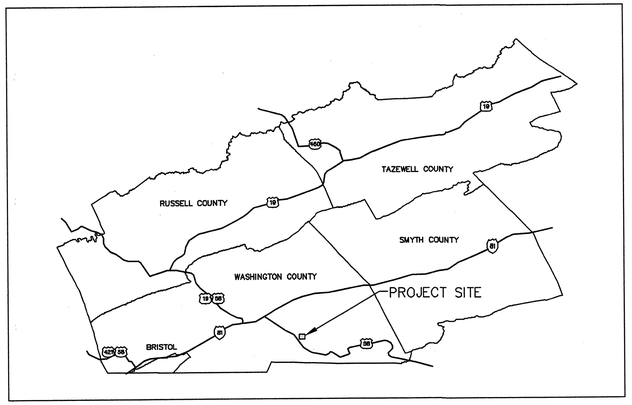
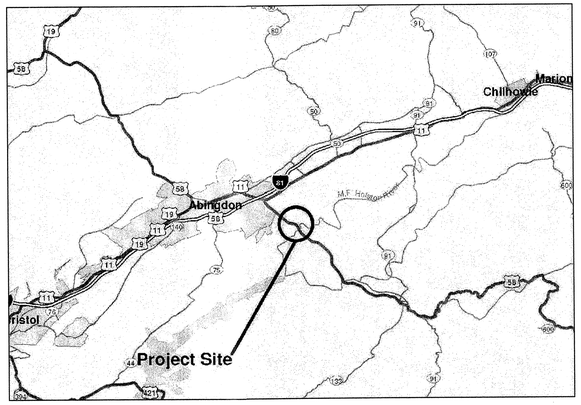


VICINITY MAP
Scale: 1"=10 miles



LOCATION MAP
Scale: 1"=20,000'

WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD
TITLE SHEET

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

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Drawn: CDH
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G001

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E402	CHLORINE AND CHEMICAL FEED BUILDING – POWER PLAN
E403	BULK CHEMICAL STORAGE FACILITY – ELECTRICAL PLAN

COMMONWEALTH OF VIRGINIA
DOUGLAS B. HUDGINS VIII
Lic. No. 034694
8/9/10
PROFESSIONAL ENGINEER

GENERAL NOTES: (NOTES APPLY TO THE ENTIRE DRAWING SET)

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO COMMENCING WORK AND SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL CONFINE ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH WORK SPECIFIED UNDER THIS CONTRACT TO THE AREA WITHIN LIMITS OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ANY ADDITIONAL CONSTRUCTION EASEMENTS AT HIS OWN EXPENSE.
4. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SAFETY AND FOR COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY CODES, LAWS, REGULATIONS AND ORDINANCES INCLUDING, BUT NOT LIMITED TO THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
5. CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION; INCLUDING ACCESS AND SITE ROADWAYS, DITCHES, DRAINAGE STRUCTURES AND OTHER EXISTING FEATURES TO THEIR ORIGINAL CONDITION OR TO A CONDITION SATISFACTORY TO THE ENGINEER.
6. ALL REQUIRED TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR IN ACCORDANCE WITH THE APPROVED SEDIMENT AND EROSION CONTROL PLAN.
7. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND PAY ALL FEES OF SUCH, PRIOR TO COMMENCING WORK.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE STAKING AND LAYOUT OF ALL PROPOSED STRUCTURES AND IMPROVEMENTS.
9. MATERIAL SCHEDULES AND LISTS INCLUDED AS A PART OR WITH THESE CONSTRUCTION DRAWINGS ARE FURNISHED TO THE CONTRACTOR FOR REFERENCE PURPOSES ONLY. THESE SCHEDULES AND LISTS SHALL NOT BE CONSTRUED A BILL OF MATERIALS UPON WHICH TO BASE A BID. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW AND TAKE INTO CONSIDERATION ALL DETAILED DRAWINGS, SCHEMATICS AND TECHNICAL SPECIFICATIONS INCLUDED UNDER THIS CONTRACT IN THE PREPARATION OF HIS BID AND PERFORMANCE OF THE WORK.
10. CONTRACTOR SHALL CONFIRM ALL CONNECTIONS AND TIE–POINTS OF PROPOSED WORK WITH EXISTING FACILITIES INCLUDING ALL STRUCTURAL, MECHANICAL, ELECTRICAL, PIPING AND OTHER UTILITY SYSTEMS. PROVIDE SKETCH TO ENGINEER NOTING ANY IDENTIFIED DISCREPANCIES.
11. CONTRACTOR SHALL VERIFY ALL PIPING LAYOUTS, CONNECTIONS TO EXISTING FACILITIES, PROPOSED UTILITY LOCATIONS AND DIMENSIONS SHOWN ON THE DRAWINGS.
12. ALTHOUGH SUCH WORK MAY NOT BE SPECIFICALLY SHOWN, THE CONTRACTOR SHALL FURNISH AND INSTALL ANY SUPPLEMENTAL OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND AND COMPLETELY OPERATIONAL INSTALLATION.
13. DUE TO THE VARIATION IN EQUIPMENT APPROVED FOR BID UNDER THIS CONTRACT, NOT ALL CONDUIT, WIRING OR SMALL DIAMETER PIPING HAS NECESSARILY BEEN SHOWN ON THE DRAWINGS. HOWEVER THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL REQUIRED PIPING, CONDUIT AND WIRING INCIDENTAL TO OR NECESSARY FOR A SOUND AND COMPLETELY OPERATIONAL INSTALLATION.
14. CONTRACTOR SHALL PROVIDE ANY SHORING REQUIRED TO PROTECT EXISTING FACILITIES DURING EXCAVATION FOR INSTALLATION OF PROPOSED STRUCTURES AND UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING DESIGN. DESIGN SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE COMMONWEALTH OF VIRGINIA. ALL ANTICIPATED COSTS FOR SHORING AND DESIGN SHALL BE INCLUDED IN THE CONTRACTOR'S BASE BID PRICE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL TEMPORARY PIPING, PUMPING OF FLOWS AND UTILITY SERVICE INCLUDING POWER, AS REQUIRED TO MAINTAIN PLANT OPERATIONS AS DESCRIBED IN THE SPECIFICATIONS.
16. ALL TEMPORARY PIPING AND UTILITIES SHALL BE INSTALLED IN TRENCHES AND BACKFILLED, UNLESS OTHERWISE APPROVED BY THE ENGINEER IN WRITING. CONTRACTOR SHALL PROTECT ALL TEMPORARY LINES FROM FREEZING, AND PROVIDE ALL REQUIRED THRUST RESTRAINTS.
17. ACCESS TO ALL EXISTING FACILITIES SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION.
18. THE CONTRACTOR SHALL PROVIDE A DETAILED CONSTRUCTION PLAN AND SCHEDULE TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY NECESSARY TEMPORARY SPACE, FACILITIES OR MEASURES REQUIRED FOR PROTECTING THE PROCESS WATER FROM FOREIGN MATERIAL, CHEMICALS, AND DEBRIS SHALL BE MADE DURING ALL STAGES OF CONSTRUCTION.
20. CONTRACTOR SHALL ENSURE PLANT REMAINS IN OPERATION AND MAINTAINS THE ABILITY TO PROVIDE 4.6 MGD OF SAFE, RELIABLE POTABLE WATER TO THE WCSA CUSTOMERS AT ALL TIMES, EXCEPT FOR BRIEF PERIODS AS ALLOWED BY THE SPECIFICATIONS.
21. ALL COATINGS ON SURFACES WHICH MAY COME IN CONTACT WITH PROCESS WATER SHALL MEET NSF–61

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

INDEX SHEET AND NOTES

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G002

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT APPLY TO THIS PROJECT.

@	AT
&	AND
AB	ANCHOR BOLT
AC	ACRES
ADDL	ADDITIONAL
ADDM	ADDENDUM
ADDN	ADDITION
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
A/G	ABOVE GROUND
AGGR	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AL	ALUMINUM
APP'D	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECTURE, ARCHITECTURAL
ARV	AIR RELEASE VALVE
ASPH	ASPHALT
AVG	AVERAGE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOCIATION
BD	BOTTOM OF DITCH
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BIT	BITUMINOUS
BL	BUILDING LINE, BASE LINE
BLDG	BUILDING
BLDGD	BUILDING DATUM
BM	BENCHMARK, BEAM
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BS	BOTTOM STEEL
BTWN	BETWEEN
BV	BALL VALVE
BW	BACKWASH
C	CHORD LENGTH (CURVE)
C/C	CENTER TO CENTER
CENT	CENTRATE
CF	COLUMN FOOTING, CUBIC FEET
CFS	CUBIC FEET PER SECOND
C&G	CURB AND GUTTER
CI	CURB INLET
CIP	CAST IRON PIPE
CCJ	CRACK CONTROL JOINT
CTJ	CONTRACTION JOINT
CL_2	CHLORINE MONITOR
℄	CENTERLINE
CL	CLASS, CENTERLINE
CLG	CEILING
CLN	CLEAN
CLNG	CLEANING
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	COMPANY,CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUE, CONTINUOUS, CONTINUATION
CONTR	CONTRACTOR
COORD	COORDINATE
CULV	CULVERT
CV	CHECK VALVE
DAFT	DISSOLVED AIR FLOTATION THICKENER
DEG	DEGREE
DEMO	DEMOLISH,DEMOLITION
DESC	DESCRIPTION
DG	DIGESTER GAS
DI	DUCTILE IRON
DIA,ø	DIAMETER
DIP	DUCTILE IRON PIPE
DIST	DISTANCE
DJ	DISMANTLING JOINT
DR	DRAIN
DS	DIGESTED SLUDGE
DWG	DRAWING
E	EAST (COORDINATE)
EA	EACH
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRIC,ELECTRICAL
EMBED	EMBEDMENT
EOP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
EW	EACH WAY
EWL	EMERGENCY WATER LEVEL
EXGR	EXISTING GRADE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTEND, EXTERIOR
EXTN	EXTENSION
FAC	FACILITY
FCA	FLANGED COUPLING ADAPTER
FCS	FOAM CONTROL SYSTEM
FDN	FOUNDATION
FE	FIRE EXTINGUISHER, FILTER EFFLUENT
F/F	FACE TO FACE
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FIT	FLOW INSTRUMENT TRANSMITTER
FLEX	FLEXIBLE
FLG	FLANGED
FLR	FLOOR
FOC	FACE OF COLUMN
FOD	FOUNDATION DRAIN
FP	FIRE PROTECTION
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT
FTG	FOOTING
FWP	FINISHED WATER PUMP
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GI	GRATE INLET
GPM	GALLONS PER MINUTE
GR	GRADE (SLOPE)
GRS	GREASE
GTS	GRIT SLURRY
GV	GATE VALVE
GWB	GYPSUM WALL BOARD
H	HORIZONTAL
HB	HOSE BIBB
HD	HEAVY DUTY
HEX	HEXAGON
HGT	HEIGHT
HORIZ	HORIZONTAL
HVU	HEATING/VENTILATION UNIT
HWL	HIGH WATER LEVEL
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HYD	HYDRANT
IA	INSTRUMENT AIR
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCHES
INC	INCORPORATED
INCL	INCLUDE
INS	INSULATION
INV	INVERT
JB	JUNCTION BOX
JT	JOINT
K	KIPS
L	LENGTH
LB(S)	POUND,POUNDS
LF	LINEAR FEET
LIN	LINEAR
LIT	LEVEL INSTRUMENT TRANSMITTER
LOC	LOCATION
LP	LIGHT POLE, LIQUID PROPANE
LPA	LOW PRESSURE PROCESS AIR
LWL	LOW WATER LEVEL
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
MFR	MANUFACTURER
MH	MANHOLE
MO	MASONRY OPENING
MTL	METAL
MM	MILLIMETER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTG	MOUNTING
N	NORTH (COORDINATE)
N/A	NOT APPLICABLE
NE	NORTH EAST
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NG	NATURAL GAS
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NIC	NOT IN CONTRACT
NO, #	NUMBER
NOM	NOMINAL
NPW	NON-POTABLE WATER
NTS	NOT TO SCALE
NW	NORTHWEST
NWL	NORMAL WATER LEVEL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OHE	OVERHEAD ELECTRIC
OPNG	OPENING
OPP	OPPOSITE
OSHA	OCCUPATIONAL SAFETY & HEALTH ACT
PAVT	PAVEMENT
PCV	PUMP CONTROL VALVE
PEN	PENETRATION
PG	PRESSURE GAUGE
PH	PH METER
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PLC	PRIMARY LOGIC CONTROLLER
PLN	PLAN
PNL	PANEL
POS	POLYMER SOLUTION
PP	UTILITY POLE
PROP	PROPERTY, PROPOSED
PRDV	PRESSURE REDUCING VALVE
PRV	PRESSURE RELIEF VALVE
PSF	POUNDS PER SQUARE FOOT
PSG	PRIMARY SLUDGE
PSI	POUNDS PER SQUARE INCH
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PWC	POTABLE WATER (COLD)
PWH	POTABLE WATER (HOT)
R	RADIUS
RAS	RETURN ACTIVATED SLUDGE
RCP	REINFORCED CONCRETE PIPE
RCY	RECYCLE
RD	ROAD
RDT	ROTARY DRUM THICKENER
RDCR	REDUCER
REF	REFERENCE
RGD	RIGID
REINF	REINFORCED,REINFORCEMENT
REQ'D	REQUIRED
REV	REVISION
RF	ROOF
RL	RAIN LEADER
RLNG	RAILING
ROW	RIGHT-OF-WAY
RP	RADIUS POINT
RPZ	REDUCED PRESSURE ZONE
RVS	REVERSE
R/W	RIGHT-OF-WAY
S	SOUTH (COORDINATE)
SAV	SURGE ARRESTING VALVE
SB	SOIL BORING
SCH	SCHEDULE
SCM	SCUM
SE	SOUTHEAST, SEDIMENTATION EFFLUENT
SEC	SECTION
SEP	SEPTAGE
SHT	SHEET
SIM	SIMILAR
SLG	SLUDGE
SMP	SAMPLE
SPRT	SUPPORT
SQ	SQUARE
SS	SANITARY SEWER, STAINLESS STEEL
SSFM	SANITARY SEWER FORCE MAIN
STA	STATION
STD	STANDARD
STL	STEEL
STM	STORM WATER
STR	STRUCTURAL, STRUCTURE
SU	SUMP
SUP	SUPERNATANT
SY	SQUARE YARDS
SW	SOUTHWEST, SIDEWALK, SEAL WATER
T	TANGENT DISTANCE (CURVE),TELEPHONE LINE
T & B	TOP & BOTTOM
TC	TOP OF CURB ELEVATION
TD	TOP OF DITCH
TDF	TRENCH DRAIN FOOTING, TURNED DOWN FOOTING
TEMP	TEMPORARY
T/EL	TOP OF CASTING ELEVATION
THK	THICK, THICKNESS
TM	TURBIDITY MONITER
TOS	TOP OF SLAB ELEVATION
TOW	TOP OF WALL
TP	TOP OF PAVEMENT ELEVATION
TS	THICKENED SLAB, TOP STEEL
TT	TEMPERATURE TRANSMITTER
TYP	TYPICAL
UGE	UNDERGROUND ELECTRICAL
UNO	UNLESS NOTED OTHERWISE
USGS	UNITED STATES GEOLOGICAL SOCIETY
UT	UNDERGROUND TELEPHONE
UVA	U.V. TRANSMITTER
V	VERTICALLY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VLV	VALVE
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENT
VR	VAPOR RETARDER
VT	VENT
W	WEST, WATERLINE
WAS	WASTE ACTIVATED SLUDGE
WF	WALL FOOTING
W/	WITH
W/O	WITHOUT
WL	WATER LEVEL
WS	WATER SURFACE
WT	WATERTIGHT, WEIGHT
WW	WASTEWATER, WET WELL
WWF	WELDED WIRE FABRIC
YD	YARD
YH	YARD HYDRANT

PIPE TYPES *	
SYMBOL	SERVICE
BW	BACKWASH
BWD	BACKWASH DRAIN
CA	COMPRESSED AIR
CARBON	POWER ACTIVATED CARBON
CAUSTIC	CAUSTIC
CDR	CHEMICAL DRAIN
CLG	CHLORINE GAS
CLS	CHLORINE SOLUTION
DR	DRAIN
PW	POTABLE WATER
FE	FILTER EFFLUENT
FSA	HYDROFLUOSILICIC ACID
FTW	FILTER TO WASTE
FW	FINISHED WATER
LPA	LOW PRESSURE AIR
$NaMnO_4$	SODIUM PERMANGANATE
NPW	NON-POTABLE WATER
OF	OVERFLOW
PACL	POLY ALUMINUM CHLORIDE (COAGULANT)
POLY	POLYMER
RL	RAIN LEADER
RW	RAW WATER
SMP	SAMPLE
SE	SEDIMENTATION EFFLUENT
SOL	SOLUTION
SPARE	SPARE PIPING
SUMP	SUMP DISCHARGE
SD	STORM DRAIN
SW	SEAL WATER
TMP	TEMPORARY PIPING
VENT	VENT

* SEE SECTION 15060 FOR PIPE MATERIALS, INSTALLATION REQUIREMENTS AND OTHER PIPING SYSTEM DETAILS

SYMBOL LEGEND

ABBR.	SYMBOL	DESCRIPTION
BFP		BACK FLOW PREVENTER
BV		BALL VALVE
--		BLOWER
BFLY		BUTTERFLY VALVE
--		CALIBRATION COLUMN
CV		CHECK VALVE
CV		CONTROL VALVE
--		ELECTRIC ACTUATOR
--		FLOW DIRECTION
--		FLOW ELEMENT
GV		GATE VALVE
--		HOSEBIB
--		HOSE COUPLER
--		INJECTOR
--		METERING PUMP
--		MIXER
--	M	MOTOR
--		MUD VALVE
PV		PLUG VALVE
--		PRESSURE ELEMENT/SWITCH
PI/PG		PRESSURE INDICATOR/ GAUGE
--		PRESSURE INDICATOR WITH ISOLATION VALVE
PRV		PRESSURE RELIEF VALVE
--		PULSATION DAMPENER
--		CENTRIFUGE PUMP
--		QUICK CONNECT COUPLING
RDCR		REDUCER
--		REGULATOR
--		ROTAMETER
--	XXX	SHEET TAG: XXX = SHEET NUMBER Y = LETTER TAG
--		SLUICE OR GATE
SV		SOLENOID VALVE
SM		STATIC MIXER
--		TEE DOWN
--		TEE UP
TRB	T	TURBINE
USL		ULTRASONIC LEVEL SENSOR
VB		VACUUM BREAKER/ANTI-SIPHON VALVE
--		VACUUM REGULATOR
VFD	VFD	VARIABLE FREQUENCY DRIVE
--		VERTICAL TURBINE PUMP
--		WYE-STRAINER
--		90° ELBOW DOWN
--		90° ELBOW UP

CIVIL LEGEND

EXISTING	DESCRIPTIONS	PROPOSED
	MINOR CONTOURS	
1000	MAJOR CONTOURS	1000
X X	SILT FENCE	SF X X
x	FENCE	x
	LIMITS OF CONSTRUCTION	
	RAILROAD	
	STRUCTURES	
	PAVEMENT	
	GRAVEL ROAD	
	DIRT ROAD	
	STREAM	
8" EFFLUENT	PIPE	8" EFFLUENT
	SIDEWALK	
	CONCRETE PAD	
	DEMOLISHED PIPE	
	VALVE	
MH-1	MAHHOLE	MH-1
	YARD HYDRANT	
	FIRE HYDRANT	
	BENCH MARK	
	POWER POLE	
	LIGHT POLE	
	CLEAN OUT	
	GUYWIRE	
	BOLLARD	
	EMERGENCY SHOWER	
	MONITORING WELL	

HATCHING LEGEND

HATCH	DESCRIPTION
	BRICK, BLOCK
	CHECKER PLATE GRATING
	CONCRETE
	CMU
	DEMOLITION
	EARTH, GROUND
	GRATING
	GRAVEL
	GROUT
	INSULATION
	METAL, STEEL
	STONES

PIPING LEGEND

SYMBOL	DESCRIPTION
	BUTTERFLY VALVE
	CHECK VALVE
	GATE VALVE
	PLUG VALVE
	BALL VALVE
	GENERAL EXISTING VALVE
	FLANGED COUPLING ADAPTER
	FLEXIBLE COUPLING
	FLOOR DRAIN
	FLANGED CONNECTION
	MECHANICAL JOINT CONNECTION
	REDUCER
	WATER LEVEL

PLAN NORTH SYSTEM

TRUE NORTH

N

PLAN NORTH

DETAIL NUMBERING SYSTEM

PROCESS/BUILDING DESIGNATION:
1. GENERAL OR SITE/CIVIL
2. CLARIFIER IMPROVEMENTS
3. BUILDING IMPROVEMENTS
4. CHEMICAL FEED
5. CHLORINE CONTACT TANK
6. TYPICAL DETAILS
7. ELECTRICAL MISCELLANEOUS

4M1.1 / 4M1

- REPRESENTS THE DETAIL NUMBER
- G-GENERAL
- C-CIVIL
- S-STRUCTURAL
- A-ARCHITECTURAL
- P-PROCESS
- E-ELECTRICAL
- REPRESENTS THE SHEET NUMBER FROM WHICH THE DETAIL OR SECTION WAS CUT OR TAKEN. "TYP" IN THIS SECTION INDICATES A DETAIL SHOWN IN THE TYPICAL DETAILS SECTION AND WILL BE COMMON FOR SIMILAR ITEMS.

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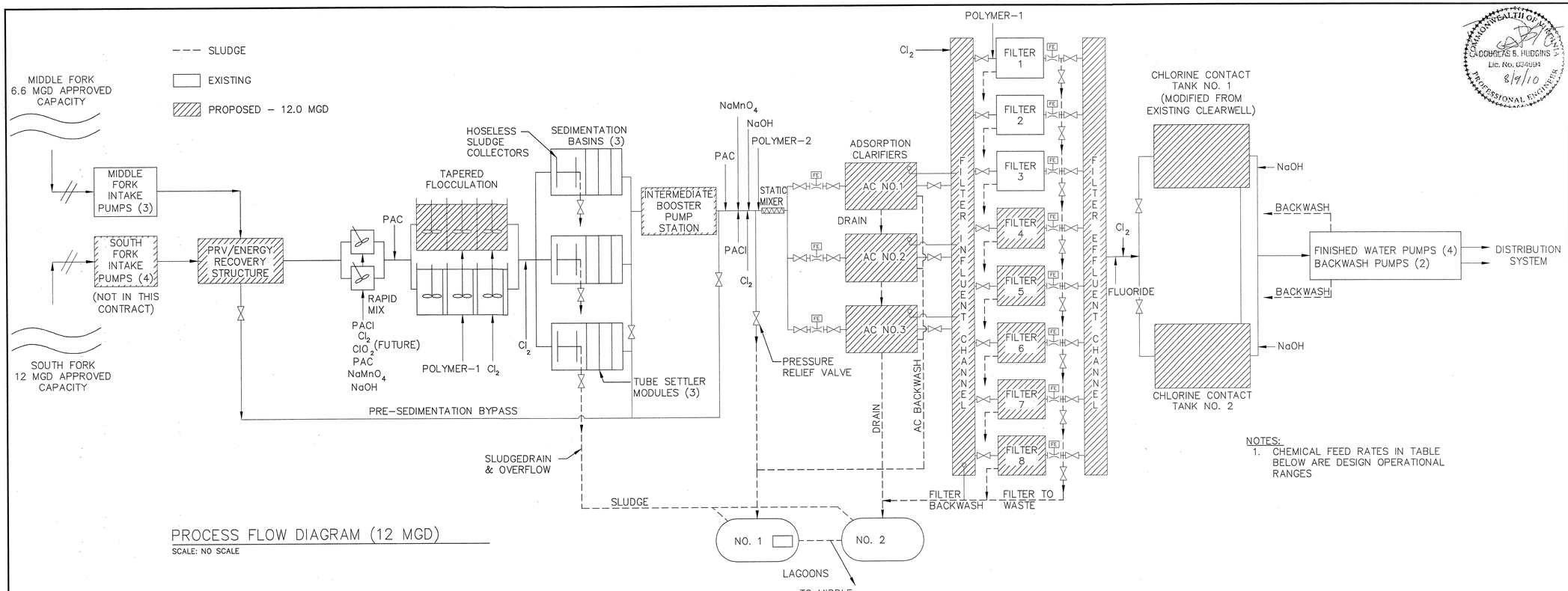
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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD
ABBREVIATIONS AND SYMBOL LEGEND

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
D	BID ISSUE	8/9/10	DBH

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PROCESS FLOW DIAGRAM (12 MGD)

SCALE: NO SCALE

NOTES:
1. CHEMICAL FEED RATES IN TABLE BELOW ARE DESIGN OPERATIONAL RANGES

MIDDLE FORK RAW WATER INTAKE & PUMP STATION	
SCREEN TYPE	TRAVELING
SCREEN CAPACITY	11.5 MGD
SCREEN WASHINGS PUMP CAPACITY	200GPM @ 200 TDH
NUMBER OF RAW WATER PUMPS	3 (2 DUTY, 1 SPARE)
PUMP CAPACITY	3.3 MGD @ 65' TDH
PUMP TYPE	VERTICAL TURBINE
MONITORING	RIVER LEVEL TURBIDITY pH TEMPERATURE STREAMING CURRENT

RAPID MIX	
NUMBER OF TANKS	2
TANK VOLUME	1,500 GAL
12 MGD DETENTION TIME	21 S
MOTOR SIZE	10 HP
MIXER TYPE	TURBINE
CHEMICAL INJECTION	
COAGULANT (PACI)	15–100 mg/L
CARBON (PAC)	0–40 mg/L
SODIUM PERMANGANATE	0–1 mg/L
SODIUM HYDROXIDE (INTERMITTENT)	0–5 mg/L
CHLORINE (INTERMITTENT)	0–15 mg/L
CHLORINE DIOXIDE (FUTURE)	0–1.5 mg/L

FLOCCULATION	
NUMBER OF TANKS	6
TANK VOLUME	28,700 GAL
12 MGD DETENTION TIME	20.7 MIN
MOTOR SIZE	3 HP
DRIVE TYPE	VFD
MIXER TYPE	66" TURBINE
CHEMICAL INJECTION	
CHLORINE (3RD STAGE)	0–5 mg/L
POLYMER–1 (2ND STAGE)	0–0.5 mg/L

PRE–SEDIMENTATION	
NUMBER OF TANKS	3
TANK VOLUME	389,600 GAL
12 MGD DETENTION TIME	2.34 HRS
MONITORING	COMBINED EFFLUENT TURBIDITY COMBINED EFFLUENT pH COMBINED EFFLUENT TEMP INDIVIDUAL EFFLUENT TURBIDITY

INTERMEDIATE BOOSTER PUMP STATION	
NUMBER OF PUMPS	3 (2 DUTY, 1 SPARE)
PUMP CAPACITY	6 MGD @ 26' TDH
PUMP TYPE	VERTICAL TURBINE, WITH SUCTION CAN

ADSORPTION CLARIFIER	
NUMBER OF CLARIFIERS	3
SIZE OF CLARIFIER (EA)	320 SQ/FT
12 MGD LOADING RATE	8.7 GPM/SF
AIR BACKWASH SUPPLY RATE	3–5 GPM/SF
NUMBER OF BLOWERS	2 (1 DUTY, 1 SPARE) (SHARED WITH FILTER)
BLOWER CAPACITY	1600 SCFM @ 7 PSI
BLOWER TYPE	POSITIVE DISPLACEMENT
CHEMICAL INJECTION	
COAGULANT FEED RATE	15–40 mg/L
CHLORINE (INTERMITTENT)	0–5 mg/L
POLYMER–2	0–0.5 mg/L
CARBON (PAC)	0–40 mg/L
MONITORING	INDIVIDUAL EFFLUENT TURBIDITY INDIVIDUAL INFLUENT FLOW COMBINED EFFLUENT TURBIDITY COMBINED EFFLUENT pH COMBINED EFFLUENT TEMP

FILTERS	
NUMBER OF FILTERS	8
FILTER AREA	267 SQ/FT (16'x16'8")
MAXIMUM LOADING RATE	5 GPM/SF
12 MGD LOADING RATE	3.89 GPM/SF
MAX FLOWRATE	1.92 MGD
WATER BACKWASH RATE (MAX)	20 GPM/SF
NUMBER OF BACKWASH PUMPS	2 (1 DUTY, 1 SPARE)
PUMP CAPACITY	5,330 GPM @ 41'
BACKWASH FLOW CONTROL	16" CONTROL VALVE WITH MAGMETER
FILTER MEDIA PROFILE	23–INCHES OF 0.8–0.9 MM ANTHRACITE 12–INCHES OF 0.4–0.5 MM SAND 12–INCHES OF GRAVEL
CONCURRENT BACKWASH RATE	
AIR	4 SCFM/SF
WATER	5 GPM/SF
FILTER INFLUENT PIPES SIZE	16–INCH
FILTER INFLUENT VELOCITY	0.83 FT/S
CHEMICAL INJECTION	
POLYMER 1 FEED RATE	0–0.5 mg/L
CHLORINE	0–5 mg/L
MONITORING (EFFLUENT OF EACH TANK)	FLOWRATE LOSS OF HEAD FILTER WATER LEVEL INDIVIDUAL EFFLUENT TURBIDITY COMBINED EFFLUENT TURBIDITY COMBINED EFFLUENT pH COMBINED EFFLUENT TEMP

CHLORINE CONTACT	
NUMBER OF TANKS	2
VOLUME OF CCT 1	180,000 GAL
DESIGN BAFFLING FACTOR	0.7
12 MGD EFFECTIVE DETENTION TIME	15.1 MIN
VOLUME OF CCT 2	230,000 GAL
DESIGN BAFFLING FACTOR	0.7
12 MGD EFFECTIVE DETENTION TIME	19.3 MIN
ADDITIONAL CONNECTION VOLUME	5,000 GAL
TOTAL VOLUME AVAILABLE	415,000 GAL
12 MGD TOTAL EFFECTIVE DETENTION TIME	34.4 MIN
CHEMICAL INJECTION	
CHLORINE	0–15 mg/L
FLUORIDE	0–1 mg/L
SODIUM HYDROXIDE (INTERMITTENT IN EFFLUENT)	0–5 mg/L
MONITORING (EFFLUENT OF EACH TANK)	TURBIDITY CHLORINE RESIDUAL pH TEMPERATURE FLUORIDE RESIDUAL

FINISHED WATER PUMP STATION	
NUMBER OF PUMPS	4 (3 DUTY, 1 STANDBY)
PUMP CAPACITY	2,780 GPM @ 569 TDH
PUMP TYPE	VERTICAL TURBINE
MONITORING	WATER LEVEL

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

PROCESS FLOW DIAGRAM

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
D	BID ISSUE	8/9/10	DBH

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Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
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MIDDLE FORK
RAW WATER PS
NORMAL WATER LEVEL=1780'
MAX FLOW = 6.6 MGD

RAPID MIX
TOP OF WALL=1814.30'
WEIR EL=1811.30'
OPERATING LEVEL=1811.98'

FLOCCULATION BASINS
TOP OF WALL=1811.3'
OVERFLOW WEIRS (6) EL=1809.68'
OPERATING LEVEL MIN=1808.74'
OPERATING LEVEL MAX=1809.84'

SEDIMENTATION BASIN
TOP OF WALL=1811.3'
OVERFLOW WEIR EL=1809.68'
OPERATING LEVEL MIN=1808.72'
OPERATING LEVEL MAX=1809.82'

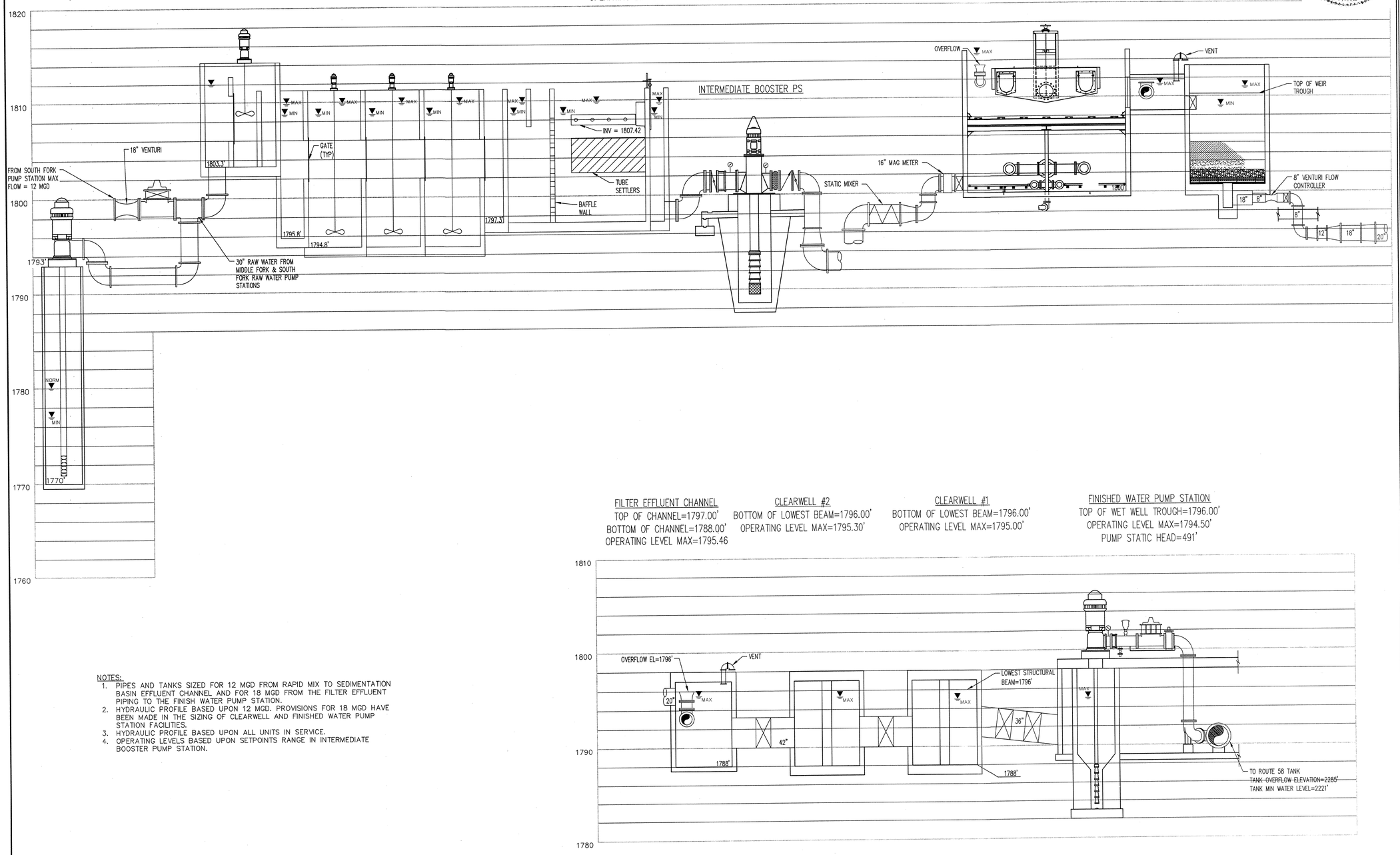
SEDIMENTATION BASIN
EFFLUENT CHANNEL
TOP OF WALL=1811.3'
OVERFLOW WEIR=1809.68'
OPERATING LEVEL MIN=1808.58'
OPERATING LEVEL MAX=1809.68

ADSORPTION CLARIFIER
EFFLUENT WEIR EL=1812.50'
TOP OF WALL=1815.00'
MAX WL=1812.71'
OVERFLOW WEIR EL=1813.50'

FILTER INFLUENT CHANNEL
TOP OF CHANNEL=1812.33'
BOTTOM OF CHANNEL=1808.50'
MAX LEVEL=1811.35'
OVERFLOW WEIR EL=1811.50'

FILTERS
TOP OF WALL=1813.33'
BACKWASH TROUGH WEIR EL=1810.25'
OPERATING LEVEL MIN=1810.26'
OPERATING LEVEL MAX=1811.33'

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FILTER EFFLUENT CHANNEL
TOP OF CHANNEL=1797.00'
BOTTOM OF CHANNEL=1788.00'
OPERATING LEVEL MAX=1795.46

CLEARWELL #2
BOTTOM OF LOWEST BEAM=1796.00'
OPERATING LEVEL MAX=1795.30'

CLEARWELL #1
BOTTOM OF LOWEST BEAM=1796.00'
OPERATING LEVEL MAX=1795.00'

FINISHED WATER PUMP STATION
TOP OF WET WELL TROUGH=1796.00'
OPERATING LEVEL MAX=1794.50'
PUMP STATIC HEAD=491'

NOTES:
1. PIPES AND TANKS SIZED FOR 12 MGD FROM RAPID MIX TO SEDIMENTATION BASIN EFFLUENT CHANNEL AND FOR 18 MGD FROM THE FILTER EFFLUENT PIPING TO THE FINISH WATER PUMP STATION.
2. HYDRAULIC PROFILE BASED UPON 12 MGD. PROVISIONS FOR 18 MGD HAVE BEEN MADE IN THE SIZING OF CLEARWELL AND FINISHED WATER PUMP STATION FACILITIES.
3. HYDRAULIC PROFILE BASED UPON ALL UNITS IN SERVICE.
4. OPERATING LEVELS BASED UPON SETPOINTS RANGE IN INTERMEDIATE BOOSTER PUMP STATION.

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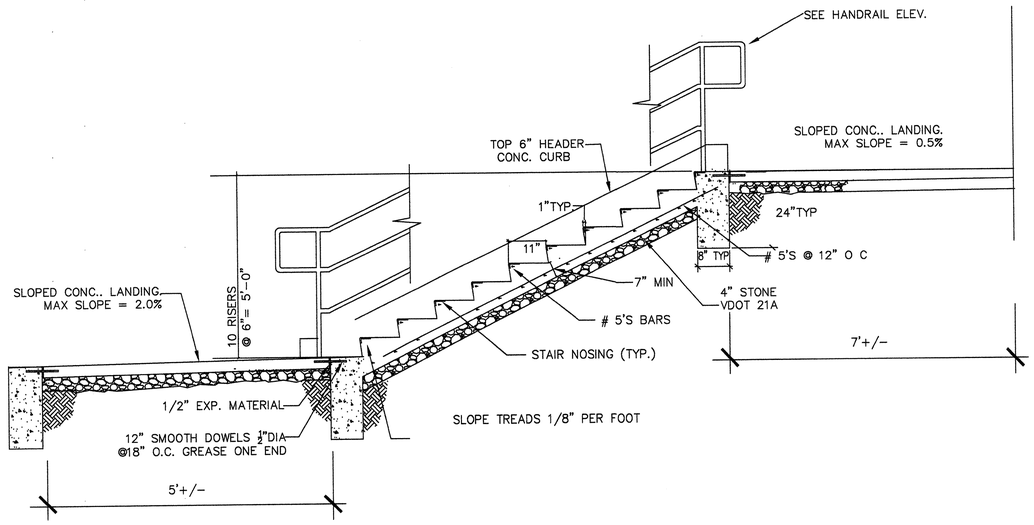
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

HYDRAULIC PROFILE

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

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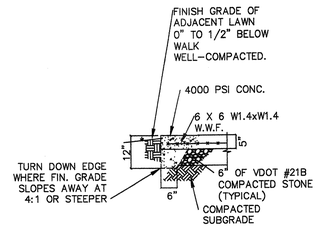
G005



SITE STAIR DETAIL MAIN ENTRANCE

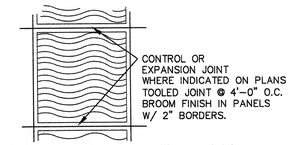
NOT TO SCALE

SIDE ENTRANCE STAIRS TYP WITH 15 RISERS.
STEPS AT BOOSTER PUMP STATION SIMILAR
WITH 4 RISERS TWO LOCATIONS, OMIT HANDRAILS



TYPICAL WALK SECTION

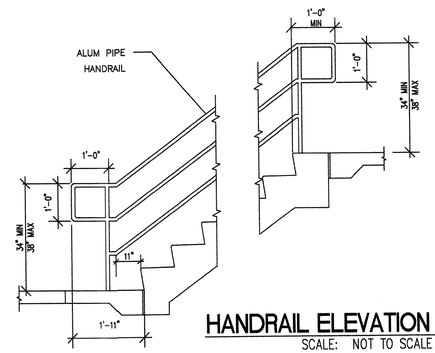
SCALE: 1/2" = 1'-0"



TYPICAL CONCRETE WALK

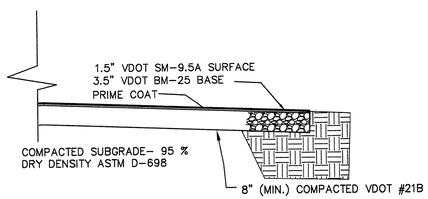
SCALE: 3/8" = 1'-0"

ALL ATTACHMENT DEVICES SHALL BE DESIGNED TO TRANSFER ALL LOADS TO THE BUILDING STRUCTURE.



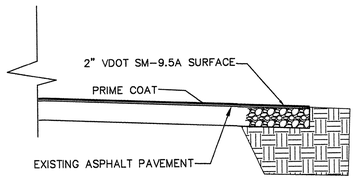
HANDRAIL ELEVATION DETAIL

SCALE: NOT TO SCALE



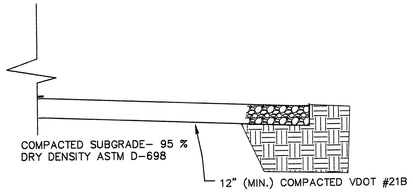
TYPICAL NEW PAVING SECTION

NOT TO SCALE
DETAIL FOR AREAS WITHOUT EXISTING PAVEMENT
SEE SITE PLAN FOR PAVING EXTENT



TYP EXISTING PVM'T OVERLAY SECTION

NOT TO SCALE
DETAIL FOR AREAS OF EXISTING PAVEMENT
SEE SITE PLAN FOR PAVING EXTENT
EXISTING PAVEMENT AREAS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED USING TYP. NEW PAVEMENT SECTION



TYPICAL NEW GRAVEL ACCESS ROAD

NOT TO SCALE
SEE SITE PLAN FOR EXTENT

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WORK WTP 12 MGD IMPROVEMENTS

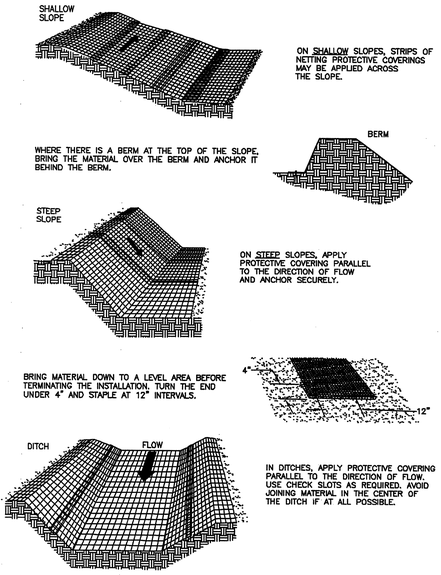
TYPICAL DETAILS

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TYPICAL ORIENTATION OF TREATMENT – 1 (SOIL STABILIZATION BLANKET)



SOURCE: ADAPTED FROM LUDLOW PRODUCTS BROCHURE PLATE: 3.36–1

TABLE 6–1

GENERAL EROSION AND SEDIMENT CONTROL NOTES

ES–1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS VR 625–02–00 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES–2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE–CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES–3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES–4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES–5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF–SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.

ES–6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES–7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES–8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES–9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF–PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

ES–10: A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED WITH QUARRY MATERIAL. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IN THE OPINION OF THE LOCAL PROGRAM ADMINISTRATOR OR HIS DESIGNATED AGENT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

ES–11: DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

ES–12: CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.

ES–13: AFTER ACHIEVING ADEQUATE STABILIZATION, THE TEMPORARY E&S CONTROLS WILL BE CLEANED UP AND REMOVED.

ES–14 UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF–SITE PROPERTY.
D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE VIRGINIA E&S REGULATIONS.
F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

ES– 15. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.

COMMONWEALTH OF VIRGINIA
JEFFREY D SPICKARD
Lic. No. 16660
8-10-10
PROFESSIONAL ENGINEER

MANAGEMENT STRATEGIES

CONSTRUCTION SHALL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.

THE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT, SEDIMENT FENCE AND TEMPORARY SEDIMENT TRAPS SHALL BE INSTALLED AS THE INITIAL SITE GRADING STEPS. TEMPORARY DIVERSIONS SHALL BE IN PLACE TO DIVERT THE RUNOFF AWAY FROM THE CONSTRUCTION AREA AND TO DIRECT THE SEDIMENT LADEN RUNOFF INTO THE TEMPORARY SEDIMENT TRAPS. TEMPORARY SLOPE DRAINS SHALL BE USED TO PROTECT THE CUT AND FILL SLOPES. PROPOSED OUTLET PROTECTION SHALL BE INSTALLED AS CULVERTS ARE INSTALLED.

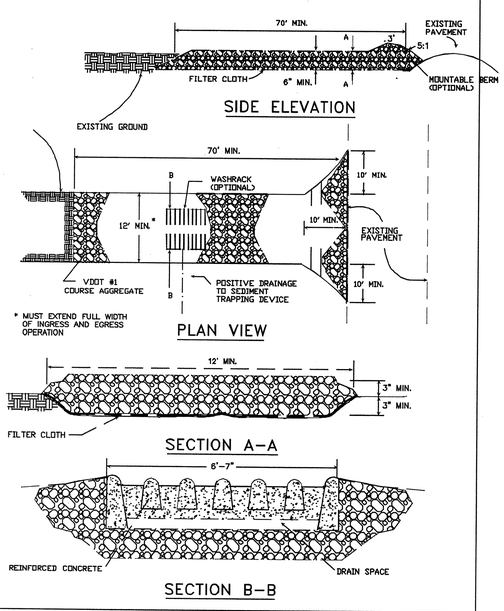
TEMPORARY SEEDING AND/OR OTHER STABILIZATION WILL FOLLOW IMMEDIATELY AFTER GRADING.

AREAS WHICH ARE NOT REQUIRED TO BE DISTURBED SHALL REMAIN UNDISTURBED TO THE GREATEST EXTENT POSSIBLE.

THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

AFTER ACHIEVING ADEQUATE STABILIZATION, THE TEMPORARY E&S CONTROLS WILL BE CLEANED UP AND REMOVED.

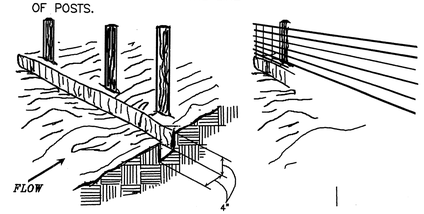
STONE CONSTRUCTION ENTRANCE



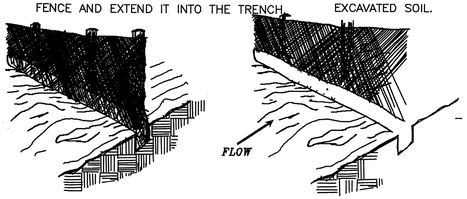
SOURCE: ADAPTED from 1983 Maryland Standards for Soil erosion and Sediment Control, and Va. DSWC Plate 3.02–1

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)

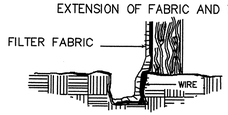
1. SET POSTS AND EXCAVATE A 4"X4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
2. STAPLE WIRE FENCING TO THE POSTS.



3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



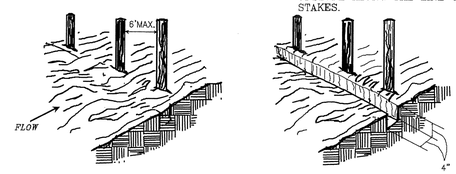
EXTENSION OF FABRIC AND WIRE INTO THE TRENCH.



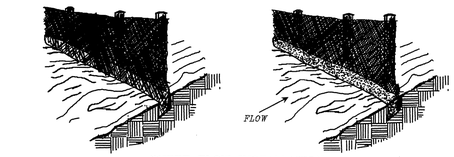
SOURCE: VA. DSWC PLATE. 3.5–1

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)

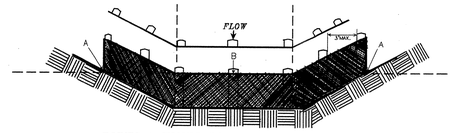
1. SET THE STAKES.
2. EXCAVATE A 4"X 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.



3. STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



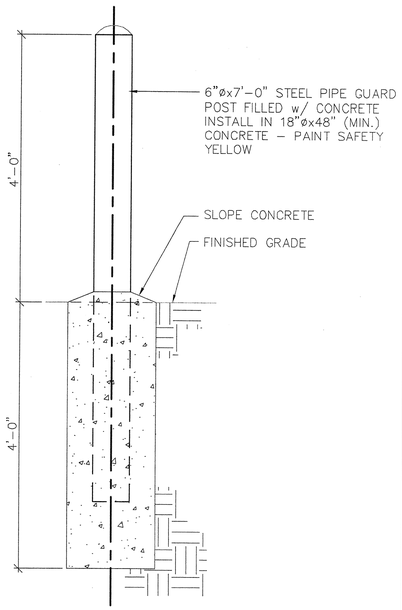
SHEET FLOW INSTALLATION (PERSPECTIVE VIEW)



POINTS A SHOULD BE HIGHER THAN POINT B.

DRAINAGEWAY INSTALLATION (FRONT ELEVATION)

SOURCE: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control,VA. DSWC Sherwood and Wyant PLATE. 3.05–2



BOLLARD DETAIL
NOT TO SCALE

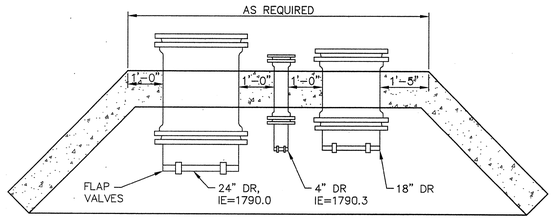
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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO12 MGD
CIVIL DETAILS

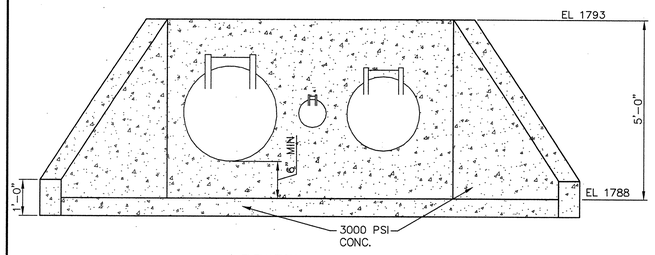
Rev.	Description	Date	By
C	BID ISSUE	8/9/10	JDS
B	VDH RESUBMITTAL	7/12/10	JDS
A	VDH SUBMITTAL	5/3/10	JDS

Designed: JDS
Drawn: MJV
Checked: DBH
Date: APRIL 2010
Scale: AS SHOWN
Job No. 12367.11
Archived File Name:

C002

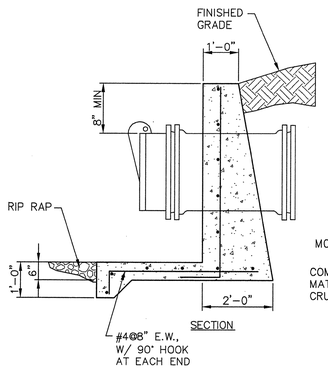


PLAN



ELEVATION

NOTES:
1. ENDWALL 1 SHOWN, ENDWALL 2 SIMILAR

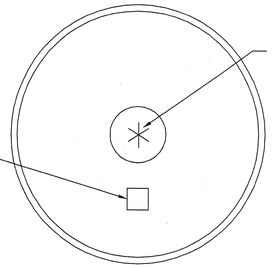


SECTION

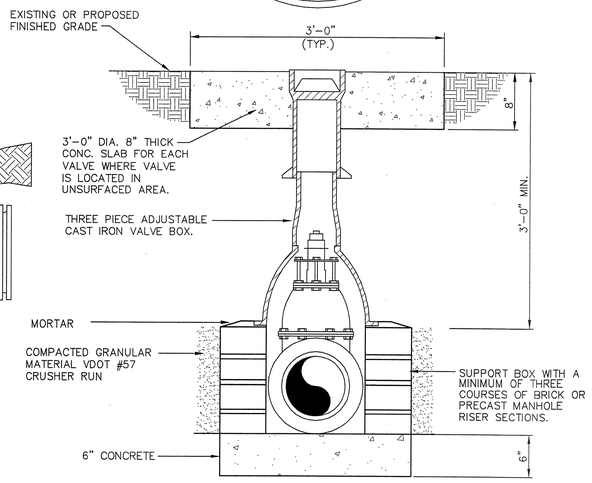
ENDWALL

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

C001 TYP



* MARKING
S – SEWER
W– POTABLE WATER
P– PROCESS OR CHEMICAL LIQUID

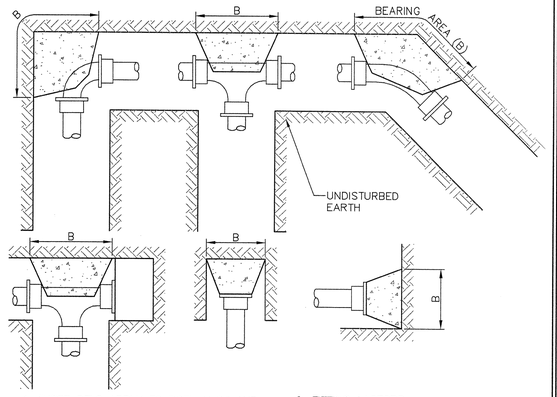


* FOR BUTTERFLY VALVES, ENSURE THAT NO FORCE IS TRANSMITTED TO THE ACTUATOR THROUGH THE VALVE BOX. ACTUATOR WILL BE ORIENTED PARRALLEL WITH GROUND, CONSTRUCT BRICK OR PRECAST SECTION. PROVIDE A ONE–FOOT EXTENSION ON ALL BURRIED BUTTERFLY VALVES.

DETAIL – TYPICAL VALVE INSTALLATION

SCALE: NO SCALE

C009 TYP



1. THESE DTLS APPLY TO BOTH VERT AND HORIZ LAID PIPE.

2. POURED IN PLACE CONC SHALL BE 3000 PSI MIN.

3. LEAVE JOINTS CLEAR OF CONC FOR EASY ACCESS TO HARDWARE.

4. POLYETHYLENE SHALL BE WRAPPED AROUND FITTINGS WHERE CONC BLOCKING WILL EVENTUALLY BE REMOVED.

5. UNDISTURBED EARTH IS ANTICIPATED TO BE SOFT CLAY W/AN ALLOWABLE BEARING CAPACITY OF 2000 PSF.

6. FITTING FACTORS:

TEE & END	= 2.00
90°	= 1.41
45°	= 0.77
22½°	= 0.39
11¼°	= 0.20

REQ'D AREA OF BLOCK FACE EARTH BEARING SHALL BE DETERMINED AS FOLLOWS:

WHERE:

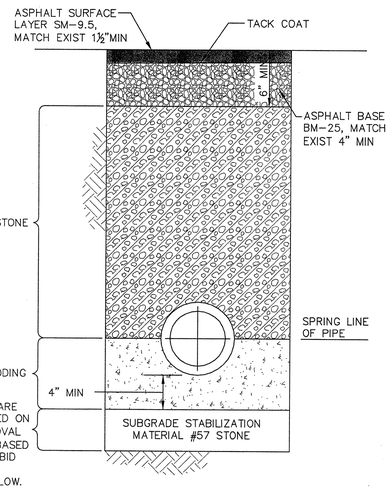
$B = \frac{P \; A \; C}{2000}$

B = AREA OF BLOCK FACE (FT2)
A = CROSS SECTION AREA OF PIPE (SQ IN)
P = HYDROSTATIC TEST PRESSURE, PSI
C = FITTING FACTOR

SECTION – THRUST BLOCK

SCALE: NO SCALE

C010 TYP



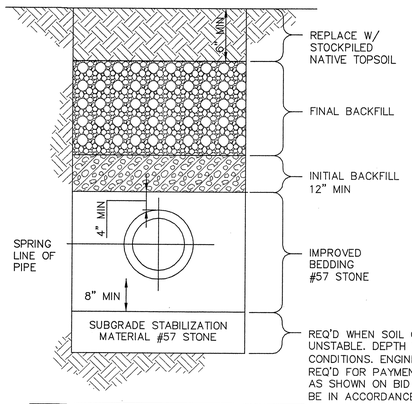
REQ'D WHEN SOIL CONDITIONS ARE UNSTABLE. DEPTH VARIES BASED ON CONDITIONS. ENGINEER'S APPROVAL ALWAYS REQ'D FOR PAYMENT BASED ON UNIT PRICE AS SHOWN ON BID FORM. PAYMENT SHALL BE IN ACCORDANCE W/THE TABLE BELOW.

NOTES:
1. ALL PAVEMENT SHALL BE SAW CUT WITH NEAT, UNIFORM LINES PRIOR TO EXCAVATION.
2. PIPE BEDDING MATERIAL SHALL BE OPEN GRADED AGGREGATE (VDOT NO. 57, 68, 7, OR 8).

TRENCH DETAIL FOR PIPE UNDER PAVEMENT

SCALE: NO SCALE

C011 TYP



PIPE SIZE (IN)	MAX. TRENCH WIDTH (FT) FROM BOTTOM OF TRENCH TO A POINT ONE FOOT ABOVE TOP OF PIPE.
4, 6, 8, 10	3'–0"
12 THRU 24	4'–0"
27 THRU 36	5'–4"
42 AND 48	6'–6"
54 AND 60	7'–6"

NOTE:

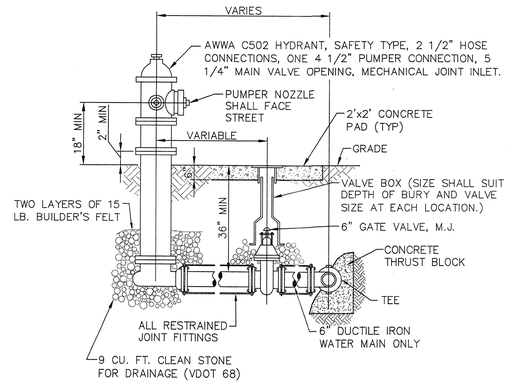
FOR DUCTILE IRON PIPE, IMPROVED BEDDING #57 STONE MAY BE REDUCED TO THE CROWN OF THE SEWER.

TRENCH DETAILS FOR PIPE IN GRASSED AREA

SCALE: NO SCALE

C012 TYP

NOTE:
COMPLETE FIRE HYDRANT ASSEMBLY INCLUDES BRANCH PIPE, FITTINGS, GATE VALVE AND BOX, THRUST BLOCK AND RODS.



TYPICAL FIRE HYDRANT DETAIL

SCALE: NO SCALE

C013 TYP

COMMONWEALTH OF VIRGINIA
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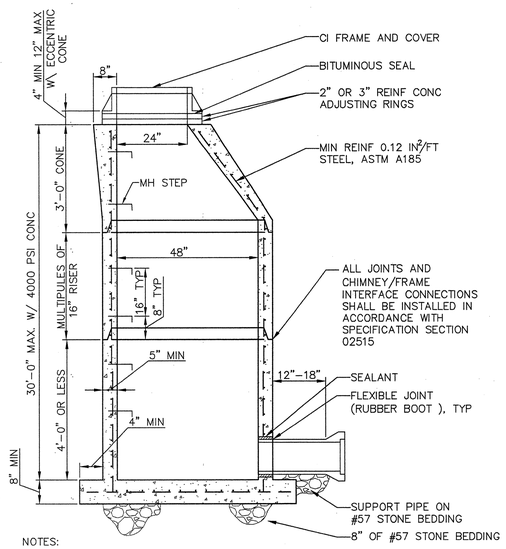
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

CIVIL DETAILS

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed:	ETA
Drawn:	GTS/CDH
Checked:	DBH
Date:	JAN 2010
Scale:	AS SHOWN
Job No.	12367.13
Archived File Name:	

C003

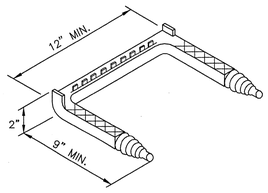


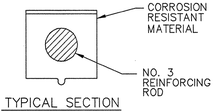
NOTES:

1. MIN CONC STRENGTH @ 28 DAYS – 4000 PSI.
2. PROVIDE MAX OF TWO LIFT HOLES PER SECTION. PLUG WATERTIGHT AFTER INSTALLATION.
3. USE BELL END ON INCOMING PIPES.
4. USE PLAIN END ON OUTGOING PIPE.
5. BENCH SHALL BE CONC.
6. MANHOLE CONSTRUCTION SHALL CONFORM TO ASTM C478.
7. WHERE STUBS OR KNOCKOUTS ARE PROVIDED FOR FUTURE CONNECTIONS, BENCH SHALL BE SO FORMED.
8. CONSTRUCT MANHOLES TO HEIGHT SPECIFIED IN CONTRACT DOCUMENTS. USE RISERS AND RINGS AS NEEDED TO ACHIEVE REQ'D HEIGHT.
9. USE CONC FOOTER AS REQ'D BY SECTION 02515.

STANDARD PRECAST CONCRETE MANHOLE — C012 TYP

SCALE: NO SCALE





TYPICAL SECTION

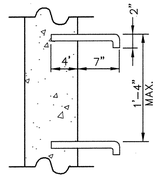
(DIMENSIONS MAY VARY WITH MANUFACTURER'S DESIGN)

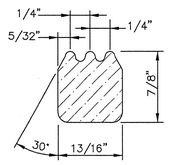
NOTES:

1. STEPS WILL BE REQUIRED IN ALL STRUCTURES WITH A DEPTH OF 4'–0" OR GREATER UNLESS OTHERWISE NOTED ON THE PLANS.
2. ALL STEPS SHALL PROTRUDE 5" FROM INSIDE FACE OF STRUCTURE WALL.
3. MAXIMUM STEP SPACING TO BE 1'–4" C.C.
4. STEPS SHALL WITHSTAND A MINIMUM LOAD OF 300 POUNDS WHEN EXTENDED 5" FROM THE FACE OF THE SUPPORT.
5. STEPS ARE TO BE VERTICALLY ALIGNED AND UNIFORMLY SPACED FOR THE ENTIRE DEPTH OF ANY STRUCTURE.
6. IN PRECAST UNITS STEPS MAY BE CAST IN PLACE OR MORTARED INTO HOLES PROVIDED BY THE FABRICATOR.
7. STEPS DIFFERING IN DIMENSIONS, CONFIGURATION OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THEY MEET THE MINIMUM REQUIREMENTS SHOWN HEREON AND THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS AND CERTIFIED TEST REPORTS OF THE PROPOSED SUBSTITUTE AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.

NOTES: (ALUMINUM STEP)

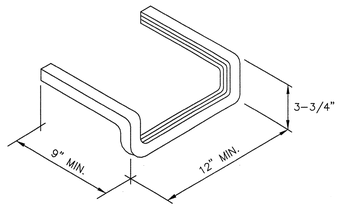
1. STEPS SHALL BE FABRICATED IN ACCORDANCE WITH ASTM B22, ALLOY 6005–T5.
2. THAT PORTION OF THE STEP ENCASED IN MASONRY SHALL BE UNIFORMLY COATED WITH A BITUMINOUS, SOLVENT TYPE, ASBESTOS FILLED ALUMINUM PIGMENTED COATING CONFORMING TO FEDERAL SPECIFICATION TC–C–00498A.





TYPICAL SECTION

(DIMENSIONS MAY VARY WITH MANUFACTURER'S DESIGN)



ALUMINUM STEP

SECTION – ALUMINUM MANHOLE STEP — C013 TYP

SCALE: NO SCALE

COMMONWEALTH OF VIRGINIA
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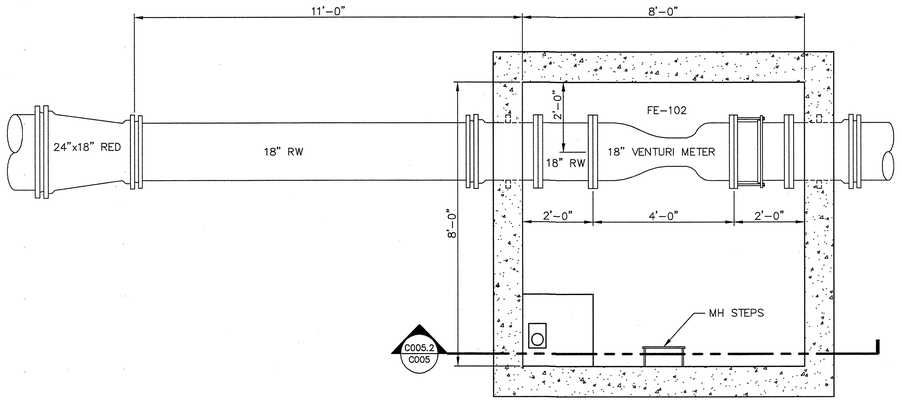
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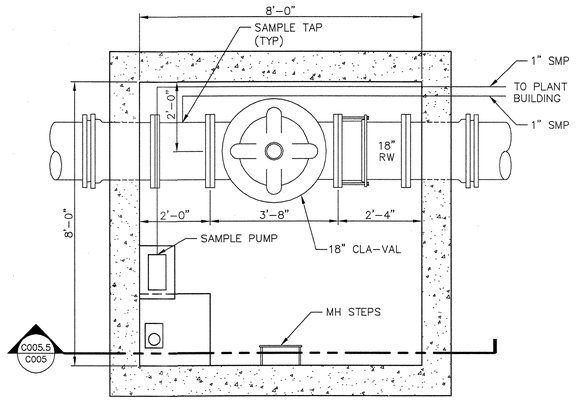
Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

C004



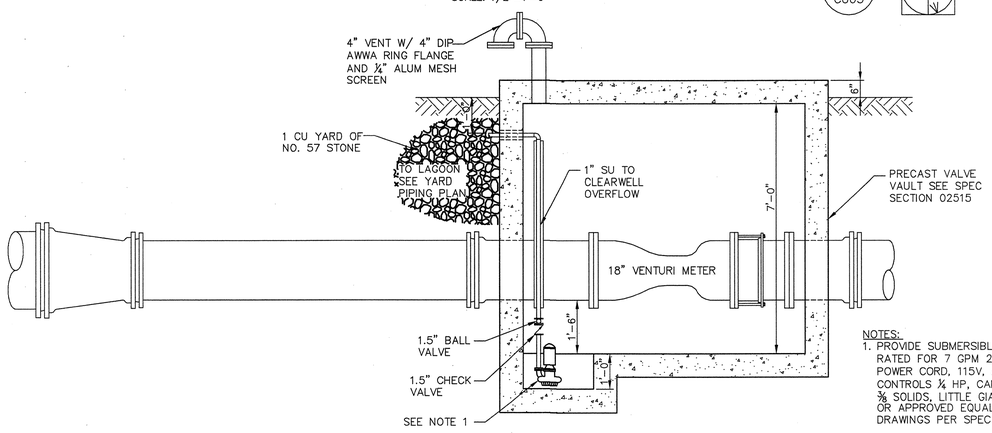
RAW WATER METER VAULT PLAN C005.1 / C005

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



RAW WATER CONTROL VAULT PLAN C005.4 / C005

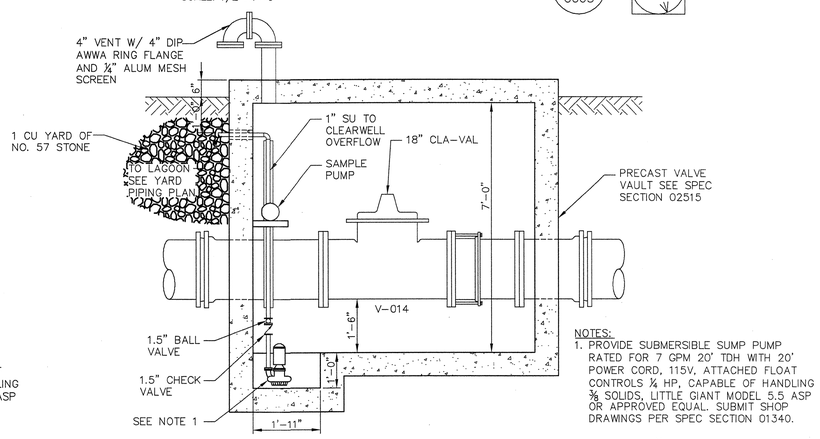
SCALE: 1/2"=1'-0"



NOTES:
1. PROVIDE SUBMERSIBLE SUMP PUMP RATED FOR 7 GPM 20' TDH WITH 20' POWER CORD, 115V, ATTACHED FLOAT CONTROLS ¼ HP, CAPABLE OF HANDLING ⅜ SOLIDS, LITTLE GIANT MODEL 5.5 ASP OR APPROVED EQUAL. SUBMIT SHOP DRAWINGS PER SPEC SECTION 01340.

RAW WATER METER VAULT SECTION C005.2 / C005

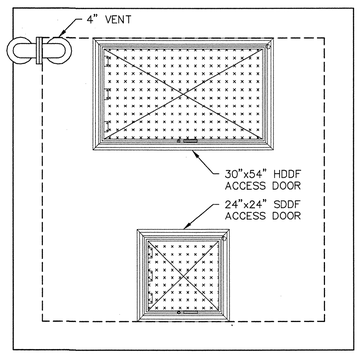
SCALE: 1/2"=1'-0"



NOTES:
1. PROVIDE SUBMERSIBLE SUMP PUMP RATED FOR 7 GPM 20' TDH WITH 20' POWER CORD, 115V, ATTACHED FLOAT CONTROLS ¼ HP, CAPABLE OF HANDLING ⅜ SOLIDS, LITTLE GIANT MODEL 5.5 ASP OR APPROVED EQUAL. SUBMIT SHOP DRAWINGS PER SPEC SECTION 01340.

RAW WATER CONTROL VAULT SECTION C005.5 / C005

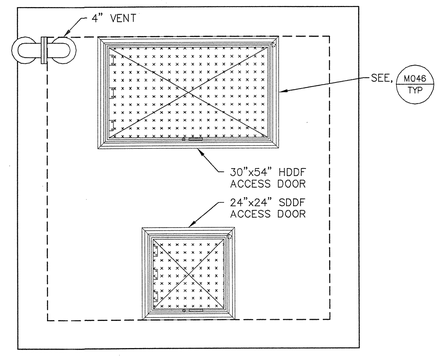
SCALE: 1/2"=1'-0"



NOTES:
1. RUN DRAIN FROM ACCESS DOOR TO EXTERIOR OF VAULT

RAW WATER METER VAULT ROOF PLAN C005.3 / C005

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



NOTES:
1. RUN DRAIN FROM ACCESS DOOR TO EXTERIOR OF VAULT

RAW WATER CONTROL VAULT ROOF PLAN C005.6 / C005

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

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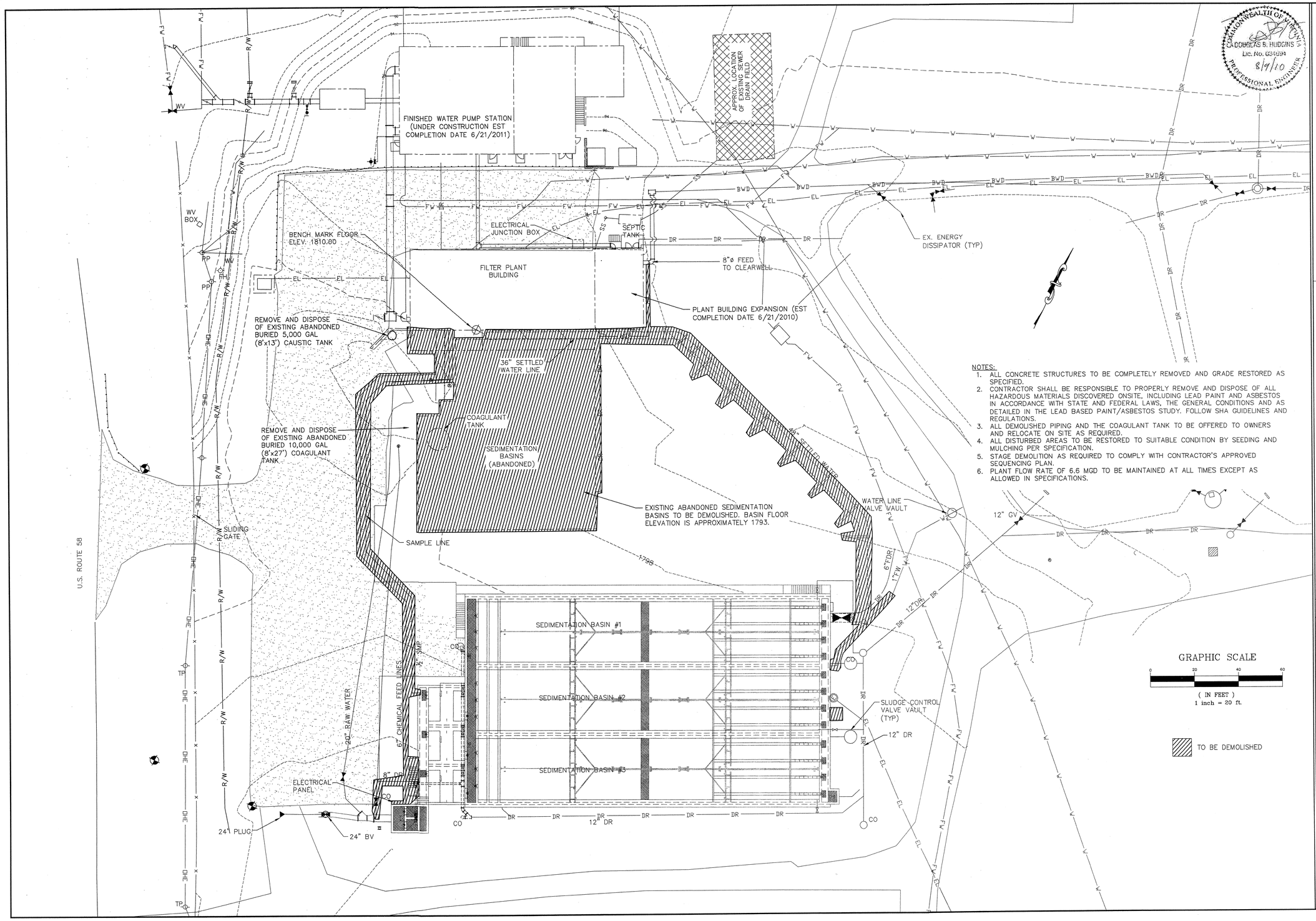
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

VALVE VAULTS

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
D	BID ISSUE	8/9/10	DBH

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

C005



NOTES:

1. ALL CONCRETE STRUCTURES TO BE COMPLETELY REMOVED AND GRADE RESTORED AS SPECIFIED.
2. CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY REMOVE AND DISPOSE OF ALL HAZARDOUS MATERIALS DISCOVERED ONSITE, INCLUDING LEAD PAINT AND ASBESTOS IN ACCORDANCE WITH STATE AND FEDERAL LAWS, THE GENERAL CONDITIONS AND AS DETAILED IN THE LEAD BASED PAINT/ASBESTOS STUDY. FOLLOW SHA GUIDELINES AND REGULATIONS.
3. ALL DEMOLISHED PIPING AND THE COAGULANT TANK TO BE OFFERED TO OWNERS AND RELOCATE ON SITE AS REQUIRED.
4. ALL DISTURBED AREAS TO BE RESTORED TO SUITABLE CONDITION BY SEEDING AND MULCHING PER SPECIFICATION.
5. STAGE DEMOLITION AS REQUIRED TO COMPLY WITH CONTRACTOR'S APPROVED SEQUENCING PLAN.
6. PLANT FLOW RATE OF 6.6 MGD TO BE MAINTAINED AT ALL TIMES EXCEPT AS ALLOWED IN SPECIFICATIONS.

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD
EXISTING SITE AND DEMOLITION PLAN

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	DBH
B	VDH RESUBMITTAL	7/13/10	DBH
A	VDH SUBMITTAL	5/3/10	DBH

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2009
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

C101

LEGEND

- NEW FINISH GRADE SPOT ELEV
- UTILITY POLE AND GUY WIRE
- EXISTING GUARD RAIL
- NEW BOLLARD
- 500 NEW CONTOUR
- EXISTING EDGE PAVEMENT
- 501 EXISTING CONTOUR
- EXISTING FENCE
- W WATER PIPE
- SD NEW STORM DRAIN
- NEW ASPHALT PAVING
- ASPHALT OVERLAY
- SILT FENCE
- OHE OVERHEAD ELEC
- UT UNDERGROUND TELEPHONE
- E.P EDGE PAVEMENT
- NEW GRAVEL SURFACE
- LIMITS OF DISTURBED AREA
- EX STORM DRAIN
- EX MANHOLE
- NEW MANHOLE/INLET
- (SCE) CONSTRUCTION STONE ENTRANCE
- (TS) TEMPORARY SEEDING
- (PS) PERMANENT SEEDING
- (MU) MULCH
- (IP) INLET PROTECTION
- (OP) OUTLET PROTECTION
- (SR) SURFACE ROUGHENING
- (CI) CULVERT INLET PROTECTION
- (SM) SOIL STABILIZATION BLANKETS & MATTING
- (SD) STORM WATER CONVEYANCE CHANNEL
- B1 BORING LOCATION

ABBREVIATION LEGEND

FW	FINISHED WATER
RW	RAW WATER
TW	TREATED WATER
HB	HOSE BIBB
B-FLY	BUTTERFLY VALVE
FD	FLOOR DRAIN
GV	GATE VALVE
D	DRAIN
W	DOMESTIC WATER
R/W	RIGHT-OF-WAY
TOW	TOP OF WALL ELEVATION
SD-	STORM DRAIN
BW	BACKWASH

VDOT RIGHT OF WAY
100 YR FLOOD ELEV= 1785
PHASE I FINISHED GRADE BY OTHERS
CONC. PAD
EXISTING MAINTENANCE BUILDING
EXISTING GRAVEL ROAD
NEW, 10" PVC STORM DRAIN 0.5% MIN SLOPE
FF. EL. =1799.00
FINISHED WATER PUMP STATION BY OTHERS
VAULT BY OTHERS
TRANSFORMER CONC. PAD BY OTHERS
EXISTING SEWER LINE TO BE ABANDONED AT TIME OF EXISTING SEWER LINE REMOVAL
NO CONSTRUCTION VEHICLE TRAFFIC ALLOWED IN THIS AREA
PARKING
PROPOSED NEW PAVEMENT
EX. EDGE OF DRIVE
EX. SEPTIC TANK TO REMAIN
EXISTING GRAVEL ROAD
UTILITY EASEMENT BOUNDARY
EXISTING ELECTRIC BOXES
HVAC EQ PAD 18'X5'
EXISTING FILTER PLANT BUILDING
FF. EL.=1798.00
SEE NOTE 1
NEW GRAVEL ACCESS ROAD
NEW, 10" STORM DRAIN 4.2% MIN SLOPE ADJUST AS NECESSARY TO AVOID CONFLICTS WITH EXISTING UTILITIES
15' MIN
ASPHALT PAVING OVERLAY SEE TYPICAL PAVING SECTION
EXISTING RAILING
PARKING SPACES
NEW SIGN
HANDRAIL
FF. EL.=1810.0
EX BASINS TO BE REMOVED
PLANT BUILDING EXPANSION
B7
B6
B1
B2
DI
CONC. SIDEWALK
CONC. PAD TYP EACH DOOR
INTERMEDIATE BOOSTER PUMP STATION F.F 1799.25
CHEMICAL FEED BUILDING FF EL 1803.0
BULK STORAGE BUILDING
NOTE 7
STEPS
AREA INLET
EX STAIRS
EX SIDEWALK NOTE 5
SEDIMENTATION BASIN #1
SEDIMENTATION BASIN #2
SEDIMENTATION BASIN #3
B3
B4
B5
BM - TPOST FLUSH WITH GROUND N 3420001.45 E 1048287.06 GROUND - ELEV. 1797.79
EX. EP
EX SLIDING GATE AND CONTROLS TO BE RELOCATED TO NEW ENTRANCE BY VDOT
NEW EDGE PVMT
CONC. PAD TYP EACH DOORS
R-O-W & NEW FENCE BY VDOT
BM - CAPPED IRON ROD - N 3420156.62 E 1048330.66 ELEV. 1800.60
BM - MAG NAIL & WASHER IN TOP OF PAVEMENT N 3420137.59 E 1048368.28 ELEV. 1804.31
ALT BID ENERGY RECOVERY PRESSURE REDUCING BUILDING
BID ALTERNATE B
NEW ENTRANCE BY VDOT
LIMITS OF CONSTRUCTION
GRAVEL ACCESS ROAD SEE TYPICAL SECTION
LIMITS OF DISTURBANCE
NEW 10" INV 1799.3 ENDWALL SEE C103
EXISTING SETTLING POND
INTAKE PUMP HOUSE
INTAKE PUMP CONTROL ROOM
INTAKE PUMP PLATFORM
INTAKE PUMP DECK
AEP EASEMENT
AEP SUBSTATION SITE
FENCE BY OTHERS
P.L.

GENERAL NOTES

1. CONTRACTOR TO PROVIDE TEMPORARY SUPPORT OF EXISTING 48" DIAMETER WATER AS NECESSARY DURING CONSTRUCTION OF THE PLANT BUILDING EXPANSION
2. CONNECT ROOF-GUTTER DOWNSPOUTS TO STORM DRAIN PIPE AT ALL NEW BUILDING. MIN STORM DRAIN PIPE SIZE 8" PVC UNLESS NOTED OTHERWISE
3. PROVIDE ASPHALT PAVEMENTS PER TYP DETAIL
4. CONNECT EXISTING 4" DRAIN TO NEW STORM DRAIN PIPE
5. NEW SIDEWALK TOP ELEV TO MATCH EXISTING SIDEWALK FINISHED GRADE ELEVATION
6. ALL EXISTING PAVEMENT SHALL BE OVERLAID WITH NEW ASPHALT PER TYP SECTION. EXISTING PAVEMENT DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED PER THE DETAIL
7. ALTERNATE BID INCREASE SIZE BULK STORAGE BUILDING

NEW STRUCTURE LOCATIONS
REFERENCE ON SITE BENCH MARKS

		NORTHING	EASTING
CHEM FEED BLDG CORNER	A	3429333.20	10488388.76
CHEM FEED-BLDG CORNER	B	3429363.63	10488449.55
BULK STORAGE BLDG CORNER	C	3429373.78	10488469.86
BULK STORAGE BLDG CORNER	D	3429399.98	10488522.23
INT. BOOSTER PUMP STA CORNER	E	3429411.05	10488543.10
INT. BOOSTER PUMP STA CORNER	F	3429426.69	10488573.58
ENERGY RECOVERY BLDG CORNER	G	3429235.59	10488405.28
ENERGY RECOVERY BLDG CORNER	H	3429249.02	10488432.10

30 0 30 60 90
SCALE IN FEET

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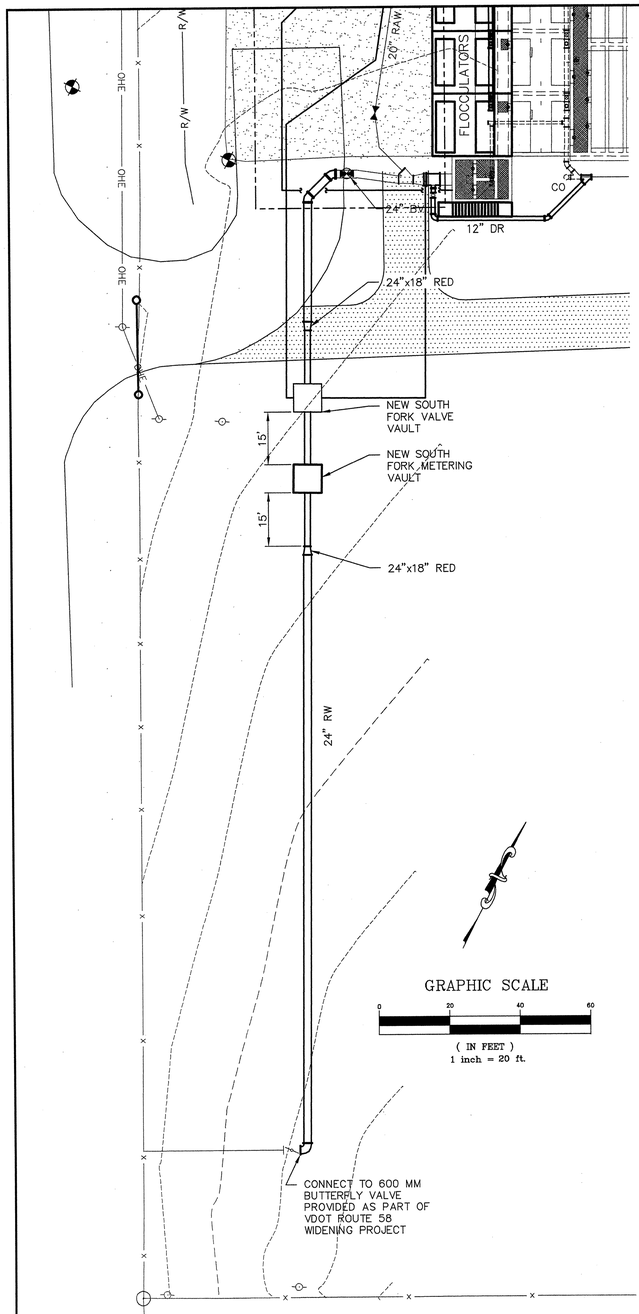
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP INTERIM IMPROVEMENT

PROPOSED SITE PLAN

Rev.	Description	Date	By
A	50% SUBMITTAL	7/15/09	ETA

Designed:	JDS
Drawn:	MLB
Checked:	JDS
Date:	JUNE 2010
Scale:	AS SHOWN
Job No.	12367.11
Archived File Name:	

C102



GRAPHIC SCALE

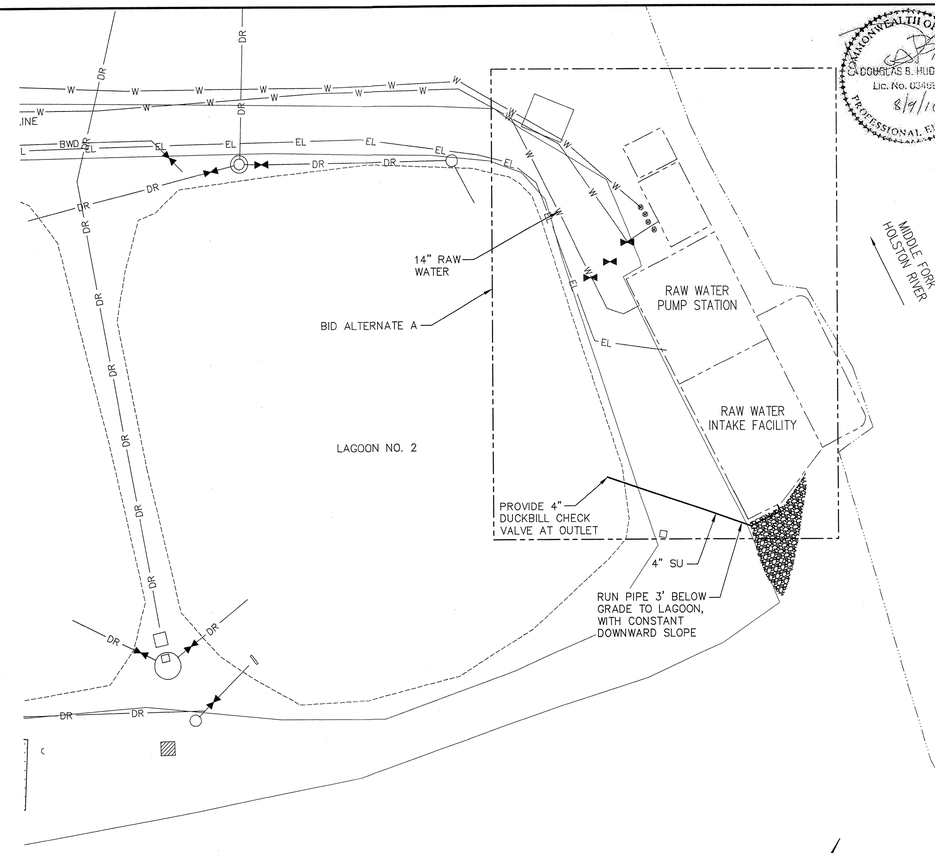
0 20 40 60

(IN FEET)
1 inch = 20 ft.

24" SOUTH FORK RAW WATER LINE CONTINUATION

C103.1 / C103

SCALE: 1"=20'



GRAPHIC SCALE

0 20 40 60

(IN FEET)
1 inch = 20 ft.

RAW WATER PUMP STATION YARD PIPING PLAN

C103.2 / C103

SCALE: 1"=20'

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

SOUTH FORK CONNECTION
AND MIDDLE FORK INTAKE YARD PIPING PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

C103

LEGEND
BWD = BACKWASH DRAIN
CO = CLEANOUT
DR = DRAIN
EL = ELECTRICAL LINE
FE = FILTER EFFLUENT
FHA = FIRE HYDRANT ASSEMBLY
FW = FINISHED WATER
OHE = OVERHEAD ELECTRIC
PP = POWER POLE
R/W = RIGHT-OF-WAY
SU = SUMP
TMP = TEMPORARY PIPING
TVW = TAYLOR'S VALLEY WATER
WV = WATER VALVE

FINISHED WATER PUMP STATION
(EST COMPLETION DATE 6/21/2011)

6" FW
36" FE
3" SU
8" TVW
2" FW
4" FW
12" RW
2" PW
SEPTIC TANK
V-022
NEW DRAIN MANHOLE
FILTER PLANT BUILDING
PLANT BUILDING
CONNECT NEW 36" FE TO EXISTING BFLY VALVE
6" PW
SEE NOTE 3
NEW CLEARWELL DRAIN MANHOLE
V-023
EXISTING YARD PIPING SHOWN FOR REFERENCE
4" PW
4" DR
V-018
18" RW
4" MUD VALVE
V-019
V-020
18" BFLY (TYP OF 2)
V-024
1" PW
1" FSA
CHEMICAL FEED BUILDING
INTERMEDIATE BOOSTER PUMP STATION
FIRE HYDRANT
BULK CHEMICAL STORAGE
PROVIDE NEW 36"x18" RED
36" SE
1" PW
WATER LINE VALVE VAULT
V-021
SEDIMENTATION BASIN #1
SEDIMENTATION BASIN #2
SEDIMENTATION BASIN #3
FLOCCULATORS
2-1" SMP LINES
½" POLY
1.5" CLS
SEE NOTE 4
FIRE HYDRANT
20" RAW WATER
8" DR
12" DR
24" BV
RELOCATE PLUG VALVE
1" SMP (CONTAINED SIMILAR TO CHEMICAL PIPING)
24" RW
18" RW
NEW SOUTH FORK VALVE VAULT
NEW SOUTH FORK METERING VAULT
FOR CONTINUATION SEE C103.1
SEE NOTE 1
1" SMP FROM EACH BASIN
SEE NOTE 2
SLUDGE CONTROL VALVE VAULT (TYP OF 2)
NEW 5' DRAIN MANHOLE 16" INVERT TO MATCH EXISTING 12" INVERT. CONTRACTOR PROVIDE FIELD DEPTH MEASUREMENT PRIOR TO MANHOLE SHOP DRAWING SUBMITTAL. ESTIMATED INVERT IS 1791.
TO TAYLOR'S VALLEY TANK AND 16" SHUTOFF VALVE.
12" WCSA WATER SUPPLY
EX. ENERGY DISSIPATOR (TYP)
NEW ENDWALL 1
V-026
V-027
V-025
IE=1788
LAGOON NO. 1
IE=1785
NEW ENDWALL 2
SEE C001 TYP
V-028
12" GV
16" DR
WV BOX
PP
FH
SLIDING GATE
U.S. ROUTE 58

GRAPHIC SCALE
0 20 40 60
(IN FEET)
1 inch = 20 ft.

NOTES:
1. PROVIDE FLEXIBLE DUCKBILL CHECK VALVE AT 4"DR PIPE ENTRANCE TO MANHOLE, IE=1796.
2. CONNECT NEW 16"DR TO 12" OVERFLOW W/ 12"x16" RED 1' FROM SEDIMENTATION BASIN WALL
3. THIS LINE CONSISTS OF: ½" $NaMnO_4$, ½" CAUSTIC, 1" SPARE, 2" SPARE. 2" PAC, 1.5" CLS, 1.5" CLS, 2" CLS, 1" PACl, 1" PACl, ½" POLY.
4. THIS LINE CONSISTS OF: 2" CLS, 2" PAC, 2" SOL, 2" SOL, 1" SPARE, 1" SPARE

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD
YARD PIPING PLAN – BASE BID

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

C104

PLANT BUILDING

NEW DRAIN MANHOLE

V-023

4" DR

24" DR

½" $NaMnO_4$
½" CAUSTIC
1" SPARE
2" SPARE
2" PAC
1.5" CLS
1.5" CLS
2" CLS
1" PACI
1" PACI
½" POLY

6" PW

18" RW

V-018

4" PW

20" RW

6" PW

V-019

V-020

V-024

BID ALTERNATE A

1" PW

4" DR

1" FSA

FIRE HYDRANT

CHEMICAL FEED BUILDING

INTERMEDIATE BOOSTER PUMP STATION

36" SE

BULK CHEMICAL STORAGE

BID ALTERNATE A

PULL BOX

SCRUBBER

SEDIMENTATION BASIN #1

BID ALTERNATE B PIPING

½" POLY

1.5" CLS CO

PULL BOX

GROUTING OF INFLUENT CHANNEL IS PART OF BID ALT A

2" CLS
2" PAC
2" SOL
2" SOL
1" SPARE
2" SPARE

FIRE HYDRANT

SEDIMENTATION BASIN #2

ENERGY RECOVERY BUILDING

FLOCCULATORS

SEDIMENTATION BASIN #3

V-016

CO

12" DR

24" BV

FOR BID ALTERNATE B RELOCATE 24" VALVE AS V-015

V-021

DR

EL

FW

W

GRAPHIC SCALE

0 10 20 30

(IN FEET)
1 inch = 10 ft.

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

YARD AND CHEMICAL PIPING PLAN DETAIL

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

C105

LEGEND
BWD = BACKWASH DRAIN
CO = CLEANOUT
DR = DRAIN
EL = ELECTRICAL LINE
FE = FILTER EFFLUENT
FHA = FIRE HYDRANT ASSEMBLY
FW = FINISHED WATER
OHE = OVERHEAD ELECTRIC
PP = POWER POLE
R/W = RIGHT-OF-WAY
SU = SUMP
TMP = TEMPORARY PIPING
TVW = TAYLOR'S VALLEY WATER
WV = WATER VALVE

FINISHED WATER PUMP STATION
(EST COMPLETION DATE 6/21/2010)

PLANT BUILDING

FILTER PLANT BUILDING

NEW DRAIN MANHOLE V-022

SEPTIC TANK

CONNECT NEW 36" FE TO EXISTING BFLY VALVE

EXISTING YARD PIPING SHOWN FOR REFERENCE

NEW CLEARWELL DRAIN MANHOLE V-023 IE=1792

SEE NOTE 3

4" PW

V-018 V-019 V-020

BID ALTERNATE A V-024

CHEMICAL FEED BUILDING

BID ALTERNATE A

FIRE HYDRANT

INTERMEDIATE BOOSTER PUMP STATION

BULK CHEMICAL STORAGE

SCRUBBER

V-021

WATER LINE VALVE VAULT

SEDIMENTATION BASIN #1

SEDIMENTATION BASIN #2

SEDIMENTATION BASIN #3

GROUTING OF INFLUENT CHANNEL IS PART OF BID ALT A

BID ALTERNATE B PIPING

2-1" SMP LINES

ENERGY RECOVERY BUILDING

FIRE HYDRANT

SEE NOTE 4

FLOCCULATORS

V-016

24" BV

12" DR

30" BFLY

SEE NOTE 2

SEE NOTE 1

SLUDGE CONTROL VALVE VAULT (TYP OF 2)

NEW 5' DRAIN MANHOLE 15" INVERT TO MATCH EXISTING 12" INVERT. CONTRACTOR PROVIDE FIELD DEPTH MEASUREMENT PRIOR TO MANHOLE SHOP DRAWING SUBMITTAL. ESTIMATED INVERT IS 1791.

NEW MANHOLE

TO TAYLOR'S VALLEY TANK AND 16" SHUTOFF VALVE.

EX. ENERGY DISSIPATOR (TYP)

NEW ENDWALL 1, SEE C001 TYP

IE=1790

V-026 V-027 V-025

IE=1790

LAGOON NO. 1

NEW ENDWALL 2 SEE C001 TYP

IE=1790

V-028

12" GV

12" WCSA WATER SUPPLY

U.S. ROUTE 58

SLIDING R/W GATE

NEW SOUTH FORK METERING VAULT

FOR CONTINUATION SEE C103.1

GRAPHIC SCALE
0 20 40 60
(IN FEET)
1 inch = 20 ft.

NOTES:
1. PROVIDE FLEXIBLE DUCKBILL CHECK VALVE AT 4"DR PIPE ENTRANCE TO MANHOLE, IE=1796.
CONNECT NEW 16"DR TO 12" OVERFLOW W/ 12"x16" RED 1' FROM SEDIMENTATION BASIN WALL
2. THIS LINE CONSISTS OF: ½" $NaMnO_4$, ½" CAUSTIC, 1" SPARE, 2" SPARE. 2" PAC, 1.5" CLS, 1.5" CLS, 2" CLS, 1" PACI, 1" PACI, ½" POLY
3. THIS LINE CONSISTS OF: 2" CLS, 2" PAC, 2" SOL, 2" SOL, 1" SPARE, 1" SPARE

COMMONWEALTH OF VIRGINIA
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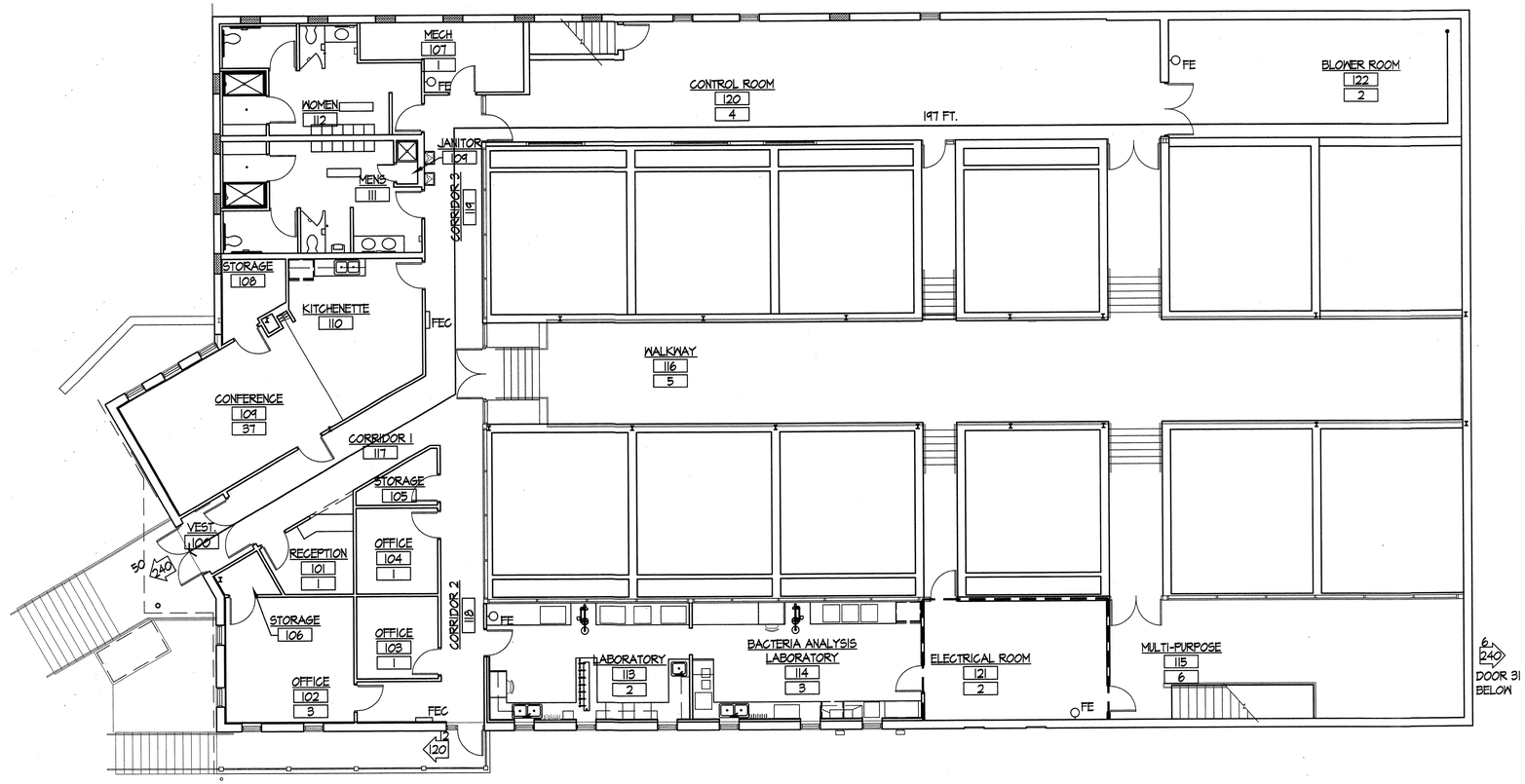
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

YARD PIPING PLAN
BID ALTERNATE A&B

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
D	BID ISSUE	8/9/10	DBH

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

C106



FIRE PROTECTION PLAN

SCALE: 1/8" = 1'-0"

MEANS OF EGRESS KEY

EXIT CAPACITY IN NUMBER OF OCCUPANTS ### / ### — CUMULATIVE OCCUPANT LOAD CALCULATED

ROOM NAME
ROOM NUMBER # / # — # OF OCCUPANTS CALCULATED

FURTHEST EXIT ACCESS TRAVEL DISTANCE

1 HOUR FIRE-RATED PARTITIONS

FE — FIRE EXTINGUISHER

FEC — FIRE EXTINGUISHER CABINET

WCSA TREATMENT PLANT BUILDING CODE INFORMATION

BUILDING CODE: VIRGINIA UNIFORM STATEWIDE BUILDING CODE MAY 1, 2008 EDITION
INTERNATIONAL BUILDING CODE 2006

USE GROUP: FACTORY/INDUSTRIAL
F-2 LOW HAZARD
TABLE 508.3.3 - NO SEPARATION REQUIRED

CONSTRUCTION CLASSIFICATION: TYPE IIB, NONCOMBUSTIBLE/UNPROTECTED

AUTOMATIC SPRINKLER SYSTEM: NOT SPRINKLERED

BUILDING LIMITATIONS:	F-2, FACTORY/INDUSTRIAL
AREA UPPER FLOOR, ACTUAL	12,260 GSF
AREA LOWER FLOOR, ACTUAL	12,075 GSF
ALLOWABLE AREA PER FLOOR (NUM OF FLOORS)	23,000 (3)
ALLOWABLE TOTAL AREA	69,000
NO AREA MODIFICATION NEEDED	
ALLOWABLE HEIGHT	3 STORY/55 FT
ACTUAL HEIGHT	36.41 FT
NO HEIGHT MODIFICATION NEEDED	

OCCUPANCY LOAD: TABLE 1004.1.1

GROSS BUILDING AREA:	12,196 GSF
SEC. 303.1 CONF. 104 - ASSEMBLY W/LESS THAN 50 OCC. = B, BUSINESS	31 OCC.
TABLE 508.3.3 NOTE b. - NO SEPARATION	
GROSS BUILDING OCC. LOAD	117 OCC.
TOTAL OCCUPANT LOAD:	155 OCC.

EXIT ACCESS TRAVEL DISTANCE
TABLE 1016.1 — 300'

FIRE RESISTANCE RATINGS OF STRUCTURAL ELEMENTS & OPENINGS

BUILDING ELEMENT		WALLS & STRUCTURE	OPENINGS	DAMPERS (TABLE 715.4)
STRUCTURAL FRAME	COLUMNS, GIRDERS, TRUSSES	0 HR (Table 601)	NR	NR
BEARING WALLS	EXTERIOR	0 HR (Table 601)	NR	
	INTERIOR	0 HR (Table 601)	NR	
NONBEARING WALLS	EXTERIOR	0 HR (Table 602)	NR	
	INTERIOR	0 HR (Table 601)		
FLOOR CONSTRUCTION		0 HR (Table 601)	NR	
ROOF CONSTRUCTION		0 HR (Table 601)	NR	

NOTES: 1) NR= NO REQUIREMENT

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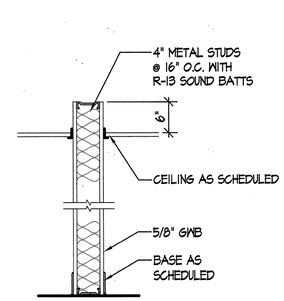
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WATER TREATMENT PLANT

BUILDING CODE SUMMARY

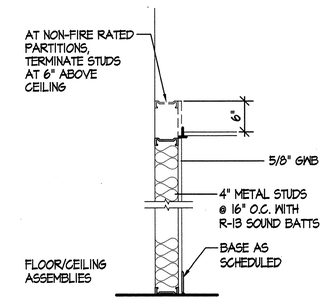
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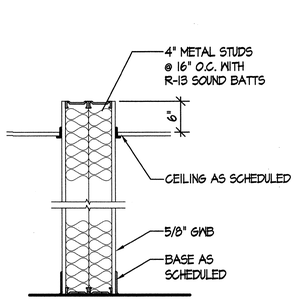
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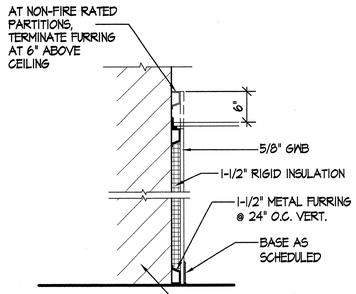
1 PARTITION DETAIL
A111 A030 SCALE: 1" = 1'-0"
A112
A113
0 1 2 3FT.



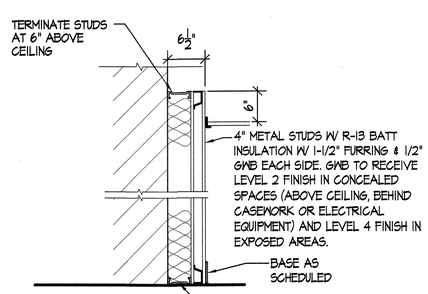
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A111 A030 SCALE: 1" = 1'-0"
A112
A113
0 1 2 3FT.



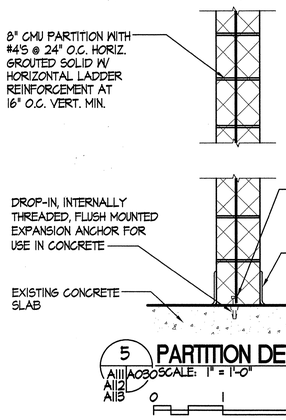
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A111 A030 SCALE: 1" = 1'-0"
A112
A113
0 1 2 3FT.



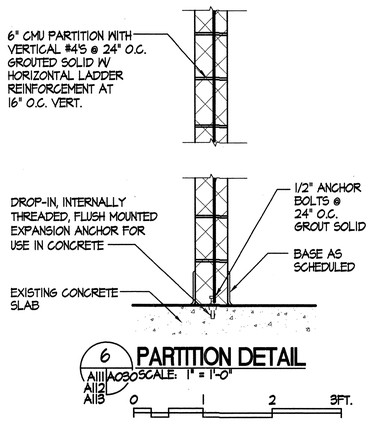
4 PARTITION DETAIL
A111 A030 SCALE: 1" = 1'-0"
A112
A113
0 1 2 3FT.



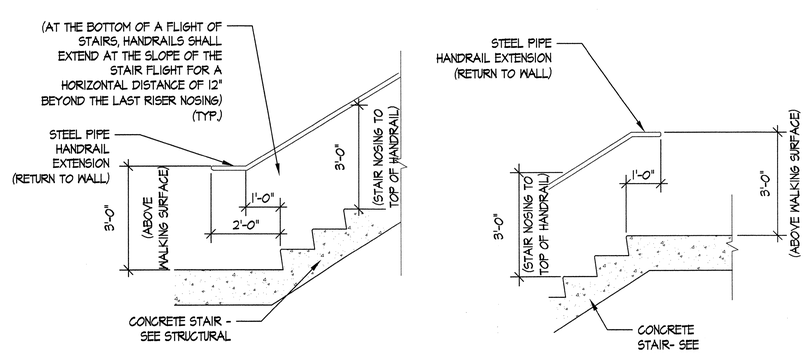
4A PARTITION DETAIL
A111 A030 SCALE: 1" = 1'-0"
A112
A113
0 1 2 3FT.



5 PARTITION DETAIL
A111 A030 SCALE: 1" = 1'-0"
A112
A113
0 1 2 3FT.



6 PARTITION DETAIL
A111 A030 SCALE: 1" = 1'-0"
A112
A113
0 1 2 3FT.



A TYPICAL HANDRAIL DETAILS
A101 A030 SCALE: 1/2" = 1'-0"
A112

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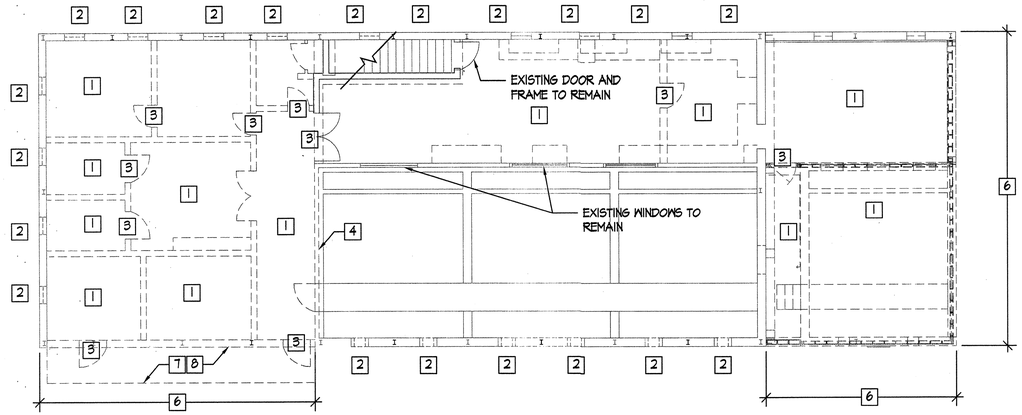
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WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
PARTITION TYPES

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Archived File Name:

A030



DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

NOTE: SEE SECTION A/A133 FOR ADDITIONAL DEMOLITION INFORMATION.

DEMOLITION NOTES:

1. DEMOLISH ALL INTERIOR PARTITIONS, DOORS, FRAMING, TRIM, CASEWORK, SINKS, FLOORING, BASE AND CEILING THIS AREA. REFER TO MECHANICAL, ELECTRICAL, PLUMBING AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
2. DEMOLISH EXISTING WINDOWS AND FRAMING. DEMOLISH SIDING, INCLUDING ALL TRIM AND FURRING AND PREP MASONRY FOR INSTALLATION OF STONE VENEER OR NEW STOREFRONT WINDOWS AT EXISTING WINDOW AND SIDING LOCATIONS.
3. DEMOLISH EXISTING DOOR AND FRAME. COORDINATE WITH STRUCTURAL DEMOLITION INFORMATION FOR COLUMNS AND BEAMS TO REMAIN.
4. DEMOLISH EXISTING STOREFRONT SYSTEM. PREP EXISTING OPENING FOR INSTALLATION OF NEW STOREFRONT SYSTEM.
5. NOT USED.
6. DEMOLISH EXISTING EXTERIOR WALL, WINDOWS, DOORS AND FRAMES. COORDINATE WITH EXISTING STRUCTURE TO REMAIN.
7. DEMOLISH EXISTING CANOPY AND RELATED STRUCTURE, ROOFING, AND FLASHING.
8. DEMOLISH EXISTING LOADING DOCK IN ITS ENTIRETY.

ASBESTOS - CONTAINING MATERIAL STATEMENT

AN ASBESTOS INSPECTION WAS PERFORMED BY HDH ASSOCIATES DURING MAY 24, 2010 AND ASBESTOS - CONTAINING MATERIALS WERE FOUND GENERALLY IN THE AREAS INDICATED. THE ASBESTOS SURVEY/ INSPECTION REPORT IS AVAILABLE TO THE CONTRACTOR(S) FOR THEIR INFORMATION. THE ASBESTOS - CONTAINING MATERIALS SHALL BE REMOVED BY THE CONTRACTOR PRIOR TO ANY OTHER WORK BEING PERFORMED IN THESE AREAS. THE ASBESTOS ABATEMENT CONTRACTOR SHALL MARK UP THE ASBESTOS MANAGEMENT PLAN TO SHOW THE "AS BUILT" CONDITIONS RESULTING FROM ITS WORK TO INCLUDE AREAS WHERE ASBESTOS WAS ABATED, AREAS WHERE ASBESTOS WAS ENCAPSULATED, AND AREAS WHERE ASBESTOS CONTAINING MATERIALS EXIST, BUT WHERE LEFT IN PLACE.

ASBESTOS CONTAINIGN MATERIALS INCLUDE THE FOLLOWING:

FLOOR TILE AND MASTIC - WHERE INDICATED ON PLANS.

BASEBOARD MASTIC - ALL EXISTING LOCATIONS.

DUCT INSULATION MASTIC - ALL EXISTING LOCATIONS.

ELBOW MUD FOR PIPING INSULAITON - ALL EXISTING LOCATIONS.

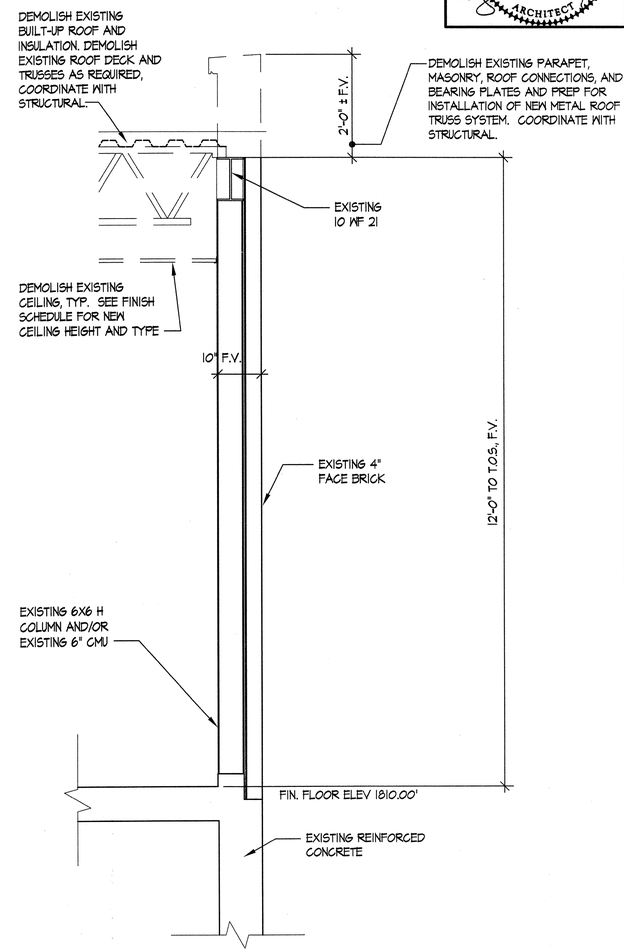
SPRAY-ON FIREPROOFING - ALL FIRST FLOOR STEEL BEAMS. SEE SHEET D1A FOR STEEL BEAM LOCATIONS.

LEAD-BASED PAINT STATEMENT

A LEAD-BASED PAINT INSPECTION WAS PERFORMED BY HDH ASSOCIATES DURING MAY 24, 2010. IT WAS DETERMINED BY HDH ASSOCIATES THAT EXTENSIVE TESTING OF THE PAINTED SURFACES WITHIN THE RENOVATION AREAS WAS NOT NECESSARY. THE PAINTED SURFACES TO REMAIN AFTER INTERIOR DEMOLITION OF THESE LOCATIONS WAS IN GOOD CONDITION AND ACTUAL ABATEMENT OF THE PAINTED SURFACES WOULD BE NECESSARY ONLY IN INSTANCES WHERE THE SURFACE WAS TO BE SANDED, SCRAPED, OR ABRADED TO PREPARE FOR RE-PAINTING OR RE-SURFACING. COMPONENT DEMOLITION (I.E., WALLS, CEILINGS, TRIM WORK, WINDOWS, ETC.) WOULD REQUIRE TESTING OF THE DEBRIS (TCLP'S) BY THE DEMOLITION CONTRACTOR PRIOR TO DISPOSAL TO DETERMINE ITS DISPOSITION AS HAZARDOUS WASTE. ABATEMENT PRIOR TO DEMOLITION WOULD NOT BE REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL REQUIREMENTS OF THE VIRGINIA OCCUPATIONAL AND HEALTH ADMINISTRATION REGULATIONS REGARDING LEAD-BASED PAINT PROTECTION FOR WORKERS.

GENERAL DEMOLITION NOTES:

1. REMOVE EXISTING ROOFING SYSTEM IN ITS ENTIRETY DOWN TO THE EXISTING METAL DECK TO REMAIN. COORDINATE WITH STRUCTURAL DEMOLITION.
2. COORDINATE WITH OWNER TO GAIN ACCESS TO ALL SPACES INDICATED. COORDINATE WITH OWNER TO SCHEDULE AND SEQUENCE ALL WORK ACTIVITIES.
3. NOTE THAT THE EXISTING BUILDING AND PARKING AREAS WILL BE OCCUPIED BY STAFF AND VISITORS DURING THE CONSTRUCTION OF THE ADDITION TO THE EXISTING BUILDING. PERFORM ALL WORK ACTIVITIES AND MATERIAL HANDLING AND STORAGE ACTIVITIES IN A MANNER THAT IS SAFE AND THAT WILL PROTECT ALL BUILDING OCCUPANTS, VISITORS, AND THEIR PERSONAL PROPERTY FROM HARM.
4. COORDINATE DEMOLITION AND WORK ACTIVITIES SO THAT THE NEW ADDITION IS CONSTRUCTED FIRST, SO THAT THE OWNER MAY MOVE FROM THEIR CURRENT LOCATIONS IN THE EXISTING BUILDING TO THE NEW ADDITION PRIOR TO PERFORMING DEMOLITION AND NEW CONSTRUCTION IN THE EXISTING BUILDING.
5. COORDINATE DEMOLITION AND NEW WORK ACTIVITIES SO THAT UTILITIES, SERVICES AND ACCESS IS NOT INTERRUPTED TO THE EXISTING BUILDING WHILE NEW ADDITION IS BEING CONSTRUCTED.
6. COORDINATE DEMOLITION AND NEW WORK ACTIVITIES SO THAT UTILITIES, SERVICES, AND ACCESS IS NOT INTERRUPTED TO THE NEW ADDITION WHILE THE EXISTING BUILDING IS BEING RENOVATED.
7. COORDINATE DEMOLITION AND WORK ACTIVITIES SO THAT ANY WORK IN THE ADDITION DOES NOT DISTURB THE DAY TO DAY OPERATIONS OF THE EXISTING WATER TREATMENT PLANT.
8. REFER TO DEMOLITION PLANS AND NEW FLOOR PLANS TO DETERMINE SCOPE AND COORDINATION OF INTERIOR DEMOLITION AREAS AND ACTIVITIES.
9. PROVIDE ALL NECESSARY AND REQUIRED TEMPORARY BARRIERS SUCH AS CAUTION TAPE, TEMPORARY BARRICADES, AND OTHER ITEMS TO PROHIBIT THE BUILDING OCCUPANTS FROM BEING INJURED DUE TO CONSTRUCTION ACTIVITIES.
10. DEMOLISH ALL ELECTRICAL, MECHANICAL, AND MISC. ITEMS THAT ARE ASSOCIATED WITH ITEMS WHICH ARE INDICATED TO BE DEMOLISHED, UNLESS OTHERWISE NOTED.
11. PREPARE ALL NEW OPENINGS FOR INSTALLATION OF NEW DOORS AND WINDOWS OR WALL INFILL AS INDICATED.
12. PATCH AND FINISH TO MATCH EXISTING ANY SURFACES AFFECTED BY DEMOLITION ACTIVITIES.
13. PATCH AND PREPARE ALL EXISTING CONSTRUCTION AS REQUIRED FOR INSTALLATION OF NEW WORK.
14. SHORE AND BRACE ALL EXISTING CONSTRUCTION AS REQUIRED DURING DEMOLITION ACTIVITIES.
15. DISPOSE OF ALL DEBRIS OFF SITE IN A LEGAL MANNER.
16. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO BEGINNING DEMOLITION WORK ACTIVITIES.
17. PROVIDE MEANS OF TEMPORARILY WATERPROOFING ROOFS IN CASE OF UNEXPECTED INCLEMENT WEATHER WHERE DEMOLITION ACTIVITIES OCCUR.
18. DO NOT OVERLOAD EXISTING ROOFS WITH CONSTRUCTION ACTIVITIES OR CONCENTRATED LOADS OF MATERIALS DURING DEMOLITION OR WORK ACTIVITIES.
19. IT IS NOT ANTICIPATED THAT HAZARDOUS MATERIALS WILL BE ENCOUNTERED DURING THE DEMOLITION AND CONSTRUCTION ACTIVITIES. IF THE CONTRACTOR DISCOVERS OR HAS REASON TO BELIEVE THAT HAZARDOUS MATERIALS ARE PRESENT,THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING IMMEDIATELY.



1 WALL SECTION - EXISTING EXTERIOR WALL

SCALE: 3/4" = 1'-0"

A040 A040

23. DEMOLISH SITE AND BUILDING ITEMS AS INDICATED ON DEMOLITION PLAN NOTES, AND AS INDICATED IN NOTES BELOW, AND AS REQUIRED FOR RENOVATION WORK.
24. COORDINATE WITH SITE PLAN FOR ADDITIONAL SITE RELATED DEMOLITION WORK.
25. DO NOT DEMOLISH ANY EXISTING STRUCTURAL ELEMENTS UNLESS NOTED IN STRUCTURAL DEMOLITION INFORMATION.
26. DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. DO NOT INTERRUPT EXISTING BUILDING WATER, OR OPERATIONS AS REQUIRED FOR INSTALLATION OF NEW WORK.
27. SAW CUT EXISTING CONCRETE SLAB ONLY AS REQUIRED AND ASSOCIATED PIPING AND ACCESSORIES. PROVIDE NEW CONCRETE FILL TO PATCH AREAS DISTURBED BY CUTTING OF SLAB. MATCH EXISTING FLOOR LEVEL WITH NEW CONCRETE.

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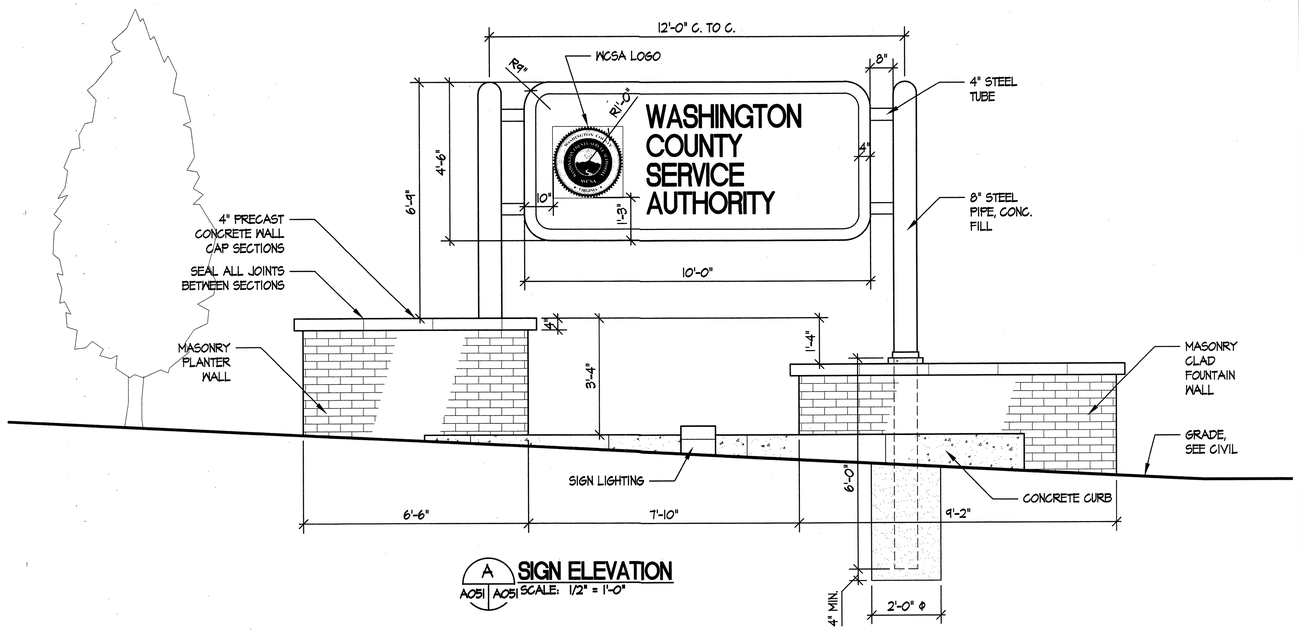
WASHINGTON COUNTY SERVICE AUTHORITY
TREATMENT PLANT BUILDING

DEMOLITION PLAN

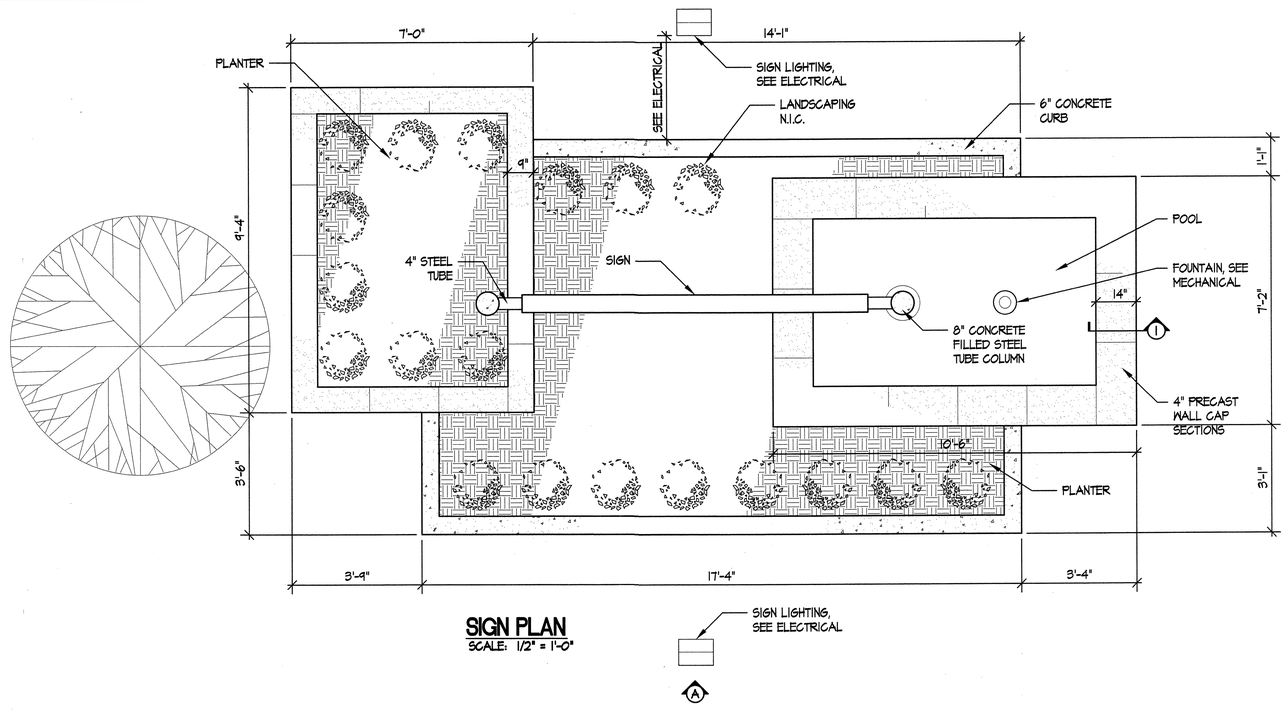
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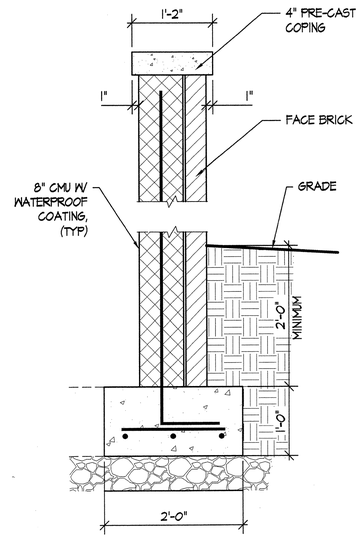
A040



A SIGN ELEVATION
A051 | A051 SCALE: 1/2" = 1'-0"



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



1 SIGN DETAIL
A051 | A051 SCALE: 3/4" = 1'-0"

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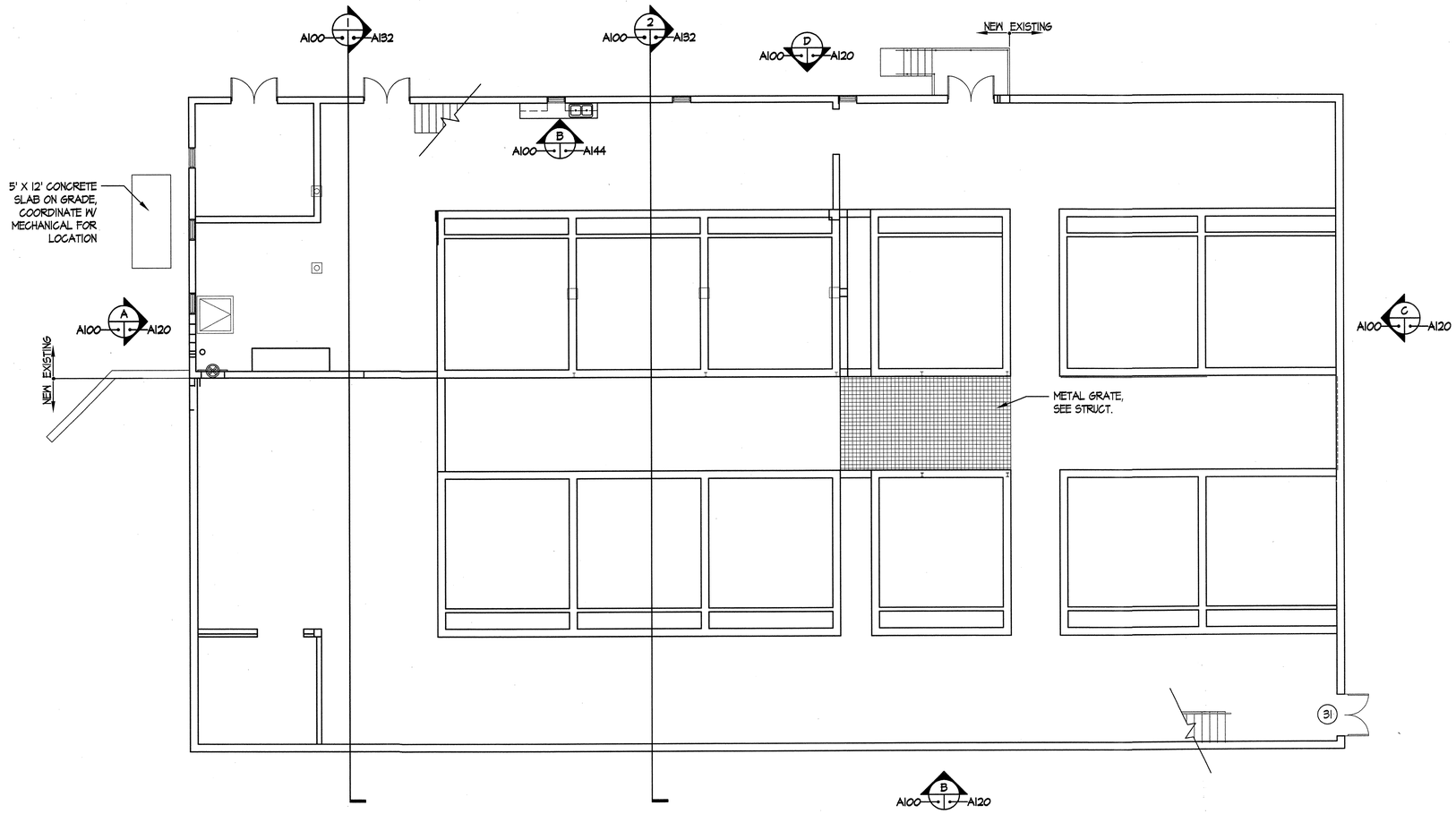
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WATER TREATMENT PLANT EXPANSION

SITE SIGNAGE

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WATER TREATMENT PLANT LOWER LEVEL FLOOR PLAN

SCALE: 1/8 = 1'-0"

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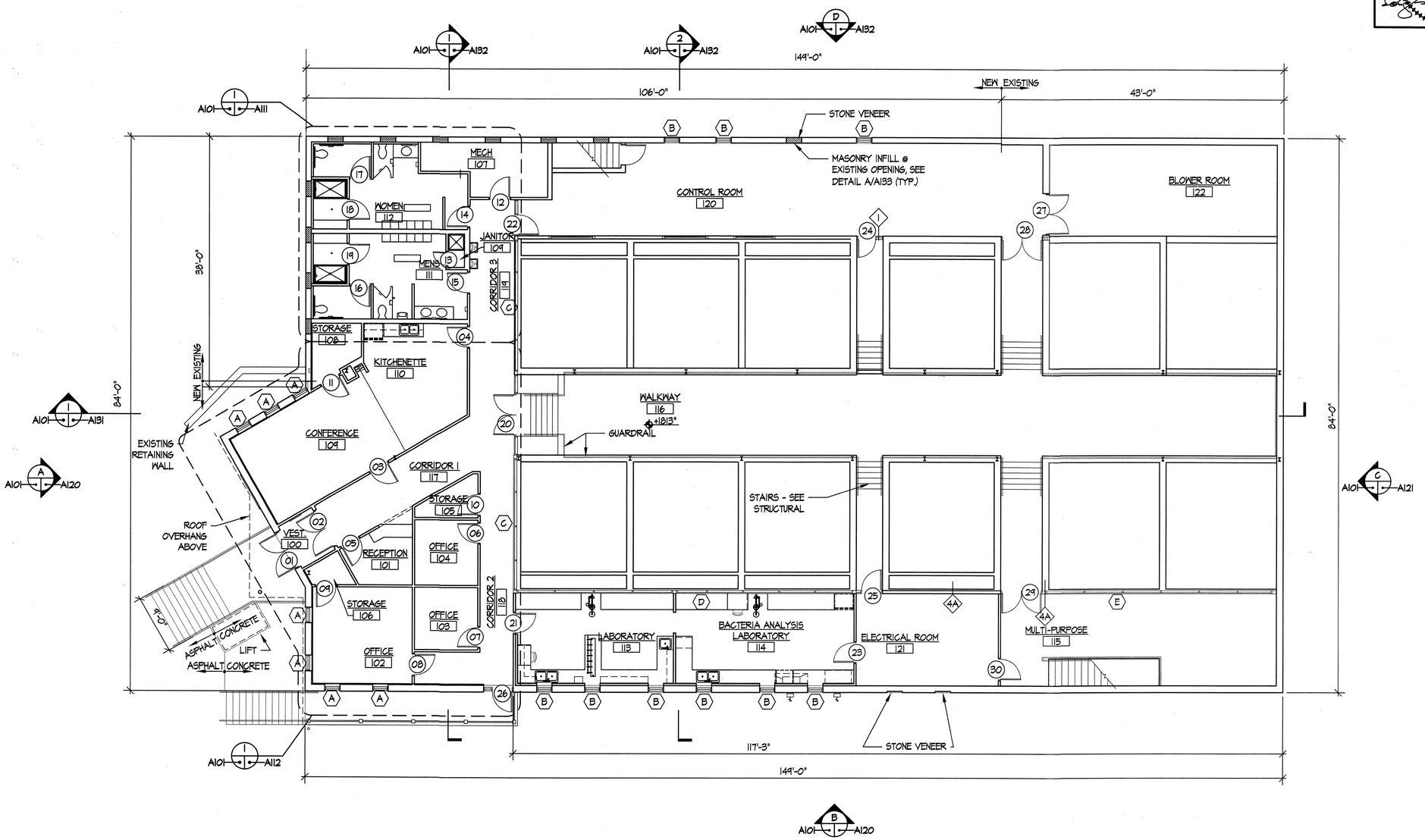
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WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
LOWER LEVEL FLOOR PLAN

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WATER TREATMENT PLANT UPPER LEVEL FLOOR PLAN

SCALE: 1/8 = 1'-0"

NOTES:

1. PARTITION TYPES NOT INDICATED APPEAR ON ENLARGED FLOOR PLANS.
2. SEE SHEET A142 FOR LABORATORY ENLARGED PLANS.

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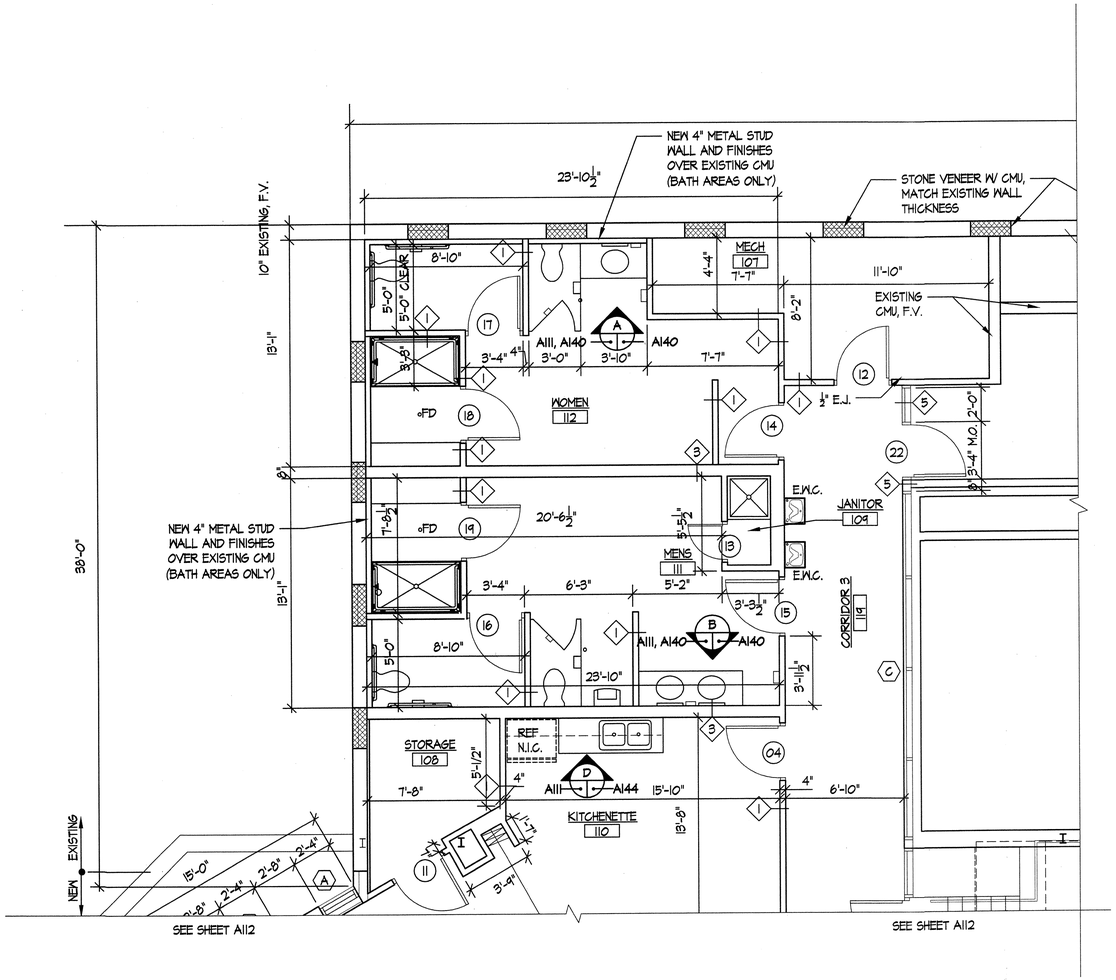
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TREATMENT PLANT BUILDING
UPPER LEVEL FLOOR PLAN

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WATER TREATMENT PLANT
UPPER FLOOR PLAN - PARTIAL

SCALE: 1/4 = 1'-0"

NOTE:

1. SEE SHEET A140 FOR ENLARGED TOILET PLANS
2. DOOR NUMBERS APPEAR ON A101.

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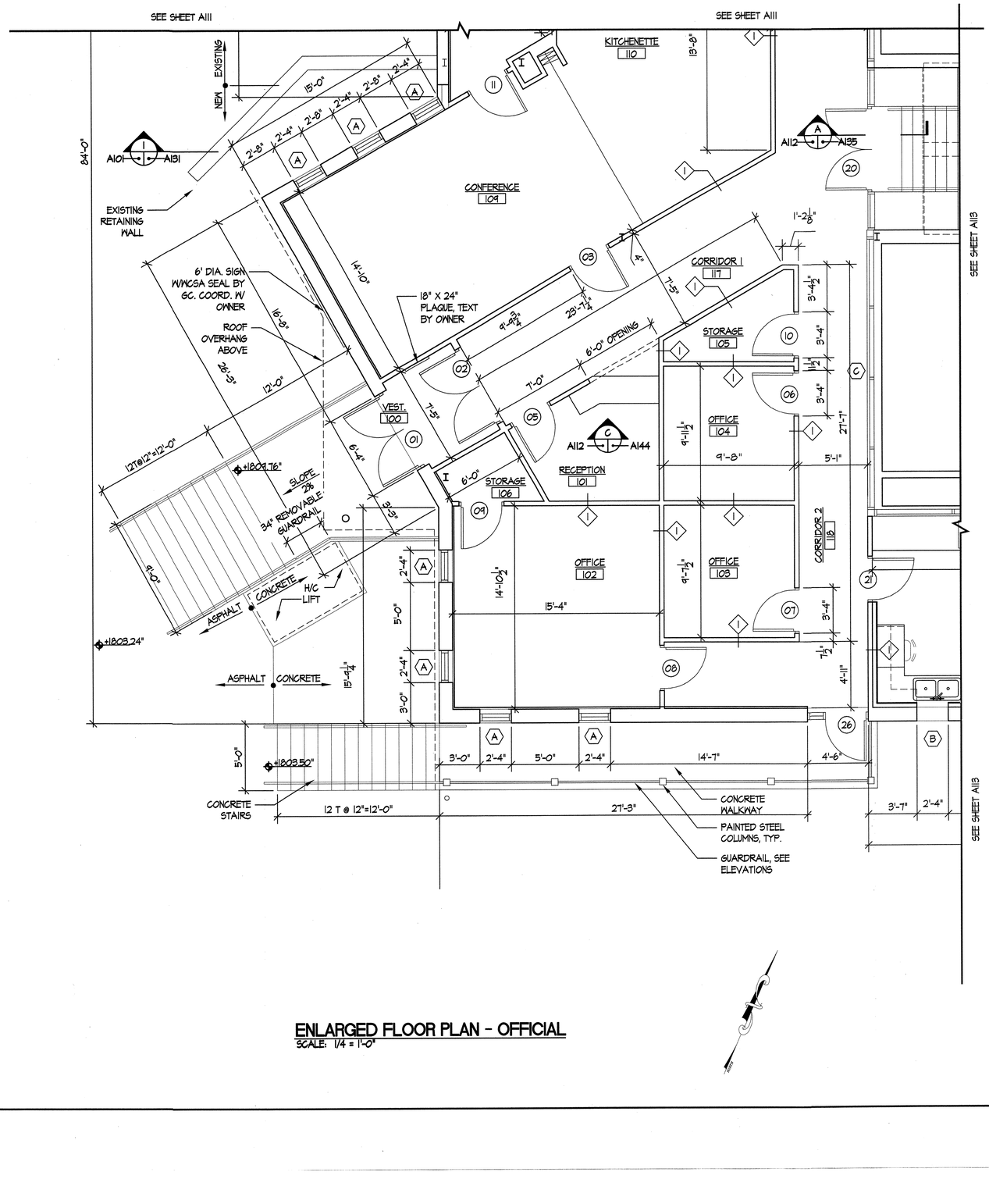
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TREATMENT PLANT BUILDING
UPPER FLOOR PLAN – PARTIAL

By	Date	Description	Rev

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A111



ENLARGED FLOOR PLAN - OFFICIAL

SCALE: 1/4 = 1'-0"

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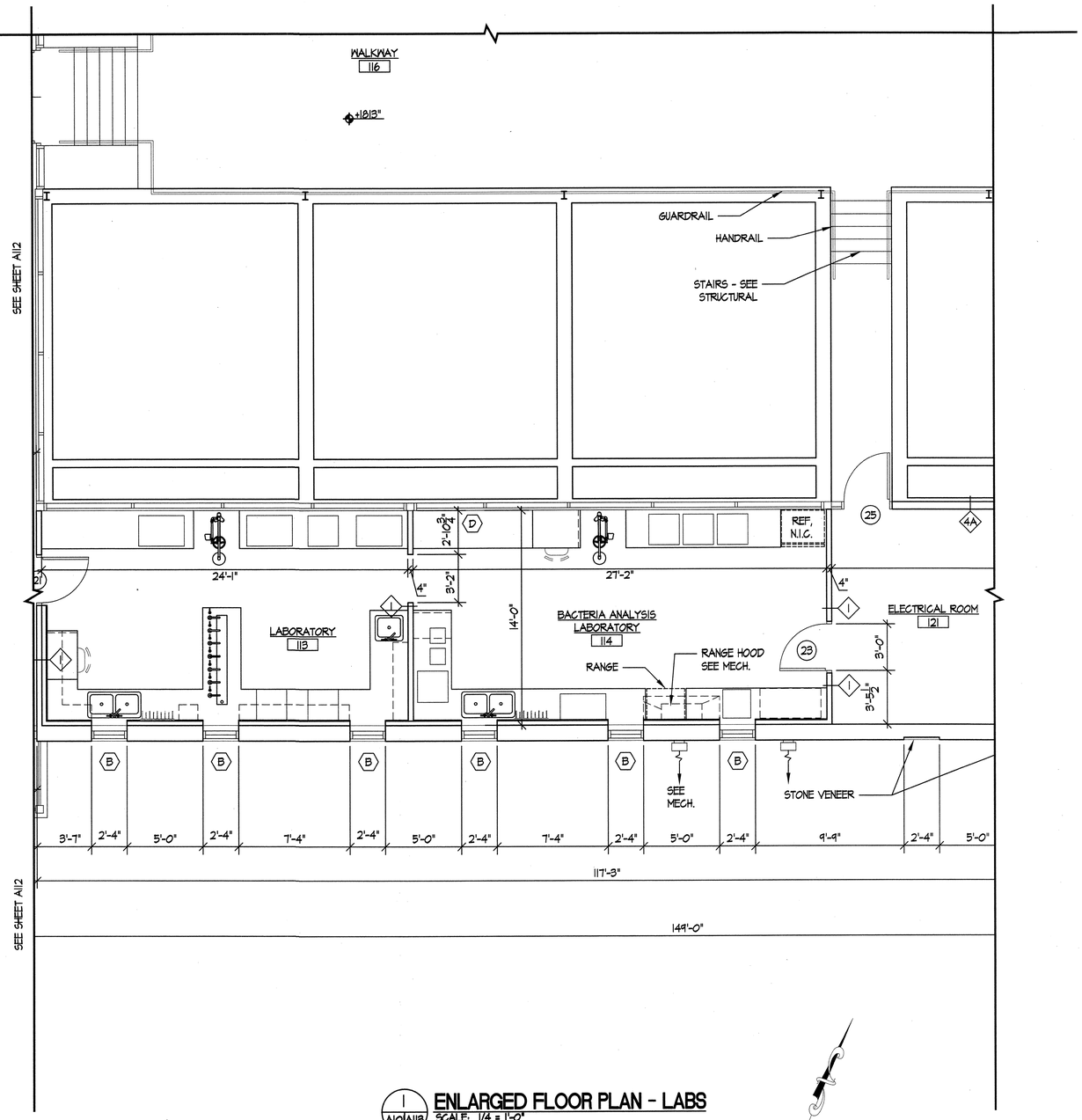
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
ENLARGED FLOOR PLAN

Rev	Description	Date	By

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Date: JULY 2010
Scale:
Job No. 0985
Archived File Name:

A112



1 / A10 A11B **ENLARGED FLOOR PLAN - LABS**
SCALE: 1/4 = 1'-0"

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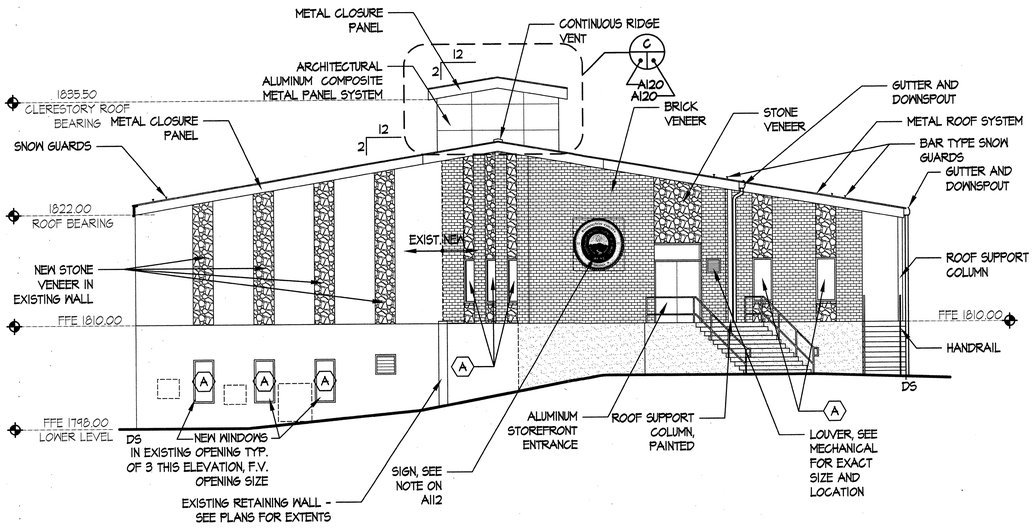
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
ENLARGED FLOOR PLAN - LABS

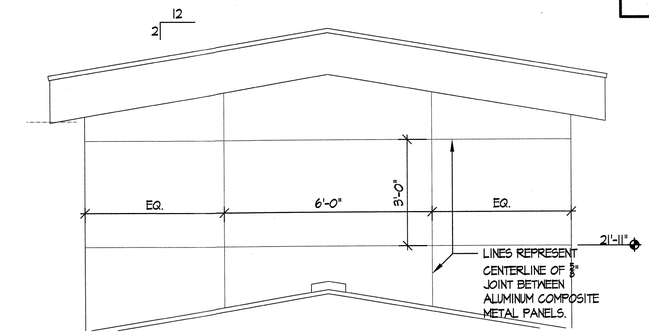
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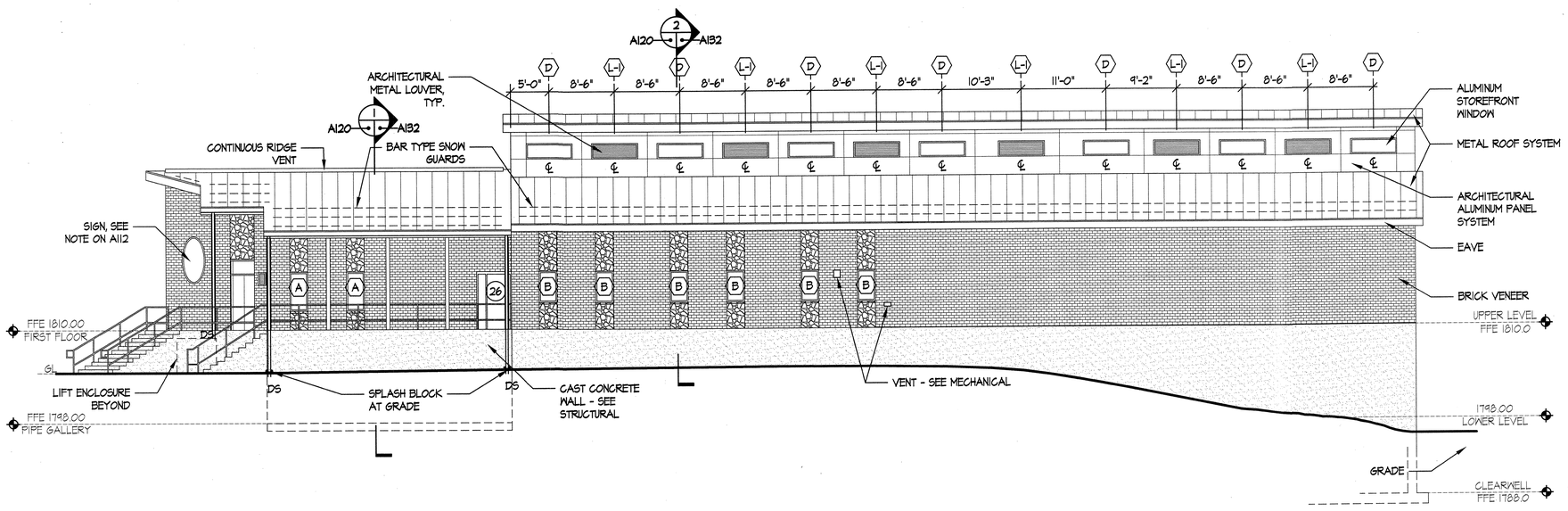
A113



A / A101 A120 **WATER TREATMENT PLANT WEST ELEVATION**
SCALE: 1/8" = 1'-0"
SEE SHEET A040 FOR DEMOLITION NOTES.



C / A101 A120 **ENLARGED ALUMINUM COMPOSITE METAL PANEL ELEVATIONS**
SCALE: 1/2" = 1'-0"



B / A101 A120 **WATER TREATMENT PLANT SOUTH ELEVATION**
SCALE: 1/8" = 1'-0"
SEE SHEET A040 FOR DEMOLITION NOTES.

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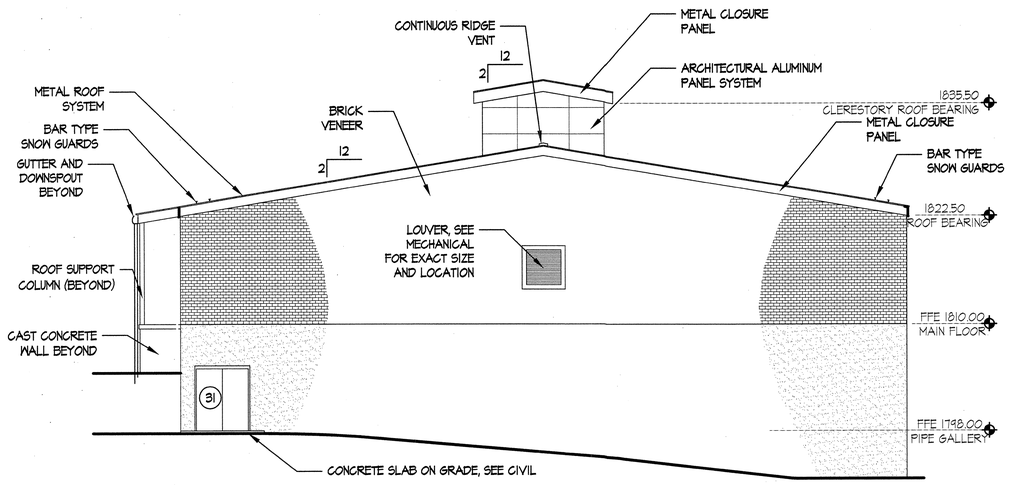
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WATER TREATMENT PLANT EXPANSION
WATER TREATMENT PLANT
BUILDING ELEVATIONS

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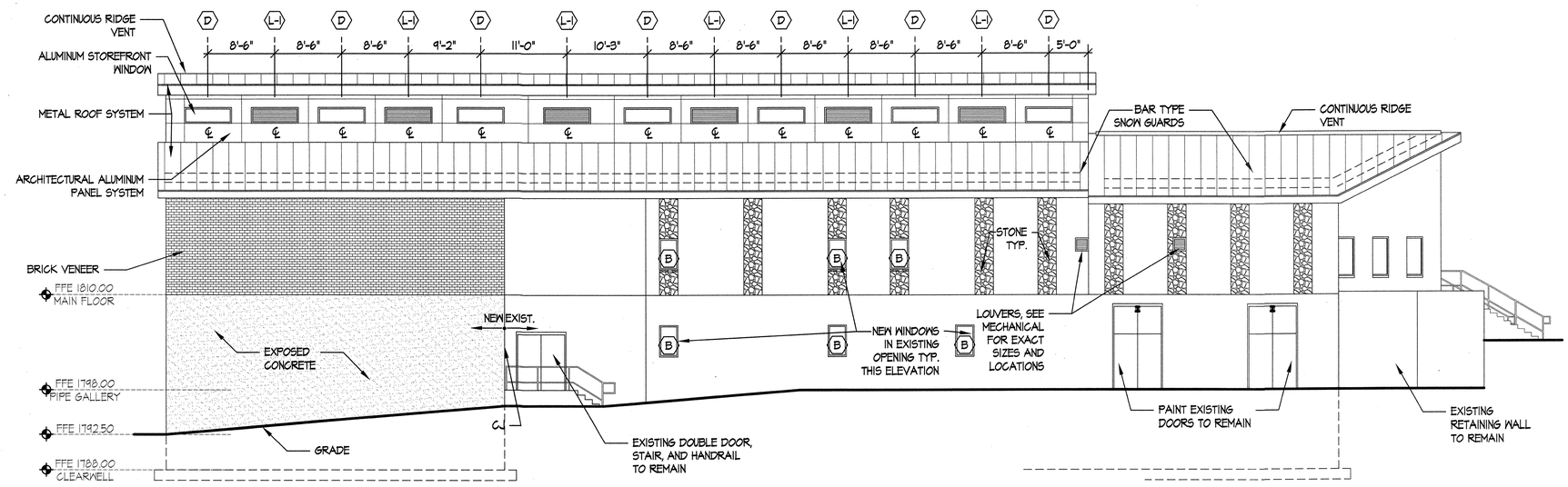
A120



C
A100|A121
A101

WATER TREATMENT PLANT EAST ELEVATION

SCALE: 1/8" = 1'-0"



D
A100|A121
A101

WATER TREATMENT PLANT NORTH ELEVATION

SCALE: 1/8" = 1'-0"

1. SEE SHEET A040 FOR DEMOLITION NOTES.

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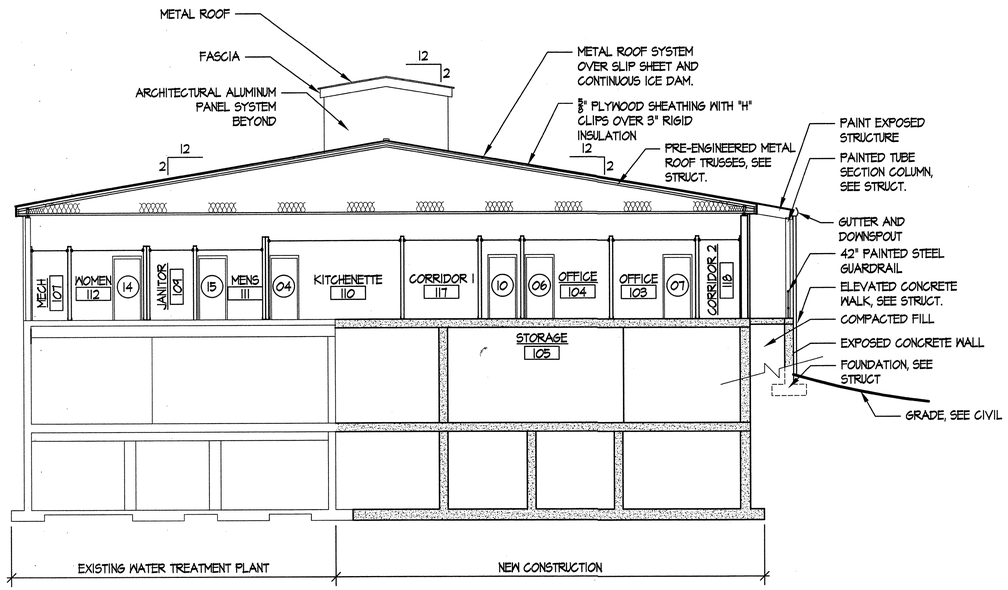
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WATER TREATMENT PLANT EXPANSION

WATER TREATMENT PLANT
BUILDING ELEVATIONS

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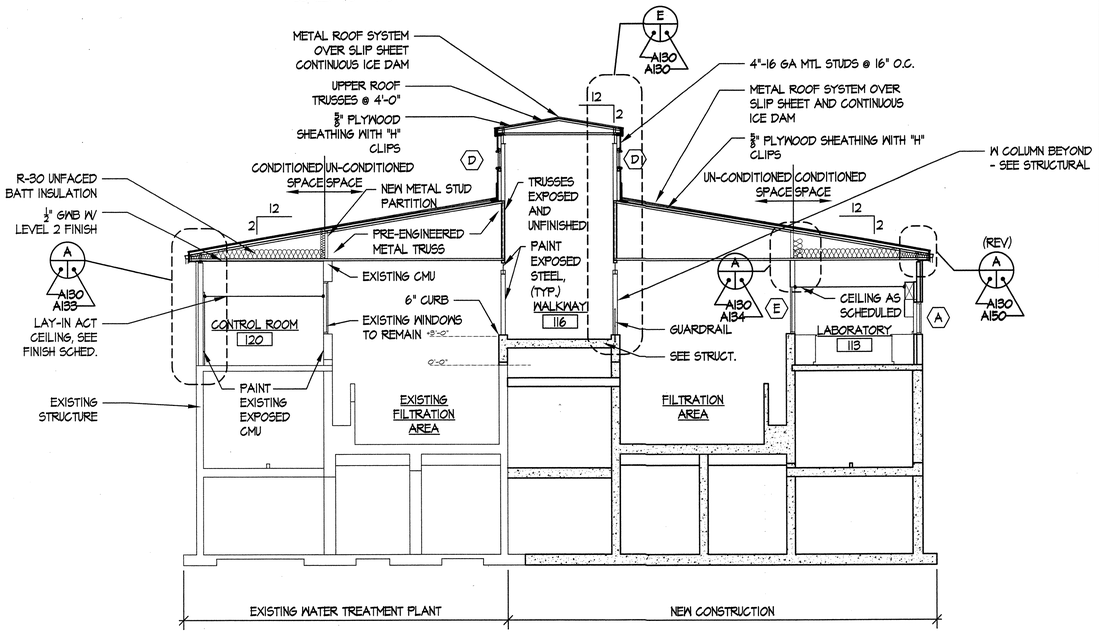
A121



1 A100 A101 A130

WATER TREATMENT PLANT BUILDING SECTION THRU LOBBY AREA

SCALE: 1/8" = 1'-0"



2 A100 A101 A130

WATER TREATMENT PLANT BUILDING SECTION THRU FILTER AREA

SCALE: 1/8" = 1'-0"

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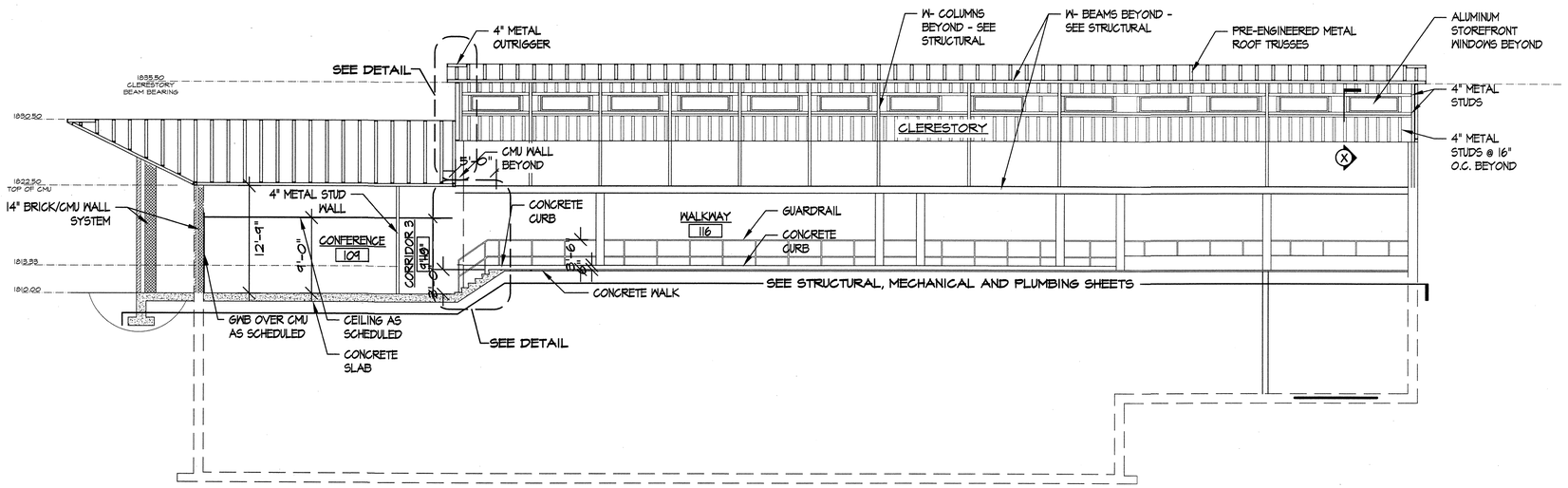
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

WATER TREATMENT PLANT
BUILDING SECTIONS

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WATER TREATMENT PLANT BUILDING SECTION

1 / A100 A101 A112 — A131

SCALE: 1/8" = 1'-0"

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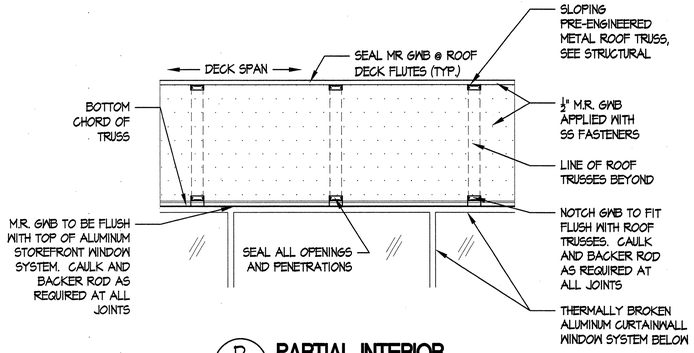
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
BUILDING SECTIONS

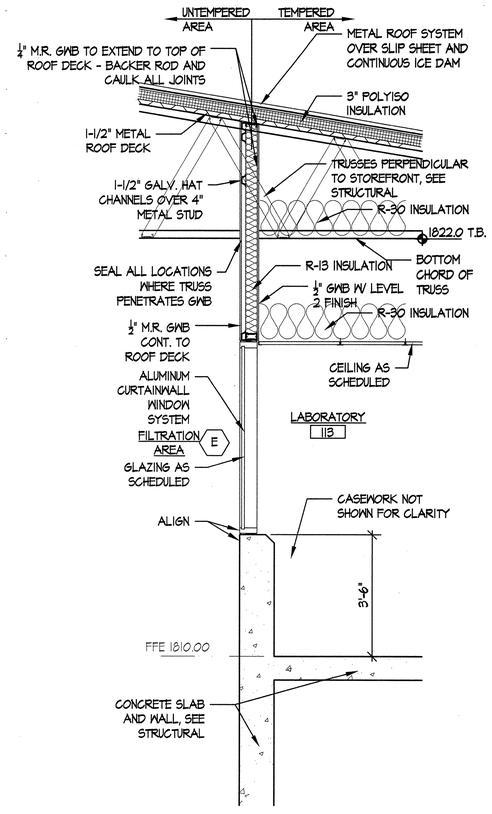
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Archived File Name:

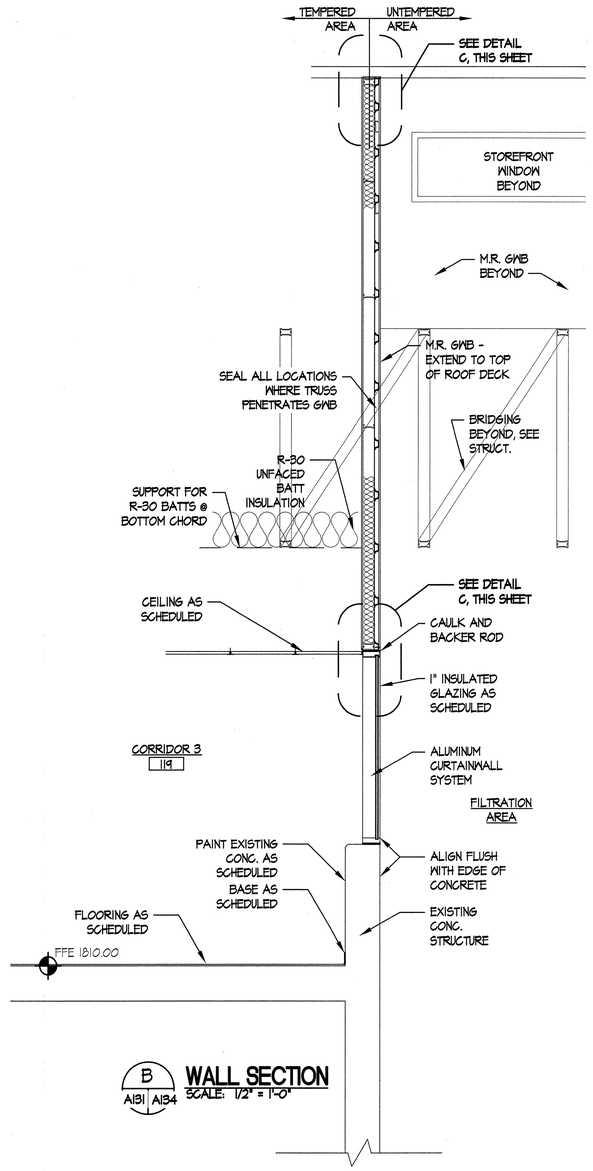
A131



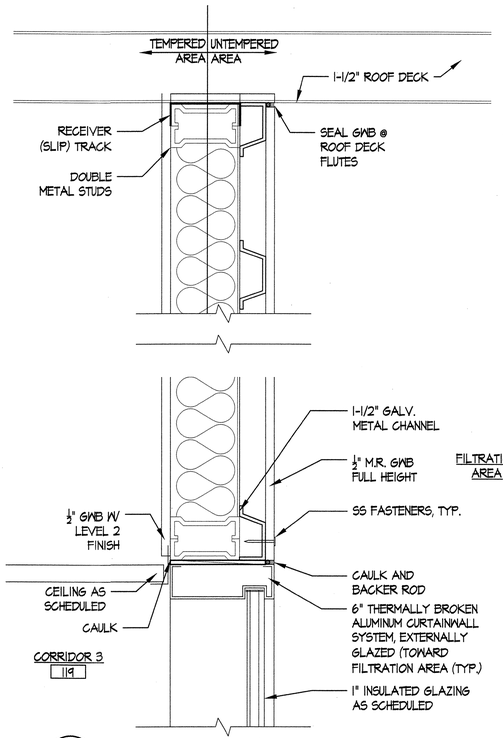
D / A134 | A134 **PARTIAL INTERIOR ELEVATION**
SCALE: 1/2" = 1'-0"



A / A130 | A134 **WALL SECTION**
SCALE: 1/2" = 1'-0"



B / A131 | A134 **WALL SECTION**
SCALE: 1/2" = 1'-0"



C / A134 | A134 **MOISTURE RESISTANT BARRIER SYSTEM DETAIL**
SCALE: 3" = 1'-0"

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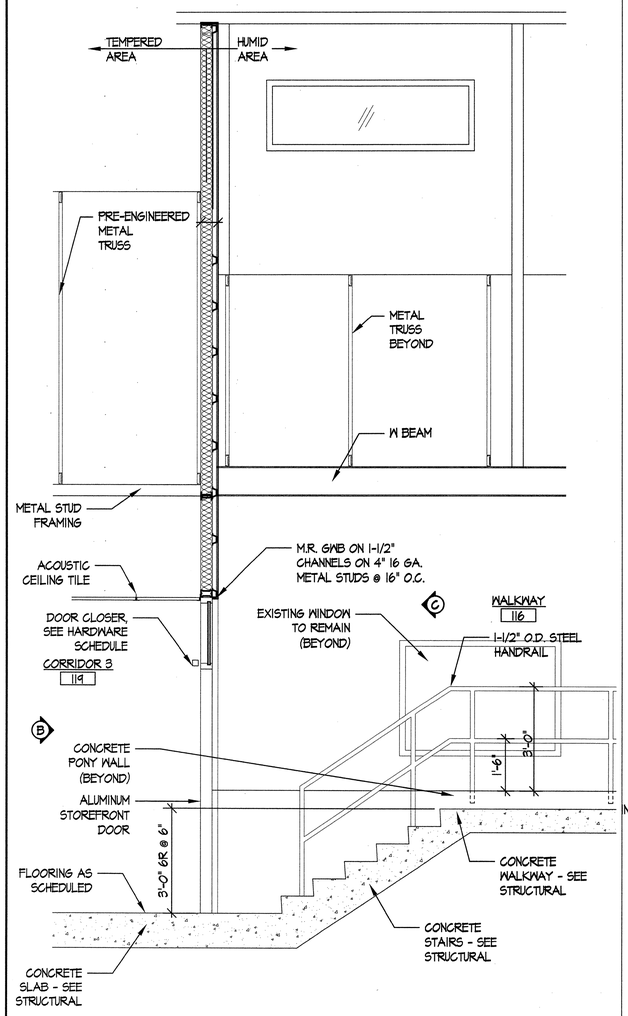
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

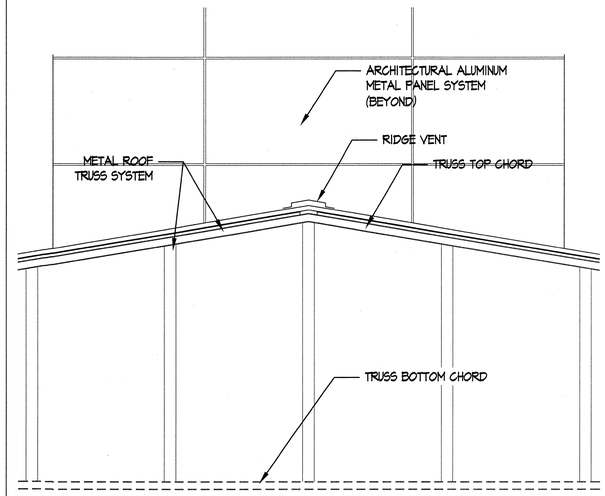
TREATMENT PLANT BUILDING
WALL SECTIONS – PARTIAL

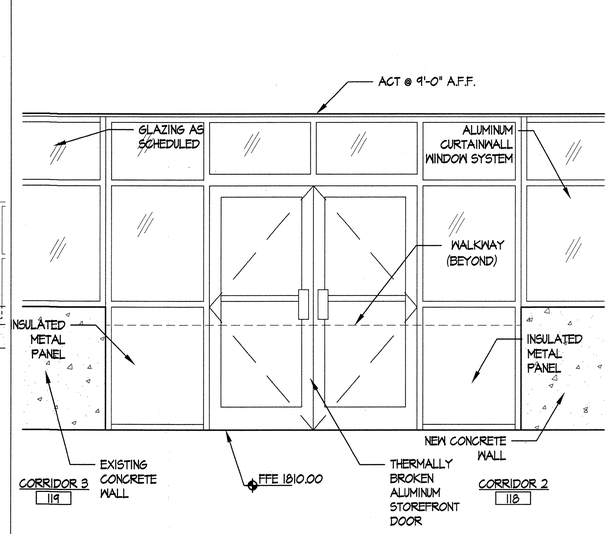
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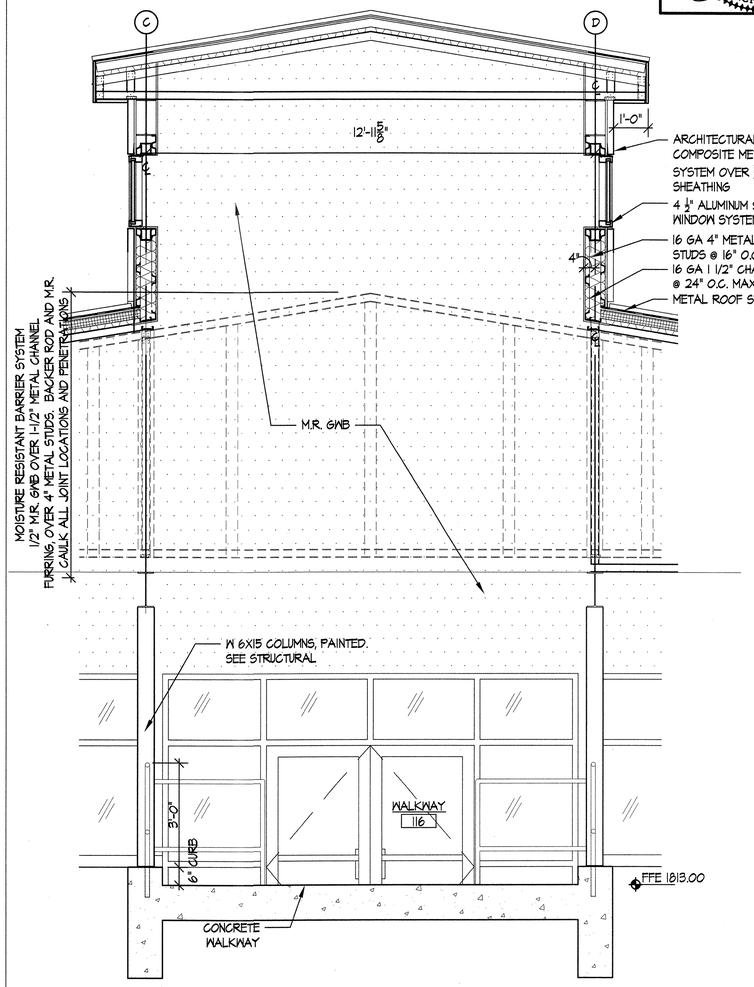
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A134









A112 | A135

A WATER TREATMENT PLANT PARTIAL SECTION

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

NOTE:

1. CUT/NOTCH GWB TO FIT AT ALL PENETRATIONS
2. BACKER ROD AND CAULK TO SEAL ALL PENETRATIONS AND PERIMETER JOINTS AT DRYWALL

A135 | A135

B WATER TREATMENT PLANT PARTIAL SECTION

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

A135 | A135

C WATER TREATMENT PLANT PARTIAL SECTION

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

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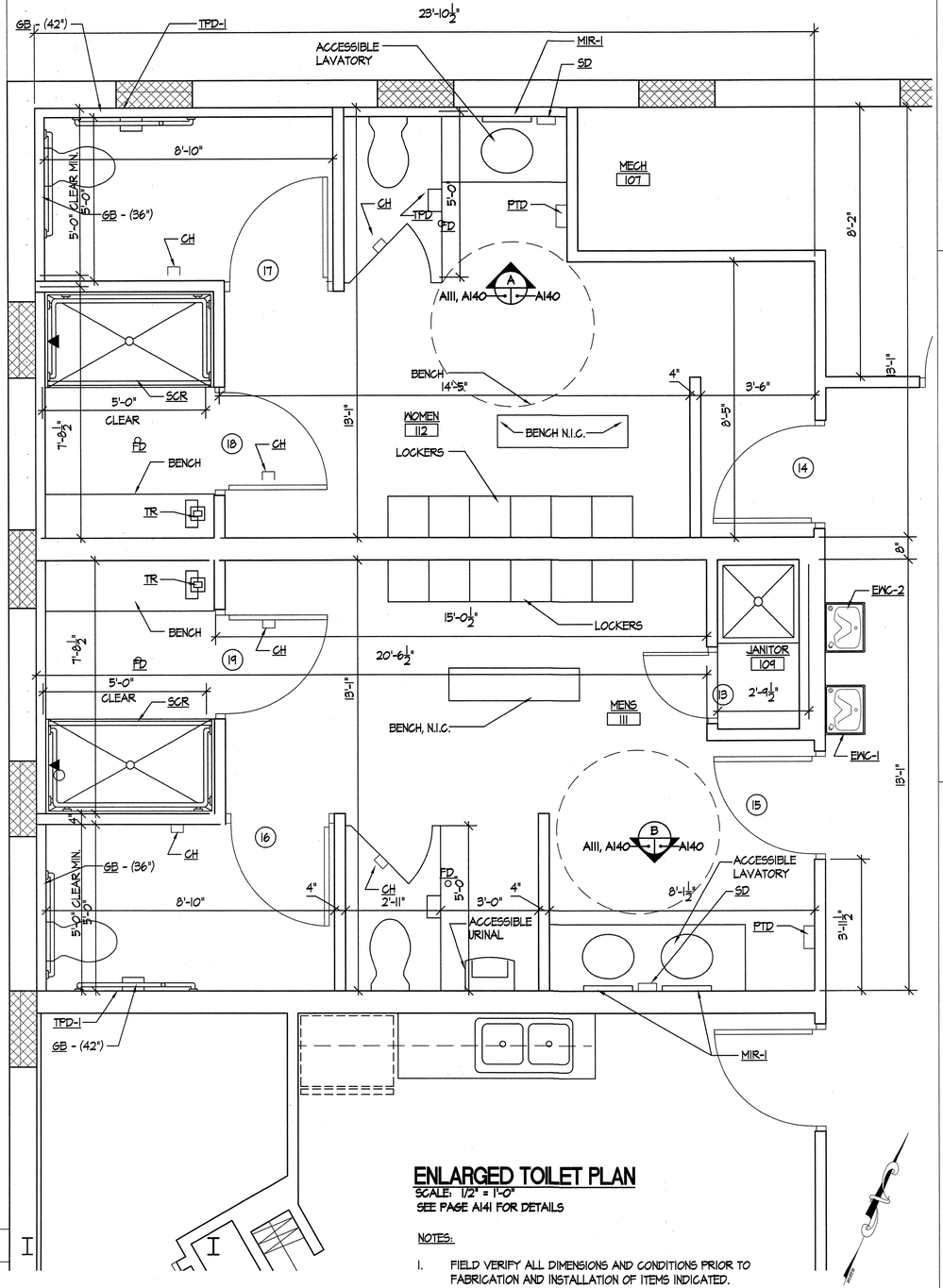
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
WALL SECTIONS – PARTIAL

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ENLARGED TOILET PLAN

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

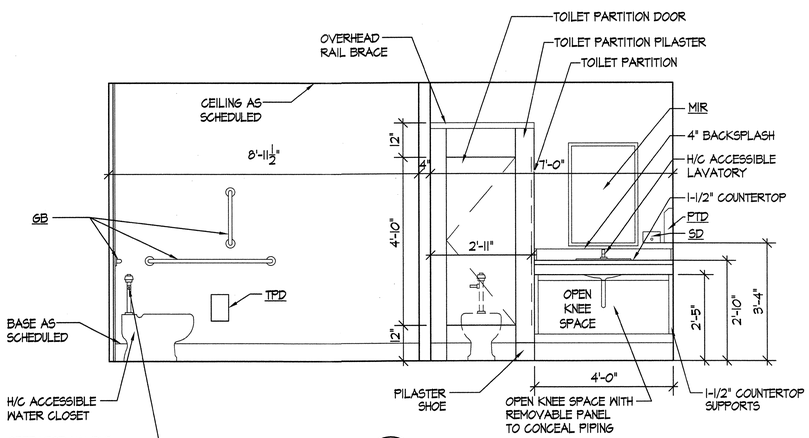
SEE PAGE A141 FOR DETAILS

NOTES:

1. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO FABRICATION AND INSTALLATION OF ITEMS INDICATED.
2. FLOORS NOT SLOPED TO FLOOR DRAINS AS CONC. SLAB IS EXISTING.

LEGEND

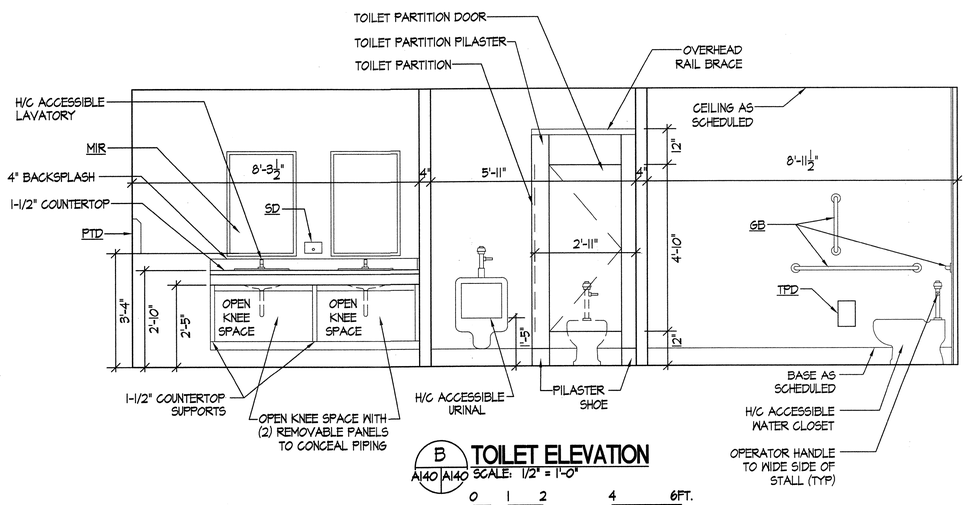
TPD-1	TOILET PAPER DISPENSER - SINGLE ROLL
MIR-1	MIRROR WITH SHELF - (24" X 36")
SCR	SHOWER CURTAIN, ROD, AND HOOKS
CH	COAT HOOK
GB	GRAB BAR
TR	TOWEL RING
EWC-1	ELECTRIC WATER COOLER - H/C ACCESSIBLE
EWC-2	ELECTRIC WATER COOLER
PTD	PAPER TOWEL DISPENSER



A TOILET ELEVATION

A140 | A140 SCALE: 1/2" = 1'-0"

0 1 2 4 6FT.



B TOILET ELEVATION

A140 | A140 SCALE: 1/2" = 1'-0"

0 1 2 4 6FT.

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WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
ENLARGED TOILET PLAN

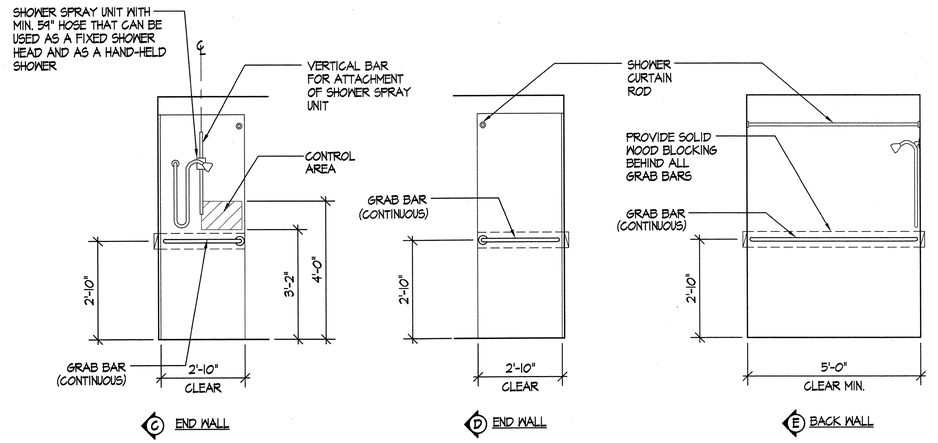
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LEGEND

TPD-1	TOILET PAPER DISPENSER - SINGLE ROLL
MIR-1	MIRROR WITH SHELF - (24" X 36")
SCR	SHOWER CURTAIN, ROD, AND HOOKS
CH	COAT HOOK
GB	GRAB BAR
TR	TOWEL RING
EWC-1	ELECTRIC WATER COOLER - H/C ACCESSIBLE
EWC-2	ELECTRIC WATER COOLER
PTD	PAPER TOWEL DISPENSER

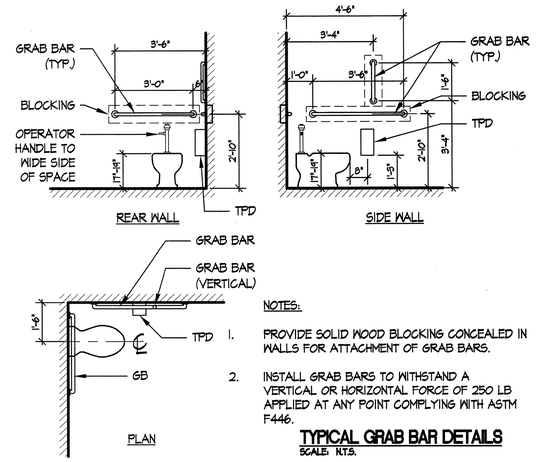


Ⓒ END WALL Ⓓ END WALL Ⓔ BACK WALL

TYPICAL SHOWER ELEVATIONS
SCALE: 1/2" = 1'-0"

0 1 2 4 6FT.

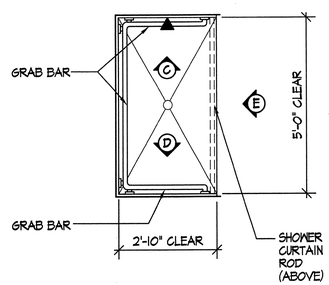
NOTE: RECESS CONCRETE FLOOR AS INDICATED TO PROVIDE H/C ACCESSIBLE THRESHOLD TRANSITION INTO SHOWER UNIT.



NOTES:

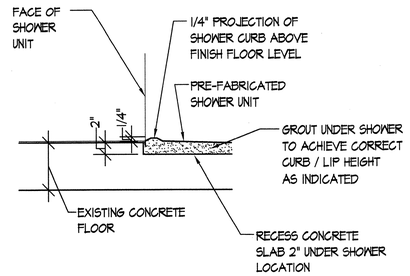
1. PROVIDE SOLID WOOD BLOCKING CONCEALED IN WALLS FOR ATTACHMENT OF GRAB BARS.
2. INSTALL GRAB BARS TO WITHSTAND A VERTICAL OR HORIZONTAL FORCE OF 250 LB APPLIED AT ANY POINT COMPLYING WITH ASTM F446.

TYPICAL GRAB BAR DETAILS
SCALE: N.T.S.



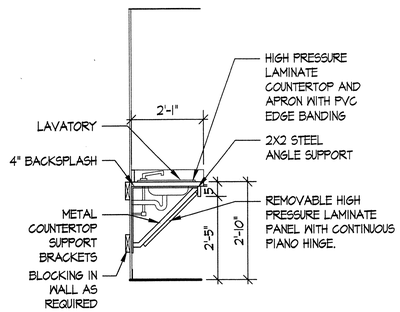
TYPICAL SHOWER PLAN
SCALE: 1/2" = 1'-0"

0 1 2 4 6FT.



TYPICAL RECESSED SHOWER UNIT DETAIL
SCALE: 1" = 1'-0"

0 1 2 3FT.



TYPICAL H/C SINK SECTION
SCALE: 1/2" = 1'-0"

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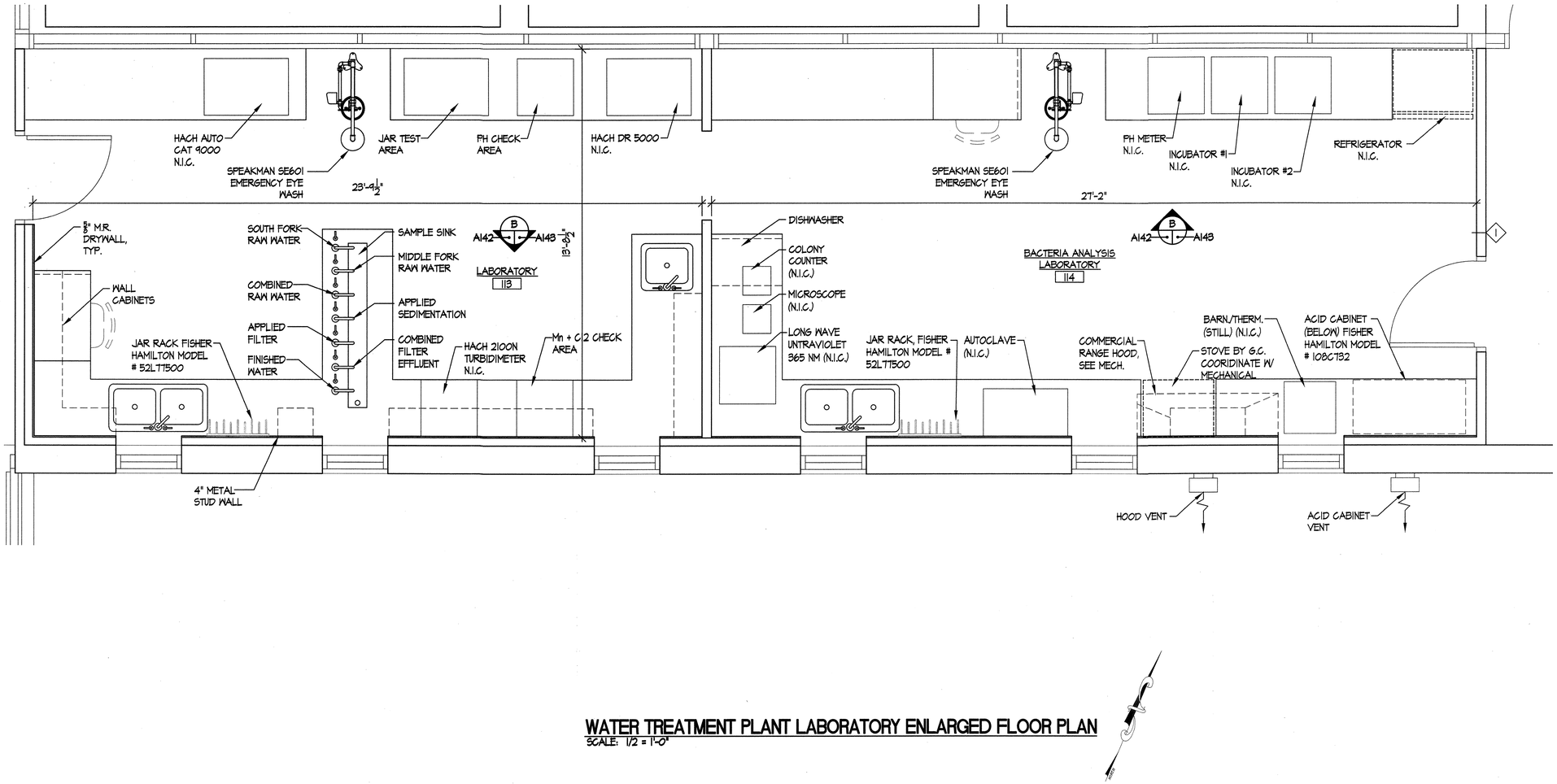
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
TOILET ELEVATIONS AND DETAILS

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WATER TREATMENT PLANT LABORATORY ENLARGED FLOOR PLAN

SCALE: 1/2 = 1'-0"

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WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
ENLARGED LABORATORY PLAN

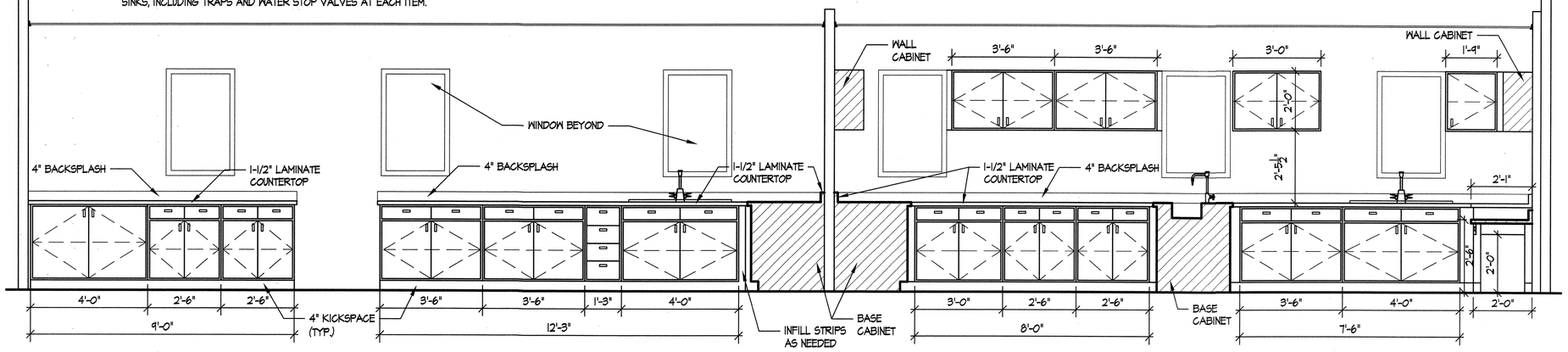
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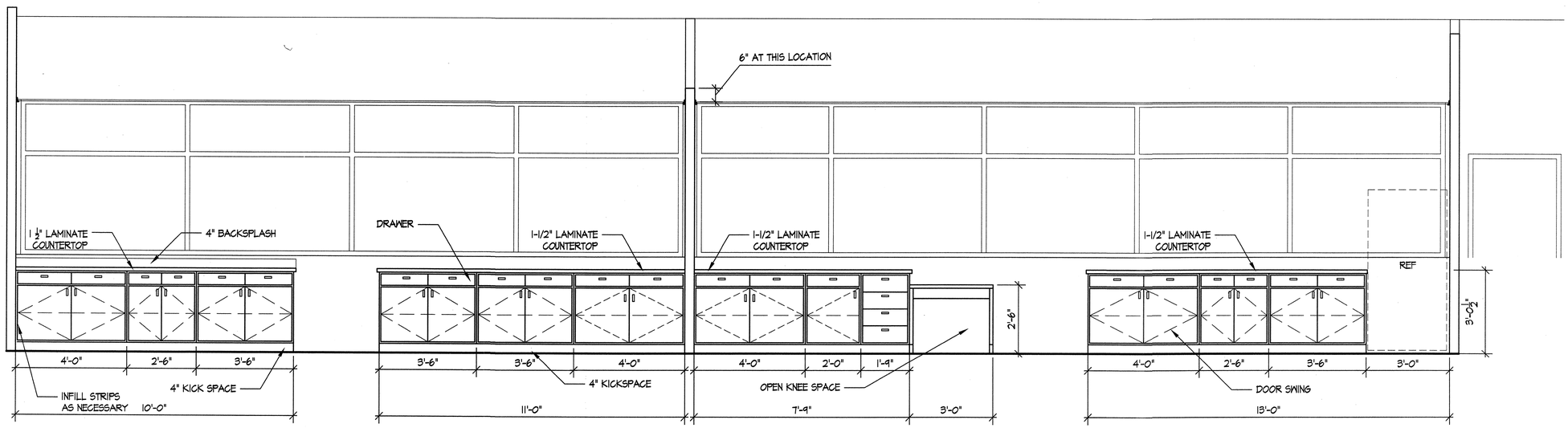
A142

GENERAL PLUMBING NOTES:

1. ALL DOUBLE BOWL SINKS SHALL BE 18 GAUGE, TYPE 302 STAINLESS STEEL, 33"X22"X10", SELF-RIMMING, WITH SWING GOOSENECK FAUCET, CONTROLS, AND BASKET STRAINERS.
2. ALL SINGLE BOWL SINKS SHALL BE 18 GAUGE, TYPE 302 STAINLESS STEEL, 22"X22"X10", SELF-RIMMING, WITH SWING GOOSENECK FAUCET, CONTROLS, AND BASKET STRAINERS.
3. MAKE PROPER HOT WATER, COLD WATER, WASTE, AND VENT PIPING CONNECTIONS TO ALL SINKS, INCLUDING TRAPS AND WATER STOP VALVES AT EACH ITEM.



A A142 | A143 **WATER TREATMENT PLANT LABS ELEVATION**
SCALE: 1/2 = 1'-0"



B A142 | A143 **WATER TREATMENT PLANT LABS ELEVATION**
SCALE: 1/2 = 1'-0"

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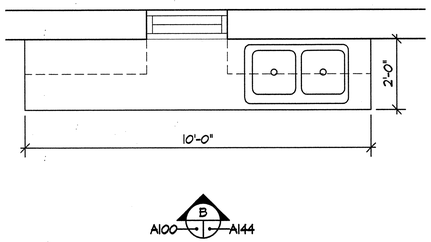
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
CASEWORK ELEVATIONS

By	Date	Description	Rev.

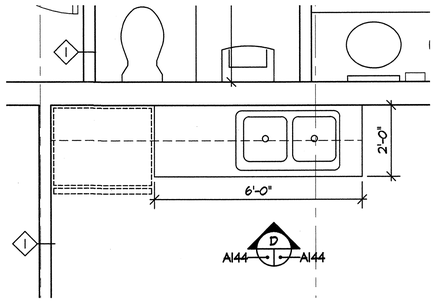
Designed:
Drawn:
Checked:
Date: JULY 2010
Scale:
Job No. 0985
Archived File Name:

A143



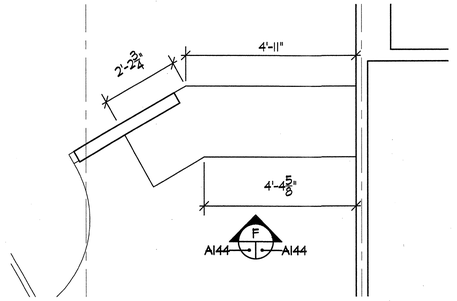
WORK ROOM - BOTTOM FLOOR

A101 | A144 **CASEWORK PLAN**
SCALE: 1/2 = 1'-0"



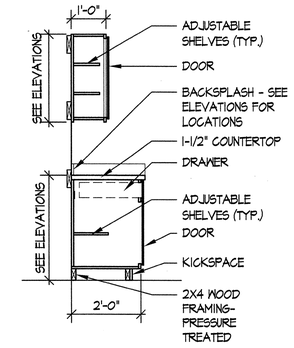
KITCHENETTE

A101 | A144 **CASEWORK PLAN**
SCALE: 1/2 = 1'-0"

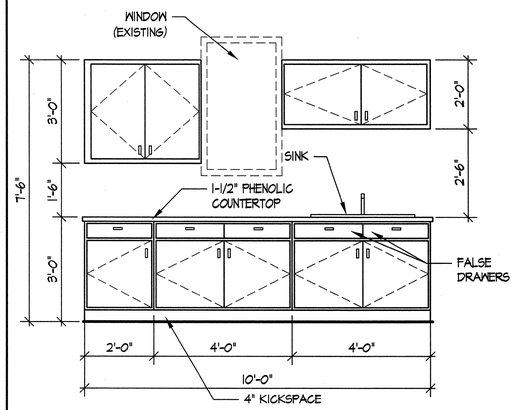


RECEPTION

A101 | A144 **CASEWORK PLAN**
SCALE: 1/2 = 1'-0"

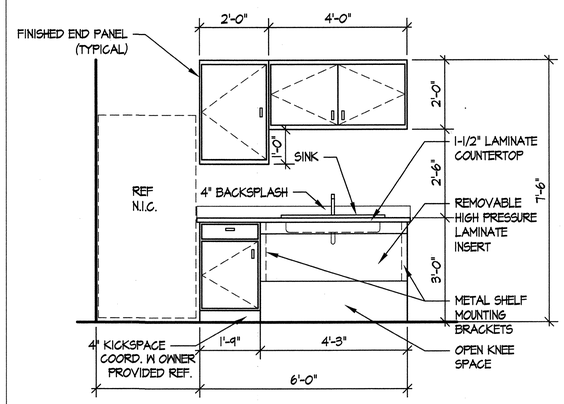


G A144 | A144 **TYPICAL CASEWORK SECTION**
SCALE: 1/2 = 1'-0"



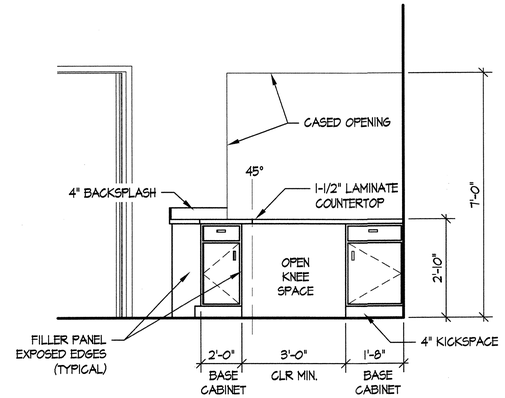
WORK ROOM - BOTTOM FLOOR

B A100 | A144 A144 **CASEWORK ELEVATION**
SCALE: 1/2 = 1'-0"



KITCHENETTE

D A144 | A144 **CASEWORK ELEVATION**
SCALE: 1/2 = 1'-0"



RECEPTION

F A101 | A144 **CASEWORK ELEVATION**
SCALE: 1/2 = 1'-0"

COMMONWEALTH OF VIRGINIA
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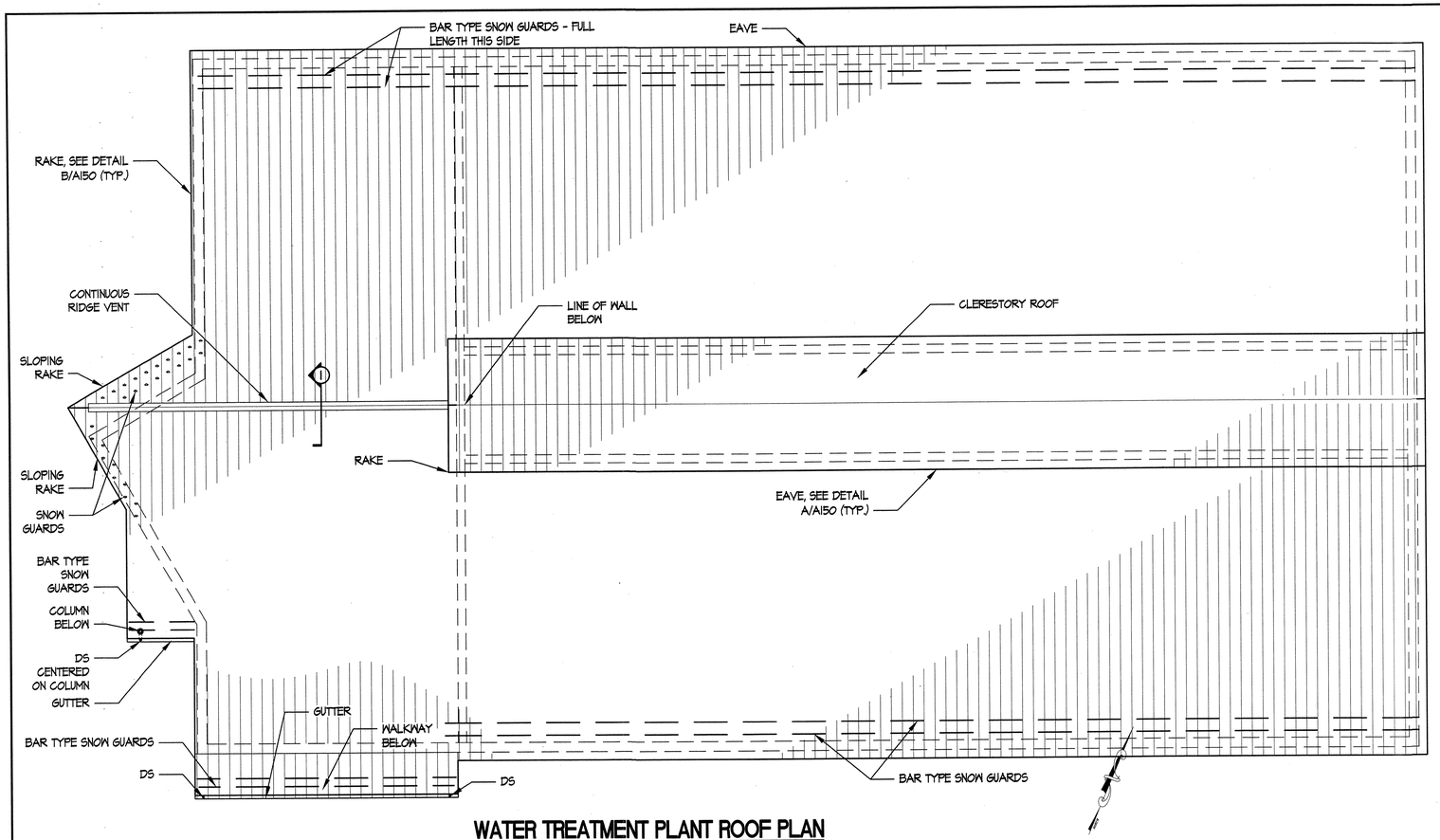
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
CASEWORK PLANS AND ELEVATIONS

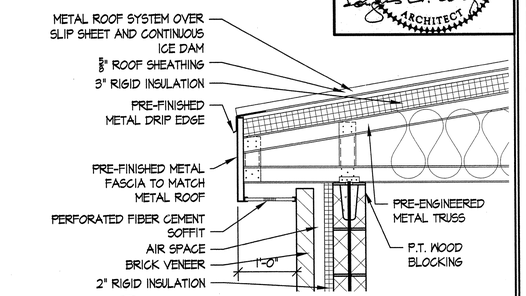
By	Date	Description	Rev.

Designed:
Drawn:
Checked:
Date: JULY 2010
Scale:
Job No. 0985
Archived File Name:

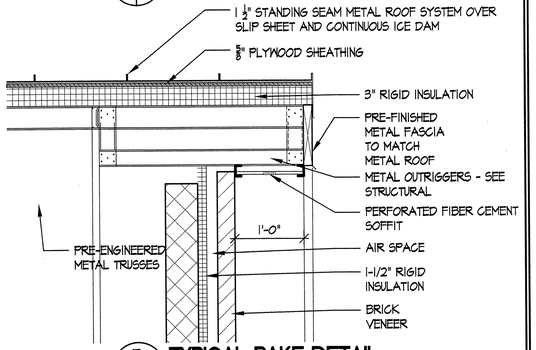
A144



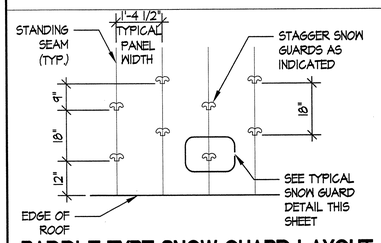
WATER TREATMENT PLANT ROOF PLAN
SCALE: 1/8 = 1'-0"



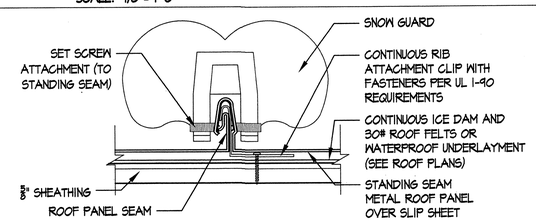
A A150/A150 **TYPICAL EAVE DETAIL**
SCALE: 1" = 1'-0"



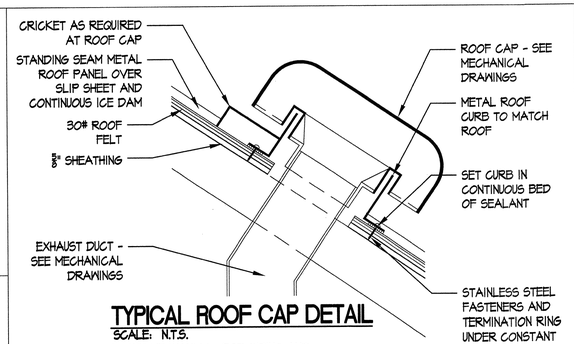
B A150/A150 **TYPICAL RAKE DETAIL**
SCALE: 1" = 1'-0"



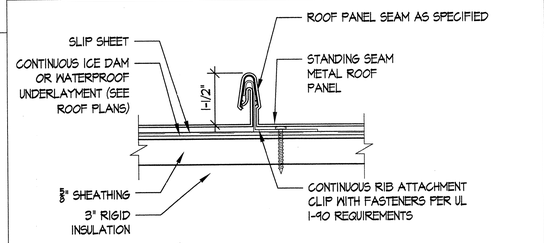
PADDLE TYPE SNOW GUARD LAYOUT
SCALE: 1/2" = 1'-0"



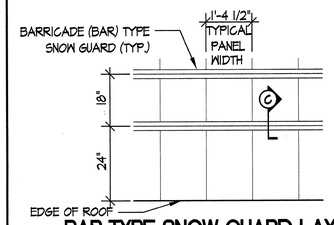
PADDLE TYPE SNOW GUARD DETAIL
SCALE: 6" = 1'-0"



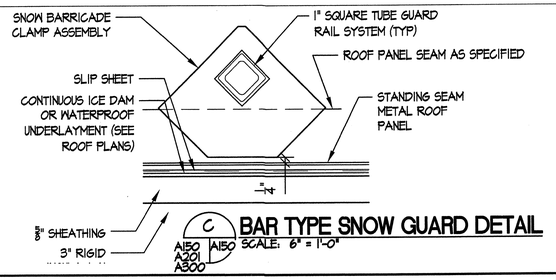
TYPICAL ROOF CAP DETAIL
SCALE: N.T.S.
1. SEE MECHANICAL FOR SIZING AND LOCATIONS



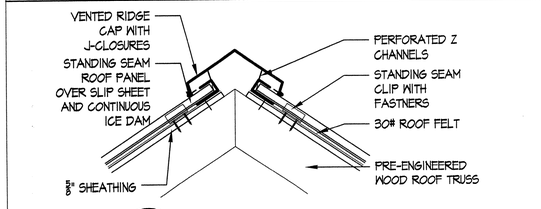
TYPICAL ROOF SEAM DETAIL
SCALE: 6" = 1'-0"



BAR TYPE SNOW GUARD LAYOUT
SCALE: 1/2" = 1'-0"



C A150 A201 A300 A150 **BAR TYPE SNOW GUARD DETAIL**
SCALE: 6" = 1'-0"



1 A150 A150 **VENTED RIDGE DETAIL**
SCALE: 1-1/2" = 1'-0"

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WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
ROOF PLAN AND DETAILS

Rev.	Description	Date	By

Designed:
Drawn:
Checked:
Date: JULY 2010
Scale:
Job No. 0985
Archived File Name:

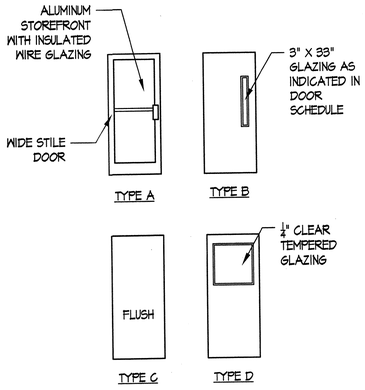
A150

DOOR SCHEDULE

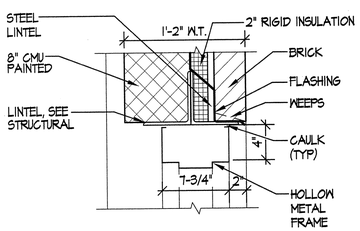
MARK	DOOR SIZE			MATERIAL	TYPE	HDW.	LOUVER		DR. FINISH	HEAD	JAMB		FRAME MATERIAL	REMARKS
	WIDTH	HEIGHT	THICKNESS				WIDTH	HEIGHT						
01	PR-3'-0"	7'-0"	1-3/4"	ALUMINUM	A	1	--	--	ANODIZED	X	X		ALUMINUM	W/ 1" CLEAR INSULATED GLAZING
02	PR-3'-0"	7'-0"	1-3/4"	ALUMINUM	A	2			ANODIZED				ALUMINUM	W/ 1/4" CLEAR TEMPERED GLAZING
03	3'-0"	7'-0"	1-3/4"	ALUMINUM	D	3			ANODIZED				ALUMINUM	W/ 1/4" CLEAR TEMPERED GLAZING
04	3'-0"	7'-0"	1-3/4"	H.M.	B	3			PAINT	B	B		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
05	3'-0"	7'-0"	1-3/4"	ALUMINUM	D	3			ANODIZED				ALUMINUM	W/ 1/4" CLEAR TEMPERED GLAZING
06	3'-0"	7'-0"	1-3/4"	H.M.	B	4			PAINT	B	B		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
07	3'-0"	7'-0"	1-3/4"	H.M.	B	4			PAINT	B	B		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
08	3'-0"	7'-0"	1-3/4"	H.M.	B	4			PAINT	B	B		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
09	3'-0"	7'-0"	1-3/4"	H.M.	C	5	--	--	PAINT	B	B		H.M.	
10	3'-0"	7'-0"	1-3/4"	H.M.	C	5	--	--	PAINT	B	B		H.M.	
11	3'-0"	7'-0"	1-3/4"	H.M.	C	5	--	--	PAINT	B	B		H.M.	
12	3'-0"	7'-0"	1-3/4"	H.M.	C	5	--	--	PAINT	B	B		H.M.	
13	3'-0"	7'-0"	1-3/4"	H.M.	C	5			PAINT	B	B		H.M.	
14	3'-0"	7'-0"	1-3/4"	H.M.	C	6			PAINT	B	B		H.M.	
15	3'-0"	7'-0"	1-3/4"	H.M.	C	6			PAINT	B	B		H.M.	
16	3'-0"	5'-10"	1-3/4"	H.M.	C*	7			PAINT	B	B		H.M.	
17	3'-0"	5'-10"	1-3/4"	H.M.	C*	7			PAINT	B	B		H.M.	
18	3'-0"	5'-10"	1-3/4"	H.M.	C*	7			PAINT	B	B		H.M.	
19	3'-0"	5'-10"	1-3/4"	H.M.	C*	7			PAINT	B	B		H.M.	
20	3'-0"	7'-0"	1-3/4"	ALUMINUM	A	2			ANODIZED				ALUMINUM	W/ 1" CLEAR INSULATED GLAZING
21	3'-0"	7'-0"	1-3/4"	H.M.	C	4			PAINT	B	B		H.M.	
22	3'-0"	7'-0"	1-3/4"	H.M.	C	4			PAINT	B	B		H.M.	
23	3'-0"	7'-0"	1-3/4"	H.M.	C	5			PAINT	B	B		H.M.	
24	3'-0"	7'-0"	1-3/4"	H.M.	B	4			PAINT	B	B		H.M.	W/ 1" CLEAR INSULATED GLAZING
25	3'-0"	7'-0"	1-3/4"	H.M.	B	4			PAINT	B	B		H.M.	W/ 1" CLEAR INSULATED GLAZING
26	3'-0"	7'-0"	1-3/4"	ALUMINUM	A	11			ALUMINUM				ALUMINUM	W/ 1" CLEAR INSULATED GLAZING
27	PR-3'-0"	7'-0"	1-3/4"	H.M.	C	8			PAINT	A	A		H.M.	
28	PR-3'-0"	7'-0"	1-3/4"	H.M.	B	8			PAINT	B	B		H.M.	W/ 1/4" GLAZING
29	PR-3'-0"	7'-0"	1-3/4"	H.M.	B	9			PAINT	B	B		H.M.	W/ 1/4" GLAZING
30	3'-0"	7'-0"	1-3/4"	H.M.	C	5			PAINT	B	B		H.M.	
31	PR-3'-0"	7'-0"	1-3/4"	H.M.	C	10			PAINT	B	B		H.M.	

NOTE:

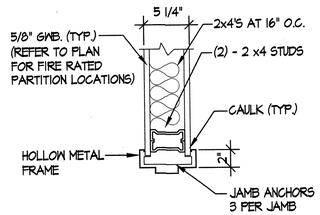
SEE SHEET A161 FOR STOREFRONT DOOR DETAILS.



C A160|A160 **DOOR ELEVATIONS**
SCALE: 1/4" = 1'-0"



A A160|A160 A260 **DOOR DETAIL**
SCALE: 1- 1/2" = 1'-0"



JAMB SHOWN, HEAD SIMILAR

B A160|A160 **DOOR DETAIL**
SCALE: 1- 1/2" = 1'-0"

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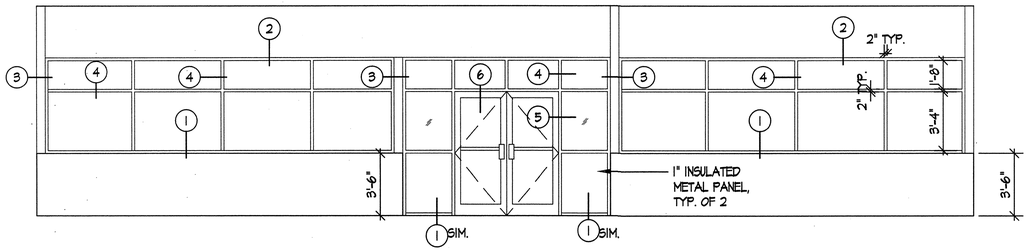
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

WATER TREATMENT PLANT
DOOR SCHEDULE AND DETAILS

Rev.	Description	Date	By

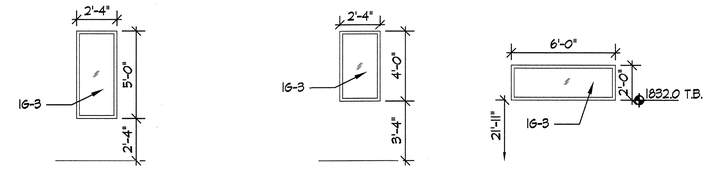
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A160



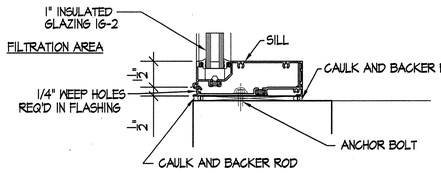
TYPE C

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

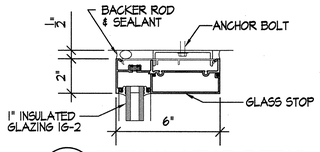


TYPE A | TYPE B | TYPE D

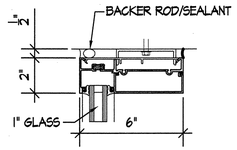
STOREFRONT WINDOW ELEVATIONS
SCALE: 1/4"=1'-0"



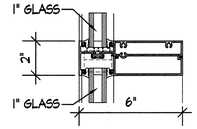
1 A161|A161 TYPICAL SILL
SCALE: 3" = 1'-0"



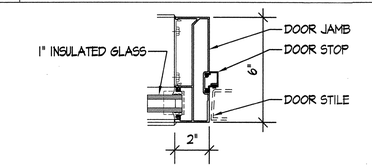
2 A161|A161 TYPICAL HEAD DETAIL
SCALE: 3" = 1'-0"



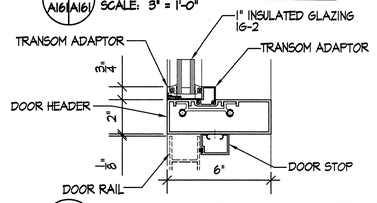
3 A161|A161 TYPICAL JAMB DETAIL
SCALE: 3" = 1'-0"



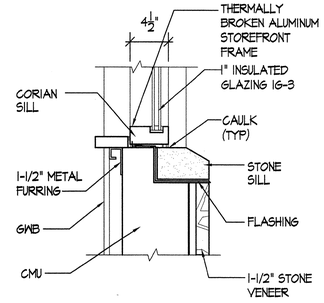
4 A161|A161 TYPICAL INTERMEDIATE MULLION DETAIL
SCALE: 3" = 1'-0"



5 A161|A161 TYPICAL STOREFRONT SET DOOR JAMB • SIDELIGHT
SCALE: 3" = 1'-0"



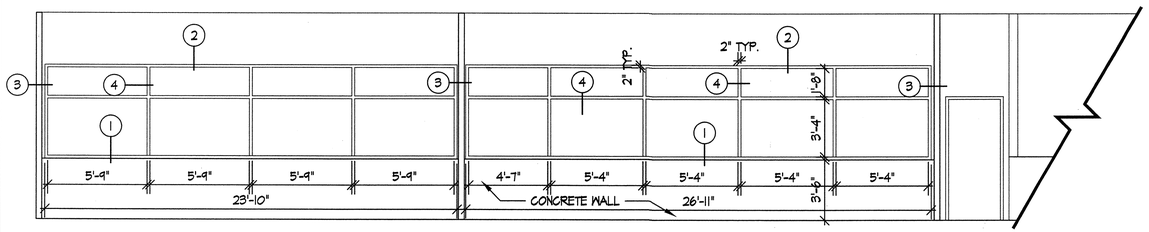
6 A161|A161 TYPICAL DOOR HEAD • TRANSOM
SCALE: 3" = 1'-0"



TYPICAL EXTERIOR WALL STOREFRONT WINDOW SILL DETAIL
SCALE: 1- 1/2" = 1'-0"

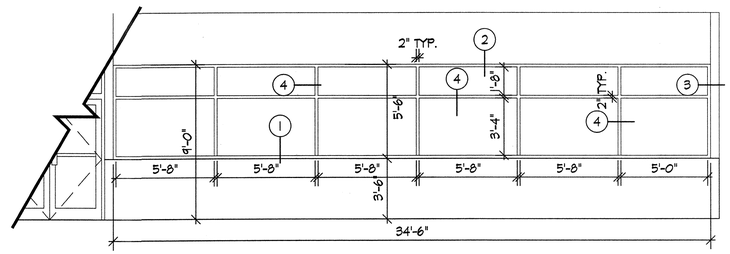
0 3 6 12 24IN.

STOREFRONT DETAILS
NOTE: 6" CURTAIN WALL SHOWN, 4-1/2" STOREFRONT SIMILAR.
1G-2 IN 6" CURTAIN WALL LOCATIONS, 1G-3 IN 4-1/2" STOREFRONT LOCATIONS UNLESS OTHERWISE INDICATED.



6" ALUMINUM CURTAINWALL W/ 1" IG-2, TYP. THIS ELEVATION

TYPE D



6" ALUMINUM CURTAINWALL W/ 1" IG-2, TYP. THIS ELEVATION

TYPE E

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

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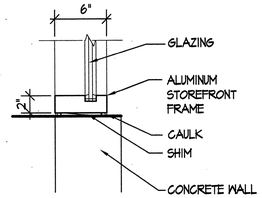
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

WATER TREATMENT PLANT
STOREFRONT ELEVATIONS AND DETAILS

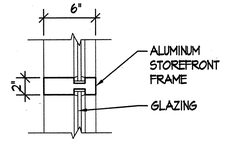
By	Date	Description	Rev.

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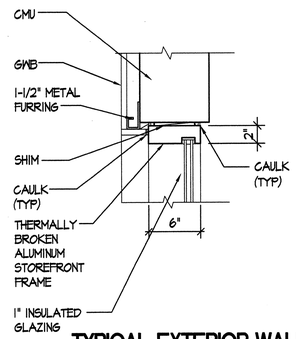
A161



1 A621\|A622 **STOREFRONT DETAIL**
SCALE: 1-1/2" = 1'-0"

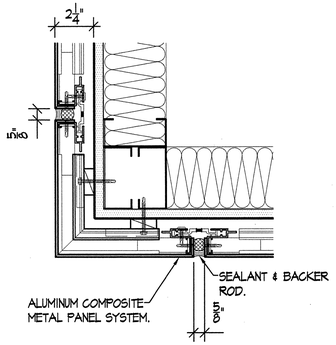


2 A621\|A622 **STOREFRONT DETAIL**
SCALE: 1-1/2" = 1'-0"

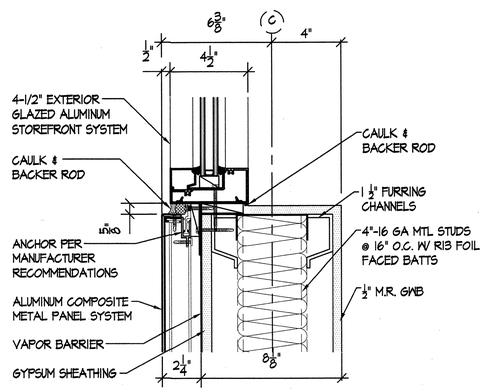


TYPICAL EXTERIOR WALL STOREFRONT WINDOW HEAD DETAIL
SCALE: 1- 1/2" = 1'-0"

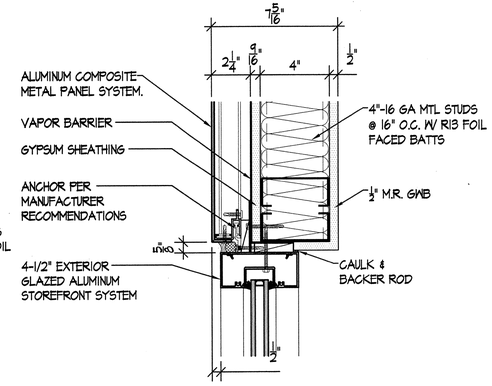
0 3 6 12 24IN.



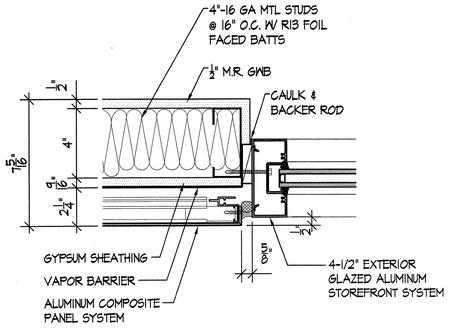
A A130\|A162 **90° EXTERIOR CORNER - ALUMINUM COMPOSITE PANEL**
SCALE: 1/4" = 1'-0"



B A130\|A162 **STOREFRONT SILL AT CLERESTORY**
SCALE: 1/4" = 1'-0"



C A130\|A162 **STOREFRONT HEAD AT CLERESTORY**
SCALE: 1/4" = 1'-0"



C A130\|A162 **STOREFRONT JAMB AT CLERESTORY**
SCALE: 1/4" = 1'-0"

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WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

TREATMENT PLANT BUILDING
STOREFRONT DETAILS

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A162

FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR					BASE				WALL						CEILING				CEILING HEIGHT				REMARKS
		VCT (VINYL COMPOSITE TILE)	CARPET	CERAMIC TILE WITH MARBLE THRESHOLD	SEALED CONCRETE		RUBBER	CERAMIC	NO BASE		SEMI-GLOSS PAINT - GWB	EGGSHELL PAINT - GWB	CERAMIC TILE	ALUMINUM STOREFRONT	CMU - PAINTED		SEMI-GLOSS PAINT - GWB	EGGSHELL PAINT - GWB	ACOUSTICAL TILE (2'X2')	NO CEILING	8'-0"	8'-8"	9'-0"	NO CEILING	
***	FILTER AREA				●				●											●				●	
100	VESTIBULE	●					●				●								●			●			
101	RECEPTION	●					●				●								●				●		
102	OFFICE		●				●				●								●		●				
103	OFFICE		●				●				●								●		●				
104	OFFICE		●				●				●								●		●				
105	STORAGE	●					●				●								●		●				
106	STORAGE	●					●				●								●				●		
107	STORAGE	●					●				●								●				●		
108	STORAGE						●				●								●				●		
109	CONFERENCE		●				●				●								●				●		
110	KITCHENETTE	●					●				●								●				●		
111	MENS			●				●			●		●				●				●		●		
112	WOMENS			●				●				●	●				●				●		●		
113	LAB	●					●					●		●	●				●				●		
114	BAC-T LAB	●					●					●		●	●				●				●		
115	ELECTRICAL ROOM	●					●					●		●	●				●				●		
116	JANITOR	●					●				●												●		
117	CORRIDOR 1	●					●				●												●		
118	CORRIDOR 2	●					●				●												●		
119	CORRIDOR 3	●					●				●												●		
120	CONTROL ROOM				●				●			●		●	●				●			●			
121	ELECTRICAL ROOM				●				●			●		●	●				●			●			
300	CHLORINE ROOM				●				●		●						●								
301	CHLORINATOR ROOM				●				●		●						●								
302	ELECTRICAL ROOM				●				●		●						●								
303	WORK ROOM				●				●		●						●								
304	CARBON ROOM				●				●		●						●								
400	WORK ROOM				●				●						●		●								
401	PUMP ROOM				●				●						●				●						

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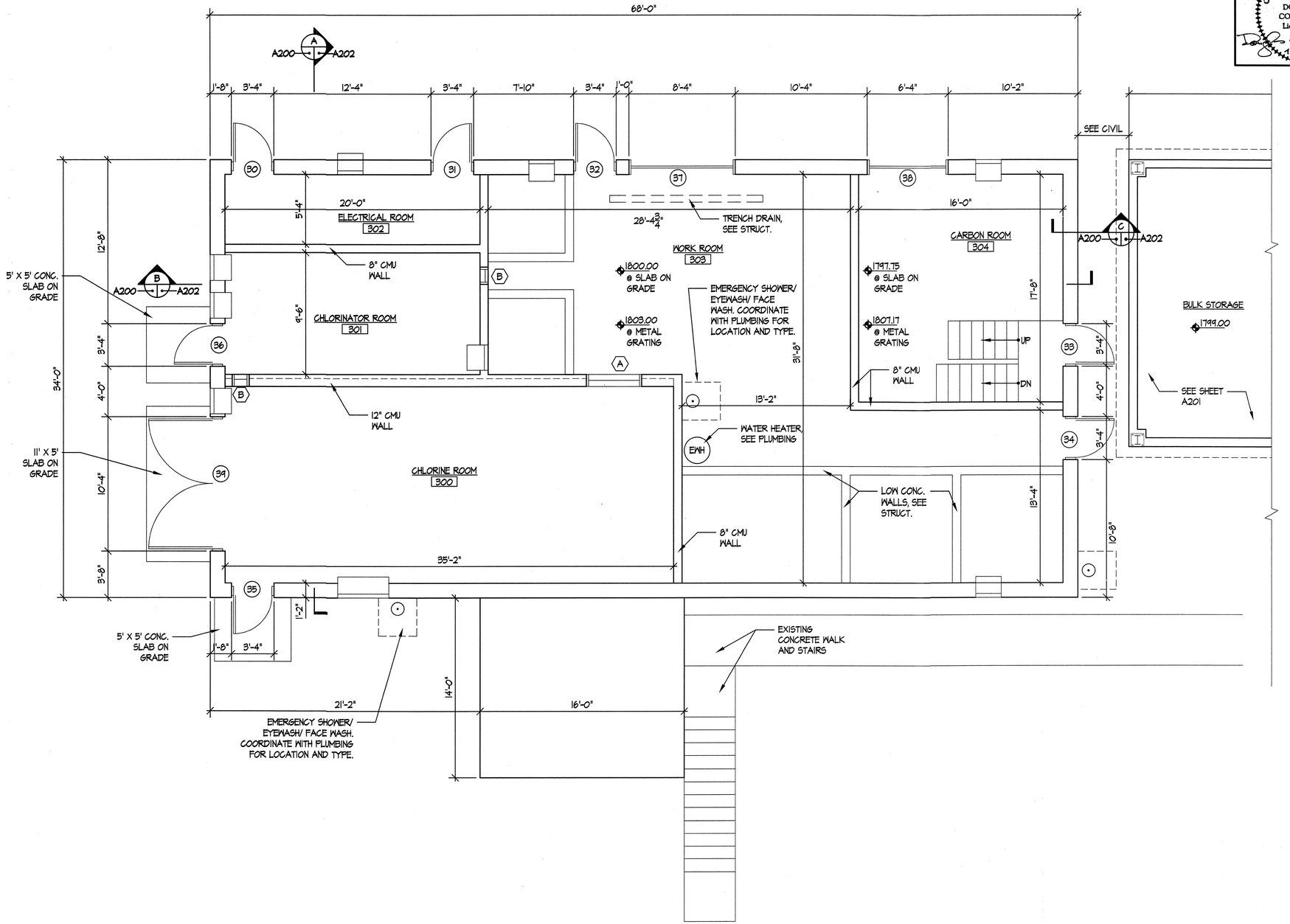
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

WATER TREATMENT PLANT
FINISH SCHEDULE AND DETAILS

By	Date	Description	Rev.

Designed:
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Scale:
Job No. 0985
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A170



CHEMICAL FEED BUILDING FLOOR PLAN

SCALE: 1/4 = 1'-0"

NOTE: REFER TO MECHANICAL DRAWINGS FOR EXACT SIZES AND LOCATIONS OF LOUVERS AND VENTS

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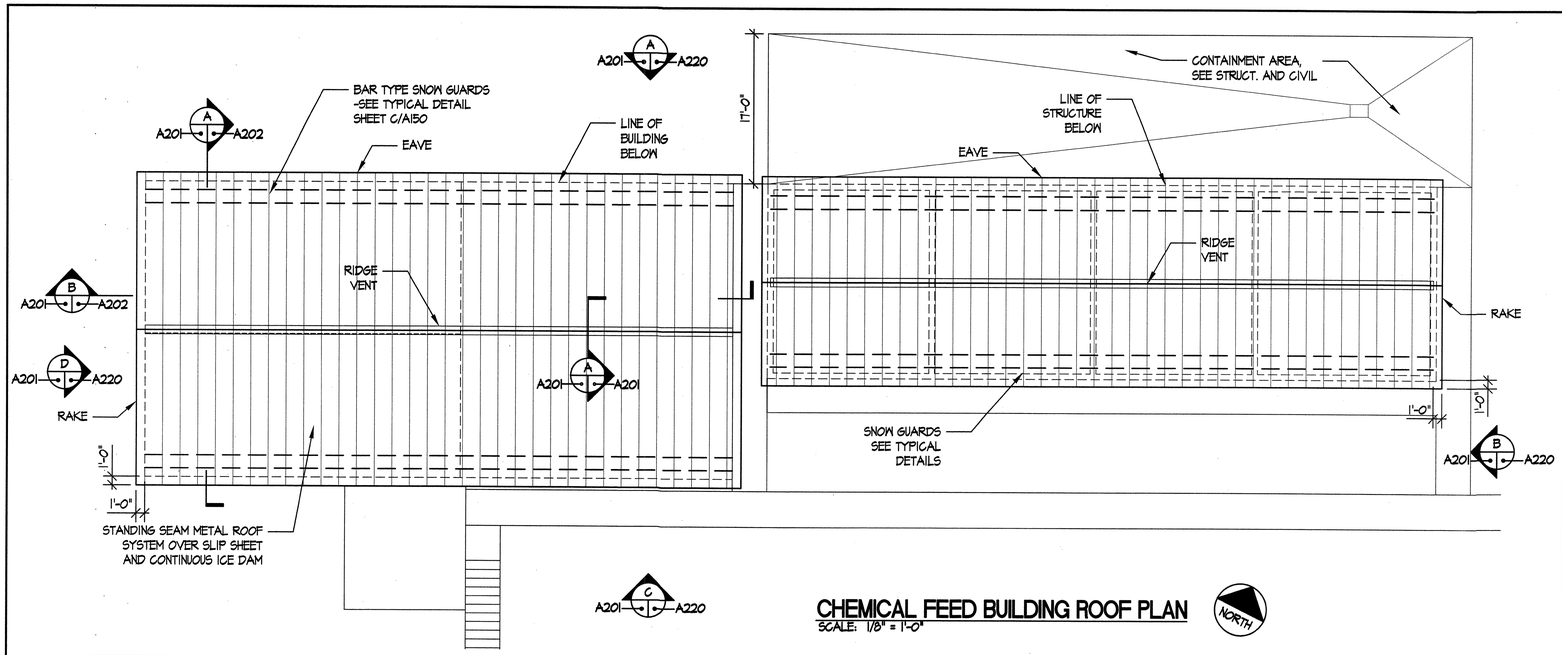
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

CHLORINE AND CHEMICAL BUILDING
FLOOR PLAN

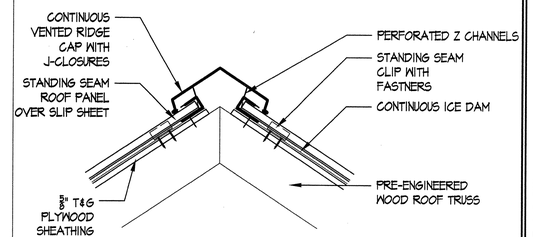
By	Date	Description	Rev.

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Job No. 0985
Archived File Name:

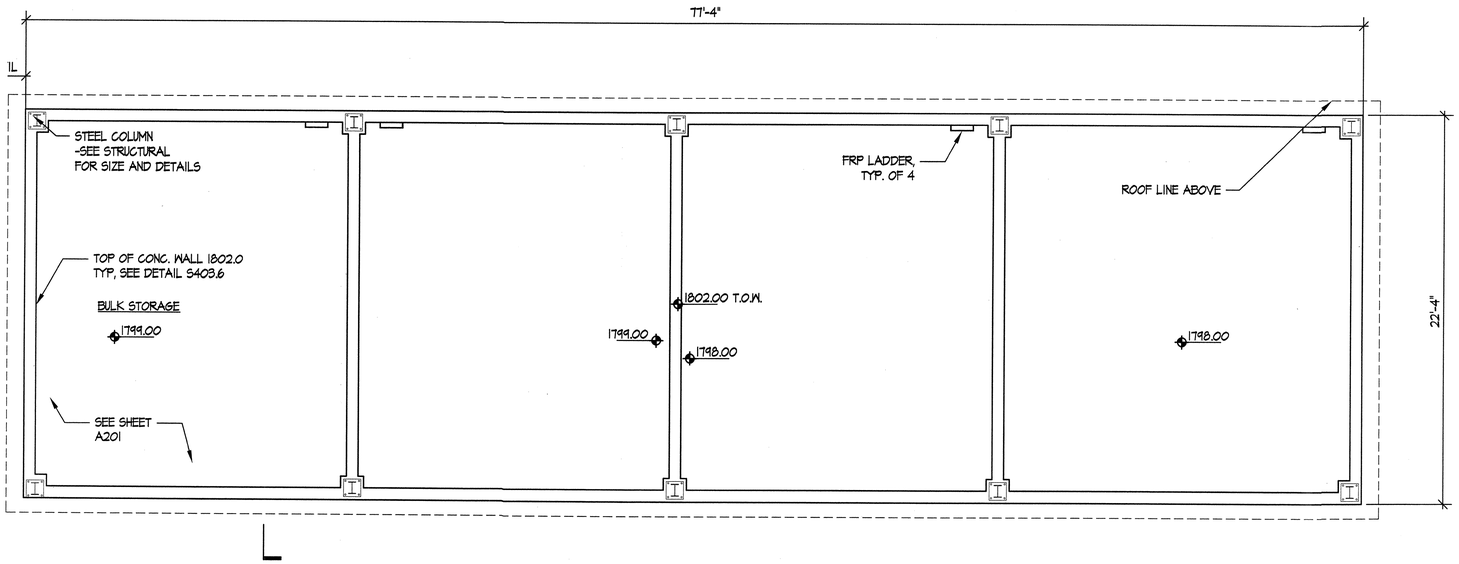
A200



CHEMICAL FEED BUILDING ROOF PLAN
SCALE: 1/8" = 1'-0"



A A201 A201 VENTED RIDGE DETAIL
SCALE: 1-1/2" = 1'-0"



BULK CHEMICAL STORAGE FLOOR PLAN
SCALE: 1/4 = 1'-0"

NORTH

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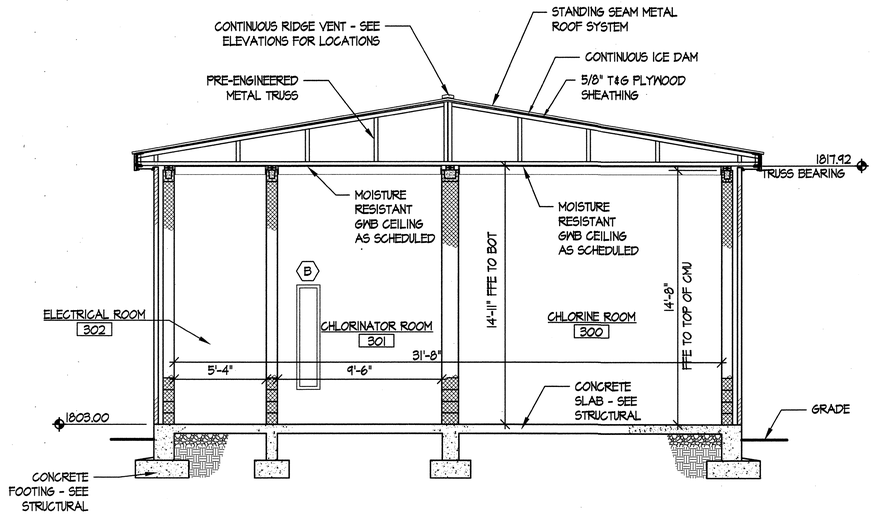
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

CHEMICAL FEED AND BULK CHEMICAL STORAGE BUILDINGS FLOOR PLAN

Rev.	Description	Date	By

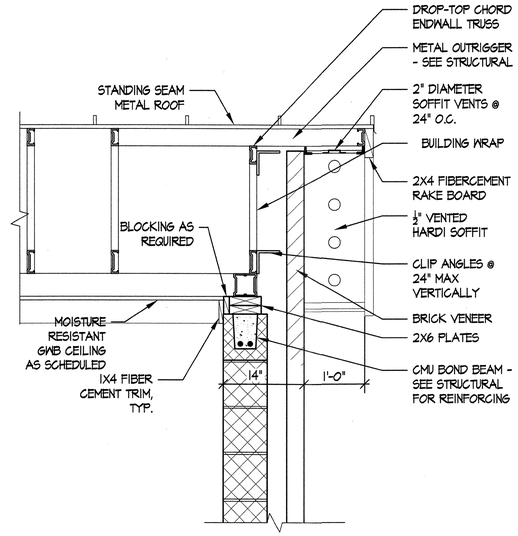
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Date: JULY 2010
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Job No. 0985
Archived File Name:

A201



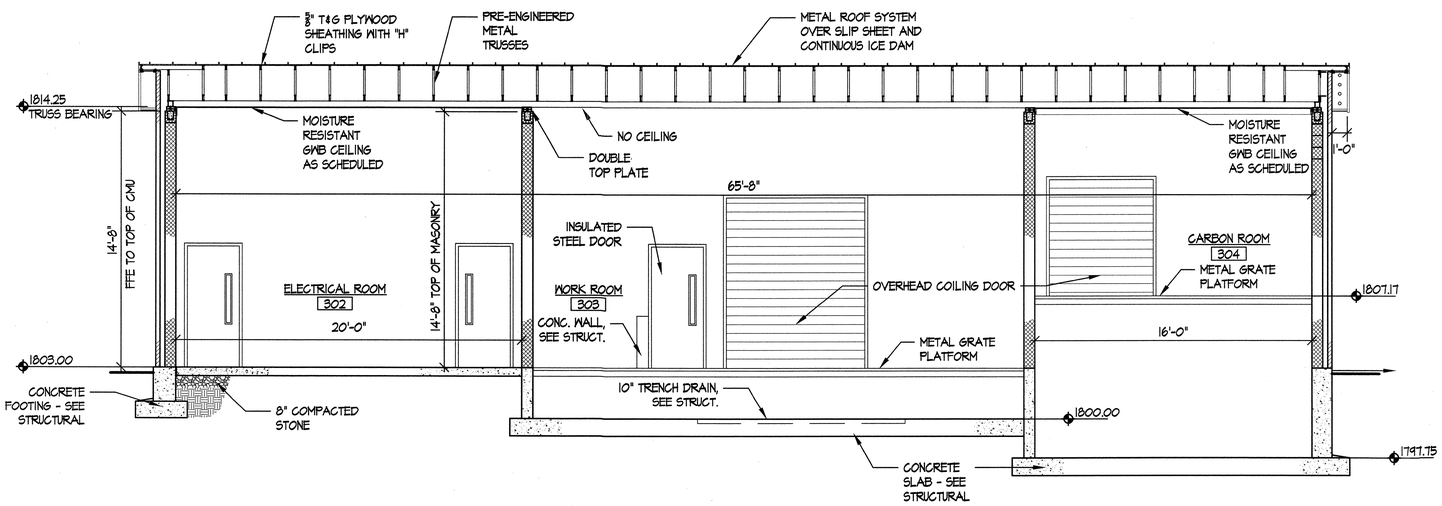
A A200 A201 A202 **CHLORINE AND CHEMICAL BUILDING SECTION**

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



C A200 A202 **RAKE DETAIL**

SCALE: 1" = 1'-0"



B A200 A201 A202 **CHLORINE AND CHEMICAL BUILDING SECTION**

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

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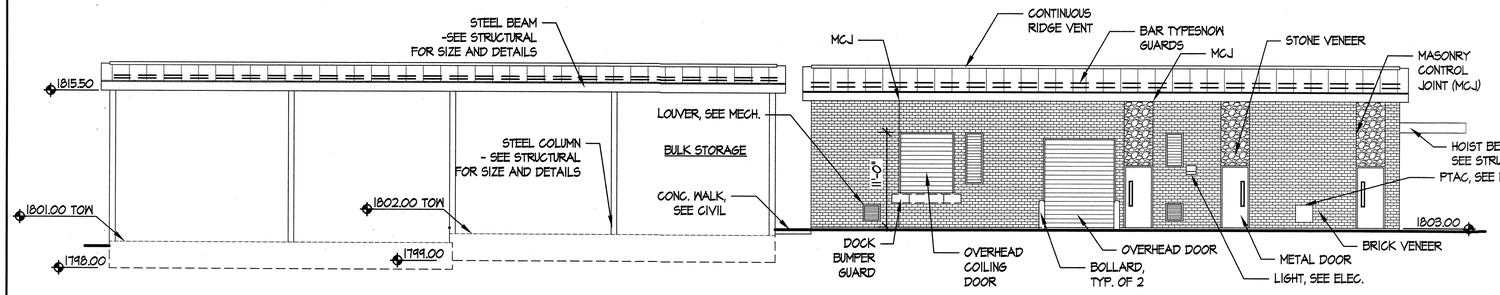
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

CHEMICAL FEED AND BULK STORAGE BUILDINGS – BUILDING SECTIONS

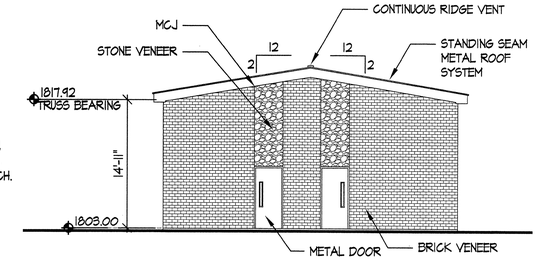
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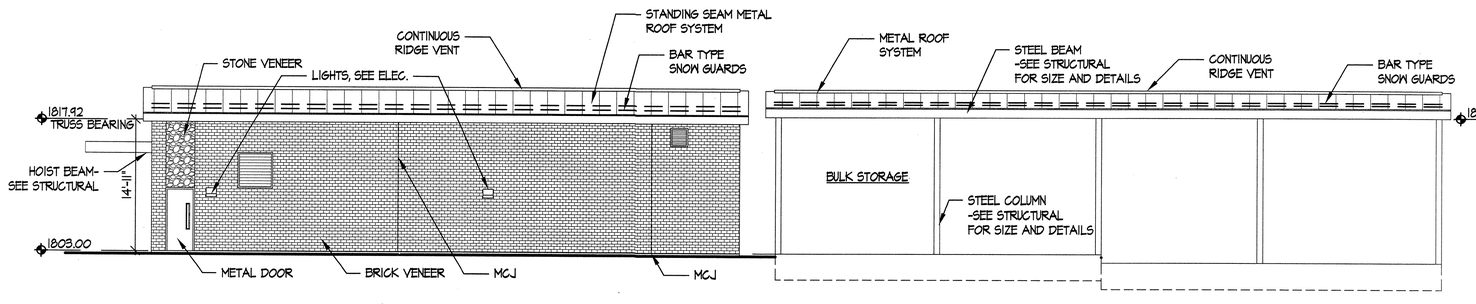
A202



B
A201 | A220
CHEMICAL FEED BUILDING NORTH ELEVATION
SCALE: 1/8" = 1'-0"

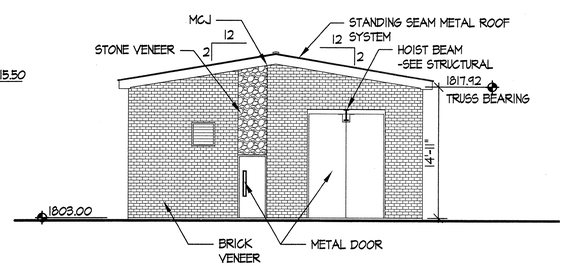


B
A201 | A220
CHEMICAL FEED BUILDING EAST ELEVATION
SCALE: 1/8" = 1'-0"



B
A201 | A220
CHEMICAL FEED BUILDING SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

NOTES:
1. HATCH SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. REFER TO MECHANICAL DRAWINGS FOR EXACT SIZES AND LOCATIONS OF LOUVERS AND VENTS.



B
A201 | A220
CHEMICAL FEED BUILDING WEST ELEVATION
SCALE: 1/8" = 1'-0"

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WATER TREATMENT PLANT EXPANSION

CHEMICAL FEED AND BULK CHEMICAL
STORAGE BUILDINGS – ELEVATIONS

Rev.	Description	Date	By

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A220

DOOR SCHEDULE

MARK	DOOR SIZE			MATERIAL	TYPE	LOUVER		DR FINISH	HEAD	JAMB		FRAME MATERIAL	REMARKS
	WIDTH	HEIGHT	THICKNESS			WIDTH	HEIGHT						
30	3'-0"	7'-0"	1-3/4"	H.M.	A	--	--	PAINT	A	A		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
31	3'-0"	7'-0"	1-3/4"	H.M.	A			PAINT	A	A		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
32	3'-0"	7'-0"	1-3/4"	H.M.	A			PAINT	A	A		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
33	3'-0"	7'-0"	1-3/4"	H.M.	A			PAINT	A	A		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
34	3'-0"	7'-0"	1-3/4"	H.M.	A			PAINT	A	A		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
35	3'-0"	7'-0"	1-3/4"	H.M.	A			PAINT	A	A		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
36	3'-0"	7'-0"	1-3/4"	H.M.	A			PAINT	A	A		H.M.	W/ 1/4" CLEAR TEMPERED GLAZING
37	8'-0"	10'-0"	1-3/4"	H.M.	B			PAINT	B	B		H.M.	SEE NOTE 1.
38	6'-0"	7'-0"	1-3/4"	H.M.	B	--	--	PAINT	B	B		H.M.	SEE NOTE 1.
39	PR 5'-0"	12'-0"	1-3/4"	H.M.	C	--	--	PAINT	B	B		H.M.	COORDINATE DOOR HEIGHT WITH HOIST BEAM - SEE STRUCTURAL

DOOR NOTES:

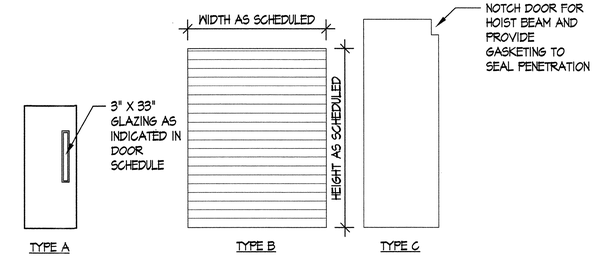
1. OVERHEAD COILING DOORS ARE TO BE INSTALLED FIRE TIGHT. INSTALL ACCORDING TO MANUFACTURER'S AIR TIGHT SPECS.

FINISH SCHEDULE

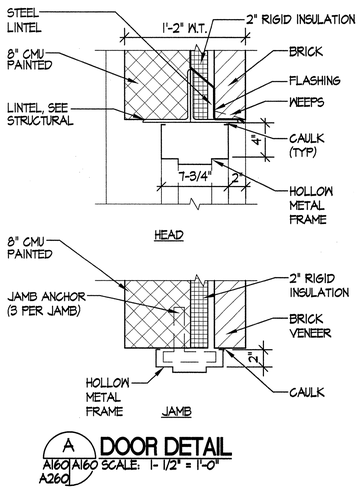
ROOM #	ROOM NAME	FLOOR				WALL			CEILING			CEILING HEIGHT				REMARKS
		SEALED CONCRETE	METAL GRATING			SEALED CONCRETE	TNEMIC PAINT		FIRE-RATED GWB	NO CEILING		11'-5"	14'-4"	NO CEILING		
300	CHLORINE ROOM	●					●		●				●			EXPLOSION PROOF PER NFPA 69
301	CHLORINATOR ROOM	●					●		●				●			
302	ELECTRICAL ROOM	●					●		●				●			
303	WORK ROOM	●	●				●			●				●		
304	CARBON ROOM	●	●				●		●			●				EXPLOSION PROOF PER NFPA 69

FINISH NOTES:

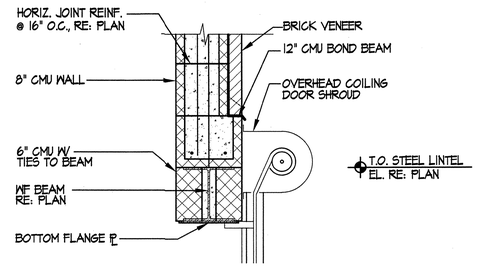
1. CHLORINE ROOM AND CARBON ROOM ARE TO BE AIR TIGHT. ALL PENETRATIONS, SEAMS, AND JOINTS ARE TO BE SEALED.



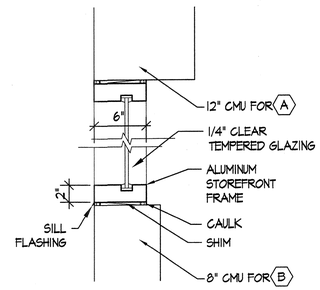
DOOR ELEVATION
SCALE: 1/4" = 1'-0"



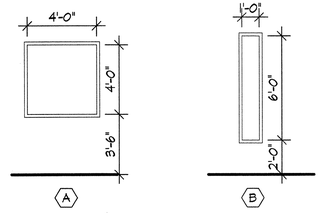
A DOOR DETAIL
A160/A160 SCALE: 1- 1/2" = 1'-0"
A260



HEAD DETAIL 'B'
3/4" = 1'-0"



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



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

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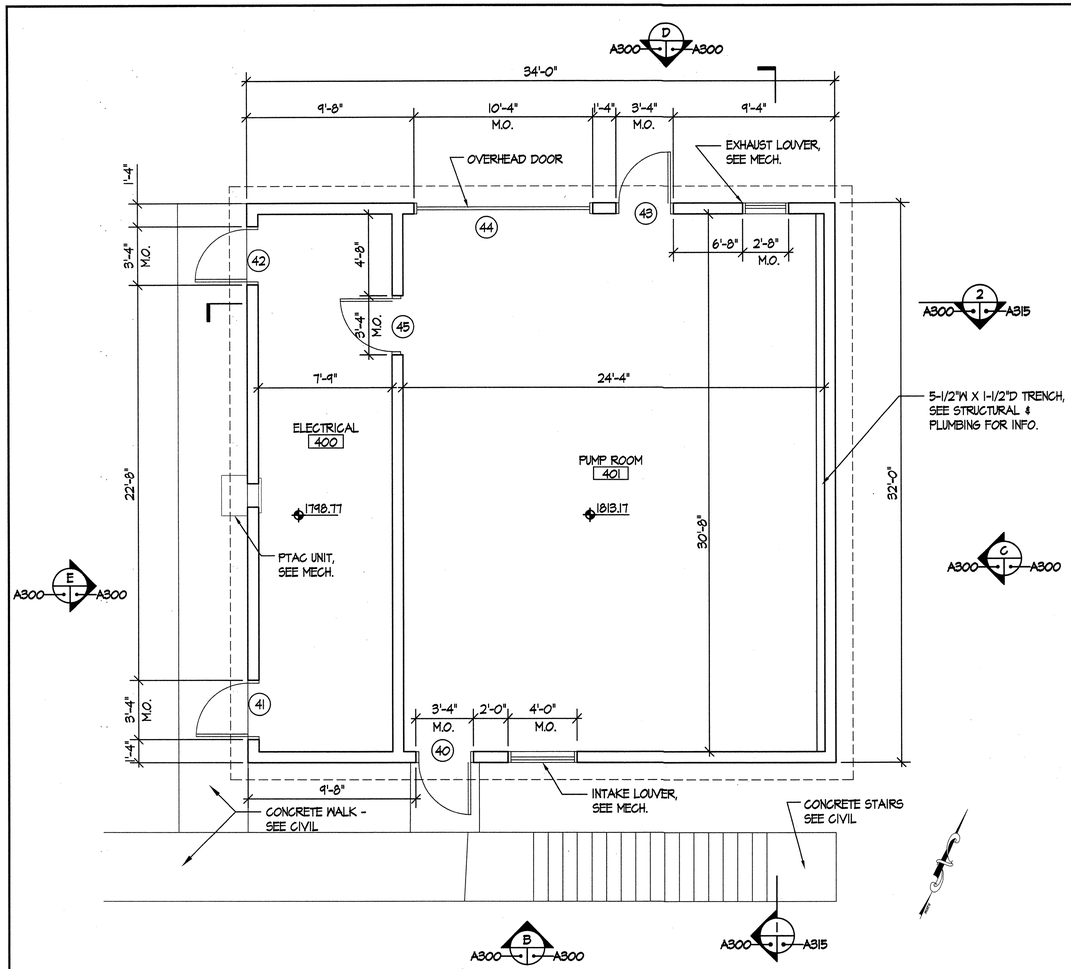
WASHINGTON COUNTY SERVICE AUTHORITY
CHEMICAL FEED BUILDING

CHEMICAL FEED AND BULK CHEMICAL STORAGE BUILDINGS-DOOR SCHEDULE AND DETAILS

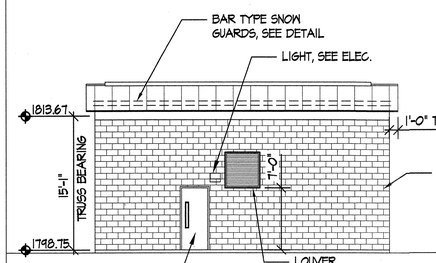
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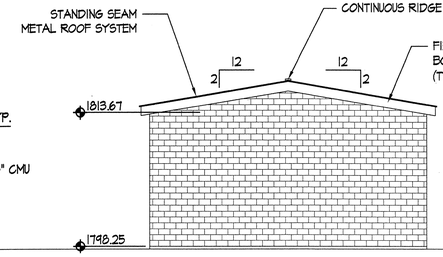
A260



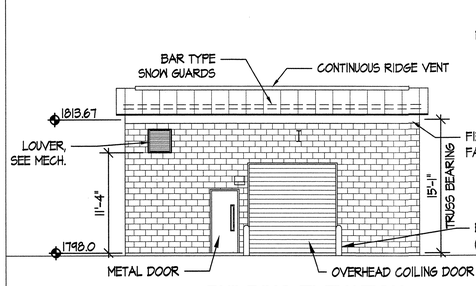
INTERMEDIATE BOOSTER PUMP STATION FLOOR PLAN
SCALE: 1/4 = 1'-0"



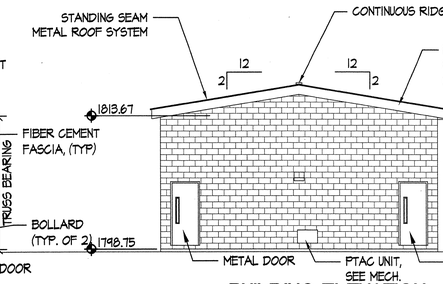
B A300 A300 **BUILDING ELEVATION**
SCALE: 1/8" = 1'-0"



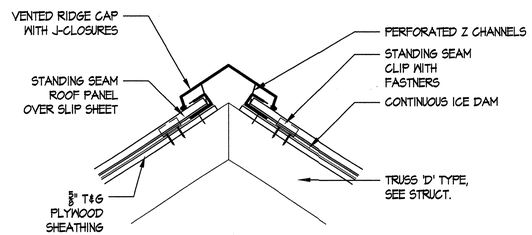
C A300 A300 **BUILDING ELEVATION**
SCALE: 1/8" = 1'-0"



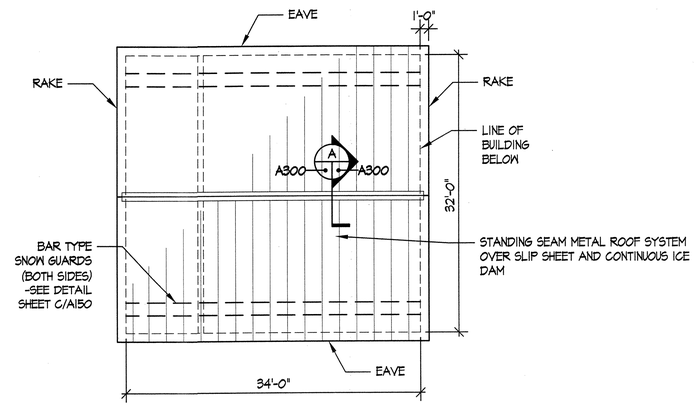
D A300 A300 **BUILDING ELEVATION**
SCALE: 1/8" = 1'-0"



E A300 A300 **BUILDING ELEVATION**
SCALE: 1/8" = 1'-0"



A A300 A300 **VENTED RIDGE DETAIL**
SCALE: 1-1/2" = 1'-0"



INTERMEDIATE BOOSTER PUMP STATION ROOF PLAN
SCALE: 1/8" = 1'-0"

COMMONWEALTH OF VIRGINIA
8.10.10
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THE LANE GROUP
124 DEPOT AVENUE • CHILHOWIE, VA 24318 (276) 646-2520

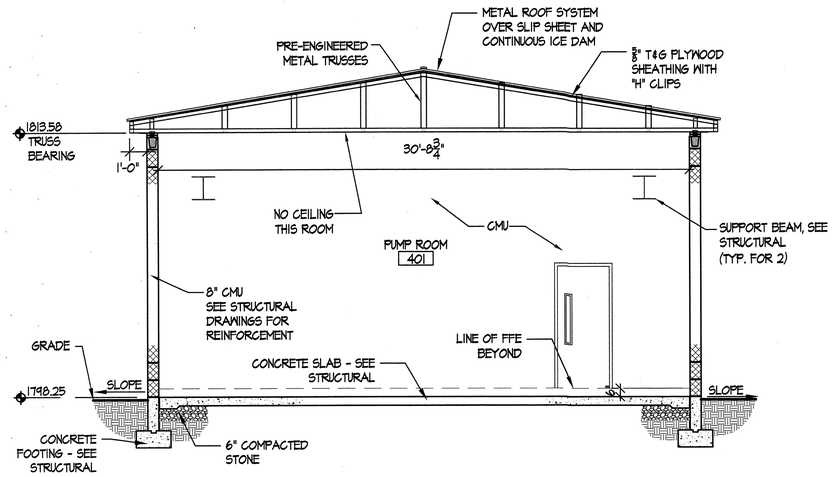
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

INTERMEDIATE BOOSTER PUMP STATION
FLOOR PLAN

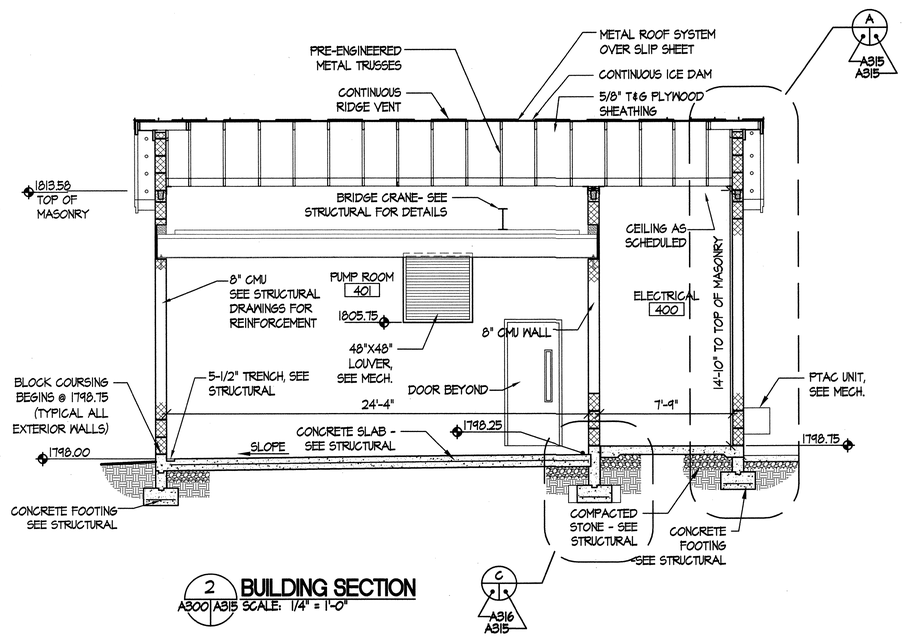
Rev.	Description	Date	By

Designed:
Drawn:
Checked:
Date: JULY 2010
Scale:
Job No. 0985
Archived File Name:

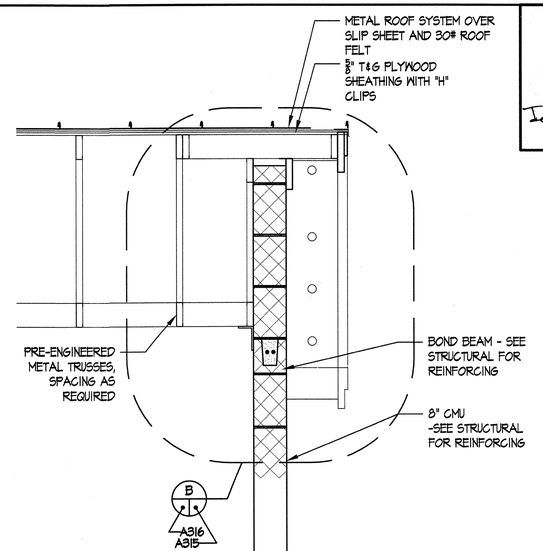
A300

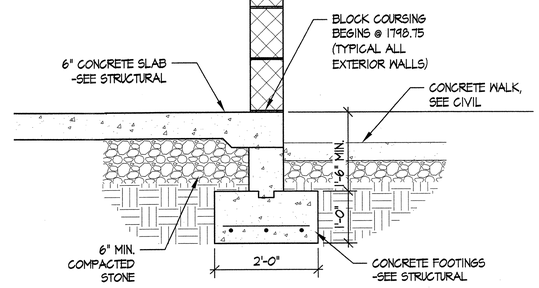


1 A300 A315 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"



2 A300 A315 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"





A A315 A315 **WALL SECTION**
SCALE: 1" = 1'-0"

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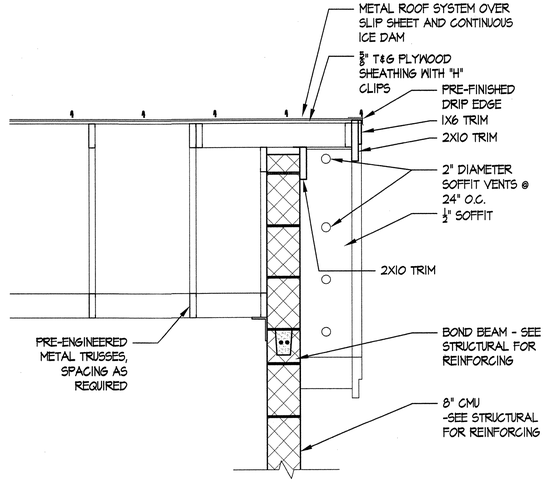
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

INTERMEDIATE BOOSTER PUMP STATION
BUILDING SECTIONS

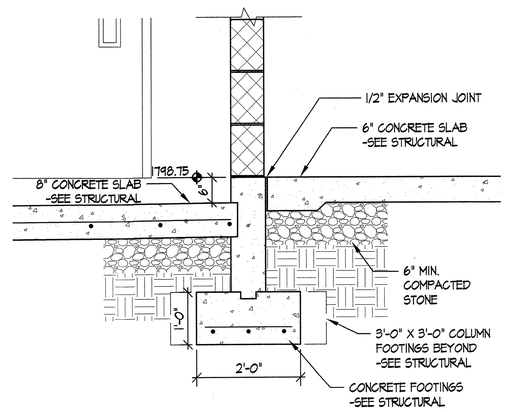
By	Date	Description	Rev

Designed:
Drawn:
Checked:
Date: JULY 2010
Scale:
Job No. 0985
Archived File Name:

A315



B A316/A315 **RAKE DETAIL**
SCALE: 3/4" = 1'-0"



C A316/A315 **INTERIOR WALL/FOUNDATION DETAIL**
SCALE: 3/4" = 1'-0"

COMMONWEALTH OF VIRGINIA
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WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

INTERMEDIATE BOOSTER PUMP STATION
DETAILS

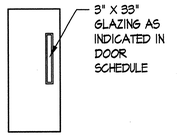
By	Date	Description	Rev

Designed:
Drawn:
Checked:
Date: JULY 2010
Scale:
Job No. 0985
Archived File Name:

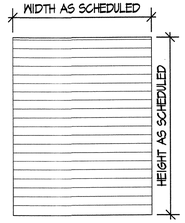
A316

DOOR SCHEDULE

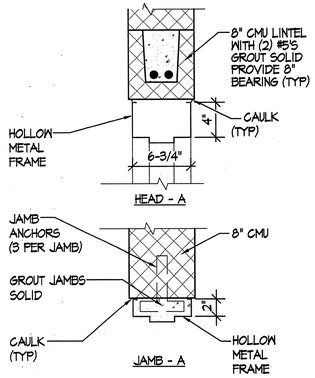
MARK	DOOR WIDTH	DOOR HEIGHT	DOOR THICKNESS	DOOR MATERIAL	DOOR CORE	DOOR FINISH	DOOR TYPE	LOUVER WIDTH	LOUVER HEIGHT	HARDWARE SET #	HEAD	JAMB	FRAME TYPE	FRAME MATERIAL	FIRE RATING	REMARKS
40	3'-0"	7'-0"	1-3/4"	HM	INSUL	PAINT	A	--	--		A	A		HM		
41	3'-0"	7'-0"	1-3/4"	HM	INSUL	PAINT	A	--	--		A	A		HM		
42	3'-0"	7'-0"	1-3/4"	HM	INSUL	PAINT	A	--	--		A	A		HM		
43	3'-0"	7'-0"	1-3/4"	HM	INSUL	PAINT	A	--	--		A	A		HM		
44	10'-0"	10'-0"	1-3/4"	STEEL	INSUL	PAINT	B	--	--		B	*	*	*		* BY MANUFACTURER
45	3'-0"	7'-0"	1-3/4"	HM	INSUL	PAINT	A	--	--		A	A		HM		

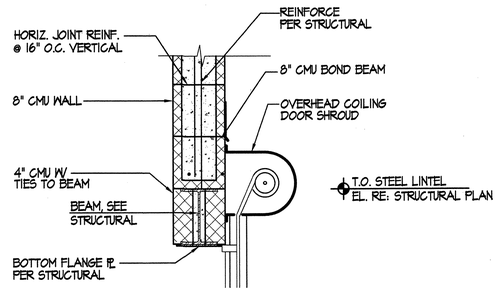


TYPE A



TYPE B





A A360 A360 **DOOR DETAIL** SCALE: 1- 1/2" = 1'-0"

B A360 A360 **DOOR DETAIL** SCALE: 3/4" = 1'-0"

FINISH SCHEDULE

ROOM NO.		FLOOR: CONCRETE - SEALED	BASE: NO BASE	WALL: CMU - TNEMIC PAINT	CEILING: OPEN TO STRUCTURE ABOVE	CEILING: GWB - TNEMIC PAINT	CEILING HEIGHT: OPEN TO STRUCTURE ABOVE	CEILING HEIGHT: 15'-4"	NOTES
400	ELECTRICAL	●	●	●		●	●		
401	PUMP ROOM	●	●	●	●			●	

COMMONWEALTH OF VIRGINIA
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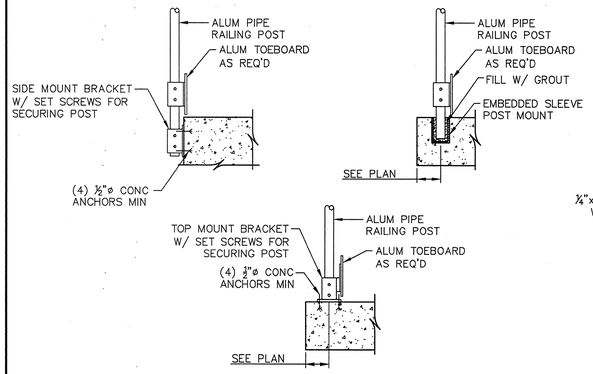
WASHINGTON COUNTY SERVICE AUTHORITY
WATER TREATMENT PLANT EXPANSION

INTERMEDIATE AND BOOSTER PUMP STATION
DOOR AND FINISH SCHEDULES

Rev.	Description	Date	By

Designed:
Drawn:
Checked:
Date: JULY 2010
Scale:
Job No. 0985
Archived File Name:

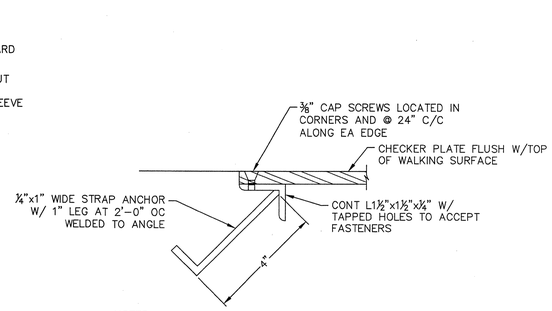
A360



TYPICAL ALUMINUM PIPE RAILING POST CONNECTIONS

S002 / TYP

SCALE: NO SCALE



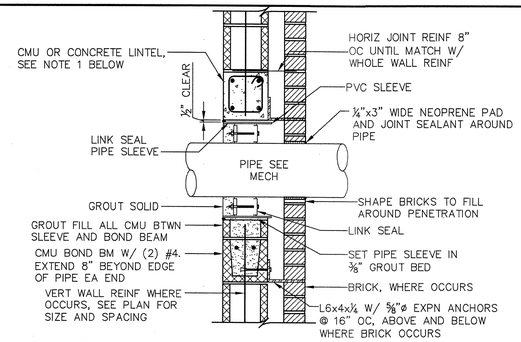
NOTES:

1. WHEN CHECKER PLATE IS ALUM, ANGLES AND STRAP ANCHORS SHALL ALSO BE ALUM. COAT ALUM ANGLES AND STRAP ANCHORS IN ACCORDANCE WITH THE PAINTING SPECIFICATIONS PRIOR TO EMBEDDING IN FRESH CONC. CAP SCREWS SHALL BE SS WHEN OTHER COMPONENTS ARE ALUMINUM.

TYPICAL CHECKER PLATE SUPPORT

S005 / TYP

SCALE: NO SCALE



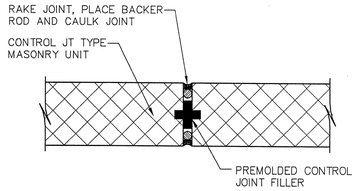
NOTES:

1. PIPE DIA ≤ 36": 8" CMU LINTEL W/ (2) #5 BARS
   PIPE DIA > 36": 8" CONC LINTEL W/ (2) #5 T&B AND #3 STIRRUPS @ 6" OC.
   EXTEND LINTEL BEARING 8" MIN PAST EDGE OF PIPE AT EA END.

CMU WALL PIPE PENETRATION

S008 / TYP

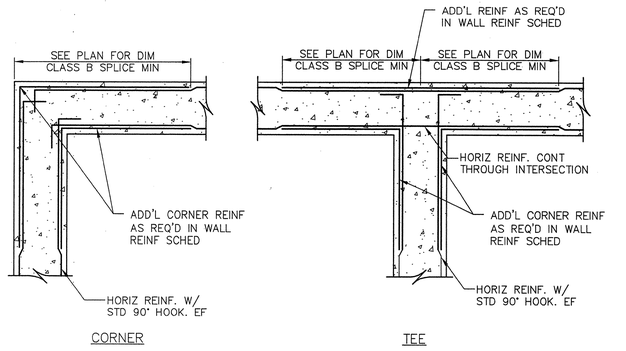
SCALE: NO SCALE



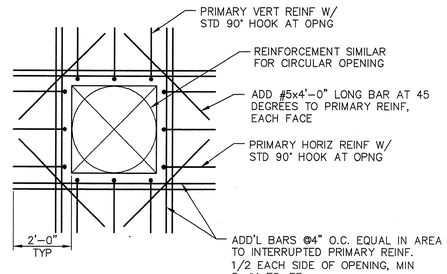
TYPICAL CMU CONTROL JOINT

S009 / TYP

SCALE: NO SCALE



CORNER TEE



OPENING

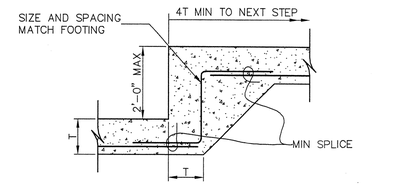
NOTES:

1. ADDITIONAL CORNER BARS ARE TO BE PROVIDED AS SHOWN ON THE PLAN.
2. LAP SPLICED BARS ARE SHOWN WITH AN OFFSET FOR CLARITY ONLY. OFFSETS ARE NOT REQUIRED FOR ACTUAL REINFORCING.

CONCRETE WALL REINFORCEMENT

S007 / TYP

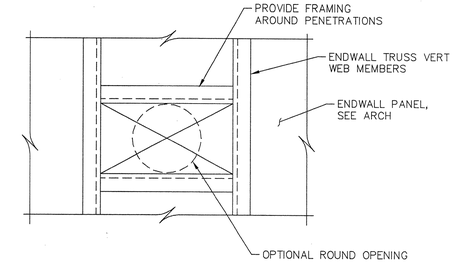
SCALE: NO SCALE



TYPICAL FOOTING STEP

S014 / TYP

SCALE: NO SCALE



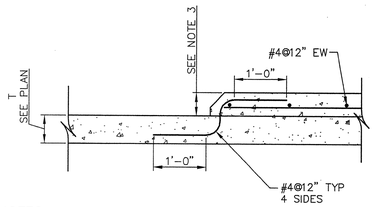
NOTES:

1. FOR TIMBER ENDWALL TRUSS PROVIDE 2x4's IN LIEU OF LIGHTGAGE ANGLES.
2. FLASH OPENINGS PER SPECIFICATIONS.

TYPICAL ENDWALL TRUSS OPENING DETAIL

S012 / TYP

SCALE: NO SCALE



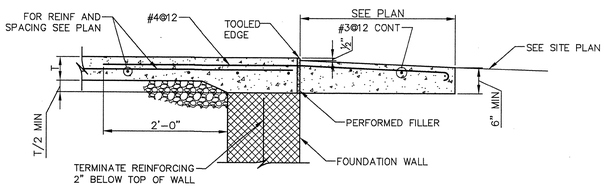
NOTES:

1. PROVIDE A THICKENED SLAB WHEN EQPT PAD IS CONSTRUCTED ON SLAB ON GRADE.
2. #4 DOWELS EPOXIED 4½" INTO SLAB. MAY BE SUBSTITUTED FOR CAST IN PLACE REINF WHEN THE END OF THE DOWEL MEETS CONC COVER REQUIREMENTS.
3. HEIGHT OF EQPT PAD SHALL BE SUCH TO BRING EQUIPMENT TO THE PROPER ELEVATION. CONTRACTOR TO COORDINATE WITH EQPT MFR'S DRAWINGS.

TYPICAL EQUIPMENT PAD DETAIL

S013 / TYP

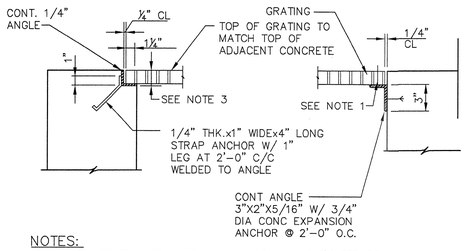
SCALE: NO SCALE



TYPICAL GARAGE DOOR OPENING

S015 / TYP

SCALE: NO SCALE



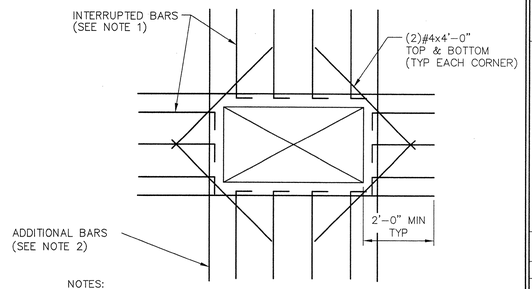
NOTES:

1. ATTACH GRATING TO SUPPORT ANGLES WITH MFR'S STD SS SADDLE CLIPS OR SS BOLT ASSY SPACED AT 2'-0" MAX O.C.
2. WHEN GRATING IS ALUM, ANGLES AND STRAP ANCHORS SHALL ALSO BE ALUM, AND EXP ANCHORS SHALL BE SS. ALUM THAT IS EMBEDDED IN FRESH CONC SHALL BE COATED IN ACCORDANCE W/THE PAINTING SPECIFICATION.
3. ANGLE DEPTH DEPENDS ON GRATING HEIGHT. CONTRACTOR COORDINATE MISC METALS SUBMITTAL W/ GRATING SUBMITTAL.

TYPICAL GRATING SUPPORT

S016 / TYP

SCALE: NO SCALE



NOTES:

1. CUT BOTTOM BARS AT OPENING. CUT AND HOOK TOP BARS AT OPENING.
2. PROVIDE ADDITIONAL BARS EQUAL IN AREA TO INTERRUPTED REINFORCEMENT. PLACE HALF ON EACH SIDE OF OPENING (MIN 2-#4 T&B EACH SIDE)
3. REINFORCEMENT FOR CIRCULAR OPENINGS IS SIMILAR.

REINFORCEMENT AT OPENING IN SLAB

S025 / TYP

SCALE: NO SCALE

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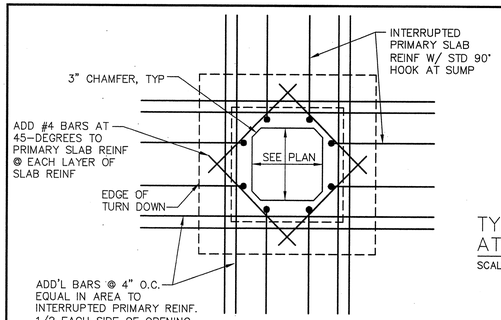
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

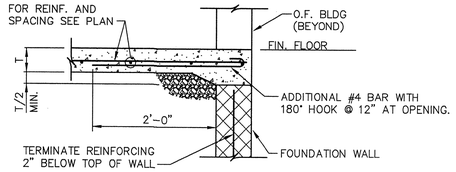
TYPICAL DETAILS

By	Date	Description	Rev.
GTS	8/9/10	BID ISSUE	B
GTS	7/13/10	VDH RESUBMITTAL	A

Designed:	GTS/JSB
Drawn:	CDH
Checked:	DBH
Date:	JUNE 2010
Scale:	AS SHOWN
Job No.	12367.13
Archived File Name:	

S001

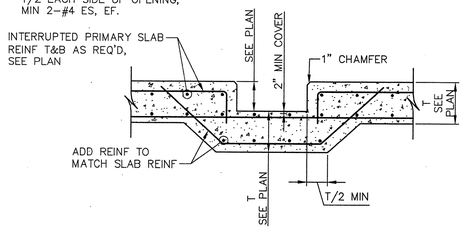




TYPICAL SLAB DETAIL AT EXTERIOR DOOR

SCALE: NO SCALE

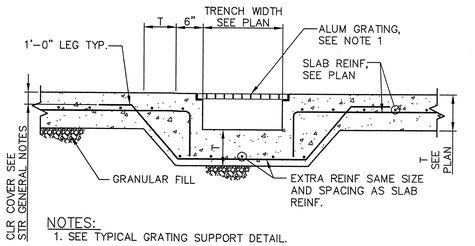
S026 TYP



TYPICAL SUMP PIT

SCALE: NO SCALE

S028 TYP



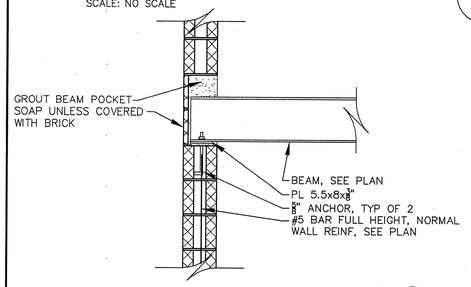
NOTES:

1. SEE TYPICAL GRATING SUPPORT DETAIL.

TYPICAL FORMED CONCRETE TRENCH SECTION

SCALE: NO SCALE

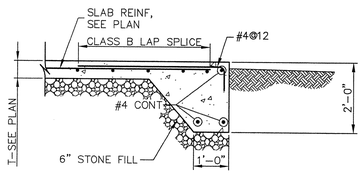
S030 TYP



TYP BEAM BEARING ON CMU

SCALE: 3/4"=1'-0"

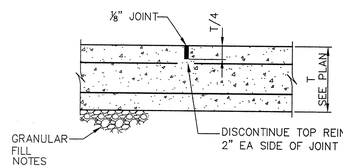
S045 TYP



TYPICAL TURNED DOWN SLAB

SCALE: NO SCALE

S031 TYP

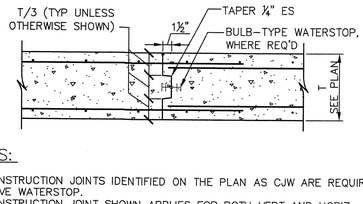


1. FORMED CONTROL JOINTS W/ BOND BREAK & SEALANT MAY ALSO BE USED AS CRACK CONTROL JOINTS.

SECTION - TYPICAL SLAB ON GRADE CRACK CONTROL JOINT (CCJ)

SCALE: NO SCALE

S041 TYP



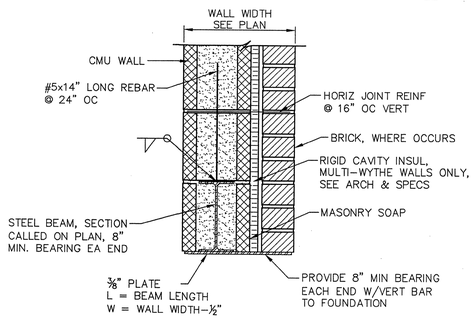
NOTES:

1. CONSTRUCTION JOINTS IDENTIFIED ON THE PLAN AS CJW ARE REQUIRED TO HAVE WATERSTOP.
2. CONSTRUCTION JOINT SHOWN APPLIES FOR BOTH VERT AND HORIZ CONSTRUCTION JOINTS.
3. WHERE A CONSTRUCTION JOINT IS PROPOSED IN A LOCATION NOT SHOWN ON THE DRAWINGS, THE LOCATION OF THE JOINT AND THE SIZE OF THE KEYWAY SHALL BE SUBMITTED BY THE CONTR AND APPROVED BY THE ENGINEER.
4. ALL REINF SHALL BE CONTINUOUS THROUGH THE JOINT. LAP ALL REINF ON ONE SIDE OF THE CONSTRUCTION JOINT. LAP SPLICE LENGTH SHALL BE LONG ENOUGH TO DEVELOP THE FULL YIELD STRENGTH OF THE REINF.

TYPICAL CONCRETE CONSTRUCTION JOINT (CJ OR CJW)

SCALE: NO SCALE

S042 TYP



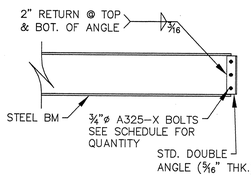
NOTE:

1. AT EACH BEAM BEARING LOCATION REINFORCE W/ 1 VERT #4 BAR AND FULLY GROUT MASONRY CORES FROM FDN TO BEARING ELEVATION.

TYPICAL STEEL LINTEL

SCALE: NO SCALE

S033 TYP

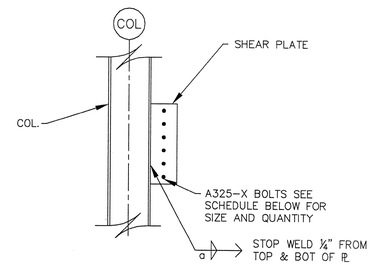


BEAM SIZE	NO. OF BOLTS/ANGLE
W8	2
W10	2
W12	3
W14	3
W16	4
W18	5

STANDARD CONNECTION SCHEDULE

SCALE: 3/4"=1'-0"

S052 TYP

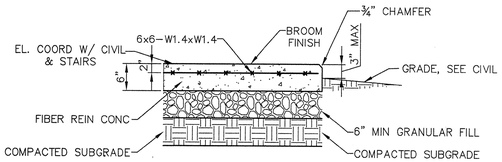


BEAM SIZE	BOLT DIAMETER	NO. OF BOLTS	SHEAR P THICKNESS	WELD SIZE 'a'
W8	3/4"	2	1/4"	3/16
W10	3/4"	2	1/4"	3/16
W12	3/4"	3	5/16"	1/4
W14	3/4"	3	5/16"	1/4
W16	3/4"	4	5/16"	1/4
W18	7/8"	5	5/16"	1/4

SINGLE SHEAR PLATE CONNECTION SCHEDULE

SCALE: 3/4"=1'-0"

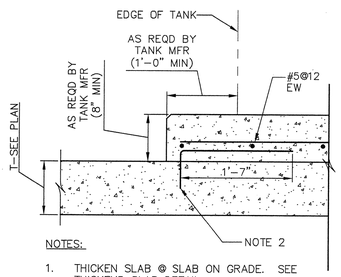
S053 TYP



TYPICAL EXTERIOR CONCRETE PAD

SCALE: NO SCALE

S046 TYP



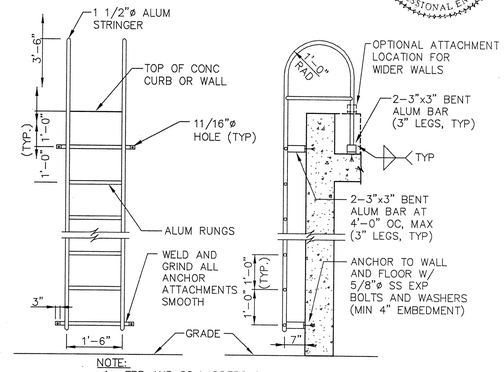
NOTES:

1. THICKEN SLAB @ SLAB ON GRADE. SEE THICKEND SLAB DETAIL.
2. #4 DOWELS EPOXIED 4¾" INTO SLAB AT 12" OC AROUND PAD PERIMETER.
3. EQUIP PAD SIMILAR EXCEPT 4" MIN HEIGHT, 4" MIN PROJECTION BEYOND EDGE OF EQUIPMENT OR PLATE, AND #4@12 PAD REINF.

TYPICAL TANK PAD DETAIL

SCALE: NO SCALE

S050 TYP



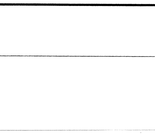
NOTE:

1. FRP AND SS LADDERS SIM.

TYPICAL LADDER DETAIL

SCALE: NO SCALE

S018 TYP



NOTES:

1. PROVIDE 8" MIN. BEARING OF CONC MASONRY LINTELS AT EACH END UNLESS NOTED OTHERWISE ON DRAWINGS.
2. FILL CMU CELLS ON WHICH LINTEL BEARS WITH MASONRY GROUT AND REINF AROUND OPENINGS AS SHOWN ON THE TYPICAL CMU WALL REINF DETAIL.
3. USE LINTEL MARK ML1 FOR CMU LINTELS NOT SHOWN ON PLAN.

MASONRY LINTEL SCHEDULE

CMU LINTEL MARK	SIZE	REINF
ML1	8" CMU, 8" DEEP	2-#4
ML2	8" CMU, 16" DEEP	2-#5
ML3	12" CMU, 8" DEEP	2-#4
ML4	12" CMU, 16" DEEP	2-#5

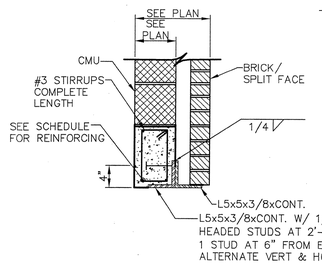
CMU LINTELS SHALL BE TEMPORARILY SUPPORTED FULL LENGTH UNTIL THE MORTAR IN THE LINTEL HAS CURED FOR 24 HOURS.

MASONRY LINTELS

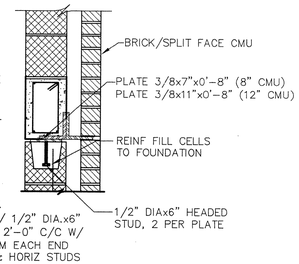
SCALE: NO SCALE

S048 TYP

MIDSPAN



BEARING



NOTES:

1. PROVIDE CONC LINTELS AT ALL EXTERIOR WALL OPENINGS WITH BRICK.
2. USE LINTEL MARK CL1 FOR CONC LINTELS NOT SHOWN ON PLAN.

CONCRETE LINTEL SCHEDULE

MARK	DEPTH	BOT REINF	TOP REINF	STIRRUPS
CL1	8"	2-#5	2-#4	#3 @ 3"
CL2	16"	3-#5	2-#4	#3 @ 7"

SECTION - PRECAST LINTEL

SCALE: NO SCALE

S051 TYP

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS
TYPICAL DETAILS

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	GTS
A	VDH RESUBMITTAL	7/13/10	GTS

Designed: GTS/JSB
Drawn: CDH
Checked: DBH
Date: JUNE 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S002

CONSTRUCTION NOTES

ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE LOCAL BUILDING CODE, WHICH IS THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE, 2006.

LOADS

LIVE LOADS	ROOF (UNREDUCIBLE)	30 PSF
	FLOOR	125 PSF
	STAIRWAYS	125 PSF
	GROUND SNOW LOAD	20 PSF

WIND LOADS
BASED ON A BASIC WIND SPEED OF 90 MPH, EXPOSURE C.

SEISMIC LOADS

SHORT PERIOD SPECTRAL RESPONSE ACCELERATION	S_s	.359
1-SECOND SPECTRAL RESPONSE ACCELERATION	S_1	.096
SITE CLASS		C
SITE COEFFICIENT	F_a	1.20
SITE COEFFICIENT	F_v	1.70
SEISMIC USE GROUP		I
SEISMIC DESIGN CATEGORY		C

MATERIALS

SOIL BEARING		2000 PSF
CONCRETE		
FOOTINGS		f'c=3,000 PSI
ALL OTHER CONCRETE		f'c=4,000 PSI
REINFORCING BARS	ASTM A615, GRADE 60	Fy=60 KSI
MASONRY		
SOLID CMU	ASTM C145, GRADE N1 (MAY BE 75 % SOLID)	
HOLLOW CMU	ASTM C90, GRADE N1	
MORTAR	ASTM C270, TYPE M OR S	
MINIMUM COMPRESSIVE STRENGTH FOR ALL MASONRY		f'm=1,350 PSI
GROUT	ASTM C476, ⅜" MAXIMUM COARSE AGGREGATE	
STRUCTURAL STEEL		
STEEL PIPE	ASTM A53, TYPE E OR S, GR B	Fy=35 KSI
HOLLOW STRUCTURAL SHAPES	ASTM A500, GR B	Fy=46 KSI
ROLLED SHAPES	ASTM A992	Fy=50 KSI
PLATES, ANGLES	ASTM C90, GRADE N1	Fy=36 KSI
WELDING ELECTRODES		E70XX
STRUCTURAL LUMBER	PRESSURE TREATED SP, #2 OR BETTER	

DO NOT USE REPRODUCED PORTIONS OF THE CONTRACT DRAWINGS IN THE SHOP DRAWINGS.

FIELD VERIFY ALL EXISTING DIMENSIONS THAT AFFECT NEW WORK.

VERIFY SIZE AND LOCATION OF ALL OPENINGS, SLEEVES, INSERTS, ETC. WITH SHOP DRAWINGS OF EQUIPMENT TO BE INSTALLED. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OPENINGS IN ROOF. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF PIPE SLEEVES.

STRIP ALL TOPSOIL FROM AREAS TO BE COVERED BY STRUCTURES OR PAVEMENT. FILL FOR BUILDINGS OR PAVEMENT SHALL BE CONTROLLED FILL. CONTROLLED FILL SHALL BE TYPE SM OR BETTER, PLACED IN HORIZONTAL LIFTS OF 8" OR 9" LOOSE THICKNESS AND COMPACTED AS SPECIFIED.

WHERE NOTED OR SHOWN, PROVIDE DRAIN PIPE WRAPPED IN FILTER FABRIC AND BEDDED IN GRAVEL IN ACCORDANCE WITH SPECIFICATION "02512-FOUNDATION DRAIN SYSTEM".

PROVIDE CONCRETE WORK CONFORMING TO ALL REQUIREMENTS OF ACI 301, LATEST EDITION, SPECIFICATIONS FOR STRUCTURAL CONCRETE, EXCEPT AS MODIFIED BY SUPPLEMENTAL REQUIREMENTS BELOW.

CENTER FOOTINGS UNDER WALLS AND COLUMNS UNLESS NOTED. ALL FOOTINGS SHALL PROJECT AT LEAST 1'-0" INTO UNDISTURBED NATURAL SOIL OR COMPACTED CONTROLLED FILL HAVING A BEARING VALUE AT LEAST EQUAL TO THAT SPECIFIED ABOVE. PLACE BOTTOMS OF ALL EXTERIOR FOOTINGS AT LEAST 1'-6" BELOW FINISHED GRADE. EARTH CUTS MAY BE USED AS FORMS FOR FOOTING CONCRETE. REPLACE ALL DISTURBED EARTH BELOW FOOTINGS WITH GRAVEL. DRAIN ALL BEARING STRATA ADEQUATELY BEFORE PLACING FOUNDATION CONCRETE. DO NOT PLACE CONCRETE ON FROZEN SOIL.

DO NOT USE MANUFACTURED SAND AS A FINE AGGREGATE IN CONCRETE FOR PAVEMENTS, WALKS, OR EXPOSED FLOOR SLABS.

PROVIDE AIR ENTRAINING FOR ALL CONCRETE EXPOSED TO THE WEATHER IN THE COMPLETED PROJECT. PROVIDE 4% – 6% ENTRAINED AIR BY VOLUME.

DO NOT POWER TROWEL AIR ENTRAINED CONCRETE.

DETAIL, FABRICATE AND PLACE ALL REINFORCEMENT IN ACCORDANCE WITH ACI 315-99 UNLESS OTHERWISE SHOWN. PROVIDE SPLICE AND EMBEDMENT LENGTHS AT LEAST AS GREAT AS TABULATED THEREIN. UNLESS OTHERWISE SHOWN, PROVIDE CLASS 'B' TENSION SPLICES. PROVIDE DOWELS TO MATCH REINFORCEMENT WITH WHICH THEY LAP UNLESS NOTED. HOOKS ARE STANDARD HOOKS UNLESS OTHERWISE NOTED. DO NOT FIELD BEND REINFORCEMENT WITHOUT WRITTEN PERMISSION OF THE ENGINEER. DO NOT HEAT BARS TO MAKE BENDING EASIER.

CONCRETE PROTECTION FOR REINFORCEMENT:

SLABS AND JOISTS:	
TOP AND BOTTOM BARS FOR DRY CONDITIONS:	
#14 AND #18 BARS	1 ½"
#11 BARS AND SMALLER	1 ½"
FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER, AND OVER OR IN CONTACT WITH SEWAGE AND FOR BOTTOMS BEARING ON WORK MAT, OR SLABS SUPPORTING EARTH COVER.	
#5 BARS AND SMALLER	1 ½"
#6 BARS AND LARGER	2"
BEAMS AND COLUMNS:	
FOR DRY CONDITIONS:	
STIRRUPS, SPIRALS AND TIES	1 ½"
PRINCIPAL REINFORCEMENT	2"
EXPOSED TO EARTH, WATER, SEWAGE, OR WEATHER:	
STIRRUPS AND TIES	2"
REINFORCEMENT	2 ½"
WALLS:	
FOR DRY CONDITIONS:	
#11 BARS AND SMALLER	3/4"
#14 AND #18 BARS	1 ½"
FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, SEWAGE, WEATHER OR IN CONTACT WITH GROUND:	
CIRCULAR TANKS WITH RING TENSION	2"
ALL OTHER	2"
FOOTINGS AND BASE SLABS:	
AT FORMED SURFACES AND BOTTOMS BEARING ON CONCRETE WORK MAT	2"
AT UNFORMED SURFACES AND BOTTOMS IN CONTACT WITH EARTH	3"
TOP OF FOOTINGS – SAME AS SLABS	
OVER TOPS OF PILES	2"

PROVIDE ¾" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.

CAST ALL SLABS ON GRADE IN ALTERNATE PANELS WITH MAXIMUM 3500 SQUARE FEET PER BAY AND CONTROL JOINTS AT 20'-0" MAXIMUM SPACING.

TEST FLOCCULATOR BASINS AND CHLORINE CONTACT TANKS FOR WATER TIGHTNESS IN ACCORDANCE WITH ACI 350.1 R-93/AWWA 400-93, TESTING REINFORCED CONCRETE STRUCTURES FOR WATER TIGHTNESS. TESTING MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF VIRGINIA. IF TANK FAILS TEST, REPAIR AND RETEST AT NO COST TO OWNER.

PROVIDE VERTICAL DOVETAIL ANCHOR SLOTS AT 2'-0" ON CENTER WHERE MASONRY ABUTS OR FACES CONCRETE. PROVIDE ANCHORS INTO MASONRY AT 1'-4" ON CENTER VERTICALLY.

PROVIDE 100% SOLID MASONRY DOWN TO FOOTINGS UNDER ALL BEAMS, COLUMNS AND LINTELS BEARING ON MASONRY.

WHERE HOLLOW CMU BEARS ON CMU OF GREATER THICKNESS, PROVIDE ONE COURSE OF SOLID CMU OR FULLY-GROUTED CMU AT THE TOP COURSE OF THE THICKER SECTION.

PROVIDE HORIZONTAL MASONRY REINFORCING (DUR-O-WALL OR EQUAL) AT 16" ON CENTER IN ALL MASONRY WALLS AND AT 8" ON CENTER IN MASONRY PARAPETS. PROVIDE VERTICAL CONTROL JOINTS AT 30' ON CENTER IN ALL MASONRY WALLS UNLESS NOTED.

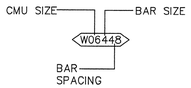
DESIGN, FABRICATE AND ERECT STEEL JOISTS IN ACCORDANCE WITH THE SPECIFICATION OF AISC AND SJI. DO NOT EXCEED SPACING INDICATED ON PLANS. COORDINATE LOCATIONS WITH PARTITIONS AND WORK OF OTHER TRADES TO AVOID INTERFERENCES. WHERE CONCENTRATED LOAD IN EXCESS OF 50 POUNDS IS APPLIED TO JOIST, APPLY AT PANEL POINT OR PROVIDE ADDED WEB MEMBER FROM POINT OF APPLICATION TO NEAREST PANEL POINT ON OPPOSITE CHORD. BRIDGING SHALL CONSIST OF CONTINUOUS ROWS OF ONE ½" ROUND BAR TOP AND BOTTOM FOR JOIST SPACINGS UP TO 4'-0", ONE ¾" ROUND BAR TOP AND BOTTOM FOR JOIST SPACINGS 4'-0" TO 4-6", AND ONE ⅞" ROUND BAR TOP AND BOTTOM FOR JOIST SPACINGS 4'-6" TO 5'-0". ALL BRIDGING SHALL BE WELDED TO JOIST CHORDS AND WELDED TO BEAMS OR ANCHORED TO WALLS AT ENDS OF ROWS. WHERE BRIDGING IS INTERRUPTED BY DUCTS, LIGHT FIXTURES, ETC., PROVIDE BRIDGING ON EACH SIDE OF THE INTERRUPTION.

COLD-FORMED STEEL STRUCTURAL MEMBERS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH AISI COLD-FORMED STEEL DESIGN MANUAL.

USE STAINLESS STEEL CONNECTORS (NAILS, BOLTS, HANGERS, ETC.) FOR PRESSURE TREATED LUMBER.

WALL PROPPING: TAKE EXTREME CARE AND PROPER PREVENTATIVE MEASURES NOT TO DAMAGE, BULGE OR TIP WALLS DUE TO EQUIPMENT OR EARTH PRESSURE OR WIND. PROVIDE SHORING, BACK-PROPPING OR OTHER SUITABLE PROTECTION UNTIL WALLS ARE BRACED BY THE COMPLETED CONSTRUCTION. SOIL COMPACTION ADJACENT TO EXISTING AND NEW STRUCTURES SHALL BE PERFORMED WITH HAND OPERATED EQUIPMENT.

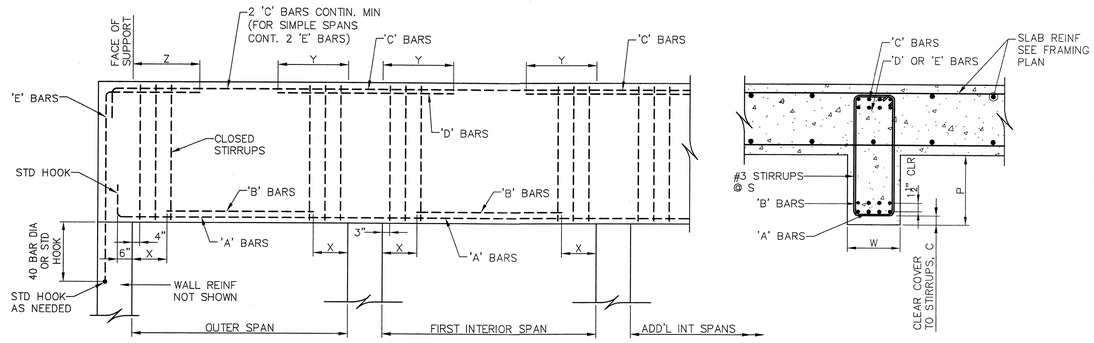
PROVIDE A GROUT CLEANED FINISH FOR THE EXTERIOR FACE OF CONCRETE WALLS EXPOSED TO VIEW THAT ARE NOT INDICATED TO RECEIVE A DIFFERENT FINISH.



CONCRETE BEAM SCHEDULE
WATER TREATMENT PLANT BUILDING

BEAM	BEAM DIMENSIONS			REINFORCING STEEL					REINFORCING DIMENSIONS			#3 STIRRUPS (SEE NOTE 2)
	P (IN)	W (IN)	C (IN)	A BARS	B BARS	C BARS	D BARS	E BARS	X (IN)	Y (IN)	Z (IN)	SPACING S
B1	12	16	1.5	5-#4	–	–	–	3-#6	–	–	54	6@10 EA END
B2	12	16	1.5	5-#4	–	–	–	3-#6	–	–	54	6@10 EA END
B3	12	16	1.5	5-#4	–	2-#5	3-#5	3-#5	–	48	54	6@6 EA END THEN @10
B4	4	12	1.5	3-#4	–	2-#5	2-#5	2-#6	–	42	54	6@6 EA END THEN @10
B4A	4	12	1.5	3-#4	2-#5	2-#5	2-#5	2-#6	12	42	54	@6 FULL LENGTH
B5	16	12	1.5	3-#6	3-#5	–	–	3-#6	12	–	54	ALL @ 8
B6	16	12	1.5	3-#6	3-#5	2-#6	2-#6	3-#6	12	48	54	ALL @ 8
B7	16	12	1.5	3-#6	3-#5	2-#6	2-#6	3-#6	12	48	54	ALL @ 8
B8	16	12	1.5	3-#6	3-#6	2-#6	2-#6	3-#6	12	48	54	ALL @ 8

NOTES:
1. WHEN 'B' BARS ARE PRESENT CONTINUE ALL 'A' BARS OVER SUPPORT, OTHERWISE CONTINUE TWO 'A' BARS OVER SUPPORT AND DISCONTINUE REMAINDER AT A DISTANCE 'Z' FROM SUPPORT.
2. STIRRUP HOOKS SHALL WRAP AROUND LONGITUDINAL REINFORCING AT LEAST 135°.



CONCRETE BEAM SCHEDULE
SCALE: NO SCALE

S003.1
S003

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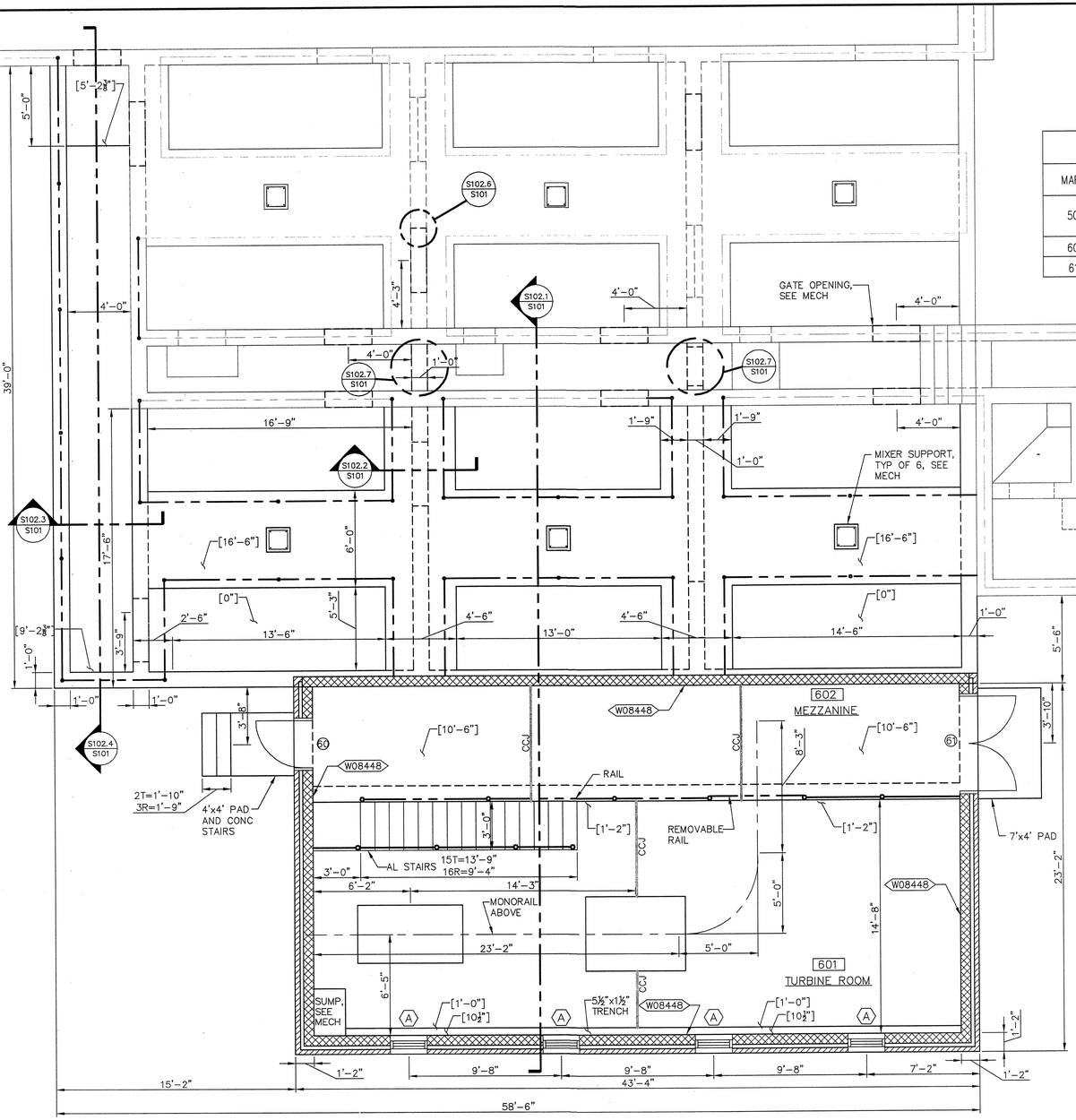
THE LANE GROUP
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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS
TYPICAL DETAILS

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	GTS
A	VDH RESUBMITTAL	7/13/10	GTS

Designed: GTS/JSB
Drawn: CDH
Checked: DBH
Date: JUNE 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S003

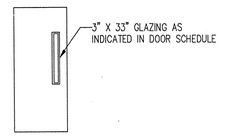


DOOR SCHEDULE

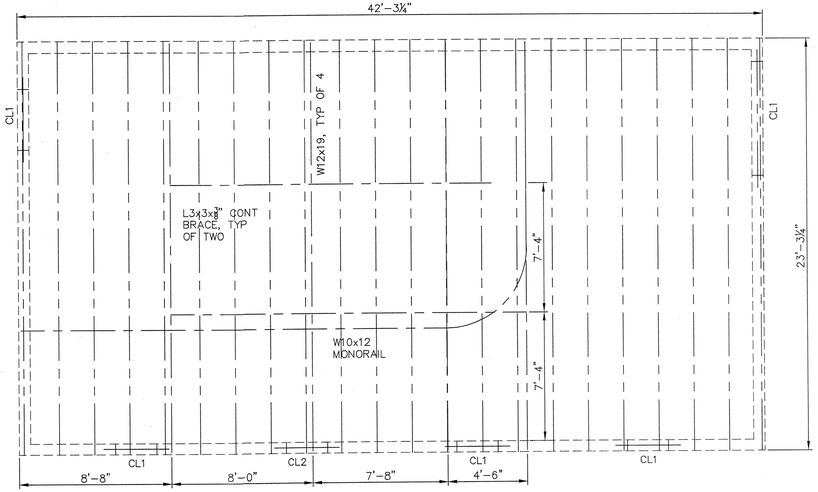
MARK	DOOR WIDTH	DOOR HEIGHT	DOOR THICKNESS	DOOR MATERIAL	DOOR CORE	DOOR FINISH	DOOR TYPE	LOUVER WIDTH	LOUVER HEIGHT	HARDWARE SET #	FRAME	
50	*	*	*	HM	INSUL	PAINT	*	--	--	*	HM	* NEW DOOR AND FRAME TO MATCH EXIST
60	3'-0"	7'-0"	1-3/4"	HM	INSUL	PAINT	A	--	--	12	HM	
61	6'-0"	7'-0"	1-3/4"	HM	INSUL	PAINT	A	--	--	8	HM	

FINISH SCHEDULE

ROOM NO.		FLOOR: CONCRETE - SEALED	BASE: NO BASE	WALL: CONCRETE - SEALED	WALL: CONCRETE - PAINT	WALL: CMU - PAINT	WALL: GWB - PAINT	CEILING	NOTES
601	TURBINE ROOM	●	●	●		●	●		
602	MEZZANINE	●	●		●	●	●		



TYPE A



NOTES:

1. FINISHED FLOOR ELEVATION IN FLOCCULATORS IS ±1794.80'. SET AS DATUM.
2. ELEVATIONS NOTED THUS [±X'-X"] ARE TOP OF FLOOR ELEVATIONS WRT DATUM.
3. MATCH EXISTING FLOOR ELEVATIONS AT FLOCCULATORS, WALKWAYS, AND RAPID MIX.

FLOOR PLAN
SCALE: 1/4"=1'-0"
S101.1 S101

PLAN
SCALE: 1/4"=1'-0"
S101.2 S101

COMMONWEALTH OF VIRGINIA
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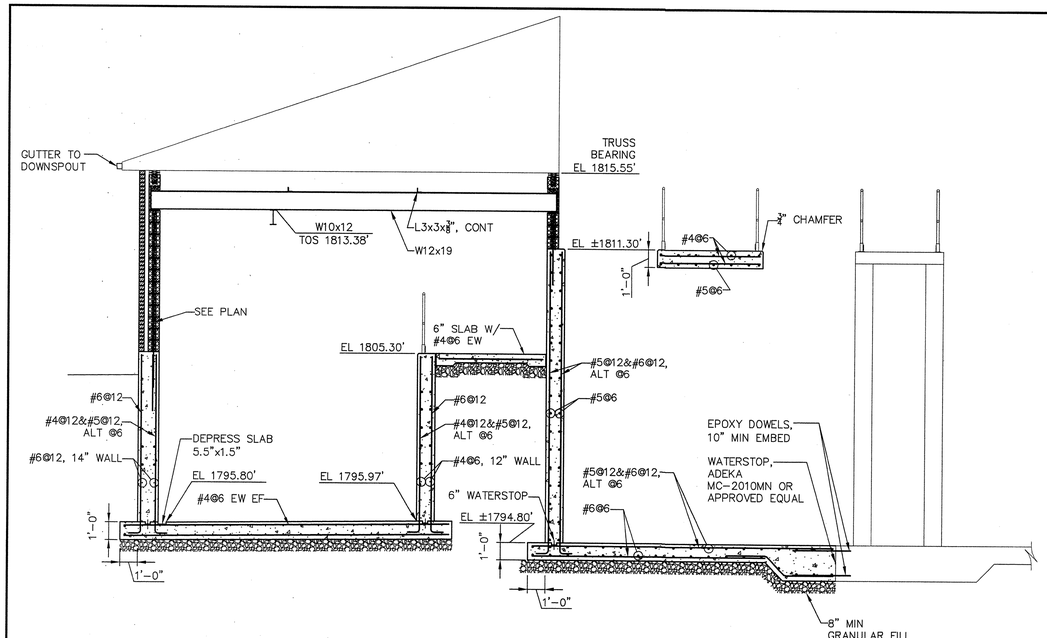
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

FLOCCULATION BASINS
STRUCTURAL PLAN AND SECTIONS

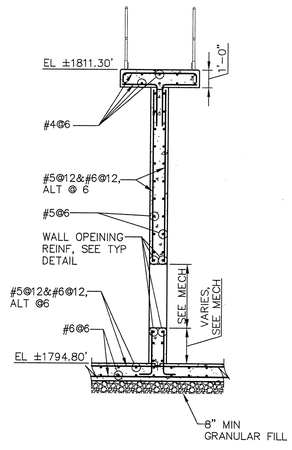
Rev.	Description	Date	By
C	BID ISSUE	8/9/10	JSB
B	VDH RESUBMITTAL	7/13/10	JSB
A	VDH SUBMITTAL	5/3/10	JSB

Designed: JSB
Drawn: CDH
Checked: DBH
Date: MAY 2010
Scale: AS SHOWN
Job No. 12367.13
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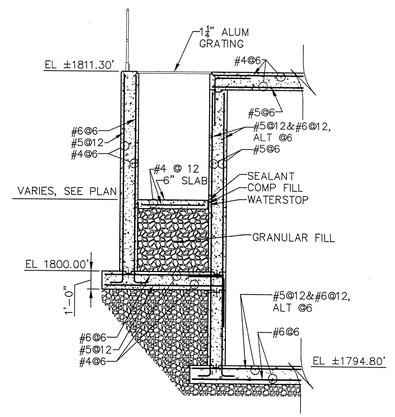
S101



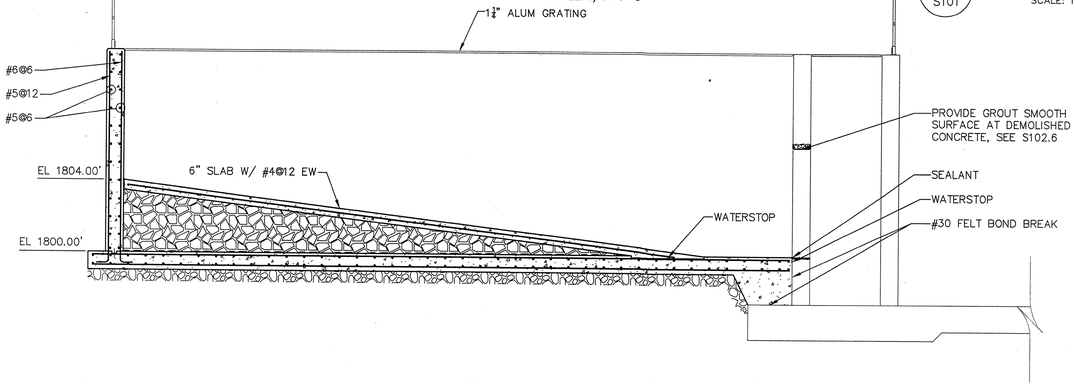
FLOCCULATOR SECTION (S102.1 / S101)
SCALE: 1/4"=1'-0"



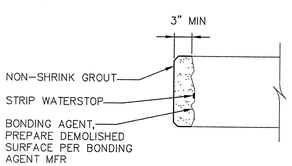
FLOCCULATOR SECTION (S102.2 / S101)
SCALE: 1/4"=1'-0"

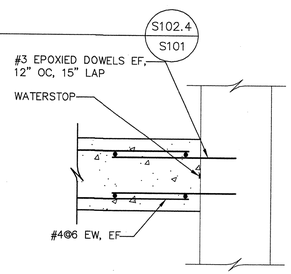


FLOCCULATOR SECTION (S102.3 / S101)
SCALE: 1/4"=1'-0"



CHANNEL SECTION (S102.4 / S101)
SCALE: 1/4"=1'-0"



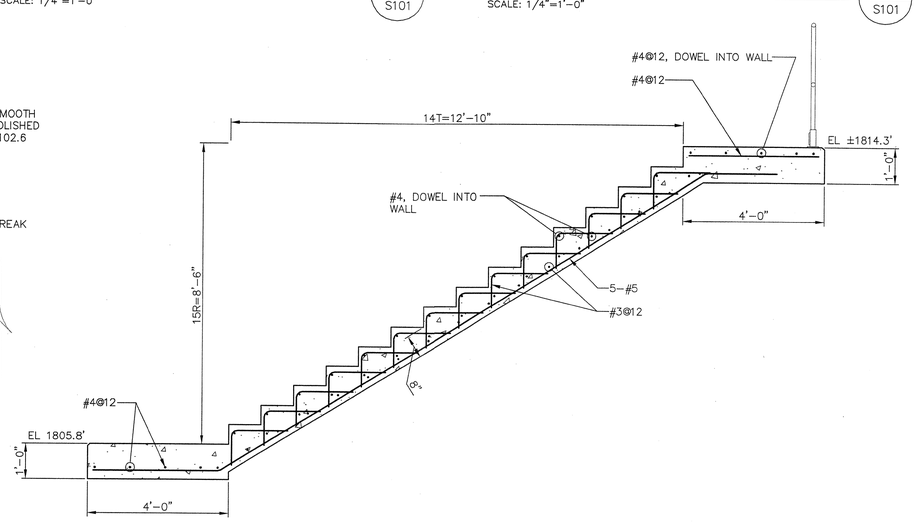


NOTES:

1. SIMILAR DETAIL AT BOTTOM OF WALL.

WALL OPENING – EXIST WALL (S102.6 / S101)
SCALE: 1"=1'-0"

WALL INFIL (S102.7 / S101)
SCALE: 1"=1'-0"



FLASH MIX STAIR (S102.5 / S101)
SCALE: 1/2"=1'-0"

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(276) 646-2520

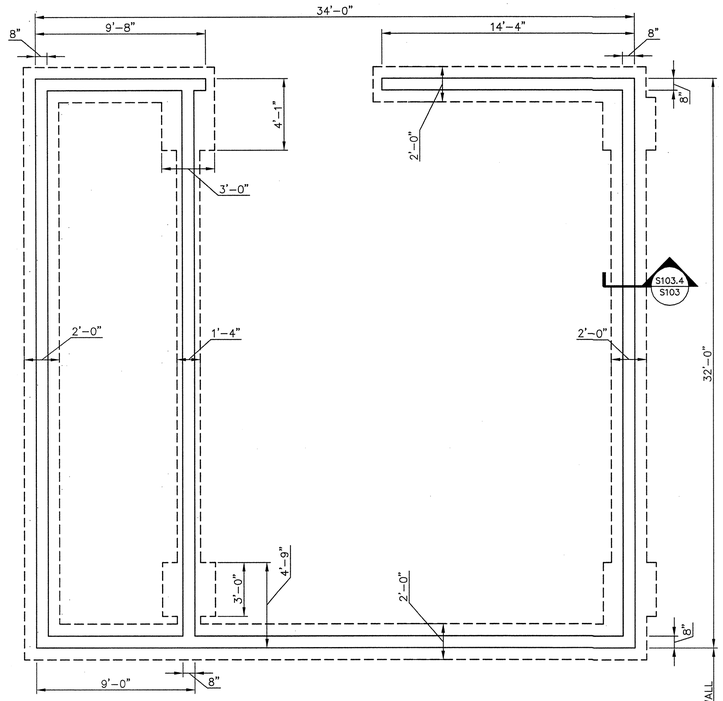
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

FLOCCULATION BASINS
SECTIONS AND DETAILS

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	JSB
B	VDH RESUBMITTAL	7/13/10	JSB
A	VDH SUBMITTAL	5/3/10	JSB

Designed: JSB
Drawn: CDH
Checked: DBH
Date: MAY 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S102

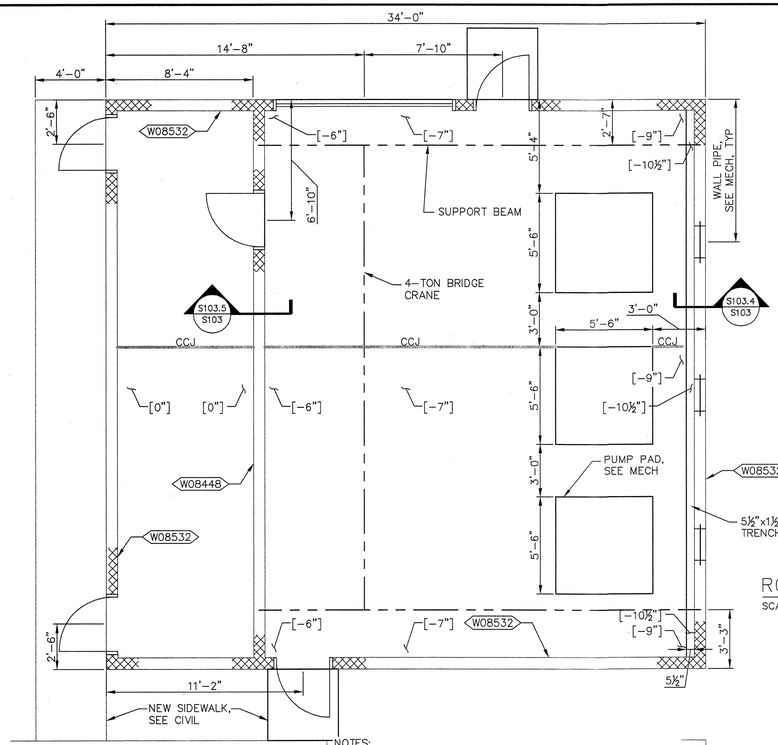


NOTES:

1. DO NOT BEGIN EXCAVATION UNTIL SHOP DRAWINGS FOR CAN PUMPS AND BRIDGE CRANE HAVE BEEN APPROVED.

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

S103.1
S103

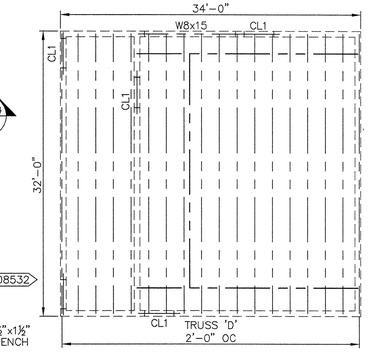


NOTES:

1. FINISHED FLOOR ELEVATION IN ELECTRICAL ROOM IS 1798.75'. SET AS DATUM.
2. ELEVATIONS NOTED THUS [±X'-X"] ARE TOP OF FLOOR ELEVATIONS WRT DATUM.

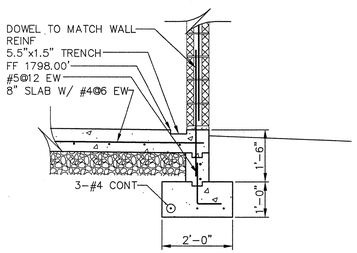
FLOOR PLAN
SCALE: 1/4"=1'-0"

S103.2
S103



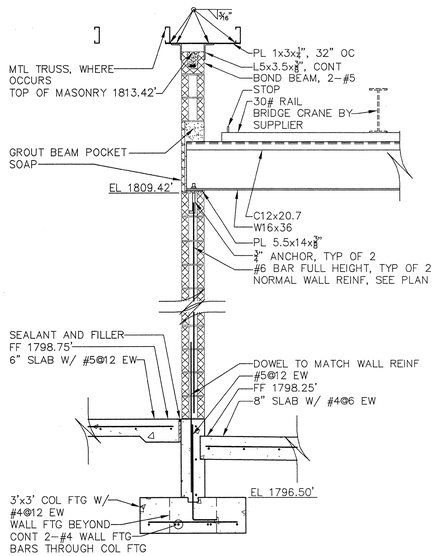
ROOF PLAN
SCALE: 1/8"=1'-0"

S103.3
S103



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

S103.4
S103



INTERIOR WALL AND CRANE BEARING DETAIL
SCALE: 1/2"=1'-0"

S103.5
S103

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

INTERMEDIATE BOOSTER PUMP STATION
STRUCTURAL PLANS

Rev.	Description	Date	By
A	VDH SUBMITTAL	5/3/10	JSB
B	VDH RESUBMITTAL	7/13/10	JSB
C	BID ISSUE	8/9/10	JSB

Designed: JSB
Drawn: CDH
Checked: DBH
Date: MAY 2010
Scale: AS NOTED
Job No. 12367.13
Archived File Name:

S103

TREATMENT PLANT BUILDING
FOUNDATION PLAN

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

S201.1
S201

N

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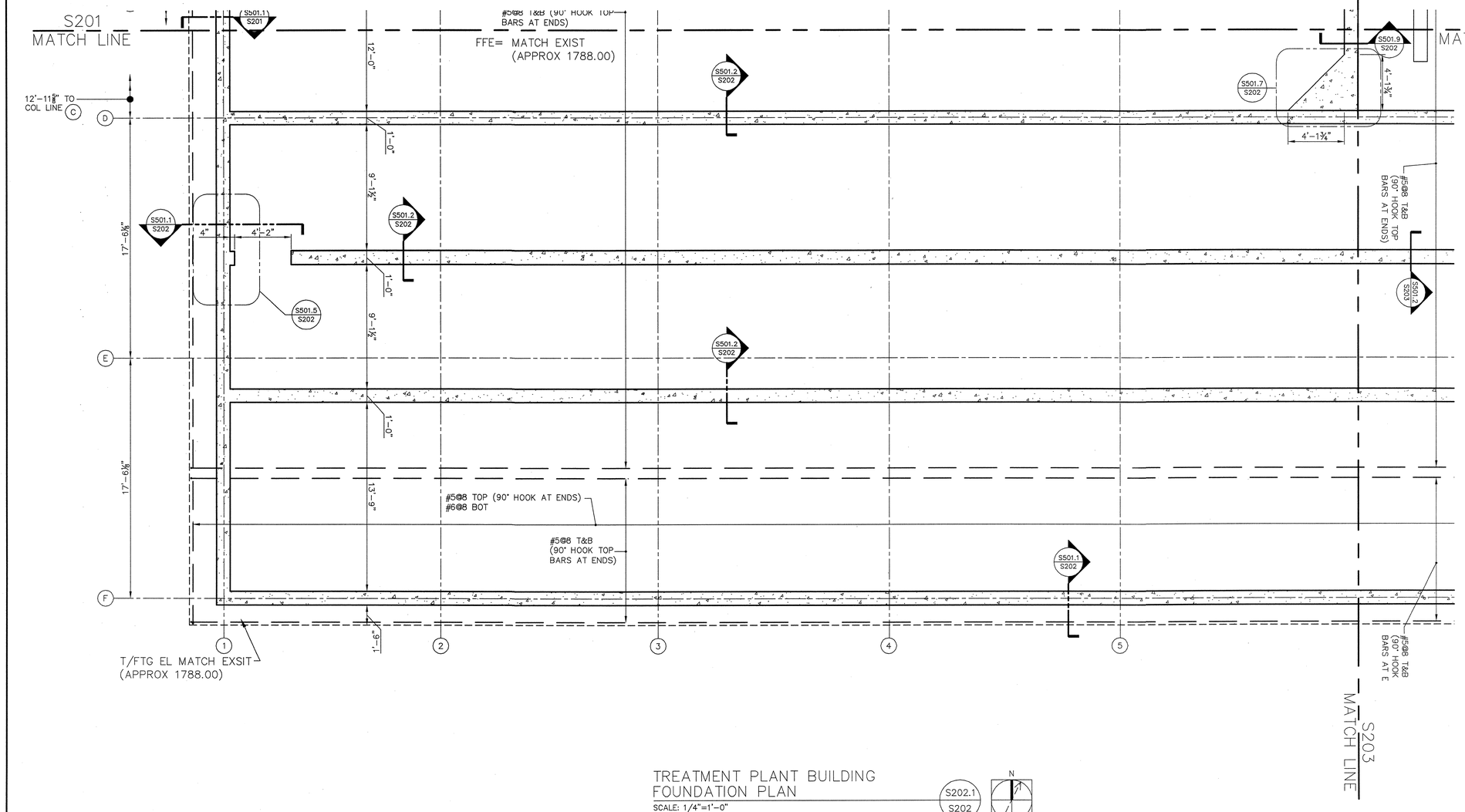
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
FOUNDATION PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S201



TREATMENT PLANT BUILDING
FOUNDATION PLAN

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

S202.1
S202

N

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

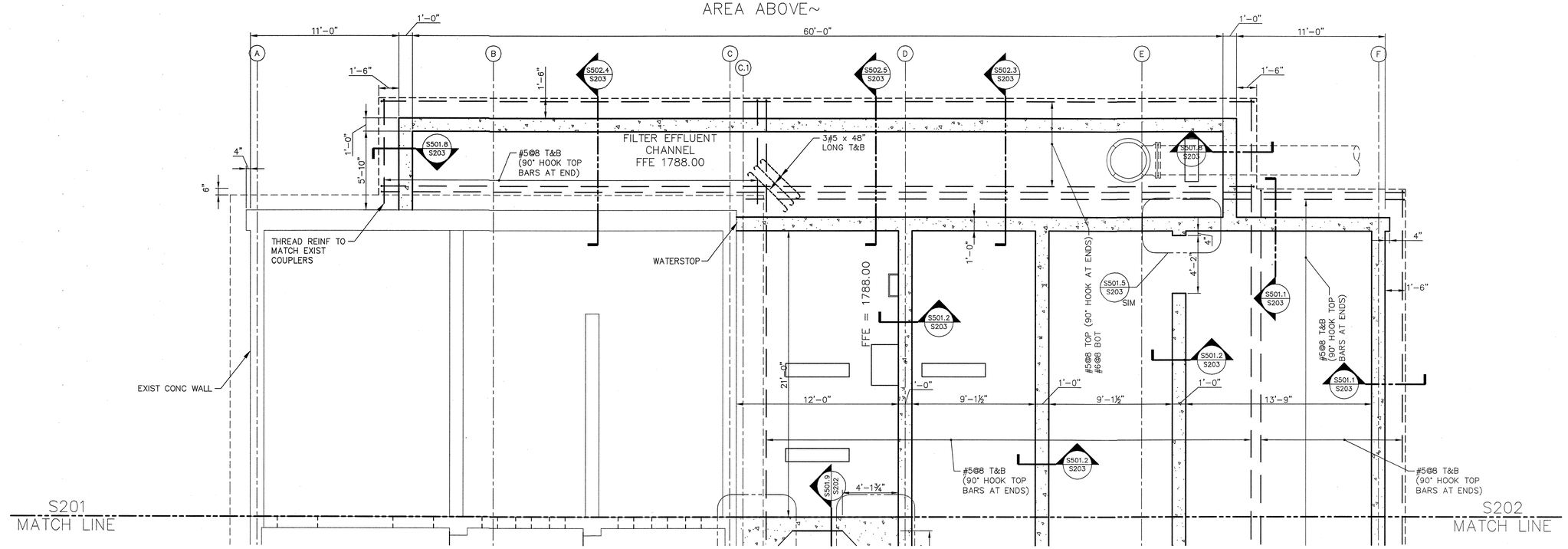
TREATMENT PLANT BUILDING
FOUNDATION PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S202

~SEE DWG S206 FOR
FDN PLAN OF THIS
AREA ABOVE~



TREATMENT PLANT BUILDING FOUNDATION PLAN

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

S203.1 / S203

N

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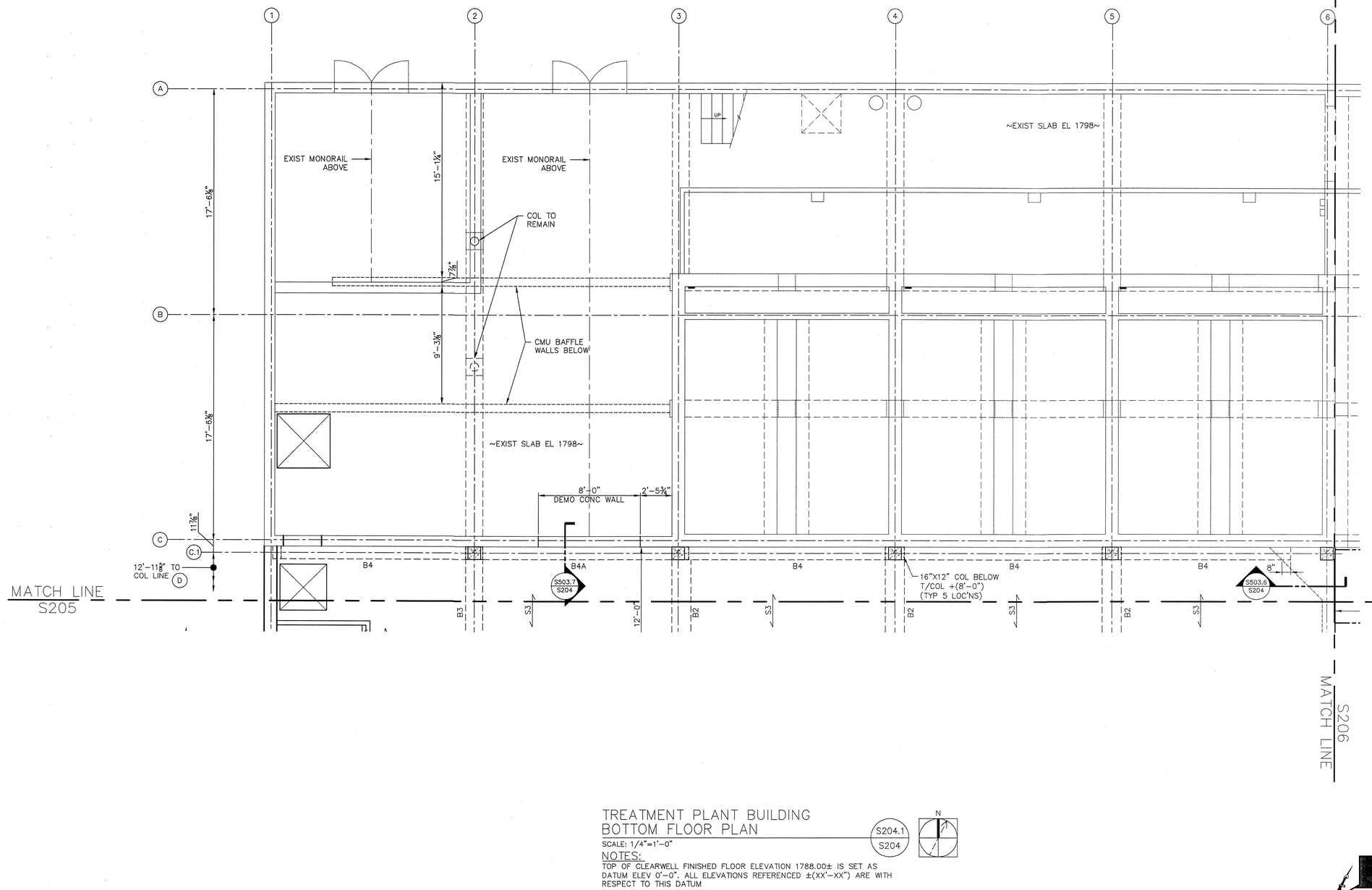
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
FOUNDATION PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S203



TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

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

S204.1 / S204

NOTES:

TOP OF CLEARWELL FINISHED FLOOR ELEVATION 1788.00± IS SET AS DATUM ELEV 0'-0", ALL ELEVATIONS REFERENCED ±(XX'-XX") ARE WITH RESPECT TO THIS DATUM

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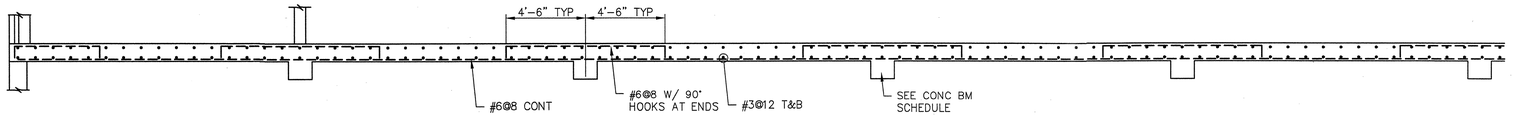
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

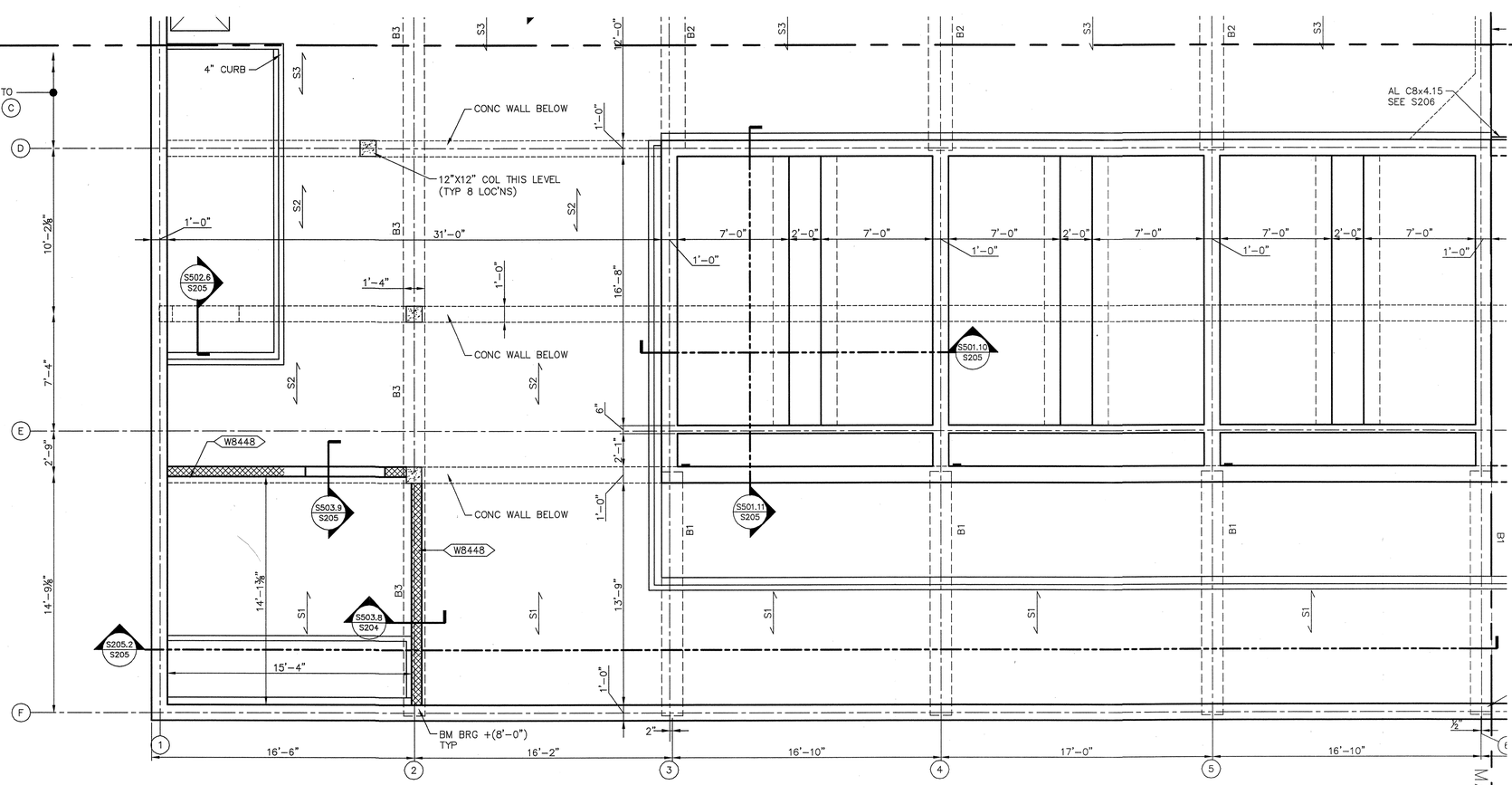
Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S204

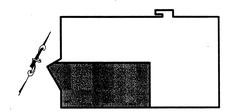


TREATMENT PLANT BUILDING
PIPE GALLERY FLOOR SECTION (S205.2 / S205)
SCALE: 1/4"=1'-0"



TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN (S205.1 / S205)
SCALE: 1/4"=1'-0"

NOTES:
TOP OF CLEARWELL FINISHED FLOOR ELEVATION 1788.00± IS SET AS DATUM ELEV 0'-0". ALL ELEVATIONS REFERENCED ±(XX'-XX") ARE WITH RESPECT TO THIS DATUM



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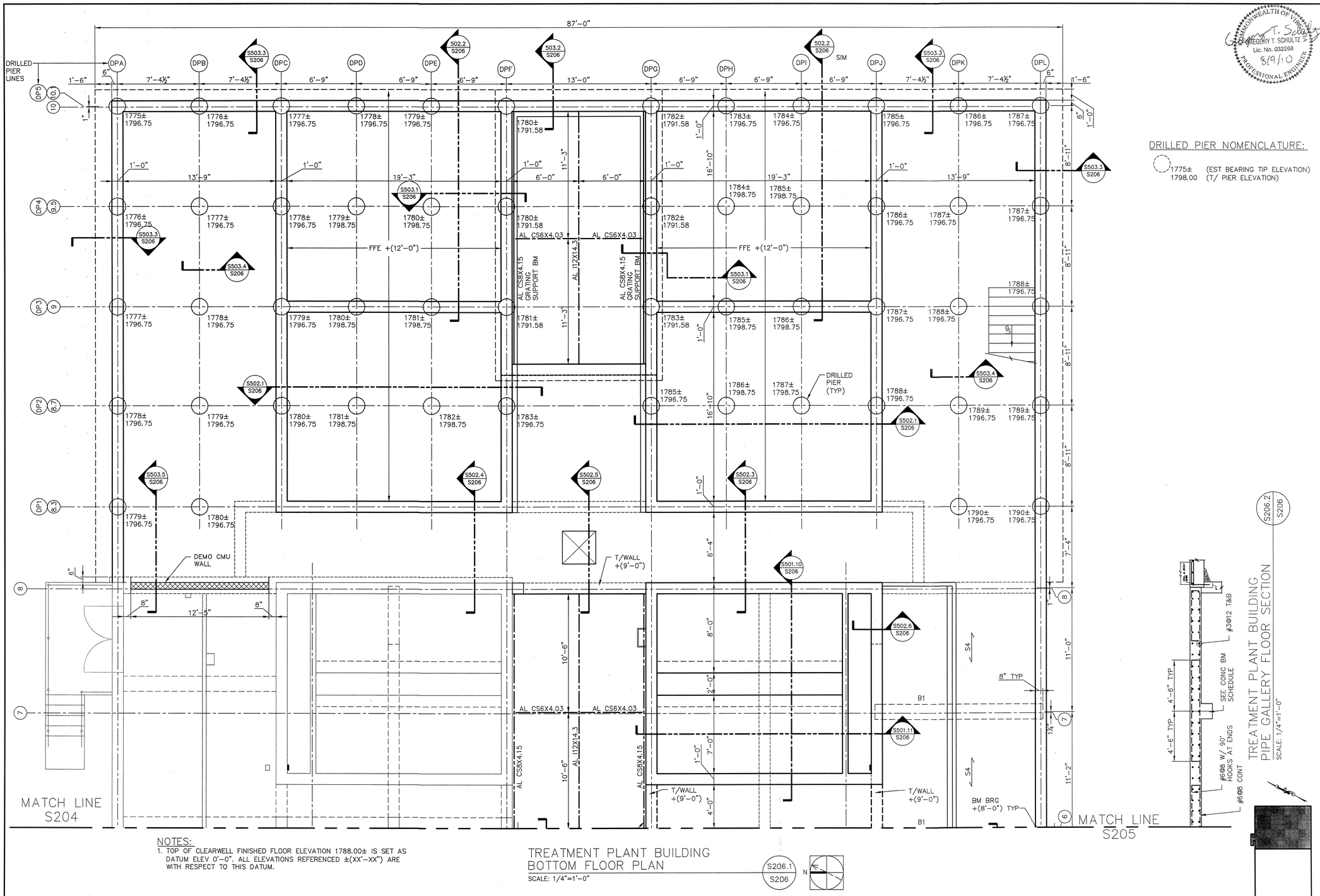
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S205



DRILLED PIER NOMENCLATURE:

1775± (EST BEARING TIP ELEVATION)
1798.00 (T/ PIER ELEVATION)

NOTES:
1. TOP OF CLEARWELL FINISHED FLOOR ELEVATION 1788.00± IS SET AS DATUM ELEV 0'-0". ALL ELEVATIONS REFERENCED ±(XX'-XX") ARE WITH RESPECT TO THIS DATUM.

TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN
SCALE: 1/4"=1'-0"
S206.1 S206

TREATMENT PLANT BUILDING
PIPE GALLERY FLOOR SECTION
SCALE: 1/4"=1'-0"
S206.2 S206

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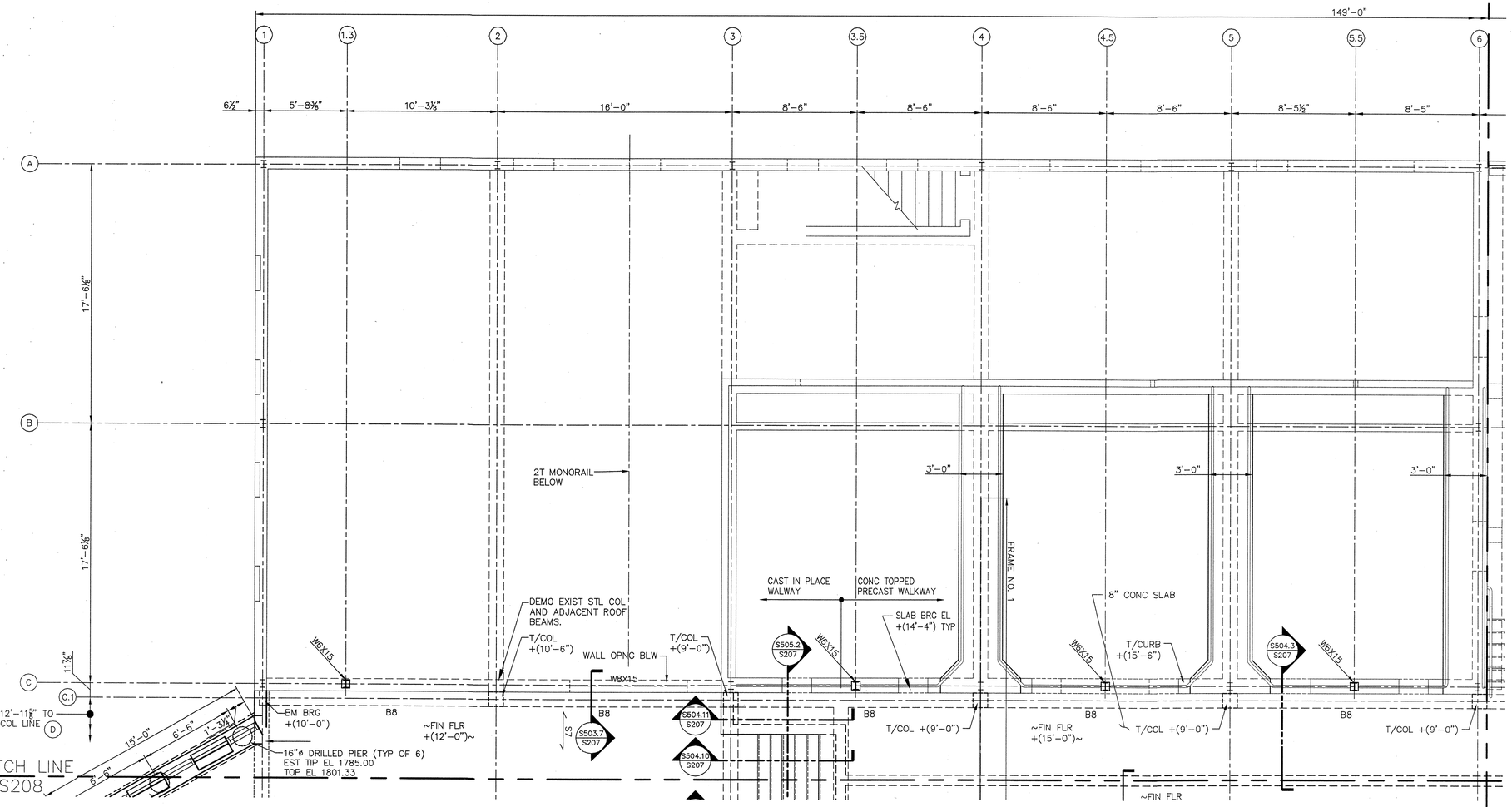
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

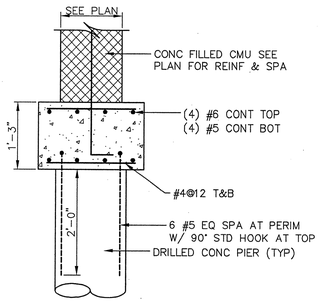
TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S206





DRILLED PIER DETAIL
SCALE: 3/4" = 1'-0"
S207.1 / S208

TREATMENT PLANT BUILDING
TOP FLOOR PLAN
SCALE: 1/4"=1'-0"
S207.1 / S207

N

NOTES:
TOP OF PIPE GALLERY FINISHED FLOOR ELEVATION 1798.00 SET AS DATUM ELEV 0'-0". ALL ELEVATIONS REFERENCED ±(XX'-XX") ARE WITH RESPECT TO THIS DATUM

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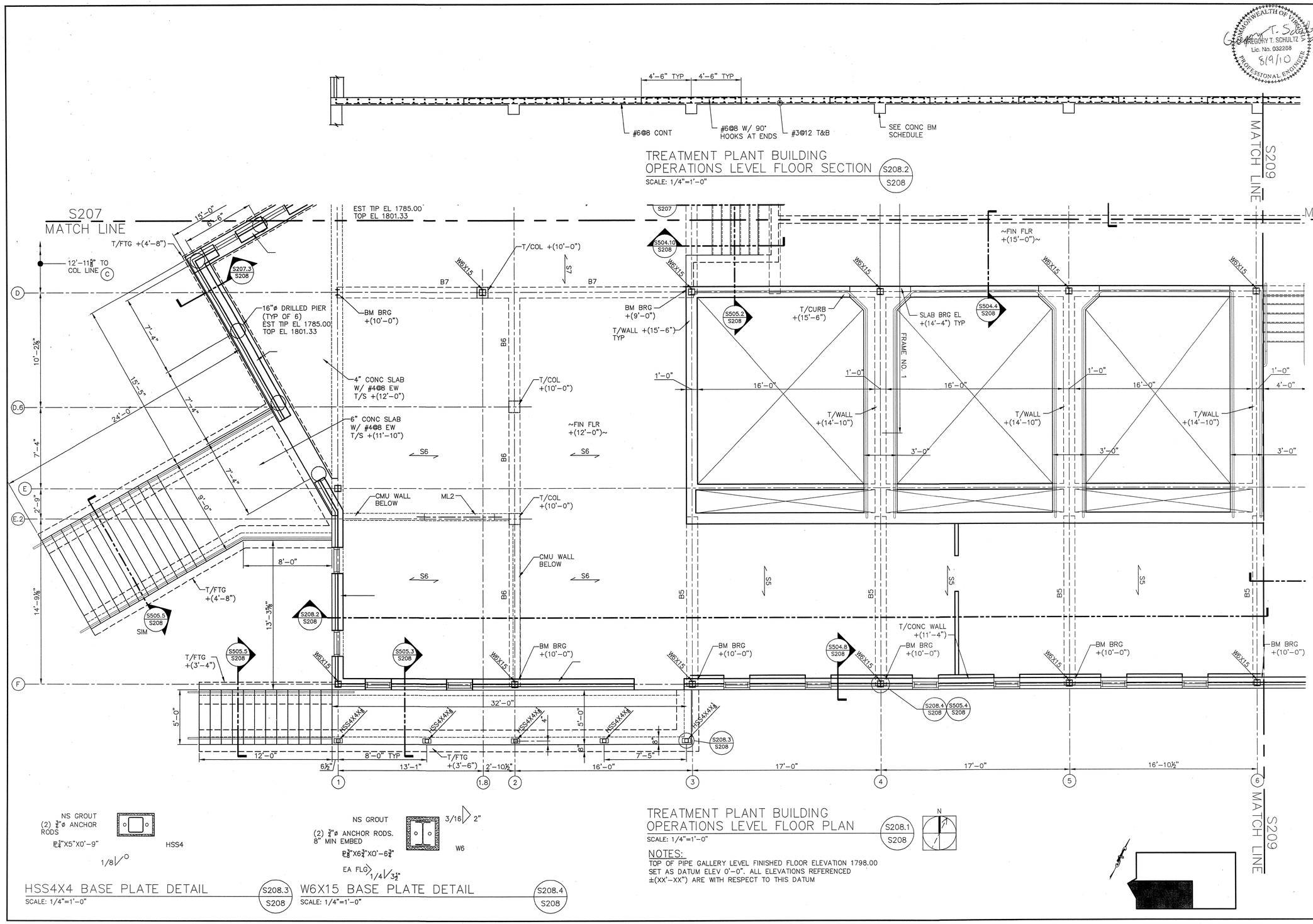
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
SECOND FLOOR PLAN

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	GTS
B	VDH RESUBMITTAL	7/13/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S207



NS GROUT
(2) ¾"ø ANCHOR RODS
PL¾"X5"X0'-9"
HSS4
1/8

HSS4X4 BASE PLATE DETAIL
SCALE: 1/4"=1'-0"
S208.3
S208

NS GROUT
(2) ¾"ø ANCHOR RODS. 8" MIN EMBED
PL⅜"X6¾"X0'-6¾"
EA FLG
1/4 3½"
3/16 2"
W6

W6X15 BASE PLATE DETAIL
SCALE: 1/4"=1'-0"
S208.4
S208

TREATMENT PLANT BUILDING
OPERATIONS LEVEL FLOOR PLAN
SCALE: 1/4"=1'-0"
S208.1
S208

N

NOTES:
TOP OF PIPE GALLERY LEVEL FINISHED FLOOR ELEVATION 1798.00 SET AS DATUM ELEV 0'-0". ALL ELEVATIONS REFERENCED ±(XX'-XX") ARE WITH RESPECT TO THIS DATUM

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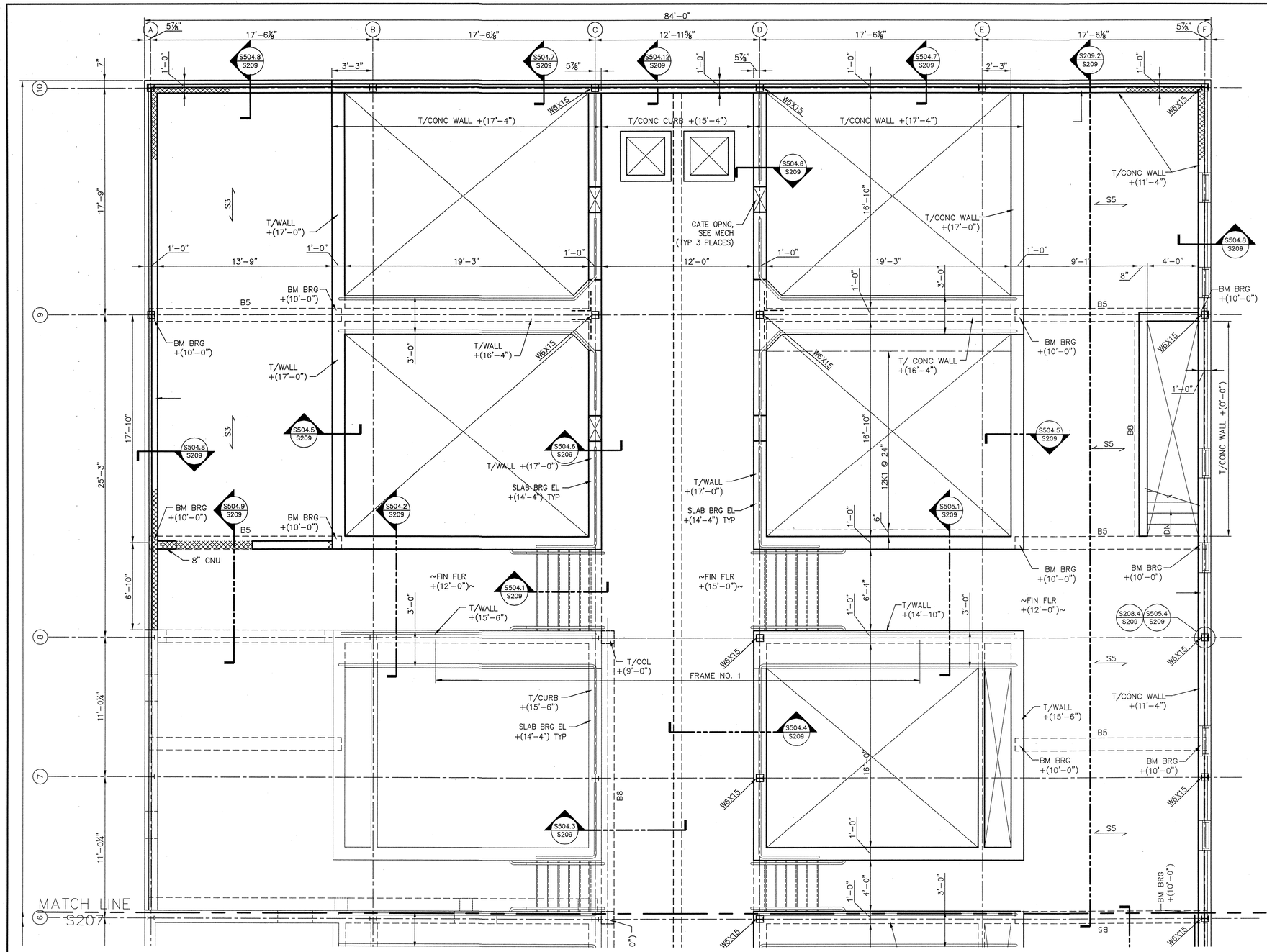
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
SECOND FLOOR PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S208



TREATMENT PLANT BUILDING
TOP FLOOR PLAN

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

S209.1 / S209

TREATMENT PLANT BUILDING
OPERATIONS FLOOR SECTION

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

S209.2 / S209

NOTES:
TOP OF OPERATING LEVEL FINISHED FLOOR ELEVATION 1798.00 SET AS DATUM ELEV 0'-0". ALL ELEVATIONS REFERENCED ±(XX'-XX") ARE WITH RESPECT TO THIS DATUM.

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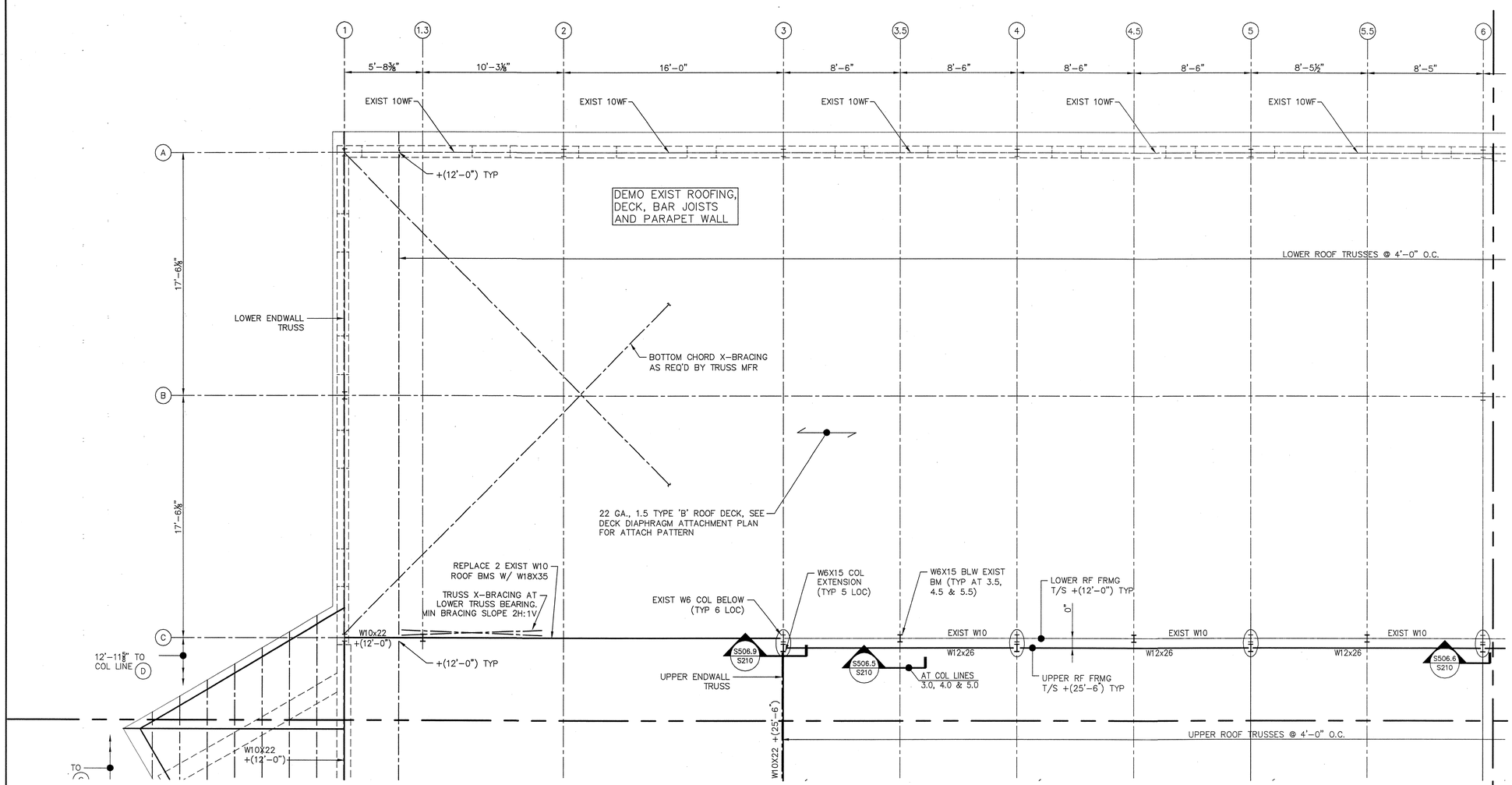
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
SECOND FLOOR PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed:	GTS
Drawn:	GTS/CDH
Checked:	DBH
Date:	JAN 2010
Scale:	AS SHOWN
Job No.	12367.13
Archived File Name:	

S209



TREATMENT PLANT BUILDING ROOF FRAMING PLAN

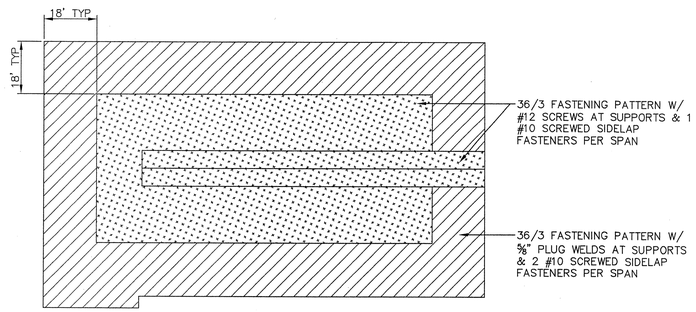
SCALE: 1/4"=1'–0"

S210.1 / S210

N

NOTES

TOP OF OPERATING LEVEL FINISHED FLOOR ELEVATION 1810.00 SET AS DATUM ELEV 0'–0". ALL ELEVATIONS REFERENCED ±(XX'–XX") ARE WITH RESPECT TO THIS DATUM.



ROOF DECKING DIAPHRAGM ATTACHMENT PLAN

SCALE: NO SCALE

S210.1 / S210

COMMONWEALTH OF VIRGINIA
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(540) 552-5548

THE LANE GROUP
124 DEPOT AVENUE • CHILHOWIE, VA 24318
(276) 646-2520

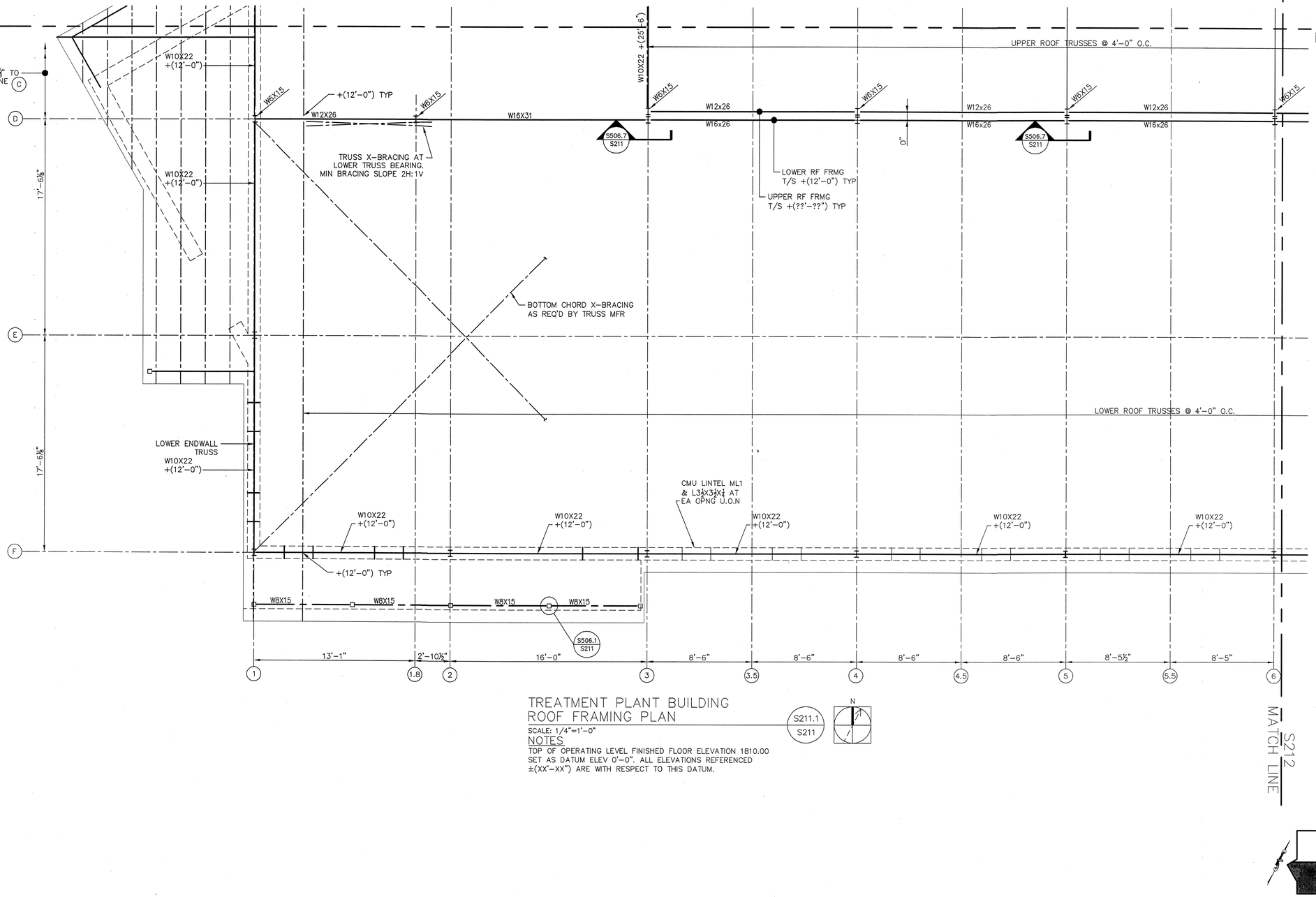
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

TREATMENT PLANT BUILDING
ROOF FRAMING PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/3/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S210



TREATMENT PLANT BUILDING ROOF FRAMING PLAN

S211.1 / S211

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

N

NOTES

TOP OF OPERATING LEVEL FINISHED FLOOR ELEVATION 1810.00 SET AS DATUM ELEV 0'-0". ALL ELEVATIONS REFERENCED ±(XX'-XX") ARE WITH RESPECT TO THIS DATUM.

COMMONWEALTH OF VIRGINIA
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THE LANE GROUP
124 DEPOT AVENUE • CHILHOWIE, VA 24318
(276) 646-2520

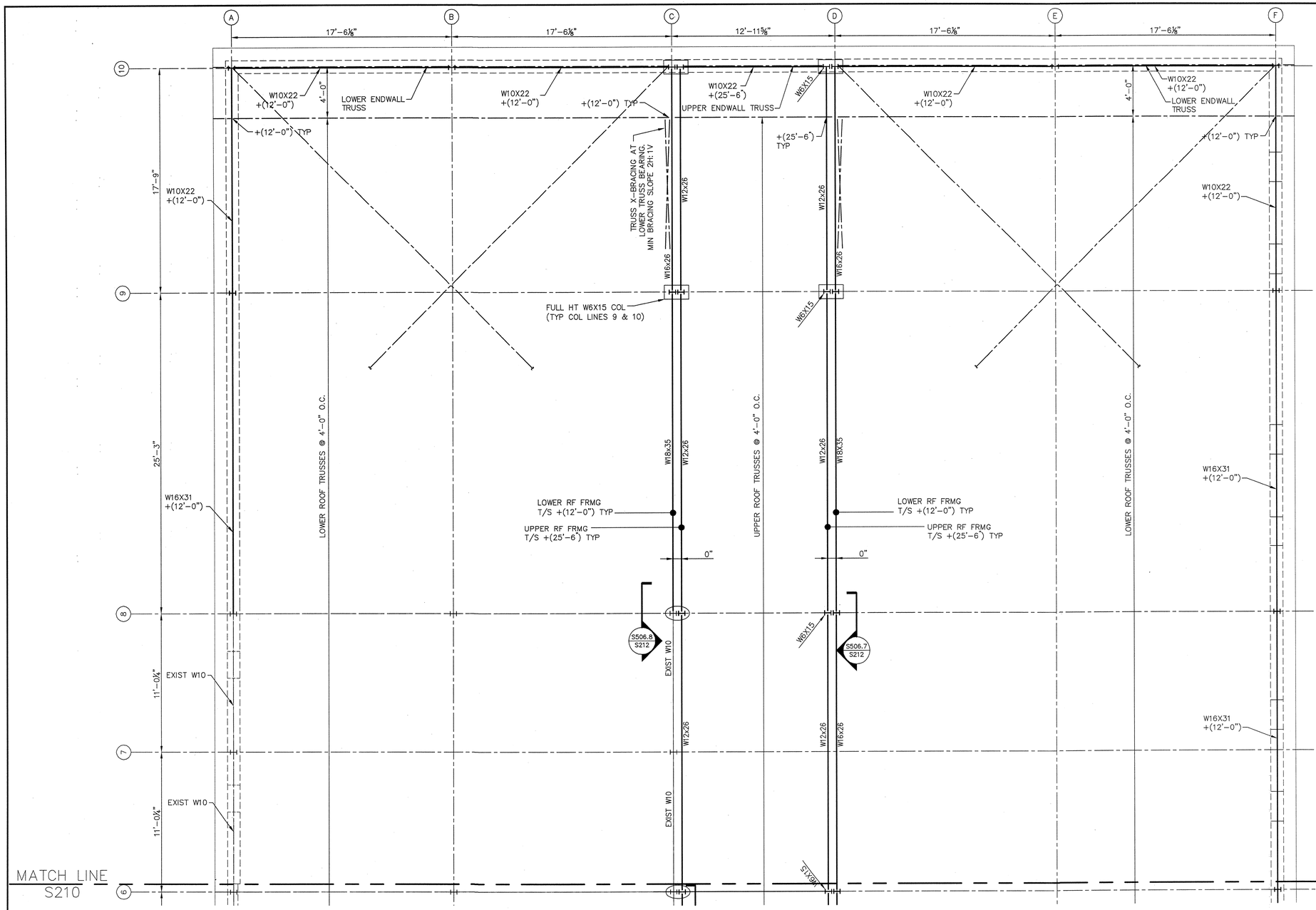
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

TREATMENT PLANT BUILDING
ROOF FRAMING PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/3/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S211



TREATMENT PLANT BUILDING ROOF FRAMING PLAN

S212.1 / S212

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

NOTES

TOP OF OPERATING LEVEL FINISHED FLOOR ELEVATION 1810.00 SET AS DATUM ELEV 0'-0". ALL ELEVATIONS REFERENCED ±(XX'-XX") ARE WITH RESPECT TO THIS DATUM.

COMMONWEALTH OF VIRGINIA
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THE LANE GROUP
124 DEPOT AVENUE • CHILHOWIE, VA 24318
(276) 646-2520

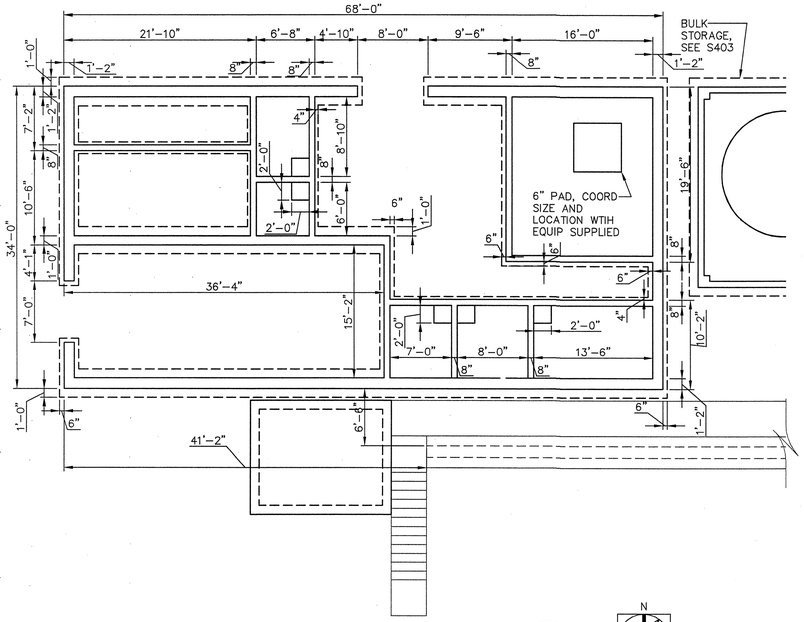
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

TREATMENT PLANT BUILDING
ROOF FRAMING PLAN

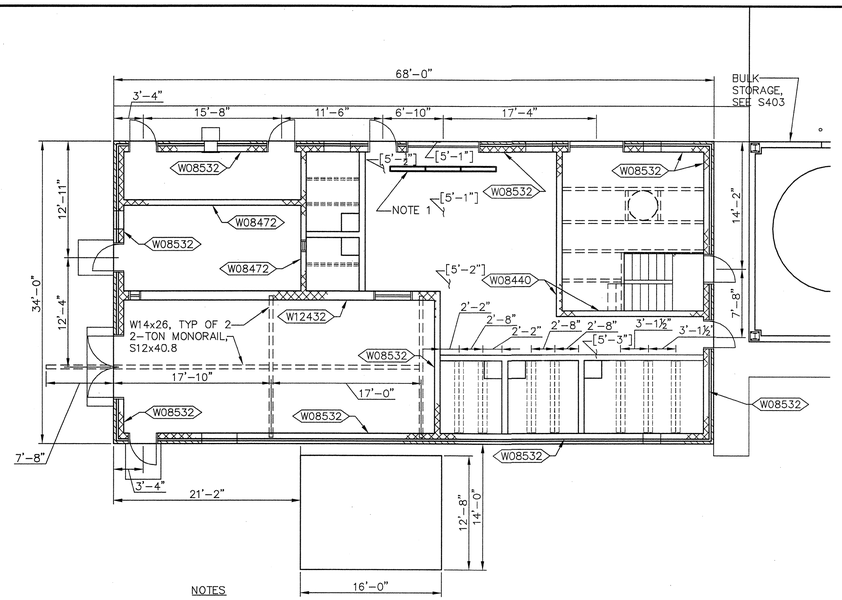
Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/3/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed:	GTS
Drawn:	GTS/CDH
Checked:	DBH
Date:	JAN 2010
Scale:	AS SHOWN
Job No.	12367.13
Archived File Name:	

S212



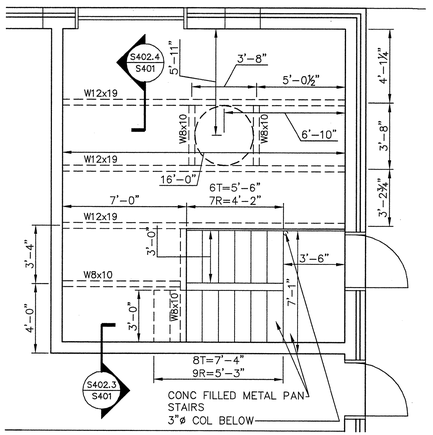
FOUNDATION PLAN
SCALE: 1/8"=1'-0"
S401.1 / S401



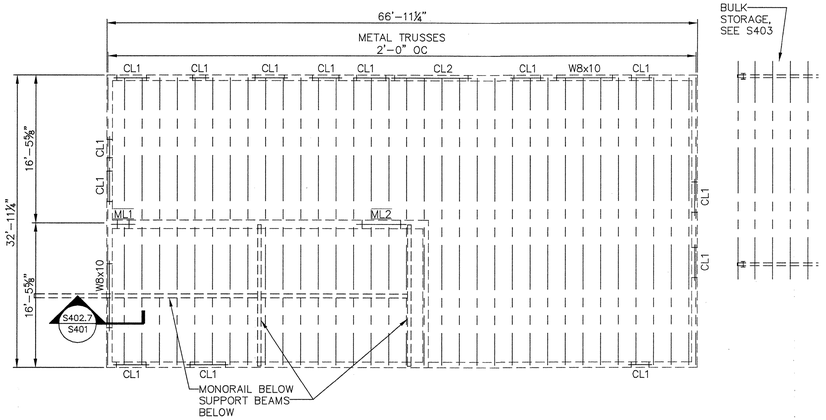
NOTES

1. VINYL ESTER POLYMER CONCRETE TRENCH DRAIN, POLYCAST 600 OR APPROVED EQUAL.
2. FINISHED FLOOR ELEVATION IN LOWER CARBON ROOM IS 1797.75'. SET AS DATUM.
3. ELEVATIONS NOTED THUS [±X'-X"] ARE TOP OF FLOOR ELEVATIONS WRT DATUM.

FLOOR PLAN
SCALE: 1/8"=1'-0"
S401.2 / S401



MEZZANINE PLAN
SCALE: 1/4"=1'-0"
S401.3 / S401



ROOF PLAN
SCALE: 1/8"=1'-0"
S401.4 / S401

COMMONWEALTH OF VIRGINIA
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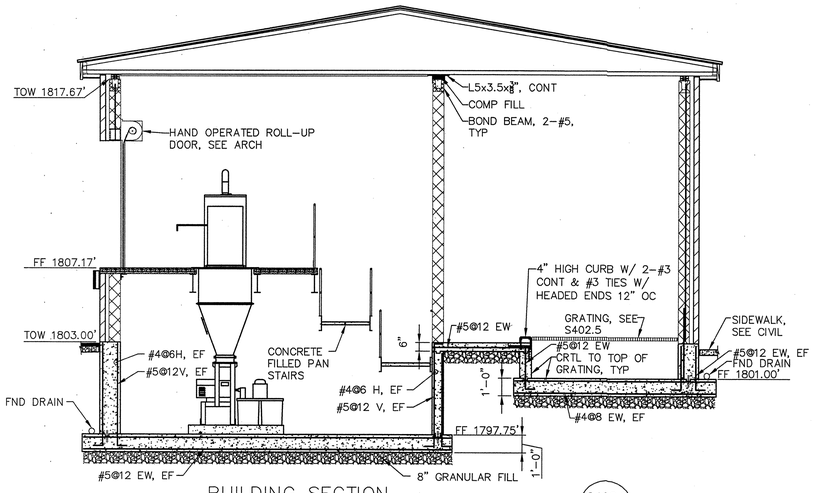
THE LANE GROUP
124 DEPOT AVENUE • CHILHOWIE, VA 24318
(276) 646-2520

WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS
CHLORINE AND CHEMICAL BUILDING
STRUCTURAL PLANS

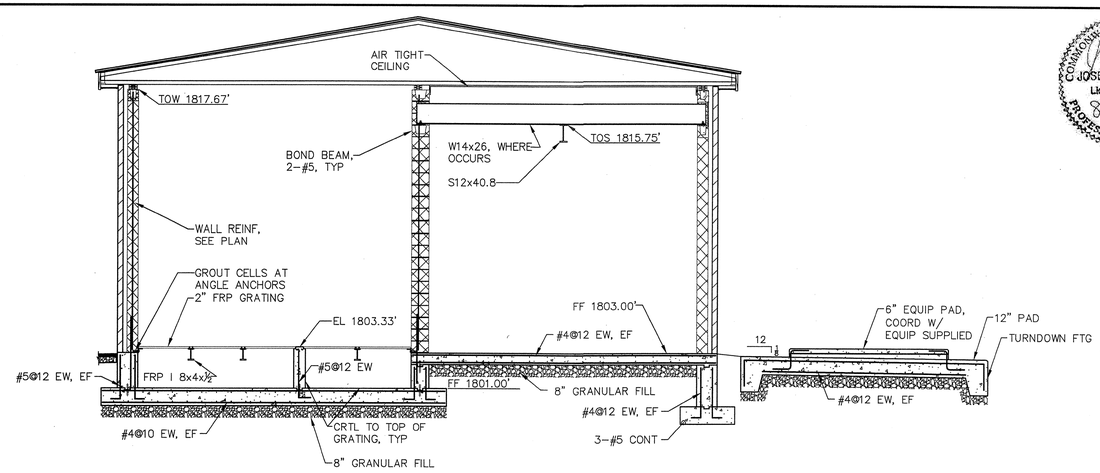
Rev.	Description	Date	By
B	BID ISSUE	8/9/10	JSB
B	VDH RESUBMITTAL	7/13/10	JSB
A	VDH SUBMITTAL	5/3/10	JSB

Designed: JSB
Drawn: CDH
Checked: DBH
Date: MAY 2010
Scale: AS NOTED
Job No. 12367.13
Archived File Name:

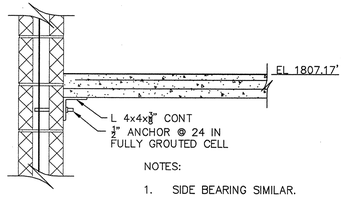
S401



BUILDING SECTION
SCALE: 1/4"=1'–0"
S402.1 / S401

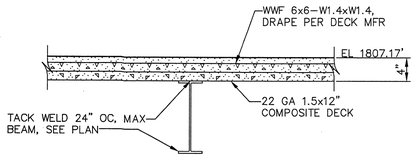


BUILDING SECTION
SCALE: 1/4"=1'–0"
S402.2 / S401

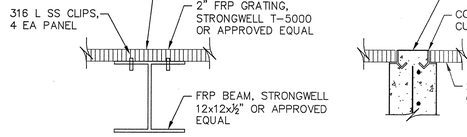


NOTES:
1. SIDE BEARING SIMILAR.

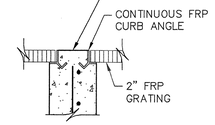
DECK BEARING
SCALE: 1"=1'–0"
S402.3 / S402



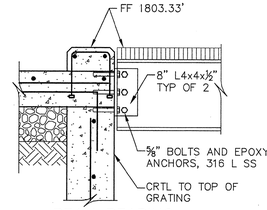
MEZZANINE BEAM
SCALE: 1"=1'–0"
S402.4 / S401



GRATING AT BEAM

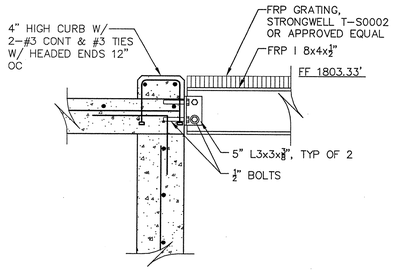


GRATING AT WALL

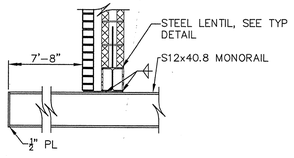


BEAM BEARING

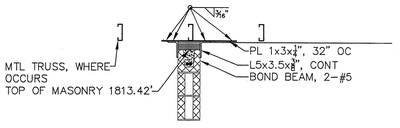
FRP GRATING
SCALE: 1"=1'–0"
S402.5 / S402



TOTE CONTAINMENT BEAM
SCALE: 1"=1'–0"
S402.6 / S401



CHLORINE DOOR HEADER
SCALE: 1/2"=1'–0"
S402.7 / S401



WALL BRACING
SCALE: 1/2"=1'–0"
S402.8 / S401

COMMONWEALTH OF VIRGINIA
JOSEPH S. BROWN
Lic. No. 035193
PROFESSIONAL ENGINEER
8/9/10

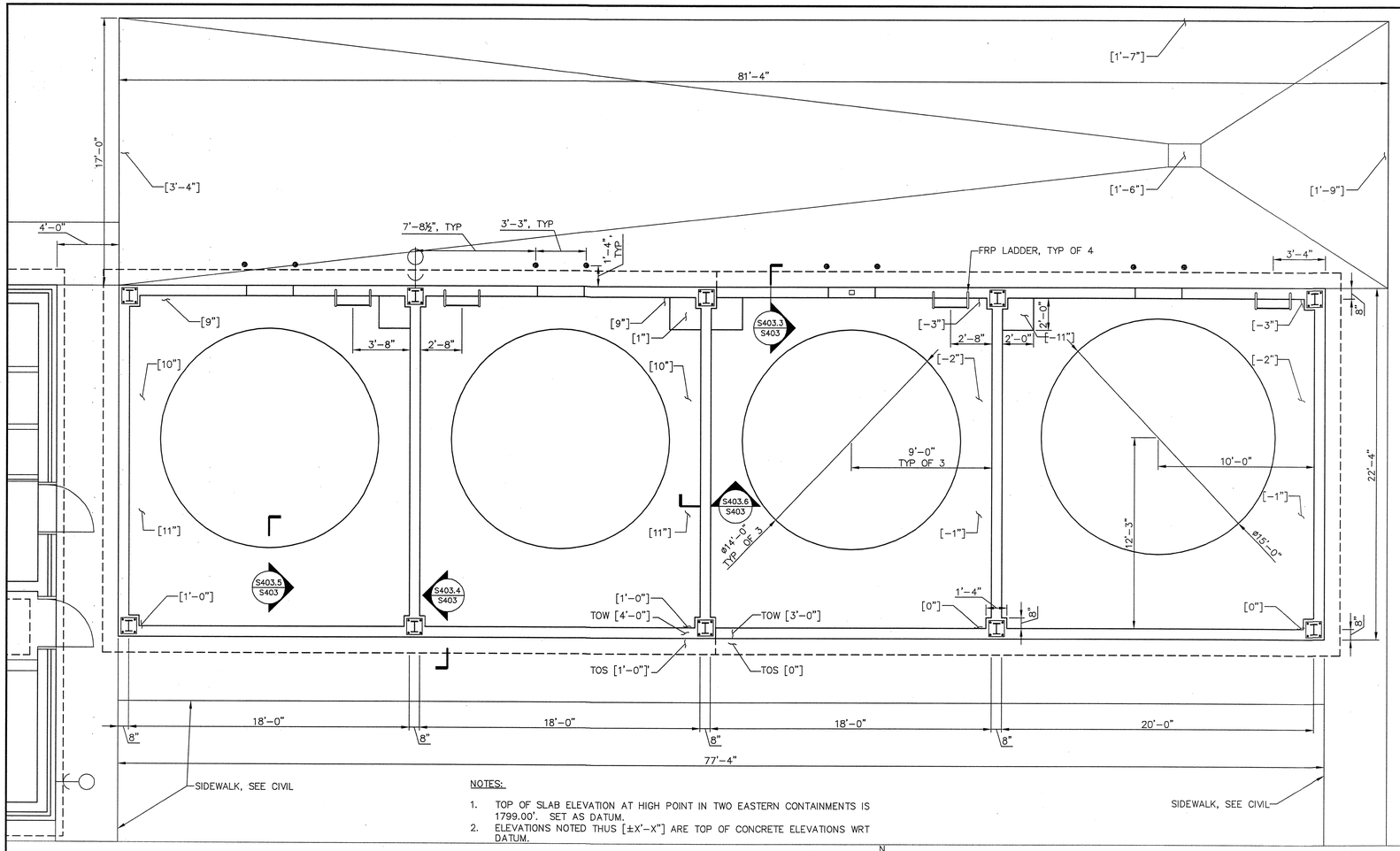
OLVER INCORPORATED
Consulting Engineers & Applied Scientists
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(540) 552–5548
THE LANE GROUP
124 DEPOT AVENUE • CHILHOWIE, VA 24318
(276) 646–2520

WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS
CHLORINE AND CHEMICAL BUILDING
STRUCTURAL DETAILS

Rev.	Description	Date	By
A	VDH RESUBMITTAL	7/13/10	JSB
B	BID ISSUE	8/9/10	JSB

Designed: JSB
Drawn: CDH
Checked: DBH
Date: JUNE 2010
Scale: AS NOTED
Job No. 12367.13
Archived File Name:

S402



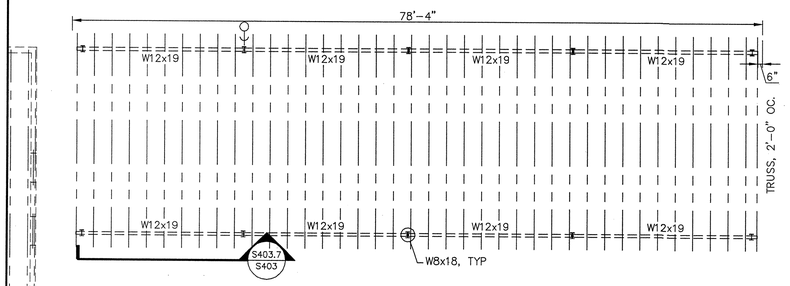
NOTES:

1. TOP OF SLAB ELEVATION AT HIGH POINT IN TWO EASTERN CONTAINMENTS IS 1799.00'. SET AS DATUM.
2. ELEVATIONS NOTED THUS [±X'-X"] ARE TOP OF CONCRETE ELEVATIONS WRT DATUM.

FLOOR PLAN

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

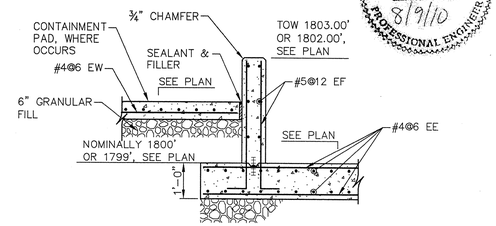
S403.1 S403



ROOF PLAN

SCALE: 1/8"=1'-0"

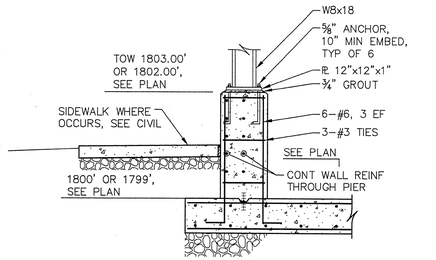
S403.2 S403



SLAB & WALL DETAIL

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

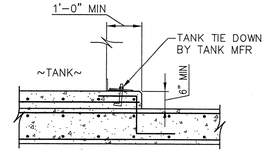
S403.3 S403



COLUMN PIER DETAIL

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

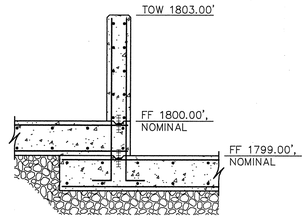
S403.4 S403



TANK PAN

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

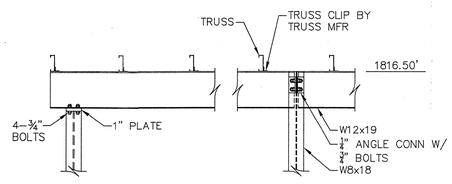
S403.5 S403



WALL DETAIL

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

S403.6 S403



TRUSS BEARING

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

S403.7 S403

N

N

COMMONWEALTH OF VIRGINIA
JOSEPH S. BROWN
Lic. No. 035193
8/9/10
PROFESSIONAL ENGINEER

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(540) 552-5548

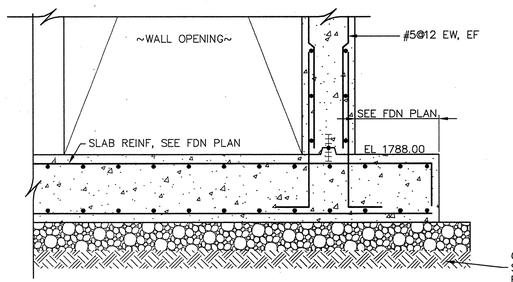
THE LANE GROUP
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(276) 646-2520

WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD
BULK CHEMICAL STORAGE FACILITY

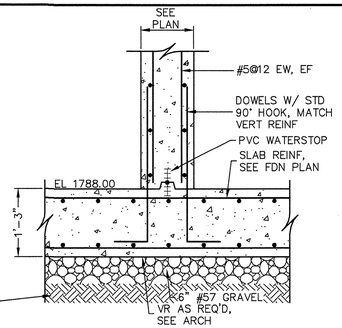
Rev.	Description	Date	By
B	BID ISSUE	8/9/10	JSB
A	VDH RESUBMITTAL	7/15/10	JSB

Designed:	ETA
Drawn:	CDH
Checked:	DBH
Date:	JAN 2010
Scale:	AS SHOWN
Job No.	12367.13
Archived File Name:	

S403

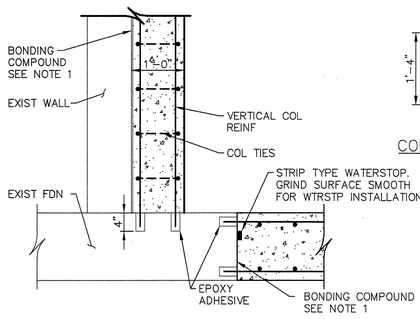


FOUNDATION SECTION
SCALE: 3/4" = 1'-0"
S501.1 / S201



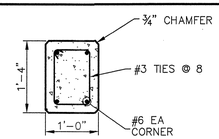
FOUNDATION SECTION
SCALE: 3/4" = 1'-0"
S501.2 / S202

S202
S203

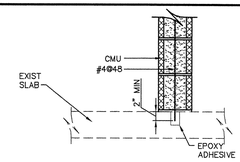


1. ABRADE TO EXPOSE AGGREGATE & CLEAN EXIST SURFACE AT COL LOCATIONS PRIOR TO APPLYING BONDING COMPOUND.

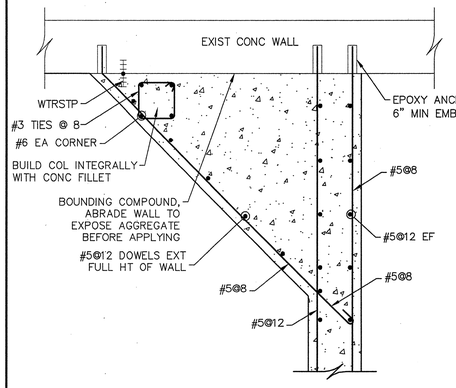
COLUMNS C.1-2 THRU C.1-8 DETAIL
SCALE: 3/4" = 1'-0"
S501.3 / S201



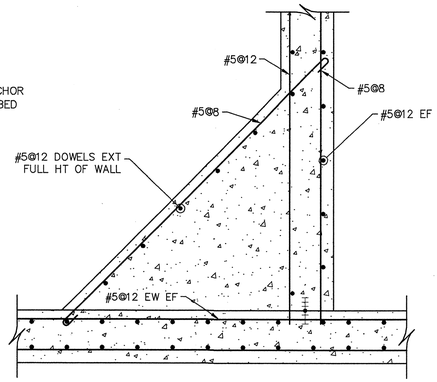
COLUMN DETAIL



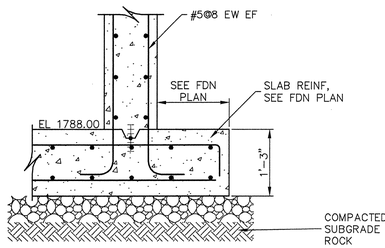
CMU BAFFLE WALL DETAIL
SCALE: 1" = 1'-0"
S501.4 / S101



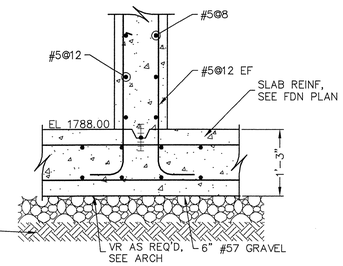
CLEARWELL DETAIL
SCALE: 3/4" = 1'-0"
S501.6 / S201



CLEARWELL DETAIL
SCALE: 3/4" = 1'-0"
S501.7 / S202

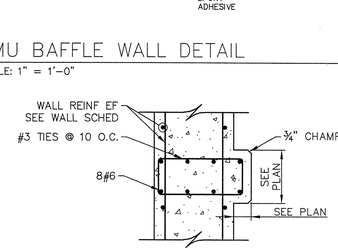


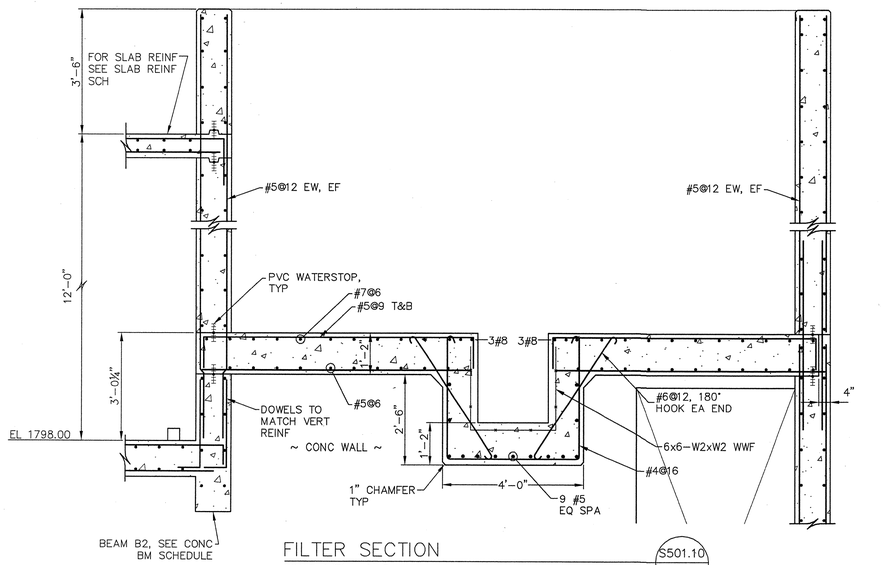
SECTION
SCALE: 3/4" = 1'-0"
S501.8 / S203



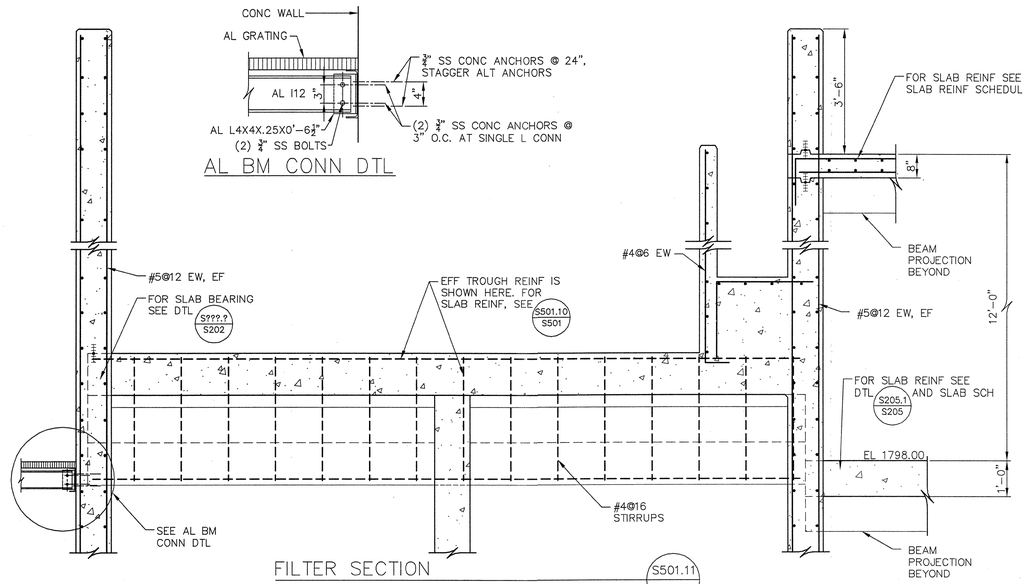
SECTION
SCALE: 3/4" = 1'-0"
S501.9 / S202

CLEARWELL PILASTER DETAIL
SCALE: 3/4" = 1'-0"
S501.5 / S202





FILTER SECTION
SCALE: 1/2" = 1'-0"
S501.10 / S205
S206



FILTER SECTION
SCALE: 1/2"=1'-0"
S501.11 / S205
S206

OLVER INCORPORATED
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124 DEPOT AVENUE • CHILHOWIE, VA 24318
(276) 646-2520

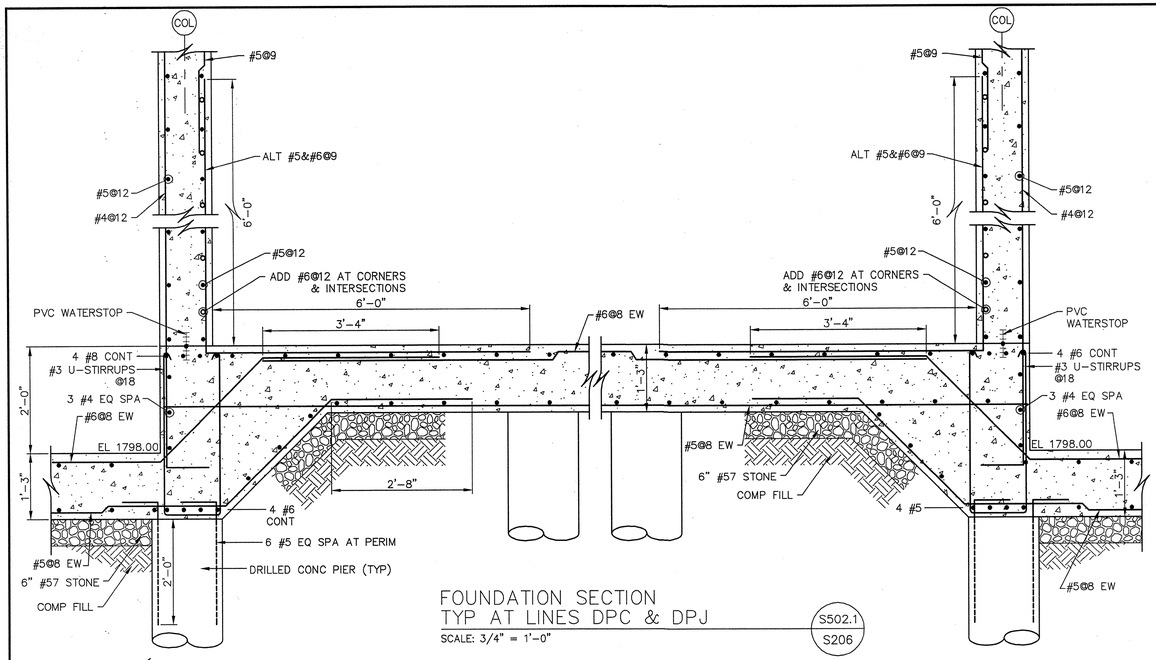
COMMONWEALTH OF VIRGINIA
GREGORY T. SCHULTZ
Lic. No. 032268
8/9/10
PROFESSIONAL ENGINEER

WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD
TREATMENT PLANT BUILDING
SECTIONS AND DETAILS

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/03/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
D	BID ISSUE	8/9/10	GTS

Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

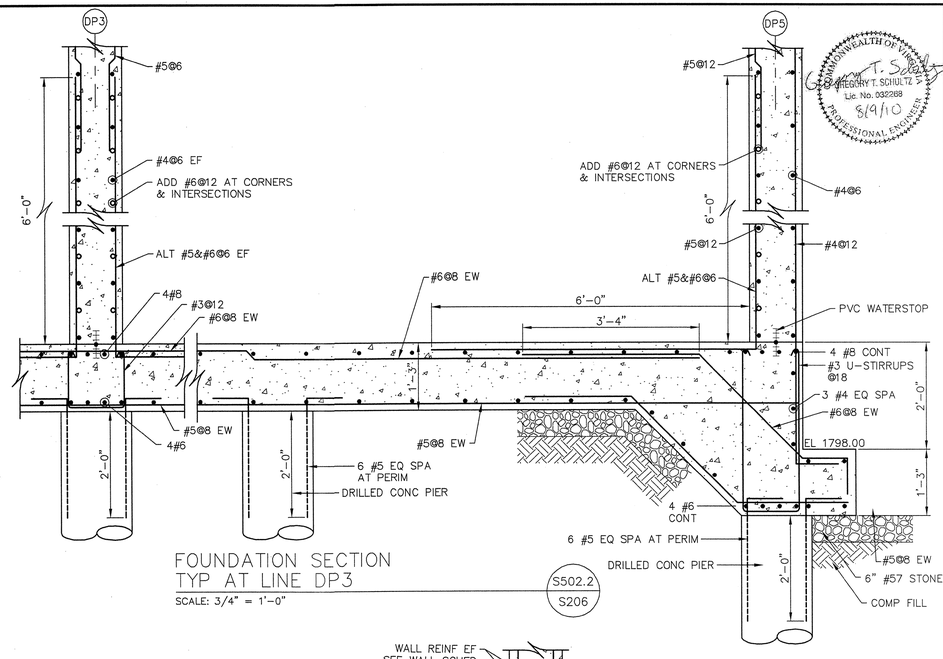
S501



FOUNDATION SECTION
TYP AT LINES DPC & DPJ

SCALE: 3/4" = 1'-0"

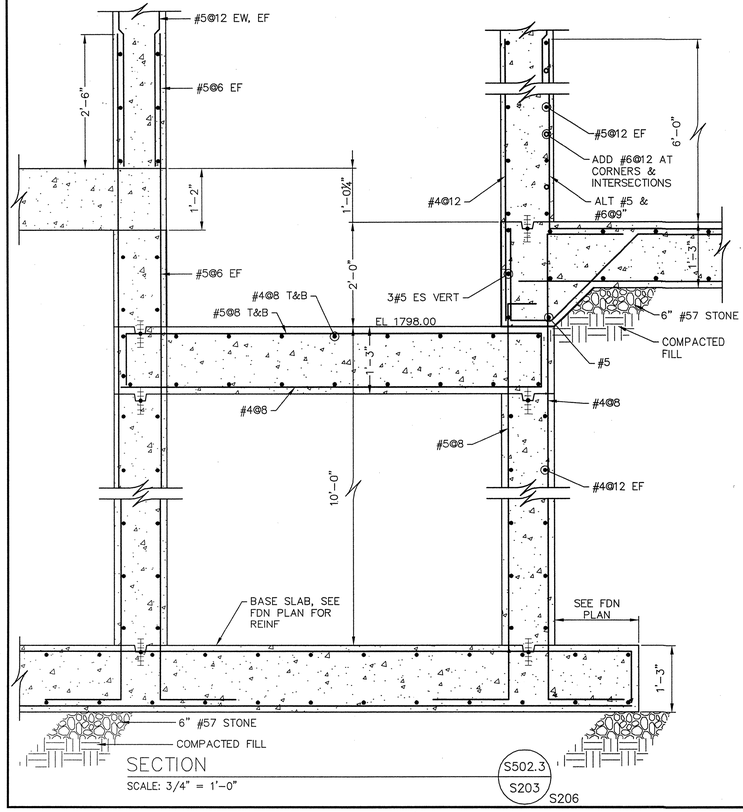
S502.1 / S206



FOUNDATION SECTION
TYP AT LINE DP3

SCALE: 3/4" = 1'-0"

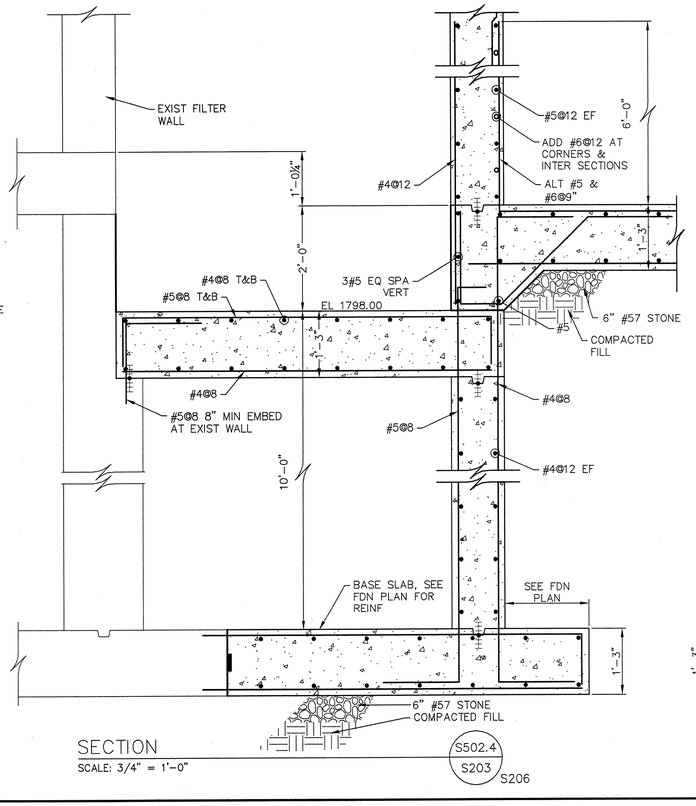
S502.2 / S206



SECTION

SCALE: 3/4" = 1'-0"

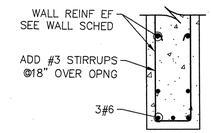
S502.3 / S203 / S206



SECTION

SCALE: 3/4" = 1'-0"

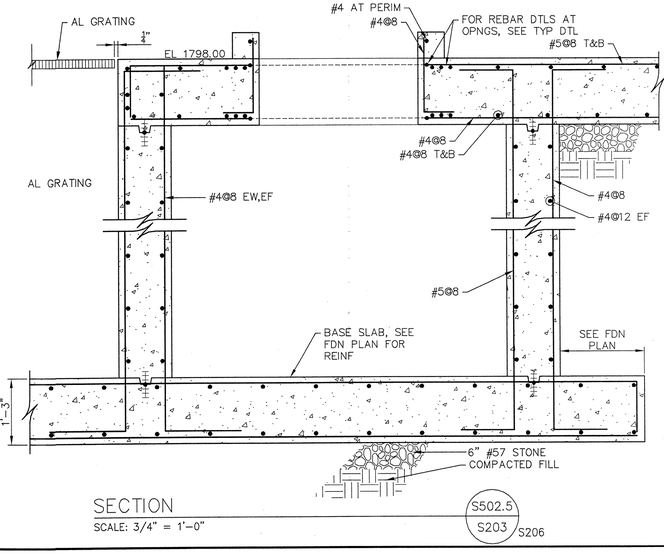
S502.4 / S203 / S206



SECTION

SCALE: 3/4" = 1'-0"

S502.6 / S205 / S206



SECTION

SCALE: 3/4" = 1'-0"

S502.5 / S203 / S206

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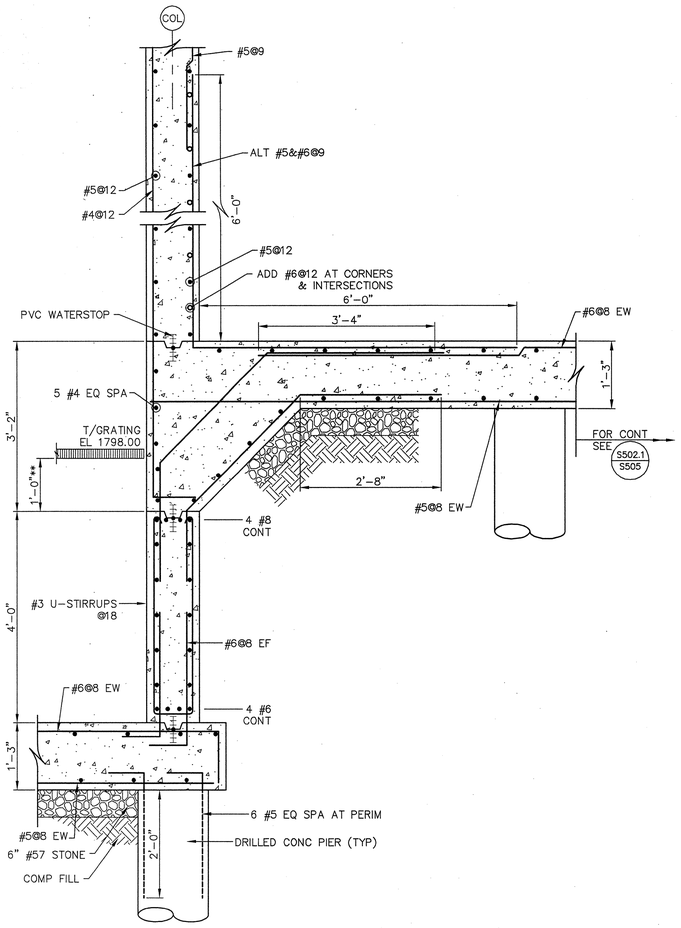
WASHINGTON COUNTY SERVICE AUTHORITY
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Job No. 12367.13
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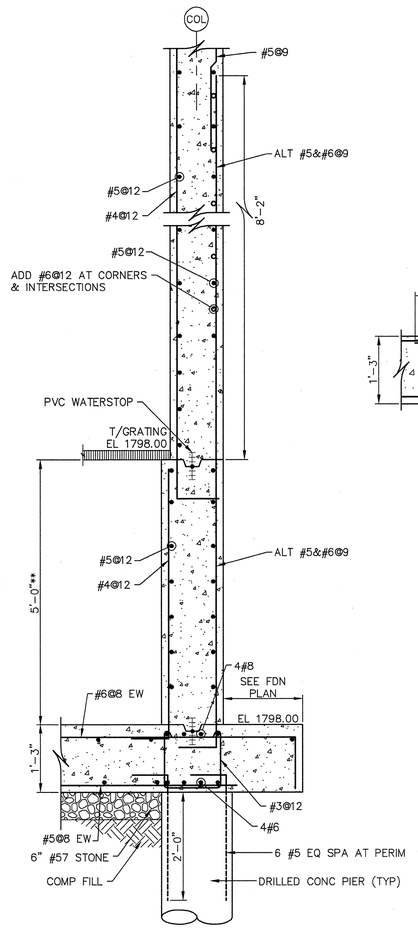
S502



** DIM MAY BE IMPACTED BY THE GRATING DEPTH. GC COORD.

FOUNDATION SECTION
TYP AT LINES DPF & DPG — S503.1 / S206

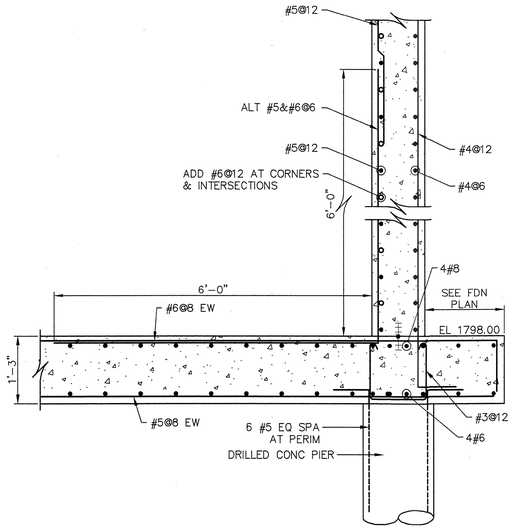
SCALE: 3/4" = 1'-0"



** DIM MAY BE IMPACTED BY THE GRATING DEPTH. GC COORD.

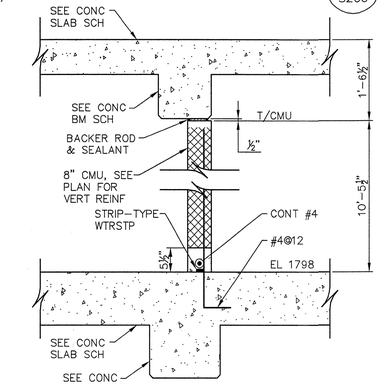
FOUNDATION SECTION
TYP AT LINES DPF & DPG — S503.2 / S206

SCALE: 3/4" = 1'-0"



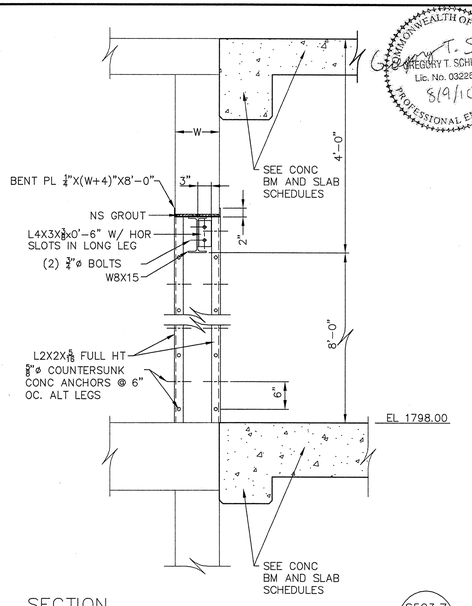
FOUNDATION SECTION — TYP AT LINES DPA, DPL & DP5 — S503.3 / S206

SCALE: 3/4" = 1'-0"



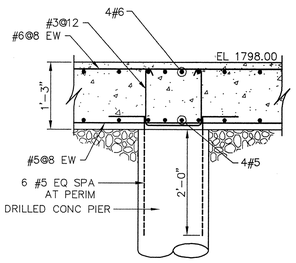
WALL SECTION — S503.8 / S205

SCALE: 3/4" = 1'-0"



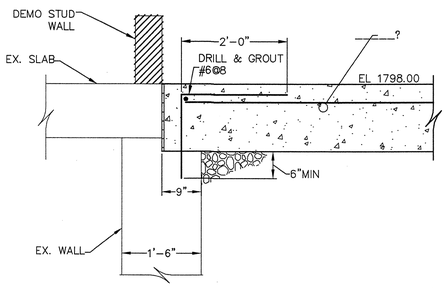
SECTION — S503.7 / S204

SCALE: 3/4" = 1'-0"



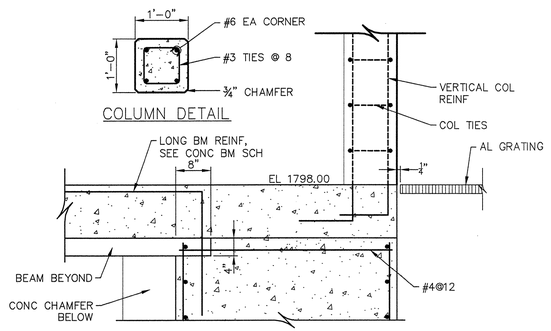
FOUNDATION SECTION TYP
AT PIER LINES DPB & DPK — S503.4 / S206

SCALE: 3/4" = 1'-0"



S503.5 / S206

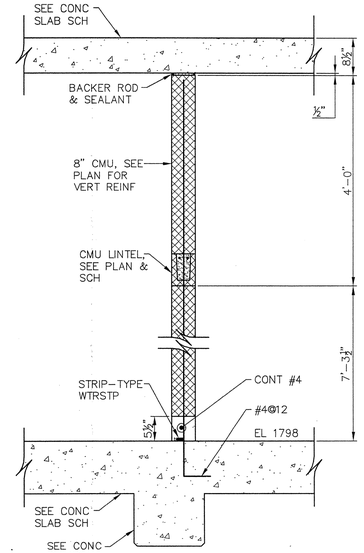
SCALE: 3/4" = 1'-0"



COLUMN DETAIL APPLIES TO COLUMNS D.2, D.3, D.4, D.5 & D.6

SECTION — S503.6 / S204

SCALE: 3/4" = 1'-0"



WALL SECTION — S503.9 / S205

SCALE: 3/4" = 1'-0"

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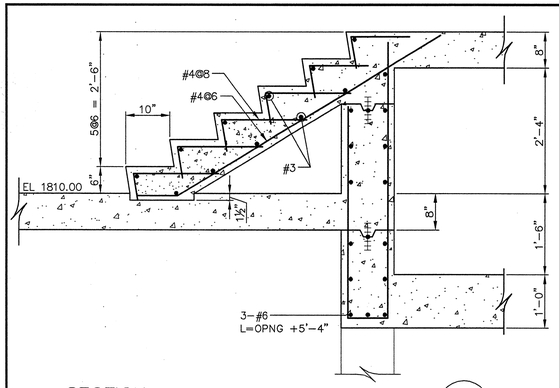
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WASHINGTON COUNTY SERVICE AUTHORITY
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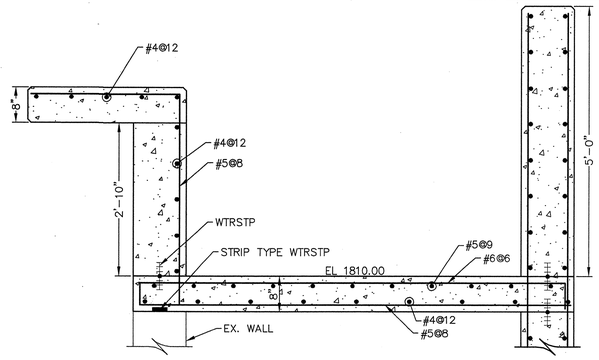
Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
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Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

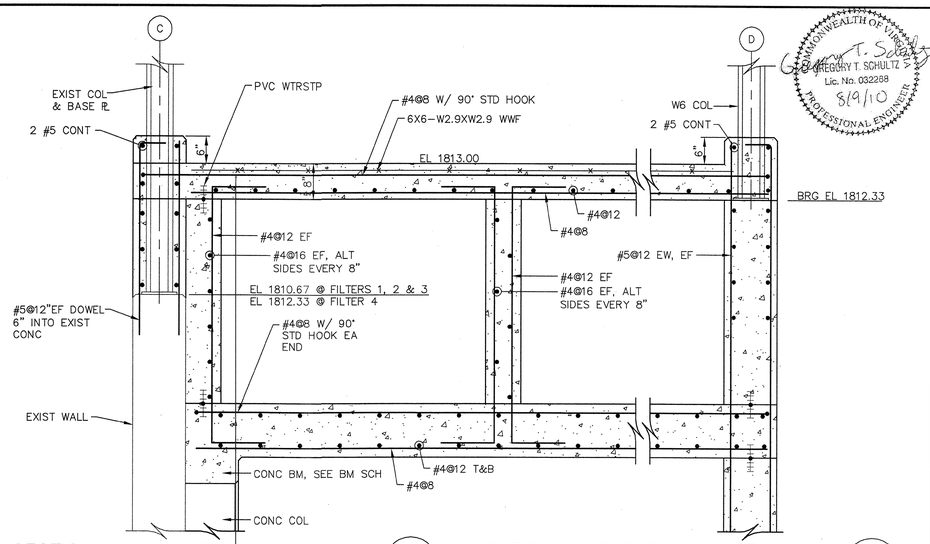
S503



SECTION
SCALE: 3/4" = 1'-0"
S504.1 / S209

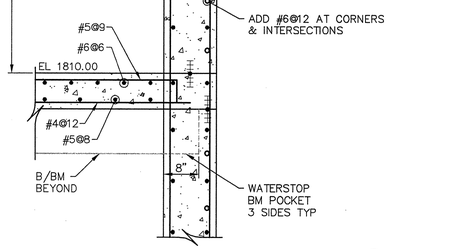


SECTION
SCALE: 3/4" = 1'-0"
S504.2 / S209

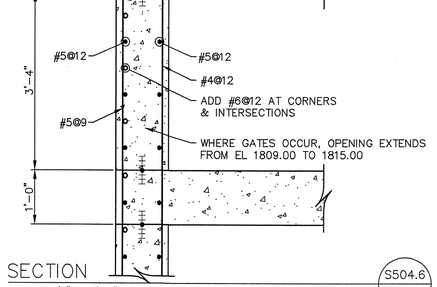


SECTION – FILTERS 1, 2, 3 & 4
SCALE: 3/4" = 1'-0"
S504.3 / S207 S209

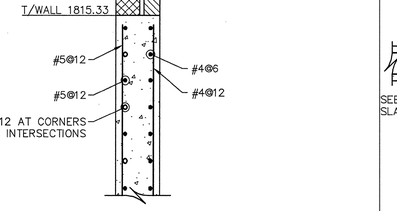
SECTION – FILTERS 5, 6, 7 & 8
SCALE: 3/4" = 1'-0"
S504.4 / S208 S209



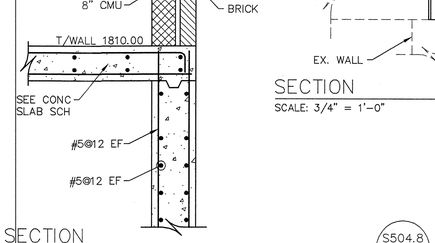
SECTION
SCALE: 3/4" = 1'-0"
S504.5 / S209



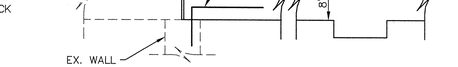
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SCALE: 3/4" = 1'-0"
S504.6 / S209



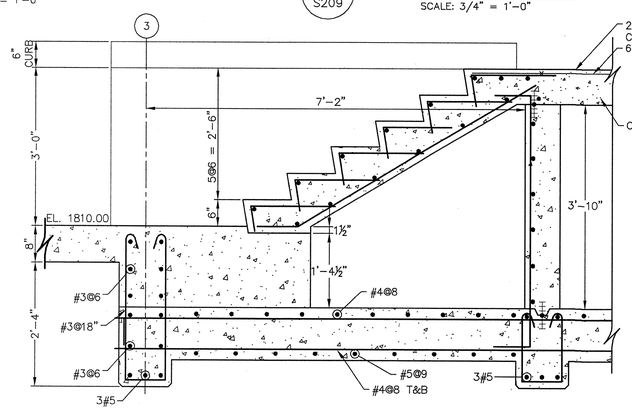
SECTION
SCALE: 3/4" = 1'-0"
S504.7 / S209



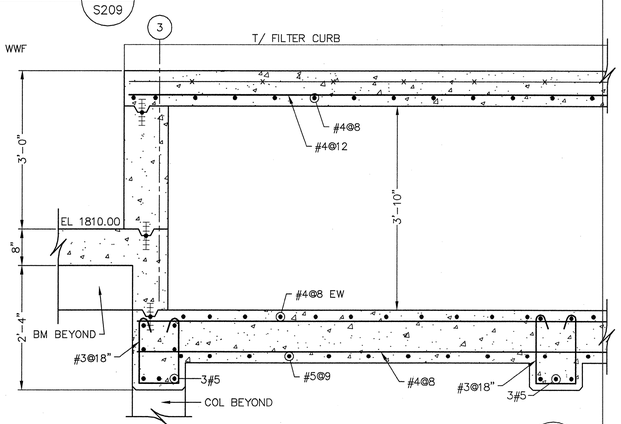
SECTION
SCALE: 3/4" = 1'-0"
S504.8 / S209



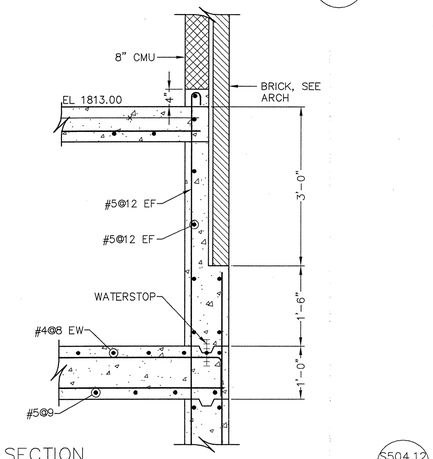
SECTION
SCALE: 3/4" = 1'-0"
S504.9 / S209



SECTION
SCALE: 3/4" = 1'-0"
S504.10 / S207 S208



SECTION
SCALE: 3/4" = 1'-0"
S504.11 / S207



SECTION
SCALE: 3/4" = 1'-0"
S504.12 / S207

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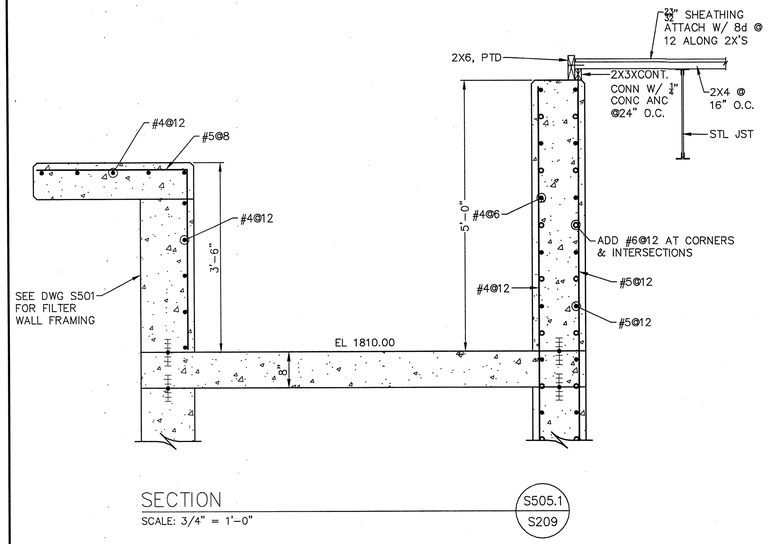
COMMONWEALTH OF VIRGINIA
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8/9/10

WASHINGTON COUNTY SERVICE AUTHORITY
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B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

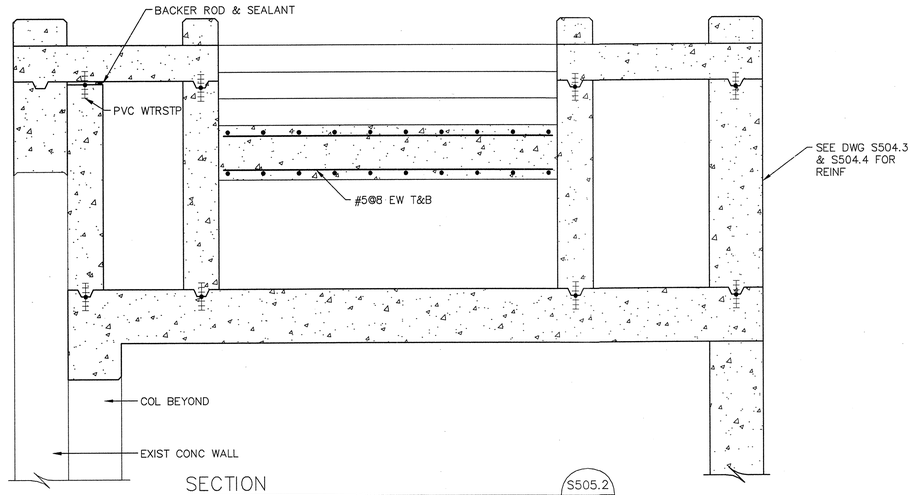
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Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S504



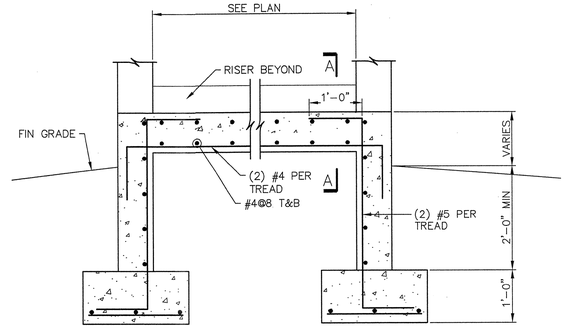
SECTION
SCALE: 3/4" = 1'-0"

S505.1
S209



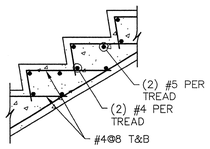
SECTION
SCALE: 3/4" = 1'-0"

S505.2
S207
S208

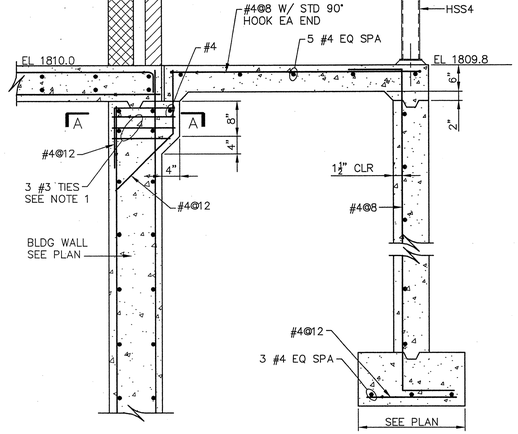


SECTION
SCALE: 3/4" = 1'-0"

S505.5
S207



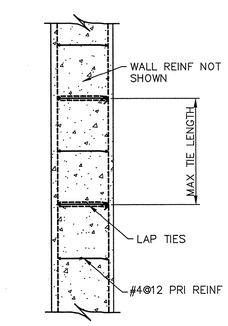
SECTION A–A



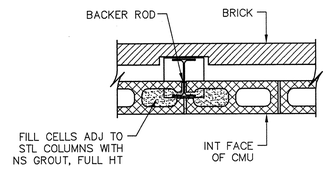
1. NO INDIVIDUAL #3 TIE SHALL WRAP AROUND MORE THAN 3 PRIMARY REINF BARS.

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

S505.3
S207



PLAN DETAIL A–A



SECTION
SCALE: 1" = 1'-0"

S505.4
S208
S209

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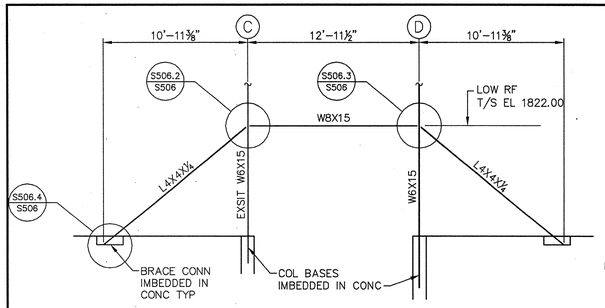
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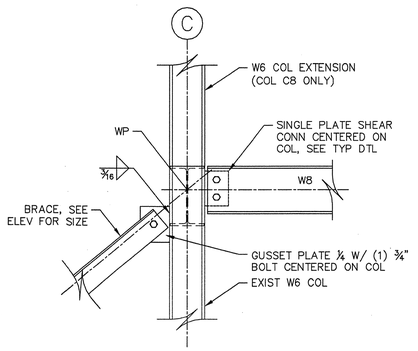
S505



FRAME NO. 1 ELEVATION

SCALE: NO SCALE

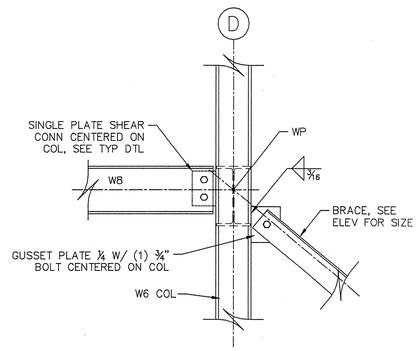
S506.1 / S207 S208 S209



DETAIL

SCALE: 1" = 1'-0"

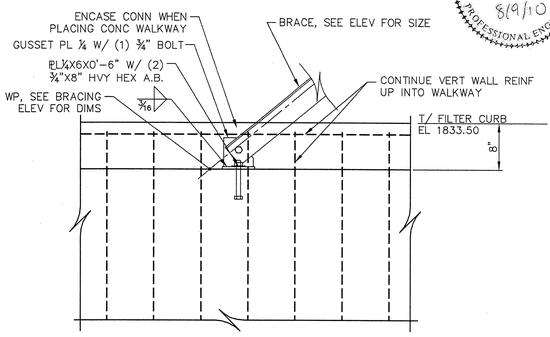
S506.2 / S506



DETAIL

SCALE: 1" = 1'-0"

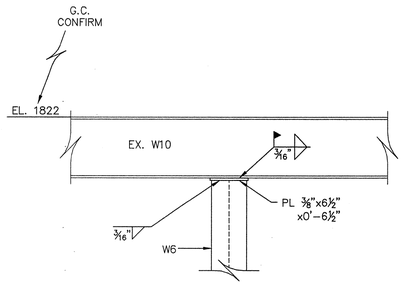
S506.3 / S506



SECTION

SCALE: 1" = 1'-0"

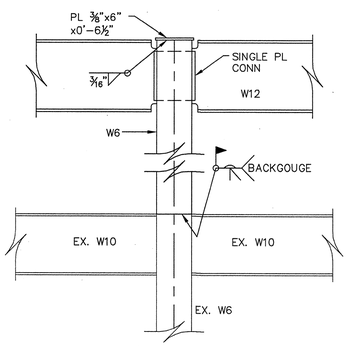
S506.4 / S506



DETAIL

SCALE: 1" = 1'-0"

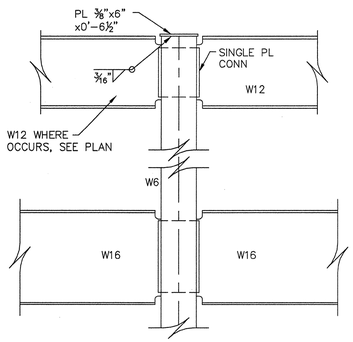
S506.5 / S210



DETAIL

SCALE: 1" = 1'-0"

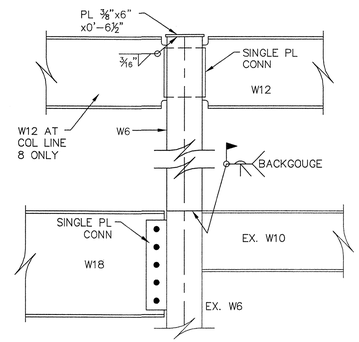
S506.6 / S210



DETAIL

SCALE: 1" = 1'-0"

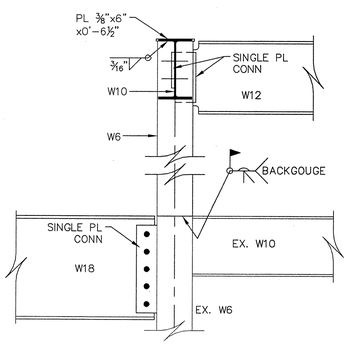
S506.7 / S212



DETAIL

SCALE: 1" = 1'-0"

S506.8 / S210



DETAIL

SCALE: 1" = 1'-0"

S506.9 / S210

Commonwealth of Virginia
Gregory T. Schultz
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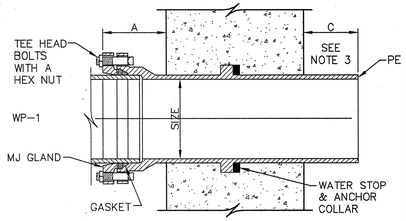
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
SECTIONS AND DETAILS

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	GTS
C	VDH RESUBMITTAL	7/13/10	GTS
B	VDH SUBMITTAL	5/03/10	GTS
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

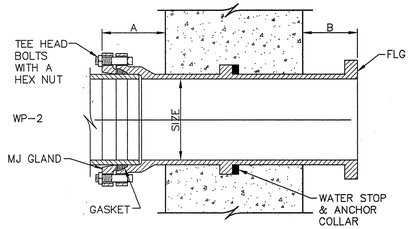
Designed: GTS
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

S506

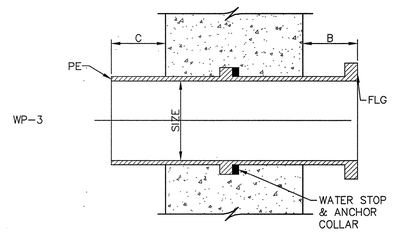


PIPE SIZE	A	B	C
3"	5.00"	2.00"	5.50"
4"	5.75"	2.25"	6.00"
6"	5.75"	2.75"	6.00"
8"	6.25"	2.75"	6.50"
10"	6.50"	3.00"	6.50"
12"	6.50"	3.00"	6.50"
14"	7.00"	3.50"	7.75"
16"	7.25"	3.50"	7.75"
18"	7.50"	3.75"	7.75"
20"	7.50"	3.75"	7.75"
24"	8.00"	4.00"	8.25"
30"	9.50"	5.00"	9.75"
36"	9.75"	5.25"	9.75"
42"	10.0"	5.50"	10.0"
46"	10.0"	6.00"	10.0"
54"	–	6.25"	–

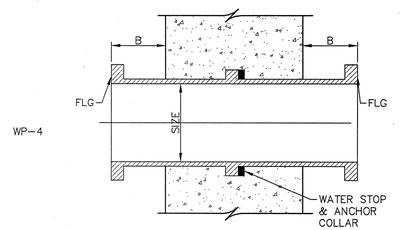
3" THRU 54" MJ–FLG–PE WALL PIPE



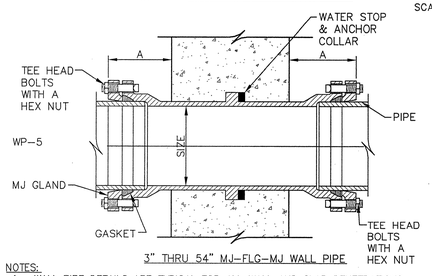
3" THRU 54" MJ–FLG–FLG WALL PIPE



3" THRU 54" PE–FLG–FLG WALL PIPE



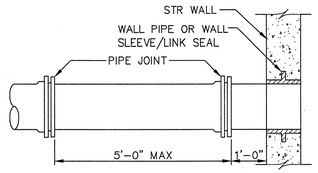
3" THRU 54" FLG–FLG–FLG WALL PIPE



3" THRU 54" MJ–FLG–MJ WALL PIPE

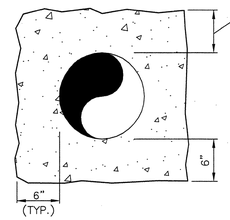
NOTES:
1. WALL PIPE DETAILS ARE TYPICAL FOR ALL WALL AND SLAB PENETRATIONS.
2. SUPPORTS AND HANGERS FOR PIPING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 15090 AND DETAILS M040, M020, M019, M017
3. FOR WP–1, IF NO CONNECTION TO PE END OF PIPE IS TO BE MADE, CUT FLUSH WITH WALL.
4. SEE SPEC SECTION 1800 FOR ALLOWABLE USE OF THESE WALL PENETRATIONS.

WALL PIPE DETAILS
SCALE: NO SCALE — M006 TYP



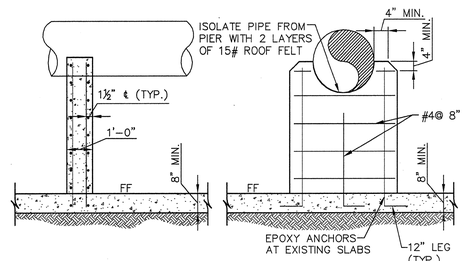
NOTES: PIPE ENTRANCE SHALL BE UTILIZED AT ALL WALL PENETRATIONS

TYPICAL PIPE DETAIL AT ENTRANCE OR EXIT FROM STRUCTURE
SCALE: NO SCALE — M008 TYP

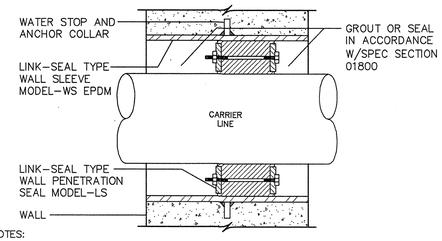


1. LENGTH TO DEPEND ON FIELD CONDITIONS.
2. CONCRETE 3000 P.S.I. @ 28 DAYS.

TYPICAL CONCRETE ENCASEMENT
SCALE: NO SCALE — M015 TYP

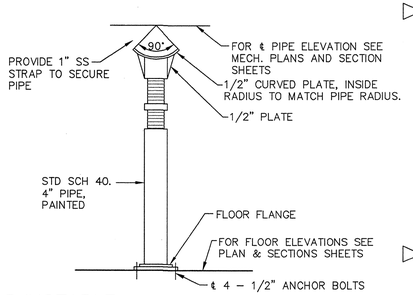


CONCRETE PIPE AND VALVE SUPPORT DETAIL
SCALE: NO SCALE — M017 TYP



NOTES:
1. ON PIPES 30" IN DIAMETER OR LARGER THE CONTRACTOR MAY POUR THE PIPE IN PLACE IN LIEU OF THE USE OF WALL SLEEVES OR WALL PIPES. PIPE TO HAVE SEAL RING WELDED IN CENTER OF WALL PENETRATION. WALL PIPE TO BE OMITTED ON EXISTING CONCRETE WALLS.
2. WALL AND SLAB PENETRATIONS SHALL BE IN ACCORDANCE WITH SECTION 01800.
3. ALL MATERIALS IN CONTACT WITH PROCESS WATER TO BE NSF–61 APPROVED.

LINK SEAL DETAIL
SCALE: NO SCALE — M007 TYP



ADJUSTABLE METAL PIPE SUPPORT DETAIL
SCALE: NO SCALE — M040 TYP

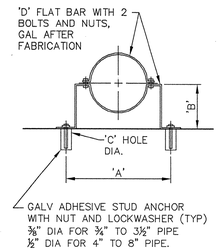
GENERAL NOTES FOR ALL MECHINCAL/PROCESS DRAWINGS:

1. PROVIDE TYP EQUIP PAD FOR ALL PUMPS AND PROCESS EQUIP, SEE MECHANICAL.
2. ALL PIPE SUPPORTS ARE NOT SHOWN. THE CONTR IS RESPONSIBLE FOR PROVIDING PIPE SUPPORTS IN ACCORDANCE W/SPECIFICATION SECTION 15090.
3. ALL PIPING PENETRATIONS THROUGH WALLS AND FLOOR SLABS SHALL BE IN ACCORDANCE W/SPECIFICATION SECTION 01800 UNLESS OTHERWISE NOTED ON THE DRAWINGS.
4. PIPE MATERIALS SHALL BE IN ACCORDANCE W/SPECIFICATION 15060 UNLESS OTHERWISE NOTED ON DRAWING.
5. ALL LARGE DIA PIPING (12" DIA AND GREATER) THAT IS BURIED BELOW BUILDING SLABS AND SHALL BE ENCASED IN ACCORDANCE W/TYP DTL M015.
6. PIPING EXITING ALL STRUCTURES SHALL HAVE MECHANICAL JOINTS PER DETAIL M008.

DIMENSIONS IN INCHES					
PIPE DIA.	'A'	'B' SEE NOTE 3	'C' HOLE DIA.	'D' FLATBAR SIZE	LOAD RATING LBS.*
3/4	5–15/16	2–1/2	7/16	3/16x1–1/4	300
1	6–1/4	2–5/8	7/16	3/16x1–1/4	300
1–1/4	6–11/16	2–3/4	7/16	3/16x1–1/4	300
1–1/2	6–15/16	3	7/16	3/16x1–1/4	300
2	8–5/16	3–3/16	7/16	1/4x1–1/4	500
2–1/2	8–7/8	3–7/16	7/16	1/4x1–1/4	500
3	9–1/8	3–3/4	7/16	1/4x1–1/4	500
3–1/2	10–1/16	4	7/16	1/4x1–1/4	500
4	10–9/16	4–1/4	9/16	1/4x1–1/2	800
5	11–3/4	4–3/4	9/16	1/4x1–1/2	800
6	14–3/8	5–5/16	9/16	3/8x1–1/2	800
8	16–5/8	6–5/16	9/16	3/8x1–1/2	800

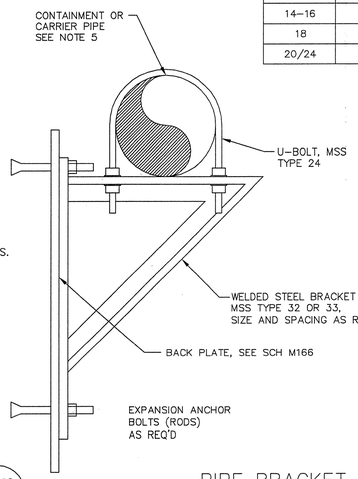
NOTES:

1. WHERE SUBMERGED OR SPECIFIED, PIPE CLAMP, ANCHOR, SHIELD, NUTS AND LOCKWASHER TO BE 316 SS
2. WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL AROUND PIPE CLAMP, WITH LOOSE FIT. WRAP COPPER TUBES W/2" STRIP OF RUBBER FABRIC
3. FOR FLANGED PIPING, INCREASE 'B' DIMENSION AS REQ'D
4. CONTR SHALL USE IN CONJUNCTION W/SPECIFICATION SECTION 15090.



PIPE CLAMP
SCALE: NO SCALE — M019 TYP

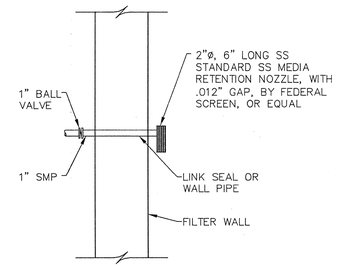
PIPE SUPPORT SCHEDULE							
SUPPORT RODS AND BRACKET SPACING (FOR STANDARD WEIGHT PIPE)							
PIPE SIZE (INCHES)	BACK PLATE (INCHES)	MINIMUM ROD DIA (INCHES)		MAX SPAN IN FEET (SEE NOTE 8)			
		PROCESS PIPING	STEEL AIR PIPING	COPPER	PLASTIC	STEEL	DIP (SEE NOTE 7)
UP TO 1	SEE NOTE 4	3/8	3/8	5	5	6	–
1 1/4–2	"	3/8	3/8	8	5	10	–
2 1/2–3 1/2	"	3/8	3/8	8	5	12	6
4/5	"	1/2	3/8	–	5	14	8
6	"	5/8	3/8	–	5	15	9
8–12	"	3/4	1/2	–	5	15	9
14–16	"	7/8	1/2	–	5	15	9
18	"	1	1/2	–	5	18	10
20/24	"	1¼	5/8	–	5	18	8



NOTES:

1. MSS REFERS TO THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, STANDARD PRACTICE SP–58 AND SP–69.
2. PIPE WALL SUPPORT AND PIPE SUPPORT RACK SHALL BE ASSEMBLED WITH CHANNEL FRAMES AND ACCESSORIES AS MANUFACTURED BY UNISTRUT CORP, OR VERSABAR CORP, OR EQUAL.
3. FABRICATED PIPE SUPPORT MAY BE USED AS SHOWN IN PIPE SUPPORT RACK DETAIL, OR TO SUPPORT PIPE FROM THE FLOOR.
4. BACK PLATES SHALL BE DESIGNED BY THE CONTRACTOR ACCORDING TO WALL TYPES AND THE WEIGHTS INVOLVED. BACK PLATES TO BE SUPPLIED BY BRACKET MANUFACTURER.
5. PIPE HANGERS, SUPPORTS AND BRACKETS ARE SHOWN HERE IN VARIOUS COMBINATIONS AS GENERAL DETAILS. THE CONTRACTOR SHALL DESIGN THE SUPPORT SYSTEM BASED ON ACTUAL WEIGHTS AND CONDITIONS AS SPECIFIED OR AS SHOWN ON THE CONTRACT DRAWINGS.
6. ALL INSULATED PIPES SHALL USE A SHIELD (MSS TYPE 40) WITH THE APPLICABLE PIPE SUPPORT.
7. MINIMUM OF ONE HANGER PER PIPE SECTION, CLOSE TO JOINT, ON THE BARREL. ALSO AT CHANGE IN DIRECTION AND BRANCH CONNECTIONS.
8. RODS AND SPACING ARE BASED ON STANDARD WEIGHT MATERIALS ACCORDING TO MSS SP–69 AND ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL SPACE HIS HANGERS BASED ON ACTUAL CONDITIONS.

PIPE BRACKET SUPPORT
SCALE: NO SCALE — M020 TYP



FILTER TURBIDITY & PRESSURE SAMPLE POINT
SCALE: NO SCALE — M039 TYP

COMMONWEALTH OF VIRGINIA — ERIC T. ANDERSON — Lic. No. 040613 — 8/9/2010 — PROFESSIONAL ENGINEER

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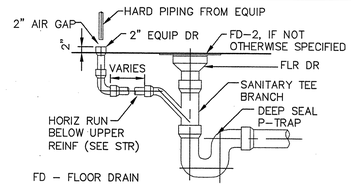
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(276) 646–2520

WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD
MECHANICAL DETAILS

Rev.	Description	Date	By
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M001

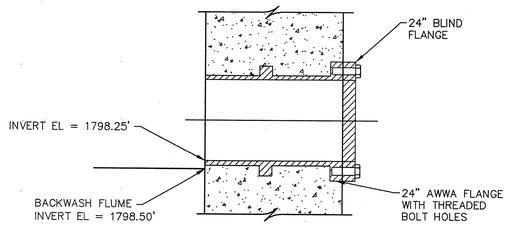


NOTE:
1. PROVIDE ½" SLOPED SUMP IN AREA AROUND EACH DRAIN

SECTION – EQUIPMENT FLOOR DRAIN

SCALE: NO SCALE

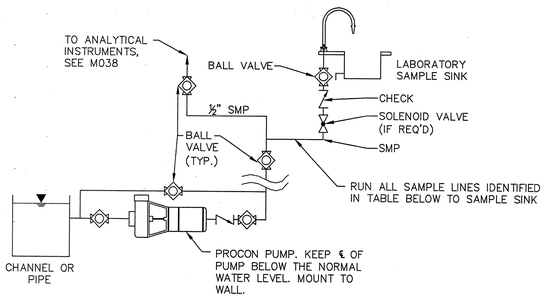
M021 TYP



24" BACKWASH FLUME ACCESS

SCALE: NO SCALE

M033 TYP



CENTRIFUGAL

NOTES:
1. FOR ALL PUMPS, PROVIDE PROCON SERIES 3 PUMP WITH CLAMP–ON ½ HP 1750 RPM MOTOR AND EXTERNAL BYPASS VALVE. PUMP SHALL BE RATED FOR 125 GPH AT 50 PSI. MOUNT PUMP ON 18 GA STAINLESS STEEL SHELF, 18" DEPTH, 18" WIDTCH WITH THREE SS MOUNTING BRACKETS, BOLTED TO ADJACENT WALL. BOLT PUMP TO SHELF.
2. SUBMIT SHOP SUBMITTALS AS REQUIRED PER SECTION 01340 FOR ALL PUMPS AND RELATED EQUIPMENT.

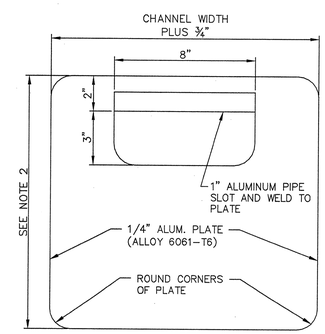
SAMPLE LINE SCHEDULE							
DESCRIPTION	SAMPLE LOCATION	PUMP TYPE	TYPE	FLOW REQ'D	SAMPLE LINE SIZE	PUMP ID	ADDITIONAL PIPING TO INSTRUMENT
SF RAW	CONTROL VALVE/ ENERGY RECOVERY (*)	N/A	PIPE	1.00 GPM	½"	N/A	TM–2, AE–3
MF RAW	PLANT BUILDING	CENTRIFUGAL	PIPE	1.00 GPM	½"	P–202	–, AE–3
COMBINED RAW	YARD (+)	CENTRIFUGAL	PIPE	2.00 GPM	¾"	P–201	TM–3, PH–1, AE–3
APPLIED SED	AC PIPE GALLERY	CENTRIFUGAL	PIPE	1.00 GPM	½"	P–203	–, AE–3
APPLIED FILTER 1	FILTER INFLUENT CHANNEL	CENTRIFUGAL	CHANNEL	1.00 GPM	½"	P–204	–
APPLIED FILTER 2	FILTER INFLUENT CHANNEL	CENTRIFUGAL	CHANNEL	1.00 GPM	½"	P–205	–
FILTER EFF	FILTER EFFLUENT CHANNEL	CENTRIFUGAL	CHANNEL	1.00 GPM	¾"	P–206	TM–20, pH–6
FINISHED WATER	FINISHED WATER LINE IN PLANT BUILDING	N/A	CHANNEL	1.00 GPM	¾"	N/A	TM–21, AE–1, AE–2, pH–7

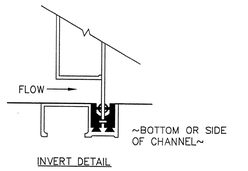
* SAMPLE LINE FOR THE SOUTH FORK RAW WATER TO BE TAPPED IN THE CONTROL VALVE METER VAULT (BASE BID) OR ENERGY RECOVERY BUILDING (BID ATL B)
\+ PUMPS FOR COMBINED RAW WATER TO BE LOCATED IN THE CONTROL VALVE VAULT (BASE BID) OR THE ENERGY RECOVERY BUILDING (BID ALT B)

SAMPLE PUMPS AND SAMPLE LINE

SCALE: 1/2"=1'–0"

M029 TYP





INVERT DETAIL

FRAMES
MIN THICKNESS OF FRAME MEMBERS = ¼".

SIDE GUIDES OF EXTRUDED (6061–T6) ALUM

POLYMER SEATING/SLIDING SURFACES W/COEFFICIENT OF FRICTION LESS THAN 0.2 TO RED EFFORT OF PLACEMENT AND REMOVAL.

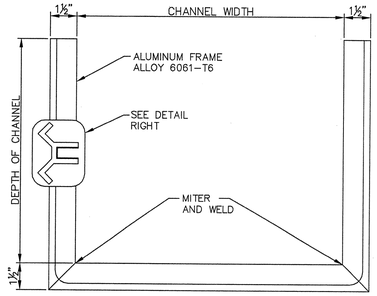
SILL OF EXTRUDED (6061–T6) ALUM W/REPLACABLE NEOPRENE SEAL MOUNTED FLUSH WITH THE INV

SLIDES
MIN THICKNESS OF ALUM SLIDE MEMBERS = ¼".

ALUM PLATE (6061–T6) REINF TO LIMIT DEFLECTION TO 1/360 OF A SPAN AND STRESS TO 7000 PSI UNDER DESIGN HEAD CONDITIONS.

LEAKAGE
LEAKAGE FOR STOP GATES TO BE LESS THAN 0.1 GALLONS PER MINUTE PER FOOT OF WETTED PERIMETER WHEN SPECIFIED.

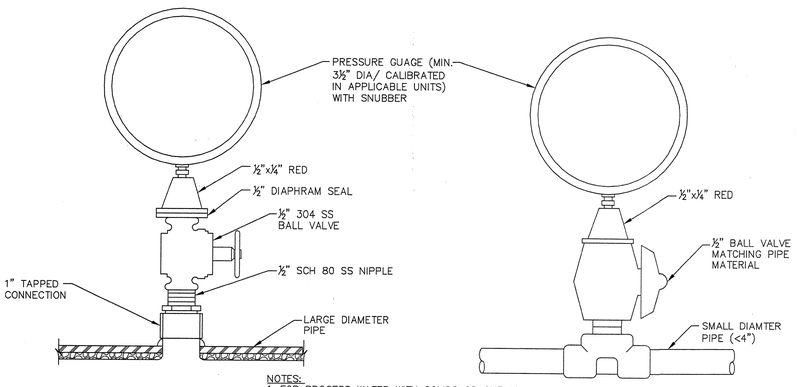
NOTES:
1. STIFFEN ALL STOP GATES TO WITHSTAND WATER PRESSURE EQUAL TO FULL HEIGHT OF GATE PLUS AN ADDITIONAL 1½ FEET OF WATER DEPTH.
2. ALL STOP GATES HEIGHT SHALL REACH TO 1' ABOVE THE TOP OF THE CURB ABOVE THE CHANNEL. PROVIDE 4" CURB AROUND STOP GATE OPENING IN TOP OF FILTER INFLUENT CHANNEL.



STOP GATE IN FILTER INFLUENT CHANNEL

SCALE: NO SCALE

M012 TYP

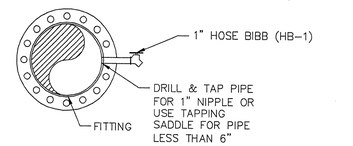


NOTES:
1. FOR PROCESS WATER WITH SOLIDS OR CHEMICAL GAUGES, PROVIDE DIAPHRAM SEAL OF MATERIAL COMPATABLE WITH CARRIED FLUID AS RECOMMENDED BY MFG.

PRESSURE GAUGE OR PRESSURE SWITCH

SCALE: 3" = 1'–0"

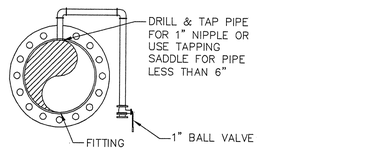
M031 TYP



SAMPLE TAP CONNECTION

SCALE: NO SCALE

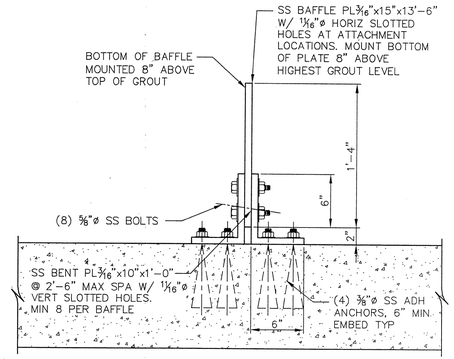
M051 TYP



MANUAL AIR BLOW–OFF

SCALE: NO SCALE

M052 TYP



FLOCCULATION BAFFLES

SCALE: NO SCALE

M034 TYP

COMMONWEALTH OF VIRGINIA
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9/9/2010
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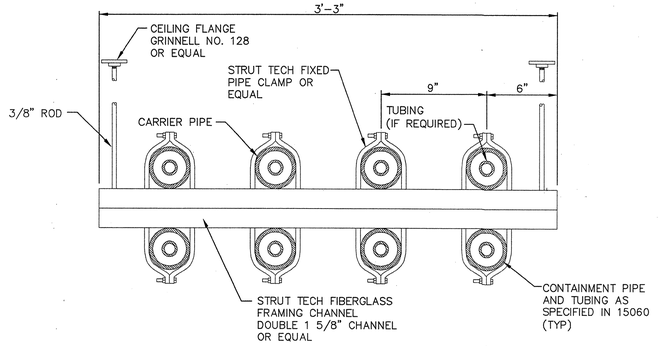
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

MECHANICAL DETAILS

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

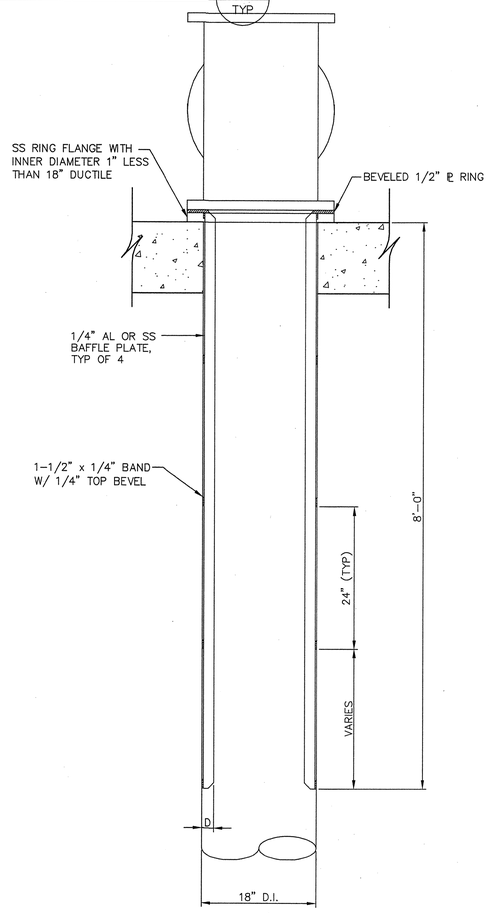
M002



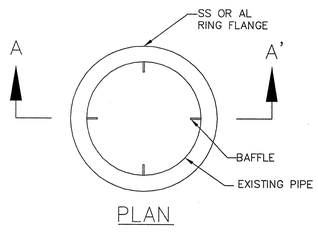
CHEMICAL FEED DETAIL

SCALE: 2"=1'-0"

M048 TYP



PROVIDE ANTI-VORTEXING DEVICE ON FILTER INFLUENT CHANNEL OVERFLOW AND ADSORPTION CLARIFIER BACKWASH DRAIN.



PLAN

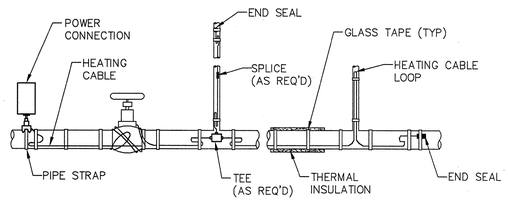
SECTION A-A'

NOTE: D VALUE BASED ON EXISTING SCHEDULED PIPE I.D. CONTRACTOR TO VERIFY ACTUAL PIPE I.D. PRIOR TO FABRICATION. D VALUES TO BE 1/4" LESS THAN VERIFIED PIPE I.D. D= 1/10 OF DIAMETER OF PIPE.

ANTI-VORTEXING DEVICE

SCALE: 1"=1'-0"

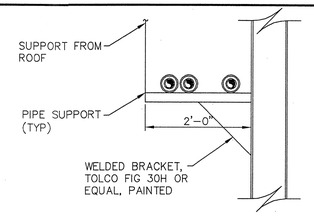
M045 TYP



DETAIL - HEAT TRACE

SCALE: NO SCALE

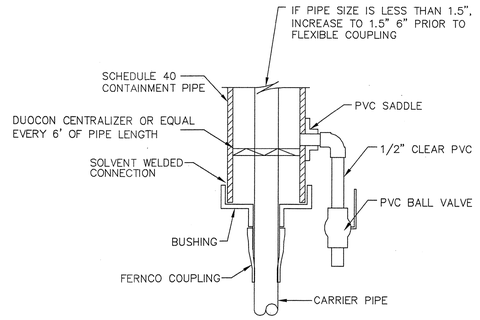
M066 TYP



PIPE TRAY SECTION

SCALE: 3/4"=1'-0"

M065 TYP

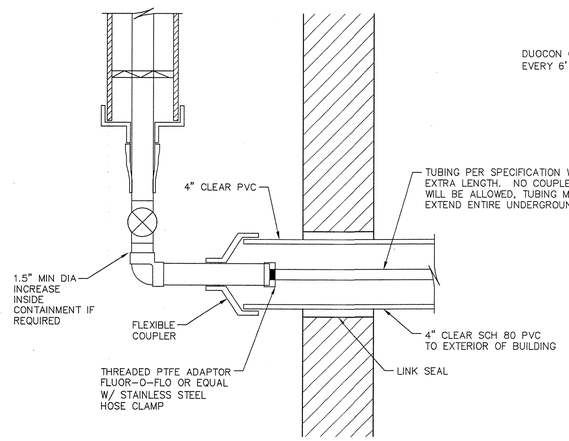


1. CONTAINMENT PIPE TO INCLUDE AT LEAST ONE 4' SECTION OF CLEAR PVC IN EVERY STRAIGHT RUN INSIDE BUILDING

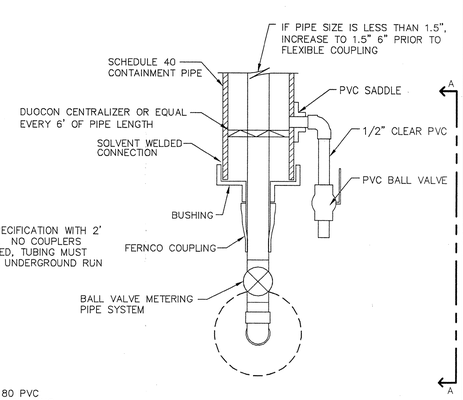
DETAIL CONTAINMENT PIPE

SCALE: NTS

M067 TYP



SECTION A



CONTAINMENT TRANSITION FROM INTERIOR TO EXTERIOR CONTAINMENT

SCALE: NTS

M068 TYP

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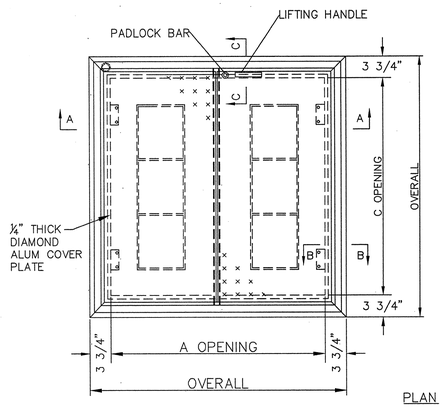
WASHINGTON COUNTY SERVICE AUTHORITY
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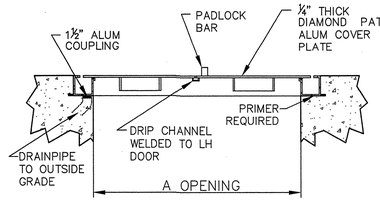
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Archived File Name:

M004



PLAN

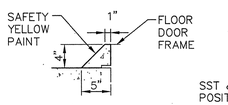


SECTION A–A

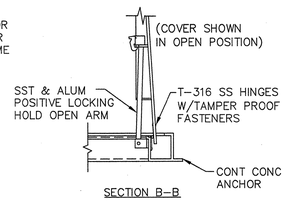
SDNF – STANDARD DUTY, NON–DRAINING FRAME
SDDF – STANDARD DUTY, DRAINING FRAME
HDNF – HEAVY DUTY, NON–DRAINING FRAME
HDDF – HEAVY DUTY, DRAINING FRAME

* ALL FLOOR DOORS TO BE HEAVY DUTY, DRAINING FRAME UNLESS OTHERWISE SPECIFIED.

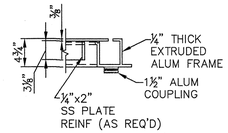
NOTES:
1. SINGLE HATCH OPENING DOOR MAY BE USED IF OPENING IS LESS THAN 36 INCHES AS SPECIFIED FOR DOORS LOCATED OUTSIDE.
2. FLOOR DOORS SHALL BE AS SPECIFIED IN SECTION 08305.
3. FLOOR DOORS CURBS IN WALKING AREA SHALL BE PAINTED SAFETY YELLOW.
4. ALL FLOOR DOORS ABOVE PROCESS WATER SHALL HAVE DRAIN PIPED, THROUGH THE SLAB TO SUITABLE LOCATION.
5. PROVIDE FIBERGLASS FALL PROTECTION GRATING FOR FLOOR DOOR.
6. ALL ACCESS DOORS WITH LADDERS BELOW SHALL BE EQUIPPED WITH TELESCOPING "LADDER–UP" POLE TO ASSIST WITH ENTRY VAULT.



FLOOR DOOR CURB (IF REQUIRED)



SECTION B–B

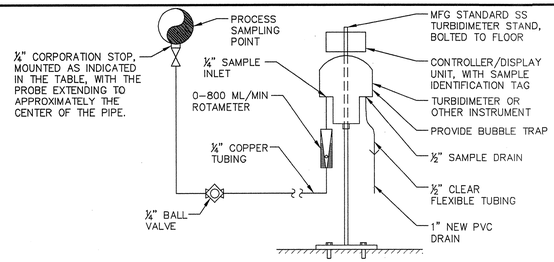


SECTION C–C

ACCESS DOOR DETAIL

SCALE: NO SCALE

M046 TYP



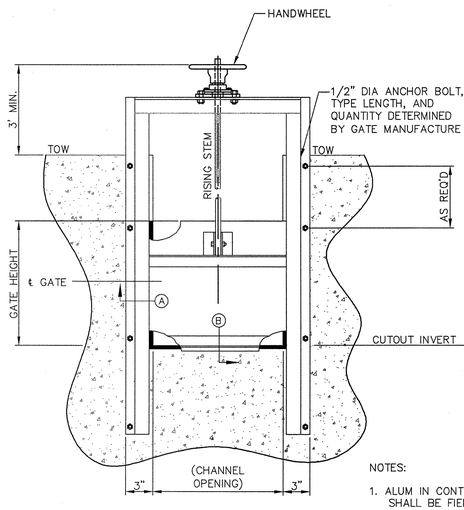
NOTES:
1. INSTALL SAMPLE LINES AS SHOWN ON THE DRAWINGS OR AS DIRECTLY AS POSSIBLE FROM THE SAMPLE TAP LOCATION.
2. INSTRUMENT MAY BE MOUNTED TO WALL IF MFG GPROVIDED MOUNTING BRACKETS ARE UTILIZED
3. PROVIDE INSTRUMENT TAG NUMBER AND SAMPLE DESCRIPTION ON NAMEPLATE
4. EXISTING TURBIDIMETERS TO BE ACCESSORIZED THE SAME AS NEW.
5. HATCH TURBIDIMETER MODEL ASSUMED.

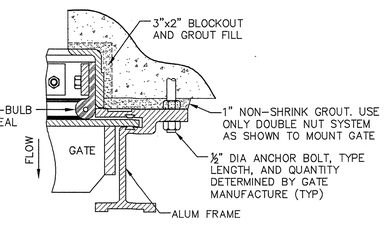
TAG NUMBER	SERVICE	TURBIDIMETER	SAMPLE TAP LOCATION	CORPORATION STOP ORIENTATION	NOTES:
TM–1	MIDDLE FORK RAW WATER	SURFACE SCATTER UNIT	14" RAW WATER LINE IN PLANT BUILDING	SIDE	
TM–2	SOUTH FORK RAW WATER	SURFACE SCATTER UNIT	METER VAULT OR ENERGY RECOVERY BUILDING	TOP	
TM–3	COMBINED RAW WATER	1720E	30" YARD PIPE	NOT REQD, TAP 30" ON SIDE OF PIPE	
TM–4	SED BASIN 1 EFFLUENT	1720E	SED BASIN #1	NOT REQD, TAP EFFLUENT BOX ON SIDE, NEAR THE BOTTOM	RELOCATED FROM PLANT BUILDING
TM–5	SED BASIN 2 EFFLUENT	1720E	SED BASIN #2	NOT REQD, TAP EFFLUENT BOX ON SIDE, NEAR THE BOTTOM	RELOCATED FROM PLANT BUILDING
TM–6	SED BASIN 3 EFFLUENT	1720E	SED BASIN #3	NOT REQD, TAP EFFLUENT BOX ON SIDE, NEAR THE BOTTOM	RELOCATED FROM PLANT BUILDING
TM–7	COMBINED PRE–SED EFFLUENT	1720E	24" PIPE IN AC PIPE GALLERY	TOP	
TM–8	AC–1 EFFLUENT	1720E	IN–WALL BETWEEN GATE AND FILTER EFFLUENT CHANNEL	NOT REQD, TAP ON SIDE OF GATE OPENING, NEAR THE BOTTOM OF THE OPENING	
TM–9	AC–2 EFFLUENT	1720E	IN–WALL BETWEEN GATE AND FILTER EFFLUENT CHANNEL	NOT REQD, TAP ON SIDE OF GATE OPENING, NEAR THE BOTTOM OF THE OPENING	
TM–10	AC–3 EFFLUENT	1720E	IN–WALL BETWEEN GATE AND FILTER INFLUENT CHANNEL	NOT REQD, TAP ON SIDE OF GATE OPENING, NEAR THE BOTTOM OF THE OPENING	
TM–11	COMBINED AC EFFLUENT	1720E	FILTER INFLUENT CHANNEL 1&2 DIFFUSERS	NOT REQD, TURBIDIMETER ACCEPTS SAMPLE PIPING FROM BOTH P–204 AND P–205	
TM–12	FILTER 1 EFFLUENT	1720E	FILTER 1 16" PIPE	TOP	
TM–13	FILTER 2 EFFLUENT	1720E	FILTER 2 16" PIPE	TOP	
TM–14	FILTER 3 EFFLUENT	1720E	FILTER 3 16" PIPE	TOP	
TM–15	FILTER 4 EFFLUENT	1720E	FILTER 4 18" PIPE	TOP	
TM–16	FILTER 5 EFFLUENT	1720E	FILTER 5 16" PIPE	TOP	
TM–17	FILTER 6 EFFLUENT	1720E	FILTER 6 16" PIPE	TOP	
TM–18	FILTER 7 EFFLUENT	1720E	FILTER 7 16" PIPE	TOP	
TM–19	FILTER 8 EFFLUENT	1720E	FILTER 8 16" PIPE	TOP	
TM–20	COMBINED FILTER EFFLUENT	1720E	FILTER INFLUENT CHANNEL 1&2 DIFFUSERS	NOT REQD	
TM–21	FINISHED WATER	1720E	AT 4" PW IN PLANT BUILDING	NOT REQD	

TURBIDIMETER INSTALLATION

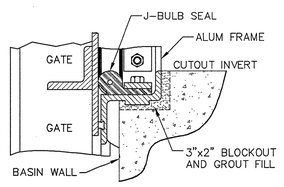
SCALE: NO SCALE

M038 TYP





SECTION A



SECTION B

NOTES:
1. ALUM IN CONTACT WITH CONC SHALL BE FIELD PAINTED.

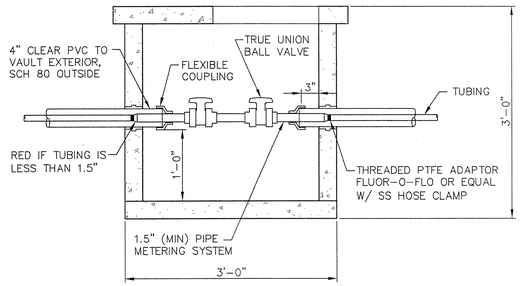
SECTION – DOWNWARD OPENING SLIDE GATE

SCALE: NO SCALE

M047 TYP

GATE SCHEDULE							
GATE NO.	TYPE	WIDTH	HEIGHT	INV. EL.	OPERATOR	STEM TYPE	'DESIGN HEAD
G101	WALL MOUNTED SLIDE	36"	60"	1791.50	HANDWHEEL	RISING	10'
G102	WALL MOUNTED SLIDE	18"	24"	1804.30	HANDWHEEL	RISING	6'
G103	DOWNWARD OPENING WEIR	36"	42"	1807.14	HANDWHEEL	RISING	2'
G104	DOWNWARD OPENING WEIR	36"	42"	1807.14	HANDWHEEL	RISING	2'
G105	WALL MOUNTED SLIDE	42"	42"	1796.80	HANDWHEEL	RISING	12'
G106	WALL MOUNTED SLIDE	30"	48"	1708.80	HEX NUT	NON RISING	14'
G107	WALL MOUNTED SLIDE	42"	42"	1796.80	HANDWHEEL	RISING	12'
G108	DOWNWARD OPENING WEIR	36"	42"	1807.14	HANDWHEEL	RISING	2'
G109	DOWNWARD OPENING WEIR	36"	42"	1807.14	HANDWHEEL	RISING	2'
G110	WALL MOUNTED SLIDE	18"	24"	1804.30	HANDWHEEL	RISING	6'
G111	WALL MOUNTED SLIDE	48"	48"	1804.34	HANDWHEEL	RISING	5'
G112	WALL MOUNTED SLIDE	48"	48"	1804.34	HANDWHEEL	RISING	5'
G113	WALL MOUNTED SLIDE	36"	36"	1796.80	HANDWHEEL	RISING	12'
G114	WALL MOUNTED SLIDE	36"	36"	1796.80	HANDWHEEL	RISING	12'
G115	WALL MOUNTED SLIDE	48"	48"	1804.50	HANDWHEEL	RISING	6'
G116	WALL MOUNTED SLIDE	48"	48"	1804.50	HANDWHEEL	RISING	6'
G117	WALL MOUNTED SLIDE	36"	72"	1800.50	HANDWHEEL	RISING	9'
G118	WALL MOUNTED SLIDE	18"	24"	1804.30	HANDWHEEL	RISING	5'
G201	WALL MOUNTED SLIDE	24"	72"	1809.00	ELECTRIC (O/C)	RISING	2'
G202	WALL MOUNTED SLIDE	24"	72"	1809.00	ELECTRIC (O/C)	RISING	2'
G203	WALL MOUNTED SLIDE	24"	72"	1809.00	ELECTRIC (O/C)	RISING	2'
G205	WALL MOUNTED SLIDE	48"	48"	1788.50	HANDWHEEL	RISING	10'

* FOR GATE G106 & G117, INSTALL AS CLOSE TO BOTTOM OF THE BASIN AS POSSIBLE.



PULL/ VALVE BOX DETAIL

SCALE: NOT TO SCALE

M064 TYP

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD
MECHANICAL DETAILS

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Drawn: GTS/CDH
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M005

LEGEND

———	DRAIN, WASTE AND VENT PIPING
— — — — —	COLD WATER PIPING
— — — — — —	HOT WATER PIPING
——— NPW ———	NON–POTABLE WATER PIPE
——— ES ———	EMERGENCY SHOWER/ EYEWASH STATION
VPU	VENT PIPE UP
VPTR	VENT PIPE THROUGH ROOF
BFP	BACKFLOW PREVENTER
HB	HOSE BIBB
WH	WALL HYDRANT
C.I.	CAST IRON
CU	COPPER
WCO	WALL CLEANOUT
FCO	FLOOR CLEANOUT
YCO	YARD CLEANOUT
⋈	BRONZE GATE VALVE, LINE SIZE

GENERAL PLUMBING NOTES:

A. INSTALL SHUTOFF VALVES AT EACH FIXTURE. INSTALL ISOLATION VALVES AT ALL BRANCHES SERVING TWO OF MORE PIECES OF EQUIPMENT. LOCATE AND ORIENT VALVE OPERATORS FOR EASE OF ACCESS AND FULL LIMITS OF OPERATION.

B. PIPING AND SUPPORTS AS SPECIFIED BELOW:

– DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH BRAZED JOINTS. SIZE 1/2" – 1 1/4" PROVIDE HORIZONTAL PIPE SUPPORTS EVERY 5 FEET.

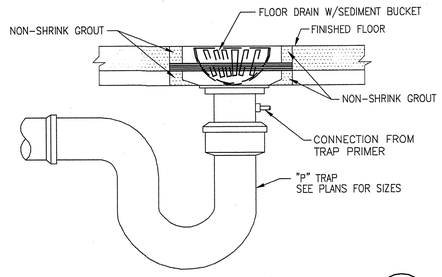
– SANITARY DWV PIPE SHALL BE CAST IRON SOIL PIPE. SIZE 1 1/2" – 4"

C. INSULATION AND VAPOR BARRIER SHALL BE PROVIDED ON ALL HOT WATER, COLD WATER AND HOT WATER RECIRULATION PIPING.

D. PROVIDE CLEANOUTS AT INTERVALS REQUIRED BY CODE AND WHERE SHOWN ON DRAWINGS, WHERE SERVICES EXIT BUILDINGS, AT ENDS OF MAINS, AT ALL REQUIRED CHANGES OF DIRECTIONS.

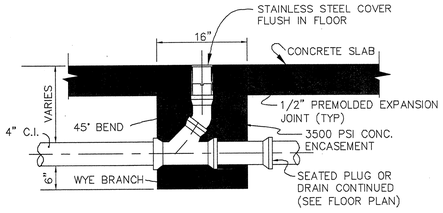
E. ALL PLUMBING SYSTEMS SHALL BE TESTED.

F. PROVIDE WATERTIGHT FLASHING FOR VENT PIPES EXTENDING THROUGH ROOF.



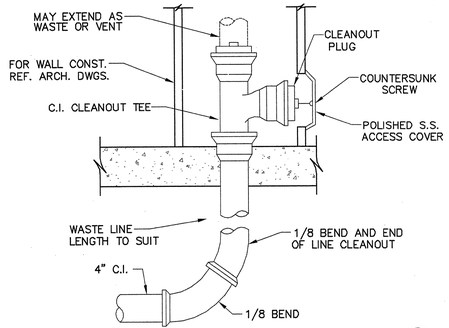
FLOOR DRAIN DETAIL — M006.1 TYP

SCALE: NO SCALE



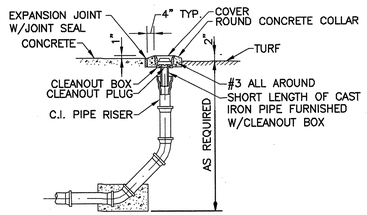
FLOOR CLEANOUT DETAIL — M006.2 TYP

SCALE: NO SCALE



WALL CLEANOUT DETAIL — M006.3 TYP

SCALE: NO SCALE



YARD CLEANOUT DETAIL — M006.4 TYP

SCALE: NO SCALE

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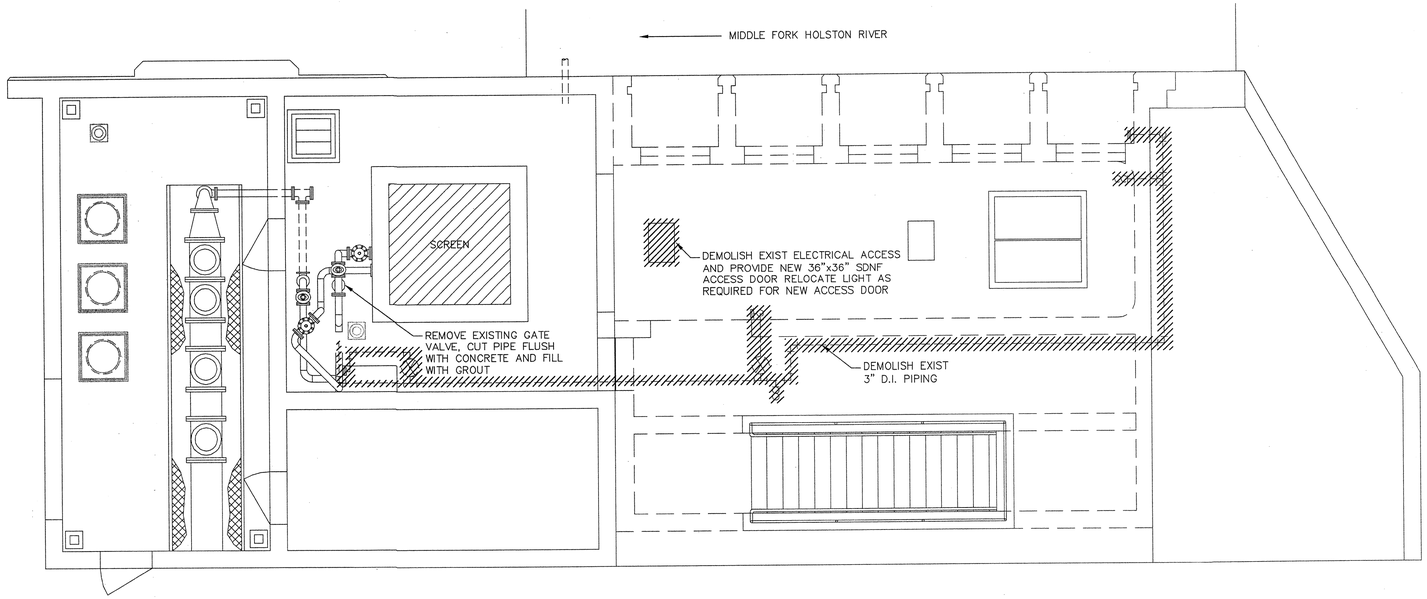
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PLUMBING DETAILS

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M006



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

M101.1 / M101

N

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RAW WATER PUMP STATION IMPROVEMENTS
DEMOLITION PLAN

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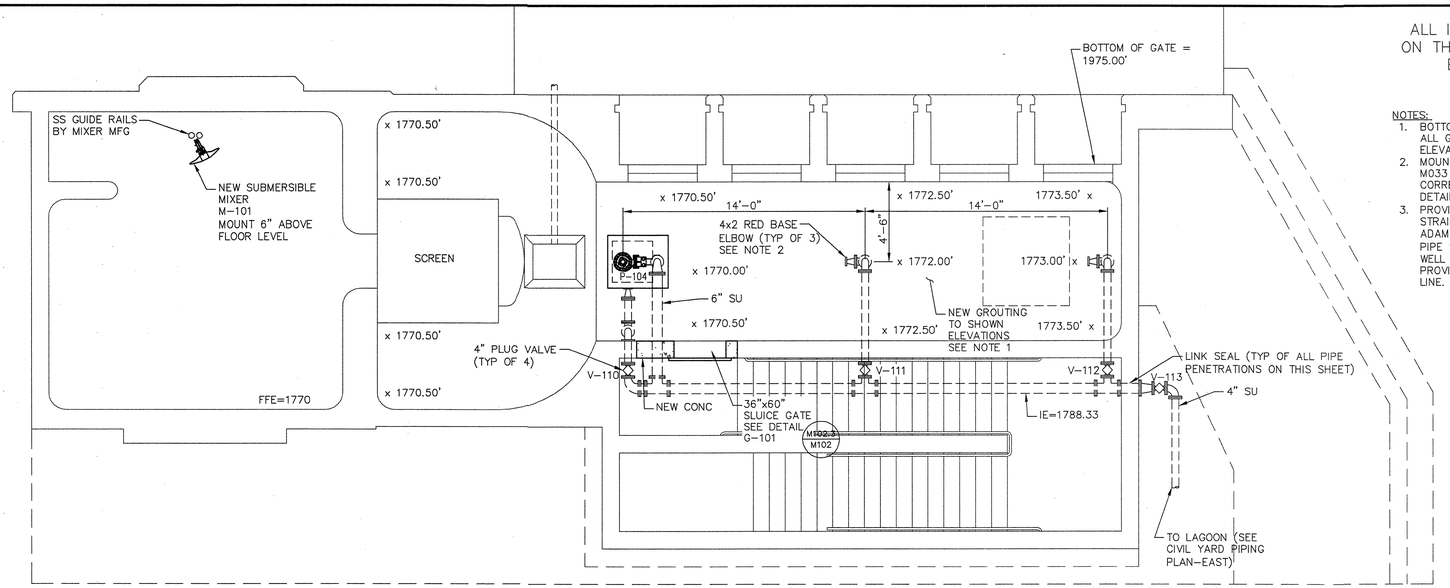
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Archived File Name:

M101

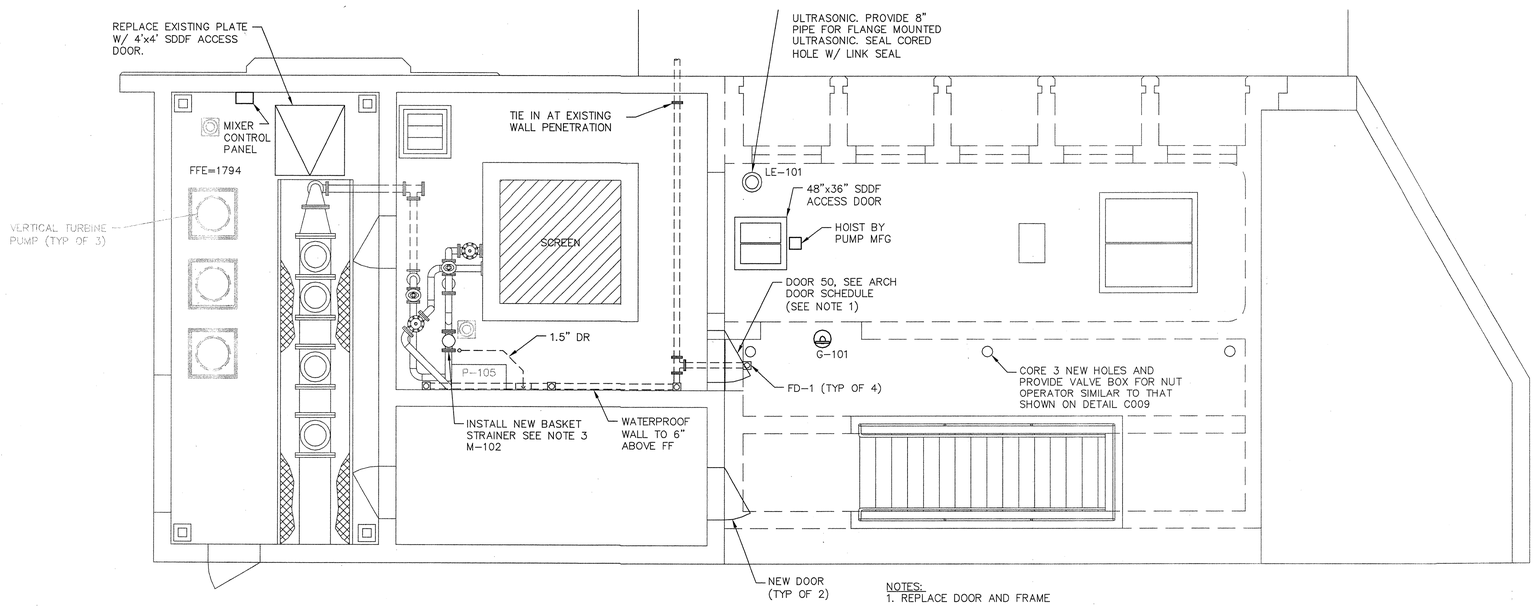
ALL IMPROVEMENTS SHOWN ON THIS PAGE ARE PART OF BID ALTERNATE A

NOTES:
1. BOTTOM ELEVATION OF THE WET WELL IS 1770. ALL GROUT WILL BE APPLIED FROM THIS ELEVATION.
2. MOUNT ALL BASE ELBOWS TO GROUT. PER DETAIL M033 REDUCER INVERT ELEVATION WILL BE THE CORRESPONDING DISTANCE ABOVE GROUT PER DETAIL.
3. PROVIDE 3" HELLAN TYPE TSA SELF CLEANING STRAINER WITH .007 IN WEDGE WIRE SCREEN. RP ADAMS AND HAYWARD ARE ALSO ACCEPTABLE. PIPE 1.5" FLUSH LINE BACK TO RAW WATER WET WELL UNDERNEATH SLAB. STRAINER MFG TO PROVIDE MOTORIZED DRAIN VALVE FOR FLUSH LINE.

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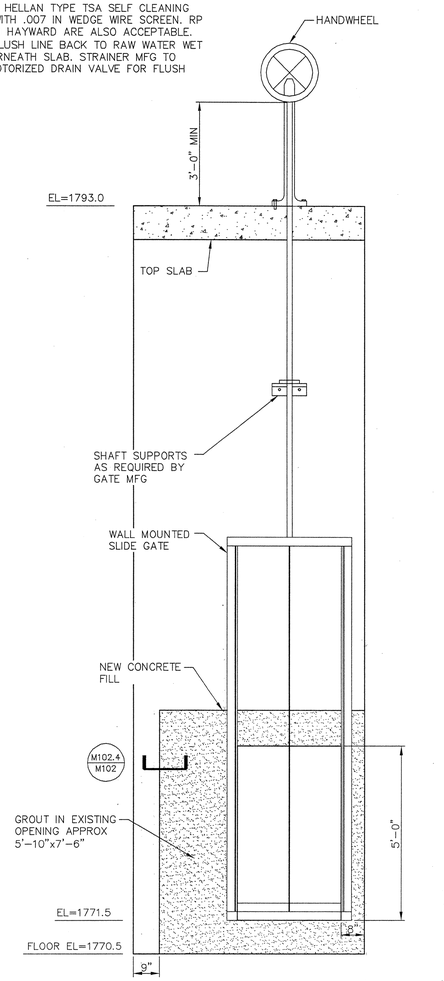


WET WELL LEVEL FLOOR PLAN (M102.1 M102)
SCALE: 1/4""=1'-0"

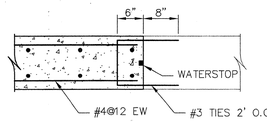


NOTES:
1. REPLACE DOOR AND FRAME

UPPER LEVEL FLOOR PLAN (M102.2 M102)
SCALE: 1/4"=1'-0"



RAW WATER PS SLIDE GATE DETAIL (M102.3 M102)
SCALE: 1/2"=1'-0"



GATE INFILL (M102.4 M102)
SCALE: 3/4"=1'-0"

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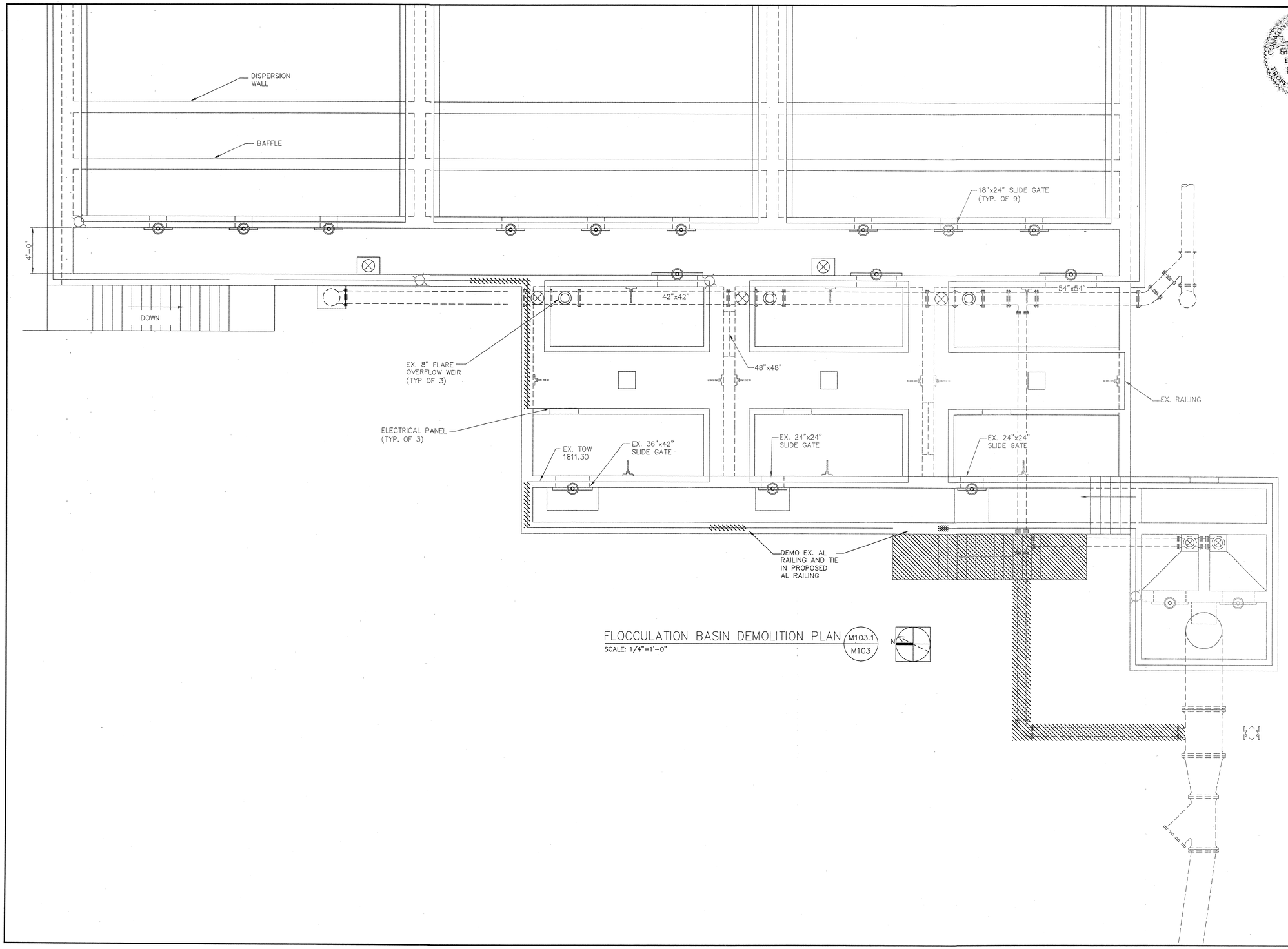
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

RAW WATER PUMP STATION IMPROVEMENTS
BID ALTERNATE A

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M102



FLOCCULATION BASIN DEMOLITION PLAN (M103.1 / M103)
SCALE: 1/4"=1'-0"

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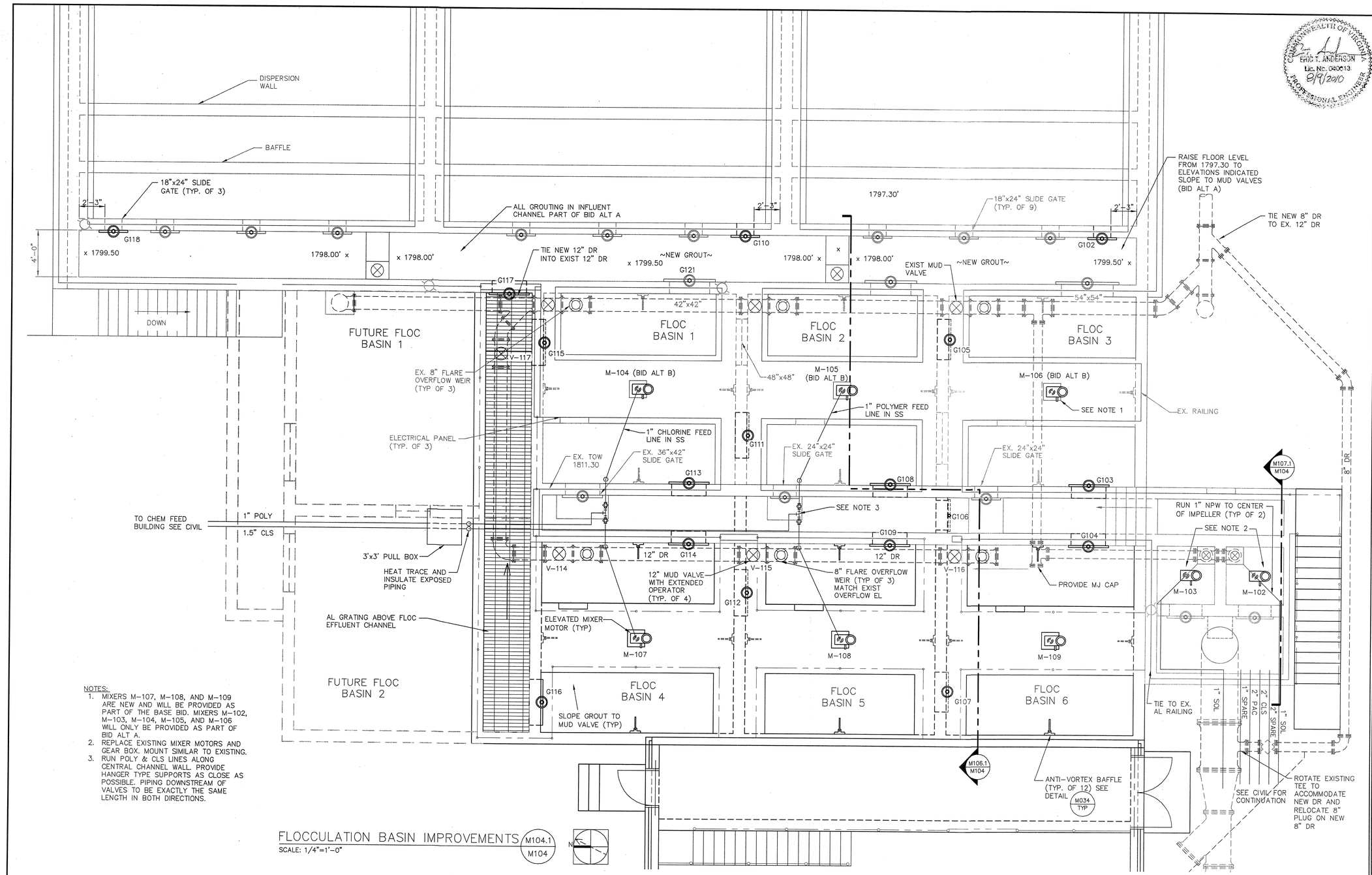
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

FLOCCULATION BASIN IMPROVEMENTS
DEMOLITION PLAN

Rev.	Description	Date	By
A	VDH SUBMITTAL	5/3/10	DBH
B	VDH RESUBMITTAL	7/13/10	ETA

Designed: MJM
Drawn: CDH
Checked: ETA
Date: OCT 2009
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M103



NOTES:
1. MIXERS M-107, M-108, AND M-109 ARE NEW AND WILL BE PROVIDED AS PART OF THE BASE BID. MIXERS M-102, M-103, M-104, M-105, AND M-106 WILL ONLY BE PROVIDED AS PART OF BID ALT A.
2. REPLACE EXISTING MIXER MOTORS AND GEAR BOX. MOUNT SIMILAR TO EXISTING.
3. RUN POLY & CLS LINES ALONG CENTRAL CHANNEL WALL. PROVIDE HANGER TYPE SUPPORTS AS CLOSE AS POSSIBLE. PIPING DOWNSTREAM OF VALVES TO BE EXACTLY THE SAME LENGTH IN BOTH DIRECTIONS.

FLOCCULATION BASIN IMPROVEMENTS M104.1 / M104

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

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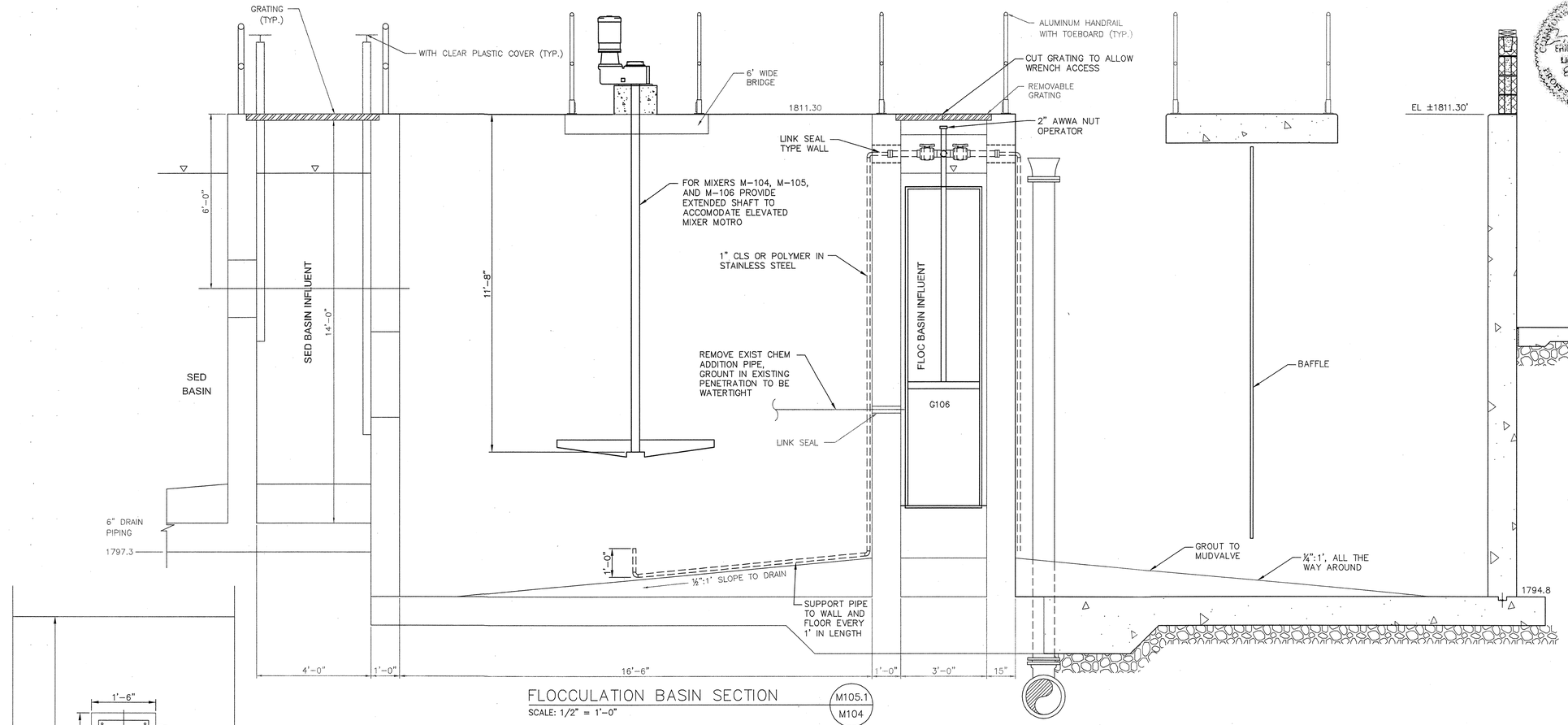
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MIDDLE FORK WTP UPGRADE TO 12 MGD
FLOCCULATION BASIN IMPROVEMENTS

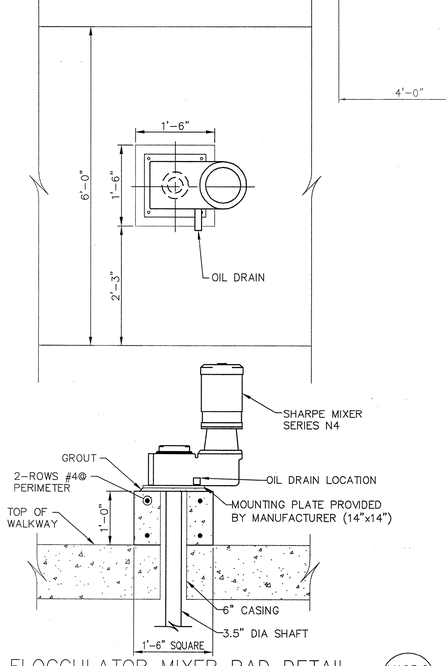
Rev.	Description	Date	By
B	VDH RESUBMITTAL	7/13/10	ETA
A	VDH SUBMITTAL	5/3/10	CDH

Designed: MJM
Drawn: CDH
Checked: ETA
Date: OCT 2009
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Job No. 12367.13
Archived File Name:

M104



FLOCCULATION BASIN SECTION (M105.1 / M104)
SCALE: 1/2" = 1'-0"



FLOCCULATOR MIXER PAD DETAIL (M105.2 / M103)
SCALE: 1/4"=1'-0"

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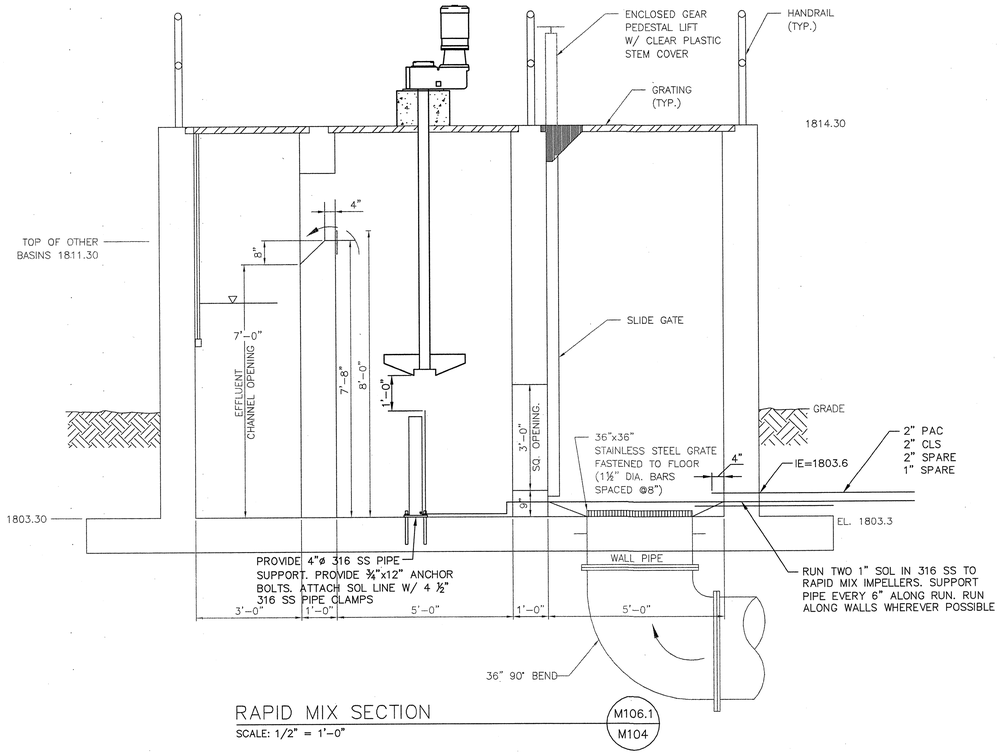
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FLOCCULATION BASIN DETAILS

By	Date	Description	Rev.
CDH	7/13/10	VDH RESUBMITTAL	B
ETA	5/3/10	VDH SUBMITTAL	A

Designed: MJM
Drawn: CDH
Checked: JGN
Date: JULY 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M105



RAPID MIX SECTION

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

M106.1
M104

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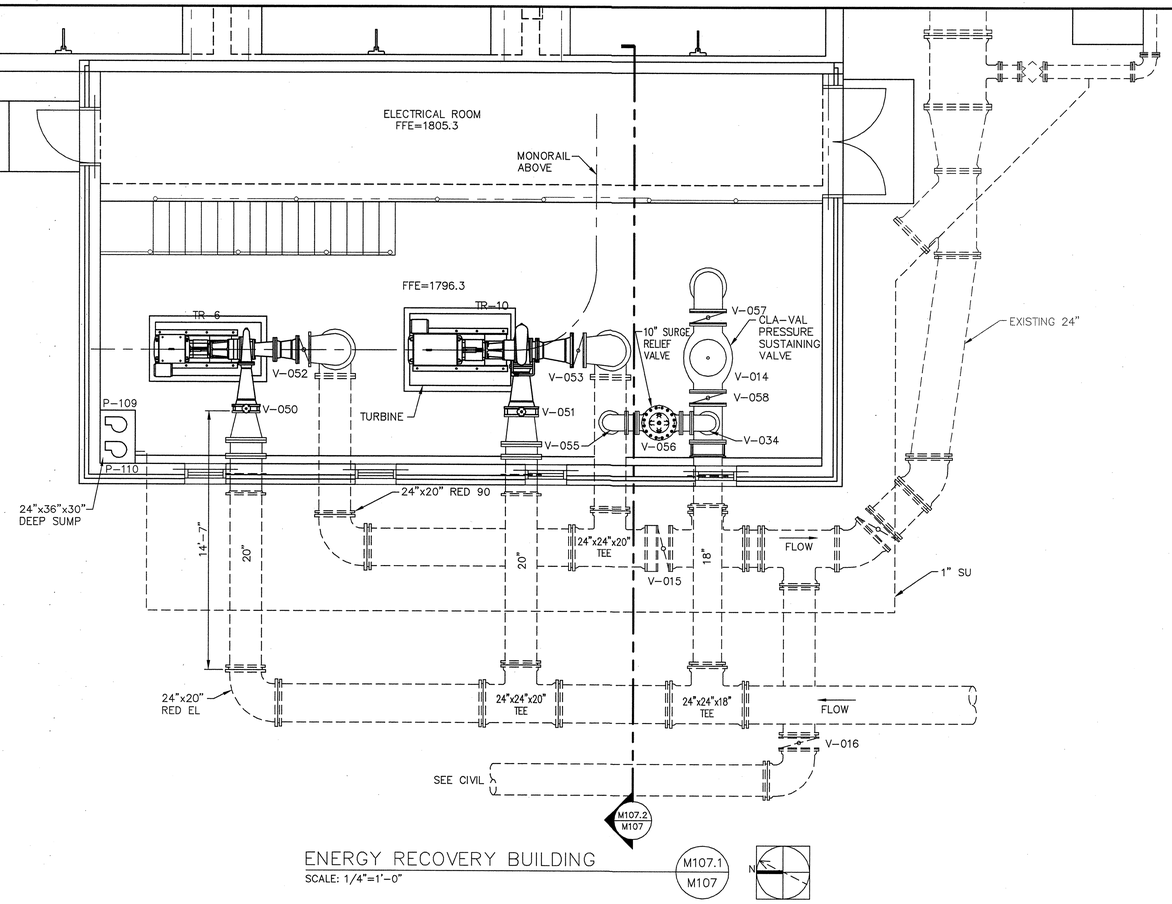
WASHINGTON COUNTY SERVICE AUTHORITY
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FLOCCULATION BASIN DETAILS

Rev.	Description	Date	By
B	VDH RESUBMITTAL	7/13/10	ETA
A	VDH SUBMITTAL	5/3/10	DBH

Designed: MJM
Drawn: CDH
Checked: JGN
Date: JULY 2010
Scale: AS SHOWN
Job No. 12367.13
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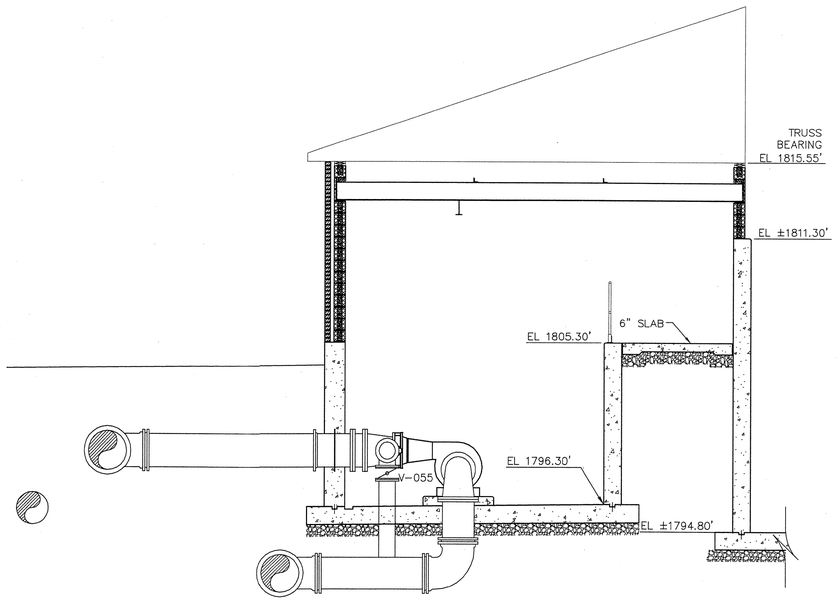
M106



ENERGY RECOVERY BUILDING

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

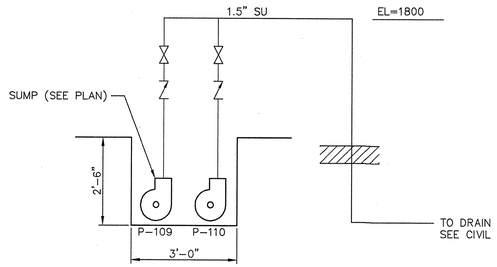
M107.1 / M107



ENERGY RECOVERY SECTION

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

M107.2 / M107



SUMP SCHEMATIC DETAIL

SCALE: NTS

M107.3 / M107

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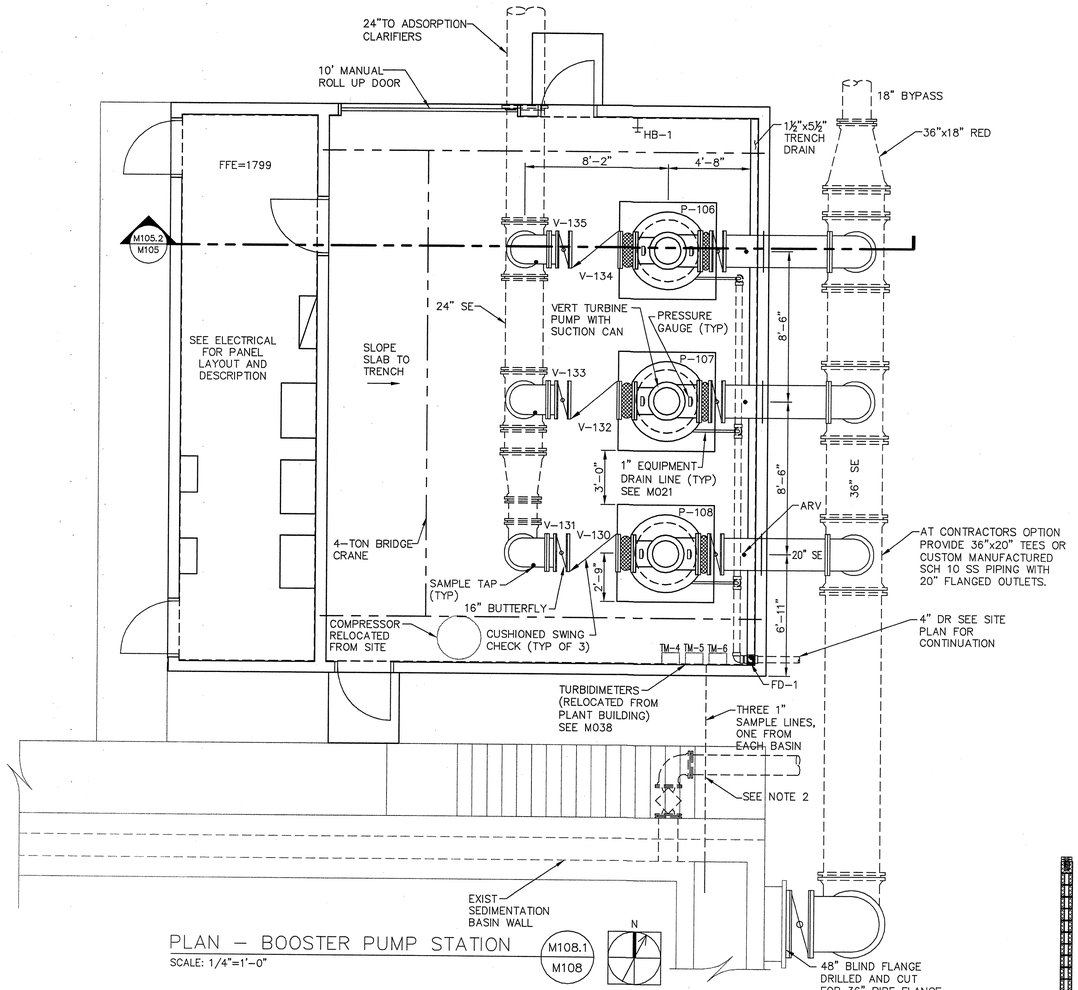
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MIDDLE FORK WTP UPGRADE TO 12 MGD
ENERGY RECOVERY BUILDING

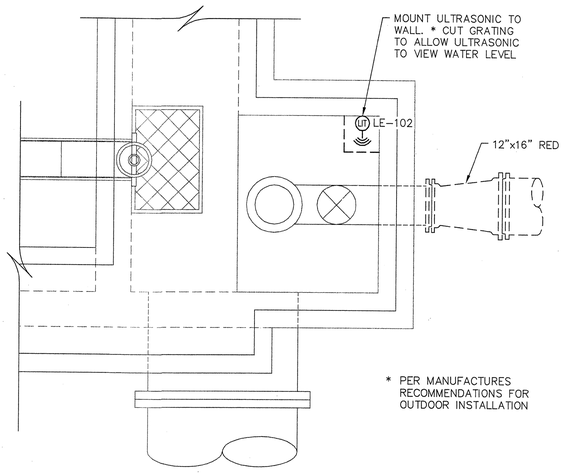
Rev.	Description	Date	By
B	BID ISSUE	8/9/10	ETA
A	VDH RESUBMITTAL	7/13/10	ETA

Designed: ETA
Drawn: CDH
Checked: ETA
Date: JUNE 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

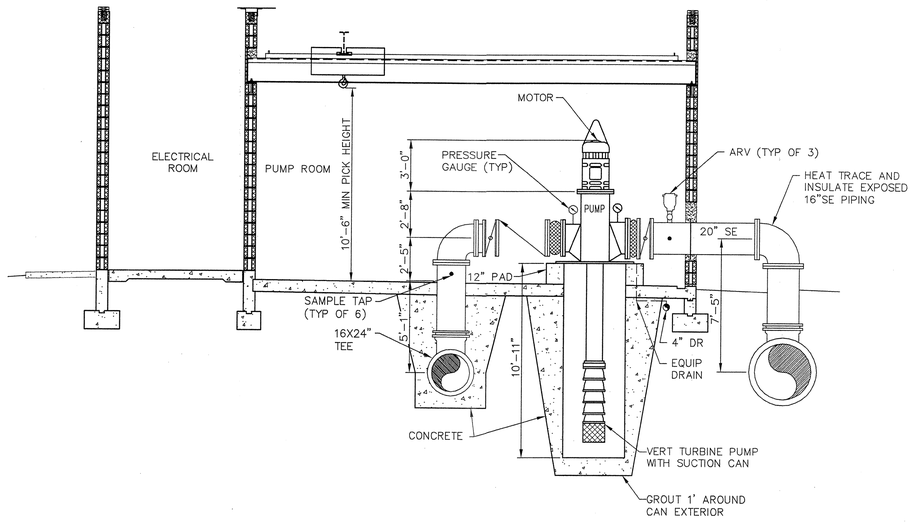
M107



PLAN – BOOSTER PUMP STATION (M108.1 / M108)
SCALE: 1/4"=1'-0"



SEDIMENTATION BASIN ULTRASONIC (M108.3 / M108)
SCALE: 1/2"=1'-0"



SECTION – BOOSTER PUMP STATION (M108.2 / M108)
SCALE: 1/4"=1'-0"

NOTES:
1. NOTIFY OWNER OF INTENT TO DRAIN SEDIMENTATION BASIN EFFLUENT CHANNEL AT LEAST TWO WEEKS PRIOR TO WORK. CHANNEL MAY ONLY BE OUT OF SERVICE FOR A MAXIMUM OF 4 HOURS.
2. RUN 1" SAMPLE LINES AT ELEVATION 1808 IN SEDIMENTATION BASIN. TERMINATE LINES IN CLOSEST EFFLUENT BOX IN EACH SED BASIN AS SHOWN ON C103. RUN LINES OUT OF SEDIMENTATION BASIN NEAR THE BOTTOM OF THE EFFLUENT CHANNEL, BELOW GRADE. ENTER THE BOOSTER PUMP STATION THROUGH THE FLOOR. ALL UNDERGROUND SMP PIPING TO BE CONTAINED SIMILAR TO CHEMICAL PIPING.

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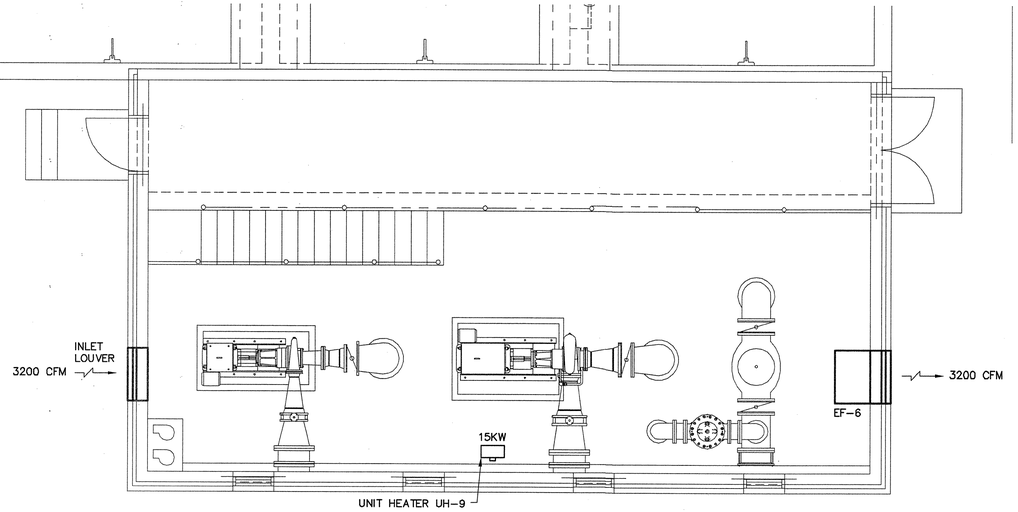
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MIDDLE FORK WTP UPGRADE TO 12 MGD

BOOSTER PUMP STATION
PLAN AND SECTIONS

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

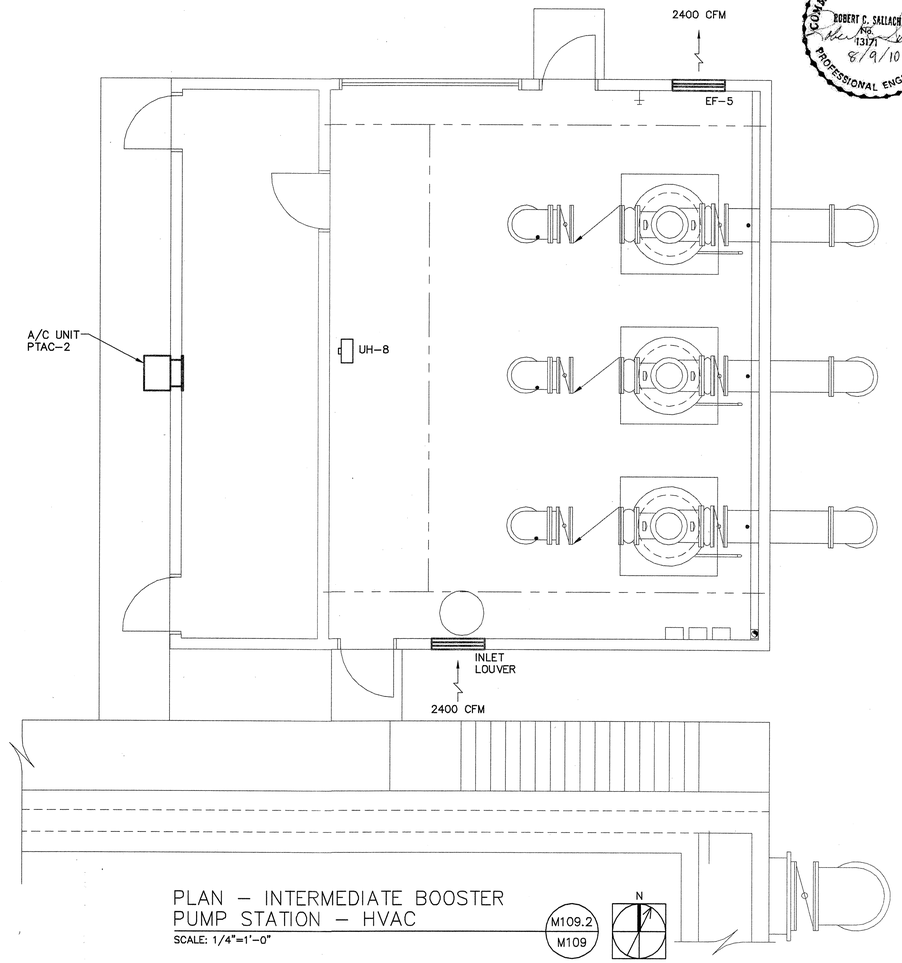
M108



ENERGY RECOVERY BUILDING – HVAC
SCALE: 1/4"=1'-0"

M109.1
M109

N



PLAN – INTERMEDIATE BOOSTER
PUMP STATION – HVAC
SCALE: 1/4"=1'-0"

M109.2
M109

N

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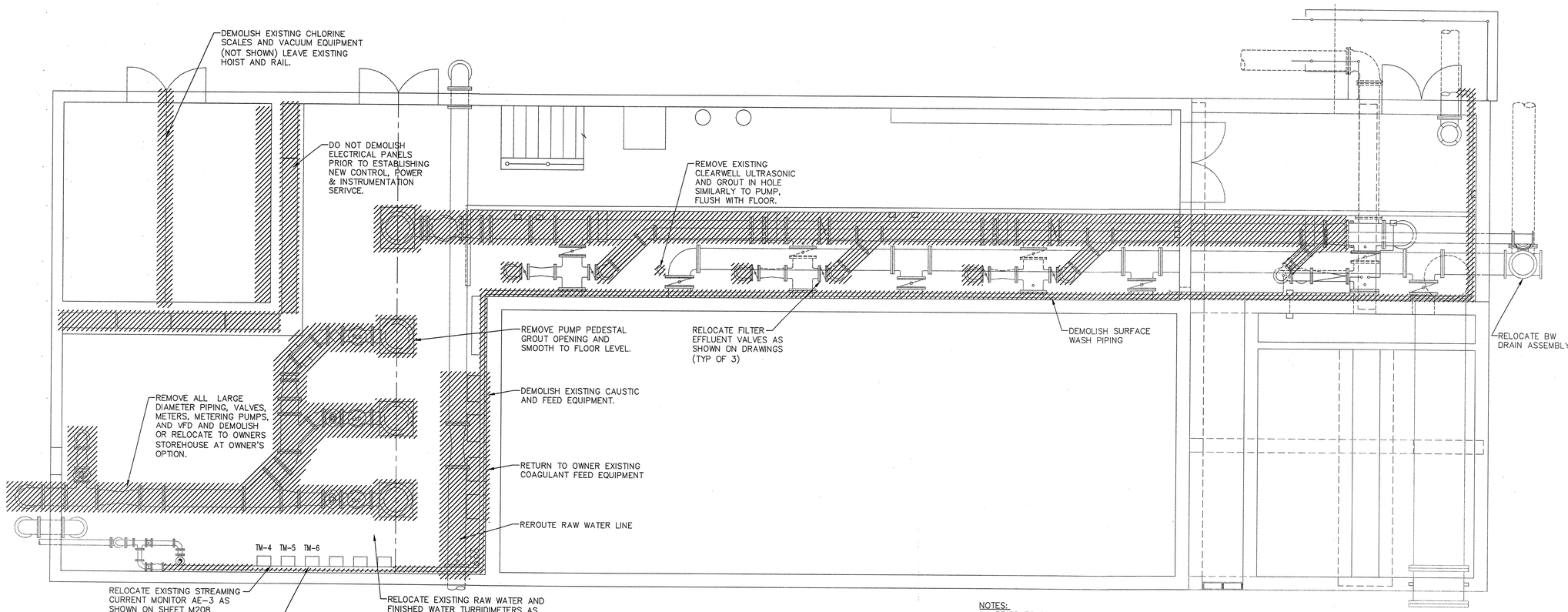
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

ENERGY RECOVERY BUILDING &
BOOSTER PUMP STATION HVAC PLANS

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

Designed:	RCM
Drawn:	CDH
Checked:	RCM
Date:	JULY 2010
Scale:	AS SHOWN
Job No.	12367.13
Archived File Name:	

M109



PLANT BUILDING
BOTTOM FLOOR DEMOLITION PLAN

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

M201.1 / M201

N

NOTES:

1. PRIOR TO REMOVAL OFFER ALL EQUIPMENT, VALVES, PIPING, AND INSTRUMENTS TO OWNER.
2. REFER TO SPECIAL CONDITIONS SPEC SECTION 1060 FOR PLANNING.
3. REMOVE ALL UNUSED PIPING, CONDUIT, WIRING AND OTHER NON-OPERATIONAL EQUIPMENT MOUNTED TO THE WALL AND CEILING IN PIPE GALLERY. FILL IN ALL HOLES IN WALL AND FLOOR AND MAKE SUITABLE FOR PAINTING.
4. REMOVE EXISTING ROOFING SYSTEM IN ITS ENTIRETY DOWN TO THE EXISTING METAL DECK TO REMAIN.
5. COORDINATE WITH OWNER TO GAIN ACCESS TO ALL SPACES INDICATED. COORDINATE WITH OWNER TO SCHEDULE AND SEQUENCE ALL WORK ACTIVITIES.
6. NOTE THAT THE EXISTING BUILDING AND PARKING AREAS WILL BE OCCUPIED BY STAFF AND VISITORS DURING THE CONSTRUCTION OF THE ADDITION TO THE EXISTING BUILDING. PERFORM ALL WORK ACTIVITIES AND MATERIAL HANDLING AND STORAGE ACTIVITIES IN A MANNER THAT IS SAFE AND THAT WILL PROTECT ALL BUILDING OCCUPANTS, VISITORS, AND THIER PERSONAL PROPERTY FROM HARM.
7. COORDINATE DEMOLITION AND WORK ACTIVITIES SO THAT THE NEW ADDITION IS CONSTRUCTED FIRST, SO THAT THE OWNER MAY MOVE FROM THEIR CURRENT LOCATIONS IN THE EXISTING BUILDING TO THE NEW ADDITION PRIOR TO PERFORMING DEMOLITION AND NEW CONSTRUCTION IN THE EXISTING BUILDING AS DESCRIBED IN THE SPECIAL CONDITIONS SECTION 1060.
8. COORDINATE DEMOLITION AND NEW WORK ACTIVITIES SO THAT UTILITIES, SERVICES AND ACCESS IS NOT INTERRUPTED TO THE EXISTING BUILDING WHILE NEW ADDITION IS BEING CONSTRUCTED.
9. PROVIDE ALL NECESSARY AND REQUIRED TEMPORARY BARRIERS SUCH AS CAUTION TAPE, TEMPORARY BARRICADES, AND OTHER ITEMS TO PROHIBIT THE BUILDING OCCUPANTS FROM BEING INJURED DUE TO CONSTRUCTION ACTIVITIES.
10. DEMOLISH ALL ELECTRICAL, MECHANICAL, AND MISC. ITEMS THAT ARE ASSOCIATED WITH ITEMS WHICH ARE INDICATED TO BE DEMOLISHED, UNLESS OTHERWISE NOTED.
11. PATCH AND FINISH TO MATCH EXISTING ANY SURFACES AFFECTED BY DEMOLITION ACTIVITIES.
12. PATCH AND PREPARE ALL EXISTING CONSTRUCTION AS REQUIRED FOR INSTALLATION OF NEW WORK.
13. SHORE AND BRACE ALL EXISTING CONSTRUCTION AS REQUIRED DURING DEMOLITION ACTIVITIES.
14. DISPOSE OF ALL DEBRIS OFF SITE IN A LEGAL MANNER.
15. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO BEGINNING DEMOLITION WORK ACTIVITIES.
16. PROTECT EXISTING CONSTRUCTION THAT IS TO REMAIN AGAINST DAMAGE AND SOILING DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.

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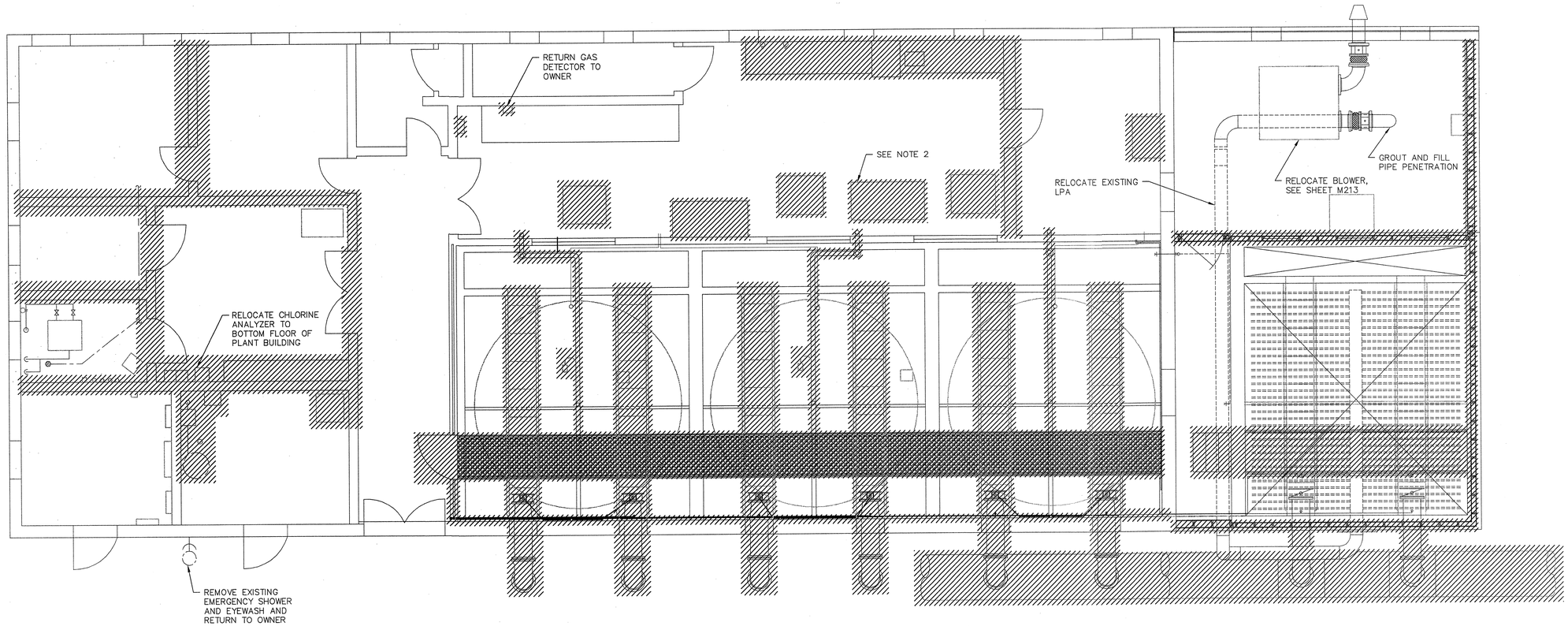
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MIDDLE FORK WTP UPGRADE TO 12 MDG
TREATMENT PLANT BUILDING
BOTTOM FLOOR DEMOLITION PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M201



PLANT BUILDING
TOP FLOOR DEMOLITION PLAN

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

M202.1
M202

N

NOTES:

1. PRIOR TO REMOVAL OFFER ALL EQUIPMENT, VALVES, PIPING, AND INSTRUMENTS TO OWNER.
2. EXISTING PLANT CONTROL SYSTEM HAS TO REMAIN IN OPERATION UNTIL NEW CONTROLS ARE AVAILABLE. EXISTING TANK CONTROL SYSTEM AND COMPUTER MUST STAY IN OPERATION.
3. REMOVE ALL UNUSED PIPING, CONDUIT, WIRING AND OTHER NON-OPERATIONAL EQUIPMENT MOUNTED TO THE WALL AND CEILING IN PIPE GALLERY. FILL IN ALL HOLES IN WALL AND FLOOR AND MAKE SUITABLE FOR PAINTING.
4. REMOVE EXISTING ROOFING SYSTEM IN ITS ENTIRETY DOWN TO THE EXISTING METAL DECK TO REMAIN.
5. COORDINATE WITH OWNER TO GAIN ACCESS TO ALL SPACES INDICATED. COORDINATE WITH OWNER TO SCHEDULE AND SEQUENCE ALL WORK ACTIVITIES.
6. NOTE THAT THE EXISTING BUILDING AND PARKING AREAS WILL BE OCCUPIED BY STAFF AND VISITORS DURING THE CONSTRUCTION OF THE ADDITION TO THE EXISTING BUILDING. PERFORM ALL WORK ACTIVITIES AND MATERIAL HANDLING AND STORAGE ACTIVITIES IN A MANNER THAT IS SAFE AND THAT WILL PROTECT ALL BUILDING OCCUPANTS, VISITORS, AND THIER PERSONAL PROPERTY FROM HARM.
7. COORDINATE DEMOLITION AND WORK ACTIVITIES SO THAT THE NEW ADDITION IS CONSTRUCTED FIRST, SO THAT THE OWNER MAY MOVE FROM THEIR CURRENT LOCATIONS IN THE EXISTING BUILDING TO THE NEW ADDITION PRIOR TO PERFORMING DEMOLITION AND NEW CONSTRUCTION IN THE EXISTING BUILDING.
8. COORDINATE DEMOLITION AND NEW WORK ACTIVITIES SO THAT UTILITIES, SERVICES AND ACCESS IS NOT INTERRUPTED TO THE EXISTING BUILDING WHILE NEW ADDITION IS BEING CONSTRUCTED.
9. PROVIDE ALL NECESSARY AND REQUIRED TEMPORARY BARRIERS SUCH AS CAUTION TAPE, TEMPORARY BARRICADES, AND OTHER ITEMS TO PROHIBIT THE BUILDING OCCUPANTS FROM BEING INJURED DUE TO CONSTRUCTION ACTIVITIES.
10. DEMOLISH ALL ELECTRICAL, MECHANICAL, AND MISC. ITEMS THAT ARE ASSOCIATED WITH ITEMS WHICH ARE INDICATED TO BE DEMOLISHED, UNLESS OTHERWISE NOTED.
11. PATCH AND FINISH TO MATCH EXISTING ANY SURFACES AFFECTED BY DEMOLITION ACTIVITIES.
12. PATCH AND PREPARE ALL EXISTING CONSTRUCTION AS REQUIRED FOR INSTALLATION OF NEW WORK.
13. SHORE AND BRACE ALL EXISTING CONSTRUCTION AS REQUIRED DURING DEMOLITION ACTIVITIES.
14. DISPOSE OF ALL DEBRIS OFF SITE IN A LEGAL MANNER.
15. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO BEGINNING DEMOLITION WORK ACTIVITIES.
16. PROTECT EXISTING CONSTRUCTION THAT IS TO REMAIN AGAINST DAMAGE AND SOILING DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.

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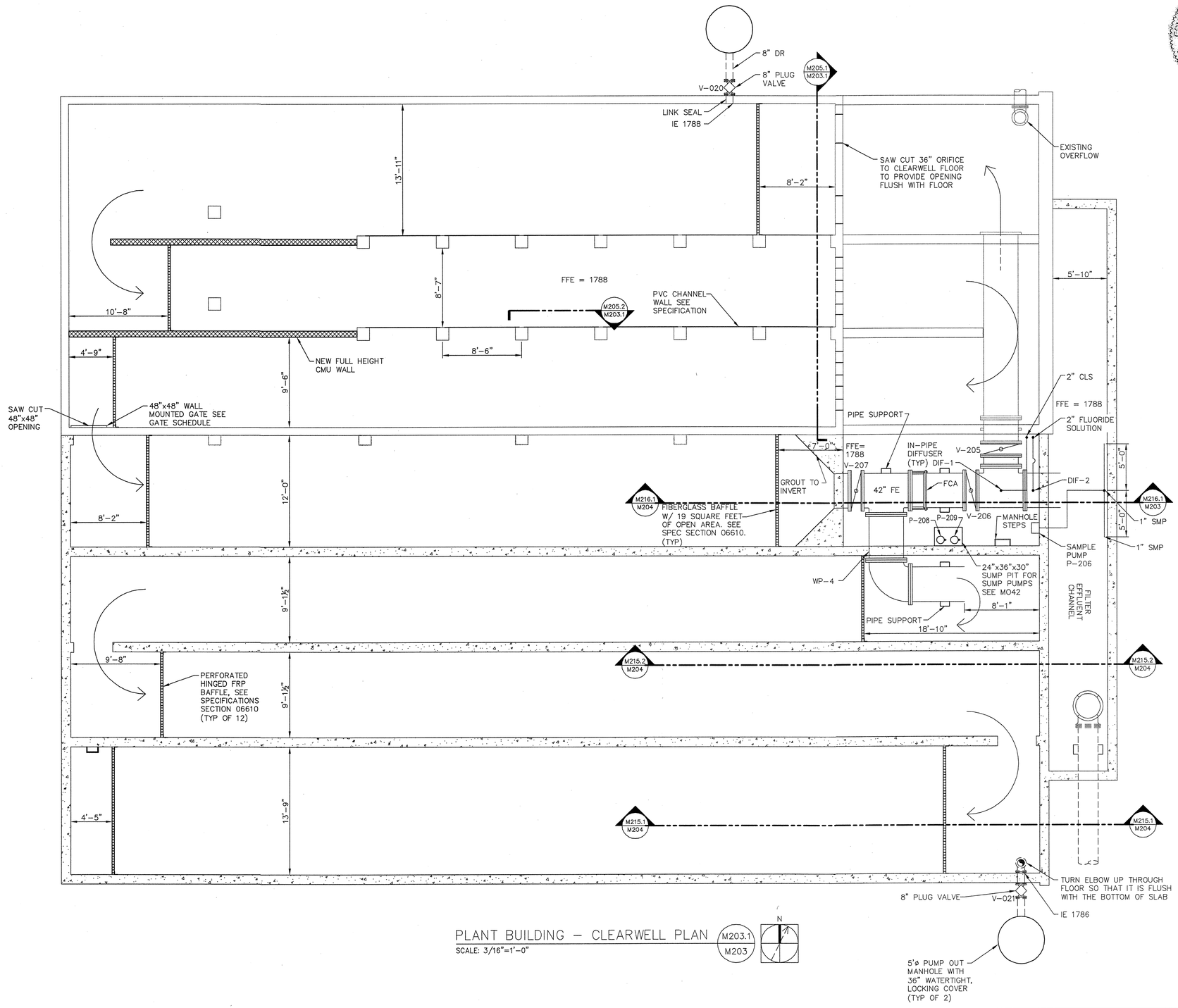
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MDG

TREATMENT PLANT BUILDING
TOP FLOOR DEMOLITION PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M202



PLANT BUILDING – CLEARWELL PLAN (M203.1 / M203)

SCALE: 3/16"=1'-0"

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THE LANE GROUP
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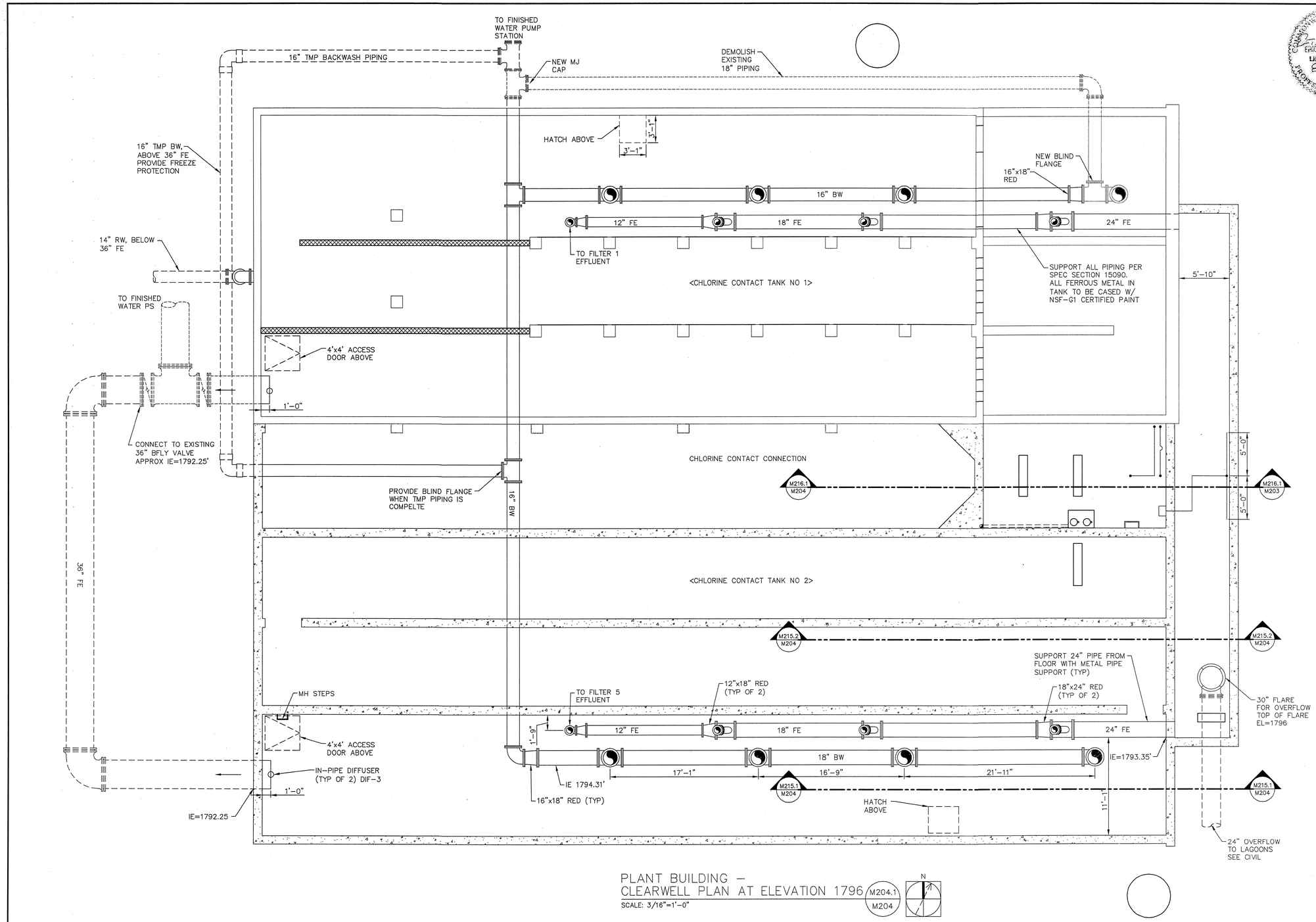
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
CLEARWELL PLAN AT ELEVATION 1789

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	ETA
D	BID ISSUE	8/9/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M203



PLANT BUILDING – CLEARWELL PLAN AT ELEVATION 1796 (M204.1 / M204)

SCALE: 3/16"=1'-0"

N

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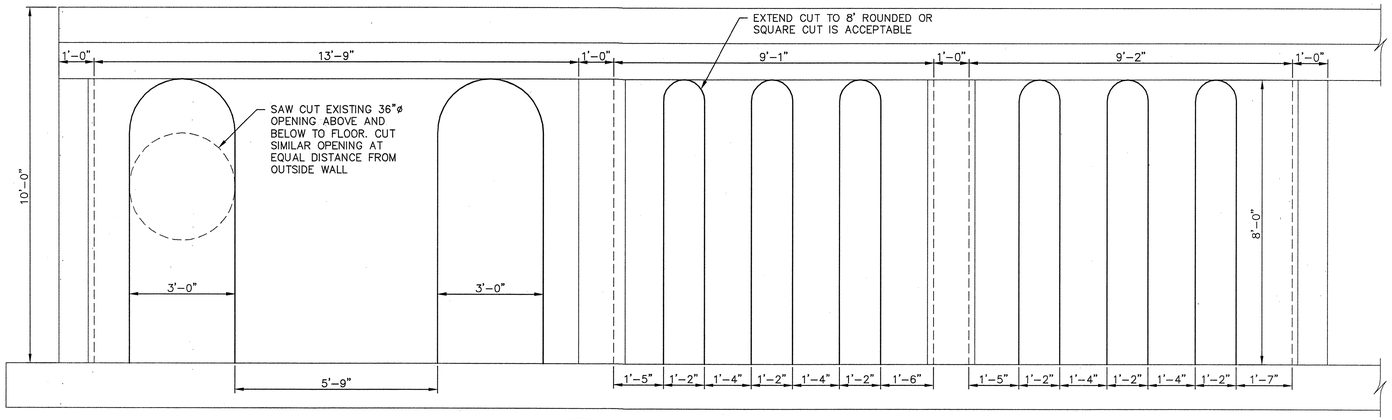
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
CLEARWELL PLAN AT ELEVATION 1796

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/22/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

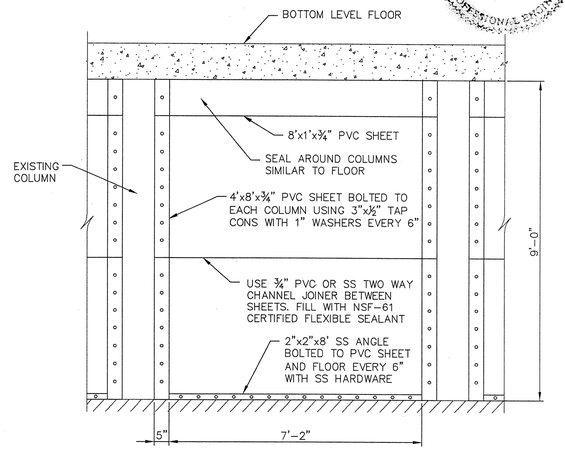
M204



NOTES:
1. OVERCUT ALL DIMENSIONS BY 1". FILL TO SHOWN DIMENSIONS USING NSF CERTIFIED NON-SHRINK GROUT. DRILL VISIBLE REBAR ½" INTO WALL PRIOR TO FILLING.
2. 14" WIDE CUTS LOCATION SHALL BE ADJUSTED TO MISS VERTICAL SECTIONS OF REBAR.

CLEARWELL WALL MODIFICATION — M205.1 / M203

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



PVC CHANNEL WALL — M205.2 / M203

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

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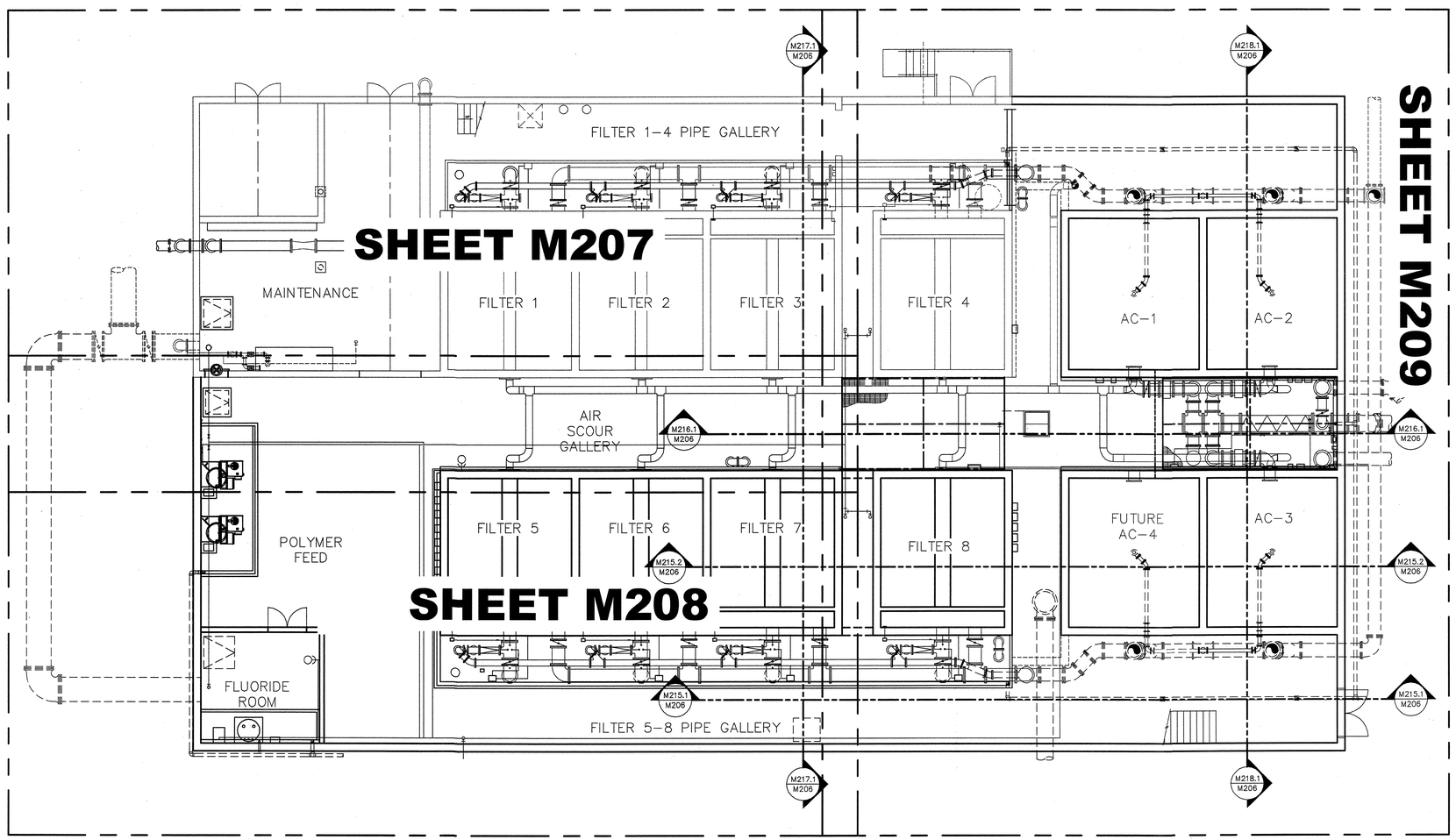
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
CLEARWELL SECTIONS & DETAILS

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M205



TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

SCALE: 1/8"=1'-0"

M206.1
M206

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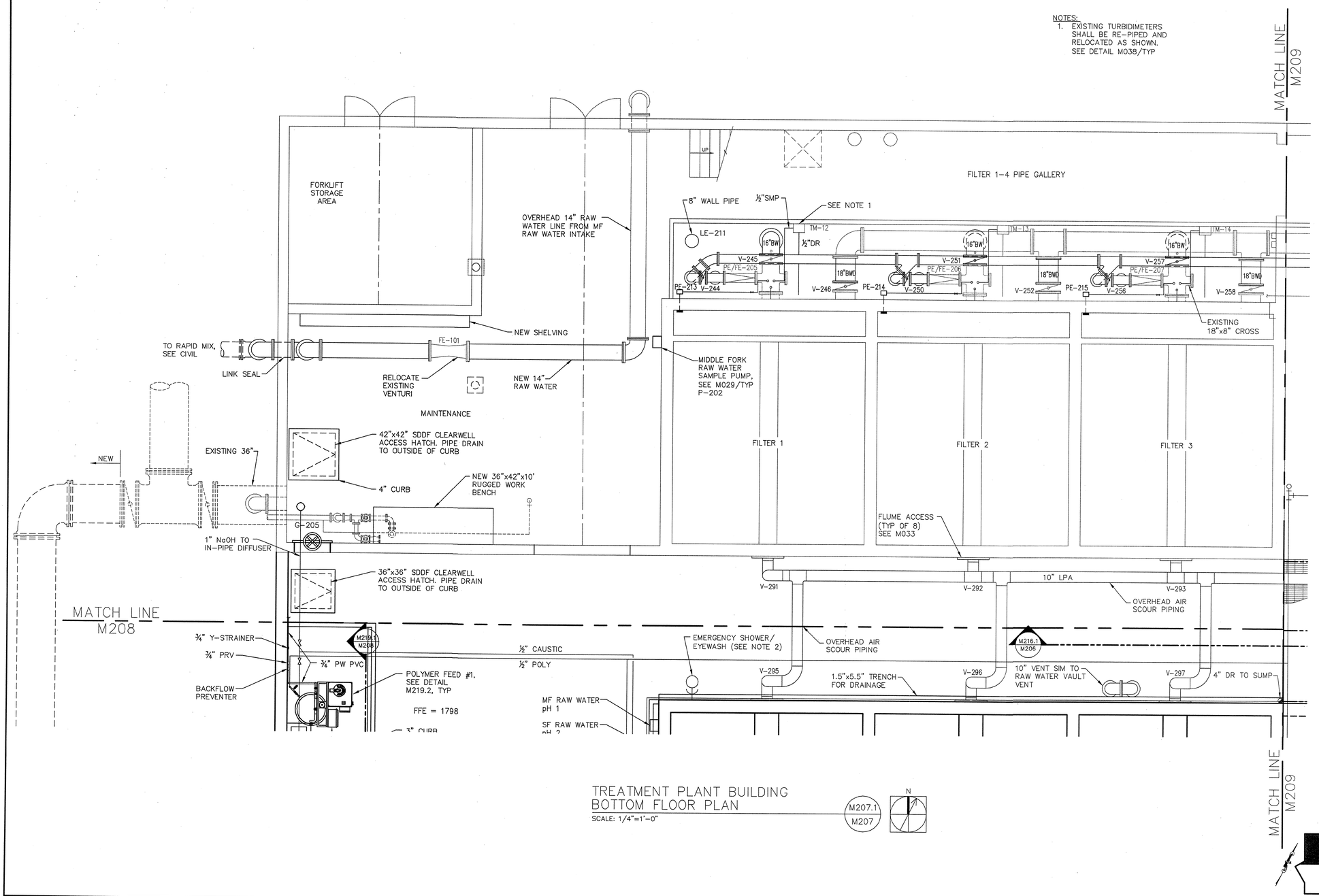
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN INDEX

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M206



TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

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

M207.1
M207

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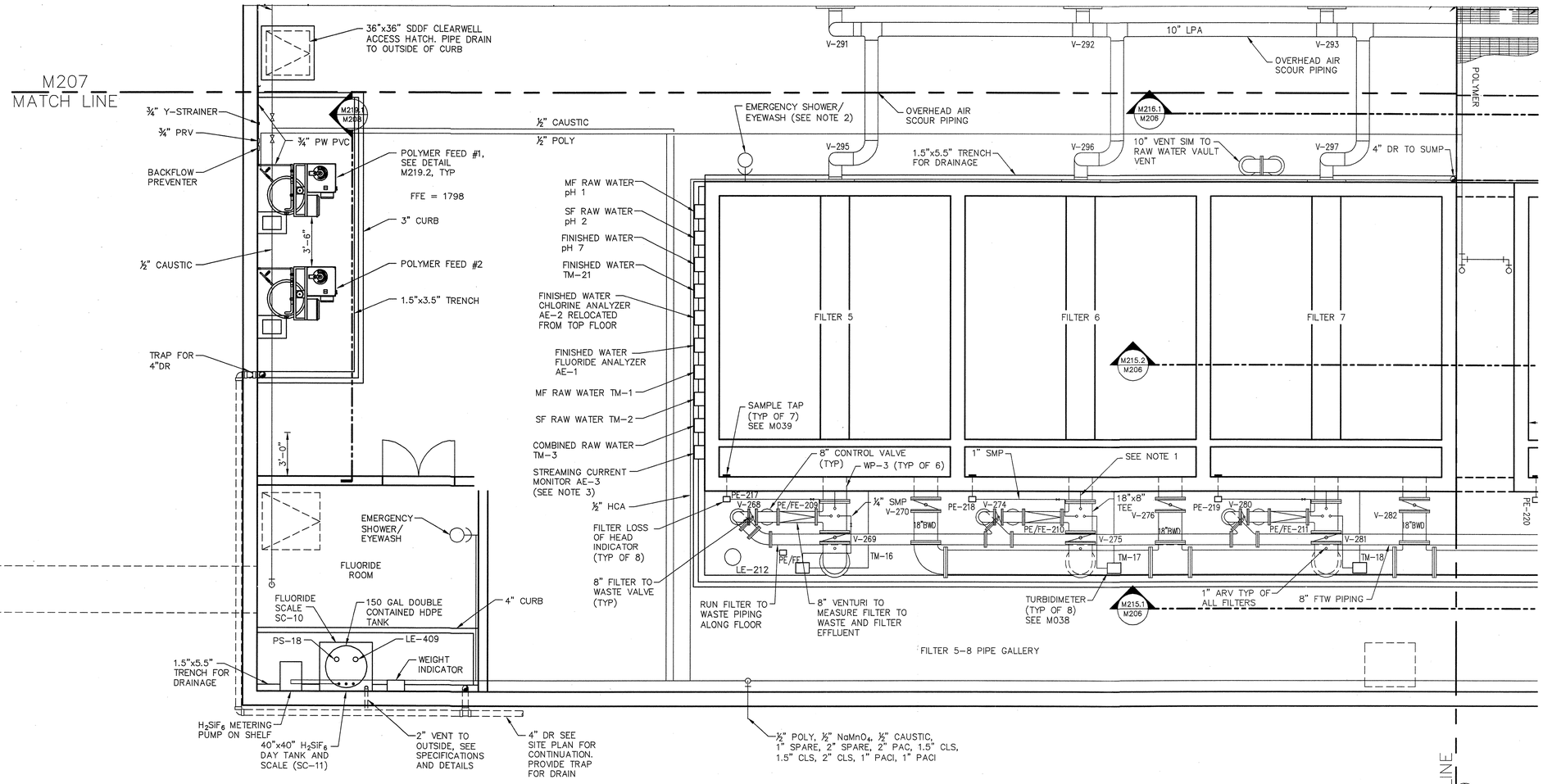
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M207



TREATMENT PLANT BUILDING BOTTOM FLOOR PLAN

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

M208.1
M208

N

NOTES:

1. TAP EACH FILTER EFFLUENT IN 16" OR 18" TEE W/ 1"SMP, RUN TO WALL. RUN 1" CLEAR PVC ALONG WALL TO THE CEILING OF THE BOTTOM FLOOR. PROVIDE STAFF GAUGE FOR LEVEL MEASUREMENT IN THE TUBE, WITH 50 DIVISIONS PER FOOT, ATTACHED TO THE WALL AND MARKED WITH ELEVATIONS IN FEET. IN ADDITION PROVIDE TAPS FOR SMP LINES TO TURBIDIMETER AND DIFFERENTIAL HEAD TRANSMITTER AS SHOWN.
2. STREAMING CURRENT MONITOR AE-3 TO BE PIPED TO ACCEPT SAMPLES FROM THE SOUTH FORK RAW WATER, MIDDLE FORK RAW WATER, COMBINED RAW WATER AND PRE-SED EFFLUENT RAW WATER.

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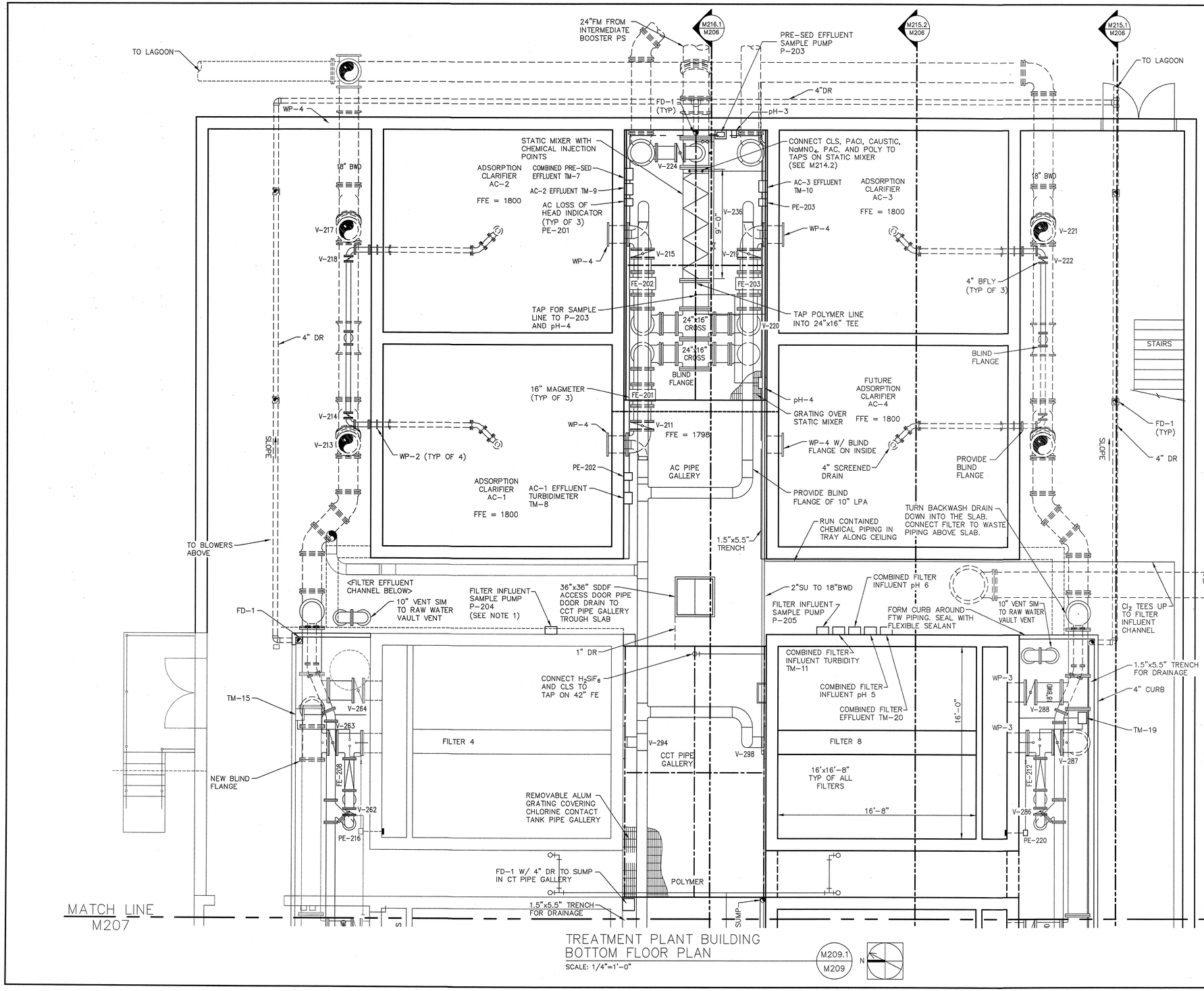
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
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C	VDH RESUBMITTAL	7/13/10	ETA
D	BID ISSUE	8/9/10	ETA

Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M208



TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

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

M209.1 M209

N

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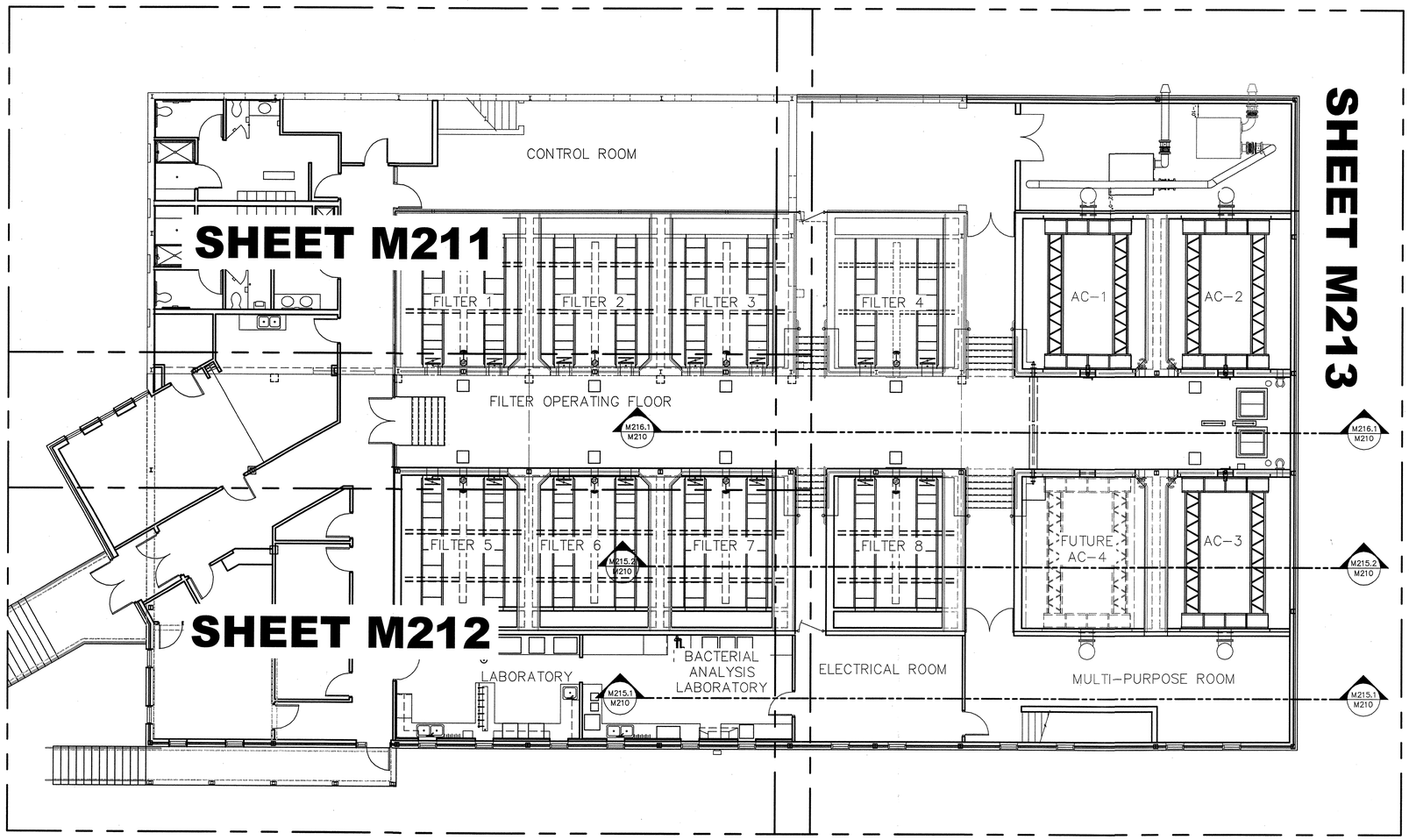
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
BOTTOM FLOOR PLAN

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	ETA
D	BID ISSUE	8/9/10	ETA

Designed: ETA
Drawn: GTS/CDH
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Scale: AS SHOWN
Job No. 12367.13
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M209



TREATMENT PLANT BUILDING
TOP FLOOR PLAN

SCALE: 1/8"=1'-0"

M210.1
M210

N

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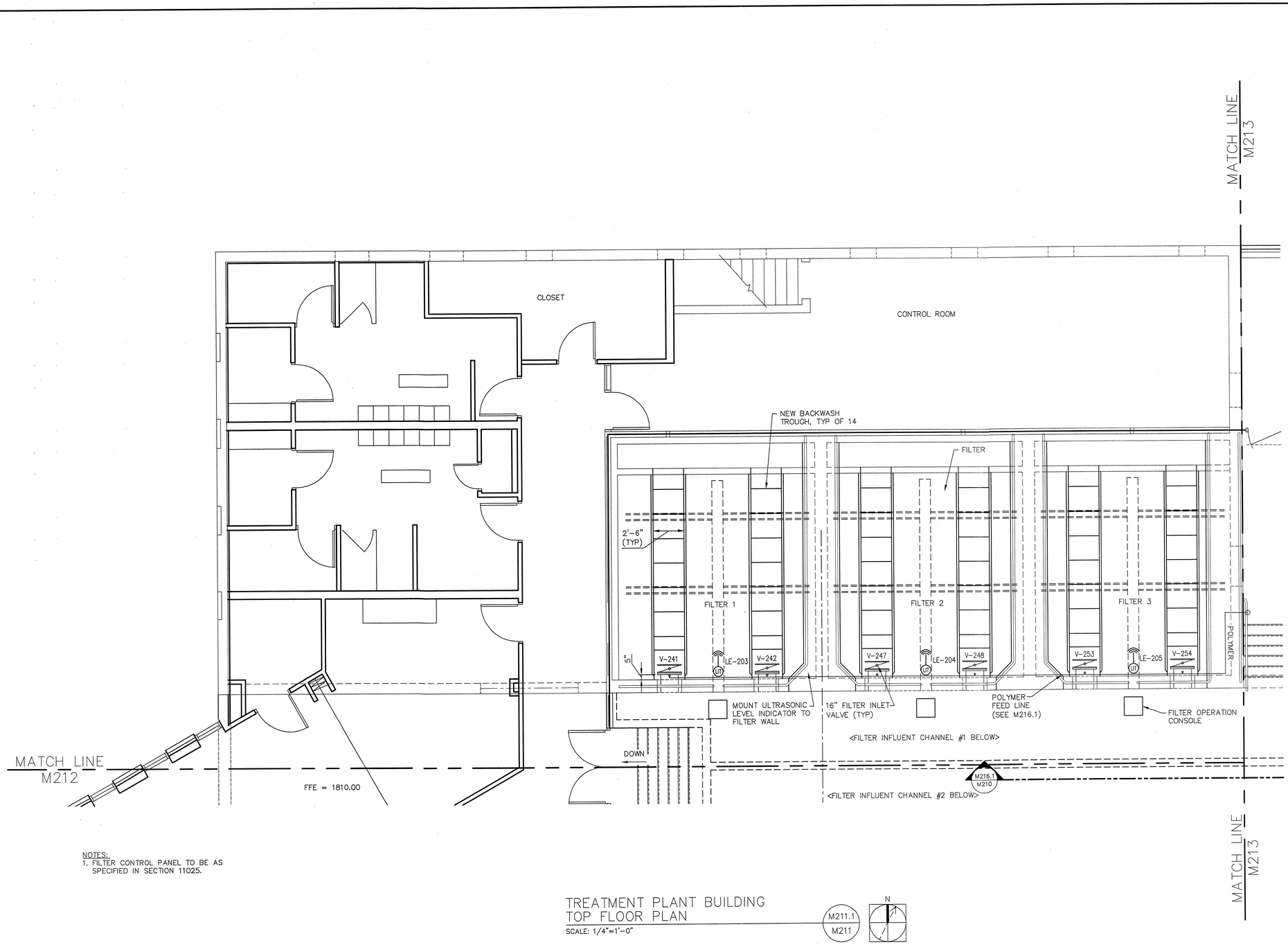
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN INDEX

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed:	ETA
Drawn:	GTS/CDH
Checked:	DBH
Date:	JAN 2010
Scale:	AS SHOWN
Job No.	12367.13
Archived File Name:	

M210



NOTES:
1. FILTER CONTROL PANEL TO BE AS SPECIFIED IN SECTION 11025.

TREATMENT PLANT BUILDING
TOP FLOOR PLAN
SCALE: 1/4"=1'-0"

M211.1
M211

N

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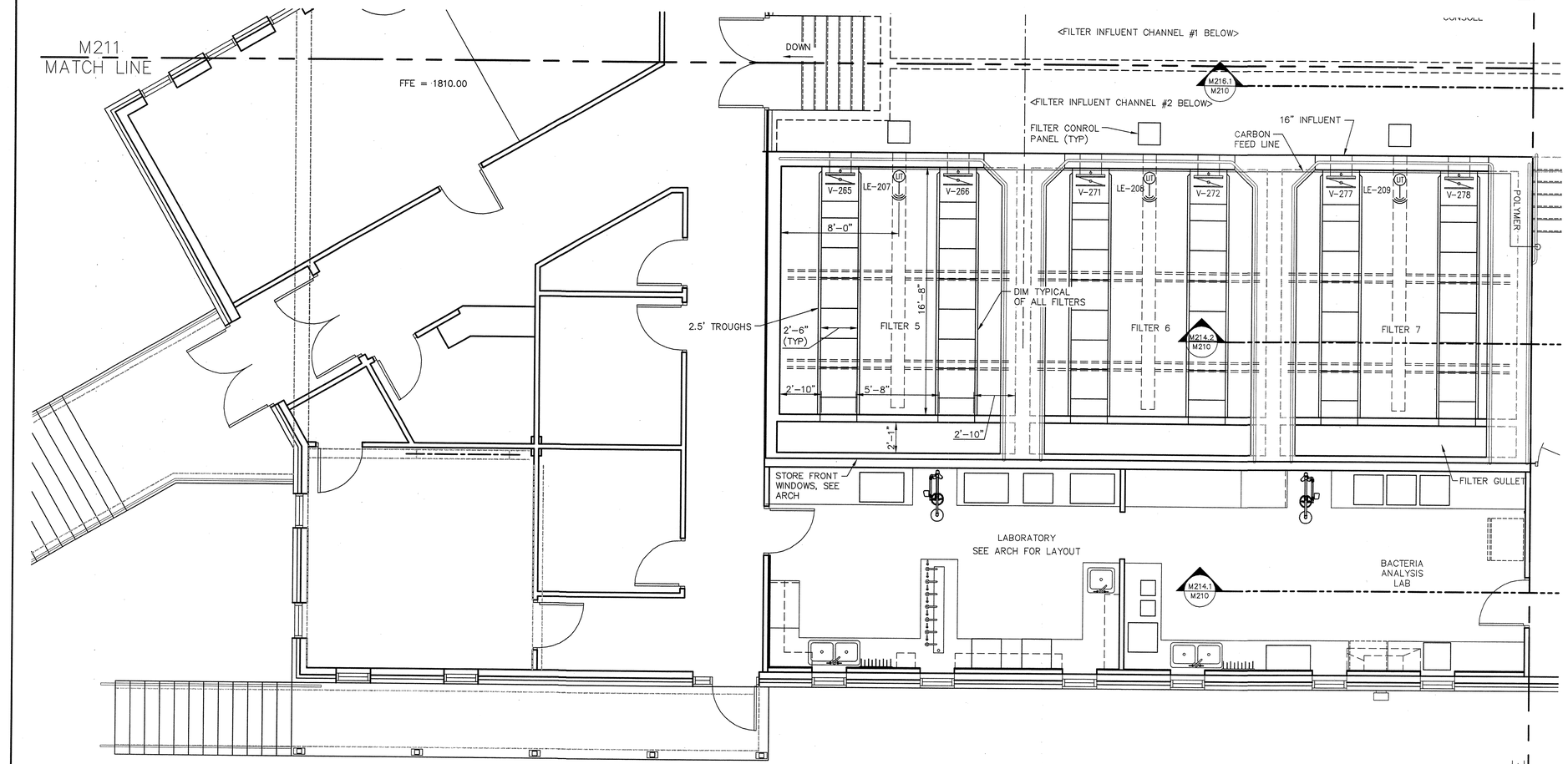
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	ETA
D	BID ISSUE	8/9/10	ETA

Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M211



TREATMENT PLANT BUILDING
TOP FLOOR PLAN

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

M212.1
M212

N

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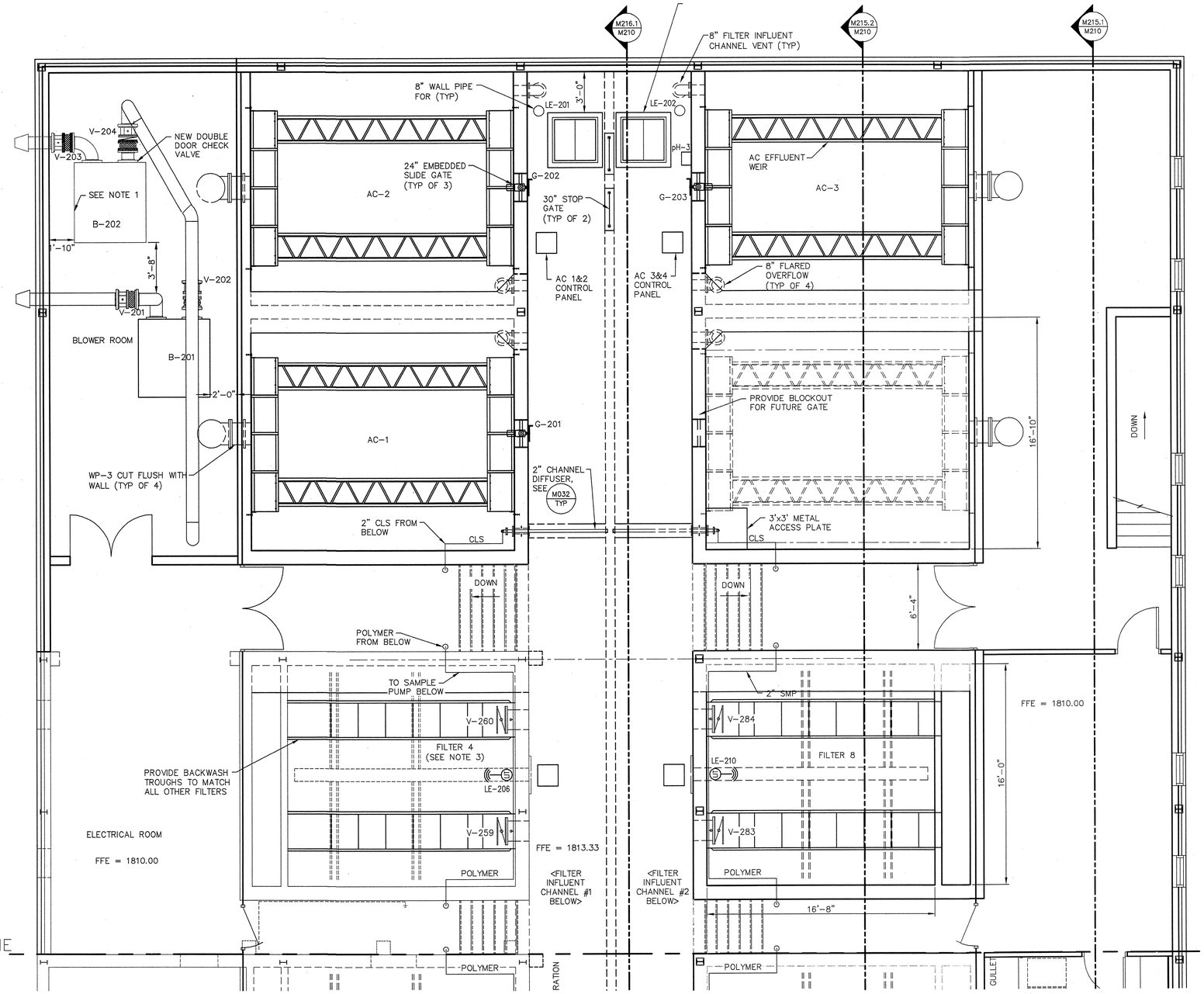
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M212



TREATMENT PLANT BUILDING
TOP FLOOR PLAN

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

M213.1
M213

N

NOTES:
1. RELOCATE EXISTING BLOWERS FROM STORAGE AND SERVICE LOCATIONS. MOUNT BLOWER SO THAT INVERT OF DISCHARGE PIPE IS ABOVE 1812.71. INSTALL VACUUM BREAKER VALVE IN HIGH POINT OF EACH BLOWER DISCHARGE.
2. FILTER 4 SHALL BE PROVIDED WITH NEW BACKWASH TROUGHS OPERATOR INTERFACE STATION, SAMPLING LINES AND INSTRUMENTS, 3" OF NEW ANTHRACITE AND 3" OF NEW SAND. FILTER MANUFACTURER SHALL BE RESPONSIBLE TO PROVIDE CONTROLS FOR ALL EXISTING VALVES ON FILTERS 1–4.

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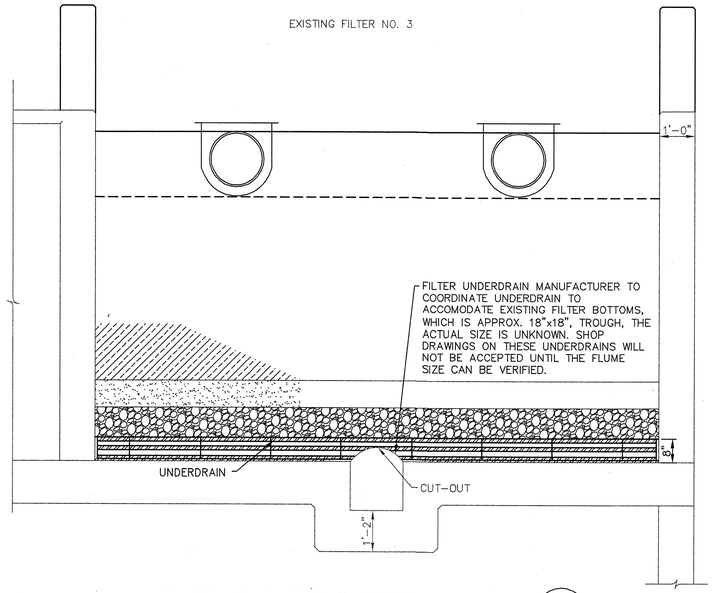
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
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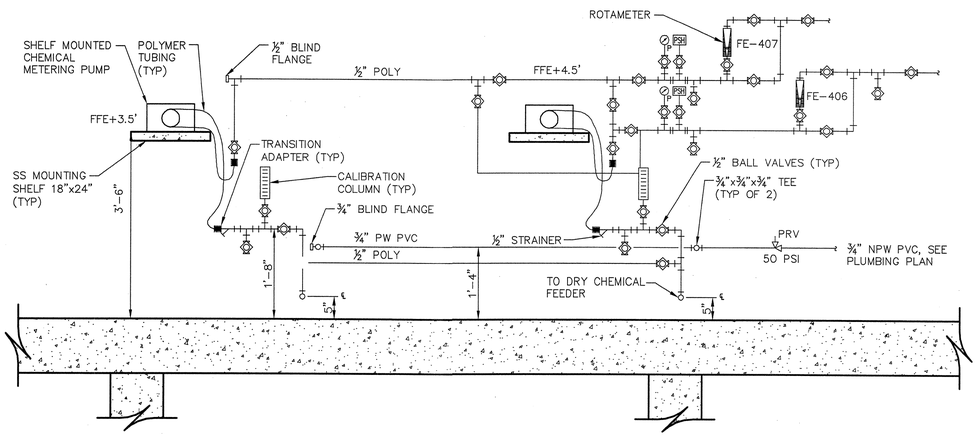
M213



EXISTING FILTER SECTION

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

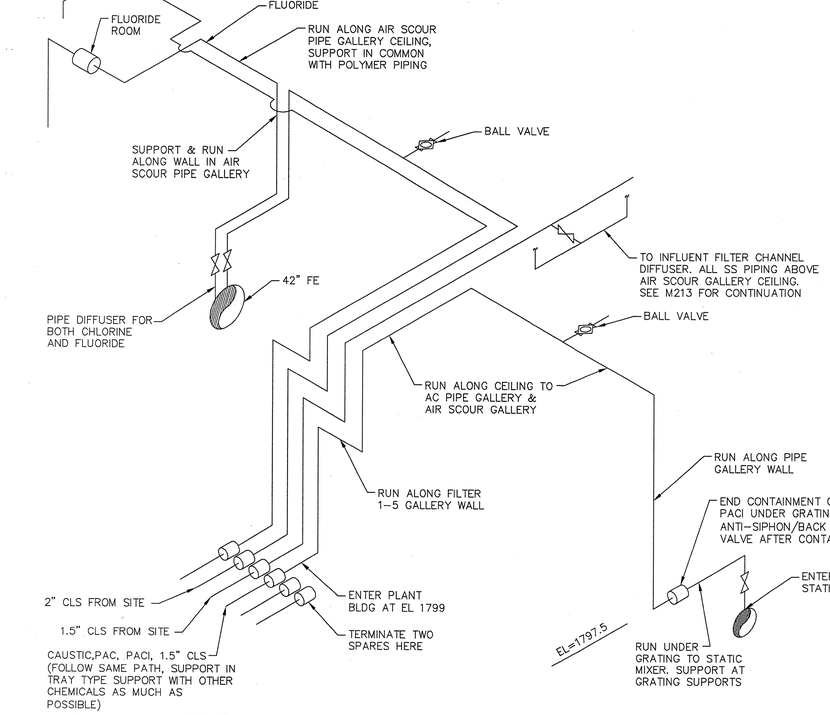
M214.1 / M206



POLYMER FEED PUMPS SCHEMATIC

SCALE: 3/4"=1'-0"

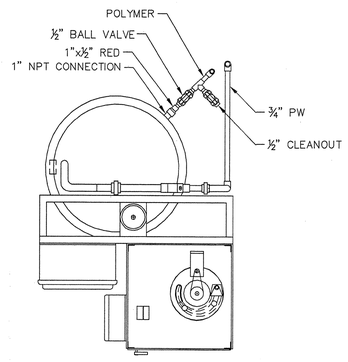
M214.3 / M208

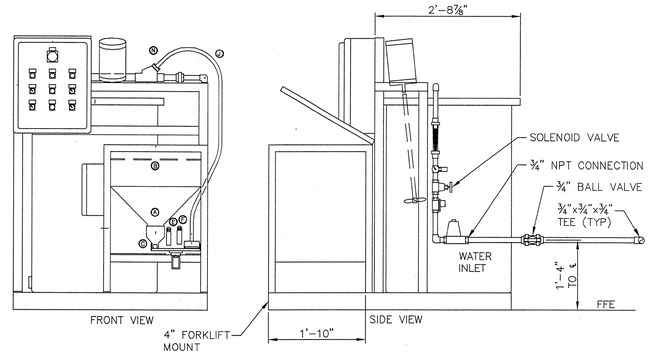


PLANT BUILDING CHEMICAL FEED SCHEMATIC

SCALE: NTS

M214.2 / M209





POLYMER FEED DETAILS

SCALE: 3/4"=1'-0"

M214.4 / M208

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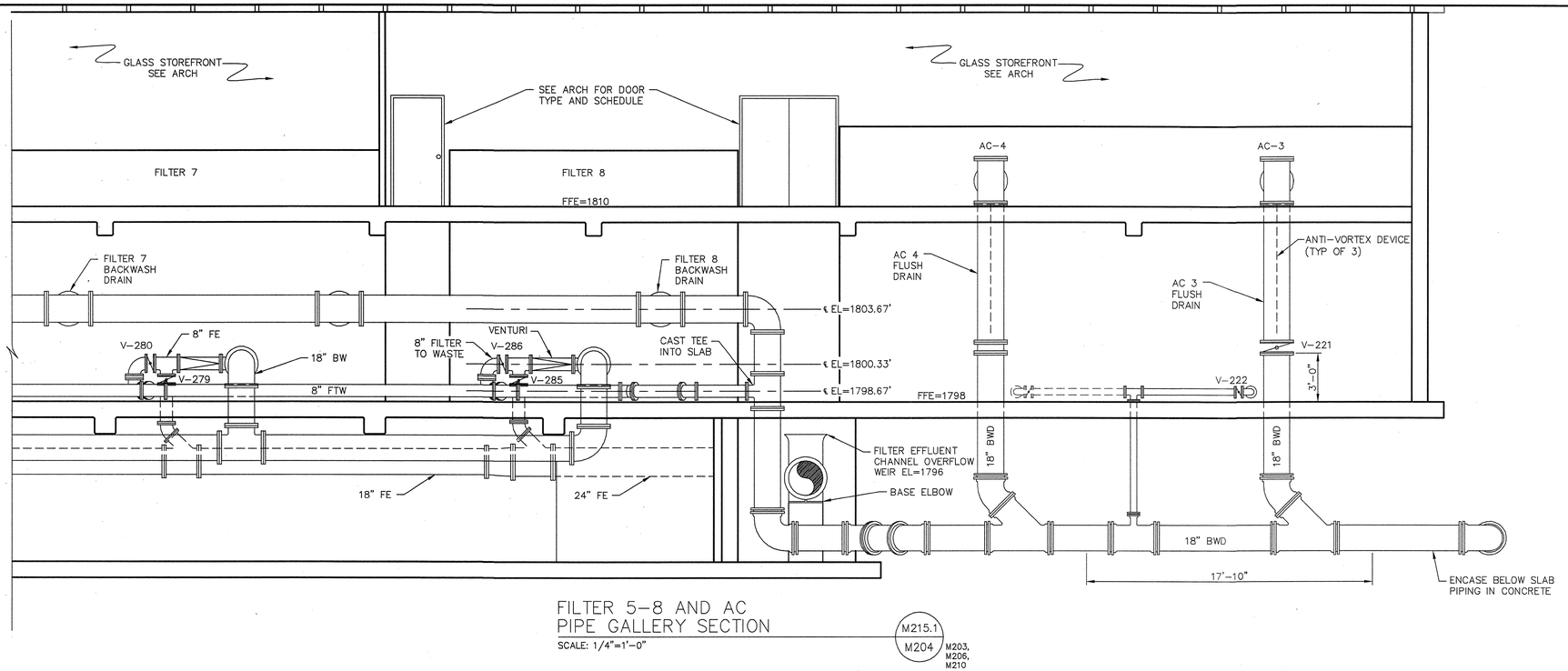
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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD
TREATMENT PLANT BUILDING
EXISTING FILTER SECTION AND CHEMICAL PIPING SCHEMATICS

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	ETA
D	BID ISSUE	8/9/10	ETA

Designed: ETA
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Date: JAN 2010
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Job No. 12367.13
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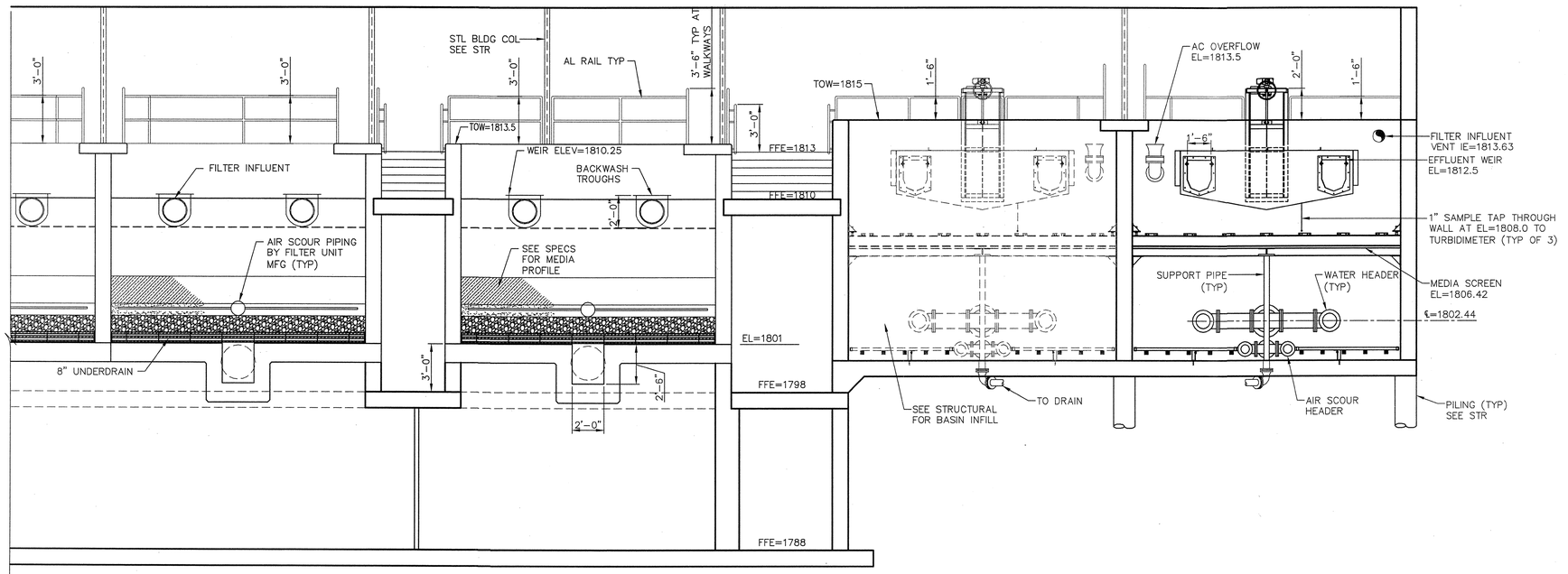
M214



FILTER 5-8 AND AC
PIPE GALLERY SECTION

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

M215.1 / M204 — M203, M205, M210



FILTER AND CLARIFIER SECTIONS

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

M215.2 / M204 — M203, M206, M210

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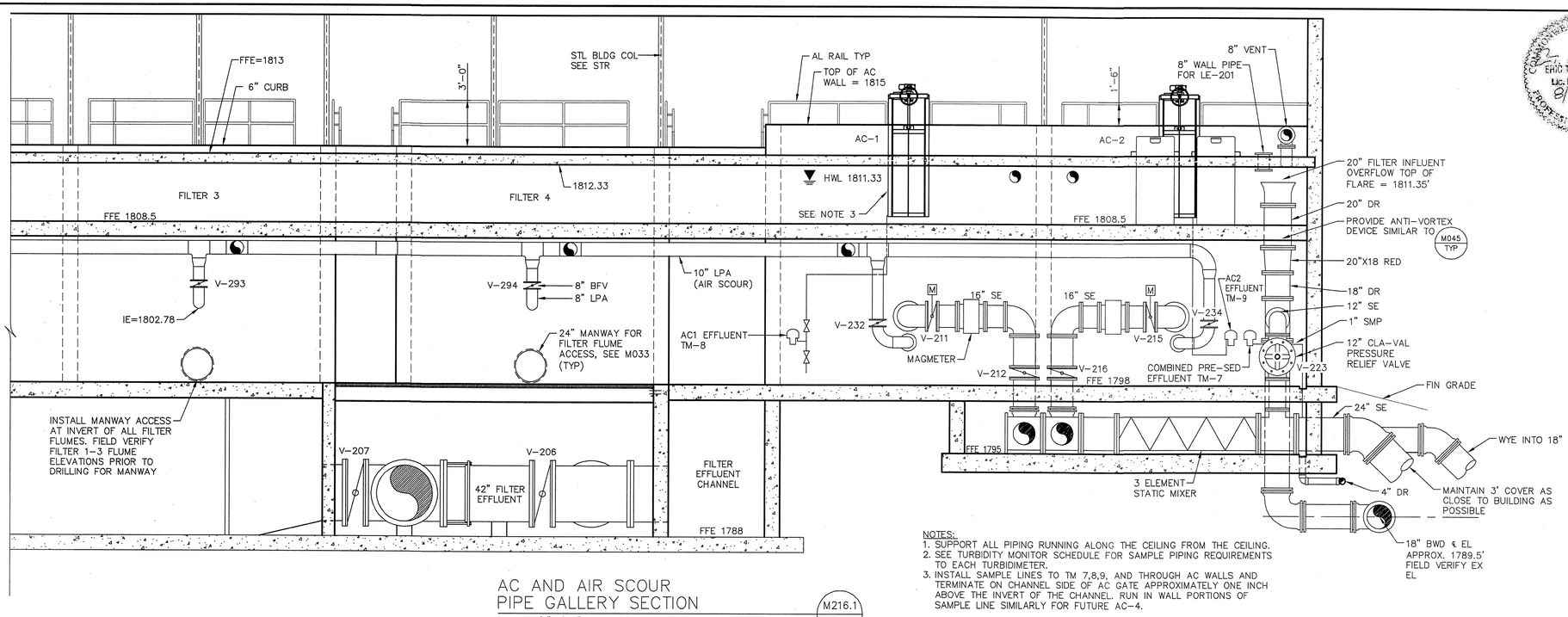
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
SECTIONS AND DETAILS

Rev.	Description	Date	By
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Job No. 12367.13
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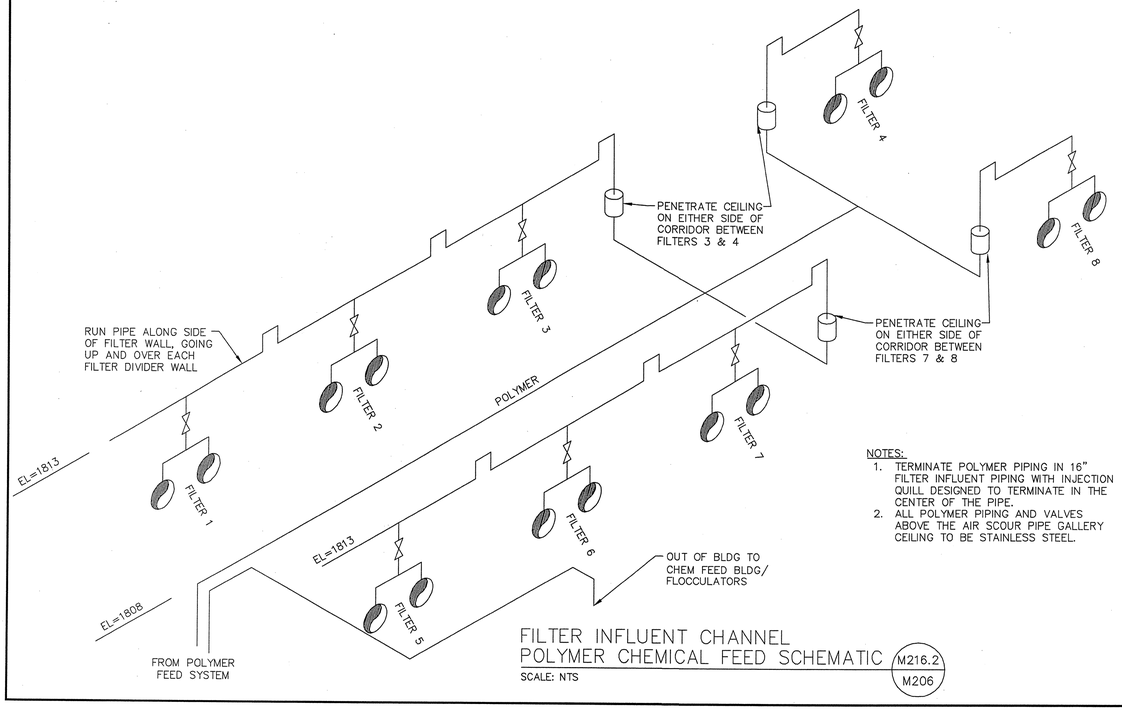
M215



AC AND AIR SCOUR
PIPE GALLERY SECTION (M216.1 / M204)
SCALE: 1/4"=1'-0"

M203, M206, M210

NOTES:
1. SUPPORT ALL PIPING RUNNING ALONG THE CEILING FROM THE CEILING.
2. SEE TURBIDITY MONITOR SCHEDULE FOR SAMPLE PIPING REQUIREMENTS TO EACH TURBIDIMETER.
3. INSTALL SAMPLE LINES TO TM 7,8,9, AND THROUGH AC WALLS AND TERMINATE ON CHANNEL SIDE OF AC GATE APPROXIMATELY ONE INCH ABOVE THE INVERT OF THE CHANNEL. RUN IN WALL PORTIONS OF SAMPLE LINE SIMILARLY FOR FUTURE AC-4.



FILTER INFLUENT CHANNEL
POLYMER CHEMICAL FEED SCHEMATIC (M216.2 / M206)
SCALE: NTS

NOTES:
1. TERMINATE POLYMER PIPING IN 16" FILTER INFLUENT PIPING WITH INJECTION QUILL DESIGNED TO TERMINATE IN THE CENTER OF THE PIPE.
2. ALL POLYMER PIPING AND VALVES ABOVE THE AIR SCOUR PIPE GALLERY CEILING TO BE STAINLESS STEEL.

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THE LANE GROUP
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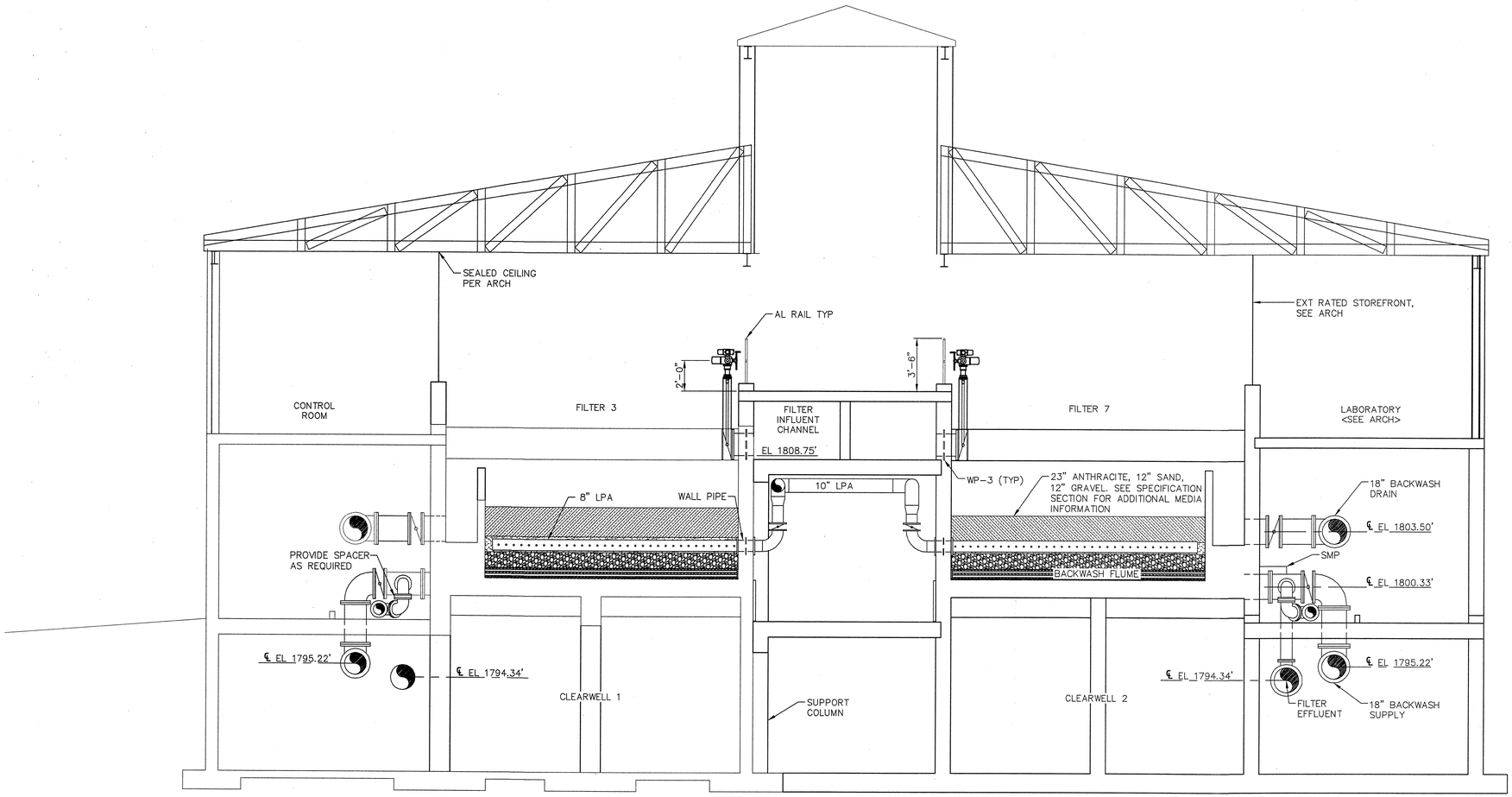
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
SECTIONS

Rev.	Description	Date	By
A	PRELIMINARY SUBMITTAL	1/22/10	ETA
B	VDH SUBMITTAL	5/3/10	DBH
C	VDH RESUBMITTAL	7/13/10	ETA
D	BID ISSUE	8/9/10	ETA

Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M216



BUILDING SECTION THRU FILTER AREA (M217.1, M204, M206, M210)

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

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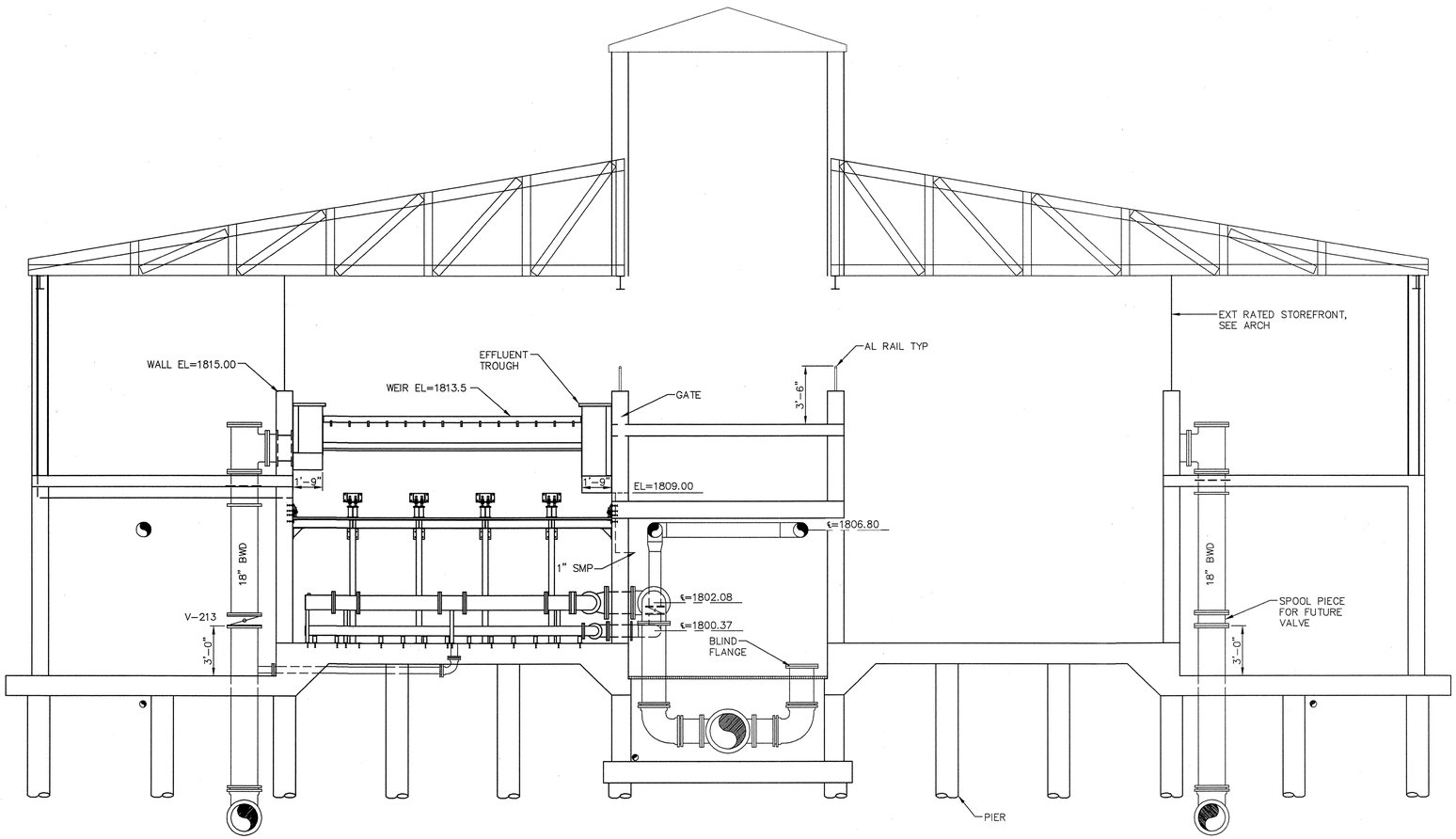
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

TREATMENT PLANT BUILDING
FILTER SECTION

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	ETA
B	VDH RESUBMITTAL	7/13/10	ETA
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: ETA
Drawn: GTS/CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M217



BUILDING SECTION
THRU ADSORPTION CLARIFIERS

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

M218.1
M204 M206, M210

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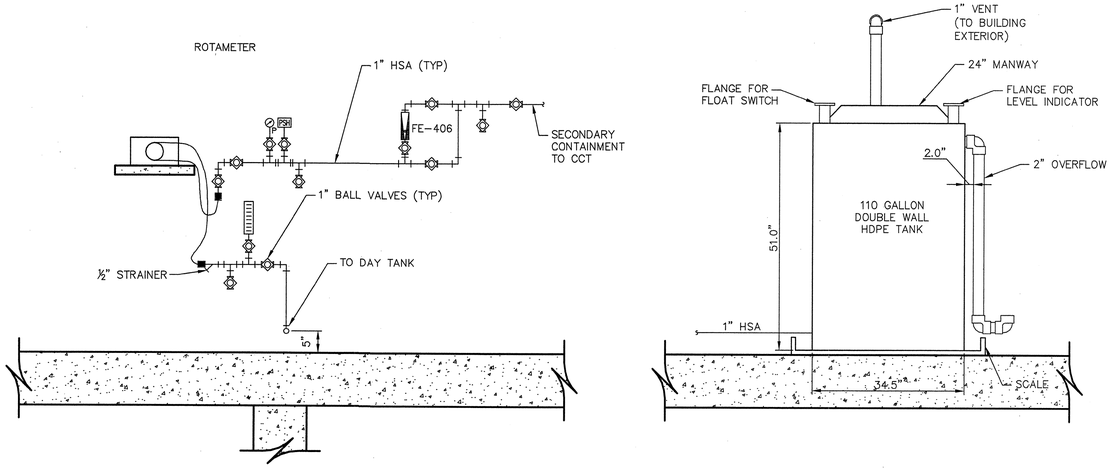
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

TREATMENT PLANT BUILDING
CLARIFIER SECTION

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	ETA
B	VDH RESUBMITTAL	7/13/10	ETA
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed:	ETA
Drawn:	GTS/CDH
Checked:	DBH
Date:	JAN 2010
Scale:	AS SHOWN
Job No.	12367.13
Archived File Name:	

M218



FLUORIDE FEED SCHEMATIC

SCALE: 3/4"=1'-0"

M219.1
M208

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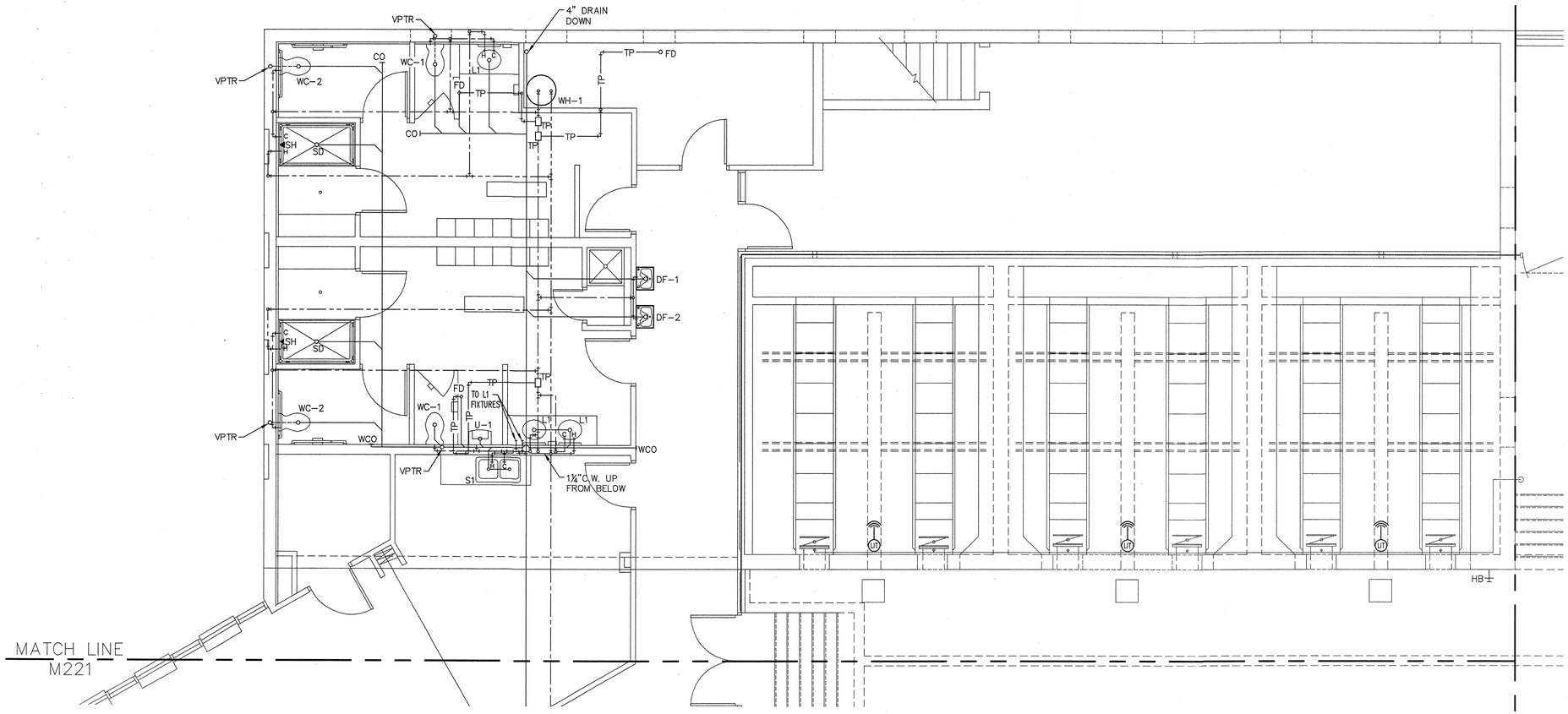
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
FLUORIDE FEED SCHEMATIC

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	ETA
C	VDH RESUBMITTAL	7/13/10	DBH
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	ETA

Designed: JGN
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M219



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – PLUMBING

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

M220.1
M220

N

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

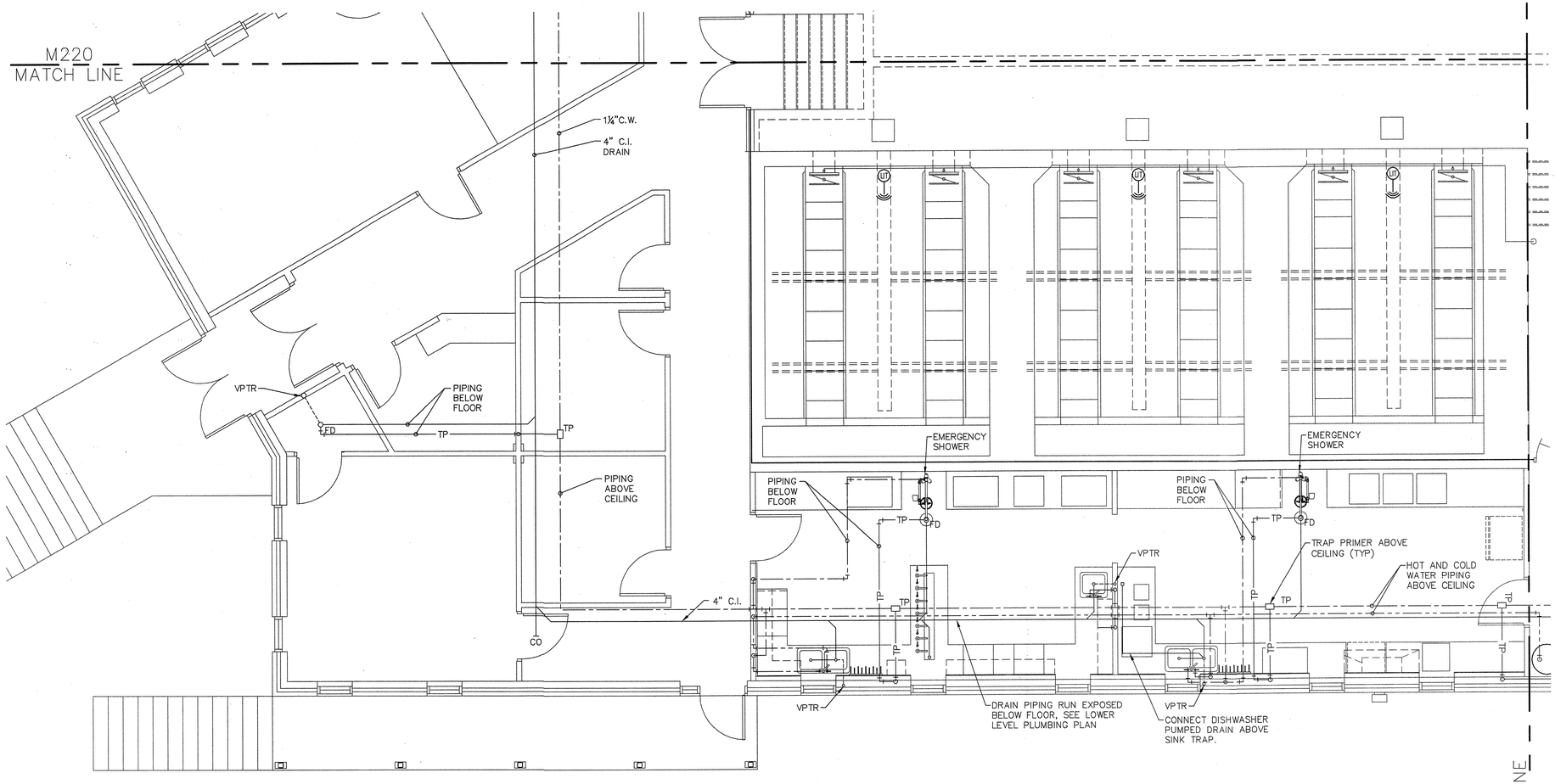
TREATMENT PLANT BUILDING
TOP FLOOR PLAN – PLUMBING

By	Date	Description
RCS	8/9/10	B BID ISSUE
RCS	7/13/10	A VDH RESUBMITTAL

Rev.

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JULY 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M220



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – PLUMBING

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

M221.1
M221

N

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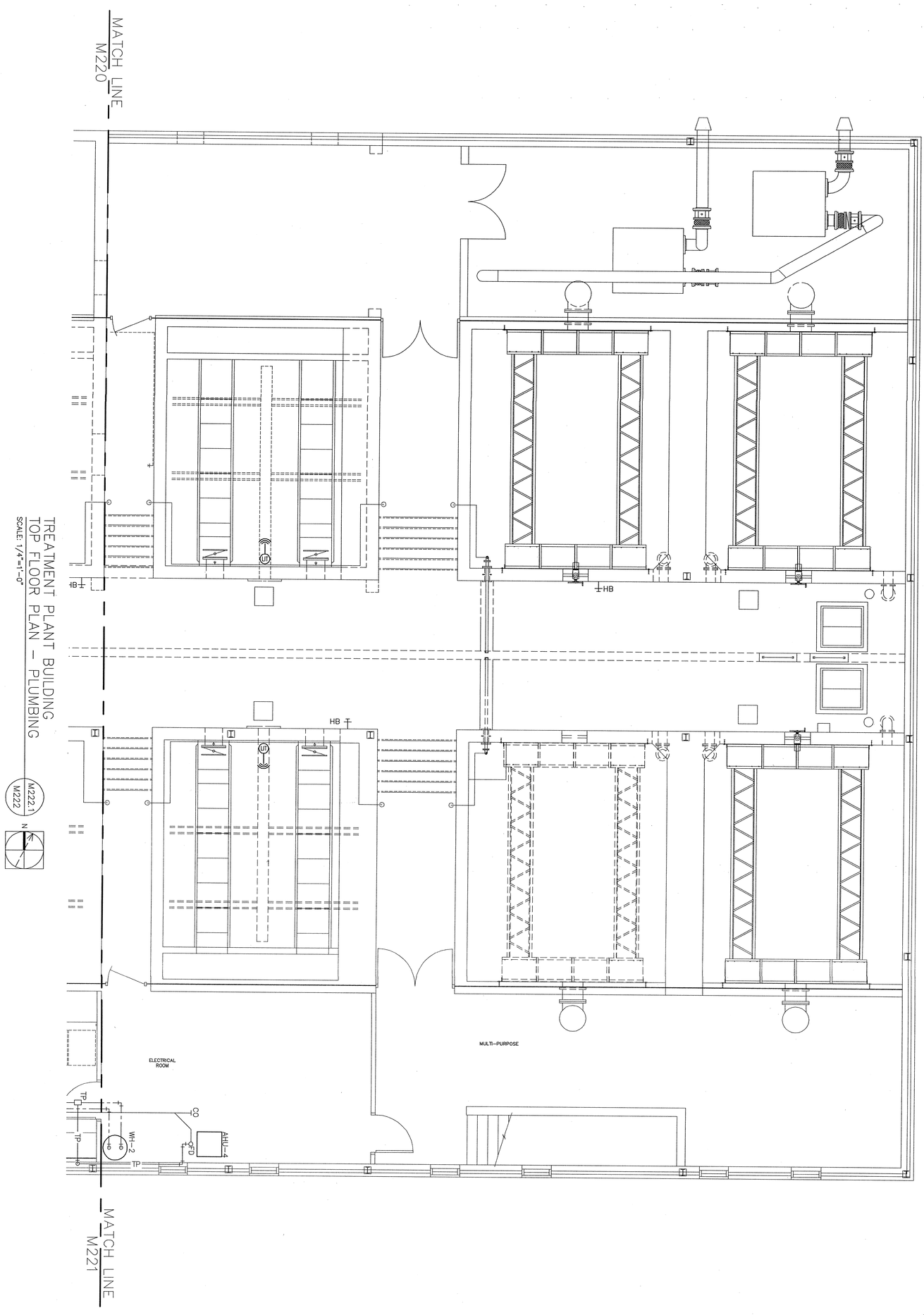
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN – PLUMBING

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JULY 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M221



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – PLUMBING

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

M222.1
M222

N

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DEREK C. SMITH
13579
8/9/10

M222

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

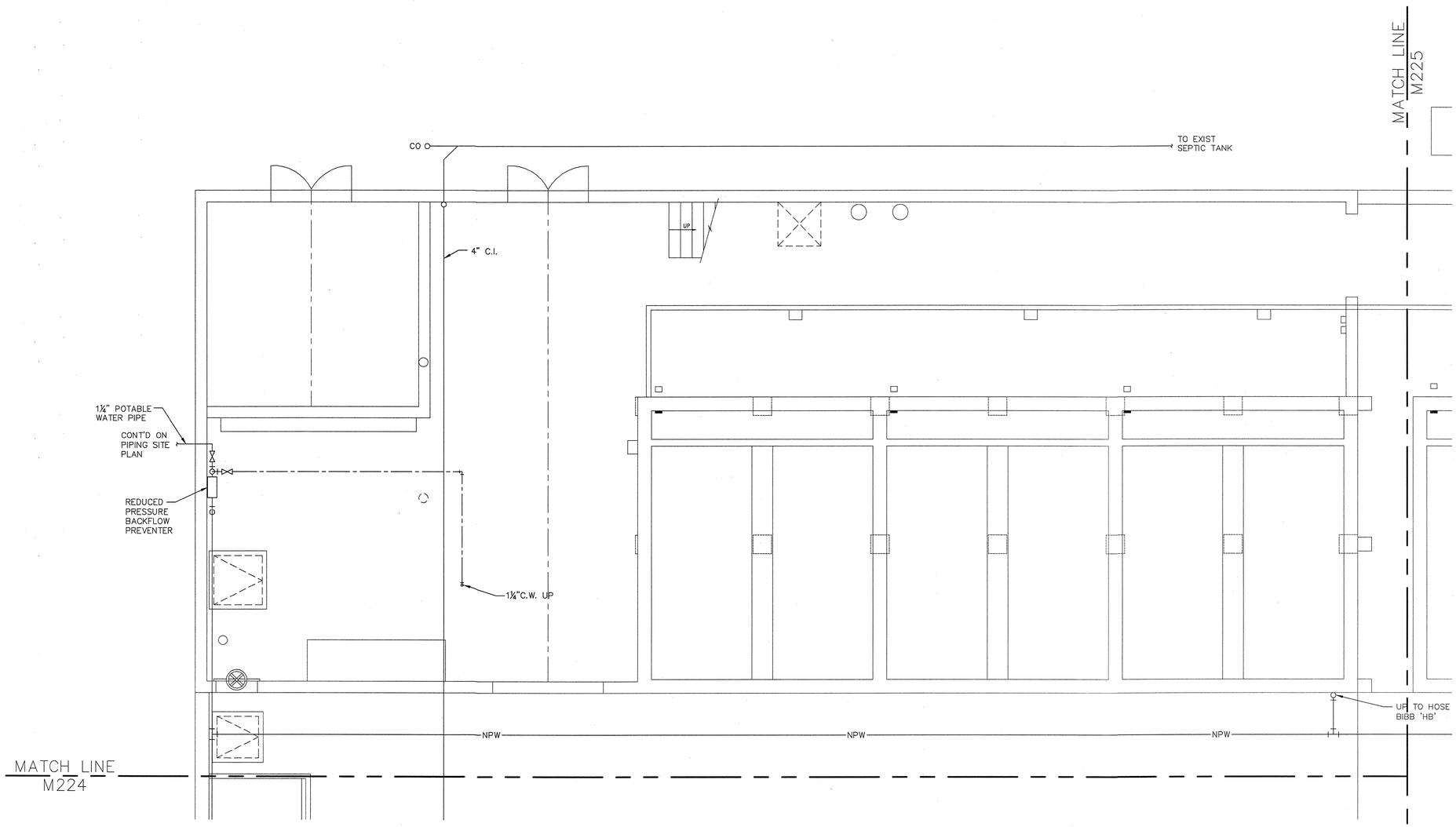
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Drawn: CDH
Checked: RCM
Date: JULY 2010
Scale: AS SHOWN
Job No. 1236.13
Archived File Name:

WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN – PLUMBING

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TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – PLUMBING

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

M223.1
M223

N

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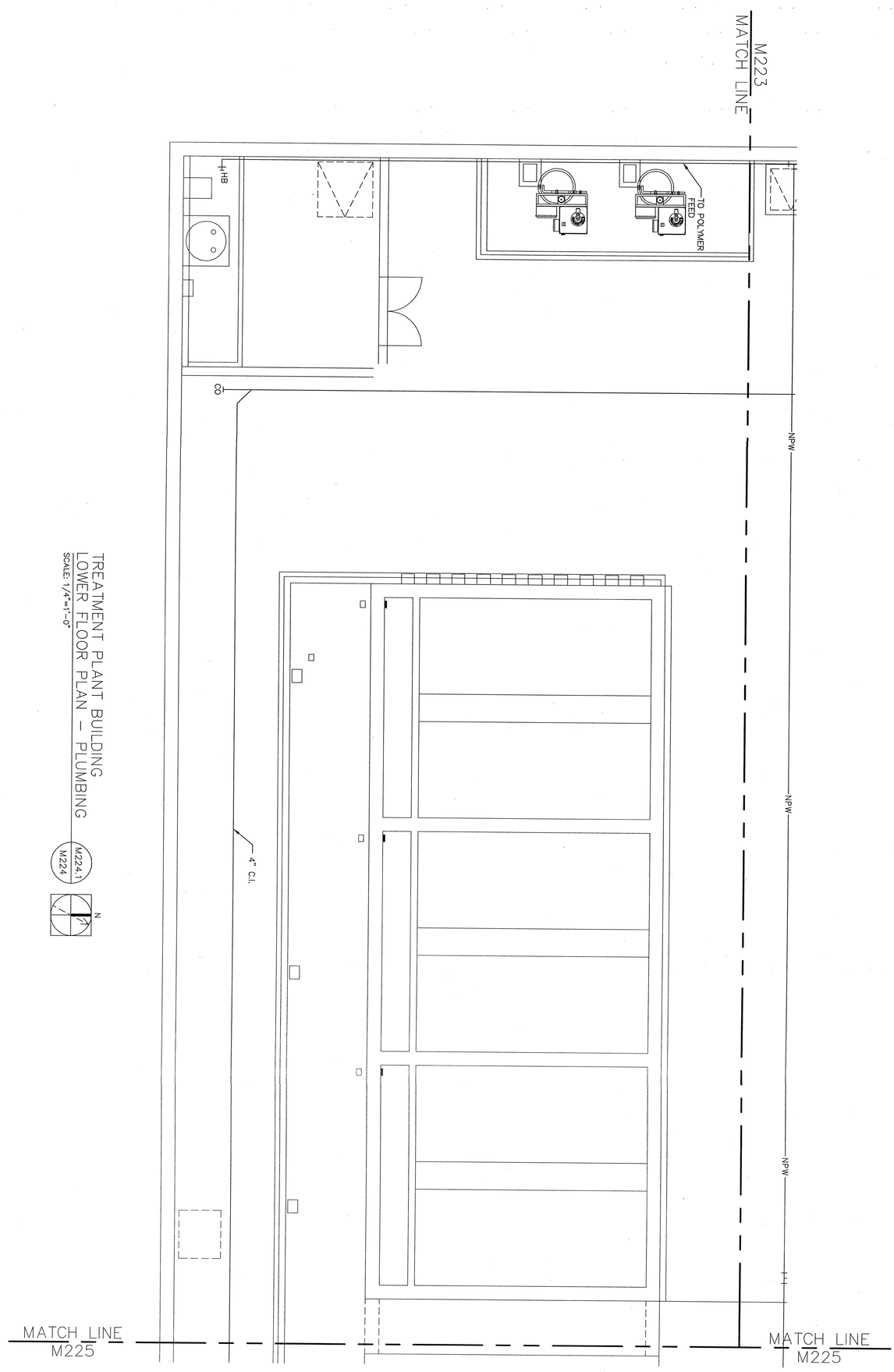
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – PLUMBING

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JULY 2010
Scale: AS SHOWN
Job No. 12367.13
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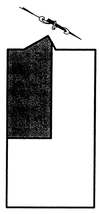
M223



TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – PLUMBING
SCALE: 1/4"=1'-0"

M224.1
M224

N



COMMONWEALTH OF VIRGINIA
ROBERT C. SMITH
LICENSED
PROFESSIONAL ENGINEER
8/9/10

M224

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JULY 2010
Scale: AS SHOWN
Job No.: 12367.13
Archived File Name:

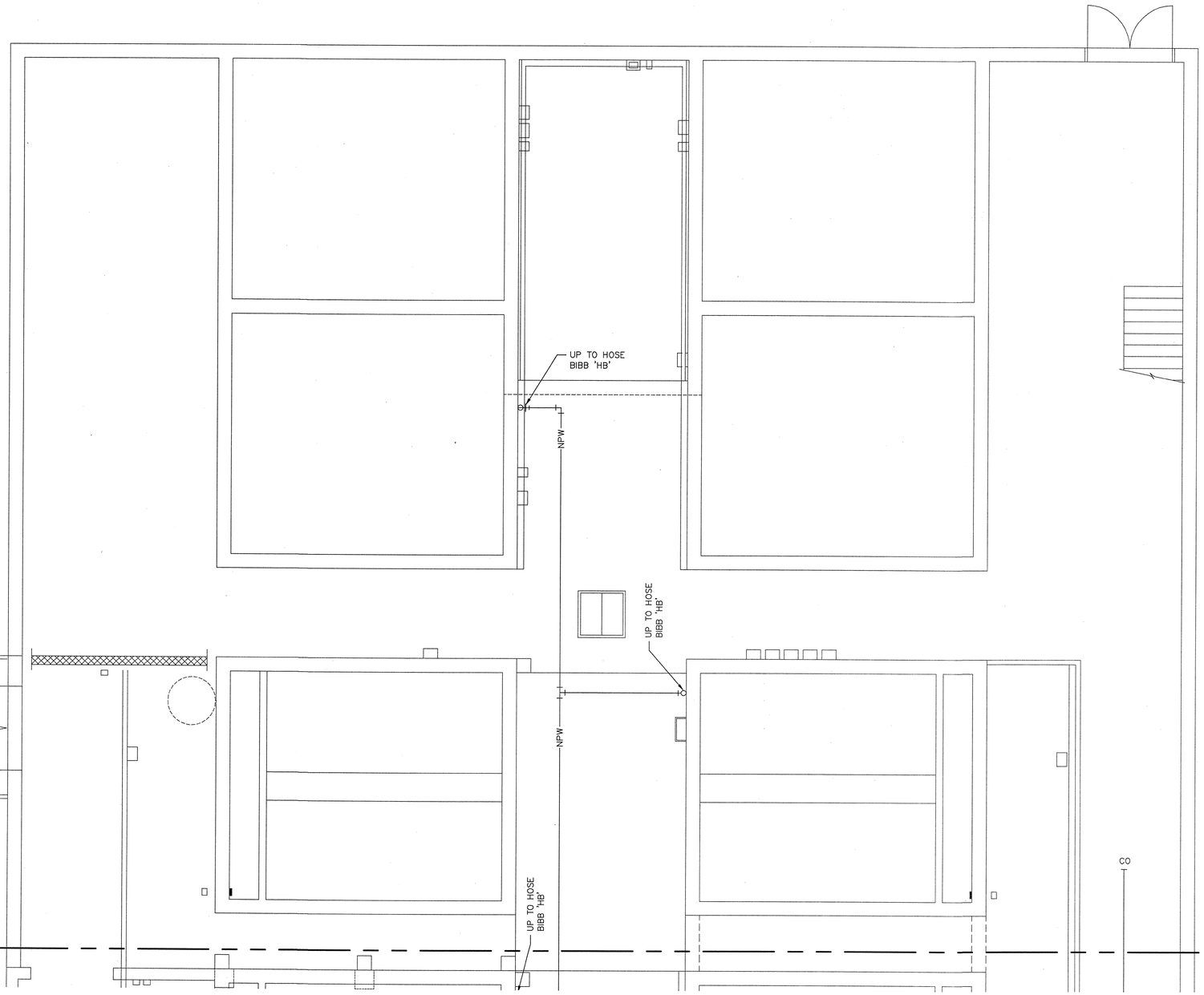
Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – PLUMBING

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TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – PLUMBING

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

M225.1
M225

N

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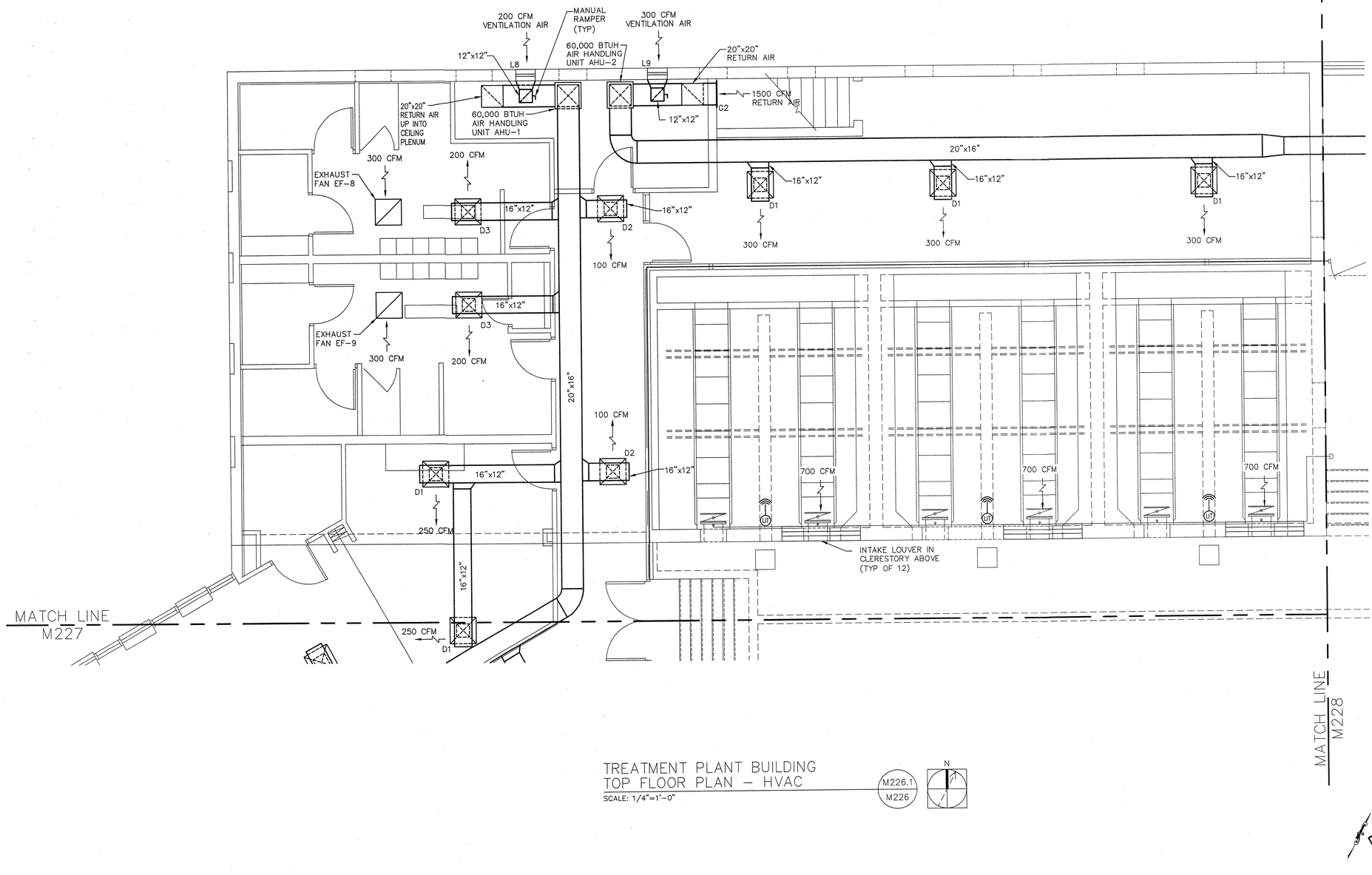
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – PLUMBING

By	Date	Description	Rev.
RCS	8/9/10	BID ISSUE	B
RCS	7/13/10	VDH RESUBMITTAL	A

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JULY 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M225



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – HVAC

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

M226.1
M226

N

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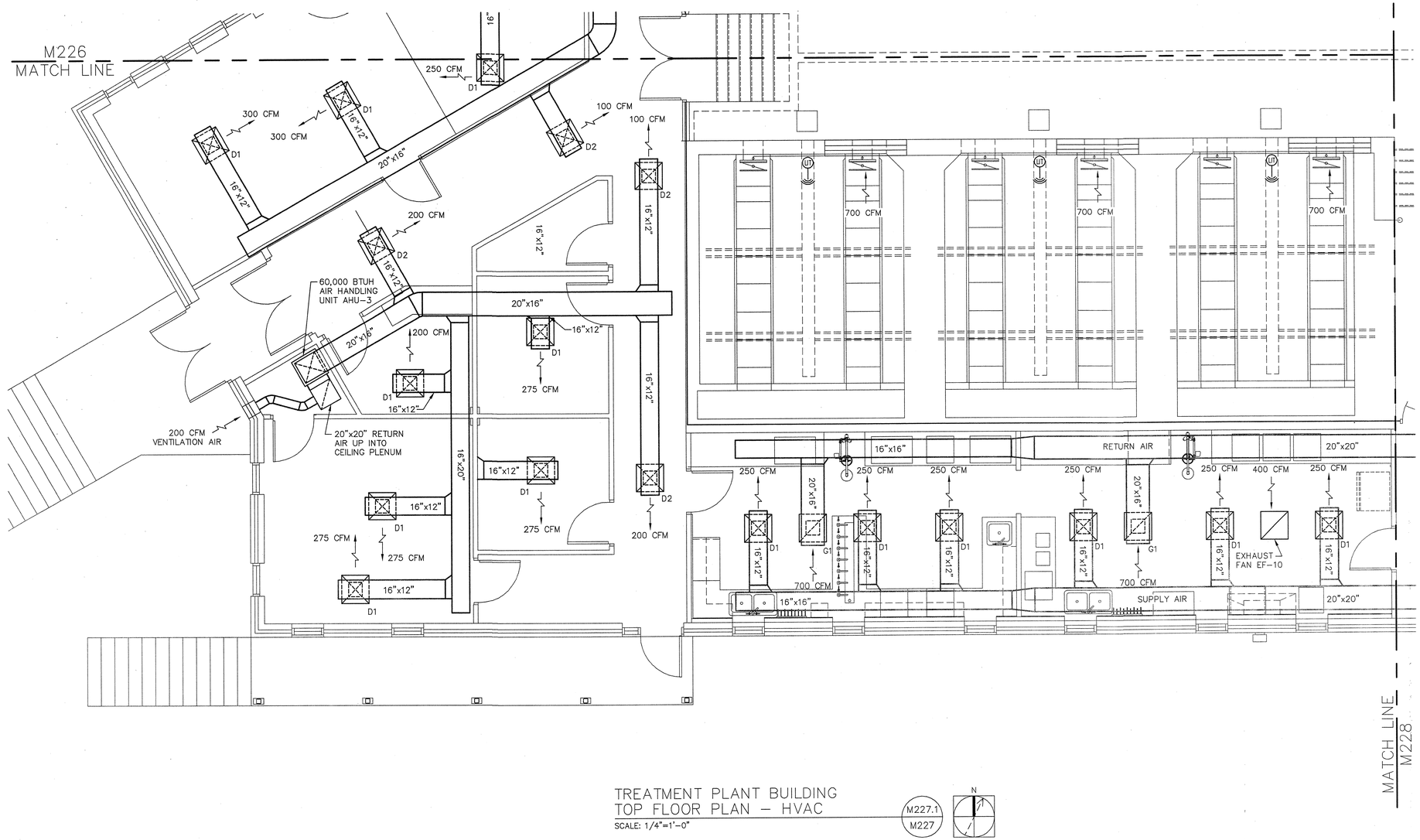
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN – HVAC

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JULY 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

M226



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – HVAC

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

M227.1
M227

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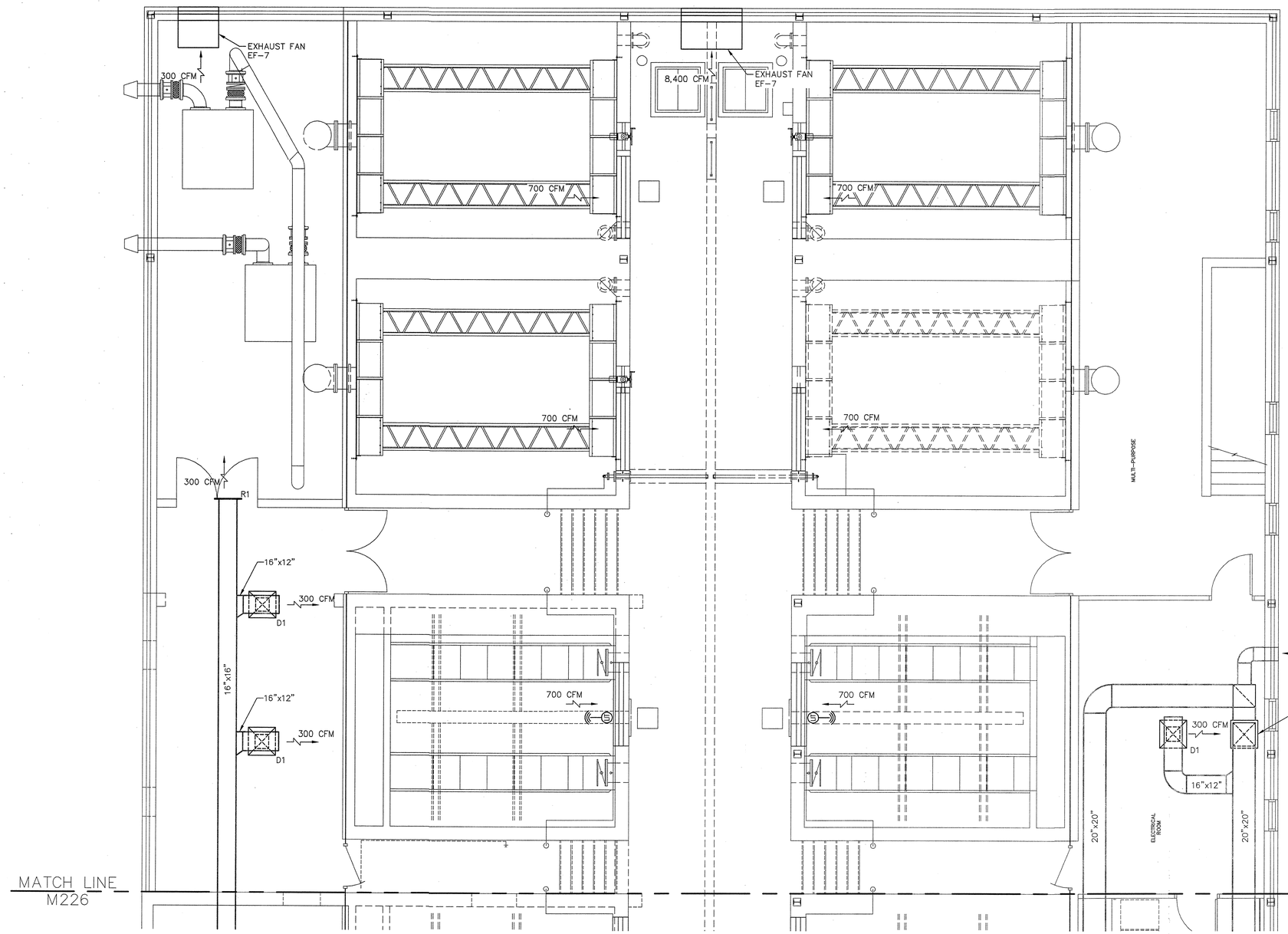
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN – HVAC

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

Designed:	RCM
Drawn:	CDH
Checked:	RCM
Date:	JULY 2010
Scale:	AS SHOWN
Job No.	12367.13
Archived File Name:	

M227



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – HVAC

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

M228.1
M228

N

COMMONWEALTH OF VIRGINIA
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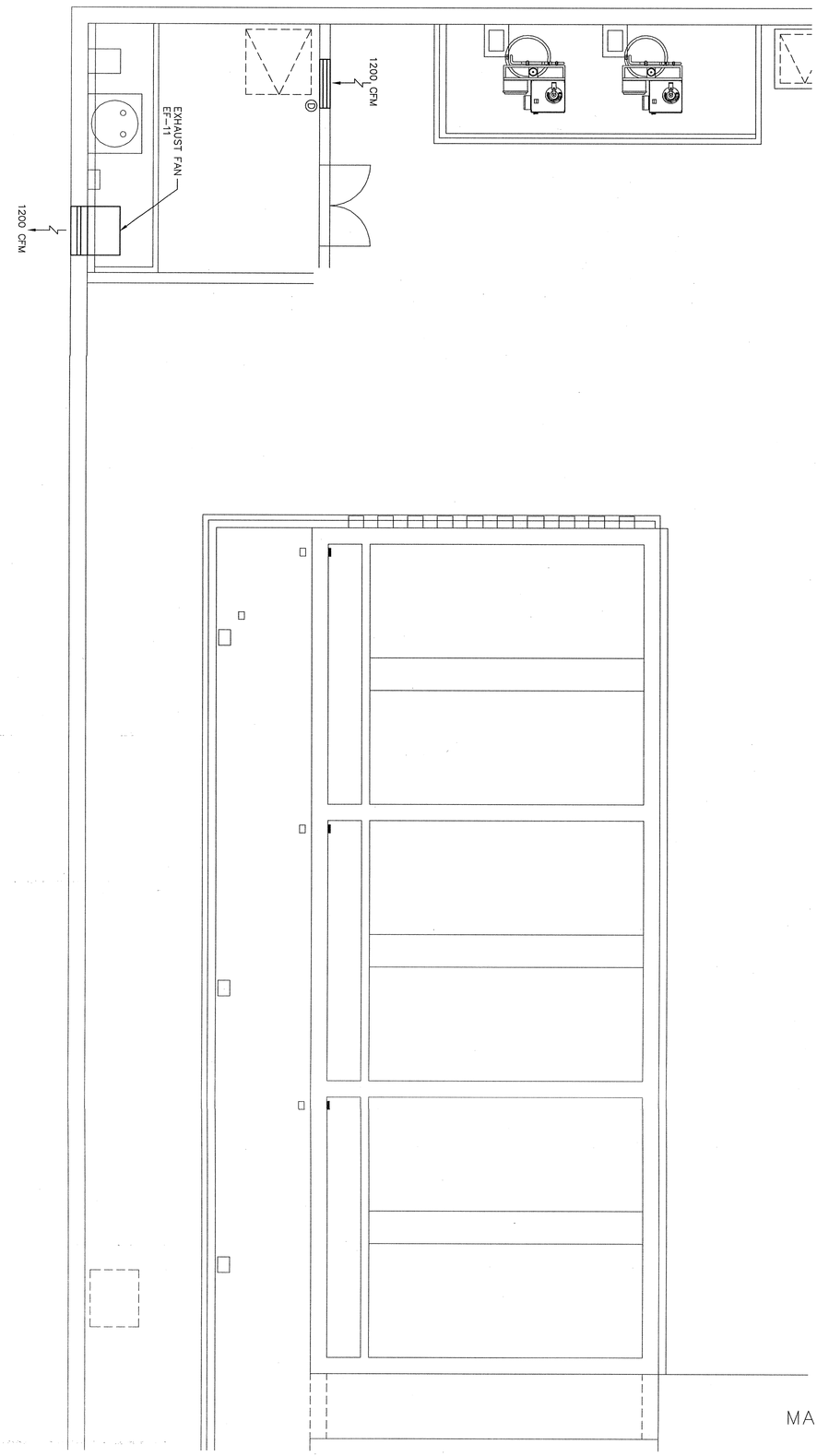
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN – HVAC

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JULY 2010
Scale: AS SHOWN
Job No. 12367.13
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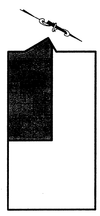
M228



TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – HVAC
SCALE: 1/4"=1'-0"

M229.1
M229

N



COMMONWEALTH OF VIRGINIA
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PROFESSIONAL ENGINEER
8/9/10

M229

Designed:	RCM
Drawn:	CDH
Checked:	RCM
Date:	JULY 2010
Scale:	AS SHOWN
Job No.:	12367.13
Archived File Name:	

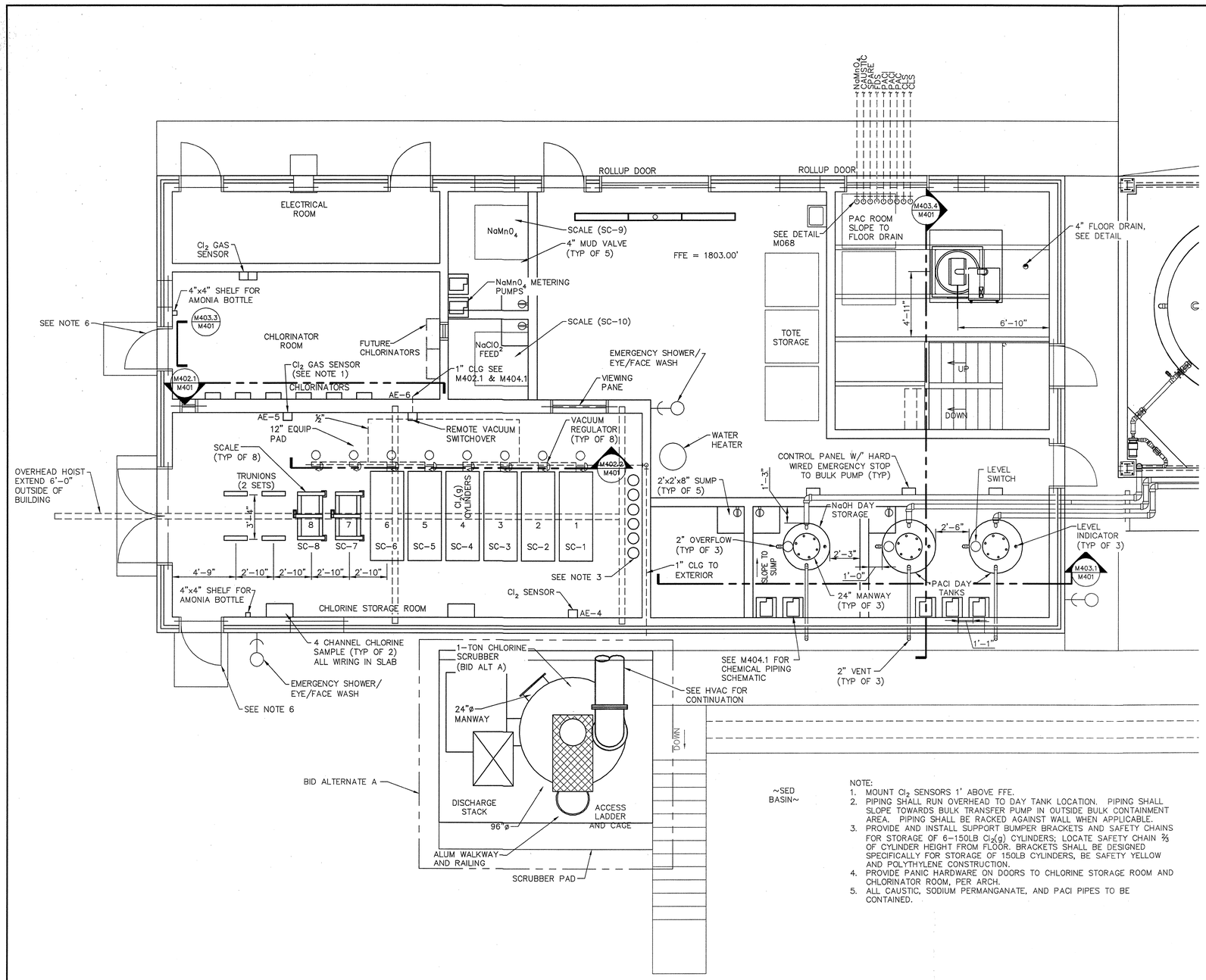
Rev.	Description	Date	By
N	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – HVAC

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NOTE:
1. MOUNT Cl_2 SENSORS 1' ABOVE FFE.
2. PIPING SHALL RUN OVERHEAD TO DAY TANK LOCATION. PIPING SHALL SLOPE TOWARDS BULK TRANSFER PUMP IN OUTSIDE BULK CONTAINMENT AREA. PIPING SHALL BE RACKED AGAINST WALL WHEN APPLICABLE.
3. PROVIDE AND INSTALL SUPPORT BUMPER BRACKETS AND SAFETY CHAINS FOR STORAGE OF 6-150LB $Cl_2(g)$ CYLINDERS; LOCATE SAFETY CHAIN ⅔ OF CYLINDER HEIGHT FROM FLOOR. BRACKETS SHALL BE DESIGNED SPECIFICALLY FOR STORAGE OF 150LB CYLINDERS, BE SAFETY YELLOW AND POLYTHYLENE CONSTRUCTION.
4. PROVIDE PANIC HARDWARE ON DOORS TO CHLORINE STORAGE ROOM AND CHLORINATOR ROOM, PER ARCH.
5. ALL CAUSTIC, SODIUM PERMANGANATE, AND PACI PIPES TO BE CONTAINED.

CHLORINE AND CHEMICAL BUILDING PLAN

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

M401.1 / M401

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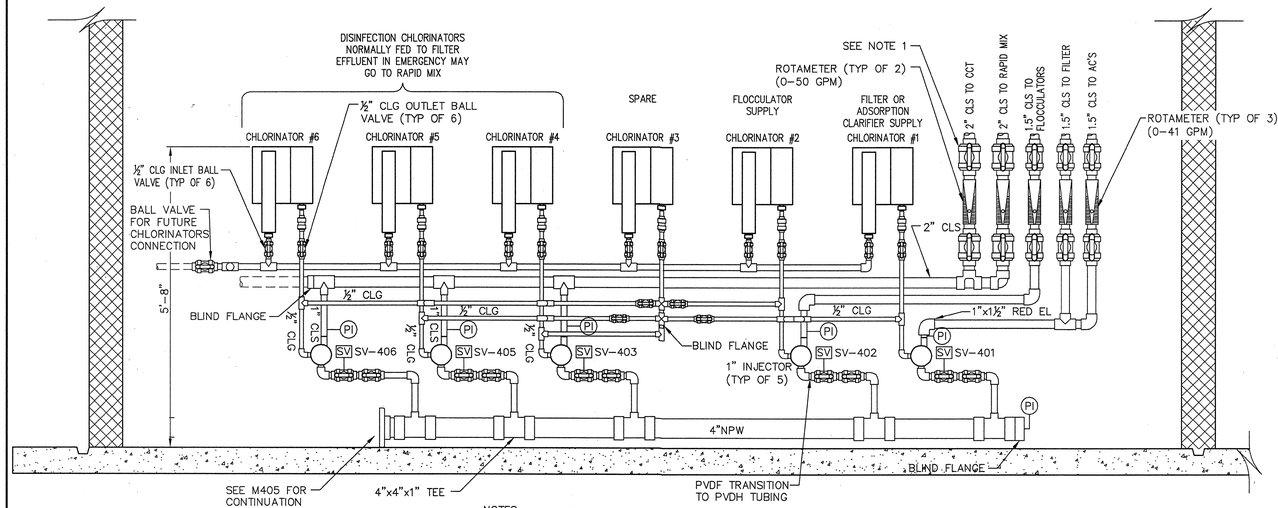
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

CHLORINE AND CHEMICAL BUILDING

Rev.	Description	Date	By
D	BID ISSUE	8/9/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	1/22/10	JGN

Designed: JGN
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: 1/4" = 1'-0"
Job No. 12367.13
Archived File Name:

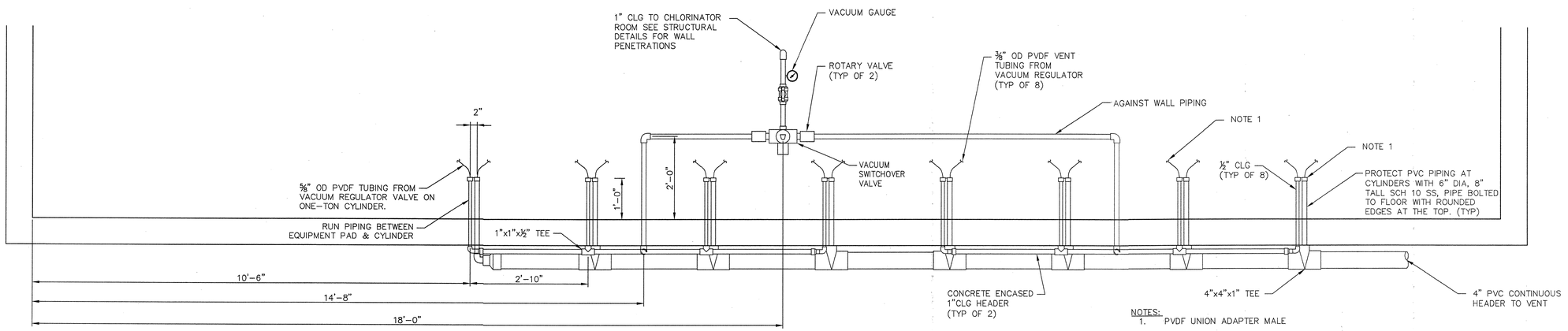
M401



NOTES:
1. DESTINATION OF CHLORINE SOLUTION LINES TO BE INDICATED WITH AN ARROW AND PIPE IDENTIFICATION LABELS DIRECTLY ON THE PIPE ABOVE THE BALL VALVE. LABELS TO MEET SPEC SECTION 10400.

CHLORINATOR PIPING — M402.1 / M401

SCALE: 3/4"=1'-0"



NOTES:
1. PVDF UNION ADAPTER MALE

VACUUM REGULATOR PIPING — M402.2 / M401

SCALE: 3/4"=1'-0"

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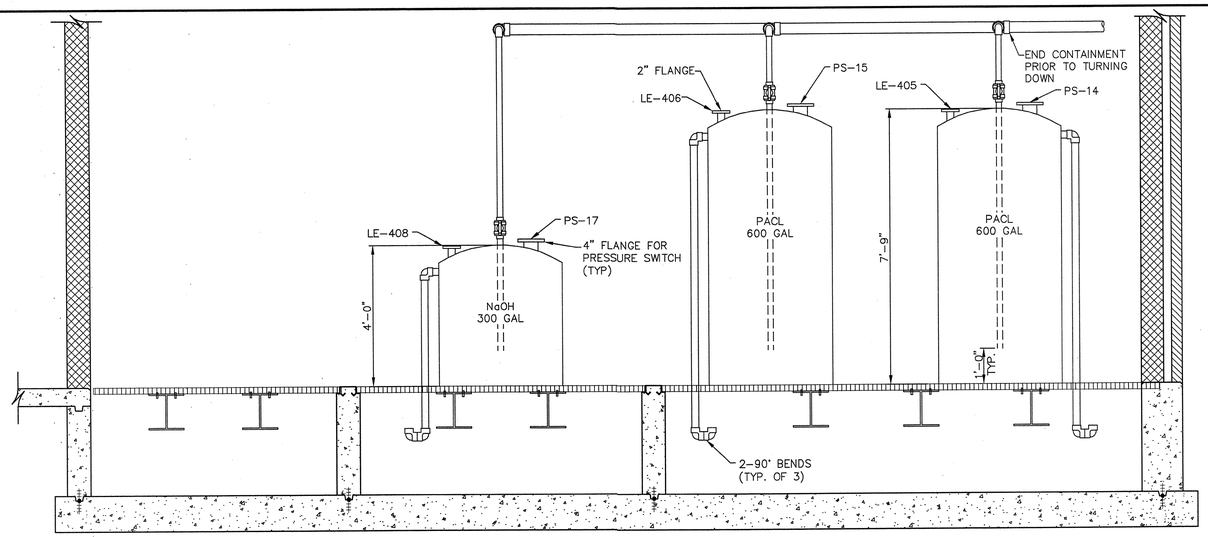
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

CHLORINE AND CHEMICAL BUILDING
SECTIONS AND DETAILS

Rev	Description	Date	By
D	BID ISSUE	8/9/10	DBH
C	VDH RESUBMITTAL	7/13/10	DBH
B	VDH SUBMITTAL	5/3/10	DBH
A	PRELIMINARY SUBMITTAL	11/22/10	JGN

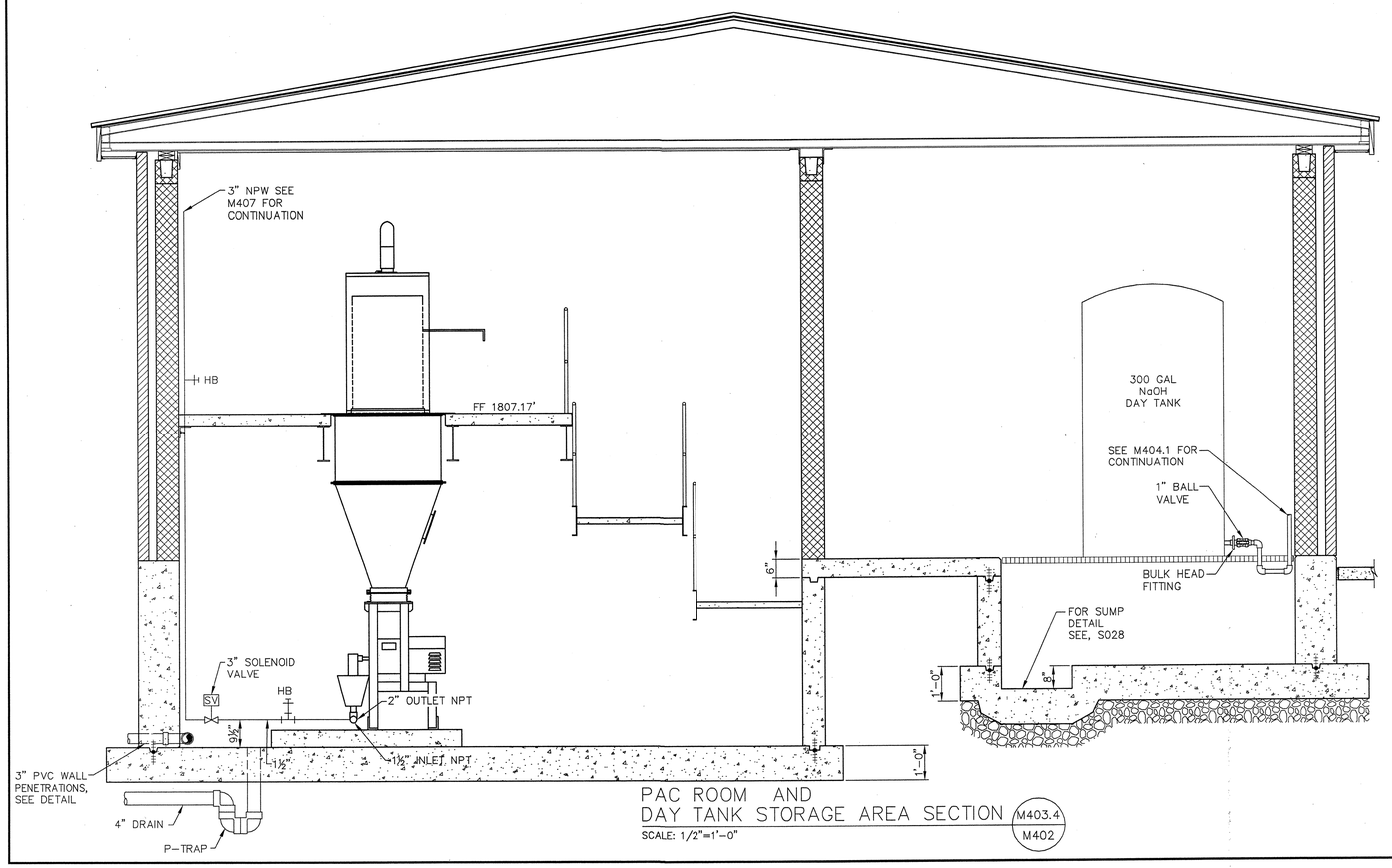
Designed: JGN
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M402



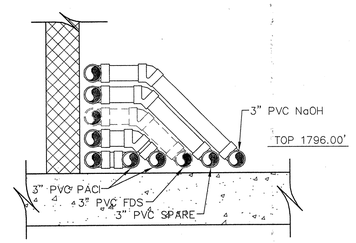
DAY TANK ELEVATION (M403.1 / M401)

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



PAC ROOM AND DAY TANK STORAGE AREA SECTION (M403.4 / M402)

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



CHEMICAL PIPING IN ALONG PAC WALL (M403.6 / M402)

SCALE: 3/4"=1'-0"

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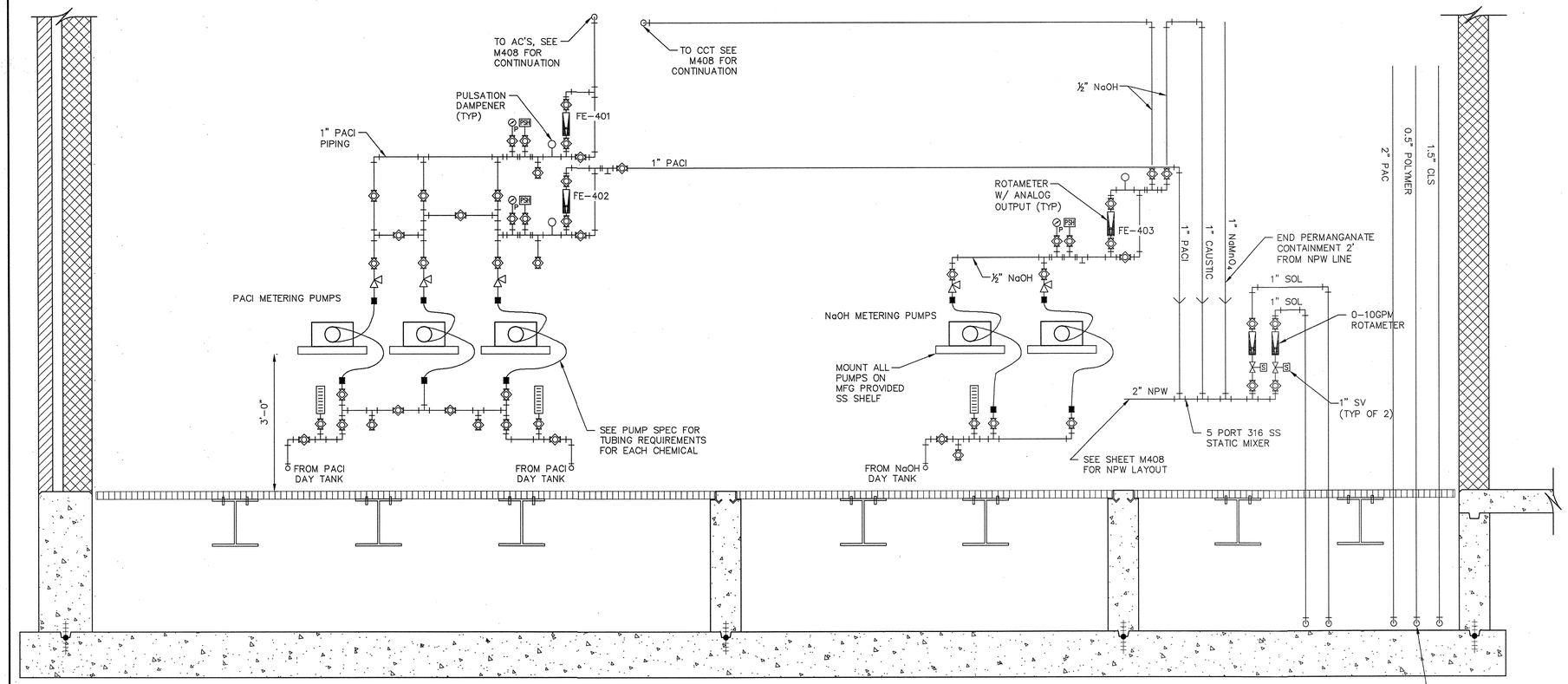
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MIDDLE FORK WTP 12 MGD IMPROVEMENTS

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Rev.	Description	Date	By
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D	BID ISSUE	8/9/10	DBH

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M403



CAUSTIC AND COAGULANT METERING PUMP SCHEMATIC

M404.1
M401

SCALE: 3/4"=1'-0"

NOTES:
1. ALL PIPING 6' AND HIGHER TO BE CONTAINED.
2. ALL PIPING 1" UNLESS OTHERWISE INDICATED.
3. PUMP CONFIGURATION FOR $NaMnO_4$ TO BE SIMILAR TO THE CAUSTIC PUMPS. CONNECTION TO TOTES SHALL BE WITH 6' HOSE WITH POLYPROPYLENE QUICK CONNECT COUPLINGS ON EACH END. COORDINATE CONNECTION TO WORK WITH CONTRACTOR SUPPLIED TOTE.

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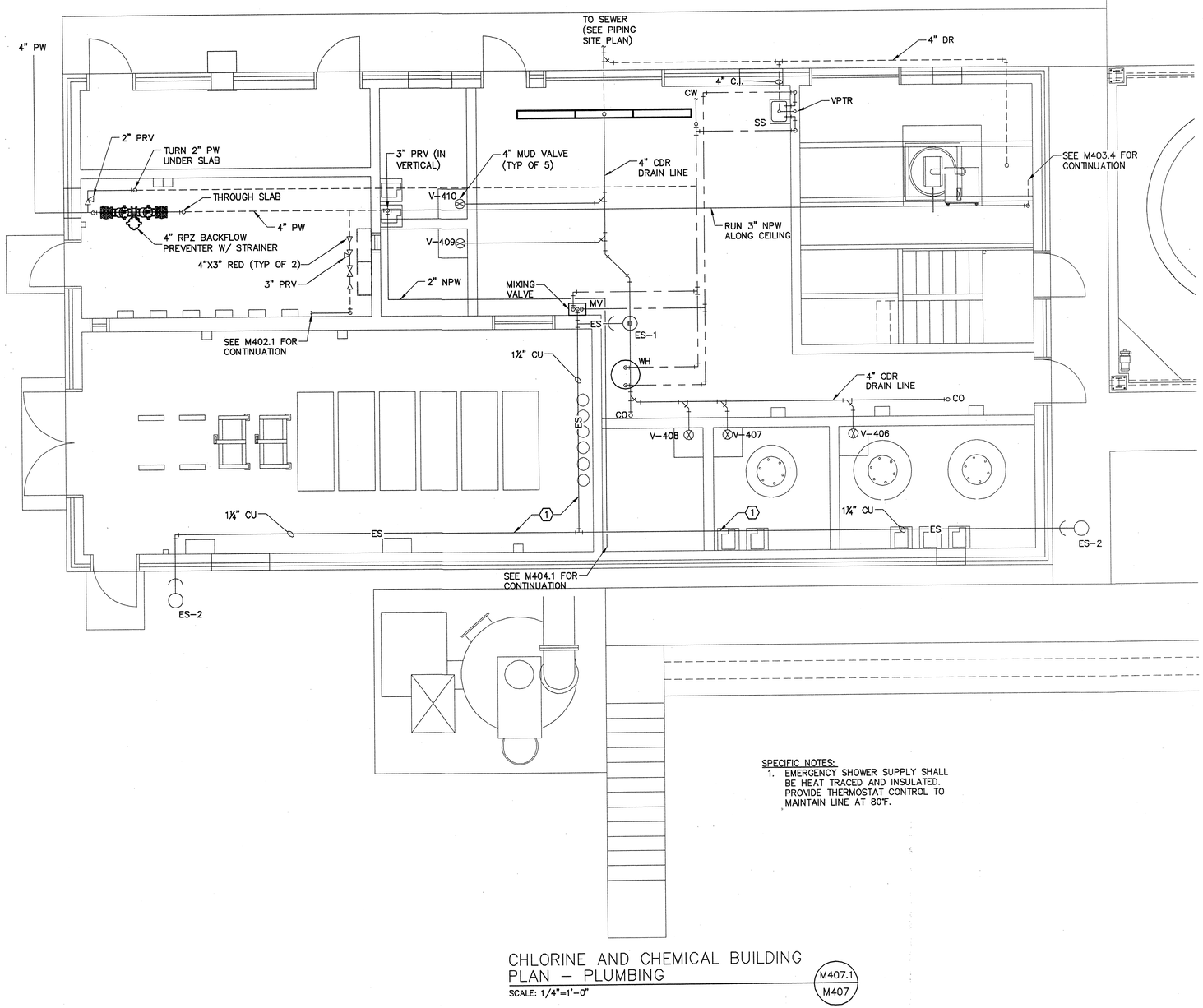
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CHLORINE AND CHEMICAL BUILDING
SECTIONS AND DETAILS

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A	PRELIMINARY SUBMITTAL	1/22/10	JGN

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M404



SPECIFIC NOTES:

1. EMERGENCY SHOWER SUPPLY SHALL BE HEAT TRACED AND INSULATED. PROVIDE THERMOSTAT CONTROL TO MAINTAIN LINE AT 80°F.

CHLORINE AND CHEMICAL BUILDING PLAN – PLUMBING

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

M407.1 / M407

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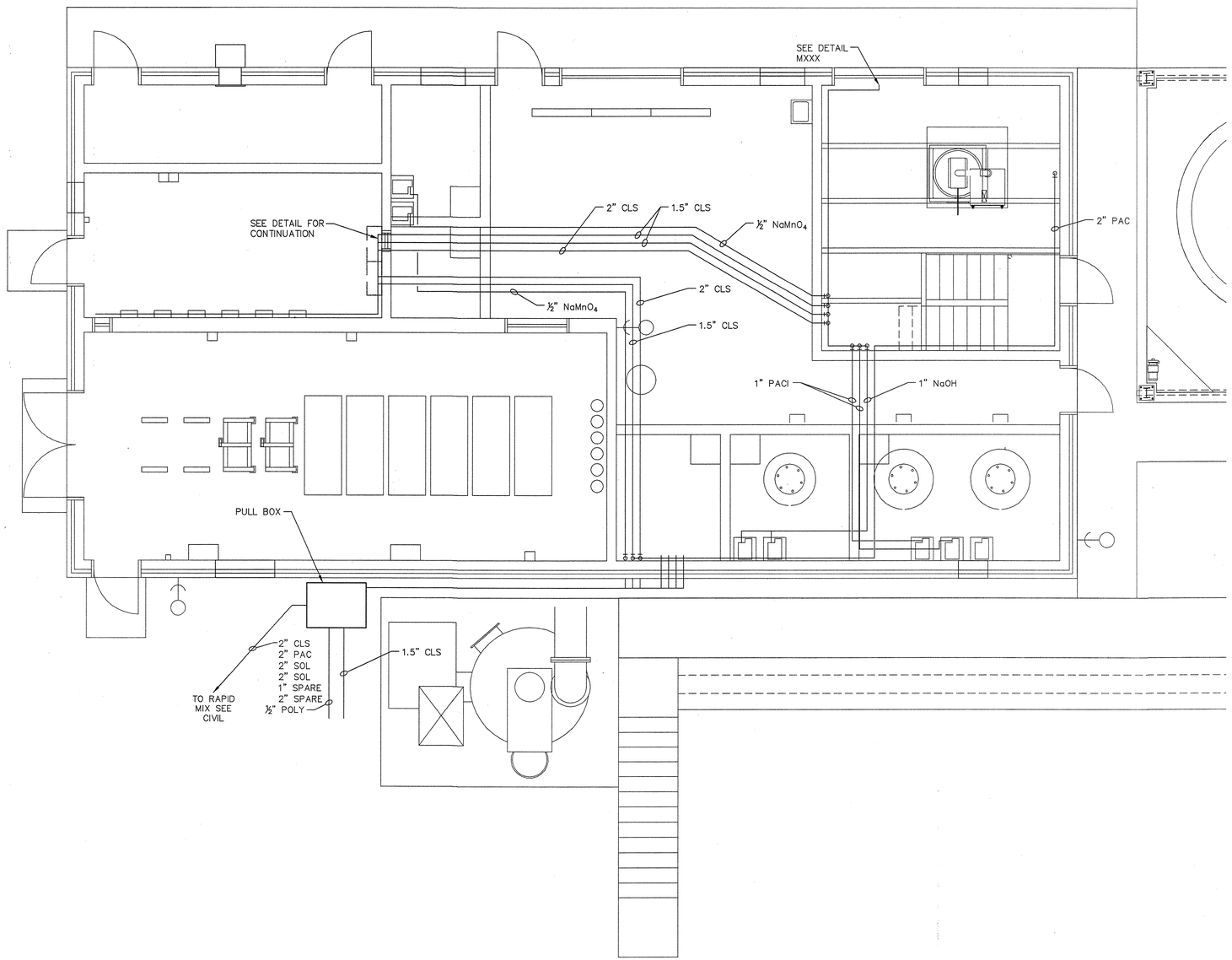
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CHLORINE AND CHEMICAL BUILDING
PLUMBING PLAN

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B	BID ISSUE	8/9/10	RCS
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M405



CHLORINE AND CHEMICAL BUILDING
PLAN – CHEMICAL PIPING

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

M408.1
M408

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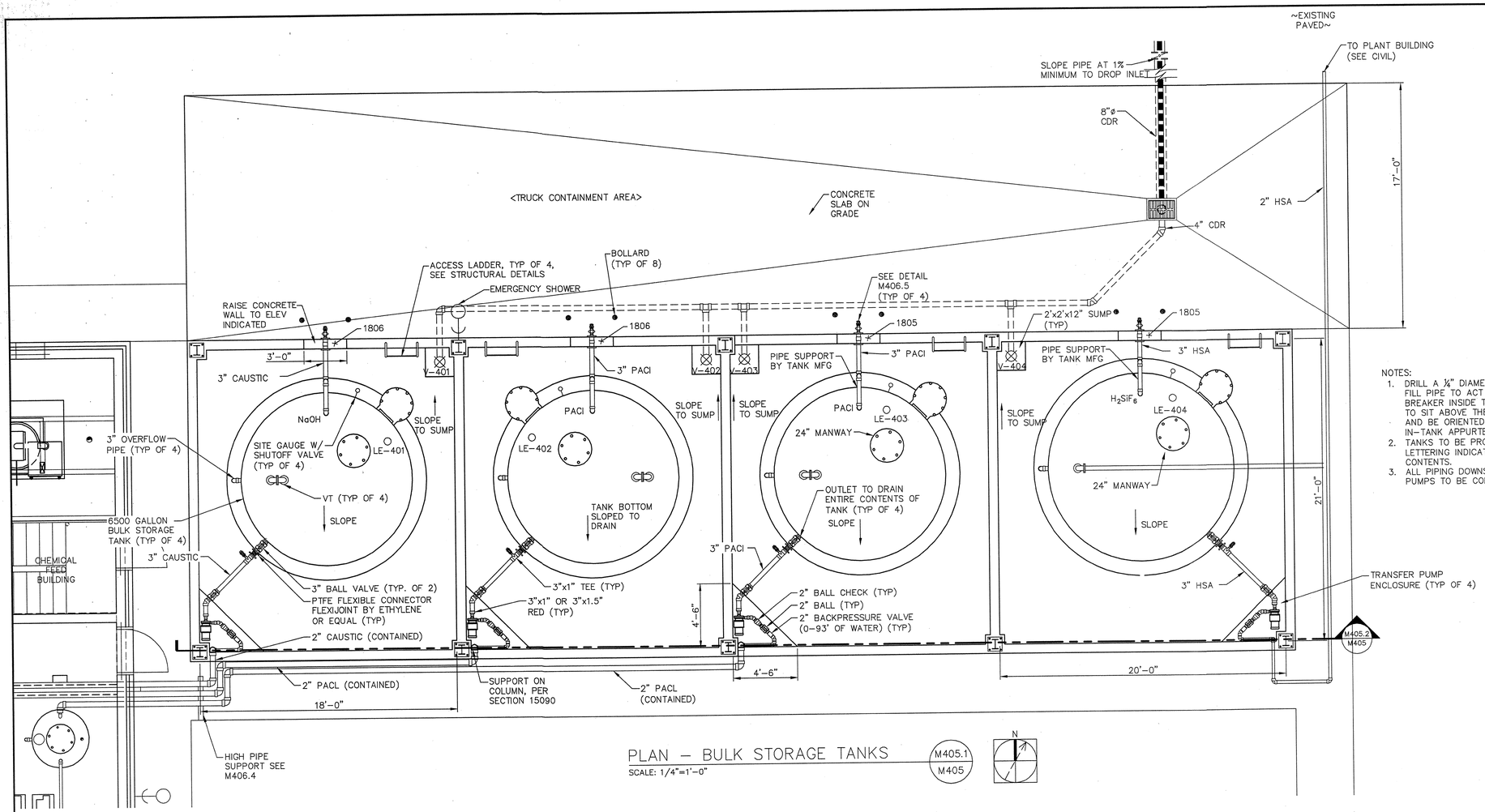
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CHLORINE AND CHEMICAL BUILDING
CHEMICAL PIPING PLAN

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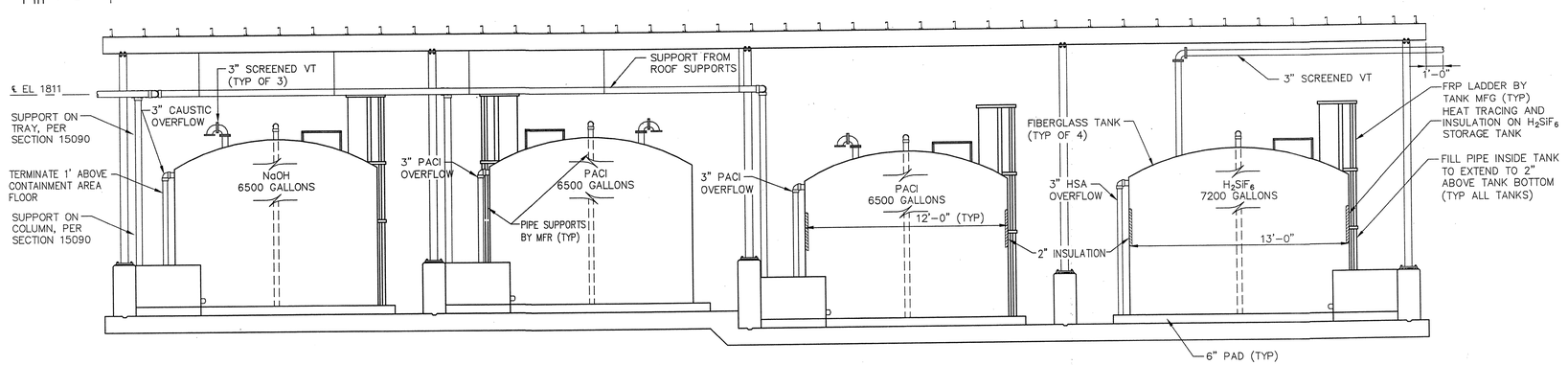
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M406



NOTES:
1. DRILL A ¼" DIAMETER HOLE ON THE FILL PIPE TO ACT AS A VACUUM BREAKER INSIDE THE TANK. HOLE IS TO SIT ABOVE THE HIGH WATER LINE AND BE ORIENTED 180° FROM ANY IN-TANK APPURTENANCE.
2. TANKS TO BE PROVIDED WITH 6" TALL LETTERING INDICATING TANK CHEMICAL CONTENTS.
3. ALL PIPING DOWNSTREAM OF THE BULK PUMPS TO BE CONTAINED.

PLAN – BULK STORAGE TANKS (M405.1 / M405)
SCALE: 1/4"=1'-0"



SECTION – BULK STORAGE TANKS (M405.2 / M405)
SCALE: 1/4"=1'-0"

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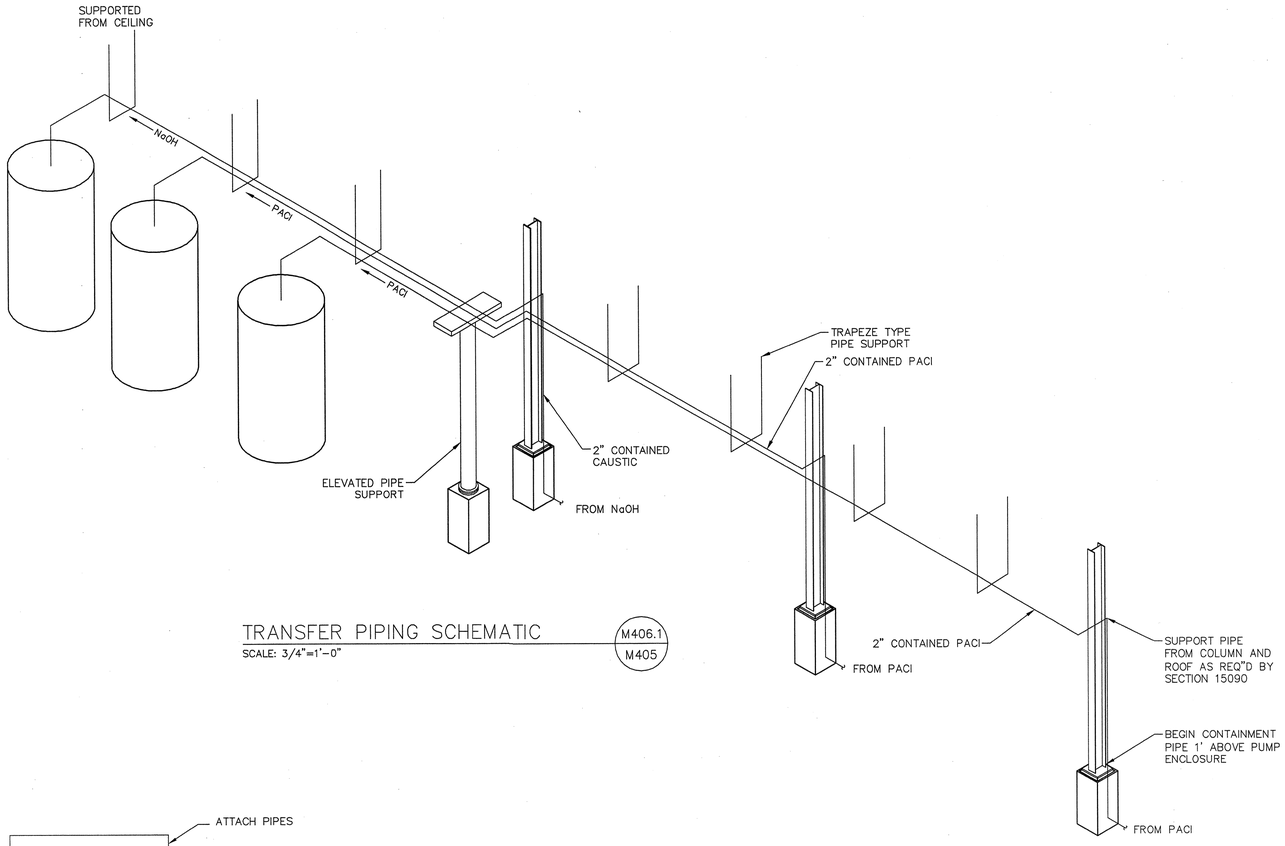
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MIDDLE FORK WTP UPGRADE TO 12 MGD
BULK CHEMICAL STORAGE FACILITY

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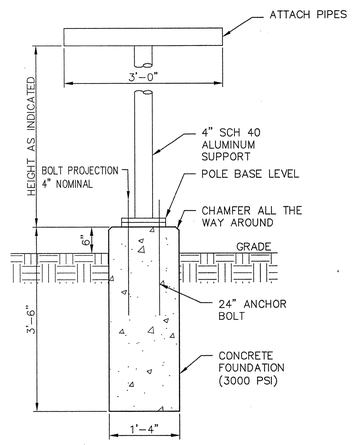
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TRANSFER PIPING SCHEMATIC — M406.1 / M405

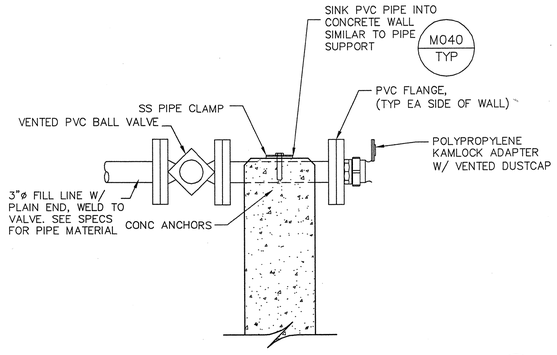
SCALE: 3/4"=1'-0"



NOTES:
1. POLE SHALL BE INSTALLED AND LEVELED STRAIGHT AND PLUMB.
2. PAINT POLE.
3. U-BOLT CONNECTION TO ALLOW FOR PIPE EXPANSION AND CONTRACTION.

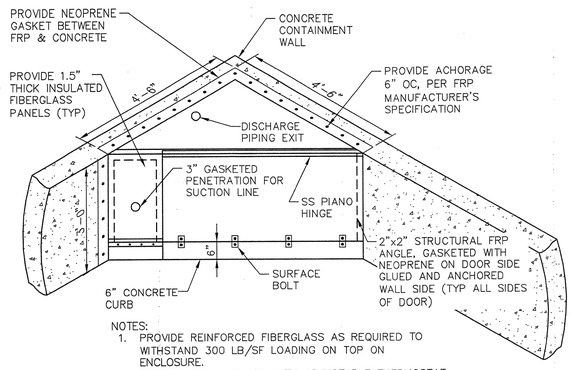
ELEVATED PIPE SUPPORT — M406.4 / M405

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



DETAIL – FILL LINE — M406.5 / TYP

SCALE: NO SCALE



NOTES:
1. PROVIDE REINFORCED FIBERGLASS AS REQUIRED TO WITHSTAND 300 LB/SF LOADING ON TOP ON ENCLOSURE.
2. PROVIDE STRIP HEATER WITH ADJUSTABLE THERMOSTAT WITHIN ENCLOSURE DESIGNED TO ENSURE TEMPERATURES STAY ABOVE 55° F.
3. SUBMIT SHOP DRAWINGS PER 01340.

TRANSFER PUMP ENCLOSURE — M406.7 / M405

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

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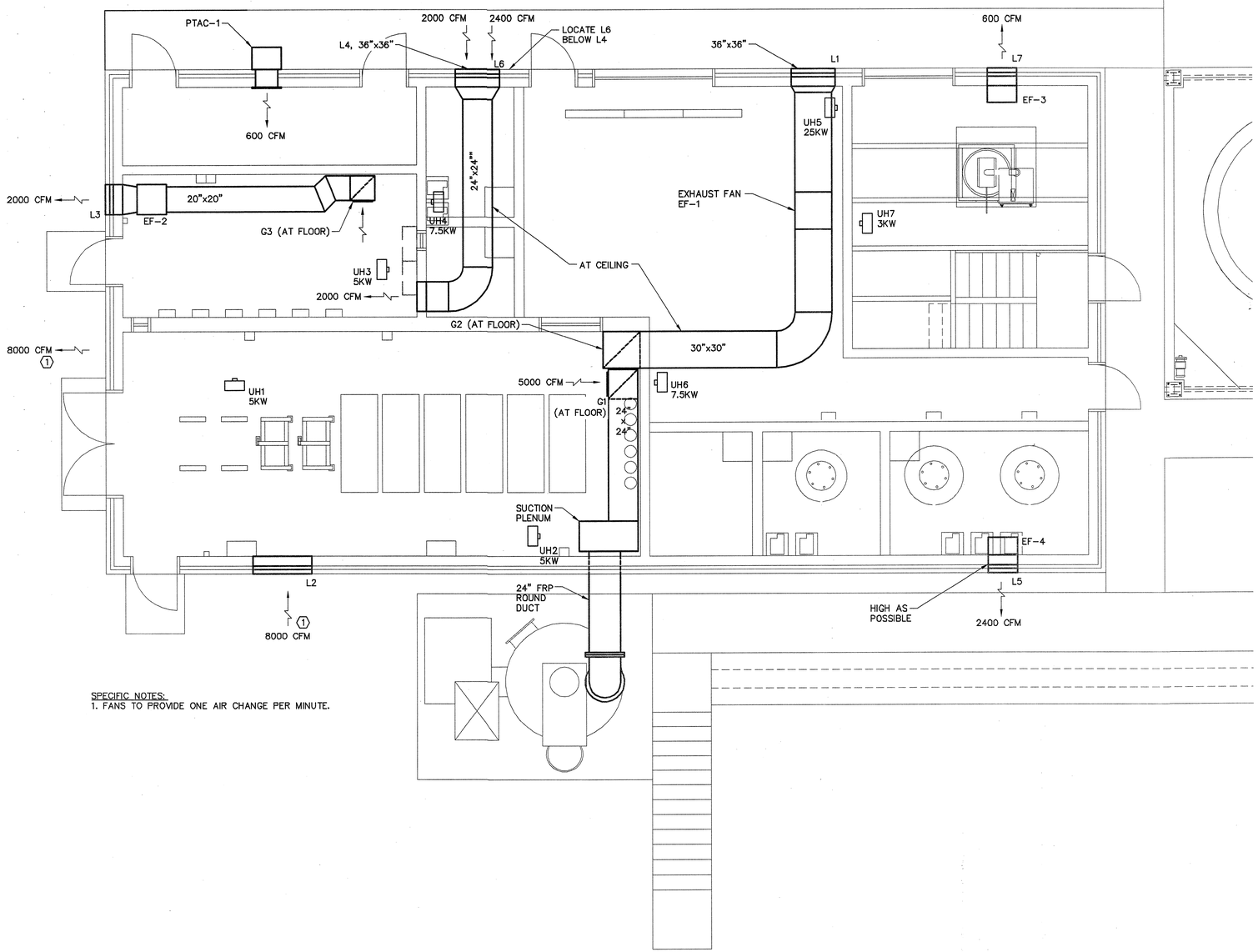
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

BULK CHEMICAL STORAGE FACILITY
SECTIONS AND DETAILS

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M408



SPECIFIC NOTES:
1. FANS TO PROVIDE ONE AIR CHANGE PER MINUTE.

CHLORINE AND CHEMICAL BUILDING
PLAN – HVAC

M409.1
M409

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

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CHLORINE AND CHEMICAL BUILDING
HVAC PLAN

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M409

SCADA COMPUTER NO.2

SCADA COMPUTER NO.1

CAT6E

MANAGED ETHERNET SWITCH

CONTROL PANEL CP-1 (LOCATED IN THE FILTER BUILDING)

MEDIA CONVERTER

PLC — PLC-1

VHF YAGI ANTENNA

VHF RADIO MODULE

FO

P-412 — FLUORIDE METERING PUMP 1

P-413 — FLUORIDE METERING PUMP 2

P-414 — POLYMER FEED PUMP 2

LT-201 — FILTER INFLUENT CHANNEL 1 LEVEL TRANSMITTER

LT-202 — FILTER INFLUENT CHANNEL 2 LEVEL TRANSMITTER

TM-1 — MIDDLE FORK RAW WATER TURBIDIMETER

TM-7 — COMBINED PRE-SED EFFLUENT TURBIDIMETER

TM-11 — COMBINED ADSORPTION CLARIFIER EFFLUENT TURBIDIMETER

TM-20 — COMBINED FILTER EFFLUENT TURBIDIMETER

TM-21 — FINISHED WATER TURBIDIMETER

FLUORIDE ANALYZER

CHLORINE ANALYZER

AIT-1 — MIDDLE FORK RAW WATER pH TRANSMITTER

AIT-2 — SOUTH FORK RAW WATER pH TRANSMITTER

AIT-3 — PRE-STATIC MIXER pH TRANSMITTER

AIT-4 — POST-STATIC MIXER pH TRANSMITTER

AIT-5 — FILTER INFLUENT CHANNEL pH TRANSMITTER

AIT-7 — FINISHED WATER pH TRANSMITTER

WT — FLUORIDE SCALE

ZS — FLUORIDE ROOM LABORATORY SHOWER LIMIT SWITCH

ZS — AIR SCOUR GALLERY EMERGENCY SHOWER LIMIT SWITCH

ZS — LABORATORY EMERGENCY SHOWER LIMIT SWITCH

ZS — LABORATORY EMERGENCY SHOWER LIMIT SWITCH

TM-2 — SOUTH FORK RAW WATER TURBIDIMETER

TM-3 — COMBINED RAW WATER TURBIDIMETER

AIT-6 — FILTER EFFLUENT pH TRANSMITTER

STREAMING CURRENT TRANSMITTER

FIT-101 — MIDDLE FORK RAW WATER FLOW TRANSMITTER

FIT-405 — FLUORIDE FLOW TRANSMITTER

FIT-406 — POLYMER 1 FLOW TRANSMITTER

FIT-407 — POLYMER 2 FLOW TRANSMITTER

LT-211 — CCT 1 LEVEL TRANSMITTER

LT-212 — CCT 2 LEVEL TRANSMITTER

FLUORIDE TRANSFER PUMP CONTROL PANEL

E002 A

CONTROL PANEL CP-2 (LOCATED IN THE FILTER BUILDING)

PLC — PLC-2

FILTER NO.1 OPERATOR INTERFACE PANEL

FILTER NO.2 OPERATOR INTERFACE PANEL

FILTER NO.3 OPERATOR INTERFACE PANEL

FILTER NO.4 OPERATOR INTERFACE PANEL

VCP-1 — V-243, V-241, V-242, V-244, V-245, V-246, V-291

TM-12 — INFLUENT TURBIDIMETER

DPT-213 — HEADLOSS TRANSMITTER

FIT-205 — EFFLUENT FLOW TRANSMITTER

LT-203 — FILTER LEVEL TRANSMITTER

VCP-2 — V-249, V-247, V-248, V-249, V-251, V-252, V-292

TM-13 — INFLUENT TURBIDIMETER

DPT-214 — HEADLOSS TRANSMITTER

FIT-206 — EFFLUENT FLOW TRANSMITTER

LT-204 — FILTER LEVEL TRANSMITTER

VCP-3 — V-255, V-253, V-254, V-256, V-257, V-258, V-293

TM-14 — INFLUENT TURBIDIMETER

DPT-215 — HEADLOSS TRANSMITTER

FIT-207 — EFFLUENT FLOW TRANSMITTER

LT-205 — FILTER LEVEL TRANSMITTER

VCP-4 — V-261, V-259, V-260, V-262, V-263, V-264, V-294

TM-15 — INFLUENT TURBIDIMETER

DPT-216 — HEADLOSS TRANSMITTER

FIT-208 — EFFLUENT FLOW TRANSMITTER

LT-206 — FILTER LEVEL TRANSMITTER

EFFLUENT VALVE
INFLUENT VALVE A
INFLUENT VALVE B
FILTER-TO-WASTE VALVE
BACKWASH VALVE
BACKWASH DRAIN VALVE
AIR VALVE
EFFLUENT TURBIDIMETER
HEADLOSS TRANSMITTER
EFFLUENT FLOW TRANSMITTER
FILTER LEVEL TRANSMITTER

FILTER NO. 1 | FILTER NO. 2 | FILTER NO. 3 | FILTER NO. 4

E002 B

CONTROL PANEL CP-3 (LOCATED IN THE FILTER BUILDING)

PLC — PLC-3

FILTER NO.5 OPERATOR INTERFACE PANEL

FILTER NO.6 OPERATOR INTERFACE PANEL

FILTER NO.7 OPERATOR INTERFACE PANEL

FILTER NO.8 OPERATOR INTERFACE PANEL

VCP-5 — V-267, V-265, V-266, V-268, V-269, V-270, V-295

TM-16 — INFLUENT TURBIDIMETER

DPT-217 — HEADLOSS TRANSMITTER

FIT-209 — EFFLUENT FLOW TRANSMITTER

LT-207 — FILTER LEVEL TRANSMITTER

VCP-6 — V-273, V-271, V-272, V-274, V-275, V-276, V-296

TM-17 — INFLUENT TURBIDIMETER

DPT-218 — HEADLOSS TRANSMITTER

FIT-210 — EFFLUENT FLOW TRANSMITTER

LT-208 — FILTER LEVEL TRANSMITTER

VCP-7 — V-279, V-277, V-278, V-280, V-281, V-282, V-297

TM-18 — INFLUENT TURBIDIMETER

DPT-219 — HEADLOSS TRANSMITTER

FIT-211 — EFFLUENT FLOW TRANSMITTER

LT-209 — FILTER LEVEL TRANSMITTER

VCP-8 — V-285, V-283, V-284, V-286, V-287, V-288, V-298

TM-18 — INFLUENT TURBIDIMETER

DPT-220 — HEADLOSS TRANSMITTER

FIT-212 — EFFLUENT FLOW TRANSMITTER

LT-210 — FILTER LEVEL TRANSMITTER

EFFLUENT VALVE
INFLUENT VALVE A
INFLUENT VALVE B
FILTER-TO-WASTE VALVE
BACKWASH VALVE
BACKWASH DRAIN VALVE
AIR VALVE
EFFLUENT TURBIDIMETER
HEADLOSS TRANSMITTER
EFFLUENT FLOW TRANSMITTER
FILTER LEVEL TRANSMITTER

FILTER NO. 5 | FILTER NO. 6 | FILTER NO. 7 | FILTER NO. 8

E003 C | E003 D | E003 E

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MIDDLE FORK WTP UPGRADE TO 12 MGD
SCADA SYSTEM DIAGRAM

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

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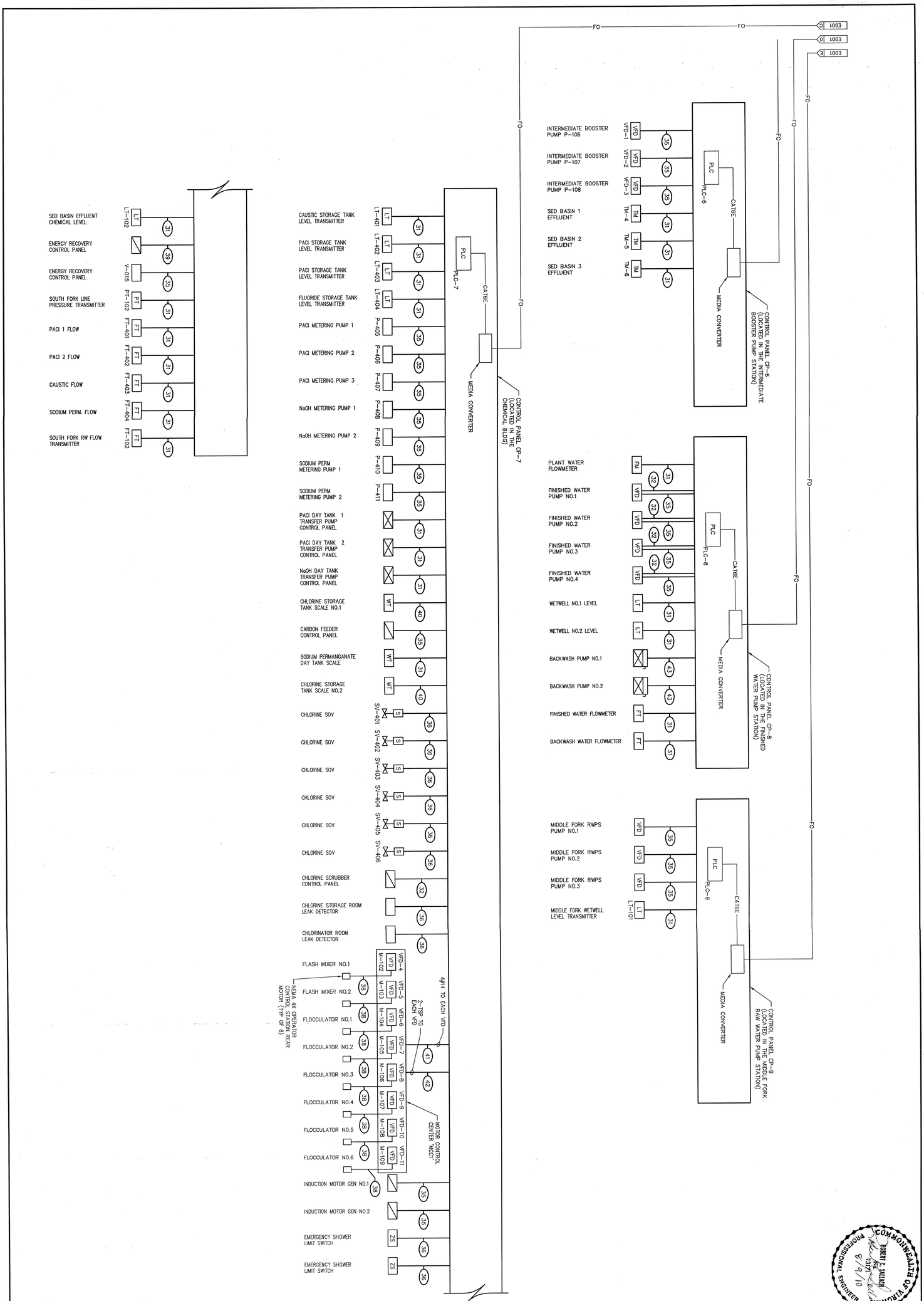
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SCADA SYSTEM DIAGRAM

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COMMONWEALTH OF VIRGINIA
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8/9/10

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

SCADA SYSTEM DIAGRAM

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ONE-LINE DIAGRAM
INTERMEDIATE BOOSTER PUMP STATION

ONE-LINE DIAGRAM
ENERGY RECOVERY BUILDING

ONE-LINE DIAGRAM
FILTER BUILDING

ROBERT C. SALLACH
No. 13171
8/9/10
COMMONWEALTH OF VIRGINIA
PROFESSIONAL ENGINEER

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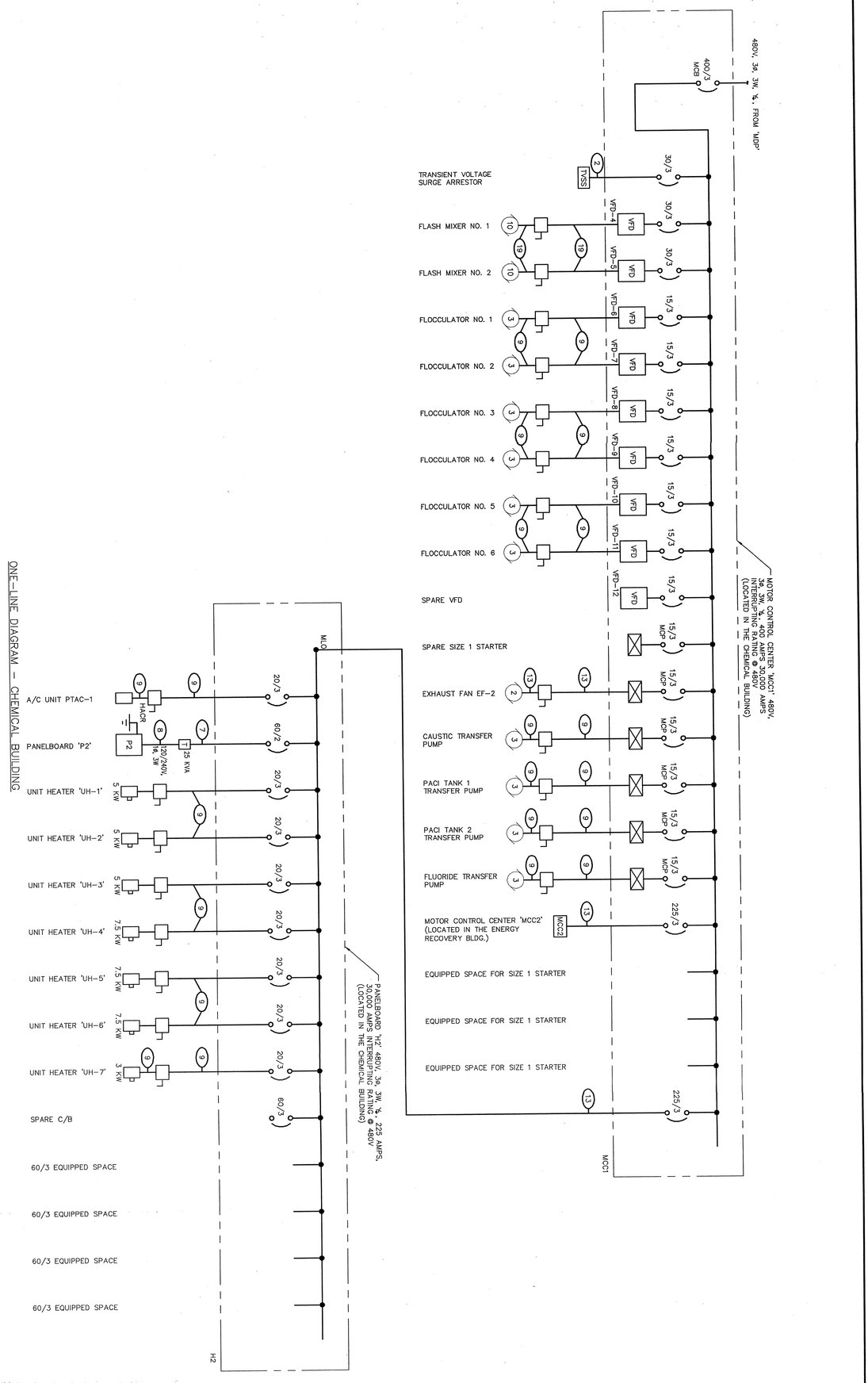
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

ONE-LINE DIAGRAMS

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	RCS
B	VDH RESUBMITTAL	7/13/10	RCS
A	VDH SUBMITTAL	5/3/10	RCM

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COMMONWEALTH OF VIRGINIA
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LICENSED
PROFESSIONAL ENGINEER
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E005

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	RCS
B	VDH RESUBMITTAL	7/13/10	RCS
A	VDH SUBMITTAL	5/3/10	RCM

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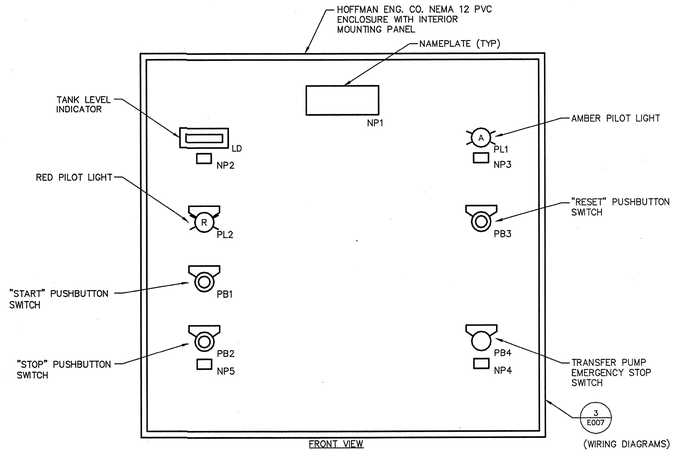
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

ONE-LINE DIAGRAMS

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BILL OF MATERIALS – CHEMICAL TRANSFER PUMP CONTROL PANELS	
TAG	DESCRIPTION
CB	CIRCUIT BREAKER, 15 AMP, SINGLE POLE, BACK–MOUNTED ON INTERIOR PANEL
F	FUSE IN FUSE BLOCK, 1 AMPERE
PS	POWER SUPPLY, REGULATED, 24 VDC 2 AMPERE OUTPUT
LT	LEVEL TRANSMITTER, CAPACITANCE TYPE, WITH FLEXIBLE TEFLON COVERED PROBE
LR1, LR2	CURRENT TRIP RELAYS, CONTACTS TO BE FAIL SAFE OPEN
R1, R2	RELAYS, PLUG–IN TYPE, WITH DPDT 10 AMPERE CONTACTS
LD	DIGITAL DISPLAY, THREE ¾" HIGH DIGITS, CALIBRATED TO DISPLAY TANK LEVEL IN FEET AND TENTHS OF FEET
PB1	PUSHBUTTON SWITCH, MOMENTARY CONTACT, NEMA HEAVY DUTY OIL–TIGHT TYPE, WITH LEGEND PLATE INSCRIBED "START"
PB2	PUSHBUTTON SWITCH, MOMENTARY CONTACT, NEMA HEAVY DUTY OIL–TIGHT TYPE, WITH LEGEND PLATE INSCRIBED "STOP"
PB3	PUSHBUTTON SWITCH, MOMENTARY CONTACT, NEMA HEAVY DUTY OIL–TIGHT TYPE, WITH LEGEND PLATE INSCRIBED "RESET"
PB4	EMERGENCY STOP PUSHBUTTON SWITCH, MAINTAINED CONTACT, PULL TO RESET, WITH LEGEND PLATE INSCRIBED "EMERGENCY STOP"
SS1	SELECTOR SWITCH, MAINTAINED CONTACT, NEMA HEAVY DUTY, OIL–TIGHT TYPE, WITH LEGEND PLATE INSCRIBED "PUMP 1 PUMP 2
HLS	FLOAT SWITCH, NORMALLY OPEN, ENCASED POLYPROPYLENE

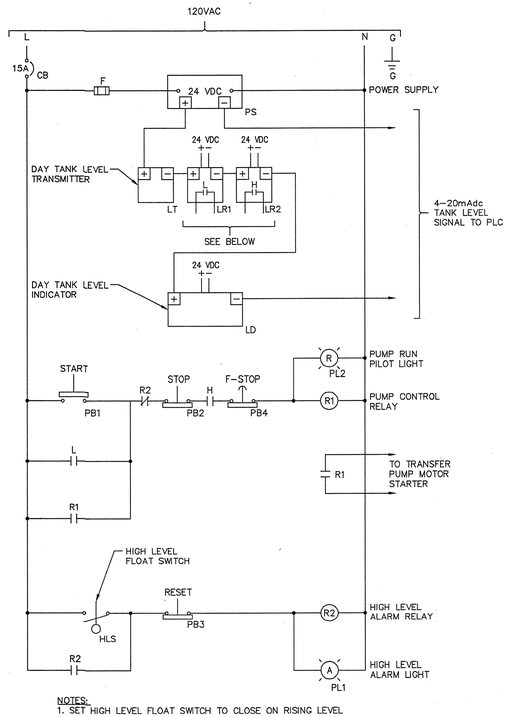


FRONT VIEW

NAMEPLATE LIST	
TAG	INSCRIPTION
NP1	CAUSTIC TRANSFER PUMP CONTROL PANEL
NP2	DAY TANK LEVEL
NP3	DAY TANK LEVEL HIGH
NP4	TRANSFER PUMP EMERGENCY STOP
NP5	TRANSFER PUMP MANUAL CONTROL

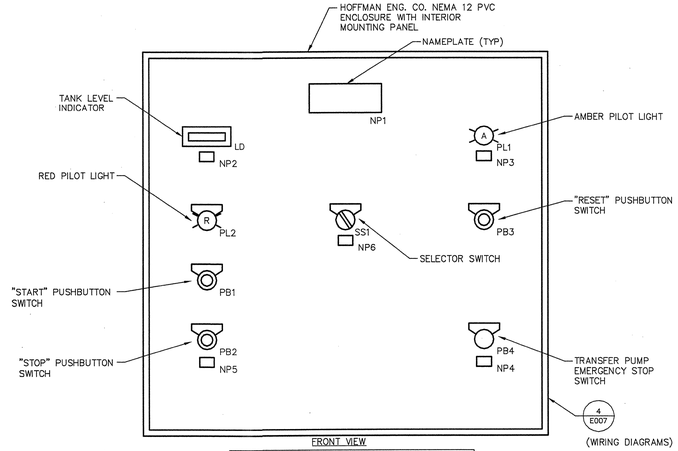
CHEMICAL TRANSFER PUMP CONTROL PANEL – TYPE 1 (2/E007)

(SHOWN FOR CAUSTIC TRANSFER PUMP, SIMILAR FOR THE FLUORIDE TRANSFER PUMP)



NOTES:
1. SET HIGH LEVEL FLOAT SWITCH TO CLOSE ON RISING LEVEL AT 6" ABOVE LEVEL TRANSMITTER STOP SETPOINT.

CHEMICAL TRANSFER PUMP CONTROL PANEL – WIRING DIAGRAM – TYPE 1 (3/E007)

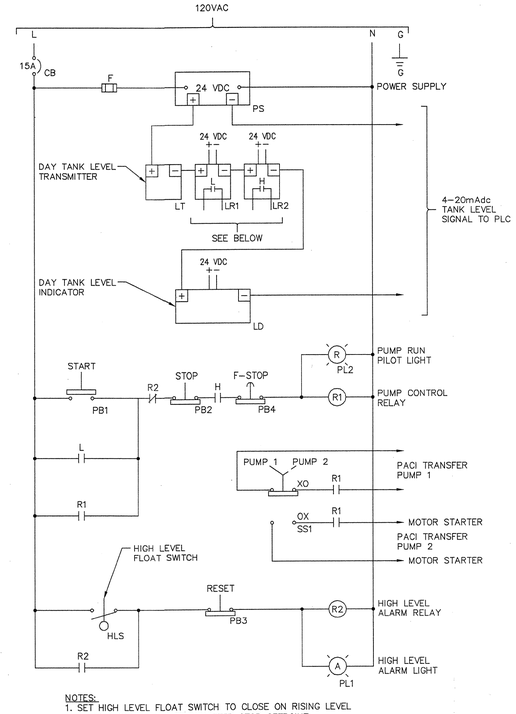


FRONT VIEW

NAMEPLATE LIST	
TAG	INSCRIPTION
NP1	PACI TRANSFER PUMP CONTROL PANEL
NP2	DAY TANK LEVEL
NP3	DAY TANK LEVEL HIGH
NP4	TRANSFER PUMP EMERGENCY STOP
NP5	TRANSFER PUMP MANUAL CONTROL
NP6	TRANSFER PUMP SELECTOR SWITCH

CHEMICAL TRANSFER PUMP CONTROL PANEL – TYPE 2 (2/E007)

(TYPICAL FOR PACI DAY TANK 1 AND DAY TANK 2 CONTROL PANELS)



NOTES:
1. SET HIGH LEVEL FLOAT SWITCH TO CLOSE ON RISING LEVEL AT 6" ABOVE LEVEL TRANSMITTER STOP SETPOINT.

CHEMICAL TRANSFER PUMP CONTROL PANEL – WIRING DIAGRAM – TYPE 2 (4/E007)

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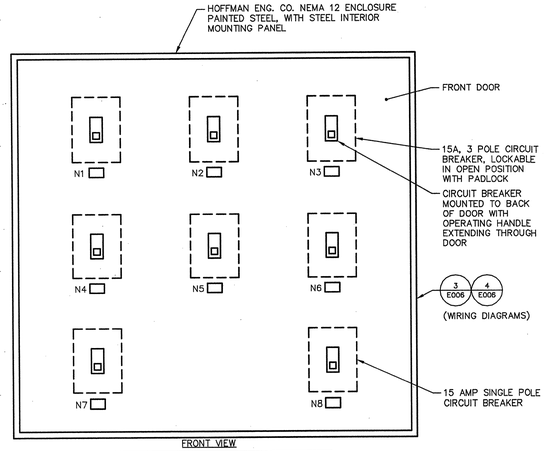
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MIDDLE FORK WTP UPGRADE TO 12 MGD

CHEMICAL TRANSFER PUMPS CONTROL PANEL

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	RCS
B	VDH RESUBMITTAL	7/13/10	RCS
A	VDH SUBMITTAL	5/3/10	RCM

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E007

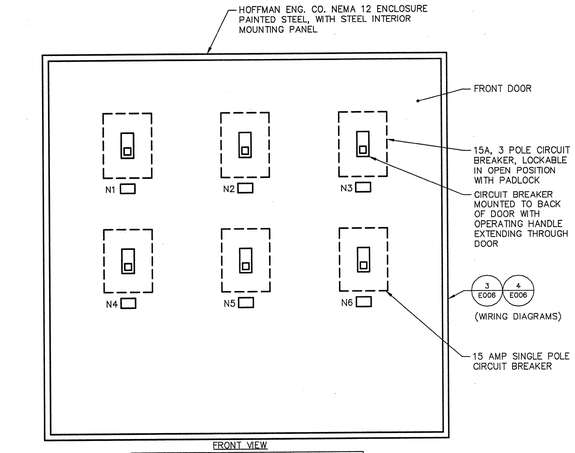


FRONT VIEW

NAMEPLATE LIST	
TAG	INSCRIPTION
N1	INFLUENT SLIDE GATE 1
N2	INFLUENT SLIDE GATE 2
N3	BACKWASH VALVE
N4	AIR VALVE
N5	DRAIN VALVE
N6	FILTER TO WASTE VALVE
N7	EFFLUENT FLOW CONTROL VALVE
N8	TURBIDIMETER

DETAIL – VALVE CONTROL PANELS (FILTERS) — 1 / E006

(TYP. FOR EIGHT CONTROL PANELS – VCP–1 THROUGH VCP–8)

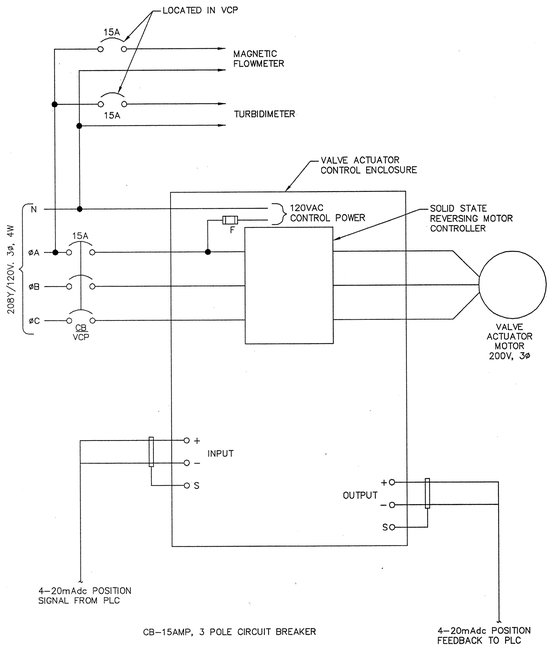


FRONT VIEW

NAMEPLATE LIST	
TAG	INSCRIPTION
N1	INFLUENT FLOW CONTROL VALVE
N2	FLUSH VALVE
N3	AIR VALVE
N4	EFFLUENT GATE VALVE
N5	TURBIDIMETER
N6	FLOWMETER

DETAIL – VALVE CONTROL PANELS (CLARIFIERS) — 2 / E006

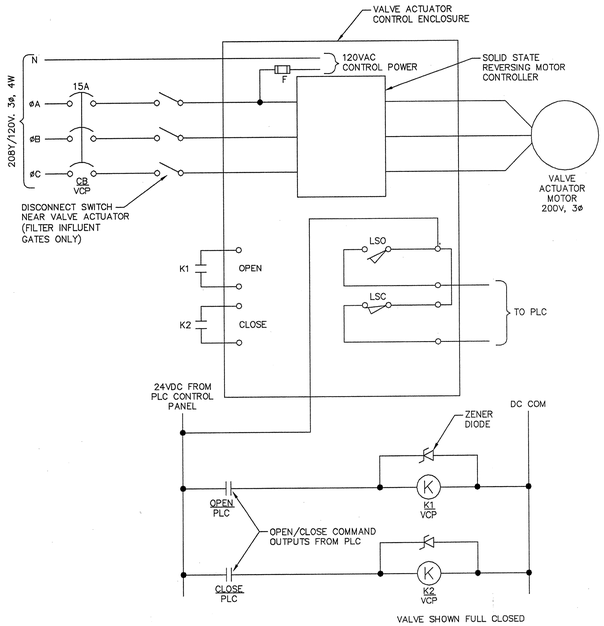
(TYP. FOR THREE CONTROL PANELS – VCP–9 THROUGH VCP–11)



CB–15AMP, 3 POLE CIRCUIT BREAKER

MODULATING VALVE WIRING DIAGRAM — 4 / E006

SCALE: NO SCALE (TYP FOR 11 VALVES)



VALVE SHOWN FULL CLOSED

K–24VDC RELAY INSIDE VCP
CB–15AMP, 3 POLE CIRCUIT BREAKER
LSC–LIMIT SWITCH CLOSED WHEN VALVE IS FULLY CLOSED, OPEN OTHERWISE
LSO–LIMIT SWITCH CLOSED WHEN VALVE IS FULLY OPEN, OPEN OTHERWISE

OPEN/CLOSE VALVE WIRING DIAGRAM — 3 / E006

SCALE: NO SCALE (TYP FOR 57 VALVES)

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VALVE CONTROL PANELS

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A	VDH SUBMITTAL	5/3/10	RCM

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COMMONWEALTH OF VIRGINIA
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PANEL DESIGNATION: H1
VOLTAGE: 480V, 3ø, GROUNDED WYE
AMPERES: 100A

LOCATION: INTERMEDIATE BOOSTER PUMP STATION
MAIN: MLO
PANEL MOUNTING: NEMA 1, SURFACE MTD

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
AIR COMPRESSOR	1	1	1	20	3	1	2	30	3	5	5	5	UNIT HEATER UH-8
AC UNIT PTAC-2	2	2	2	20	3	7	8	60	3				SPARE
SPARE				20	3	13	14	20	3	1	1	1	CRANE
EQUIPPED SPACE					3	19	20		3				EQUIPPED SPACE
EQUIPPED SPACE					3	25	26		3				EQUIPPED SPACE
EQUIPPED SPACE					3	31	32		3				EQUIPPED SPACE
EQUIPPED SPACE					3	37	38	60	2	12	X	12	PANEL 'P1' VIA 25KVA XFMR
SUB-TOTAL	3	3	3							18	6	18	SUB-TOTAL

L1: 21 KVA
L2: 9 KVA
L3: 21 KVA

TOTAL CONNECTED LOAD = 51 KVA

INTERRUPTING RATING AT 480 VOLTS: 50,000 AMPS

PANEL DESIGNATION: H2
VOLTAGE: 480V, 3ø, GROUNDED WYE
AMPERES: 200A

LOCATION: CHEMICAL BUILDING
MAIN: MLO
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
AC UNIT PTAC-1	1.5	1.5	1.5	20	3	1	2	20	3	1.7	1.7	1.7	UNIT HEATER UH-1
UNIT HEATER UH-2	1.7	1.7	1.7	20	3	7	8	20	3	1.7	1.7	1.7	UNIT HEATER UH-3
UNIT HEATER UH-4	2.6	2.6	2.6	20	3	13	14	20	3	2.6	2.6	2.6	UNIT HEATER UH-5
UNIT HEATER UH-6	2.6	2.6	2.6	20	3	19	20	20	3	1.1	1.1	1.1	UNIT HEATER UH-7
SPARE				60	3	25	26	60	3	2	2	2	EXIST PANEL AT SED BASINS
SPARE				20	3	31	32		3				EQUIPPED SPACE
EQUIPPED SPACE					3	37	38	60	2	X	12	12	PANEL 'P2' VIA 25KVA XFMR
SUB-TOTAL	8.4	8.4	8.4							9.1	21.1	21.1	SUB-TOTAL

L1: 17.5 KVA
L2: 29.5 KVA
L3: 29.5 KVA

TOTAL CONNECTED LOAD = 76.5 KVA

INTERRUPTING RATING AT 480 VOLTS: 30,000 AMPS

PANEL DESIGNATION: H3
VOLTAGE: 480V, 3ø, GROUNDED WYE
AMPERES: 600A

LOCATION: FILTER BLDG. ELEC. ROOM
MAIN: MCB
PANEL MOUNTING: NEMA 1, SURFACE MTD

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
TVSS	–	–	–	30	3	1	2	200	3	35	35	35	BLOWER 1
BLOWER 2	35	35	35	200	3	7	8	30	3	2.5	2.5	2.5	UNIT HEATER UH-8
UNIT HEATER UH-9	2.5	2.5	2.5	30	3	13	14	30	3	2.5	2.5	2.5	UNIT HEATER UH-10
UNIT HEATER UH-11	2.5	2.5	2.5	30	3	19	20	100	3				SPARE
PANEL H3A	42	42	42	200	3	25	26	200	3				SPARE
FILTER OPERATING FLOOR EXHAUST FAN	1	1	1	20	3	31	32		3				EQUIPPED SPACE
PANEL 'P3' VIA 150KVA XFMR	50	50	50	225	3	37	38	60	2	12	12	X	PANEL 'P4' VIA 25KVA XFMR
SUB-TOTAL	133	133	133							52	52	40	SUB-TOTAL

L1: 185 KVA
L2: 185 KVA
L3: 173 KVA

TOTAL CONNECTED LOAD = 543 KVA

INTERRUPTING RATING AT 480 VOLTS: 50,000 AMPS

PANEL DESIGNATION: H3A
VOLTAGE: 480V, 3ø, GROUNDED WYE
AMPERES: 200A

LOCATION: FILTER BLDG. ELEC. ROOM
MAIN: MLO
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
RADIANT HEATER	7	7	7	60	3	1	2	60	3	7	7	7	RADIANT HEATER
RADIANT HEATER	7	7	7	60	3	7	8	60	3	7	7	7	RADIANT HEATER
RADIANT HEATER	7	7	7	60	3	13	14	60	3	7	7	7	RADIANT HEATER
SPARE				60	3	19	20	60	3				SPARE
EQUIPPED SPACE					3	25	26		3				EQUIPPED SPACE
EQUIPPED SPACE					3	31	32		3				EQUIPPED SPACE
EQUIPPED SPACE					3	37	38		3				EQUIPPED SPACE
SUB-TOTAL	21	21	21							21	21	21	SUB-TOTAL

L1: 42 KVA
L2: 42 KVA
L3: 42 KVA

TOTAL CONNECTED LOAD = 126 KVA

INTERRUPTING RATING AT 480 VOLTS: 50,000 AMPS

PANEL DESIGNATION: P3
VOLTAGE: 208Y/120V, 3ø, 4W
AMPERES: 600A

LOCATION: FILTER BLDG ELEC. ROOM
MAIN: MCB
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
PANEL P3A	14	14	15	200	3	1	2	30	3	5	5	5	PANEL P3B
PANEL P3C	4	5	3	100	3	7	8	60	3				PANEL P3D
LIGHTS	1.0			20	1	13	14	20	1	0.5			RECEPTACLES
LIGHTS		0.8		20	1	15	16	20	1		0.5		RECEPTACLES
LIGHTS			0.8	20	1	17	18	20	1			0.5	RECEPTACLES
LIGHTS	1.0			20	1	19	20	20	1	0.5			RECEPTACLES
LIGHTS		1.0		20	1	21	22	20	1		0.5		RECEPTACLES
LIGHTS			1.0	20	1	23	24	20	1				SPARE
LIGHTS	1.0			20	1	25	26	20	1	0.6			CP-3
LIGHTS		1.0		20	1	27	28	20	1		0.6		CP-5
LIGHTS			1.0	20	1	29	30	20	1				SPARE
							32	20	1				SPARE
CU-4	3	3		40	2	31	34	60	3	2	2	2	AUTOCLAVE
AHU-4	4		4	60	2	35							
AHU-4		4	4	60	2	39	40	30	2		2.3	2.3	WATER HEATER
SUB-TOTAL	28	29	29							33	36	34	SUB-TOTAL

L1: 61 KVA
L2: 64 KVA
L3: 63 KVA

TOTAL CONNECTED LOAD = 188 KVA

INTERRUPTING RATING AT 240 VOLTS:

PANEL DESIGNATION: P3A
VOLTAGE: 208Y/120V, 3ø, 4W
AMPERES: 200A

LOCATION: FILTER BLDG LOWER LEVEL
MAIN: MLO
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
VALVE CONTROL PANELS VCP-1 THROUGH VCP-4	2	2	2	60	3	1	2	60	3	2	2	2	VALVE CONTROL PANELS VCP-5 THROUGH VCP-8
VALVE CONTROL PANELS VCP-9 & VCP-10	2	2	2	60	3	7	8	60	3	2	2	2	VALVE CONTROL PANEL VCP-11 (AND VCP-12, FUTURE)
LIGHTS	0.8			20	1	13	14	20	1	0.5			RECEPTACLES
LIGHTS		1.2		20	1	15	16	20	1		0.5		RECEPTACLES
LIGHTS			0.8	20	1	17	18	20	1			0.5	RECEPTACLES
LIGHTS	0.8			20	1	19	20	20	1	0.5			RECEPTACLES
LIGHTS		1.0		20	1	21	22	20	1		0.5		RECEPTACLES
LIGHTS			0.8	20	1	23	24	20	1			0.5	RECEPTACLES
LIGHTS	0.8			20	1	25	26	20	1	0.5			RECEPTACLES
LIGHTS		0.8		20	1	27	28	20	1				SPARE
LIGHTS			0.8	20	1	29	30	20	1			0.9	SAMPLE PUMP P-206
SPARE				20	1	31	32	20	1	0.9			SAMPLE PUMP P-202
FLUORIDE METERING PUMP		0.7		20	1	33	34	20	1		0.9		SAMPLE PUMP P-207
FLUORIDE SCALE			0.1	20	1	35	36	20	1			0.9	SAMPLE PUMP P-203
ANALYTICAL INSTRUMENTATION	0.8			20	1	37	38	20	1				SPARE
POLYMER FEEDER 1		0.6		20	1	39	40	20	1				SPARE
POLYMER FEEDER 2			0.6	20	1	41	42	20	1			0.7	EF-11
SUB-TOTAL	7.2	7.3	6.9							6.4	5.9	7.5	SUB-TOTAL

L1: 13.6 KVA
L2: 13.2 KVA
L3: 14.4 KVA

TOTAL CONNECTED LOAD = 41.2 KVA

INTERRUPTING RATING AT 240 VOLTS: 10,000 AMPS

VERIFY SCALE

Bar Scale measures 1" on original drawing

0" 1"

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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

PANEL SCHEDULES

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	RCS
B	VDH RESUBMITTAL	7/13/10	RCS
A	VDH SUBMITTAL	5/3/10	RCM

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PANEL DESIGNATION: P3B
VOLTAGE: 208Y/120V, 3ø, 4W
AMPERES:

LOCATION: FILTER BLDG OFFICE AREA
MAIN: MLO
PANEL MOUNTING: NEMA 1, FLUSH

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
LIGHTS	0.5			20	1	1	2	20	1	0.5			RECEPTACLES
LIGHTS		0.5		20	1	3	4	20	1		0.5		RECEPTACLES
LIGHTS			0.6	20	1	5	6	20	1			0.5	RECEPTACLES
LIGHTS	0.8			20	1	7	8	20	1	0.8			EF-8 & EF-9
LIGHTS		0.3		20	1	9	10	20	1		0.6		WATER COOLERS
LIGHTS			0.7	20	1	11	12	20	1			0.5	RECEPTACLES
LIGHTS	0.4			20	1	13	14	20	1	0.5			RECEPTACLES
LIGHTS		0.4		20	1	15	16	20	1				SPARE
LIGHTS			0.4	20	1	17	18	20	1			0.5	RECEPTACLES
SPARE				20	1	19	20	20	1	0.5			RECEPTACLES
EXTERIOR LIGHTING		0.5		20	1	21	22	20	1		0.5		RECEPTACLES
SPARE				20	1	23	24	20	1			0.5	RECEPTACLES
SPARE				20	1	25	26	20	1	0.5			RECEPTACLES
SPARE				20	1	27	28	20	1		0.5		RECEPTACLES
SPARE				20	1	29	30	20	1			0.5	RECEPTACLES
EQUIPPED SPACE					1	31	32	20	1	0.5			RECEPTACLES
EQUIPPED SPACE					1	33	34	20	1				SPARE
EQUIPPED SPACE					2	35	36	30	2				SPARE
EQUIPPED SPACE					2	39	40	60	2				SPARE
SUB-TOTAL	1.7	1.6	1.7							3.3	2.1	2.5	SUB-TOTAL

L1: 5.0 KVA
L2: 3.8 KVA
L3: 4.2 KVA

TOTAL CONNECTED LOAD = 13 KVA

INTERRUPTING RATING AT 240 VOLTS: 10,000 AMPS

PANEL DESIGNATION: P3C
VOLTAGE: 208Y/120V, 3ø, 4W
AMPERES: 100A

LOCATION: FILTER BLDG BLOWER ROOM
MAIN: MLO
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
LIGHTS	1.0			20	1	1	2	20	1	0.5			RECEPTACLES
LIGHTS		1.0		20	1	3	4	20	1		0.7		COMPUTERS
LIGHTS			1.0	20	1	5	6	20	1			0.7	COMPUTERS
LIGHTS	1.0			20	1	7	8	20	1				SPARE
SPARE				20	1	9	10	20	1		0.6		CP-1
SPARE				20	1	11	12	20	1			0.6	CP-2
SPARE				20	1	13	14	20	1	0.6			CP-4
EF-7		0.8		20	1	15	16	20	1		0.5		RECEPTACLES
EQUIPPED SPACE					1	17	18	20	1			0.5	RECEPTACLES
EQUIPPED SPACE					1	19	20	20	1	0.5			RECEPTACLES
EQUIPPED SPACE					1	21	22	20	1		0.5		RECEPTACLES
EQUIPPED SPACE					1	23	24		1				EQUIPPED SPACE
EQUIPPED SPACE					1	25	26		1				EQUIPPED SPACE
EQUIPPED SPACE					1	27	28		1				EQUIPPED SPACE
EQUIPPED SPACE					1	29	30		1				EQUIPPED SPACE
SPARE				30	2	31	36	60	2				SPARE
EQUIPPED SPACE					2	35	38		2				EQUIPPED SPACE
EQUIPPED SPACE					2	39	40		2				EQUIPPED SPACE
SUB-TOTAL	2.0	1.8	1.0							1.6	2.3	1.8	SUB-TOTAL

L1: 3.6 KVA
L2: 4.1 KVA
L3: 2.8 KVA

TOTAL CONNECTED LOAD = 10.5 KVA

INTERRUPTING RATING AT 240 VOLTS: 10,000 AMPS

PANEL DESIGNATION: P3D
VOLTAGE: 208Y/120V, 3ø, 4W
AMPERES: 300A

LOCATION: FILTER BLDG MECH ROOM
MAIN: MLO
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
CU-1	3	3		40	2	1	2	3	2	2.3	2.3		WATER HEATER
AHU-1	4		4	60	2	5	6	40	2	3		3	CU-3
AHU-1		4	4	60	2	9	10	60	2		4	4	AHU-3
CU-2	3	3		40	2	13	14	60	2	4	4		AHU-3
AHU-2	4		4	60	2	17	18	60	2				SPARE
AHU-2		4	4	60	2	21	22	40	2				SPARE
SPARE				20	1	25	26	20	1				SPARE
SPARE				20	1	27	28	20	1				SPARE
SPARE				20	1	29	30	20	1			0.5	AC SERVICE RECEPTACLE
SPARE				20	1	31	32	20	1	0.5			RECEPTACLES
EQUIPPED SPACE					1	33	34		1				EQUIPPED SPACE
EQUIPPED SPACE					1	35	36		1				EQUIPPED SPACE
EQUIPPED SPACE					1	37	38		1				EQUIPPED SPACE
EQUIPPED SPACE					1	39	40		1				EQUIPPED SPACE
EQUIPPED SPACE					1	41	42		1				EQUIPPED SPACE
SUB-TOTAL	14	14	16							9.8	10.3	7.5	SUB-TOTAL

L1: 23.8 KVA
L2: 24.3 KVA
L3: 23.5 KVA

TOTAL CONNECTED LOAD = 71.6 KVA

INTERRUPTING RATING AT 240 VOLTS: 10,000 AMPS

PANEL DESIGNATION: MDP
VOLTAGE: 480V, 3ø, GROUNDED WYE
AMPERES: 1000A

LOCATION: INTERMEDIATE BOOSTER PUMP STATION
MAIN: MLO
PANEL MOUNTING: NEMA 1, SURFACE MTD

LOAD SERVED	CONNECTED LOAD (KVA) A	B	C	CIRCUIT BREAKER AMPS	POLES	CKT NO.	CKT NO.	BREAKER AMPS	POLES	LOAD (KVA) A	B	C	LOAD SERVED
TVSS	–	–	–	30	3	1	2	100	3	21	9	21	PANEL H1
BOOSTER PUMP 1	14	14	14	150	3	7	8	150	3	14	14	14	BOOSTER PUMP 2
BOOSTER PUMP 3	14	14	14	150	3	13	14	600	3	185	185	185	PANEL H3
MOTOR CONTROL CENTER MCC1	40	40	40	300	3	19	20	150	3				SPARE
EQUIPPED SPACE					3	25	26		3				EQUIPPED SPACE
EUIPPED SPACE					3	31	32		3				EQUIPPED SPACE
EQUIPPED SPACE					3	37	38		3				EQUIPPED SPACE
SUB-TOTAL	68	68	68							220	220	208	SUB-TOTAL

L1: 288 KVA
L2: 288 KVA
L3: 276 KVA

TOTAL CONNECTED LOAD = 852 KVA

INTERRUPTING RATING AT 480 VOLTS: 50,000 AMPS

COMMONWEALTH OF VIRGINIA
ROBERT C. SALLACH
No. 13171
PROFESSIONAL ENGINEER
8/9/10

VERIFY SCALE

Bar Scale measures 1" on original drawing

0" 1"

OLVER INCORPORATED
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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

PANEL SCHEDULES

Rev.	Description	Date	By
C	BID ISSUE	8/9/10	RCS
B	VDH RESUBMITTAL	7/13/10	RCS
A	VDH SUBMITTAL	5/3/10	RCM

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JUY 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

E009

PANEL DESIGNATION: P1
VOLTAGE: 120/240V, 1ø, 3W
AMPERES: 125A

LOCATION: INTERMEDIATE BOOSTER PUMP STATION
MAIN: MCB
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) L1	CONNECTED LOAD (KVA) L2	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER POLES	CKT NO.	CKT NO.	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER POLES	CONNECTED LOAD (KVA) L1	CONNECTED LOAD (KVA) L2	LOAD SERVED
LIGHTS	1.0		20	1	1	2	20	1	0.5		RECEPTACLES
LIGHTS		1.0	20	1	3	4	20	1		0.5	RECEPTACLES
EXTERIOR LIGHTS	0.6		20	1	5	6	20	1	0.5		RECEPTACLES
SPARE			20	1	7	8	20	1			SPARE
SPARE			20	1	9	10	20	1			SPARE
CP-6			20	1	11	12	20	1		1.2	EF-5
TURBIDIMETERS	0.2		20	1	13	14	20	1			SPARE
EQUIPPED SPACE				1	15	16		1			EQUIPPED SPACE
EQUIPPED SPACE				1	17	18		1			EQUIPPED SPACE
EQUIPPED SPACE				1	19	20		1			EQUIPPED SPACE
EQUIPPED SPACE				1	21	22		1			EQUIPPED SPACE
EQUIPPED SPACE				1	23	24		1			EQUIPPED SPACE
EQUIPPED SPACE				1	25	26		1			EQUIPPED SPACE
EQUIPPED SPACE				1	27	28		1			EQUIPPED SPACE
EQUIPPED SPACE				1	29	30		1			EQUIPPED SPACE
EQUIPPED SPACE				1	31	32		1			EQUIPPED SPACE
EQUIPPED SPACE				1	33	34		1			EQUIPPED SPACE
EQUIPPED SPACE				2	35	36		2			EQUIPPED SPACE
SPARE			20	2	39	40	30	2			SPARE
SUB-TOTAL	1.8	1.0							1.0	1.7	SUB-TOTAL

L1: 2.8 KVA
L2: 2.7 KVA

TOTAL CONNECTED LOAD = 5.5 KVA

INTERRUPTING RATING AT 240 VOLTS: 10,000 AMPS

PANEL DESIGNATION: P2
VOLTAGE: 120/240V, 1ø, 3W
AMPERES: 125A

LOCATION: CHEMICAL BUILDING
MAIN: MCB
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) L1	CONNECTED LOAD (KVA) L2	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER POLES	CKT NO.	CKT NO.	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER POLES	CONNECTED LOAD (KVA) L1	CONNECTED LOAD (KVA) L2	LOAD SERVED
LIGHTS	0.8		20	1	1	2	20	1	0.5		RECEPTACLES
LIGHTS		0.8	20	1	3	4	20	1		0.5	RECEPTACLES
LIGHTS	1.2		20	1	5	6	20	1	0.5		RECEPTACLES
LIGHTS		0.4	20	1	7	8	20	1		0.5	RECEPTACLES
LIGHTS, EXTERIOR	1.0		20	1	9	10	20	1	0.5		RECEPTACLES
LIGHTS		1.2	20	1	11	12	20	1			SPARE
LIGHTS	0.6		20	1	13	14	20	1			SPARE
LIGHTS		0.8	20	1	15	16		1		1.2	CARBON FEEDER
LIGHTS - BULK TANKS	0.6		20	1	17	18		1	0.9		EF-3
LIGHTS - BULK TANKS		0.8	20	1	19	20		1		0.9	EF-4
SPARE			20	1	21	22		1			SPARE
SPARE			20	1	23	24		1		0.7	CAUSTIC METERING PUMP 1
EF-2	1.2		20	1	25	26		1	0.7		CAUSTIC METERING PUMP 2
CI STORAGE LEAK DET.		0.1	20	1	27	28		1			FUTURE METERING PUMP
CI ROOM LEAK DET.	0.1		20	1	29	30		1			FUTURE METERING PUMP
CHLORINE SCALES		0.2	20	1	31	32		1		0.7	PACI METERING PUMP 1
POT. PERM. SCALE	0.1		20	1	33	34		1	0.7		PACI METERING PUMP 2
TRACE HEATING		0.3	20	1	35	34		1		0.7	PACI METERING PUMP 3
TRACE HEATING	0.3		20	1	37	34		1	0.7		POT. PERM METERING PUMP 1
WATER HEATER	2.3	2.3	30	2	39	34		1		0.7	POT. PERM METERING PUMP 2
						34		1	0.6		CP-2
SUB-TOTAL	8.2	6.9							5.0	5.9	SUB-TOTAL

L1: 13.2 KVA
L2: 12.8 KVA

TOTAL CONNECTED LOAD = 26 KVA

INTERRUPTING RATING AT 240 VOLTS: 10,000 AMPS

PANEL DESIGNATION: P4
VOLTAGE: 120/240V, 1ø, 3W
AMPERES: 125A

LOCATION: FILTER BLDG ELEC ROOM
MAIN: MCB
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) L1	CONNECTED LOAD (KVA) L2	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER POLES	CKT NO.	CKT NO.	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER POLES	CONNECTED LOAD (KVA) L1	CONNECTED LOAD (KVA) L2	LOAD SERVED
LIGHTS	1.0		20	1	1	2	20	1	0.8		REFRIGERATOR
LIGHTS		1.0	20	1	3	4	20	1		0.4	HOOD FAN
LIGHTS	1.2		20	1	5	6	20	1	0.2		HOOD LIGHT
LIGHTS		1.2	20	1	7	8	20	1		1.2	DISHWASHER
SPARE			20	1	9	10	20	1	0.9		EF-10
SPARE			20	1	11	12	20	1		0.5	LAB BENCH RECEPTACLES
SPARE			20	1	13	14	20	1	0.5		LAB BENCH RECEPTACLES
SPARE			20	1	15	16	20	1		0.5	LAB BENCH RECEPTACLES
EQUIPPED SPACE				1	17	18	20	1	0.5		LAB BENCH RECEPTACLES
EQUIPPED SPACE				1	19	20	20	1		0.5	LAB BENCH RECEPTACLES
EQUIPPED SPACE				1	21	22	20	1	0.5		LAB BENCH RECEPTACLES
EQUIPPED SPACE				1	23	24	20	1		0.5	LAB BENCH RECEPTACLES
EQUIPPED SPACE				1	25	26	20	1	0.5		LAB BENCH RECEPTACLES
EQUIPPED SPACE				1	27	28	20	1		0.5	LAB BENCH RECEPTACLES
EQUIPPED SPACE				1	29	30	20	1	0.5		LAB BENCH RECEPTACLES
EQUIPPED SPACE				1	31	32	20	1		0.5	LAB BENCH RECEPTACLES
EQUIPPED SPACE				1	33	34	20	1			SPARE
SPARE			30	2	35	36		2			EQUIPPED SPACE
SPARE			60	2	39	40	50	2	3	3	RANGE
SUB-TOTAL	2.2	2.2							7.4	7.6	SUB-TOTAL

L1: 9.6 KVA
L2: 9.8 KVA

TOTAL CONNECTED LOAD = 19.4 KVA

INTERRUPTING RATING AT 240 VOLTS:

PANEL DESIGNATION: P5
VOLTAGE: 120/240V, 1ø, 3W
AMPERES: 60A

LOCATION: ENERGY RECOVERY BLDG
MAIN: MCB
PANEL MOUNTING: NEMA 1, SURFACE

LOAD SERVED	CONNECTED LOAD (KVA) L1	CONNECTED LOAD (KVA) L2	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER POLES	CKT NO.	CKT NO.	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER POLES	CONNECTED LOAD (KVA) L1	CONNECTED LOAD (KVA) L2	LOAD SERVED
LIGHTS	0.4		20	1	1	2	20	1	0.5		RECEPTACLES
LIGHTS		0.4	20	1	3	4	20	1		0.5	RECEPTACLES
EXTERIOR LIGHTS	0.4		20	1	5	6	20	1	0.5		RECEPTACLES
SPARE			20	1	7	8	20	1		0.5	RECEPTACLES
SPARE			20	1	9	10	20	1			SPARE
EQUIPPED SPACE				1	11	12	20	1		0.8	EF-6
EQUIPPED SPACE				1	13	14	20	1			SPARE
EQUIPPED SPACE				1	15	16	20	1			SPARE
EQUIPPED SPACE				1	17	18		1			EQUIPPED SPACE
EQUIPPED SPACE				1	19	20		1			EQUIPPED SPACE
EQUIPPED SPACE				1	21	22		1			EQUIPPED SPACE
EQUIPPED SPACE				1	23	24		1			EQUIPPED SPACE
EQUIPPED SPACE				1	25	26		1			EQUIPPED SPACE
EQUIPPED SPACE				1	27	28		1			EQUIPPED SPACE
EQUIPPED SPACE				1	29	30		1			EQUIPPED SPACE
EQUIPPED SPACE				1	31	32		1			EQUIPPED SPACE
EQUIPPED SPACE				1	33	34		1			EQUIPPED SPACE
EQUIPPED SPACE				2	35	36		2			EQUIPPED SPACE
SPARE			20	2	39	40	30	2			SPARE
SUB-TOTAL	0.8	0.4							1.0	1.8	SUB-TOTAL

L1: 1.8 KVA
L2: 2.2 KVA

TOTAL CONNECTED LOAD = 4.0 KVA

INTERRUPTING RATING AT 240 VOLTS: 10,000 AMPS

COMMONWEALTH OF VIRGINIA
ROBERT C. SALLACH
No. 13171
8/9/10
PROFESSIONAL ENGINEER

VERIFY SCALE

Bar Scale measures 1" on original drawing

0" 1"

OLVER INCORPORATED
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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

PANEL SCHEDULES

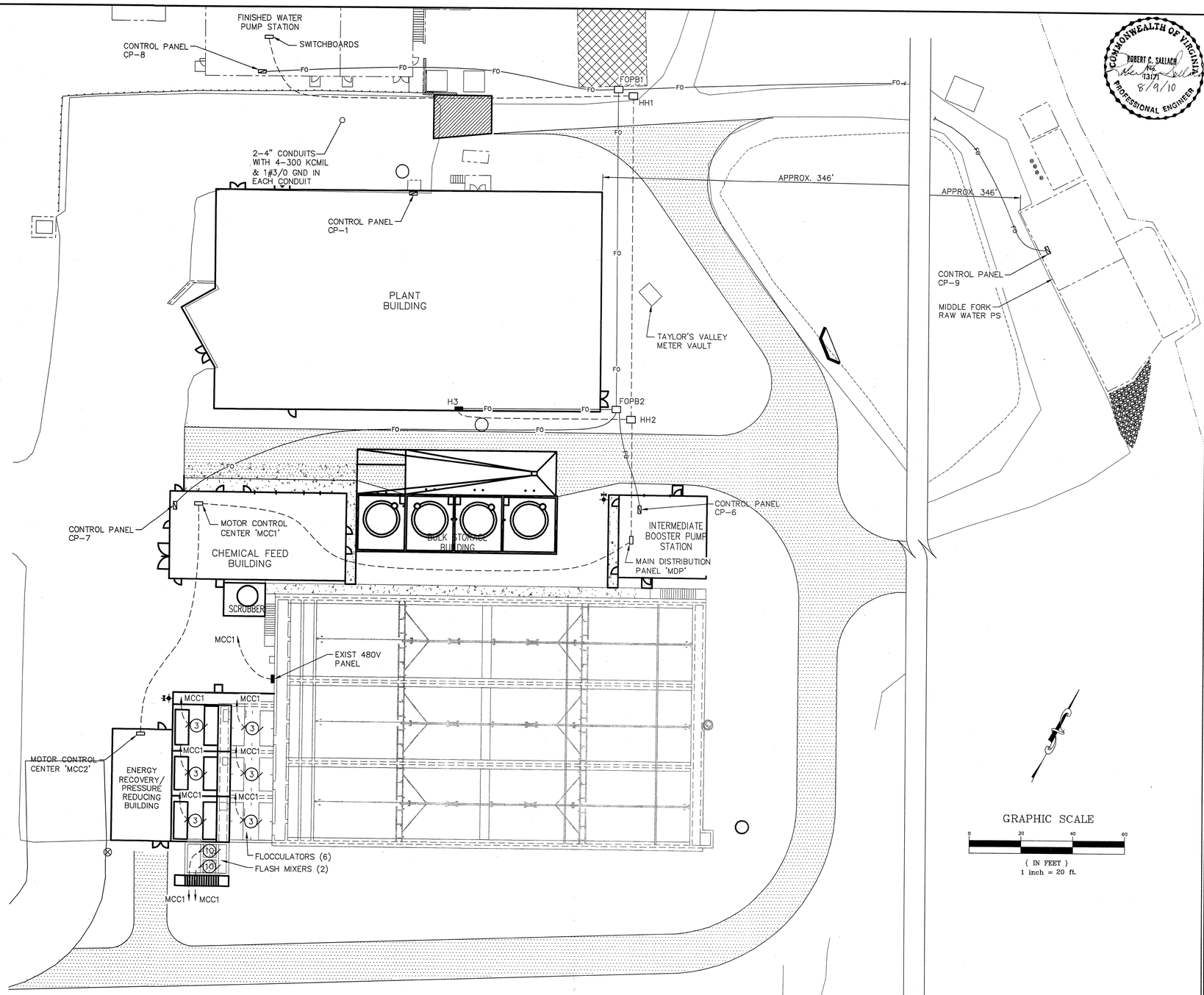
Rev.	Description	Date	By
C	BID ISSUE	8/9/10	RCS
B	VDH RESUBMITTAL	7/13/10	RCS
A	VDH SUBMITTAL	5/3/10	RCM

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JUY 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

E010

ELECTRICAL LEGEND

———	WIRE IN CONDUIT, CONDUIT EXPOSED UNLESS OTHERWISE SHOWN
- - - - -	WIRE IN CONDUIT, CONDUIT INSTALLED MIN 30" BELOW GRADE
	WIRE IN CONDUIT HOME RUN TO PANEL OR MCC
	CIRCUIT BREAKER PANELBOARD
30/3/30	SAFETY DISCONNECT SWITCH, NEMA 4X SST, AMPS/POLES/FUSES INDICATED
100/3	CIRCUIT BREAKER, AMP RATING/NUMBER OF POLES INDICATED
VFD	VARIABLE FREQUENCY DRIVE
TSP	AWG#18 TWISTED, SHIELDED PAIR INSTRUMENTATION CABLE RATED FOR INSTALLATION IN UNDERGROUND CONDUIT
I/O	INPUT/OUTPUT
PLC	PROGRAMMABLE LOGIC CONTROLLER
DI	DISCRETE INPUT
AI	ANALOG INPUT
DO	DISCRETE OUTPUT
AO	ANALOG OUTPUT
C	CONDUIT
PS	PRESSURE SWITCH
SST	STAINLESS STEEL
	MAGNETIC MOTOR STARTER, COMBINATION TYPE, NEMA RATED
	CONTROL PANEL
M	MOTOR, HORSEPOWER INDICATED
LS	LIMIT SWITCH
	FUSE
HACR	DISCONNECT SWITCH FUSED AS REQUIRED FOR AIR CONDITIONING EQUIPMENT, NEMA BR
WP	WEATHERPROOF
	DUPLEX RECEPTACLE
S	LIGHT SWITCH
J	JUNCTION BOX
FM	FLOWMETER
	WALL MOUNTED LUMINAIRE
	CEILING MOUNTED FLUORESCENT LUMINAIRE
TVSS	TRANSIENT VOLTAGE SURGE ARRESTOR
MCB	MAIN CIRCUIT BREAKER
T	DRY TYPE TRANSFORMER
	SPECIFIC NOTE REFERENCE SYMBOL MEANS "SEE NOTE SPECIFIC 2", TYP
AF	AMP FRAME
AT	AMP TRIP
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
FE	FLOW ELEMENT
FT	FLOW TRANSMITTER
LE	LEVEL ELEMENT
LT	LEVEL TRANSMITTER
AT	TURBIDITY TRANSMITTER
	UNIT HEATER
M	MOTOR OPERATED VALVE, MODULATING
M O/C	MOTOR OPERATED VALVE, OPEN/CLOSE
	COPPERWELD GROUND ROD 10FT x ¾" DIA
G	AWG # 2/0 COPPER GROUND WIRE 30" BELOW GRADE
	CONNECTION TO GROUNDING ELECTRODE
AIC	AMPERES INTERRUPTING RATING AT 480V
CLF	CURRENT LIMITING FUSE
HH	POWER HAND HOLE
FO	FIBER OPTIC CABLE IN CONDUIT
FOPB	FIBER OPTIC CABLE PULLBOX
H	TRACE HEATING OUTLET



GRAPHIC SCALE

0 20 40 60

(IN FEET)
1 inch = 20 ft.

COMMONWEALTH OF VIRGINIA
ROBERT C. SALLACH
No. 13171
PROFESSIONAL ENGINEER
8/9/10

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THE LANE GROUP
124 DEPOT AVENUE • CHILHOWIE, VA 24318 (276) 646-2520

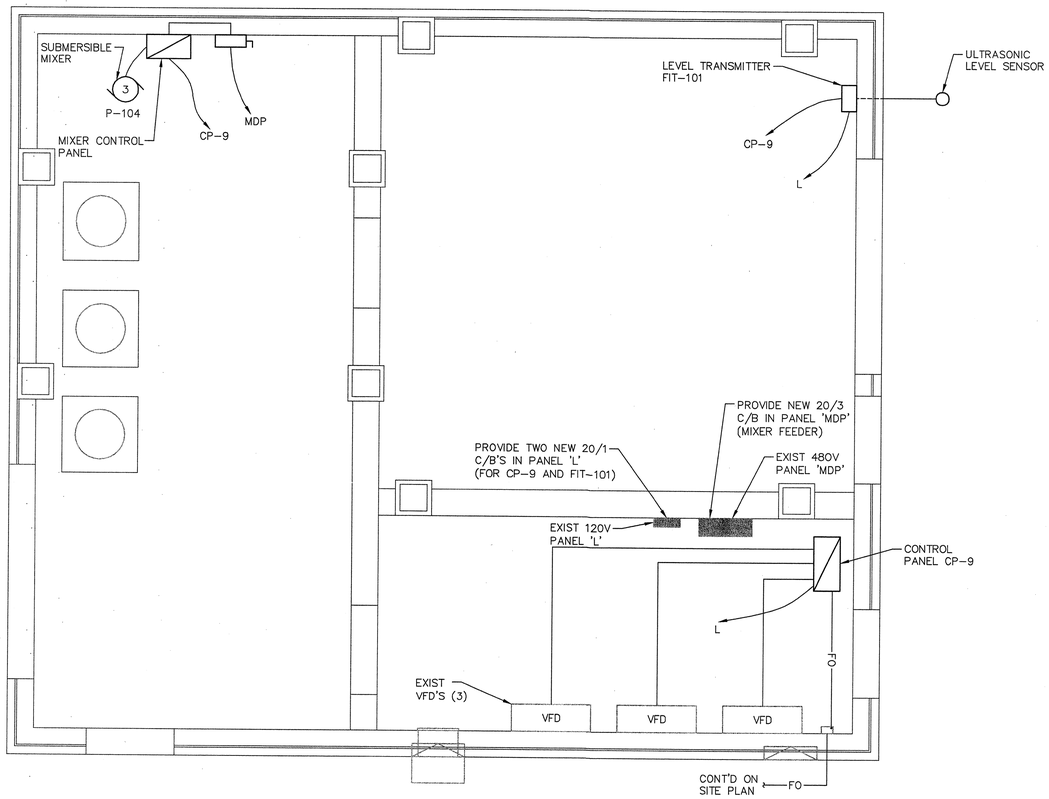
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

ELECTRICAL SITE PLAN

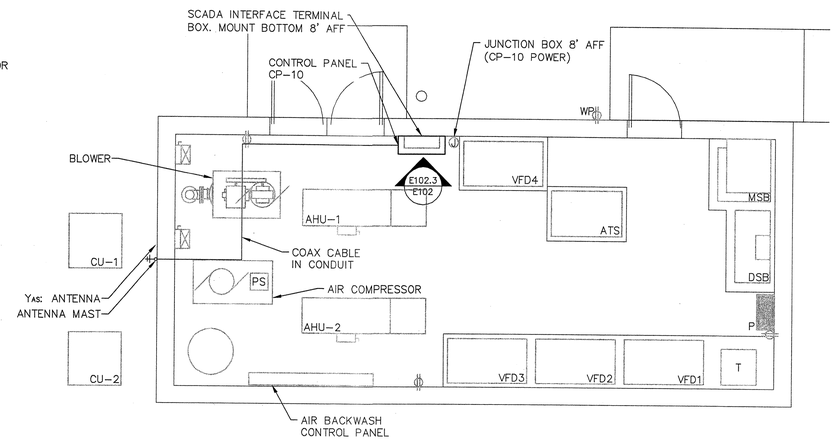
By	Date	Description	Rev.
RCM	5/3/10	VDH SUBMITTAL	A
RCS	7/13/10	VDH RESUBMITTAL	B
RCS	8/9/10	BID ISSUE	C

Designed: RCM
Drawn: CDH
Checked: DBH
Date: JAN 2010
Scale: AS SHOWN
Job No. 12367.13
Archived File Name:

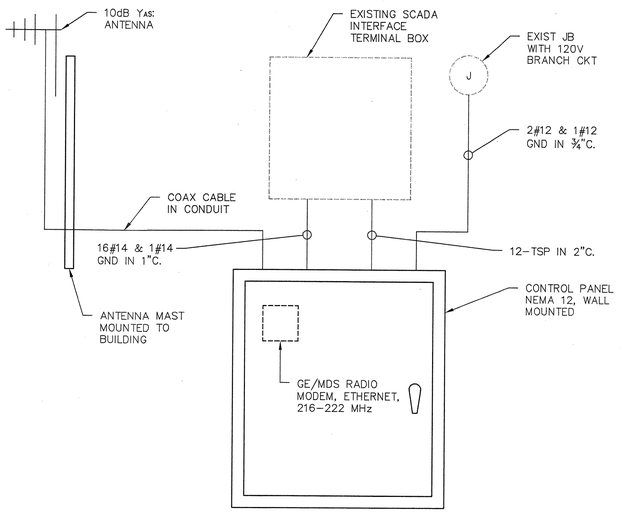
E101



MIDDLE FORK RAW WATER
PUMP STATION – ELECTRICAL PLAN (E102.1 / E102)
SCALE: 3/8"=1'-0"



PLAN – SOUTH FORK PUMP STATION
ELECTRICAL BUILDING (E102.2 / E102)
SCALE: 1/4"=1'-0"



CP-10 DETAIL (E102.3 / E102)
SCALE: NTS

COMMONWEALTH OF VIRGINIA
ROBERT C. SALLACH
No. 13171
PROFESSIONAL ENGINEER
8/9/10

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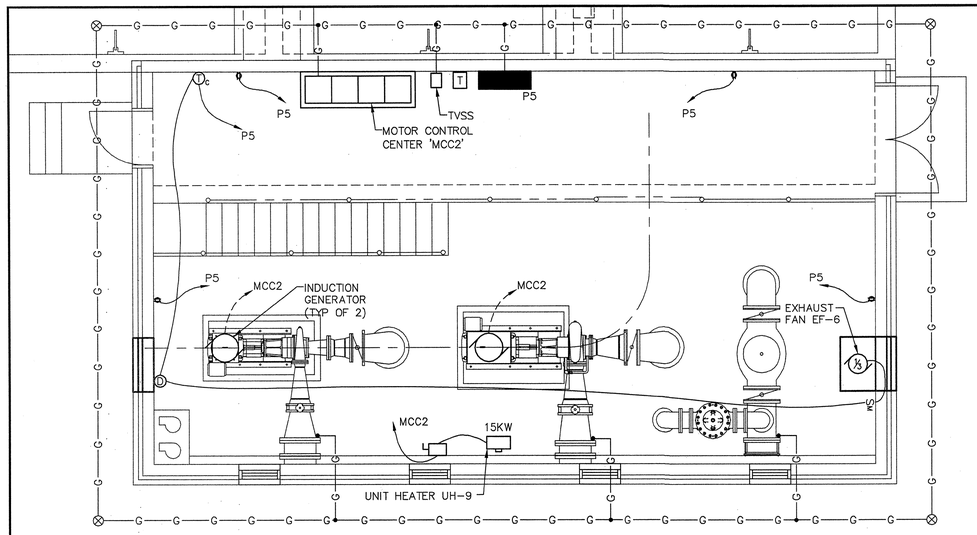
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

MIDDLE FORK RAW WATER PUMP STATION
ELECTRICAL PLAN

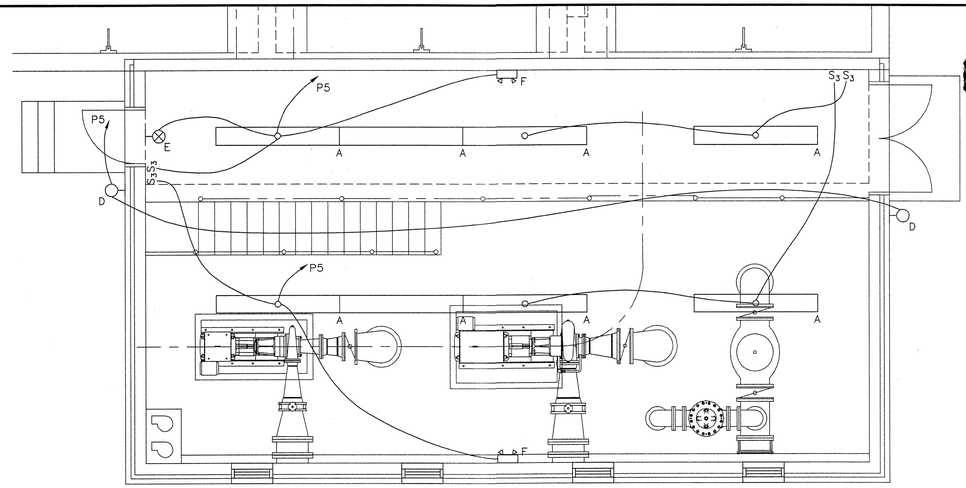
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E102



ENERGY RECOVERY BUILDING – POWER (E103.1 / E103)
SCALE: 1/4"=1'-0"



ENERGY RECOVERY BUILDING – LIGHTING (E103.2 / E103)
SCALE: 1/4"=1'-0"

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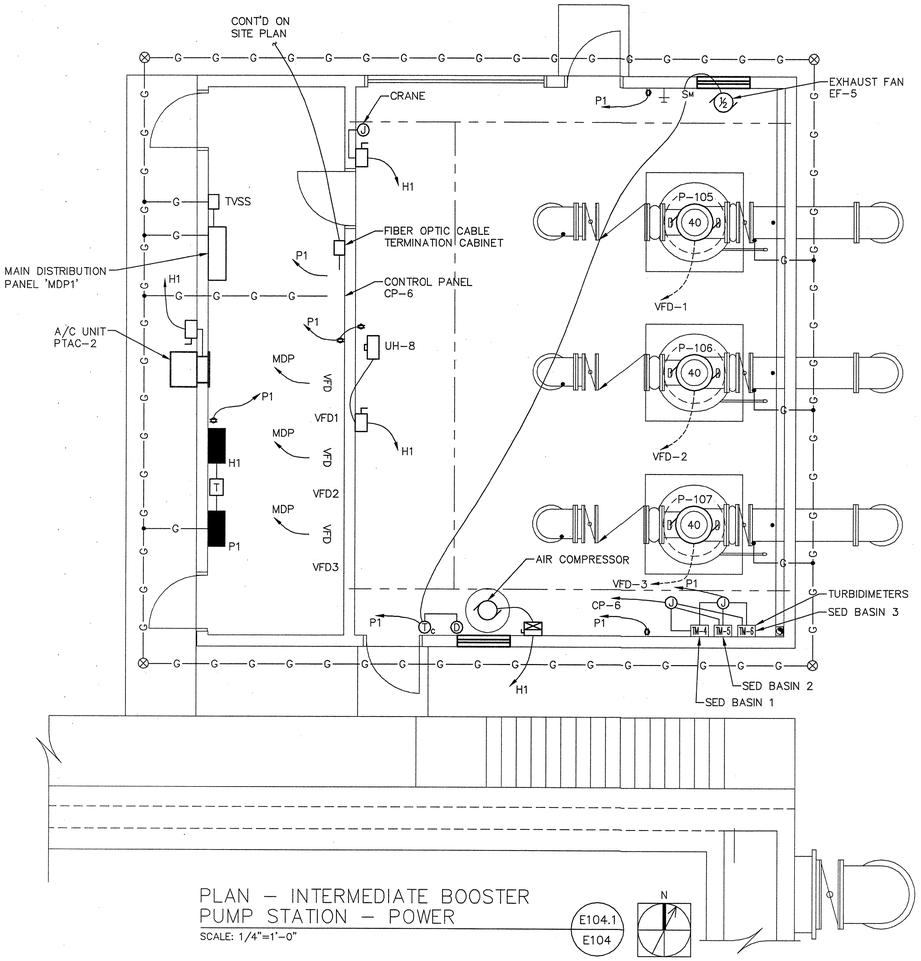
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MIDDLE FORK WTP UPGRADE TO 12 MGD

ENERGY RECOVERY BUILDING

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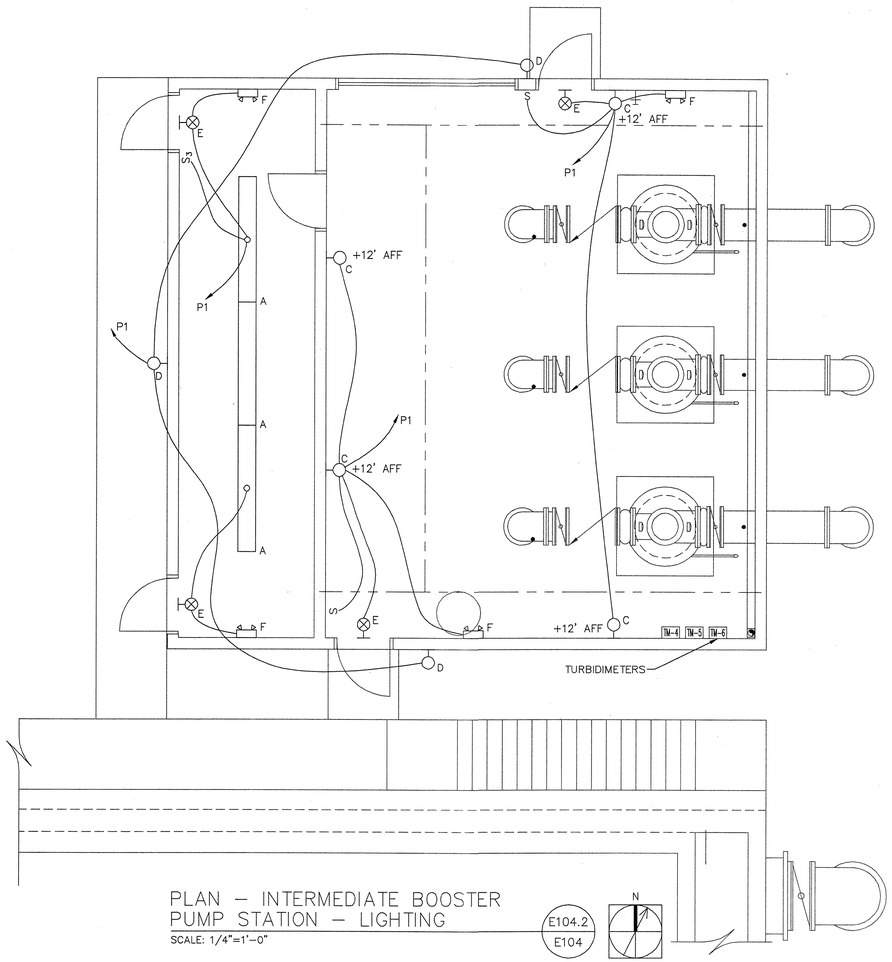
E103



PLAN – INTERMEDIATE BOOSTER PUMP STATION – POWER

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

E104.1 / E104



PLAN – INTERMEDIATE BOOSTER PUMP STATION – LIGHTING

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

E104.2 / E104

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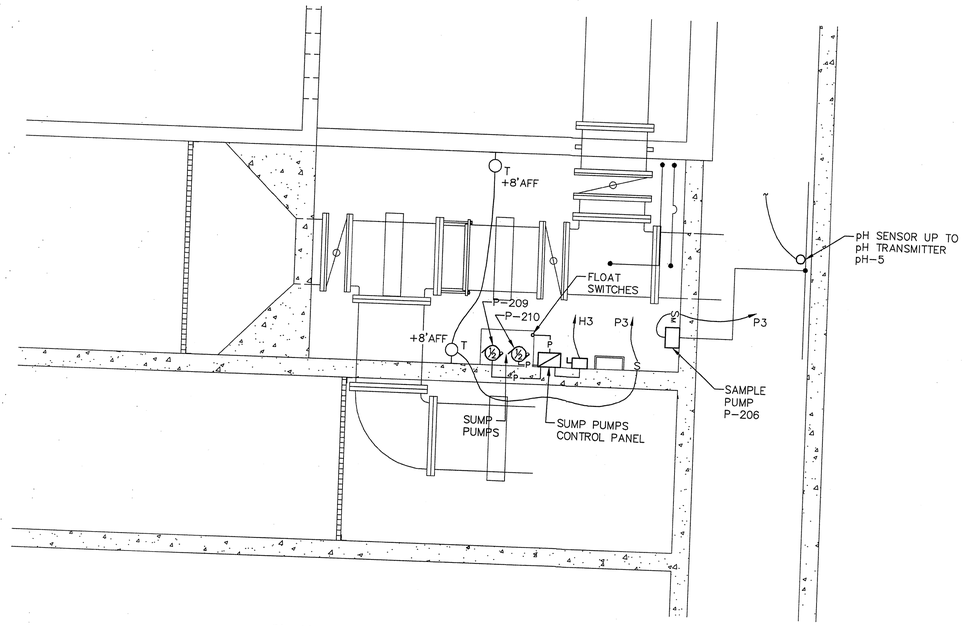
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BOOSTER PUMP STATION

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E104



PLAN – CCT PIPE GALLERY – ELECTRICAL (E401.1 / E401)
SCALE: 1/4"=1'-0"

LIGHTING FIXTURE SCHEDULE

A	INDUSTRIAL FLUORESCENT, 8', WITH 2–HO LAMPS
B	VAPORTIGHT HID, 175 WATT METAL HALIDE
C	CLASS II, DIV. 1 INCANDESCENT, 200 WATT
D	WET LOCATION WALL BRACKET, 175 WATT METAL HALIDE, PHOTOCELL CONTROLLER
E	LIGHTED EXIT SIGN
F	BATTERY BACKED EMERGENCY LIGHT SET, TWO PAR LAMPS
G	ENCLOSED HID, WET LOCATION LABEL, 175 WATT METAL HALIDE
H	LAY–IN FLUORESCENT, 2' X 4', 2–F32 LAMPS, ACRYLIC PRISMATIC REFRACTOR
K	LAY–IN FLUORESCENT, 2' X 4', 3–F32 LAMPS, ACRYLIC PRISMATIC REFRACTOR
L	LAY–IN FLUORESCENT, 2' X 4', 4–F32 LAMPS, PARABOLIC REFRACTOR
M	SURFACE MOUNTED, ENCLOSED FLUORESCENT, 2–F32 LAMPS
N	SHOWER LIGHT, RECESSED, WET LOCATION LABEL, 100 W INCANDESCENT
P	DOWNLIGHT, WET LOCATION LABEL, GLASS FRESNELL LENS, 28 WATT CFL
R	DOWNLIGHT, RECESSED, 28 WATT CFL
S	VAPORTIGHT HID, 100 W METAL HALIDE
T	VAPORTIGHT, WALL MOUNTED INCANDESCENT, WITH GLOBE AND GUARD, 100 W

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TREATMENT PLANT BUILDING
CCT PIPE GALLERY ELECTRICAL PLAN

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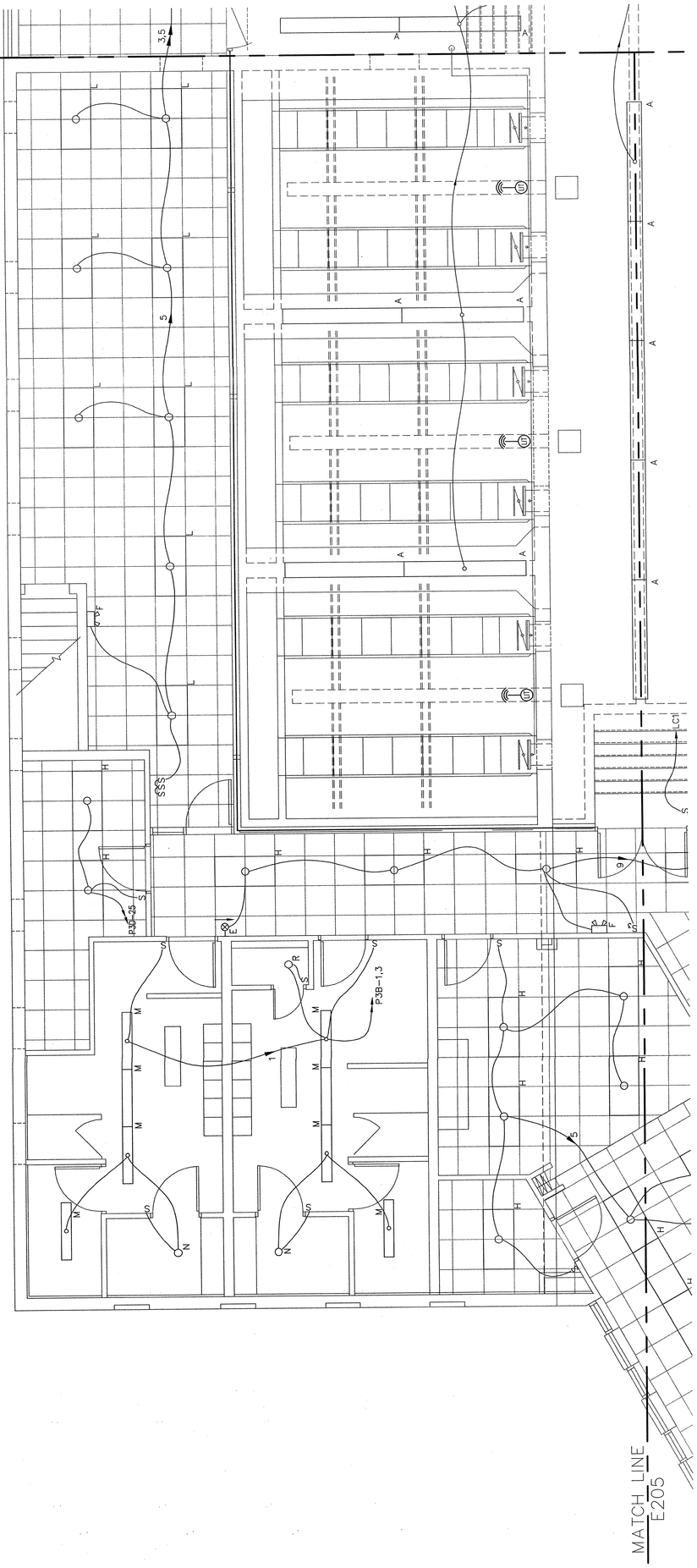
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MIDDLE FORK WTP UPGRADE TO 12 MGD
TREATMENT PLANT BUILDING
TOP FLOOR PLAN – LIGHTING

Rev.	Description	Date	By
A	VDH RESUBMITTAL	7/13/10	RCS
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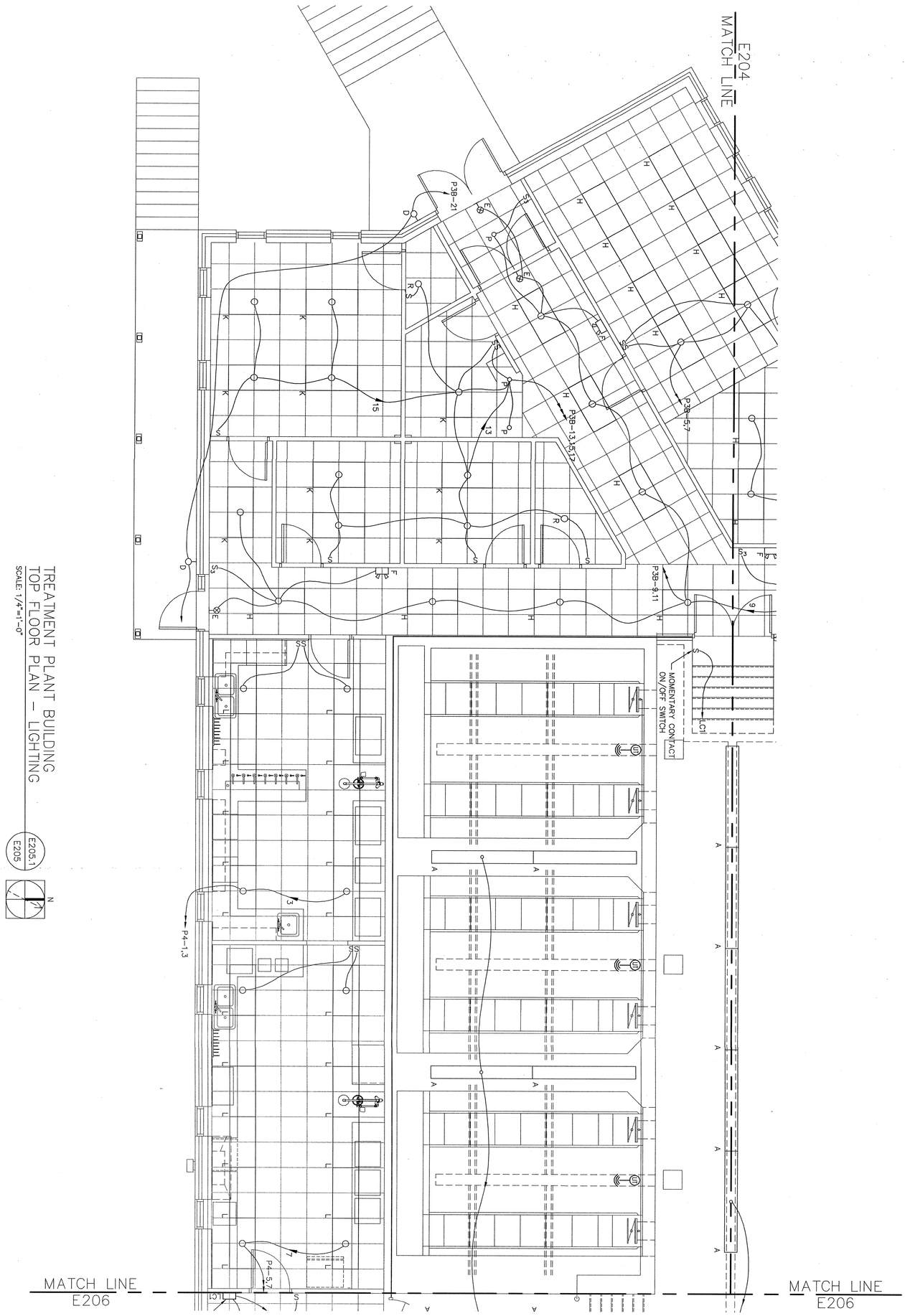
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No. 026
STATE
PROFESSIONAL ENGINEER
8/9/10



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – LIGHTING
SCALE: 1/4"=1'-0"

N

E204.1
E204



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – LIGHTING
SCALE: 1/4"=1'-0"

E205.1
E205

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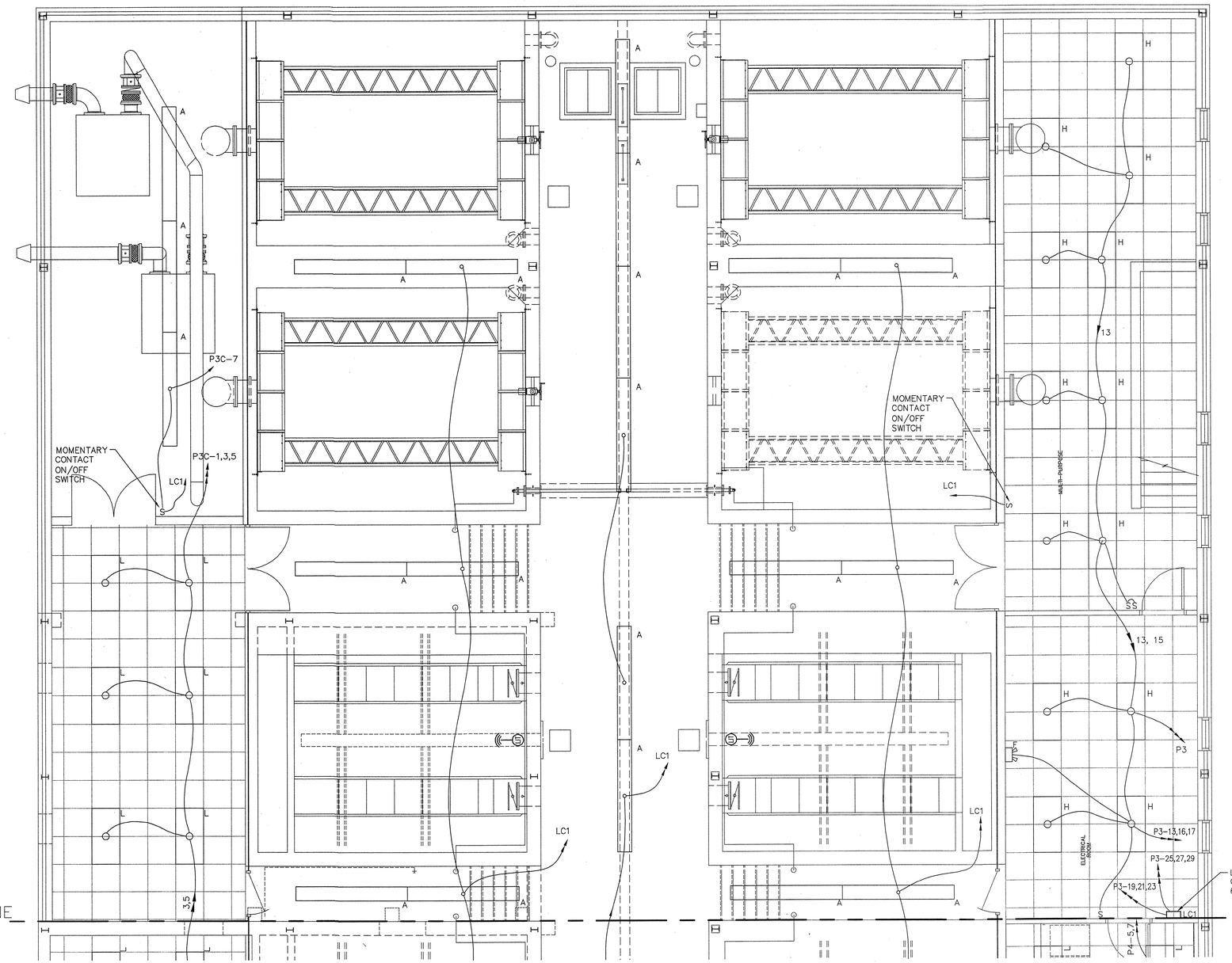
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MIDDLE FORK WTP UPGRADE TO 12 MGD

TREATMENT PLANT BUILDING
TOP FLOOR PLAN – LIGHTING

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E205



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – LIGHTING

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

E206.1
E206

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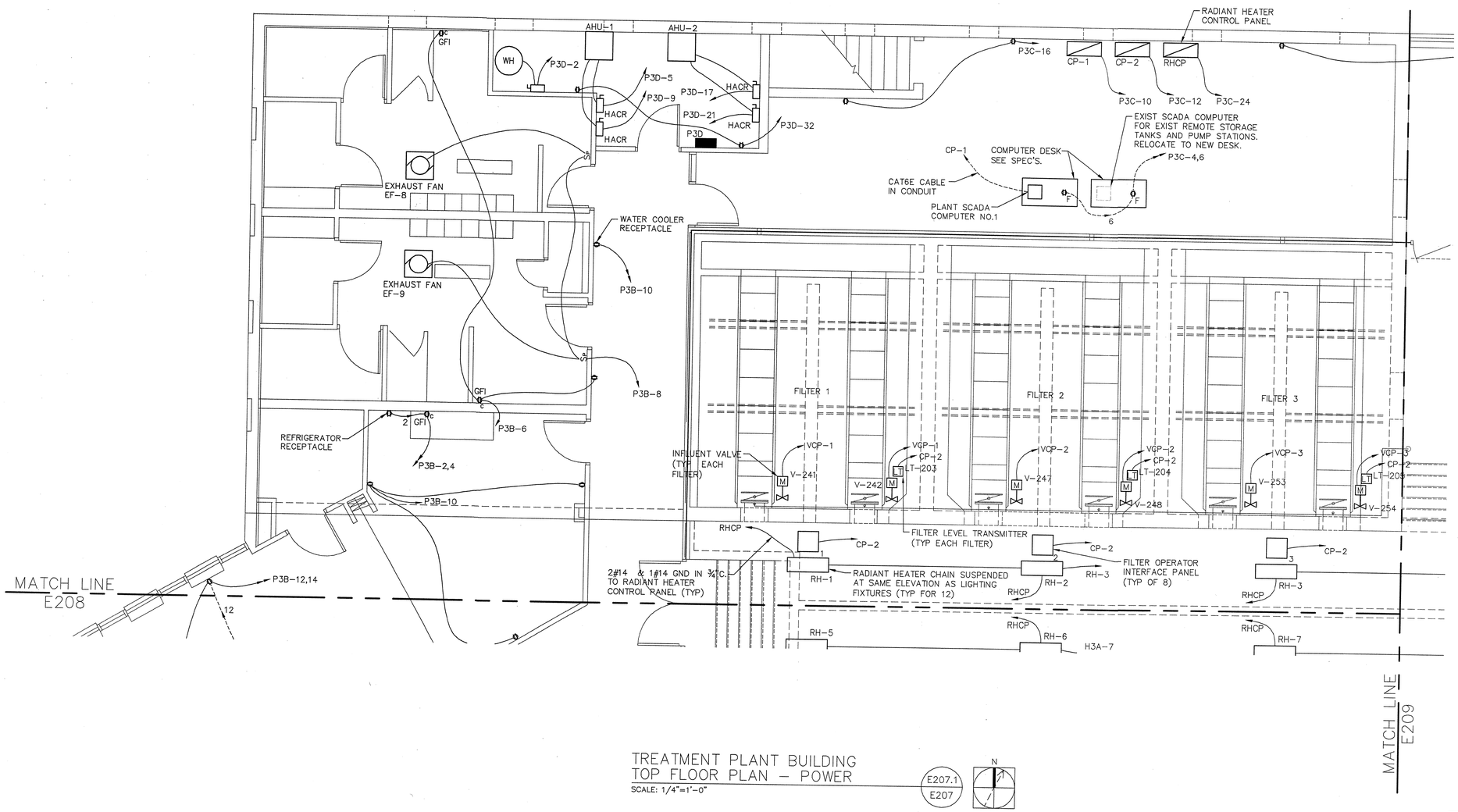
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TOP FLOOR PLAN – LIGHTING

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E206



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – POWER
SCALE: 1/4"=1'-0"

E207.1
E207

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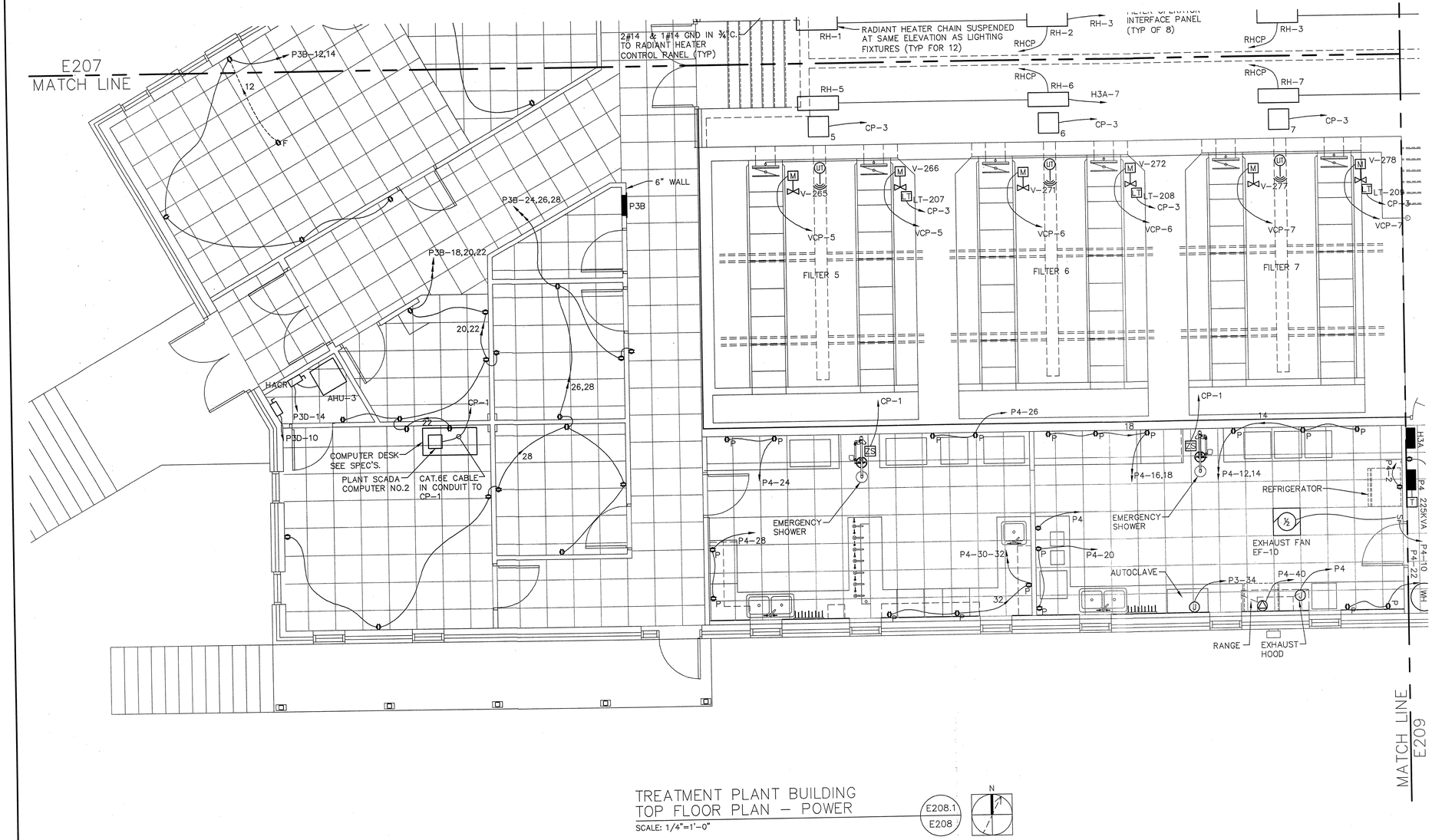
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TREATMENT PLANT BUILDING
TOP FLOOR PLAN – POWER

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E207



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – POWER

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

E208.1
E208

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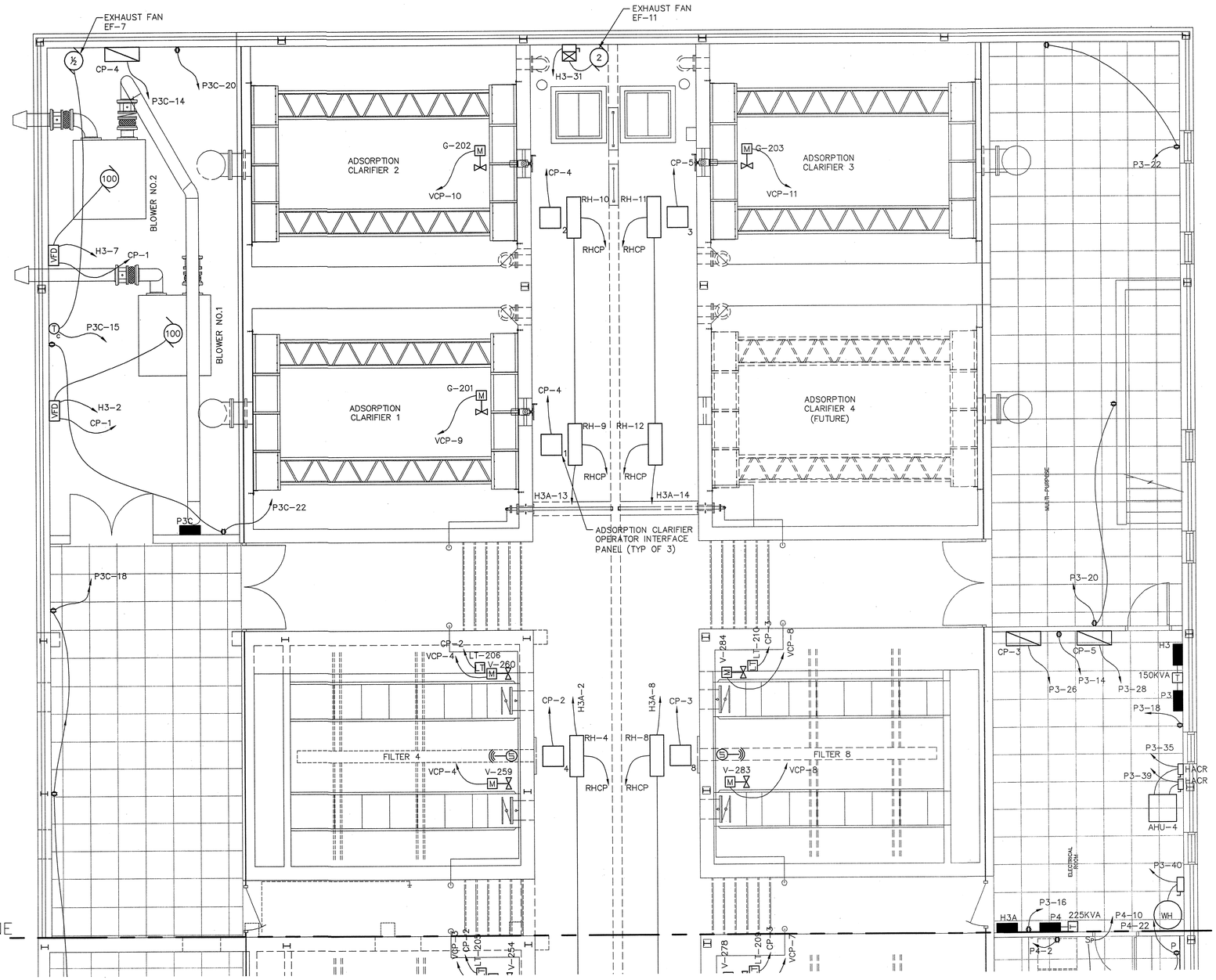
WASHINGTON COUNTY SERVICE AUTHORITY
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TREATMENT PLANT BUILDING
TOP FLOOR PLAN – POWER

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E208



TREATMENT PLANT BUILDING
TOP FLOOR PLAN – POWER

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

E209.1
E209

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TREATMENT PLANT BUILDING
TOP FLOOR PLAN – POWER

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E209

TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – LIGHTING

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

E210.1
E210

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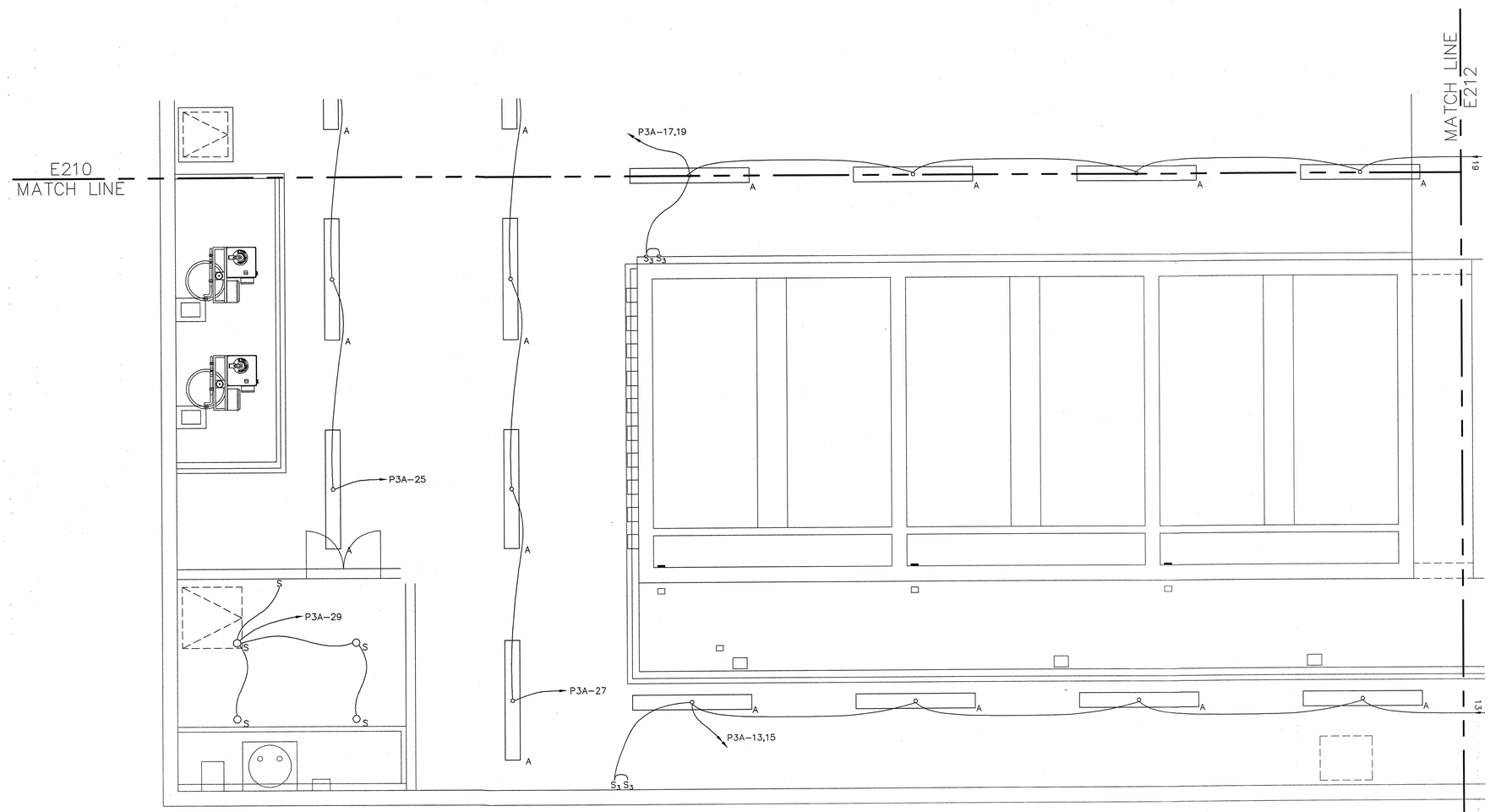
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TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – LIGHTING

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E210



TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – LIGHTING

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

E211.1
E211

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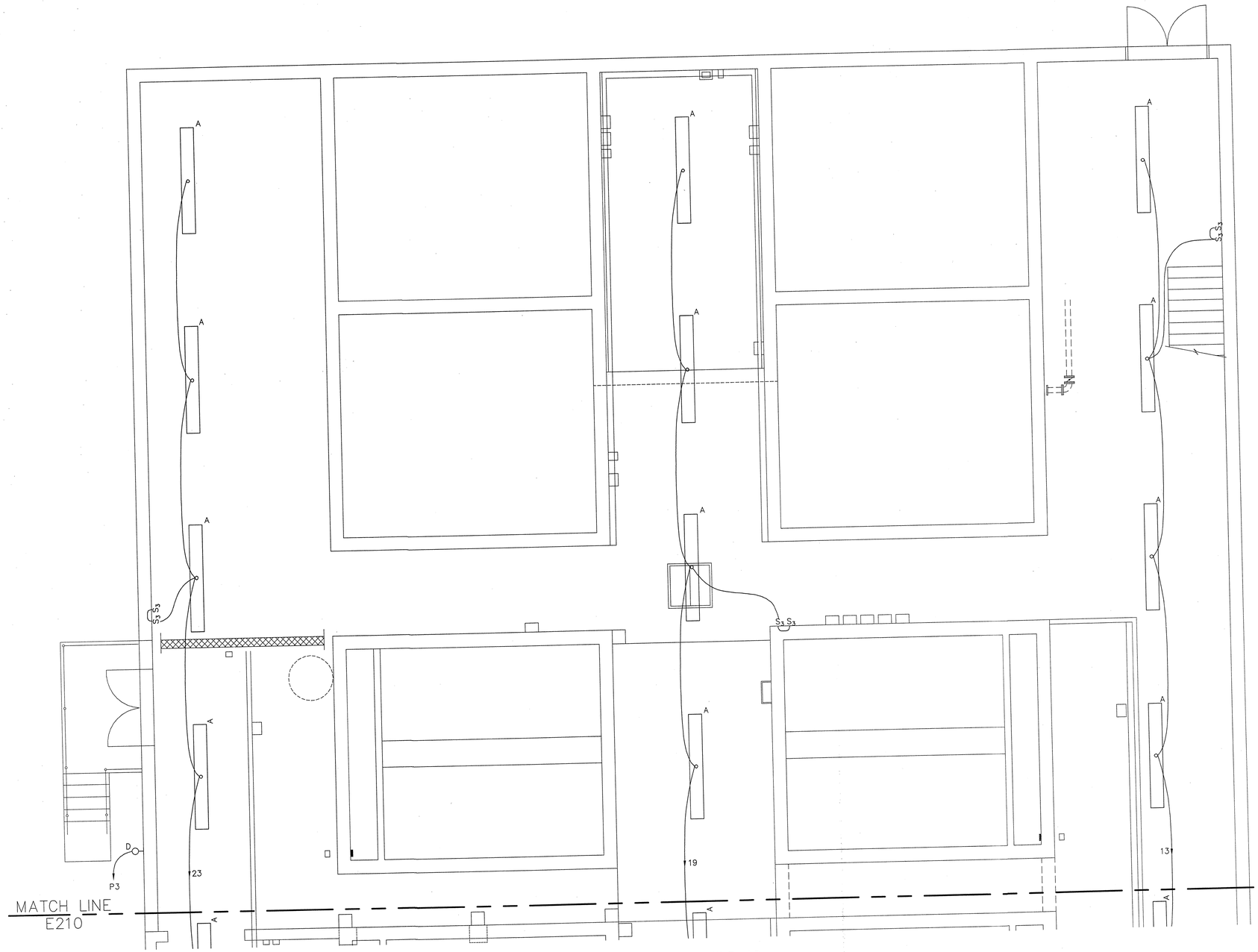
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TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – LIGHTING

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RCS	8/9/10	BID ISSUE	B
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E211



TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – LIGHTING

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

E212.1
E212

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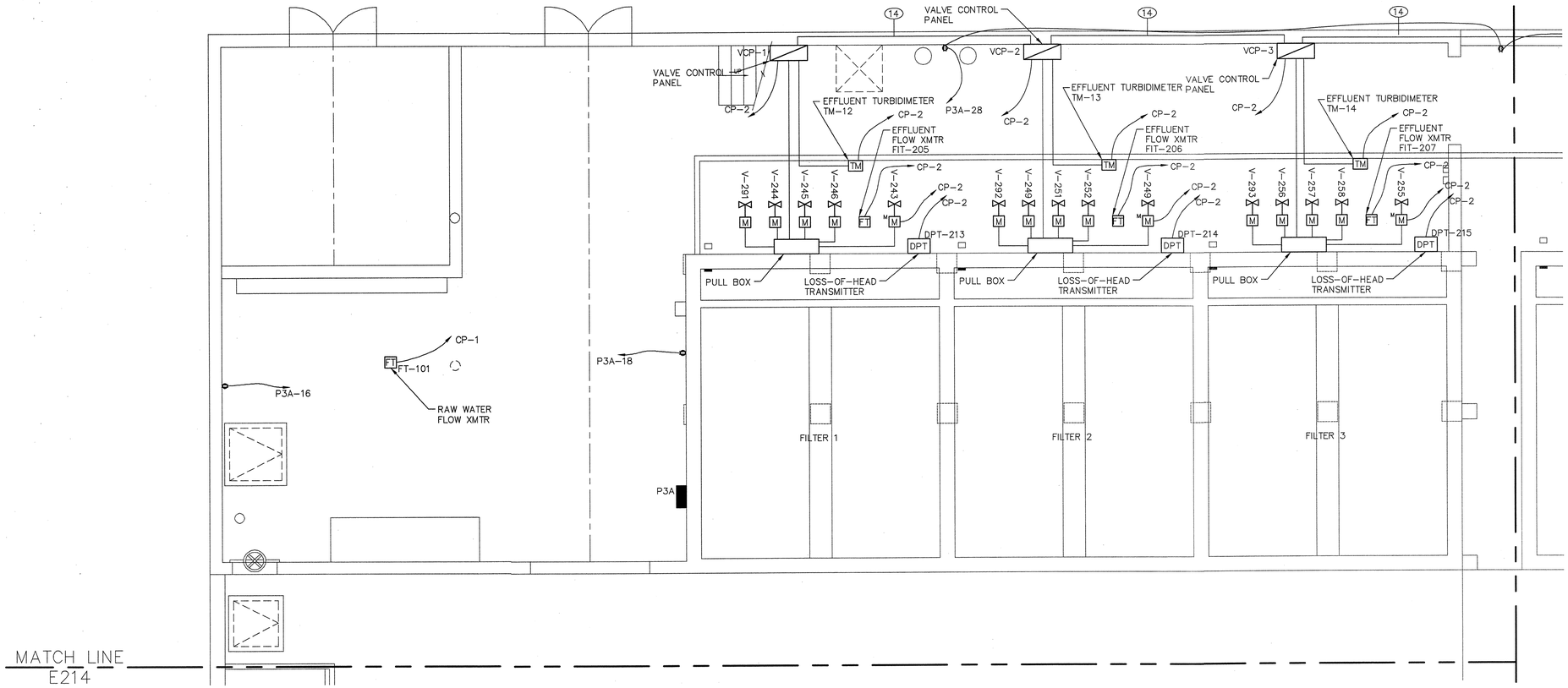
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TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – LIGHTING

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E212



TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – POWER

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

E213.1
E213

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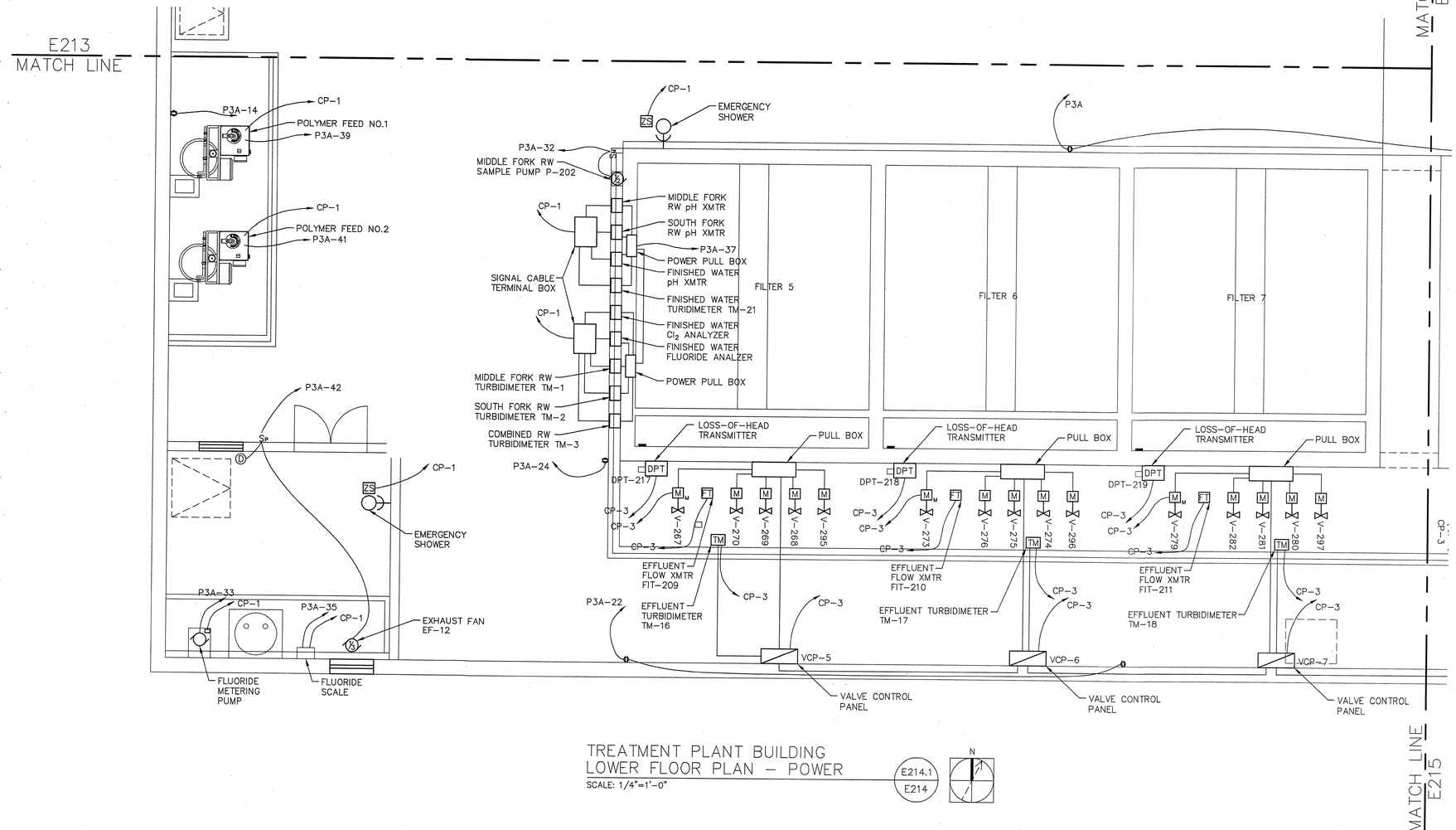
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TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – POWER

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E213



TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – POWER

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

E214.1
E214

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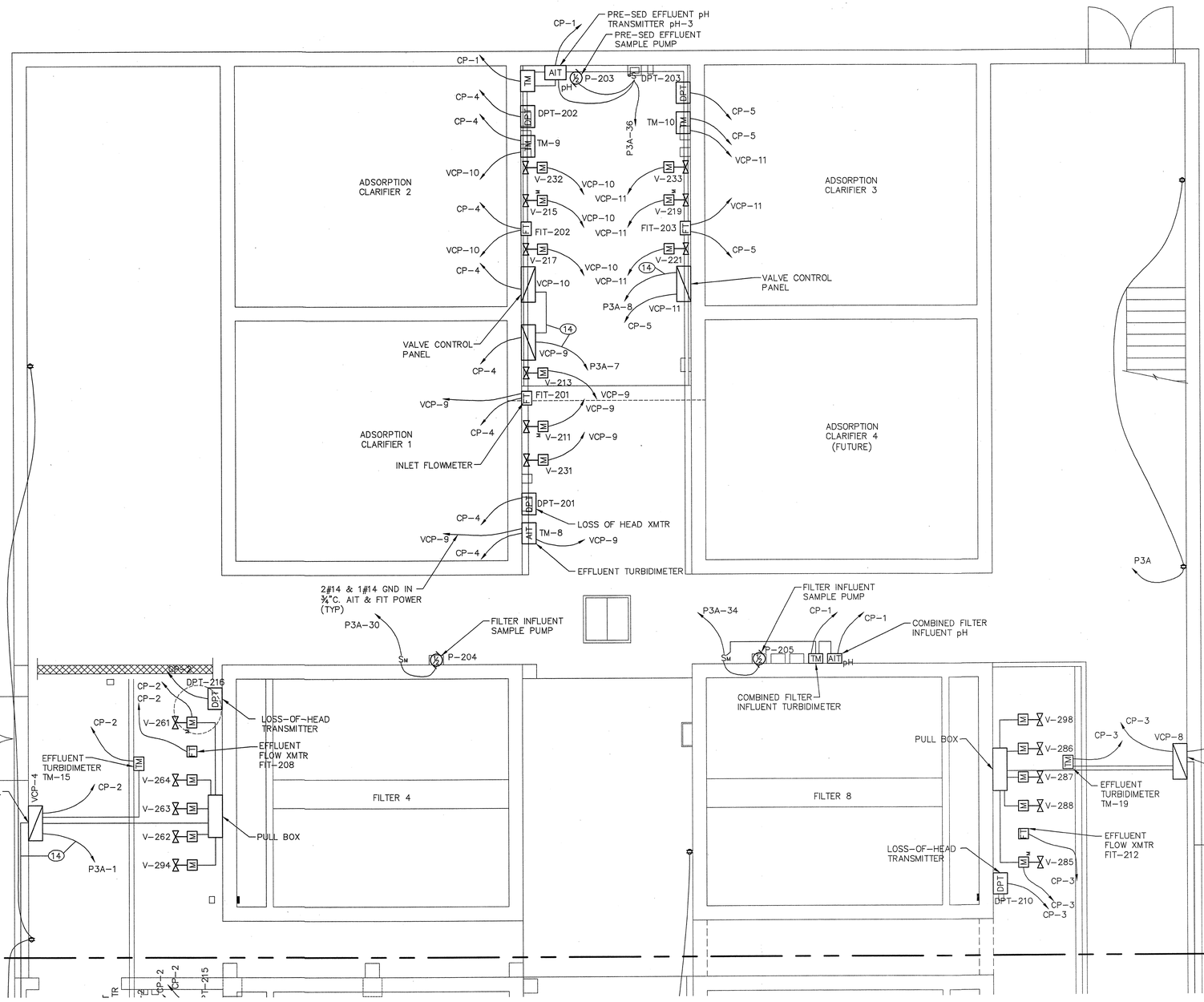
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TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – POWER

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E214



TREATMENT PLANT BUILDING
LOWER FLOOR PLAN – POWER

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

E215.1
E215

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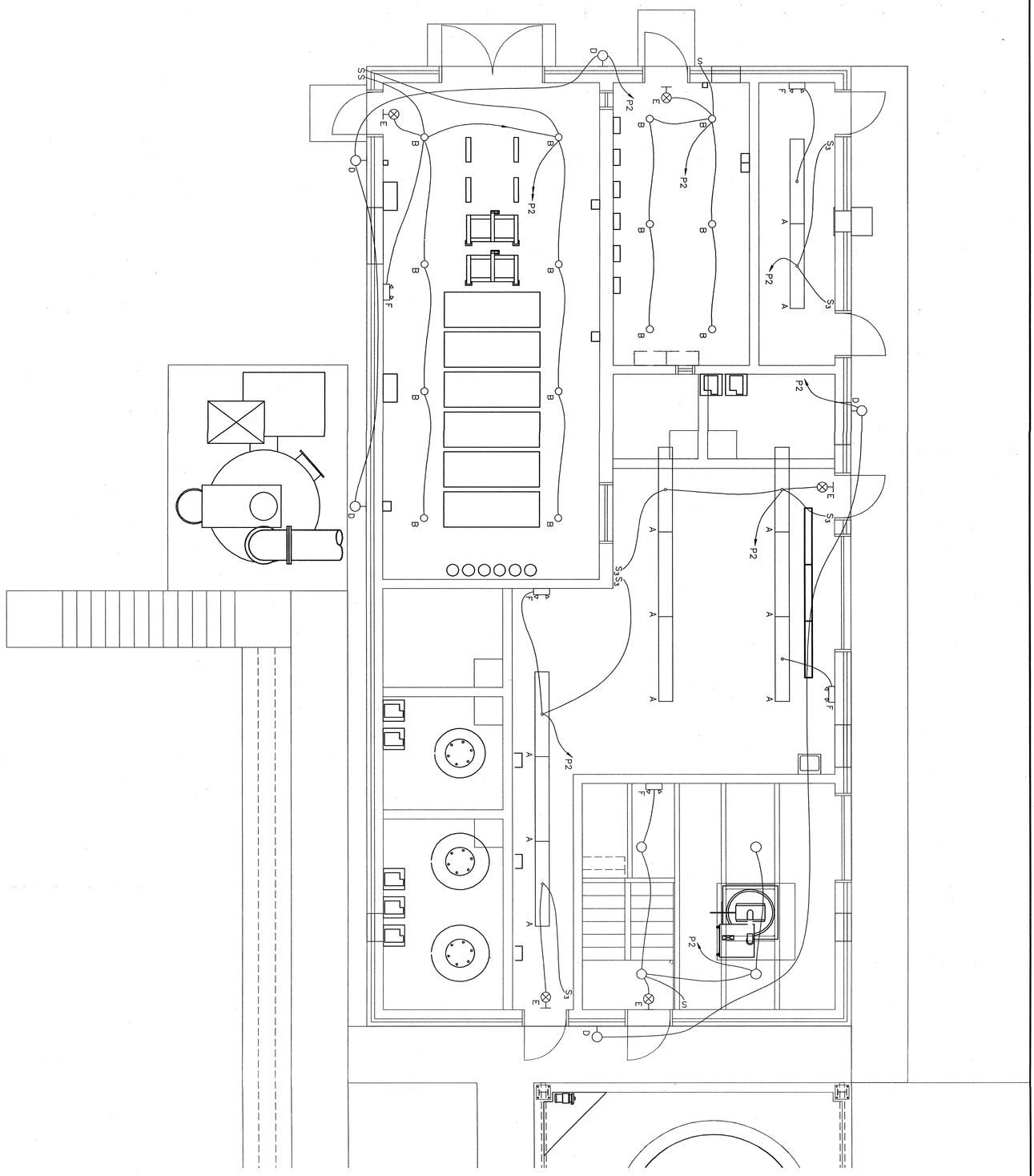
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TREATMENT PLANT BUILDING
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E215



CHLORINE AND CHEMICAL BUILDING
PLAN – LIGHTING
SCALE: 1/4"=1'-0"

E401.1
E401

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ROBERT C. SALMON
No. 031...
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PROFESSIONAL ENGINEER

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B	BID ISSUE	8/9/10	RCS
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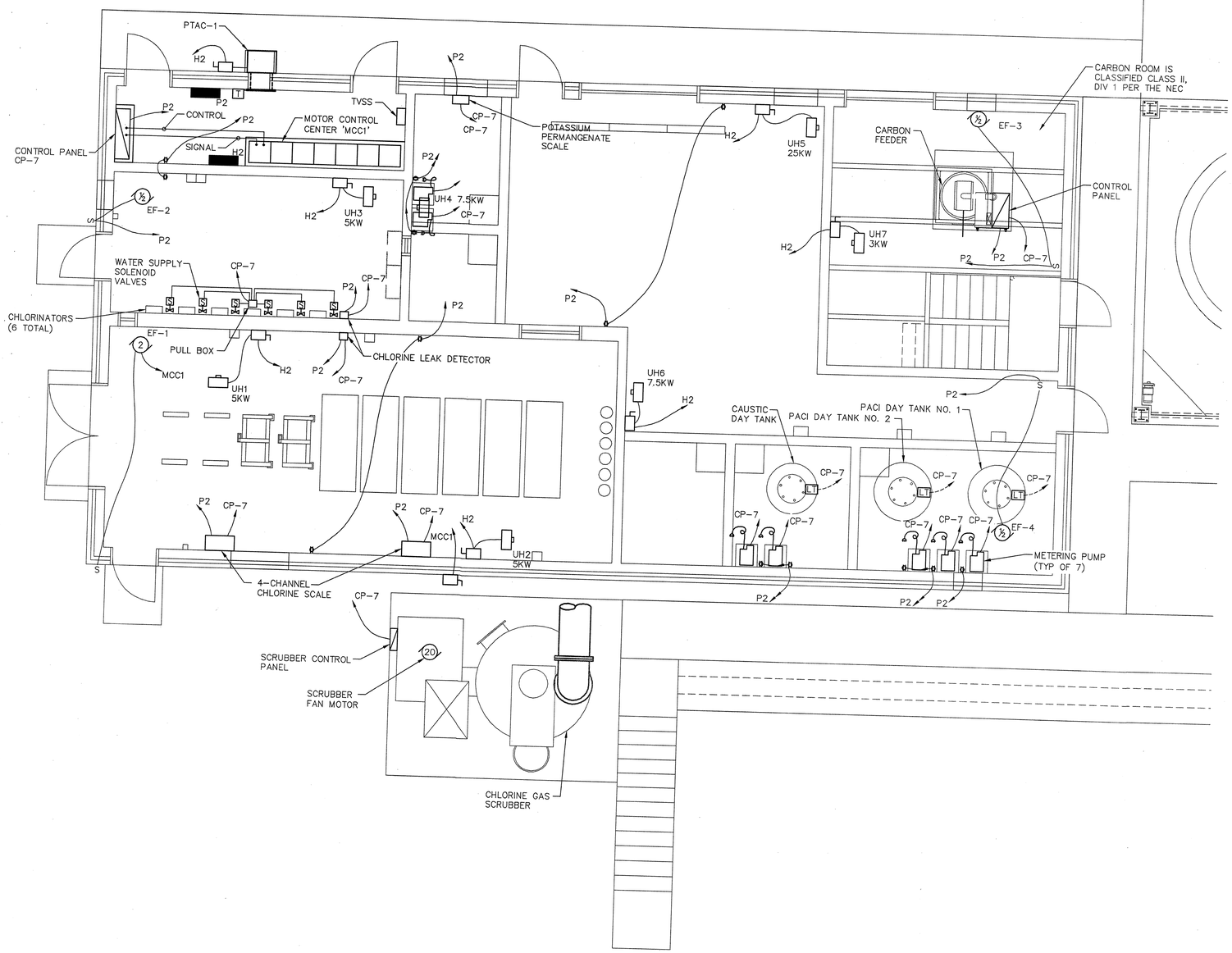
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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

CHLORINE AND CHEMICAL BUILDING
LIGHTING PLAN

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CHLORINE AND CHEMICAL BUILDING
PLAN – POWER

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

E402.1
E402

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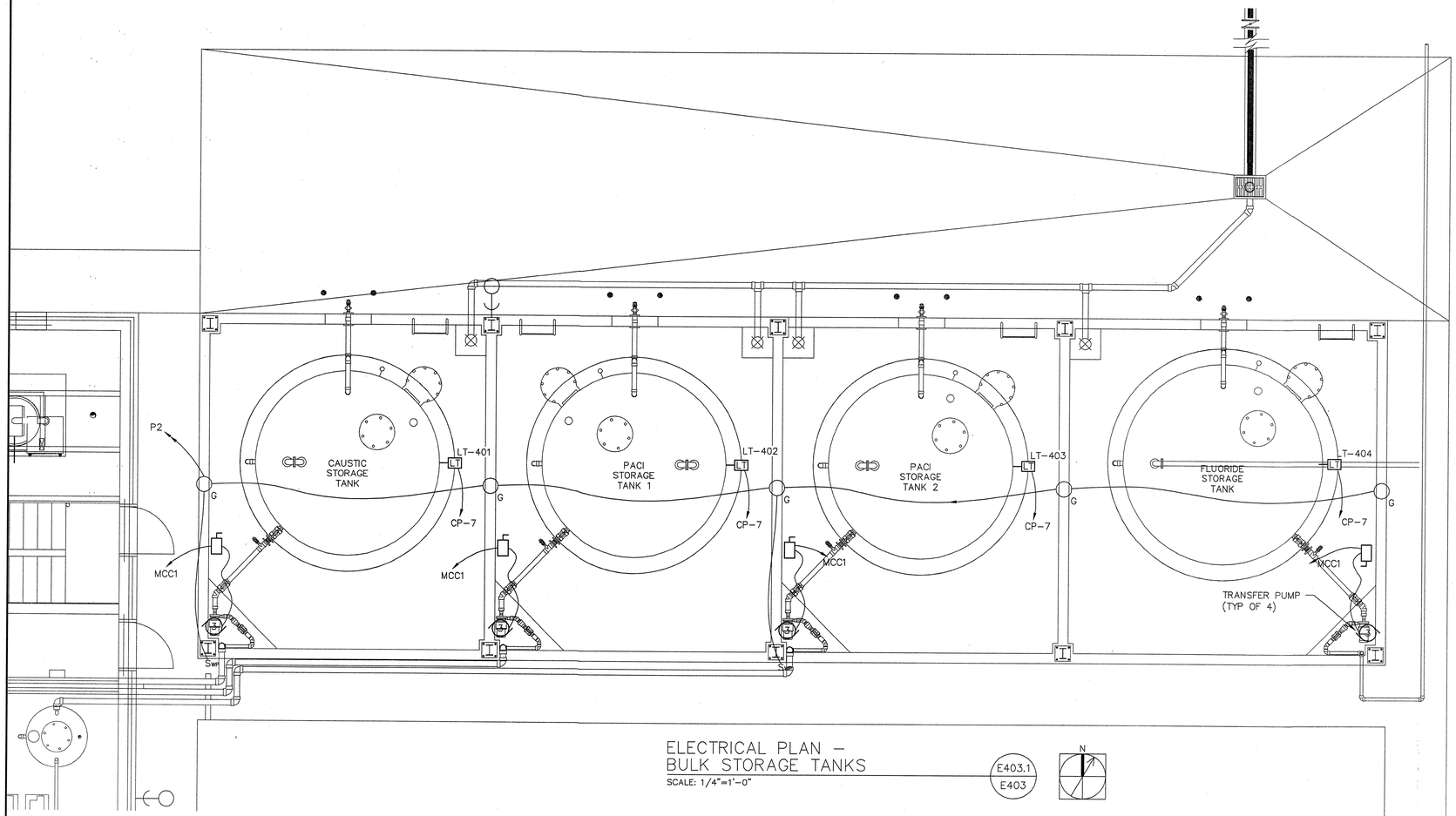
WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP 12 MGD IMPROVEMENTS

CHLORINE AND CHEMICAL BUILDING
POWER PLAN

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

Designed: RCM
Drawn: CDH
Checked: RCM
Date: JULY 2010
Scale: 1/4" = 1'-0"
Job No. 12367.13
Archived File Name:

E402



ELECTRICAL PLAN –
BULK STORAGE TANKS

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

E403.1
E403

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COMMONWEALTH OF VIRGINIA
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WASHINGTON COUNTY SERVICE AUTHORITY
MIDDLE FORK WTP UPGRADE TO 12 MGD

BULK CHEMICAL STORAGE FACILITY
ELECTRICAL PLAN

Rev.	Description	Date	By
B	BID ISSUE	8/9/10	RCS
A	VDH RESUBMITTAL	7/13/10	RCS

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