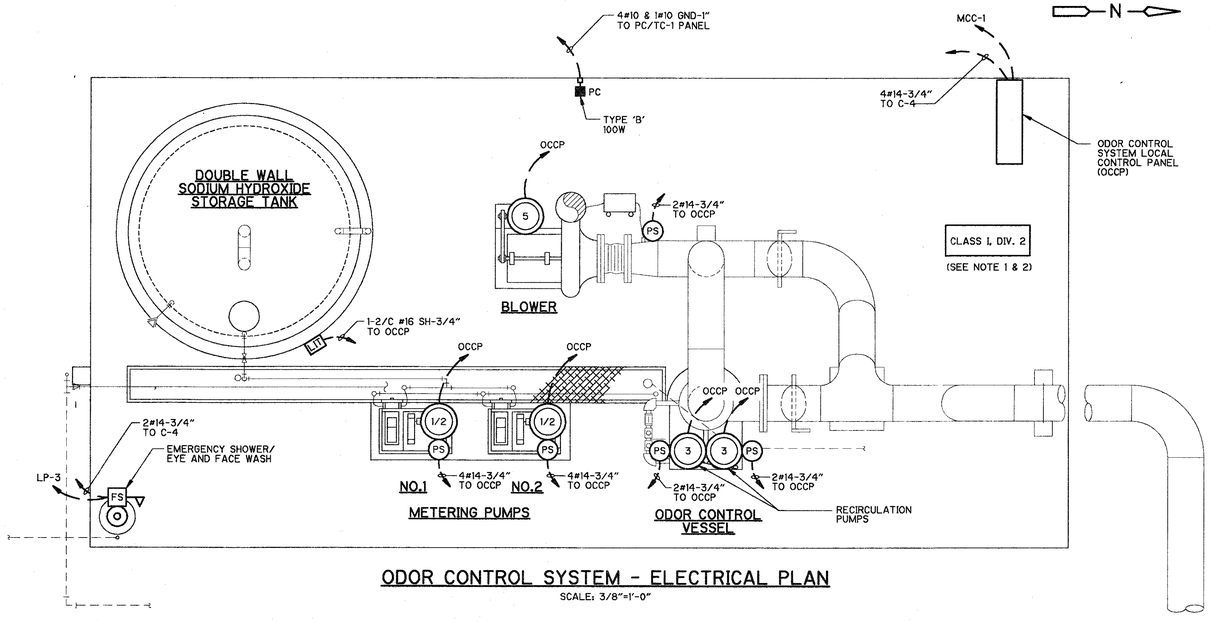
EQUALIZATION SPLITTER BOX - ELECTRICAL PLAN

SCALE: 3/8"=1'-0"



SODIUM HYPOCHLORITE SYSTEM - ELECTRICAL PLAN

SCALE: 3/8"=1'-0"



ODOR CONTROL SYSTEM - ELECTRICAL PLAN

SCALE: 3/8"=1'-0"

NOTES:

1. MISCELLANEOUS CONTROL, MEASUREMENT, ORP PROBE, PH ANALYZER, SOLENOID VALVES, SWITCHES, SENSORS, MOTORS, PUMPS, ETC. ARE NOT SHOWN. CONTRACTOR TO COORDINATE THESE REQUIREMENTS AND PROVIDE WIRE, CONDUIT, POWER SUPPLY, HARDWARE, AND ALL APPURTENANCES REQUIRED FOR OPERATION OF SYSTEM.
2. THIS AREA IS CLASSIFIED HAZARDOUS CLASS I, DIVISION 2 FOR AREAS PHYSICALLY SEPARATED FROM PROCESS THAT HOUSE SYSTEMS HANDLING FLAMMABLE GASES. THE AREA OF CLASSIFICATION IS WITHIN 3-FEET OF LEAKAGE SOURCES SUCH AS FANS, DAMPERS, FLEXIBLE CONNECTIONS, FLANGES, PRESSURIZED UNWELDED DUCTWORK, AND ODOR CONTROL VESSELS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

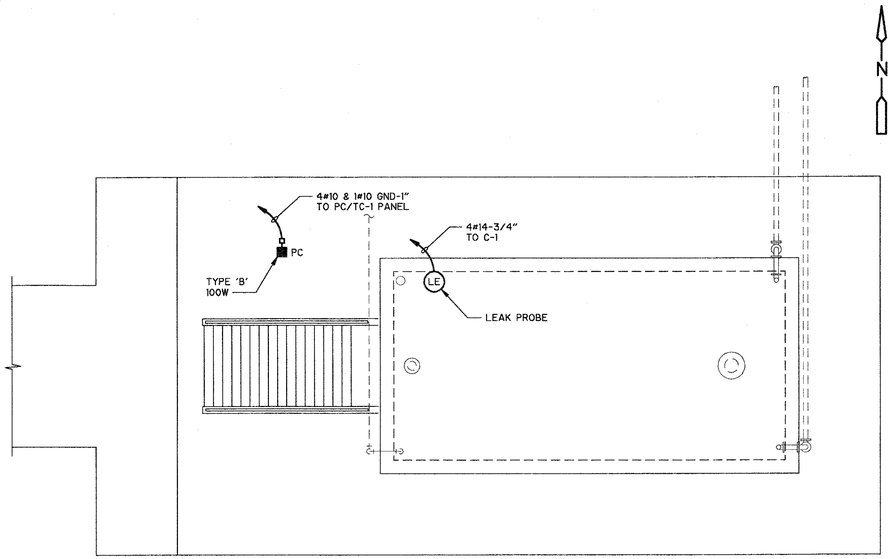
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

SODIUM HYPOCHLORITE SYSTEM, EQUALIZATION SPLITTER BOX AND ODOR CONTROL SYSTEM ELECTRICAL PLAN

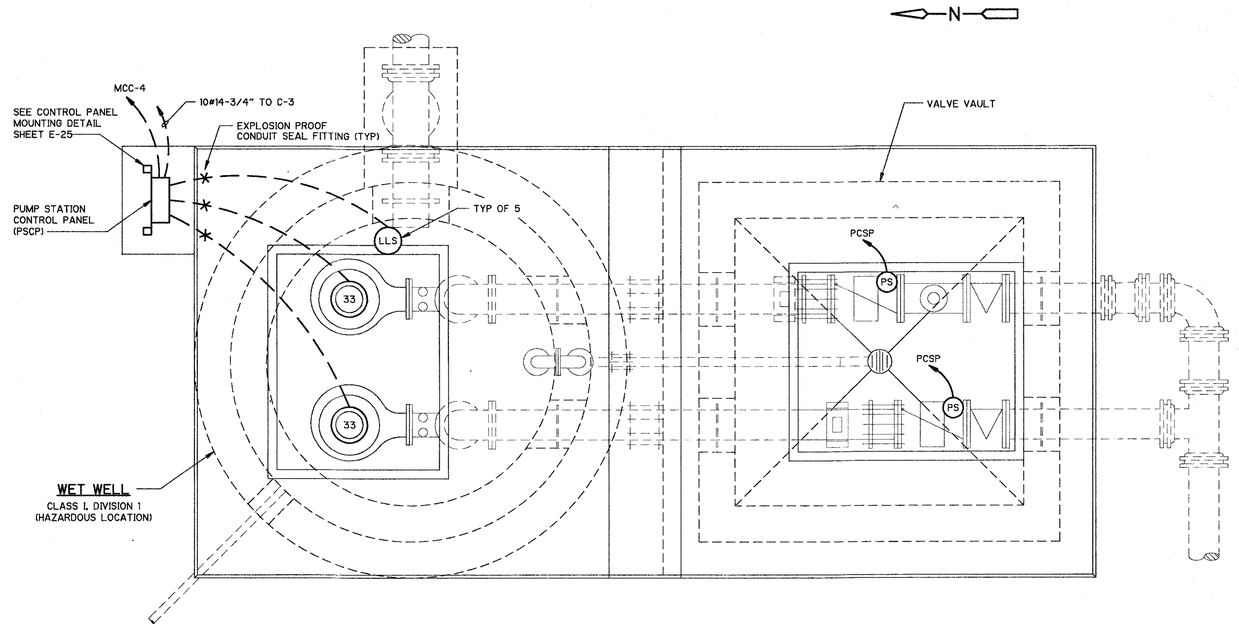
PROJECT NO. 6706_070
FILE NAME: EGEPL021

SHEET NO.
E-22

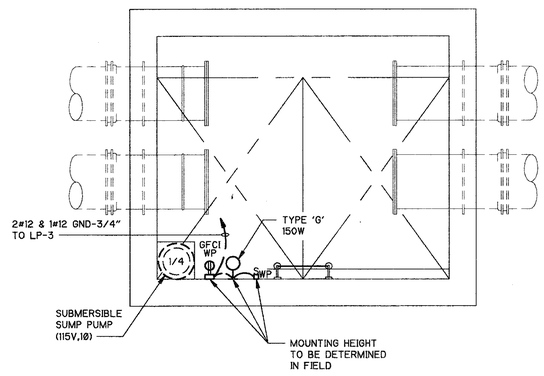
John Clark 2:46:31 05/23/97 10:15:52 EGEPL021 O:\6706_070\ELEC\



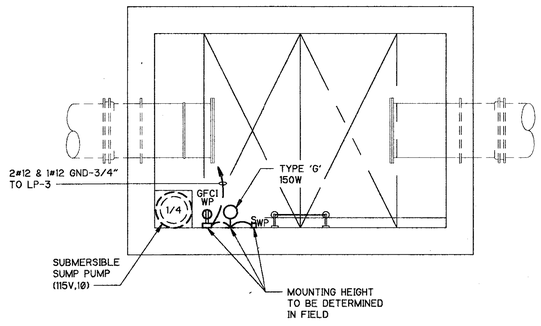
FUEL STORAGE TANK PLAN
NTS



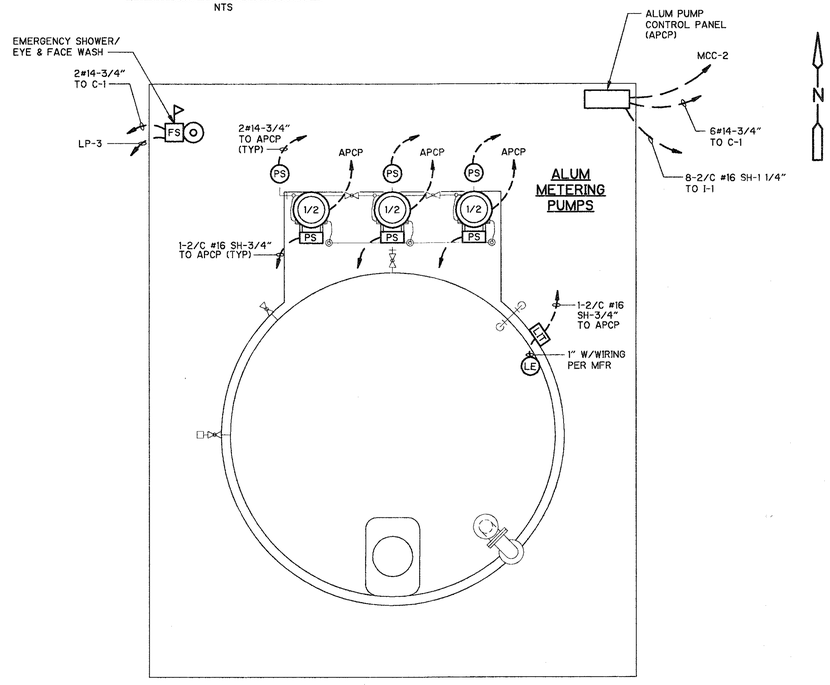
LIFT STATION PLAN
NTS



VALVE VAULT PLAN
NTS



METER VAULT PLAN
NTS



ALUM SYSTEM PLAN
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: R. CARTER
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

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INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS STRUCTURES

PROJECT NO. 6706_070
FILE NAME: EGEPL022

SHEET NO.
E-23

Robert Carter 3d8x07 05/23/97 14:27:15 EGEPL022 O:\6706_070\ELEC\

LIGHTING FIXTURE SCHEDULE

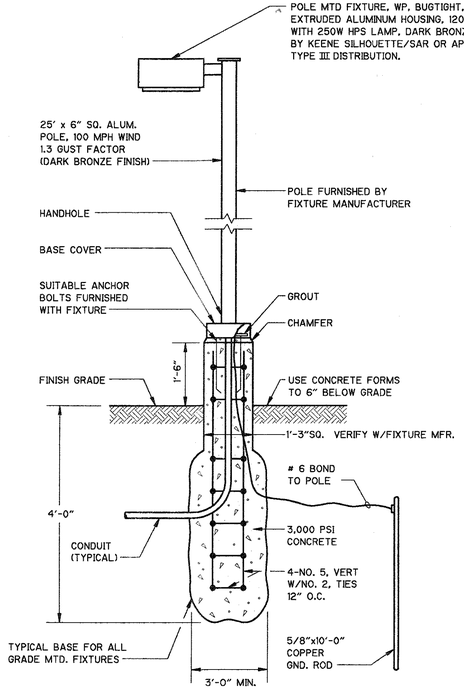
TYPE	WATT	DESCRIPTION	MFR (OR APPROVED EQUAL)
A	250	SEE POLE MOUNTED FIXTURE DETAIL 'A' THIS SHEET.	
B	100	SEE POLE MOUNTED FIXTURE DETAIL 'B' THIS SHEET.	
C	160	2'x4' FLUORESCENT TROFFER W/4-34 WATT RS LAMPS, FULLY ENCLOSED WIRING, HINDGED BALLAST COVER, ALUMINUM TRIM, VIRGIN ACRYLIC LENS, EMBOSSED STEEL HOUSING, REGRESSED ALUMINUM DOOR, 120V, ESB.	DAY-BRITE "DESIGNER SERIES"
D	80	4'-0" LONG FIXTURE W/2-32 WATT T8 RS FLUORESCENT LAMPS, FULLY-GASKETED REINFORCED POLYESTER HOUSING, HIGH IMPACT ACRYLIC DIFFUSER, CAM-ACTION LATCHES, U.L. LISTED FOR WET LOCATIONS, 120V, ELECTRONIC BALLAST.	LITHONIA: DMW 240
E	160	8'-0" LONG FIXTURE W/4-32 WATT T8 RS FLUORESCENT LAMPS, FULLY-GASKETED REINFORCED POLYESTER HOUSING, HIGH IMPACT ACRYLIC DIFFUSER, CAM-ACTION LATCHES, U.L. LISTED FOR WET LOCATIONS, 120V, ELECTRONIC BALLAST.	LITHONIA: TDMW 240
F	70	SURFACE MOUNTED WALL-PAK OUTDOOR FIXTURE W/70 WATT HPS LAMP, DIE-CAST ALUMINUM HOUSING, TAMPER-PROOF FASTENERS, BLACK THERMOSET POLYESTER POWDER FINISH, INJECTION-MOLDED POLYCARBONATE REFRACTOR, GASKETED, 120V, HPF ESB.	LITHONIA: TWP SERIES
G	150	WALL MOUNTED OUTDOOR FIXTURE W/150 WATT HIGH PRESSURE SODIUM LAMP AND 120V, LOW LOSS BALLAST, GASKETED, DIE-CAST ALUMINUM HOUSING, PRISMATIC REFRACTOR, PHOTOCELL CONTROL, ALUMINUM BACKPLATE, SHARP CUTOFF TYPE III DISTRIBUTION.	KEENE: "SILHOUETTE SAW" SERIES
⊗		EXIT SIGN W/CAST ALUM. HOUSING & ALUM. STENCIL FACE, BLACK BAKED ENAMEL FINISH, SEALED NICKEL CADMIUM BATTERY, SELF CONTAINED AUTO-CHARGING, FLAT OR CEILING MOUNTED AS REQUIRED, 120V AC, 12V DC.	EMERGI-LITE X22 & 23 SERIES
⊏⊐		EMERGENCY LIGHTING UNIT SELF CONTAINED AUTO-CHARGING BATTERY BACKUP W/TEST SW. & PILOT LIGHT, SEALED NICKEL CADMIUM BATTERY, (2) EF-18 HEADS W/9 W HIT LAMP PER HEAD, 120V AC, 12V DC.	EMERGI-LITE 12 JS SERIES

PANEL: PC/TC-1 **BUS:** 100A,MLO **VOLTAGE:** 120/208V,3Ø,4W
MOUNTING: SURFACE **POLES:** 30
LOCATION: ELECTRICAL ROOM **REMARKS:**

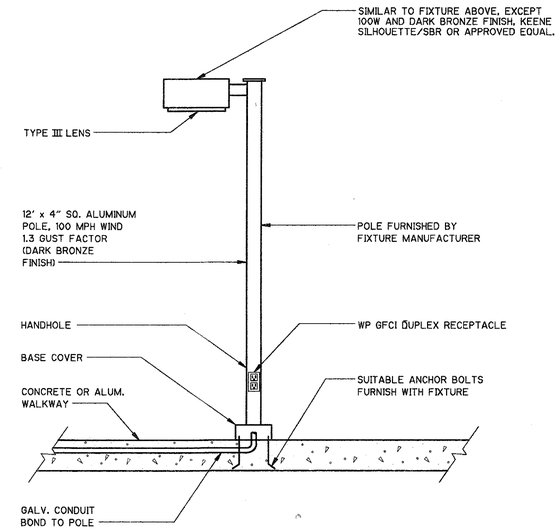
CIR. NO.	DESCRIPTION	TRIP	POLES	REMARKS
1,3,5	PC CONTACTOR	30	3	
2,4,6	TC CONTACTOR	30	3	
7-14	RECEPTACLES-GENERAL	20	1	
15-23	PC LIGHTING AND SPARES	20	1	
24-30	TC LIGHTING AND SPARES	20	1	

PANEL: LP-3 **BUS:** 225A,225A MB **VOLTAGE:** 120/208V,3Ø
MOUNTING: SURFACE **POLES:** 84
LOCATION: ELECTRICAL/GENERATOR ROOM **REMARKS:**

CIR. NO.	DESCRIPTION	TRIP	POLES	REMARKS
1-10	GENERAL RECEPTACLES	20	1	
11-20	GENERAL LIGHTING	20	1	
21,23	AHU-1	30	2	
22,24	ACCU-1	30	2	HACR
25,27	ELECTRIC WATER HEATER	30	2	
26	DAY TANK	20	1	
28	SWITCHGEAR BATTERY RACK AND CHARGER	20	1	
29	BATTERY CHARGER	20	1	
30	RAS/WAS CONTROL PANEL	20	1	
31	PC/TC-1	20	1	
32	BUBBLER CONTROL (DISINFECTION)	20	1	
33	BUBBLER CONTROL (SPLITTER BOX)	20	1	
34	PC PANEL (DISINFECTION)	20	1	
35	PC PANEL (DISINFECTION)	20	1	
36	PC PANEL (AERATION BASINS)	20	1	
37	PC PANEL (AERATION BASINS)	20	1	
38	PC PANEL (AERATION BASINS)	20	1	
39	PC PANEL (AERATION BASINS)	20	1	
40	EMERGENCY EYEWASH	20	1	
41	EMERGENCY EYEWASH	20	1	
42	EMERGENCY EYEWASH	20	1	
43-47	AIT	20	1	
48-51	FIT	20	1	
52-60	LIT	20	1	
61	PLC-1	20	1	
62	PLC-3	20	1	
63	PLC-4	20	1	
64	SCUM BOX	20	1	
65	SCUM BOX	20	1	
66	FLOW SAMPLER	20	1	
67	FLOW SAMPLER	20	1	
68	FLOW SAMPLER	20	1	
69	SWITCHGEAR	20	1	
70	FUEL COOLER	20	1	
71	EXHAUST FAN EF-3	20	1	
72	EXHAUST FAN EF-4	20	1	
73	EXHAUST FAN EF-5	20	1	
74	EXHAUST FAN EF-6	20	1	
75-79	MISCELLANEOUS EQUIPMENT	20	1	
80-82	SPARES	20	1	
83,84	SPACES	-	-	



POLE MOUNTED FIXTURE DETAIL 'A'
NTS



POLE MOUNTED FIXTURE DETAIL 'B'
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
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INDIAN RIVER COUNTY
FLORIDA

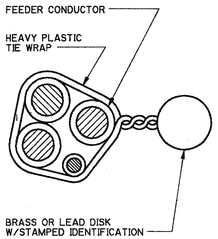
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

LIGHTING FIXTURE AND PANEL SCHEDULES

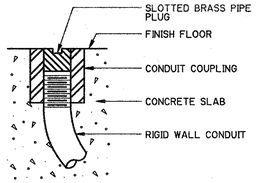
PROJECT NO. 6706_070
FILE NAME: ELGSH024

SHEET NO.
E-24

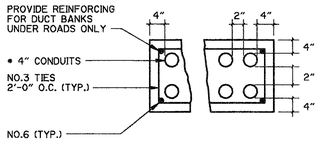
John Clark 1:9.36 05/23/97 16:23:55 ELGSH024 O:\6706_070\ELEC\



U.G. CABLE TAG DETAIL
NTS



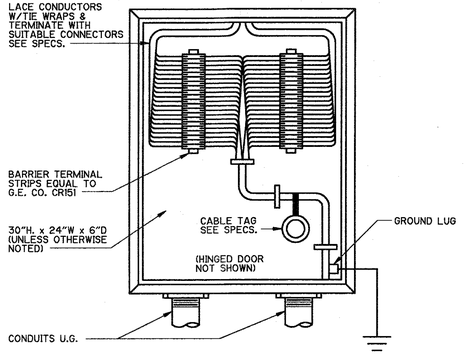
DETAIL OF CONDUIT TERMINATION STUB OUT
NTS



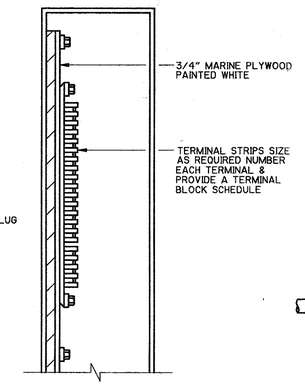
TYPICAL DUCT BANK
NTS

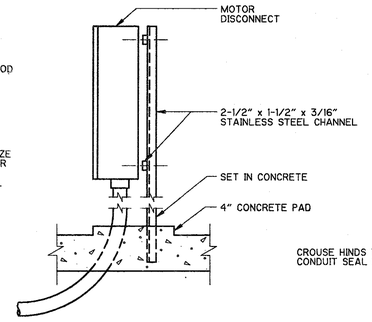
NOTE:

• ALL SHIELDED INSTR. CABLES SHALL BE INSTALLED IN GALVANIZED RIGID STEEL CONDUIT. PROVIDE ONE GALVANIZED CONDUIT IN EACH INSTR. DUCT BANK WITH SPARES FOR FUTURE.

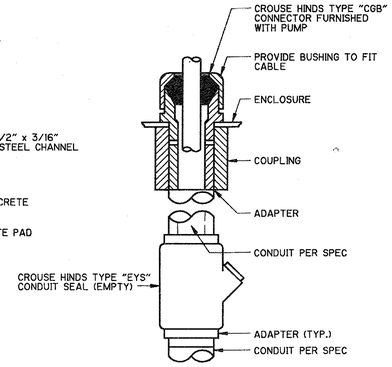


TYPICAL TERMINAL CABINET
NTS

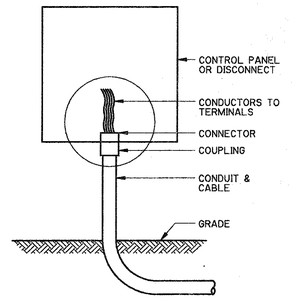


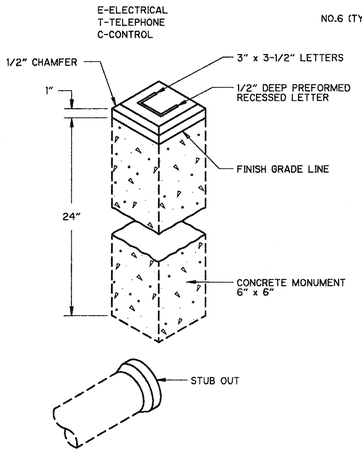


TYPICAL DISCONNECT
NTS

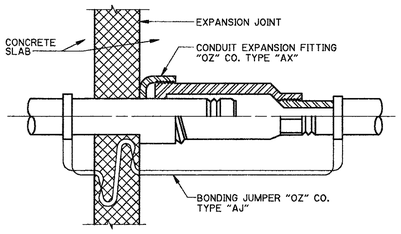


WATER TIGHT CONNECTION DETAIL
NTS

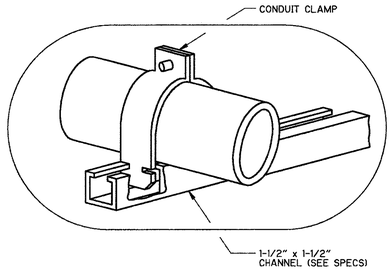




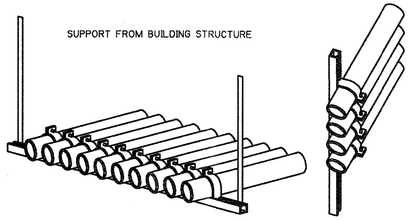
CONDUIT STUB MONUMENT DETAILS
NTS



EXPANSION FITTING DETAIL
NTS



CONDUIT PIPE STRAP MOUNTING DETAILS
NTS

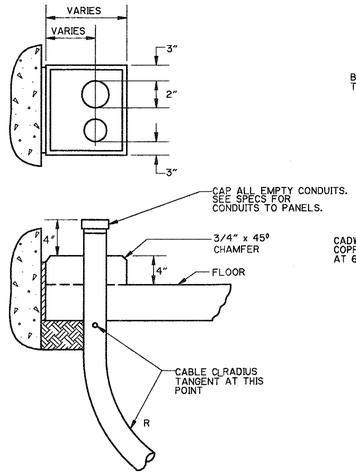


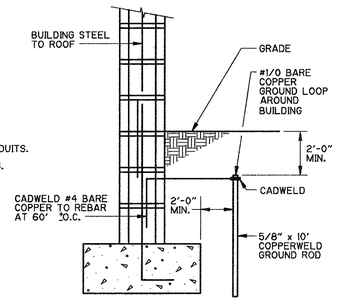
TRAPEZE ASSEMBLY

WALKWAY AND WALL MOUNTED

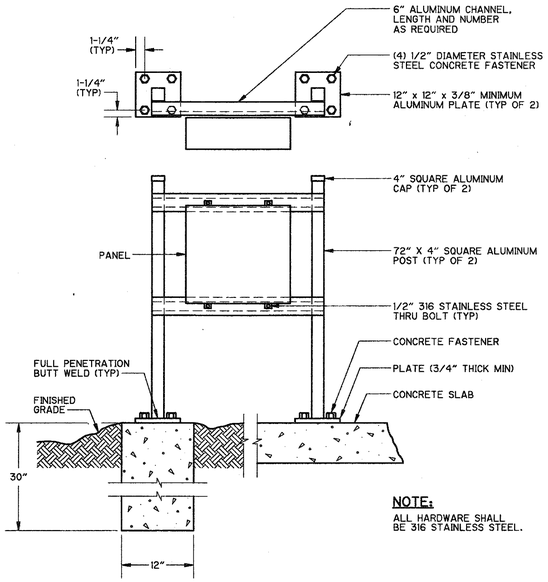
NOTE:

ALL HARDWARE, ETC SHALL BE 316 STAINLESS STEEL.





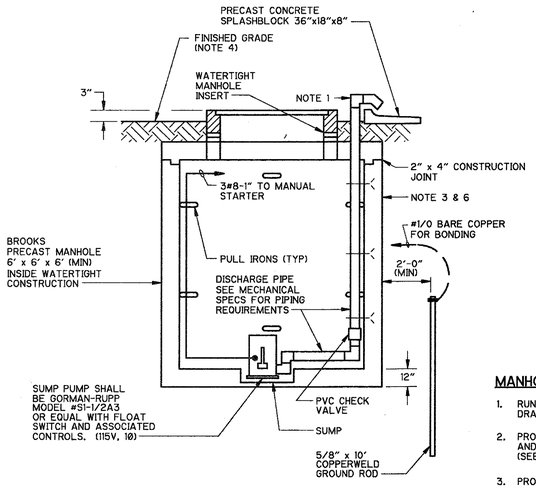
BUILDING STRUCTURE BONDING
NTS



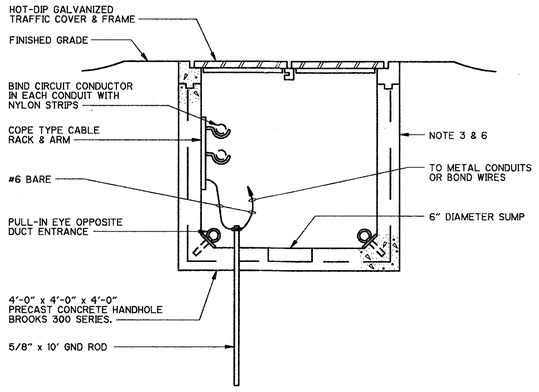
NOTE:

ALL HARDWARE SHALL BE 316 STAINLESS STEEL.

CONTROL PANEL MOUNTING DETAIL
NTS



NEW MANHOLE DETAIL
NTS

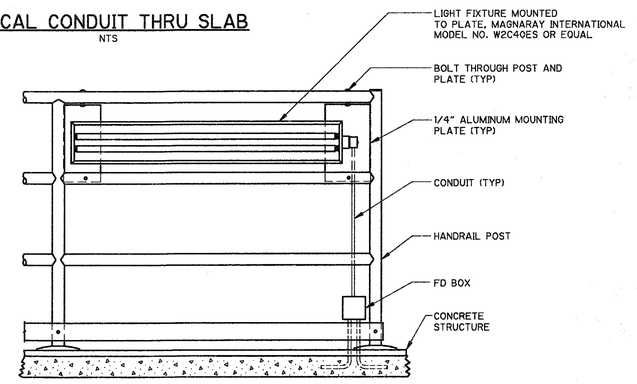


HANDHOLE DETAIL
NTS

MANHOLE & HANDHOLE NOTES:

1. RUN UNDERGROUND TO NEAREST STORM DRAIN WHEN IN PAVEMENT OR IF WITHIN 100'.
2. PROVIDE ADDITIONAL CABLE RACK ARMS AND APPURTENANCES AS REQUIRED (SEE SPECS).
3. PROVIDE COPE CABLE RACK (SEE SPECS).
4. INSTALL FLUSH WHEN IN PAVEMENT.
5. ALL HARDWARE SHALL BE 316 SS.
6. DO NOT SPLICE CABLES IN MANHOLE OR HANDHOLE, UNLESS OTHERWISE NOTED.

TYPICAL CONDUIT THRU SLAB
NTS



TYPICAL FIXTURE MOUNTING DETAIL
(SEE NOTE)
NTS

NOTE:

ALL HARDWARE, ETC SHALL BE 316 STAINLESS STEEL.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: P. LEFAVE
CROSS CHK'D BY: B. GRAHAM
APPROVED BY: W. NELSON
DATE: APRIL 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

ELECTRICAL DETAILS

PROJECT NO. 6706_070
FILE NAME: EEDET025

SHEET NO.
E-25

O:\6706_070\ELEC\ EEDET025 05/23/97 14:05:53 0.24/16 Michael Miller

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	**		**
SHARED DISPLAY, SHARED CONTROL OR COMPUTER FUNCTION			
PROGRAMMABLE LOGIC CONTROL			

** NORMALLY INACCESSIBLE OR BEHIND-THE-PANEL DEVICES OR FUNCTIONS MAY BE DEPICTED BY USING THE SAME SYMBOL BUT WITH DASHED HORIZONTAL BARS, i.e.:

INSTRUMENTS SHARING COMMON HOUSING

DENOTES EQUIPMENT SPECIFIED UNDER OTHER SECTIONS OF THIS CONTRACT

DENOTES EXISTING EQUIPMENT OR EQUIPMENT PROVIDED BY OTHERS UNDER A SEPARATE CONTRACT

FUTURE EQUIPMENT

CONTROL INTERLOCK FUNCTION, SOFTWARE OR HARDWIRED. SEE DESCRIPTION PROVIDED, ELECTRICAL SCHEMATIC, AND/OR SYSTEM SPECIFICATIONS FOR SPECIFIC FUNCTION.

12 — DETAIL NUMBER IF USED

DIGITAL SYSTEM I/O INTERFACE. DIRECTION OF TRIANGLE DENOTES WHETHER INPUT OR OUTPUT

LETTER DENOTES SIGNAL TYPE. THE LETTER "A" DENOTES AN ANALOG SIGNAL. THE LETTER "D" DENOTES A DISCRETE SIGNAL

TYPICAL TAG NUMBERS & DESIGNATION

LOOP NO. 1234 — TYPICAL LOOP NUMBER

AE CL2 — ADDITIONAL INSTRUMENT IDENTIFICATION SEE FUNCTION SYMBOLS & ABBREVIATIONS

*A — WHEN USED, LETTER DISTINGUISHES BETWEEN MULTIPLE, SIMILAR DEVICES IN THE SAME INSTRUMENT LOOP.

WHEN USED, NUMBER DENOTES DEVICES IN IDENTICAL DUPLICATE SYSTEMS.

GENERAL NOTES

1. THIS IS A GENERAL LEGEND SHEET, SOME SYMBOLS AND ABBREVIATIONS MAY NOT APPLY TO THIS SPECIFIC PROJECT.
2. THIS LEGEND APPLIES TO INSTRUMENTATION DIAGRAMS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
3. IN GENERAL THIS LEGEND SHEET AND THE INSTRUMENTATION DIAGRAMS ARE BASED ON INSTRUMENT SOCIETY OF AMERICA, STANDARDS FOR PRACTICES FOR INSTRUMENTATION. SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS REQUIRED TO ACCOMODATE THE PROJECT REQUIREMENTS.
4. SOME PROCESS ITEMS, SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, etc., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS ARE NOT SHOWN ON THE INSTRUMENTATION SHEETS.
5. SEE ELECTRICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS FOR EQUIPMENT NOT SHOWN IN THE LOOP DIAGRAMS.

LINE SYMBOLS

- MAJOR PROCESS PIPING, FLOW CHANNEL OR DATA HIGHWAY WITH FLOW OR SIGNAL DIRECTION AS SHOWN.
- MINOR PROCESS PIPING WITH FLOW DIRECTION AS SHOWN
- MISCELLANEOUS PIPING WITH FLOW DIRECTION AS SHOWN
- FUTURE PIPING
- ELECTRIC OR ELECTRONIC SIGNAL WITH SIGNAL DIRECTION AS SHOWN
- SOFTWARE SIGNAL LINK
- HYDRAULIC SIGNAL
- PNEUMATIC SIGNAL
- CAPILLARY TUBE OR FILLED SYSTEM SIGNAL
- ELECTROMAGNETIC OR SONIC SIGNAL
- PROCESS OR SIGNAL LINE CONTINUED AT ANOTHER LOCATION (A)
- PROCESS OR SIGNAL LINE CONTINUED FROM ANOTHER LOCATION (MATCH LETTERS) (A)

PROCESS DEVICE SYMBOLS

- DIAPHRAGM SEAL
- ANNULAR TYPE DIAPHRAGM SEAL
- BUBBLER SYSTEM (B)
- PURGE OR FLUSHING DEVICE (P)
- REDUCER OR ENLARGER
- PRIMARY ELEMENT VENTURI TUBE
- PRIMARY ELEMENT MAGNETIC FLOWMETER (M)
- PRIMARY ELEMENT ULTRASONIC FLOWMETER
- PRIMARY ELEMENT PARSHALL FLUME OR TRAPEZOIDAL FLUME
- PRIMARY ELEMENT ORIFICE PLATE
- PRIMARY ELEMENT WEIR
- PRIMARY ELEMENT TURBINE OR PROPELLER TYPE METER
- PRIMARY ELEMENT PITOT TUBE
- PRIMARY ELEMENT ROTAMETER
- NUCLEAR DENSITY METER (N)
- PRIMARY ELEMENT STRAP ON ULTRASONIC METER
- PRIMARY ELEMENT ULTRASONIC FLOW OR LEVEL METER (LE OR FE)
- FLOAT SWITCH
- PRESSURE REGULATING VALVE SELF CONTAINED (REGULATED SIDE)
- BALL VALVE
- VALVE: GLOBE OR OTHER IN-LINE TYPE NOT OTHERWISE IDENTIFIED
- BUTTERFLY VALVE
- CHECK VALVE WITH FLOW DIRECTION AS INDICATED
- PLUG VALVE
- FLOW CONTROL GATE OR GATE VALVE
- RUPTURE DISK
- CENTRIFUGAL BLOWER
- CENTRIFUGAL PUMP
- ROTARY LOBE PUMP OR BLOWER
- DIAPHRAGM PUMP AND MOTOR (RATE SET, STROKE ADJUST) (M)
- PROGRESSIVE CAVITY PUMP
- VERTICAL PUMP
- MIXER
- MOTOR - MAY BE ELECTRIC, HYDRAULIC OR PNEUMATIC ARROW DENOTES VARIABLE SPEED (M)
- DRAIN (D)
- CHEMICAL INJECTION POINT

LOGIC SYMBOLS

- DI, DI, DI → A → DO — AND FUNCTION
- DI, DI, DI → OR → DO — OR FUNCTION
- DI → ○ → DO — SYMBOL MAY BE DRAWN TANGENT TO AN ADJACENT LOGIC SYMBOL — INVERTER OR NOT FUNCTION
- DI, DI → S, R → DO — SET/RESET FUNCTION (OPERATES LIKE LATCHING RELAY)
- DI → STATEMENT OF SPECIAL REQUIREMENTS → DO — RELATIONSHIP FUNCTION
- DI → DI t → DO — TIME DELAY ON (AFTER INITIATION) † DENOTES TIME DELAY IN SECONDS UNLESS NOTED OTHERWISE
- DI → DT t → DO — TIME DELAY OFF (AFTER TERMINATION) † DENOTES TIME DELAY IN SECONDS UNLESS NOTED OTHERWISE
- SETPOINT, INPUT → K S d/dt → OUTPUT — CONTROLLER FUNCTION PROPORTIONAL PLUS INTEGRAL PLUS DERIVATIVE SHOWN AS EXAMPLE. OTHER COMBINATIONS POSSIBLE.

VALVE ACTUATOR SYMBOLS

AUTOMATIC POSITIONER

VALVE OR GATE ACTUATOR WITH * DEFINED AS FOLLOWS:

- P: AIR CYLINDER
- S: SOLENOID
- P/O: AIR/OIL CYLINDER
- E: ELECTRIC MOTOR
- H: HYDRAULIC CYLINDER
- EH: ELECTROHYDRAULIC
- Z: MISCELLANEOUS

FOR PRESSURE RELIEF OR SAFETY VALVES ONLY

OR NO SYMBOL — MANUALLY (HAND) OPERATED

FUNCTION SYMBOLS AND ABBREVIATIONS

k	PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT)
−k	REVERSE PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT)
Σ	SUMMING
Σ/n	AVERAGING
Δ	SUBTRACTING
√‾	EXTRACT SQUARE ROOT
÷	DIVIDE
x	MULTIPLY
∫	INTEGRATE
+	BIAS POSITIVE
−	BIAS NEGATIVE
F(x)	NONLINEAR OR UNSPECIFIED FUNCTION
>	HIGH SELECT
<	LOW SELECT
⊦	HIGH LIMIT
⊥	LOW LIMIT
/	SIGNAL TRANSDUCER OR CONVERTER (INPUT/OUTPUT) * DEFINED AS FOLLOWS: E - VOLTAGE; I - CURRENT; P - PNEUMATIC; PD - PULSE DURATION; H - HYDRAULIC; O - ELECTROMAGNETIC, SONIC; R - RESISTANCE (ELECTRIC)

CHEMICAL ABBREVIATIONS
STANDARD CHEMICAL FORMULAS ARE USED.

HAND SWITCH ABBREVIATIONS
H - HAND
O - OFF OR OPEN
C - COMPUTER OR CLOSE
A - AUTOMATIC
L - LOCAL
R - REMOTE
S - START OR STOP
M - MODULATE

AI	ANALOG INPUT	H2O2	PEROXIDE
AO	ANALOG OUTPUT	HYP	HYPOCHLOR
AS	AIR SUPPLY	MC	MOTOR CONTROLLER
ATM	ATMOSPHERE	NC	NORMALLY CLOSED
COND	CONDUCTIVITY	NO	NORMALLY OPEN
CL	CHLORINE	PAC	POWDER ACTIVATED CARBON
CL2G	CHLORINE GAS	pH	HYDROGEN ION CONCENTRATION
CPOL	CATIONIC POLYMER	PLC	PROGRAMMABLE LOGIC CONTROLLER
CR	CHLORINE RESIDUAL	POLM	POLYMER
CTU	CENTRAL TELEMETRY UNIT	RTU	REMOTE TERMINAL UNIT
DCU	DISTRIBUTED CONTROL UNIT	SA	SAMPLE
DI	DIGITAL OR DISCRETE INPUT	TURB	TURBIDITY
DO	DISSOLVED OXYGEN OR DIGITAL OUTPUT	VFD	VARIABLE FREQUENCY DRIVE
ES	ELECTRIC SUPPLY	VIB	VIBRATION
ETM	ELAPSED TIME METER	VSD	VARIABLE SPEED DRIVE
FC	FAIL CLOSED		
FLP	FAIL LAST POSITION		
FO	FAIL OPEN		
FW	FLUSHING WATER		

MEANINGS OF IDENTIFICATION LETTERS

THIS TABLE APPLIES TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS.

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		EMERGENCY	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE		CLEANER	CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGING (DIMENSIONAL)		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH OR OPEN
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW OR CLOSED
M	USER'S CHOICE	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTERGRATE OR TOTALIZE			
R	RUN		RECORD		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VISCOSITY, VIBRATION			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	FAILURE	X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATE OR UNCLASSIFIED CONTROL ELEMENT	

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide
environmental engineers, scientists, planners, & management consultants

INDIAN RIVER COUNTY
FLORIDA

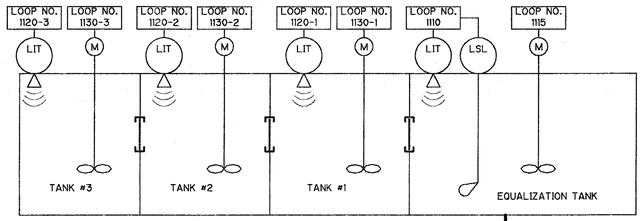
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LEGEND SHEET

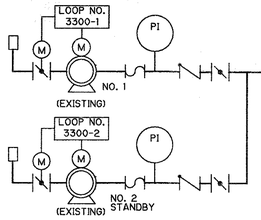
PROJECT NO. 6706_070
FILE NAME: 6706-701

SHEET NO. **I-1**

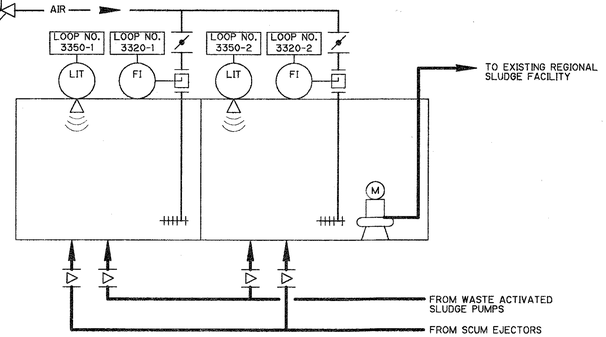
Jorge Elias
05/20/97 03:10:28
I:\M\I5
6706-701
D:\6706_070\INST\



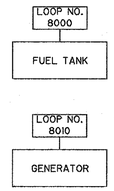
EQUALIZATION TANKS

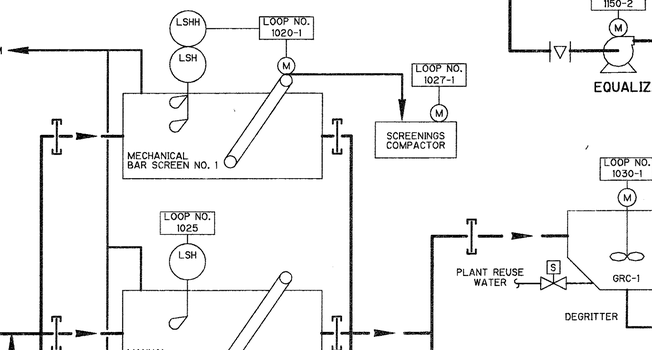


SLUDGE HOLDING TANKS BLOWERS

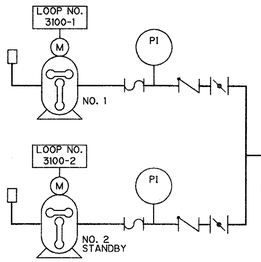


EXISITING SLUDGE HOLDING TANKS

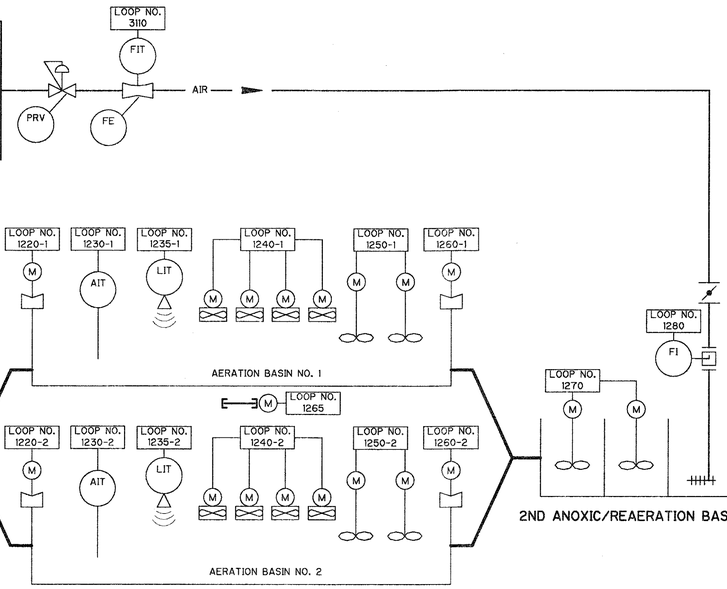


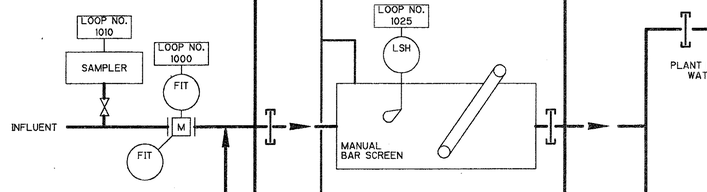


EQUALIZATION PUMPS

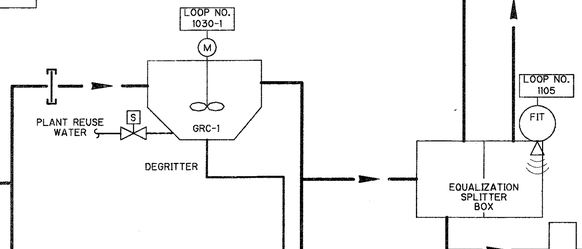


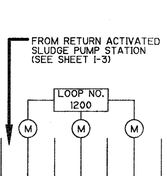
REAERATION BLOWERS





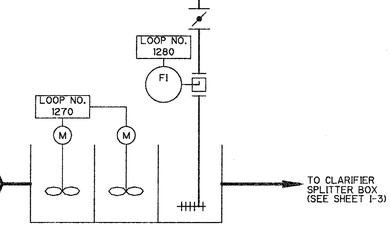
BAR/FILTER SCREENS



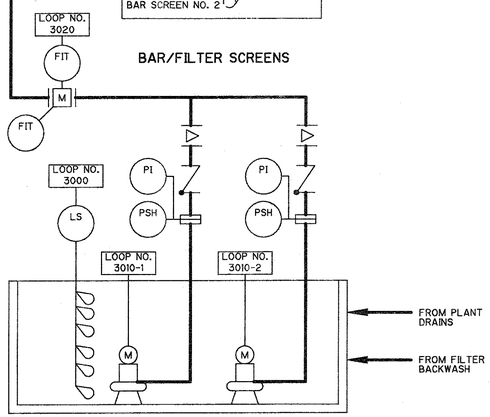


ANAEROBIC BASINS

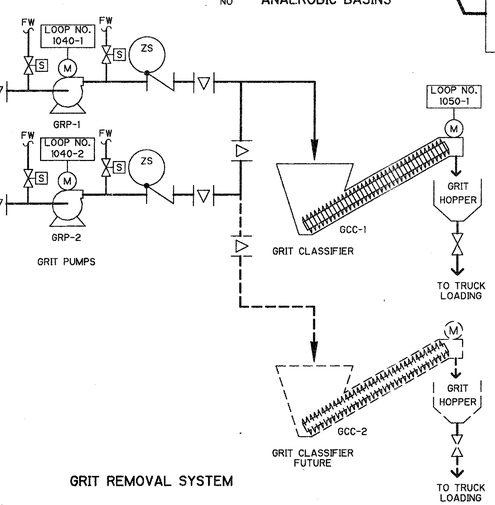
AERATION BASINS



2ND ANOXIC/REAERATION BASINS



PLANT SITE LIFT STATION



GRIT PUMPS

GRIT REMOVAL SYSTEM

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

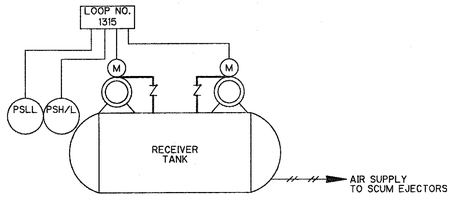
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

PROCESS & INSTRUMENTATION DIAGRAMS

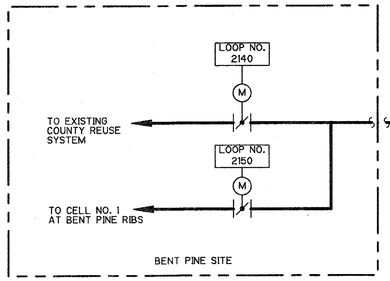
PROJECT NO. 6706-070
FILE NAME: 6706-702

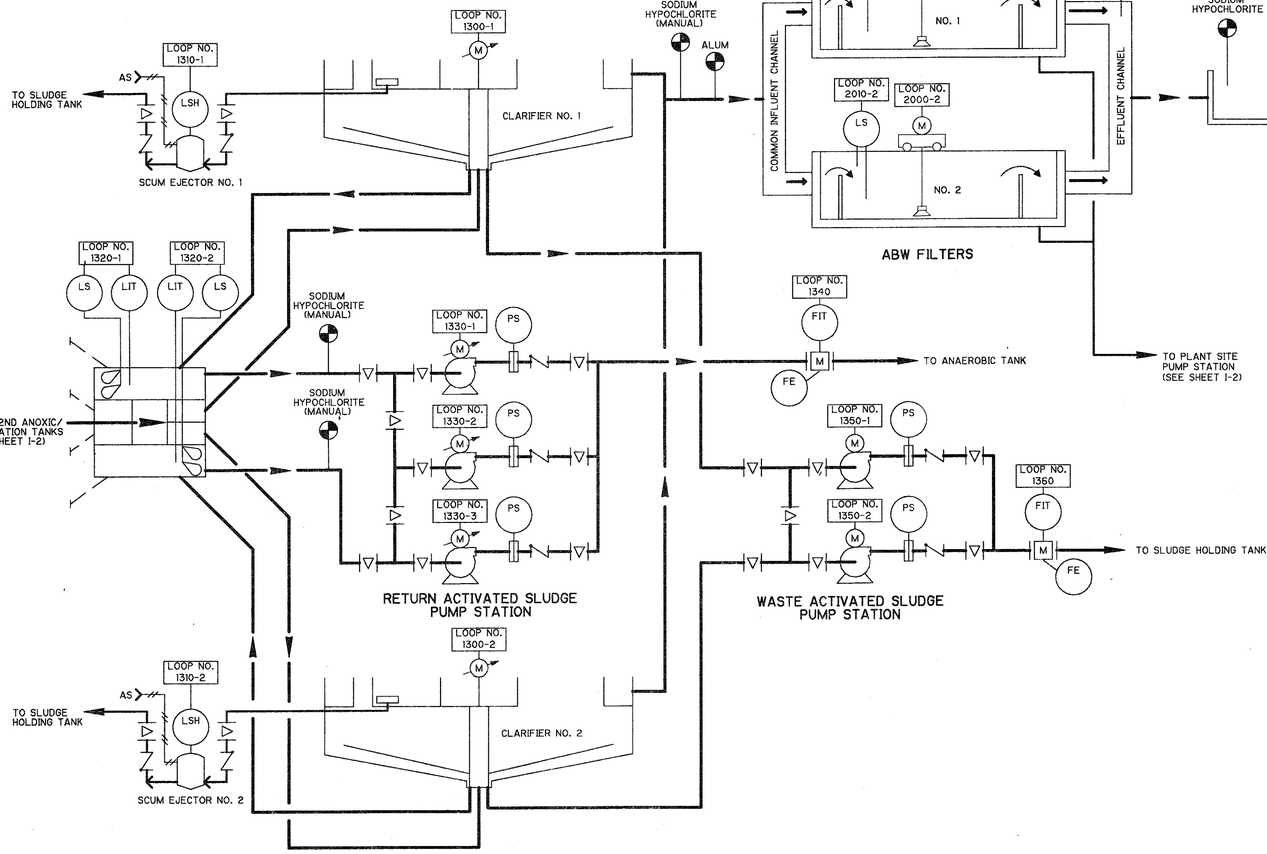
SHEET NO.
I-2

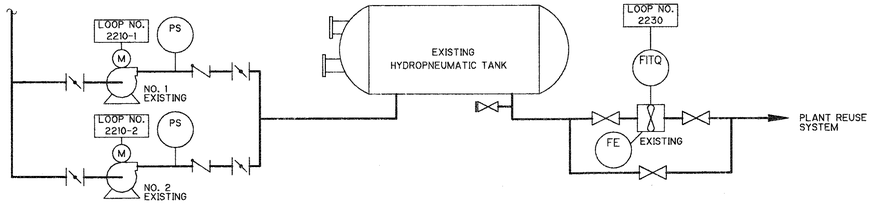
Jorge Elias
19:13:43
05/22/97
6706-702
O:\6706_070\INST\



SCUM EJECTORS COMPRESSED AIR SYSTEM







PLANT WATER PUMP STATION

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

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INDIAN RIVER COUNTY
FLORIDA

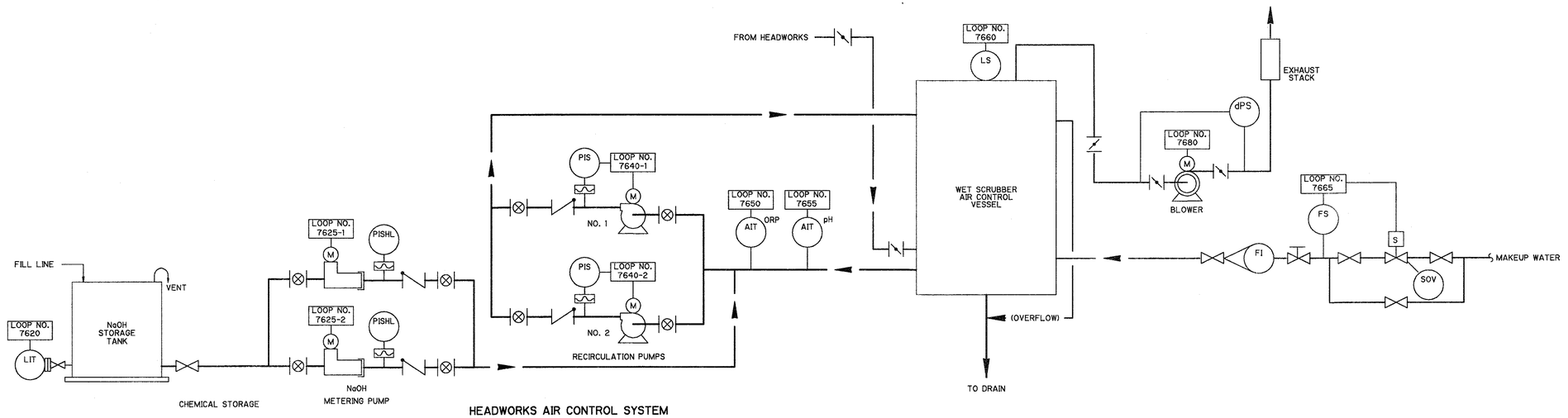
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

PROCESS & INSTRUMENTATION DIAGRAMS

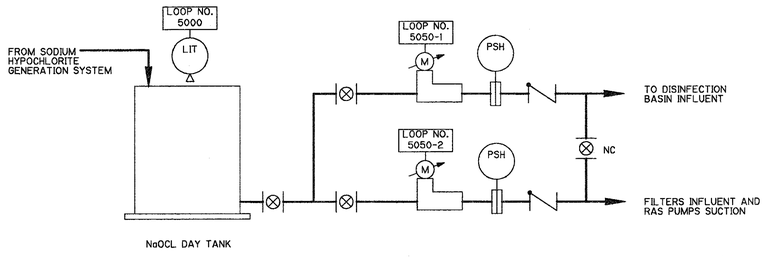
PROJECT NO. 6706-070
FILE NAME: 6706-703

SHEET NO.
I-3

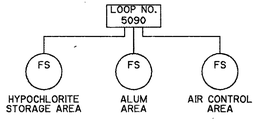
Jorge Elias
13:42:18
05/22/97
6706-703
Q:\6706_070\INST\



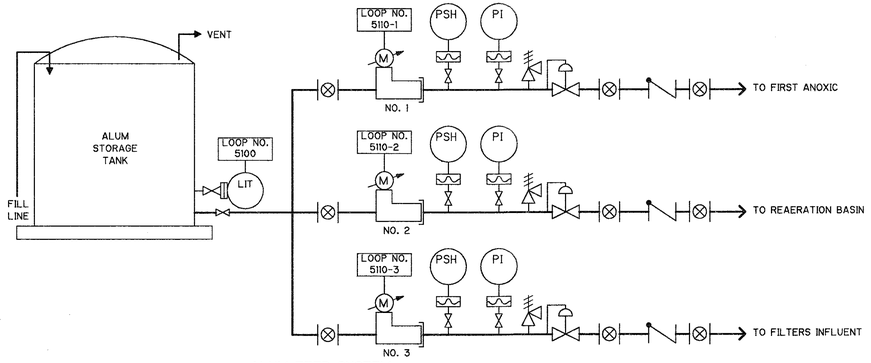
HEADWORKS AIR CONTROL SYSTEM



SODIUM HYPOCHLORITE FEED SYSTEM



EYEWASH/SHOWERS



ALUM FEED SYSTEM

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

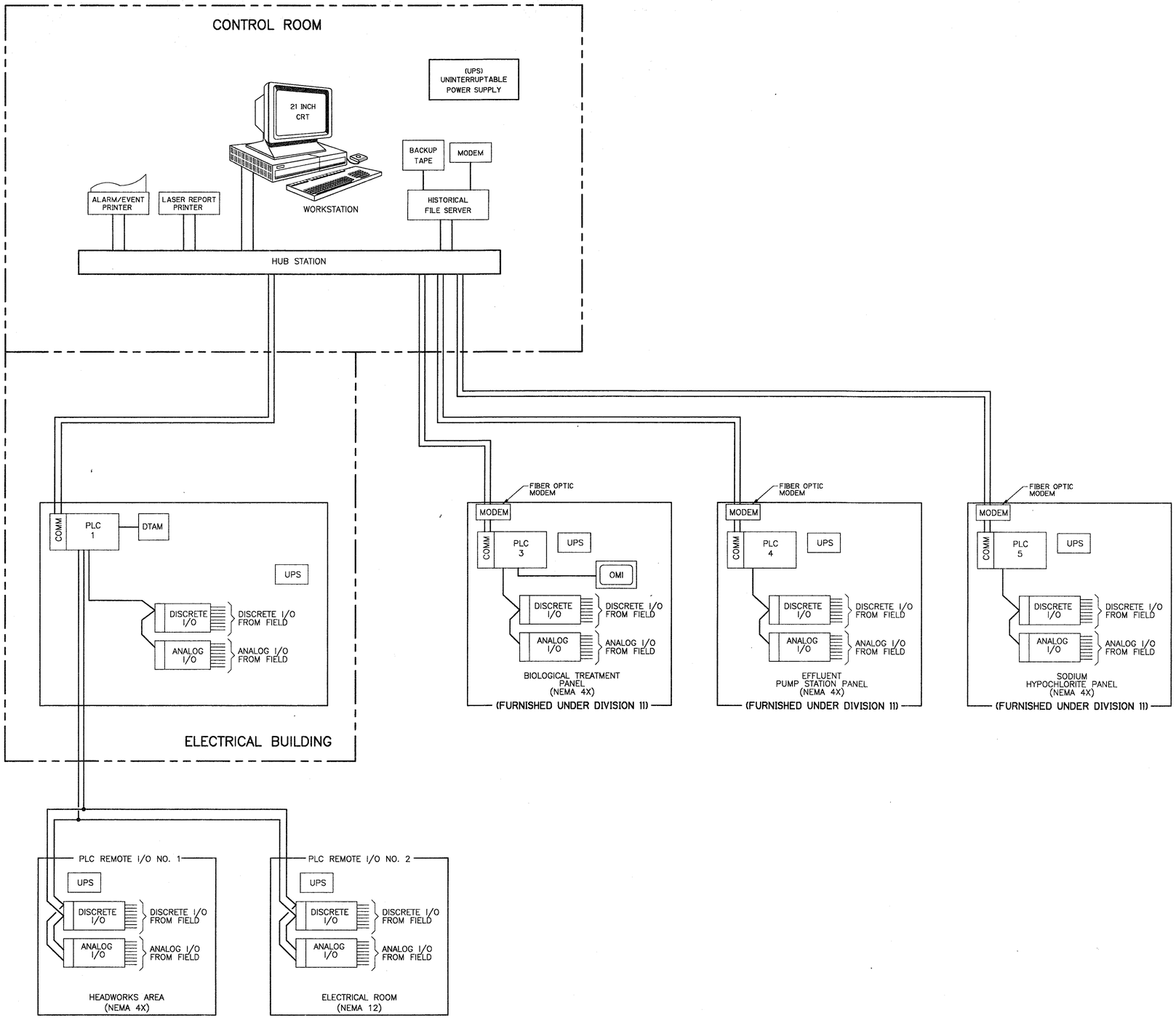
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

PROCESS & INSTRUMENTATION DIAGRAMS

PROJECT NO. 6706_070
FILE NAME: 6706-704

SHEET NO.
I-4

Jorge Elias 3d\63 05/22/97 17:44:21 6706-704 G:\6706_070\MISC\



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

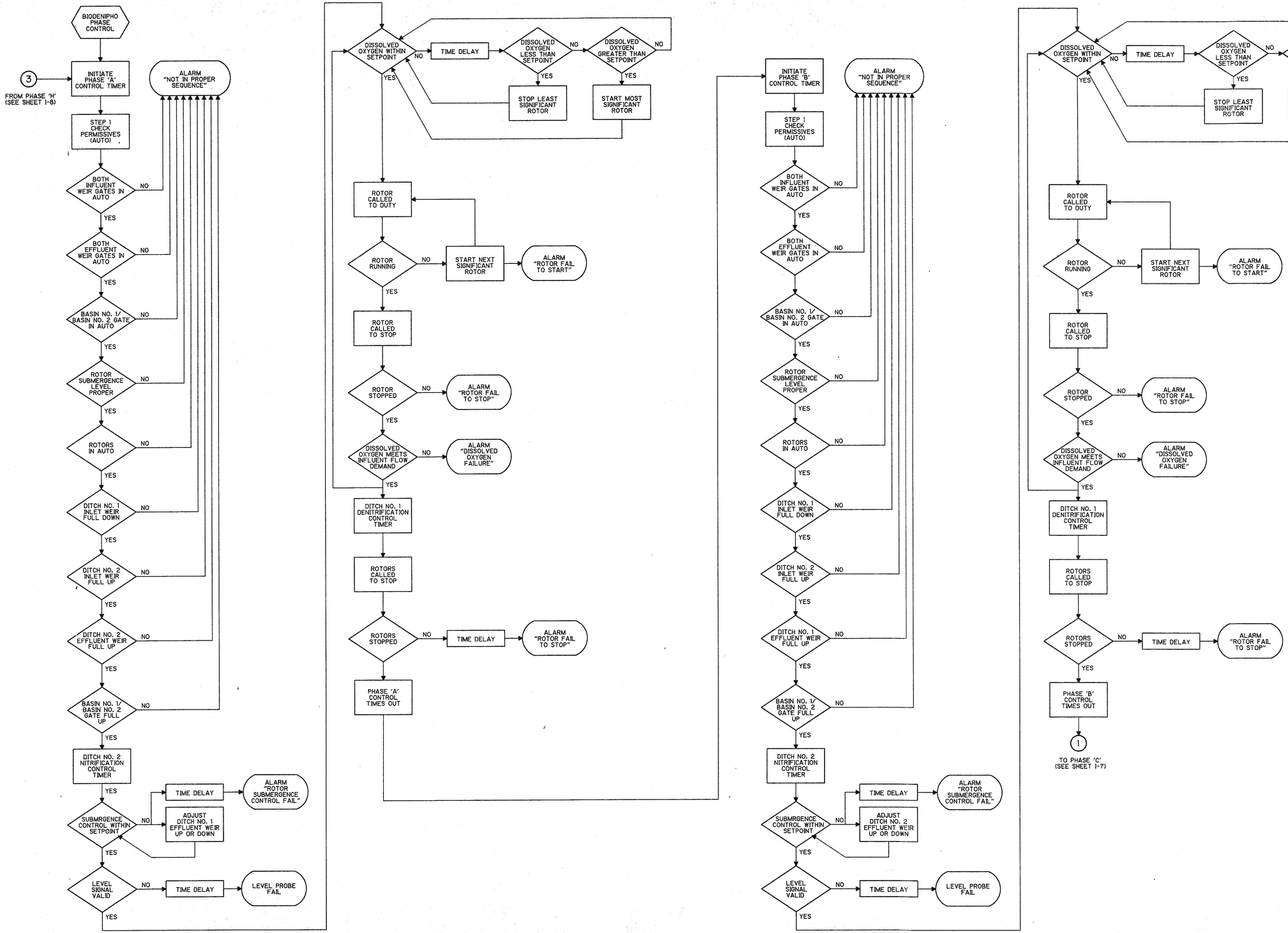
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

CONTROL BLOCK DIAGRAM

PROJECT NO. 6706_070
FILE NAME: 6706-705

SHEET NO.
I-5

Jorge Elias 05/22/97 17:45:52 6706-705 O:\6706_070\INST\



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

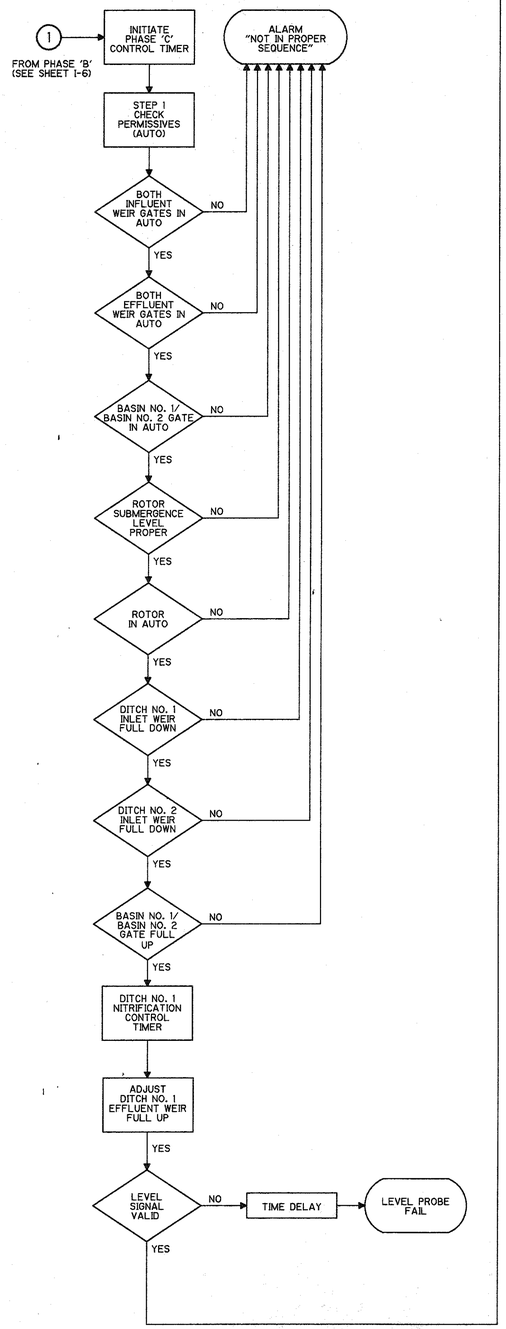
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

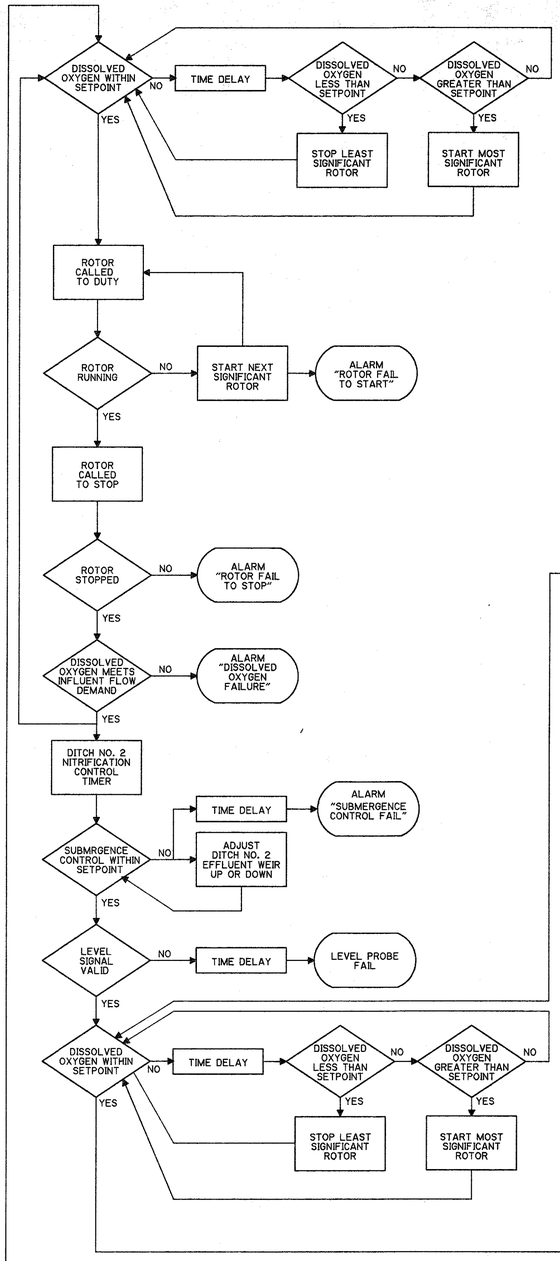
INSTRUMENTATION LOGIC BLOCK DIAGRAM (SHEET 1 OF 3)

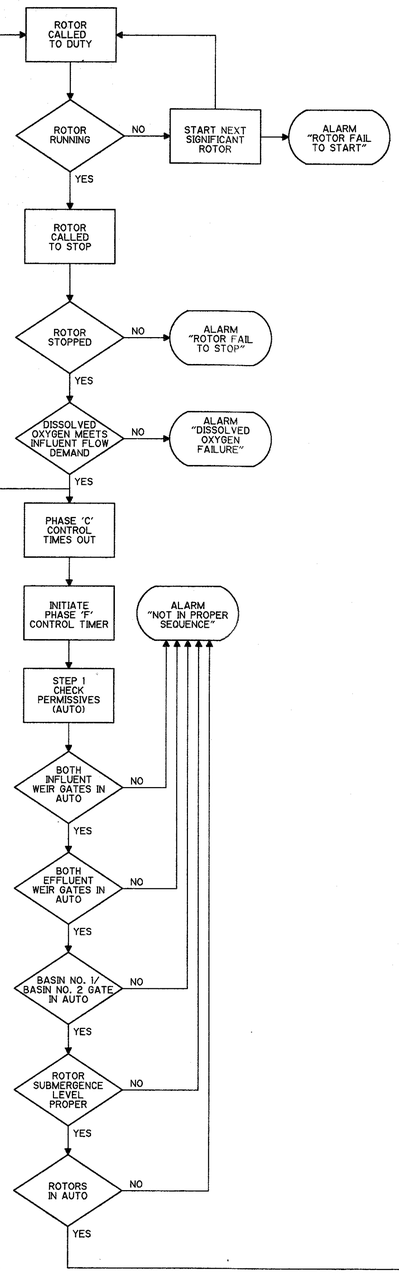
PROJECT NO. 6706-070
FILE NAME: 6706-706

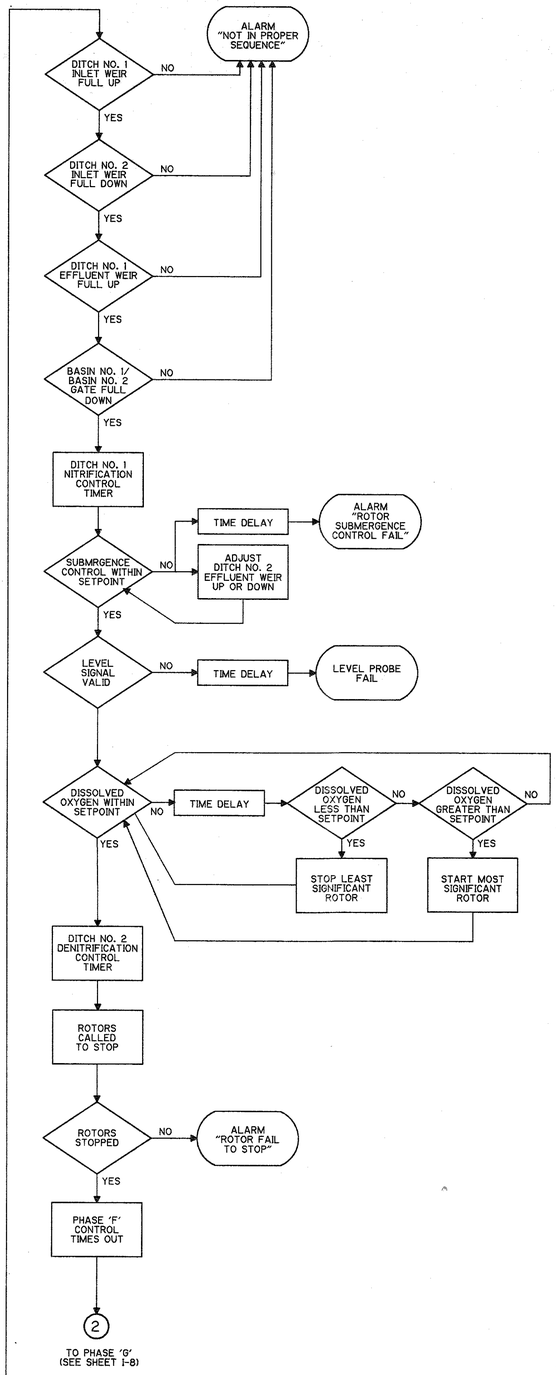
SHEET NO.
I-6

Jorge Elias 3:20:00 05/23/97 04:16:03 6706-706 O:\6706_070\INST\









Jorge Elias 1:40:52 05/23/97 04:12:18 6706-707 D:\6706_070\INST\

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: S. WHITMORE
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

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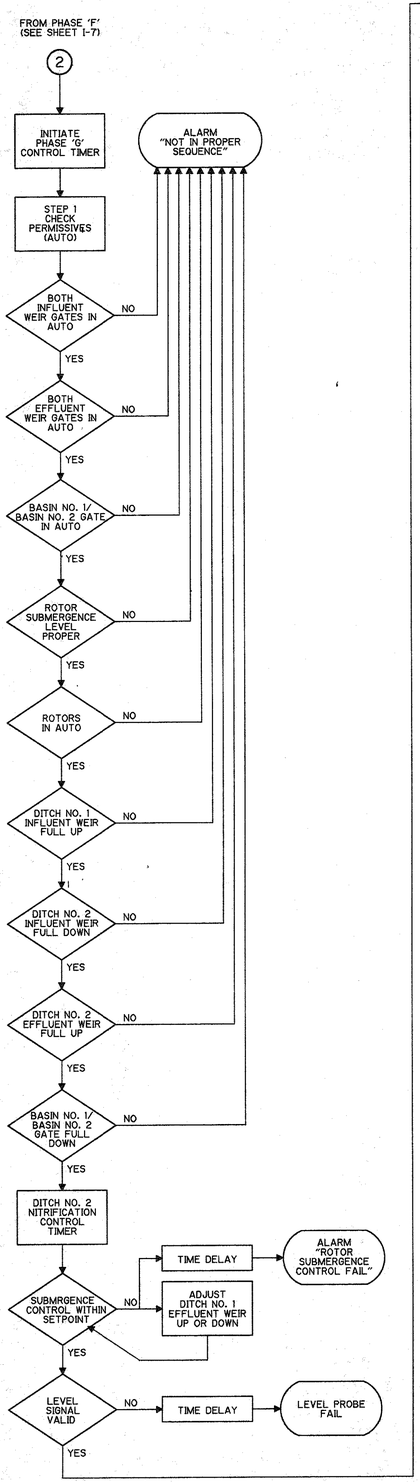
INDIAN RIVER COUNTY
FLORIDA

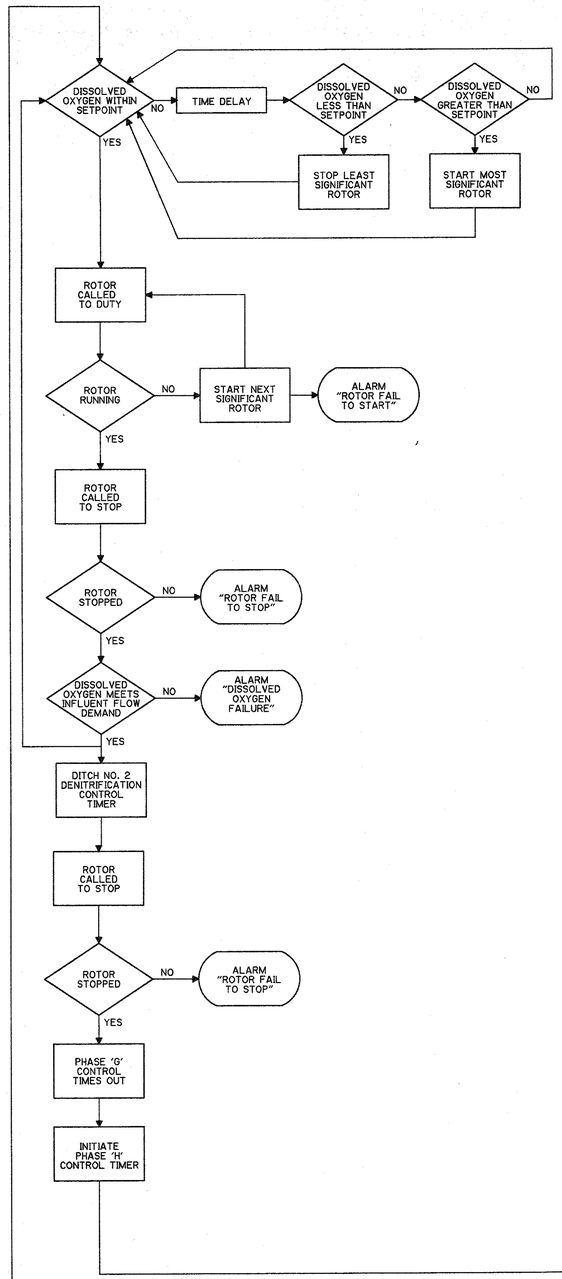
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

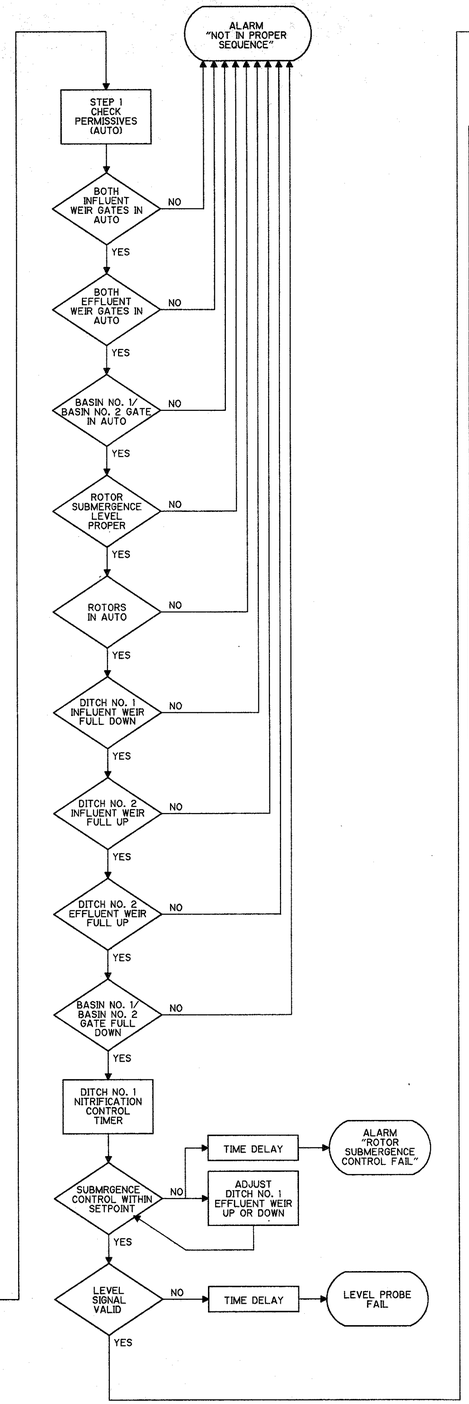
INSTRUMENTATION LOGIC BLOCK DIAGRAM (SHEET 2 OF 3)

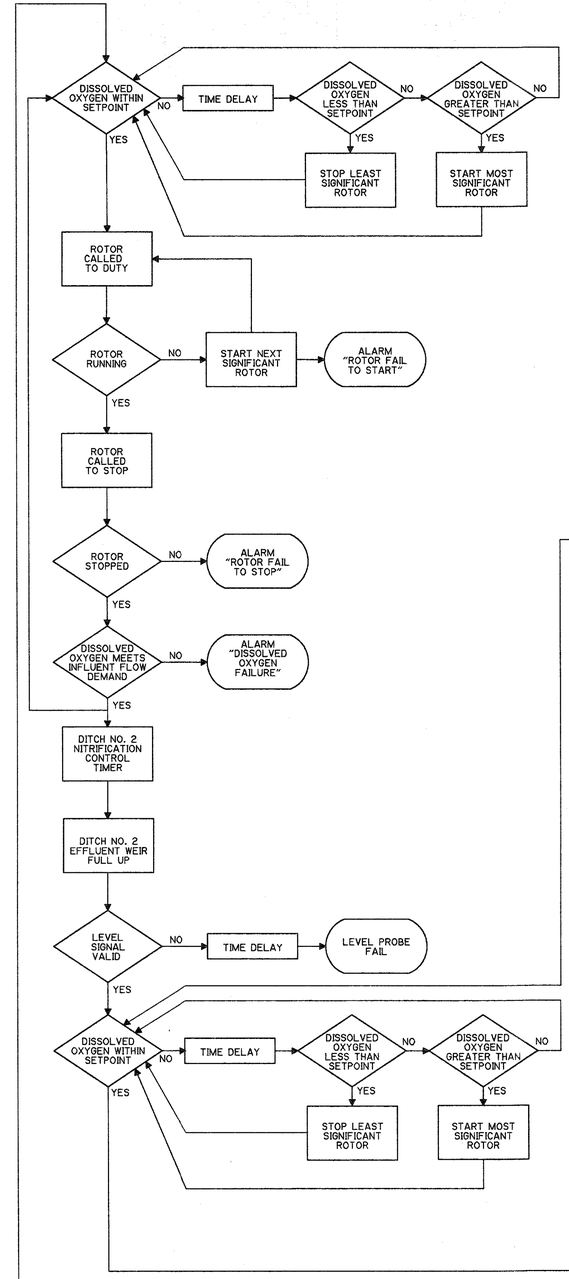
PROJECT NO. 6706-070
FILE NAME: 6706-707

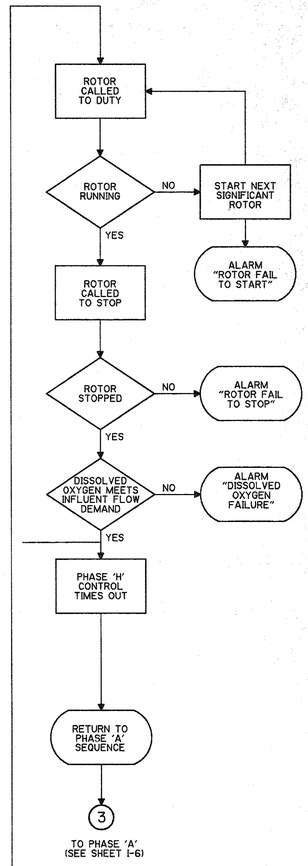
SHEET NO.
I-7











REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: S. WHITMORE
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

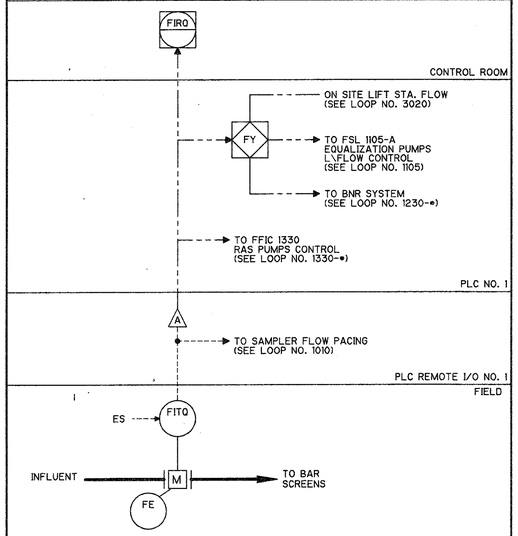
INSTRUMENTATION LOGIC BLOCK DIAGRAM (SHEET 3 OF 3)

PROJECT NO. 6706-070
FILE NAME: 6706-708

SHEET NO.
I-8

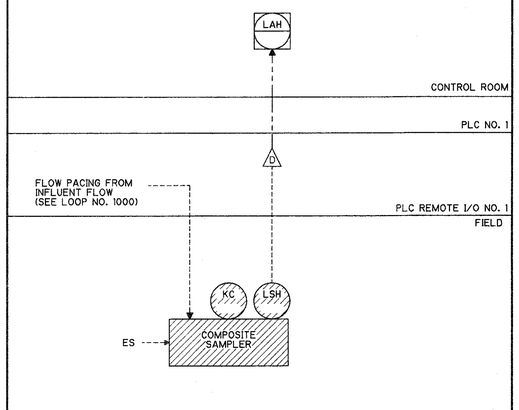
D:\6706_070\INST\ 6706-708 05/23/97 04:09:29 Jorge Elias

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE	FLOW ELEMENT	MAGNETIC FLOW METER	METER SIZE: 14 INCH LINE SIZE: 24 INCH	PLANT INFLUENT FLOW	1
FITO	FLOW INDICATING TRANSMITTER TOTALIZER	MAGNETIC FLOW METER SIGNAL CONVERTER	RANGE: 0.5-8.0 MGD	PLANT INFLUENT FLOW	1
FIRQ	FLOW INDICATING RECORDER TOTALIZER	INITIATED THRU SOFTWARE	RANGE: 0 - 8 MGD	PLANT INFLUENT FLOW	1
FY	FUNCTION GENERATOR	INITIATED THRU PLC SOFTWARE	SUMMATION	TOTAL INFLUENT FLOW	1

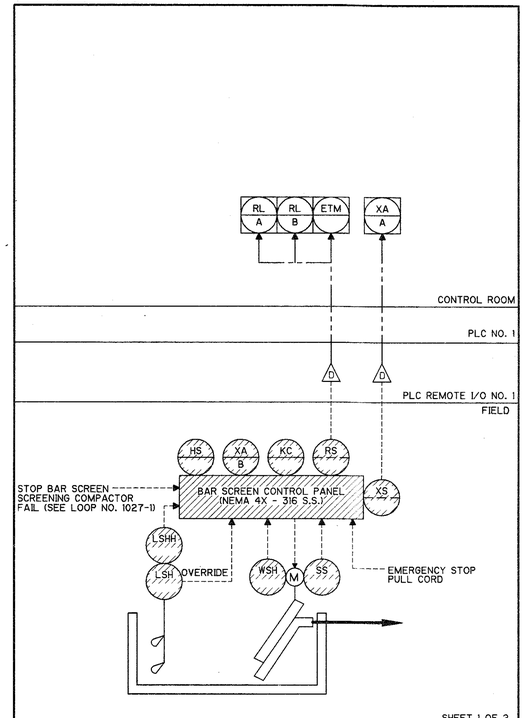


INFLUENT FLOW MONITORING | LOOP NO. 1000

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
KC	TIME CONTROLLER	24 HOUR PROGRAMMING TIME CLOCK	PROVIDED UNDER DIVISION 11	INFLUENT COMPOSITE SAMPLER TIME CONTROL	1
LSH	LEVEL SWITCH HIGH	PROVIDED UNDER DIVISION 11		INFLUENT COMPOSITE SAMPLER LEVEL HIGH	1
LAH	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		INFLUENT COMPOSITE SAMPLER BOTTLE FULL	1



INFLUENT COMPOSITE SAMPLER MONITORING | LOOP NO. 1010



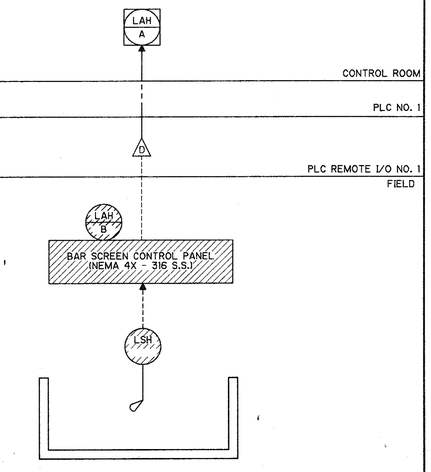
MECHANICAL BAR/FILTER SCREEN | LOOP NO. 1020-1

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LSHH	LEVEL SWITCH HIGH/HIGH	MERCURY FLOAT	PROVIDED UNDER DIVISION 11	INFLUENT CHANNEL HIGH/HIGH	1
LSH	LEVEL SWITCH HIGH	MERCURY FLOAT	PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. 1 TIMER OVERRIDE	1
WSH	TORQUE SWITCH HIGH		PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. 1 HIGH TORQUE	1
SS	SPEED SWITCH	ZERO SPEED SWITCH	PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. 1 ZERO SPEED	1
HS	HAND SWITCH	3-POSITION NEMA 4X	HAND/OFF/AUTO PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. 1 CONTROL	1
XA B	TROUBLE ALARM	BEACON LIGHT/ HORN	PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. 1 FAILURE	1
KC	TIME CONTROLLER	24 HOUR PROGRAMMING TIME CLOCK	PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. 1 TIME CONTROL	1
RS	RUNNING SWITCH		PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. 1 STATUS	1
XS	TROUBLE SWITCH		PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. 1 FAILURE	1
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		INFLUENT MECHANICAL BAR SCREEN NO. 1 FAILURE	1
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	INFLUENT MECHANICAL BAR SCREEN NO. 1 STATUS	2
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		INFLUENT MECHANICAL BAR SCREEN NO. 1 RUN TIME	1

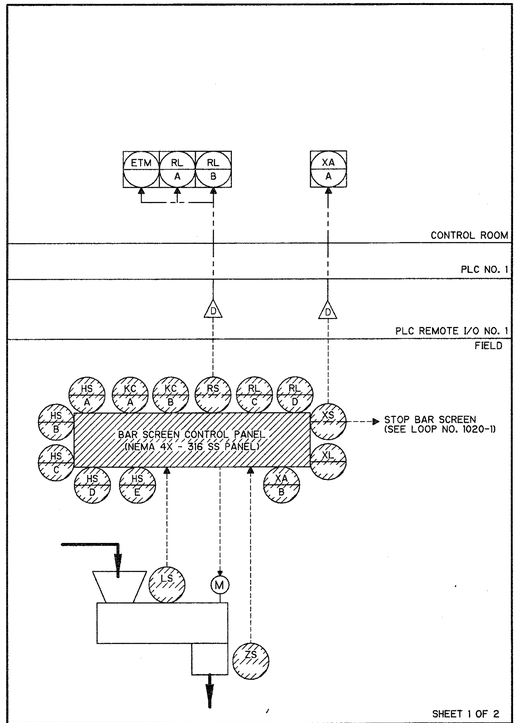
SHEET 2 OF 2

MECHANICAL BAR/FILTER SCREEN | LOOP NO. 1020-1

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LSH	LEVEL SWITCH HIGH	MERCURY FLOAT	MANUAL BAR SCREEN ALARM HIGH	1	
LAH A	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		MANUAL BAR SCREEN ALARM HIGH	1
LAH B	LEVEL ALARM HIGH	INDICATING LIGHT NEMA 4X	PROVIDED UNDER DIVISION 11	MANUAL BAR SCREEN ALARM HIGH	1



MANUAL BAR/FILTER SCREEN | LOOP NO. 1025



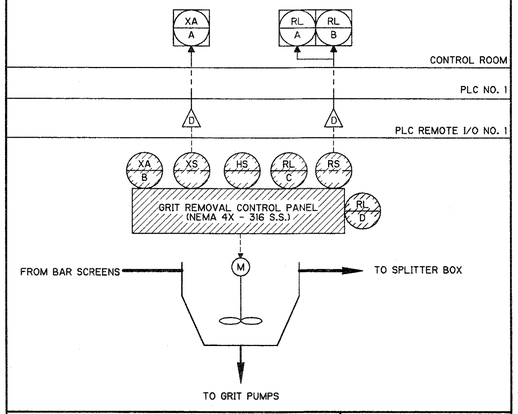
SCREENINGS CONVEYOR & COMPACTOR | LOOP NO. 1027-1

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LS	LEVEL SWITCH	ULTRASONIC PROBE	PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 HOPPER LEVEL	1
ZS	POSITION SWITCH	LIMIT SWITCH	PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 RAM POSITION	1
HS A	HAND SWITCH	3-POSITION NEMA 4X	HAND/OFF/AUTO PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 CONTROL	2
HS B	HAND SWITCH	PUSHBUTTON NEMA 4X	START PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 CONTROL	1
HS C	HAND SWITCH	PUSHBUTTON NEMA 4X	STOP PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 CONTROL	1
HS D	HAND SWITCH	PUSHBUTTON NEMA 4X	ALARM RESET PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 ALARM RESET	1
HS E	HAND SWITCH	MUSHROOM TYPE NEMA 4X	EMERGENCY STOP PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 EMERGENCY STOP	1
KC A	TIME CONTROLLER	24 HOUR PROGRAMMING TIME CLOCK	PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 TIME CONTROL	1
KC B	TIME CONTROLLER	CYCLE TIMER	PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 RAM CYCLE TIMER	1
RS	RUNNING SWITCH		PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 STATUS	1
RL C,D	RUNNING LIGHTS	PROVIDED UNDER DIVISION 11	RED - ON GREEN - OFF	SCREENING COMPACTOR NO. 1 STATUS	2
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	SCREENING COMPACTOR NO. 1 STATUS	2
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		SCREENING COMPACTOR NO. 1 RUN TIME	1
XS	TROUBLE SWITCH		PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 FAILURE	1
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		SCREENING COMPACTOR NO. 1 FAILURE	1
XA B	TROUBLE ALARM	BEACON LIGHT/ HORN	PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 FAILURE	1
XL	TROUBLE LIGHT	INDICATING LIGHT AMBER	PROVIDED UNDER DIVISION 11	SCREENING COMPACTOR NO. 1 TROUBLE	2

SHEET 2 OF 2

SCREENINGS CONVEYOR & COMPACTOR | LOOP NO. 1027-1

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
XS	TROUBLE SWITCH		PROVIDED UNDER DIVISION 11	VORTEX GRIT CHAMBER NO. 1 TROUBLE	1
XA B	TROUBLE ALARM	BEACON LIGHT/ HORN NEMA 4X	PROVIDED UNDER DIVISION 11	VORTEX GRIT CHAMBER NO. 1 TROUBLE	1
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		VORTEX GRIT CHAMBER NO. 1 TROUBLE	1
HS	HAND SWITCH	2-POSITION ON/OFF NEMA 4X	PROVIDED UNDER DIVISION 11	VORTEX GRIT CHAMBER NO. 1 CONTROL	1
RS	RUNNING SWITCH		PROVIDED UNDER DIVISION 11	VORTEX GRIT CHAMBER NO. 1 STATUS	1
RL CD	RUNNING LIGHTS	INDICATING LIGHT RED - ON GREEN - OFF	PROVIDED UNDER DIVISION 11 NEMA 4X	VORTEX GRIT CHAMBER NO. 1 STATUS	2
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	VORTEX GRIT CHAMBER NO. 1 STATUS	2



VORTEX GRIT CHAMBER NO. 1 | LOOP NO. 1030-1

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

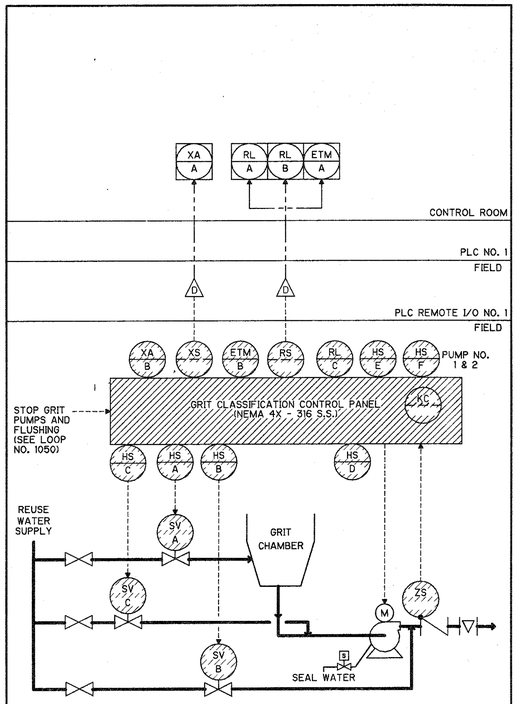
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-709

SHEET NO.
I-9

Jorge Elias 3:45:50 05/22/97 lib\lb14 6706-709 O:\6706_070\INST\



SHEET 1 OF 3

GRIT PUMPS CONTROL	LOOP NO. 1040-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
SV A	SOLENOID VALVE	NEMA 4X 2-WAY	PROVIDED UNDER DIVISION 11	GRIT SYSTEM SOLENOID VALVE	1
SV B,C	SOLENOID VALVE	NEMA 4X 2-WAY	PROVIDED UNDER DIVISION 11	GRIT SYSTEM SOLENOID VALVES	4
HS A	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION OPEN/CLOSE/AUTO NEMA 4X	GRIT SYSTEM SOLENOID VALVES CONTROL	1
HS B,C	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION OPEN/CLOSE/AUTO NEMA 4X	GRIT SYSTEM SOLENOID VALVES CONTROL	4
ZS	POSITION SWITCH	LIMIT SWITCH PROVIDED UNDER DIVISION 11	DISAGREEMENT CIRCUIT	GRIT SYSTEM PUMPING NO. • FLOW	2
KC	TIME CONTROLLER	ELECTRO-MECHANICAL	PROVIDED UNDER DIVISION 11	GRIT SYSTEM SEQUENCE CONTROL	1
HS F	HAND SWITCH	PROVIDED UNDER DIVISION 11	2-POSITION PUMP 1/PUMP 2 NEMA 4X	GRIT SYSTEM GRIT PUMP SELECT	1
HS D	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/AUTO NEMA 4X	GRIT SYSTEM GRIT PUMP NO. :• CONTROL	2
HS E	HAND SWITCH	PROVIDED UNDER DIVISION 11	2-POSITION ON/OFF NEMA 4X	GRIT SYSTEM CONTROL	1
RS	RUNNING SWITCH		PROVIDED UNDER DIVISION 11	GRIT SYSTEM GRIT PUMP NO. • STATUS	2
RL C	RUNNING LIGHT	INDICATING LIGHT NEMA 4X	RED - RUN PROVIDED UNDER DIVISION 11	GRIT SYSTEM GRIT PUMP NO. • STATUS	2
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	GRIT SYSTEM GRIT PUMP NO. • STATUS	4
ETM B	ELAPSED TIME METER	PROVIDED UNDER DIVISION 11	NEMA 4X	GRIT PUMP NO. • RUN TIME	2
ETM A	ELAPSED TIME METER	INITIATED THRU SOFTWARE		GRIT PUMP NO. • RUN TIME	2
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 11		GRIT SYSTEM TROUBLE	1
XA B	TROUBLE ALARM	BEACON/LIGHT HORN NEMA 4X	PROVIDED UNDER DIVISION 11	GRIT SYSTEM TROUBLE	1
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		GRIT SYSTEM TROUBLE	1

SHEET 2 OF 3

GRIT PUMPS CONTROL	LOOP NO. 1040-•

RUN SEQUENCE

	LOOP NO.	STATUS	TIME	TIME INTERVALS	ACTION
START SEQUENCE					
SV-A,B,C	1040-•	CLOSE	T_0	-	-
HS-E	1040-•	ON	T_1	-	MANUAL/TIMER
SV-A	1040-•	OPEN	T_2	30-60 SEC.	TIMER (ADJUSTABLE)
CLASSIFIER	1050-1	ON	T_3	-	RUN CONTINUOUS
SV-B	1040-•	OPEN	T_4	2-3 MIN.	TIMER (ADJUSTABLE)
SV-C	1040-•	OPEN	T_4	2-3 MIN.	TIMER (ADJUSTABLE)
GRIT PUMP	1040-•	RUN	T_5	0-10 MIN.	TIMER (ADJUSTABLE)
SV-A	1040-•	CLOSE	T_6	-	-
SV-B	1040-•	CLOSE	T_7	-	-
SV-C	1040-•	CLOSE	T_7	-	-
STOP SEQUENCE					
GRIT PUMP	1040-•	STOP	T_8	-	-
SV-B	1040-•	OPEN	T_9	2-3 MIN.	TIMER (ADJUSTABLE)
SV-C	1040-•	OPEN	T_9	2-3 MIN.	TIMER (ADJUSTABLE)
SV-B	1040-•	CLOSE	T_{10}	-	-
SV-C	1040-•	CLOSE	T_{10}	-	-
CLASSIFIER	1050-1	STOP	T_{11}	-	(SEE NOTE 2)

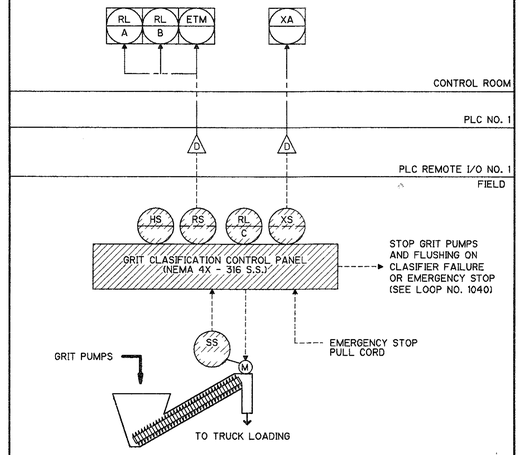
NOTES:

1. TIMERS FOR THE GRIT PUMPS AND CLASSIFIER SHALL BE 0-10 MINUTES, ALL OTHER TIMERS SHALL BE 0-5 MINUTES.
2. CLASSIFIER SHALL CONTINUE RUNNING 3-5 MINUTES AFTER GRIT PUMP STOP.

• DENOTES:
GRIT PUMP NO. 1 LOOP NO. 1040-1
GRIT PUMP NO. 2 LOOP NO. 1040-2

SHEET 3 OF 3

GRIT PUMPS CONTROL	LOOP NO. 1040-•



SHEET 1 OF 2

GRIT CLASSIFIER MONITORING AND CONTROL	LOOP NO. 1050-1

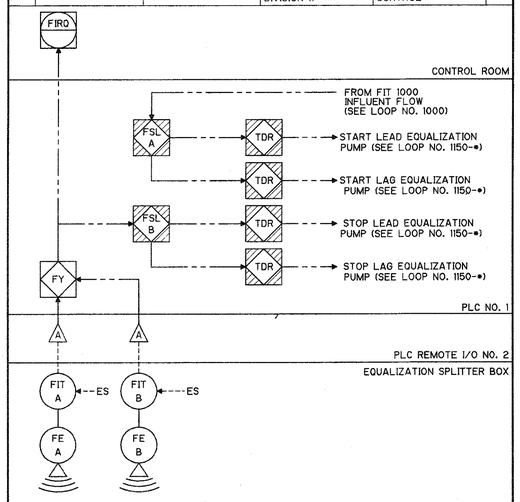
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
SS	SPEED SWITCH	ZERO SPEED SWITCH	PROVIDED UNDER DIVISION 11	GRIT CLASSIFIER ZERO SPEED	1
HS	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/AUTO NEMA 4X	GRIT CLASSIFIER CONTROL	1
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 11		GRIT CLASSIFIER STATUS	1
RL C	RUNNING LIGHT	INDICATING LIGHT NEMA 4X	RED - RUN	GRIT CLASSIFIER RUNNING	1
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	GRIT CLASSIFIER STATUS	2
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		CLASSIFIER RUN TIME	1
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 11		GRIT CLASSIFIER FAILURE	1
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		GRIT CLASSIFIER TROUBLE	1

NOTE:
A PERMISSIVE TO START THE GRIT PUMPING SHALL BE PROVIDED WHEN THE GRIT CLASSIFIER IS RUNNING. THE FUNCTION SHALL OCCUR IN AUTOMATIC ONLY FOR MAINTENANCE PURPOSES.

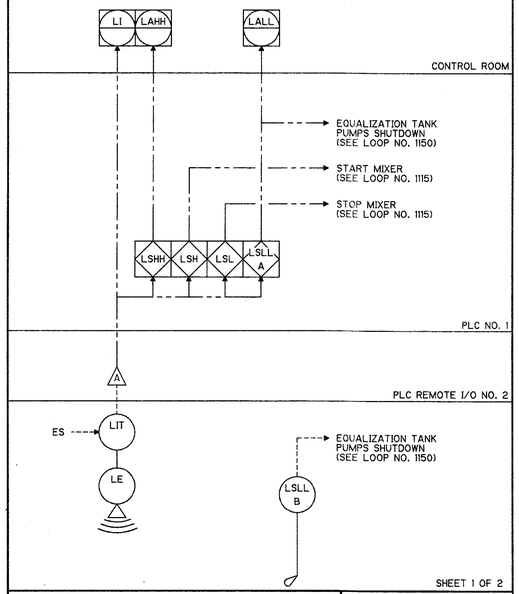
SHEET 2 OF 2

GRIT CLASSIFIER MONITORING AND CONTROL	LOOP NO. 1050-1

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE/ FIT A,B	FLOW ELEMENT/ INDICATING TRANSMITTER	ULTRASONIC LEVEL SENSOR/ TRANSMITTER	RANGE: MGD	SPLITTER BOX FLOW	2
FY	FUNCTION GENERATOR	INITIATED THRU PLC SOFTWARE	SUMMATION	SPLITTER BOX FLOW	1
FIRQ	FLOW INDICATING RECORDER/ ANALYZER	INITIATED THRU SOFTWARE	RANGE: MGD	SPLITTER BOX FLOW	1
FSL A	FLOW SWITCH LOW	INITIATED THRU PLC SOFTWARE	SETPOINT: MGD PROVIDED UNDER DIVISION 11	INFLUENT FLOW START PUMP CONTROL	1
FSL B	FLOW SWITCH LOW	INITIATED THRU PLC SOFTWARE	SETPOINT: MGD PROVIDED UNDER DIVISION 11	SPLITTER BOX FLOW STOP PUMP CONTROL	1



EQUALIZATION PUMPS FLOW CONTROL	LOOP NO. 1105



SHEET 1 OF 2

EQUALIZATION TANK LEVEL	LOOP NO. 1110

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LE/ LIT	LEVEL ELEMENT/ INDICATING TRANSMITTER	ULTRASONIC LEVEL SENSOR/ TRANSMITTER	RANGE: FT.	EQUALIZATION TANK LEVEL	1
LI	LEVEL INDICATOR	INITIATED THRU SOFTWARE	RANGE: FT.	EQUALIZATION TANK LEVEL	1
LSHH	LEVEL SWITCH HIGH/HIGH	INITIATED THRU PLC SOFTWARE	SET @ FT.	EQUALIZATION TANK HIGH/HIGH LEVEL	1
LAHH	LEVEL ALARM HIGH/HIGH	INITIATED THRU SOFTWARE		EQUALIZATION TANK HIGH/HIGH LEVEL ALARM	1
LSH	LEVEL SWITCH HIGH	INITIATED THRU PLC SOFTWARE	SET @ FT.	EQUALIZATION TANK START MIXER LEVEL	1
LSL	LEVEL SWITCH LOW	INITIATED THRU PLC SOFTWARE	SET @ FT.	EQUALIZATION TANK STOP MIXER LEVEL	1
LSLL	LEVEL SWITCH LOW/LOW	INITIATED THRU PLC SOFTWARE	SET @ FT.	EQUALIZATION TANK LOW/LOW LEVEL	1
LALL	LEVEL ALARM LOW/LOW	INITIATED THRU SOFTWARE		EQUALIZATION TANK LOW/LOW LEVEL ALARM	1
LSLL	LEVEL SWITCH LOW/LOW	MERCURY FLOAT	SET @ FT.	EQUALIZATION TANK LEVEL LOW/LOW	1

SHEET 2 OF 2

EQUALIZATION TANK LEVEL	LOOP NO. 1110

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

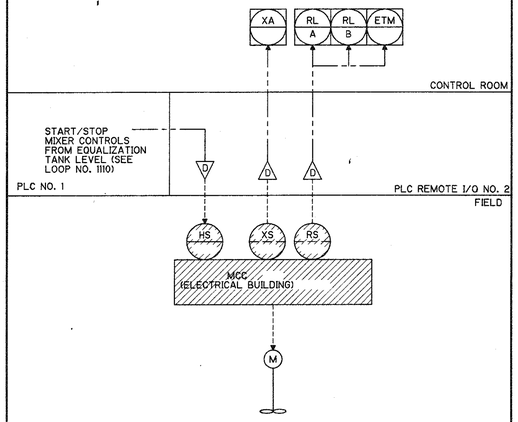
INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-710

SHEET NO.
I-10

Jorge Elias 10:31:58 05/22/97 18:04:11 6706-710 O:\6706_070\INST\

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
HS	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 16	HAND/OFF/AUTO	EQUALIZATION TANK MIXER CONTROL	1
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		EQUALIZATION TANK MIXER TROUBLE	1
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		EQUALIZATION TANK MIXER TROUBLE	1
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		EQUALIZATION TANK MIXER RUN STATUS	1
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	EQUALIZATION TANK MIXER STATUS	2
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		EQUALIZATION TANK MIXER RUN TIME	1

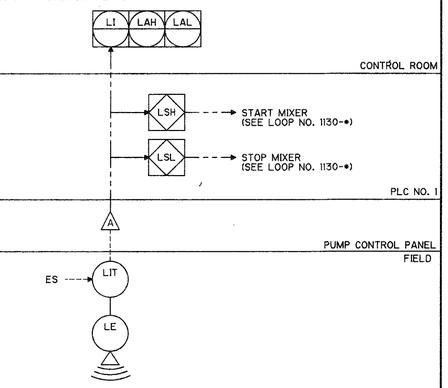


EQUALIZATION TANK MIXER | LOOP NO. 1115

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LE/ LIT	LEVEL ELEMENT/ INDICATING TRANSMITTER	ULTRASONIC LEVEL SENSOR/ TRANSMITTER	RANGE: FT.	OFF SPEC EFFLUENT TANK NO. • LEVEL	3
LI	LEVEL INDICATOR	INITIATED THRU SOFTWARE	RANGE: FT.	OFF SPEC EFFLUENT TANK NO. • LEVEL	3
LAH	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		OFF SPEC EFFLUENT TANK NO. • HIGH LEVEL ALARM	3
LAL	LEVEL ALARM LOW	INITIATED THRU SOFTWARE		OFF SPEC EFFLUENT TANK NO. • LOW LEVEL ALARM	3
LSH	LEVEL SWITCH HIGH	INITIATED THRU PLC SOFTWARE		EQUALIZATION TANK NO. • START MIXER LEVEL	3
LSL	LEVEL SWITCH LOW	INITIATED THRU PLC SOFTWARE		EQUALIZATION TANK NO. • STOP MIXER LEVEL	3

• DENOTES:

TANK NO. 1 LOOP NO. 1120-1
TANK NO. 2 LOOP NO. 1120-2
TANK NO. 3 LOOP NO. 1120-3

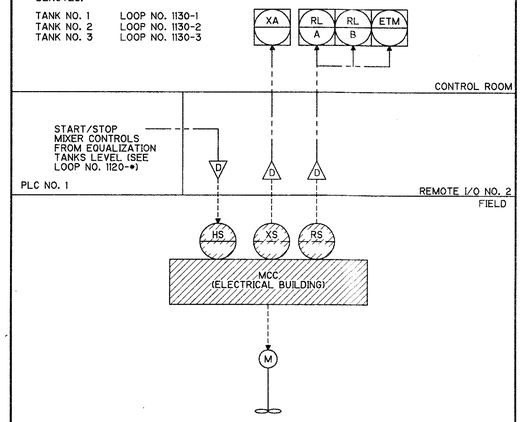


EQUALIZATION TANKS LEVEL | LOOP NO. 1120-•

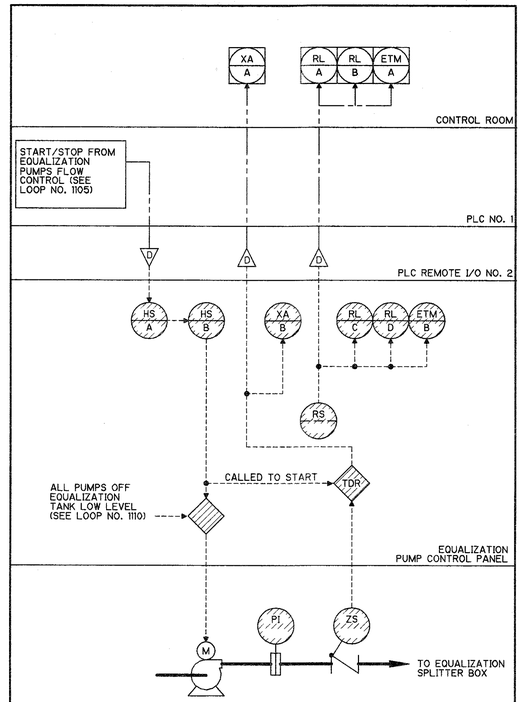
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
HS	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 16	HAND/OFF/AUTO	EQUALIZATION TANK MIXER CONTROL	3
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		EQUALIZATION TANK MIXER TROUBLE	3
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		EQUALIZATION TANK MIXER TROUBLE	3
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		EQUALIZATION TANK MIXER RUN STATUS	3
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	EQUALIZATION TANK MIXER STATUS	6
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		EQUALIZATION TANK MIXER RUN TIME	3

• DENOTES:

TANK NO. 1 LOOP NO. 1130-1
TANK NO. 2 LOOP NO. 1130-2
TANK NO. 3 LOOP NO. 1130-3



EQUALIZATION TANKS MIXER | LOOP NO. 1130-•



EQUALIZATION PUMPS CONTROL | LOOP NO. 1150-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PI	PRESSURE INDICATOR	PROVIDED UNDER DIVISION 11	RANGE: 0-15 PSI	EQUALIZATION TANK PUMP NO. • PRESSURE	2
ZS	POSITION SWITCH	LIMIT SWITCH DISAGREEMENT CIRCUIT	PROVIDED UNDER DIVISION 11	CHECK VALVE STATUS	2
HS B	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/AUTO	EQUALIZATION TANK PUMP NO. • CONTROL	2
HS A	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 11	2-POSITION LEAD/LAG	EQUALIZATION TANK PUMP NO. • SELECT	1
XA B	TROUBLE ALARM	PROVIDED UNDER DIVISION 11		EQUALIZATION TANK PUMP NO. • FAILURE	2
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		EQUALIZATION TANK PUMP NO. • COMMON ALARM	2
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 11		EQUALIZATION TANK PUMP NO. • STATUS	2
RL C,D	RUNNING LIGHTS	PROVIDED UNDER DIVISION 11	RED - ON GREEN - OFF	EQUALIZATION TANK PUMP NO. • STATUS	4
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	EQUALIZATION TANK PUMP NO. • STATUS	4
ETM A	ELAPSED TIME METER	INITIATED THRU SOFTWARE		EQUALIZATION TANK PUMP NO. • RUN TIME	2
ETM B	ELAPSED TIME METER	PROVIDED UNDER DIVISION 11		EQUALIZATION TANK PUMP NO. • RUN TIME	2

• DENOTES:

EQUALIZATION TANK PUMP NO. 1 LOOP NO. 1150-1
EQUALIZATION TANK PUMP NO. 2 LOOP NO. 1150-2

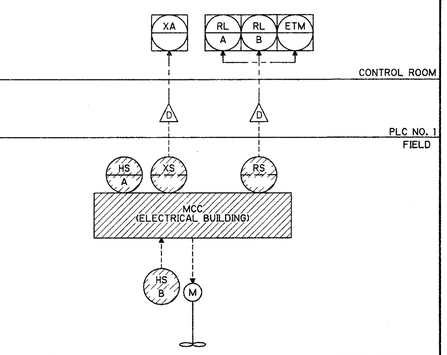
SHEET 2 OF 2

EQUALIZATION PUMPS CONTROL | LOOP NO. 1150-•

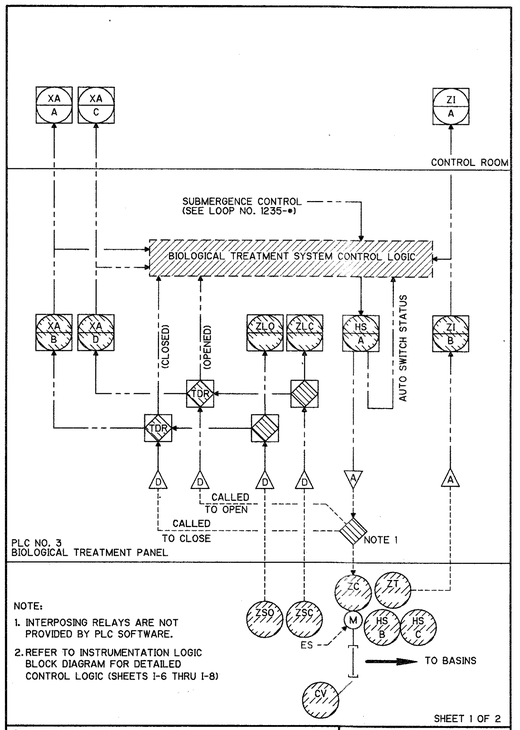
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
HS B	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 11	ON/OFF NEMA 4X	ANAEROBIC TANK MIXER NO. • CONTROL	3
HS A	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 16	OFF/REMOTE	ANAEROBIC TANK MIXER NO. • CONTROL	3
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		ANAEROBIC TANK MIXER NO. • TROUBLE	3
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		ANAEROBIC TANK MIXER NO. • TROUBLE	3
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		ANAEROBIC TANK MIXER NO. • RUN STATUS	3
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	ANAEROBIC TANK MIXER NO. • STATUS	6
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		ANAEROBIC TANK MIXER NO. • RUN TIME	3

• DENOTES:

ANAEROBIC MIXER NO. 1 LOOP NO. 1200-1
ANAEROBIC MIXER NO. 2 LOOP NO. 1200-2
ANAEROBIC MIXER NO. 3 LOOP NO. 1200-3



ANAEROBIC TANKS MIXERS MONITORING | LOOP NO. 1200-•



AERATION BASIN INFLUENT GATE | LOOP NO. 1220-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
CV	CONTROL VALVE	GATE PROVIDED UNDER DIVISION 15		AERATION BASIN NO. • INFLUENT GATE	2
ZC	POSITION CONTROLLER	PROVIDED WITH VALVE ACTUATOR	PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • INFLUENT GATE CONTROL	2
ZT	POSITION TRANSMITTER	PROVIDED WITH VALVE ACTUATOR	PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • INFLUENT GATE STATUS	2
ZI B	POSITION INDICATOR	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • INFLUENT GATE STATUS	2
ZI A	POSITION INDICATOR	INITIATED THRU SOFTWARE		AERATION BASIN NO. • INFLUENT GATE STATUS	2
HS B	HAND SWITCH	SELECTOR SWITCH PROVIDED WITH ACTUATOR	OPEN/HOLD/CLOSE PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • GATE CONTROL	2
HS C	HAND SWITCH	SELECTOR SWITCH PROVIDED WITH ACTUATOR	LOCAL/OFF/REMOTE PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • GATE CONTROL	2
HS A	HAND SWITCH	INITIATED THRU SOFTWARE	OPEN/HOLD/CLOSE /AUTO	AERATION BASIN NO. • GATE CONTROL	2
ZSO	POSITION SWITCH OPEN	PROVIDED WITH ACTUATOR	PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • GATE STATUS	2
ZSC	POSITION SWITCH CLOSED	PROVIDED WITH ACTUATOR	PROVIDED UNDER DIVISION 15	AERARTION BASIN NO. • GATE STATUS	2
ZLO	POSITION LIGHT OPEN	INITIATED THRU SOFTWARE	RED - OPEN	AERATION BASIN NO. • GATE STATUS	2
ZLC	POSITION LIGHT OPEN	INITIATED THRU SOFTWARE	GREEN - CLOSED	AERATION BASIN NO. • GATE STATUS	2
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE	DISAGREEMENT GATE FAILS TO OPEN AFTER PREDETERMINED TIME	AERATION BASIN NO. • INFLUENT GATE FAIL TO OPEN	2
XA B	TROUBLE ALARM	INITIATED THRU SOFTWARE DIVISION 11	DISAGREEMENT GATE FAILS TO OPEN AFTER PREDETERMINED TIME	AERATION BASIN NO. • INFLUENT GATE FAIL TO OPEN	2
XA C	TROUBLE ALARM	INITIATED THRU SOFTWARE	DISAGREEMENT GATE FAILS TO CLOSE AFTER PREDETERMINED TIME	AERATION BASIN NO. • INFLUENT GATE FAIL TO CLOSE	2
XA D	TROUBLE ALARM	INITIATED THRU SOFTWARE DIVISION 11	DISAGREEMENT GATE FAILS TO CLOSE AFTER PREDETERMINED TIME	AERATION BASIN NO. • INFLUENT GATE FAIL TO CLOSE	2

• DENOTES:

AERATION BASIN NO. 1 INFLUENT GATE LOOP NO. 1220-1
AERATION BASIN NO. 2 INFLUENT GATE LOOP NO. 1220-2

SHEET 2 OF 2

AERATION BASIN INFLUENT GATE | LOOP NO. 1220-•

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-711

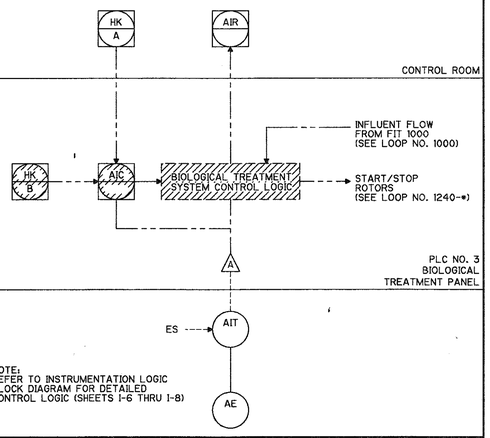
SHEET NO.
I-11

Jorge Elias 6:32:54 05/22/97 16:19:23 6706-711 O:\6706_070\MISC\

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
AE/ AIT	ANALYSIS ELEMENT/ INDICATING TRANSMITTER	D.O. SENSOR SUBMERSIBLE PROBE	RANGE: MG/L	AERATION BASIN NO. • DISSOLVED OXYGEN MONITORING	2
AIR	ANALYSIS INDICATING RECORDER	INITIATED THRU SOFTWARE	RANGE: MG/L	AERATION BASIN NO. • DISOLVED OXYGEN	2
AIC	ANALYSIS INDICATING CONTROLLER	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • D.O. SET POINT	2
HK A	MANUAL LOADING STATION	INITIATED THRU SOFTWARE	SET POINT	AERATION BASIN NO. • D.O. SET POINT	2
HK B	MANUAL LOADING STATION	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • D.O. SET POINT	2

• DENOTES:

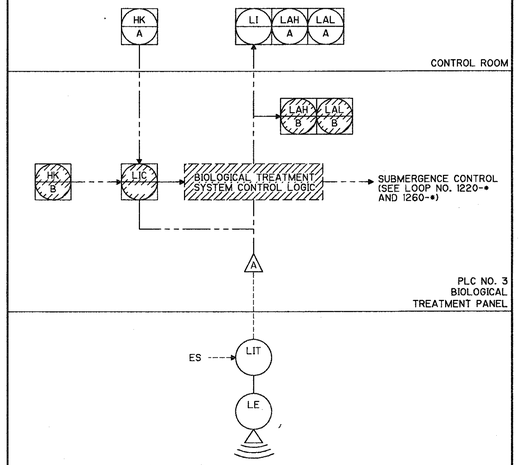
AERATION BASIN NO. 1 LOOP NO. 1230-1
AERATION BASIN NO. 2 LOOP NO. 1230-2



NOTE:
REFER TO INSTRUMENTATION LOGIC BLOCK DIAGRAM FOR DETAILED CONTROL LOGIC (SHEETS 1-6 THRU 1-8)

AERATION BASINS D.O. MONITORING | LOOP NO. 1230-•

NOTE:
REFER TO INSTRUMENTATION LOGIC BLOCK DIAGRAM FOR DETAILED CONTROL LOGIC (SHEETS 1-6 THRU 1-8)



SHEET 1 OF 2

AERATION BASINS ROTOR SUBMERGENCE LEVEL CONTROL | LOOP NO. 1235-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LE/ LIT	LEVEL ELEMENT/ INDICATING TRANSMITTER	ULTRASONIC LEVEL SENSOR/ TRANSMITTER	RANGE: FT.	AERATION BASIN NO. • LEVEL	2
LI	LEVEL INDICATOR	INITIATED THRU SOFTWARE	RANGE: FT.	AERATION BASIN NO. • LEVEL	2
LAH B	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • HIGH LEVEL ALARM	2
LAL B	LEVEL ALARM LOW	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • LOW LEVEL ALARM	2
LAH A	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		AERATION BASIN NO. • HIGH LEVEL ALARM	2
LAL A	LEVEL ALARM LOW	INITIATED THRU SOFTWARE		AERATION BASIN NO. • LOW LEVEL ALARM	2
LIC	LEVEL INDICATING CONTROLLER	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • LEVEL CONTROL	2
HK B	MANUAL LOADING STATION	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • LEVEL SET POINT	2
HK A	MANUAL LOADING STATION	INITIATED THRU SOFTWARE		AERATION BASIN NO. • LEVEL SET POINT	2

• DENOTES:

AERATION BASIN NO. 1 LOOP NO. 1235-1
AERATION BASIN NO. 2 LOOP NO. 1235-2

SHEET 2 OF 2

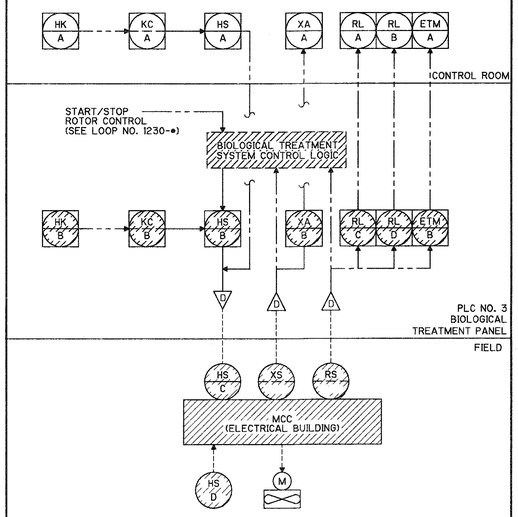
AERATION BASINS ROTOR SUBMERGENCE LEVEL CONTROL | LOOP NO. 1235-•

• DENOTES:

BASIN NO. 1 AERATOR NO. 1 LOOP NO. 1240-1A
BASIN NO. 1 AERATOR NO. 2 LOOP NO. 1240-1B
BASIN NO. 1 AERATOR NO. 3 LOOP NO. 1240-1C
BASIN NO. 1 AERATOR NO. 4 LOOP NO. 1240-1D

BASIN NO. 2 AERATOR NO. 1 LOOP NO. 1240-2A
BASIN NO. 2 AERATOR NO. 2 LOOP NO. 1240-2B
BASIN NO. 2 AERATOR NO. 3 LOOP NO. 1240-3C
BASIN NO. 2 AERATOR NO. 4 LOOP NO. 1240-3D

NOTE:
REFER TO INSTRUMENTATION LOGIC BLOCK DIAGRAM FOR DETAILED CONTROL LOGIC (SHEETS 1-6 THRU 1-8)



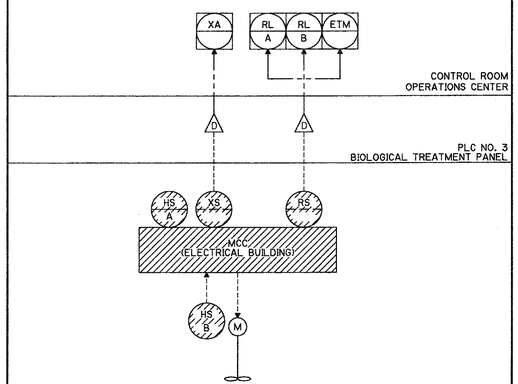
SHEET 1 OF 2

AERATION BASINS AERATORS (ROTORS) | LOOP NO. 1240-1•, 2•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
HS D	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 16	2-POSITION ON/OFF NEMA 4X	AERATION BASIN NO. 1 & 2 AERATOR NO. • CONTROL	8
HS C	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 16	3-POSITION LOCAL/OFF/REMOTE	AERATION BASIN NO. 1 & 2 AERATOR NO. • CONTROL	8
HS B	HAND SWITCH	INITIATED THRU SOFTWARE	HAND/OFF/AUTO PROVIDED UNDER DIVISION 11	AERATION BASIN NO. 1 & 2 AERATOR NO. • CONTROL	8
HS A	HAND SWITCH	INITIATED THRU SOFTWARE	HAND/OFF/AUTO	AERATION BASIN NO. 1 & 2 AERATOR NO. • CONTROL	8
HK B	MANUAL LOADING STATION	INITIATED THRU SOFTWARE	0 - 24 HOURS 1 MIN. INCREMENT DIVISION 11	AERATION BASIN NO. 1 & 2 AERATOR NO. • TIMER SET POINTS	8
HK A	MANUAL LOADING STATION	INITIATED THRU SOFTWARE	0 - 24 HOURS 1 MIN. INCREMENT	AERATION BASIN NO. 1 & 2 AERATOR NO. • TIMER SET POINTS	8
KC B	TIMER CONTROLLER	INITIATED THRU SOFTWARE	CYCLE TIMER PROVIDED UNDER DIVISION 11	AERATION BASIN NO. 1 & 2 AERATOR NO. • TIMER CONTROL	8
KC A	TIMER CONTROLLER	INITIATED THRU SOFTWARE	CYCLE TIMER	AERATION BASIN NO. 1 & 2 AERATOR NO. • TIMER CONTROL	8
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		AERATION BASIN NO. 1 & 2 AERATOR NO. • TROUBLE	8
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		AERATION BASIN NO. 1 & 2 AERATOR NO. • TROUBLE	8
XA B	TROUBLE ALARM	INITIATED THRU SOFTWARE	PROVIDE UNDER DIVISION 11	AERATION BASIN NO. 1 & 2 AERATOR NO. • TROUBLE	8
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		AERATION BASIN NO. 1 & 2 AERATOR NO. • RUN STATUS	8
RL C,D	RUNNING LIGHT	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. 1 & 2 AERATOR NO. • STATUS	16
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	AERATION BASIN NO. 1 & 2 AERATOR NO. • STATUS	16
ETM B	ELAPSED TIME METER	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. 1 & 2 AERATOR NO. • RUN TIME	8
ETM A	ELAPSED TIME METER	INITIATED THRU SOFTWARE		AERATION BASIN NO. 1 & 2 AERATOR NO. • RUN TIME	8

SHEET 2 OF 2

AERATION BASINS AERATORS (ROTORS) | LOOP NO. 1240-1•, 2•



SHEET 1 OF 2

AERATION BASIN MIXERS MONITORING | LOOP NO. 1250 - •

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
HS B	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 11	ON/OFF NEMA 4X	AERATION BASIN NO. 1 & 2 MIXER NO. • CONTROL	4
HS A	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 16	OFF/REMOTE	AERATION BASIN NO. 1 & 2 MIXER NO. • CONTROL	4
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		AERATION BASIN NO. 1 & 2 MIXER NO. • TROUBLE	4
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		AERATION BASIN NO. 1 & 2 MIXER NO. • TROUBLE	4
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		AERATION BASIN NO. 1 & 2 MIXER NO. • RUN STATUS	4
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	AERATION BASIN NO. 1 & 2 MIXER NO. • STATUS	8
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		AERATION BASIN NO. 1 & 2 MIXER NO. • RUN TIME	4

• DENOTES:

AERATION BASIN NO. 1 MIXER NO. 1 LOOP NO. 1250-1A
AERATION BASIN NO. 1 MIXER NO. 2 LOOP NO. 1250-1B

AERATION BASIN NO. 2 MIXER NO. 1 LOOP NO. 1250-2A
AERATION BASIN NO. 2 MIXER NO. 2 LOOP NO. 1250-2B

SHEET 2 OF 2

AERATION BASIN MIXERS MONITORING | LOOP NO. 1250 - •

REV. NO.	DATE	DRWN	CHKD	REMARKS 1120-•

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-712

SHEET NO.
I-12

Jorge Elias
11:43:12
05/13/97
6706-712
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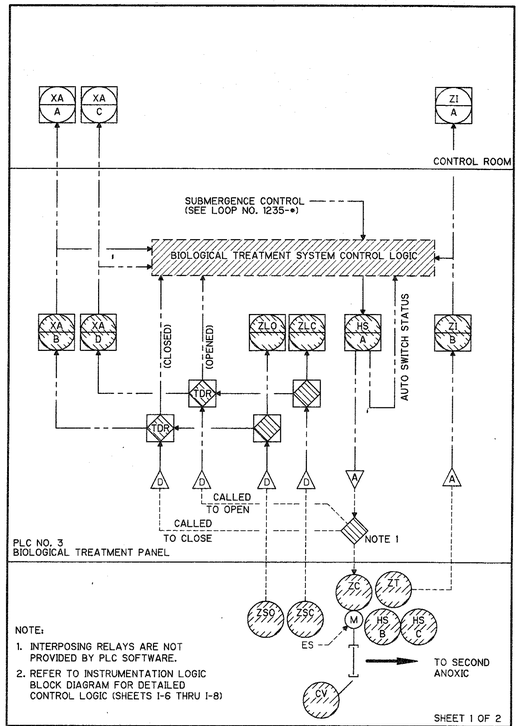


AERATION BASIN EFFLUENT GATE | LOOP NO. 1260-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
CV	CONTROL VALVE	GATE PROVIDED UNDER DIVISION 15		AERATION BASIN NO. • EFFLUENT GATE	2
ZC	POSITION CONTROLLER	PROVIDED WITH VALVE ACTUATOR	PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • EFFLUENT GATE CONTROL	2
ZT	POSITION TRANSMITTER	PROVIDED WITH VALVE ACTUATOR	PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • EFFLUENT GATE STATUS	2
ZI B	POSITION INDICATOR	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • EFFLUENT GATE STATUS	2
ZI A	POSITION INDICATOR	INITIATED THRU SOFTWARE		AERATION BASIN NO. • EFFLUENT GATE STATUS	2
HS B	HAND SWITCH	SELECTOR SWITCH PROVIDED WITH ACTUATOR	OPEN/CLOSE PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • GATE CONTROL	2
HS C	HAND SWITCH	SELECTOR SWITCH PROVIDED WITH ACTUATOR	LOCAL/OFF/REMOTE PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • GATE CONTROL	2
HS A	HAND SWITCH	INITIATED THRU SOFTWARE	OPEN/CLOSE/AUTO PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • GATE CONTROL	2
ZSO	POSITION SWITCH OPEN	PROVIDED WITH ACTUATOR	PROVIDED UNDER DIVISION 15	AERATION BASIN NO. • GATE STATUS	2
ZSC	POSITION SWITCH CLOSED	PROVIDED WITH ACTUATOR	PROVIDED UNDER DIVISION 15	AERARTION BASIN NO. • GATE STATUS	2
ZLO	POSITION LIGHT OPEN	INITIATED THRU SOFTWARE	RED - OPEN PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • GATE STATUS	2
ZLC	POSITION LIGHT OPEN	INITIATED THRU SOFTWARE	GREEN - CLOSED PROVIDED UNDER DIVISION 11	AERATION BASIN NO. • GATE STATUS	2
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE	DISAGREEMENT GATE FAILS TO OPEN AFTER PREDETERMINED TIME	AERATION BASIN NO. • EFFLUENT GATE FAIL TO OPEN	2
XA B	TROUBLE ALARM	INITIATED THRU SOFTWARE DIVISION 11	DISAGREEMENT GATE FAILS TO OPEN AFTER PREDETERMINED TIME	AERATION BASIN NO. • EFFLUENT GATE FAIL TO OPEN	2
XA C	TROUBLE ALARM	INITIATED THRU SOFTWARE	DISAGREEMENT GATE FAILS TO CLOSE AFTER PREDETERMINED TIME	AERATION BASIN NO. • EFFLUENT GATE FAIL TO CLOSE	2
XA D	TROUBLE ALARM	INITIATED THRU SOFTWARE DIVISION 11	DISAGREEMENT GATE FAILS TO CLOSE AFTER PREDETERMINED TIME	AERATION BASIN NO. • EFFLUENT GATE FAIL TO CLOSE	2

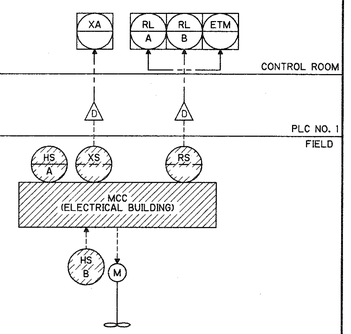
• DENOTES:
AERATION BASIN NO. 1 EFFLUENT GATE LOOP NO. 1260-1
AERATION BASIN NO. 2 EFFLUENT GATE LOOP NO. 1260-2

SHEET 2 OF 2

AERATION BASIN EFFLUENT GATE | LOOP NO. 1260-•

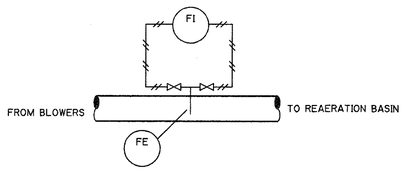
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
HS B	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 11	ON/OFF NEMA 4X	SECOND ANOXIC TANK MIXER NO. • CONTROL	2
HS A	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 16	OFF/REMOTE	SECOND ANOXIC TANK MIXER NO. • CONTROL	2
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		SECOND ANOXIC TANK MIXER NO. • TROUBLE	2
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		SECOND ANOXIC TANK MIXER NO. • TROUBLE	2
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		SECOND ANOXIC TANK MIXER NO. • RUN STATUS	2
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	SECOND ANOXIC TANK MIXER NO. • STATUS	4
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		SECOND ANOXIC TANK MIXER NO. • RUN TIME	2

• DENOTES:
MIXER NO. 1 LOOP NO. 1270-1
MIXER NO. 2 LOOP NO. 1270-2

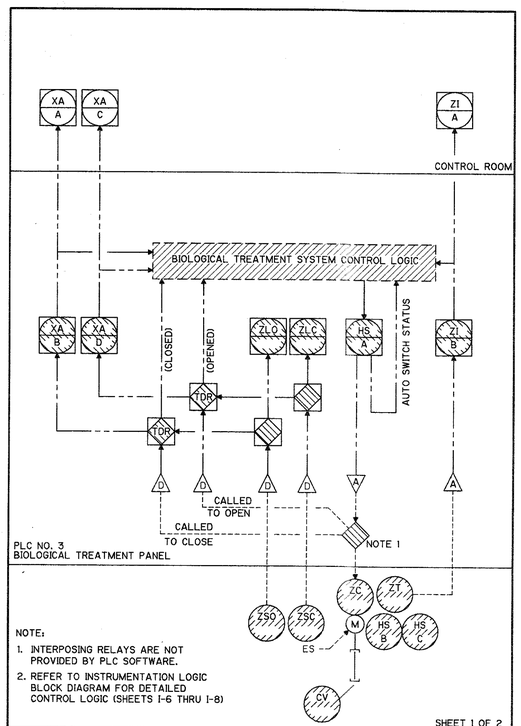


SECOND ANOXIC TANKS MIXER MONITORING | LOOP NO. 1270-•

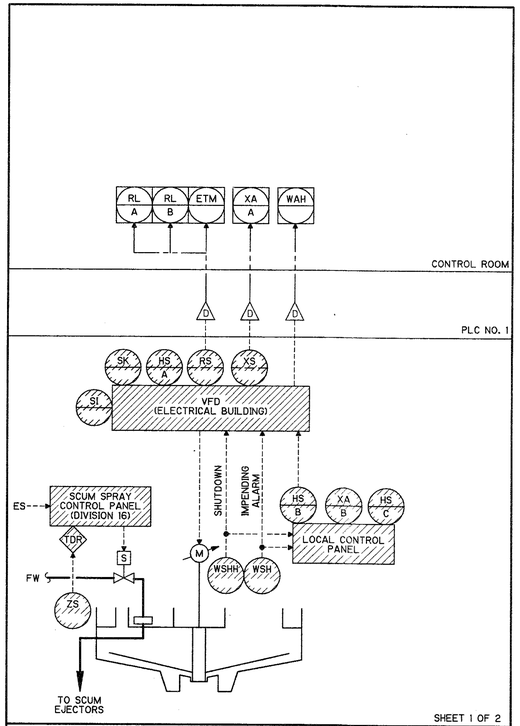
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE	FLOW ELEMENT	ANNUBAR FLOWMETER	LINE SIZE RANGE: SCFM	REAERATION AIR FLOW	1
FI	FLOW INDICATOR	D/P GAUGE	RANGE: SCFM	REAERATION AIR FLOW	1



REAERATION BASIN AIR FLOW MONITORING | LOOP NO. 1280



AERATION BASIN NO. 1/BASIN NO. 2 GATE | LOOP NO. 1265



SECONDARY CLARIFIER MONITORING | LOOP NO. 1300-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
CV	CONTROL VALVE	GATE PROVIDED UNDER DIVISION 15		AERATION BASIN NO. 1/NO. 2 GATE	1
ZC	POSITION CONTROLLER	PROVIDED WITH VALVE ACTUATOR	PROVIDED UNDER DIVISION 15	AERATION AERATION BASIN NO. 1/NO. 2 GATE CONTROL	1
ZT	POSITION TRANSMITTER	PROVIDED WITH VALVE ACTUATOR	PROVIDED UNDER DIVISION 15	AERATION BASIN NO. 1/NO. 2 GATE STATUS	1
ZI B	POSITION INDICATOR	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	AERATION BASIN NO. 1/NO. 2 GATE STATUS	1
ZI A	POSITION INDICATOR	INITIATED THRU SOFTWARE		AERATION BSIN NO. 1/NO. 2 GATE STATUS	1
HS B	HAND SWITCH	SELECTOR SWITCH PROVIDED WITH ACTUATOR	OPEN/CLOSE PROVIDED UNDER DIVISION 15	AERATION BASIN NO. 1/NO. 2 GATE CONTROL	1
HS C	HAND SWITCH	SELECTOR SWITCH PROVIDED WITH ACTUATOR	LOCAL/OFF/REMOTE PROVIDED UNDER DIVISION 15	AERATION BASIN NO. 1/NO. 2 GATE CONTROL	1
HS A	HAND SWITCH	INITIATED THRU SOFTWARE	OPEN/CLOSE/AUTO PROVIDED UNDER DIVISION 11	AERATION BASIN NO. 1/NO. 2 GATE CONTROL	1
ZSO	POSITION SWITCH OPEN	PROVIDED WITH ACTUATOR	PROVIDED UNDER DIVISION 15	AERATION BASIN NO. 1/NO. 2 GATE STATUS	1
ZSC	POSITION SWITCH CLOSED	PROVIDED WITH ACTUATOR	PROVIDED UNDER DIVISION 15	AERARTION BASIN NO. 1/NO. 2 GATE STATUS	1
ZLO	POSITION LIGHT OPEN	INITIATED THRU SOFTWARE	RED - OPEN PROVIDED UNDER DIVISION 11	AERATION BASIN NO. 1/NO. 2 GATE STATUS	1
ZLC	POSITION LIGHT OPEN	INITIATED THRU SOFTWARE	GREEN - CLOSED PROVIDED UNDER DIVISION 11	AERATION BASIN NO. 1/NO. 2 GATE STATUS	1
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE	DISAGREEMENT GATE FAILS TO OPEN AFTER PREDETERMINED TIME	AERATION BASIN NO. 1/NO. 2 GATE FAIL TO OPEN	1
XA B	TROUBLE ALARM	INITIATED THRU SOFTWARE DIVISION 11	DISAGREEMENT GATE FAILS TO OPEN AFTER PREDETERMINED TIME	AERATION BASIN NO. 1/NO. 2 GATE FAIL TO OPEN	1
XA C	TROUBLE ALARM	INITIATED THRU SOFTWARE	DISAGREEMENT GATE FAILS TO CLOSE AFTER PREDETERMINED TIME	AERATION BASIN NO. 1/NO. 2 GATE FAIL TO CLOSE	1
XA D	TROUBLE ALARM	INITIATED THRU SOFTWARE DIVISION 11	DISAGREEMENT GATE FAILS TO CLOSE AFTER PREDETERMINED TIME	AERATION BASIN NO. 1/NO. 2 GATE FAIL TO CLOSE	1

SHEET 2 OF 2

AERATION BASIN NO. 1/BASIN NO. 2 GATE | LOOP NO. 1265

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
ZS	POSITION SWITCH	PROXIMITY SWITCH PROVIDED UNDER DIVISION 11		SECONDARY CLARIFIER NO. • SCUM SPRAY	2
WSHH	TORQUE SWITCH HIGH/HIGH	PROVIDED UNDER DIVISION 11		SECONDARY CLARIFIER NO. • SHUTDOWN	2
WSH	TORQUE SWITCH HIGH	PROVIDED UNDER DIVISION 11		SECONDARY CLARIFIER NO. • HIGH TORQUE	2
WAH	TORQUE ALARM HIGH	INITIATED THRU SOFTWARE		SECONDARY CLARIFIER NO. • HIGH TORQUE ALARM	2
HS B	HAND SWITCH	PROVIDED UNDER DIVISION 11	2-POSITION START/STOP NEMA 4X	SECONDARY CLARIFIER NO. • CONTROL	2
XA B	TROUBLE ALARM	BEACON LIGHT AND HORN	PROVIDED UNDER DIVISION 11	SECONDARY CLARIFIER NO. • COMMON ALARM	2
HS C	HAND SWITCH	PROVIDED UNDER DIVISION 11	PUSHBUTTON NEMA 4X	SECONDARY CLARIFIER NO. • ALARM RESET	2
XS	TROUBLE SWITCH	OVERLOAD CONTACT ON MOTOR STARTER OR HIGH HIGH TORQUE	PROVIDED UNDER DIVISION 16	SECONDARY CLARIFIER NO. • FAILURE	2
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		SECONDARY CLARIFIER NO. • COMMON ALARM	2
RS	RUNNING SWITCH	CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 16	SECONDARY CLARIFIER NO. • STATUS	2
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	SECONDARY CLARIFIER NO. • STATUS	4
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		SECONDARY CLARIFIER NO. • RUN TIME	2
HS A	HAND SWITCH	PROVIDED UNDER DIVISION 16	2-POSITION HAND/OFF/REMOTE	SECONDARY CLARIFIER NO. • CONTROL	2
SK	SPEED CONTROL STATION	PROVIDED UNDER DIVISION 16		SECONDARY CLARIFIER NO. • SPEED CONTROL	2
SI	SPEED INDICATOR	PROVIDED UNDER DIVISION 16		SECONDARY CLARIFIER NO. • SPEED	2

• DENOTES:
SECONDARY CLARIFIER NO. 1 LOOP NO. 1300-1
SECONDARY CLARIFIER NO. 2 LOOP NO. 1300-2

SHEET 2 OF 2

SECONDARY CLARIFIER MONITORING | LOOP NO. 1300-•

REV. NO.	DATE	DRWN	CHKD	REMARKS 1120-•

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-713

SHEET NO.
I-13

Jorge Elias
h38-46
05/22/97 fil=2359
6706-713
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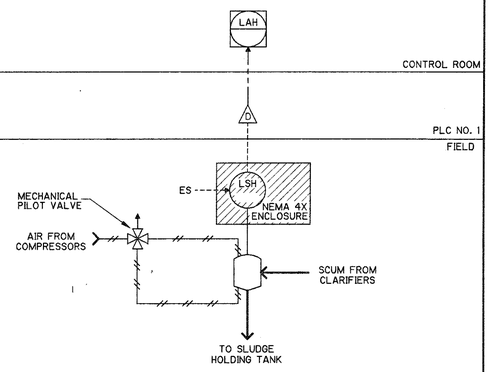
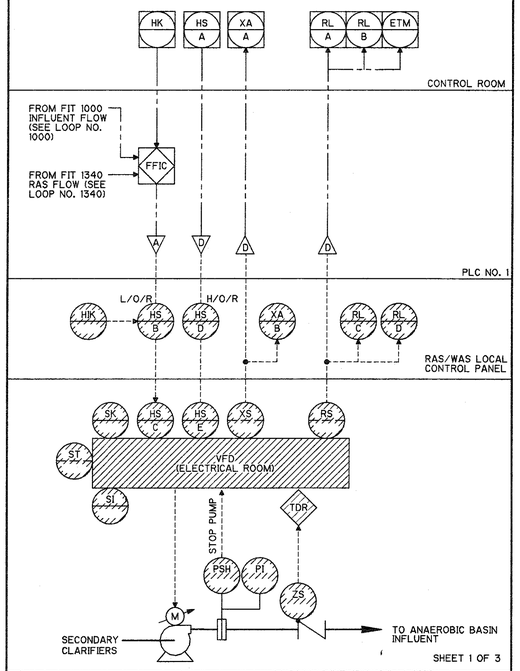
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LSH	LEVEL SWITCH HIGH	ELECTRODE	PROVIDED UNDER DIVISION 11	SCUM EJECTOR NO. • HIGH LEVEL	2
LAH	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		SCUM EJECTOR NO. • HIGH LEVEL ALARM	2

• DENOTES:
SCUM EJECTOR NO. 1 LOOP NO. 1310-1
SCUM EJECTOR NO. 2 LOOP NO. 1310-2



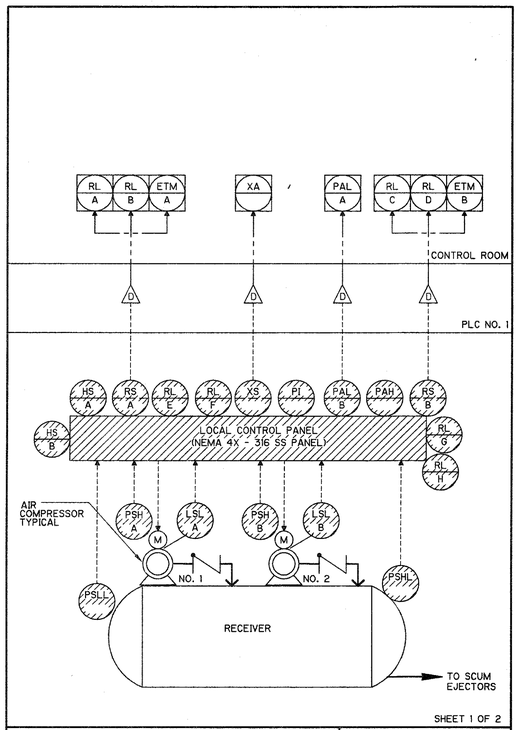
CLARIFIER SCUM EJECTORS | LOOP NO. 1310-•

NOTE:
WHEN FFIC IS IN MANUAL THEN HK CONTROLS THE OUTPUT.
WHEN FFIC IS IN AUTO THEN HK IS THE SET POINT.



SHEET 1 OF 3

RETURN ACTIVATED SLUDGE PUMPS CONTROL | LOOP NO. 1330-•



SHEET 1 OF 2

SCUM EJECTOR COMPRESSED AIR SYSTEM | LOOP NO. 1315

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PSH	PRESSURE SWITCH HIGH	PRESSURE SWITCH	PROVIDED UNDER DIVISION 11	RAS PUMP NO. • HIGH PRESSURE	3
PI	PRESSURE INDICATOR	PRESSURE GAUGE RANGE:	PROVIDED UNDER DIVISION 11	RAS PUMP NO. • PRESSURE	3
ZS	POSITION SWITCH	LIMIT SWITCH	PROVIDED UNDER DIVISION 15	RAS PUMP NO. • CHECK VALVE STATUS	3
SI	SPEED INDICATOR	DIGITAL INDICATOR	PROVIDED UNDER DIVISION 16	RAS PUMP NO. • SPEED	3
ST	SPEED TRANSMITTER	PROVIDED UNDER DIVISION 16	RANGE: 0 - 100%	RAS PUMP NO. • SPPED	3
SK	SPEED CONTROL STATION	POTENTIOMETER 0-100 %	PROVIDED UNDER DIVISION 16	RAS PUMP NO. • SPPED CONTROL	3
HS C	HAND SWITCH	PROVIDED UNDER DIVISION 16	3-POSITION LOCAL/OFF/REMOTE	RAS PUMP NO. • CONTROL	3
FFIC	FLOW RATIO INDICATING CONTROLLER	INITIATED THRU PLC SOFTWARE	CONTROLLER W/ AUTO/MANUAL SWITCH	RAS PUMP NO. • FLOW RATIO CONTROL	1
HK	HAND CONTROL STATION	INITIATED THRU SOFTWARE	0 - 100%	RAS PUMP NO. • CONTROL	1
HS E	HAND SWITCH	PROVIDED UNDER DIVISION 16	3-POSITION HAND/OFF/REMOTE	RAS PUMP NO. • CONTROL	3
HS A	HAND SWITCH	INITIATED THRU SOFTWARE	START/STOP	RAS PUMP NO. • CONTROL	3
XS	TROUBLE SWITCH	OVERLOAD CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 16	RAS PUMP NO. • FAILURE	3
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		RAS PUMP NO. • COMMON ALARM	3
RS	RUNNING SWITCH	CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 16	RAS PUMP NO. • STATUS	3
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	RAS PUMP NO. • STATUS	6
ETM	ELASPED TIME METER	INITIATED THRU SOFTWARE		RAS PUMP NO. • RUN TIME	3

SHEET 2 OF 3

RETURN ACTIVATED SLUDGE PUMPS CONTROL | LOOP NO. 1330-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PSLL	PRESSURE SWITCH LOW/LOW	PRESSURE SWITCH	PROVIDED UNDER DIVISION 11	COMPRESSED AIR SYSTEM LOW PRESSURE	1
PSH/L	PRESSURE SWITCH HIGH/LOW	PRESSURE SWITCH	PROVIDED UNDER DIVISION 11	COMPRESSED AIR SYSTEM PRESSURE CONTROL	1
PSH A,B	PRESSURE SWITCH HIGH	PRESSURE SWITCH	PROVIDED UNDER DIVISION 11	COMPRESSED AIR SYSTEM HIGH OIL PRESSURE	2
LSL A,B	LEVEL SWITCH LOW	PROVIDED UNDER DIVISION 11		COMPRESSOR OIL LEVEL LOW	2
HS A,B	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/AUTO NEMA 4X	COMPRESSED AIR SYSTEM COMPRESSOR NO. • CONTROL	2
RS A,B	RUNNING SWITCH	CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 11	COMPRESSOR NO. • AIR SYSTEM STATUS	2
RL A-D	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON (A, C) GREEN - OFF (B, D)	COMPRESSED AIR SYSTEM COMPRESSOR NO. • STATUS	4
ETM A,B	ELAPSED TIME METER	INITIATED THRU SOFTWARE		COMPRESSED AIR SYSTEM COMPRESSOR NO. • RUN TIME	2
XS	TROUBLE SWITCH	OVERLOAD CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 11	COMPRESSED AIR SYSTEM FAILURE	2
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		COMPRESSED AIR SYSTEM COMMON ALARM	1
PI	PRESSURE INDICATOR	PRESSURE GAUGE	PROVIDED UNDER DIVISION 11	COMPRESSED AIR SYSTEM PRESSURE	1
PAL B	PRESSURE ALARM LOW	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	COMPRESSED AIR SYSTEM LOW PRESSURE	1
PAL A	PRESSURE ALARM LOW	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	COMPRESSED AIR SYSTEM LOW PRESSURE	1
PAH	PRESSURE ALARM HIGH	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	COMPRESSED AIR SYSTEM HIGH OIL PRESSURE	1
RL E-H	RUNNING LIGHTS	INDICATING LIGHT	RED - ON (E, G) GREEN - OFF (F, H)	COMPRESSED AIR SYSTEM COMPRESSOR NO. • STATUS	4

• DENOTES:
AIR COMPRESSOR NO. 1
AIR COMPRESSOR NO. 2

SHEET 2 OF 2

SCUM EJECTOR COMPRESSED AIR SYSTEM | LOOP NO. 1315

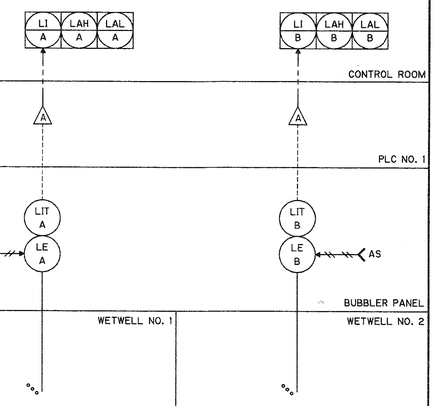
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
HIK	MANUAL INDICATING CONTROL STATION	ELECTRONIC	PROVIDED UNDER DIVISION 11	RAS PUMP NO. • CONTROL	3
HS B	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION LOCAL/OFF/REMOTE	RAS PUMP NO. • CONTROL	3
HS D	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/REMOTE	RAS PUMP NO. • CONTROL	3
RL C,D	RUNNING LIGHTS	INDICATING LIGHT PUSH-TO-TEST	PROVIDED UNDER DIVISION 11	RAS PUMP NO. • STATUS	6
XA B	TROUBLE ALARM	ANNUNCIATOR POINT	PROVIDED UNDER DIVISION 11	RAS PUMP NO. • COMMON ALARM	3

• DENOTES (3) IDENTICAL LOOPS:
RETURN ACTIVATED SLUDGE PUMP NO. 1 LOOP NO. 1330-1
RETURN ACTIVATED SLUDGE PUMP NO. 2 LOOP NO. 1330-2
RETURN ACTIVATED SLUDGE PUMP NO. 3 LOOP NO. 1330-3

SHEET 3 OF 3

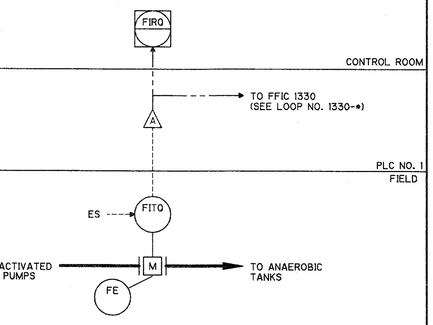
RETURN ACTIVATED SLUDGE PUMPS CONTROL | LOOP NO. 1330-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LE LIT A,B	LEVEL ELEMENT INDICATING TRANSMITTER	BUBBLER	A: WETWELL NO. 1 B: WETWELL NO. 2	RAS WETWELL LEVEL	2
LI A,B	LEVEL INDICATOR	INITIATED THRU SOFTWARE	A: WETWELL NO. 1 B: WETWELL NO. 2	RAS WETWELL LEVEL	2
LAH A,B	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE	A: WETWELL NO. 1 B: WETWELL NO. 2	RAS WETWELL LEVEL HIGH	2
LAL A,B	LEVEL ALARM LOW	INITIATED THRU SOFTWARE	A: WETWELL NO. 1 B: WETWELL NO. 2	RAS WETWELL LEVEL LOW	2



CLARIFIER SPLITTER BOX RAS LEVEL | LOOP NO. 1320

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE	FLOW ELEMENT	MAGNETIC FLOWMETER	LINE SIZE: 12 INCH METER SIZE: 12 INCH	RAS PUMP STATION RAS FLOW	1
FITQ	FLOW INDICATING TRANSMITTER TOTALIZER	MAGNETIC FLOW METER SIGNAL CONVERTER	RANGE: 650-2,800 GPM	RAS PUMP STATION RAS FLOW	1
FIRQ	FLOW INDICATING RECORDER TOTALIZER	INITIATED THRU SOFTWARE	SCALE: 0-3,000 GPM	RAS PUMP STATION TOTAL RAS FLOW	1



RAS PUMPS FLOW MONITORING | LOOP NO. 1340

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

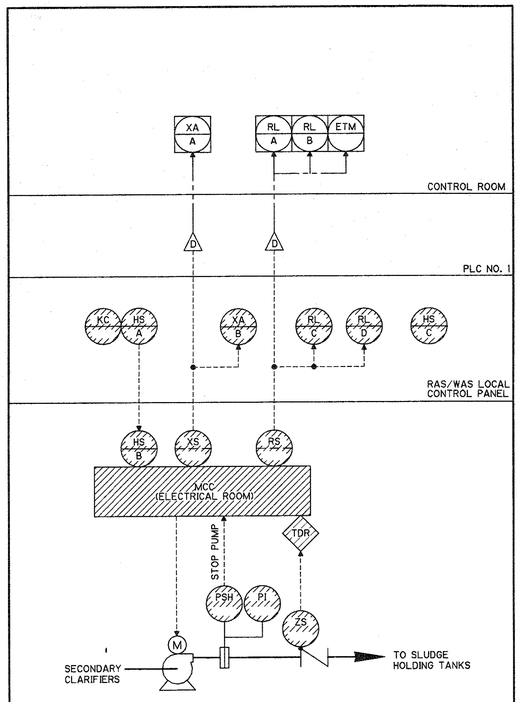
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-714

SHEET NO.
I-14

Jorge Elias 6:43:50 05/22/97 I:\6706_070\MISC\ 6706-714



SHEET 1 OF 2

WASTE ACTIVATED SLUDGE PUMPS CONTROL | LOOP NO. 1350-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PSH	PRESSURE SWITCH HIGH	PRESSURE SWITCH	PROVIDED UNDER DIVISION 11	WAS PUMP NO. • HIGH PRESSURE	2
PI	PRESSURE INDICATOR	PRESSURE GAUGE RANGE:	PROVIDED UNDER DIVISION 11	WAS PUMP NO. • PRESSURE	2
ZS	POSITION SWITCH	LIMIT SWITCH	PROVIDED UNDER DIVISION 15	CHECK VALVE STATUS	2
HS B	HAND SWITCH	3-POSITION HAND/OFF/REMOTE	PROVIDED UNDER DIVISION 16	WAS PUMP NO. • CONTROL	2
HS A	HAND SWITCH	3-POSITION HAND/OFF/AUTO NEMA 4X	PROVIDED UNDER DIVISION 11	WAS PUMP NO. • CONTROL	2
KC	TIMER CONTROLLER	ELECTRO-MECHANICAL	PROVIDED UNDER DIVISION 11	WAS PUMP NO. • TIMER CONTROL	1
XS	TROUBLE SWITCH	OVERLOAD CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 16	WAS PUMP NO. • FAILURE	2
XA B	TROUBLE ALARM	ANNUNCIATOR POINT	PROVIDED UNDER DIVISION 11	WAS PUMP NO. • COMMON ALARM	2
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		WAS PUMP NO. • COMMON ALARM	2
RS	RUNNING SWITCH	CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 16	WAS PUMP NO. • STATUS	2
RL C,D	RUNNING LIGHTS	INDICATING LIGHT PUSH-TO-TEST	PROVIDED UNDER DIVISION 11	WAS PUMP NO. • STATUS	2
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	WAS PUMP NO. • STATUS	4
ETM	ELASPED TIME METER	INITIATED THRU SOFTWARE		WAS PUMP NO. • RUN TIME	2
HS C	HAND SWITCH	PUSHBUTTON NEMA 4X	PROVIDED UNDER DIVISION 11	WAS PUMP NO. • ALARM RESET	2

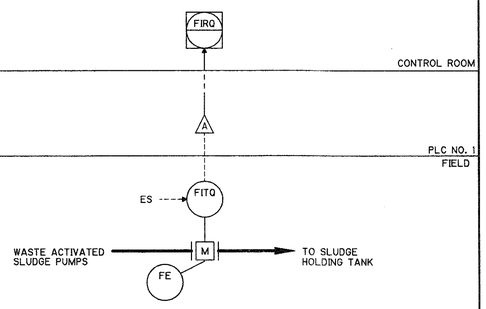
• DENOTES:

WASTE ACTIVATED SLUDGE PUMP NO. 1 — LOOP NO. 1350-1
WASTE ACTIVATED SLUDGE PUMP NO. 2 — LOOP NO. 1350-2

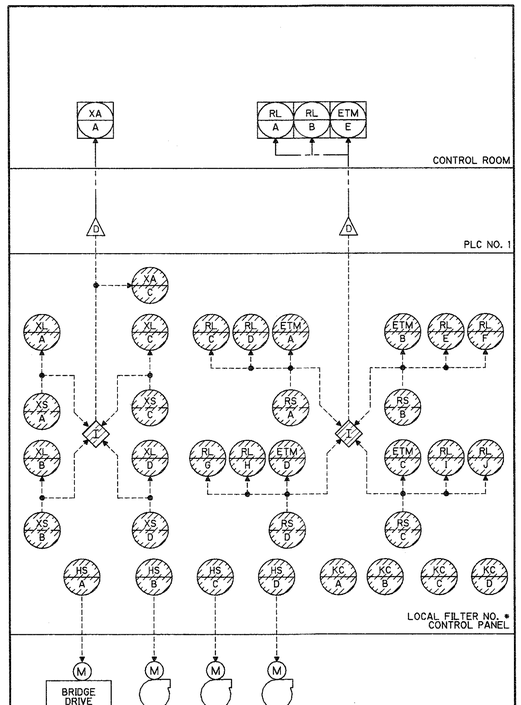
SHEET 2 OF 2

WASTE ACTIVATED SLUDGE PUMPS CONTROL | LOOP NO. 1350-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE	FLOW ELEMENT	MAGNETIC FLOWMETER	LINE SIZE: 8 INCH METER SIZE: 8 INCH	WAS PUMP STATION WAS FLOW	1
FITQ	FLOW INDICATING TRANSMITTER TOTALIZER	MAGNETIC FLOWMETER SIGNAL CONVERTER	RANGE: 650-1,000 GPM	WAS PUMP STATION WAS FLOW	1
FIRQ	FLOW INDICATING RECORDER TOTALIZER	INITIATED THRU SOFTWARE	SCALE: 0-1,000 GPM	WAS PUMP STATION TOTAL WAS FLOW	1



WAS PUMPS FLOW MONITORING | LOOP NO. 1360



SHEET 1 OF 3

TRAVELING BRIDGE FILTER EQUIPMENT CONTROL | LOOP NO. 2000-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	TRAVELING FILTER BRIDGE NO. • RUN STATUS	4
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		TRAVELING FILTER BRIDGE NO. • RUN ALARM	2
RL C,D	RUNNING LIGHTS	SQUARE OIL TIGHT DUAL SEGMENT DIVISION 11	RED - ON GREEN - OFF	FILTER NO. • BRIDGE DRIVE RUN STATUS	4
XL A	TROUBLE LIGHT	INDICATING LIGHT	PROVIDED UNDER DIVISION 11	FILTER NO. • BRIDGE DRIVE TROUBLE	2
XS A	TROUBLE SWITCH	DRY CONTACT FOR EACH PUMP AND DRIVE	PROVIDED UNDER DIVISION 11	FILTER NO. • BRIDGE DRIVE FAILURE	2
RS A	RUNNING SWITCH	DRY CONTACT FOR EACH PUMP AND DRIVE	PROVIDED UNDER DIVISION 11	FILTER NO. • BRIDGE DRIVE RUN	2
HS A	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/AUTO NEMA 4X	FILTER NO. • BRIDGE DRIVE CONTROL	2
XA C	TROUBLE ALARM	PROVIDED UNDER DIVISION 11	BEACON LIGHT/ HORN NEMA 4X	TRAVELING BRIDGE FILTER EQUIPMENT •• TROUBLE COMMON	2
ETM A	ELAPSED TIME METER	PROVIDED UNDER DIVISION 11		FILTER NO. • BRIDGE DRIVE TIME MONITORING	2
KC A	TIMER CONTROL	RESET TIMER METER	PROVIDED UNDER DIVISION 11	FILTER NO. • BRIDGE DRIVE TIME CONTROL	2
RL E,F	RUNNING LIGHTS	SQUARE OIL TIGHT DUAL SEGMENT DIVISION 11	RED - ON GREEN - OFF	FILTER NO. • BACKWASH PUMP RUN STATUS	4
XL B	TROUBLE LIGHT	INDICATING LIGHT	PROVIDED UNDER DIVISION 11	FILTER NO. • BACKWASH PUMP TROUBLE	2
XS B	TROUBLE SWITCH	DRY CONTACT FOR EACH PUMP AND DRIVE	PROVIDED UNDER DIVISION 11	FILTER NO. • BACKWASH PUMP FAILURE	2
RS B	RUNNING SWITCH	DRY CONTACT FOR EACH PUMP AND DRIVE	PROVIDED UNDER DIVISION 11	FILTER NO. • BACKWASH PUMP RUN STATUS	2
HS B	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/AUTO NEMA 4X	FILTER NO. • BACKWASH PUMP CONTROL	2
ETM B	ELAPSED TIME METER	PROVIDED UNDER DIVISION 11		FILTER NO. • BACKWASH PUMP TIME MONITORING	2
KC B	TIMER CONTROL	RESET TIMER METER	PROVIDED UNDER DIVISION 11	FILTER NO. • BACKWASH PUMP TIME CONTROL	2

SHEET 2 OF 3

TRAVELING BRIDGE FILTER EQUIPMENT CONTROL | LOOP NO. 2000-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
RL I,J	RUNNING LIGHTS	SQUARE OIL TIGHT DUAL SEGMENT DIVISION 11	RED - ON GREEN - OFF	FILTER NO. • WASHWATER PUMP RUN STATUS	4
XL C	TROUBLE LIGHT	INDICATING LIGHT	PROVIDED UNDER DIVISION 11	FILTER NO. • WASHWATER PUMP TROUBLE	2
XS C	TROUBLE SWITCH	DRY CONTACT FOR EACH PUMP AND DRIVE	PROVIDED UNDER DIVISION 11	FILTER NO. • WASHWATER PUMP FAILURE	2
RS C	RUNNING SWITCH	DRY CONTACT FOR EACH PUMP AND DRIVE	PROVIDED UNDER DIVISION 11	FILTER NO. • WASHWATER PUMP RUN STATUS	2
HS C	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/AUTO NEMA 4X	FILTER NO. • WASHWATER PUMP CONTROL	2
ETM C	ELAPSED TIME METER	PROVIDED UNDER DIVISION 11		FILTER NO. • WASHWATER PUMP TIME MONITORING	2
KC C	TIMER CONTROL	RESET TIMER METER	PROVIDED UNDER DIVISION 11	FILTER NO. • WASHWATER PUMP TIME CONTROL	2
RL G,H	RUNNING LIGHTS	SQUARE OIL TIGHT DUAL SEGMENT DIVISION 11	RED - ON GREEN - OFF	FILTER NO. • SCUM PUMP RUN STATUS	2
XL D	TROUBLE LIGHT	INDICATING LIGHT	PROVIDED UNDER DIVISION 11	FILTER NO. • SCUM PUMP TROUBLE	2
XS D	TROUBLE SWITCH	DRY CONTACT FOR EACH PUMP AND DRIVE	PROVIDED UNDER DIVISION 11	FILTER NO. • SCUM PUMP FAILURE	2
RS D	RUNNING SWITCH	DRY CONTACT FOR EACH PUMP AND DRIVE	PROVIDED UNDER DIVISION 11	FILTER NO. • SCUM PUMP RUN STATUS	2
HS D	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/AUTO NEMA 4X	FILTER NO. • SCUM PUMP CONTROL	2
ETM D	ELAPSED TIME METER	PROVIDED UNDER DIVISION 11		FILTER NO. • SCUM PUMP TIME MONITORING	2
KC D	TIMER CONTROL	RESET TIMER METER	PROVIDED UNDER DIVISION 11	FILTER NO. • SCUM PUMP TIME CONTROL	2
ETM E	ELAPSED TIME METER	INITIATED THRU SOFTWARE		FILTER NO. • RUN TIME	2

• DENOTES:

FILTER NO. 1 — LOOP NO. 2000-1
FILTER NO. 2 — LOOP NO. 2000-2

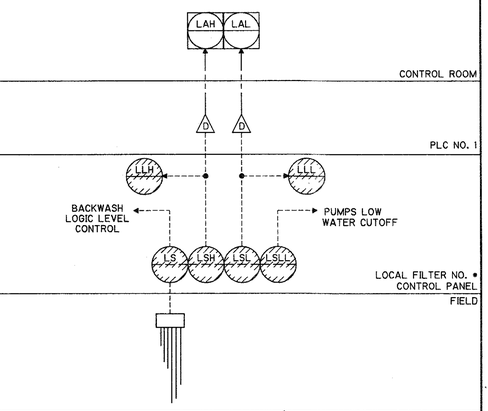
SHEET 3 OF 3

TRAVELING BRIDGE FILTER EQUIPMENT CONTROL | LOOP NO. 2000-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LS	LEVEL SWITCH	ELECTRODE RELAY FURNISHED UNDER DIVISION 11	MFR. DETERMINED SETTINGS	TRAVELING BRIDGE FILTER NO. • LEVEL CONTROL	2
LSH	LEVEL SWITCH HIGH	ELECTRODE RELAY FURNISHED UNDER DIVISION 11	MFR. DETERMINED SETTINGS	TRAVELING BRIDGE FILTER NO. • LEVEL HIGH	2
LSL	LEVEL SWITCH LOW	ELECTRODE RELAY FURNISHED UNDER DIVISION 11	MFR. DETERMINED SETTINGS	TRAVELING BRIDGE FILTER NO. • LEVEL LOW	2
LSLL	LEVEL SWITCH LOW/LOW	ELECTRODE RELAY FURNISHED UNDER DIVISION 11	MFR. DETERMINED SETTINGS	TRAVELING BRIDGE FILTER NO. • LOW WATER CUTOFF	2
LLH/ LLL	LEVEL LIGHT HIGH AND LOW	SQUARE INDICATING LIGHT FURNISHED UNDER DIVISION 11	AMBER - HIGH AMBER - LOW	TRAVELING BRIDGE FILTER NO. • LEVEL ALARM	4
LAH/ LAL	LEVEL ALARM HIGH AND LOW	INITIATED THRU SOFTWARE	HIGH LEVEL LOW LEVEL	TRAVELING BRIDGE FILTER NO. • LEVEL ALARM	4

• DENOTES:

FILTER NO. 1 — LOOP NO. 2010-1
FILTER NO. 2 — LOOP NO. 2010-2



TRAVELING BRIDGE FILTER LEVEL | LOOP NO. 2010-•

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

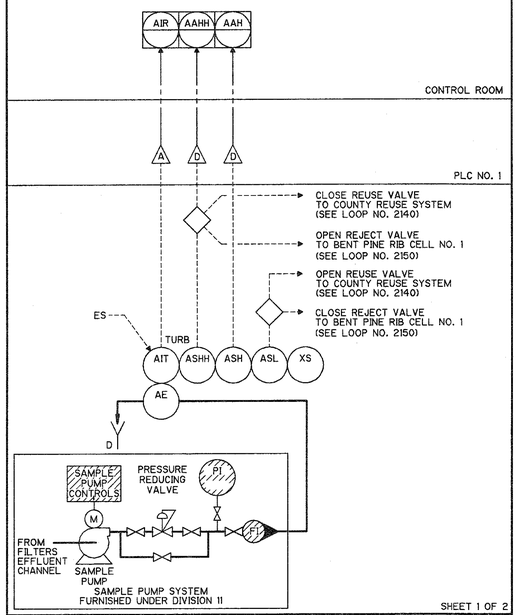
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-715

SHEET NO.
I-15

Jorge Elias 6/02/11 05/22/97 19:24:32 6706-715 O:\6706.070\INST\



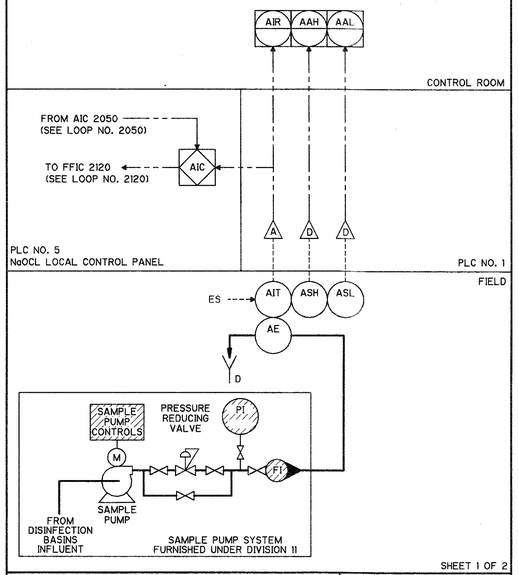
SHEET 1 OF 2

FILTER EFFLUENT TURBIDITY MONITORING | LOOP NO. 2020

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PI	PRESSURE INDICATOR	PRESSURE GAUGE PROVIDED UNDER DIVISION 11	SCALE: PSIG	FILTER EFFLUENT SAMPLE PRESSURE	1
FI	FLOW INDICATOR	ROTAMETER & BALL VALVE	RANGE: GPM PROVIDED UNDER DIVISON 11	FILTER EFFLUENT SAMPLE FLOW	1
AE/ AIT	ANALYSIS ELEMENT INDICATING TRANSMITTER	TURBIDIMETER	RANGE: NTU	FILTER EFFLUENT TURBIDITY	1
ASHH	ANALYSIS SWITCH HIGH/HIGH	INTERNAL TO AIT	TRIP: MG/L	FILTER EFFLUENT HIGH/HIGH TURBIDITY REUSE/REJECT VALVE CONTROL	1
ASH	ANALYSIS SWITCH HIGH	INTERNAL TO AIT	TRIP: MG/L	FILTER EFFLUENT HIGH TURBIDITY ALARM	1
ASL	ANALYSIS SWITCH LOW	INTERNAL TO AIT	TRIP: MG/L	REUSE/REJECT VALVE CONTROL	1
XS	FAILURE SWITCH	INTERNAL TO AIT		FILTER EFFLUENT ANALYZER TROUBLE	1
AIR	ANALYSIS INDICATING RECORDER	INITIATED THRU SOFTWARE	SCALE:	FILTER EFFLUENT TURBIDITY	1
AAHH	ANALYSIS ALARM HIGH/HIGH	INITIATED THRU SOFTWARE		FLOW TO OFF SPEC EFFLUENT TANKS	1
AAH	ANALYSIS ALARM HIGH	INITIATED THRU SOFTWARE		FILTER EFFLUENT HIGH TURBIDITY ALARM	1

SHEET 2 OF 2

FILTER EFFLUENT TURBIDITY MONITORING | LOOP NO. 2020



SHEET 1 OF 2

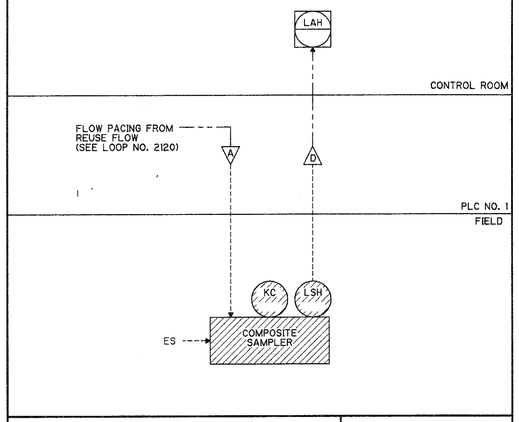
DISINFECTION BASINS INFLUENT CHLORINE RESIDUAL | LOOP NO. 2040

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PI	PRESSURE INDICATOR	PRESSURE GAUGE PROVIDED UNDER DIVISION 11	SCALE:	INFLUENT CHLORINE RESIDUAL SAMPLE PRESSURE	1
FI	FLOW INDICATOR	ROTAMETER & BALL VALVE	RANGE: PROVIDED UNDER DIVISION 11	INFLUENT CHLORINE RESIDUAL SAMPLE FLOW	1
AE/ AIT	ANALYSIS ELEMENT INDICATING TRANSMITTER	TOTAL CHLORINE RESIDUAL ELEMENT W/WET CHEMISTRY	RANGE: PROVIDED UNDER DIVISION 11	INFLUENT CHLORINE RESIDUAL	1
AIR	ANALYSIS INDICATING RECORDER	INITIATED THRU SOFTWARE	SCALE:	INFLUENT CHLORINE RESIDUAL	1
ASH	ANALYSIS SWITCH HIGH	INTERNAL TO AIT PROVIDED UNDER DIVISION 11		INFLUENT CHLORINE RESIDUAL HIGH ALARM	1
ASL	ANALYSIS SWITCH LOW	INTERNAL TO AIT PROVIDED UNDER DIVISION 11		INFLUENT CHLORINE RESIDUAL LOW ALARM	1
AAH	ANALYSIS ALARM HIGH	INITIATED THRU SOFTWARE		INFLUENT CHLORINE RESIDUAL HIGH ALARM	1
AAL	ANALYSIS ALARM LOW	INITIATED THRU SOFTWARE		INFLUENT CHLORINE RESIDUAL LOW ALARM	1
AIC	ANALYSIS INDICATING CONTROLLER	INITIATED THRU SOFTWARE		INFLUENT CHLORINE RESIDUAL RATIO SET POINT ADJUST	1

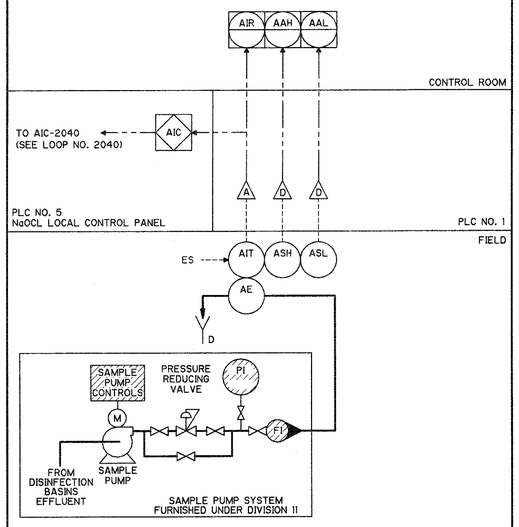
SHEET 2 OF 2

DISINFECTION BASINS INFLUENT CHLORINE RESIDUAL | LOOP NO. 2040

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
KC	TIME CONTROLLER	24 HOUR PROGRAMMING TIME CLOCK	PROVIDED UNDER DIVISION 11	DISINFECTION BASIN COMPOSITE SAMPLER TIME CONTROL	1
LSH	LEVEL SWITCH HIGH	PROVIDED UNDER DIVISION 11		DISINFECTION BASIN COMPOSITE SAMPLER LEVEL HIGH	1
LAH	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		DISINFECTION BASIN COMPOSITE SAMPLER BOTTLE FULL	1



DISINFECTION BASIN COMPOSITE SAMPLER MONITORING | LOOP NO. 2045



SHEET 1 OF 2

DISINFECTION BASINS EFFLUENT CHLORINE RESIDUAL | LOOP NO. 2050

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PI	PRESSURE INDICATOR	PRESSURE GAUGE PROVIDED UNDER DIVISION 11	SCALE:	EFFLUENT CHLORINE RESIDUAL SAMPLE PRESSURE	1
FI	FLOW INDICATOR	ROTAMETER & BALL VALVE	RANGE: 0-5 MG/L PROVIDED UNDER DIVISION 11	EFFLUENT CHLORINE RESIDUAL SAMPLE FLOW	1
AE/ AIT	ANALYSIS ELEMENT INDICATING TRANSMITTER	TOTAL CHLORINE RESIDUAL ELEMENT W/WET CHEMISTRY	RANGE: 0-5 MG/L PROVIDED UNDER DIVISION 11	EFFLUENT CHLORINE RESIDUAL	1
AIC	ANALYSIS INDICATING CONTROLLER	INITIATED THRU SOFTWARE		EFFLUENT CHLORINE RESIDUAL RATIO SET POINT	1
AIR	ANALYSIS INDICATING RECORDER	INITIATED THRU SOFTWARE	SCALE: 0-5 MG/L	EFFLUENT CHLORINE RESIDUAL	1
ASH	ANALYSIS SWITCH HIGH	INTERNAL TO AIT PROVIDED UNDER DIVISION 11		EFFLUENT CHLORINE RESIDUAL HIGH ALARM	1
ASL	ANALYSIS SWITCH LOW	INTERNAL TO AIT PROVIDED UNDER DIVISION 11		EFFLUENT CHLORINE RESIDUAL LOW ALARM	1
AAH	ANALYSIS ALARM HIGH	INITIATED THRU SOFTWARE		EFFLUENT CHLORINE RESIDUAL HIGH ALARM	1
AAL	ANALYSIS ALARM LOW	INITIATED THRU SOFTWARE		EFFLUENT CHLORINE RESIDUAL LOW ALARM	1

SHEET 2 OF 2

DISINFECTION BASINS EFFLUENT CHLORINE RESIDUAL | LOOP NO. 2050

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
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INDIAN RIVER COUNTY
FLORIDA

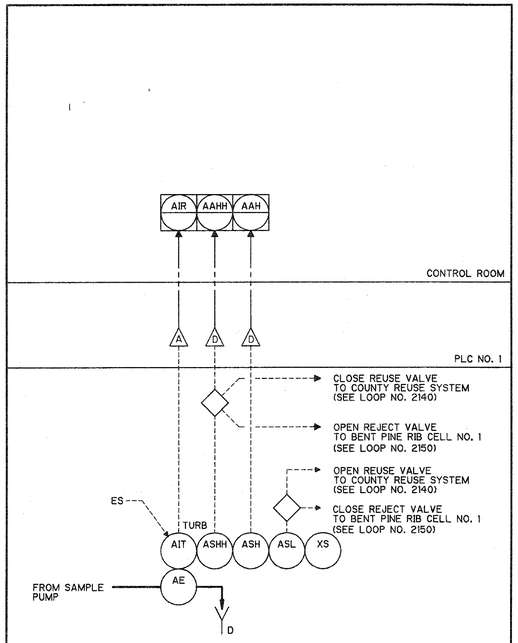
CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-716

SHEET NO.
I-16

Jorge Elias 4:38:02 05/22/97 D:\6706-070\INST\ 6706-716



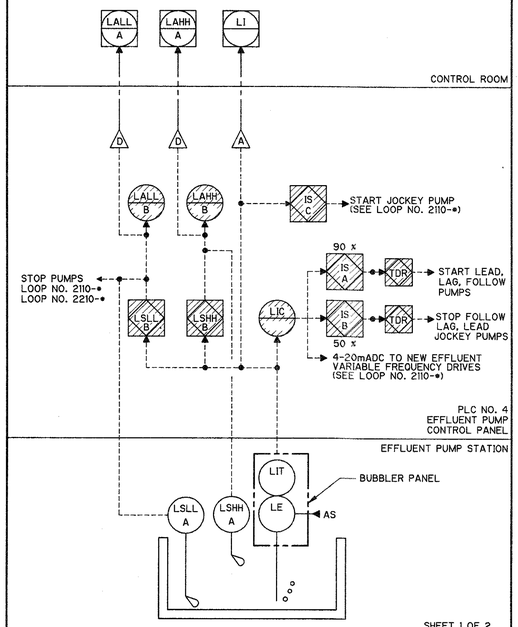
SHEET 1 OF 2

EFFLUENT PUMP STATION TURBIDITY MONITORING	LOOP NO. 2060

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
AE/ AIT	ANALYSIS ELEMENT INDICATING TRANSMITTER	TURBIDIMETER	RANGE: NTU	EFFLUENT PUMP STATION TURBIDITY	1
ASHH	ANALYSIS SWITCH HIGH/HIGH	INTERNAL TO AIT	TRIP: MG/L	EFFLUENT PUMP STA. HIGH/HIGH TURBIDITY REUSE/REJECT VALVE CONTROL	1
ASH	ANALYSIS SWITCH HIGH	INTERNAL TO AIT	TRIP: MG/L	EFFLUENT PUMP STATION HIGH TURBIDITY ALARM	1
ASL	ANALYSIS SWITCH LOW	INTERNAL TO AIT	TRIP: MG/L	REUSE/REJECT VALVE CONTROL	1
XS	FAILURE SWITCH	INTERNAL TO AIT		EFFLUENT PUMP STATION TURBIDITY ANALYZER TROUBLE	1
AIR	ANALYSIS INDICATING RECORDER	INITIATED THRU SOFTWARE	SCALE:	EFFLUENT PUMP STATION TURBIDITY	1
AAHH	ANALYSIS ALARM HIGH/HIGH	INITIATED THRU SOFTWARE		FLOW TO BENT PINE RIB CELL NO. 1	1
AAH	ANALYSIS ALARM HIGH	INITIATED THRU SOFTWARE		EFFLUENT PUMP STATION HIGH TURBIDITY ALARM	1

SHEET 2 OF 2

EFFLUENT PUMP STATION TURBIDITY MONITORING	LOOP NO. 2060



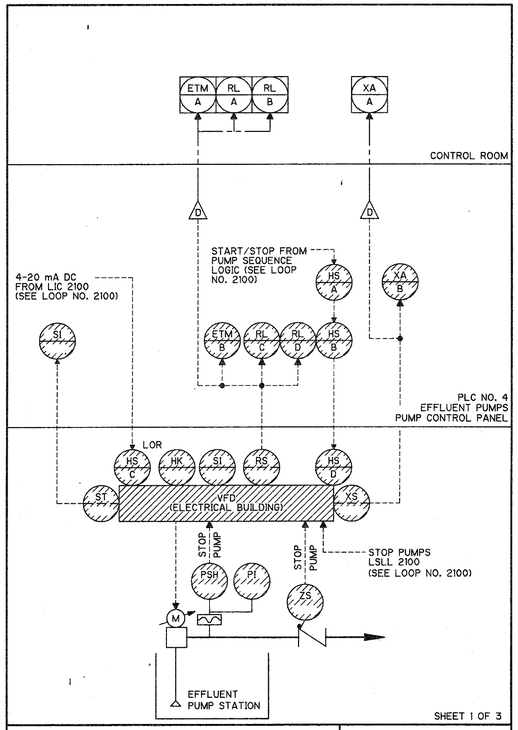
SHEET 1 OF 2

EFFLUENT PUMP STATION EFFLUENT PUMP LEVEL CONTROL	LOOP NO. 2100

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LE/ LIT	LEVEL ELEMENT/ LEVEL INDICATING TRANSMITTER	DIAPHRAGM ACTUATED	PROVIDED WITH BUBBLER SYSTEM	EFFLUENT PUMPS LEVEL CONTROL	1
IS A-C	CURRENT SWITCH	INITIATED THRU PLC SOFTWARE	PUMP COMMAND PROVIDED UNDER DIVISION 11	EFFLUENT PUMPS LEVEL CONTROL	3
LSHH A	LEVEL SWITCH HIGH/HIGH	MERCURY FLOAT		EFFLUENT PUMP STATION LEVEL HIGH/HIGH	1
LSHH B	LEVEL SWITCH HIGH/HIGH	INITIATED THRU PLC SOFTWARE	PROVIDED UNDER DIVISION 11	EFFLUENT PUMP STATION LEVEL HIGH/HIGH	1
LAHH B	LEVEL ALARM HIGH/HIGH	ANNUNCIATOR PROVIDED UNDER DIVISION 11		EFFLUENT PUMP STATION LEVEL HIGH/HIGH	1
LSLL A	LEVEL SWITCH LOW/LOW	MERCURY FLOAT		EFFLUENT PUMP STATION LEVEL LOW/LOW	1
LSLL B	LEVEL SWITCH LOW/LOW	INITIATED THRU PLC SOFTWARE	PROVIDED UNDER DIVISION 11	EFFLUENT PUMP STATION LEVEL LOW/LOW	1
LALL B	LEVEL ALARM LOW/LOW	ANNUNCIATOR PROVIDED UNDER DIVISION 11		EFFLUENT PUMP STATION LEVEL LOW/LOW	1
LIC	LEVEL INDICATING CONTROLLER	ELECTRONIC PROVIDED UNDER DIVISION 11		EFFLUENT PUMPS LEVEL CONTROL	1
LAHH A	LEVEL ALARM HIGH/HIGH	INITIATED THRU SOFTWARE		EFFLUENT PUMP STATION LEVEL HIGH/HIGH	1
LALL A	LEVEL ALARM LOW/LOW	INITIATED THRU SOFTWARE		EFFLUENT PUMP STATION LEVEL LOW/LOW	1
LI	LEVEL INDICATOR	INITIATED THRU SOFTWARE		EFFLUENT PUMP STATION LEVEL	1

SHEET 2 OF 2

EFFLUENT PUMP STATION LEVEL CONTROL	LOOP NO. 2100



SHEET 1 OF 3

EFFLUENT PUMPS CONTROL	LOOP NO. 2110-*

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PSH	PRESSURE SWITCH HIGH	PROVIDED UNDER DIVISION 11		EFFLUENT PUMP NO. * PRESSURE	4
PI	PRESSURE INDICATOR	PROVIDED UNDER DIVISION 11	PRESSURE GAUGE	EFFLUENT PUMP NO. * PRESSURE	4
ZS	POSITION SWITCH	PROVIDED UNDER DIVISION 11	DISAGREEMENT CIRCUIT	EFFLUENT PUMP NO. * VALVE STATUS	4
HK	MANUAL STATION	PROVIDED UNDER DIVISION 16	POTENTIOMETER	EFFLUENT PUMP NO. * SPEED CONTROL	4
SI	SPEED INDICATOR	PROVIDED UNDER DIVISION 16	RANGE: 0-100%	EFFLUENT PUMP NO. * SPEED	4
HS C	HAND SWITCH	PROVIDED UNDER DIVISION 16	LOCAL/OFF/ REMOTE	EFFLUENT PUMP NO. * SPEED CONTROL	4
ST	SPEED TRANSMITTER	PROVIDED UNDER DIVISION 16		EFFLUENT PUMP NO. * SPEED	4
SI	SPEED INDICATOR	ELECTRONIC	PROVIDED UNDER DIVISION 11	EFFLUENT PUMP NO. * SPEED CONTROL	4
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		EFFLUENT PUMP NO. * STATUS	4
HS B	HAND SWITCH	3-POSITION SQUARE TYPE W/ILLUMINATED QUADRANTS	HAND - BLUE OFF - GREEN AUTO - AMBER RUN - RED	EFFLUENT PUMP NO. * CONTROL	4
RL C,D	RUNNING LIGHT		PROVIDED UNDER DIVISION 11	EFFLUENT PUMP NO. * STATUS	
HS A	HAND SWITCH	3-POSITION ROTARY	LEAD/LAG/FOLLOW PROVIDED UNDER DIVISION 11	EFFLUENT PUMP NO. * SEQUENCE SELECT	4
HS D	HAND SWITCH	PROVIDED UNDER DIVISION 16	HAND/OFF/ REMOTE	EFFLUENT PUMP NO. * CONTROL	4
ETM B	ELAPSED TIME METER	ELECTRONIC	PROVIDED UNDER DIVISION 11	EFFLUENT PUMP NO. * RUN TIME	4
ETM A	ELAPSED TIME METER	INITIATED THRU SOFTWARE		EFFLUENT PUMP NO. * RUN TIME	4
RL A,B	RUNNING LIGHT	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	EFFLUENT PUMP NO. * STATUS	8

SHEET 2 OF 3

EFFLUENT PUMPS CONTROL	LOOP NO. 2110-*

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		EFFLUENT PUMP NO. * FAIL	4
XA B	TROUBLE ALARM	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	EFFLUENT PUMP NO. * FAIL	4
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		EFFLUENT PUMPS COMMON ALARM	1

* DENOTES:

EFFLUENT PUMP NO. 1	LOOP NO. 2110-1
EFFLUENT PUMP NO. 2	LOOP NO. 2110-2
EFFLUENT PUMP NO. 3	LOOP NO. 2110-3
EFFLUENT PUMP NO. 4	LOOP NO. 2110-4 (FUTURE)
EFFLUENT PUMP NO. 5	LOOP NO. 2110-5 (JOCKEY)

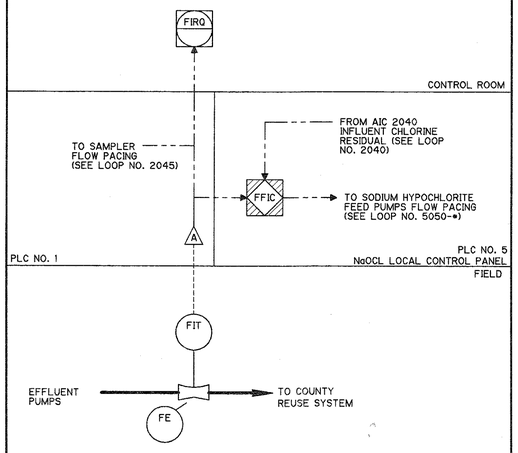
NOTE:

WHEN THE FIRST PUMP IS CALLED TO RUN, START JOCKEY PUMP; IF PUMP DEMAND INCREASES, START LEAD PUMP AND STOP JOCKEY PUMP. ADD ADDITIONAL PUMPS WHEN PUMP DEMAND INCREASES TO MAINTAIN A CONSTATNT EFFLUENT PUMP STATION LEVEL. WHEN DEMAND DECREASES, STOP THE LAST PUMP ON. WHEN THE PUMP DEMAND DECREASES SHUCH THAT THE LEAD PUMP IS CALLED TO STOP, START JOCKEY PUMP UNTIL LOW/LOW LEVEL IS REACHED.

SHEET 3 OF 3

EFFLUENT PUMPS CONTROL	LOOP NO. 2110-*

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE	FLOW ELEMENT	VENTURI TUBE	METER SIZE: 16 INCH LINE SIZE: 16 INCH	REUSE FLOW	1
FIT	FLOW INDICATING TRANSMITTER	DIFFERENTIAL PRESSURE	RANGE: 0-8 MGD	REUSE FLOW	1
FFIC	FLOW RATIO INDICATING CONTROLLER	INITIATED THRU SOFTWARE	PROVIDED UNDER DIVISION 11	SODIUM HYPOCHLORITE FEED CONTROL	1
FIRQ	FLOW INDICATING RECORDER TOTALIZER	INITIATED THRU SOFTWARE	RANGE: 0-8 MGD	REUSE FLOW	1



REUSE FLOW MONITORING	LOOP NO. 2120

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

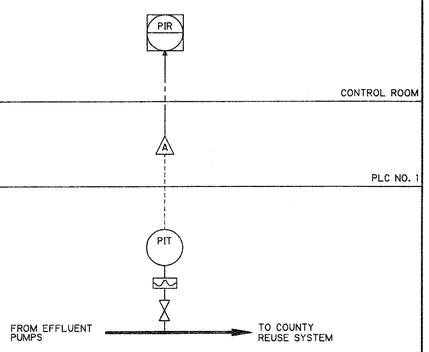
INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-717

SHEET NO.
I-17

Jorge Elias 6:31:12 05/23/97 O:\6706\717\INST\ 6706-717 O:\6706_070\INST\

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PIT	PRESSURE INDICATING TRANSMITTER	SMART PRESSURE TRANSMITTER	RANGE:	REUSE PRESSURE	1
PIR	PRESSURE INDICATING RECORDER	INITIATED THRU SOFTWARE	RANGE:	REUSE PRESSURE	1



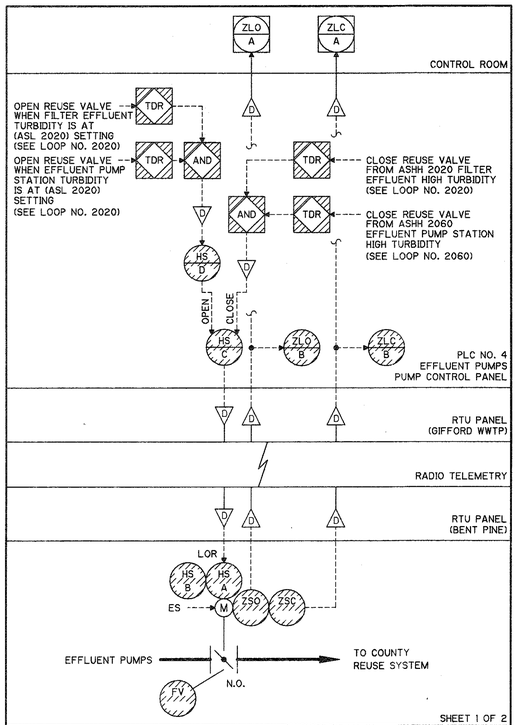
REUSE PRESSURE MONITORING | LOOP NO. 2130

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FV	FLOW VALVE	BUTTERFLY VALVE W/ELECTRIC OPERATOR	OPEN/CLOSE/SERVICE PROVIDED UNDER DIVISION 15	REJECT VALVE	1
HS A	HAND SWITCH	PROVIDED UNDER DIVISION 15	SELECTOR SWITCH LOCAL/OFF/REMOTE	REJECT VALVE CONTROL	1
HS B	HAND SWITCH	PROVIDED UNDER DIVISION 15	SELECTOR SWITCH OPEN/STOP/CLOSE	REJECT VALVE CONTROL	1
ZSO ZSC	POSITION SWITCH	PROVIDED UNDER DIVISION 15	OPEN CLOSE	REJECT VALVE STATUS	2
HS D	HAND SWITCH	PUSHBUTTONS	PROVIDED UNDER DIVISION 11	REJECT VALVE RESET CONTROL	1
HS C	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 11	OPEN/CLOSE/AUTO	REJECT VALVE CONTROL	1
ZLO ZLC B	POSITION LIGHT	INDICATING LIGHT PROVIDED UNDER DIVISION 11	OPEN CLOSE	REJECT VALVE STATUS	2
ZLO ZLC A	POSITION LIGHT	INITIATED THRU SOFTWARE	OPEN CLOSE	REJECT VALVE STATUS	2

NOTE:
WHEN HIGH TURBIDITY OR LOW CHLORINE ALARM CONDITION CLEARS THE OPERATOR SHALL MANUALLY RESET TO RESUME THE AUTOMATIC CONTROL FUNCTION BY PRESSING HS 2150-D.

SHEET 2 OF 2

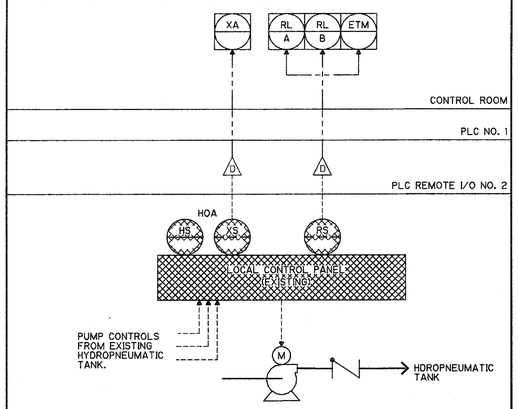
REJECT VALVE CONTROL | LOOP NO. 2150



REUSE VALVE CONTROL | LOOP NO. 2140

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
HS	HAND SWITCH	EXISTING		PLANT WATER PUMP NO. • CONTROL	--
XS	TROUBLE SWITCH	OVERLOAD CONTACT ON MOTOR STARTER	EXISTING	PLANT WATER PUMP NO. • FAILURE	--
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		PLANT WATER PUMP NO. • COMMON ALARM	2
RS	RUNNING SWITCH	CONTACT ON MOTOR STARTER	EXISTING	PLANT WATER PUMP NO. • STATUS	--
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	PLANT WATER PUMP NO. • STATUS	4
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		PLANT WATER PUMP NO. • RUN TIME	2

• DENOTES:
PLANT WATER PUMP NO. 1 LOOP NO. 2210-1
PLANT WATER PUMP NO. 2 LOOP NO. 2210-2



PLANT WATER PUMPS CONTROL | LOOP NO. 2210-•

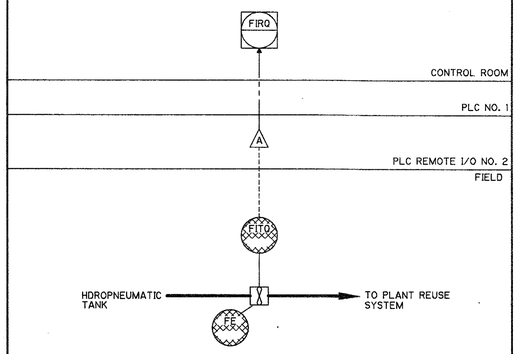
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FV	FLOW VALVE	BUTTERFLY VALVE W/ELECTRIC OPERATOR	OPEN/CLOSE/SERVICE PROVIDED UNDER DIVISION 15	REUSE VALVE	1
HS A	HAND SWITCH	PROVIDED UNDER DIVISION 15	SELECTOR SWITCH LOCAL/OFF/REMOTE	REUSE VALVE CONTROL	1
HS B	HAND SWITCH	PROVIDED UNDER DIVISION 15	SELECTOR SWITCH OPEN/STOP/CLOSE	REUSE VALVE CONTROL	1
ZSO ZSC	POSITION SWITCH	PROVIDED UNDER DIVISION 15	OPEN CLOSE	REUSE VALVE STATUS	2
HS D	HAND SWITCH	PUSHBUTTON	PROVIDED UNDER DIVISION 11	REUSE VALVE RESET CONTROL	1
HS C	HAND SWITCH	SELECTOR SWITCH PROVIDED UNDER DIVISION 11	OPEN/CLOSE/AUTO	REUSE VALVE CONTROL	1
ZLO ZLC B	POSITION LIGHT	INDICATING LIGHT PROVIDED UNDER DIVISION 11	OPEN CLOSE	REUSE VALVE STATUS	2
ZLO ZLC A	POSITION LIGHT	INITIATED THRU SOFTWARE	OPEN CLOSE	REUSE VALVE STATUS	2

NOTE:
WHEN HIGH TURBIDITY OR LOW CHLORINE ALARM CONDITION CLEARS THE OPERATOR SHALL MANUALLY RESET TO RESUME THE AUTOMATIC CONTROL FUNCTION BY PRESSING HS 2140-D.

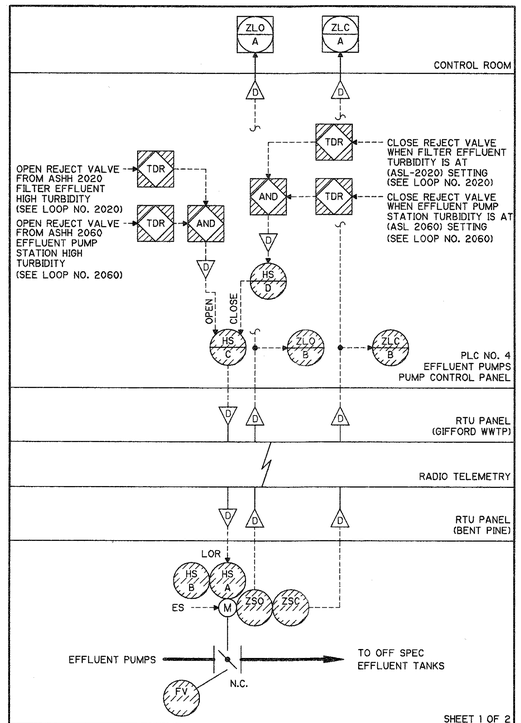
SHEET 2 OF 2

REUSE VALVE CONTROL | LOOP NO. 2140

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE	FLOW ELEMENT	PROPELLER FLOW METER	EXISTING	PLANT WATER FLOW	--
FITQ	FLOW INDICATING TRANSMITTER/ TOTALIZER	EXISTING	RANGE: MGD	PLANT WATER FLOW	--
FIRQ	FLOW INDICATING RECORDER TOTALIZER	INITIATED THRU SOFTWARE	RANGE: 0-10 MGD	PLANT WATER FLOW	1



PLANT WATER FLOW MONITORING | LOOP NO. 2230



REJECT VALVE CONTROL | LOOP NO. 2150

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

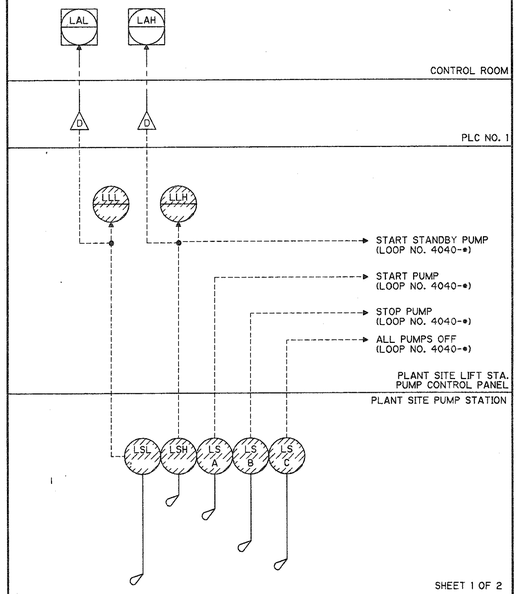
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-718

SHEET NO.
I-18

Jorge Elias 6:8:49 05/22/97 21:43:23 6706-718 O:\6706_070\INST\



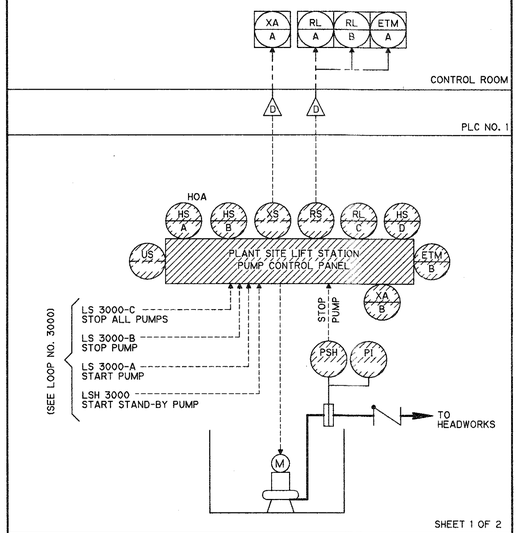
SHEET 1 OF 2

PLANT SITE LIFT STATION LEVEL CONTROL | LOOP NO. 3000

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LSL	LEVEL SWITCH LOW	MERCURY FLOAT PROVIDED UNDER DIVISION 11	SET @ EL.	PLANT SITE LIFT STATION LOW LEVEL ALARM	1
LLL	LEVEL LIGHT LOW	INDICATING LIGHT PROVIDED UNDER DIVISION 11	LENS COLOR: AMBER	PLANT SITE LIFT STATION LOW LEVEL ALARM	1
LAL	LEVEL ALARM LOW	INITIATED THRU SOFTWARE		PLANT SITE LIFT STATION LOW LEVEL ALARM	1
LSH	LEVEL SWITCH HIGH	MERCURY FLOAT PROVIDED UNDER DIVISION 11	SET @ EL.	PLANT SITE LIFT STATION HIGH LEVEL ALARM & STANDBY PUMP ON	1
LLH	LEVEL LIGHT HIGH	INDICATING LIGHT PROVIDED UNDER DIVISION 11	LENS COLOR: AMBER	PLANT SITE LIFT STATION HIGH LEVEL ALARM	1
LAH	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		PLANT SITE LIFT STATION HIGH LEVEL ALARM	1
LS A	LEVEL SWITCH	MERCURY FLOAT PROVIDED UNDER DIVISION 11	SET @ EL.	PLANT SITE LIFT STATION LEVEL CONTROL START PUMP	1
LS B	LEVEL SWITCH	MERCURY FLOAT PROVIDED UNDER DIVISION 11	SET @ EL.	PLANT SITE LIFT STATION LEVEL CONTROL STOP PUMP	1
LS C	LEVEL SWITCH	MERCURY FLOAT PROVIDED UNDER DIVISION 11	SET @ EL.	PLANT SITE LIFT STATION LEVEL CONTROL ALL PUMPS OFF	1

SHEET 2 OF 2

PLANT SITE LIFT STATION LEVEL CONTROL | LOOP NO. 3000



SHEET 1 OF 2

ON SITE LIFT STATION PUMPS CONTROL | LOOP NO. 3010-•

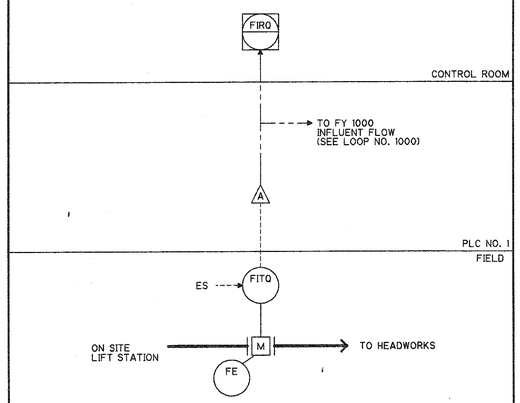
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PSH	PRESSURE SWITCH HIGH	PRESSURE SWITCH WITH ANNULAR SEAL	PROVIDED UNDER DIVISION 11	PLANT SITE LIFT STATION PUMP NO. • HIGH PRESSURE	2
PI	PRESSURE INDICATOR	PRESSURE GAUGE	PROVIDED UNDER DIVISION 11	PLANT SITE LIFT STATION PUMP NO. • PRESSURE	2
HS A	HAND SWITCH	PROVIDED UNDER DIVISION 11	3-POSITION HAND/OFF/AUTO	PLANT SITE LIFT STATION PUMP NO. • CONTROL	2
HS B	HAND SWITCH	PROVIDED UNDER DIVISION 11	2-POSITION DUTY/STAND-BY/ ALTERNATE	PLANT SITE LIFT STATION PUMP SELECT	2
US	MULTIFUNCTION SWITCH	PROVIDED UNDER DIVISION 11	2-PUMP ALTERNATOR	PLANT SITE LIFT STATION PUMPS CONTROL	1
XS	TROUBLE SWITCH	OVERLOAD CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 11	PLANT SITE LIFT STATION PUMP NO. • FAILURE	2
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		PLANT SITE LIFT STATION PUMP NO. • COMMON FAIL	2
XA B	TROUBLE ALARM	INDICATING LIGHT	PROVIDED UNDER DIVISION 11	PLANT SITE LIFT STATION PUMP NO. • COMMON FAIL	2
RS	RUNNING SWITCH	CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 11	PLANT SITE LIFT STATION PUMP NO. • STATUS	2
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	PLANT SITE LIFT STATION PUMP NO. • STATUS	4
ETM A	ELAPSED TIME METER	INITIATED THRU SOFTWARE		PLANT SITE LIFT STAION PUMP NO. • RUN TIME	2
RL C,D	RUNNING LIGHTS	INDICATING LIGHT PROVIDED UNDER DIVISION 11	RED - ON GREEN - OFF NEMA 4X	PLANT SITE LIFT STATION PUMP NO. • STATUS	4
ETM B	ELAPSED TIME METER	ELECTROMECHANICAL NEMA 4X		PLANT SITE LIFT STATION PUMP NO. • RUN TIME	2

• DENOTES:
ON SITE LIFT STATION PUMP NO. 1 LOOP NO. 3010-1
ON SITE LIFT STATION PUMP NO. 2 LOOP NO. 3010-2

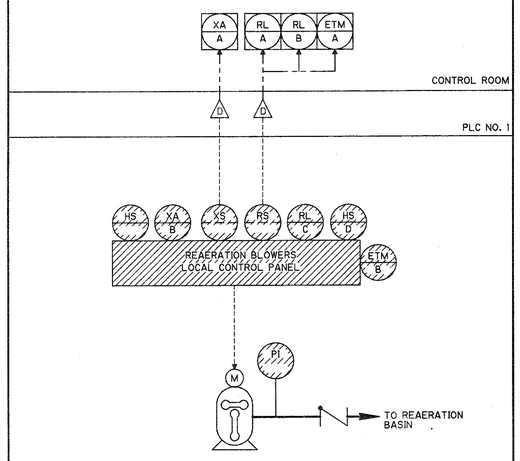
SHEET 2 OF 2

ON SITE LIFT STATION PUMPS CONTROL | LOOP NO. 3010-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE	FLOW ELEMENT	MAGNETIC FLOW METER	METER SIZE: 8 INCH LINE SIZE: 8 INCH	ON SITE LIFT STATION FLOW	1
FITQ	FLOW INDICATING TRANSMITTER TOTALIZER	MAGNETIC FLOW METER SIGNAL CONVERTER	RANGE: 0-1,300 GPM	ON SITE LIFT STATION FLOW	1
FIRQ	FLOW INDICATING RECORDER TOTALIZER	INITIATED THRU SOFTWARE	RANGE: 0-1,300 GPM	ON SITE LIFT STATION FLOW	1



ON SITE LIFT STATION FLOW MONITORING | LOOP NO. 3020



SHEET 1 OF 2

REAERATION BLOWERS CONTROL | LOOP NO. 3100-•

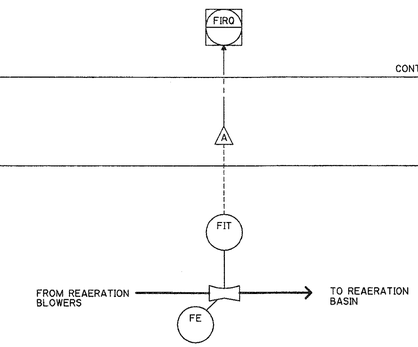
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PI	PRESSURE INDICATOR	PRESSURE GAUGE	PROVIDED UNDER DIVISION 11	REAERATION BLOWER NO. • PRESSURE	2
HS	HAND SWITCH	PROVIDED UNDER DIVISION 11	2-POSITION START/STOP	REAERATION BLOWER NO. • CONTROL	2
XS	TROUBLE SWITCH	OVERLOAD CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISIOON 11	REAERATION BLOWER NO. • FAILURE	2
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		REAERATION BLOWER NO. • COMMON FAIL	2
XA B	TROUBLE ALARM	INDICATING LIGHT	PROVIDED UNDER DIVISION 11	REAERATION BLOWER NO. • COMMON FAIL	2
RS	RUNNING SWITCH	CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 11	REAERATION BLOWER NO. • STATUS	2
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	REAERATION BLOWER NO. • STATUS	4
ETM A	ELAPSED TIME METER	INITIATED THRU SOFTWARE		REAERATION BLOWER NO. • RUN TIME	2
RL C,D	RUNNING LIGHTS	INDICATING LIGHT PROVIDED UNDER DIVISION 11	RED - ON GREEN - OFF	REAERATION BLOWER NO. • STATUS	4
ETM B	ELAPSED TIME METER	ELECTROMECHANICAL NEMA 4X		REAERATION BLOWER NO. • RUN TIME	2

• DENOTES:
REAERATION BLOWER NO. 1 LOOP NO. 3100-1
REAERATION BLOWER NO. 2 LOOP NO. 3100-2

SHEET 2 OF 2

REAERATION BLOWERS CONTROL | LOOP NO. 3100-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE	FLOW ELEMENT	VENTURI INSERT TYPE	METER SIZE: INCH LINE SIZE: INCH	REAERATION BLOWERS AIR FLOW	1
FIT	FLOW INDICATING TRANSMITTER	DIFFERENTIAL PRESSURE	RANGE: SCFM	REAERATION BLOWERS AIR FLOW	1
FIRQ	FLOW INDICATING RECORDER TOTALIZER	INITIATED THRU SOFTWARE	RANGE: SCFM	REAERATION BLOWERS AIR FLOW	1



REAERATION BLOWERS AIR FLOW | LOOP NO. 3110

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

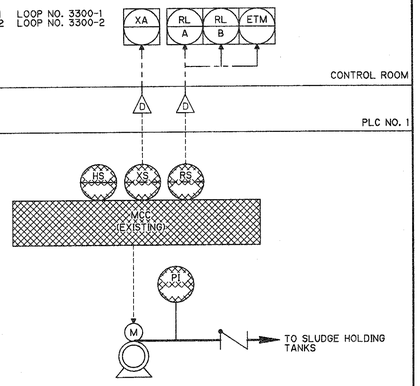
PROJECT NO. 6706-070
FILE NAME: 6706-719

SHEET NO.
I-19

Jorge Elias 5:46:62 05/22/97 22:10:26 6706-719 O:\6706_070\INST\

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PI	PRESSURE INDICATOR	PRESSURE GAUGE	EXISTING	SLUDGE HOLDING TANKS BLOWER NO. • PRESSURE	--
HS	HAND SWITCH	EXISTING		SLUDGE HOLDING TANKS BLOWER NO. • CONTROL	--
XS	TROUBLE SWITCH	OVERLOAD CONTACT ON MOTOR STARTER	EXISTING	SLUDGE HOLDING TANKS BLOWER NO. • FAILURE	--
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		SLUDGE HOLDING TANKS BLOWER NO. • COMMON FAIL	2
RS	RUNNING SWITCH	CONTACT ON MOTOR STARTER	EXISTING	SLUDGE HOLDING TANKS BLOWER NO. • STATUS	--
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	SLUDGE HOLDING TANKS BLOWER NO. • STATUS	4
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		SLUDGE HOLDING TANKS BLOWER NO. • RUN TIME	2

• DENOTES:
BLOWER NO. 1 LOOP NO. 3300-1
BLOWER NO. 2 LOOP NO. 3300-2



SLUDGE HOLDING TANK BLOWERS | LOOP NO. 3300-•

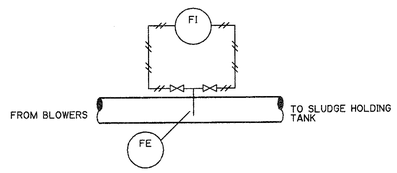
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LE/ LIT	LEVEL ELEMENT INDICATING TRANSMITTER	ULTRASONIC LEVEL/SENSOR TRANSMITTER	SCALE: FT. PROVIDED UNDER DIVISION 11	STORAGE TANK LEVEL	1
LI B	LEVEL INDICATOR	ELECTRONIC PROVIDED UNDER DIVISION 11	RANGE: FT. PROVIDED UNDER DIVISION 11	NaOCL STORAGE TANK LEVEL	1
LI A	LEVEL INDICATOR	INITIATED THRU SOFTWARE	RANGE: FT.	DILUTION TANK LEVEL	1
LAH A	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		DILUTION TANK LEVEL ALARM HIGH	1
LSH	LEVEL SWITCH HIGH	CURRENT TRIP	PROVIDED UNDER DIVISION 11	DILUTION TANK LEVEL HIGH	1
LAH B	LEVEL ALARM HIGH	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	DILUTION TANK LEVEL HIGH	1
LSL	LEVEL SWITCH LOW	CURRENT TRIP	PROVIDED UNDER DIVISION 11	DILUTION TANK LEVEL LOW	1

SHEET 2 OF 2

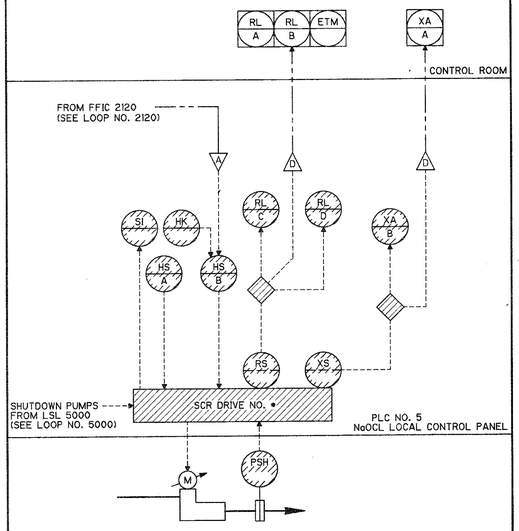
SODIUM HYPOCHLORITE STORAGE TANK LEVEL MONITORING | LOOP NO. 5000

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FE	FLOW ELEMENT	ANNUBAR FLOWMETER	LINE SIZE RANGE: SCFM	SLUDGE HOLDING TANKS AIR FLOW	2
FI	FLOW INDICATOR	D/P GAUGE	RANGE: SCFM	SLUDGE HOLDING TANKS AIR FLOW	2

• DENOTES:
SLUDGE HOLDING TANK NO. 1 LOOP NO. 3320-1
SLUDGE HOLDING TANK NO. 2 LOOP NO. 3320-2



SLUDGE HOLDING TANKS AIR FLOW MONITORING | LOOP NO. 3320-•

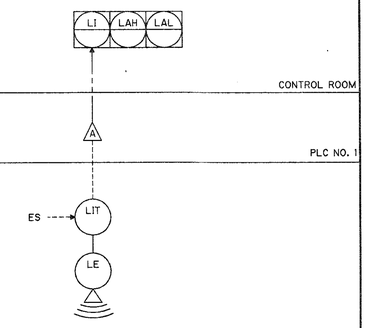


SHEET 1 OF 2

SODIUM HYPOCHLORITE FEED PUMP CONTROL | LOOP NO. 5050-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LE/ LIT	LEVEL ELEMENT/ INDICATING TRANSMITTER	ULTRASONIC LEVEL SENSOR/ TRANSMITTER	RANGE: FT.	SLUDGE HOLDING TANK NO. • LEVEL	2
LI	LEVEL INDICATOR	INITIATED THRU SOFTWARE	RANGE: FT.	SLUDGE HOLDING TANK NO. • LEVEL	2
LAH	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		SLUDGE HOLDING TANK NO. • HIGH LEVEL ALARM	2
LAL	LEVEL ALARM LOW	INITIATED THRU SOFTWARE		SLUDGE HOLDING TANK NO. • LOW LEVEL ALARM	2

• DENOTES:
SLUDGE HOLDING TANK NO. 1 LOOP NO. 3350-1
SLUDGE HOLDING TANK NO. 2 LOOP NO. 3350-2



SLUDGE HOLDING TANKS LEVEL | LOOP NO. 3350-•

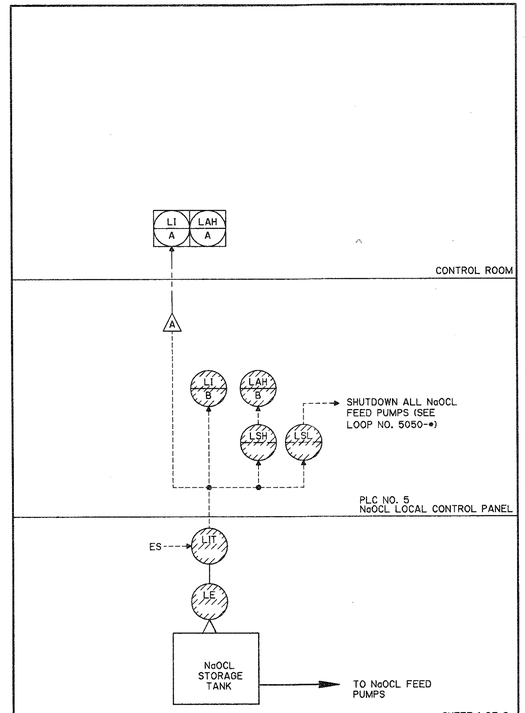
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
HS A	HAND SWITCH	2 POSITION NEMA 4X	START/STOP PROVIDED UNDER DIVISION 11	SODIUM HYPOCHLORITE FEED PUMP CONTROL	2
HS B	HAND SWITCH	2 POSITION NEMA 4X	LOCAL/REMOTE PROVIDED UNDER DIVISION 11	SODIUM HYPOCHLORITE FEED PUMP CONTROL SELECT	2
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 11		SODIUM HYPOCHLORITE FEED PUMP STATUS	2
RL A,B	RUNNING LIGHT	INITIATED THRU SOFTWARE		SODIUM HYPOCHLORITE FEED PUMP STATUS	2
RL C,D	RUNNING LIGHT	PROVIDED UNDER DIVISION 11 NEMA 4X	RED - RUN GREEN - OFF	SODIUM HYPOCHLORITE FEED PUMP STATUS	2
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 11		SODIUM HYPOCHLORITE FEED PUMP TROUBLE	2
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		SODIUM HYPOCHLORITE FEED PUMP TROUBLE	2
XA B	TROUBLE ALARM	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	SODIUM HYPOCHLORITE FEED PUMP TROUBLE	2
SI	SPEED INDICATOR	ELECTRONIC	PROVIDED UNDER DIVISION 11	SODIUM HYPOCHLORITE FEED PUMP SPEED	2
PSH	PRESSURE SWITCH HIGH	DIAPHRAGM ACTUATED	RANGE: PROVIDED UNDER DIVISION 11	SODIUM HYPOCHLORITE FEED PUMP HIGH PRESSURE	2
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		SODIUM HYPOCHLORITE FEED PUMP ELAPSED TIME	2
HK	MANUAL LOADING STATION	PROVIDED UNDER DIVISION 11		SODIUM HYPOCHLORITE FEED PUMP SPEED	2

• DENOTES:
FEED PUMP NO. 1 LOOP NO. 5050-1
FEED PUMP NO. 2 LOOP NO. 5050-2

NOTE:
1. FEED PUMP NO. 1 SHALL BE DEDICATED TO DISINFECTION BASIN INFLUENT FEED. SWITCH HS 5050-1B SHALL BE SET TO REMOTE AT ALL TIMES TO ALLOW THE FLOW PACING FEATURE.
2. FEED PUMP NO. 2 SHALL BE DEDICATED FOR THE CLARIFIERS AND RAS EFFLUENT FEED. THE SWITCH HS 5050-2B SHALL BE SET TO LOCAL TO ALLOW LOCAL MANUAL FEED CONTROL. THIS PUMP WILL ALSO BE USED AS A BACK-UP FOR FEED PUMP NO. 1 IN WHICH EVENT THE SWITCH SHALL BE SET TO REMOTE TO ALLOW THE FLOW PACING FEATURE.

SHEET 2 OF 2

SODIUM HYPOCHLORITE FEED PUMP CONTROL | LOOP NO. 5050-•



SHEET 1 OF 2

SODIUM HYPOCHLORITE STORAGE TANK LEVEL MONITORING | LOOP NO. 5000

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-720

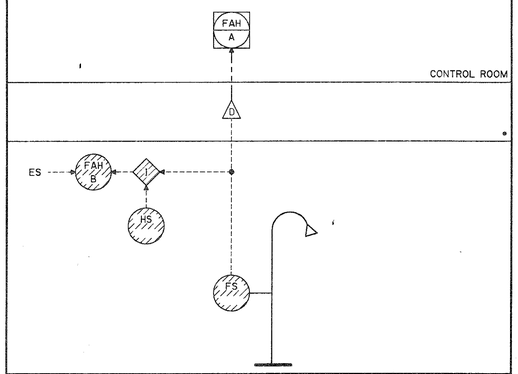
SHEET NO.
I-20

D:\6706_070\INST\ Jorge Elias 2:37:08 05/22/97 6706-720

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
FS	FLOW SWITCH	PROVIDED UNDER DIVISION 15		* EMERGENCY EYEWASH SHOWER	3
FAH B	FLOW ALARM HIGH	BEACON LIGHT AND HORN	PROVIDED UNDER DIVISION 16	* EMERGENCY EYEWASH SHOWER ALARM	3
HS	HAND SWITCH	PUSHBUTTON PROVIDED UNDER DIVISION 16	RESET	* EMERGENCY EYEWASH/SHOWER	3
FAH A	FLOW ALARM HIGH	INITIATED THRU SOFTWARE		* EMERGENCY EYEWASH/SHOWER	3

* DENOTES (3) IDENTICAL LOOPS:

HYPOCHLORITE AREA	(PLC NO. 5)	LOOP NO. 5090-1
ALUM AREA	(PLC NO. 1)	LOOP NO. 5090-2
AIR CONTROL AREA	(PLC REMOTE I/O NO. 1)	LOOP NO. 5090-3

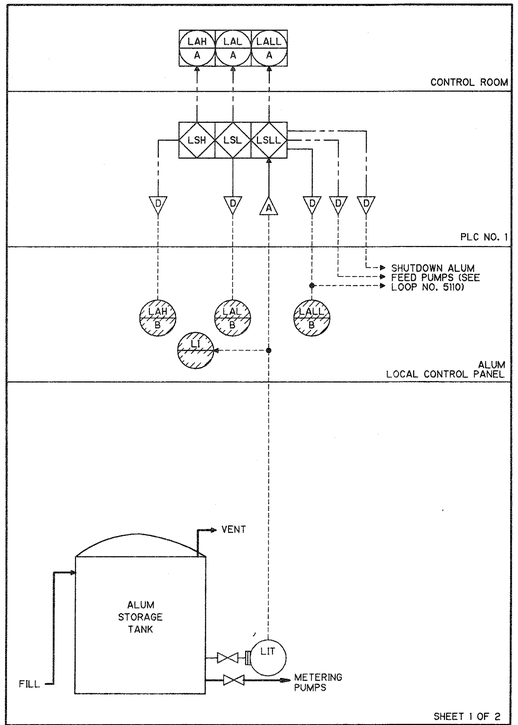


EMERGENCY EYEWASH SHOWER | LOOP NO. 5090-*

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
RL A,B	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF	ALUM FEED PUMP NO. * STATUS	6
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		ALUM FEED PUMPS COMMON TROUBLE	3
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE		ALUM FEED PUMP NO. * RUN TIME	3
HK	MANUAL CONTROL STATION	SCR CONTROLLER	PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * FEED CONTROL	3
HS A	HAND SWITCH	POTENTIOMETER	PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * SPEED CONTROL	3
HS B	HAND SWITCH	SELECTOR SWITCH ON/OFF	PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * CONTROL	3
HS C	HAND SWITCH	PUSHBUTTON	PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * ALARM RESET	1
XS	FAILURE SWITCH	RELAY	PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * FAILURE	3
RS	RUNNING SWITCH	CONTACT ON MOTOR STARTER	PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * STATUS	3
RL C,D	INDICATING LIGHTS	PROVIDED UNDER DIVISION 11	RED - RUN GREEN - OFF	ALUM FEED PUMP NO. * STATUS	6
XL A	INDICATING LIGHTS TROUBLE	LENS COLOR: AMBER PROVIDED UNDER DIVISION 11		ALUM FEED PUMP NO. * TROUBLE	3
XL B	INDICATING LIGHTS HIGH PRESSURE	LENS COLOR: AMBER PROVIDED UNDER DIVISION 11		ALUM FEED PUMP NO. * HIGH PRESSURE	3
XL C	INDICATING LIGHTS STORAGE TANK LOW LEVEL	LENS COLOR: AMBER PROVIDED UNDER DIVISION 11		STORAGE TANK LOW LEVEL ALARM	1
SI	SPEED INDICATOR		PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * SPEED	3
ST	SPEED TRANSMITTER		PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * SPEED STATUS	3
PSH	PRESSURE SWITCH HIGH	PRESSURE SWITCH W/DIAPHRAGM SEAL	PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * PRESSURE HIGH	3
PI	PRESSURE INDICATOR	DIAPHRAGM ACTUATED	PROVIDED UNDER DIVISION 11	ALUM FEED PUMP NO. * PRESSURE	3

SHEET 2 OF 2

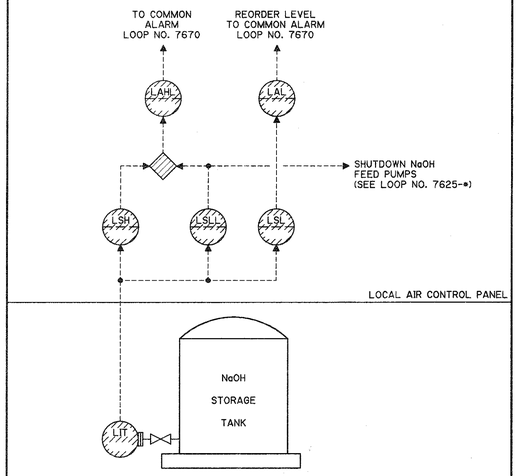
ALUM FEED PUMPS CONTROL | LOOP NO. 5110-*



SHEET 1 OF 2

ALUM STORAGE TANK LEVEL MONITORING | LOOP NO. 5100

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LIT	LEVEL INDICATING TRANSMITTER	FLANGE MOUNTED DIAPHRAGM ACTUATED PRESSURE/LEVEL TRANSMITTER	PROVIDED UNDER DIVISION 15	NaOH STORAGE TANK LEVEL	1
LAHL	LEVEL ALARM HIGH/LOW	ANNUNCIATOR	PROVIDED UNDER DIVISION 15	NaOH STORAGE TANK LEVEL HIGH LOW	1
LSH LSLL	LEVEL SWITCH HIGH-LOW/LOW	CURRENT TRIP	PROVIDED UNDER DIVISION 15	NaOH STORAGE TANK LEVEL HIGH LOW	2
LSL	LEVEL SWITCH LOW	CURRENT TRIP	PROVIDED UNDER DIVISION 15	NaOH STORAGE REORDER LEVEL	1
LAL	LEVEL ALARM LOW	ANNUNCIATOR	PROVIDED UNDER DIVISION 15	NaOH STORAGE REORDER LEVEL	1



NaOH STORAGE TANK | LOOP NO. 7620

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LSH	LEVEL SWITCH HIGH	PLC FUNCTION		ALUM STORAGE TANK LEVEL HIGH	1
LSL	LEVEL SWITCH LOW	PLC FUNCTION		ALUM STORAGE TANK LEVEL LOW REORDER	1
LSLL	LEVEL SWITCH LOW-LOW	PLC FUNCTION		ALUM STORAGE TANK LEVEL LOW-LOW	1
LAH A	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		ALUM STORAGE TANK LEVEL HIGH	1
LAL A	LEVEL ALARM LOW	INITIATED THRU SOFTWARE		ALUM STORAGE TANK LEVEL LOW REORDER	1
LALL A	LEVEL ALARM LOW/LOW	INITIATED THRU SOFTWARE		ALUM STORAGE TANK LEVEL LOW/LOW	1
LIT	LEVEL INDICATING TRANSMITTER	FLANGE MOUNTED DIAPHRAGM ACTUATED PRESSURE/LEVEL TRANSMITTER	RANGE:	ALUM STORAGE TANK LEVEL	1
LI	LEVEL INDICATOR	PROVIDED UNDER DIVISION 11	SCALE:	ALUM STORAGE TANK LEVEL	1
LAH B	LEVEL ALARM HIGH	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	ALUM STORAGE TANK LEVEL HIGH	1
LAL B	LEVEL ALARM LOW	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	ALUM STORAGE TANK LEVEL LOW REORDER	1
LALL B	LEVEL ALARM LOW/LOW	ANNUNCIATOR		ALUM STORAGE TANK LEVEL LOW/LOW	1

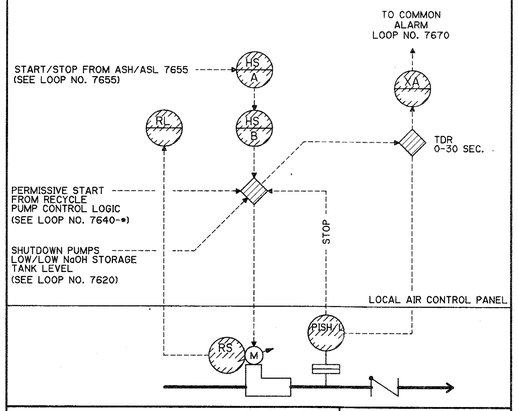
SHEET 2 OF 2

ALUM STORAGE TANK LEVEL MONITORING | LOOP NO. 5100

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
RS	RUNNING SWITCH		PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL NaOH PUMP NO. * STATUS	2
PIS H/L	PRESSURE INDICATING SWITCH HIGH/LOW	BOURDON TUBE W/ DIAPHRAGM SEAL NEMA 4X	RANGE: 0-125 PSIG PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL NaOH PUMP NO. * PRESSURE	2
RL	RUNNING LIGHT	RED - RUN NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL NaOH PUMP NO. * STATUS	2
HS A	HAND SWITCH	3-POSITION HAND/OFF/AUTO NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL NaOH PUMP NO. * CONTROL	2
HS B	HAND SWITCH	2-POSITION PUMP 1/PUMP2 NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL NaOH PUMP NO. * SELECTOR	2
XA	TROUBLE ALARM	ANNUNCIATOR NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL NaOH PUMP NO. * FAILURE	2

* DENOTES:

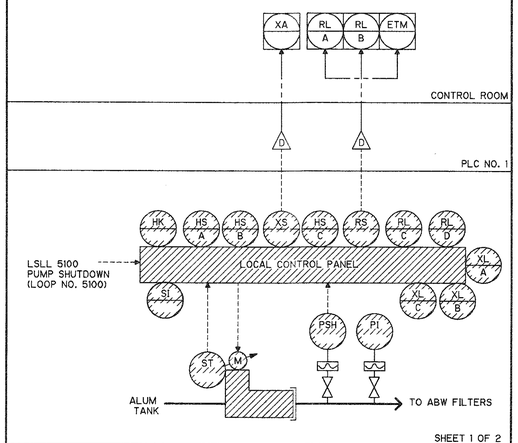
PUMP NO. 1	LOOP NO. 7625-1
PUMP NO. 2	LOOP NO. 7625-2



NaOH METERING PUMP | LOOP NO. 7625-*

* DENOTES:

ALUM FEED PUMP NO. 1	LOOP NO. 5110-1	(TO FIRST ANOXIC)
ALUM FEED PUMP NO. 2	LOOP NO. 5110-2	(TO REAERATION BASIN)
ALUM FEED PUMP NO. 3	LOOP NO. 5110-3	(TO CLARIFIERS EFFLUENT)



SHEET 1 OF 2

ALUM FEED PUMPS CONTROL | LOOP NO. 5110-*

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

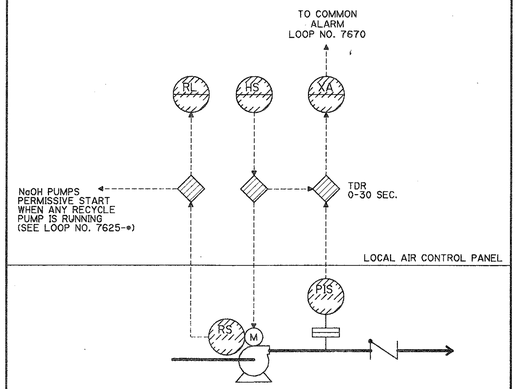
PROJECT NO. 6706-070
FILE NAME: 6706-721

SHEET NO.
I-21

Jorge Elias 3:39p13 05/22/97 23:21:01 6706-721 V:\6706_070\ASN\0.

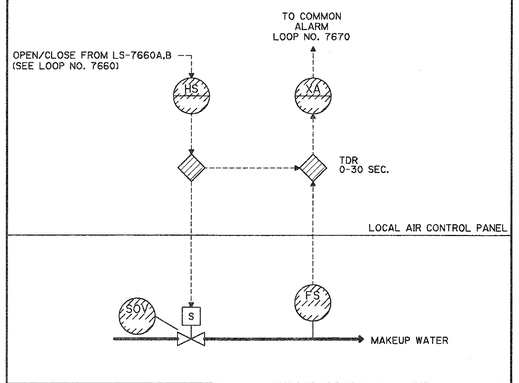
ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 15		HEADWORKS AIR CONTROL RECYCLE PUMP NO. • STATUS	2
RL	RUNNING LIGHT	RED - RUN NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL RECYCLE PUMP NO. • STATUS	2
PIS	PRESSURE INDICATING SWITCH	BOURDON TUBE W/ DIAPHRAGM SEAL NEMA 4X	RANGE: PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL RECYCLE PUMP NO. • PRESSURE	2
HS	HAND SWITCH	2-POSITION START/STOP NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL RECYCLE PUMP NO. • CONTROL	2
XA	TROUBLE ALARM	ANNUNCIATOR NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL RECYCLE PUMP No. • FAILURE	2

• DENOTES:
RECYCLE PUMP NO. 1 LOOP NO. 7640-1
RECYCLE PUMP NO. 2 LOOP NO. 7640-2



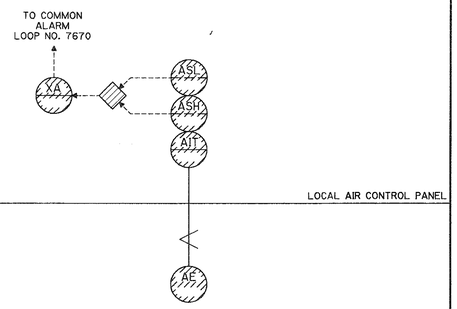
AIR CONTROL RECYCLE PUMPS | LOOP NO. 7640-•

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
SOV	SOLENOID OPERATING VALVE	2-WAY	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL MAKEUP WATER VALVE	1
FS	FLOW SWITCH	VANE	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL MAKEUP WATER FLOW SWITCH	1
HS	HAND SWITCH	3-POSITION HAND/OFF/AUTO NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL MAKEUP WATER CONTROL	1
XA	TROUBLE ALARM	ANNUNCIATOR NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL MAKEUP WATER FAILED TO DELIVER	1



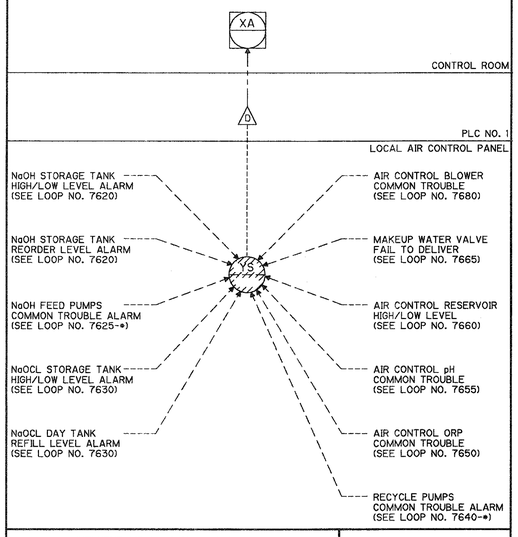
AIR CONTROL MAKEUP WATER VALVE | LOOP NO. 7665

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
AE/ AIT	ANALYSIS INDICATING TRANSMITTER	ORP NEMA 4X	RANGE: 2-12 PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL ORP	1
ASH	ANALYSIS SWITCH HIGH		INTEGRAL WITH ANALYSIS TRANSMITTER	HEADWORKS AIR CONTROL ORP HIGH	1
ASL	ANALYSIS SWITCH LOW		INTEGRAL WITH ANALYSIS TRANSMITTER	HEADWORKS AIR CONTROL ORP LOW	1
XA	TROUBLE ALARM	ANNUNCIATOR NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL HIGH/LOW	1



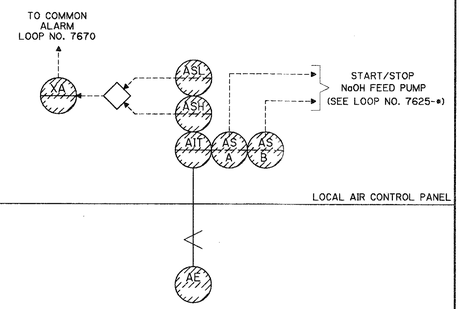
AIR CONTROL ORP CONTROL/MONITORING | LOOP NO. 7650

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
YS	COMMON ANNUNCIATOR OUTPUT CONTACT	PROVIDED UNDER DIVISION 15		HEADWORKS AIR CONTROL TROUBLE	1
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		HEADWORKS AIR CONTROL COMMON ALARM	1



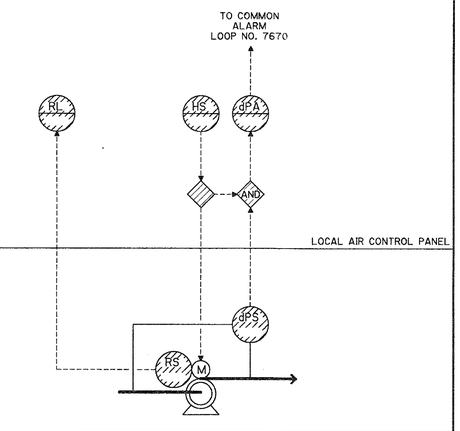
INFLUENT AIR CONTROL COMMON ALARM | LOOP NO. 7670

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
AE/ AIT	ANALYSIS INDICATING TRANSMITTER	pH NEMA 4X	RANGE: 2-12 PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL pH	1
AS A,B	ANALYSIS SWITCH	NaOH PUMP START/STOP COMMAND	INTEGRAL WITH ANALYSIS TRANSMITTER	HEADWORKS AIR CONTROL pH	2
ASH	ANALYSIS SWITCH HIGH		INTEGRAL WITH ANALYSIS TRANSMITTER	HEADWORKS AIR CONTROL pH HIGH	1
ASL	ANALYSIS SWITCH LOW		INTEGRAL WITH ANALYSIS TRANSMITTER	HEADWORKS AIR CONTROL pH LOW	1
XA	TROUBLE ALARM	ANNUNCIATOR NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL pH HIGH/LOW	1



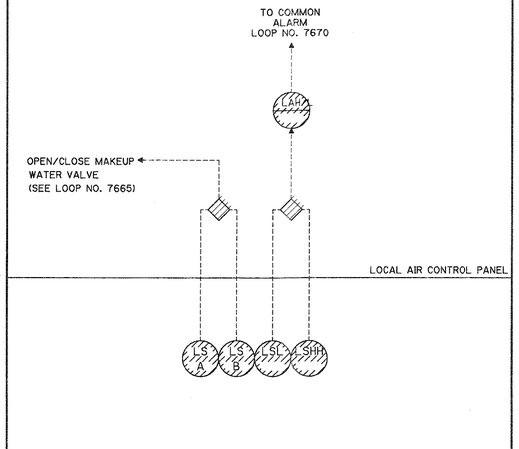
AIR CONTROL pH CONTROL/MONITORING | LOOP NO. 7655

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
RS	RUNNING SWITCH		PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL BLOWER STATUS	1
RL	RUNNING LIGHT	RED - RUN NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL BLOWER STATUS	1
dPS	DIFFERENTIAL PRESSURE SWITCH	PROVIDED UNDER DIVISION 15	RANGE: 0-10 PSIG DIFF.: 0-15" W.C.	HEADWORKS AIR CONTROL BLOWER DIFFERENTIAL	1
dPA	DIFFERENTIAL PRESSURE ALARM	ANNUNCIATOR	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL BLOWER TROUBLE	1
HS	HAND SWITCH	2-POSITION START/STOP	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL BLOWER CONTROL	1



AIR CONTROL BLOWER | LOOP NO. 7680

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LS A,B	LEVEL SWITCH	PROVIDED UNDER DIVISION 15	RANGE: DISCRETE OUTPUTS	HEADWORKS AIR CONTROL RESERVOIR LEVEL CONTROL	2
LSL	LEVEL SWITCH LOW	PROVIDED UNDER DIVISION 15	RANGE: DISCRETE OUTPUT	HEADWORKS AIR CONTROL RESERVOIR LEVEL LOW	1
LSHH	LEVEL SWITCH HIGH/HIGH	PROVIDED UNDER DIVISION 15	RANGE: DISCRETE OUTPUT	HEADWORKS AIR CONTROL RESERVOIR LEVEL HIGH/HIGH	1
LAH/ L	LEVEL ALARM HIGH/LOW	ANNUNCIATOR NEMA 4X	PROVIDED UNDER DIVISION 15	HEADWORKS AIR CONTROL LEVEL HIGH/LOW	1



AIR CONTROL RESERVOIR LEVEL | LOOP NO. 7660

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

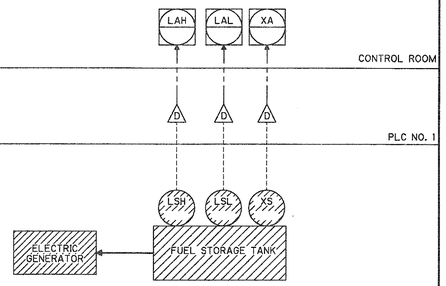
INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-722

SHEET NO.
I-22

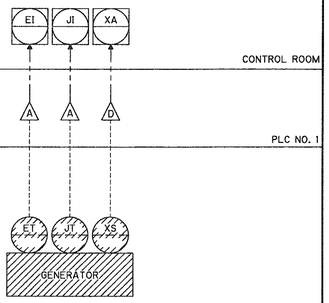
Jorge Elias 06/20/97 09:36:03 D:\6706_070\INST\6706-722

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LSL	LEVEL SWITCH LOW	PROVIDED UNDER DIVISION 11		FUEL TANK LEVEL LOW REORDER	1
LAL	LEVEL ALARM LOW	INITIATED THRU SOFTWARE		FUEL TANK LOW LEVEL REORDER ALARM	1
LSH	LEVEL SWITCH HIGH	PROVIDED UNDER DIVISION 11		FUEL TANK LEVEL HIGH	1
LAH	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE		FUEL TANK LOW HIGH ALARM	1
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 11		FUEL TANK LEAK	1
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		FUEL TANK LEAK ALARM	1

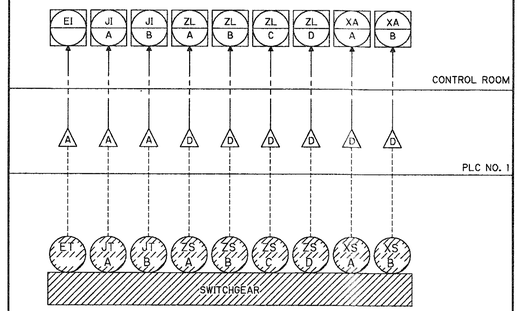


FUEL TANK MONITORING | LOOP NO. 8000

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
ET	VOLTAGE TRANSMITTER	FURNISHED UNDER DIVISION 16	4-20 mA OUTPUT RANGE: 0- VOLTS	GENERATOR VOLTAGE	1
JT	POWER TRANSMITTER	FURNISHED UNDER DIVISION 16	4-20 mA INPUT RANGE: 0- KW	GENERATOR OUTPUT WATTAGE	1
XS	FAILURE SWITCH	FURNISHED UNDER DIVISION 16	CONTACT OUTPUT	GENERATOR FAILURE	1
EI	VOLTAGE INDICATOR	INITIATED THRU SOFTWARE		GENERATOR VOLTAGE	1
JI	POWER INDICATOR	INITIATED THRU SOFTWARE		GENERATOR POWER	1
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE		GENERATOR FAIL	1



GENERATOR MONITORING | LOOP NO. 8010



SHEET 1 OF 2

SWITCHGEAR MONITORING | LOOP NO. 8020

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
ET	VOLTAGE TRANSMITTER	FURNISHED UNDER DIVISION 16	4-20 mA INPUT RANGE: 0- VOLTS	SWITCHGEAR BUS VOLTAGE	1
EI	VOLTAGE INDICATOR	INITIATED THRU SOFTWARE		SWITCHGEAR VOLTAGE	1
JT A,B	POWER TRANSMITTER	FURNISHED UNDER DIVISION 16	4-20 mA OUTPUT RANGE: 0- KW	SWITCHGEAR BUS 1 WATTS BUS 2 WATTS	2
JI A,B	POWER INDICATOR	INITIATED THRU SOFTWARE		SWITCHGEAR POWER	2
ZS A,B C,D	POSITION SWITCH	FURNISHED UNDER DIVISION 16	CONTACT OUTPUT DENOTING BREAKER POSITION	SWITCHGEAR BUS 1 MAIN BUS 2 MAIN, TIE,& GENERATOR BREAKER	4
ZL A,B C,D	POSITION LIGHT	INITIATED THRU SOFTWARE		SWITCHGEAR GENERATOR BREAKER	4
XS A	FAILURE SWITCH	FURNISHED UNDER DIVISION 16	COMMON CONTACT OUTPUT	SWITCHGEAR FAIL	1
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE		SWITCHGEAR FAIL	1
XS B	FAILURE SWITCH	FURNISHED UNDER DIVISION 16	CONTACT OUTPUT	TIE BREAKER FAIL	1
XA B	TROUBLE ALARM	INITIATED THRU SOFTWARE		TIE BREAKER FAIL	1

SHEET 2 OF 2

SWITCHGEAR MONITORING | LOOP NO. 8020

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

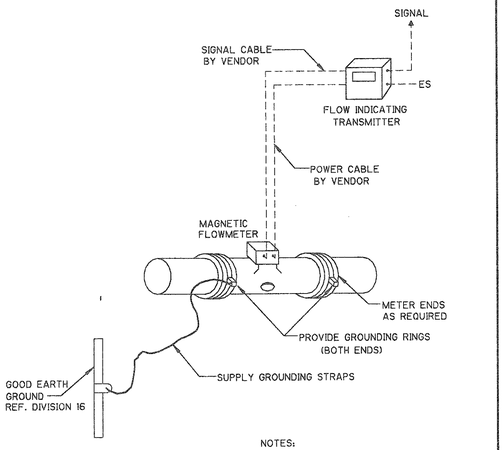
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6706-070
FILE NAME: 6706-723

SHEET NO.
I-23

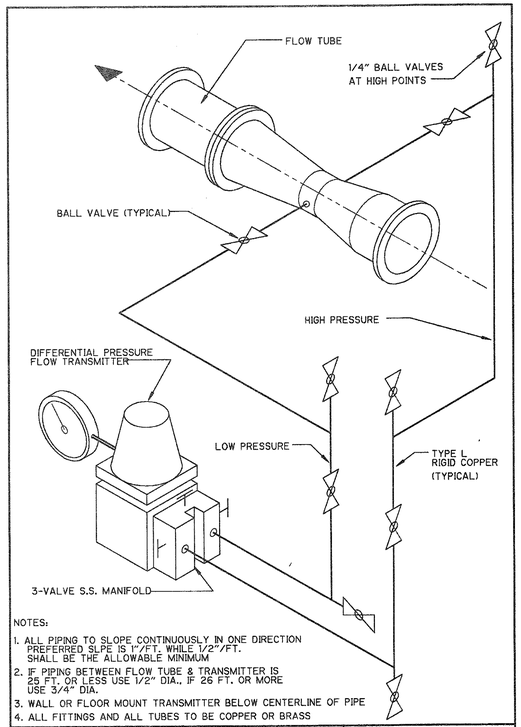
Jorge Elias 05/20/97 02:26:42 6706-723 D:\6706_070\INST\



NOTES:

1. POWER SUPPLY TO MAGNETIC METER PRIMARY DEVICE & TRANSMITTER TO BE FROM SAME SOURCE WITH RESPECT TO VOLTAGE, FREQUENCY AND PHASE
2. INSTALLATION OF METERS SHALL PROVIDE FOR 4 PIPE DIAMETERS UPSTREAM AND 1 PIPE DIAMETER DOWNSTREAM, WHERE POSSIBLE
3. FLOW SIGNAL CONVERTER/TRANSMITTERS FOR METERS INSTALLED IN VAULTS SHALL BE MOUNTED ABOVE GROUND OUTSIDE OF VAULT, WITH SUNSHIELDS. (SEE DETAIL I).

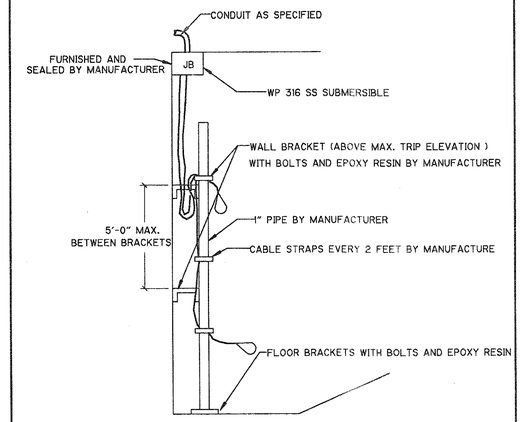
MAGNETIC FLOWMETER INSTALLATION | DETAIL A



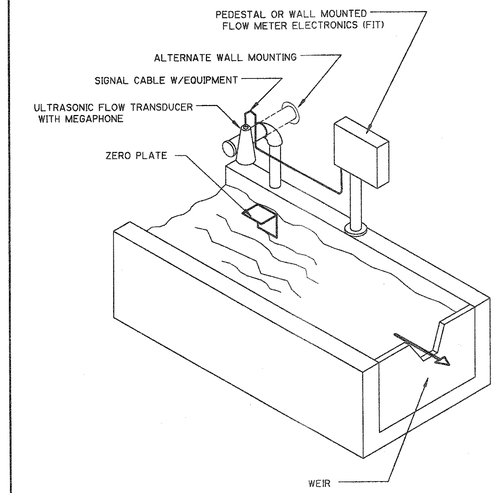
NOTES:

1. ALL PIPING TO SLOPE CONTINUOUSLY IN ONE DIRECTION PREFERRED SLPE IS 1"/FT. WHILE 1/2"/FT. SHALL BE THE ALLOWABLE MINIMUM
2. IF PIPING BETWEEN FLOW TUBE & TRANSMITTER IS 25 FT. OR LESS USE 1/2" DIA., IF 26 FT. OR MORE USE 3/4" DIA.
3. WALL OR FLOOR MOUNT TRANSMITTER BELOW CENTERLINE OF PIPE
4. ALL FITTINGS AND ALL TUBES TO BE COPPER OR BRASS

FLOW TRANSMITTER | DETAIL B

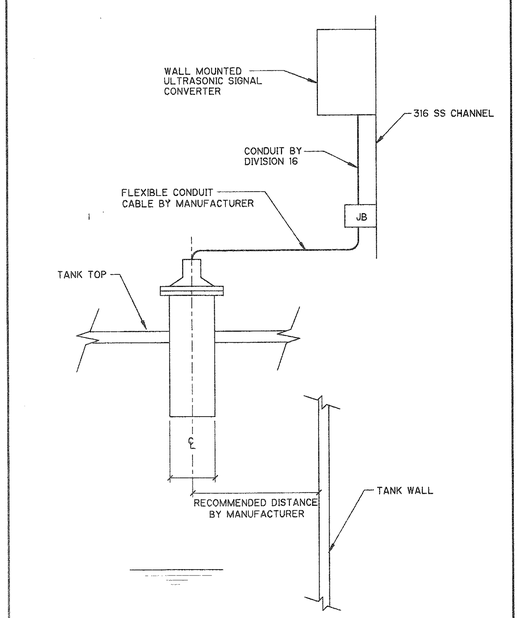


WEIGHTED FLOAT TYPE LEVEL SWITCH | DETAIL C



TRANSDUCER MOUNTING LOCATION DIMENSIONS PER MANUFACTURERS INSTALLATION INSTRUCTIONS

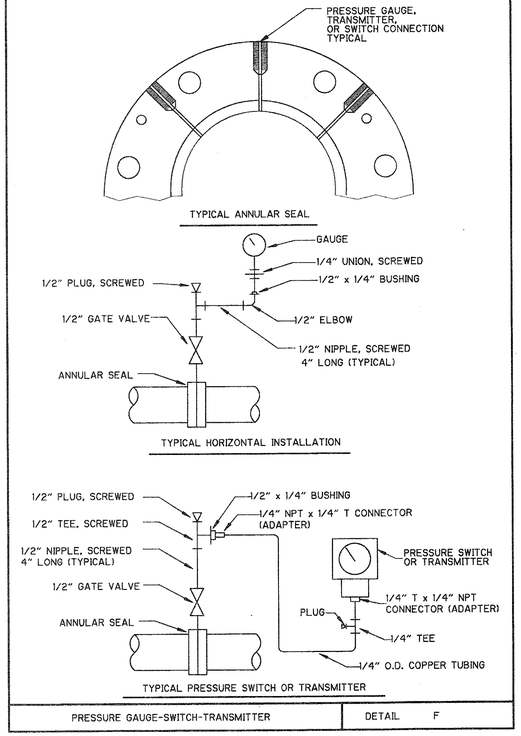
ULTRASONIC FLOW METER FOR WEIR INSTALLATION | DETAIL D



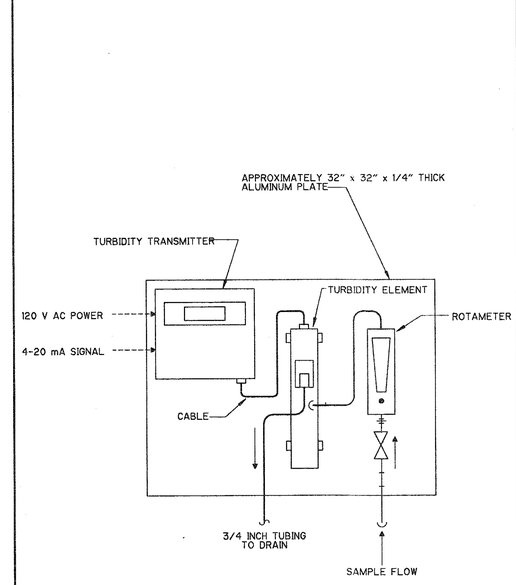
NOTES:

1. MOUNTING ASSEMBLY TO BE FABRICATED WITH STAINLESS STEEL MATERIALS
2. PROVIDE SUNSHIELD

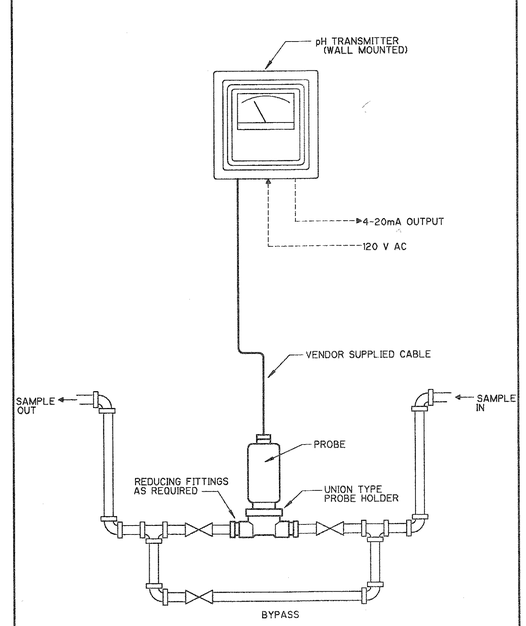
ULTRASONIC LEVEL SENSOR AND TRANSMITTER | DETAIL E



PRESSURE GAUGE-SWITCH-TRANSMITTER | DETAIL F



FILTER EFFLUENT TURBIDITY MONITOR | DETAIL G



TYPICAL FOR CHLORINE RESIDUAL, pH & ORP ANALYZERS | DETAIL H

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

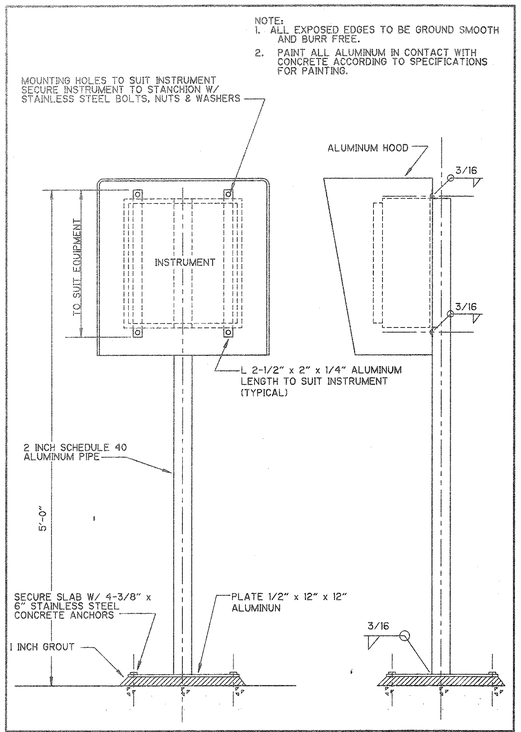
CENTRAL REGION WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION DETAILS

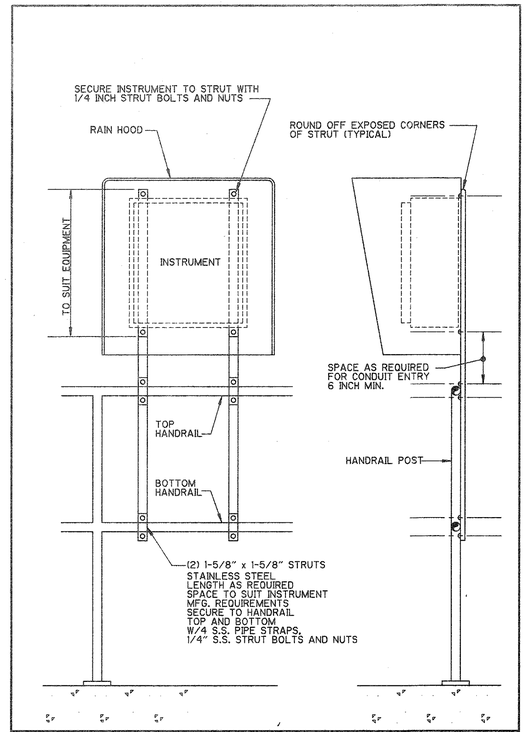
PROJECT NO. 6706-070
FILE NAME: 6706-724

SHEET NO.
I-24

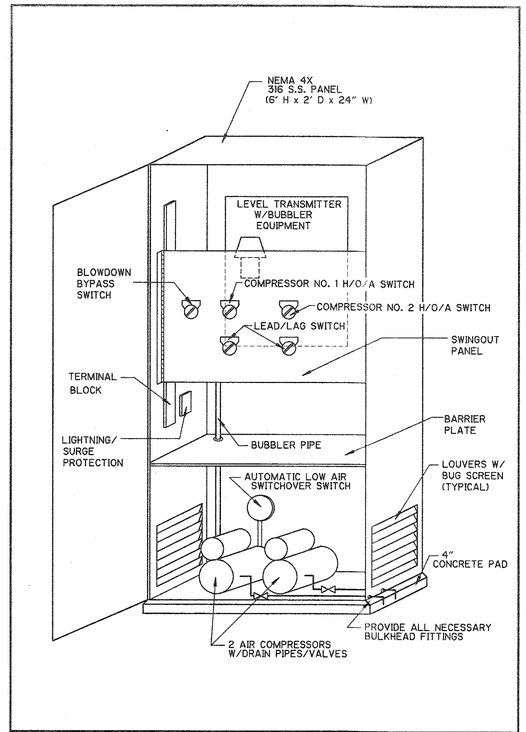
Jorge Elias 05/23/97 02:48:60 0:\6706_070\INST\ 6706-724



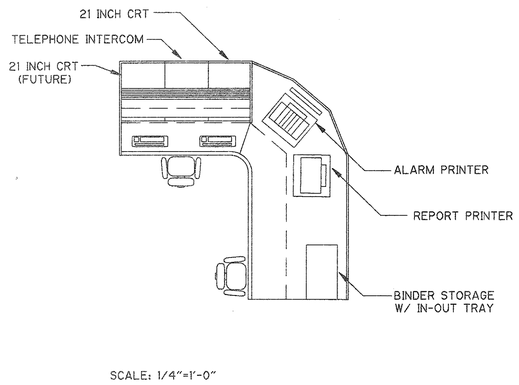
STANCHION MOUNTING FOR CASE MOUNTED INSTRUMENTS | DETAIL I



HANDRAIL MOUNTING FOR CASE MOUNTED INSTRUMENTS | DETAIL J



BUBBLER PANEL | DETAIL K



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

CONTROL ROOM WORKSTATION LAYOUT | DETAIL L

REV. NO.	DATE	DRWN	CHK'D	REMARKS

DESIGNED BY: J. ELIAS
DRAWN BY: R. CARTER
SHEET CHK'D BY: J. ELIAS
CROSS CHK'D BY: R. HANKS
APPROVED BY: W. NELSON
DATE: JUNE 1997

CDM Camp Dresser & McKee Inc.
environmental services offices worldwide

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

INSTRUMENTATION DETAILS

PROJECT NO. 6706-070
FILE NAME: 6706-725

SHEET NO.
I-25

Jorge Elias
0.20v41
05/23/97 02:45:01
6706-725
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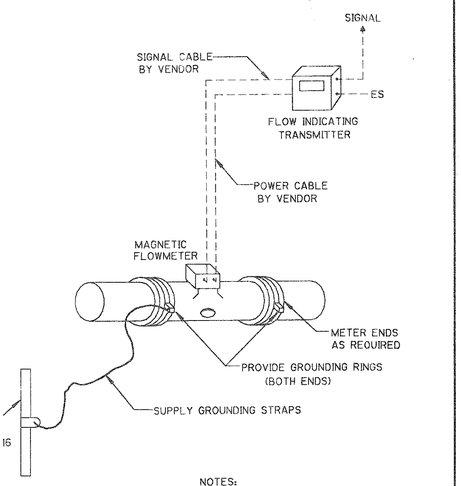
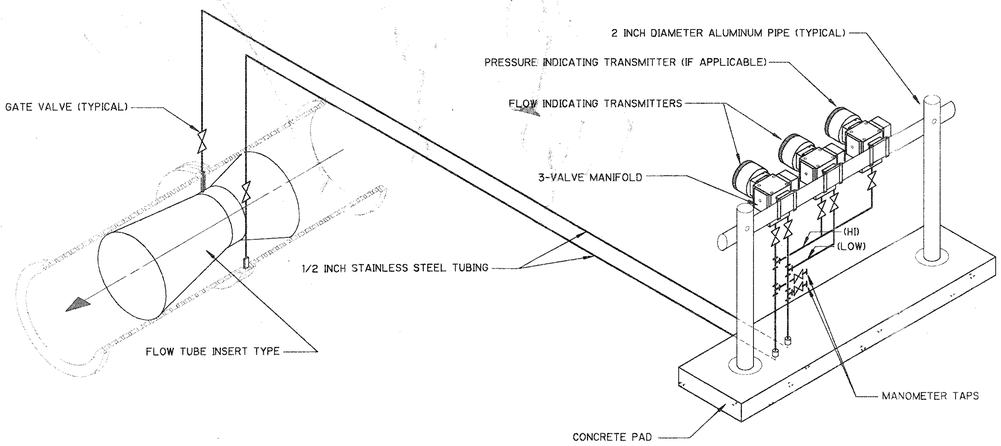


NOTES:

1. POWER SUPPLY TO MAGNETIC METER PRIMARY DEVICE & TRANSMITTER TO BE FROM SAME SOURCE WITH RESPECT TO VOLTAGE, FREQUENCY AND PHASE
2. INSTALLATION OF METERS SHALL PROVIDE FOR 4 PIPE DIAMETERS UPSTREAM AND 1 PIPE DIAMETER DOWNSTREAM, WHERE POSSIBLE
3. FLOW SIGNAL CONVERTER/TRANSMITTERS FOR METERS INSTALLED IN VAULTS SHALL BE MOUNTED ABOVE GROUND OUTSIDE OF VAULT, WITH SUNSHIELDS. (SEE DETAIL I).

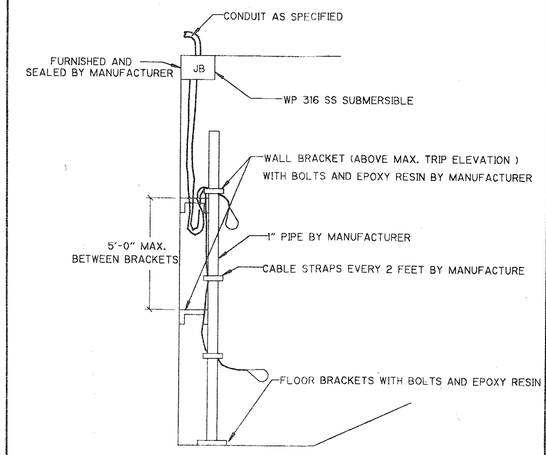
MAGNETIC FLOWMETER INSTALLATION | DETAIL A



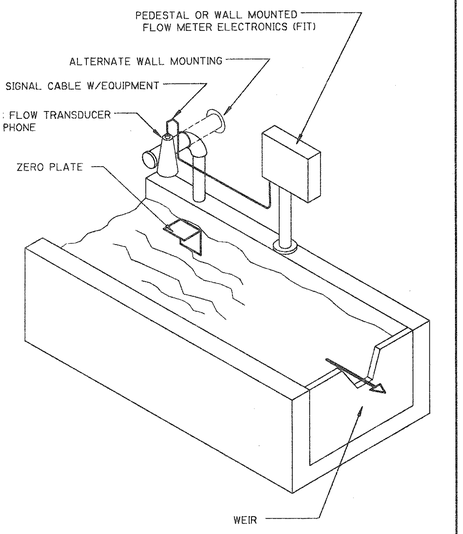
NOTES:

1. ALL PIPING TO SLOPE CONTINUOUSLY IN ONE DIRECTION, PREFERRED SLOPE IS 1 INCH/FOOT WHILE 1/2 INCH/FOOT SHALL BE THE ALLOWABLE MINIMUM.
2. ALL STAINLESS STEEL TUBING AND FITTINGS.
3. INCLUDE STAINLESS STEEL 3-VALVE MANIFOLD.
4. TRANSMITTERS FOR METERS INSTALLED IN VAULTS SHALL BE MOUNTED ABOVE GROUND OUTSIDE VAULT. TRANSMITTERS SHALL FACE NORTH. ALSO, SUNSHIELDS SHALL BE PROVIDED.

INSERT VENTURI/LOCAL FLOW TRANSMITTER INSTALLATION | DETAIL B

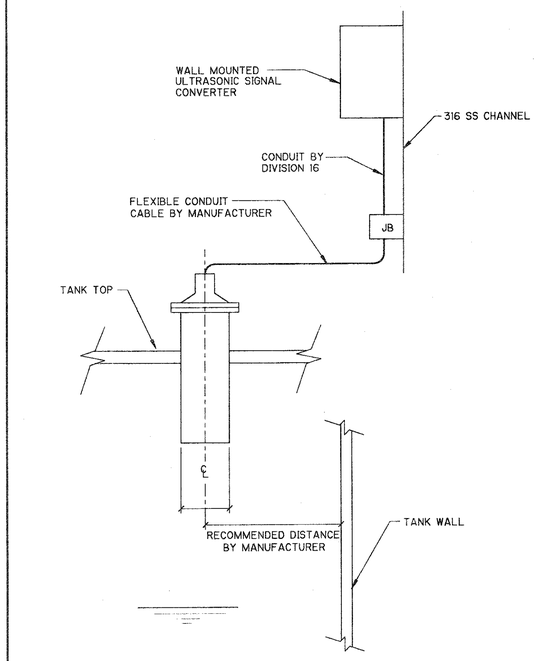


WEIGHTED FLOAT TYPE LEVEL SWITCH | DETAIL C



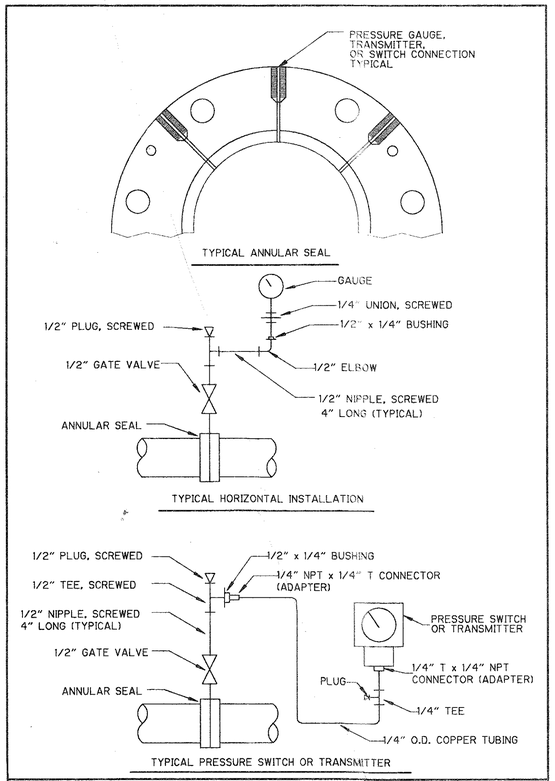
TRANSDUCER MOUNTING LOCATION DIMENSIONS PER MANUFACTURERS INSTALLATION INSTRUCTIONS

ONIC FLOW METER FOR WEIR INSTALLATION | DETAIL D

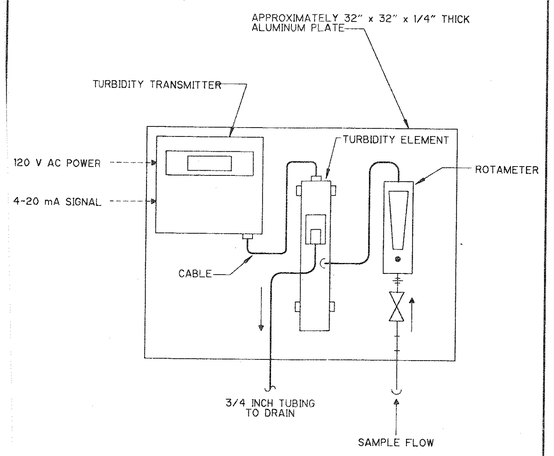


NOTES:
1. MOUNTING ASSEMBLY TO BE FABRICATED WITH STAINLESS STEEL MATERIALS
2. PROVIDE SUNSHIELD

ULTRASONIC LEVEL SENSOR AND TRANSMITTER | DETAIL E



PRESSURE GAUGE-SWITCH-TRANSMITTER | DETAIL F



FILTER EFFLUENT TURBIDITY MONITOR | DETAIL G

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G-3	SYMBOLS
G-4	PLANT FLOW DIAGRAM
G-5	HYDRAULIC PROFILE
G-6	MISCELLANEOUS SCHEMATICS
CIVIL	
C-1	SITE SURVEY, DEMOLITION PLAN AND SOIL BORING LOCATIONS
C-2	PLOT PLAN
C-3	PAVING AND GRADING PLAN
C-4	SMALL YARD PIPING PLAN
C-5	PLANT PROCESS PIPING PLAN
C-6	SANITARY SEWER PROFILE
C-7	LANDSCAPE PLAN
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A-3	PRELIMINARY TREATMENT STRUCTURE ELEVATIONS
A-4	GENERATOR/ELECTRICAL BUILDING FLOOR PLAN
A-5	GENERATOR/ELECTRICAL BUILDING ROOF PLAN AND BUILDING SECTIONS
A-6	GENERATOR/ELECTRICAL BUILDING ELEVATIONS
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A-9	EXISTING BLOWER BUILDING MODIFICATIONS
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S-19	A.B.W. GRAVITY FILTE

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S-30	MISCELLANEOUS STRUCTURES PLANS AND SECTIONS
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M-6	EQUALIZATION SPLITTER BOX PLAN AND SECTIONS
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	EQUALIZATION SPLITTER BOX AND EXISTING TREATMENT FACILITY
	MECHANICAL ROOM HVAC PLANS
	HVAC SCHEDULES AND DETAILS

SHEET NO.	TITLE
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P-2	GENERATOR/ELECTRICAL BUILDING PLUMBING PLAN
P-3	PLUMBING SCHEDULES AND DETAILS
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& McKee Inc.

INDIAN RIVER COUNTY
FLORIDA

CENTRAL REGION
WASTEWATER TREATMENT PLANT EXPANSION

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