

# UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT

## WASTEWATER TREATMENT FACILITY IMPROVEMENTS PHASE I

CONTRACT NO. UB 2024

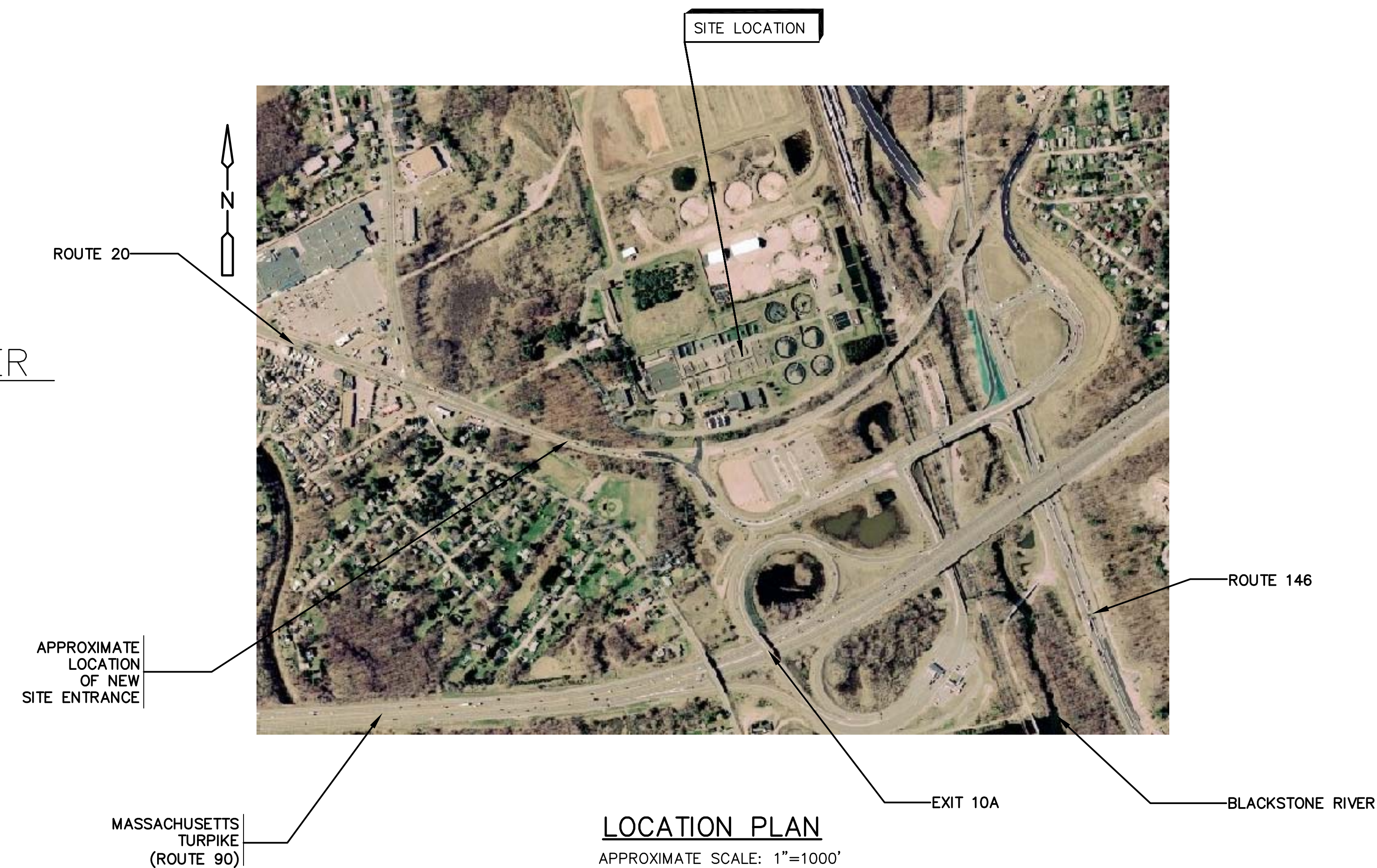
PROJECT NO. CWSRF-1684

### BOARD OF DIRECTORS

F. WORTH LANDERS, CHAIRMAN  
J. BRADFORD LANGE, VICE CHAIRMAN  
ROBERT L. MOYLAN, JR., SECRETARY

### ENGINEER— DIRECTOR— TREASURER

THOMAS K. WALSH, P.E.



## RECORD DRAWINGS

February 2007

**CDM** Camp Dresser & McKee Inc.  
CAMBRIDGE, MASSACHUSETTS

*Consulting*

*Engineering*

*Construction*

*Operations*

UNOFFICIAL CONFORMED CONTRACT DRAWINGS ARE FOR USE BY THE UPPER BLACKSTONE WASTEWATER TREATMENT FACILITY CONSTRUCTION MANAGEMENT STAFF ONLY AND ARE PROVIDED SOLELY FOR INFORMATION.





UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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**DESIGN YEAR FLOWS AND LOADINGS**

DESIGN INFLUENT FLOWS (mgd)	2010	2020
AVERAGE ANNUAL	42	45
MAXIMUM MONTH	70	75
MAXIMUM DAY	106	111
PEAK HOUR	154	160
<b>DESIGN FLOWS TO ADVANCED TREATMENT (mgd)</b>		
AVERAGE ANNUAL	42	45
MAXIMUM MONTH	70	75
MAXIMUM DAY	80	80
PEAK HOUR		120
<b>ADVANCED TREATMENT BYPASS CAPACITY (mgd)</b>	80	80

2010 DESIGN INFLUENT LOADINGS (lbs/day) (INCLUDING SEPTAGE)			
	AVERAGE ANNUAL	MAXIMUM DAY	MAXIMUM MONTH
BOD	48,600	81,600	61,200
TSS	45,500	87,500	55,500
TKN	8,200	14,500	11,900
P	1,260	1,950	1,830

2010 DESIGN LOADINGS TO ADVANCED TREATMENT (lbs/day) (INCLUDING SIDESTREAM)			
	AVERAGE ANNUAL	MAXIMUM DAY	MAXIMUM MONTH
BOD	40,700	65,100	49,200
TSS	27,100	47,700	31,700
TKN	9,200	16,000	12,900
P	1,610	2,410	2,200

2020 DESIGN INFLUENT LOADINGS (lbs/day) (INCLUDING SEPTAGE)			
	AVERAGE ANNUAL	MAXIMUM DAY	MAXIMUM MONTH
BOD	54,500	91,600	68,700
TSS	51,400	99,200	62,700
TKN	9,200	16,500	13,300
P	1,480	2,290	2,150

2020 DESIGN LOADINGS TO ADVANCED TREATMENT (lbs/day) (INCLUDING SIDESTREAM)			
	AVERAGE ANNUAL	MAXIMUM DAY	MAXIMUM MONTH
BOD	44,600	71,700	53,900
TSS	29,700	52,800	34,700
TKN	10,200	17,800	14,300
P	1,830	2,750	2,500

**PRELIMINARY TREATMENT**

INFLUENT SCREENING	
TYPE	catenary
NUMBER OF UNITS	4
UNIT CAPACITY	40 mgd
CLEAR SPACING OF BARS	5/8 inch
CHANNEL WIDTH	4.5 ft
CHANNEL DEPTH	
EAST	11 ft
WEST	10 ft
<b>AERATED GRIT</b>	
NUMBER OF TANKS	4
DETENTION TIME @ PEAK FLOW	
EAST	3.6 min (3.5 min)
WEST	6.2 min (6.0 min)
UNIT DIMENSIONS	
LENGTH	60 ft
WIDTH	
EAST	15 ft
WEST	25 ft
SIDEWATER DEPTH	15 ft
AIR SUPPLY	
NUMBER OF BLOWERS	3
TYPE OF BLOWER	positive displacement
BLOWER CAPACITY	600 scfm @ 7.3 psi

**PRIMARY TREATMENT**

PRIMARY SETTLING TANKS	
NUMBER OF UNITS	7
UNIT DIMENSIONS	
LENGTH	200 ft
WIDTH	40 ft
SIDEWATER DEPTH	10 ft
TOTAL SURFACE AREA	56,000 sq ft
OVERFLOW RATE (based on 7 tanks in service)	
AVERAGE ANNUAL	750 gpd/sq ft (804 gpd/sq ft)
PEAK HOUR	2,750 gpd/sq ft (2,857 gpd/sq ft)

**A<sup>2</sup>O SYSTEM - PHASE II (PHASE IV)**

AERATION (SEE NOTE 1)	
ANAEROBIC ZONE	
NUMBER OF TRAINS	4 (6)
STAGES PER TRAIN	3
STAGE DIMENSIONS	
A (LENGTH x WIDTH x SIDE WATER DEPTH)	21 ft x 41 ft x 15.4 ft
B	21 ft x 41 ft x 15.4 ft
C	61 ft x 84 ft x 15.4 ft
F/M (lb BOD / lb MLSS)	
A	3.3 (2.4)
B	1.6 (1.2)
C	0.4 (0.3)
ANOXIC ZONE	
NUMBER OF TRAINS	4 (6)
STAGES PER TRAIN	1
STAGE DIMENSIONS	
D (LENGTH x WIDTH x SIDE WATER DEPTH)	74 ft x 42 ft x 15.4 ft
E (LENGTH x WIDTH x SIDE WATER DEPTH)	74 ft x 42 ft x 15.4 ft
HYDRAULIC RETENTION TIME (includes all recycles)	23 minutes (32 minutes)
AEROBIC ZONE	
NUMBER OF TRAINS	4 (6)
UNIT DIMENSIONS	
LENGTH	346 ft
WIDTH	84 ft
SIDEWATER DEPTH	15 ft
VOLUME	
PER TRAIN	3 MG
TOTAL	12 MG (18 MG)
SRT A/O	9 day (12 day)
A <sup>2</sup> /O	7 day (10 day)
MLSS / MLVSS	3,750 mg/l / 3,000 mg/l
INTERNAL RECYCLE PUMPS	
NUMBER OF UNITS	4 (6)
TYPE	submersible propeller
CAPACITY	17,000 gpm
MOTOR HORSEPOWER	20 hp
AVERAGE INTERNAL RECYCLE RATE	270 % ADF
BLOWERS	
NUMBER OF UNITS	5
TYPE	centrifugal
CAPACITY	15,000 acfm
MOTOR HORSEPOWER	600 hp
FINAL SETTLING TANKS	
NUMBER OF UNITS	8
TYPE	circular
DIMENSIONS	
DIAMETER	140 feet
SIDEWATER DEPTH	14.5 feet
TOTAL SURFACE AREA	123,150 sq ft
OVERFLOW RATE	
AVERAGE ANNUAL	341 (365 gpd/sq ft)
PEAK HOUR	937 (974 gpd/sq ft)
SOLIDS LOADING	
AVERAGE ANNUAL	17 lbs/d/sq ft (18 lbs/d/sq ft)
PEAK HOUR	45 lbs/d/sq ft
RETURN ACTIVATED SLUDGE PUMPS	
NUMBER OF UNITS	10 (8 operating, 2 standby)
TYPE	horizontal non clog centrifugal
CAPACITY	5,625 gpm
MOTOR HORSEPOWER	60 hp
AVERAGE RAS RATE	60 % ADF

**DISINFECTION/ DECHLORINATION**

DISINFECTION	
NUMBER OF CONTACT TANKS	2
TOTAL VOLUME	0.76 MG
DETENTION TIME	
AVERAGE ANNUAL	26 (24.3 minutes)
PEAK HOUR	9.5 (9.1 minutes)
DISINFECTANT	SODIUM HYPOCHLORITE
PEAK DOSAGE	
⊙ AVERAGE FLOW	20 mg/l
⊙ PEAK FLOW	8 mg/l
⊙ PEAK BYPASS FLOW	12 mg/l

DECHLORINATION	
CHEMICAL	SODIUM BISULFITE
DOSAGE	1.6 mg/l per mg/l residual

**MULTIPLE-HEARTH FURNACE/AIR POLLUTION CONTROL**

MULTIPLE-HEARTH FURNACE (with flue gas recirculation)	
NUMBER OF INCINERATORS	2
CAPACITY (each incinerator)	
MAXIMUM THROUGHPUT	3.0 dry tons/hour
FLUE GAS RECIRCULATION (FGR) FANS WITH VFD'S	
NUMBER OF FANS	2
MOTOR HORSEPOWER	125 hp
DESIGN AIR FLOW RATE	50,000 acfm @ 1000 deg F
DESIGN STATIC PRESSURE	5 in water column

AIR POLLUTION CONTROL - WET ELECTROSTATIC PRECIPITATORS (WESP)	
NUMBER	2
UNIT DIMENSIONS	
DIAMETER	10.5 ft
HEIGHT	45 ft
SPECIFIC COLLECTION AREA (SCA)	130 sq ft/1000 acfm
OUTLET PARTICULATE CONCENTRATION	0.008 Grains/dscf Corrected to 7% O <sub>2</sub>

**ODOR CONTROL**

BIOFILTER	
SOURCE	screenings, grit, primary influent and effluent channels
PROCESS AIR FLOW	18,000 cfm
STATIC PRESSURE	10 in WG.
DIMENSIONS	
WIDTH	20 ft
LENGTH	67 ft
MEDIA DEPTH	7 ft 6 in
AIR HEATER	200,000 BTU

ACTIVATED CARBON	
SOURCE	sludge holding and receiving tanks
NUMBER OF CARBON CANISTERS	2
UNIT DIMENSIONS	
DIAMETER	6 ft
BED DEPTH	3 ft
AIR FLOW (each)	2,000 cfm
PRESSURE DROP	12 in water column across each bed

**FLOW MEASUREMENT**

INFLUENT	
PARSHALL FLUME	
WIDTH	12 ft
RATED CAPACITY	336 mgd

ADVANCED TREATMENT BYPASS	
PALMER-BOWLUS FLUME	
WIDTH	72 in
RATED CAPACITY	120 mgd

**NOTES:**  
 1. VALUES SHOWN PARENTHETICALLY REFLECT DESIGN CRITERIA UNDER 2020 FLOWS AND LOADS.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.:	MDNCR001
DESIGNED BY:	J. MADDEN
DRAWN BY:	J. COMPONESCHI
SHEET CHK'D BY:	J. MADDEN
SCALE:	NONE
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**DESIGN CRITERIA - PHASE I**

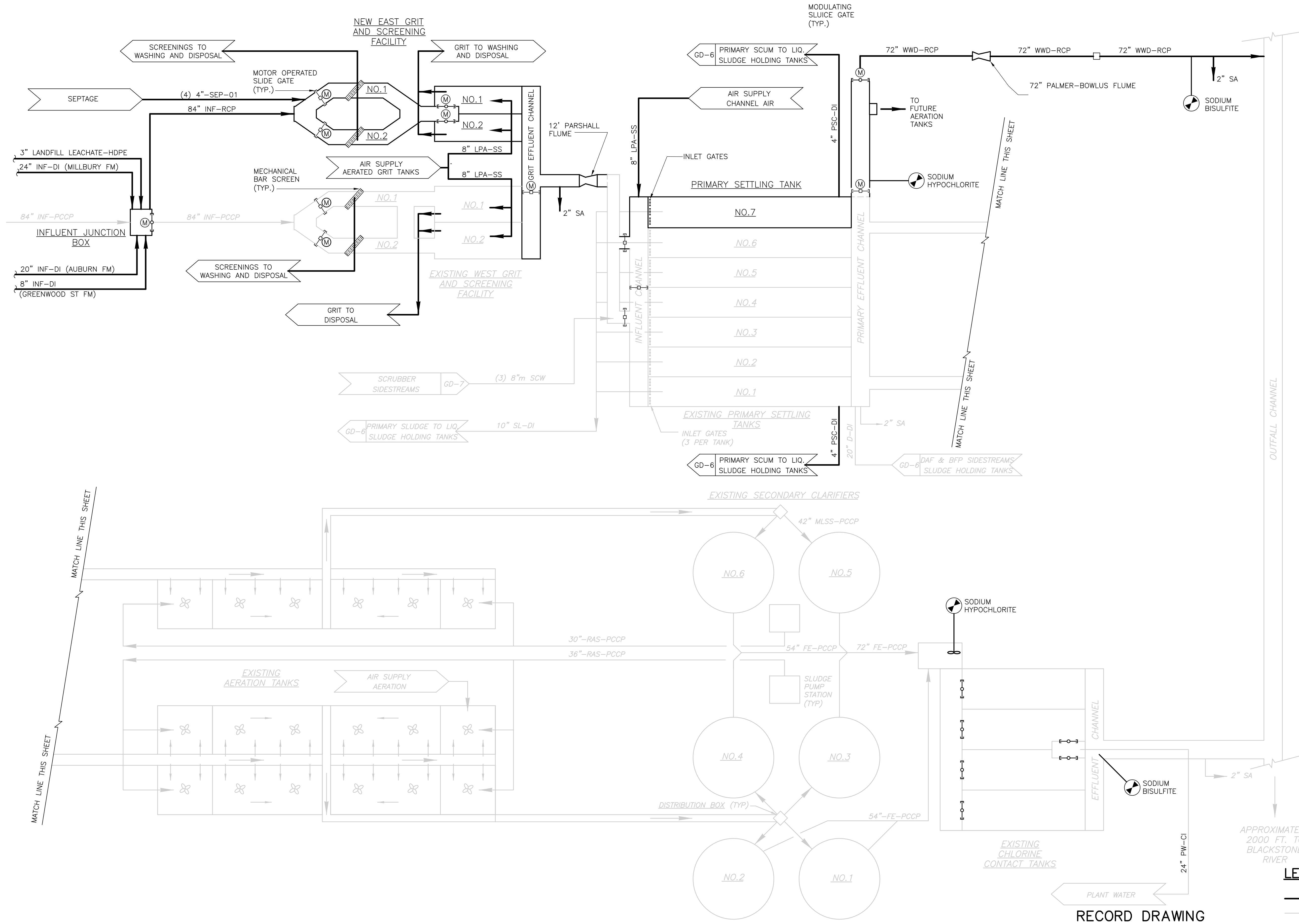
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1289\35370

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**GD-3**

Accession No. 1289-53404





**LEGEND:**  
 ——— NEW  
 - - - - - EXISTING

RECORD DRAWING

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3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. MPRD001.DWG  
 DESIGNED BY: K. SANGREY  
 DRAWN BY: V. BITTO  
 SHEET CHK'D BY: K. SANGREY  
 SCALE: NONE  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2006

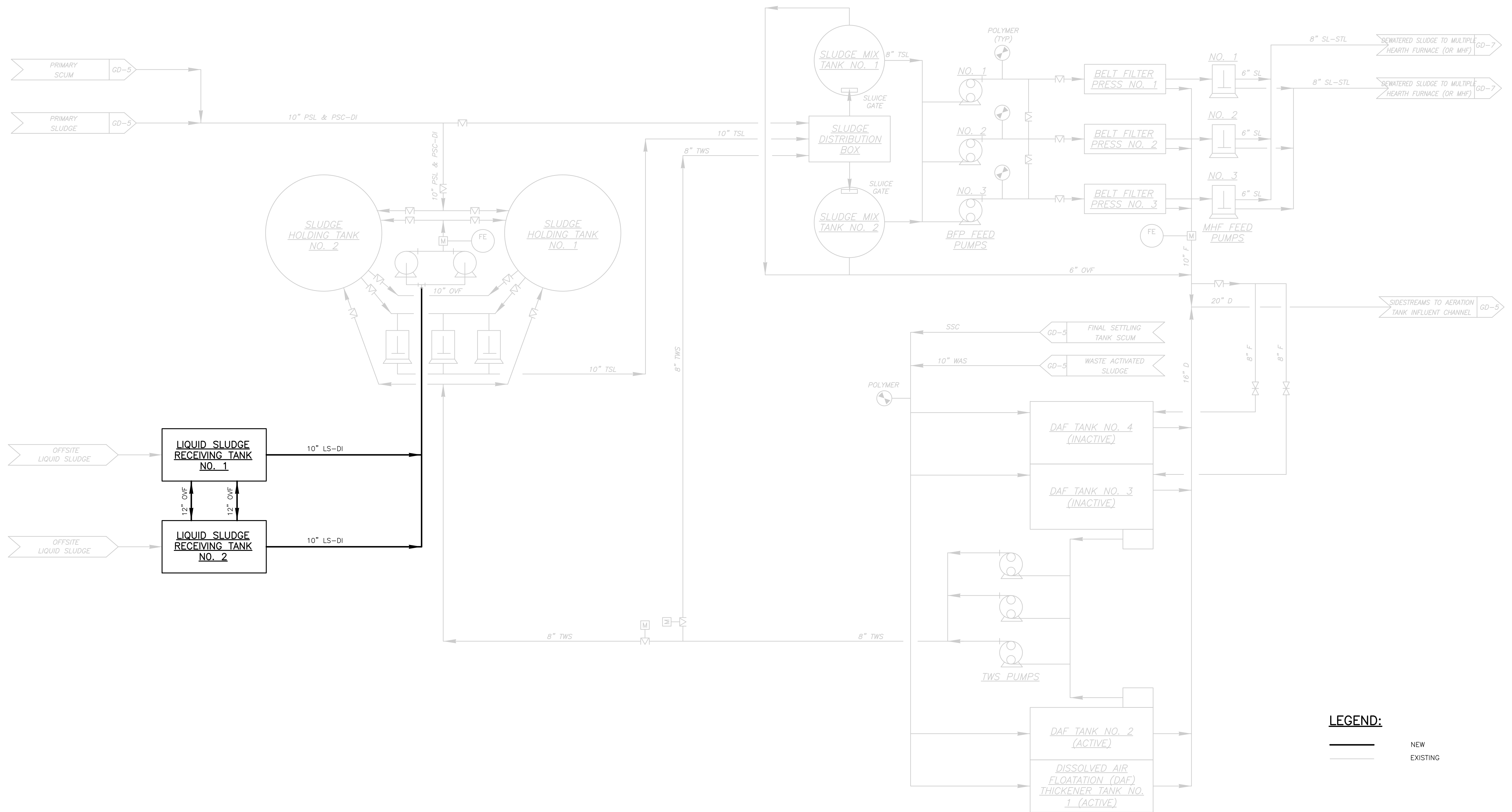
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**LIQUID PROCESS FLOW DIAGRAM  
 PHASE I**

PROJECT NO. 1289\35370  
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**GD-5**



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. MPREDO05.DWG  
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 DRAWN BY: V. BITTO  
 SHEET CHK'D BY: C. ARLOTTA  
 SCALE: NONE  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2006

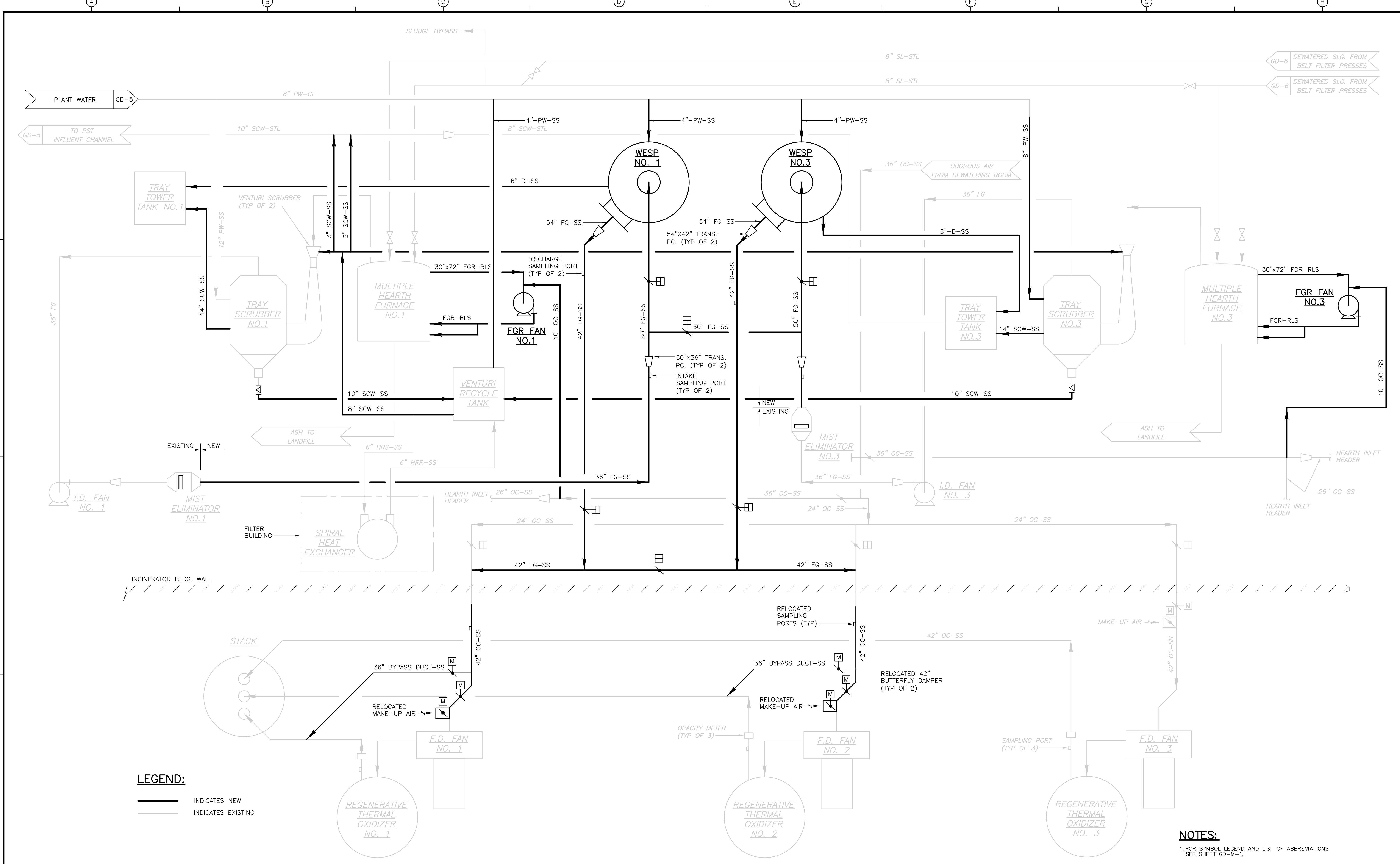
**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SOLID PROCESS FLOW DIAGRAM  
 PHASE I**

PROJECT NO.  
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**GD-6**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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**LEGEND:**  
 ——— INDICATES NEW  
 - - - INDICATES EXISTING

**NOTES:**  
 1. FOR SYMBOL LEGEND AND LIST OF ABBREVIATIONS SEE SHEET GD-M-1.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. MPRFD006  
 DESIGNED BY: F. SAPIENZA  
 DRAWN BY: V. BITTO  
 SHEET CHK'D BY: F. SAPIENZA  
 SCALE: NONE  
 APPROVED BY: J. MADDEN  
 DATE: MAY 2006

PROJECT NO. 1289\35370  
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 GD-7

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations  
**CBE** CHAVOND-BARRY ENGINEERING CORP.  
 400 Route 518 • P.O. Box 205 • Blawenburg, New Jersey 08504

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**INCINERATION PROCESS FLOW DIAGRAM  
 PHASE I**

A B C D E F G H  
 1  
 2  
 3  
 4



**LEGEND & ABBREVIATIONS**

**CIVIL/SITE LEGEND - EXISTING FEATURES**

SYMBOL	DESCRIPTION
BOT	BOTTOM
C=	CASING ELEVATION
CB	CATCH BASIN
CL	CHLORINE
CMP	CORRUGATED METAL PIPE
DMH	DRAINAGE MANHOLE
FF=	FINISH FLOOR ELEVATION
FM	FORCE MAIN
G=	GROUND ELEVATION
I=	INVERT ELEVATION
NPV	NO PIPE VISIBLE
P	PLANT WATER
PVC	POLYVINYL CHLORIDE PIPE
OHW	OVERHEAD WIRE
R=	RIM ELEVATION
RCP	REINFORCED CONCRETE PIPE
S=	SUMP ELEVATION
SMH	SANITARY SEWER MANHOLE
T=	TROUGH ELEVATION
TBA	TO BE ABANDONED
TBM	TEMPORARY BENCH MARK ELEVATION
W	POTABLE WATER
CB	CATCH BASIN
DMH	DRAIN MANHOLE
SMH	SEWER MANHOLE
EMH	ELECTRIC MANHOLE
TMH	TELEPHONE MANHOLE
MH	MISCELLANEOUS MANHOLE
15" RCP	DRAIN LINE WITH SIZE AND TYPE
8" PVC	SEWER LINE WITH SIZE AND TYPE
G	GAS LINE
E	ELECTRIC LINE
FM	FORCE MAIN
W	WATER LINE
T	TELEPHONE LINE
OW	OVERHEAD WIRE
UNKNOWN PIPE OR DUCT DESTINATION	
WG	WATER GATE
HYD	FIRE HYDRANT
GG	GAS GATE
LP	LIGHT POLE
UP	UTILITY POLE WITH LIGHT
UP#1	UTILITY POLE WITH NUMBER
E	ELECTRIC BOX OR METER
GUY	GUY WIRE
CLF	CHAIN LINK FENCE
GR	GUARD RAIL
BUILDING	
TREELINE	
EDGE OF WATER	
INDEX CONTOUR	
INTERMEDIATE CONTOUR	
CONTROL POINTS	
SPOT ELEVATION	

419.85 TC  
419.54 BC

TOP CURB ELEVATION  
BOTTOM CURB ELEVATION

EVERGREEN TREE  
DECIDUOUS TREE

CONC. HEADWALL  
CAST IRON  
VITRIFIED CLAY  
CONCRETE  
GRANITE  
BITUMINOUS CONCRETE  
HEADWALL  
WHEEL CHAIR RAMP  
WETLAND FLAG

LIMIT OF 100 FT. BUFFER  
TOWN LINE  
EASEMENT LINE  
PROPERTY LINE  
TEST PIT  
BORING

WF-142  
TP-204  
CDM-21

**CIVIL/SITE LEGEND - NEW FEATURES**

SYMBOL	DESCRIPTION
SECTION SYMBOLS	
PIPELINE, GREATER THAN 16" DIAM	
PIPELINE, 16" DIAM OR LESS	
PLANT WATER MAIN	
WATER MAIN	
FIRE MAIN	
GAS MAIN	
UNDERGROUND TELEPHONE	
UNDERGROUND ELECTRIC	
ELECTRIC OR TELEPHONE MANHOLE	
SEWER OR DRAIN MANHOLE	
CATCH BASIN	
BUTTERFLY VALVE	
GATE VALVE	
PLUG VALVE	
CLEANOUT	
CHAIN LINK FENCE	
GUARDRAIL	
TREE LINE	
SPOT ELEVATION	
INDEX CONTOUR	
INTERMEDIATE CONTOUR	
CRUSHED STONE MOW STRIP	

**CIVIL/SITE ABBREVIATIONS**

293.4 LP	LOW POINT
300.5 HP	HIGH POINT
APPROX	APPROXIMATE
BC	BOTTOM OF CURB
BIT CONC	BITUMINOUS CONCRETE
BSF	SODIUM BISULFITE
BW	BOTTOM OF WALL
CL	CENTERLINE
CI	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CU	COPPER
D	DRAIN
DI	DUCTILE IRON
DIA	DIAMETER
DMH	DRAIN MANHOLE
EMH	ELECTRIC MANHOLE
EFF	EFFLUENT
EXIST	EXISTING
FD	FLOOR DRAIN
FM	FORCE MAIN
FW	FACE OF WALL
G	GAS
GST	GALVANIZED STEEL
GC	GRANITE CURB
HDPE	HIGH DENSITY POLYETHYLENE
HGS&R	HEATING GLYCOL SERVICE AND RETURN
INF	INFLUENT
INT	INTERSECTION
INV EL	INVERT ELEVATION
LCB	LEACHING CATCH BASIN
LPA	LOW PRESSURE AIR
MSPG	MASSACHUSETTS STATE PLANE GRID
MH	MANHOLE
PS	PUMP STATION
OC	ODOR CONTROL
O/S	OFF SET
PW	PLANT WATER
PIV	POST INDICATOR VALVE
RCP	REINFORCED CONCRETE PIPE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PSC	PRIMARY SCUM
PSL	PRIMARY SLUDGE
PVC	POLYVINYL CHLORIDE
PWHDPPE	PROFILE WALL HIGH DENSITY POLYETHYLENE
RIM EL	RIM ELEVATION
RD	ROAD
SHC	SODIUM HYPOCHLORITE
SMH	SEWER MANHOLE
STA	STATION

**EROSION AND SEDIMENT CONTROL LEGEND**

SYMBOL	DESCRIPTION
[Symbol]	OUTLET PROTECTION
[Symbol]	EROSION CONTROL BLANKET
[Symbol]	SEDIMENT FENCE

**YARD PIPING GENERAL NOTES**

- THE LOCATION OF EXISTING UTILITIES AND OTHER UNDERGROUND STRUCTURES SHOWN ON THE DRAWINGS IS APPROXIMATE, AND THEIR ACTUAL LOCATIONS MAY VARY FROM THAT SHOWN. FURTHER, IT IS NOT WARRANTED THAT ALL UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND FEATURES THAT MAY BE AFFECTED BY THE WORK.
- PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AND PRIVATE UTILITIES THAT COULD BE AFFECTED BY THE WORK, IN ACCORDANCE WITH CHAPTER 370, ACTS OF 1963 OF MASSACHUSETTS LAW. ADDITIONALLY, NOTIFY DIG SAFE (800-225-4977).
- NEW WATER MAINS SHALL HAVE A MINIMUM COVER OF 5 FEET UNLESS OTHERWISE INDICATED AND SHALL PASS UNDER EXISTING UTILITIES AS NECESSARY TO MEET THIS REQUIREMENT.
- ALL NEW WATER PIPES, INCLUDING FIRE PROTECTION LINES, SHALL HAVE RESTRAINED JOINTS AS SPECIFIED.
- TEST PITS SHALL BE DUG TO LOCATE EXISTING PIPES TO WHICH NEW PIPES ARE TO BE CONNECTED, AND WHERE NECESSARY TO DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL FINAL CONNECTIONS TO PIPES INSTALLED BY PLUMBING SUBCONTRACTOR.
- FOR ADDITIONAL DETAILS OF EXISTING BURIED PROCESS PIPING SEE YARD PIPING DRAWINGS
- ABANDONED PIPES, VALVES AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION MAY BE REMOVED AS REQUIRED. PIPES LEFT IN PLACE SHALL BE PLUGGED AS SPECIFIED AND AS APPROVED BY THE ENGINEER.

**GENERAL NOTES**

- EXISTING SITE CONDITIONS SHOWN ARE BASED ON A SURVEY CONDUCTED BY CULLINAN ENGINEERING CO., INC. ADDITIONAL INFORMATION HAS BEEN OBTAINED THROUGH FIELD SURVEYS AND INFORMATION PROVIDED BY EXISTING DRAWINGS AND PLANT PERSONNEL, COMPILED BY CDM IN 2002. THIS PLAN WAS COMPILED FROM AERIAL PHOTOGRAPH DATED NOVEMBER 15, 2001 BY BRADSTREET CONSULTANTS, INC. FIELD EDITS PERFORMED BY CULLINAN ENGINEERING CO., INC. IN APRIL AND MAY OF 2002.
- THE HORIZONTAL DATUM IS REFERENCED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27) MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, MAINLAND ZONE.
- THE VERTICAL DATUM IS REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).
- THE DESIGN 100 YEAR FLOODPLAIN IS AT ELEVATION 414.30 THE DESIGN 25 YEAR FLOOD PLAIN IS AT ELEVATION 412.0.
- SOIL BORINGS AND TEST PITS WERE DRILLED BETWEEN 1970-71 FOR THE CURRENT FACILITY, AND BETWEEN 2000-2003 FOR THIS CONSTRUCTION. THE BORINGS ARE APPENDED TO THE SPECIFICATIONS. BORING LOCATIONS ARE SHOWN ON DRAWING C-3.
- RECORD DRAWINGS OF PRIOR CONSTRUCTION CONTRACTS ARE AVAILABLE FOR REVIEW AT THE UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT ADMINISTRATION BUILDING, AND AT CDM, 50 HAMPSHIRE ST, CAMBRIDGE MA.
- THE CONTRACTOR SHALL PREPARE AN EROSION CONTROL PLAN FOR APPROVAL BY THE ENGINEER TO PROTECT THE SITE FROM EROSION AND PREVENT THE MOVEMENT OF SEDIMENT AND DEBRIS.
- ALL AREAS OUTSIDE THE LIMIT OF DISTURBANCE SHALL BE PROTECTED AT ALL TIMES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- ALL MATERIALS TO BE REMOVED WITHIN THE LIMIT OF DISTURBANCE SHALL BE REMOVED TO A LOCATION ARRANGED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE LOCATION OF STOCKPILED TOPSOIL SHALL BE IN AREAS APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL COORDINATE WORK TO ENSURE CONTINUED ACCESS TO ALL EXISTING FACILITY STRUCTURES. SEE SPECIFICATION SECTION 01810 FOR ADDITIONAL INFORMATION.
- REMOVE AND DISPOSE OF EXISTING PAVEMENT WITHIN LIMITS SHOWN ON DRAWINGS TAKING CARE NOT TO DAMAGE EXISTING WALLS, BUILDINGS OR UTILITY STRUCTURES.
- STRIP EXISTING VEGETATION AND 6" LAYER TOPSOIL UNLESS OTHERWISE SHOWN TO BE PROTECTED WITHIN LIMIT OF DISTURBANCE. GRIND ANY STUMPS TO A MINIMUM OF ONE FOOT BELOW FINISH GRADE AND BACKFILL IN COMPACTED LAYERS AS SPECIFIED.
- REMOVE FOUNDATIONS OF ALL DEMOLISHED STRUCTURES TO 24" BELOW EXISTING GRADE EXCEPT AS NOTED. CORE 6 INCH DIAMETER HOLES IN SLABS AT 10 FOOT ON CENTER OF ALL DEMOLISHED STRUCTURES. DEBRIS SHALL NOT REMAIN WITHIN CORE HOLE.

**LAYOUT GENERAL NOTES:**

- FOR LAYOUT PURPOSES AND TO ESTABLISH THE COORDINATE SYSTEM SEE P.O.B #1 AND P.O.B. #2 ON SHEET C-9 AND C-5 EXISTING PK NAIL #18 AND PK NAIL #19.
- CONTRACTOR SHALL VERIFY ALL PROPERTY AND SURVEY INFORMATION.
- CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY AND PROTECT ALL ON-SITE STRUCTURES IDENTIFIED ON THE PLANS TO BE RETAINED ON THE SITE THROUGHOUT THE CONSTRUCTION PROJECT.
- CONTRACTOR SHALL MAINTAIN VEHICULAR ACCESS AND ALL UTILITY SERVICES TO THE EXISTING TREATMENT PLANT AND ASSOCIATED FACILITIES THROUGHOUT THE DURATION OF THE CONTRACT, UNLESS OTHERWISE SPECIFIED.
- WHERE COORDINATES ARE NOT PROVIDED FOR ROADWAY CONSTRUCTION, NEW ROAD CENTERLINE ALIGNMENT SHALL FOLLOW CENTERLINE OF EXISTING ROADWAY.
- LOCATIONS OF VAULTS AND CONCRETE PADS ARE APPROXIMATE ONLY. FINAL LOCATIONS SHALL BE DETERMINED IN THE FIELD AFTER STAKING BY THE CONTRACTOR BASED ON ACTUAL SITE CONDITIONS AS APPROVED BY THE ENGINEER.
- ALL DISTURBED AREAS NOT COVERED WITH PAVEMENT OR STRUCTURES SHALL RECEIVE 6" LAYER LOAM AND SEED AS SPECIFIED.
- BUILDING DIMENSIONS ARE TO COLUMN LINE INTERSECTION OR OUTSIDE FACE OF WALL AS SHOWN ON THE DRAWINGS. DIMENSIONS FOR TANKS ARE TO OUTSIDE FACE OF WALL. DIMENSIONS TO CONCRETE PADS ARE TO EDGE OF PAD.
- ALL ITEMS TO BE REMOVED, UNLESS OTHERWISE INDICATED ON THE DRAWINGS, SHALL BE DISPOSED OFF SITE IN A LEGAL MANNER.
- ITEMS SLATED FOR RE-USE SHALL BE STORED IN A CLEAN, DRY PLACE, PRIOR TO RELOCATION ON SITE.

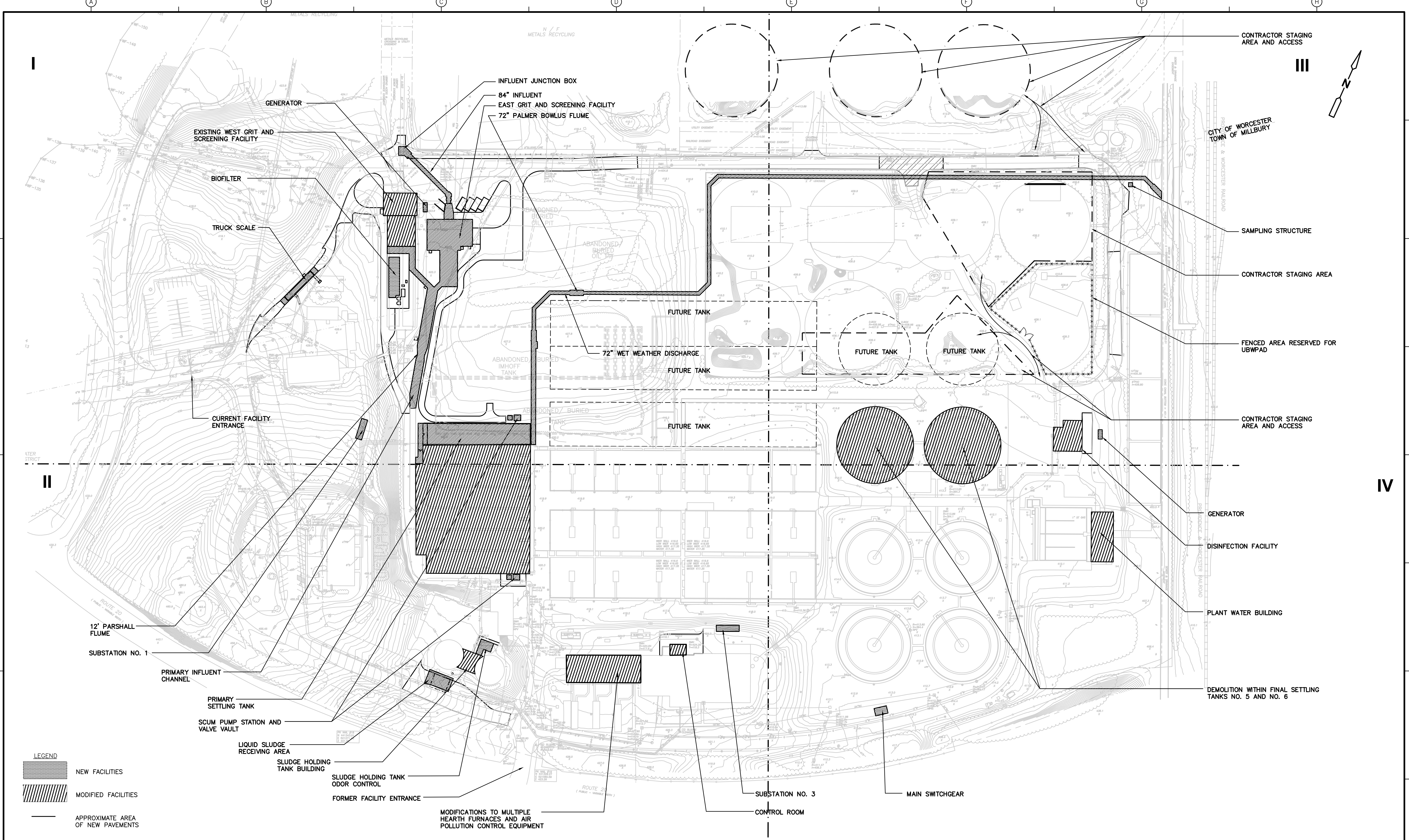
**GRADING GENERAL NOTES:**

- BENCHMARK= TBM UB-2 SQUARE CUT EL. 426.4 AT EXISTING SCREENINGS AND GRIT FACILITY. ADDITIONAL BENCHMARKS ARE PROVIDED ON SHEETS C-4, C-5, C-6, C-7
- NOTIFY THE ENGINEER OF OBSTRUCTIONS ENCOUNTERED DURING THE CONSTRUCTION OF ROADWAYS.
- CONTRACTOR IS RESPONSIBLE FOR CONFIRMING GRADES AND LOCATION OF UTILITIES. MAJOR DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- SEE YARD PIPING PLANS FOR SUBSURFACE UTILITIES.
- TO ESTABLISH PROPER GRADES, CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF GRADE STAKES. THE NUMBER AND LOCATION SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
- ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN A MANNER APPROVED BY THE ENGINEER.

RECORD DRAWING

CADD FILE NO. CEXPLO00.DWG DESIGNED BY: G. HOWARD DRAWN BY: H. DAVIS SHEET CHK'D BY: J. OLCOTT SCALE: NTS APPROVED BY: G. HOWARD DATE: MAY 2006						UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024		PROJECT NO. 1289\35370 Sht. 9 of 386	
REV. NO. DATE DRWN CHKD REMARKS 3/07 SPV ADT NO REVISION REQUIRED FOR THE RECORD						WASTEWATER TREATMENT FACILITY IMPROVEMENTS		CIVIL/SITE LEGEND, NOTES AND ABBREVIATIONS C-1	

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:16:20 PM  
 Xref's: [C24X36H\_CSPPL000\_CSPPL000.dwg  
 P:\1289\35370\PHASE I\RECORD\SITE\CSPPL001.dwg



**LEGEND**  
 NEW FACILITIES  
 MODIFIED FACILITIES  
 ——— APPROXIMATE AREA OF NEW PAVEMENTS

**PLAN**  
 1" = 80'

RECORD DRAWING

1" = 80'  
 40 0 80

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

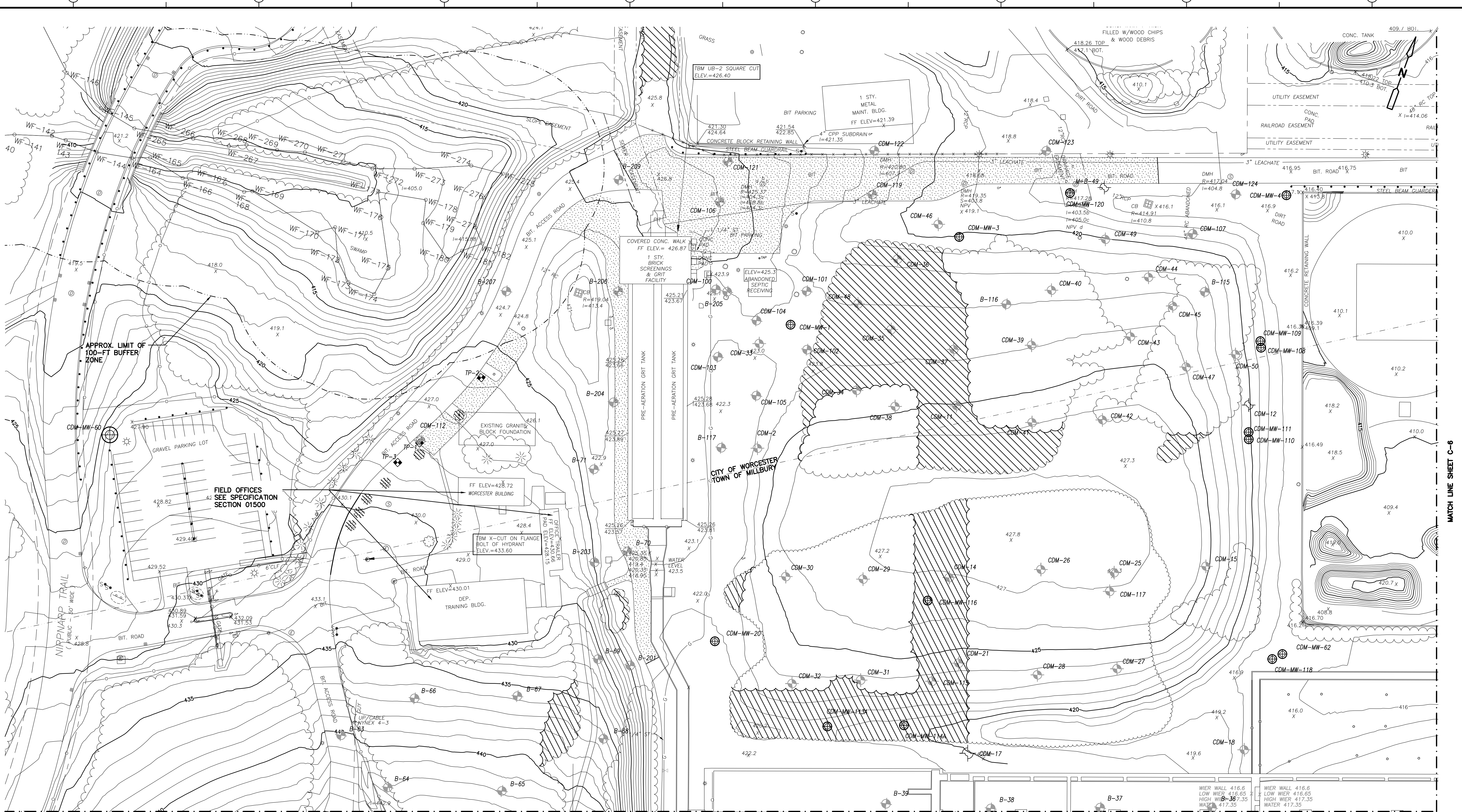
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 DESIGNED BY: G. HOWARD  
 DRAWN BY: H. DAVIS/N. SWAIN  
 SHEET CHK'D BY: J. OLCOTT  
 SCALE: AS NOTED  
 APPROVED BY: G. HOWARD  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

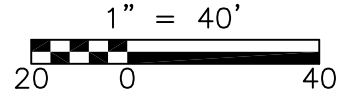
**OVERVIEW PLAN**  
 PROJECT NO. 1289\35370  
 Sht. 10 of 386  
**C-2**



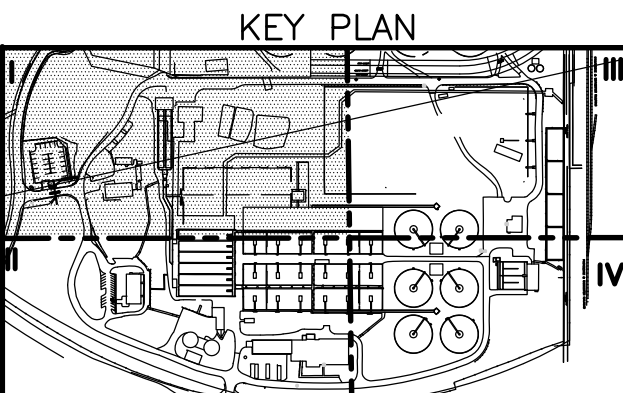


MATCH LINE SHEET C-5

**PLAN**  
1"=40'



- LEGEND**
- LIMIT OF BITUMINOUS CONCRETE PAVEMENT REMOVAL
  - LIMIT OF CLEARING AND GRUBBING



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. CEXPLO01  
 DESIGNED BY: G. HOWARD  
 DRAWN BY: H. DAVIS / N. SWAIN  
 SHEET CHK'D BY: J. OLCOTT  
 SCALE: AS NOTED  
 APPROVED BY: G. HOWARD  
 DATE: MAY 2006

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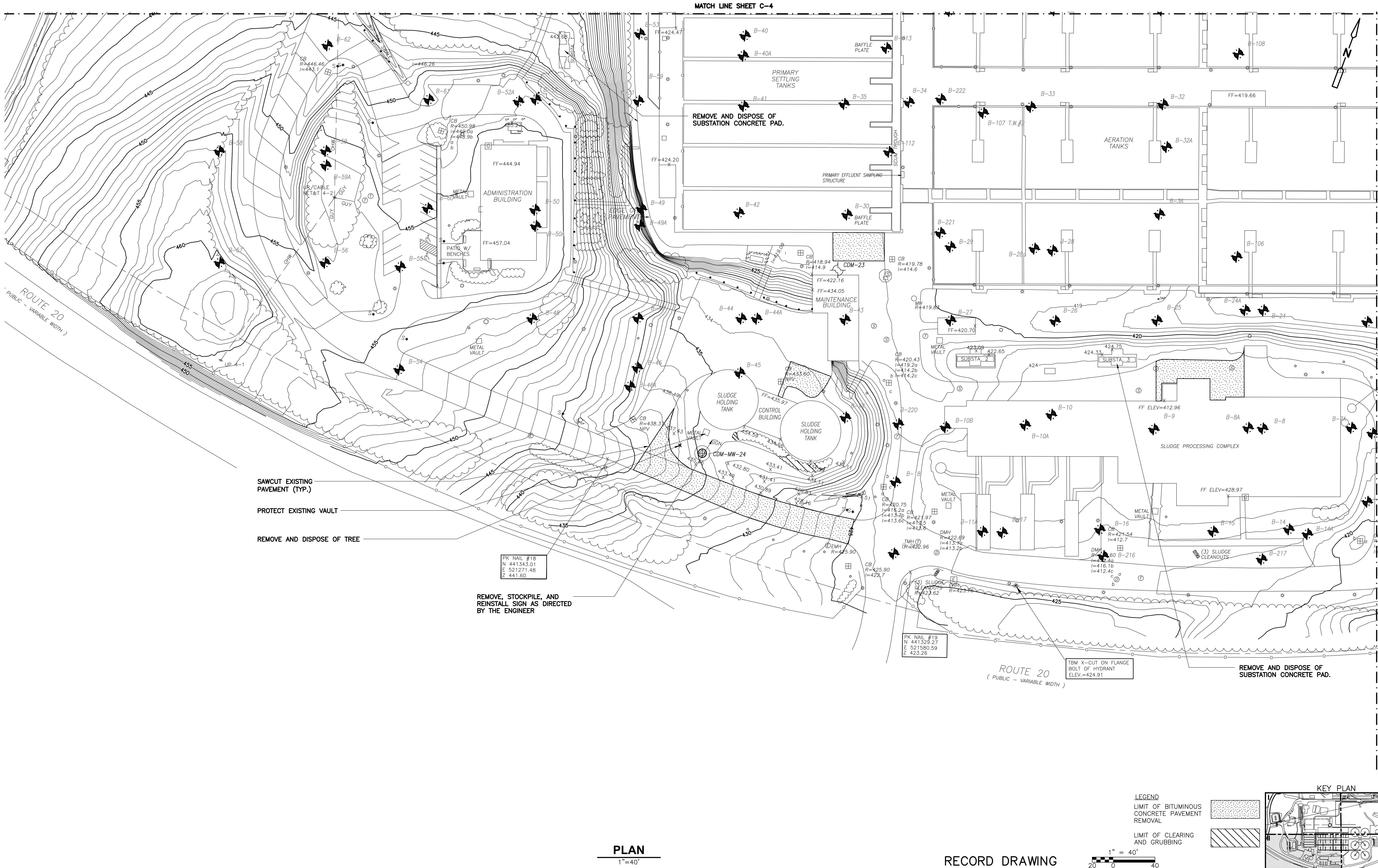
**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**EXISTING CONDITIONS  
 AND SITE REMOVAL PLAN I**

PROJECT NO. 1289\35370  
 Sht. 12 of 386  
**C-4**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:16:34 PM  
 Filename: P:\1289\35370\PHASE\RECORD SITE\CEXPLO02.dwg Xrefs: [c24x36h, CVPLO00, BORINGS, CBSPLO00, ]



- SAWCUT EXISTING PAVEMENT (TYP.)
- PROTECT EXISTING VAULT
- REMOVE AND DISPOSE OF TREE

PK NAIL #18  
 N 441343.01  
 E 521271.48  
 Z 441.60

REMOVE, STOCKPILE, AND REINSTALL SIGN AS DIRECTED BY THE ENGINEER

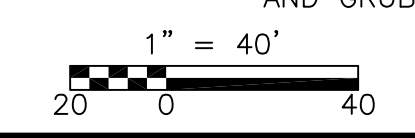
PK NAIL #19  
 N 441329.27  
 E 521580.59  
 Z 423.26

ROUTE 20  
 (PUBLIC - VARIABLE WIDTH)  
 TBM X-CUT ON FLANGE BOLT OF HYDRANT ELEV.=424.91

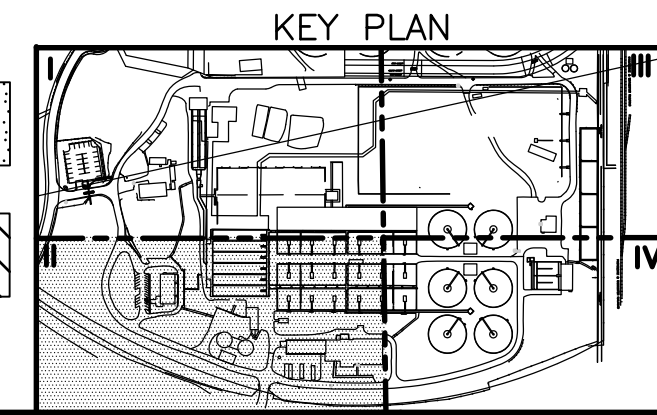
REMOVE AND DISPOSE OF SUBSTATION CONCRETE PAD.

**PLAN**  
 1"=40'

**RECORD DRAWING**



- LEGEND**
- LIMIT OF BITUMINOUS CONCRETE PAVEMENT REMOVAL
  - LIMIT OF CLEARING AND GRUBBING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. CEXPLO02  
 DESIGNED BY: G. HOWARD  
 DRAWN BY: N. SWAIN/H. DAVIS  
 SHEET CHK'D BY: J. OLCOTT  
 SCALE: AS NOTED  
 APPROVED BY: G. HOWARD  
 DATE: MAY 2006

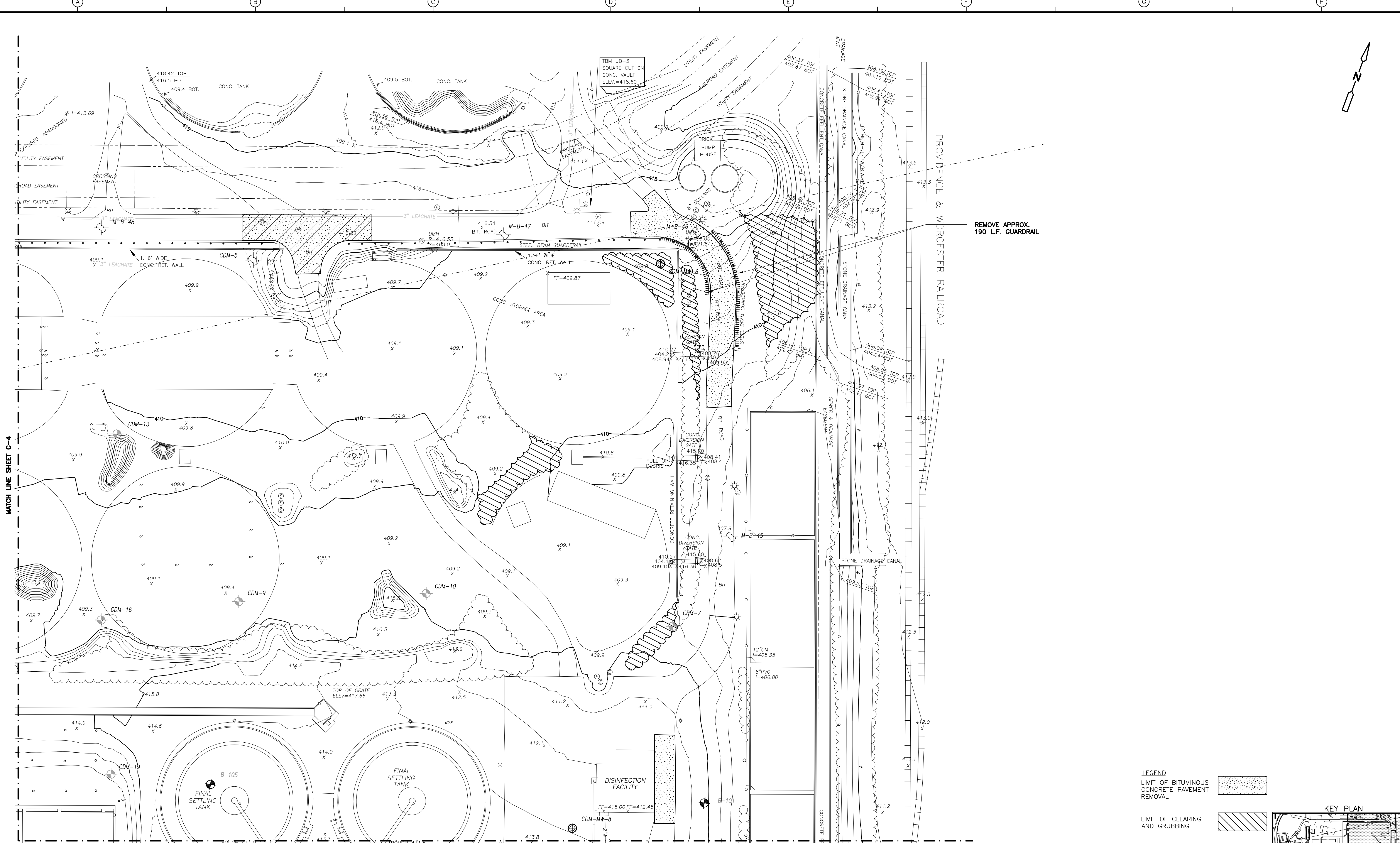
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**EXISTING CONDITIONS AND SITE REMOVAL PLAN II**

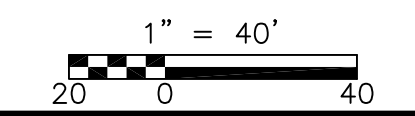
PROJECT NO. 1289\35370  
 Sht. 13 of 386  
**C-5**  
 ACCESSION NO. 1289-65413

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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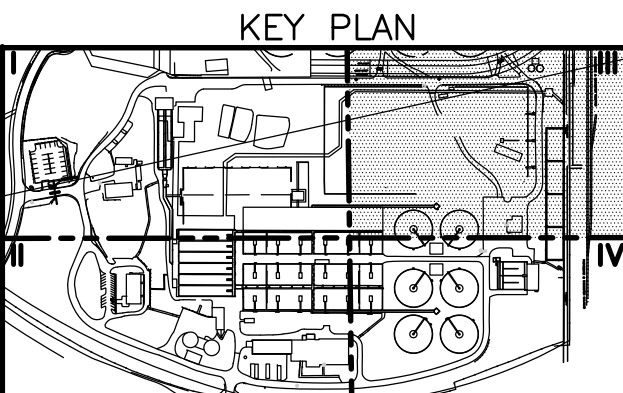


**PLAN**  
1" = 40'

RECORD DRAWING



- LEGEND**
- LIMIT OF BITUMINOUS CONCRETE PAVEMENT REMOVAL
  - LIMIT OF CLEARING AND GRUBBING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. CEXPL003  
 DESIGNED BY: G. HOWARD  
 DRAWN BY: H. DAVIS / N. SWAIN  
 SHEET CHK'D BY: J. OLCOTT  
 SCALE: AS NOTED  
 APPROVED BY: G. HOWARD  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**EXISTING CONDITIONS AND SITE REMOVAL PLAN III**

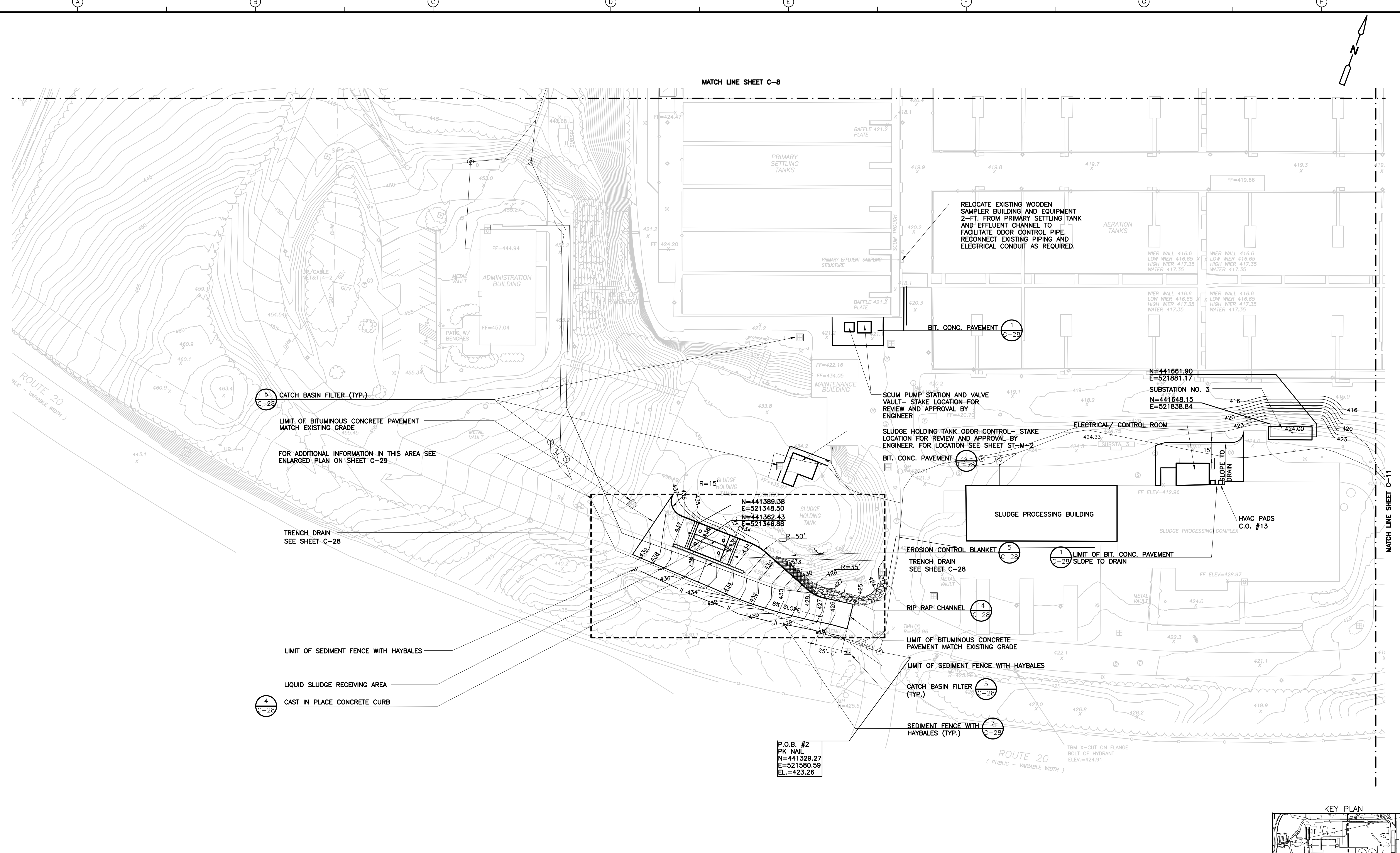
PROJECT NO. 1289\35370  
 Sht. 14 of 386  
**C-6**  
 ACCESSION NO. 1289-65414







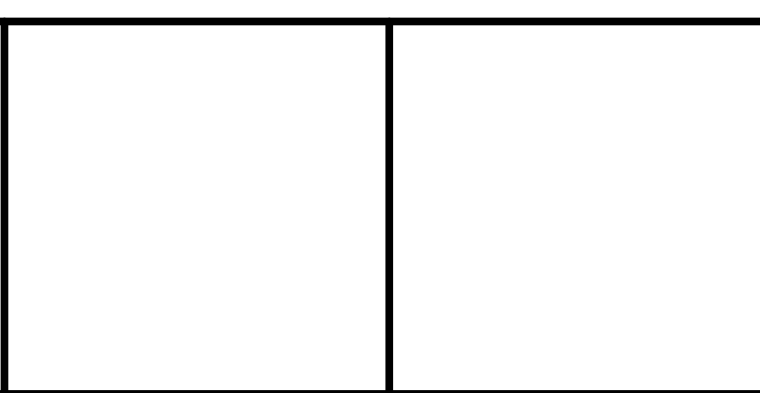
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**PLAN**  
 1" = 40'  
**RECORD DRAWING**  
 1" = 40'  
**KEY PLAN**

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. CLOPL002  
 DESIGNED BY: G. HOWARD  
 DRAWN BY: N. SWAIN/H. DAVIS  
 SHEET CHECK'D BY: J. OLCOTT  
 SCALE: AS NOTED  
 APPROVED BY: G. HOWARD  
 DATE: MAY 2006



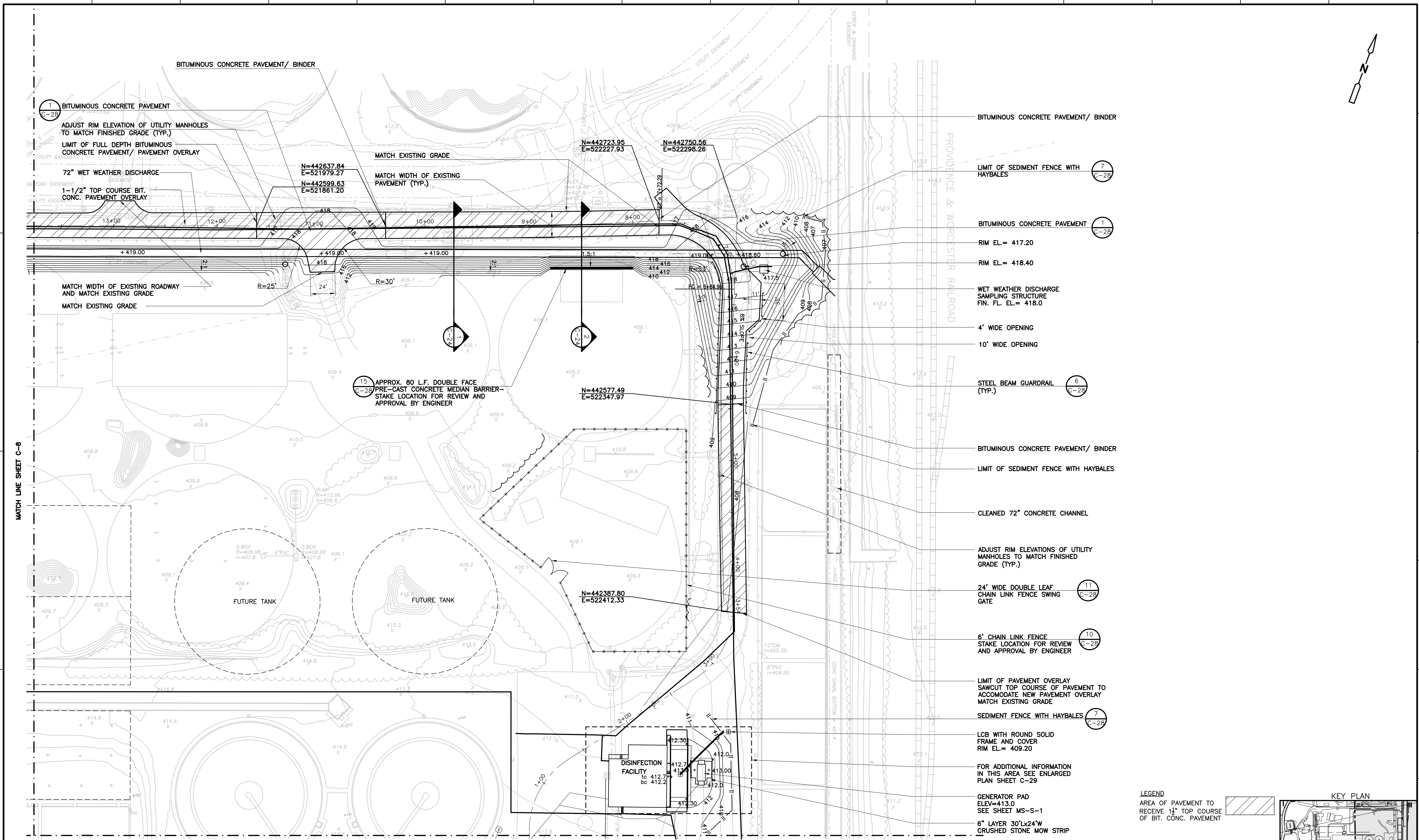
**CDM** Camp Dresser & McKee Inc.  
 UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**LAYOUT, GRADING  
 AND  
 EROSION CONTROL PLAN II**

PROJECT NO. 1289\35370  
 Sht. 17 of 386  
**C-9**  
ACCESSION NO. 1289-65417

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\SITE\CLOP003.dwg Xref's: [C24X36H, CSVPL000, CBSPL000, CYPW001, ] Plotted by: CROSSHA Time: 12/16/08 6:16:57 PM



- BITUMINOUS CONCRETE PAVEMENT/ BINDER
- LIMIT OF SEDIMENT FENCE WITH HAYBALES
- BITUMINOUS CONCRETE PAVEMENT
- RIM EL. = 417.20
- RIM EL. = 418.40
- WET WEATHER DISCHARGE SAMPLING STRUCTURE FIN. FL. EL. = 418.0
- 4' WIDE OPENING
- 10' WIDE OPENING
- STEEL BEAM GUARDRAIL (TYP.)
- BITUMINOUS CONCRETE PAVEMENT/ BINDER
- LIMIT OF SEDIMENT FENCE WITH HAYBALES
- CLEANED 72" CONCRETE CHANNEL
- ADJUST RIM ELEVATIONS OF UTILITY MANHOLES TO MATCH FINISHED GRADE (TYP.)
- 24' WIDE DOUBLE LEAF CHAIN LINK FENCE SWING GATE
- 6' CHAIN LINK FENCE STAKE LOCATION FOR REVIEW AND APPROVAL BY ENGINEER
- LIMIT OF PAVEMENT OVERLAY SAWCUT TOP COURSE OF PAVEMENT TO ACCOMMODATE NEW PAVEMENT OVERLAY MATCH EXISTING GRADE
- SEDIMENT FENCE WITH HAYBALES
- LCB WITH ROUND SOLID FRAME AND COVER RIM EL. = 409.20
- FOR ADDITIONAL INFORMATION IN THIS AREA SEE ENLARGED PLAN SHEET C-29
- GENERATOR PAD ELEV. = 413.0 SEE SHEET MS-S-1
- 6" LAYER 30"X24" W CRUSHED STONE MOW STRIP

MATCH LINE SHEET C-8

15 APPROX. 80 L.F. DOUBLE FACE  
 PRE-CAST CONCRETE MEDIAN BARRIER-  
 STAKE LOCATION FOR REVIEW AND  
 APPROVAL BY ENGINEER

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 E=522347.97

N=442387.80  
 E=522412.33

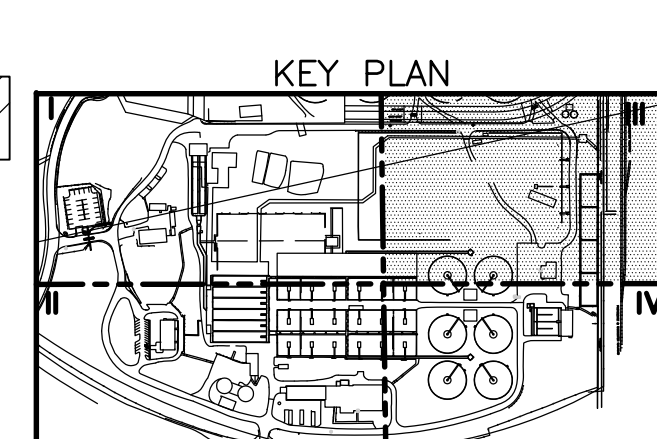
N=442637.84  
 E=521979.27  
 N=442599.63  
 E=521861.20

PLAN  
1" = 40'

RECORD DRAWING

LEGEND  
 AREA OF PAVEMENT TO RECEIVE 1 1/2" TOP COURSE OF BIT. CONC. PAVEMENT

1" = 40'  
 20 0 40



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.: CLOP003  
 DESIGNED BY: G. HOWARD  
 DRAWN BY: H. DAVIS / N. SWAIN  
 SHEET CHK'D BY: J. OLCOTT  
 SCALE: AS NOTED  
 APPROVED BY: G. HOWARD  
 DATE: MAY 2006

MATCH LINE SHEET C-11

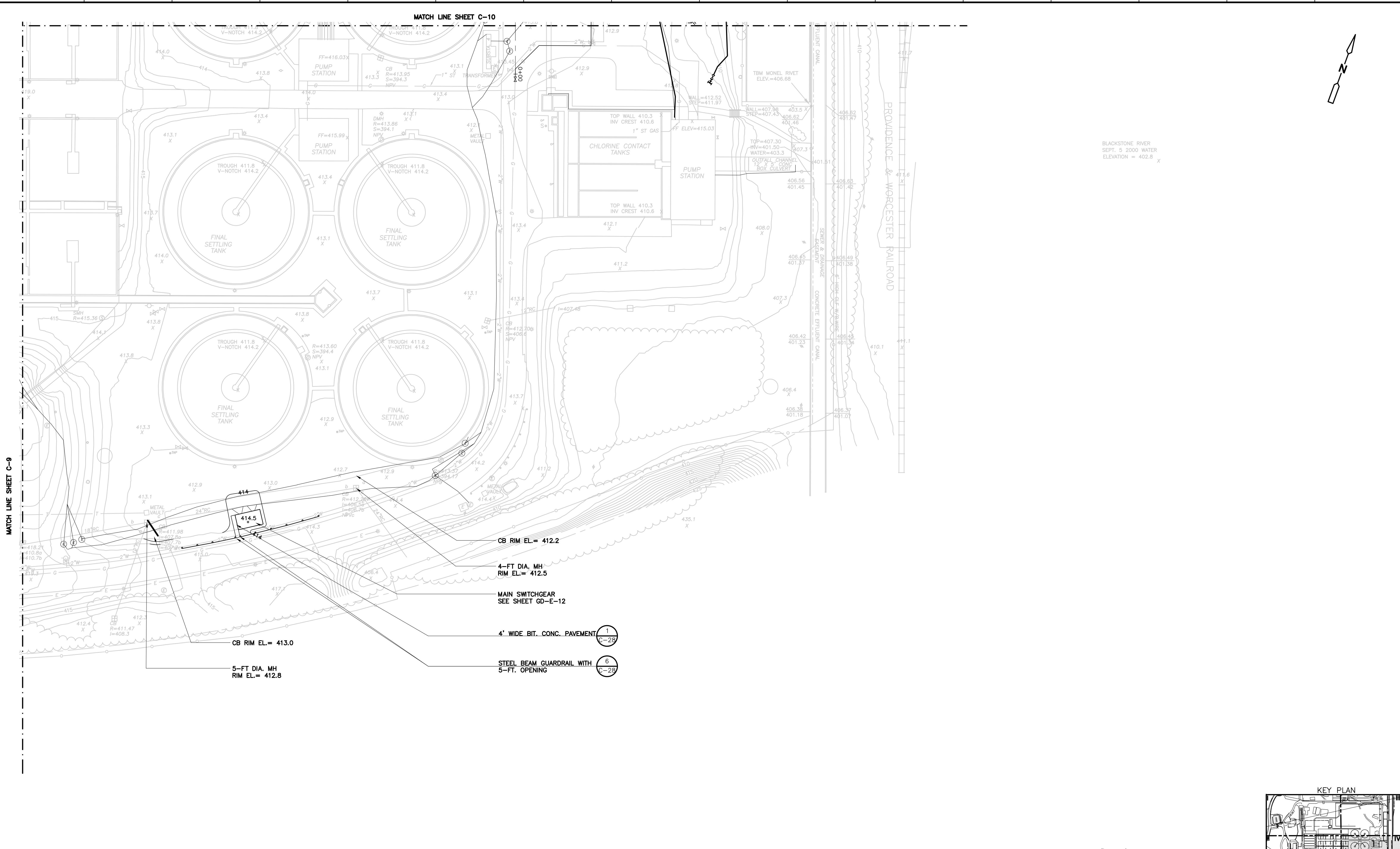
**CDM** Camp Dresser & McKee Inc.  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**LAYOUT, GRADING  
 AND  
 EROSION CONTROL PLAN III**

PROJECT NO.  
 1289\35370  
 Sht. 18 of 386  
**C-10**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 File: P:\1289\35370\PHASE1\RECORD\SITE\CLOPL004.dwg Xref's: [C24X36H, CSVPL000, CBSPL000, CYPWP001, ] Plotted by: CROSSHA Time: 12/16/08 6:17:01 PM



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	CLOPL004
DESIGNED BY:	G. HOWARD
DRAWN BY:	N. SWAIN/H. DAVIS
SHEET CHK'D BY:	J. OLCOTT
SCALE:	AS NOTED
APPROVED BY:	G. HOWARD
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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 construction  
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**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**LAYOUT, GRADING  
 AND  
 EROSION CONTROL PLAN IV**

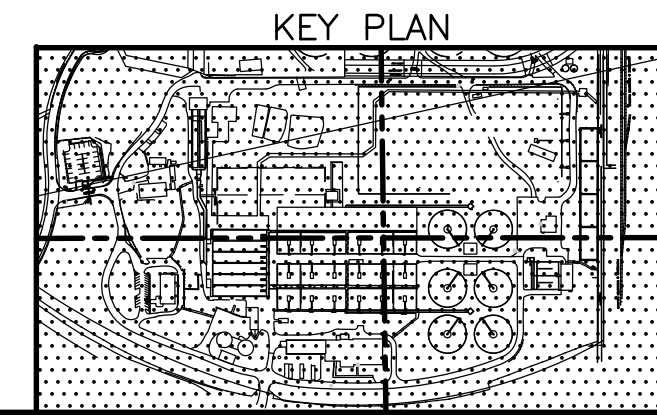
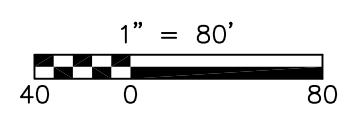
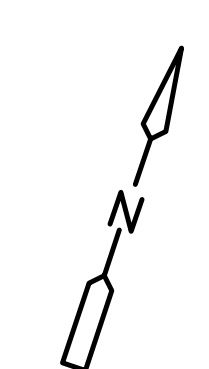
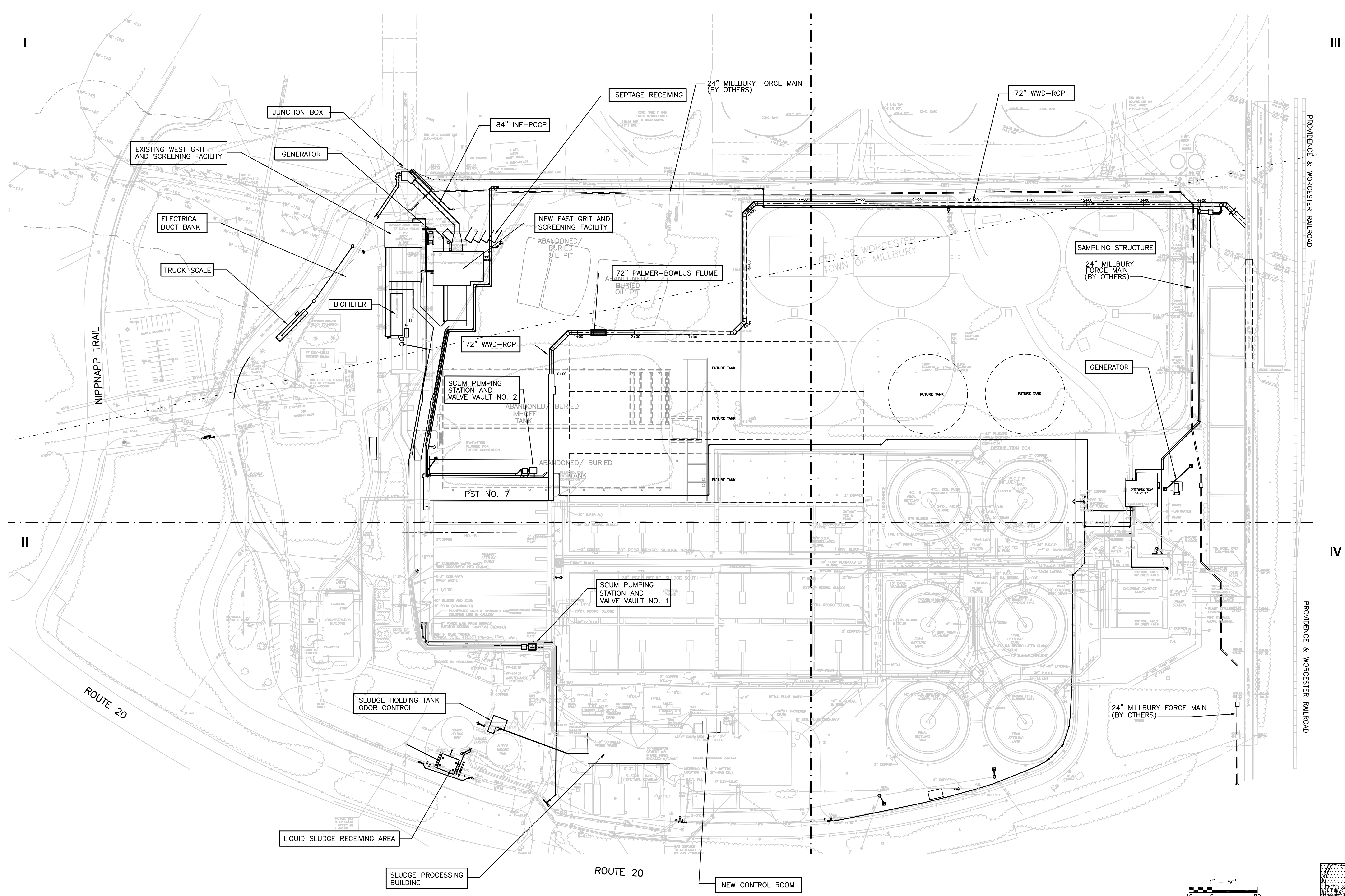
PROJECT NO.  
 1289\35370

Sht. 19 of 386

**C-11**

ACCESSION NO. 1289-65419

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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NOTE: ALL ELECTRICAL MANHOLES ARE 8'x 8' OR 10'x 10'

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. CYPPL001  
 DESIGNED BY: W.D. GREEN  
 DRAWN BY: P. FORNACIARI  
 SHEET CHK'D BY: E. DEARDON  
 SCALE: 1"=80'-0"  
 APPROVED BY: J. MADDEN  
 DATE: MAY 2006

CDM  
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 construction  
 operations

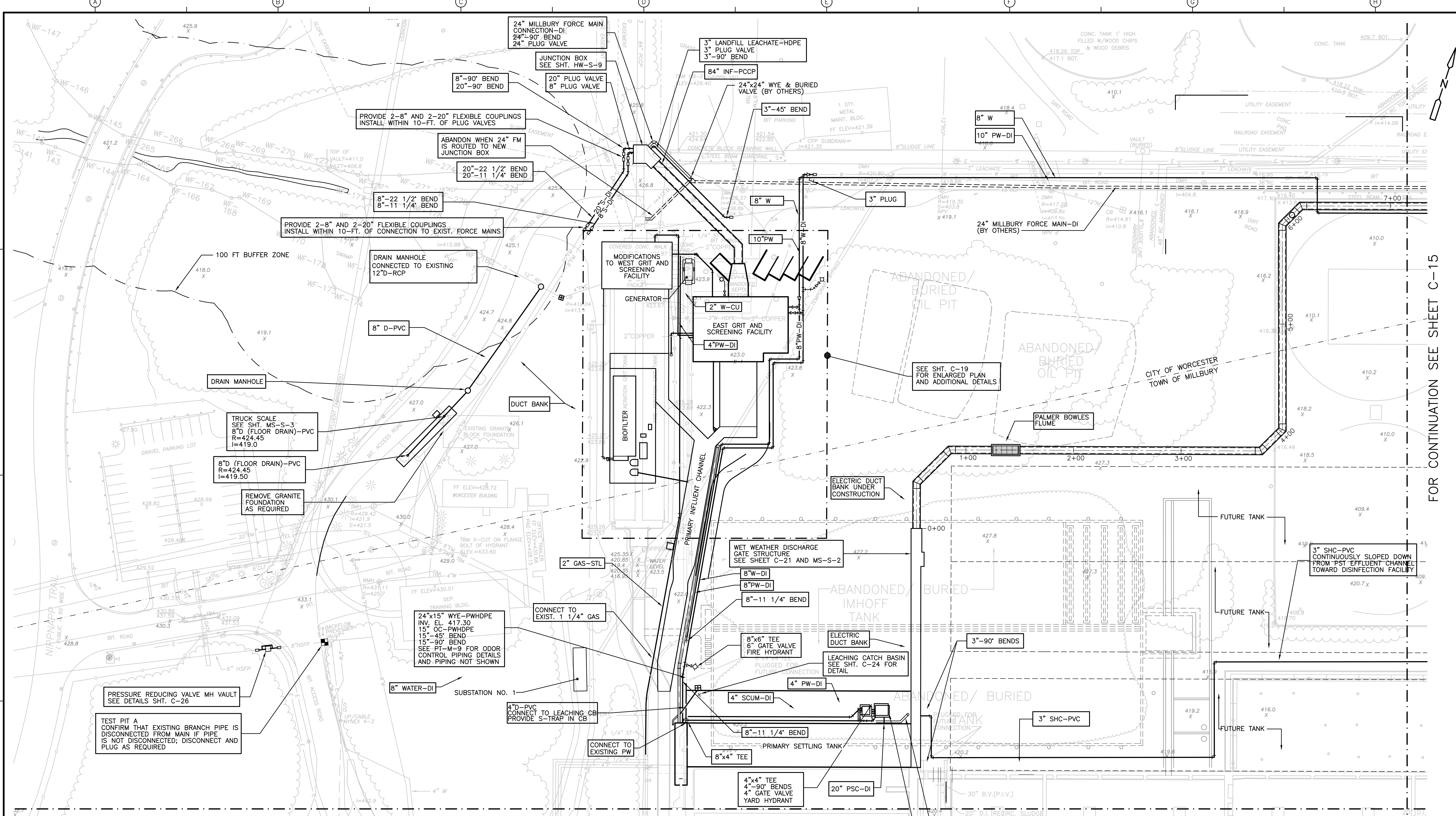
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

OVERALL YARD PIPING PLAN

PROJECT NO.  
 1289\35370  
 Sht. 20 of 386  
 C-12

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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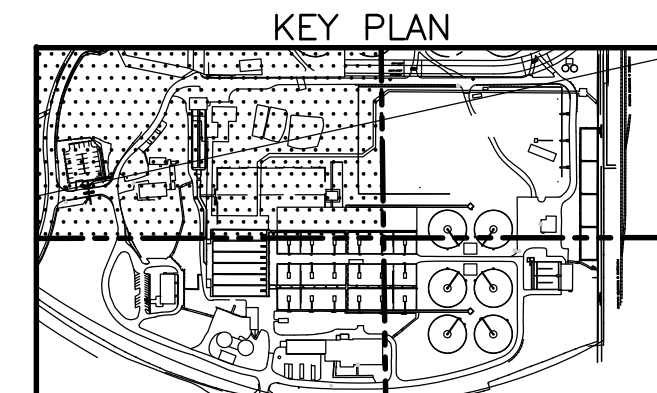
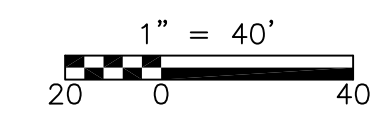


FOR CONTINUATION SEE SHEET C-14

FOR CONTINUATION SEE SHEET C-15

NOTE: ALL ELECTRICAL MANHOLES ARE 8'x 8' OR 10'x 10'

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	CYP02
DESIGNED BY:	W. D. GREEN
DRAWN BY:	P. FORNACIARI
SHEET CHK'D BY:	E. DEARDON
SCALE:	1"=40'
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

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 engineering  
 construction  
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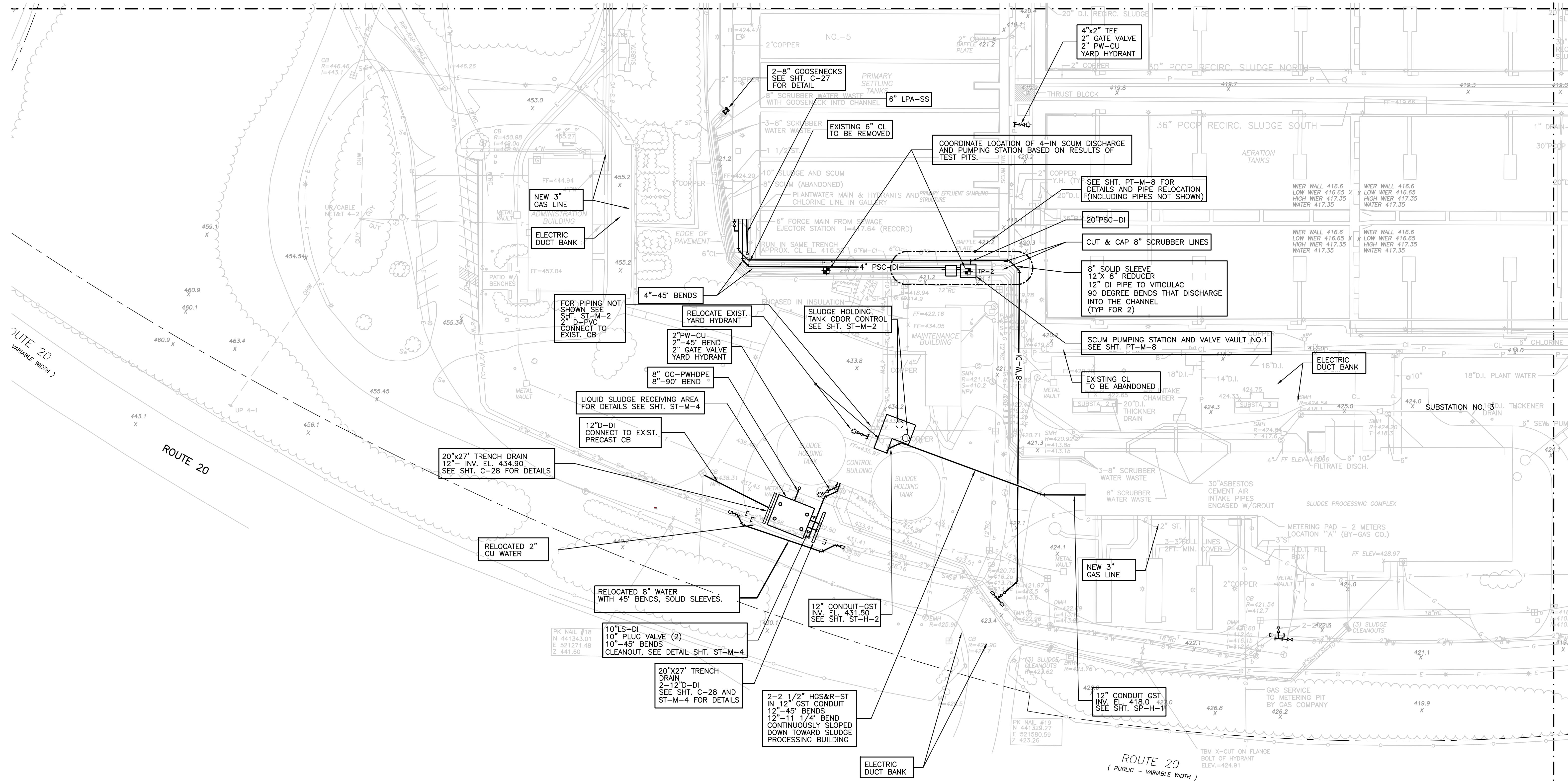
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**YARD PIPING PLAN I**

PROJECT NO.  
1289\35370  
 Sht. 21 of 386  
**C-13**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 [UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Plotted by: CROSSHA Time: 12/16/08 6:17:19 PM  
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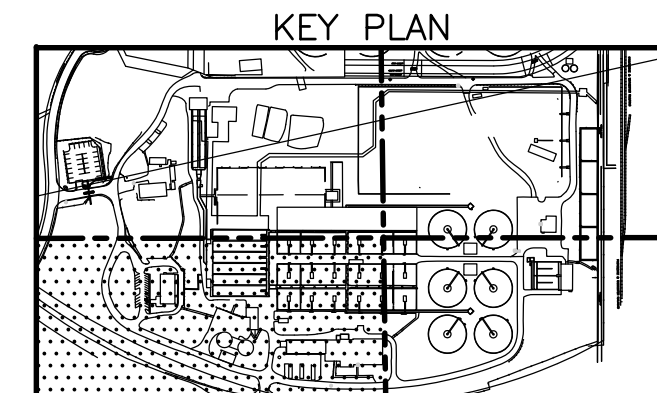
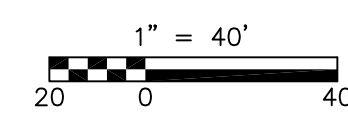
FOR CONTINUATION SEE SHEET C-13



FOR CONTINUATION SEE SHEET C-16

NOTE: ALL ELECTRICAL MANHOLES ARE 8'x 8' OR 10'x 10'

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. CYPPL004  
 DESIGNED BY: W. D. GREEN  
 DRAWN BY: P. FORNACIARI  
 SHEET CHK'D BY: E. DEARDON  
 SCALE: 1"=40'-0"  
 APPROVED BY: J. MADDEN  
 DATE: MAY 2006

PK NAIL #18  
 N 441343.01  
 E 521271.48  
 Z 441.60

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

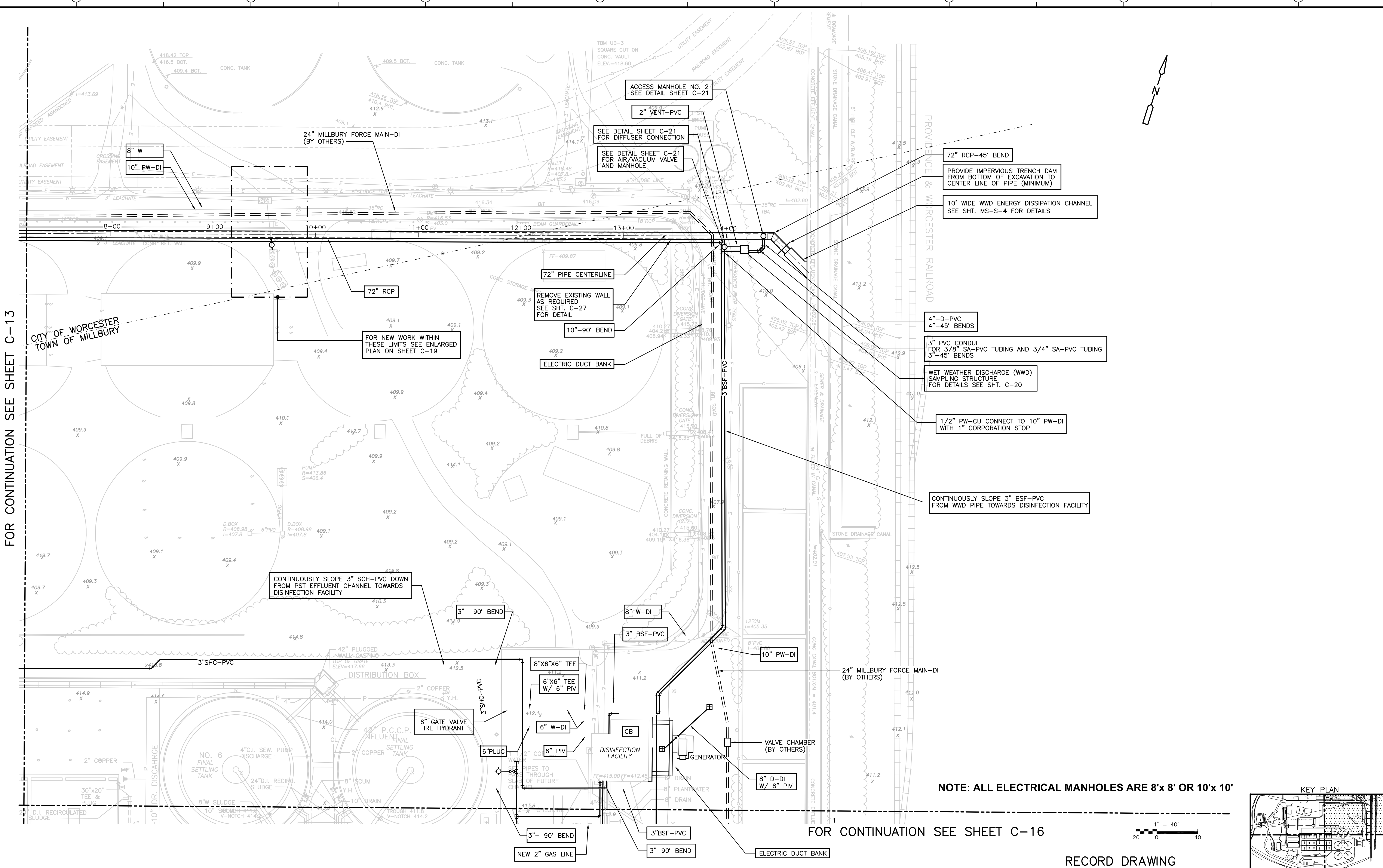
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**YARD PIPING PLAN II**

PROJECT NO.  
 1289\35370

Sht. 22 of 386

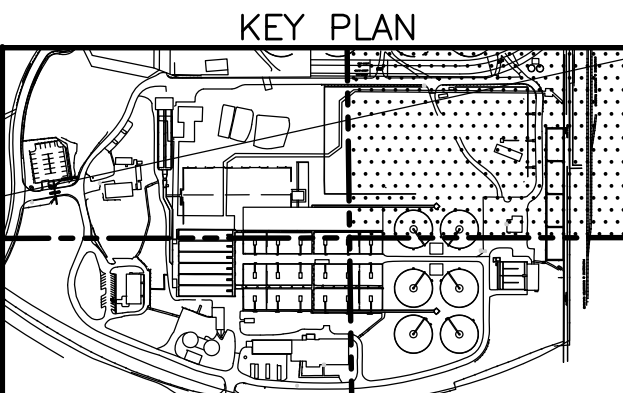
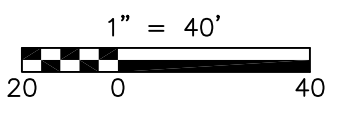
**C-14**



FOR CONTINUATION SEE SHEET C-13

NOTE: ALL ELECTRICAL MANHOLES ARE 8'x 8' OR 10'x 10'

FOR CONTINUATION SEE SHEET C-16



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.:	CYPPL003
DESIGNED BY:	W. D. GREEN
DRAWN BY:	P. FORNACIARI
SHEET CHK'D BY:	E. DEARDON
SCALE:	1"=40'-0"
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction

**UPPER BLACKSTONE**  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024

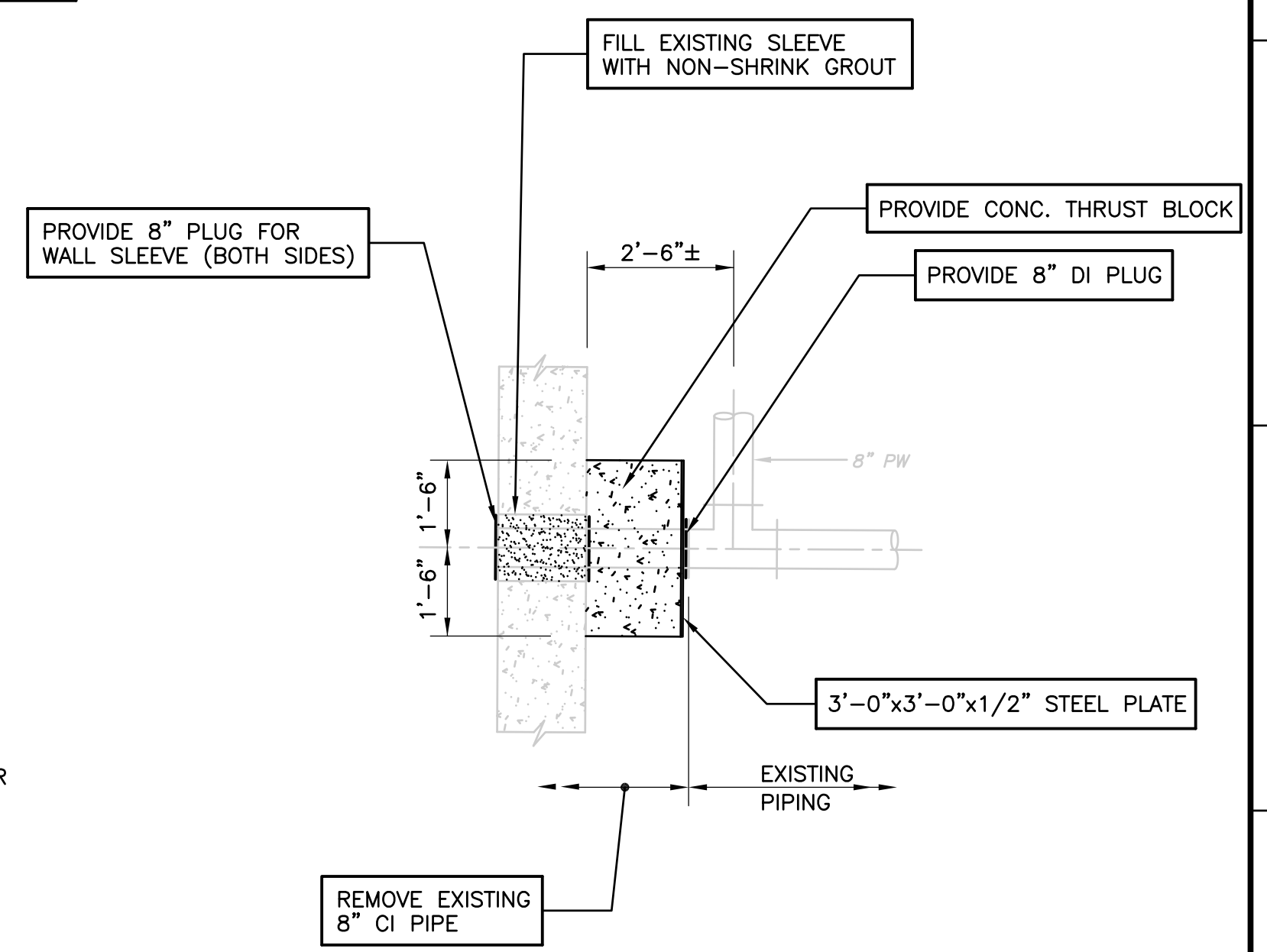
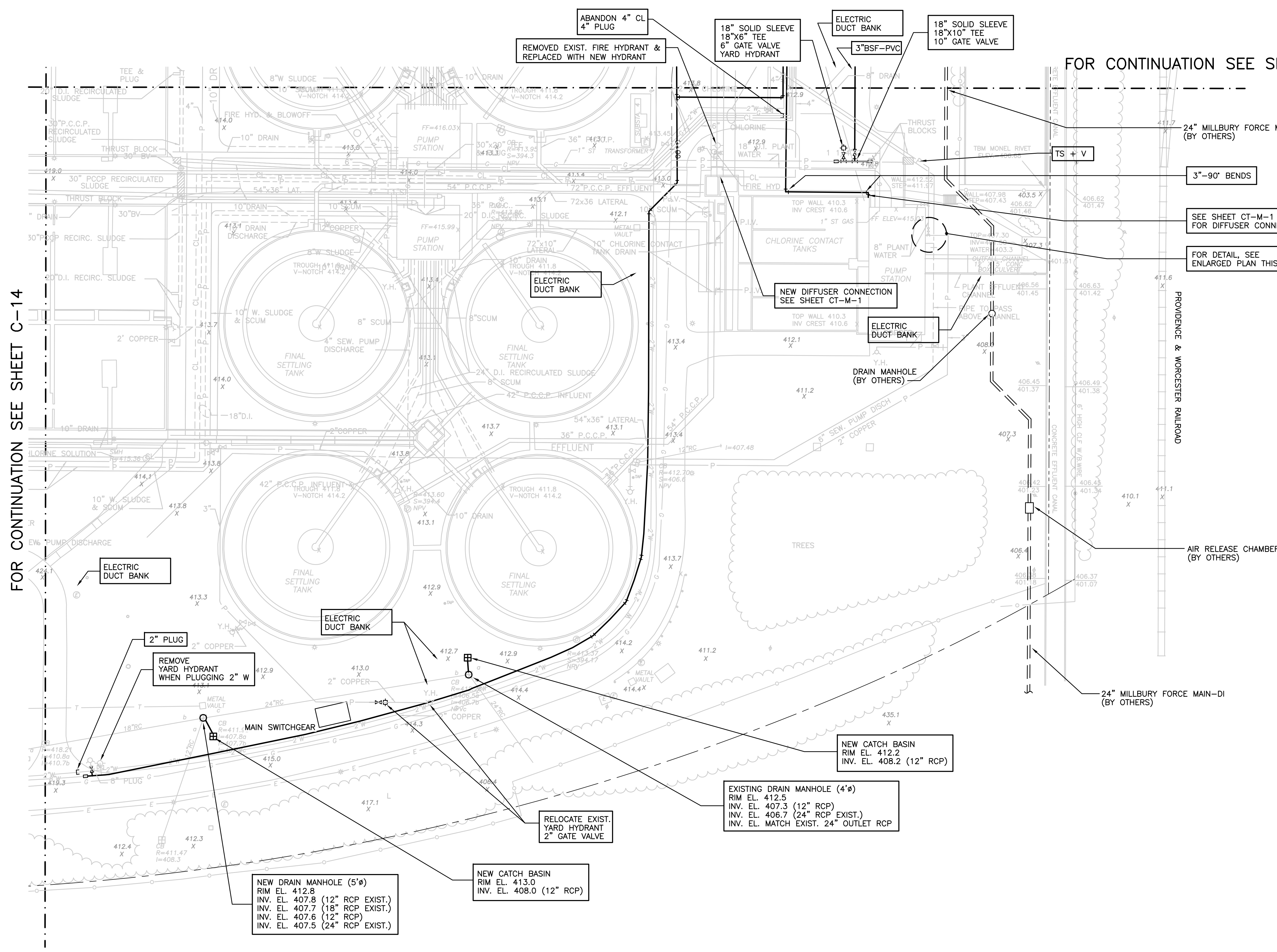
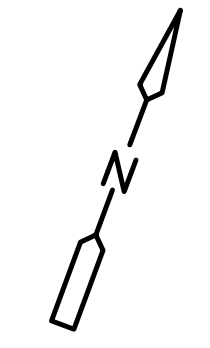
**WASTEWATER TREATMENT FACILITY**  
IMPROVEMENTS

**YARD PIPING PLAN III**

PROJECT NO. 1289\35370  
Sht. 23 of 386  
**C-15**

FOR CONTINUATION SEE SHEET C-14

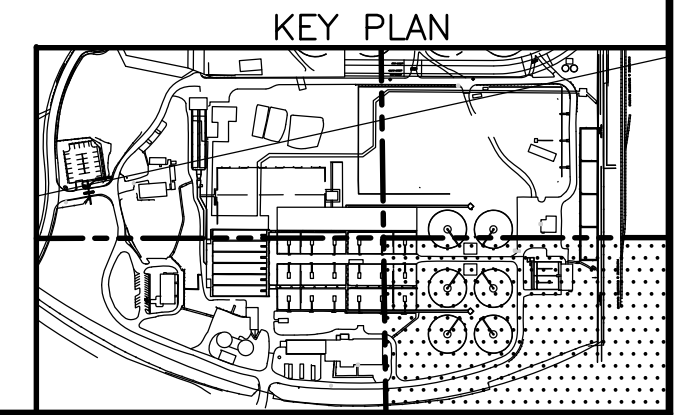
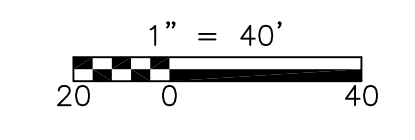
FOR CONTINUATION SEE SHEET C-15



**ENLARGED PLAN**  
 NTS

NOTE: ALL ELECTRICAL MANHOLES ARE 8'x 8' OR 10'x 10'

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	CYPPL005
DESIGNED BY:	W.D.GREEN
DRAWN BY:	P.FORNACIARI
SHEET CHK'D BY:	E.DEARDON
SCALE:	1"=40'-0"
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

PROJECT NO.	1289\35370
PROJECT NAME	UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
CONTRACT NO.	UB 2024
SHEET NO.	C-16
TOTAL SHEETS	24

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

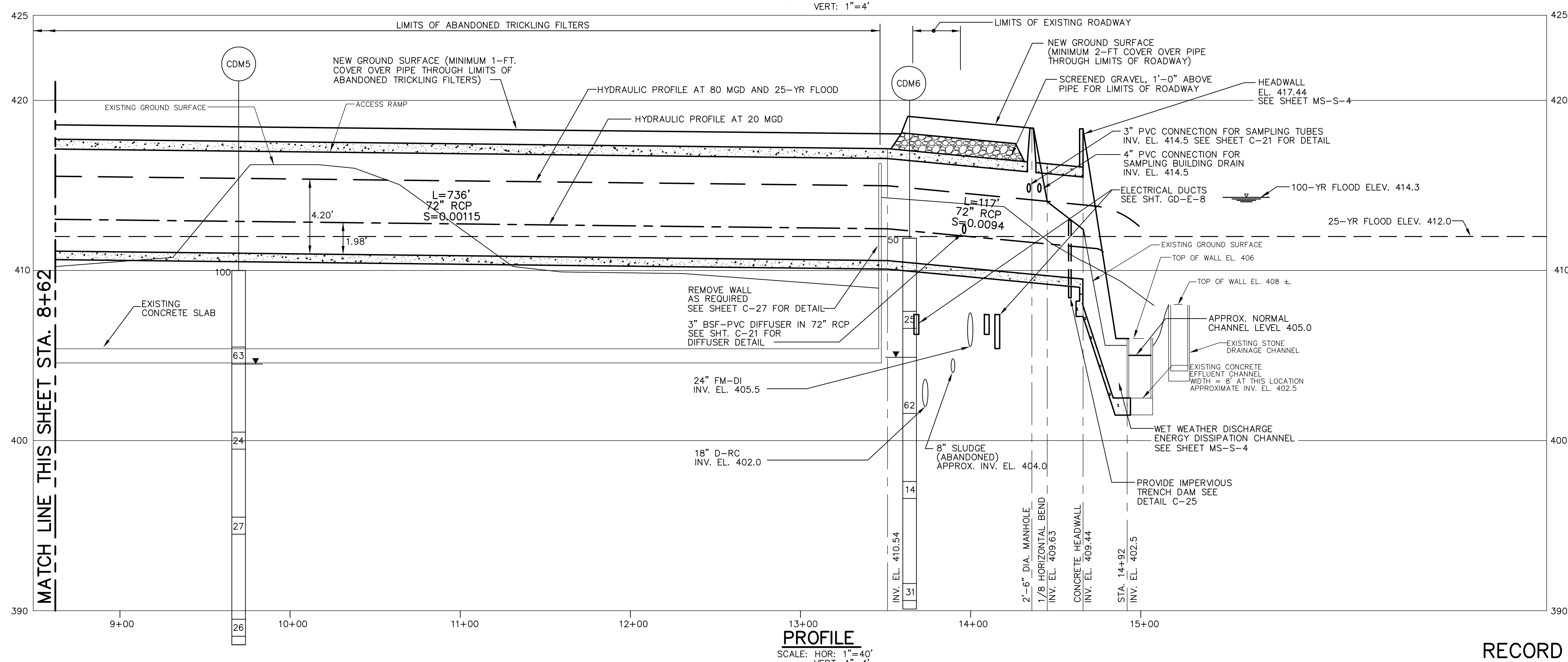
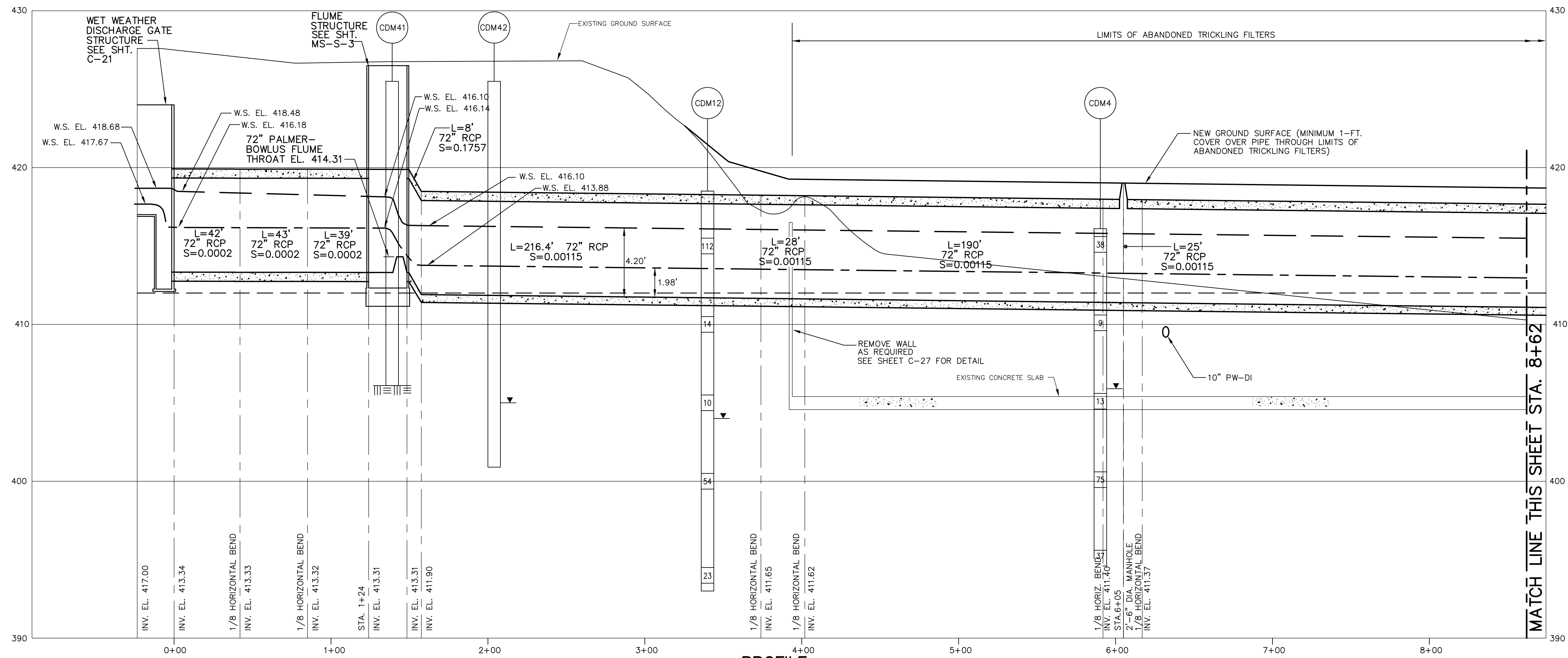
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**YARD PIPING PLAN IV**

PROJECT NO. 1289\35370  
 Sht. 24 of 386  
**C-16**





RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	CYPPR001
DESIGNED BY:	C.ARLOTTA
DRAWN BY:	P.FORNACIARI
SHEET CHK'D BY:	W.D.GREEN
SCALE:	AS SHOWN
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

--	--

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

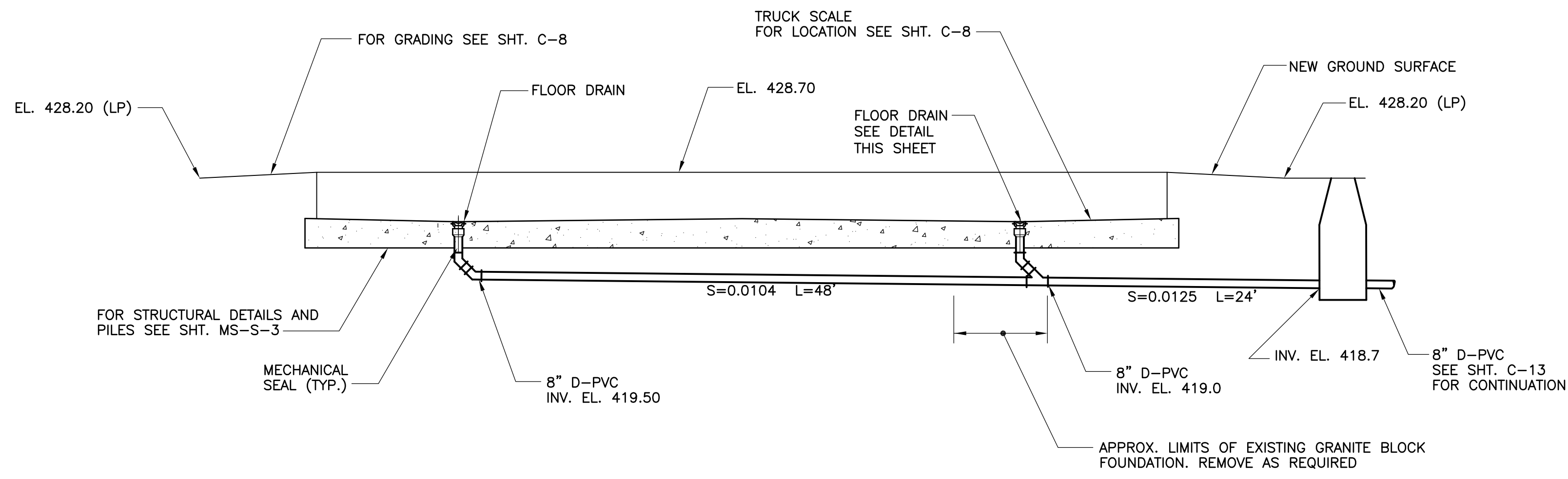
**WET WEATHER DISCHARGE PROFILE**

PROJECT NO.  
1289\35370

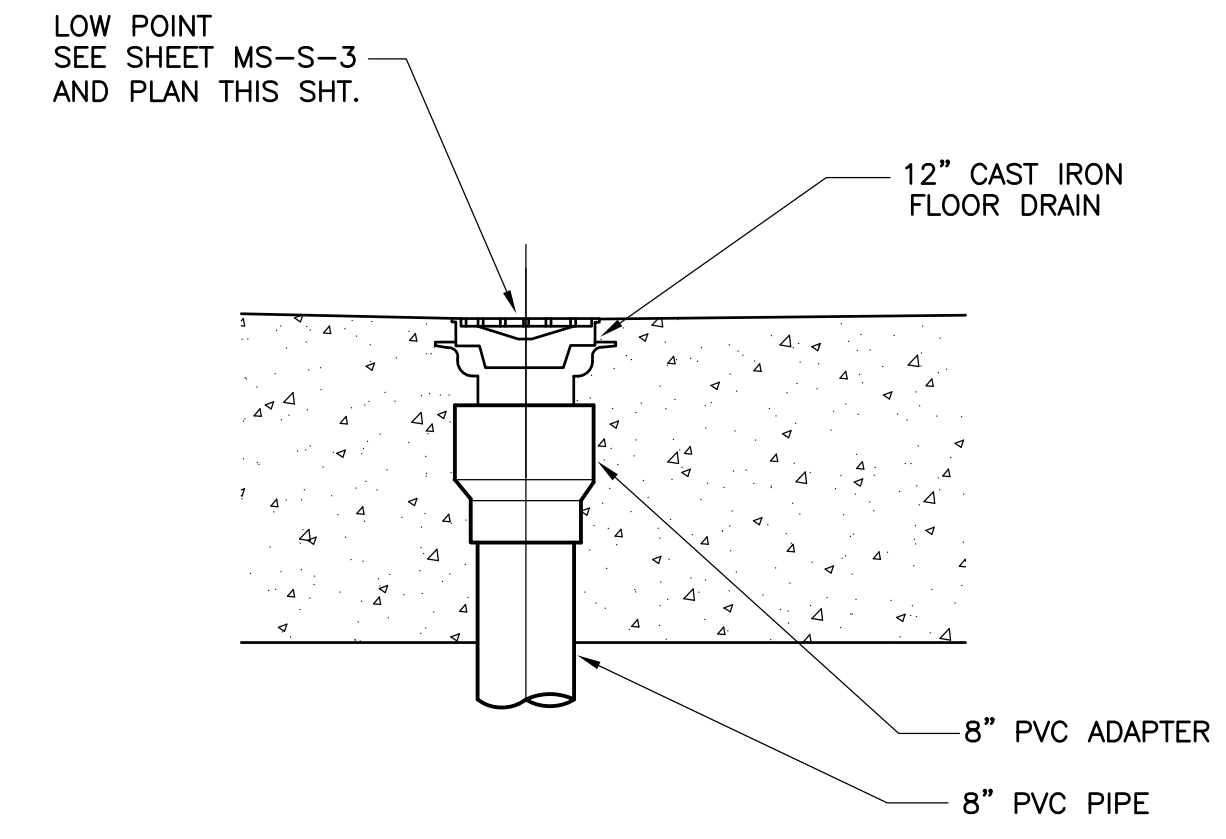
Sht. 25 of 386

**C-17**

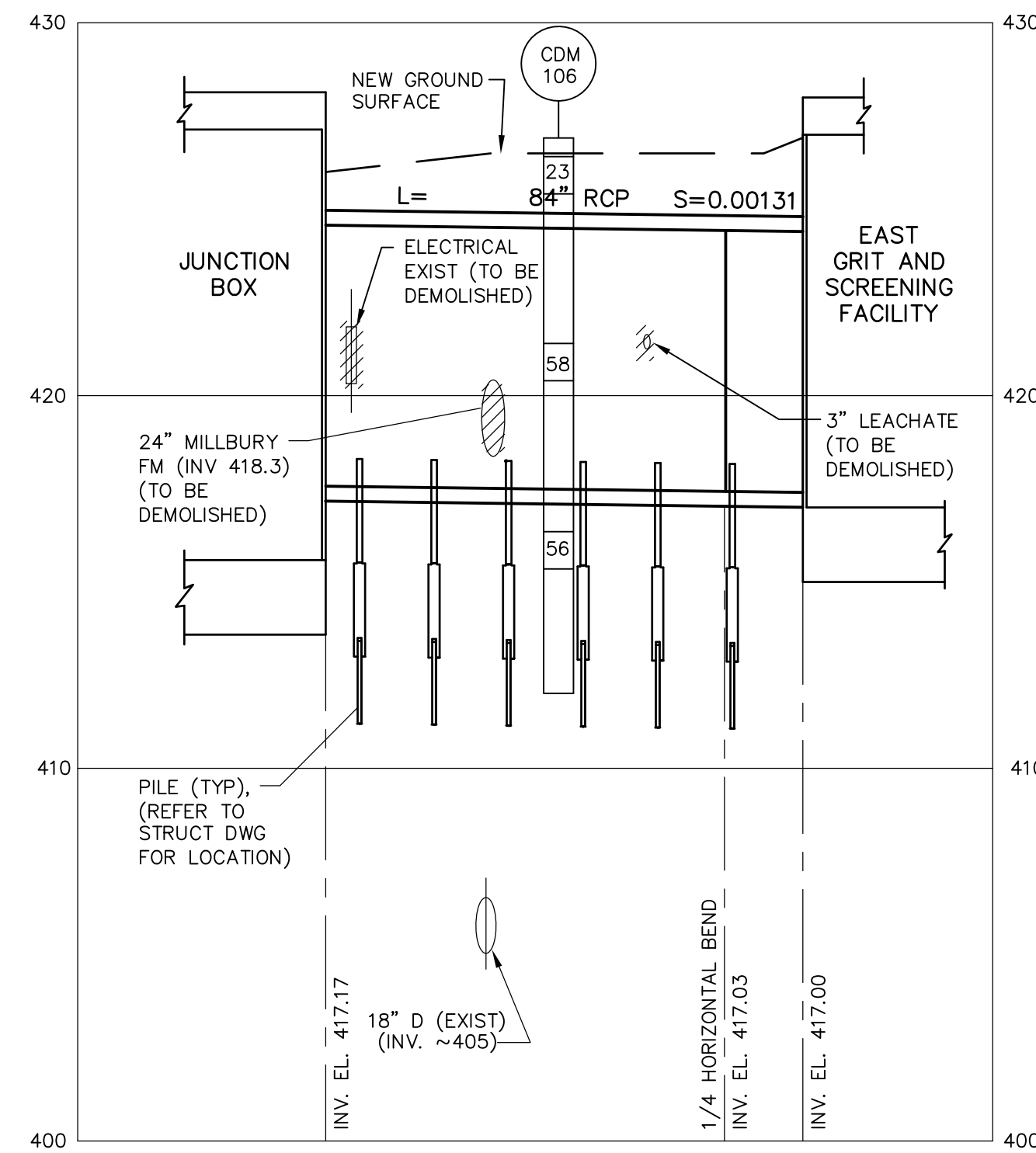
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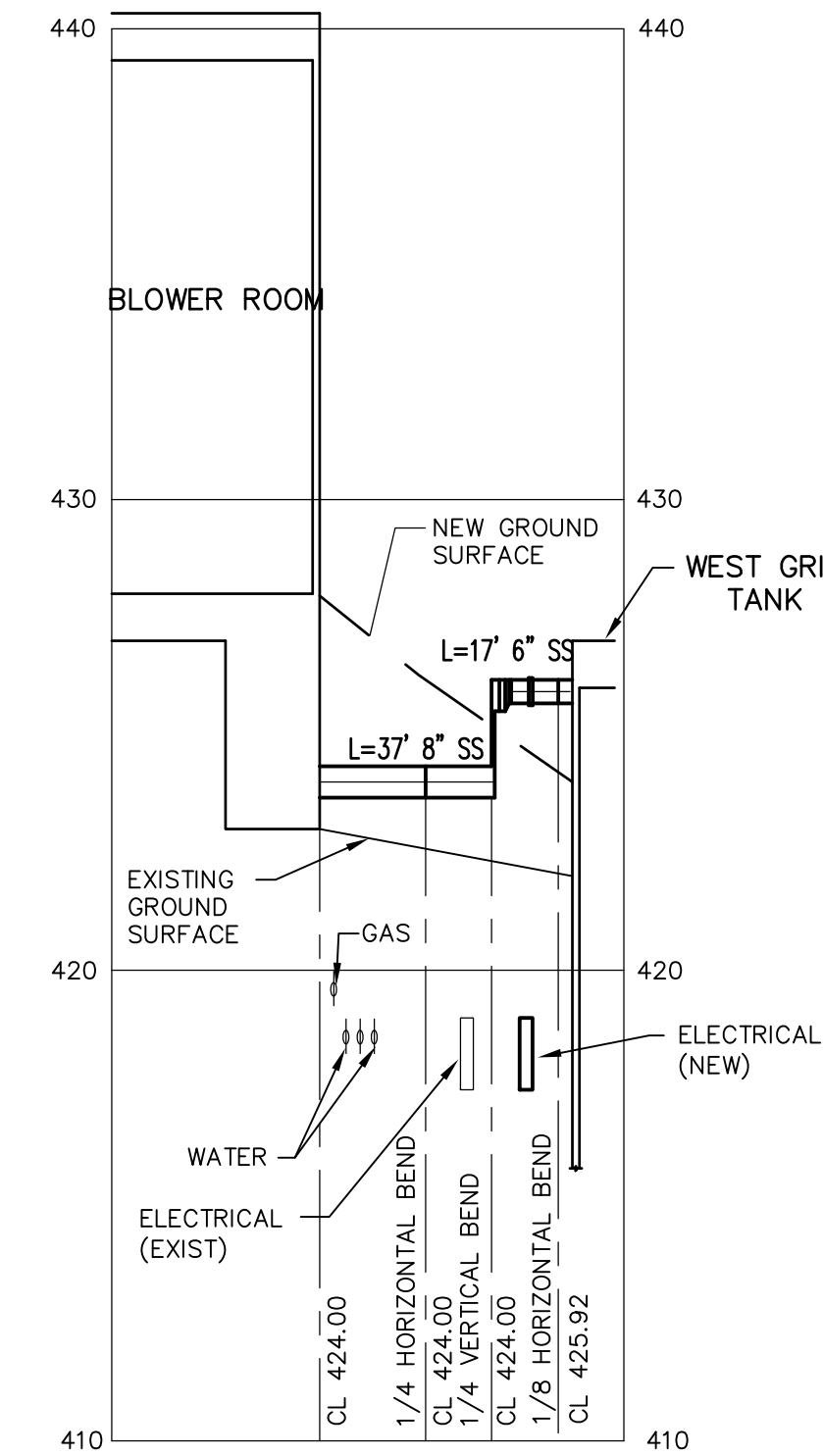
**TRUCK SCALE DRAIN SECTION**  
SCALE: 1/8"=1'-0"



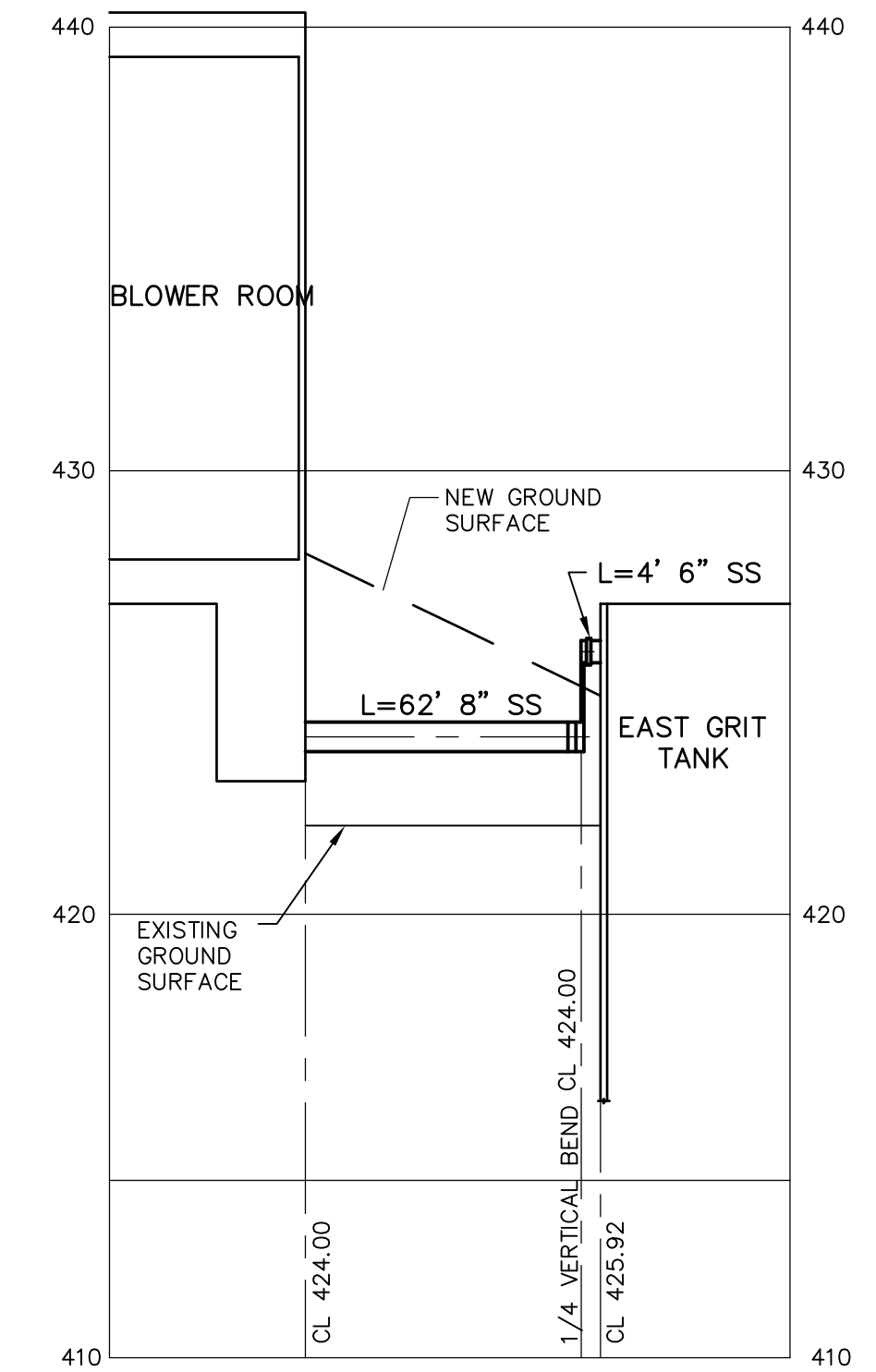
**FLOOR DRAIN DETAIL**  
SCALE: 3/4"=1'-0"



**84" SANITARY SEWER PIPE FROM JUNCTION BOX TO EAST GRIT AND SCREENING FACILITY**  
SCALE: HOR: 1"=40'  
VERT: 1"=4'



**8", 6" AIR FROM BLOWER ROOM TO WEST GRIT TANKS**  
SCALE: HOR: 1"=40'  
VERT: 1"=4'



**8", 6" AIR FROM BLOWER ROOM TO EAST GRIT TANKS**  
SCALE: HOR: 1"=40'  
VERT: 1"=4'

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
	3/07	SPV	ADT	NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	CYPR002
DESIGNED BY:	C. ARLOTTA
DRAWN BY:	P. FORNACIARI
SHEET CHK'D BY:	W. D. GREEN
SCALE:	AS SHOWN
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

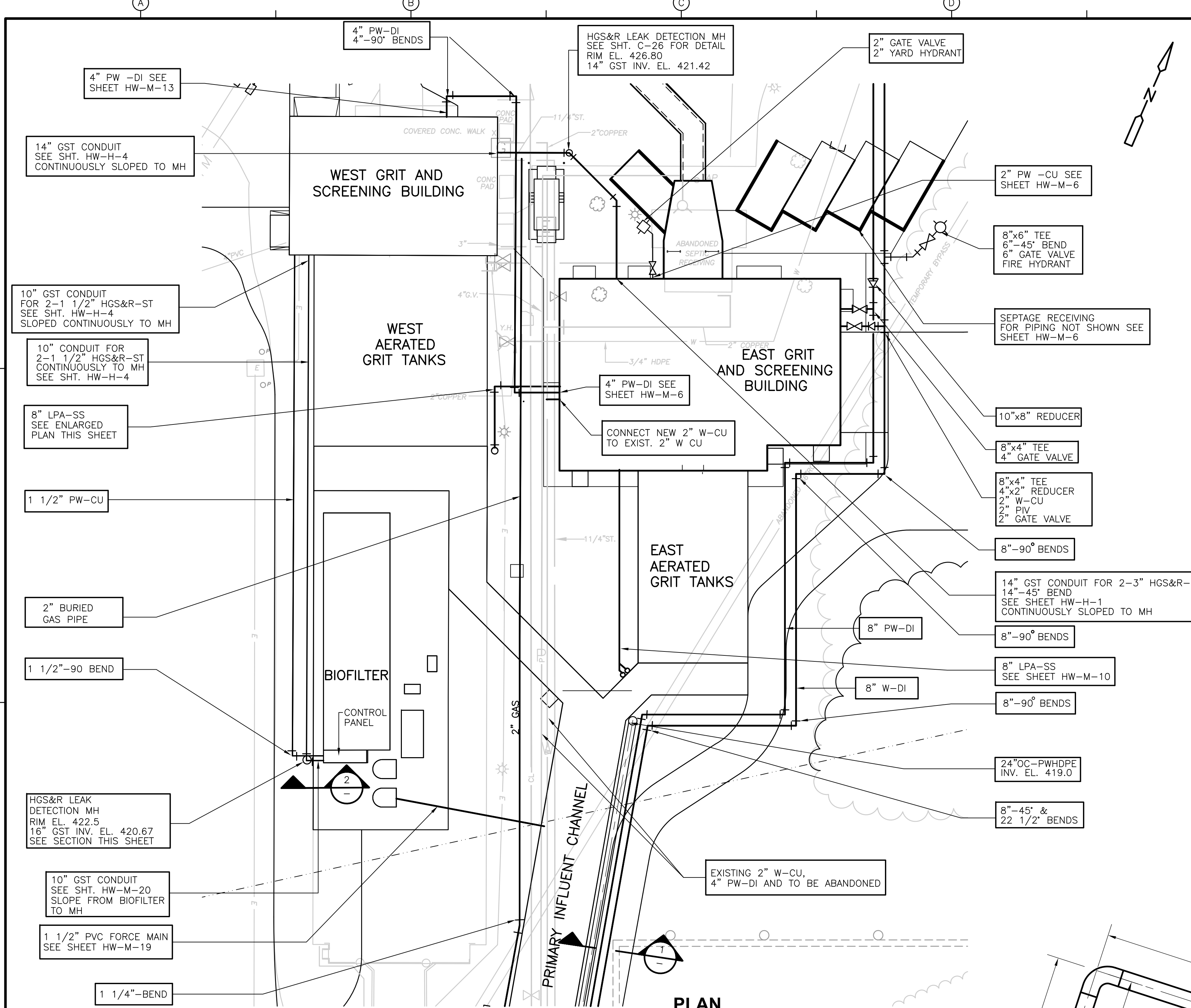
**YARD PIPING PROFILES**

**C-18**

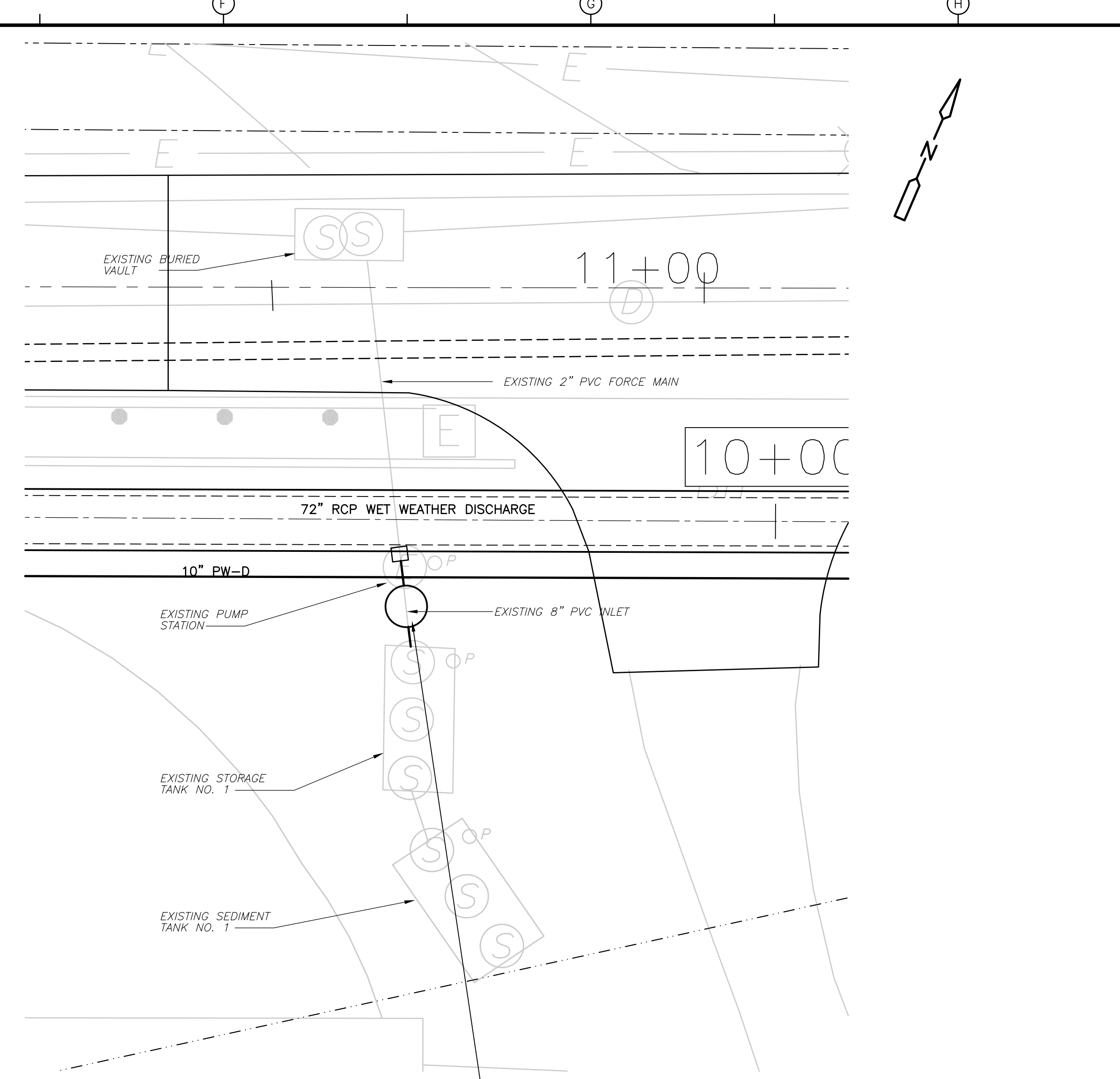
PROJECT NO.	1289\35370
Sht.	26 of 386

ACCESSION NO. 1289-5526

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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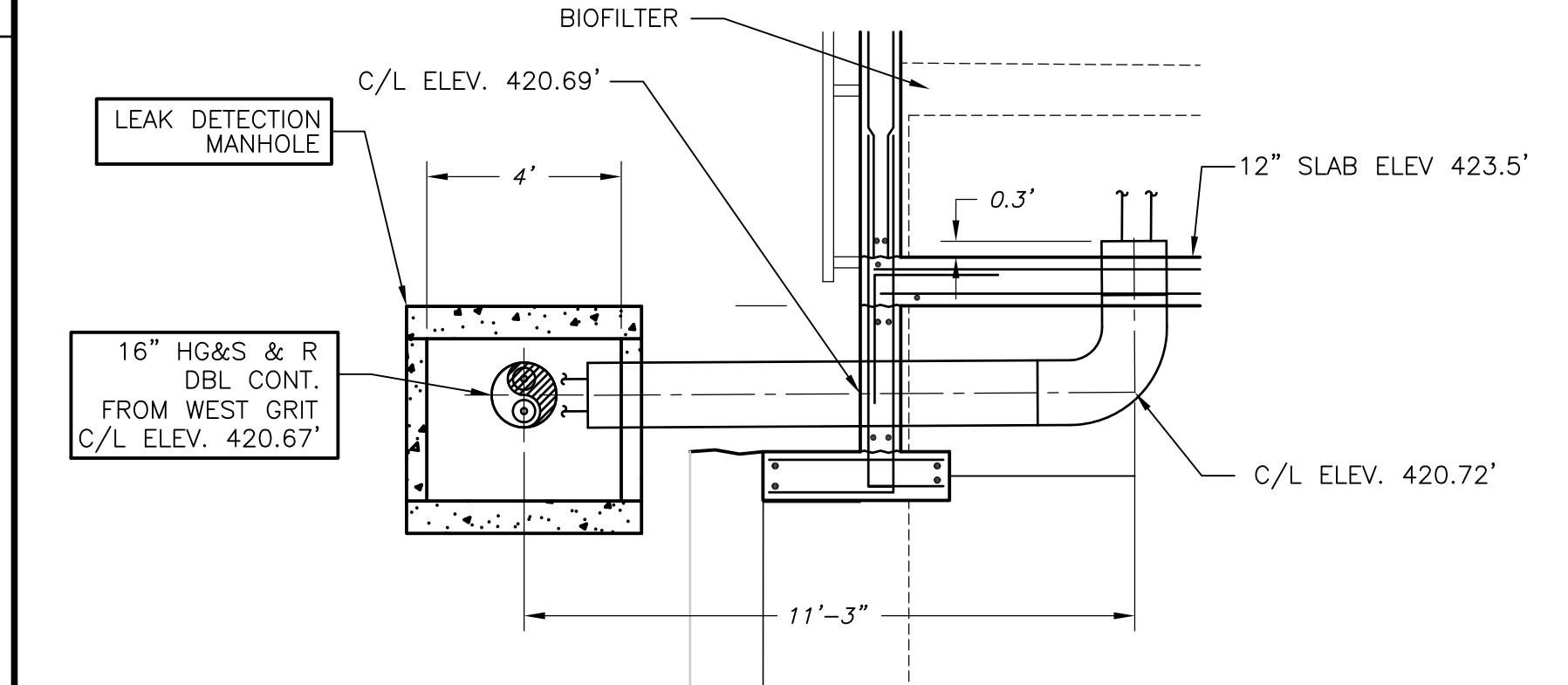


**PLAN**  
1"=20'

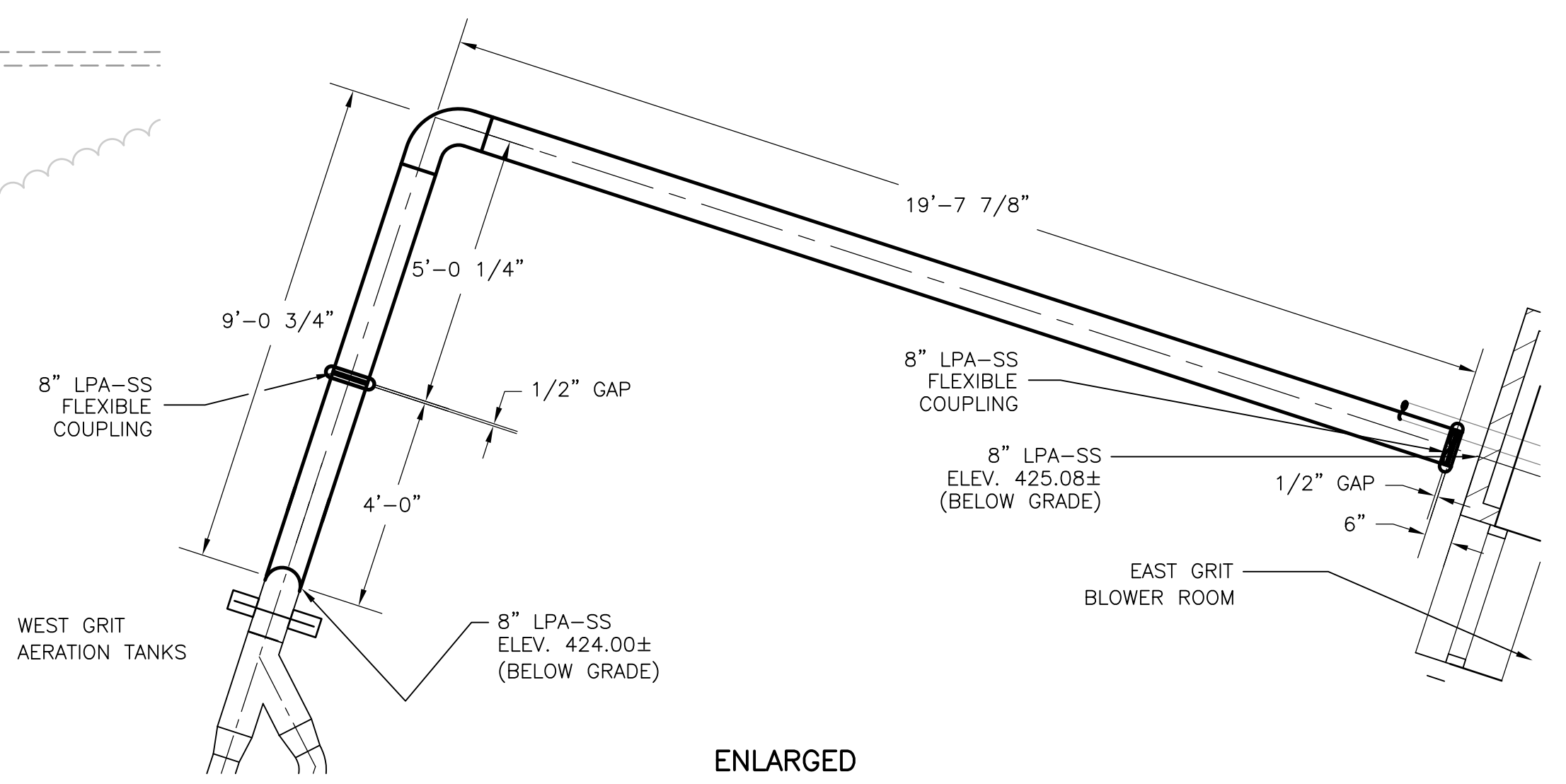


**PLAN**  
1"=10'

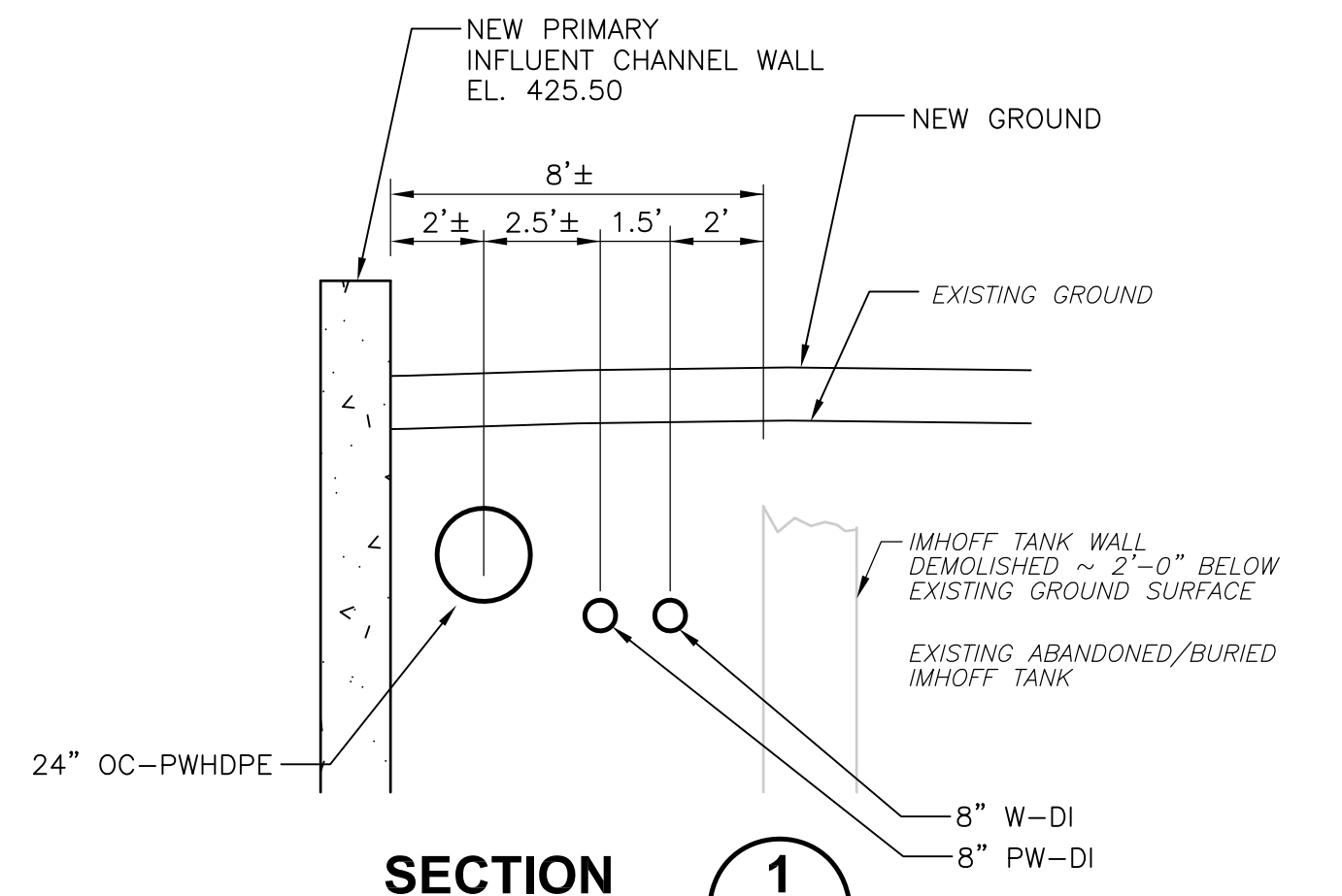
RELOCATE EXISTING PRECAST PACKAGE PUMP STATION ALONG ITS PRESENT ALIGNMENT BETWEEN THE EXISTING BURIED VAULT TO THE NORTH AND THE EXISTING STORAGE TANK TO THE SOUTH. CUT AND RECONNECT EXISTING 2" PVC FORCE MAIN, 8" PVC INLET AND ELECTRICAL & CONTROL WIRING. THE PUMP STATION SHALL BE SET AT ITS PRESENT ELEVATION IN ITS RELOCATED POSITION. ADJUST TOP TO NEW GROUND SURFACE BY INSTALLING NEW SHIM SECTION.



**SECTION 2**  
NTS



**ENLARGED PLAN**  
1"=30'



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

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.:	CYPPL007
DESIGNED BY:	W. D. GREEN
DRAWN BY:	P. FORNACIARI
SHEET CHK'D BY:	E. DEARDON
SCALE:	AS SHOWN
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

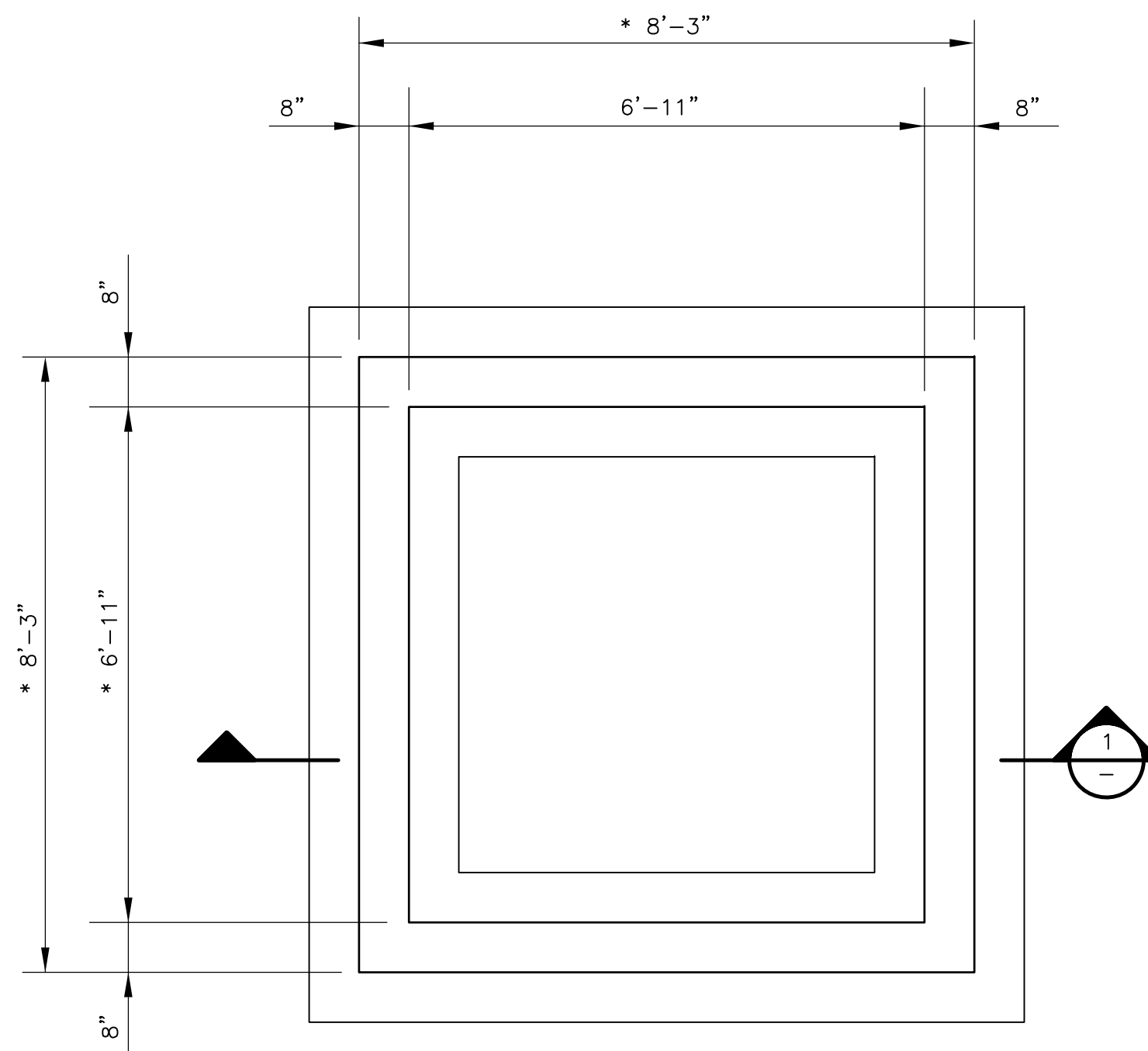
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**ENLARGED CIVIL PLANS**

PROJECT NO. 1289\35370  
 Sht. 27 of 386  
**C-19**

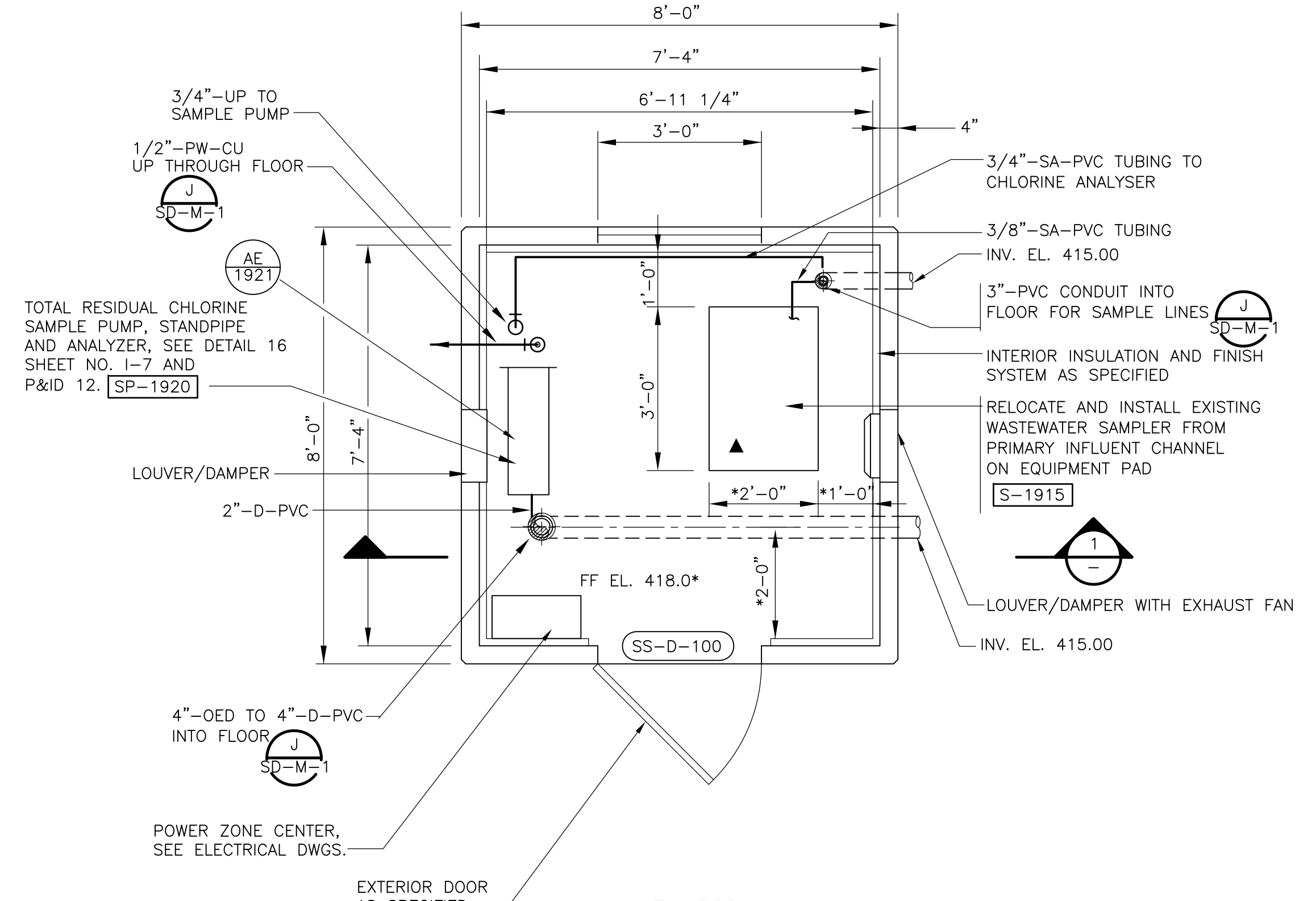


**FOUNDATION PLAN**

1/2" = 1'-0"

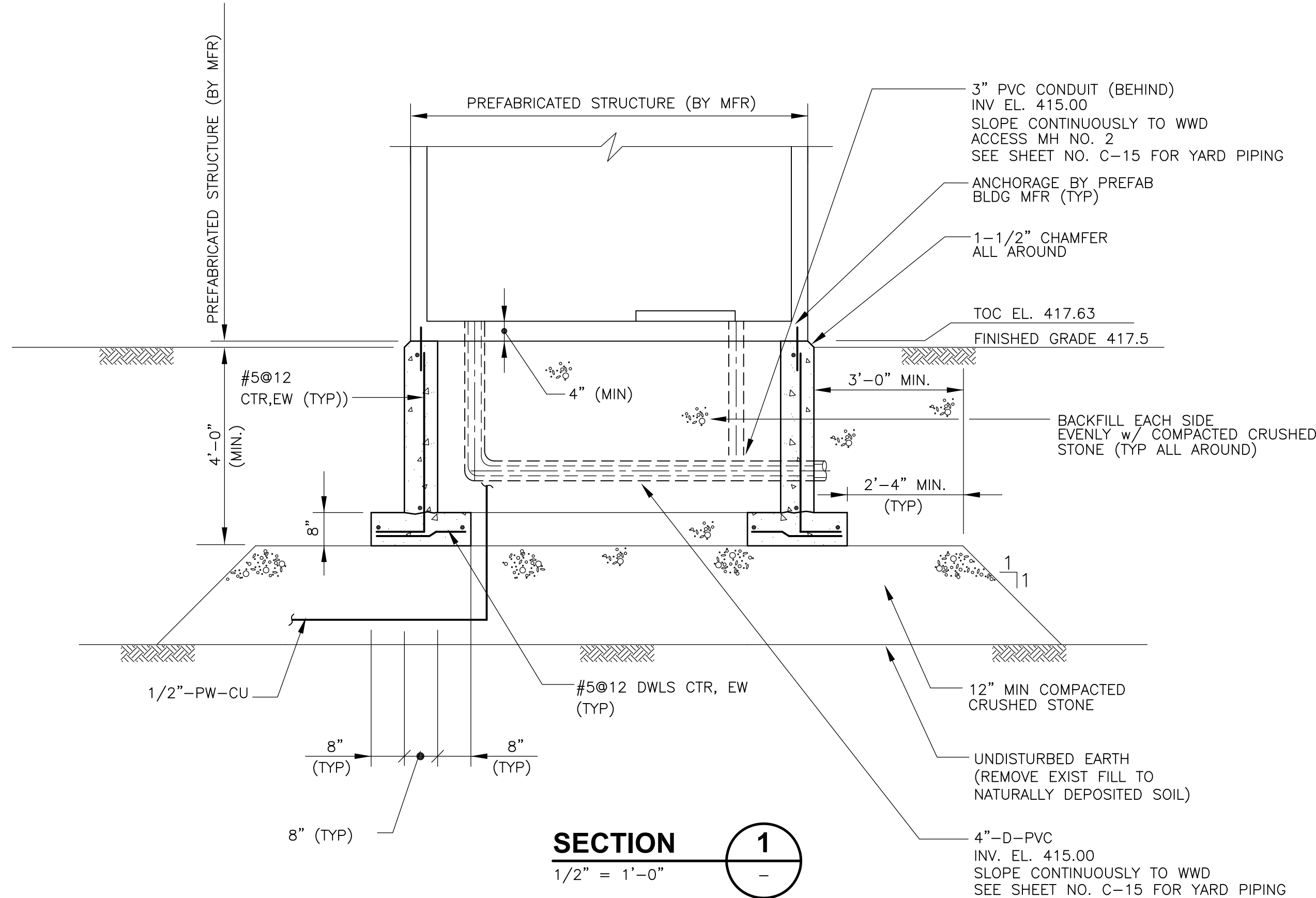
**NOTES:**

1. DESIGN GROUND WATER ELEVATION 414.3 (100 YEAR FLOOD)
2. \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
3. FOUNDATION HAS BEEN DESIGNED FOR THE PREFABRICATED STRUCTURE WEIGHT OF 7.6 TONS. THE FOUNDATION SHALL NOT BE FABRICATED OR INSTALLED UNTIL THE PREFABRICATED STRUCTURE SHOP DRAWINGS HAVE BEEN SUBMITTED TO THE ENGINEER, APPROVED, AND IF NECESSARY, CHANGES TO THE FOUNDATION HAVE BEEN ISSUED BY THE ENGINEER.
4. ▲ INDICATES EQUIPMENT PAD (BY PREFABRICATED WET WEATHER DISCHARGE SAMPLING STRUCTURE MFR).
5. WET WEATHER DISCHARGE SAMPLING STRUCTURE SHALL BE A PRE-ENGINEERED, PRECAST CONCRETE BUILDING, AS SPECIFIED IN SECTION 13121.
6. FLOOR PENETRATIONS FOR PROCESS PIPING SHALL BE CORED IN THE FIELD.
7. PVC PIPES BENEATH STRUCTURE SHALL BE CONCRETE ENCASED.



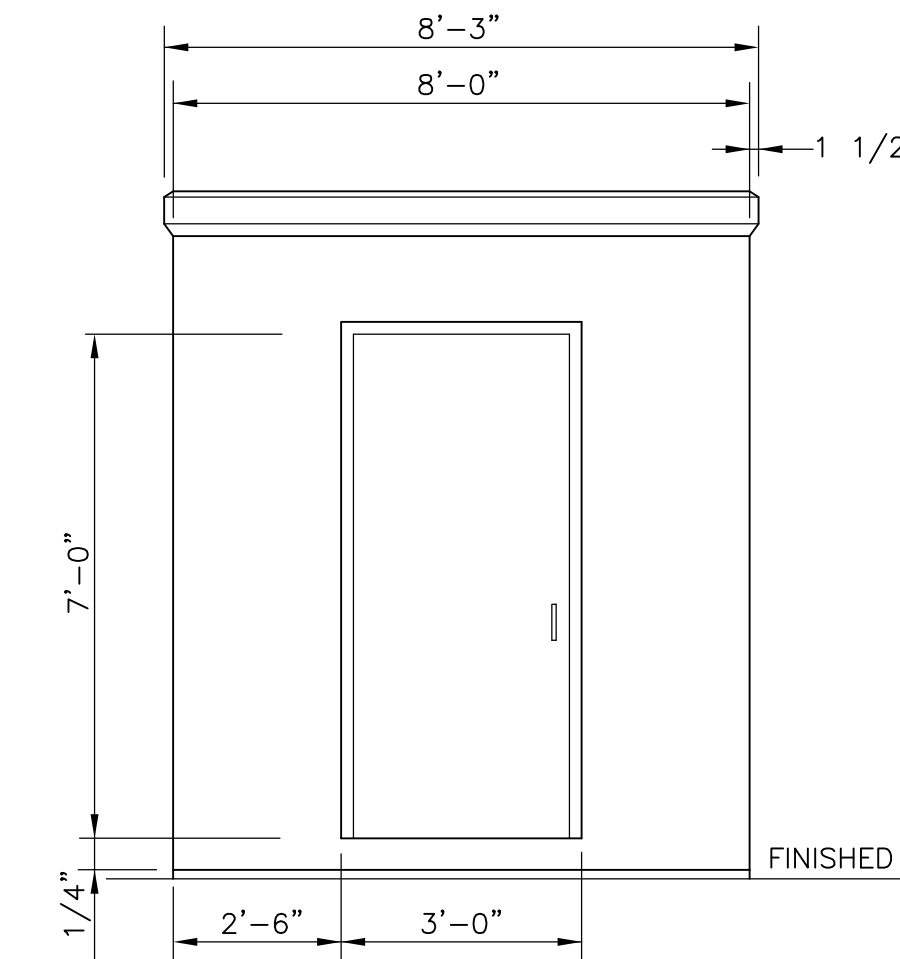
**PLAN**

1/2" = 1'-0"



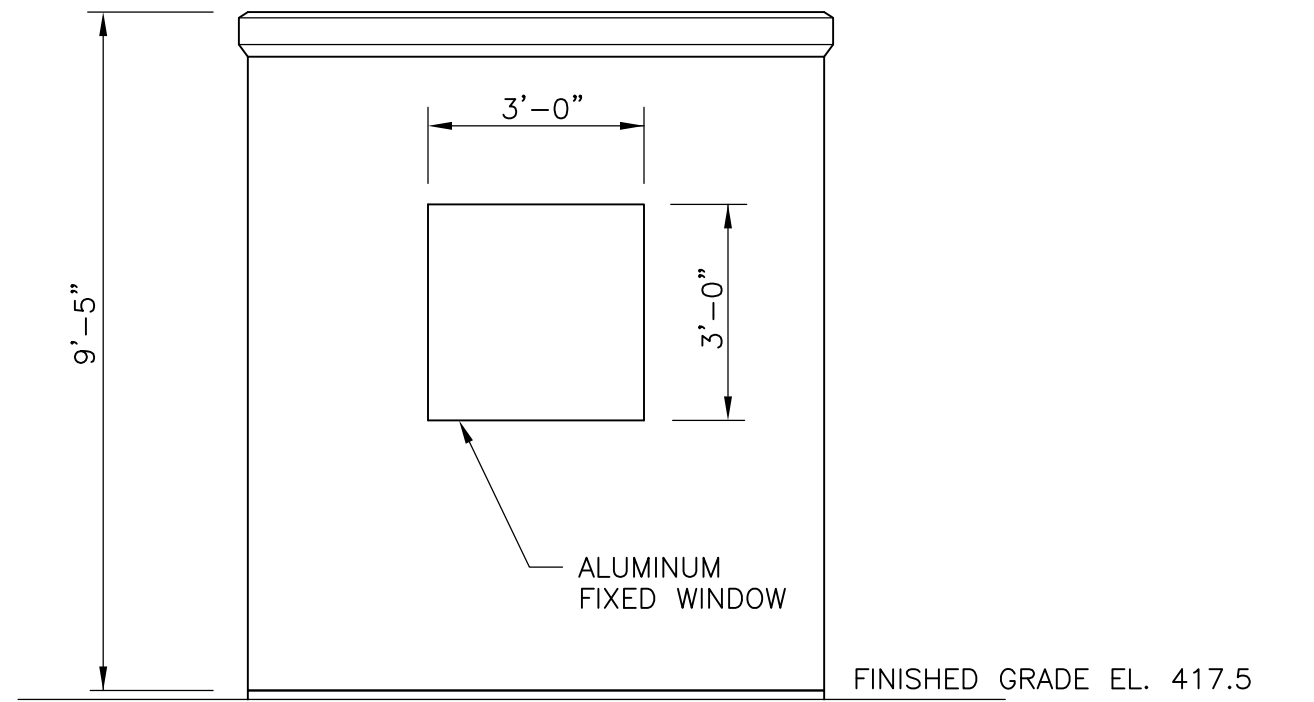
**SECTION 1**

1/2" = 1'-0"



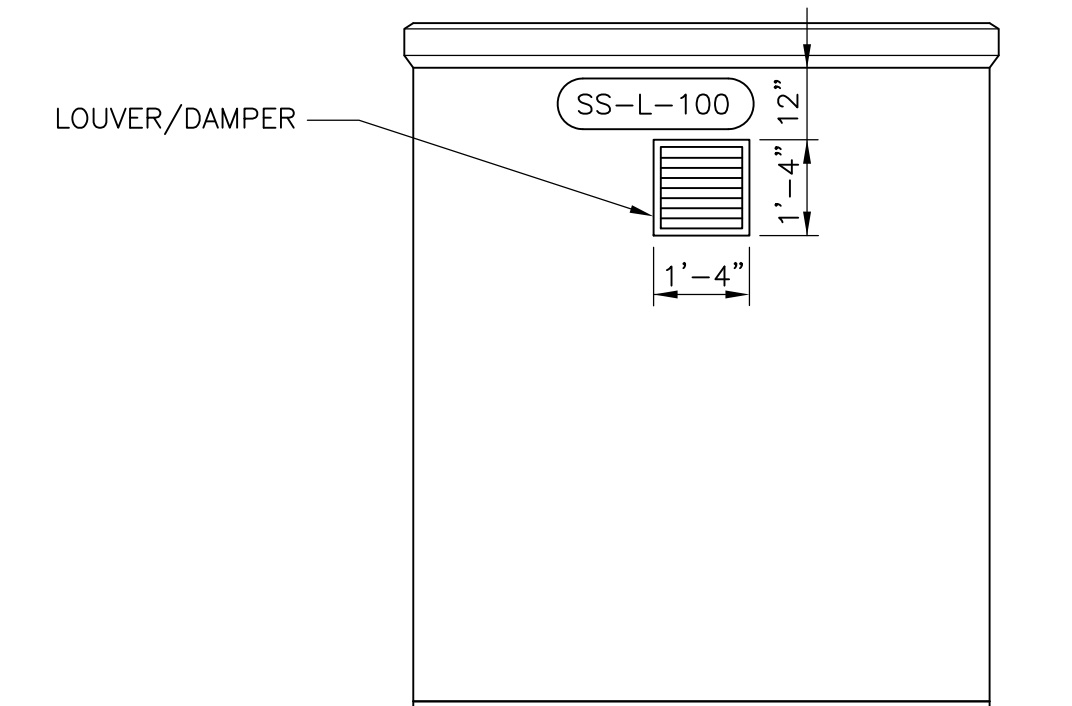
**SOUTH ELEVATION**

3/8" = 1'-0"



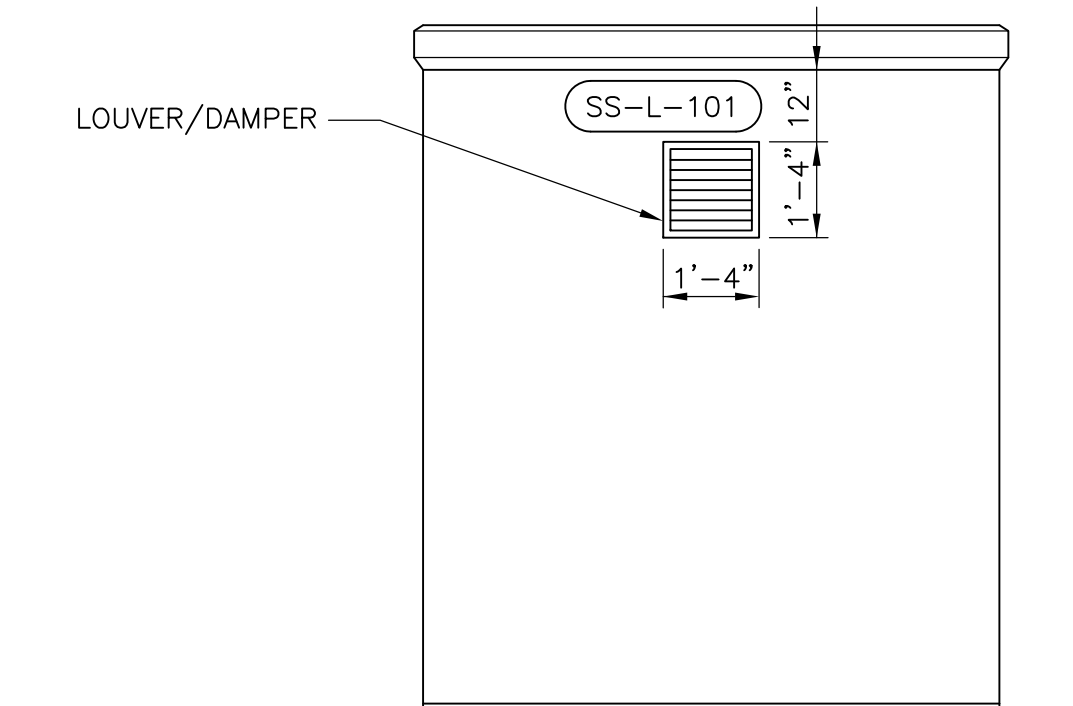
**NORTH ELEVATION**

3/8" = 1'-0"



**WEST ELEVATION**

3/8" = 1'-0"



**EAST ELEVATION**

3/8" = 1'-0"

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	CYS0T004
DESIGNED BY:	K. SANGREY
DRAWN BY:	M. TOUAYL
SHEET CHK'D BY:	K. SANGREY
SCALE:	AS SHOWN
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

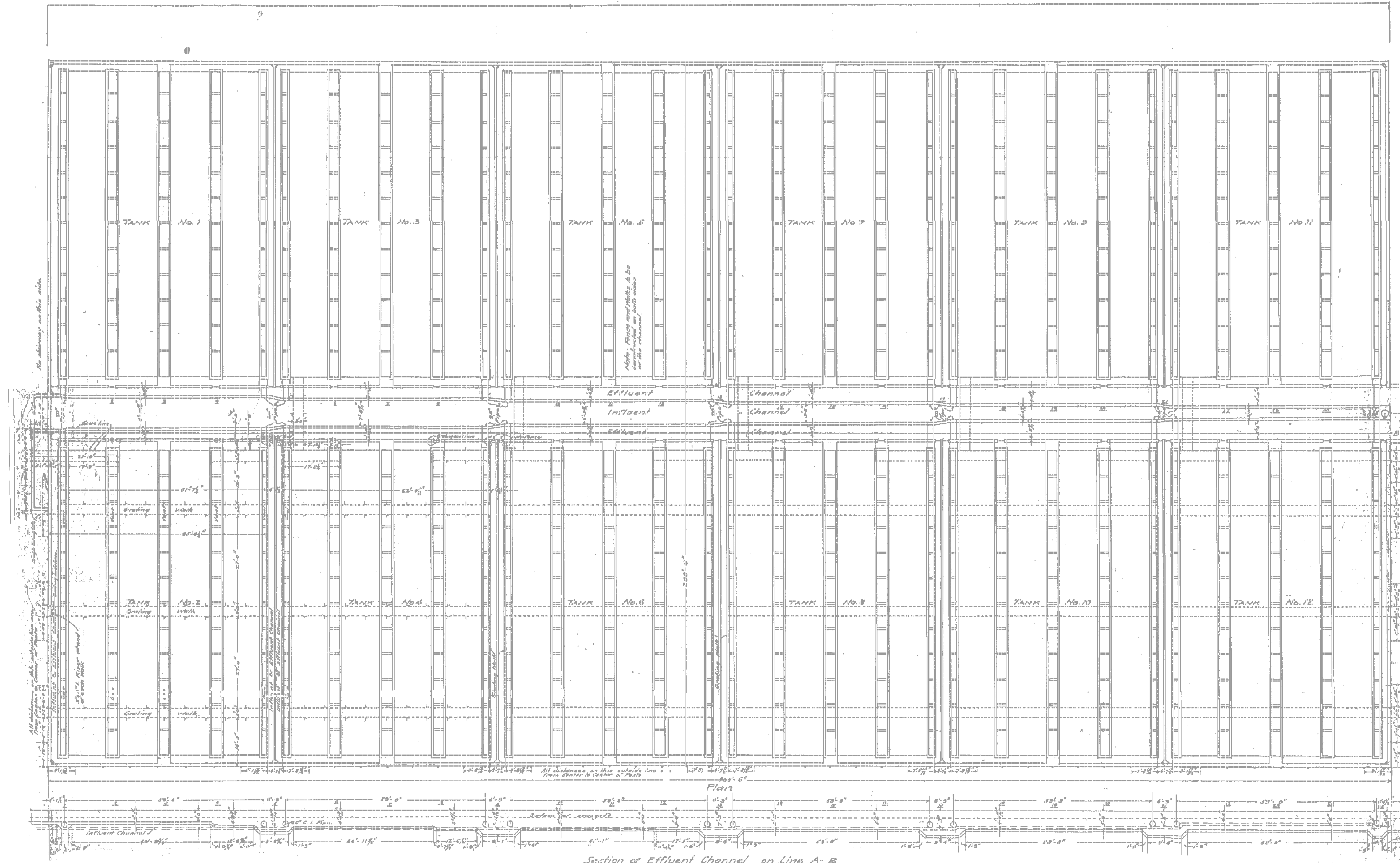
**WET WEATHER DISCHARGE  
 SAMPLING STRUCTURE**

PROJECT NO.  
1289\35370

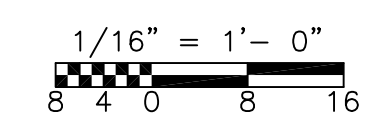
Sht. 28 of 386

**C-20**



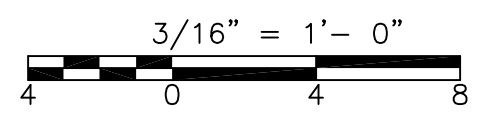
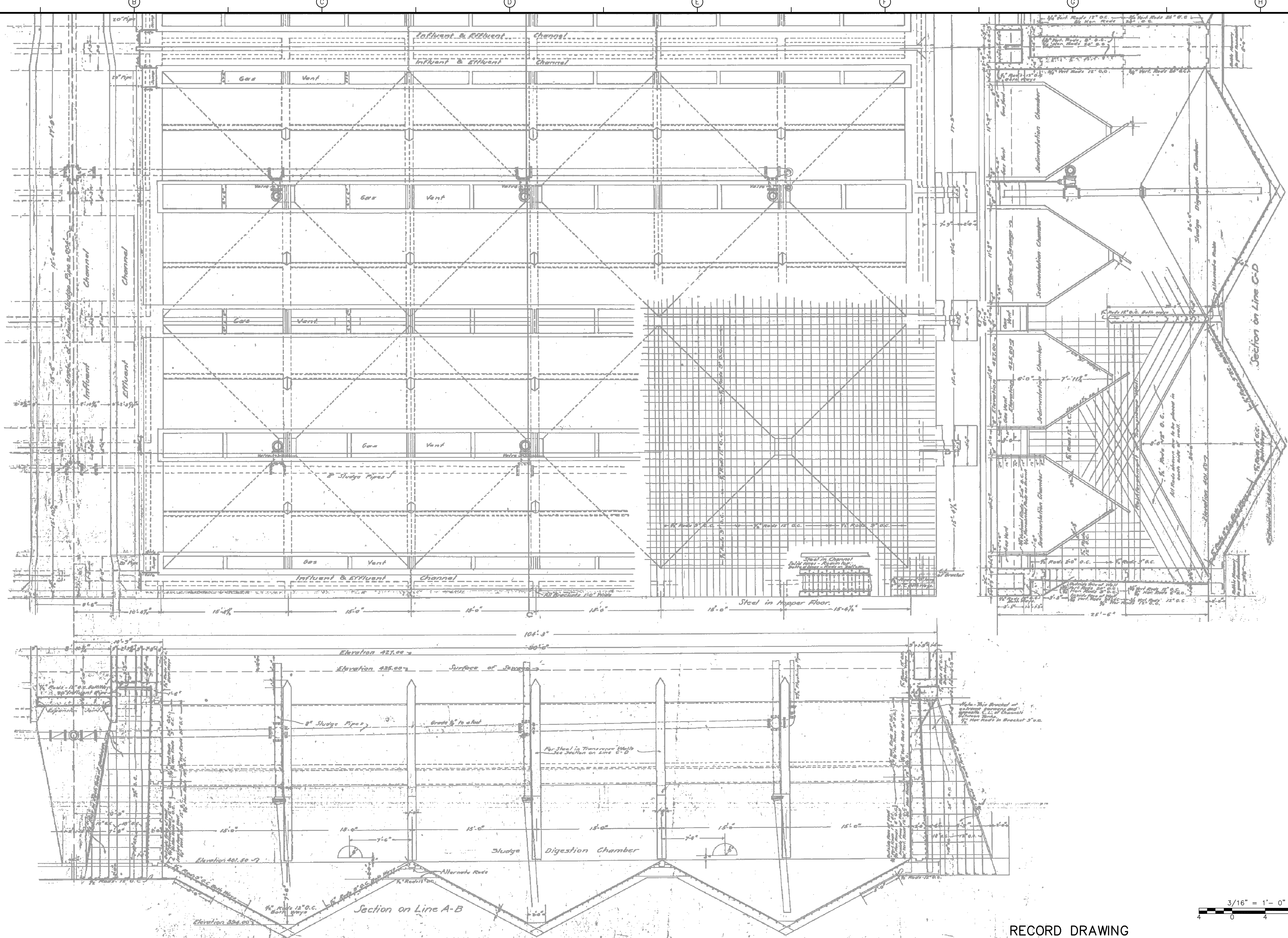


**NOTES:**  
 THIS DRAWING IS PROVIDED FOR REFERENCE ONLY.  
 DRAWING INDICATES DESIGN, ACTUAL CONDITIONS MAY VARY.  
 DRAWING BASED ON 1922 CITY OF WORCESTER ENGINEERING  
 DEPARTMENT PLANS FOR THE SEWAGE TREATMENT WORKS.



RECORD DRAWING

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REV. NO.	DATE	DRWN	CHKD	REMARKS																	
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD																	



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	IMHFTNK2
DESIGNED BY:	C. ARLOTTA
DRAWN BY:	M. TOUYAL
SHEET CHK'D BY:	W. D. GREEN
SCALE:	3/16"=1'-0"
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

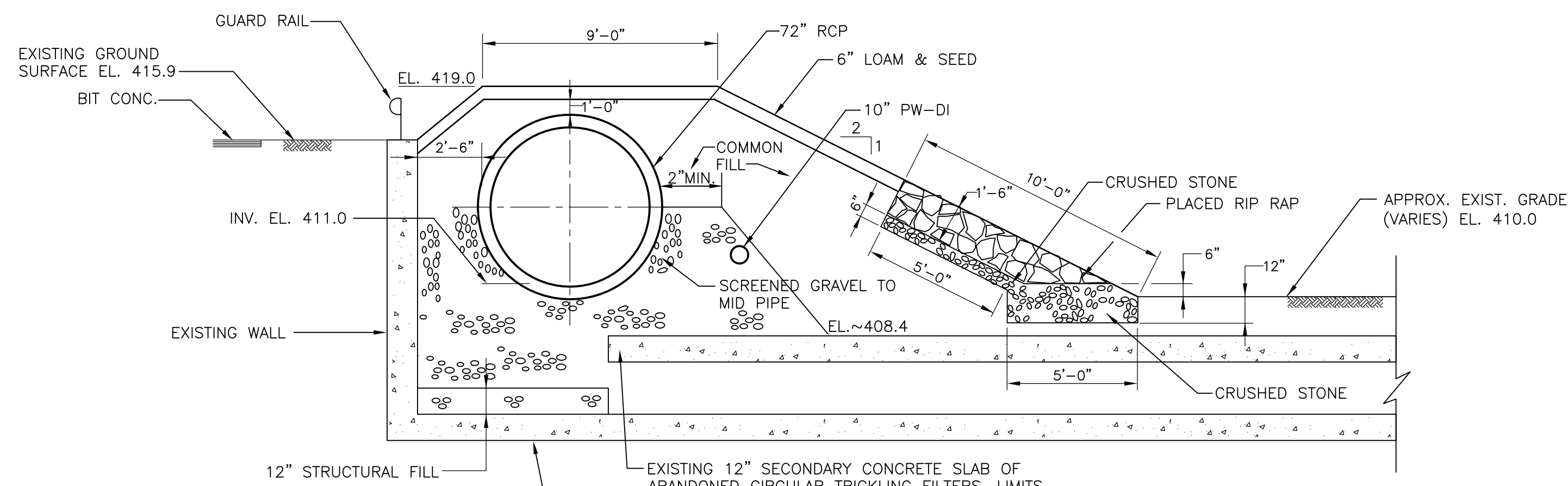
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**ORIGINAL IMHOFF TANK DESIGN SECTION**

PROJECT NO.  
1289\35370

Sht. 31 of 386

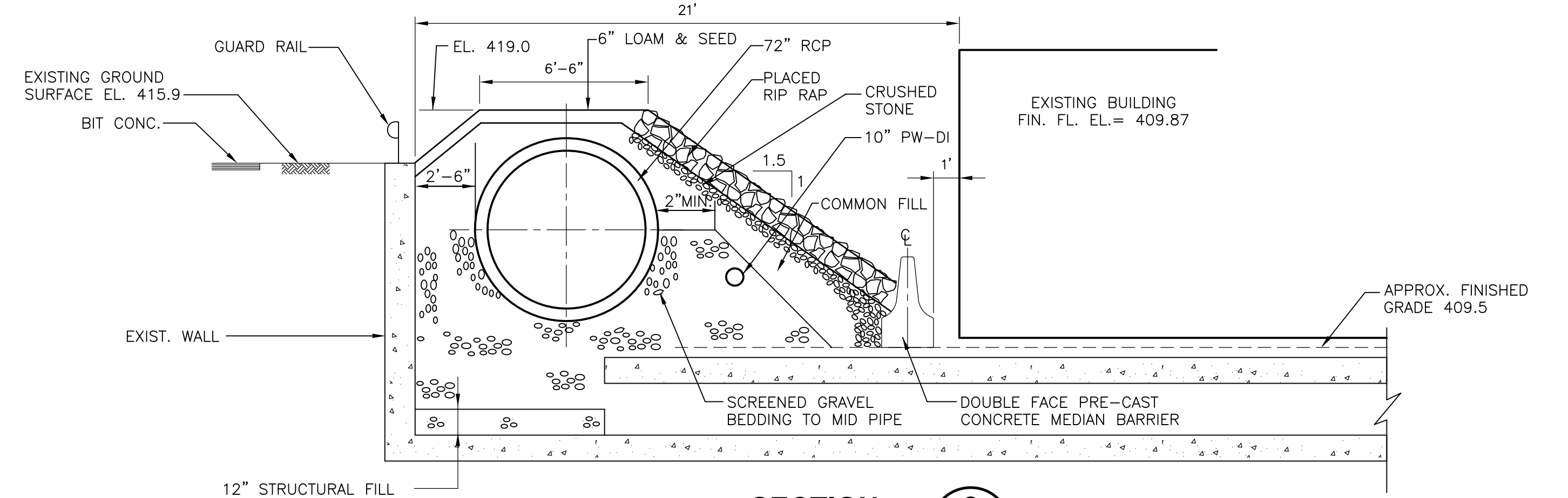
**C-23**



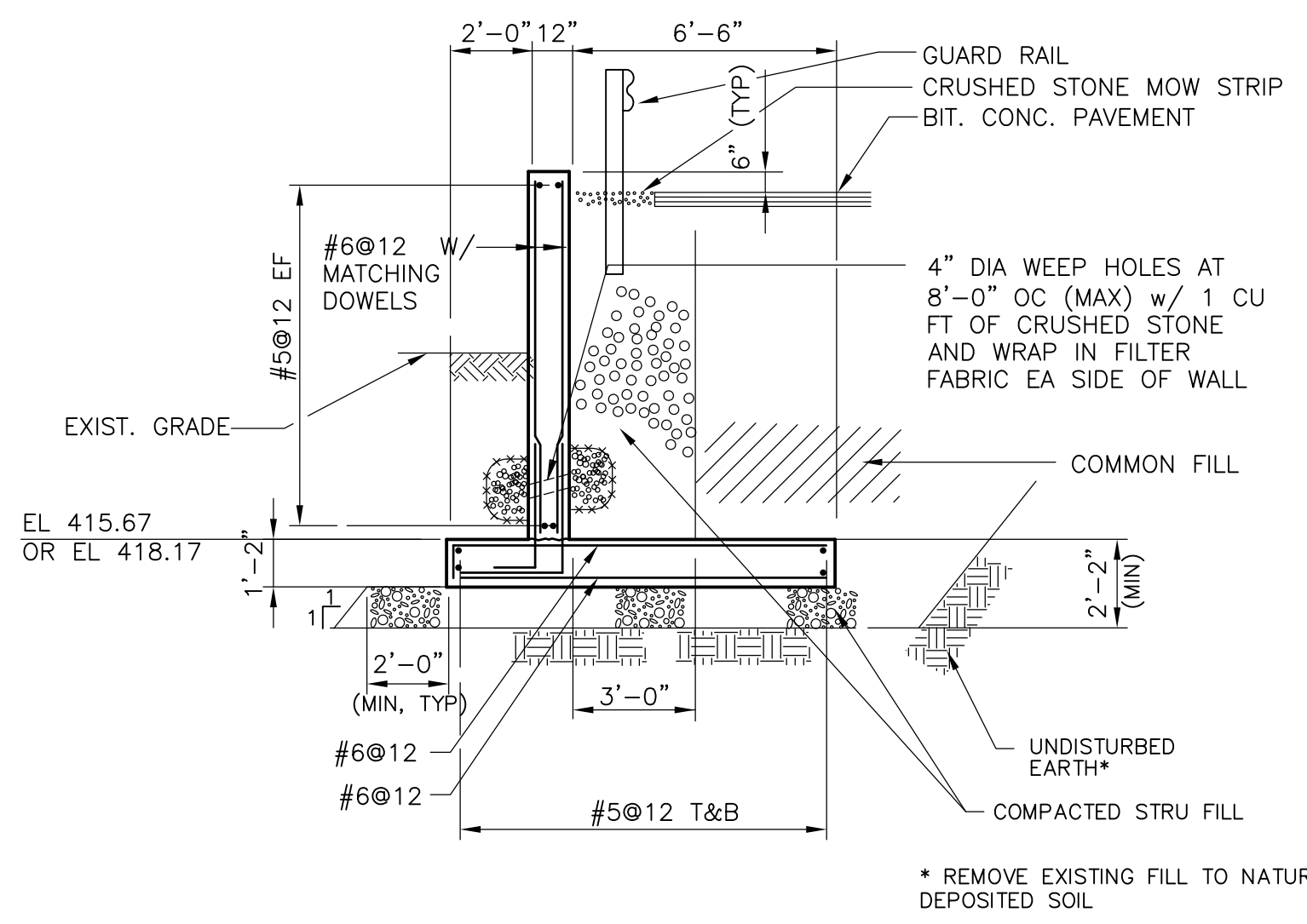
NOTES:  
 1. WHERE EXISTING SECONDARY SLAB IS NOT ENCOUNTERED, STRUCTURAL FILL SHOULD BE PLACED ON TOP OF EXISTING BASE SLAB (DEPTH=12").

**SECTION 1**  
 C-10  
 1/4" = 1'-0"

**TYPICAL WET WEATHER DISCHARGE PIPE FILL SECTION**

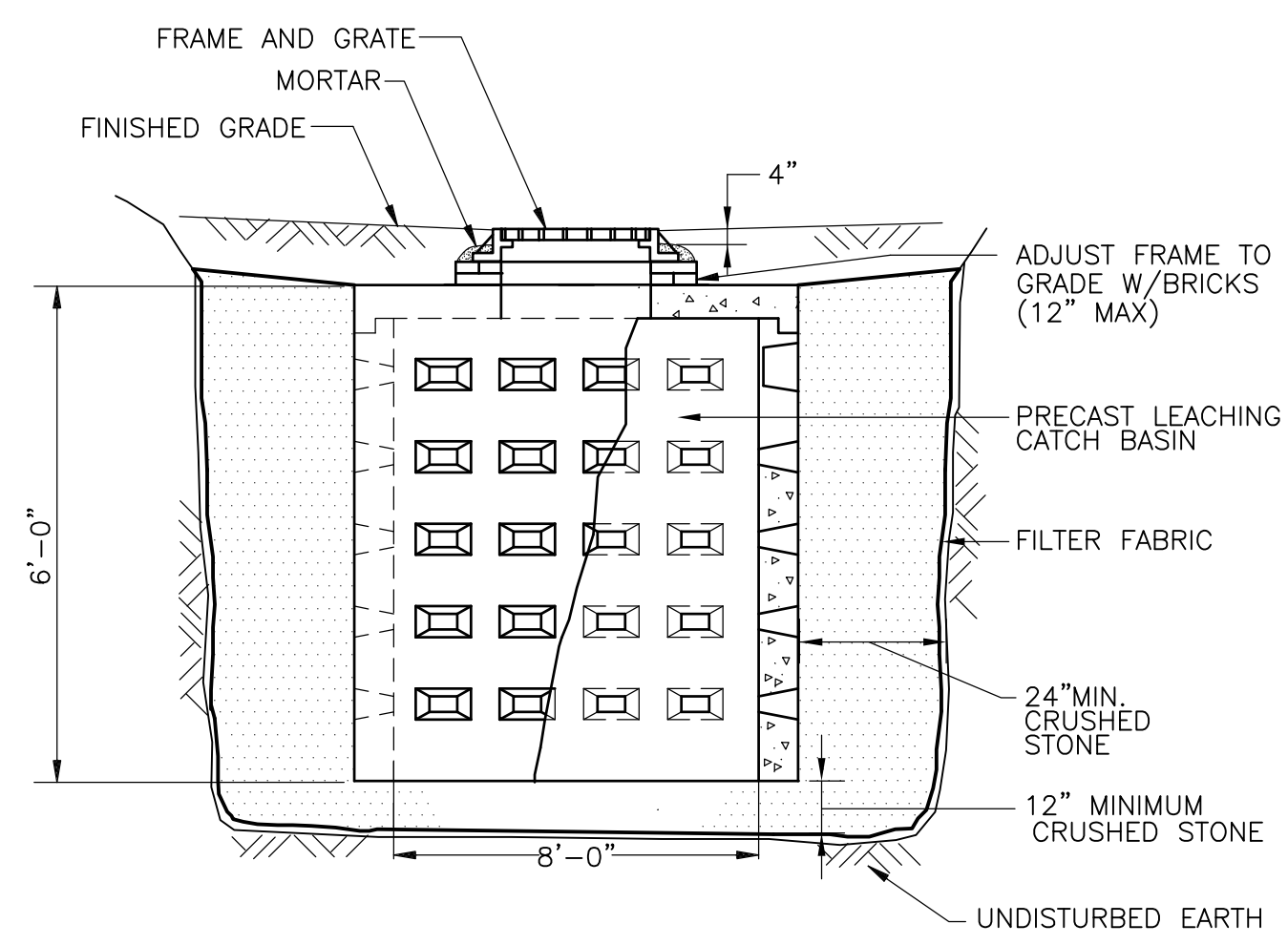


**SECTION 2**  
 C-10  
 1/4" = 1'-0"

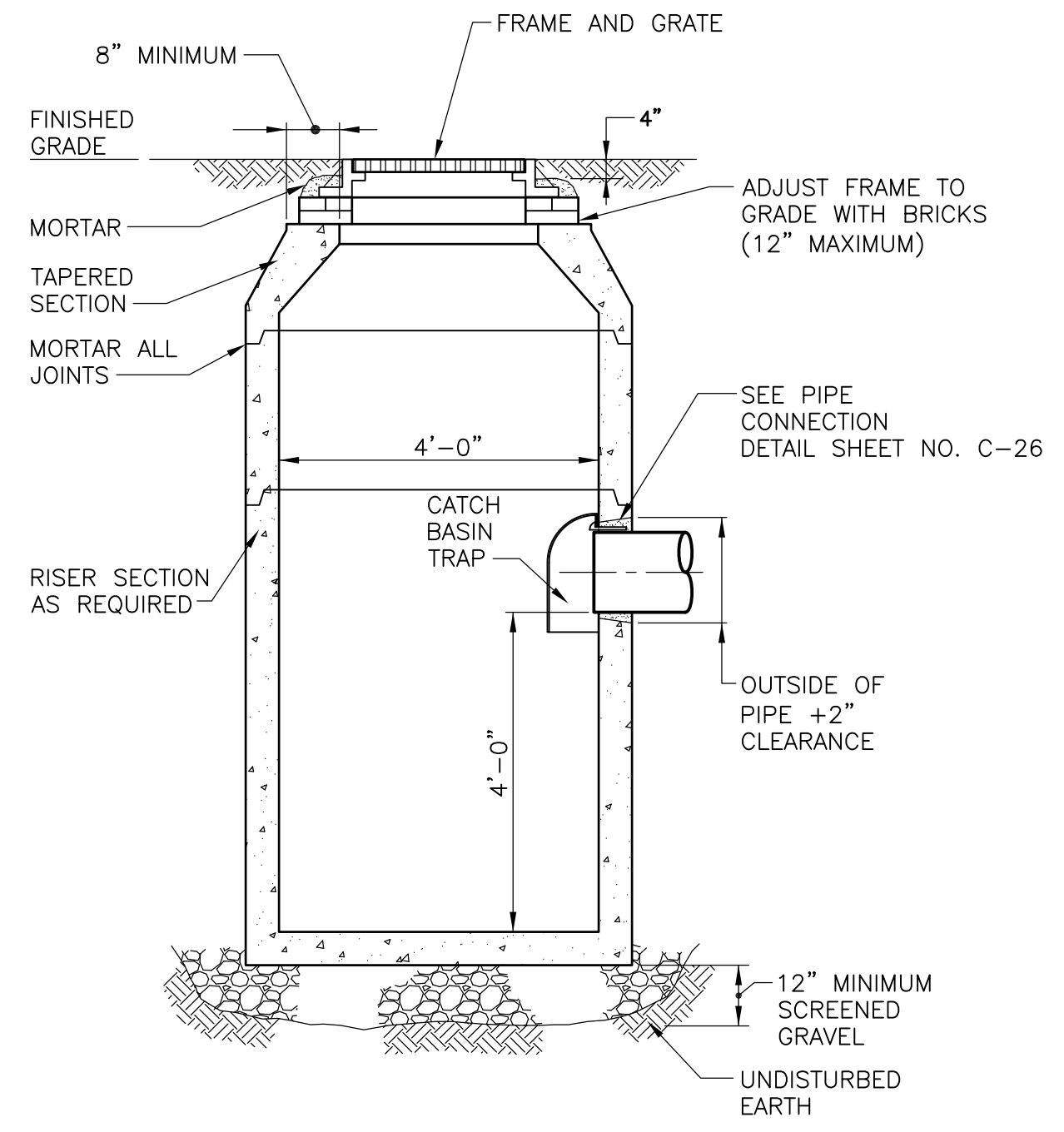


NOTES:  
 1. CONTROL JOINTS IN SLAB & WALLS SHALL BE LOCATED 30'-0" ON CENTER (MAX).  
 2. EXPANSION JOINTS IN SLABS & WALLS SHALL BE LOCATED 120'-0" ON CENTER (MAX).  
 3. SEE SHEET SD-S-1 FOR CAST-IN-PLACE CONCRETE NOTES & STANDARD DETAILS.  
 4. SEE SHEET C-8 FOR LOCATION OF RETAINING WALL.

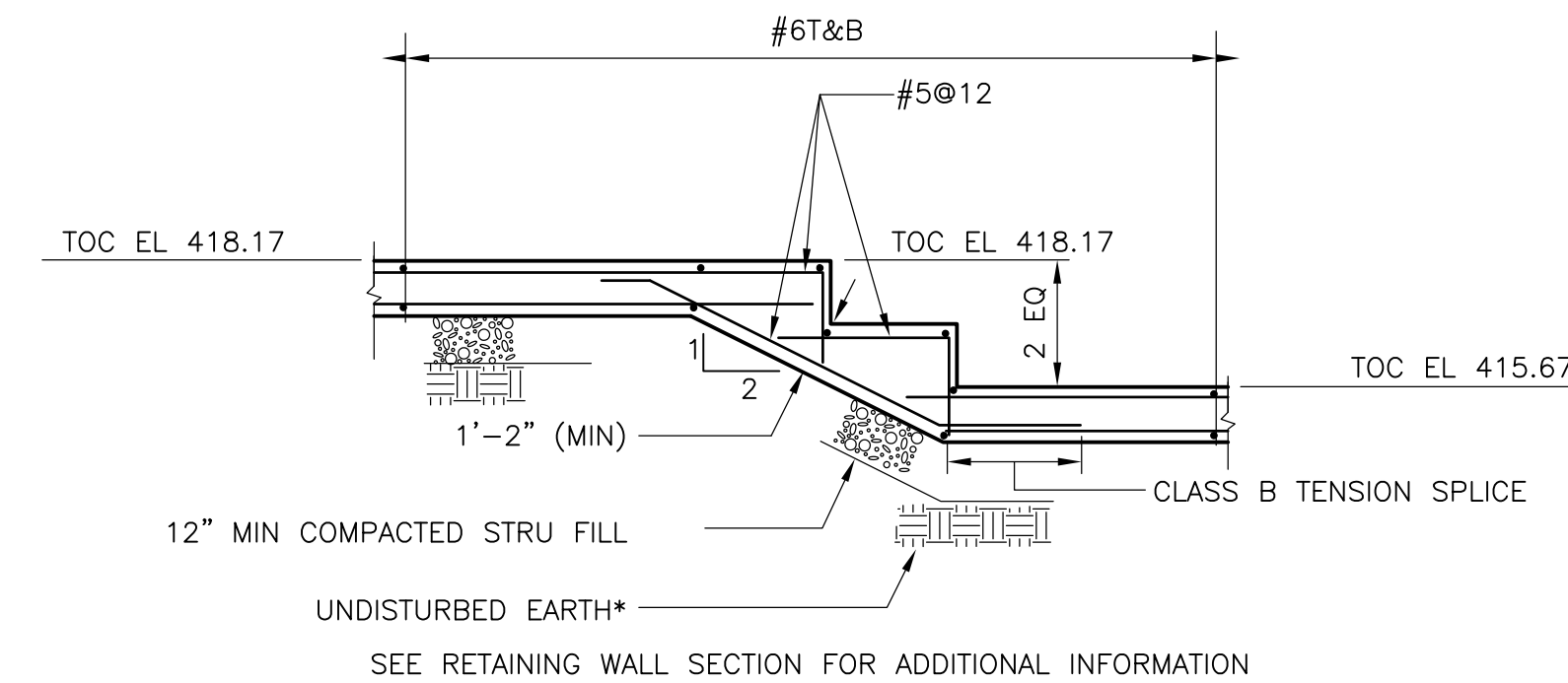
**RETAINING WALL SECTION**  
 1/4" = 1'-0"



**PRECAST CONCRETE LEACHING CATCH BASIN**  
 NTS



**PRECAST CONCRETE CATCH BASIN**  
 NTS



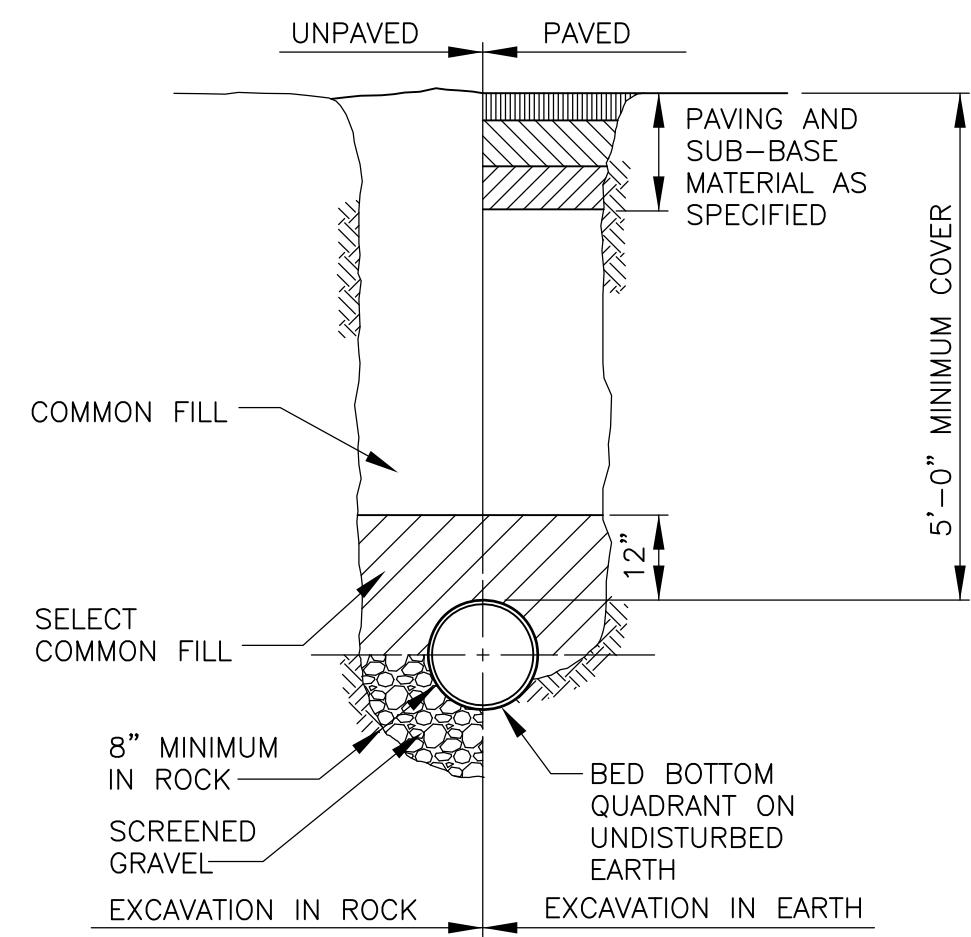
**STEPPED FOOTING SECTION**  
 1/4" = 1'-0"

RECORD DRAWING

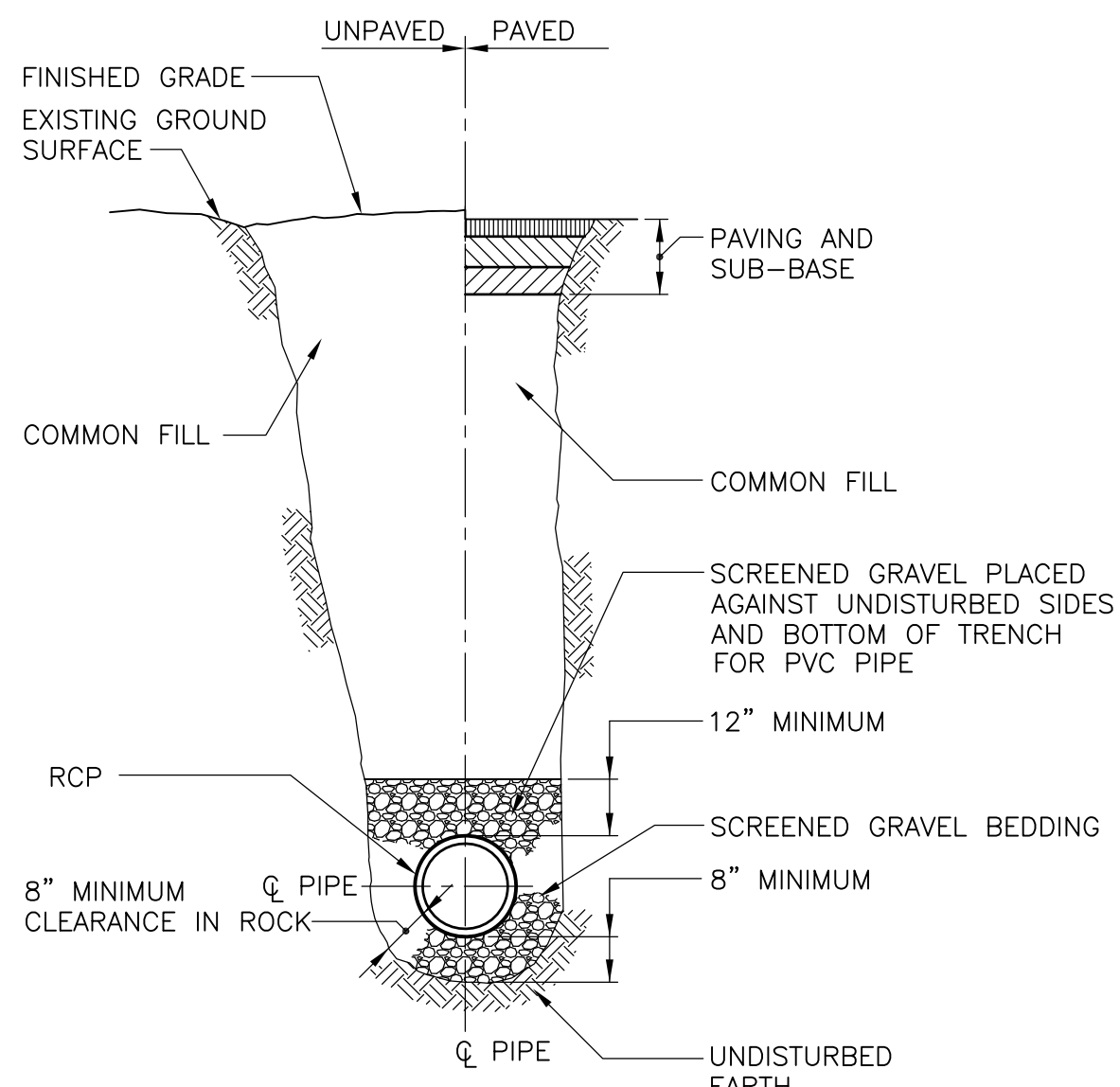
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				DESIGNED BY: C. ARLOTTA			
				DRAWN BY: P. FORNACIARI			
				SHEET CHK'D BY: E. DEARDON			
				SCALE: AS SHOWN	WASTEWATER TREATMENT FACILITY IMPROVEMENTS	CIVIL DETAILS I	Sht. 32 of 386 <b>C-24</b>
				APPROVED BY: J. MADDEN			
				DATE: MAY 2006			
REV. NO.	DATE	DRWN	CHKD	REMARKS			
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD			



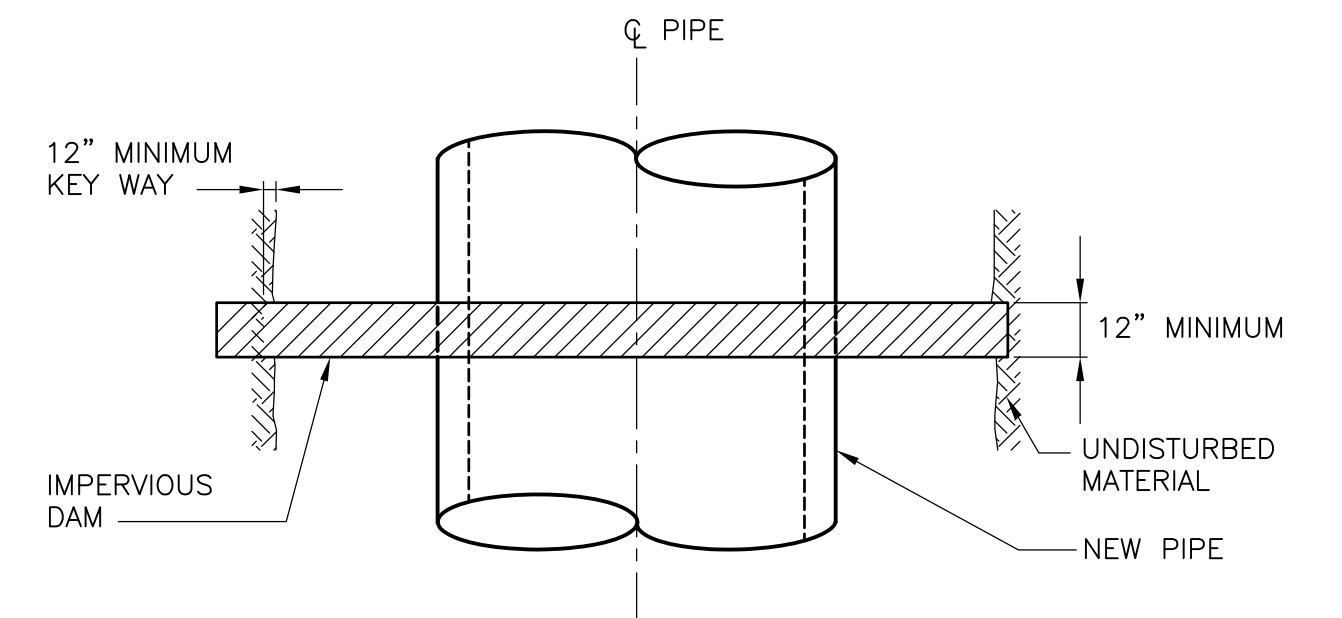
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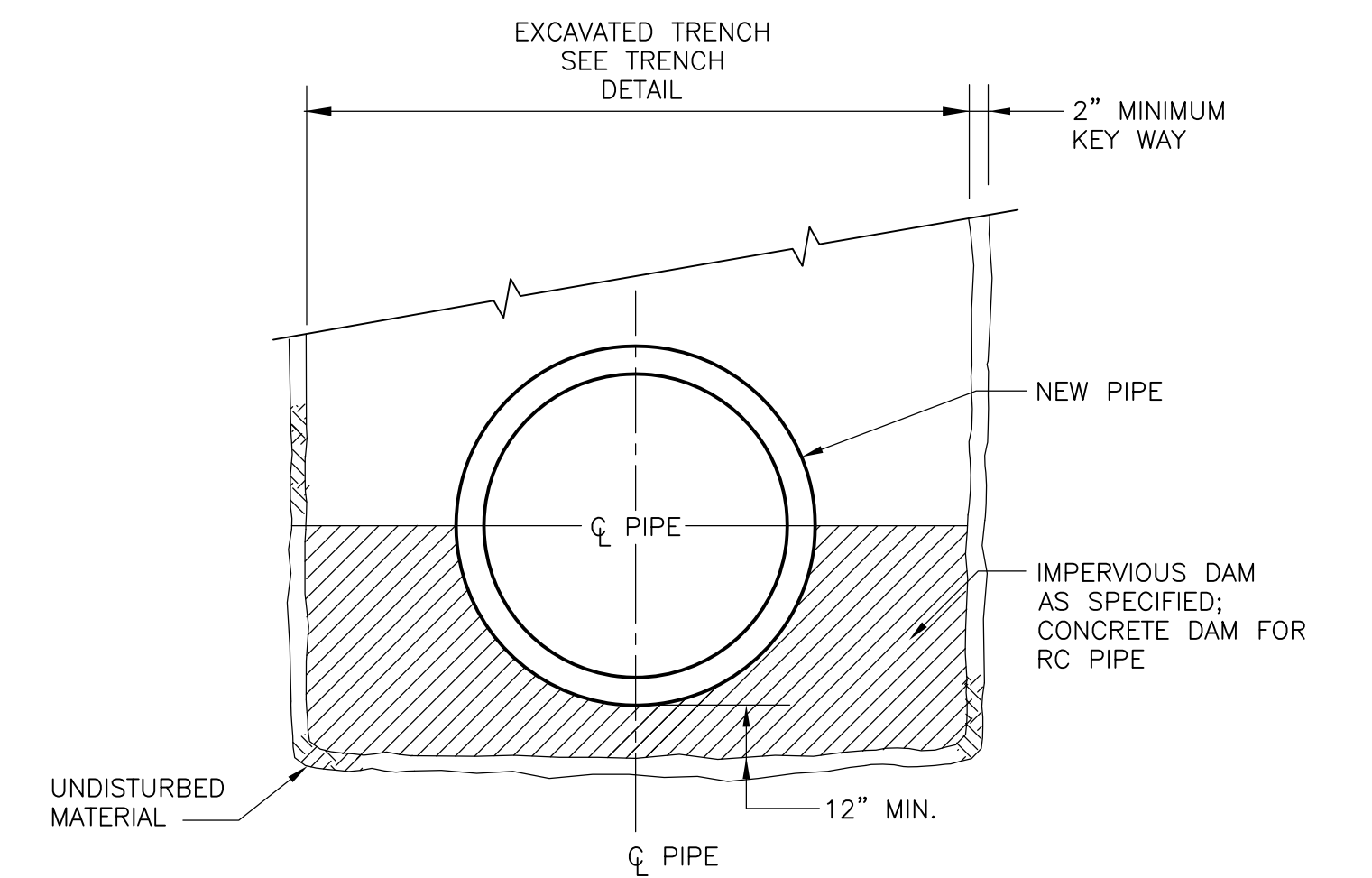
**TYPICAL PIPE TRENCH DETAIL  
(DI, STEEL)**  
NTS



**TYPICAL PIPE TRENCH DETAIL FOR RCP, PVC**  
NTS

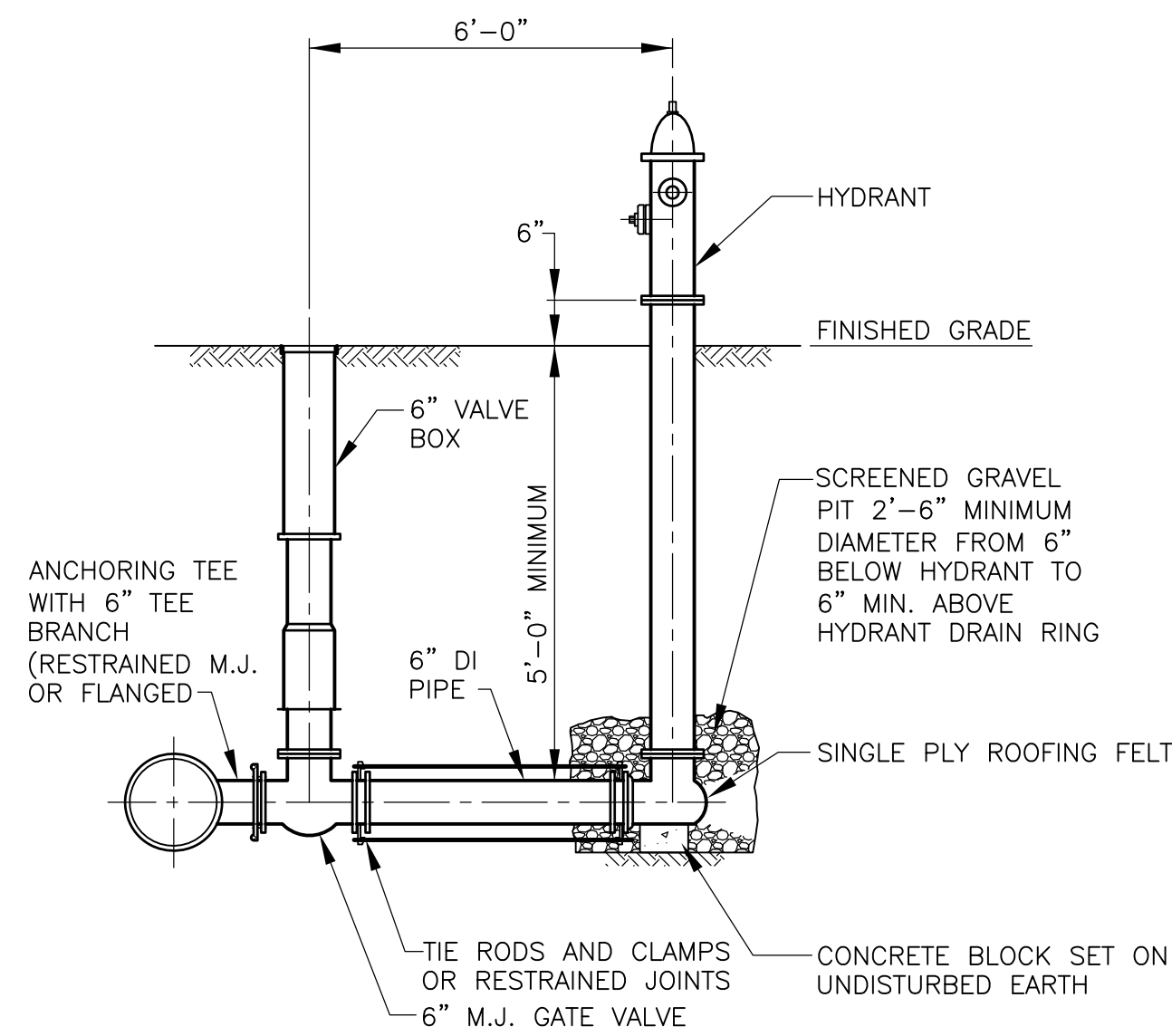


**PLAN**



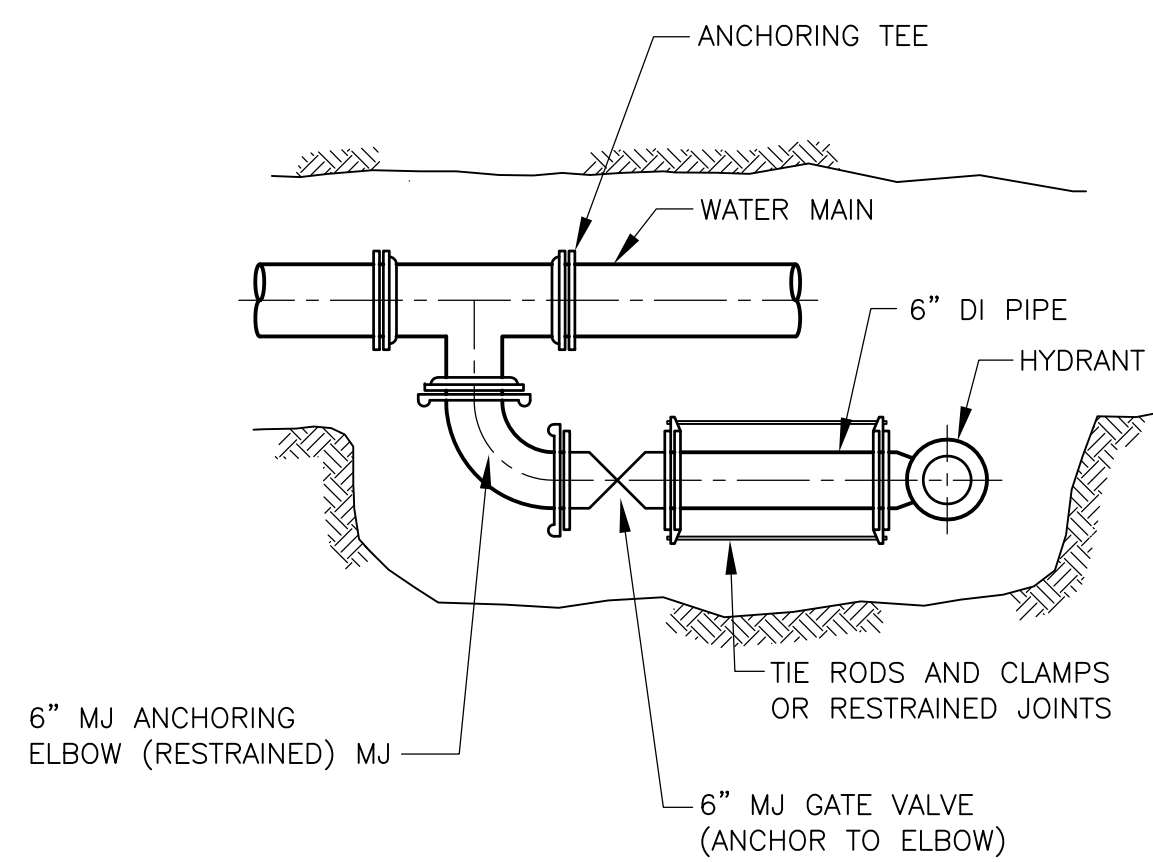
**SECTION**

**PIPE TRENCH DAM DETAIL**  
NTS



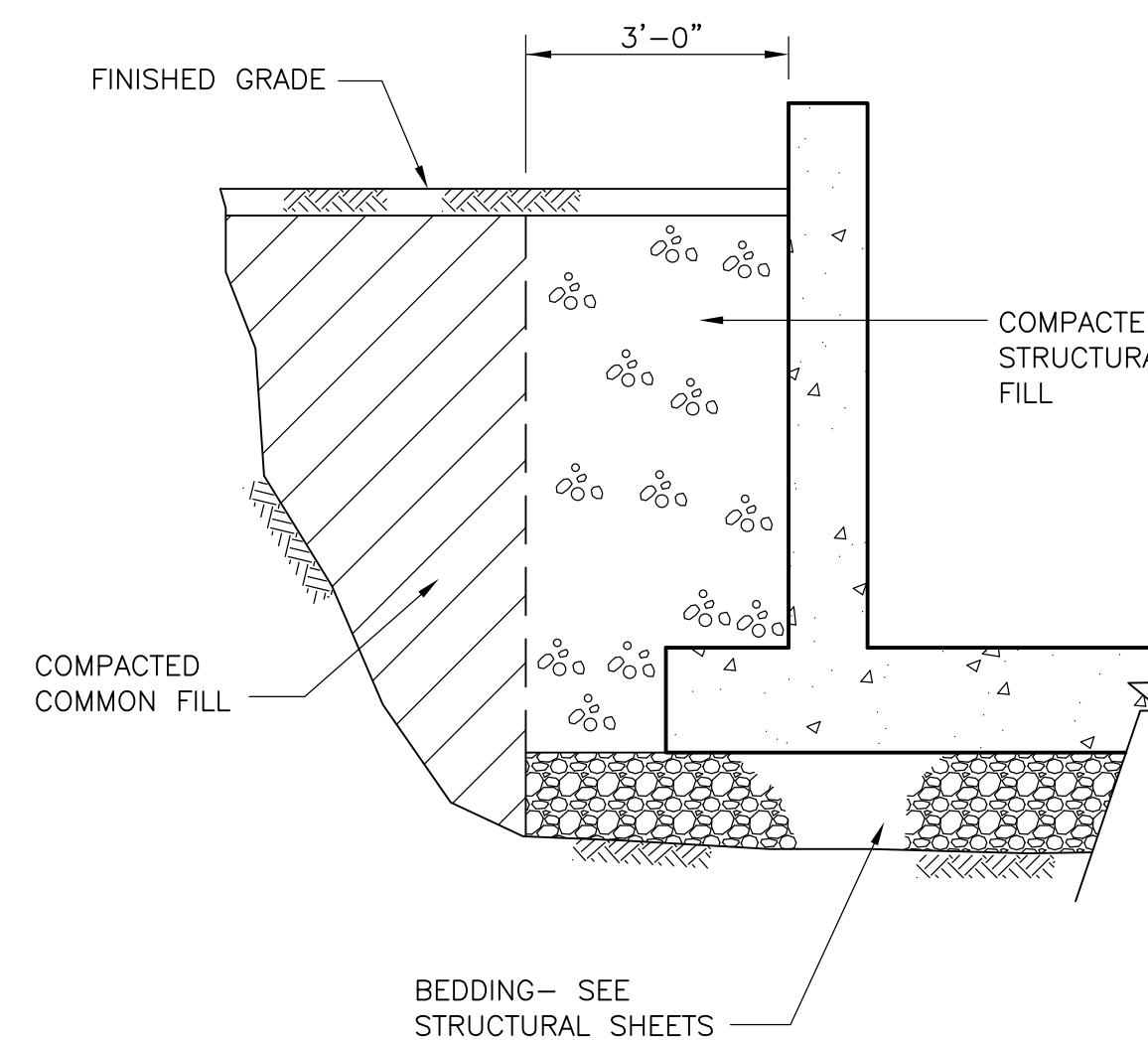
**SECTION**

**HYDRANT CONNECTION DETAIL**  
NTS

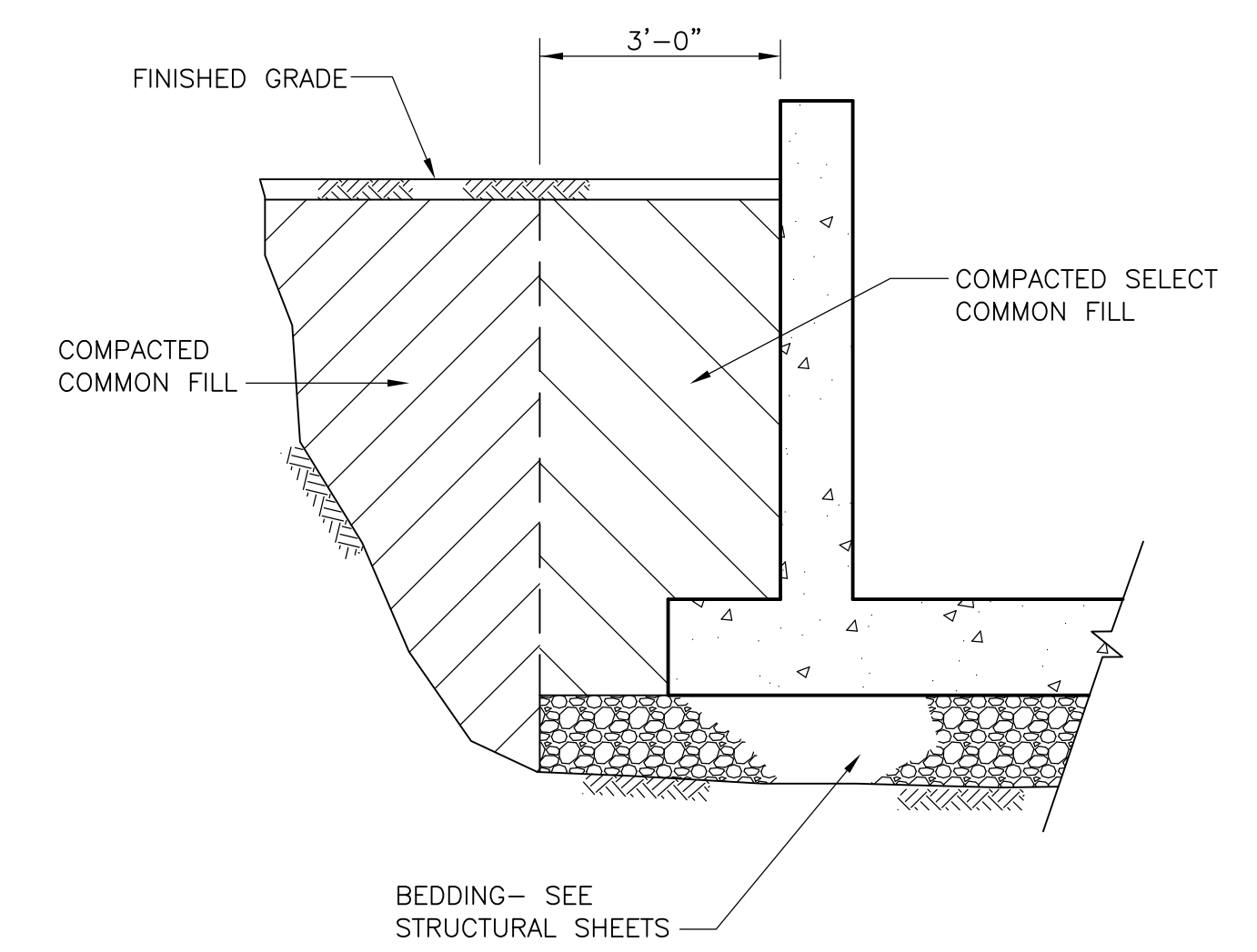


**PLAN**

**ALTERNATE HYDRANT PARALLEL CONNECTION DETAIL**  
NTS



**BACKFILL AT WATER  
RETENTION STRUCTURES**  
NTS



**BACKFILL AT NON-WATER  
RETENTION STRUCTURES**  
NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.:	CYS002
DESIGNED BY:	C. ARLOTTA
DRAWN BY:	P. FORNACIARI
SHEET CHK'D BY:	E. DEARDON
SCALE:	AS SHOWN
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
*consulting engineering construction operations*

**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

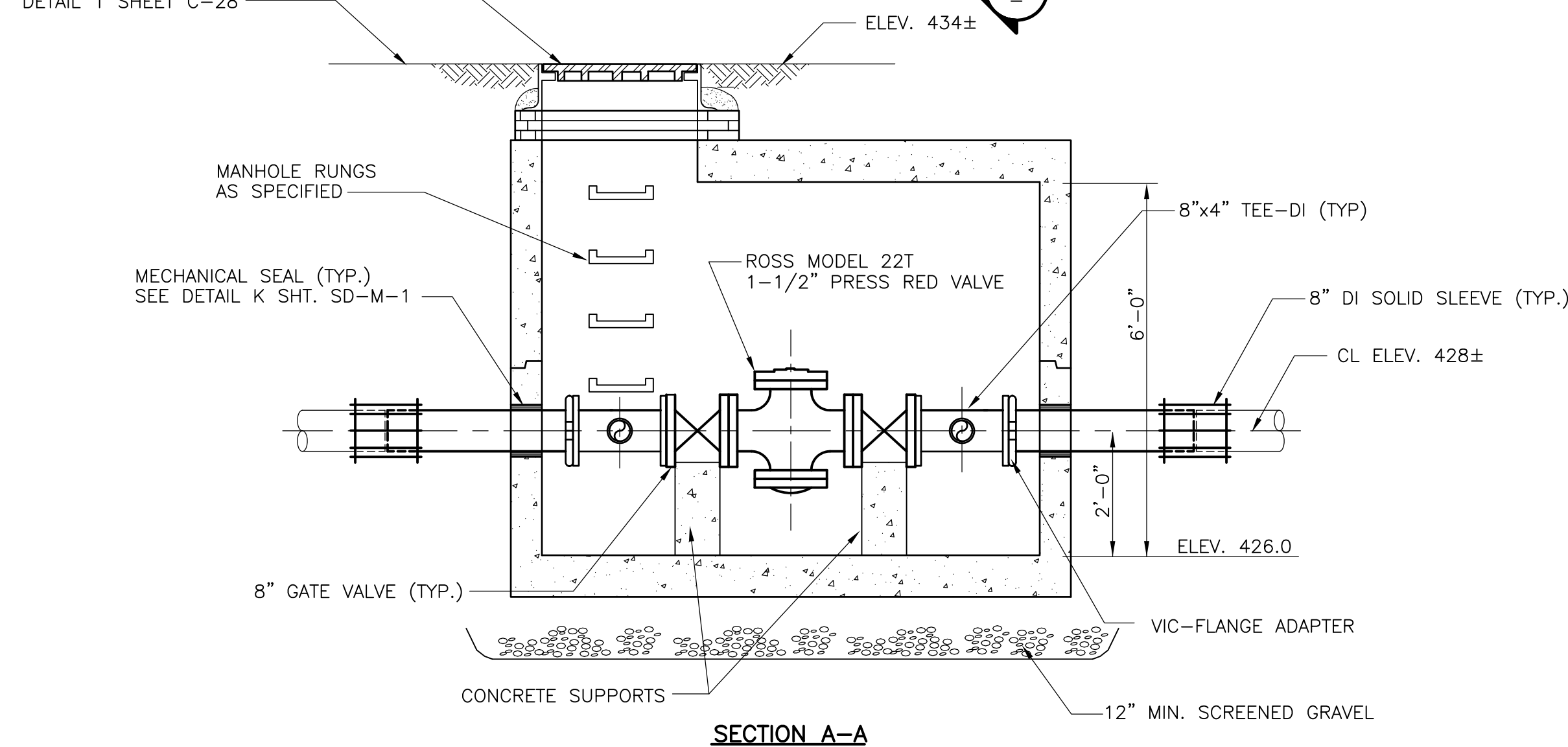
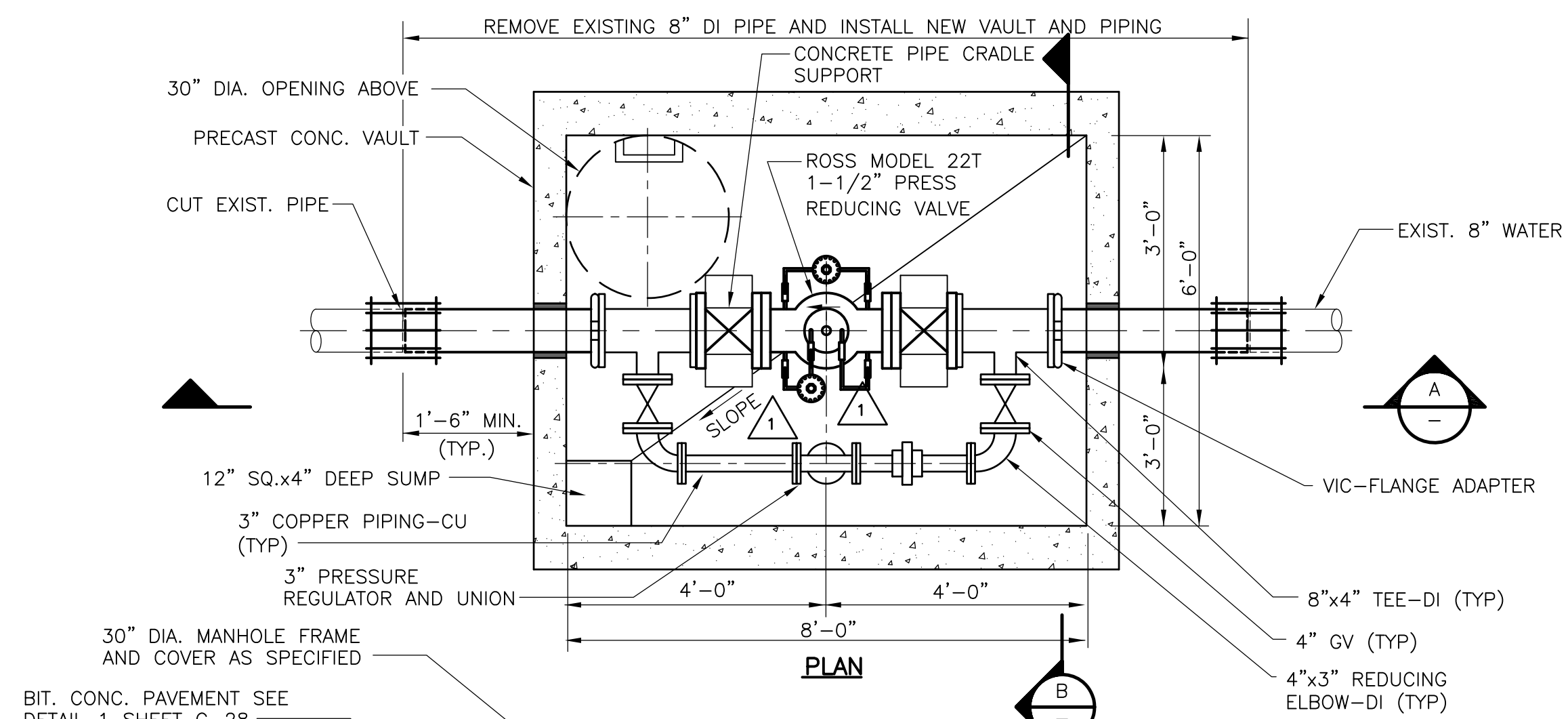
**CIVIL DETAILS II**

**C-25**

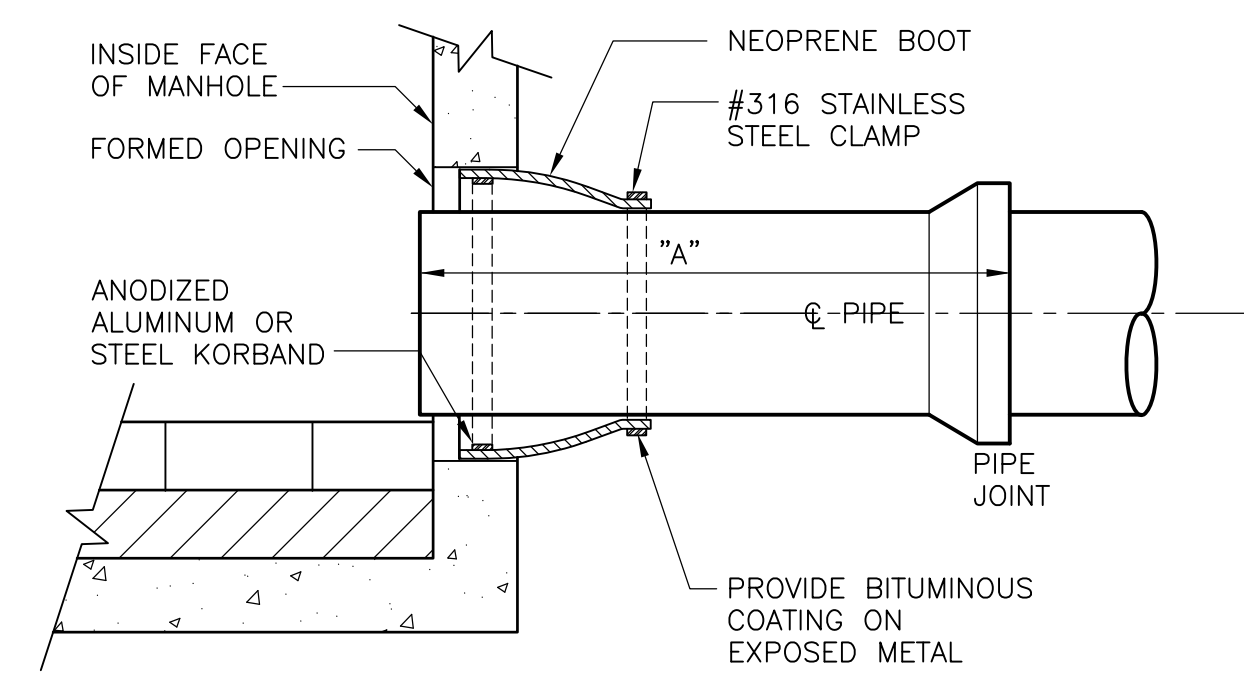
PROJECT NO.  
1289\35370

Sht. 33 of 386

ACCESSION NO. 1289-65453

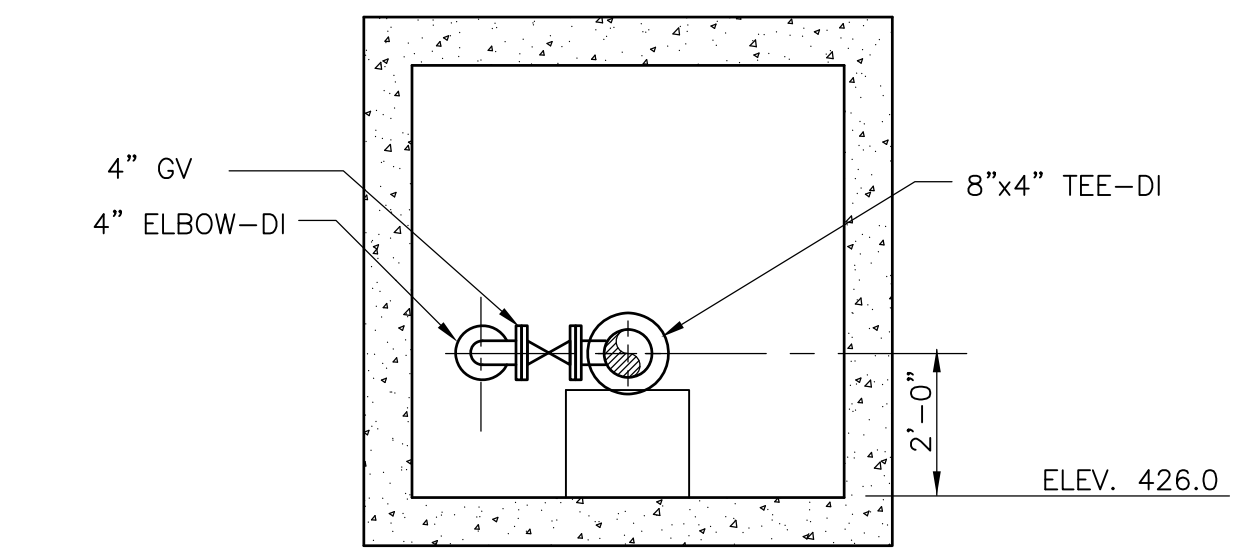


**PRESSURE REDUCING VALVE VAULT**  
 NTS

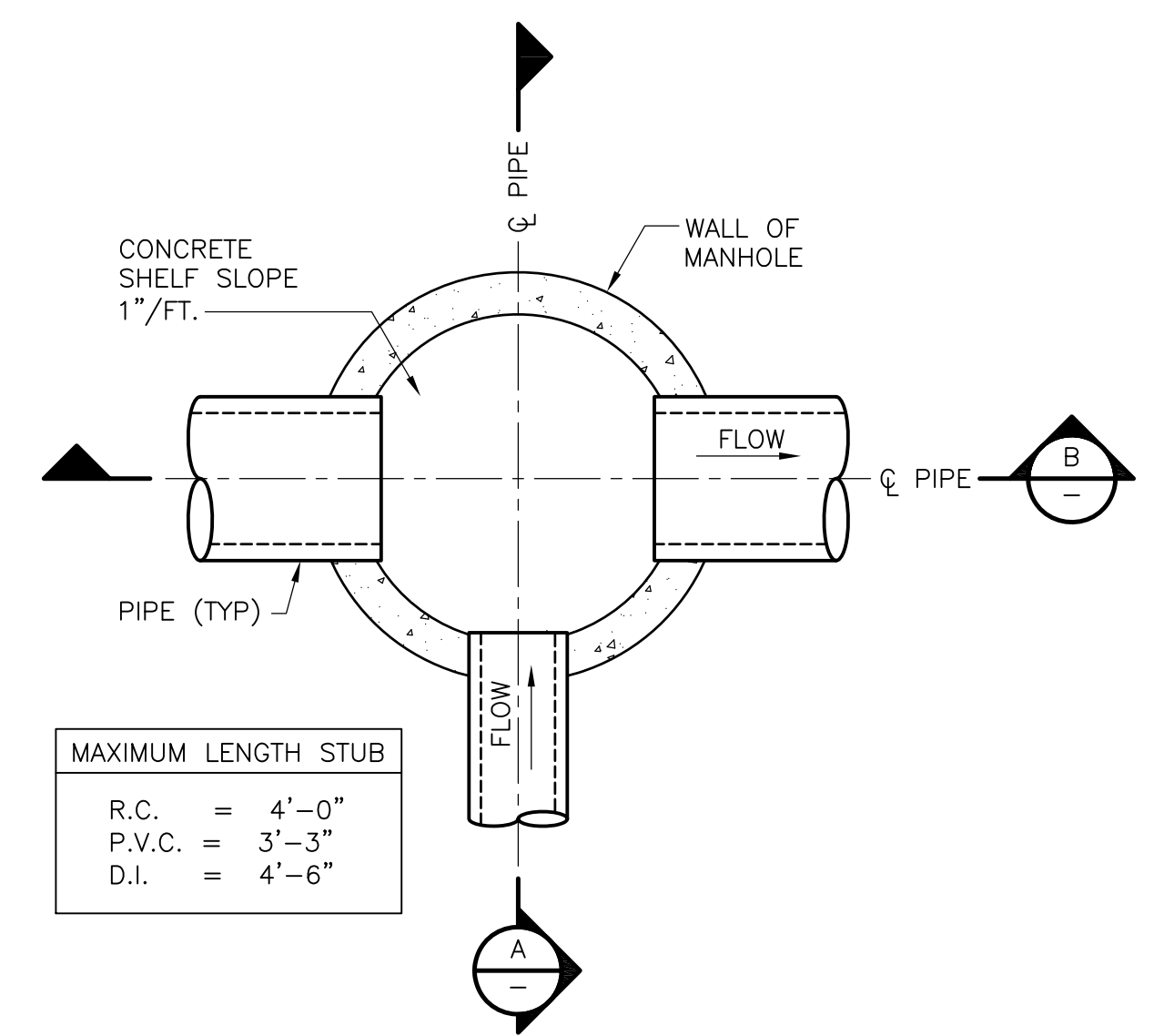


PIPE MATERIAL	MAXIMUM STUB LENGTH "A" (MAX.)
RC	4'-0"
PVC	3'-3"
DI	4'-6"

**KOR-N-SEAL BOOT**  
 PIPE CONNECTION DETAIL  
 NTS

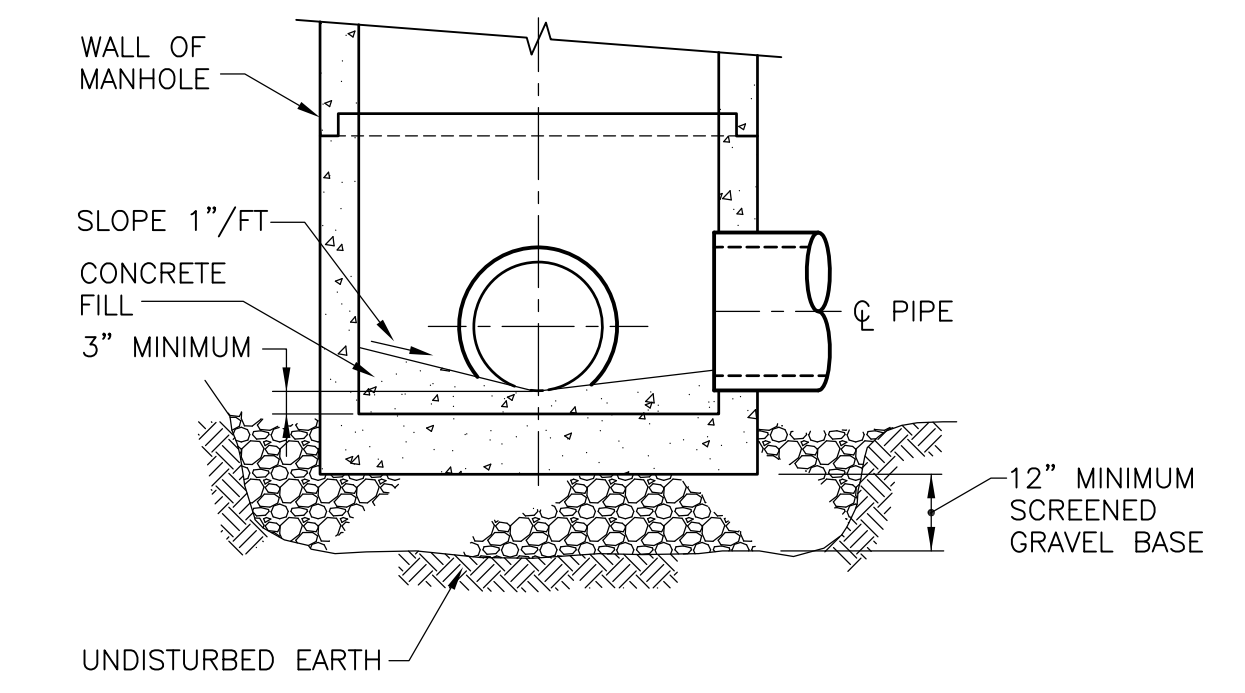


**SECTION B-B**

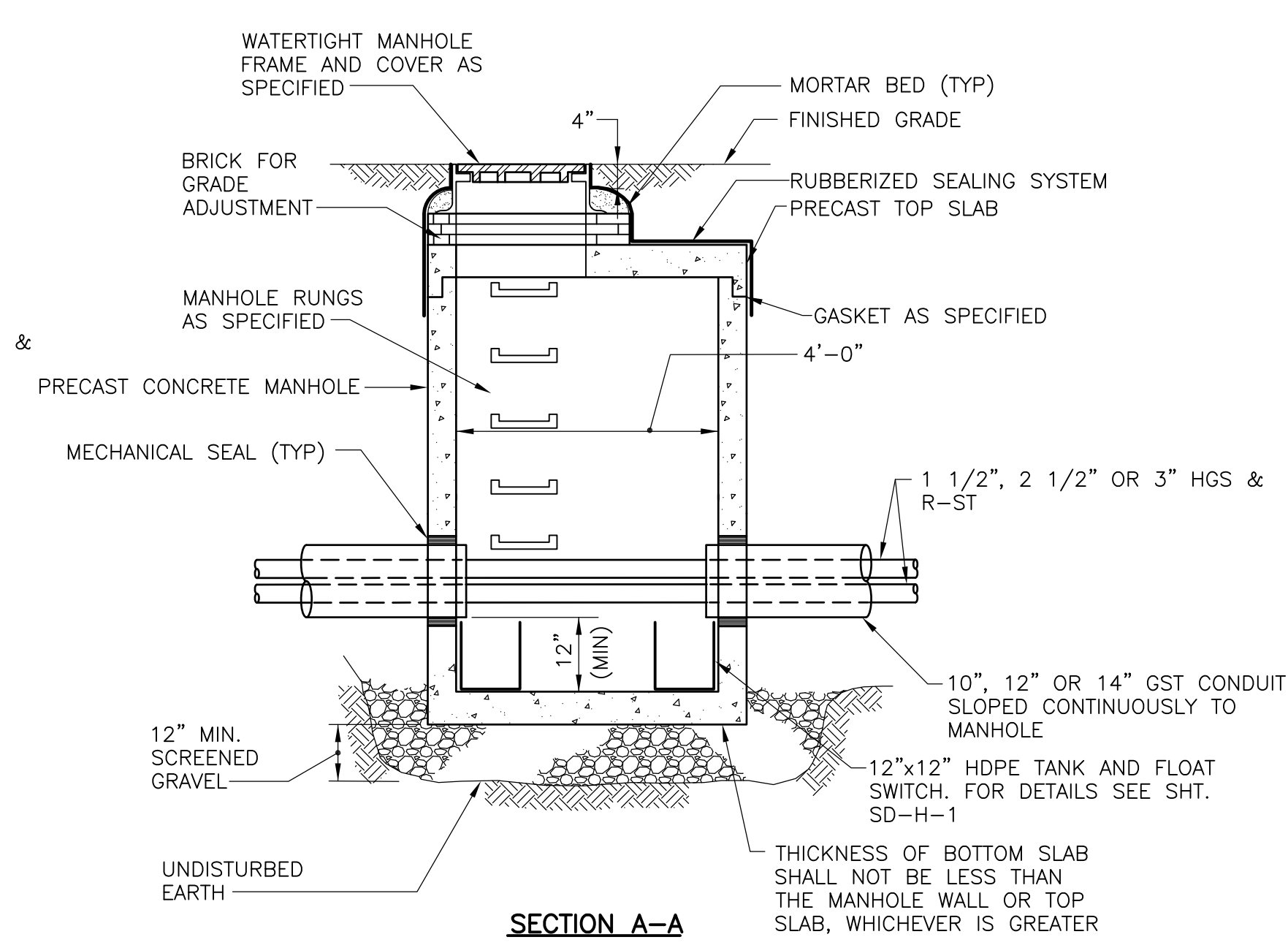
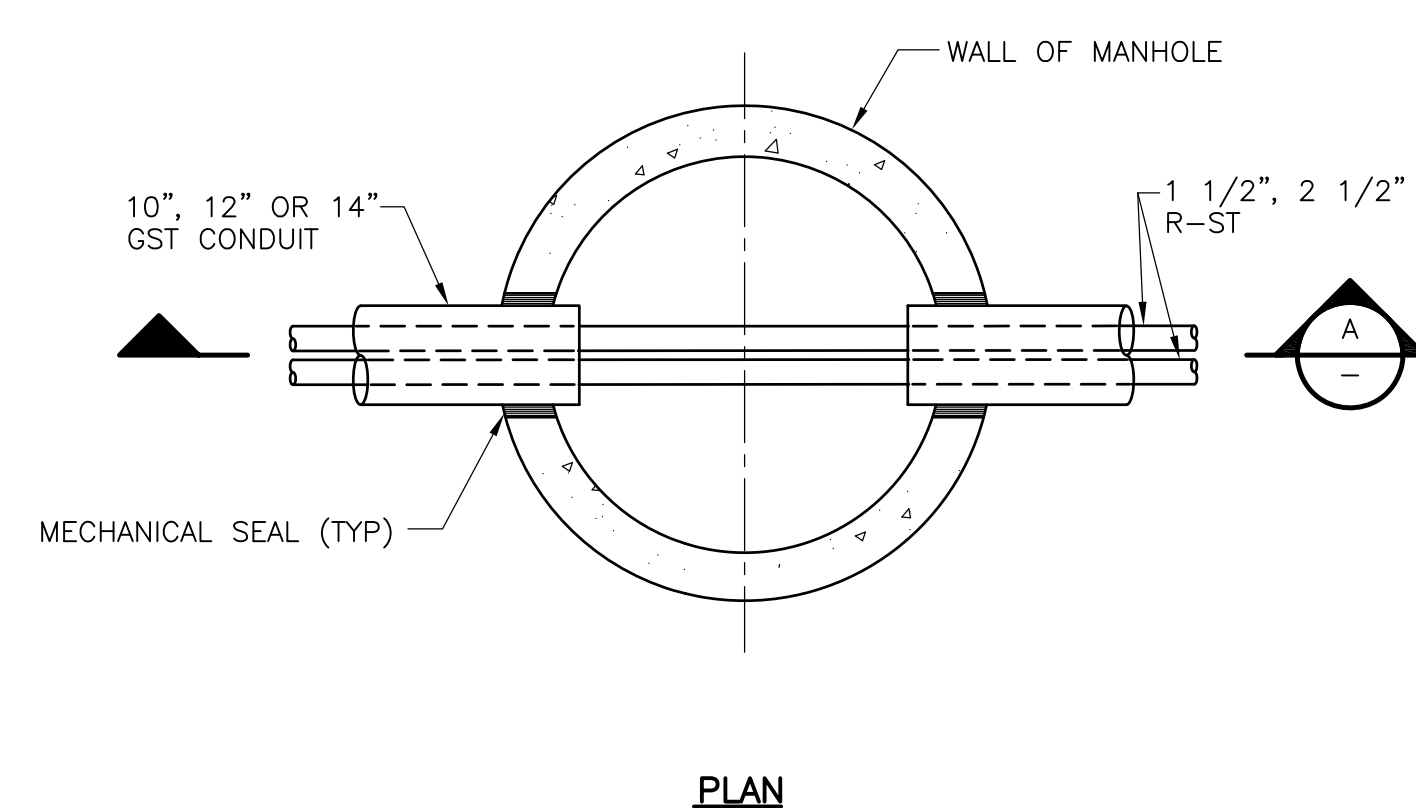


PIPE MATERIAL	MAXIMUM LENGTH STUB "A" (MAX.)
R.C.	4'-0"
P.V.C.	3'-3"
D.I.	4'-6"

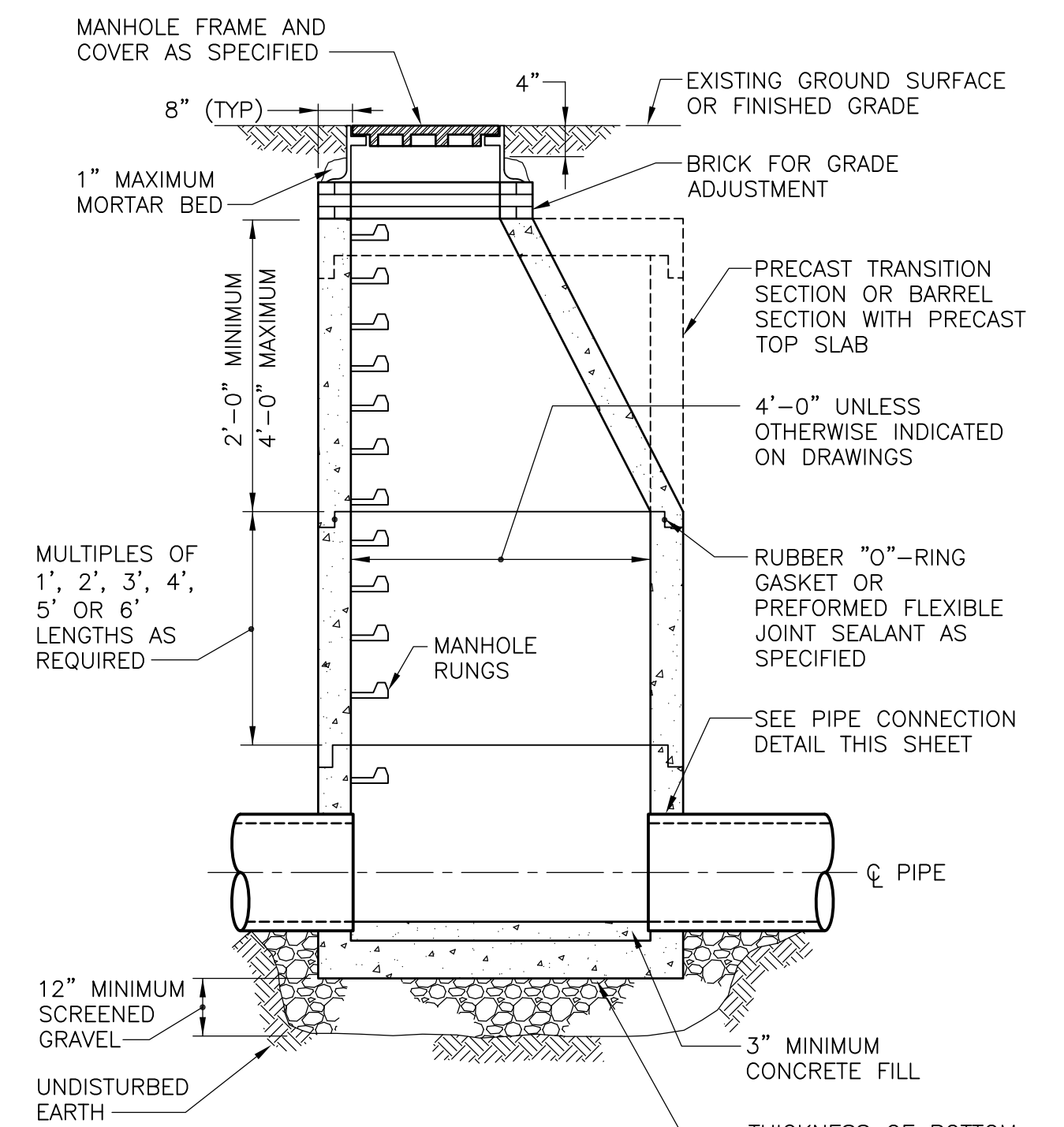
**PLAN**  
**DRAIN MANHOLE**  
 NTS



**SECTION A-A**  
**DRAIN MANHOLE**  
 NTS



**PRECAST HGS&R LEAK DETECTION MANHOLE**  
 NTS



**SECTION B-B**  
**DRAIN MANHOLE**  
 NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	CYS0T003
DESIGNED BY:	C. ARLOTTA
DRAWN BY:	P. FORNACIARI
SHEET CHK'D BY:	E. DEARDON
SCALE:	AS SHOWN
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

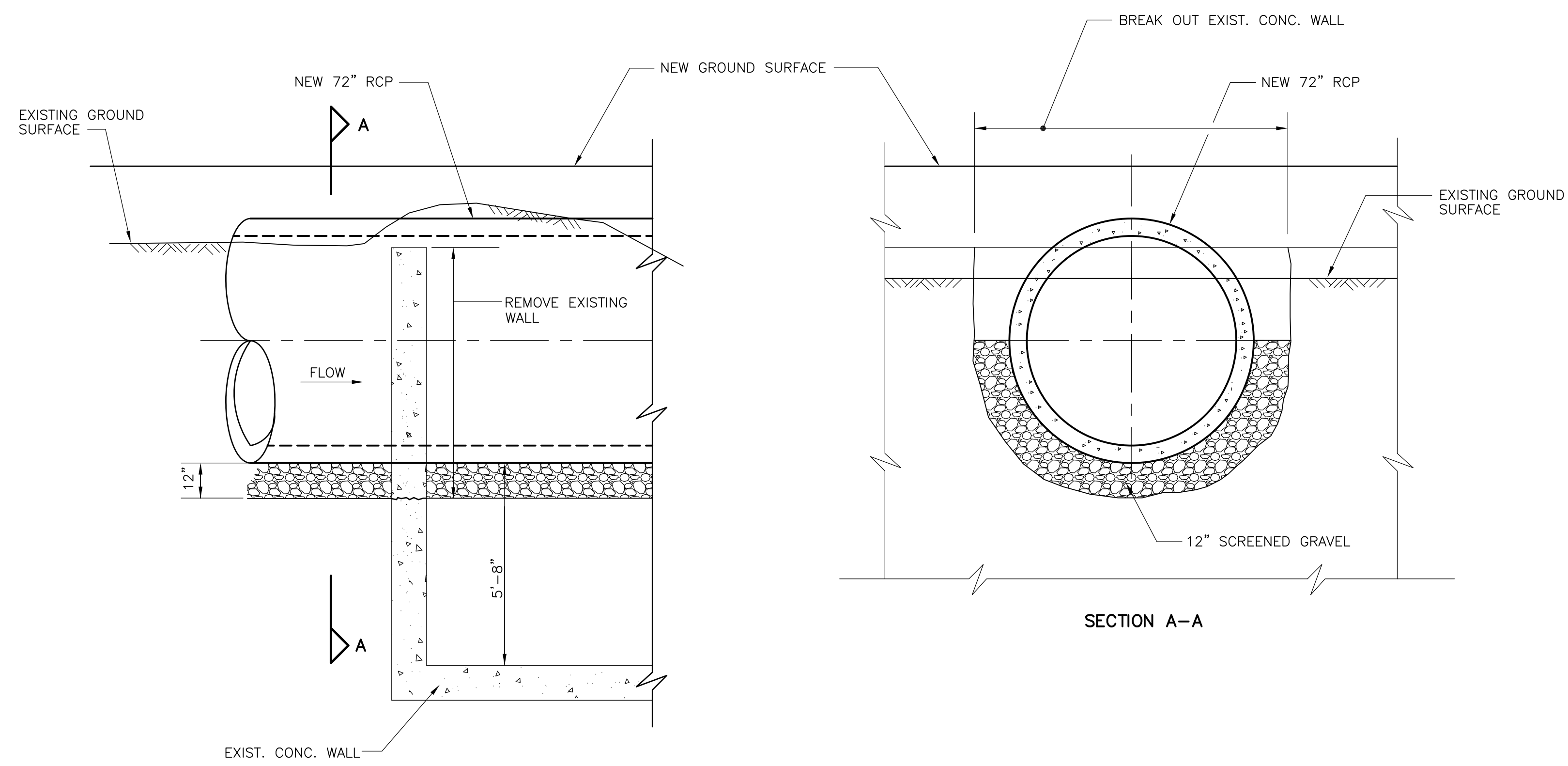


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**CIVIL DETAILS III**

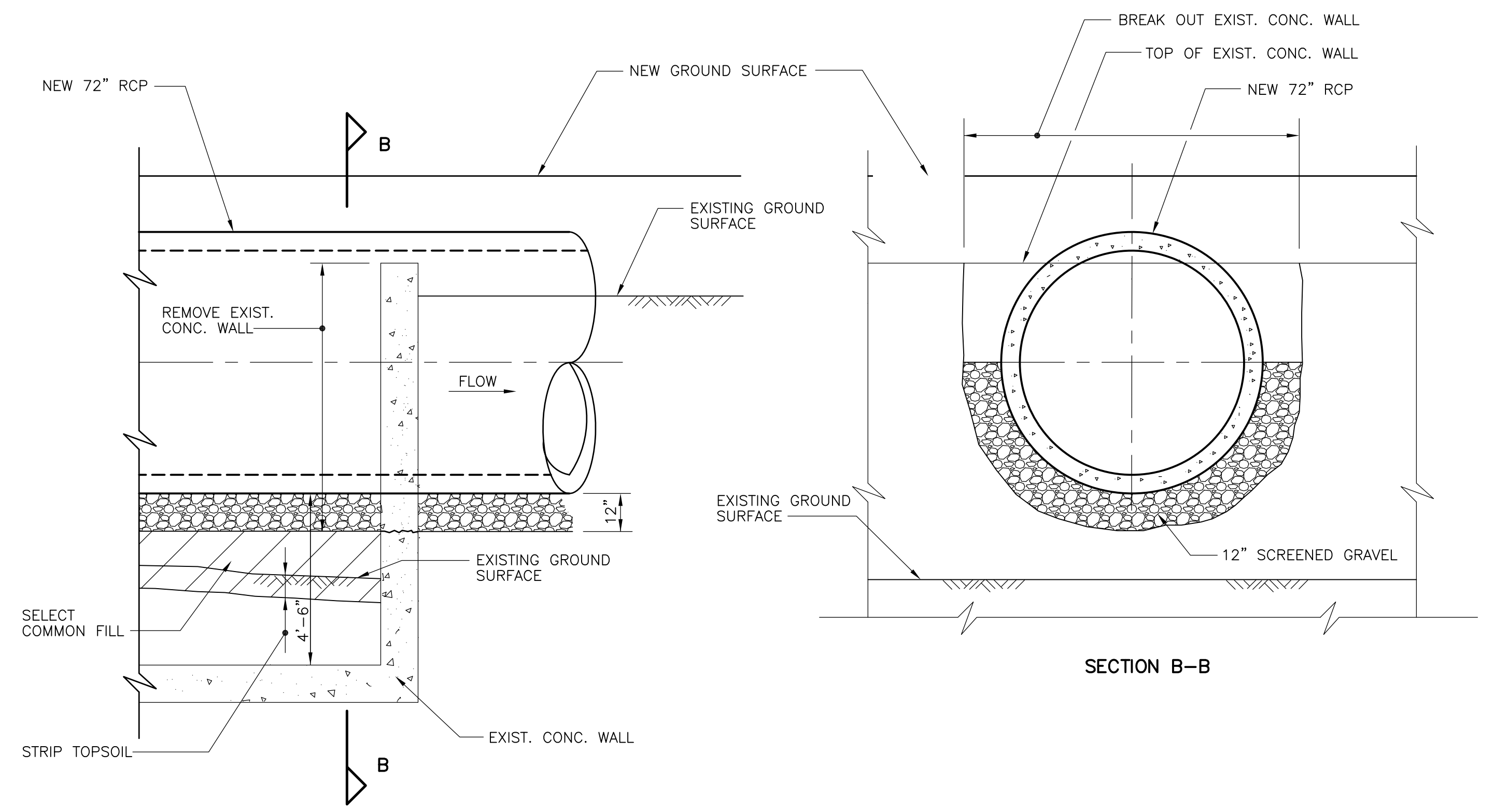
PROJECT NO.	1289\35370
Sht.	34 of 386
<b>C-26</b>	

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
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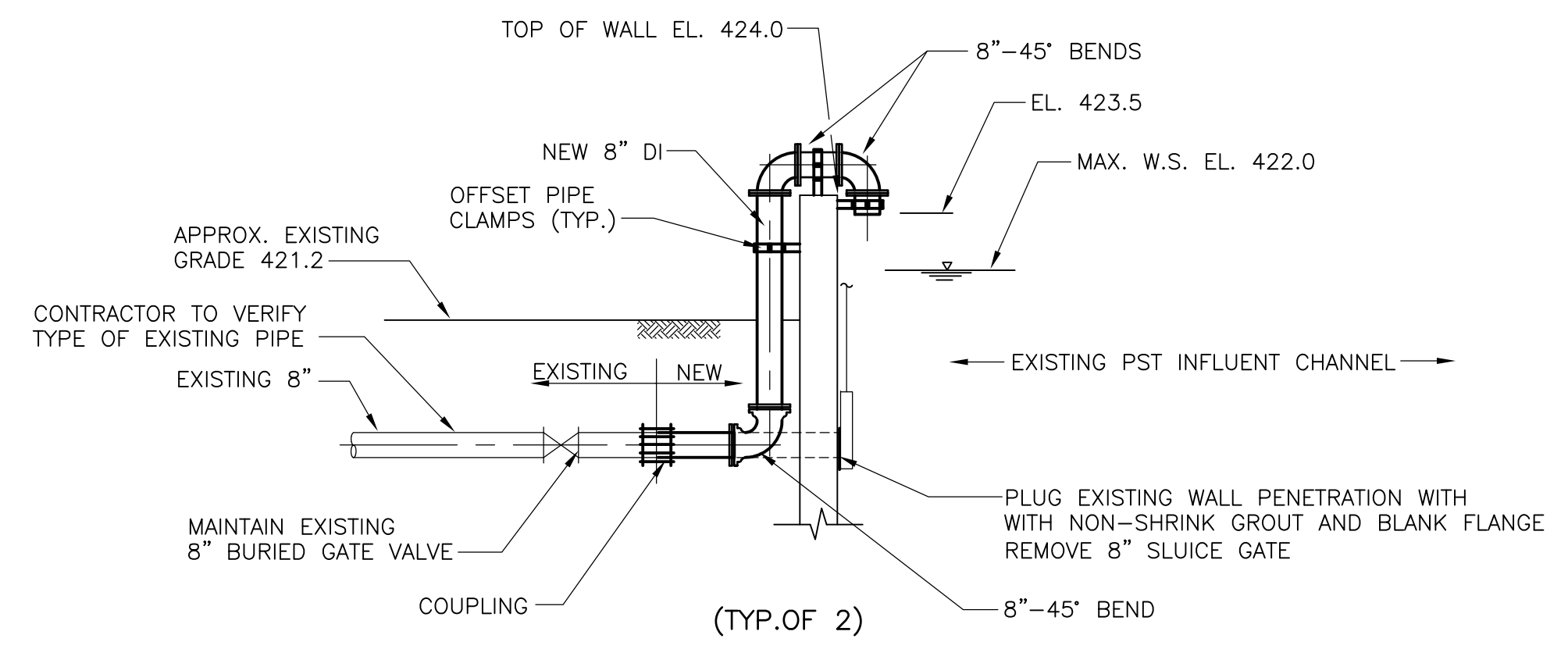
**EXISTING CONCRETE WALL PENETRATION DETAIL**

**STATION 3+92±**  
SCALE : 3/8" = 1'-0"



**EXISTING CONCRETE WALL PENETRATION DETAIL**

**STATION 13+46±**  
SCALE : 3/8" = 1'-0"



**DETAIL**  
1/4" = 1'-0"

**SCRUBBER WATER WASTE GOOSENECKS**

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

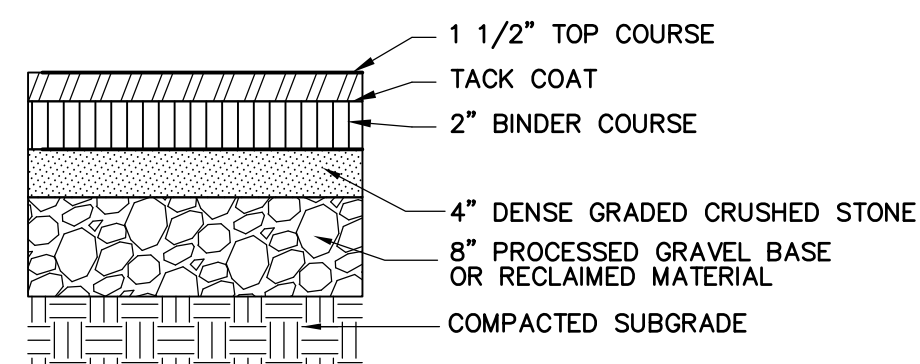
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 DESIGNED BY: C. ARLOTTA  
 DRAWN BY: P. FORNACIARI  
 SHEET CHK'D BY: E. DEARDON  
 SCALE: AS SHOWN  
 APPROVED BY: J. MADDEN  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

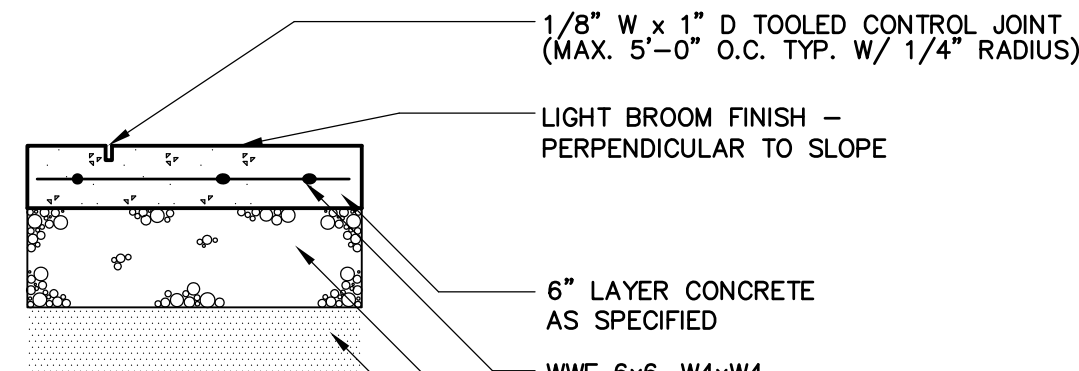
**CIVIL DETAILS IV**  
 PROJECT NO. 1289\35370  
 Sht. 35 of 386  
**C-27**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:18:21 PM  
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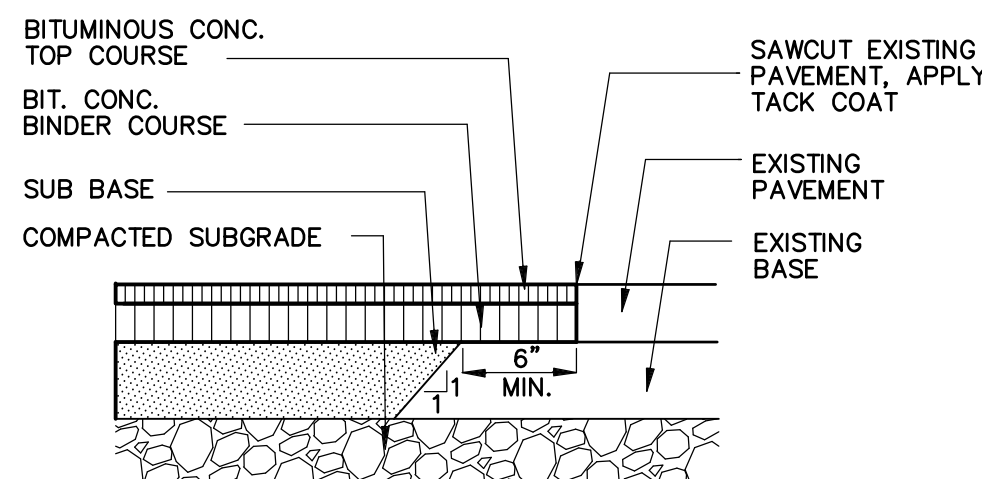


**BIT. CONC. PAVEMENT  
 DETAIL 1**  
 NOT TO SCALE

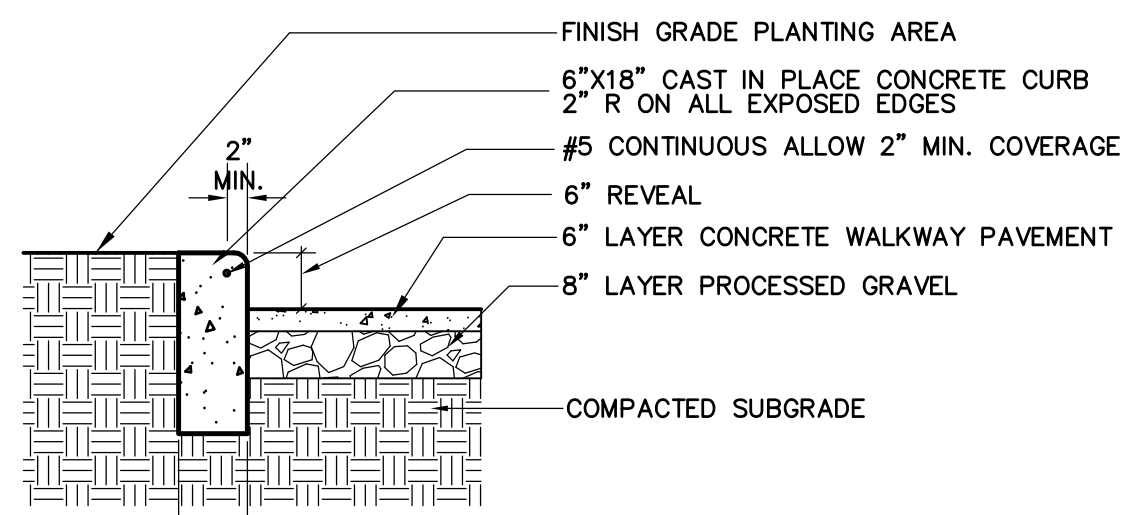
1.) BASE COURSE SHALL EXTEND 3" MIN. BEYOND EDGE OF PAVEMENT



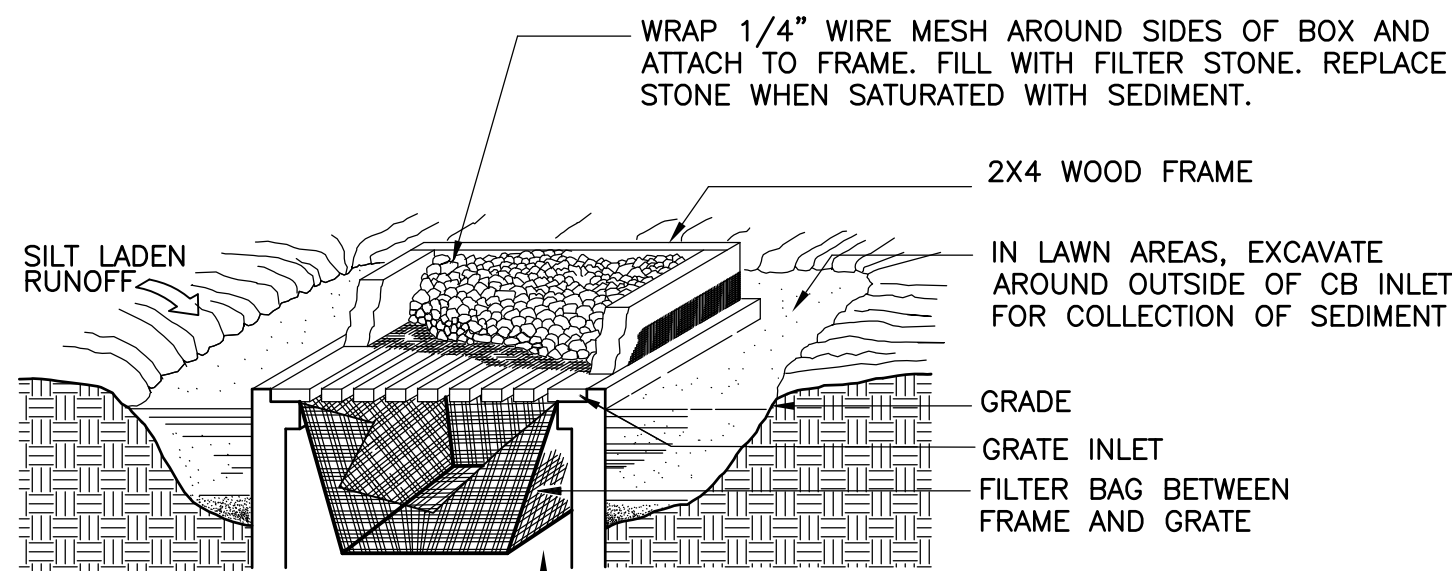
**CONCRETE PAVEMENT  
 DETAIL 2**  
 NOT TO SCALE



**PAVEMENT MATCH  
 DETAIL 3**  
 NOT TO SCALE

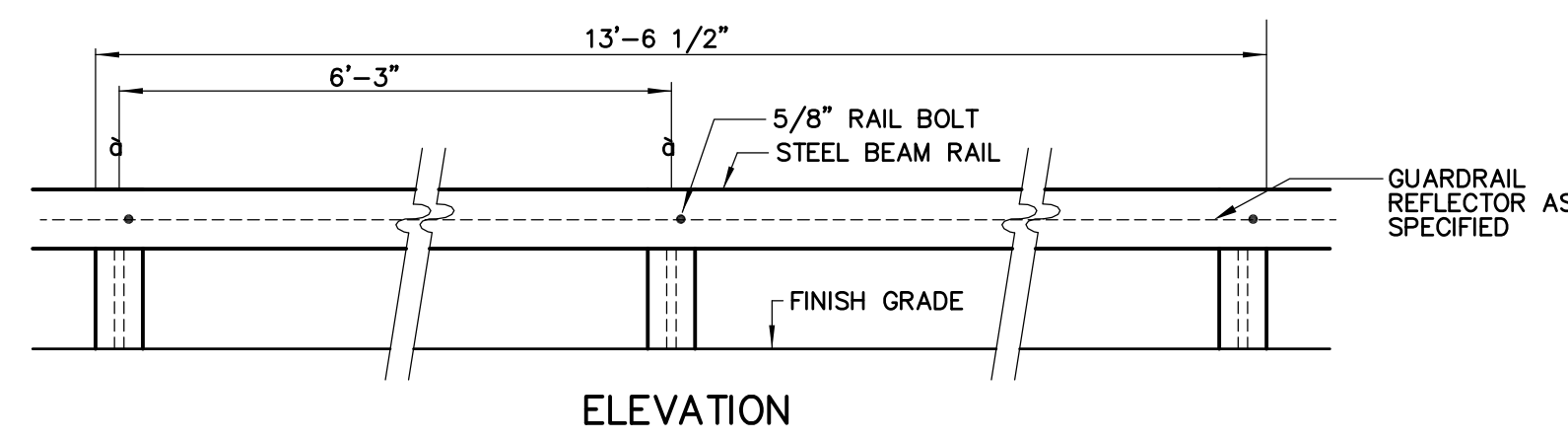


**CAST IN PLACE CONCRETE CURB  
 DETAIL 4**  
 NOT TO SCALE

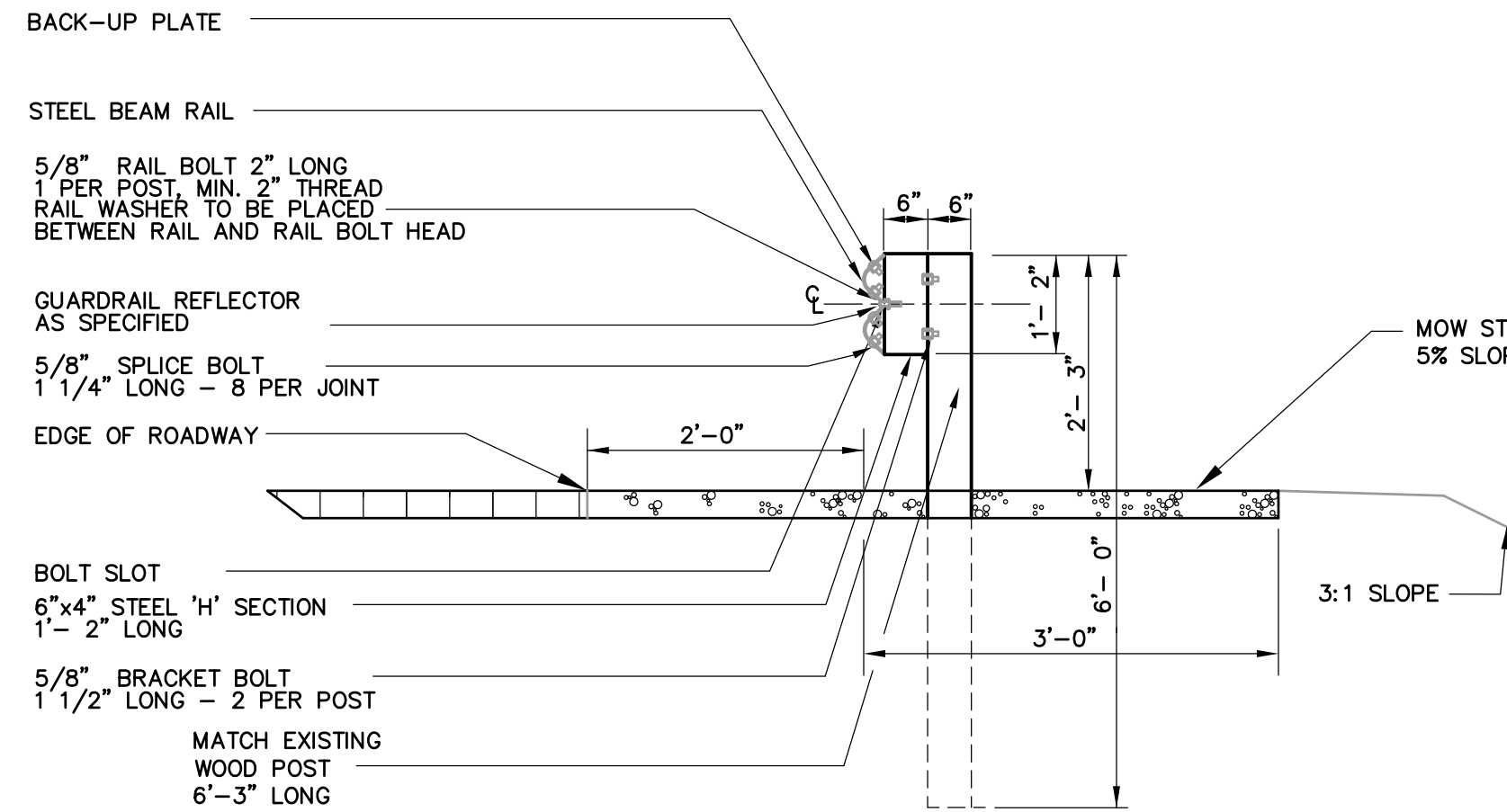


**CATCH BASIN FILTER  
 DETAIL 5**  
 NOT TO SCALE

NOTE:  
 1) IN LAWN AREAS, USE MESH, WOOD FRAME BOX, AND STONE FOR INLET PROTECTION (NO BAG)  
 2) IN PAVED AREAS, USE FILTER BAG FOR INLET PROTECTION (NO MESH, BOX, OR STONE)

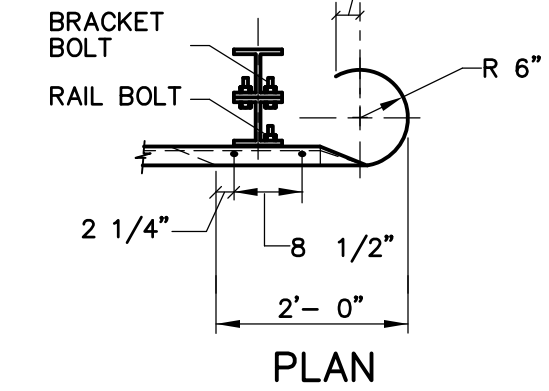


**ELEVATION**

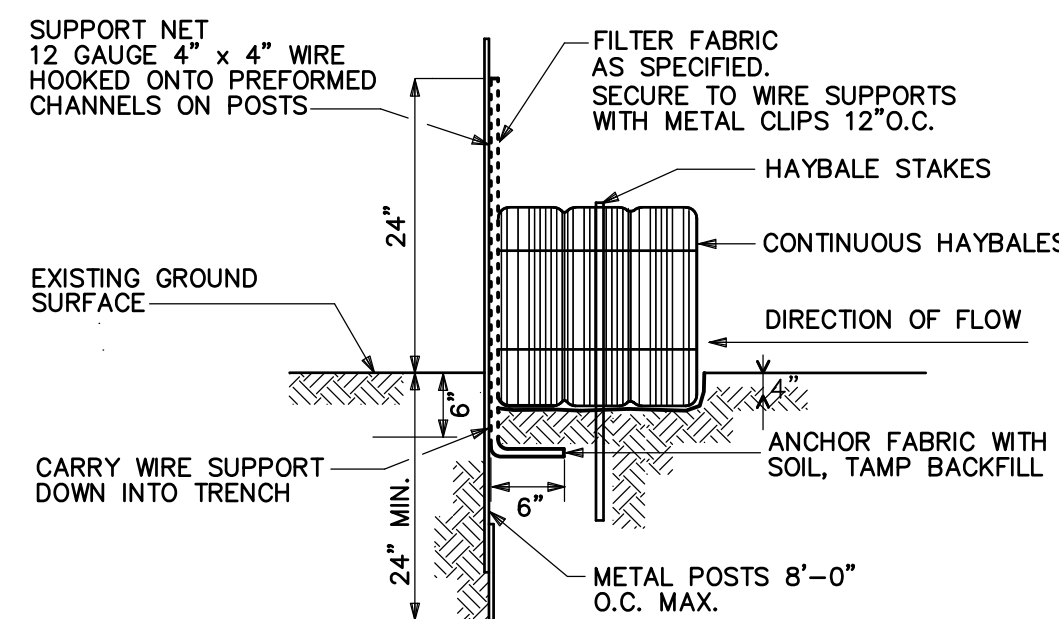
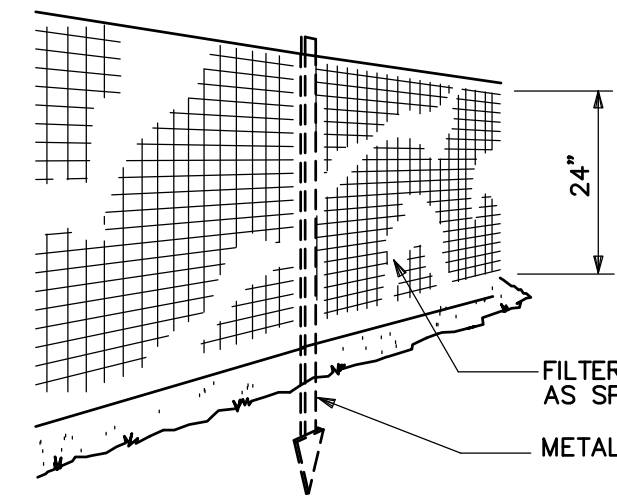
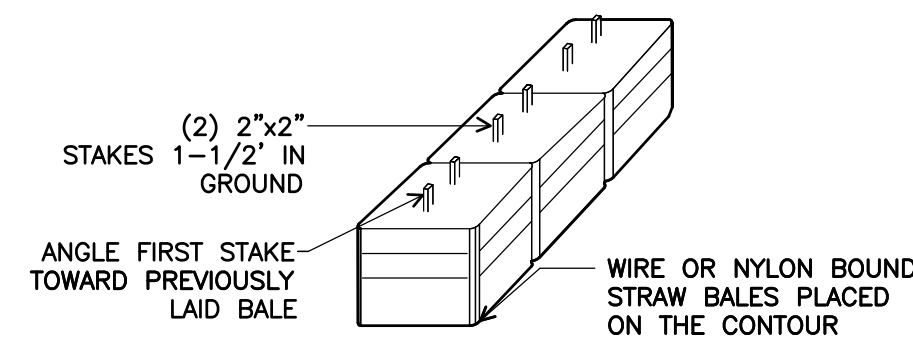


**SECTION**

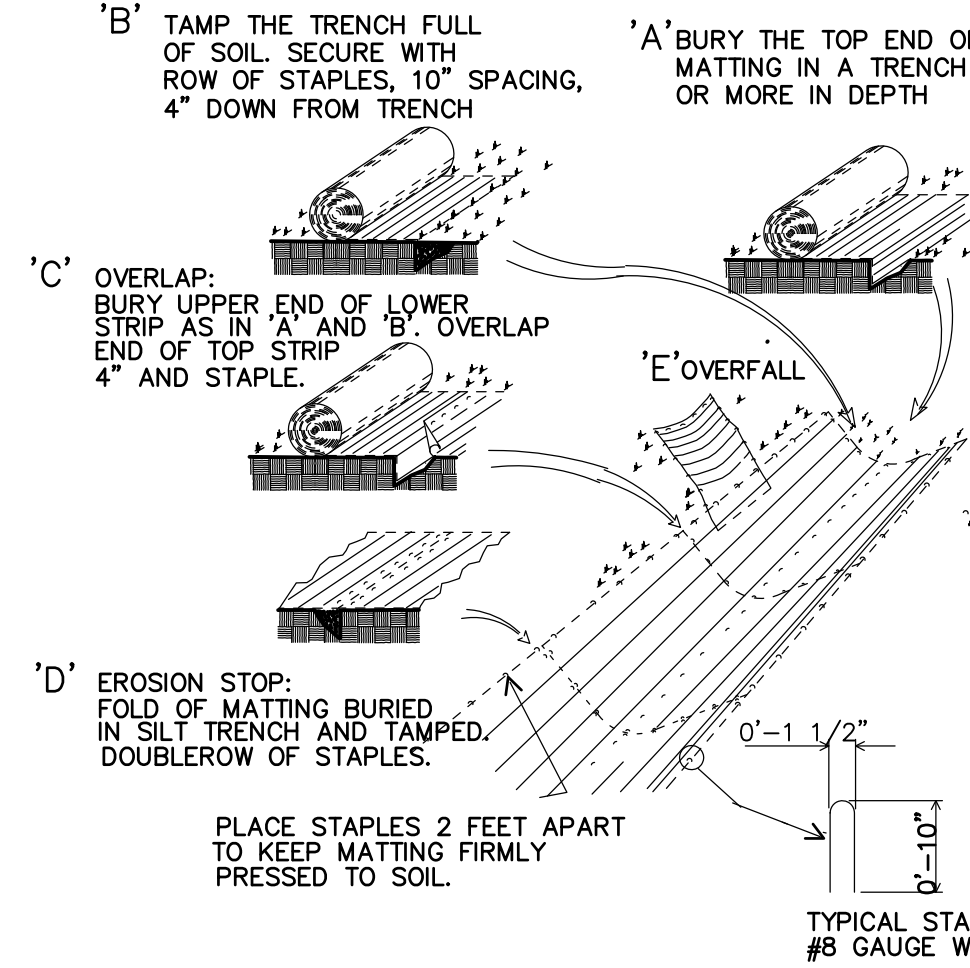
**STEEL BEAM GUARDRAIL  
 DETAIL 6**  
 NOT TO SCALE



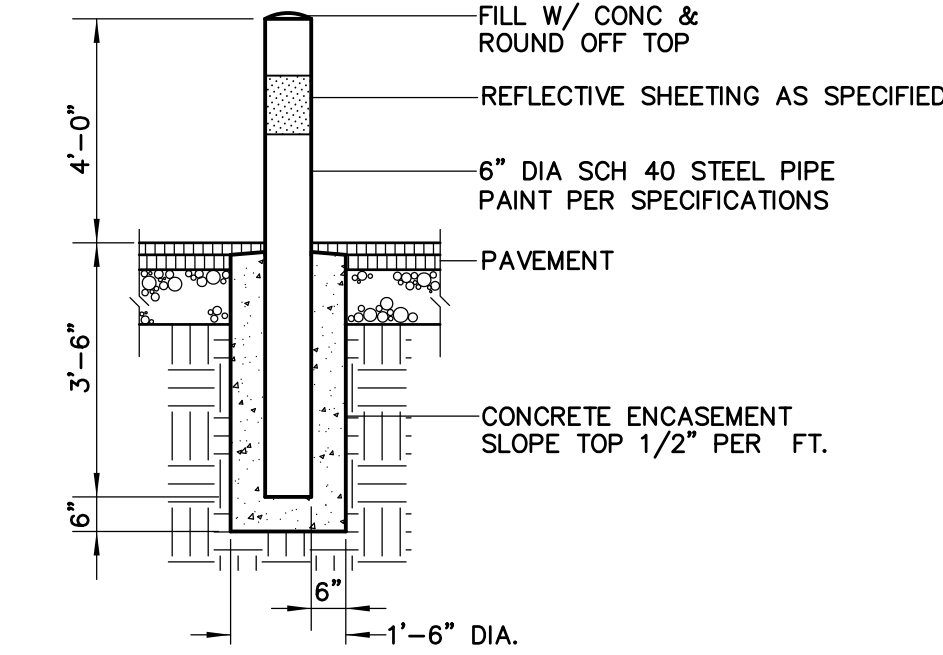
**PLAN**



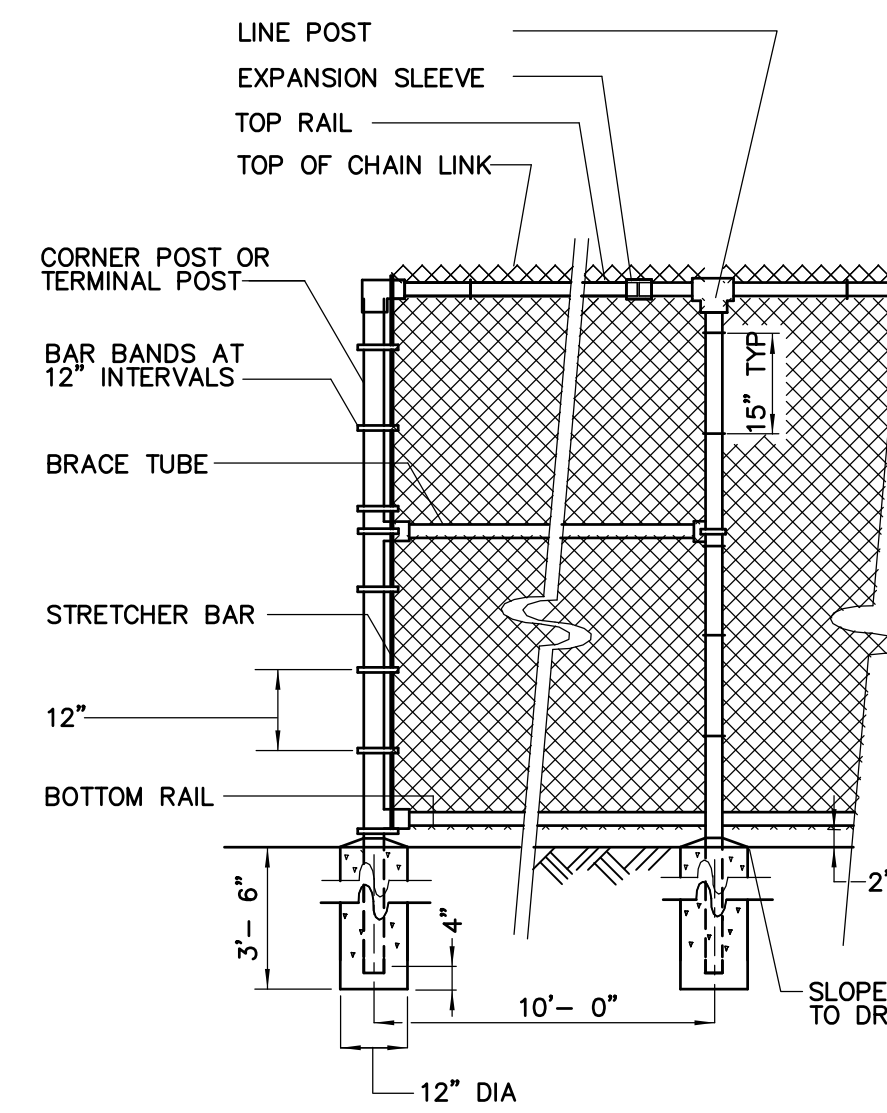
**SEDIMENT FENCE WITH HAYBALES  
 DETAIL 7**  
 NOT TO SCALE



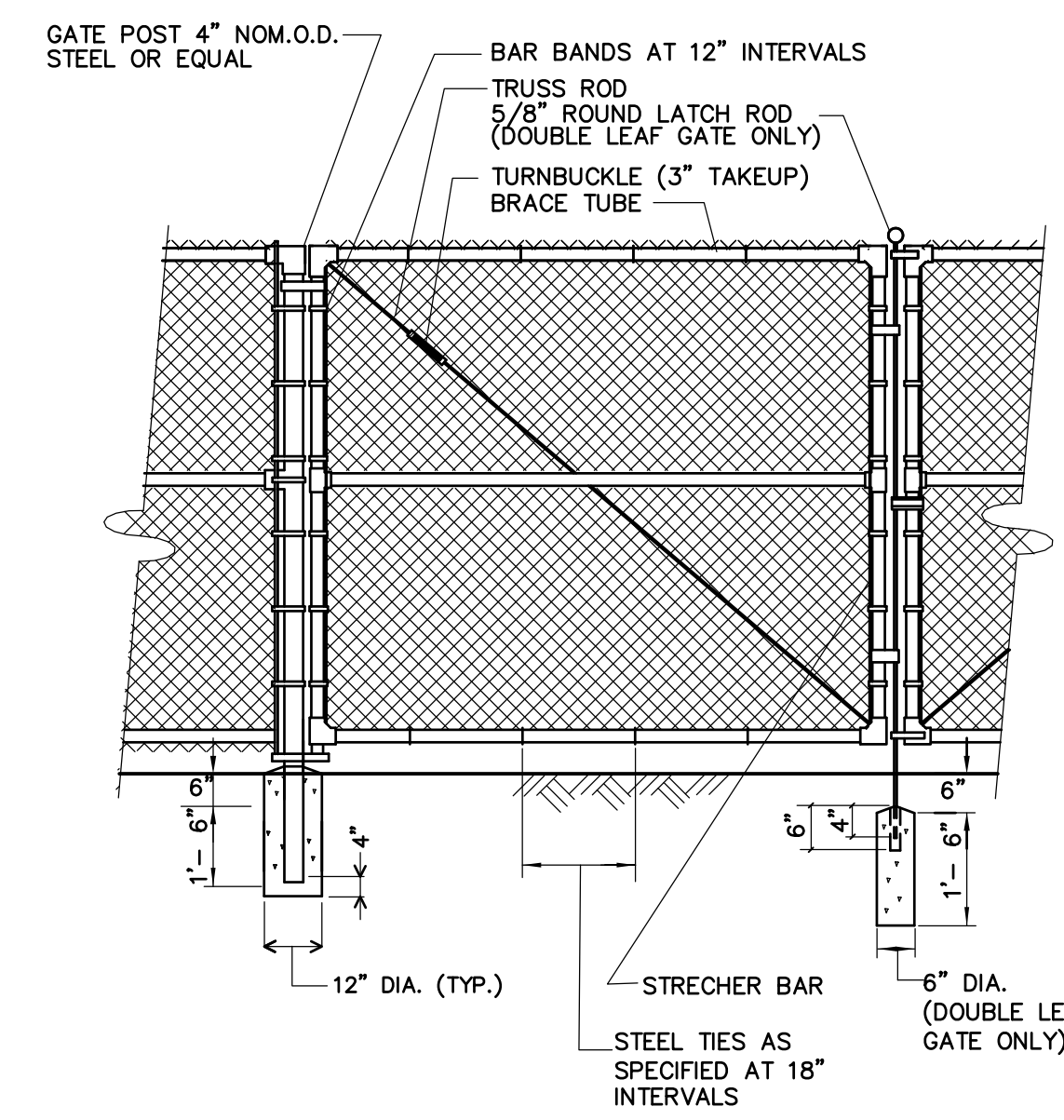
**EROSION CONTROL BLANKET  
 DETAIL 8**  
 NOT TO SCALE



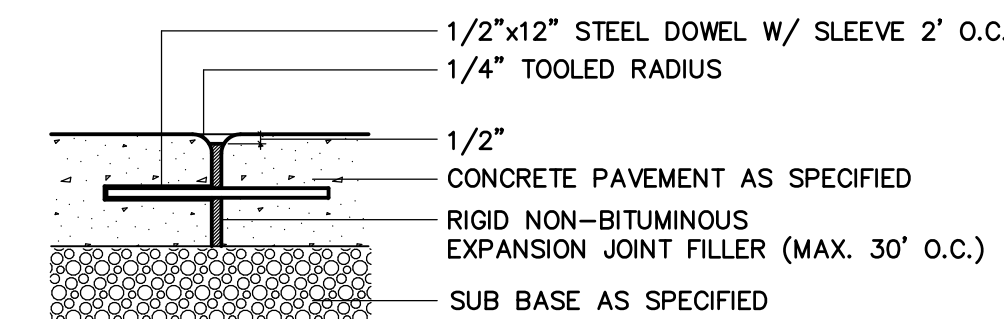
**STEEL BOLLARD  
 DETAIL 9**  
 NOT TO SCALE



**CHAIN LINK FENCE  
 DETAIL 10**  
 NOT TO SCALE

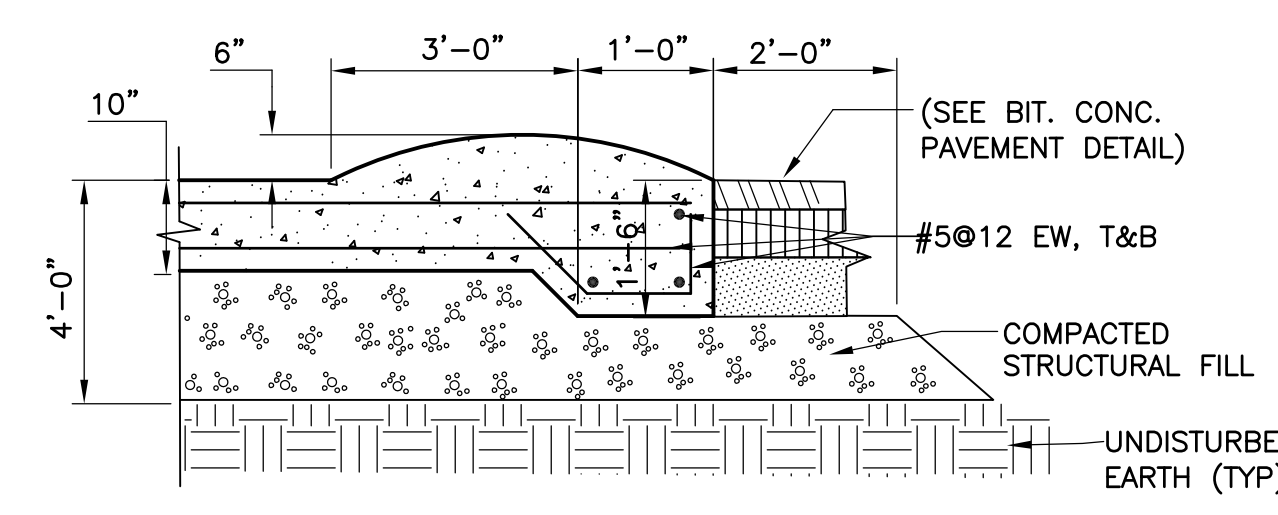


**CHAIN LINK FENCE- DOUBLE LEAF SWING GATE  
 DETAIL 11**  
 NOT TO SCALE

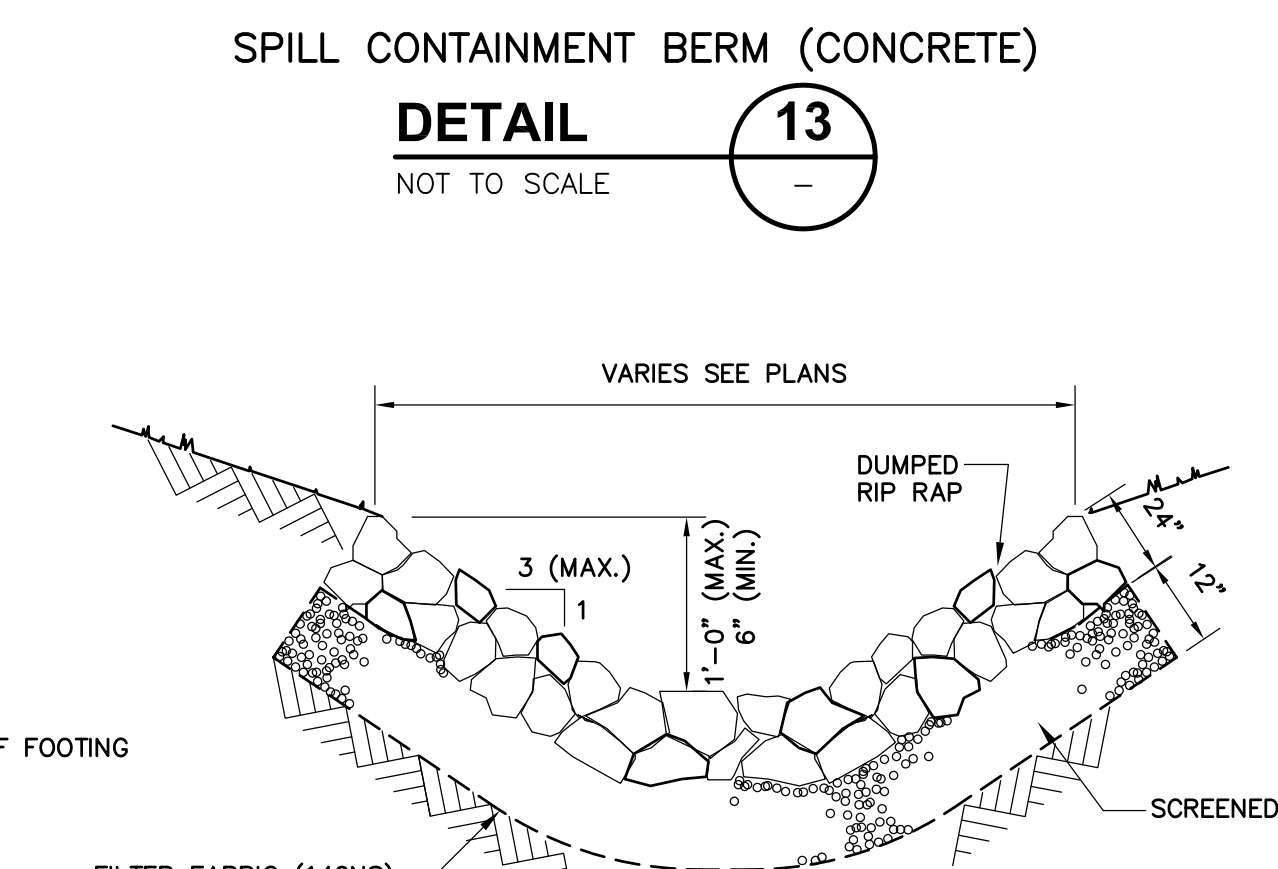


**EXPANSION JOINT  
 DETAIL 12**  
 NOT TO SCALE

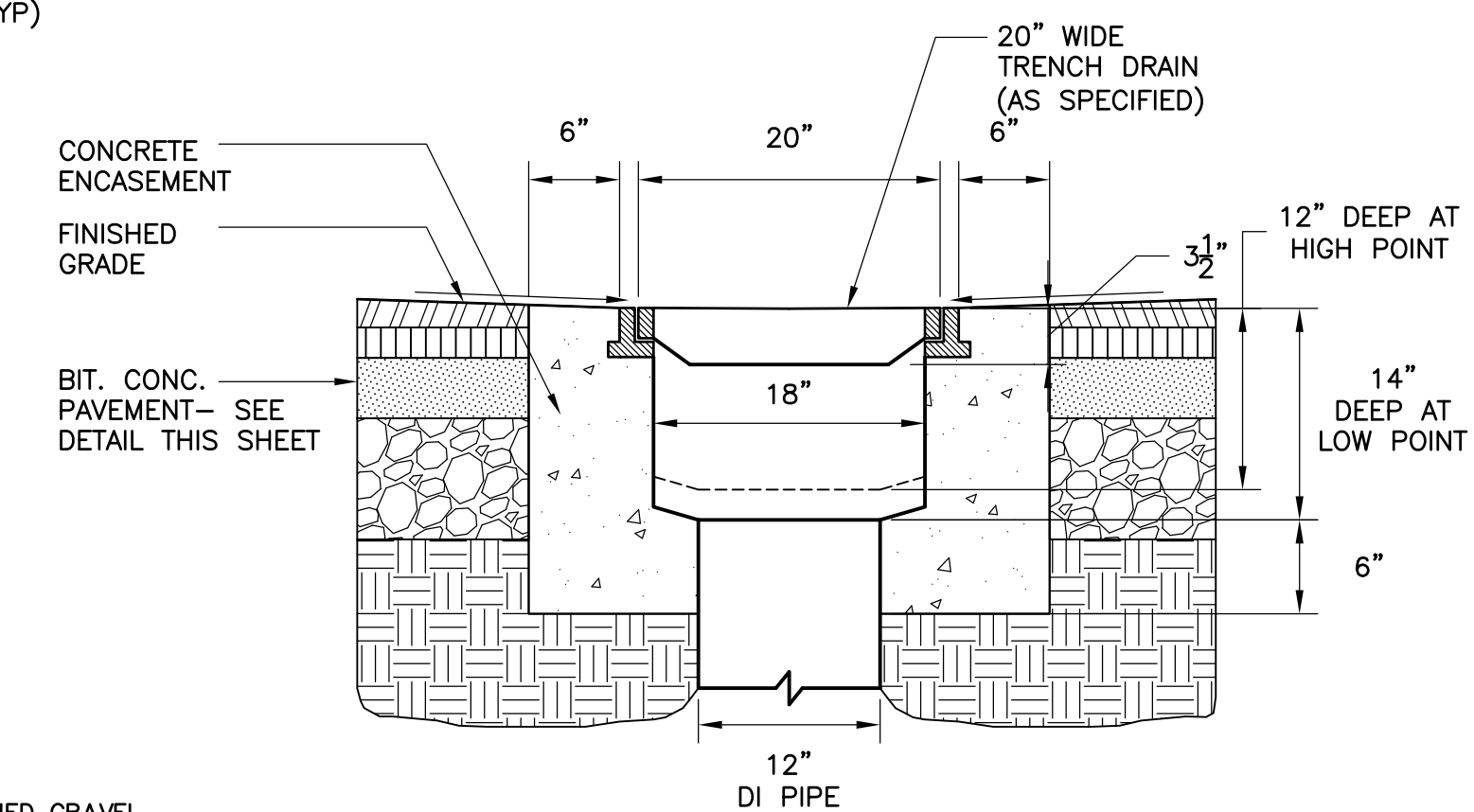
NOTE:  
 1. CONC. PAVEMENT SLABS SHALL HAVE 3 STEEL RODS MIN.  
 2. EXPANSION JOINTS SHALL BE LOCATED 30 FT. MIN. O.C. AND AT THE END OF EACH DAYS POUR.  
 3. LOCATE DOWELS MIN. 3-FT. O.C. WHERE CONC. IS PLACED UNDER DOORWAY THRESHOLDS



**SPILL CONTAINMENT BERM (CONCRETE)  
 DETAIL 13**  
 NOT TO SCALE



**RIP RAP CHANNEL  
 DETAIL 14**  
 NOT TO SCALE



**TRENCH DRAIN  
 DETAIL 16**  
 NOT TO SCALE

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	CSTD1000
DESIGNED BY:	G. HOWARD
DRAWN BY:	N. SWAIN/H. DAVIS
SHEET CHK'D BY:	J. OLCOTT
SCALE:	AS NOTED
APPROVED BY:	G. HOWARD
DATE:	MAY 2006

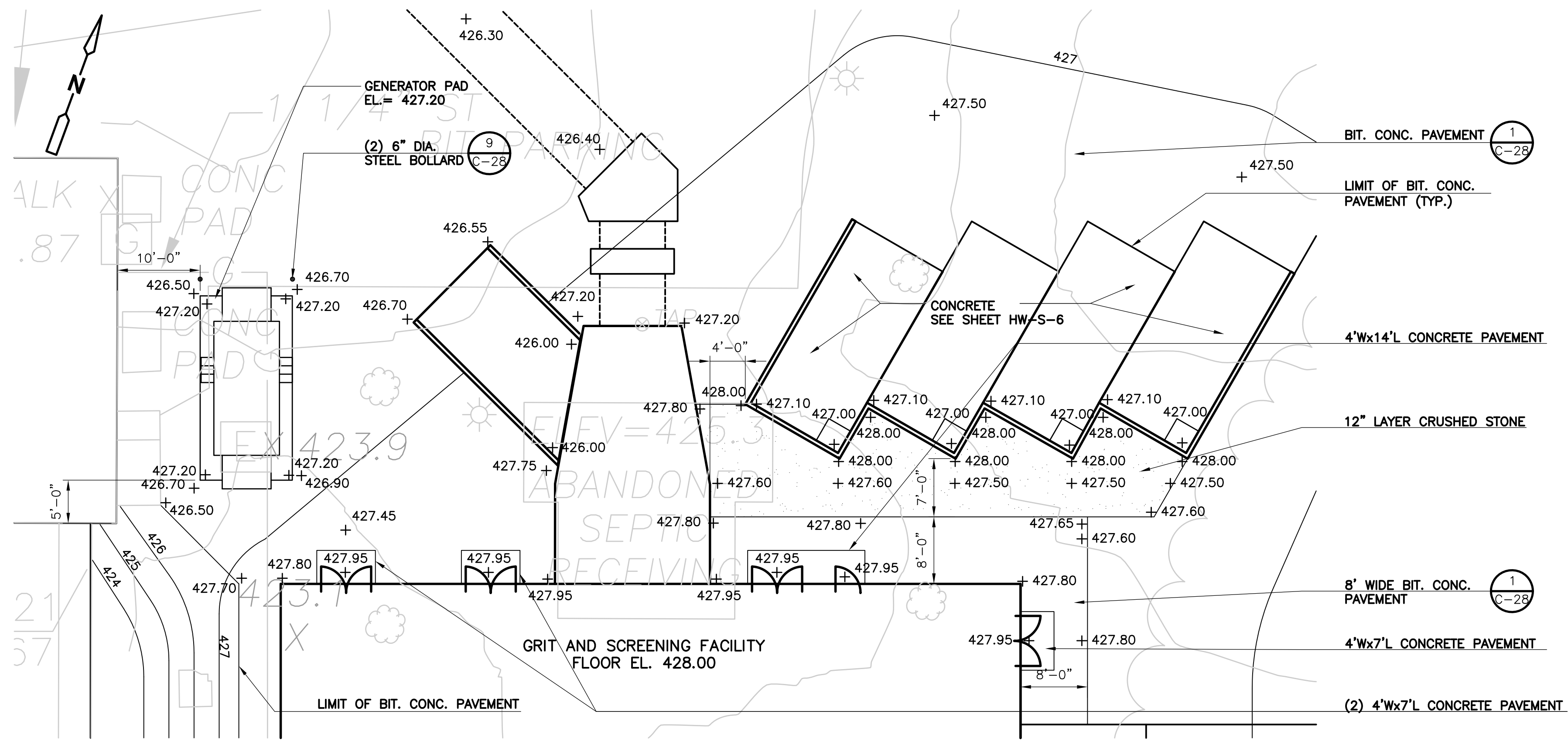
**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

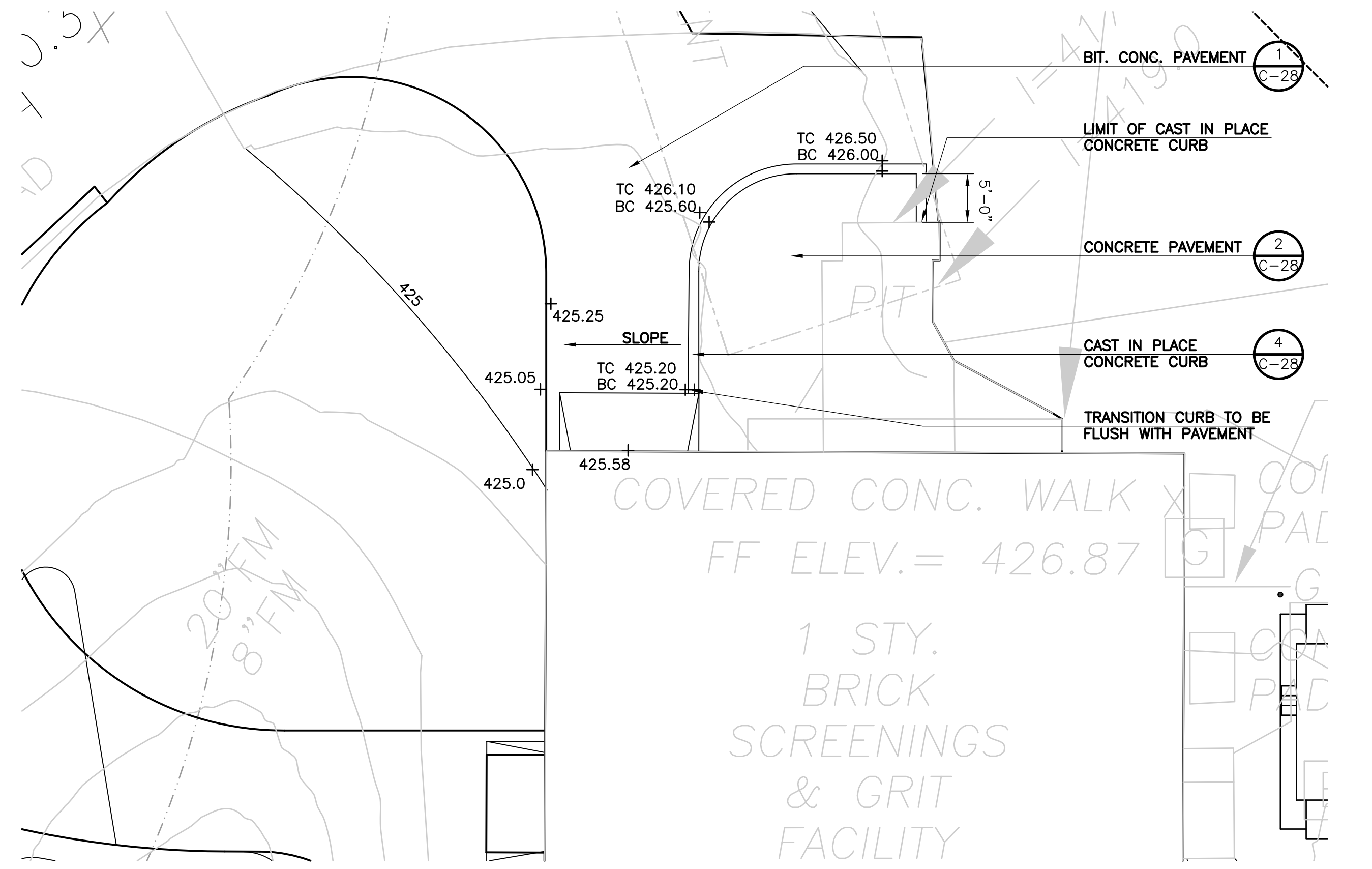
**SITE DETAILS I**

PROJECT NO.  
 1289\35370  
 Sht. 36 of 386  
**C-28**

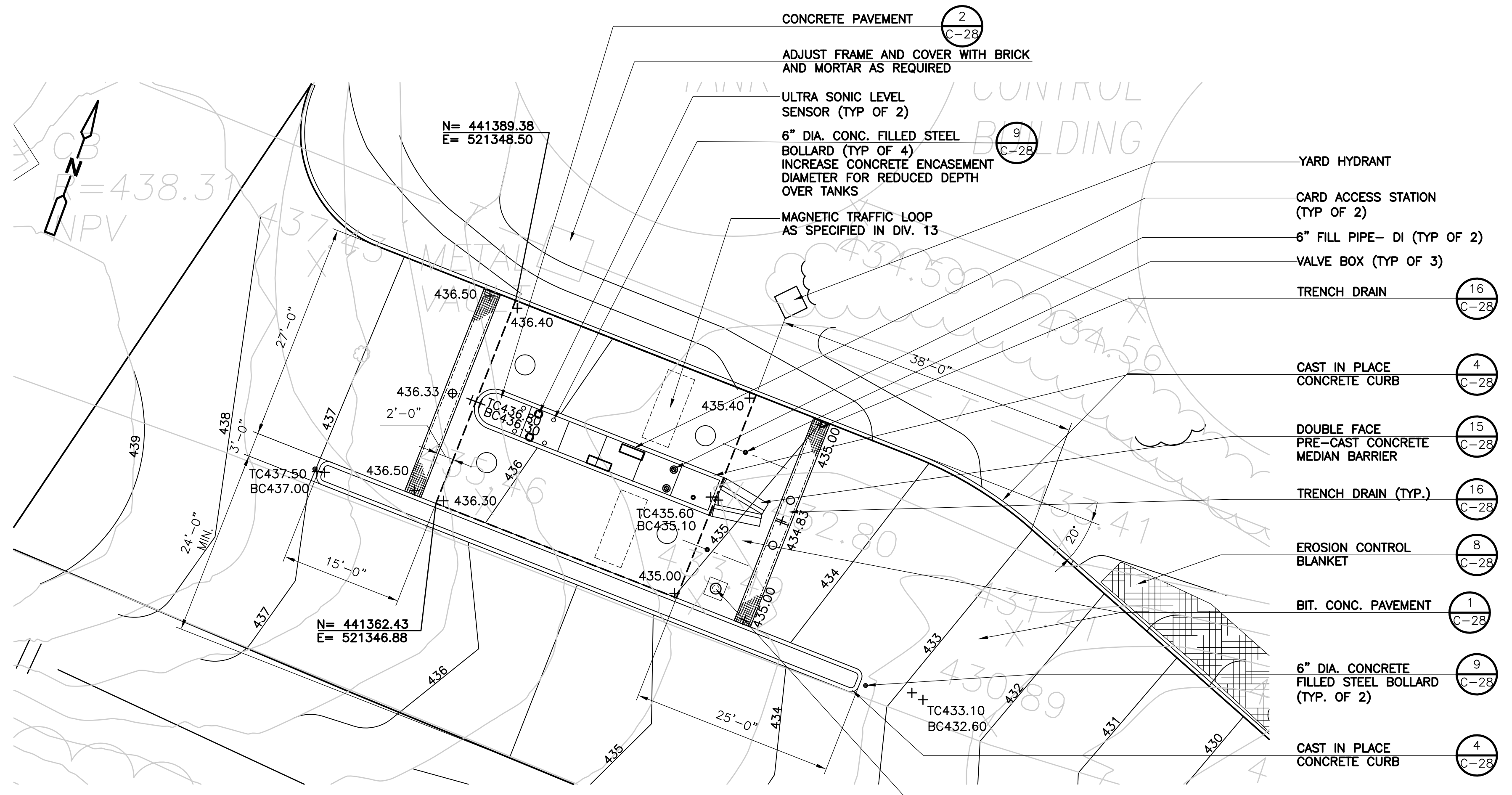
[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
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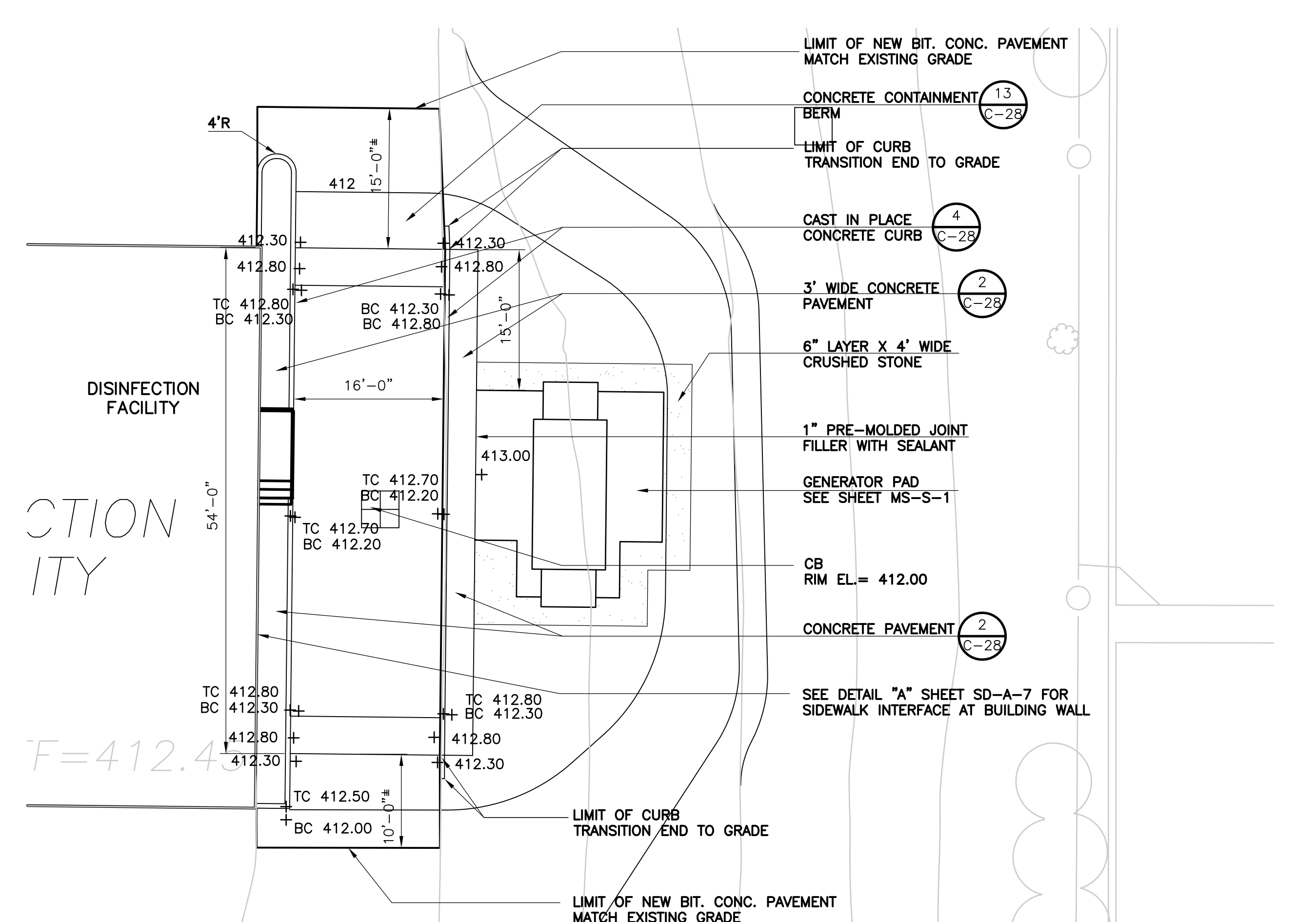
ENLARGED PLAN  
SCALE 1"=10'



ENLARGED PLAN  
SCALE 1"=10'



ENLARGED PLAN  
SCALE 1"=10'



ENLARGED PLAN  
SCALE 1"=10'

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	CSTD001
DESIGNED BY:	G. HOWARD
DRAWN BY:	H. DAVIS
SHEET CHK'D BY:	J. OLCOTT
SCALE:	AS NOTED
APPROVED BY:	G. HOWARD
DATE:	MAY 2006

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**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

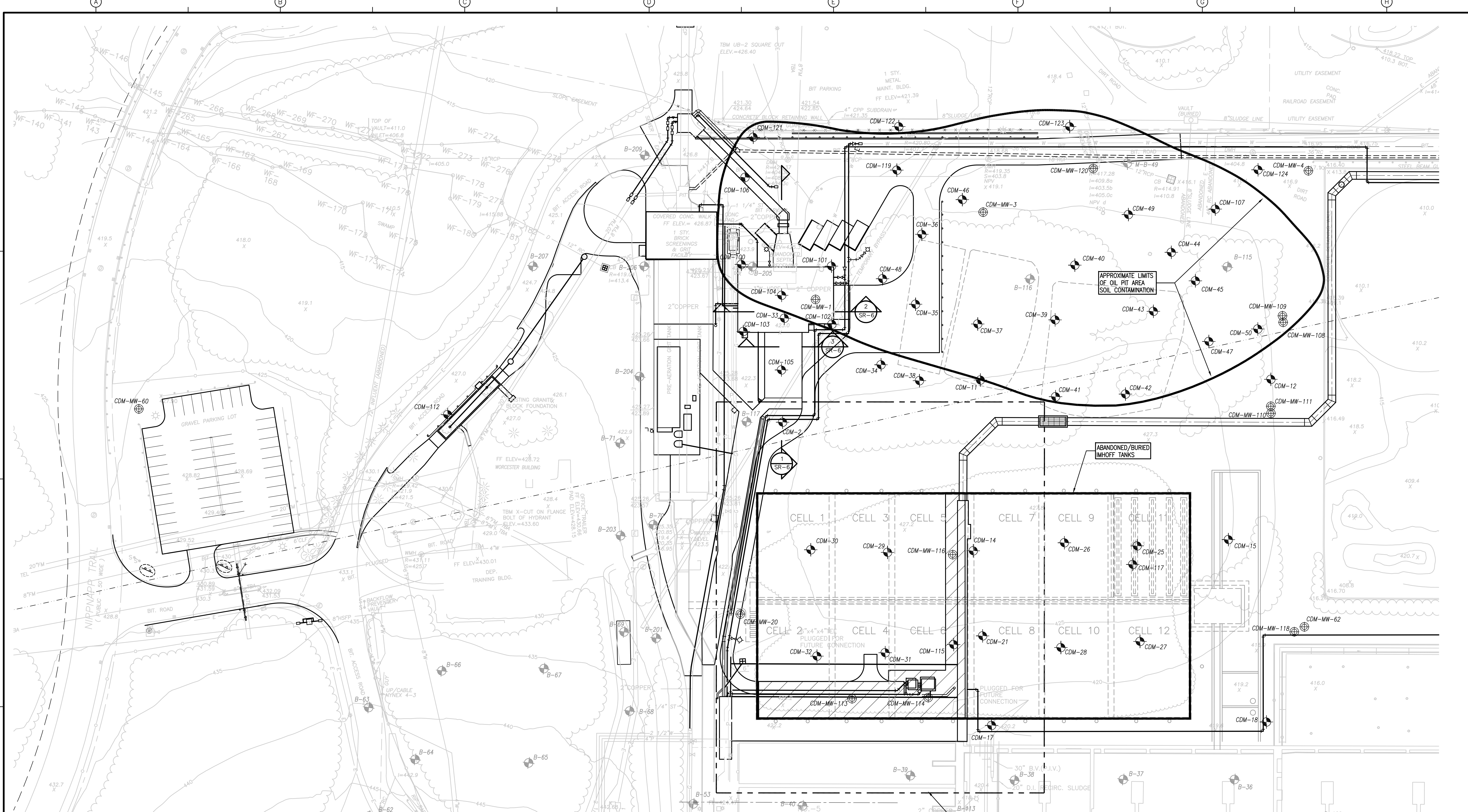
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**ENLARGED SITE PLANS  
 AND SITE DETAILS II**

PROJECT NO.  
 1289\35370  
 Sht. 37 of 386  
**C-29**

ACCESSION NO. 1289-6547

UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:18:31 PM  
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**NOTES:**

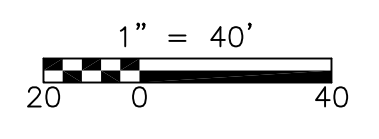
- THE UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT'S WASTEWATER TREATMENT PLANT SITE IS LISTED UNDER THE MASSACHUSETTS CONTINGENCY PLAN (MCP) WITH RELEASE TRACKING NUMBER (RTN) 2-14408 AS A RESULT OF SOIL AND GROUNDWATER CONTAMINATION, INCLUDING POLYCHLORINATED BIPHENYLS (PCBs), ABOVE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (MADEP) REPORTABLE CONCENTRATIONS (RCS) AND UPPER CONCENTRATION LIMITS (UCL) AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA) TOXIC SUBSTANCES CONTROL ACT (TSCA) CRITERIA.
- A TIER 1A CLASSIFICATION SUPPORTED BY A PHASE 1-INITIAL SITE INVESTIGATION REPORT WAS SUBMITTED TO MADEP ON OCTOBER 25, 2002, AND IS AVAILABLE FOR REVIEW.
- THE AMENDED FOCUSED RISK CHARACTERIZATION AND FEASIBILITY STUDY RELEASE ABATEMENT MEASURE (RAM) PLAN WAS SUBMITTED TO MADEP IN JUNE, 2003 AND IS AVAILABLE FOR REVIEW.
- INFORMATION ON SITE CONTAMINATION IS PROVIDED IN THE CONTRACT DOCUMENTS.

**LEGEND:**

- LIMITS OF JET GROUTING
- CDM-30 RECENT BORINGS
- CDM-MW-4 RECENT MONITORING WELLS
- B-66 BORINGS FROM 1970-1971

SEE ENLARGED PLAN SHEET NO. SR-2

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	CSCPL010
DESIGNED BY:	J. HOAR
DRAWN BY:	F. CONTRERAS
SHEET CHK'D BY:	J. MADDEN
SCALE:	1" = 40'
APPROVED BY:	W. SWANSON
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

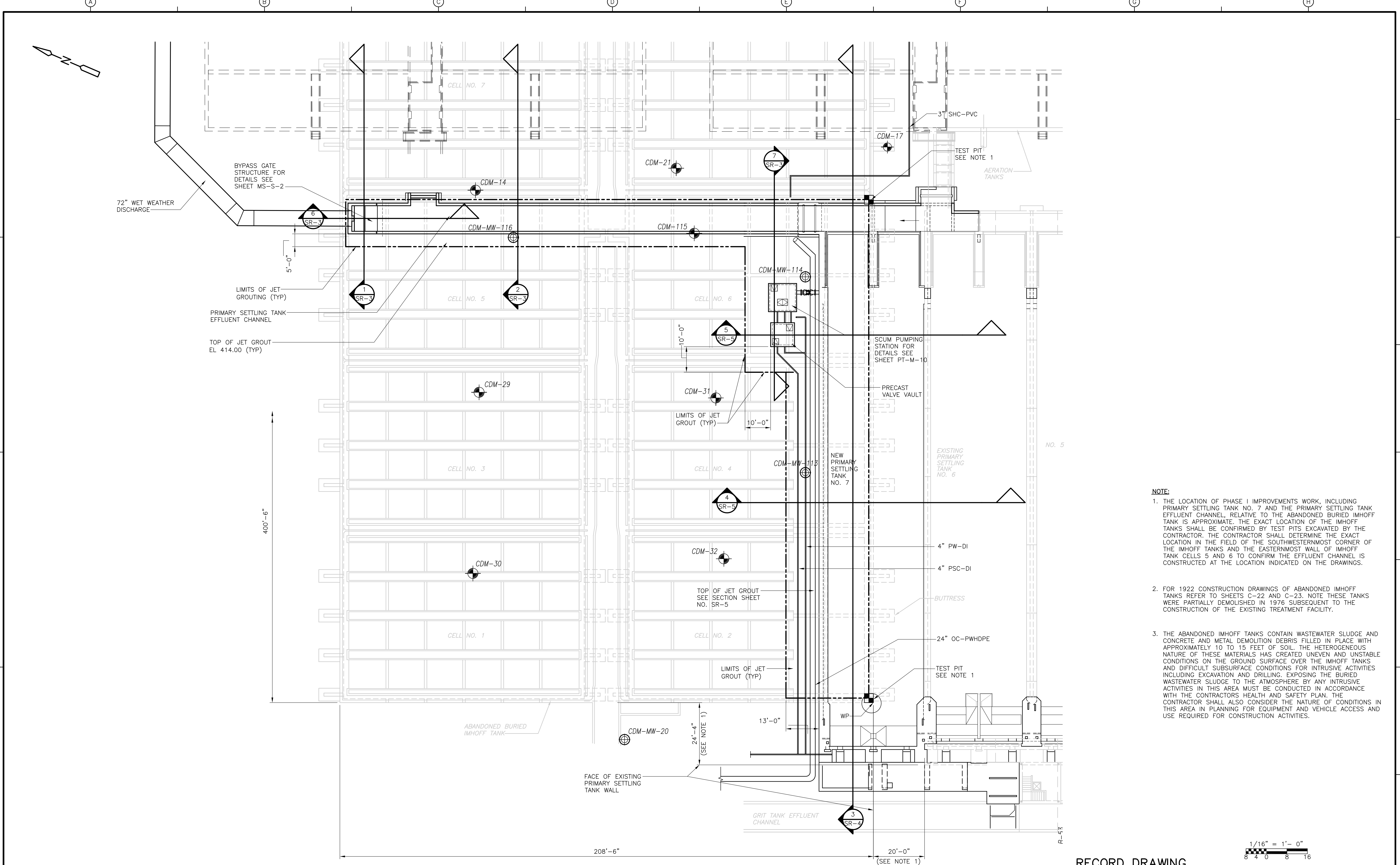
**UPPER BLACKSTONE**  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

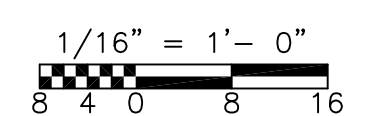
**SITE REMEDIATION - PLAN**

PROJECT NO. 1289\35370  
 Sht. 38 of 386  
**SR-1**

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Plotted by: CROSSJA Time: 12/16/08 6:18:34 PM  
 Filename: P:\1289\35370\PHASE I\RECORD\CIVIL\CSRPL001.dwg Xref's: [C24X38H, SPSWP100, ]



- NOTE:**
1. THE LOCATION OF PHASE I IMPROVEMENTS WORK, INCLUDING PRIMARY SETTLING TANK NO. 7 AND THE PRIMARY SETTLING TANK EFFLUENT CHANNEL, RELATIVE TO THE ABANDONED BURIED IMHOFF TANK IS APPROXIMATE. THE EXACT LOCATION OF THE IMHOFF TANKS SHALL BE CONFIRMED BY TEST PITS EXCAVATED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION IN THE FIELD OF THE SOUTHWESTERMOST CORNER OF THE IMHOFF TANKS AND THE EASTERMOST WALL OF IMHOFF TANK CELLS 5 AND 6 TO CONFIRM THE EFFLUENT CHANNEL IS CONSTRUCTED AT THE LOCATION INDICATED ON THE DRAWINGS.
  2. FOR 1922 CONSTRUCTION DRAWINGS OF ABANDONED IMHOFF TANKS REFER TO SHEETS C-22 AND C-23. NOTE THESE TANKS WERE PARTIALLY DEMOLISHED IN 1976 SUBSEQUENT TO THE CONSTRUCTION OF THE EXISTING TREATMENT FACILITY.
  3. THE ABANDONED IMHOFF TANKS CONTAIN WASTEWATER SLUDGE AND CONCRETE AND METAL DEMOLITION DEBRIS FILLED IN PLACE WITH APPROXIMATELY 10 TO 15 FEET OF SOIL. THE HETEROGENEOUS NATURE OF THESE MATERIALS HAS CREATED UNEVEN AND UNSTABLE CONDITIONS ON THE GROUND SURFACE OVER THE IMHOFF TANKS AND DIFFICULT SUBSURFACE CONDITIONS FOR INTRUSIVE ACTIVITIES INCLUDING EXCAVATION AND DRILLING. EXPOSING THE BURIED WASTEWATER SLUDGE TO THE ATMOSPHERE BY ANY INTRUSIVE ACTIVITIES IN THIS AREA MUST BE CONDUCTED IN ACCORDANCE WITH THE CONTRACTORS HEALTH AND SAFETY PLAN. THE CONTRACTOR SHALL ALSO CONSIDER THE NATURE OF CONDITIONS IN THIS AREA IN PLANNING FOR EQUIPMENT AND VEHICLE ACCESS AND USE REQUIRED FOR CONSTRUCTION ACTIVITIES.

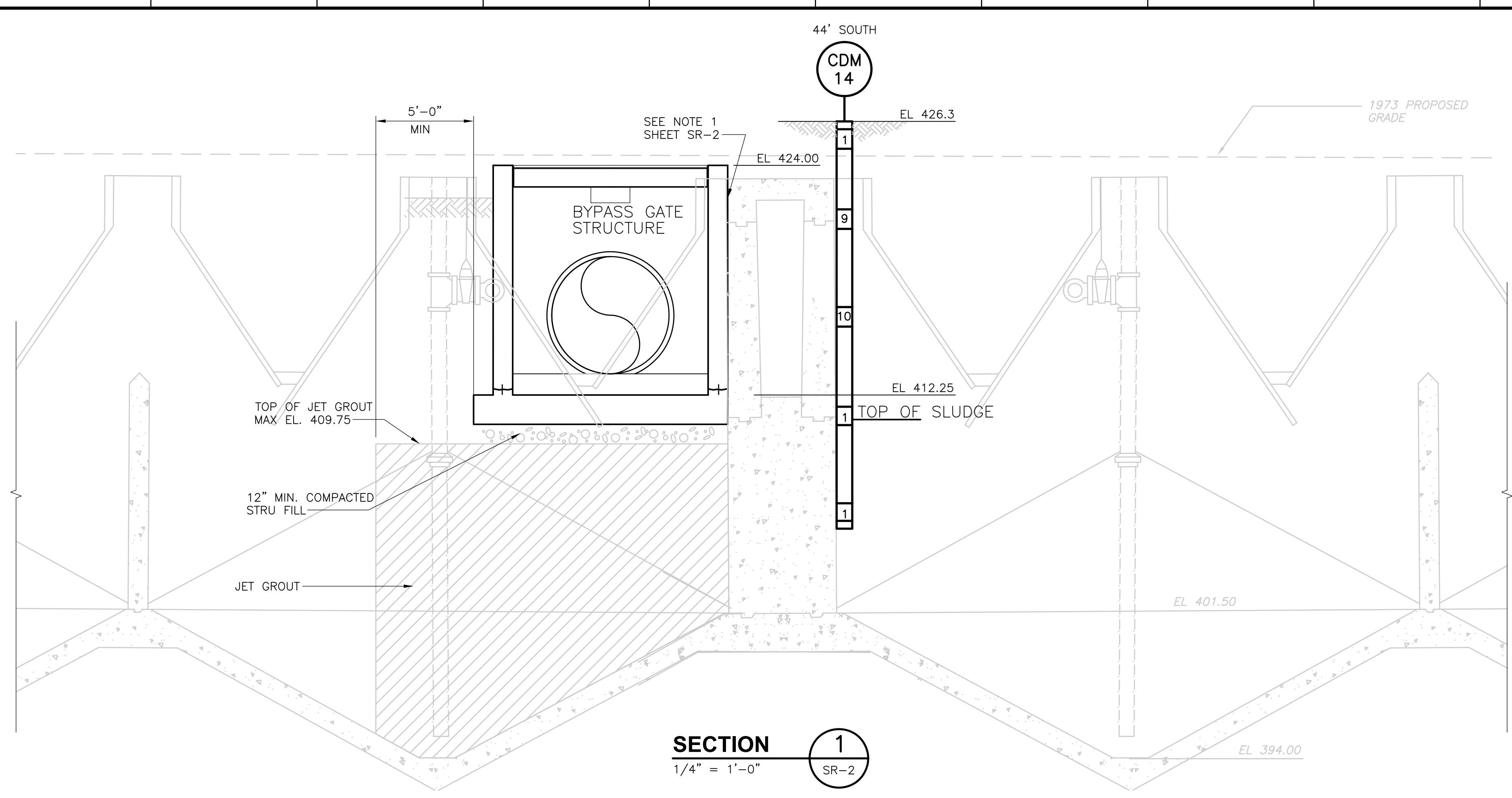


RECORD DRAWING

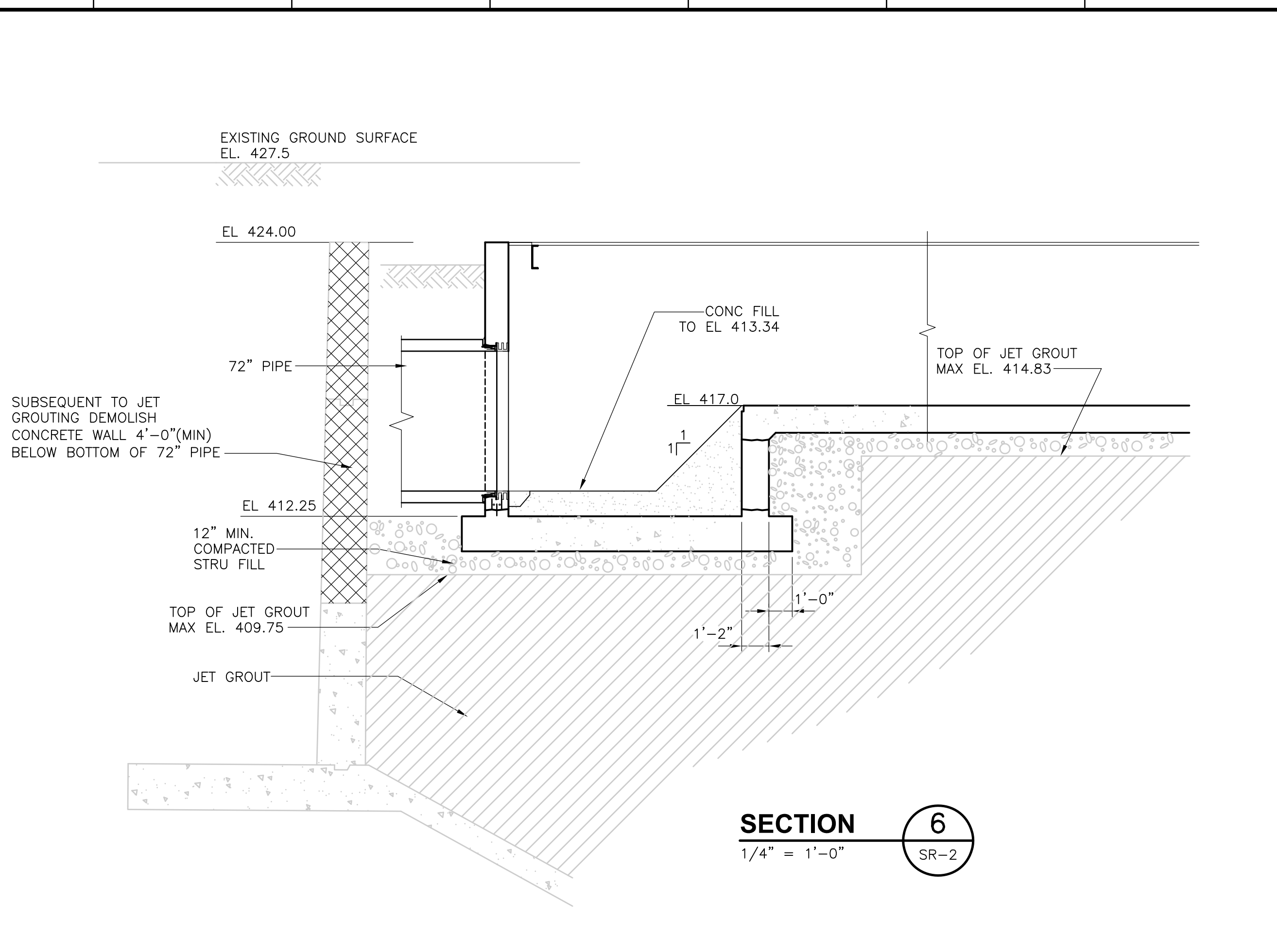
				CADD FILE NO. CSRPL001.DWG DESIGNED BY: J. HOAR DRAWN BY: B.S. HORNER SHEET CHK'D BY: J. MADDEN SCALE: AS NOTED APPROVED BY: W. SWANSON DATE: MAY 2006	<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>	<b>UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024</b>  <b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>	<b>SITE REMEDIATION IMHOFF TANKS ENLARGED PLAN</b>	PROJECT NO. 1289\35370  Sht. 39 of 386  <b>SR-2</b>
REV. NO.    DATE    DRWN    CHKD    REMARKS	NO REVISION REQUIRED FOR THE RECORD							

ACCESSION NO. 1289-65439

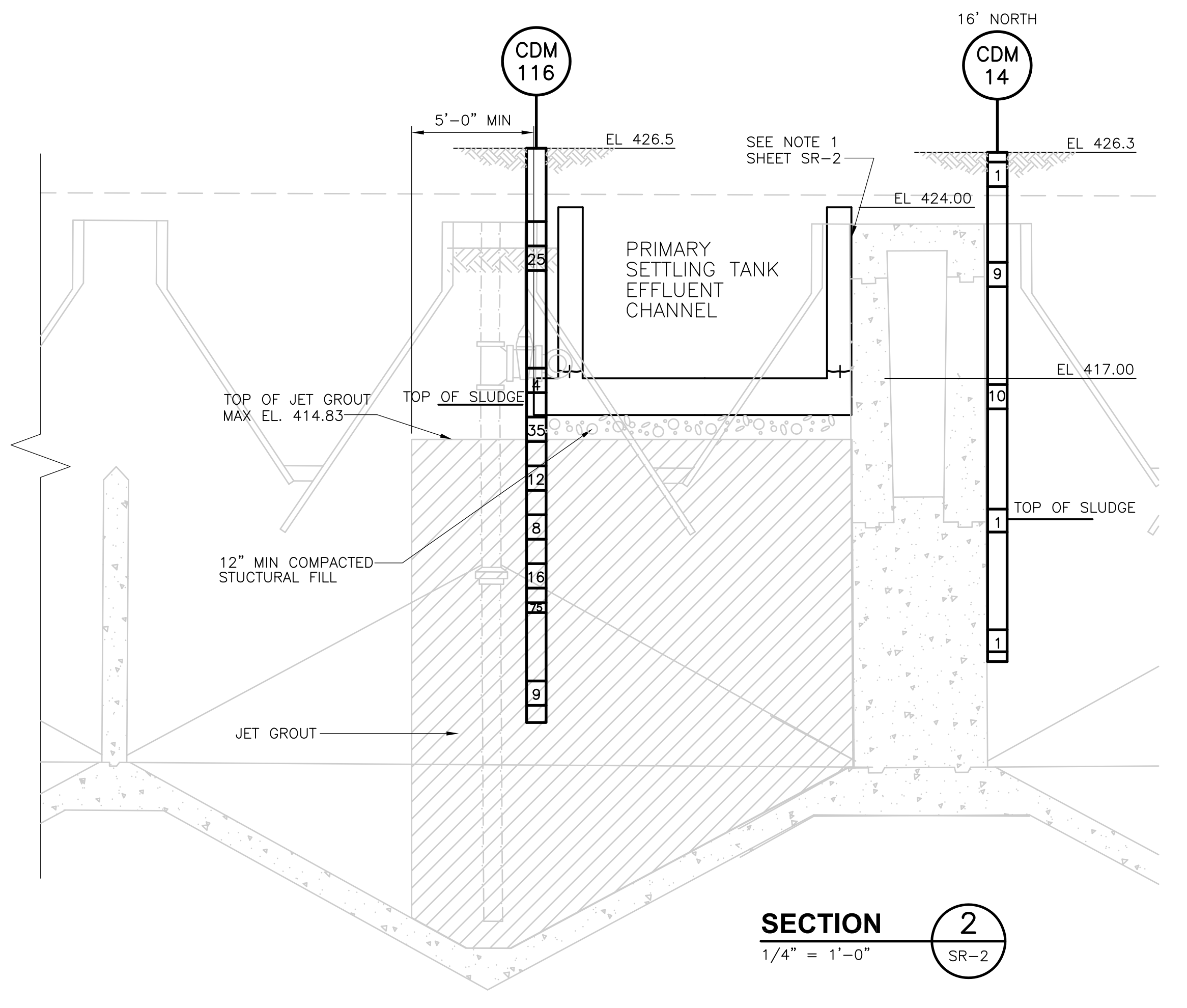
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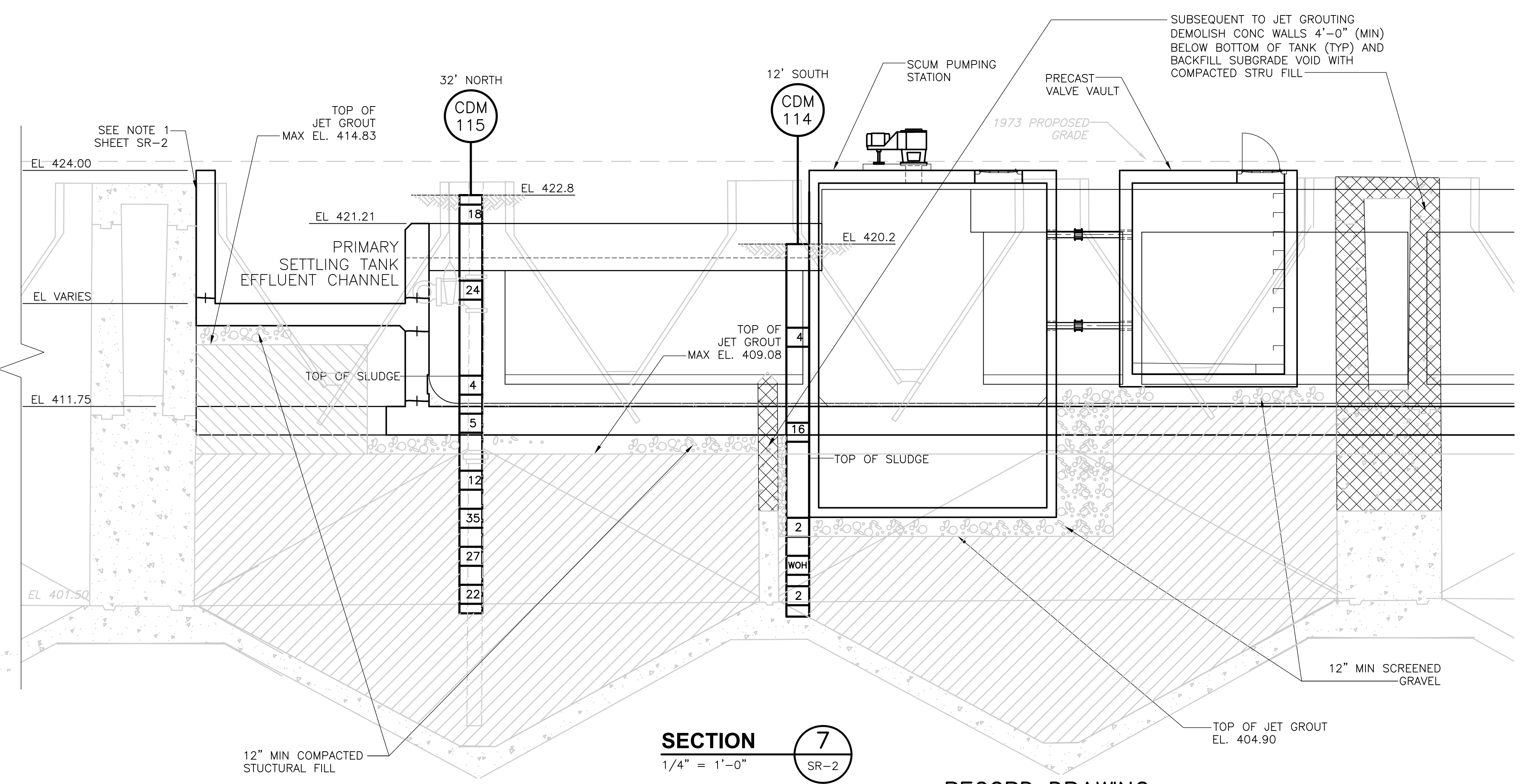
**SECTION 1**  
1/4" = 1'-0" SR-2



**SECTION 6**  
1/4" = 1'-0" SR-2



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



**SECTION 7**  
1/4" = 1'-0" SR-2

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. CSRSC001.DWG	DESIGNED BY: J. HOAR
DRAWN BY: B.S. HORNER	SHEET CHK'D BY: J. MADDEN
SCALE: AS NOTED	APPROVED BY: W. SWANSON
	DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**SITE REMEDIATION**

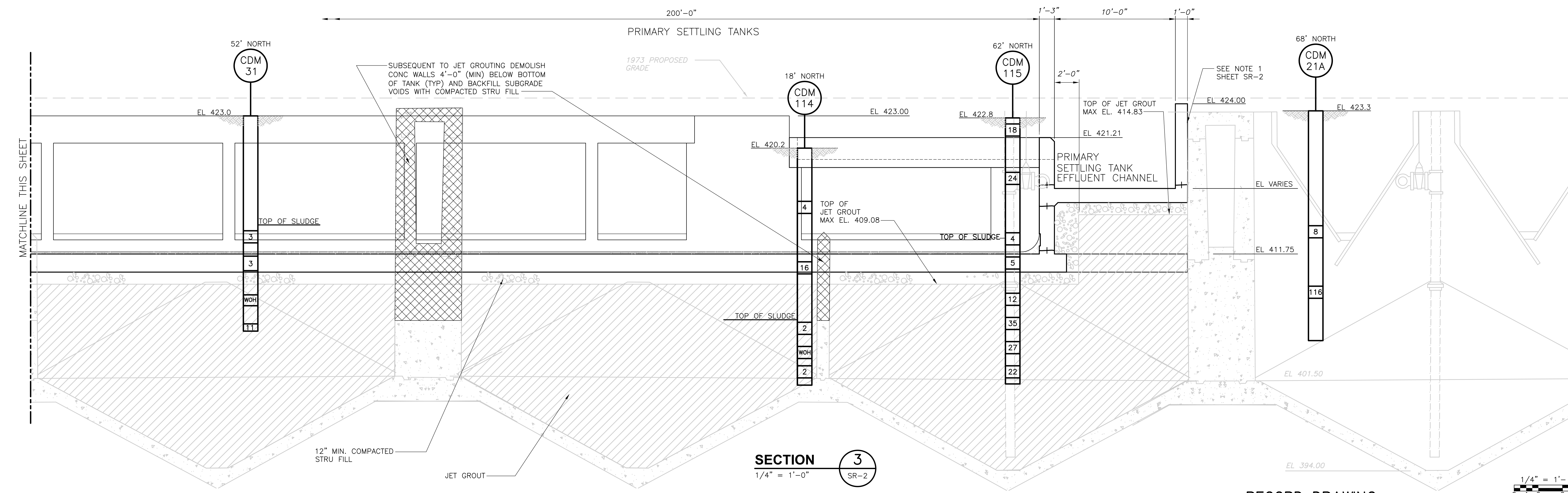
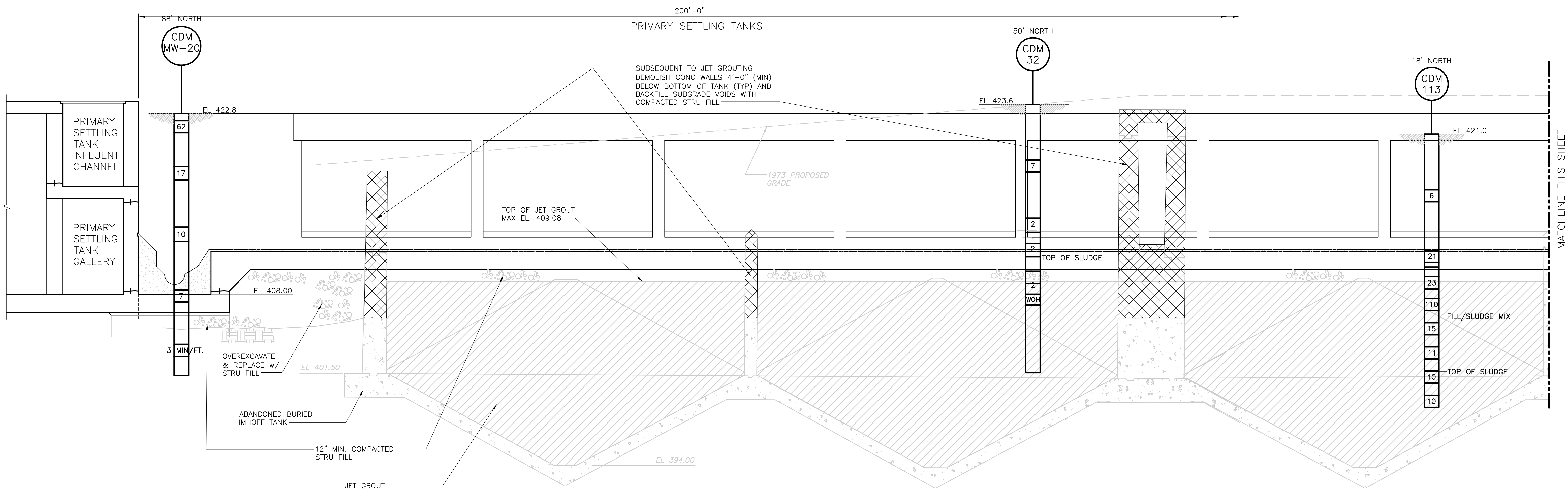
**IMHOFF TANKS SECTIONS I**

PROJECT NO. 1289\35370  
 Sht. 40 of 386  
**SR-3**

Accession No. 1289-65440



[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Filename: P:\1289\35370\PHASE1\RECORD\CIVL\CSRSC002.dwg Xref's: [C24X36H, ] Plotted by: CROSSHA Time: 12/16/08 6:18:40 PM

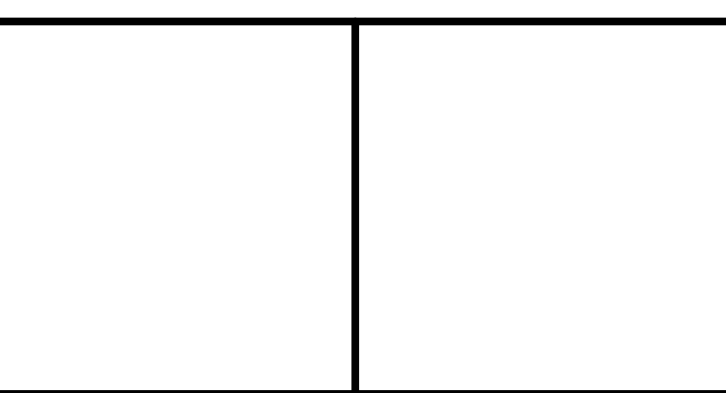


**SECTION 3**  
1/4" = 1'-0" SR-2

RECORD DRAWING 1/4" = 1'-0"  
2 1 0 2 4

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	CSRSC002.DWG
DESIGNED BY:	J. HOAR
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	J. MADDEN
SCALE:	AS NOTED
APPROVED BY:	W. SWANSON
DATE:	MAY 2006



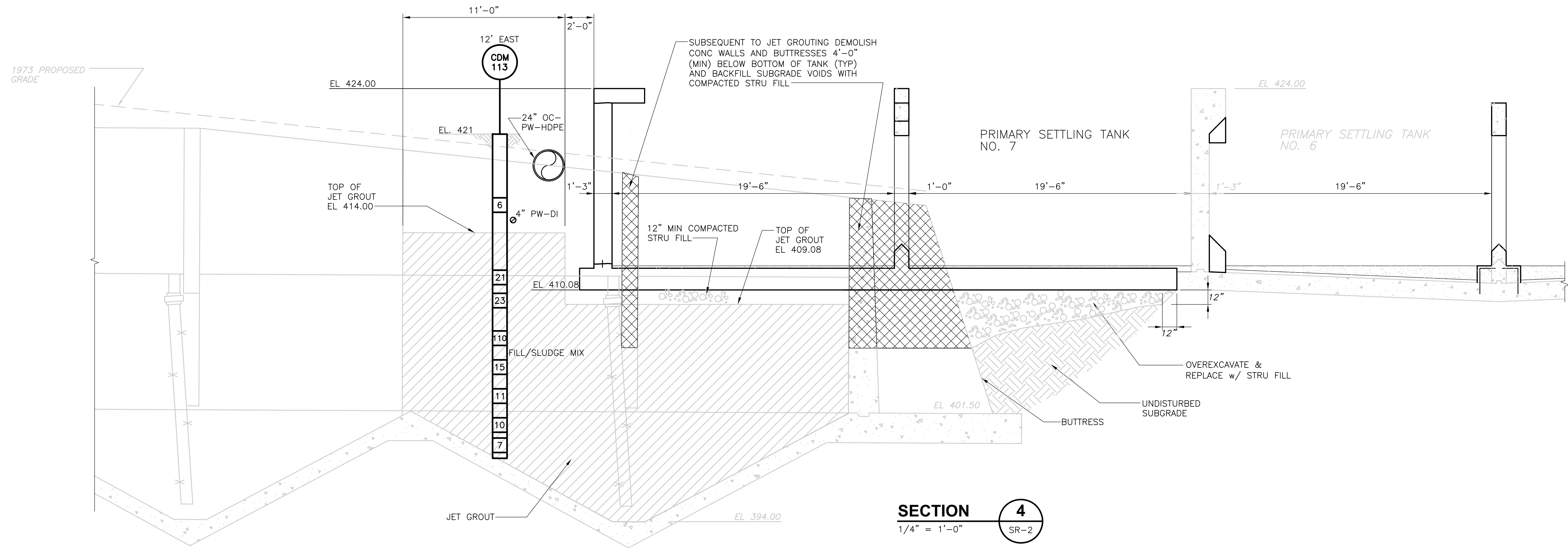
**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

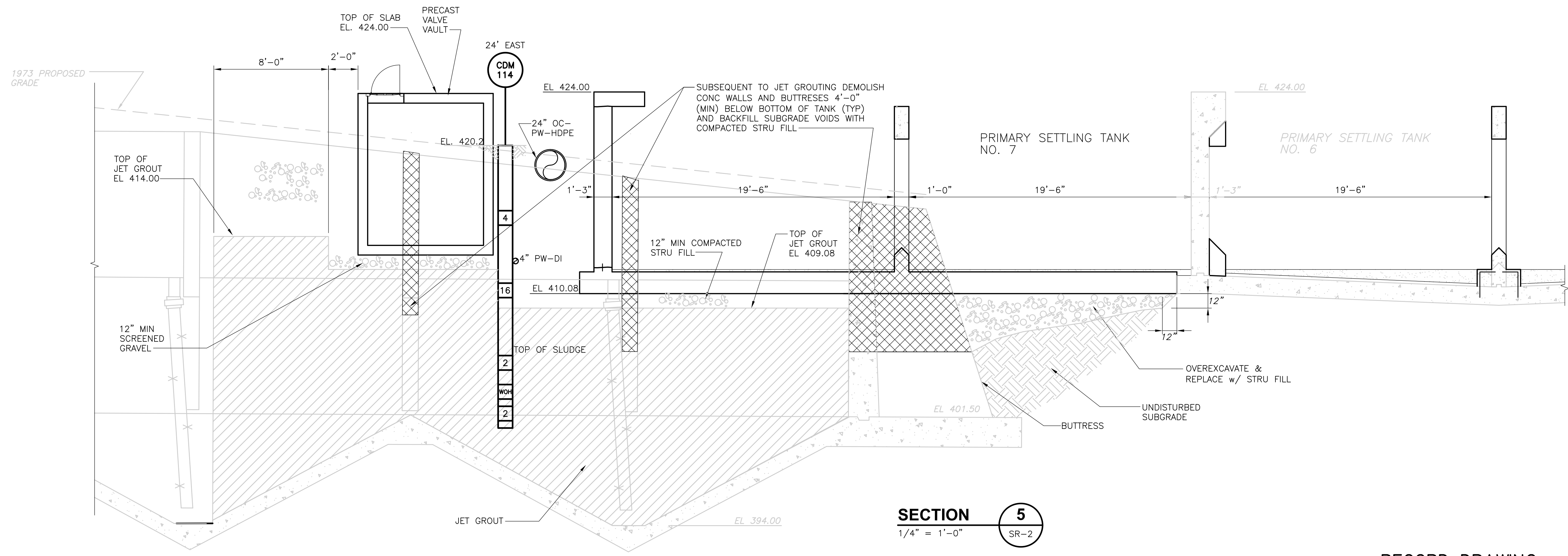
**SITE REMEDIATION  
IMHOFF TANKS  
SECTIONS II**

PROJECT NO.  
1289\35370  
Sht. 41 of 386  
**SR-4**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:18:43 PM  
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**SECTION 4**  
 1/4" = 1'-0"  
 SR-2



**SECTION 5**  
 1/4" = 1'-0"  
 SR-2

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	CSRSC003.DWG
DESIGNED BY:	J. HOAR
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	J. MADDEN
SCALE:	AS NOTED
APPROVED BY:	W. SWANSON
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

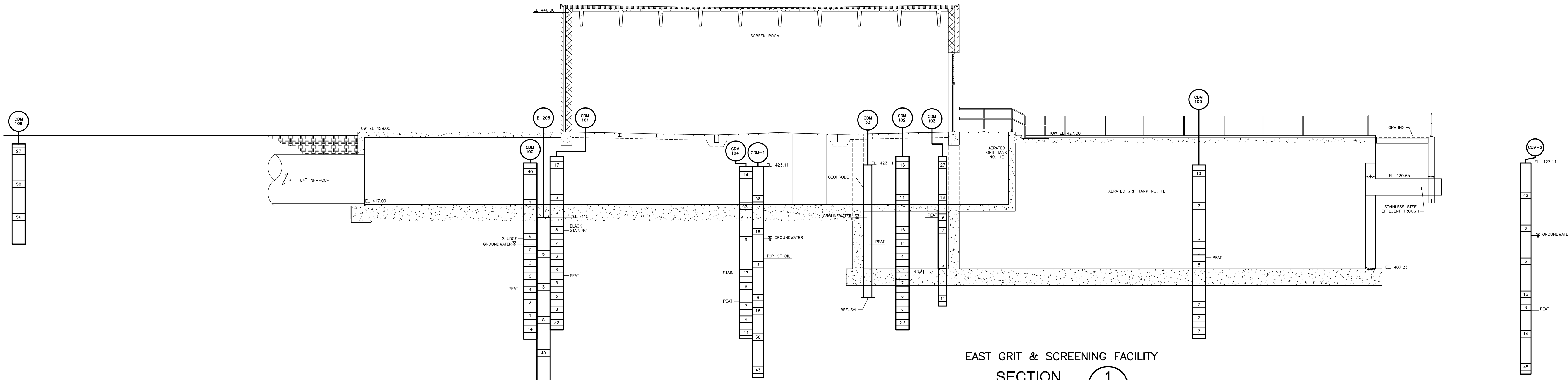
**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

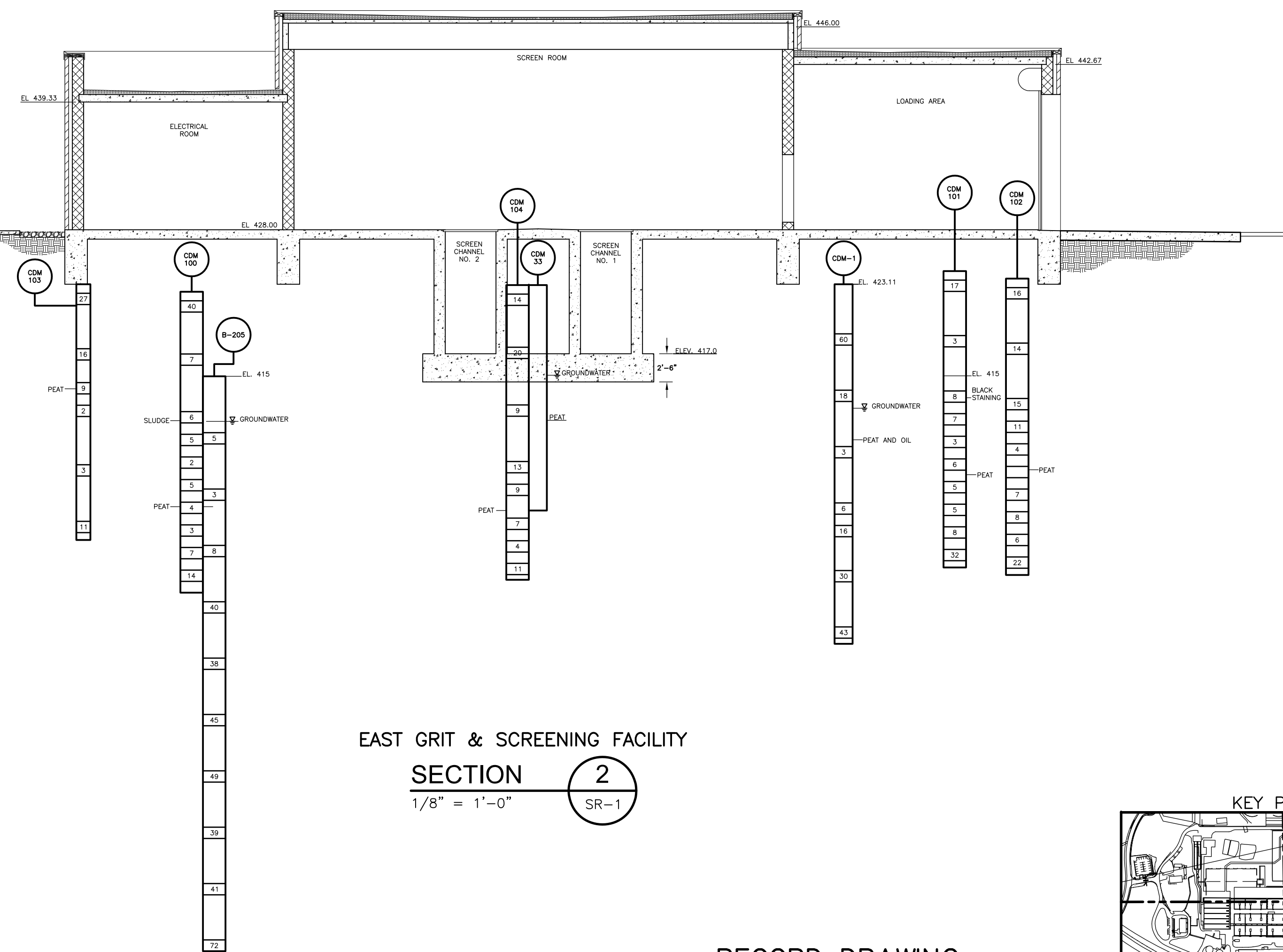
**SITE REMEDIATION  
 IMHOFF TANKS  
 SECTIONS III**

PROJECT NO.  
 1289\35370  
 Sht. 42 of 386  
**SR-5**  
ACCESSION NO. 1289-65442

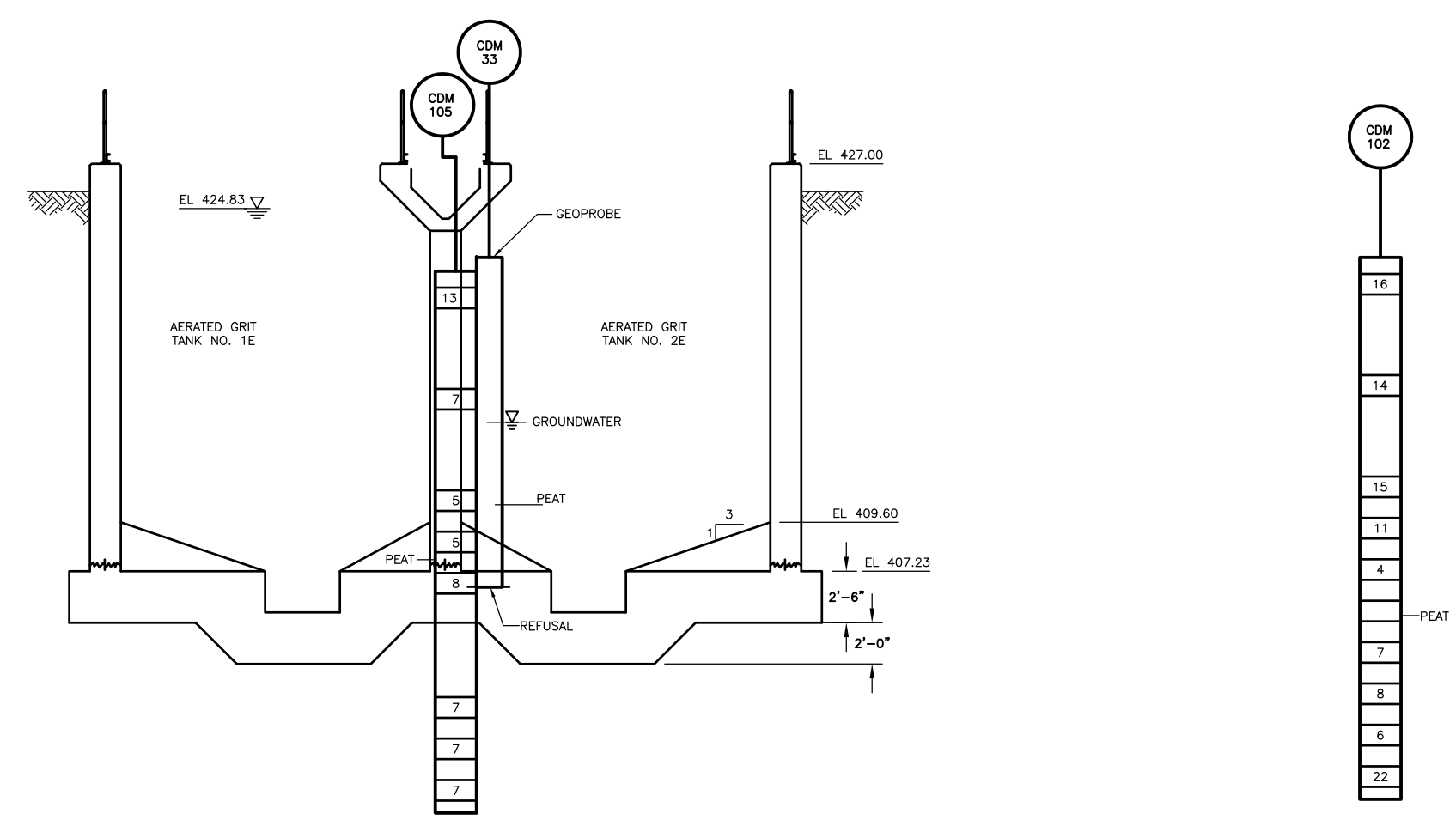
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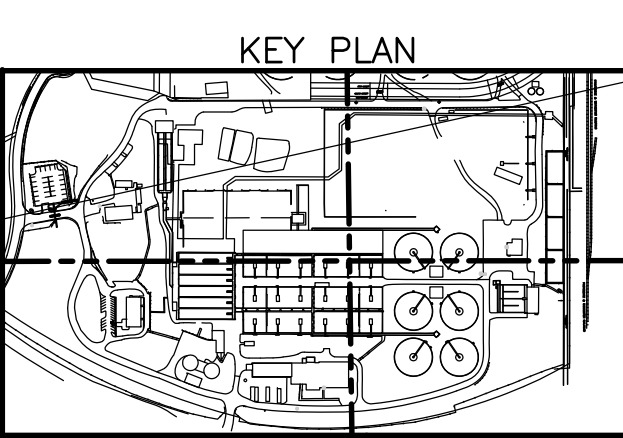
EAST GRIT & SCREENING FACILITY  
**SECTION 1**  
 1/8" = 1'-0" SR-1



EAST GRIT & SCREENING FACILITY  
**SECTION 2**  
 1/8" = 1'-0" SR-1



EAST AERATED GRIT TANKS  
**SECTION 3**  
 1/8" = 1'-0" SR-1

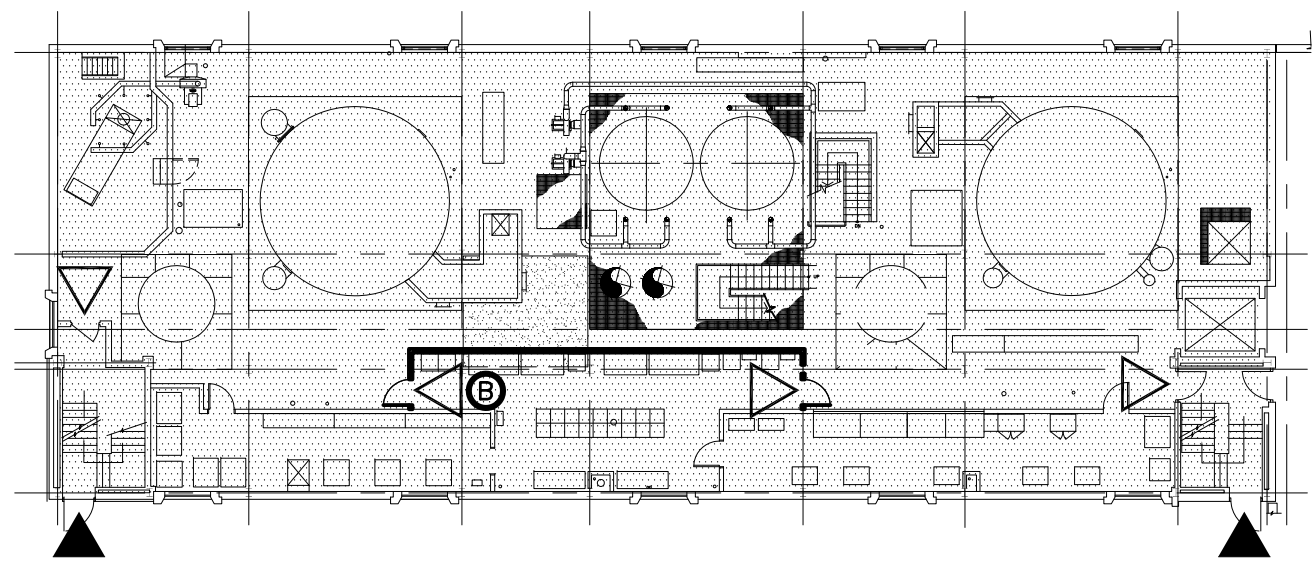


RECORD DRAWING

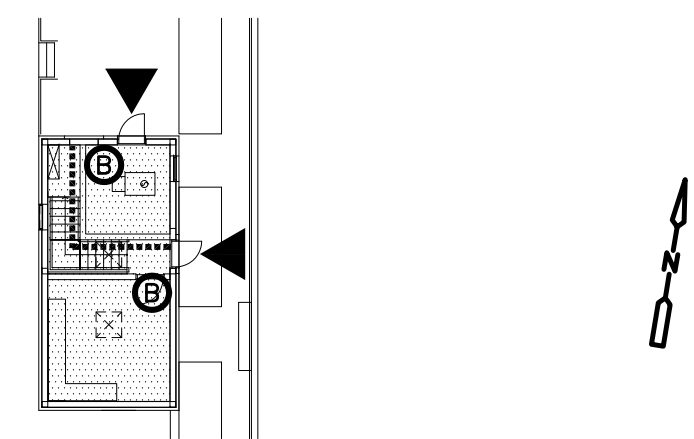
				CADD FILE NO.: MGRSC007 DESIGNED BY: VMM DRAWN BY: F. CONTRERAS SHEET CHK'D BY: J. HOAR SCALE: 1/8" = 1'-0" APPROVED BY: _____ DATE: MAY 2006		<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. of 386  <b>SR-6</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS							
	10/07	JAL	ADT	NO REVISION REQUIRED FOR THE RECORD							

ACCESSION NO. 1289-X

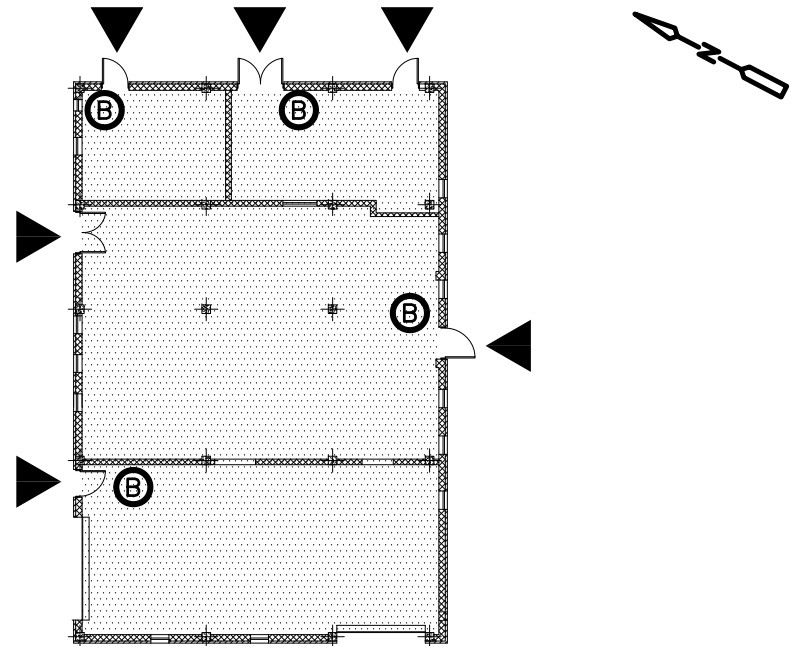
UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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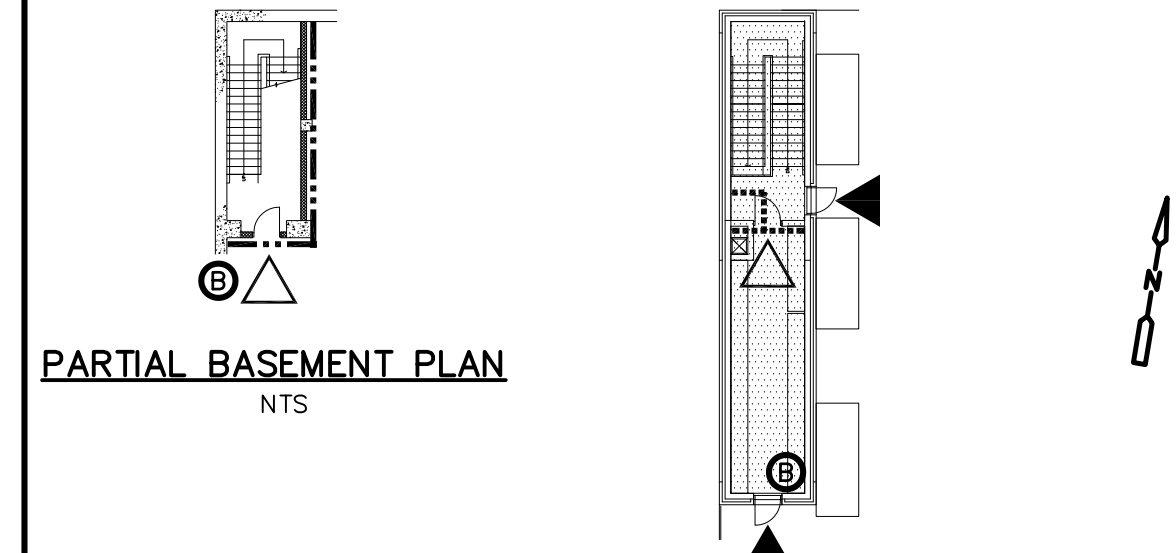
EXISTING SLUDGE PROCESSING COMPLEX  
INCINERATOR AREA - NEW ELECTRICAL ROOM  
FIRST FLOOR PLAN - EL 431.00  
NTS



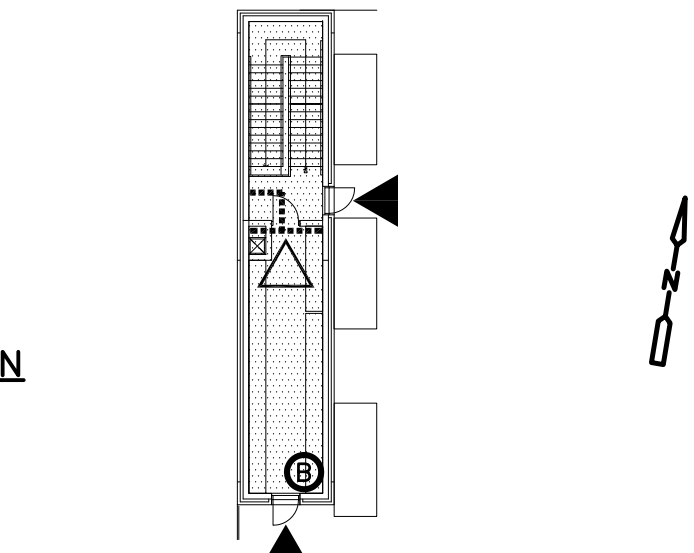
PRIMARY SETTLING TANKS  
EXISTING SOUTH ACCESS STRUCTURE  
GROUND FLOOR PLAN - EL 424.50  
NTS



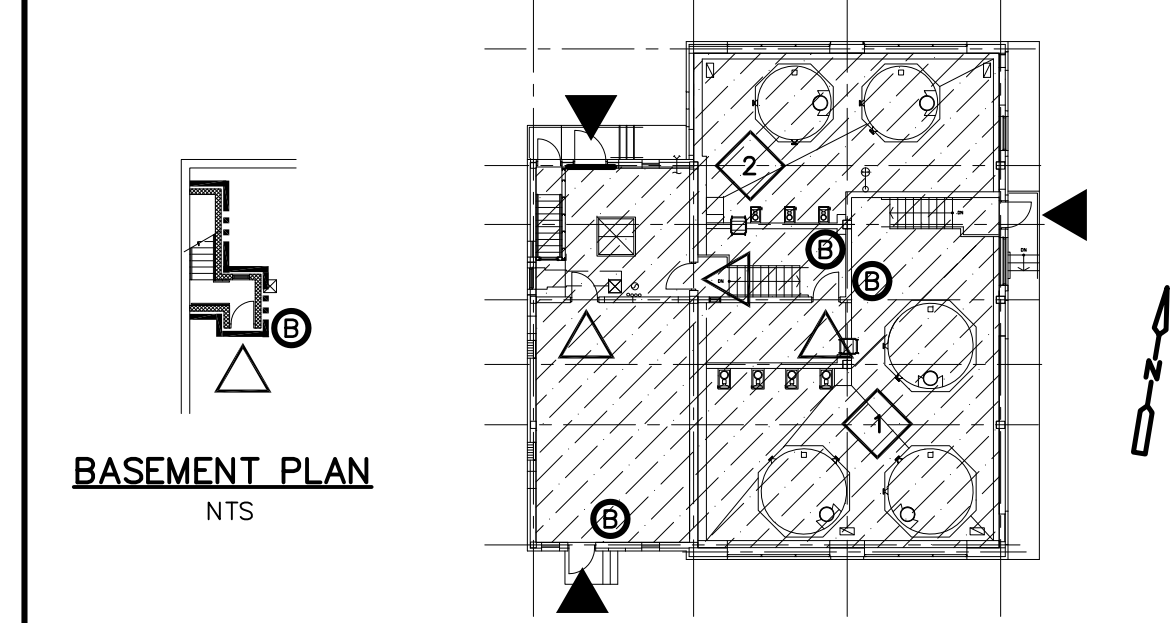
EXISTING WEST GRIT & SCREENING FACILITY  
GROUND FLOOR PLAN - EL 425.58/427.33  
NTS



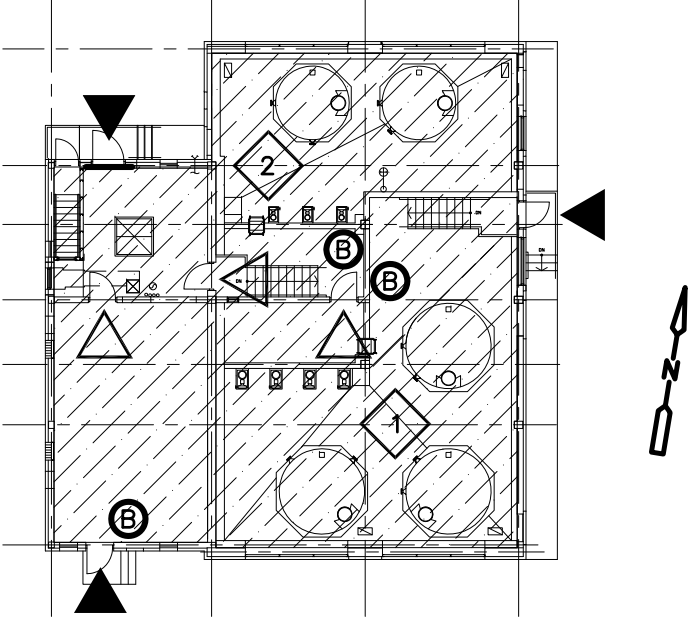
PARTIAL BASEMENT PLAN  
NTS



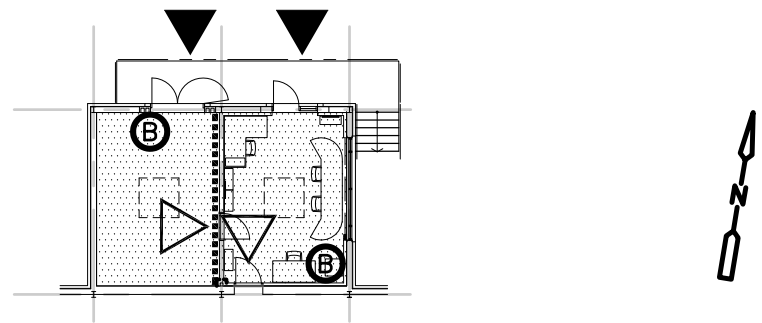
PRIMARY SETTLING TANKS  
NEW ACCESS STRUCTURE  
GROUND FLOOR PLAN - EL 424.00  
NTS



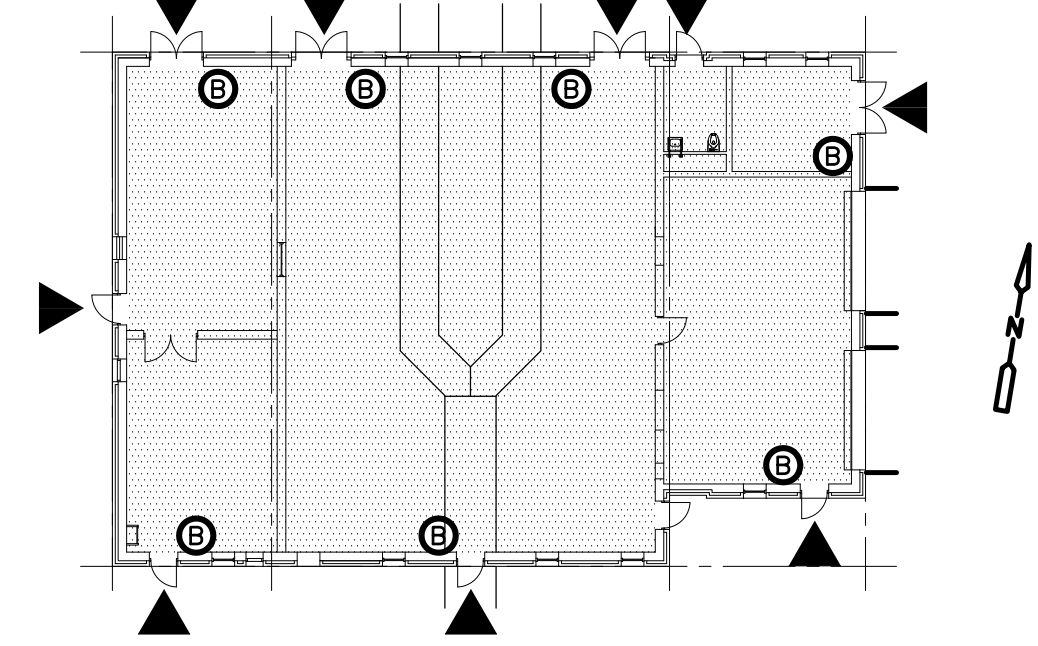
BASEMENT PLAN  
NTS



DISINFECTION FACILITY  
EXISTING (RENOVATED) STRUCTURE  
GROUND FLOOR PLAN - EL 415.00 & 409.83  
NTS



EXISTING SLUDGE PROCESSING COMPLEX  
NEW CONTROL ROOM/ELECTRICAL ROOM -  
EXISTING (RENOVATED) STRUCTURE  
GROUND FLOOR PLAN - EL 429.00  
NTS



EAST GRIT & SCREENING FACILITY  
GROUND FLOOR PLAN - EL 428.00  
NTS

**BUILDING CODE SUMMARY**

REF. COMMONWEALTH OF MASSACHUSETTS 780 CMR STATE BUILDING CODE

	PRIMARY SETTLING TANKS EXISTING SOUTH ACCESS STRUCTURE - RENOVATION	PRIMARY SETTLING TANKS NEW ACCESS STRUCTURE	DISINFECTION FACILITY (RENOVATION TO EXISTING BUILDING)	SLUDGE PROCESSING COMPLEX CONTROL/ELECTRICAL ROOM RENOVATION	EAST GRIT AND SCREENING FACILITY (NEW)	WEST GRIT AND SCREENING FACILITY (EXISTING)
OCCUPANCY CLASSIFICATION	GROUP-F2(306.3) LOW HAZARD FACTORY AND INDUSTRIAL	GROUP-F2(306.3) LOW HAZARD FACTORY AND INDUSTRIAL	GROUP-H4(307.6) HIGH HAZARD	GROUP-F2(306.3) LOW HAZARD FACTORY AND INDUSTRIAL	GROUP-F2(306.3) LOW HAZARD FACTORY AND INDUSTRIAL	GROUP-F2(306.3) LOW HAZARD FACTORY AND INDUSTRIAL
OCCUPANCY SEPARATION (TABLE 313.1.2)	N/A	N/A	N/A	N/A		N/A
CONSTRUCTION TYPE	TYPE 2C, UNPROTECTED (603.0)	TYPE 2C, UNPROTECTED (603.0)	TYPE 2C, UNPROTECTED (603.0)	TYPE 2C, UNPROTECTED (603.0)	TYPE 2C, UNPROTECTED (603.0)	TYPE 2C, UNPROTECTED (603.0)
MAXIMUM ALLOWABLE HEIGHT/AREA LIMITS (TABLE 503)	3 STORIES, 40- FEET 14,000 SQ.FT. (EXISTING STRUCTURE)	3 STORIES, 40- FEET 14,000 SQ.FT.	3 STORIES, 40- FEET 14,000 SQ.FT. (EXISTING STRUCTURE)	3 STORIES, 40- FEET 14,000 SQ.FT. (EXISTING STRUCTURE)	3 STORIES, 40- FEET 14,000 SQ.FT.	3 STORIES, 40- FEET 14,000 SQ.FT. (EXISTING STRUCTURE)
APPLICABLE AREA MODIFICATIONS	NOT REQ'D	NOT REQ'D	NOT REQ'D	NOT REQ'D	NOT REQ'D	NOT REQ'D
PROPOSED BLDG HEIGHT LIMITS	N/A - EXISTING	1 STORY, 14'-0"	N/A - EXISTING	N/A - EXISTING		N/A - EXISTING
PROPOSED BUILDING AREA LIMITS	528 SQ FT (EXISTING)	657 SQ FT	3,168 SQ FT (EXISTING)	671 SQ FT (EXISTING)	5,145 SQ FT	2,875 SQ FT
FIRE SUPPRESSION SYSTEMS	NOT REQ'D IN ACCESS STRUCTURE (904.8) REQUIRED IN WINDOWLESS STORY (GALLERY BELOW)	NOT REQ'D IN ACCESS STRUCTURE (904.8) REQUIRED IN WINDOWLESS STORY (GALLERY BELOW)	(904.8) REQUIRED IN WINDOWLESS STORY (904.4) REQ'D IN USE GROUP H	NOT REQ'D	NOT REQ'D	NOT REQ'D
MAXIMUM TRAVEL DISTANCE TO EXIT ALLOWED/ (PROPOSED) (TABLE 1006.5)	USE GROUP F2 300 FT - ALLOWED 20 FT MAX - PROPOSED	USE GROUP F2 300 FT - ALLOWED 20 FT MAX - PROPOSED	USE GROUP H4 175 FT - ALLOWED 70 FT MAX - PROPOSED	USE GROUP F2 300 FT - ALLOWED 44 FT MAX - PROPOSED	USE GROUP F2 400 FT - ALLOWED 40 FT MAX - PROPOSED	USE GROUP F2 300 FT - ALLOWED 45 FT MAX (EXISTING)
MINIMUM FIRE ENCLOSURE OFCORRIDORS (1011.4)	N/A	N/A	N/A	N/A	N/A	N/A
MINIMUM FIRE ENCLOSURE OF EXITS (1014.11)	INT. STAIRWAYS CONNECTING LESS THAN 4 STORIES IN USE GROUP F 1 HOUR	N/A	INT. STAIRWAYS CONNECTING LESS THAN 4 STORIES IN USE GROUP H4 1 HOUR	N/A	N/A	N/A
GUARDRAIL OPENING LIMITATIONS	N/A	N/A	COMPLIES WITH (1021.3) FOR USE GROUP F SUCH THAT A SPHERE WITH A DIAMETER OF TWENTY-ONE (21) INCHES CANNOT PASS THROUGH ANY OPENING.  (1021.3) IN USE GROUPS, H-4... OPEN GUARDS SHALL HAVE BALUSTERS OR BE OF SOLID MATERIAL SUCH THAT A SPHERE WITH A DIAMETER OF FOUR (4) INCHES CANNOT PASS THROUGH ANY OPENING.	COMPLIES WITH (1021.3) FOR USE GROUP F SUCH THAT A SPHERE WITH A DIAMETER OF TWENTY-ONE (21) INCHES CANNOT PASS THROUGH ANY OPENING.	N/A	N/A

**LEGEND**

ONE ( 1 ) HOUR FIRE RATING - - - - -

TWO ( 2 ) HOUR FIRE RATING - - - - -

'H4' ( HAZARD ) USE GROUP

'F2' ( FACTORY/INDUSTRIAL )  
USE GROUP

INDICATES BUILDING EXIT

INDICATES AREA/SPACE EGRESS

FIRE EXTINGUISHER LOCATION  
SEE SPEC SECTION 10522 FOR  
DESCRIPTION OF EACH TYPE  
 DRY CHEMICAL TYPE  
(IN CABINET) (NOT USED)  
 CARBON DIOXIDE TYPE

CHEMICAL STORAGE LOCATION.  
SEE HAZARD CHART ON THIS  
SHEET

**HAZARDOUS MATERIALS CLASSIFICATION**

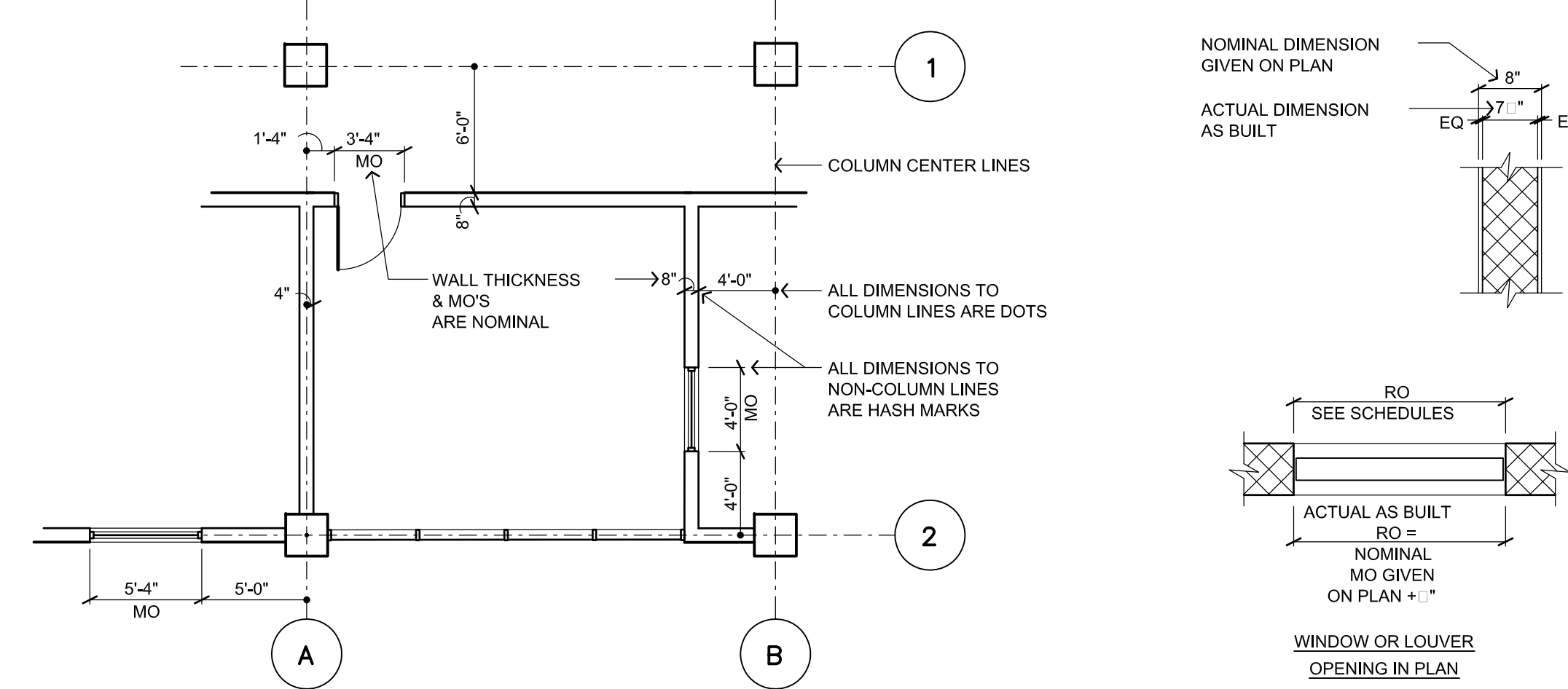
REF: INTERNATIONAL FIRE CODE INSTITUTE

CHEMICAL INFO	STATE	CONCENTRATION (%)	TOTAL STORAGE	SARA TITLE III	FIREFIGHTER WARNING PLACARD			PHYSICAL PROPERTIES		HEALTH PROPERTIES				
					HEALTH	FIRE	REACTIVITY	SPECIAL	OXIDIZER	WATER REACTIVE	CORROSIVE	IRRITANT	OTHER HEALTH HAZARD	TOXIC/ HIGHLY TOXIC
SODIUM HYPOCHLORITE	L	15%	23,790 GAL.	-	3	-	-	COR	-	-	-	-	-	-
SODIUM BISULFITE	L	38%	9,040 GAL.	-	2	-	-	-	-	-	-	-	-	-

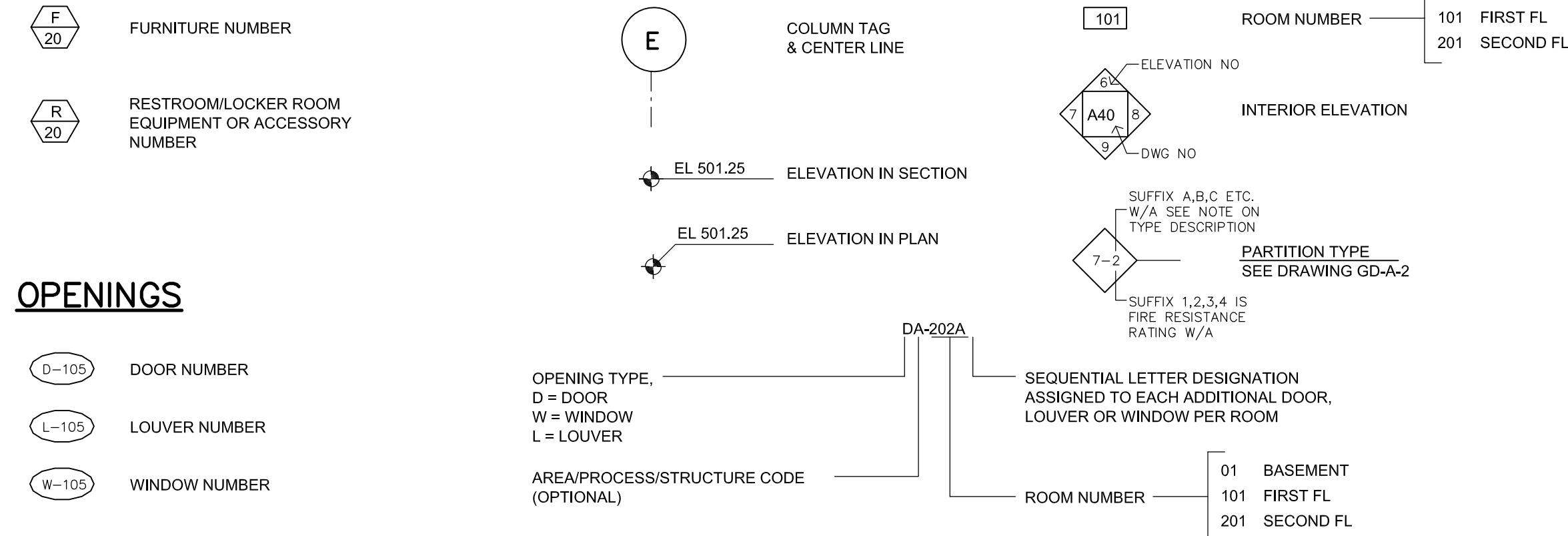
RECORD DRAWING

CADD FILE NO. <u>AGNLG100.DWG</u> DESIGNED BY: <u>B. GIORGI</u> DRAWN BY: <u>D. GRUDKOWSKI</u> SHEET CHK'D BY: <u>B. GIORGI</u> SCALE: <u>NTS</u> APPROVED BY: <u>B. GIORGI</u> DATE: <u>MAY 2006</u>				<b>Camp Dresser &amp; McKee Inc.</b> consulting engineering construction operations		<b>UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024</b>		<b>PROJECT NO. 1289\35370</b>  <b>Sht. 44 of 386</b>	
NO REVISION REQUIRED FOR THE RECORD				<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		<b>BUILDING CODE SUMMARY AND SYMBOLS</b>		<b>GD-A-1</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
	3/07	SPV	ADT						

### MODULAR DIMENSIONING SYSTEM (USED ON SMALL SCALE PLANS ONLY)



### FURNITURE & EQUIPMENT W/A SYMBOLS



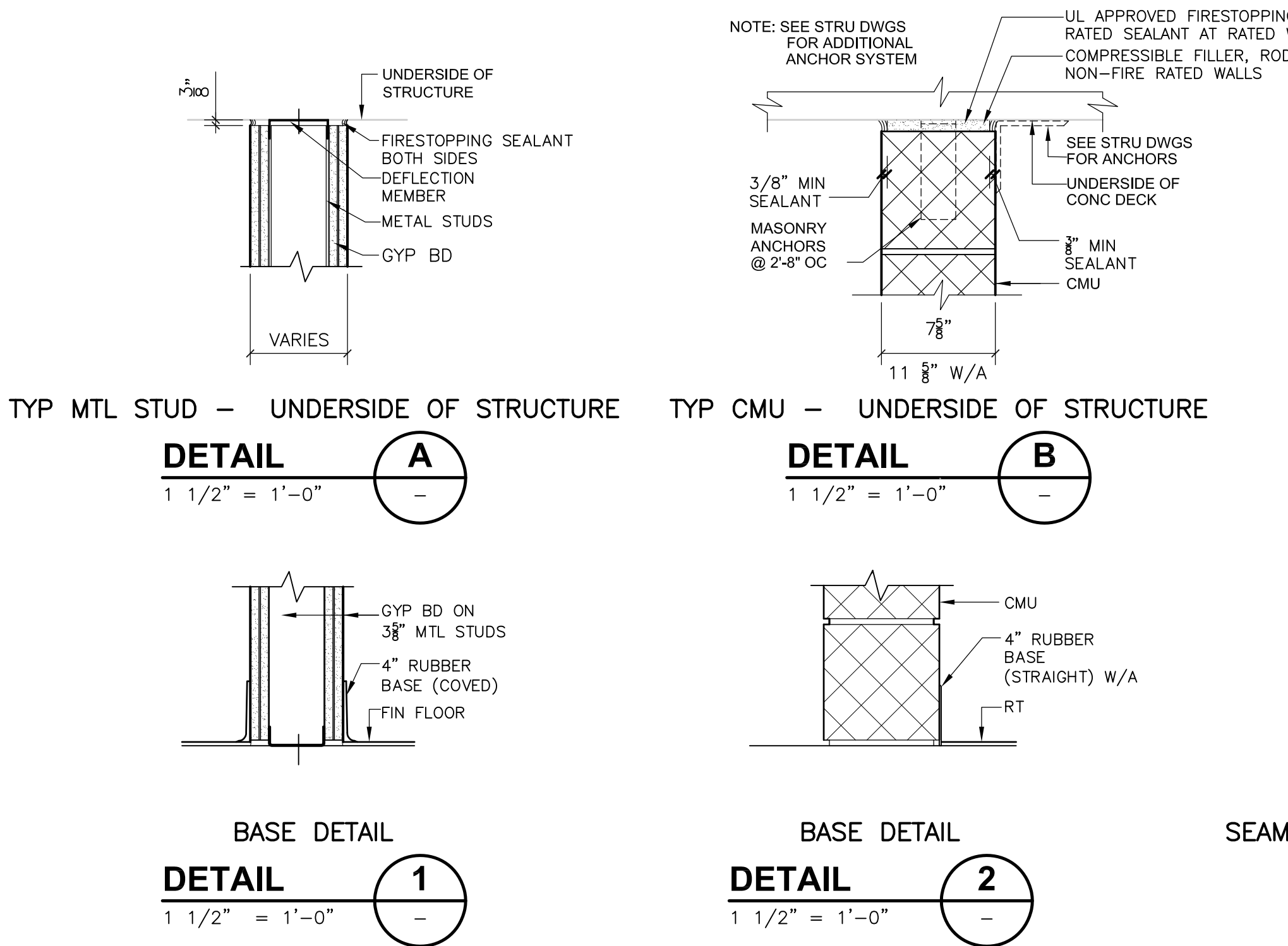
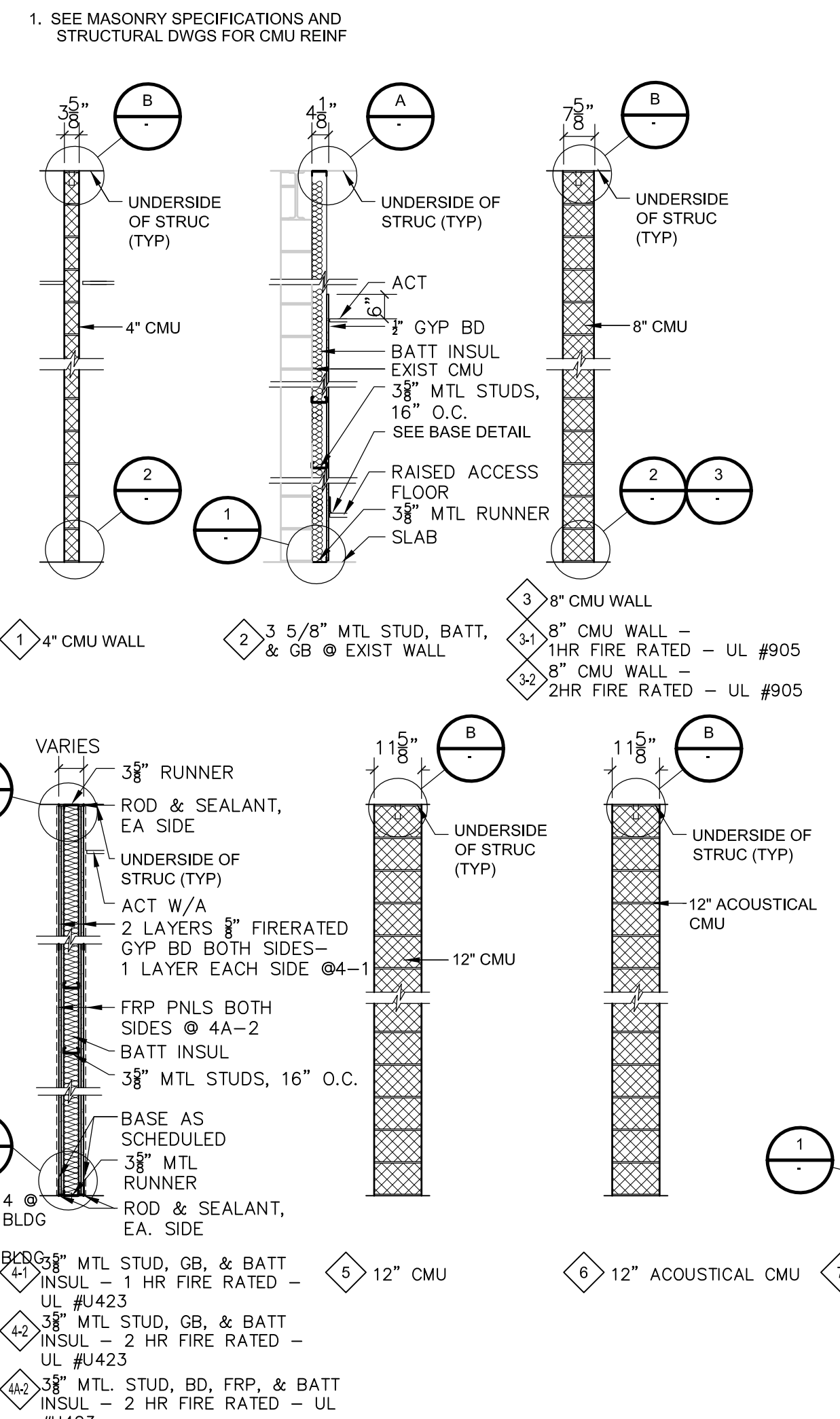
### ABBREVIATIONS

&	AND	FL	FLOOR	R+S	BACKER ROD & SEALANT
<	ANGLE	FLG	FLOORING	RB	RUBBER BASE
@	ANCHOR BOLT	FLR	FILLER	RD	ROOF DRAIN
AB	ABOVE	FR	FRAME	RECT	RECEPTACLE
ABV	ABOVE	FXD	FIXED	REF	REFLECTOR
ACMU	ACOUSTICAL MASONRY UNIT	GA	GAGE	REINF	REINFORCE (D, ING)
ACT	ACOUSTICAL TILE	GALV	GALVANIZED	REQD	REQUIRED
ADH	ADHESIVE	GL	GLASS	REV	REVISION
AFF	ABOVE FINISHED FLOOR	GLB	GLASS BLOCK	RF	ROOF FAN
AL	ALUMINUM	GRTG	GRATING	RFG	ROOFING
ANOD	ANODIZE	H	HEIGHT	RGH	ROUGH
ASSY	ASSEMBLY	HD	HEAVY DUTY	RJ	RUSTIFICATION JOINT
BD	BOARD	HDWD	HARDWOOD	RL	RAIN LEADER
BEV	BEVEL (ED)	HWWR	HARDWARE	RULG	RAILING
BLDG	BUILDING	HGR	HANGER	RM	ROOM
BLK	BLOCK	HGT	HEIGHT	RO	ROUGH OPENING
BLKG	BLOCKING	HM	HOLLOW METAL	RT	RUBBER TILE
BRG	BEARING	HOR	HORIZONTAL	RWL	RAIN WATER LEADER
BRK	BRICK	HP	HIGH POINT	S	STEEL S-SHAPE DESIGNATION
BRS	BRASS	HR	HANDRAIL	SAT	SUSPENDED ACOUSTICAL TILE
BRZ	BRONZE	IN	INCH	SB	SEAMLESS BASE
BS	BOTH SIDES	INSUL	INSULATION	SCHED	SCHEDULE
C TO C	CENTER TO CENTER	JC	JANITOR'S CLOSET	SCRN	SCREENED
CAB	CABINET	JT	JOINT	SECT	SECTION
CARP	CARPET	JT FLR	JOINT FLOOR	SF	SEAMLESS FLOORING
CEM	CEMENT	L	LINE OR STRUCTURAL	SGFT	STRUCTURAL GLAZED FACING TILE
CF	COMPRESSIBLE FILLER	LAB	LABORATORY	SGL	SAFETY GLASS
CGFB	CEMENTITIOUS GLASS FIBER BOARD	LAD	LADDER	SHT	SHEET
CH	CONCRETE HARDENER	LAM	LAMINATED	SK	SINK
CHAM	CHAMFER	LAV	LAVATORY	SLNT	SEALANT
CHAN	CHANNEL	LCC	LEAD COATED COPPER	SPEC	SPECIFICATION, SPECIFIED
CIP	CAST IN PLACE CONSTRUCTION JOINT	LCK	LOCKER	SST	STAINLESS STEEL
CL	CENTERLINE	LINTEL	LINTEL	STD	STANDARD
CLG	CEILING	LNTL	LIGHT POLE	STL	STEEL
CLKG	CAULKING	LP	LOW POINT	STOR	STORAGE
CMU	CONCRETE MASONRY UNITS	LGT	LIGHT (S)	STRUC	STRUCTURE (S, URAL)
COL	COLUMN	M	MASONRY	STWY	STAIRWAY
COMP	COMPRESSIBLE	MATL	MATERIAL	SUPT	SUPERINTENDENT
CONC	CONCRETE	MAX	MAXIMUM	SUSP	SUSPENDED
CONT	CONTINUOUS	MEMB	MEMBRANE	T	TREAD(S)
CRS	COURSE(S)	MFR	MANUFACTURER	T&G	TONGUE AND GROOVE
CRS CT	CERAMIC TILE	MIN	MINIMUM	TEMP	TEMPERATURE
DET	DETAIL	MISC	MISCELLANEOUS	TEMP	TEMPERATURE
DF	DRINKING FOUNTAIN	MO	MASONRY OPENING	TEMP	TEMPORARY
DIA	DIAMETER	MR	MOISTURE RESISTANT	TER	TERRAZZO
DIAG	DIAGONAL	MTD	MOUNTED	TERB	TERRAZZO BASE
DIM	DIMENSION	MTG	MOUNTING	THK	THICKNESS
DISP	DISPENSER	MTL	METAL	THR	THRESHOLD
DN	DOWN	NIC	NOT IN CONTRACT	TKBD	TACKBOARD
DN DP	DAMP PROOFING	NOM	NOMINAL	TKBD	TACKBOARD
DR	DRAIN	NTS	NOT TO SCALE	TOIL	TOILET
DWG	DRAWING	OC	ON CENTER OR ODOR CONTROL	TOPG	TOPPING
EACH	EACH	OFF	OFF	TOS	TOP OF STEEL
EL	ELEVATION	OPNG	OPENING	TS	TOP OF SLAB
ELEV	ELEVATOR	OPNG	OPENING	TSL	STRUCTURAL TUBING (STEEL UNLESS NOTED)
EQ	EQUIPMENT	OPP HD	OPPOSITE HAND	TYP	TYPICAL
EOPT	ELECTRIC WATER COOLER	OVHD	OVERHEAD	UC	UNDERCUT
EWC	ELECTRIC WATER COOLER	PERIM	PERIMETER	UR	URINAL
EXP	EXPANDED	PL	PLATE	VB	VAPOR BARRIER
EXP JT	EXPANDED JOINT	PL	PROPERTY LINE	VCT	VINYL COMPOSITION TILE
EXST	EXISTING	PLK	PLANK	VERT	VERTICAL
FD	FLOOR DRAIN	PLYWD	PLYWOOD	VIF	VERIFY IN FIELD
FE	FIRE EXTINGUISHER	PM	PRESSED METAL	VTR	VENT THRU ROOF
FF	FACTORY FINISH	PR	PAIR	W	WIDE
FRGLSS	FIBERGLASS	PR	PRETREATED WATER SYSTEM, PAIR	W/	WITH
FIN	FINISHED	PRECAST	PRECAST	W/	WHERE APPLICABLE
FL	FLASHING	PREFAB	PREFABRICATED	WO	WITHOUT
		PREST	PRESSURE TREATED	WC	WATER CLOSET
		PRMILD	PREMILDED	WD	WIDTH
		PSP	POUNDS PER SQUARE FOOT	WD	WOOD
		PSI	POUNDS PER SQUARE INCH	WDW	WINDOW
		PTD	PAINTED	WF	WIDE FLANGE
		QT	QUARRY TILE	WPG	WATERPROOFING
		OTB	QUARRY TILE BASE RISER(S)	WT	STEEL TEE-SHAPE DESIGNATION
		R		WWF	WELDED WIRE FABRIC

### FINISH SCHEDULE

BUILDING	ROOM NUMBER	ROOM NAME	FLOORS		WALLS		CEILING		NOTE NO	NOTES	
			MAT'L	FIN	BASE	MAT'L	FIN	MAT'L			FIN
EAST GRIT AND SCREENING FACILITY	HWE-100	ELECTRICAL ROOM	CONC	HARD	-	CMU	PTD	CONC	PTD	-	1. EXISTING CONCRETE CEILING
	HWE-101	BLOWER ROOM	CONC	HARD	-	CMU	PTD	CONC	PTD	-	2. SF ON CONCRETE CONTAINMENT CURBS
	HWE-102	SCREEN ROOM	CONC	HARD	-	CMU	PTD	CONC	PTD	-	
	HWE-103	TOILET ROOM	CONC	RT	RB	CMU	PTD	ACT	SEE SPEC	10'-4"	
	HWE-104	STORAGE ROOM	CONC	HARD	-	CMU	PTD	CONC	PTD	-	
HWE-105	LOADING AREA	CONC	HARD	-	CMU	PTD	CONC	PTD	-		
WEST GRIT AND SCREENING FACILITY	HWW-100	BOILER ROOM	EXG	-	-	CMU	PTD	EXG	EXP	-	1
	HWW-101	ELECTRICAL/STORAGE ROOM	EXG	-	-	CMU	PTD	EXG	EXP	-	1
	HWW-102	SCREEN ROOM	EXG	-	-	EXG	-	EXG	EXP	-	1
	HWW-103	LOADING AREA	EXG	-	-	EXG	-	EXG	EXP	-	1
HWW-105	LOADING AREA	CONC	HARD	-	CMU	PTD	CONC	EXP	-	1	
SOUTH ACCESS STRUCTURE	PT1-100	MECHANICAL ROOM	EXG	-	-	CMU	PTD	EXG	PTD	-	1
	PT1-101	ELECTRICAL ROOM	CONC	HARD	-	CMU	PTD	EXG	PTD	-	1
NEW ACCESS STRUCTURE	PT2-001	STAIR	CONC	HARD	-	CMU	PTD	CONC	PTD	-	-
	PT2-100	STAIR	CONC	HARD	-	CMU	PTD	CONC	PTD	-	-
	PT2-101	ELECTRICAL/INSTRUMENTATION ROOM	CONC	HARD	-	CMU	PTD	CONC	PTD	-	-
DISINFECTION FACILITY	DF-001	SODIUM HYPOCHLORITE ROOM	CONC	SF	SF	CMU	PTD	EXG	PTD	-	1.2
	DF-002	SODIUM BISULFATE ROOM	CONC	SF	SF	CMU	PTD	EXG	PTD	-	1.2
	DF-003	BASEMENT	EXG	-	-	CMU	PTD	EXG	EXP	-	1
	DF-100	ENCLOSED STAIR	EXG	-	-	CMU/GYP	PTD	GYP/EXG	PTD	-	1
	DF-101	ELECTRICAL ROOM	EXG	-	-	CMU	PTD	EXG	PTD	-	1
DF-102	ENTRY	EXG	-	RB	CMU/GYP	PTD	EXG	PTD	-	1	
SLUDGE PROCESSING COMPLEX	SPC-100	ELECTRICAL ROOM	CONC	HARD	RB	EXG/GYP	PTD	EXG	PTD	-	1.3
	SPC-101	CONTROL ROOM	CONC	ACCESS FLR	RB	GYP	PTD	ACT	-	8'-6"	-
	SPI-100	ELECTRICAL ROOM	CONC	-	-	GYP	FRP	EXG	EXP	-	1

### PARTITION TYPES



### RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	AABBR100.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	D. GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	NTS
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

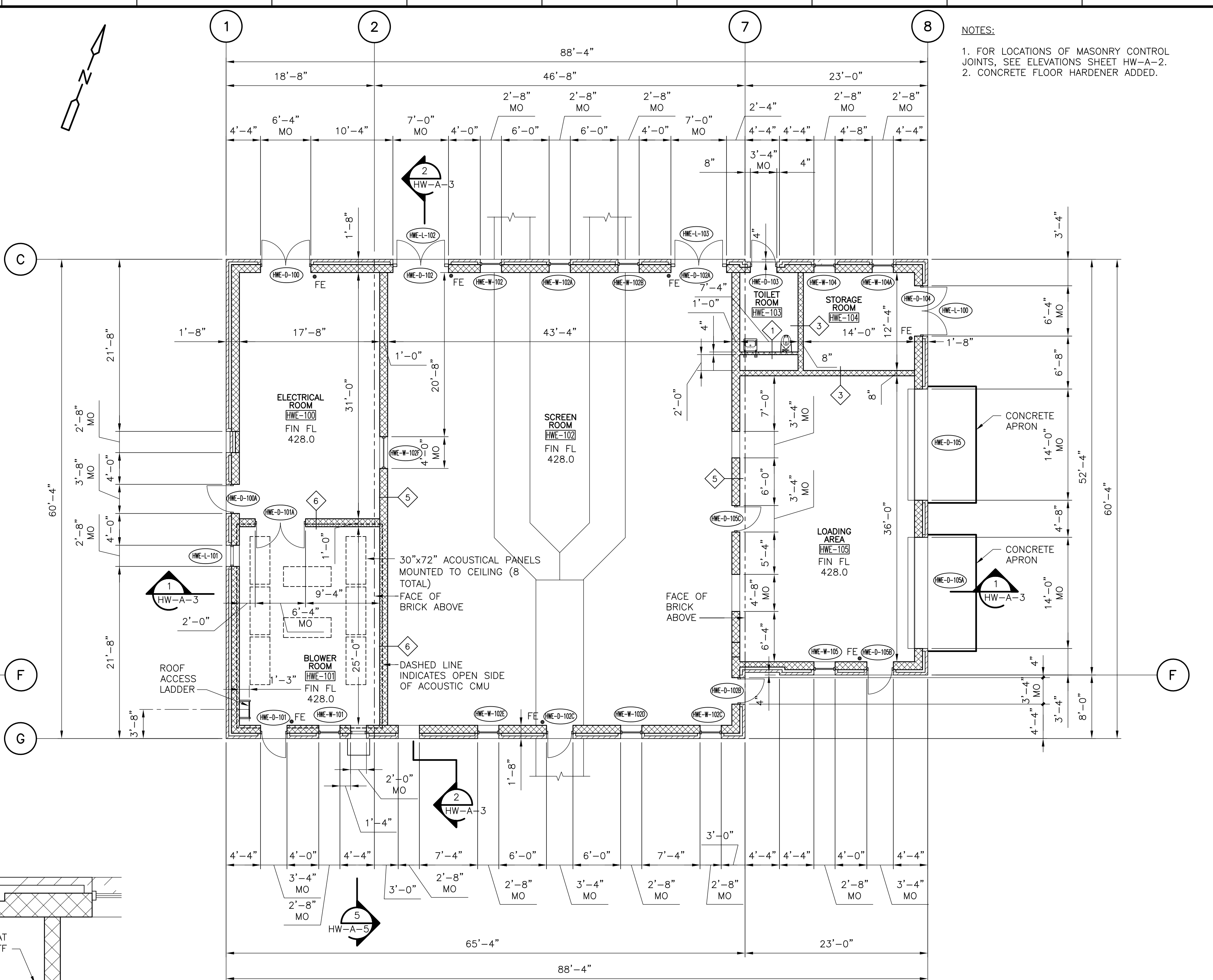
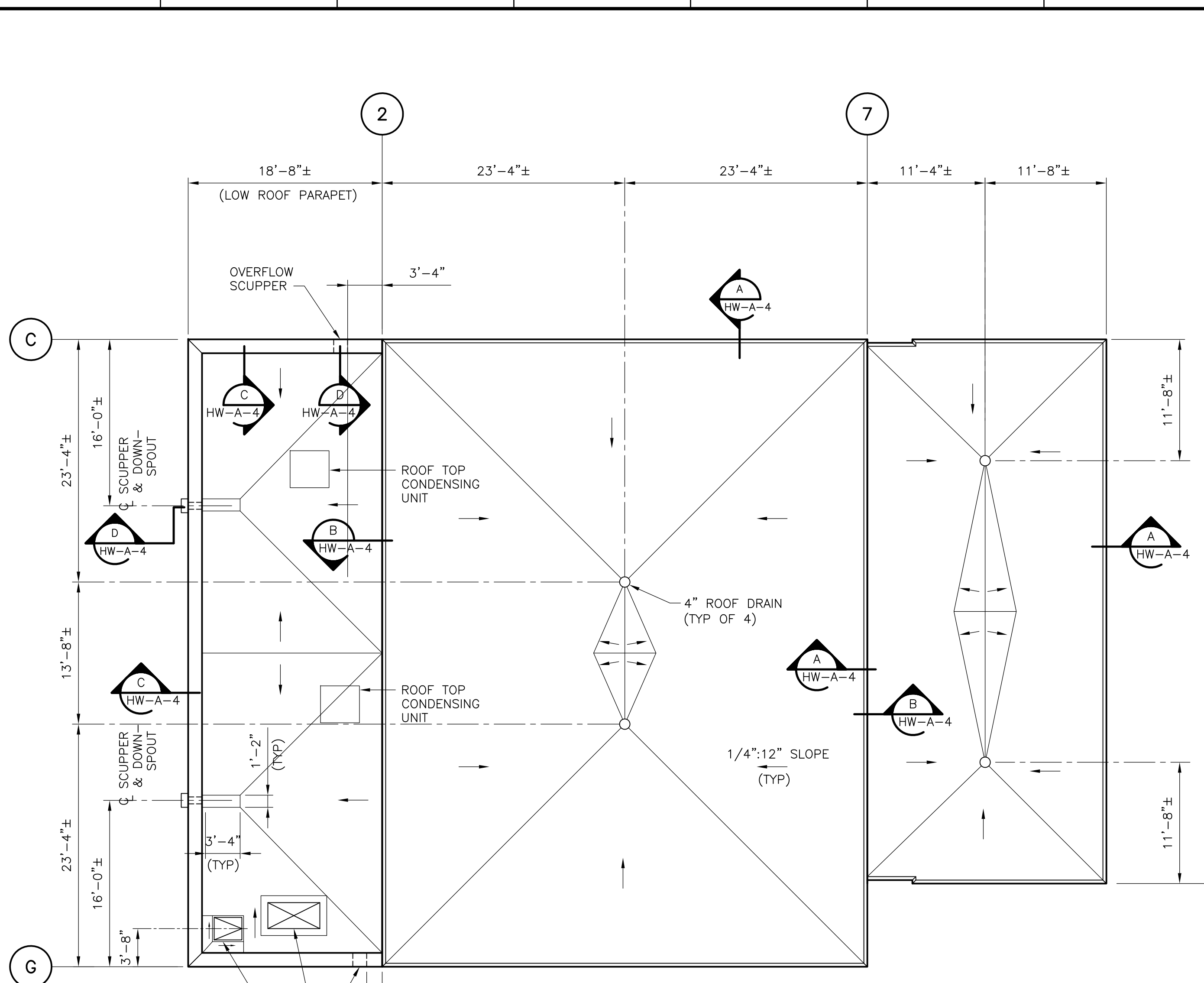
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**ABBREVIATIONS, SYMBOLS  
 FINISH SCHEDULE AND PARTITION TYPES**

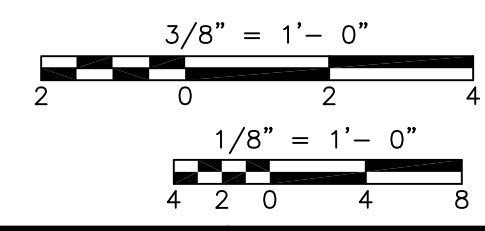
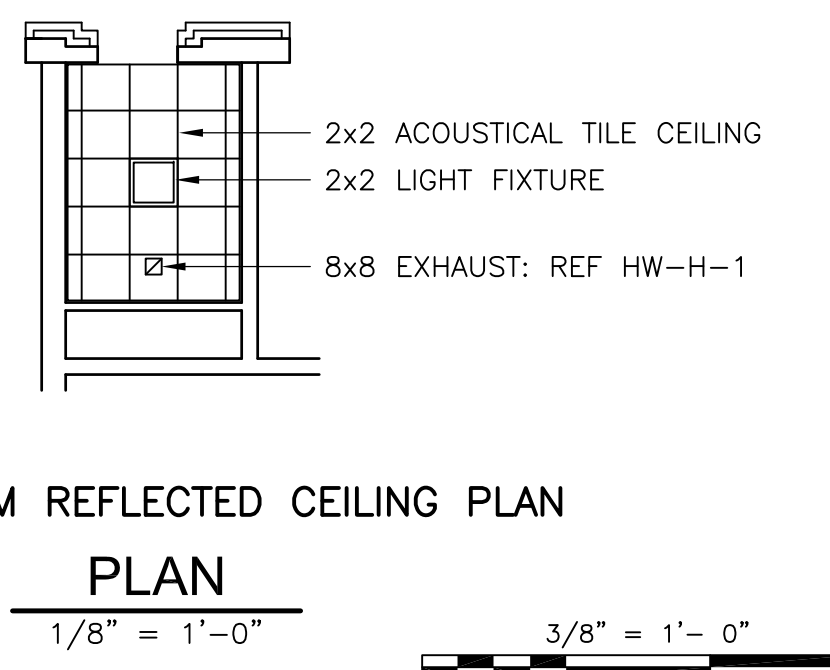
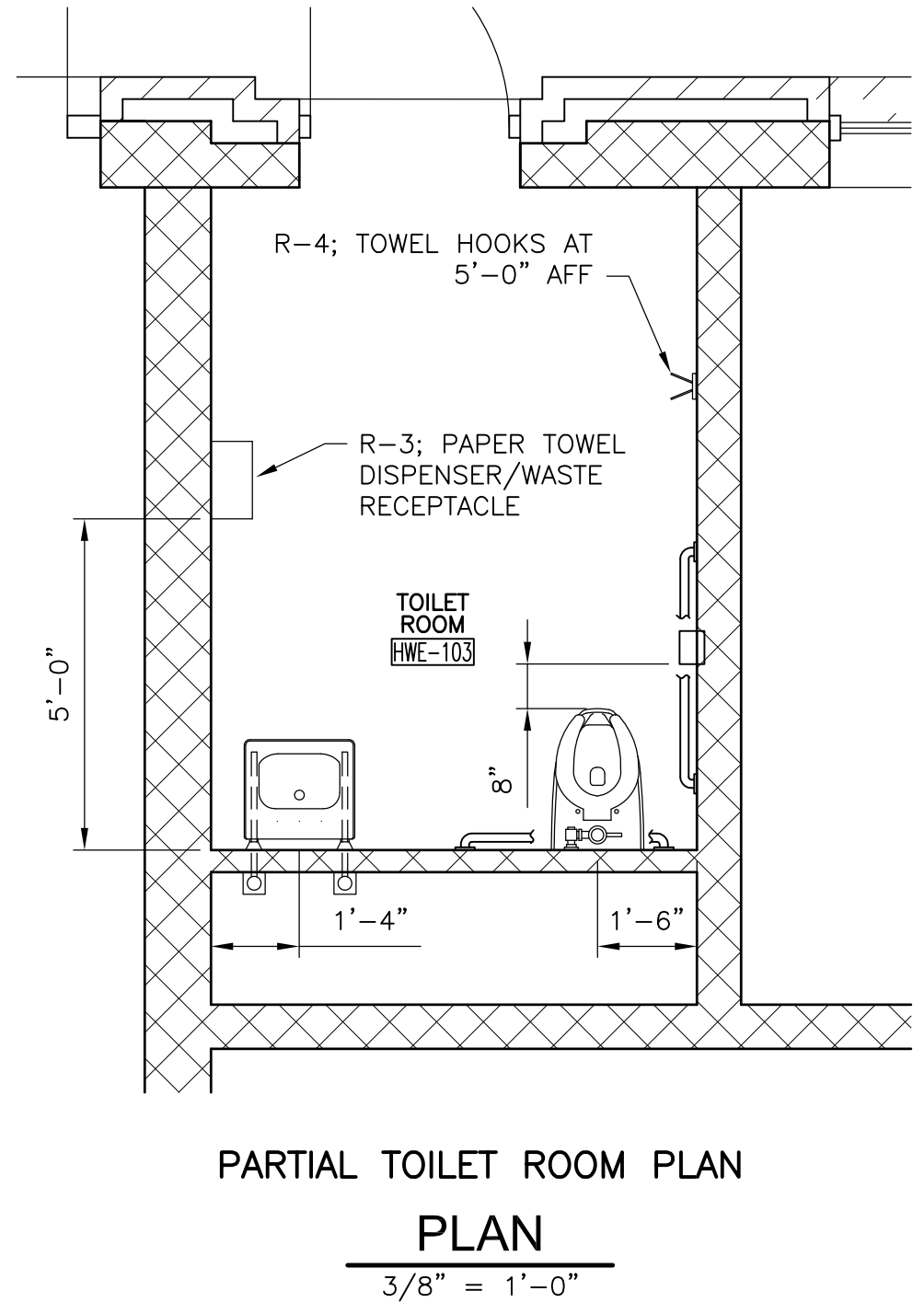
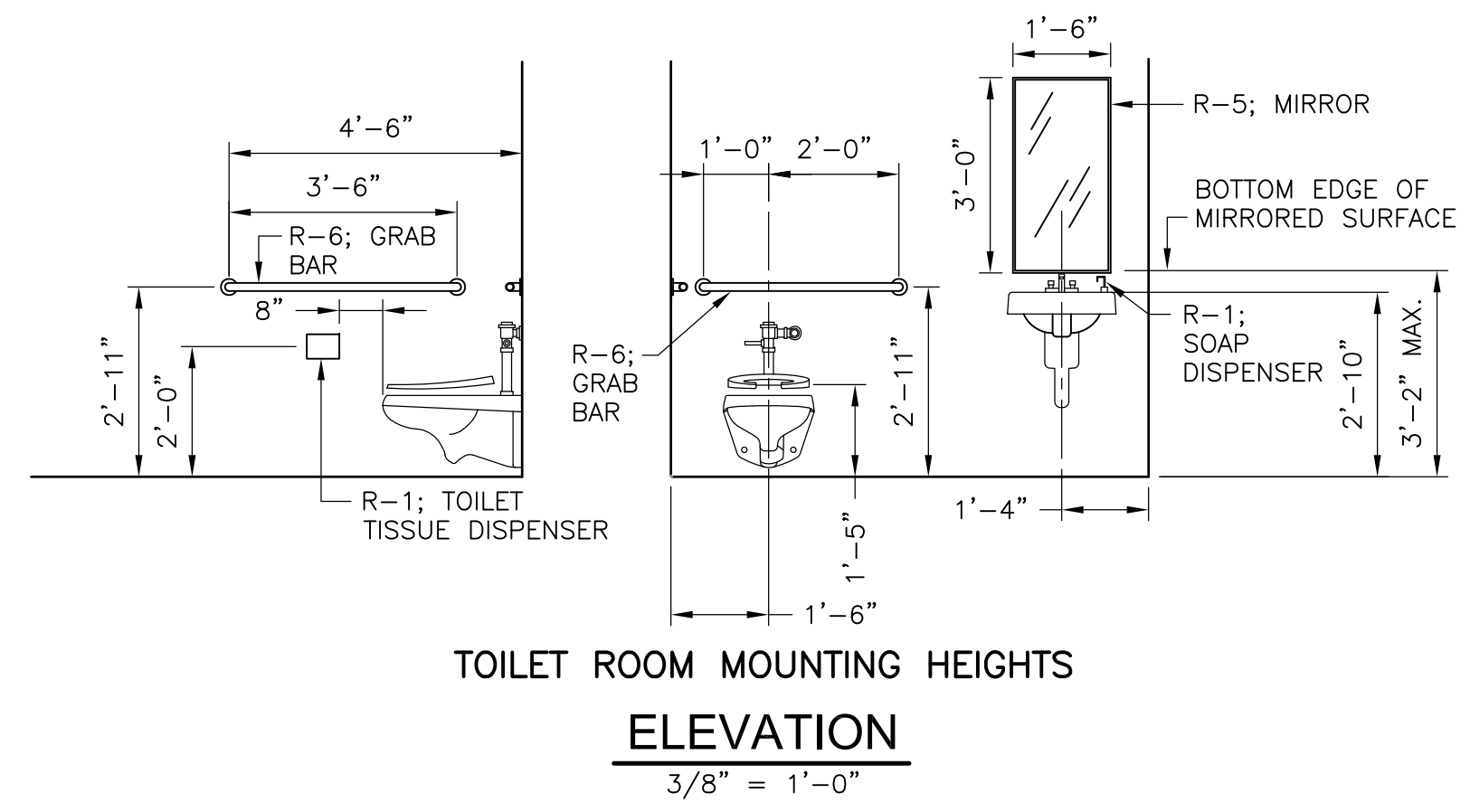
GD-A-2

PROJECT NO.	1289\35370
Sht.	45 of 386

Filename: P:\1289\35370\PHASE1\RECORD\SW\_A\_AGRP001.dwg Xrefs: [C24X36H.AGRWP001, AGRWP003, AGRWP001, AGRWP005, ] Plotted by: CROSSHA Time: 12/16/08 6:18:57 PM



**NOTES:**  
 1. FOR LOCATIONS OF MASONRY CONTROL JOINTS, SEE ELEVATIONS SHEET HW-A-2.  
 2. CONCRETE FLOOR HARDENER ADDED.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.	AGRP001.DWG
DESIGNED BY:	BLAIS/ANDERSON
DRAWN BY:	BLAIS/ANDERSON
SHEET CHK'D BY:	S. BLAIS
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

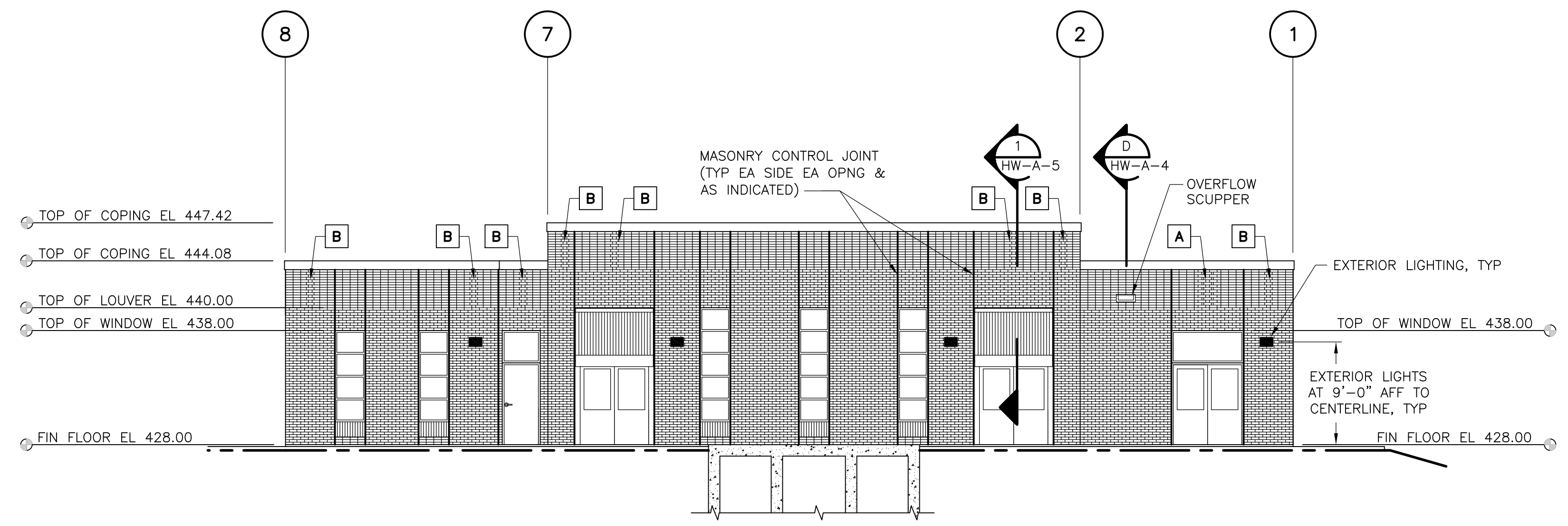
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**EAST GRIT AND SCREENING FACILITY - PLANS**  
 HW-A-1

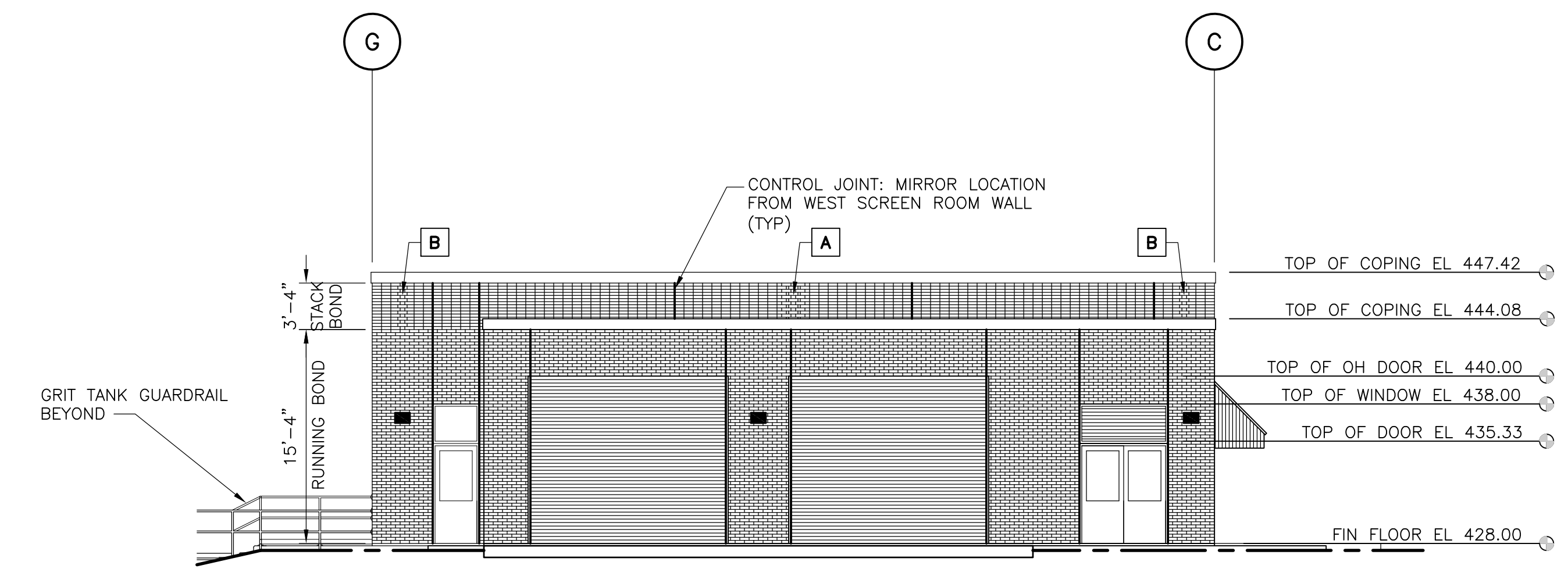
PROJECT NO. 1289\35370  
 Sht. 46 of 386  
 CROSSHA

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\SW\_A\AGRELO02.dwg Xref's: [C24X36H\_AGRWE02.] Plotted by: CROSSJA Time: 12/16/08 6:19:01 PM

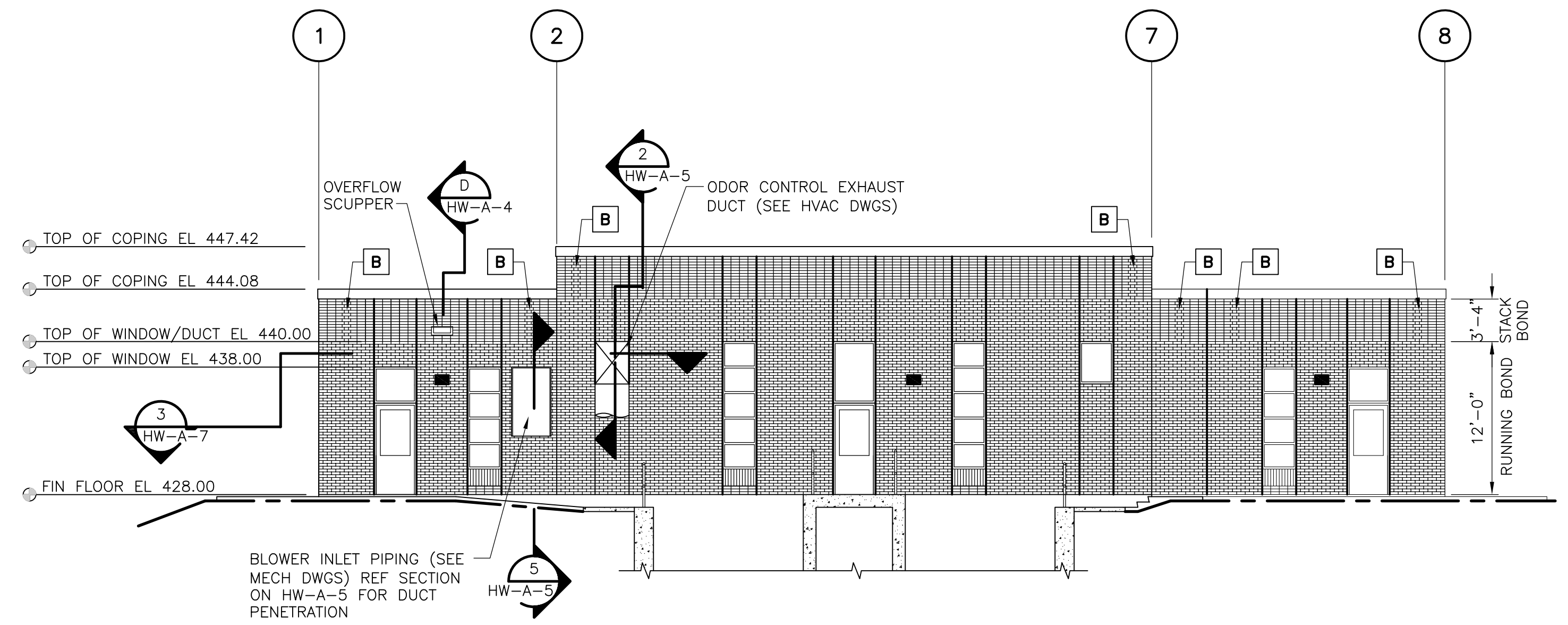
NOTES:  
 1. [X] DENOTES BRICK PATTERN.  
 SEE DETAIL F, SHEET HW-A-4



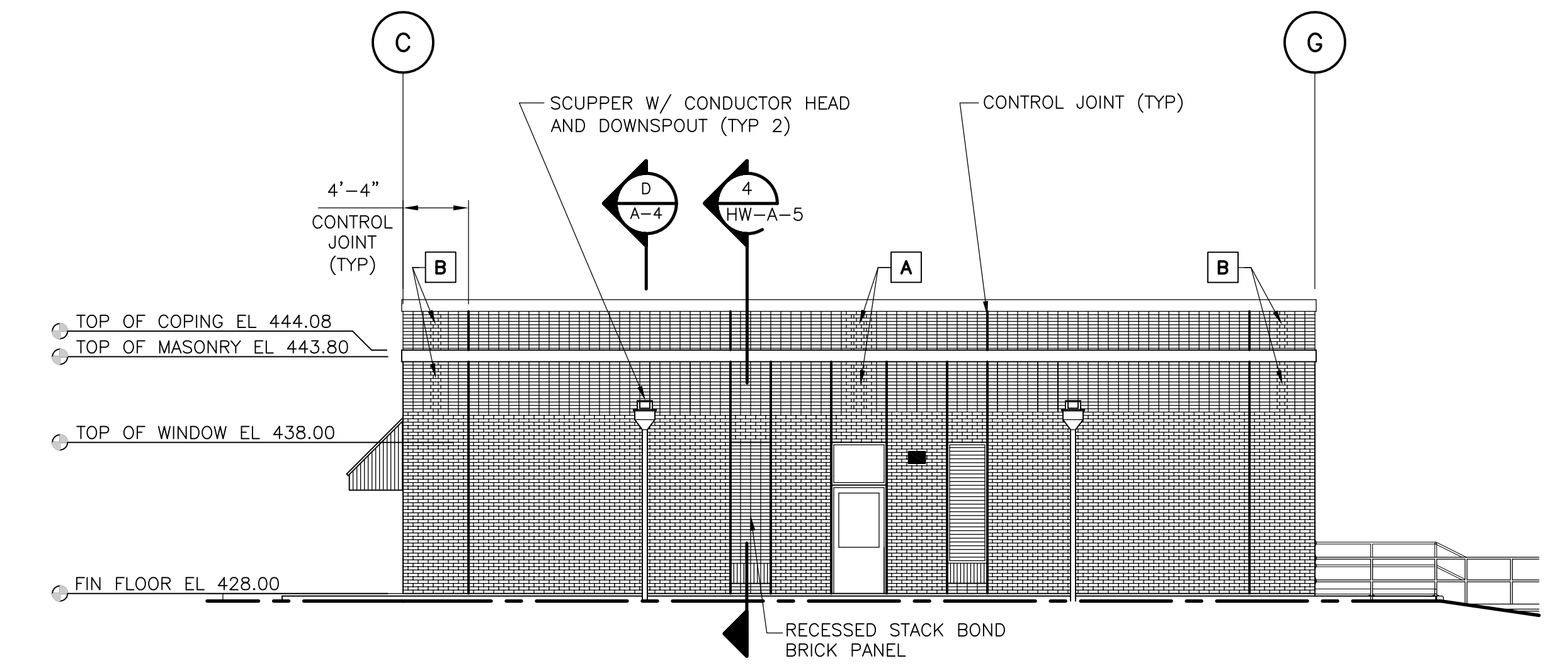
**NORTH ELEVATION**  
 1/8" = 1'-0"



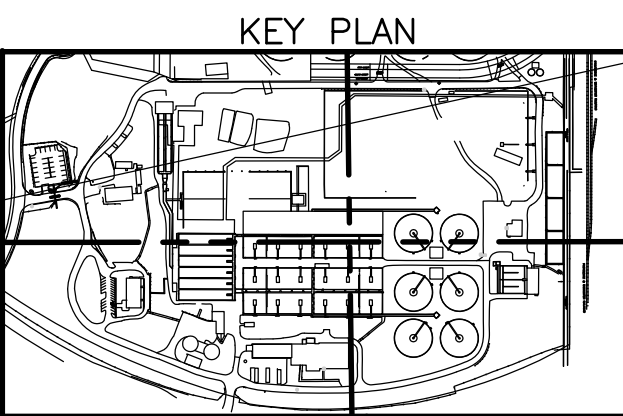
**EAST ELEVATION**  
 1/8" = 1'-0"



**SOUTH ELEVATION**  
 1/8" = 1'-0"



**WEST ELEVATION**  
 1/8" = 1'-0"



RECORD DRAWING 1/8" = 1'-0"

REV.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	AGRELO02.DWG
DESIGNED BY:	BLAIS/ANDERSON
DRAWN BY:	BLAIS/ANDERSON
SHEET CHK'D BY:	S. BLAIS
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

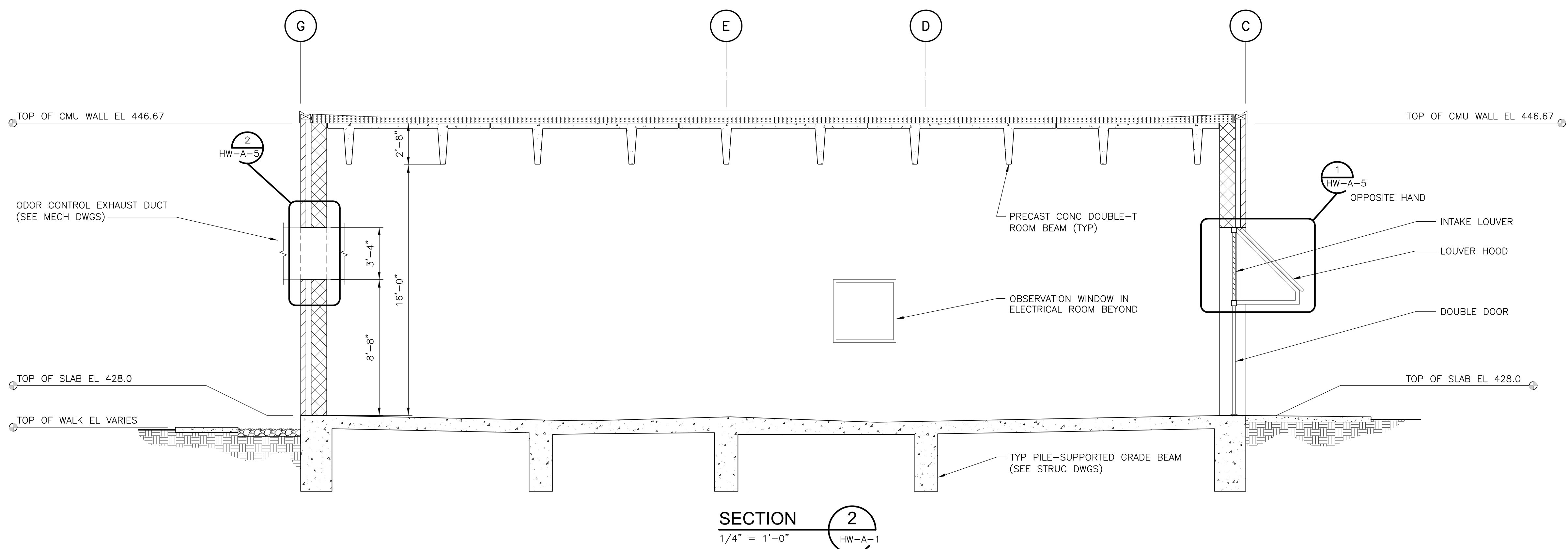
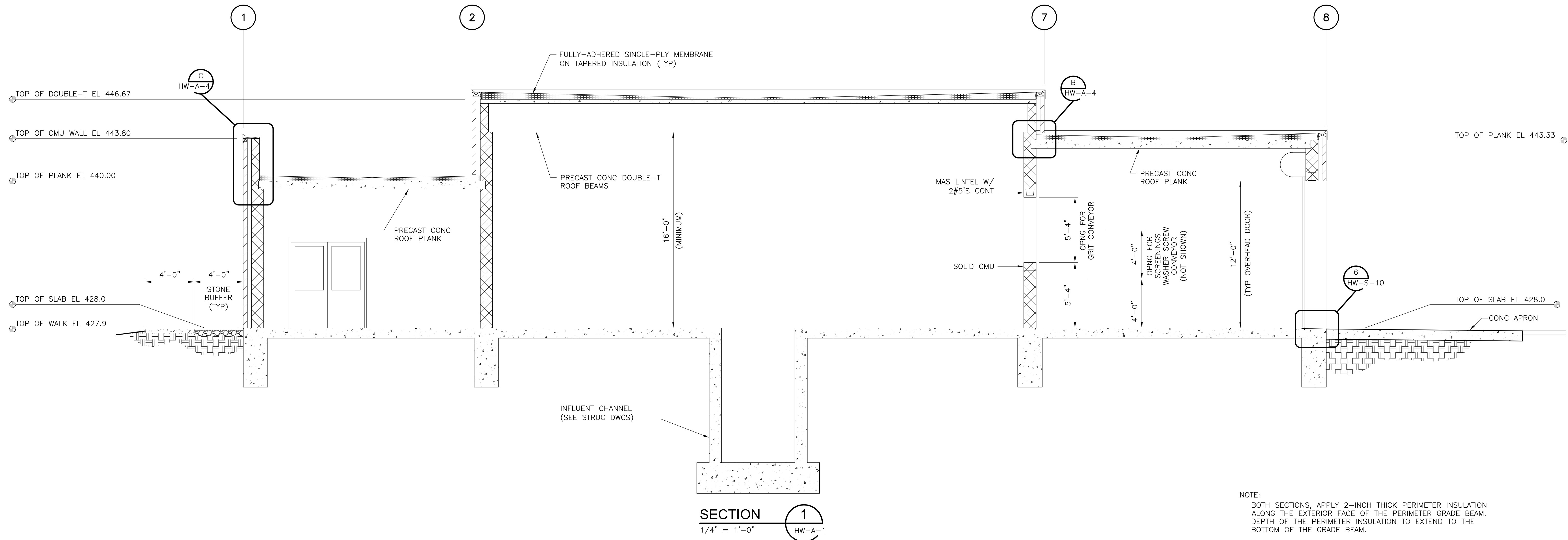


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

EAST GRIT AND SCREENING FACILITY -  
 EXTERIOR ELEVATIONS

PROJECT NO.  
 1289\35370  
 Sht. 47 of 386  
 HW-A-2

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
 File name: P:\1289\35370\PHASE1\RECORD\SW\_A\AGRS003.dwg Xref's: [C24X36H, AGRWP003, AGRWS003, AGRWP001, ] Plotted by: CROSSJA Time: 12/16/08 6:19:05 PM



RECORD DRAWING 1/4" = 1'-0"  
2 1 0 2 4

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO. AGRS003.DWG  
 DESIGNED BY: S. ANDERSON  
 DRAWN BY: S. ANDERSON  
 SHEET CHK'D BY: S. BLAIS  
 SCALE: AS NOTED  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2006

CDM  
 Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

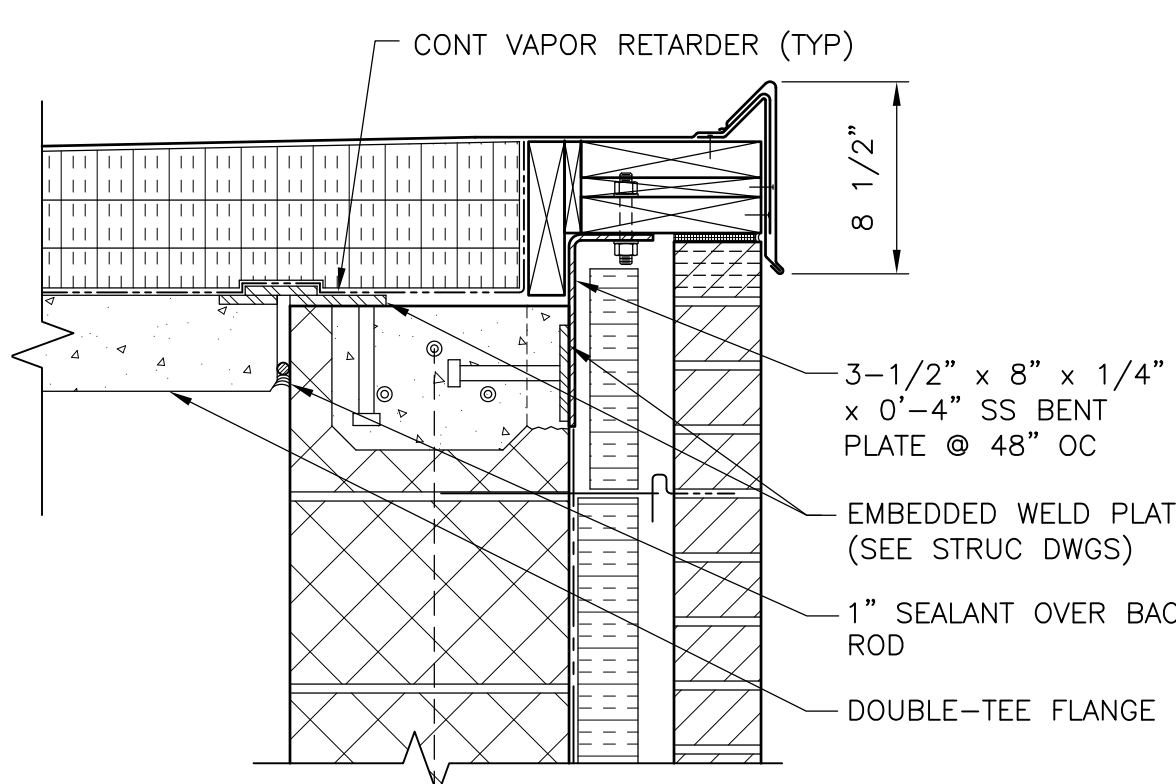
**EAST GRIT AND SCREENING FACILITY -  
 BUILDING SECTIONS**

PROJECT NO.  
 1289\35370  
 Sht. 48 of 386  
**HW-A-3**

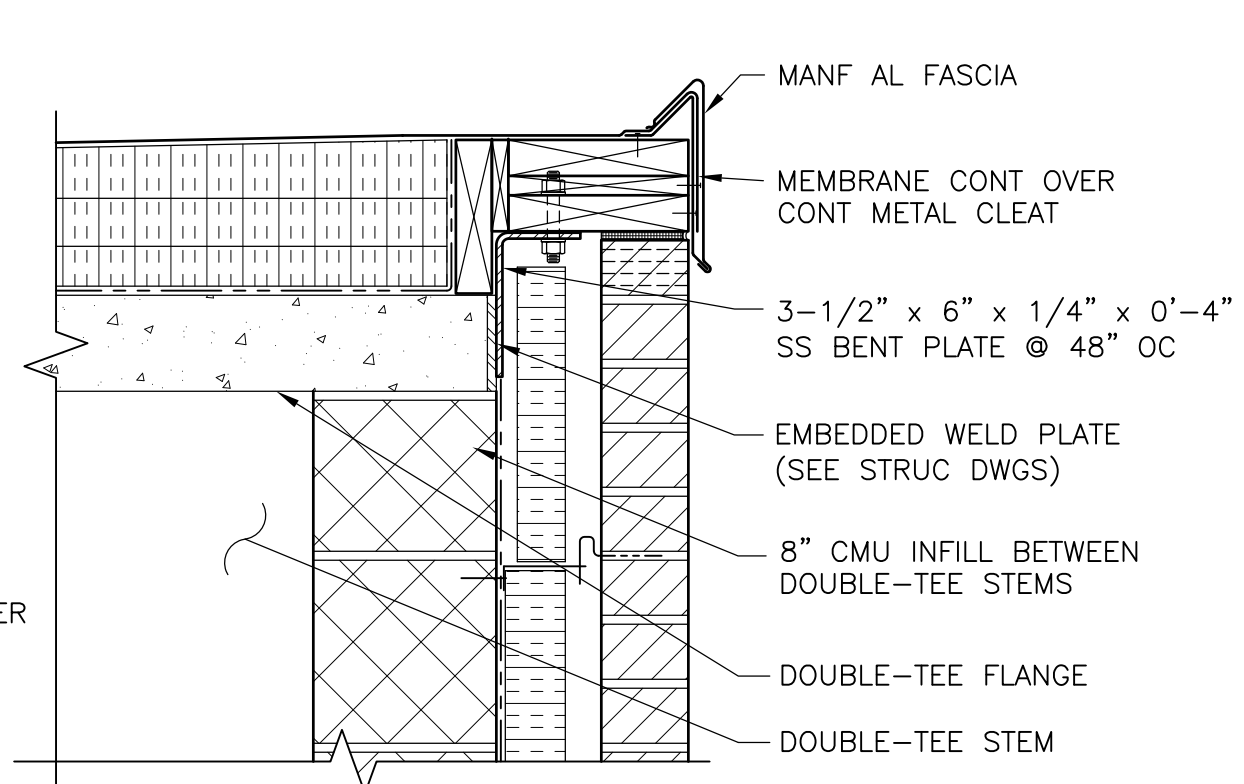
ACCESSION NO. 1289-65448



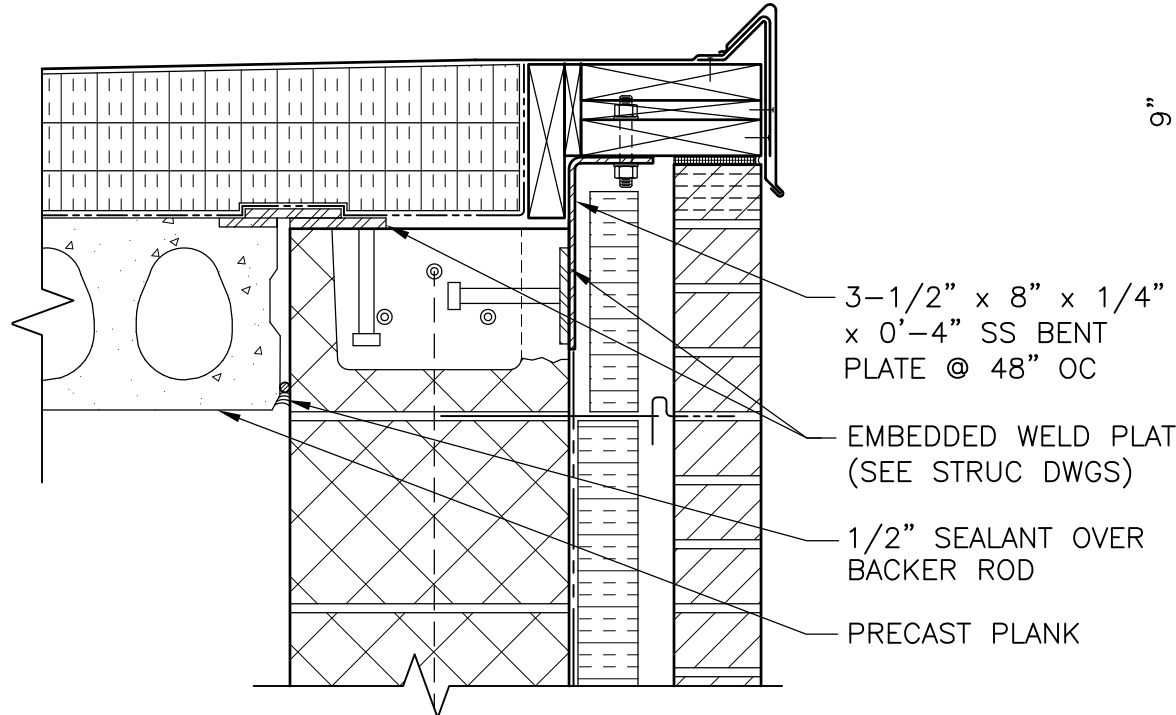
UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:19:08 PM  
 File: P:\1289\35370\PHASE1\RECORD\SW\_A\AGRD004.dwg Xref's: [C24X36H.AGRW002.]



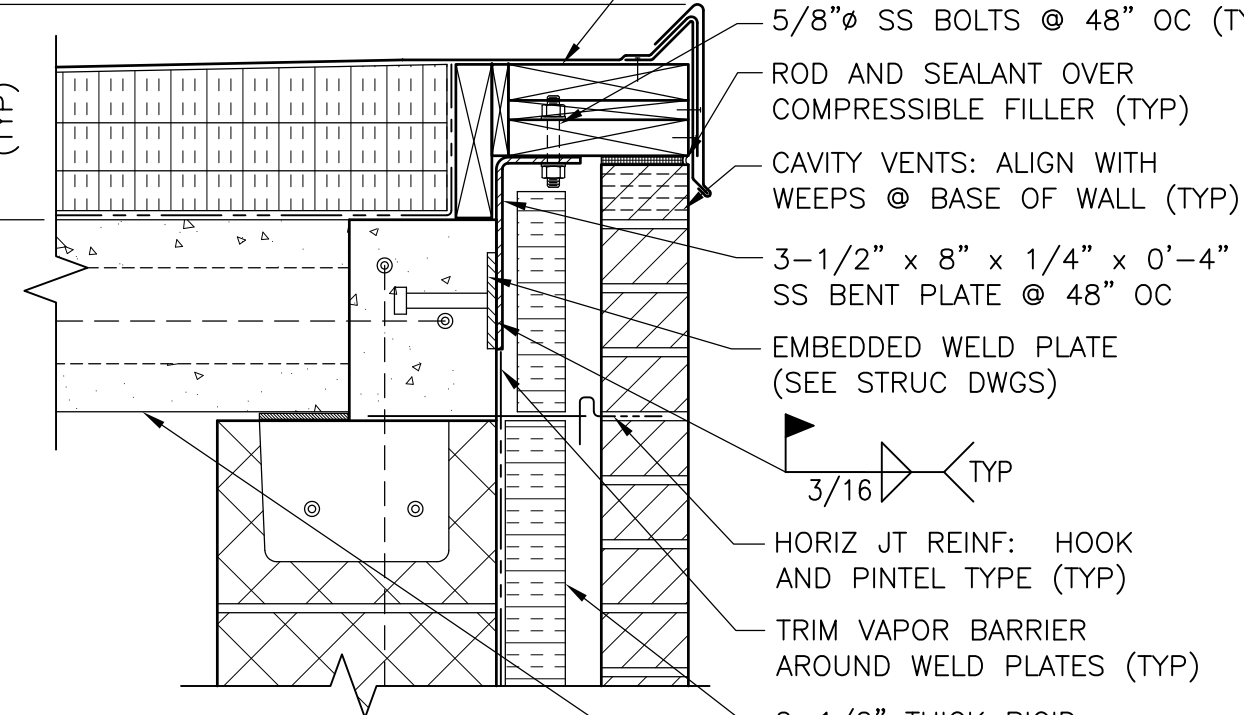
AT HIGH ROOF SIDEWALLS



AT HIGH ROOF BEARING WALLS

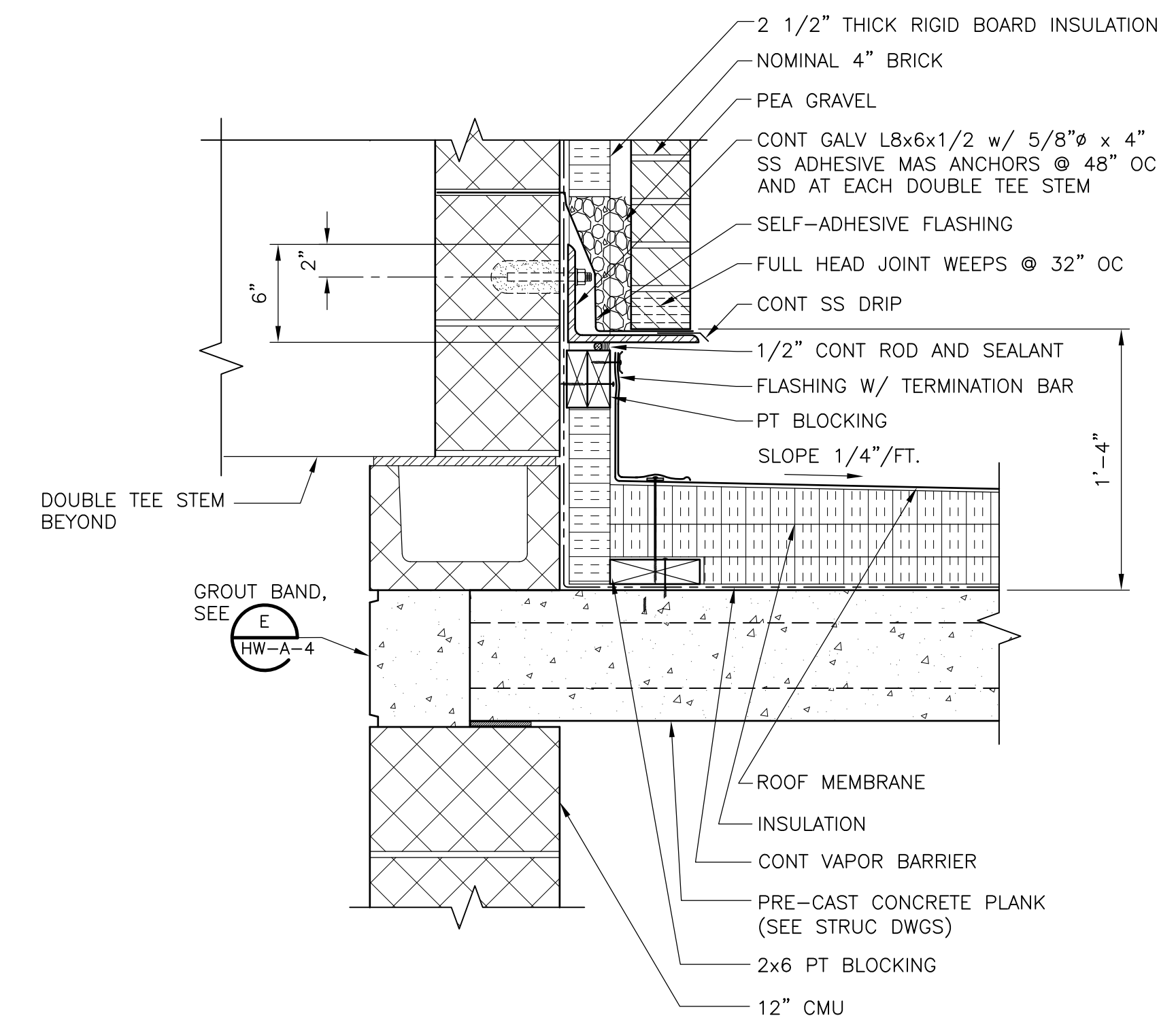


AT LOW ROOF SIDEWALLS

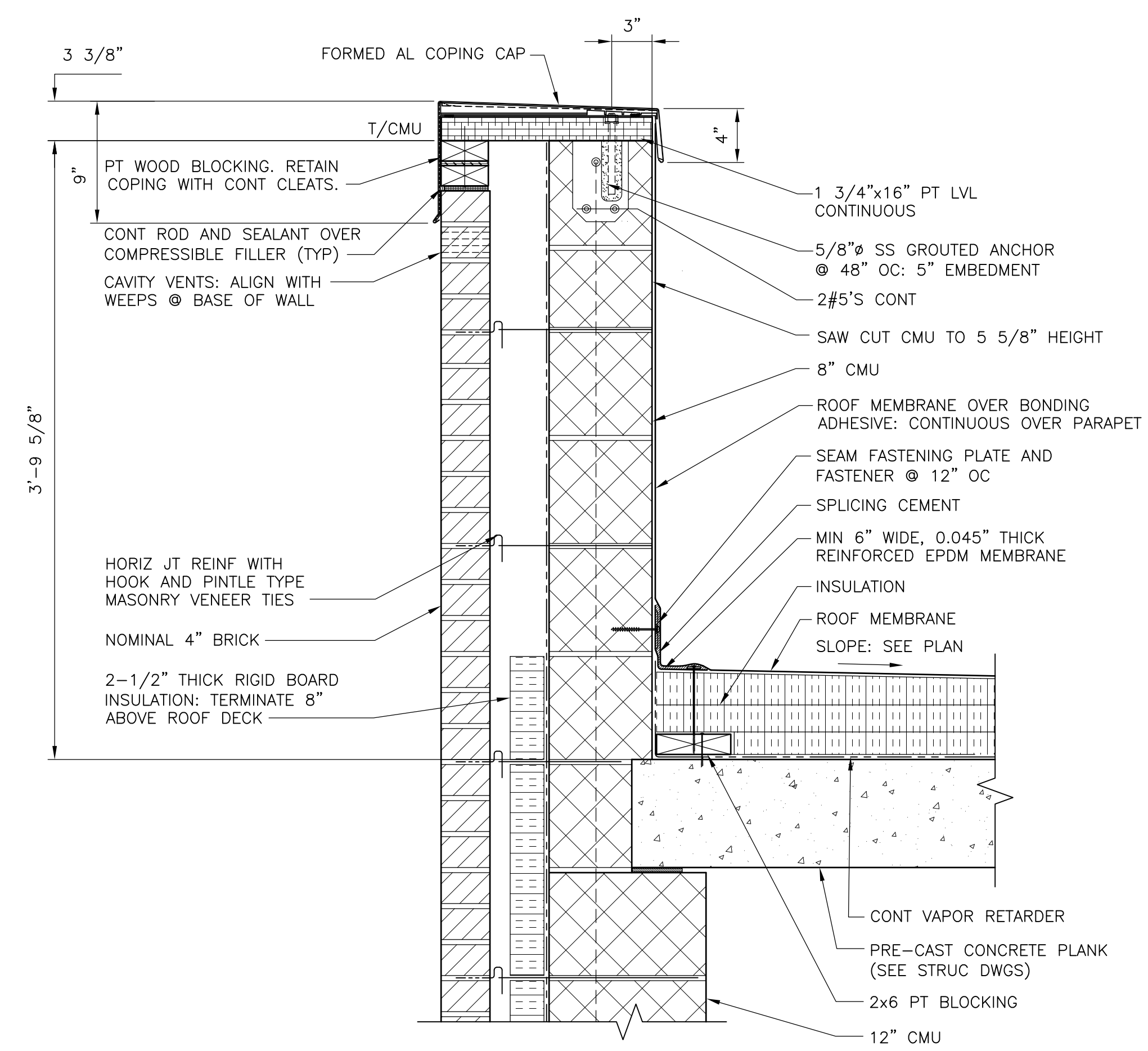


AT LOW ROOF BEARING WALLS

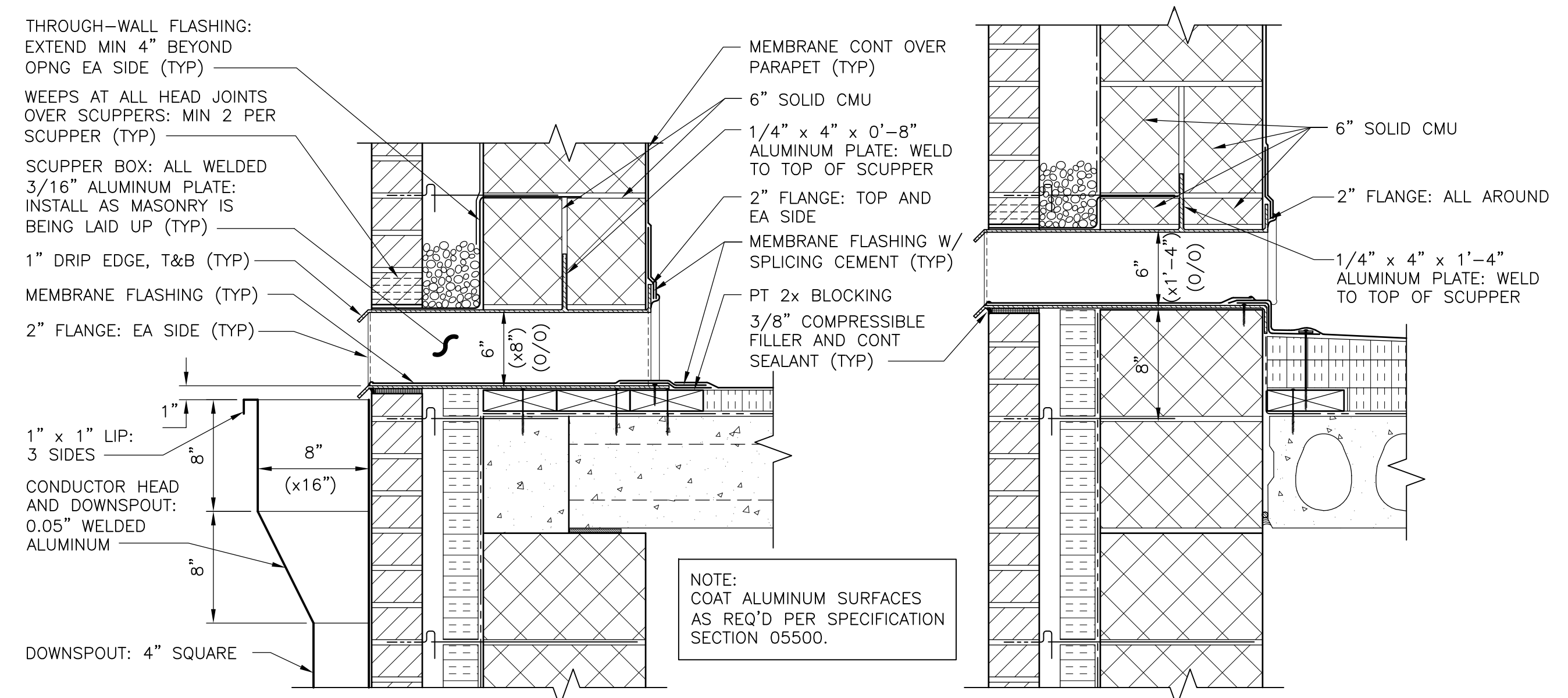
ROOF EDGE BLOCKING  
 DETAIL A  
 1 1/2" = 1'-0" HW-A-1



LOW ROOF AT HIGH WALL  
 DETAIL B  
 1 1/2" = 1'-0" HW-A-1



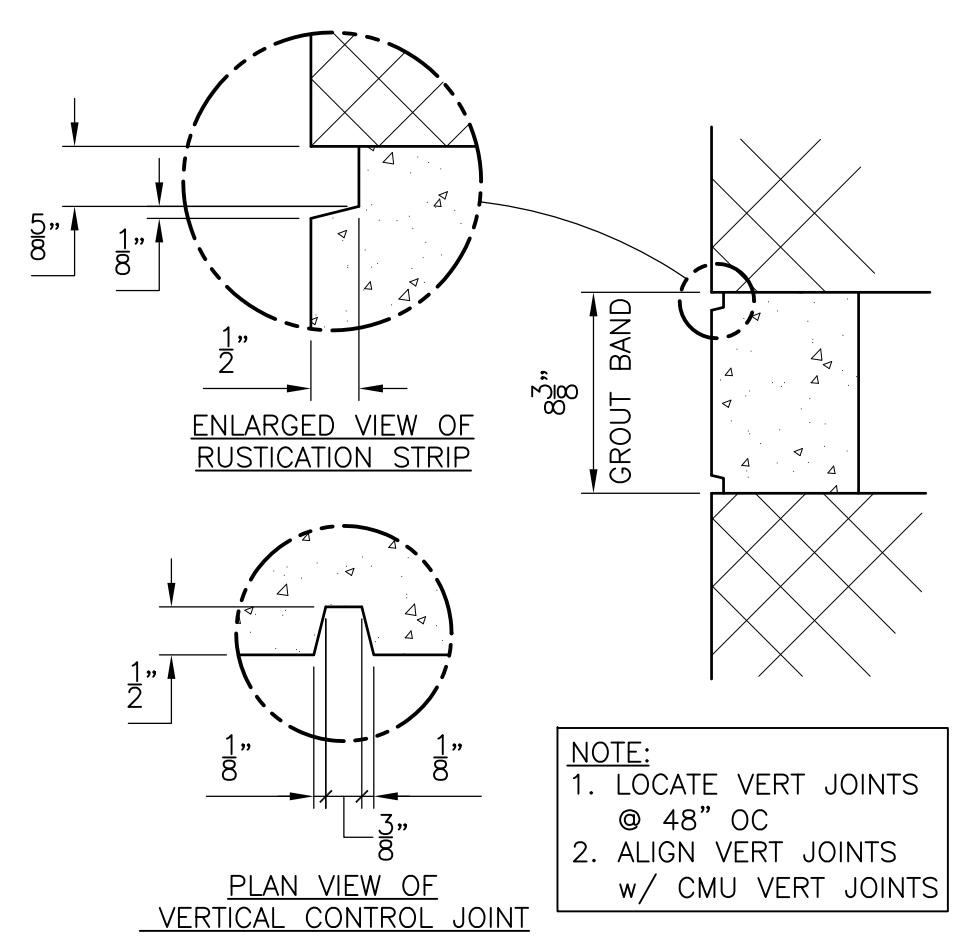
LOW ROOF PARAPET  
 DETAIL C  
 1 1/2" = 1'-0" HW-A-1



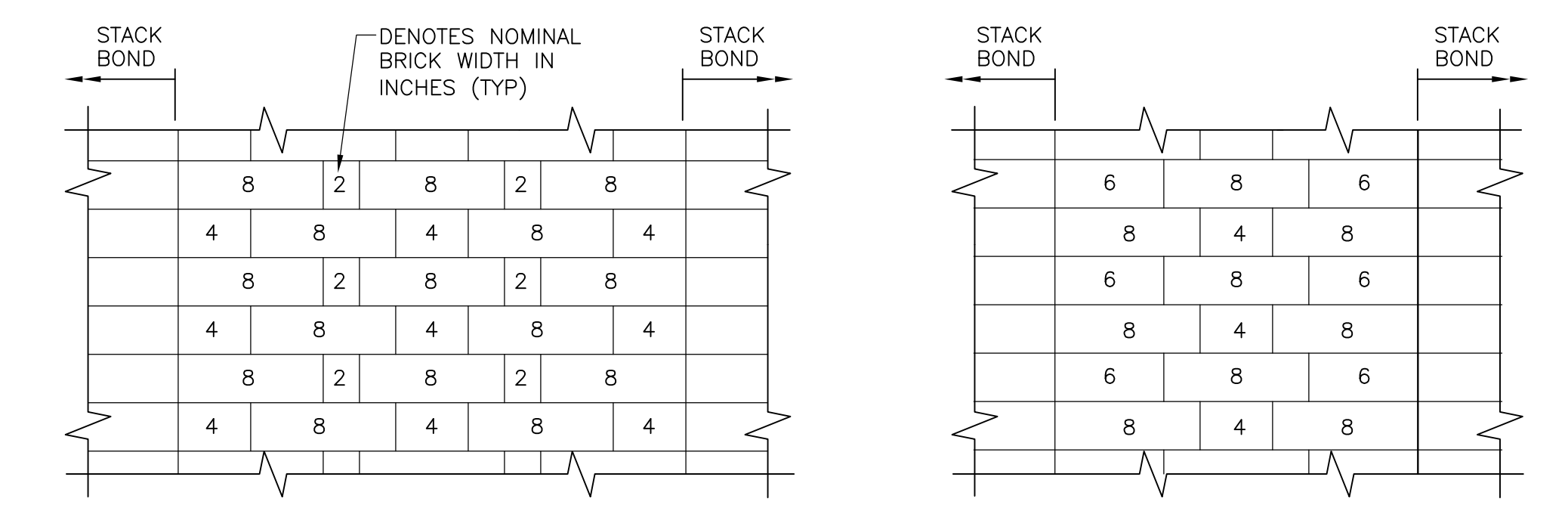
PRIMARY SCUPPERS

OVERFLOW SCUPPERS

ROOF SCUPPERS  
 DETAIL D  
 1 1/2" = 1'-0" HW-A-1



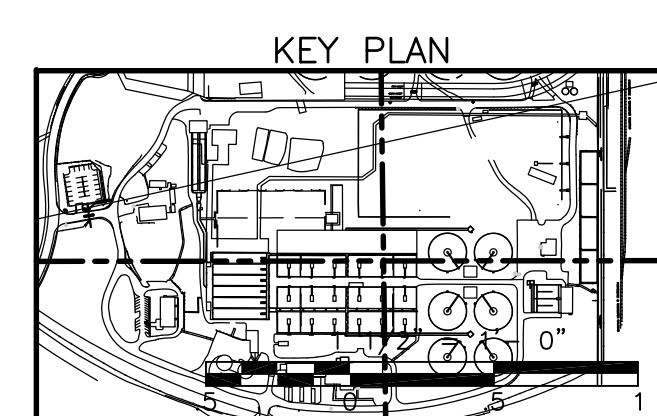
GROUT BAND  
 DETAIL E  
 1 1/2" = 1'-0" HW-A-1



PATTERN A

PATTERN B

BRICK PATTERN BETWEEN STACK BOND BRICK PATTERNS  
 DETAIL F  
 1 1/2" = 1'-0" HW-A-1



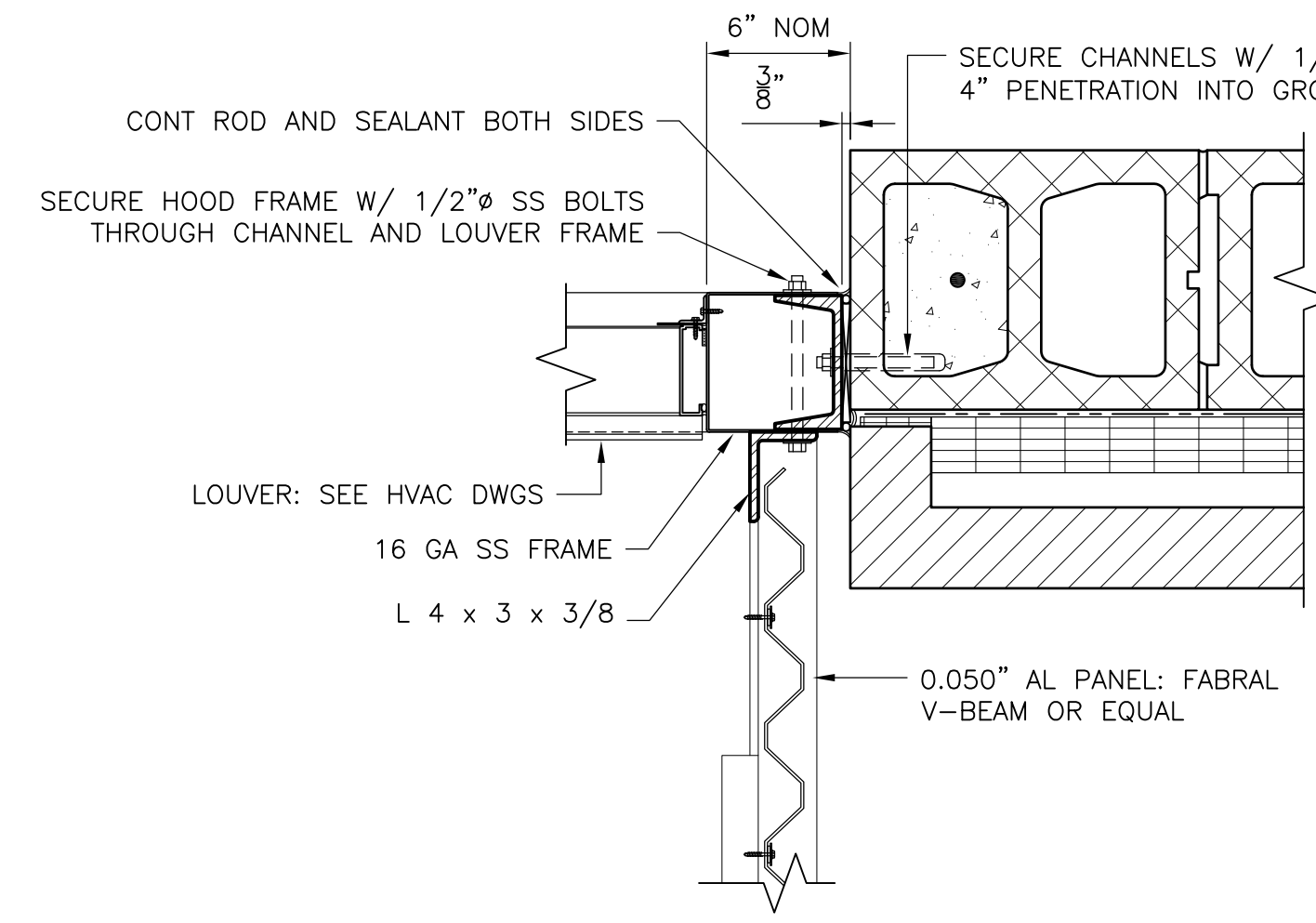
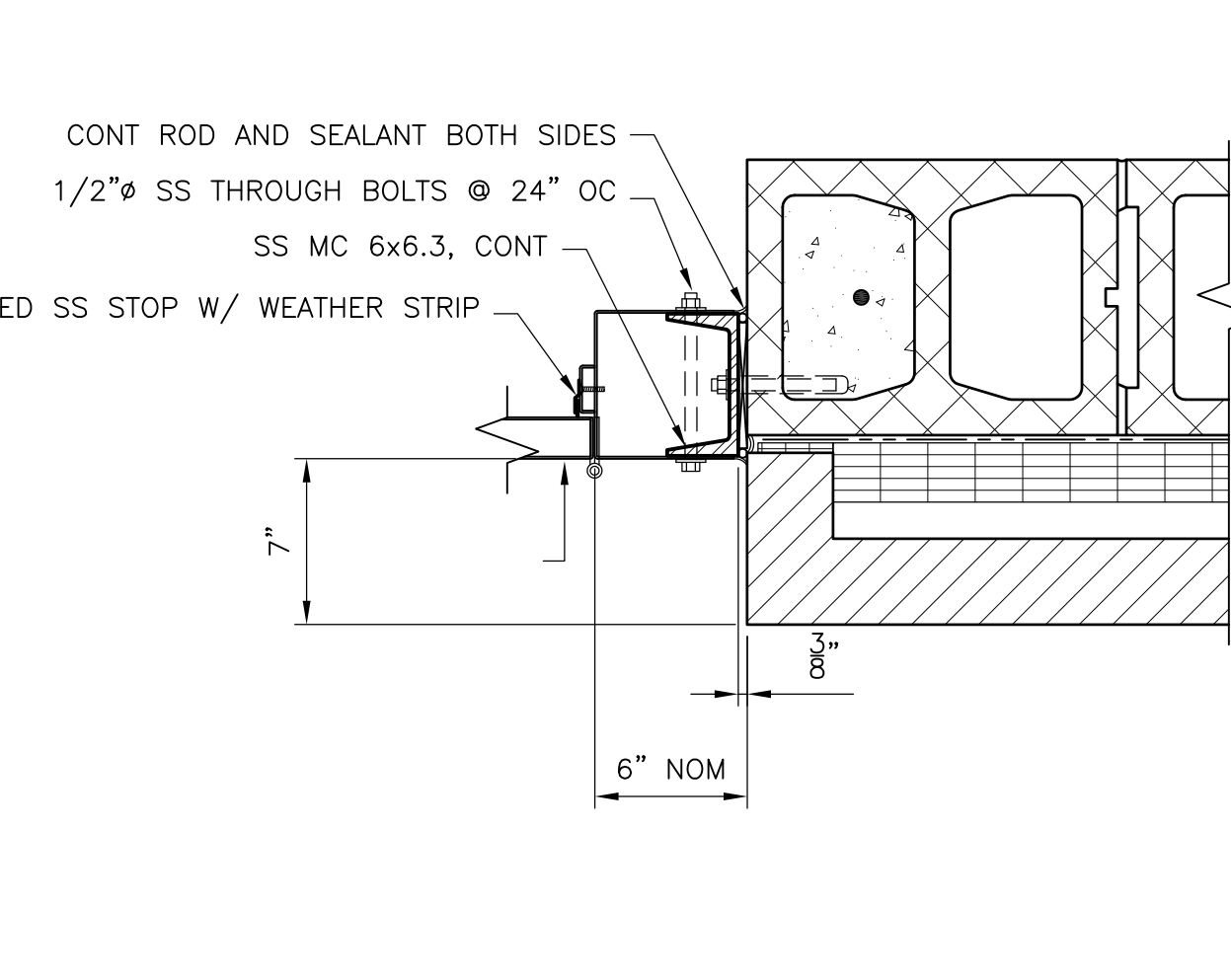
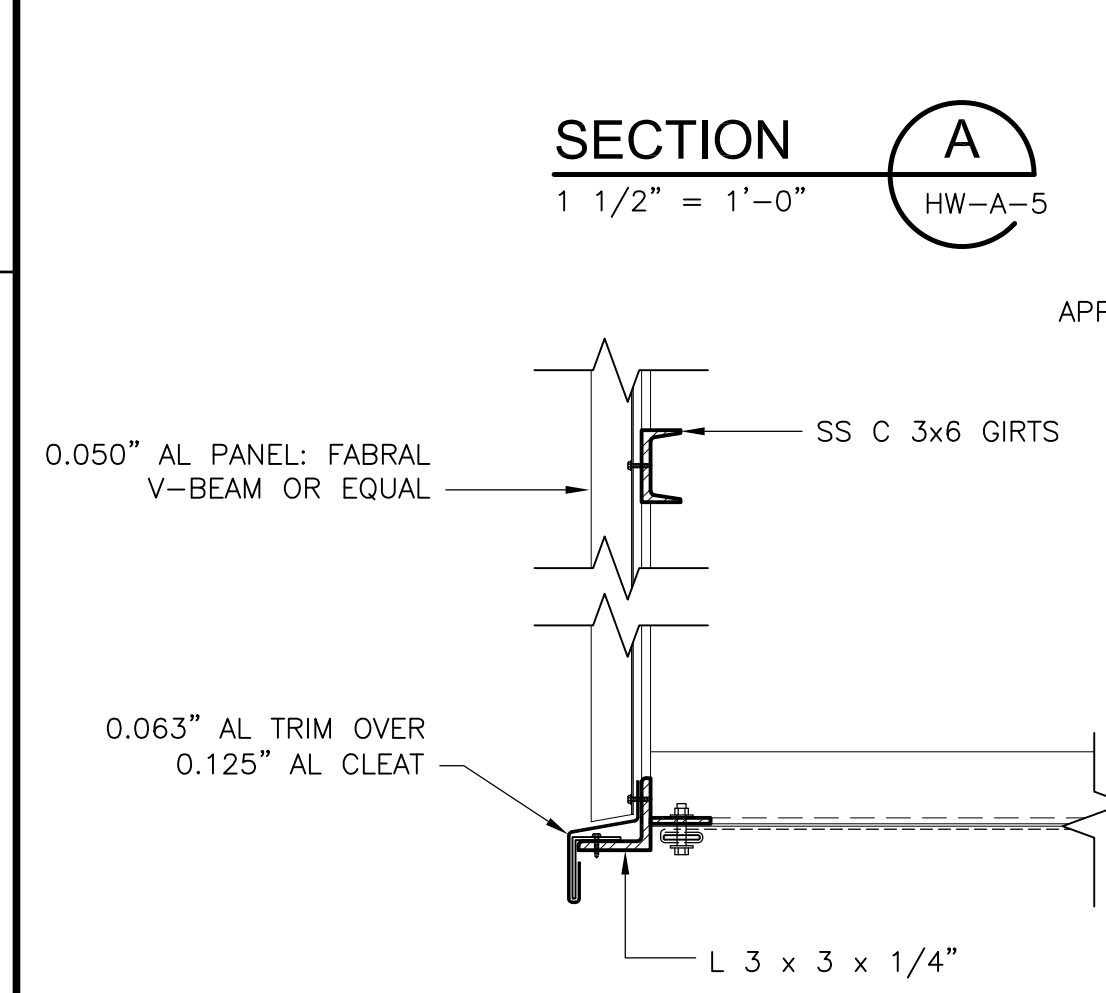
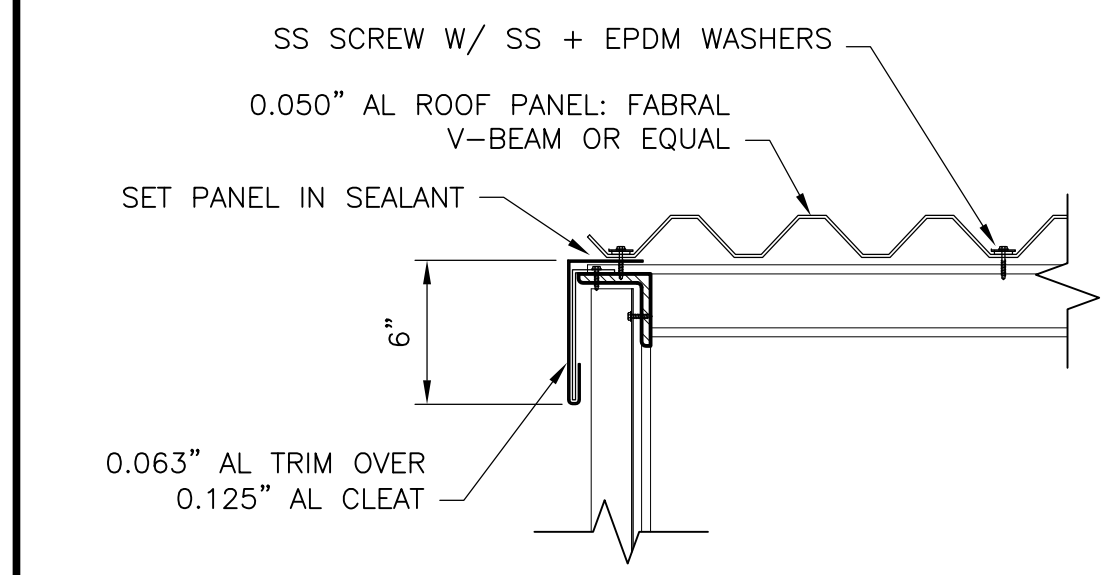
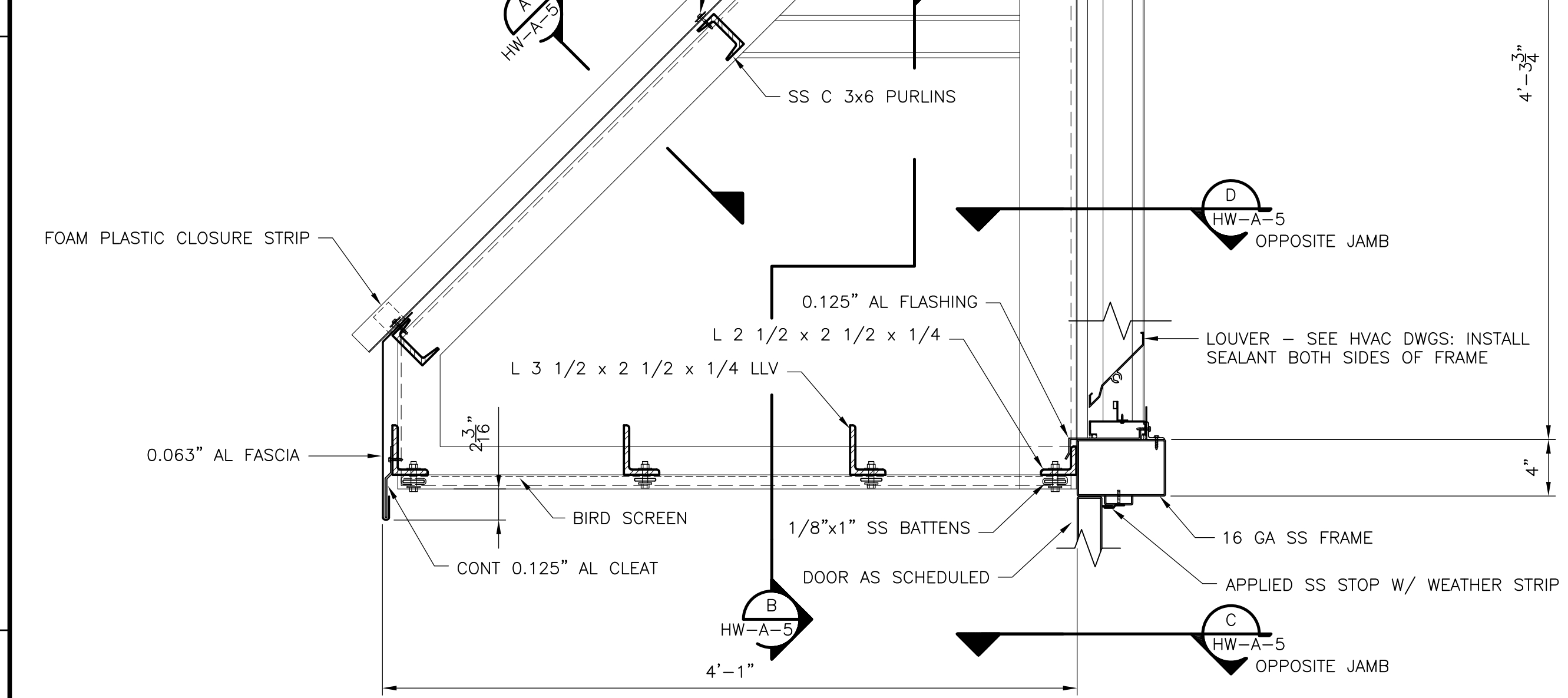
KEY PLAN

RECORD DRAWING

CADD FILE NO. AGRD004.DWG DESIGNED BY: S. ANDERSON DRAWN BY: S. ANDERSON SHEET CHK'D BY: S. BLAIS SCALE: AS NOTED APPROVED BY: _____ DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024 <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370 Sht. 49 of 386 <b>HW-A-4</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
	10/07	JAL	ADT	REVISED FOR THE RECORD					

ACCESSION NO. 1289-65449

- NOTES:
1. ALL CHANNELS, ANGLES AND FASTENERS USED IN THE HOOD FRAME ARE TO BE TYPE 304 STAINLESS STEEL.
  2. ALL HOOD FRAME MEMBERS TO BE WELDED, SEE SPEC SECTION 05500.
  3. ALL FASTENERS ARE TO BE SS.
  4. ISOLATE DISIMILIAR METALS.
  5. SUBMIT SHOP DRAWINGS.
  6. ROOF PANELS TO BE 0.050" ALUMINUM, V-BEAM BY FABRAL, LANCASTER, PA, OR EQUAL.
  7. FLASHINGS, FASTENERS, CLOSURE STRIPS, FASCIAS AND TRIM TO BE SUPPLIED BY ROOF PANEL MANUFACTURER. COLOR OF ALL VISIBLE ALUMINUM PRODUCTS IS TO MATCH. COLOR TO BE SELECTED BY OWNER FROM THE FULL RANGE OF THE MANUFACTURER'S AVAILABLE COLORS. SUBMIT COLOR CHIPS FOR SELECTION.
  8. ROOF PANEL SYSTEM, INCLUDING FASTENERS, MUST BE DESIGNED TO MEET THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE FOR WIND RESISTANCE.



SECTION D  
1 1/2" = 1'-0" HW-A-2

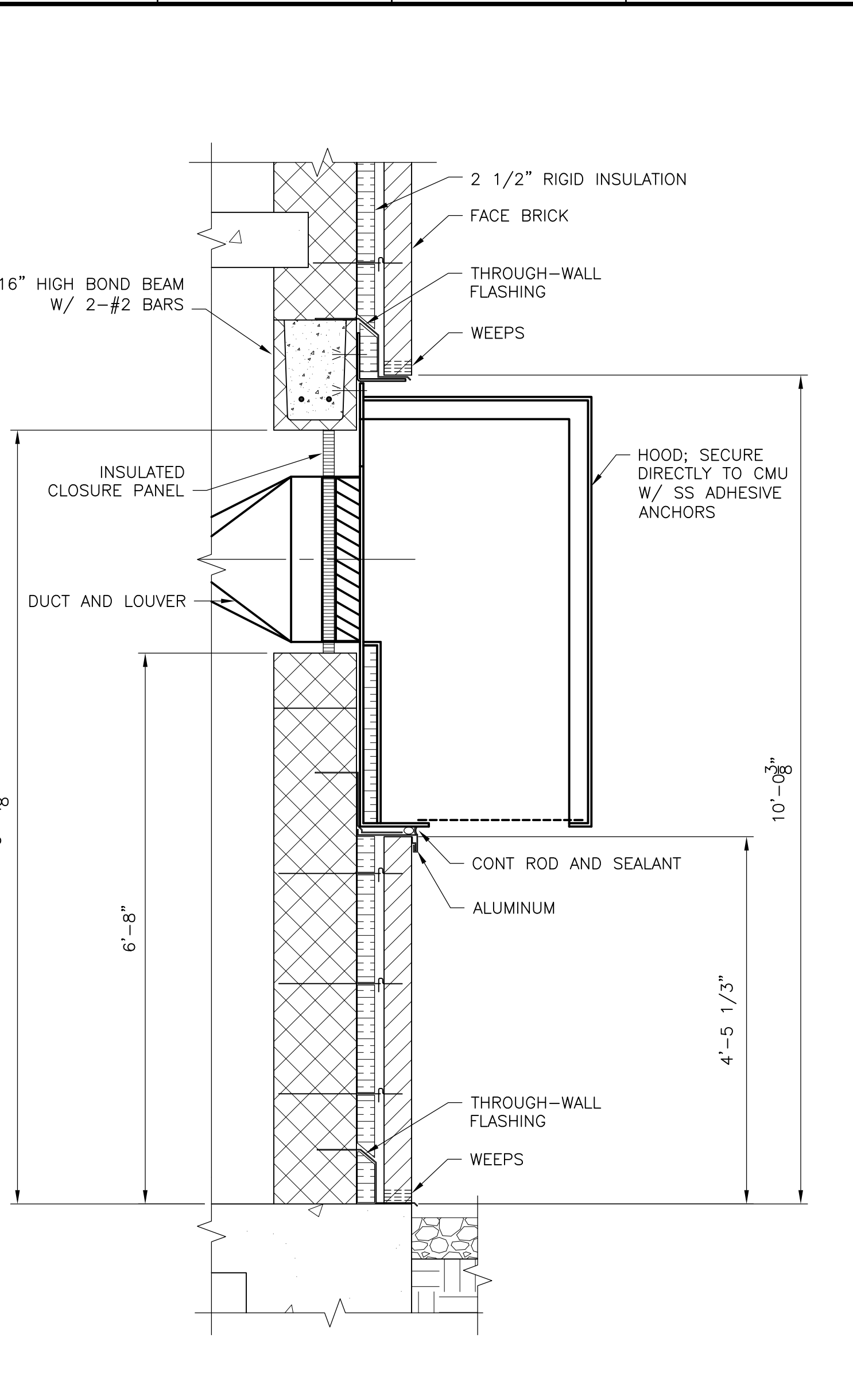
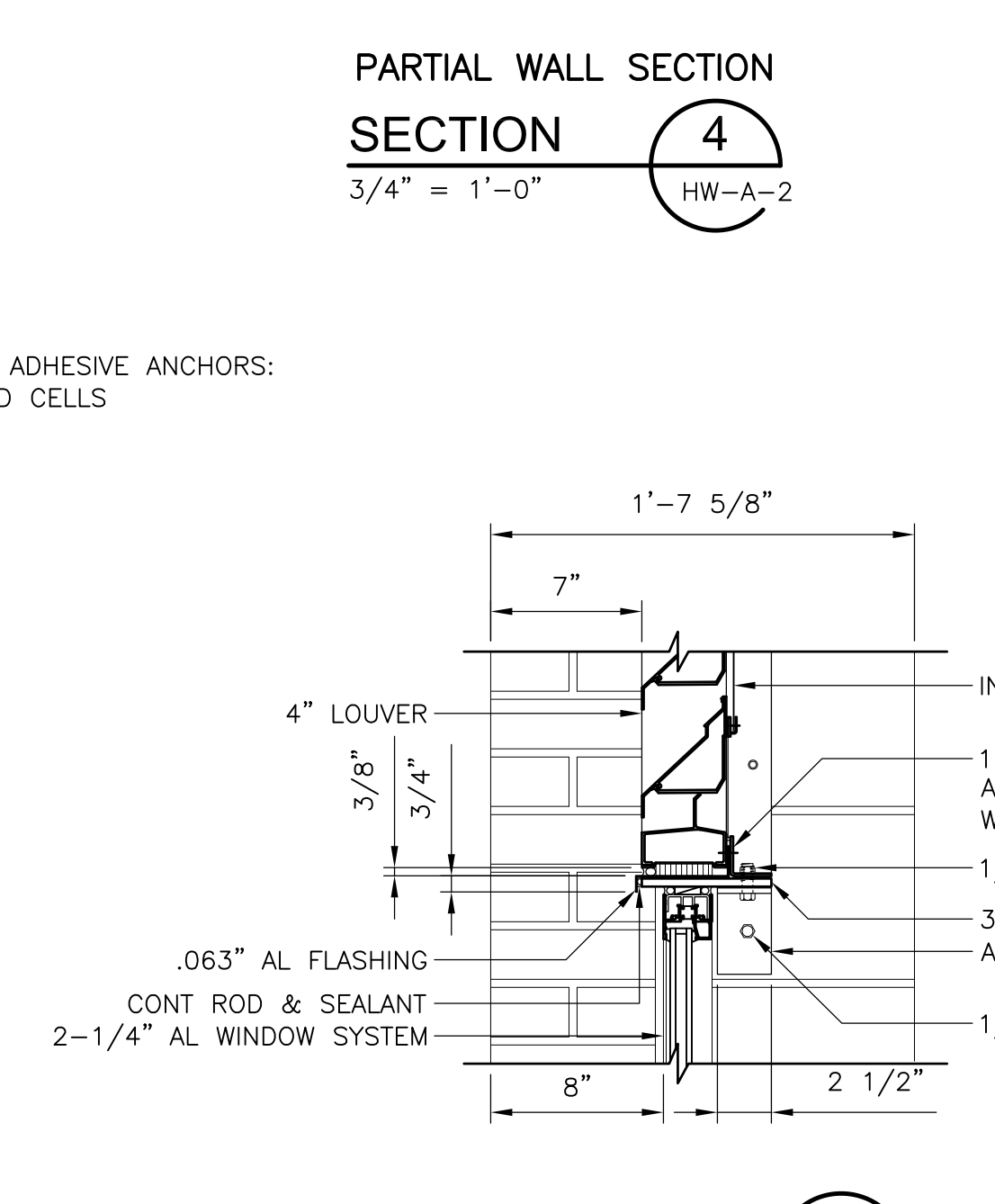
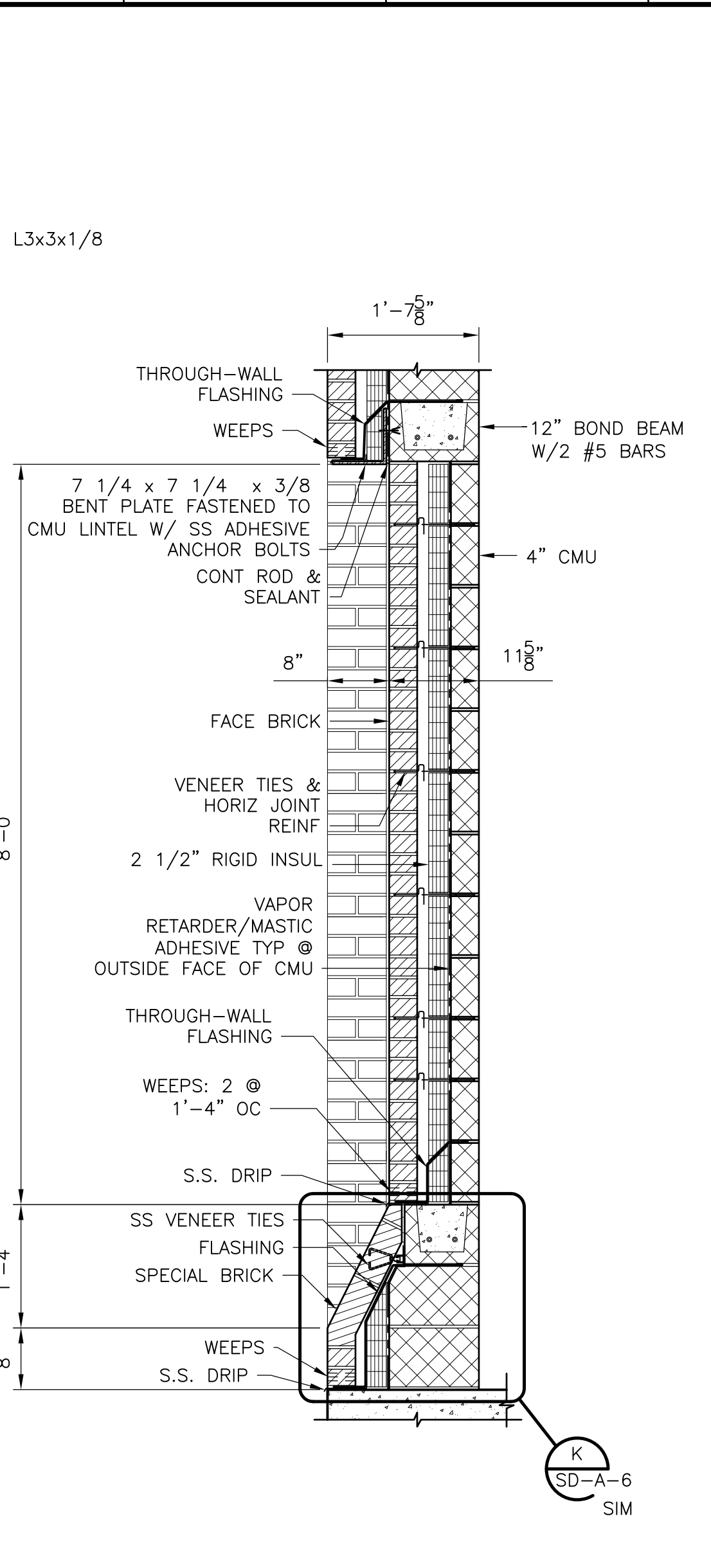
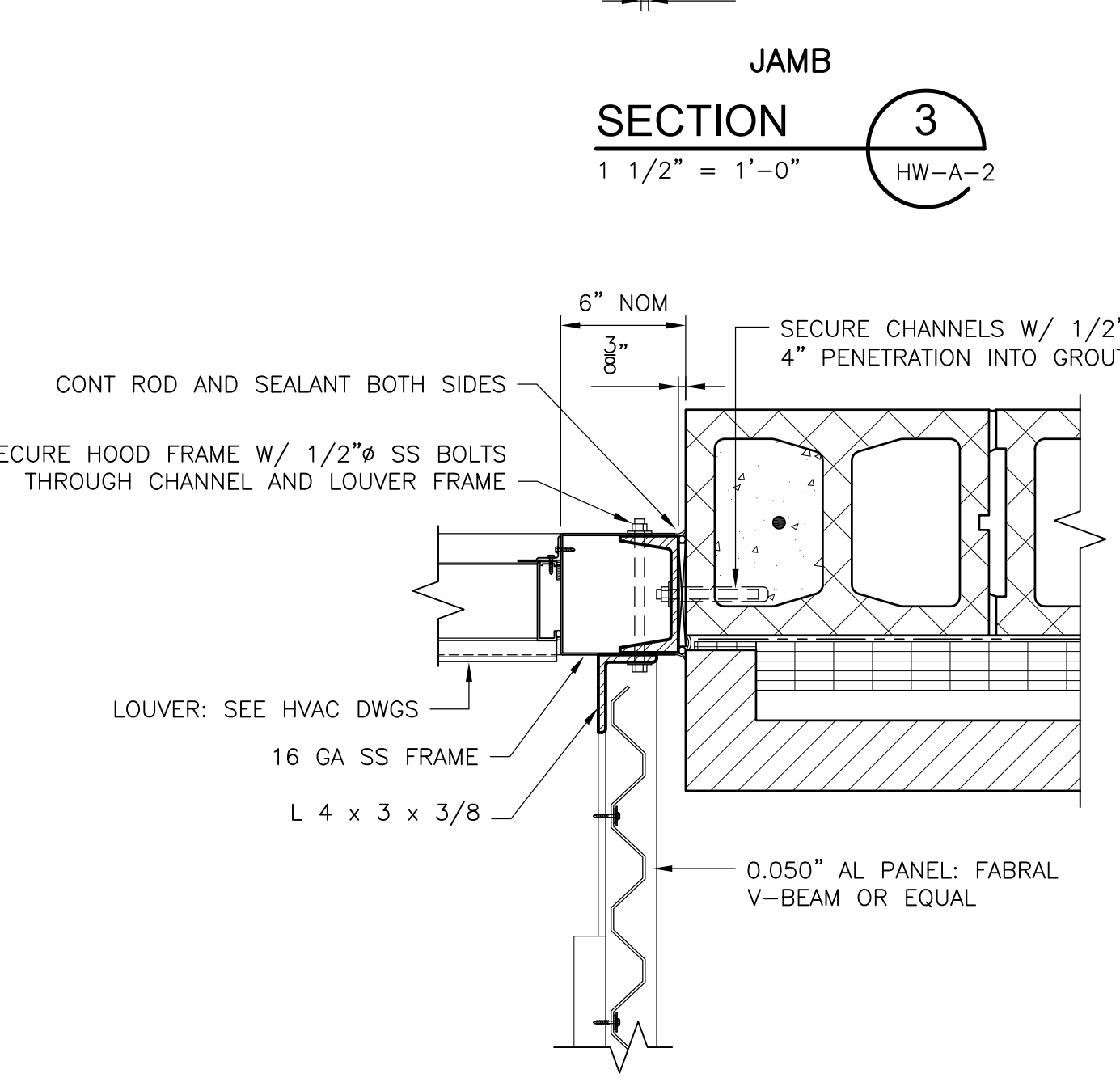
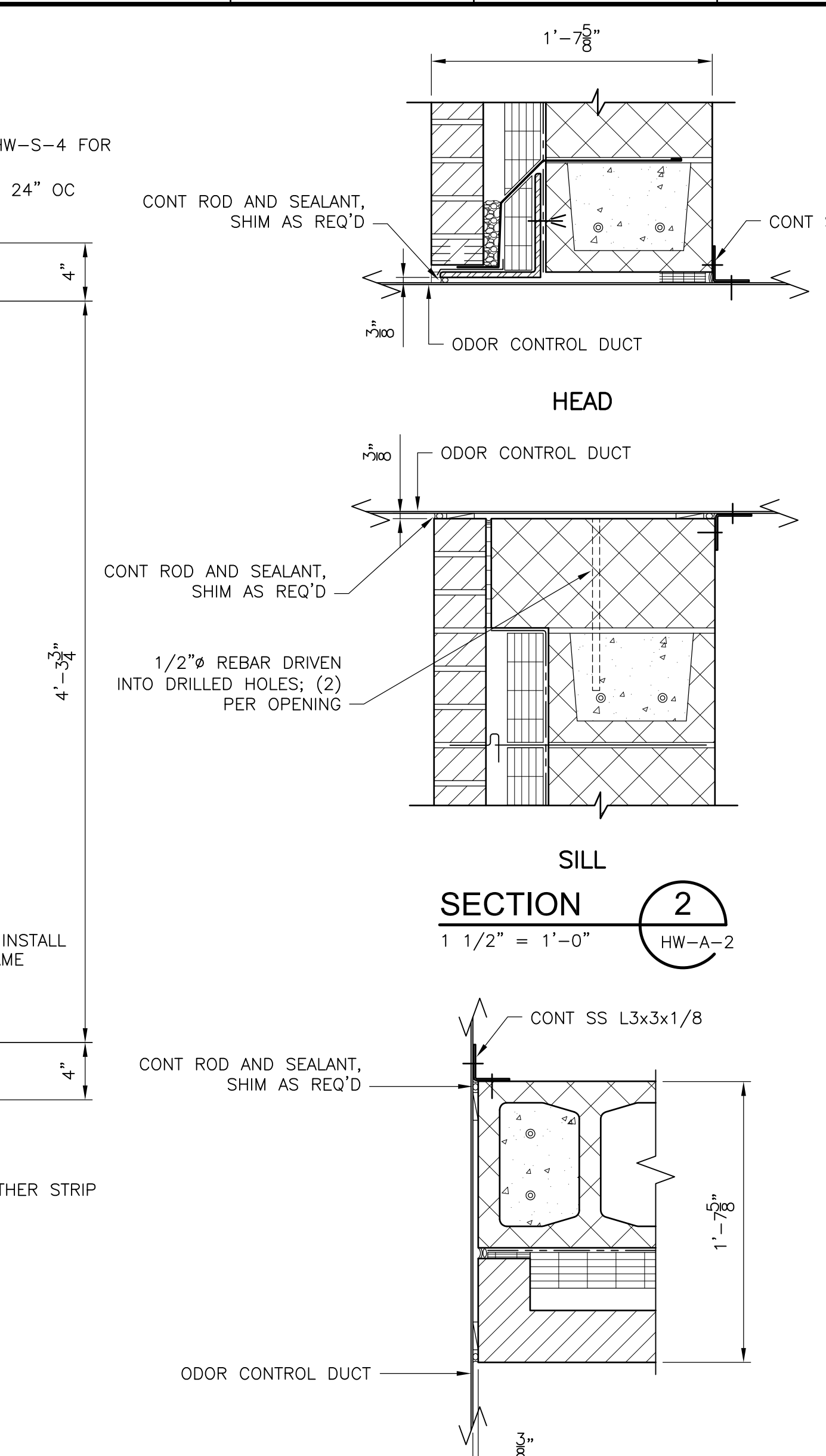
SECTION E  
1 1/2" = 1'-0" SD-A-3

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

SECTION D  
1 1/2" = 1'-0" HW-A-2

SECTION E  
1 1/2" = 1'-0" SD-A-3

CADD FILE NO.	AGRD005.DWG
DESIGNED BY:	S. BLAIS
DRAWN BY:	C. SMITH
SHEET CHK'D BY:	S. BLAIS
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006



CDM Camp Dresser & McKee Inc. consulting engineering construction operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY IMPROVEMENTS

EAST GRIT AND SCREENING FACILITY - SECTIONS AND DETAILS 2

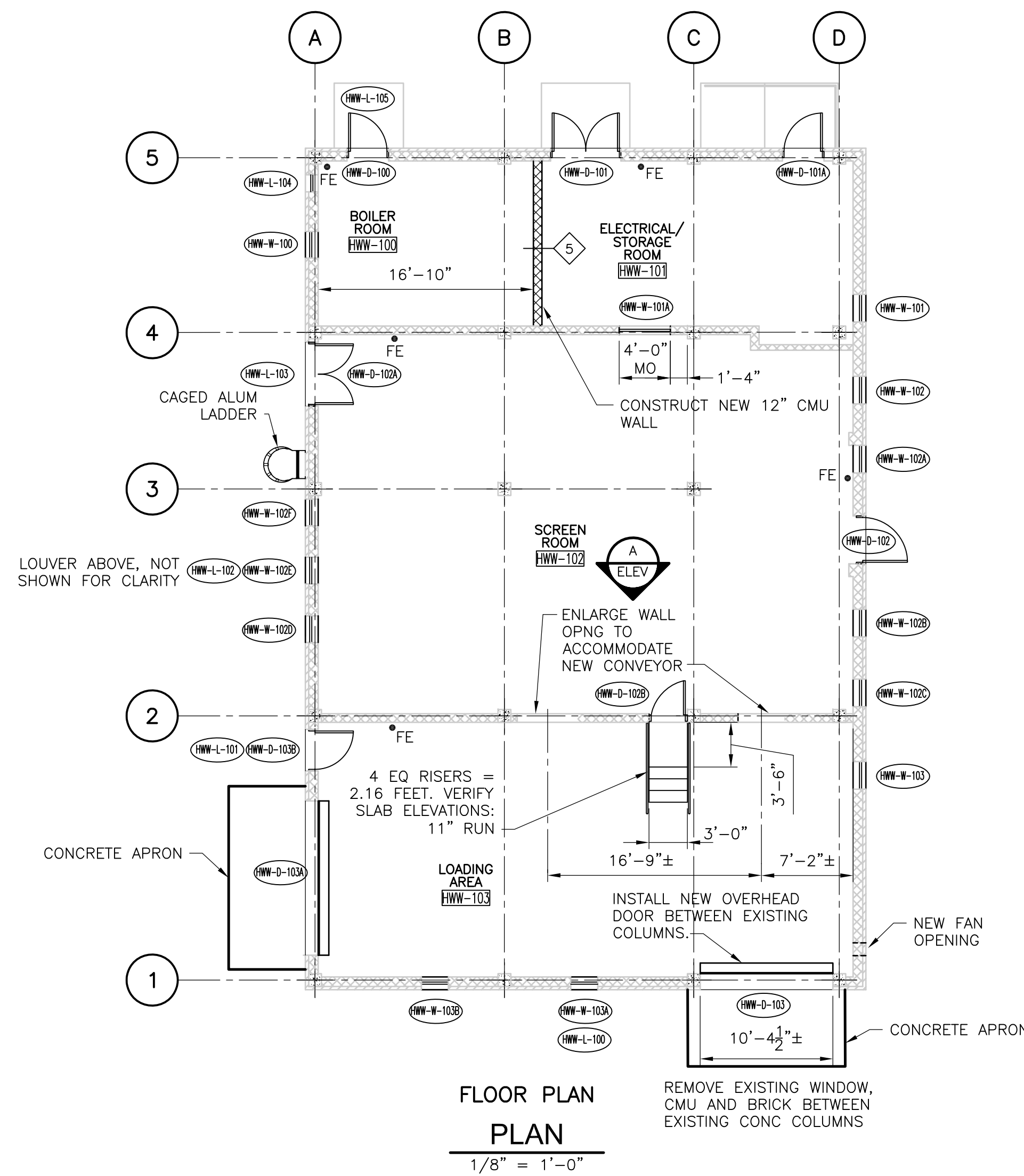
HW-A-5

RECORD DRAWING

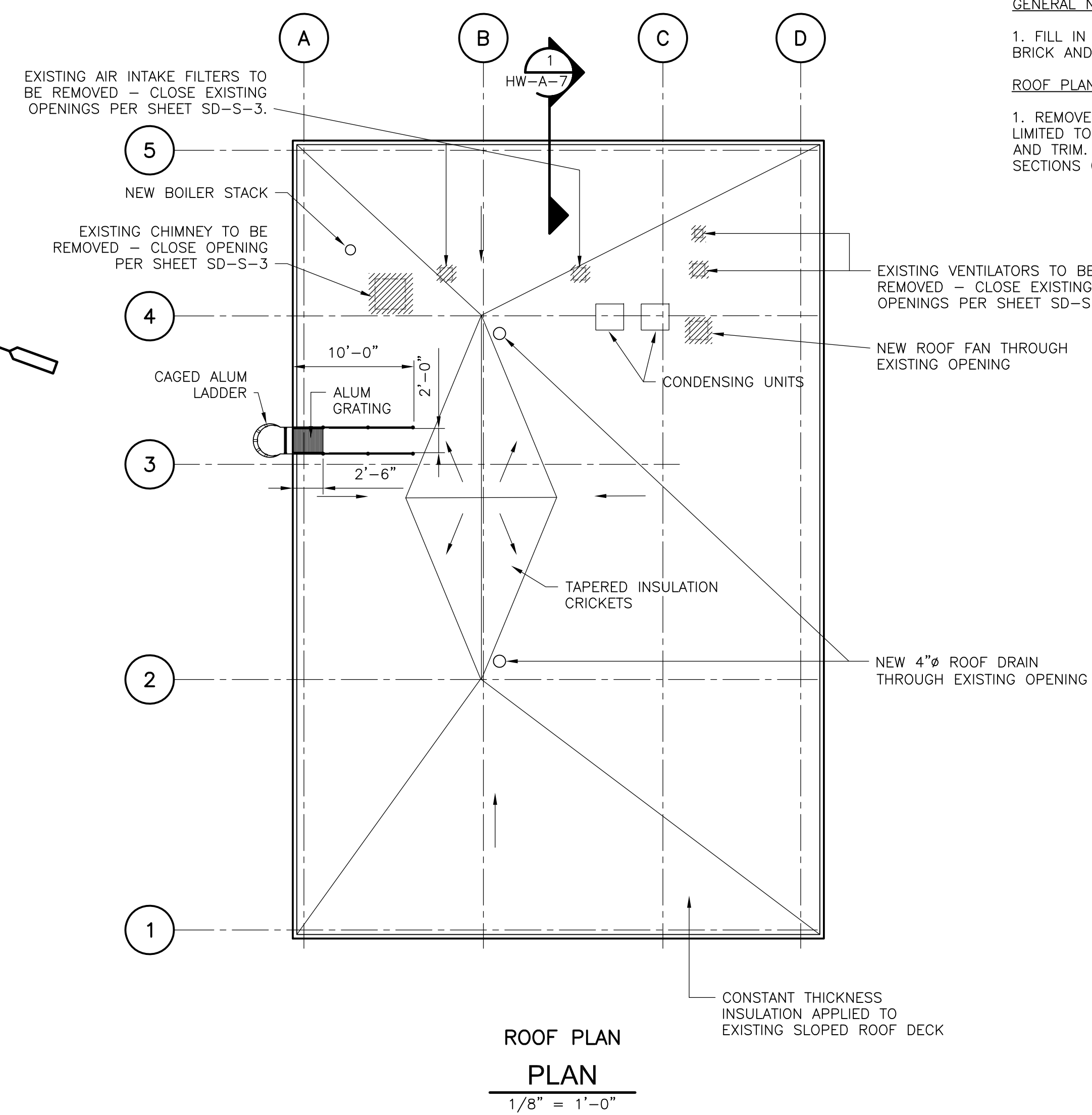
PROJECT NO. 1289\35370

Sht. 50 of 386

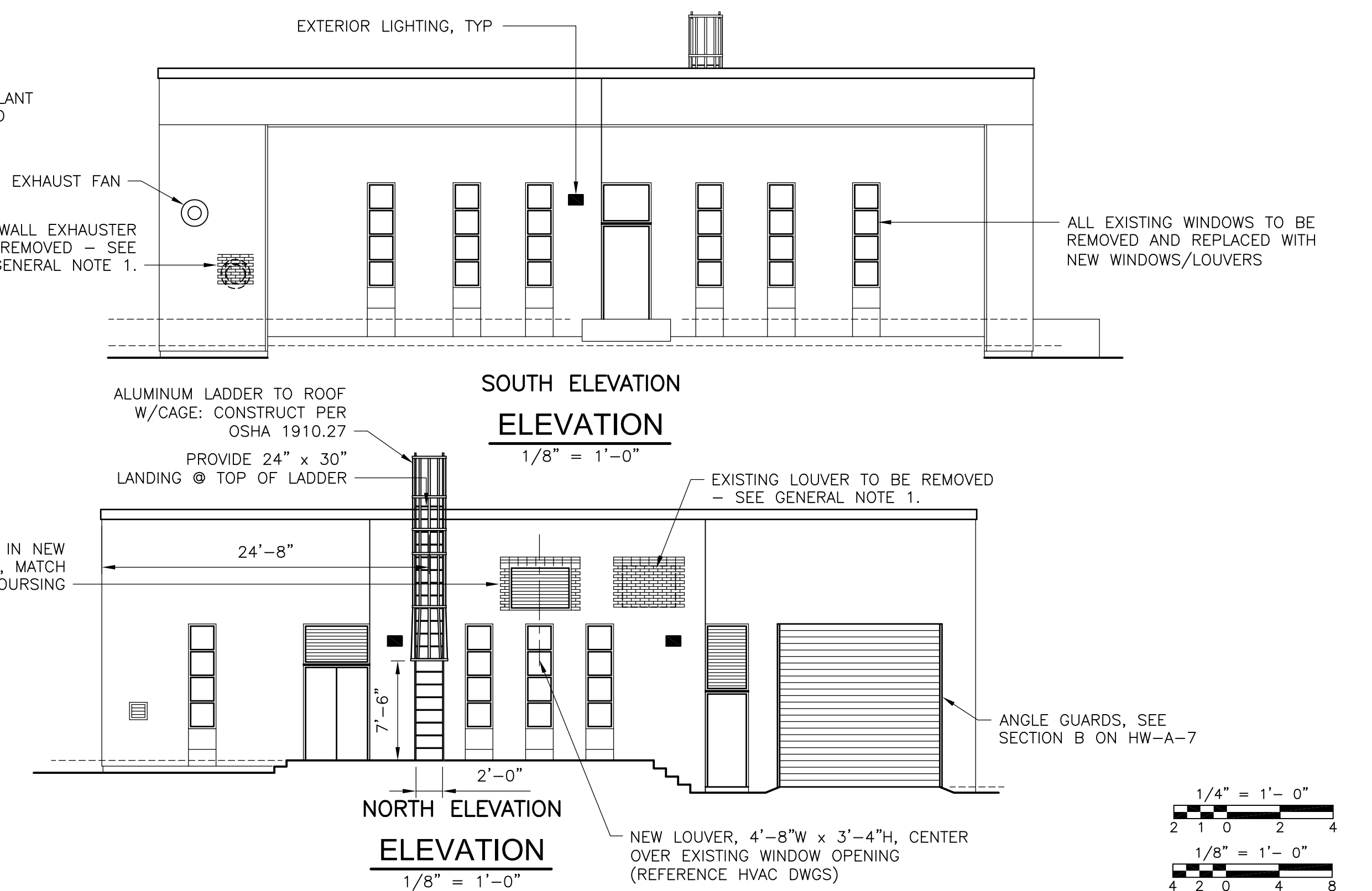
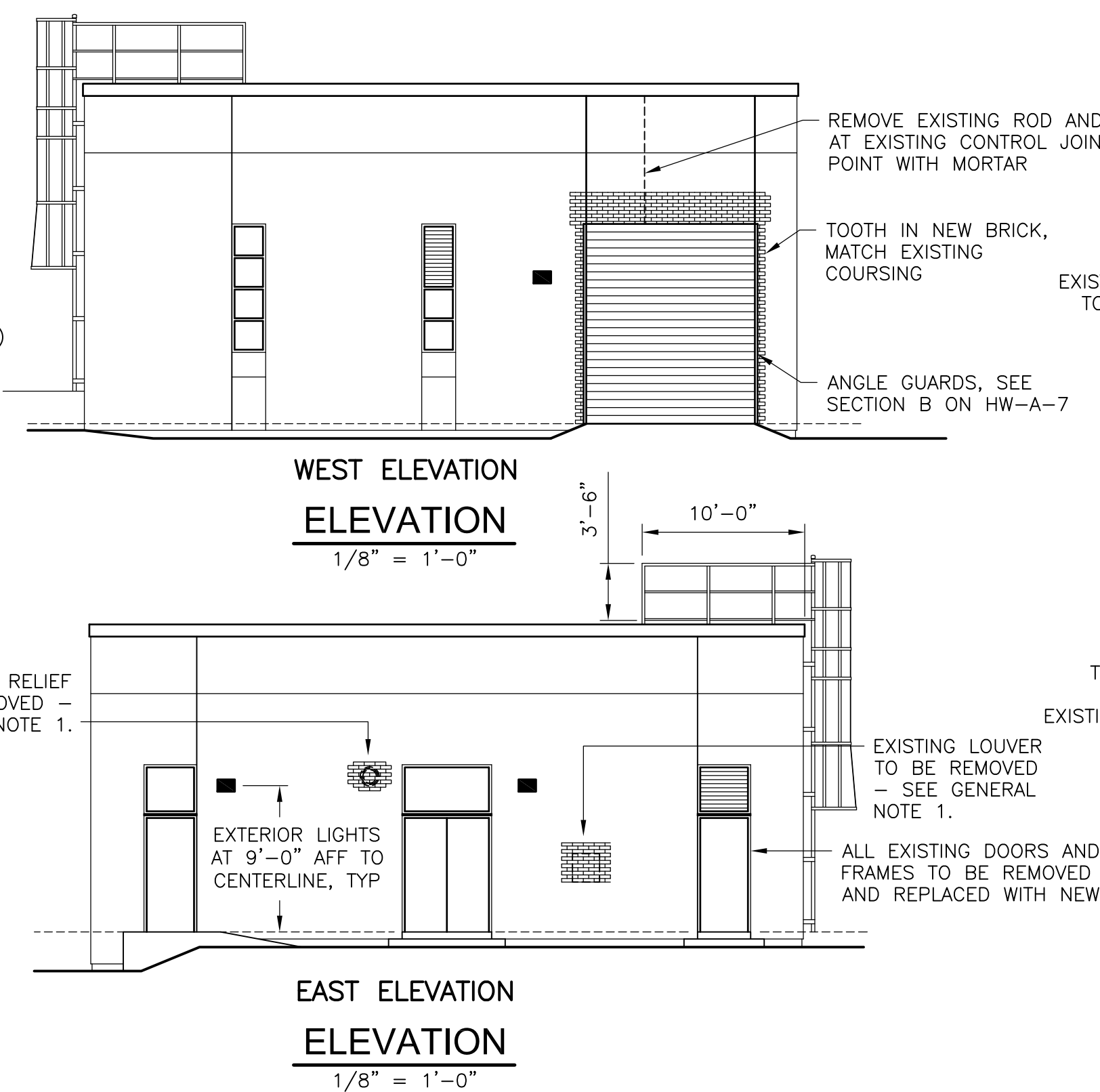
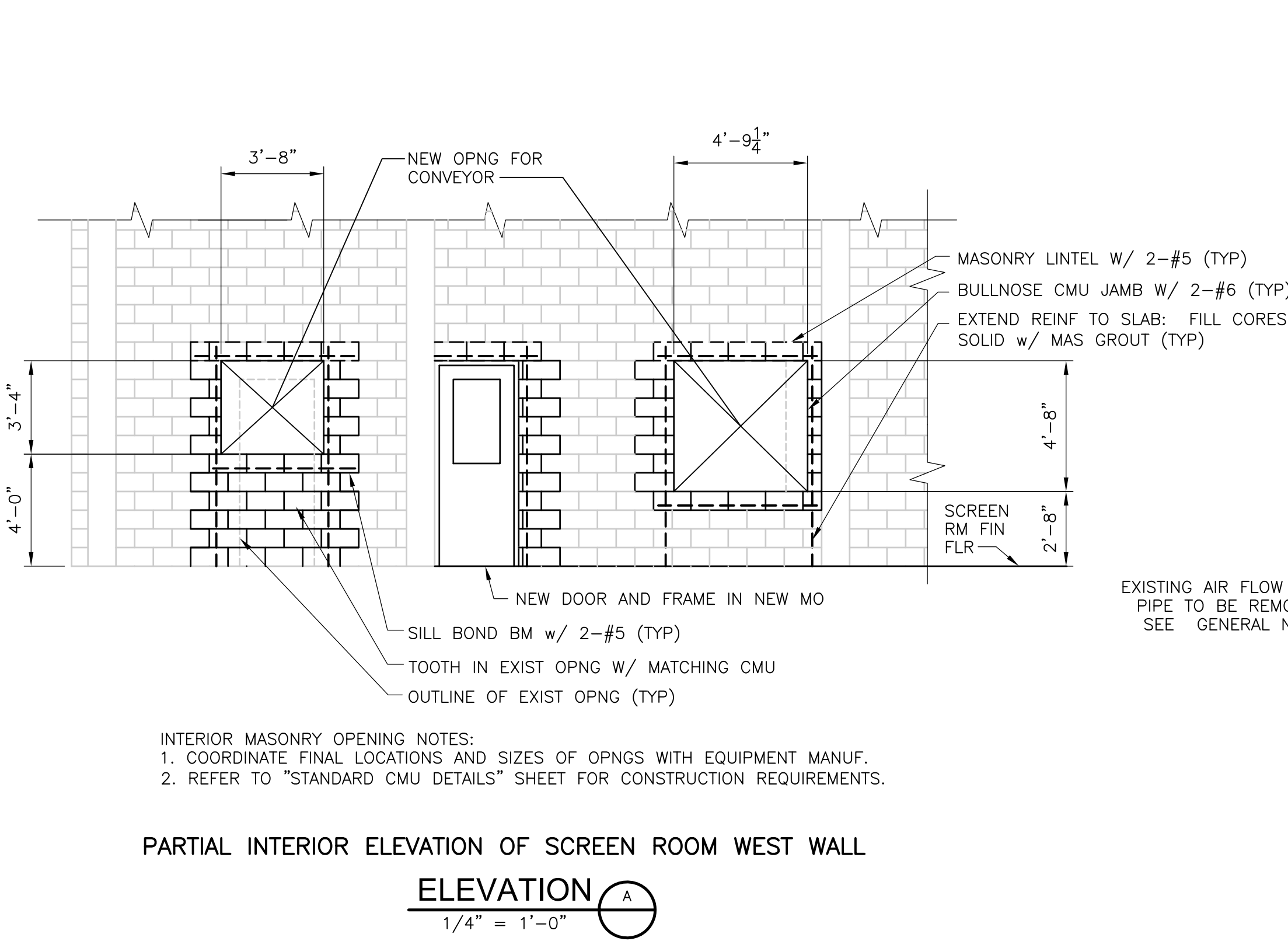
Scale: 3/4" = 1'-0", 1 1/2" = 1'-0"



GENERAL NOTES  
 1. SEE SHEET HW-M-2 FOR DEMOLITION INFORMATION  
 2. CONCRETE FLOOR HARDNER ADDED.



GENERAL NOTES:  
 1. FILL IN EXISTING MASONRY OPENING, TOOTH IN BRICK AND MATCH EXISTING COURSING.  
 ROOF PLAN GENERAL NOTES:  
 1. REMOVE ALL EXISTING ROOFING MATERIALS, INCLUDING BUT NOT LIMITED TO: ROOF MEMBRANE, INSULATION, BLOCKING, FLUSHINGS, AND TRIM. HANDLE AND DISPOSE OF IN CONFORMANCE WITH SECTIONS 02050 AND 02080.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.	AGRPL006.DWG
DESIGNED BY:	BLAIS/ANDERSON
DRAWN BY:	SMITH/ANDERSON
SHEET CHK'D BY:	S. BLAIS
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

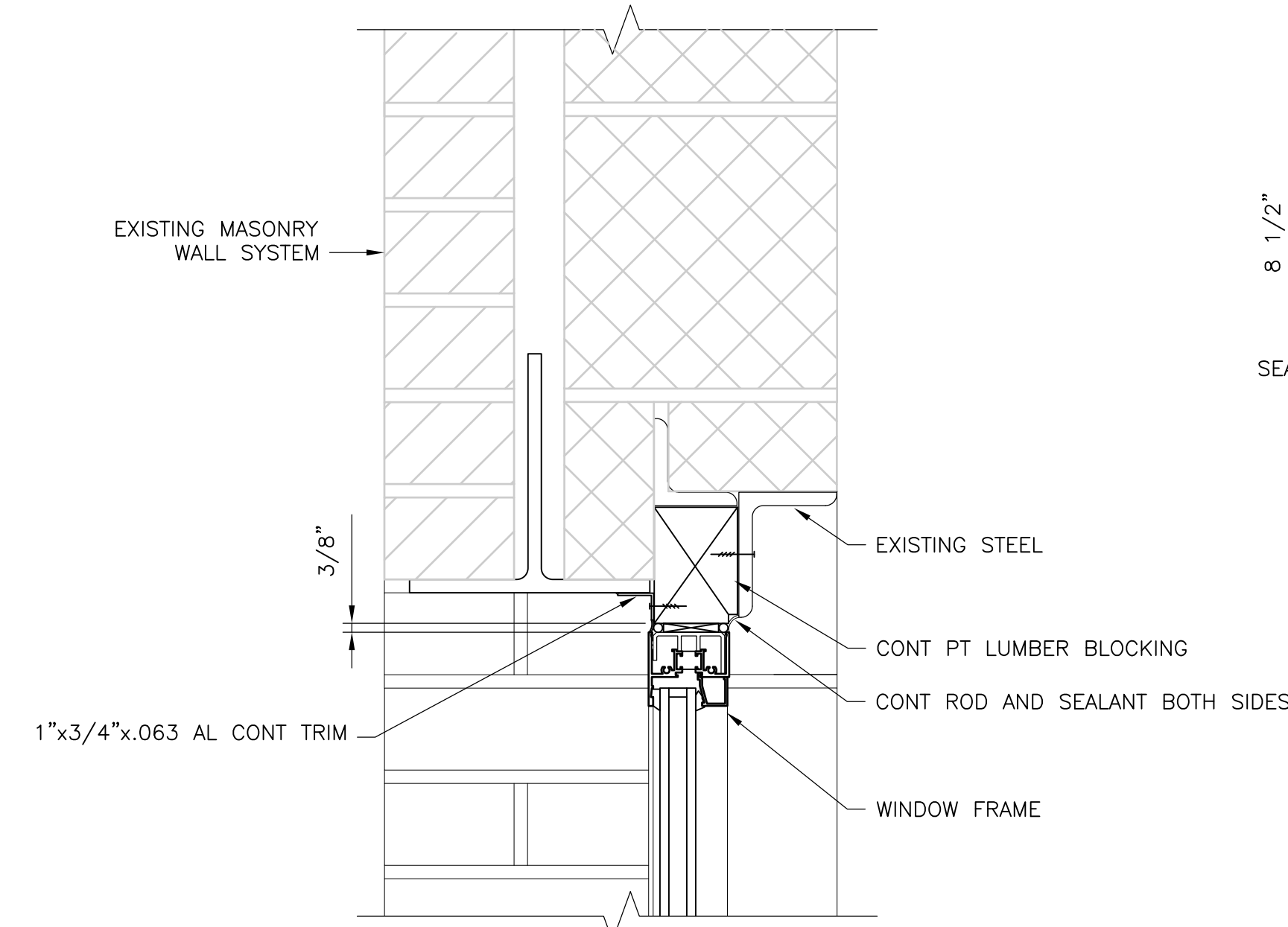
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

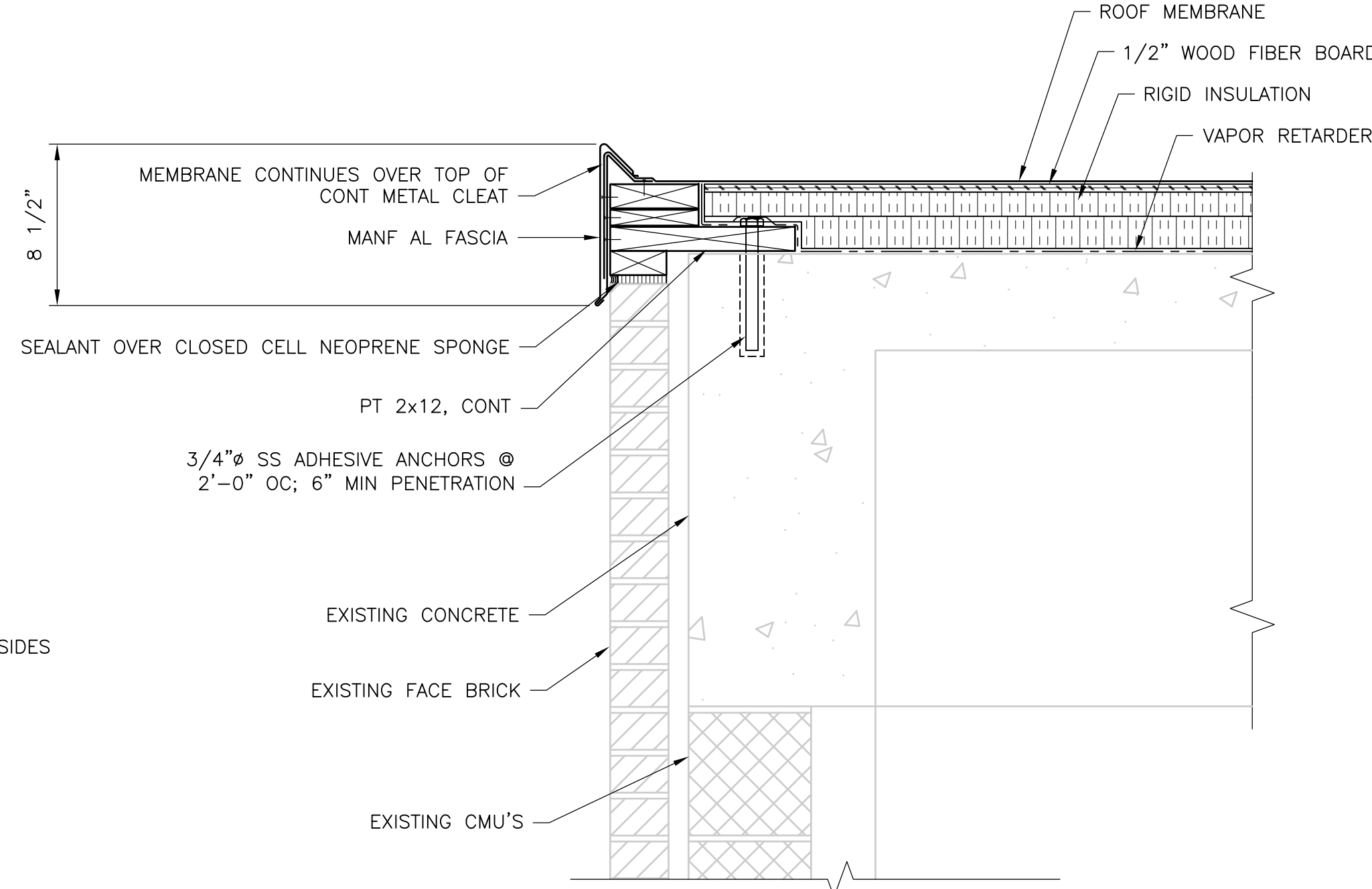
WEST GRIT AND SCREENING FACILITY -  
 FLOOR PLAN, ROOF PLAN, AND ELEVATIONS

PROJECT NO.	1289\35370
Sht.	51 of 386
HW-A-6	

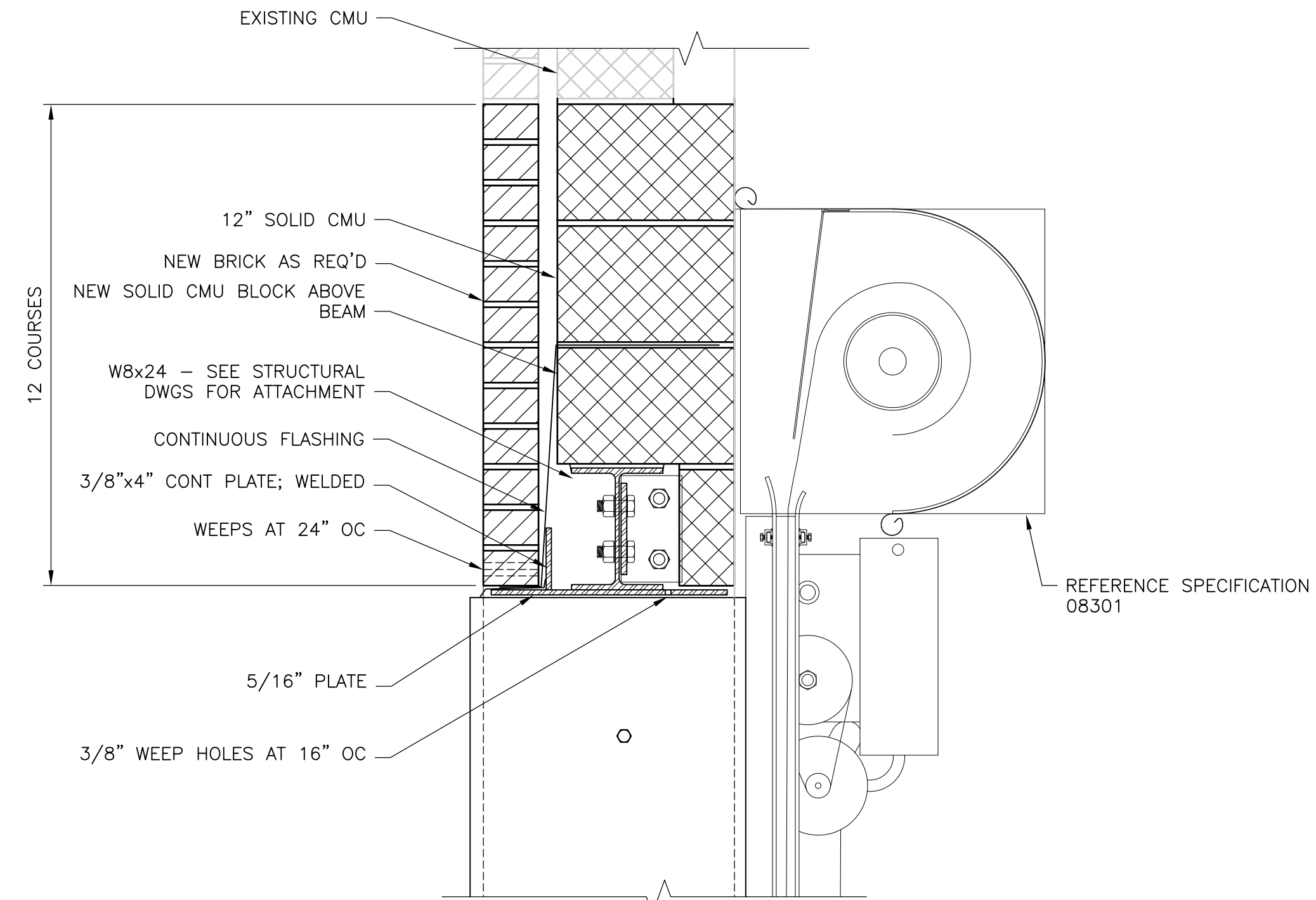
[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\SW\_A\AGRSC007.dwg Xref: [c24x36h\_AGRW001.] Plotted by: CROSSJA Time: 12/16/08 6:19:18 PM



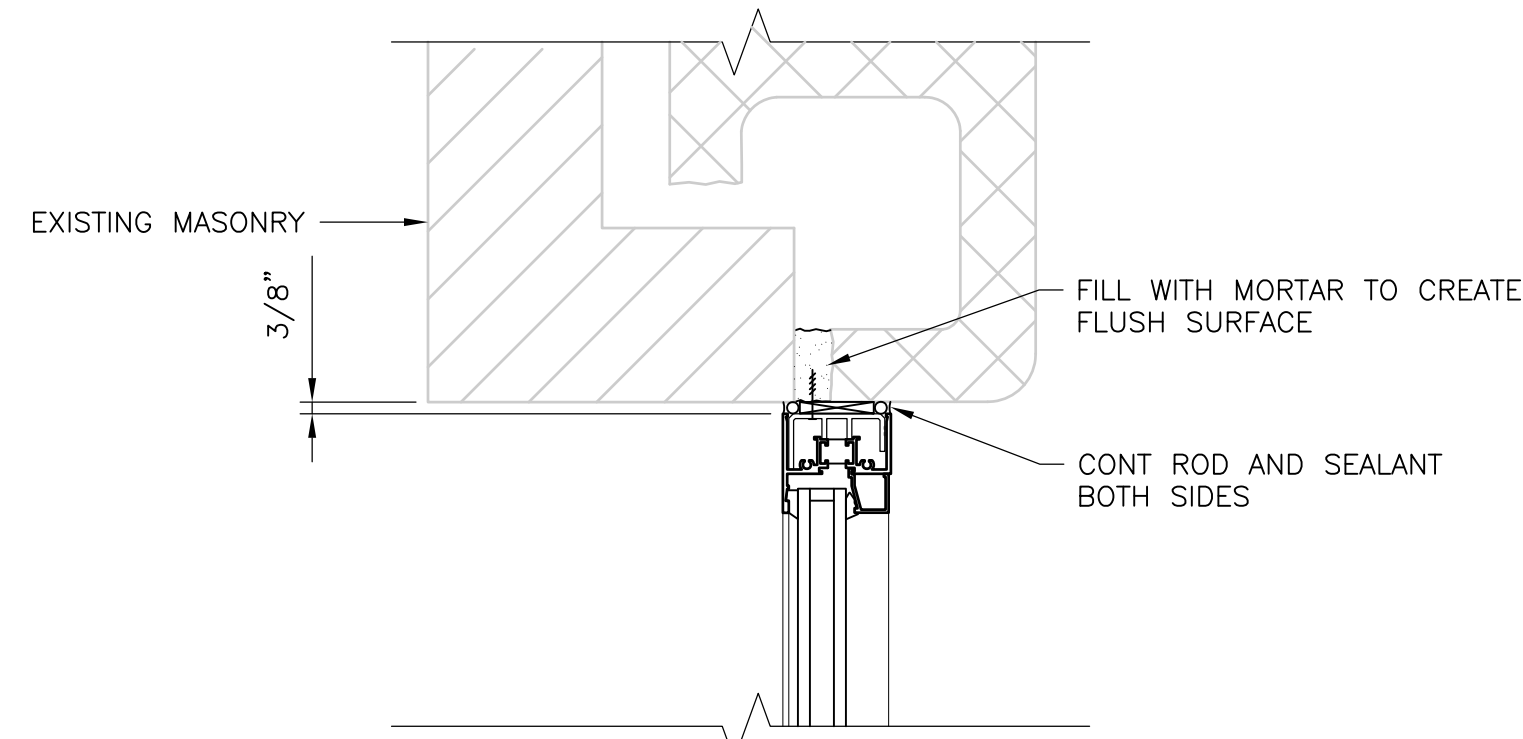
**DETAIL C**  
 3" = 1'-0"  
 HW-A-7



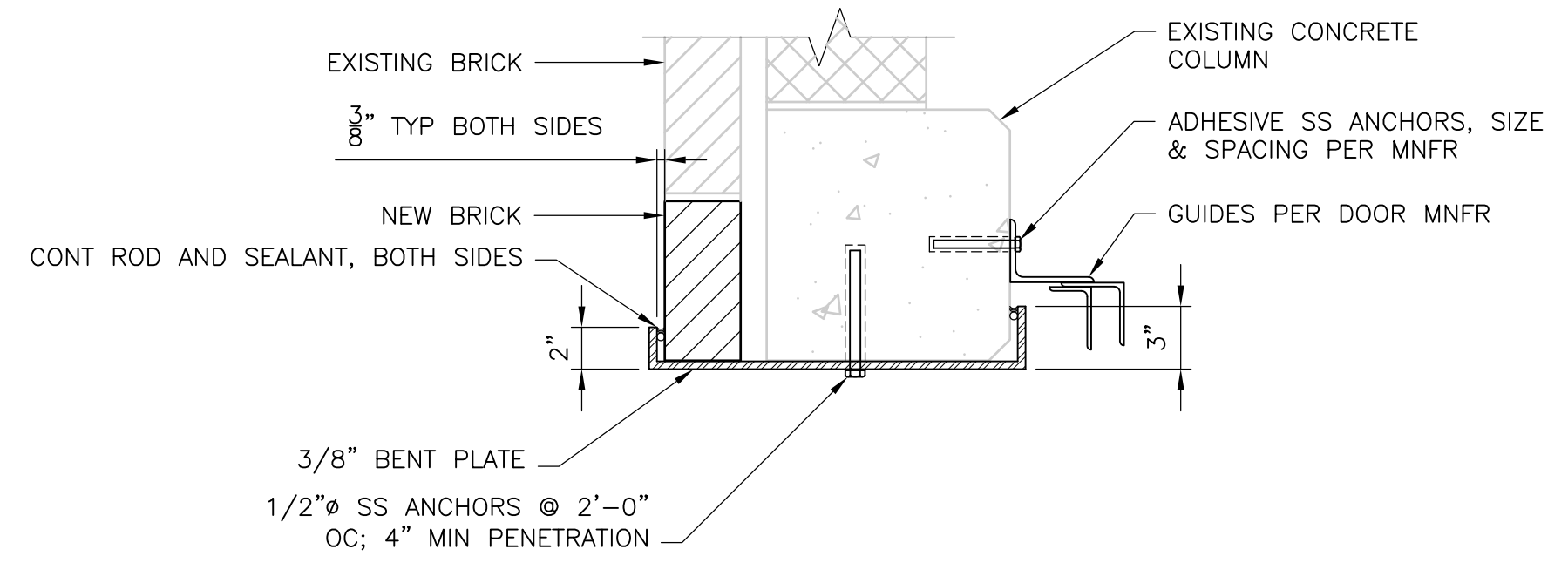
**DETAIL 1**  
 1 1/2" = 1'-0"  
 HW-A-6



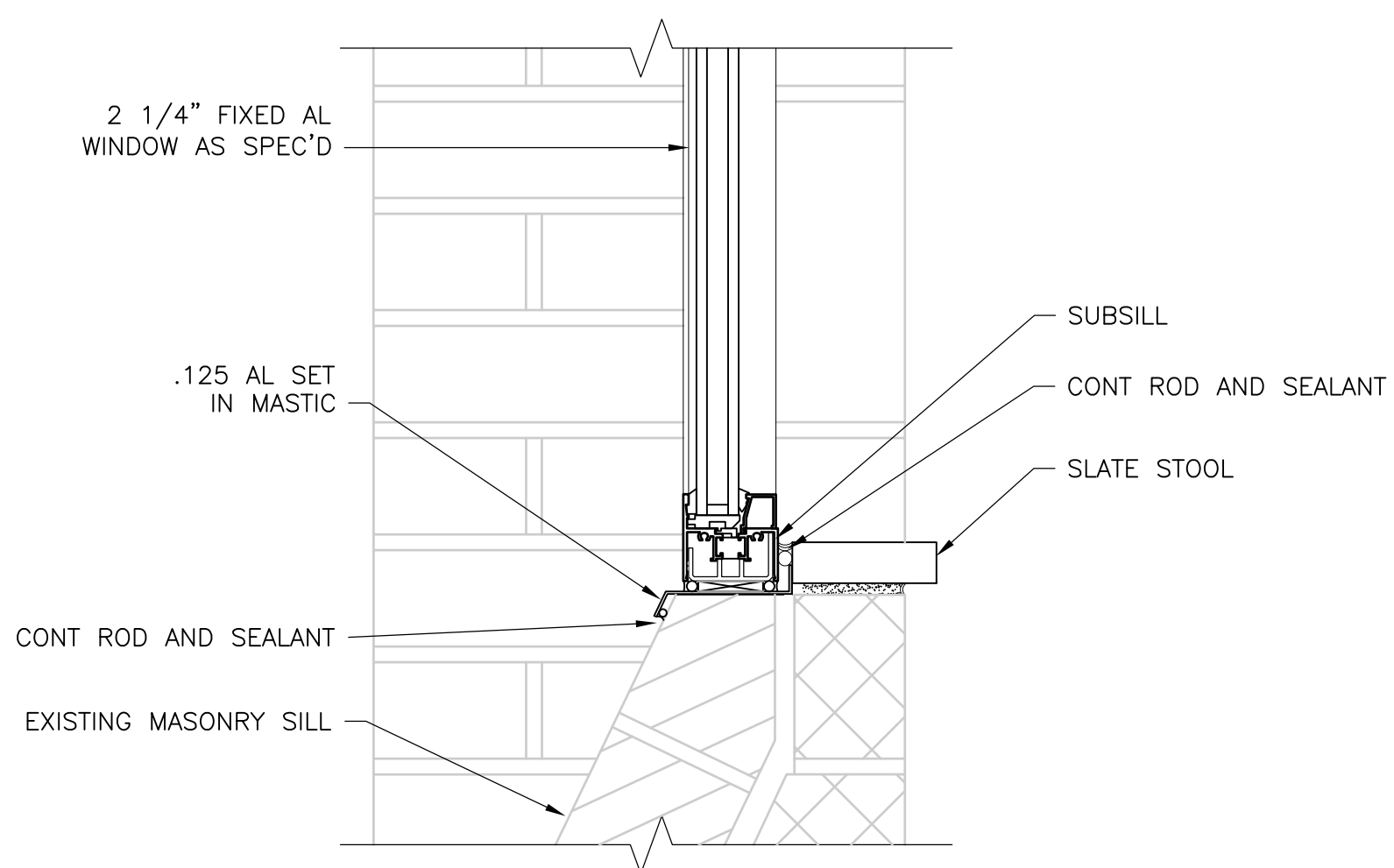
**SECTION A**  
 1 1/2" = 1'-0"  
 HW-A-7



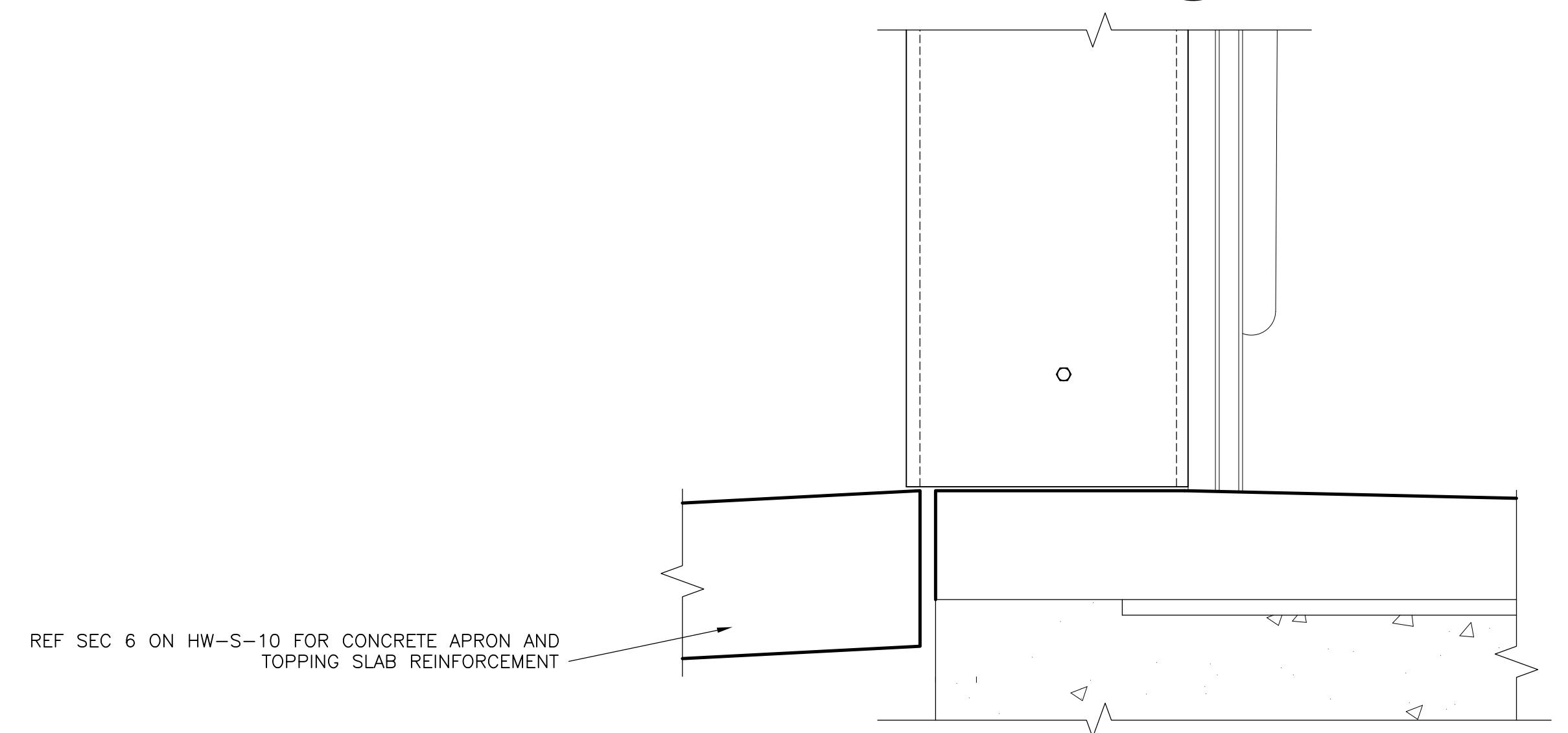
**DETAIL D**  
 3" = 1'-0"  
 HW-A-7



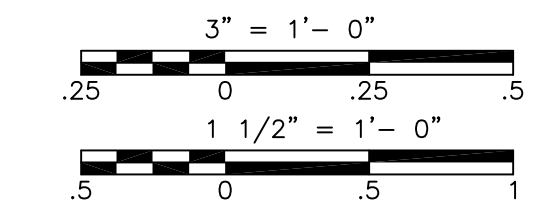
**SECTION F**  
 1 1/2" = 1'-0"  
 HW-A-7



**DETAIL E**  
 3" = 1'-0"  
 HW-A-7



**SECTION B**  
 1 1/2" = 1'-0"  
 HW-A-7



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

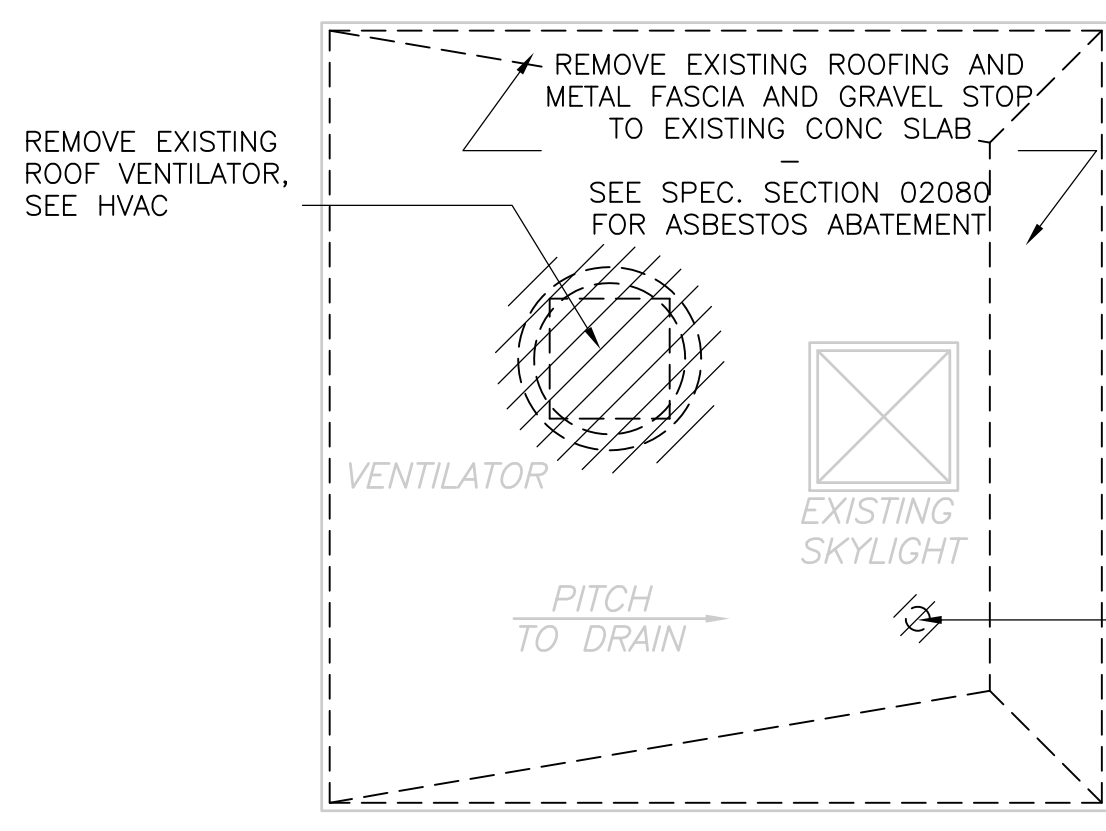
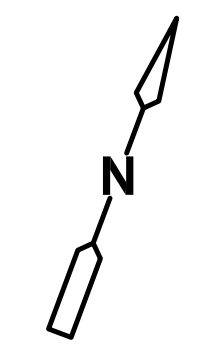
CADD FILE NO. AGRSC007.DWG  
 DESIGNED BY: S. BLAIS  
 DRAWN BY: C. SMITH  
 SHEET CHK'D BY: S. BLAIS  
 SCALE: AS NOTED  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

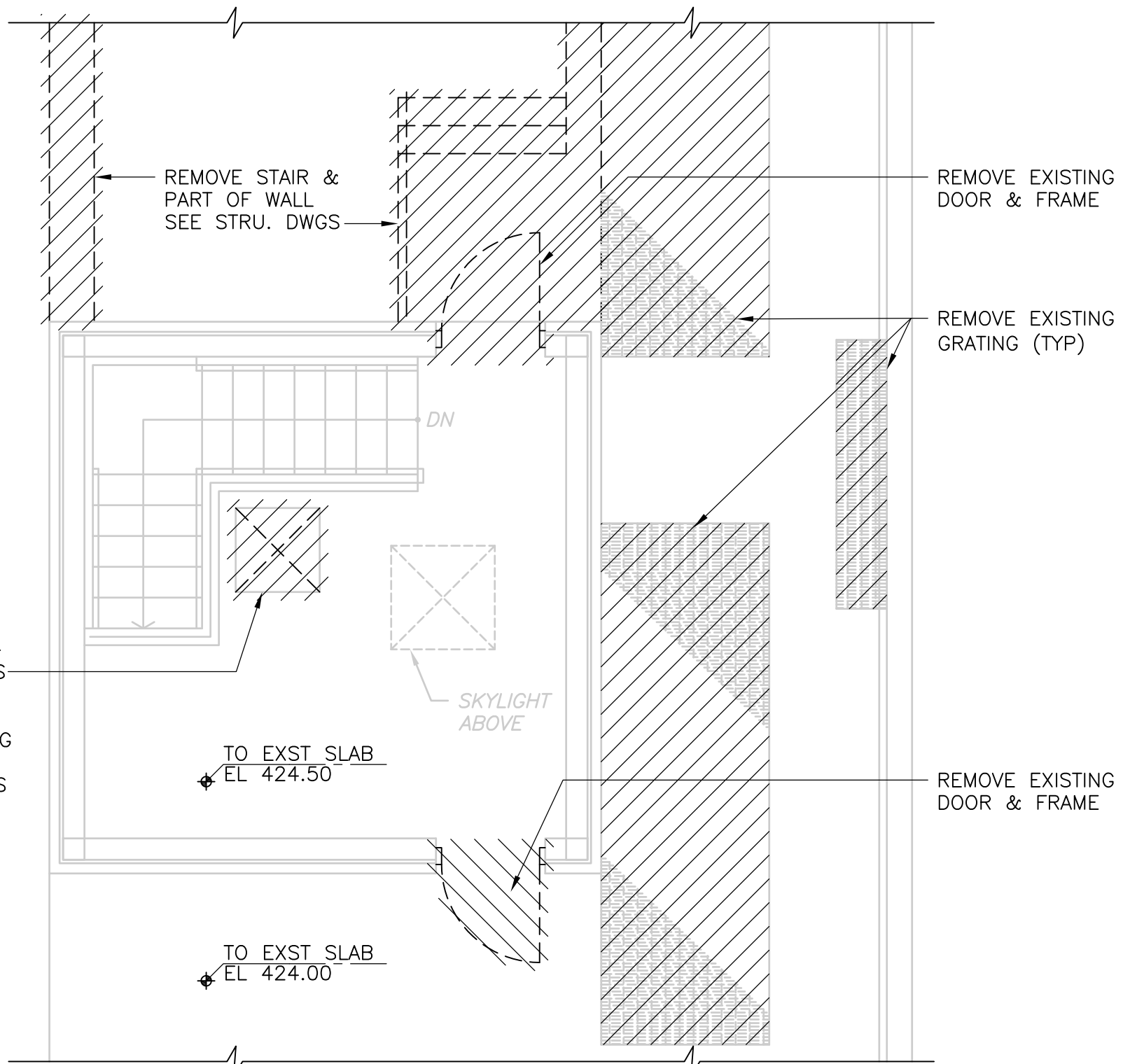
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

WEST GRIT AND SCREENING FACILITY -  
 SECTIONS AND DETAILS  
**HW-A-7**

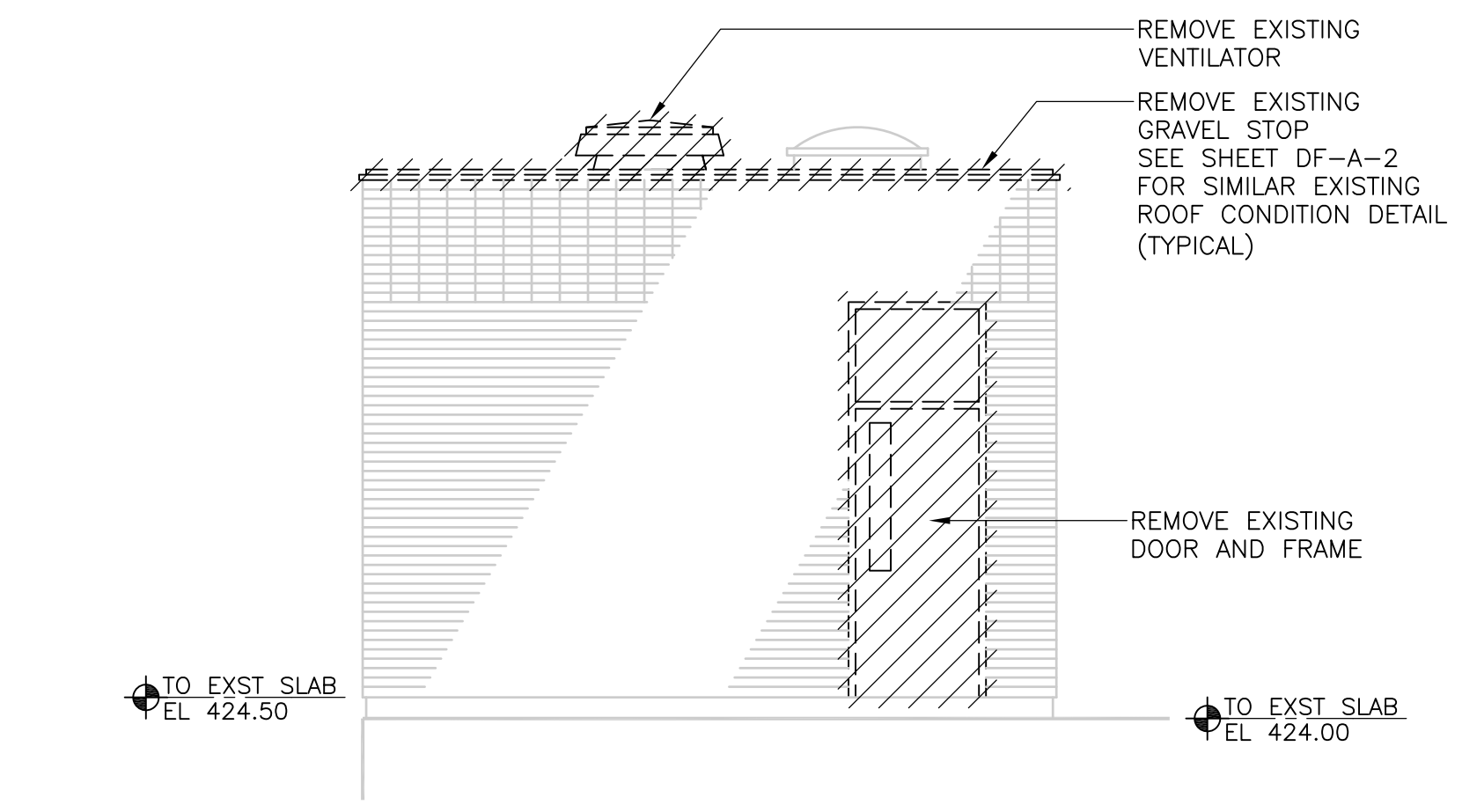
PROJECT NO. 1289\35370  
 Sht. 52 of 386



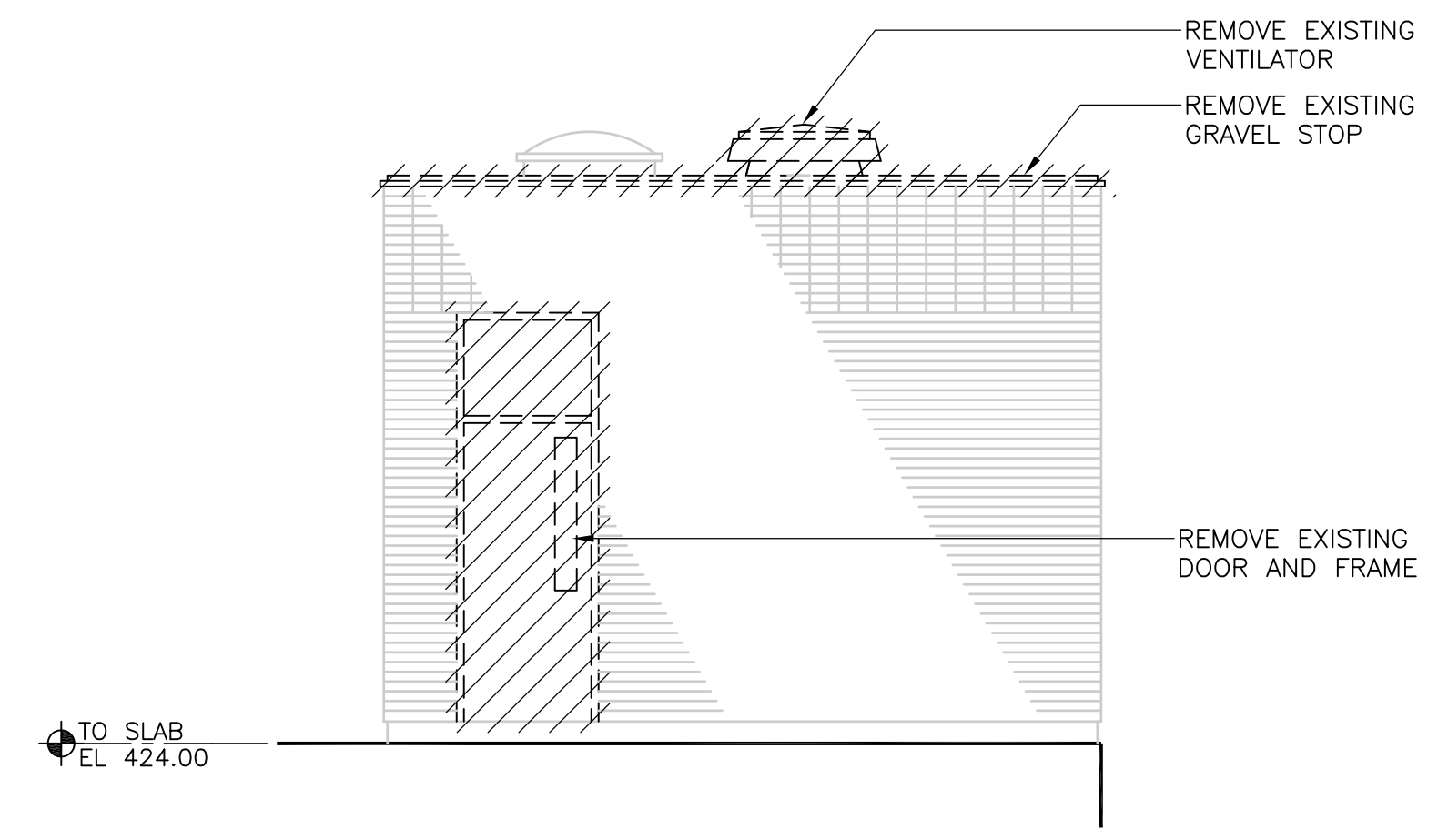
ROOF PLAN - NORTH ACCESS STRUCTURE  
**PLAN**  
1/4" = 1'-0"



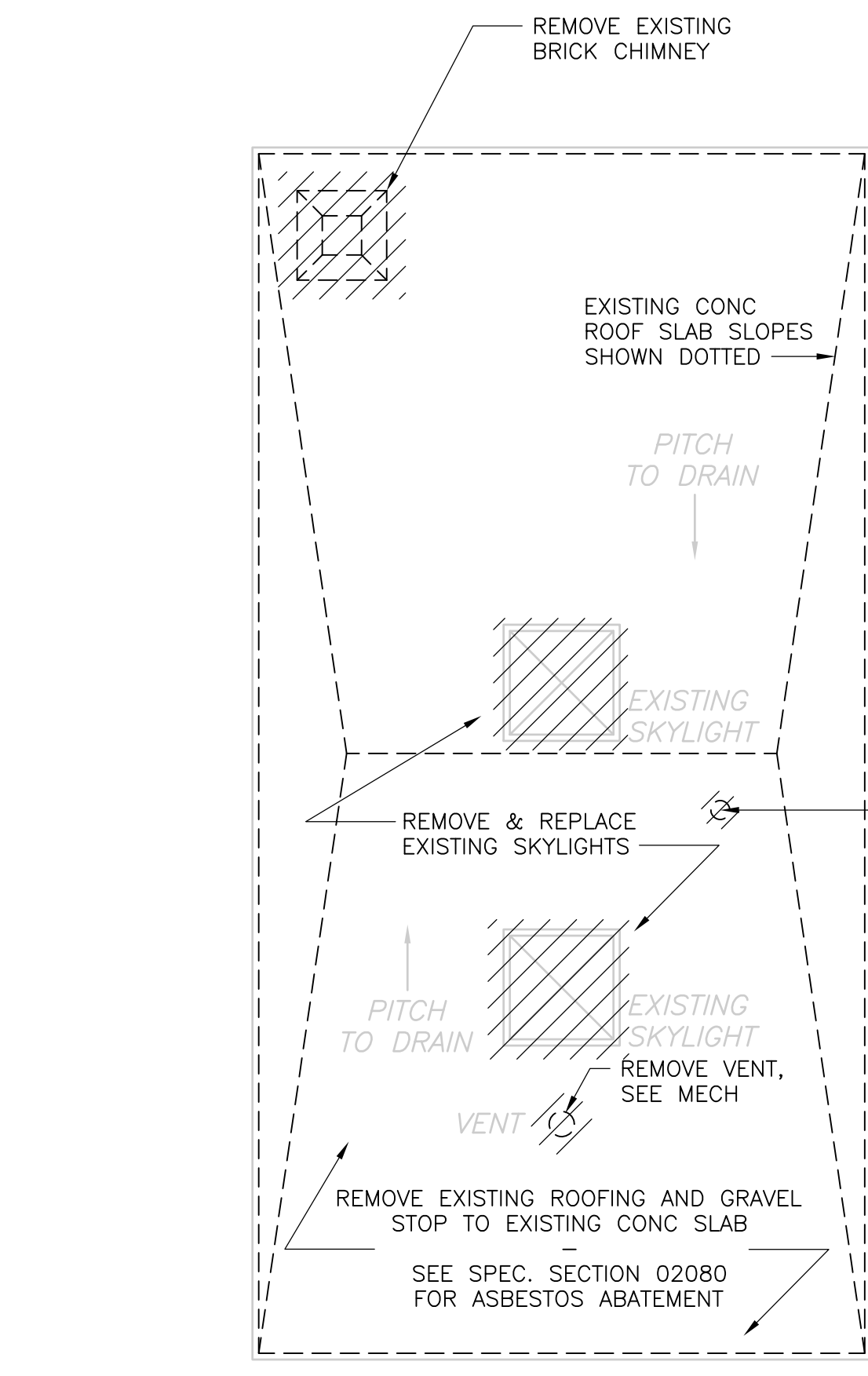
PLAN - NORTH ACCESS STRUCTURE  
**PLAN**  
1/4" = 1'-0"



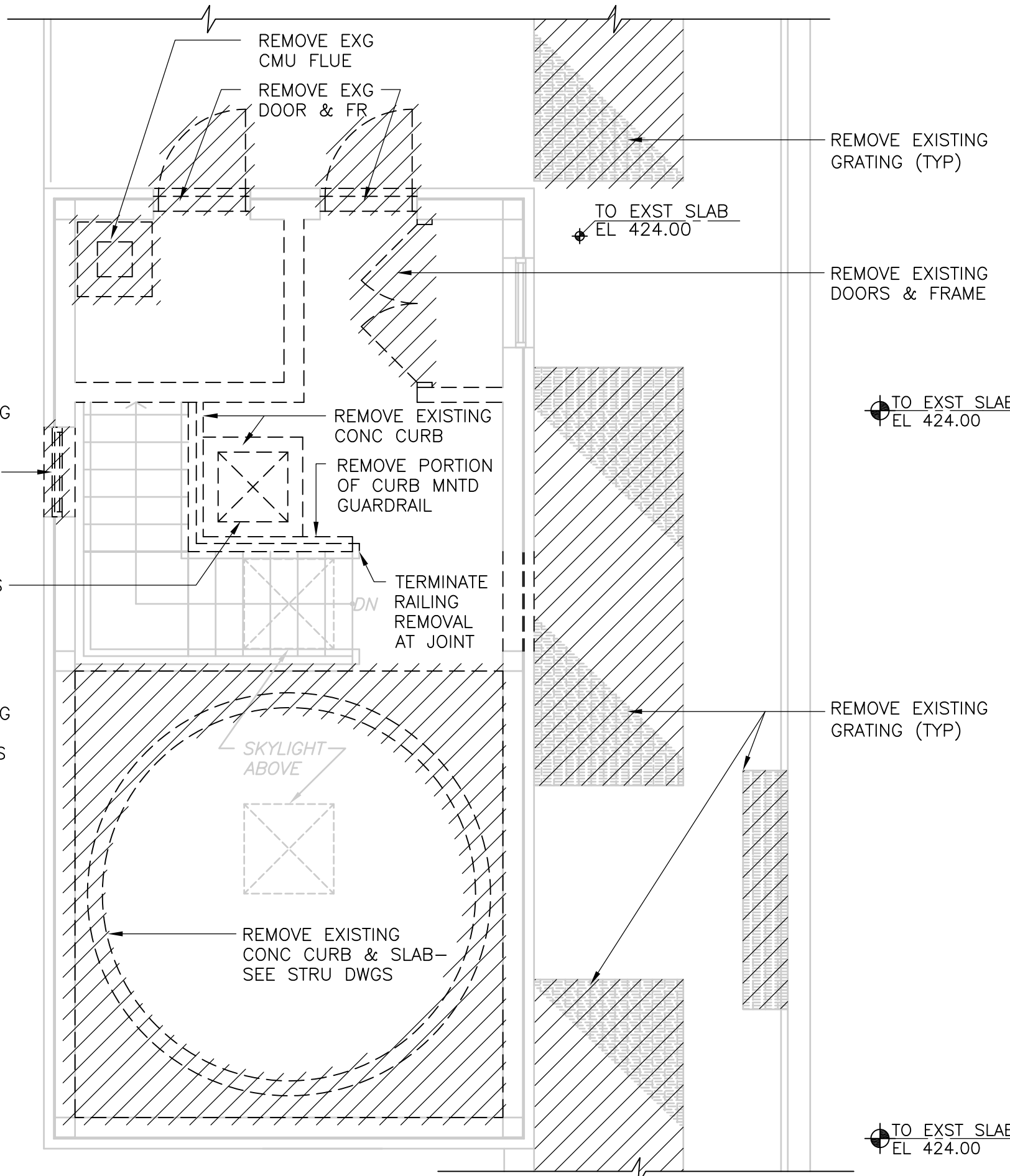
SOUTH ELEVATION - NORTH ACCESS STRUCTURE  
**ELEVATION**  
1/4" = 1'-0"



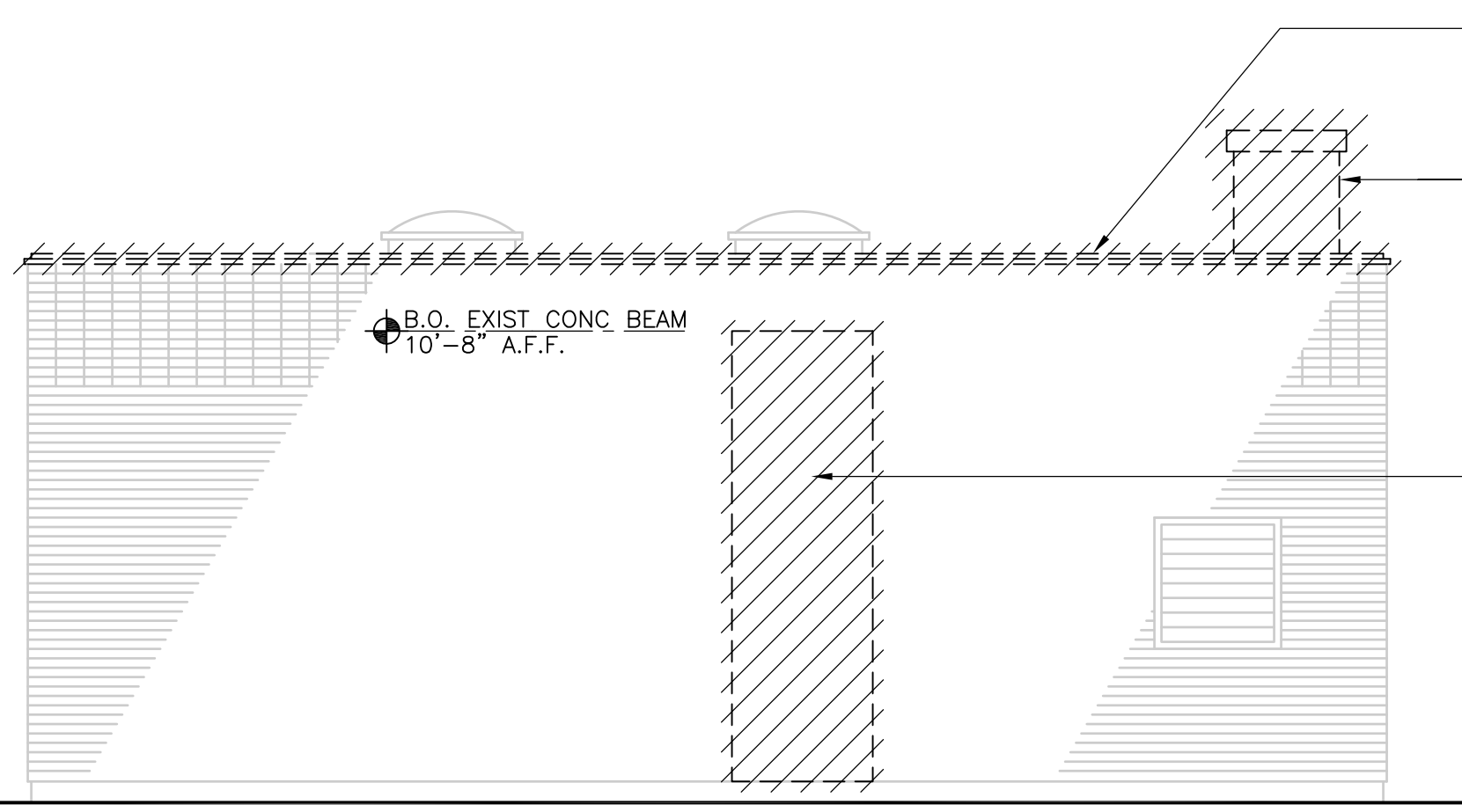
NORTH ELEVATION - NORTH ACCESS STRUCTURE  
**ELEVATION**  
1/4" = 1'-0"



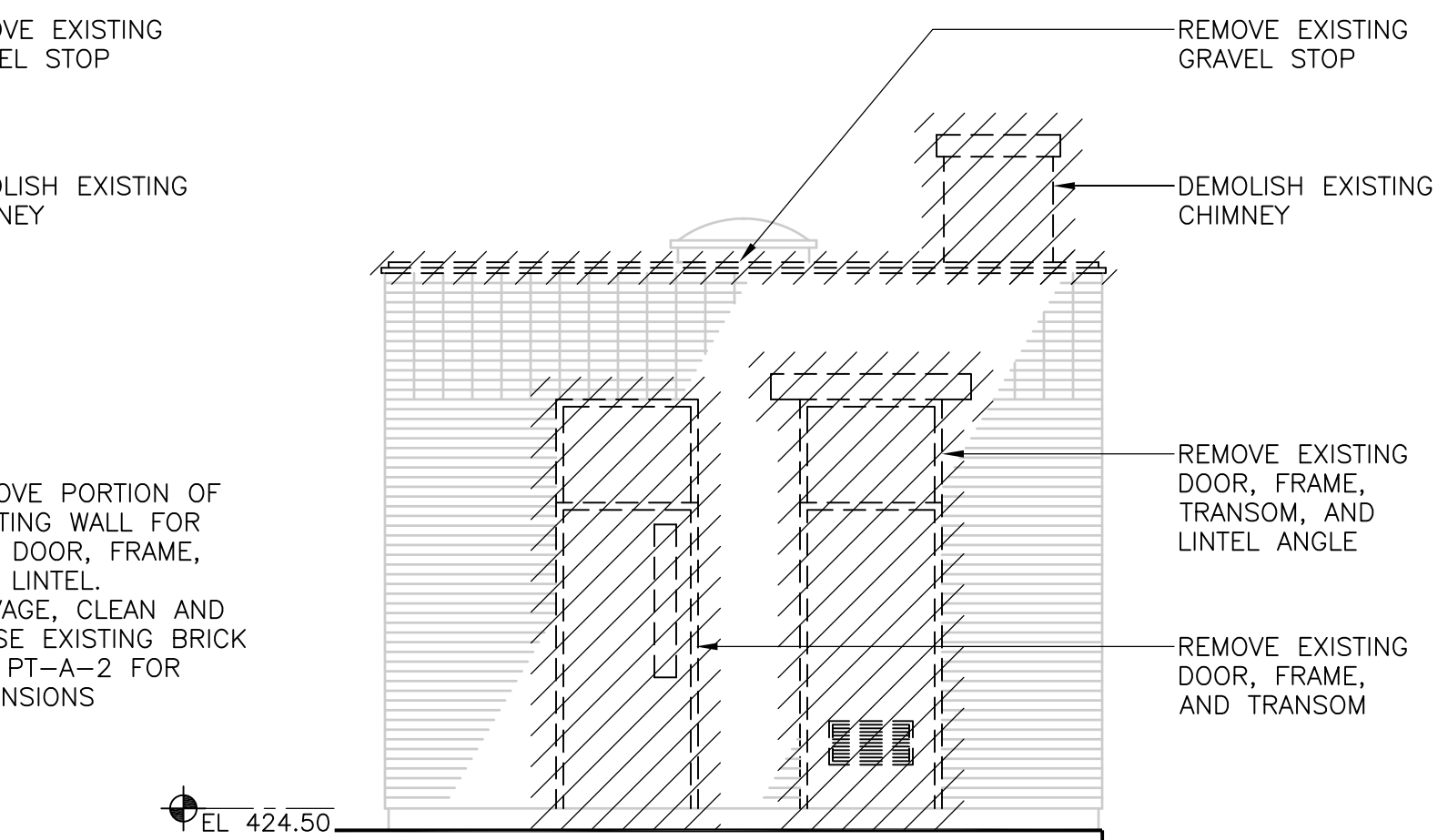
ROOF PLAN - SOUTH ACCESS STRUCTURE  
**PLAN**  
1/4" = 1'-0"



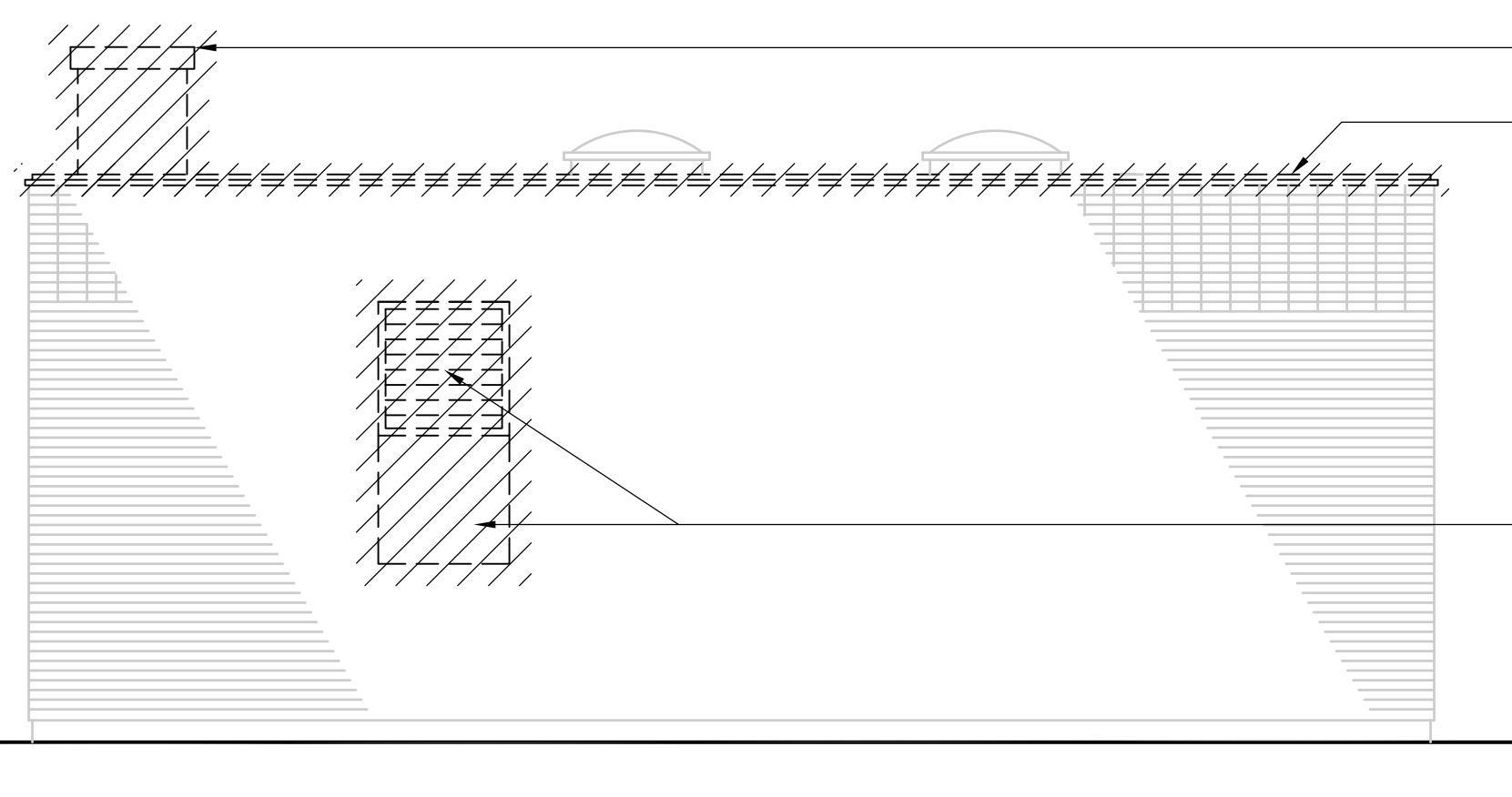
PLAN - SOUTH ACCESS STRUCTURE  
**PLAN**  
1/4" = 1'-0"



EAST ELEVATION - SOUTH ACCESS STRUCTURE  
**ELEVATION**  
1/4" = 1'-0"

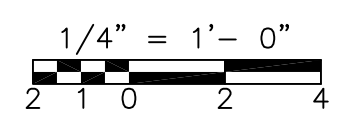


NORTH ELEVATION - SOUTH ACCESS STRUCTURE  
**ELEVATION**  
1/4" = 1'-0"



WEST ELEVATION - SOUTH ACCESS STRUCTURE  
**ELEVATION**  
1/4" = 1'-0"

NOTE:  
1. SCREENED BUILDING OUTLINE, INFORMATION, AND SLANTED TEXT INDICATES INFORMATION OBTAINED FROM SCANNED RECORD DRAWINGS TITLED:  
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 DATED FEBRUARY 1973, PRODUCED BY FAY, SPOFFORD, AND THORNDIKE, INC. ENGINEER  
ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/07	JAL	ADT	REVISED FOR THE RECORD

CADD FILE NO.	AASPL101.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	D. GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	1/4"=1'-0"
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

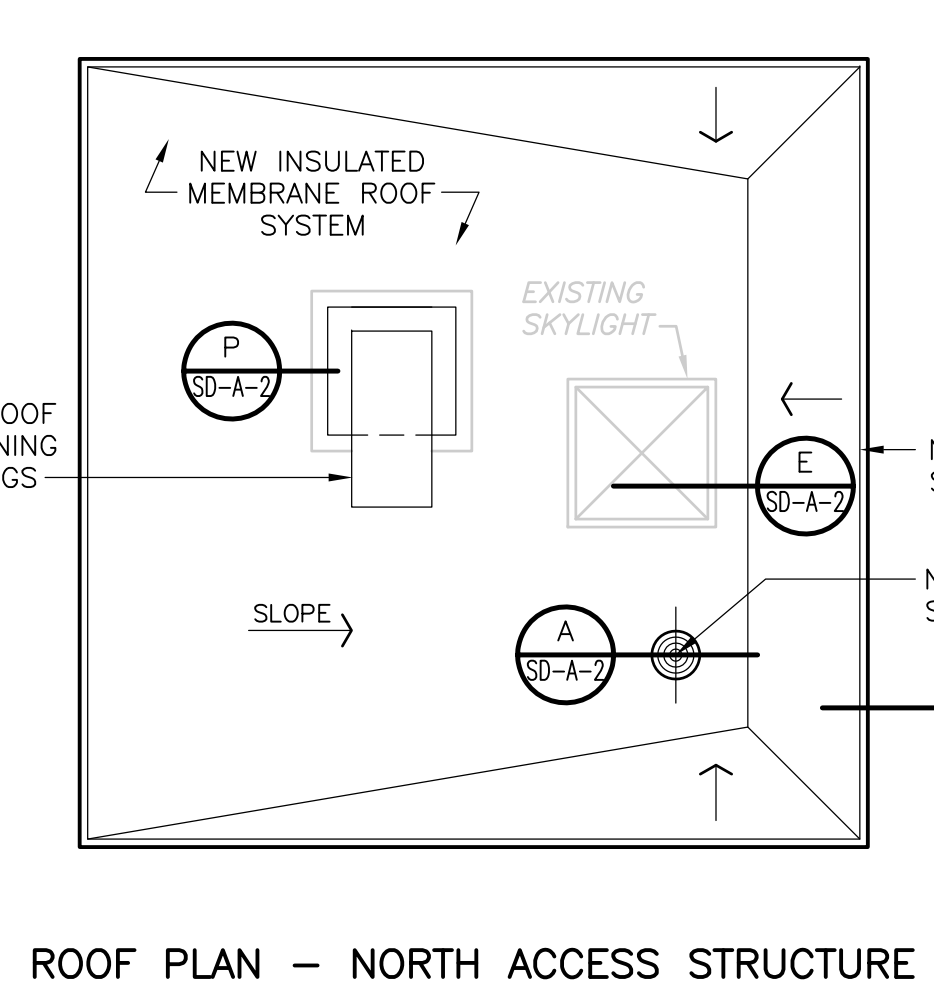
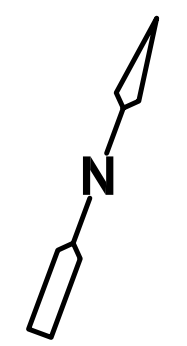
**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

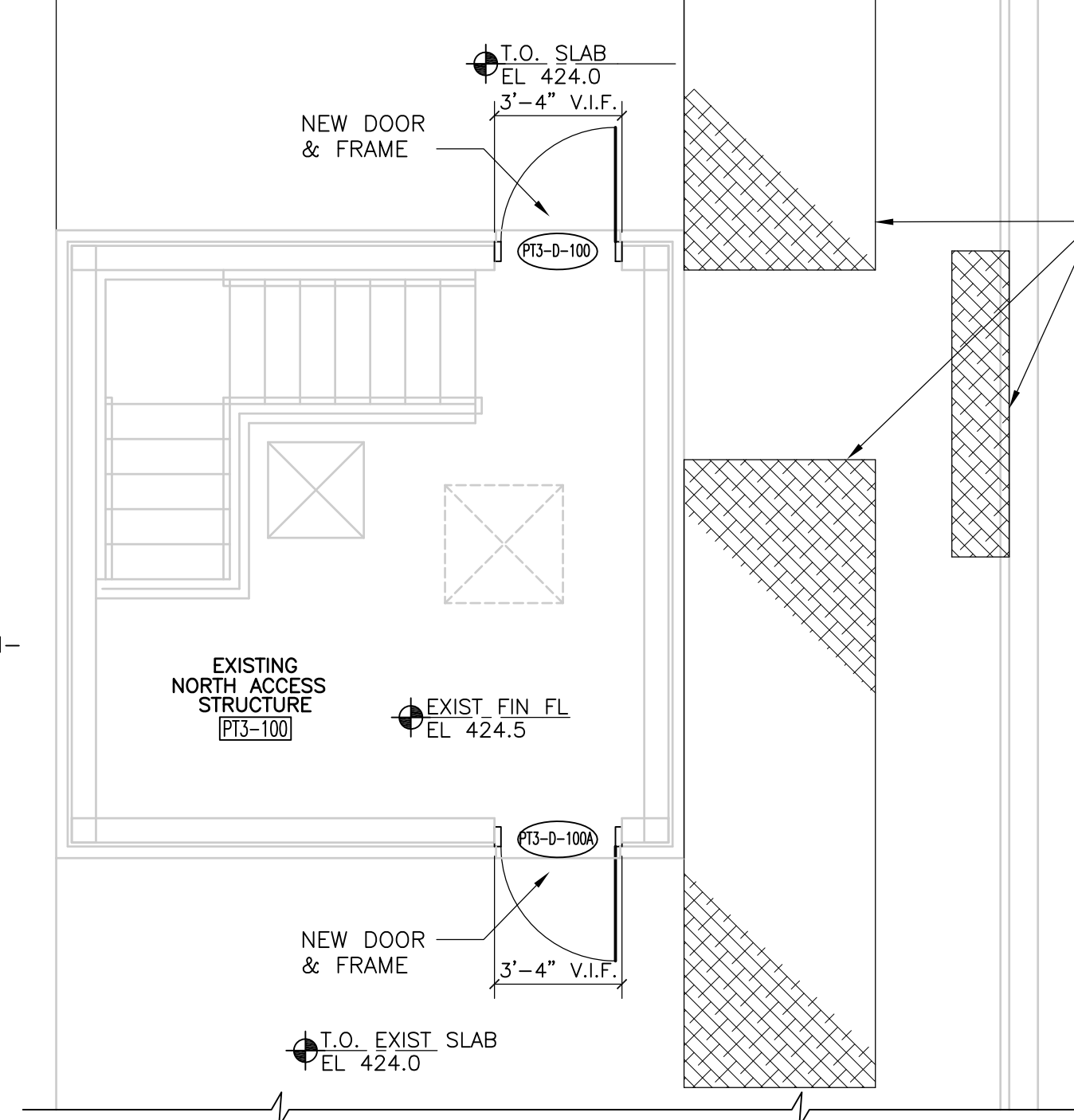
**PRIMARY SETTLING TANKS**  
**DEMOLITION AT EXISTING SOUTH & NORTH ACCESS STRUCTURES**

PROJECT NO.  
1289\35370  
Sht. 53 of 386  
**PT-A-1**

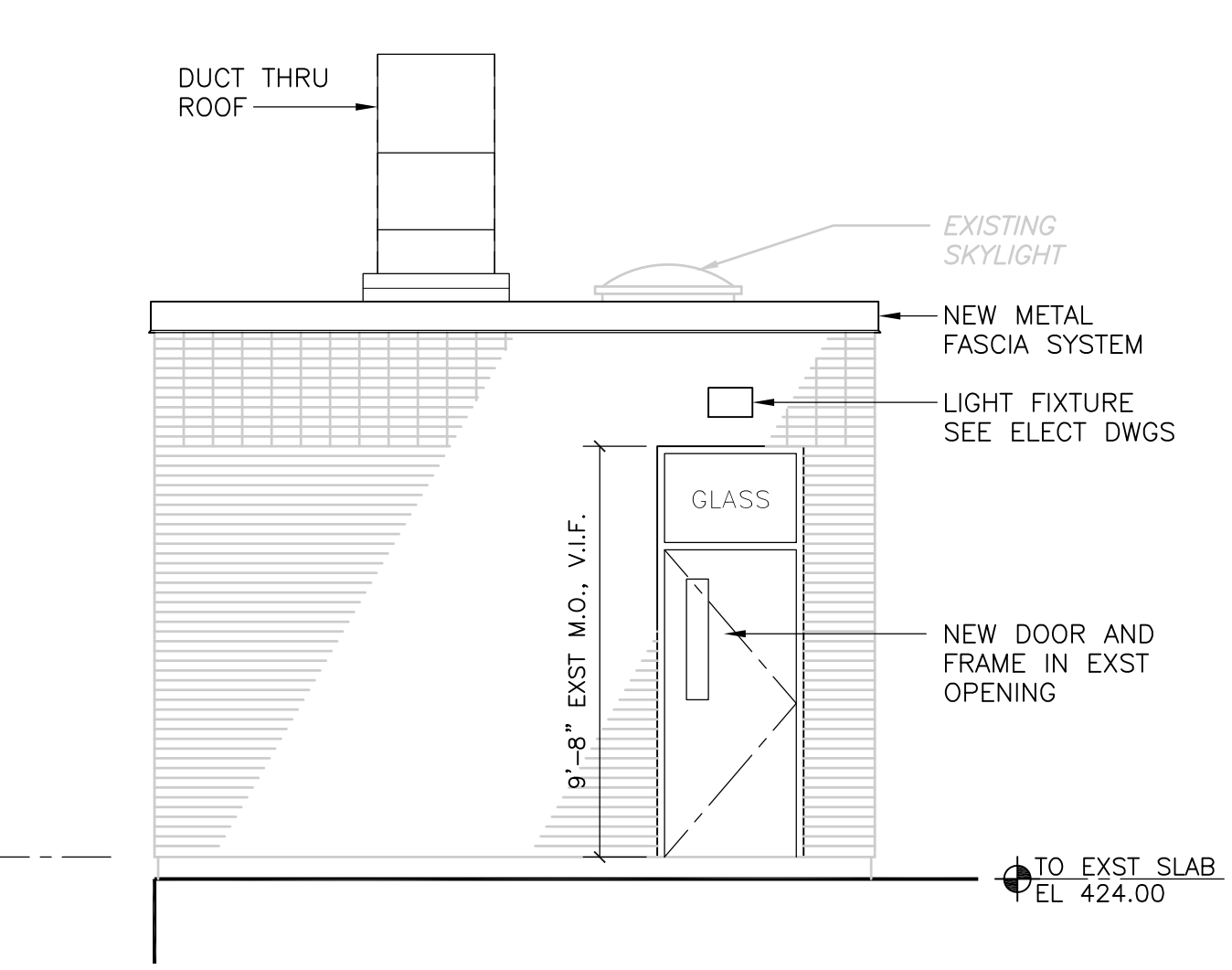
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 Filename: P:\1289\35370\PHASE I\RECORD\ARCH\ASPL102.dwg



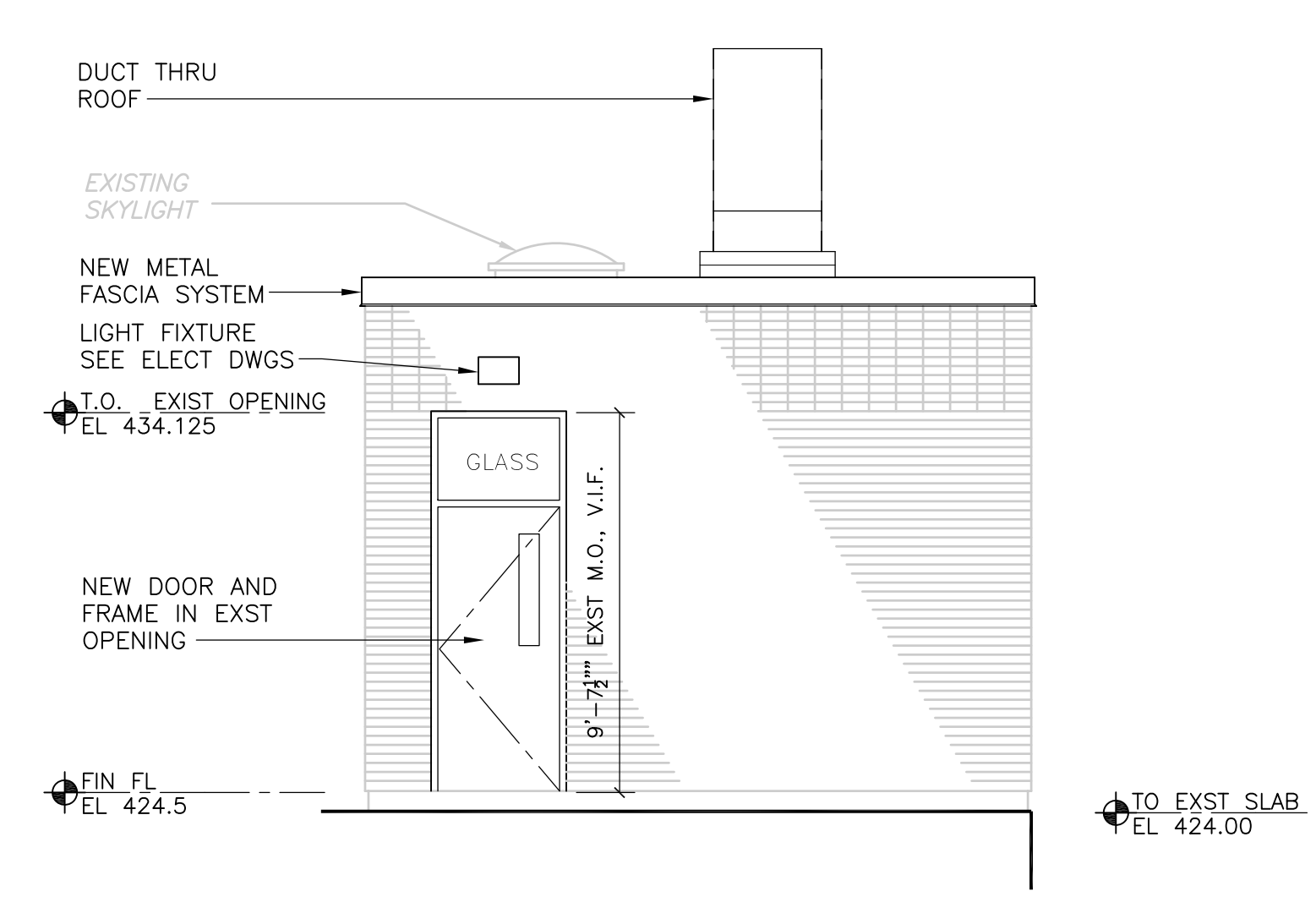
ROOF PLAN - NORTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"



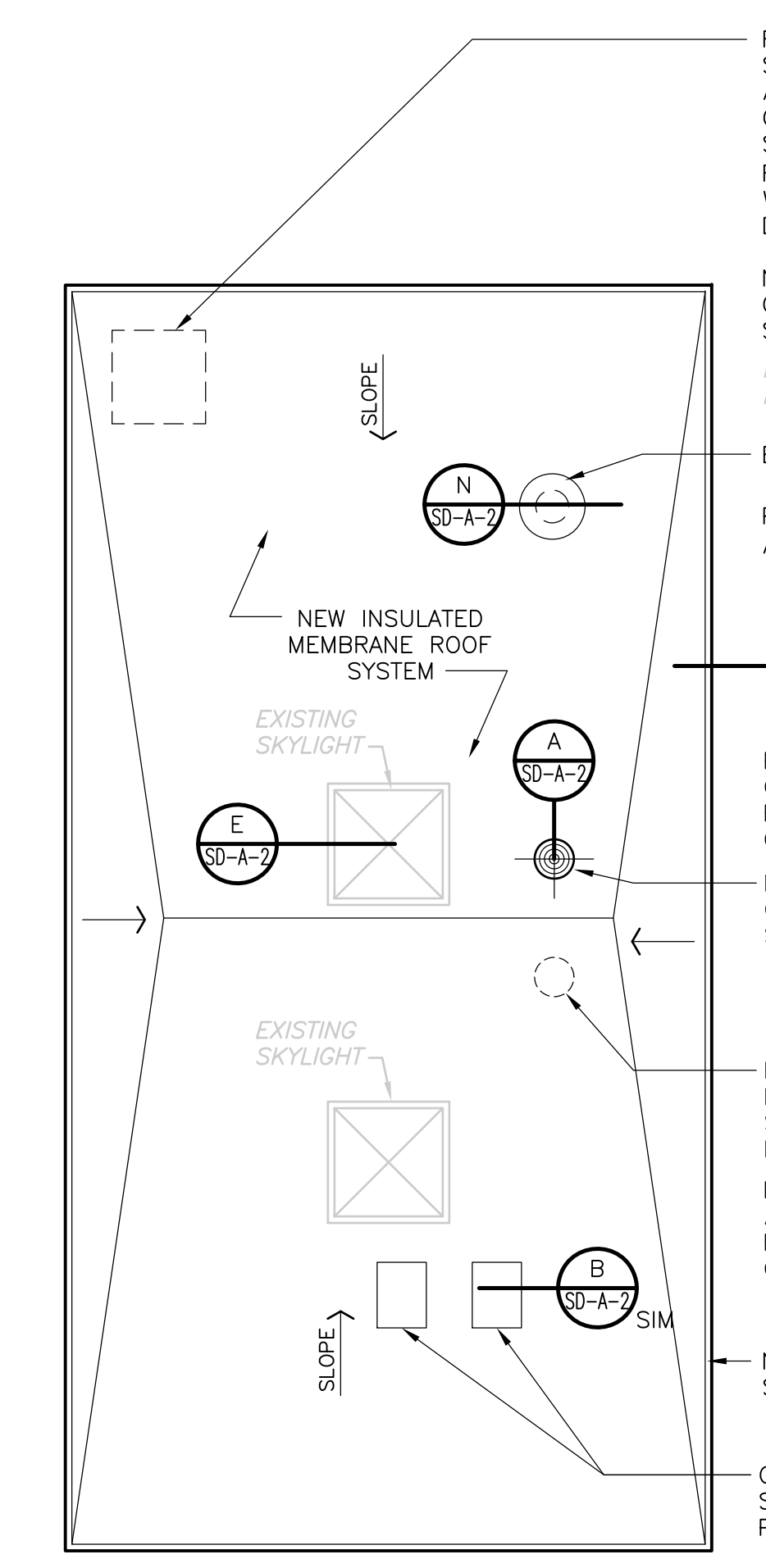
PLAN - NORTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"



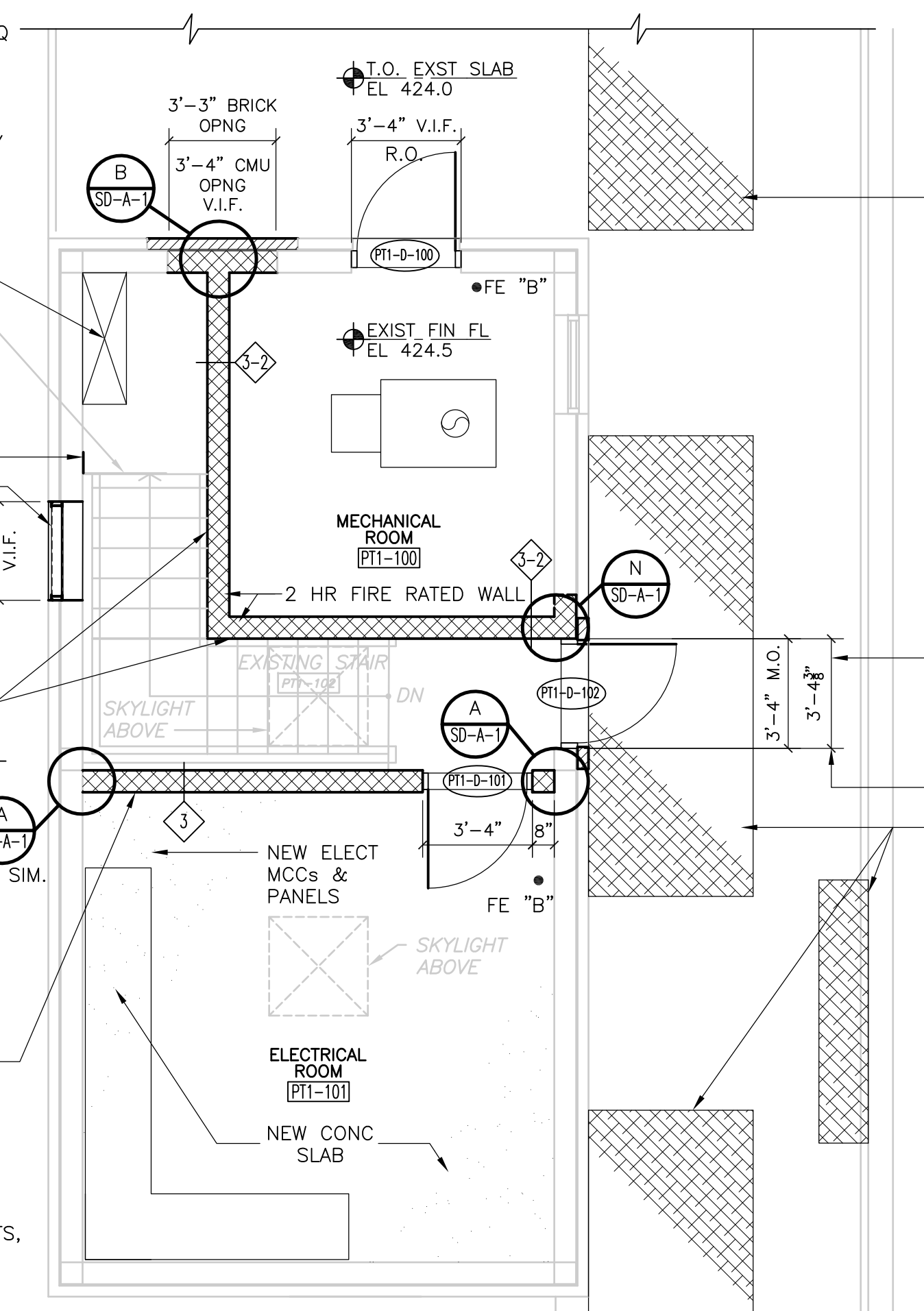
SOUTH ELEVATION - NORTH ACCESS STRUCTURE  
**ELEVATION**  
 1/4" = 1'-0"



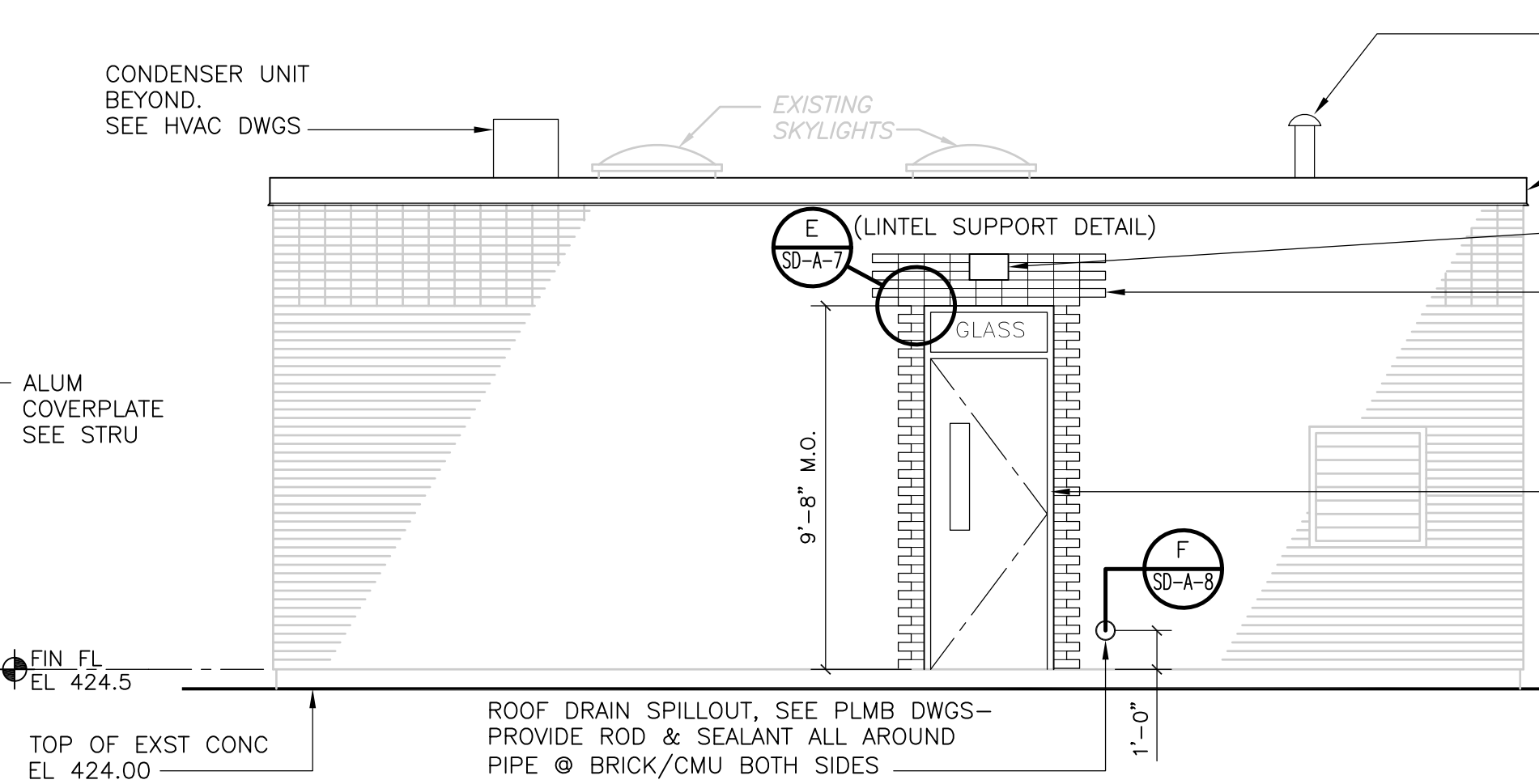
NORTH ELEVATION - NORTH ACCESS STRUCTURE  
**ELEVATION**  
 1/4" = 1'-0"



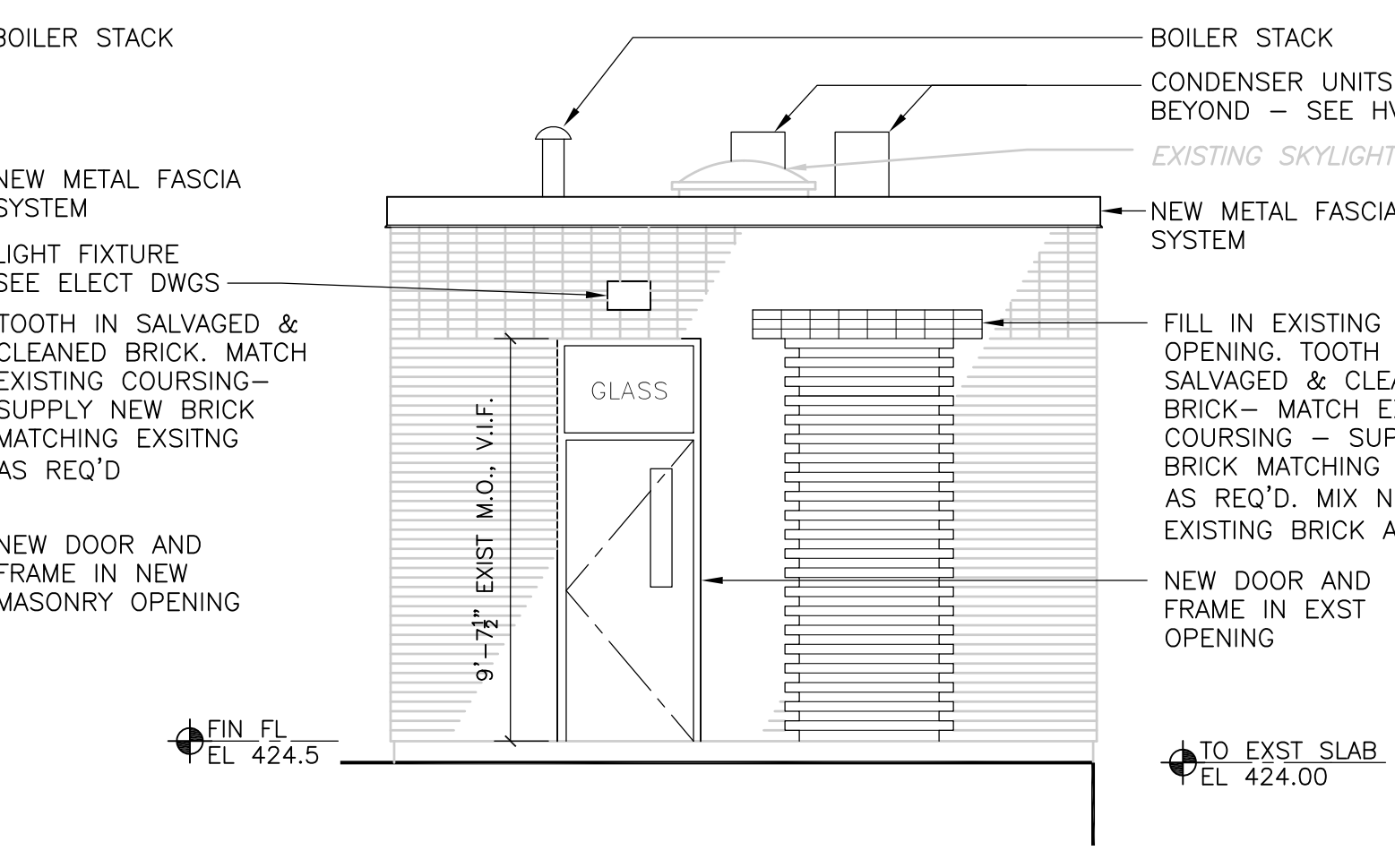
ROOF PLAN - SOUTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"



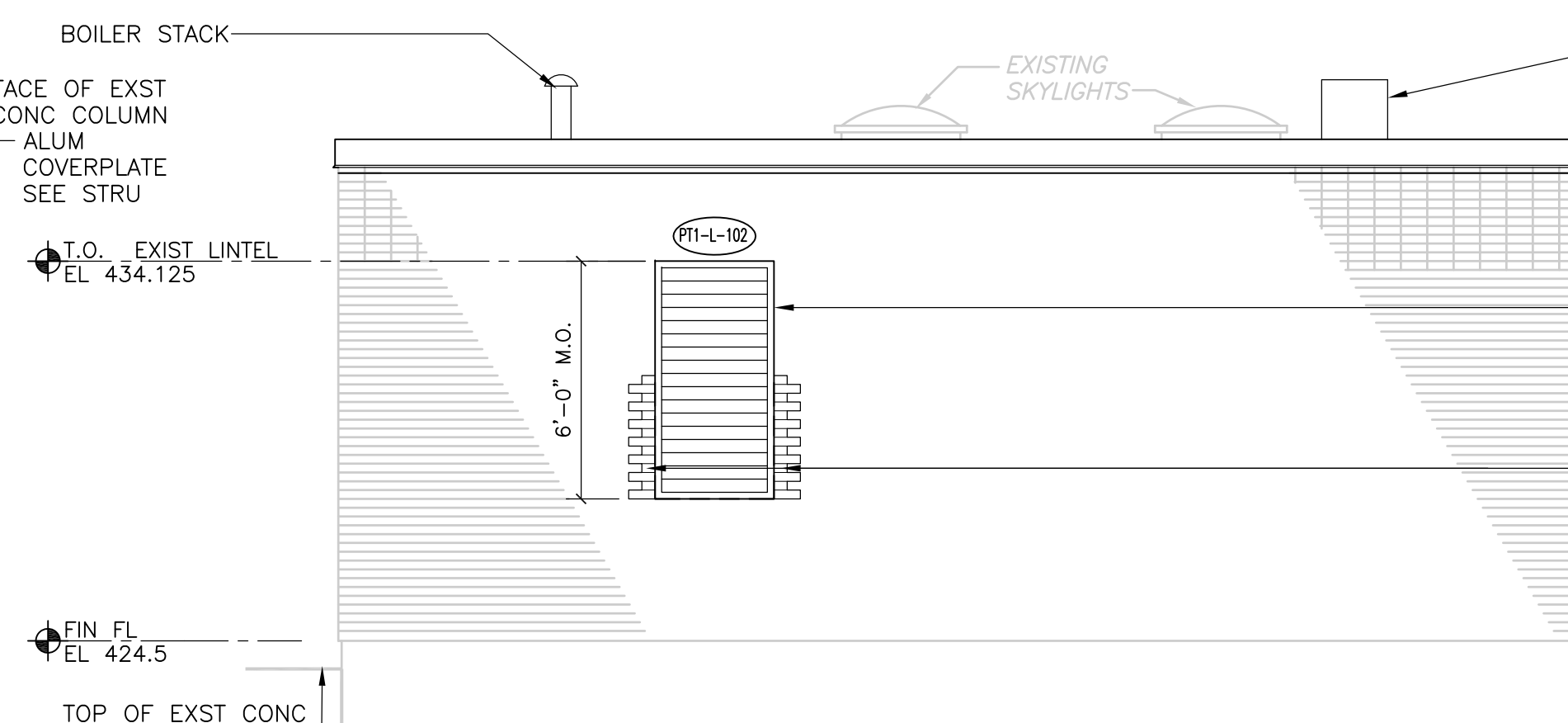
PLAN - SOUTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"



EAST ELEVATION - SOUTH ACCESS STRUCTURE  
**ELEVATION**  
 1/4" = 1'-0"

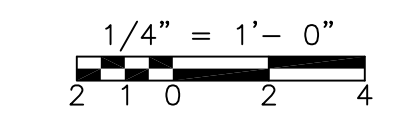


NORTH ELEVATION - SOUTH ACCESS STRUCTURE  
**ELEVATION**  
 1/4" = 1'-0"



WEST ELEVATION - SOUTH ACCESS STRUCTURE  
**ELEVATION**  
 1/4" = 1'-0"

NOTE:  
 1. SCREENED BUILDING OUTLINE, INFORMATION, AND SLANTED TEXT INDICATES INFORMATION OBTAINED FROM SCANNED RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 DATED FEBRUARY 1973. PRODUCED BY FAY, SPOFFORD, AND THORNDIKE, INC. ENGINEER  
 ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	AASPL102.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	K. HAYNES/DGRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	1/4"=1'-0"
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

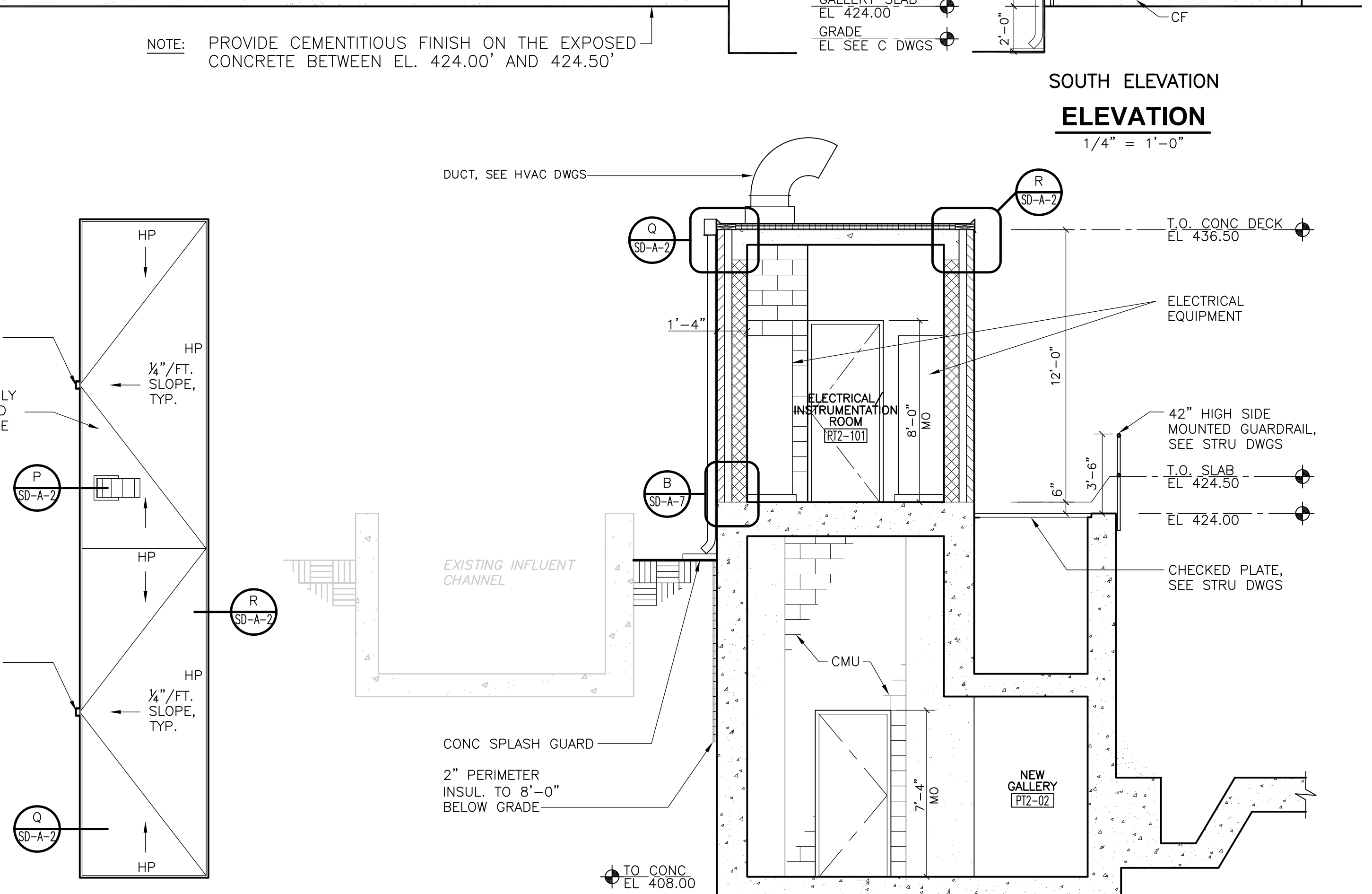
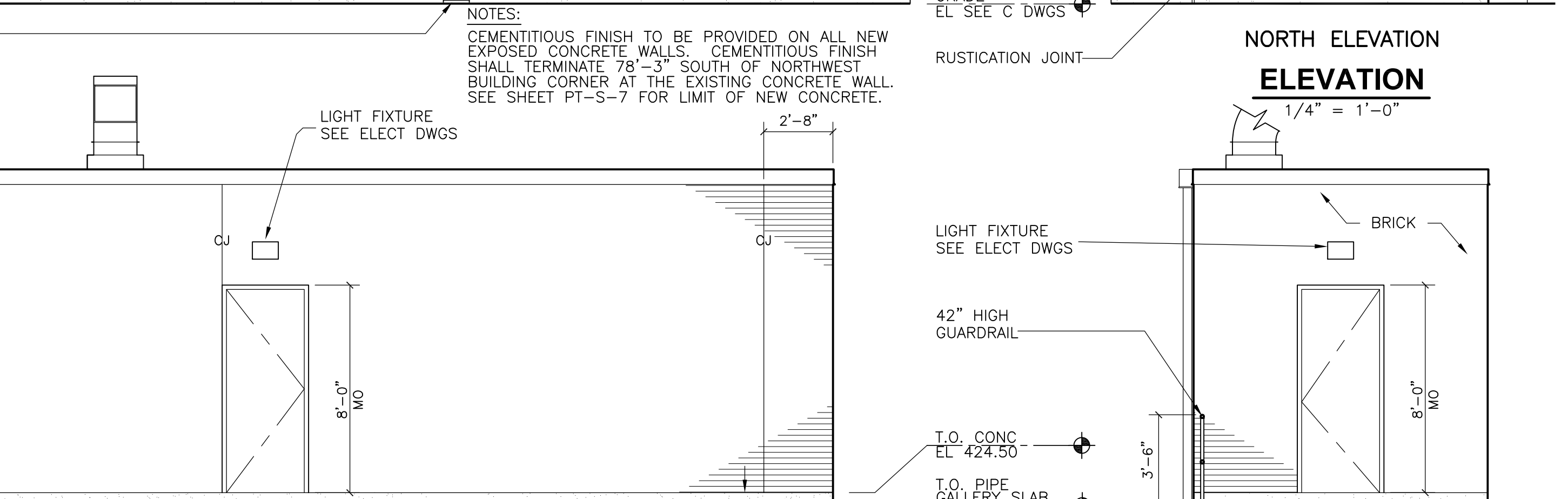
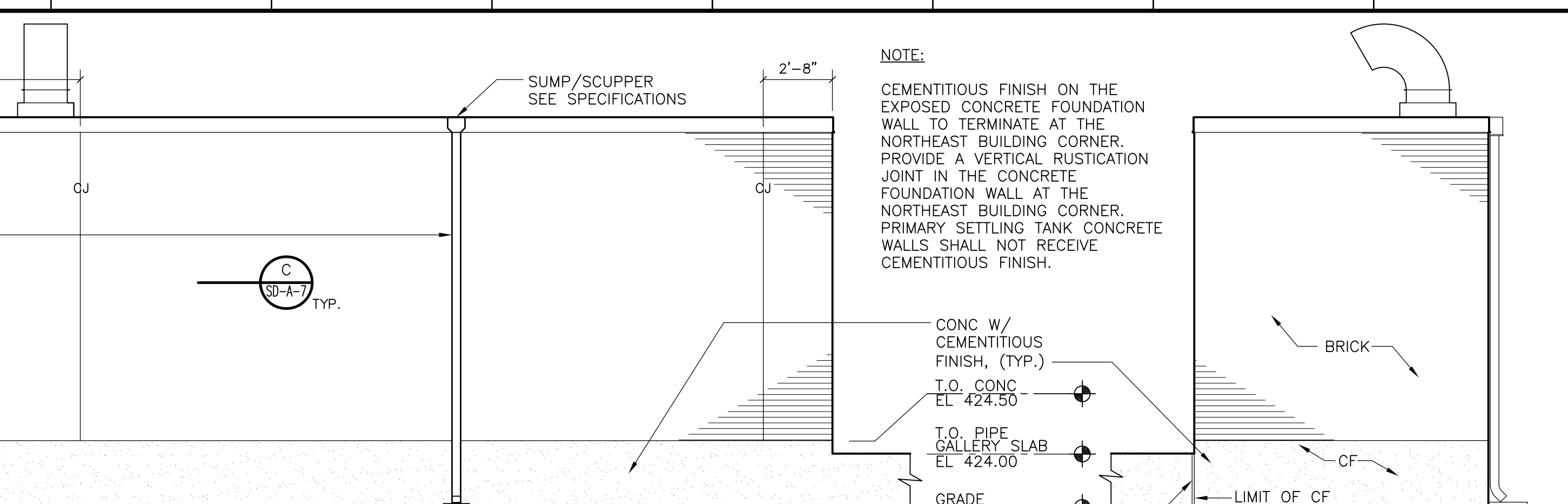
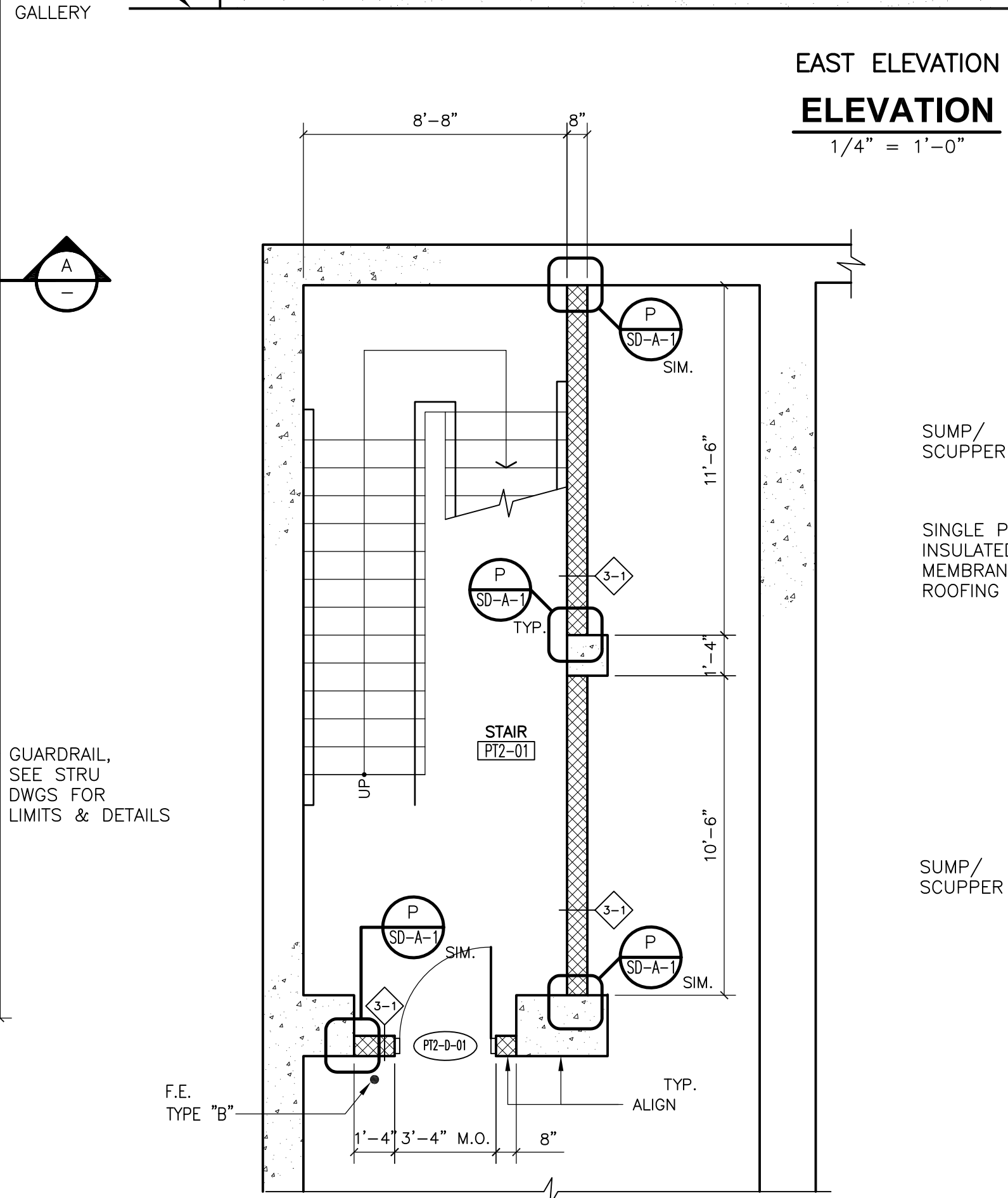
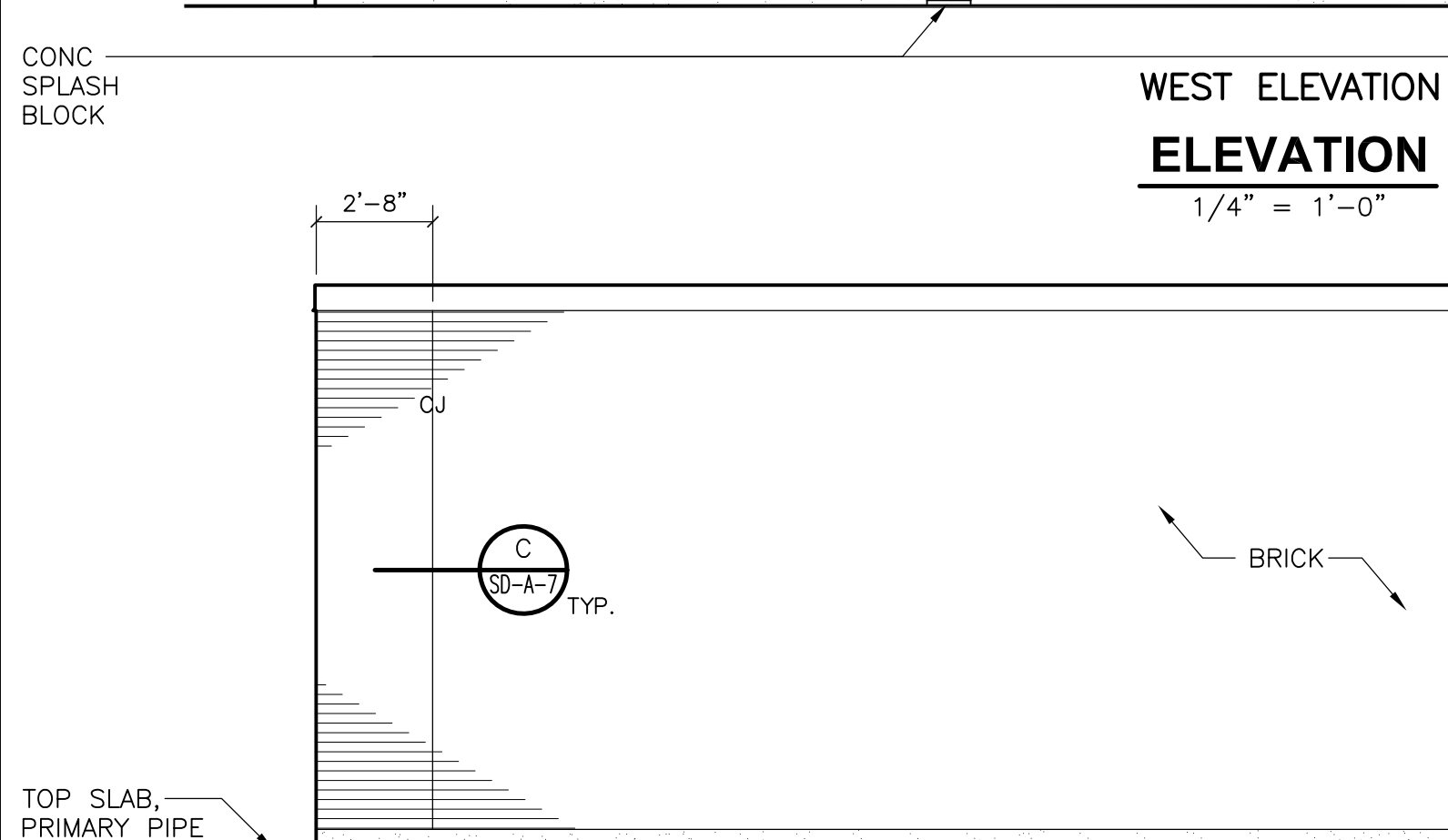
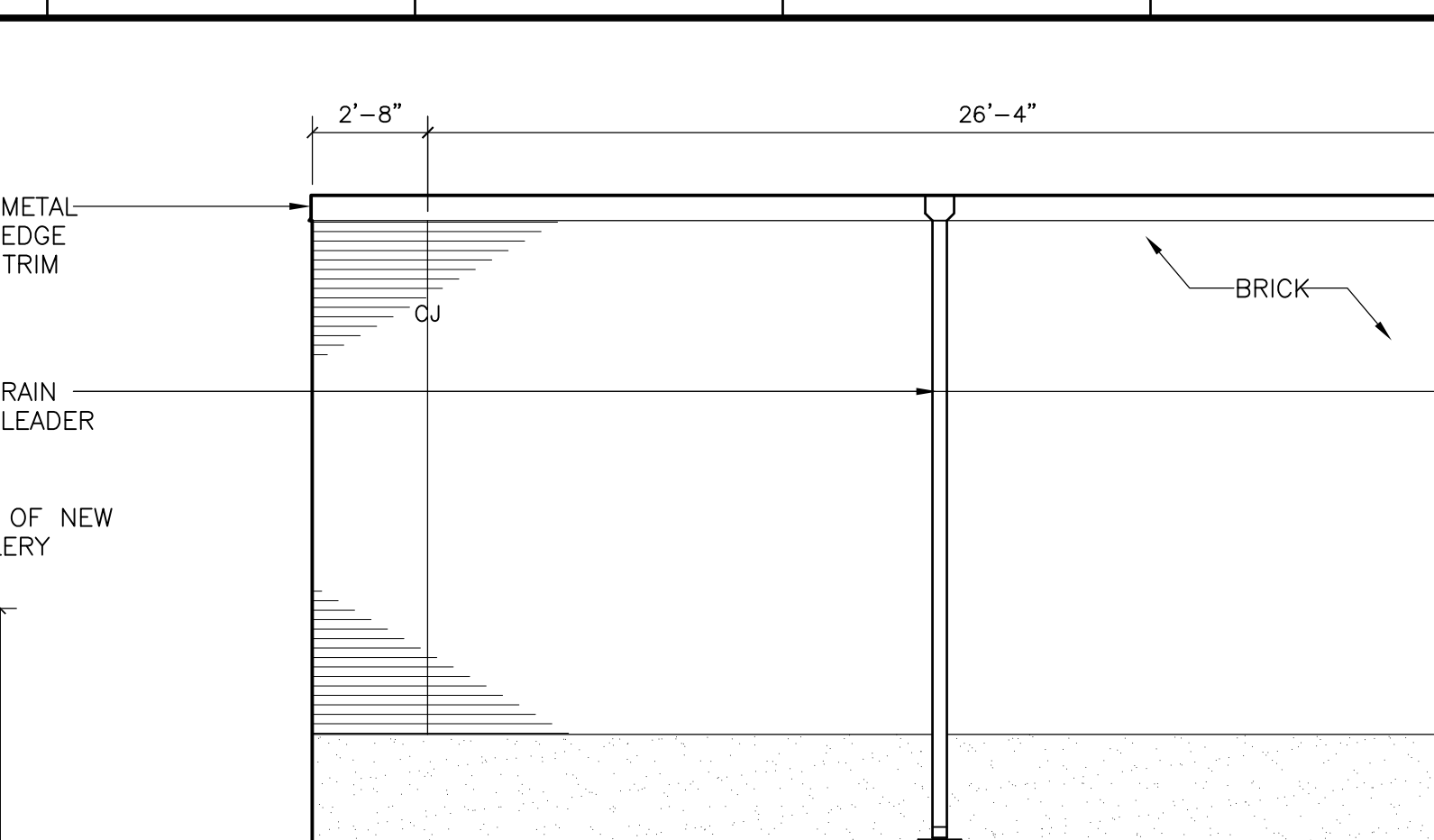
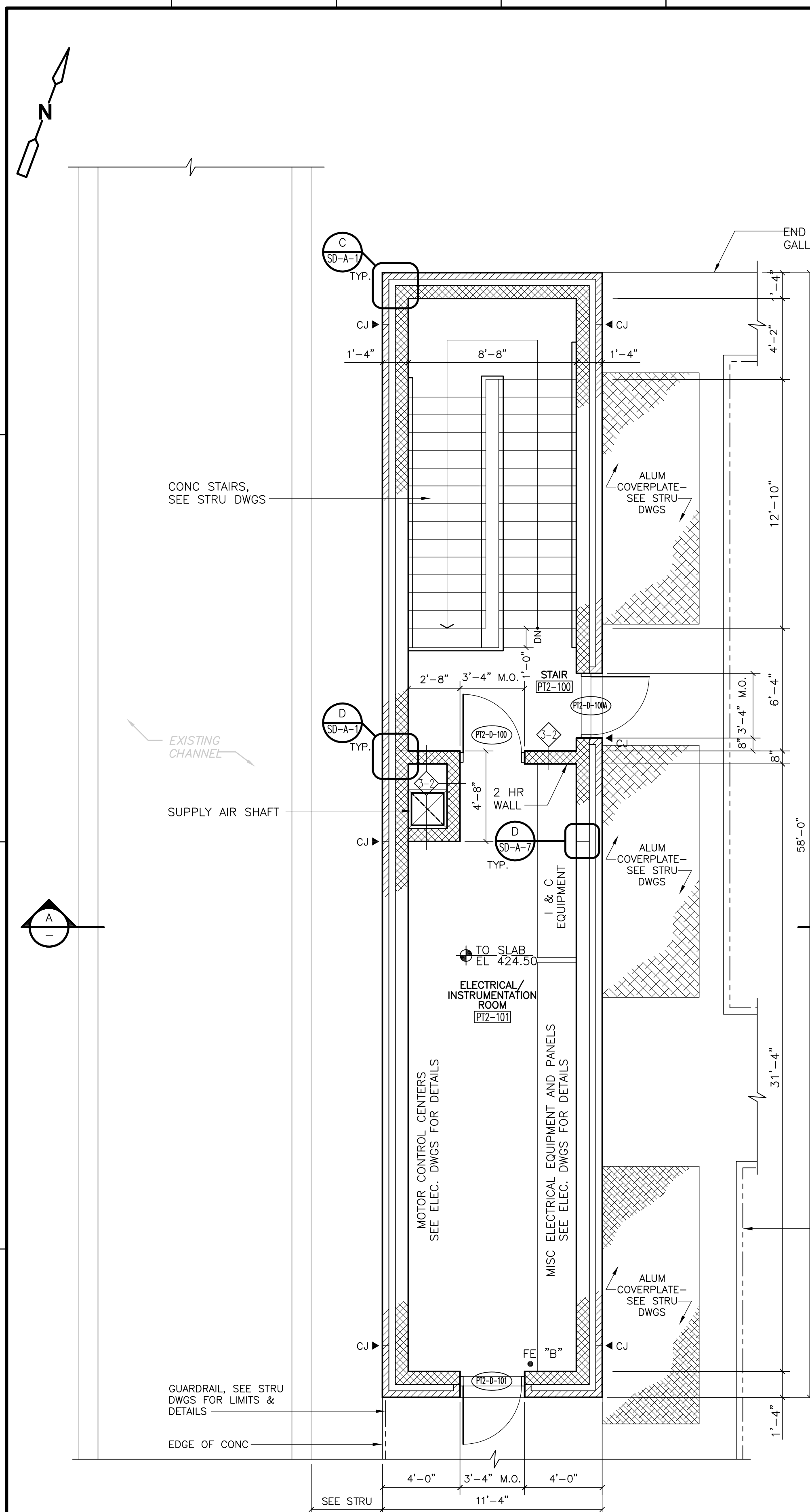
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 RENOVATION AT EXISTING SOUTH & NORTH  
 ACCESS STRUCTURES**

PROJECT NO.  
 1289\35370  
 Sht. 54 of 386  
**PT-A-2**

00000000 NO. 1289-65454



RECORD DRAWING

Scale bars:  
 1/8" = 1'-0"  
 1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	AASPL100.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	K. HAYNES/D.GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	1/4"=1'-0"
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

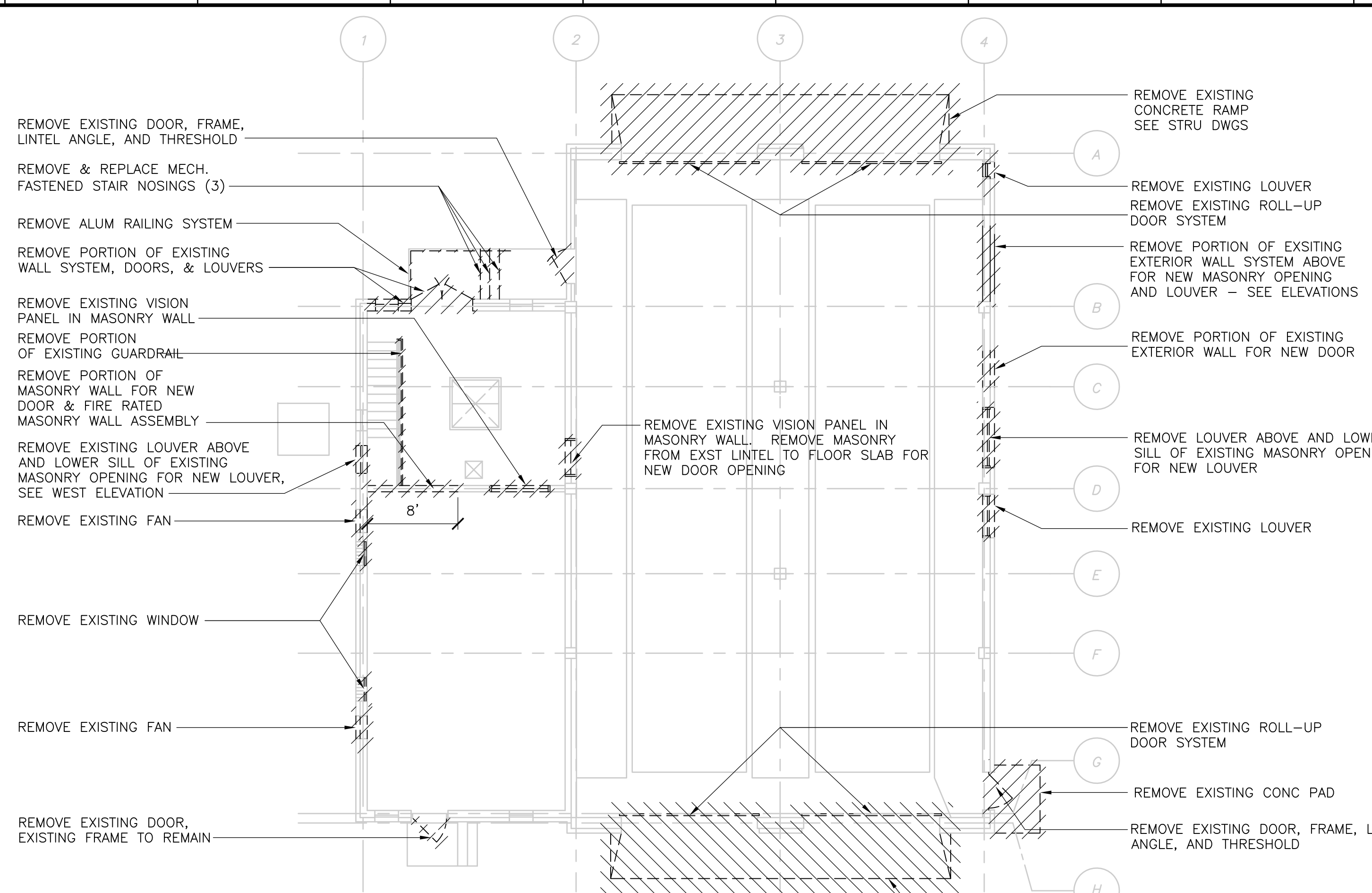
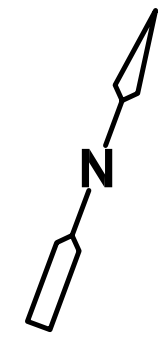
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operators

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

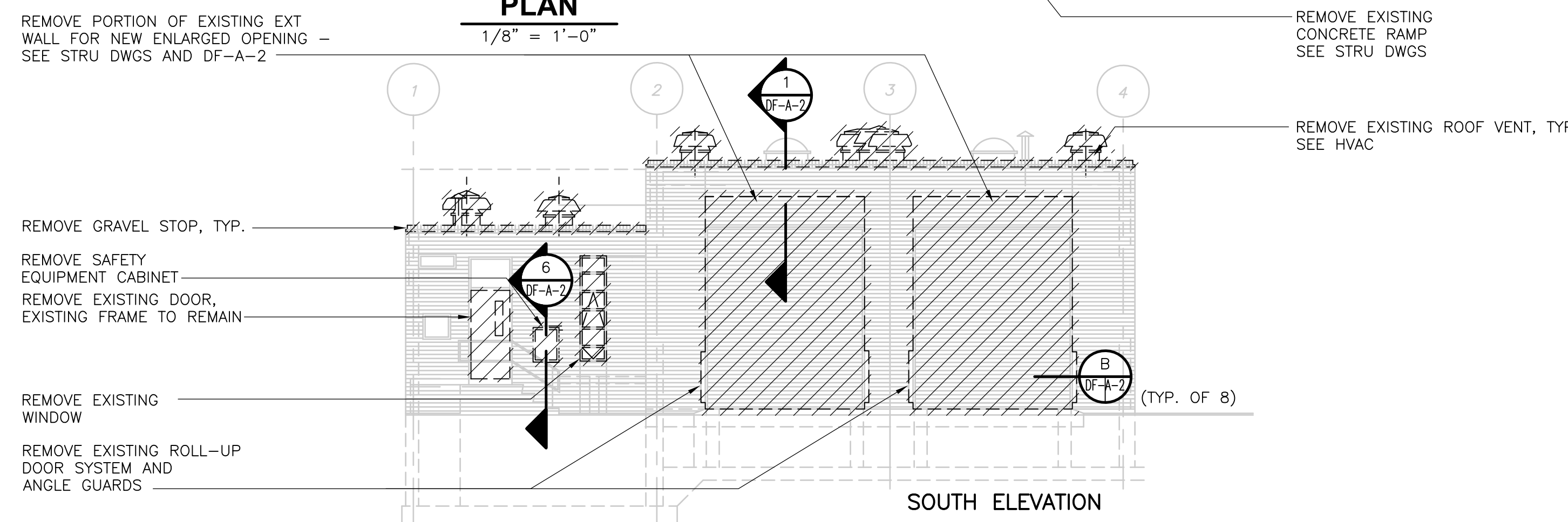
**PRIMARY SETTLING TANKS**  
**NEW ACCESS STRUCTURE**

PROJECT NO. 1289\35370  
 Sht. 55 of 386  
**PT-A-3**



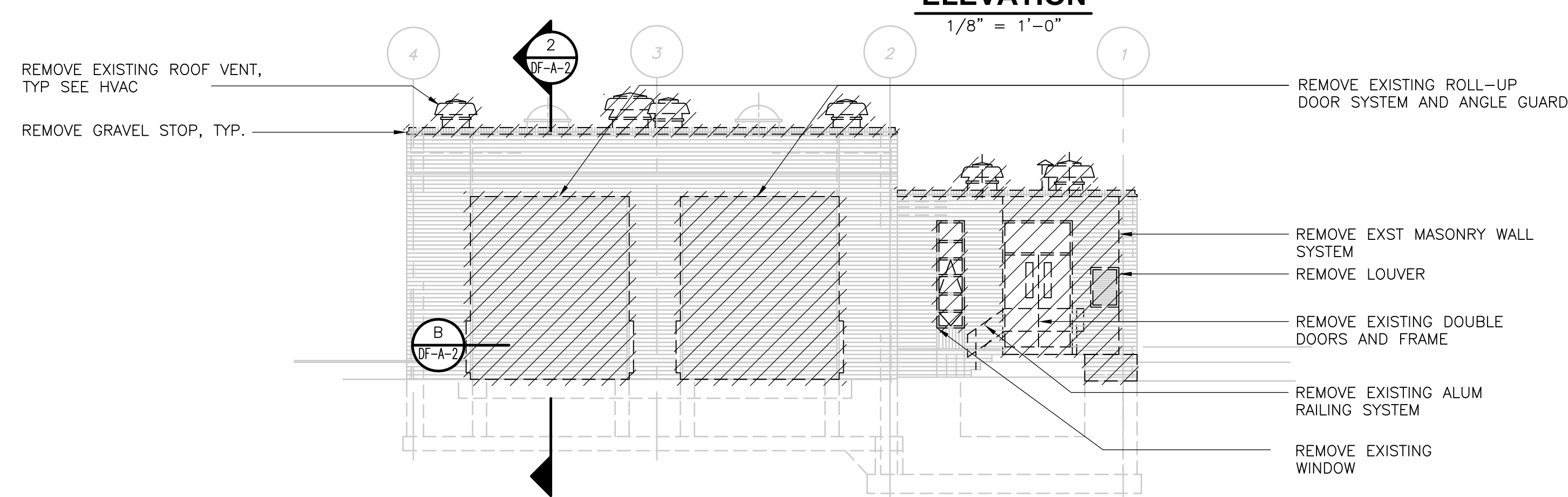
**PLAN**

1/8" = 1'-0"



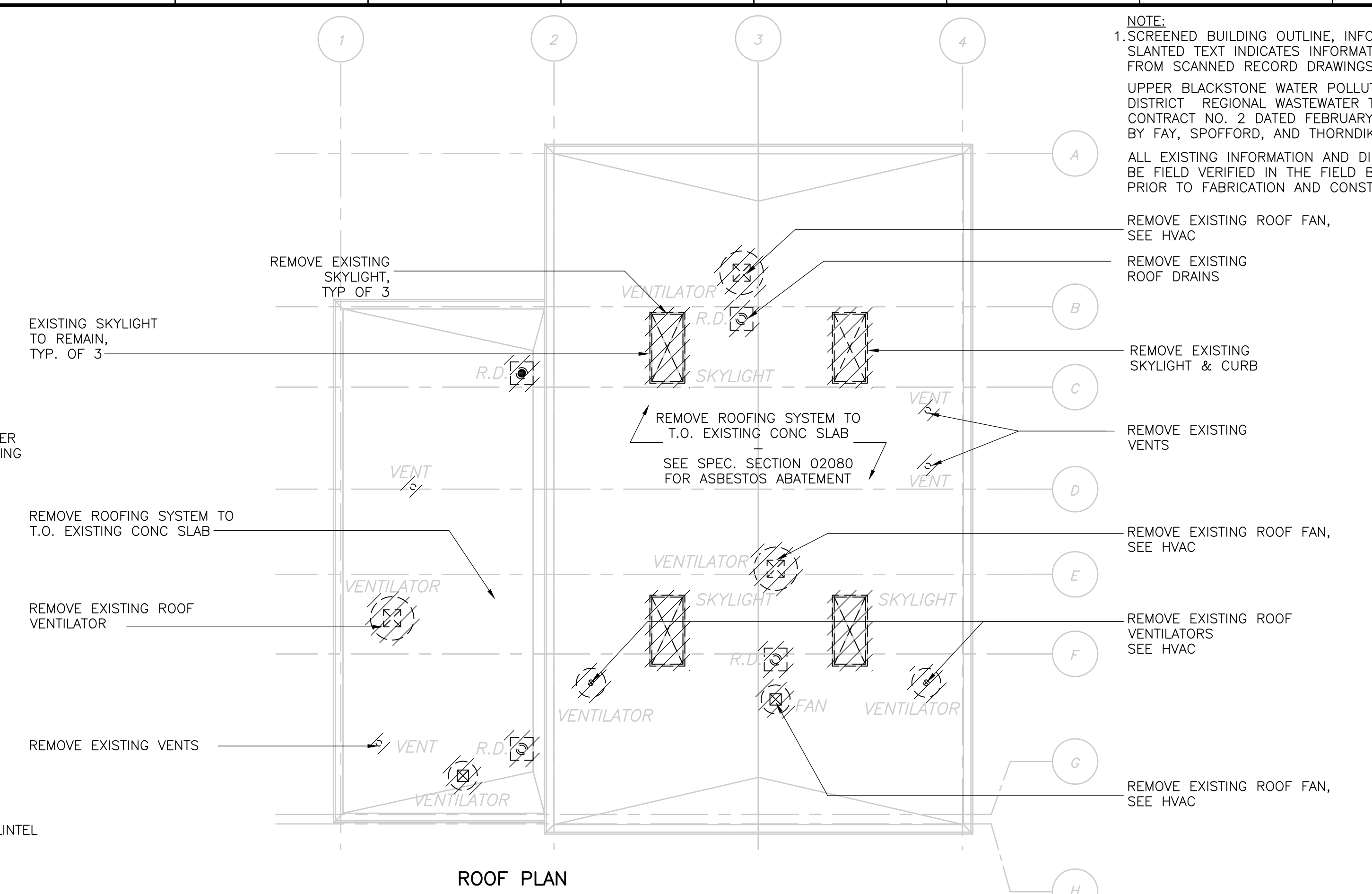
**SOUTH ELEVATION**

1/8" = 1'-0"



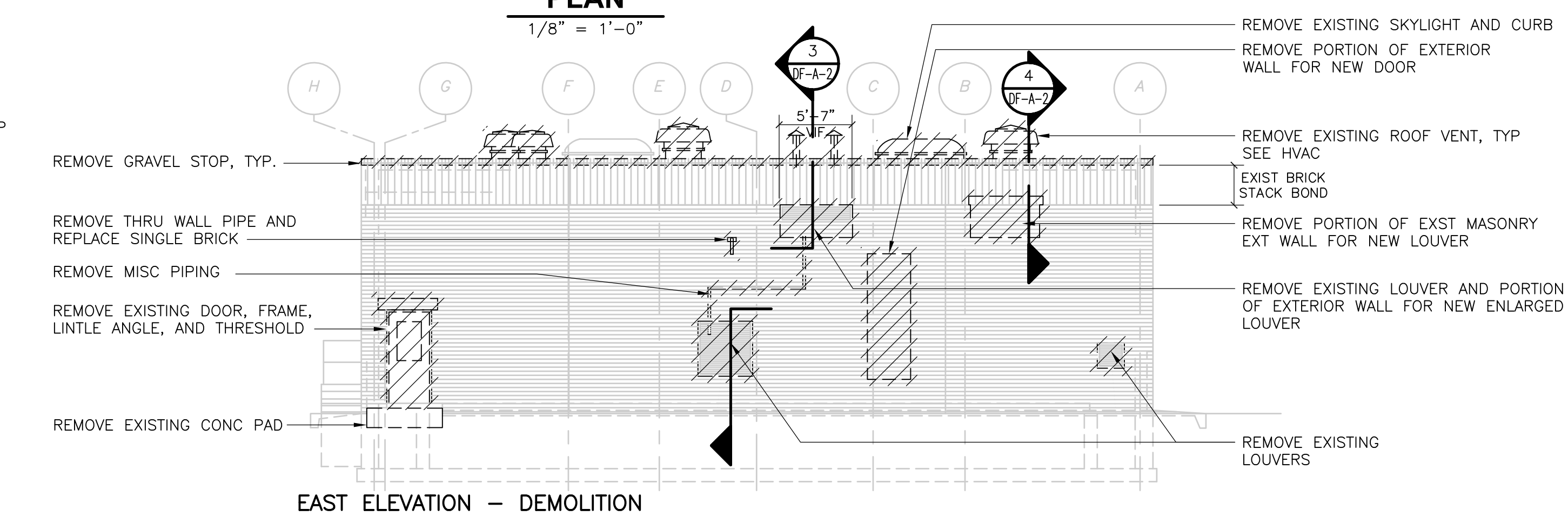
**NORTH ELEVATION**

1/8" = 1'-0"



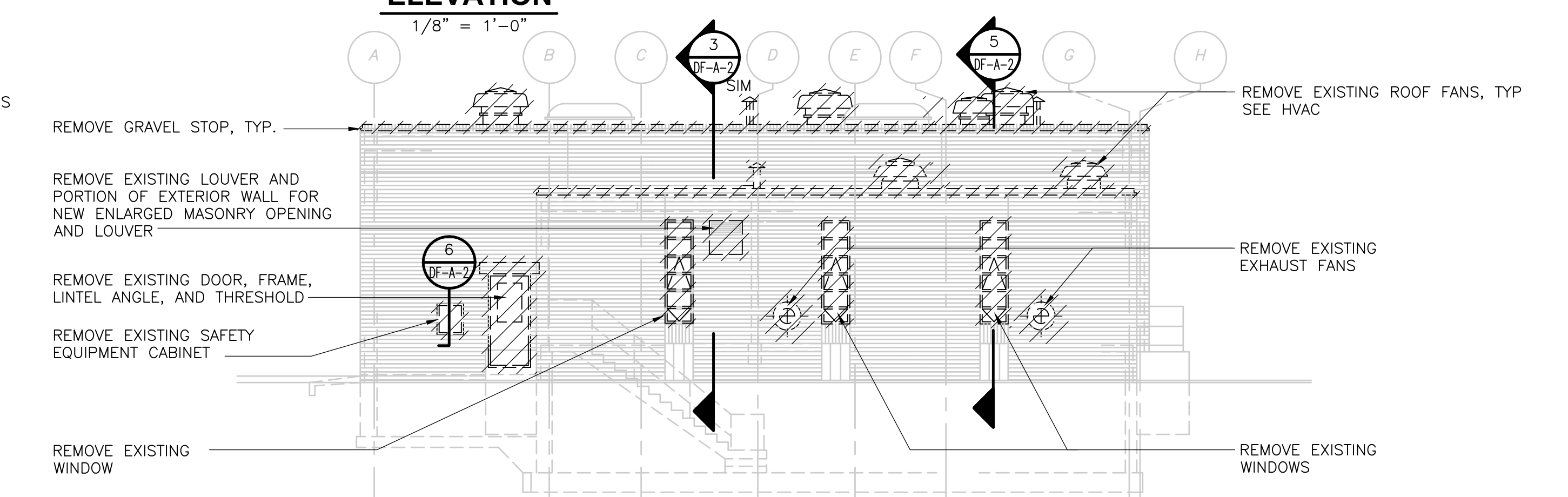
**ROOF PLAN**

1/8" = 1'-0"



**EAST ELEVATION - DEMOLITION**

1/8" = 1'-0"



**WEST ELEVATION**

1/8" = 1'-0"

1/8" = 1'-0"

RECORD DRAWING

NOTE:  
1. SCREENED BUILDING OUTLINE, INFORMATION, AND SLANTED TEXT INDICATES INFORMATION OBTAINED FROM SCANNED RECORD DRAWINGS TITLED:  
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 DATED FEBRUARY 1973, PRODUCED BY FAY, SPOFFORD, AND THORNDIKE, INC. ENGINEER  
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REV. NO.	DATE	DRWN	CHKD	REMARKS
2/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.	ACHPL101.DWG
DESIGNED BY:	B.GIORGI
DRAWN BY:	D.GRUDKOWSKI
SHEET CHK'D BY:	B.GIORGI
SCALE:	1/8" = 1'-0"
APPROVED BY:	B.GIORGI
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

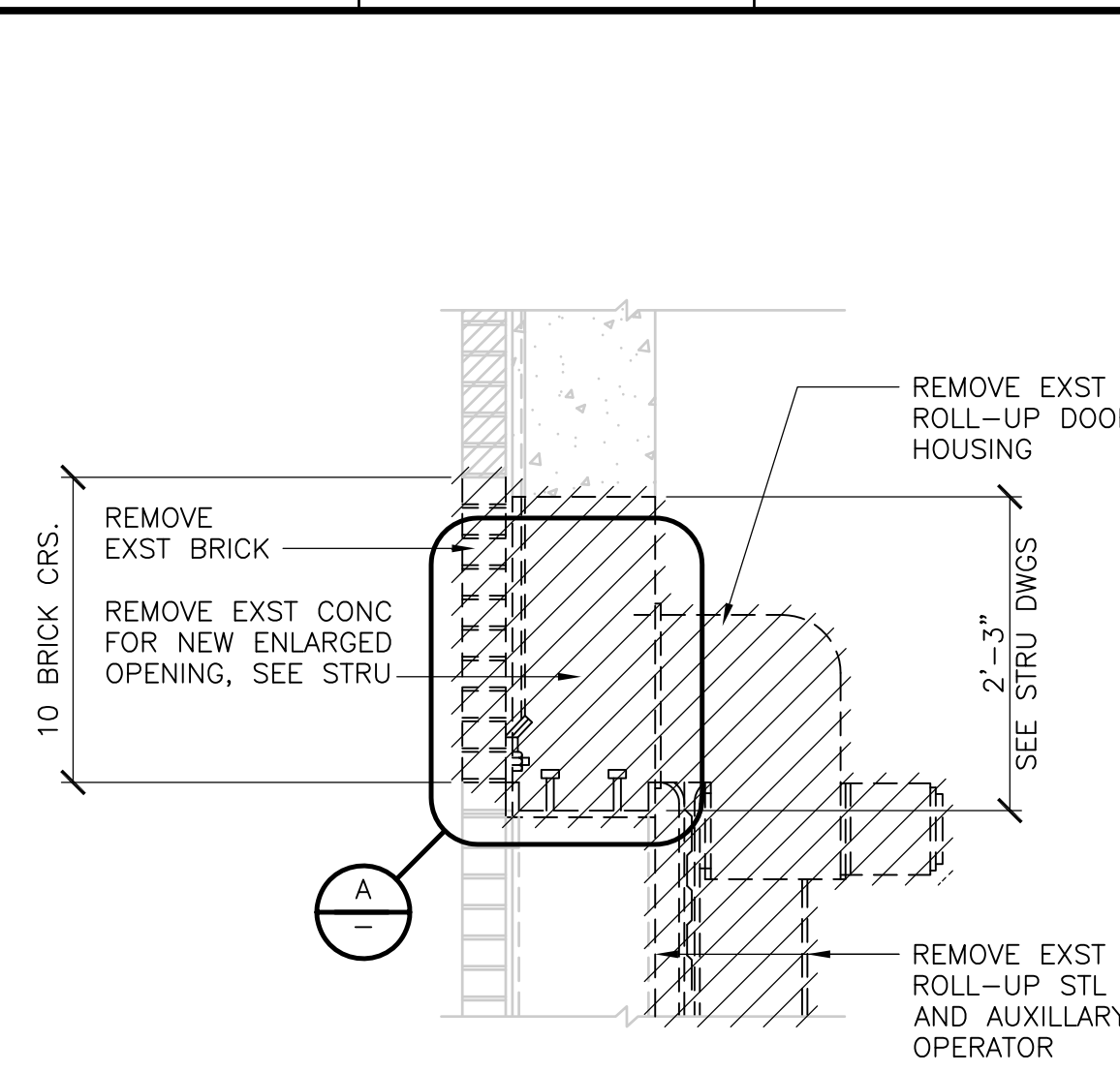
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

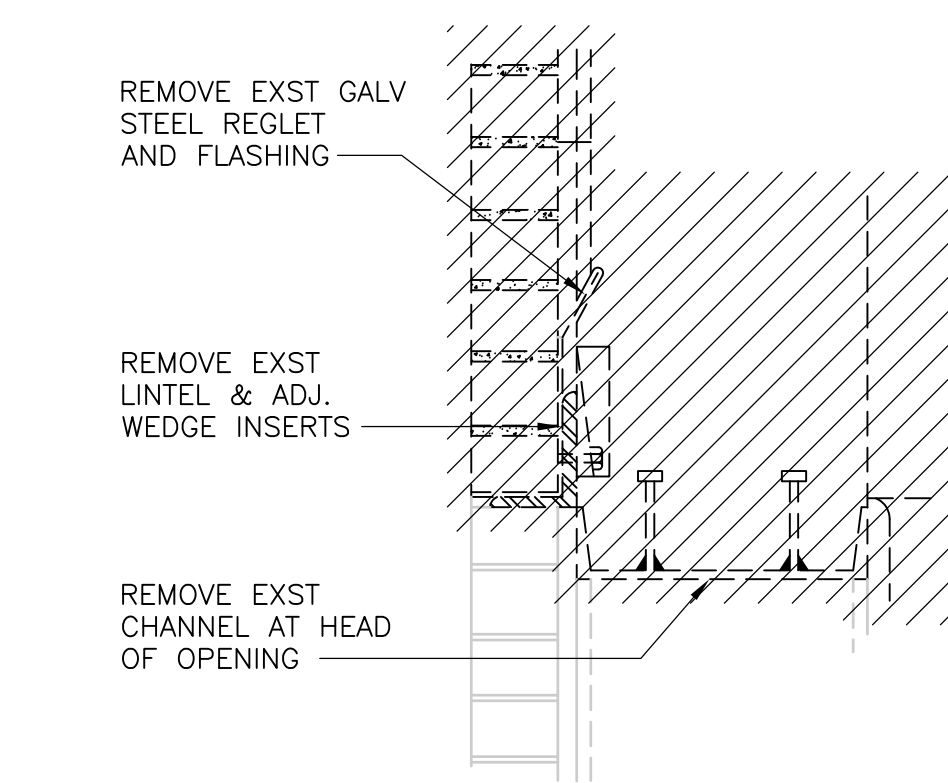
**DISINFECTION FACILITY DEMOLITION PLANS AND ELEVATIONS**

PROJECT NO. 1289\35370  
Sht. 56 of 386  
**DF-A-1**

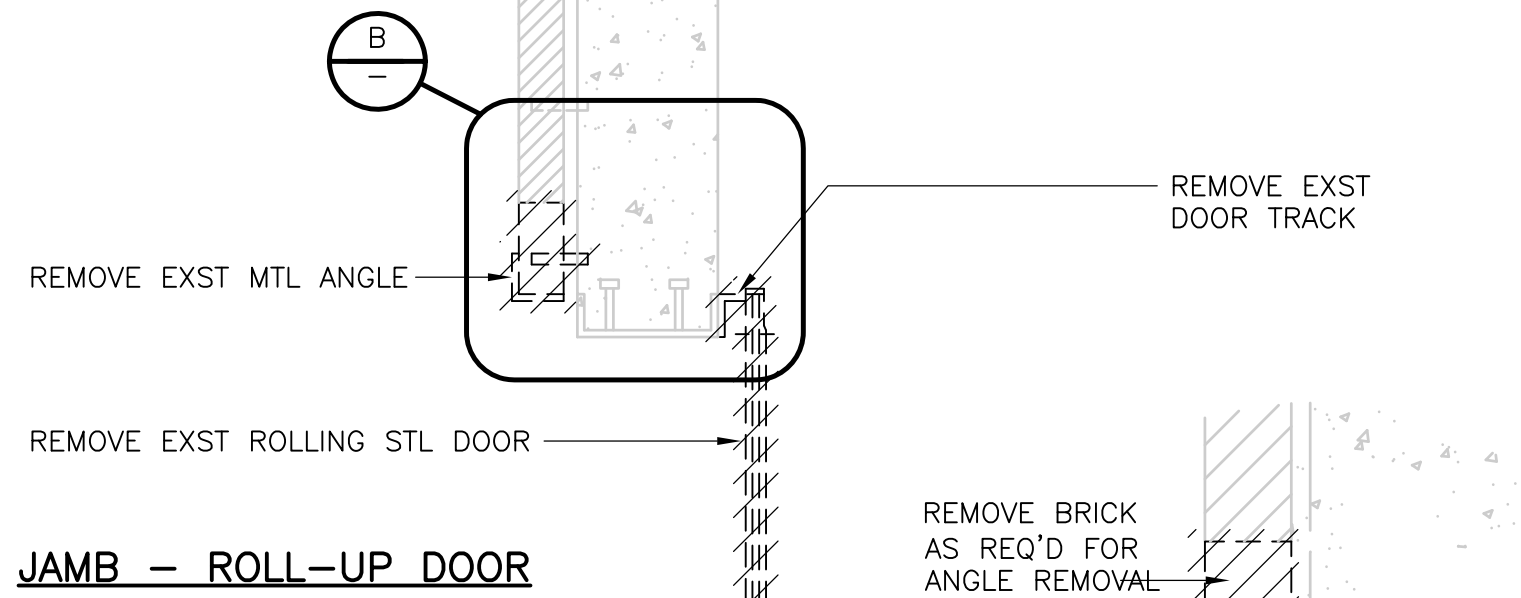
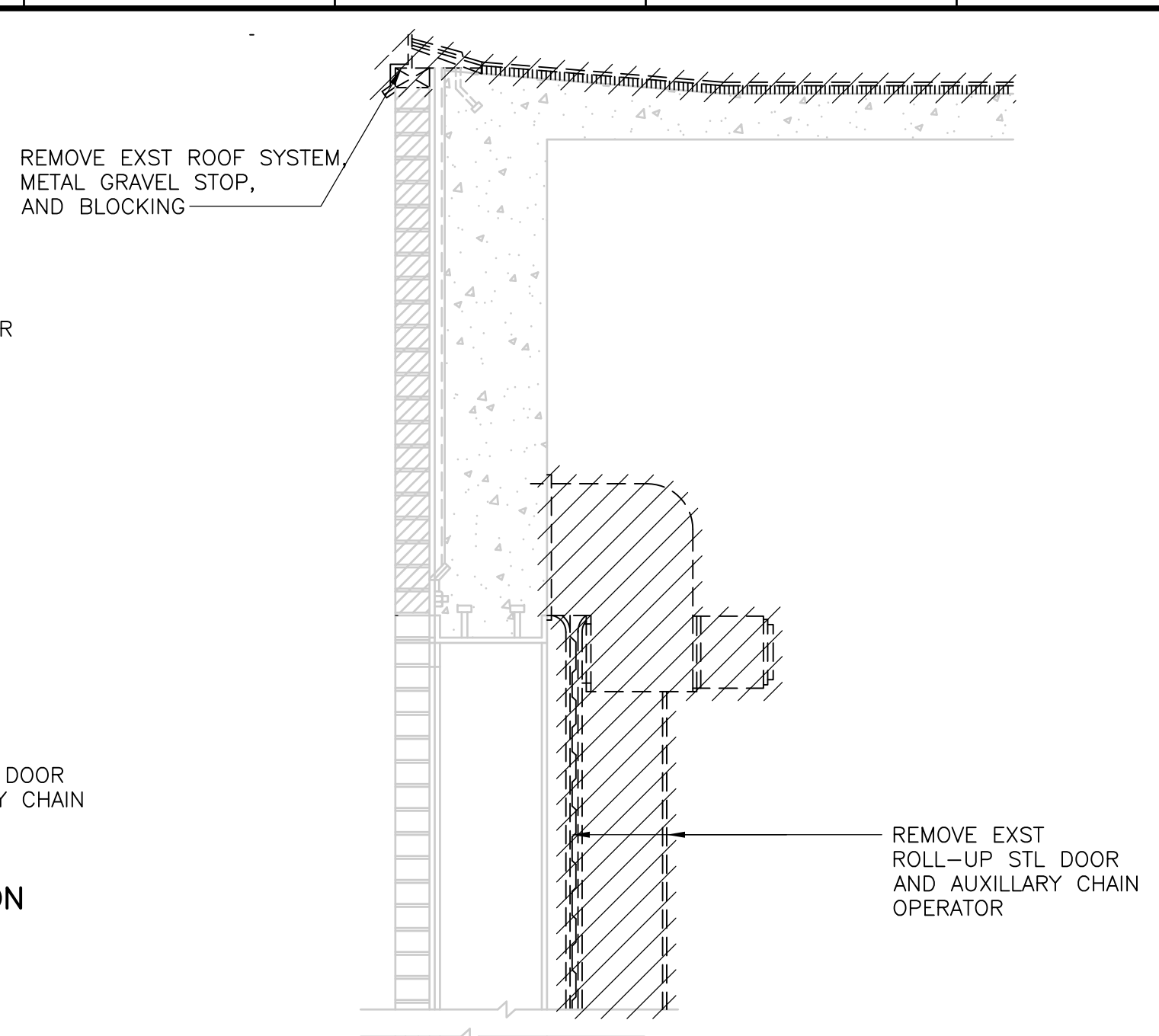




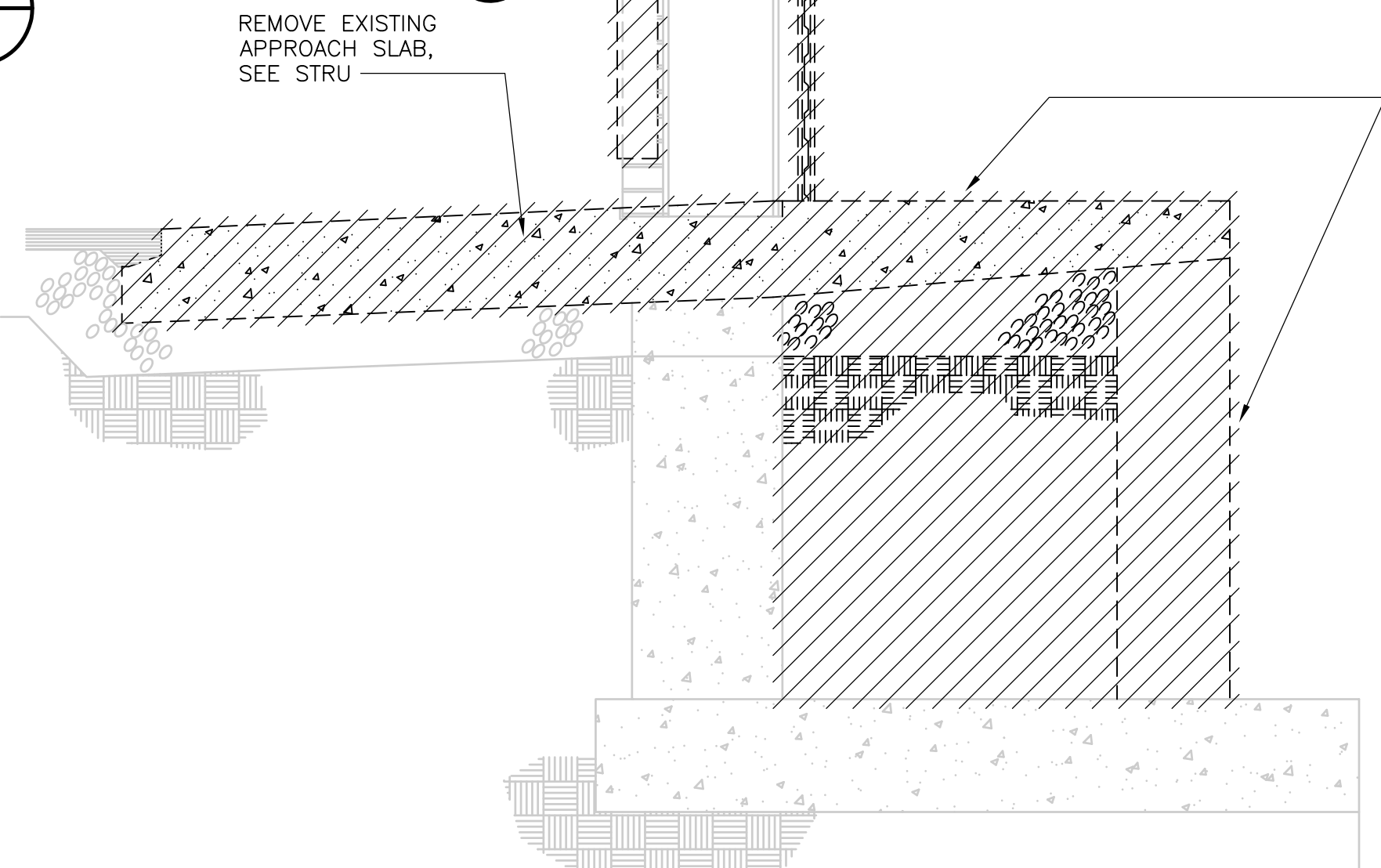
**SOUTH ELEVATION ROLL-UP DOOR - DEMOLITION**  
**SECTION 1**  
 3/4" = 1'-0" (DF-A-1)



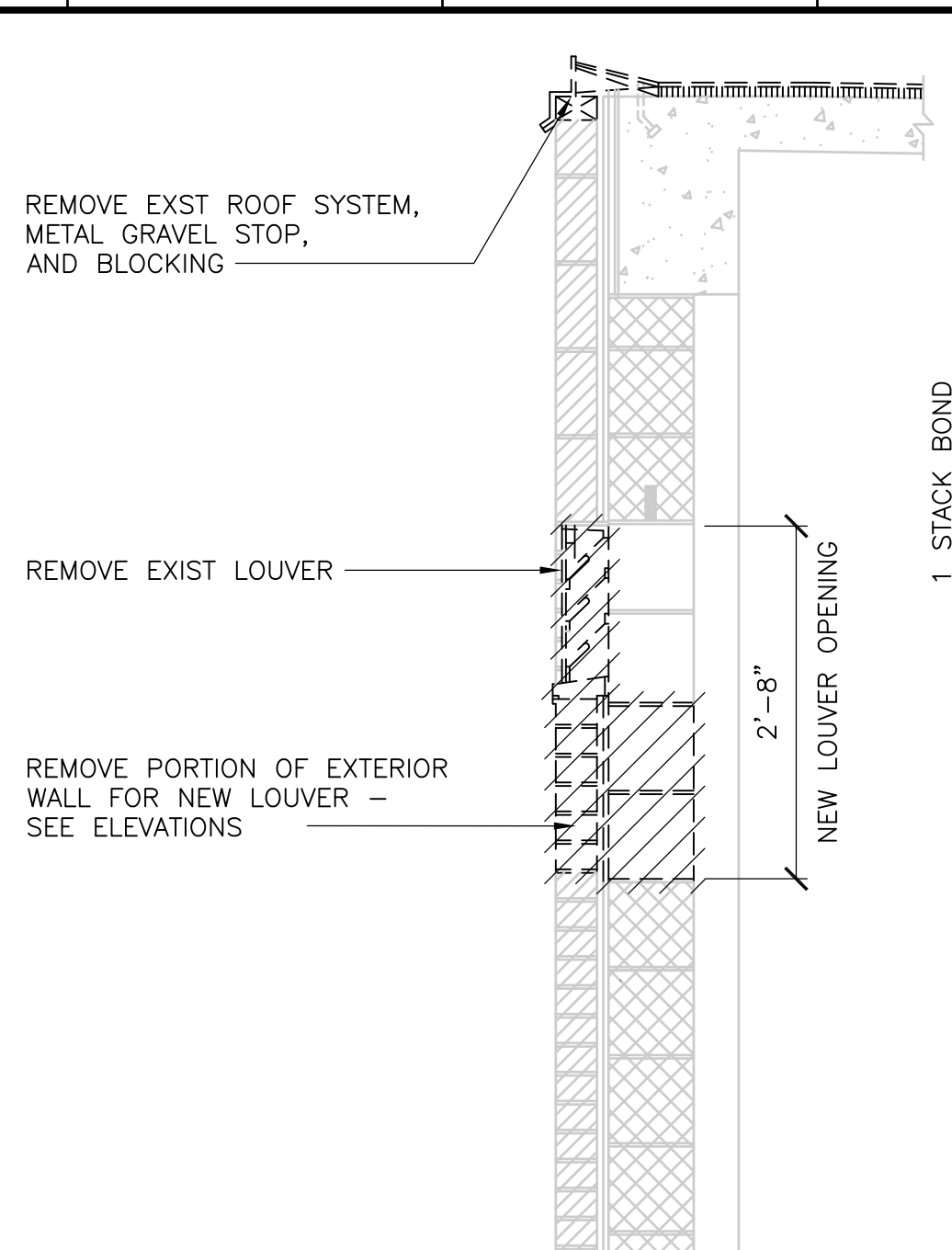
**SOUTH ELEVATION ROLL-UP DOOR HEAD - DEMOLITION**  
**DETAIL A**  
 3/4" = 1'-0"



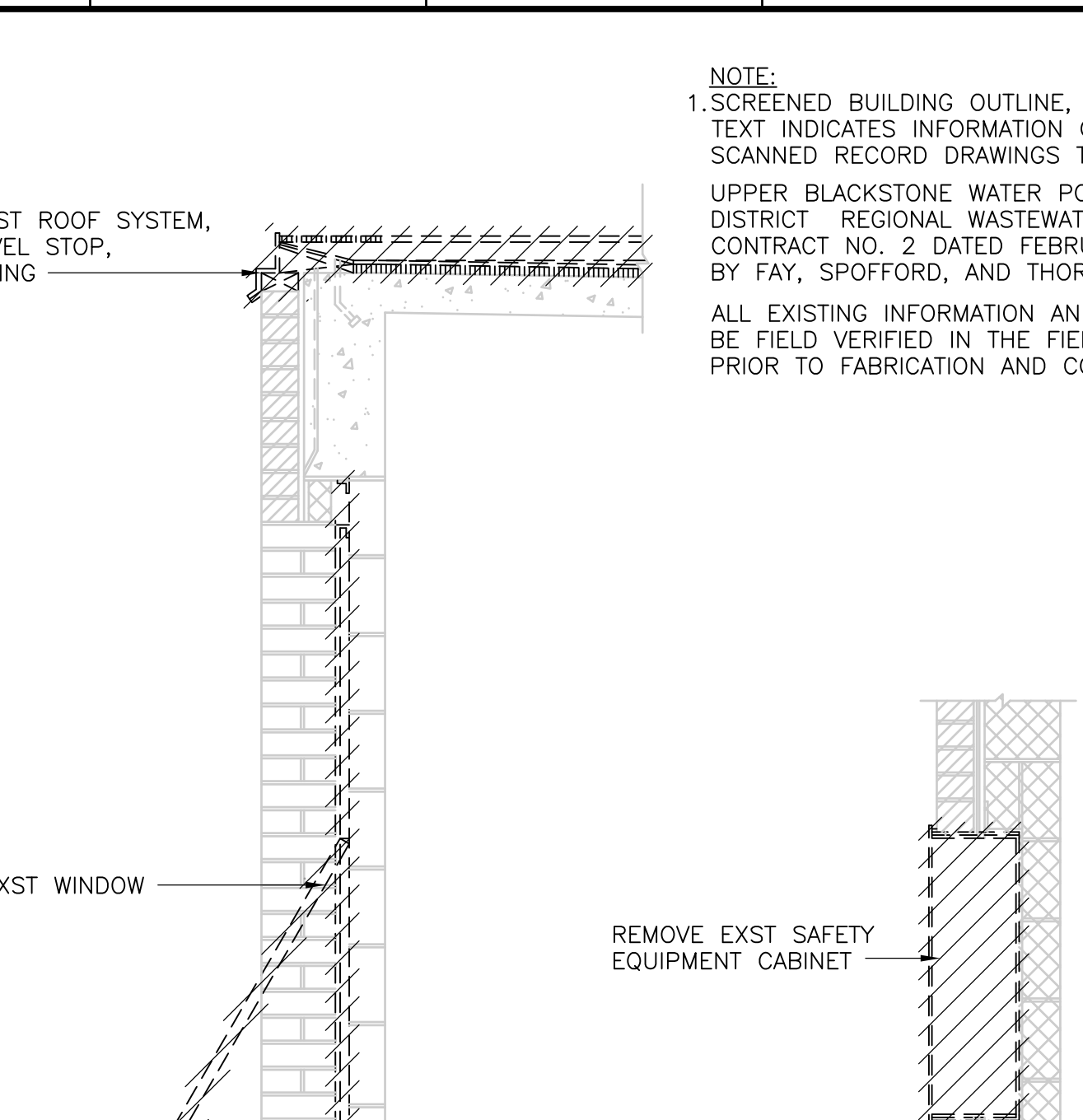
**OVERHEAD DOOR JAMB - DEMOLITION**  
**DETAIL B**  
 N.T.S.



**LOUVER - DEMOLITION**  
**SECTION 3**  
 3/4" = 1'-0" (DF-A-1)

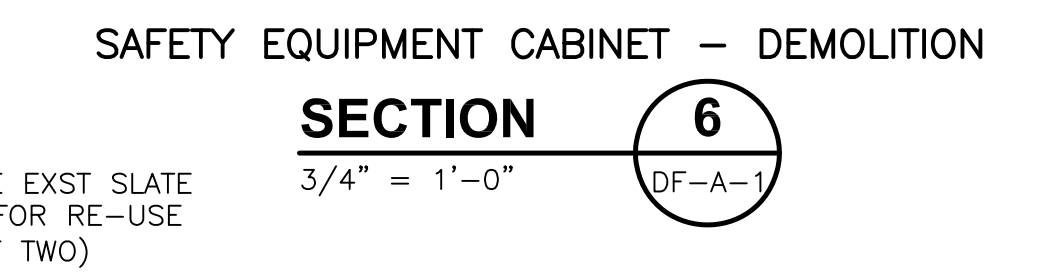


**EXTERIOR WALL - DEMOLITION**  
**SECTION 4**  
 3/4" = 1'-0" (DF-A-1)

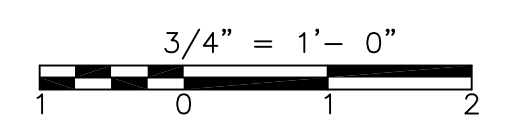


**WINDOW - DEMOLITION**  
**SECTION 5**  
 3/4" = 1'-0" (DF-A-1)

**NOTE:**  
 1. SCREENED BUILDING OUTLINE, INFORMATION, AND TEXT INDICATES INFORMATION OBTAINED FROM SCANNED RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 DATED FEBRUARY 1973, PRODUCED BY FAY, SPOFFORD, AND THORNDIKE, INC. ENGINEER  
 ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION



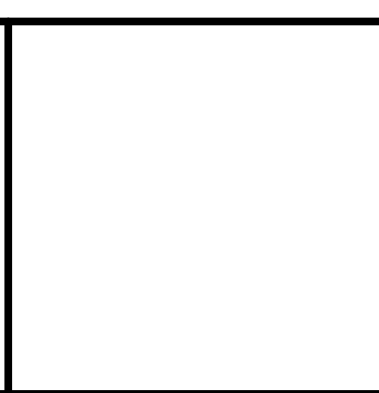
**SAFETY EQUIPMENT CABINET - DEMOLITION**  
**SECTION 6**  
 3/4" = 1'-0" (DF-A-1)



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. <b>ACHSC000.DWG</b>
DESIGNED BY: <b>B.GIORGI</b>
DRAWN BY: <b>D.GRUDKOWSKI</b>
SHEET CHK'D BY: <b>B.GIORGI</b>
SCALE: <b>3/4" = 1'-0"</b>
APPROVED BY: <b>B.GIORGI</b>
DATE: <b>MAY 2006</b>

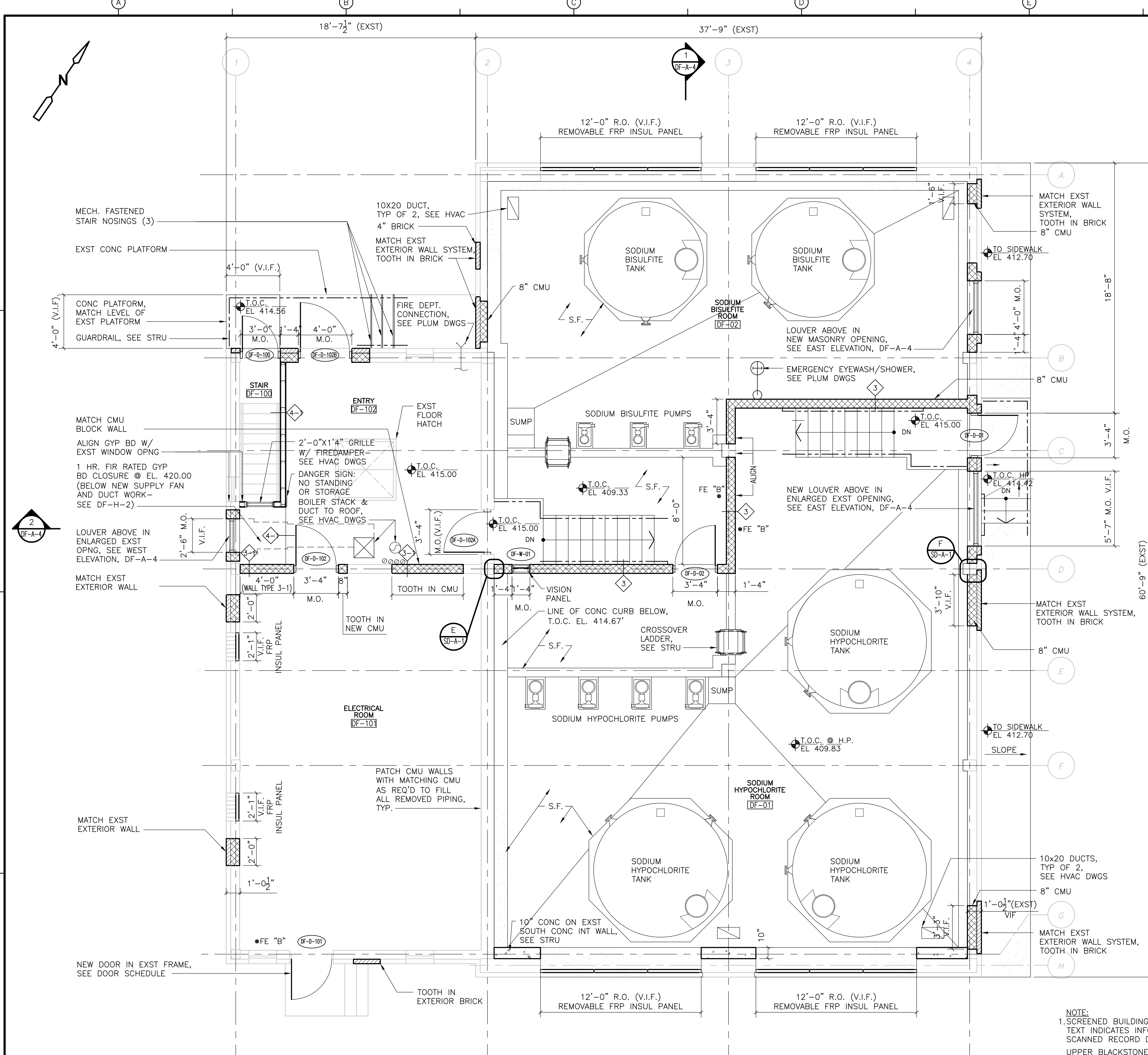


**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

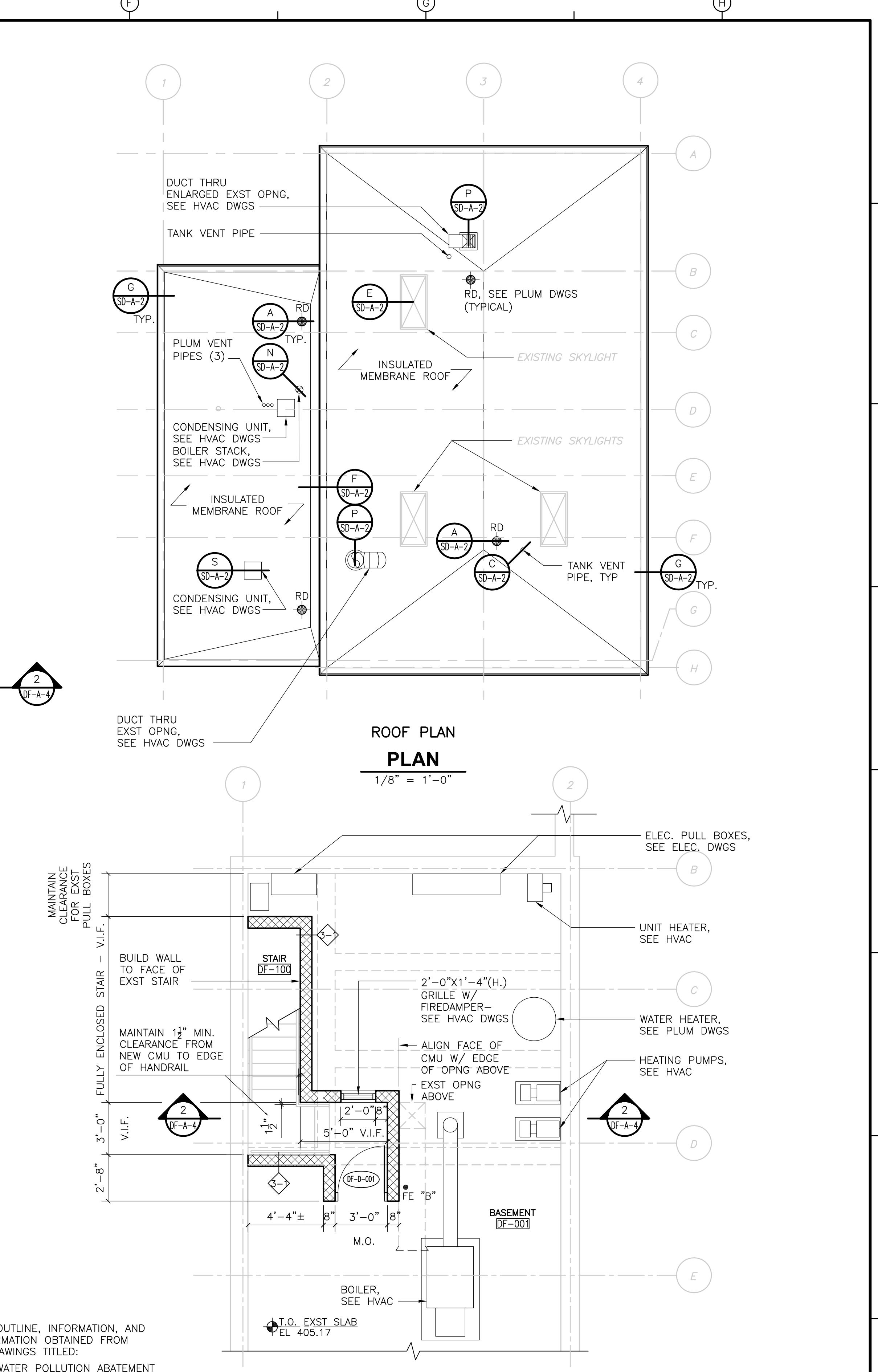
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**DISINFECTION FACILITY DEMOLITION SECTIONS**

PROJECT NO. 1289\35370  
 Sht. 57 of 386  
**DF-A-2**



**FLOOR PLAN**  
PLAN  
1/4" = 1'-0"



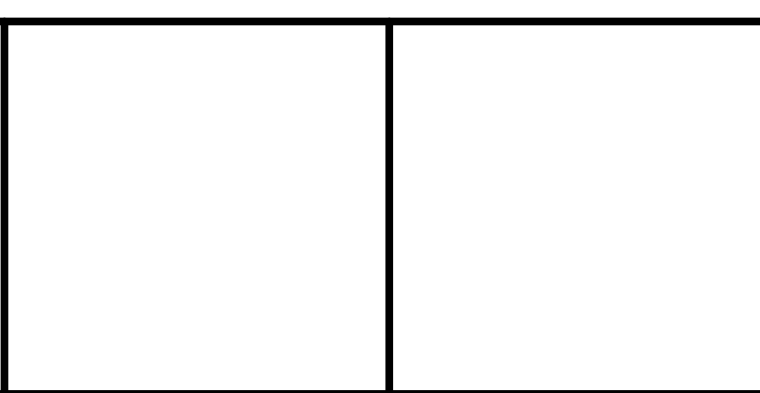
**ROOF PLAN**  
PLAN  
1/8" = 1'-0"

**PARTIAL BASEMENT PLAN**  
PLAN  
1/4" = 1'-0"

NOTE:  
1. SCREENED BUILDING OUTLINE, INFORMATION, AND TEXT INDICATES INFORMATION OBTAINED FROM SCANNED RECORD DRAWINGS TITLED:  
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 DATED FEBRUARY 1973, PRODUCED BY FAY, SPOFFORD, AND THORNDIKE, INC. ENGINEER  
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REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	ACHPL100.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	D. GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	AS NOTED
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

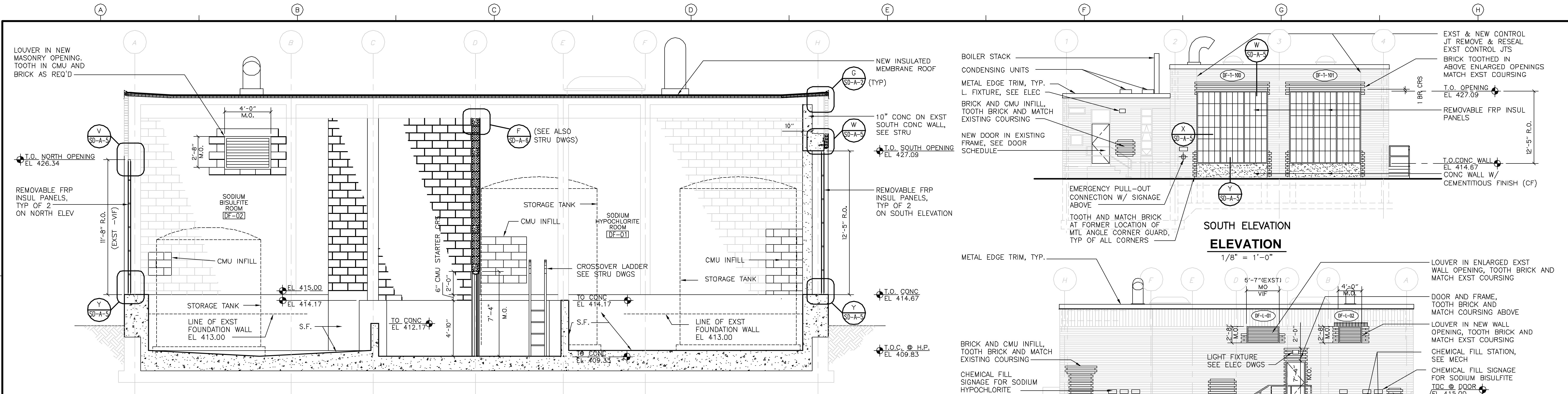


**UPPER BLACKSTONE**  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024

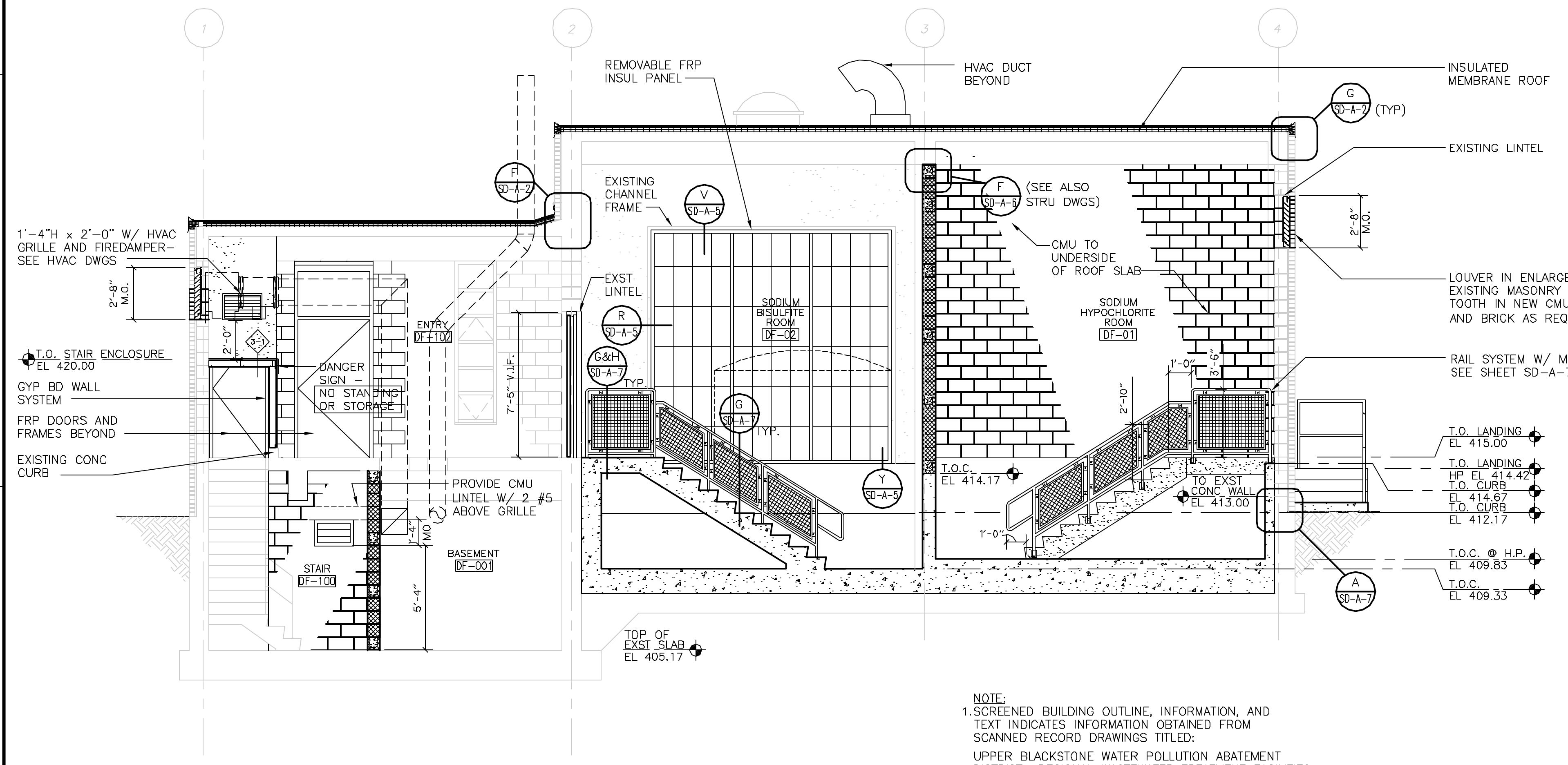
**WASTEWATER TREATMENT FACILITY**  
IMPROVEMENTS

**DISINFECTION FACILITY**  
RENOVATED GROUND FLOOR  
AND ROOF PLANS

PROJECT NO.  
1289\35370  
Sht. 58 of 386  
DF-A-3

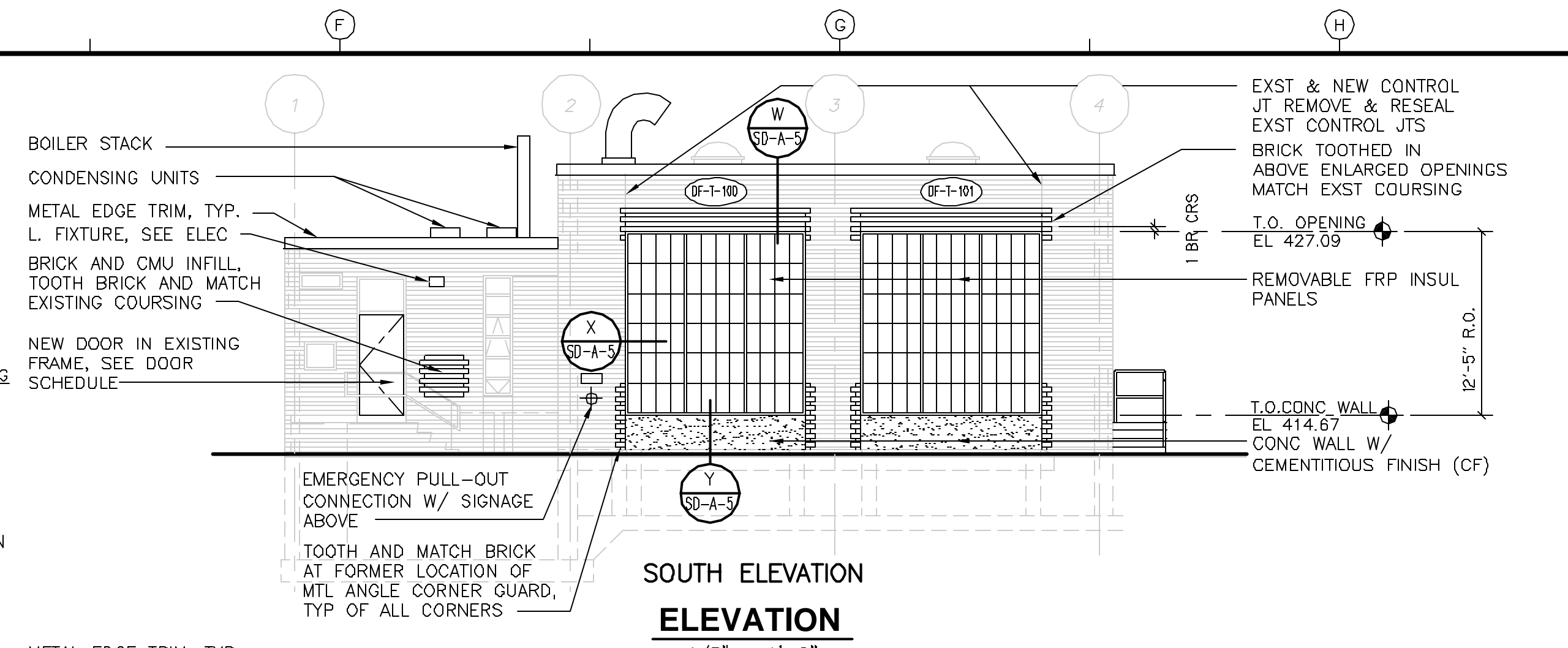


**LONGITUDINAL SECTION**  
**SECTION 1**  
 1/4" = 1'-0"

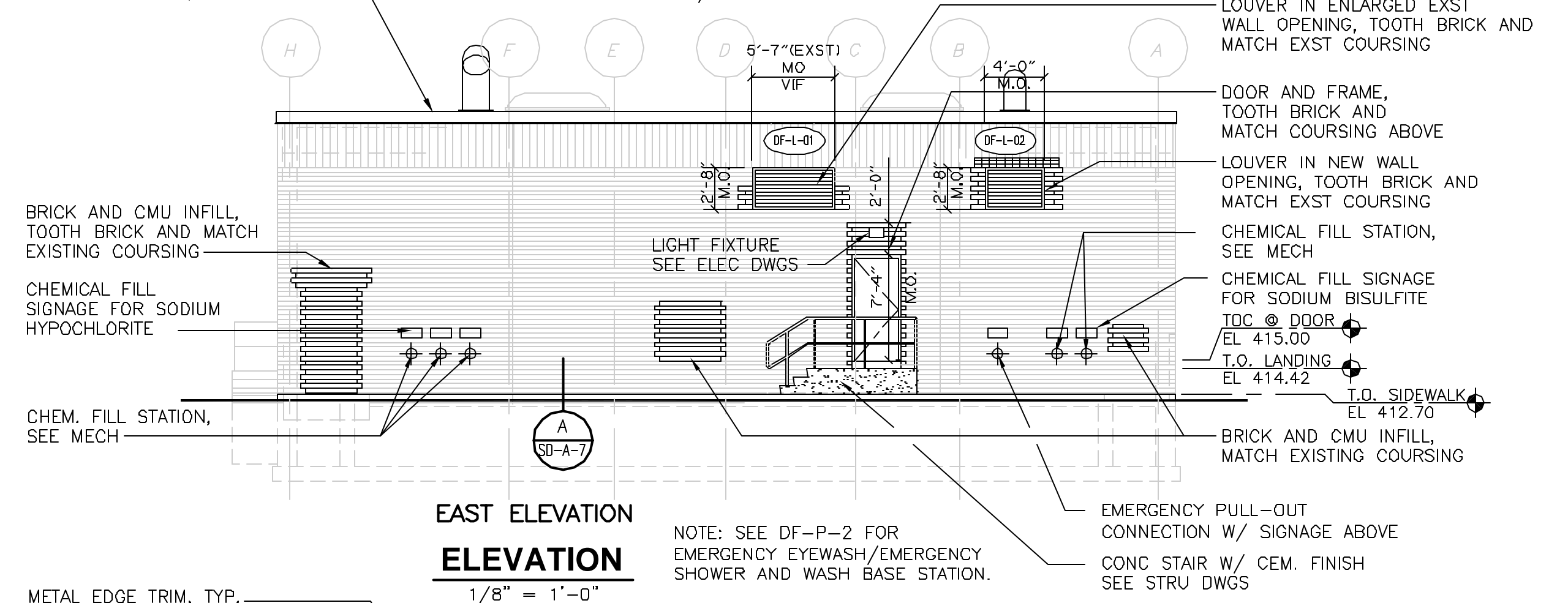


**TRANSVERSE SECTION**  
**SECTION 2**  
 1/4" = 1'-0"

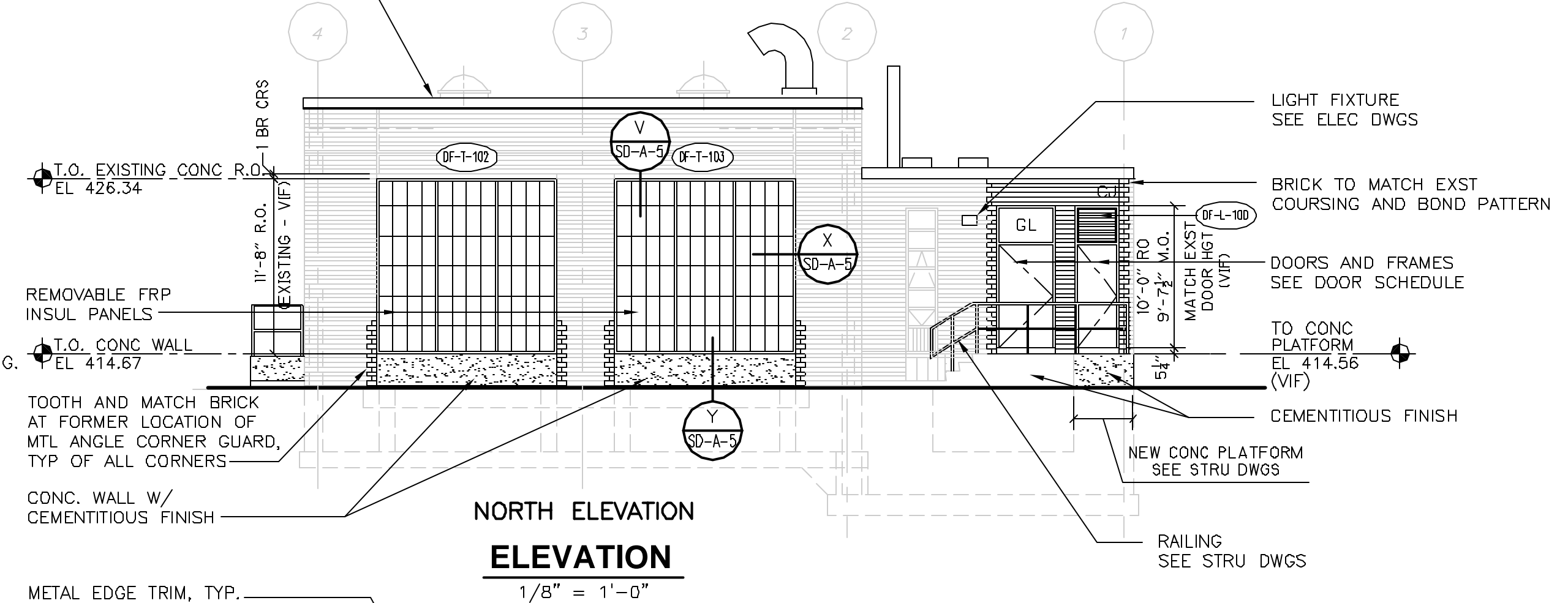
NOTE:  
 1. SCREENED BUILDING OUTLINE, INFORMATION, AND TEXT INDICATES INFORMATION OBTAINED FROM SCANNED RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 DATED FEBRUARY 1973, PRODUCED BY FAY, SPOFFORD, AND THORNDIKE, INC. ENGINEER  
 ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION



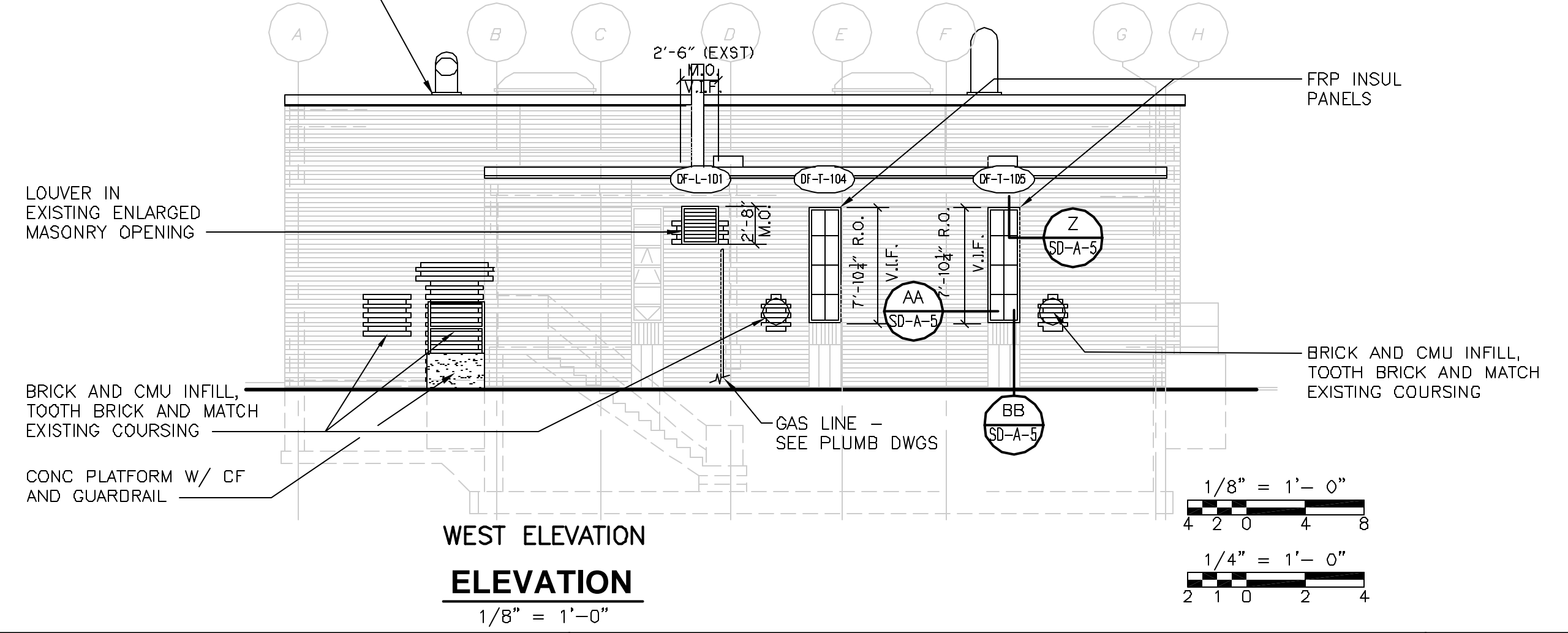
**SOUTH ELEVATION**  
 1/8" = 1'-0"



**EAST ELEVATION**  
 1/8" = 1'-0"



**NORTH ELEVATION**  
 1/8" = 1'-0"



**WEST ELEVATION**  
 1/8" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. <u>ACLSC100.DWG</u>
DESIGNED BY: <u>B. GIORGI</u>
DRAWN BY: <u>D. GRUDKOWSKI</u>
SHEET CHK'D BY: <u>B. GIORGI</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>B. GIORGI</u>
DATE: <u>AUGUST 2003</u>

**CDM**  
 Camp Dresser & McKee Inc.  
creating  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

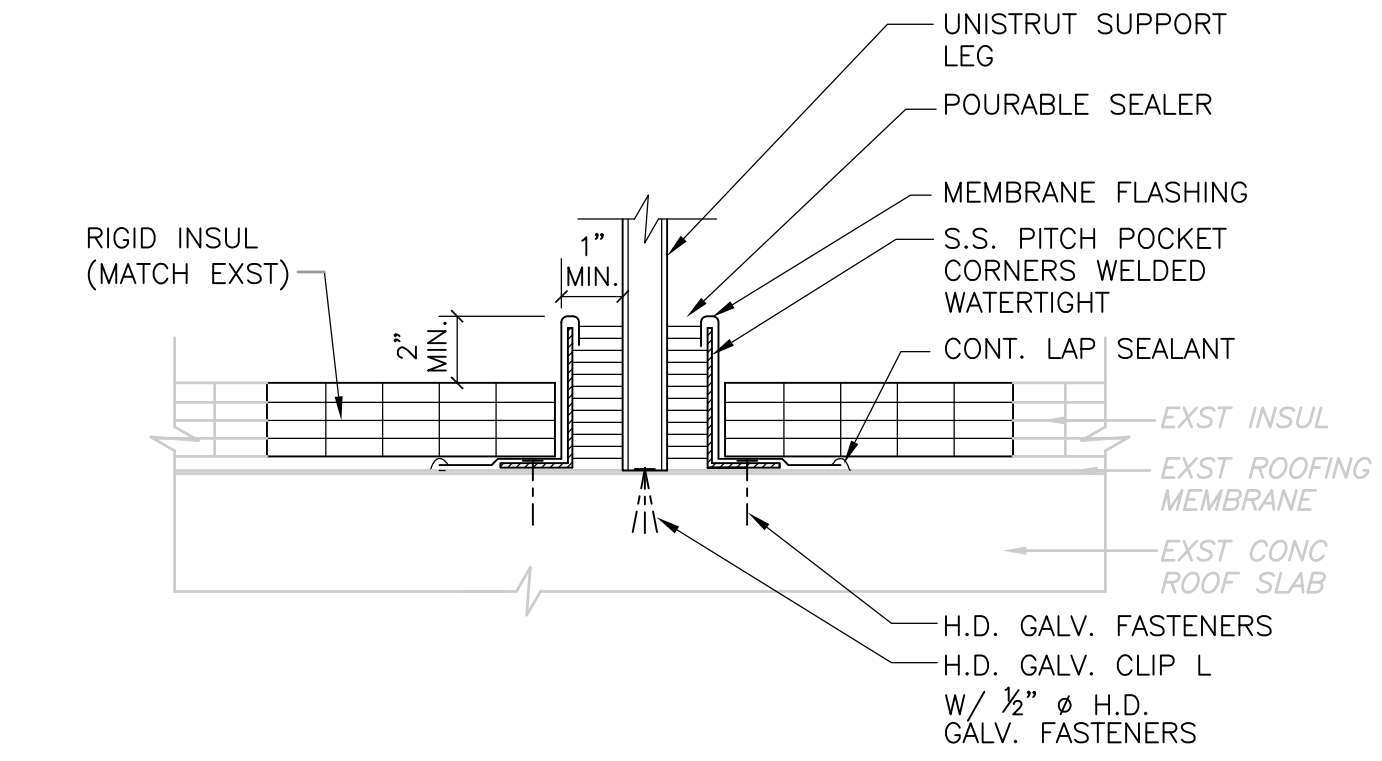
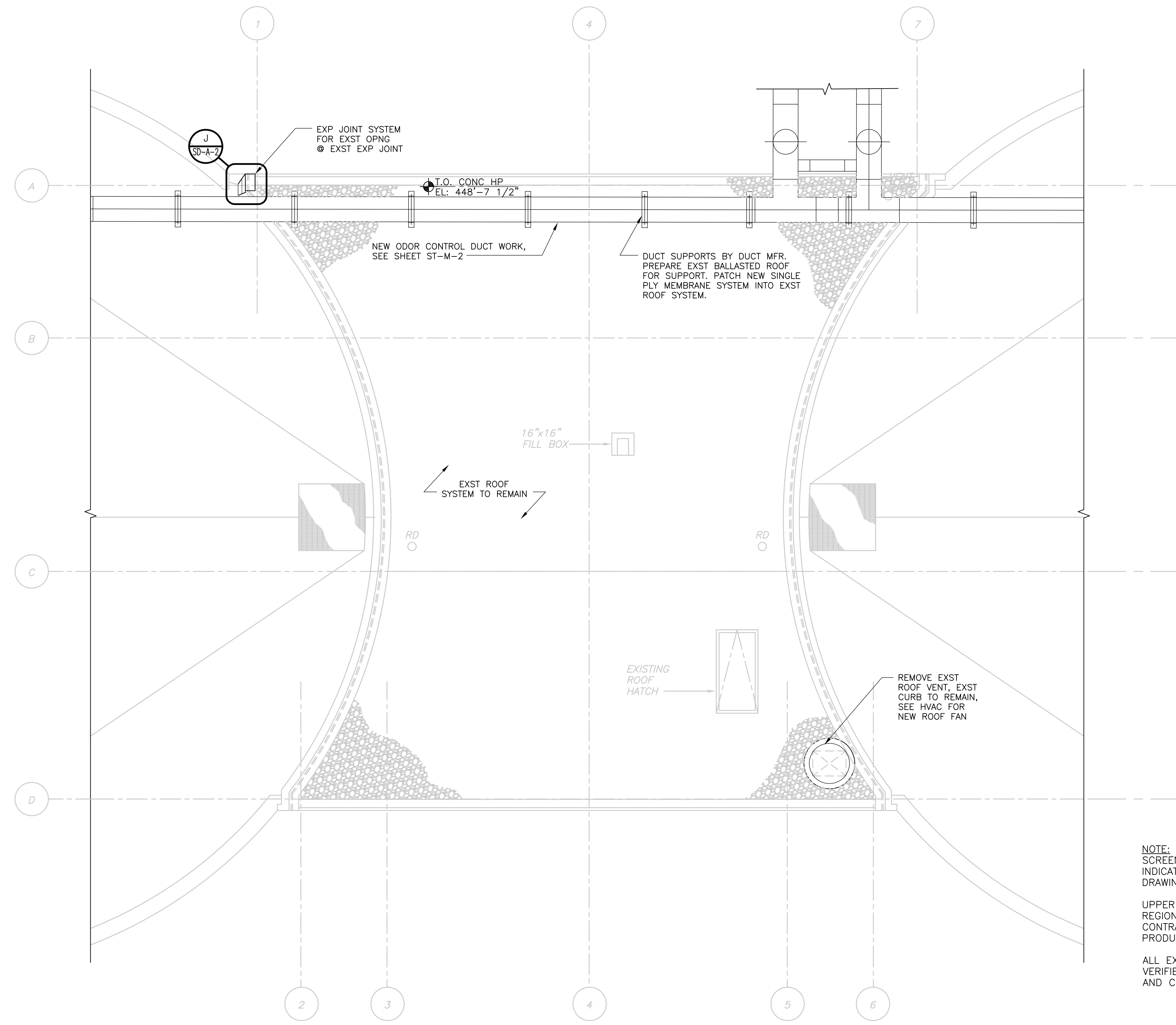
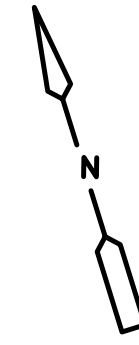
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**DISINFECTION FACILITY  
 RENOVATED ELEVATIONS AND  
 BUILDING SECTIONS**

PROJECT NO.  
 1289\35370

Sht. 59 of 386

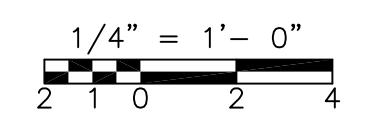
**DF-A-4**



**ODOR CONTROL DUCT SUPPORT  
PIPE SUPPORT DETAIL A**  
1-1/2" = 1'-0"

**NOTE:**  
SCREENED BUILDING OUTLINE, INFORMATION, AND SLANTED TEXT INDICATES INFORMATION OBTAINED FROM SCANNED RECORD DRAWINGS TITLED:  
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 DATED FEBRUARY 1973, PRODUCED BY FAY, SPOFFORD, AND THORNDIKE, INC. ENGINEER  
ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION

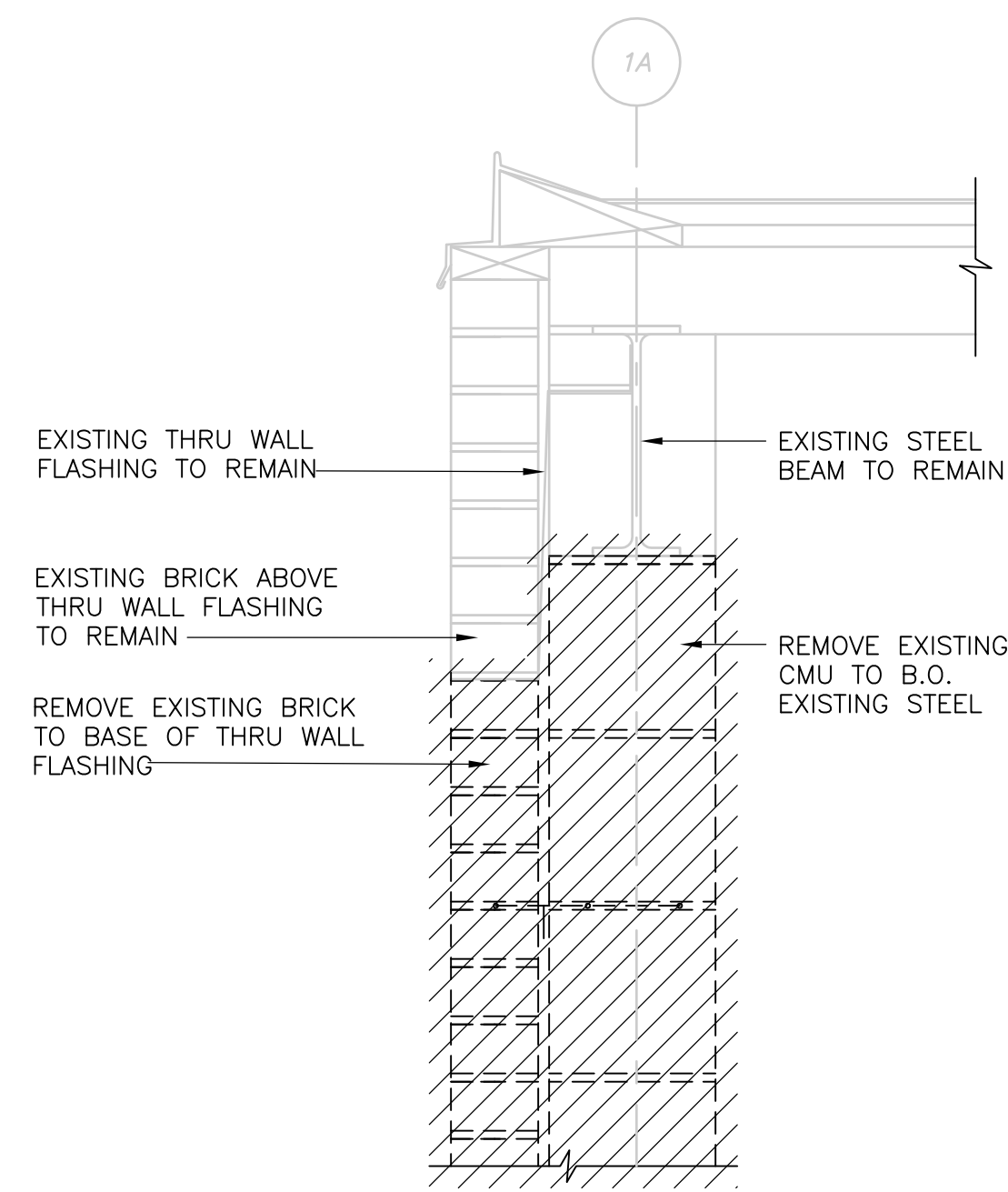
**ROOF PLAN  
PLAN**  
1/4" = 1'-0"



RECORD DRAWING

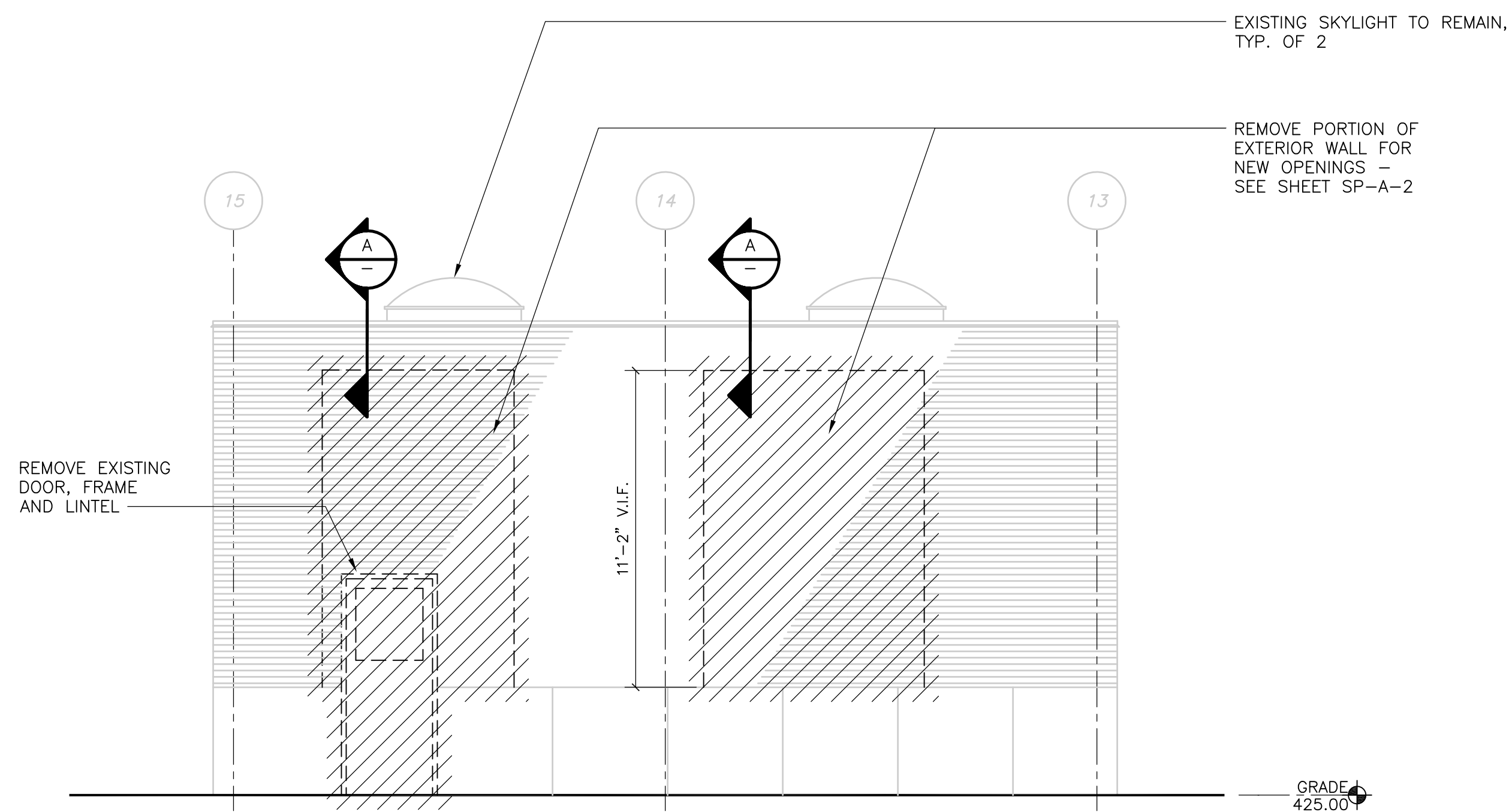
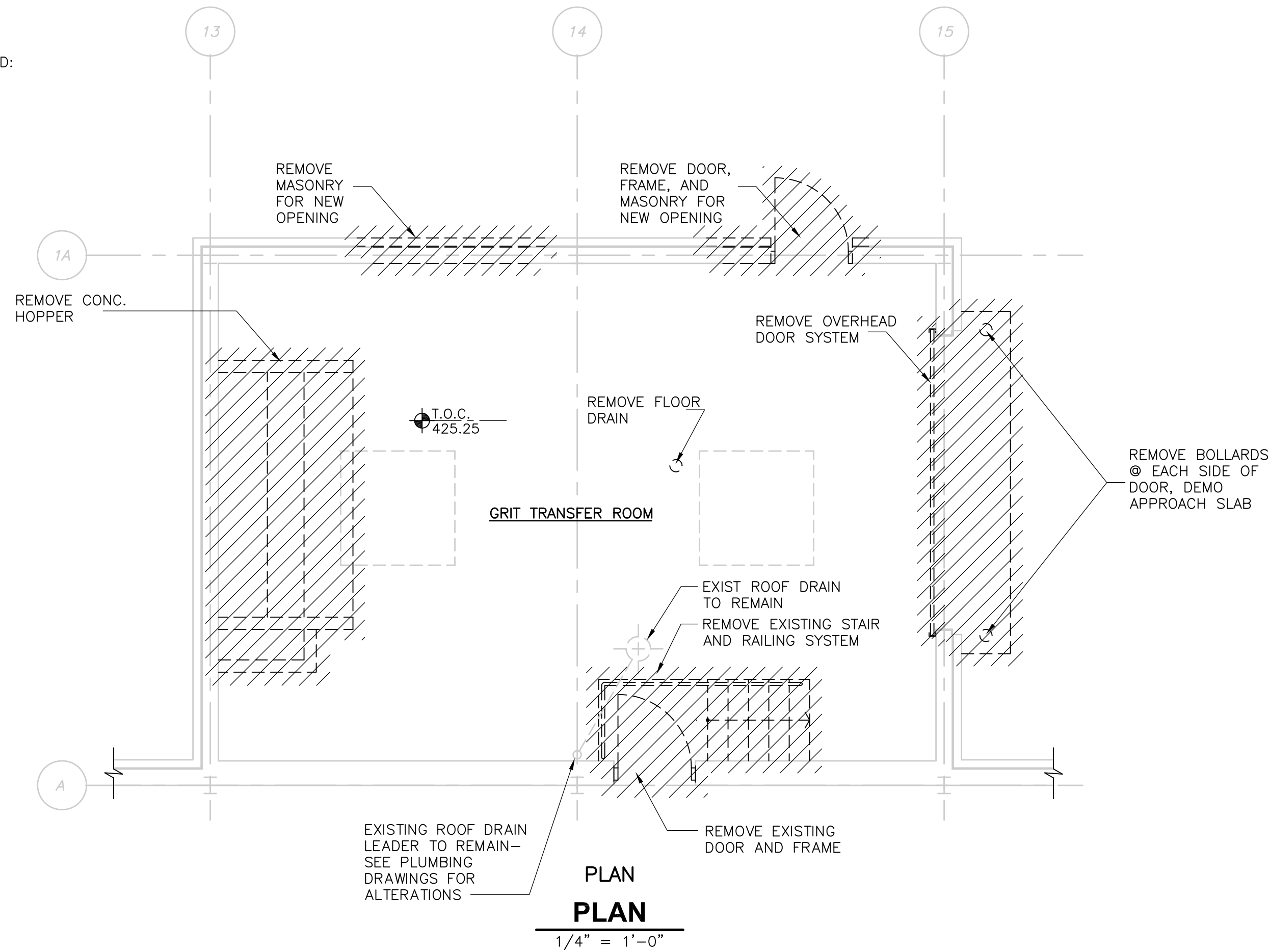
				CADD FILE NO. <u>ASHPL100.DWG</u>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>	<b>SLUDGE HOLDING TANK CONTROL BUILDING ROOF PLAN</b>	PROJECT NO. 1289\35370
				DESIGNED BY: <u>B. GIORGI</u>				Sht. 60 of 386
				DRAWN BY: <u>D. GRUDKOWSKI</u>				<b>ST-A-1</b>
				SHEET CHK'D BY: <u>B. GIORGI</u>				ACCESSION NO. 1289-65460
				SCALE: <u>1/4"=1'-0"</u>				
				APPROVED BY: <u>B. GIORGI</u>				
				DATE: <u>MAY 2006</u>				
REV. NO.	DATE	DRWN	CHKD	REMARKS				
	10/07	JAL	ADT	REVISED FOR THE RECORD				

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File name: P:\1289\35370\PHASE1\RECORD\ARCH\ACRPL000.dwg Xref's: [C24X36H, ] Plotted by: CROSSHA Time: 12/16/08 6:19:43 PM

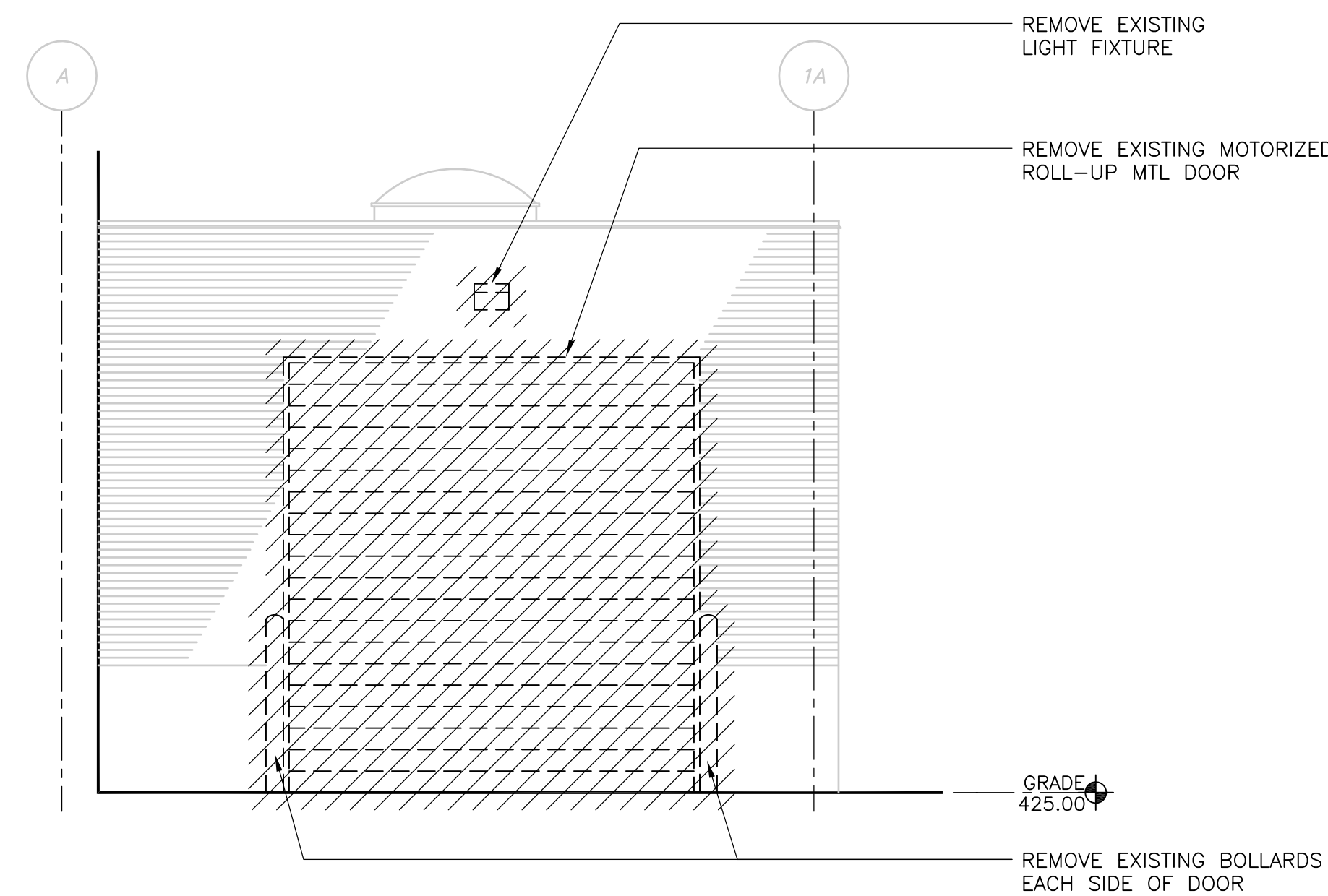


**WALL SECTION**  
**SECTION A**  
1 1/2" = 1'-0"

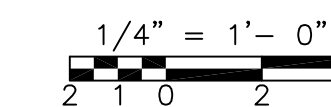
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1. SCREENED BUILDING OUTLINE AND INFORMATION INDICATES INFORMATION OBTAINED FROM SCANNED RECORD DRAWINGS TITLED:  
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**NORTH ELEVATION**  
**ELEVATION**  
1/4" = 1'-0"



**EAST ELEVATION**  
**ELEVATION**  
1/4" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.: ACRPL100  
DESIGNED BY: B. GIORGI  
DRAWN BY: D. GRUDKOWSKI  
SHEET CHK'D BY: B. GIORGI  
SCALE: 1/4"=1'-0"  
APPROVED BY: B. GIORGI  
DATE: MAY 2006



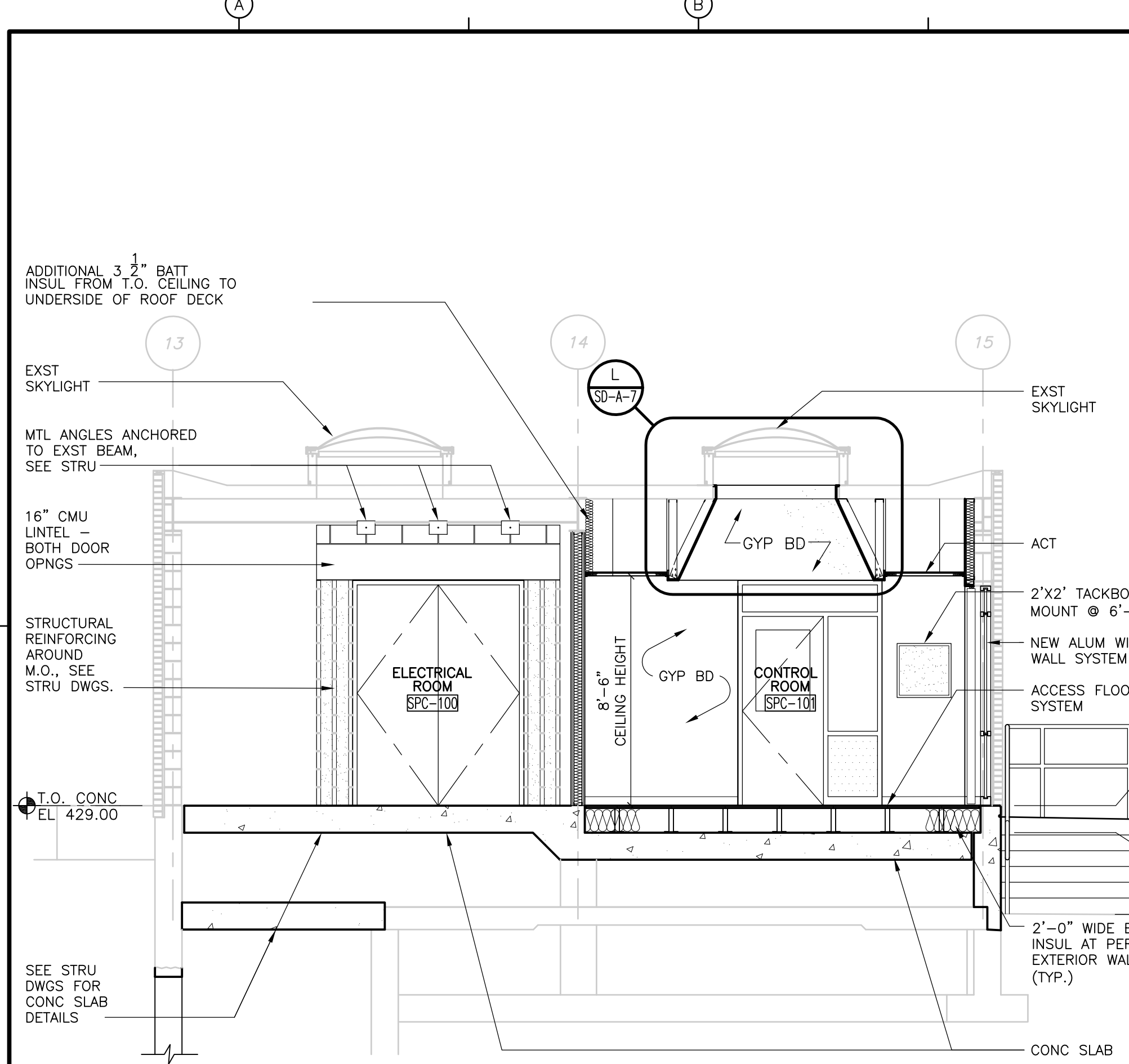
UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

**SLUDGE PROCESSING COMPLEX  
DEMOLITION AT EXISTING  
GRIT TRANSFER ROOM**

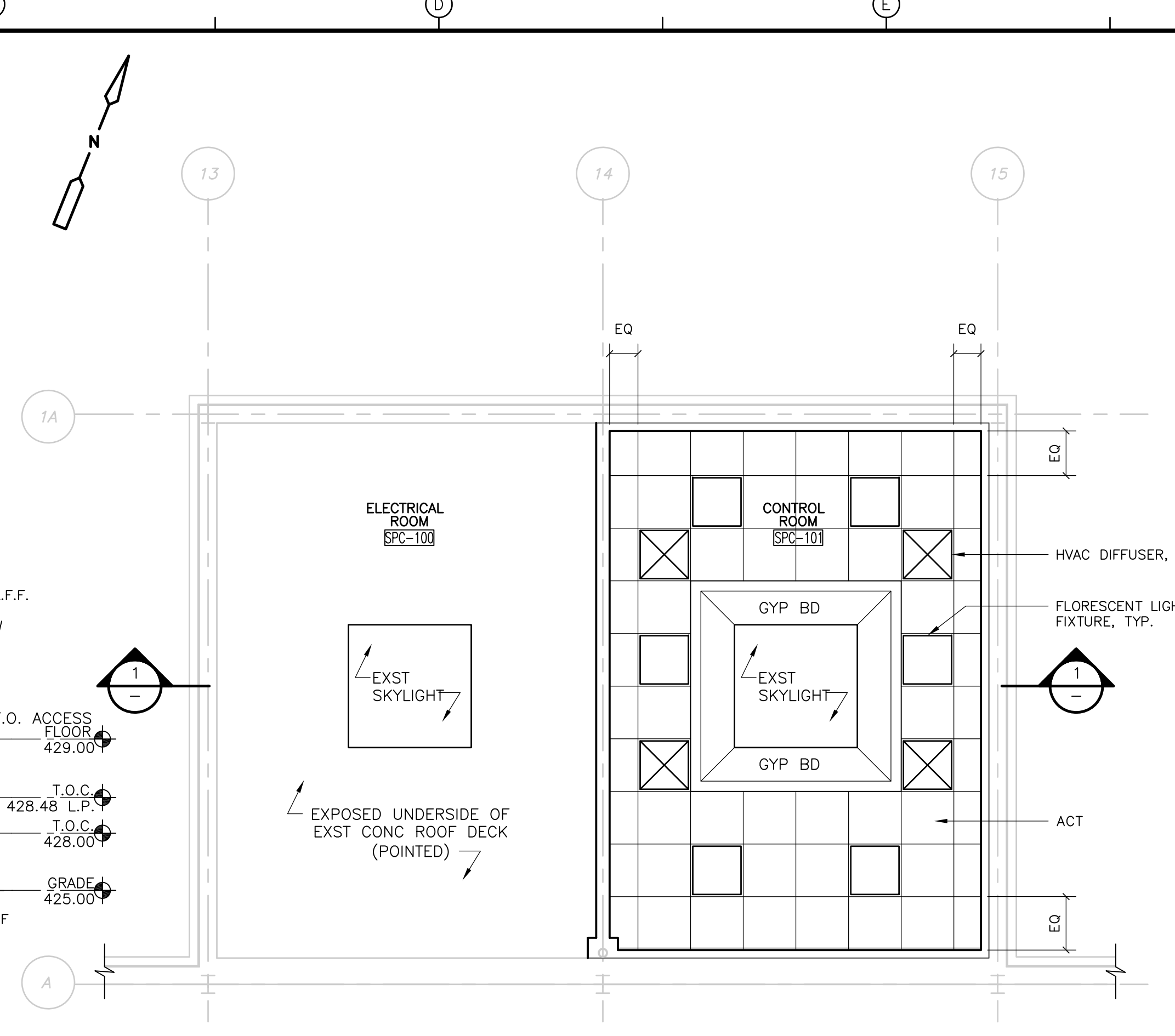
PROJECT NO.  
1289\35370  
Sht. 61 of 386  
**SP-A-1**

ACCESSION NO. 1289-65461

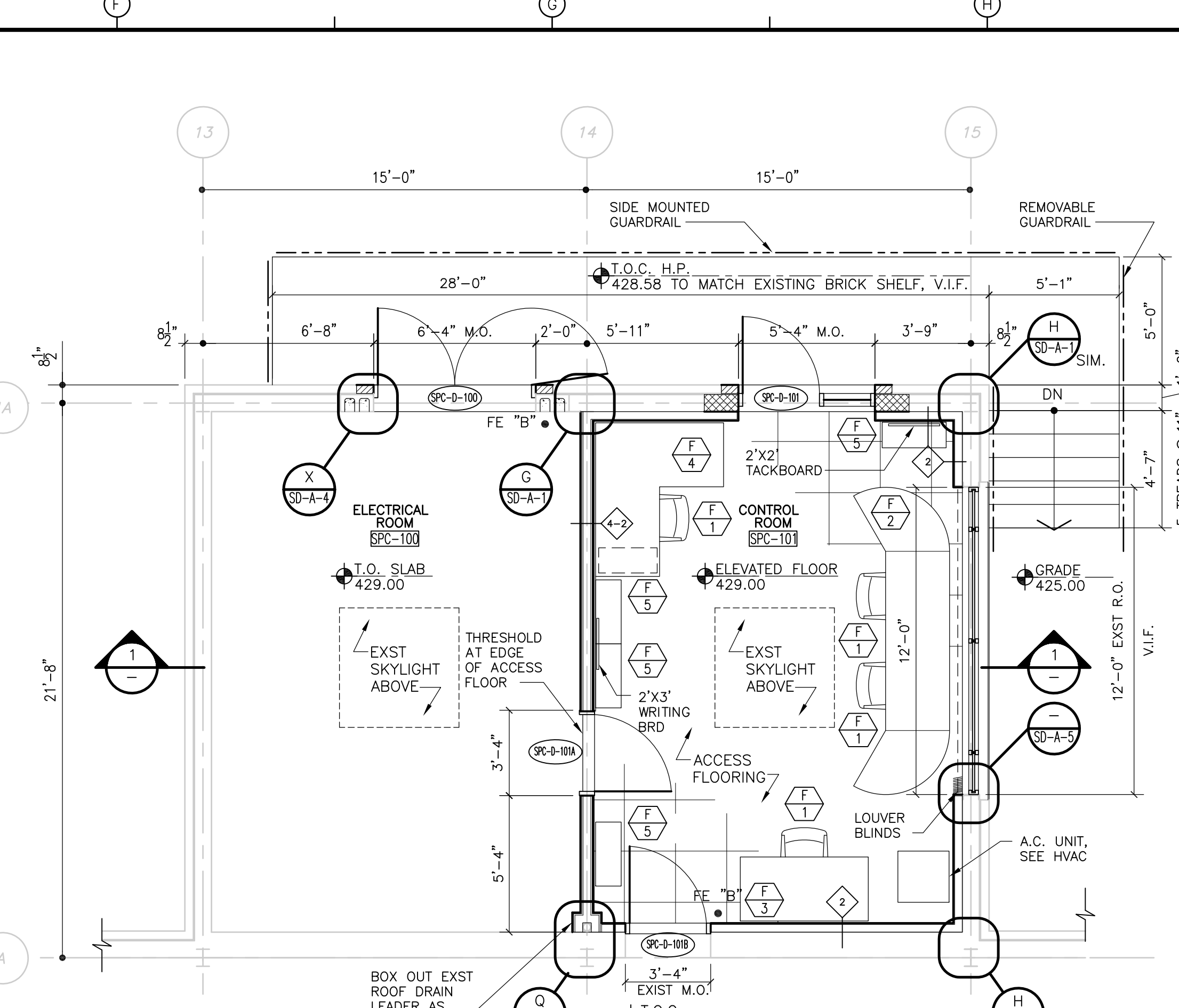
UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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CROSS SECTION  
**SECTION 1**  
 1/4" = 1'-0"

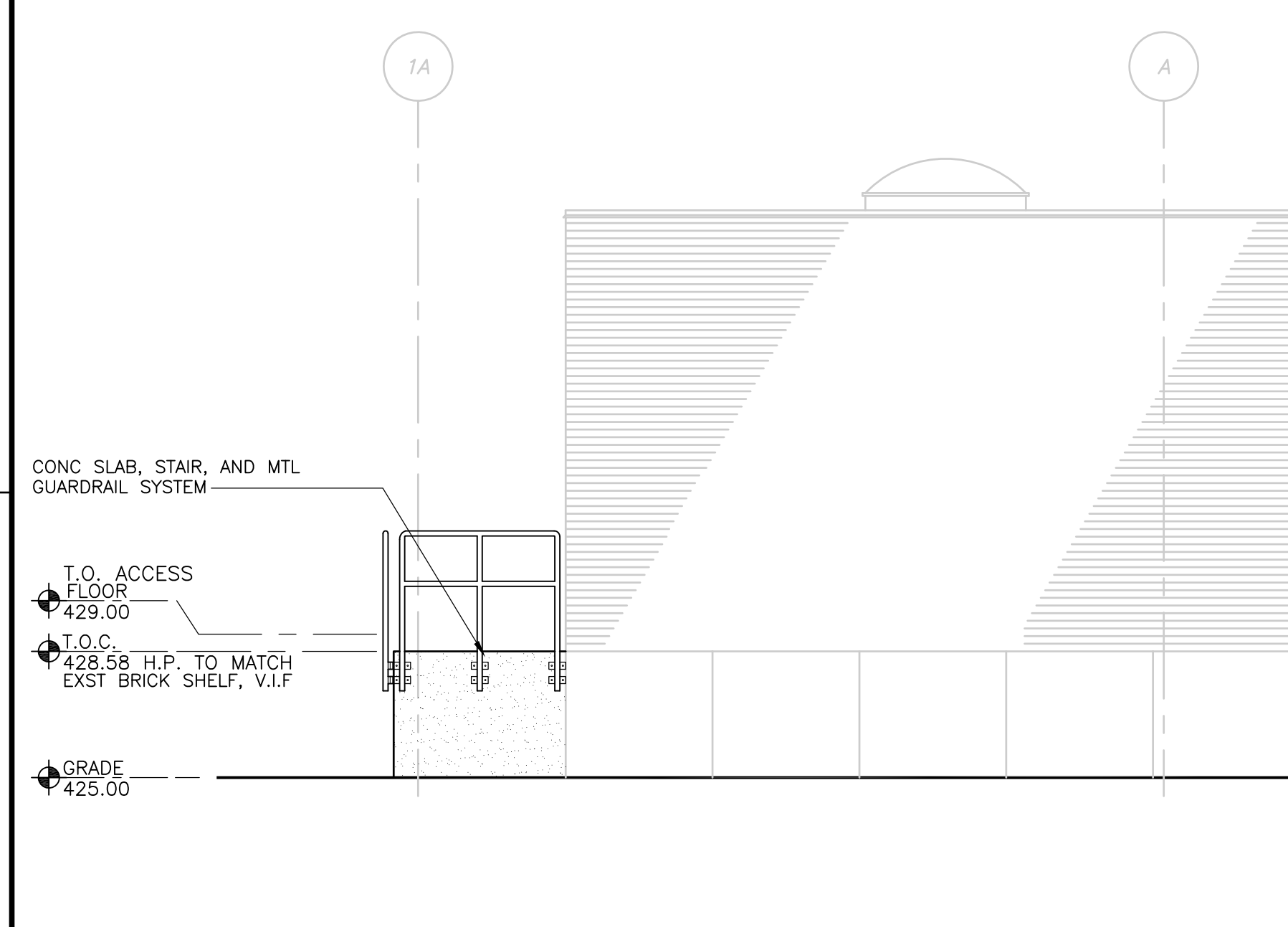


REFLECTED CEILING PLAN  
**PLAN**  
 1/4" = 1'-0"

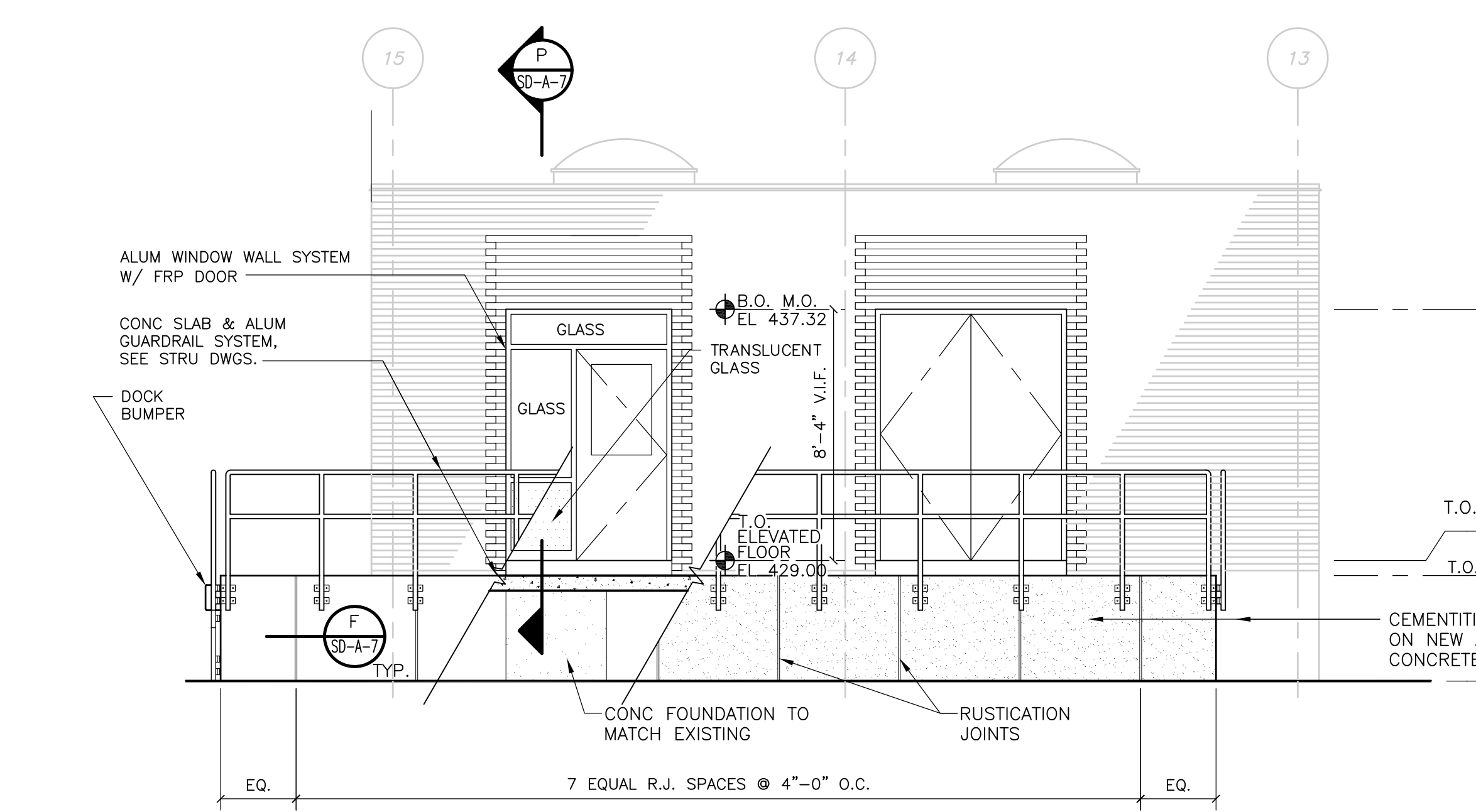


FLOOR PLAN  
**PLAN**  
 1/4" = 1'-0"

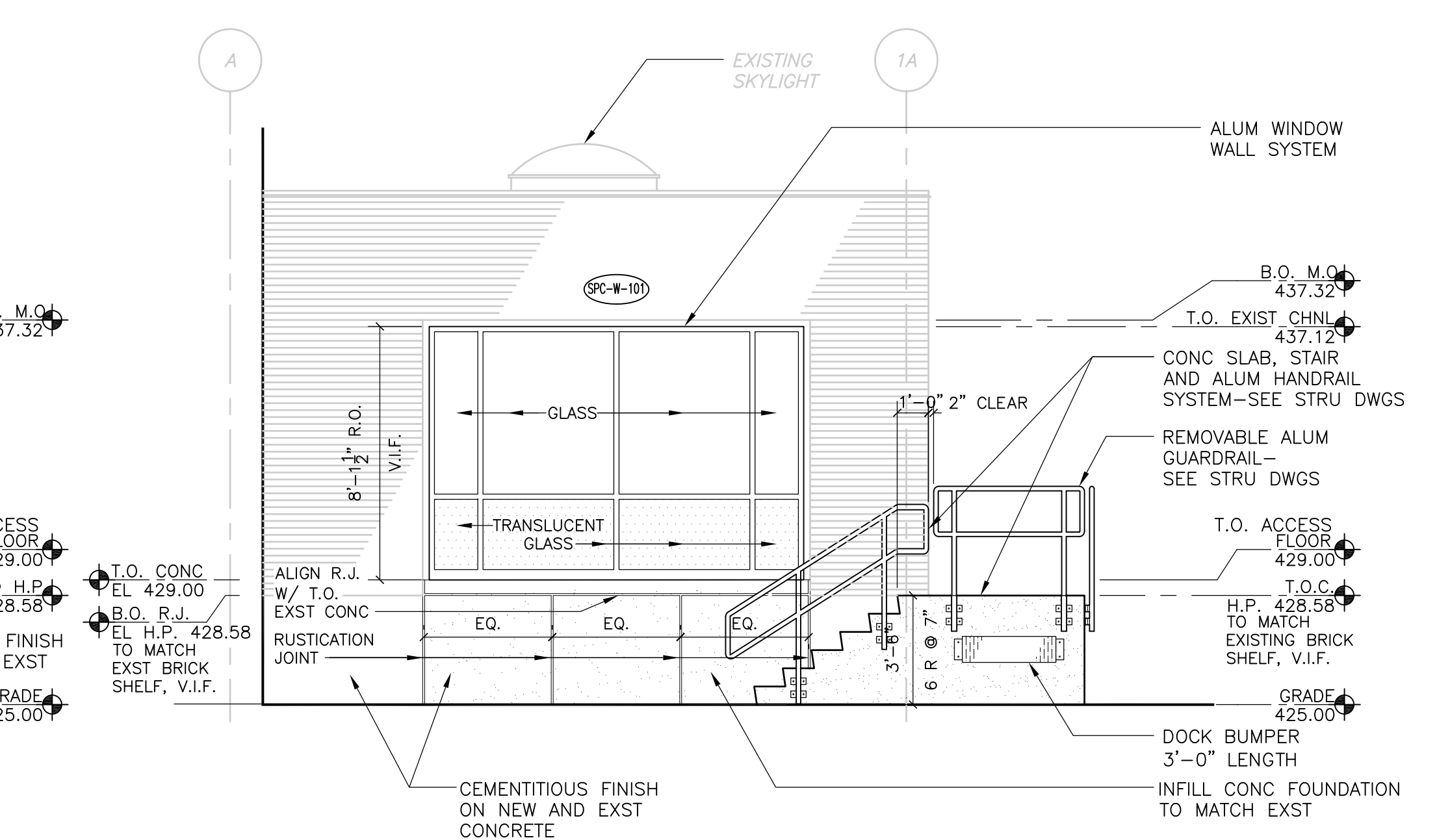
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WEST ELEVATION  
 1/4" = 1'-0"



NORTH ELEVATION  
 1/4" = 1'-0"



EAST ELEVATION  
 1/4" = 1'-0"

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

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.:	ACRPL100
DESIGNED BY:	B. GIORGI
DRAWN BY:	K.HAYNES, D.GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	1/4"=1'-0"
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

CDM <i>consulting    engineering    construction    operations</i> Camp Dresser & McKee Inc.
--

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
WASTEWATER TREATMENT FACILITY IMPROVEMENTS

SLUDGE PROCESSING COMPLEX NEW CONTROL ROOM PLANS, ELEVATIONS AND SECTION
--

PROJECT NO. 1289\35370
Sht. 62 of 386
SP-A-2

T.O.C. SLAB H.P. EL 473'-9 1/4"  
EXST PRECAST CONC TO REMAIN

REMOVE EXST WINDOW SYSTEM AND LOUVERS

3RD FLOOR EL 453'-00"

EXST PRECAST CONC TO REMAIN

PRECAST CONC BEYOND TO REMAIN

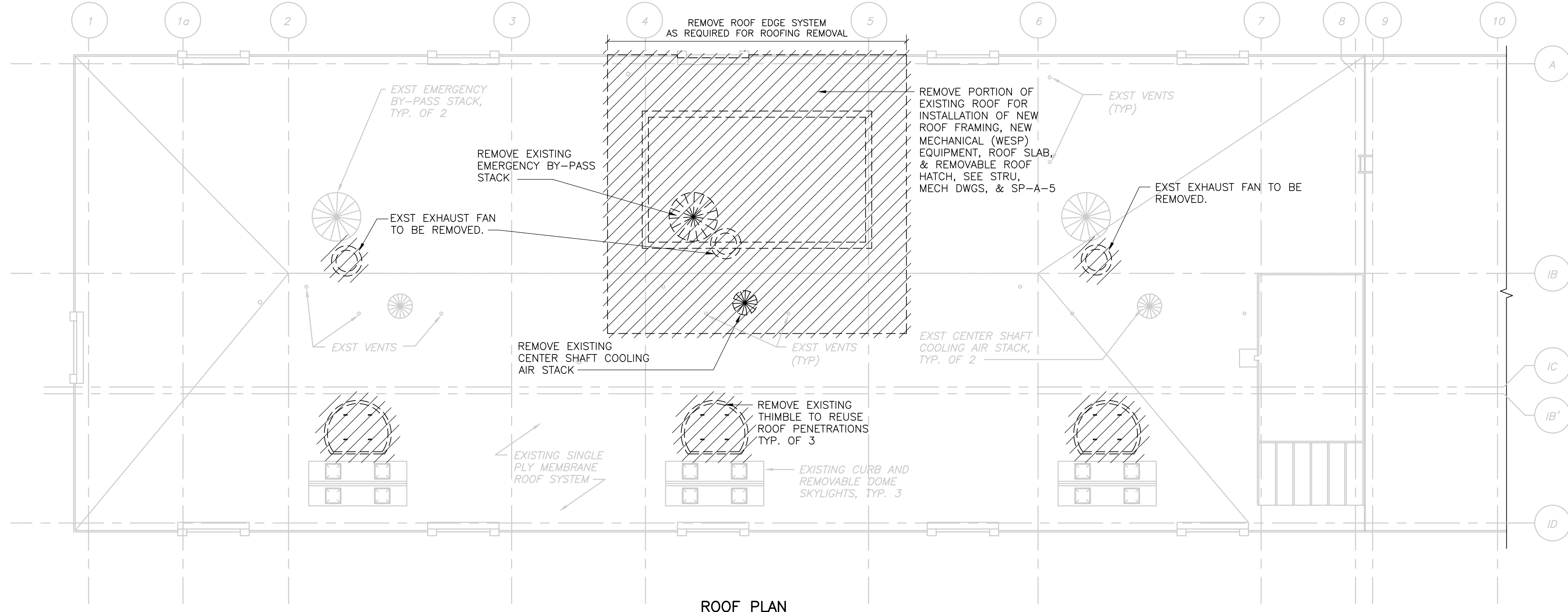
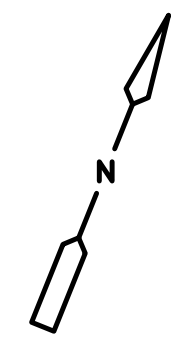
REMOVE EXST WINDOW SYSTEM AND LOUVERS

2ND FLOOR EL 442'-00"

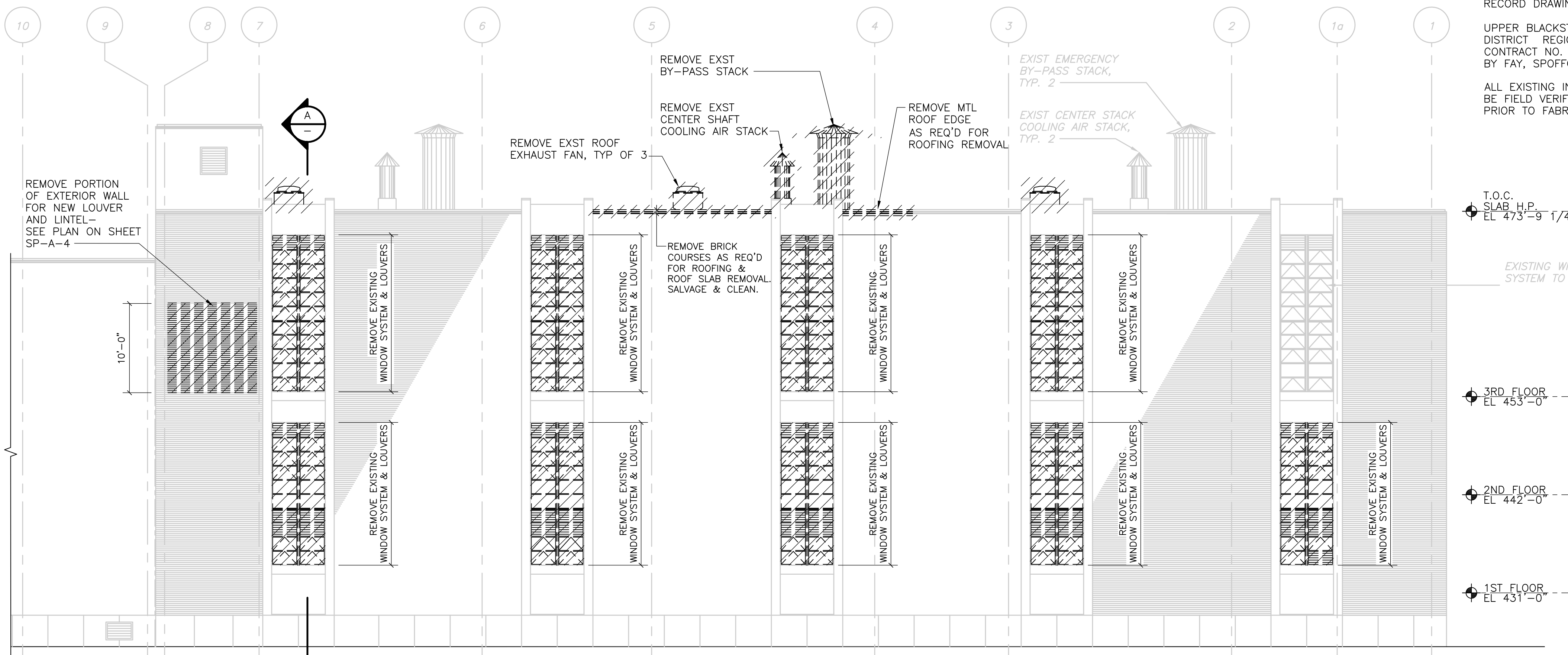
EXST PRECAST CONC TO REMAIN

1ST FLOOR EL 431'-00"

TYPICAL WALL SECTION SECTION A  
3/8" = 1'-0"



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



NORTH ELEVATION  
1/8" = 1'-0"

NOTE:  
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UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 DATED FEBRUARY 1973, PRODUCED BY FAY, SPOFFORD, AND THORNDIKE, INC. ENGINEER

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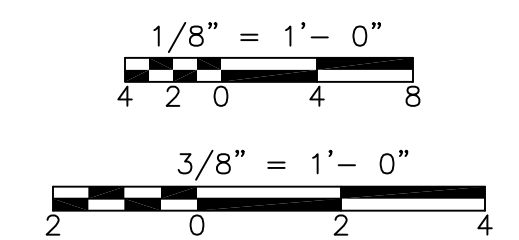
T.O.C. SLAB H.P. EL 473'-9 1/4"

EXISTING WINDOW SYSTEM TO REMAIN

3RD FLOOR EL 453'-0"

2ND FLOOR EL 442'-0"

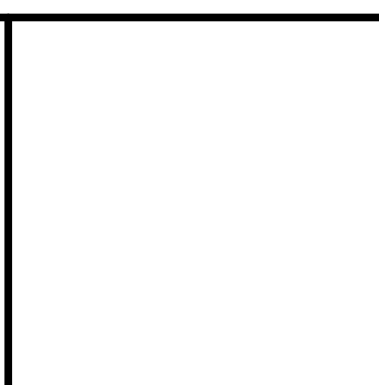
1ST FLOOR EL 431'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/07	JAL	ADT	NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	ASPL100.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	D. GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	AS NOTED
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

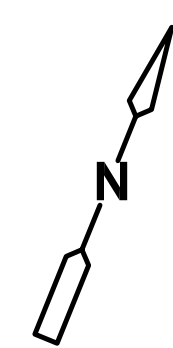


Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

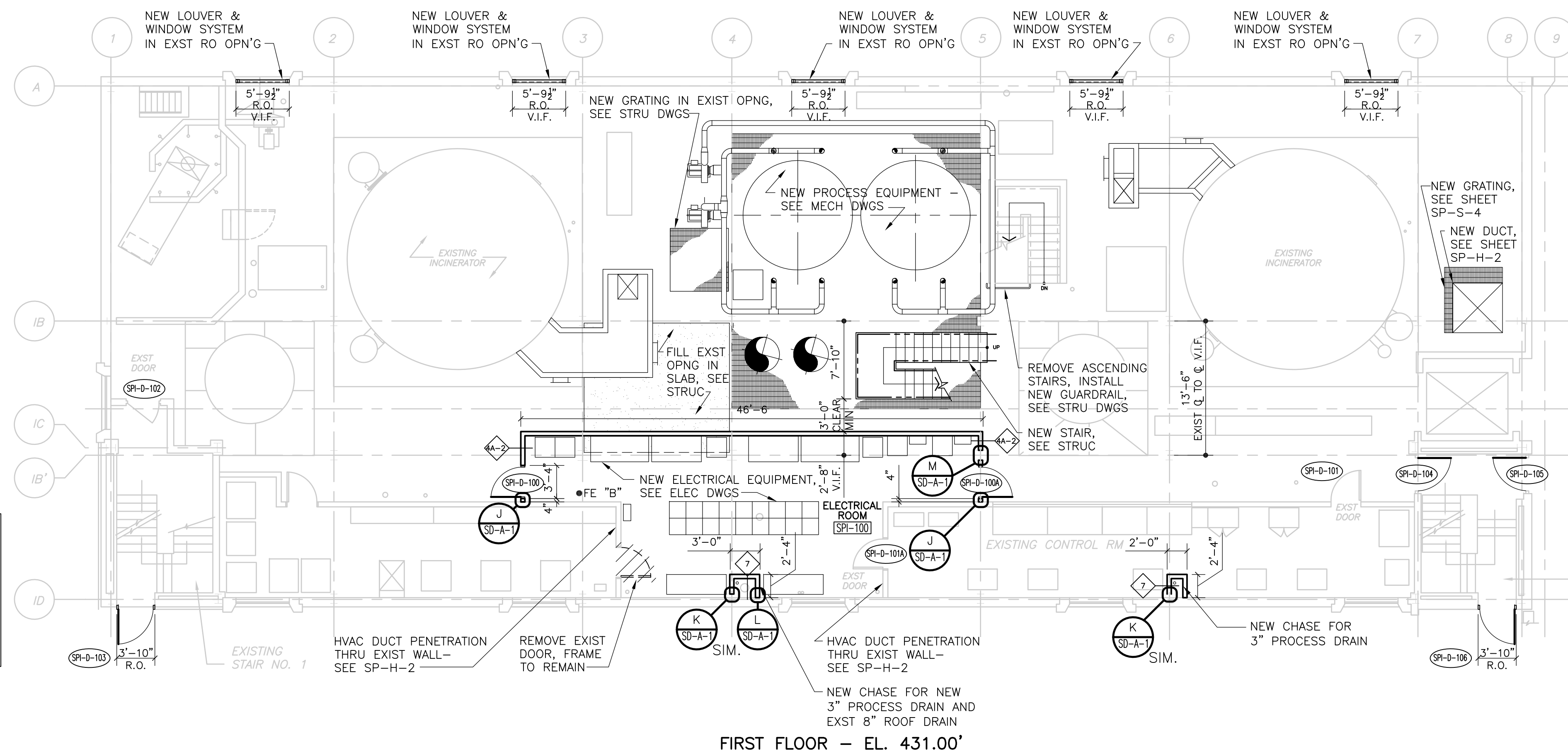
UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024  
  
WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS

SLUDGE PROCESSING COMPLEX  
INCINERATOR AREA  
DEMOLITION ROOF PLAN, ELEVATION & SECTION

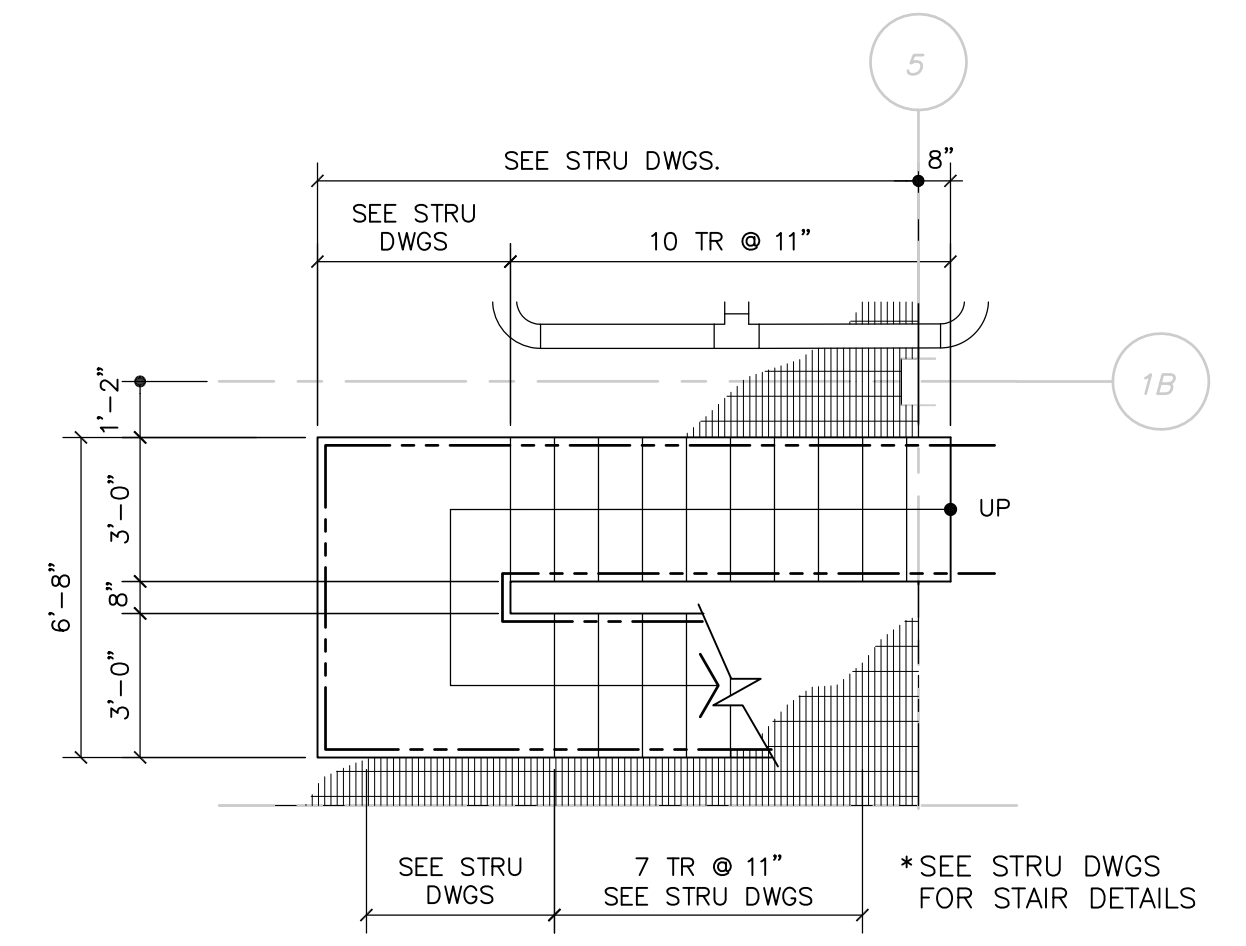
PROJECT NO.  
1289\35370  
Sht. 63 of 386  
SP-A-3



NOTE:  
 SEE DOOR SCHEDULE FOR NEW HARDWARE AT EXISTING DOORS: SPI-D-01, SPI-D-02, SPI-D-02A, SPI-D-101, SPI-D-101A, SPI-D-102, SPI-D-201, SPI-D-203.  
 SEE DOOR SCHEDULE FOR NEW DOORS & HARDWARE IN EXIST FRAMES AT DOORS: SPI-D-001, SPI-D-002, SPI-D-104, SPI-D-105, SPI-D-202, SPI-D-301.

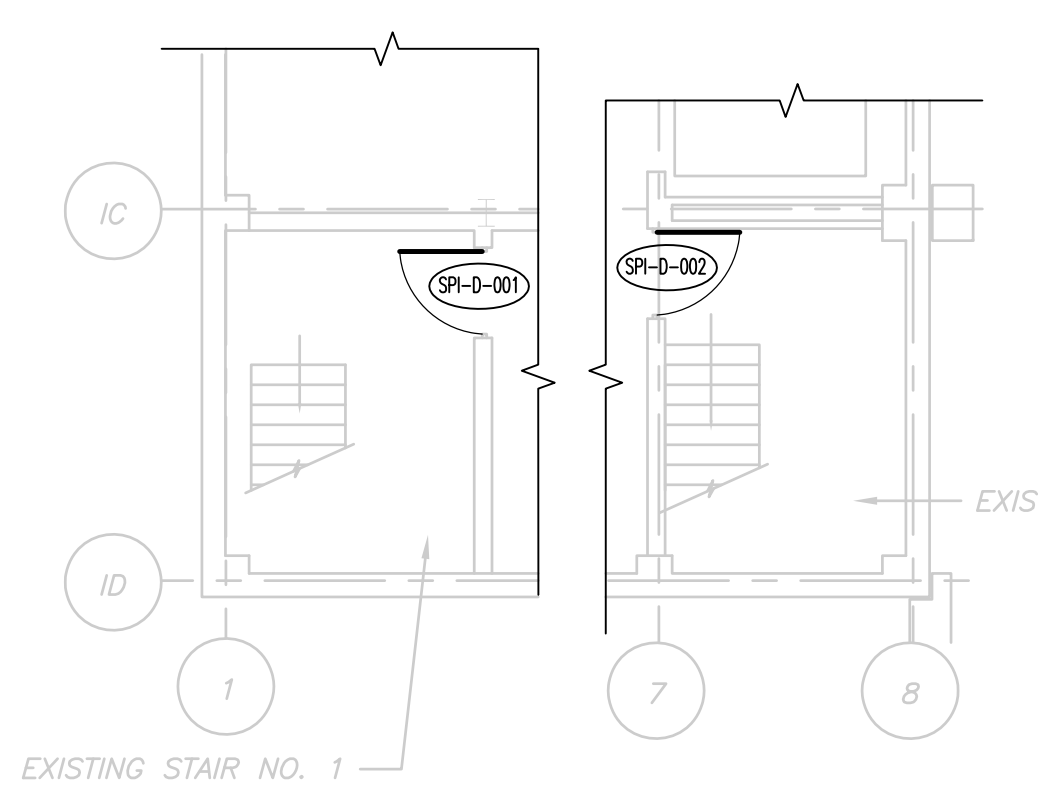


FIRST FLOOR - EL. 431.00'  
**PLAN**  
 1/8" = 1'-0"

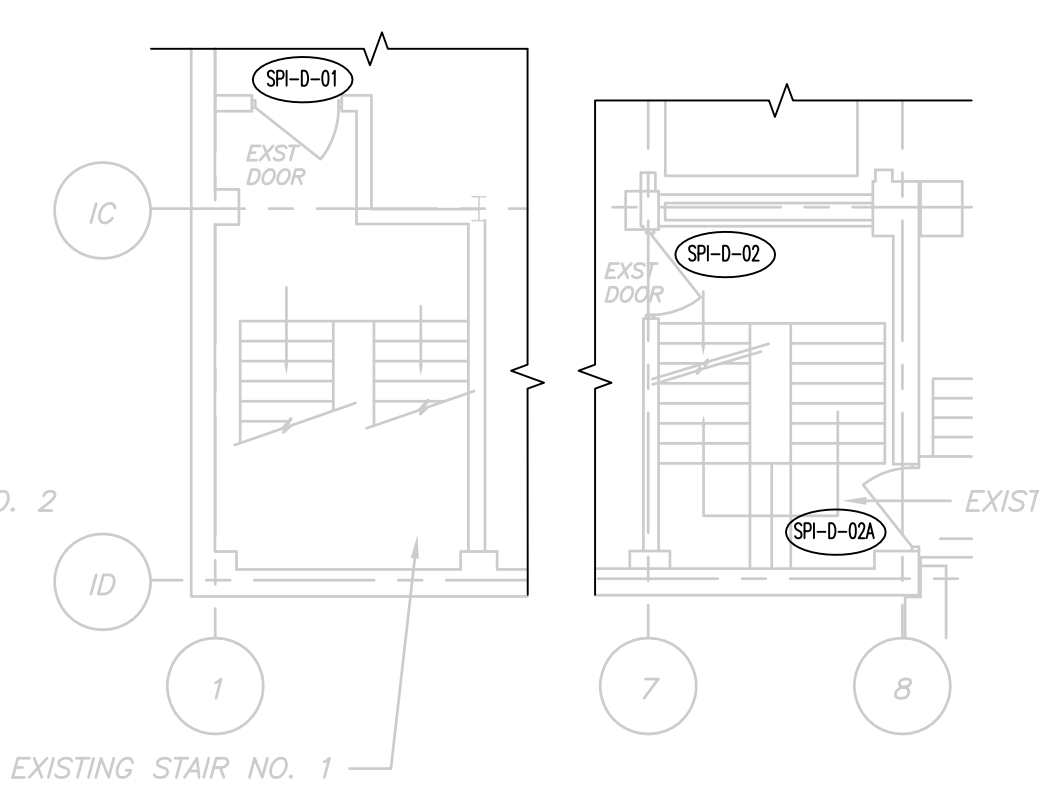


ENLARGED STAIR PLAN  
**PLAN**  
 1/4" = 1'-0"

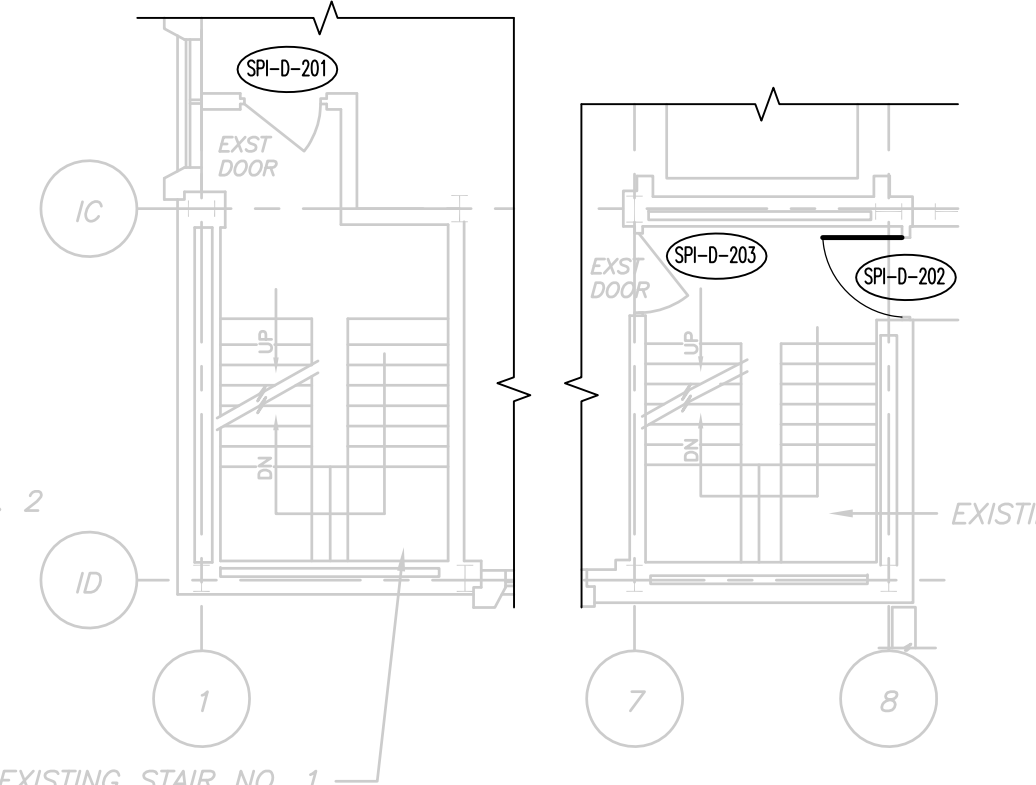
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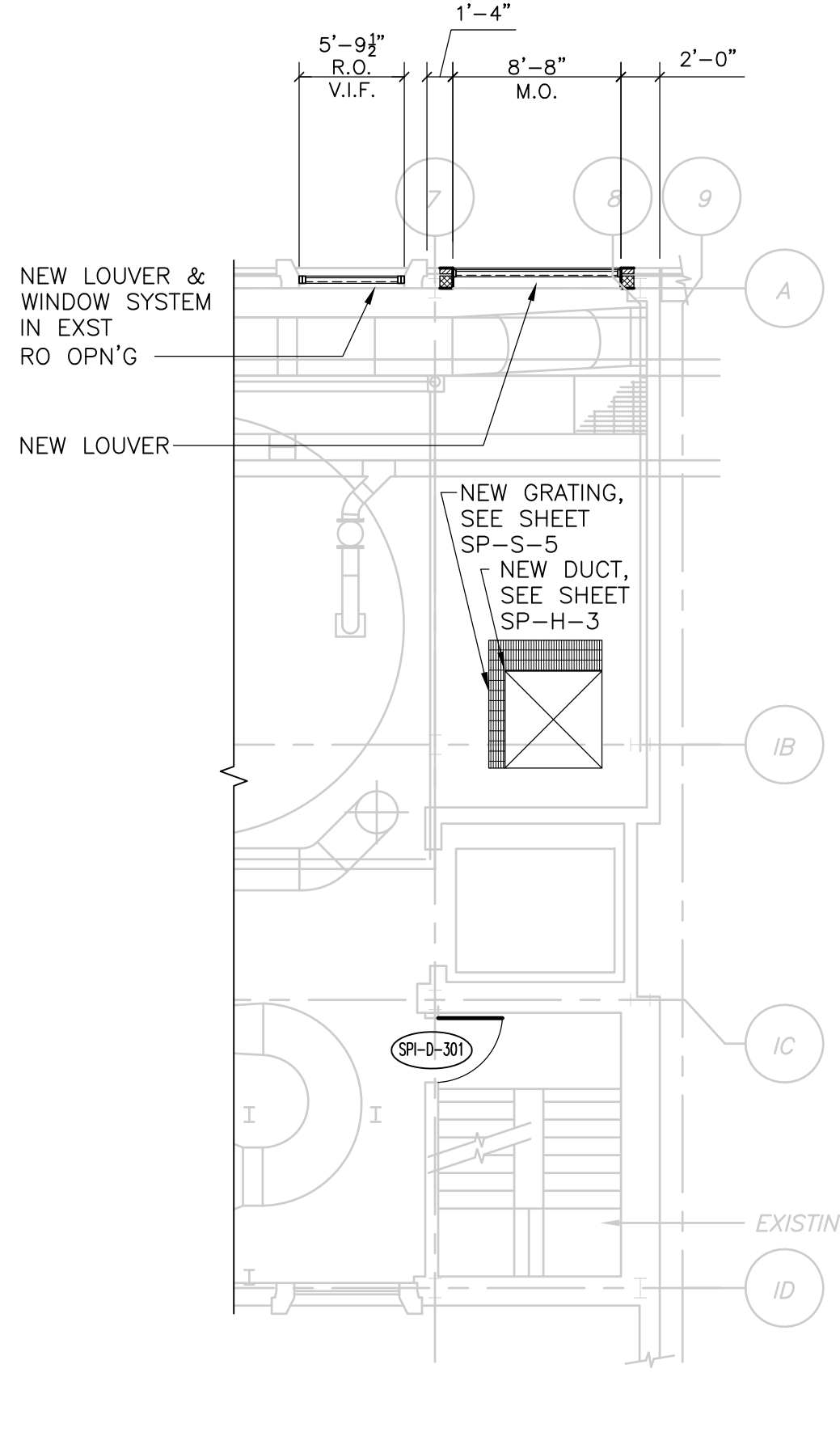
PARTIAL SUB-BASEMENT FLOOR - EL. 409.83'  
**PLAN**  
 1/8" = 1'-0"



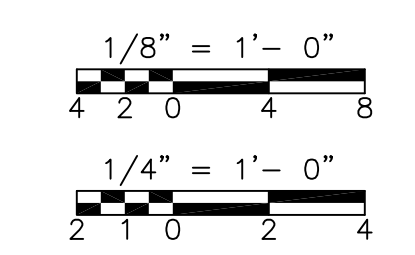
PARTIAL BASEMENT FLOOR - EL. 420.67'  
**PLAN**  
 1/8" = 1'-0"



PARTIAL SECOND FLOOR - EL. 442.00'  
**PLAN**  
 1/8" = 1'-0"



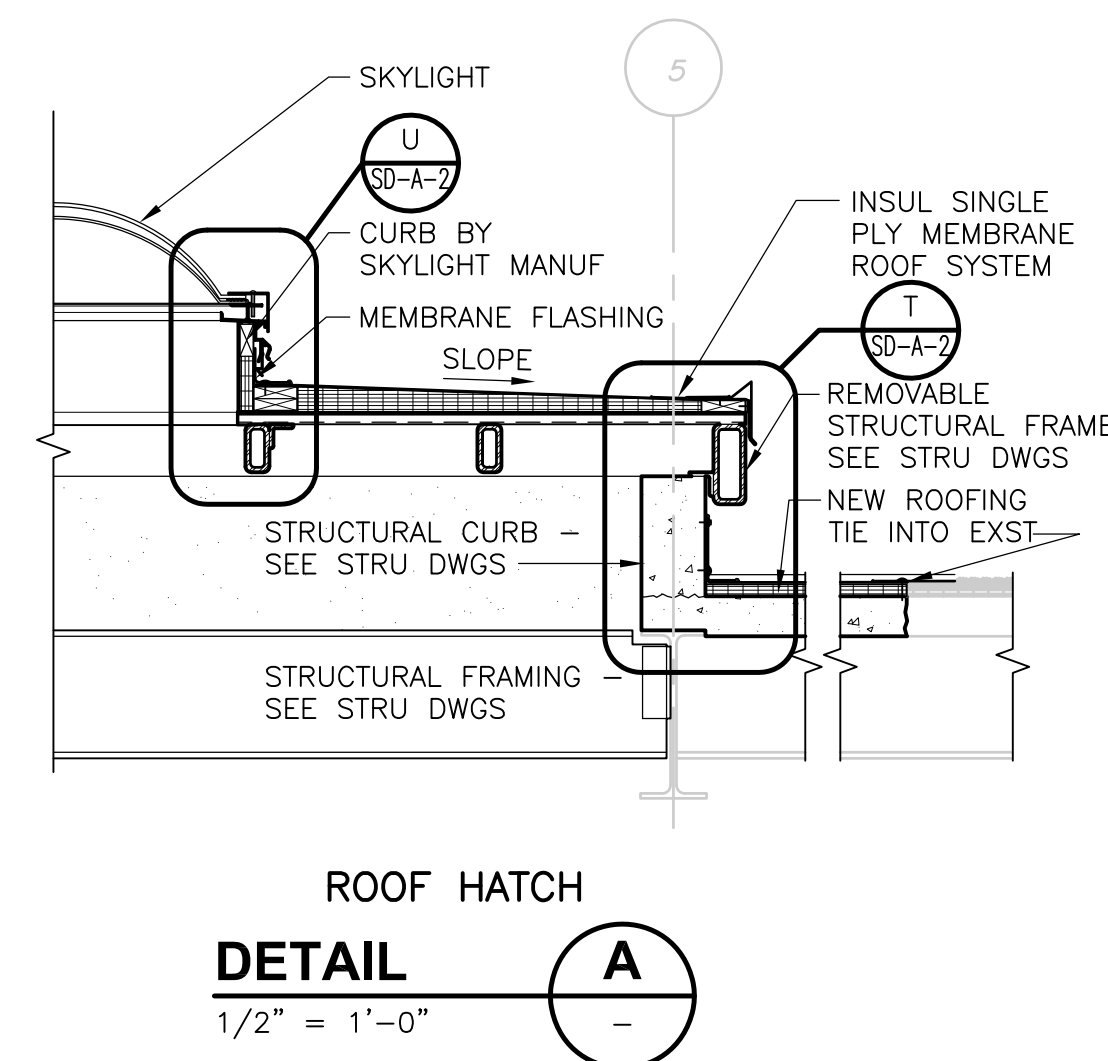
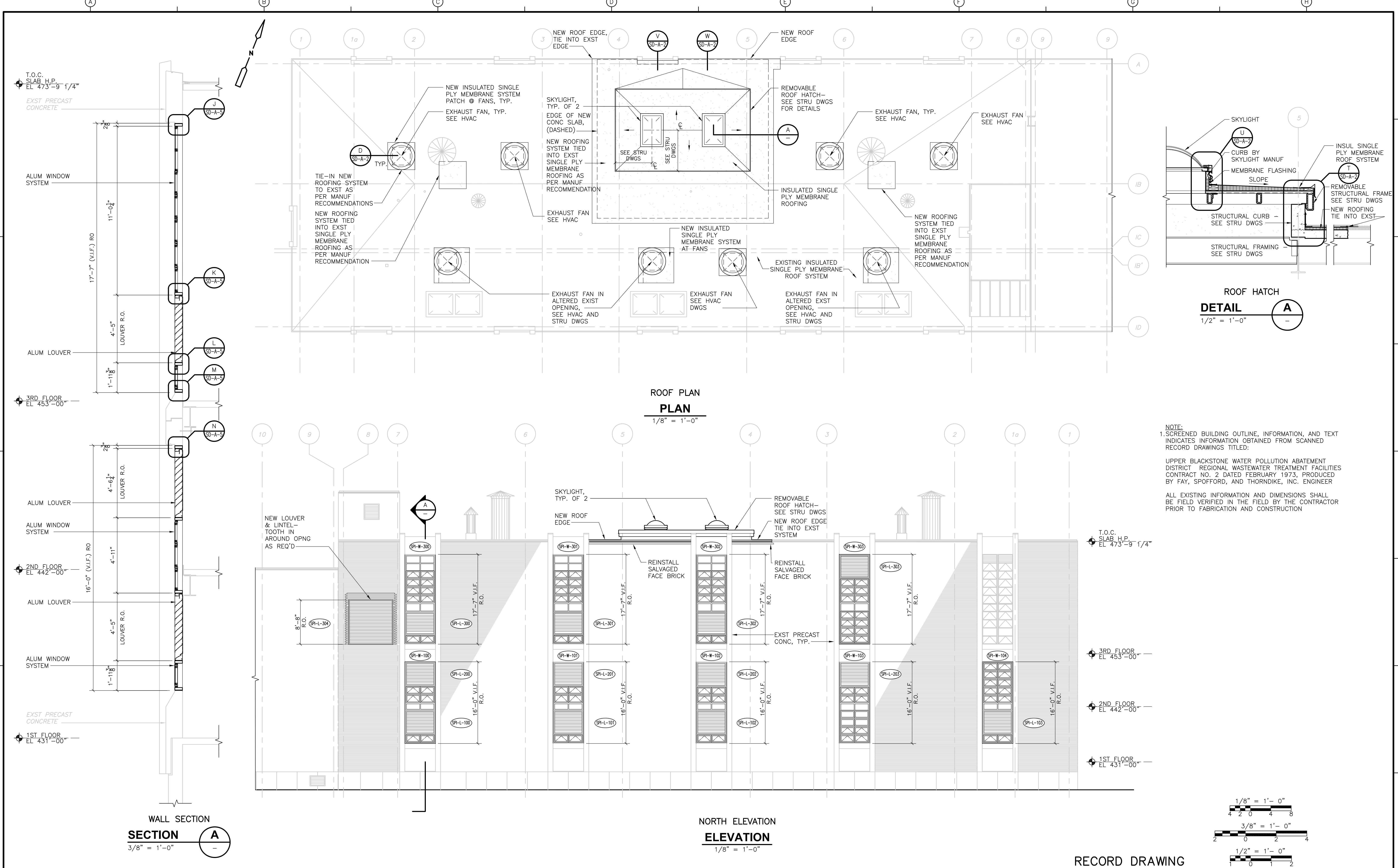
PARTIAL THIRD FLOOR  
**PLAN**  
 1/8" = 1'-0"



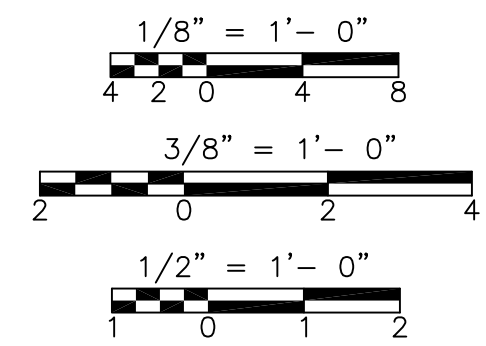
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REV. NO.	DATE	DRWN	CHKD	REMARKS																	
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD																	





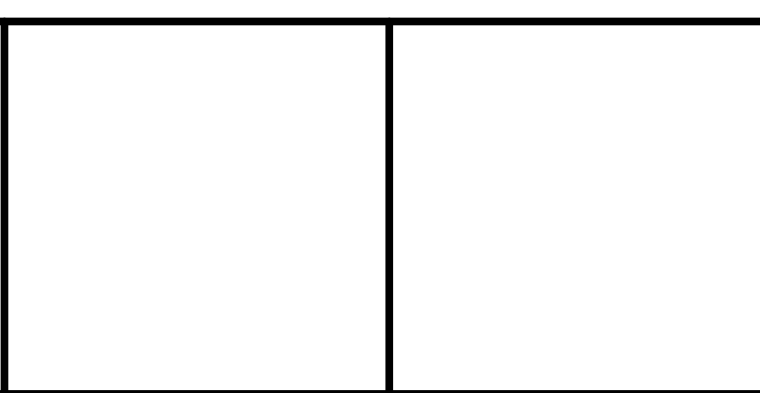
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RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	ASPP201.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	D. GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	AS NOTED
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

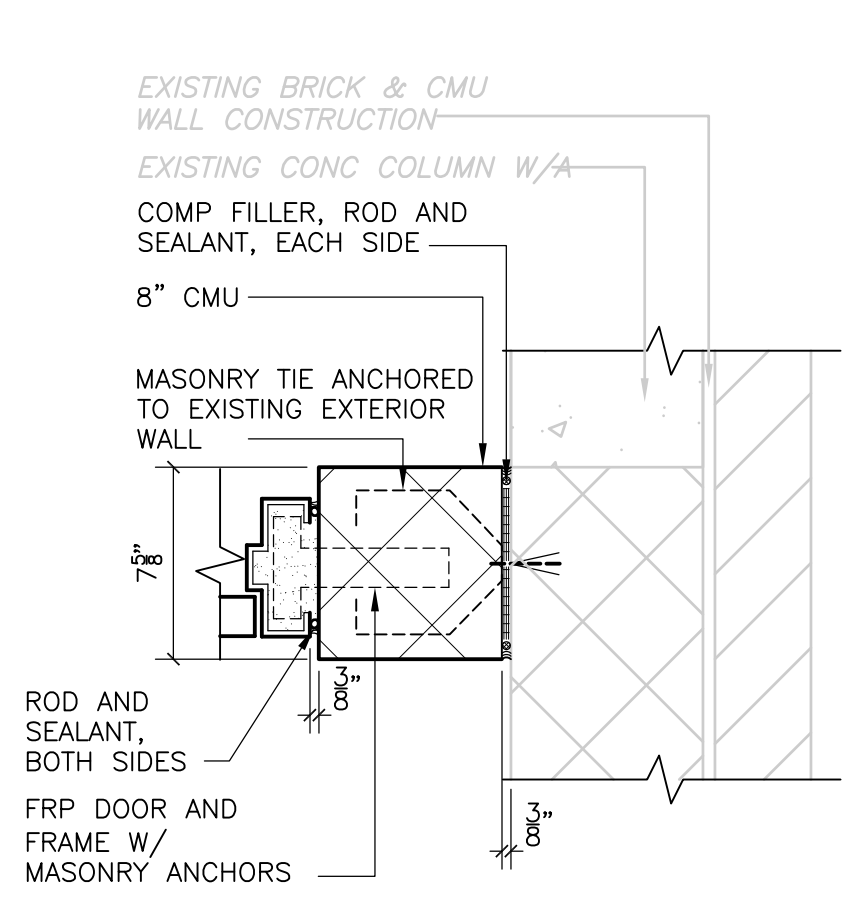


**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

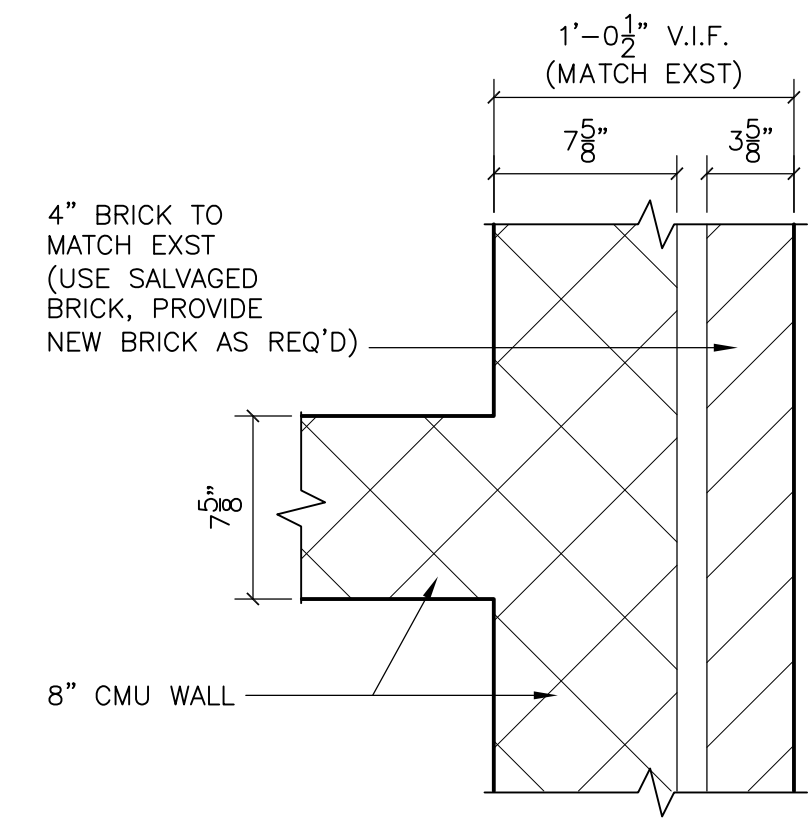
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SLUDGE PROCESSING COMPLEX  
 INCINERATOR AREA  
 RENOVATED ROOF PLAN AND ELEVATION**

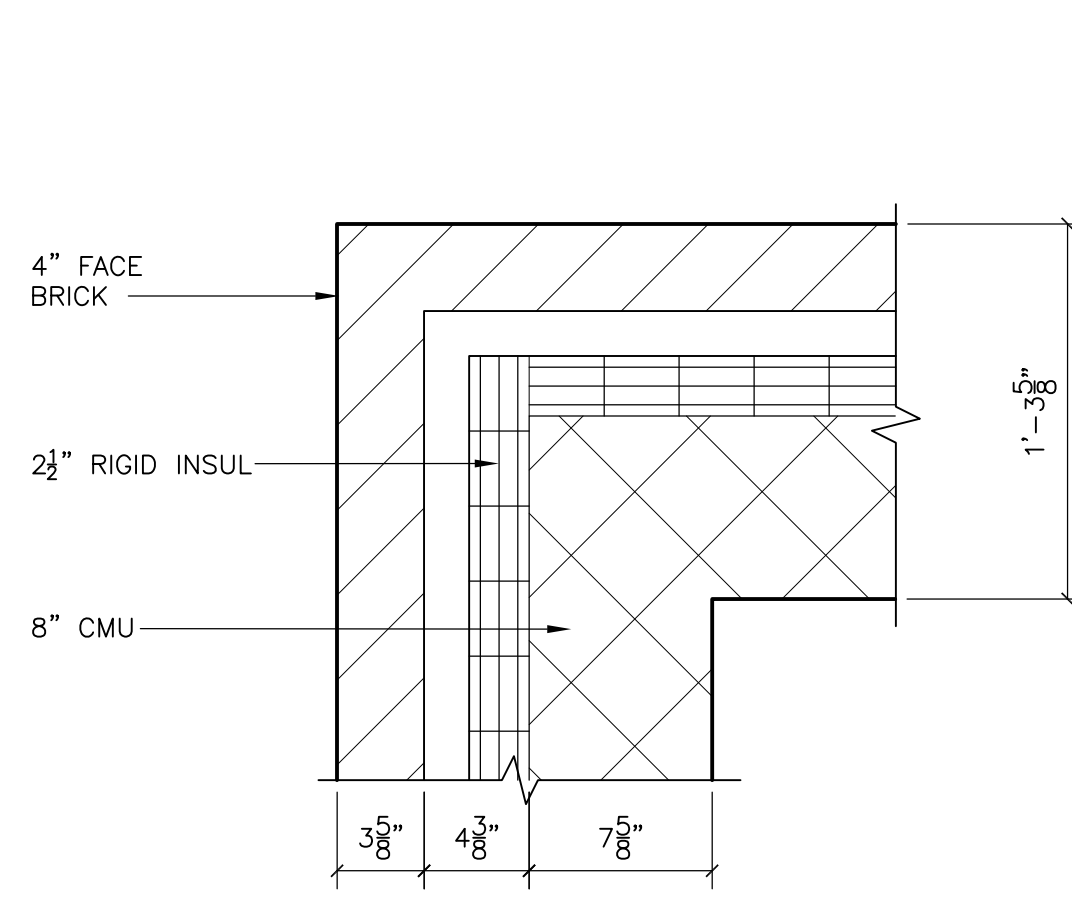
PROJECT NO.  
1289\35370  
 Sht. 65 of 386  
**SP-A-5**  
ACCESSION NO. 1289-



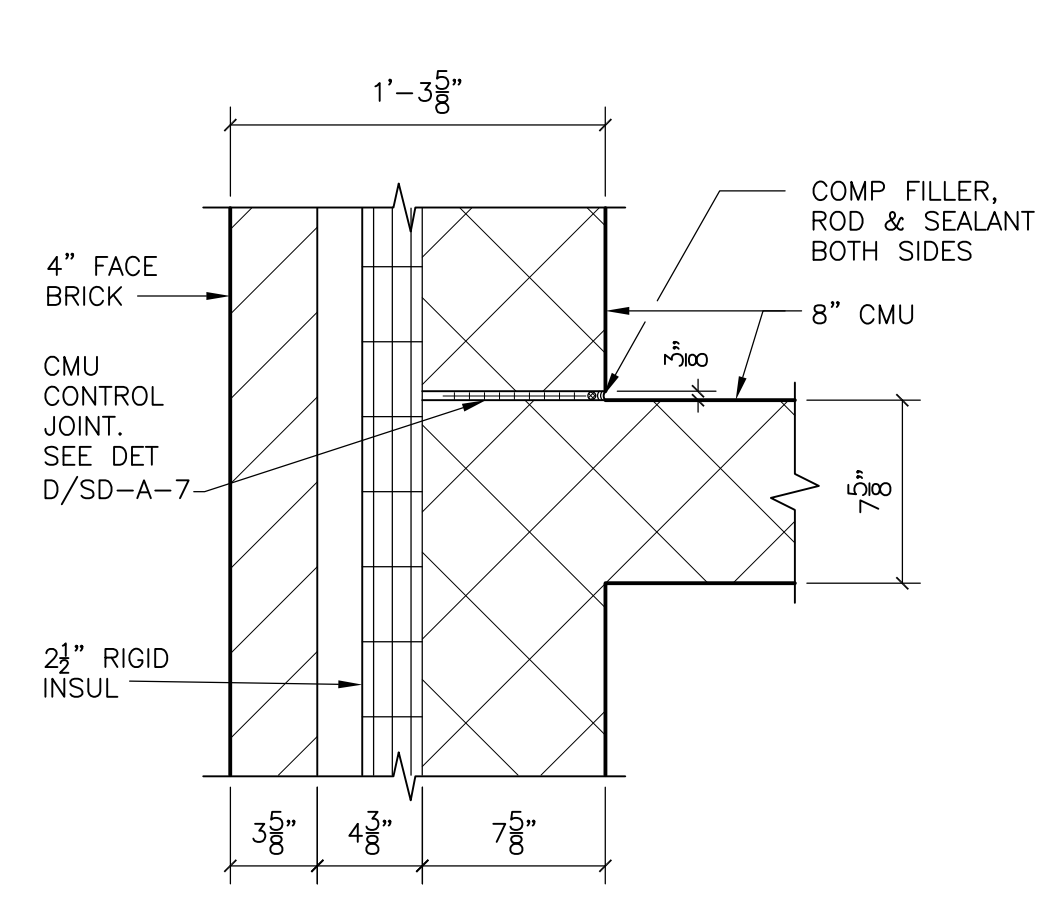
PLAN DETAIL  
**DETAIL A**  
 1 1/2" = 1'-0" PT-A-2



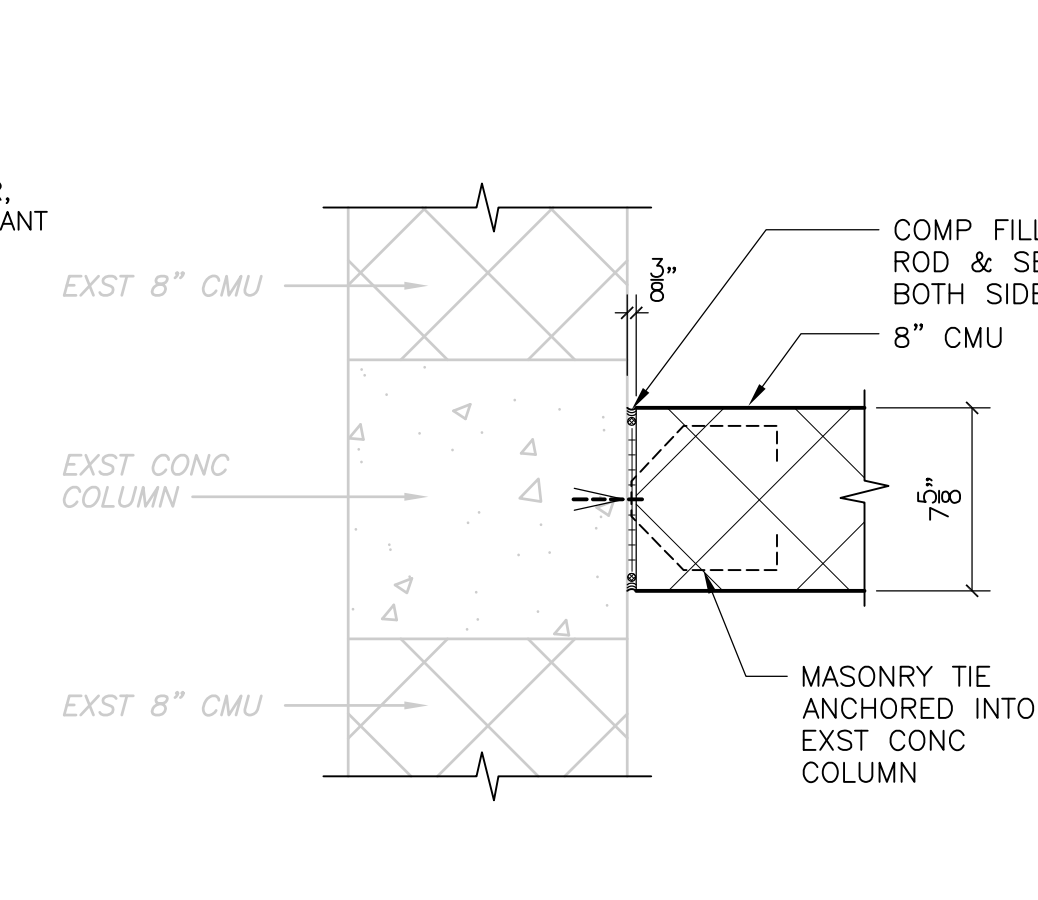
PLAN DETAIL  
**DETAIL B**  
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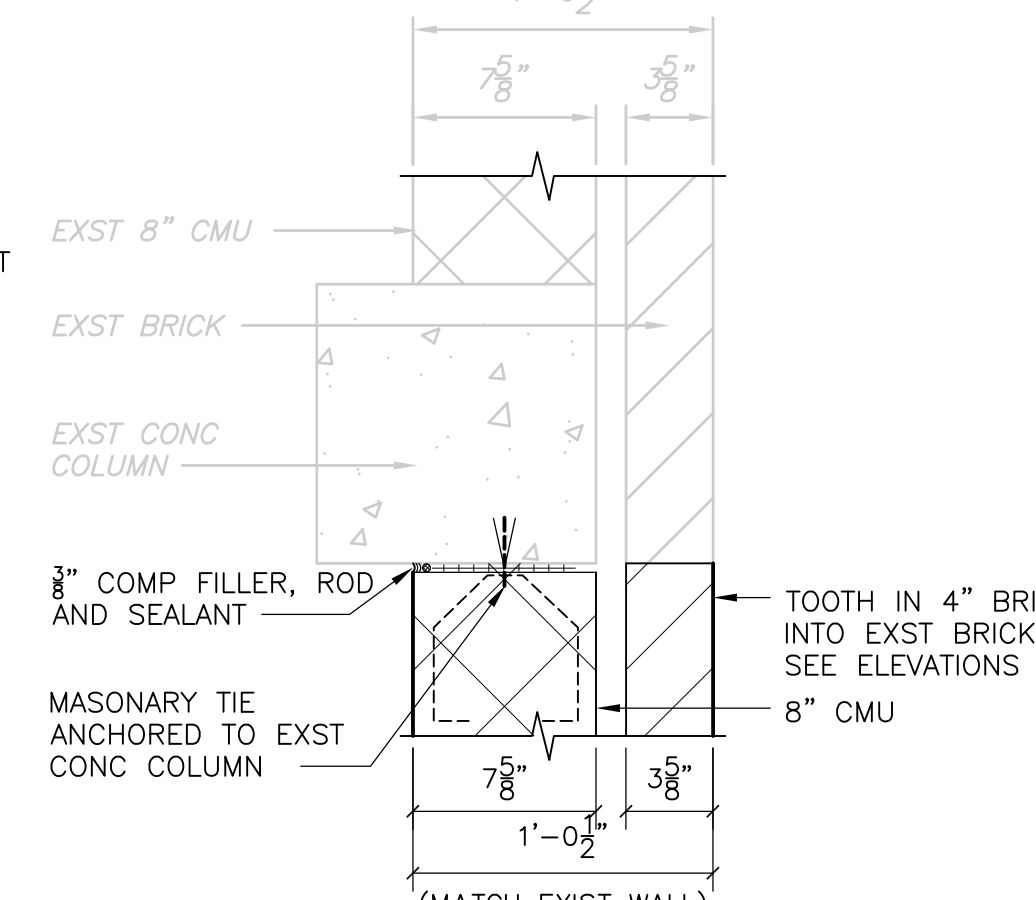
PLAN DETAIL  
**DETAIL C**  
 1 1/2" = 1'-0" PT-A-3



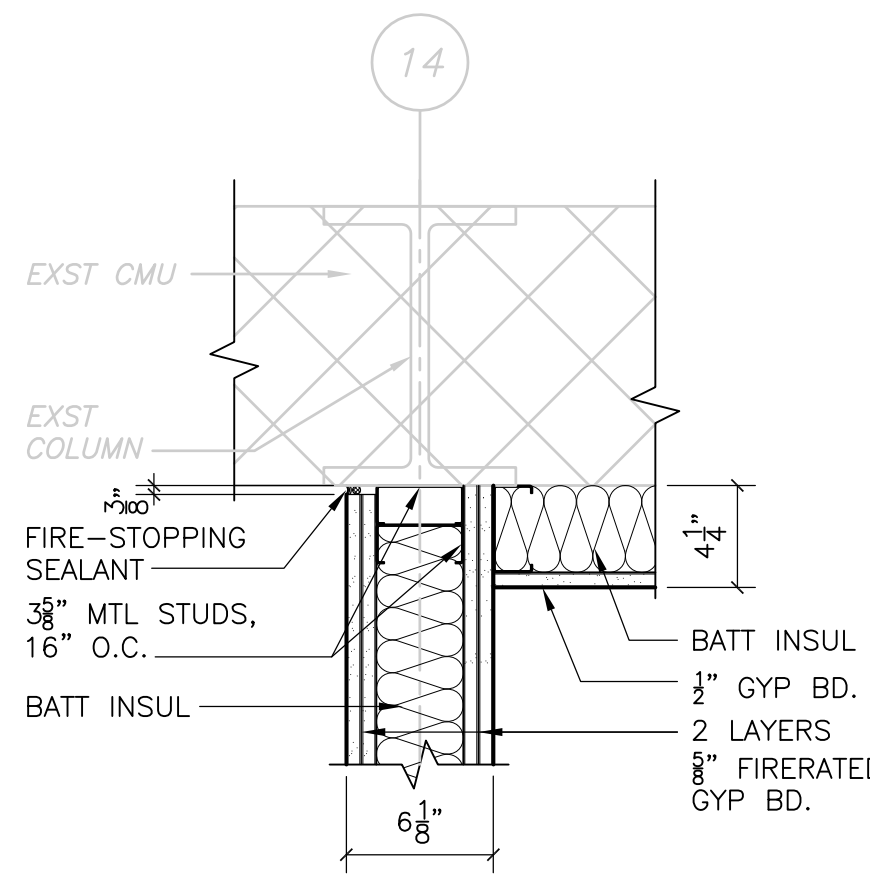
PLAN DETAIL  
**DETAIL D**  
 1 1/2" = 1'-0" PT-A-3



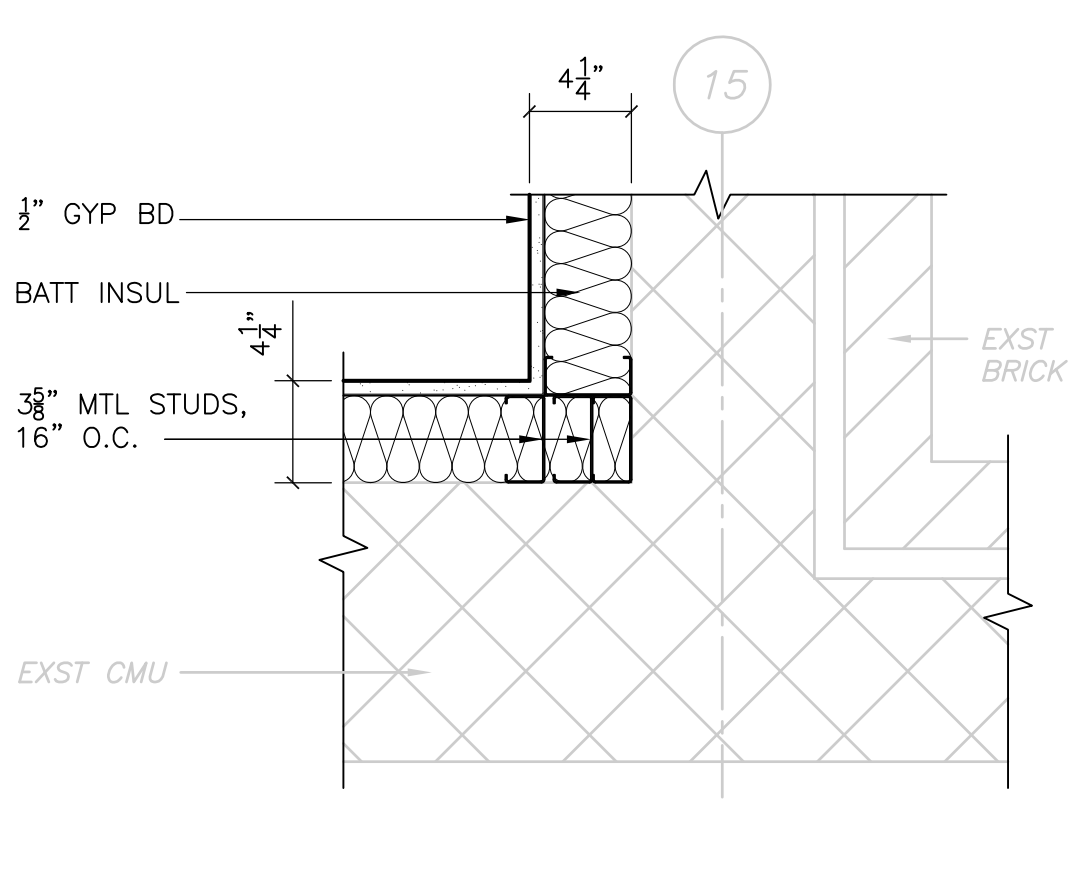
PLAN DETAIL  
**DETAIL E**  
 1 1/2" = 1'-0" DF-A-3



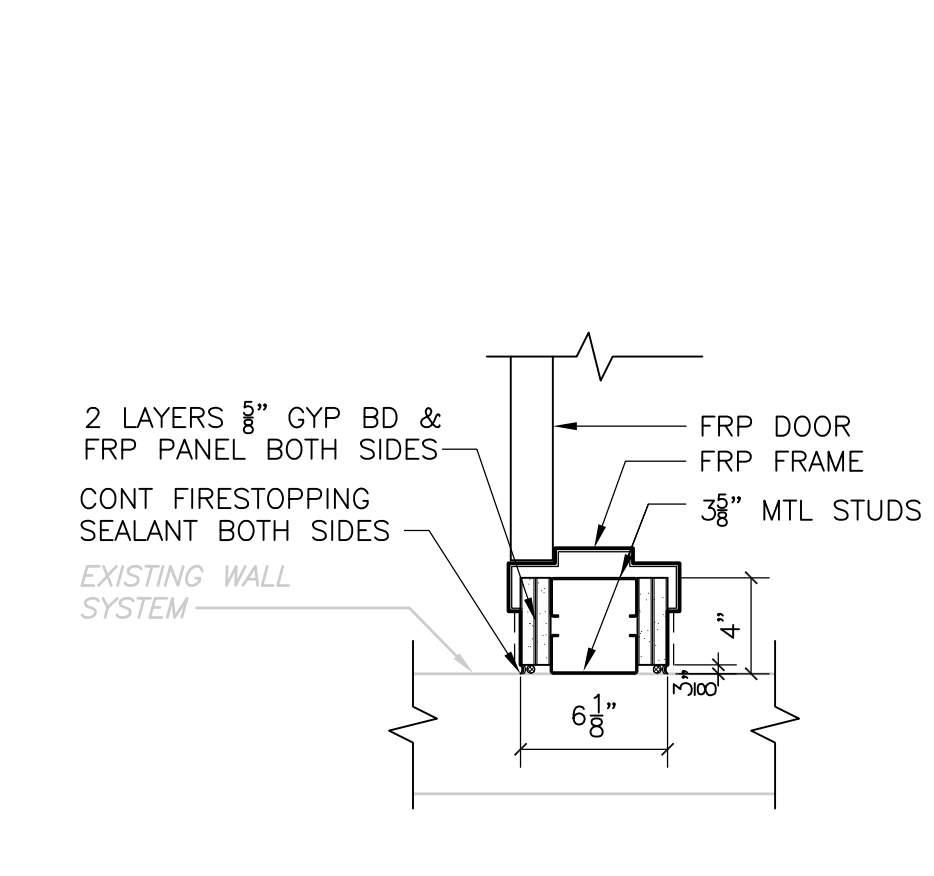
PLAN DETAIL  
**DETAIL F**  
 1 1/2" = 1'-0" DF-A-3



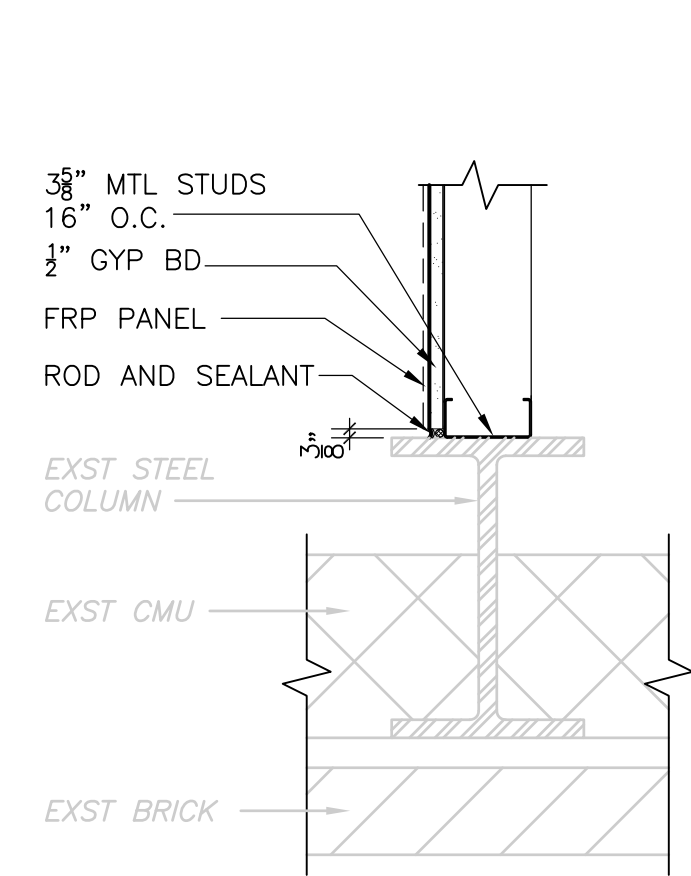
PLAN DETAIL  
**DETAIL G**  
 1 1/2" = 1'-0" SP-A-2



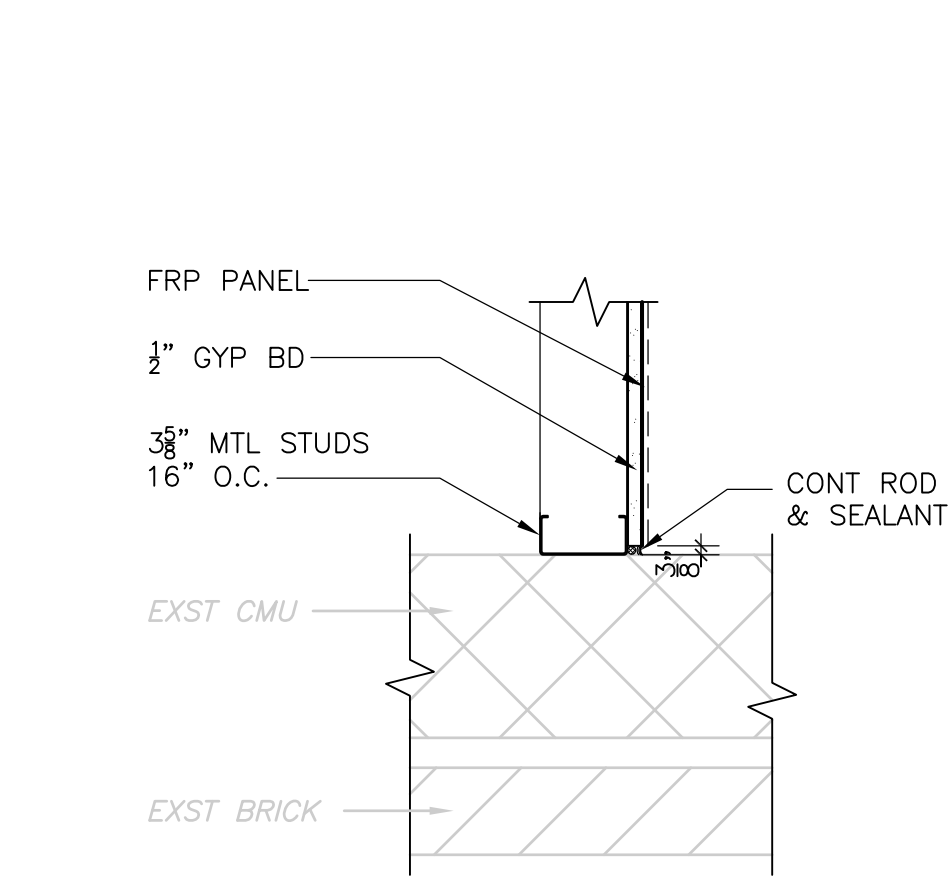
PLAN DETAIL  
**DETAIL H**  
 1 1/2" = 1'-0" SP-A-2



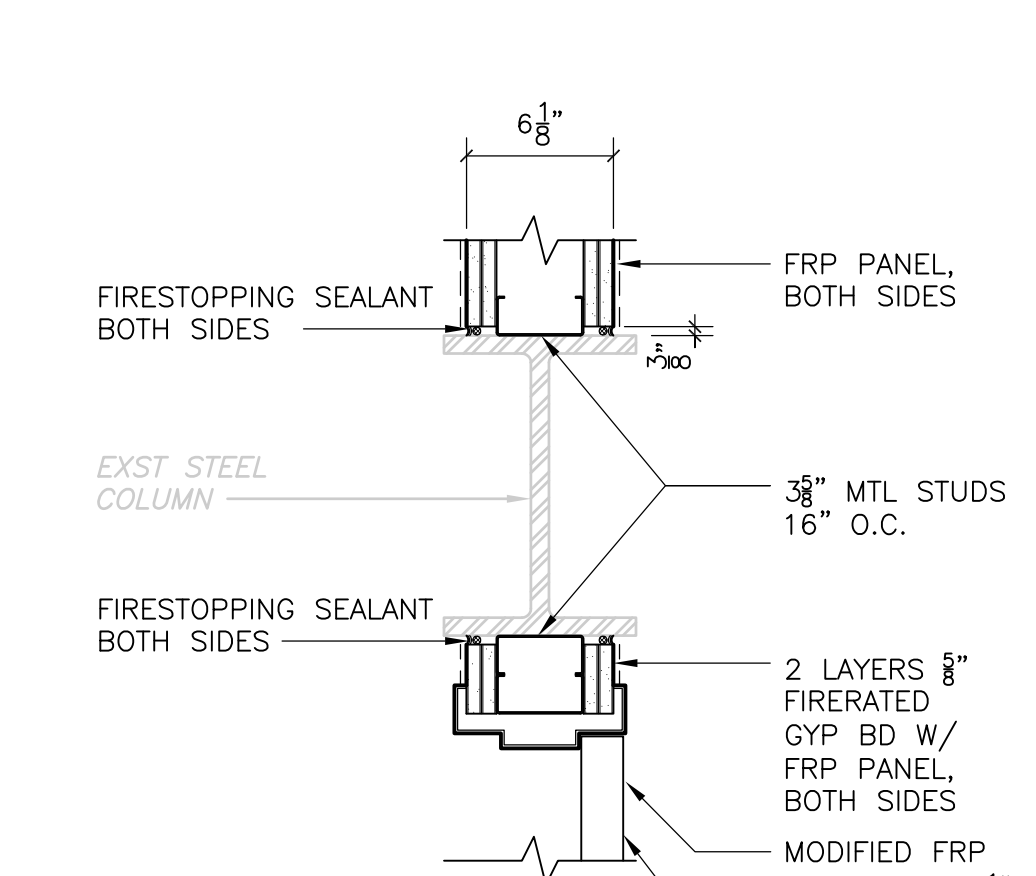
PLAN DETAIL  
**DETAIL I**  
 1 1/2" = 1'-0" SP-A-4



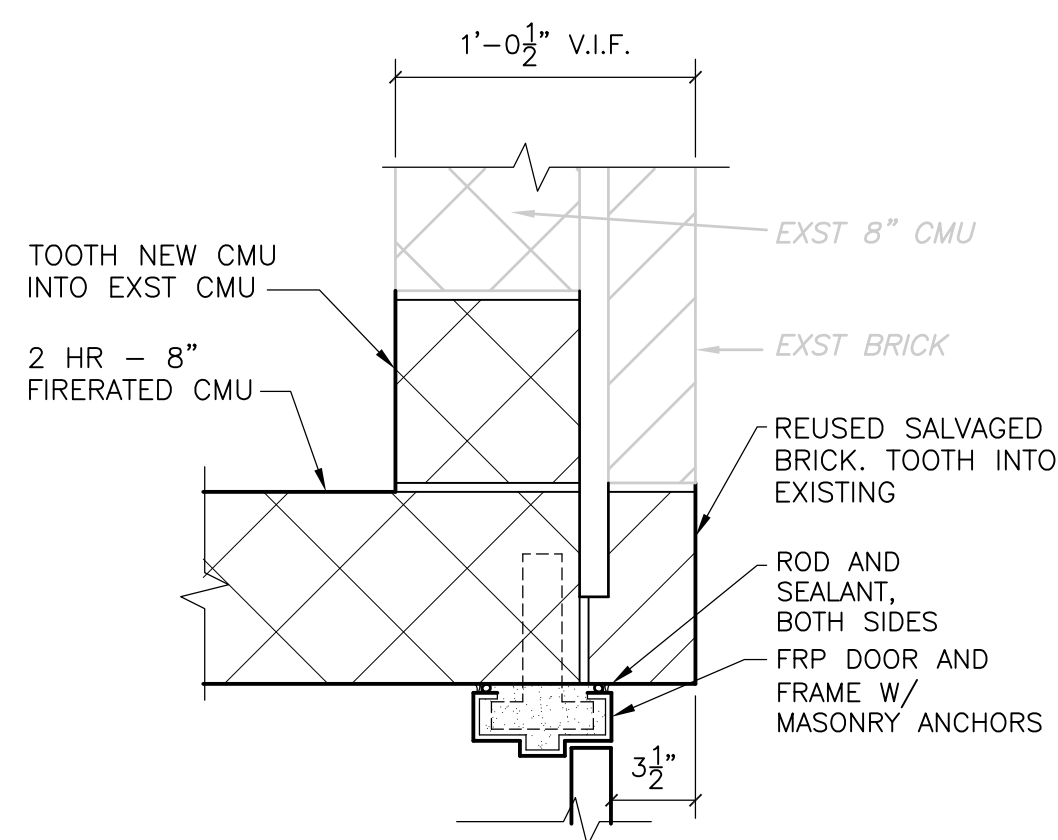
PLAN DETAIL  
**DETAIL J**  
 1 1/2" = 1'-0" SP-A-4



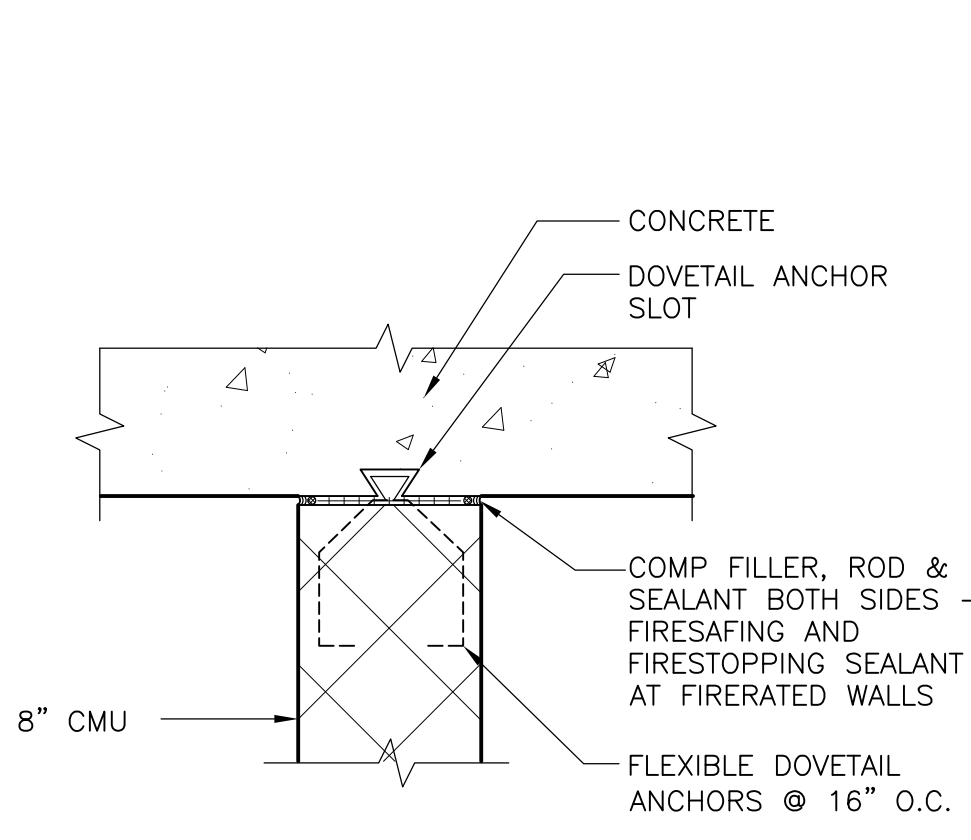
PLAN DETAIL  
**DETAIL K**  
 1 1/2" = 1'-0" SP-A-4



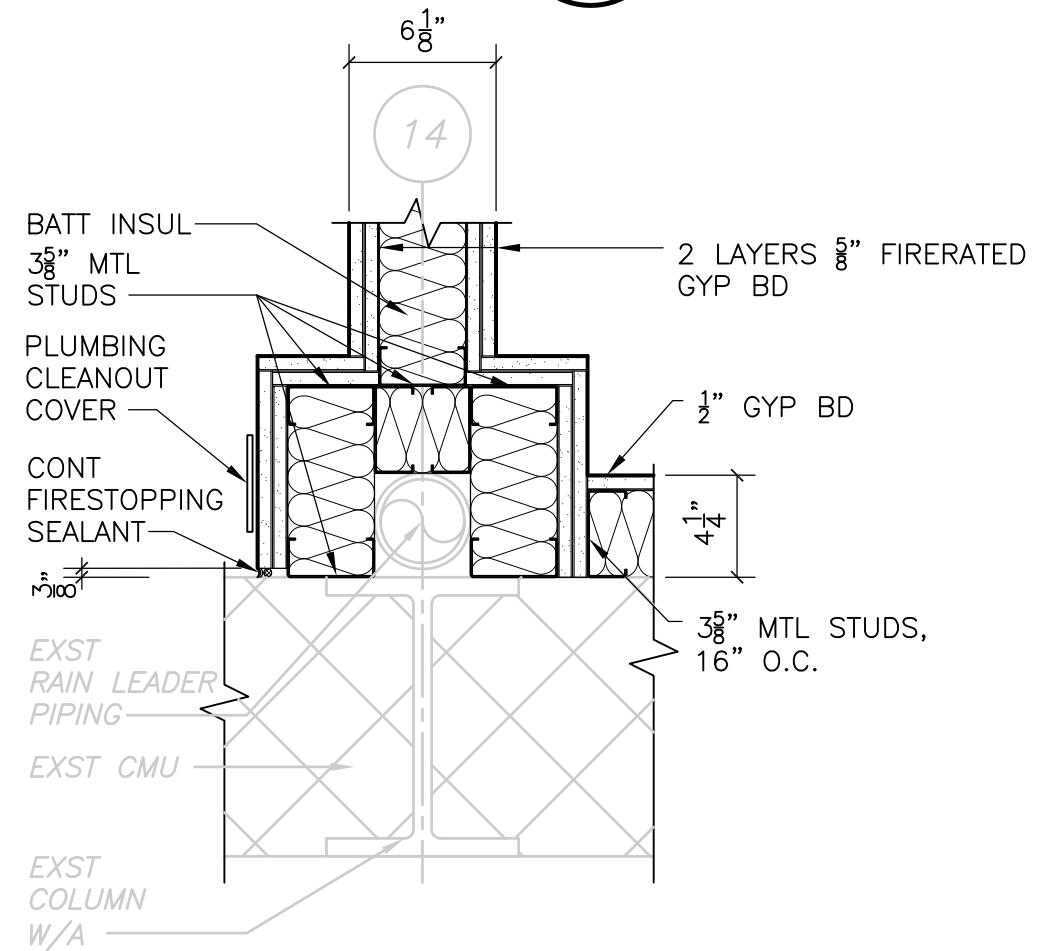
PLAN DETAIL  
**DETAIL L**  
 1 1/2" = 1'-0" SP-A-4



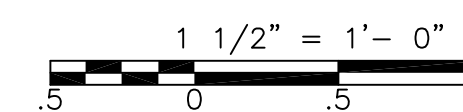
PLAN DETAIL  
**DETAIL M**  
 1 1/2" = 1'-0" PT-A-2



PLAN DETAIL  
**DETAIL N**  
 1 1/2" = 1'-0" PT-A-3



PLAN DETAIL  
**DETAIL O**  
 1 1/2" = 1'-0" PT-A-3



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	ASDPL100.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	D. GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	AS NOTED
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

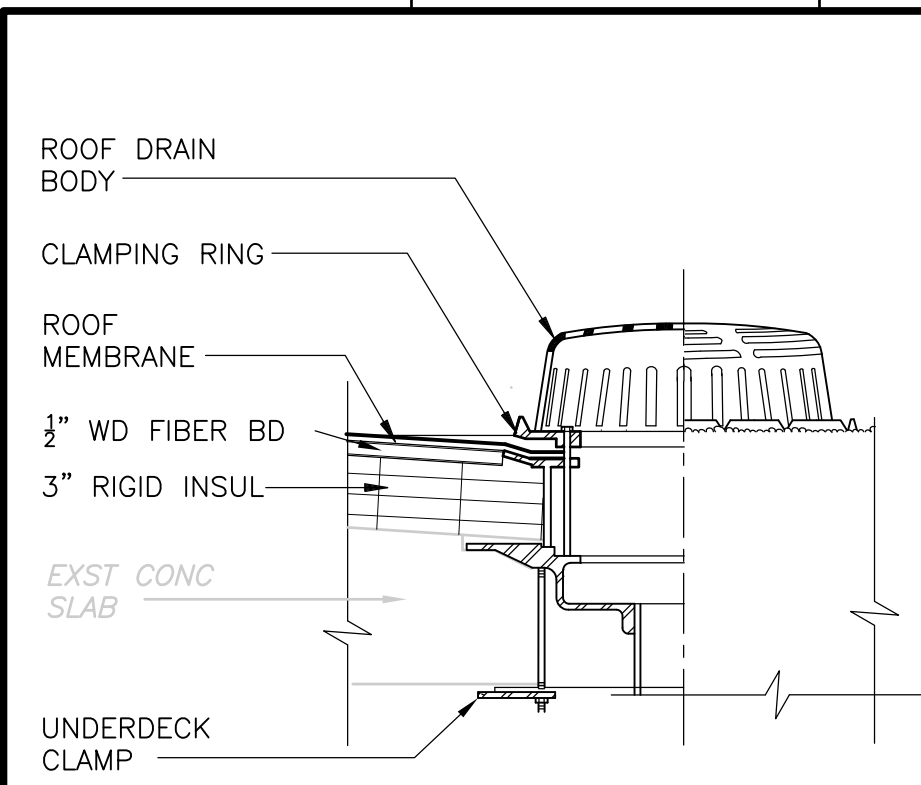
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PLAN DETAILS**

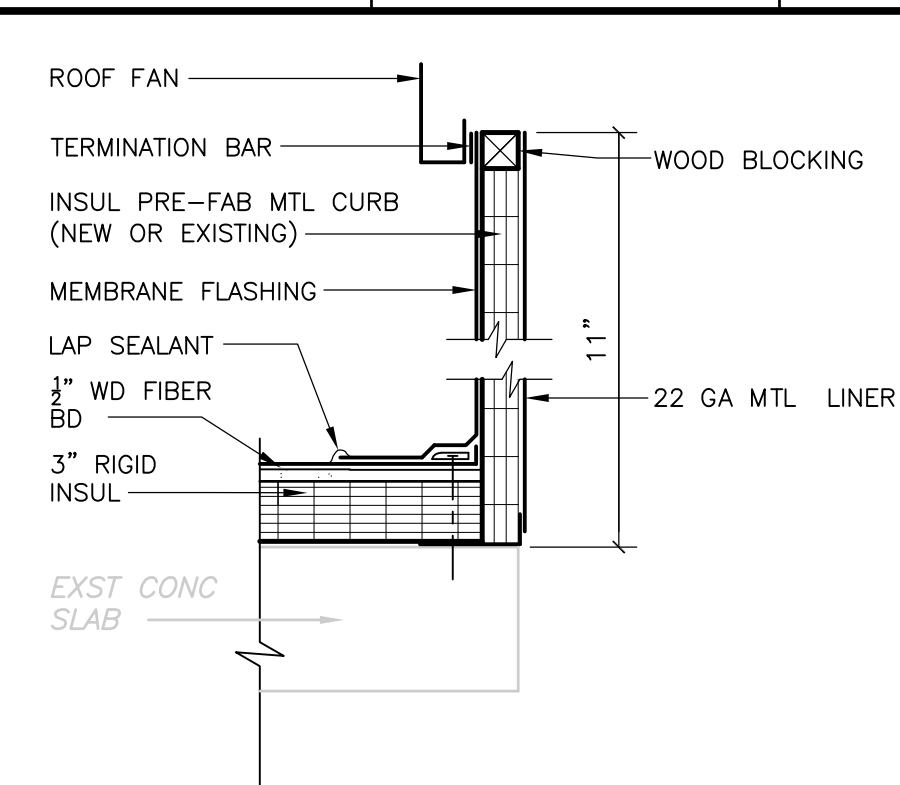
PROJECT NO.  
 1289\35370

Sht. 66 of 386

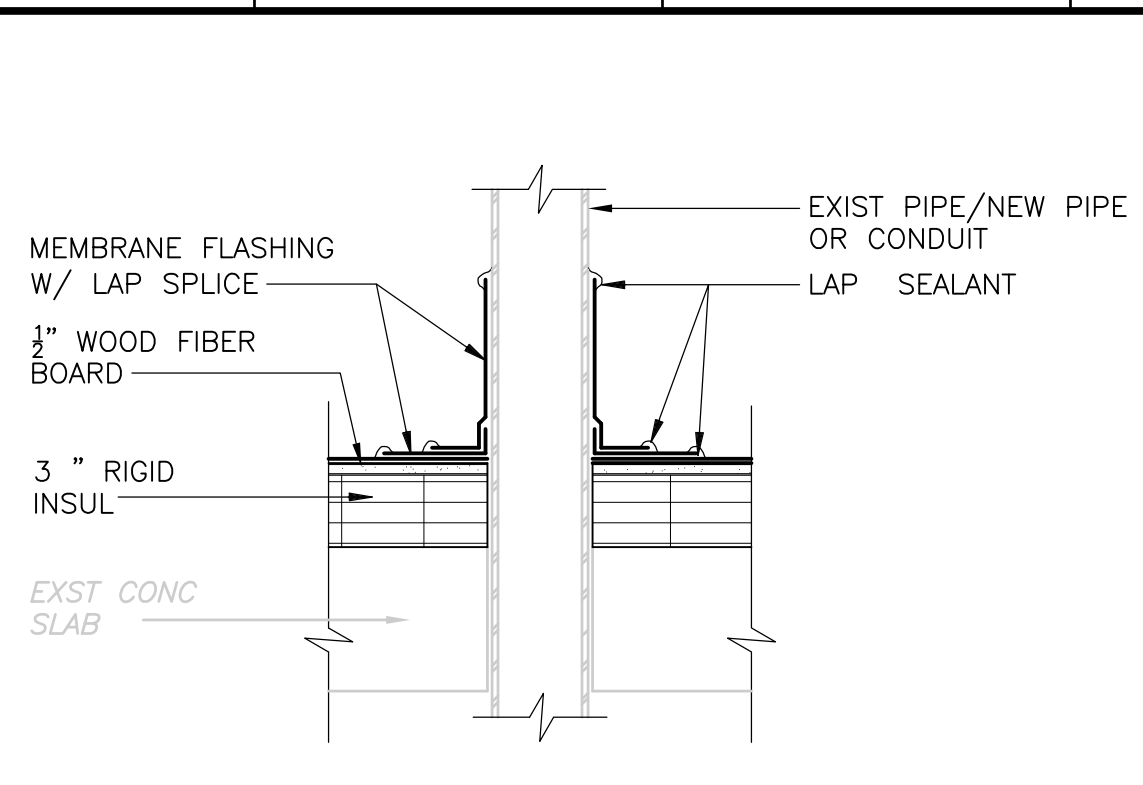
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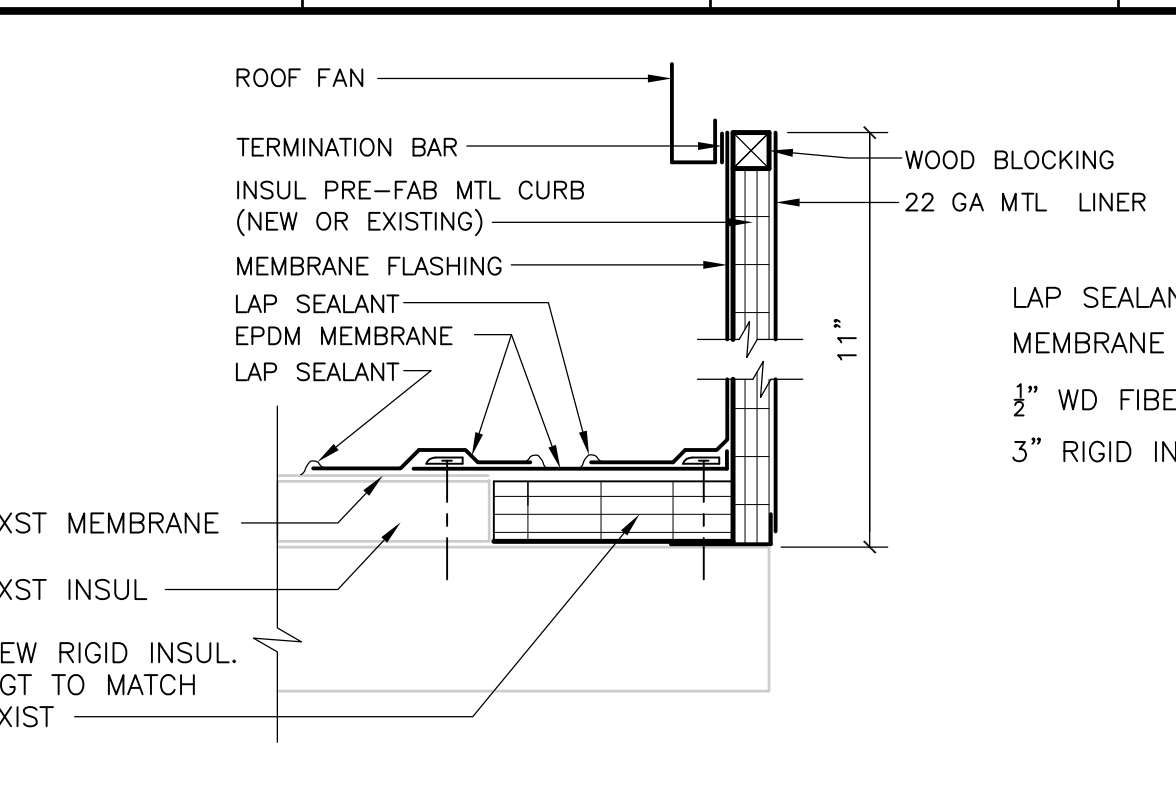
**DETAIL A**  
1-1/2" = 1'-0"  
PT-A-2



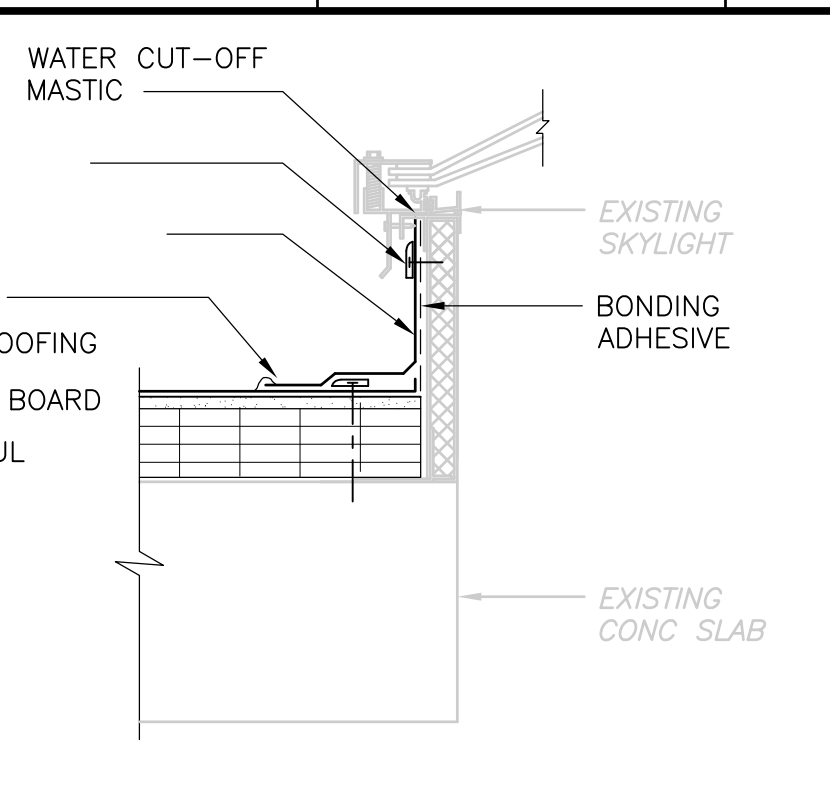
**DETAIL B**  
1-1/2" = 1'-0"  
HW-A-1



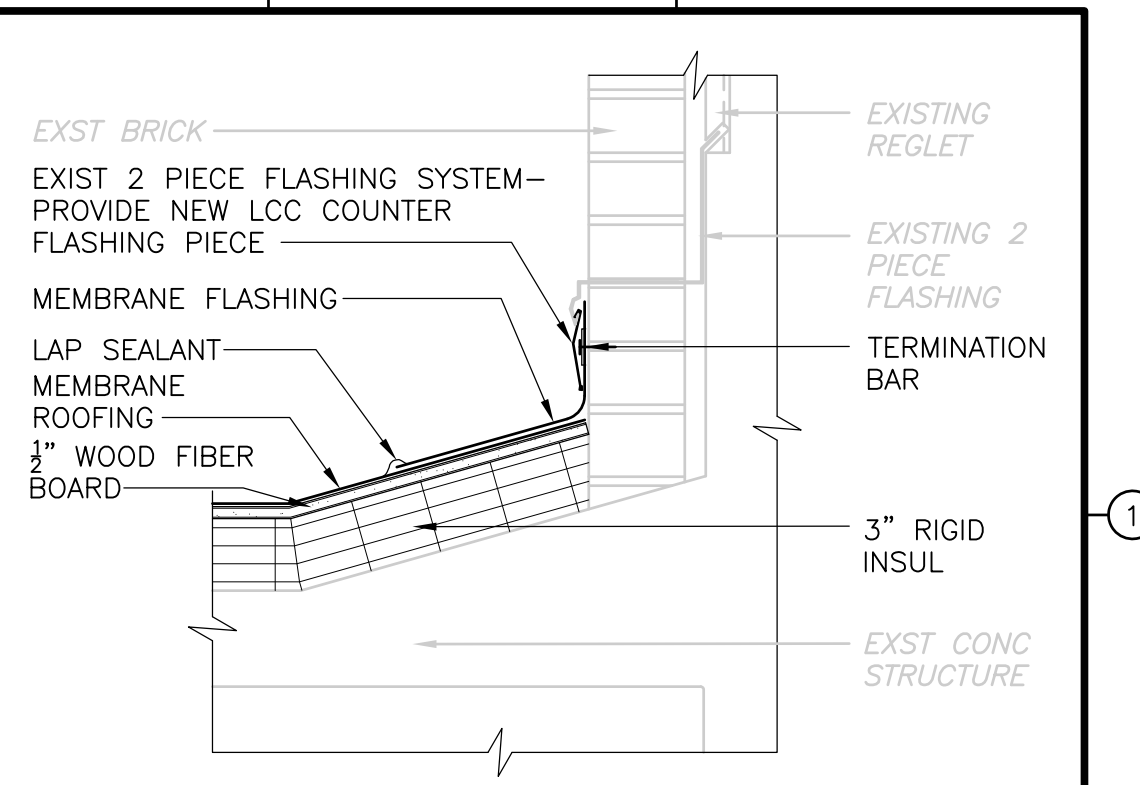
**DETAIL C**  
1-1/2" = 1'-0"  
DF-A-3



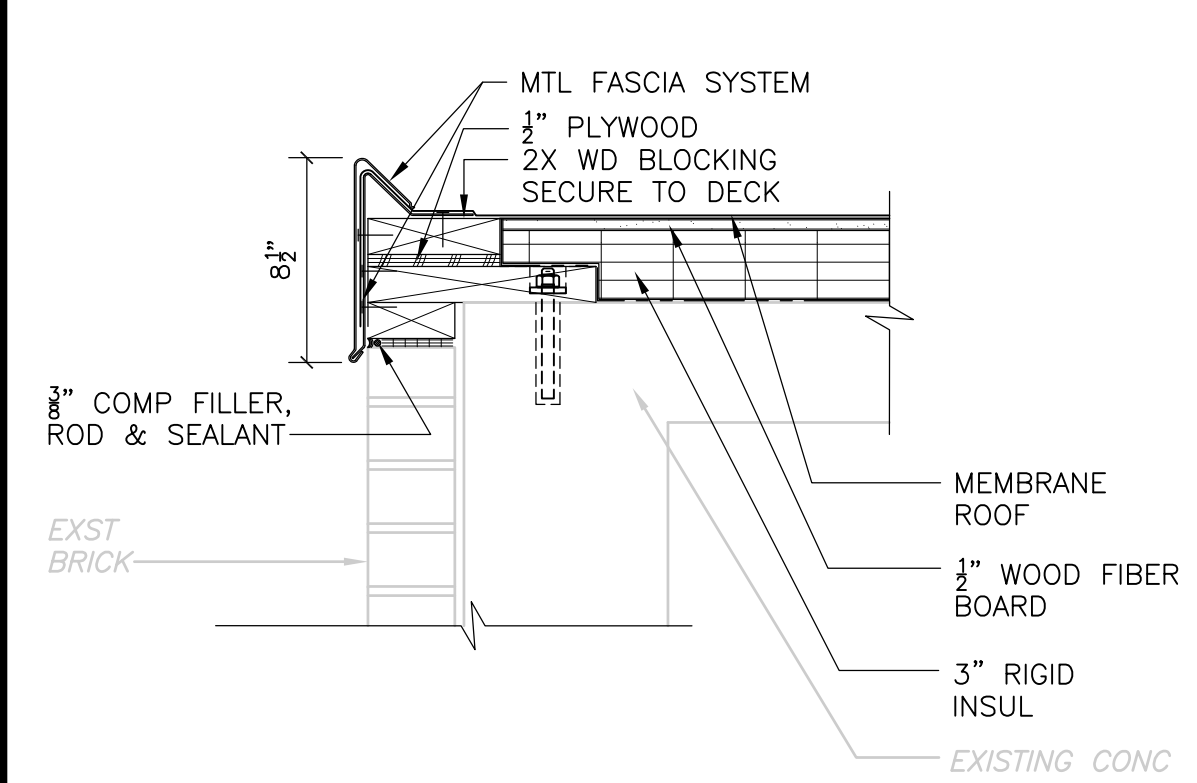
**DETAIL D**  
1-1/2" = 1'-0"  
SP-A-5



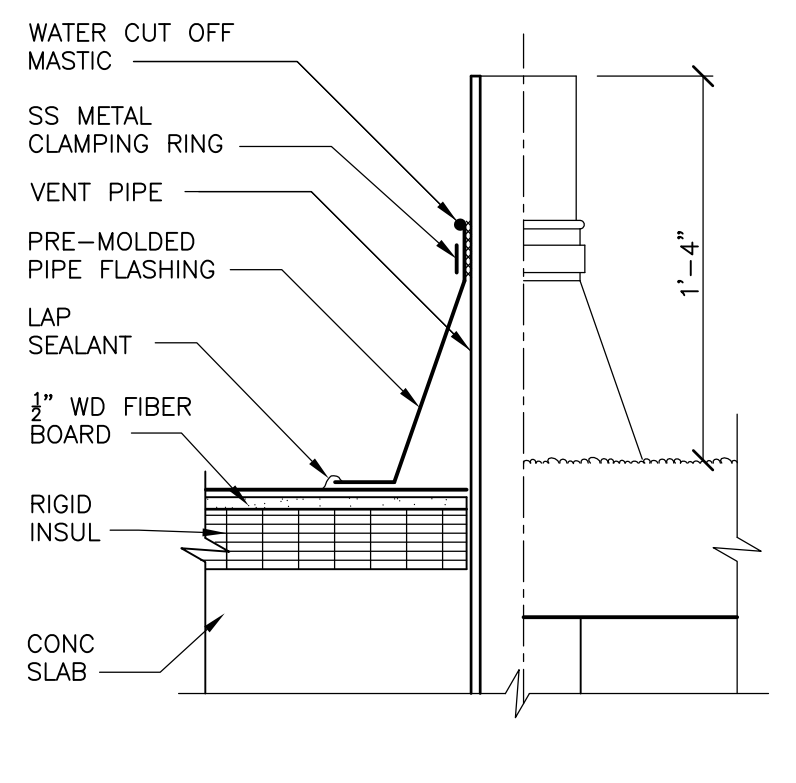
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1-1/2" = 1'-0"  
PT-A-2



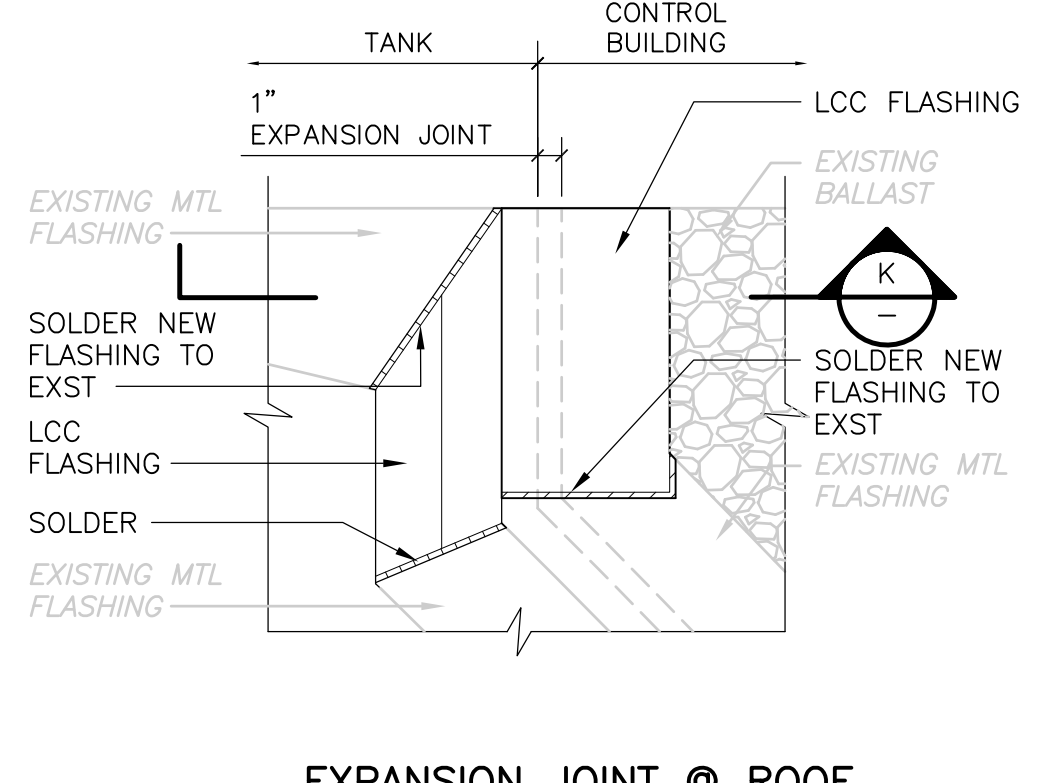
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DF-A-3



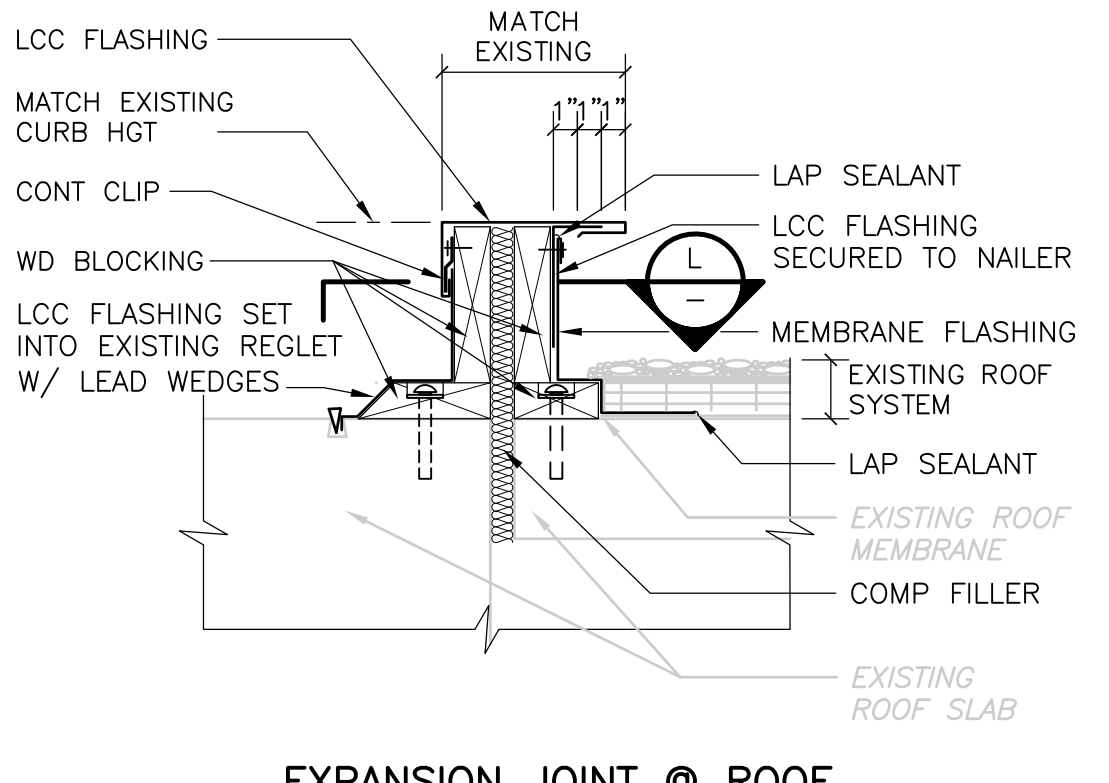
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PT-A-2



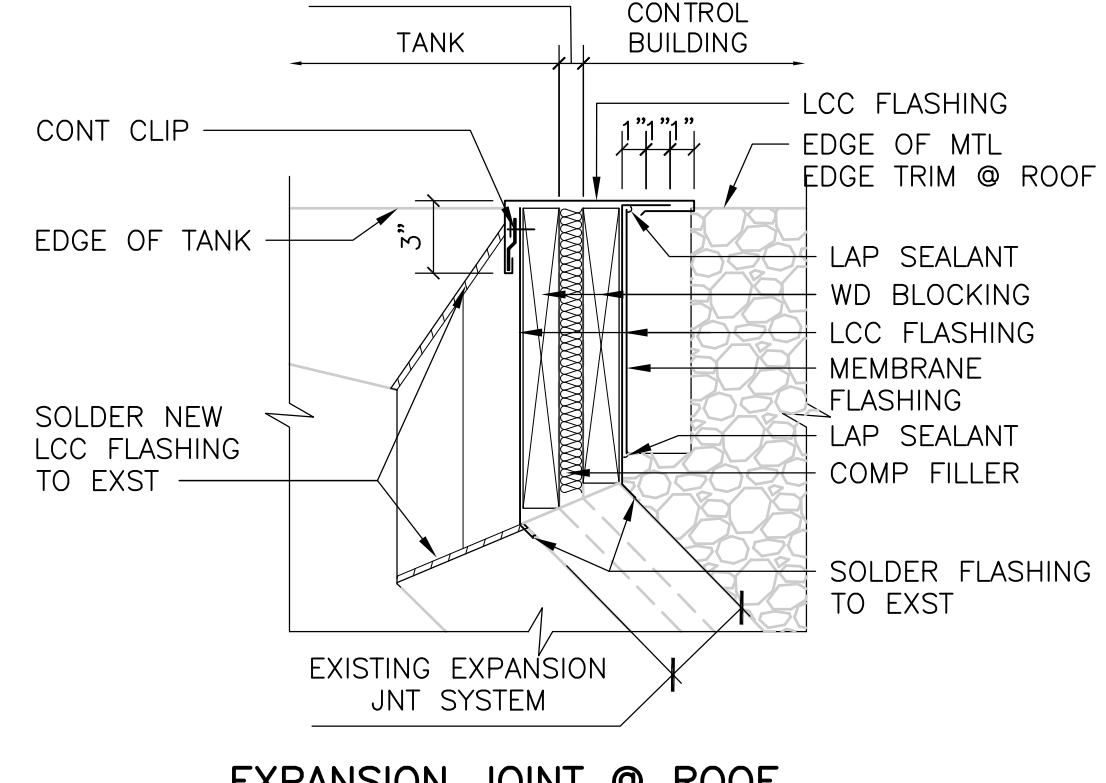
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1-1/2" = 1'-0"  
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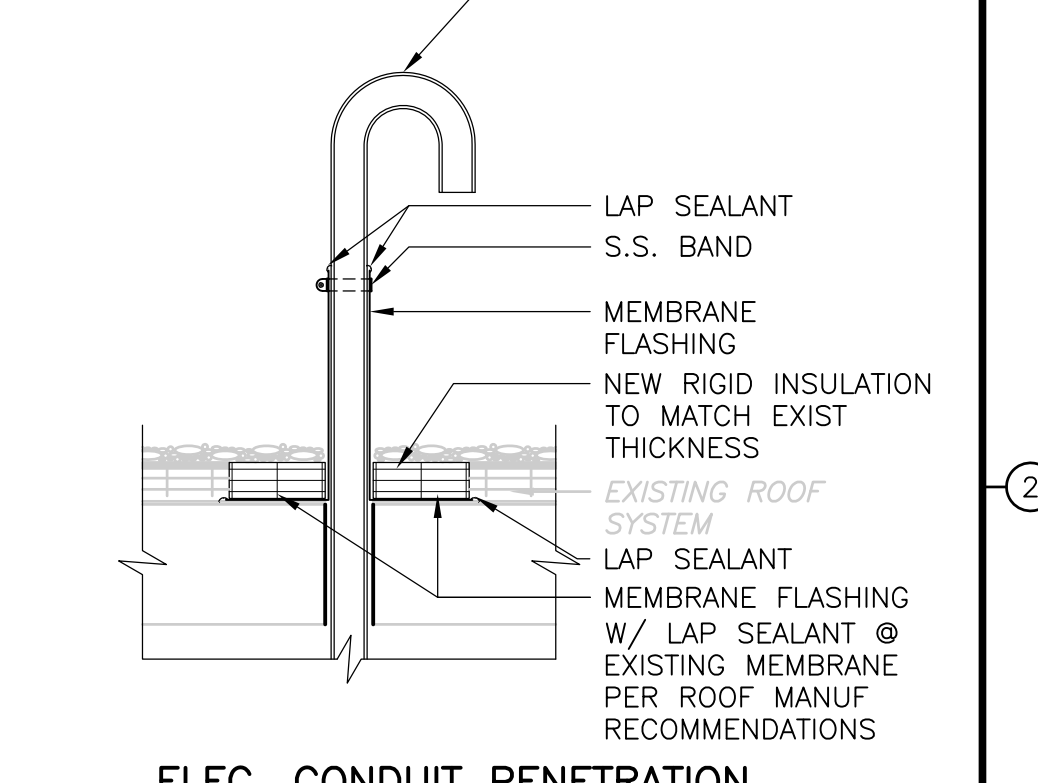
**DETAIL J**  
1-1/2" = 1'-0"  
ST-A-1



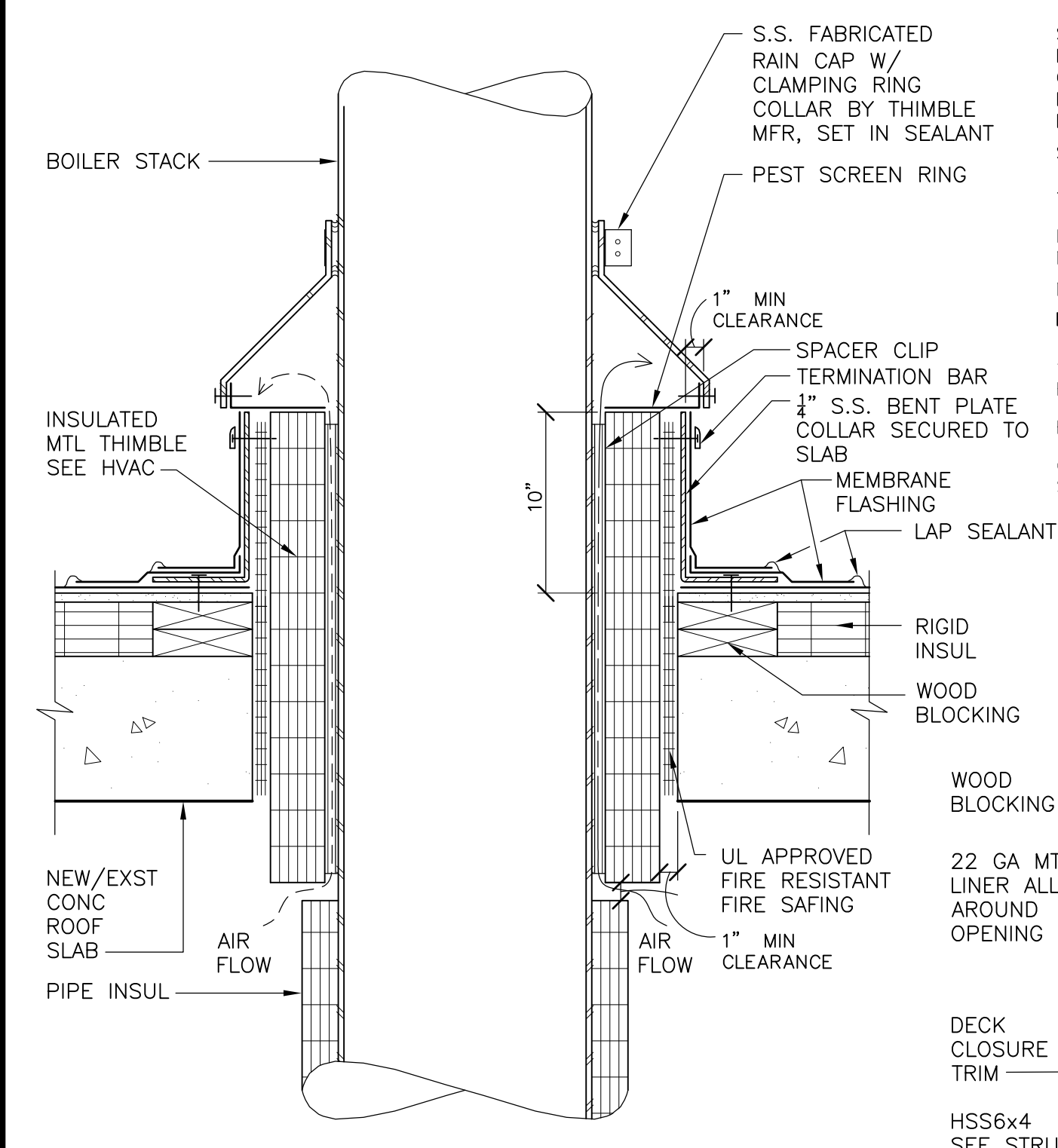
**DETAIL K**  
1-1/2" = 1'-0"  
-



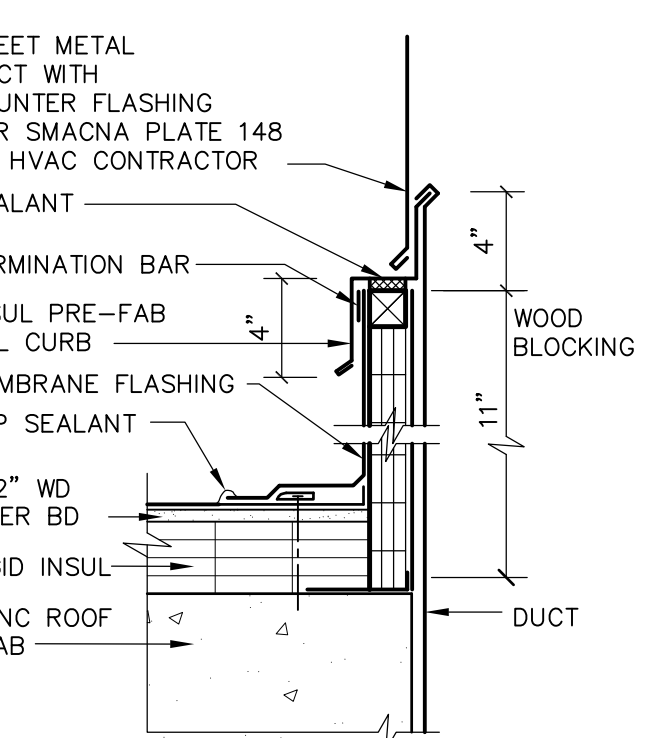
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1-1/2" = 1'-0"  
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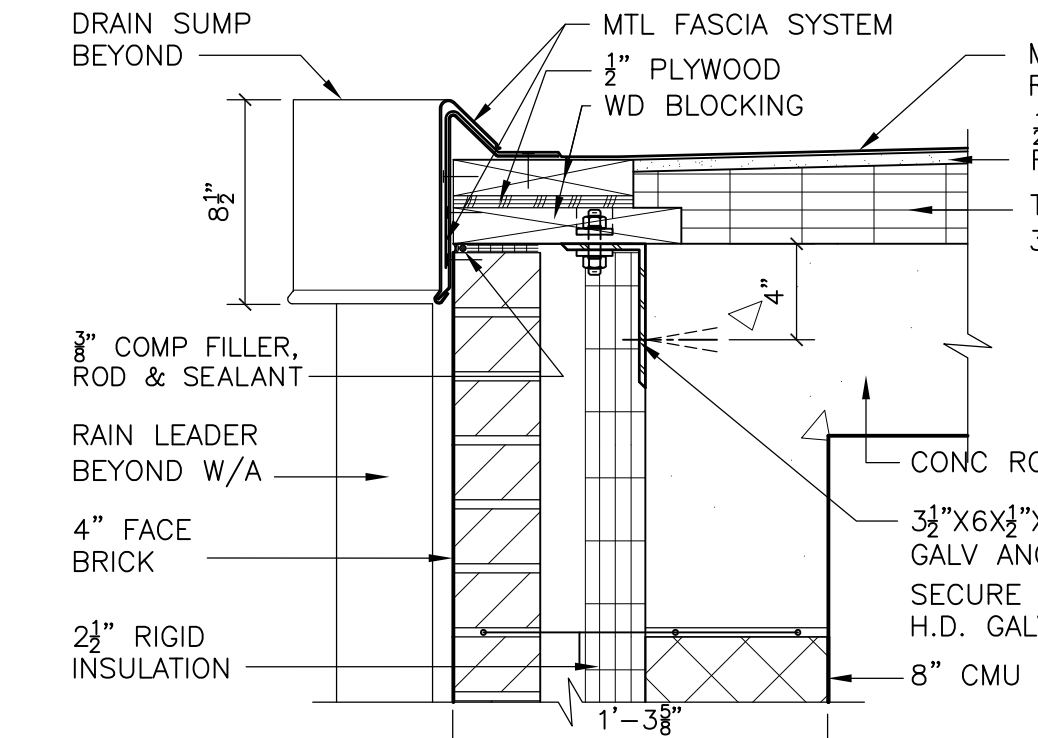
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ST-A-1



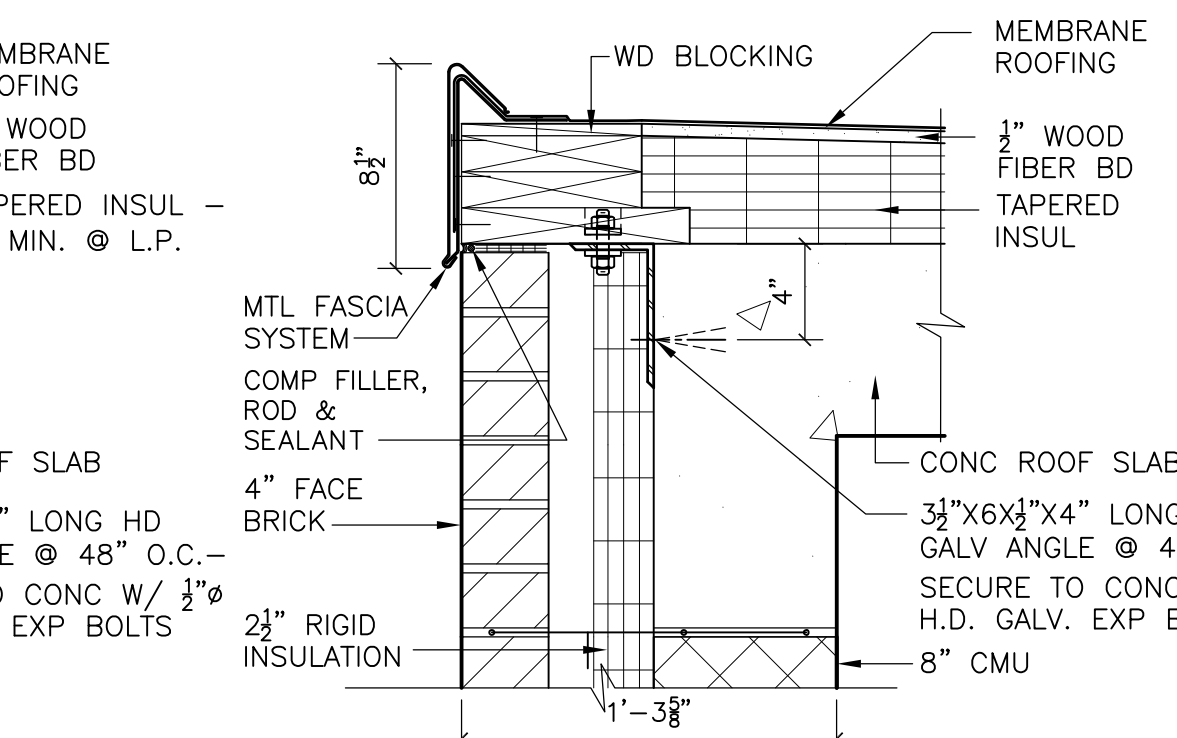
**DETAIL N**  
1-1/2" = 1'-0"  
PT-A-2



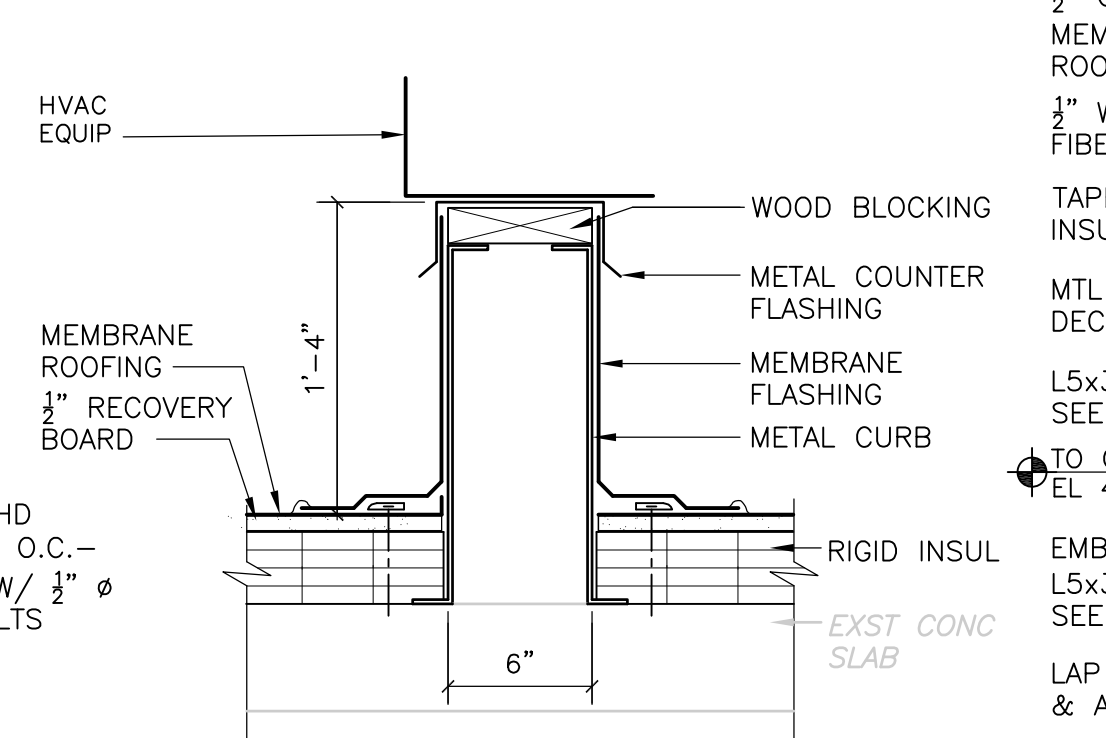
**DETAIL P**  
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PT-A-3



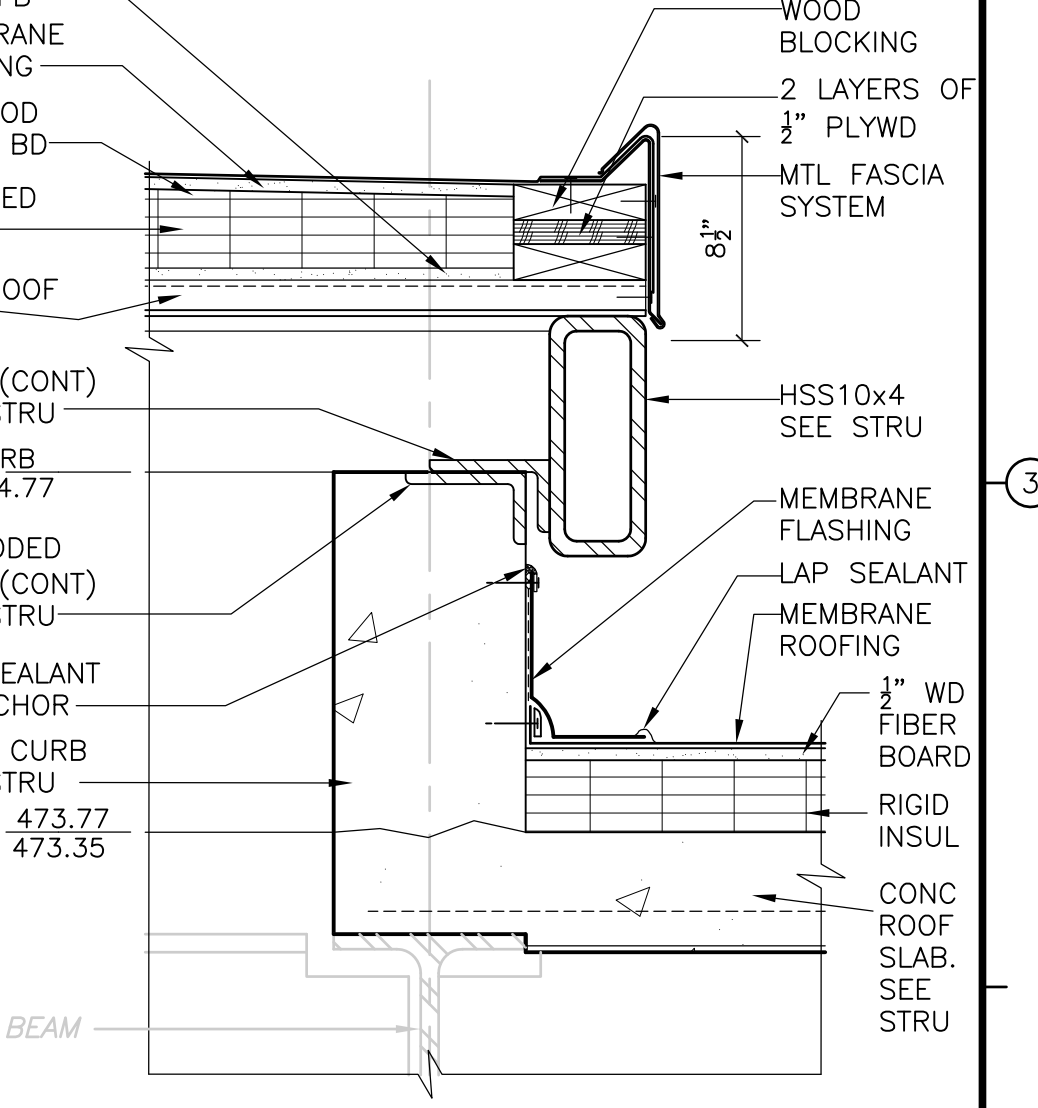
**DETAIL Q**  
1-1/2" = 1'-0"  
PT-A-3



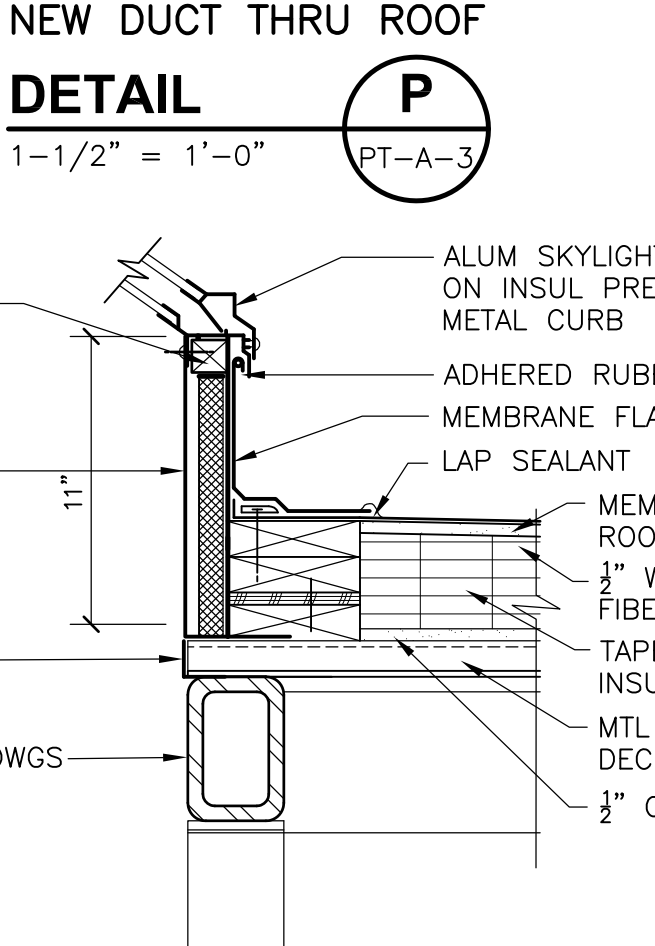
**DETAIL R**  
1-1/2" = 1'-0"  
PT-A-3



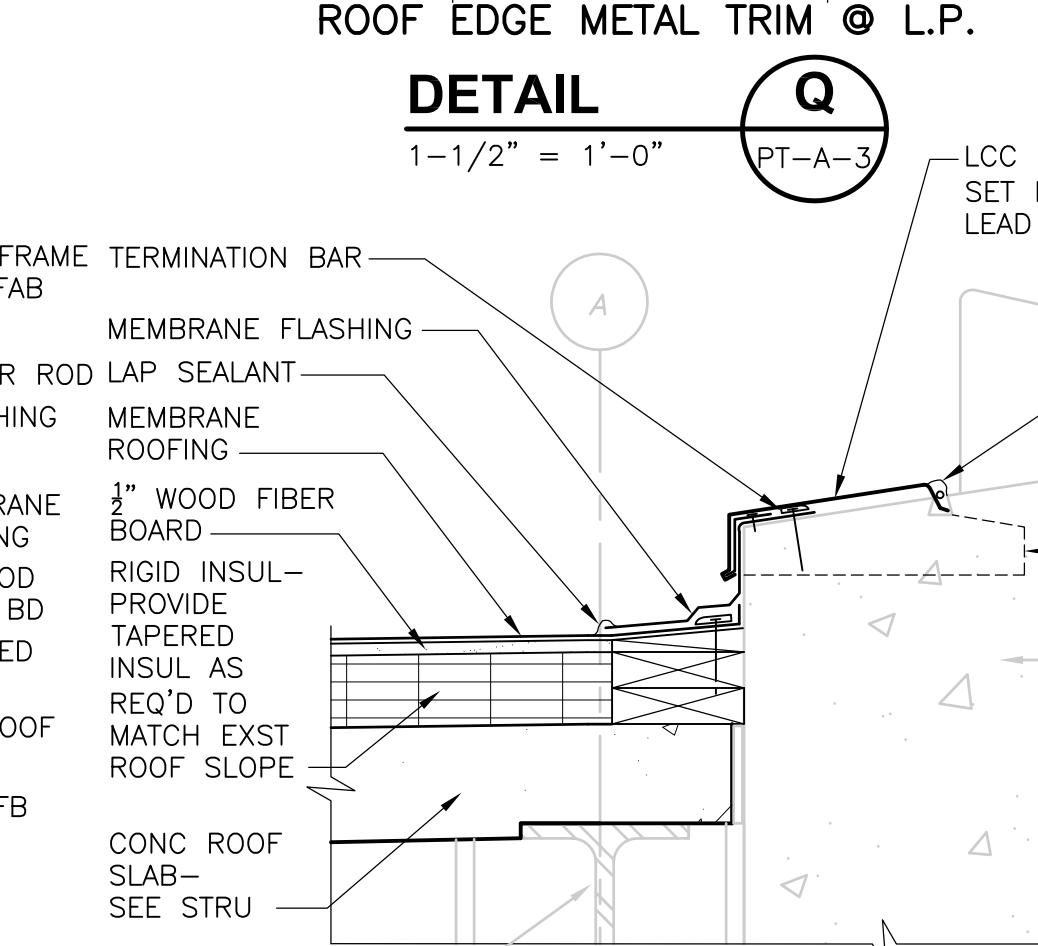
**DETAIL S**  
1-1/2" = 1'-0"  
DF-A-3



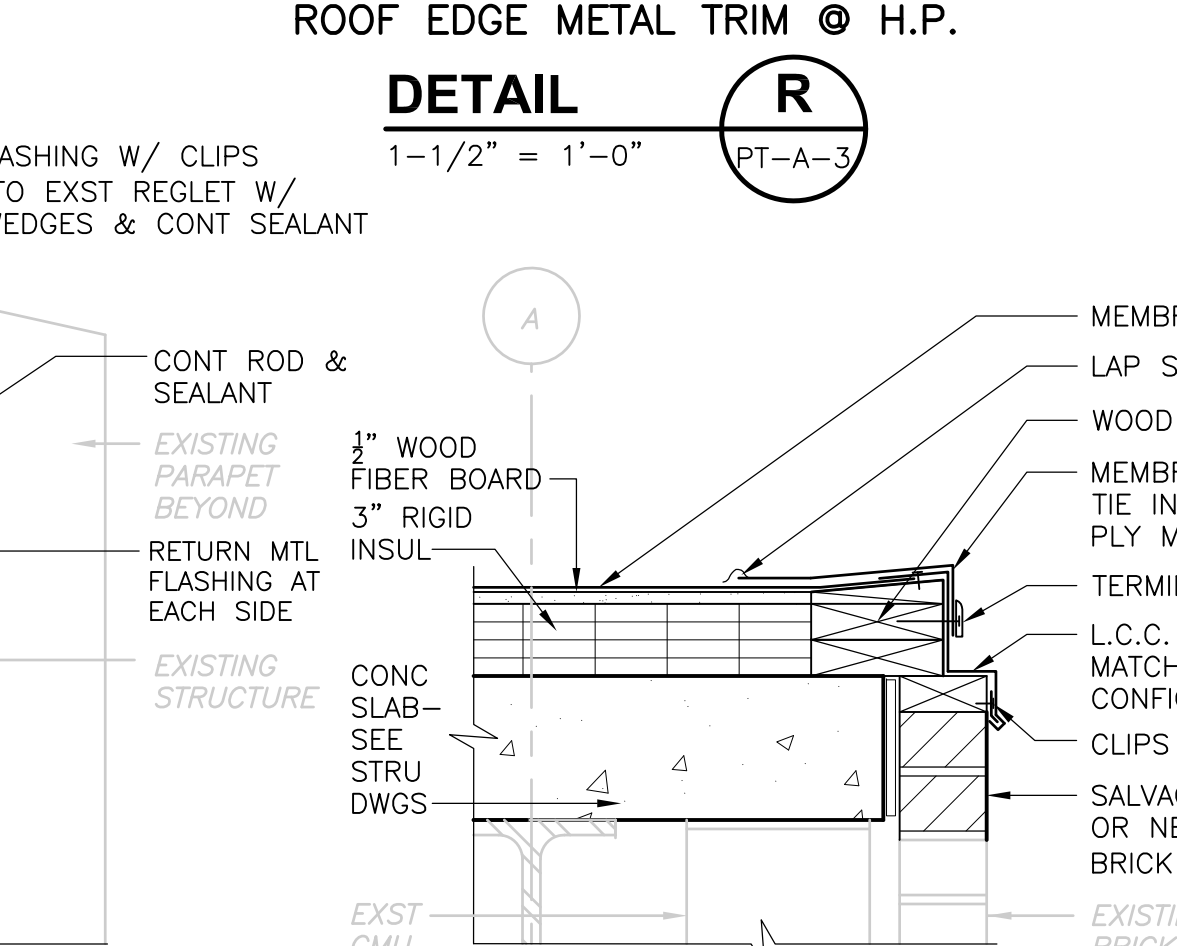
**DETAIL T**  
1-1/2" = 1'-0"  
SP-A-5



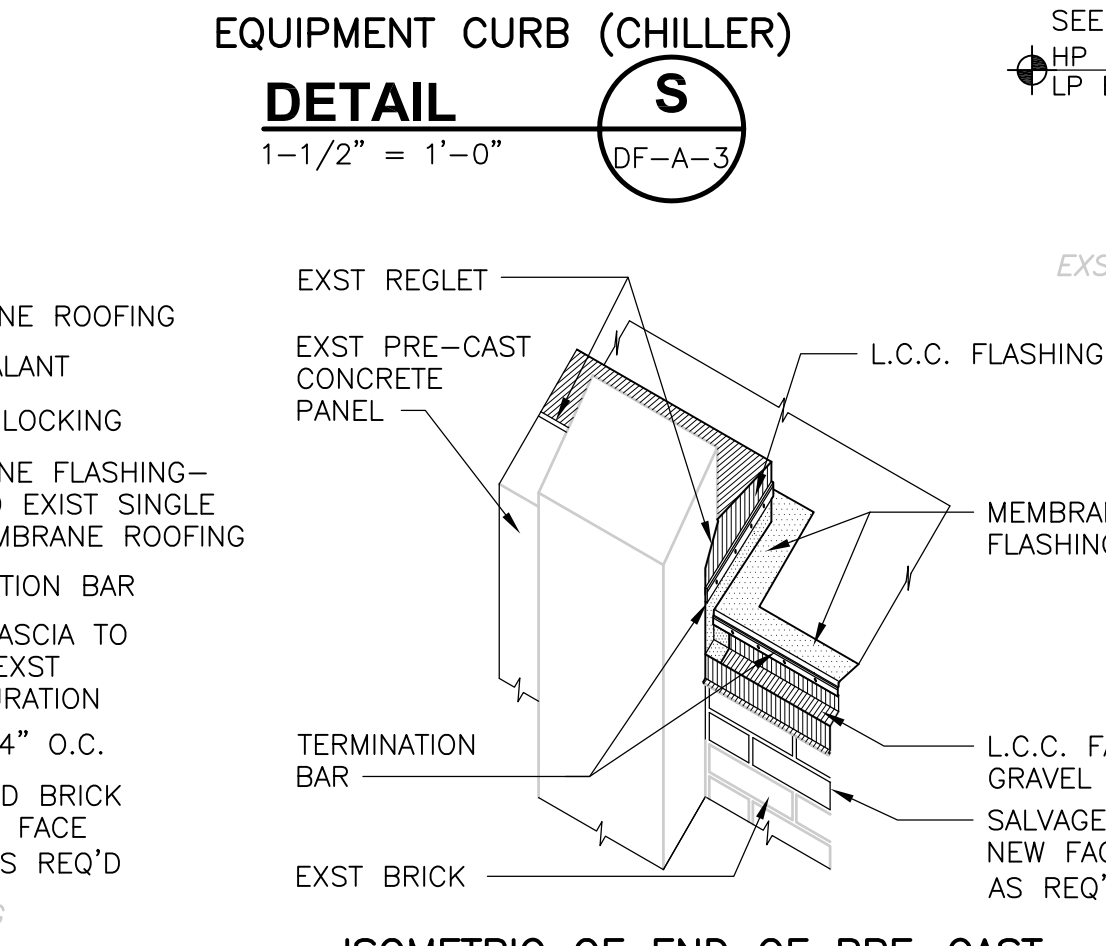
**DETAIL U**  
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SP-A-5



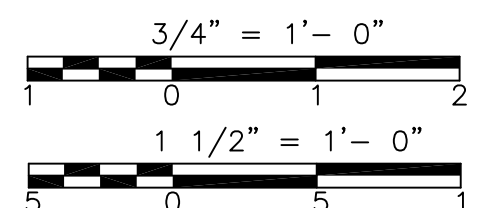
**DETAIL V**  
1-1/2" = 1'-0"  
SP-A-5



**DETAIL W**  
1-1/2" = 1'-0"  
SP-A-5

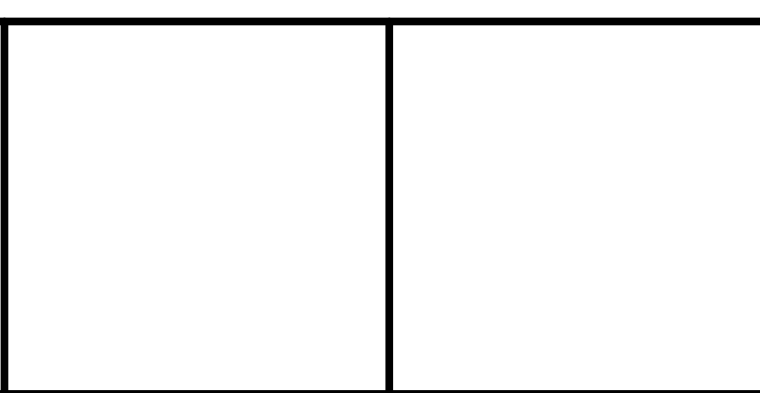


**DETAIL X**  
3/4" = 1'-0"  
SP-A-5



REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	ASDRF100.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	DG / KH
SHEET CHK'D BY:	B. GIORGI
SCALE:	AS NOTED
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

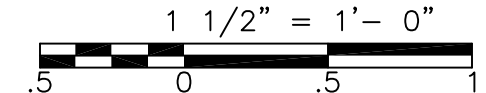
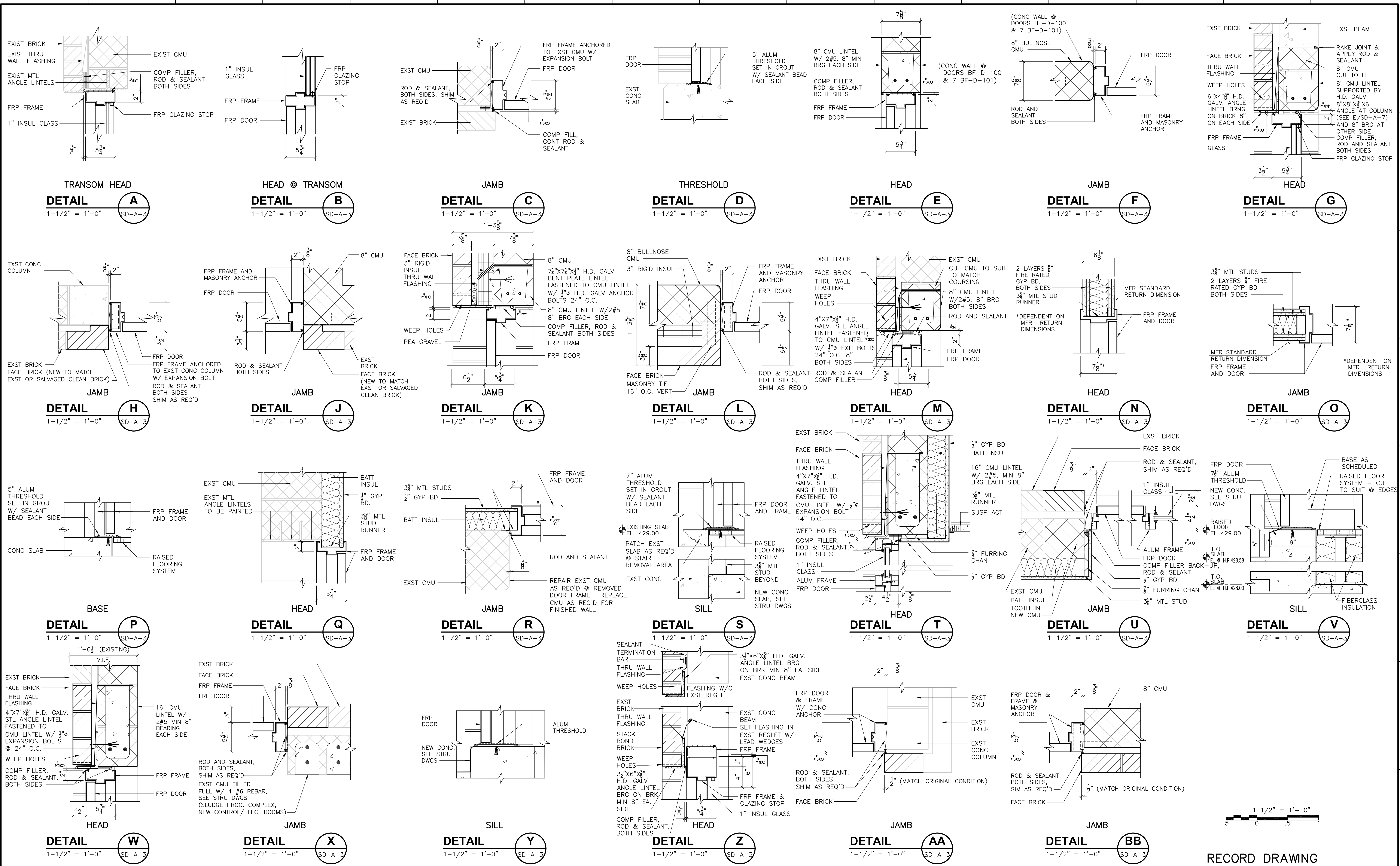


**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**ROOF DETAILS**  
PROJECT NO. 1289\35370  
Sht. of 386  
**SD-A-2**





RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.	ASDDR100.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	D. GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	AS NOTED
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

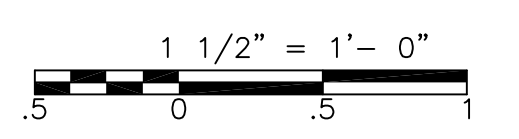
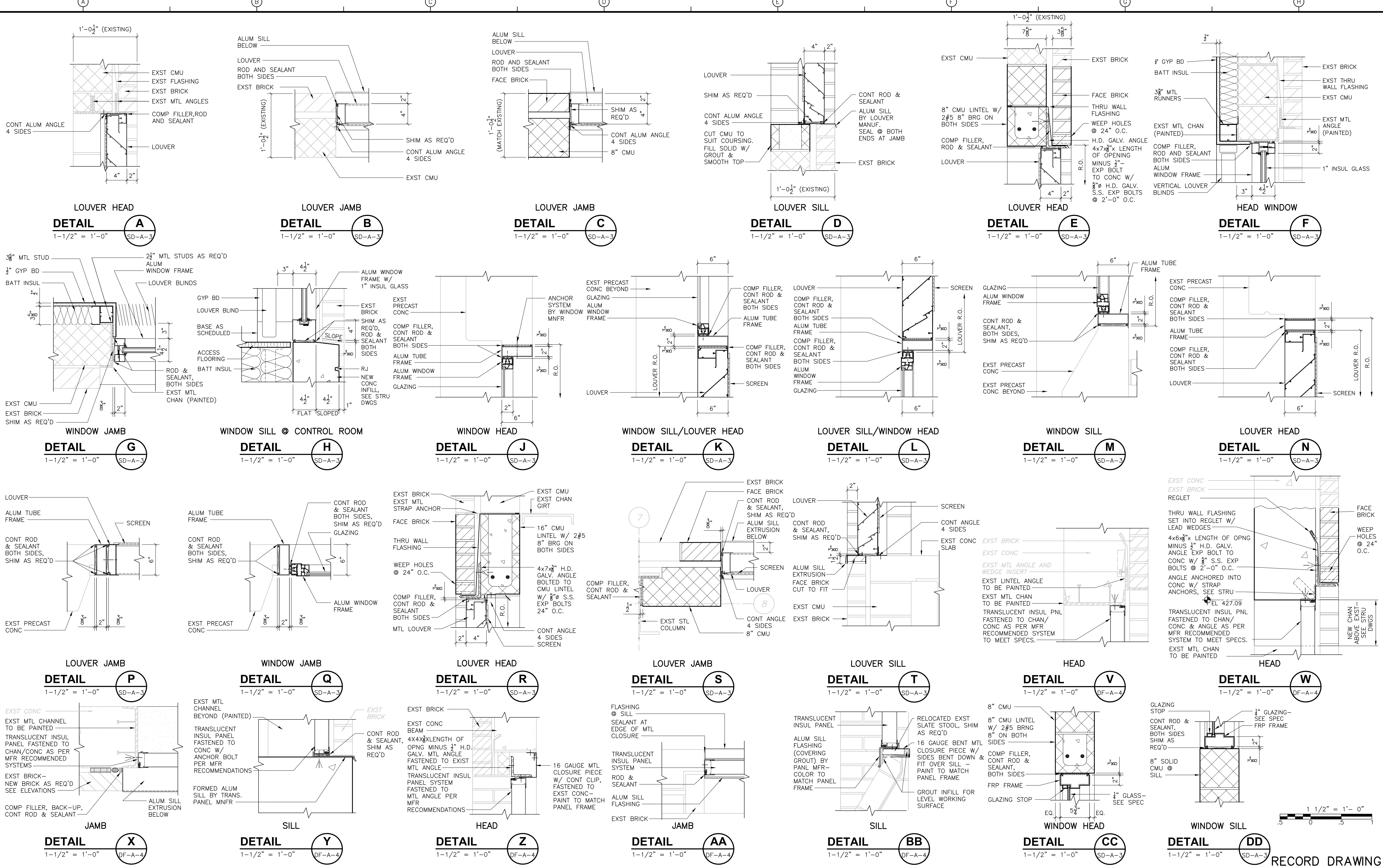
**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**DOOR DETAILS**

PROJECT NO. 1289\35370  
 Sht. 69 of 386  
**SD-A-4**

00000000 NO. 1289-65469



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	ASDWIN100.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	D. GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	AS NOTED
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

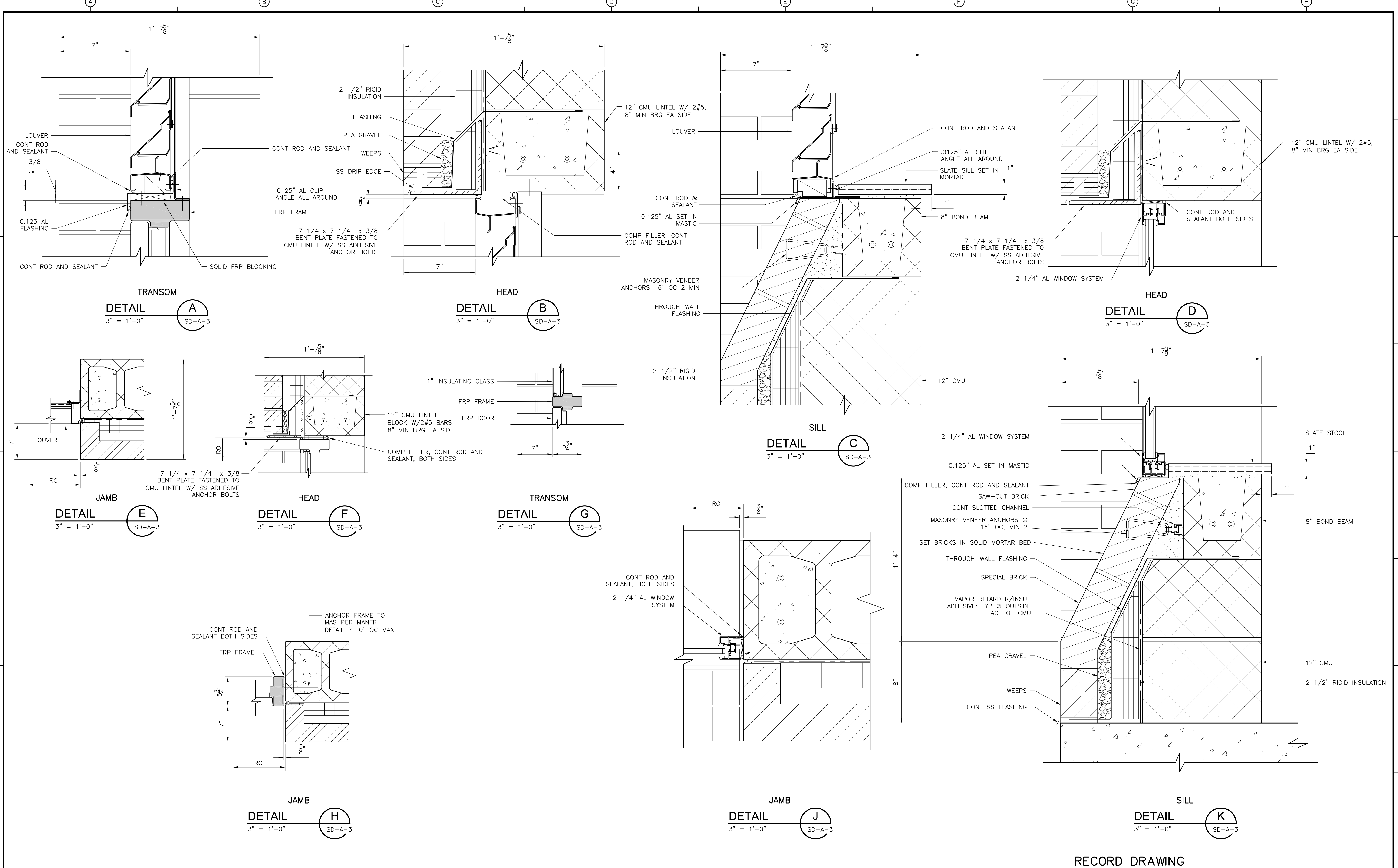
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operators

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

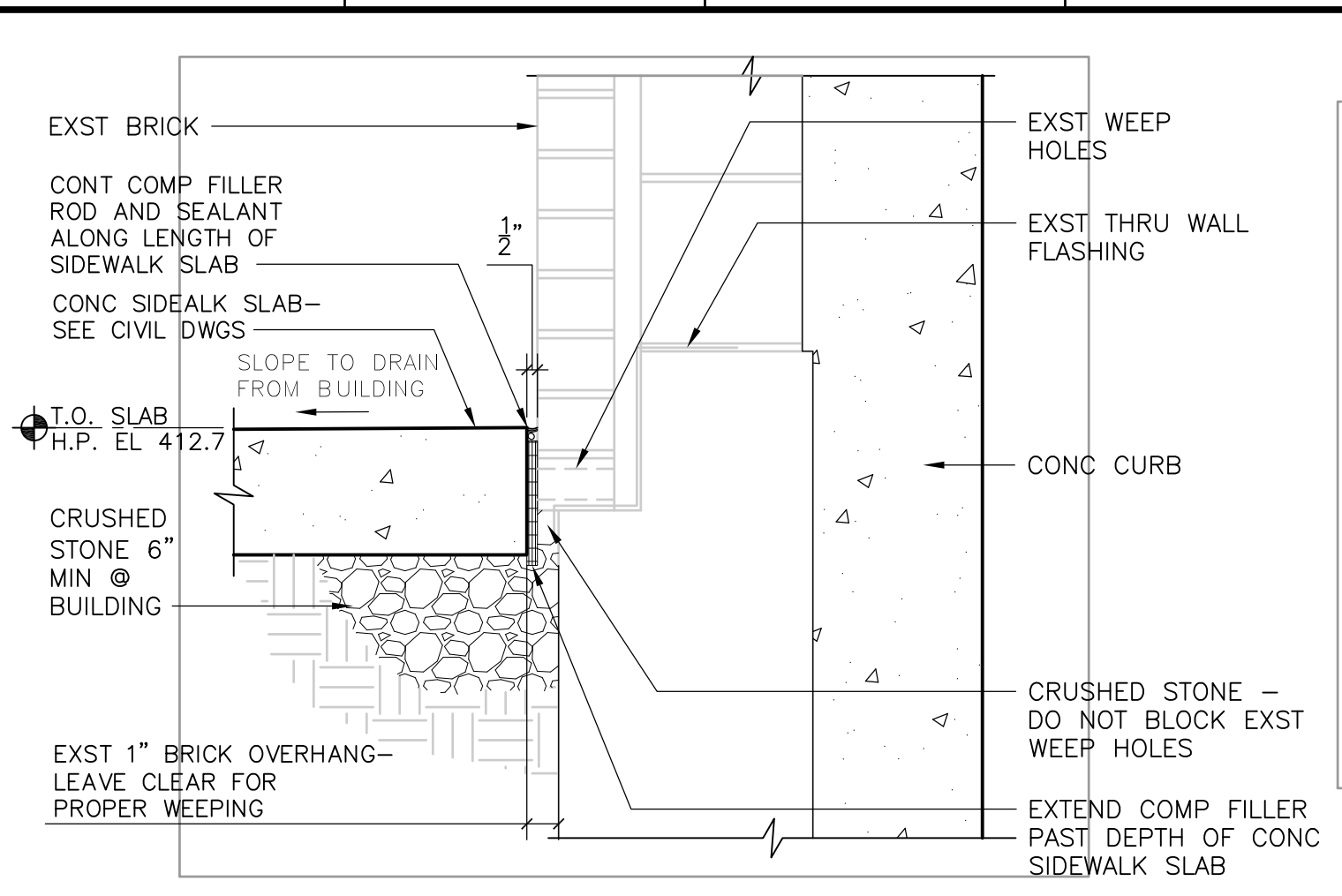
**WINDOW, LOUVER, & TRANSLUCENT  
 PANEL DETAILS**

PROJECT NO. 1289\35370  
 Sht. 70 of 386  
**SD-A-5**

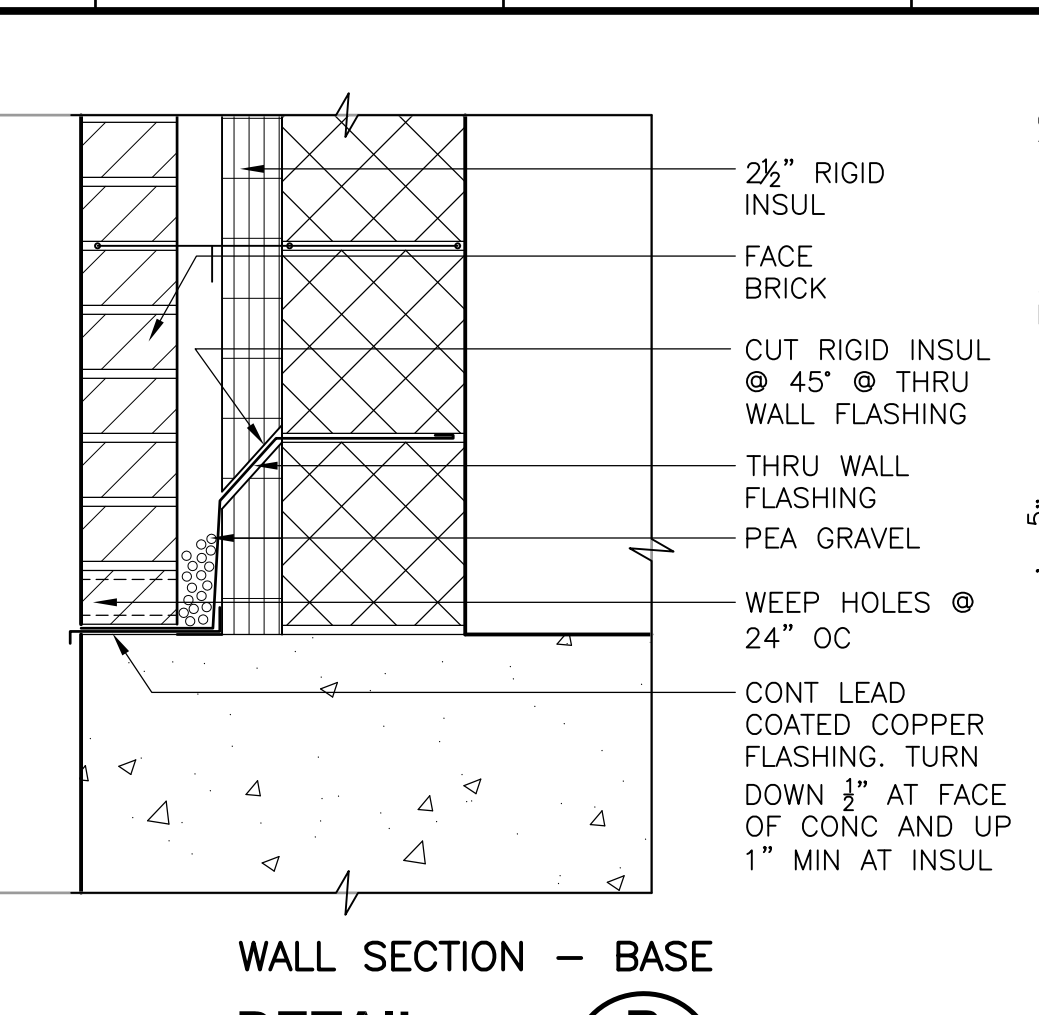


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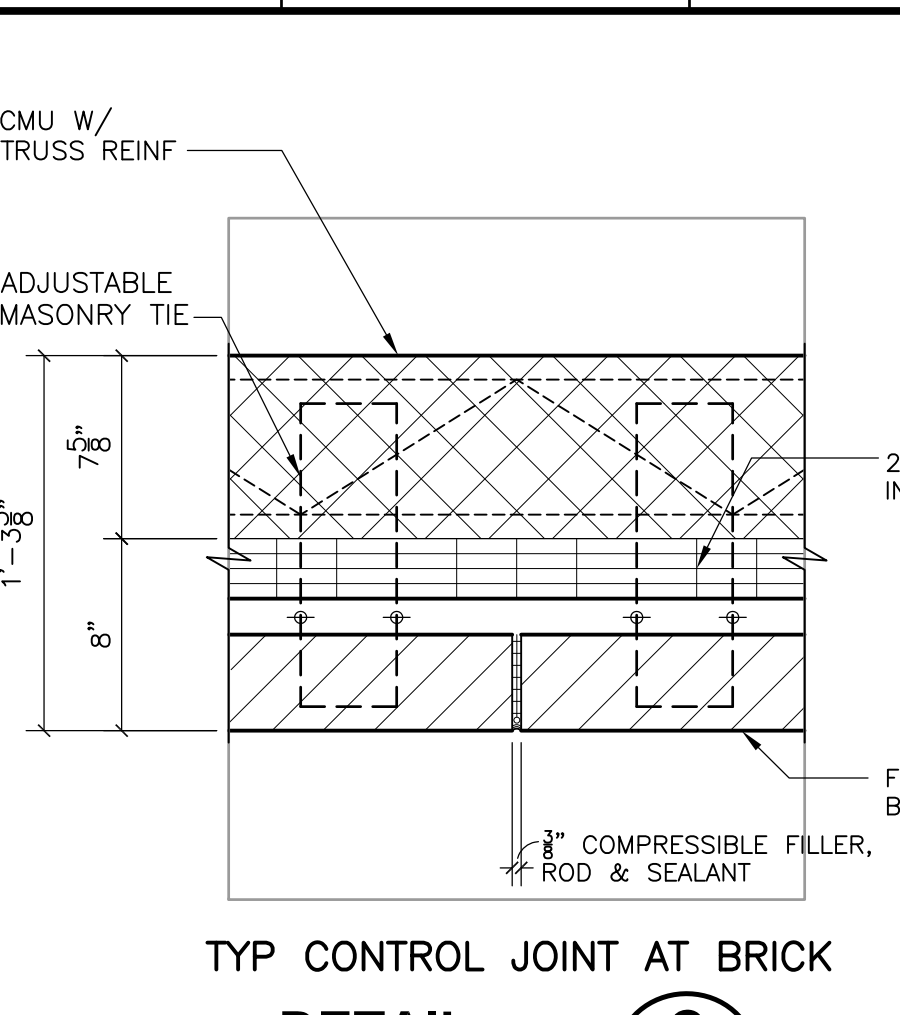
<table border="1"> <tr> <td>REV. NO.</td> <td>DATE</td> <td>DRWN</td> <td>CHKD</td> <td>REMARKS</td> </tr> <tr> <td></td> <td>10/07</td> <td>JAL</td> <td>ADT</td> <td>REVISED FOR THE RECORD</td> </tr> </table>				REV. NO.	DATE	DRWN	CHKD	REMARKS		10/07	JAL	ADT	REVISED FOR THE RECORD	CADD FILE NO. ASDDT006.DWG DESIGNED BY: S. BLAIS DRAWN BY: S. BLAIS SHEET CHK'D BY: S. BLAIS SCALE: AS NOTED APPROVED BY: _____ DATE: MAY 2006		<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 71 of 386  <b>SD-A-6</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS																	
	10/07	JAL	ADT	REVISED FOR THE RECORD																	



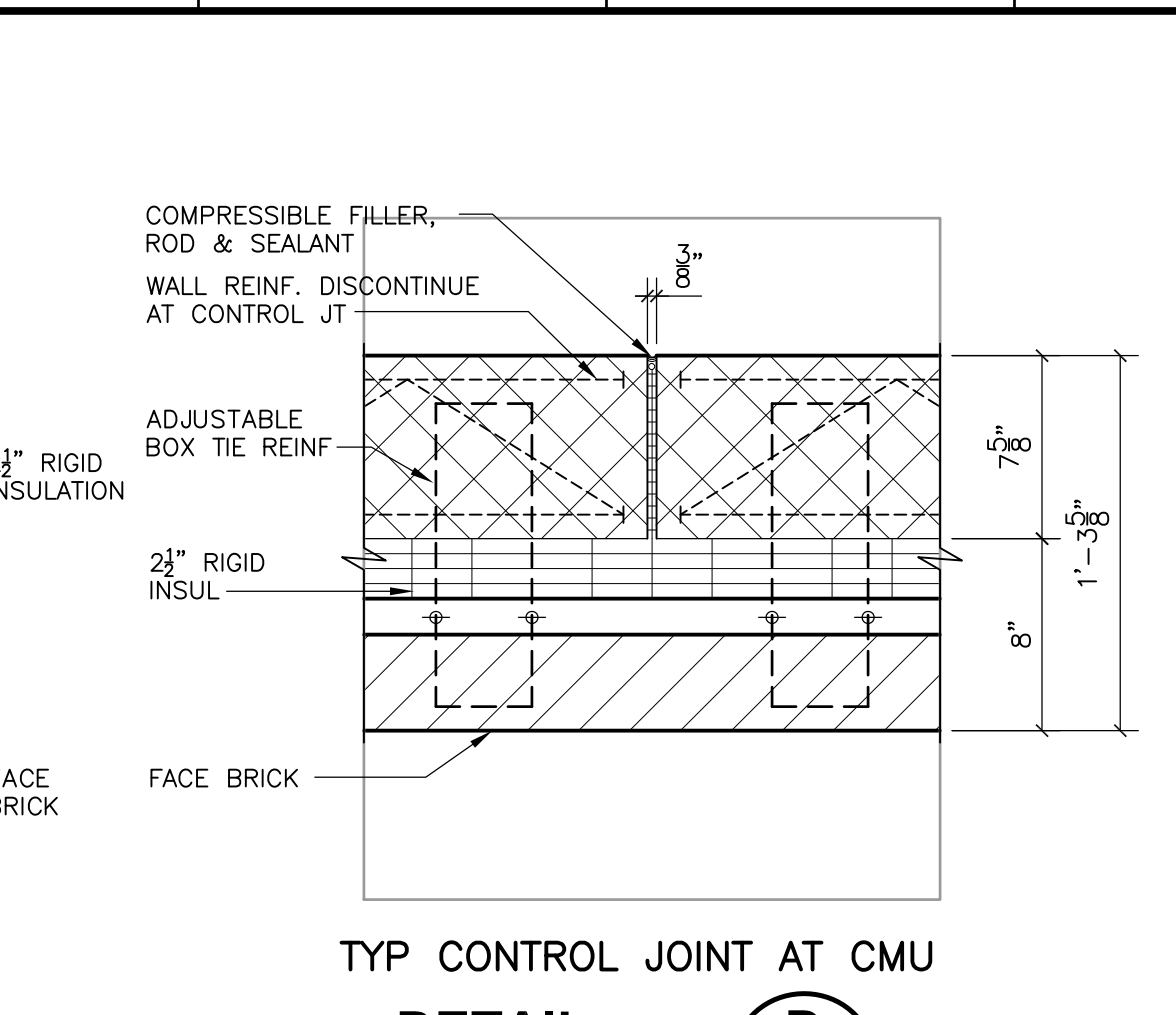
**DETAIL A**  
 1-1/2" = 1'-0"  
 DF-A-4



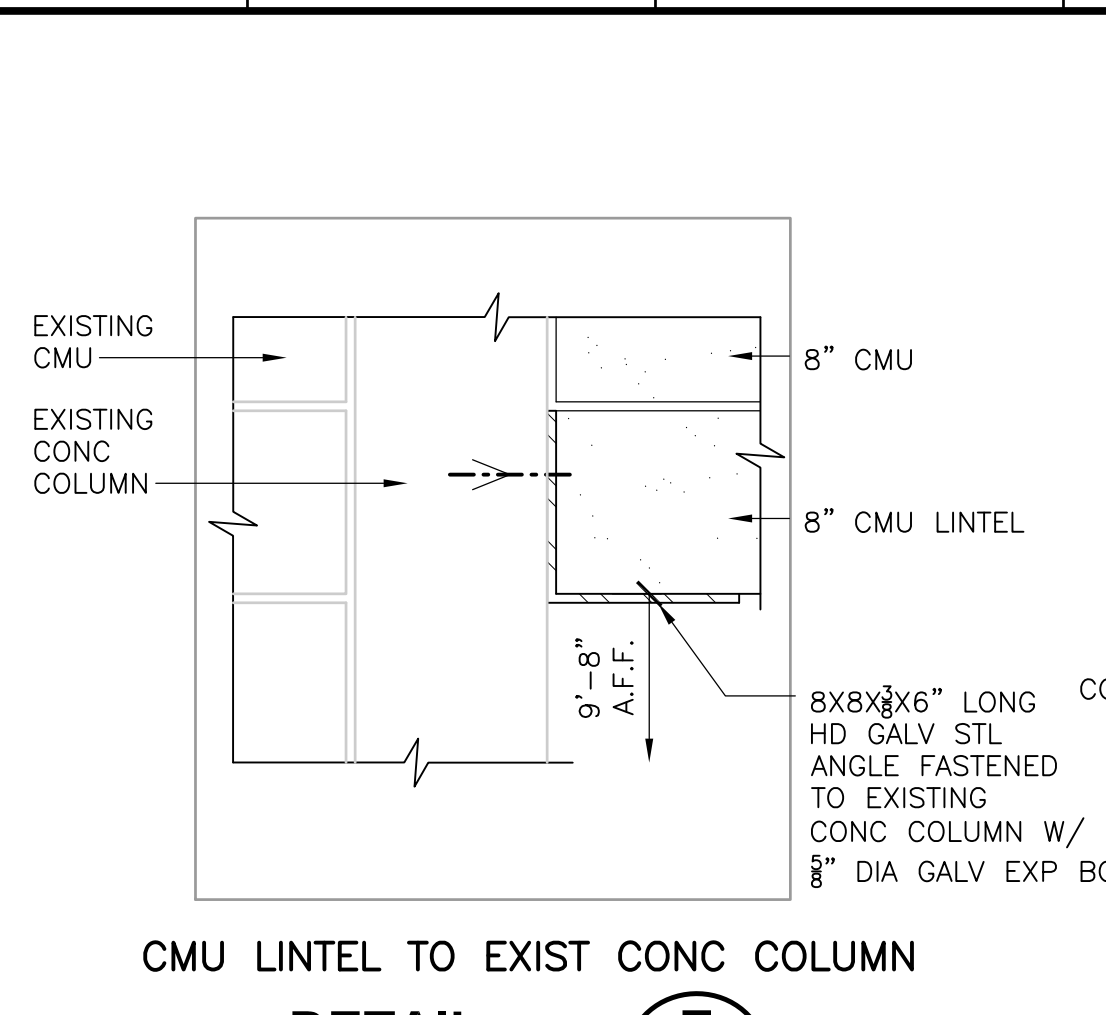
**DETAIL B**  
 1-1/2" = 1'-0"  
 PT-A-3



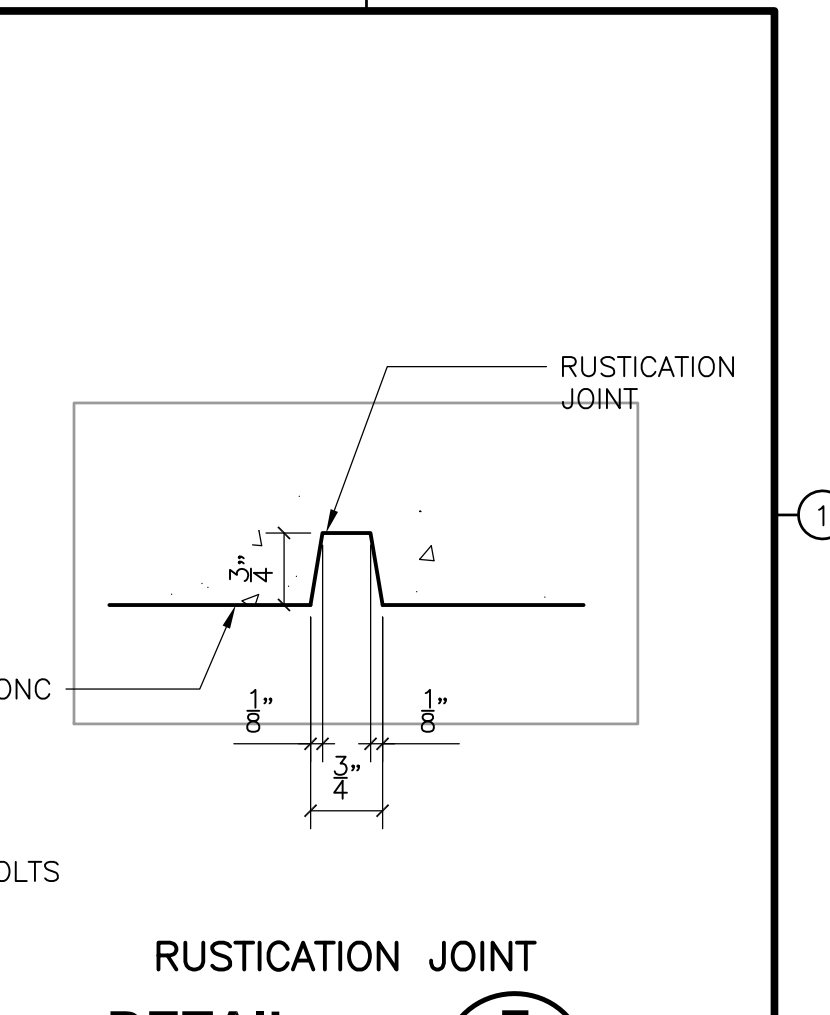
**DETAIL C**  
 1-1/2" = 1'-0"  
 PT-A-3



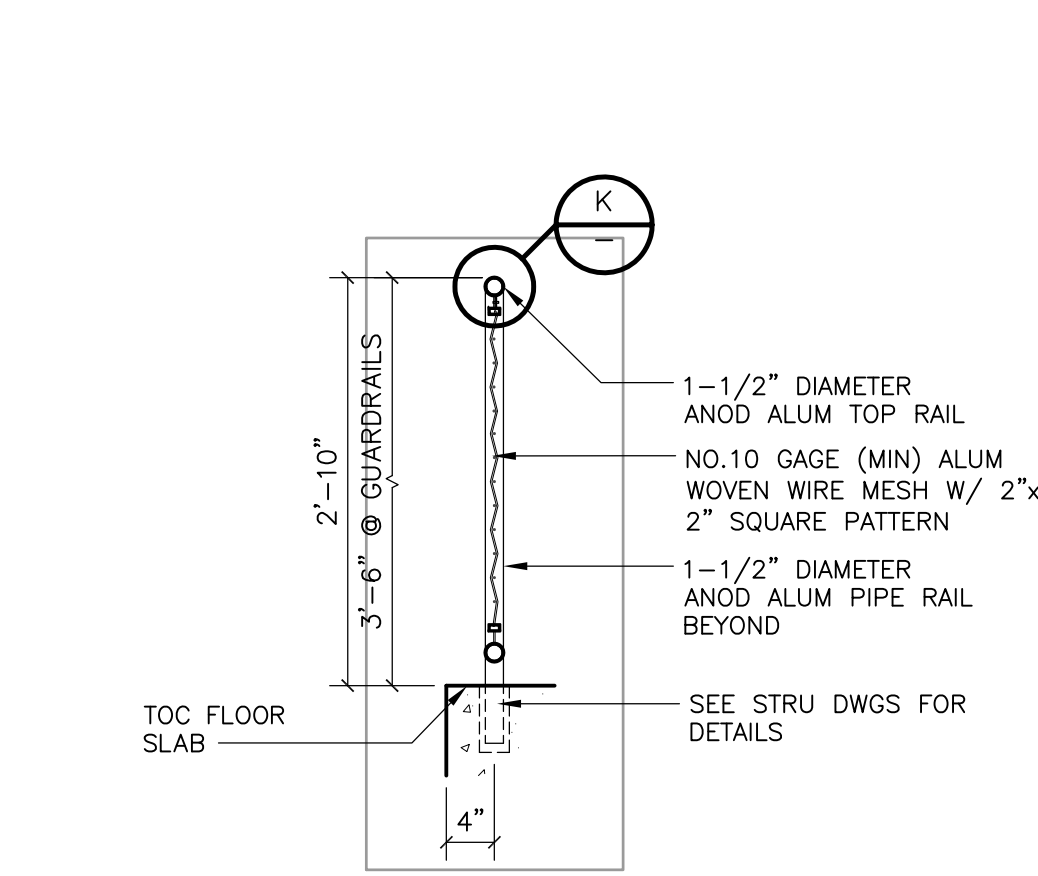
**DETAIL D**  
 1-1/2" = 1'-0"  
 PT-A-3



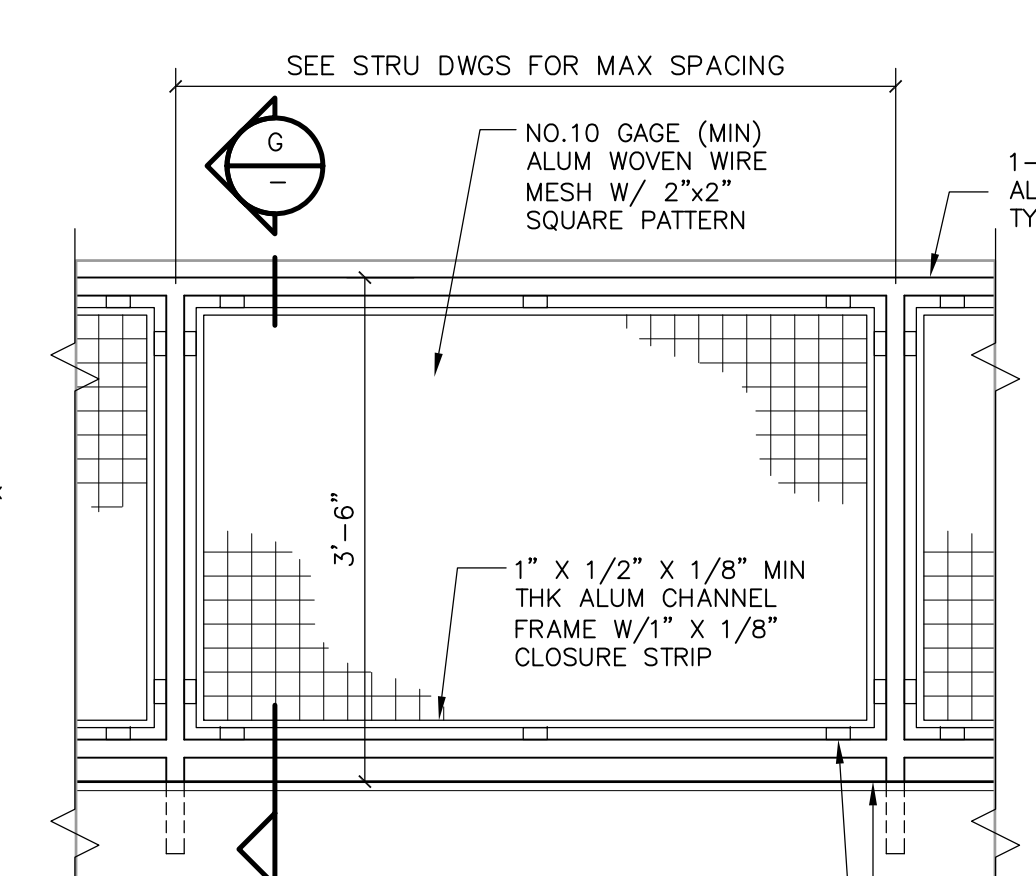
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 1-1/2" = 1'-0"  
 PT-A-2



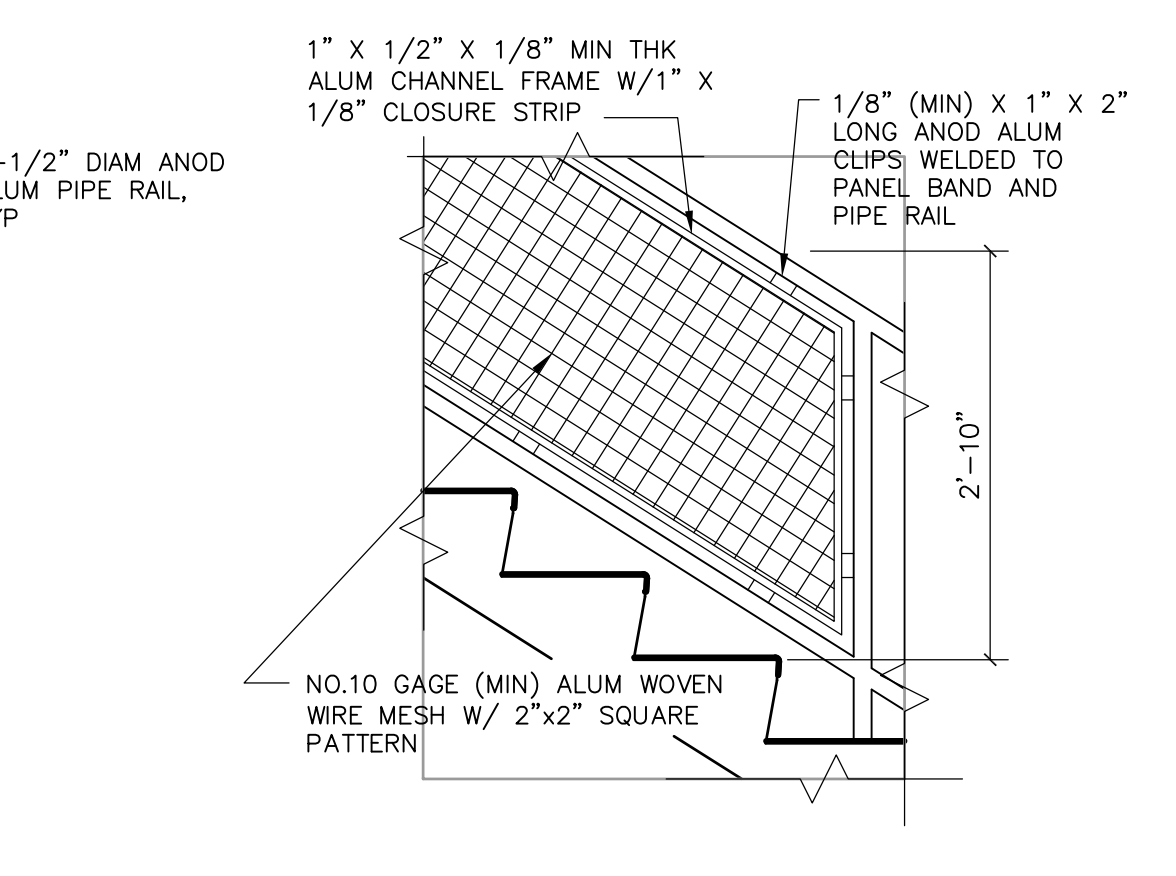
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 6" = 1'-0"  
 SP-A-2



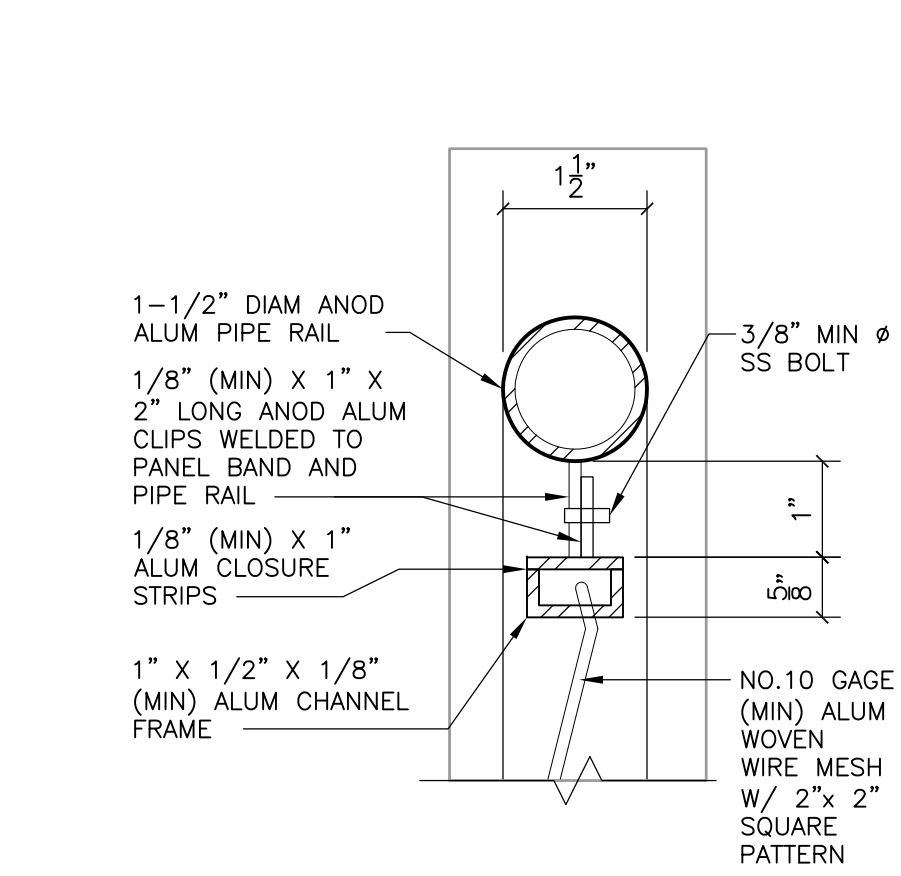
**DETAIL G**  
 3/4" = 1'-0"  
 DF-A-4



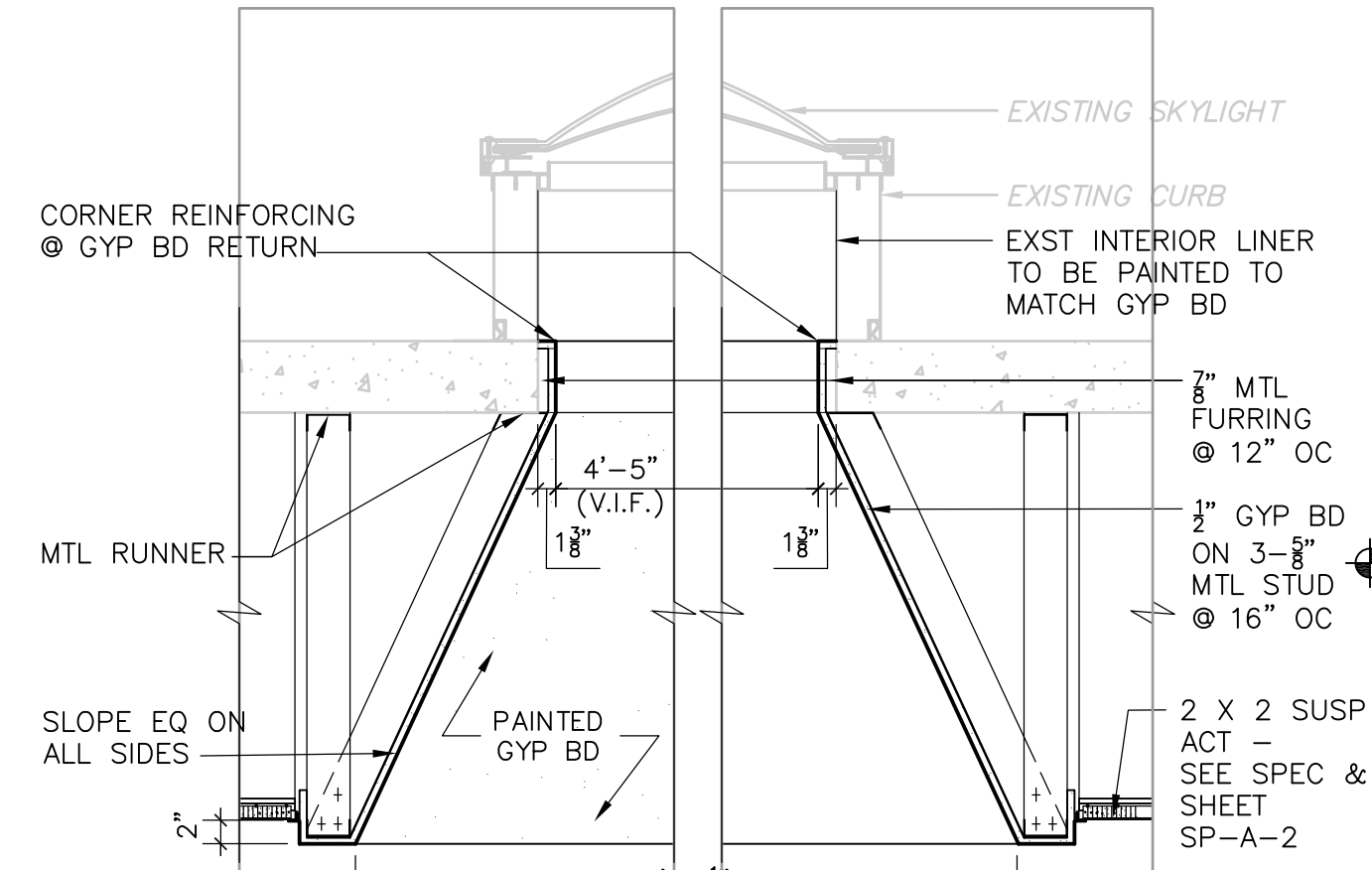
**DETAIL H**  
 3/4" = 1'-0"  
 DF-A-4



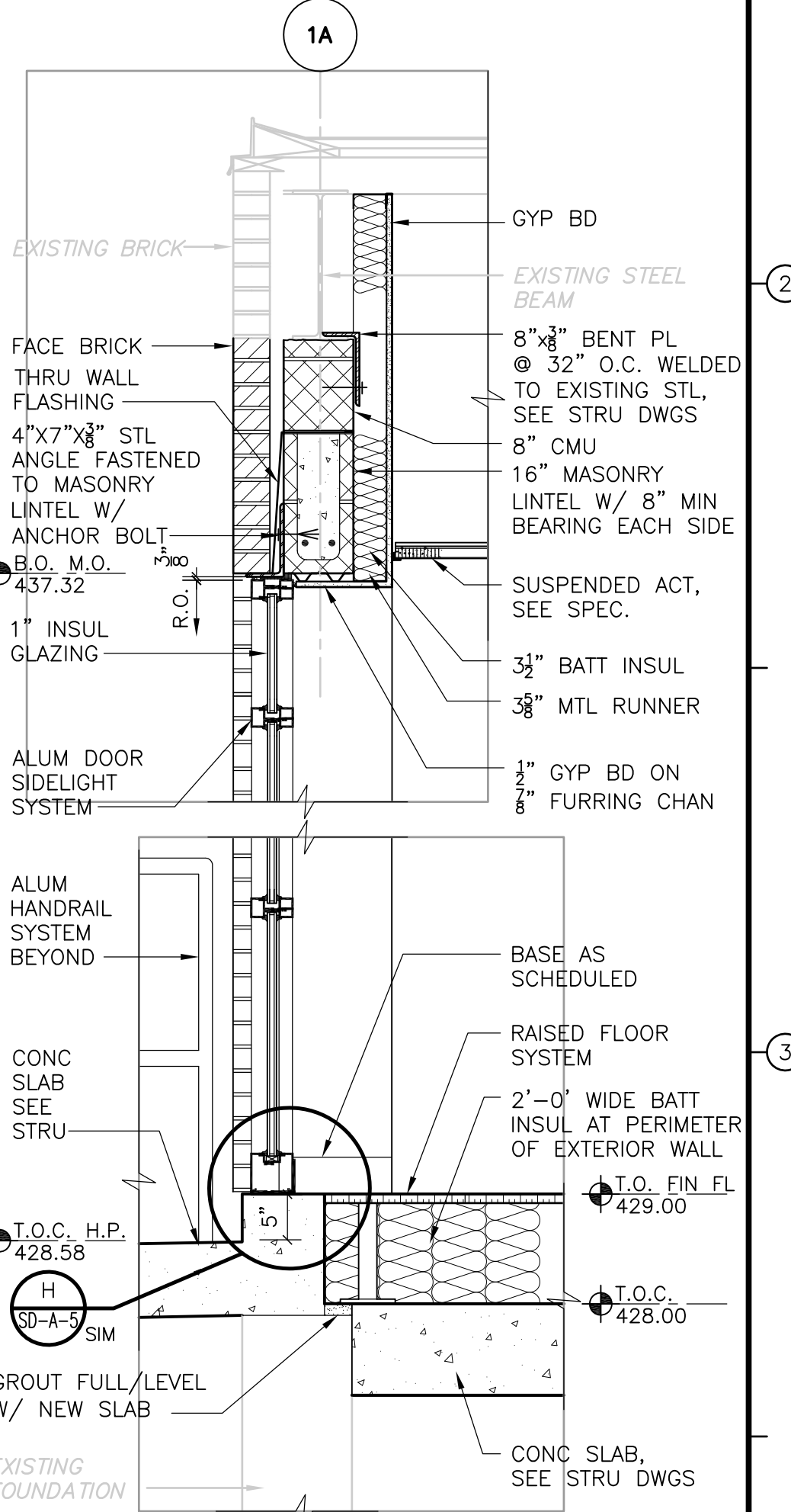
**DETAIL J**  
 3/4" = 1'-0"  
 DF-A-4



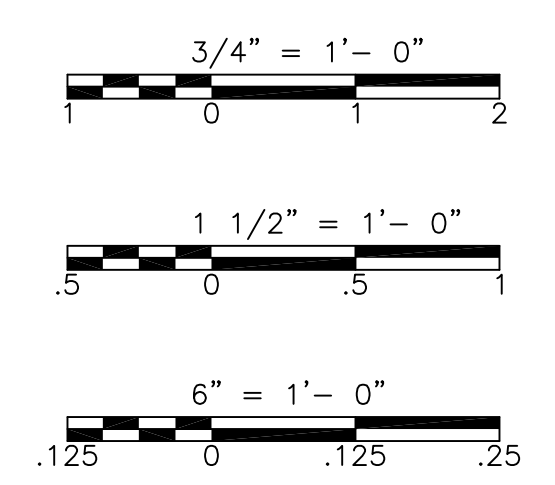
**DETAIL K**  
 6" = 1'-0"  
 -



**DETAIL L**  
 3/4" = 1'-0"  
 SP-A-2



**DETAIL P**  
 3/4" = 1'-0"  
 SP-A-2



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	ASDDT100.DWG
DESIGNED BY:	B. GIORGI
DRAWN BY:	D. GRUDKOWSKI
SHEET CHK'D BY:	B. GIORGI
SCALE:	AS NOTED
APPROVED BY:	B. GIORGI
DATE:	MAY 2006

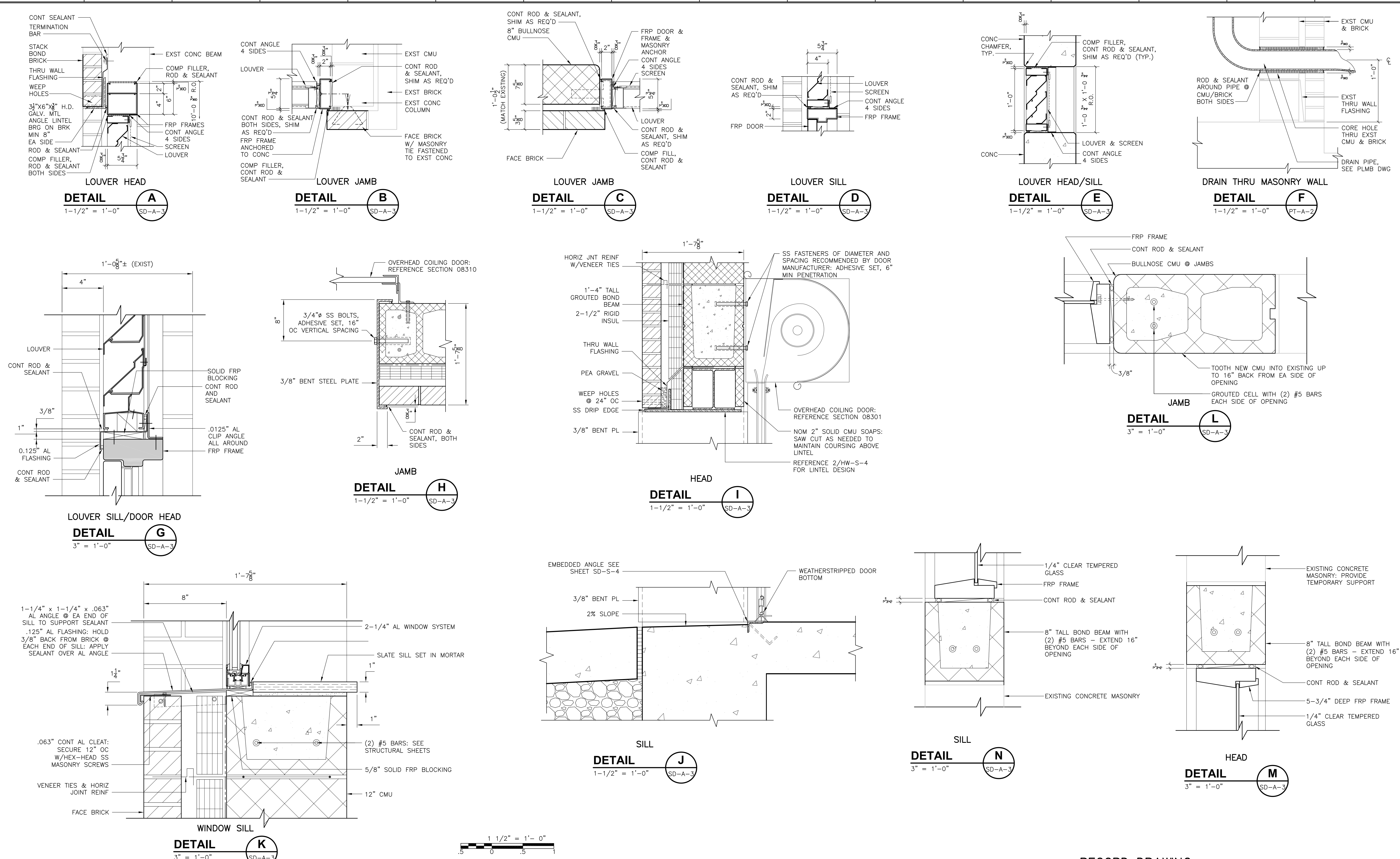
CDM	Camp Dresser & McKee Inc.
consulting	engineering
construction	operations

UPPER BLACKSTONE	WATER POLLUTION ABATEMENT DISTRICT	CONTRACT No. UB 2024
<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		

PROJECT NO.	1289\35370
Sht.	72 of 386
<b>SD-A-7</b>	

<b>MISCELLANEOUS DETAILS I</b>	
<b>SD-A-7</b>	



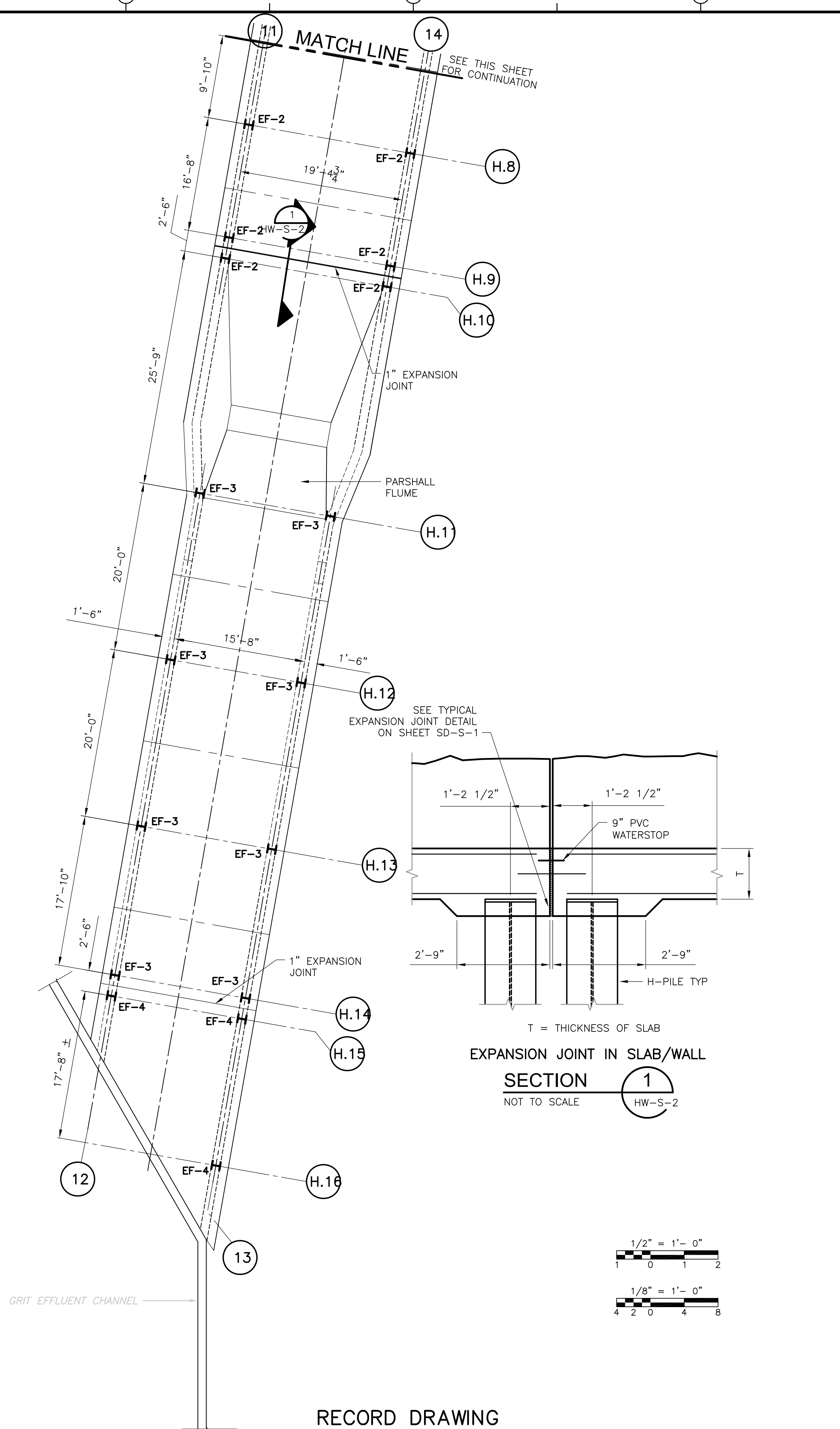
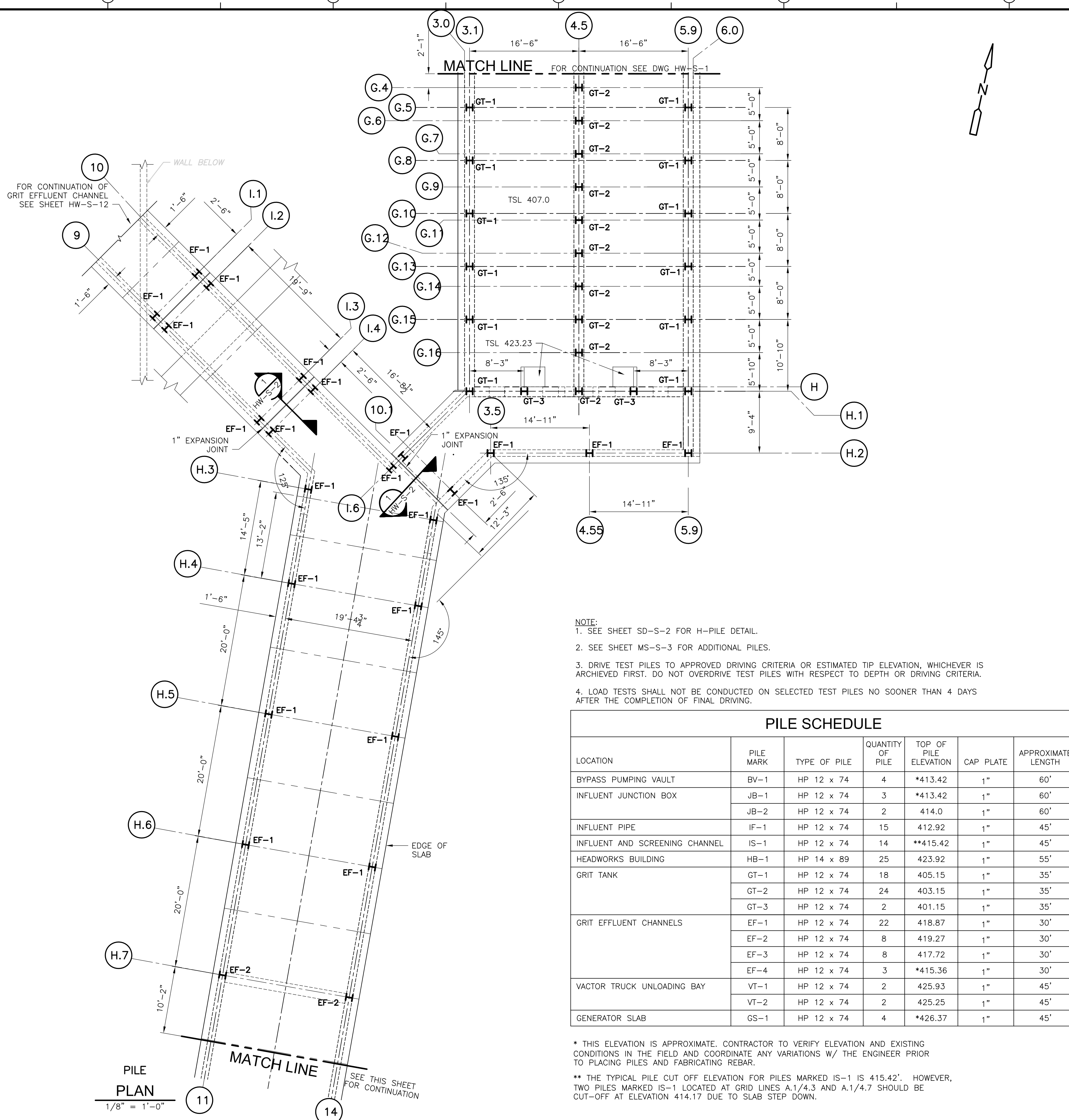


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REV. NO.	DATE	DRWN	CHKD	REMARKS																	
	10/07	JAL	ADT	REVISED FOR THE RECORD																	



[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\SW\_S\srp003.dwg Xref: [C24X36H\_SGRWP001\_SGRWP006\_SGRWP005\_] Plotted by: CROSSHA Time: 12/16/08 6:20:26 PM

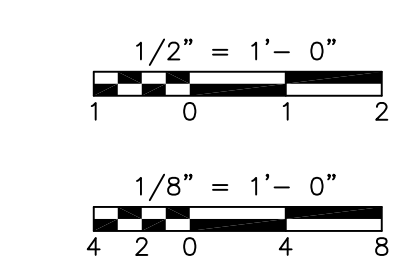
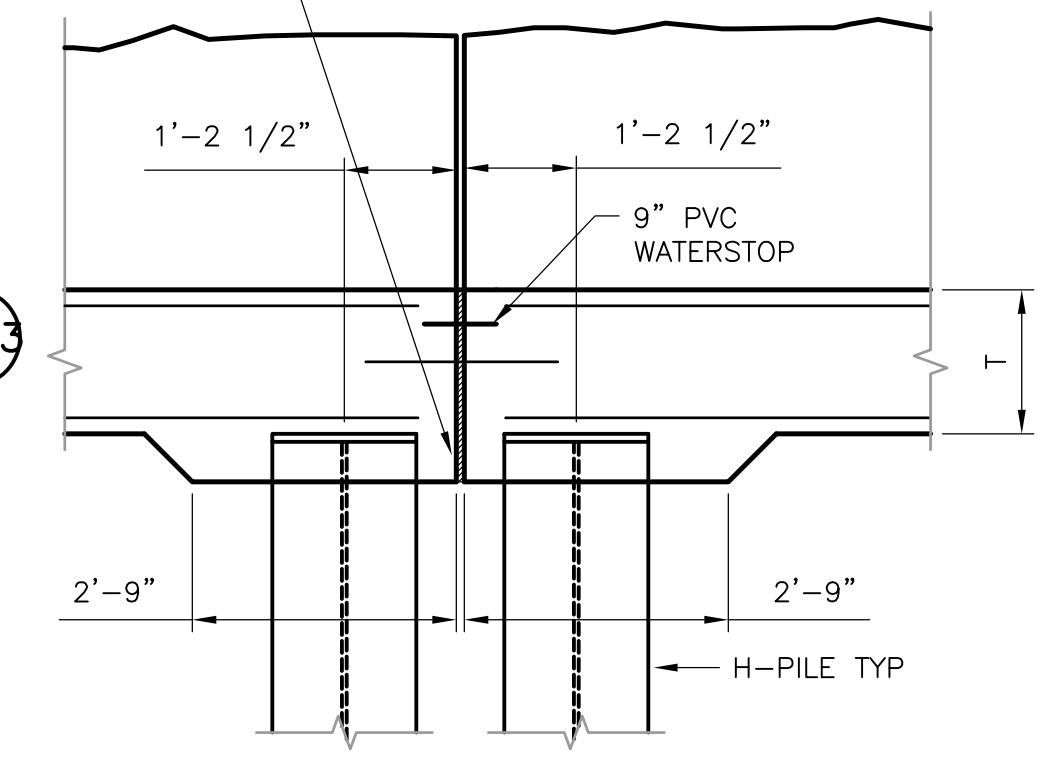


- NOTE:**
- SEE SHEET SD-S-2 FOR H-PILE DETAIL.
  - SEE SHEET MS-S-3 FOR ADDITIONAL PILES.
  - DRIVE TEST PILES TO APPROVED DRIVING CRITERIA OR ESTIMATED TIP ELEVATION, WHICHEVER IS ARCHIVED FIRST. DO NOT OVERDRIVE TEST PILES WITH RESPECT TO DEPTH OR DRIVING CRITERIA.
  - LOAD TESTS SHALL NOT BE CONDUCTED ON SELECTED TEST PILES NO SOONER THAN 4 DAYS AFTER THE COMPLETION OF FINAL DRIVING.

PILE SCHEDULE						
LOCATION	PILE MARK	TYPE OF PILE	QUANTITY OF PILE	TOP OF PILE ELEVATION	CAP PLATE	APPROXIMATE LENGTH
BYPASS PUMPING VAULT	BV-1	HP 12 x 74	4	*413.42	1"	60'
INFLUENT JUNCTION BOX	JB-1	HP 12 x 74	3	*413.42	1"	60'
	JB-2	HP 12 x 74	2	414.0	1"	60'
INFLUENT PIPE	IF-1	HP 12 x 74	15	412.92	1"	45'
INFLUENT AND SCREENING CHANNEL	IS-1	HP 12 x 74	14	**415.42	1"	45'
HEADWORKS BUILDING	HB-1	HP 14 x 89	25	423.92	1"	55'
GRIT TANK	GT-1	HP 12 x 74	18	405.15	1"	35'
	GT-2	HP 12 x 74	24	403.15	1"	35'
	GT-3	HP 12 x 74	2	401.15	1"	35'
GRIT EFFLUENT CHANNELS	EF-1	HP 12 x 74	22	418.87	1"	30'
	EF-2	HP 12 x 74	8	419.27	1"	30'
	EF-3	HP 12 x 74	8	417.72	1"	30'
	EF-4	HP 12 x 74	3	*415.36	1"	30'
VACTOR TRUCK UNLOADING BAY	VT-1	HP 12 x 74	2	425.93	1"	45'
	VT-2	HP 12 x 74	2	425.25	1"	45'
GENERATOR SLAB	GS-1	HP 12 x 74	4	*426.37	1"	45'

\* THIS ELEVATION IS APPROXIMATE. CONTRACTOR TO VERIFY ELEVATION AND EXISTING CONDITIONS IN THE FIELD AND COORDINATE ANY VARIATIONS W/ THE ENGINEER PRIOR TO PLACING PILES AND FABRICATING REBAR.

\*\* THE TYPICAL PILE CUT OFF ELEVATION FOR PILES MARKED IS-1 IS 415.42'. HOWEVER, TWO PILES MARKED IS-1 LOCATED AT GRID LINES A.1/4.3 AND A.1/4.7 SHOULD BE CUT-OFF AT ELEVATION 414.17 DUE TO SLAB STEP DOWN.



REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO. SGRPL003.DWG  
 DESIGNED BY: CMK  
 DRAWN BY: MJL  
 SHEET CHK'D BY: CMK  
 SCALE: AS NOTED  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2006

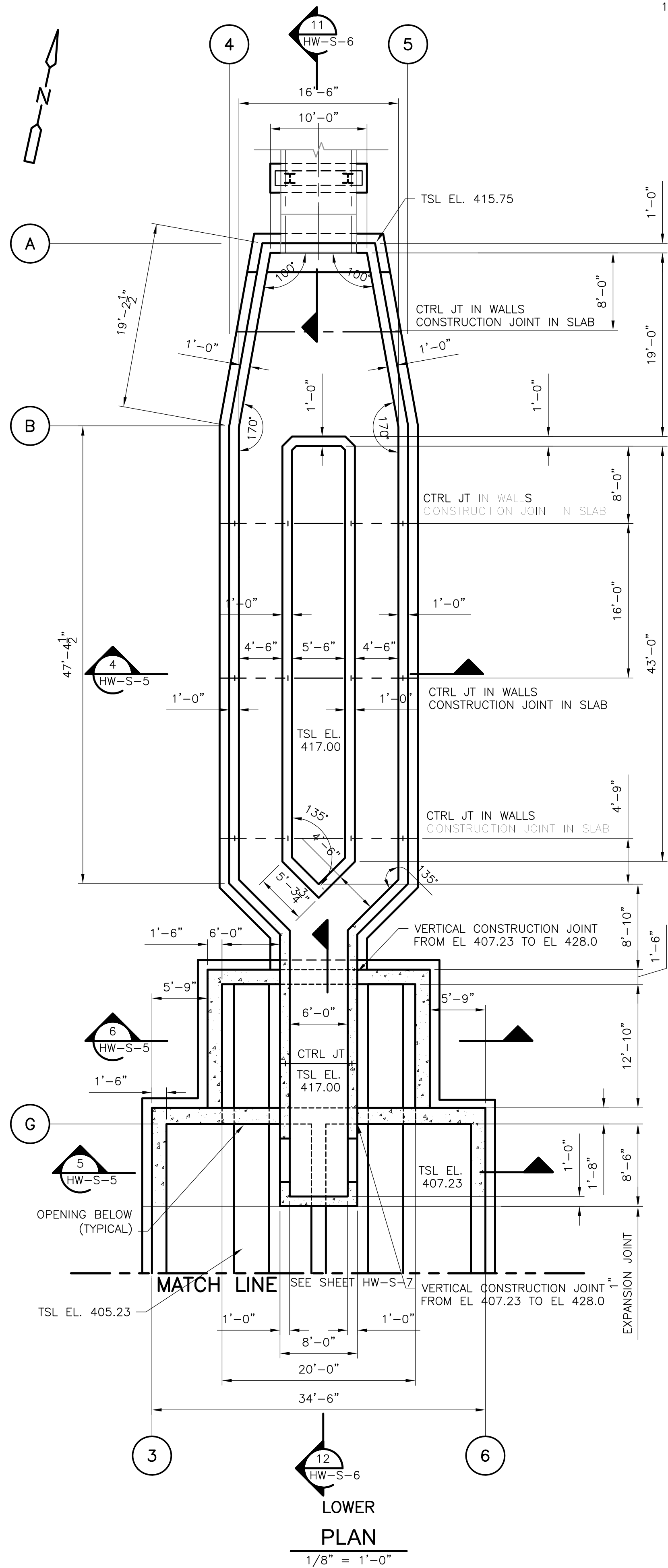
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

EAST GRIT AND SCREENING FACILITY  
 PILE PLANS II  
 HW-S-2

PROJECT NO. 1289\35370  
 Sht. 75 of 386

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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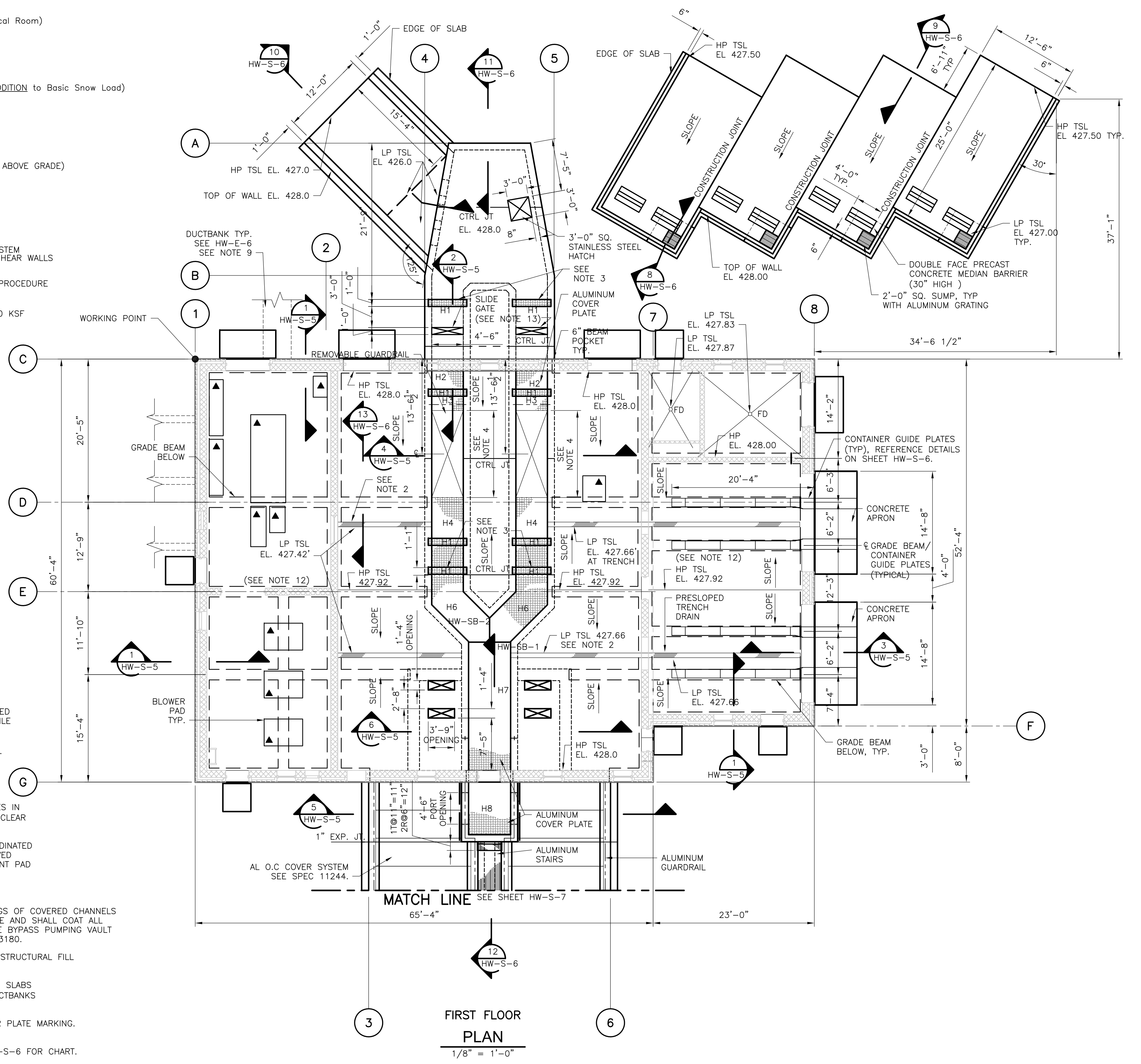


LOWER PLAN  
 1/8" = 1'-0"

DESIGN DATA - EAST GRIT AND SCREENING FACILITY

- DESIGN LOADS:
  - BUILDING CODE: COMMONWEALTH OF MASSACHUSETTS STATE BUILDING CODE 6th EDITION
  - FLOOR LIVE LOAD: EL 428.0 300 PSF (Loading Area and Electrical Room) EL 428.0 200 PSF (Other Areas)
  - ROOF LIVE LOAD: 20 PSF
  - ROOF SNOW LOAD: BASIC SNOW LOAD Pf: 35 PSF ADDITIONAL DRIFT LOADS: (Equivalent Uniform Load on Entire Roof Area IN ADDITION to Basic Snow Load) WEST LOW ROOF 25 PSF EAST LOW ROOF 20 PSF
  - ROOF HANGING LOAD: REFER TO ROOF PLAN ON HW-S-4
  - WIND LOAD: WIND LOAD ZONE: 2 EXPOSURE: C REFERENCE WIND PRESSURE: 17 PSF (0-50 FT ABOVE GRADE)
  - EARTHQUAKE DESIGN DATA: DATA APPLIES TO BOTH E-W AND N-S DIRECTIONS Av: .12g Ad: .12g SEISMIC HAZARD EXPOSURE GROUP: GROUP II SEISMIC PERFORMANCE CATEGORY: C SITE COEFFICIENT S: 1.0 BASIC STRUCTURAL SYSTEM: LOAD BEARING WALL SYSTEM SEISMIC RESISTING SYSTEM: REINFORCED MASONRY SHEAR WALLS R: 3.5 Cd: 3.0 ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
  - GEOTECHNICAL DESIGN DATA: FOUNDATIONS: MAXIMUM ALLOWABLE NET BEARING PRESSURE 6.0 KSF EQUIVALENT LATERAL EARTH PRESSURES: ABOVE GROUNDWATER: 60 PCF BELOW GROUNDWATER: 90 PCF 100 YR FLOOD ELEV: EL 414.30

- GENERAL NOTES:
- LPT INV. OF PRE SLOPED TRENCH @ SCREEN CHANNEL IS 426.66
  - PRE-SLOPED DRAIN SYSTEM: 8" WIDE
    - A. 4 PLACES AS SHOWN ON PLAN
    - B. PROVIDE CATALOG CUTS FOR APPROVAL TO SHOW ALL COMPONENTS AND LAYOUT.
    - C. SYSTEM MADE OF HEAVY DUTY, MODULAR, PRE-SLOPED POLYMER CONCRETE TRENCH DRAIN UNITS WITH DUCTILE IRON FRAMES AND SLOTTED GRATES.
    - D. USE STRONGWELL "POLYCAST-700 SERIES", ACO POLYMER PRODUCTS "S100K SERIES", OR EQUAL.
  - PROVIDE REMOVABLE COVER PLATE SECTION OVER STOP LOGS. SEE DETAIL ON SHEET HW-S-14. COORDINATE WITH M DRAWINGS.
  - COORDINATE SIZE OF OPENING AND NEED FOR RECESSES IN CHANNEL WALLS WITH EQUIPMENT SUPPLIER. PROVIDE 12" CLEAR OF EQUIPMENT.
  - ▲ INDICATES EQUIPMENT PAD. DIMENSIONS TO BE COORDINATED BY THE CONTRACTOR WITH MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO CONSTRUCTION. REFERENCE EQUIPMENT PAD DETAILS ON SD-S-1.
  - FD INDICATES FLOOR DRAIN.
  - CONTRACTOR SHALL COAT WALLS AND CONCRETE CEILINGS OF COVERED CHANNELS AND TANKS TO ONE FOOT BELOW THE LOW WATER SURFACE AND SHALL COAT ALL INTERIOR CONCRETE SURFACES OF THE JUNCTION BOX, THE BYPASS PUMPING VAULT WILL NOT RECEIVE COATING. SEE SPECIFICATION SECTION 03180.
  - MINIMUM 1'-0" OR GREATER AS REQUIRED COMPACTED STRUCTURAL FILL UNDER PILE SUPPORTED STRUCTURES.
  - CONTRACTOR SHALL PROVIDE SLEEVED ENTRANCES THRU SLABS COORDINATE LOCATIONS W/ ELECTRICAL DRAWINGS. ALL DUCTBANKS SHALL PASS BELOW GRADEBEAMS.
  - H1, H2, H3, H4, H5, H6, H7 AND H8 DENOTES COVER PLATE MARKING. SEE DRAWING HW-S-10 FOR COVER PLATE SCHEDULE.
  - HW-SB-2 DENOTES GRATING SUPPORT SEE SHEET SD-S-6 FOR CHART.
  - REFERENCE HW-S-1 FOR SLAB CONSTRUCTION JOINTS.
  - COORDINATE THE NEED FOR RECESSES IN THE CHANNEL WALLS WITH SLIDE GATE MANUFACTURER.



FIRST FLOOR PLAN  
 1/8" = 1'-0"

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/07	JAL	ADT	REVISED FOR THE RECORD

CADD FILE NO.	SGRPL001.DWG
DESIGNED BY:	CMK
DRAWN BY:	MJL
SHEET CHK'D BY:	CMK
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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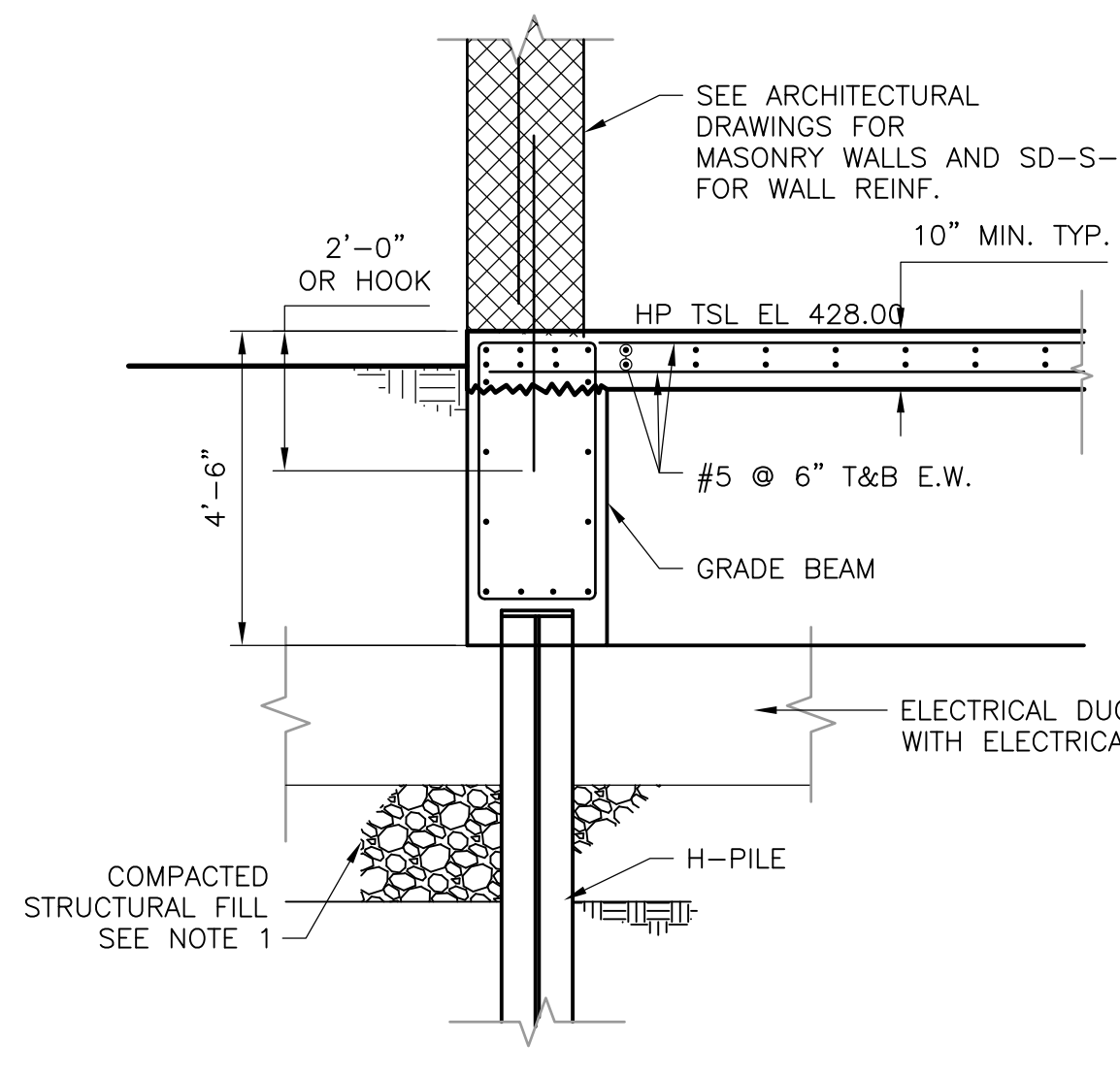
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

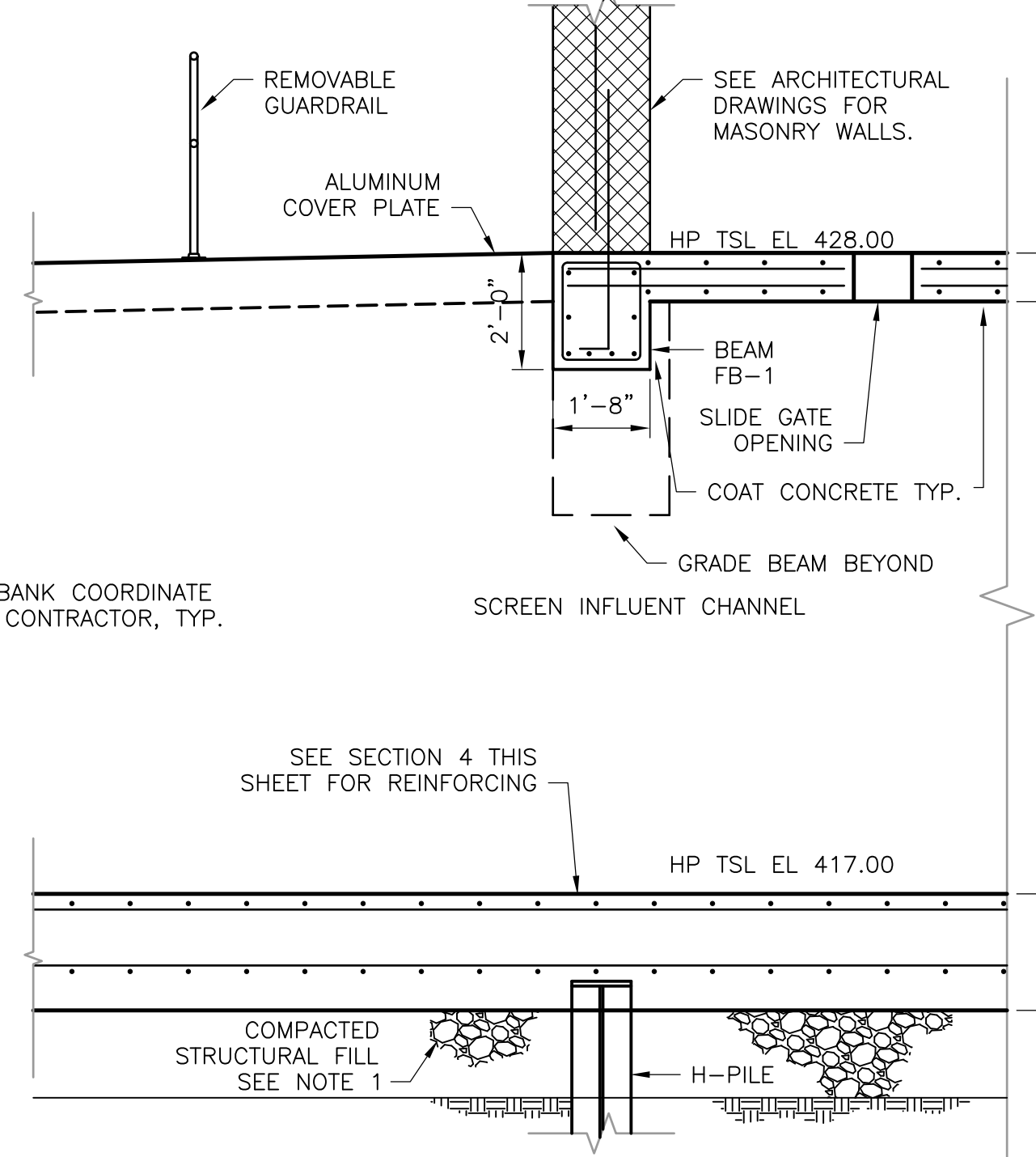
EAST GRIT AND SCREENING FACILITY  
 FOUNDATION PLAN AND FLOOR PLAN

PROJECT NO. 1289\35370  
 Sht. 76 of 386  
 HW-S-3

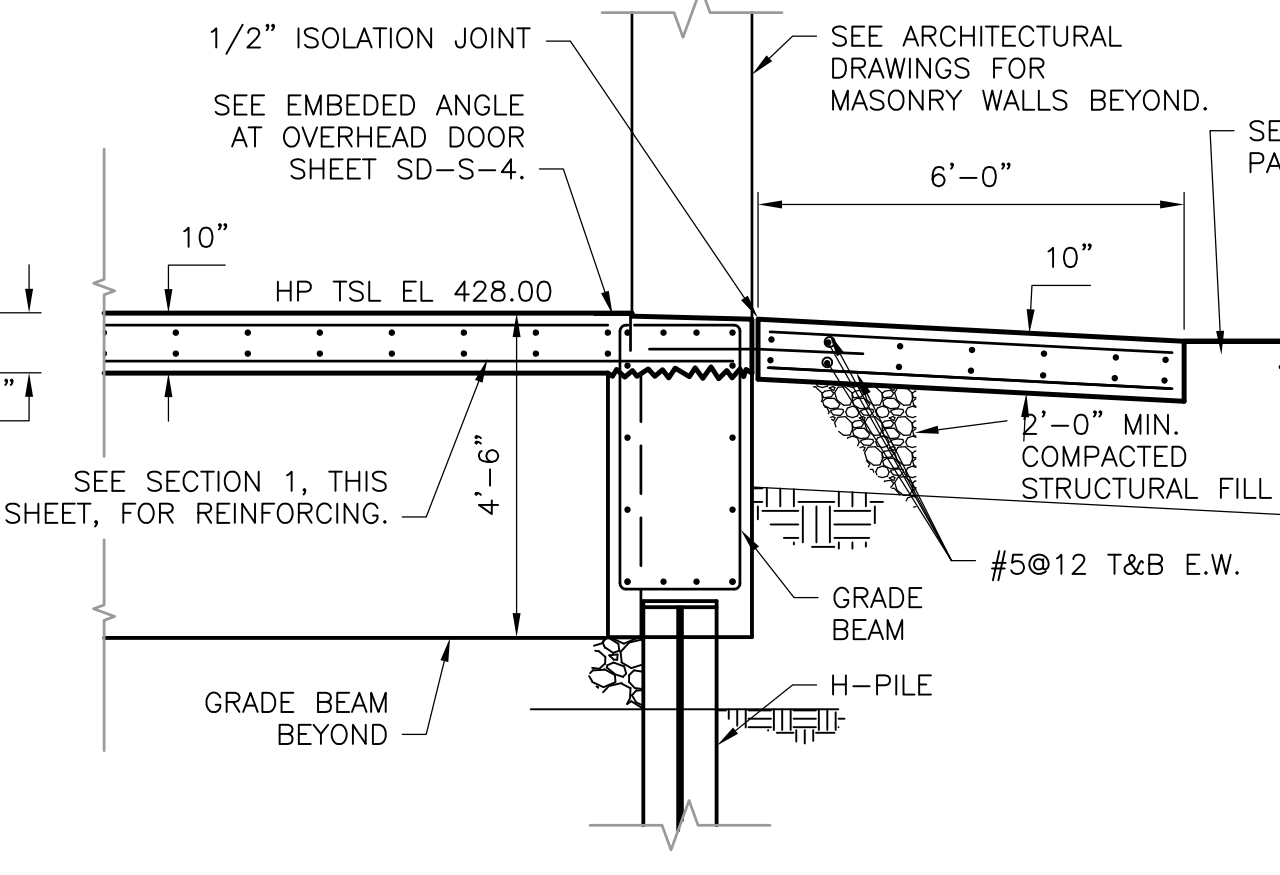
NOTES:  
 1. MINIMUM 1'-0" OR GREATER AS REQUIRED COMPACTED STRUCTURAL FILL UNDER FILE SUPPORTED STRUCTURES.



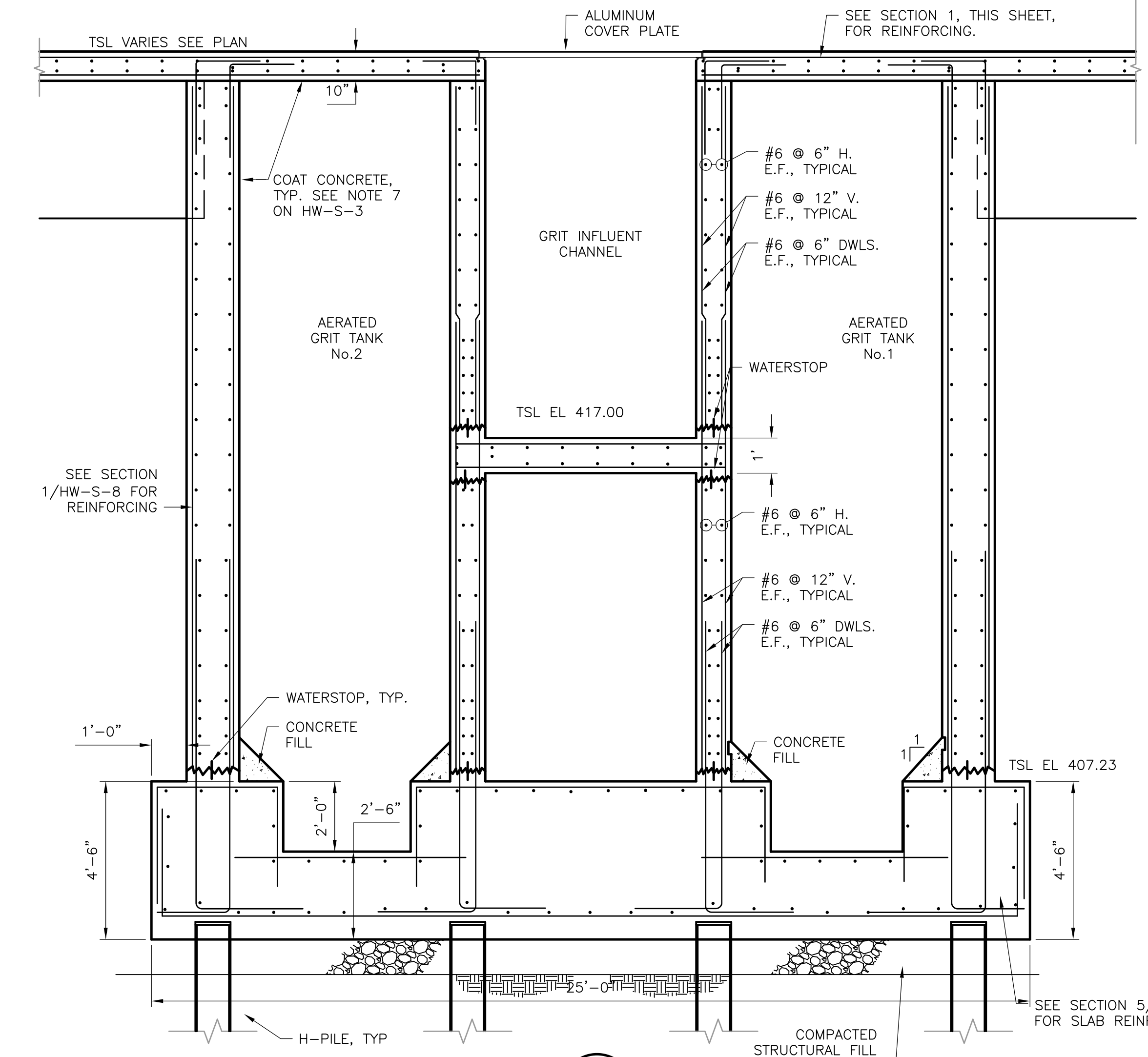
SECTION 1  
 3/8" = 1'-0" HW-S-3



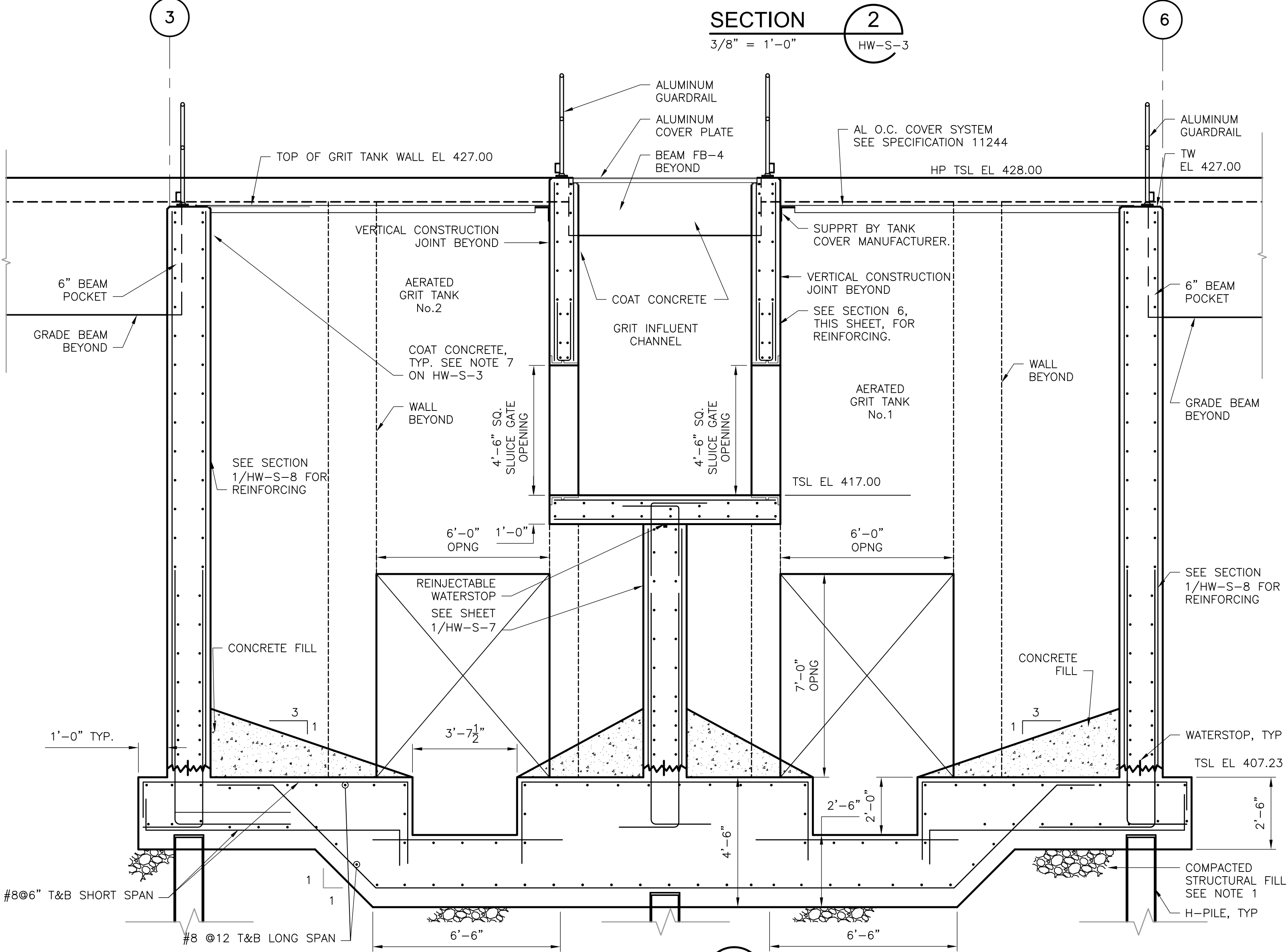
SECTION 2  
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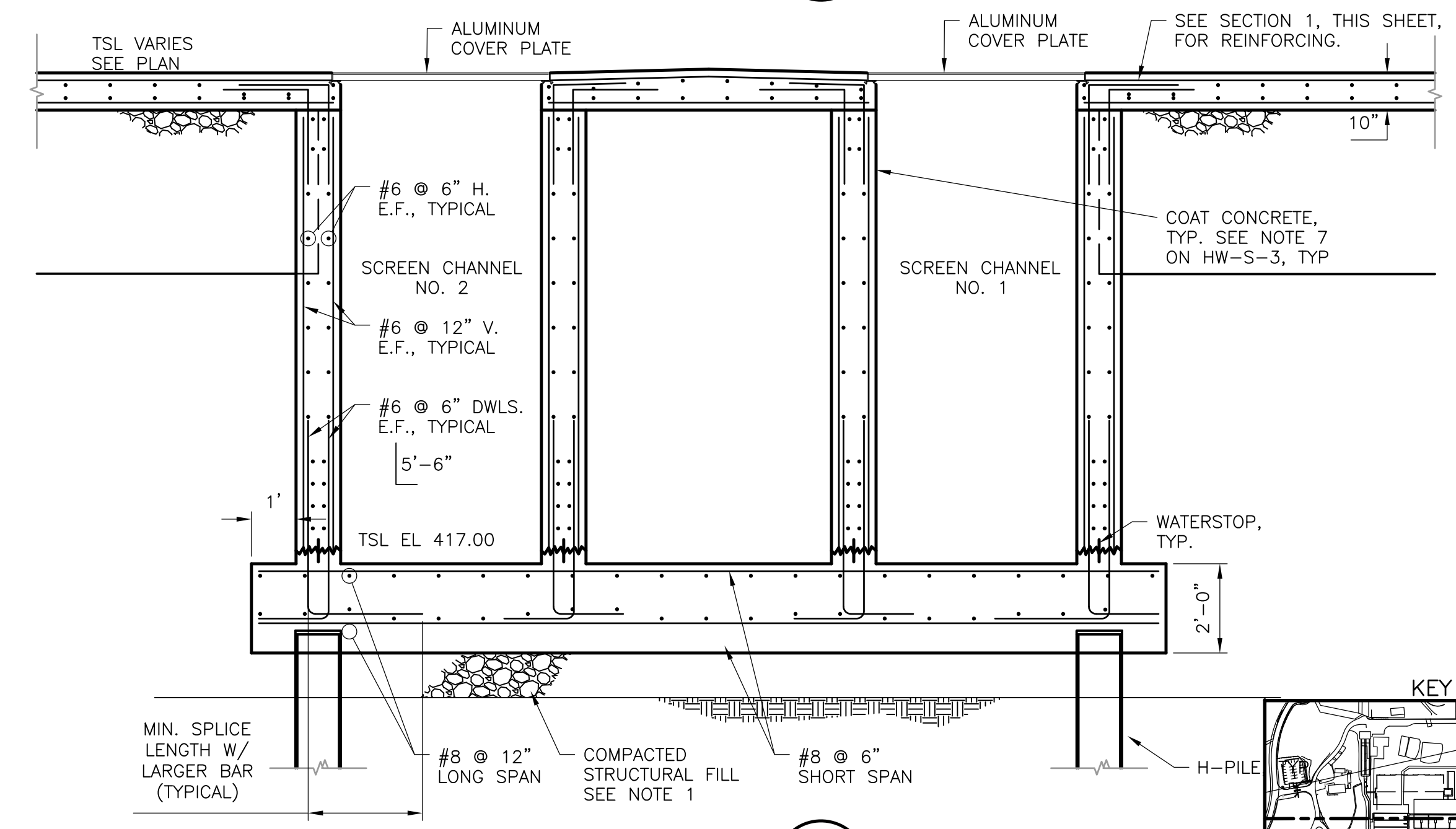
SECTION 3  
 3/8" = 1'-0" HW-S-3



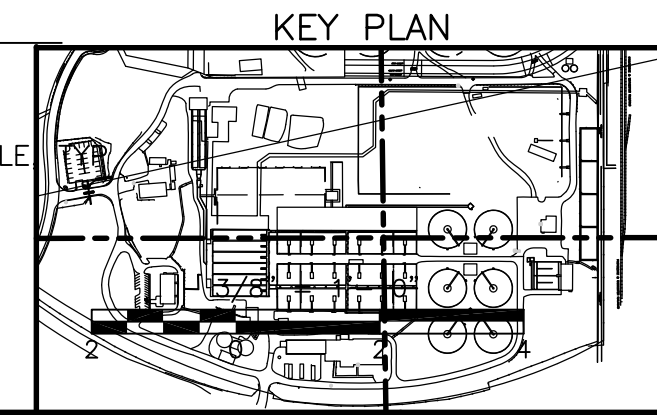
SECTION 6  
 3/8" = 1'-0" HW-S-3



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



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



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SGRSC001.DWG
DESIGNED BY:	CMK
DRAWN BY:	MJL/GAK
SHEET CHK'D BY:	CMK
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

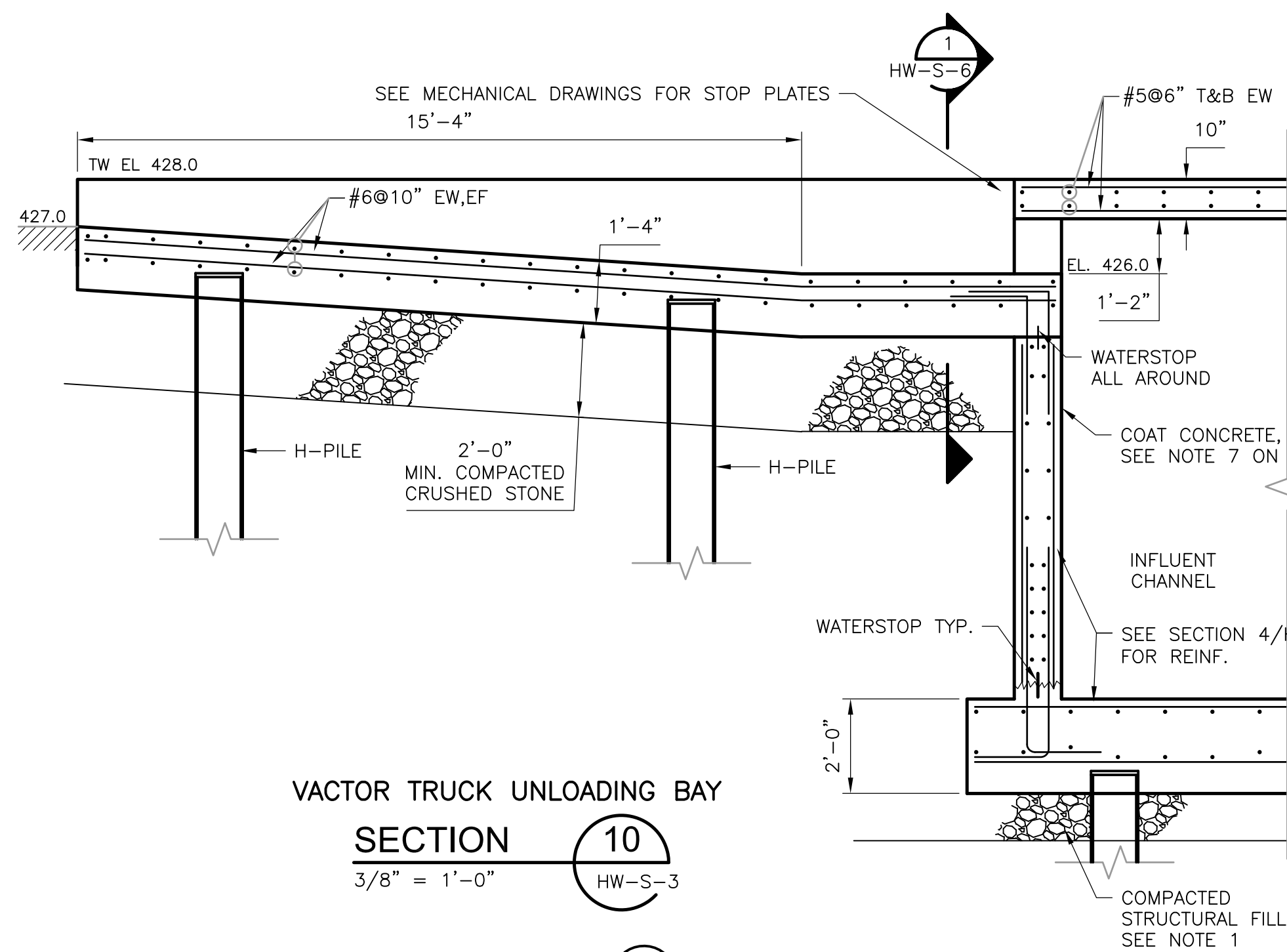
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

EAST GRIT AND SCREENING FACILITY  
 SECTIONS I

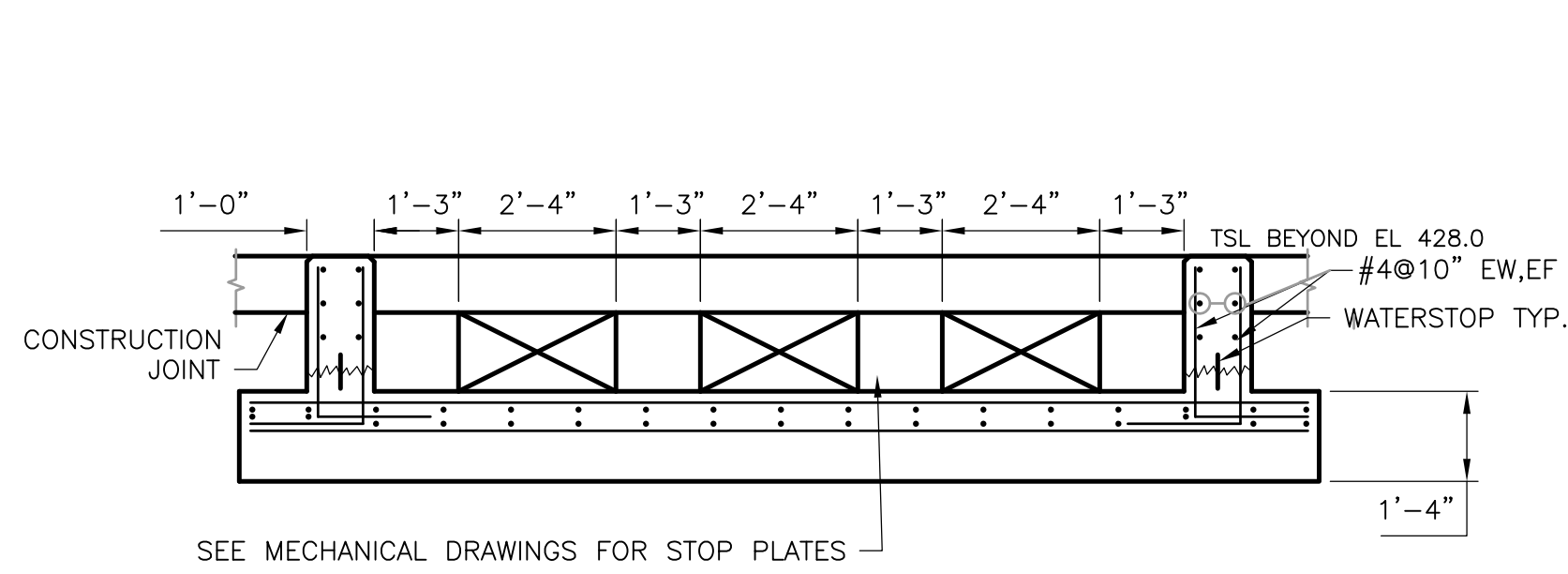
PROJECT NO.  
 1289\35370

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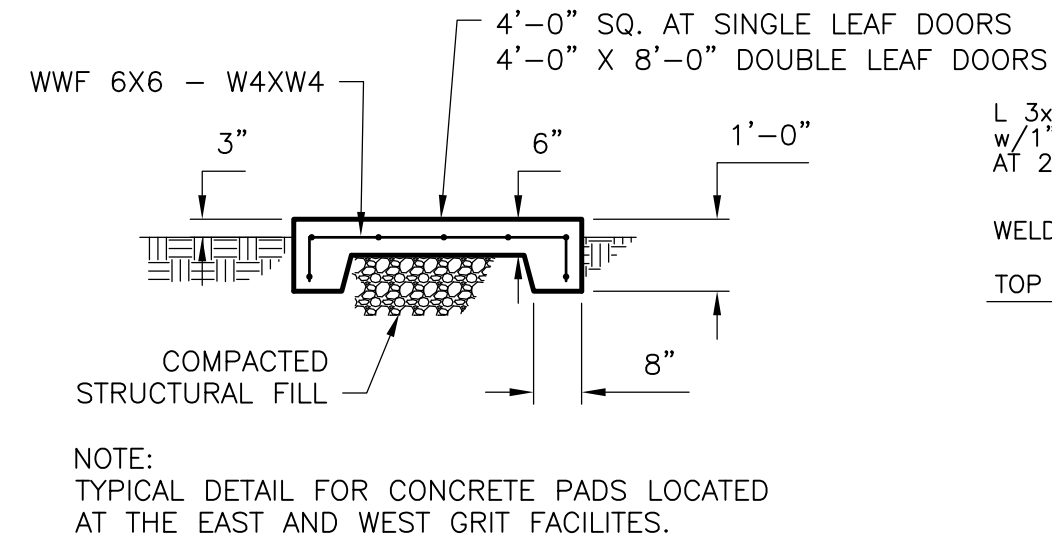
HW-S-5



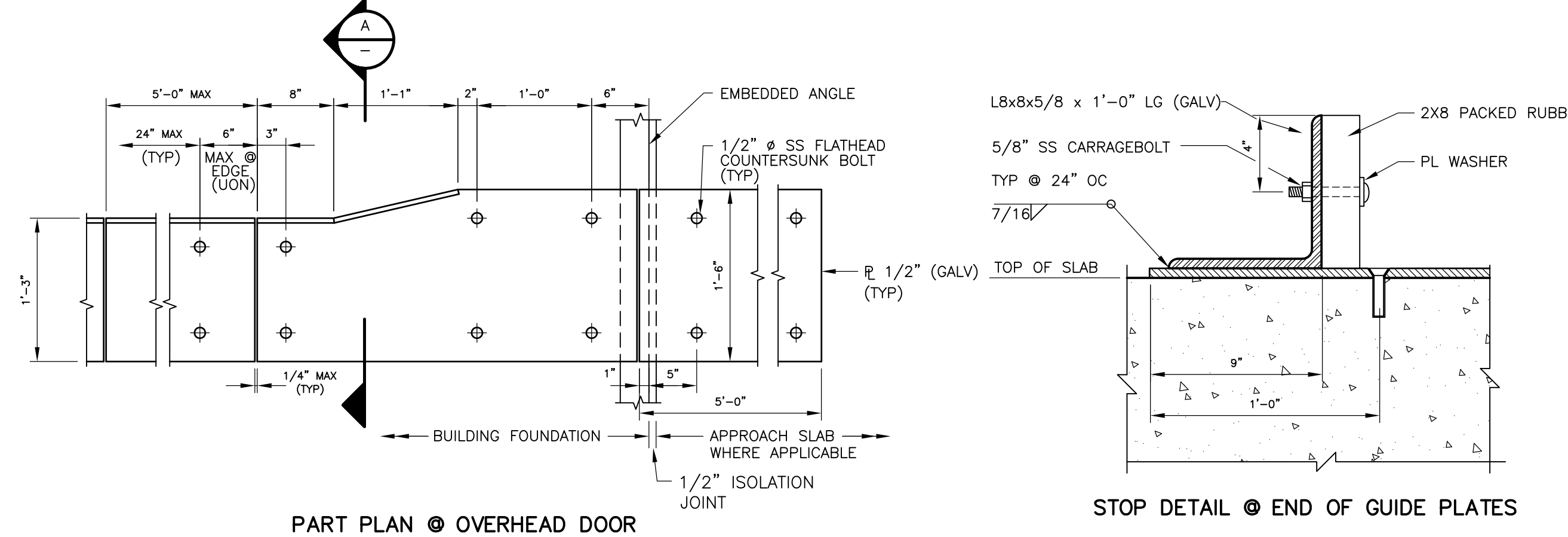
VACTOR TRUCK UNLOADING BAY  
**SECTION 10**  
 3/8" = 1'-0" HW-S-3



VACTOR TRUCK UNLOADING BAY  
**SECTION 1**  
 3/8" = 1'-0" HW-S-6

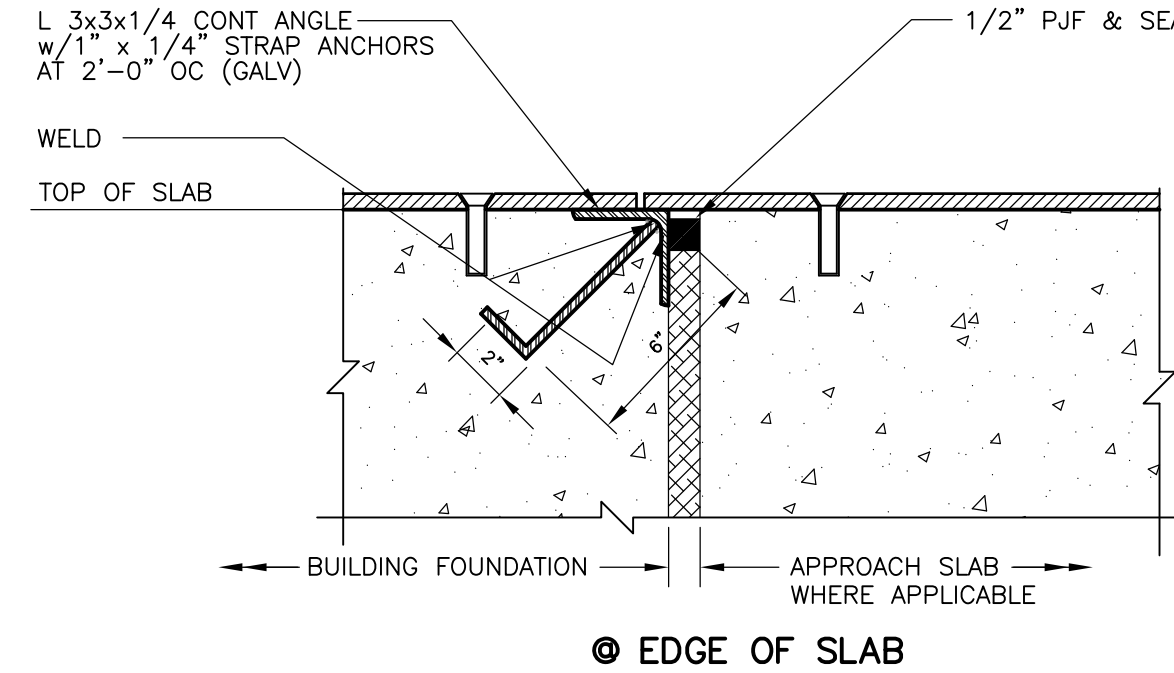


CONCRETE PAD AT DOOR TYPICAL  
**SECTION**  
 3/8" = 1'-0"

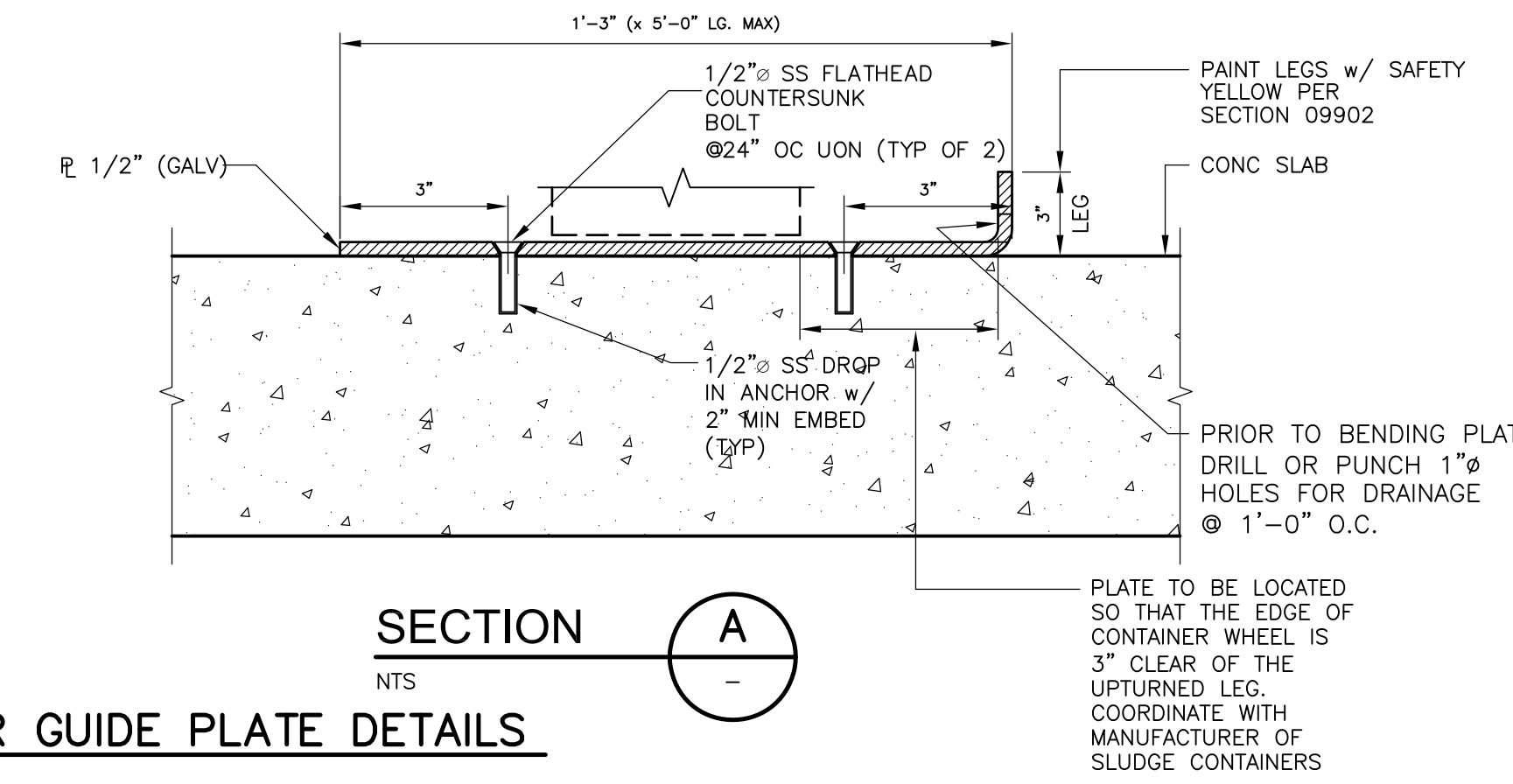


PART PLAN @ OVERHEAD DOOR

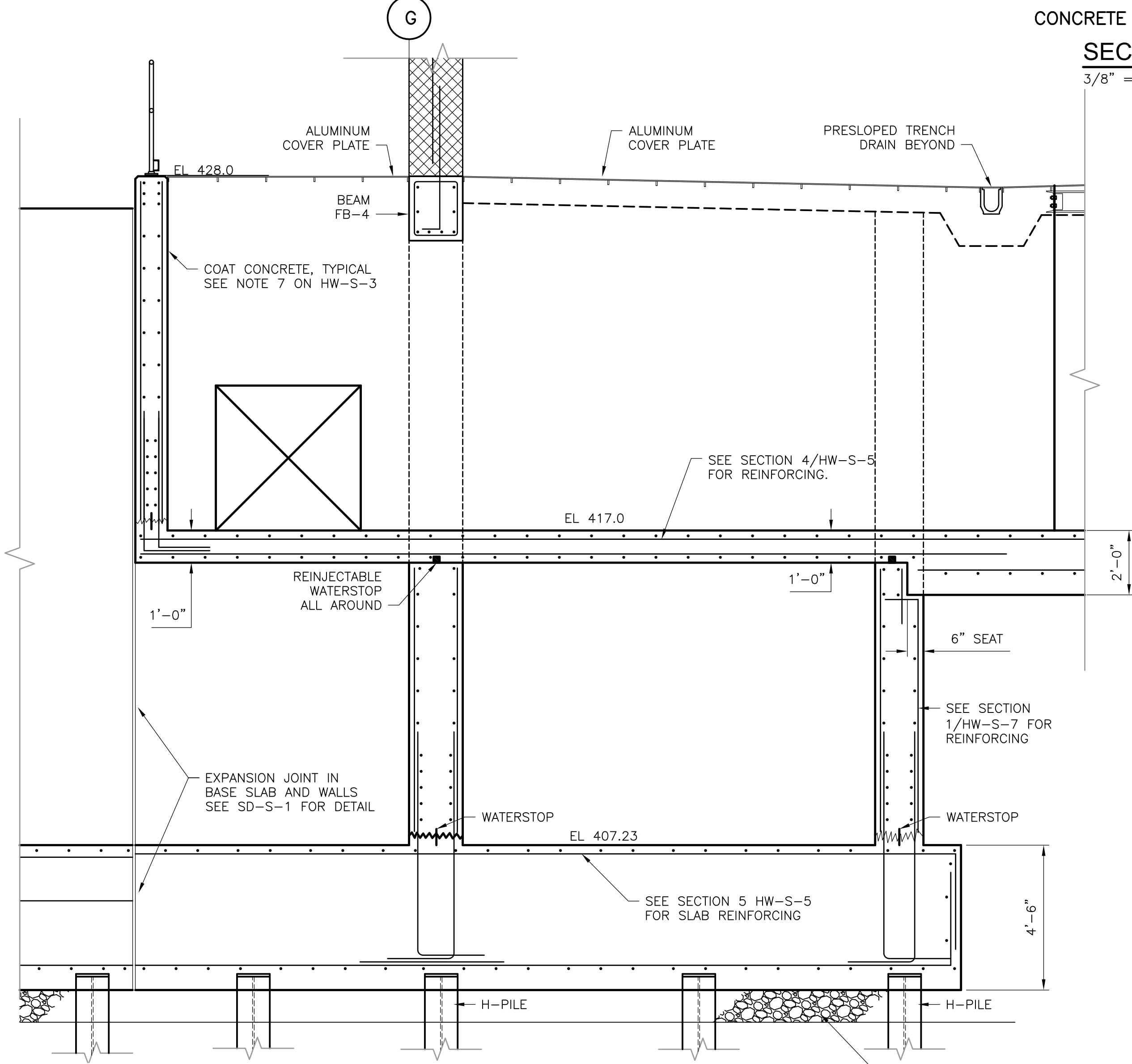
STOP DETAIL @ END OF GUIDE PLATES



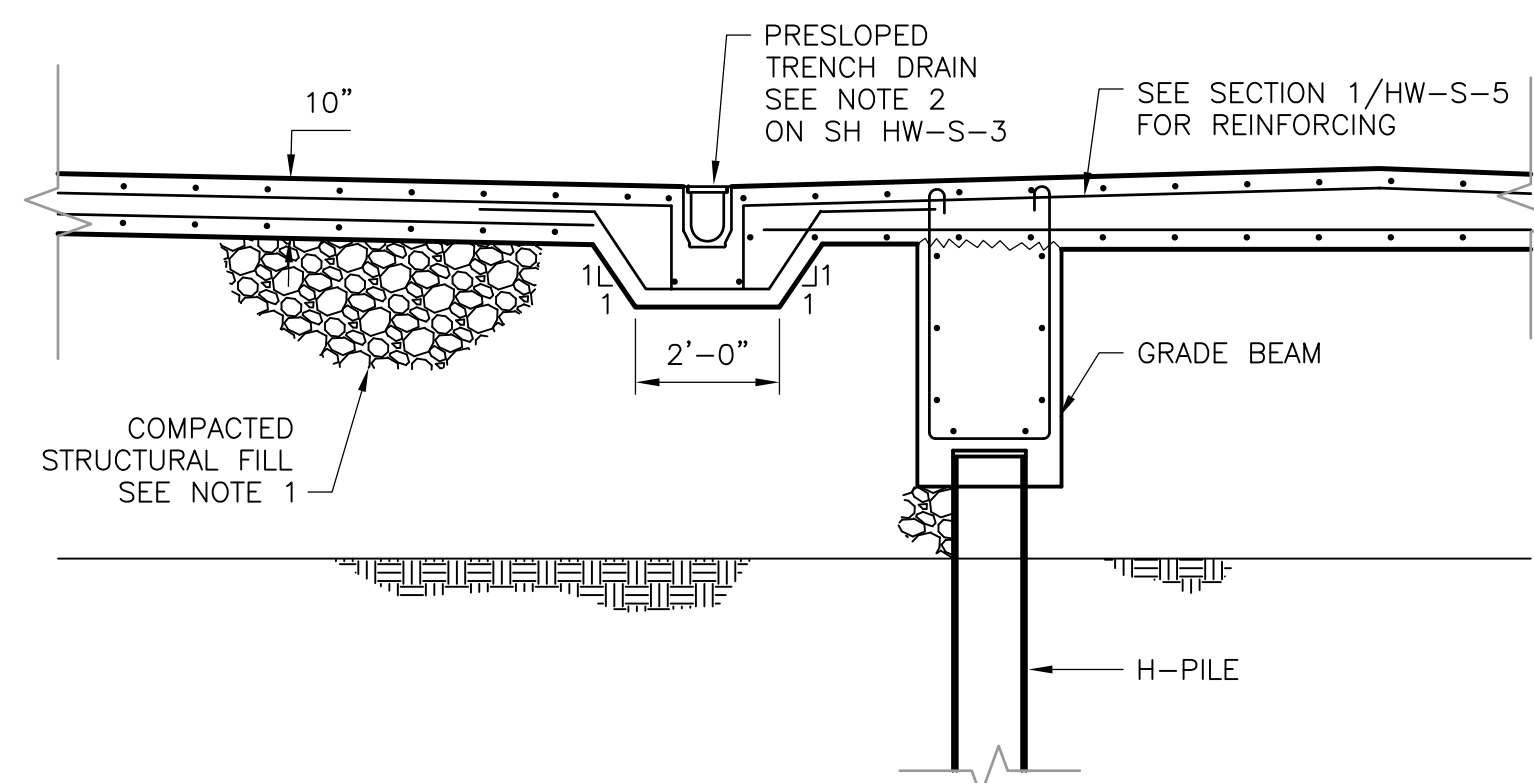
EDGE OF SLAB



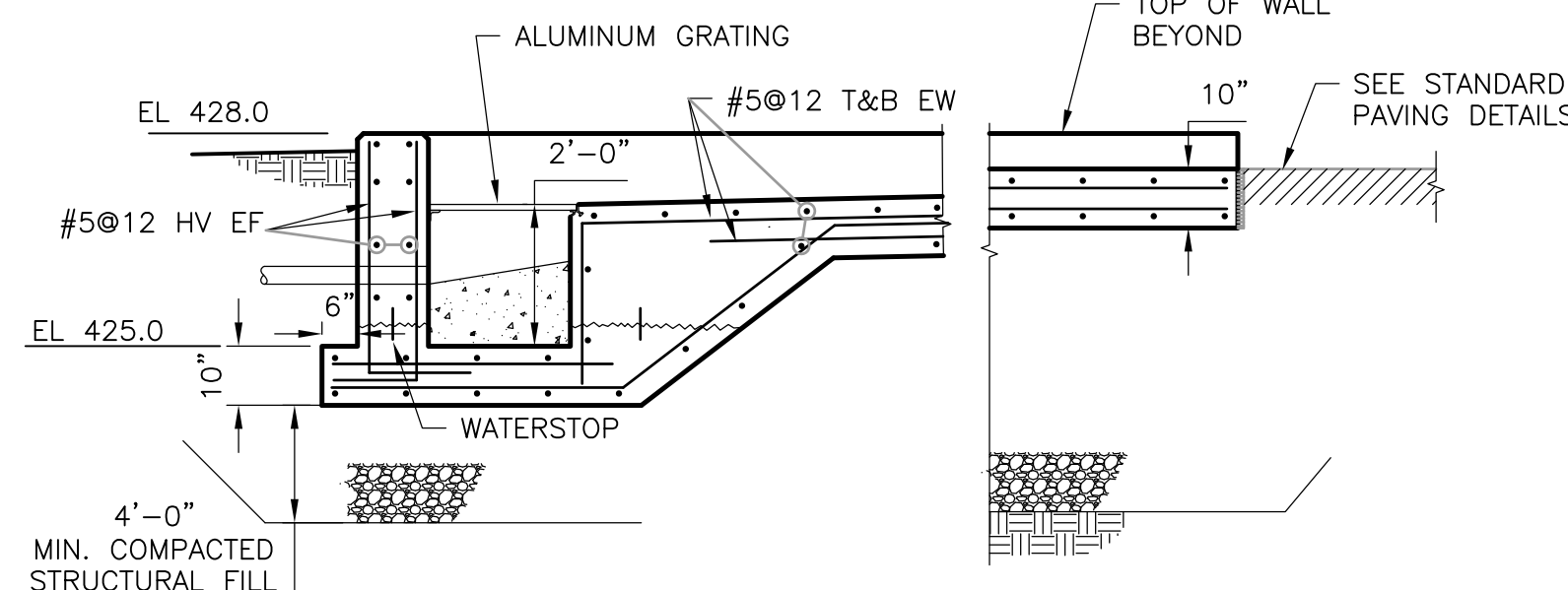
CONTAINER GUIDE PLATE DETAILS  
 NTS  
 REFERENCE DRAWINGS HW-S-3 AND HW-S-10.



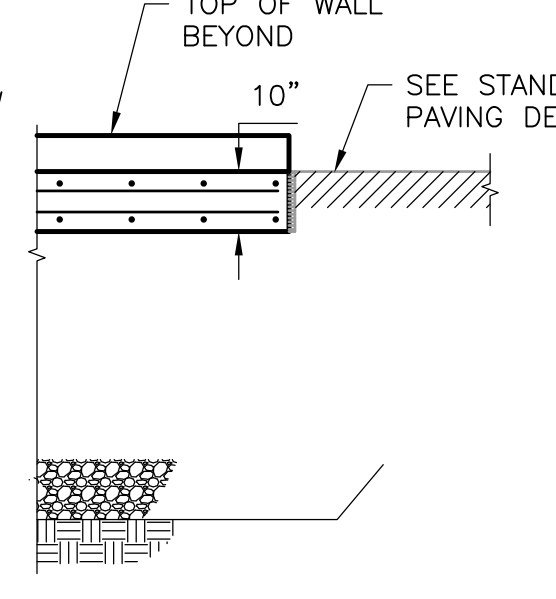
EAST GRIT AND SCREENINGS FACILITY  
**SECTION 12**  
 3/8" = 1'-0" HW-S-3



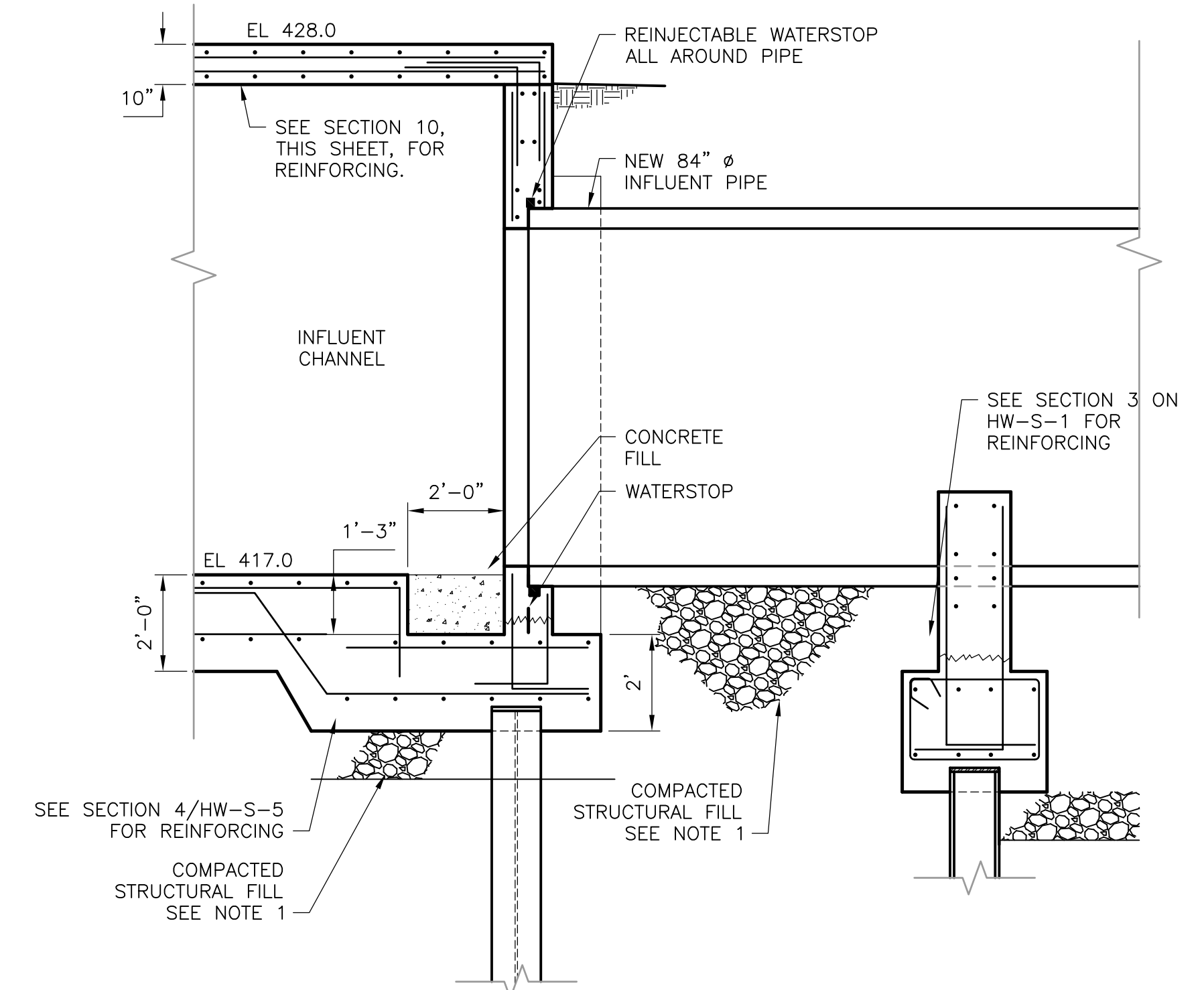
EAST GRIT AND SCREENINGS FACILITY  
**SECTION 13**  
 3/8" = 1'-0" HW-S-3



SEPTAGE RECEIVING BAY  
**SECTION 8**  
 3/8" = 1'-0" HW-S-3

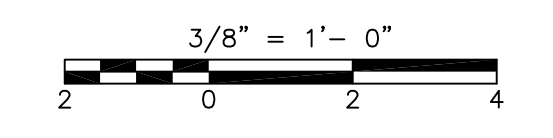


SEPTAGE RECEIVING BAY  
**SECTION 9**  
 3/8" = 1'-0" HW-S-3



EAST GRIT AND SCREENING FACILITY  
**SECTION 11**  
 3/8" = 1'-0" HW-S-3

NOTES:  
 1. MINIMUM 1'-0" OR GREATER AS REQUIRED COMPACTED STRUCTURAL FILL UNDER PILE SUPPORTED STRUCTURES.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.	SGRSC004.DWG
DESIGNED BY:	CMK
DRAWN BY:	MJL
SHEET CHK'D BY:	CMK
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

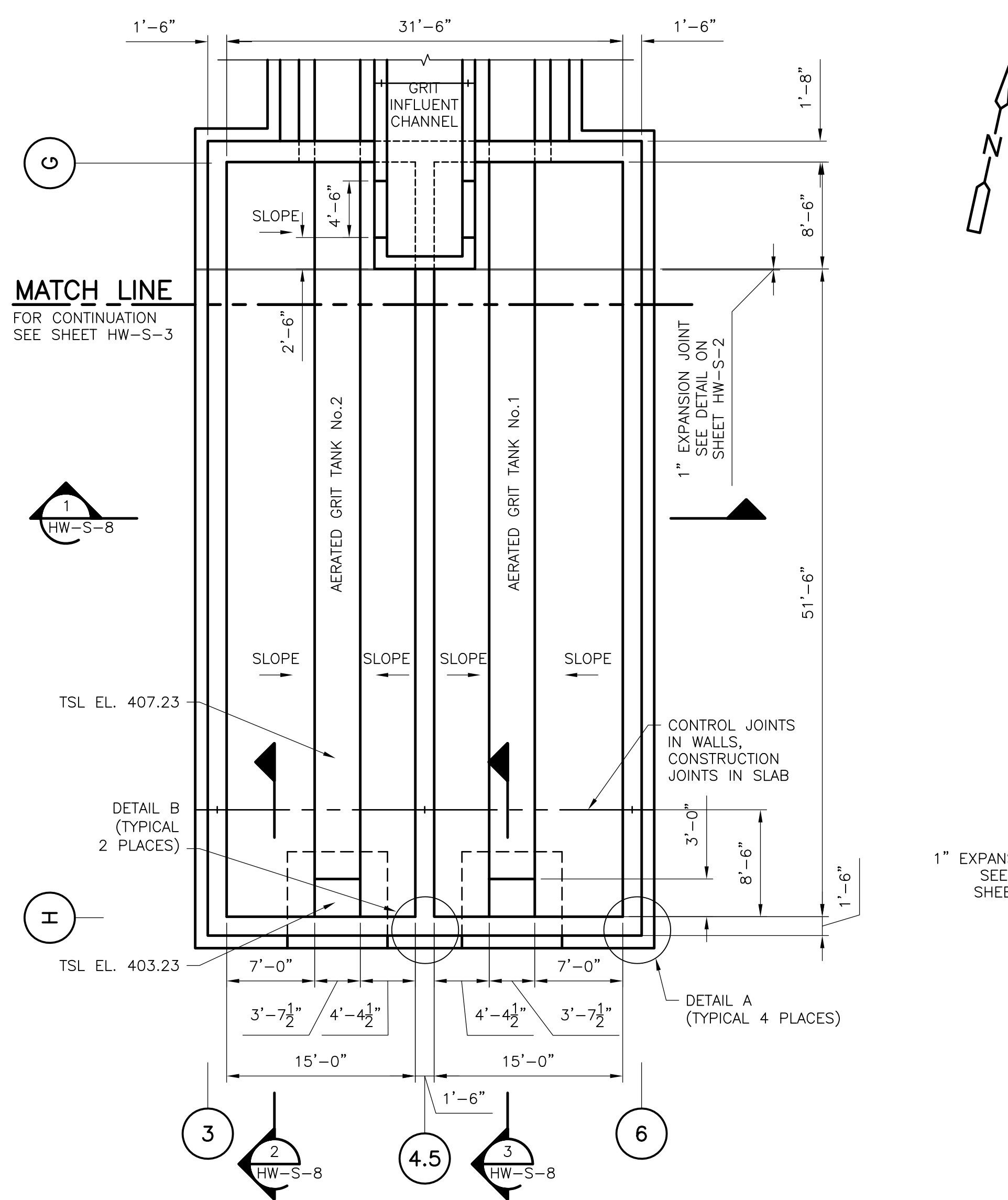
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

EAST GRIT AND SCREENING FACILITY  
 SECTIONS II  
 HW-S-6

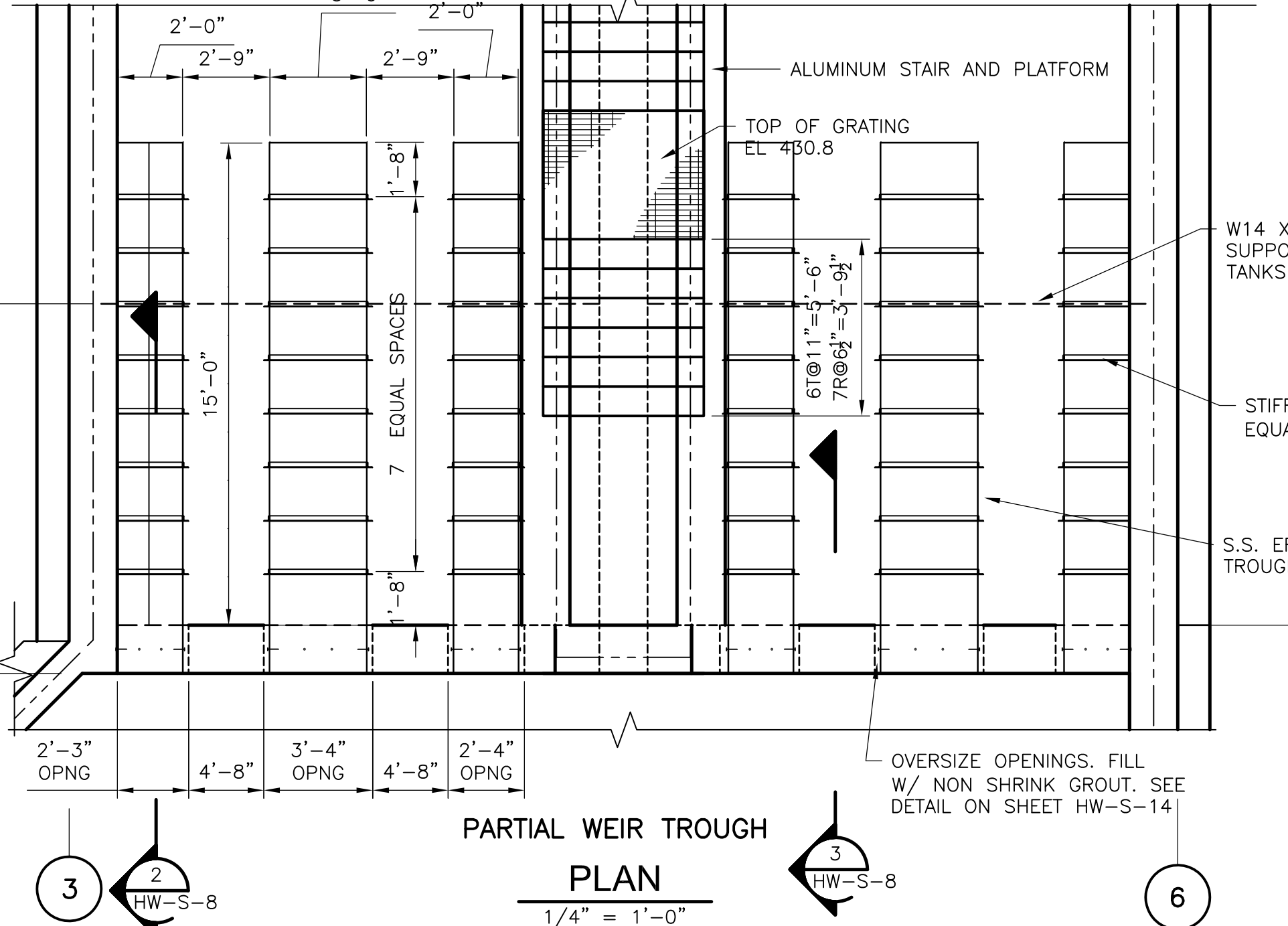
PROJECT NO.  
 1289\35370  
 Sht. 79 of 386  
 ACCESSION NO. 1289-65479

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
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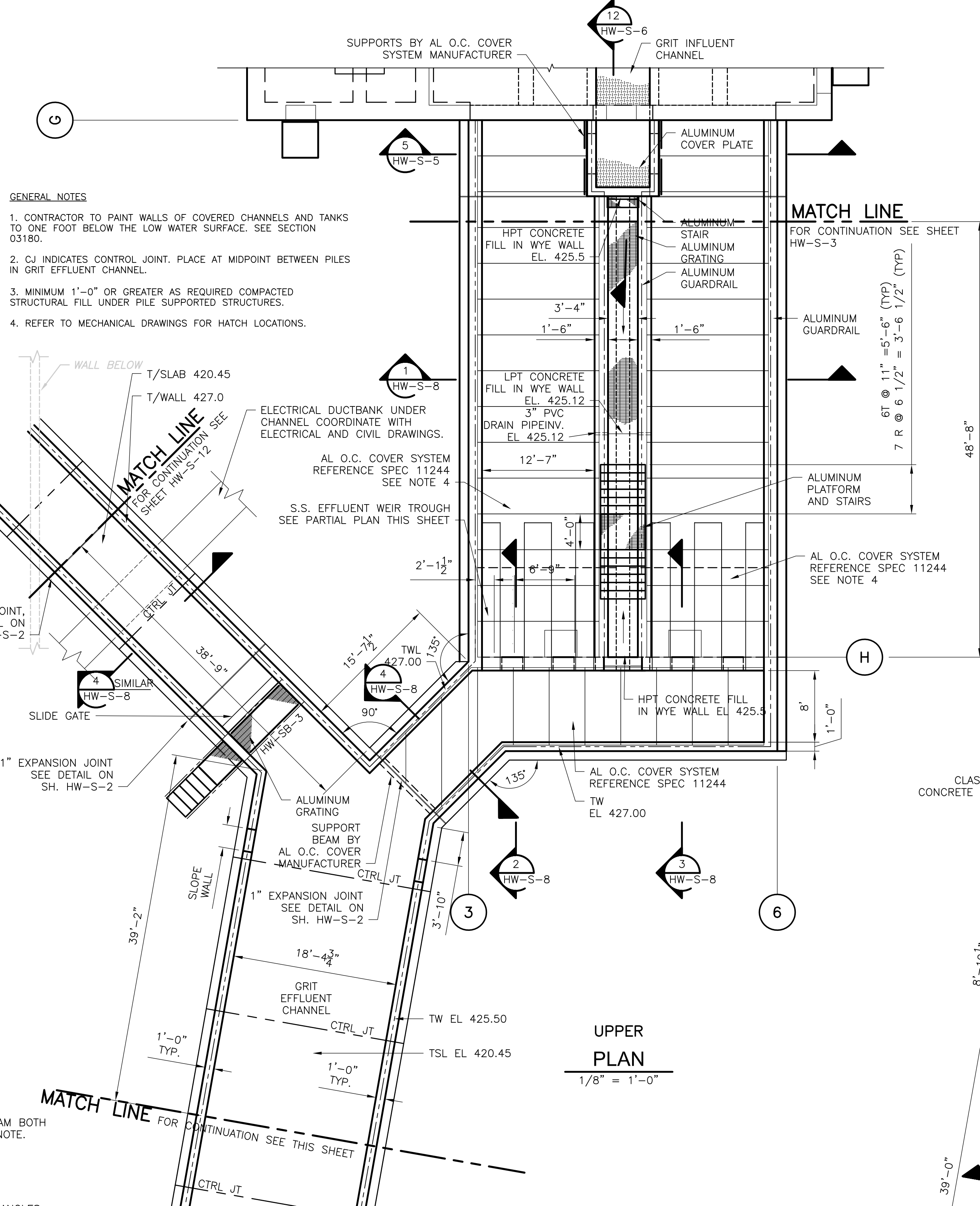


**LOWER PLAN**  
1/8" = 1'-0"

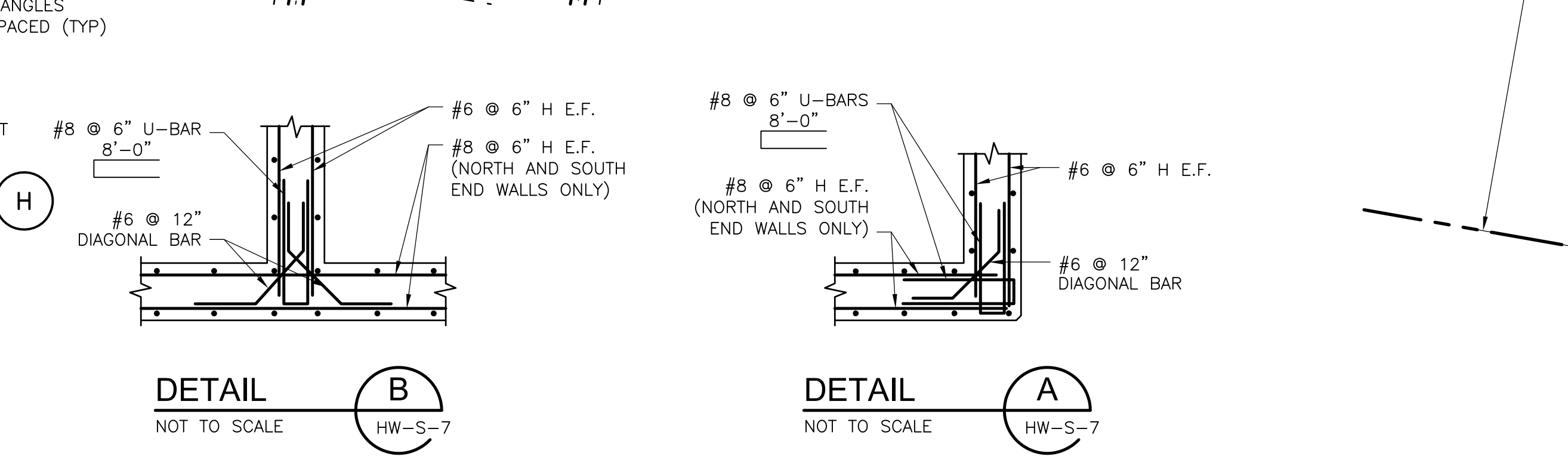
**WEIR TROUGH NOTES:**  
 1. WEIR TROUGH SUPPORT BEAMS SHALL BE ASTM A992 REFERENCE 05500. PRIME AND PAINT PER SECTIONS 09901 AND 09902 FOR "SUBMERGED FERROUS METALS".  
 2. DIMENSION FOR WEIR TROUGHS ARE TO THE INSIDE.  
 3. SEE SHEET HW-S-14 FOR WEIR TROUGH AND ADJUSTABLE WEIR DETAILS



**PARTIAL WEIR TROUGH PLAN**  
1/4" = 1'-0"

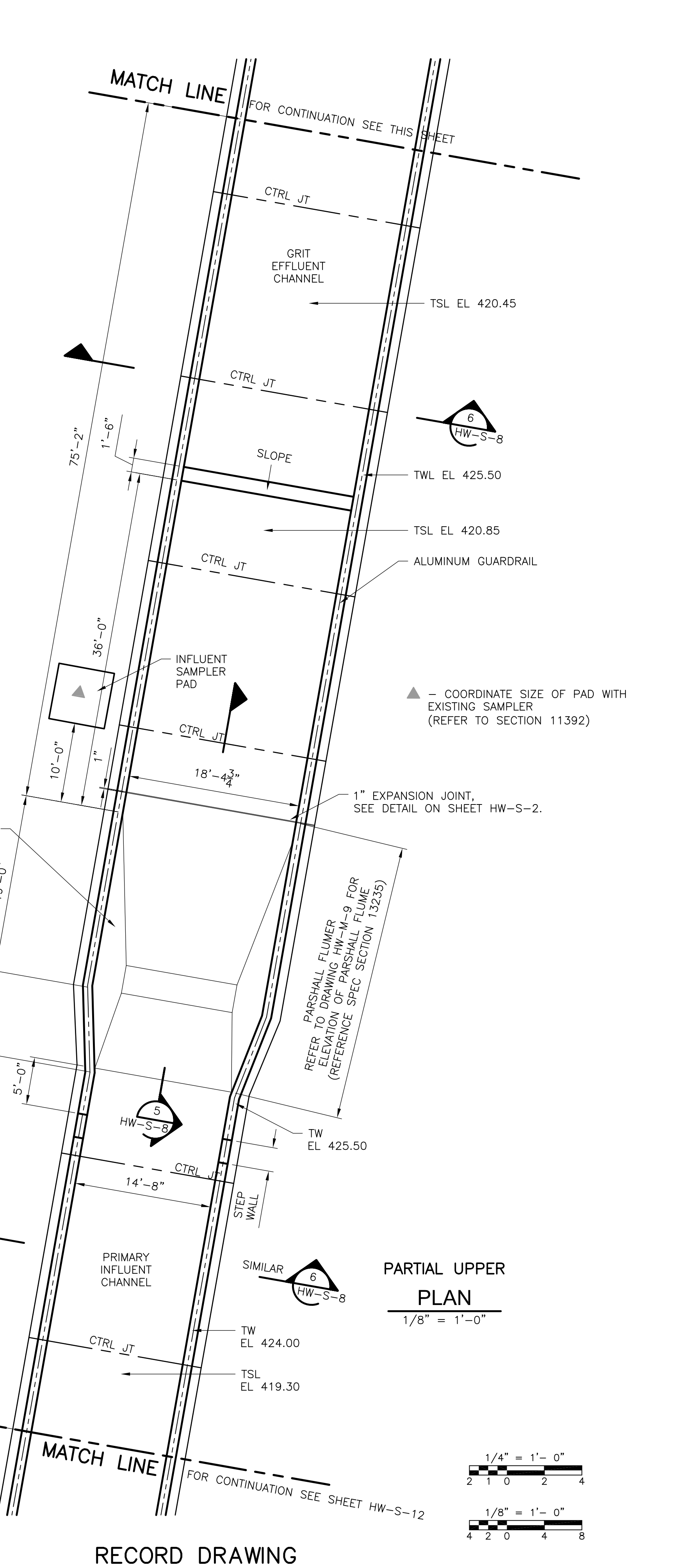


**UPPER PLAN**  
1/8" = 1'-0"



**DETAIL A**  
HW-S-7  
NOT TO SCALE

**DETAIL B**  
HW-S-7  
NOT TO SCALE



**PARTIAL UPPER PLAN**  
1/8" = 1'-0"

**RECORD DRAWING**

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

- GENERAL NOTES**
- CONTRACTOR TO PAINT WALLS OF COVERED CHANNELS AND TANKS TO ONE FOOT BELOW THE LOW WATER SURFACE. SEE SECTION 03180.
  - CJ INDICATES CONTROL JOINT. PLACE AT MIDPOINT BETWEEN PILES IN GRIT EFFLUENT CHANNEL.
  - MINIMUM 1'-0" OR GREATER AS REQUIRED COMPACTED STRUCTURAL FILL UNDER PILE SUPPORTED STRUCTURES.
  - REFER TO MECHANICAL DRAWINGS FOR HATCH LOCATIONS.

**WEIR TROUGH NOTES:**  
 1. WEIR TROUGH SUPPORT BEAMS SHALL BE ASTM A992 REFERENCE 05500. PRIME AND PAINT PER SECTIONS 09901 AND 09902 FOR "SUBMERGED FERROUS METALS".  
 2. DIMENSION FOR WEIR TROUGHS ARE TO THE INSIDE.  
 3. SEE SHEET HW-S-14 FOR WEIR TROUGH AND ADJUSTABLE WEIR DETAILS

**DETAIL A**  
HW-S-7  
NOT TO SCALE

**DETAIL B**  
HW-S-7  
NOT TO SCALE

**UPPER PLAN**  
1/8" = 1'-0"

**PARTIAL UPPER PLAN**  
1/8" = 1'-0"

**DETAIL A**  
HW-S-7  
NOT TO SCALE

**DETAIL B**  
HW-S-7  
NOT TO SCALE

**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.	SGRPL005.DWG
DESIGNED BY:	CMK
DRAWN BY:	MJL
SHEET CHK'D BY:	CMK
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

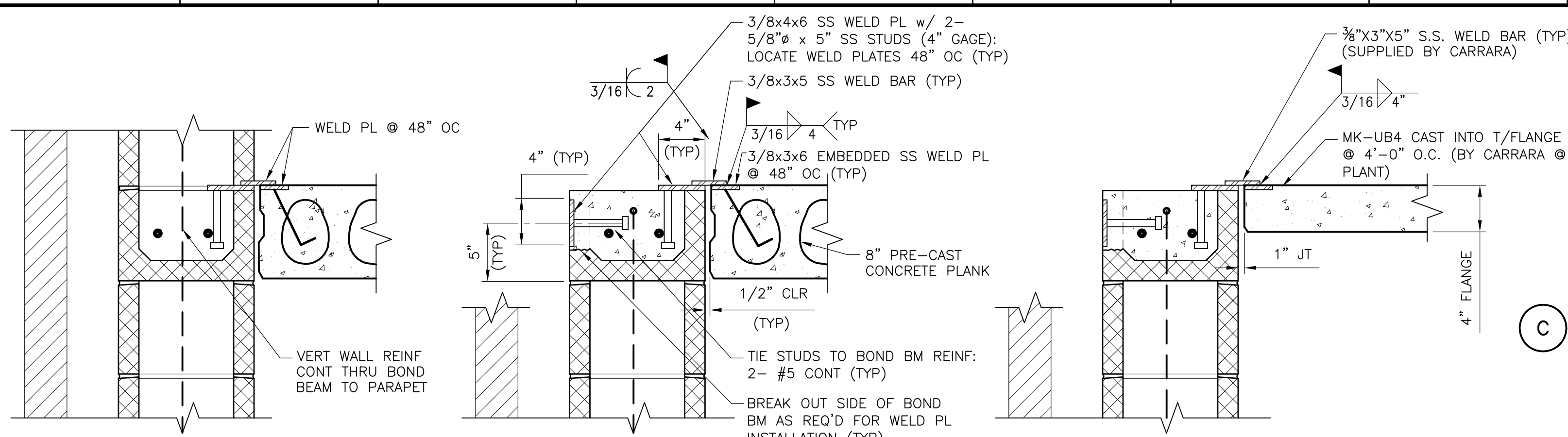
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**EAST AERATED GRIT TANKS PLANS**

Sht. 80 of 386

**HW-S-7**

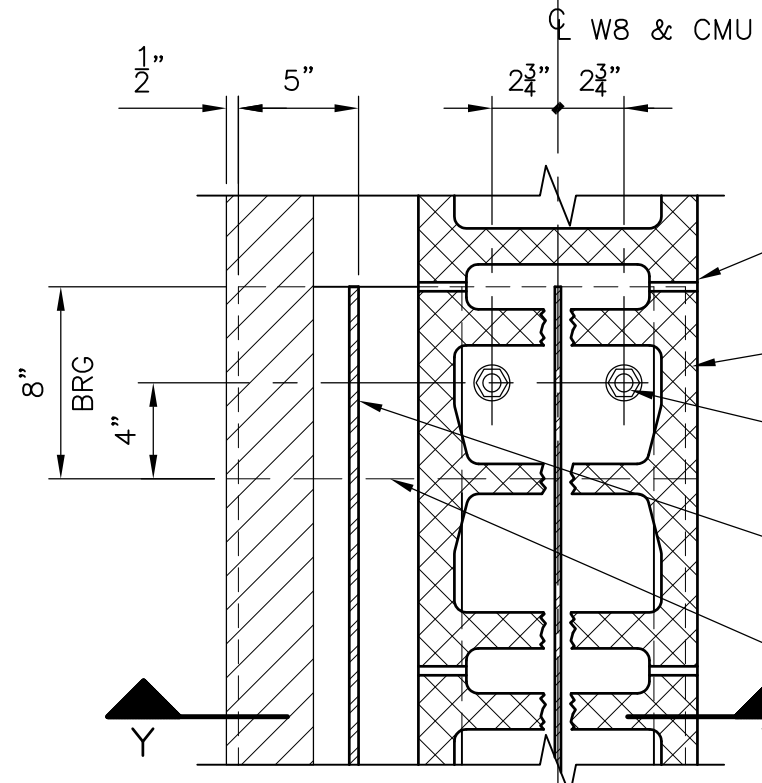


AT WEST LR SIDEWALLS

AT EAST LR SIDEWALLS

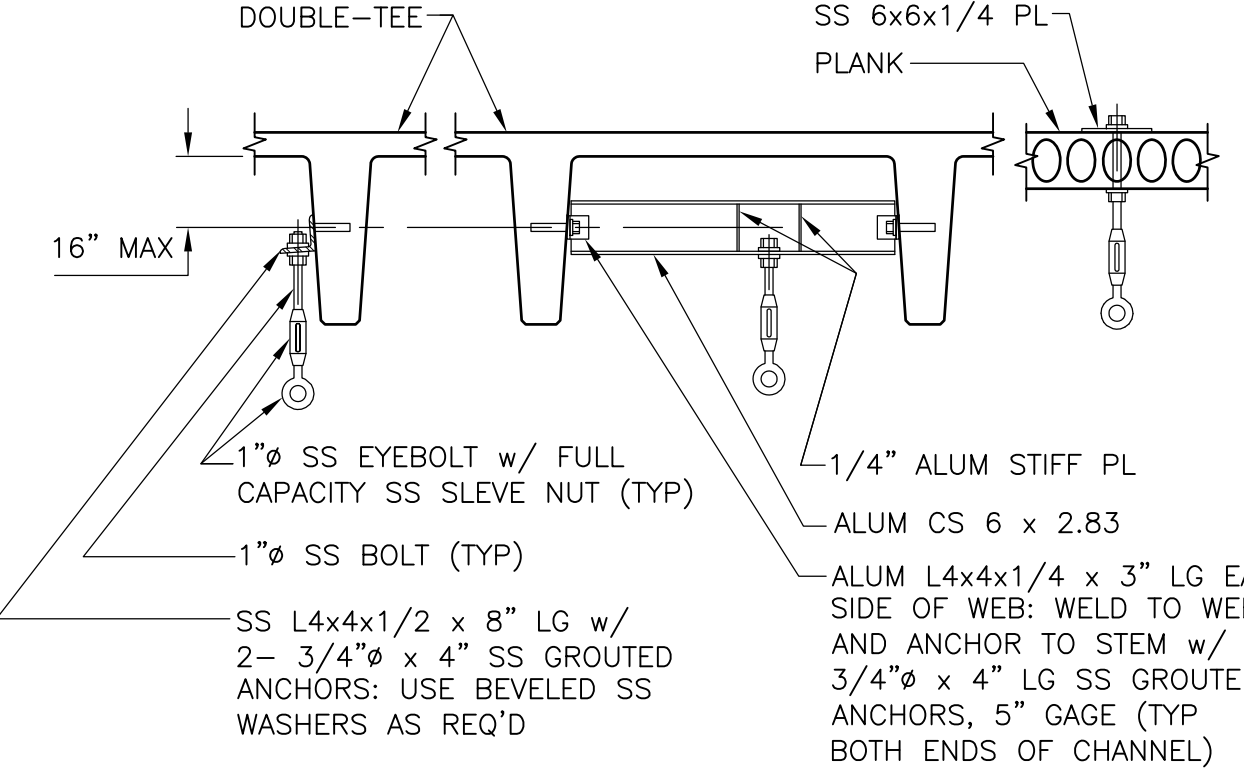
AT HR SIDEWALLS

**SIDEWALL CONNECTIONS SECTION 1**  
1 1/2" = 1'-0"



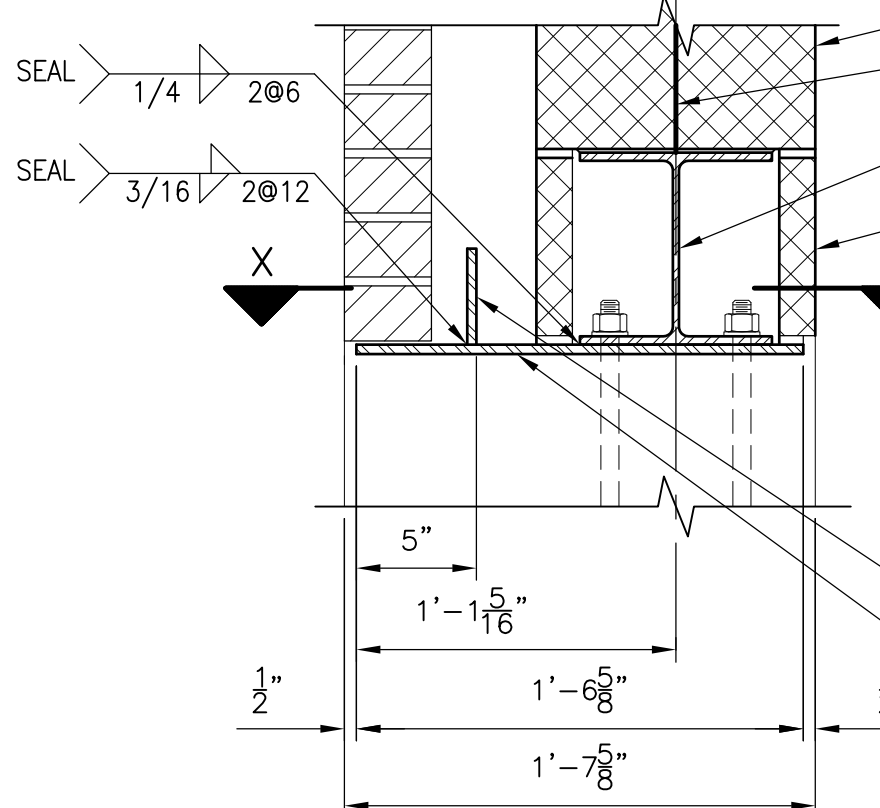
PLAN SECTION X-X

NOTE:  
 1. ALL STRUCTURAL MEMBERS SHALL BE HOT-DIP GALVANIZED FOLLOWING SHOP-FABRICATION.  
 2. SEE ARCH DWGS FOR ADDITIONAL INFORMATION.



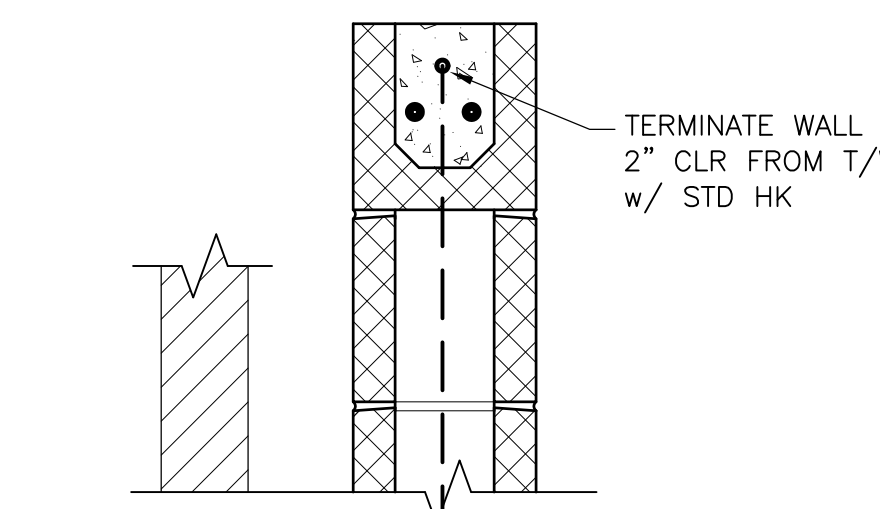
NOTE:  
 1. AT EACH EYEBOLT LOCATION POST PLASTIC SIGN STATING "MAX CAPACITY 1000 LBS".  
 2. SEE PLAN FOR REQ'D LIFTING HOOK LOCATIONS, COORDINATE W/MECH. EQ.

**LIFTING HOOK ATTACHMENT DETAIL A**  
NO SCALE



SECTION Y-Y

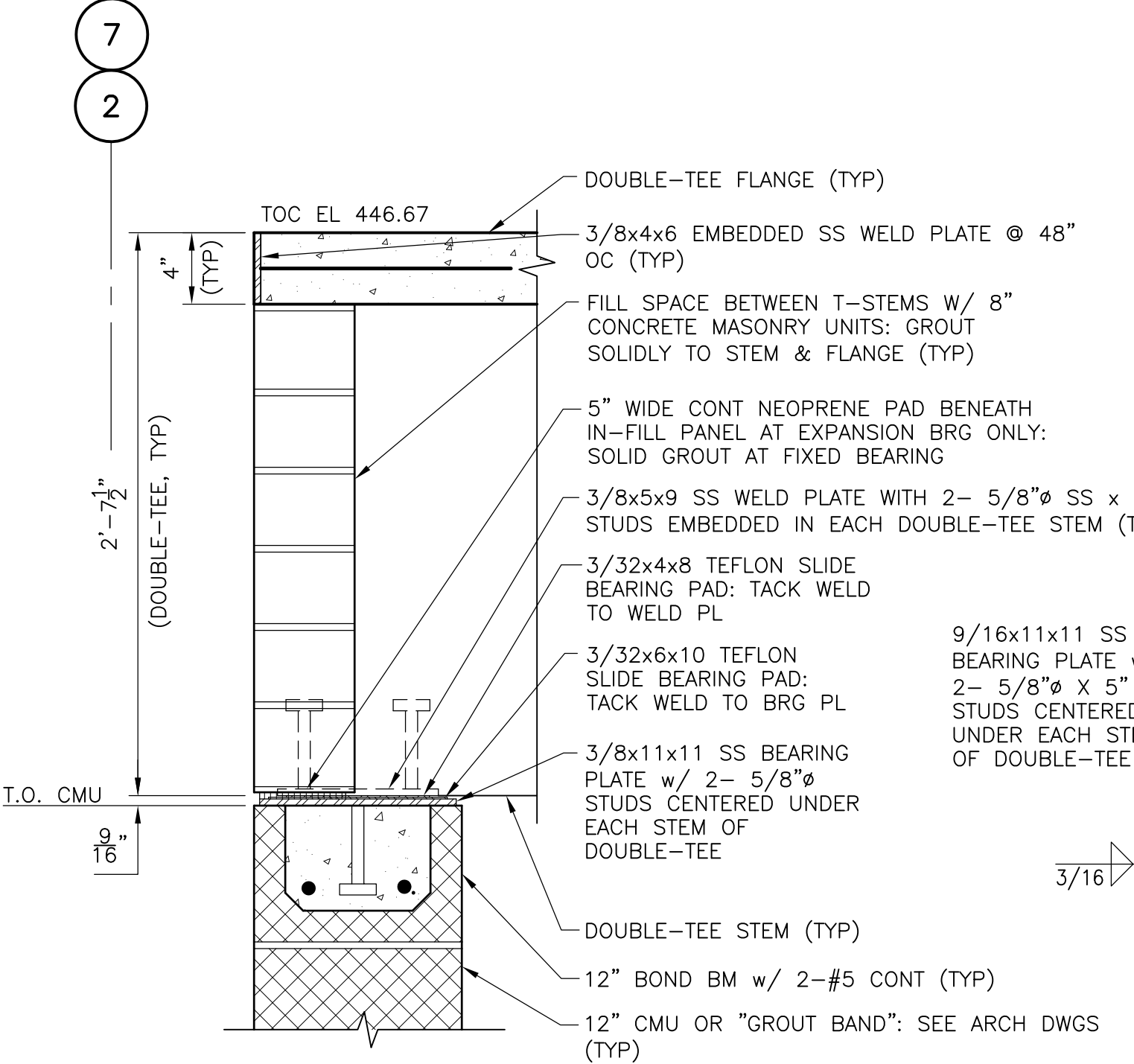
**OH DOOR LINTEL SECTION 2**  
1 1/2" = 1'-0"



**LOW ROOF PARAPET SECTION 3**  
1 1/2" = 1'-0"

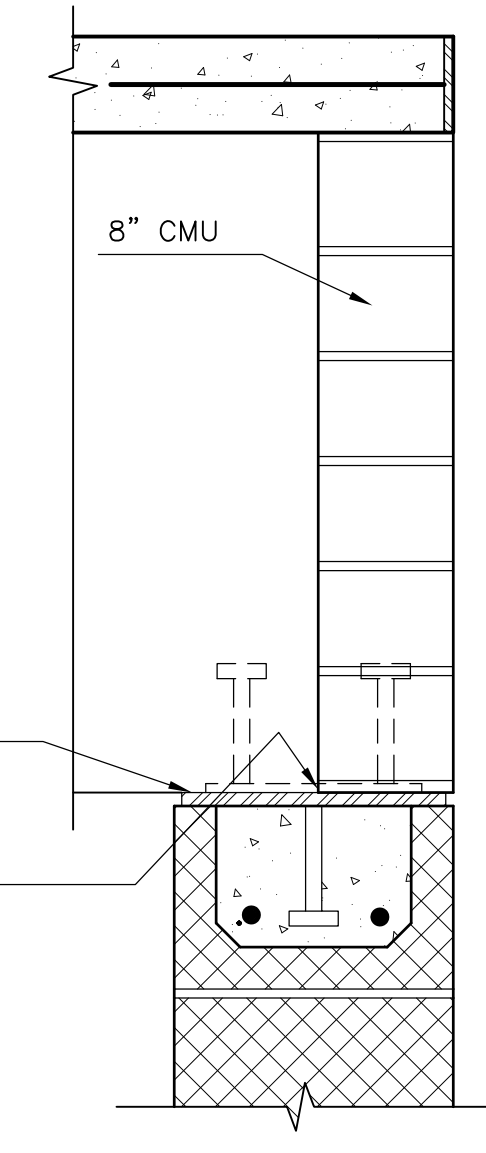
**PC PLANK & DT FLG EDGE CONNECTION SECTION 4**  
1 1/2" = 1'-0"

NOTE:  
 1. CONNECTIONS AT 10'-0" MAX OC.  
 2. CONNECTION WITHIN 4" OF BEARING EA END.  
 3. MINIMUM 4 CONNECTIONS PER EDGE.  
 4. GROUT JOINTS SOLID AFTER ALL DT & PLANK IN PLACE.  
 5. CONTRACTOR MAY SUBMIT ALTERNATE CONNECTION METHOD FOR REVIEW AND APPROVAL.  
 6. WELDING SHALL BE DONE IN ACCORDANCE W/AWS D1.479 TO DEVELOP FULL STRENGTH OF BAR.

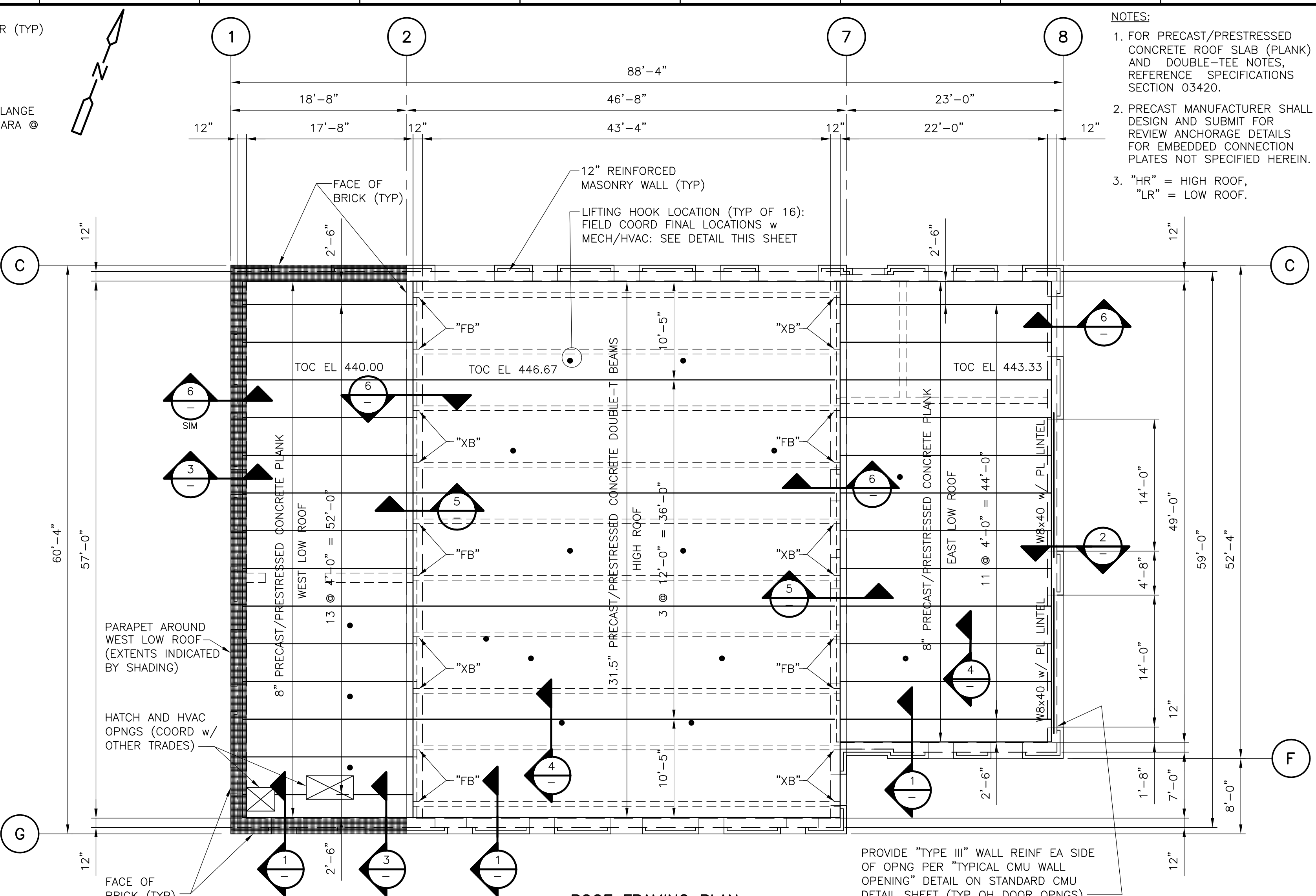


**EXPANSION BEARING (DENOTED "XB" ON PLAN)**

**DOUBLE-TEE BEARING SECTION 5**  
1 1/2" = 1'-0"

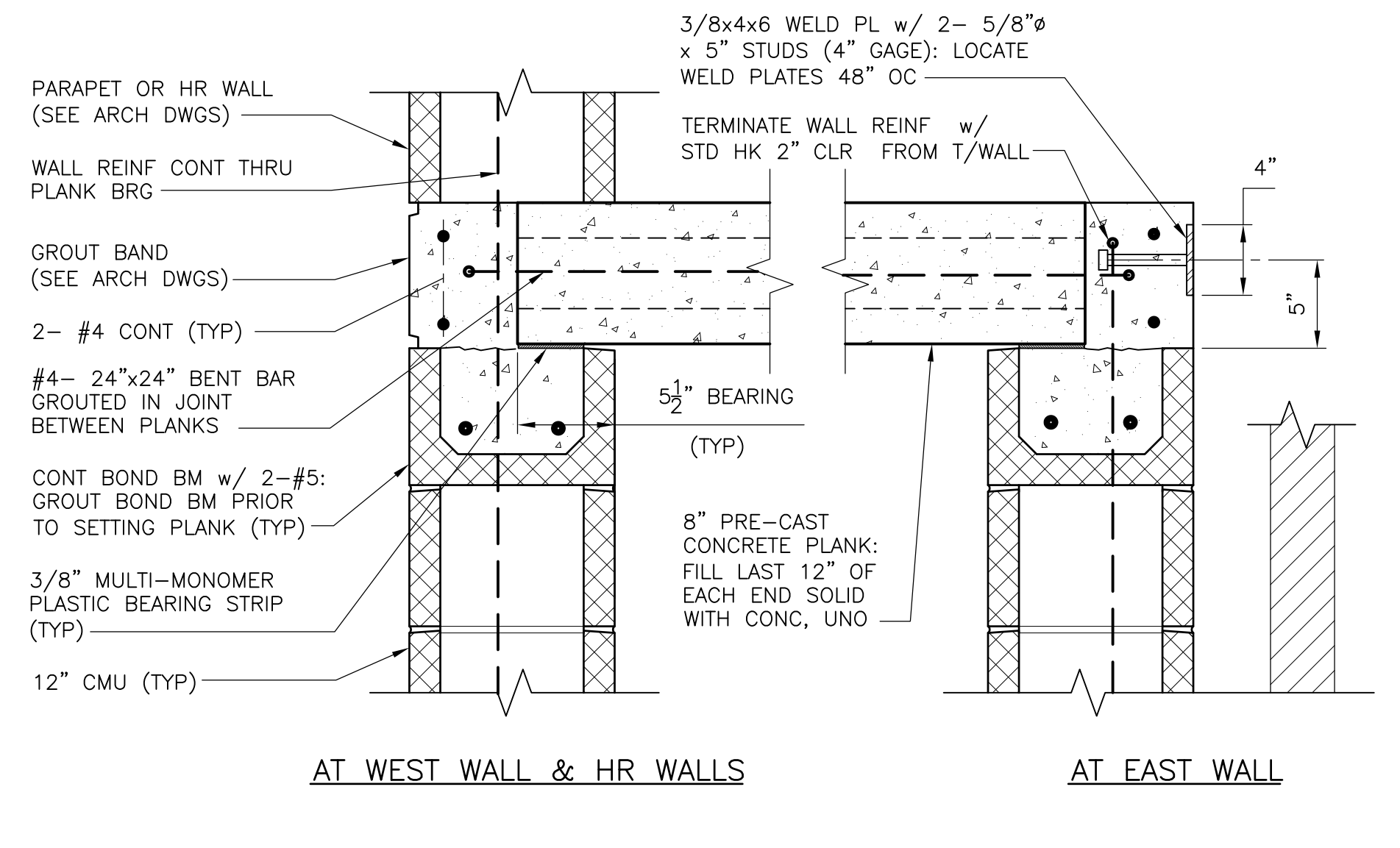


**FIXED BEARING (DENOTED "FB" ON PLAN)**



**ROOF FRAMING PLAN PLAN**  
1/8" = 1'-0"

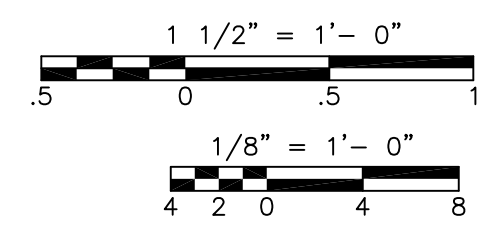
NOTES:  
 1. FOR PRECAST/PRESTRESSED CONCRETE ROOF SLAB (PLANK) AND DOUBLE-TEE NOTES, REFERENCE SPECIFICATIONS SECTION 03420.  
 2. PRECAST MANUFACTURER SHALL DESIGN AND SUBMIT FOR REVIEW ANCHORAGE DETAILS FOR EMBEDDED CONNECTION PLATES NOT SPECIFIED HEREIN.  
 3. "HR" = HIGH ROOF, "LR" = LOW ROOF.



AT WEST WALL & HR WALLS

AT EAST WALL

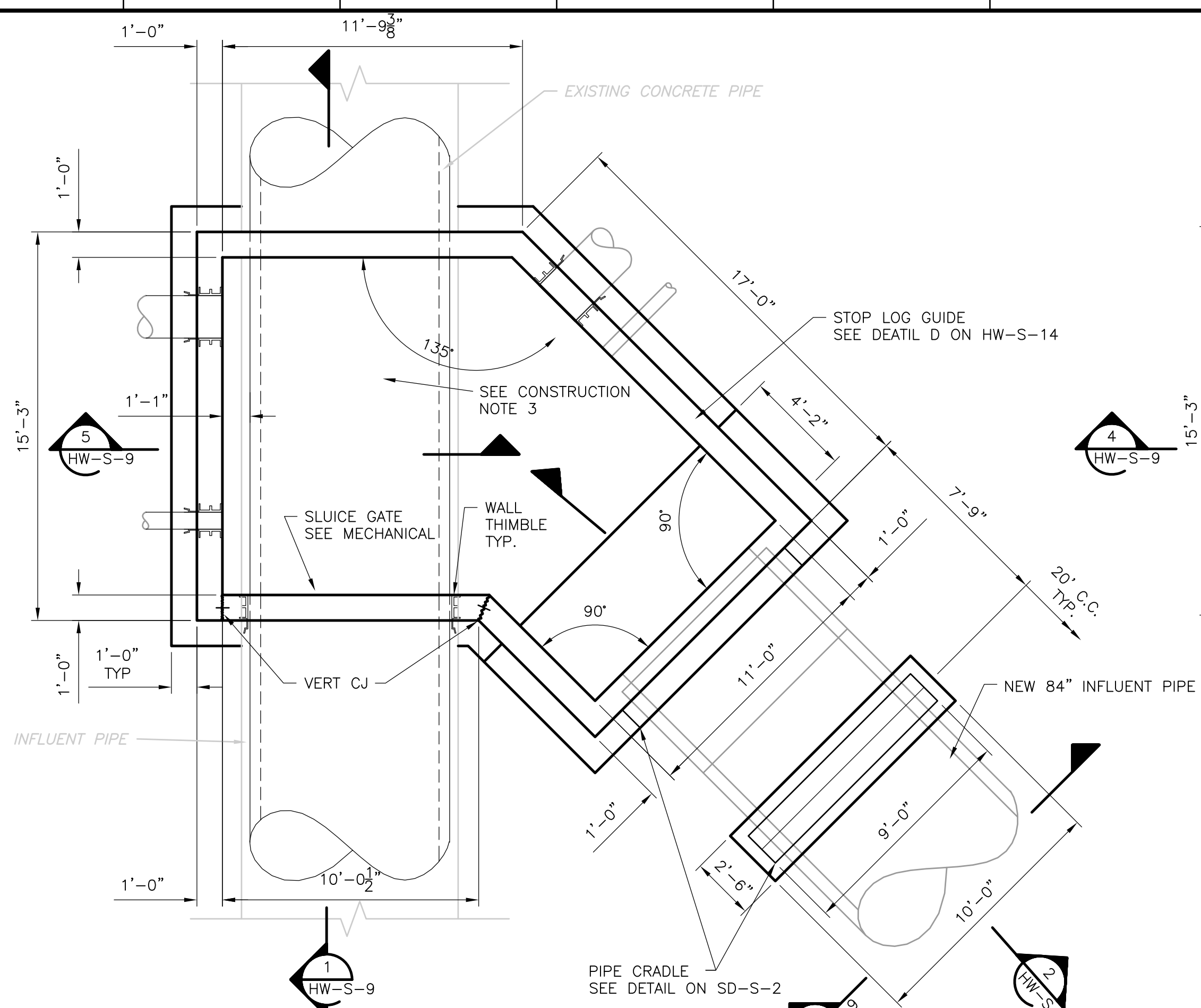
**ROOF PLANK BEARING SECTION 6**  
1 1/2" = 1'-0"



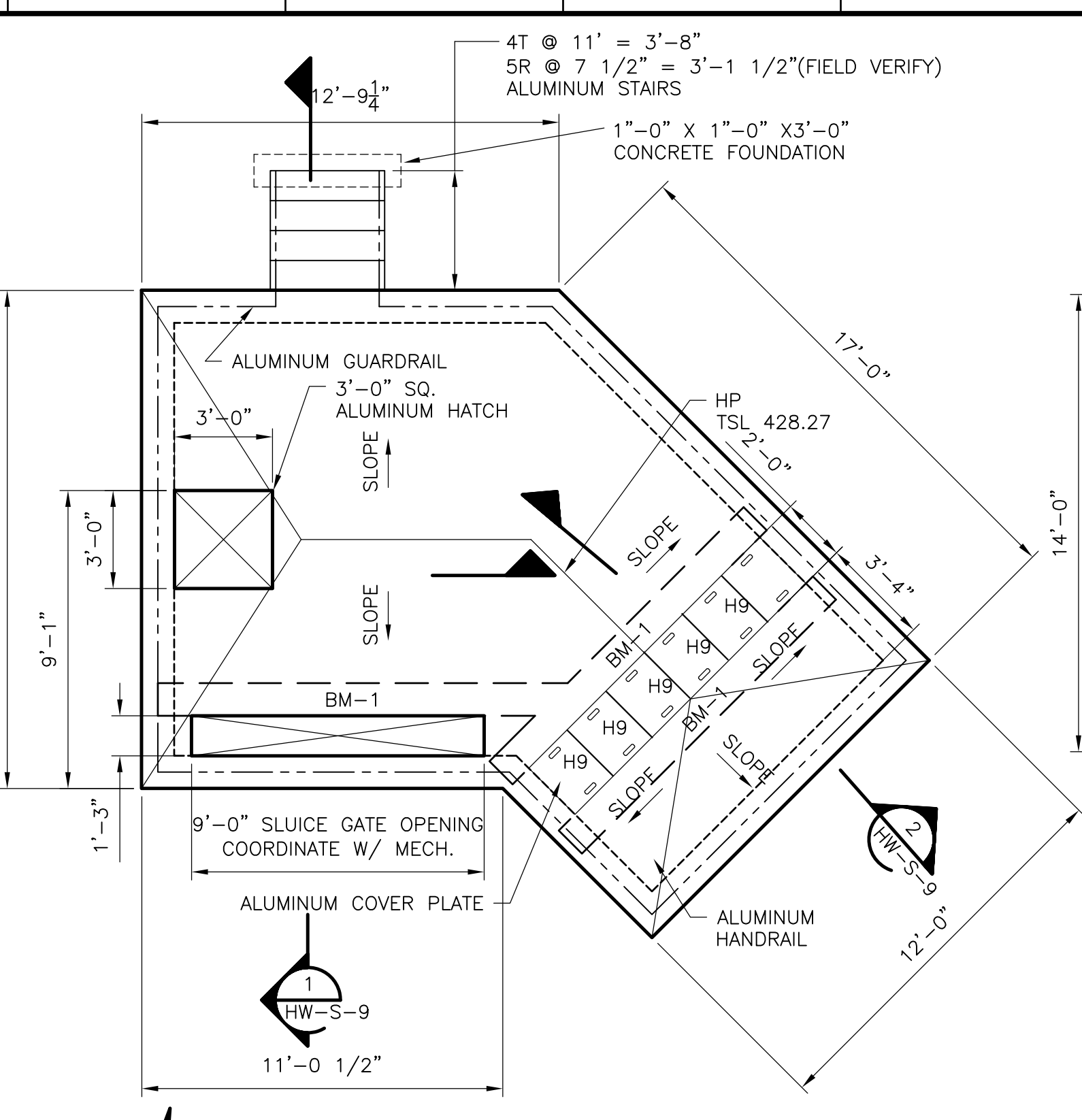
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REV. NO.	DATE	DRWN	CHKD	REMARKS					
10/07	JAL	ADT		REVISED FOR THE RECORD					

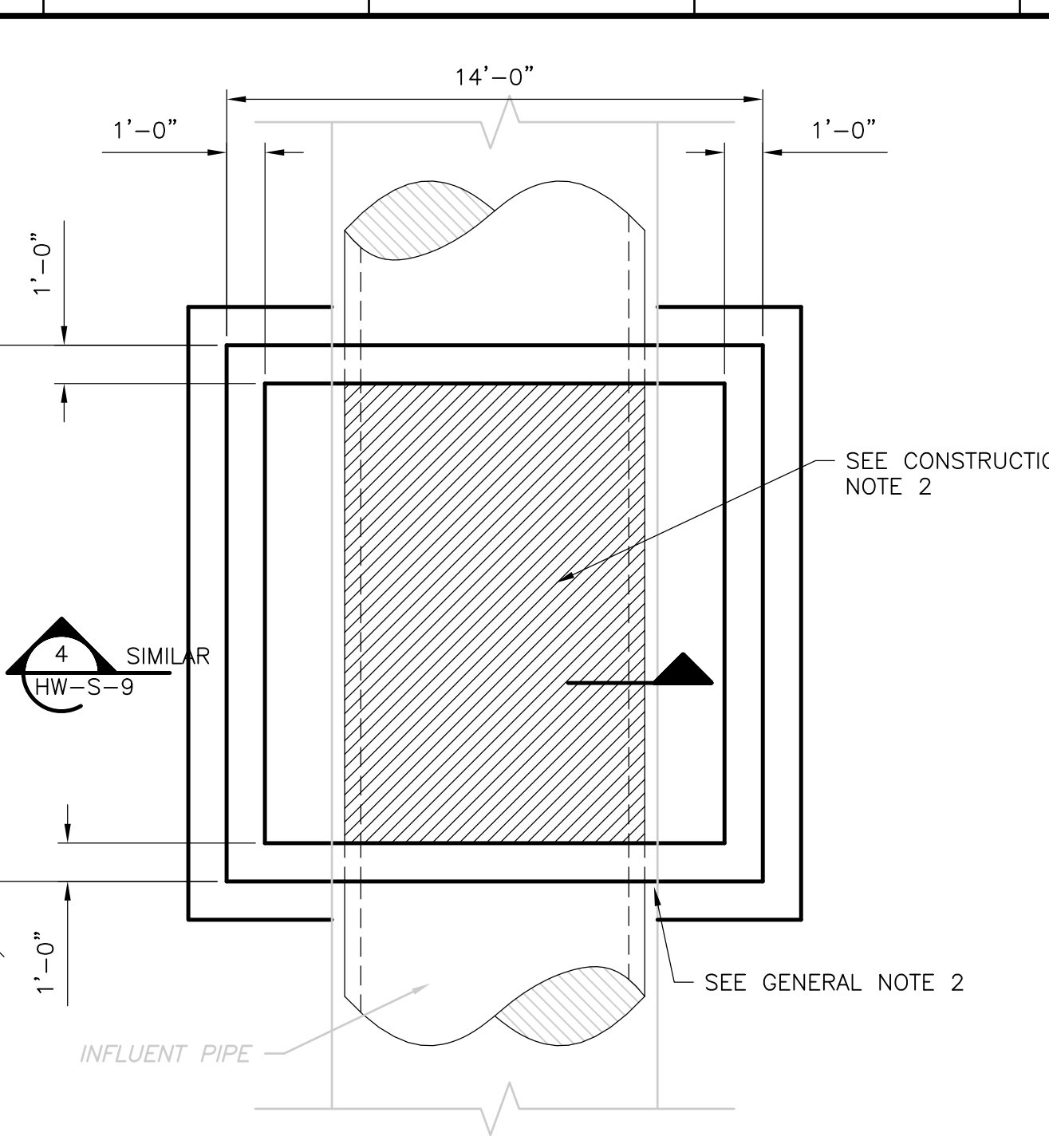




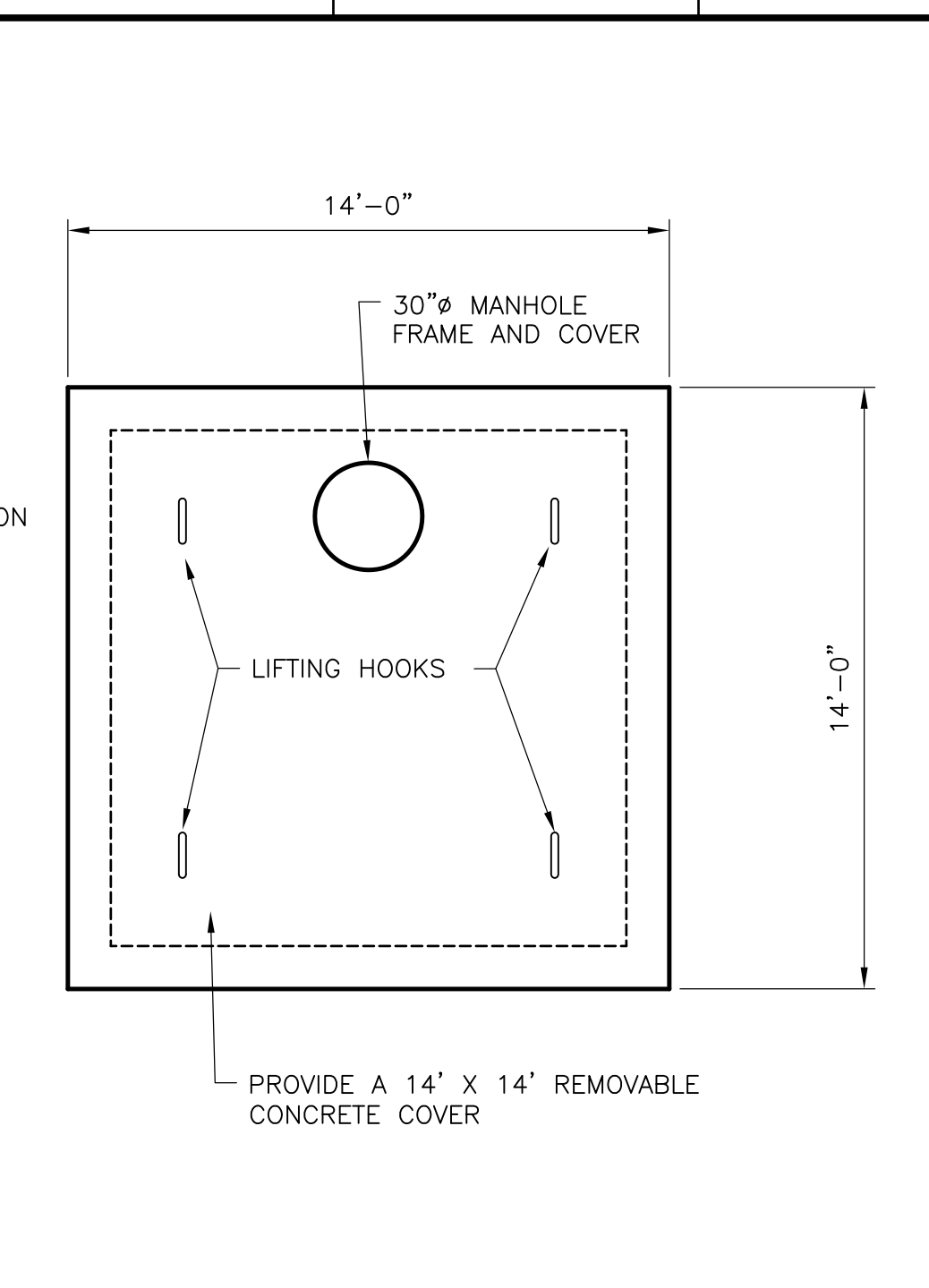
**JUNCTION BOX LOWER**  
**PLAN**  
 1/4" = 1'-0"



**JUNCTION BOX UPPER**  
**PLAN**  
 1/4" = 1'-0"  
 DESIGN LOADS:  
 ROOF LIVE LOADS = 200 PSF



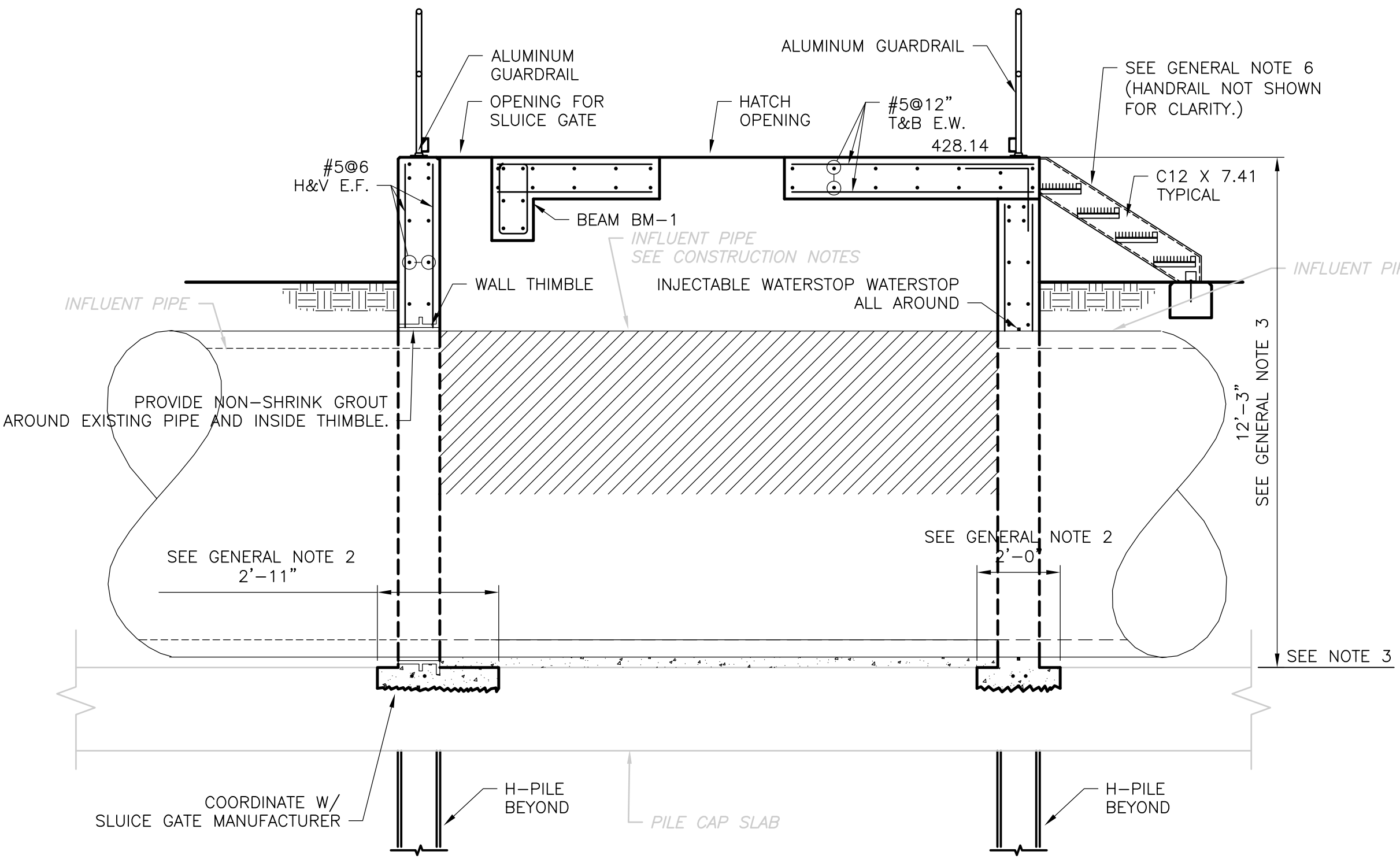
**BYPASS PUMPING VAULT LOWER**  
**PLAN**  
 1/4" = 1'-0"



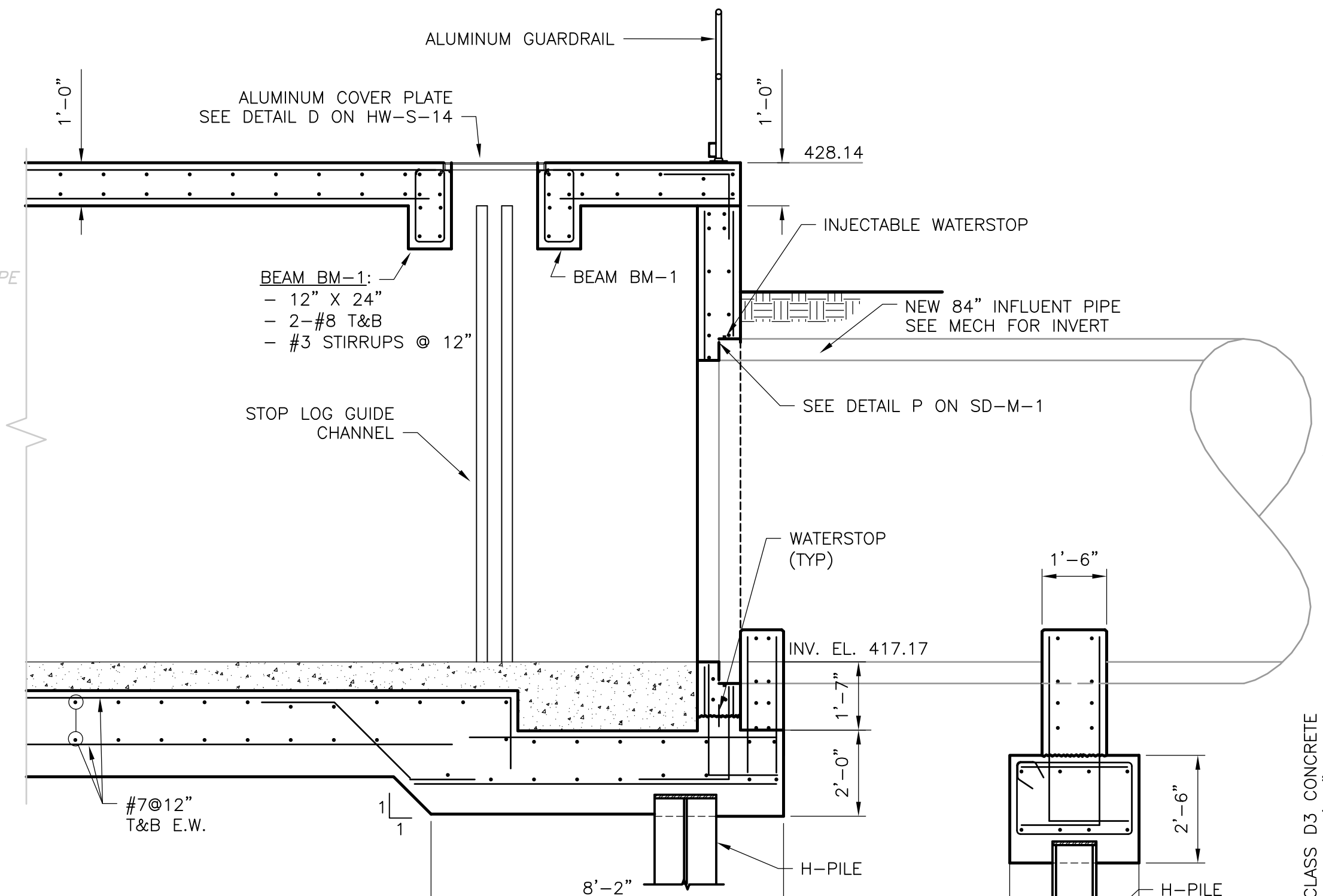
**BYPASS PUMPING VAULT UPPER**  
**PLAN**  
 1/4" = 1'-0"  
 DESIGN LOADS:  
 ROOF LIVE LOADS = 200 PSF

- GENERAL NOTES:**
- EXISTING PIPE CRADLES NOT SHOWN. CONTRACTOR FIELD VERIFY LOCATIONS.
  - CHIP OUT CONCRETE UNDER EXISTING INFLUENT PIPE. DO NOT CUT REBAR.
  - FIELD COORDINATE THIS ACTUAL DIMENSION.
  - CONTRACTOR SHALL COAT WALLS AND CONCRETE CEILINGS OF COVERED CHANNELS AND TANK TO ONE FOOT BELOW THE LOW WATER SURFACE AND SHALL COAT ALL INTERIOR CONCRETE SURFACES OF THE JUNCTION BOX. THE BYPASS PUMPING VAULT WILL NOT RECEIVE COATING. SEE SPECIFICATION SECTION 03180.
  - SEE HW-M-9 FOR DETAILS. SEE C-13 FOR LOCATION.
  - SEE SD-S-4 FOR STAIR DETAILS. SEE SD-S-5 FOR HANDRAIL DETAILS.

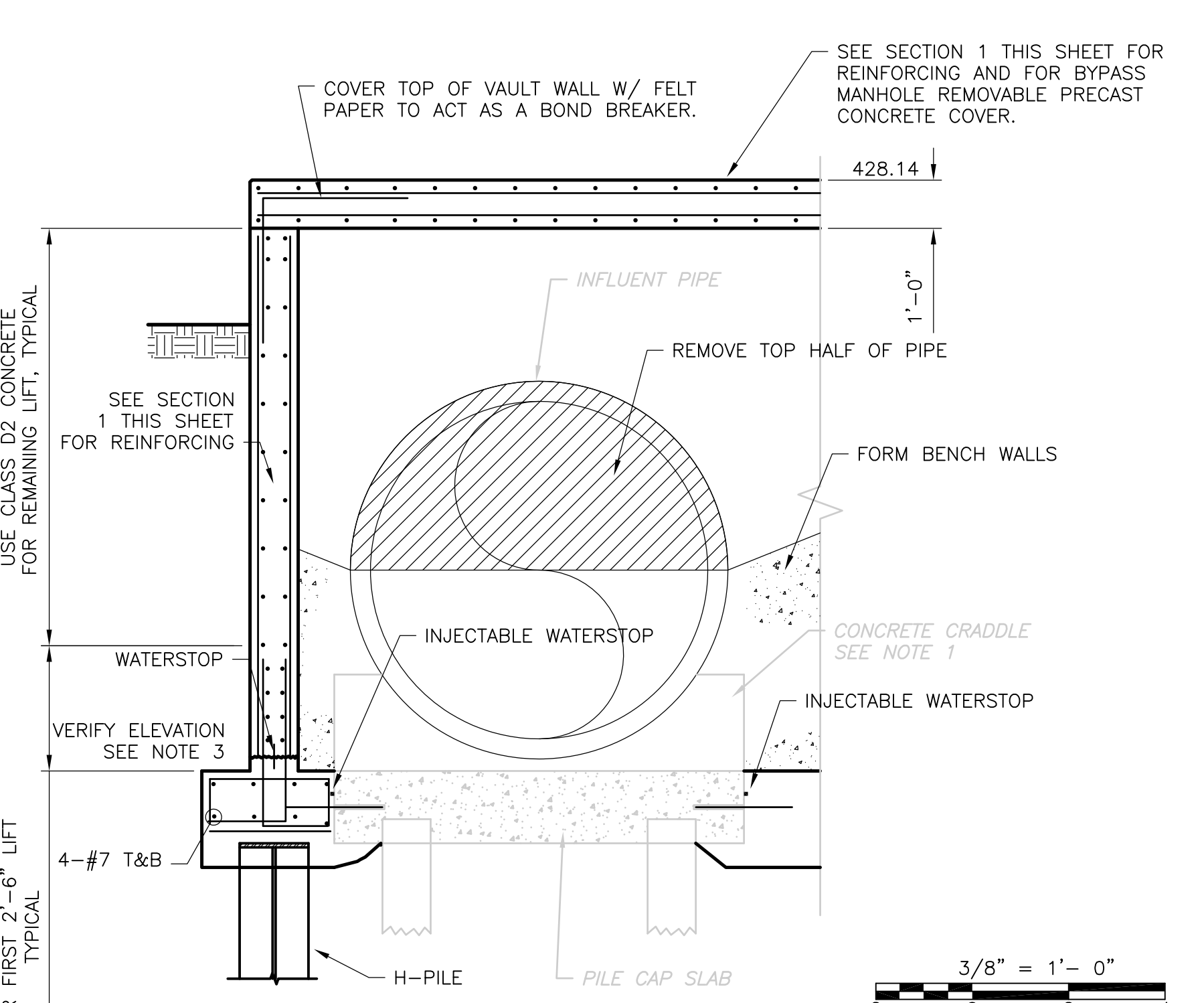
- CONSTRUCTION NOTES:**
- CONSTRUCT CONCRETE STRUCTURES AROUND EXISTING INFLUENT PIPE. SEE PILE PLAN ON HW-S-1.
  - CUT OUT TOP OF EXISTING PIPE WITHIN THE BYPASS PUMPING VAULT.
  - ONCE WORK IS COMPLETED ON THE EAST GRIT FACILITY, TEMPORARILY BLOCK FLOW AT OUTLET IN BYPASS PUMPING VAULT, BYPASS PUMP FROM BYPASS PUMPING VAULT TO INFLUENT CHANNEL OF EAST SCREENINGS AND GRIT FACILITY.
  - DEMOLISH EXISTING PIPE AND CRADLES WITHIN JUNCTION BOX. PLACE CONCRETE FILL UP TO BOTTOM INVERT ELEVATION OF EXISTING PIPE.
  - INSTALL SLUCE GATE IN JUNCTION BOX.
  - UNBLOCK BYPASS OUTLET, TERMINATE BYPASS PUMPING, AND RESTORE NORMAL FLOW. SEE SECTION 01810 FOR SEQUENCE OF CONSTRUCTION.



**SECTION 1**  
 3/8" = 1'-0"  
 HW-S-9



**SECTION 2**  
 3/8" = 1'-0"  
 HW-S-9



**SECTION 4**  
 3/8" = 1'-0"  
 HW-S-9

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	JAL	ADT		REVISED FOR THE RECORD

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DRAWN BY:	MJL
SHEET CHK'D BY:	CMK
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
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 operations

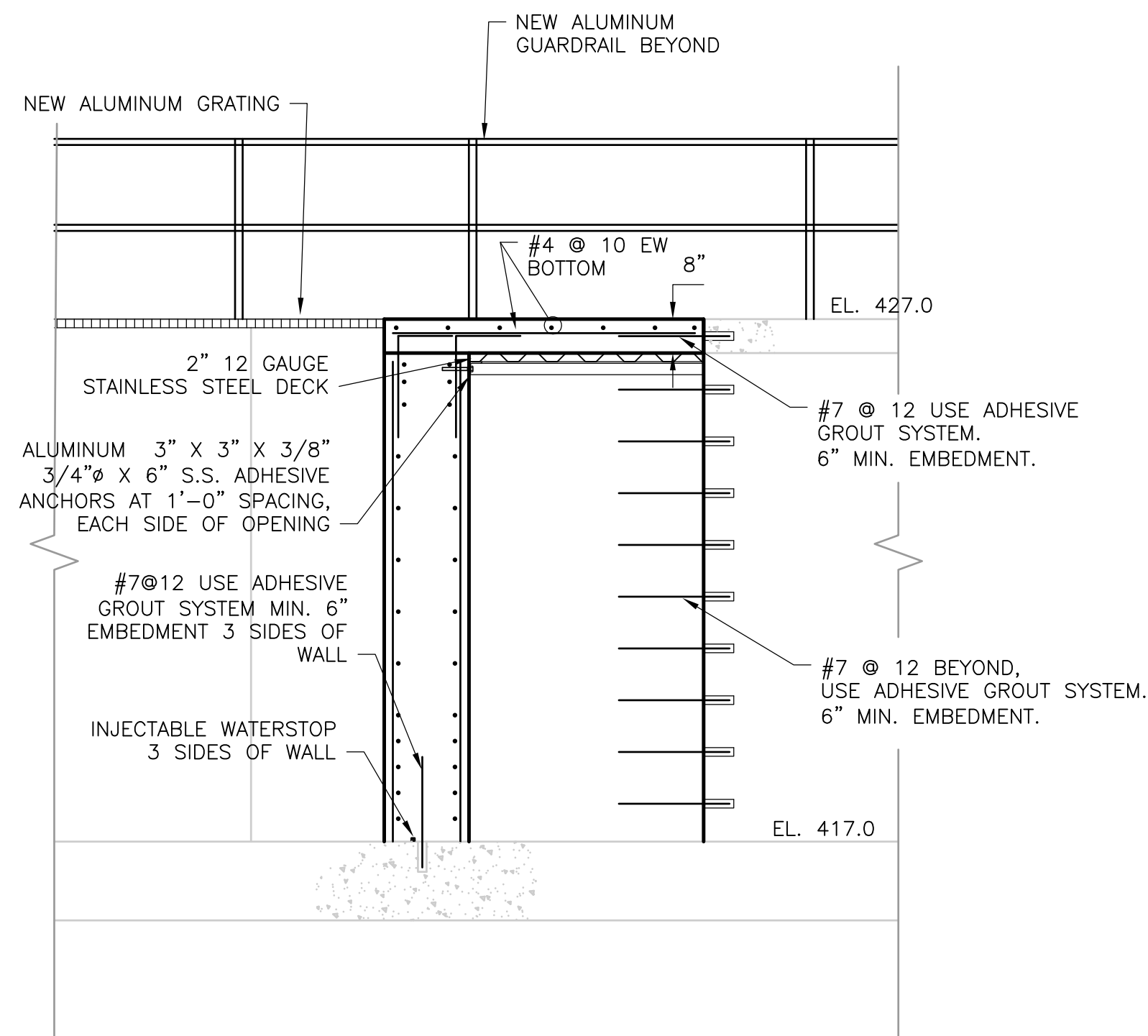
**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**JUNCTION BOX**  
**PLANS AND SECTIONS**

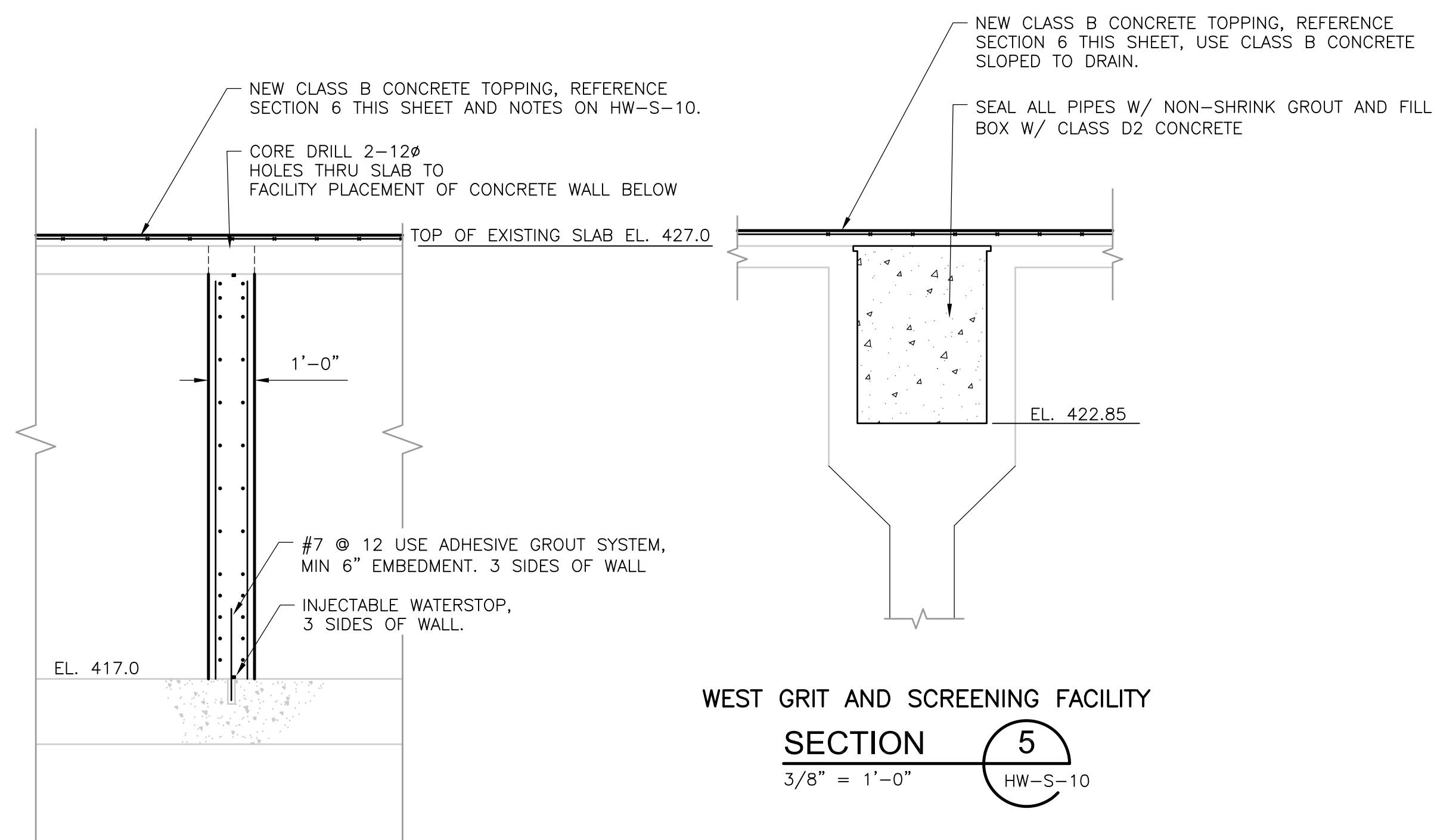
PROJECT NO.  
 1289\35370  
 Sht. 82 of 386  
**HW-S-9**



UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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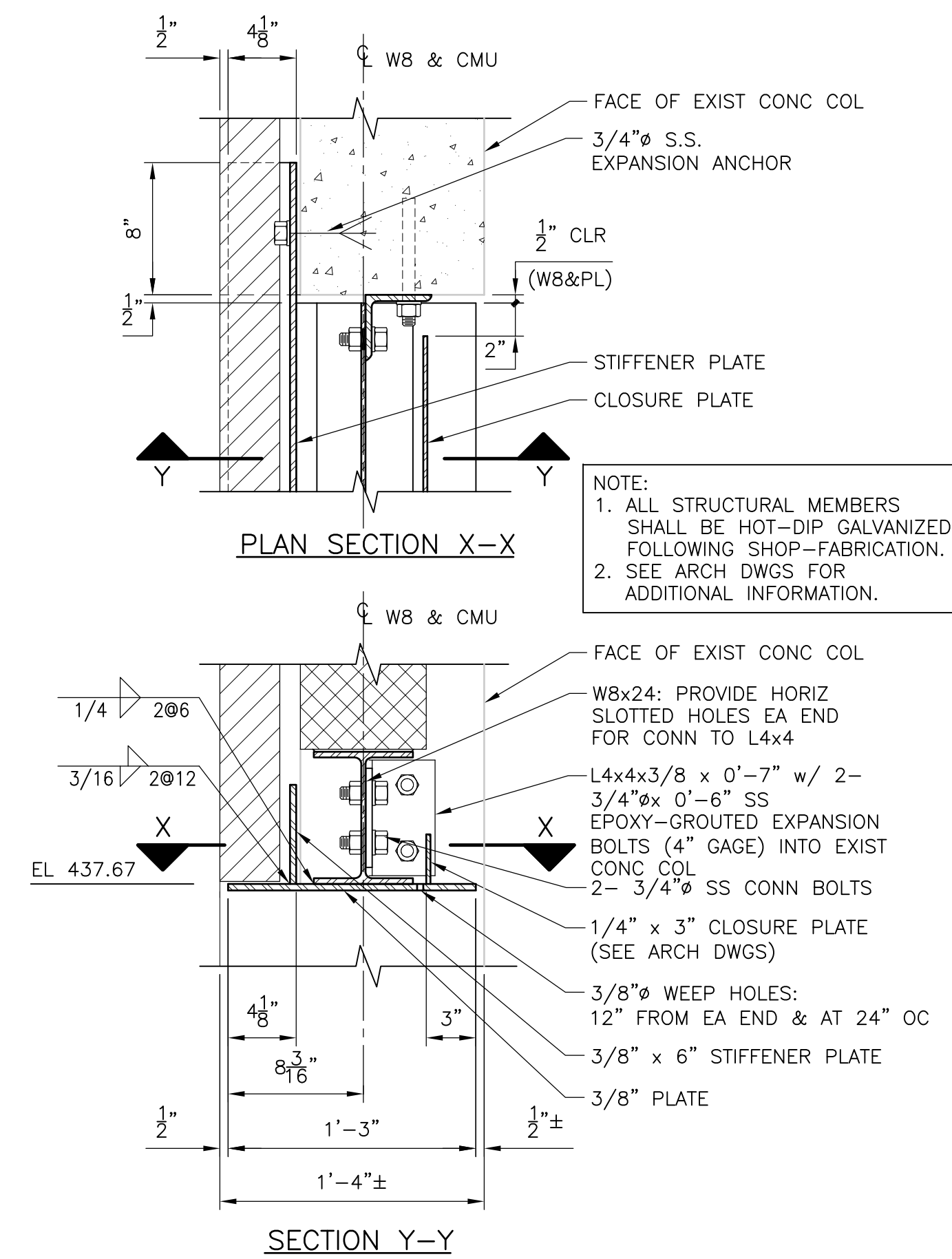


WEST GRIT AND SCREENING FACILITY  
**SECTION 1**  
 3/8" = 1'-0" HW-S-10

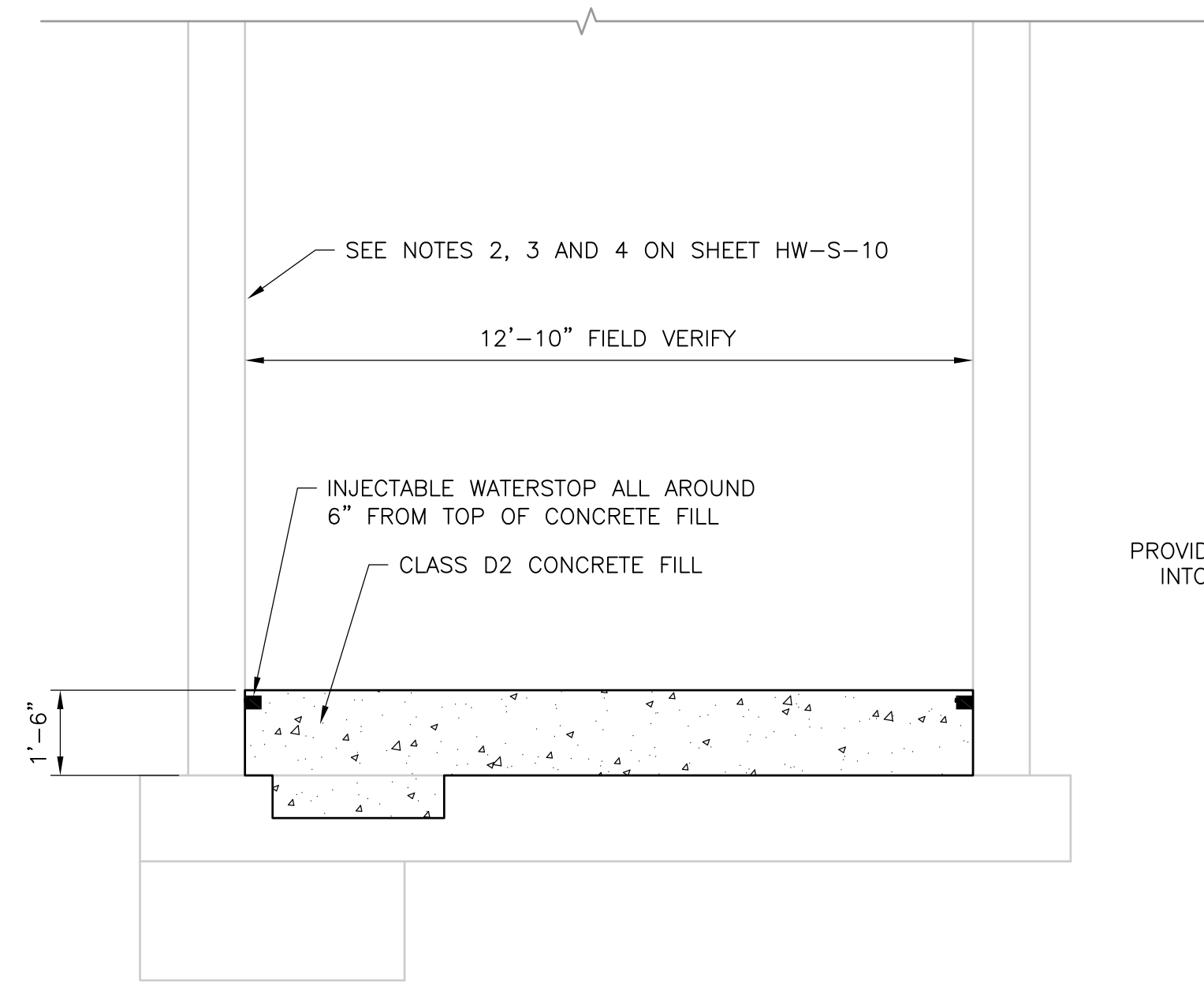


WEST GRIT AND SCREENING FACILITY  
**SECTION 2**  
 3/8" = 1'-0" HW-S-10

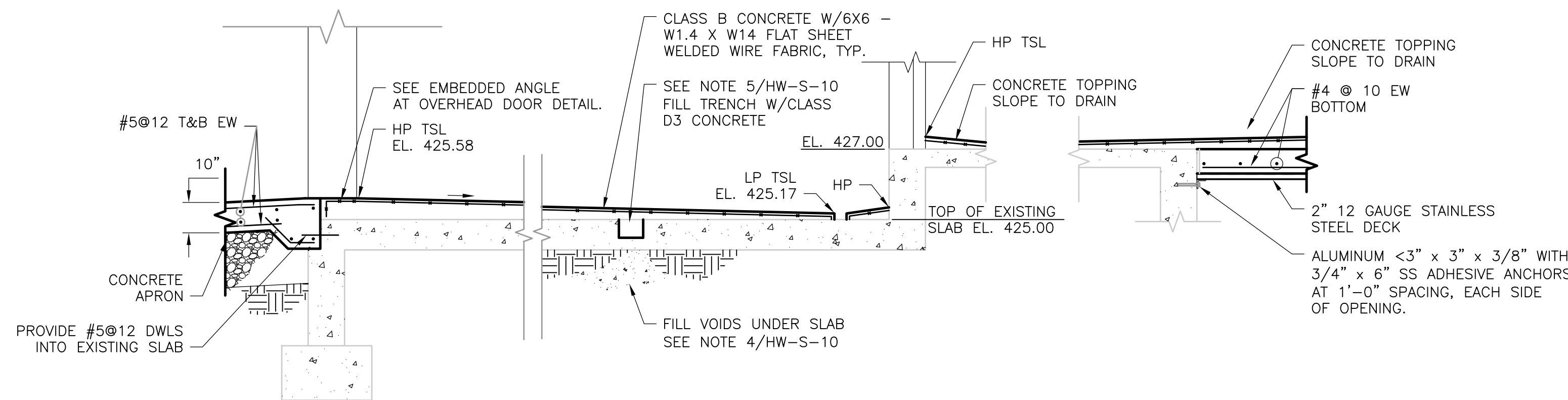
WEST GRIT AND SCREENING FACILITY  
**SECTION 5**  
 3/8" = 1'-0" HW-S-10



OH DOOR LINTEL AT EXIST WALL  
**DETAIL A**  
 1 1/2" = 1'-0" HW-S-11



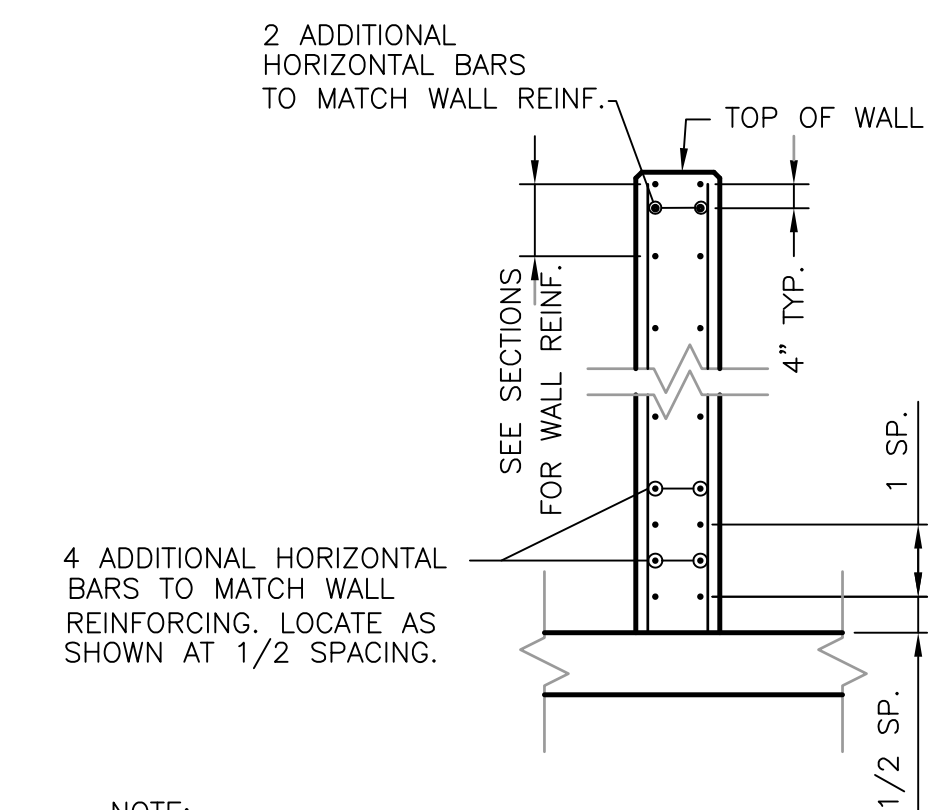
DRAIN PUMP ROOM  
**SECTION 4**  
 3/8" = 1'-0" HW-S-10



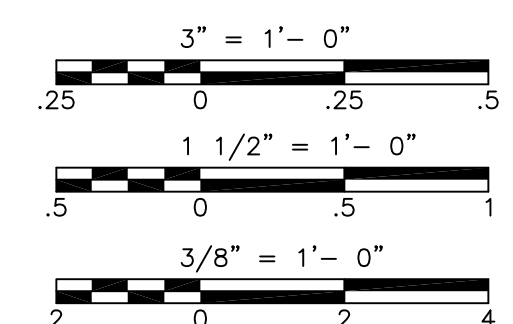
**SECTION 6**  
 3/8" = 1'-0" HW-S-10

**SECTION 7**  
 3/8" = 1'-0" HW-S-10

**SECTION 8**  
 3/8" = 1'-0" HW-S-10



HORIZONTAL WALL REINFORCING  
**DETAIL - SECTION VIEW**  
 NOT TO SCALE



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

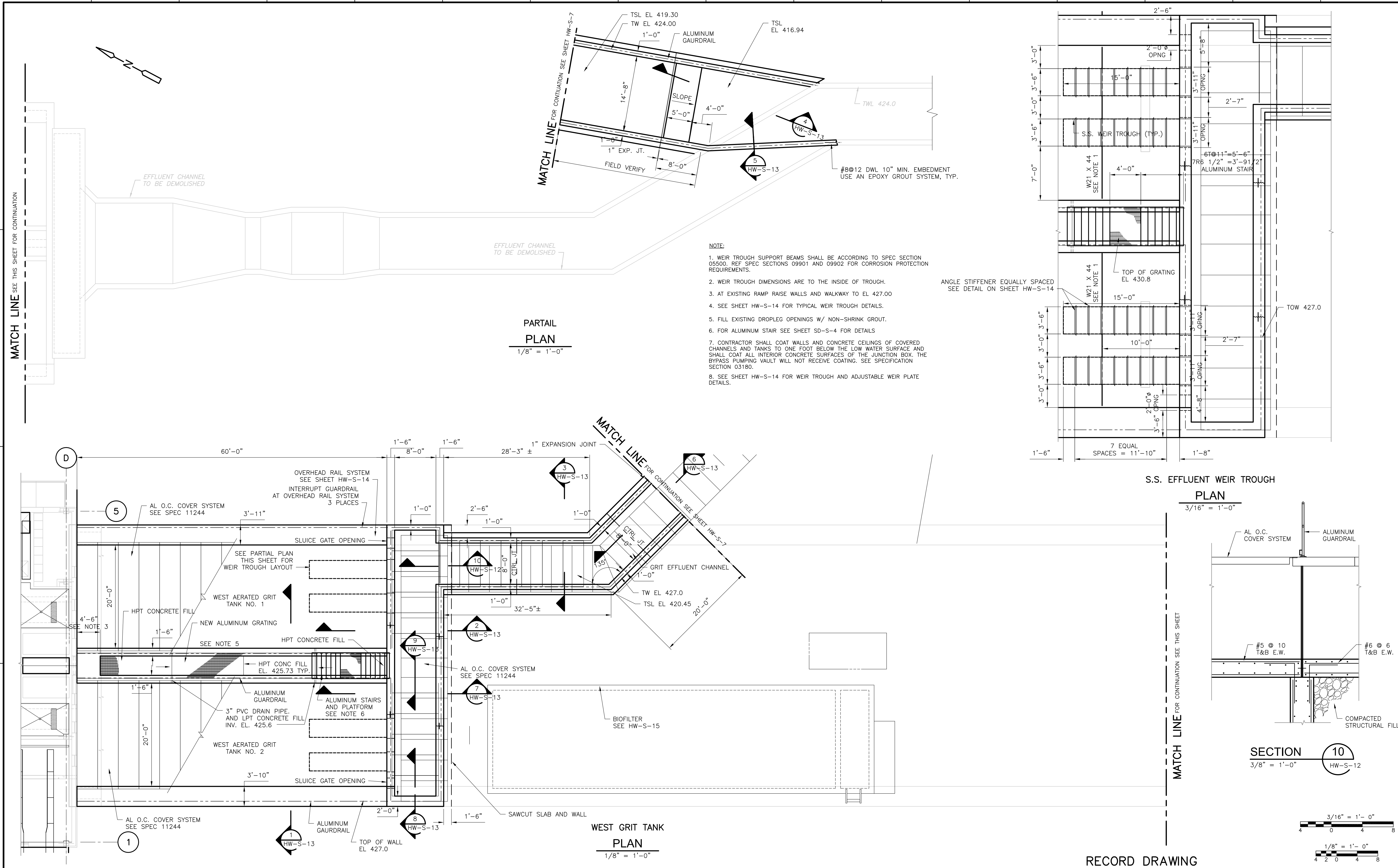
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DRAWN BY:	MJL
SHEET CHK'D BY:	CMK
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

WEST GRIT AND SCREENING FACILITY  
 SECTIONS  
 HW-S-11

PROJECT NO.  
 1289\35370  
 Sht. 84 of 386



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

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APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
CONTRACT No. UB 2024

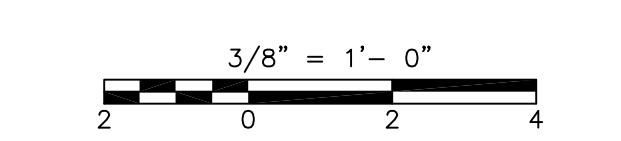
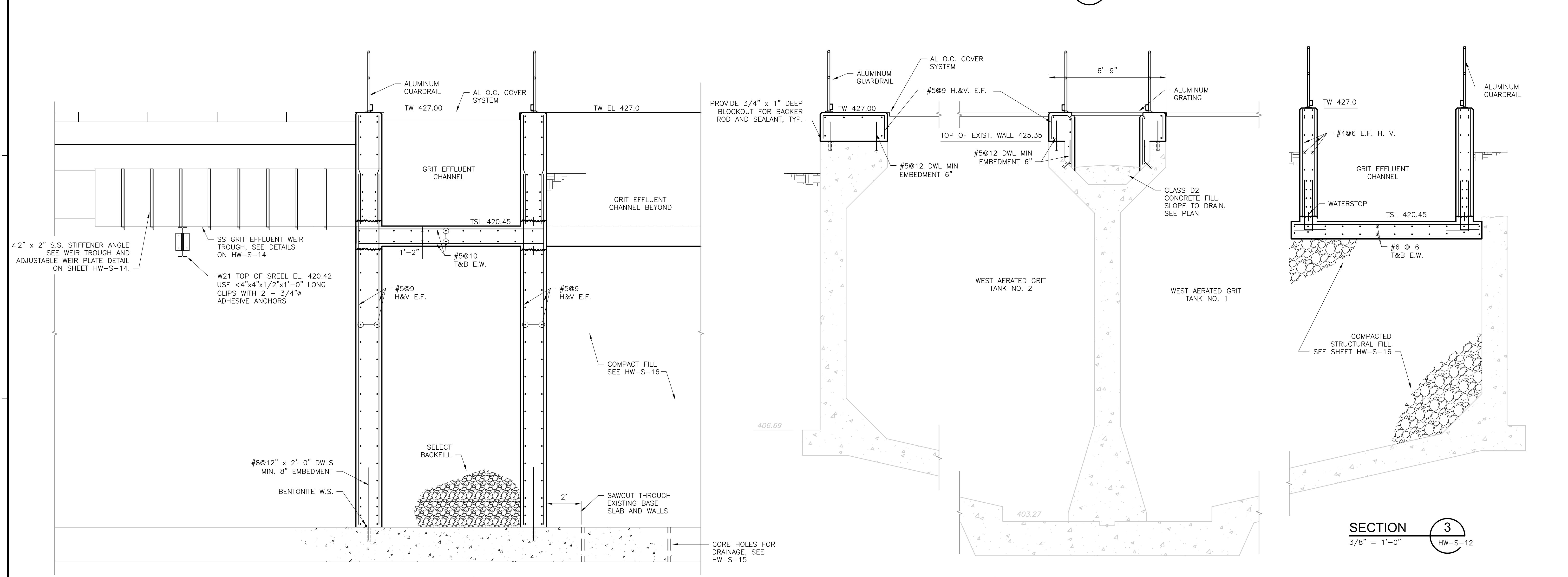
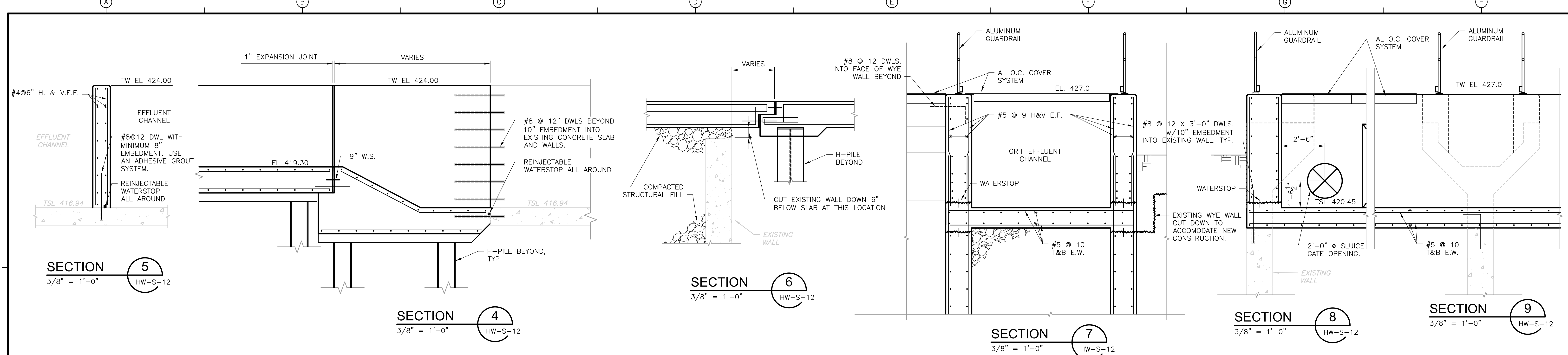
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**WEST AERATED GRIT TANKS PLANS**

HW-S-12

PROJECT NO. 1289\35370  
Sht. 85 of 386

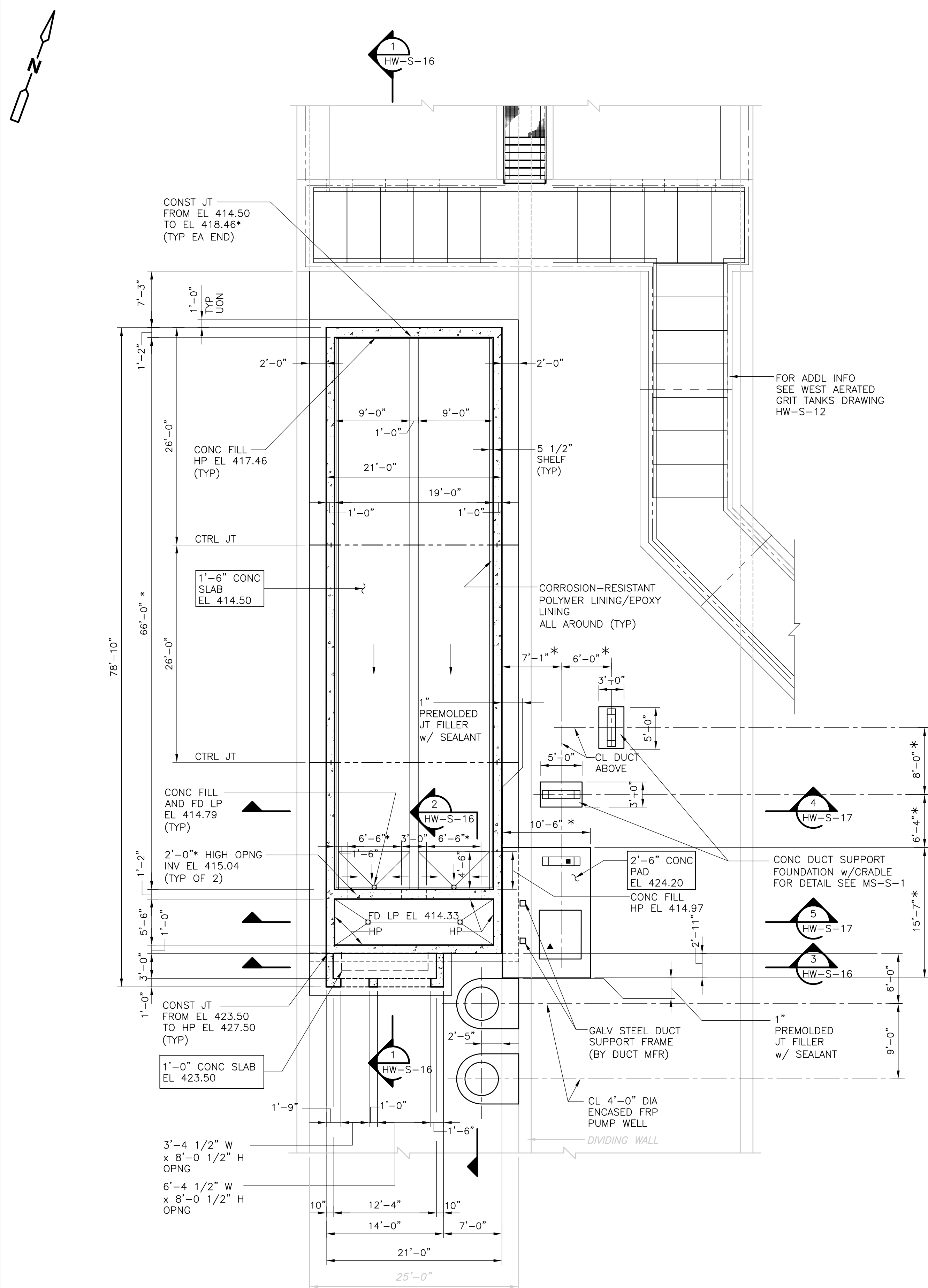
UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
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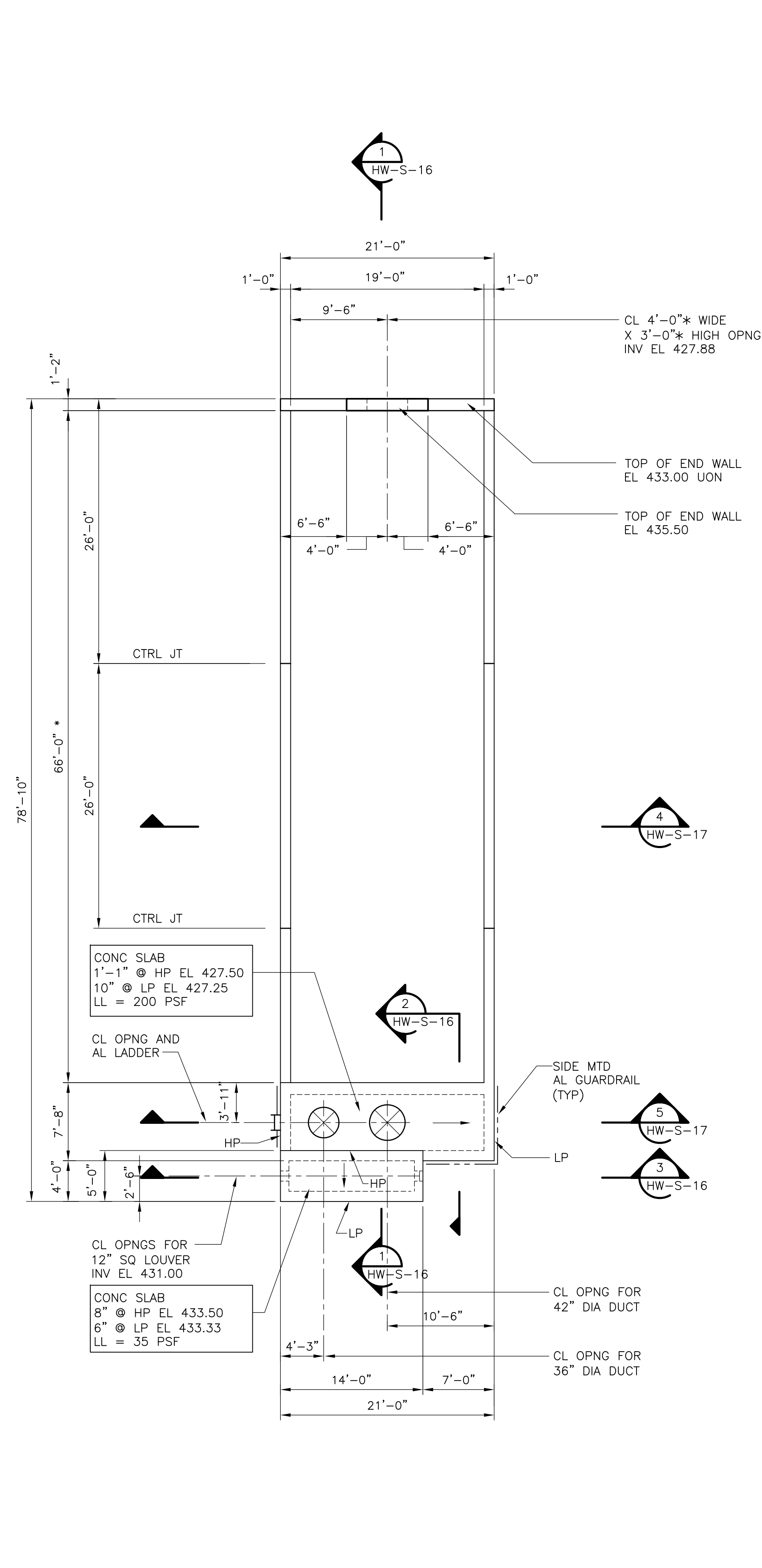
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REV. NO.	DATE	DRWN	CHKD	REMARKS														





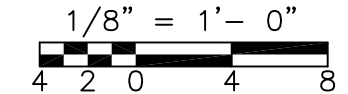
**BASE PLAN**  
 1/8" = 1'-0"



**TOP PLAN**  
 1/8" = 1'-0"

- NOTES:**
- \* INDICATES DIMENSIONS, ELEVATIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
  - SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN RECORD FROM DRAWINGS PRODUCED BY FAY, SPOFFARD AND THORNDIKE, INC. ENGINEERS, TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES, CONTRACT NO. 2", DATED FEBRUARY 1973. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
  - PLACE AND COMPACT STRUCTURAL FILL AGAINST EXISTING DIVIDING WALL UNIFORMLY. THE BACKFILL LEVELS SHALL BE CONTROLLED SUCH THAT THE STRUCTURAL FILL DIFFERENTIAL DOES NOT EXCEED 12 INCHES UP TO ELEVATION 413.00.
  - INDICATES CONCRETE PIPE CRADLE.
  - ▲ INDICATES EQUIPMENT PAD.

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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DESIGNED BY:	D.L. HARRIS
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	D.L. HARRIS
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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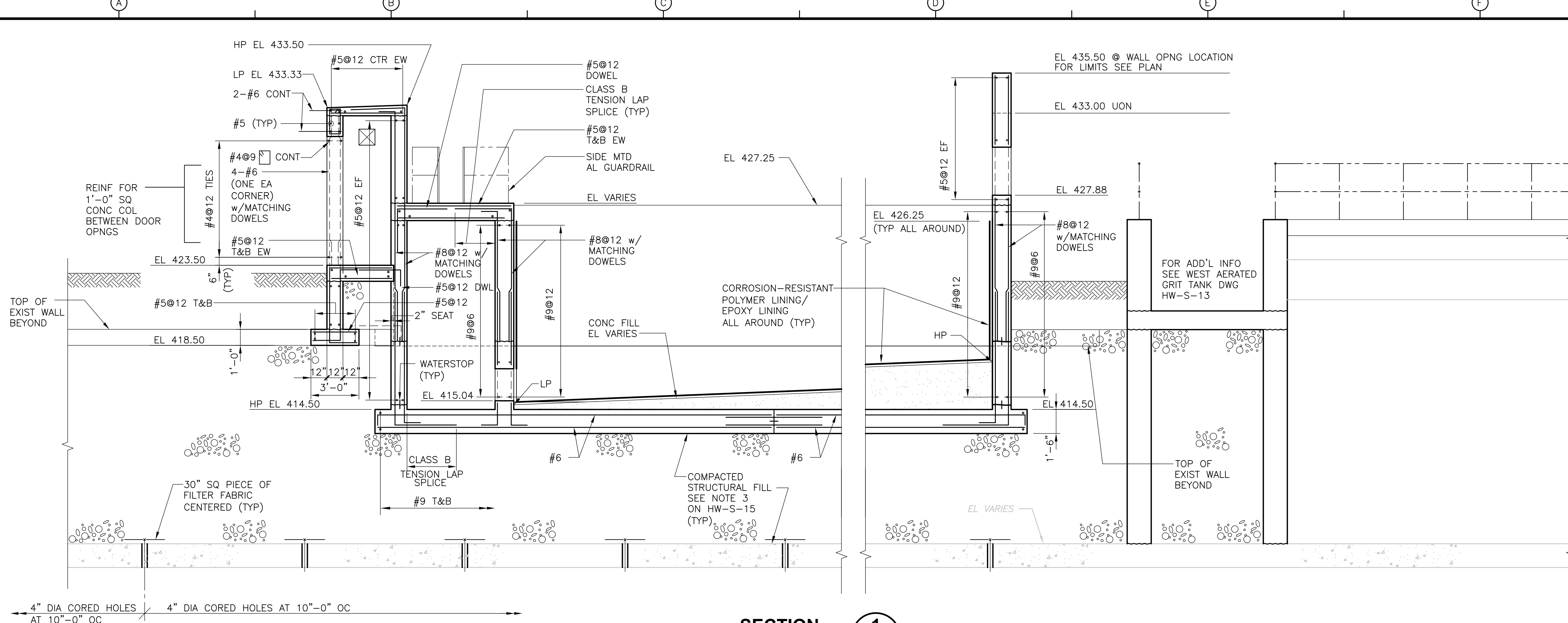
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

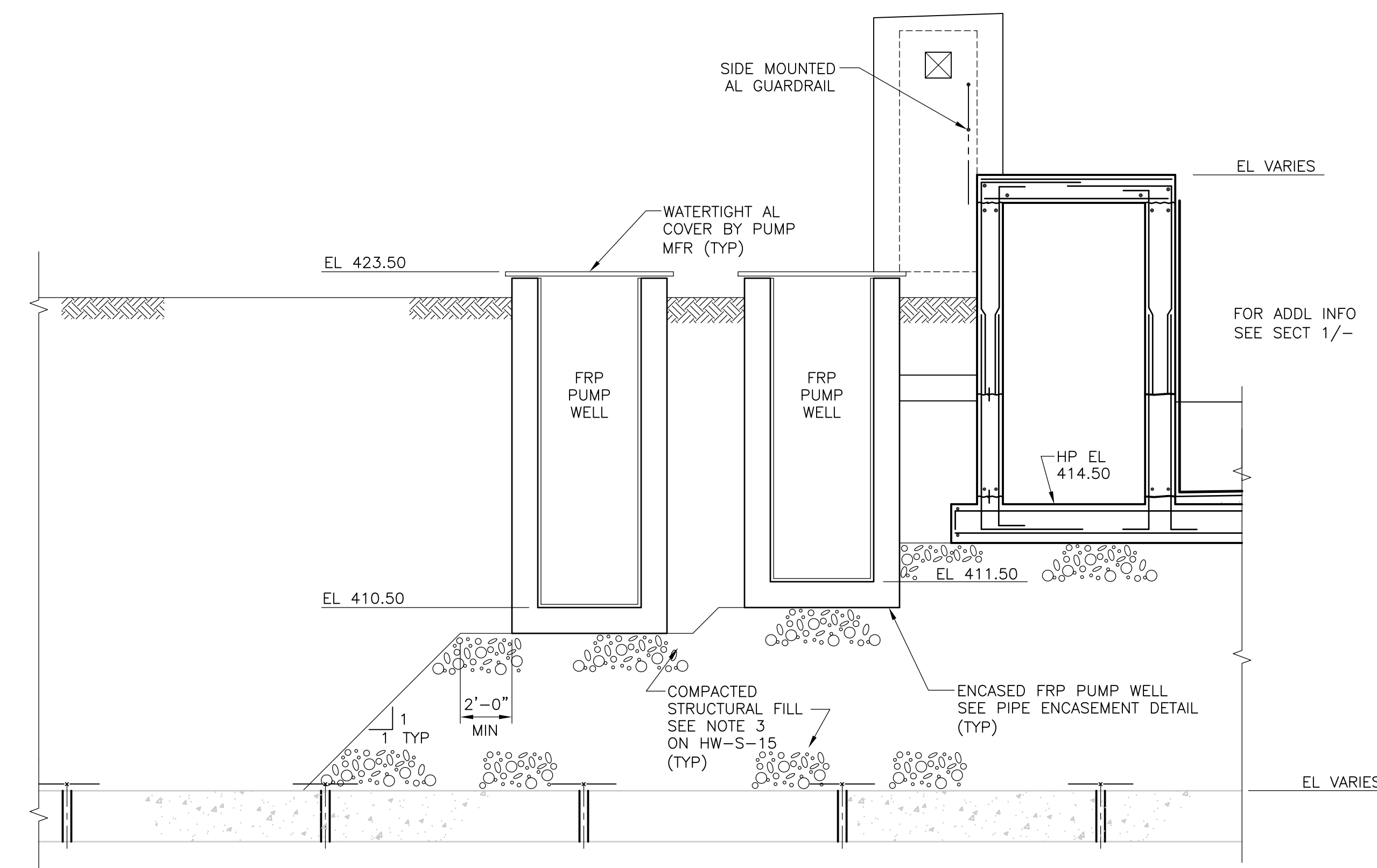
**BIOFILTER PLANS**

PROJECT NO. 1289\35370  
 Sht. 88 of 386  
**HW-S-15**

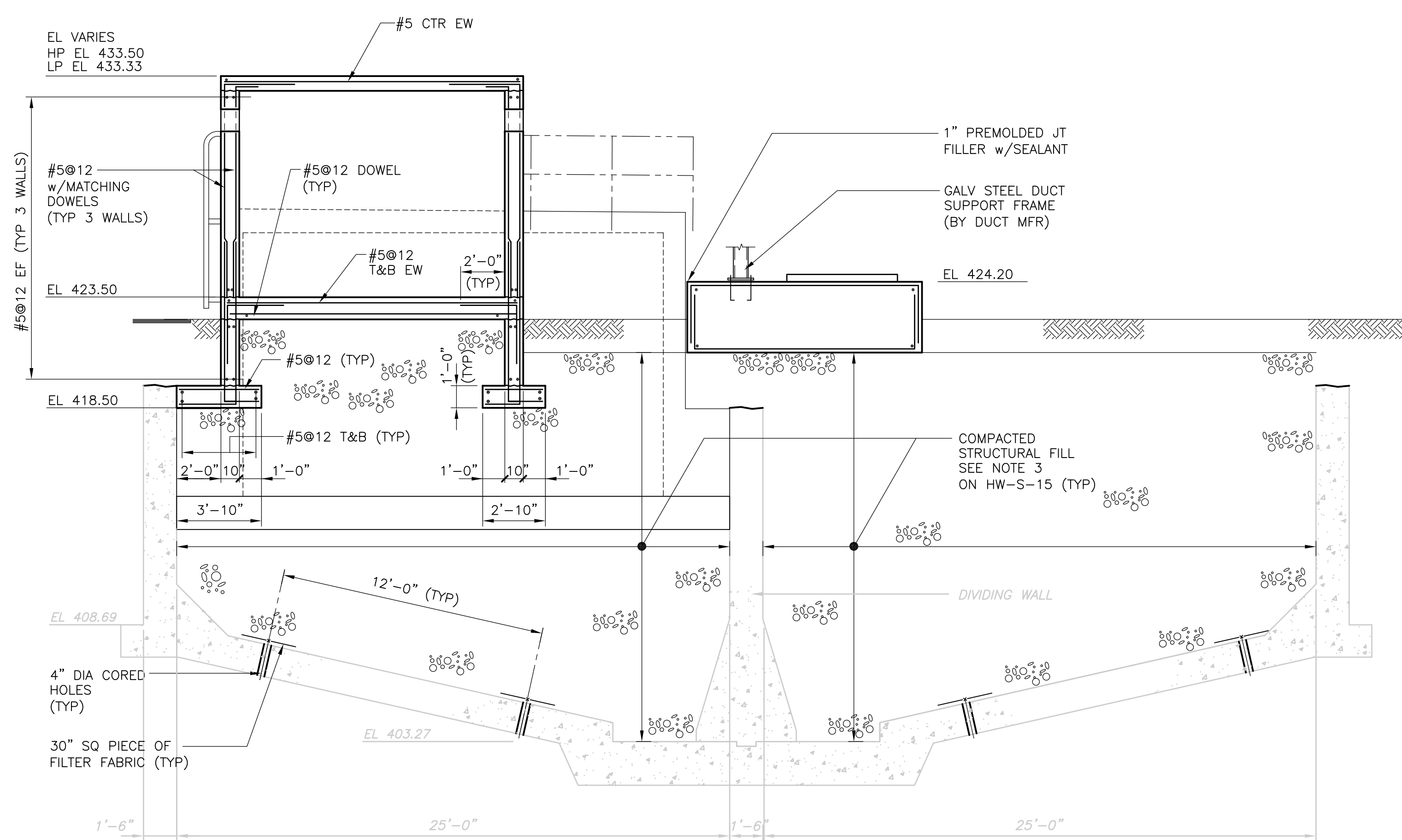
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**SECTION 1**  
1/4" = 1'-0"  
HW-S-15



**SECTION 2**  
1/4" = 1'-0"  
HW-S-15



**SECTION 3**  
1/4" = 1'-0"  
HW-S-15

RECORD DRAWING  
1/4" = 1'-0"  
2 1 0 2 4

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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 DRAWN BY: B.S. HORNER  
 SHEET CHK'D BY: D.L. HARRIS  
 SCALE: AS NOTED  
 APPROVED BY: D.L. HARRIS  
 DATE: MAY 2006

CDM  
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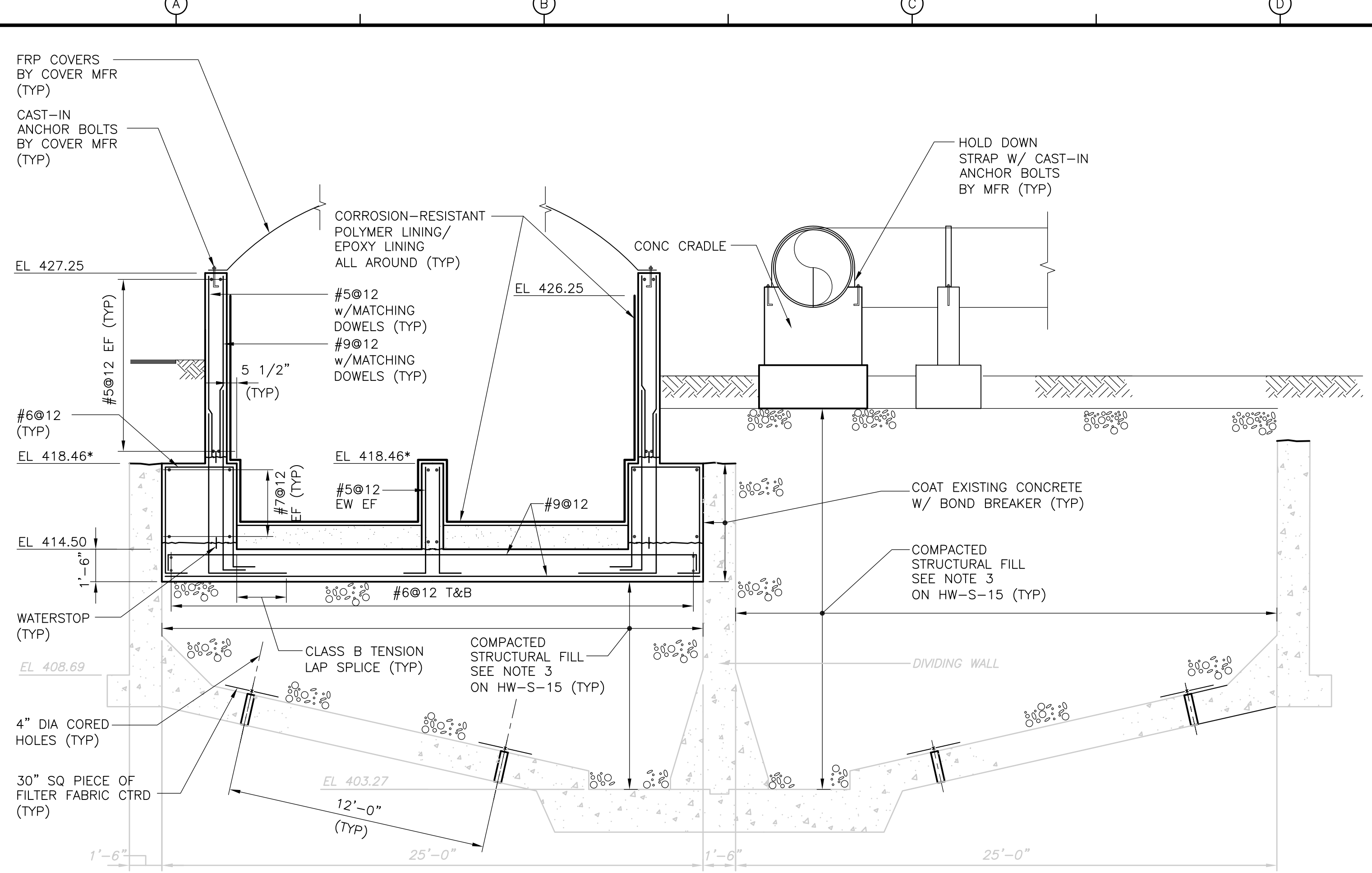
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
 WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

BIOFILTER  
 SECTIONS I  
 HW-S-16

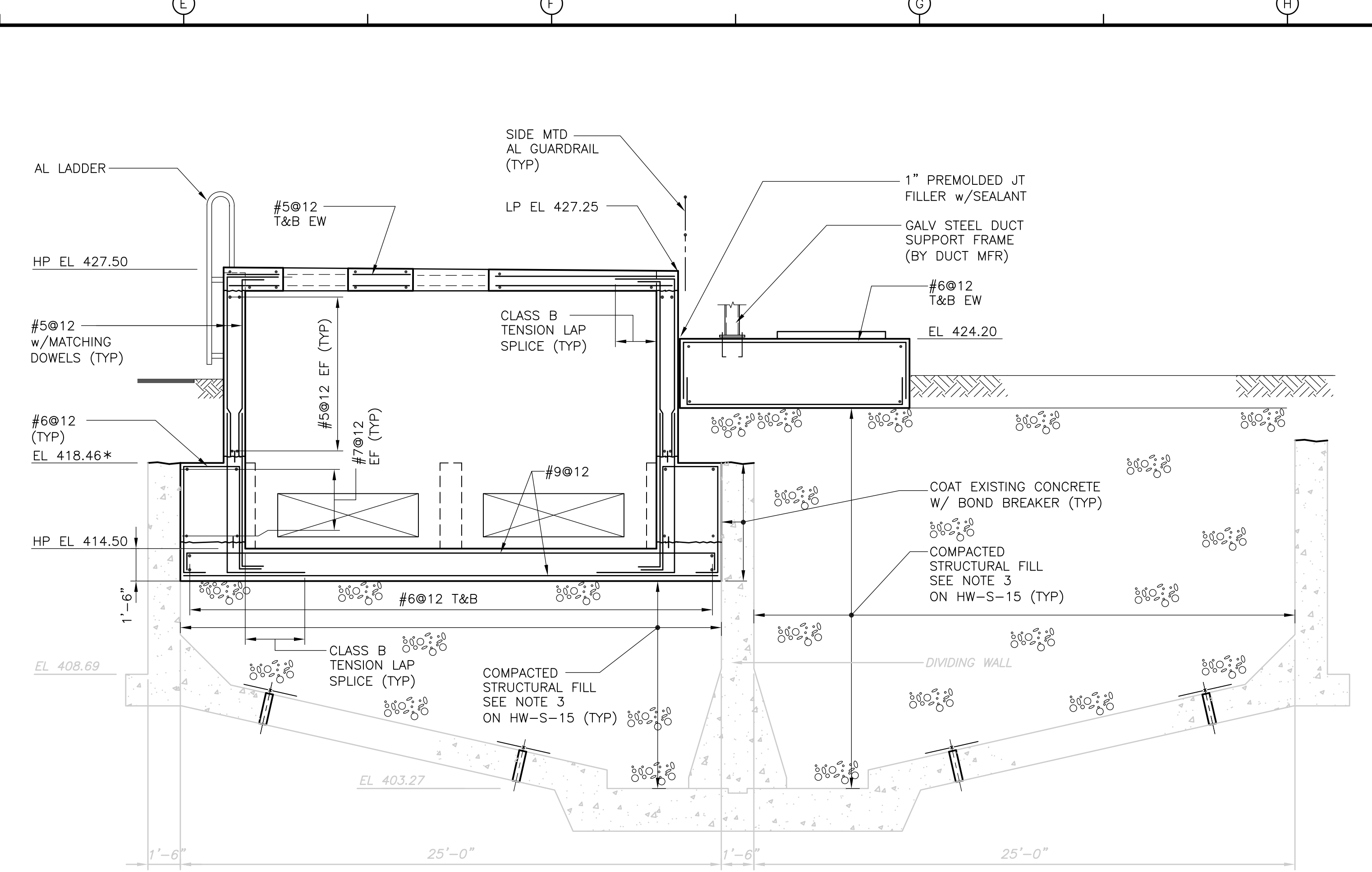
PROJECT NO.  
 1289\35370  
 Sht. 89 of 386  
 ACCESSION NO. 1289-65489



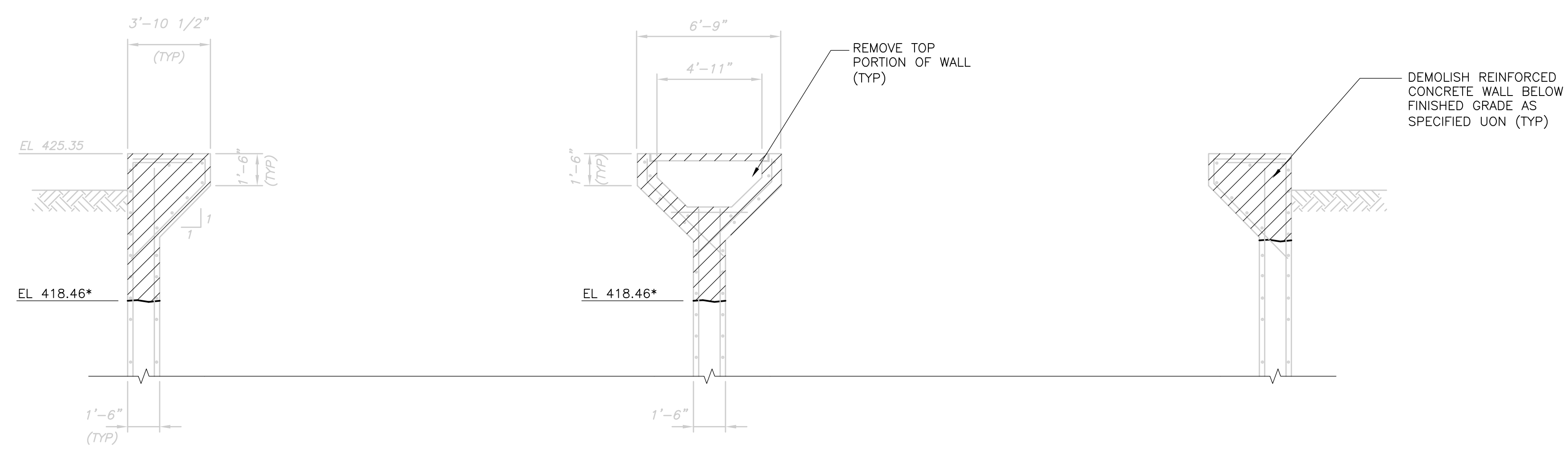
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**SECTION 4**  
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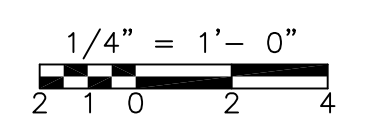


**SECTION 5**  
 1/4" = 1'-0" HW-S-15



EXISTING PRE-AERATION GRIT TANKS DEMOLITION  
**SECTION 4**  
 1/4" = 1'-0" HW-S-15

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

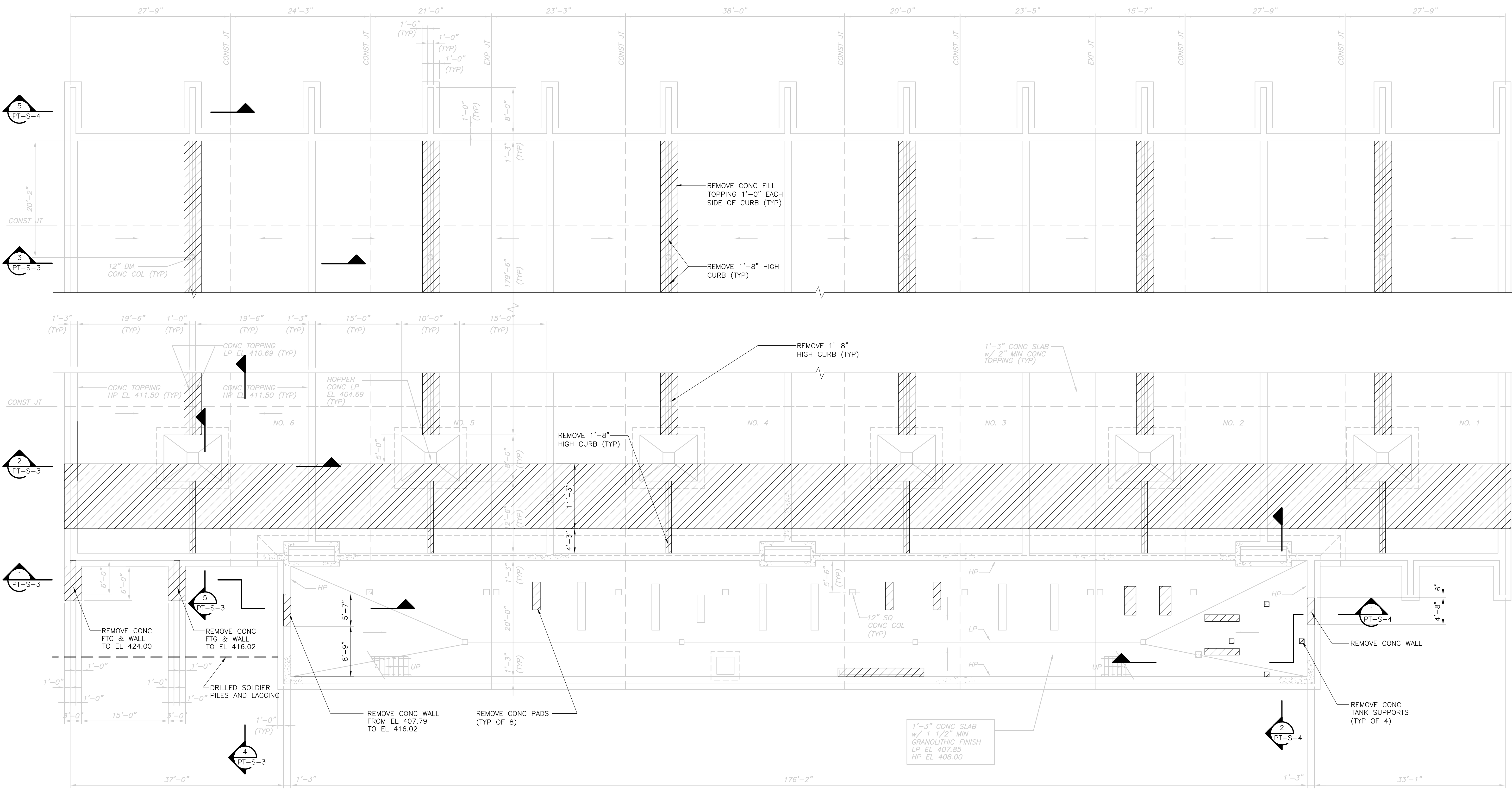
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DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	D.L. HARRIS
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**BIOFILTER SECTIONS II**  
 PROJECT NO. 1289\35370  
 Sht. 90 of 386  
**HW-S-17**

NOTES:  
1. FOR NOTES SEE PT-S-5.



DEMOLITION BASE  
PLAN  
1/8" = 1'-0"

RECORD DRAWING 1/8" = 1'-0"  
4 2 0 4 8

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

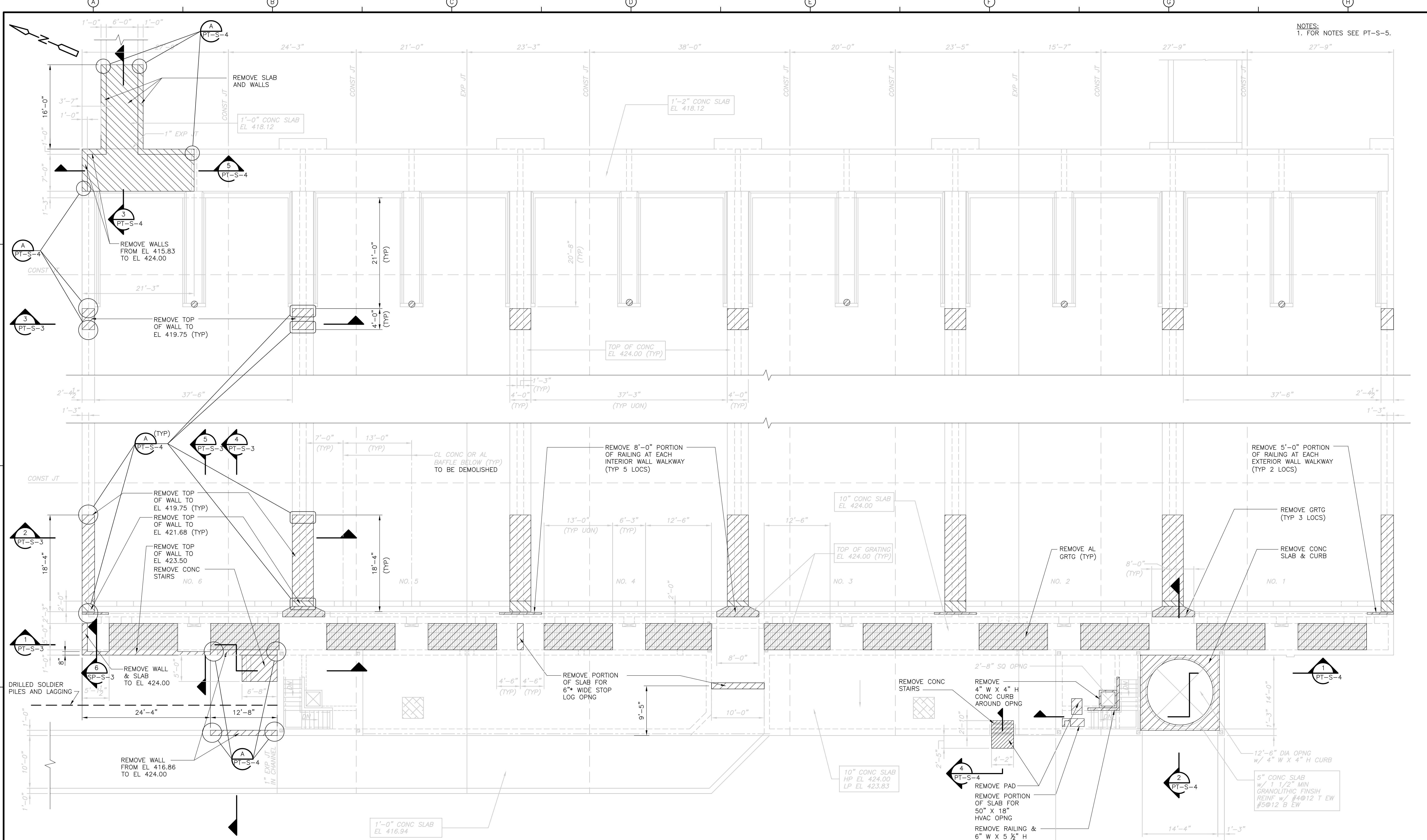
<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>	
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<b>UPPER BLACKSTONE</b> <b>WATER POLLUTION ABATEMENT DISTRICT</b> CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY</b> <b>IMPROVEMENTS</b>
---

<b>PRIMARY SETTLING TANKS</b> <b>DEMOLITION BASE PLAN</b>
--

PROJECT NO. 1289\35370	Sht. 91 of 386
<b>PT-S-1</b>	

NOTES:  
1. FOR NOTES SEE PT-S-5.



DEMOLITION TOP  
PLAN  
1/8" = 1'-0"

RECORD DRAWING  
1/8" = 1'-0"  
4 2 0 4 8

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SPSPLOD03.DWG
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DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006


**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024**

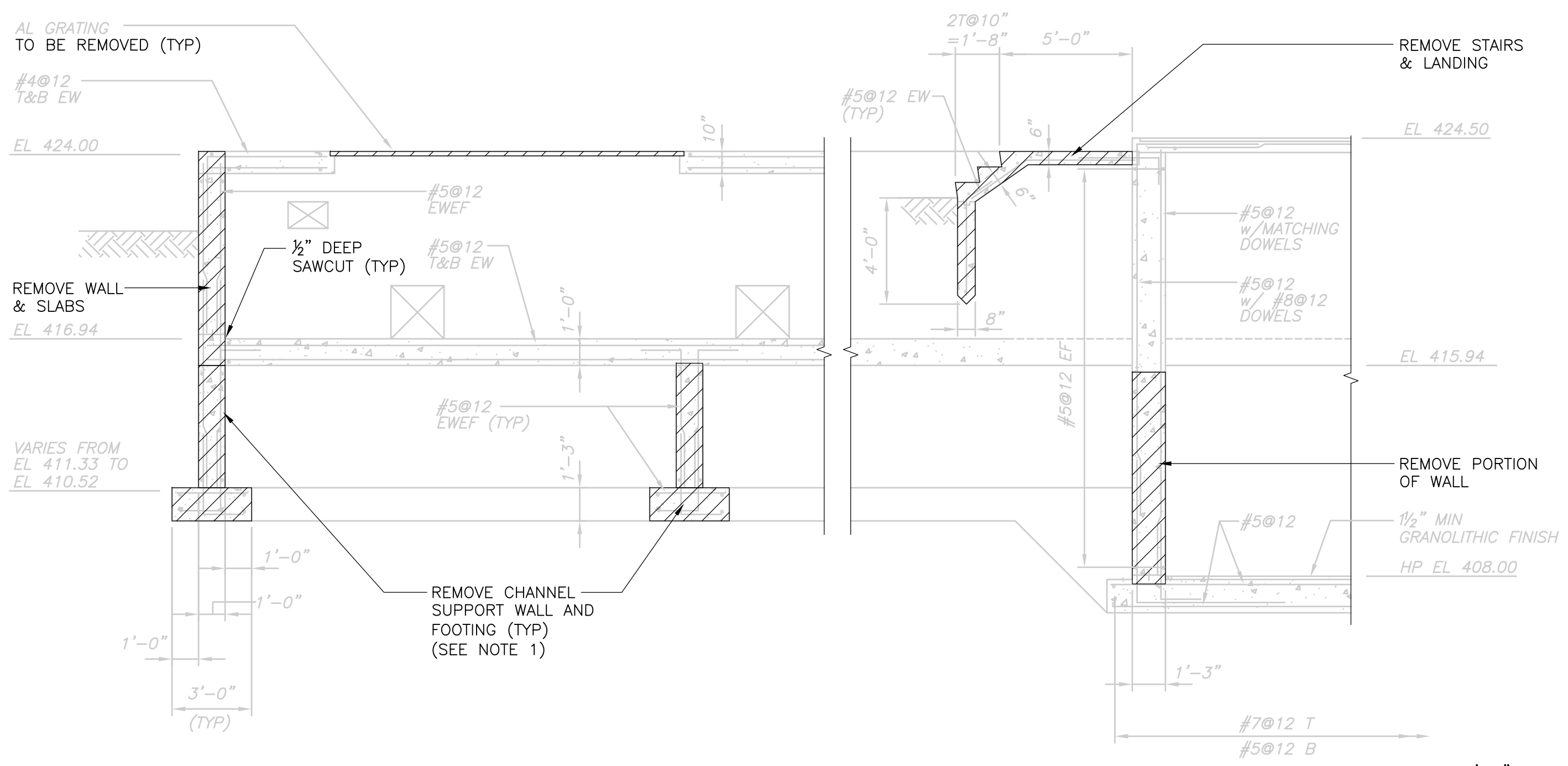
**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
DEMOLITION TOP PLAN**

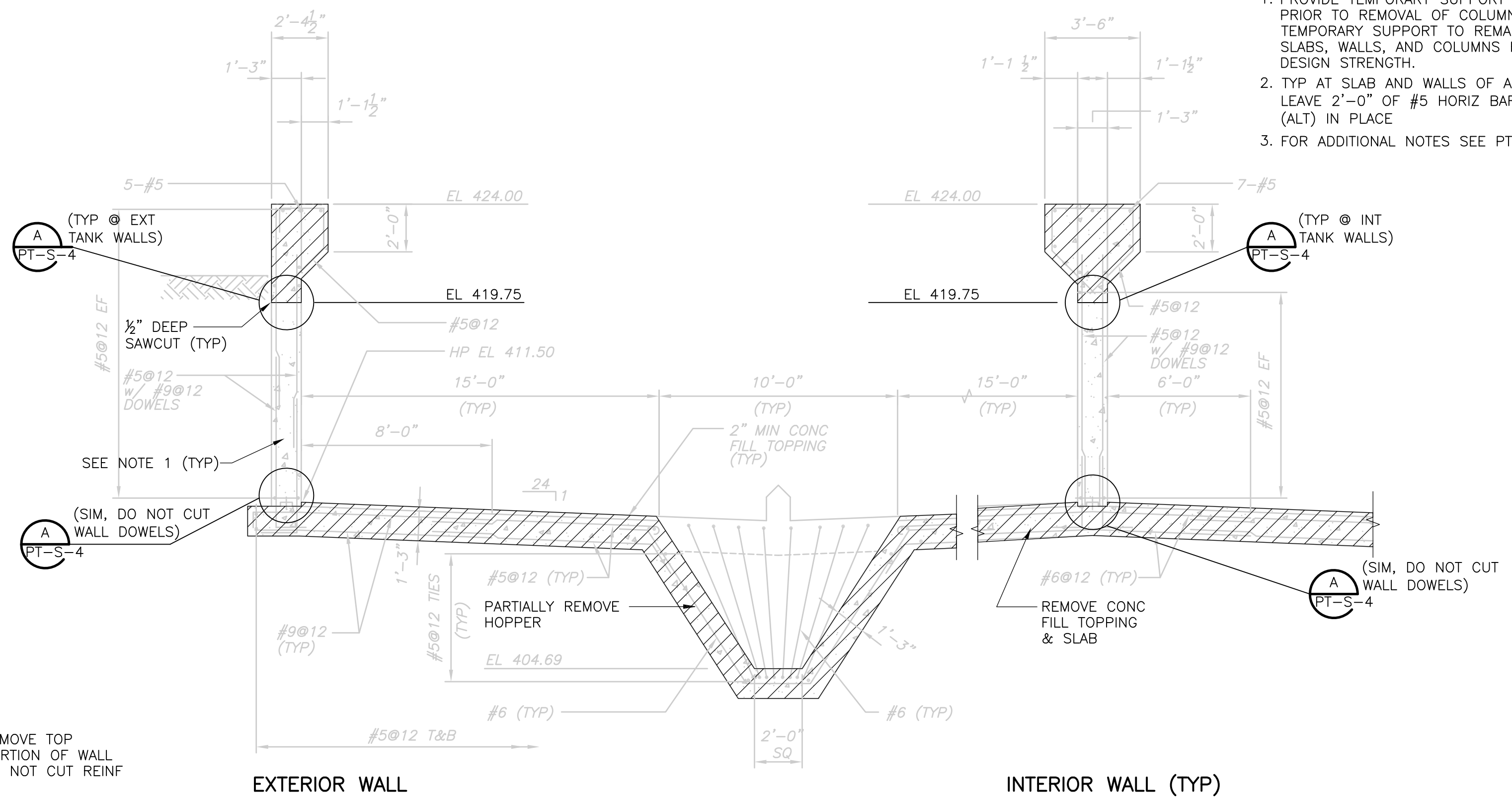
PROJECT NO.  
1289\35370

Sht. 92 of 386

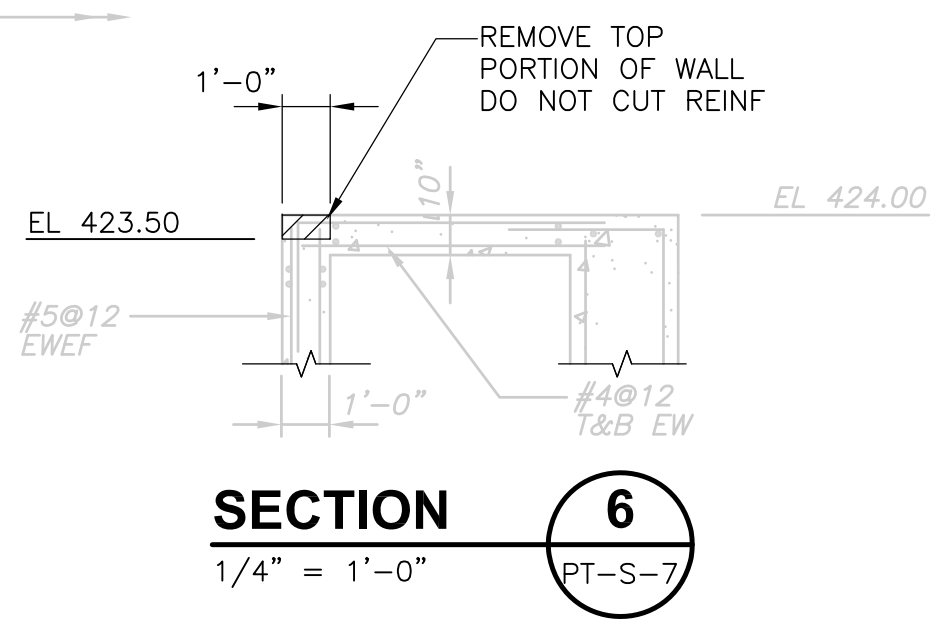
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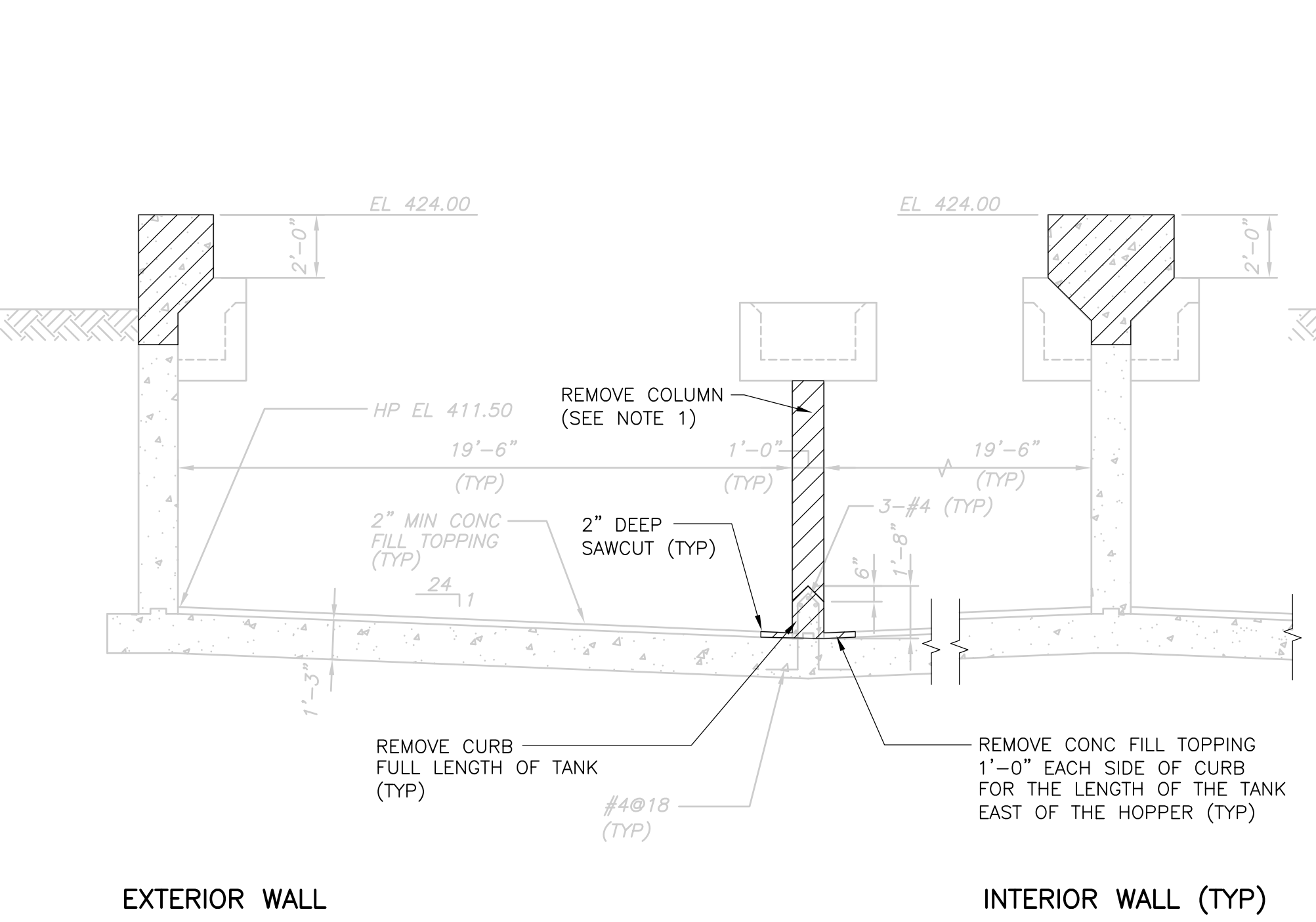
**SECTION 1**  
 1/4" = 1'-0" PT-S-1



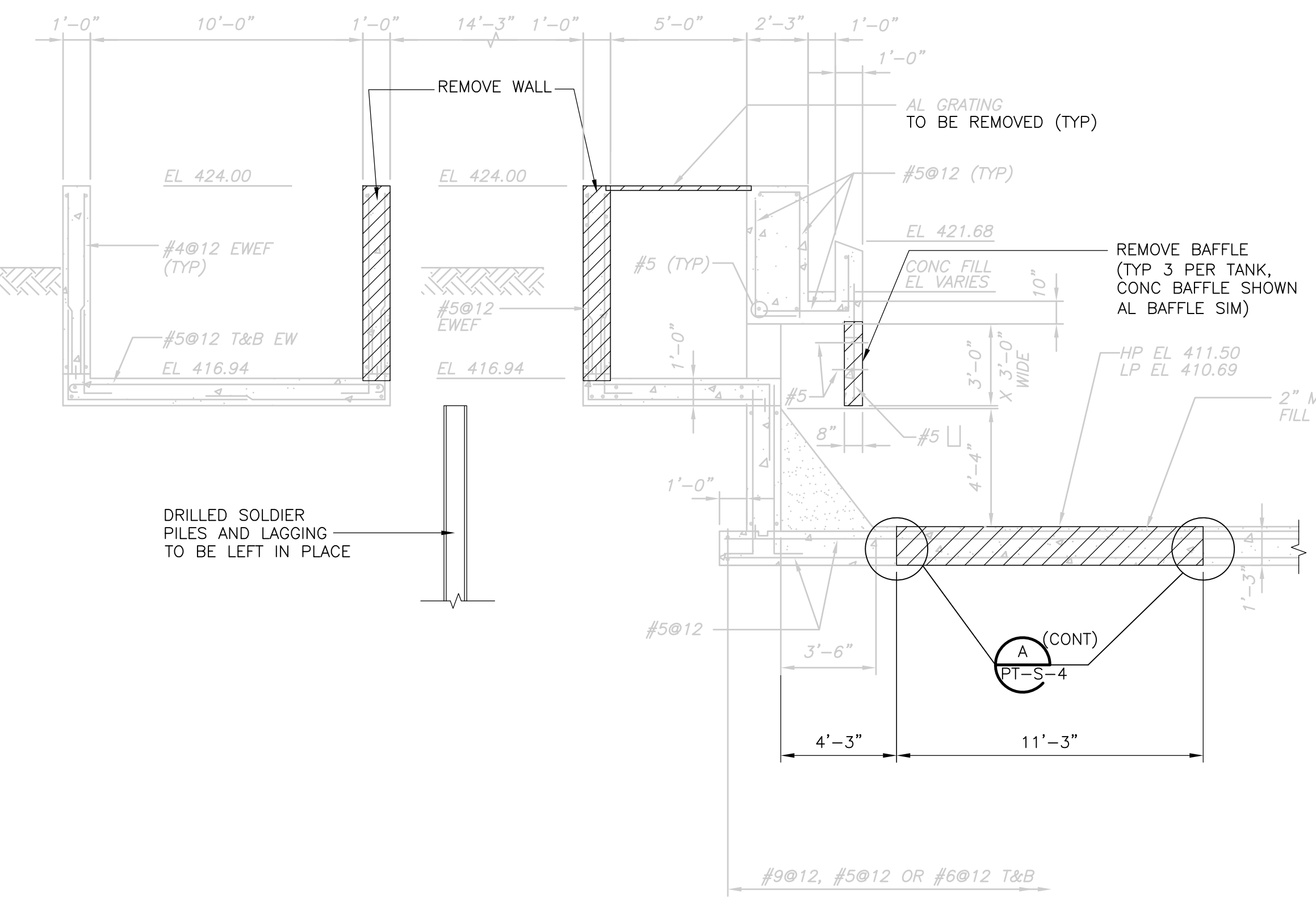
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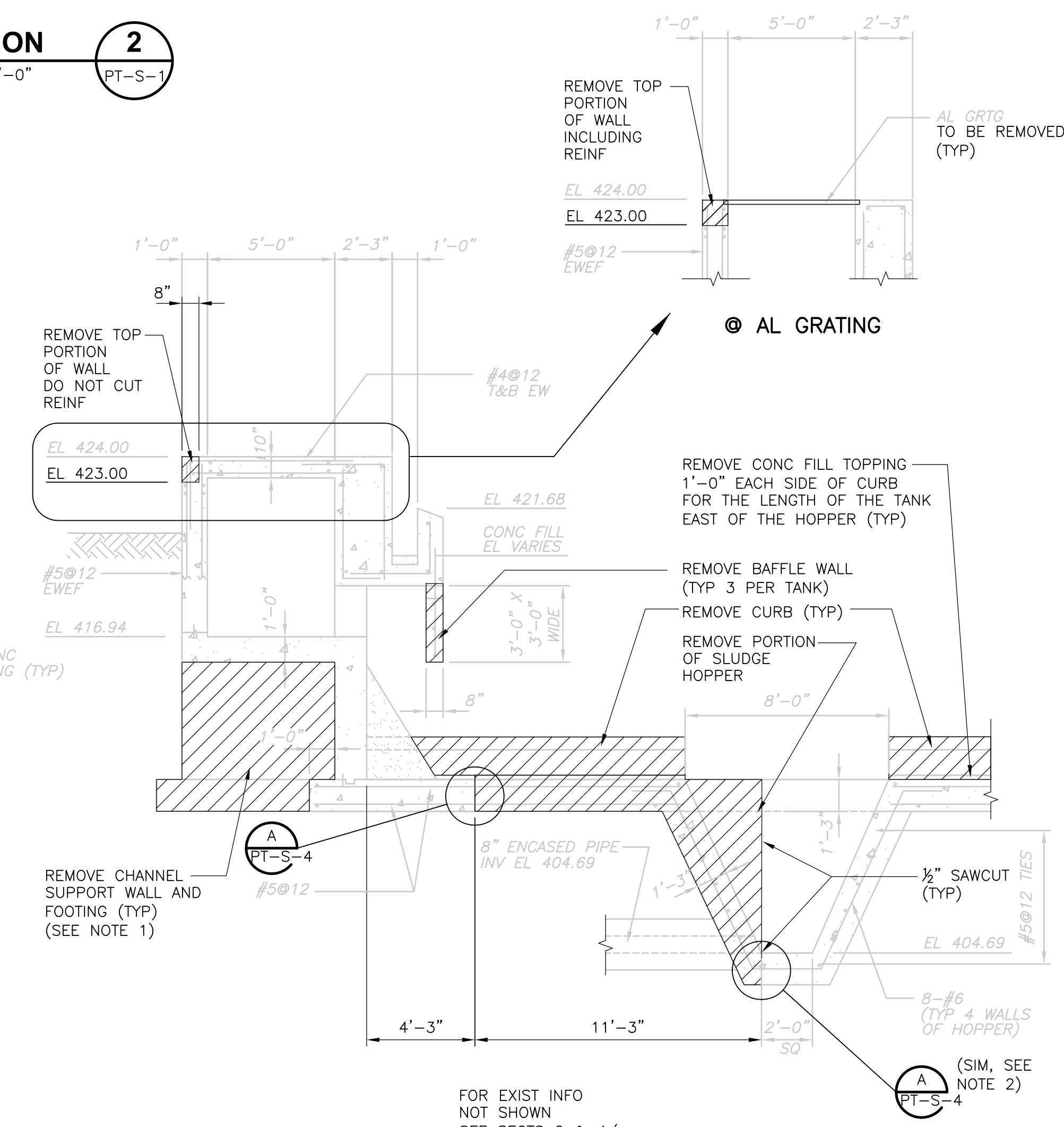
**SECTION 6**  
 1/4" = 1'-0" PT-S-7



**SECTION 3**  
 1/4" = 1'-0" PT-S-1



**SECTION 4**  
 1/4" = 1'-0" PT-S-1

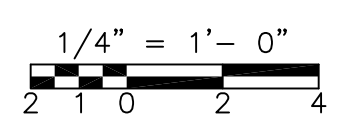


**SECTION 5**  
 1/4" = 1'-0" PT-S-1

- NOTES:**
1. PROVIDE TEMPORARY SUPPORT FOR SLABS AND WALLS PRIOR TO REMOVAL OF COLUMNS, WALLS, AND FOOTINGS. TEMPORARY SUPPORT TO REMAIN IN PLACE UNTIL NEW SLABS, WALLS, AND COLUMNS HAVE ATTAINED THEIR DESIGN STRENGTH.
  2. TYP AT SLAB AND WALLS OF ALL HOPPERS. LEAVE 2'-0" OF #5 HORIZ BARS & 4-#6 VERT BARS (ALT) IN PLACE
  3. FOR ADDITIONAL NOTES SEE PT-S-5.

FOR INFO NOT SHOWN SEE SECT 2/-

FOR EXIST INFO NOT SHOWN SEE SECTS 2 & 4/-



REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.	SPSSCD01.DWG
DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

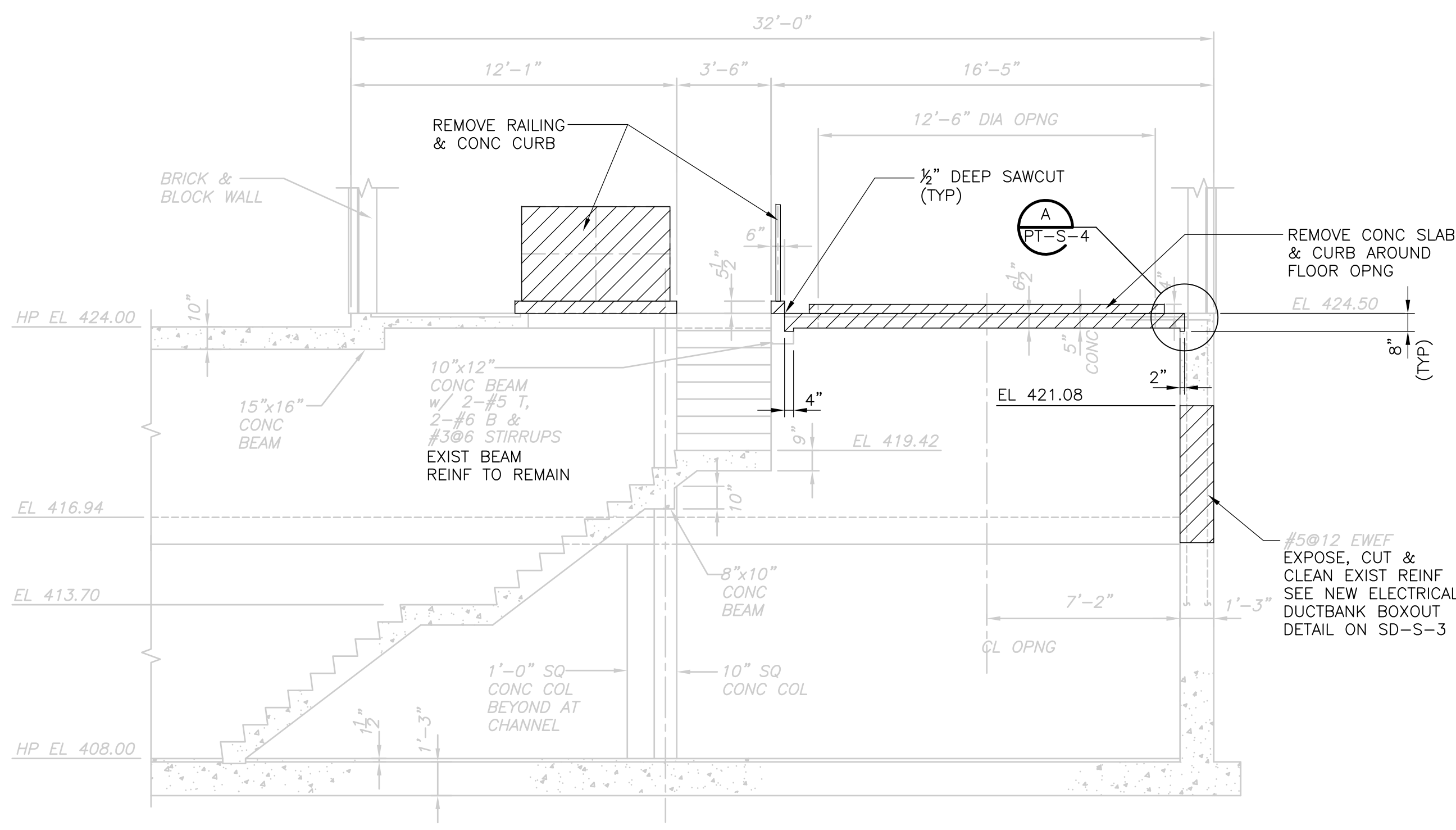
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**PRIMARY SETTLING TANKS DEMOLITION SECTIONS I**

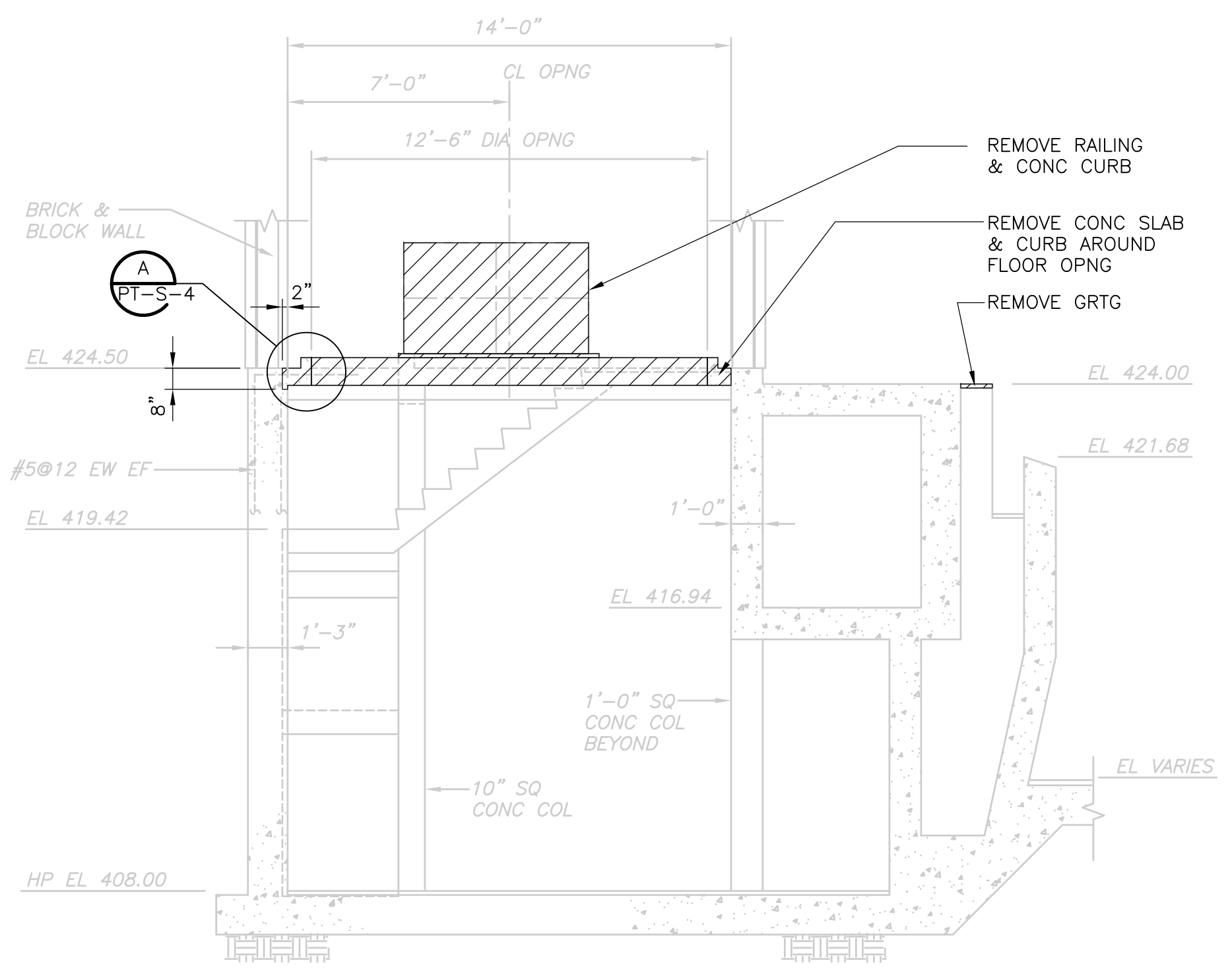
PROJECT NO. 1289\35370  
 Sht. 93 of 386  
**PT-S-3**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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 Xref's: [C24X36H.SPSSC001.]  
 File name: P:\1289\35370\PHASE1\RECORD\STRU\SPSSC002.dwg

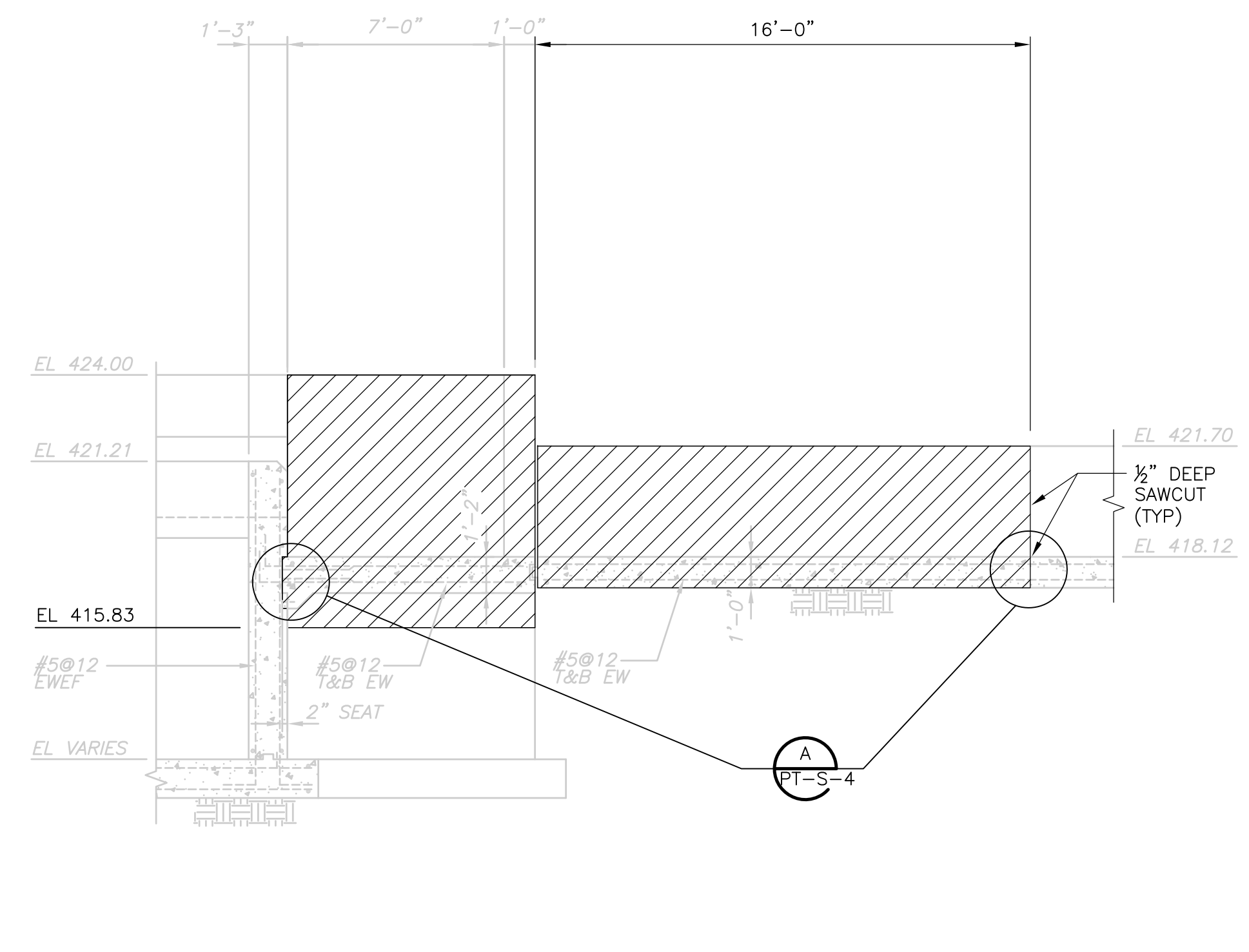
NOTES:  
 1. FOR NOTES SEE PT-S-5.



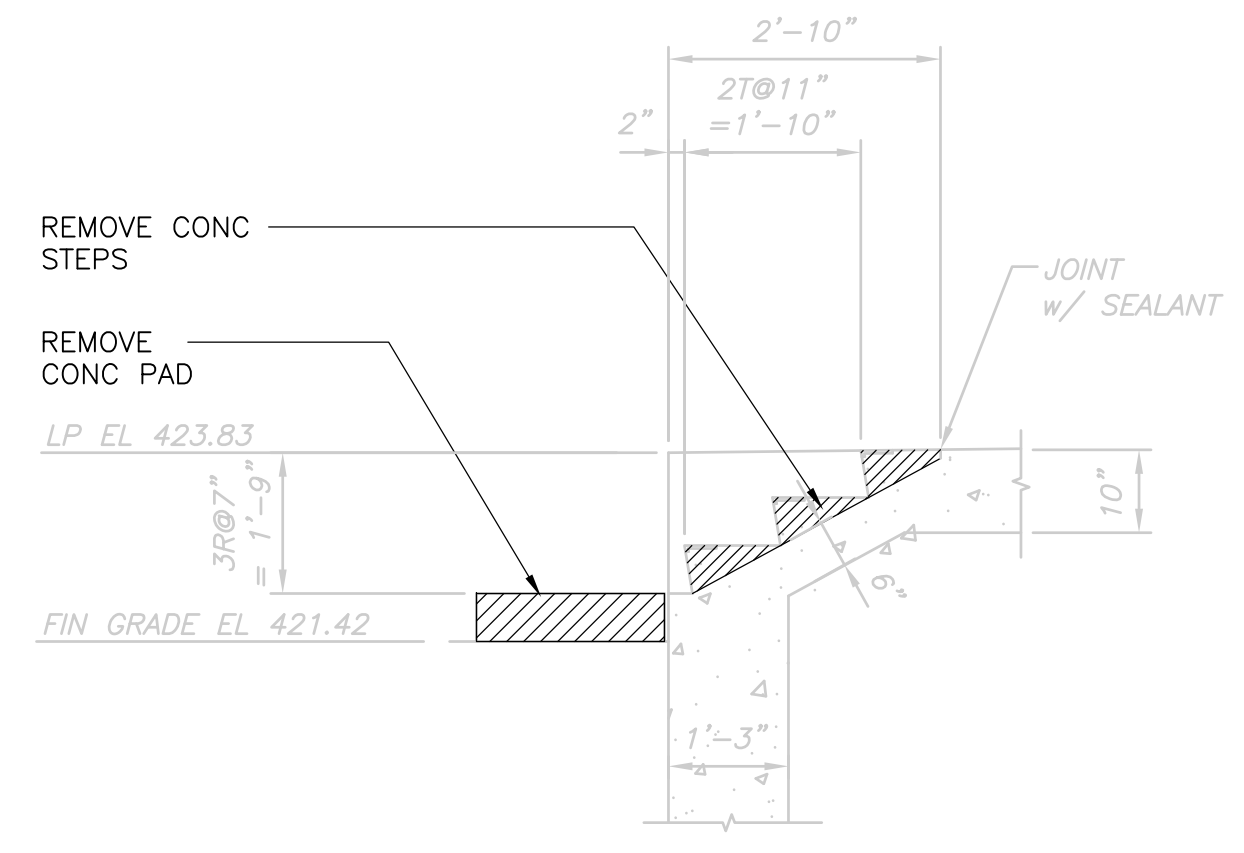
**SECTION 1**  
 1/4" = 1'-0"  
 PT-S-1



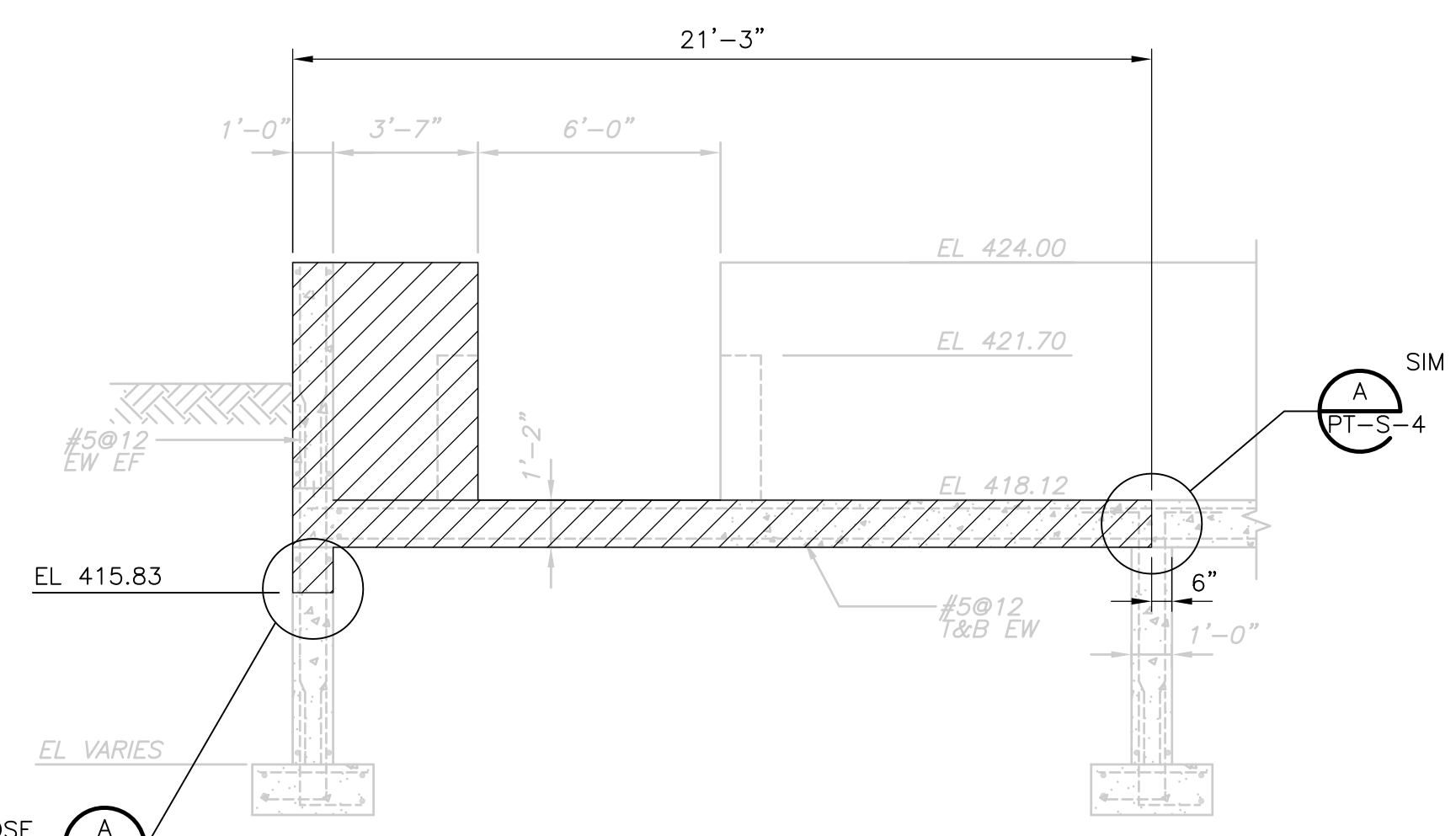
**SECTION 2**  
 1/4" = 1'-0"  
 PT-S-1



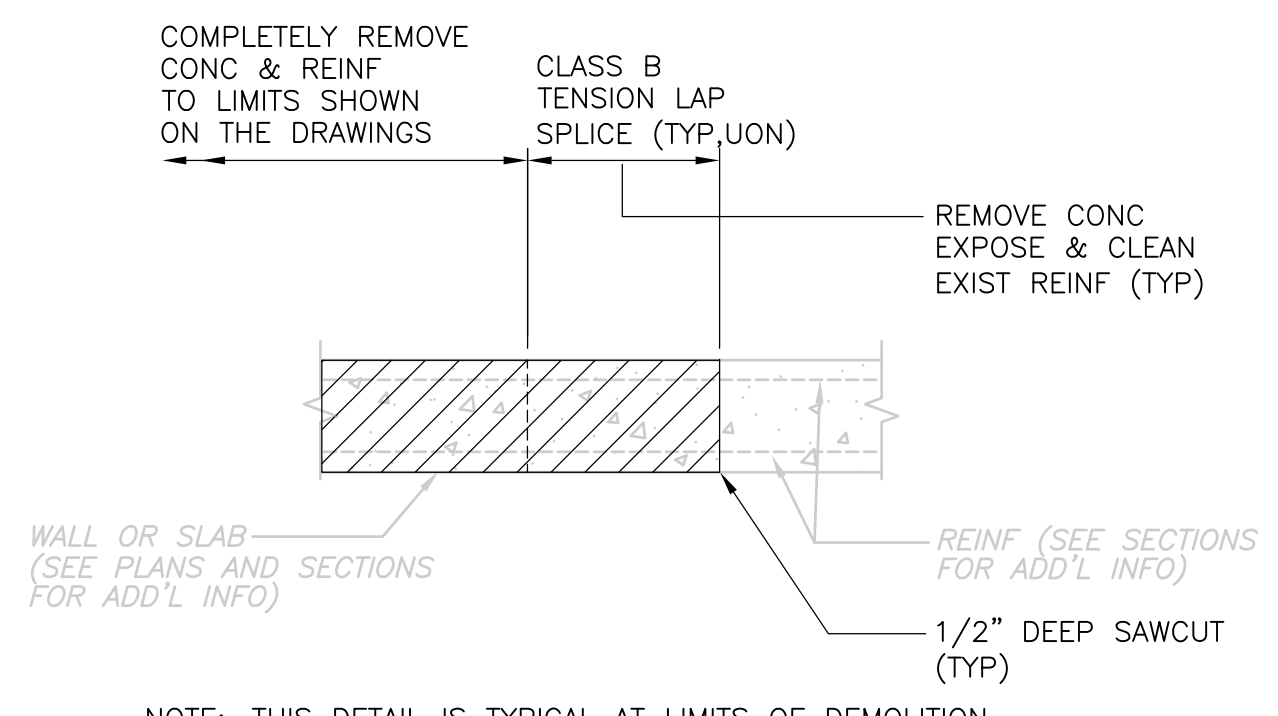
**SECTION 3**  
 1/4" = 1'-0"  
 PT-S-2



**SECTION 4**  
 1/2" = 1'-0"  
 PT-S-2



**SECTION 5**  
 1/4" = 1'-0"  
 PT-S-1



NOTE: THIS DETAIL IS TYPICAL AT LIMITS OF DEMOLITION WORK WHERE INDICATED ON PLANS AND SECTIONS

**CONCRETE DEMOLITION DETAIL A**  
 1/2" = 1'-0"  
 PT-S-1

RECORD DRAWING  
 1/2" = 1'-0"  
 1/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

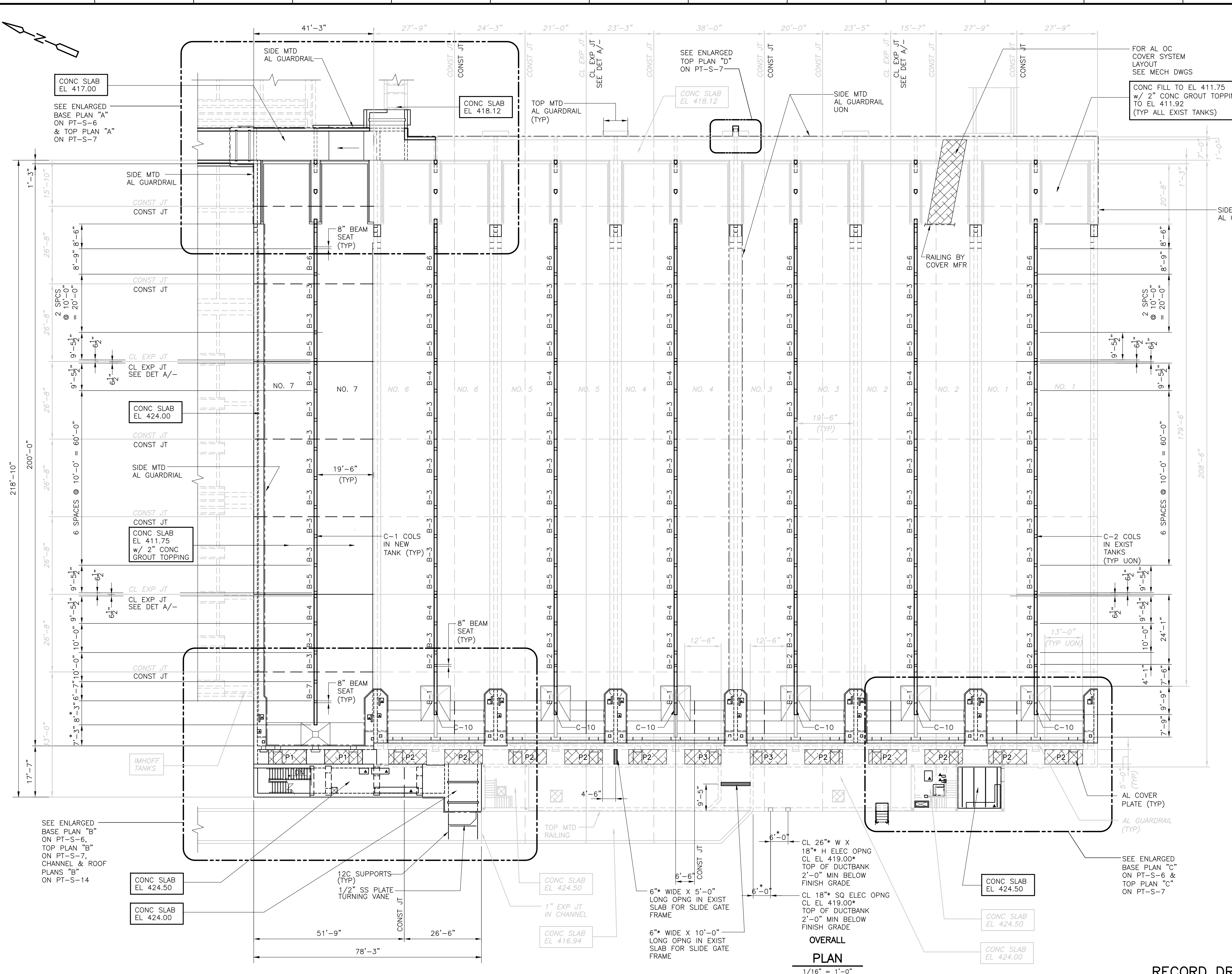
CADD FILE NO.	SPSSC002.DWG
DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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 operations

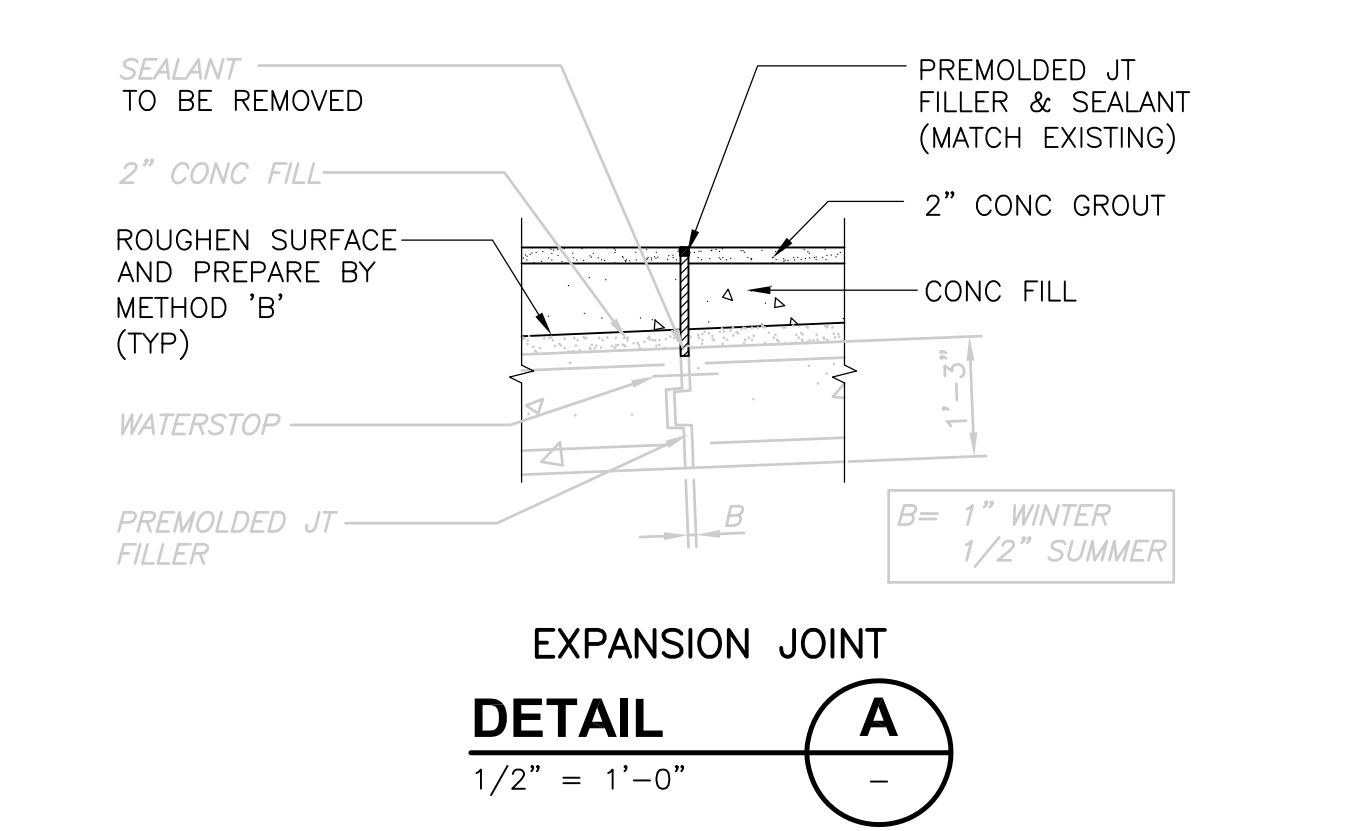
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 DEMOLITION SECTIONS II**

PROJECT NO.  
 1289\35370  
 Sht. 94 of 386  
**PT-S-4**  
 ACCESSION NO. 1289-65494



- NOTES:**
- NEW PRIMARY ACCESS STRUCTURE DESIGN LOADS:**  
 BUILDING CODE: COMMONWEALTH OF MASSACHUSETTS STATE BUILDING CODE 6th EDITION  
 FLOOR LIVE LOAD: PROCESS AREAS 200 PSF, STAIRS, CORRIDORS AND LOBBIES 150 PSF, ELECTRICAL ROOMS 300 PSF  
 ROOF LIVE LOAD: 20 PSF  
 ROOF SNOW LOAD: BASIC SNOW LOAD Pf: 35 PSF  
 WIND LOAD: WIND LOAD ZONE: 2, EXPOSURE: C, REFERENCE WIND PRESSURE: 17 PSF (0-50 FT ABOVE GRADE)  
 EARTHQUAKE DESIGN DATA: DATA APPLIES TO BOTH E-W AND N-S DIRECTIONS  
 Av: .12g, Ag: .12g, SEISMIC HAZARD EXPOSURE GROUP: GROUP II, SEISMIC PERFORMANCE CATEGORY: C, SITE COEFFICIENT S: 1.0, BASIC STRUCTURAL SYSTEM: LOAD BEARING WALL SYSTEM, SEISMIC RESISTING SYSTEM: REINFORCED MASONRY SHEAR WALLS, R: 3.0, Cd: 3.0, ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE  
 GEOTECHNICAL DESIGN DATA: FOUNDATIONS: MAXIMUM ALLOWABLE NET BEARING PRESSURE 6.0 KSF, EQUIVALENT LATERAL EARTH PRESSURES: ABOVE GROUNDWATER: 60 PCF, BELOW GROUNDWATER: 90 PCF, 100 YR FLOOD ELEV: EL 414.30
  - \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
  - ▲ INDICATES EQUIPMENT PAD.
  - FD INDICATES FLOOR DRAIN.
  - INDICATES CONCRETE PIPE CRADLE OR BASE ELBOW SUPPORT.
  - P# INDICATES OPENING NUMBER COVERED WITH AL COVER PLATE. SEE SCHEDULE ON PT-S-14.
  - B-# INDICATES CONCRETE BEAM NUMBER. SEE SCHEDULE ON PT-S-14.
  - C-# INDICATES CONCRETE COLUMN NUMBER. SEE SCHEDULE ON PT-S-14.
  - SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM RECORD DRAWINGS PRODUCED BY FAY, SPOFFORD & THORNDIKE, INC., TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES", DATED FEBRUARY 1973. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
  - PROVIDE TEMPORARY VERTICAL AND LATERAL SUPPORT OF EXISTING ITEMS TO ALLOW INDICATED DEMOLITION AND CONSTRUCTION WORK.
  - WATERPROOFING (WHERE SHOWN) SHALL BE CEMENTITIOUS SLURRY WATERPROOFING. WATERPROOFING SHALL BE APPLIED TO THE DRY SIDE OF VERTICAL AND HORIZONTAL CONCRETE SURFACES AS INDICATED. PROVIDE A 2'-0" RETURN TO ADJACENT PERPENDICULAR WALL SURFACES AND TO THE TOP OF THE BASE SLAB.
  - SEE SPECIFICATION SECTION 01810 FOR MAINTENANCE OF PLANT OPERATIONS AND SEQUENCE OF CONSTRUCTION.



**OVERALL PLAN**  
 1/16" = 1'-0"

**RECORD DRAWING**  
 1/2" = 1'-0"    1/16" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. SPSPL001.DWG	DESIGNED BY: A.J. PAPA
DRAWN BY: B.S. HORNER	SHEET CHK'D BY: A.J. PAPA
SCALE: AS NOTED	APPROVED BY: D.L. HARRIS
DATE: MAY 2006	

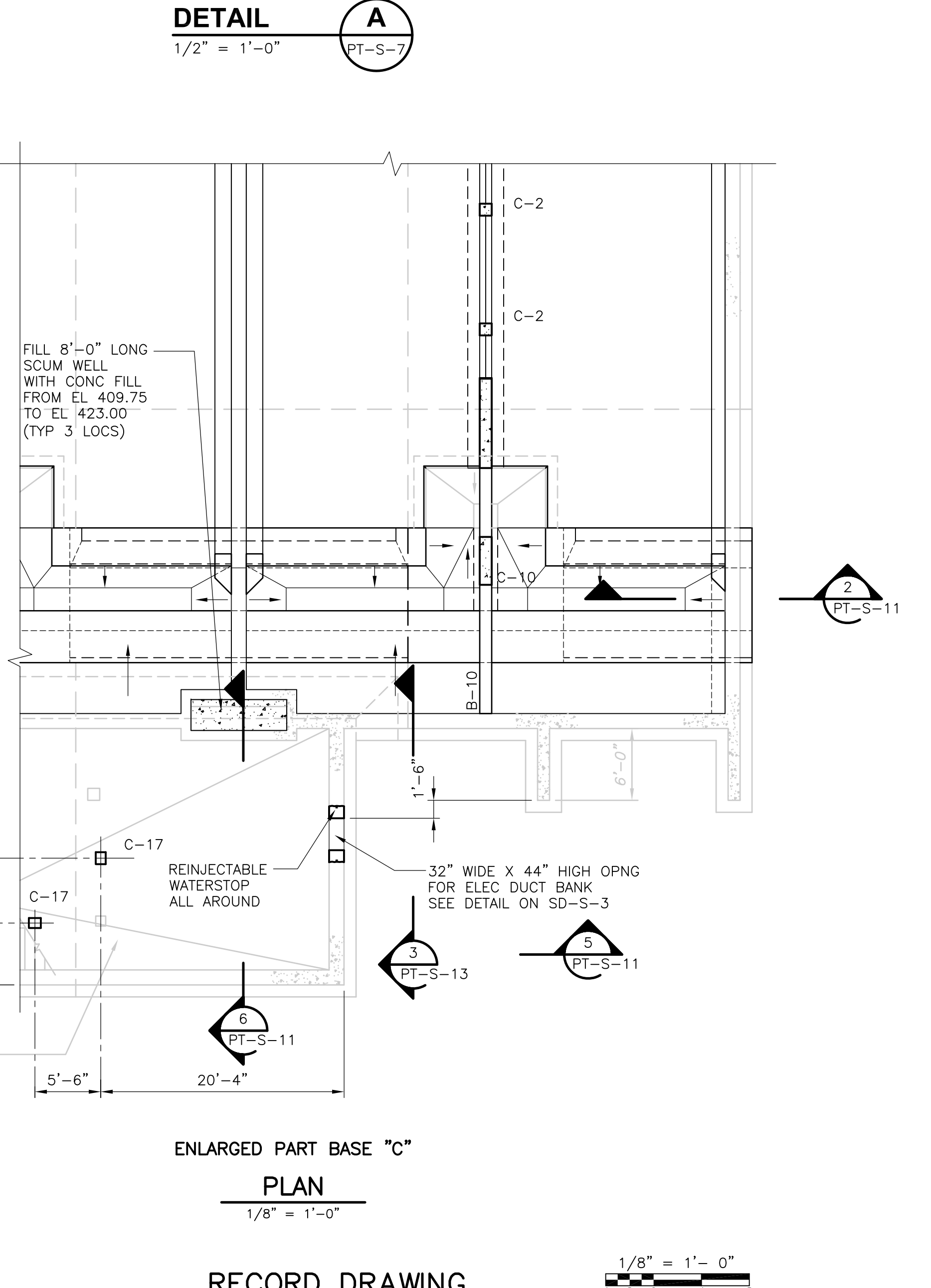
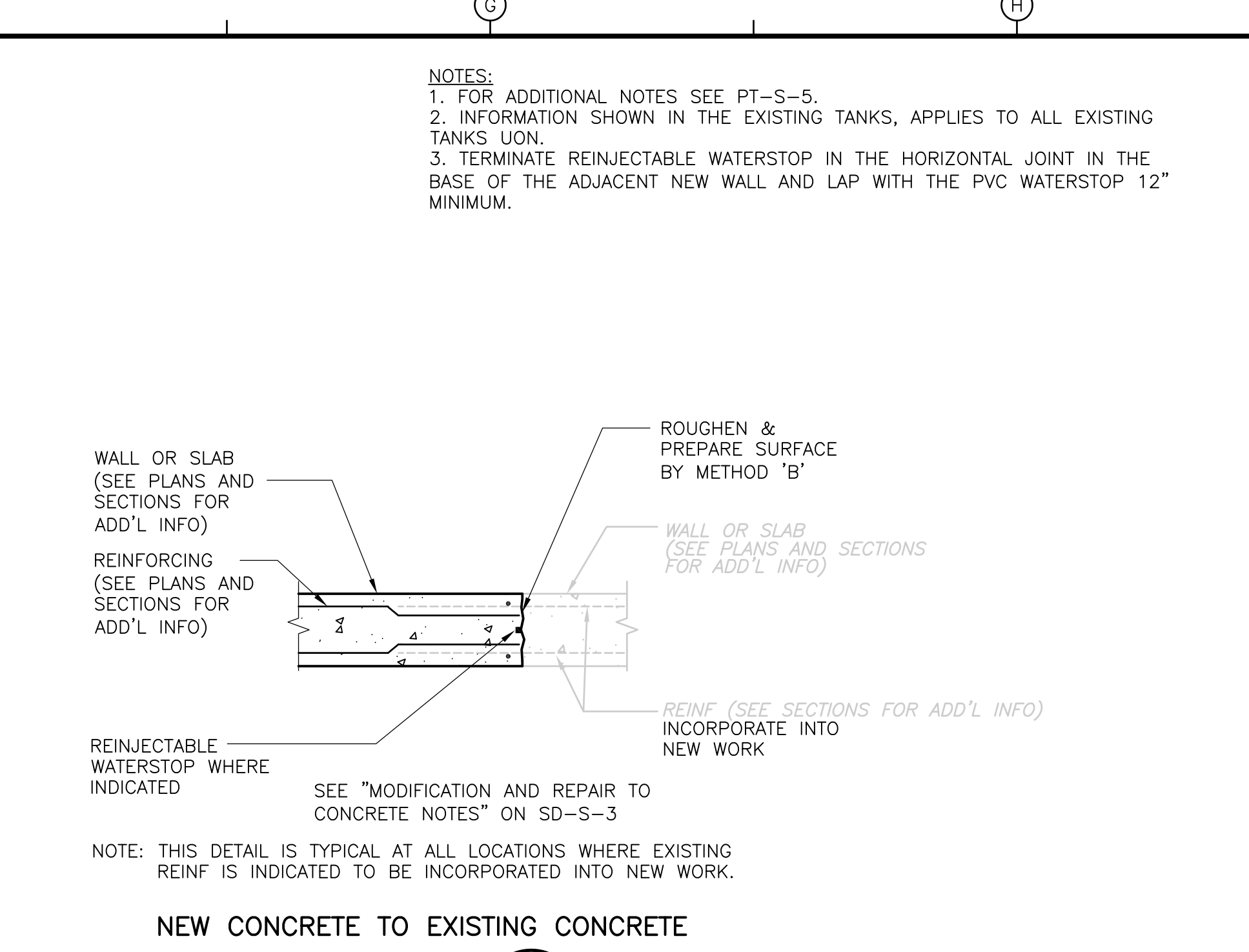
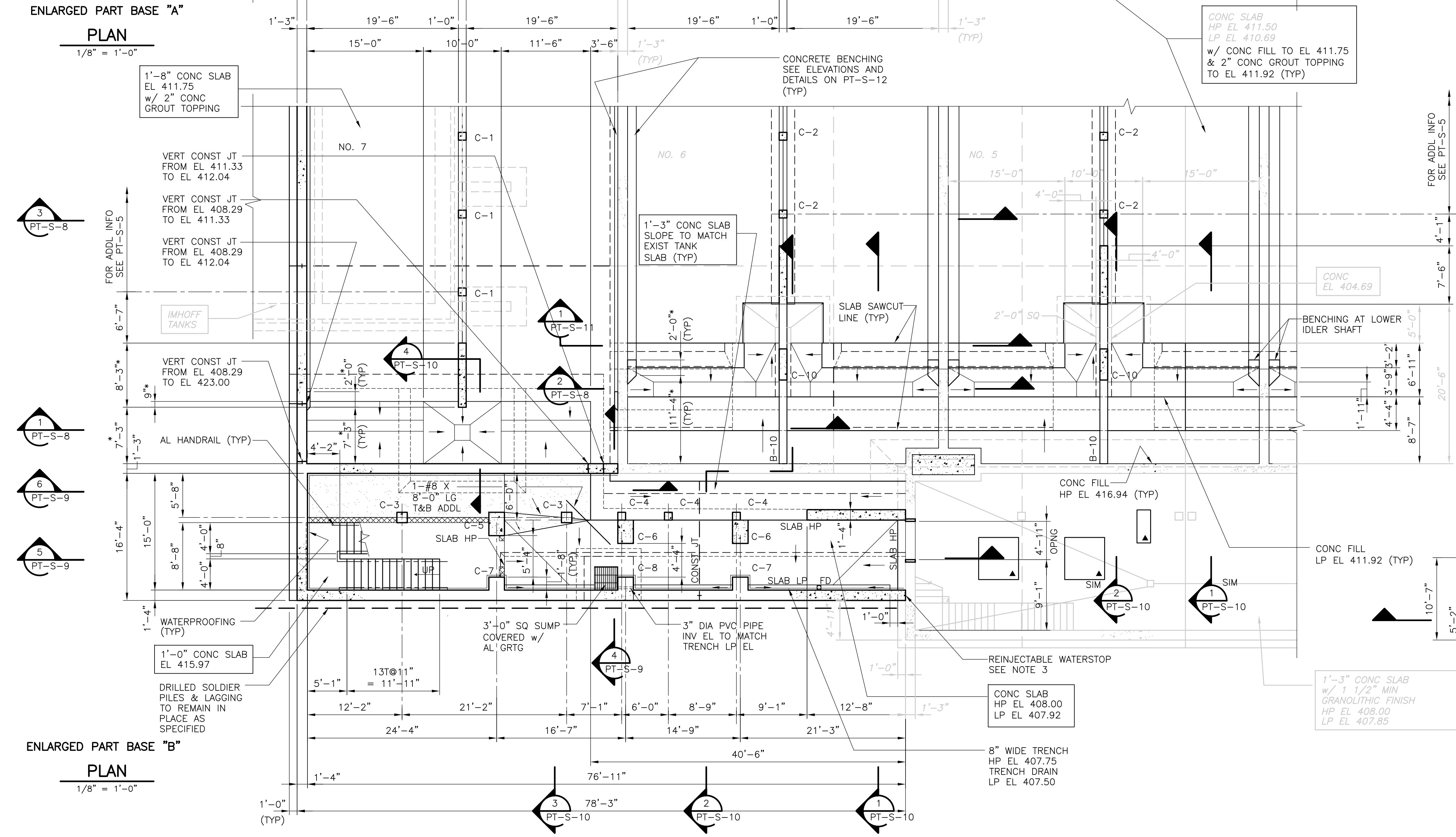
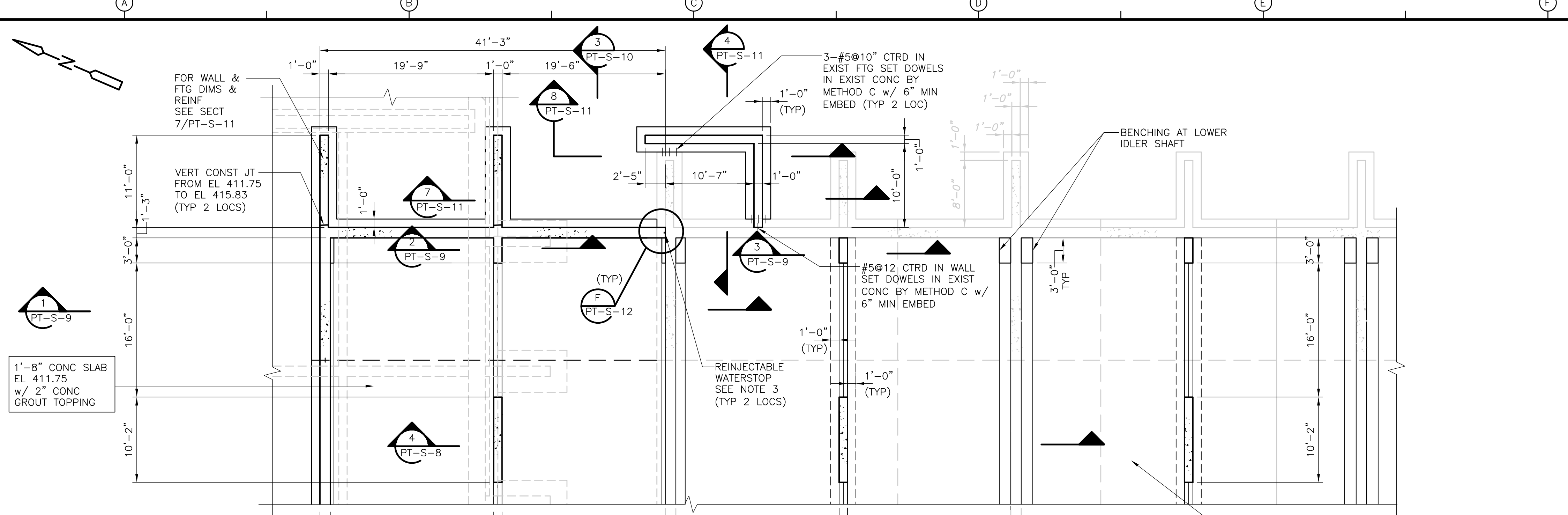
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operators

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**PRIMARY SETTLING TANKS OVERALL PLAN**

PROJECT NO. 1289\35370  
 Sht. 95 of 386  
**PT-S-5**



- NOTES:  
 1. FOR ADDITIONAL NOTES SEE PT-S-5.  
 2. INFORMATION SHOWN IN THE EXISTING TANKS, APPLIES TO ALL EXISTING TANKS UN.  
 3. TERMINATE REINJECTABLE WATERSTOP IN THE HORIZONTAL JOINT IN THE BASE OF THE ADJACENT NEW WALL AND LAP WITH THE PVC WATERSTOP 12" MINIMUM.

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SPSPLO02.DWG
DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

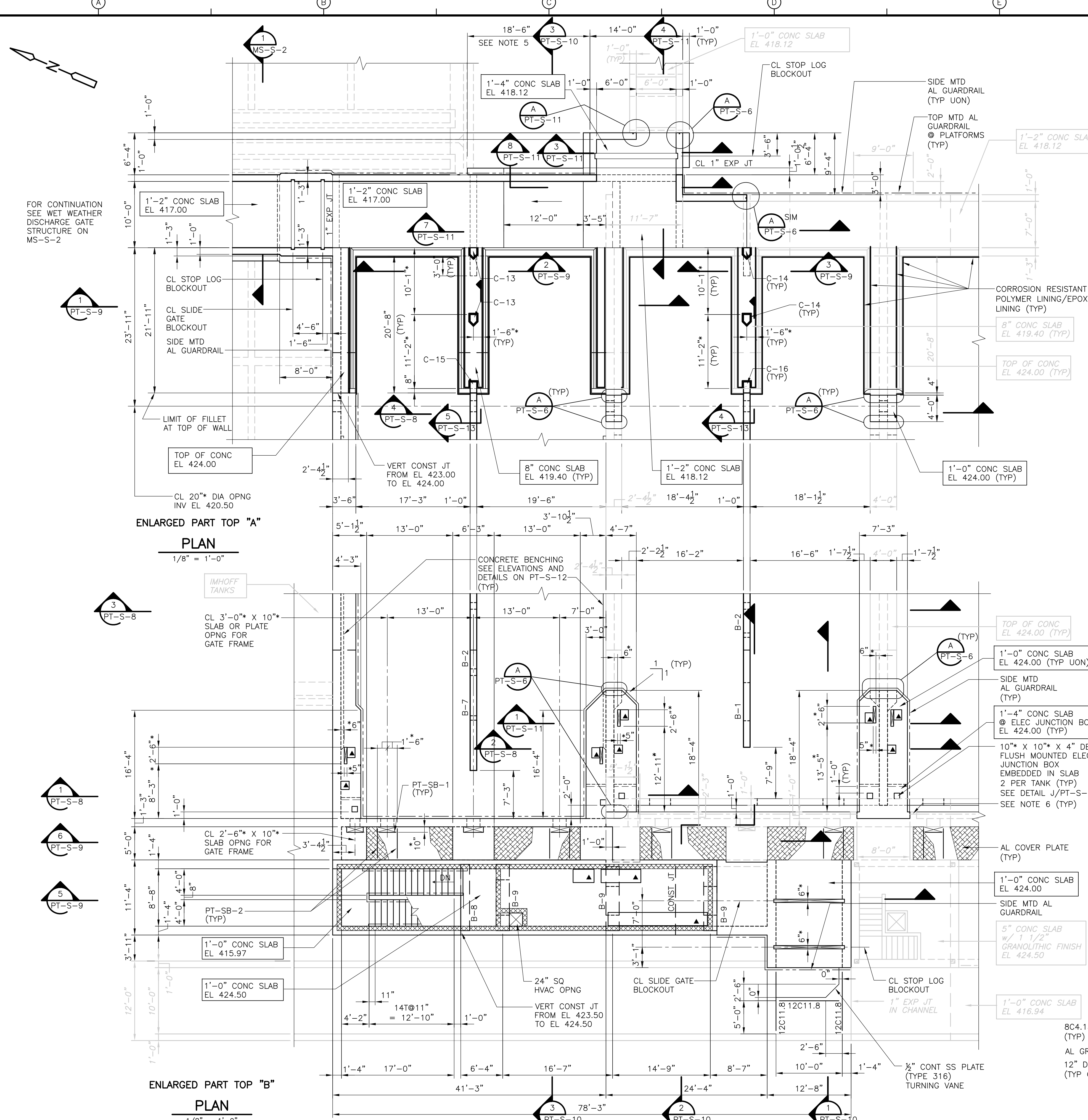
PROJECT NO.  
 1289\35370

Sht. 96 of 386

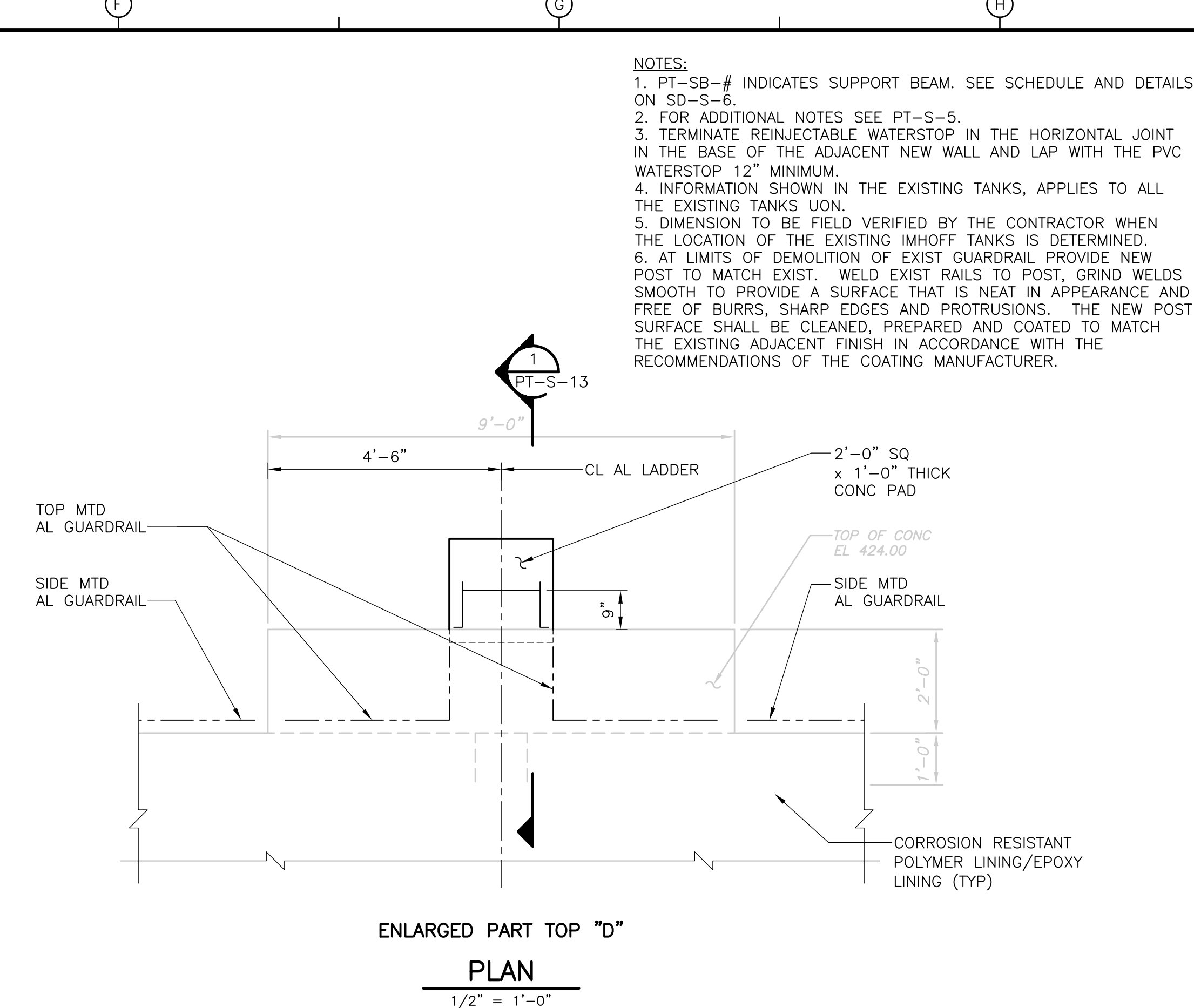
**PRIMARY SETTLING TANKS  
 PART PLAN I**

**PT-S-6**

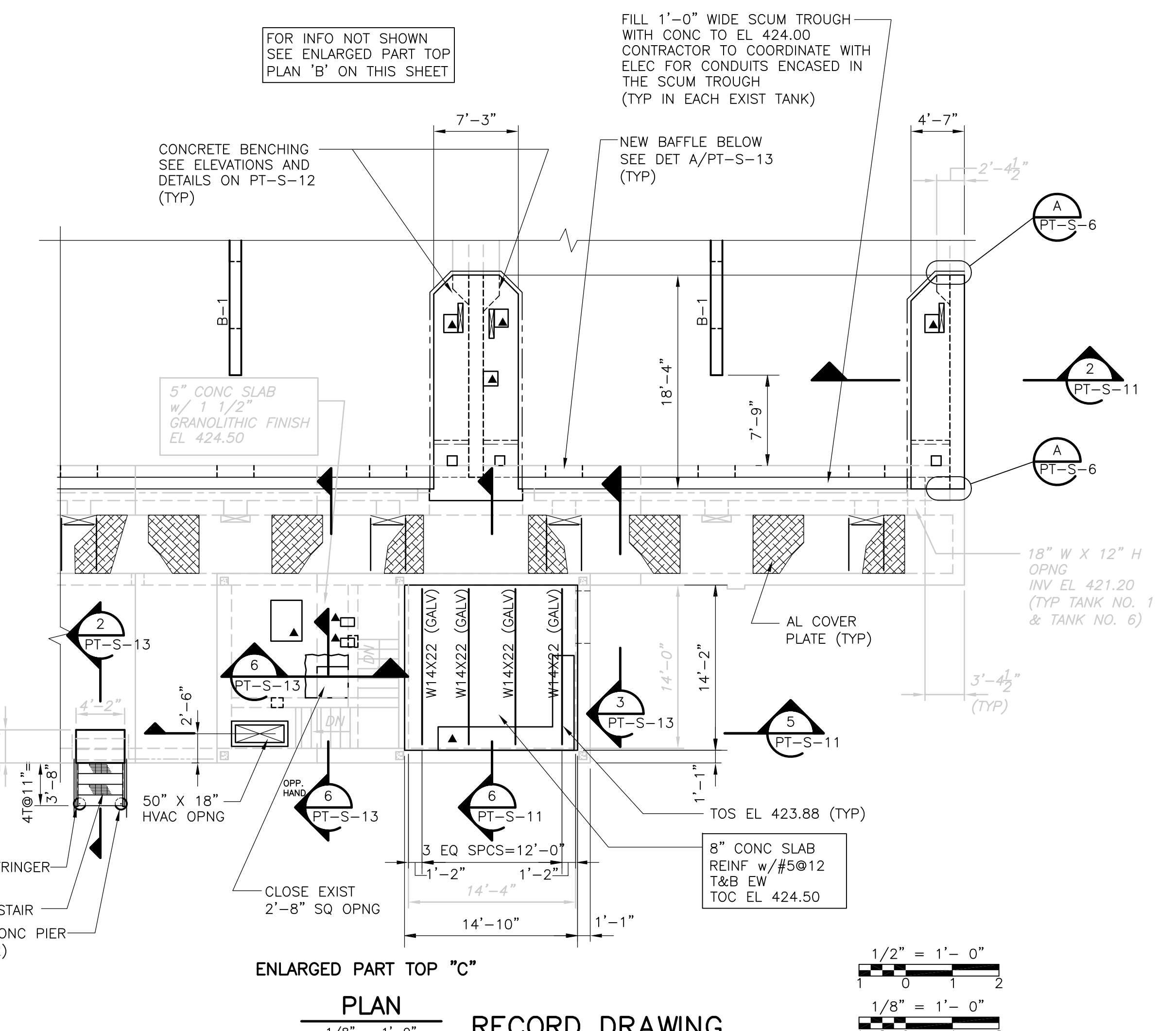
1/8" = 1'-0"



ENLARGED PART TOP "A"  
 PLAN  
 1/8" = 1'-0"



ENLARGED PART TOP "D"  
 PLAN  
 1/2" = 1'-0"



ENLARGED PART TOP "C"  
 PLAN  
 1/8" = 1'-0"

- NOTES:
1. PT-SB-# INDICATES SUPPORT BEAM. SEE SCHEDULE AND DETAILS ON SD-S-6.
  2. FOR ADDITIONAL NOTES SEE PT-S-5.
  3. TERMINATE REINJECTABLE WATERSTOP IN THE HORIZONTAL JOINT IN THE BASE OF THE ADJACENT NEW WALL AND LAP WITH THE PVC WATERSTOP 12" MINIMUM.
  4. INFORMATION SHOWN IN THE EXISTING TANKS, APPLIES TO ALL THE EXISTING TANKS UON.
  5. DIMENSION TO BE FIELD VERIFIED BY THE CONTRACTOR WHEN THE LOCATION OF THE EXISTING IMHOFF TANKS IS DETERMINED.
  6. AT LIMITS OF DEMOLITION OF EXIST GUARDRAIL PROVIDE NEW POST TO MATCH EXIST. WELD EXIST RAILS TO POST, GRIND WELDS SMOOTH TO PROVIDE A SURFACE THAT IS NEAT IN APPEARANCE AND FREE OF BURRS, SHARP EDGES AND PROTRUSIONS. THE NEW POST SURFACE SHALL BE CLEANED, PREPARED AND COATED TO MATCH THE EXISTING ADJACENT FINISH IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE COATING MANUFACTURER.

FOR INFO NOT SHOWN  
 SEE ENLARGED PART TOP  
 PLAN "B" ON THIS SHEET

FILL 1'-0" WIDE SCUM TROUGH  
 WITH CONC TO EL 424.00  
 CONTRACTOR TO COORDINATE WITH  
 ELEC FOR CONDUITS ENGAGED IN  
 THE SCUM TROUGH  
 (TYP IN EACH EXIST TANK)

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.	SPSPL003.DWG
DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering architect constructor operators

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

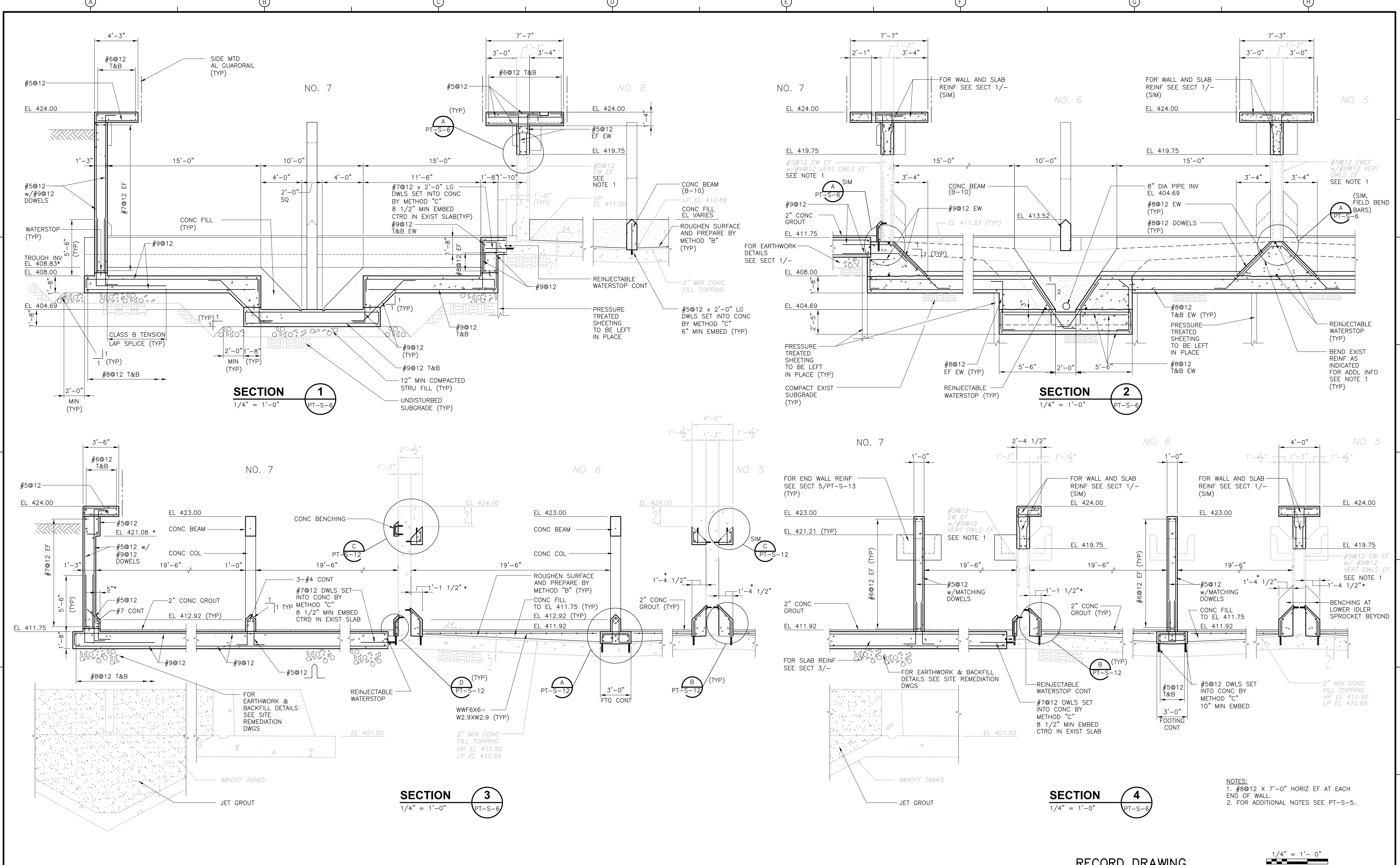
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 PART PLAN II**

PROJECT NO. 1289\35370  
 Sht. 97 of 386  
**PT-S-7**



UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
 Xref: [C24X36H\_SPSW000\_]  
 Plotted by: CROSSHA  
 Time: 12/16/08 6:21:48 PM  
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NOTES:  
 1. #8@12 X 7'-0" HORIZ EF AT EACH END OF WALL.  
 2. FOR ADDITIONAL NOTES SEE PT-S-5.

RECORD DRAWING  
 1/4" = 1'-0"  
 2 1 0 2 4

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. SPSSC001.DWG  
 DESIGNED BY: A.J. PAPA  
 DRAWN BY: B.S. HORNER  
 SHEET CHK'D BY: A.J. PAPA  
 SCALE: AS NOTED  
 APPROVED BY: D.L. HARRIS  
 DATE: MAY 2006

CDM  
 Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

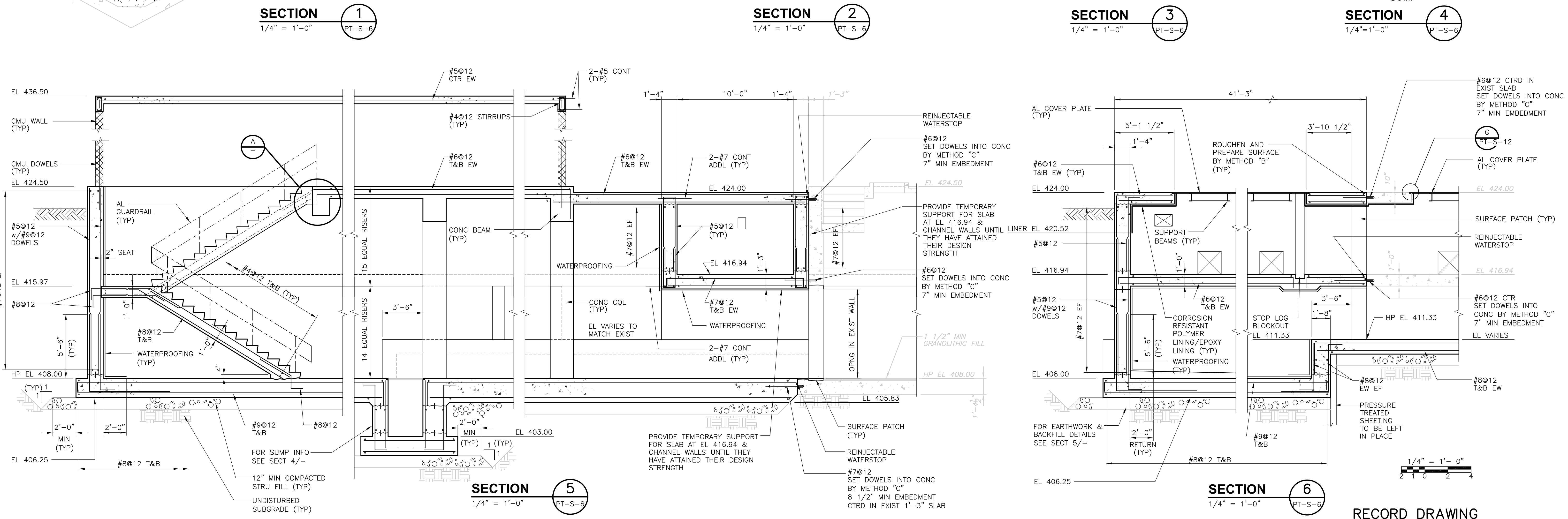
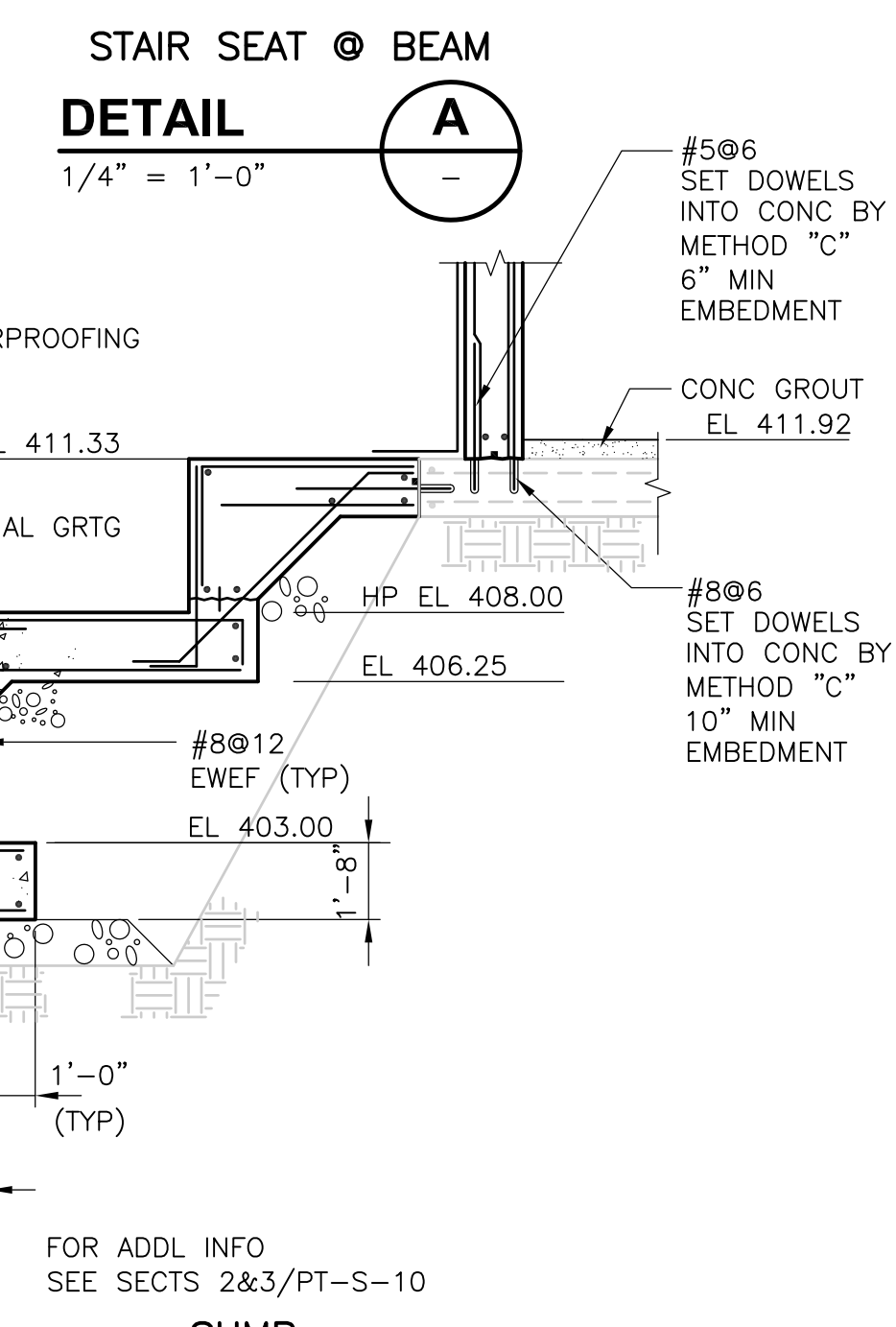
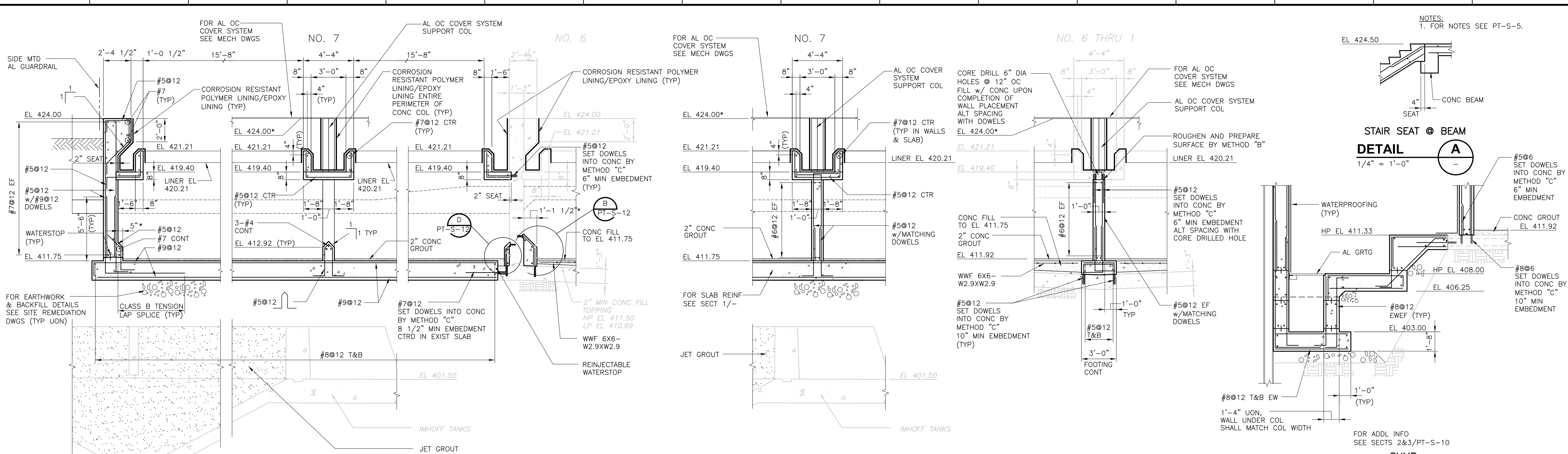
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

PRIMARY SETTLING TANKS  
 SECTIONS I  
 PT-S-8

PROJECT NO.  
 1289\35370  
 Sht. 98 of 386

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SPSSC002.DWG
DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

SECTION 1	PT-S-6
SECTION 2	PT-S-6
SECTION 3	PT-S-6
SECTION 4	PT-S-6
SECTION 5	PT-S-6
SECTION 6	PT-S-6

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

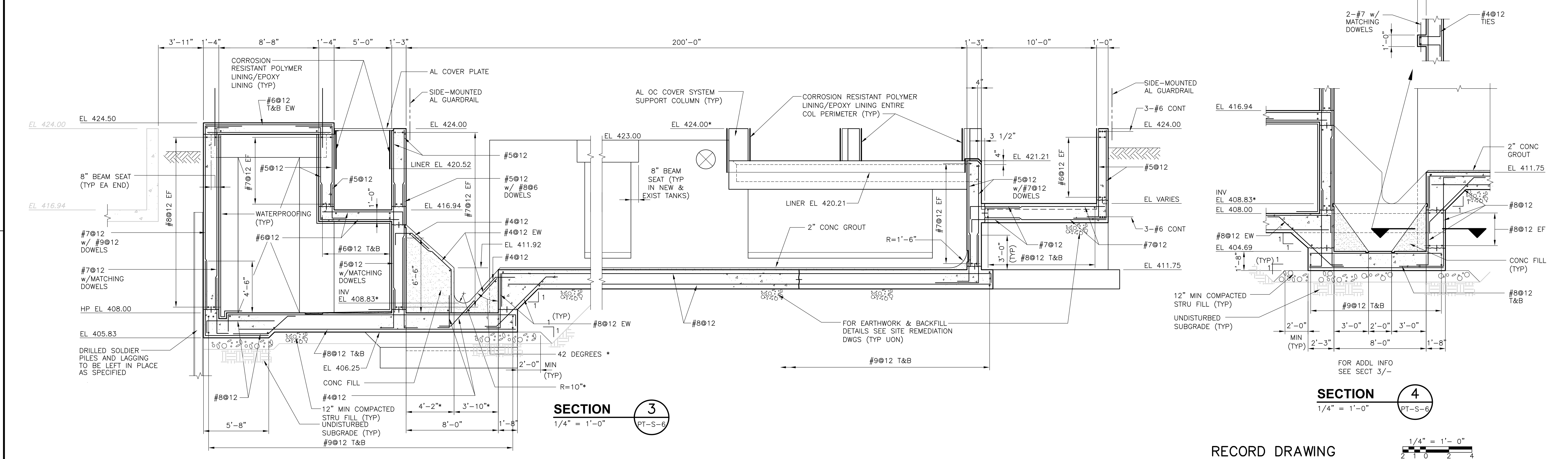
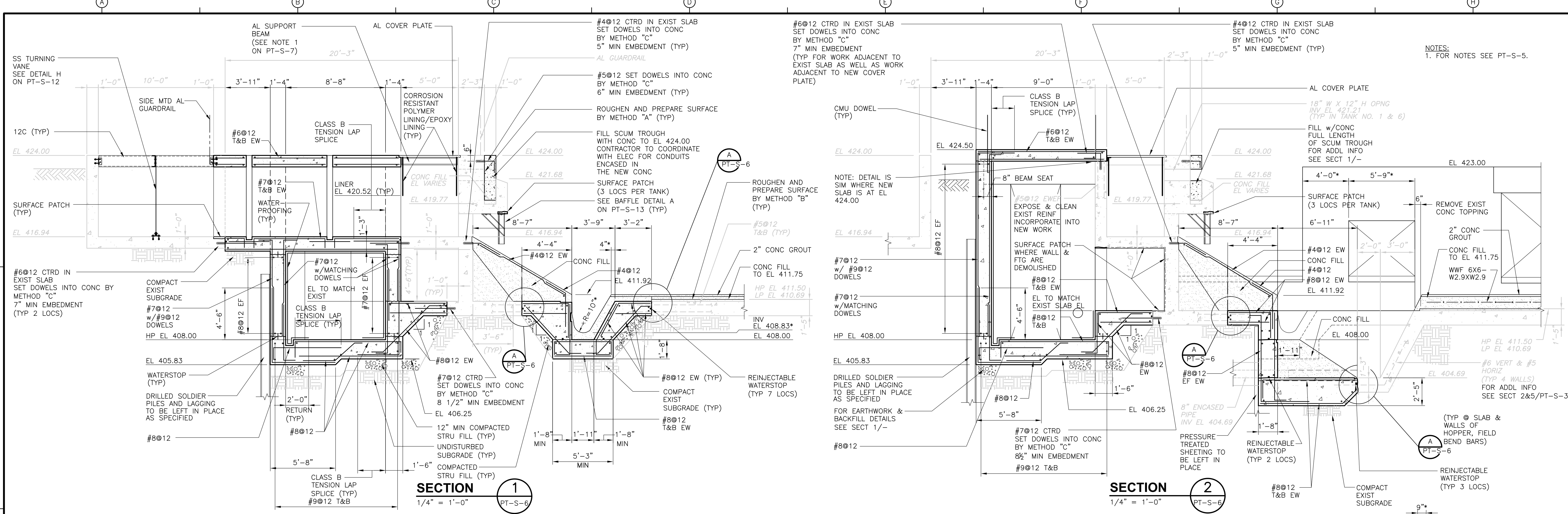
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**PRIMARY SETTLING TANKS**  
**SECTIONS II**

PROJECT NO. 1289\35370  
 Sht. 99 of 386

**PT-S-9**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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RECORD DRAWING  
 1/4" = 1'-0"  
 2 1 0 2 4

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SPSS003.DWG
DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

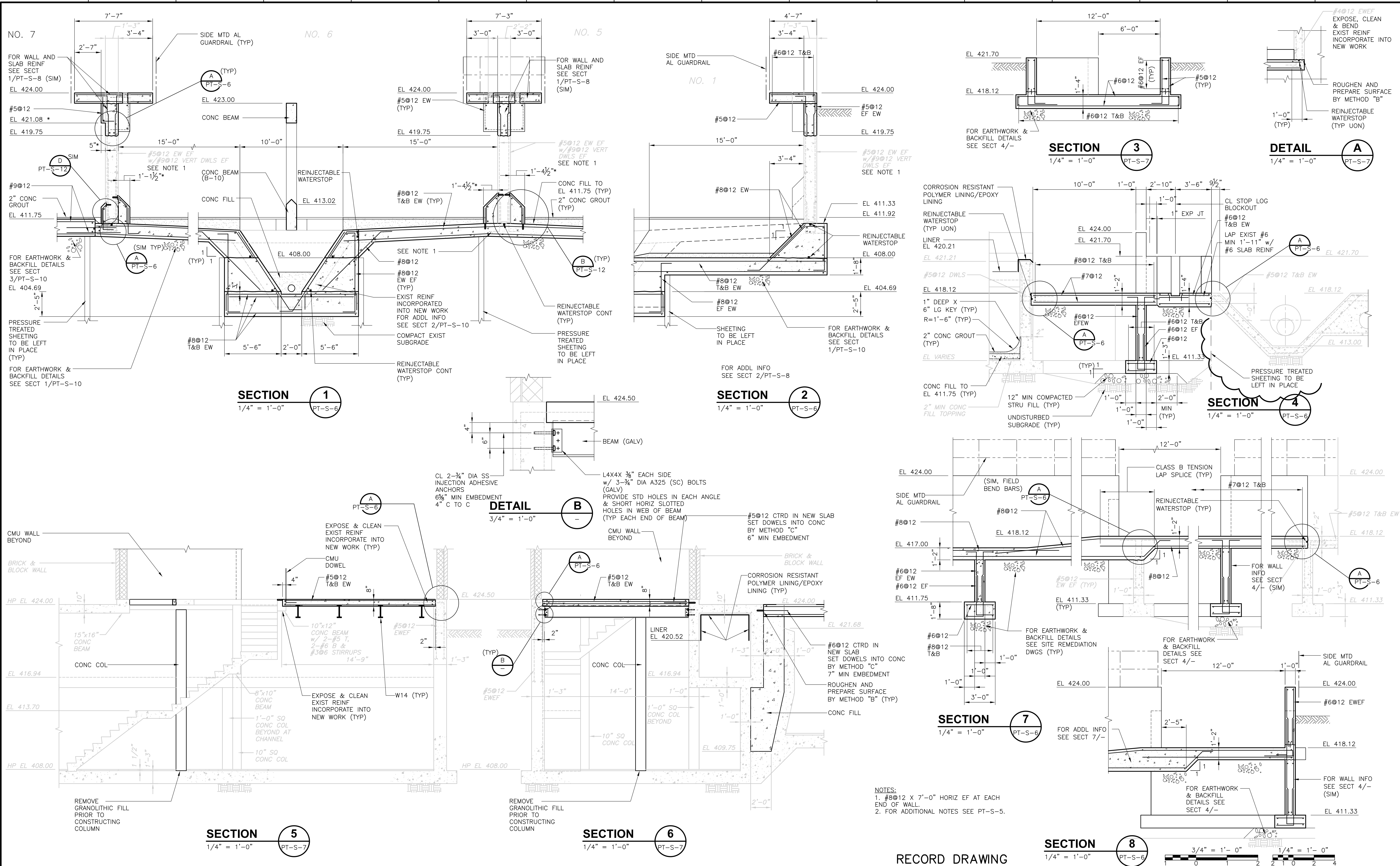
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**PRIMARY SETTLING TANKS SECTIONS III**

PROJECT NO. 1289\35370  
 Sht. 100 of 386  
**PT-S-10**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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NOTES:  
 1. #8@12 X 7'-0" HORIZ EF AT EACH END OF WALL.  
 2. FOR ADDITIONAL NOTES SEE PT-S-5.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

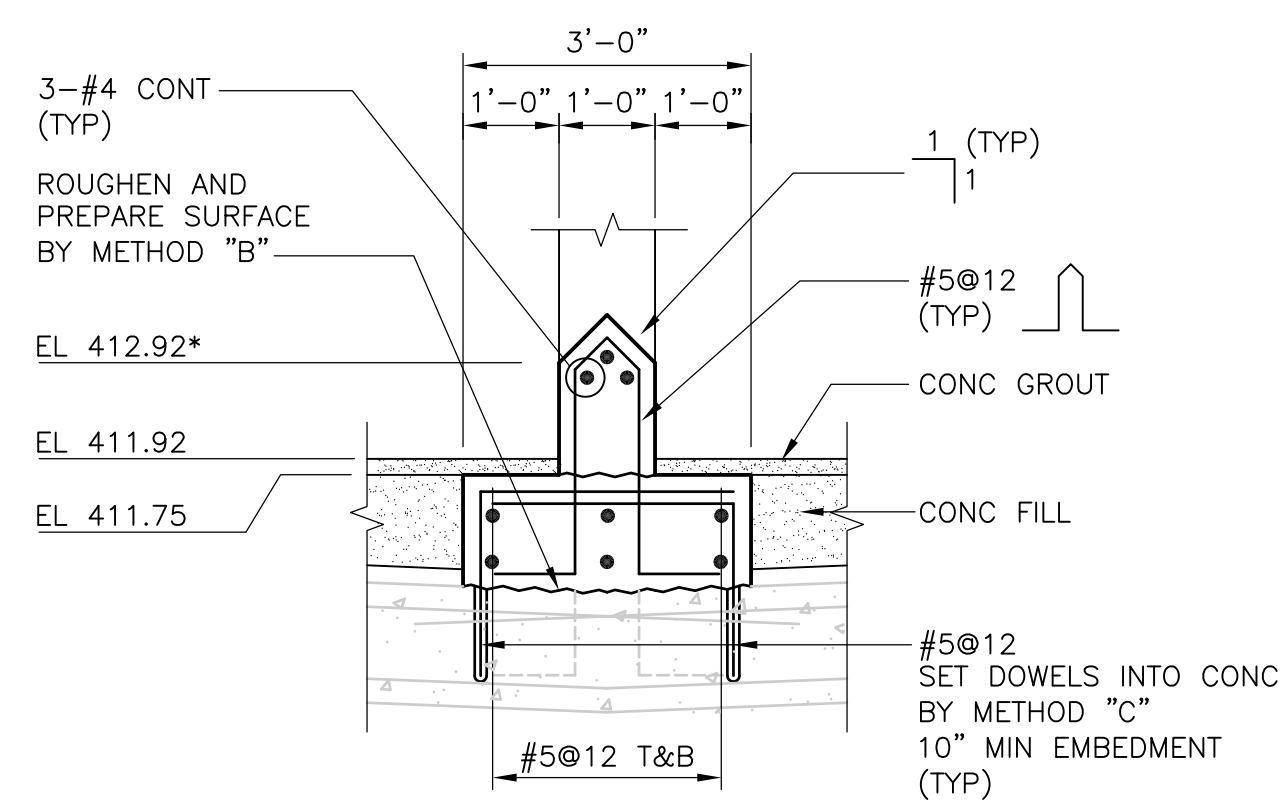
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DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

CDM	Camp Dresser & McKee Inc.
consulting	engineering
construction	operations

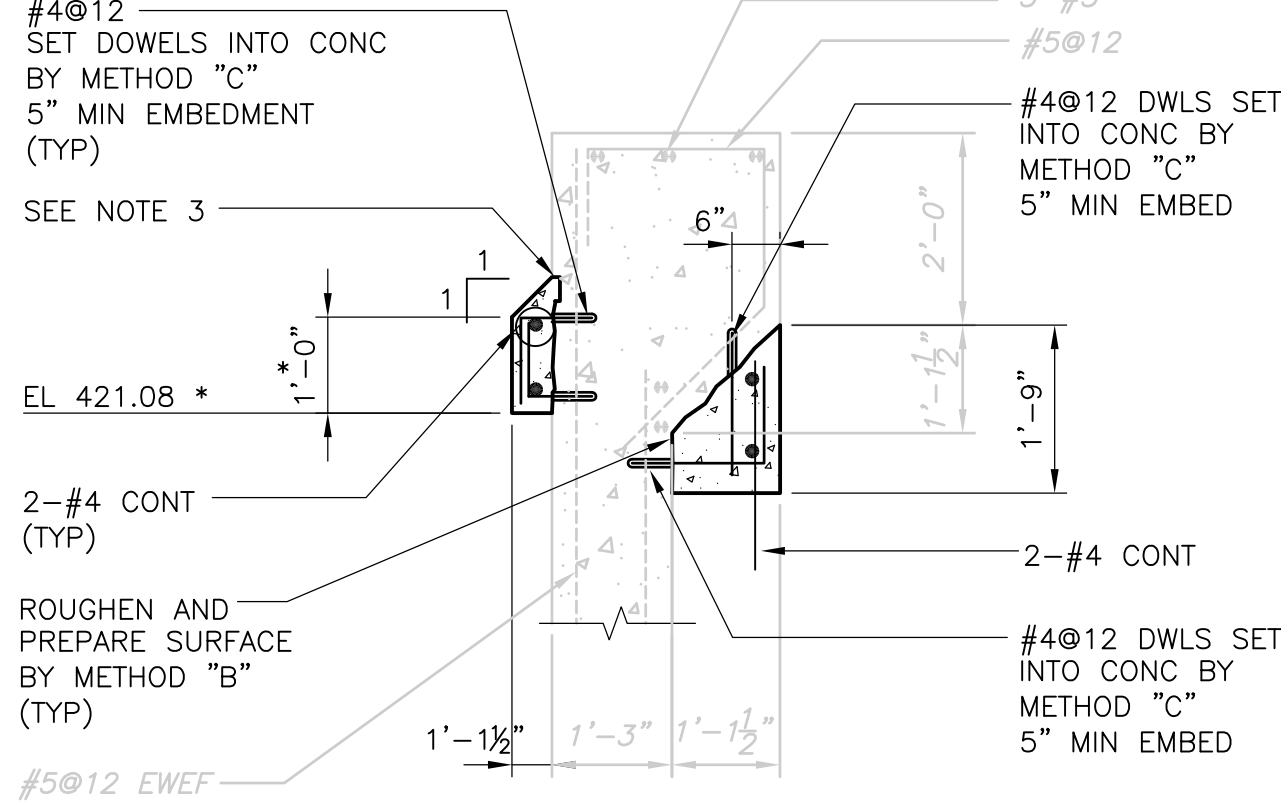
UPPER BLACKSTONE	WATER POLLUTION ABATEMENT DISTRICT	CONTRACT No. UB 2024
WASTEWATER TREATMENT FACILITY IMPROVEMENTS		

PROJECT NO.	1289\35370
Sht.	101 of 386
PT-S-11	

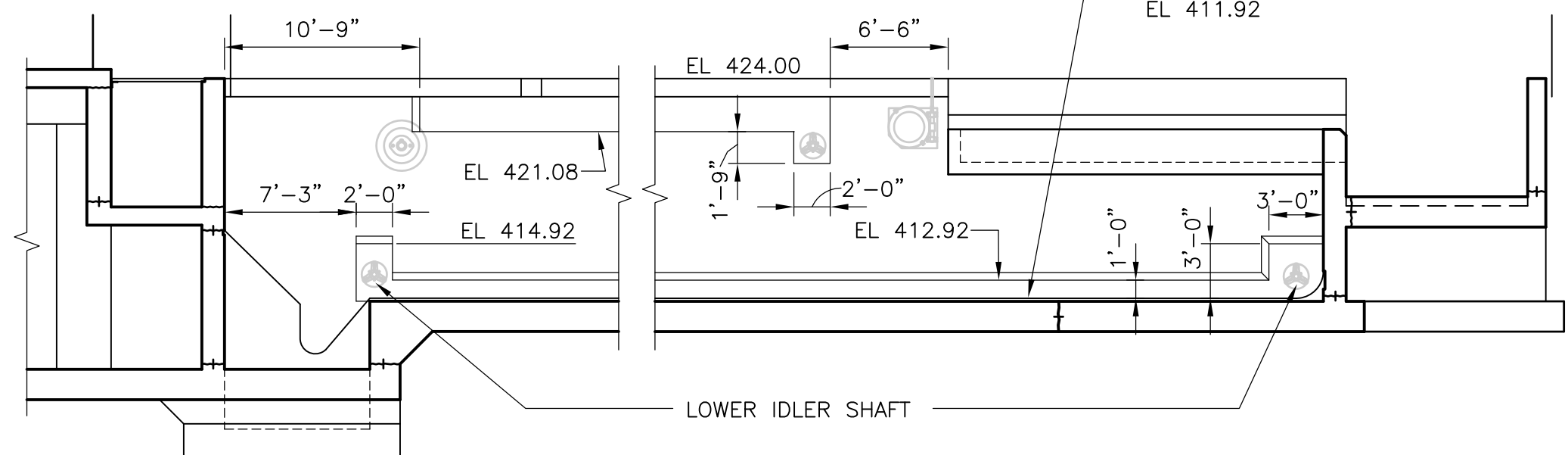
CONFORMED	PRIMARY SETTLING TANKS	SECTIONS IV
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**DETAIL A**  
 CENTER OF EXISTING TANK  
 1/2" = 1'-0" PT-S-6

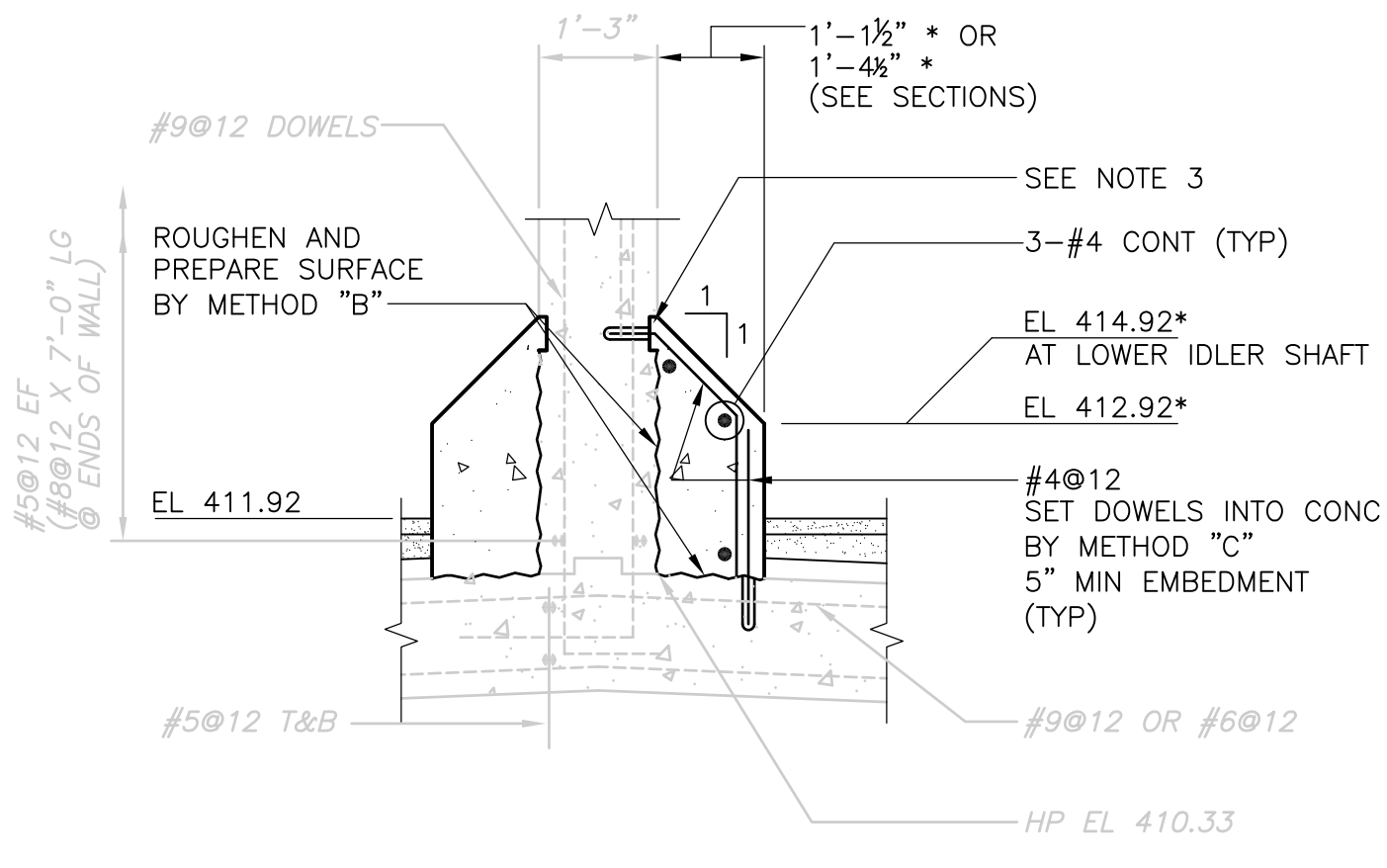


**DETAIL C**  
 CONCRETE BENCHING @ TOP OF EXISTING WALL  
 1/2" = 1'-0" PT-S-6

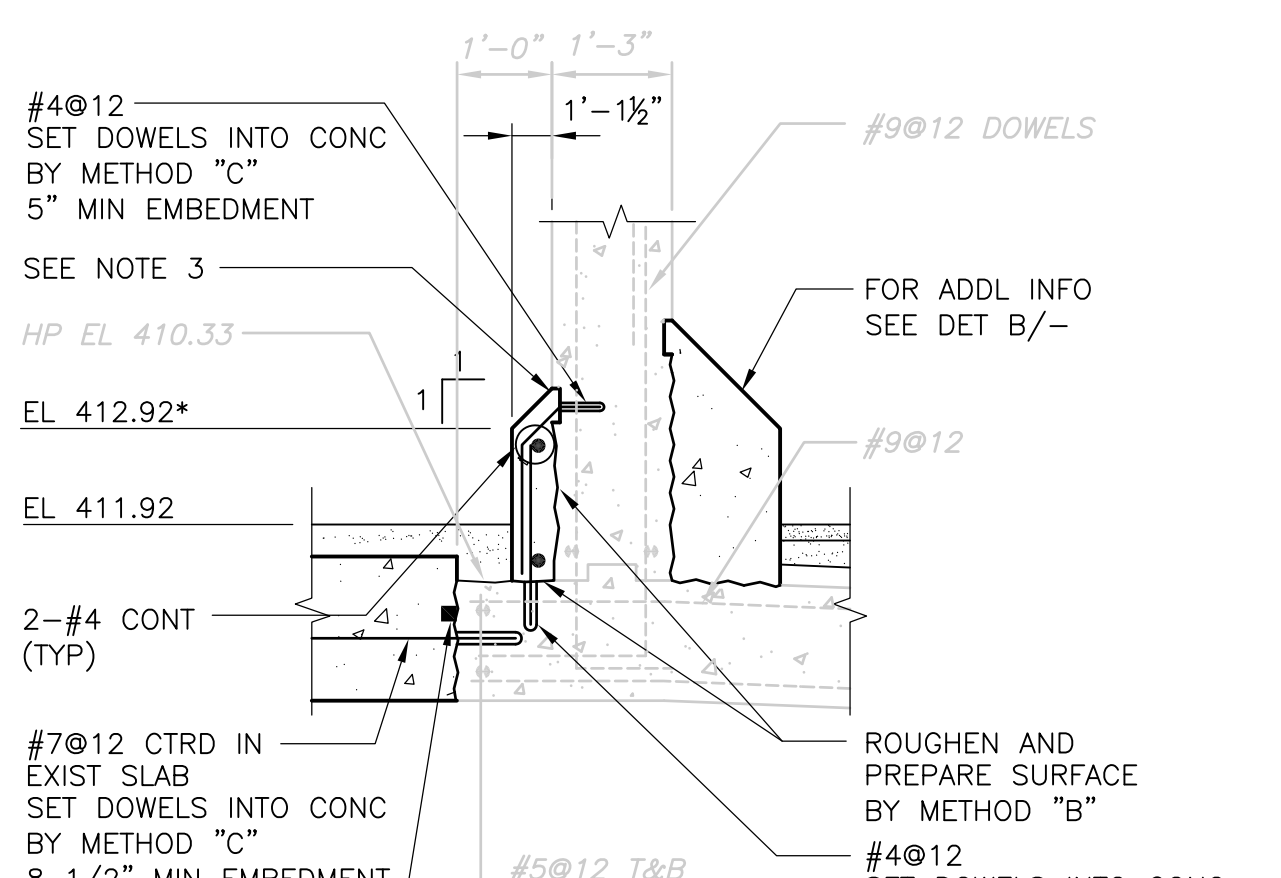


**ELEVATION A**  
 BENCHING AT NEW WALL  
 1/8" = 1'-0" PT-S-6

NOTE:  
 ALL ELEVATIONS AND DIMENSIONS GIVEN  
 DEFINING THE BENCHING SHALL BE COORDINATED  
 BY THE CONTRACTOR WITH THE MANUFACTURER  
 OF THE APPROVED EQUIPMENT PRIOR TO  
 FABRICATION AND CONSTRUCTION.

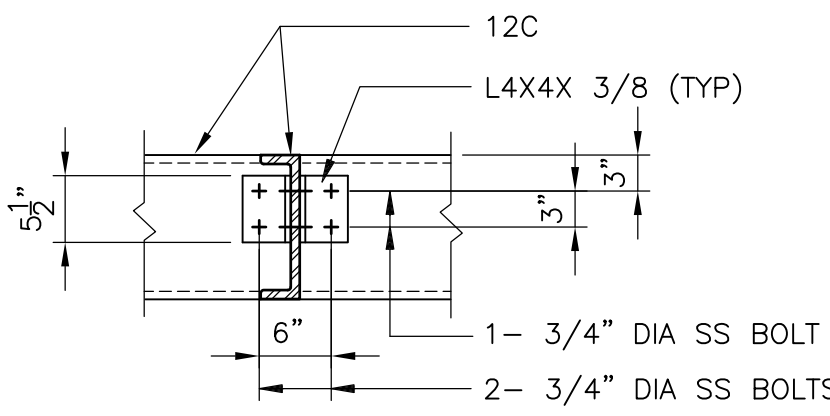


**DETAIL B**  
 CONC BENCHING @ BASE OF EXISTING WALL  
 1/2" = 1'-0" PT-S-6



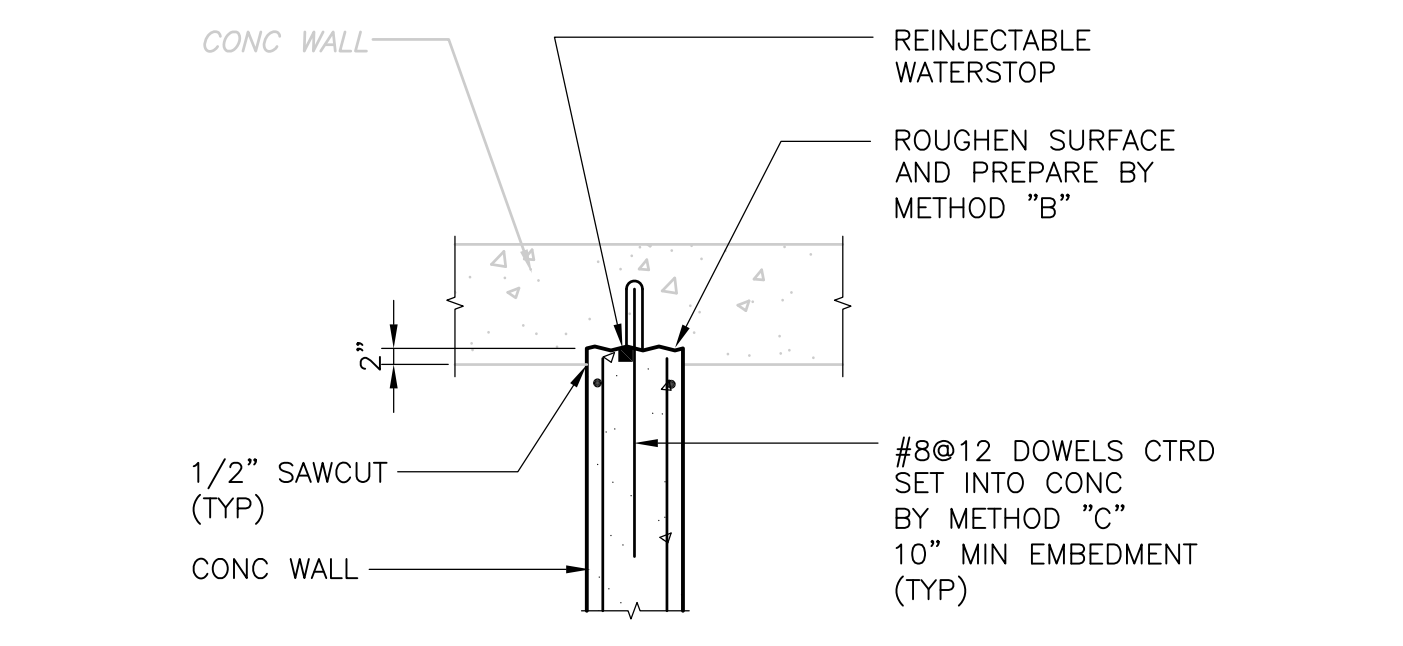
**DETAIL D**  
 CONC BENCHING @ BASE OF EXISTING NORTH WALL OF TANK NO. 6  
 1/2" = 1'-0" PT-S-6

- CONCRETE BENCHING NOTES:**
- CONSTRUCTION JOINT AND EXPANSION JOINTS IN TANK WALLS SHALL BE REFLECTED THROUGH THE CONCRETE BENCHING.
  - BEVEL END OF CONCRETE BENCHING TO PREVENT FLIGHT INTERFERENCE.
  - PROVIDE A 1" DEEP X 3" WIDE CONTINUOUS KEY. PROVIDE 1" DEEP SAWCUT AT EXPOSED EDGES OF KEY.
  - SEE ELEVATIONS A AND B ON THIS SHEET FOR LIMITS.

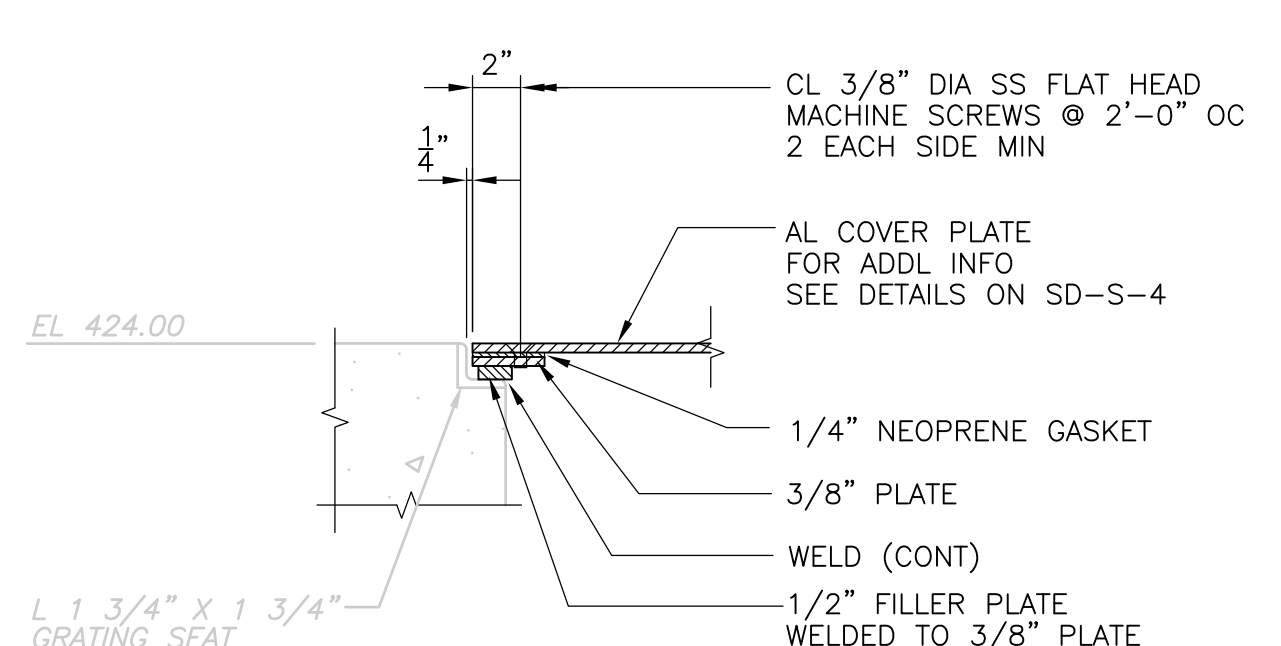


**ELEVATION B**  
 BENCHING AT EXISTING WALL  
 1/8" = 1'-0" PT-S-6

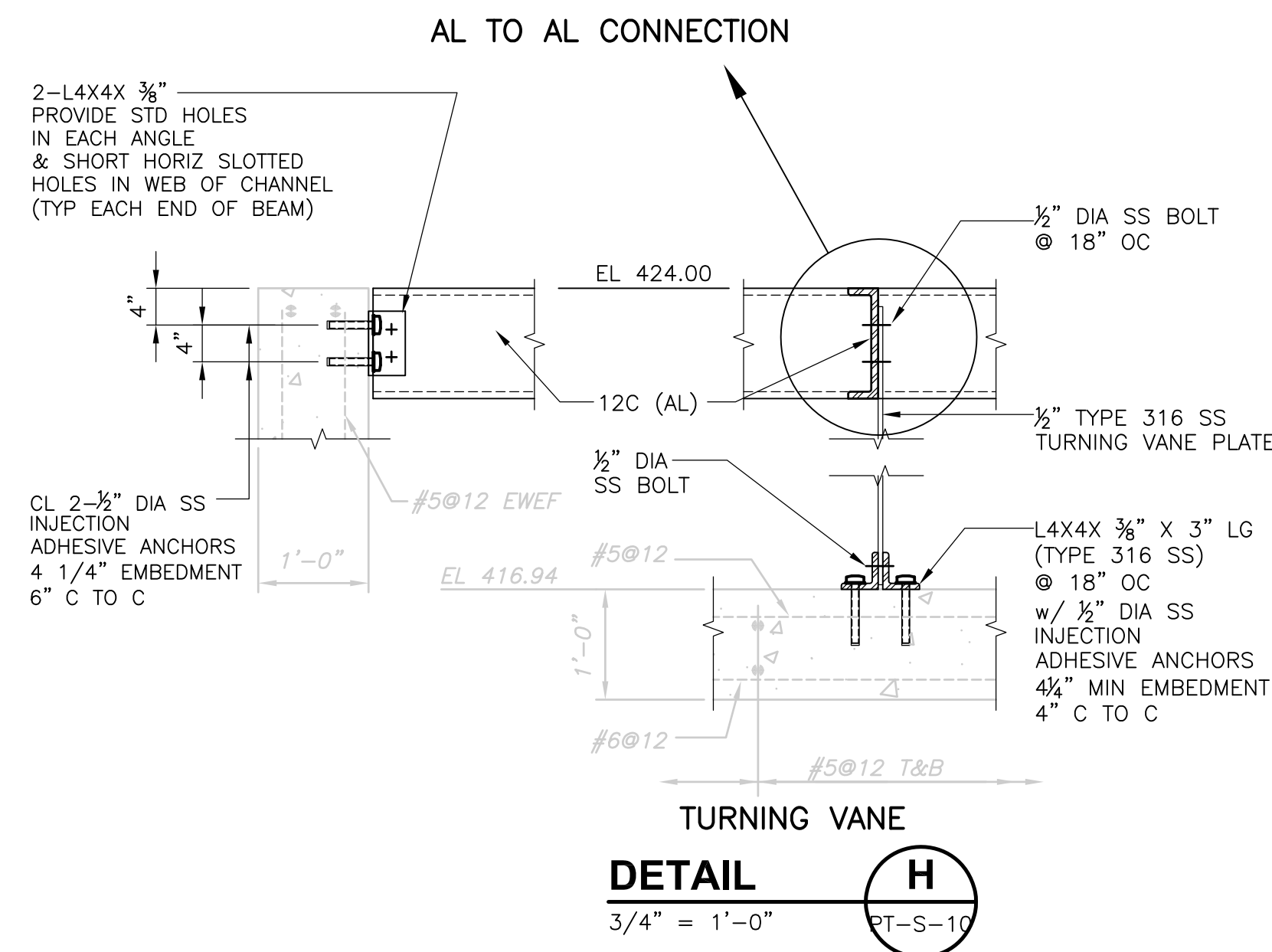
NOTE:  
 ALL ELEVATIONS AND DIMENSIONS GIVEN  
 DEFINING THE BENCHING SHALL BE COORDINATED  
 BY THE CONTRACTOR WITH THE MANUFACTURER  
 OF THE APPROVED EQUIPMENT PRIOR TO  
 FABRICATION AND CONSTRUCTION.



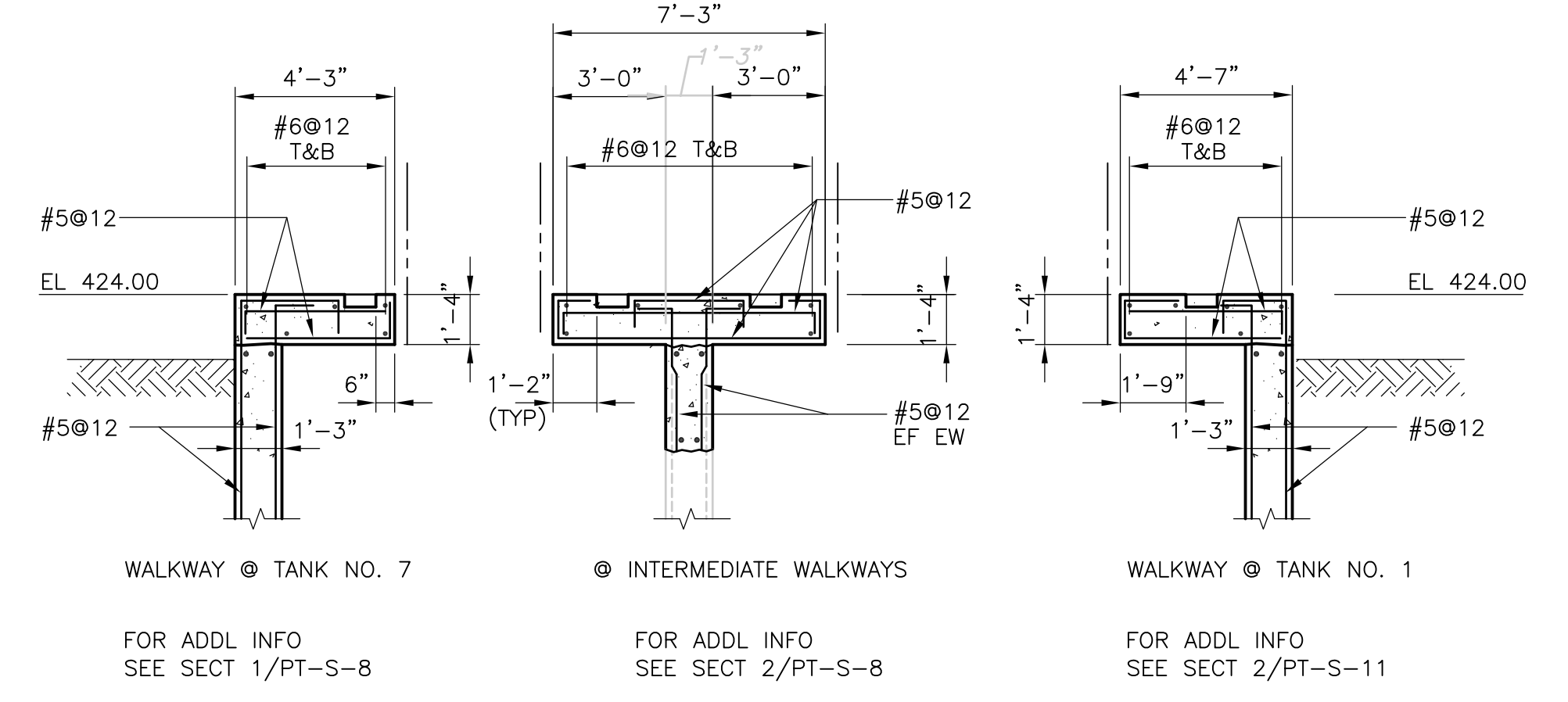
**DETAIL F**  
 NEW CONC WALL TO EXIST CONC WALL  
 1 1/2" = 1'-0" PT-S-6



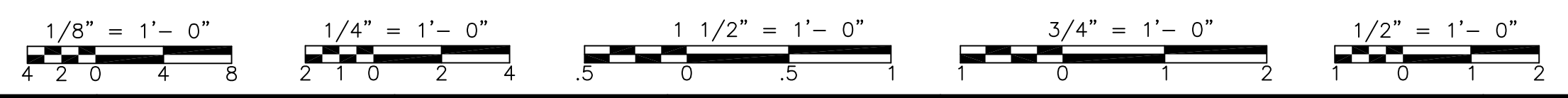
**DETAIL G**  
 COVER PLATE SEAT DETAIL @ EXIST GRATING SEAT  
 1 1/2" = 1'-0" PT-S-9



**DETAIL H**  
 TURNING VANE  
 3/4" = 1'-0" PT-S-10



**DETAIL J**  
 REINFORCING @ FLUSH MOUNTED ELECTRICAL JUNCTION BOXES  
 1/4" = 1'-0" PT-S-7



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.	SPSS005.DWG
DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 SECTIONS V**

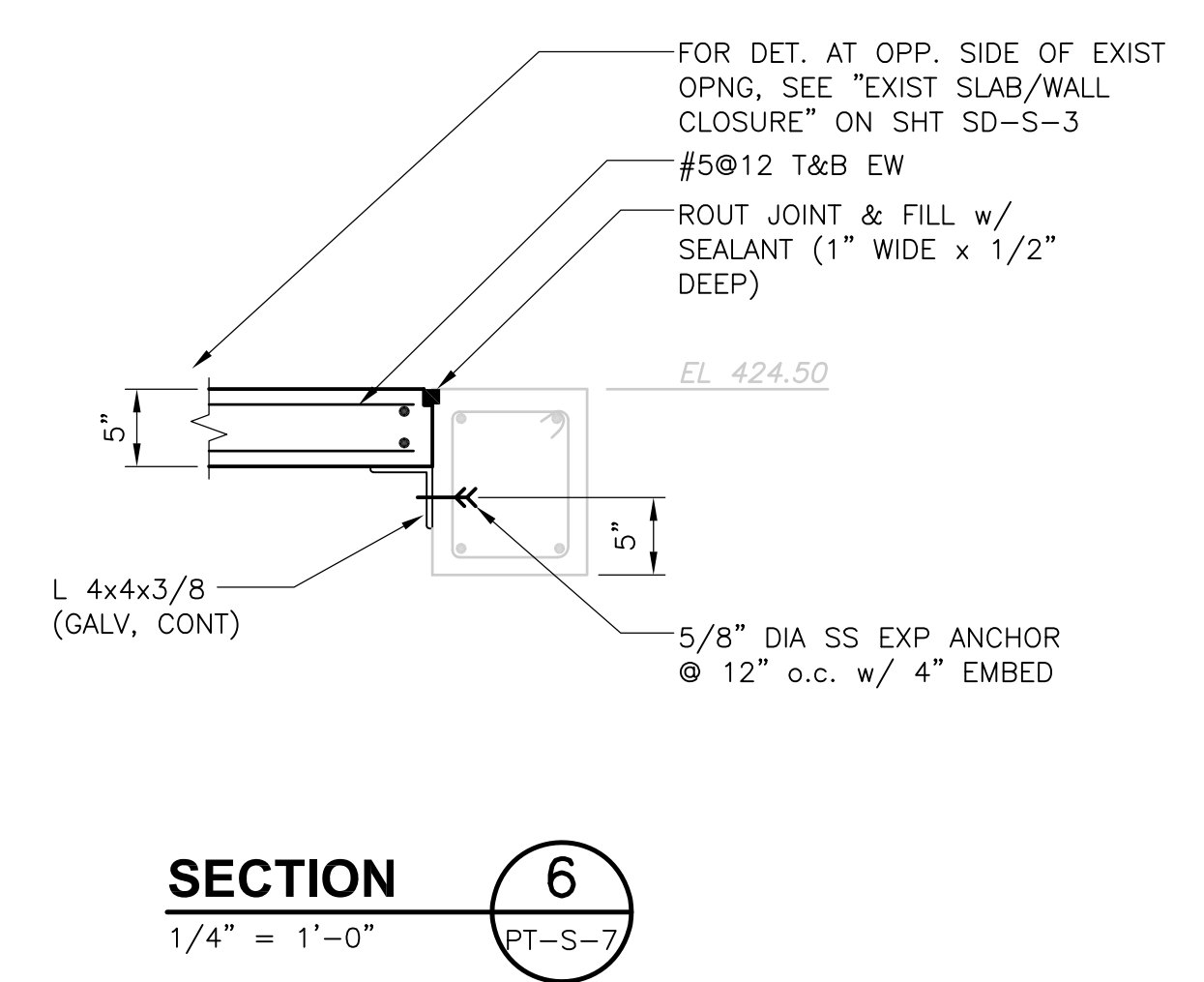
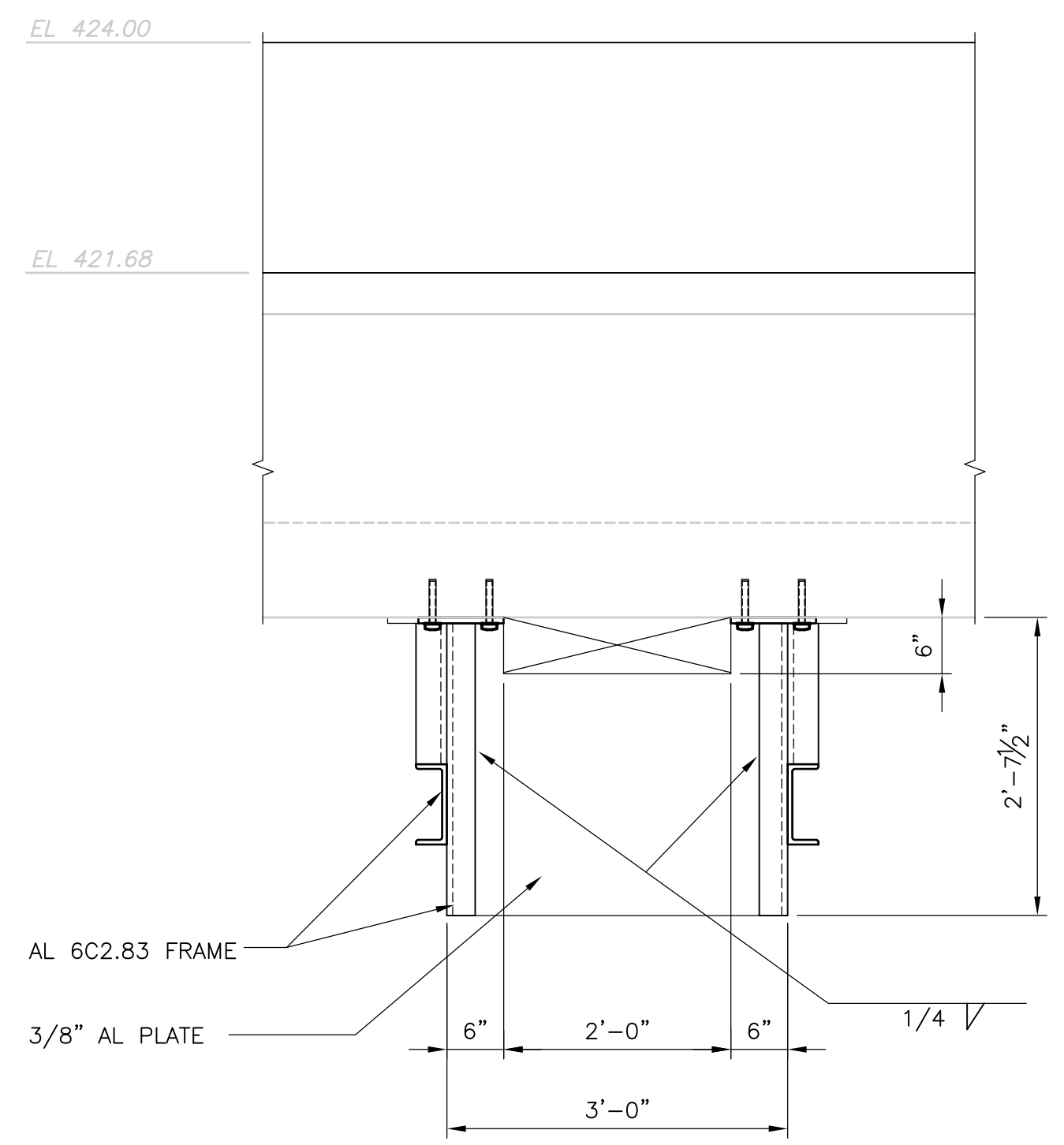
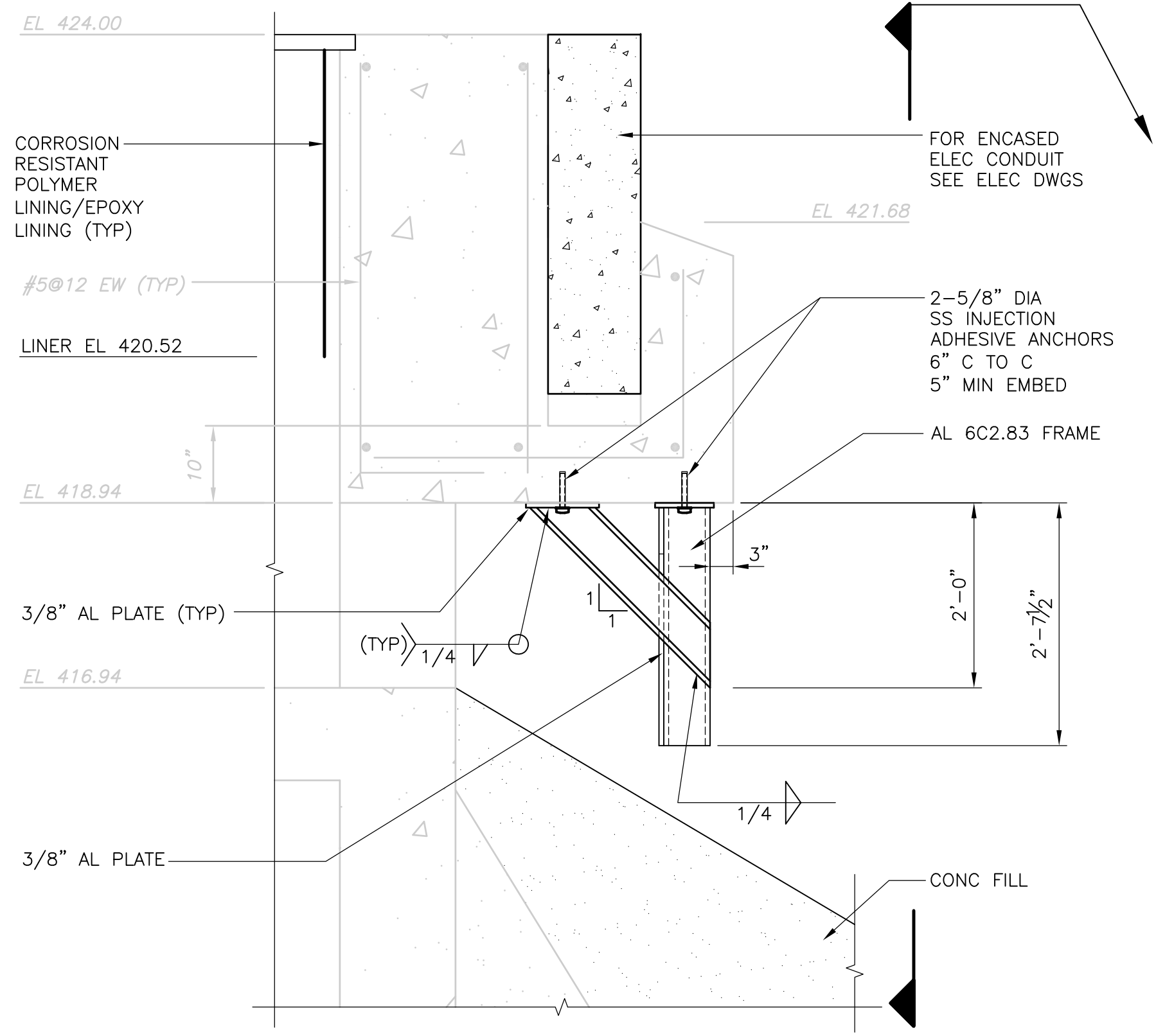
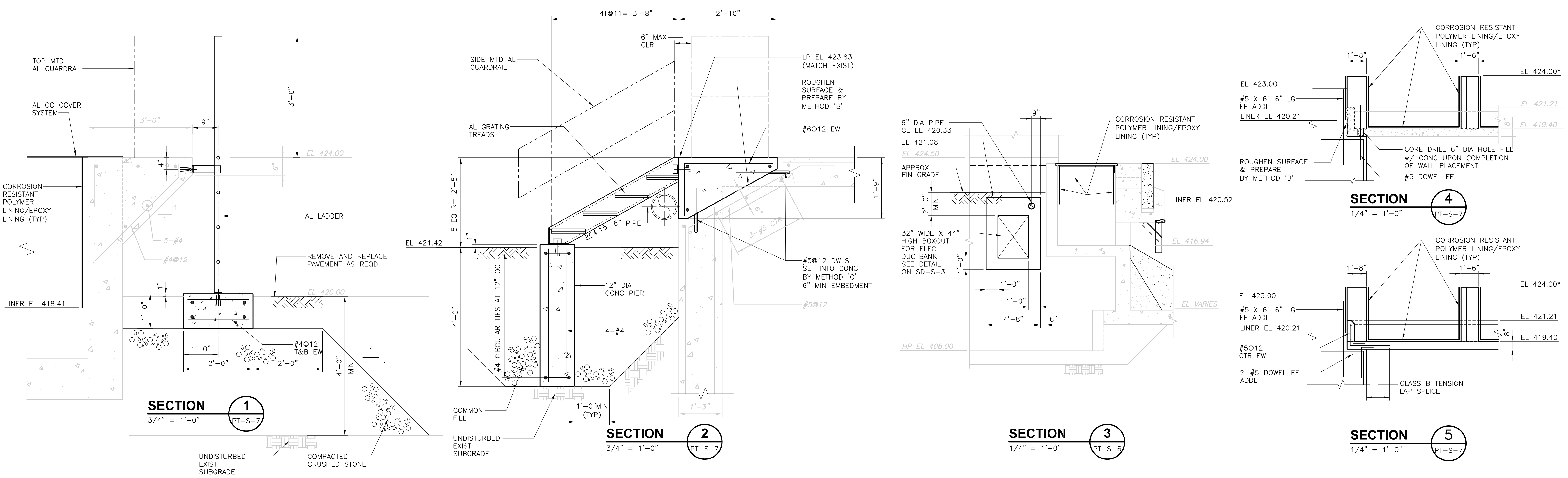
PROJECT NO.  
 1289\35370

Sht. 102 of 386

**PT-S-12**

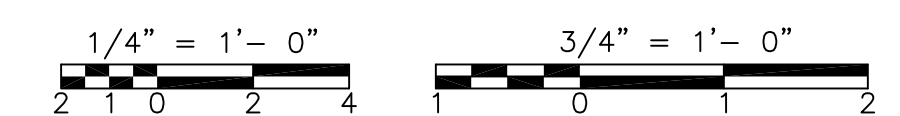
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NOTES:  
 1. FOR NOTES SEE PT-S-5.



BAFFLE AT EACH PORT (TYP 3 PER TANK)

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

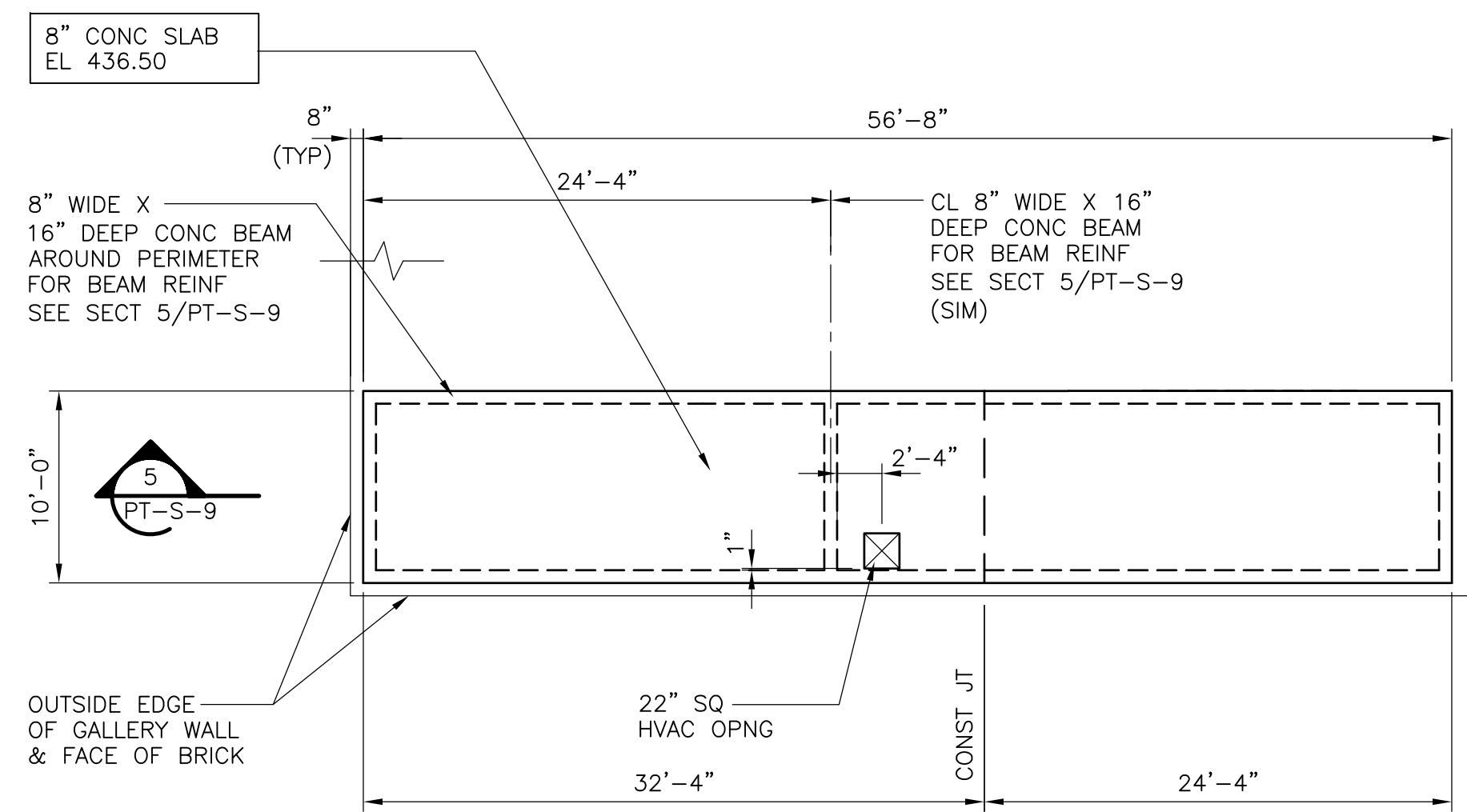
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DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**PRIMARY SETTLING TANKS**  
**SECTIONS VI**

PROJECT NO.  
 1289\35370  
 Sht. 103 of 386  
**PT-S-13**  
ACCESSION NO. 1289-65503



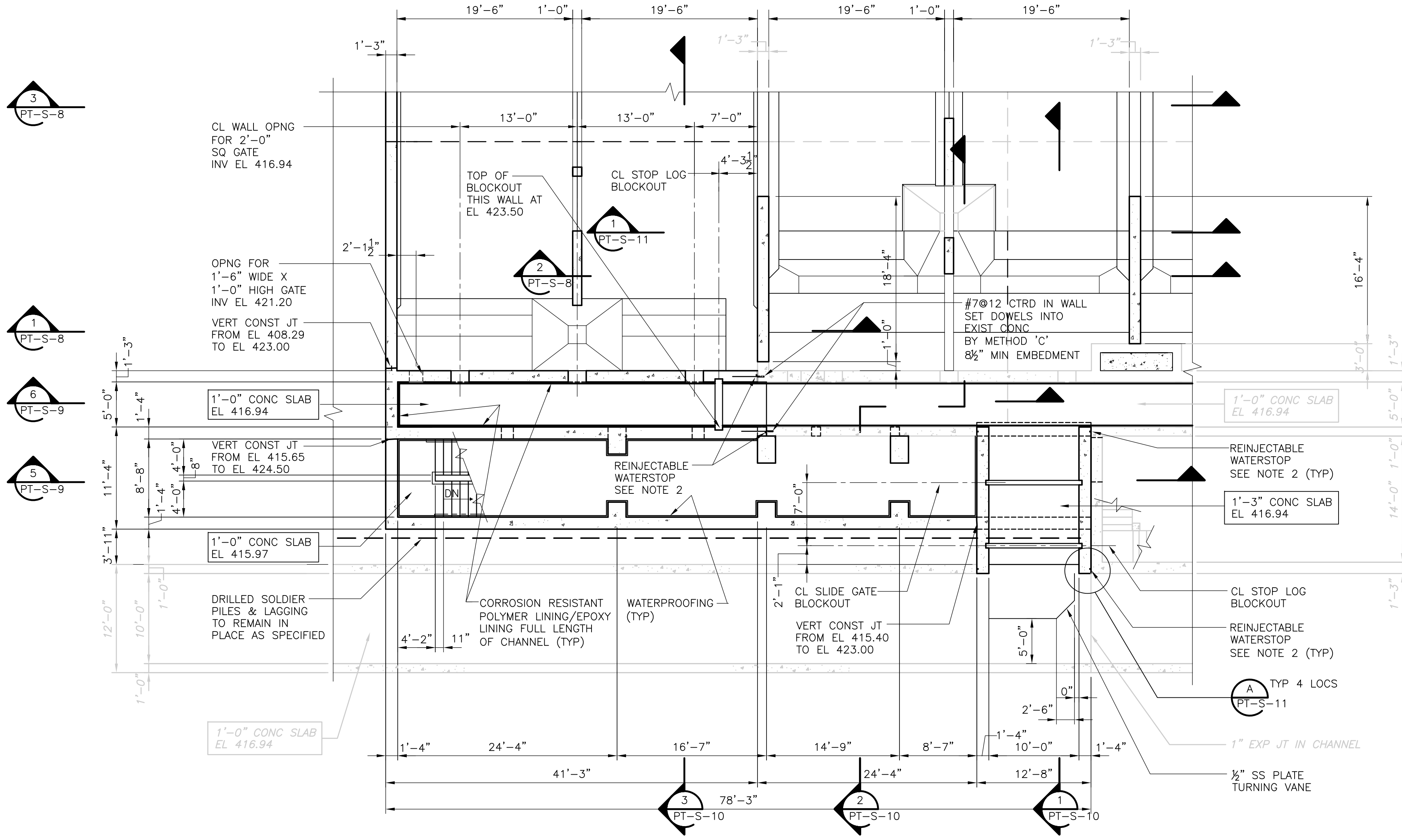
**ENLARGED PART ROOF "B"**  
**PLAN**  
 1/8" = 1'-0"

COVER PLATE SCHEDULE				
OPENING NO.	n	PLATE THICKNESS	STIFFENER ANGLE SIZE	COMMENTS
P1	4	3/8"	L 2 1/2 x 2 1/2 x 3/8	WATERTIGHT/AIRTIGHT
P2	4	3/8"	L 2 1/2 x 2 1/2 x 3/8	WATERTIGHT/AIRTIGHT SEE NOTE 2
P3	4	3/8"	L 2 1/2 x 2 1/2 x 3/8	WATERTIGHT/AIRTIGHT SEE NOTE 2

**COVER PLATE SCHEDULE NOTES:**  
 1. SEE SHEET SD-S-4 FOR COVER PLATE DETAILS.  
 2. FOR SEAT DETAIL, SEE DETAIL G/PT-S-12.

BEAM SCHEDULE										
BEAM No	BEAM TYPE	SECT TYPE	b (WIDTH)	t (DEPTH)	'A' BARS	'B' BARS	'C' BARS	EXTRA BARS	STIRRUPS	COMMENTS
B-1	V	A	12"	56"	2-#7	-	2-#7	#5@12	#4@12	
B-2	I	A	12"	23"	2-#7	2-#7	2-#7	-	#4@10	
B-3	II	A	12"	23"	-	2-#7	-	-	#4@10	
B-4	III	A	12"	23"	2-#7	-	2-#7	-	#4@10	
B-5	I	A	12"	23"	2-#7	2-#7	2-#7	-	#4@10	
B-6	III	A	12"	23"	2-#7	-	2-#7	-	#4@10	
B-7	I	A	12"	23"	2-#7	2-#7	2-#7	-	#4@10	
B-8	V	A	18"	30"	3-#6	-	3-#6	#5@12	#4@12	⊙ NO. ACCESS STRU SEE NOTE 5
B-9	V	A	24"	36"	5-#9	-	5-#9	#5@12	#4@8	⊙ NO. ACCESS STRU
B-10	V	B	12"	36"	3-#8	-	3-#8	#5@12	#4@12	⊙ BASE SLAB SEE NOTE 4

**BEAM SCHEDULE NOTES:**  
 1. SEE SHEET SD-S-8 FOR BEAM ELEVATION AND SECTION TYPES.  
 2. BEAM DEPTHS ARE MEASURED FROM THE CONCRETE SLAB LP ELEVATION.  
 3. WHERE BEAMS TERMINATE AT A PARALLEL WALL, OMIT HOOKS IN 'A' BARS AND PROVIDE TENSION DEVELOPMENT LENGTH BEYOND THE FACE OF WALL.  
 4. WHERE BEAM TERMINATES PERPENDICULAR TO EXISTING CONCRETE WALL, SEE DETAIL F/PT-S-12.  
 5. FOR ADDITIONAL INFORMATION SEE DETAIL A/PT-S-9.



**ENLARGED PART CHANNEL "B"**  
**PLAN**  
 1/8" = 1'-0"

CONCRETE COLUMN SCHEDULE					
No	SECTION TYPE	A	B	REINF	COMMENTS
C-1	III	12"	12"	8-#6	IN NEW TANK
C-2	III	12"	12"	8-#6	IN EXIST TANKS
C-3	III	16"	16"	8-#6	IN NEW GALLERY
C-4	I	12"	12"	4-#6	IN NEW GALLERY
C-5	VI	36"	24"	12-#8	IN NEW GALLERY SEE NOTE 4
C-6	VIII	36"	24"	12-#8	IN NEW GALLERY
C-7	VI	36"	24"	12-#8	IN NEW GALLERY SEE NOTE 2
C-8	VI	36"	24"	12-#8	IN NEW GALLERY SEE NOTES 2 & 3
C-10	IV	12"	48"	8-#8	IN EXIST TANKS
C-11	NOT USED				
C-12	NOT USED				
C-13	VII	18"	12"	5-#6	IN NEW TANKS SEE NOTES 5, 6 & 7
C-14	VII	18"	12"	5-#6	IN EXIST TANKS SEE NOTES 5, 6 & 7
C-15	II	12"	20"	6-#6	IN NEW TANKS SEE NOTES 5 & 6
C-16	II	12"	20"	6-#6	IN EXIST TANKS SEE NOTES 5 & 6
C-17	I	10"	12"	4-#6	⊙ SO. ACCESS STRUCTURE

**CONCRETE COLUMN SCHEDULE NOTES:**  
 1. SEE SHEET SD-S-8 FOR COLUMN ELEVATION AND SECTION TYPES.  
 2. COLUMN IS INTEGRAL WITH EXTERIOR WALL.  
 3. EXTEND COLUMN REINFORCING TO BOTTOM OF SUMP.  
 4. COLUMN IS INTEGRAL WITH CHANNEL WALL.  
 5. COORDINATE LOCATION & HEIGHT WITH MANUFACTURER OF ODOR CONTROL COVERS.  
 6. TIE SPACING SHALL BE 12" FOR THE FULL HEIGHT OF THE COLUMN.  
 7. PROVIDE CONCRETE PROTECTION NOSING ON WEST SIDE OF COLUMN.  
 8. FOR NEW COLUMNS PLACED ON OR BELOW EXISTING CONCRETE SEE DETAILS ON SD-S-8.

RECORD DRAWING  
 1/8" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

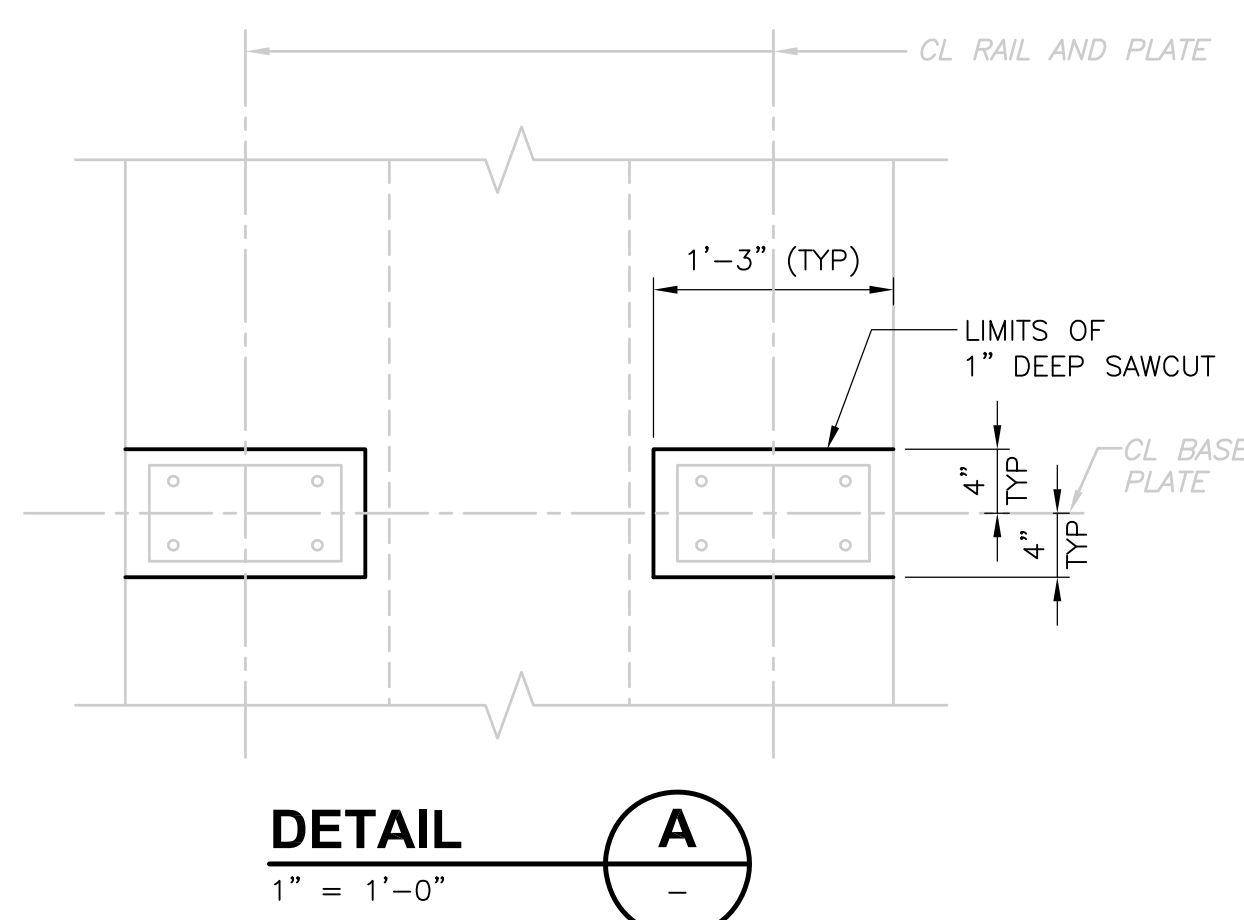
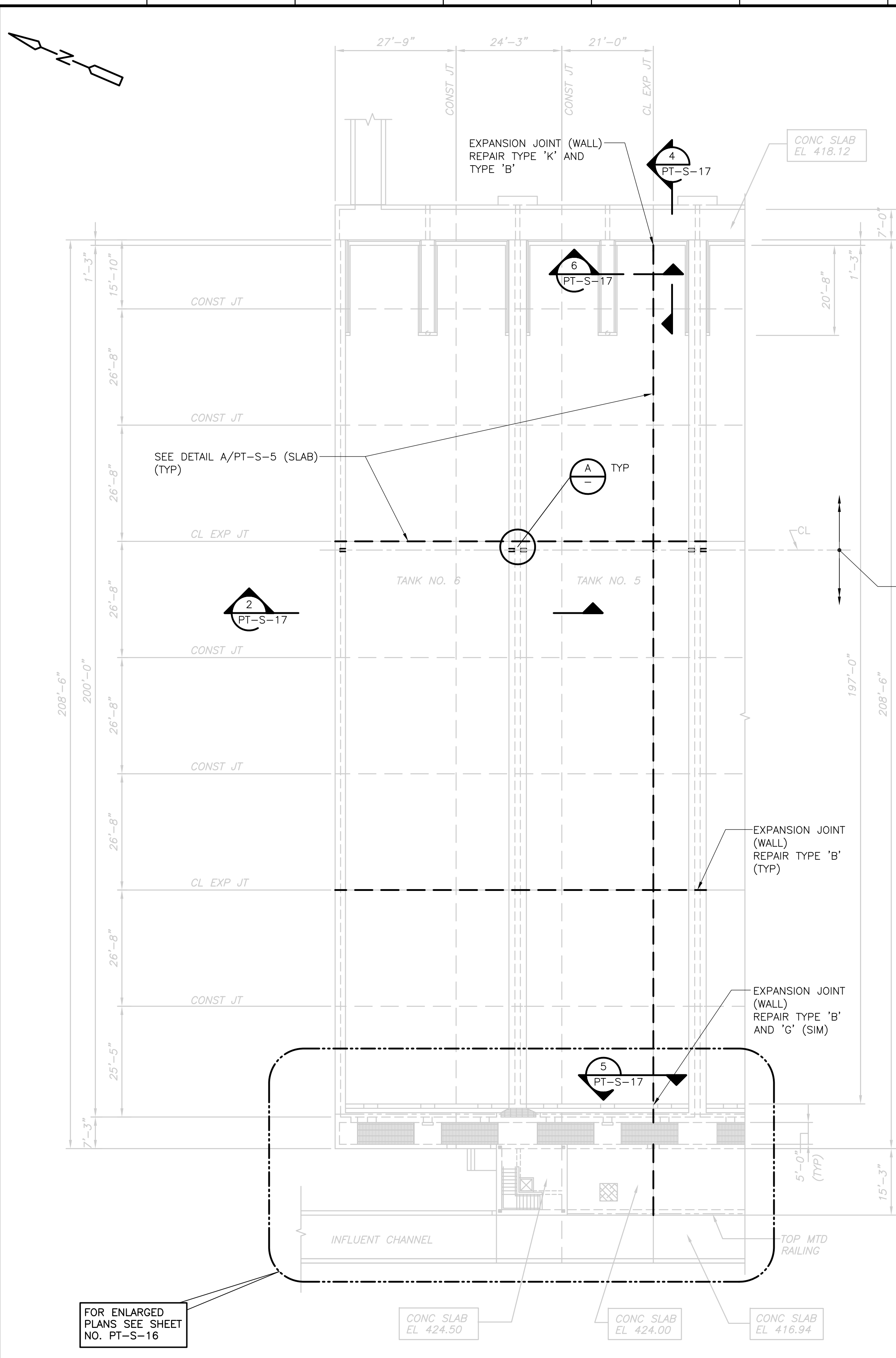
CADD FILE NO. SPSPL004.DWG
DESIGNED BY: A.J. PAPA
DRAWN BY: B.S. HORNER
SHEET CHK'D BY: A.J. PAPA
SCALE: AS NOTED
APPROVED BY: D.L. HARRIS
DATE: MAY 2006

CDM Camp Dresser & McKee Inc. consulting engineering construction operations
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UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
--

WASTEWATER TREATMENT FACILITY IMPROVEMENTS
---

PROJECT NO. 1289\35370
Sht. 104 of 386
<b>PRIMARY SETTLING TANKS PART PLAN III AND SCHEDULES</b>
<b>PT-S-14</b>



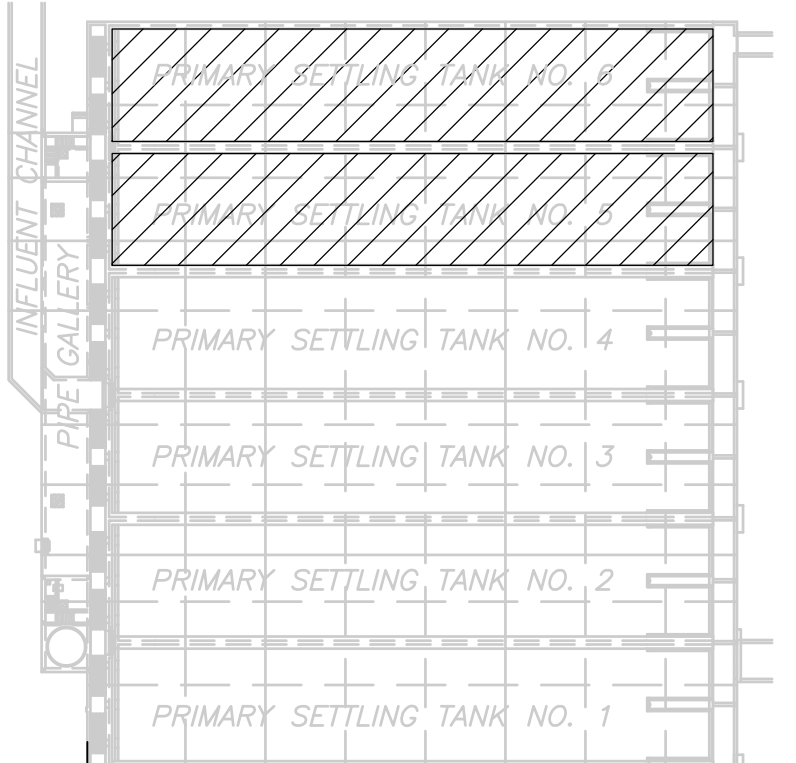
- NOTES:**
- SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM RECORD DRAWINGS PRODUCED BY FAY, SPOFFORD & THORNDIKE, INC., TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES", DATED FEBRUARY 1973. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
  - REPAIR WORK SHOWN FOR PRIMARY SETTLING TANKS NO. 5 AND NO. 6 ARE BASED ON INSPECTION CONDUCTED IN JULY, 2002. THE REPAIR WORK FOR PRIMARY SETTLING TANKS NO. 1 THRU NO. 4 IS TO BE OF THE SAME TYPES AND EXTENTS AS THAT IN PRIMARY SETTLING TANKS NO. 5 AND NO. 6.  
 THE TYPES AND QUANTITIES OF REPAIRS IN TANKS NO. 1 THRU NO. 4 SHALL BE CONFIRMED DURING THE INSPECTION OF THESE TANKS BY THE STRUCTURAL ENGINEER AS SPECIFIED.
  - SEE GENERAL BID FORM IN SPECIFICATION SECTION 00300 FOR REPAIR QUANTITIES FOR ALL TANKS. FOR REPAIR QUANTITIES NOT LISTED PAYMENT SHALL BE INCLUDED IN THE LUMP SUM PRICE UNDER BID ITEM NO. 1.
  - FOR GENERAL NOTES SEE SHEET PT-S-18.

REMOVE ALL RAIL BASE PLATES w/4-5/8" DIA ANCHOR BOLTS AT 3'-0" OC (TYP)

FOR ENLARGED PLANS SEE SHEET NO. PT-S-16

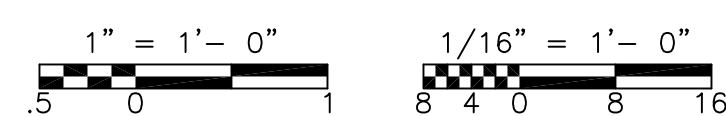
NOTE:  
 NEW PRIMARY SETTLING TANK NO. 7 AND PIPE GALLERY NOT SHOWN FOR CLARITY.

**PARTIAL TOP PLAN**  
 1/16" = 1'-0"



**KEY PLAN PLAN**  
 NTS

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SPSPLO1.DWG
DESIGNED BY:	D.L. HARRIS
DRAWN BY:	W. MICHAJLIW
SHEET CHK'D BY:	D.L. HARRIS
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

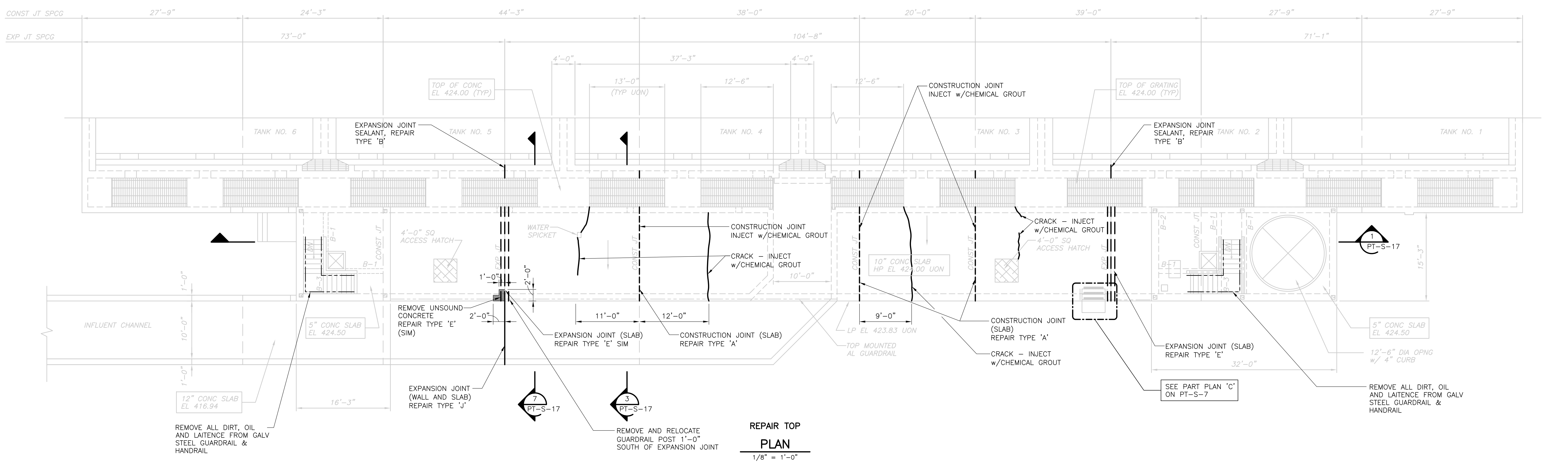
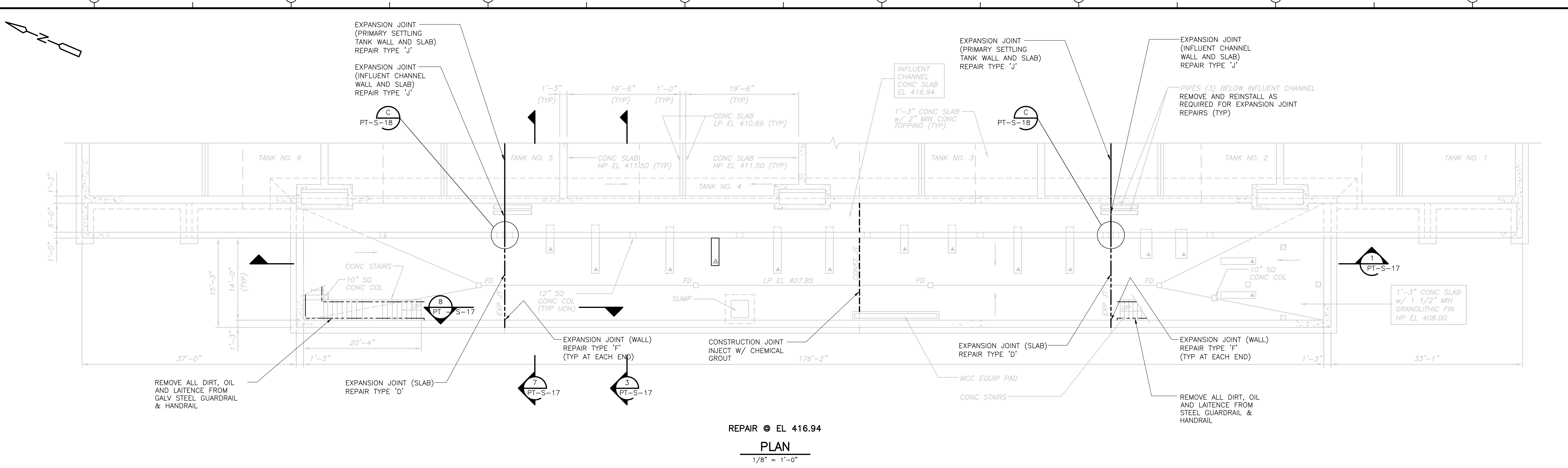
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**PRIMARY SETTLING TANKS REPAIR OVERALL PLAN**

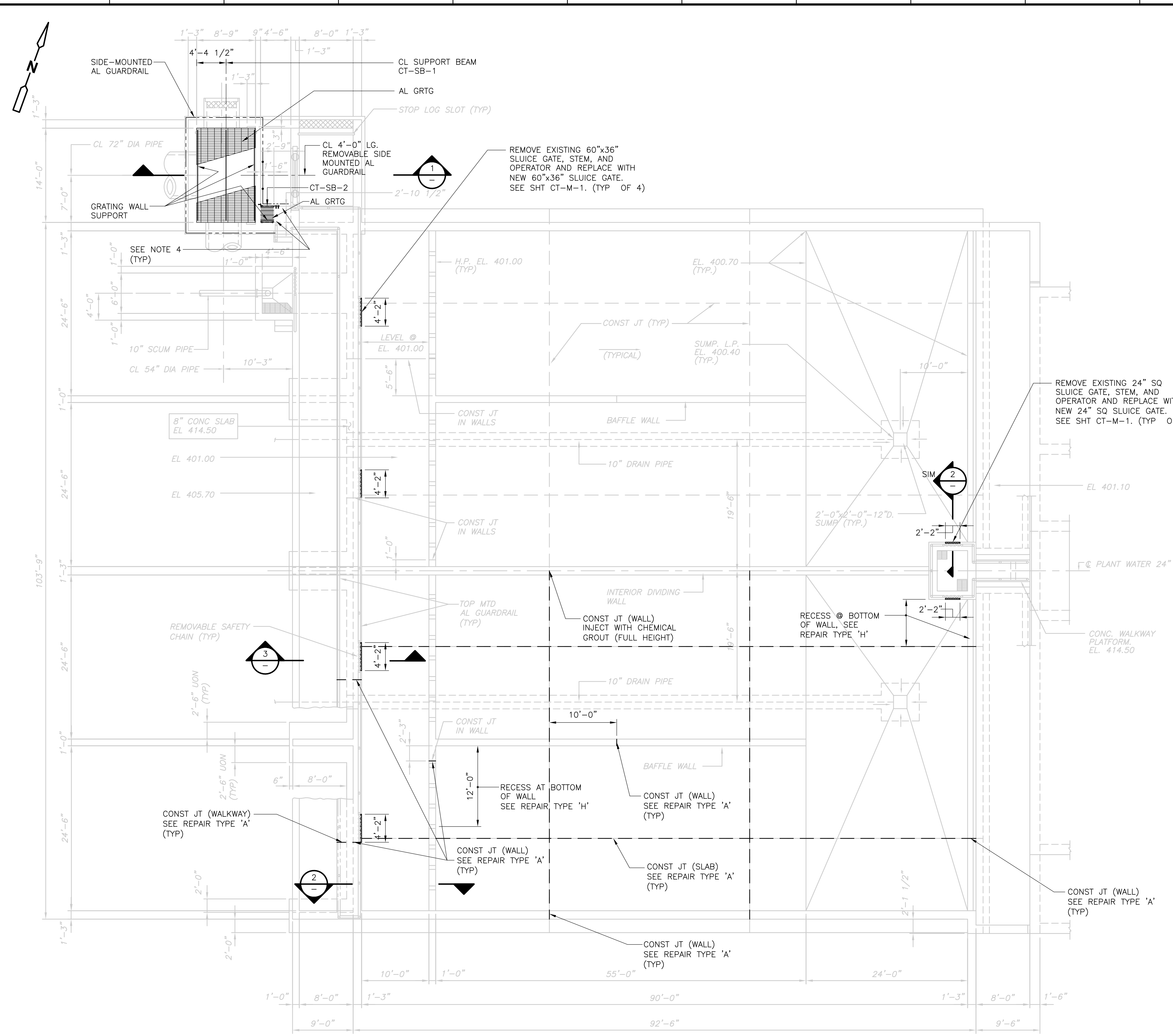
PROJECT NO. 1289\35370  
 Sht. 105 of 386  
**PT-S-15**  
ACCESSION NO. 1289-65505



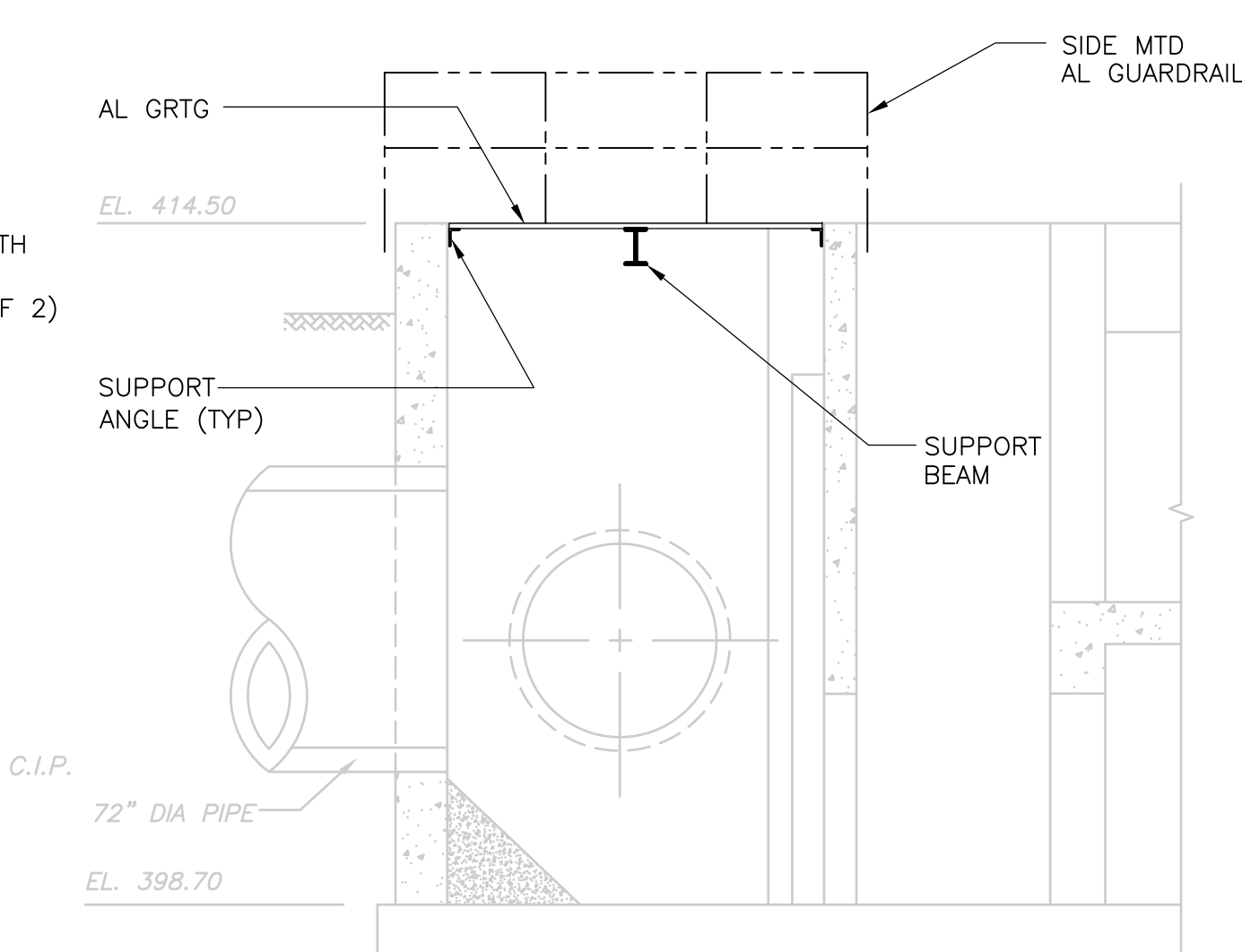
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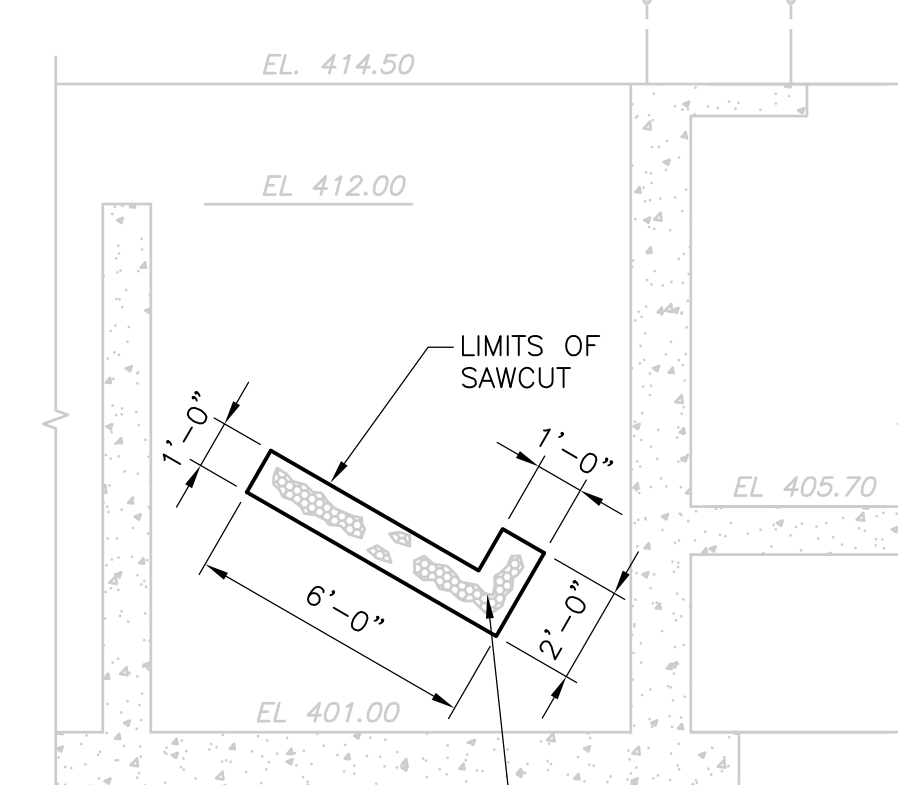
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CADD FILE NO. <u>SPSPLR02.DWG</u> DESIGNED BY: <u>D.L. HARRIS</u> DRAWN BY: <u>W. MICHAJLIW</u> SHEET CHK'D BY: <u>D.L. HARRIS</u> SCALE: <u>AS NOTED</u> APPROVED BY: <u>D.L. HARRIS</u> DATE: <u>MAY 2006</u>												
REV. NO.	DATE	DRWN	CHKD	REMARKS								
	3/07	SPV	ADT	NO REVISION REQUIRED FOR THE RECORD								



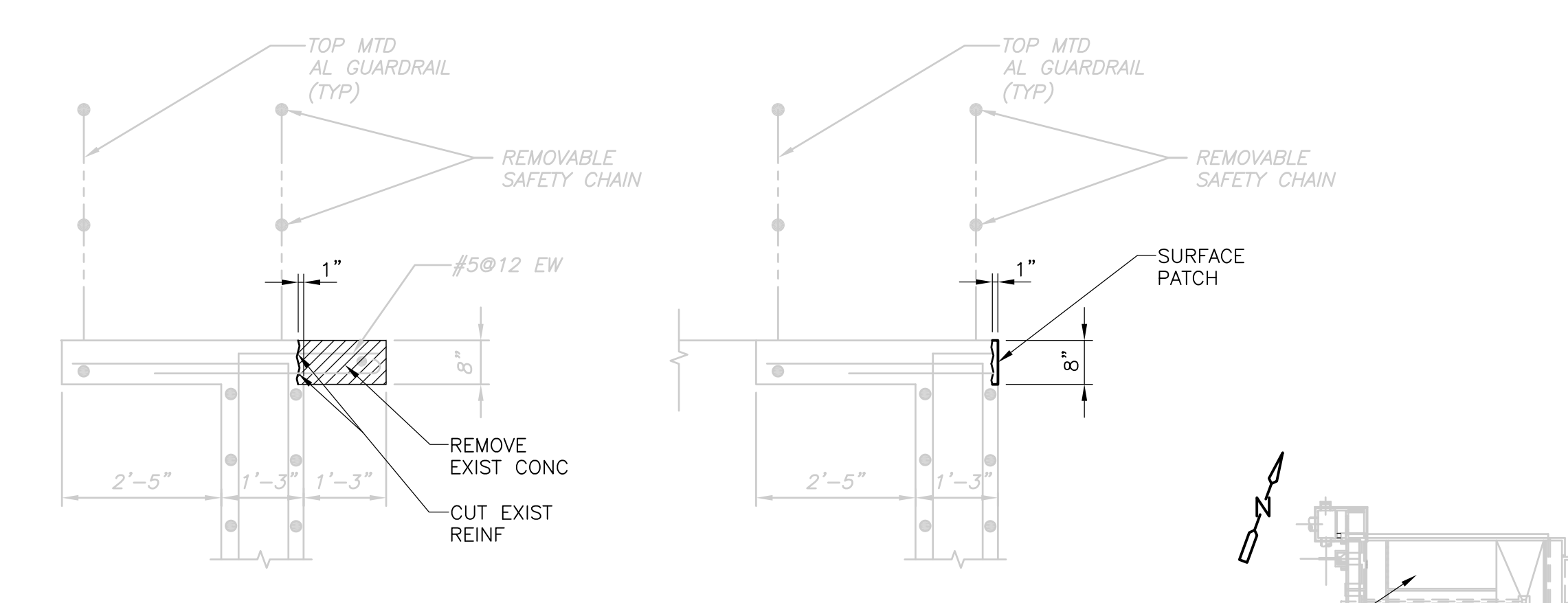
- NOTES:**
- FOR SUPPORT BEAM SCHEDULE AND DETAILS SEE SD-S-6.
  - SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM RECORD DRAWINGS PRODUCED BY FAY, SPOFFORD AND THORNDIKE INC. ENGINEERS, TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES", CONTRACT NO. 2, DATED FEBRUARY 1973. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
  - \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
  - REMOVE EXISTING TOP MOUNTED ALUMINUM GUARDRAIL TO FIRST EXISTING POST OUTSIDE LIMITS OF NEW PLATFORM. CUT AND GRIND RAIL SMOOTH FLUSH W/ TOP STAIR POST.
  - REPAIR WORK SHOWN FOR SOUTH CHLORINE CONTACT TANK IS BASED ON INSPECTION CONDUCTED IN SEPT. 2002. THE REPAIR WORK FOR THE NORTH TANK SHALL BE THE SAME TYPES AND EXTENTS AS THAT IN THE SOUTH TANK.
- THE TYPES AND QUANTITIES OF REPAIRS IN THE NORTH TANK SHALL BE CONFIRMED DURING THE INSPECTION OF THE TANK BY THE STRUCTURAL ENGINEER AS SPECIFIED.
- SEE GENERAL BID FORM IN SPECIFICATION SECTION 00300 FOR REPAIR QUANTITIES FOR ALL TANKS.
  - SEE SHEET NO. PT-S-18 FOR REPAIR TYPES.



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

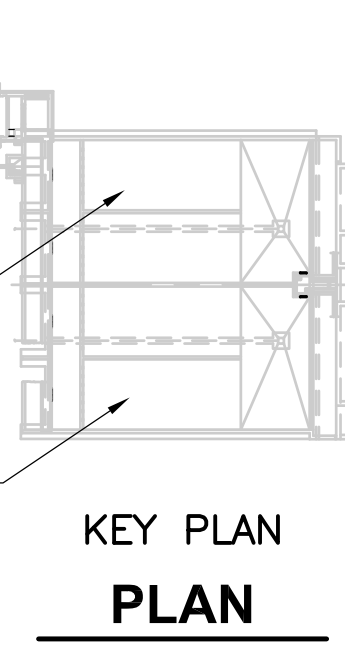


**SECTION 2**  
 1/4" = 1'-0"

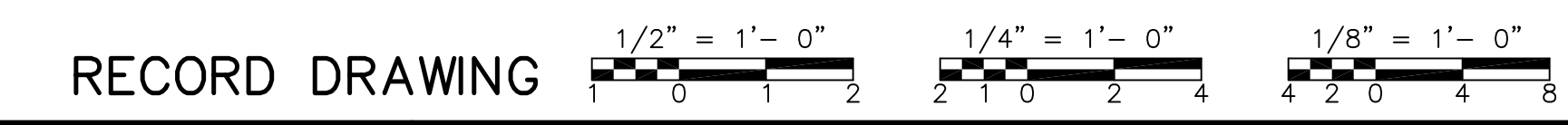


**SECTION 3**  
 1/2" = 1'-0"

**PLAN**  
 1/8" = 1'-0"



**KEY PLAN**  
 NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

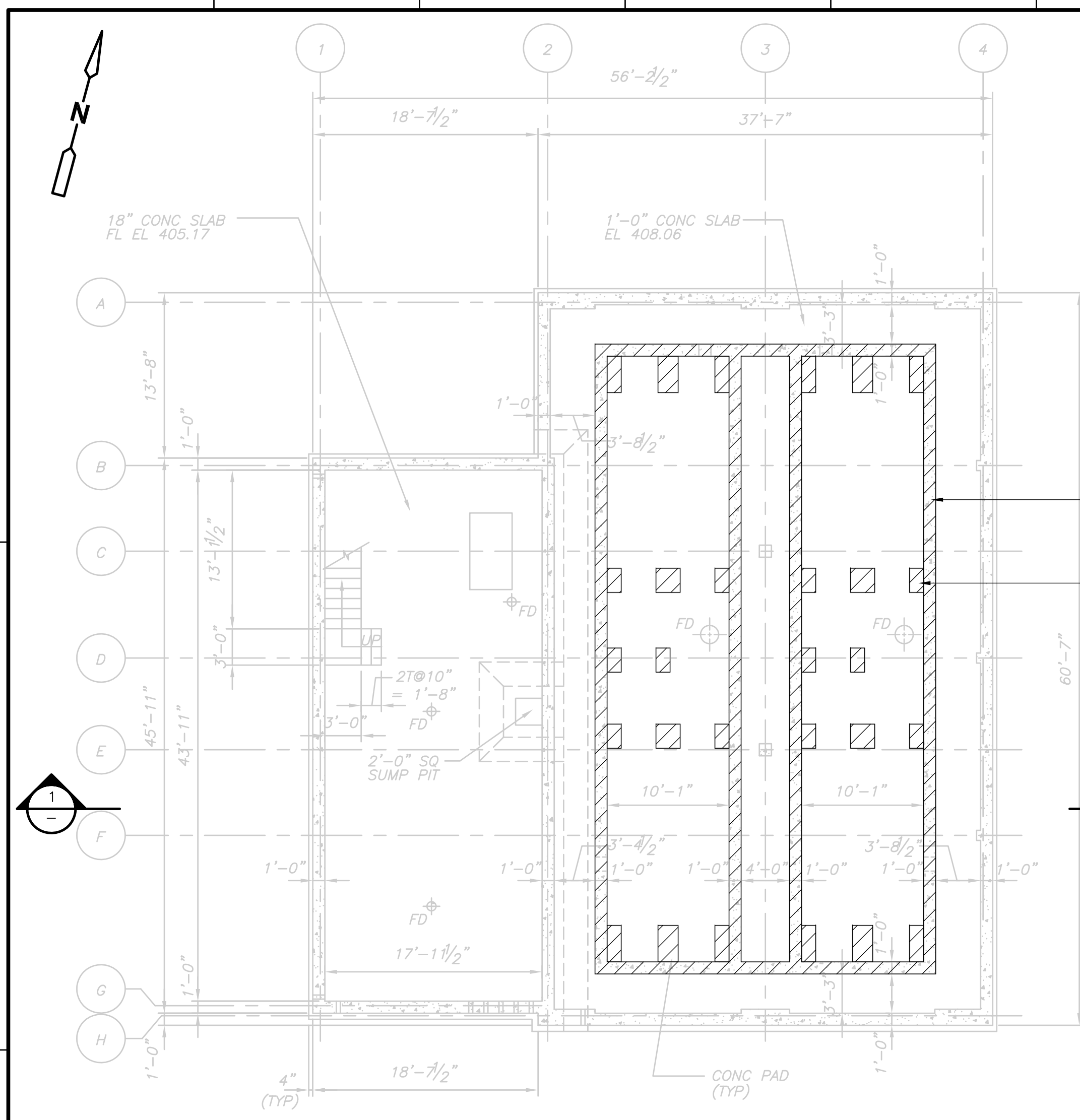
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DESIGNED BY:	D.L. HARRIS
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	DLH/KG
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

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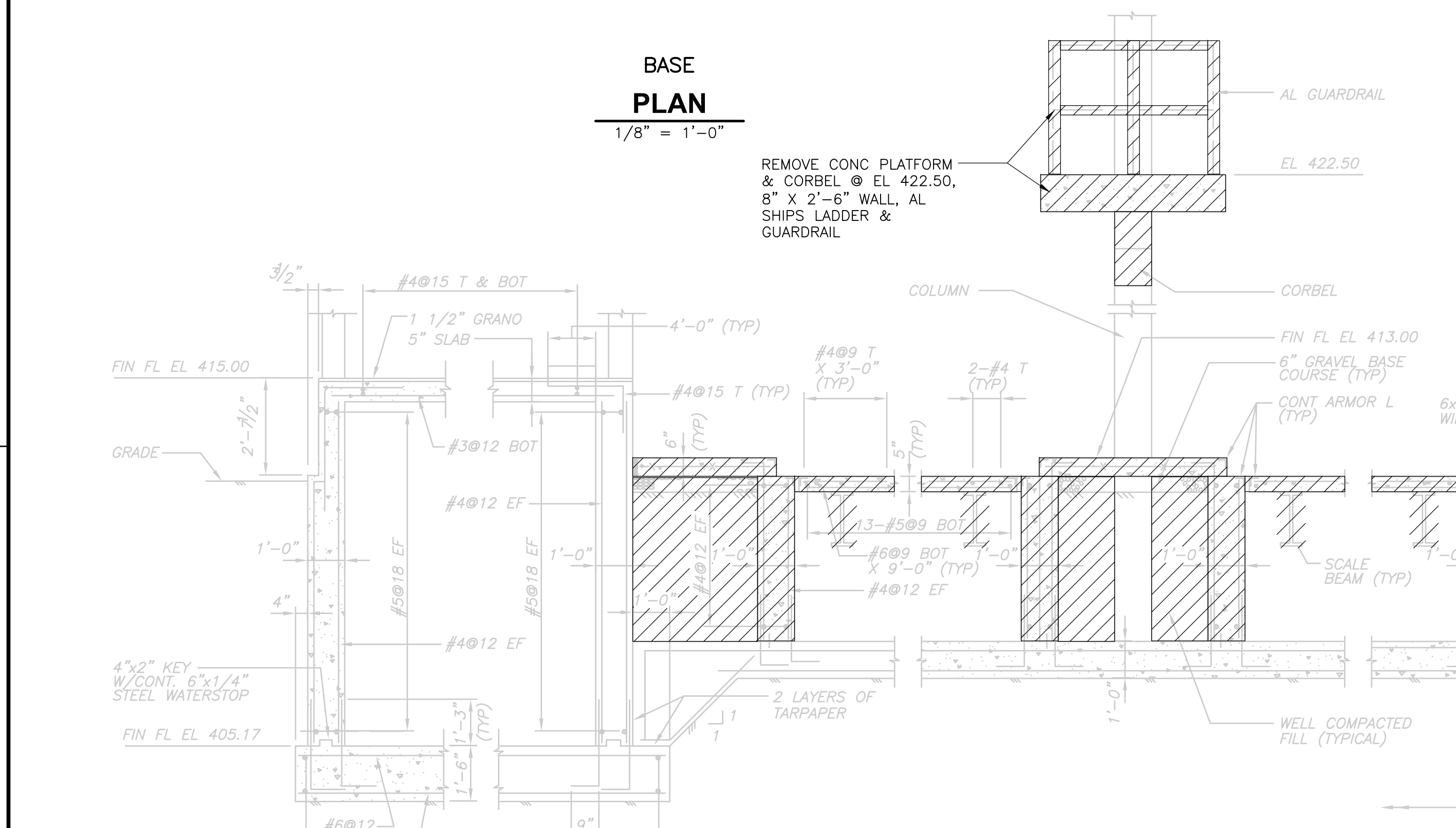
<b>UPPER BLACKSTONE          WATER POLLUTION ABATEMENT DISTRICT          CONTRACT No. UB 2024</b>
<b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>

<b>CHLORINE CONTACT TANK          REPAIR PLAN AND SECTIONS</b>
--

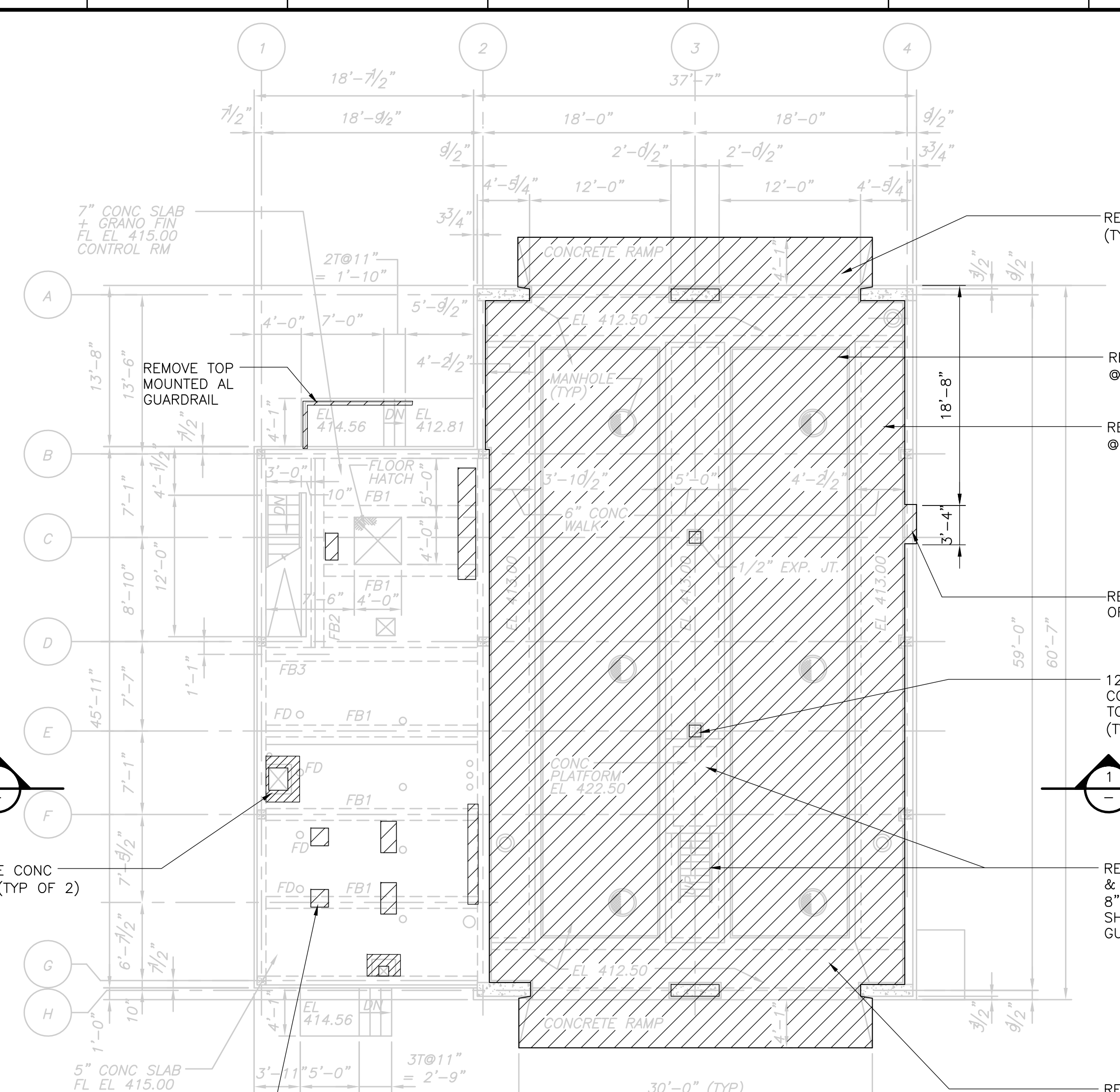
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Sht. 109 of 386
<b>CT-S-1</b>



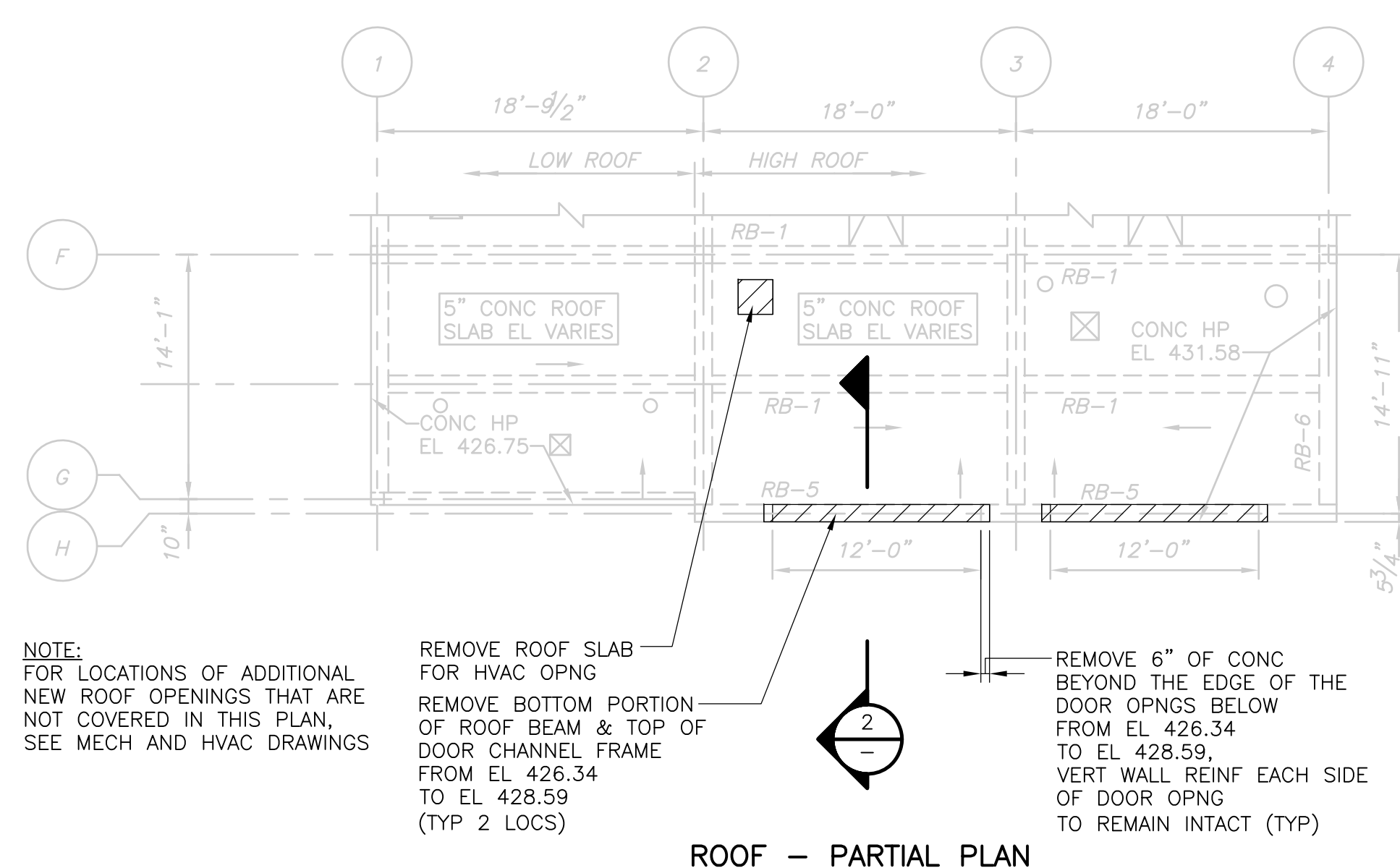
**BASE PLAN**  
1/8" = 1'-0"



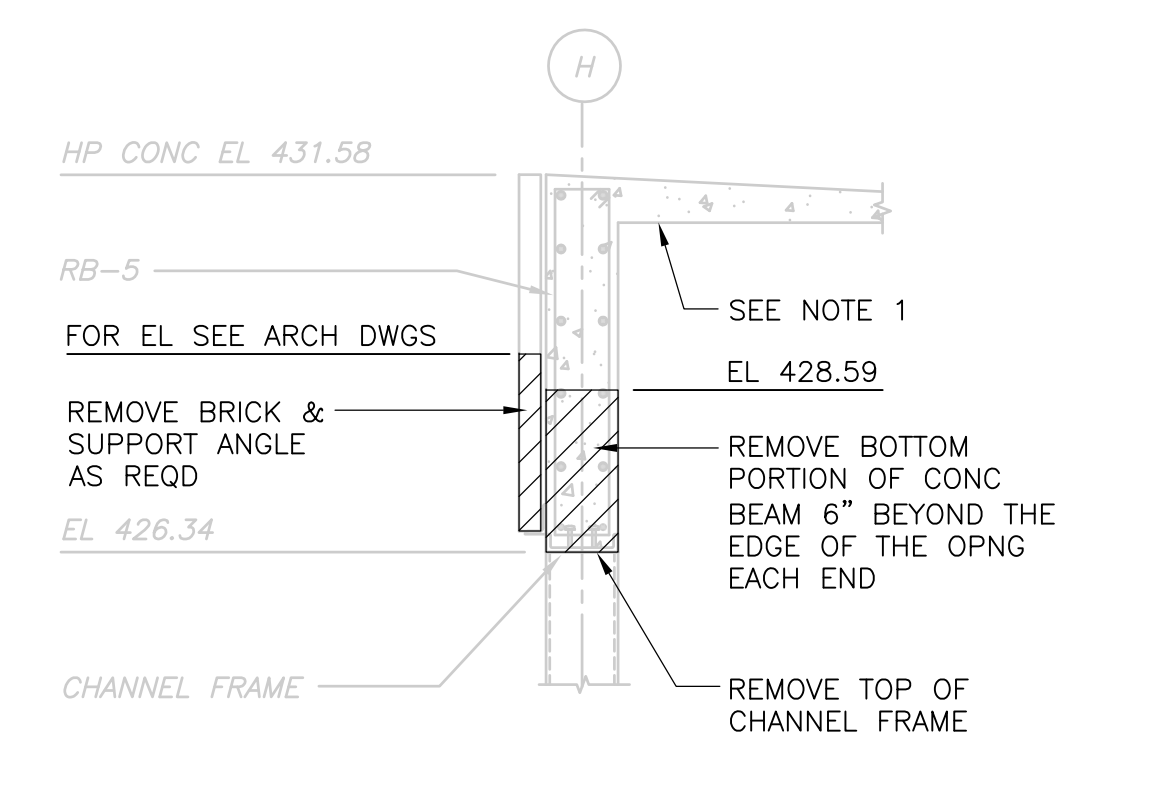
**SECTION 1**  
3/8" = 1'-0"



**FLOOR PLAN**  
1/8" = 1'-0"



**ROOF - PARTIAL PLAN**  
1/8" = 1'-0"



**NOTE:**  
1. PRIOR TO DEMOLITION, CONTINUOUSLY SHORE EXISTING ROOF SLAB AND BEAM (RB-5). SHORING SHALL REMAIN IN PLACE UNTIL NEW CONCRETE BEAM AND SUPPORT WALL BELOW HAVE REACHED THEIR 28 DAY DESIGN STRENGTH.

**CONCRETE BEAM ABOVE DOOR SECTION 2**  
3/8" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

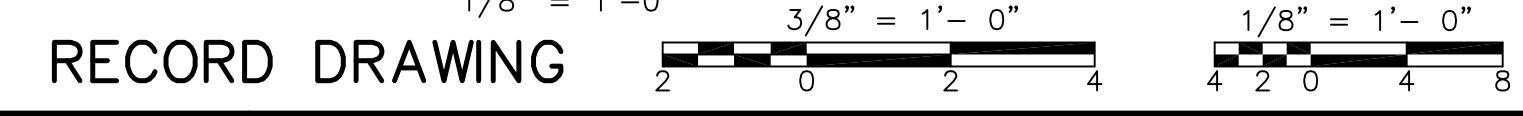
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DESIGNED BY:	D.L. HARRIS
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	D.L. HARRIS
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006



**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024  
WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

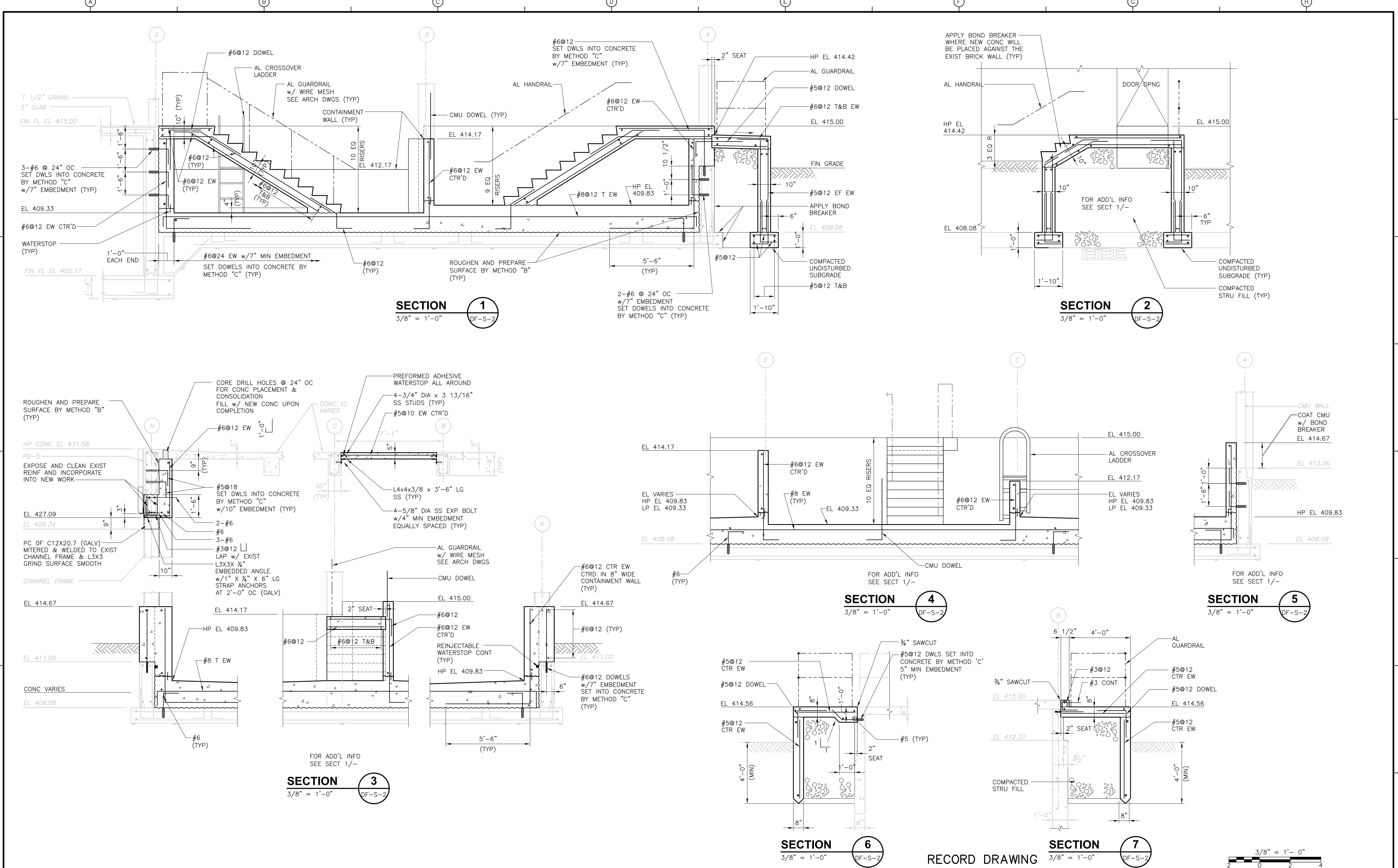
**DISINFECTION FACILITY  
DEMOLITION PLANS AND SECTIONS**

PROJECT NO. 1289\35370
Sht. 110 of 386
<b>DF-S-1</b>





UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SCLSC001.DWG
DESIGNED BY:	D.L. HARRIS
DRAWN BY:	W. MICHAJLIW
SHEET CHK'D BY:	D.L. HARRIS
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

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 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

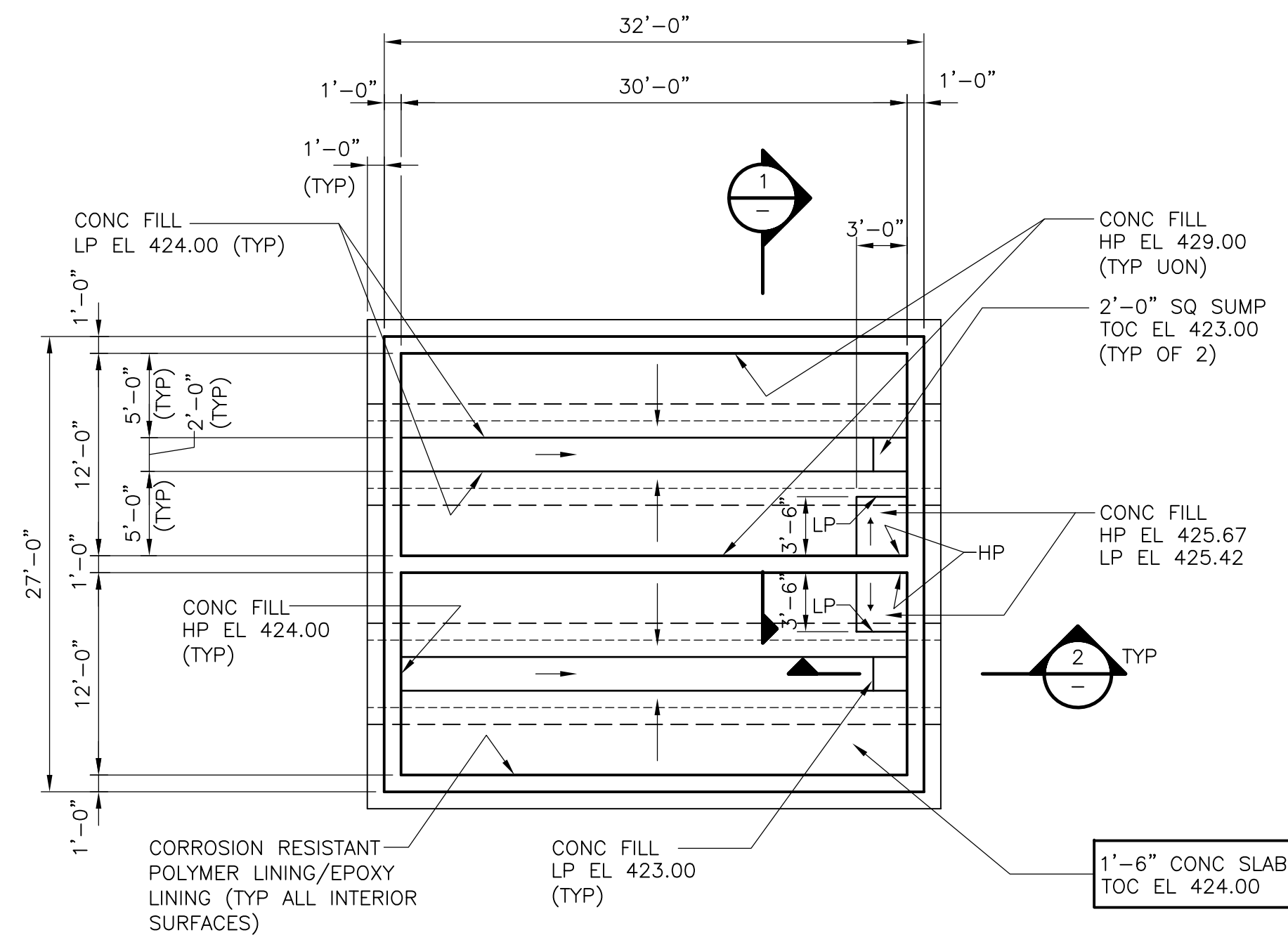
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**DISINFECTION FACILITY  
 SECTIONS AND DETAILS**

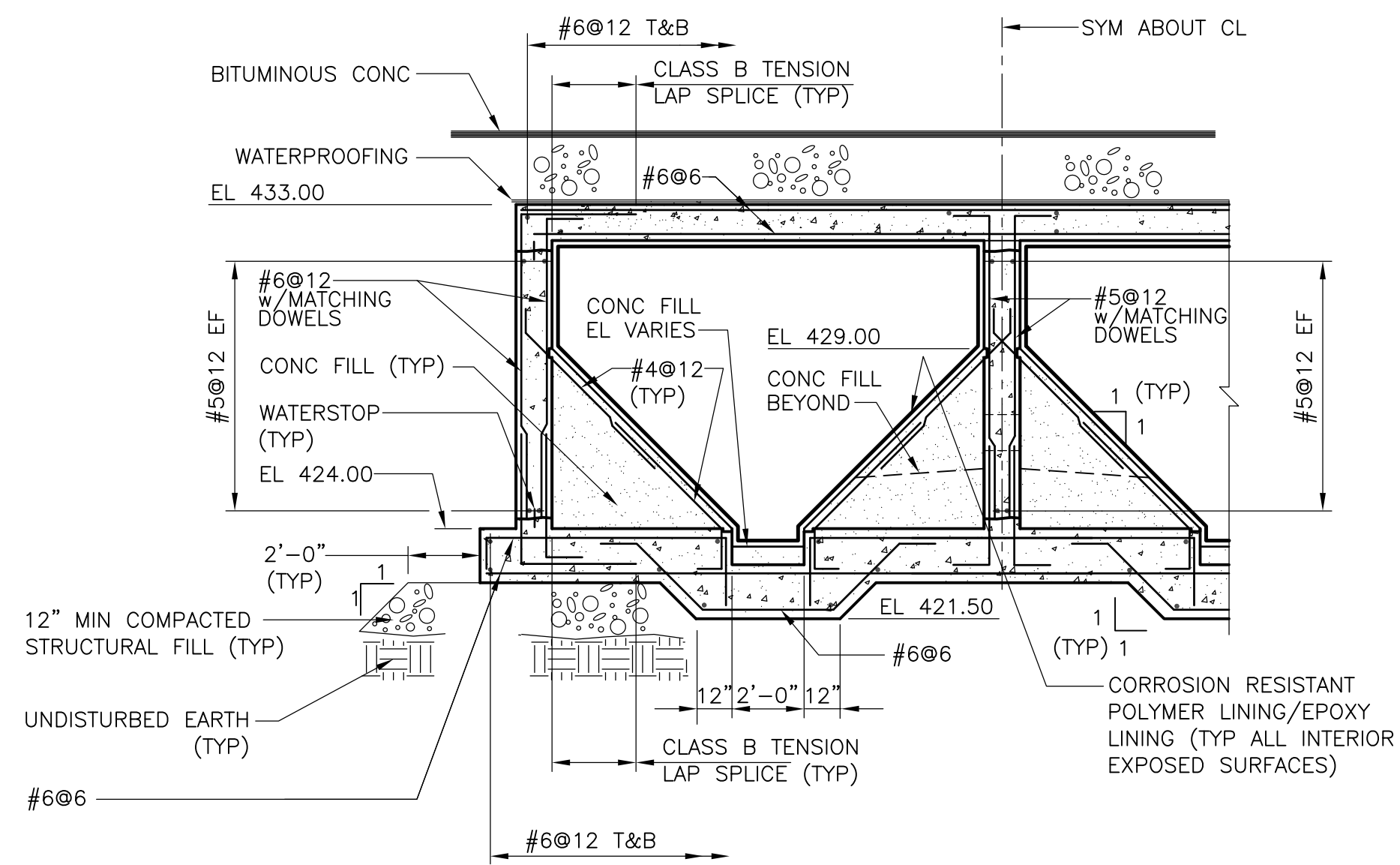
PROJECT NO. 1289\35370  
 Sht. 112 of 386  
**DF-S-3**

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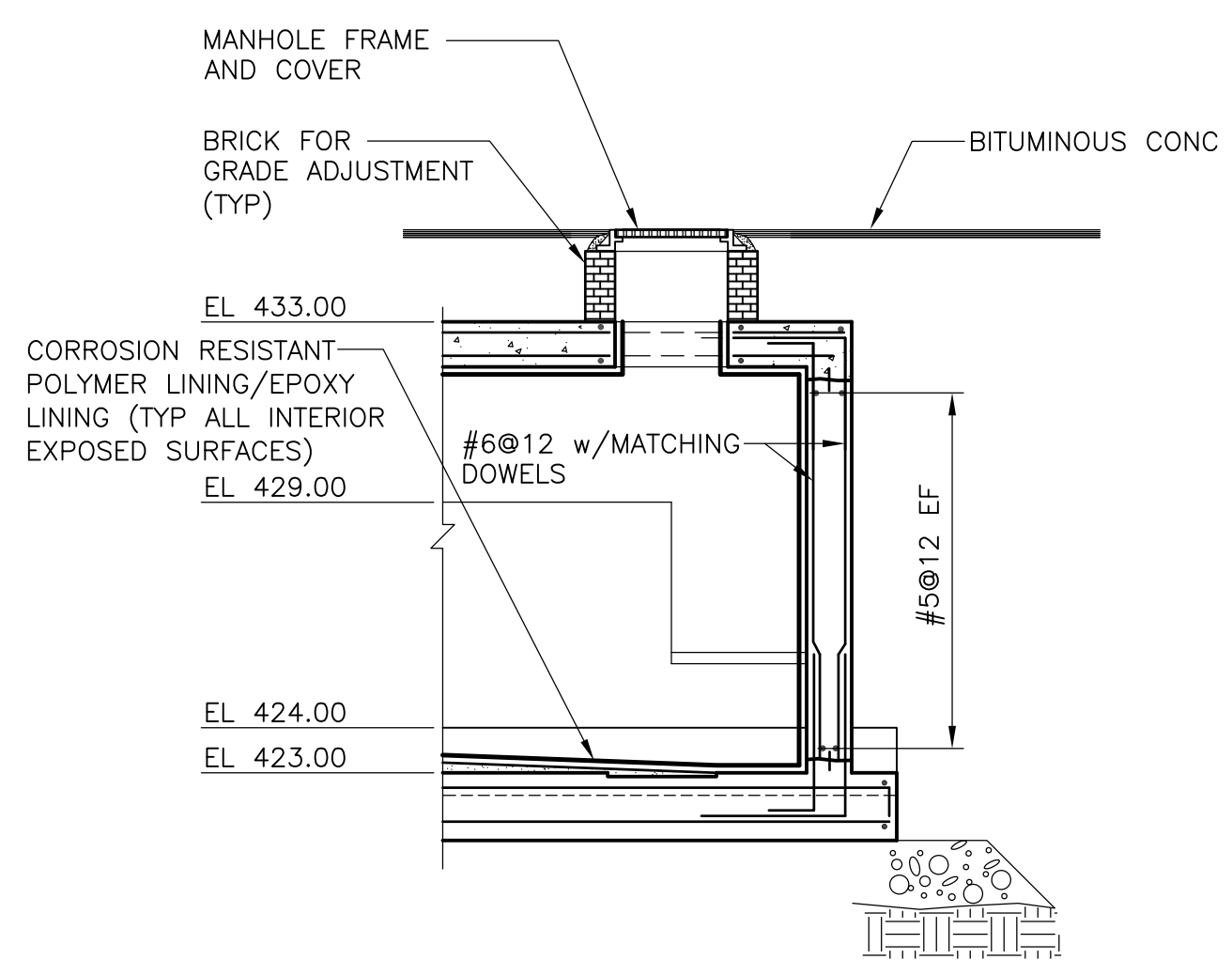
[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
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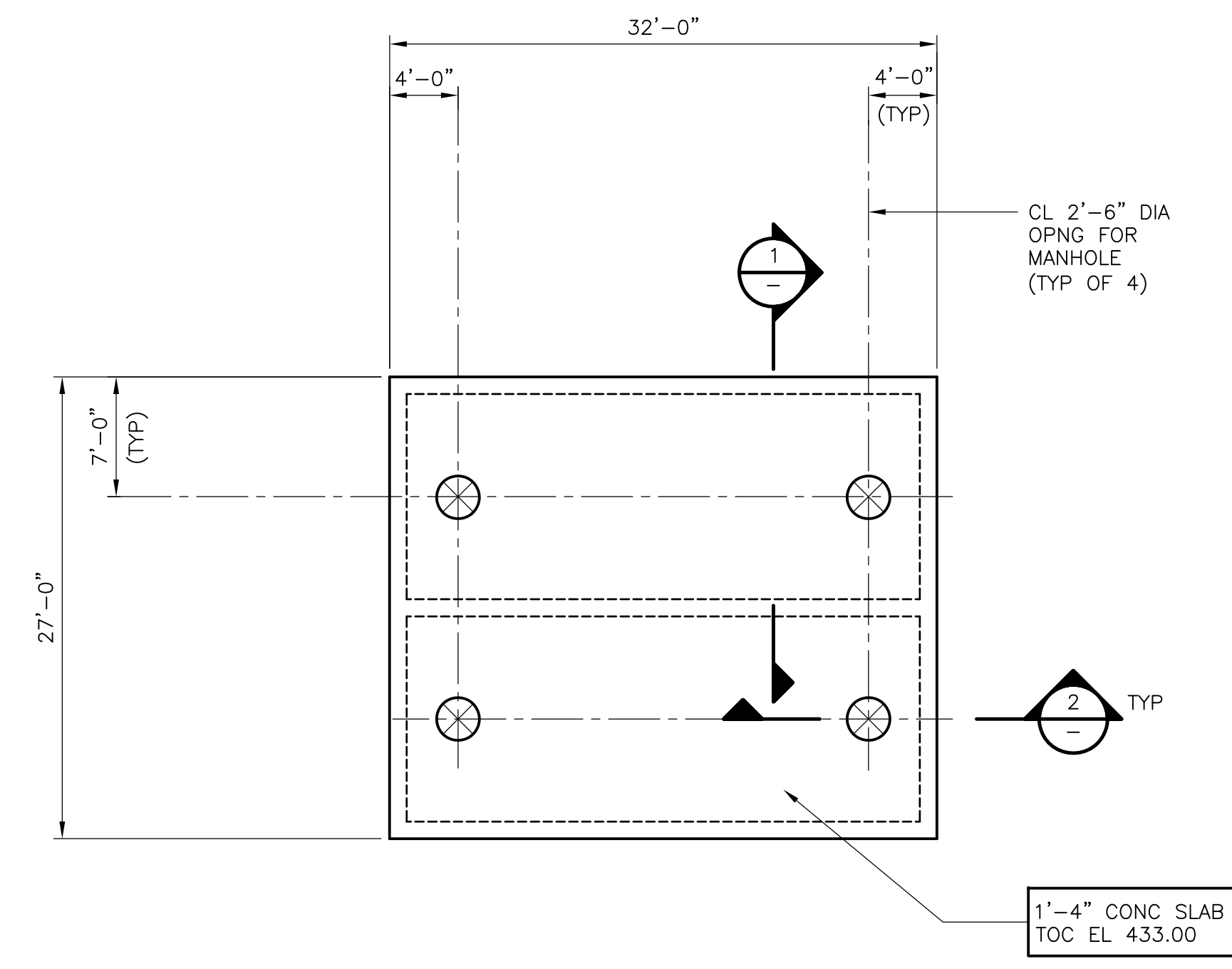
**BASE PLAN**  
1/8" = 1'-0"



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



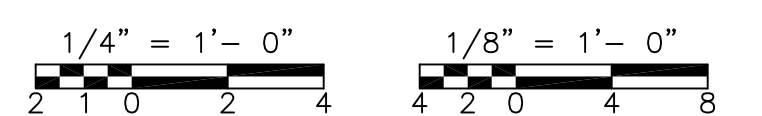
FOR ADDL INFO SEE SECT 1/-  
**SECTION 2**  
1/4" = 1'-0"



**TOP PLAN**  
1/8" = 1'-0"

**NOTES:**  
1. TOP SLAB HAS BEEN DESIGNED FOR AASHTO HS-20 LOADING IN ADDITION TO 3 FEET OF SOIL AT 120 PCF.

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. SSTPL001.DWG  
 DESIGNED BY: J. CAVANAUGH  
 DRAWN BY: B.S. HORNER  
 SHEET CHK'D BY: J. CAVANAUGH  
 SCALE: AS NOTED  
 APPROVED BY: D.L. HARRIS  
 DATE: MAY 2006

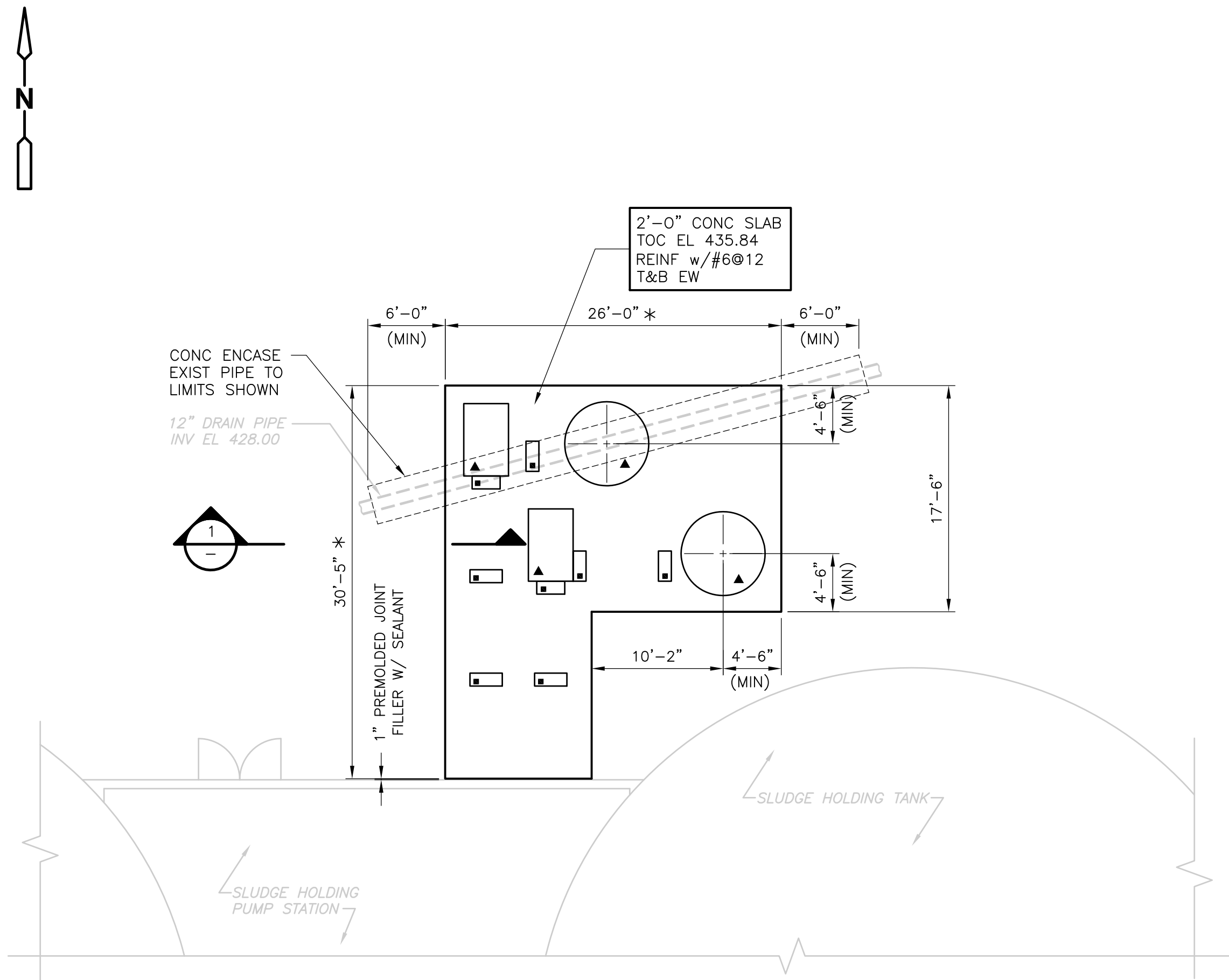
**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**SLUDGE RECEIVING TANKS  
 PLANS AND SECTIONS**

PROJECT NO. 1289\35370  
 Sht. 113 of 386  
**ST-S-1**  
ACCESSION NO. 1289-6513

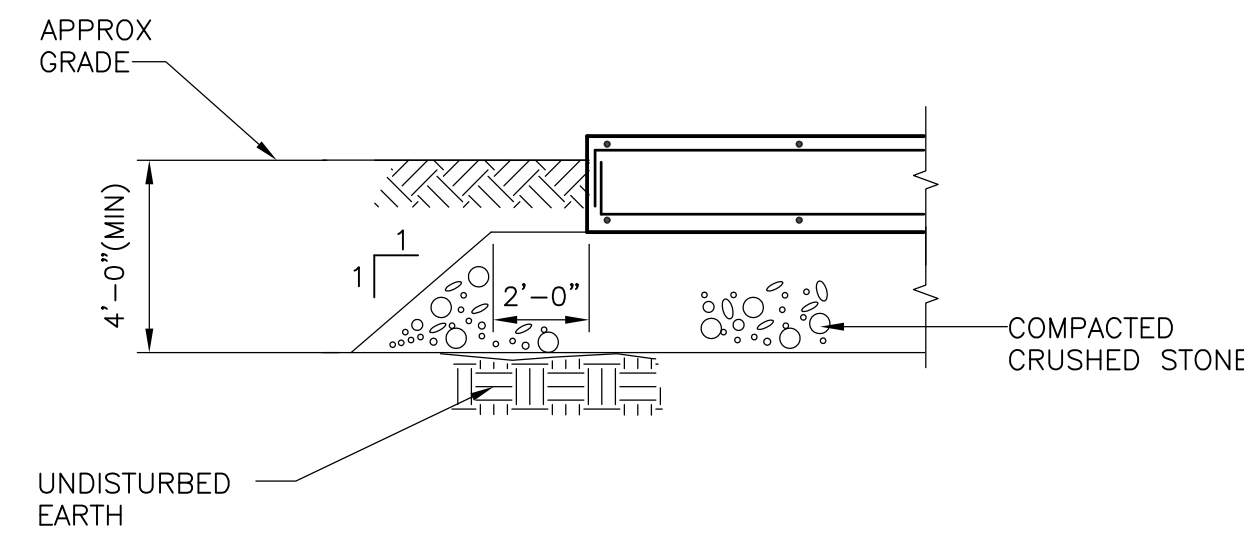
[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\STRU\SSTPL003.dwg Xref's: [C24X36H, COOPLO00, ] Plotted by: CROSSHA Time: 12/16/08 6:22:36 PM



ODOR CONTROL FOUNDATION

**PLAN**

1/8" = 1'-0"



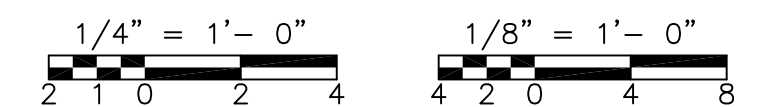
**SECTION 1**

1/4" = 1'-0"

**NOTES:**

1. \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
2. ▲ INDICATES EQUIPMENT PAD.
3. ■ INDICATES CONCRETE PIPE CRADLE.
4. FOUNDATION LOADS ARE AS FOLLOWS:  
 ODOR CONTROL TOWER      W=      4.3 KIPS  
 BASE SHEAR:                    V=      1.2 KIPS AT THE TOP OF THE FOUNDATION  
 OVERTURNING MOMENT:        M=      5.3 FOOT-KIPS AT THE TOP OF THE FOUNDATION
5. FOUNDATION SHALL NOT BE FABRICATED OR CONSTRUCTED UNTIL THE LOADS HAVE BEEN SUBMITTED, HAVE BEEN REVIEWED, AND ADJUSTMENTS TO THE FOUNDATION DESIGN HAVE BEEN COMPLETED IF REQUIRED BY THE ENGINEER.
6. SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN RECORD FROM DRAWINGS PRODUCED BY FAY, SPOFFARD AND THORNDIKE, INC. ENGINEERS, TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES, CONTRACT NO. 2", DATED FEBRUARY 1973, AND FROM FIELD SURVEY. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
	3/07	SPV	ADT	NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSTPL003.DWG
DESIGNED BY:	J. CAVANAUGH
DRAWN BY:	W. MICHAJLIW
SHEET CHK'D BY:	J. CAVANAUGH
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SLUDGE HOLDING TANK  
 ODOR CONTROL  
 PLAN AND SECTION**

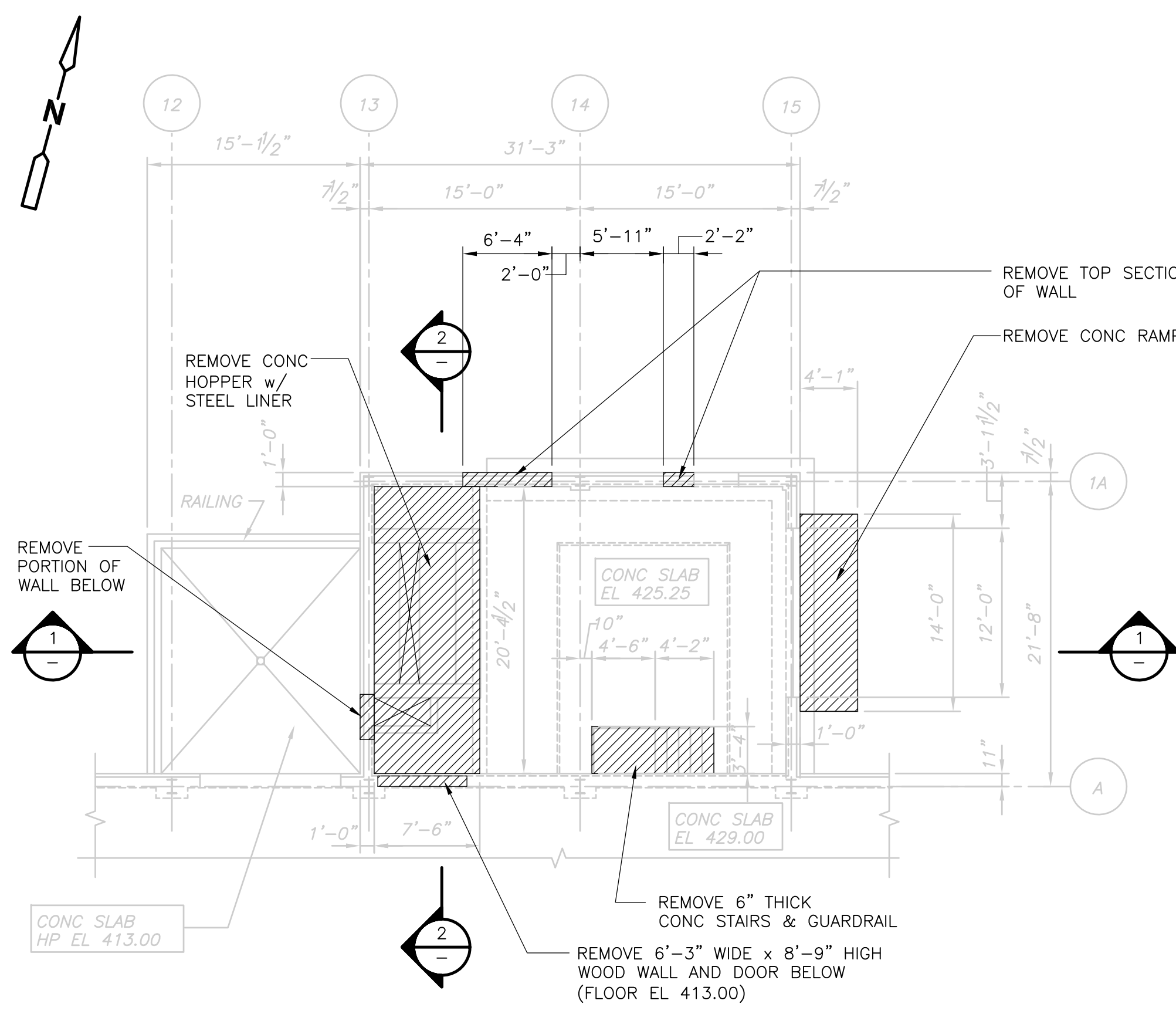
PROJECT NO.  
1289\35370

Sht. 114 of 386

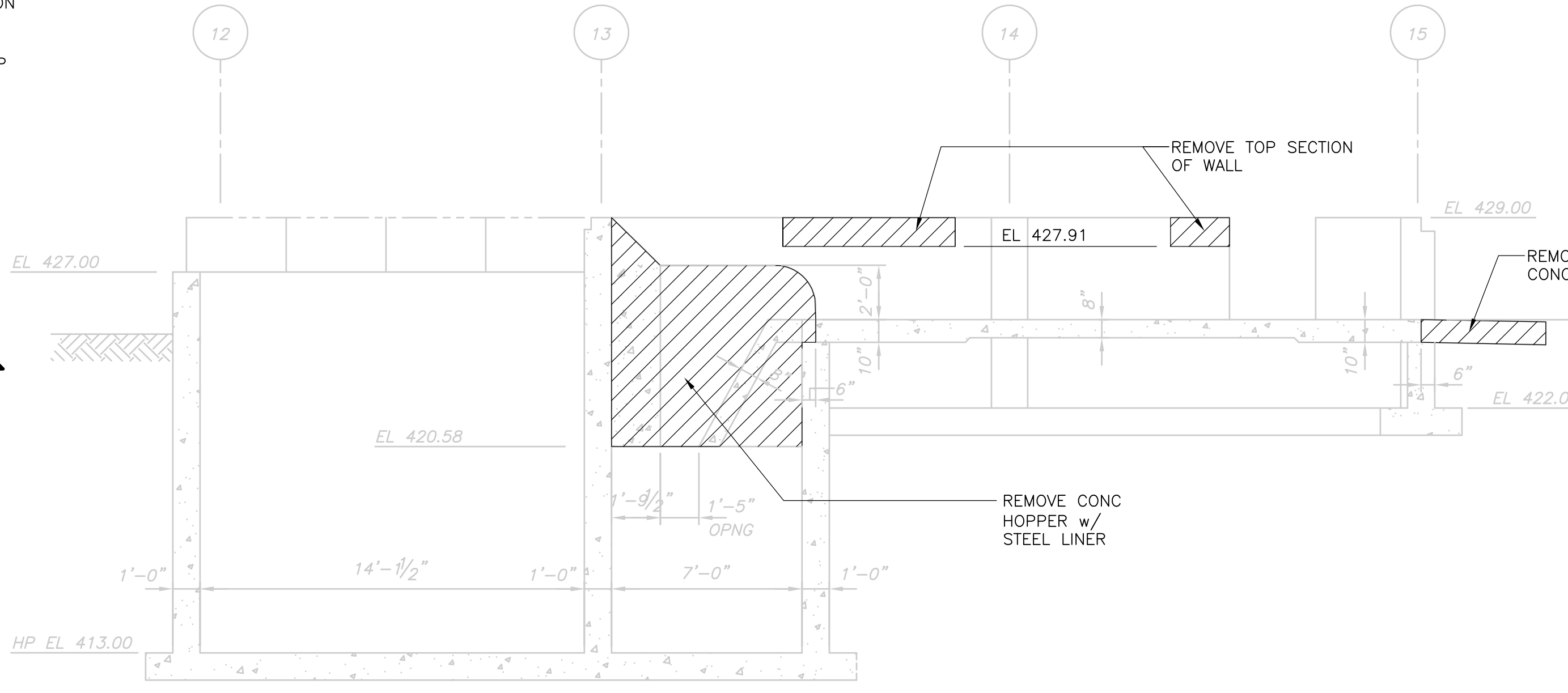
**ST-S-2**

ACCESSION NO. 1289-65514

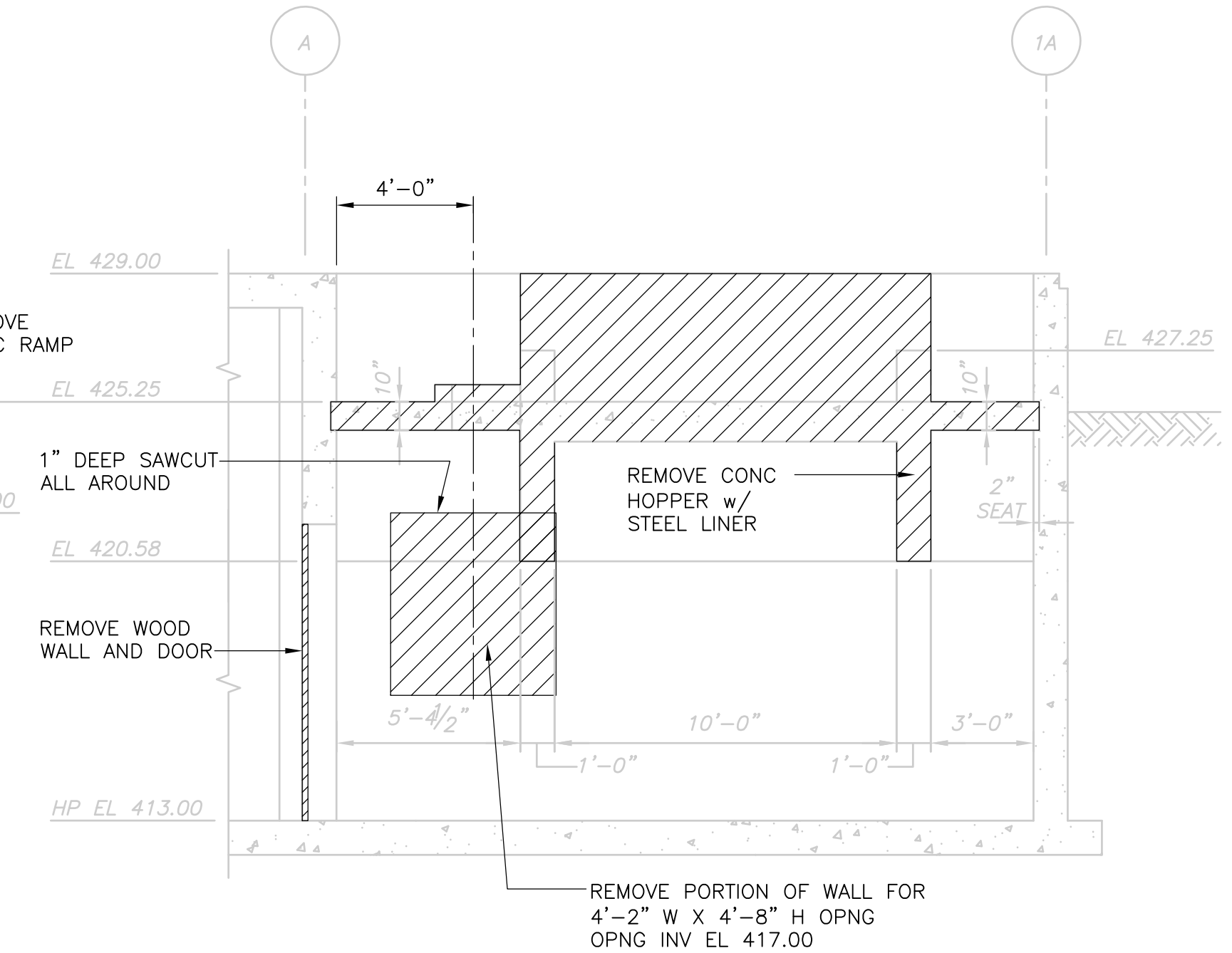
[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE I\RECORD\STRU\SSPPL001.dwg Xref's: [C24X36H, ACRPL100, ] Plotted by: CROSSHA Time: 12/16/08 6:22:38 PM



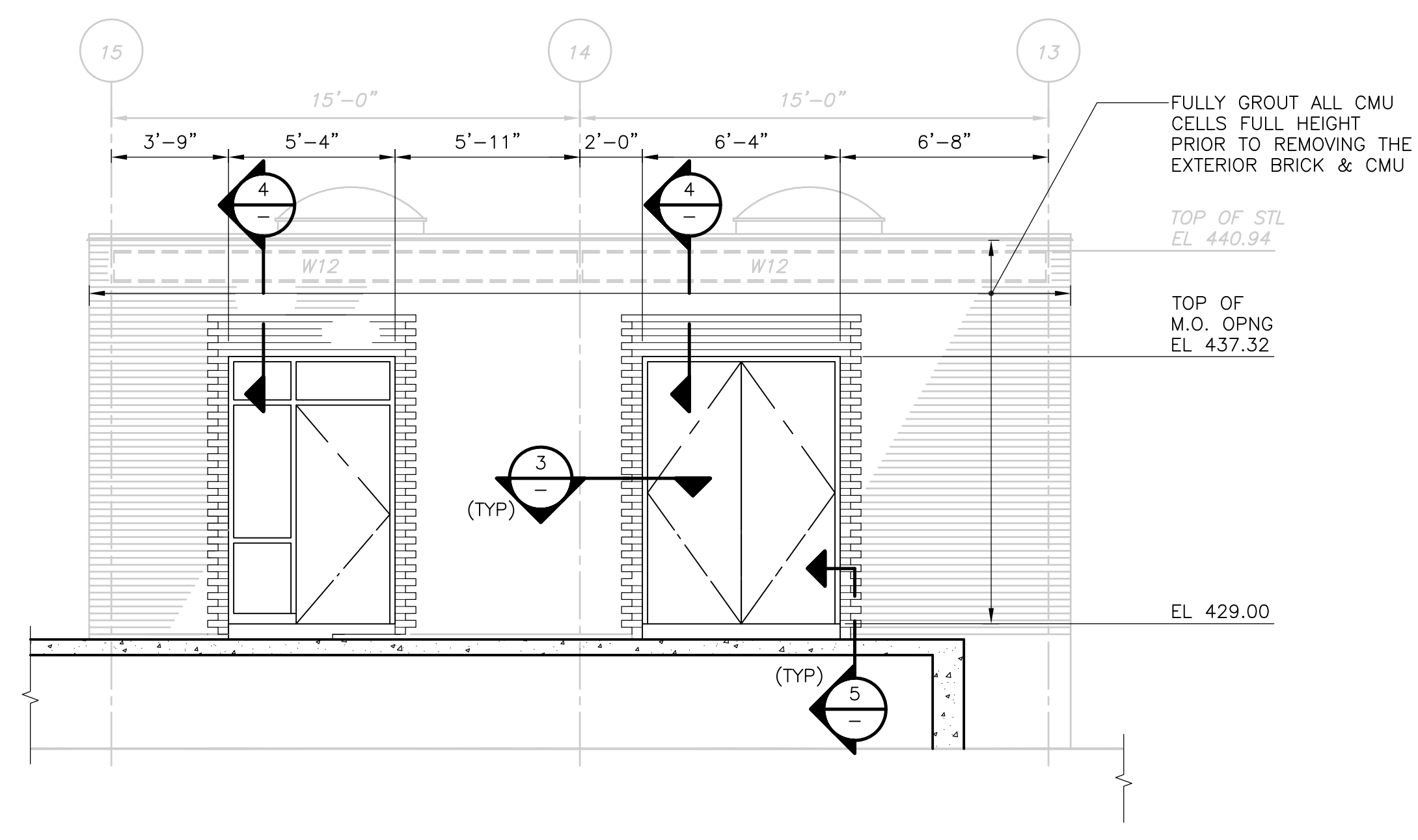
**DEMOLITION - FLOOR PLAN**  
 1/8" = 1'-0"



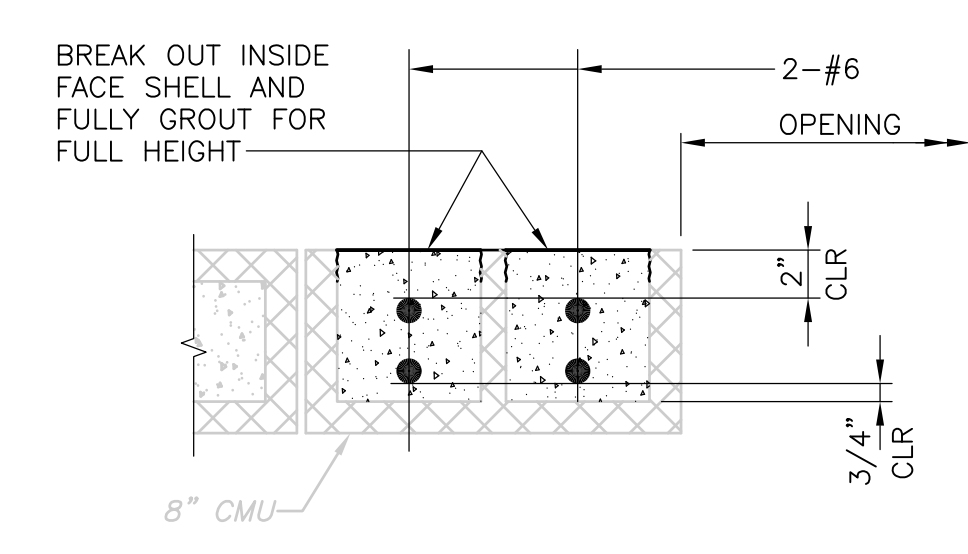
**DEMOLITION SECTION 1**  
 1/4" = 1'-0"



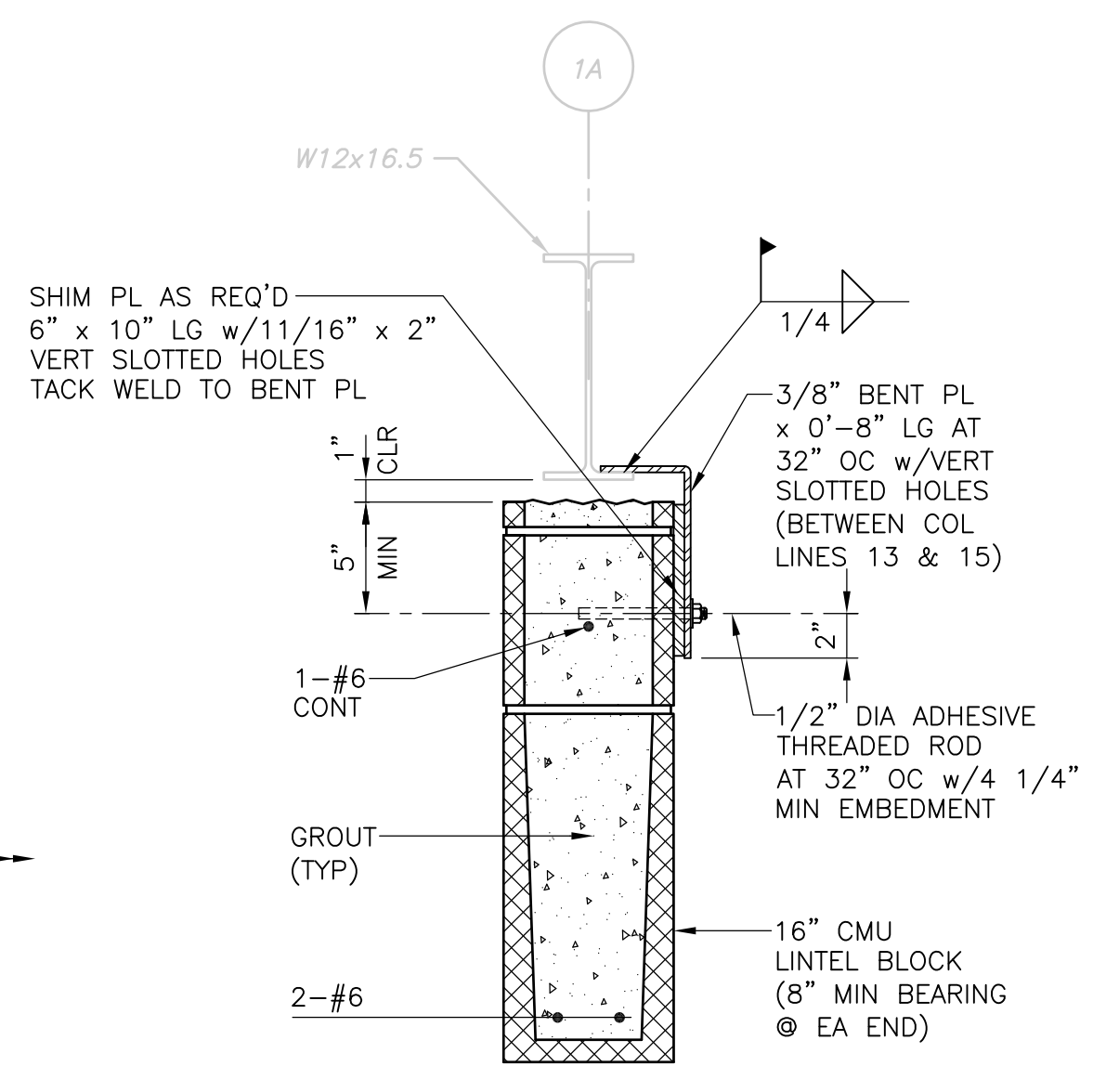
**DEMOLITION SECTION 2**  
 1/4" = 1'-0"



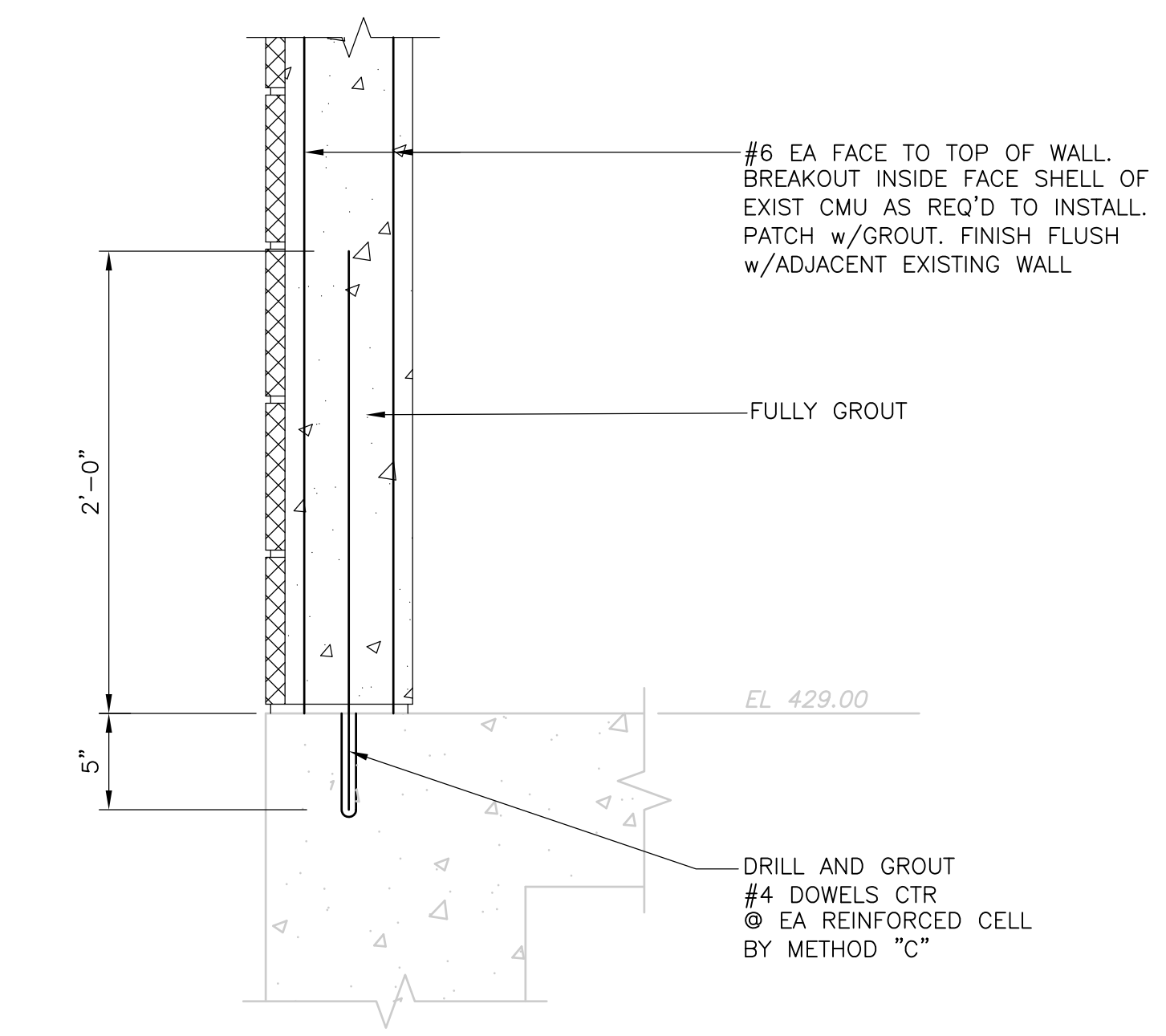
**NORTH - GRIT TRANSFER ROOM ELEVATION**  
 1/4" = 1'-0"



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

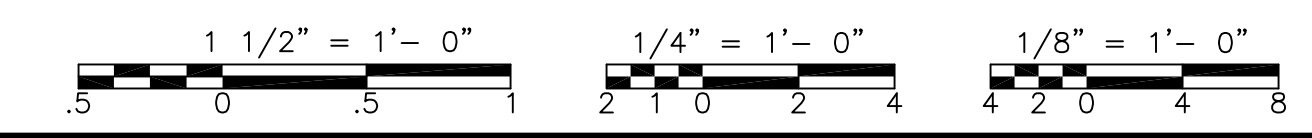


**SECTION 4**  
 1 1/2" = 1'-0"



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

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSPPL001.DWG
DESIGNED BY:	D.L. HARRIS
DRAWN BY:	W. MICHAJLIW
SHEET CHK'D BY:	D.L. HARRIS
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

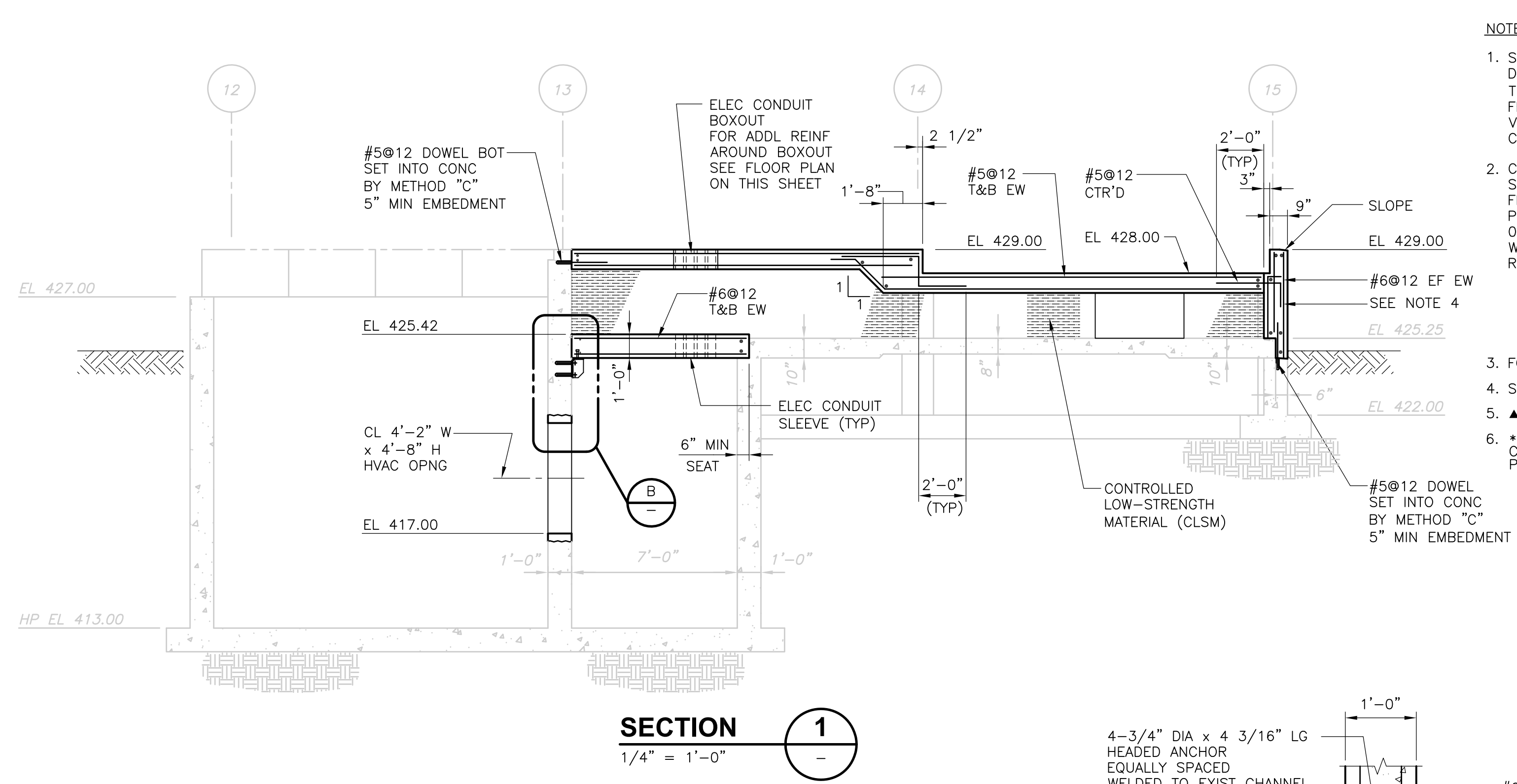
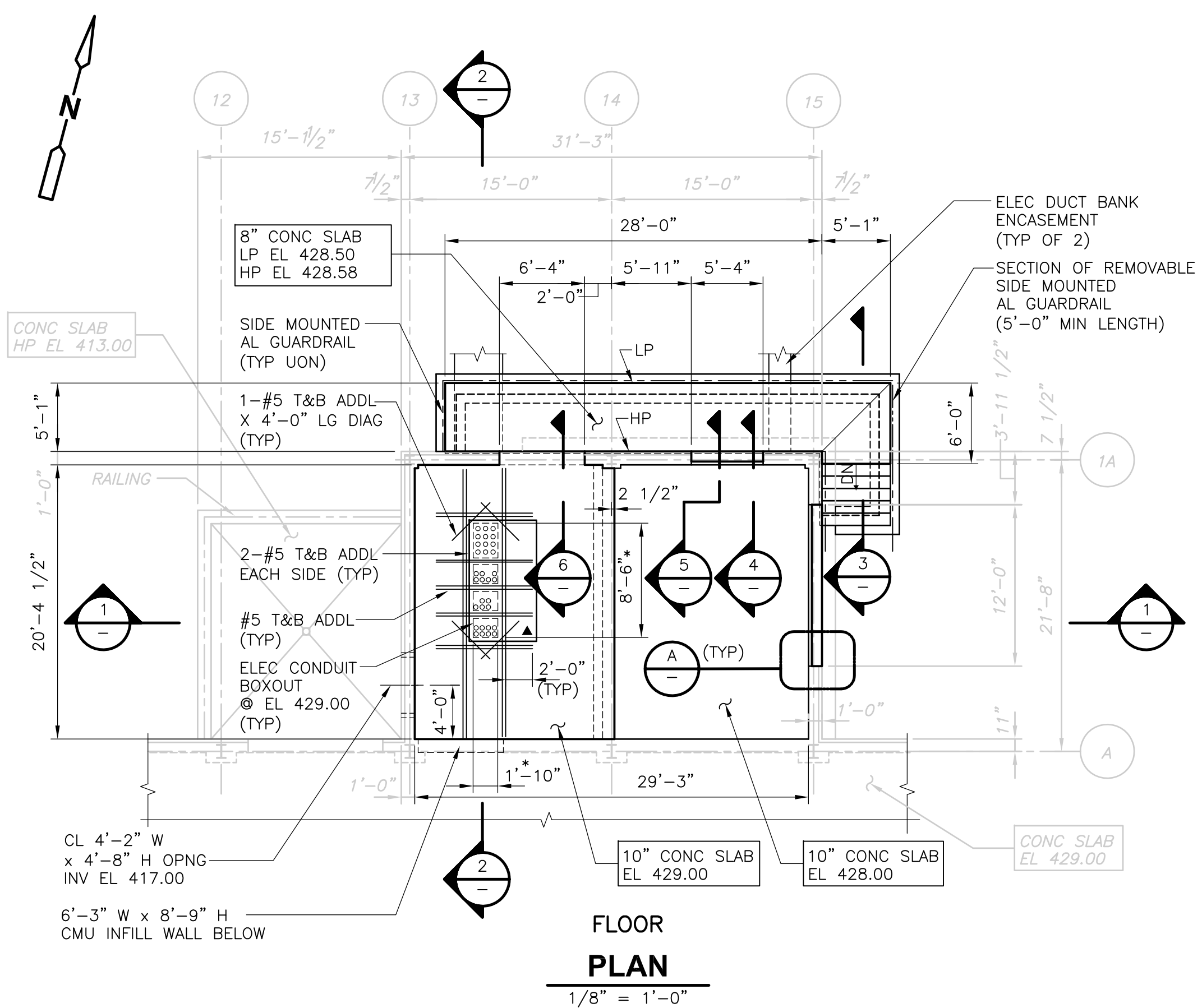
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

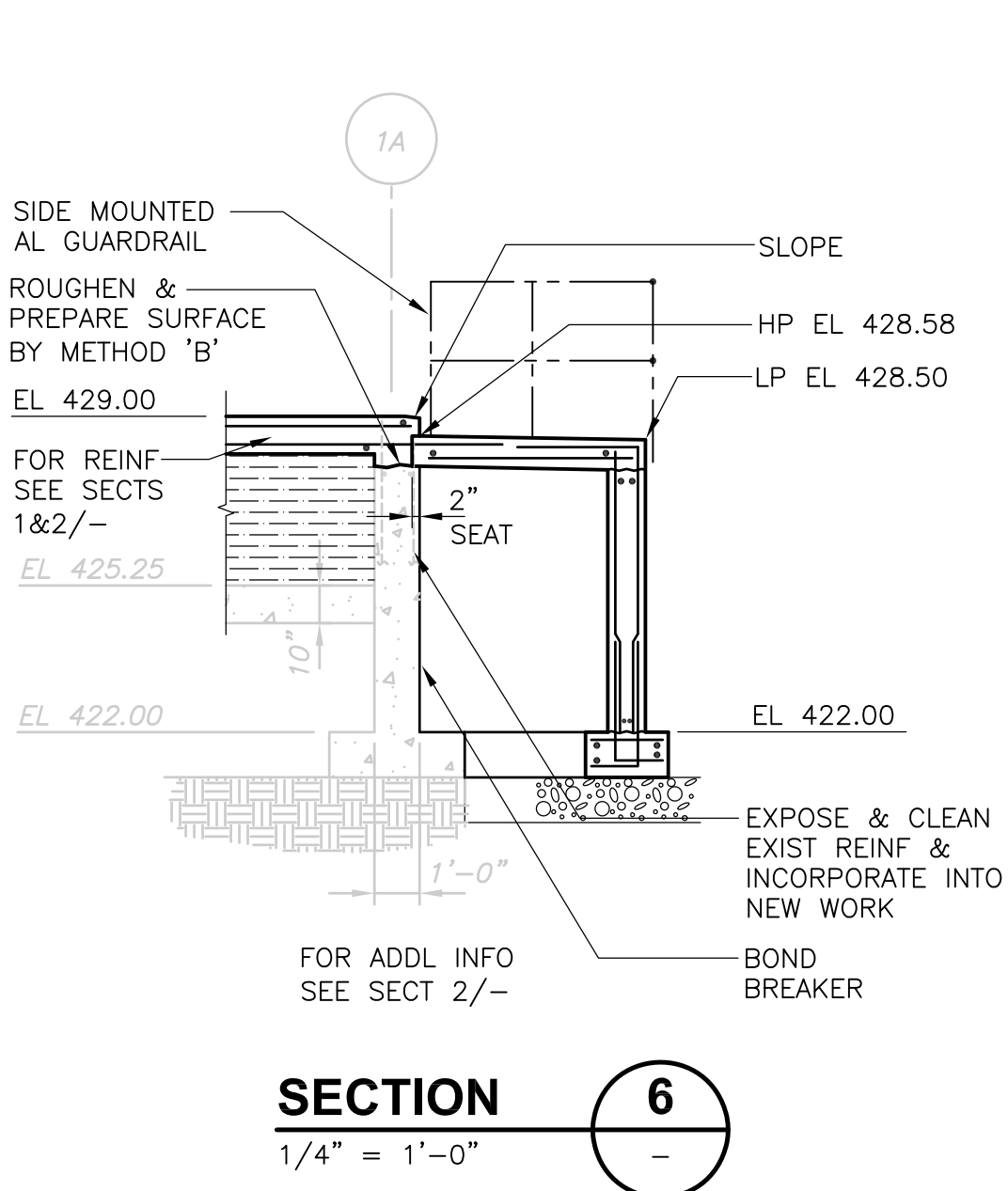
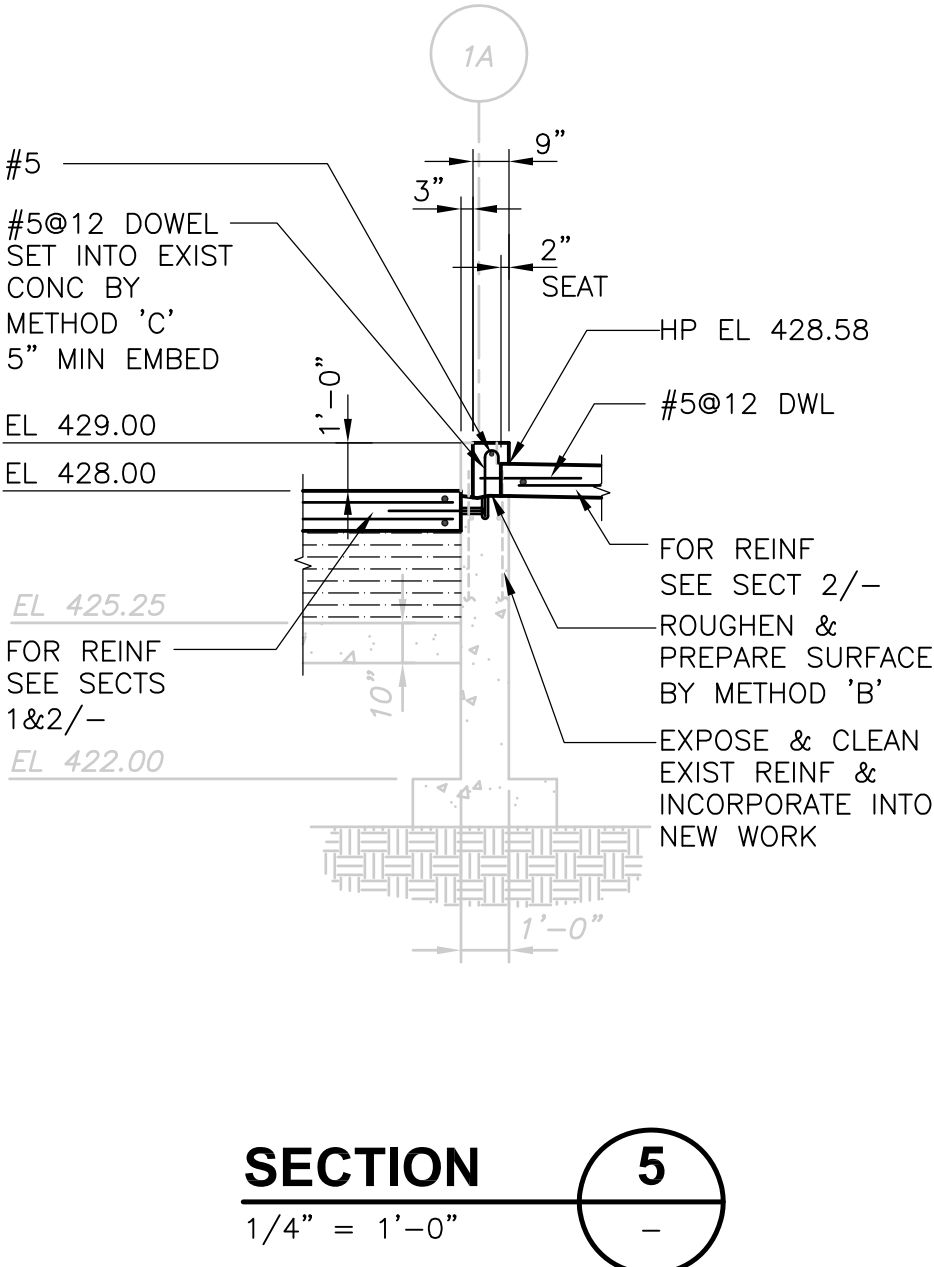
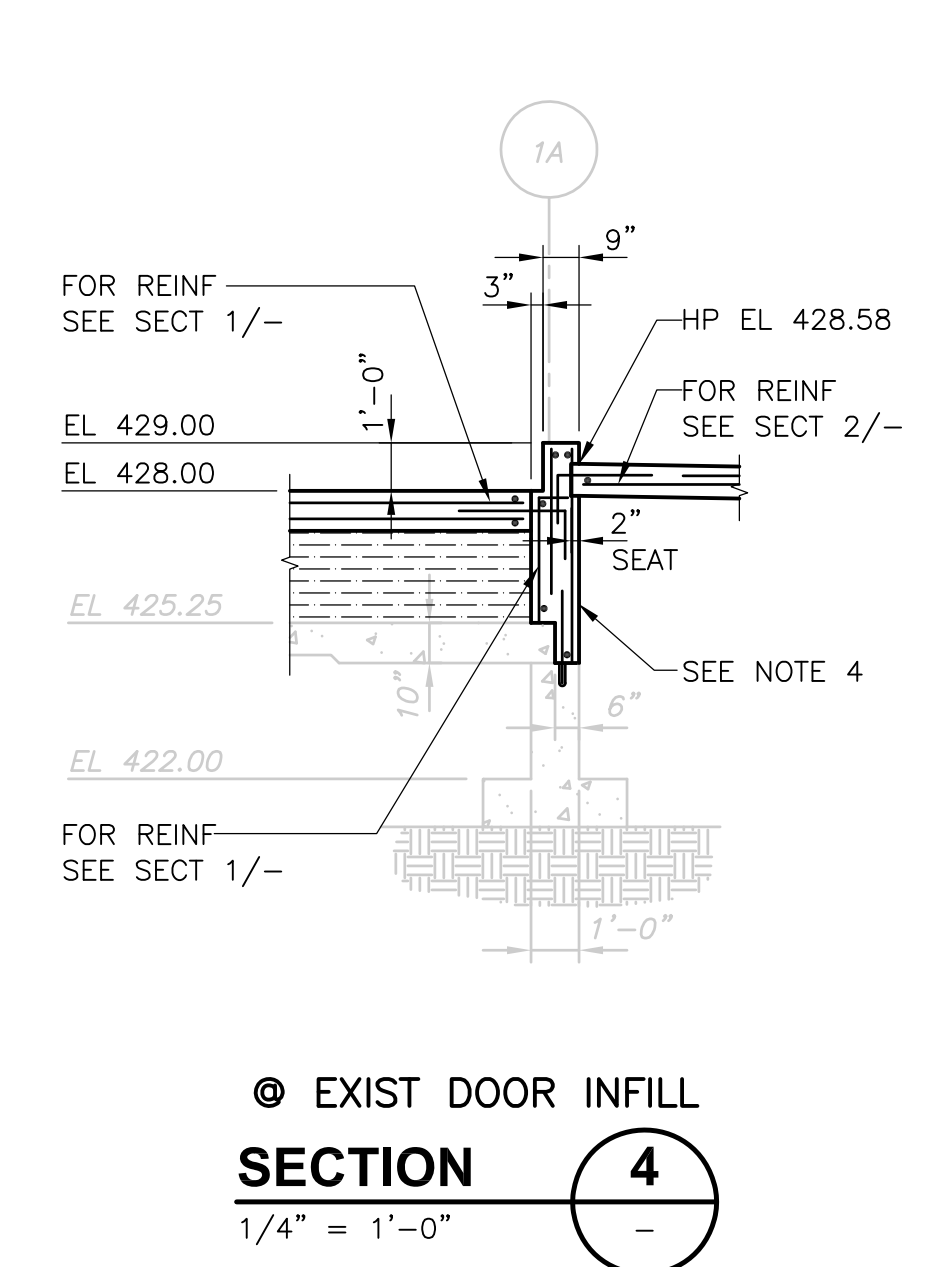
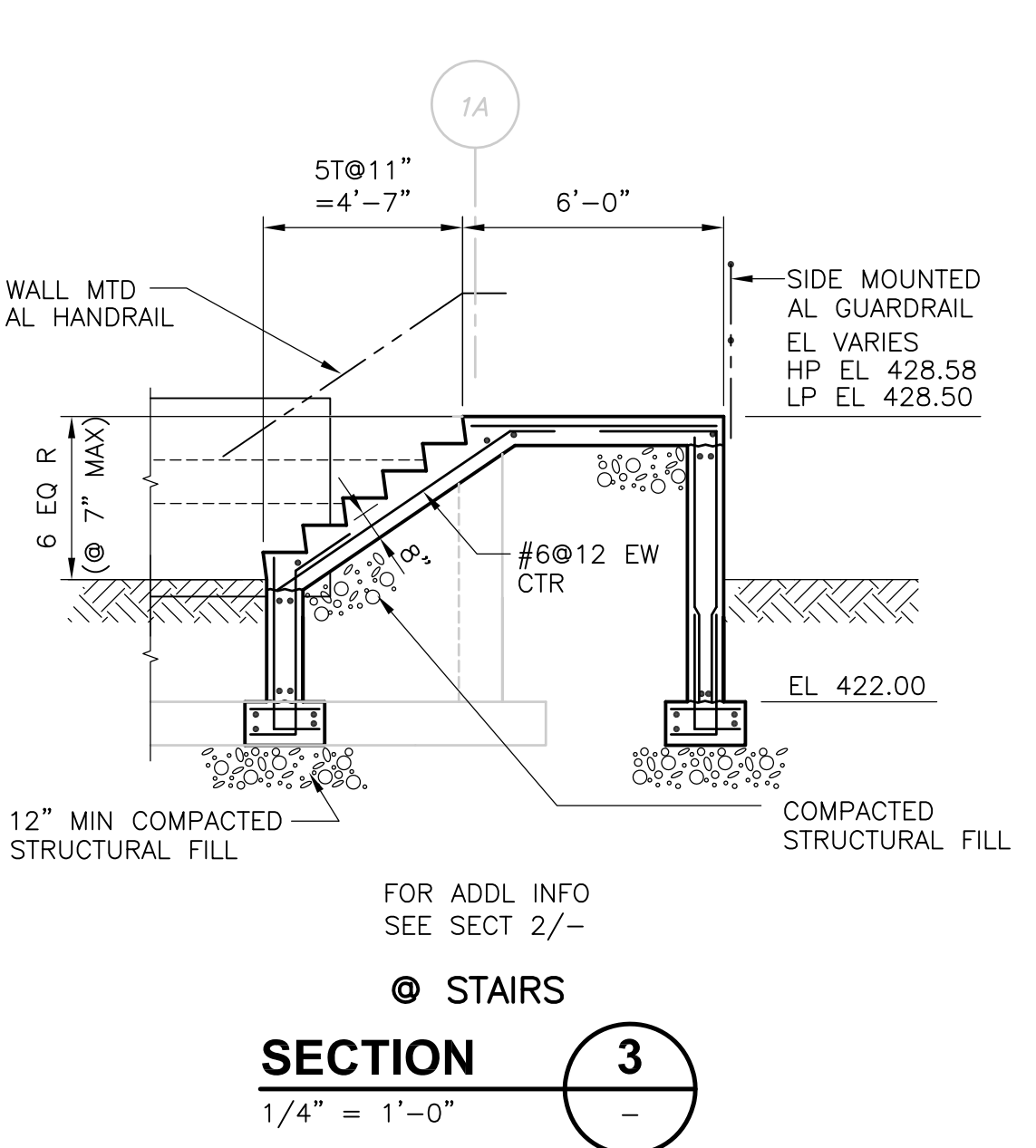
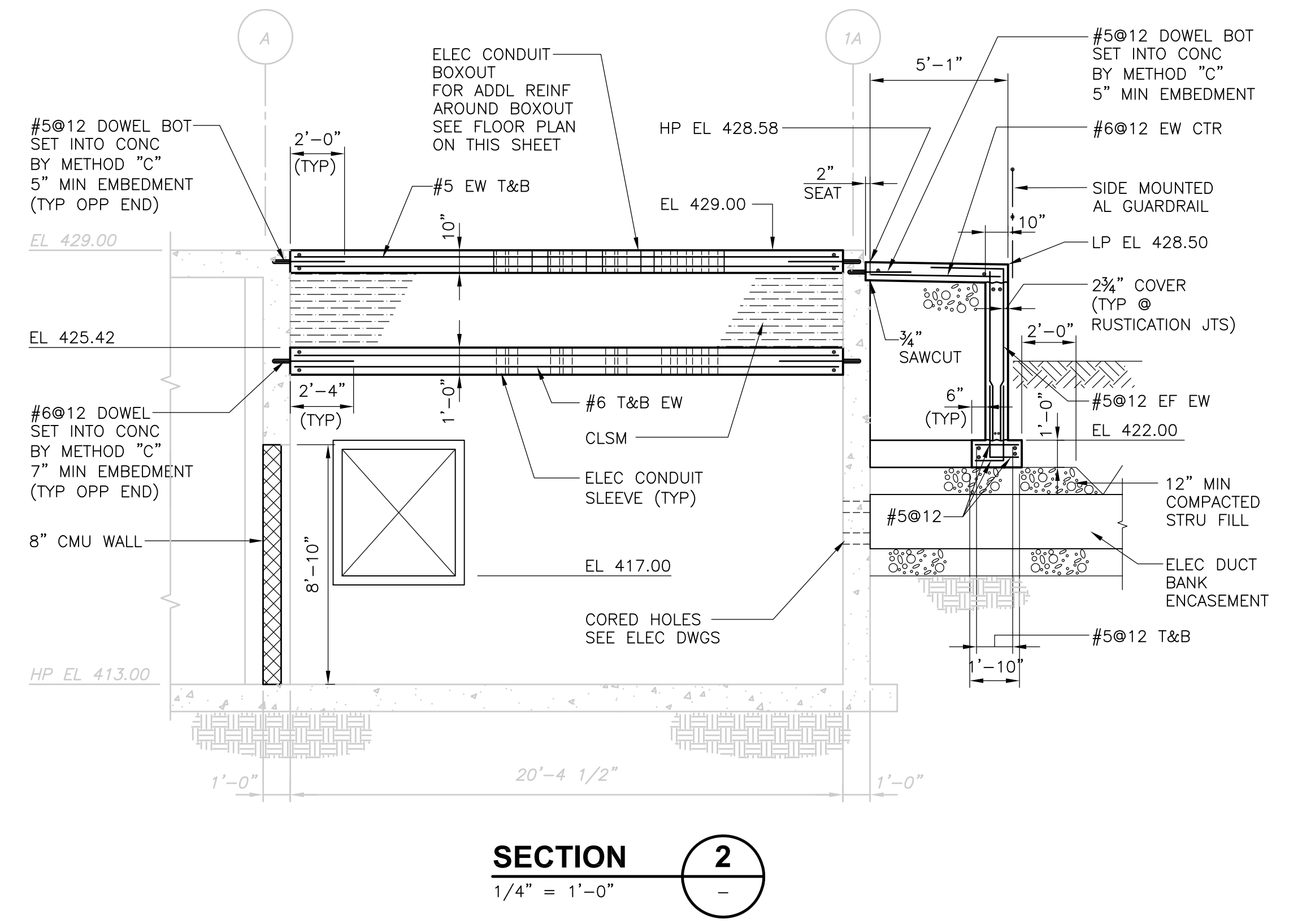
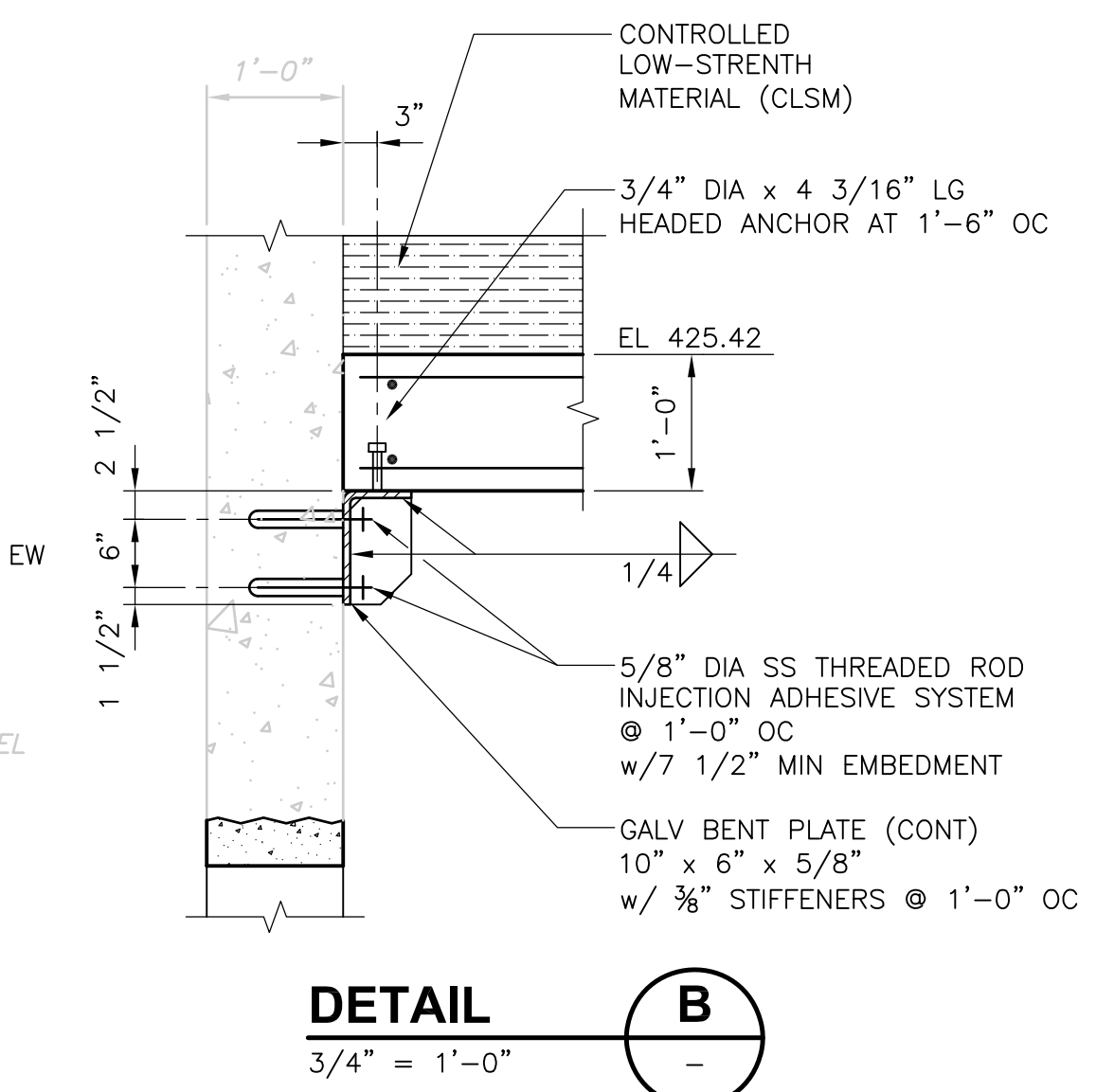
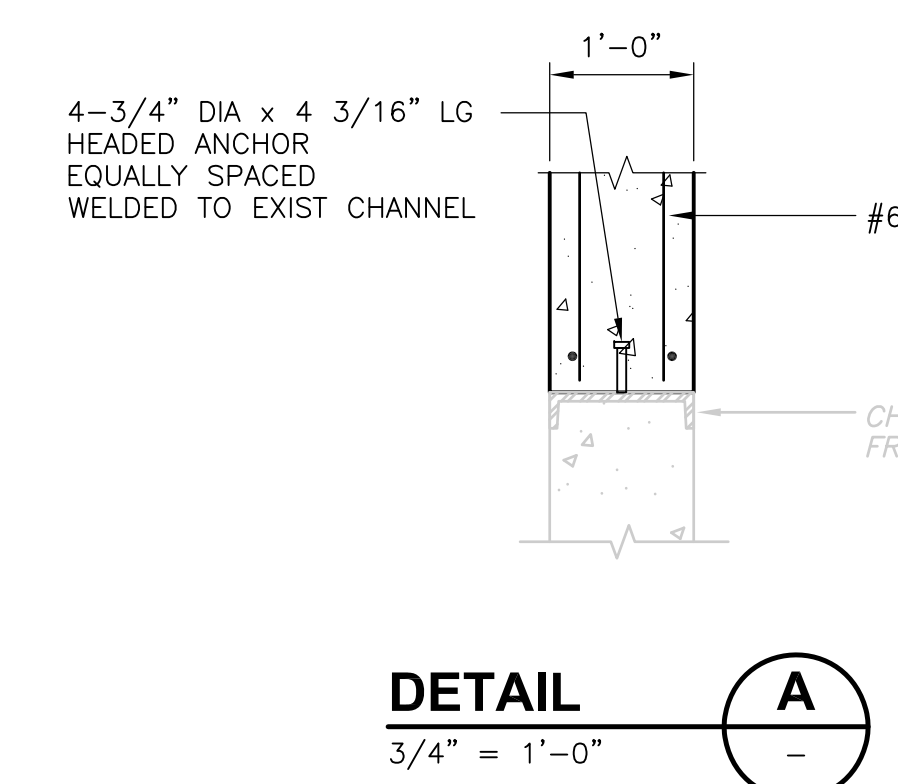
**SLUDGE PROCESSING COMPLEX**  
**GRIT TRANSFER ROOM**  
**DEMOLITION PLAN AND SECTIONS**

PROJECT NO.  
 1289\35370  
 Sht. 115 of 386  
**SP-S-1**  
ACCESSION NO. 1289-65315

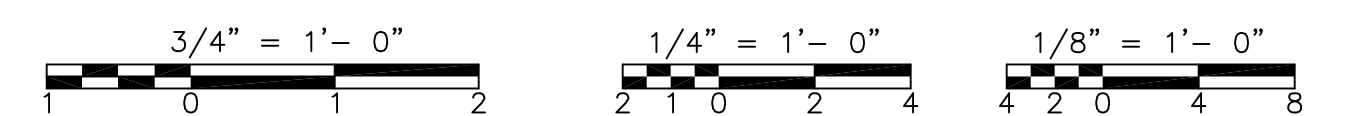




- NOTES:**
- SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM RECORD DRAWINGS PRODUCED BY FAY, SPOFFORD AND THORNDIKE, INC. ENGINEERS, TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES, CONTRACT NO. 2", DATED FEBRUARY 1973. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
  - CONTROLLED LOW-STRENGTH MATERIAL (CLSM) USED AS BACKFILL AND FILL SHALL BE COMPRISED OF A MIXTURE OF PORTLAND CEMENT, COARSE AGGREGATE, FINE AGGREGATE AND WATER. MATERIALS, METHODS OF PREPARATION AND PLACEMENT TECHNIQUES SHALL COMPLY WITH THE REQUIREMENT OF SECTION 03300 AS FOR CONCRETE. DESIGN MIX SHALL RESULT IN A FLOWABLE MATERIAL WITH A 28 DAY COMPRESSIVE STRENGTH OF APPROXIMATELY 60 PSI. RECOMMENDED MIX SHALL BE AS FOLLOWS:  
 PORTLAND CEMENT: 40 LBS/CU YD  
 COARSE AGGREGATE: 1700 LBS/CU YD  
 FINE AGGREGATE: 1900 LBS/CU YD  
 WATER: 325 LBS/CU YD OR AS NEEDED
  - FOR ELEVATION AND SECTIONS OF CMU WALL ON LINE 1A, SEE SP-S-1.
  - SHORE WALL UNTIL CLSM HAS REACHED 28 DAY STRENGTH.
  - ▲ INDICATES EQUIPMENT PAD.
  - ▲ INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.



RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSPPL002.DWG
DESIGNED BY:	D.L. HARRIS
DRAWN BY:	W. MICHAJLIW
SHEET CHK'D BY:	D.L. HARRIS
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**SLUDGE PROCESSING COMPLEX**

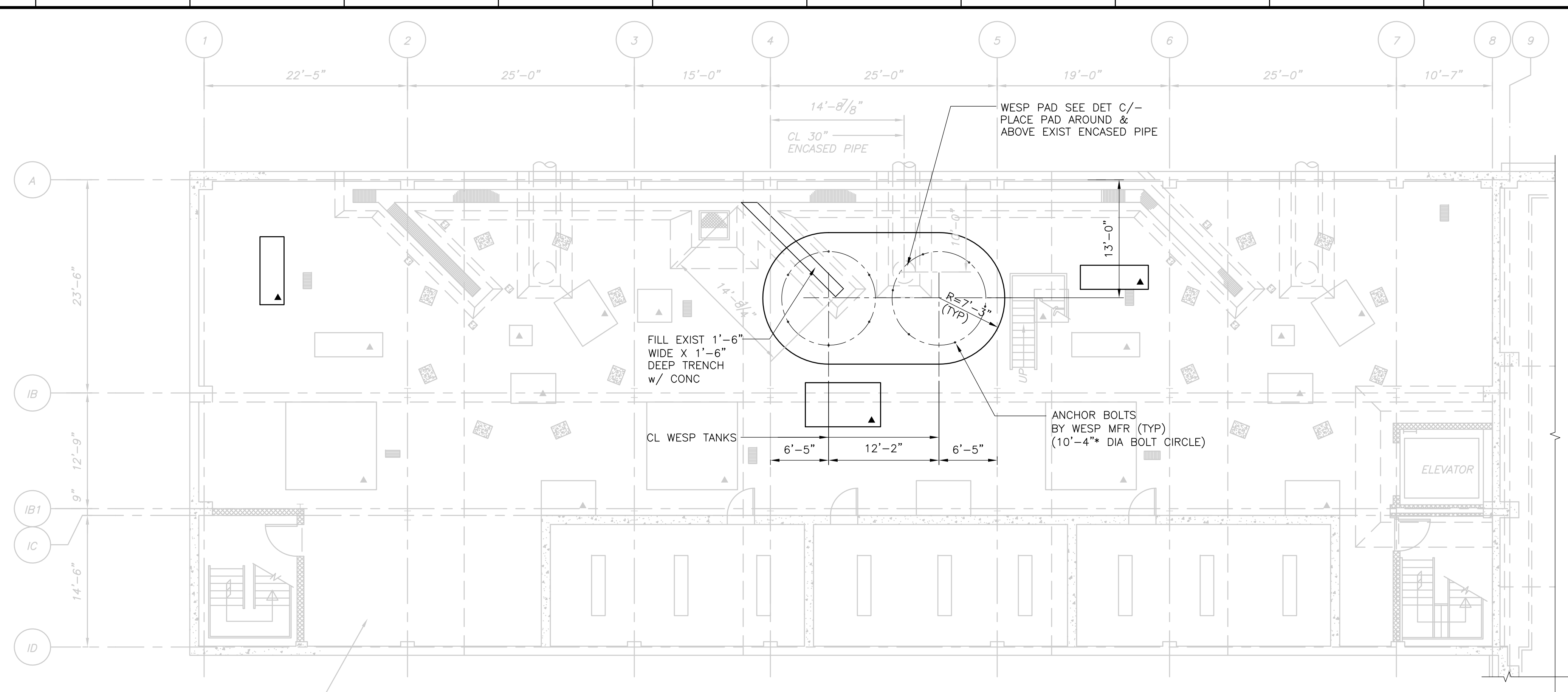
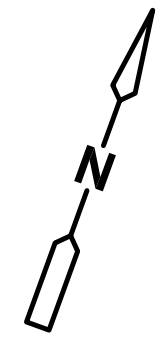
**NEW CONTROL ROOM**

**PLAN AND SECTIONS**

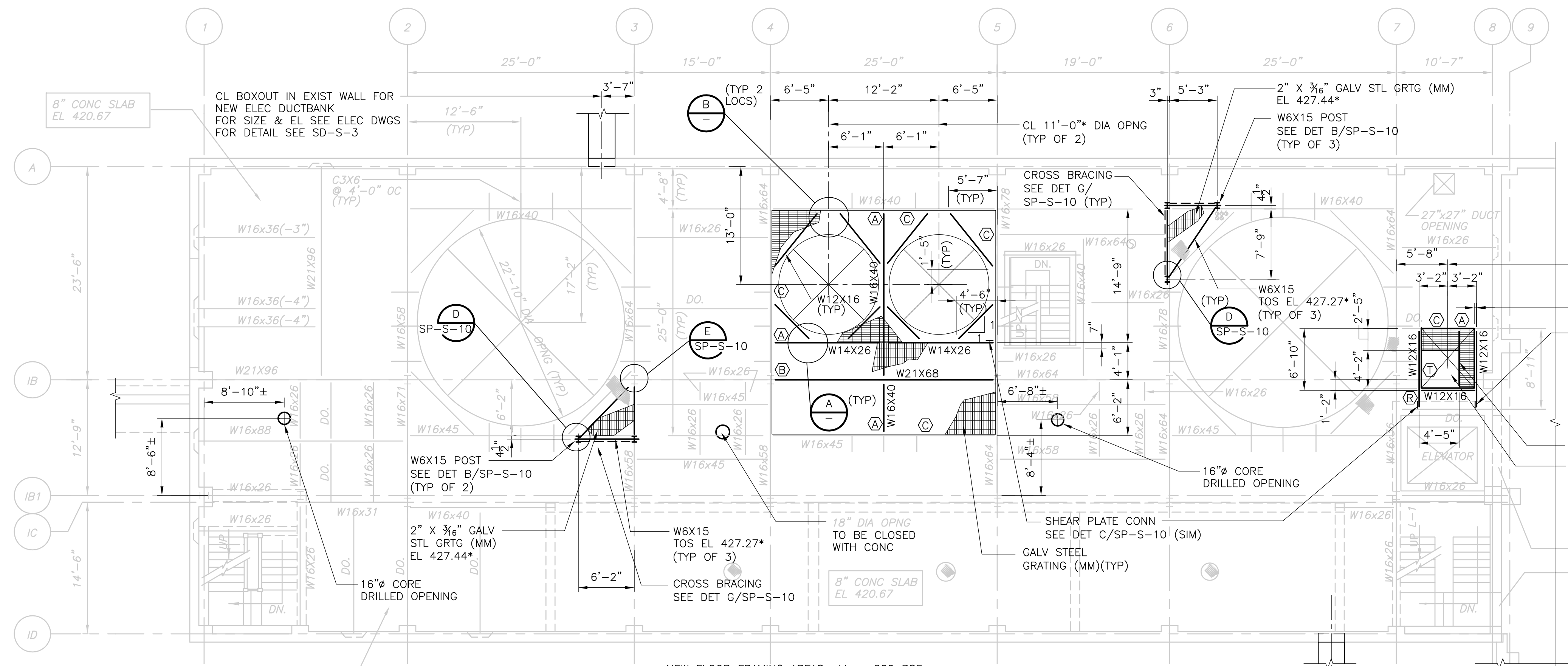
PROJECT NO. 1289\35370

Sht. 116 of 386

**SP-S-2**



SUB BASEMENT PLAN  
1/8" = 1'-0"



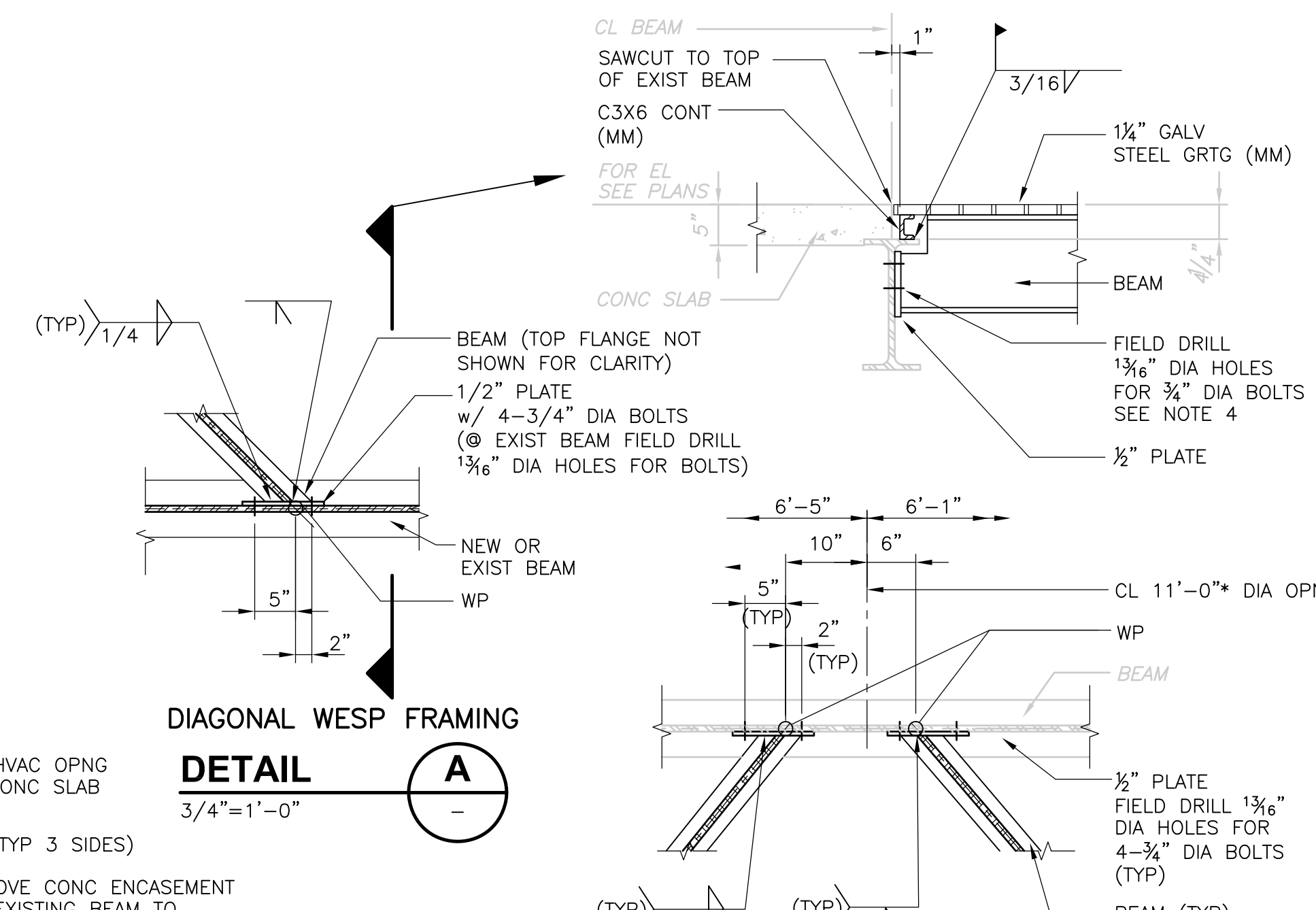
BASEMENT FLOOR FRAMING PLAN  
1/8" = 1'-0"

NOTES:

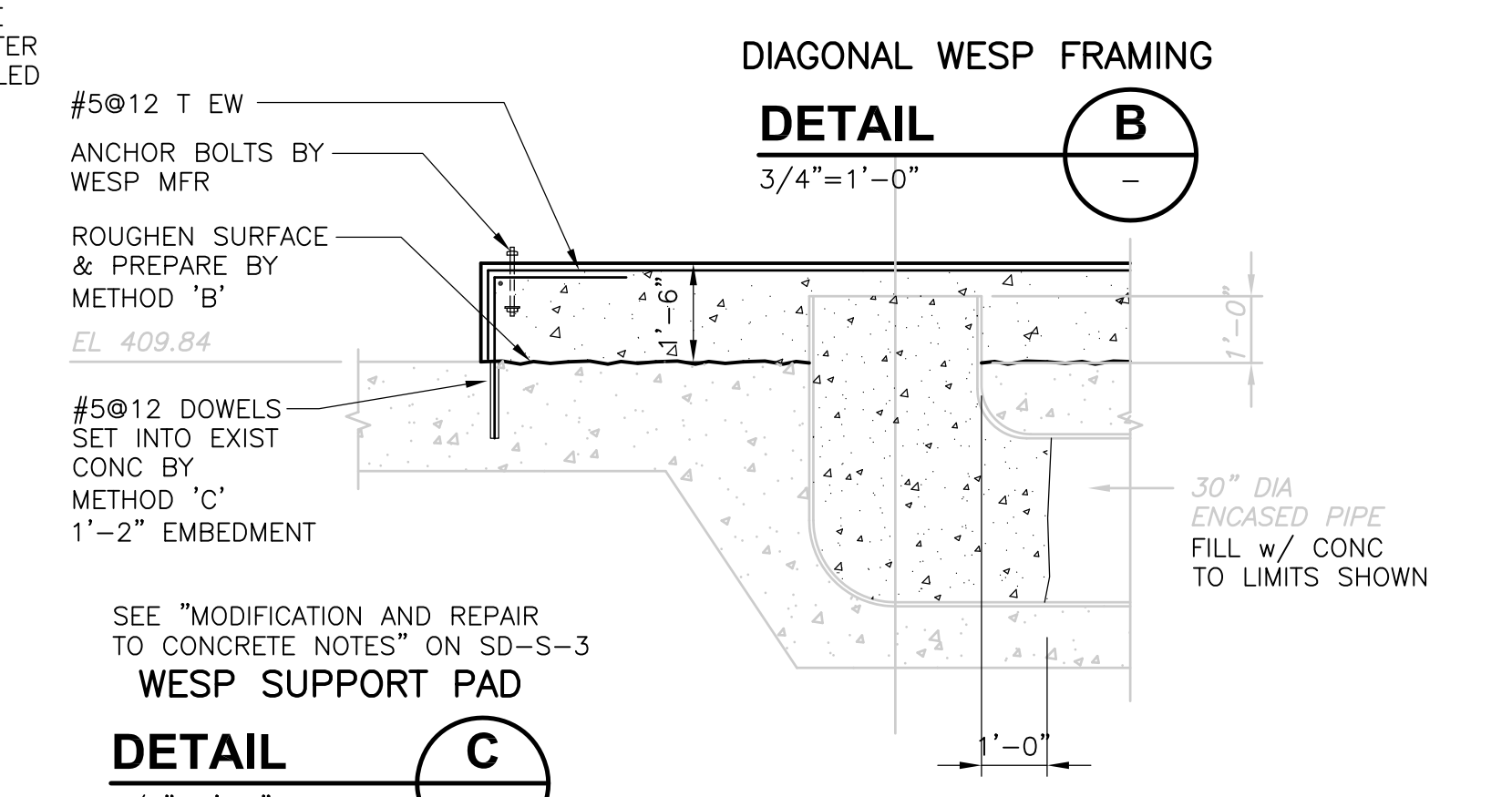
- \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT AND FLUE DUCT LAYOUT DETAILS PRIOR TO FABRICATION AND CONSTRUCTION.
- ▲ INDICATES EQUIPMENT PAD.
- SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM RECORD DRAWINGS PRODUCED BY FAY, SPOFFORD AND THORNDIKE, INC. ENGINEERS, TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES, CONTRACT NO. 2", DATED FEBRUARY 1973. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
- ALL NEW GRATING SHOWN SHALL BE 1/4" X 3/8" GALVANIZED STEEL GRATING UON.
- ALL NEW METAL DECK SHALL BE 1/2" - 18 GA GALVANIZED COMPOSITE FLOOR DECK UON.
- THE ELEVATION ON THE TOP OF ALL NEW GRATING AND SLAB/DECK FOR OPENING INFILLS SHALL MATCH THE EXISTING FLOOR ELEVATION UON.
- Ⓢ INDICATES MODIFICATION AND/OR CONNECTION DETAIL, SEE SP-S-6.
- FOR PART PLANS OF STRUCTURAL INFORMATION NOT SHOWN ON THIS DRAWING, SEE SP-S-9.
- FOR ADDITIONAL STRUCTURAL DETAILS SEE STANDARD DETAIL SHEETS.
- ALL EXISTING HUNG UTILITIES SHALL BE TEMPORARILY SUPPORTED AS REQUIRED TO ALLOW FOR DEMOLITION OF EXISTING STRUCTURAL MEMBERS AND INSTALLATION OF NEW STRUCTURAL MEMBERS.
- (MM)-INDICATES STEEL FRAMING TO BE SUPPLIED AS PART OF SPEC SECTION 05500 (MISCELLANEOUS METAL).

STRUCTURAL STEEL NOTES:

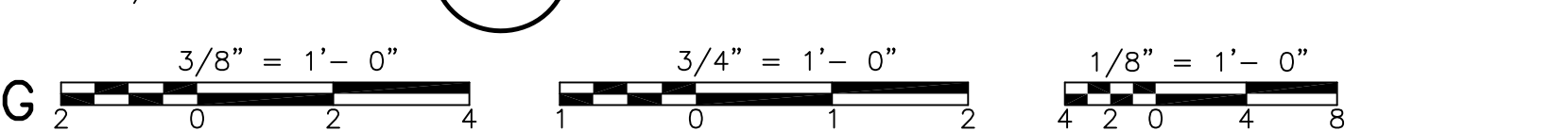
- STRUCTURAL STEEL SHALL BE FABRICATED IN ACCORDANCE WITH THE NINTH EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN (AISC MANUAL).
- STRUCTURAL SHAPES, PLATES AND BARS SHALL CONFORM TO ASTM A36 UON.
- ALL BEAM CONNECTIONS SHALL BE AS SHOWN IN TABLE II PART 4 OF THE AISC MANUAL UON. BEAM CONNECTIONS SHALL BE DESIGNED FOR ONE HALF OF THE TOTAL ALLOWABLE UNIFORM LOAD FOR LATERALLY SUPPORTED BEAMS FOR A GIVEN SPAN AND GRADE OF STEEL, TABULATED IN PART 2 OF THE AISC MANUAL UON.
- FIELD CONNECTIONS SHALL BE BY ASTM A-325 HIGH STRENGTH BOLTS UON. BOLTS SHALL BE 3/4" DIAMETER IN 13/16" DIAMETER HOLES UON. WHERE CONNECTIONS ARE TO EXISTING MEMBERS, HOLES SHALL BE FIELD DRILLED. CONNECTIONS SHALL BE DESIGNED AS BEARING TYPE WITH THREADS IN SHEAR PLANES UON.
- WHERE FIELD WELDING TO EXISTING STEEL MEMBERS IS INDICATED ON THE DRAWINGS, THE AREAS TO BE FIELD WELDED SHALL BE CLEANED FREE OF PAINT, DIRT, RUST, GREASE AND OTHER FOREIGN MATTER PRIOR TO WELDING. THE BEAM CONNECTIONS SHALL BE AS SHOWN IN TABLE III, FRAMED BEAM CONNECTIONS WELDED - E70XX ELECTRODES FOR COMBINATION WITH TABLE II CONNECTIONS TABULATED IN PART 2 OF THE AISC MANUAL UON.



DIAGONAL WESP FRAMING DETAIL A  
3/4" = 1'-0"



DIAGONAL WESP FRAMING DETAIL B  
3/4" = 1'-0"



DIAGONAL WESP FRAMING DETAIL C  
3/8" = 1'-0"

RECORD DRAWING 3/8" = 1'-0" 3/4" = 1'-0" 1/8" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	SSPPL101.DWG
DESIGNED BY:	LUKACS/PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	J. FOREHAND
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

NEW FLOOR FRAMING AREAS LL = 200 PSF

CL BOXOUT IN EXIST WALL FOR NEW ELEC DUCTBANK FOR SIZE & EL SEE ELEC DWGS FOR DETAIL SEE SD-S-3

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
CONTRACT NO. UB 2024

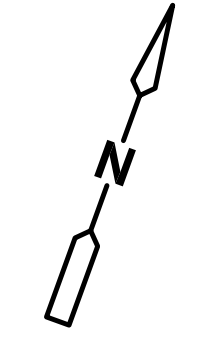
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**INCINERATOR BUILDING**

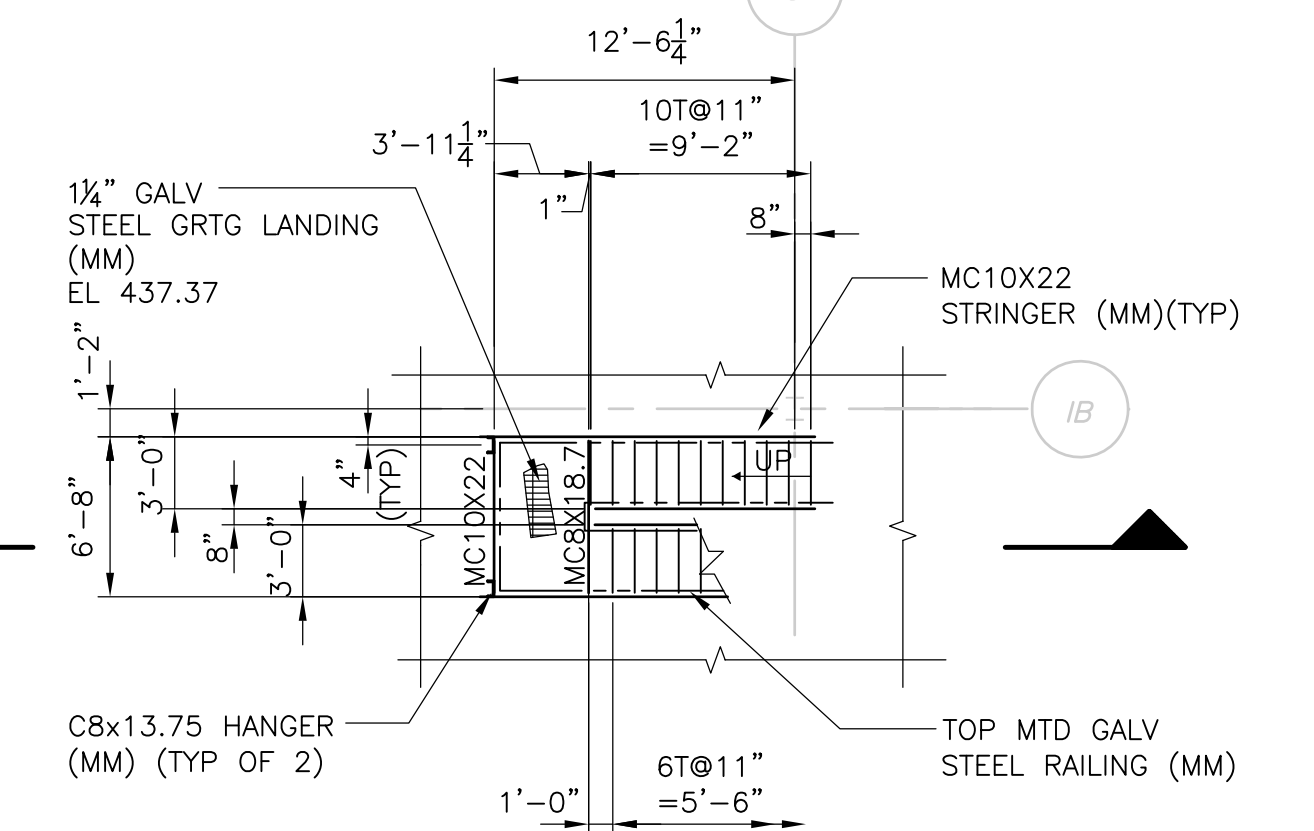
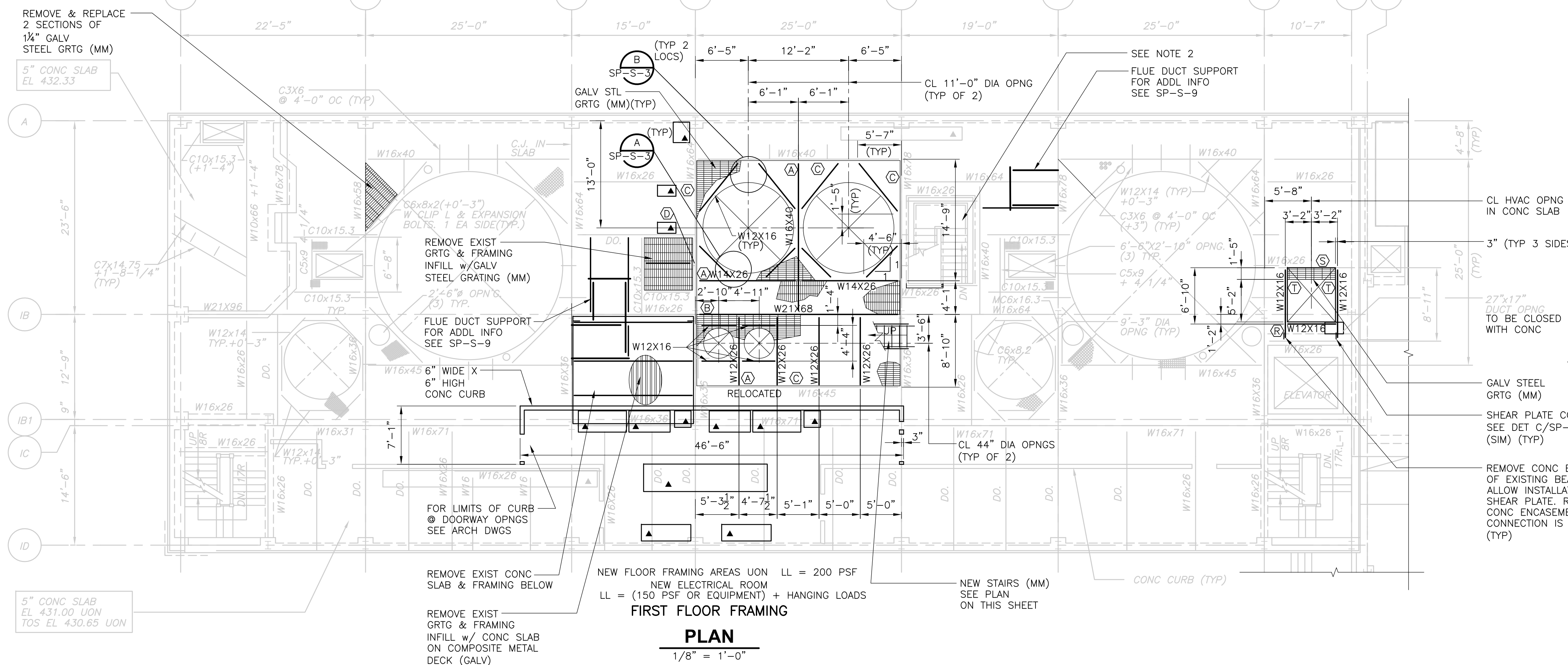
**SUB BASEMENT AND BASEMENT FLOOR FRAMING PLANS**

PROJECT NO. 1289/35370  
Sht. 117 of 386

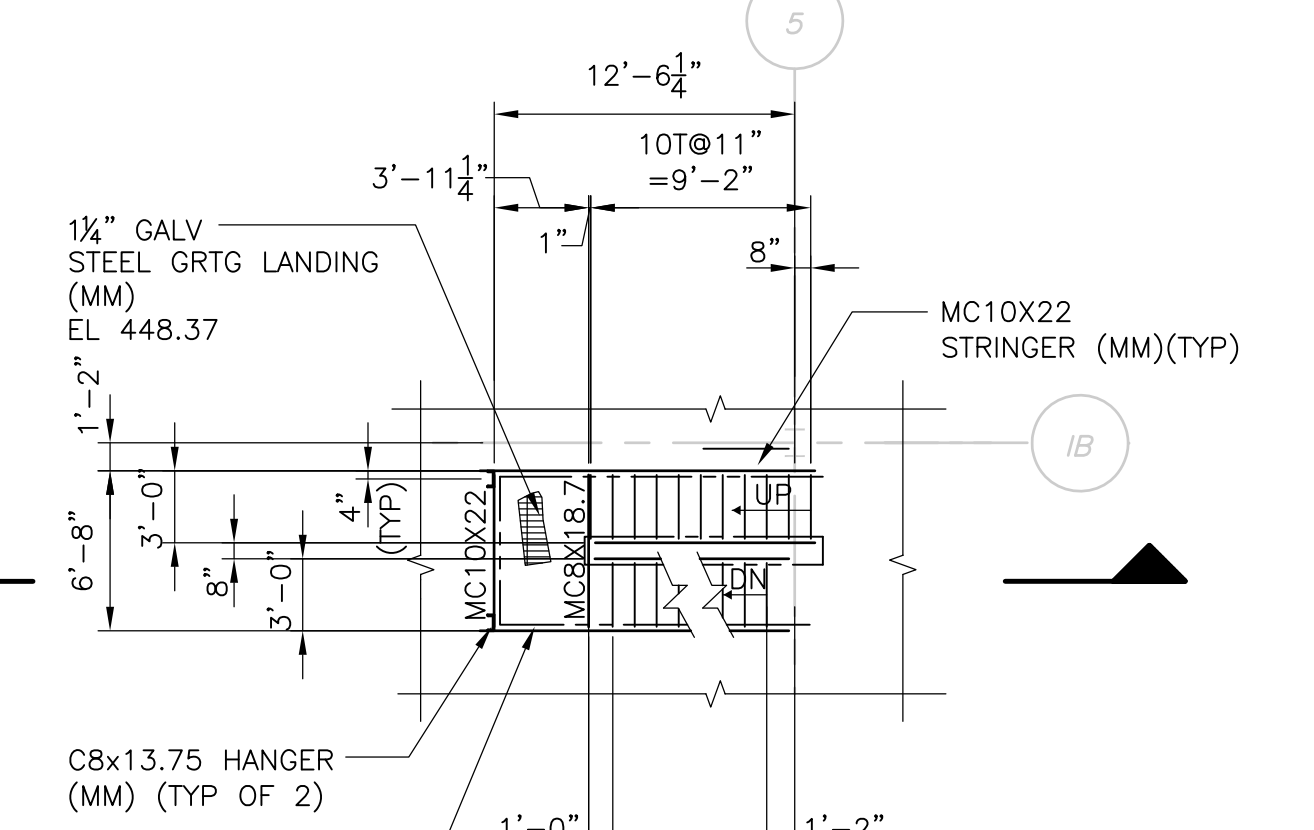
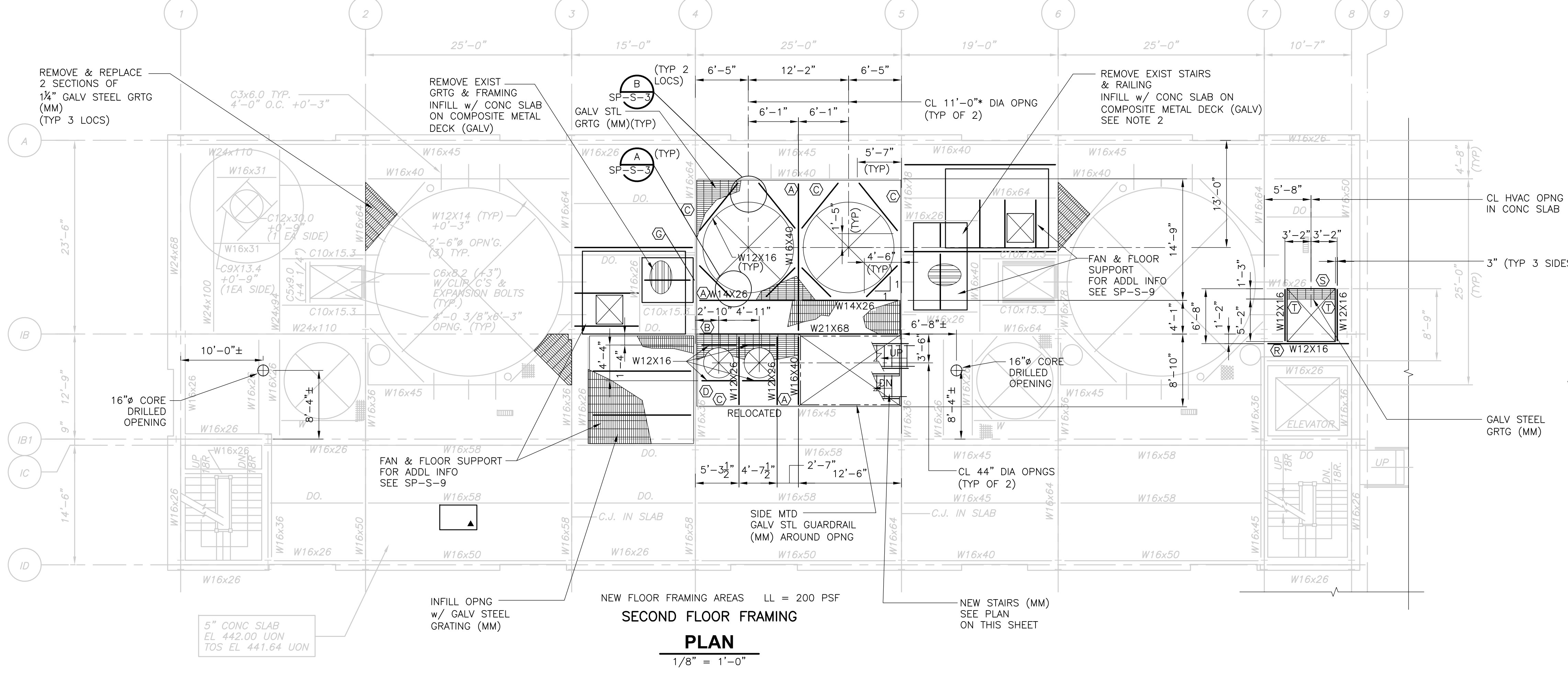
**SP-S-3**



- NOTES:  
 1. FOR ADDITIONAL NOTES SEE SP-S-3.  
 2. REMOVE STAIRS BETWEEN FIRST AND THIRD FLOORS.  
 3. FOR PART PLANS OF STRUCTURAL INFORMATION NOT SHOWN ON THIS DRAWING, SEE SP-S-9.



LL = 100 PSF  
**FIRST FLOOR STAIR PLAN**  
 1/8" = 1'-0"



LL = 100 PSF  
**SECOND FLOOR STAIR PLAN**  
 1/8" = 1'-0"

RECORD DRAWING  
 1/8" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	SSPPL201.DWG
DESIGNED BY:	LUKACS/PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	J. FOREHAND
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

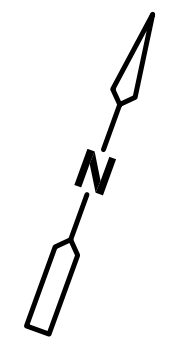
PROJECT NO.	1289\35370
Sht.	118 of 386
PROJECT TITLE	UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
PROJECT SUB-TITLE	WASTEWATER TREATMENT FACILITY IMPROVEMENTS

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

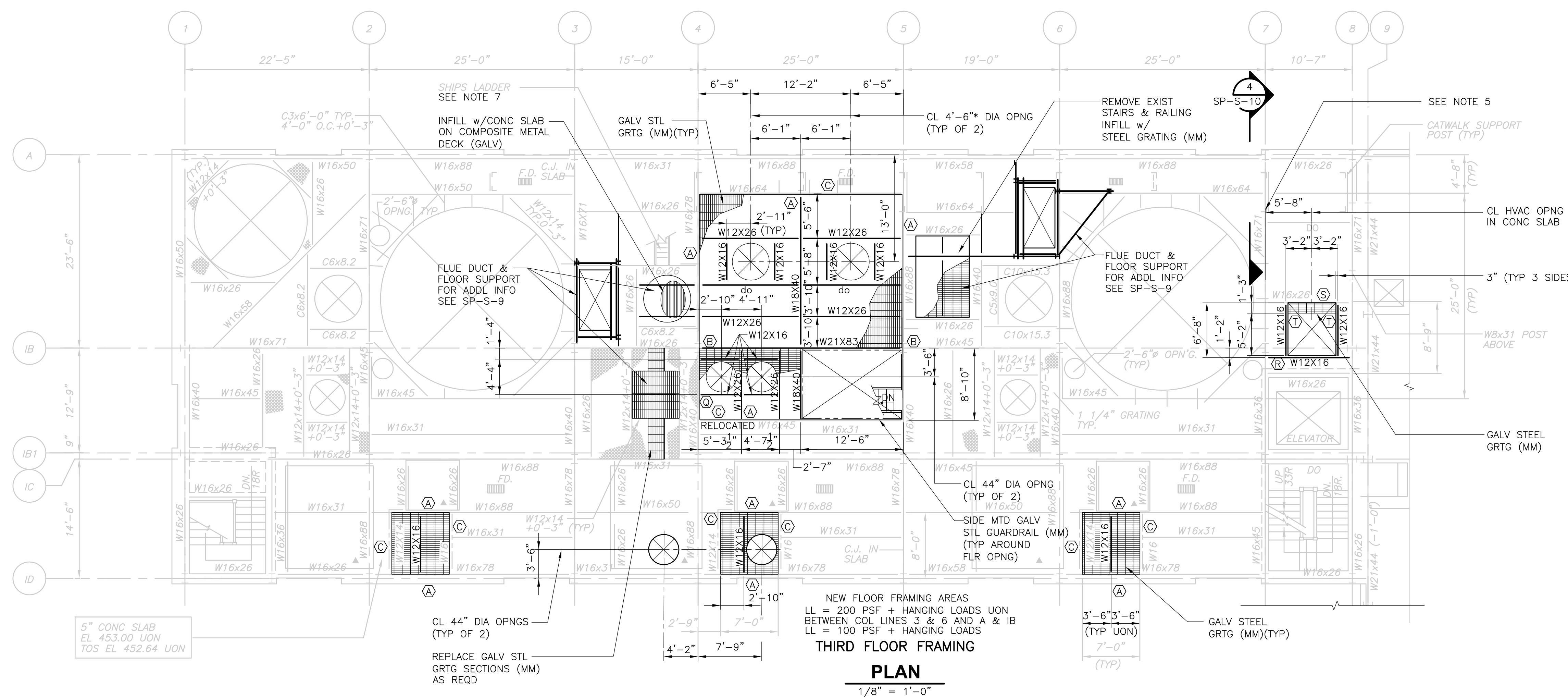
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**INCINERATOR BUILDING FIRST AND SECOND FLOOR FRAMING PLANS**

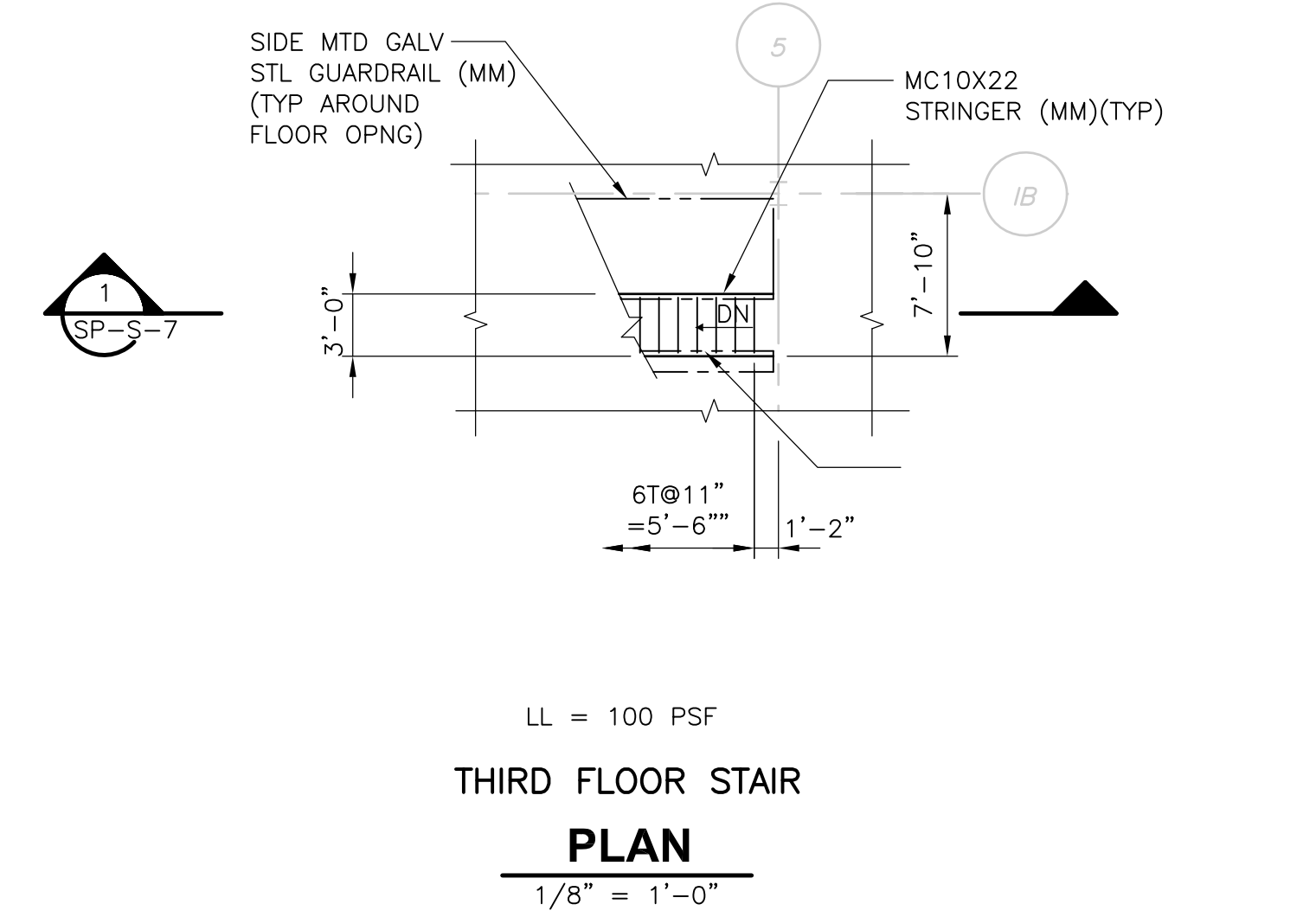
PROJECT NO. 1289\35370  
 Sht. 118 of 386  
**SP-S-4**



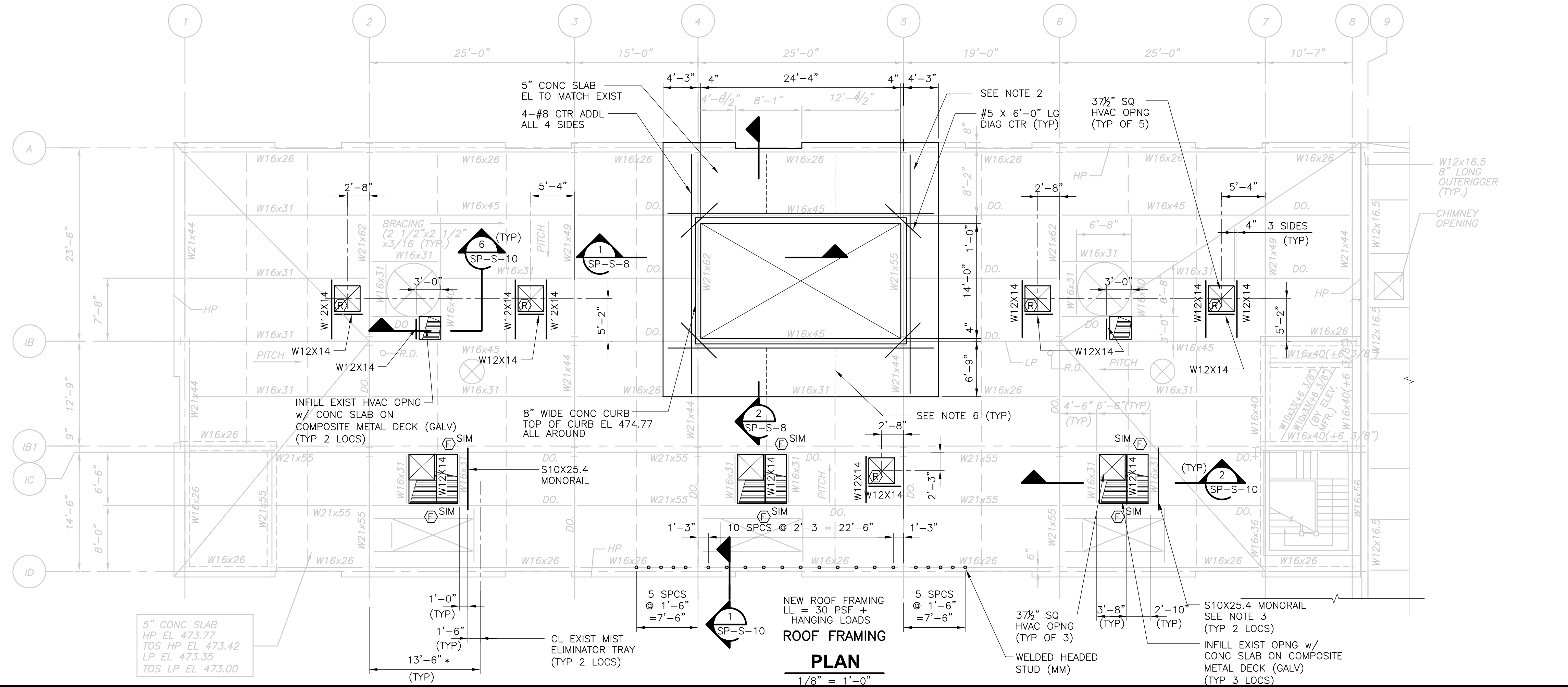
- NOTES:
- FOR ADDITIONAL NOTES SEE SP-S-3.
  - PRIOR TO REMOVAL OF THE CONCRETE ROOF SLAB, THE CONTRACTOR SHALL DESIGN AND INSTALL TEMPORARY HORIZONTAL BRACING AS SPECIFIED IN SPEC SECTION 02050. REMOVE AND REPLACE SLAB TO LIMITS SHOWN. PROVIDE REINFORCING AS INDICATED IN THE SECTIONS, PLUS ADDITIONAL REINFORCING AROUND OPENING AS SHOWN ON THE PLAN.
  - MONORAIL BEAM CAPACITY IS 1 TON. FOR ATTACHMENT TO EXISTING BEAMS, FIELD DRILL HOLES AS REQUIRED. BEAM IS TO BE LEVEL. PROVIDE NEOPRENE PAD AS REQUIRED.
  - FOR PART PLANS OF STRUCTURAL INFORMATION NOT SHOWN ON THIS DRAWING, SEE SP-S-9.
  - TEMPORARILY REMOVE CATWALK POST TO ALLOW FOR HVAC EQUIPMENT PLACEMENT. REPLACE POST AFTER EQUIPMENT HAS BEEN LOCATED ON THE FLOOR.
  - ANGLE BRACING AT THE UNDERSIDE OF THE ROOF SLAB SHALL BE REMOVED AND REPLACED TO MATCH EXISTING PRIOR TO PLACING NEW CONCRETE.
  - RELOCATE EXISTING SHIPS LADDER AS REQUIRED TO AVOID THE NEW FLUE DUCT. REMOVE POSTS AND PORTION OF EXISTING GUARDRAIL, AS REQUIRED. PROVIDE NEW POSTS AND GUARDRAIL, MATCHING EXISTING SIZE, MATERIAL AND CONNECTIONS.



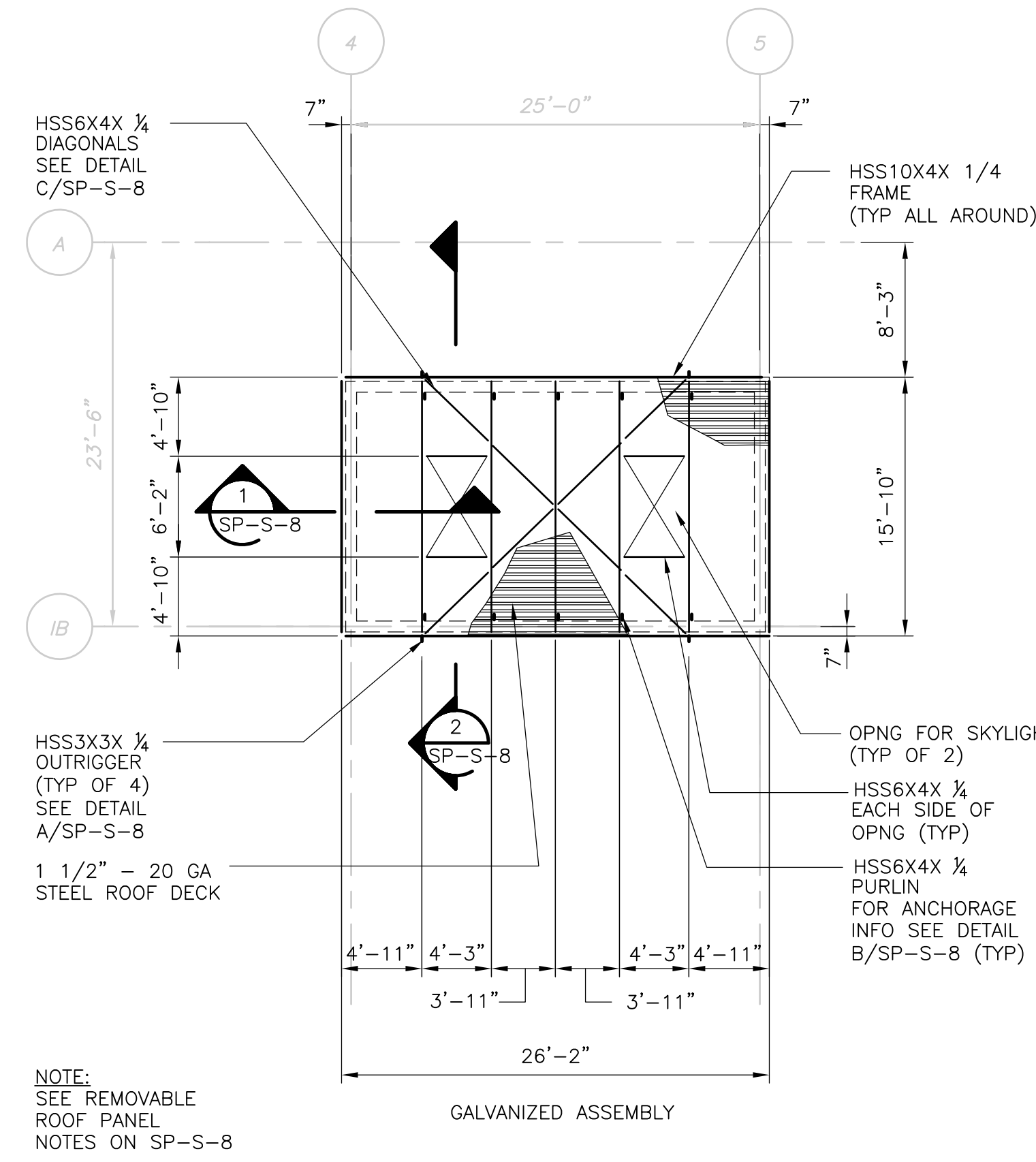
**THIRD FLOOR FRAMING PLAN**  
 1/8" = 1'-0"



**THIRD FLOOR STAIR PLAN**  
 1/8" = 1'-0"



**ROOF FRAMING PLAN**  
 1/8" = 1'-0"

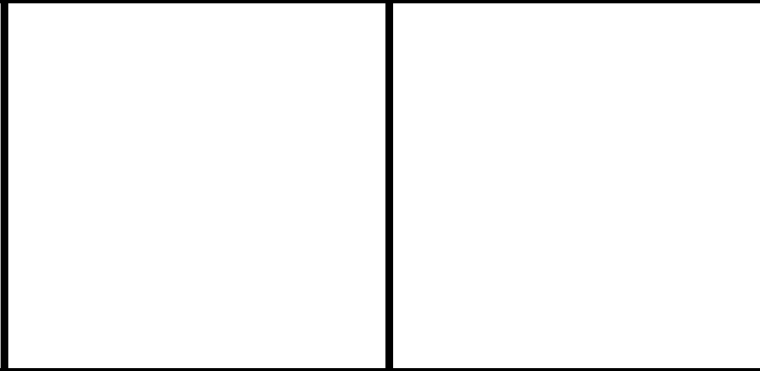


**REMOVABLE ROOF PANEL FRAMING PLAN**  
 1/8" = 1'-0"

RECORD DRAWING  
 1/8" = 1'-0"  
 4 2 0 4 8

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSPPL301.DWG
DESIGNED BY:	EL/AJP/MJA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	JF, RZ
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006



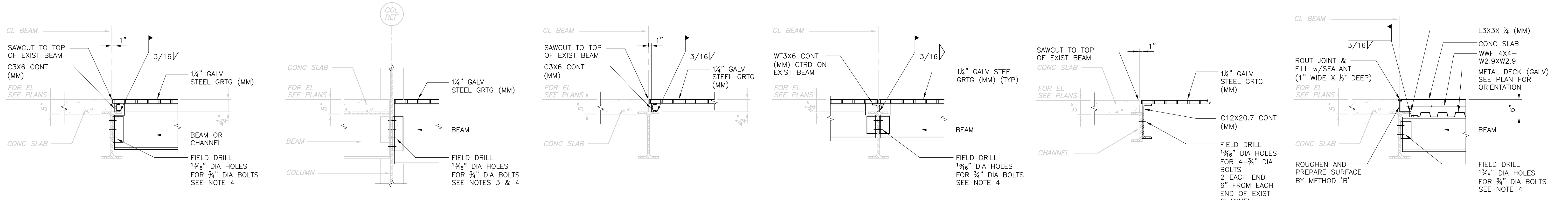
**UPPER BLACKSTONE**  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**INCINERATOR BUILDING**  
 THIRD FLOOR AND ROOF FRAMING PLANS

PROJECT NO. 1289\35370  
 Sht. 119 of 386  
**SP-S-5**

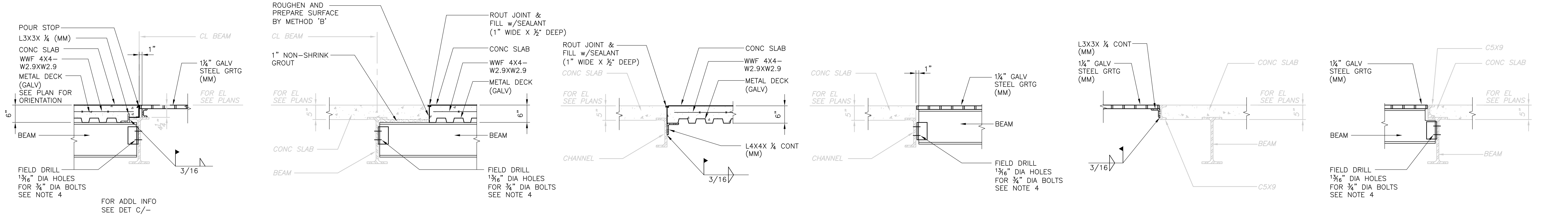
UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 Plotted by: CROSSAA Time: 12/16/08 6:22:53 PM  
 Xref's: [C24X38H, MSPWP005, MSPWP004, HINPL003, SSPPL301, ]  
 Filename: P:\1289\35370\PHASE I\RECORD\STRU\SSPSC001.dwg



**NEW BEAM TO EXIST BEAM @ GRATING INFILL**      **NEW BEAM TO EXIST COLUMN @ GRATING INFILL**      **NEW GRATING SUPPORT @ EXIST BEAM**      **NEW GRATING SUPPORT @ INTERMEDIATE BEAM**      **EXIST CHANNEL @ GRATING INFILL**      **NEW BEAM TO EXIST BEAM @ SLAB/DECK INFILL**

**DETAIL A**      **DETAIL B**      **DETAIL C**      **DETAIL D**      **DETAIL E**      **DETAIL F**

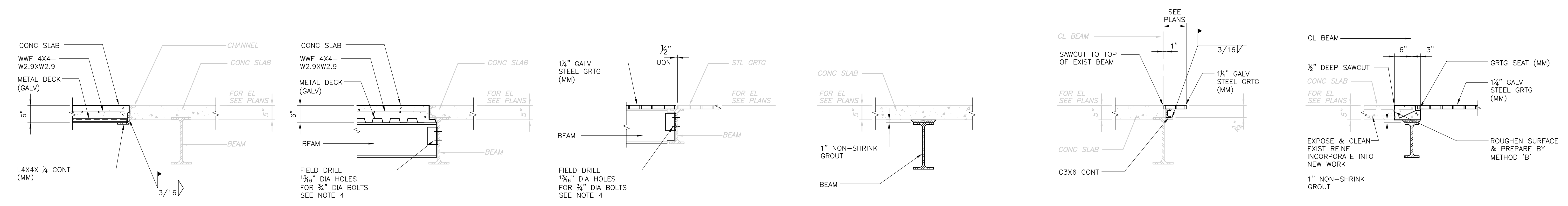
3/4" = 1'-0"      3/4" = 1'-0"      3/4" = 1'-0"      3/4" = 1'-0"      3/4" = 1'-0"      3/4" = 1'-0"



**NEW BEAM TO EXIST BEAM @ SLAB/DECK INFILL**      **NEW BEAM TO EXIST BEAM @ SLAB/DECK INFILL**      **EXIST CHANNEL @ SLAB/DECK INFILL**      **NEW BEAM TO EXIST CHANNEL @ GRATING INFILL**      **EXIST STAIR OPNG @ GRATING INFILL**      **EXIST STAIR OPNG @ GRATING INFILL**

**DETAIL G**      **DETAIL H**      **DETAIL J**      **DETAIL K**      **DETAIL L**      **DETAIL M**

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



**EXIST STAIR OPNG @ SLAB/DECK INFILL**      **EXIST STAIR OPNG @ SLAB/DECK INFILL**      **NEW BEAM TO EXIST BEAM @ GRATING INFILL**      **NEW BEAM UNDER EXIST SLAB**      **NEW GRATING SUPPORT @ HVAC OPNG**      **NEW GRATING SUPPORT @ HVAC OPNG**

**DETAIL N**      **DETAIL P**      **DETAIL Q**      **DETAIL R**      **DETAIL S**      **DETAIL T**

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

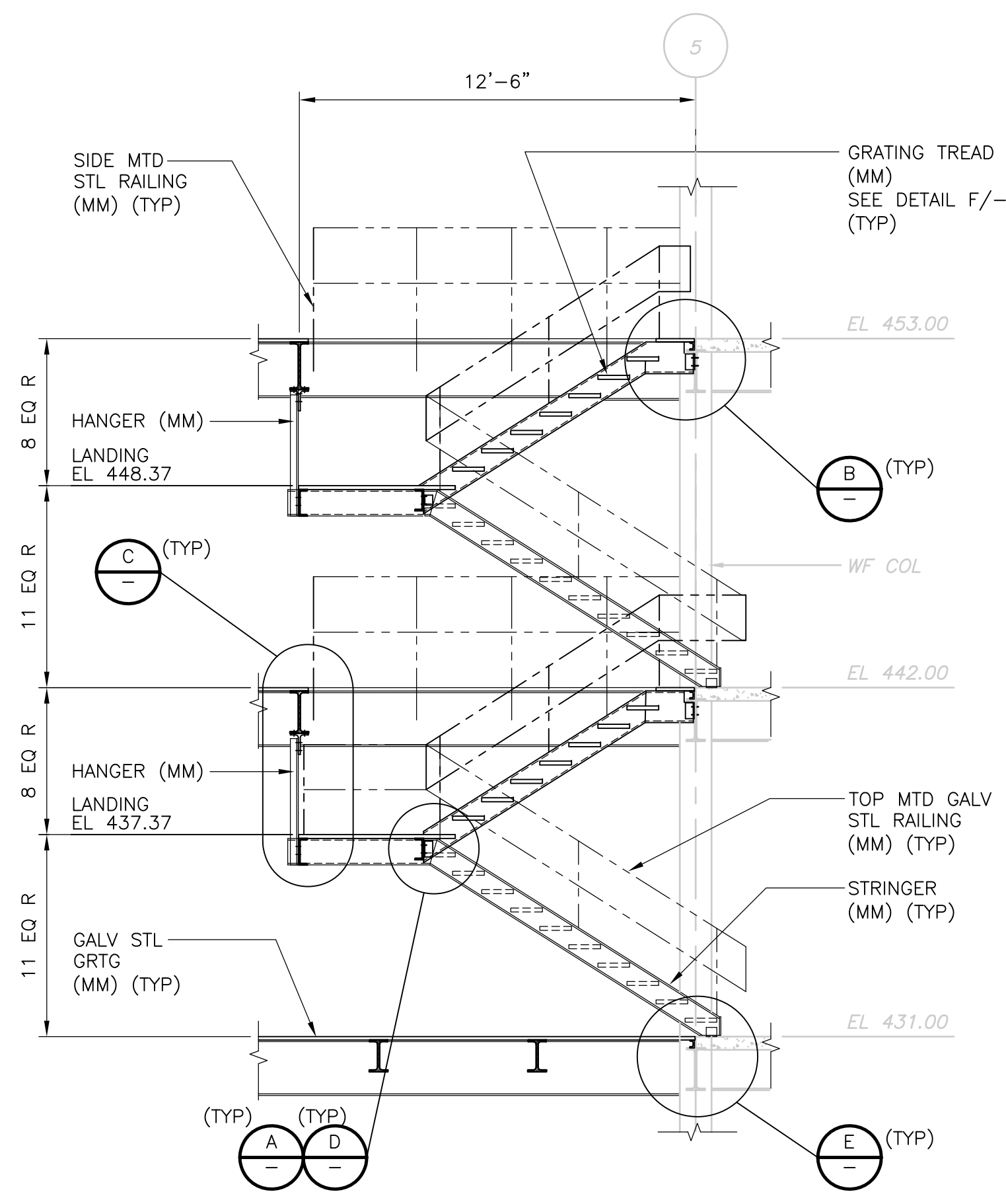
**NOTES:**

- FOR ADDITIONAL NOTES SEE SP-S-3.
- DETAILS SHOWN ARE APPLICABLE ON SHEETS SP-S-3 THRU SP-S-5 AND SP-S-9.
- THE MINIMUM NUMBER OF ROWS OF NEW BOLTS SHALL MATCH EXISTING CONNECTION AND SHALL BE VERIFIED IN THE FIELD. EXISTING BOLTS SHALL BE REMOVED AND REPLACED.
- CONNECTIONS TO EXISTING MEMBERS SHALL BE BASED ON STRUCTURAL STEEL NOTES ON SP-S-3.
- FOR ADDITIONAL STRUCTURAL DETAILS SEE STANDARD DETAIL SHEETS.

RECORD DRAWING      3/4" = 1'-0"

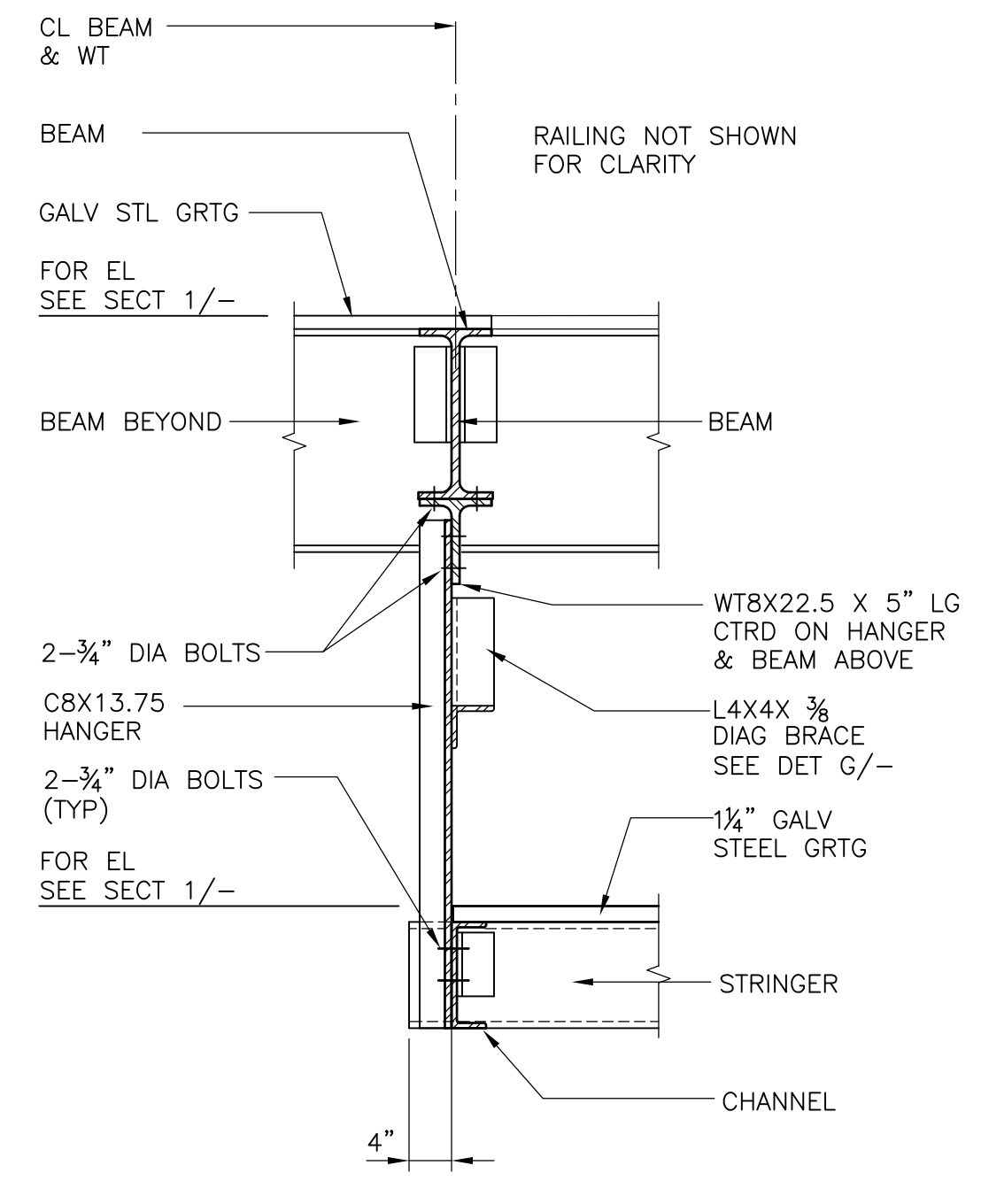
CADD FILE NO. <u>SSPSC001.DWG</u> DESIGNED BY: <u>LUKACS/PAPA</u> DRAWN BY: <u>B.S. HORNER</u> SHEET CHK'D BY: <u>J. FOREHAND</u> SCALE: <u>AS NOTED</u> APPROVED BY: <u>D.L. HARRIS</u> DATE: <u>MAY 2006</u>					UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY                  IMPROVEMENTS</b>	PROJECT NO. 1289\35370  Sht. 120 of 386  <b>SP-S-6</b>
REV. NO.      DATE      DRWN      CHKD      REMARKS	3/07      SPV      ADT      NO REVISION REQUIRED FOR THE RECORD					

UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:22:56 PM  
 Xref's: [C24X38H, MSPWP005, MSPWP004, HINPL003, SSPPL301, ]  
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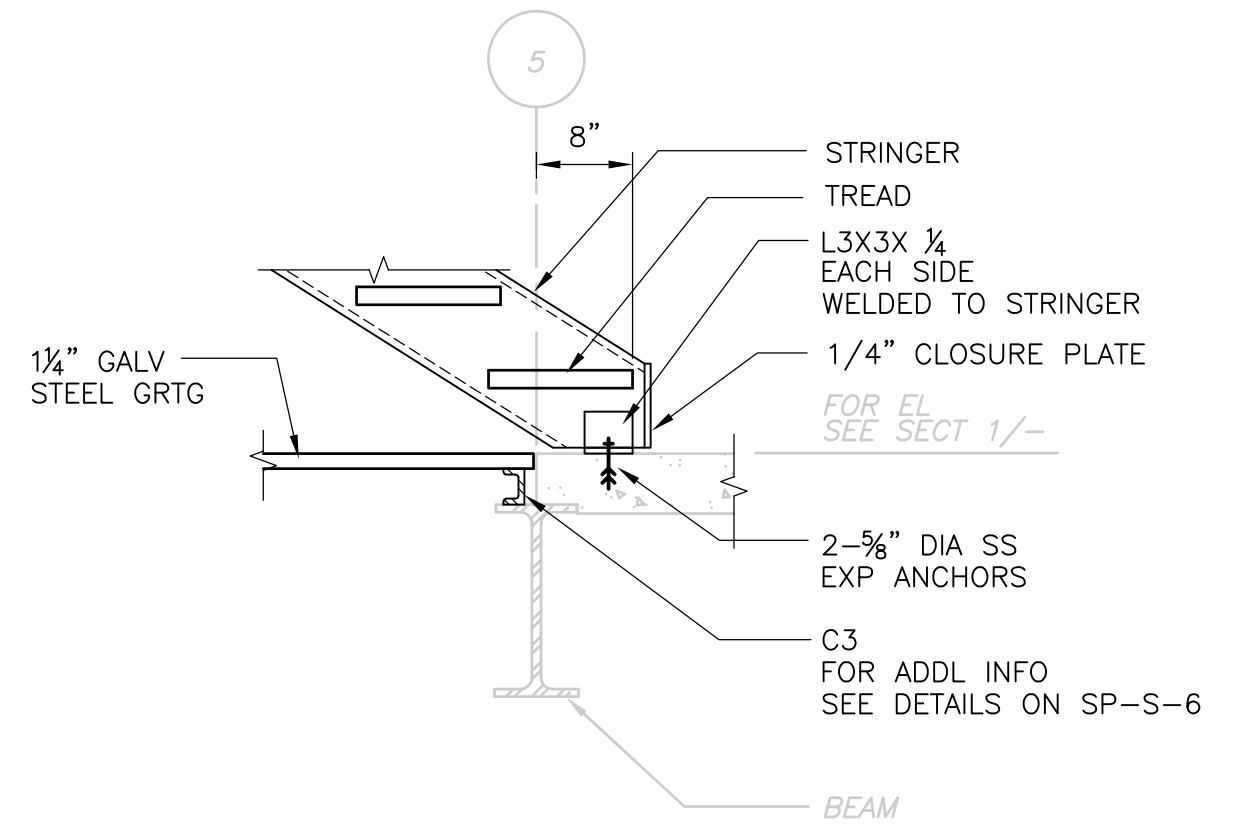
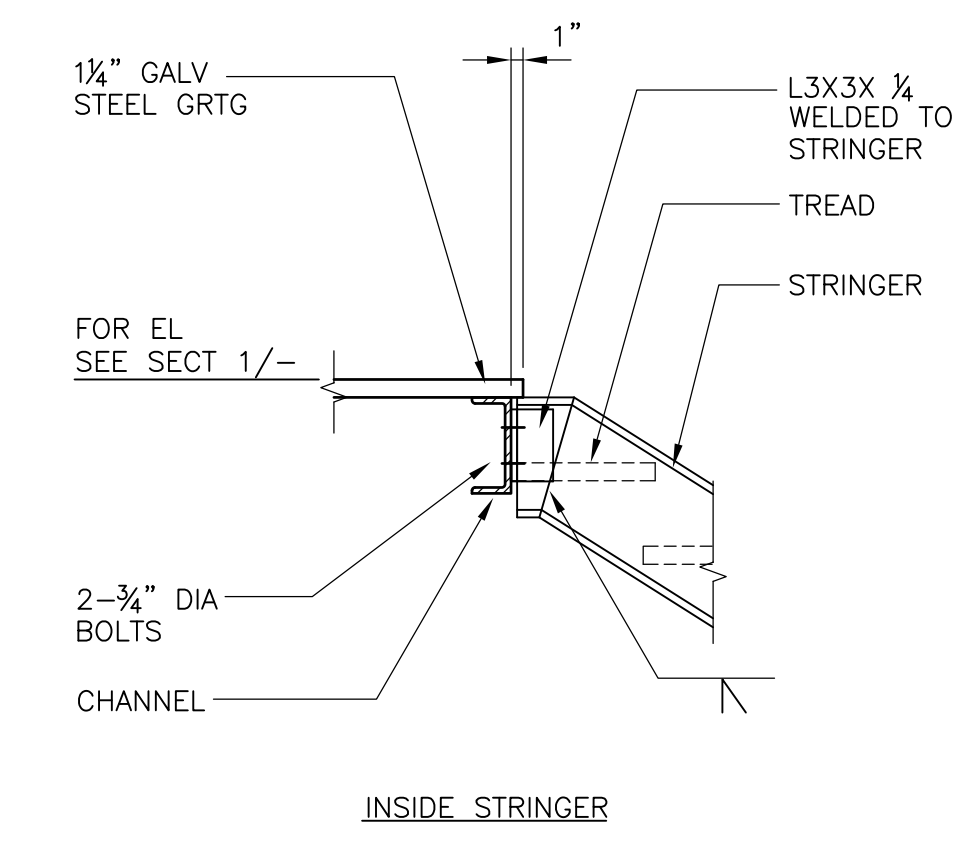
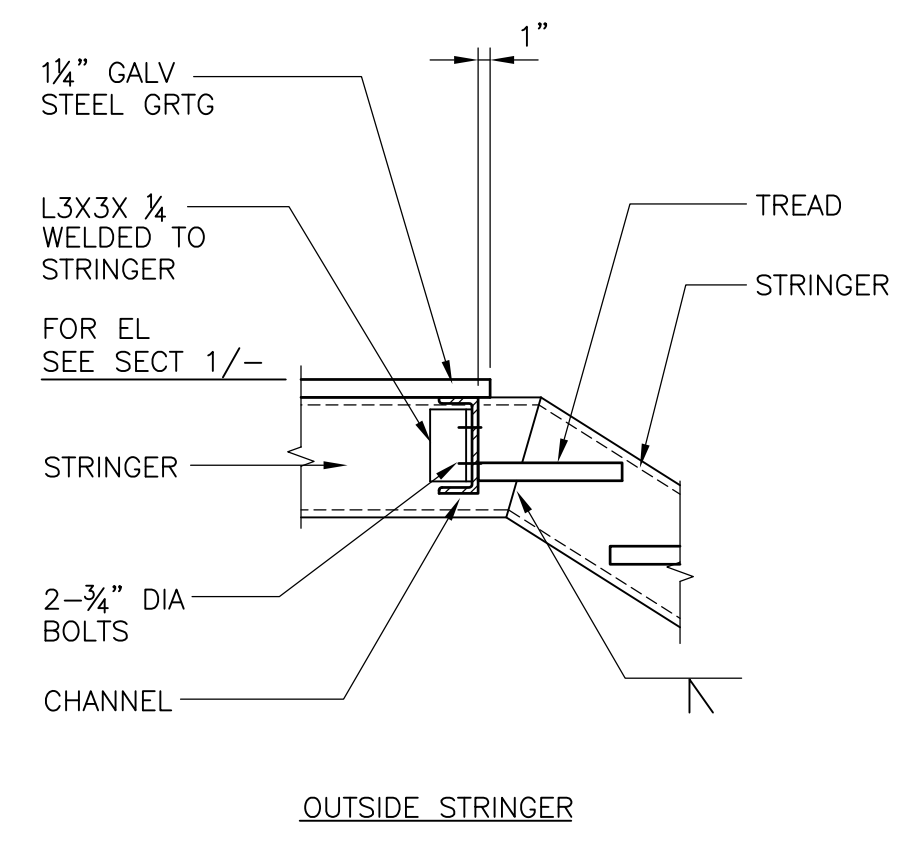
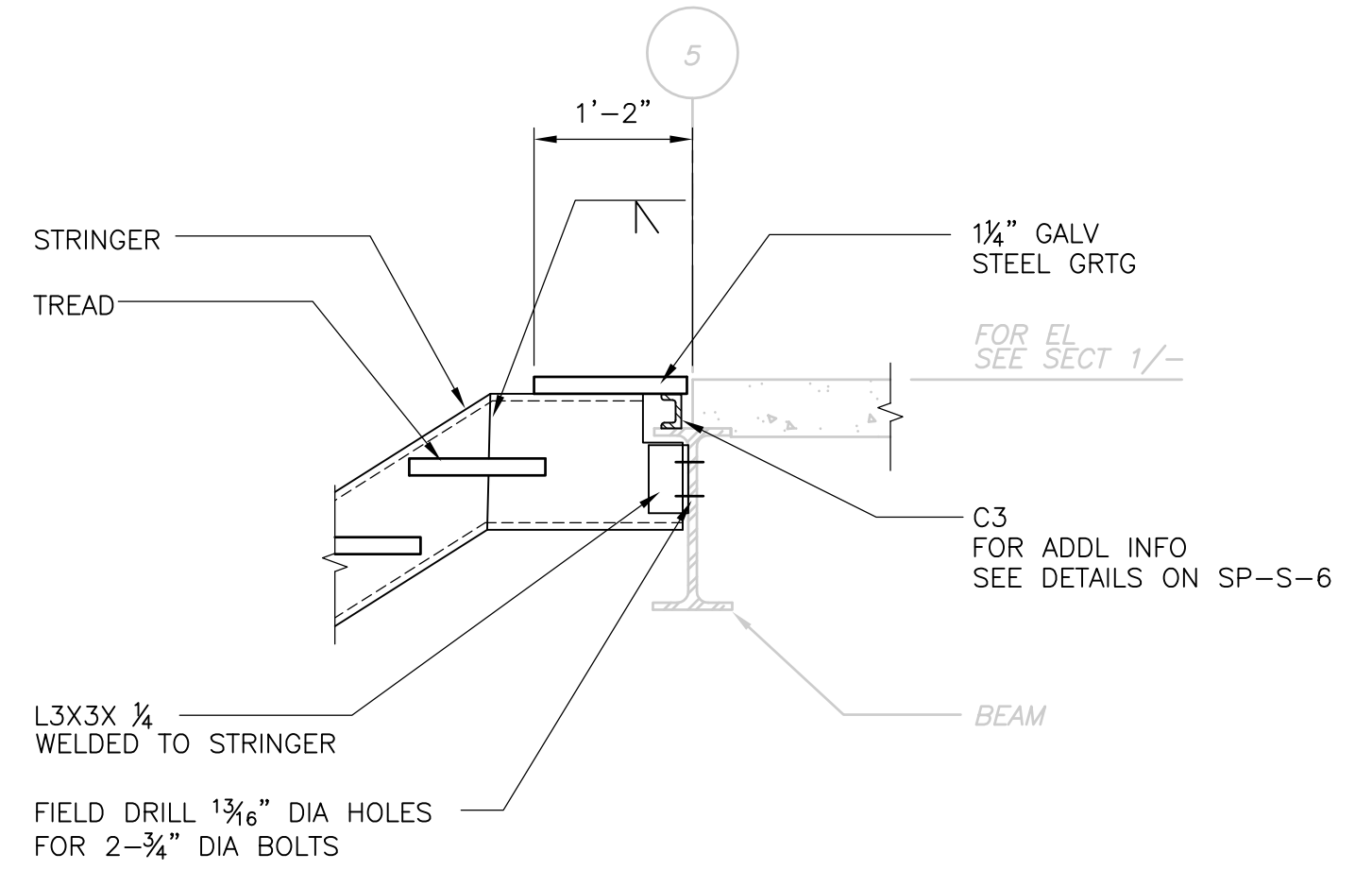
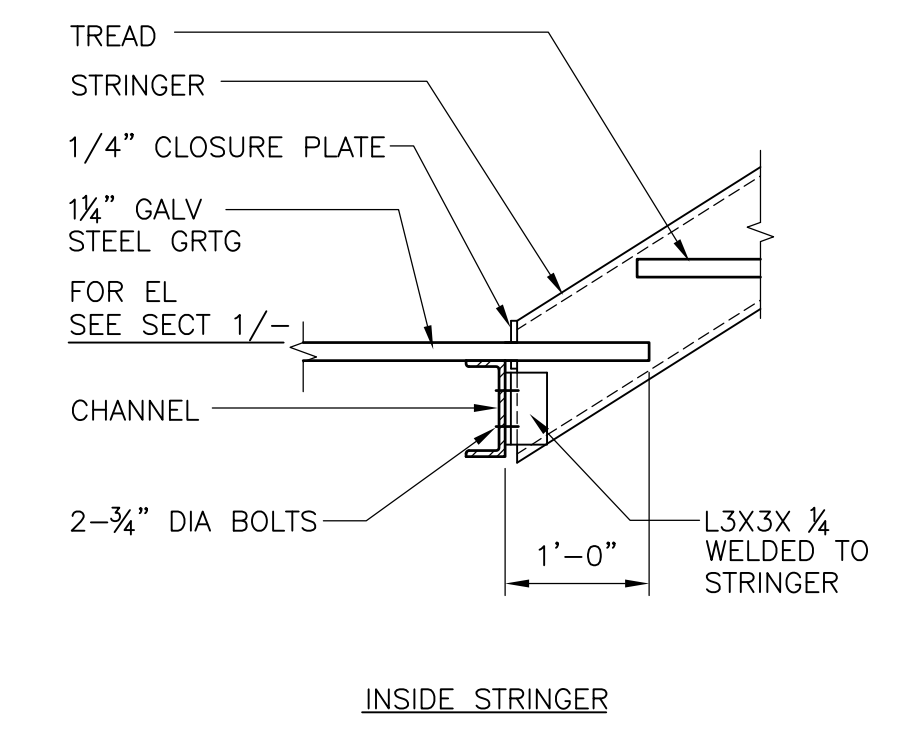
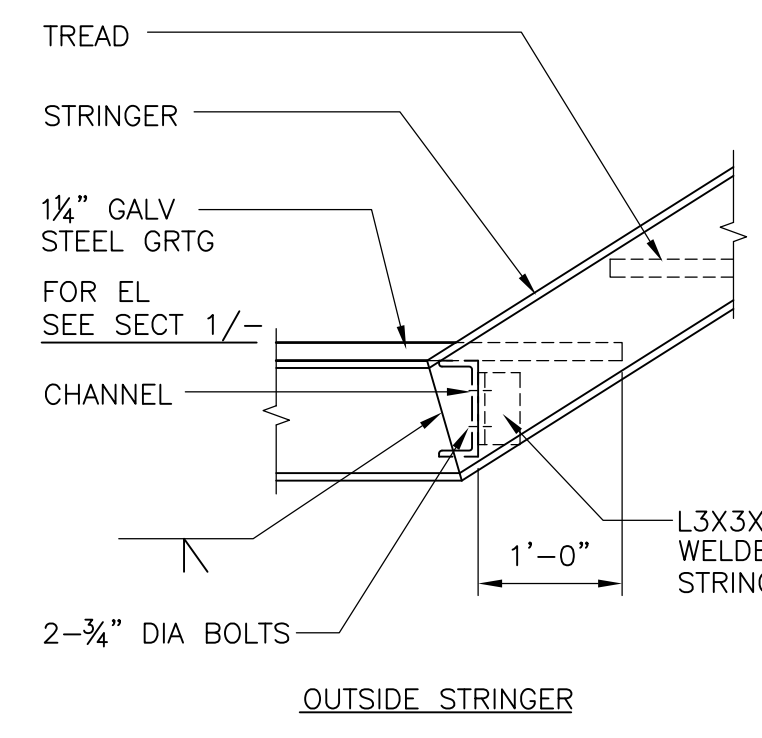


NOTE:  
 ALL STAIR CONSTRUCTION COMPRISED OF STRINGERS, HANGERS, CHANNELS, GRATING, RAILING AND THEIR COMPONENTS SHALL BE GALVANIZED AND SUPPLIED AS PART OF SPEC SECTION 05500 (MISCELLANEOUS METALS).

**TYPICAL STAIR SECTION 1**  
 1/4" = 1'-0" SP-S-4

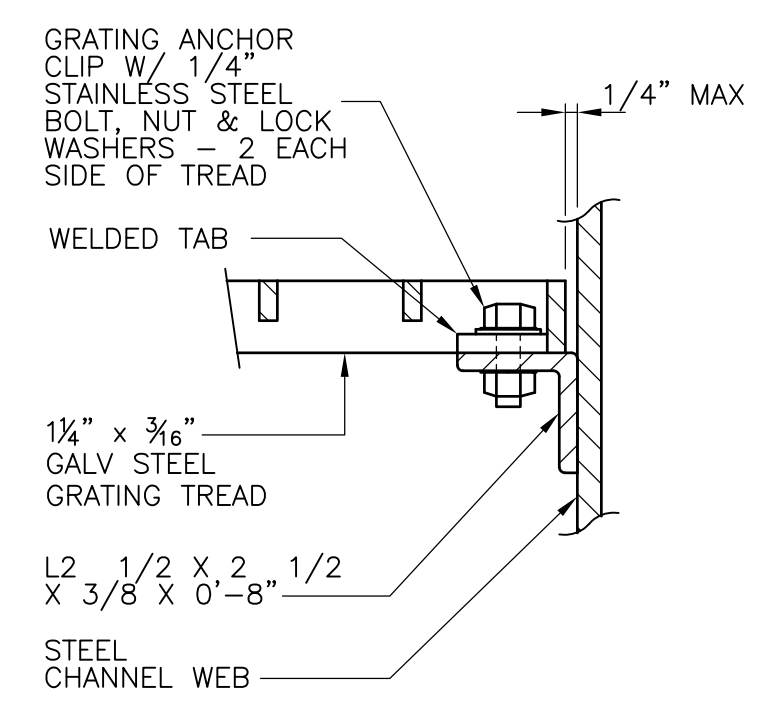


**◎ SUPPORT HANGER DETAIL C**  
 3/4" = 1'-0"

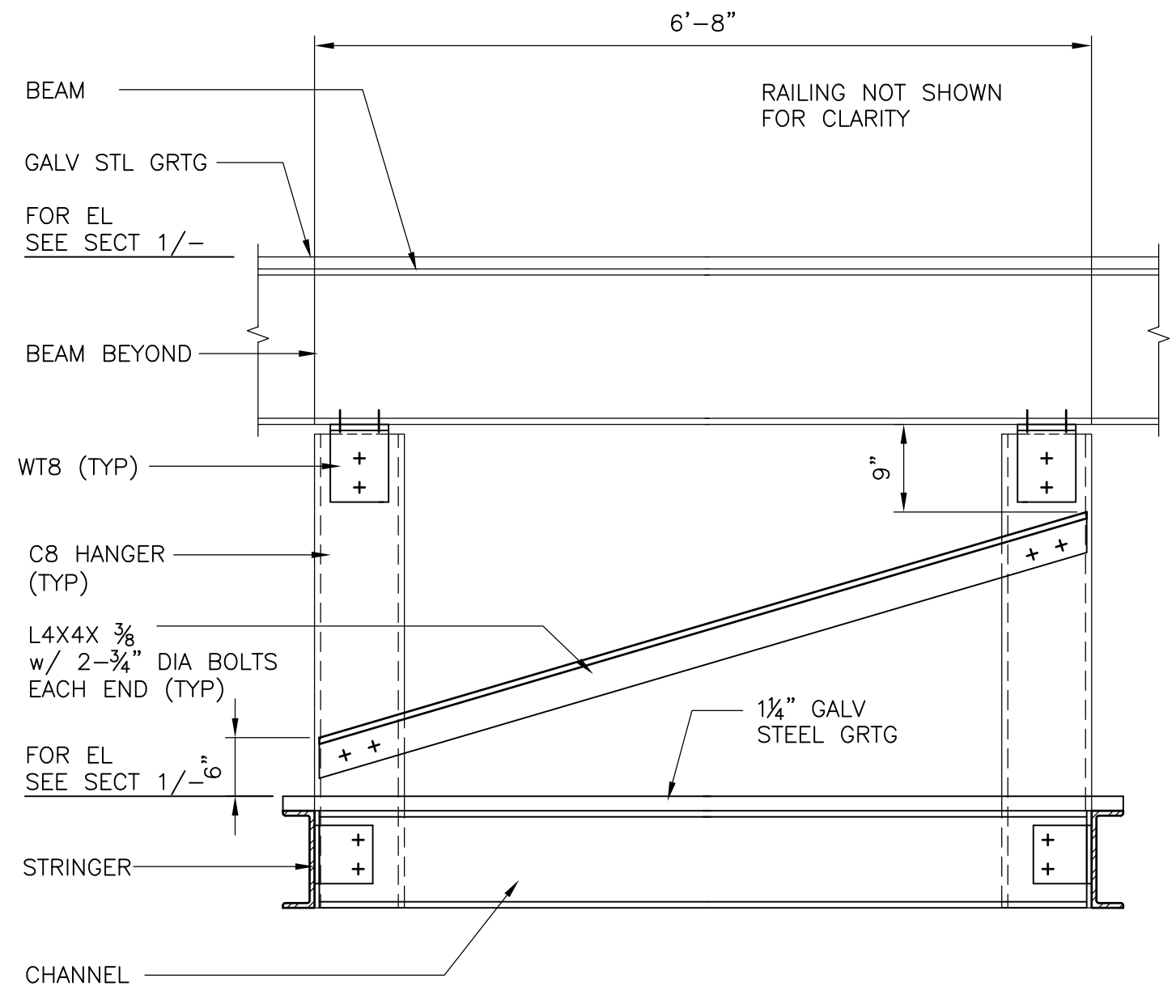


**DOWN FROM LANDING DETAIL D**  
 3/4" = 1'-0"

**◎ BOTTOM OF STAIR RUN DETAIL E**  
 3/4" = 1'-0"



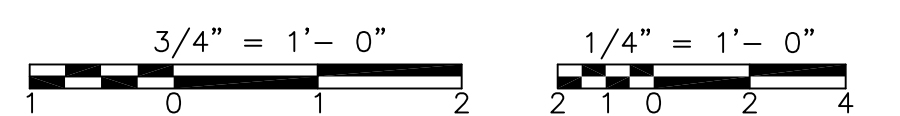
**GRATING STAIR TREAD DETAIL F**  
 NTS



**◎ DIAGONAL BRACE DETAIL G**  
 3/4" = 1'-0"

NOTES:  
 1. FOR NOTES SEE SP-S-3.

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSPSC002.DWG
DESIGNED BY:	E. LUKACS
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	J. FOREHAND
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

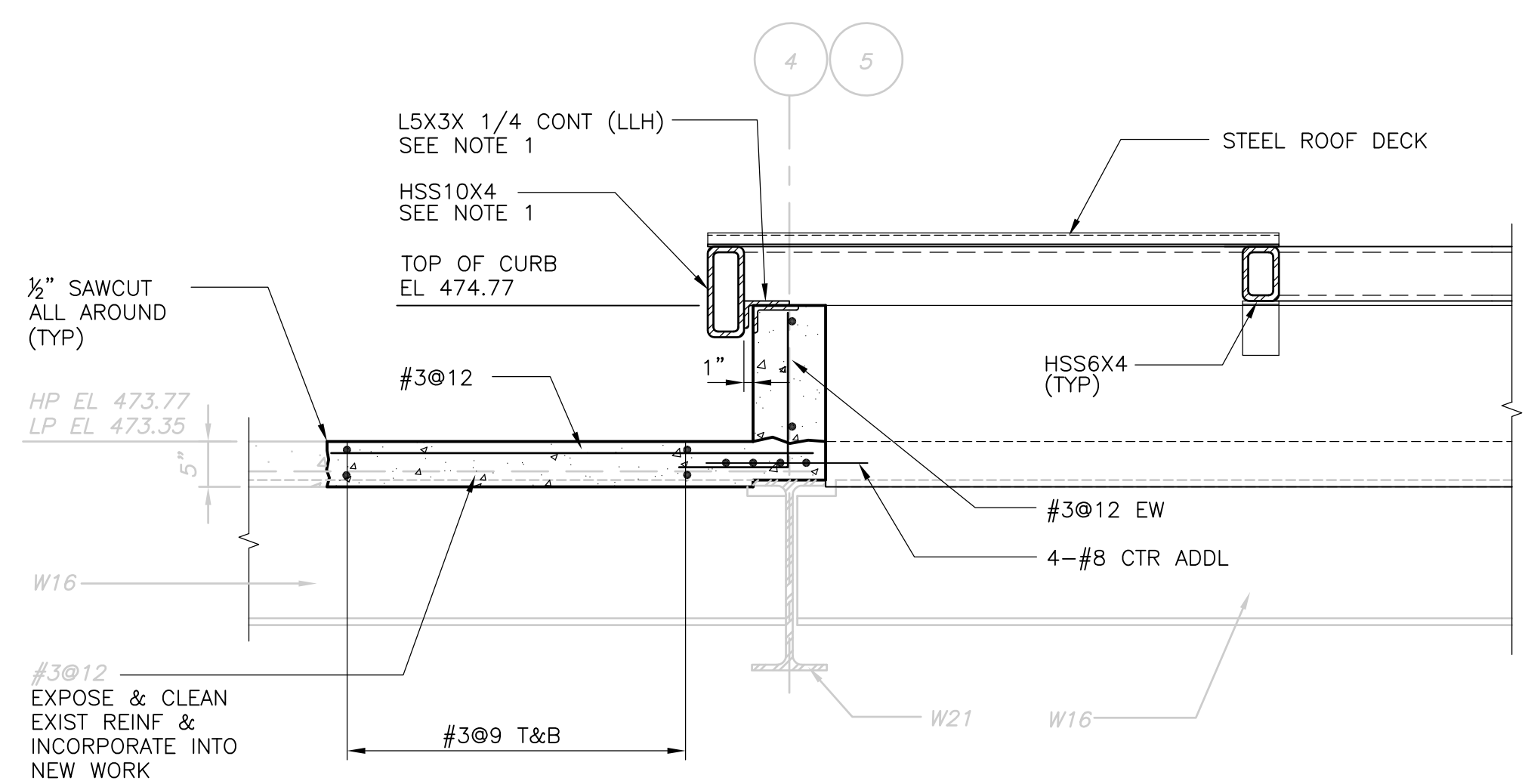
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

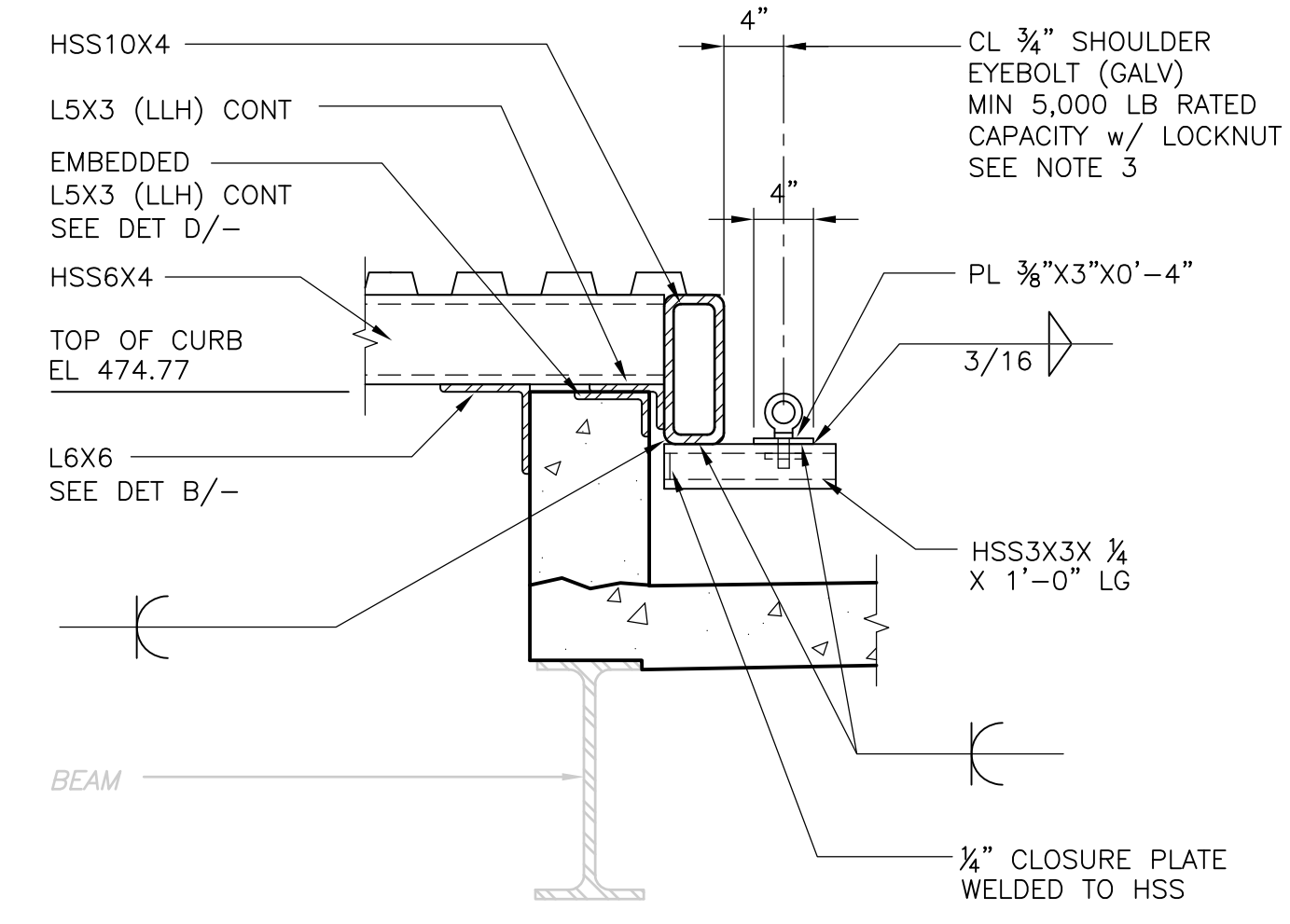
**INCINERATOR BUILDING SECTIONS AND DETAILS II**

PROJECT NO. 1289\35370  
 Sht. 121 of 386  
**SP-S-7**

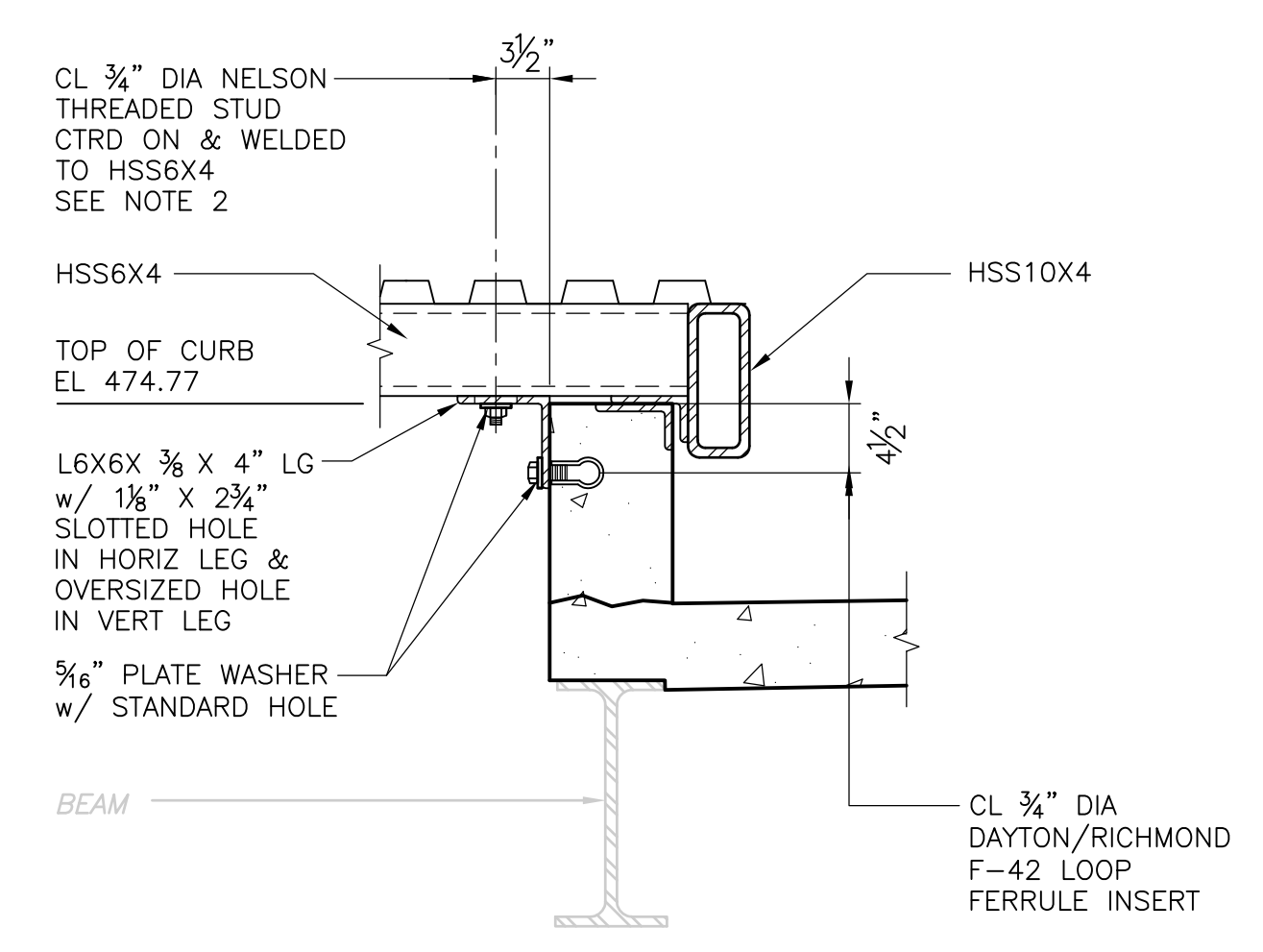
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 [UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]



FOR WELDING INFORMATION  
 SEE SECT 2/-  
**SECTION 1**  
 3/4" = 1'-0" SP-S-5

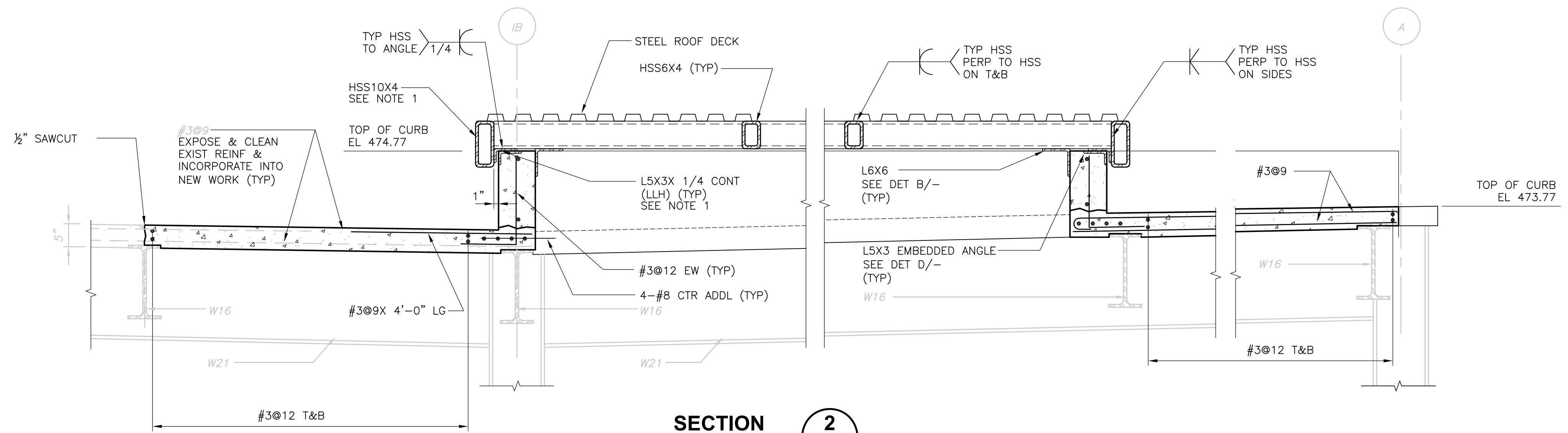


FOR ADDL INFO  
 SEE SECT 2/-  
**OUTRIGGER (TYP 4 LOCS)**  
**DETAIL A**  
 1" = 1'-0" SP-S-5

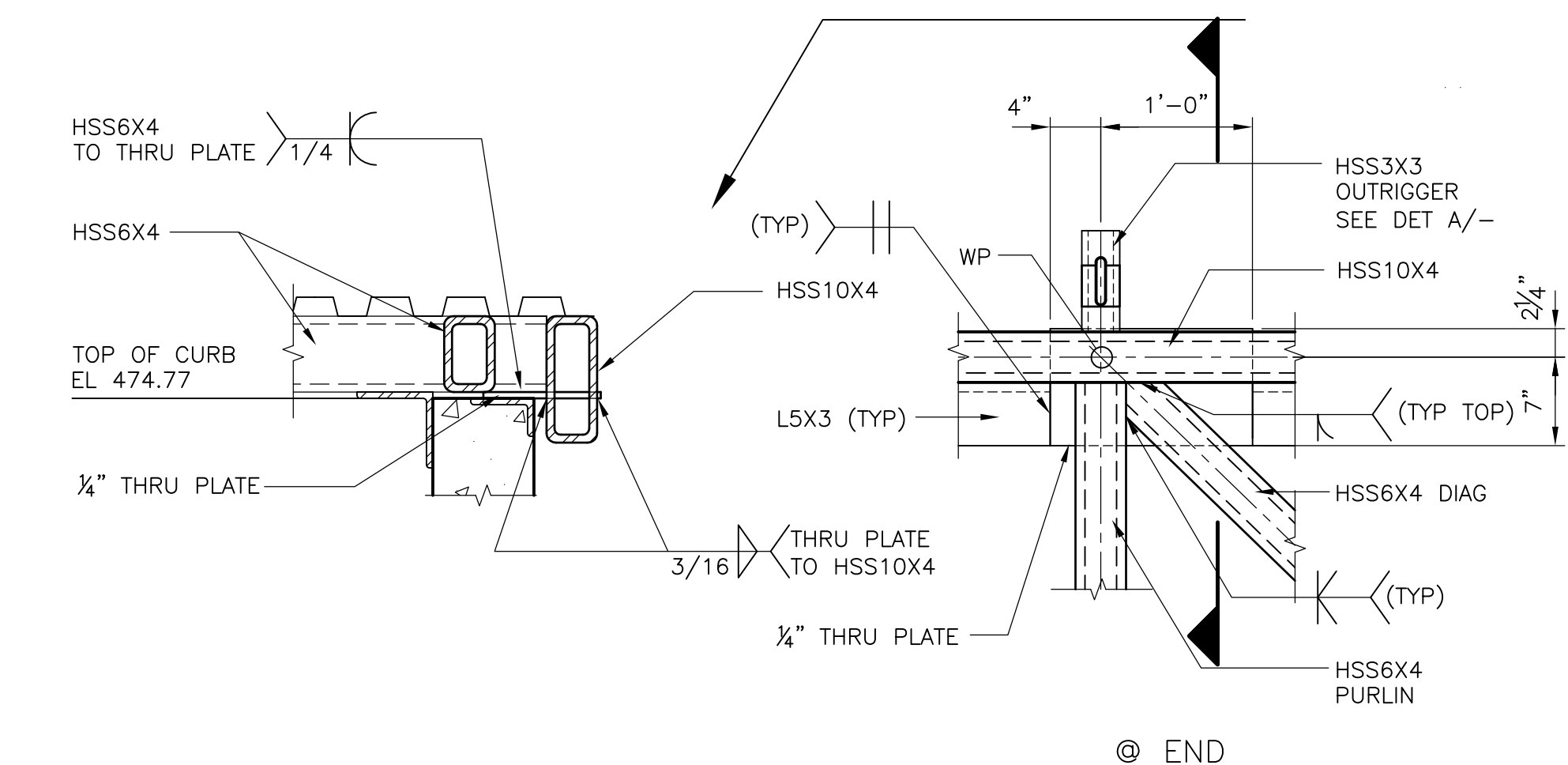


FOR ADDL INFO  
 SEE SECT 2/-  
**PURLIN ANCHORAGE @ EACH END**  
**DETAIL B**  
 1" = 1'-0" SP-S-5

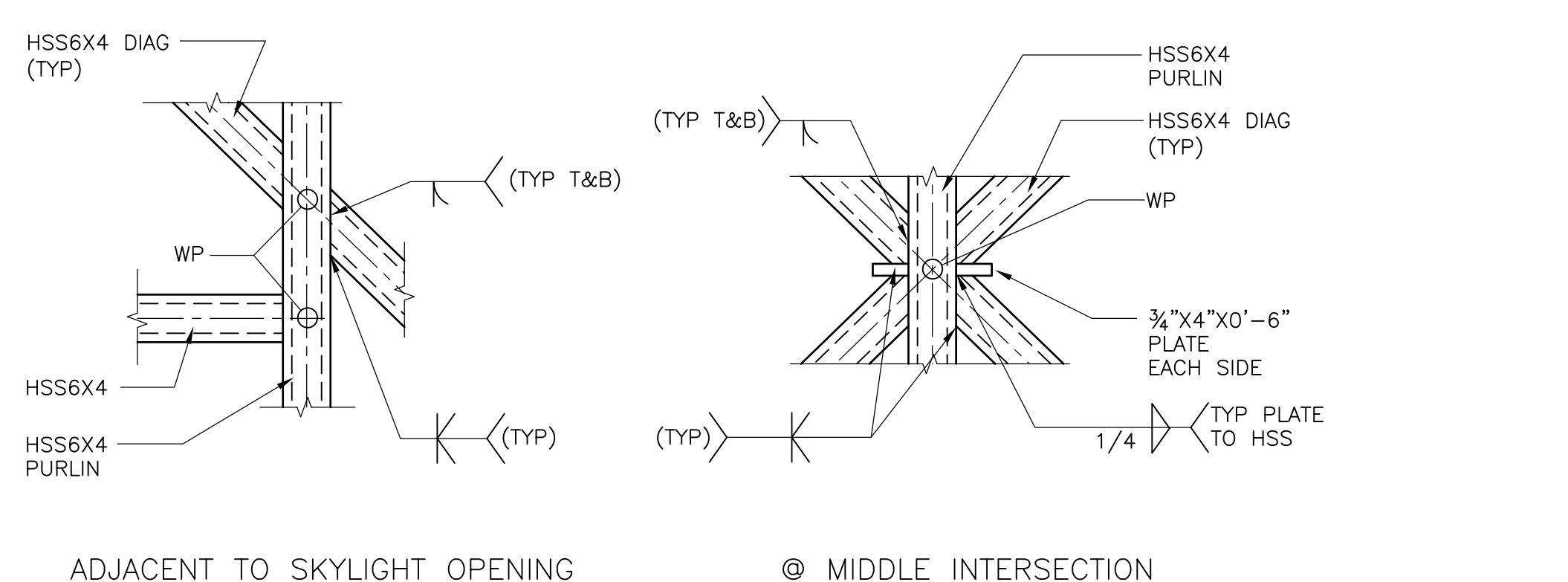
- NOTES:**
1. MITERED AND WELDED AT CORNERS.
  2. REMOVE GALVANIZING PRIOR TO WELDING AND TOUCH-UP AS SPECIFIED AFTER WELDING.
  3. LOCKNUT SHALL BE HEAVY HEX, REUSABLE AND NOT DAMAGE THREADS OF EYEBOLT OR NUT.
- REMOVABLE ROOF PANEL NOTES**
1. DO NOT SUPPORT PIPING, DUCTS, CONDUIT OF ANY OTHER CONSTRUCTION FROM REMOVABLE ROOF PANEL.
  2. WEIGHT OF REMOVABLE ROOF PANEL (STEEL FRAMING, STEEL DECK AND ROOFING) APPROXIMATELY 9,000 LBS.
  3. REMOVABLE ROOF PANEL AND COMPONENTS HAVE BEEN DESIGNED FOR STRAIGHT VERTICAL TENSILE LOADS DUE TO LIFTING. USE SPREADER BEAMS WHEN LIFTING AND HANDLING REMOVABLE ROOF PANEL TO ENSURE STRAIGHT VERTICAL TENSILE LOADS. REMOVE SNOW AND ICE AND OTHER LOADS PRIOR TO LIFTING.



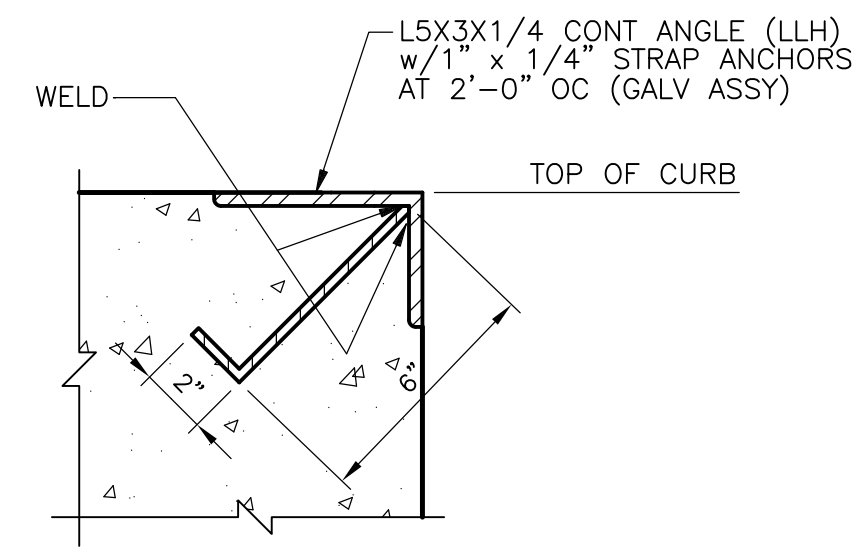
**SECTION 2**  
 3/4" = 1'-0" SP-S-5



REMOVABLE ROOF PANEL DIAGONAL CONNECTIONS  
**DETAIL C**  
 1" = 1'-0" SP-S-5



EMBEDDED ANGLE  
**DETAIL D**  
 NTS



RECORD DRAWING  
 1" = 1'-0" 3/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

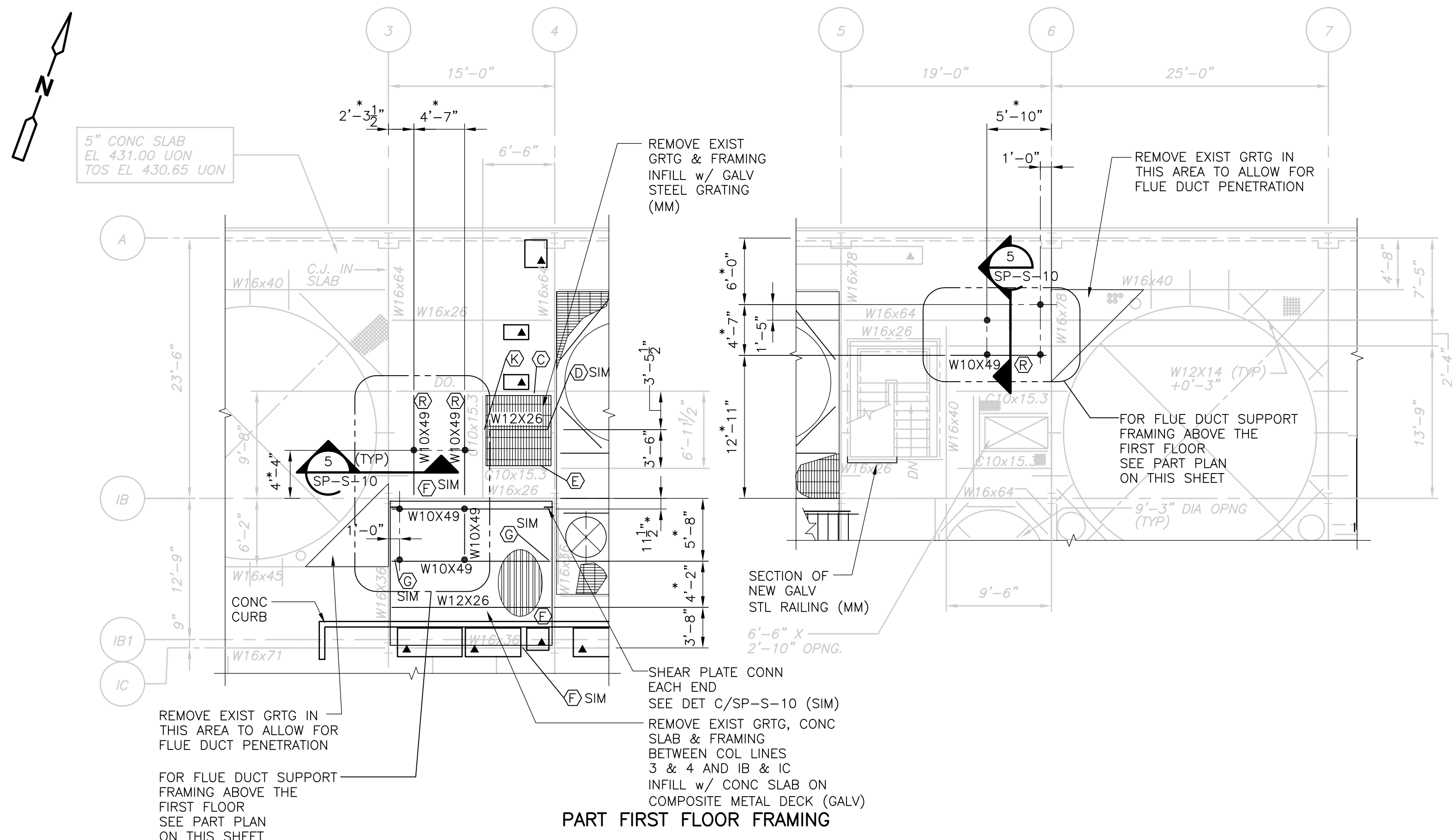
CADD FILE NO. SSPSC003.DWG  
 DESIGNED BY: M.J. ASHE  
 DRAWN BY: B.S. HORNER  
 SHEET CHK'D BY: R. ZECHMANN  
 SCALE: AS NOTED  
 APPROVED BY: D.L. HARRIS  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

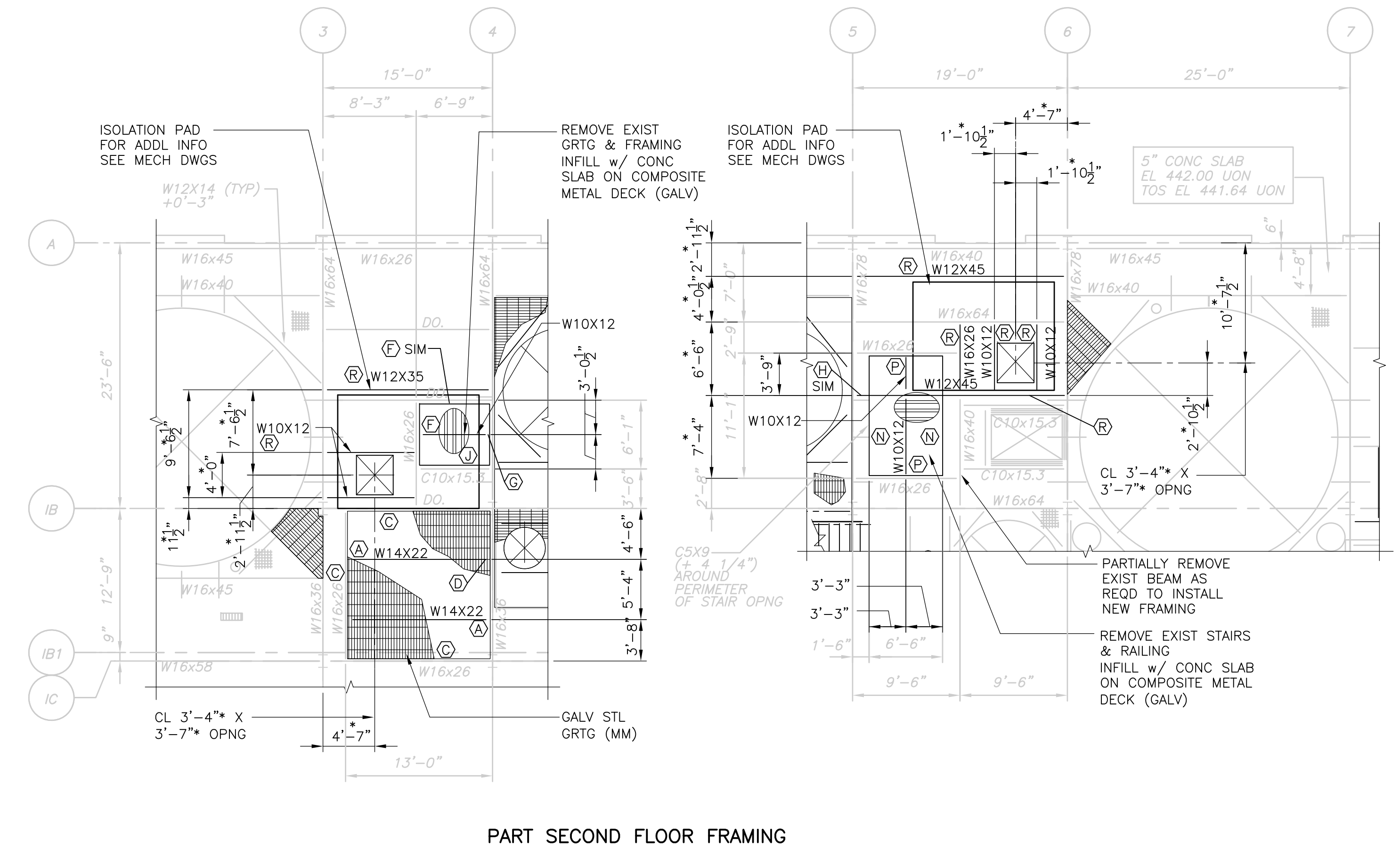
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**INCINERATOR BUILDING**  
**SECTIONS AND DETAILS III**  
**SP-S-8**

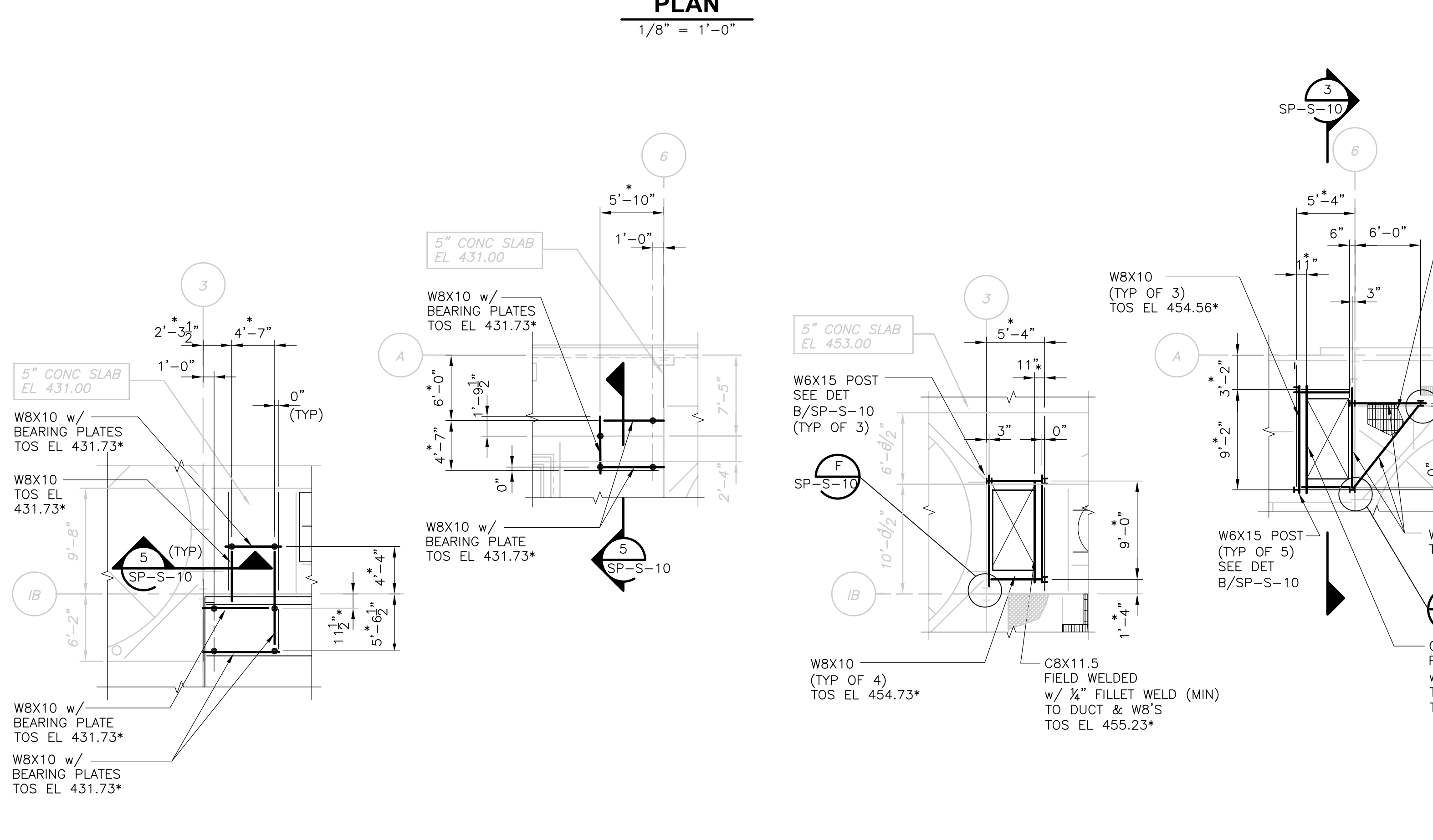
PROJECT NO. 1289\35370  
 Sht. 122 of 386  
 ACCESSION NO. 1289-65922



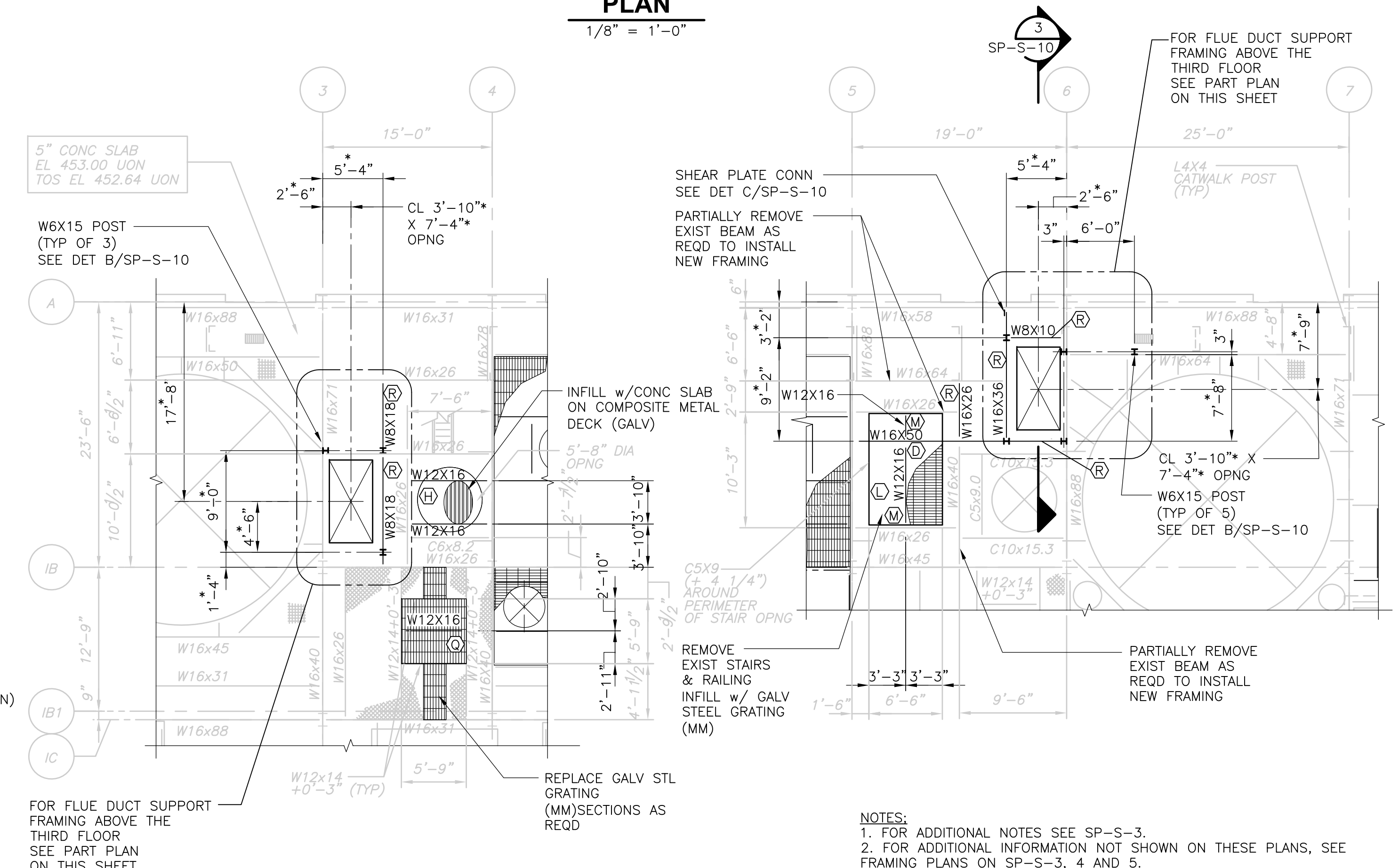
**PART FIRST FLOOR FRAMING**  
**PLAN**  
 1/8" = 1'-0"



**PART SECOND FLOOR FRAMING**  
**PLAN**  
 1/8" = 1'-0"



**FLUE DUCT SUPPORT ABOVE FIRST FLOOR**  
**PLAN**  
 1/8" = 1'-0"



**PART THIRD FLOOR FRAMING**  
**PLAN**  
 1/8" = 1'-0"

- NOTES:**
1. FOR ADDITIONAL NOTES SEE SP-S-3.
  2. FOR ADDITIONAL INFORMATION NOT SHOWN ON THESE PLANS, SEE FRAMING PLANS ON SP-S-3, 4 AND 5.
  3. • INDICATES BEARING PLATE SUPPORT LOCATIONS. SEE SECTION 5/SP-S-10.
  4. ALL FRAMING BELOW THE FLOORS SHALL BE INSTALLED PRIOR TO FLUE DUCT INSTALLATION.

RECORD DRAWING  
 1/8" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSPPL401.DWG
DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHKD BY:	J. FOREHAND
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

CDM	Camp Dresser & McKee Inc.
consulting	engineering
architecture	construction
operations	

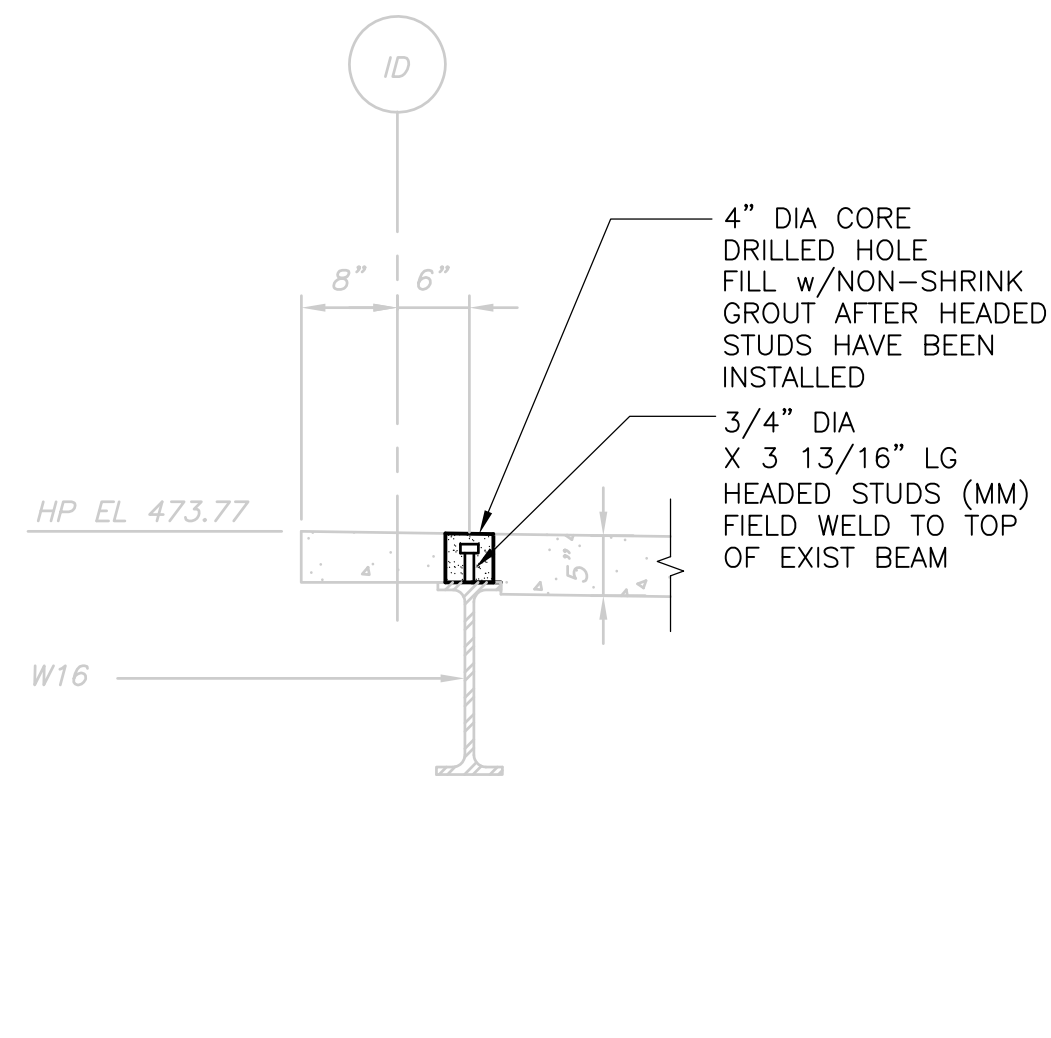
UPPER BLACKSTONE	WATER POLLUTION ABATEMENT DISTRICT	CONTRACT No. UB 2024
<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		

<b>INCINERATOR BUILDING</b>	
<b>PART PLANS</b>	
<b>SP-S-9</b>	

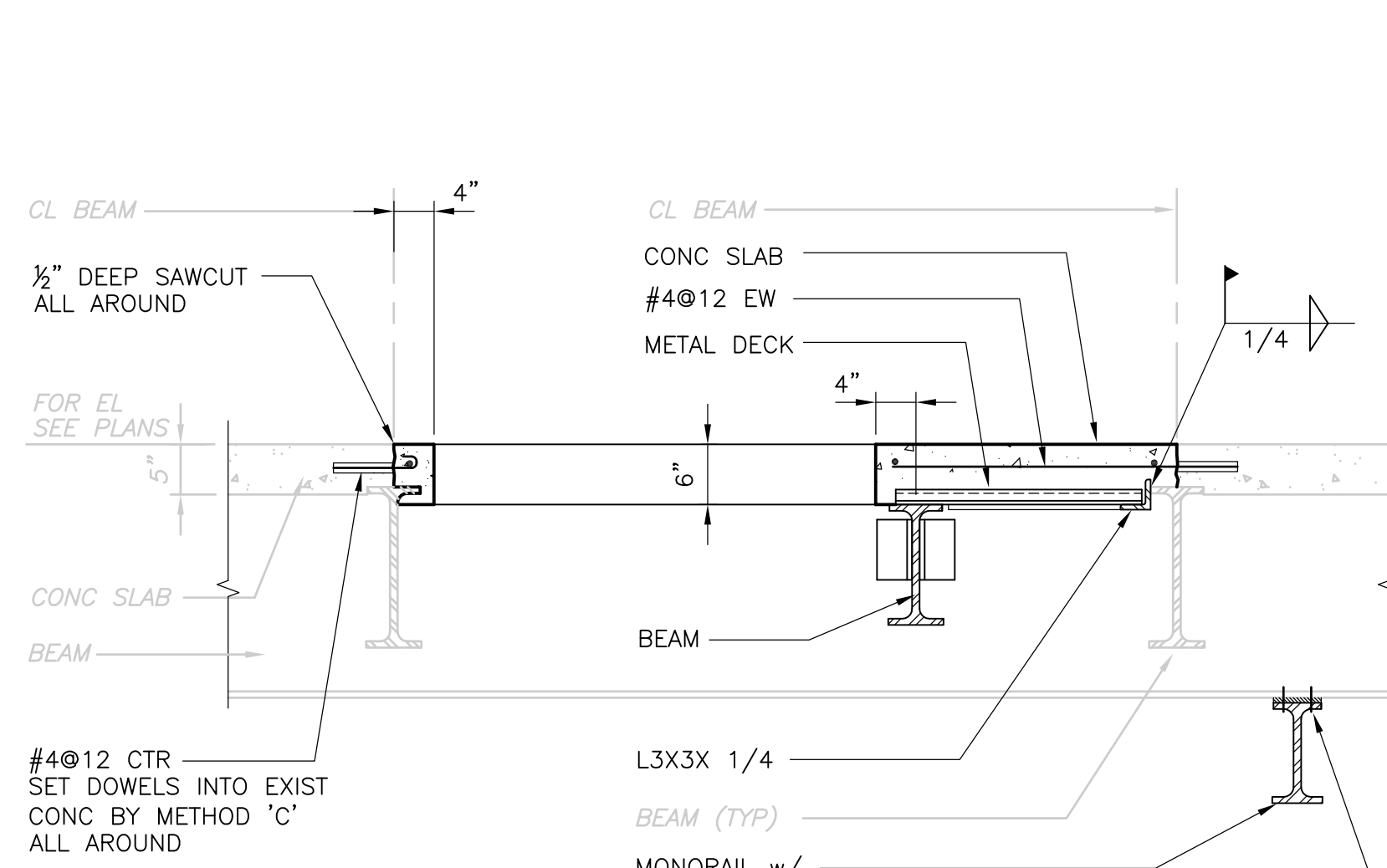
PROJECT NO.	1289\35370
Sht.	123 of 386
ACCESSION NO.	1289-65923



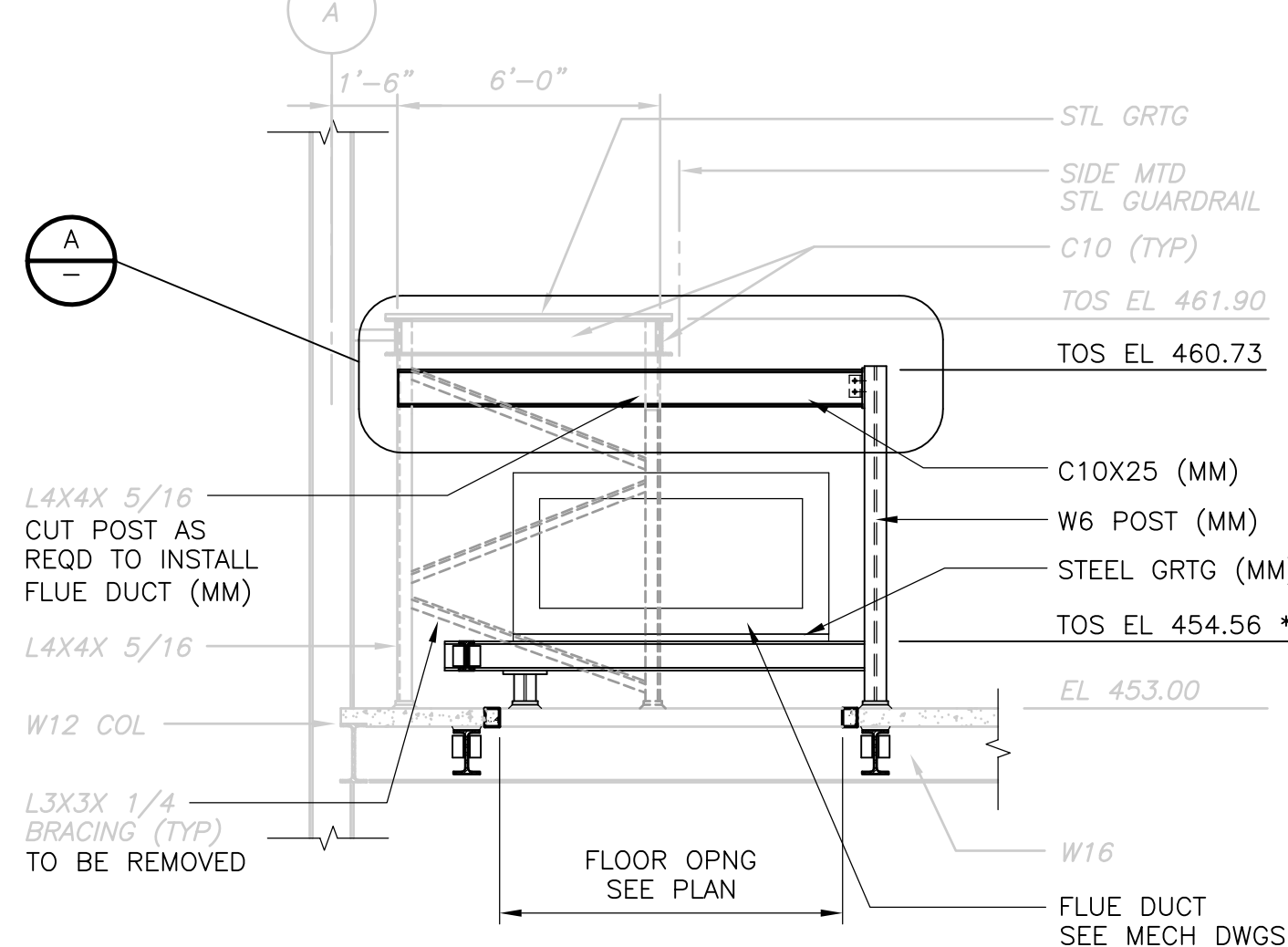
[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Xref's: [C24X38H, MSPWP005, MSPWP004, HINPL003, SSPPL301, ] Plotted by: CROSSIA Time: 12/16/08 6:23:06 PM  
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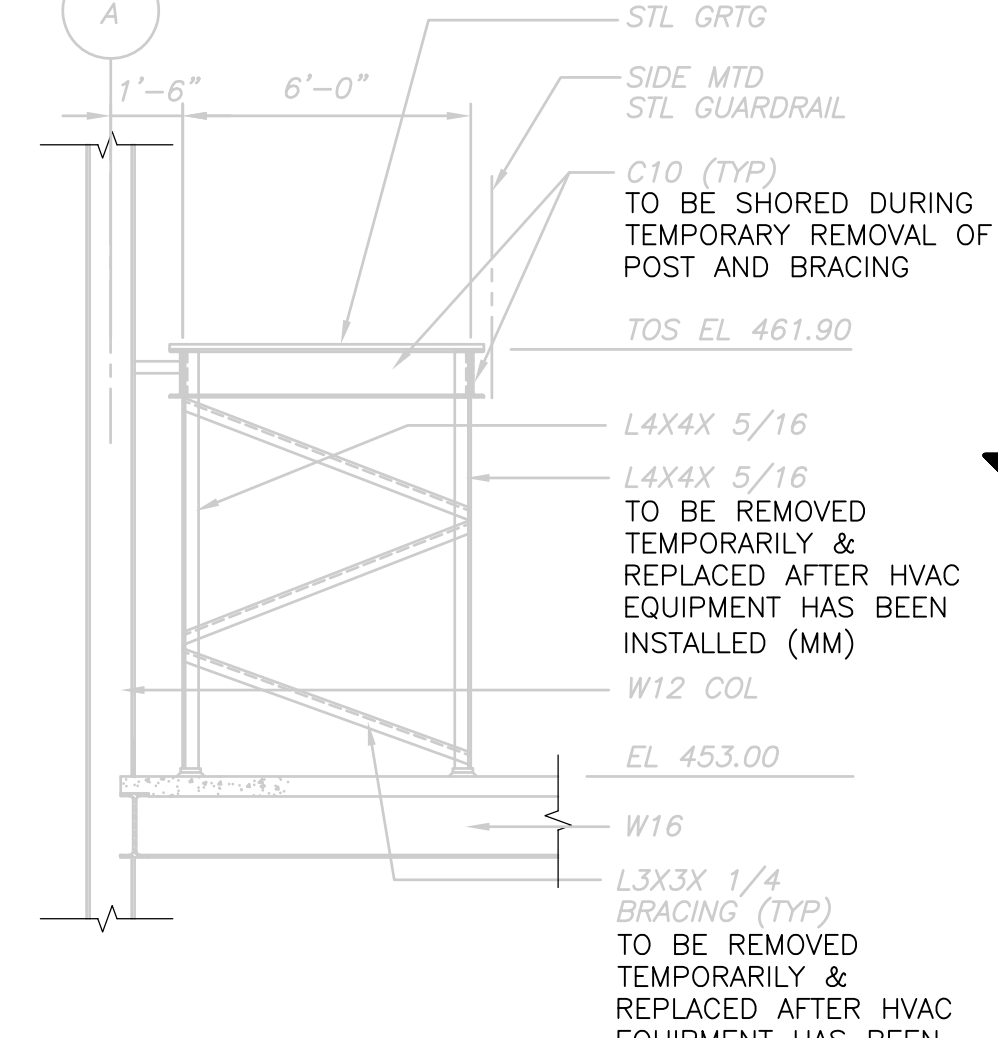
**SECTION 1**  
3/4" = 1'-0"  
SP-S-5



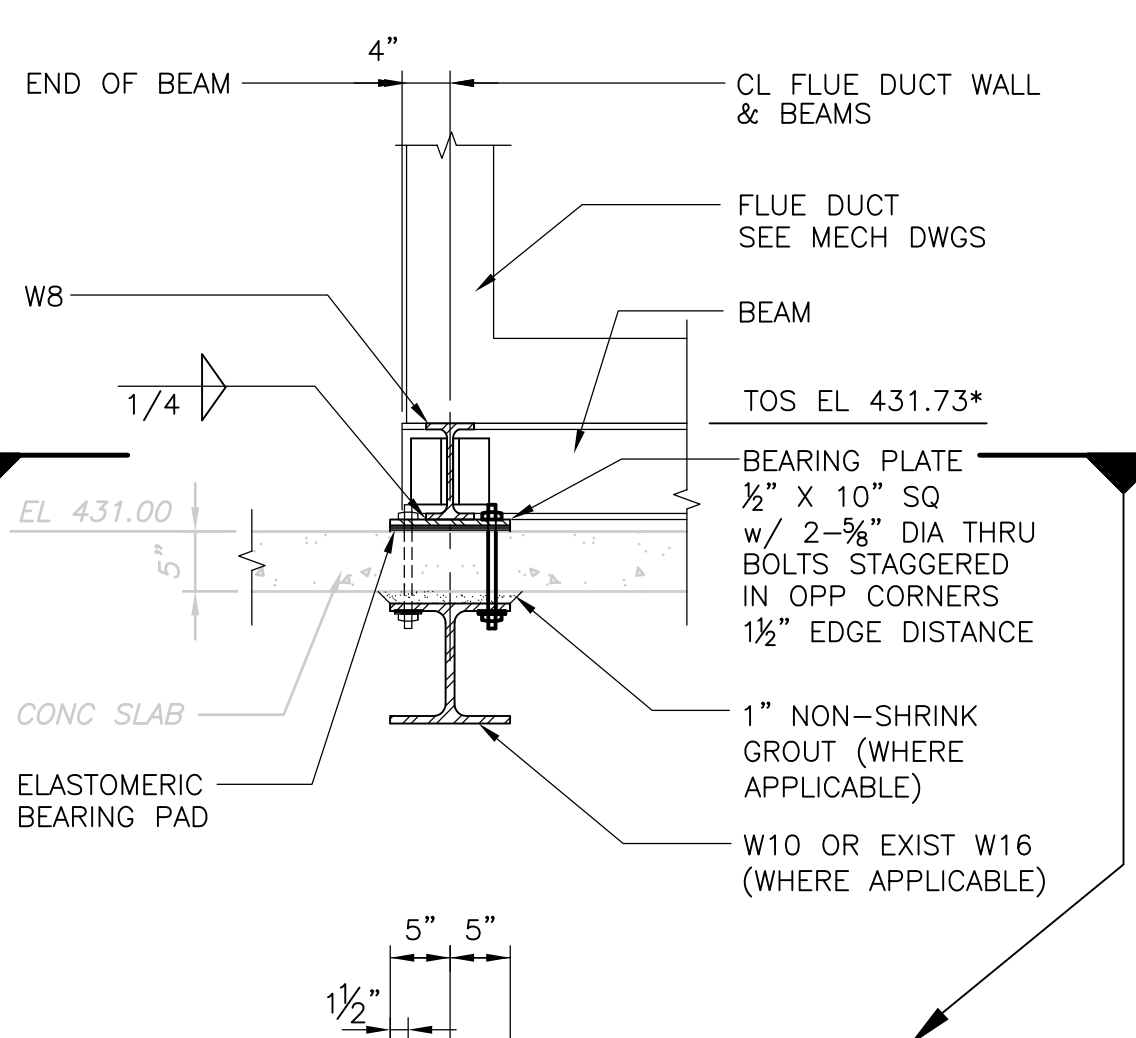
**SECTION 2**  
3/4" = 1'-0"  
SP-S-5



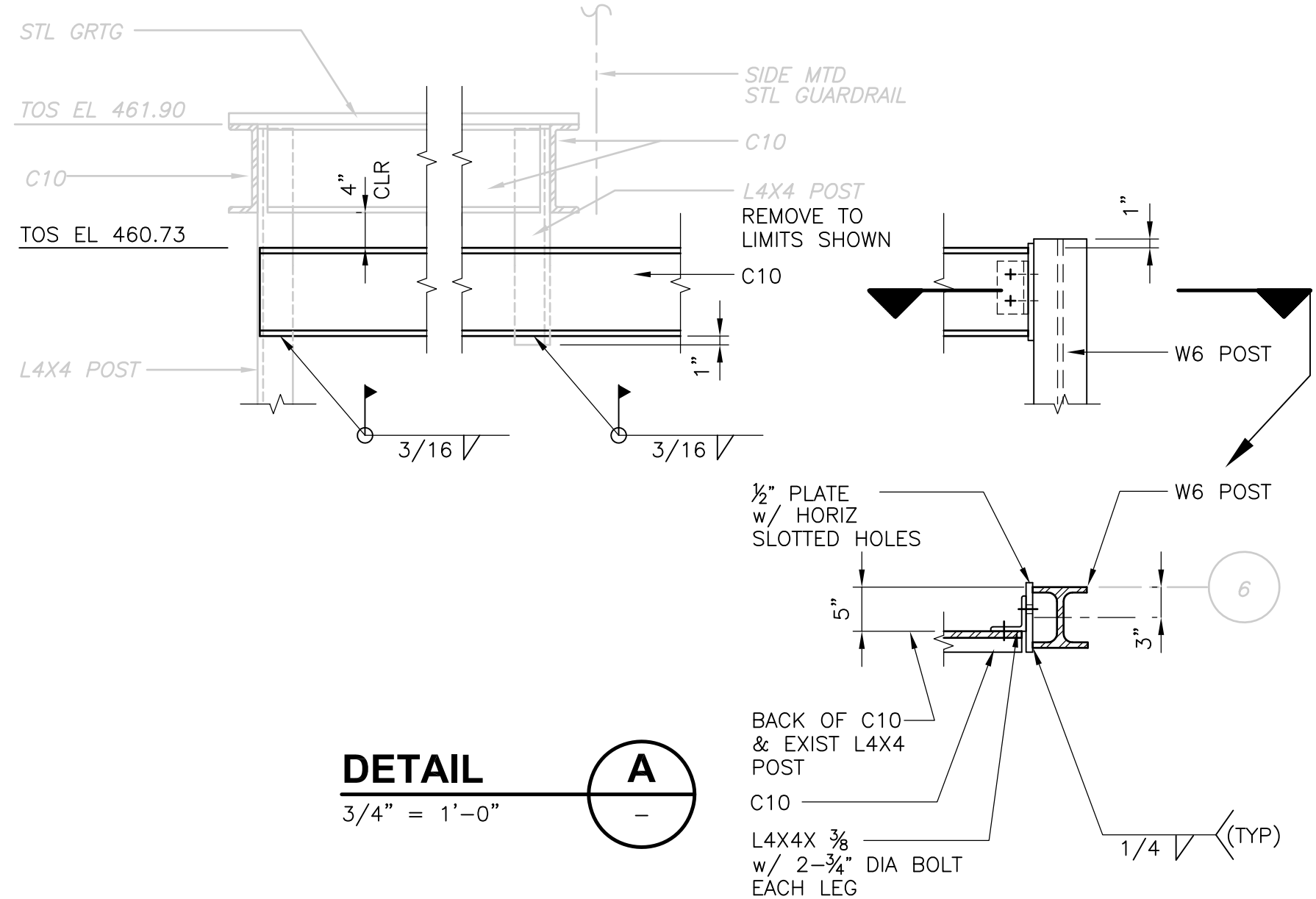
**SECTION 3**  
1/4" = 1'-0"  
SP-S-9



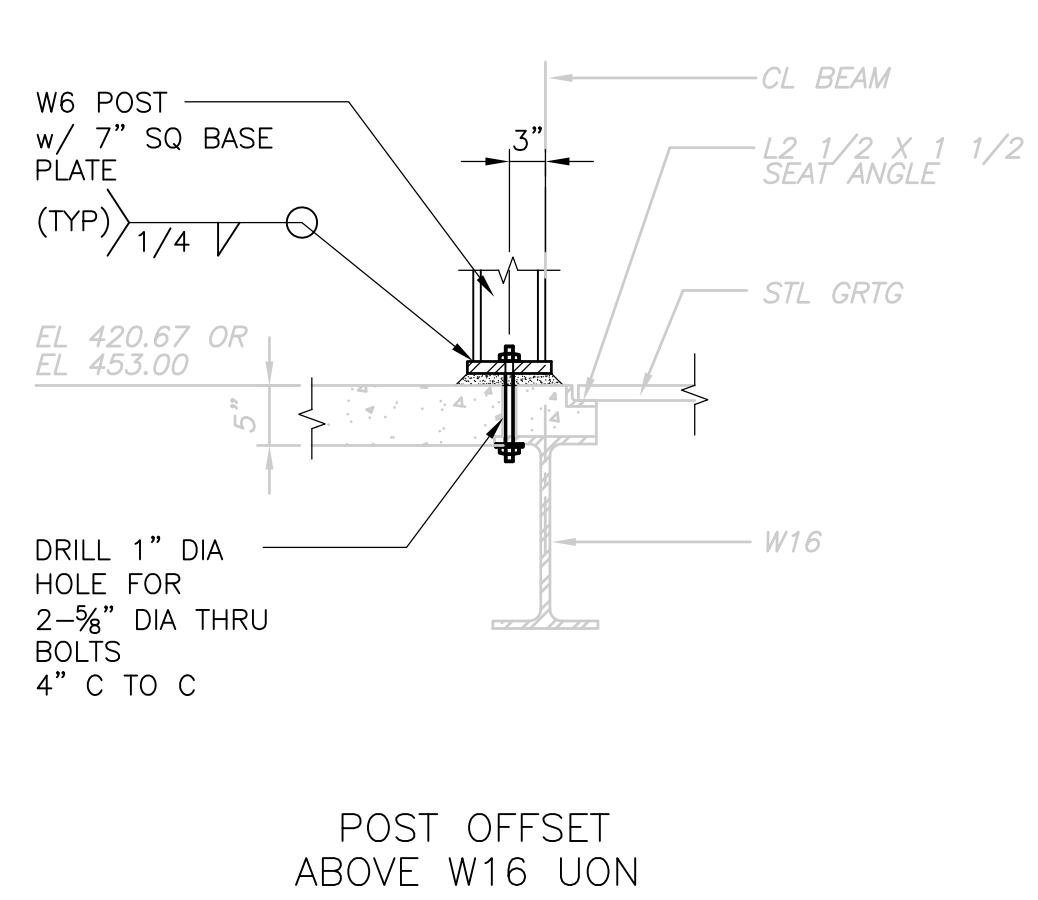
**SECTION 4**  
1/4" = 1'-0"  
SP-S-5



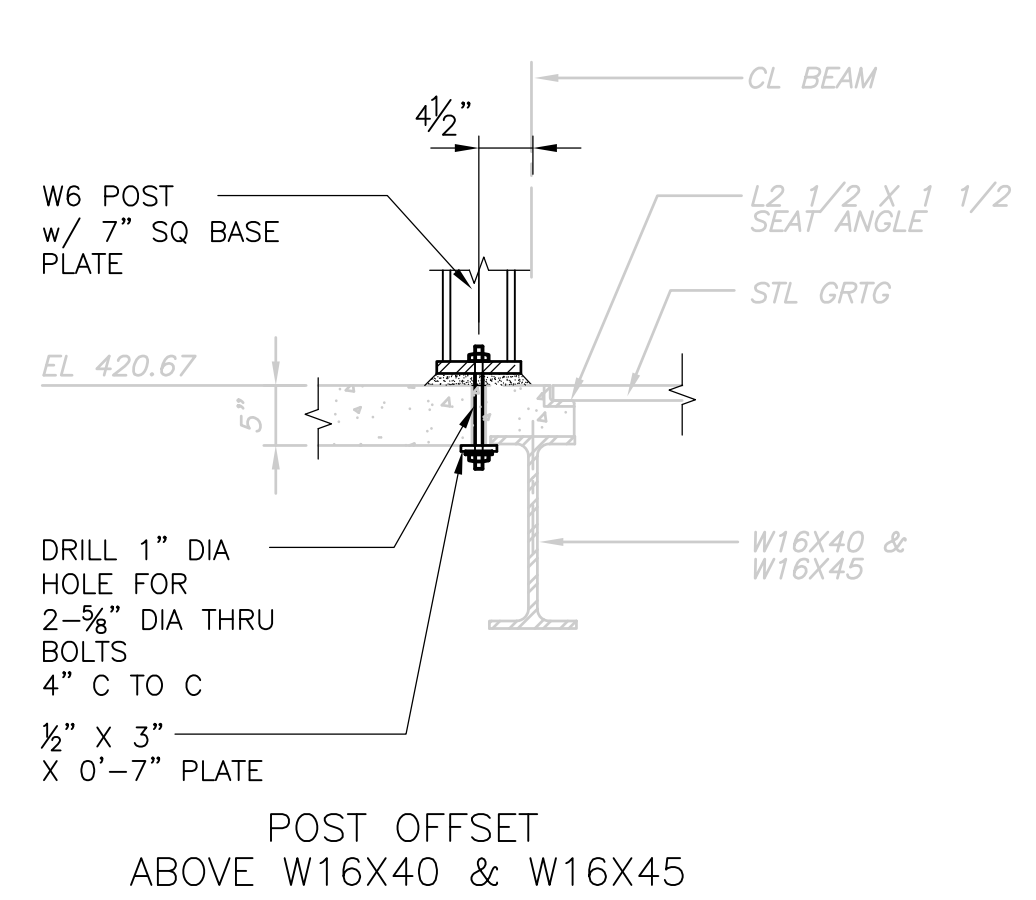
**FLUE DUCT SUPPORT SECTION 5**  
3/4" = 1'-0"  
SP-S-9



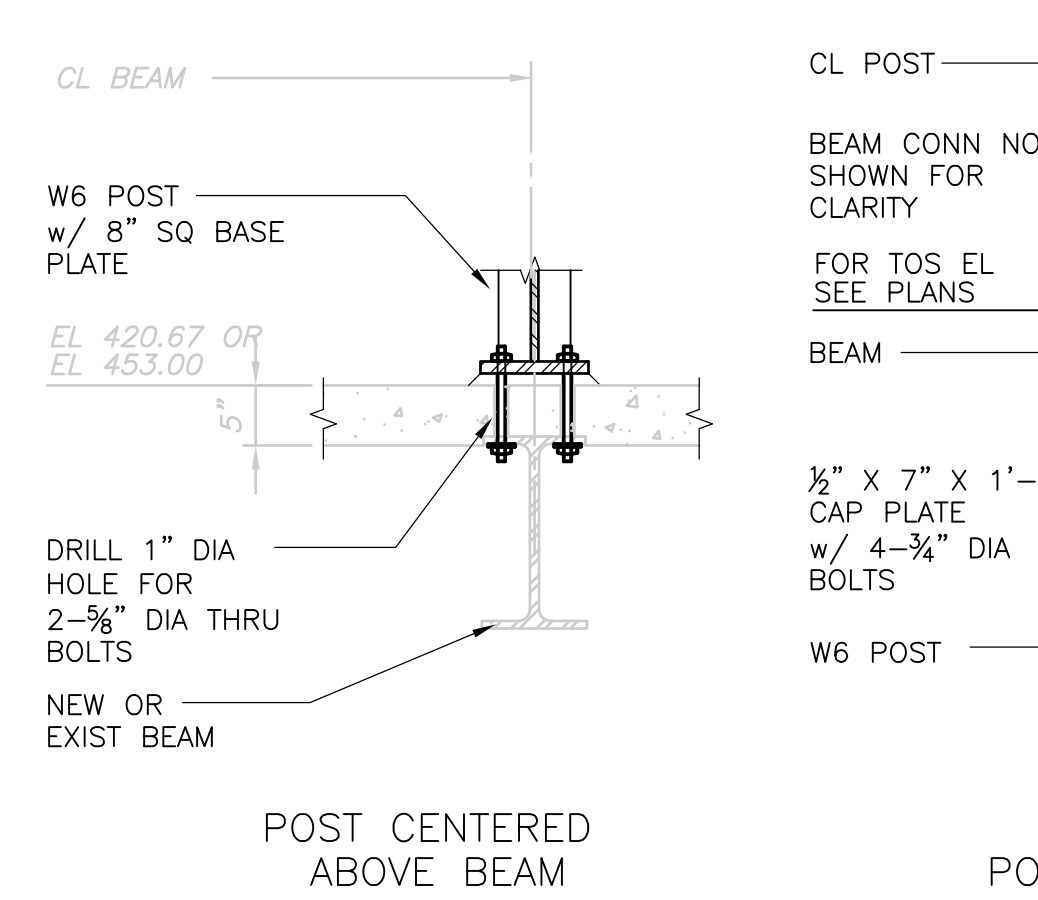
**DETAIL A**  
3/4" = 1'-0"



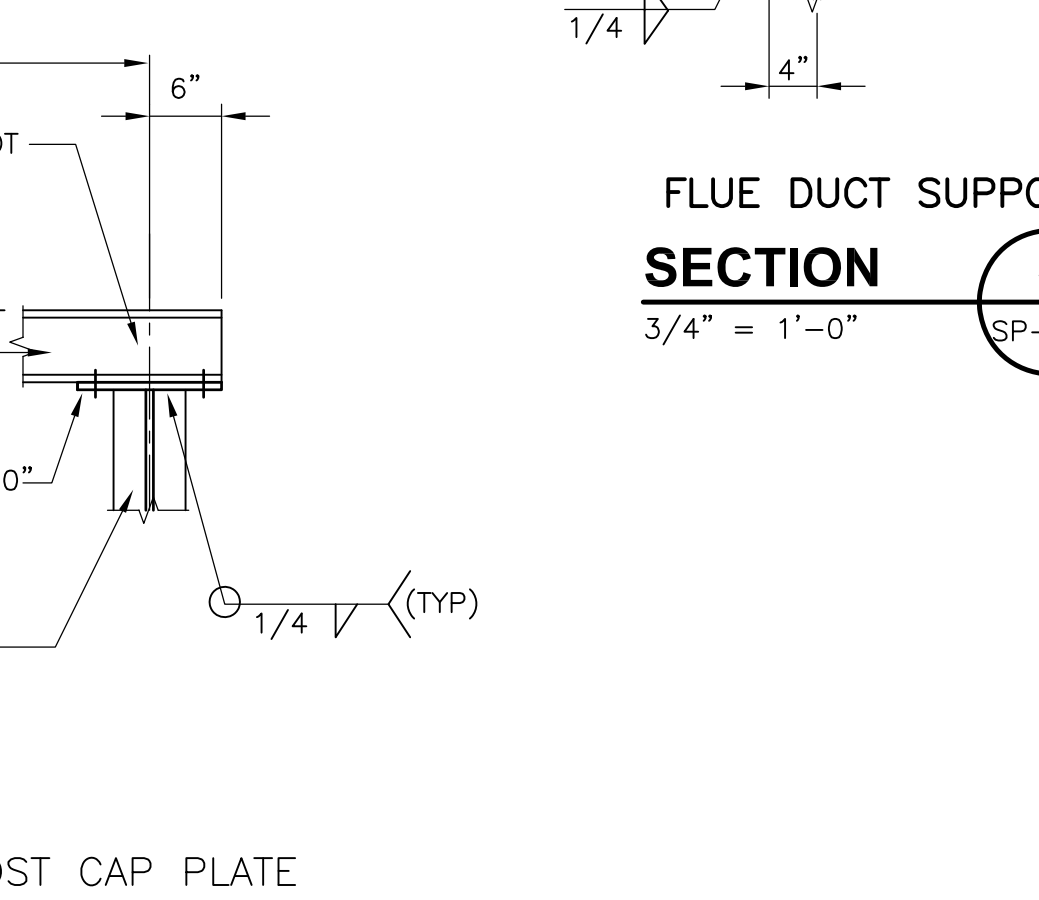
POST OFFSET ABOVE W16 UON



POST OFFSET ABOVE W16X40 & W16X45

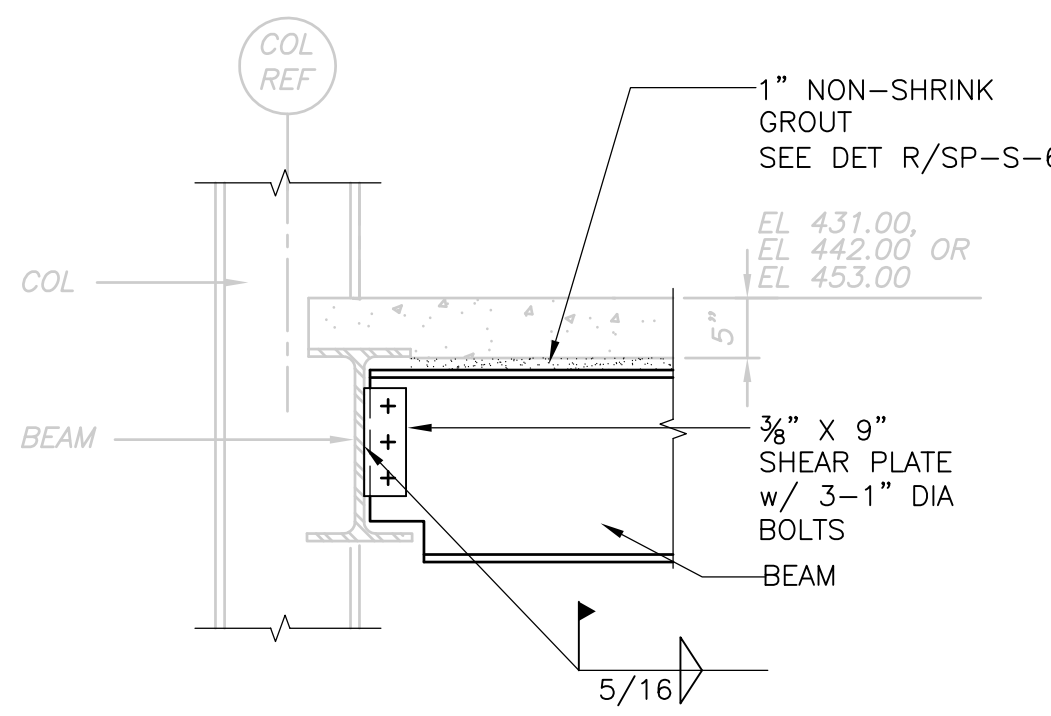


POST CENTERED ABOVE BEAM

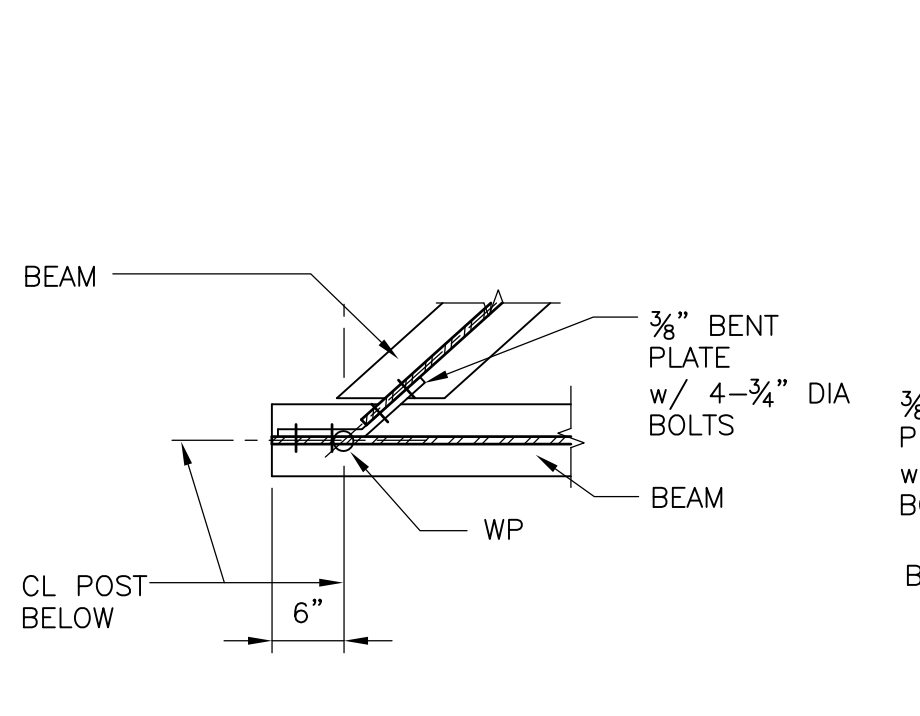


POST CAP PLATE

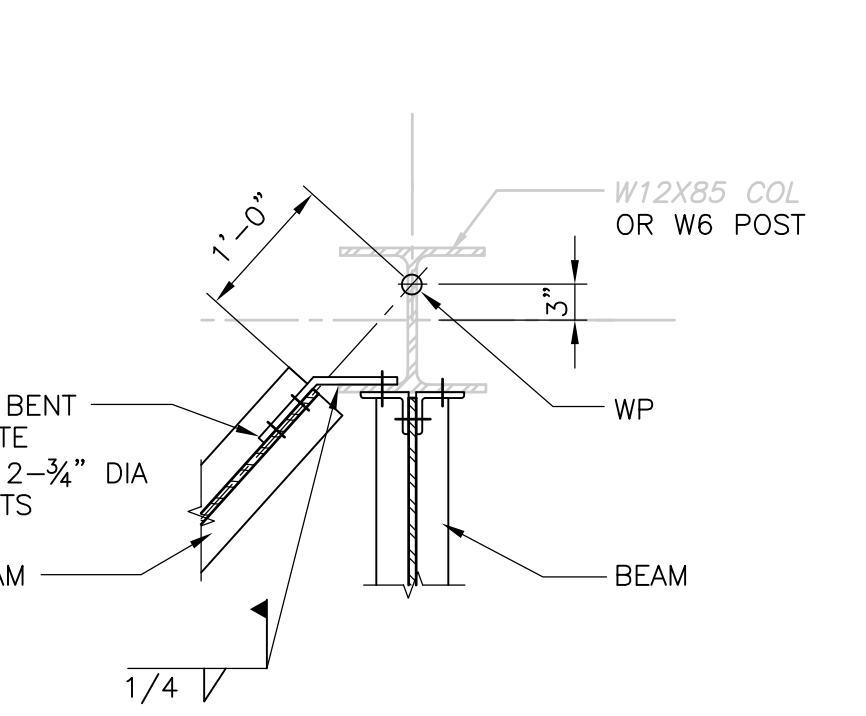
**W6 POST DETAILS DETAIL B**  
3/4" = 1'-0"  
SP-S-9



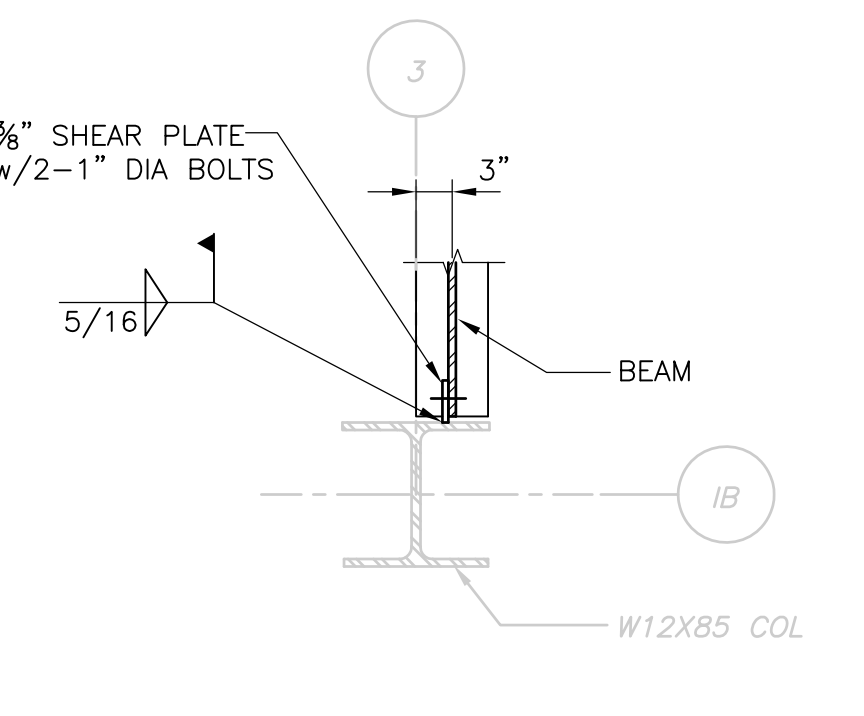
**SHEAR PLATE CONNECTION DETAIL C**  
3/4" = 1'-0"  
SP-S-9



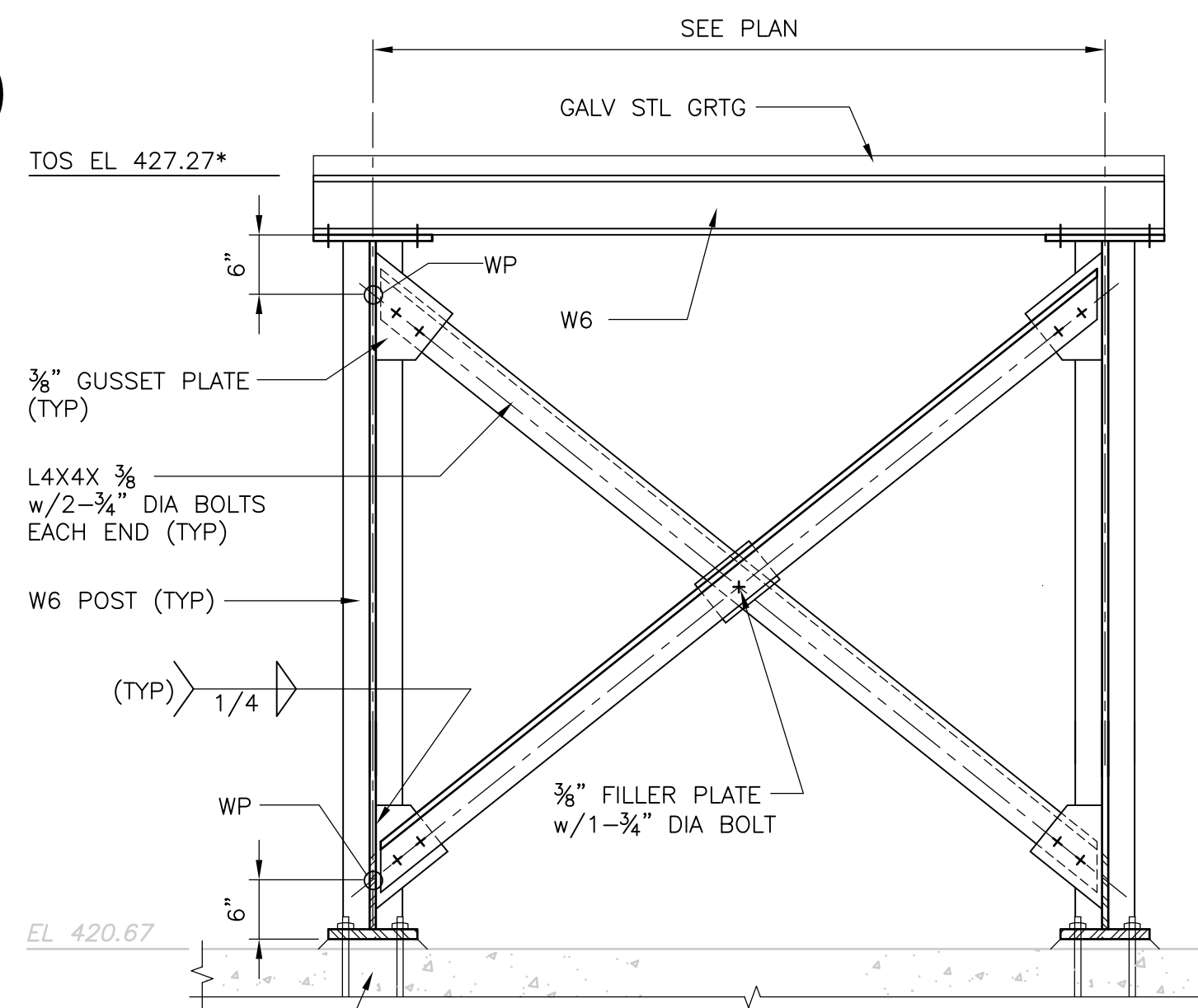
**SKEWED BEAM TO BEAM CONNECTION DETAIL D**  
3/4" = 1'-0"  
SP-S-9



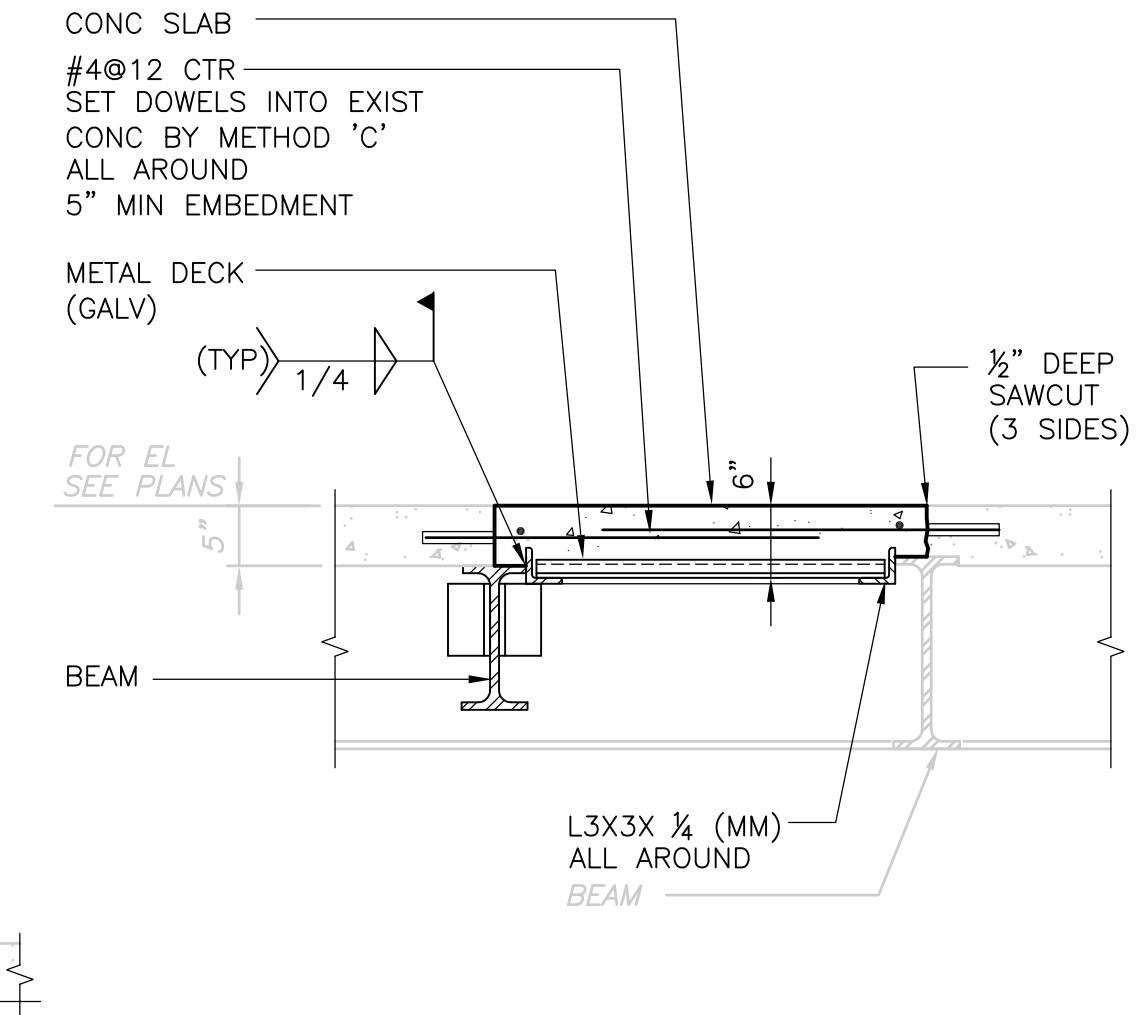
**CONNECTION TO COLUMN/POST DETAIL E**  
3/4" = 1'-0"  
SP-S-9



**CONNECTION TO EXIST COLUMN DETAIL F**  
3/4" = 1'-0"  
SP-S-9



**CROSS BRACING @ POSTS DETAIL G**  
3/4" = 1'-0"  
SP-S-3



**SECTION 6**  
3/4" = 1'-0"  
SP-S-5

NOTES:  
1. FOR NOTES SEE SP-S-3.

RECORD DRAWING 1/4" = 1'-0" 3/4" = 1'-0"

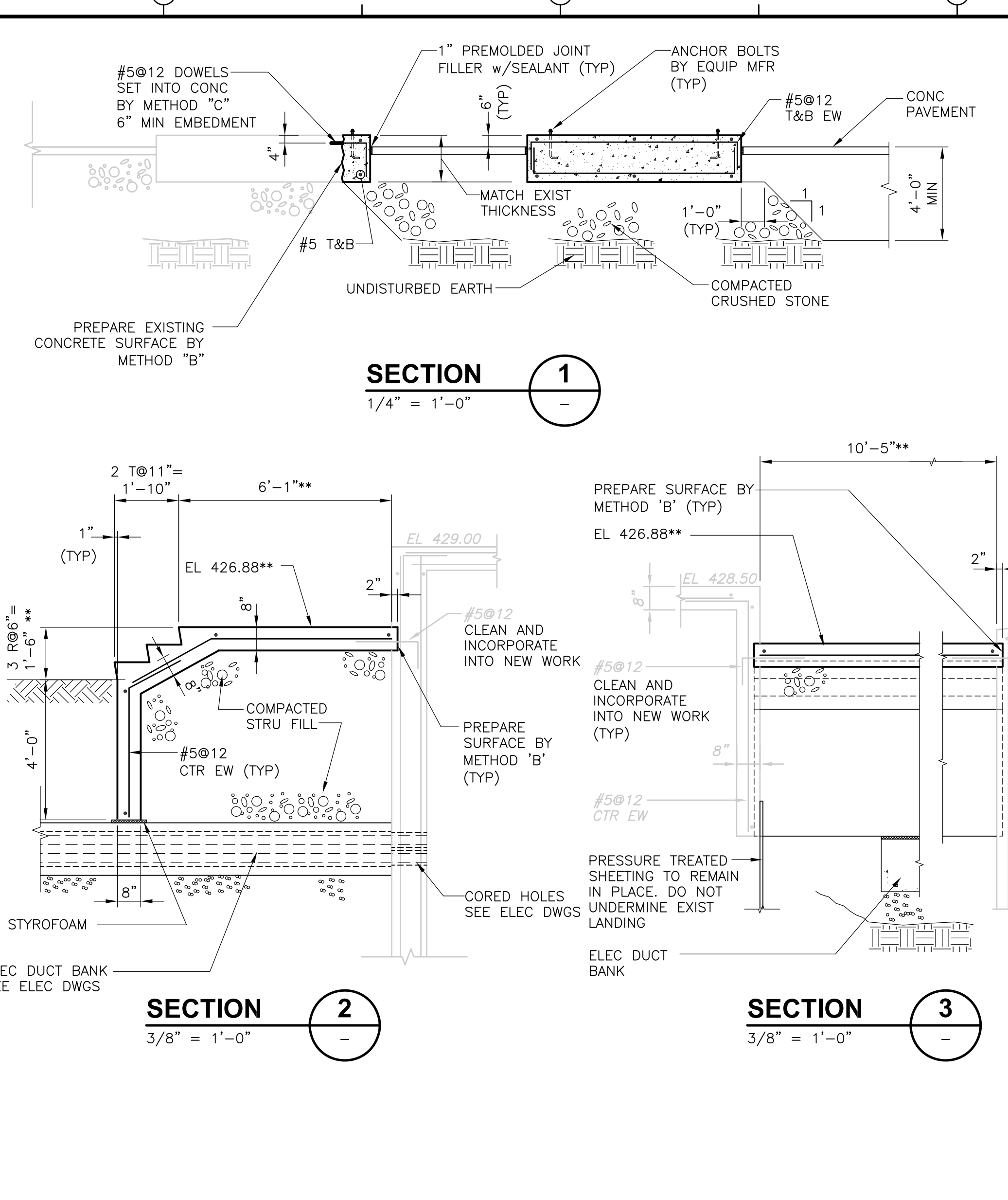
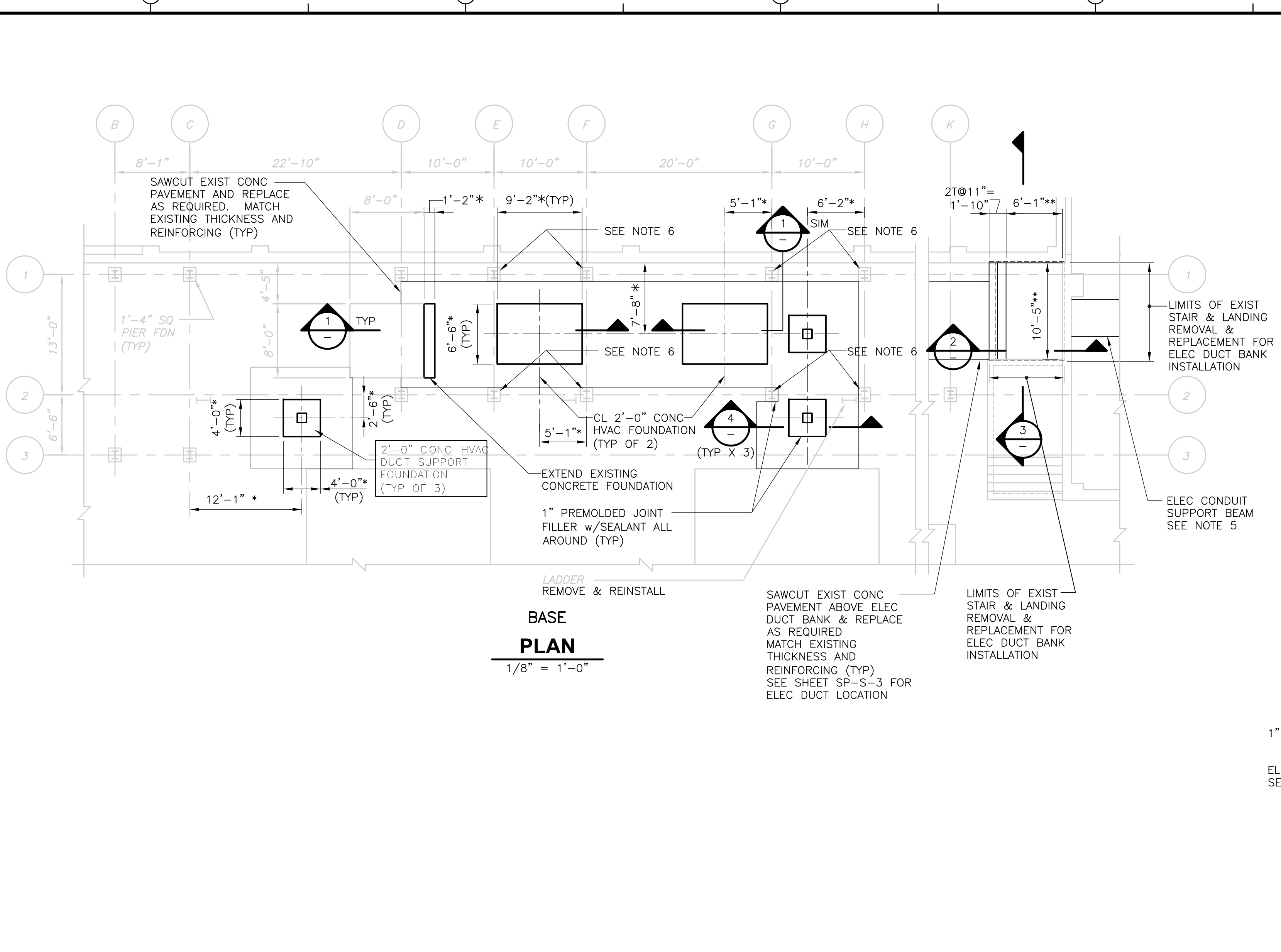
REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSPSC004.DWG
DESIGNED BY:	LUKACS/PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	J. FOREHAND
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

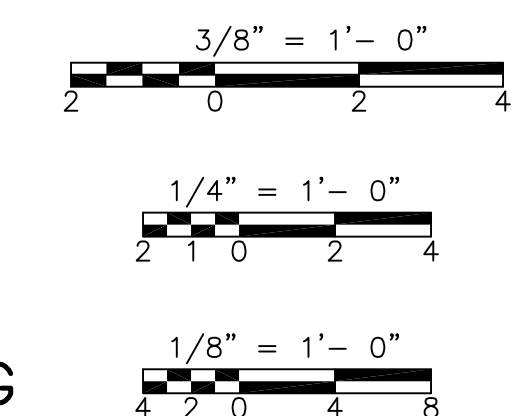
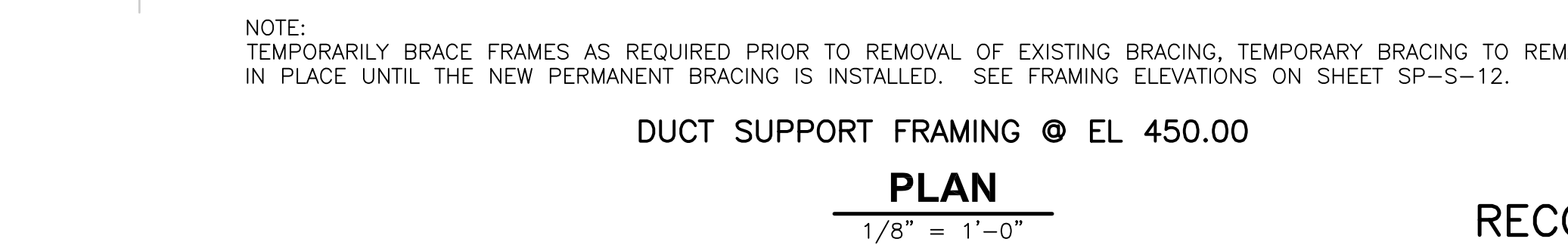
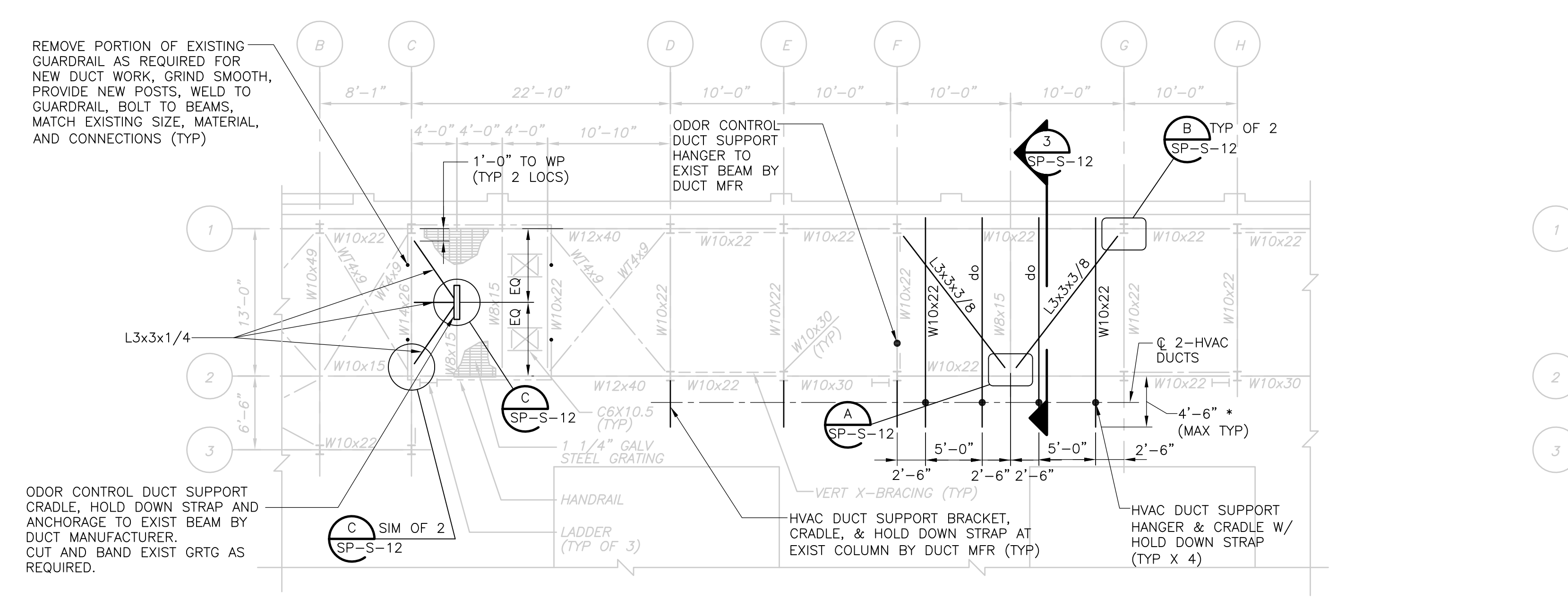
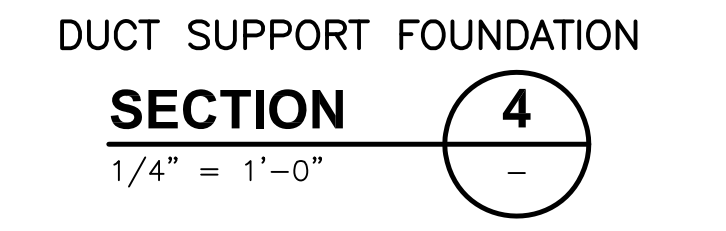
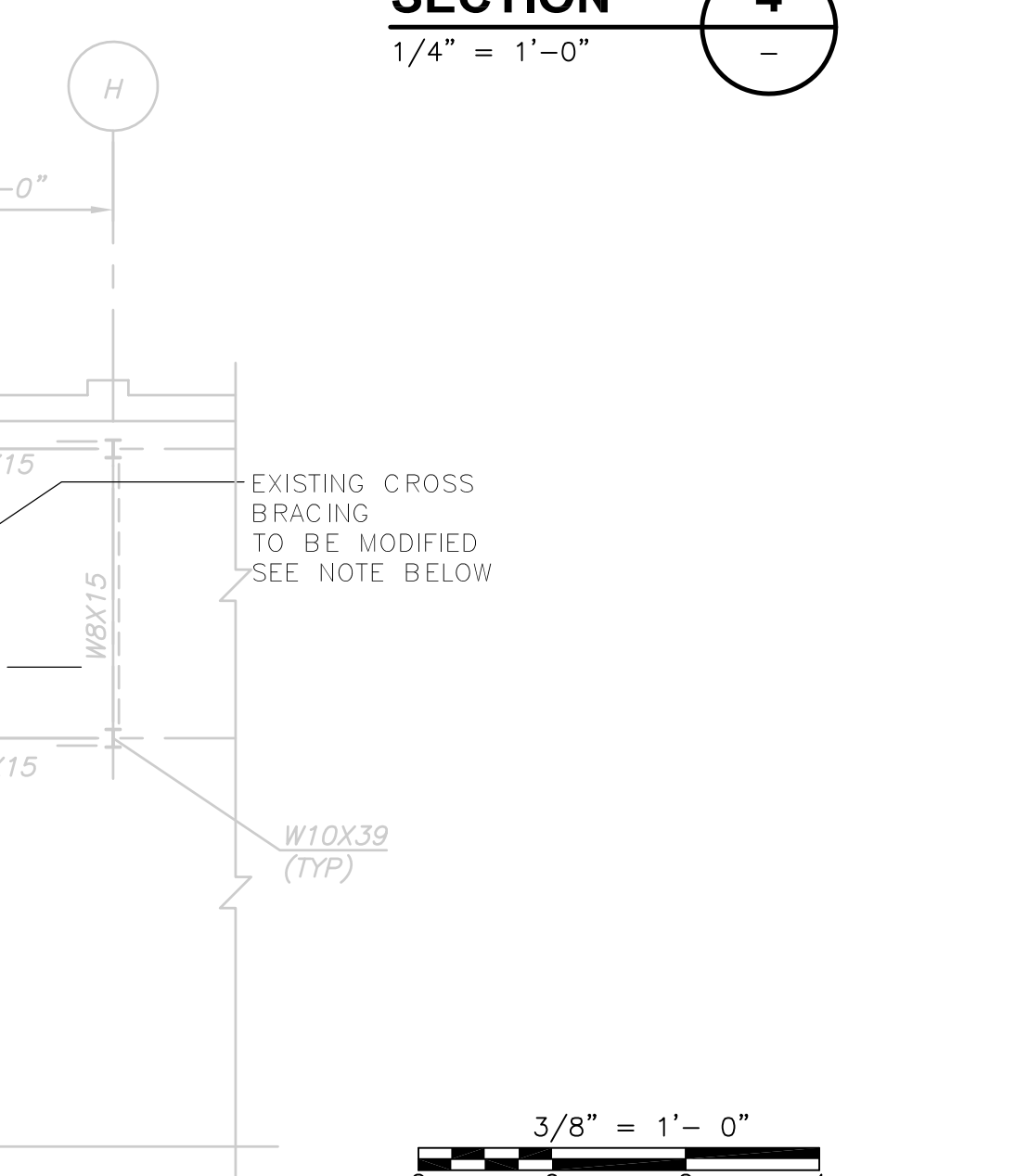
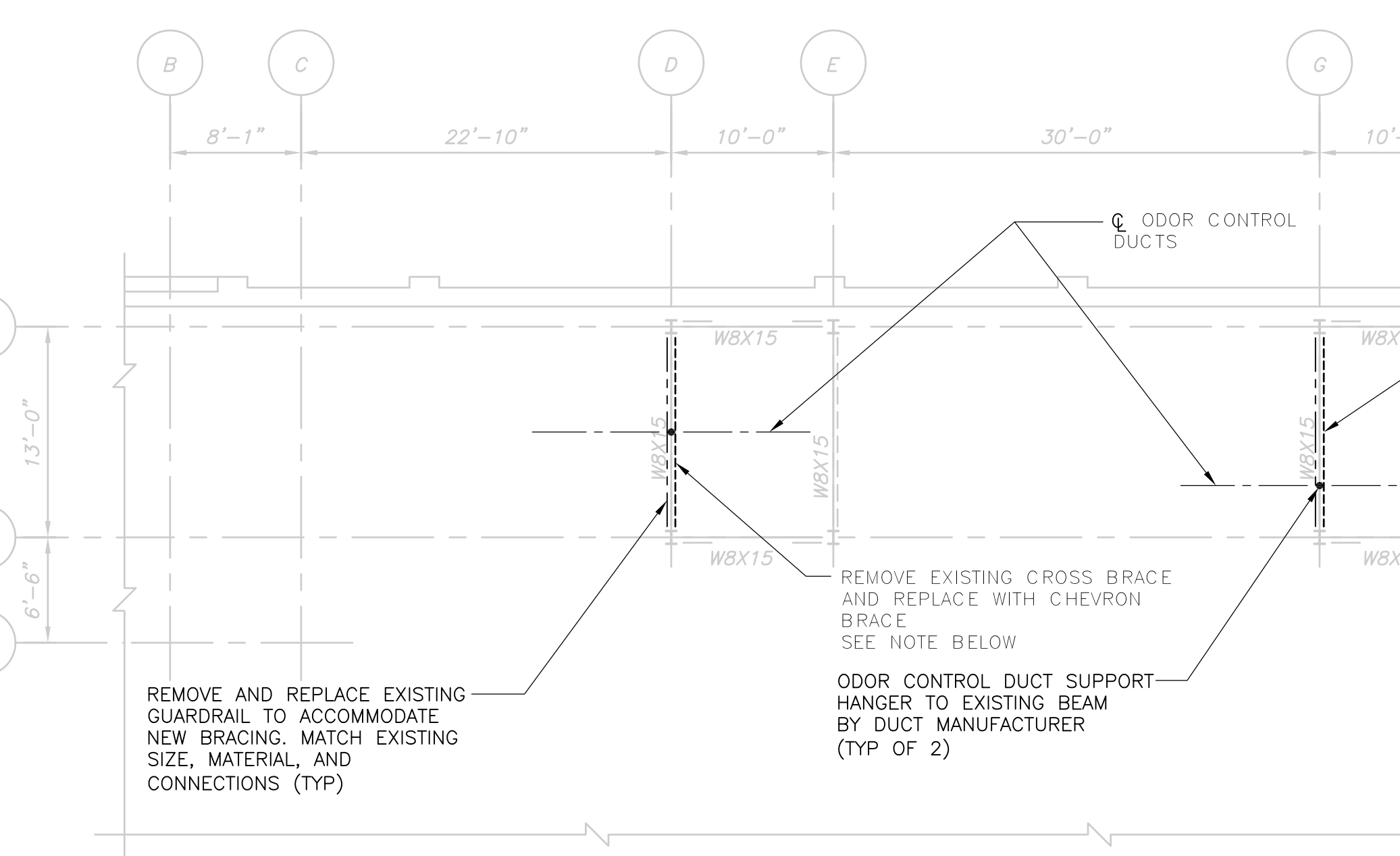
**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**INCINERATOR BUILDING SECTIONS AND DETAILS IV**  
 PROJECT NO. 1289\35370  
 Sht. 124 of 386  
**SP-S-10**



- NOTES:**
- \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
  - SLANTED SCREENED INFORMATION AND TEXT INDICATES EXISTING INFORMATION OR DIMENSIONS TAKEN FROM DRAWINGS PRODUCED BY SHENANDOAH STEEL CORPORATION TITLED "UPPER BLACKSTONE INCINERATOR UPGRADE PROJECT, PIPE RACK", DATED APRIL 1996, AND DRAWINGS PRODUCED BY FAY, SPOFFORD AND THORNDIKE, INC. ENGINEERS, TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES, CONTRACT NO. 2, DATED FEBRUARY 1973 AND FROM FIELD OBSERVATIONS MADE BY THE ENGINEER. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
  - \*\* INDICATES INFORMATION TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION. NEW STAIR AND LANDING TO MATCH EXISTING UNLESS OTHERWISE NOTED.
  - SEE SD-S-3 FOR MODIFICATION TO EXISTING CONCRETE NOTES.
  - GENERAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND PROVIDE ELECTRICAL CONDUIT SUPPORT BEAMS AND ACCESSORIES. SEE SP-E-12 FOR SUPPORT LOCATIONS AND SUPPORT DETAILS.
  - THE CONTRACTOR SHALL TEMPORARILY SUPPORT BASE OF STEEL COLUMNS PRIOR TO NEW WORK. THE TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL NEW FOUNDATION WORK HAS BEEN COMPLETED.



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSPPL501.DWG
DESIGNED BY:	J. CAVANAUGH
DRAWN BY:	K. GALLERIE
SHEET CHK'D BY:	J. CAVANAUGH
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

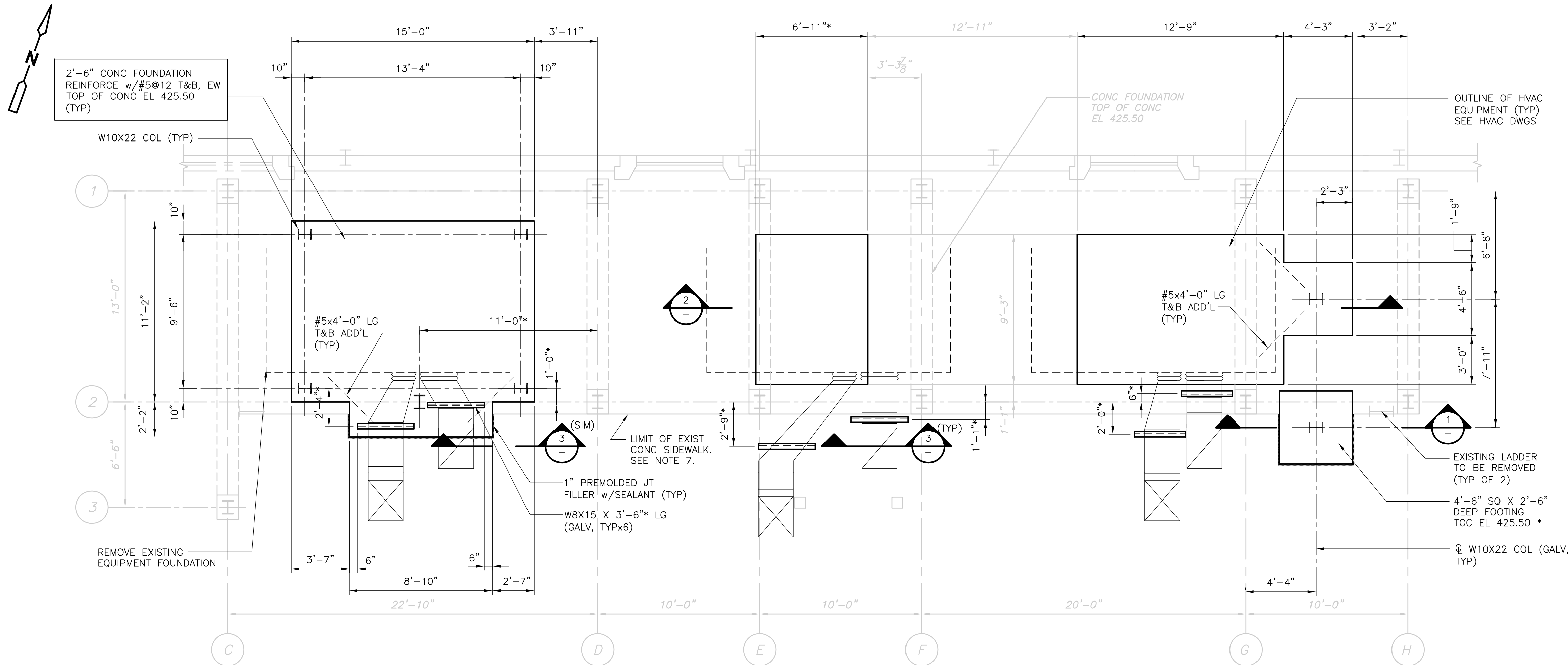
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**INCINERATOR BUILDING OUTSIDE DUCTWORK PLANS AND SECTIONS**

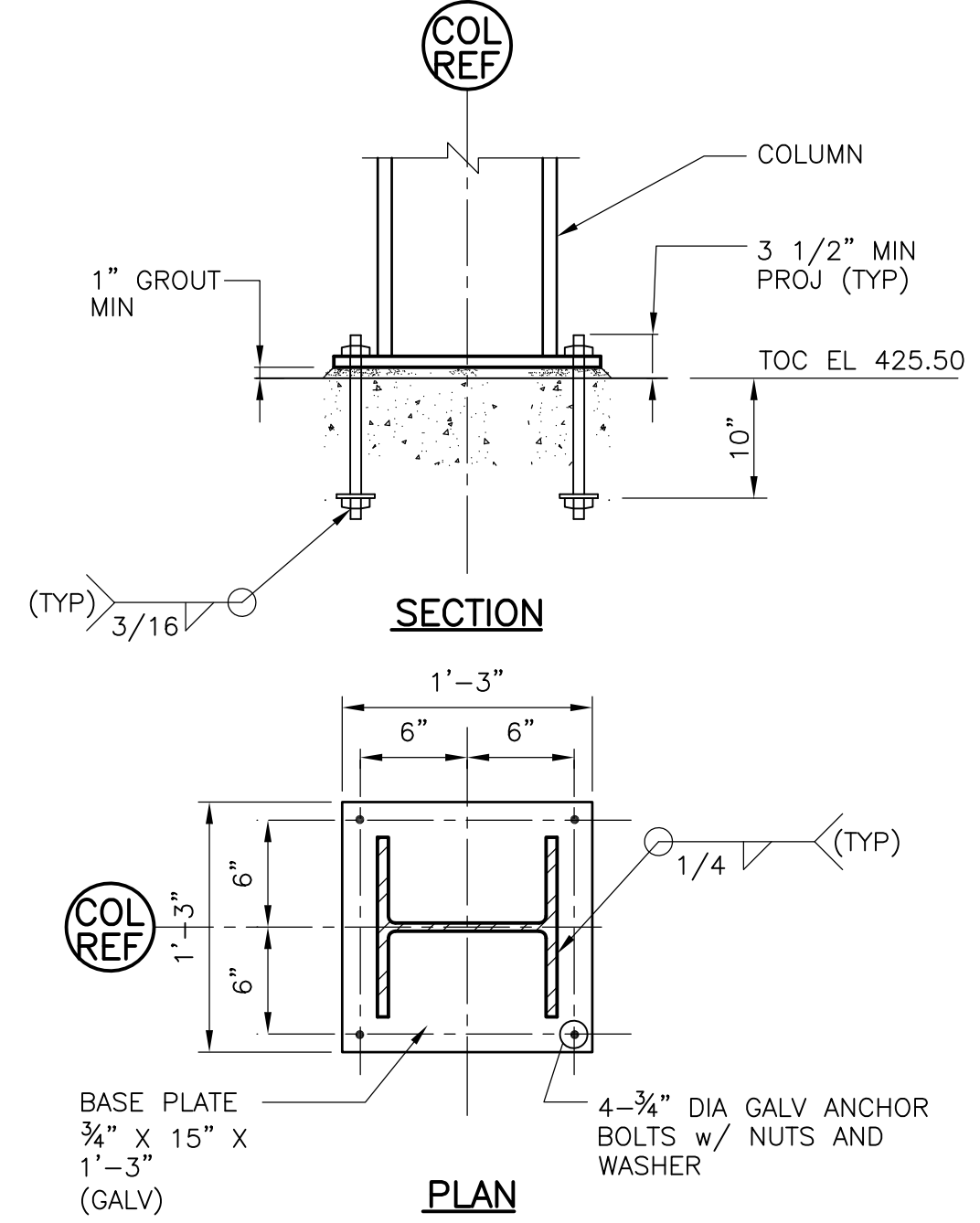
PROJECT NO. 1289\35370  
 Sht. 125 of 386  
**SP-S-11**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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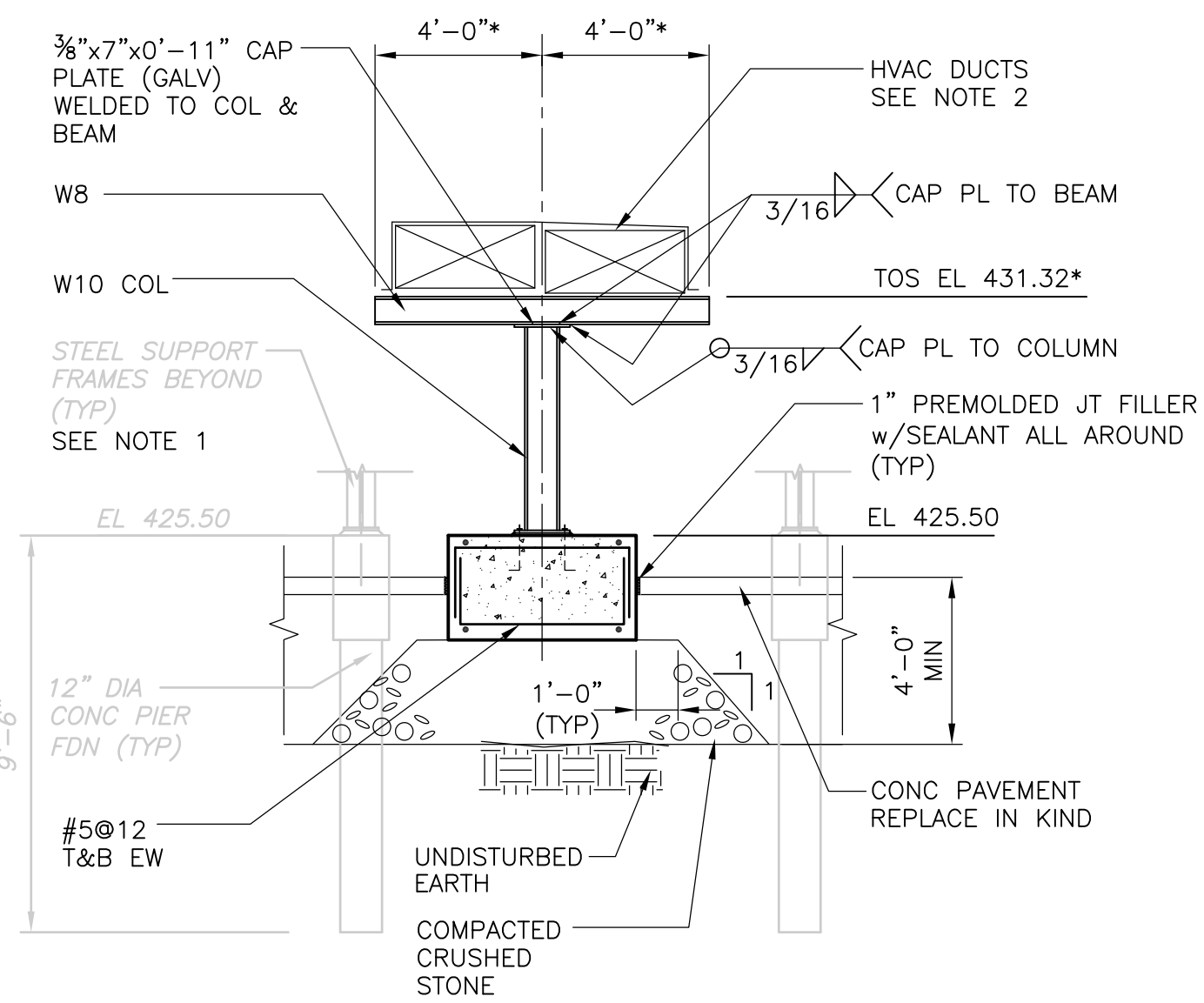


**PLAN**  
 1/4" = 1'-0"

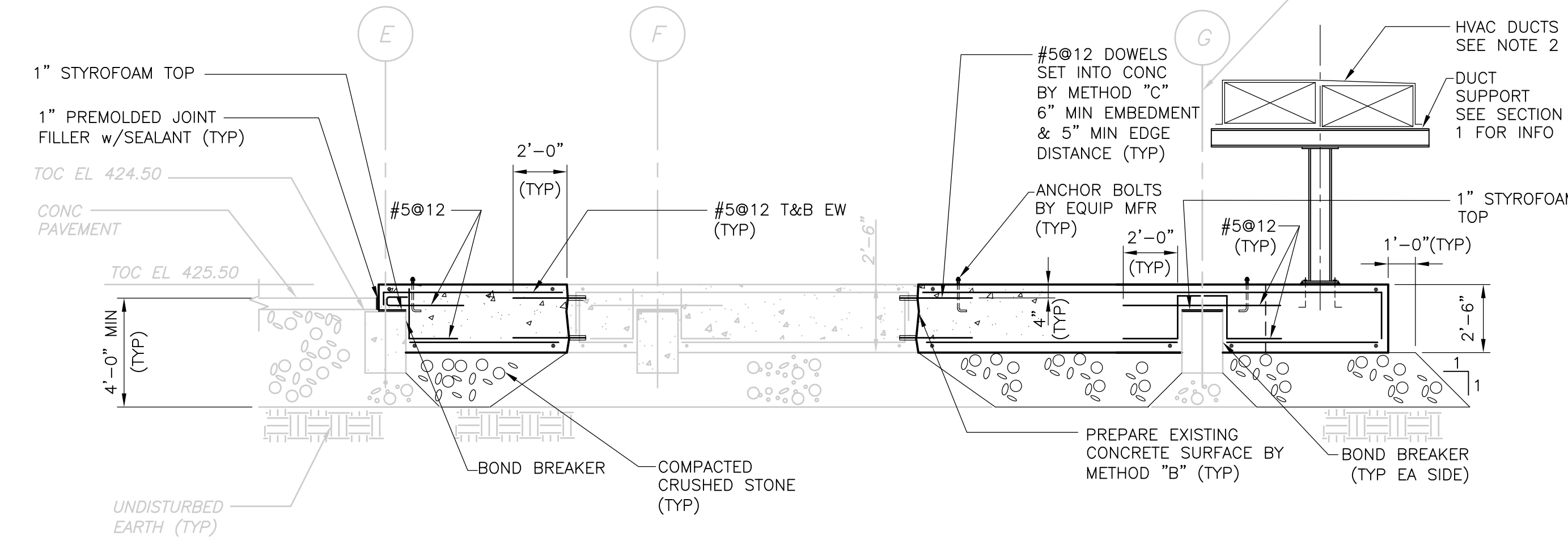
- NOTES:**
1. THE CONTRACTOR SHALL TEMPORARILY SUPPORT BASE OF STEEL COLUMNS PRIOR TO NEW WORK. THE TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL NEW FOUNDATION WORK HAS BEEN COMPLETED.
  2. HVAC DUCT SUPPORT BRACKETS, CRADLES, HOLD DOWN STRAPS AND ANCHORAGE SHALL BE BY THE DUCT MANUFACTURER.
  3. THE INFORMATION SHOWN ON THIS DRAWING AND DRAWING SP-S-11B, PERTAINING TO THE HVAC EQUIPMENT FOUNDATIONS AND DUCTWORK SUPPORT SUPERCEDES INFORMATION SHOWN ON SP-S-11.
  4. \* INDICATES INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE HVAC DUCT MANUFACTURER PRIOR TO FABRICATION AND CONSTRUCTION.
  5. SLANTED SCREENED INFORMATION AND TEXT INDICATES EXISTING INFORMATION OR DIMENSIONS TAKEN FROM DRAWINGS PRODUCED BY SHENANDOAH STEEL CORPORATION TITLED "UPPER BLACKSTONE INCINERATOR UPGRADE PROJECT, PIPE RACK", DATED APRIL 1996, AND DRAWINGS PRODUCED BY FAY, SPOFFORD AND THORNDIKE, INC. ENGINEERS, TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES, CONTRACT NO. 2, DATED FEBRUARY 1973 AND FROM FIELD OBSERVATIONS MADE BY THE ENGINEER. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
  6. SEE SHEET SD-S-3 FOR MODIFICATION TO EXISTING CONCRETE NOTES.
  7. SAWCUT EXISTING CONCRETE SIDEWALK WHERE REQUIRED AND REPLACE WITH MATCHING THICKNESS AND REINFORCING.



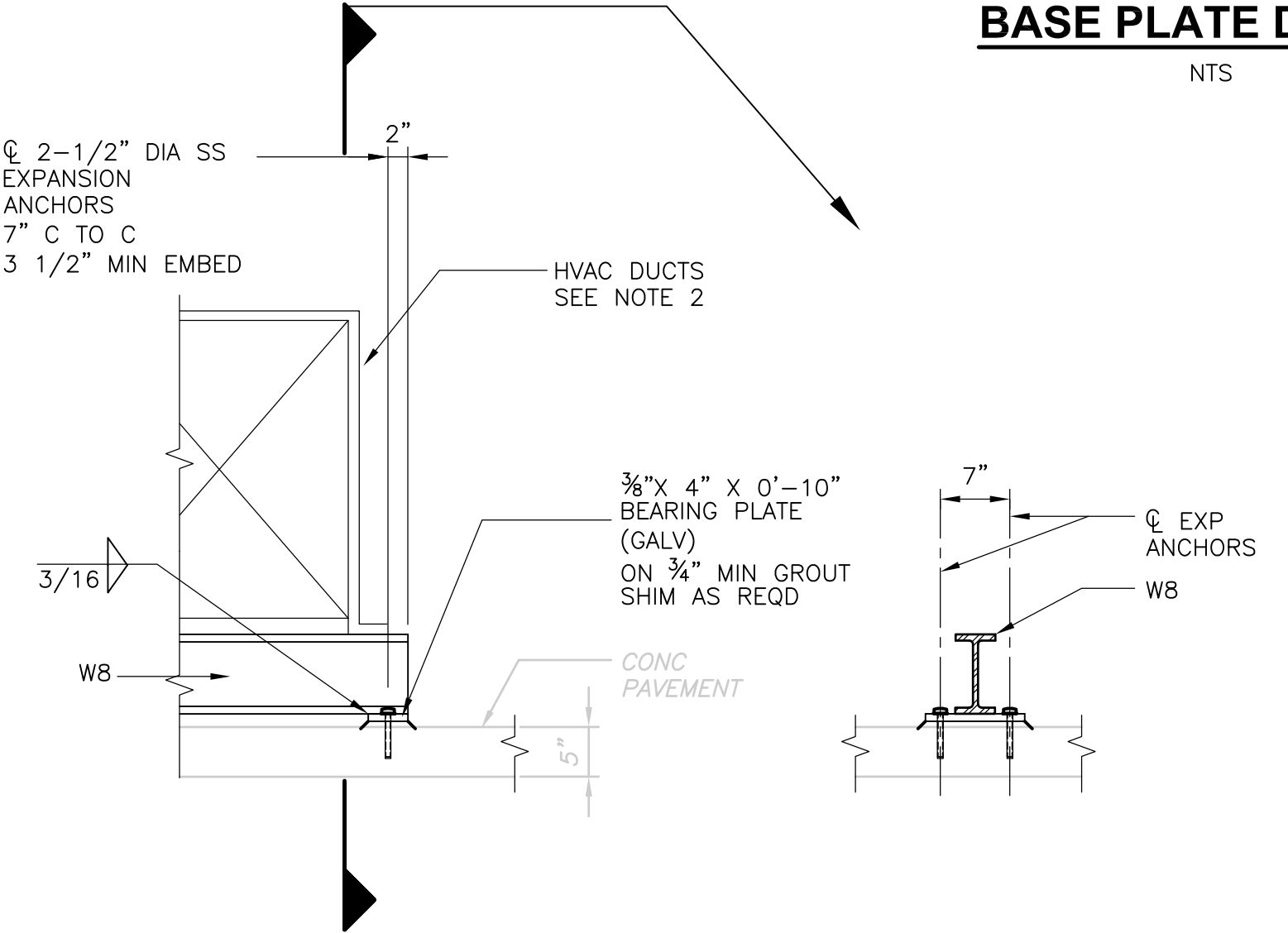
**BASE PLATE DETAILS**  
 NTS



**DUCT SUPPORT AND FOUNDATION**  
**SECTION 1**  
 1/4" = 1'-0"



**EXISTING FOUNDATION EXTENSION**  
**SECTION 2**  
 1/4" = 1'-0"



**SUPPORT AT BASE OF DUCT**  
**SECTION 3**  
 3/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. DWPL001  
 DESIGNED BY: J. CAVANAUGH  
 DRAWN BY: B.S. HORNER  
 SHEET CHK'D BY: J. CAVANAUGH  
 SCALE: AS NOTED  
 APPROVED BY: D.L. HARRIS  
 DATE: OCT 2006

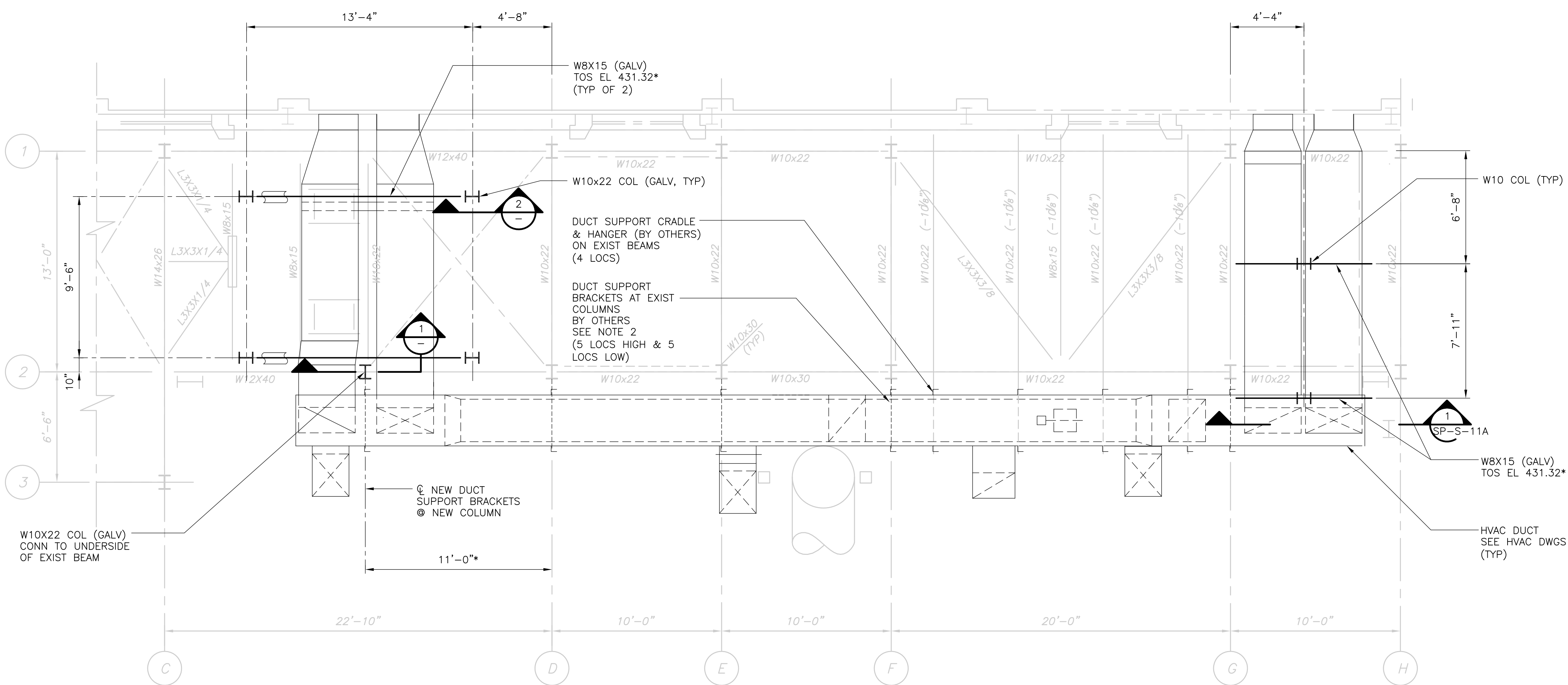
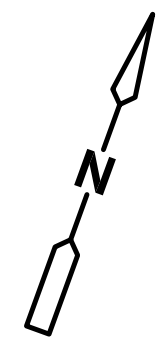
**CDM**  
 Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**INCINERATOR BUILDING  
 DUCTWORK  
 PLAN, SECTIONS AND DETAILS I**

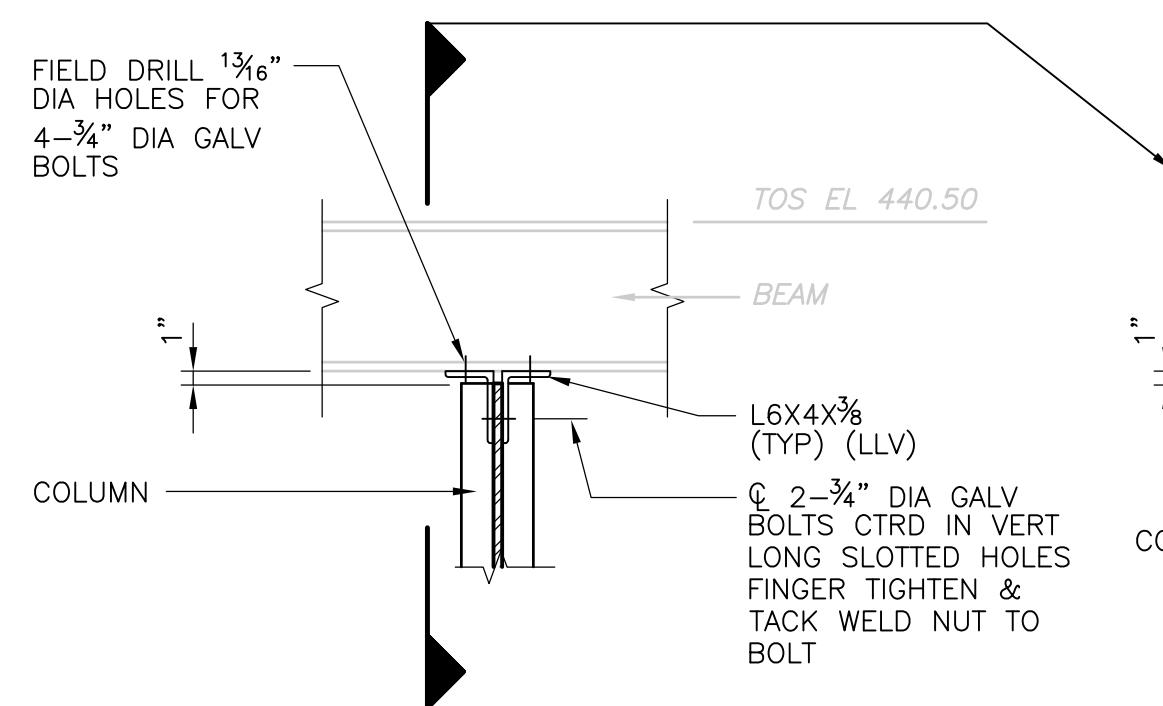
PROJECT NO. 1289\35370  
 Sht. of 386  
**SP-S-11A**  
ACCESSION NO. 1289-X



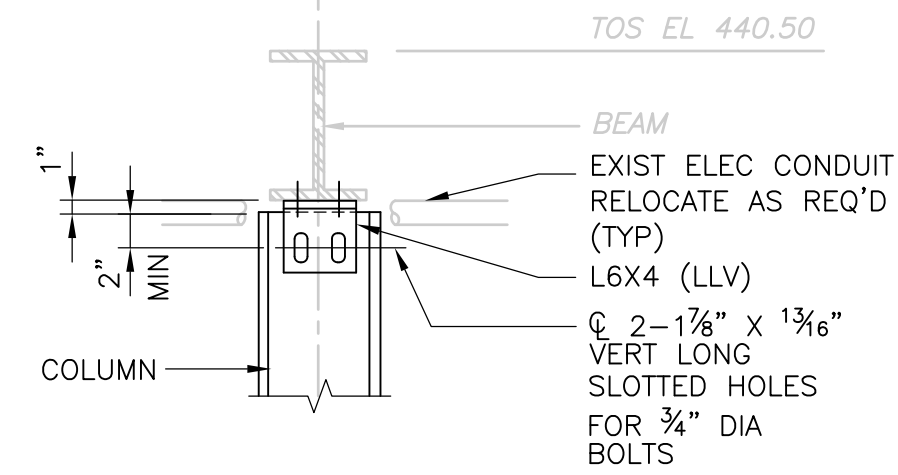
TOP OF STEEL EL 440.50 UON (+/-0)

**DUCT SUPPORT FRAMING**  
**PLAN**  
 1/4" = 1'-0"

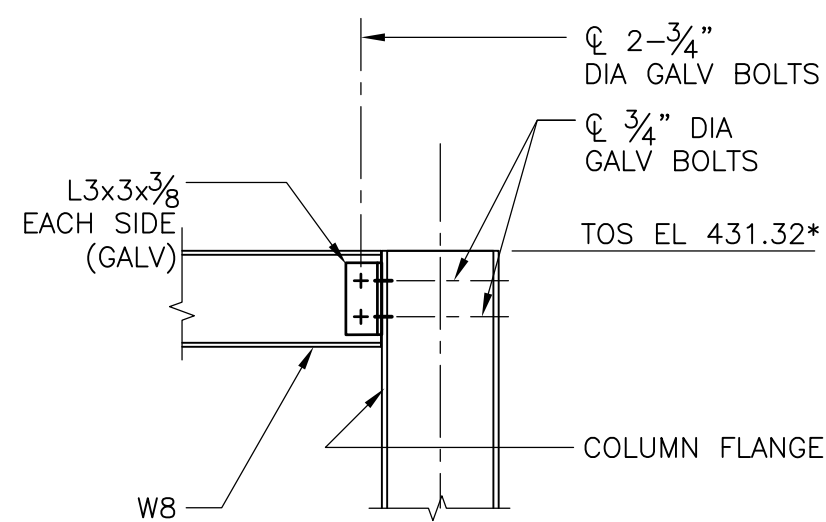
- NOTES:**
- HVAC DUCT SUPPORT BRACKETS, CRADLES, HOLD DOWN STRAPS AND ANCHORAGES SHALL BE BY THE DUCT MANUFACTURER.
  - THE INFORMATION SHOWN ON THIS DRAWING AND DRAWING SP-S-11B, PERTAINING TO THE HVAC EQUIPMENT FOUNDATIONS AND DUCTWORK SUPPORT SUPERCEDES INFORMATION SHOWN ON SP-S-11.
  - \* INDICATES INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE HVAC DUCT MANUFACTURER PRIOR TO FABRICATION AND CONSTRUCTION.
  - SEE SHEET SP-S-11A FOR ADDITIONAL DETAILS NOT SHOWN.
  - SLANTED SCREENED INFORMATION AND TEXT INDICATES EXISTING INFORMATION OR DIMENSIONS TAKEN FROM DRAWINGS PRODUCED BY SHENANDOAH STEEL CORPORATION TITLED "UPPER BLACKSTONE INCINERATOR UPGRADE PROJECT, PIPE RACK", DATED APRIL 1996, AND DRAWINGS PRODUCED BY FAY, SPOFFORD AND THORNDIKE, INC. ENGINEERS, TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES, CONTRACT NO. 2, DATED FEBRUARY 1973 AND FROM FIELD OBSERVATIONS MADE BY THE ENGINEER. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.



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



**SECTION 2**  
 3/4" = 1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.:	DWFL002
DESIGNED BY:	J. CAVANAUGH
DRAWN BY:	B.S. HORNOR
SHEET CHK'D BY:	J. CAVANAUGH
SCALE:	AS NOTED
APPROVED BY:	
DATE:	

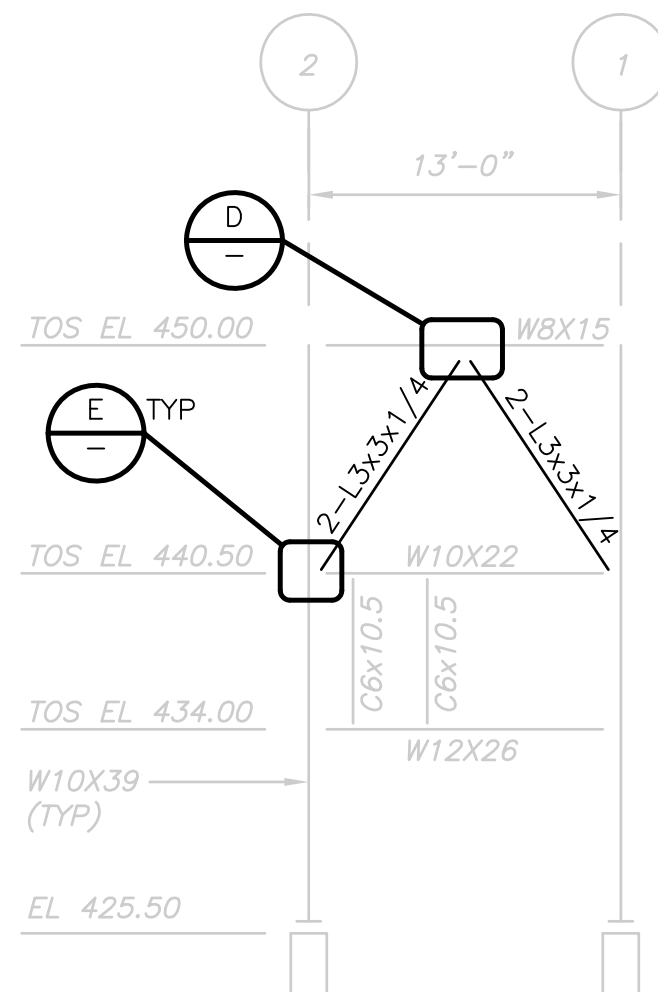

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

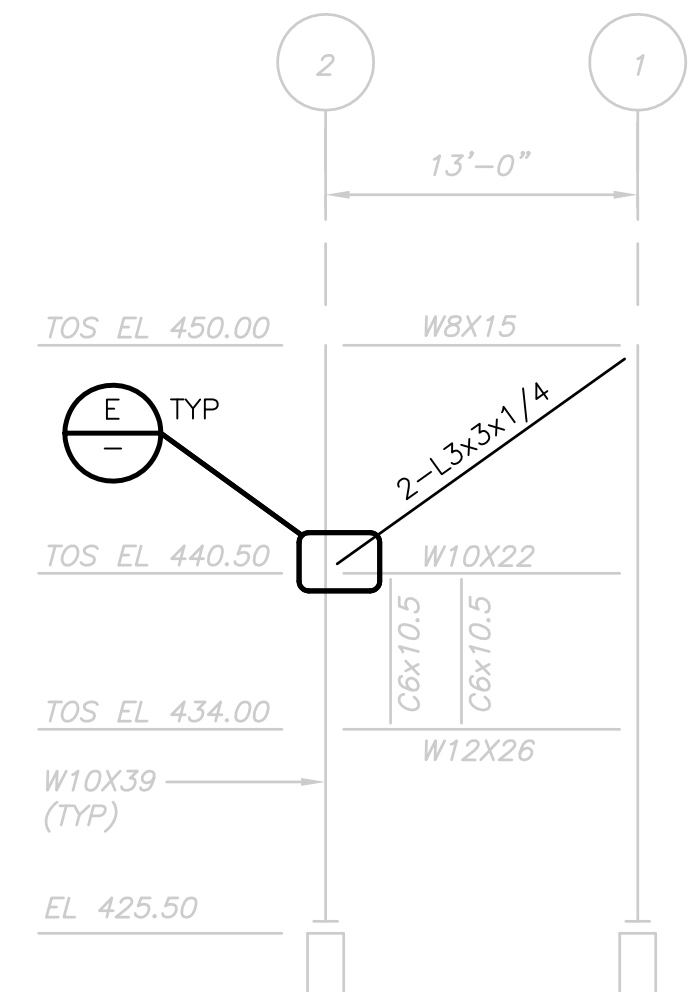
**INCINERATOR BUILDING**  
**DUCTWORK**  
**PLAN, SECTIONS AND DETAILS II**

PROJECT NO.  
 1289\35370  
 Sht. of 386  
**SP-S-11B**  
ACCESSION NO. 1289-X

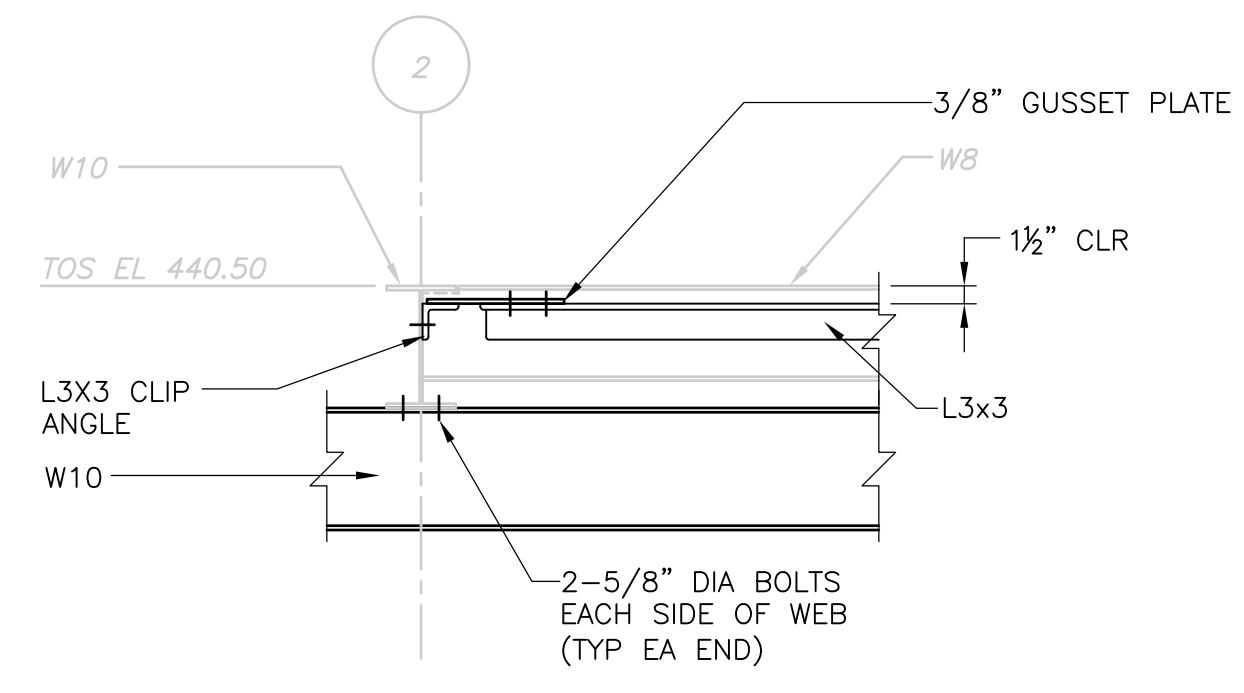
[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
 File name: P:\1289\35370\PHASE1\RECORD\STRU\SSPSC010.dwg Xref's: [C24X36H, MSPWP001, MSPWP002, ] Plotted by: CROSSHA Time: 12/16/08 6:23:18 PM



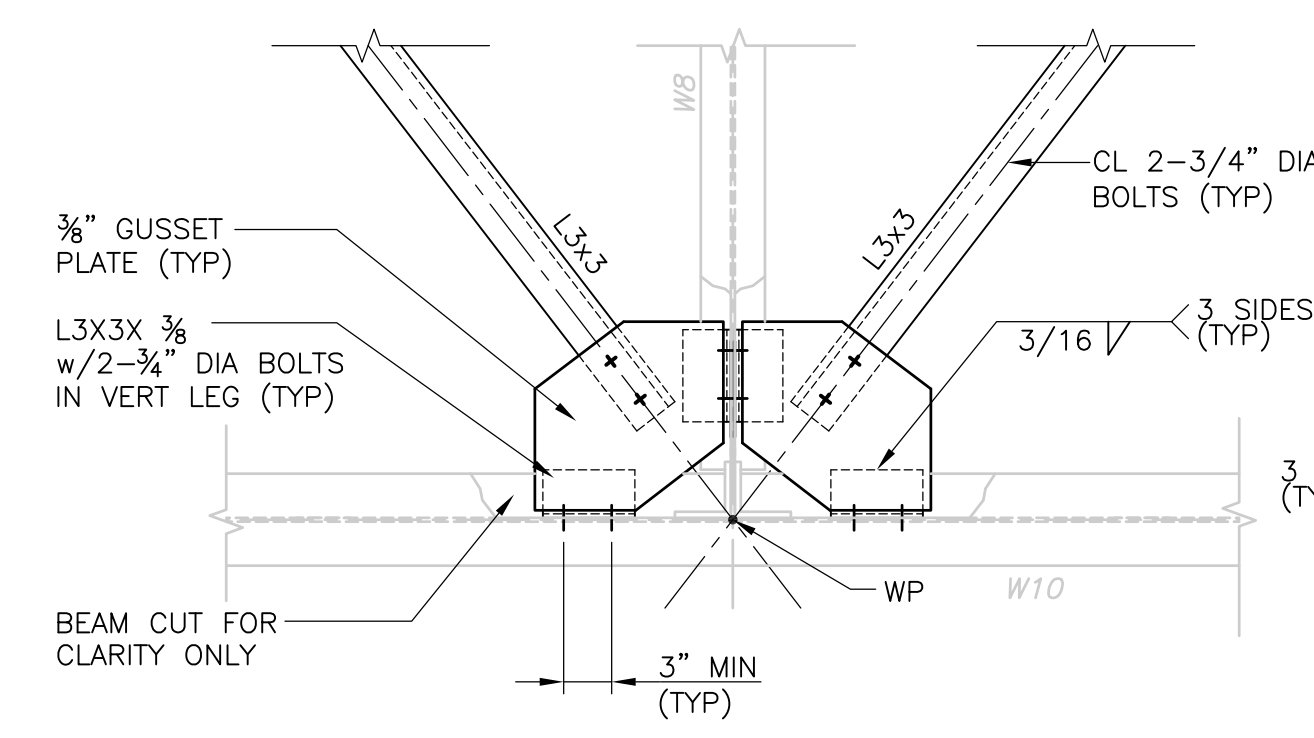
**LINE D  
ELEVATION**  
1/8" = 1'-0"



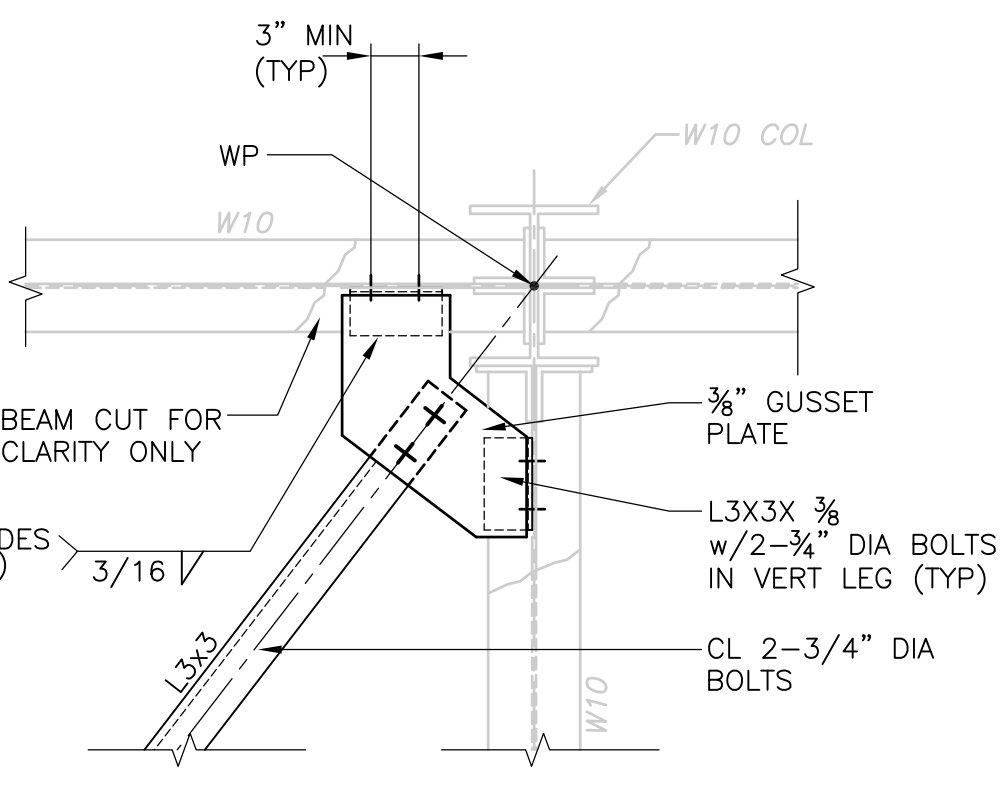
**LINE G  
ELEVATION**  
1/8" = 1'-0"



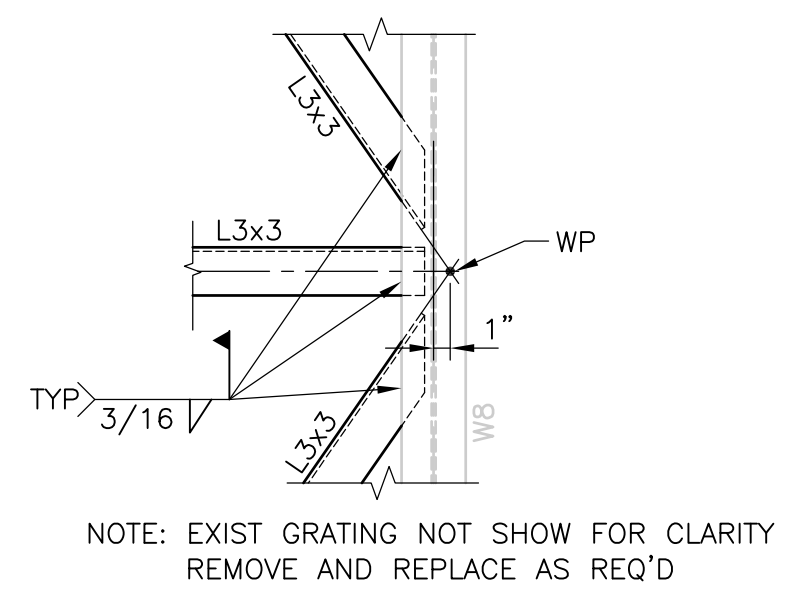
**SECTION 3**  
3/4" = 1'-0"



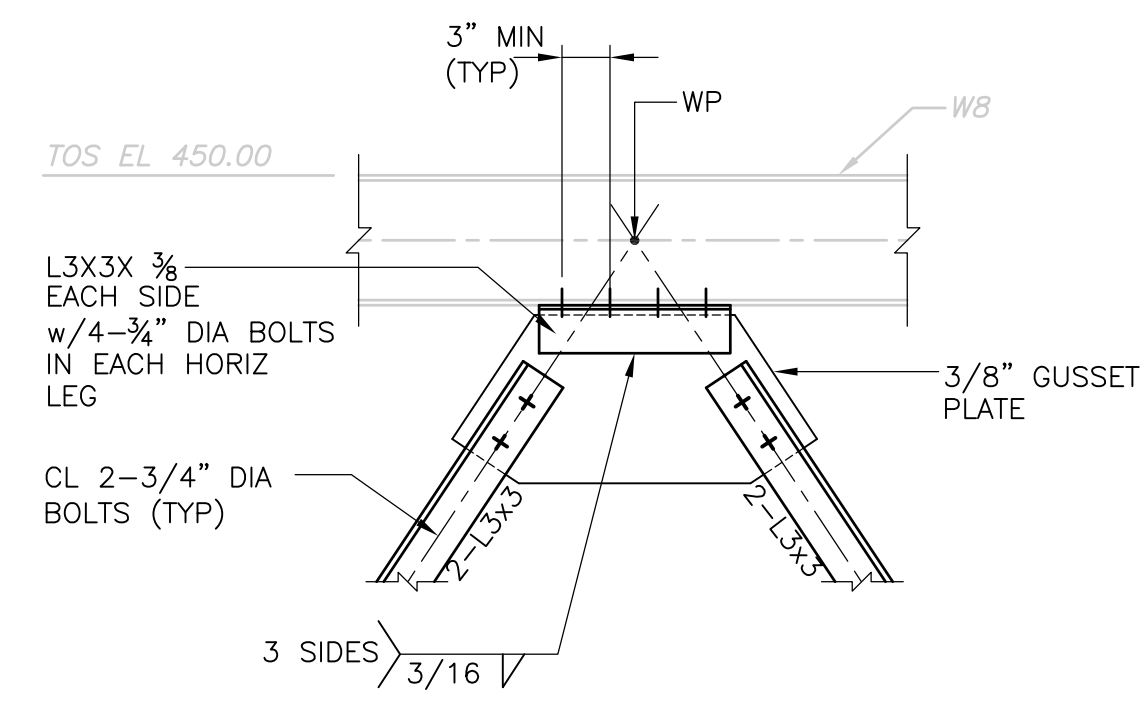
**DETAIL A**  
1" = 1'-0"



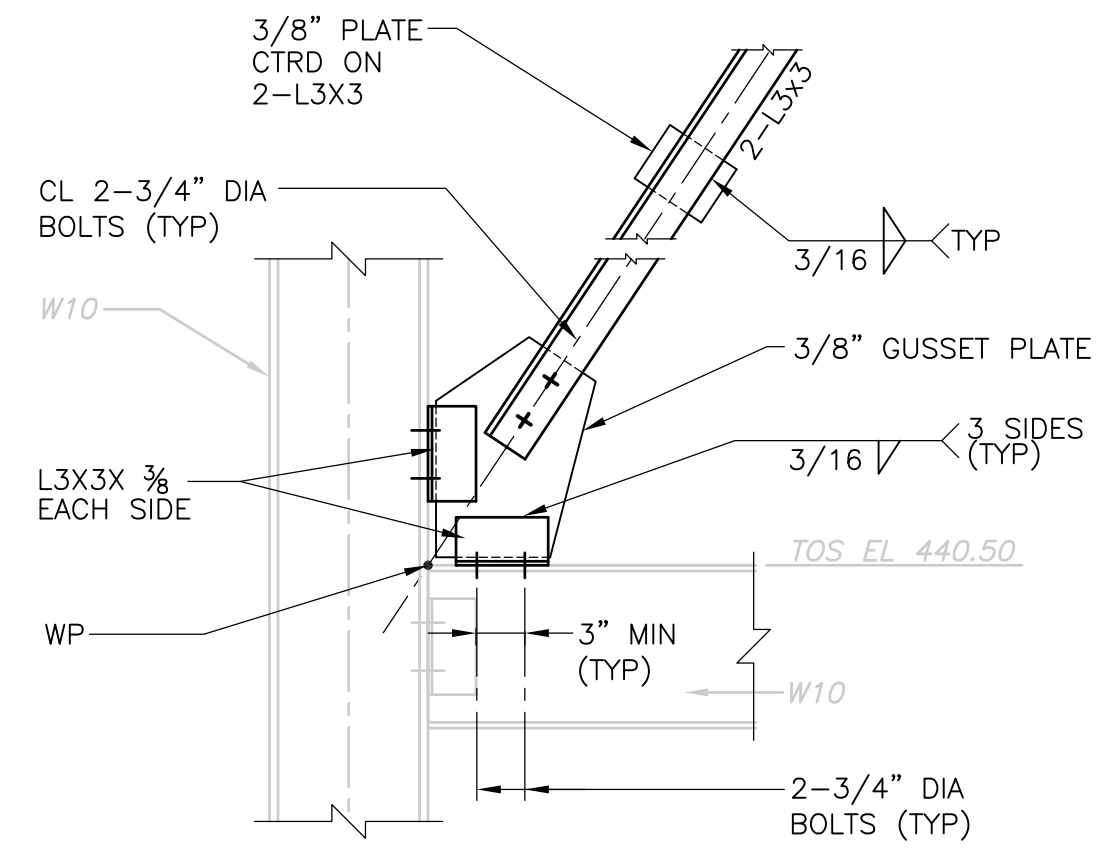
**DETAIL B**  
1" = 1'-0"



**DETAIL C**  
1" = 1'-0"



**DETAIL D**  
1" = 1'-0"



**DETAIL E**  
1" = 1'-0"

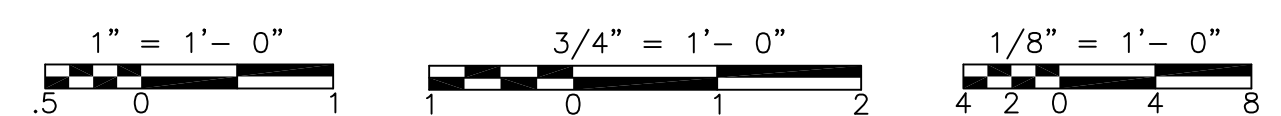
**STRUCTURAL STEEL NOTES FOR OUTSIDE DUCTWORK**

- FIELD CONNECTIONS SHALL BE BY ASTM A-325 HIGH STRENGTH SLIP CRITICAL BOLTS UN. BOLTS SHALL BE 3/4" DIAMETER IN 13/16" DIAMETER HOLES UN. WHERE CONNECTIONS ARE TO EXISTING MEMBERS THE HOLES SHALL BE FIELD DRILLED UN.
- ALL STEEL MEMBERS AND CONNECTIONS SHALL BE GALVANIZED.
- FOR ADDITIONAL NOTES SEE SP-S-3.

**NOTES**

- \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
- SLANTED SCREENED INFORMATION AND TEXT INDICATES EXISTING INFORMATION OR DIMENSIONS TAKEN FROM DRAWINGS PRODUCED BY SHENANDOAH STEEL CORPORATION TITLED "UPPER BLACKSTONE INCINERATOR UPGRADE PROJECT, PIPE RACK", DATED APRIL 1996, AND FROM FIELD OBSERVATIONS MADE BY THE ENGINEER. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. SSPSC010.DWG  
 DESIGNED BY: J. CAVANAUGH  
 DRAWN BY: K. GALLERIE  
 SHEET CHK'D BY: J. CAVANAUGH  
 SCALE: AS NOTED  
 APPROVED BY: D.L. HARRIS  
 DATE: MAY 2006

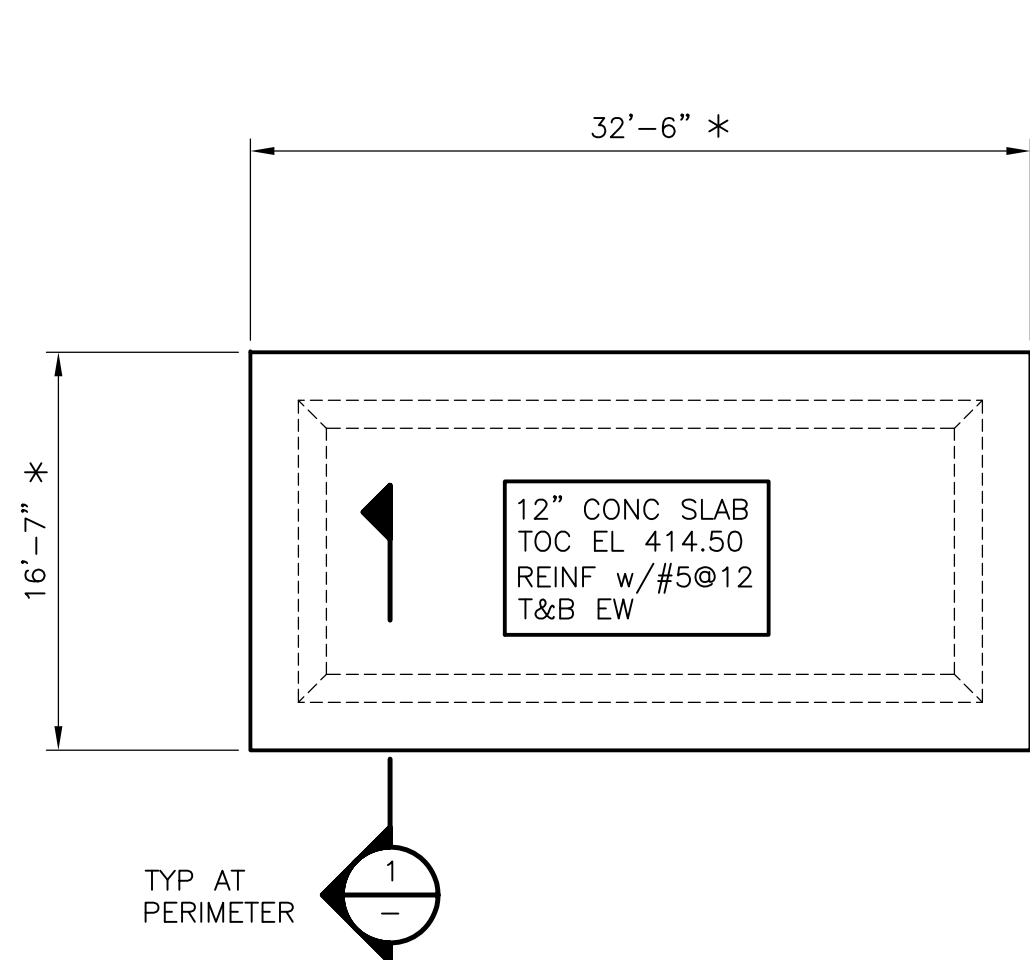
**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**INCINERATOR BUILDING  
 OUTSIDE DUCTWORK  
 ELEVATIONS AND DETAILS**

PROJECT NO.  
 1289\35370  
 Sht. 126 of 386  
**SP-S-12**  
ACCESSION NO. 1289-65926

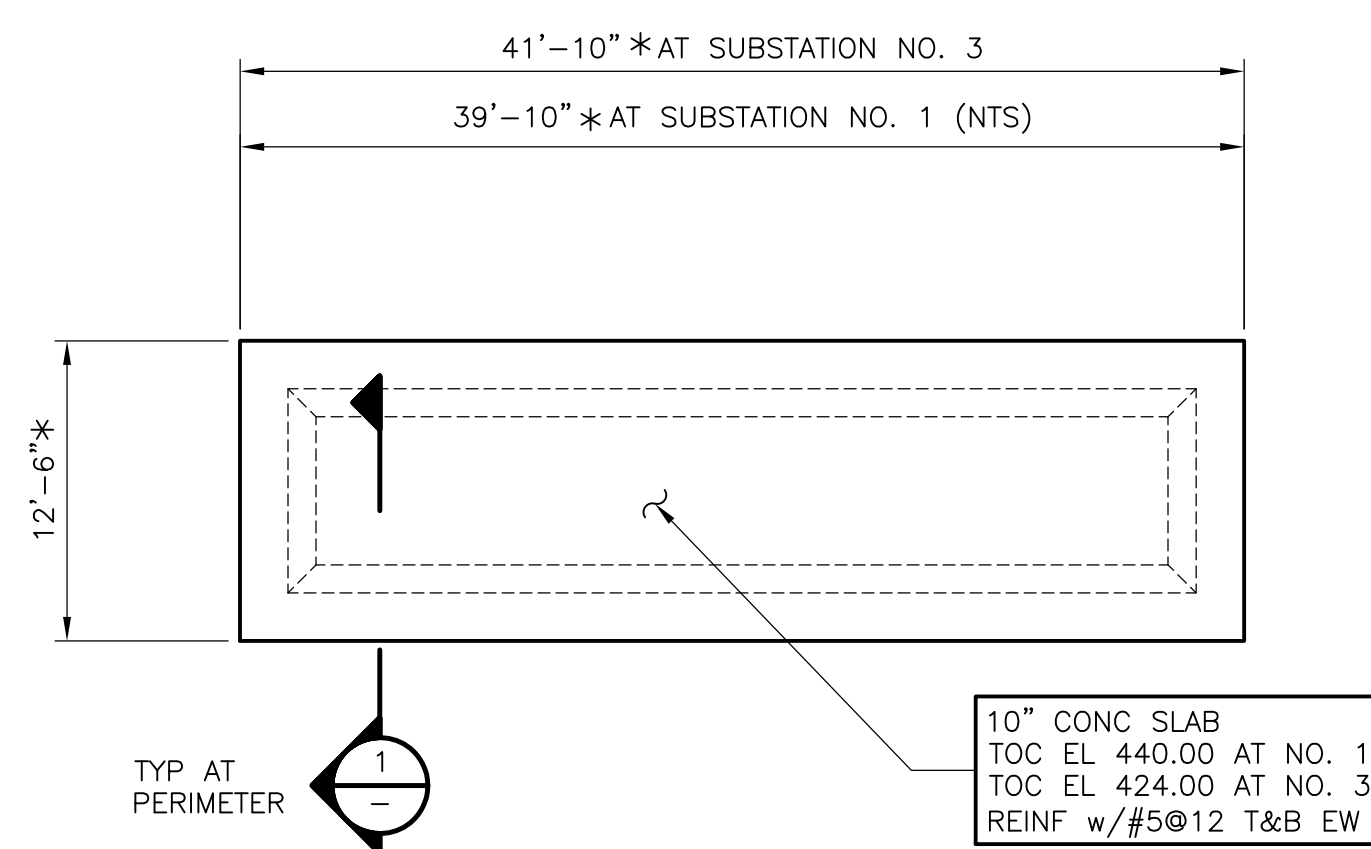
UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 File: P:\1289\35370\PHASE I\RECORD\STRU\SMSPL001.dwg  
 Xref's: [C24X36H, COOPLO00, ]  
 Plotted by: CROSSHA Time: 12/16/08 6:23:21 PM



MAIN SWITCHGEAR FOUNDATION

**PLAN**

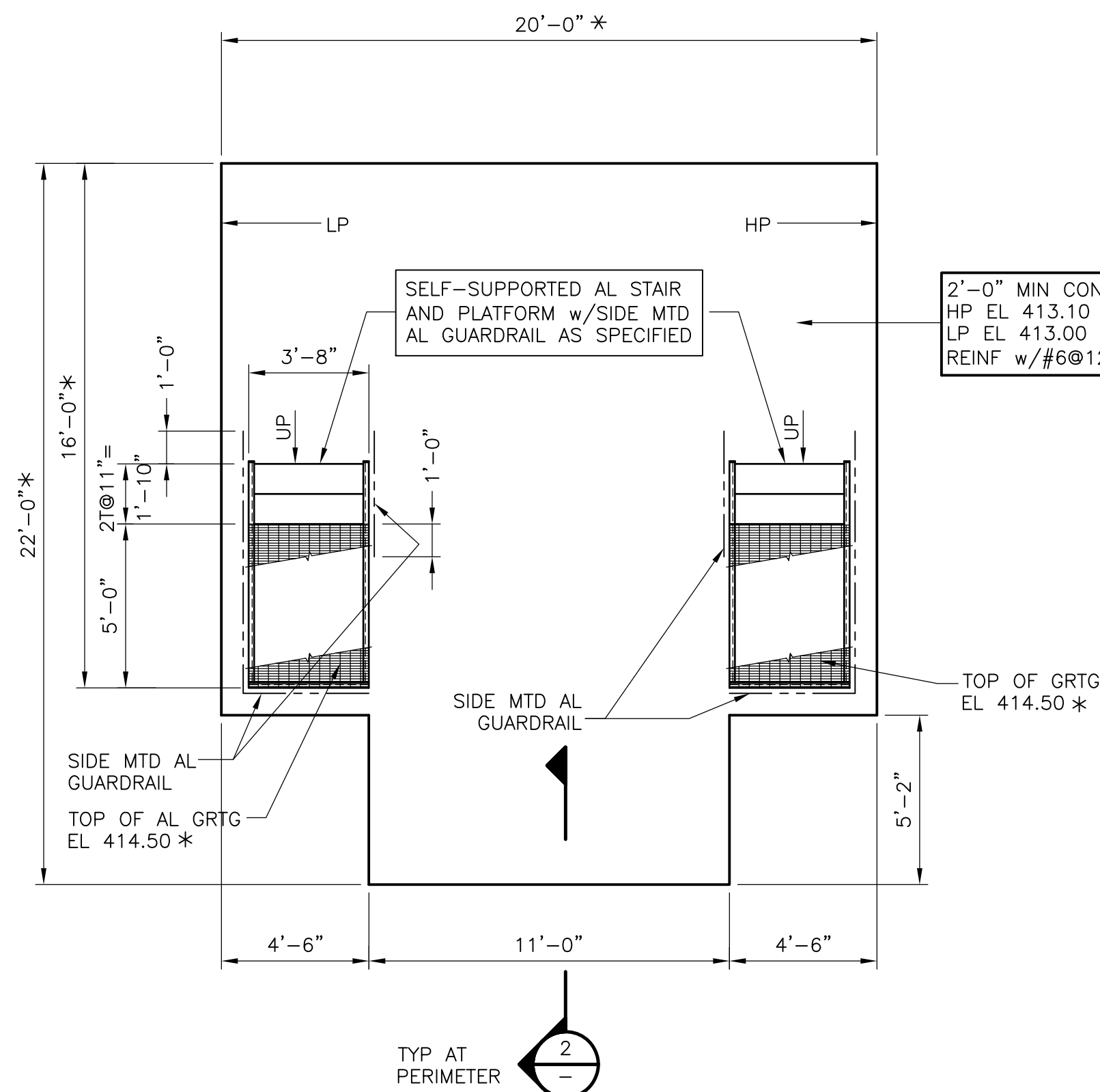
1/8" = 1'-0"



SUBSTATIONS NO. 1 AND NO. 3 FOUNDATION

**PLAN**

1/8" = 1'-0"



GENERATOR FOUNDATION

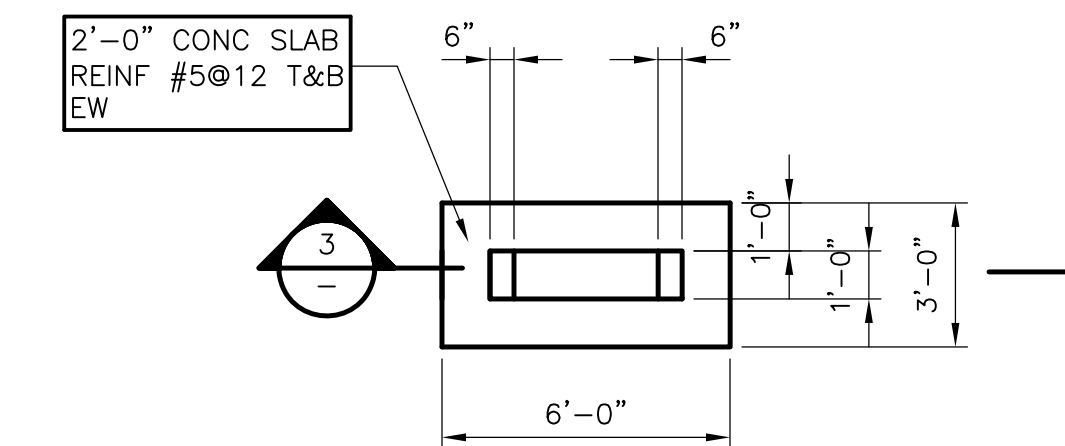
**PLAN**

1/4" = 1'-0"

**NOTES:**

- \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
- FOUNDATION LOADS ARE AS FOLLOWS:
 

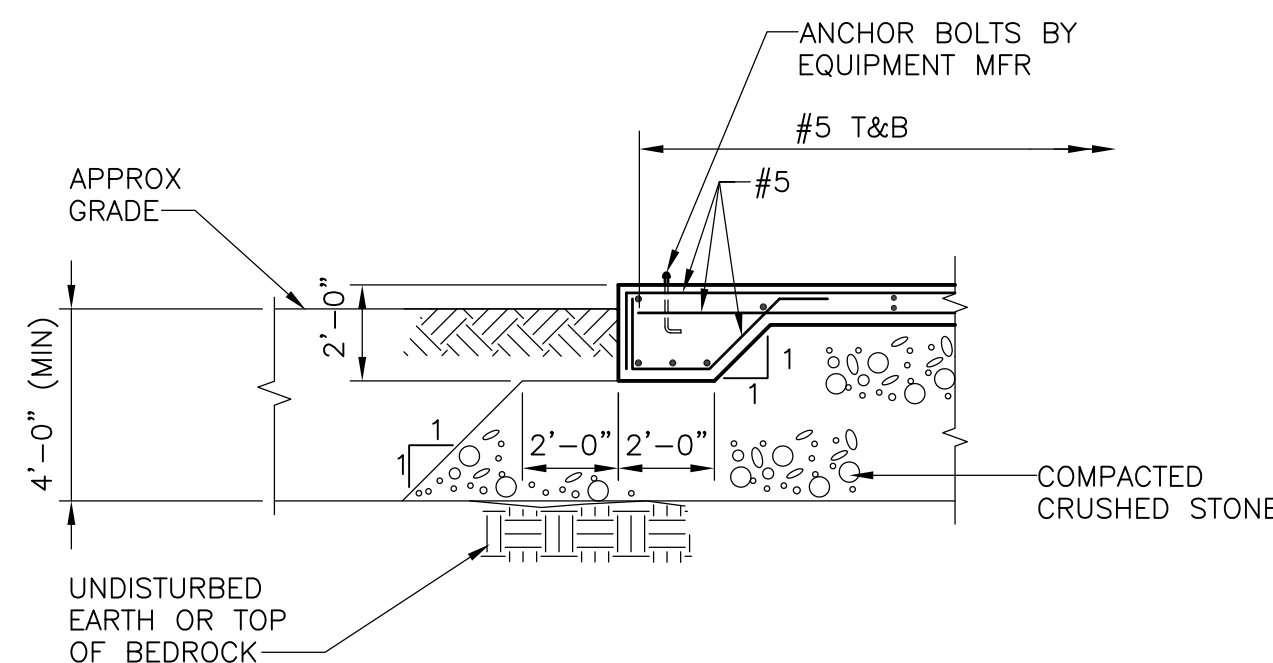
MAIN SWITCHGEAR:	W=	49.4 KIPS
BASE SHEAR:	V=	3.0 KIPS AT THE TOP OF THE FOUNDATION
OVERTURNING MOMENT:	M=	28.7 FOOT-KIPS AT THE TOP OF THE FOUNDATION
SUBSTATIONS NO. 1&3 ENCLOSURES	W=	17.4 KIPS
BASE SHEAR:	V=	1.5 KIPS AT THE TOP OF THE FOUNDATION
OVERTURNING MOMENT:	M=	14.0 FOOT-KIPS AT THE TOP OF THE FOUNDATION
GENERATOR	W=	6.4 KIPS
- FOUNDATION SHALL NOT BE FABRICATED OR CONSTRUCTED UNTIL THE LOADS HAVE BEEN SUBMITTED, HAVE BEEN REVIEWED, AND ADJUSTMENTS TO THE FOUNDATION DESIGN HAVE BEEN COMPLETED IF REQUIRED BY THE ENGINEER.



ODOR CONTROL DUCT SUPPORT FOUNDATION w/CRADLE

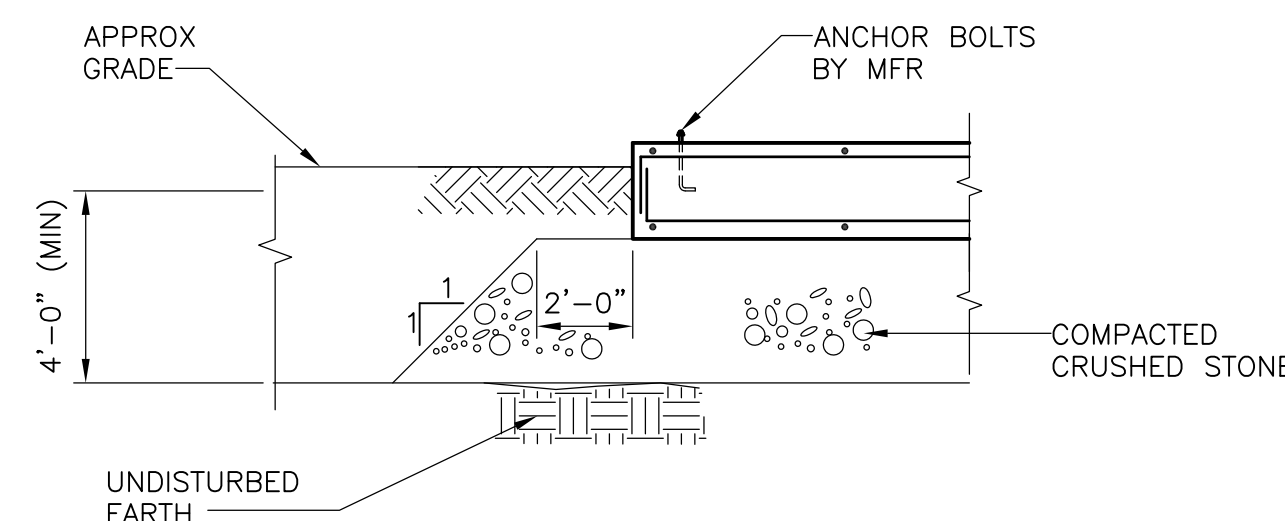
**PLAN**

1/4" = 1'-0"



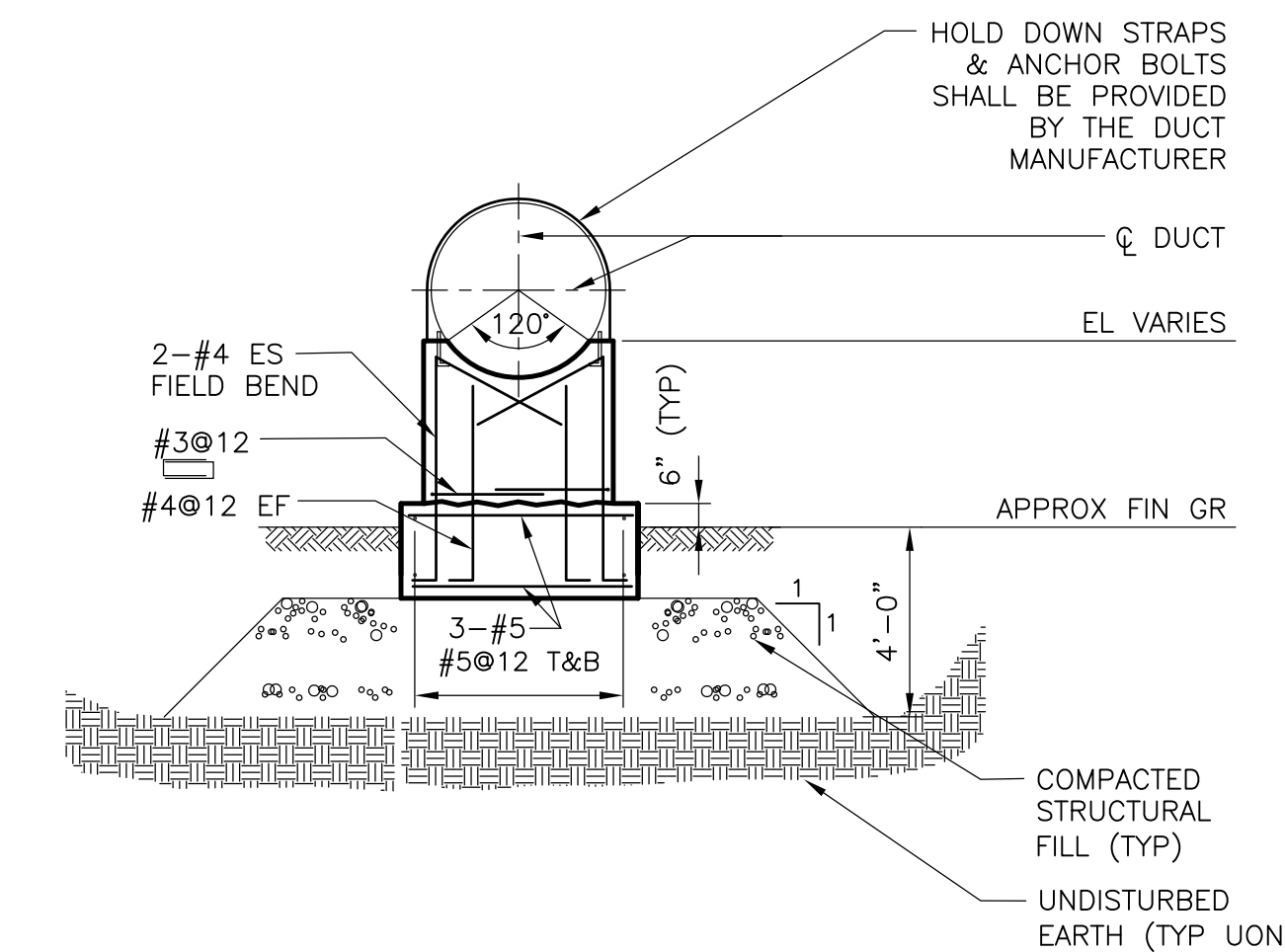
SECTION 1

1/4" = 1'-0"



SECTION 2

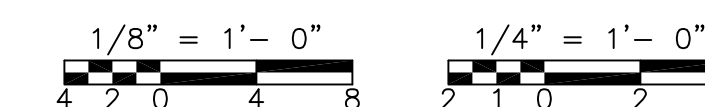
1/4" = 1'-0"



SECTION 3

1/4" = 1'-0"

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SMSPL001.DWG
DESIGNED BY:	J. CAVANAUGH
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	J. CAVANAUGH
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

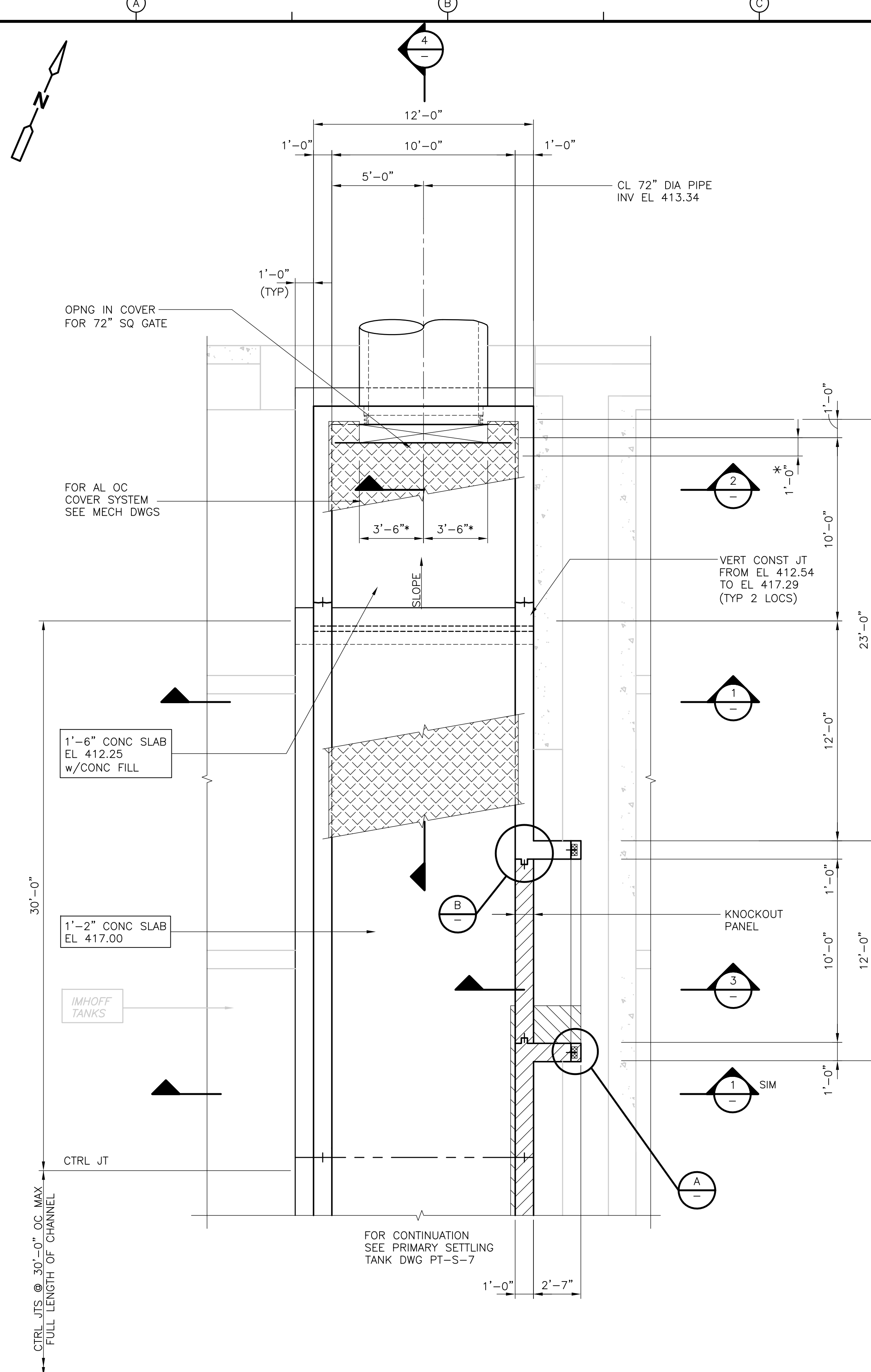
**CDM** Camp Dresser & McKee Inc.  
*consulting engineering construction operations*

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

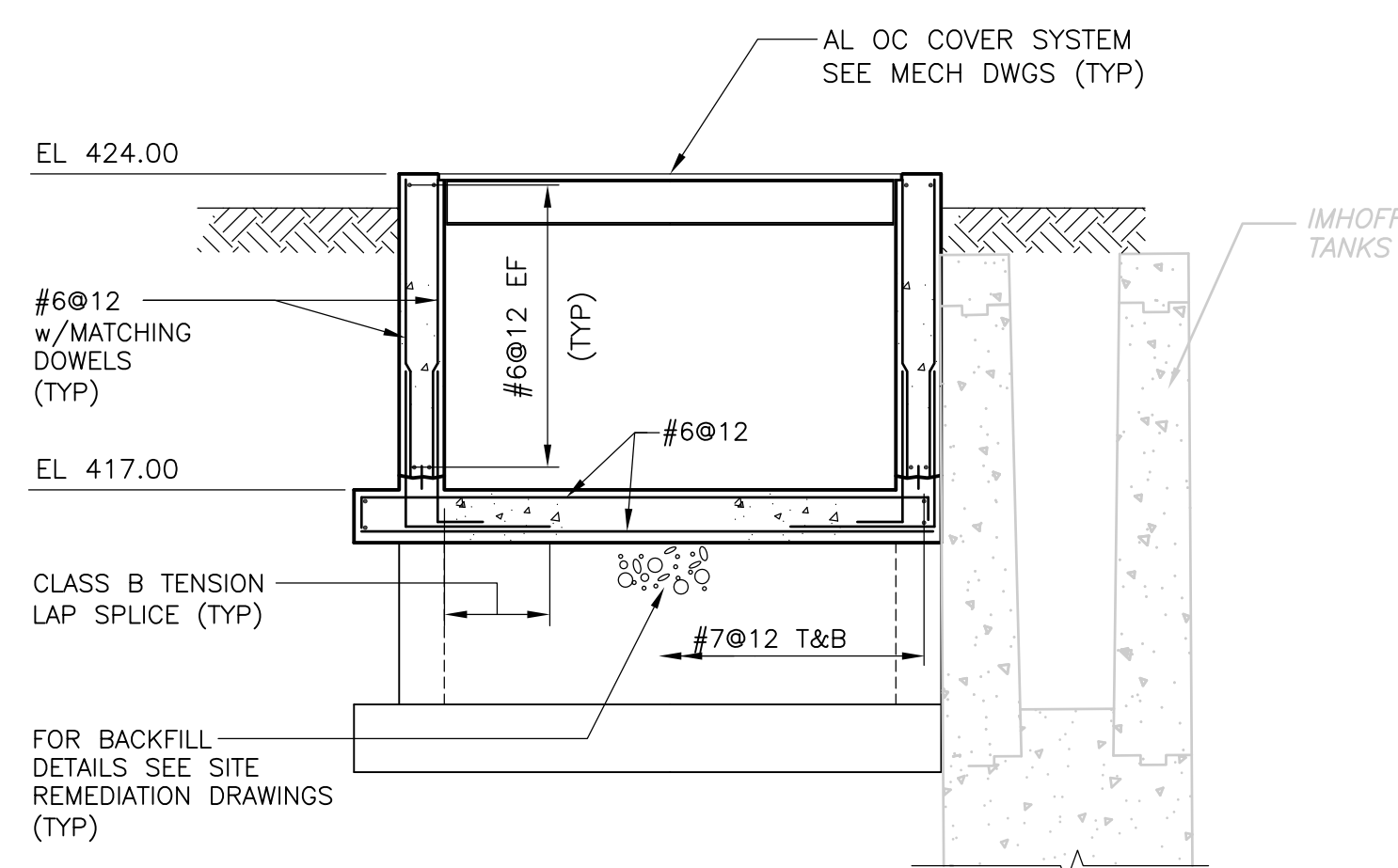
**MISCELLANEOUS YARD STRUCTURES  
 PLANS AND SECTIONS**

PROJECT NO.	1289\35370
Sht.	127 of 386
<b>MS-S-1</b>	

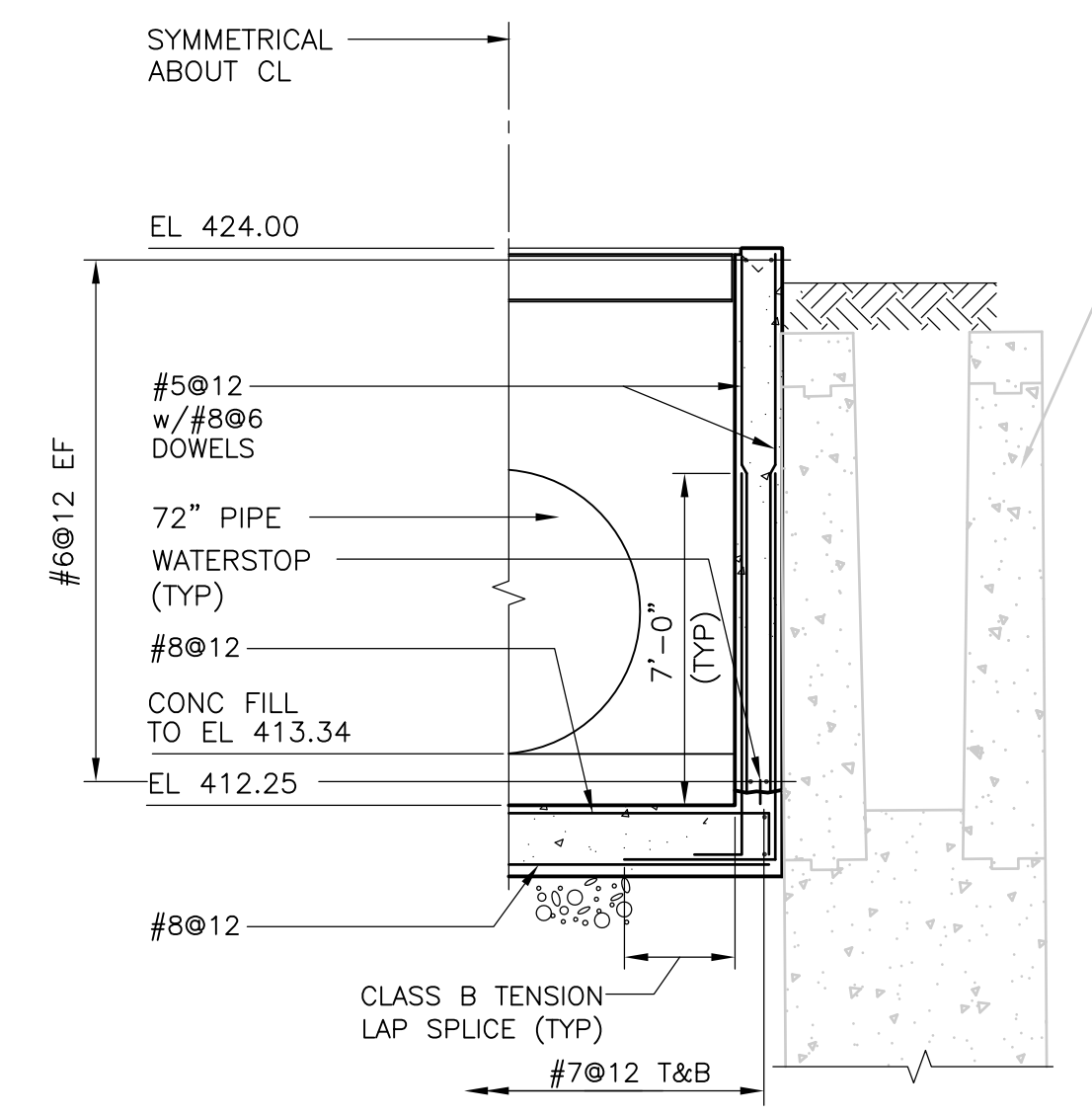
ACCESSION NO. 1289-65927



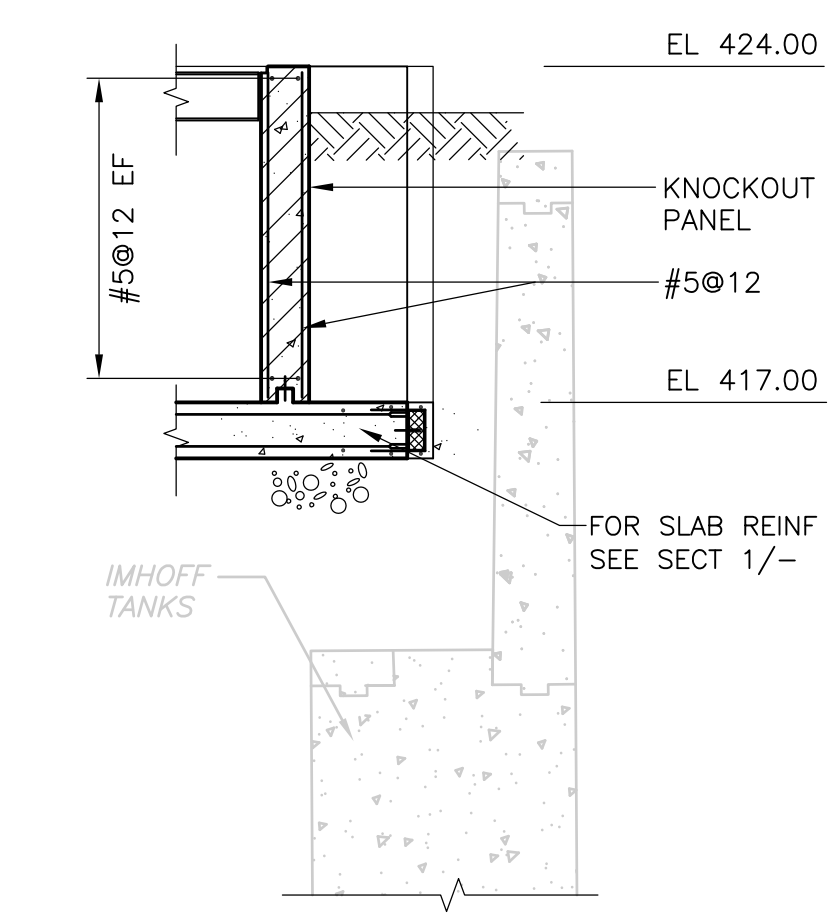
**WET WEATHER DISCHARGE GATE STRUCTURE**  
**PLAN**  
1/4" = 1'-0"



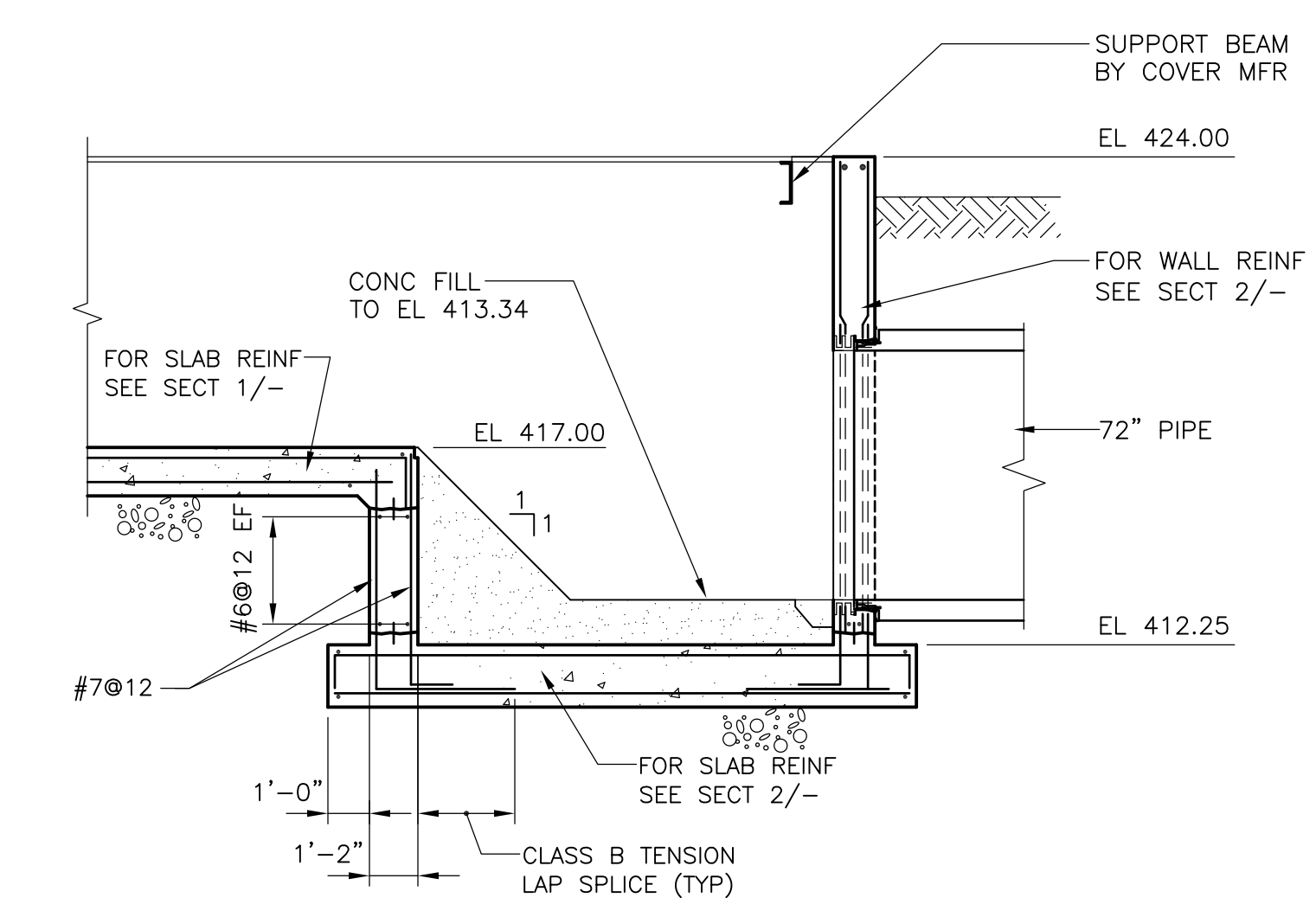
**SECTION 1**  
1/4" = 1'-0"



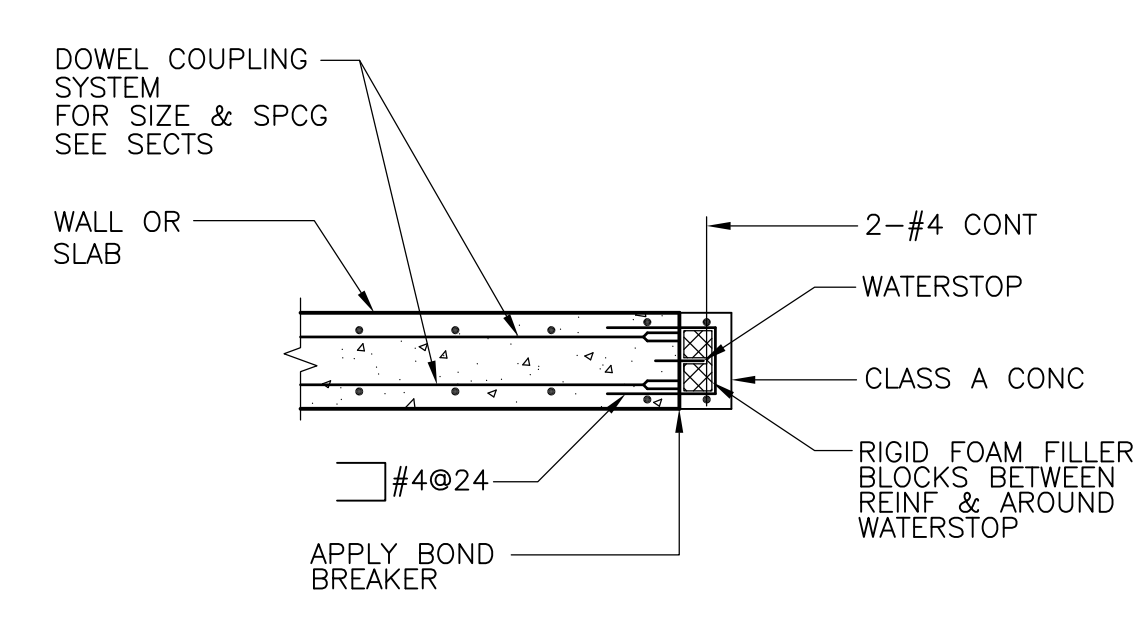
**SECTION 2**  
1/4" = 1'-0"



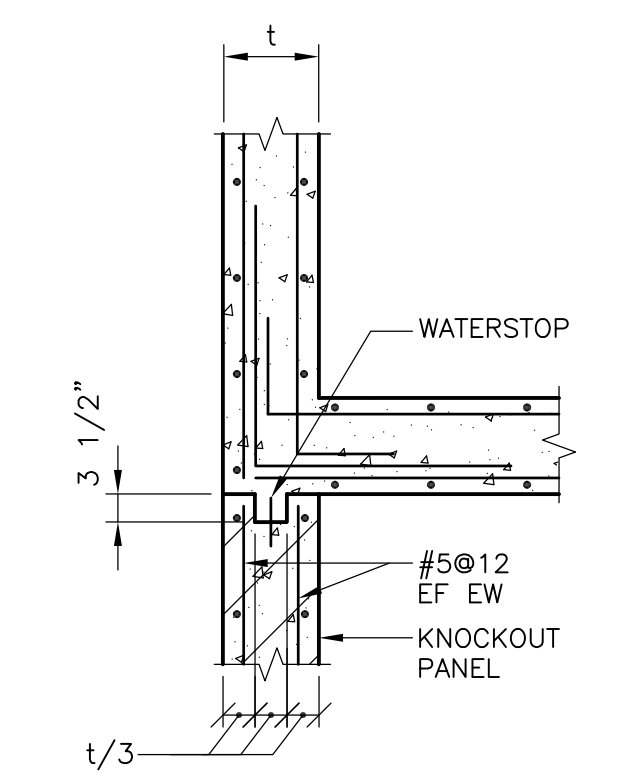
**SECTION 3**  
1/4" = 1'-0"



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



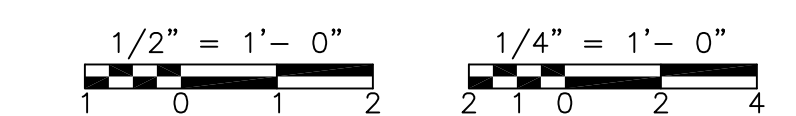
**WATERSTOP PROTECTION**  
**DETAIL A**  
1/2" = 1'-0"



**KNOCKOUT PANEL**  
**DETAIL B**  
1/2" = 1'-0"

**NOTES:**  
1. \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	SMSPL002.DWG
DESIGNED BY:	A.J. PAPA
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	AS NOTED
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
CONTRACT No. UB 2024

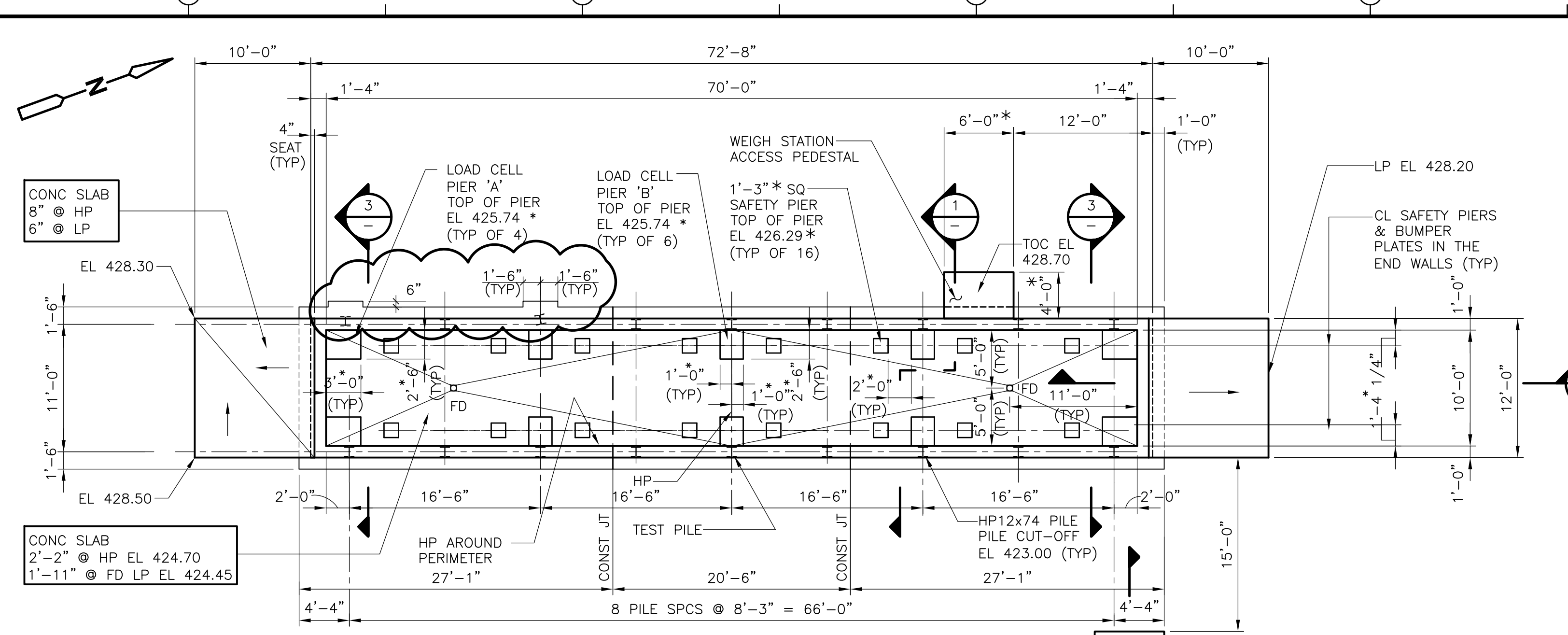
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**MISCELLANEOUS YARD STRUCTURES**  
**WET WEATHER DISCHARGE GATE STRUCTURE**  
**PLAN, SECTIONS AND DETAILS**

PROJECT NO.  
1289\35370

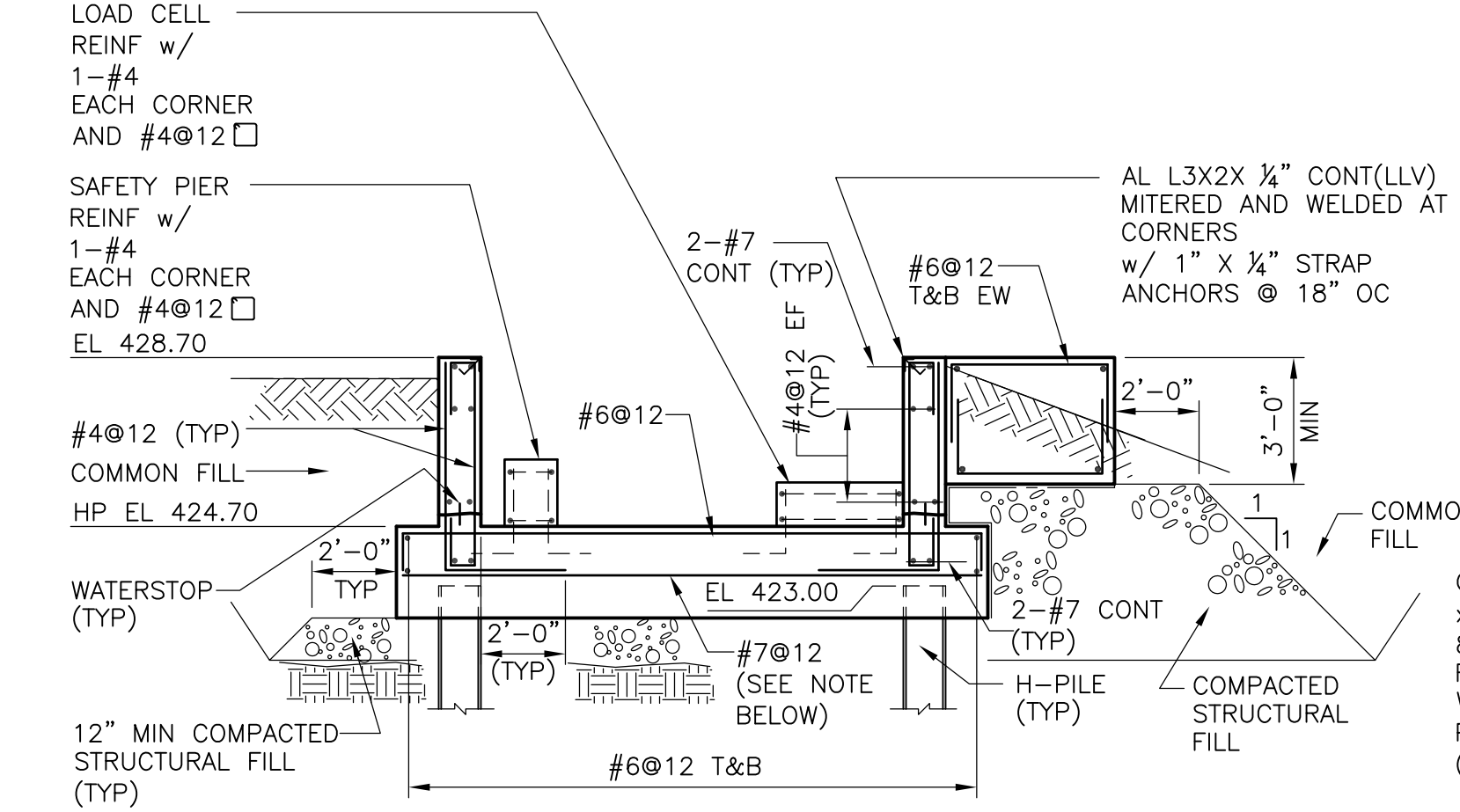
Sht. 128 of 386

**MS-S-2**

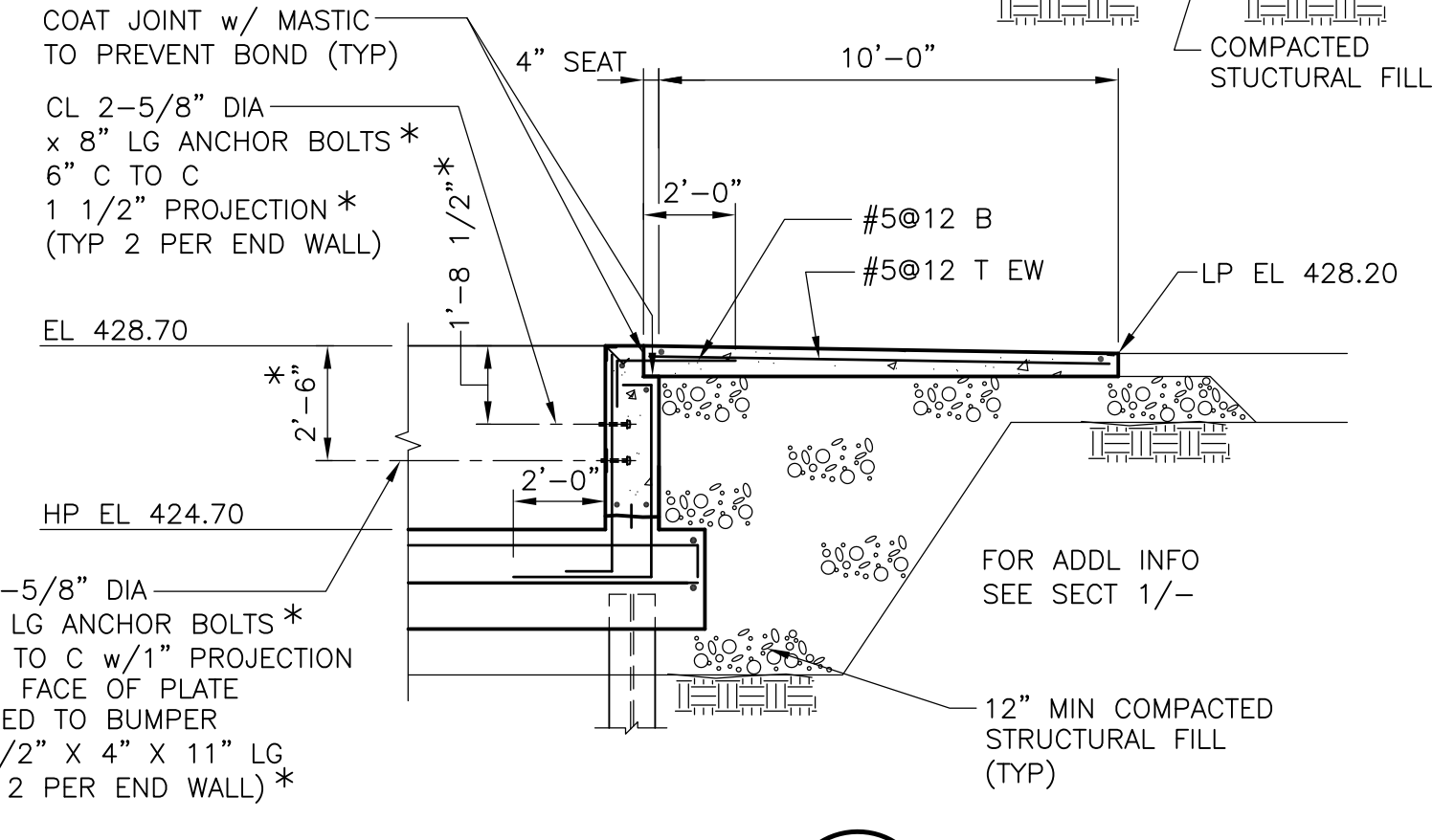


(FOR LOCATION SEE SHEET C-8)  
**TRUCK SCALE - PILE AND FOUNDATION**

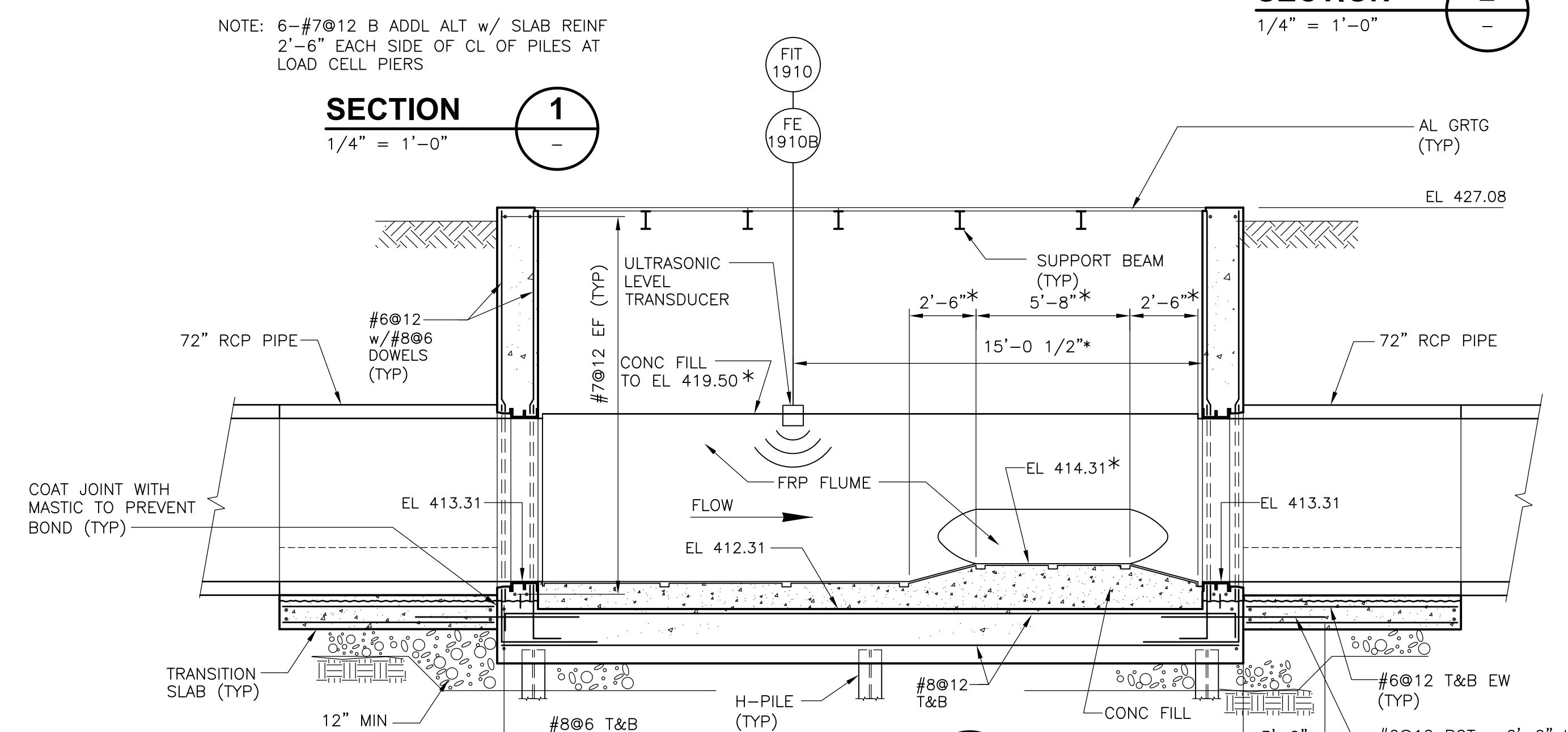
**PLAN**  
 1/8" = 1'-0"



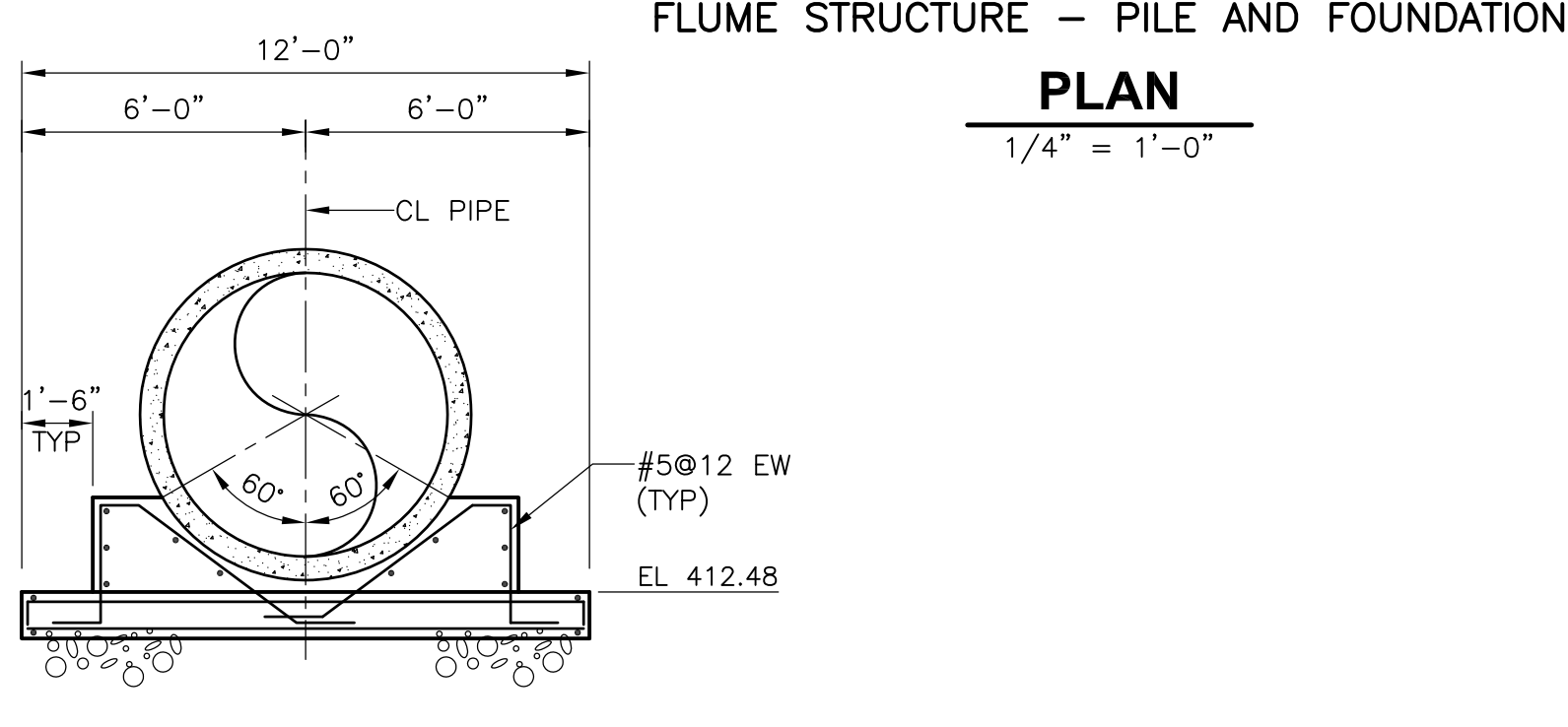
**SECTION 1**  
 1/4" = 1'-0"



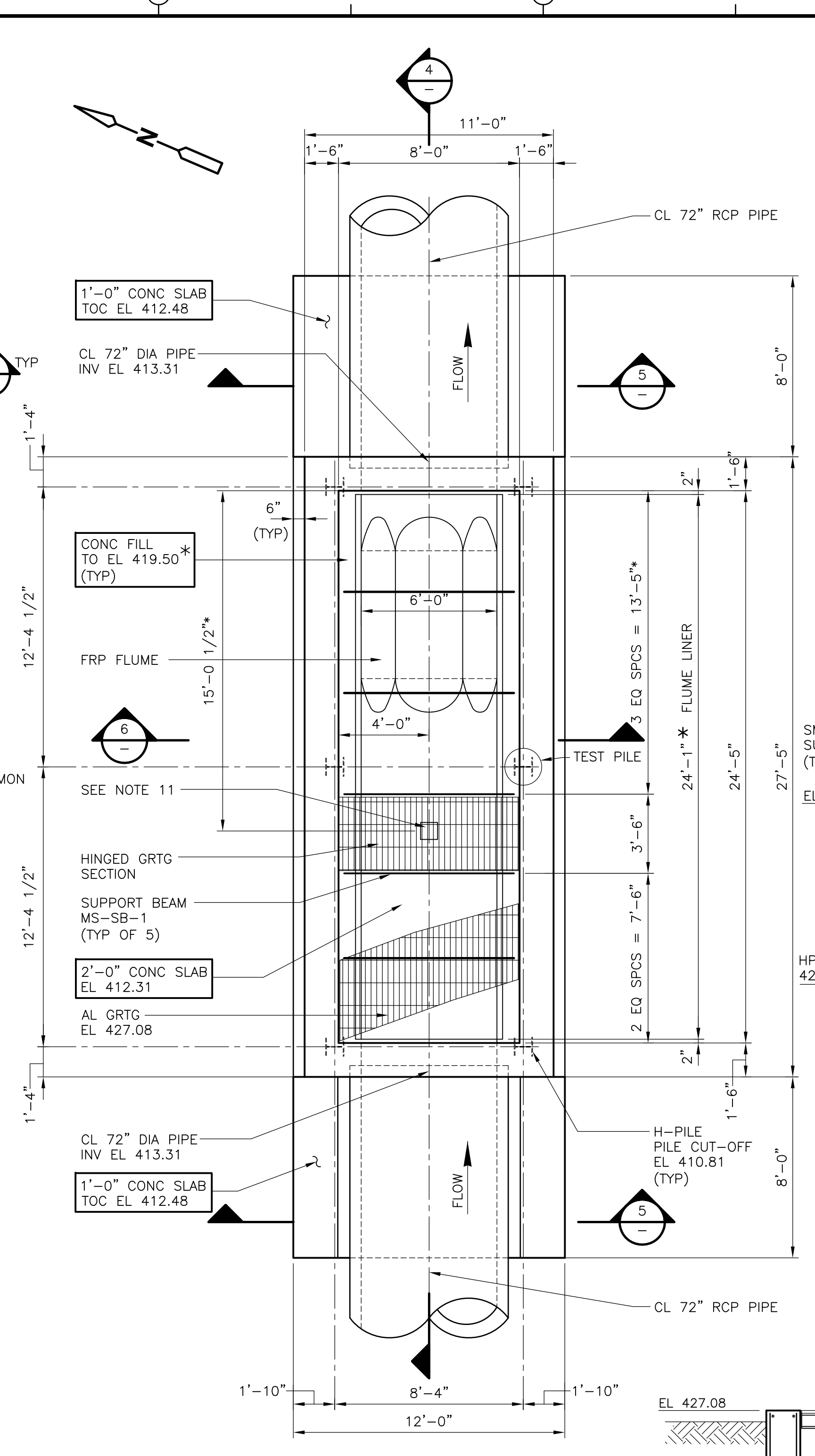
**SECTION 2**  
 1/4" = 1'-0"



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



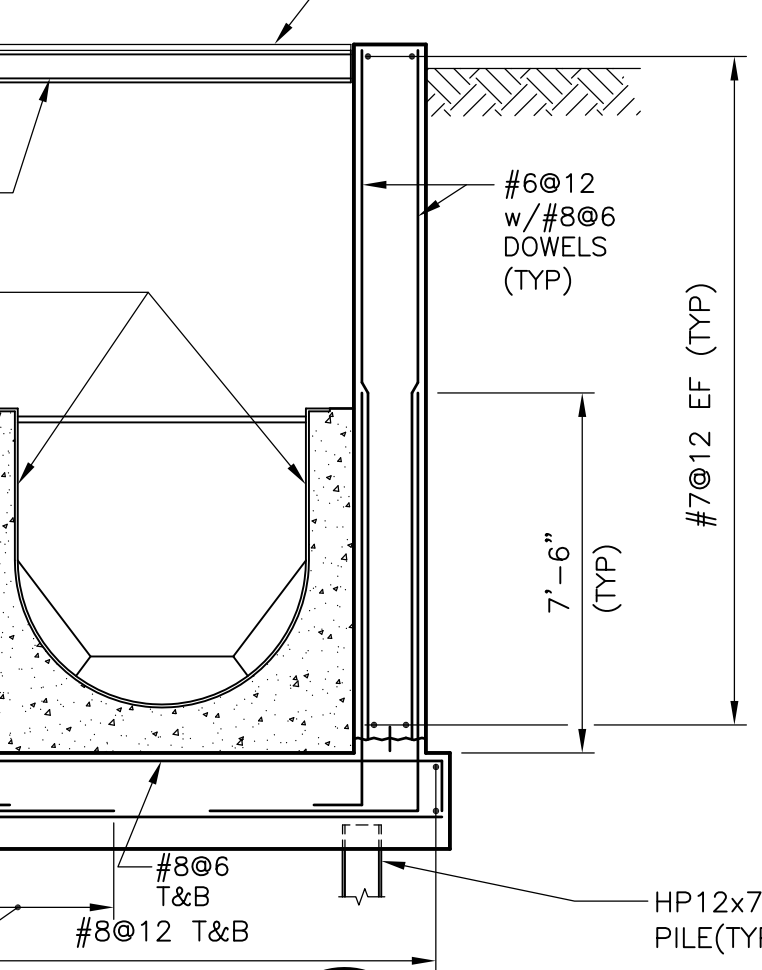
**SECTION 5**  
 1/4" = 1'-0"



**SECTION 6**  
 1/4" = 1'-0"

**FLUME STRUCTURE - PILE AND FOUNDATION**

**PLAN**  
 1/4" = 1'-0"



**TRUCK SCALE ENDWALL**  
**SECTION 3**  
 1/2" = 1'-0"

- NOTES:**
- \* INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
  - ALL PILES SHALL BE H-PILES. SEE DETAIL ON SD-S-2.
  - PILE CAPACITY:  
 COMPRESSION 78 TONS
  - PILE TIP ELEVATION SHALL BE: 396.50 AT TRUCK SCALE.  
 386.00 AT FLUME.
  - PIER LOADING AT TRUCK SCALE:  
 PIER 'A' 44 KIPS  
 PIER 'B' 50 KIPS
  - TRUCKSCALE FOUNDATION SHOWN HAS BEEN DESIGNED FOR THE LOADS AS SHOWN. FOUNDATION SHALL NOT BE CONSTRUCTED UNTIL FOUNDATION LOADS HAVE BEEN REVIEWED AND ADJUSTMENTS TO THE FOUNDATION HAVE BEEN COMPLETED, IF REQUIRED, BY THE ENGINEER.
  - FD INDICATES FLOOR DRAIN.
  - ALL PIPING BELOW THE SLAB SHALL BE ENCASED IN CONCRETE.
  - ANCHOR BOLTS AND OTHER ITEMS EMBEDDED IN THE CONCRETE SHALL BE COORDINATED WITH THE MANUFACTURER OF THE APPROVED TRUCK SCALE.
  - FOR SUPPORT BEAM SCHEDULE AND DETAILS SEE SD-S-6.
  - HEAD MEASUREMENT LOCATION. MOUNT ULTRASONIC LEVEL TRANSDUCER ON SS BRACKET PROVIDED BY MANUFACTURER.

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. SMSPL003.DWG	DESIGNED BY: LUKACS/PAPA
DRAWN BY: B.S. HORNER	SHEET CHK'D BY: LUKACS/PAPA
SCALE: AS NOTED	APPROVED BY: D.L. HARRIS
DATE: MAY 2006	

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

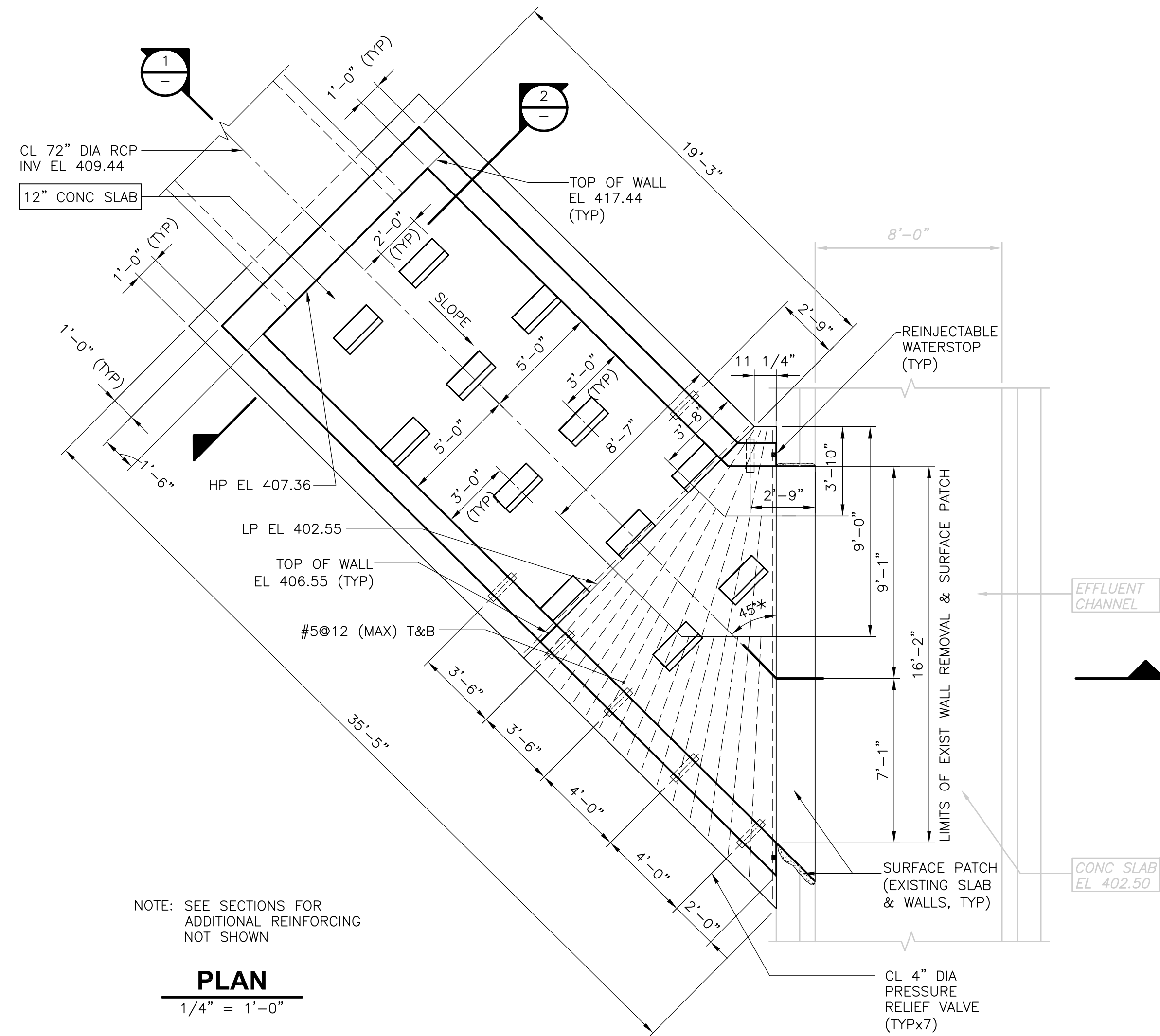
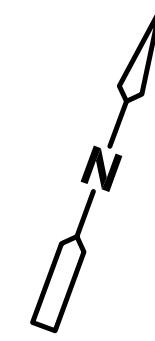
**WASTEWATER TREATMENT FACILITY**  
 IMPROVEMENTS

**MISCELLANEOUS YARD STRUCTURES**  
**TRUCK SCALE AND FLUME STRUCTURE**  
 PLANS AND SECTIONS

PROJECT NO. 1289\35370  
 Sht. 129 of 386  
**MS-S-3**



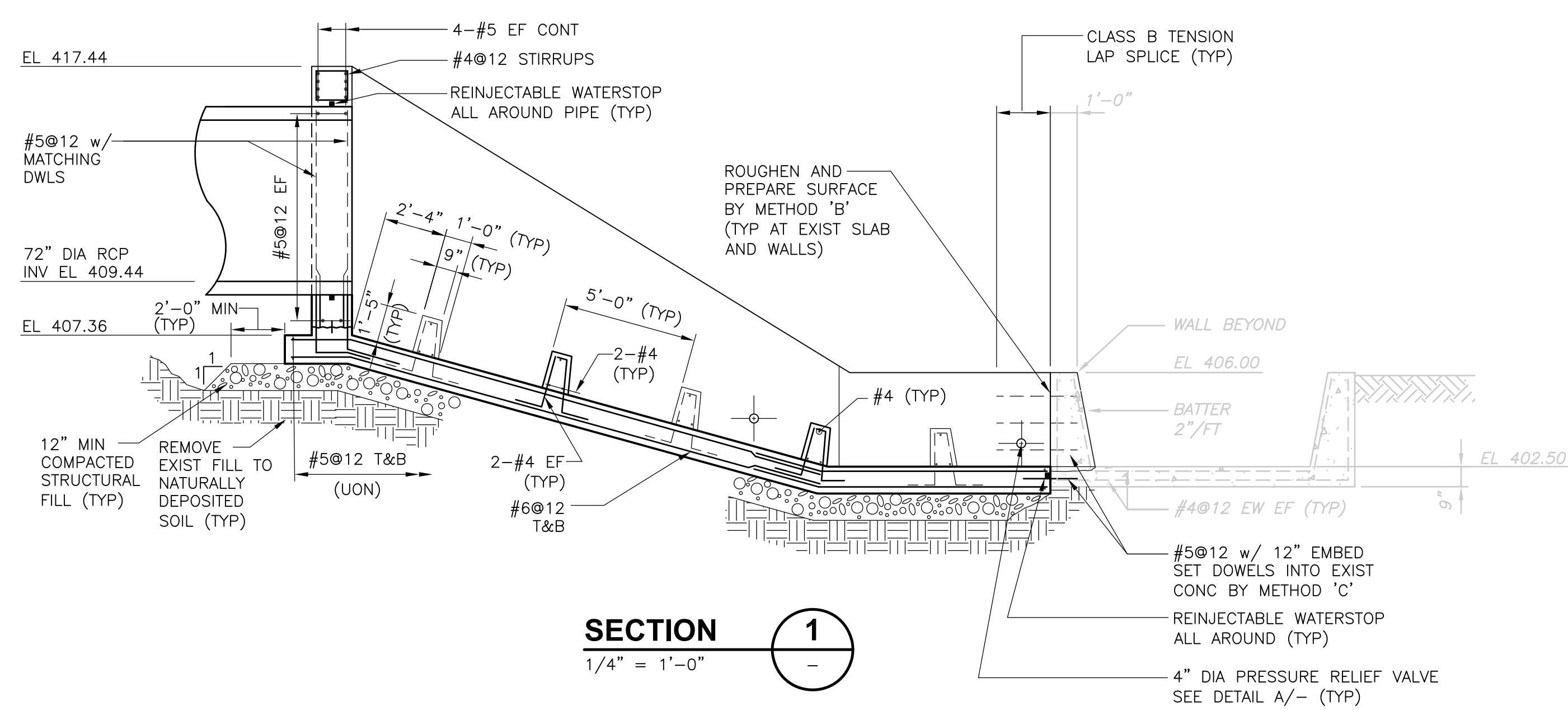
[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
 File name: P:\1289\35370\PHASE I\RECORD\STRU\SMSPL004.dwg Xref's: [C24X36H, CSVPL000, CYPWP001, ] Plotted by: CROSSJA Time: 12/16/08 6:23:30 PM



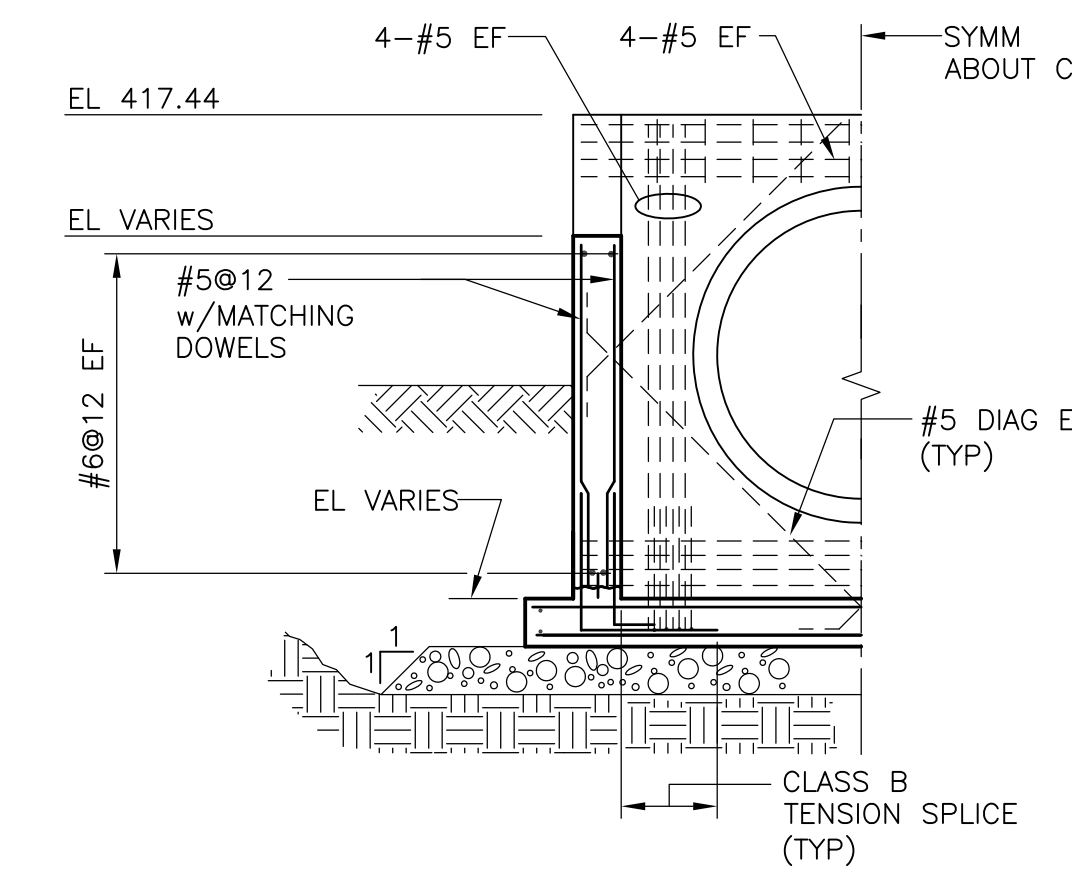
NOTE: SEE SECTIONS FOR ADDITIONAL REINFORCING NOT SHOWN

**PLAN**  
1/4" = 1'-0"

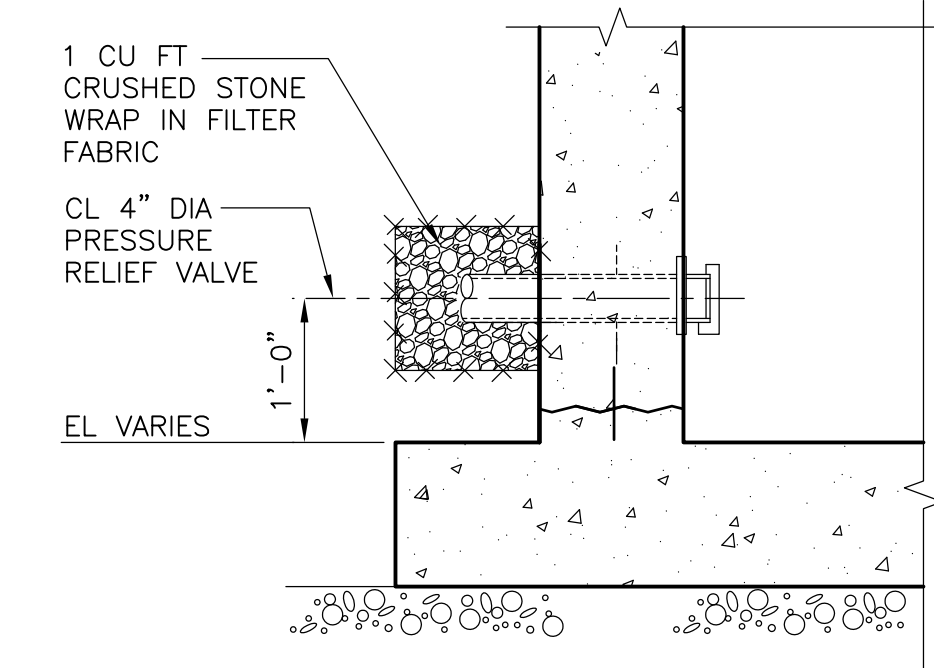
- NOTES:**
1. SLANTED SCREENED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM DRAWINGS DATED OCTOBER 31, 1949 TITLED "WORCESTER, MASS SEWAGE TREATMENT PLANT, EFFLUENT CHANNEL." ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
  2. SUPPORT AND MAINTAIN THE STRUCTURAL INTEGRITY OF THE EXISTING EFFLUENT CHANNEL DURING CONSTRUCTION.
  3. FOR REINJECTABLE WATERSTOP NOTES SEE SHEET SD-S-3.
  4. FOR MODIFICATION TO EXISTING CONCRETE NOTES AND DETAILS SEE SHEET SD-S-3.



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

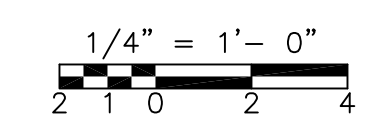


**SECTION 2**  
1/4" = 1'-0"



NOTE: REINF NOT SHOWN FOR CLARITY  
**PRESSURE RELIEF VALVE**  
**DETAIL A**  
3/4" = 1'-0"

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. <u>SMSPL004.DWG</u>
DESIGNED BY: <u>J. CAVANAUGH</u>
DRAWN BY: <u>R. ZECHMANN</u>
SHEET CHK'D BY: <u>J. CAVANAUGH</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>D.L. HARRIS</u>
DATE: <u>MAY 2006</u>

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

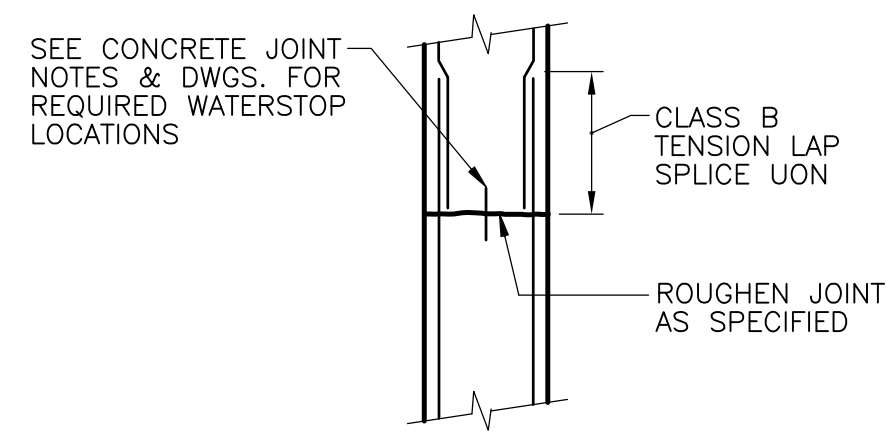
**WET WEATHER DISCHARGE  
 ENERGY DISSIPATION CHANNEL  
 PLAN AND SECTIONS**

PROJECT NO.  
1289\35370

Sht. 130 of 386

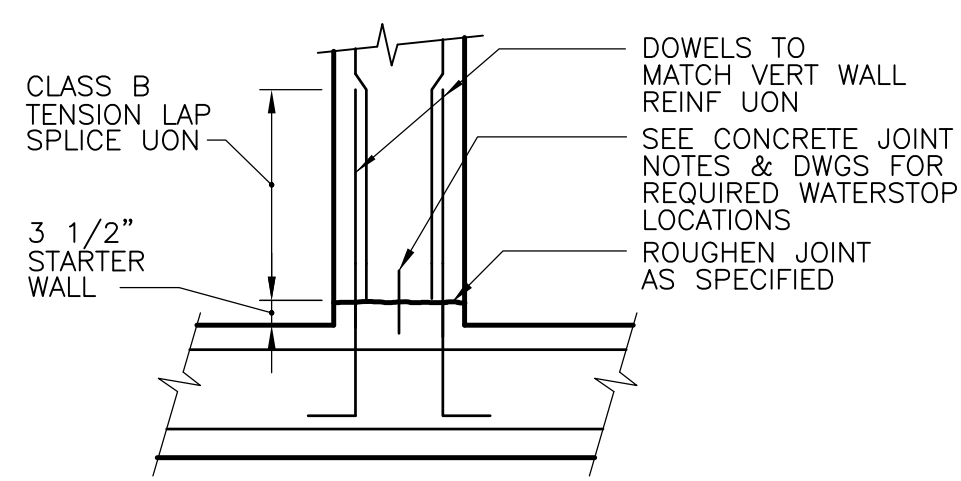
**MS-S-4**

ACCESSION NO. 1289-65530



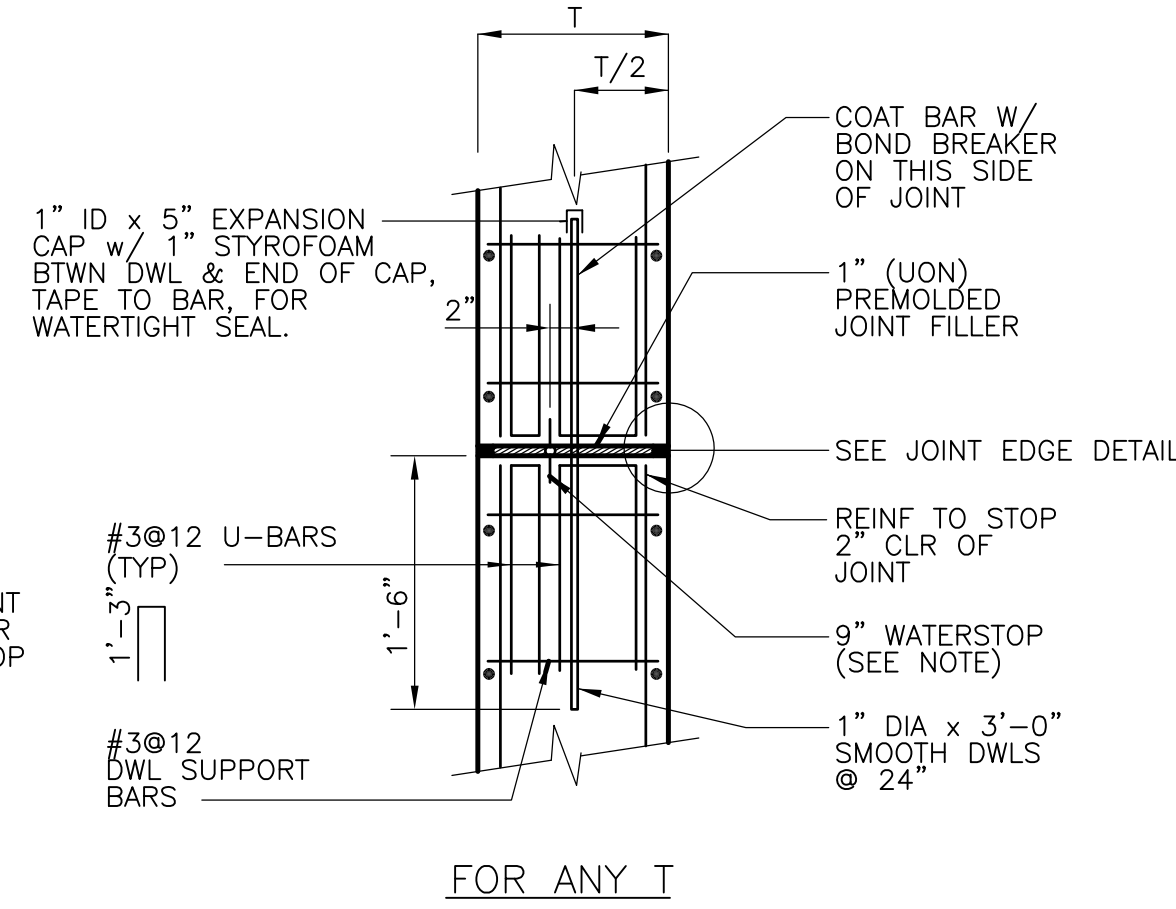
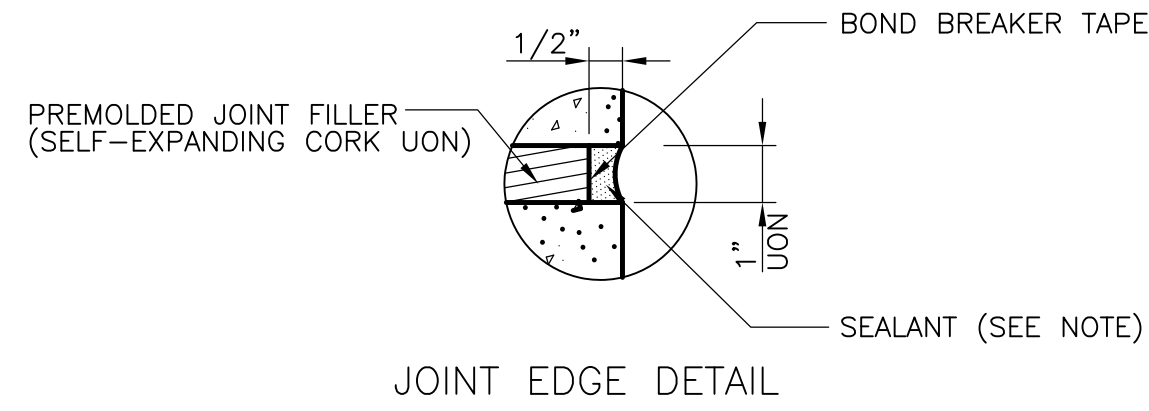
NOTE: DETAIL SHOWN FOR WALLS; SLABS SIMILAR

**CONSTRUCTION JOINT**  
NTS



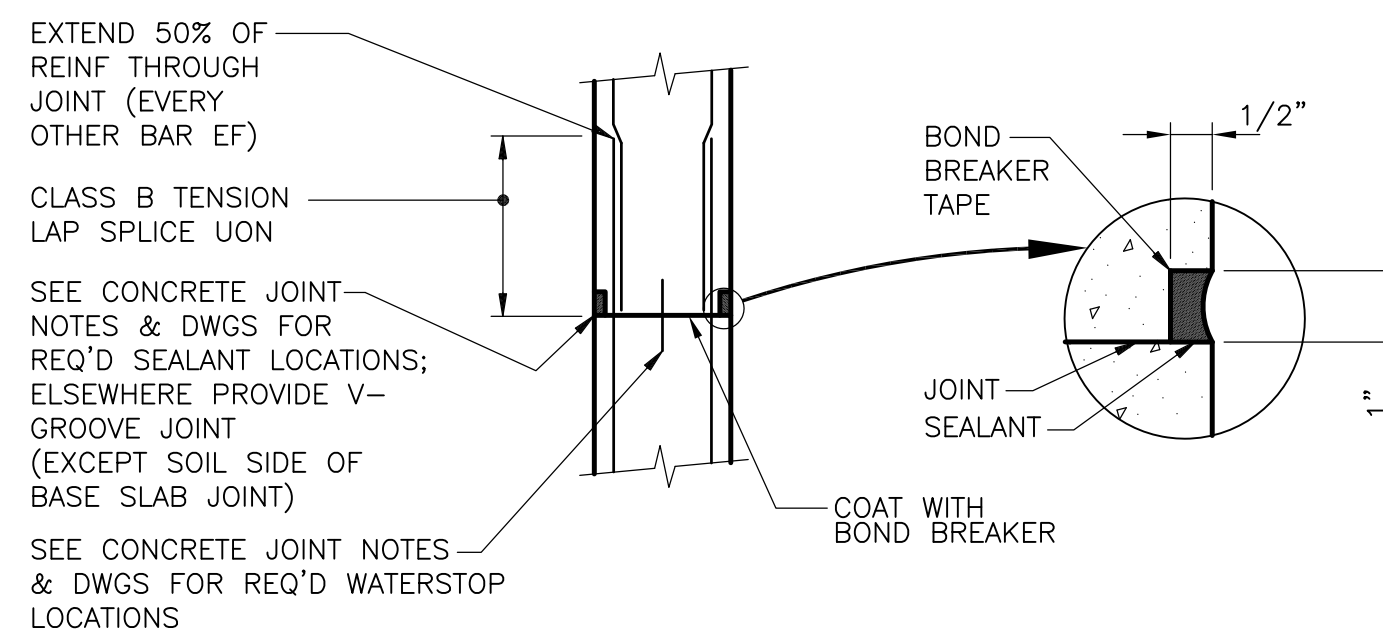
NOTE: STARTER WALL MAY BE ELIMINATED AT JOINTS WITHOUT WATERSTOP AT CONTRACTOR'S OPTION

**WALL CONSTRUCTION JOINT AT SLAB**  
NTS



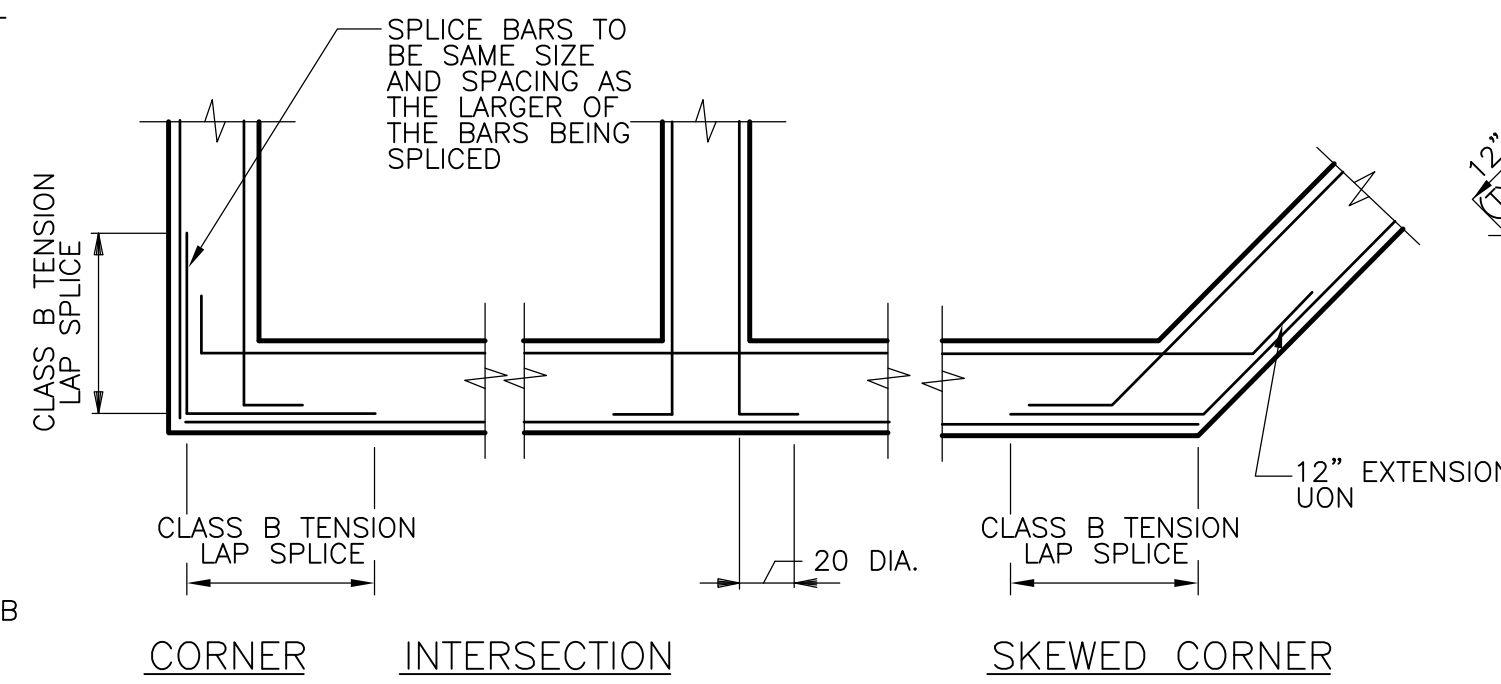
NOTE: FOR LOCATIONS REQUIRING SEALANT AND WATERSTOPS, SEE CONCRETE JOINT NOTES AND DRAWINGS - ELSEWHERE PROVIDE EDGE CHAMFER, EXCEPT ON UNDERSIDE OF SLAB DETAIL SHOWN FOR WALLS; SLABS SIMILAR.

**EXPANSION JOINT AND SEALANT**  
NTS

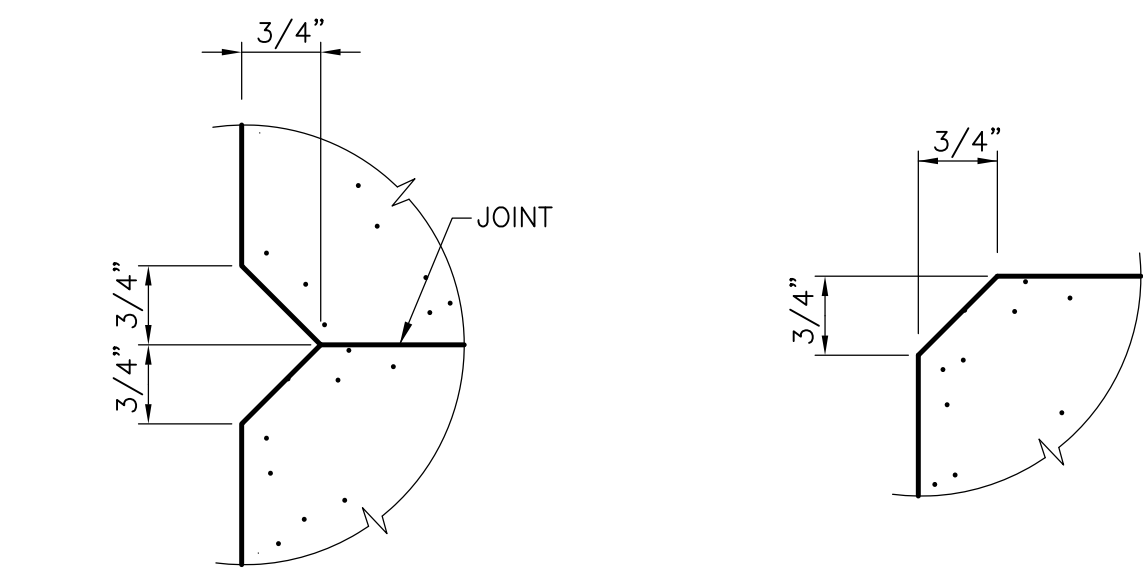


NOTE: DETAIL SHOWN FOR WALLS; SLABS SIMILAR

**CONTROL JOINT AND SEALANT**  
NTS

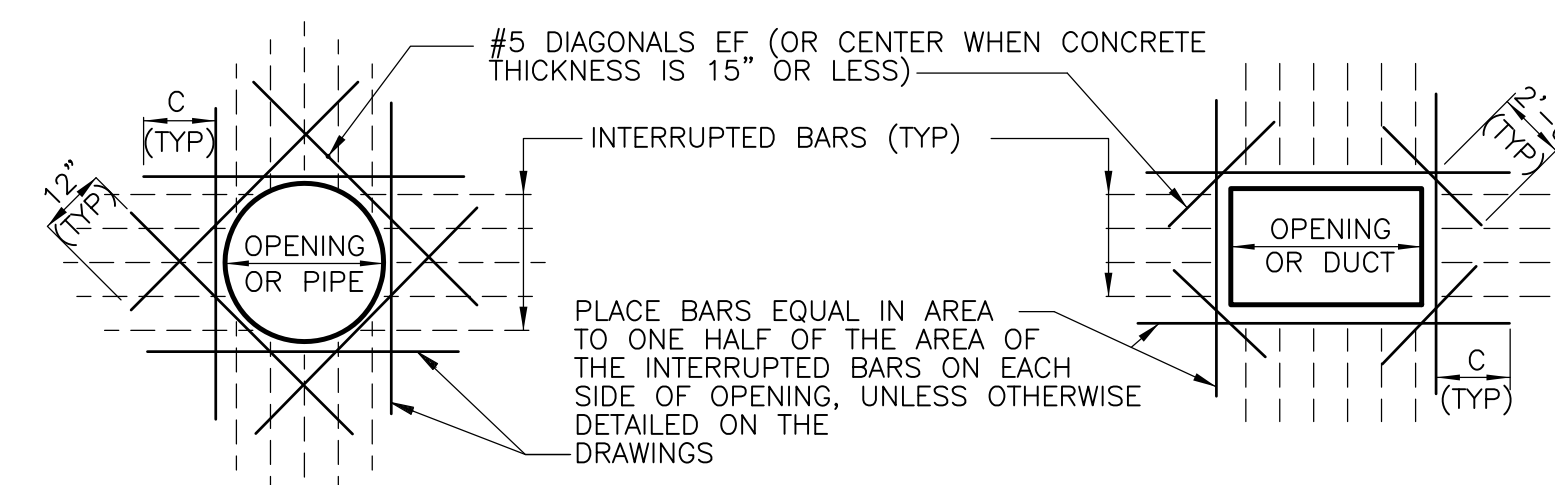


**WALL REINFORCEMENT DETAIL**  
NTS



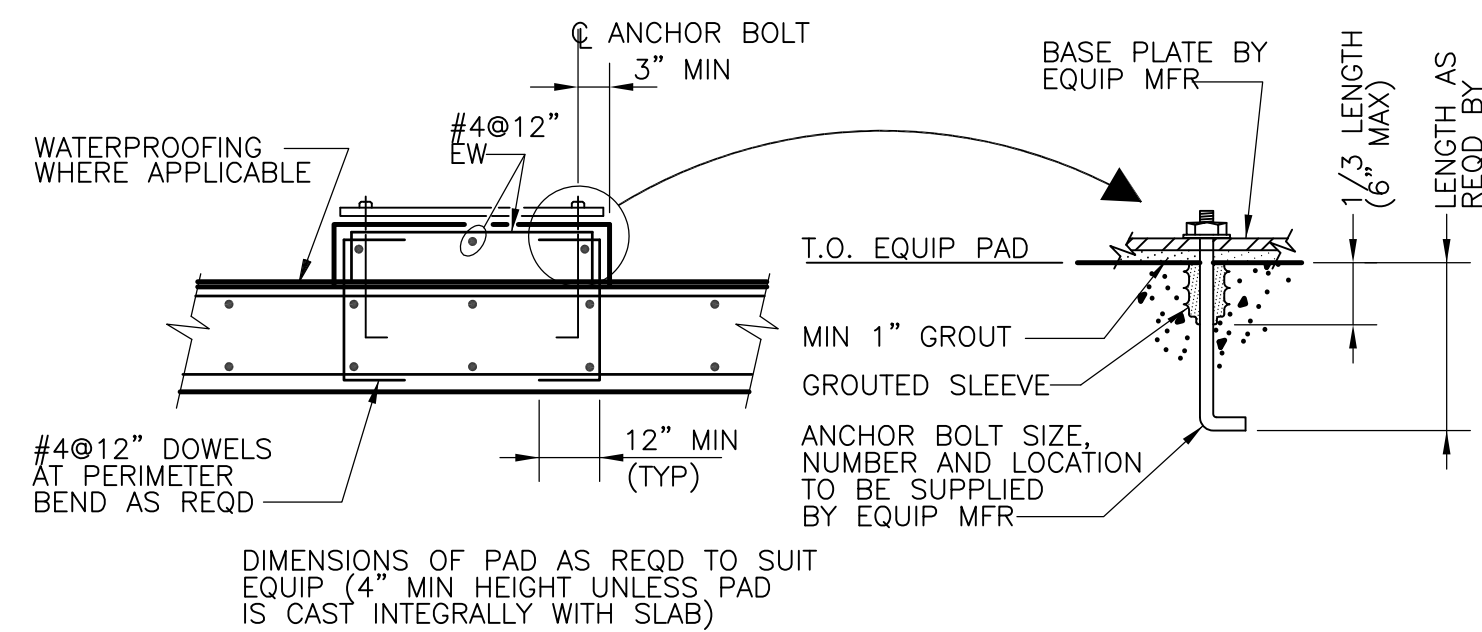
**V-GROOVE JOINT**  
NTS

**CHAMFER**  
NTS



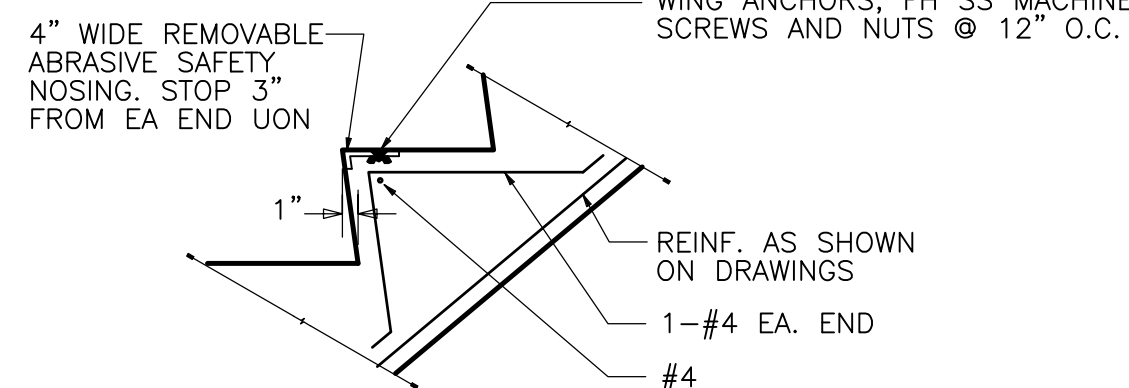
NOTES:  
 1. DETAIL IS TYP FOR ALL OPENINGS 15" AND GREATER IN CONCRETE WALLS AND SLABS UNLESS OTHERWISE NOTED. SPREAD REINF AT SMALLER OPENINGS.  
 2. BARS ARE NOT REQUIRED AT AN OPENING EDGE PARALLEL TO AND WITHIN 6 INCHES OF A WALL OR BEAM  
 3. C = TENSION DEVELOPMENT LENGTH; PROVIDE STD HOOK IF FULL DEVELOPMENT LENGTH IS NOT POSSIBLE  
 4. REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS

**REINFORCEMENT AT OPENINGS**  
NTS

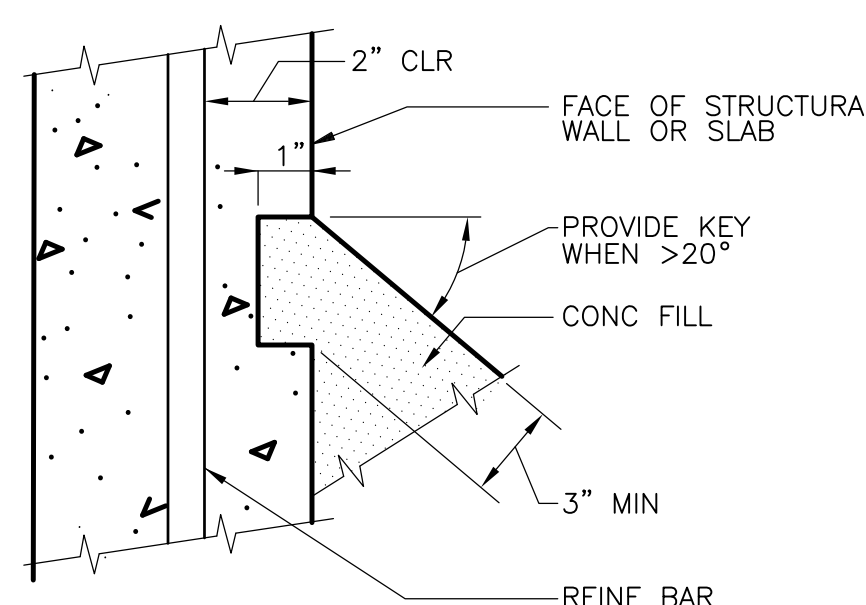


DIMENSIONS OF PAD AS REQ'D TO SUIT EQUIP (4" MIN HEIGHT UNLESS PAD IS CAST INTEGRALLY WITH SLAB)

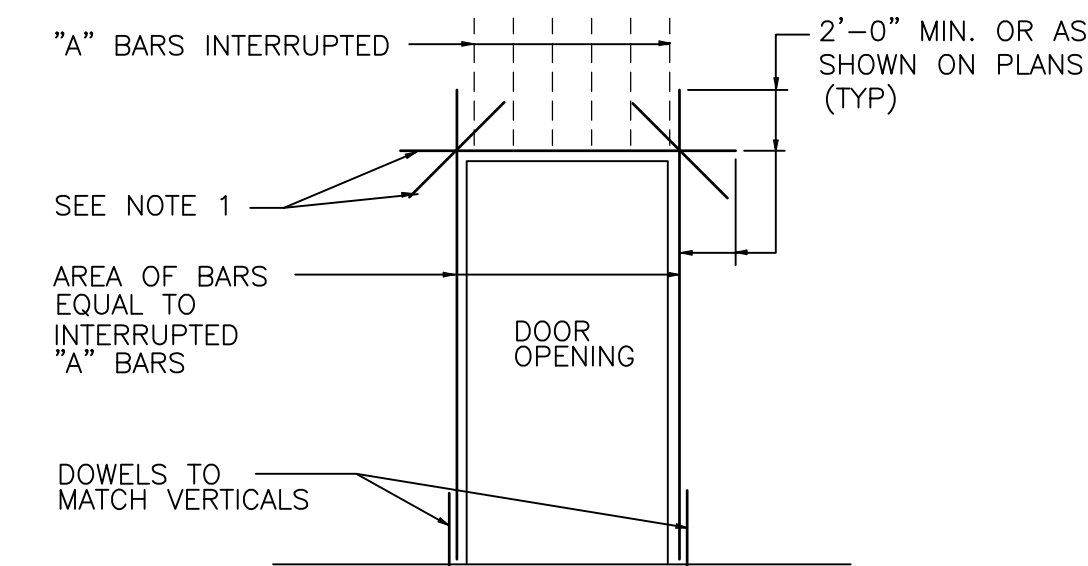
**EQUIPMENT PAD**  
NTS



**CONCRETE STEP**  
NTS



**CONCRETE FILL KEY**  
NTS



NOTES:  
 1. CONCRETE THICK LESS THAN 12"  
 12" TO 15"  
 MORE THAN 15"  
 (\* UNLESS OTHERWISE SHOWN ON PLANS)

ADD'L REINF. \*  
 DIAG. #5 X 4'-0" CENTER HORIZ. #5 CENTER  
 DIAG. #5 X 4'-0" CENTER HORIZ. #5 EF  
 DIAG. #5 X 4'-0" EF HORIZ. #5 EF

**REINFORCEMENT AT DOORWAYS**  
NTS

- GENERAL NOTES:**
- ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, HEATING AND VENTILATING, SHOP DRAWINGS AND SPECIFICATIONS.
  - SEE ARCHITECTURAL, MECHANICAL, HEATING AND VENTILATING AND ELECTRICAL DRAWINGS FOR REGLETS, PIPE SLEEVES, CONDUITS OR OTHER ITEMS TO BE EMBEDDED OR PASSED THROUGH THE CONCRETE.
  - NO BACKFILL SHALL BE PLACED AGAINST WALLS UNTIL WALLS AND SLABS (OR HORIZONTAL BEAMS AND STRUTS) SUPPORTED THEREON HAVE ATTAINED DESIGN STRENGTH.

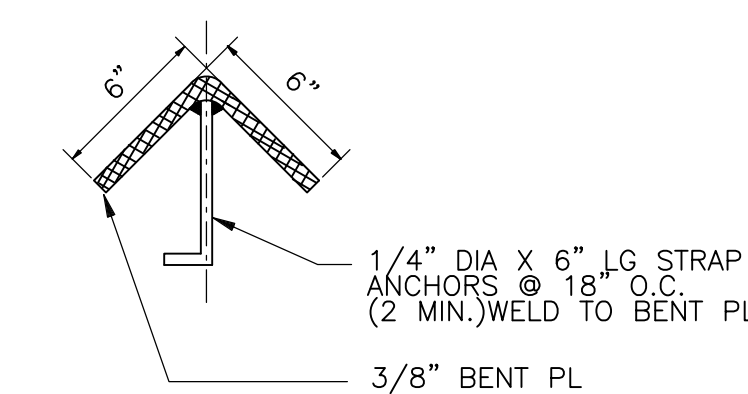
- CAST IN PLACE CONCRETE NOTES:**
- REINFORCED CONCRETE SHALL COMPLY WITH ACI 318 AND THE RECOMMENDATIONS OF ACI-350R.
  - MINIMUM CONCRETE STRENGTH AT 28 DAYS:  
 STRUCTURAL CONCRETE  $f'c = 4000$  psi  
 CONCRETE FILL  $f'c = 2500$  psi
  - REINFORCING STEEL SHALL BE NEW BILLET STEEL CONFORMING TO ASTM SPECIFICATION A615 GRADE 60 UON.
  - REINFORCING STEEL FABRICATION SHALL BE IN COMPLIANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
  - REINFORCING STEEL SHALL HAVE THE FOLLOWING MINIMUM CLEAR CONCRETE COVER UNLESS OTHERWISE NOTED:  
 CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3 IN.  
 CONCRETE SURFACES IN CONTACT WITH SOIL, WATER, SEWAGE, SLUDGE OR EXPOSED TO WEATHER (INCLUDING BOTTOM COVER OVER LIQUID CONTAINING STRUCTURES): 2 IN.  
 CONCRETE SURFACES NOT IN CONTACT WITH SOIL, WATER, SEWAGE, SLUDGE OR EXPOSED TO WEATHER:  
 BEAMS AND COLUMNS (PRINCIPAL REINFORCEMENT, TIES AND STIRRUPS): 1 1/2 IN.  
 WALLS AND TOP AND BOTTOM OF SLABS: 1 IN.
  - SPliced BARS SHALL HAVE A MINIMUM LAP OF CLASS B TENSION LAP SPLICE UNLESS OTHERWISE NOTED.
  - IN CONCRETE BEAMS 30" OR DEEPER, PROVIDE CONTINUOUS #5@12" EACH SIDE BETWEEN MAIN REINFORCING.
  - CONSTRUCTION JOINTS SHALL NOT BE PLACED AT LOCATIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
  - SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE AS REQUIRED BY THE EQUIPMENT MANUFACTURER.
  - ALL EXPOSED CORNERS OF CONCRETE TO HAVE 3/4" MINIMUM CHAMFER UNLESS OTHERWISE NOTED.
  - REINFORCING BARS TO EXTEND 12 BAR DIAMETERS BUT NOT LESS THAN 12 BEYOND BEND UNLESS OTHERWISE NOTED.
  - IN ELEVATED SLABS, LAP CONTINUOUS BOTTOM REINFORCEMENT AT SUPPORTS AND CONTINUOUS TOP REINFORCEMENT AT THE CENTER OF A SPAN, UNLESS OTHERWISE NOTED.
  - IN BASE SLABS, LAP CONTINUOUS BOTTOM REINFORCEMENT AT THE CENTER OF A SPAN AND CONTINUOUS TOP REINFORCEMENT AT SUPPORTS, UNLESS OTHERWISE NOTED.

- CONCRETE JOINT NOTES**
- UNLESS OTHERWISE NOTED, SEALANT SHALL BE PROVIDED IN JOINTS AS SHOWN ON THE DRAWINGS AND AS FOLLOWS:  
 A. CONTROL JOINTS FOR WALLS AND SLABS IN LIQUID CONTAINMENT STRUCTURES SHALL HAVE SEALANT APPLIED TO THE LIQUID SIDE(S) OF THE JOINT.  
 B. EXPANSION JOINTS SHALL HAVE SEALANT APPLIED TO BOTH SIDES OF THE JOINT, EXCEPT FOR THE SOIL SIDE OF A BASE SLAB JOINT.  
 C. CONSTRUCTION JOINTS WILL NOT REQUIRE SEALANT, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
  - UNLESS OTHERWISE NOTED, WATERSTOPS SHALL BE PROVIDED IN JOINTS AS SHOWN ON THE DRAWINGS AND AS FOLLOWS:  
 A. BETWEEN ANY LIQUID CONTAINMENT AREA AND AN ADJACENT DRY AREA OF STRUCTURE.  
 B. IN ALL EXTERIOR WALLS AND SLABS OF LIQUID CONTAINMENT STRUCTURES EXPOSED TO AIR OR SOIL.  
 C. IN ALL EXTERIOR BELOW GRADE WALLS AND SLABS AT A DRY AREA OF STRUCTURE.  
 D. IN ALL VERTICAL EXPANSION, CONTROL, CONSTRUCTION AND OTHER JOINTS IN WALLS BETWEEN ADJACENT LIQUID CONTAINMENT AREAS WHEN A WATERSTOP IS SHOWN IN THE HORIZONTAL JOINT AT THE BASE OF THE WALL.
  - WHERE WATERSTOPS ARE DISCONTINUOUS AT TOP OF WALLS, TERMINATE WATERSTOP 2" BELOW TOP OF WALLS (U.O.N.)

BAR SIZE	$f'c=4000$ psi		$f'c=4000$ psi	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
3	18	16	3	12
4	24	19	4	15
5	30	23	5	18
6	36	28	6	22
7	43	33	7	26
8	51	39	8	30
9	60	47	9	36
10	70	56	10	42
11	81	66	11	48
12	93	77	12	54
14	114	98	14	66

- NOTES:**
- MINIMUM BAR SPACING = 6" o.c.
  - MINIMUM CONCRETE COVER = 1", EXCEPT AS NOTED BY \*  
 \* INDICATES MINIMUM CONCRETE COVER = 2".
  - A TOP BAR IS A HORIZONTAL BAR WHERE MORE THAN 12" OF FRESH CONCRETE IS CAST DIRECTLY BELOW THE BAR, WHERE HORIZONTAL WALL REINFORCEMENT IS UNIFORMLY SPACED IN A VERTICAL PLANE AT 12" MAXIMUM SPACING, LENGTHS MAY BE AS FOR "OTHER BARS".
  - LENGTHS FOR BEAMS AND COLUMNS SHALL BE AS SHOWN ON THE DRAWINGS.

**LAP SPLICE AND DEVELOPMENT LENGTHS**  
NTS

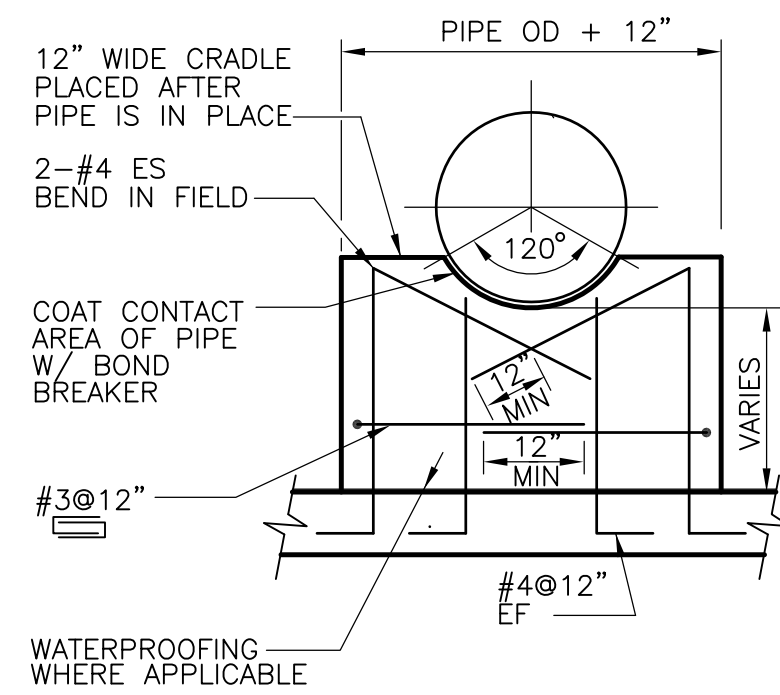


**CONCRETE PROTECTION**  
NTS

RECORD DRAWING

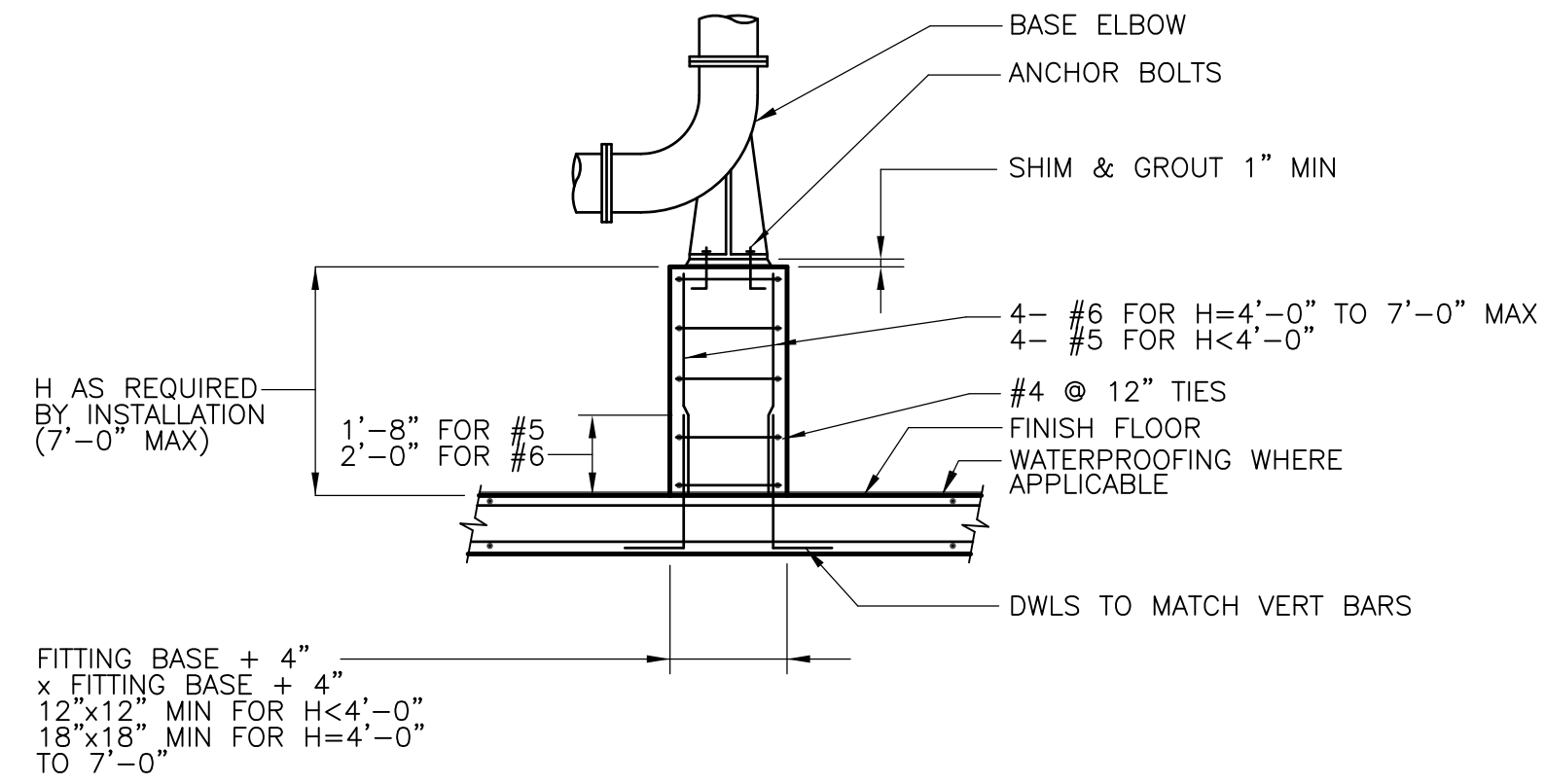
CADD FILE NO. <u>SSDDT001.DWG</u> DESIGNED BY: <u>D.L. HARRIS</u> DRAWN BY: <u>B.S. HORNER</u> SHEET CHK'D BY: <u>B.S. HORNER</u> SCALE: <u>NTS</u> APPROVED BY: <u>D.L. HARRIS</u> DATE: <u>MAY 2006</u>				<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024		PROJECT NO. 1289\35370 Sht. 131 of 386	
NO REVISION REQUIRED FOR THE RECORD				<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		<b>STANDARD CONCRETE DETAILS I</b>		<b>SD-S-1</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT							

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Plotted by: CROSSJA Time: 12/16/08 6:23:35 PM  
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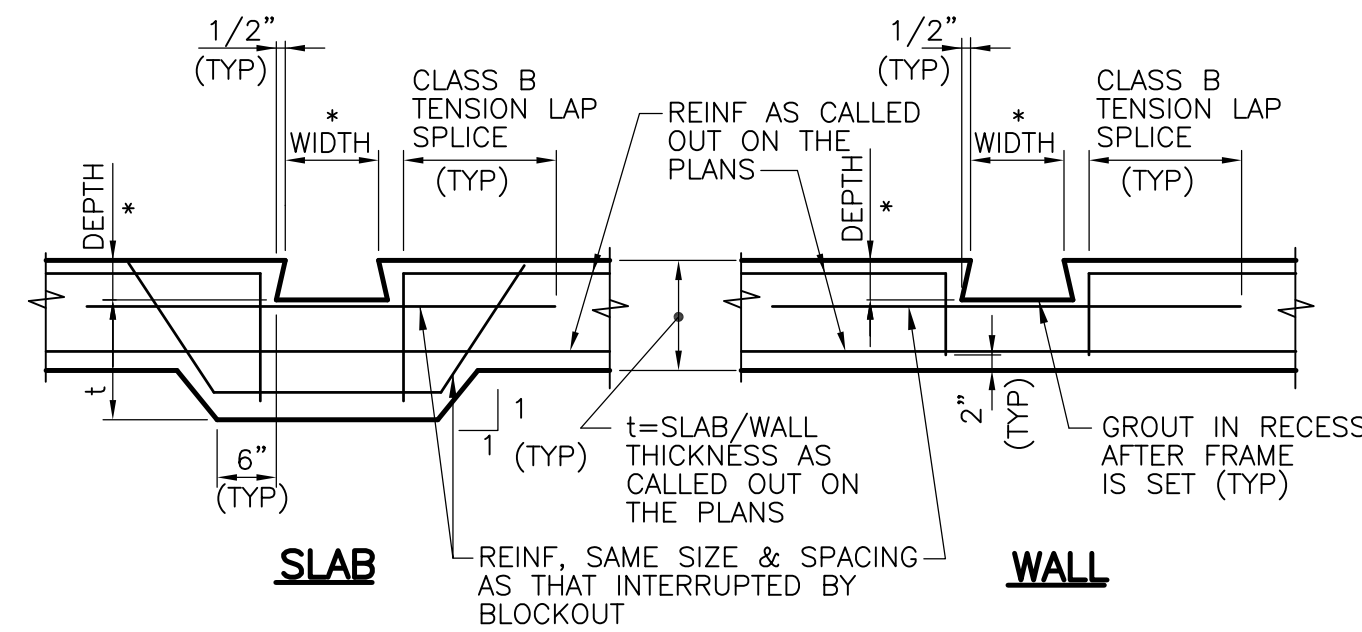
**CONCRETE PIPE CRADLE**

NTS



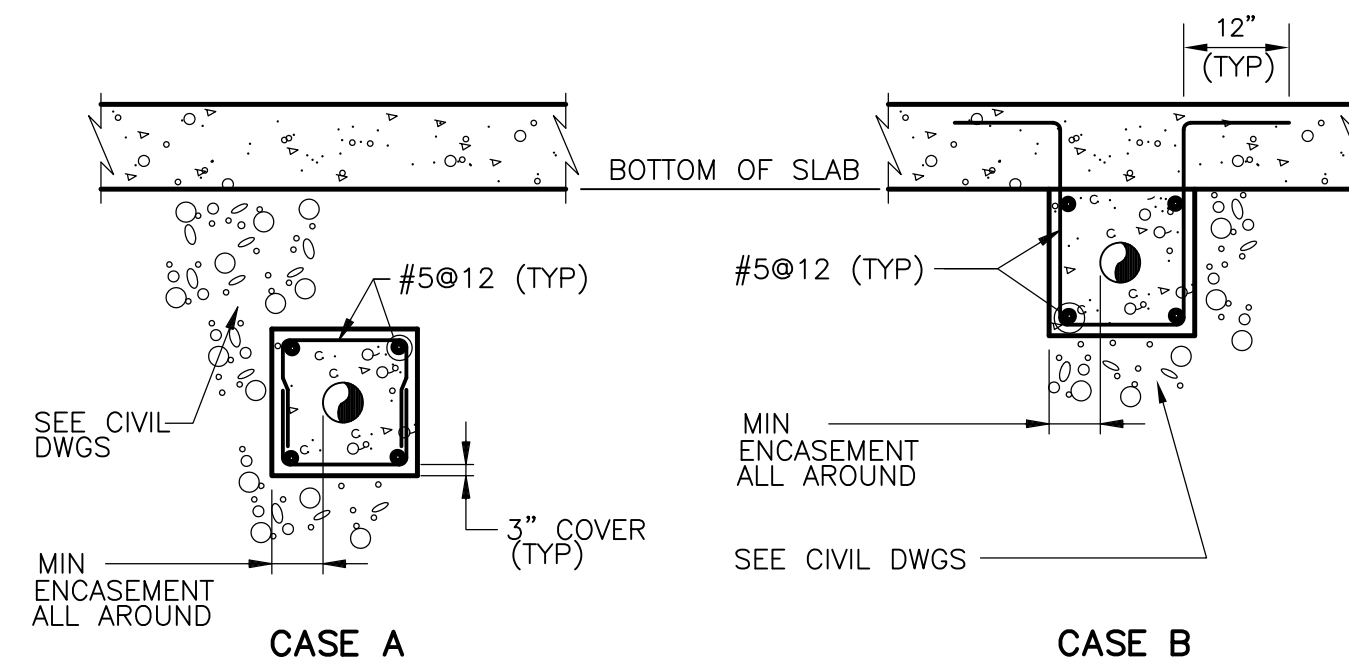
**BASE ELBOW SUPPORT**

NTS



**SLIDE GATE AND STOP LOG BLOCKOUT**

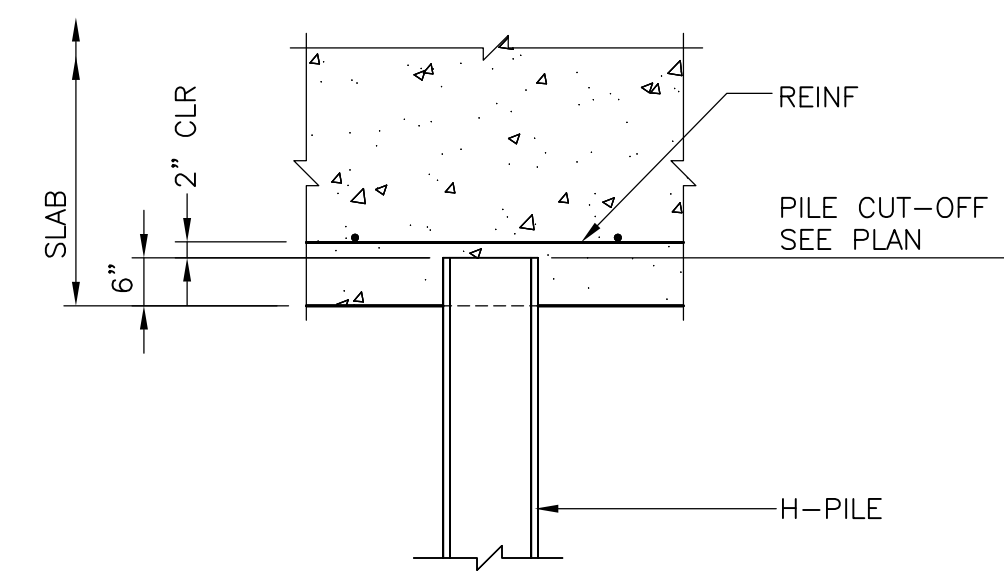
NTS



- NOTES:
- MIN ENCASEMENT  
 PIPES LESS THAN 12" DIAMETER 8"  
 PIPES 12" DIAMETER AND GREATER 12"
  - FOR CASE A, PROVIDE A CONTROL JOINT AT EACH PIPE JOINT, MAXIMUM SPACING BETWEEN CONTROL JOINTS 24'-0".
  - FOR CASE B, PROVIDE A JOINT IN THE PIPE AT EACH JOINT IN STRUCTURE. PROVIDE CONSTRUCTION JOINTS IN ENCASEMENT AT LOCATIONS OF CONSTRUCTION JOINTS IN STRUCTURE. PROVIDE CONTROL JOINTS IN ENCASEMENT AT LOCATIONS OF CONTROL JOINTS AND EXPANSION JOINTS IN STRUCTURE.

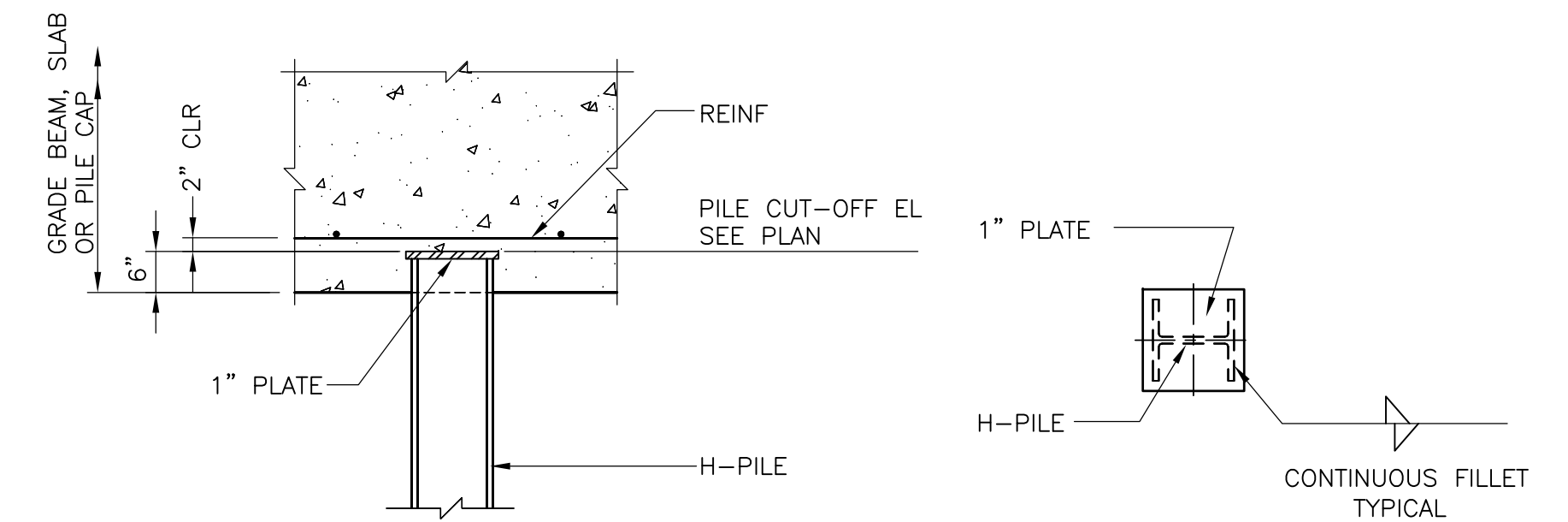
**CONCRETE PIPE ENCASEMENT**

NTS



**H-PILE**

NTS



**H-PILE AT HEADWORKS FACILITY**

NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

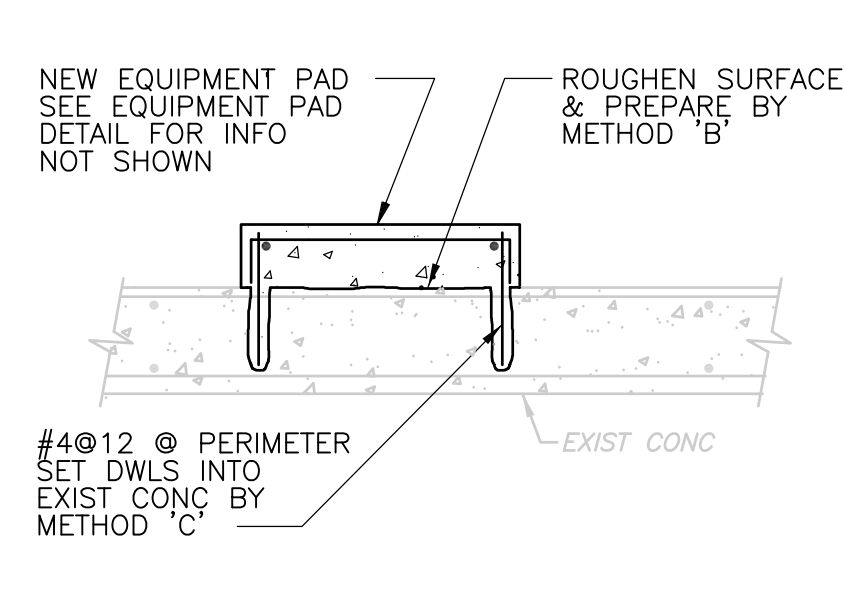
CADD FILE NO.	SSDDT002.DWG
DESIGNED BY:	D.L. HARRIS
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	B.S. HORNER
SCALE:	NTS
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

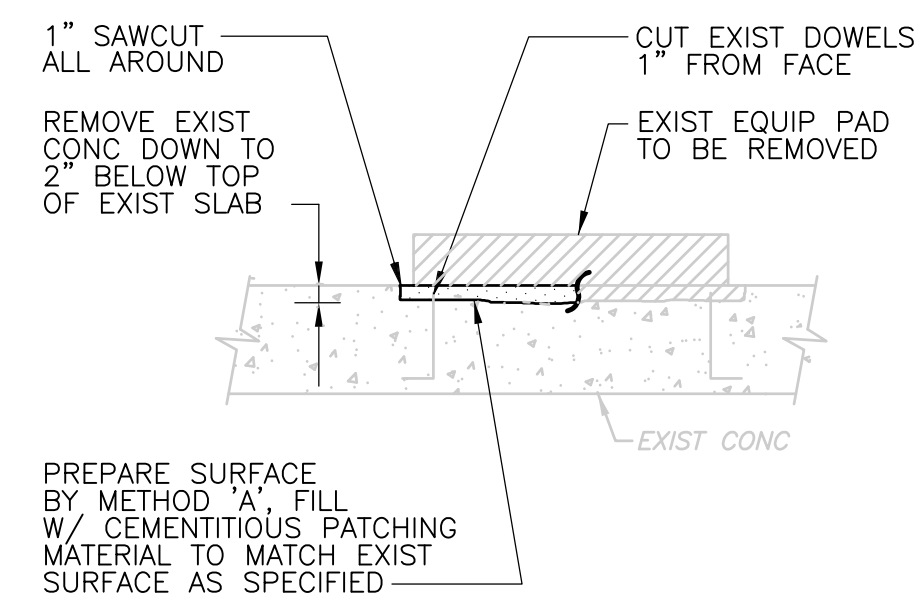
**STANDARD CONCRETE DETAILS II**

PROJECT NO.  
 1289\35370  
 Sht. 132 of 386  
**SD-S-2**  
ACCESSION NO. 1289-65532



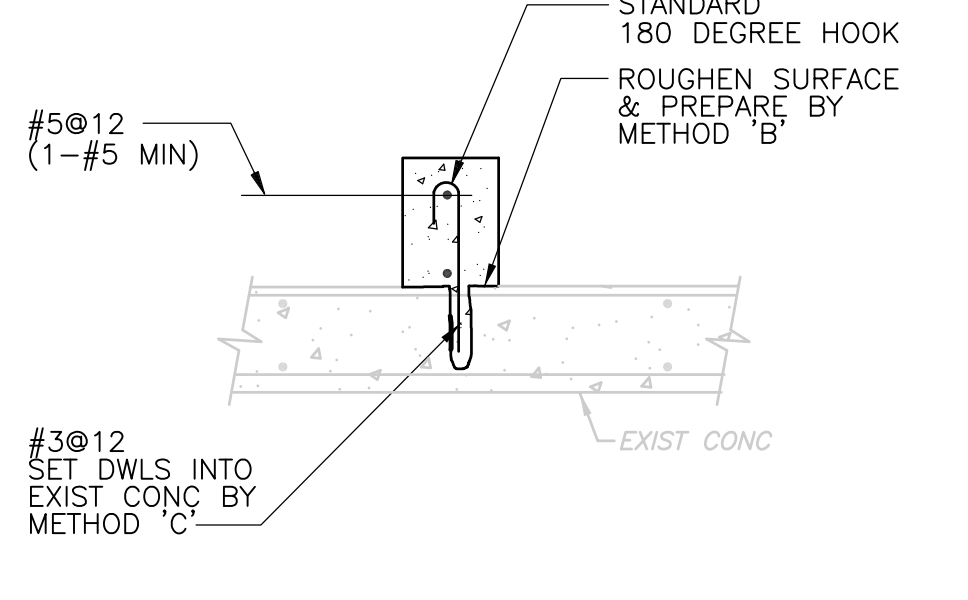
SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

**NEW EQUIPMENT PAD ON EXIST SLAB**  
NTS



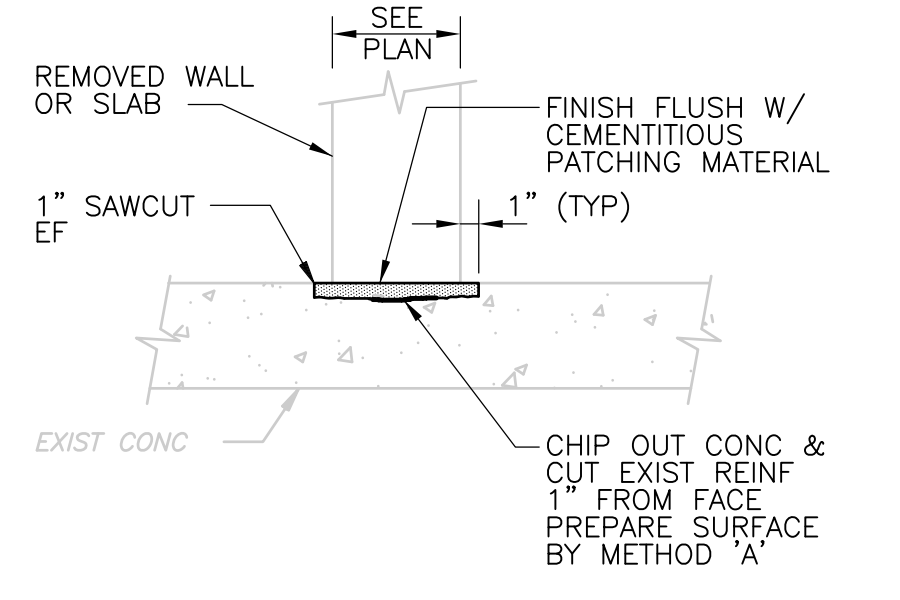
SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

**EXIST EQUIPMENT PAD REMOVAL**  
NTS



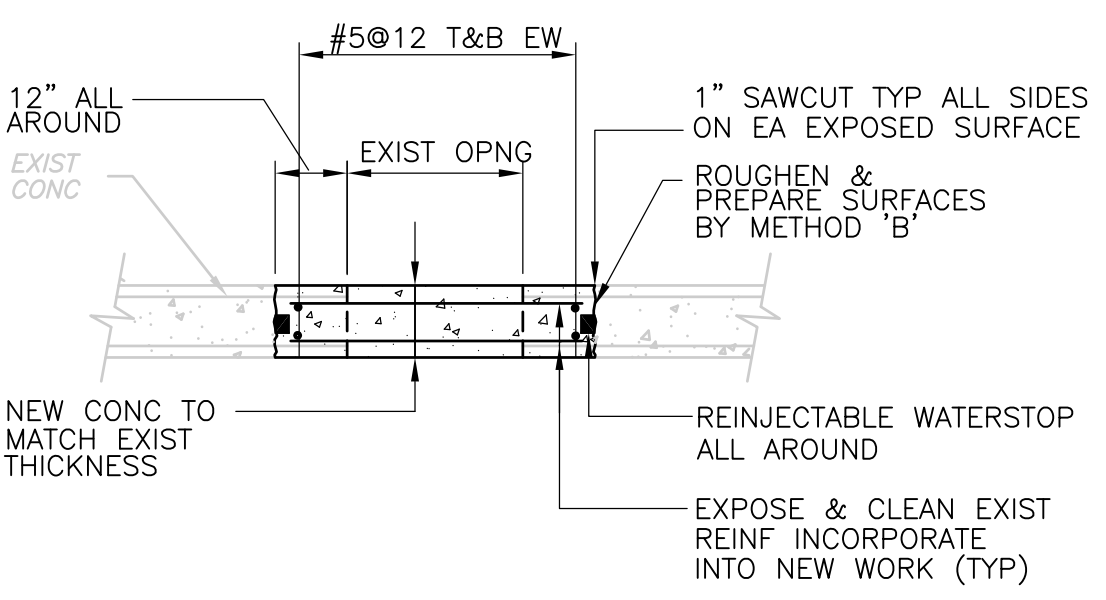
SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"  
SEE PLANS FOR CURB DIMENSIONS

**NEW CURB ON EXIST SLAB**  
NTS



SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

**SURFACE PATCH**  
NTS



SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

**EXIST SLAB/WALL CLOSURE**  
NTS

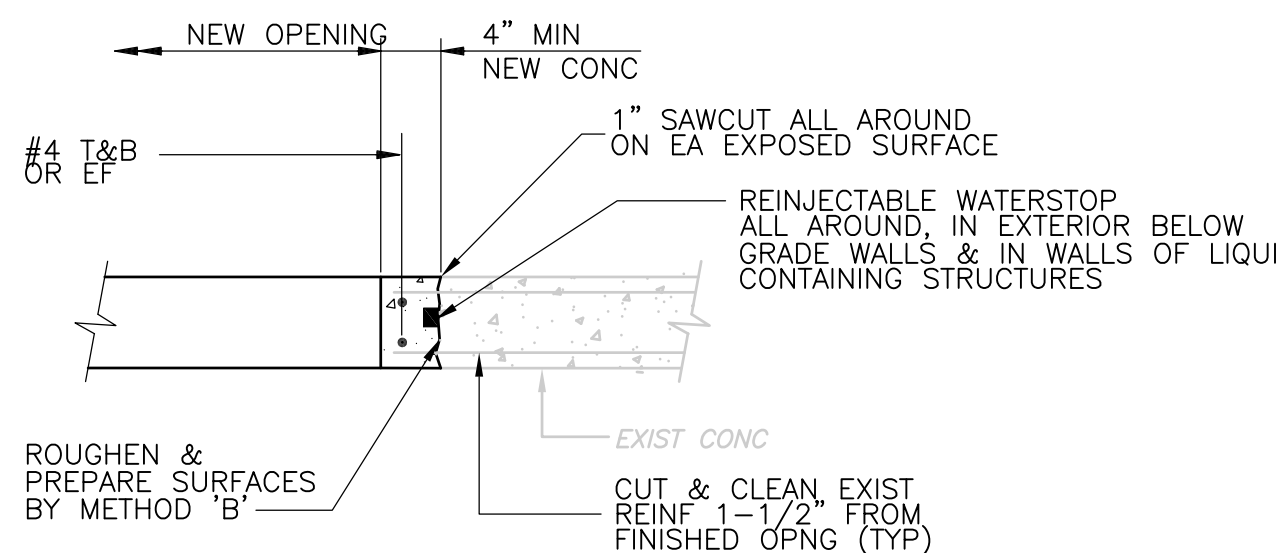
**MODIFICATION AND REPAIR TO CONCRETE NOTES**

- CONNECTION METHODS:
- METHOD 'A' - BONDING TO SATURATED SURFACE USING PATCH MATERIAL SCRUB COAT OR APPROVED BONDING AGENT
  - METHOD 'B' - BONDING BY USING EPOXY BONDING AGENT
  - METHOD 'C' - DRILLED REINFORCING DOWELS OR BOLTS USING INJECTION ADHESIVE SYSTEM

SEE CONCRETE SPECIFICATIONS SECTION 03740 FOR EXPLANATION OF CONCRETE REMOVAL METHODS, CONNECTION METHODS AND MATERIALS USED.

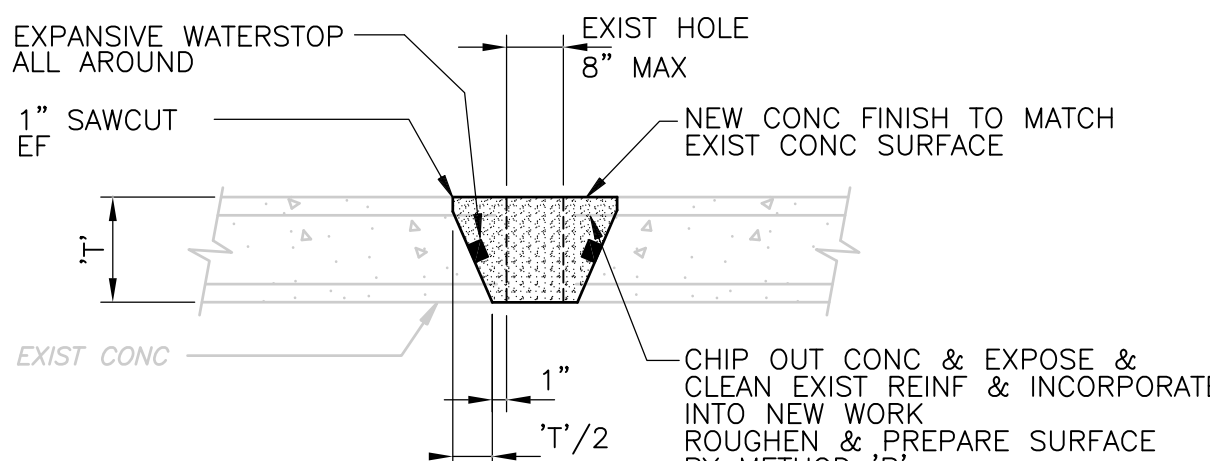
**REINJECTABLE WATERSTOP**

- A. SUBMIT MANUFACTURER'S SPECIFICATIONS, INSTALLATION INSTRUCTIONS, AND GENERAL RECOMMENDATIONS FOR CLEANING AND PREPARING SURFACES TO RECEIVE WATERSTOP SYSTEM. INCLUDE MANUFACTURER PRODUCT DATA CONFIRMING THAT MATERIALS ARE RECOMMENDED FOR APPLICATIONS INDICATED. INCLUDE LAYOUT DRAWINGS OF WATERSTOP SYSTEM.
- B. WATERSTOP SYSTEM INSTALLATION SHALL BE PERFORMED BY AN APPLICATOR CERTIFIED AND APPROVED BY THE WATERSTOP MANUFACTURER.
- C. BEGIN INJECTION PROCESS WHEN CONCRETE HAS CURED NOT LESS THAN 28 DAYS. ALL VISIBLE HONEYCOMBS AT THE CONCRETE SURFACE SHALL BE PATCHED TO AVOID LOSS OF INJECTION MATERIAL. THE CONCRETE SURFACES SHALL BE CLEAN, DRY AND SMOOTH.
- D. WATERSTOP SYSTEM: PROVIDE FUKO2 HOSE AND DUROSEAL INJECT 1K/2K POLYMER-BASED WATER SWELLING RESIN INJECTION MATERIAL BY BB2, SUBSIDIARY OF GREENSTREAK OR EQUAL.
- E. INJECTION HOSES SHALL NOT EXCEED 33 FEET IN LENGTH. THE INJECTION HOSE AND VENT ENDS MUST BE ENCASED IN NOT LESS THAN 3 INCHES OF CONCRETE. THE INJECTION HOSE SHALL BE HELD IN PLACE WITH PLASTIC ANCHOR CLIPS AS SPECIFIED BY THE MANUFACTURER. DO NOT FASTEN THE INJECTION HOSES TO REINFORCING STEEL.
- F. ALL HOSE VENT ENDS SHALL BE ENCASED IN A PLASTIC JUNCTION BOX AS SPECIFIED BY MANUFACTURER. THE JUNCTION BOX SHALL BE ACCESSIBLE FOR ANY FUTURE REINJECTIONS.
- G. PRIOR TO INJECTING WATER SWELLING RESIN, INJECT CEMENTITIOUS GROUT CONSISTING OF CEMENT AND WATER AS SPECIFIED BY WATERSTOP MANUFACTURER. FLUSH DELIVERY SYSTEM AND ALLOW GROUT TO CURE. PERFORM RESIN INJECTION PROCEDURE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS. UPON COMPLETION OF INJECTION PREPARE FOR FUTURE REINJECTION BY FLUSHING WITH WATER AND VACUUM PRESSURE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.



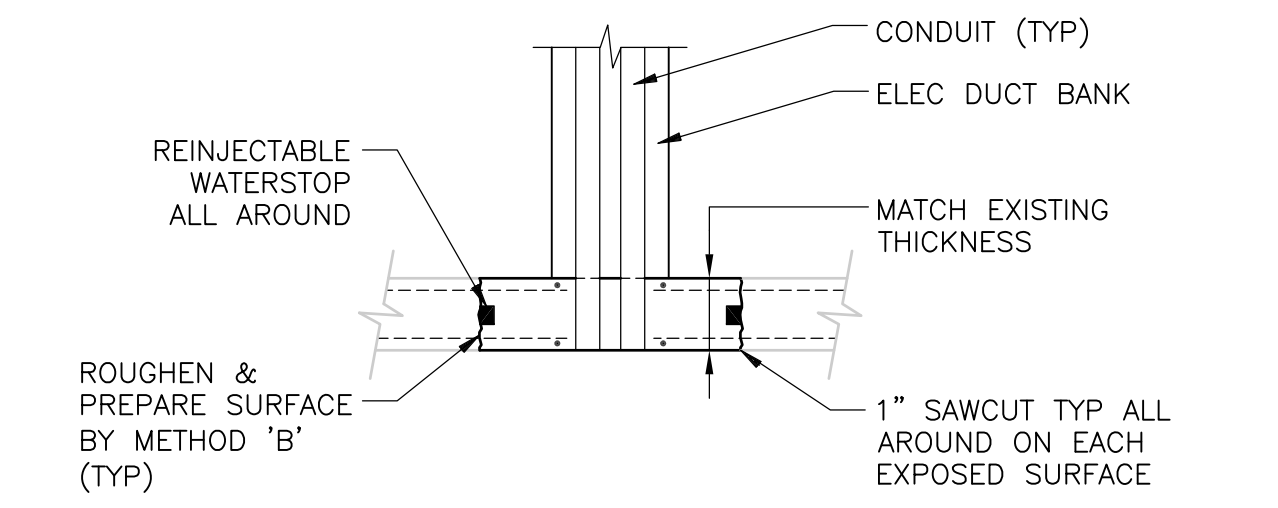
SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

**NEW OPENING IN EXIST CONCRETE**  
NTS



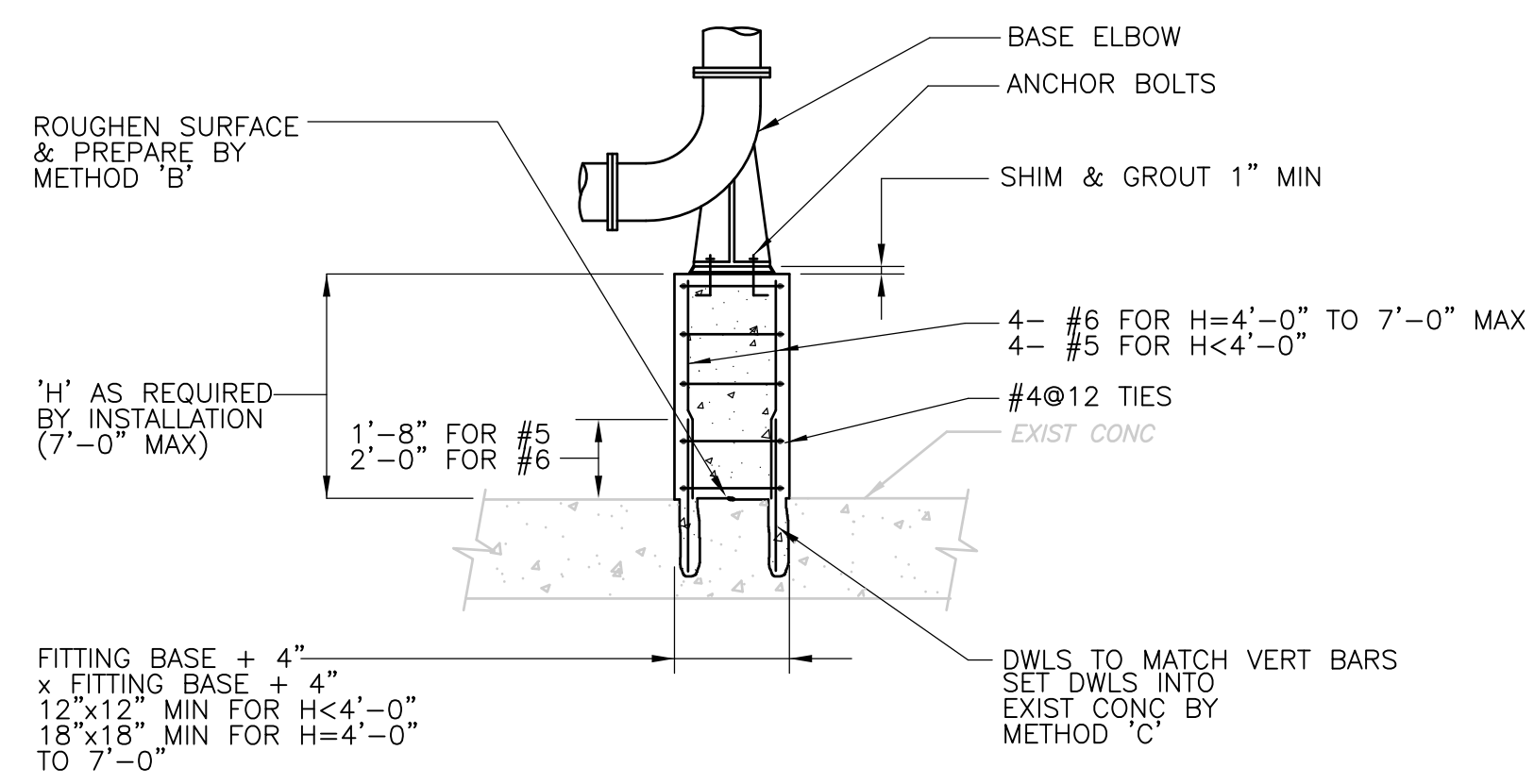
SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

**SMALL HOLE PATCH**  
NTS



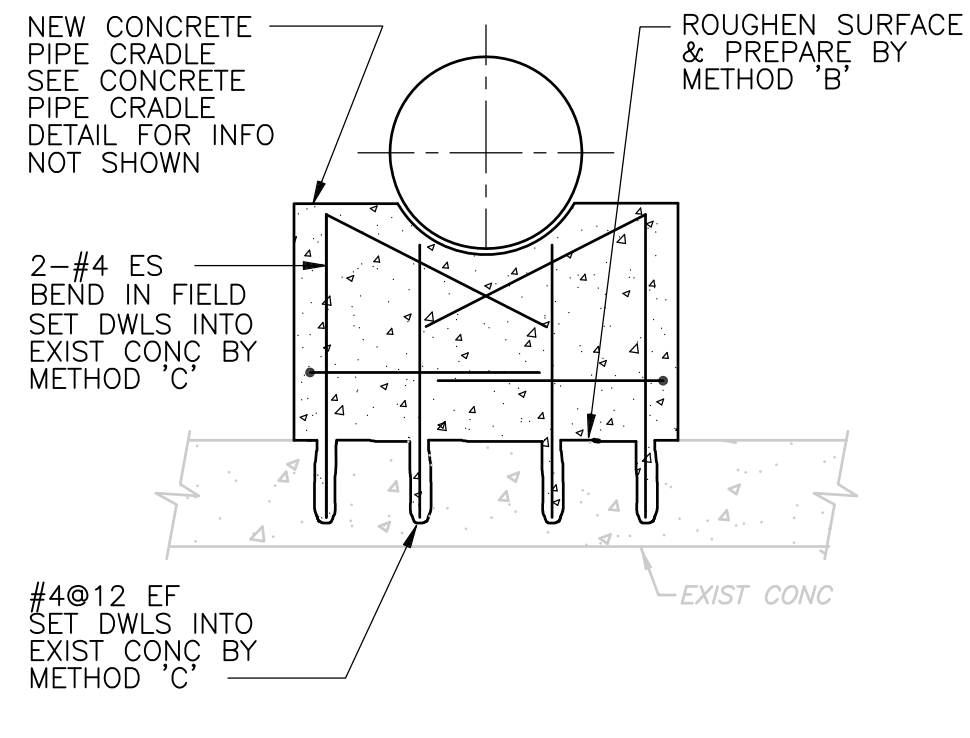
SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

**NEW ELECTRICAL DUCT BANK BOXOUT**  
NTS



SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

**NEW CONCRETE BASE ELBOW SUPPORT ON EXIST SLAB**  
NTS



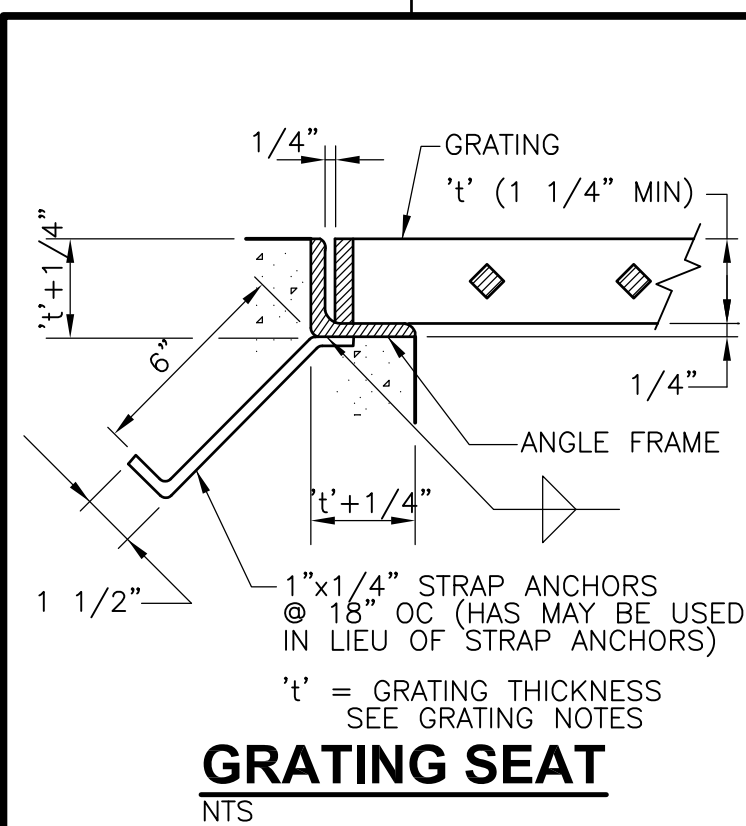
SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

**NEW CONCRETE PIPE CRADLE ON EXIST SLAB**  
NTS

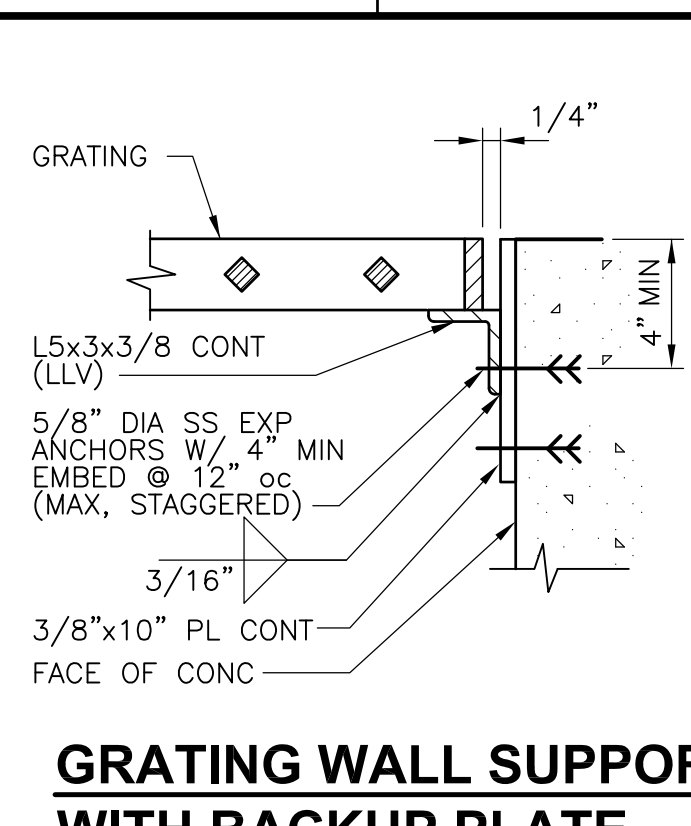
RECORD DRAWING

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				DESIGNED BY: <u>D.L. HARRIS</u>			
				DRAWN BY: <u>B.S. HORNER</u>	SHEET CHK'D BY: <u>D.L. HARRIS</u> SCALE: <u>NTS</u> APPROVED BY: <u>D.L. HARRIS</u> DATE: <u>MAY 2006</u>	Sht. 133 of 386	
				NO REVISION REQUIRED FOR THE RECORD			ACCESSION NO. 1289-65533
REV. NO.	DATE	DRWN	CHKD	REMARKS			
3/07	SPV	ADT					

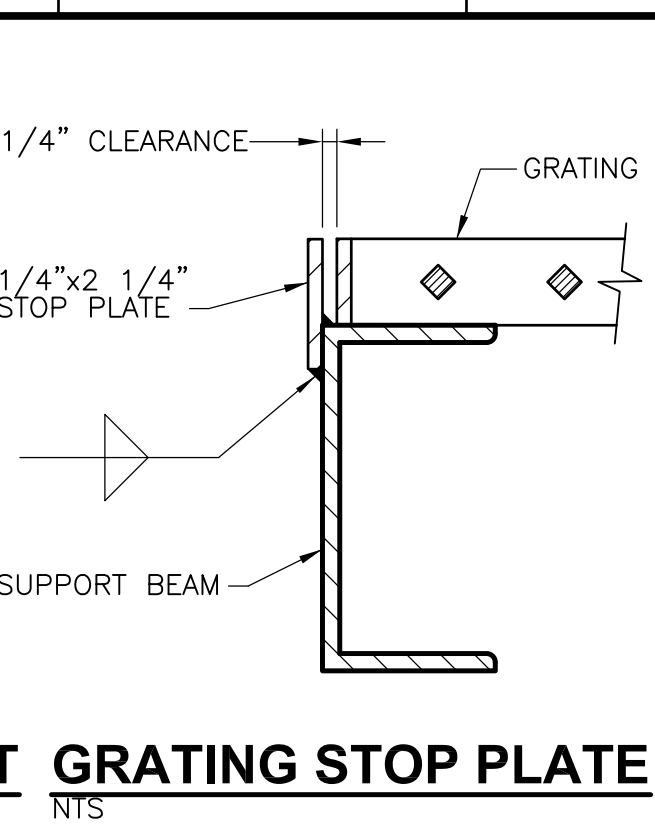
UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
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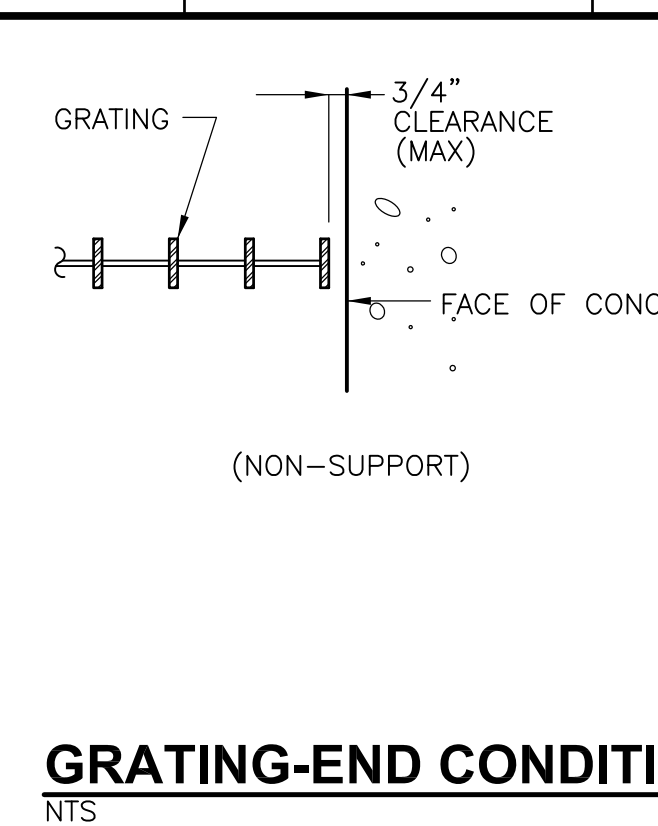
**GRATING SEAT**  
NTS



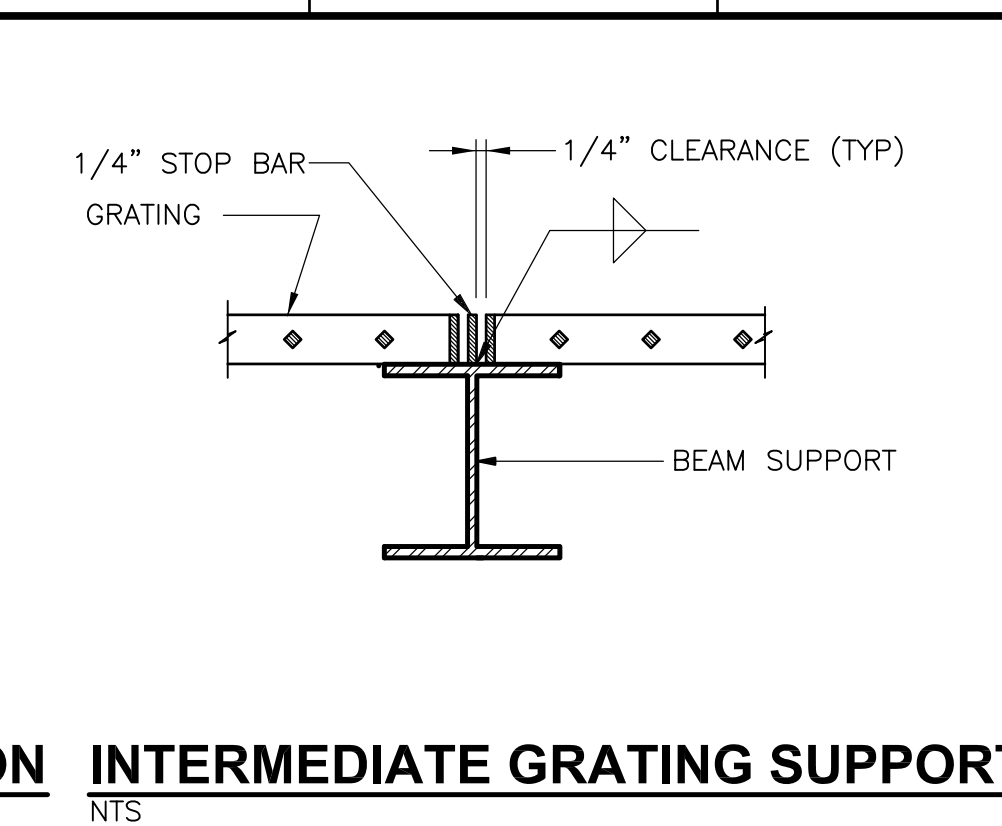
**GRATING WALL SUPPORT WITH BACKUP PLATE**  
NTS



**GRATING STOP PLATE**  
NTS



**GRATING-END CONDITION**  
NTS

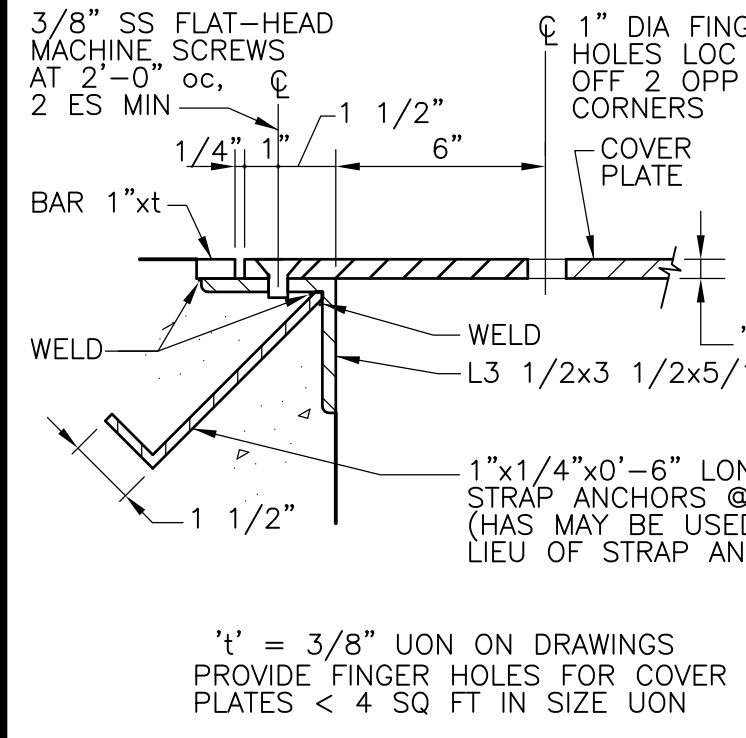


**INTERMEDIATE GRATING SUPPORT**  
NTS

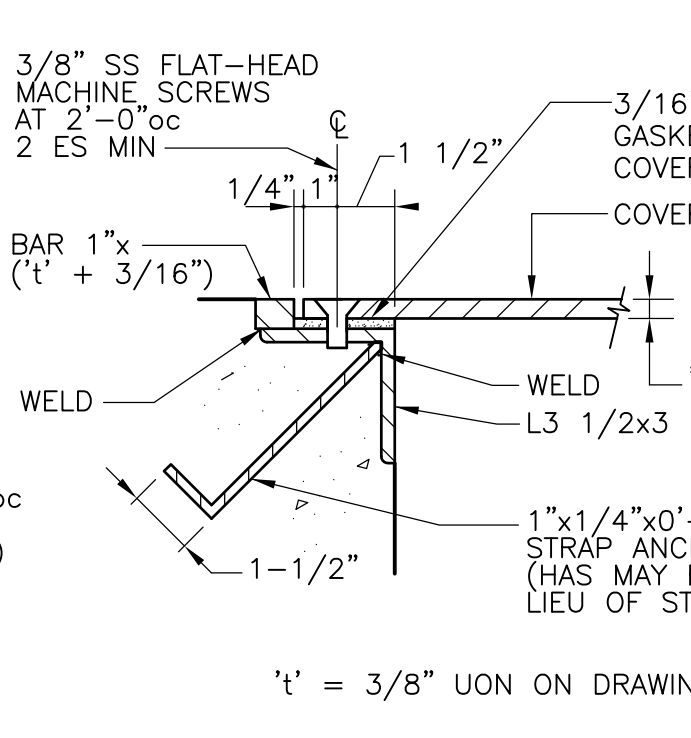
**METAL GRATING AND COVER PLATE NOTES**

- STEEL GRATING, ANGLE FRAMES AND SUPPORTS SHALL BE ALL GALVANIZED STEEL CONSTRUCTION UNLESS OTHERWISE NOTED.
- ALUMINUM GRATING, COVER PLATES, ANGLE FRAMES AND SUPPORTS SHALL BE ALL ALUMINUM CONSTRUCTION UNLESS OTHERWISE NOTED. COVER PLATES SHALL BE DIAMOND PLATE ALUMINUM ALLOY 6061-T6. GRATING SHALL BE ALUMINUM ALLOY 6063-T6.
- FASTENERS, ANCHORS, BOLTS, NUTS AND WASHERS FOR GRATING, COVER PLATES AND SUPPORTS SHALL BE TYPE 316 STAINLESS STEEL.
- GALVANIZED STEEL GRATING SIZE SHALL HAVE A BEARING BAR SIZE OF 1 1/4" x 3/16" MINIMUM UNLESS OTHERWISE NOTED.
- ALUMINUM GRATING SIZE SHALL MEET THE FOLLOWING CRITERIA, UNLESS NOTED OTHERWISE:
 

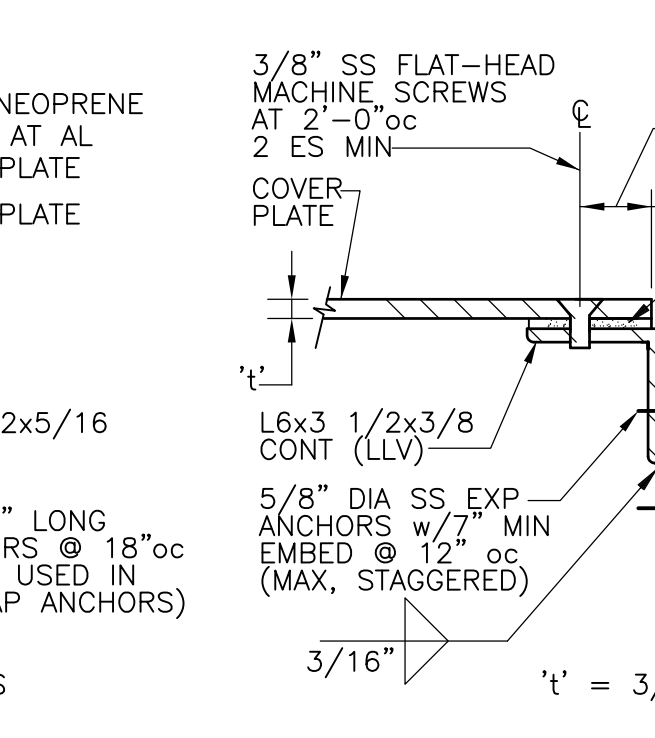
SPAN	BEARING BAR SIZE
TO 4'-0"	USE 1-1/4" x 3/16" MIN
TO 5'-0"	USE 1-1/2" x 3/16" MIN
TO 6'-0"	USE 2-1/4" x 3/16" MIN
TO 7'-0"	USE 2-1/2" x 3/16" MIN
- FIELD VERIFY GRATING SUPPORT LOCATIONS BEFORE FABRICATING GRATING. PLACE SUPPORTS WITH EXTREME CARE TO PROVIDE TOLERANCES SHOWN OR SPECIFIED.
- GRATING PANEL LAYOUT SHALL PROVIDE FOR THE REMOVAL OF GRATING AROUND PIPE AND OTHER GRATING PENETRATIONS.
- BAND ALL GRATING ALONG EDGES AND AROUND OPENINGS WITH CONTINUOUS BAR SAME DEPTH & THICKNESS AS BEARING BARS.
- ALL ANGLE FRAMES FOR GRATING AND COVER PLATES ARE TO BE MITERED AND WELDED AT CORNERS.
- ALL GRATING IS TO BE SECURELY FASTENED TO SUPPORTS, UNLESS OTHERWISE NOTED.
- ALL COVER PLATES SHALL BE SECURELY FASTENED TO SUPPORTS WITH 3/8" STAINLESS STEEL FLAT-HEAD MACHINE SCREWS AT 2'-0" ON CENTER, UNLESS OTHERWISE NOTED.



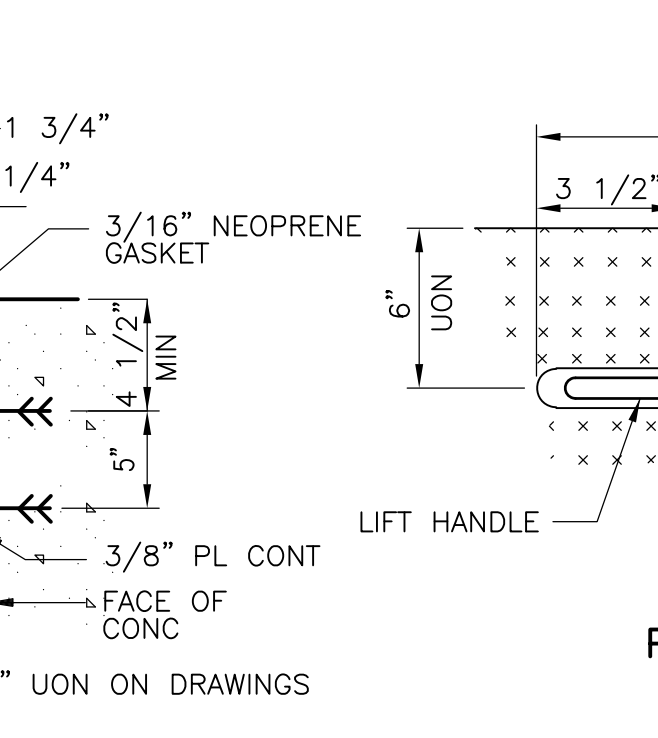
**COVER PLATE SEAT**  
NTS



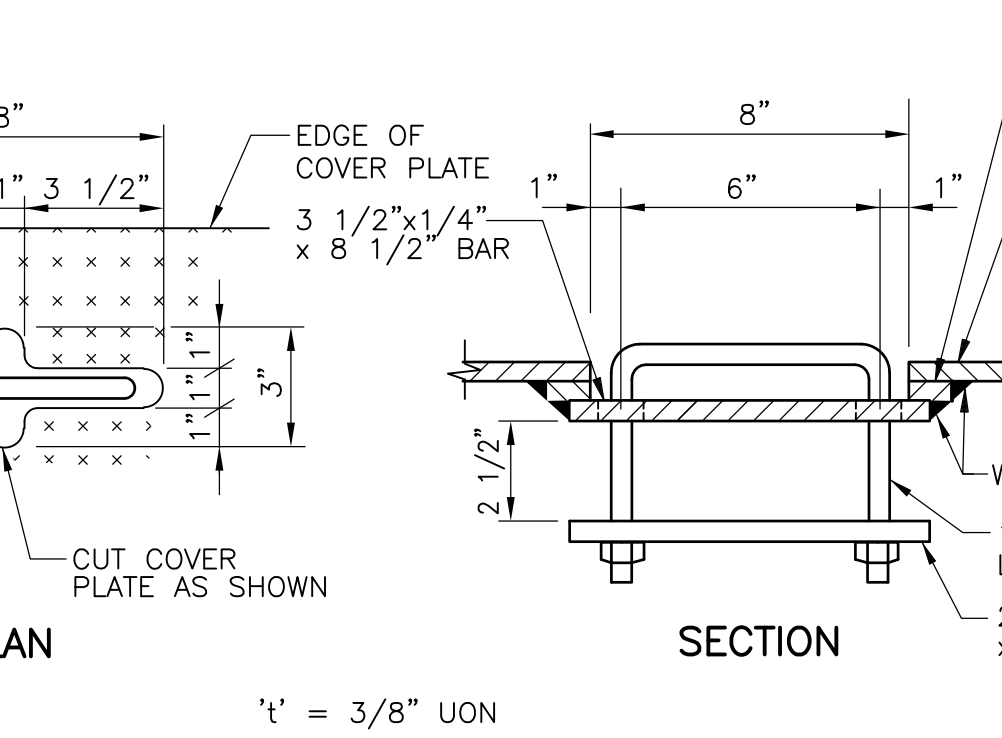
**GASKETED COVER PLATE**  
NTS



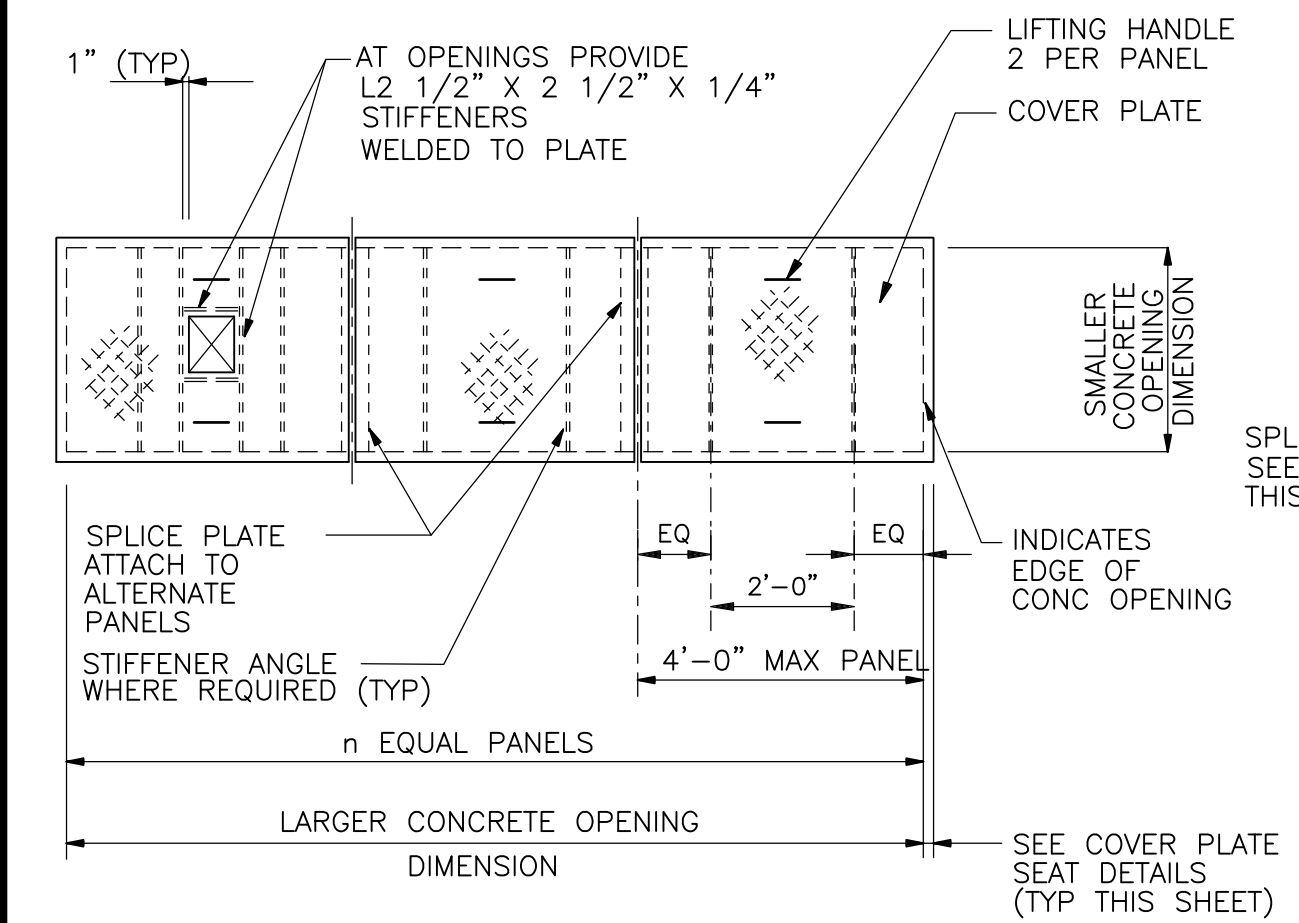
**GASKETED COVER PLATE WITH BACKUP PLATE**  
NTS



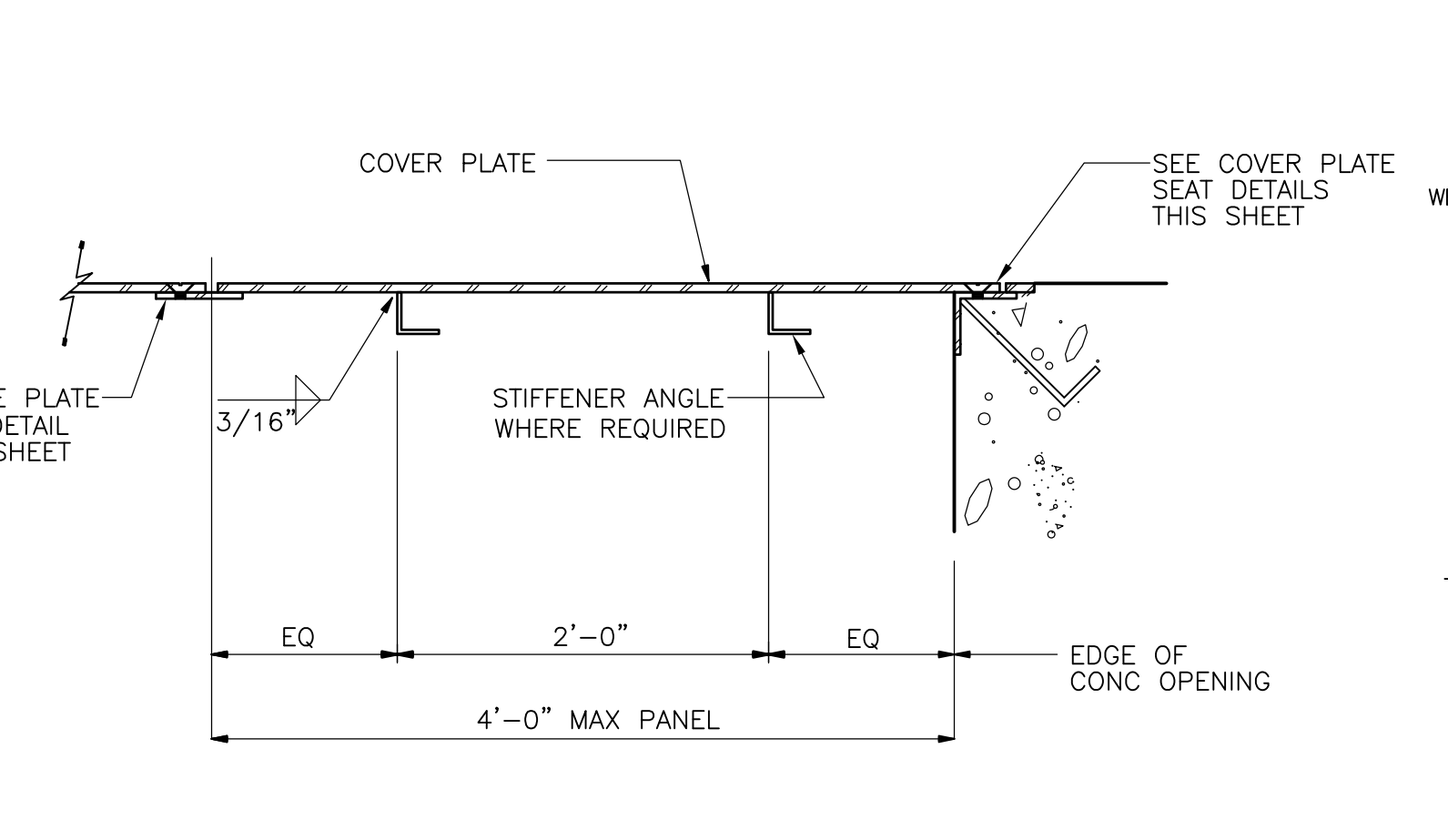
**LIFT HANDLE**  
NTS



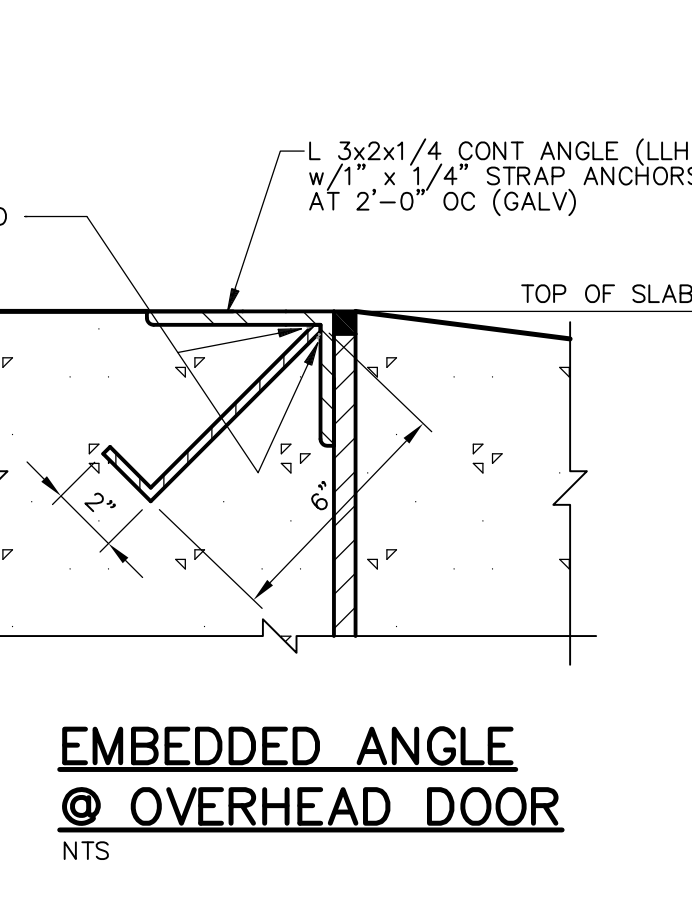
**HATCH DRAIN DETAIL**  
NTS



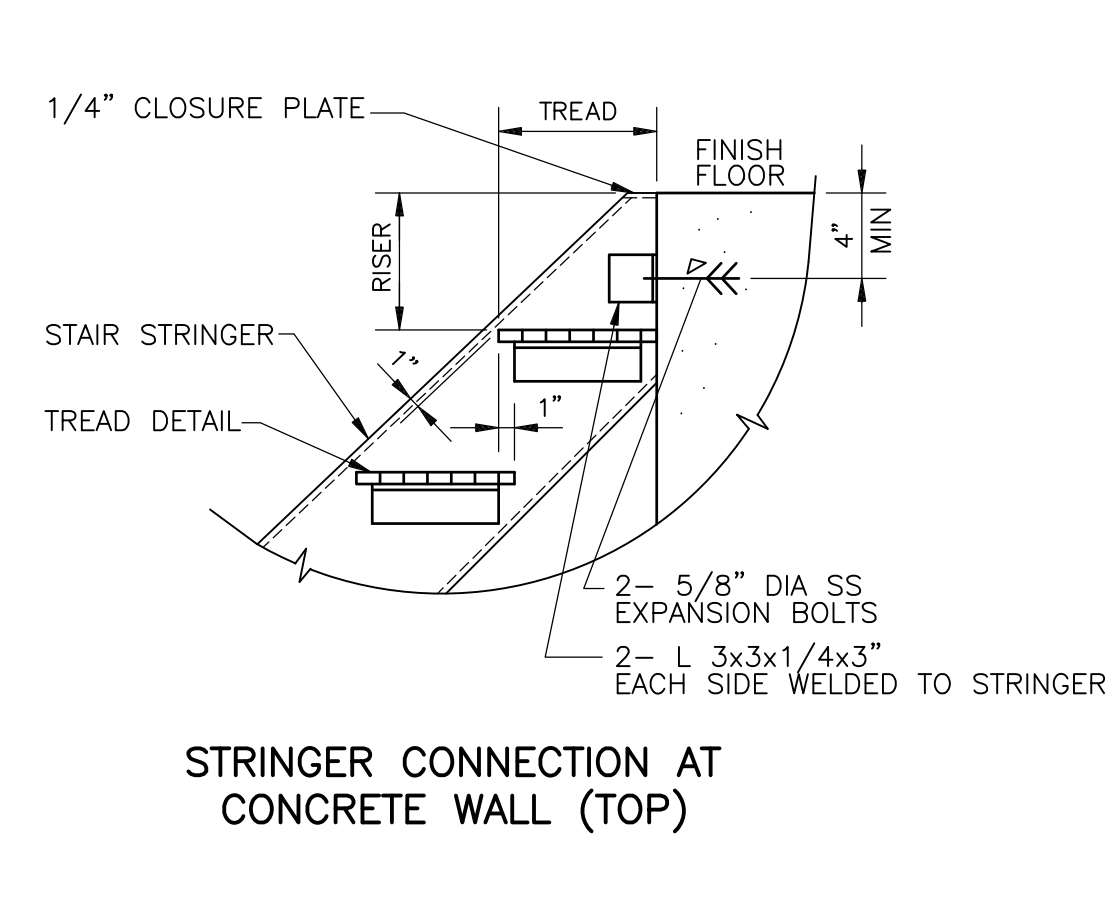
**TYPICAL PLAN**



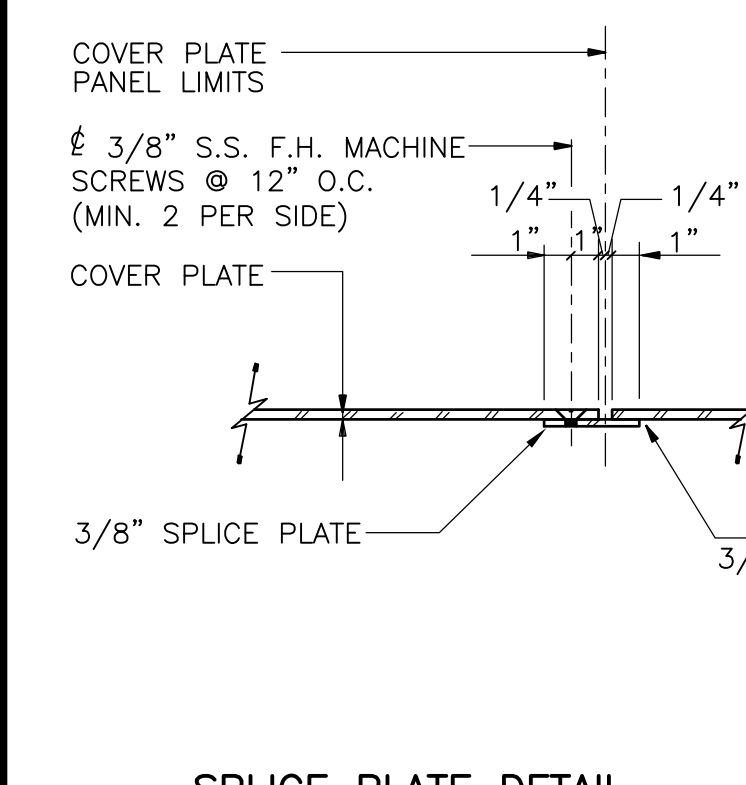
**TYPICAL SECTION**



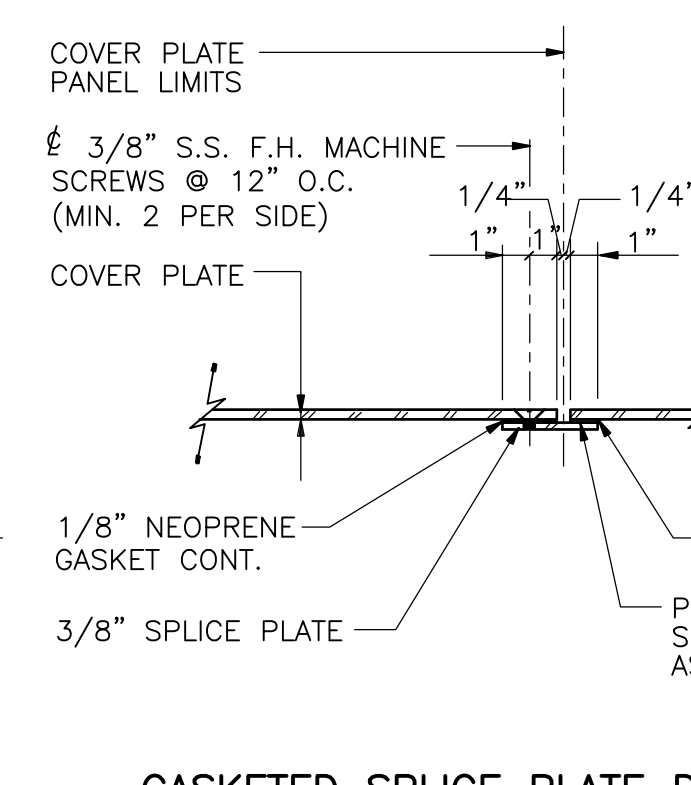
**EMBEDDED ANGLE @ OVERHEAD DOOR**  
NTS



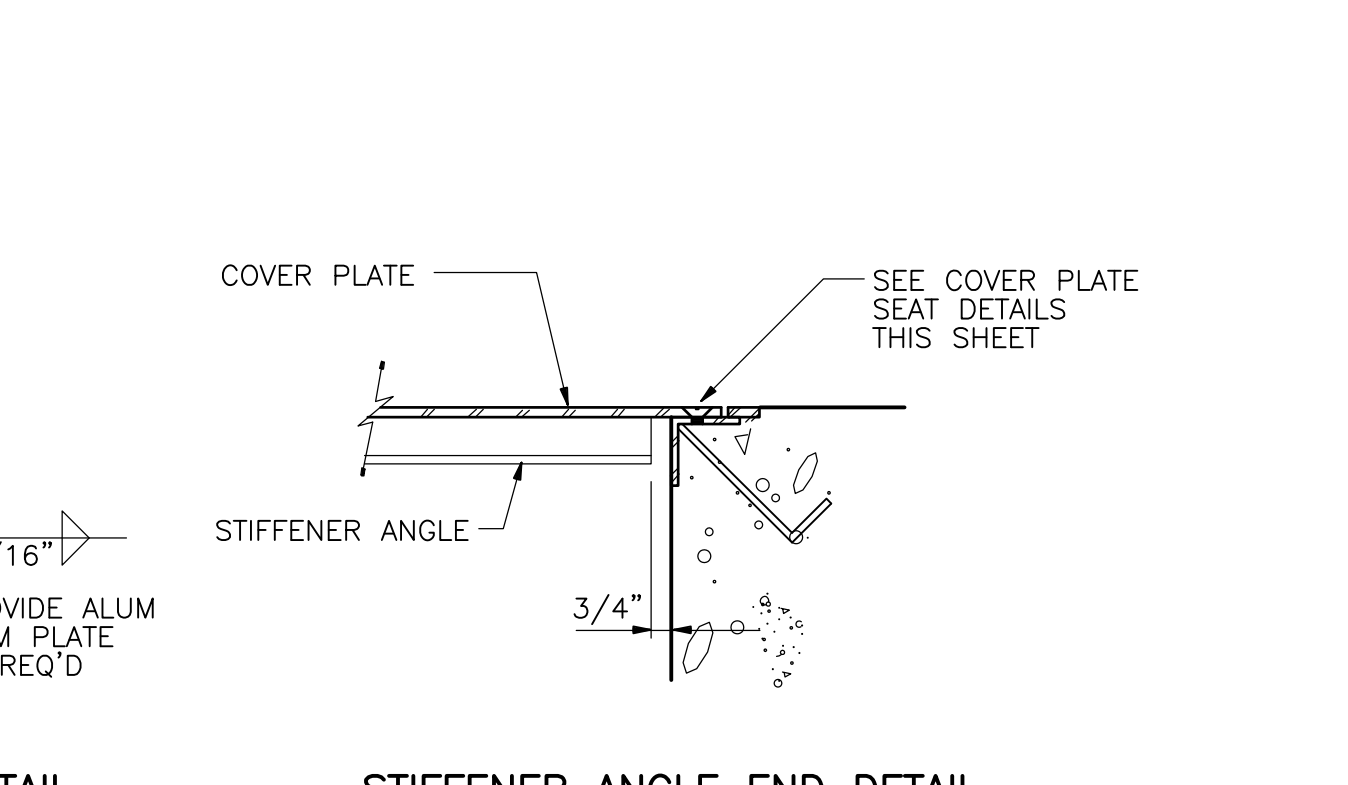
**STRINGER CONNECTION AT CONCRETE WALL (TOP)**



**SPlice PLATE DETAIL**

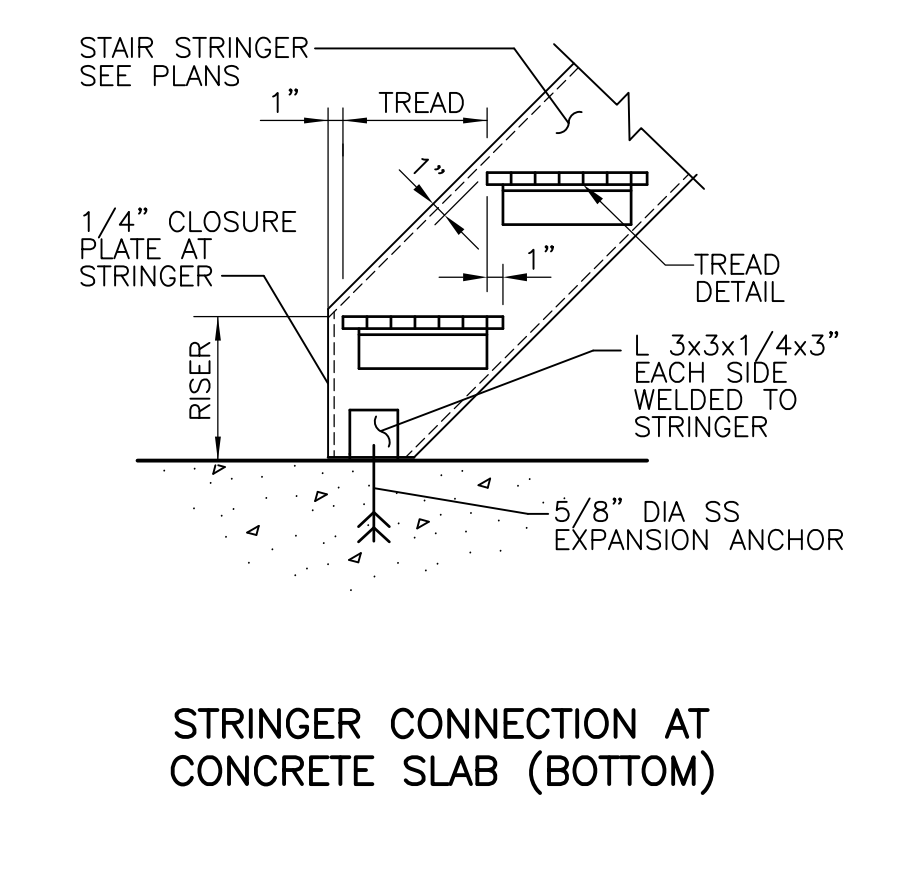


**GASKETED SPlice PLATE DETAIL**

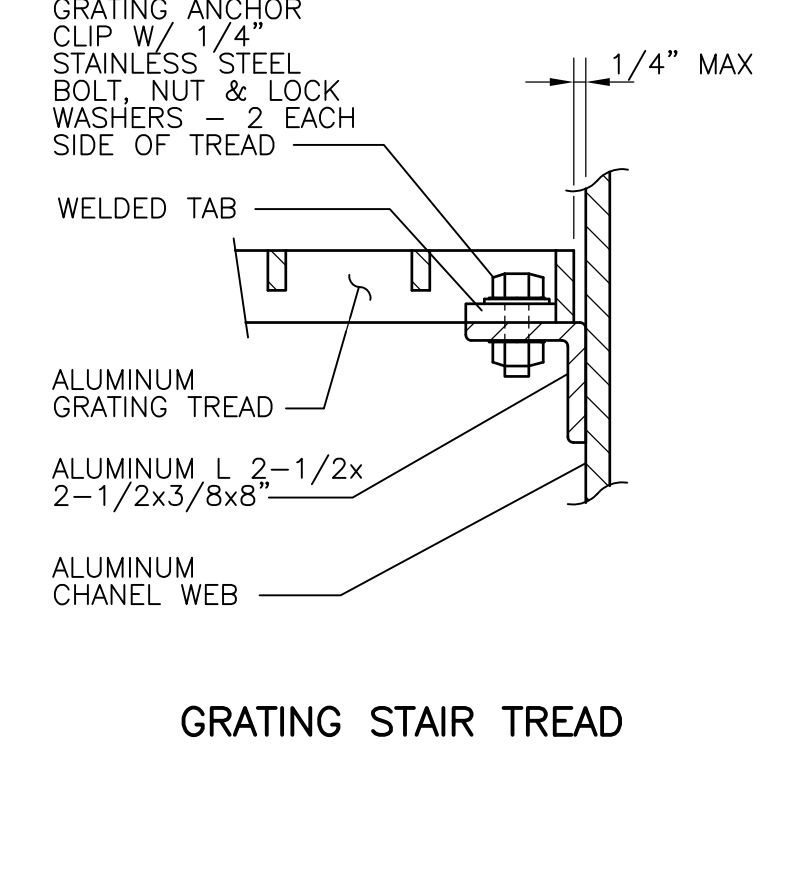


**STIFFENER ANGLE END DETAIL**

**COVER PLATE DETAILS**  
NTS



**STRINGER CONNECTION AT CONCRETE SLAB (BOTTOM)**



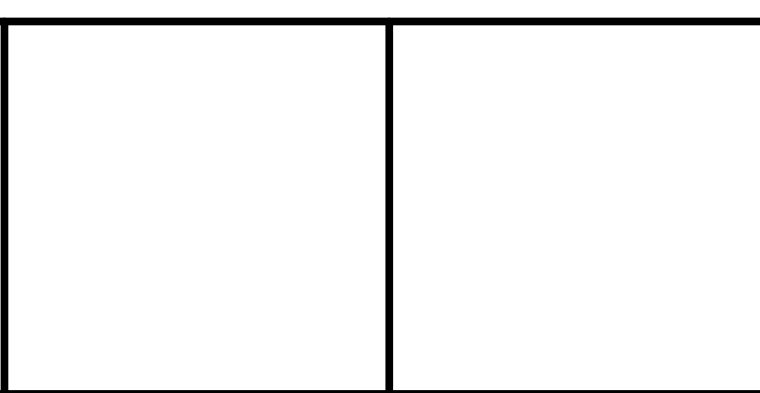
**GRATING STAIR TREAD**

**METAL STAIR CONNECTION DETAILS**  
NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSDDT004.DWG
DESIGNED BY:	D.L. HARRIS
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	D.L. HARRIS
SCALE:	NTS
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

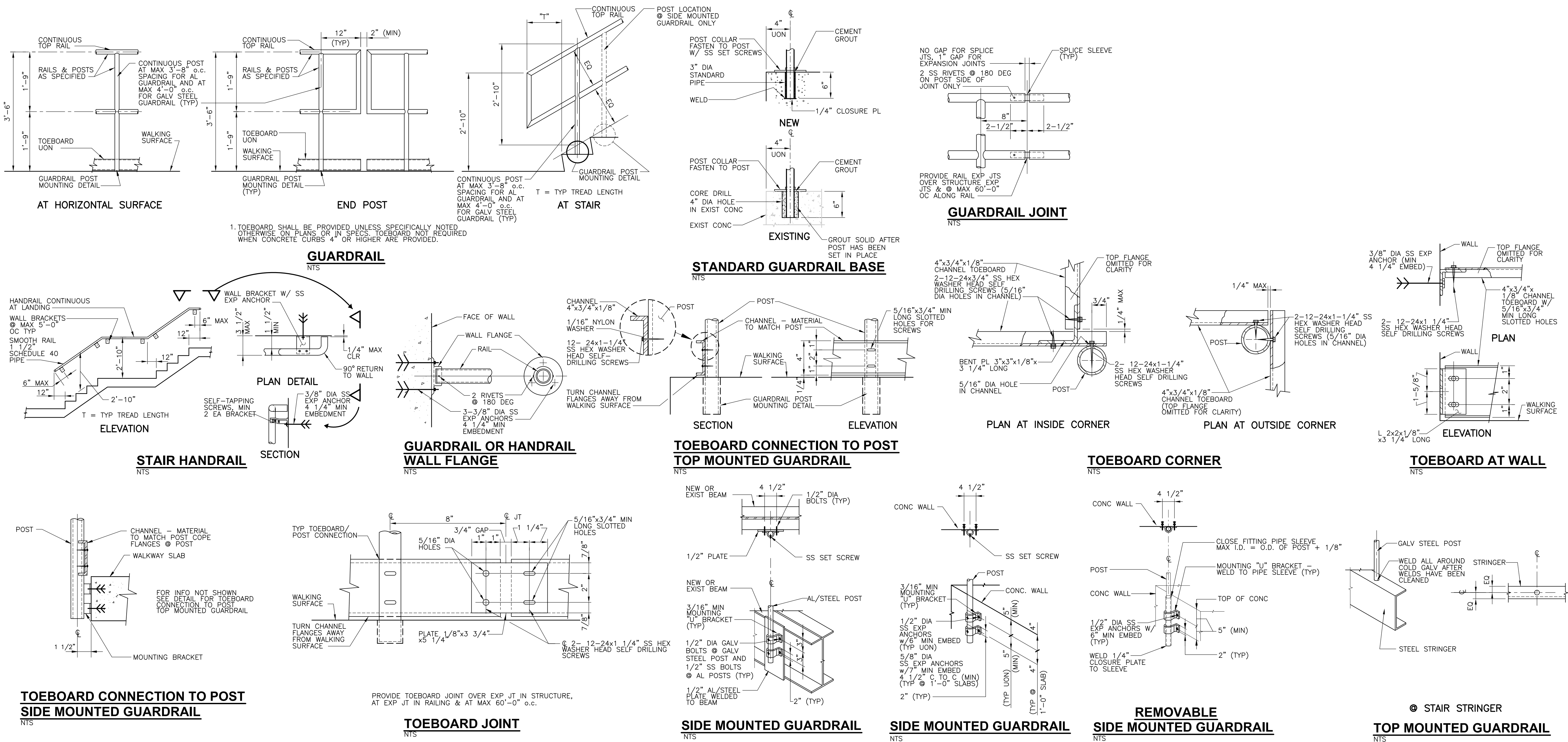


**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**STANDARD MISCELLANEOUS METAL DETAILS I**  
 PROJECT NO. 1289\35370  
 Sht. 134 of 386  
**SD-S-4**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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 PLOT DATE: 3/7/2006 12:00:00 PM  
 PLOT BY: GALLERIELO  
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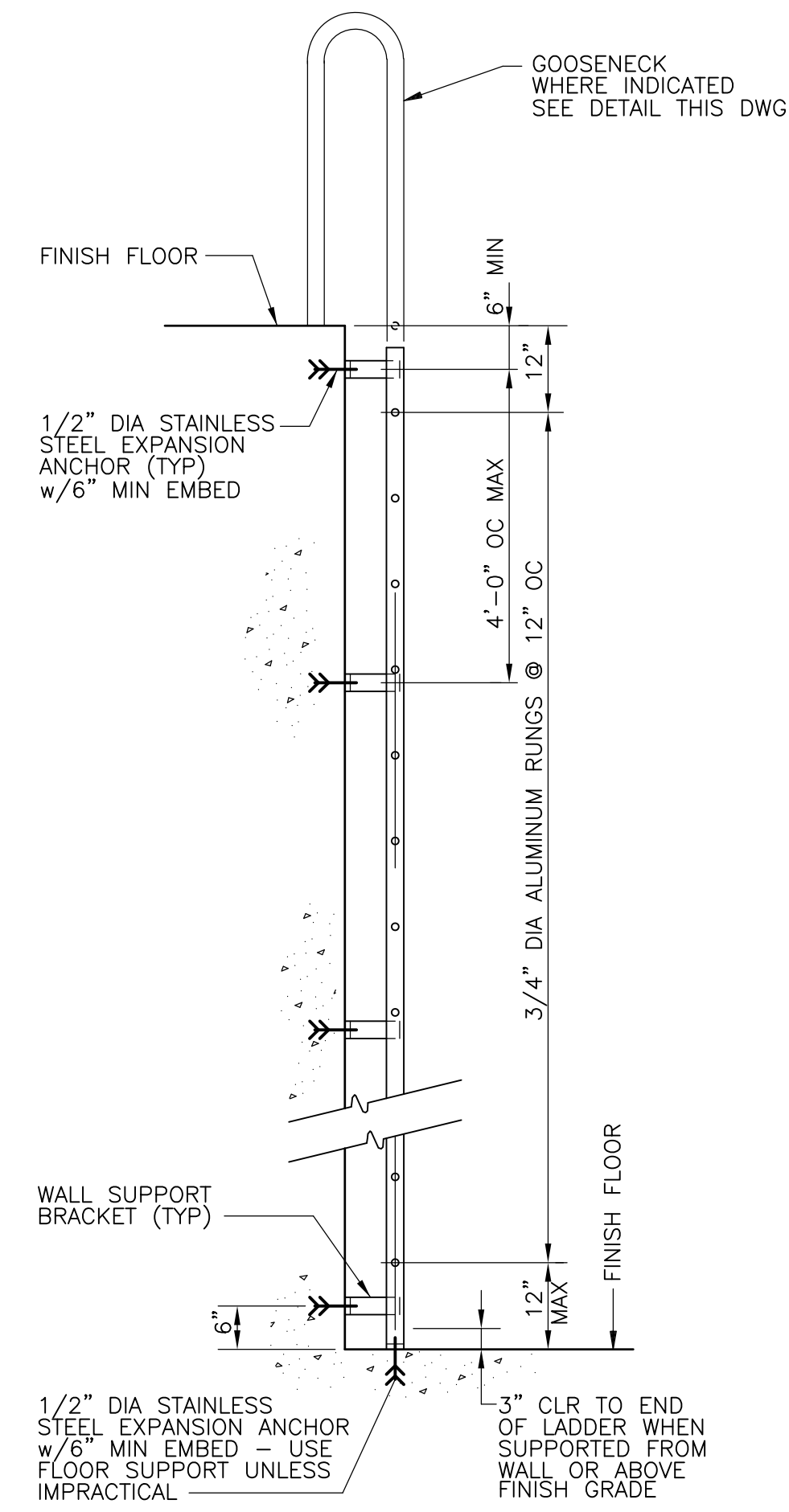


1. TOEBOARD SHALL BE PROVIDED UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS OR IN SPECS. TOEBOARD NOT REQUIRED WHEN CONCRETE CURBS 4" OR HIGHER ARE PROVIDED.

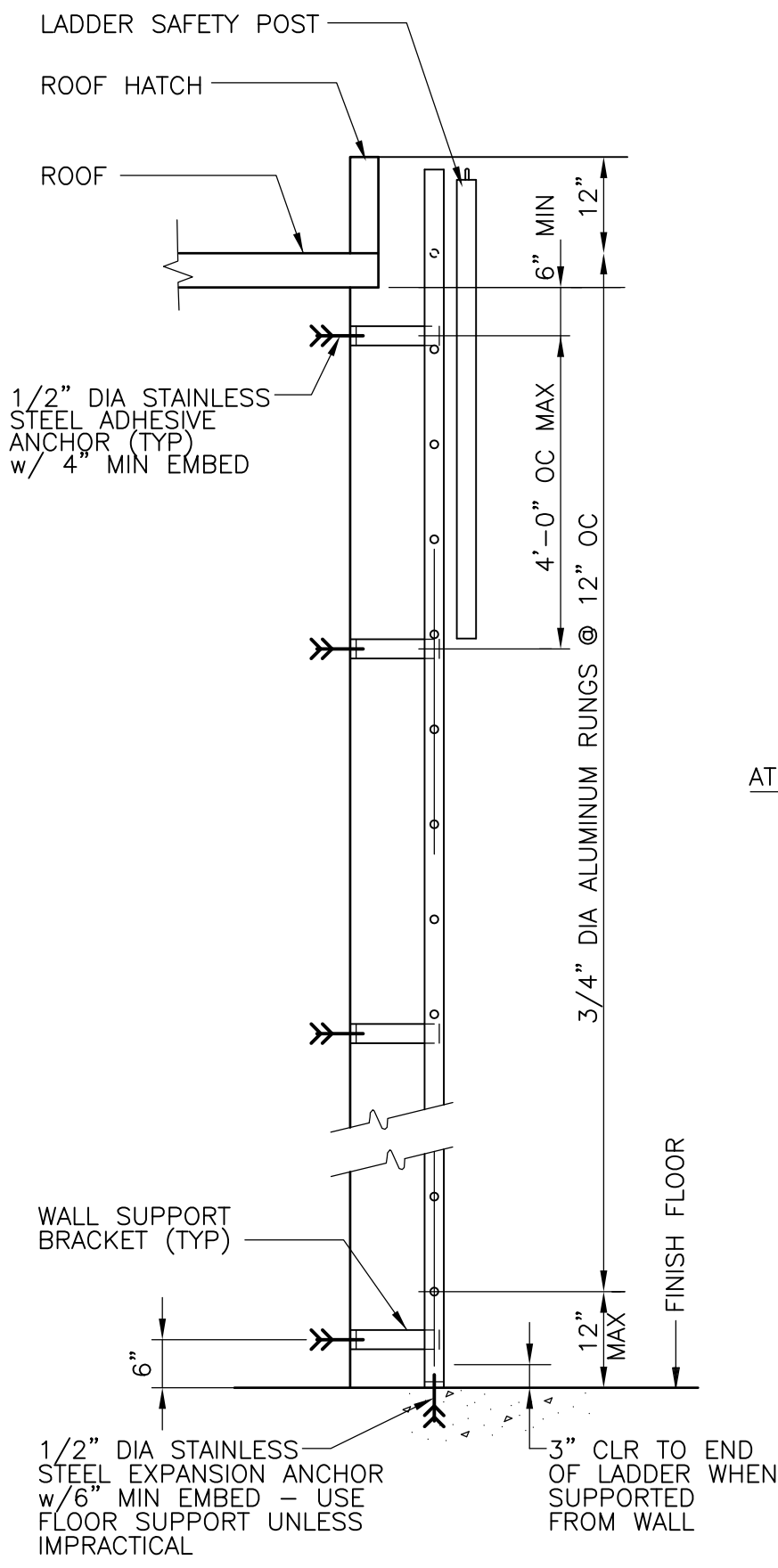
RECORD DRAWING

CADD FILE NO.: SSDDT005.DWG DESIGNED BY: D.L. HARRIS DRAWN BY: B.S. HORNER SHEET CHK'D BY: D.L. HARRIS SCALE: NTS APPROVED BY: D.L. HARRIS DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 135 of 386  <b>SD-S-5</b>	
REV. NO.	DATE	DRWN	CHKD	NO REVISION REQUIRED FOR THE RECORD					

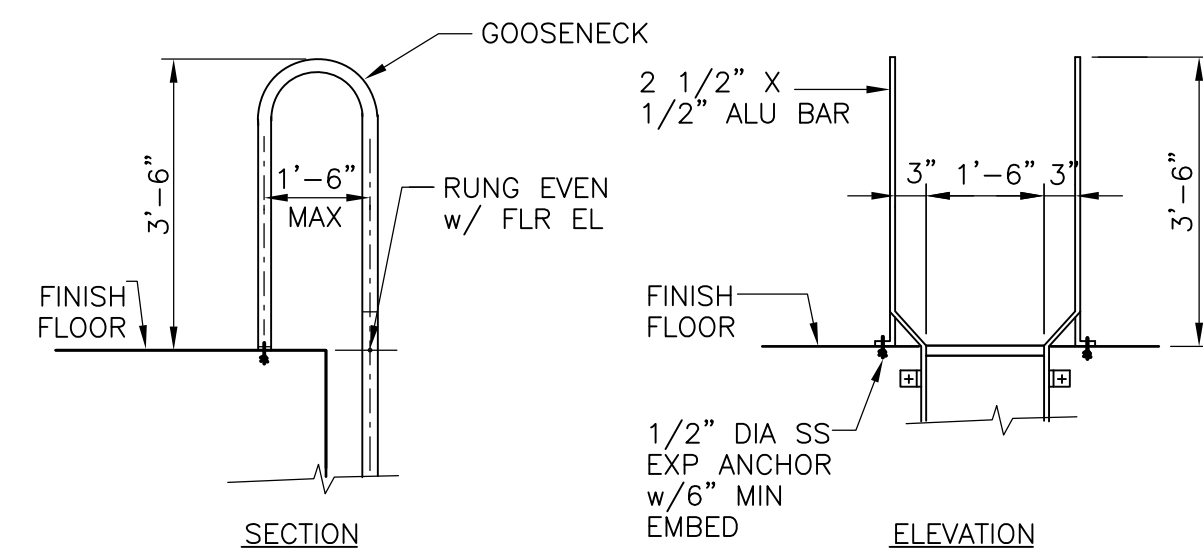
ACCESSION NO. 1289-65535



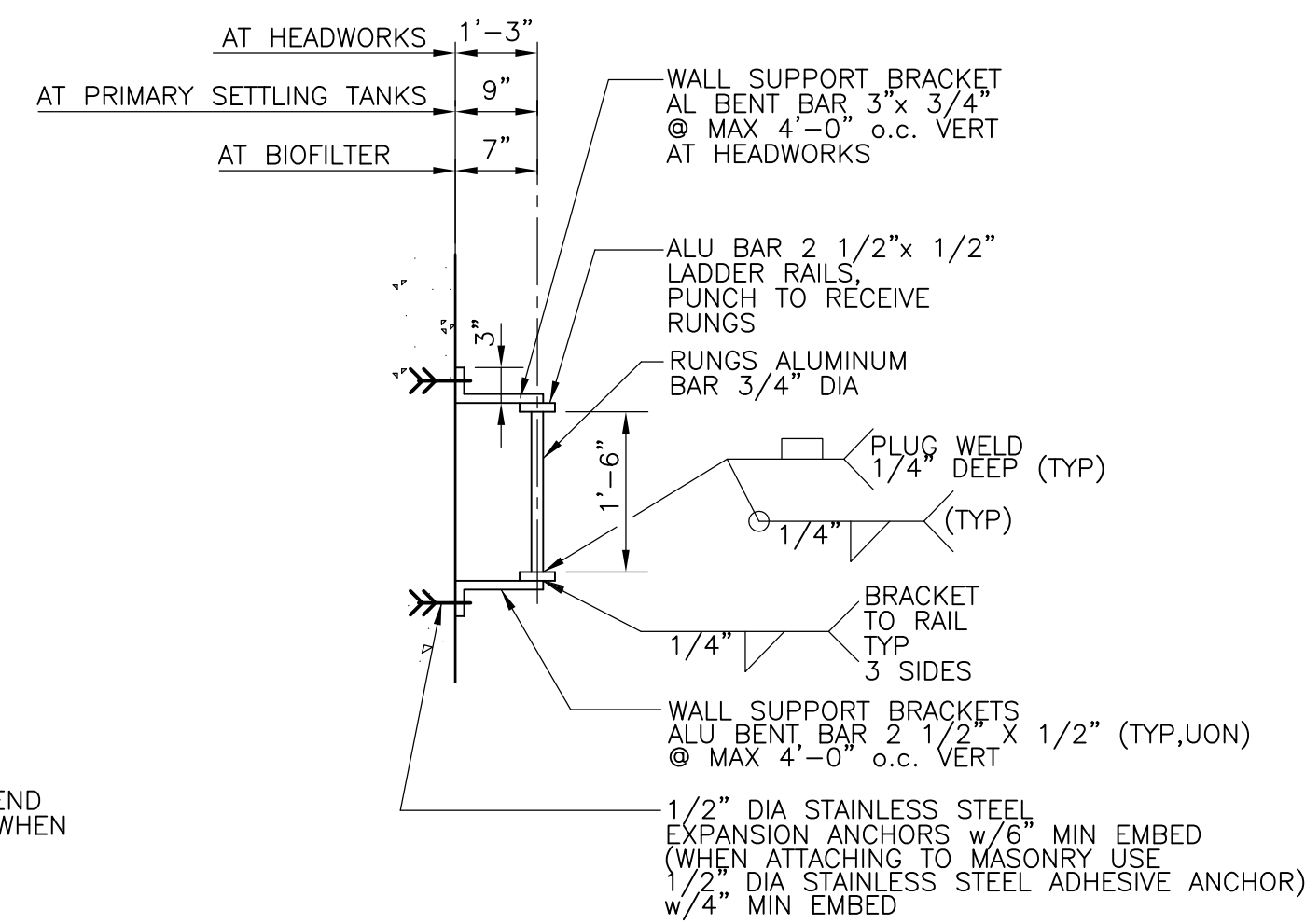
**LADDER SECTION**  
NTS



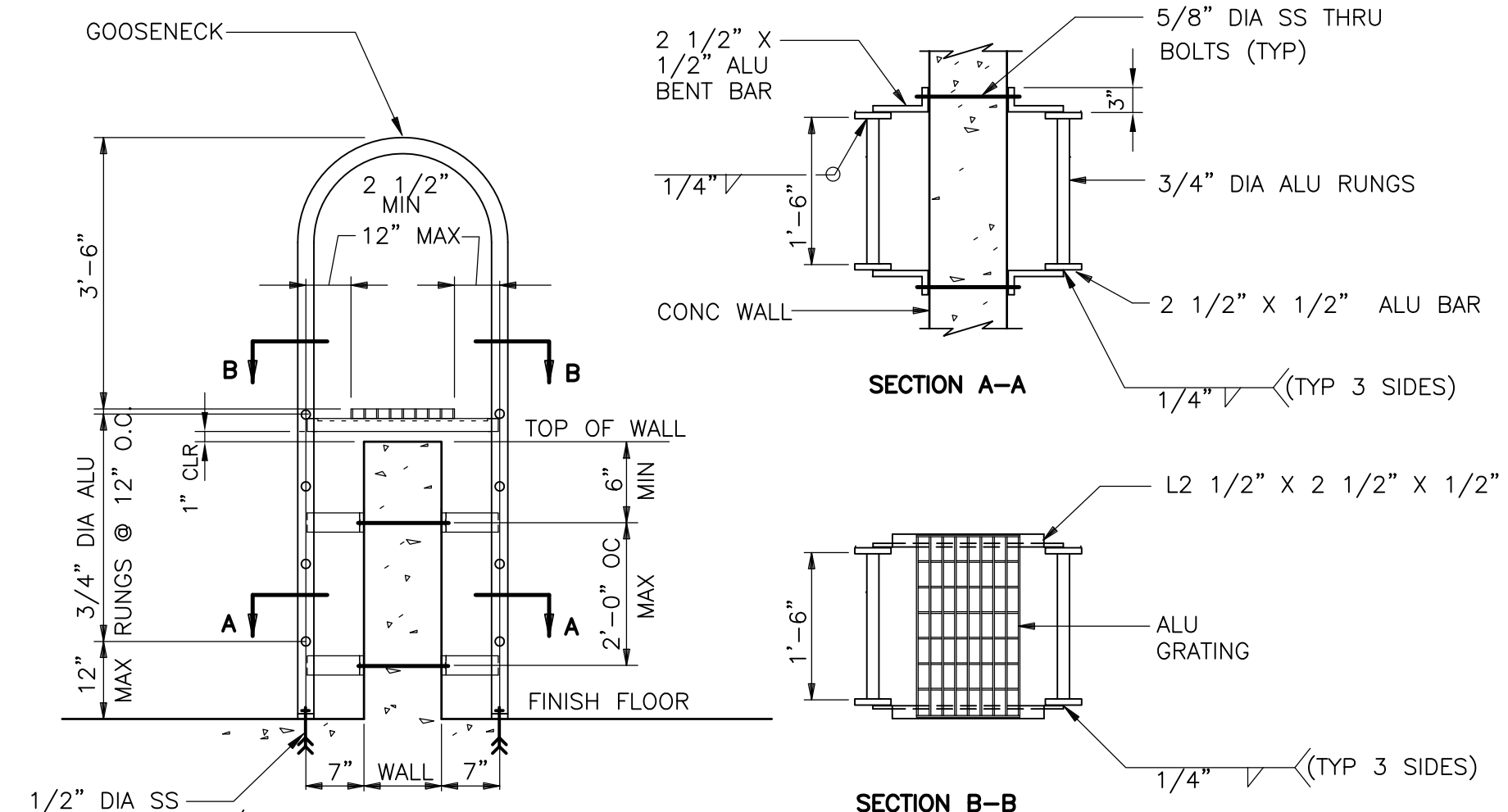
**LADDER SECTION**  
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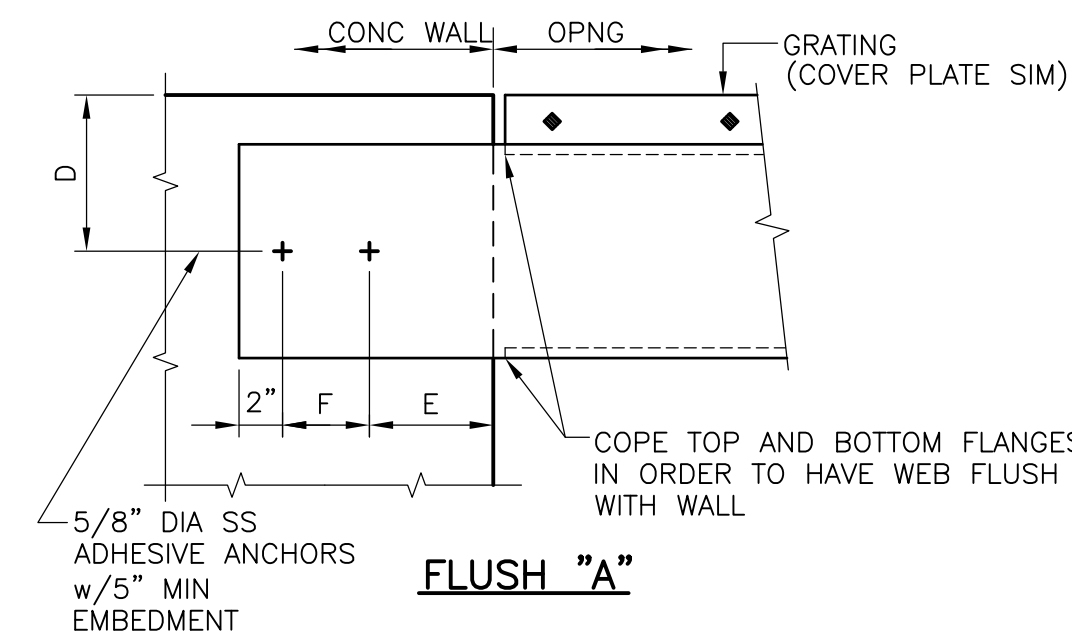
**GOOSENECK DETAIL**  
NTS



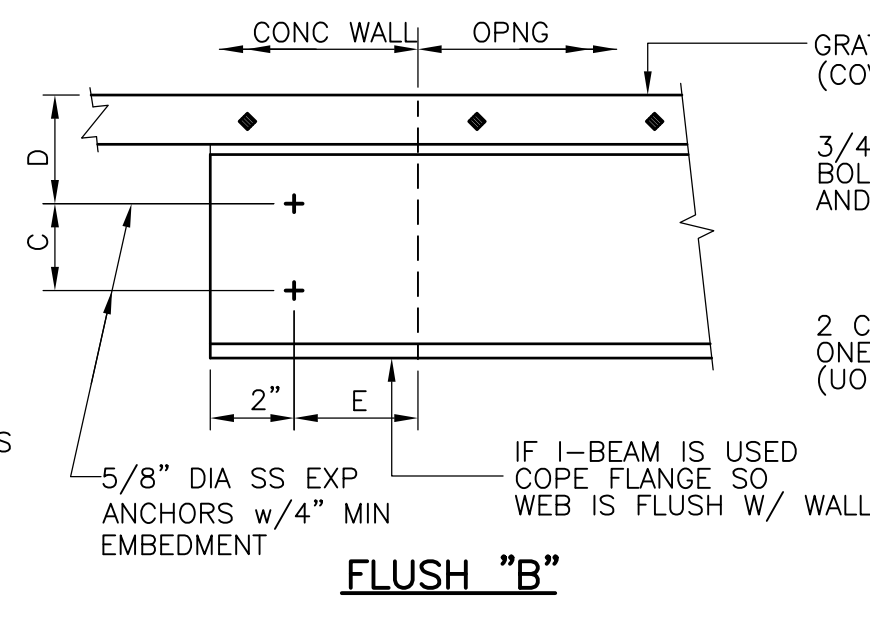
**LADDER PLAN**  
NTS



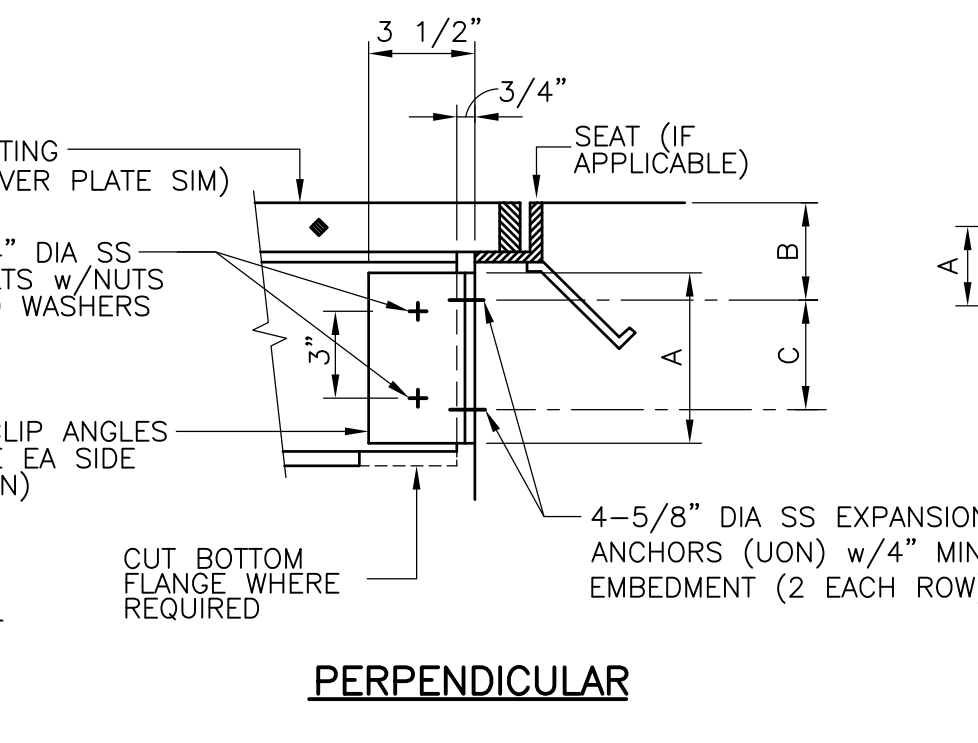
**CROSSOVER LADDER DETAIL**  
NTS



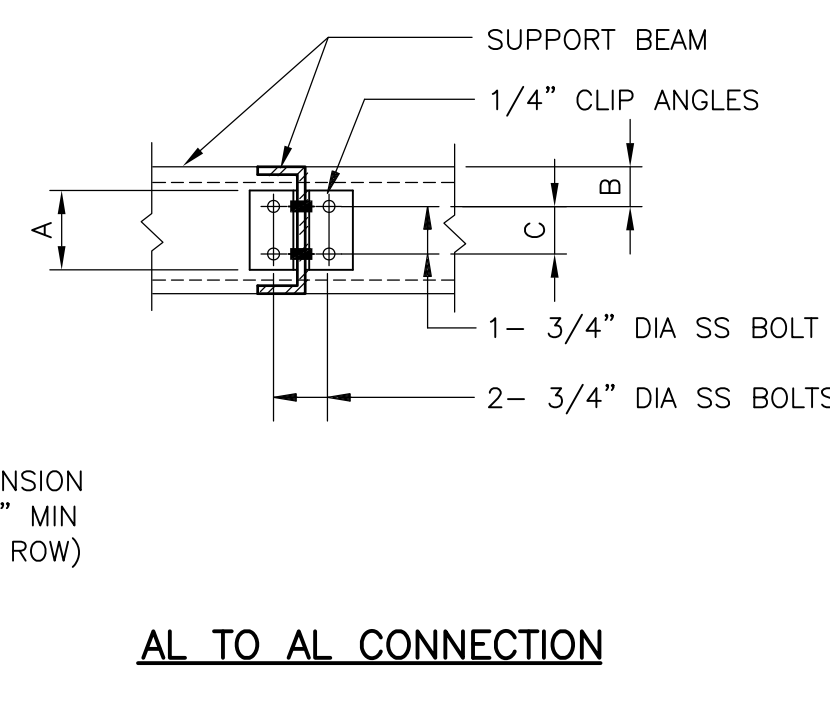
**FLUSH "A"**



**FLUSH "B"**



**PERPENDICULAR**



**AL TO AL CONNECTION**

STRUCTURE	MARK	TYPE	BEAM	A	B	C	D	E	F	L
CHLORINE CONTACT TANK	CT-SB-1	PERP	12 WF 11.672	9"	6"	6"	-	-	-	2 - L5 x 3 1/2 x 5/16"
CHLORINE CONTACT TANK	CT-SB-2	PERP & FLUSH "A"	6 C 2.83	6 1/2"	2 3/4"	4"	4 1/4"	4"	4"	1 - L5 x 3 1/2 x 5/16"
FLUME STRUCTURE	MS-SB-1	PERP	8 WF 6.35	7 3/4"	5"	4 1/2"	-	-	-	2 - L5 x 3 1/2 x 5/16"
PRIMARY SETTLING TANK	PT-SB-1	AL TO AL	8 C 5.62	5 1/2"	3"	3"	-	-	-	2 - L5 x 3 1/2 x 5/16"
PRIMARY SETTLING TANK	PT-SB-2	PERP	8 C 5.62	6 1/2"	4"	4 1/2"	-	-	-	2 - L5 x 3 1/2 x 5/16"
EAST GRIT AND SCREENING FACILITY	HW-SB-1	PERP	8 C 5.62	6"	2 3/8"	4"	-	-	-	2 - L6 x 3 1/2 x 5/16"
EAST GRIT AND SCREENING FACILITY	HW-SB-2	PERP	8 C 5.62	6"	2 3/8"	4"	-	-	-	2 - L6 x 3 1/2 x 5/16"
EAST GRIT AND SCREENING FACILITY	HW-SB-2	AL TO AL	8 C 5.62	6"	2"	4"	-	-	-	2 - L6 x 3 1/2 x 5/16"
EAST GRIT AND SCREENING FACILITY	HW-SB-3	PERP	8 C 5.62	6"	4 1/2"	4"	-	-	-	2 - L6 x 3 1/2 x 5/16"
EAST GRIT AND SCREENING FACILITY	HW-SB-4	PERP	8 C 5.62	6"	4 1/2"	4"	-	-	-	2 - L6 x 3 1/2 x 5/16"
EAST GRIT AND SCREENING FACILITY	HW-SB-4	AL TO AL	8 C 5.62	6"	2"	4"	-	-	-	2 - L6 x 3 1/2 x 5/16"

**SUPPORT BEAM TO CONCRETE CONNECTION**  
NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. <u>SSDDT006.DWG</u>
DESIGNED BY: <u>D.L. HARRIS</u>
DRAWN BY: <u>B.S. HÖRNER</u>
SHEET CHK'D BY: <u>DLH/AJP</u>
SCALE: <u>NTS</u>
APPROVED BY: <u>D.L. HARRIS</u>
DATE: <u>MAY 2006</u>

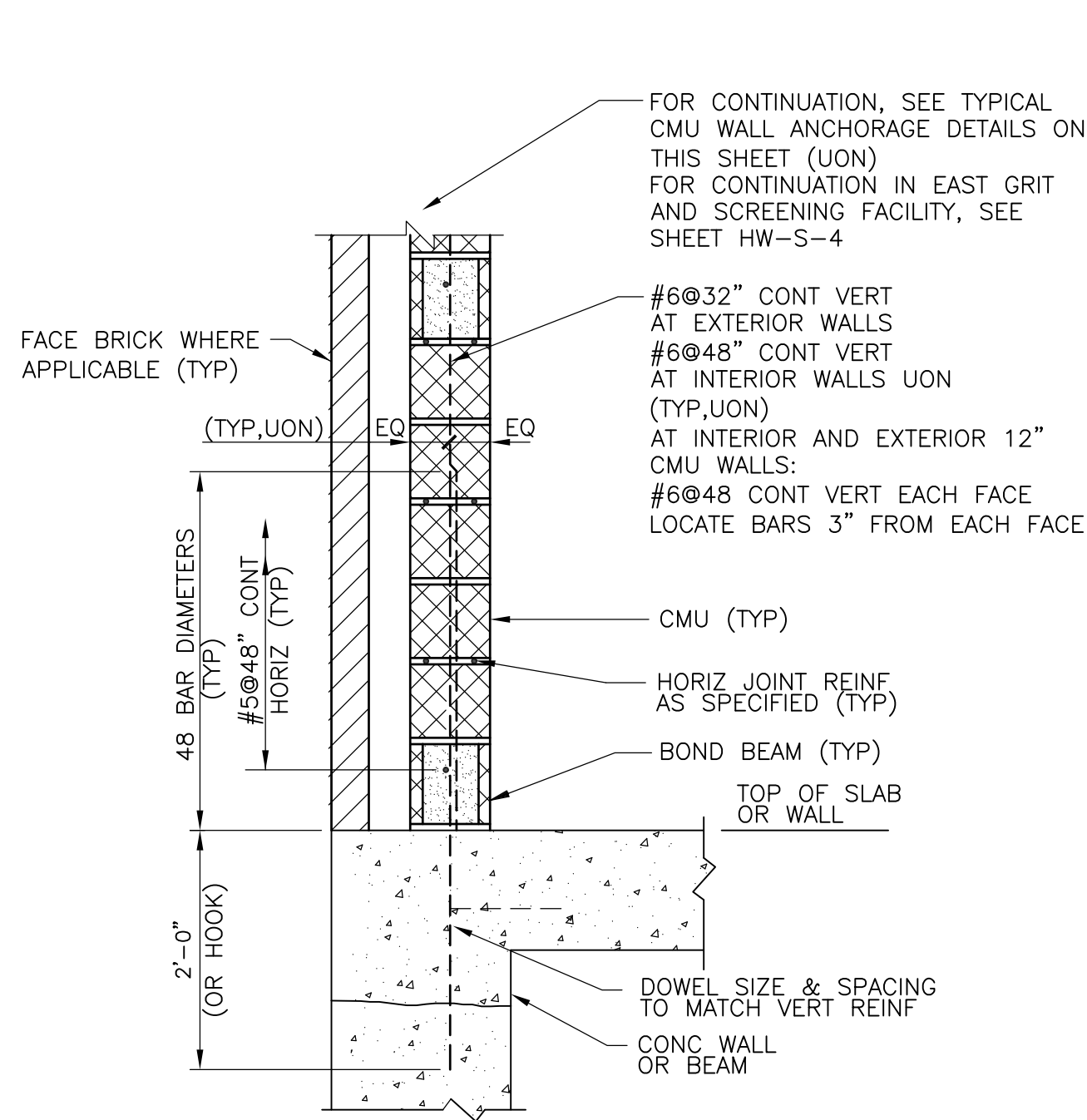
<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations
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<b>UPPER BLACKSTONE</b> WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
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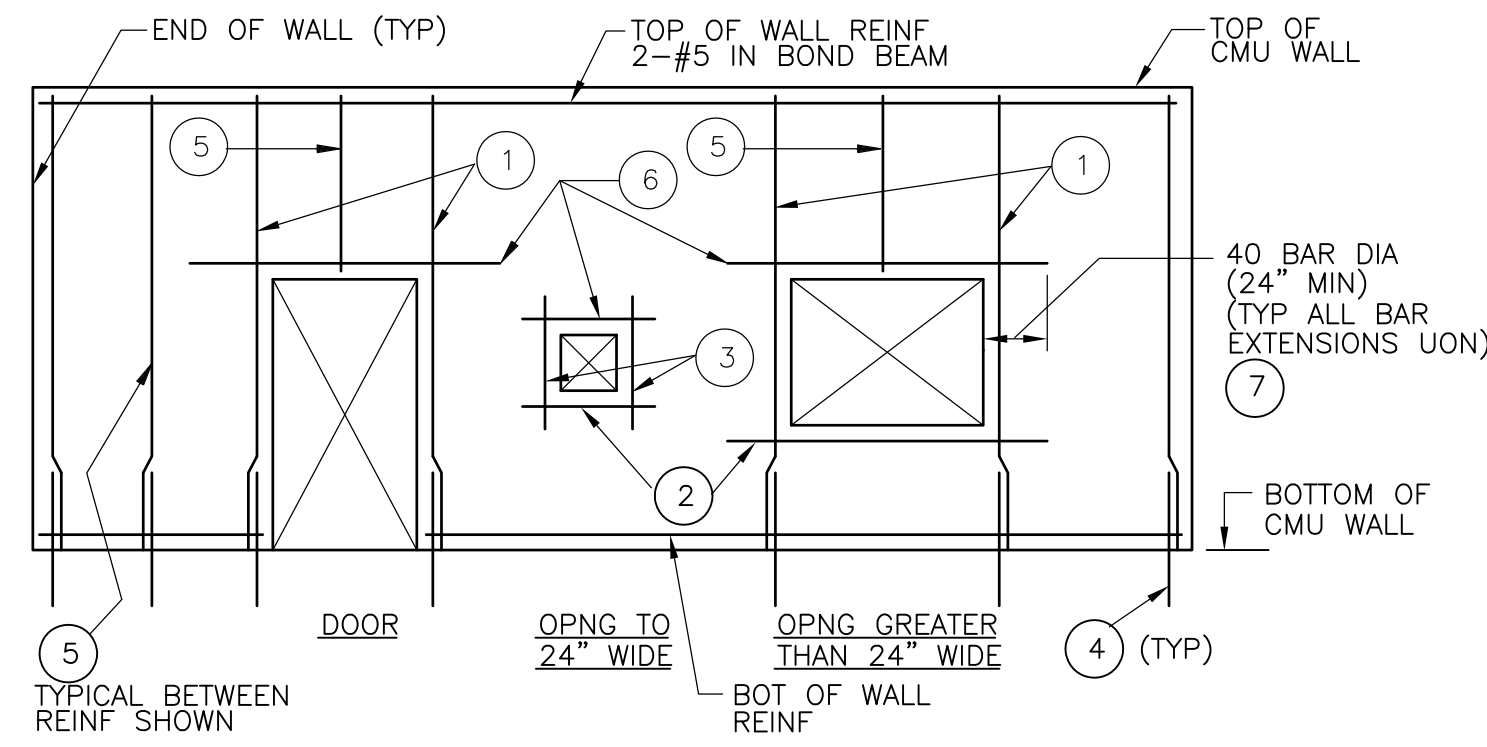
<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>
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<b>STANDARD MISCELLANEOUS METAL DETAILS III</b>
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PROJECT NO. 1289\35370
Sht. 136 of 386
<b>SD-S-6</b>

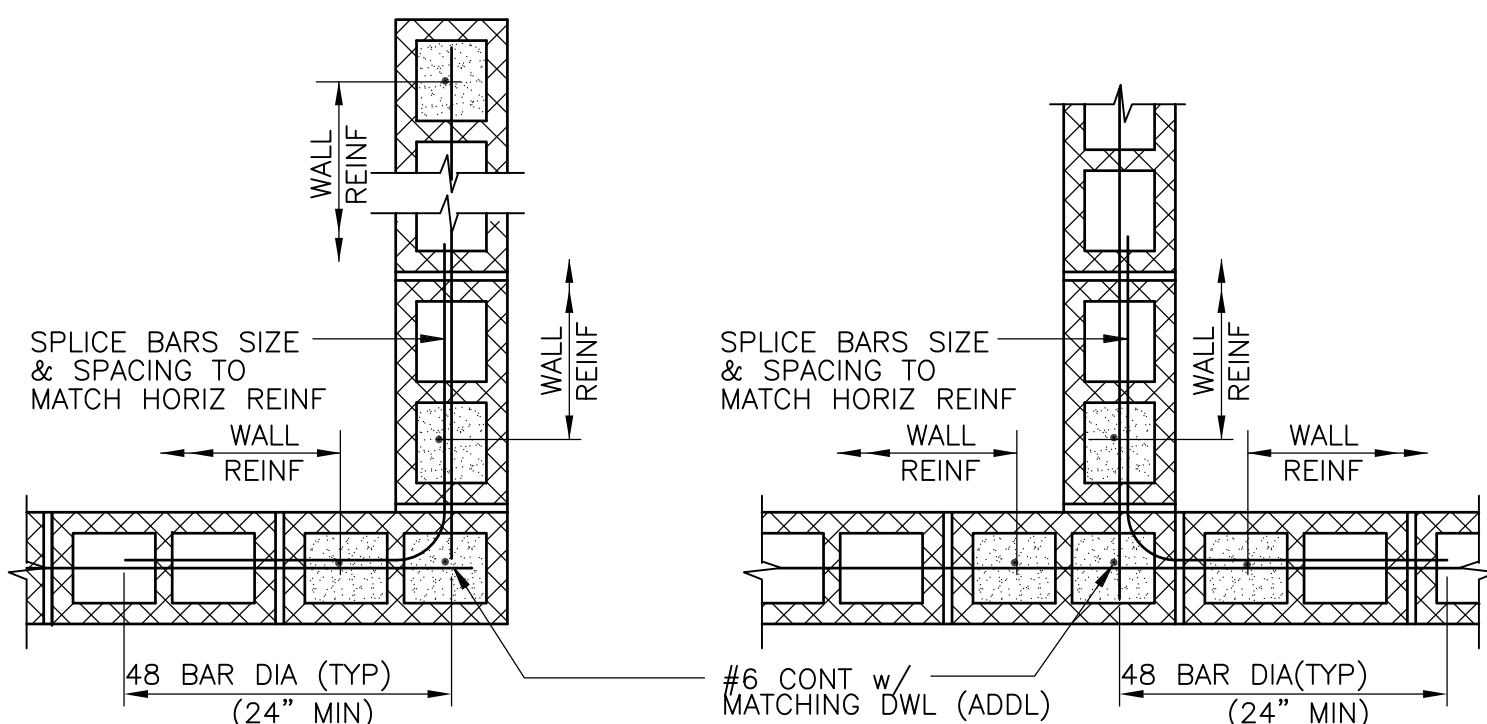


**TYPICAL CMU WALL REINFORCING**  
NTS



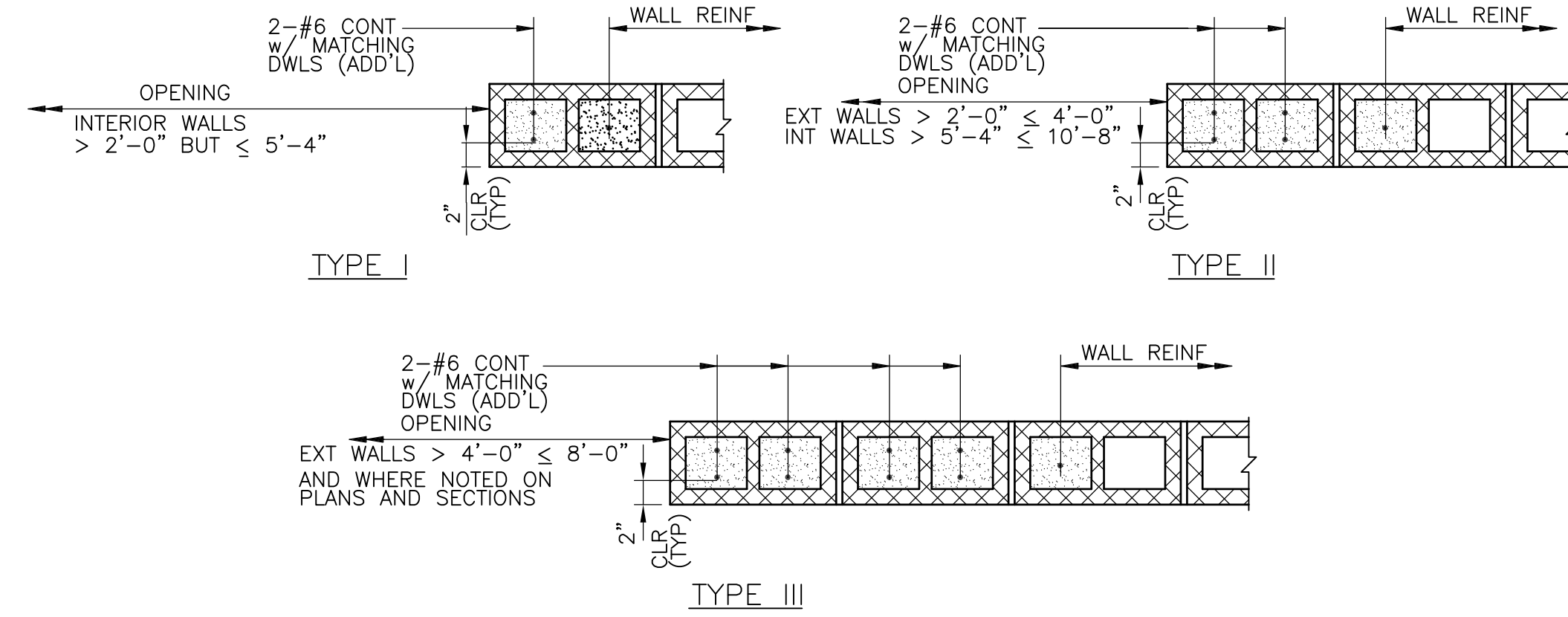
**TYPICAL CMU WALL ELEVATION**  
NTS

- LEGEND**
- ① SEE TYPICAL CMU WALL OPENING DETAIL ON THIS SHEET
  - ② SILL BARS, 2-#5 IN BOND BEAM
  - ③ 1-#5 EACH SIDE
  - ④ SEE TYPICAL CMU WALL CORNER, END AND INTERSECTION REINFORCING DETAILS ON THIS SHEET
  - ⑤ BETWEEN BARS SHOWN, PROVIDE TYPICAL WALL REINFORCING PER TYPICAL CMU WALL REINFORCING DETAIL ON THIS SHEET
  - ⑥ SEE TYPICAL CMU LINTEL DETAIL ON THIS SHEET, SHEET HW-S-4 AND THE ARCHITECTURAL DRAWINGS
  - ⑦ IF FULL LENGTH IS NOT AVAILABLE, EXTEND AS FAR AS POSSIBLE, HOOK 90 DEGREE, THEN EXTEND BEYOND BEND, REMAINDER OF LENGTH REQUIRED (BUT NOT LESS THAN 12 BAR DIAMETERS)



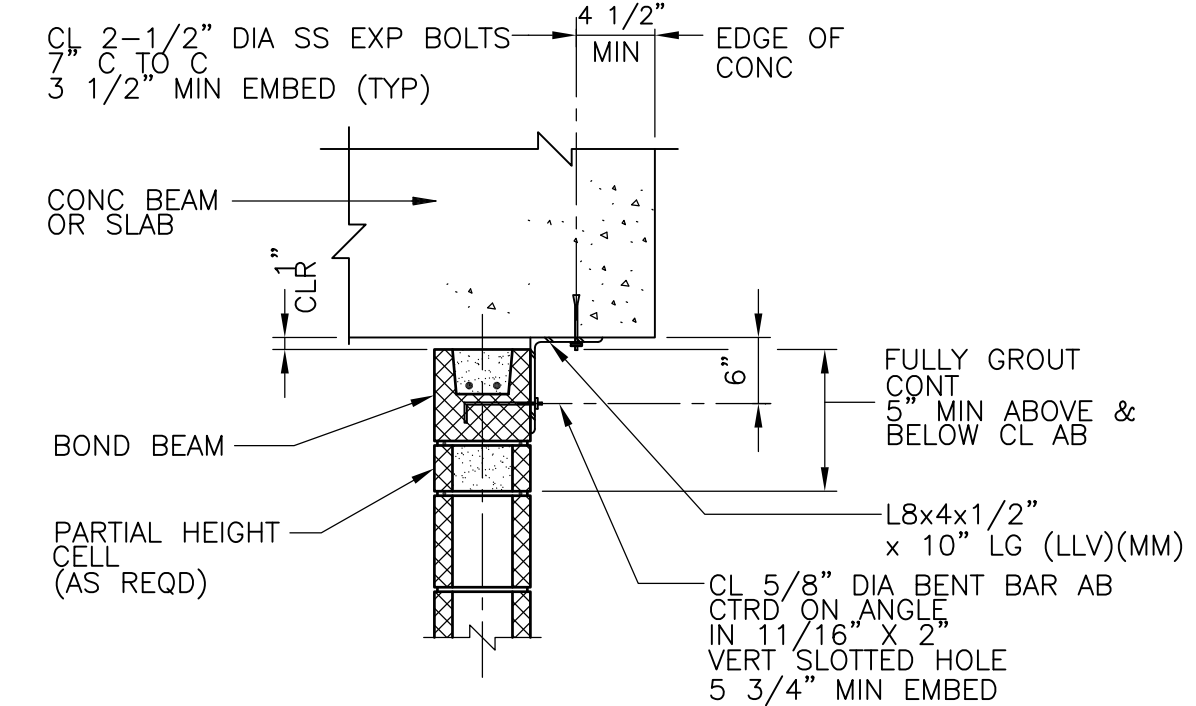
**TYPICAL CMU WALL CORNER & END**  
NTS

**TYPICAL CMU WALL INTERSECTION**  
NTS

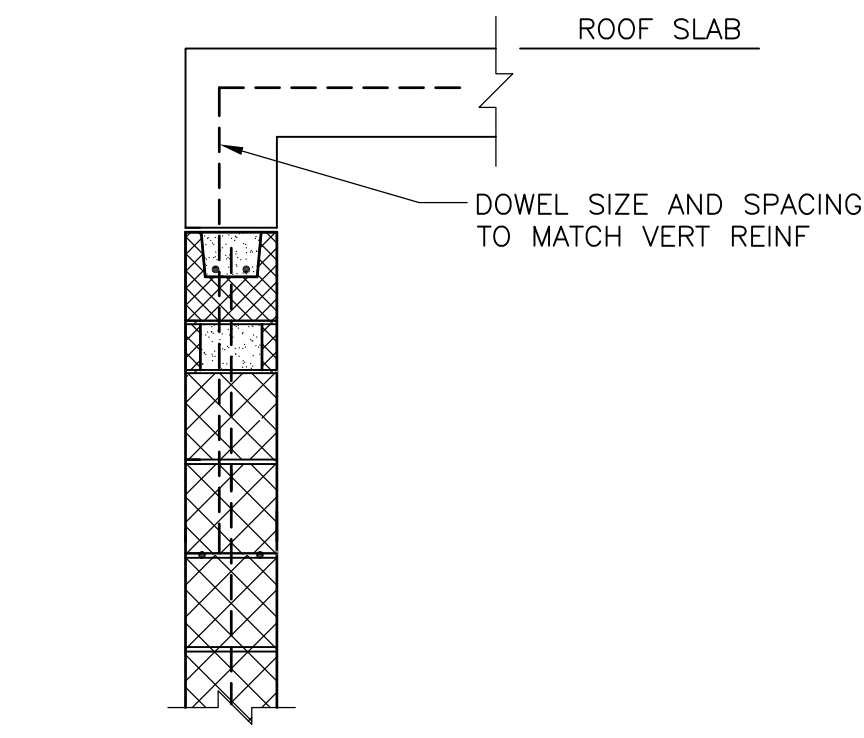


**TYPICAL CMU WALL OPENING**  
NTS

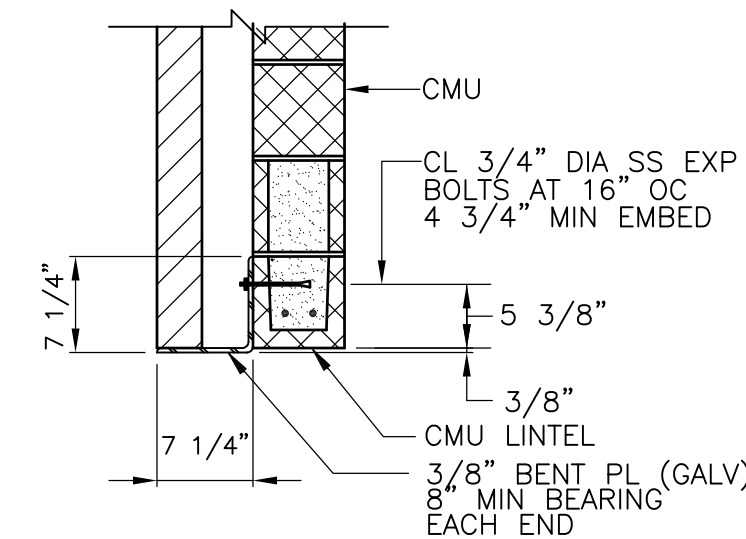
- NOTES:**
1. ADDITIONAL REINFORCING SHALL BE OMITTED AT OVERHEAD DOOR OPENINGS WHERE STRUCTURAL FRAMING IS PROVIDED AT THE JAMB. IN THIS CASE, VERTICAL WALL REINFORCING SHALL BEGIN IN THE FIRST CELL BEYOND THE OPENING.



**NONLOADBEARING WALL AT CONC SLAB OR BEAM**

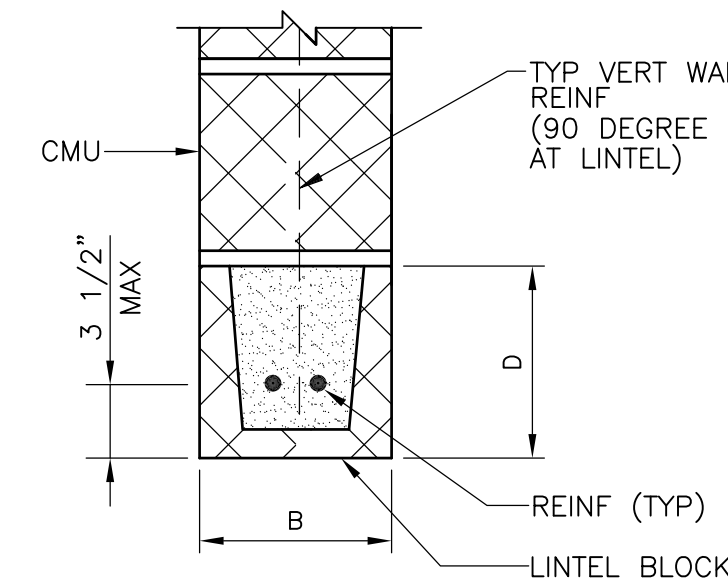


**LOAD BEARING WALL AT CONC SLAB OR BEAM**  
FOR ADD'L INFO SEE DETAIL FOR NONLOADBEARING WALL AT CONC SLAB OR BEAM ON THIS SHEET AND NOTE 5 BELOW



**NOTE:**  
DETAIL IS SIMILAR AT CONCRETE WALLS AND BEAMS

**TYPICAL SHELF ANGLE**  
NTS



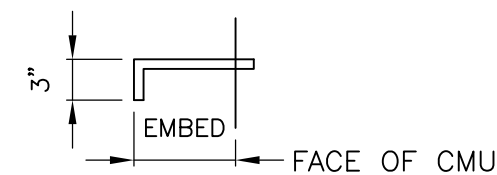
**TYPICAL CMU LINTEL**  
NTS

WALL TYPE	CLEAR SPAN	MARK		
		B	D	REINF
INTERIOR LOAD BEARING	≤ 3'-4"	8"	16"	2-#5
INTERIOR NONLOAD BEARING	≤ 6'-4"	8"	8"	2-#5
EXTERIOR	> 6'-4" BUT < 9'-0"	8"	16"	2-#5
EXTERIOR	< 8'-6"	8"	16"	2-#5

- CMU LINTEL NOTES:**
1. PROVIDE 8" MINIMUM BEARING AT EACH SIDE OF CLEAR SPAN.
  2. FULLY GROUT CMU OVER DEPTH "D" TO ENDS OF BEARING.
  3. D OF 16" MAY CONSIST OF ONE FULLY GROUTED 16" DEEP CMU LINTEL BLOCK OR ONE FULLY GROUTED 8" DEEP CMU LINTEL BLOCK PLUS ONE FULLY GROUTED 8" DEEP CMU.

**TYPICAL CMU WALL ANCHORAGE**  
NTS

- CMU WALL ANCHORAGE NOTES:**
1. PROVIDE ANCHORAGE AT 32" OC (MAX) IN ALL WALLS (UON). WHERE POSSIBLE, ANCHORAGE SHALL BE PROVIDED IN THE SAME CELLS AS THE CONTINUOUS VERTICAL WALL REINFORCING.
  2. BENT BAR ANCHOR BOLT DIMENSIONS:

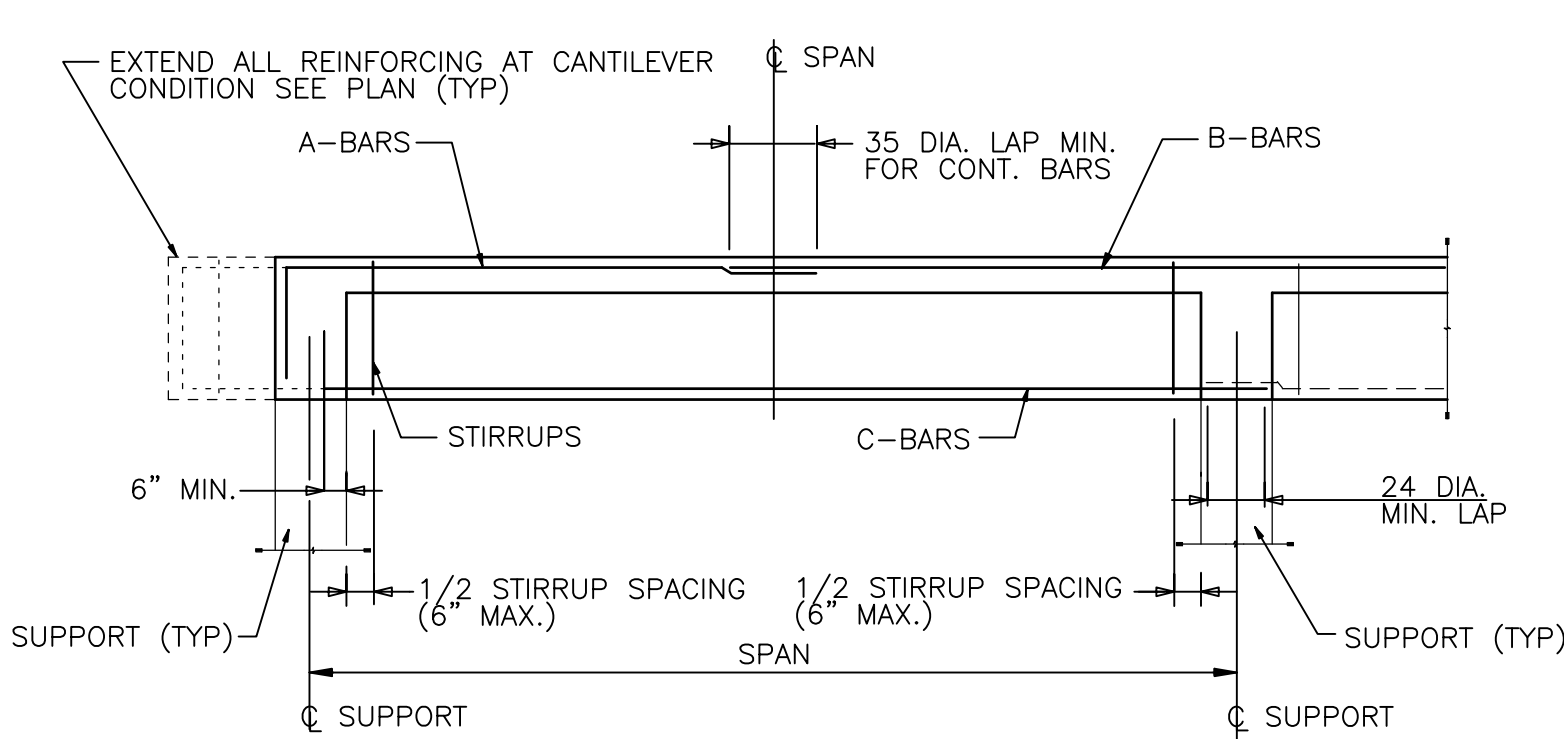


3. AT INSTALLATION, CENTERLINE OF BENT BAR ANCHOR BOLTS SHALL BE 5/8" DOWN FROM THE TOP OF THE VERTICAL SLOTTED HOLE.
4. THE NUTS ON THE BENT BAR ANCHOR BOLTS SHALL BE FINGER TIGHTENED AND TACK WELDED TO THE BOLTS.
5. FOR ADDITIONAL INFORMATION SEE THE TYPICAL CMU WALL REINFORCING DETAIL ON THIS SHEET.

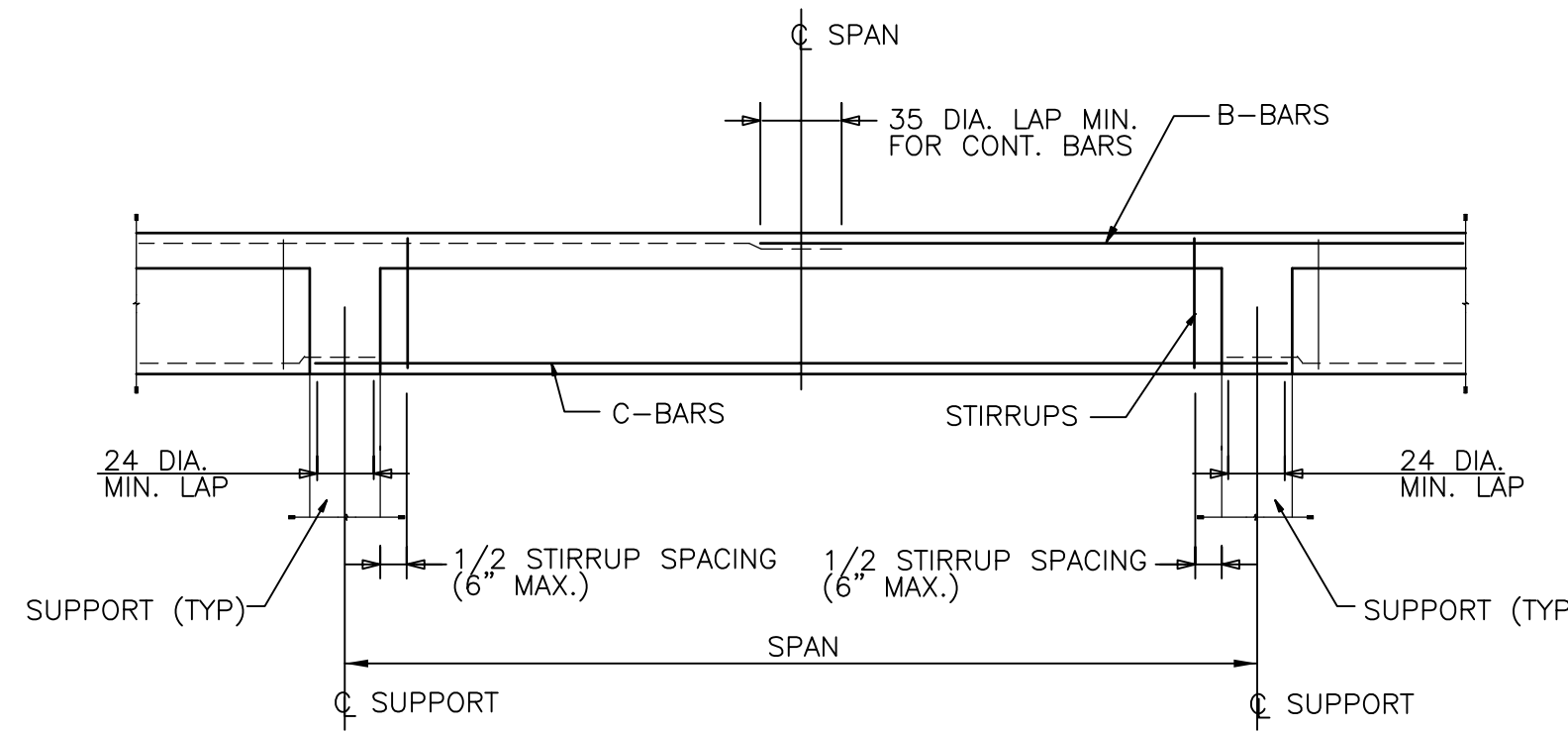
RECORD DRAWING

CADD FILE NO. <u>SSDDT007.DWG</u> DESIGNED BY: <u>A.J. PAPA</u> DRAWN BY: <u>B.S. HORNER</u> SHEET CHK'D BY: <u>A.J. PAPA</u> SCALE: <u>NTS</u> APPROVED BY: <u>D.L. HARRIS</u> DATE: <u>MAY 2006</u>						<b>UPPER BLACKSTONE</b> <b>WATER POLLUTION ABATEMENT DISTRICT</b> CONTRACT No. UB 2024	<b>WASTEWATER TREATMENT FACILITY</b> <b>IMPROVEMENTS</b>	<b>STANDARD CMU DETAILS</b>	PROJECT NO. 1289\35370
REV. NO.   DATE   DRWN   CHKD   REMARKS									
3/07   SPV   ADT   NO REVISION REQUIRED FOR THE RECORD									
Sht. 137 of 386									

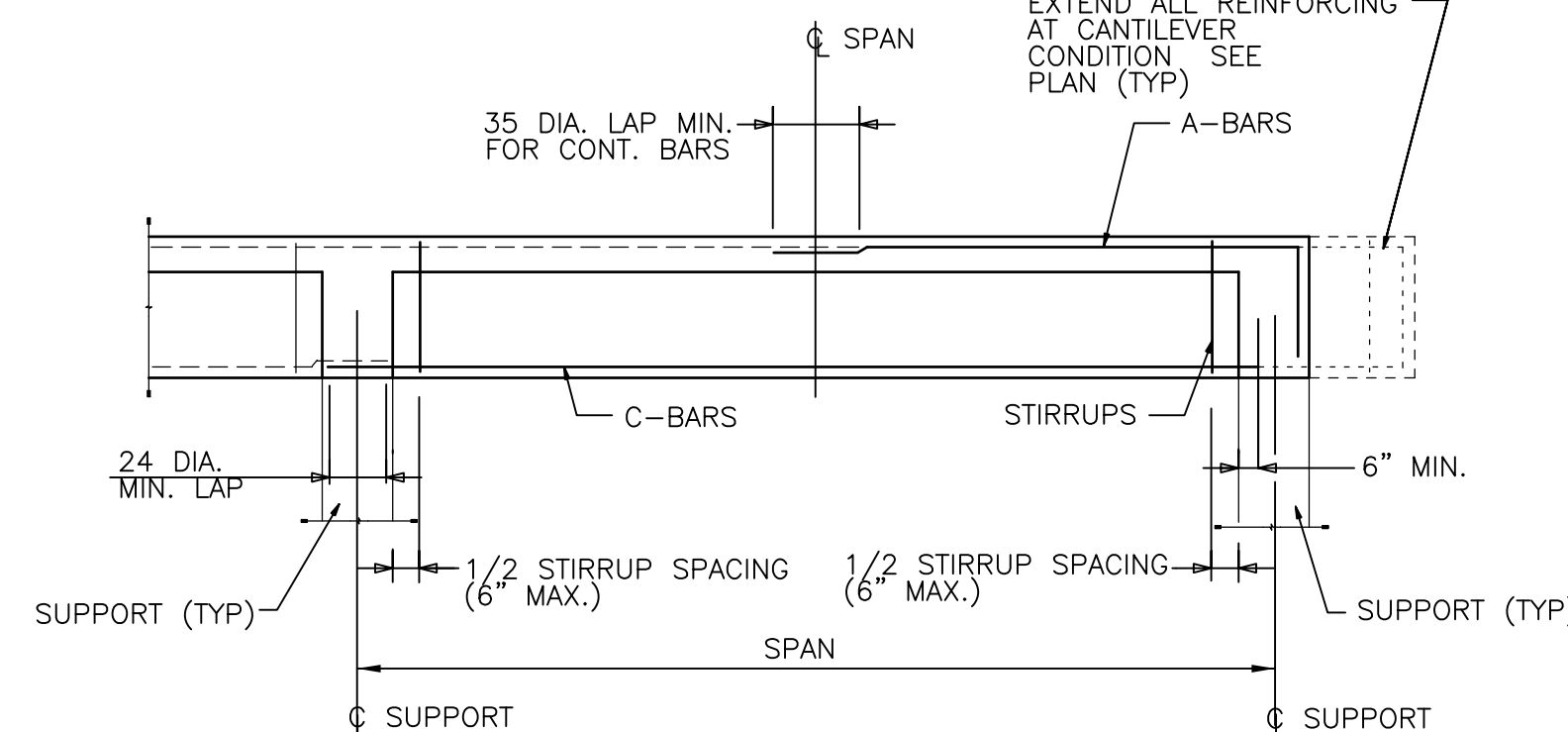




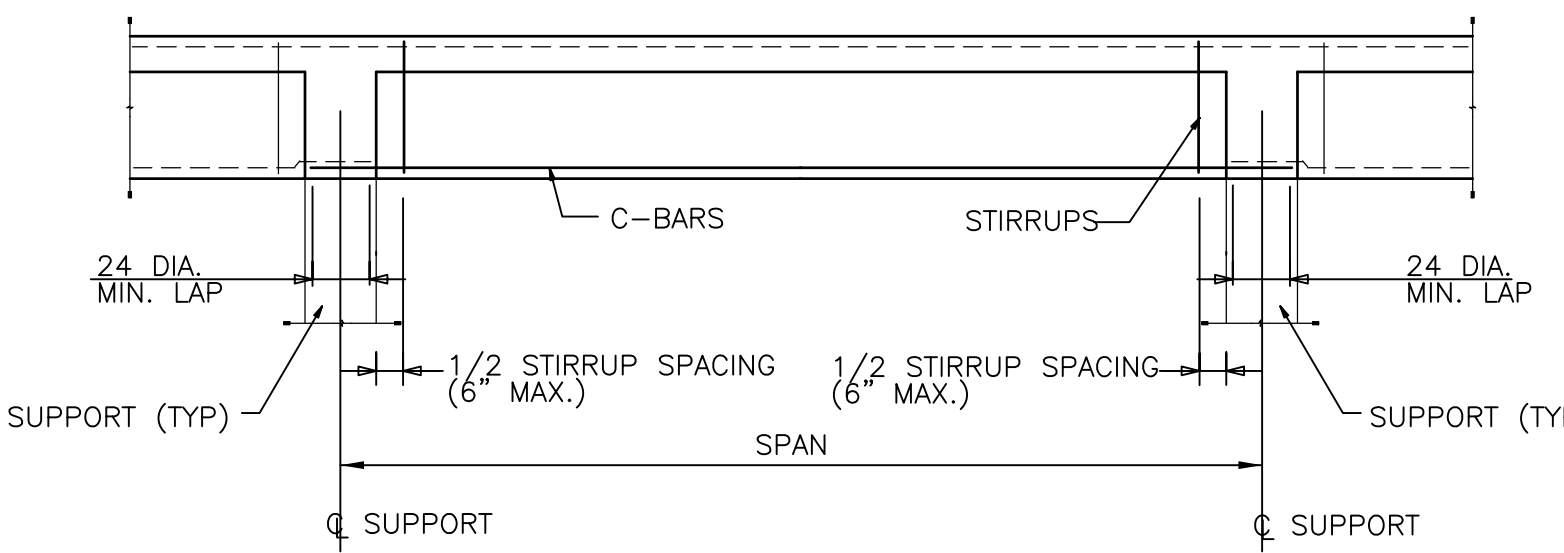
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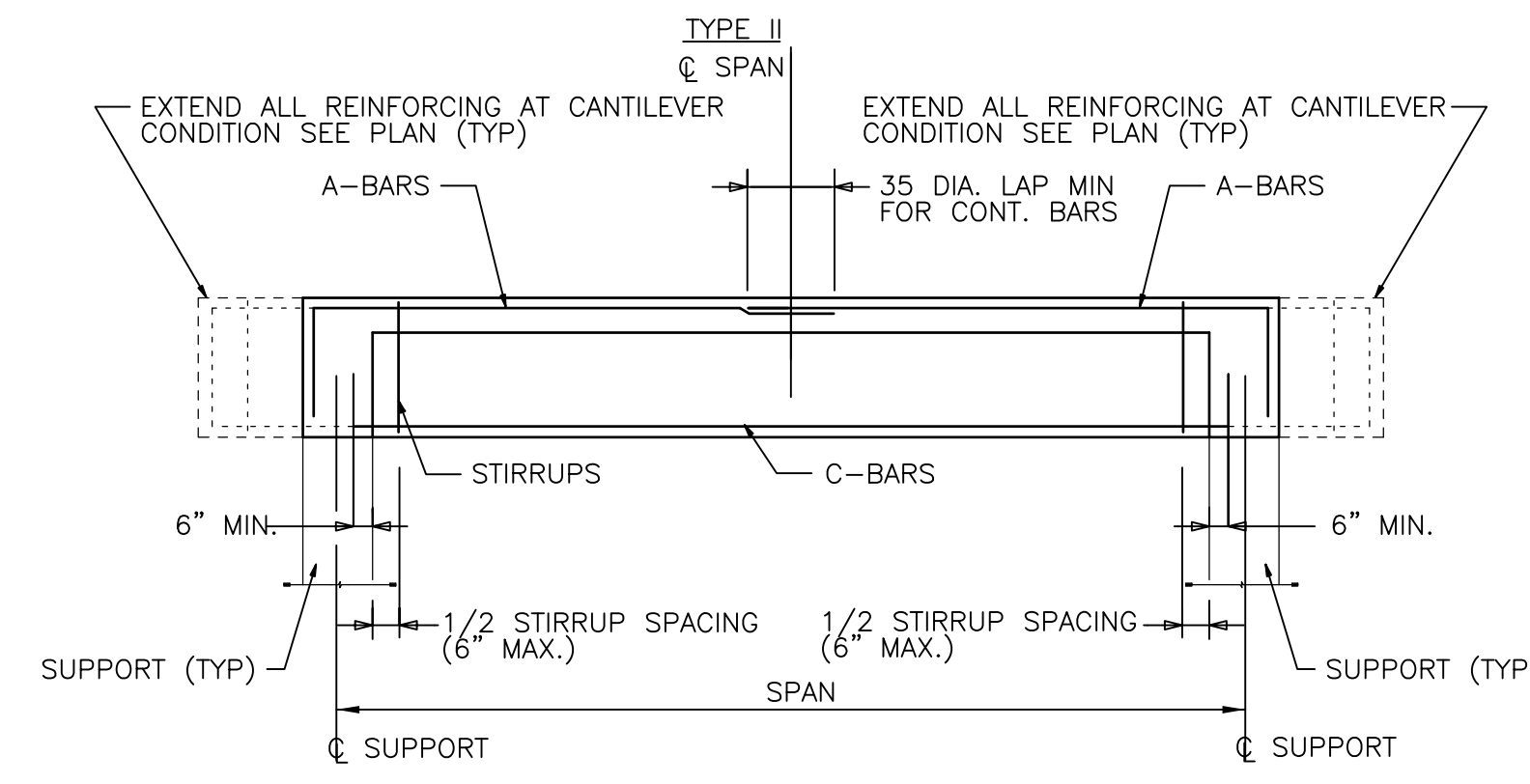
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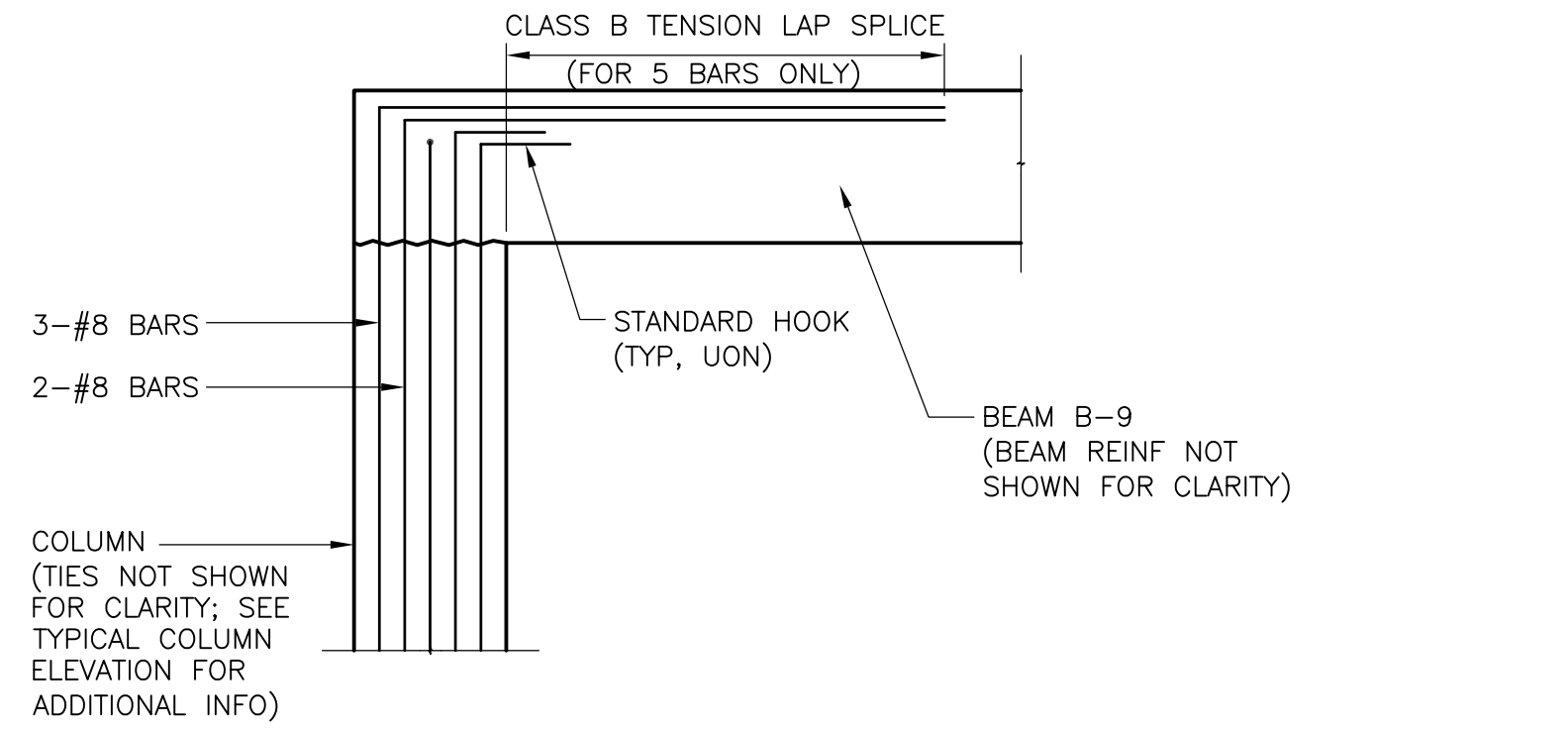
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TYPE IV

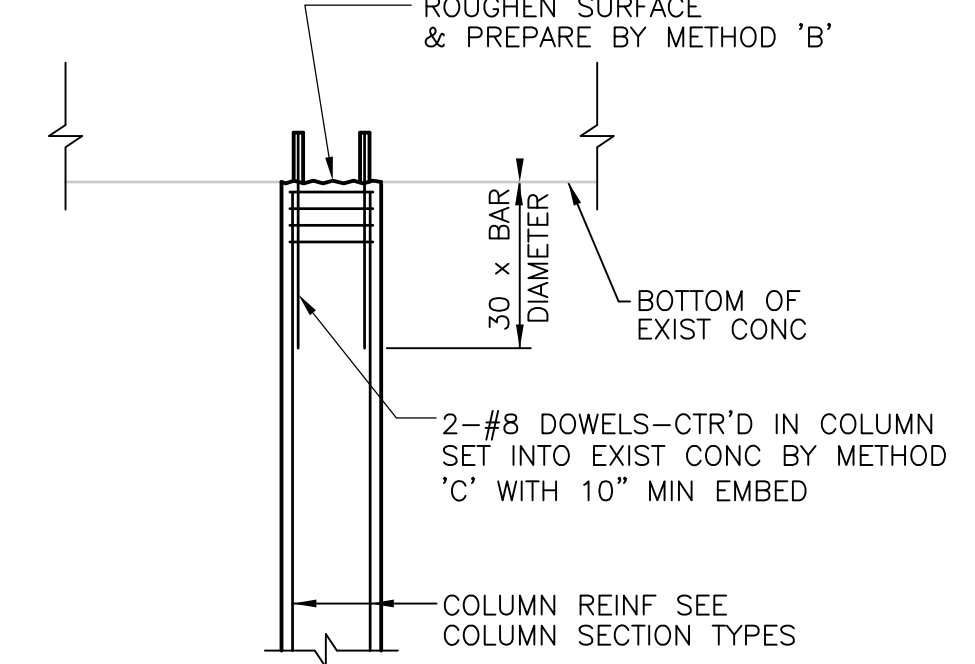


TYPE V



BEAM-COLUMN JOINT DETAIL AT TOP OF COLUMNS C-5, C-7, C-8

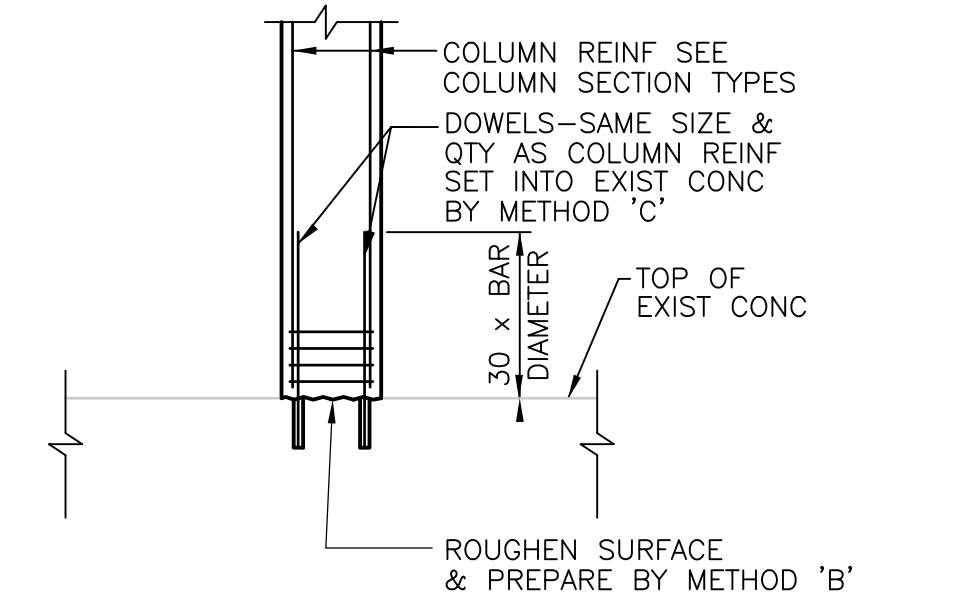
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- NOTES:  
 1. FOR "MODIFICATION AND REPAIR TO CONCRETE NOTES" SEE SD-S-3.  
 2. FOR ADDITIONAL INFORMATION SEE TYPICAL COLUMN ELEVATION ON THIS SHEET.

COLUMN PLACED BELOW EXISTING CONCRETE

NTS



- NOTES:  
 1. FOR "MODIFICATION AND REPAIR TO CONCRETE NOTES" SEE SD-S-3.  
 2. FOR ADDITIONAL INFORMATION SEE TYPICAL COLUMN ELEVATION ON THIS SHEET.

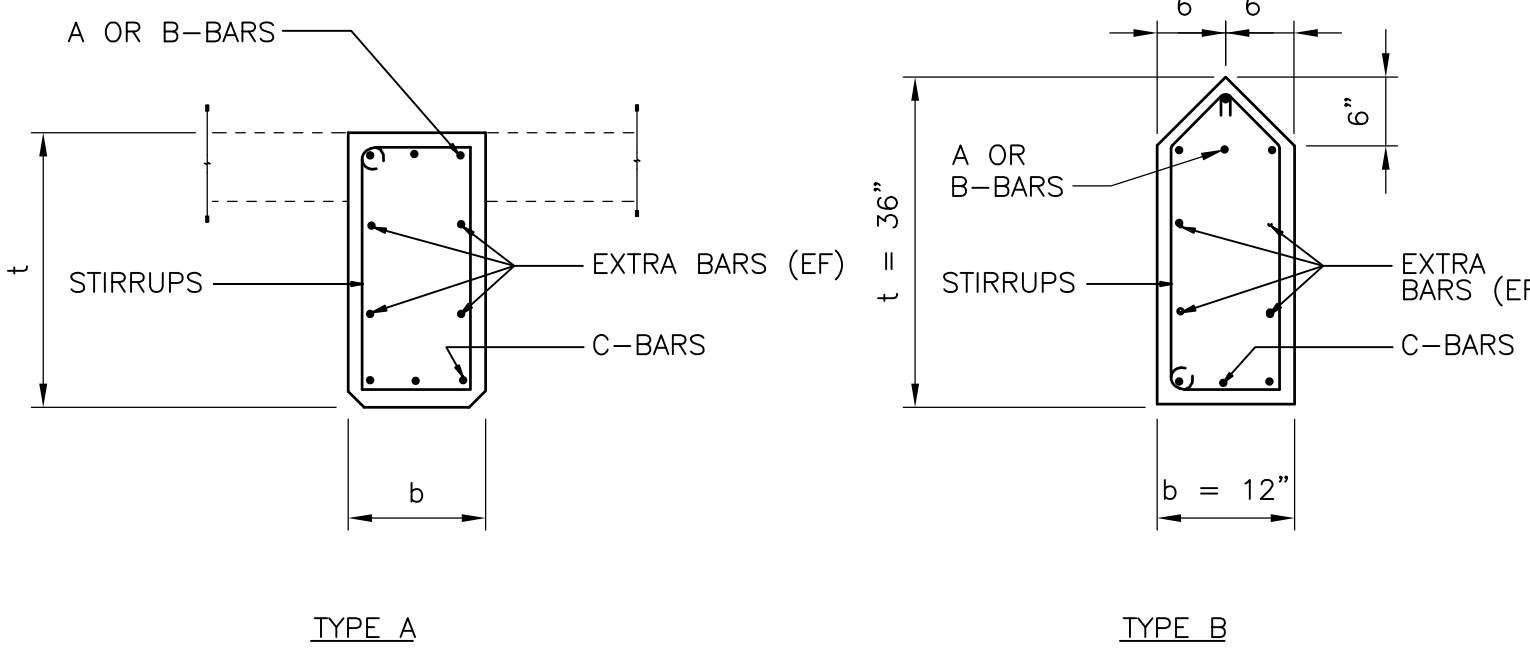
COLUMN PLACED ON EXISTING CONCRETE

NTS

NOTES:  
 SPLICES IN BEAM REINFORCING MAY BE MADE ONLY WHERE SHOWN. SPLICES SHOWN MAY BE ELIMINATED WHEN CONTINUOUS REINFORCING IS PROVIDED.

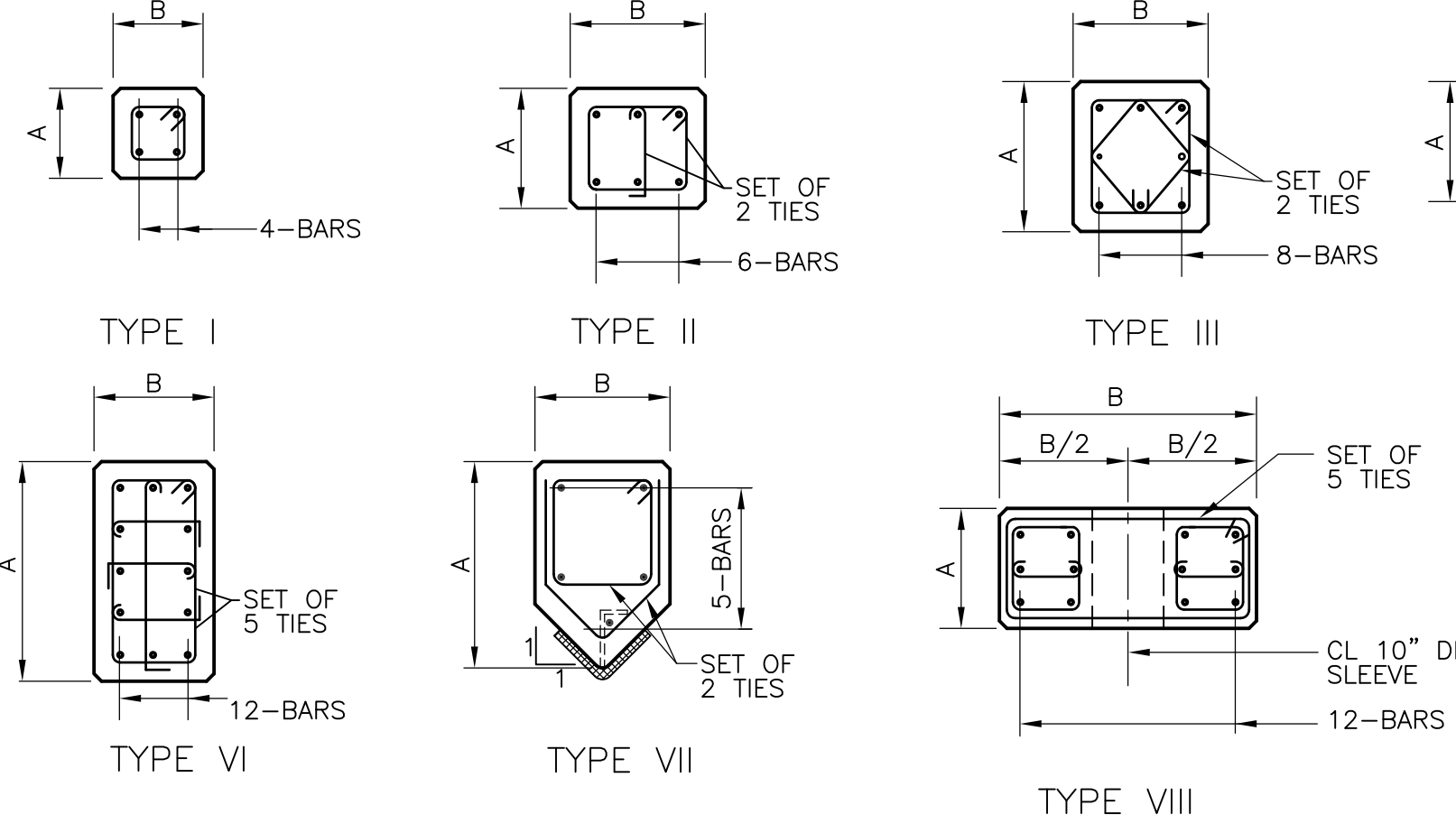
BEAM ELEVATION TYPES

NTS



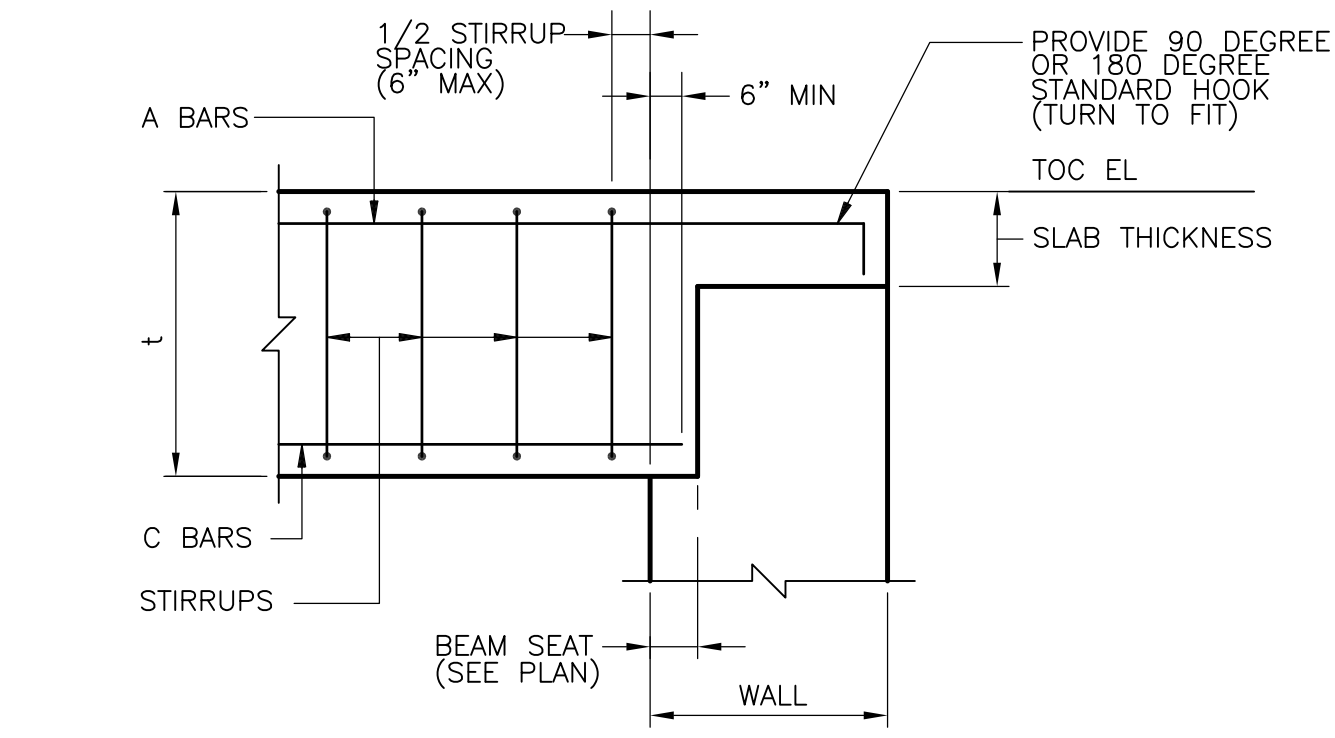
BEAM SECTION TYPES

NTS



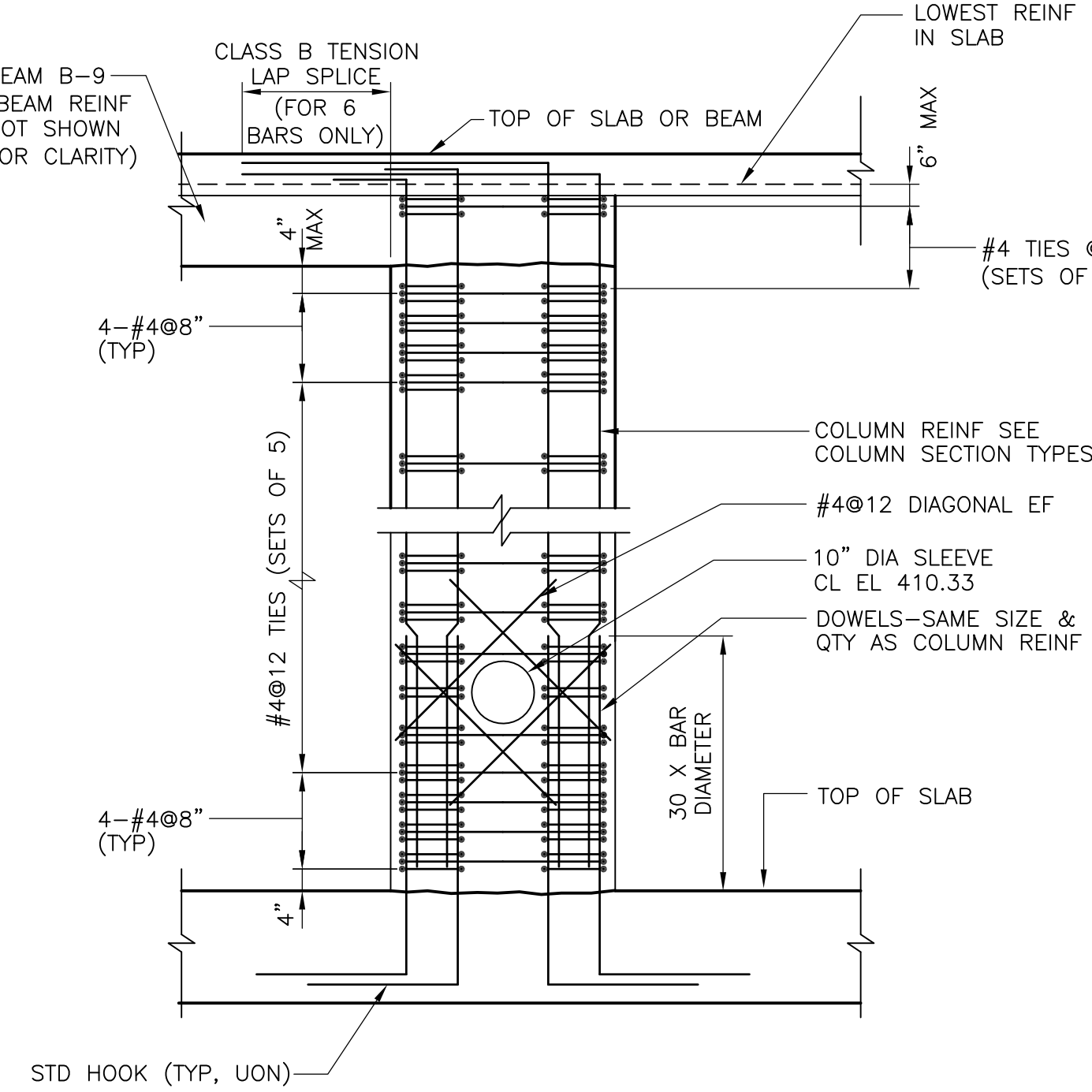
COLUMN SECTION TYPES

NTS



BEAM SEAT DETAIL

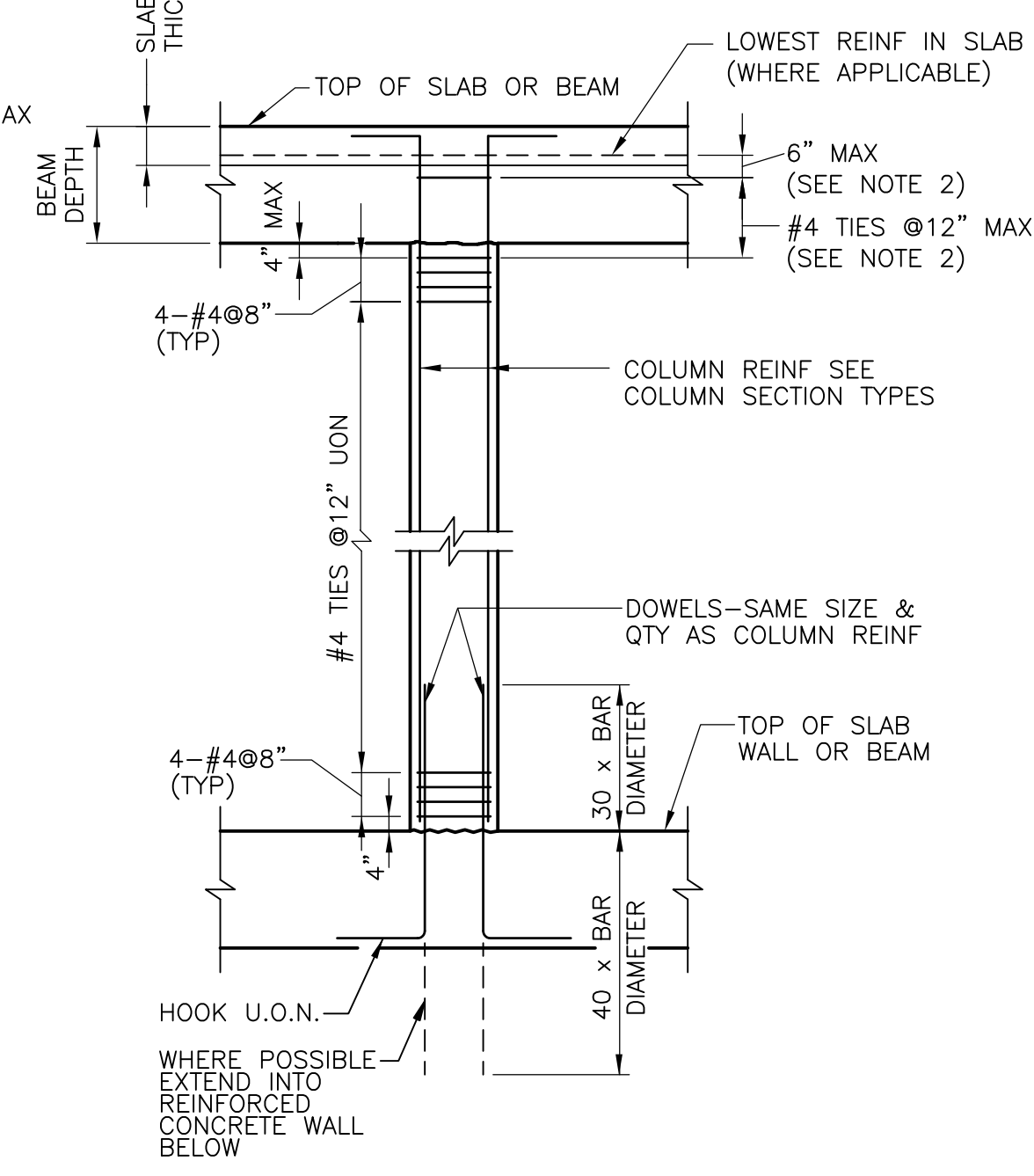
NTS



COLUMN C-6 ELEVATION

NTS

- NOTE:  
 1. FOR DIMENSIONS AND REINFORCING SEE COLUMN SCHEDULE.



TYPICAL COLUMN ELEVATION

NTS

- NOTE:  
 1. FOR DIMENSIONS AND REINFORCING SEE COLUMN SCHEDULE.  
 2. WHERE NO SLAB IS PRESENT TIES WITHIN BEAM-COLUMN JOINT MAY BE OMITTED.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	SSD009.DWG
DESIGNED BY:	D.L. HARRIS
DRAWN BY:	B.S. HORNER
SHEET CHK'D BY:	A.J. PAPA
SCALE:	NTS
APPROVED BY:	D.L. HARRIS
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**CONCRETE SCHEDULE DETAILS**

PROJECT NO.  
 1289\35370

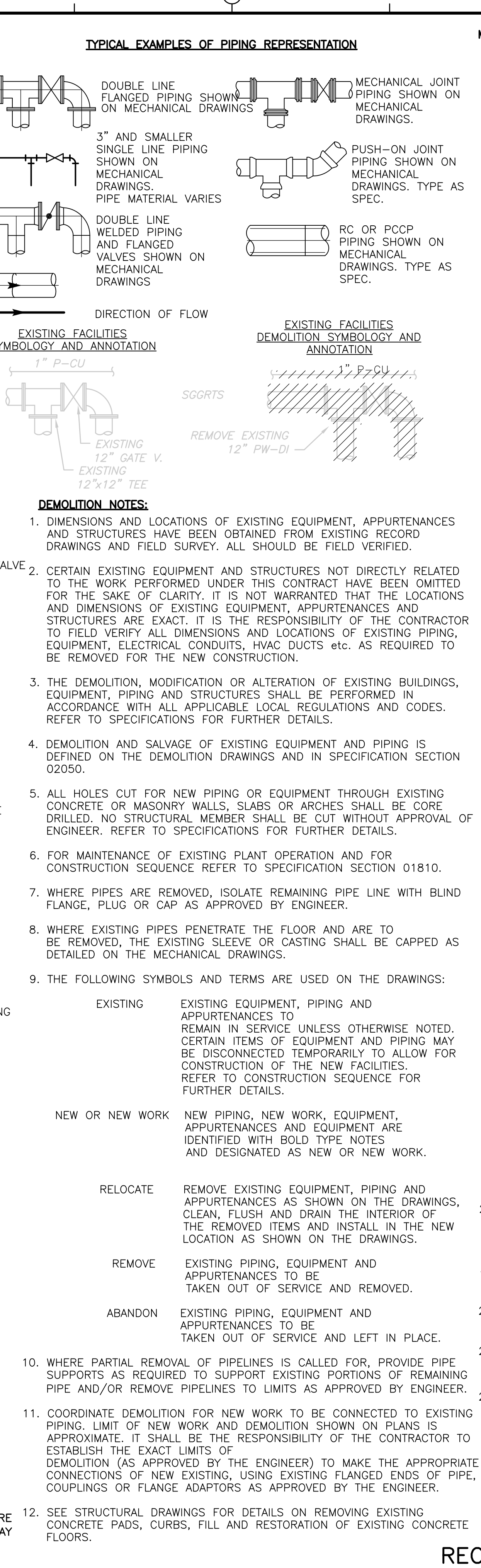
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**SD-S-8**

MECHANICAL PIPING GENERAL ABBREVIATIONS; GROUND GAUGE, GAGE, GALLON, GALV, GALVANIZED, GALVANIZED (HOT DIPPED), GLOBE VALVE, GALLONS PER MINUTE, GRADE, GRATING, GATE VALVE, GRAVEL, HIGH, HOSE BIBB, HEAVY DUTY, HEADER, HARDWARE, HOSE END VALVE, HYDRAULIC GRADE LINE, HANGER, HEIGHT, HANDHOLE, HORIZONTAL, HORSEPOWER, HIGH POINT, HOUR, HANDRAIL, HIGH STRENGTH, HEATING, VENTILATING AND AIR CONDITIONING, HEAVY, HIGH WATER LEVEL, HYDRAULIC, HERTZ, INSPECTION CHAMBER, INTERNAL DIAMETER, INSIDE FACE, INCH, INSULATION, INSULATE, INSTANTANEOUS, INSTRUMENTATION, INSTRUMENT, INTERIOR, INVERT, IRON PIPE SIZE, JOINT, LITER, LABORATORY, LATERAL, LBS, LBS PER SQUARE FOOT, LONG, LEFT HAND, LOW WATER LEVEL, LONGITUDINAL, LOW POINT, LONG RADIUS, LOW WATER LEVEL, MOTOR, MANUAL, MASONRY, MATERIAL, MAXIMUM, MOTOR CONTROL CENTER, MECHANICAL, MEZZANINE, MANUFACTURER, MILLION GALLONS PER DAY, MANHOLE, MULTIPLE HEARTH FURNACE, METAL HOSE, MEAN HIGH TIDE, MEAN HIGH WATER, MINIMUM, MISCELLANEOUS, MECHANICAL JOINT, MEAN LOW TIDE, MEAN LOW WATER, MASONRY OPENING, MOUNTED, NORTH, NATURAL, AMERICAN NATIONAL COARSE THREAD, NORMALLY CLOSED, AMERICAN NATIONAL FINE THREAD, NOT IN CONTRACT, NUMBER, NORMALLY OPEN, NOMINAL, AMERICAN NATIONAL STRAIGHT PIPE, THREADS FOR DRY SEAL PRESSURE JOINTS, AMERICAN NATIONAL TAPER PIPE THREAD, NOT TO SCALE, NEEDLE VALVE, OUT TO OUT, ON CENTER, OUTSIDE DIAMETER, OPEN END OR OPEN EQUIPMENT DRAIN, OFF, OFFICE, OPENING, OPPOSITE, OUTSIDE RADIUS, OUTSIDE STEM AND YOKE, OVERHEAD, PUMP, PUMPING, PROCESS AND INSTRUMENTATION DIAGRAM, PLATE AND FRAME PRESS, PLATE, PLUMBING, PLUG VALVE, PLYWOOD, PNEUMATIC, PARTS PER MILLION, PAIR, PUMPING STATION, POUNDS PER SQ. FOOT, POUNDS PER SQUARE INCH, PRIMARY TANK, PAINTED, PINCH VALVE, FLOW QUANTITY

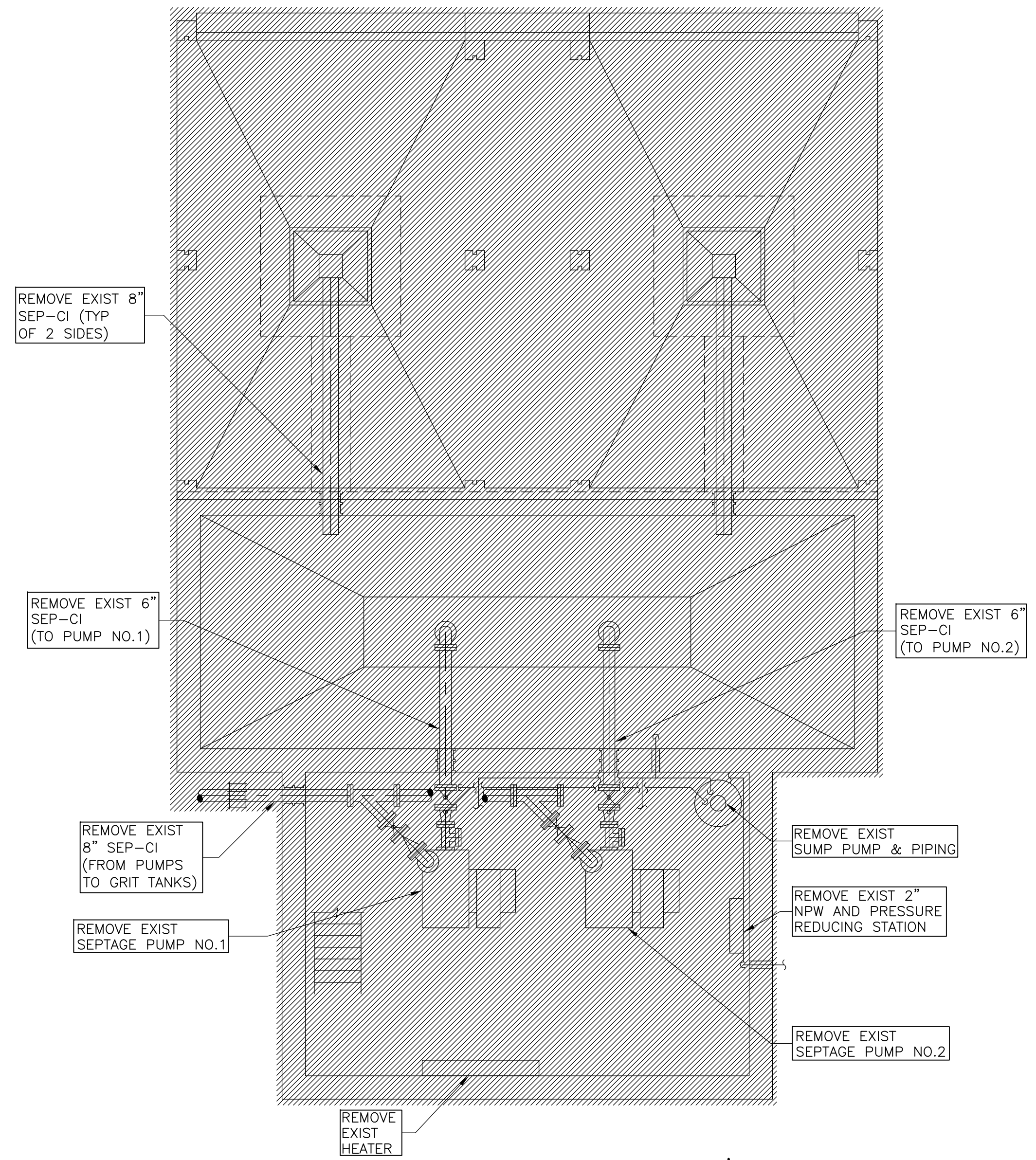
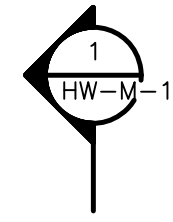
MECHANICAL PIPING DRAWING SYMBOLOLOGY; VALVE SYMBOLS; DOUBLE LINE SYMBOLOLOGY; SINGLE LINE SYMBOLOLOGY; GATE VALVE, KNIFE GATE VALVE, PLUG VALVE, BUTTERFLY VALVE, BALL VALVE, GLOBE VALVE, PINCH VALVE, CONE VALVE, DIAPHRAGM VALVE, SWING CHECK VALVE, SILENT CHECK VALVE, DOUBLE DOOR CHECK VALVE, BALL CHECK VALVE, SOLENOID VALVE, NEEDLE VALVE, PRESSURE REDUCING REGULATOR (SELF CONTAINED), BACK PRESSURE REGULATOR, PRESSURE RELIEF VALVE, VACUUM RELIEF VALVE; MISCELLANEOUS FITTINGS AND PIPING COMPONENTS; DOUBLE LINE SYMBOLOLOGY; SINGLE LINE SYMBOLOLOGY; FLEXIBLE BELLOWS TYPE COUPLING, SLEEVE TYPE PIPE COUPLING, COUPLING FOR GROOVED PIPE ENDS, RIGID TYPE GROOVING, FLEXIBLE TYPE GROOVING UNION, FLEXIBLE COUPLING (GENERAL SYMBOL), QUICK CONNECT TYPE COUPLING, HOSE CONNECTION, Y-STRAINER; VALVE OPERATOR EXAMPLES; PLUG VALVE WITH CYLINDER ACTUATOR, BUTTERFLY VALVE WITH ELECTRIC ACTUATOR; OTHER TYPES OF OPERATORS MAY BE SHOWN ON THE DRAWINGS. FOR ADDITIONAL OPERATOR SYMBOLOLOGY SEE INSTRUMENTATION LEGEND SHEETS.

PROCESS FLOW STREAMS; AIR, AERATION TANK, BURNER AIR, SODIUM BISULFITE, COMPRESSED AIR (NOT DRIED), COMPRESSED AIR DRIED, POTABLE COLD WATER, DRAIN, HEAT RECOVERY AIR, EMERGENCY WATER FOR EYE WASH, EMERGENCY CONNECTION, EFFLUENT FLUSHING WATER, EMERGENCY WATER RETURN, FLUOR GAS, FLUE GAS RECIRCULATION, FINAL EFFLUENT, FINAL EFFLUENT SAMPLE, FUEL OIL RETURN, FUEL OIL SUPPLY, NATURAL GAS, HEAT RECOVERY SUPPLY (RETURN), INFLENT, INTERNAL RECIRCULATION, LOW PRESSURE AIR, LIQUID SLUDGE, MIXED LIQUOR SUSPENDED SOLIDS, SODIUM HYDROXIDE, ODOUR CONTROL, OVERFLOW, PROTECTED WATER, PRIMARY EFFLUENT, PRIMARY SCUM, PRIMARY SLUDGE, PRESSURE WASTE, PERFORATED UNDERDRAIN, PLANT WATER, RETURN ACTIVATED SLUDGE, ROOF LEADER, SAMPLE LINE, SCRUBBER WATER, STORM DRAIN, PUMP SEAL WATER, SEPTAGE, SODIUM HYPOCHLORITE SLUDGE, SANITARY SEWER, SECONDARY SCUM, SERVICE WATER (PROTECTED WATER), TANK DRAIN/DRAIN WATER, THICKENED SLUDGE, THICKENED WASTE SLUDGE (SECONDARY), TANK, VENT, WASTE ACTIVATED SLUDGE, WET WEATHER, WET WEATHER DISCHARGE; PIPE MATERIALS; CAST IRON, DUCTILE IRON, CPVC, CHLORINATED POLYVINYL CHLORIDE PIPE, FIBERGLASS REINFORCED PLASTIC PIPE, GALVANIZED STEEL PIPE, HIGH DENSITY POLYETHYLENE, POLYVINYL CHLORIDE SEWER PIPE, PERFORATED POLYVINYL CHLORIDE PIPE, POLYPROPYLENE, PRESTRESSED CONCRETE CYLINDER PIPE, PROFILE WALL HIGH DENSITY POLYETHYLENE, REINFORCED CONCRETE PIPE, REFRACTORY LINED STEEL, STAINLESS STEEL, BLACK STEEL PIPE OR CARBON STEEL PIPE; TYPICAL PIPE TAGS; NUMERICAL INDICATOR FOR MULTIPLE IDENTICAL FLOW STREAMS, PIPE MATERIAL, PROCESS FLOW STREAM, NOMINAL PIPE DIAMETER; NOTE: THIS IS A GENERAL LIST OF SYMBOLS AND ABBREVIATIONS. NOT ALL ITEMS SHOWN HERE APPEAR ON THE CONTRACT DRAWINGS. ADDITIONAL LEGENDS AND/OR ABBREVIATIONS MAY APPEAR IN THIS SET OF DRAWINGS TO INDICATE SPECIFIC CONDITIONS.

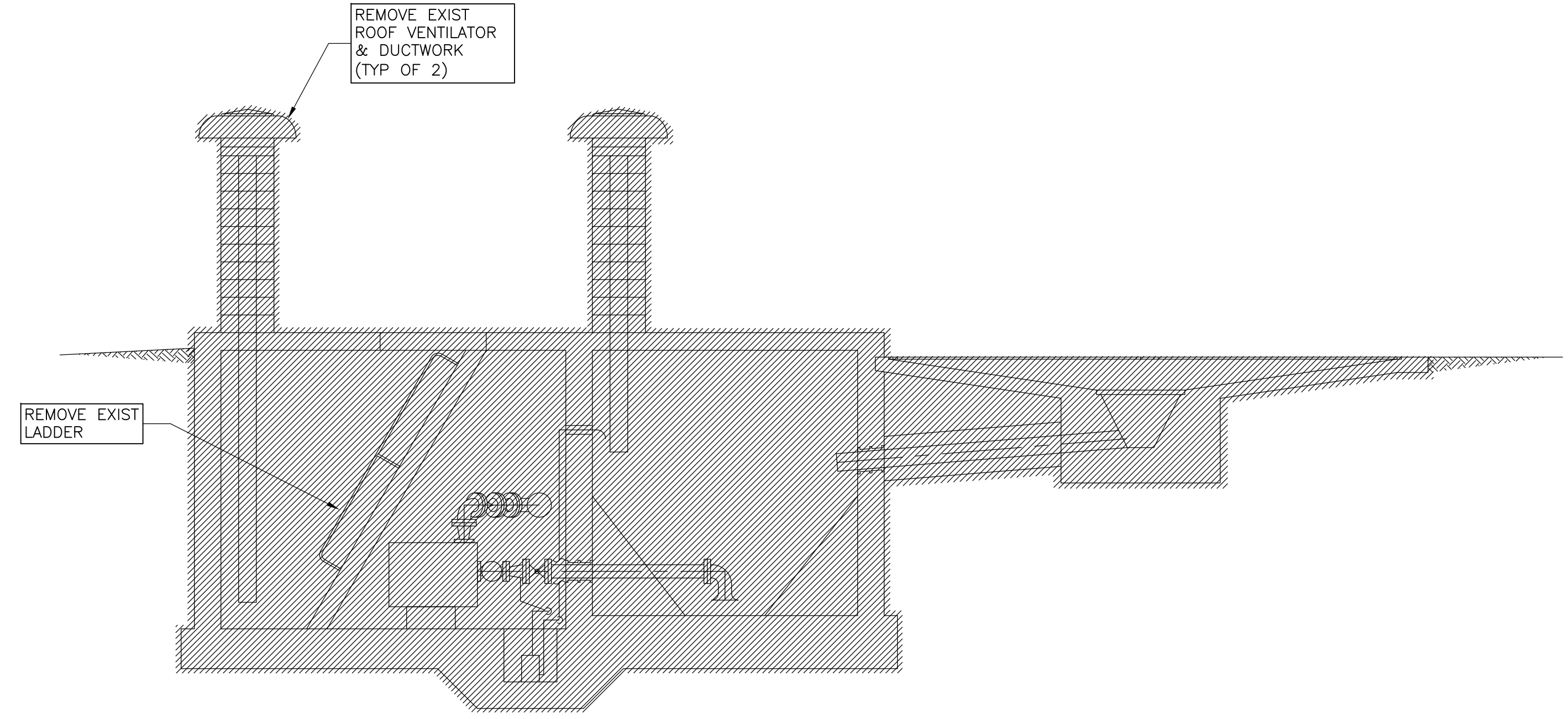
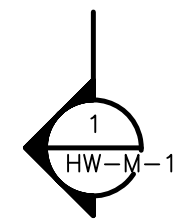


MECHANICAL PIPING GENERAL NOTES: 1. PROCESS EQUIPMENT DIMENSIONS, LOCATIONS AND PIPING SYSTEM LAYOUTS ARE BASED ON EQUIPMENT SELECTED BY THE ENGINEER AND ALLOW FOR FUTURE EXPANSION OF THE FACILITIES. IF THE CONTRACTOR PROPOSES TO FURNISH EQUIPMENT THAT REQUIRES AN ARRANGEMENT OF SPACE DIFFERING FROM THAT INDICATED ON THE DRAWINGS OR SPECIFIED, THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER FOR APPROVAL DETAILED ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, INSTRUMENTATION, HVAC AND ELECTRICAL DRAWINGS AND EQUIPMENT LISTS SHOWING ALL NECESSARY CHANGES AND EMBODYING ALL FEATURES OF THE EQUIPMENT AND/OR PROCESS SYSTEM HE PROPOSES TO FURNISH. THIS INFORMATION SHALL INCLUDE BUT NOT BE LIMITED TO: FLANGES, SECTIONS, DETAILS AND SCHEMATICS OF ALL APPURTENANCES REQUIRED SUCH AS COMPRESSED AIR SUPPLY, HYDRAULIC SYSTEMS, MAKE-UP WATER SUPPLY, ELECTRICAL CONTROLS, CHEMICAL FEED SYSTEMS etc. SUCH CHANGES IF APPROVED BY THE ENGINEER SHALL BE AT NO EXTRA COST TO THE OWNER. THE CONTRACTOR SHALL ASSUME THE COST OF, AND THE RESPONSIBILITY FOR, SATISFACTORILY ACCOMPLISHING ALL THE NECESSARY CHANGES CORRESPONDING TO THE DIMENSIONS AND CHARACTERISTICS OF THE EQUIPMENT SUBMITTED AND APPROVED BY THE ENGINEER. REFER TO SPECIFICATIONS FOR FURTHER DETAILS. 2. SIZES OF EQUIPMENT FOUNDATIONS INDICATED ON THE DRAWINGS ARE APPROXIMATE. EXACT DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FOR THE EQUIPMENT FURNISHED BY HIM. ALL FLOOR MOUNTED EQUIPMENT SHALL BE SET ON CONCRETE PADS CONFORMING TO DETAILS SHOWN ON THE STRUCTURAL AND/OR MECHANICAL DRAWINGS. 3. EXTERIOR PIPING IS GENERALLY SHOWN ON THE PIPING DRAWINGS. 4. PROTECTED WATER SUPPLY CONNECTIONS TO PROCESS EQUIPMENT AND PROCESS PIPES ARE SHOWN ON THE MECHANICAL DRAWINGS. DETAILS OF CONTROL VALVE STATIONS, MAKE-UP WATER CONNECTIONS, FLUSHING CONNECTIONS etc. ARE SHOWN ON THE MECHANICAL DRAWINGS. IF APPLICABLE, LIMITS OF WORK ARE SHOWN ON THE MECHANICAL AND THE PLUMBING DRAWINGS. 5. AIR HOSE STATIONS FOR COMPRESSED AIR, DETAILS AND PIPING ARE SHOWN ON THE MECHANICAL DRAWINGS. 6. DIELECTRIC COUPLINGS, FLANGES OR UNIONS SHALL BE INSTALLED AT ALL CONNECTIONS OF COPPER PIPE TO OTHER TYPES OF METALLIC PIPING. 7. MECHANICAL PIPING DRAWINGS DO NOT SHOW ALL VALVES, GAUGES, SWITCHES, OPERATORS, DRAINS, VENTS, etc. REQUIRED FOR THE COMPLETE SYSTEM. CERTAIN SMALL DIAMETER PROCESS PIPING RUNS (3" AND SMALLER) MAY NOT BE SHOWN IN THEIR ENTIRETY. GENERALLY SMALL PIPING IS SHOWN DIAGRAMMATICALLY. FIELD ROUTE TO AVOID INTERFERENCES, SUBJECT TO THE APPROVAL OF THE ENGINEER. APPURTENANCES MAY BE OMITTED FOR THE SAKE OF CLARITY. 8. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL PIPING SYSTEMS AS INDICATED ON THE P&ID'S AND/OR AS DEFINED IN THE SPECIFICATIONS TO PROVIDE THE COMPLETE SYSTEM. 9. UNLESS OTHERWISE SHOWN ON THE MECHANICAL DRAWINGS ALL FLOORSLAB, WALL AND TANK PENETRATIONS SHALL BE AS SHOWN ON THE PENETRATION DETAILS INCLUDED IN THE MECHANICAL CONSTRUCTION DETAILS. ABOVE GROUND EXTERIOR WALL AND ROOF PENETRATIONS SHALL BE AS SHOWN ON THE ARCHITECTURAL DRAWINGS. IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY SUBSTITUTE ALTERNATE MATERIALS PROVIDING THEY MEET INTENDED DESIGN REQUIREMENTS. 10. NOT ALL AND ONLY CERTAIN TYPES OF SUPPORTS ARE SHOWN ON THE MECHANICAL DRAWINGS UNLESS OTHERWISE DETAILED ON THE DRAWINGS ALL PIPE SUPPORTS SHALL BE DESIGNED, FURNISHED AND INSTALLED BY THE CONTRACTOR AS SPECIFIED AND TO THE APPROVAL OF ENGINEER. NOTE THAT ALL PIPING ADJACENT TO EQUIPMENT, VALVES, COUPLINGS, INSTRUMENT DEVICES AND OTHER APPURTENANCES SHALL BE PROPERLY SUPPORTED AND/OR ANCHORED ACCORDING TO MANUFACTURERS RECOMMENDATIONS. 11. ALL EQUIPMENT BASES AND PIPING HAVING DRAIN OUTLETS SHALL BE PIPED TO THE NEAREST OPEN END DRAIN (OED) OR TRENCH DRAIN USING GALVANIZED STEEL PIPE OF APPROPRIATE DIAMETER AS INDICATED ON THE DRAWINGS OR AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER. 12. UNLESS OTHERWISE SHOWN ALL PIPES UNDER CONCRETE SLABS SHALL BE ENCASED IN CONCRETE AS SHOWN ON THE STRUCTURAL DRAWINGS. 13. NOT ALL VALVE AND GATE OPERATORS ARE SHOWN (i.e. HANDWHEELS, CRANKS, CHAINWHEELS, MOTORS OR LEVERS) OPERATORS SHALL BE LOCATED TO ALLOW CONVENIENT OPENING AND CLOSING OF VALVES OR GATES. ORIENTATION OF OPERATORS SHALL BE TO APPROVAL OF ENGINEER. NO VALVE SHALL BE INSTALLED WITH THE OPERATING STEM IN THE VERTICAL DOWNWARD POSITION. 14. PIPING SHALL BE INSTALLED SO THAT ANY PIPE, LAYER OF PIPING OR EQUIPMENT CAN BE REMOVED WITHOUT DISTURBING REMAINING PIPES AND SUPPORTS. 15. THE NUMBER OF UNIONS AND OTHER TYPES OF DISMANTLING COUPLINGS SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL PROVIDE UNIONS OR DISMANTLING COUPLINGS WHETHER THEY ARE SHOWN ON THE DRAWINGS OR NOT ON ALL PIPELINES WITH WELDED, THREADED OR SOLVENT CEMENTED JOINTS: AT ALL EQUIPMENT CONNECTIONS, AT A MINIMUM EVERY 50 FEET AND IN BRANCH LINES TO ALLOW CONVENIENT REMOVAL OF PIPING, EQUIPMENT AND APPURTENANCES. 16. FURNISH AND INSTALL ESCUTCHEON PLATES OF SUITABLE SIZE ON ALL PROCESS LINES PASSING THROUGH INTERIOR WALLS OF NON-PROCESS AREAS SUCH AS OFFICES, LABS, LOCKER ROOMS, TOILETS AND PUBLIC CORRIDORS. ESCUTCHEON PLATES SHALL BE INSTALLED ON THE INTERIOR SIDE OF THE NON-PROCESS ROOMS. EXTERIOR, ABOVE GROUND WALL PENETRATIONS SHALL SPLIT AND MADE OF 316 SS UNLESS OTHERWISE SHOWN ON THE ARCHITECTURAL DETAILS. 17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING AND TAGGING ALL PROCESS VALVES. PROCESS VALVE IDENTIFICATION SYSTEM SHALL BE AS DETAILED IN THE SPECIFICATIONS. 18. ALL PIPING ENCASED IN CONCRETE SHALL HAVE MECHANICAL JOINTS AT ALL STRUCTURAL EXPANSION JOINTS. 19. PORTIONS OF NONPROCESS PIPING (HVAC & PLUMBING) ARE SHOWN FOR CLARITY AND FOR COORDINATION BETWEEN DISCIPLINES. REFER TO APPROPRIATE DRAWINGS AND SPECIFICATIONS. 20. FOR PUMP SEAL WATER, VENT, DRAIN, PRESSURE GAGE, VALVING AND PIPING SEE MECHANICAL PROCESS DETAILS. 21. ALL PIPING AND PROCESS SYSTEMS SHALL BE CAPABLE OF BEING VENTED AND DRAINED. TYPICAL LOCATIONS ARE INDICATED BY (V) OR (D) ON THE DRAWINGS. 22. ALL DIMENSIONS MARKED WITH \* INDICATE CONTRACTOR TO COORDINATE DIMENSION WITH MANUFACTURER OF APPROVED EQUIPMENT. 23. ALL DIMENSIONS MARKED WITH O INDICATE CONTRACTOR TO COORDINATE DIMENSION IN THE FIELD TO APPROVAL OF ENGINEER. 24. O INDICATES PIPE SUPPORT LOCATION FOR ADDITIONAL PIPE SUPPORT INFO. REFER TO NOTE No. 10 THIS SHEET FOR DETAILS OF CONCRETE PIPE SUPPORTS SEE STRUCTURAL DRAWINGS. 25. WHERE FGR DUCT PENETRATES FLOORS, PROVIDE 4 INCH HIGH TOEBOARD AROUND FLOOR OPENING.

RECORD DRAWING SECTION 1/4" = 1'-0" SECTION SYMBOLS; MECHANICAL SYMBOL LEGEND ABBREVIATIONS AND GENERAL NOTES; CDMP Camp Dresser & McKee Inc. UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024; WASTEWATER TREATMENT FACILITY IMPROVEMENTS; PROJECT NO. 1289\35370 Sht. 139 of 386 GD-M-1



NIGHT SOILS FACILITY  
**PLAN**  
 1/4" = 1'-0"

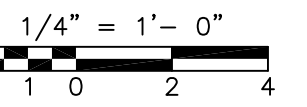


NIGHT SOIL FACILITY  
**SECTION 1**  
 1/4" = 1'-0" HW-M-1

**GENERAL NOTES:**

1. ALL OTHER EXISTING MECHANICAL, ELECTRICAL, AND HVAC EQUIPMENT AT THE NIGHT SOIL FACILITY, NOT SHOWN IN THE DRAWING, SHALL ALSO BE DEMOLISHED.
2. ALL EXISTING CONCRETE SHALL BE DEMOLISHED. AREA SHALL BE BACKFILLED IN ACCORDANCE WITH SECTION 02230.
3. REFER TO SHT GD-M-1 FOR GENERAL DEMOLITION NOTES.

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MSODM001
DESIGNED BY:	VMM
DRAWN BY:	KML
SHEET CHK'D BY:	TAY
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

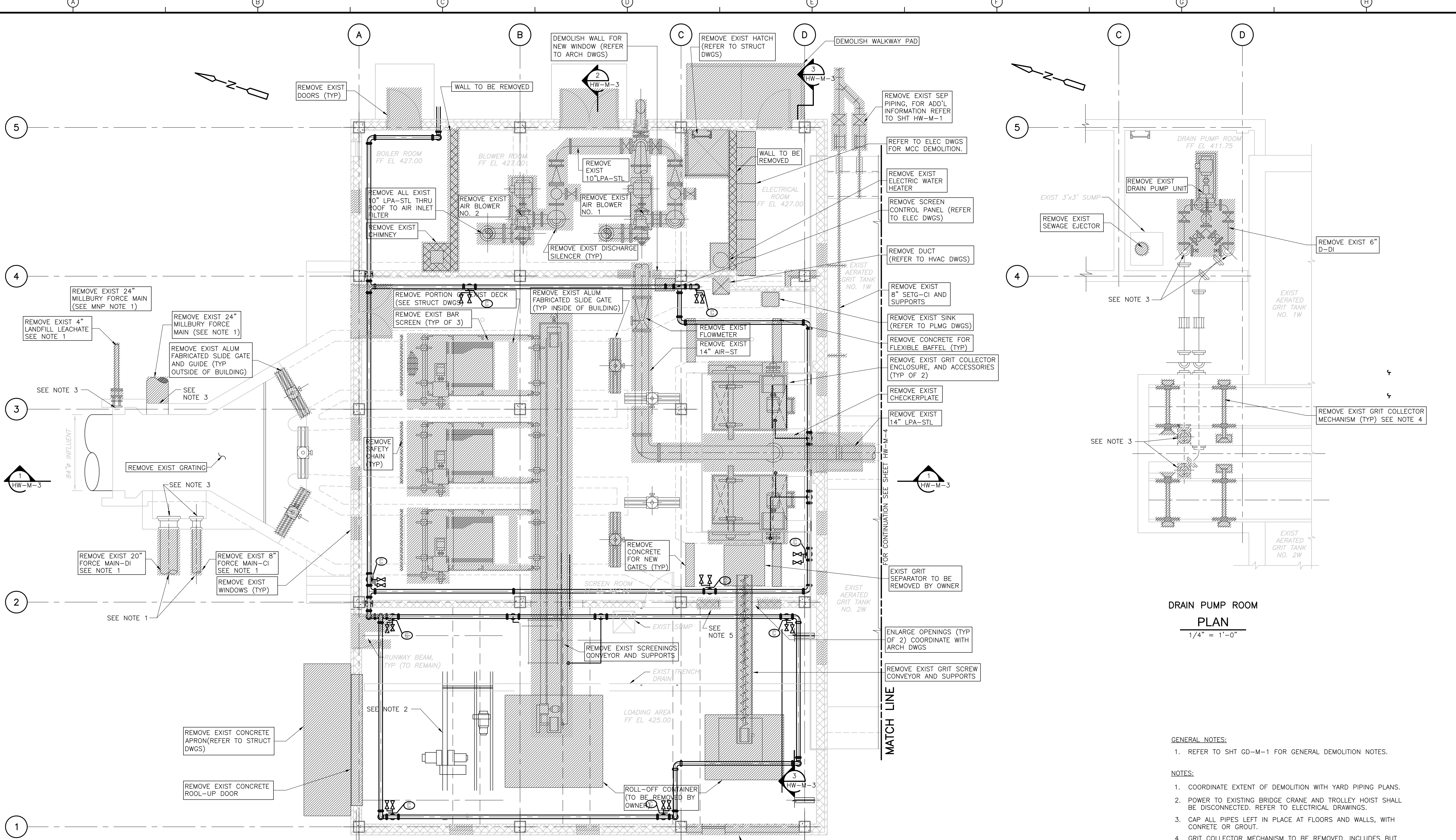
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

NIGHT SOILS FACILITY -  
 DEMOLITION PLAN AND SECTION

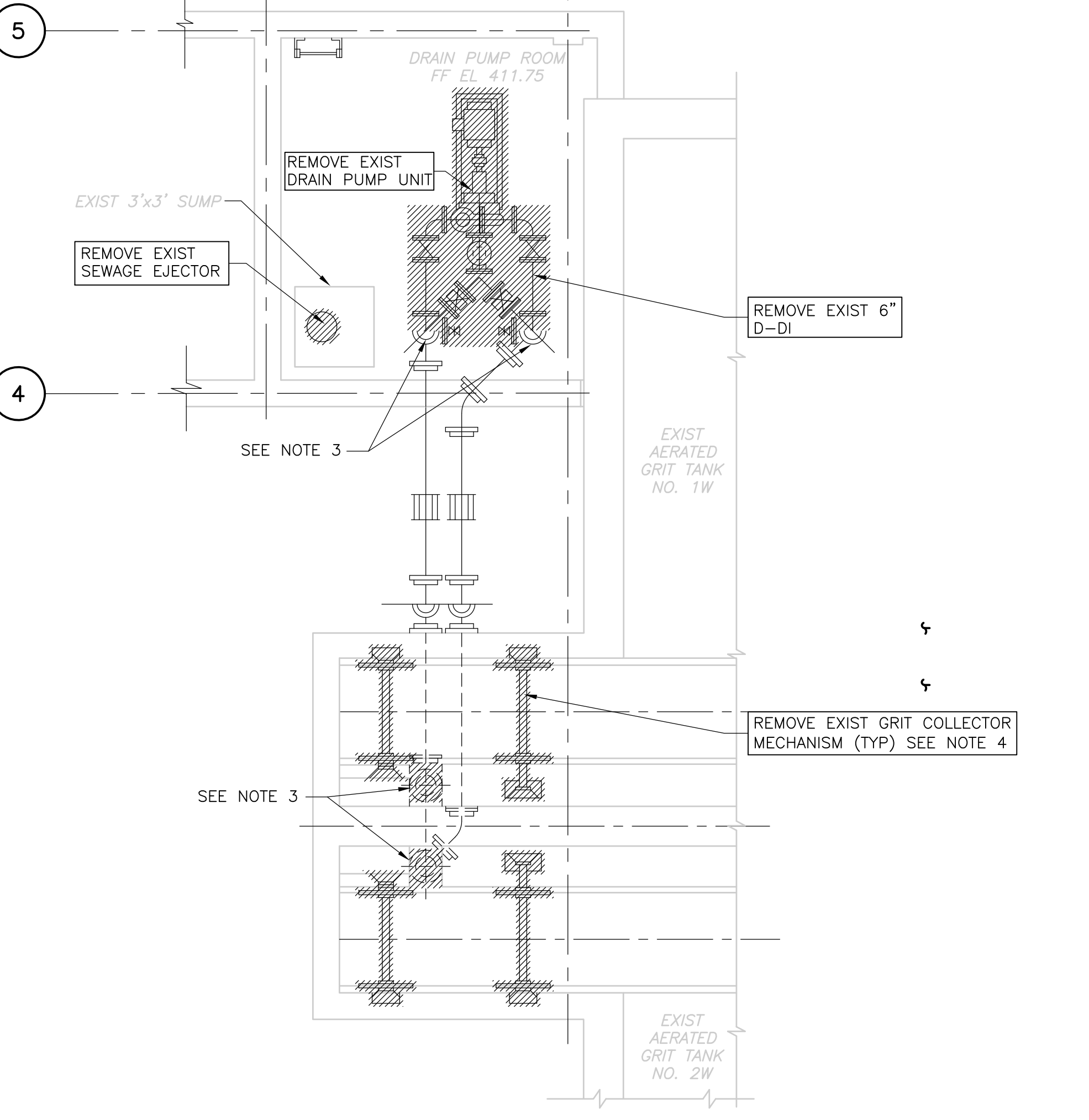
PROJECT NO.  
 1289\35370

Sht. 140 of 386

HW-M-1

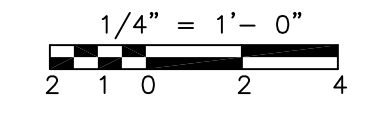


**WEST GRIT AND SCREENING FACILITY  
 PLAN**  
 1/4" = 1'-0"



**DRAIN PUMP ROOM  
 PLAN**  
 1/4" = 1'-0"

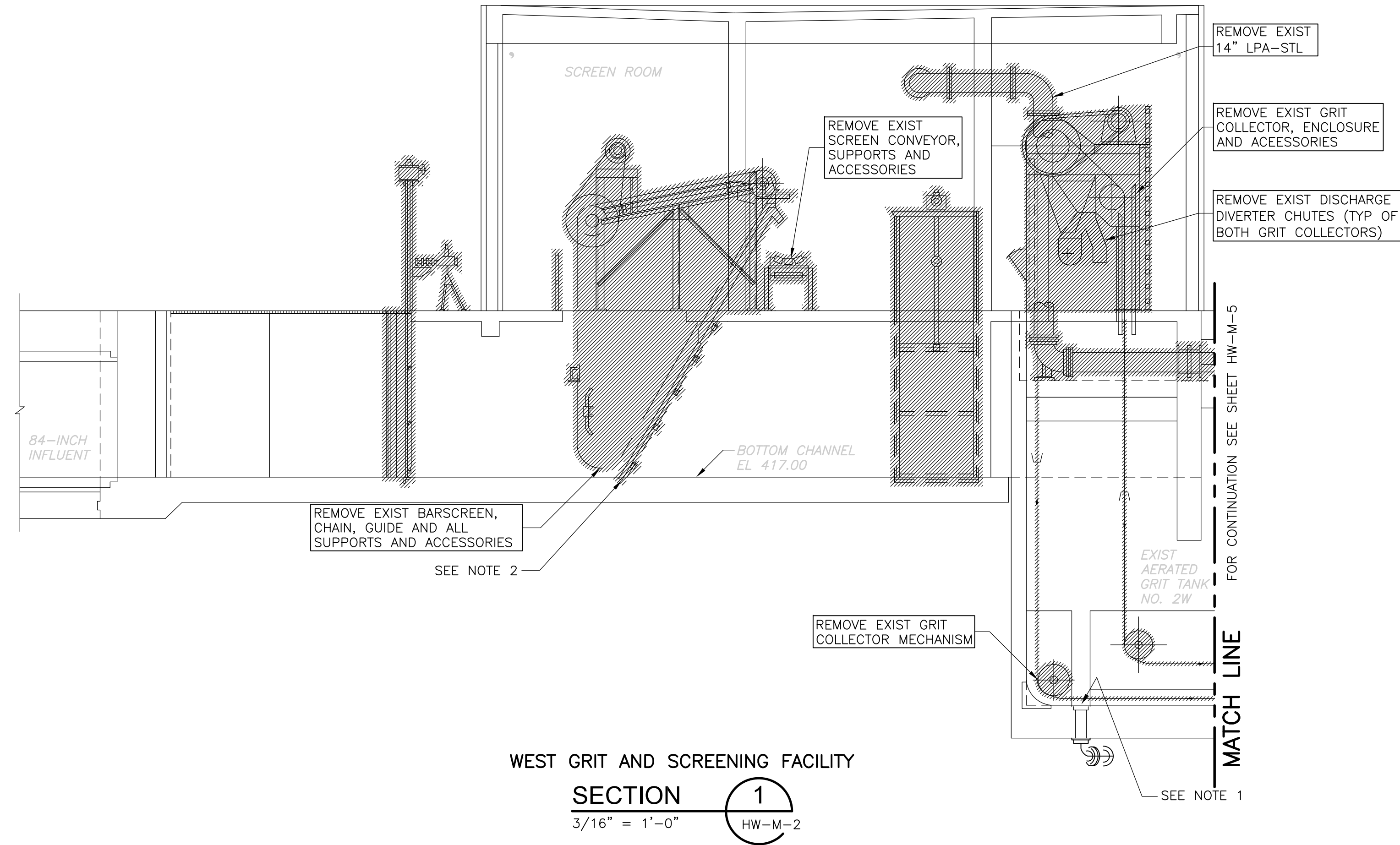
- GENERAL NOTES:**
- REFER TO SHT GD-M-1 FOR GENERAL DEMOLITION NOTES.
- NOTES:**
- COORDINATE EXTENT OF DEMOLITION WITH YARD PIPING PLANS.
  - POWER TO EXISTING BRIDGE CRANE AND TROLLEY HOIST SHALL BE DISCONNECTED. REFER TO ELECTRICAL DRAWINGS.
  - CAP ALL PIPES LEFT IN PLACE AT FLOORS AND WALLS, WITH CONCRETE OR GROUT.
  - GRIT COLLECTOR MECHANISM TO BE REMOVED. INCLUDES BUT IS NOT LIMITED TO: CHAIN BUCKETS, SHAFTS, SPROCKETS, SUPPORTS, ENCLOSURE AND OTHER ACCESSORIES.
  - REMOVE AND REPLACE WALL, AS NECESSARY, TO FACILITATE INSTALLATION OF NEW EQUIPMENT.



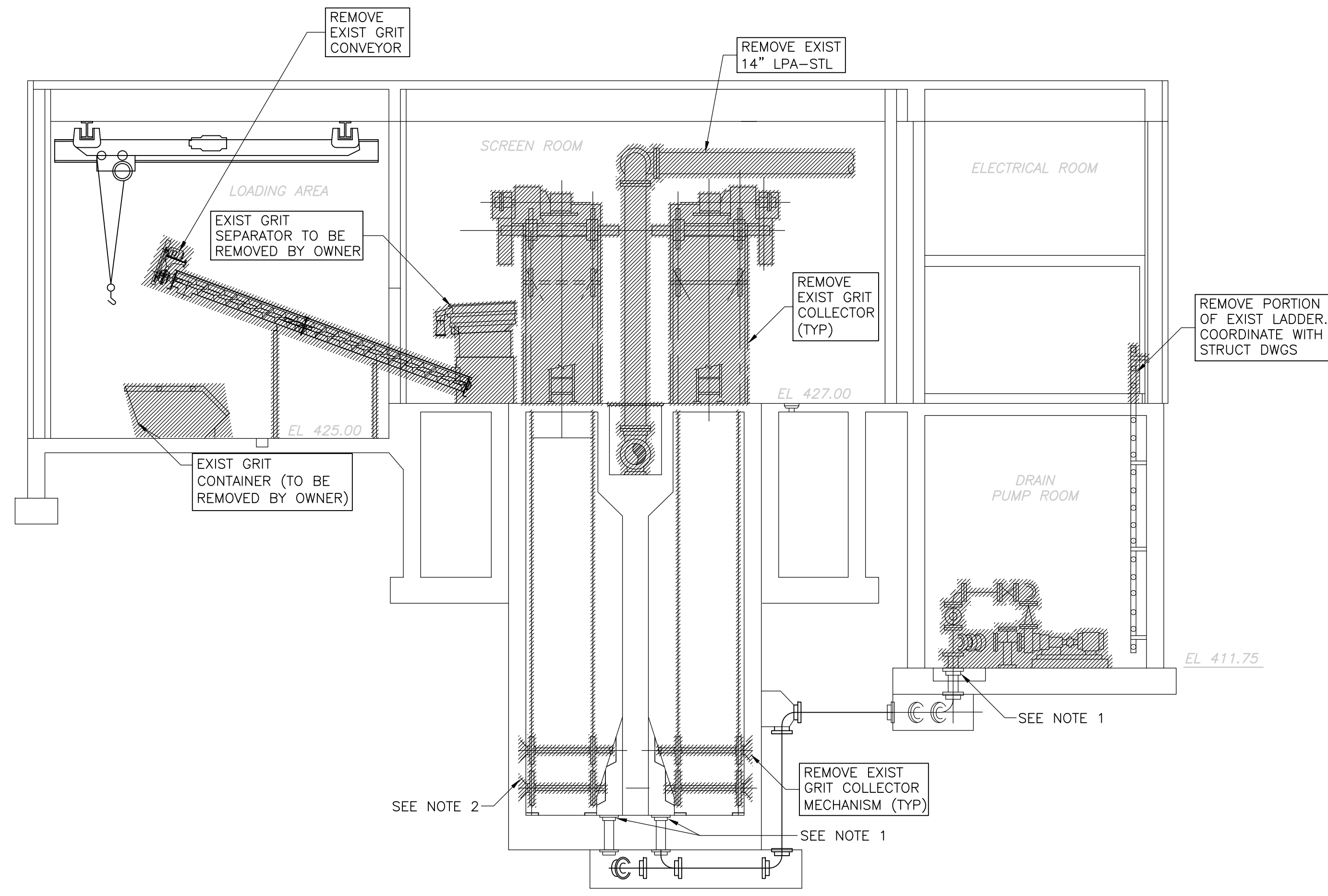
RECORD DRAWING

CADD FILE NO.: MGRDP002 DESIGNED BY: VMM DRAWN BY: LB SHEET CHK'D BY: TAY SCALE: AS NOTED APPROVED BY: _____ DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting                  engineering                  construction                  operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY                  IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 141 of 386  <b>HW-M-2</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT		REVISED FOR THE RECORD					

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\SW\_M\MGRDS003.dwg Xref: [C24X3BH, MGRWS003, ] Plotted by: CROSSHA Time: 12/16/08 6:24:04 PM

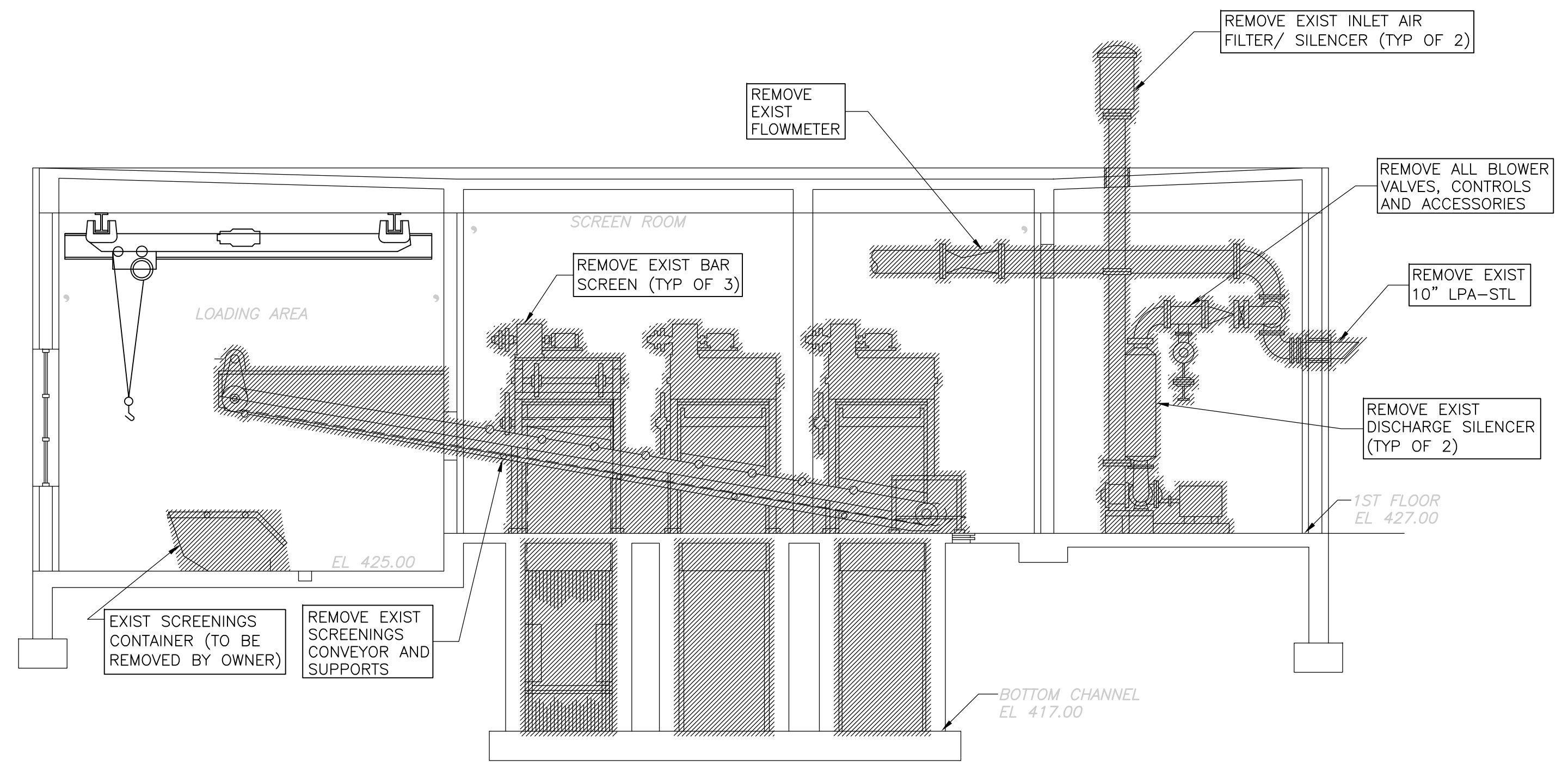


WEST GRIT AND SCREENING FACILITY  
**SECTION 1**  
 3/16" = 1'-0" HW-M-2

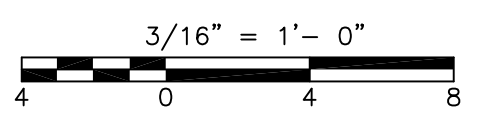


WEST GRIT AND SCREENING FACILITY  
**SECTION 3**  
 3/16" = 1'-0" HW-M-2

- GENERAL NOTES:**
- REFER TO SHT GD-M-1 FOR GENERAL DEMOLITION NOTES.
- NOTES:**
- CAP ALL PIPES LEFT IN PLACE AT FLOOR OR WALL, WITH CONCRETE OR GROUT.
  - REPAIR CONCRETE, AS NECESSARY, TO ACCOMMODATE NEW GRIT COLLECTORS AND BAR SCREENS.



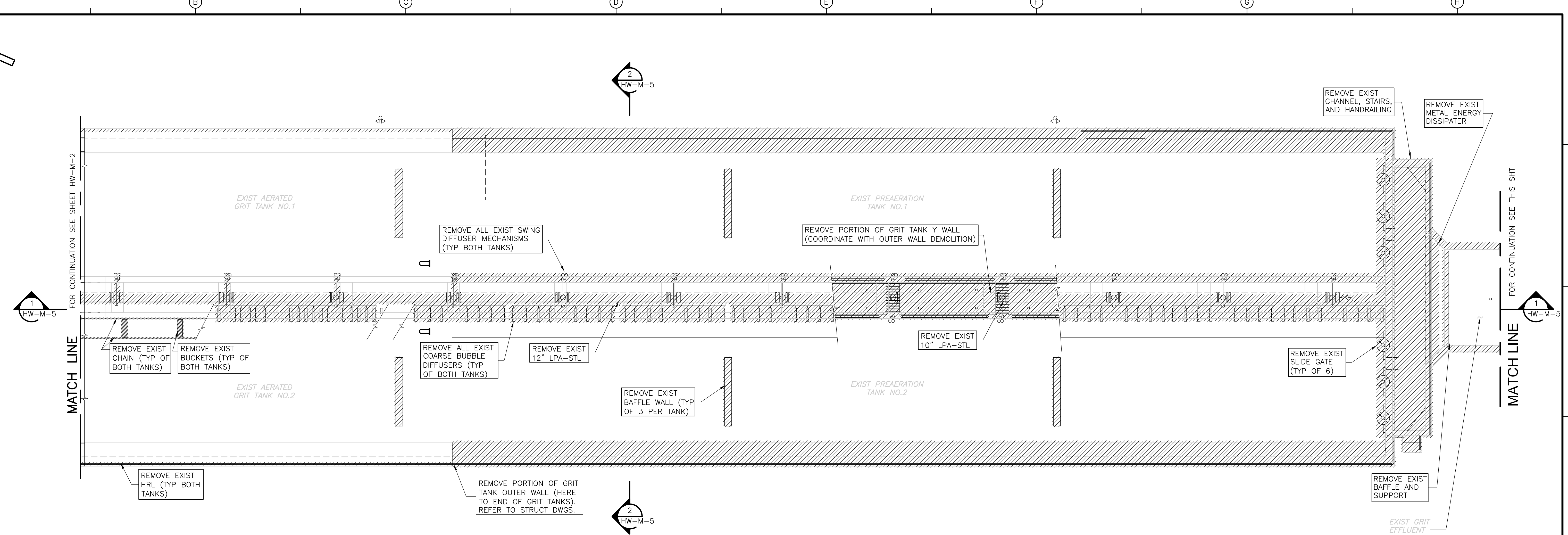
WEST GRIT AND SCREENING FACILITY  
**SECTION 2**  
 3/16" = 1'-0" HW-M-2



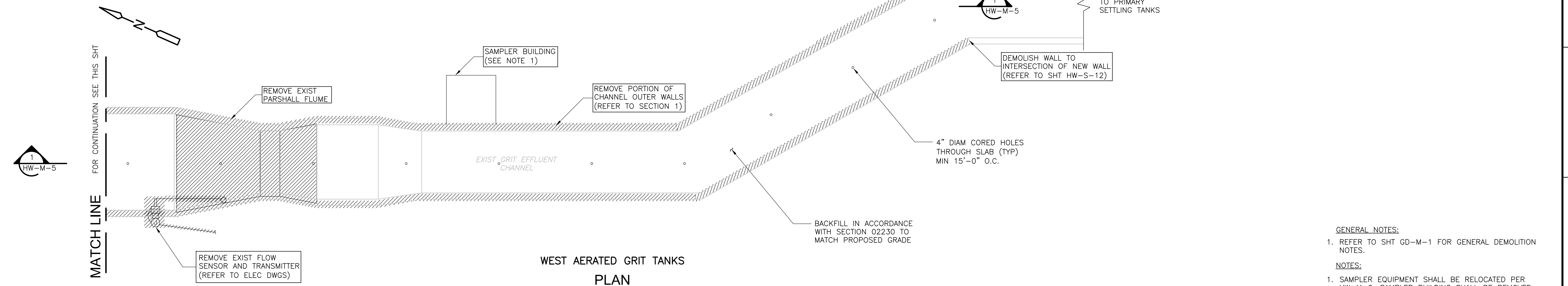
RECORD DRAWING

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REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD					

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\SW\_M\MAEDP004.dwg Xref's: [C24X36H, MAEWP001, SGRWP002, ] Plotted by: CROSSJA Time: 12/16/08 6:24:08 PM



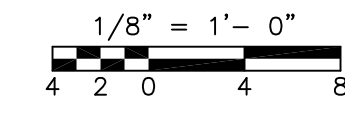
WEST AERATED GRIT TANKS  
 PLAN  
 1/8" = 1'-0"



WEST AERATED GRIT TANKS  
 PLAN  
 1/8" = 1'-0"

- GENERAL NOTES:
- REFER TO SHT GD-M-1 FOR GENERAL DEMOLITION NOTES.
- NOTES:
- SAMPLER EQUIPMENT SHALL BE RELOCATED PER HW-M-9. SAMPLER BUILDING SHALL BE REMOVED AND TURNED OVER TO OWNER. CONCRETE PAD SHALL BE DEMOLISHED.

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. MAEDP004  
 DESIGNED BY: VMM  
 DRAWN BY: LB  
 SHEET CHK'D BY: TAY  
 SCALE: AS NOTED  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2006

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 Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

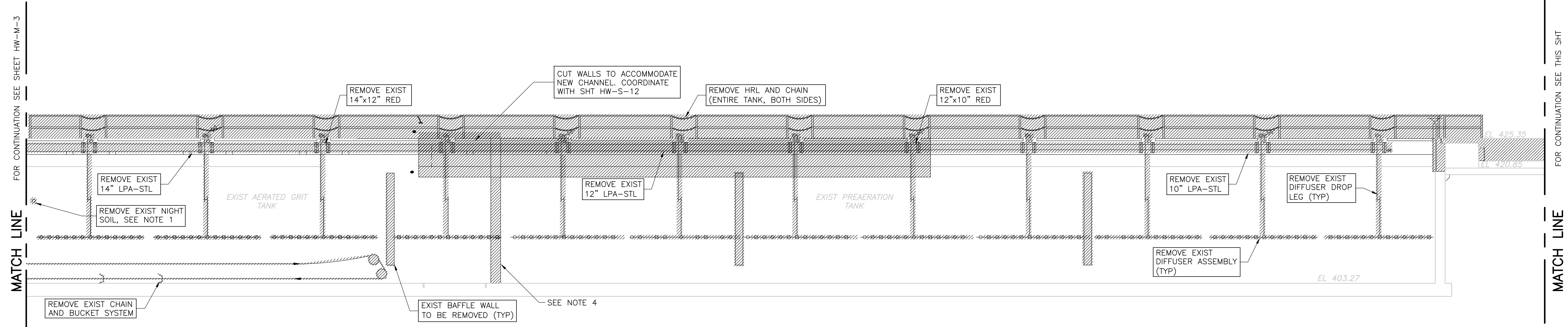
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
 WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

WEST AERATED GRIT TANKS  
 DEMOLITION PLAN  
 HW-M-4

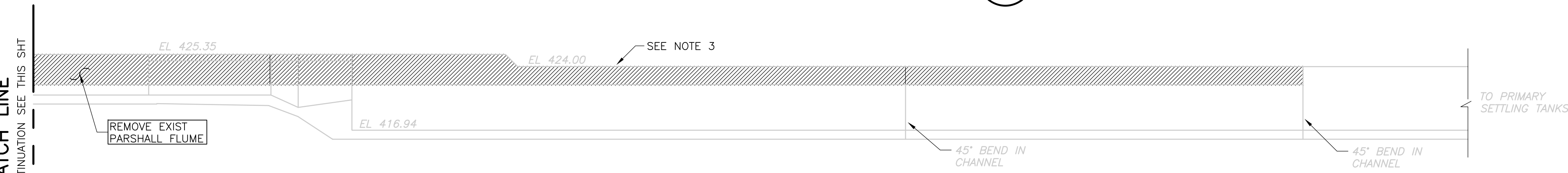
PROJECT NO.  
 1289\35370  
 Sht. 143 of 386

PROJECT NO.  
 1289\35370  
 Sht. 143 of 386  
 HW-M-4

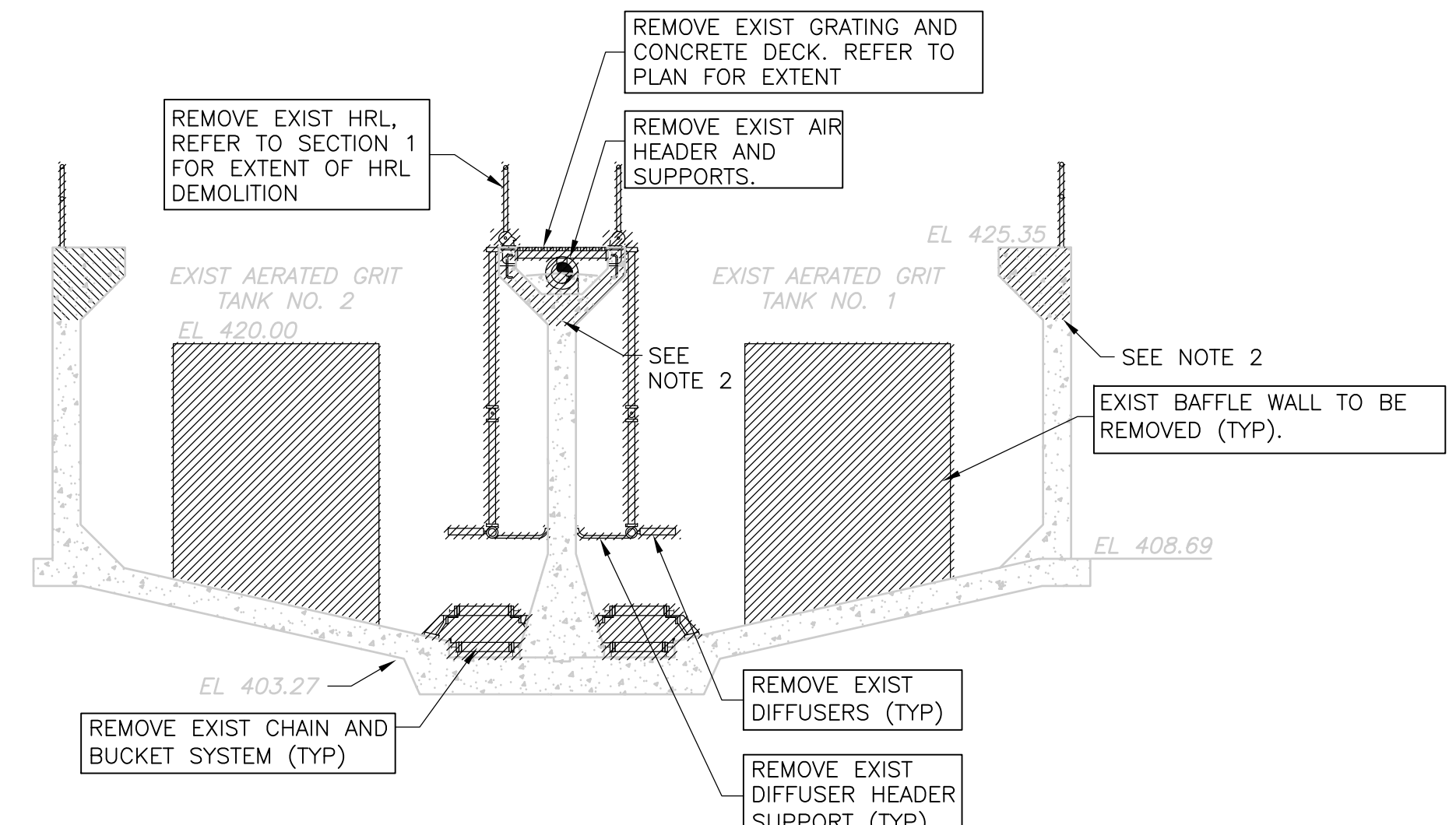
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WEST AERATED GRIT TANK (TYP BOTH TANKS)  
**SECTION 1**  
 1/8" = 1'-0" HW-M-4

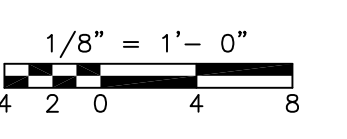


WEST AERATED GRIT TANK (TYP BOTH TANKS)  
**SECTION 1**  
 1/8" = 1'-0" HW-M-4



WEST AERATED GRIT TANK  
**SECTION 2**  
 1/8" = 1'-0" HW-M-4

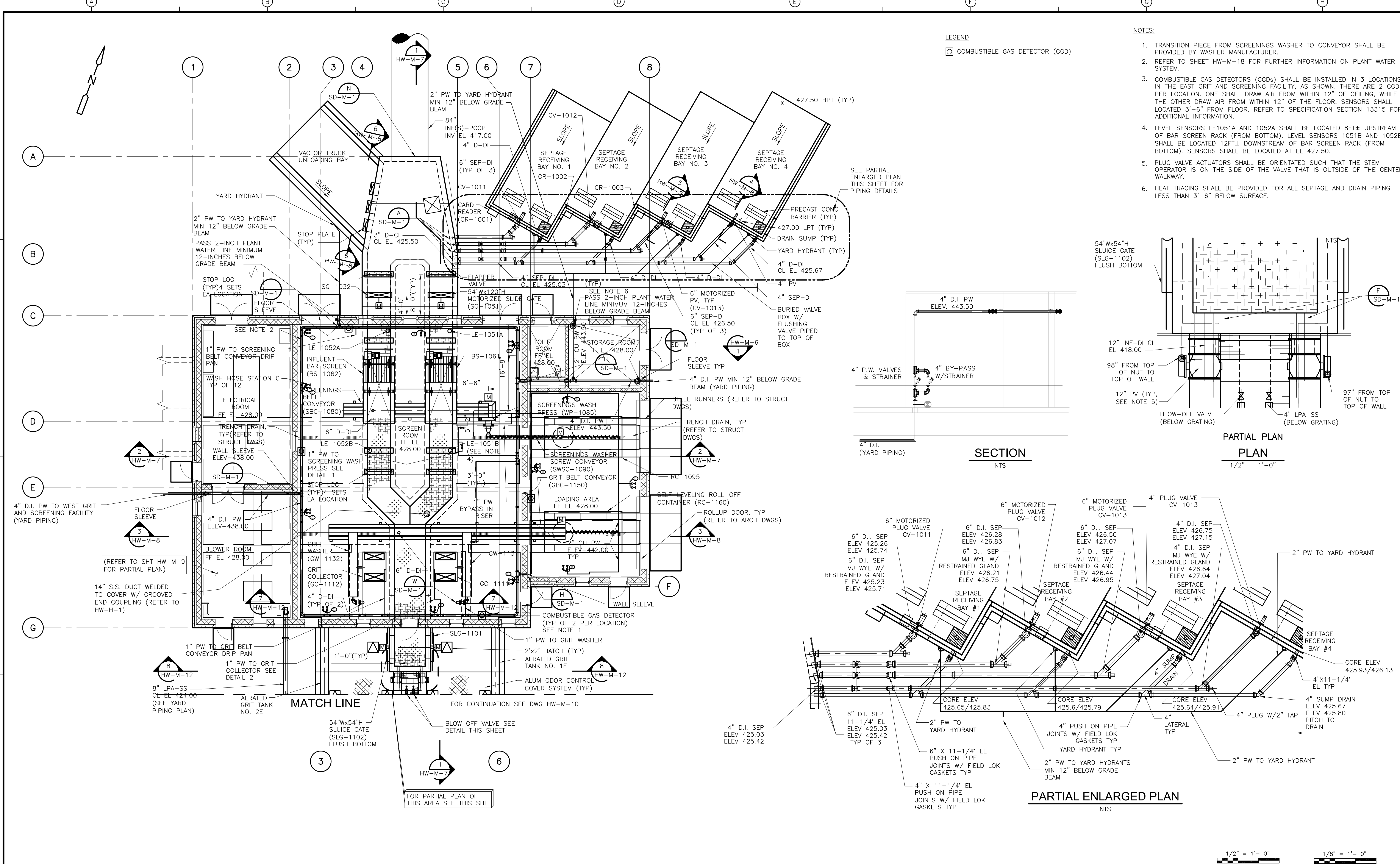
- GENERAL NOTES:**
- REFER TO SHT GD-M-1 FOR GENERAL DEMOLITION NOTES.
- NOTES:**
- CAP ALL PIPES LEFT IN PLACE AT FLOOR OR WALL, WITH CONCRETE OR GROUT.
  - GRIT TANK OUTER WALLS AND WYE WALL SHALL BE CUT TO 2 FEET BELOW EXISTING GRADE. COORDINATE EXTENT WITH PLAN.
  - GRIT EFFLUENT CHANNEL WALLS SHALL BE CUT TO 2 FEET BELOW PROPOSED GRADE. COORDINATE EXTENT WITH PLAN. OTHER AREAS MAY REQUIRE DEEPER CUT. COORDINATE WITH STRUCT DWGS.
  - SAW CUT EXISTING TANK WALLS AND SLAB TO ACCOMMODATE NEW WALL AND CHANNEL. COORDINATE WITH STRUCTURAL DRAWINGS.



RECORD DRAWING

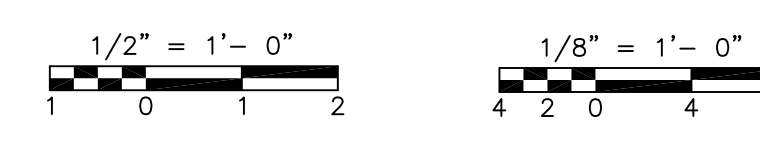
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REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD					

ACCESSION NO. 1289-65844



LEGEND  
 [Symbol] COMBUSTIBLE GAS DETECTOR (CGD)

- NOTES:
- TRANSITION PIECE FROM SCREENINGS WASHER TO CONVEYOR SHALL BE PROVIDED BY WASHER MANUFACTURER.
  - REFER TO SHEET HW-M-18 FOR FURTHER INFORMATION ON PLANT WATER SYSTEM.
  - COMBUSTIBLE GAS DETECTORS (CGDs) SHALL BE INSTALLED IN 3 LOCATIONS, IN THE EAST GRIT AND SCREENING FACILITY, AS SHOWN. THERE ARE 2 CGDs PER LOCATION. ONE SHALL DRAW AIR FROM WITHIN 12" OF CEILING, WHILE THE OTHER DRAW AIR FROM WITHIN 12" OF THE FLOOR. SENSORS SHALL LOCATED 3'-6" FROM FLOOR. REFER TO SPECIFICATION SECTION 13315 FOR ADDITIONAL INFORMATION.
  - LEVEL SENSORS LE1051A AND 1052A SHALL BE LOCATED 8FT± UPSTREAM OF BAR SCREEN RACK (FROM BOTTOM). LEVEL SENSORS 1051B AND 1052B SHALL BE LOCATED 12FT± DOWNSTREAM OF BAR SCREEN RACK (FROM BOTTOM). SENSORS SHALL BE LOCATED AT EL 427.50.
  - PLUG VALVE ACTUATORS SHALL BE ORIENTATED SUCH THAT THE STEM OPERATOR IS ON THE SIDE OF THE VALVE THAT IS OUTSIDE OF THE CENTER WALKWAY.
  - HEAT TRACING SHALL BE PROVIDED FOR ALL SEPTAGE AND DRAIN PIPING LESS THAN 3'-6" BELOW SURFACE.



REV. NO.	DATE	DRWN	CHKD	REMARKS
8/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. MGRPL006
DESIGNED BY: VMM
DRAWN BY: LB
SHEET CHK'D BY: TAY
SCALE: AS NOTED
APPROVED BY: [Signature]
DATE: MAY 2006

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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

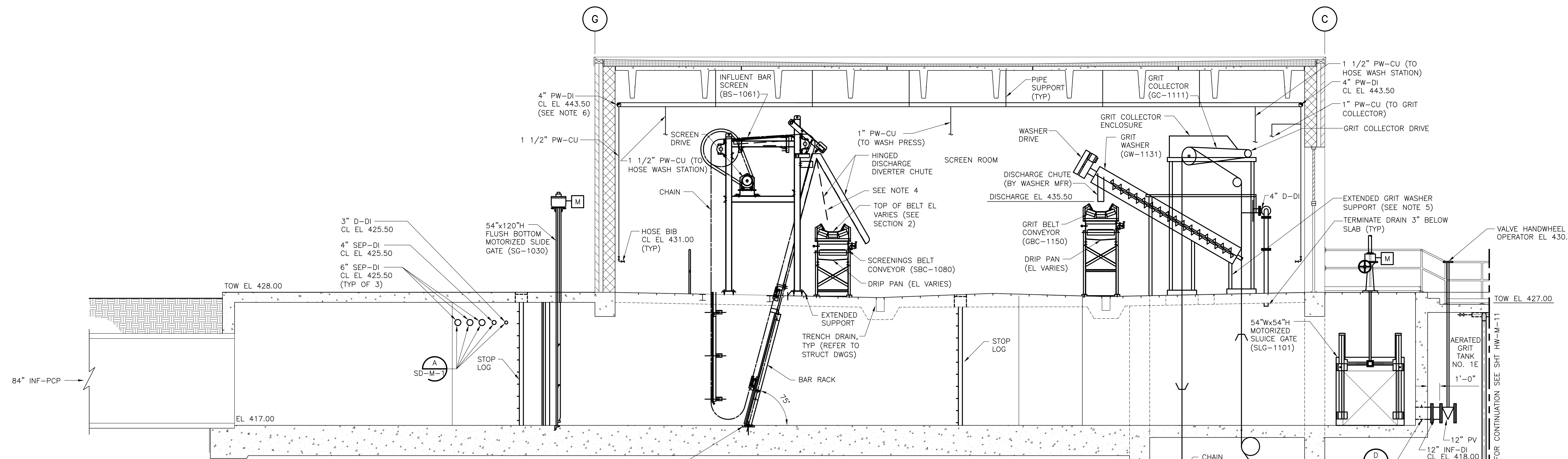
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

RECORD DRAWING

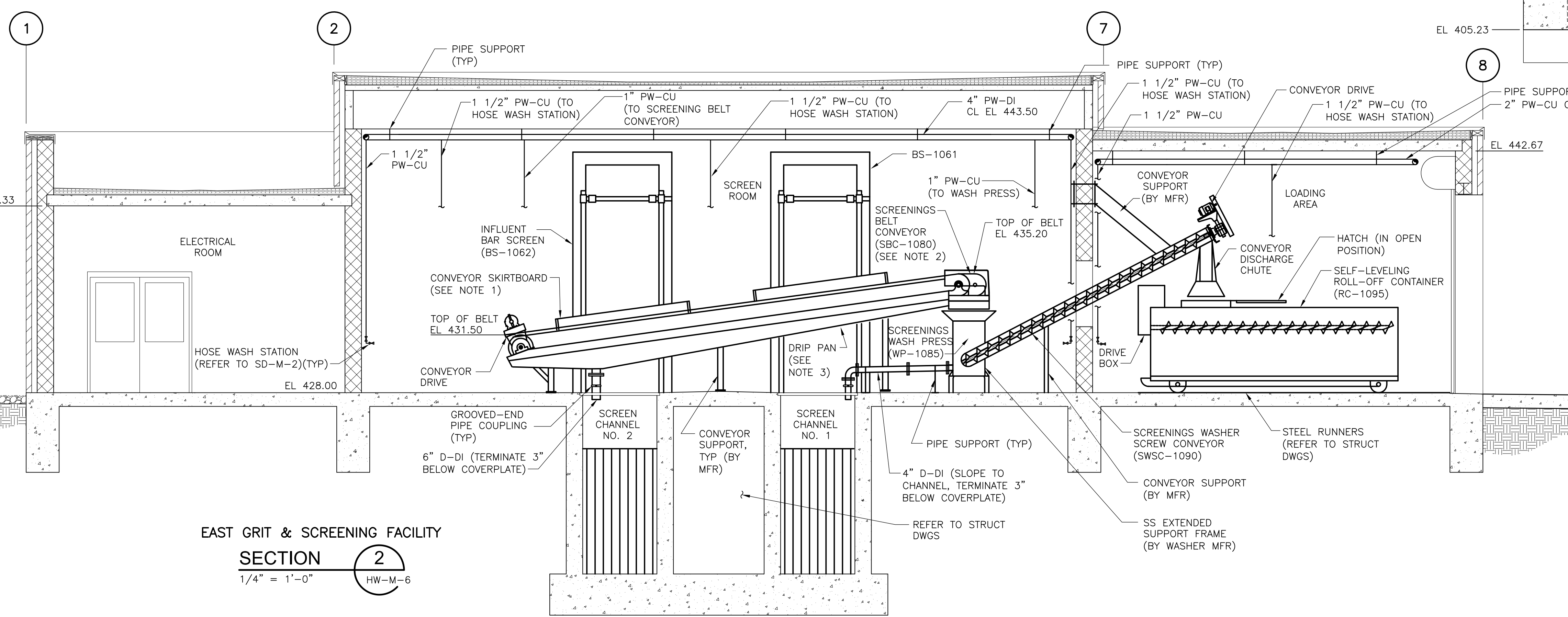
EAST GRIT AND SCREENING FACILITY -  
 PLAN

PROJECT NO. 1289\35370
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HW-M-6





EAST GRIT & SCREENING FACILITY  
 SECTION 1  
 1/4" = 1'-0" HW-M-6



EAST GRIT & SCREENING FACILITY  
 SECTION 2  
 1/4" = 1'-0" HW-M-6

- NOTES:
- PROVIDE 8 FOOT SECTION OF SKIRTBOARD CENTERED ABOUT EACH SCREEN DISCHARGE.
  - REFER TO DRAWING HW-M-15 FOR CONVEYOR BELT DETAILS.
  - BELT CONVEYOR DRIP PAN SHALL SLOPE MINIMUM 2% FROM BOTH SIDES OF DRAIN.
  - SCREENS SHALL BE LOCATED SUCH THAT PRIMARY DISCHARGE IS OVER CENTERLINE OF CONVEYOR.
  - GRIT COLLECTOR SUPPLIER SHALL PROVIDE EXTENSION SUPPORTS, AS NECESSARY TO ACHIEVE DISCHARGE ELEVATION SHOWN.
  - REFER TO SHEET HW-W-118 FOR ADDITIONAL INFORMATION OF PLANT WATER SYSTEM REQUIREMENTS AT HEADWORKS.
  - GRIT COLLECTOR SPROCKET ELEVATIONS ARE APPROXIMATE AND SHALL BE COORDINATED IN THE SHOP DRAWINGS.

RECORD DRAWING 1/4" = 1'-0" 2 1 0 2 4

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MGRSC007
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DRAWN BY:	LB
SHEET CHK'D BY:	TAY
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

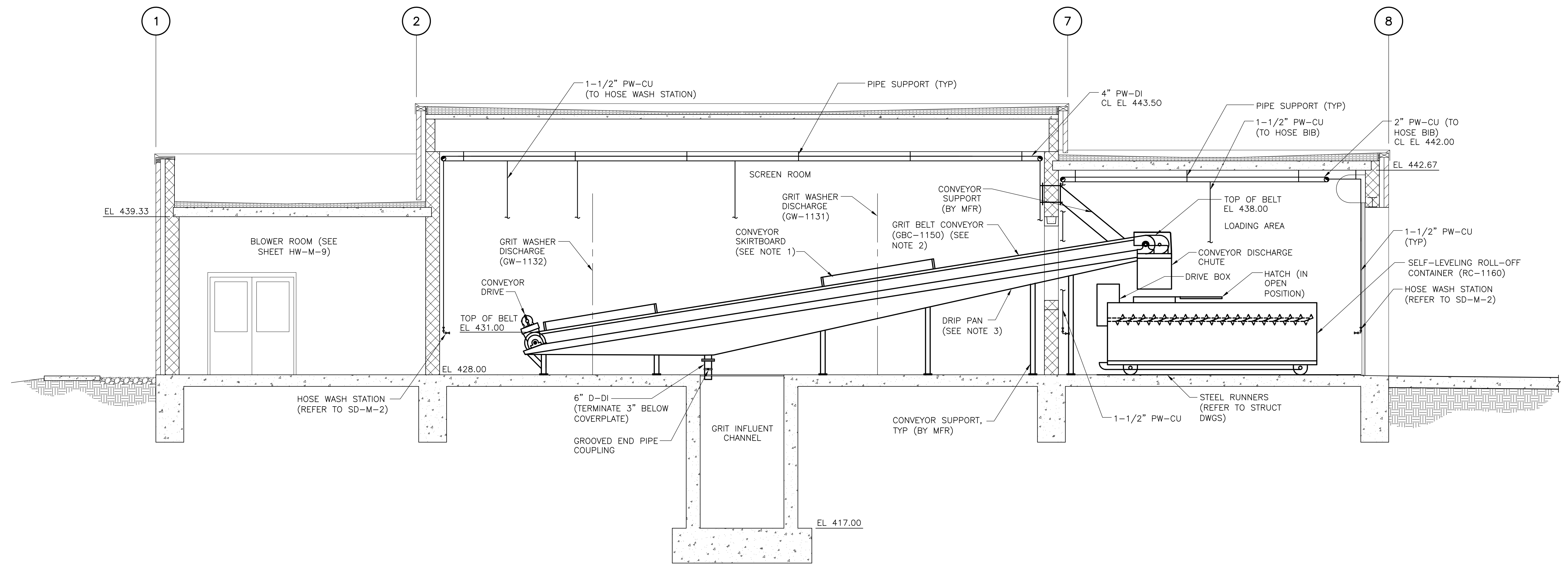
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

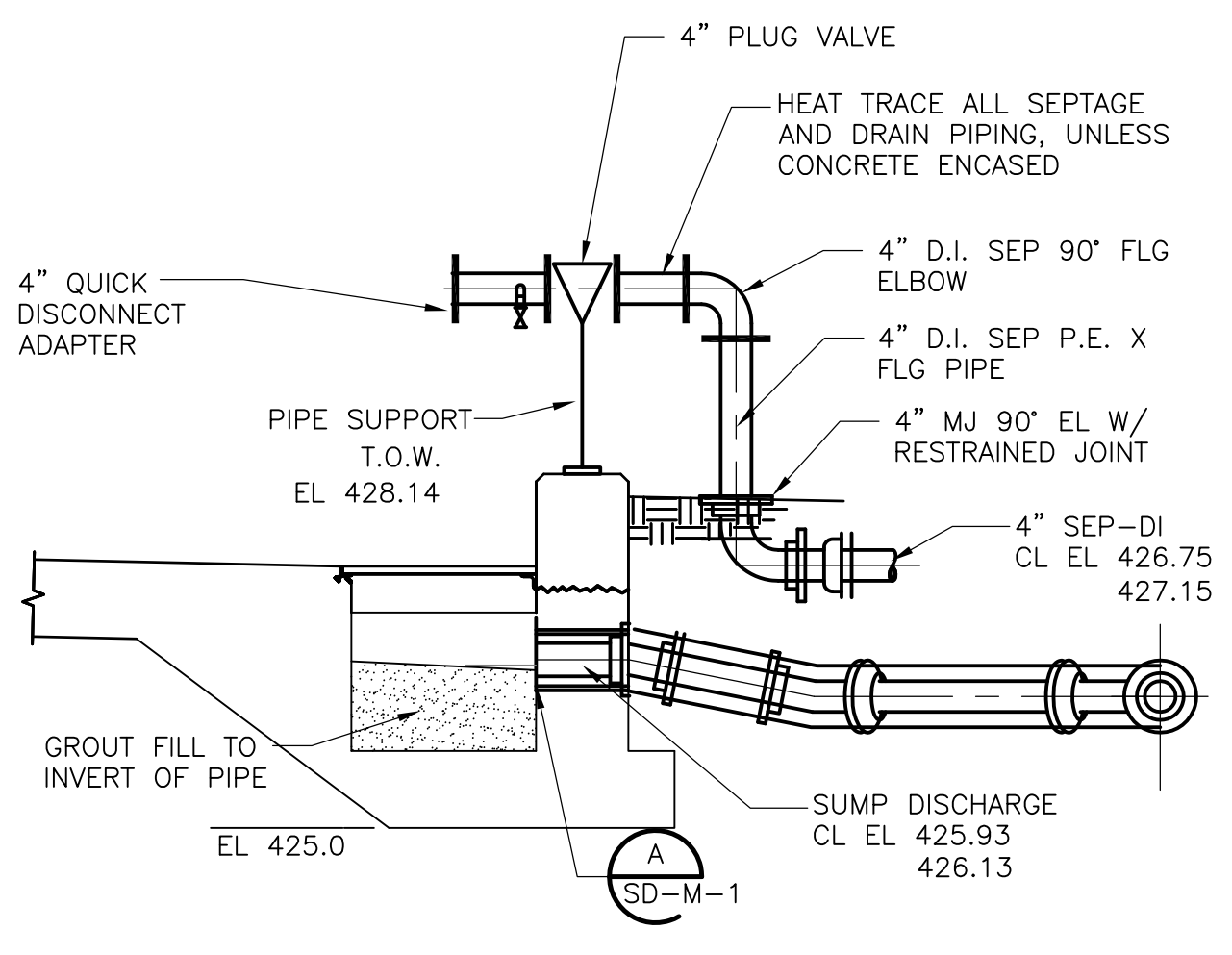
EAST GRIT AND SCREENING FACILITY -  
 SECTIONS I

PROJECT NO. 1289\35370  
 Sht. 146 of 386  
 HW-M-7

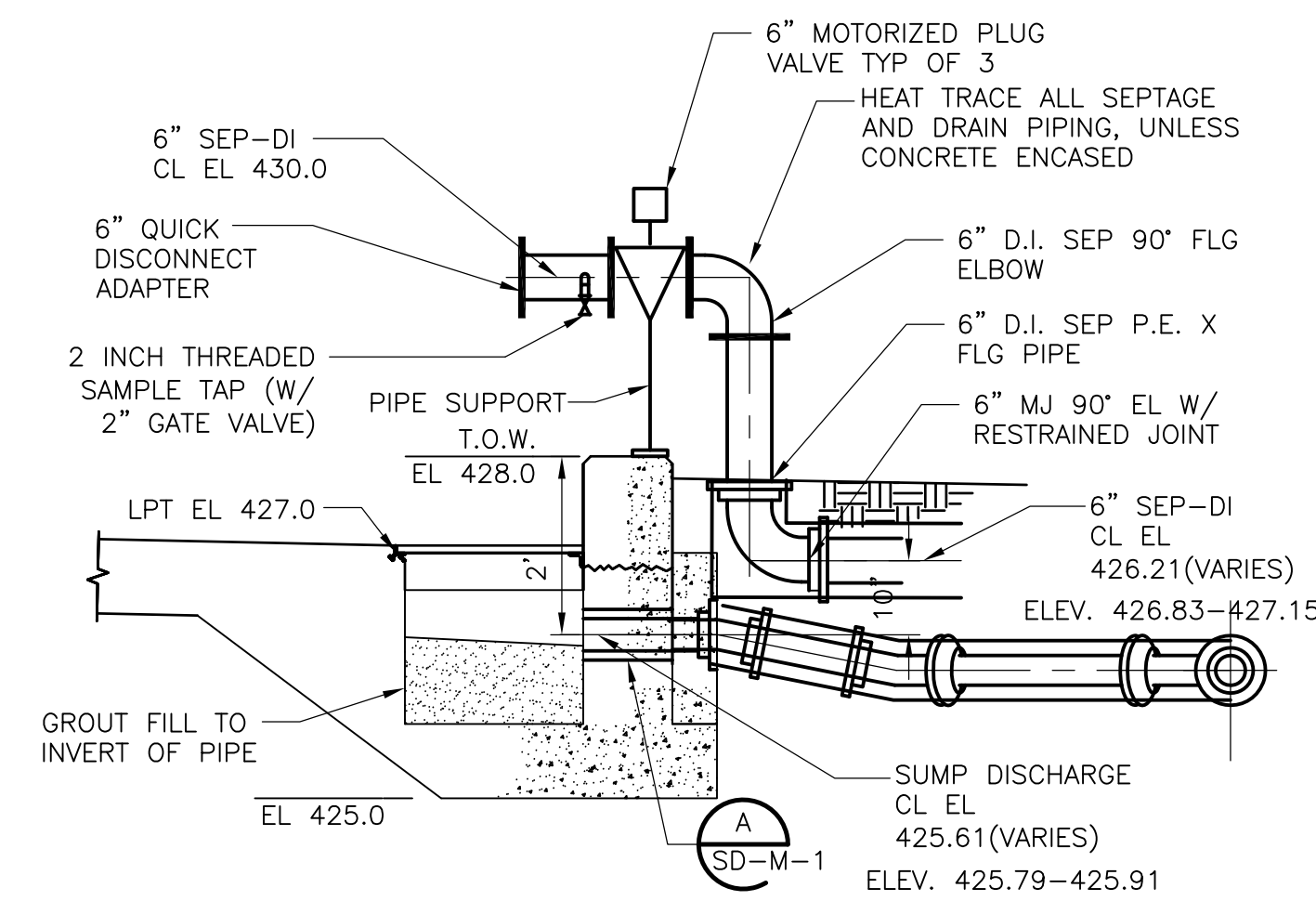


EAST GRIT & SCREENING FACILITY  
SECTION 3  
1/4" = 1'-0" HW-M-6

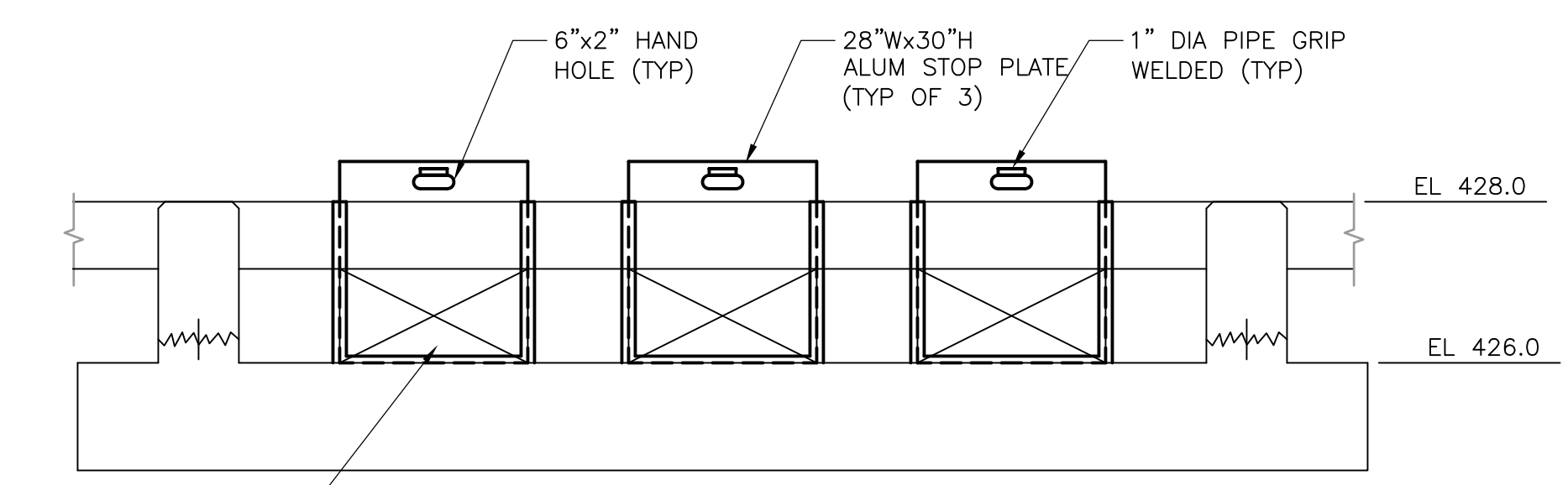
- NOTES:
1. PROVIDE 8 FOOT SECTION OF SKIRTBOARD CENTERED ABOUT EACH GRIT WASHER DISCHARGE.
  2. REFER TO DRAWING HW-M-15 FOR CONVEYOR BELT DETAILS.
  3. BELT CONVEYOR DRIP PAN SHALL SLOPE MINIMUM 2% FROM BOTH SIDES OF DRAIN.



SEPTAGE RECEIVING BAY NO. 4  
SECTION 4  
1/2" = 1'-0" HW-M-6

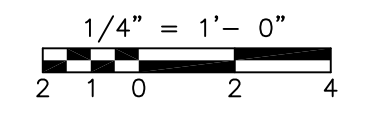


SEPTAGE RECEIVING BAY (NO 1, 2 AND 3)  
SECTION 5  
1/2" = 1'-0" HW-M-6



VECTOR TRUCK UNLOADING BAY  
SECTION 6  
1/2" = 1'-0" HW-M-6

- NOTES:
1. STOP PLATE FRAMES SHALL BE WALL SURFACE-MOUNTED. COORDINATE WITH SECTION 11282.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
2/07	SPV	ADT		REVISED FOR THE RECORD

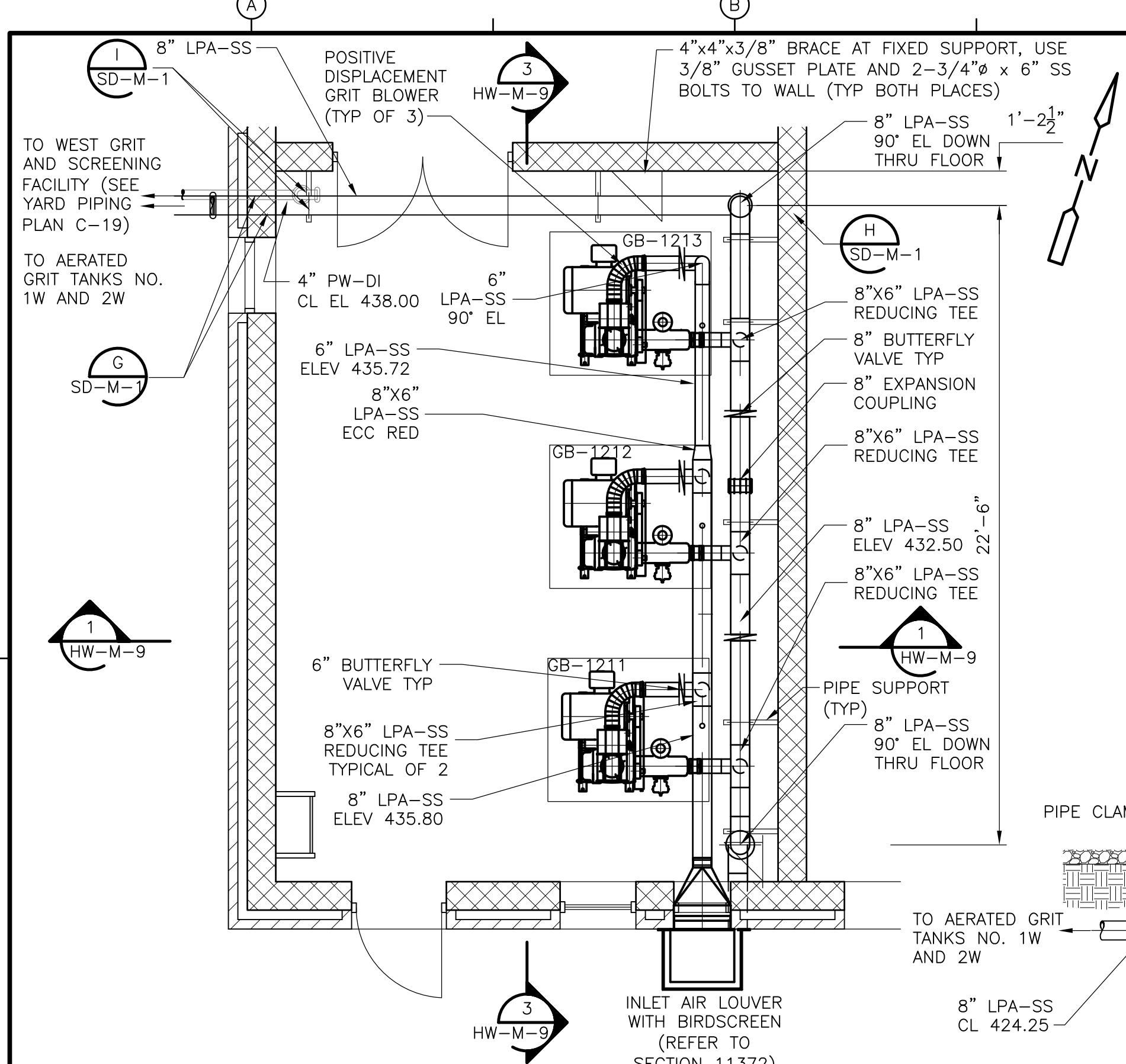
CADD FILE NO.	MGRSC008
DESIGNED BY:	VMM
DRAWN BY:	LB
SHEET CHK'D BY:	TAY
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006



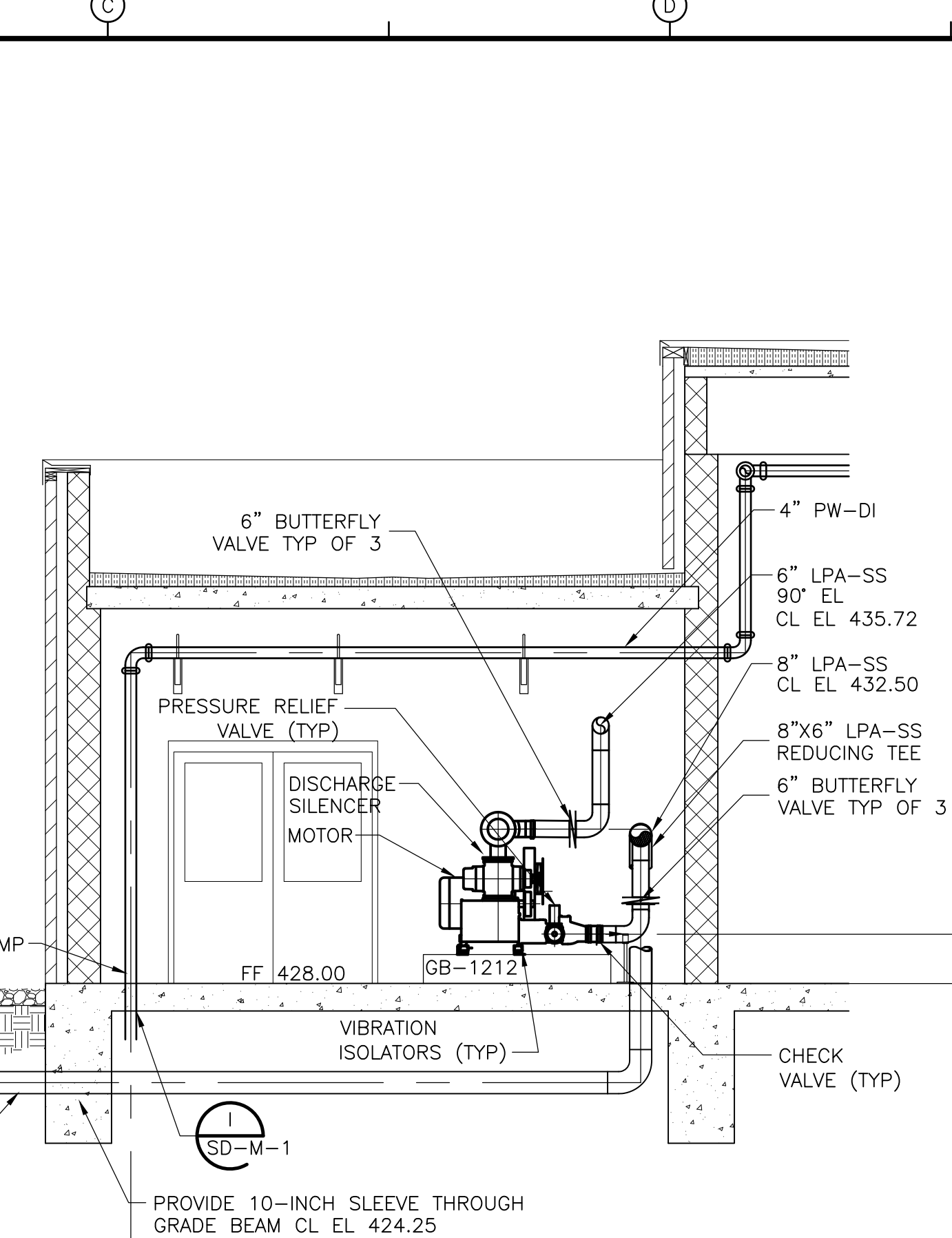
UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024  
  
WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS

EAST GRIT AND SCREENING FACILITY -  
SECTIONS II AND DETAILS

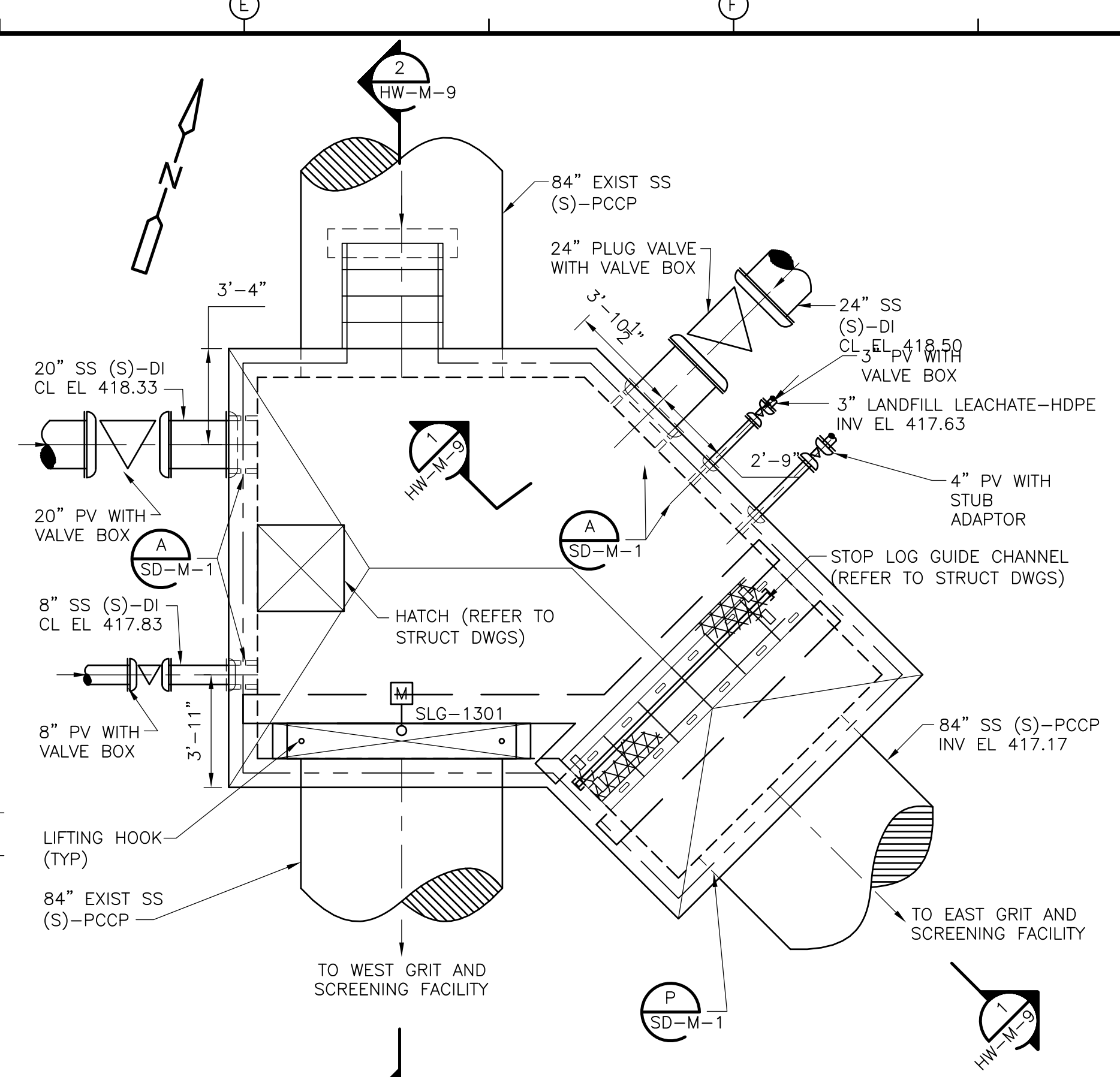
PROJECT NO.	1289\35370
Sht.	147 of 386
HW-M-8	



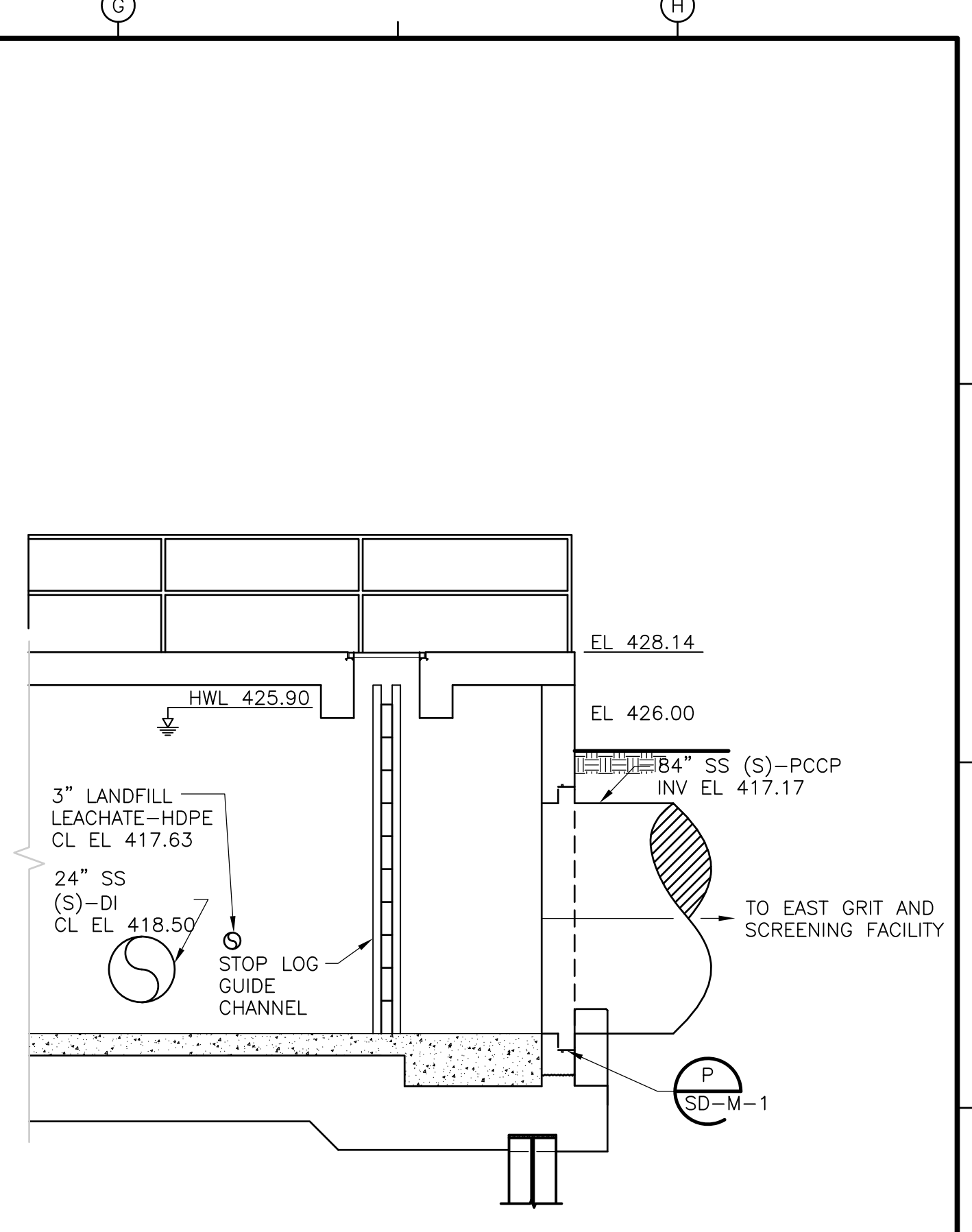
**BLOWER ROOM  
 PLAN**  
 1/4" = 1'-0"  
 HW-M-9



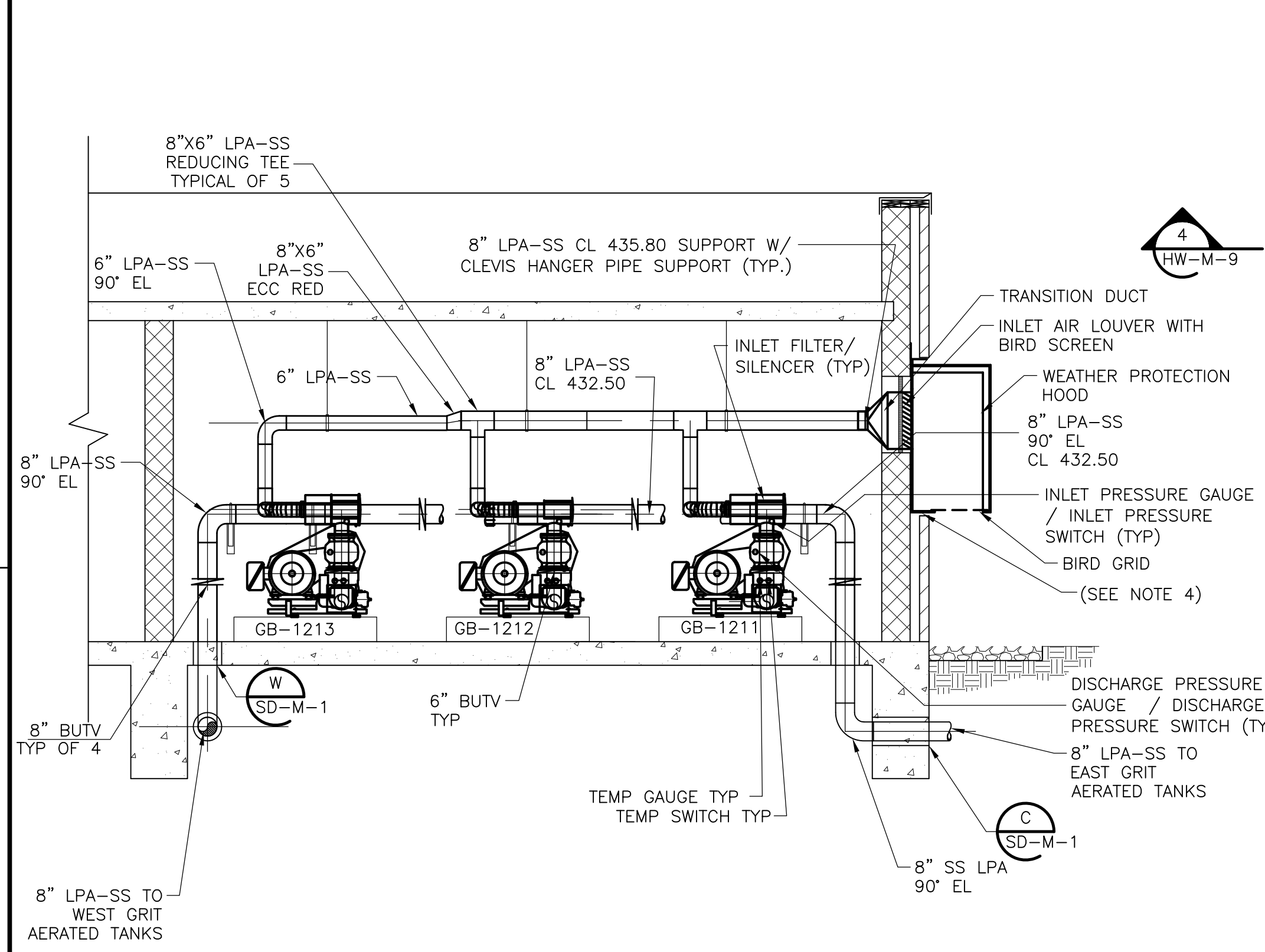
**BLOWER ROOM  
 SECTION 1**  
 1/4" = 1'-0"  
 HW-M-9



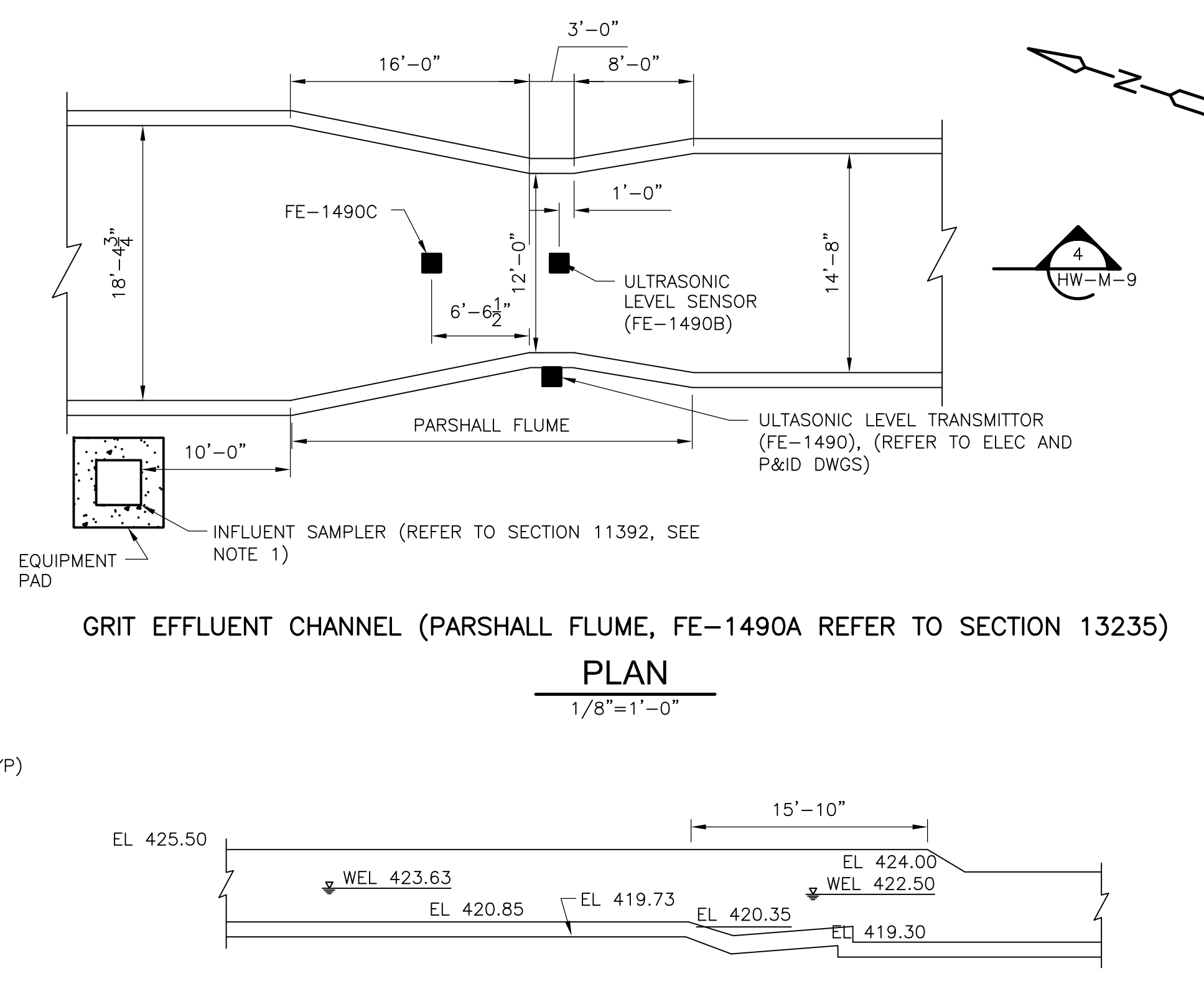
**JUNCTION BOX  
 PLAN**  
 1/4" = 1'-0"  
 HW-M-9



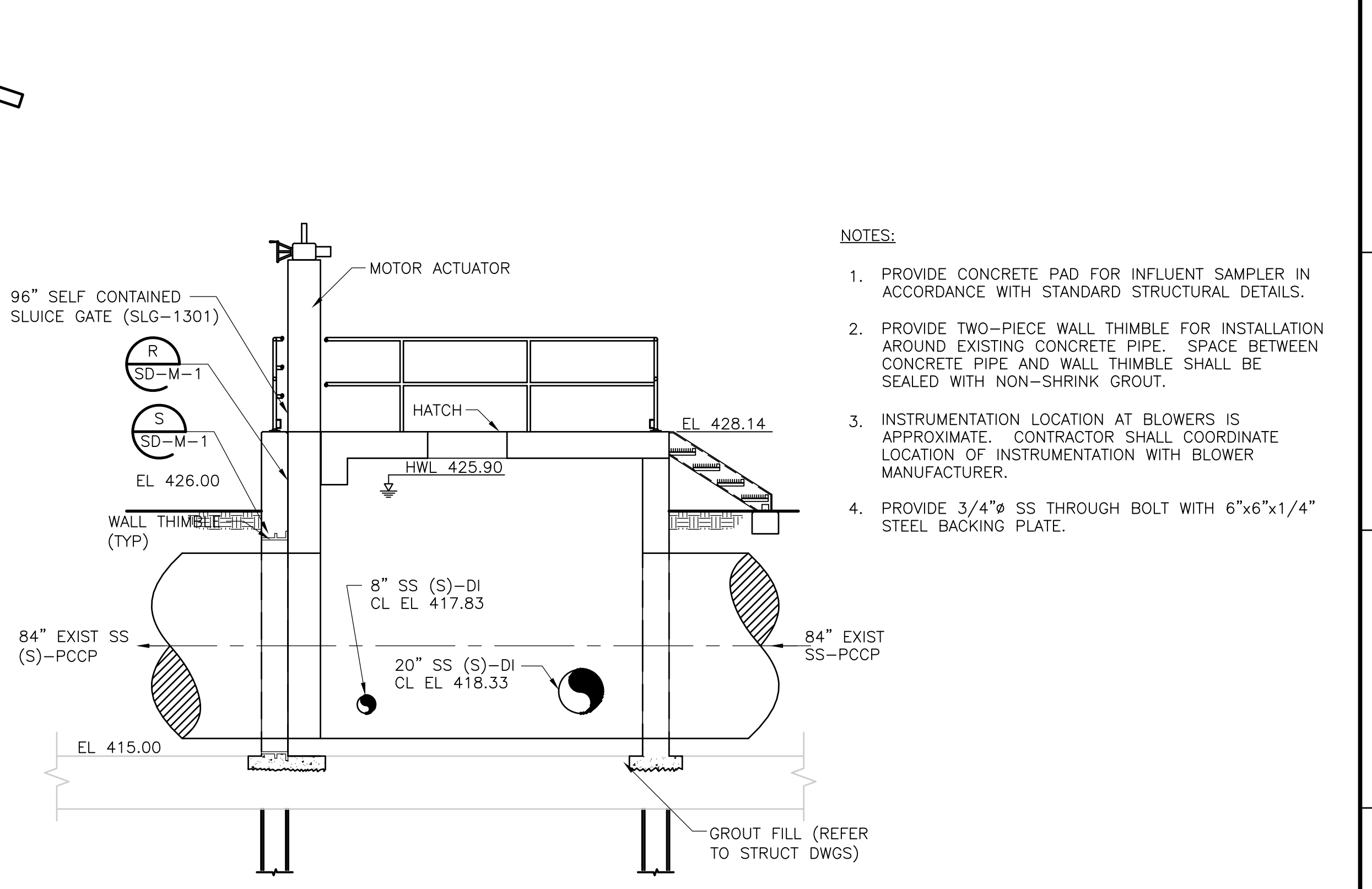
**JUNCTION BOX  
 SECTION 1**  
 1/4" = 1'-0"  
 HW-M-9



**BLOWER ROOM  
 SECTION 3**  
 3/4" = 1'-0"  
 HW-M-9

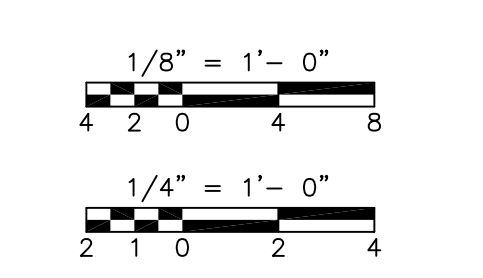


**GRIT EFFLUENT CHANNEL (PARSHALL FLUME, FE-1490A REFER TO SECTION 13235)  
 PLAN**  
 1/8" = 1'-0"  
 HW-M-9



**JUNCTION BOX  
 SECTION 2**  
 2/4" = 1'-0"  
 HW-M-9

- NOTES:**
1. PROVIDE CONCRETE PAD FOR INFLUENT SAMPLER IN ACCORDANCE WITH STANDARD STRUCTURAL DETAILS.
  2. PROVIDE TWO-PIECE WALL THIMBLE FOR INSTALLATION AROUND EXISTING CONCRETE PIPE. SPACE BETWEEN CONCRETE PIPE AND WALL THIMBLE SHALL BE SEALED WITH NON-SHRINK GROUT.
  3. INSTRUMENTATION LOCATION AT BLOWERS IS APPROXIMATE. CONTRACTOR SHALL COORDINATE LOCATION OF INSTRUMENTATION WITH BLOWER MANUFACTURER.
  4. PROVIDE 3/4" SS THROUGH BOLT WITH 6"x6"x1/4" STEEL BACKING PLATE.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
2/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MBBP1009
DESIGNED BY:	KSG
DRAWN BY:	KML
SHEET CHK'D BY:	TAY
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

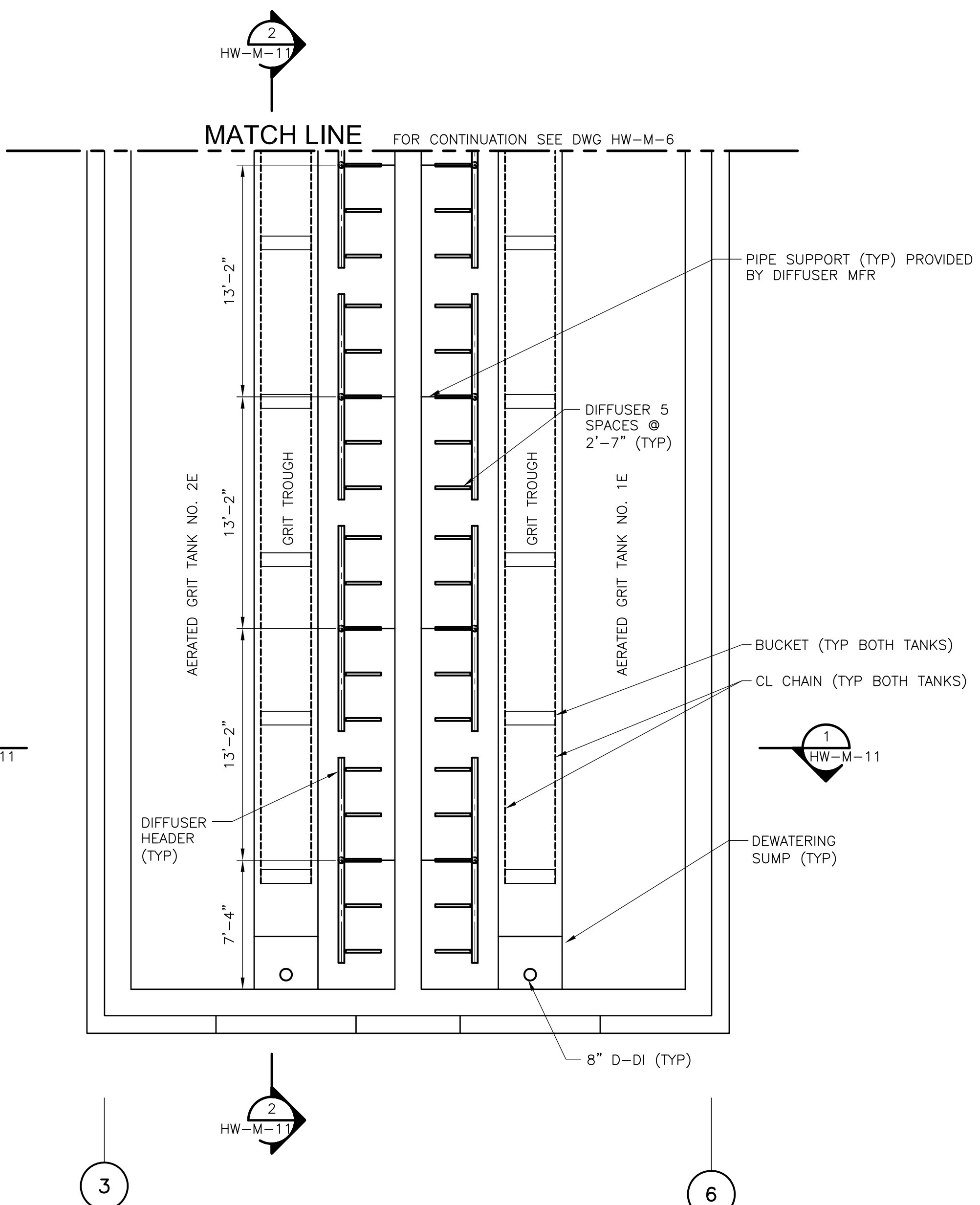
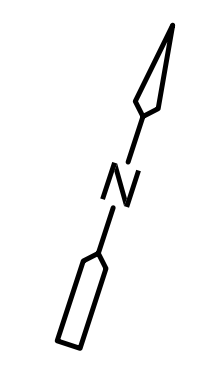
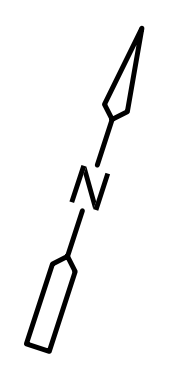
CDM	Camp Dresser & McKee Inc.
consulting	engineering
construction	operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
<b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>

MISCELLANEOUS PARTIAL PLANS, SECTIONS AND DETAILS
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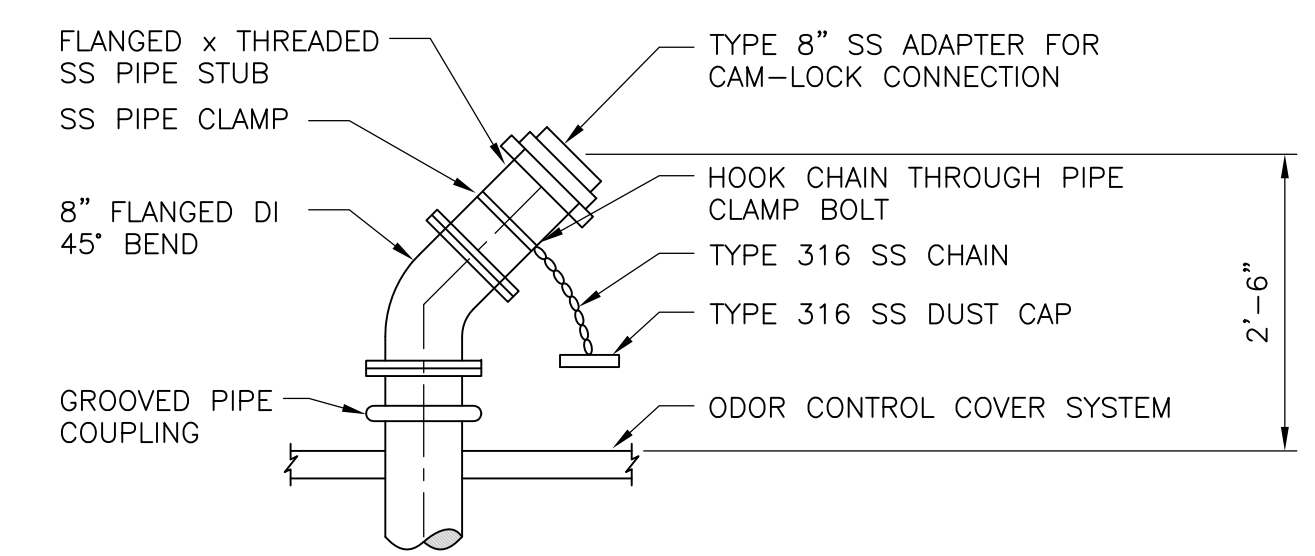
PROJECT NO. 1289\35370
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HW-M-9

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\SW\M\MGRPL010.dwg Xref's: [C24X36H, AGRWP001, SGRWP004, MGRWP001, ] Plotted by: CROSSJA Time: 12/16/08 6:24:33 PM



**EAST AERATED GRIT TANKS (LOWER)**

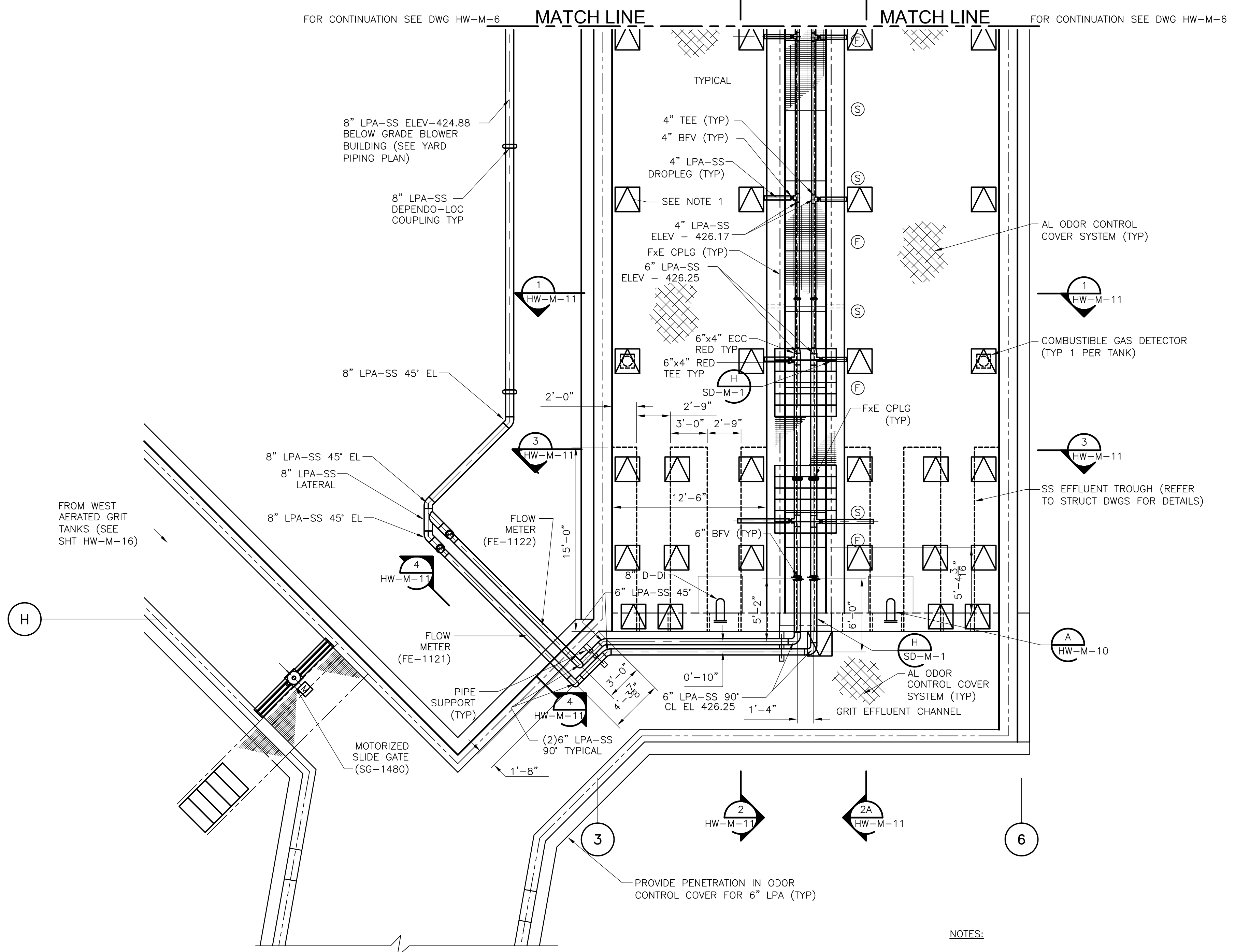
**PLAN**  
3/16" = 1'-0"



**GRIT TANK DEWATERING CONNECTION**

**DETAIL**

**A**  
HW-M-10

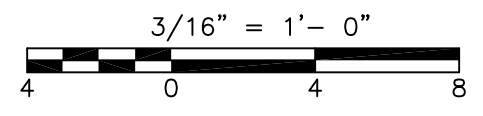


**EAST AERATED GRIT TANKS (UPPER)**

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

**NOTES:**  
1. HATCH LOCATIONS ARE APPROXIMATE AND SHALL BE COORDINATED DURING SHOP DRAWING REVIEW.

**LEGEND**  
 (F) FIXED SUPPORT  
 (S) SLIDING SUPPORT



**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
8/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.: MGRPL010  
 DESIGNED BY: VMM, KSG  
 DRAWN BY: LB, KML  
 SHEET CHK'D BY: TAY  
 SCALE: AS NOTED  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

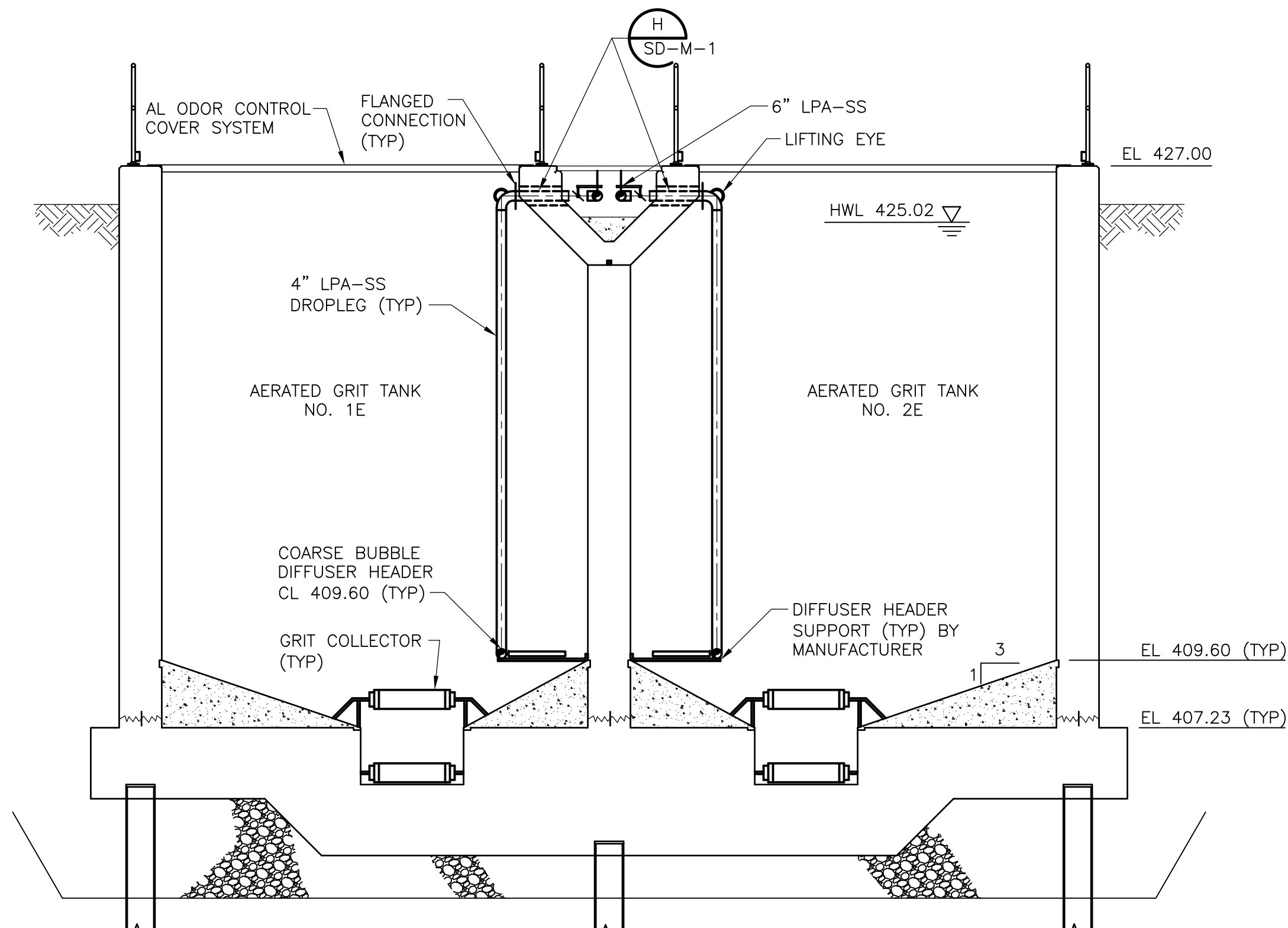
**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**EAST AERATED GRIT TANKS**  
**PLAN**

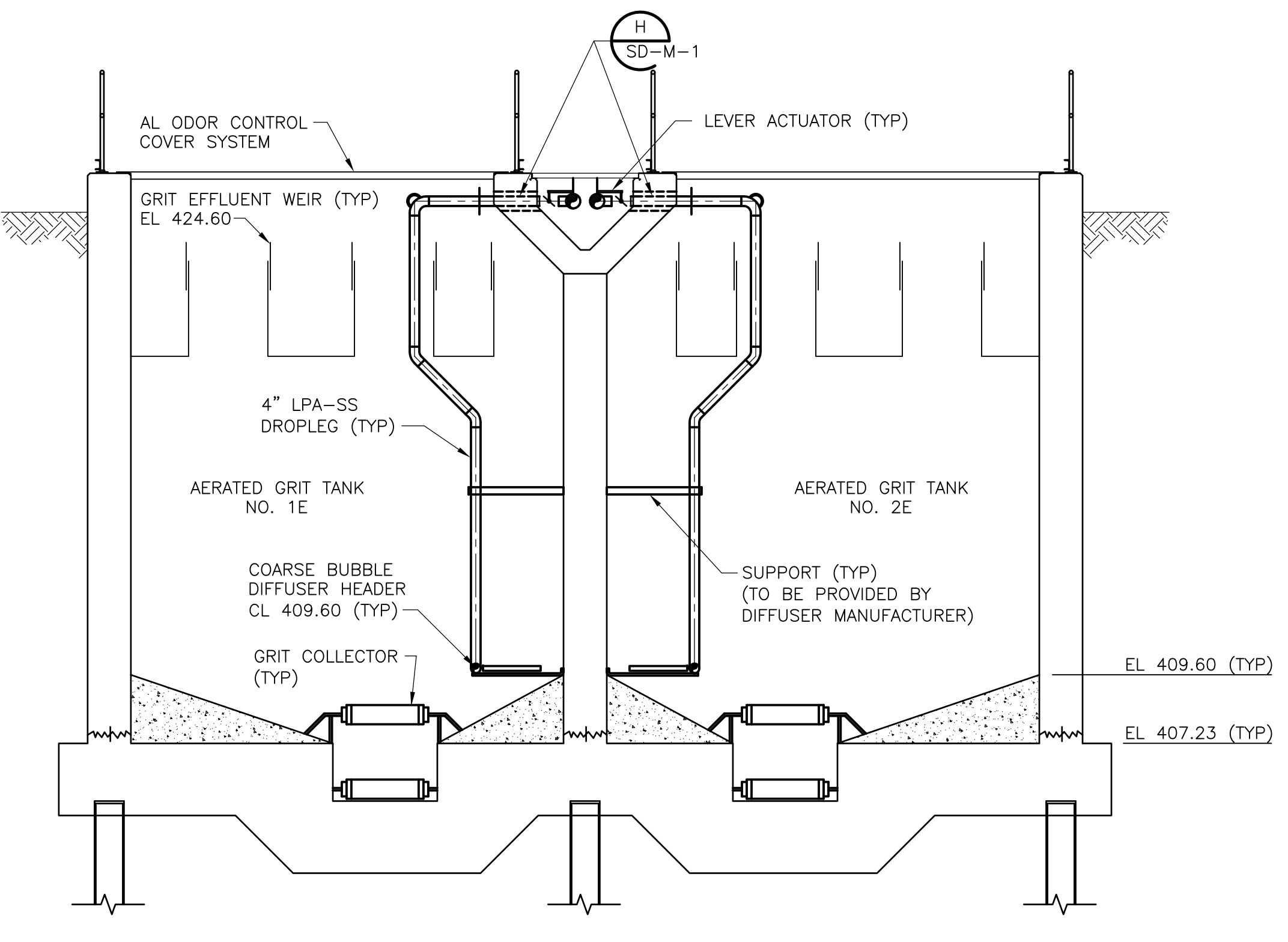
PROJECT NO.  
 1289\35370  
 Sht. 149 of 386  
**HW-M-10**

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Plotted by: CROSSJA Time: 12/16/08 6:24:36 PM

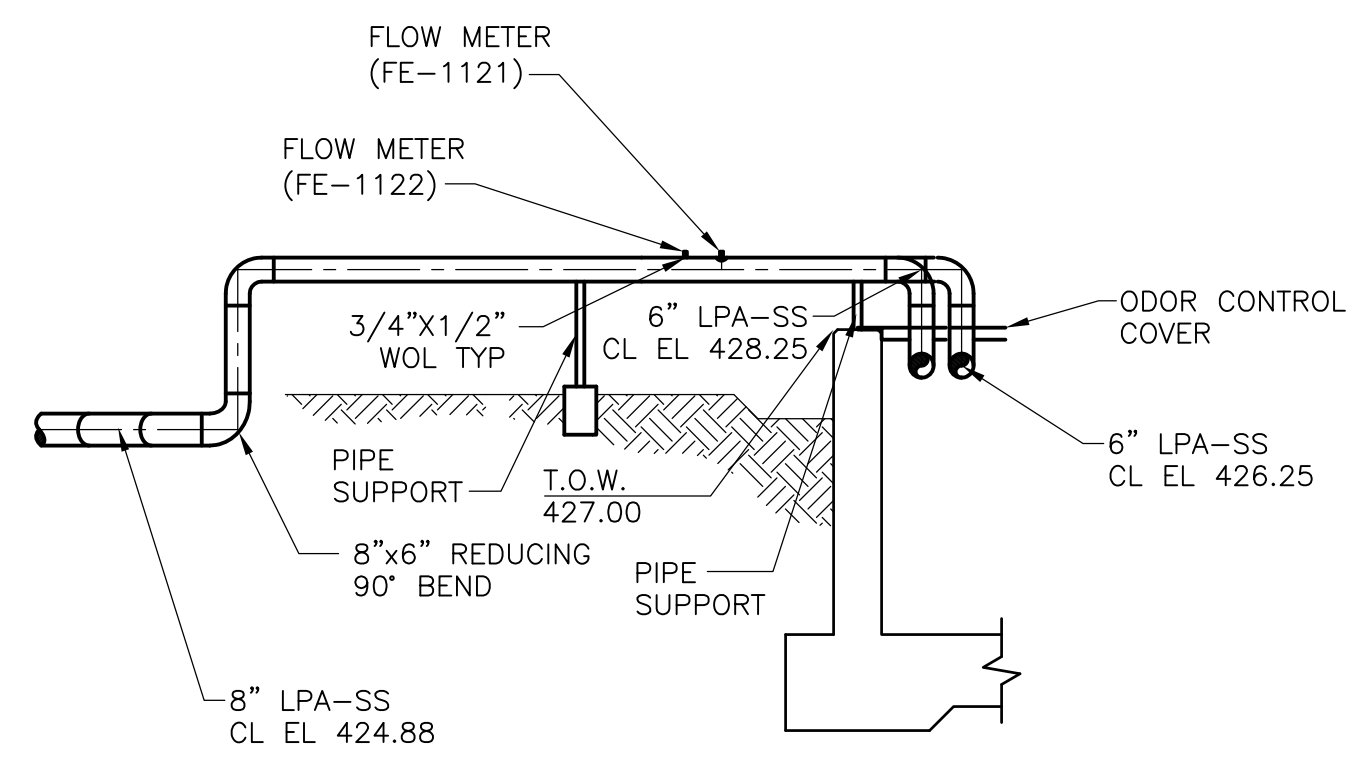
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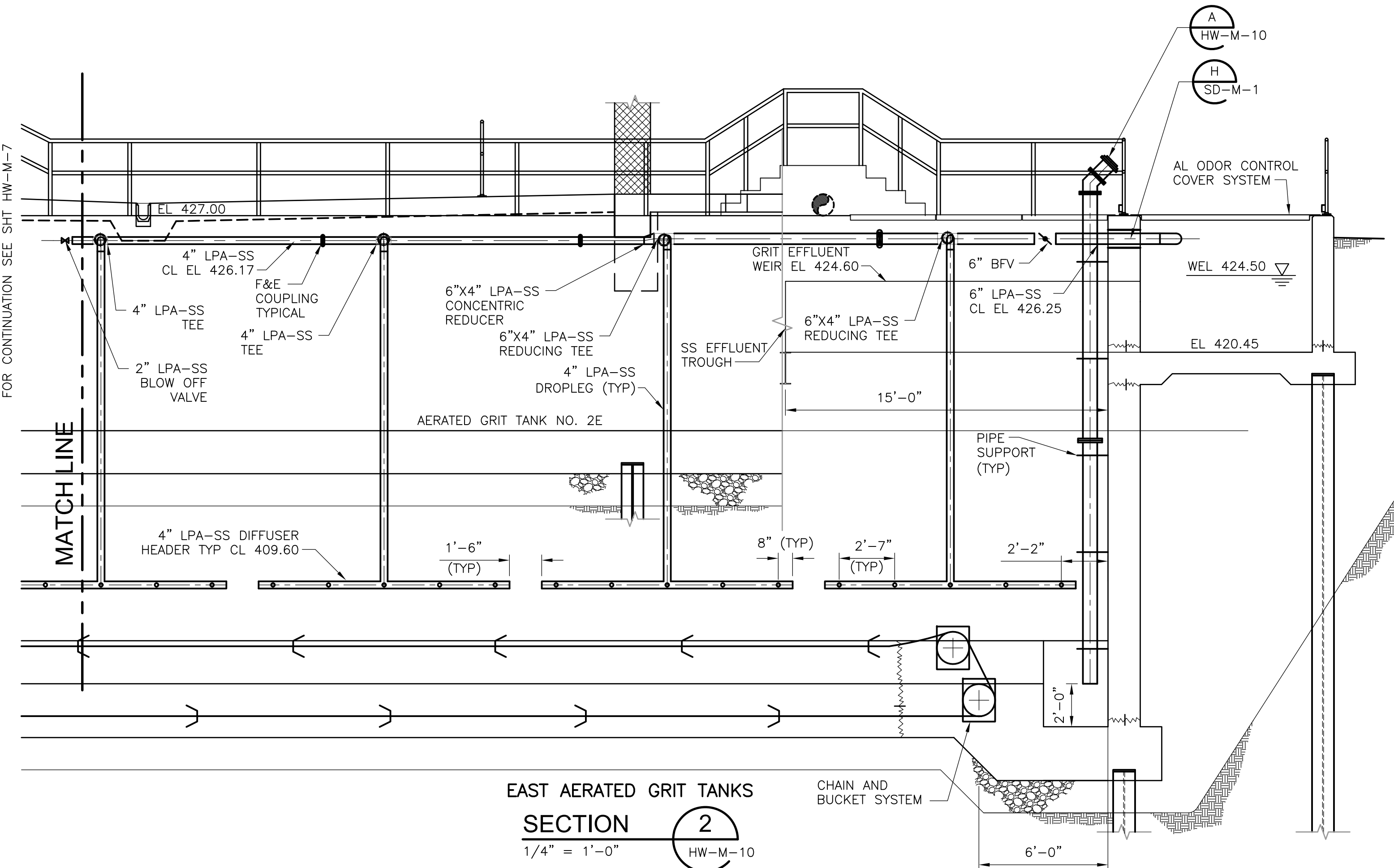
**EAST AERATED GRIT TANKS**  
**SECTION 1**  
1/4" = 1'-0" HW-M-10



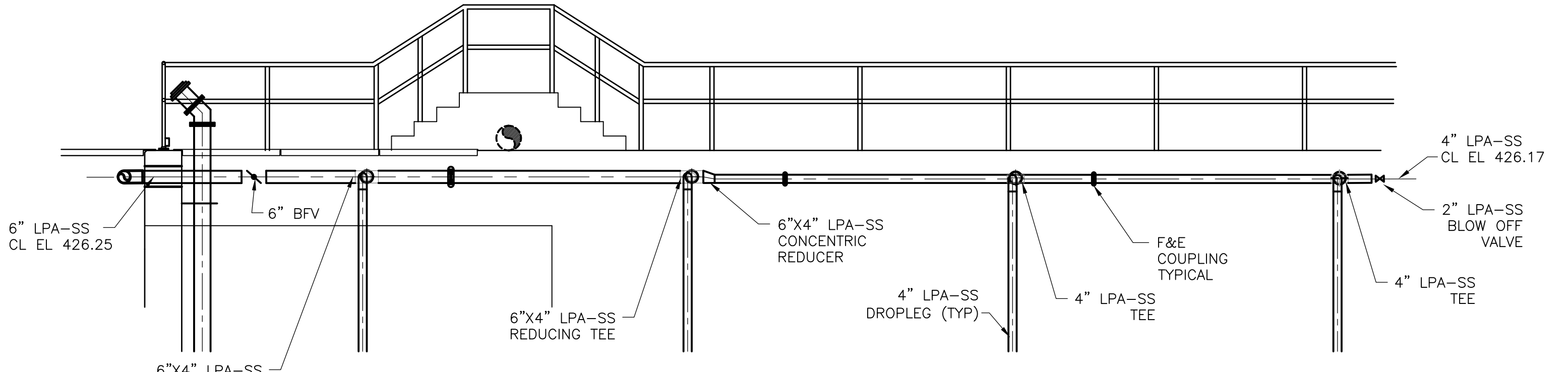
**EAST AERATED GRIT TANKS**  
**SECTION 3**  
1/4" = 1'-0" HW-M-10



**EAST AERATED GRIT TANKS**  
**SECTION 4**  
1/4" = 1'-0" HW-M-10

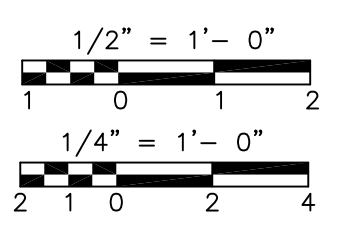


**EAST AERATED GRIT TANKS**  
**SECTION 2**  
1/4" = 1'-0" HW-M-10



**EAST AERATED GRIT TANKS**  
**SECTION 2A**  
1/4" = 1'-0" HW-M-10

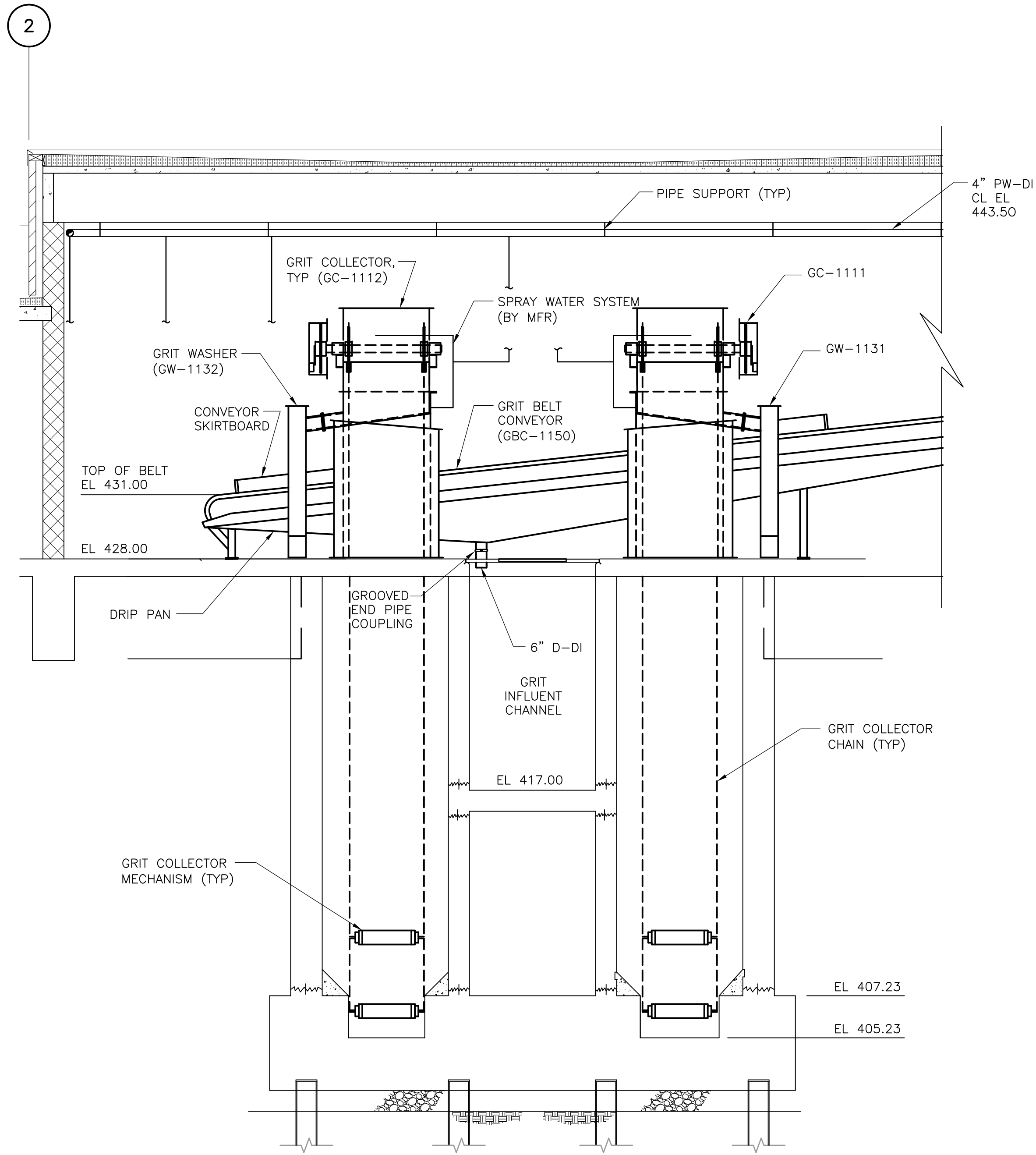
**NOTES:**  
1. LOCATE FLOW METER TRANSMITTERS ON BACKBOARD MOUNTED ON HANDRAIL. REFER TO STRUCTURAL DRAWINGS.



RECORD DRAWING

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REV. NO.	DATE	DRWN	CHKD	REMARKS																	
8/07	SPV	ADT		REVISED FOR THE RECORD																	

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
 Filename: P:\1289\35370\PHASE I\RECORD\SW\_M\MGRSC012.dwg Xref's: [C24\36H\_MGRS001\_SGRWS001\_AGRWS003\_] Plotted by: CROSSJA Time: 12/16/08 6:24:41 PM

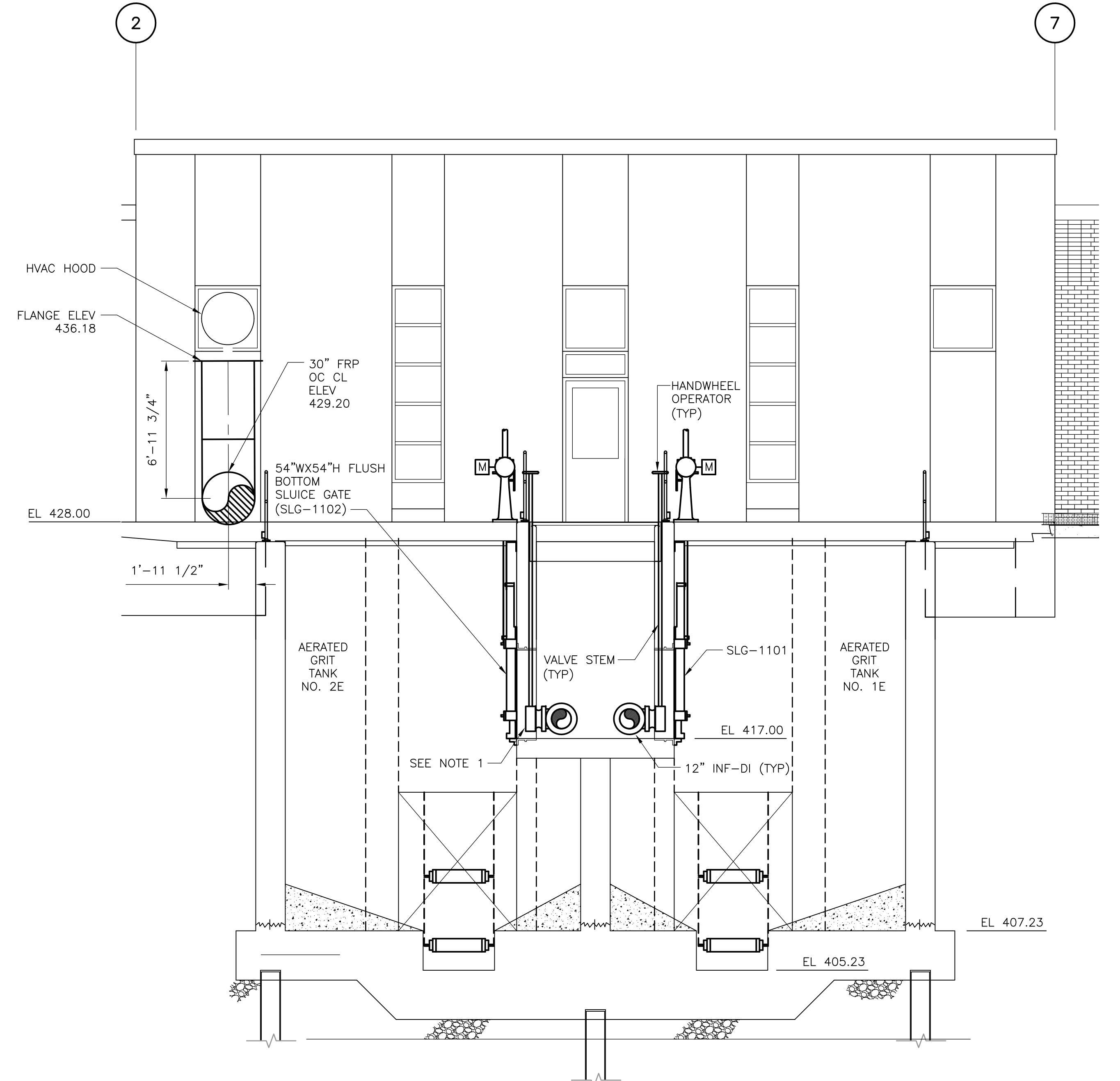


EAST GRIT AND SCREENING FACILITY

SECTION 7  
 1/4" = 1'-0" HW-M-6

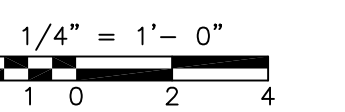
NOTES:

1. PLUG VALVE ACTUATORS SHALL BE ORIENTATED SUCH THAT THE STEM OPERATOR IS ON THE SIDE OF THE VALVE THAT IS OUTSIDE OF THE CENTER WALKWAY.



EAST AERATED GRIT TANKS

SECTION 8  
 1/4" = 1'-0" HW-M-6



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
8/07	SPV	ADT		REVISED FOR THE RECORD

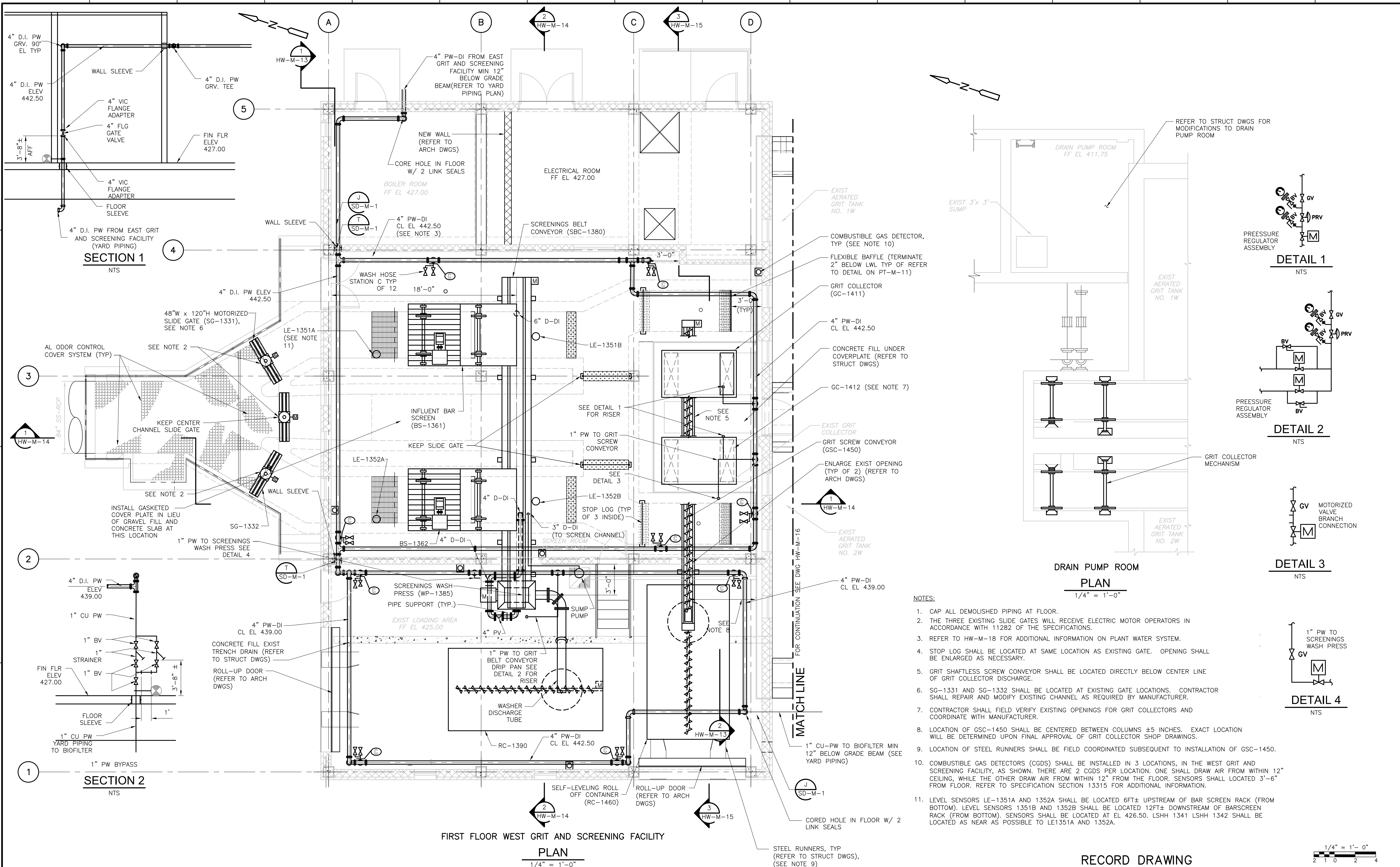
CADD FILE NO.: MGRSC012  
 DESIGNED BY: VMM  
 DRAWN BY: MS  
 SHEET CHK'D BY: TAY  
 SCALE: AS NOTED  
 APPROVED BY:  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

EAST AERATED GRIT TANK -  
 SECTIONS II & DETAILS

PROJECT NO.  
 1289\35370  
 Sht. 151 of 386  
**HW-M-12**  
ACCESSION NO. 1289-6551



**SECTION 1**  
NTS

**SECTION 2**  
NTS

**DETAIL 1**  
NTS

**DETAIL 2**  
NTS

**DETAIL 3**  
NTS

**DETAIL 4**  
NTS

**DRAIN PUMP ROOM PLAN**  
1/4" = 1'-0"

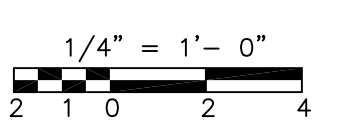
- NOTES:**
- CAP ALL DEMOLISHED PIPING AT FLOOR.
  - THE THREE EXISTING SLIDE GATES WILL RECEIVE ELECTRIC MOTOR OPERATORS IN ACCORDANCE WITH 11282 OF THE SPECIFICATIONS.
  - REFER TO HW-M-18 FOR ADDITIONAL INFORMATION ON PLANT WATER SYSTEM.
  - STOP LOG SHALL BE LOCATED AT SAME LOCATION AS EXISTING GATE. OPENING SHALL BE ENLARGED AS NECESSARY.
  - GRIT SHAFTLESS SCREW CONVEYOR SHALL BE LOCATED DIRECTLY BELOW CENTER LINE OF GRIT COLLECTOR DISCHARGE.
  - SG-1331 AND SG-1332 SHALL BE LOCATED AT EXISTING GATE LOCATIONS. CONTRACTOR SHALL REPAIR AND MODIFY EXISTING CHANNEL AS REQUIRED BY MANUFACTURER.
  - CONTRACTOR SHALL FIELD VERIFY EXISTING OPENINGS FOR GRIT COLLECTORS AND COORDINATE WITH MANUFACTURER.
  - LOCATION OF GSC-1450 SHALL BE CENTERED BETWEEN COLUMNS ±5 INCHES. EXACT LOCATION WILL BE DETERMINED UPON FINAL APPROVAL OF GRIT COLLECTOR SHOP DRAWINGS.
  - LOCATION OF STEEL RUNNERS SHALL BE FIELD COORDINATED SUBSEQUENT TO INSTALLATION OF GSC-1450.
  - COMBUSTIBLE GAS DETECTORS (CGDS) SHALL BE INSTALLED IN 3 LOCATIONS, IN THE WEST GRIT AND SCREENING FACILITY, AS SHOWN. THERE ARE 2 CGDS PER LOCATION. ONE SHALL DRAW AIR FROM WITHIN 12" CEILING, WHILE THE OTHER DRAW AIR FROM WITHIN 12" FROM THE FLOOR. SENSORS SHALL LOCATED 3'-6" FROM FLOOR. REFER TO SPECIFICATION SECTION 13315 FOR ADDITIONAL INFORMATION.
  - LEVEL SENSORS LE-1351A AND 1352A SHALL BE LOCATED 6FT± UPSTREAM OF BAR SCREEN RACK (FROM BOTTOM). LEVEL SENSORS 1351B AND 1352B SHALL BE LOCATED 12FT± DOWNSTREAM OF BARSCREEN RACK (FROM BOTTOM). SENSORS SHALL BE LOCATED AT EL 426.50. LSHH 1341 LSHH 1342 SHALL BE LOCATED AS NEAR AS POSSIBLE TO LE1351A AND 1352A.

**FIRST FLOOR WEST GRIT AND SCREENING FACILITY**

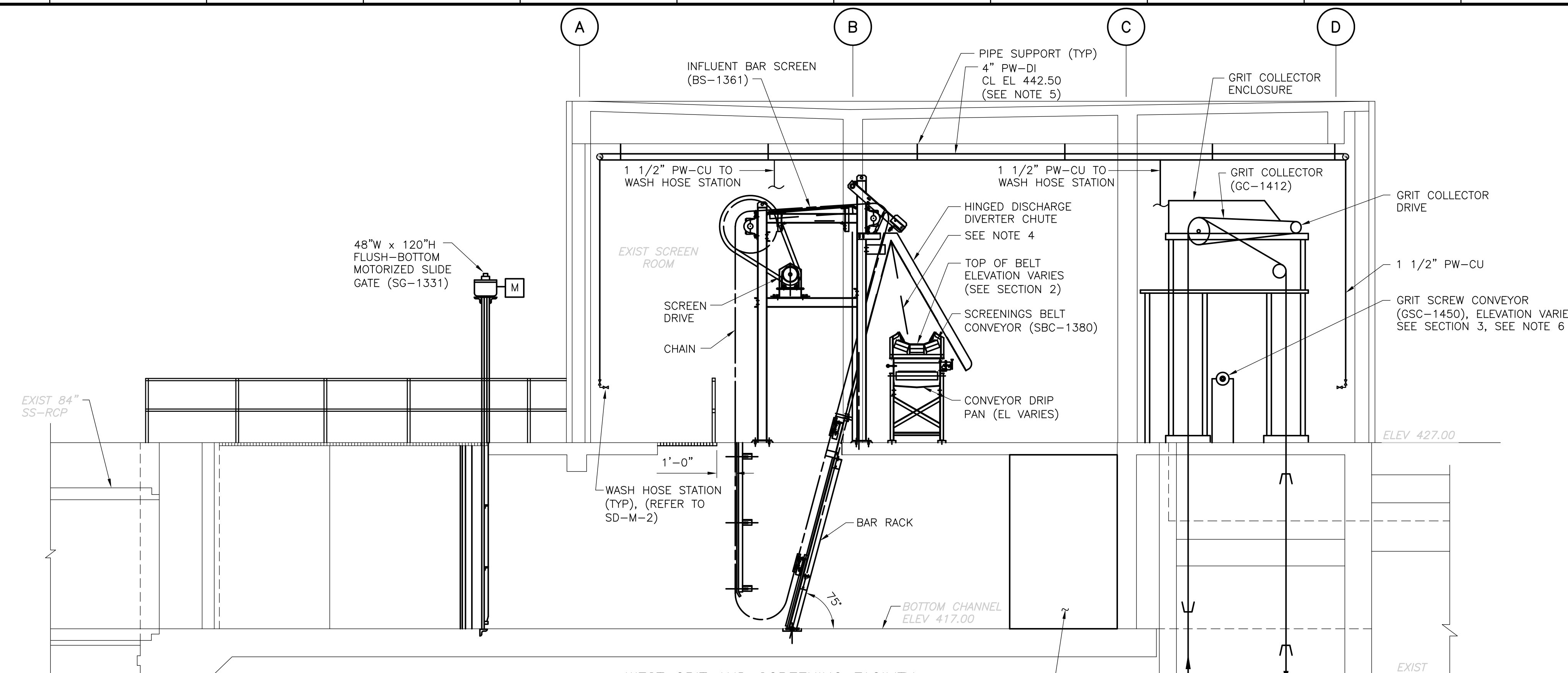
**PLAN**  
1/4" = 1'-0"

**RECORD DRAWING**

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REV. NO.	DATE	DRWN	CHKD	REMARKS																																																							
8/07	SPV	ADT		REVISED FOR THE RECORD																																																							
CADD FILE NO.	MGRP1013																																																										
DESIGNED BY:	VMM																																																										
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SHEET CHK'D BY:	TAY																																																										
SCALE:	AS NOTED																																																										
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DATE:	MAY 2006																																																										
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Sht.	152 of 386																																																										
HW-M-13																																																											

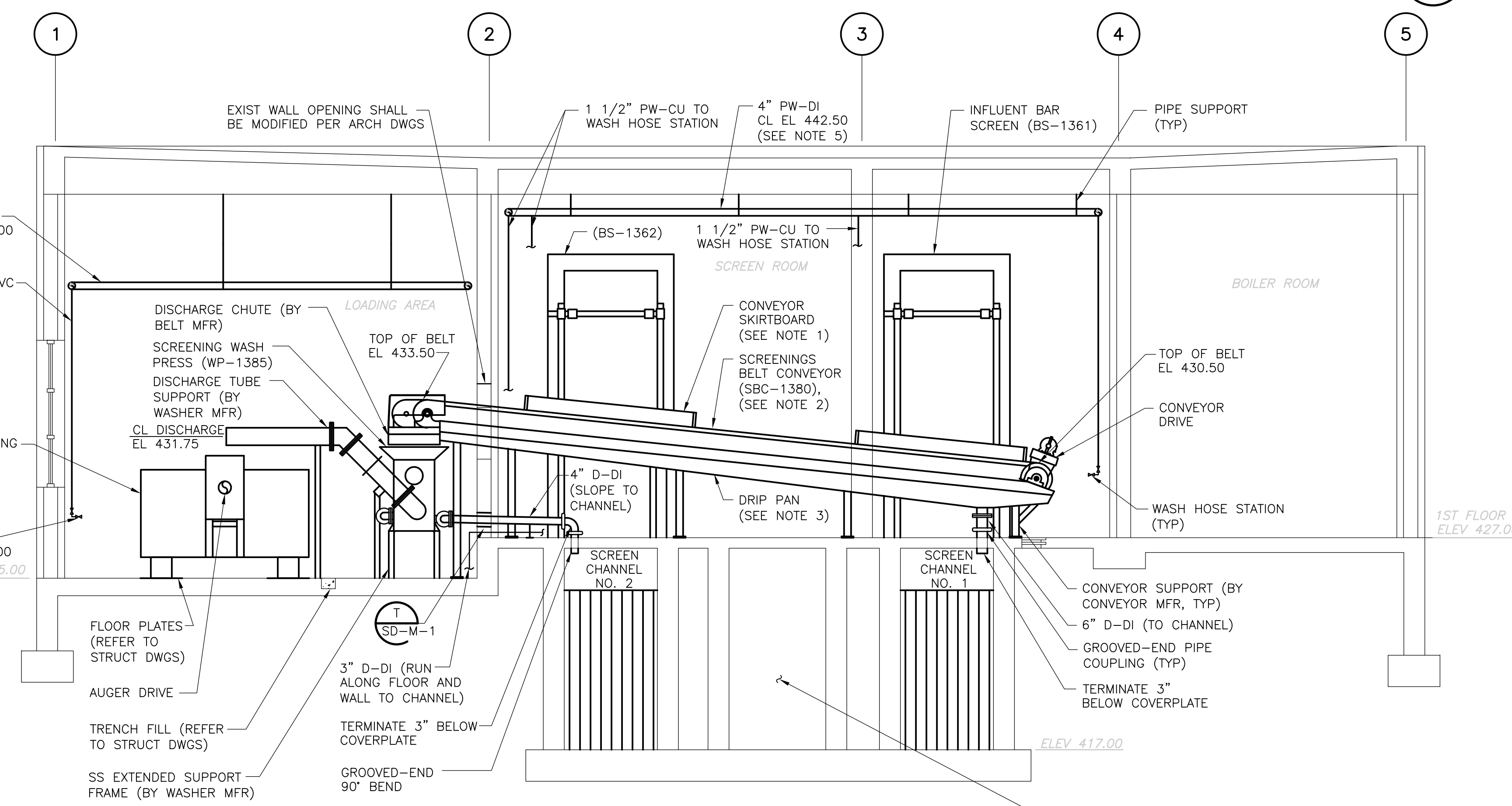


[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
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WEST GRIT AND SCREENING FACILITY

**SECTION 1**  
1/4" = 1'-0" HW-M-13

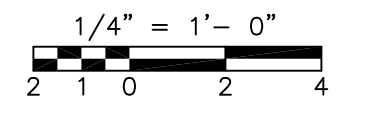


WEST GRIT AND SCREENING FACILITY

**SECTION 2**  
1/4" = 1'-0" HW-M-13

**NOTES:**

1. PROVIDE 8 FOOT SECTION OF SKIRTBOARD CENTERED ABOUT EACH SCREEN DISCHARGE.
2. REFER TO DRAWING HW-M-15 FOR CONVEYOR BELT DETAILS.
3. BELT CONVEYOR DRIP PAN SHALL SLOPE MINIMUM 2% FROM BOTH SIDES OF DRAIN.
4. SCREENS SHALL BE LOCATED SUCH THAT PRIMARY DISCHARGE IS OVER CENTERLINE OF CONVEYOR.
5. REFER TO SHEET HW-M-18 FOR ADDITIONAL INFORMATION OF PLANT WATER SYSTEM REQUIREMENTS AT HEADWORKS.
6. GRIT COLLECTOR MANUFACTURER SHALL PROVIDE DISCHARGE CHUTE TO TRANSITION TO GRIT SCREW CONVEYOR. CONTRACTOR SHALL COORDINATE.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MGRSC014
DESIGNED BY:	VMM
DRAWN BY:	LB
SHEET CHK'D BY:	TAY
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**WEST GRIT AND SCREENING FACILITY-  
 SECTIONS I**

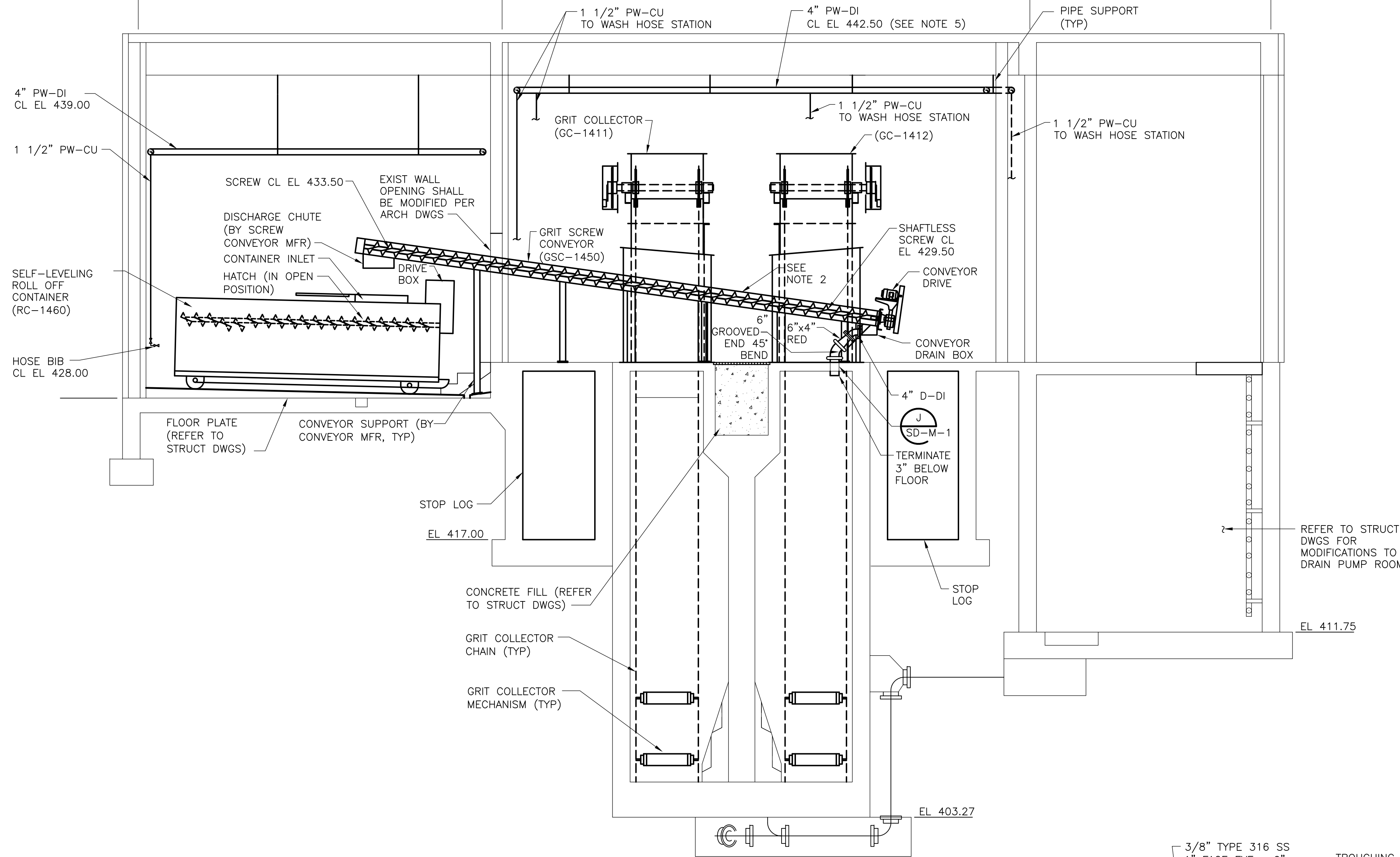
PROJECT NO.  
1289\35370

Sht. 153 of 386

**HW-M-14**

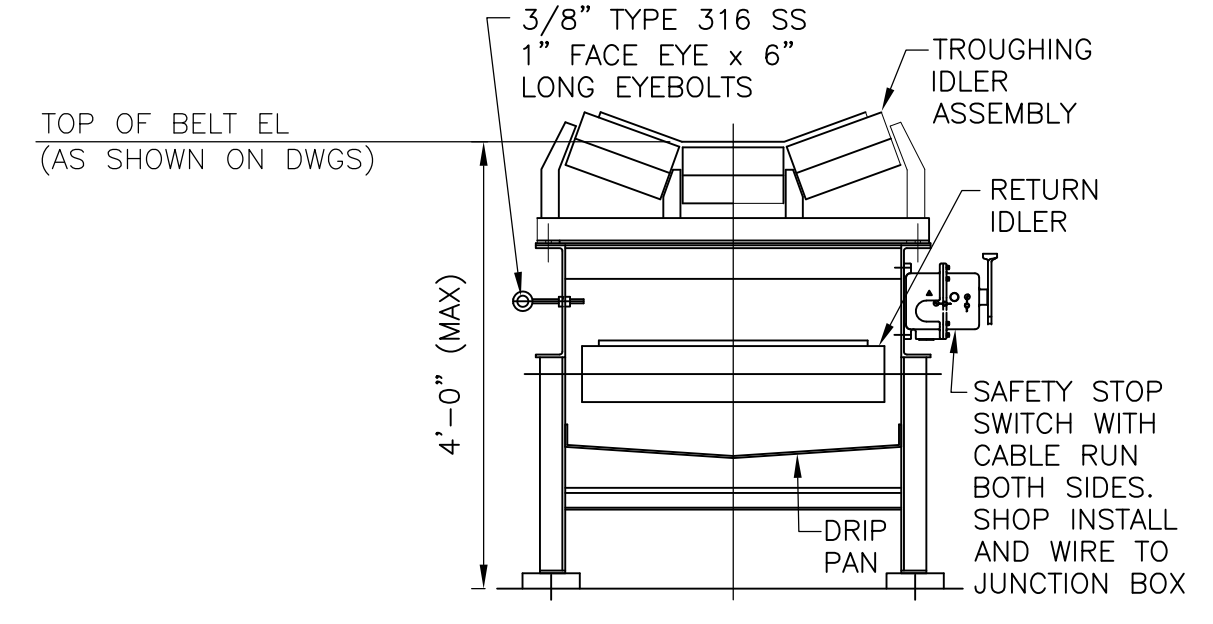


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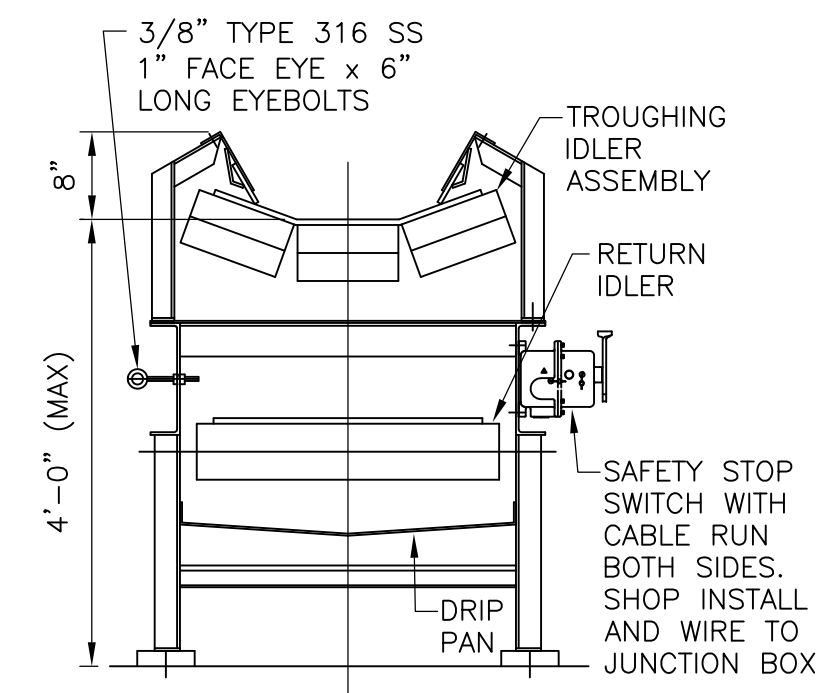


- NOTES:**
1. BELT CONVEYOR DETAILS APPLY TO CONVEYORS FOR WEST AND EAST GRIT AND SCREENING FACILITIES.
  2. PROVIDE 8 FOOT SECTION OF SKIRTBOARD CENTERED ABOUT EACH SCREEN DISCHARGED.

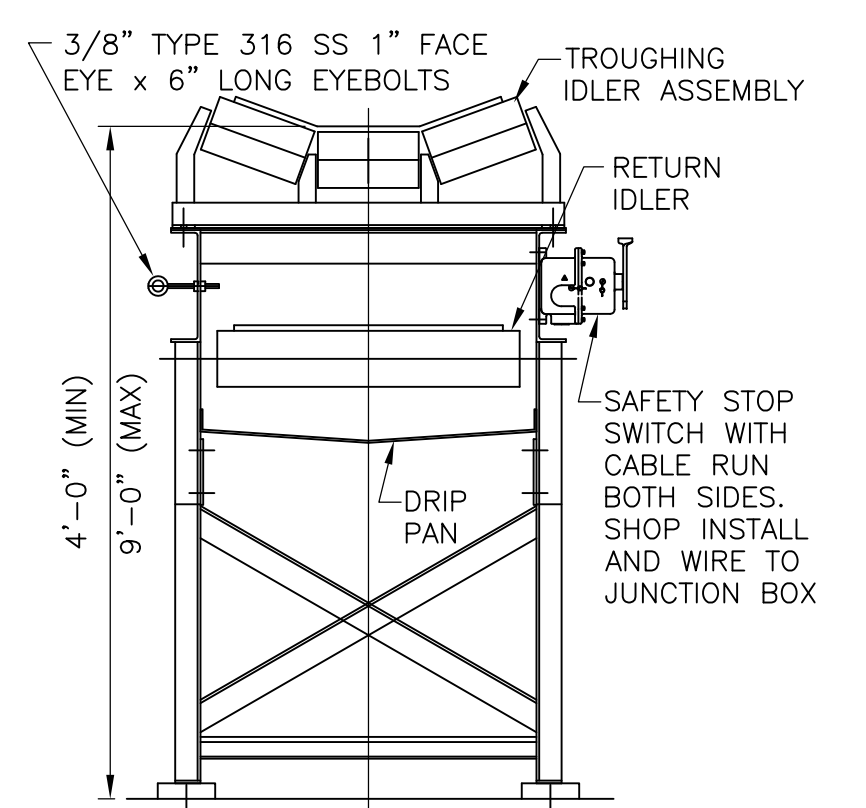
**WEST GRIT AND SCREENING FACILITY**  
**SECTION 3**  
 1/4" = 1'-0" HW-M-13



**CONVEYOR WITHOUT SKIRT BOARD**  
**DETAIL A**  
 NTS (SEE NOTE 1) HW-M-15



**CONVEYOR WITH SKIRT BOARD (WHERE REQUIRED)**  
**DETAIL B**  
 NTS (SEE NOTE 1) HW-M-15



**CONVEYOR EXTENDED SUPPORT FRAME**  
**DETAIL C**  
 NTS (SEE NOTE 1) HW-M-15

1/4" = 1'-0"

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MGRSC015
DESIGNED BY:	VMM
DRAWN BY:	LB
SHEET CHK'D BY:	TAY
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

CDM	Camp Dresser & McKee Inc.
consulting	engineering
construction	operations

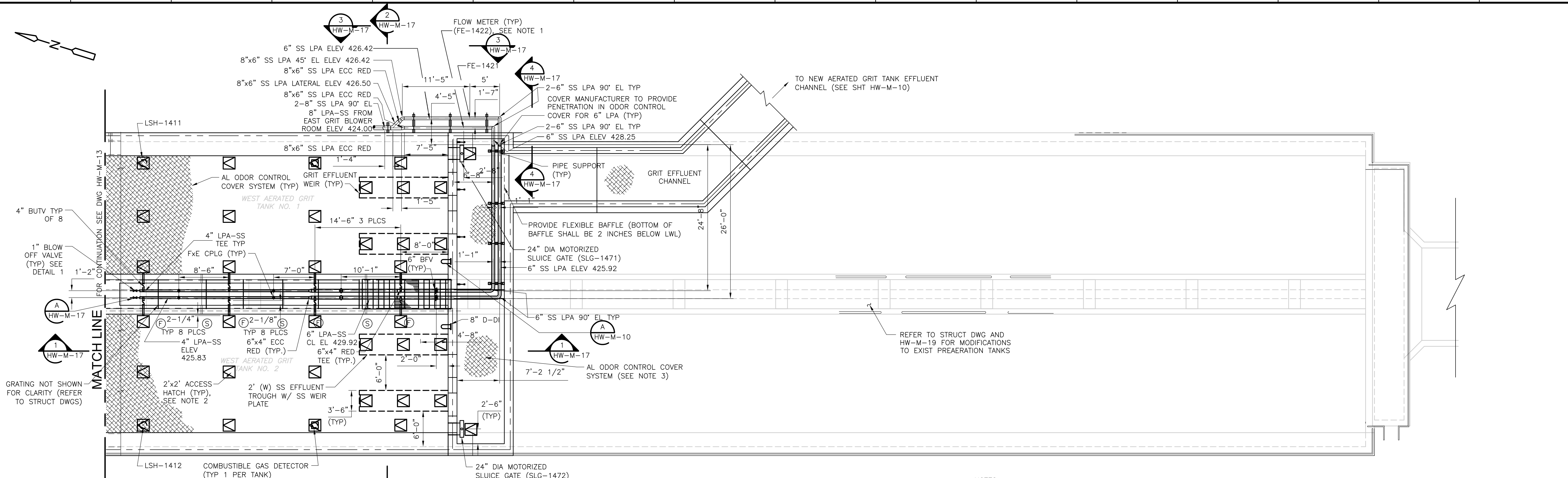
UPPER BLACKSTONE	WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. UB 2024	
<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>	

<b>WEST GRIT AND SCREENING FACILITY - SECTIONS II AND DETAILS</b>	
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PROJECT NO.	1289\35370
Sht.	154 of 386
HW-M-15	

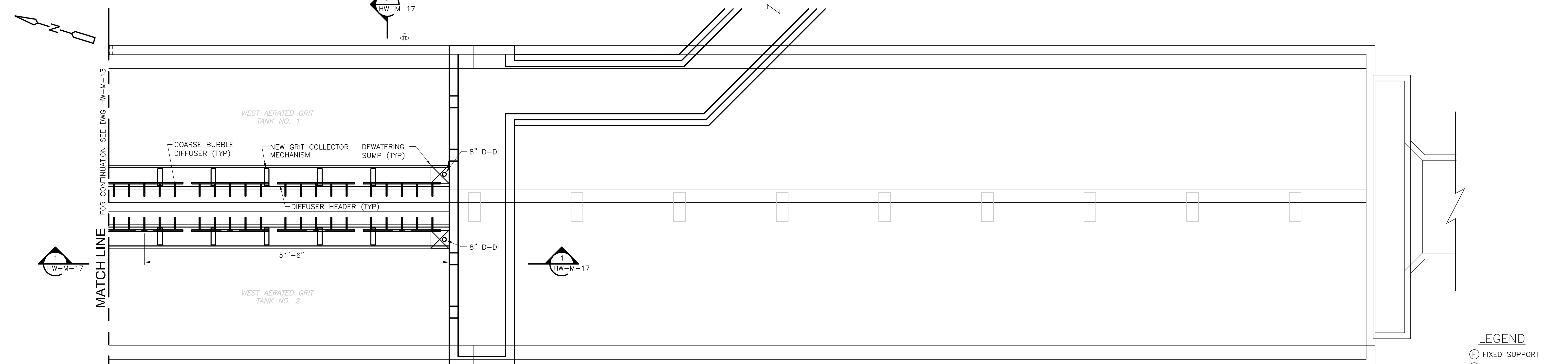
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 Sht. 154 of 386  
 HW-M-15  
ACCESSION NO. 1289-6554

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
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**WEST AERATED GRIT TANKS (UPPER)**  
**PLAN**  
 1/8" = 1'-0"

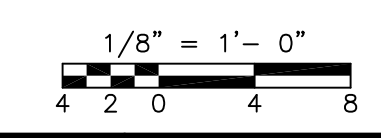
- NOTES:**
- LOCATE FLOW METER TRANSMITTERS ON BACKBOARD MOUNTED ON HANDRAIL. REFER TO STRUCTURAL DRAWINGS.
  - HATCH LOCATIONS ARE APPROXIMATE AND SHALL BE COORDINATED DURING SHOP DRAWING REVIEW.
  - REFER TO SECTION 11244 FOR ODOR CONTROL COVER SYSTEM REQUIREMENTS.



**WEST AERATED GRIT TANKS (LOWER)**  
**PLAN**  
 1/8" = 1'-0"

- LEGEND**
- (F) FIXED SUPPORT
  - (S) SLIDING SUPPORT

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
8/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. MAEPL016  
 DESIGNED BY: KSG, VMM  
 DRAWN BY: KML, LB  
 SHEET CHK'D BY: TAY  
 SCALE: AS NOTED  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2006

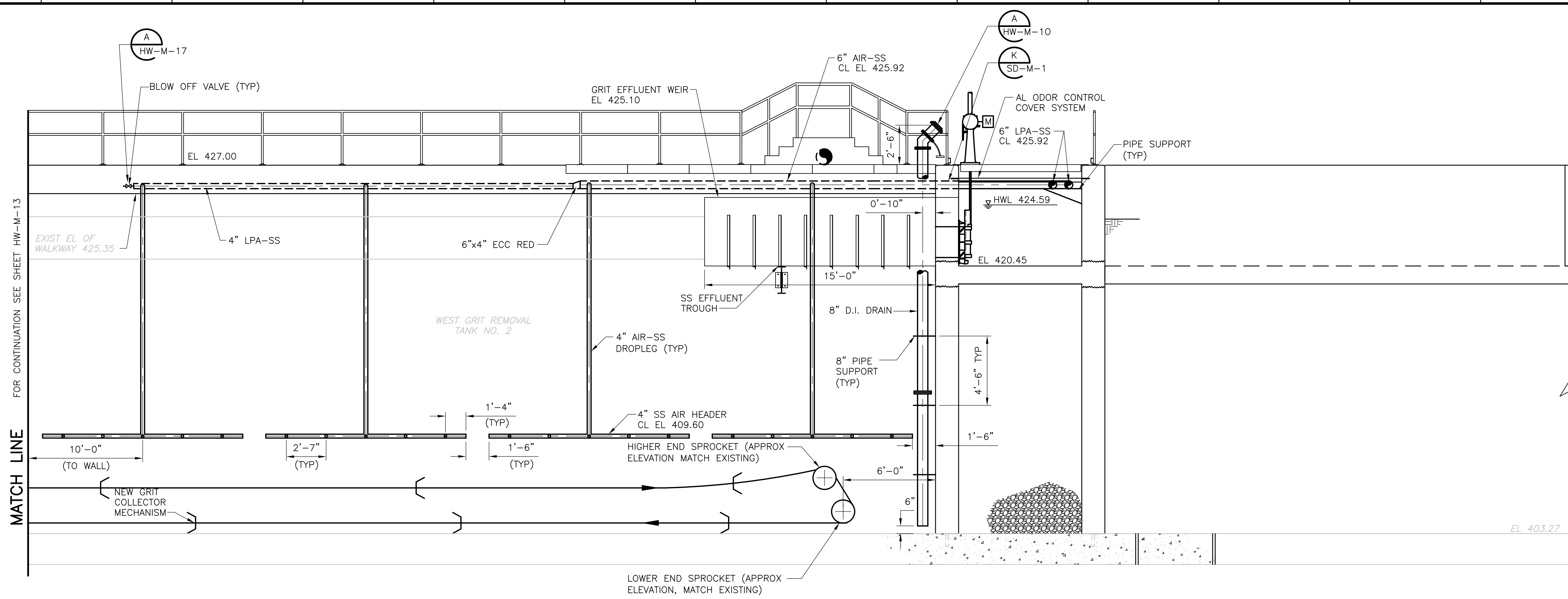
**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**WEST AERATED GRIT TANKS -**  
**PLAN**

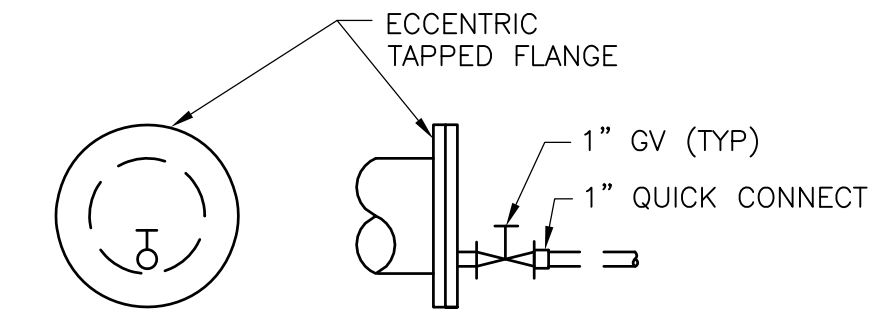
PROJECT NO.  
 1289\35370  
 Sht. 155 of 386  
**HW-M-16**  
ACCESSION NO. 1289-65555

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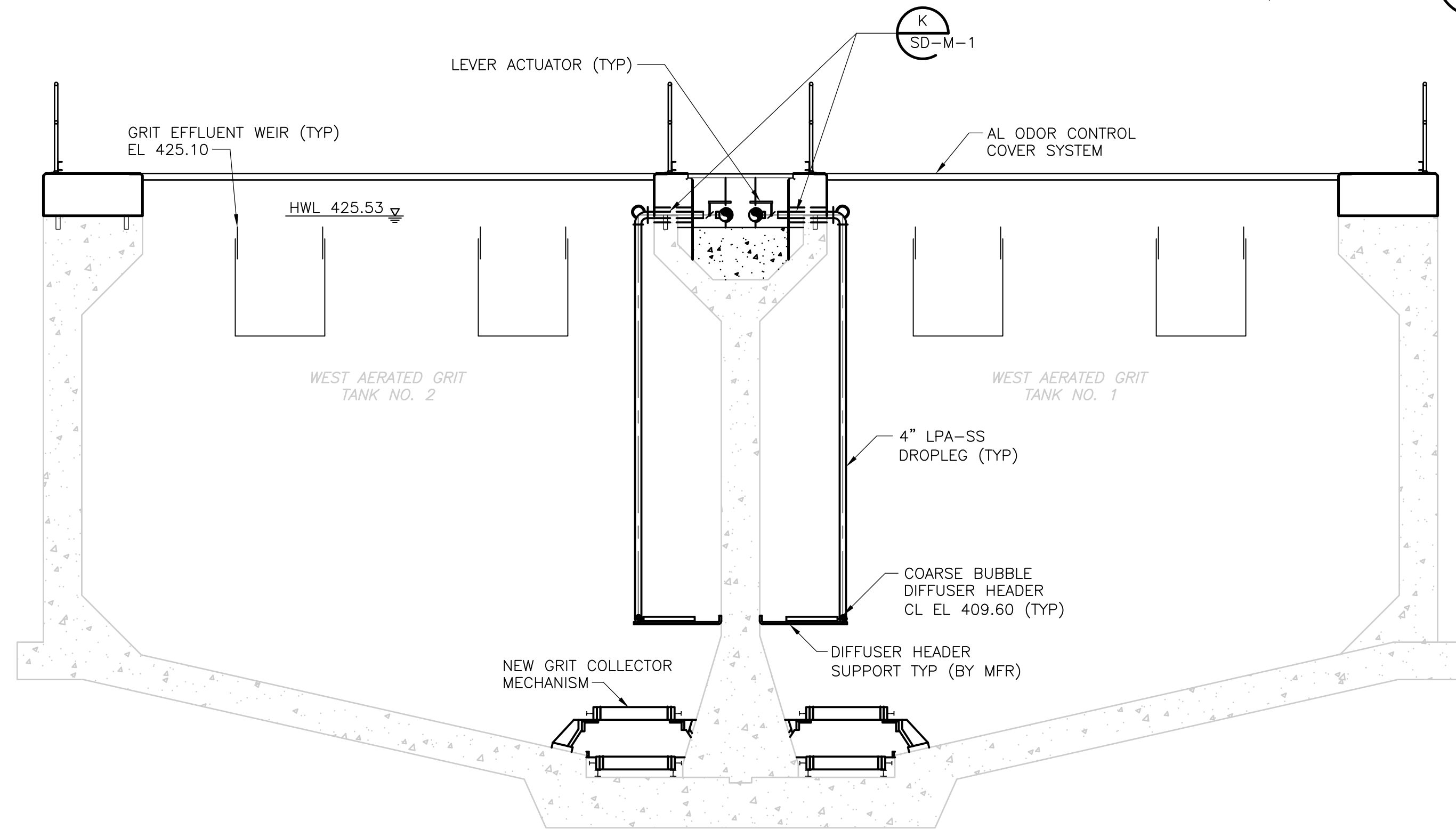
WEST AERATED GRIT TANK (TYP BOTH TANKS)

SECTION 1  
1/4" = 1'-0" HW-M-16



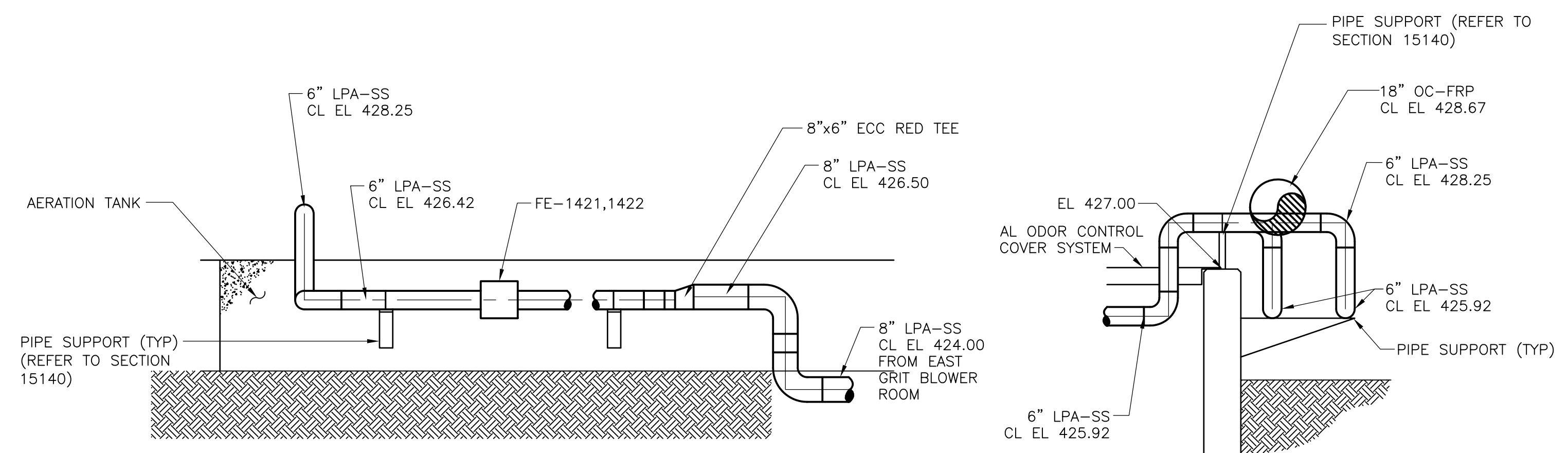
BLOW OFF VALVE CONNECTION

DETAIL A  
NTS HW-M-17



WEST AERATED GRIT TANK

SECTION 2  
1/4" = 1'-0" HW-M-16



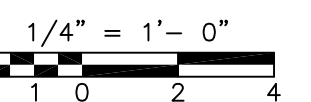
WEST AERATION GRIT TANK

SECTION 3  
3/8" = 1'-0" HW-M-16

WEST AERATION GRIT TANK

SECTION 4  
3/8" = 1'-0" HW-M-16

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
8/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MAESC017
DESIGNED BY:	KSG, VMM
DRAWN BY:	KML, LB
SHEET CHK'D BY:	TAY
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

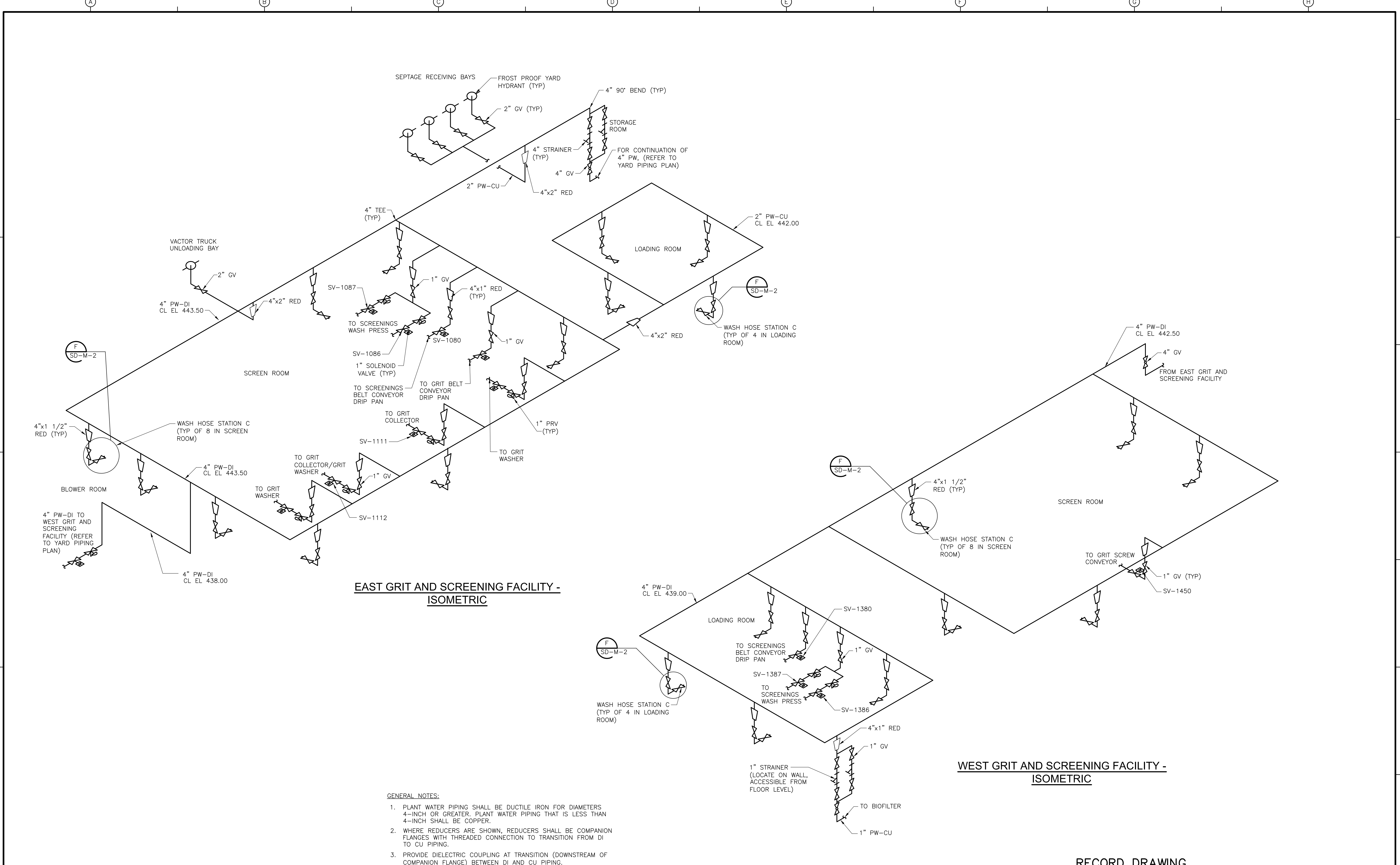
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

WEST AERATED GRIT TANKS  
 SECTIONS

PROJECT NO.  
1289\35370

Sht. 156 of 386

**HW-M-17**



**EAST GRIT AND SCREENING FACILITY - ISOMETRIC**

**WEST GRIT AND SCREENING FACILITY - ISOMETRIC**

- GENERAL NOTES:**
1. PLANT WATER PIPING SHALL BE DUCTILE IRON FOR DIAMETERS 4-INCH OR GREATER. PLANT WATER PIPING THAT IS LESS THAN 4-INCH SHALL BE COPPER.
  2. WHERE REDUCERS ARE SHOWN, REDUCERS SHALL BE COMPANION FLANGES WITH THREADED CONNECTION TO TRANSITION FROM DI TO CU PIPING.
  3. PROVIDE DIELECTRIC COUPLING AT TRANSITION (DOWNSTREAM OF COMPANION FLANGE) BETWEEN DI AND CU PIPING.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
	3/07	SPV	ADT	REVISED FOR THE RECORD

CADD FILE NO.	MGRSH018
DESIGNED BY:	VMM
DRAWN BY:	LB
SHEET CHK'D BY:	TAY
SCALE:	NOT TO SCALE
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

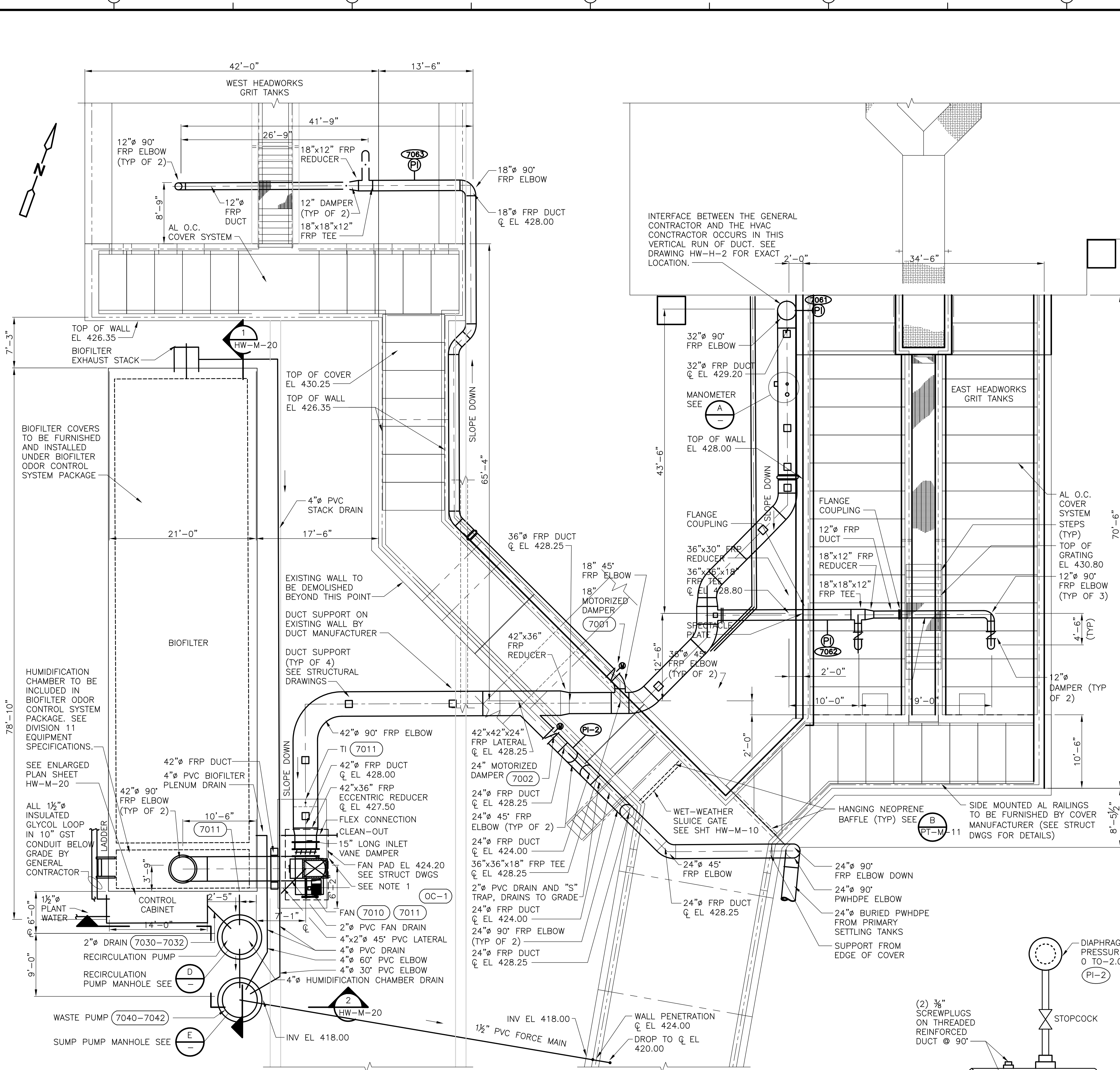
**PLANT WATER ISOMETRICS**

PROJECT NO.  
1289\35370

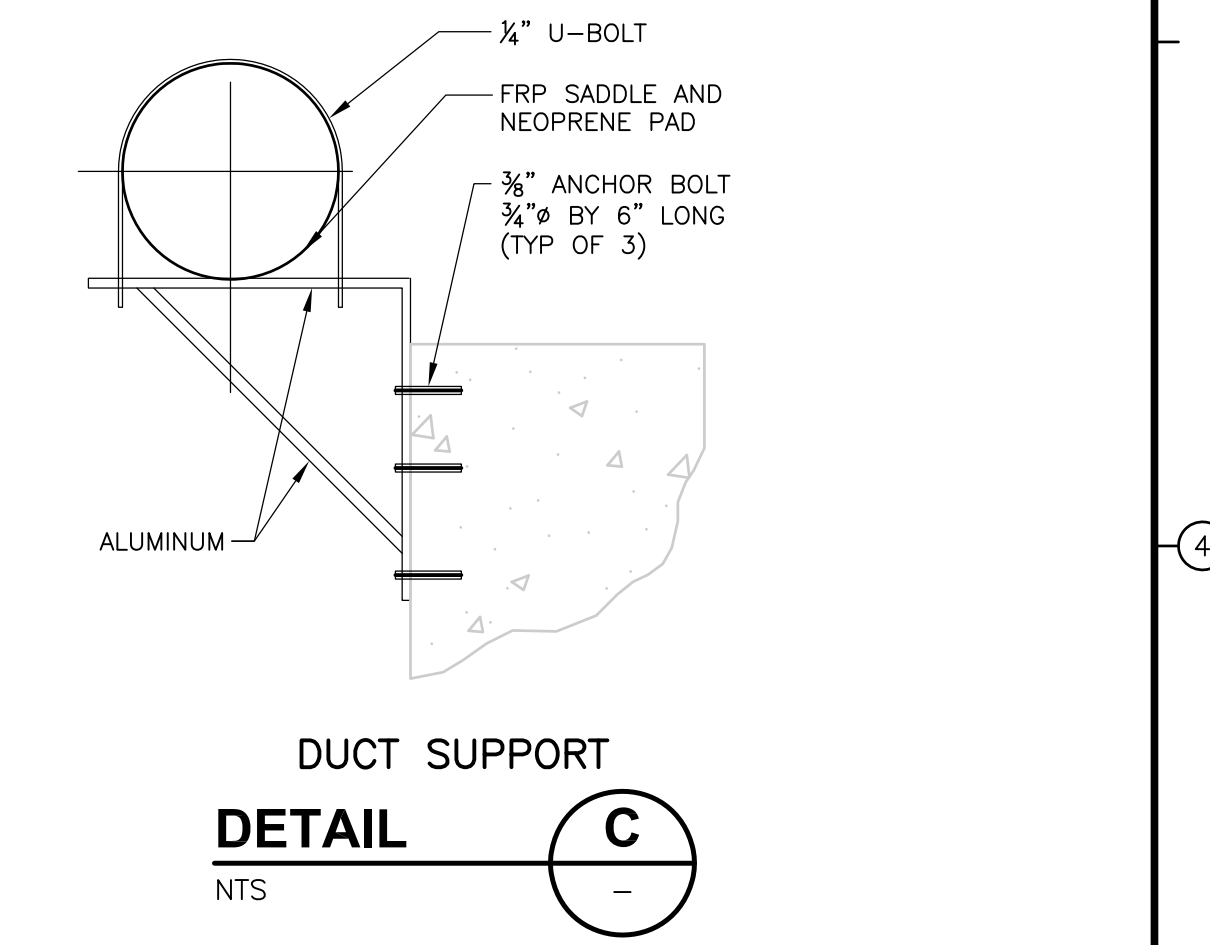
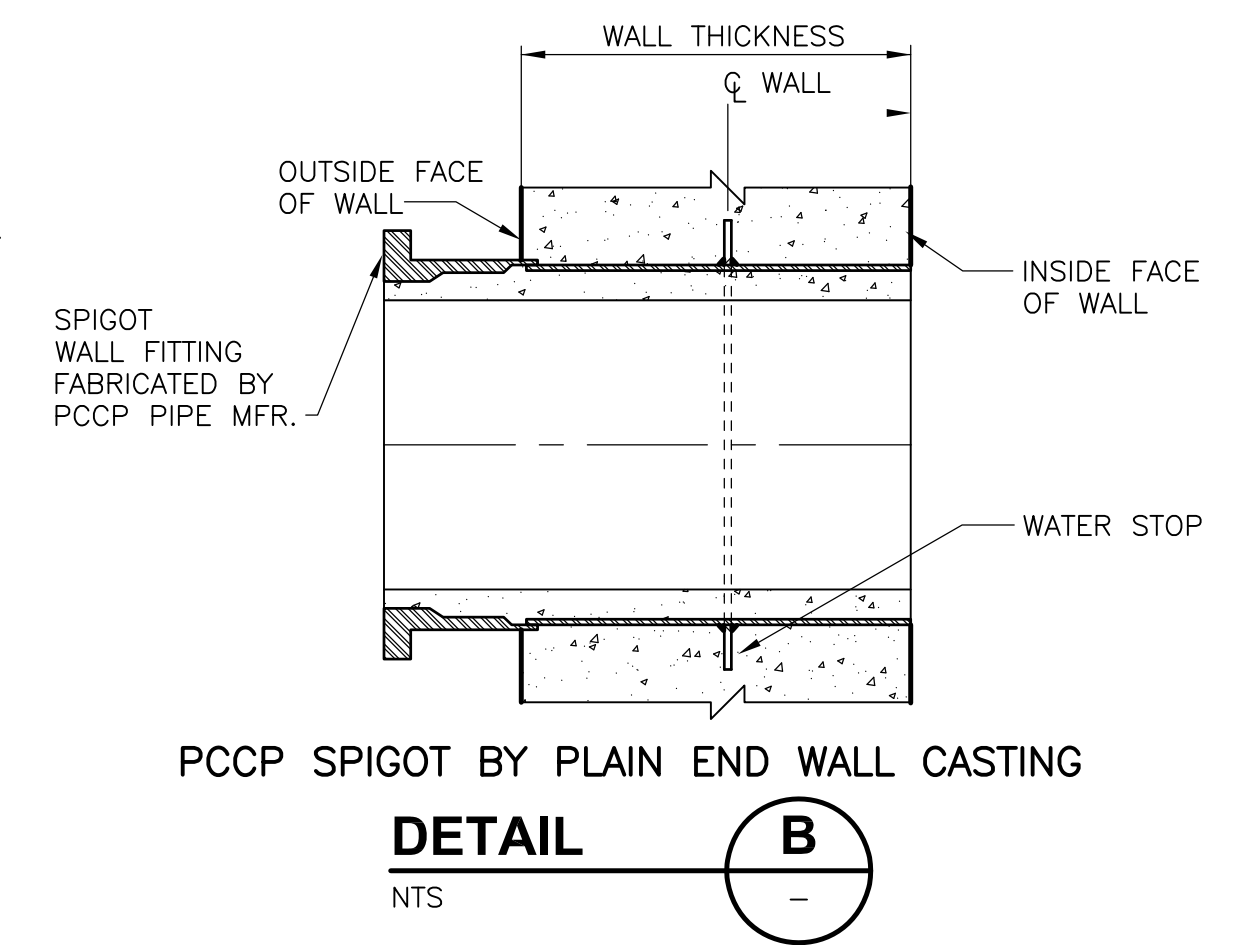
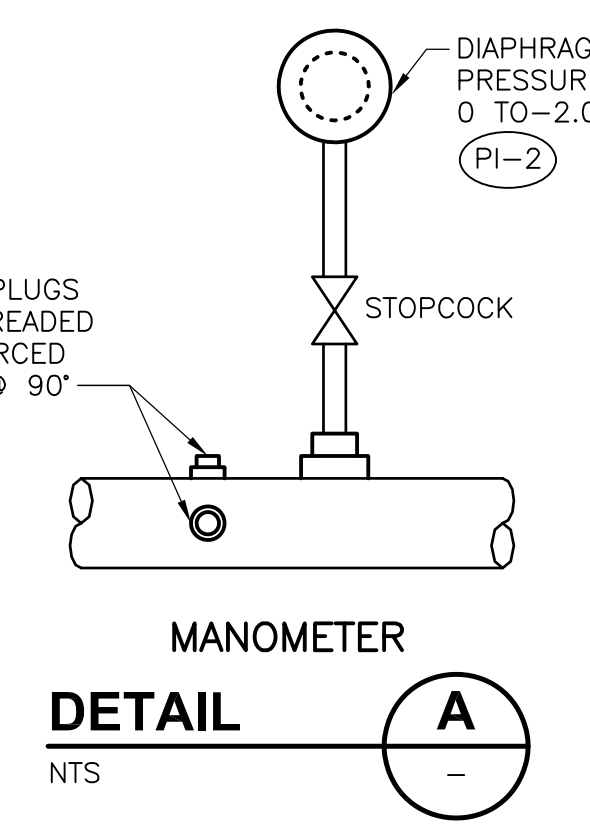
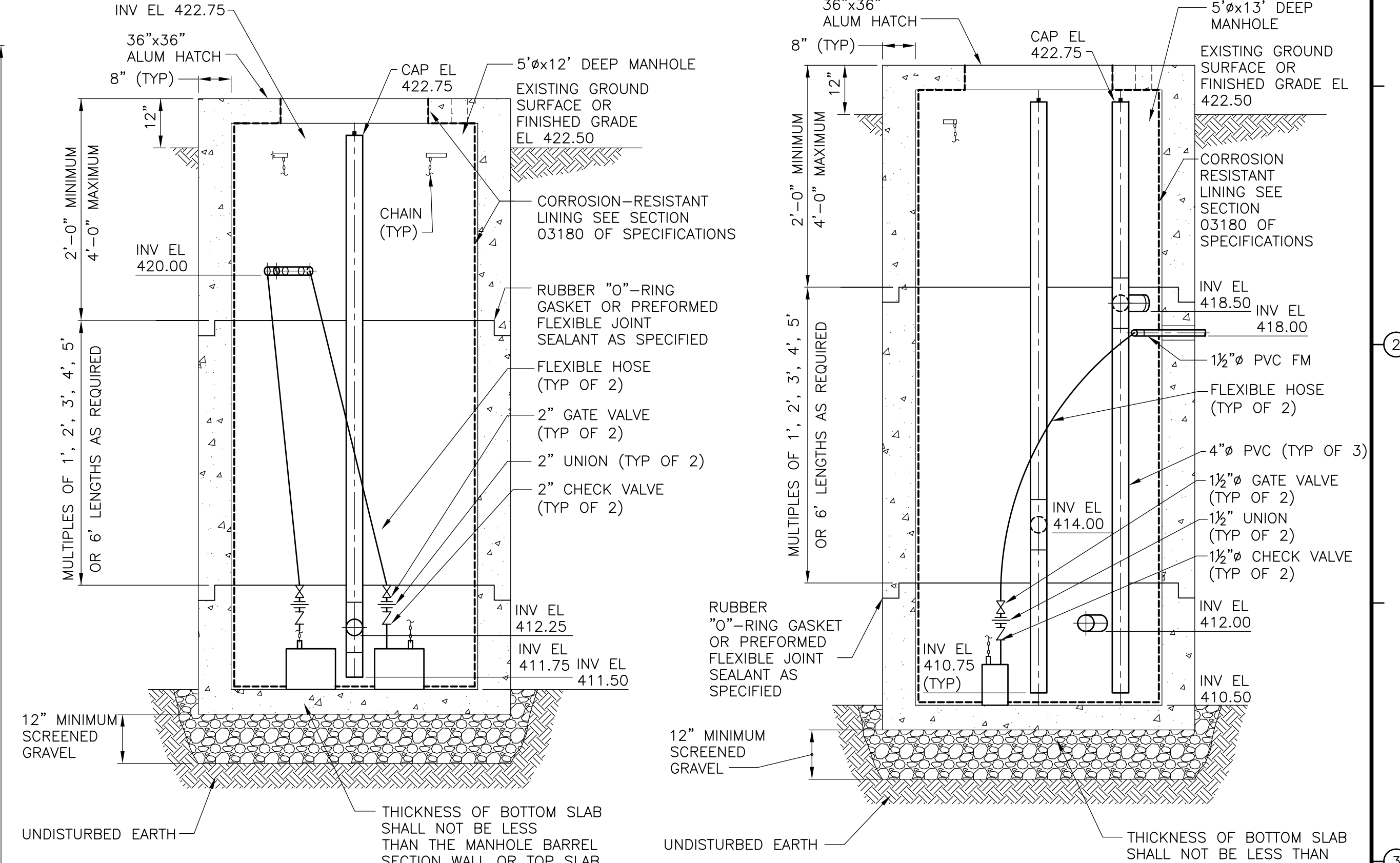
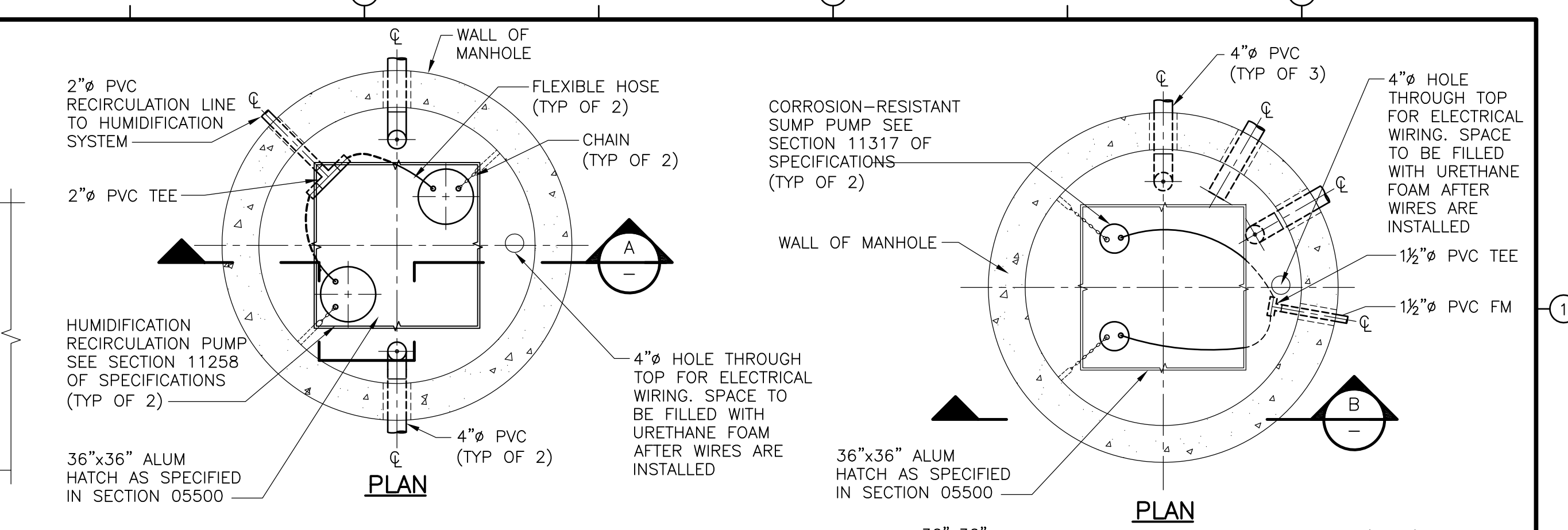
Sht. 157 of 386

**HW-M-18**

ACCESSION NO. 1289-6557



**ODOR CONTROL SYSTEM**  
**PLAN**  
1/8" = 1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS
2/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MCDTM000
DESIGNED BY:	M. GOULD
DRAWN BY:	S. TRULLI
SHEET CHK'D BY:	K. BISBEE
SCALE:	1/8" = 1'-0"
APPROVED BY:	R. J. GAUDES
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

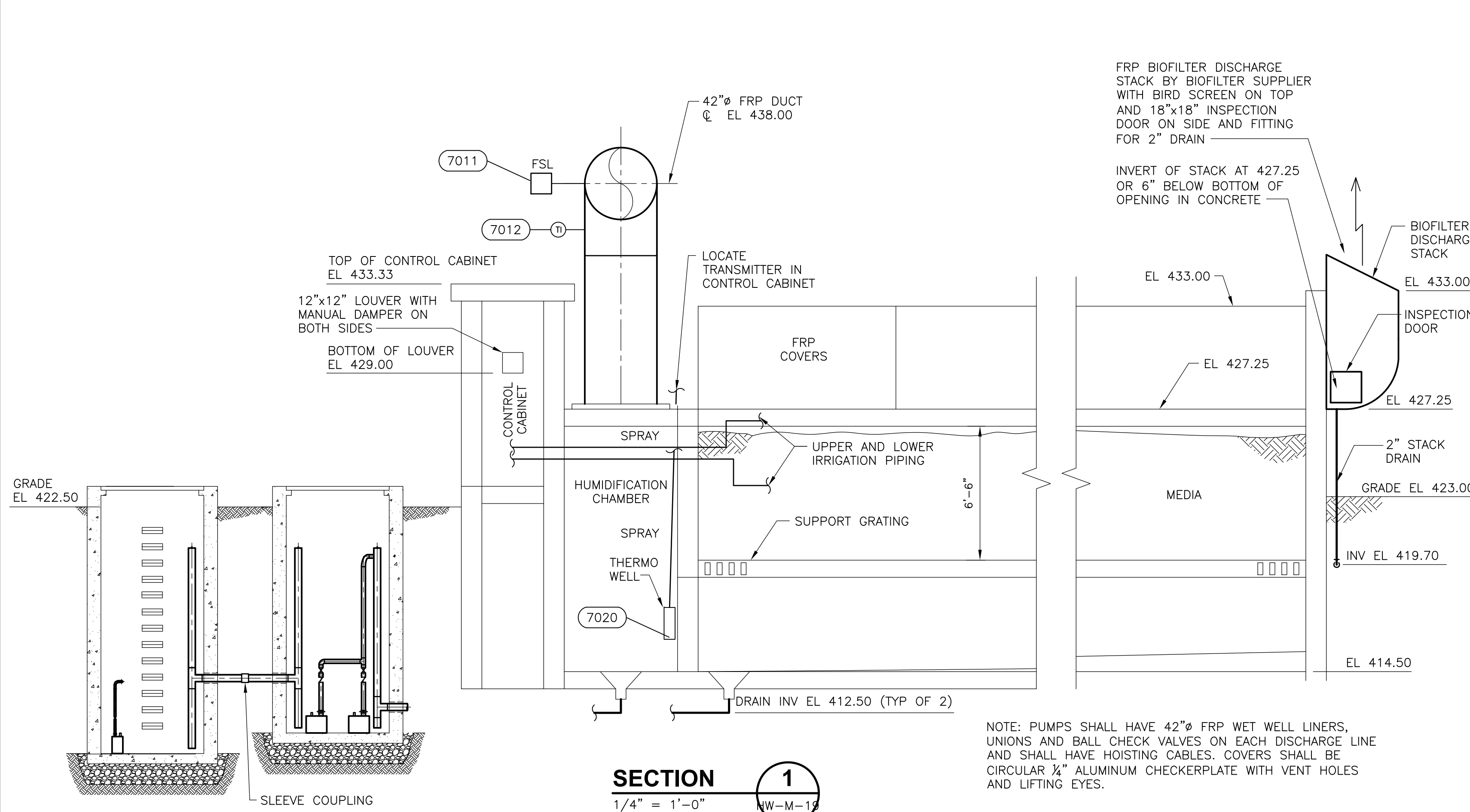
**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

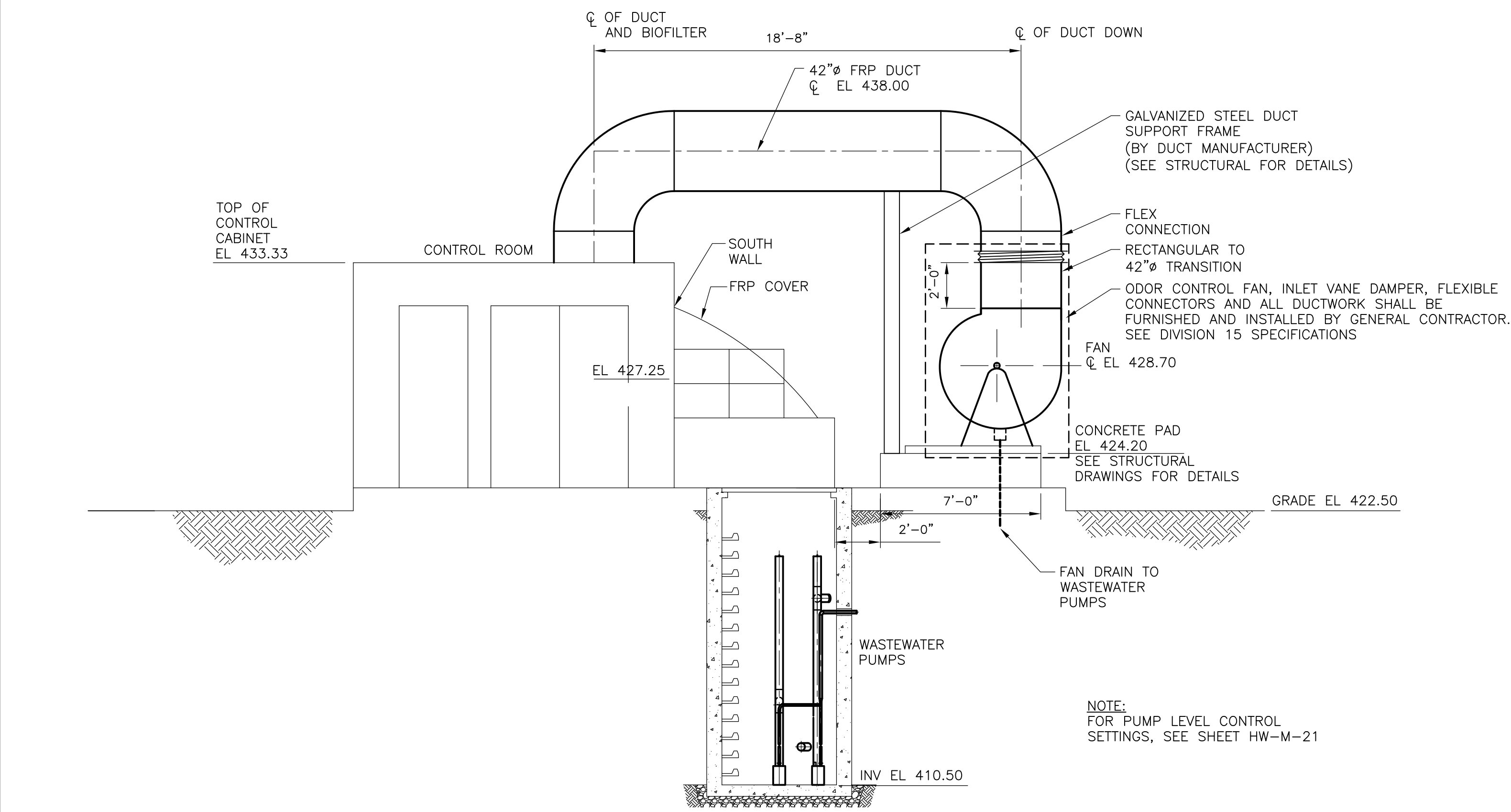
**GRIT AND SCREENING FACILITY**  
**ODOR CONTROL I**

PROJECT NO. 1289\35370  
Sht. 158 of 386  
**HW-M-19**

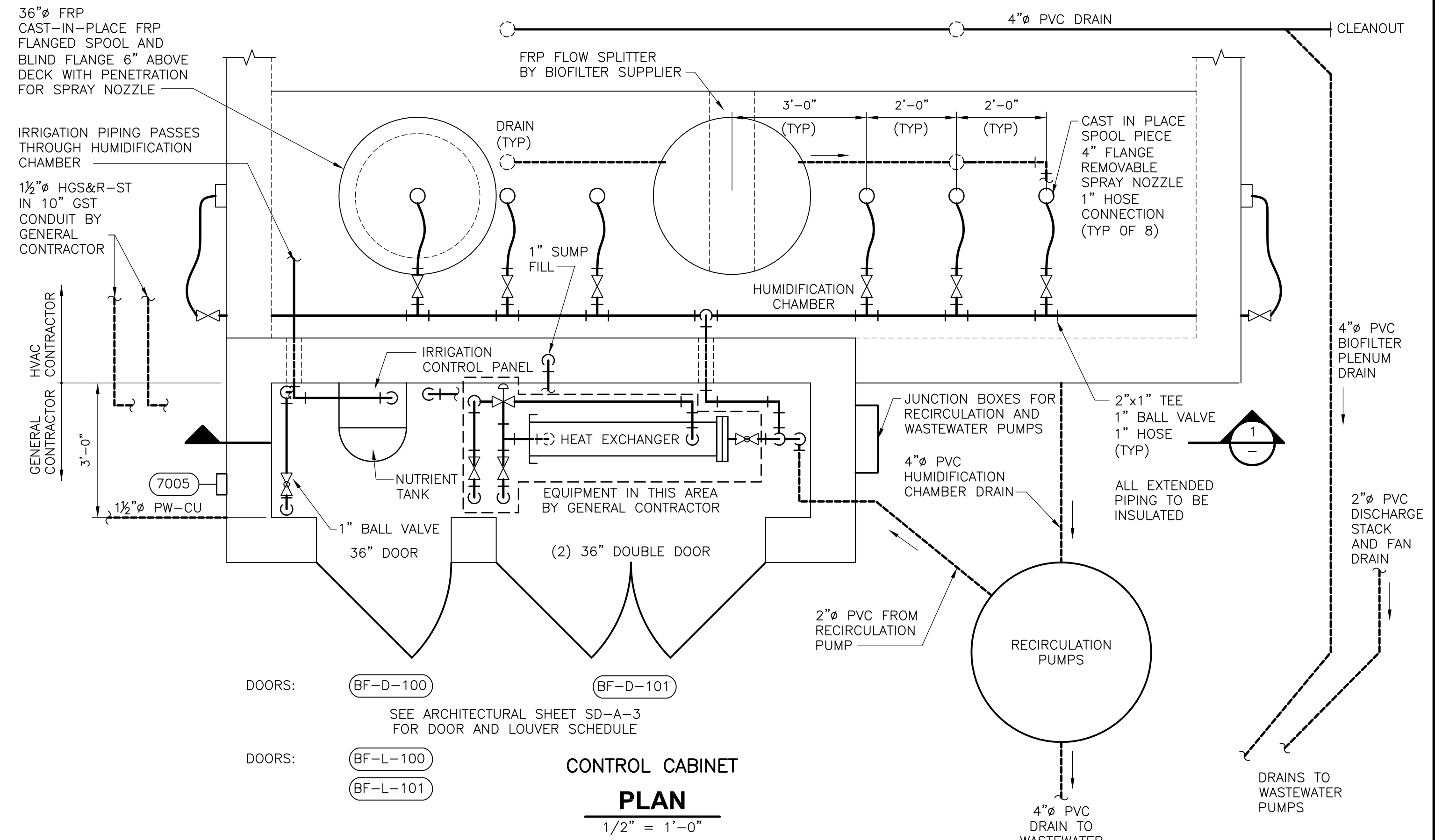
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 Plotted by: CROSSHA Time: 12/16/08 6:25:09 PM



NOTE: PUMPS SHALL HAVE 42" FRP WET WELL LINERS, UNIONS AND BALL CHECK VALVES ON EACH DISCHARGE LINE AND SHALL HAVE HOISTING CABLES, COVERS SHALL BE CIRCULAR 1/4" ALUMINUM CHECKERPLATE WITH VENT HOLES AND LIFTING EYES.



NOTE: FOR PUMP LEVEL CONTROL SETTINGS, SEE SHEET HW-M-21



MAKE-UP WATER SYSTEM  
 1/4" COPPER, ROTAMETER WITH NEEDLE VALVE SOLENOID

NOTE: EDUCTOR, IRRIGATION CONTROL PANEL AND NUTRIENT TANK BY BIOFILTER SUPPLIER

WALL PENETRATION THROUGH HUMIDIFICATION CHAMBER TO IRRIGATION SYSTEMS

1" REDUCED PRESSURE BACKFLOW PREVENTER

1/2" PLANT WATER

1/2" GLYCOL LOOP PIPING IN 10" GST CONDUIT

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

NOTE: HEAT EXCHANGER AND ALL ASSOCIATED PIPING SHALL BE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR. SEE DIVISION 15 SPECIFICATIONS.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
2/07	SPV	ADT		REVISED FOR THE RECORD

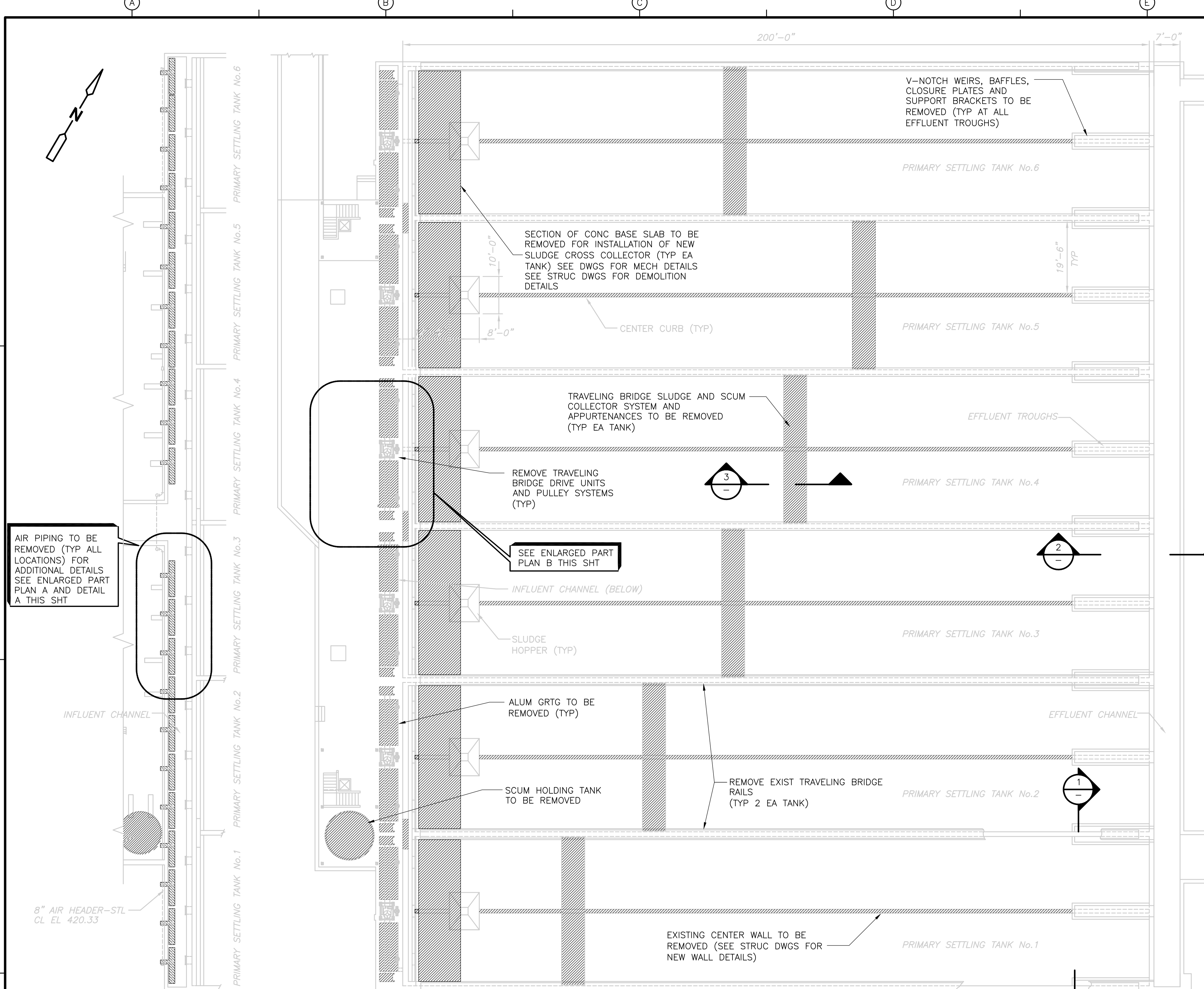
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DESIGNED BY:	M. GOULD
DRAWN BY:	S. TRULLI
SHEET CHK'D BY:	K. BISBEE
SCALE:	AS NOTED
APPROVED BY:	R. J. GAUDES
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

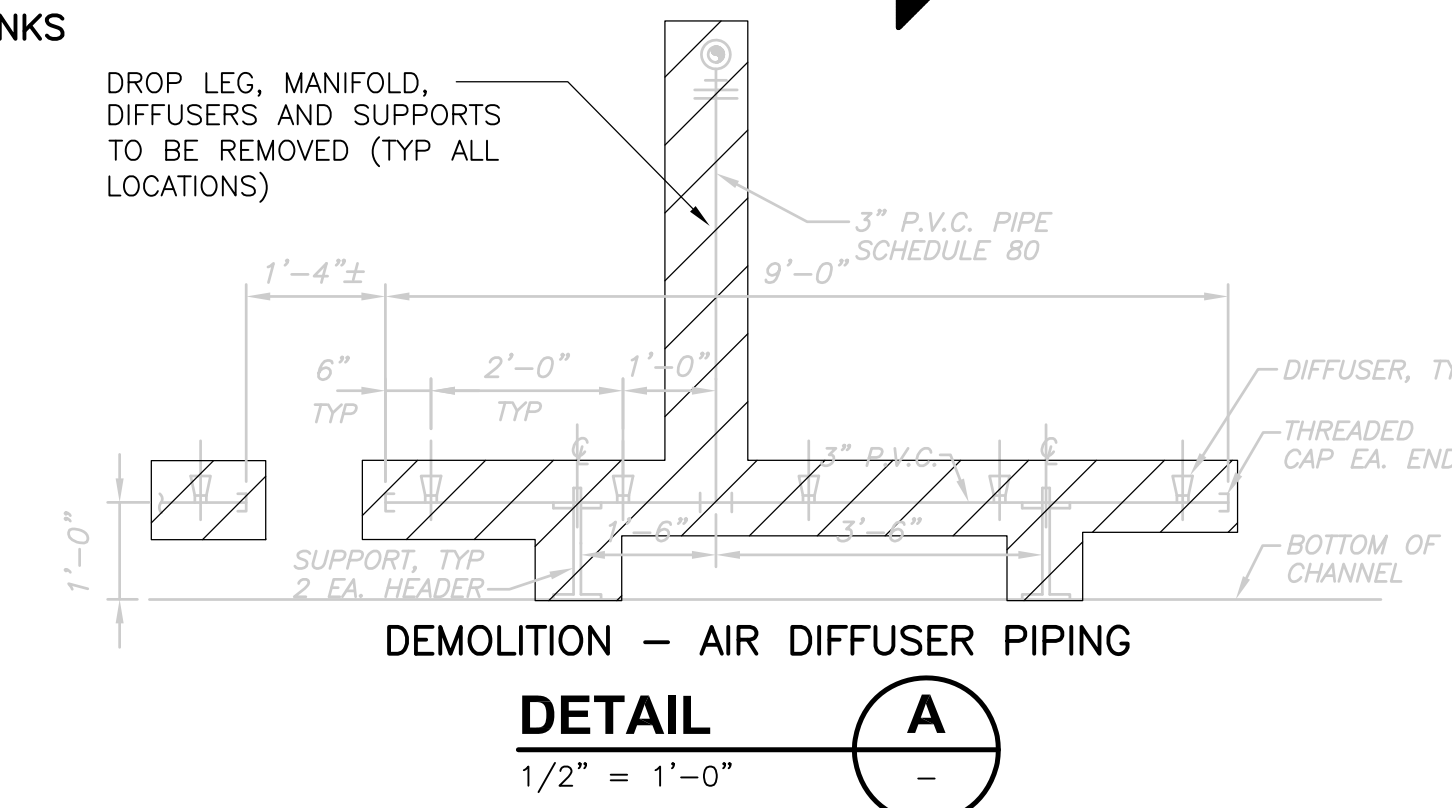
**GRIT AND SCREENING FACILITY  
 ODOR CONTROL II- FAN ROOM  
 SECTIONS AND ELEVATIONS**

PROJECT NO.  
 1289\35370  
 Sht. 159 of 386  
**HW-M-20**  
MOCS001 NO. 1289-65593

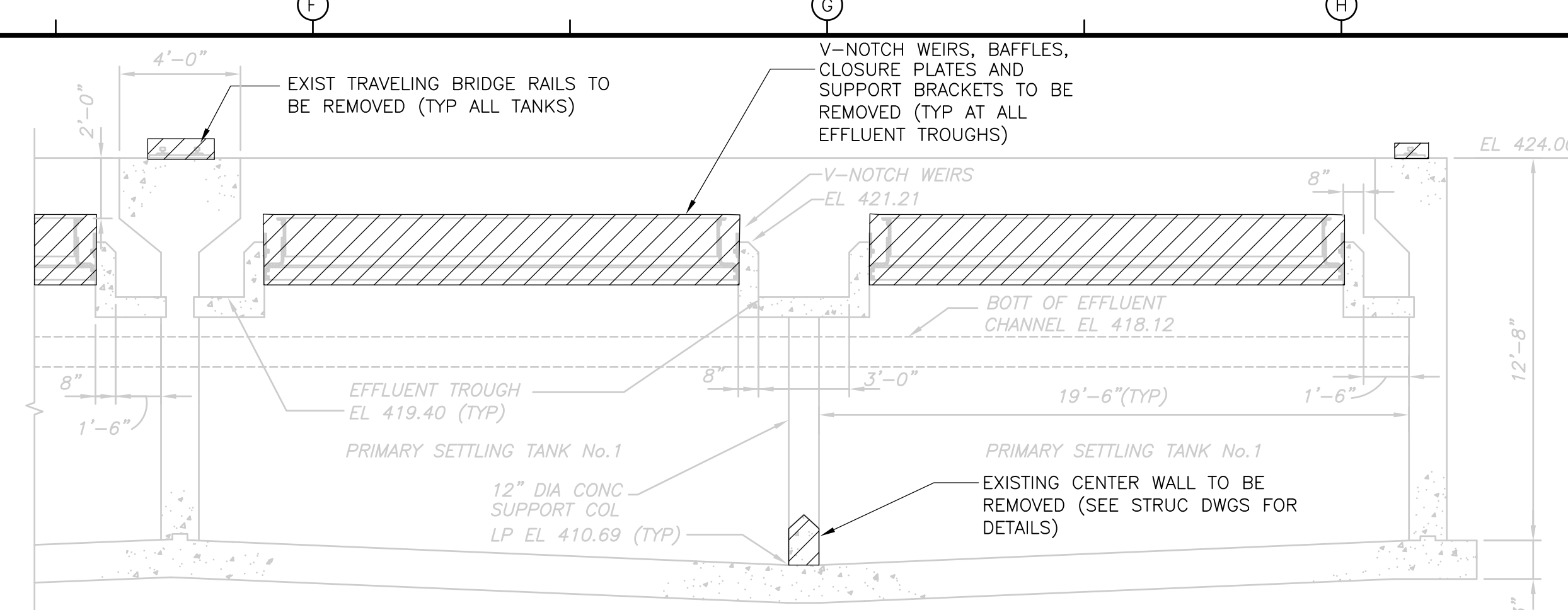


DEMOLITION-AIR PIPING AT INFLUENT CHANNEL  
**PLAN**  
 1/16" = 1'-0"

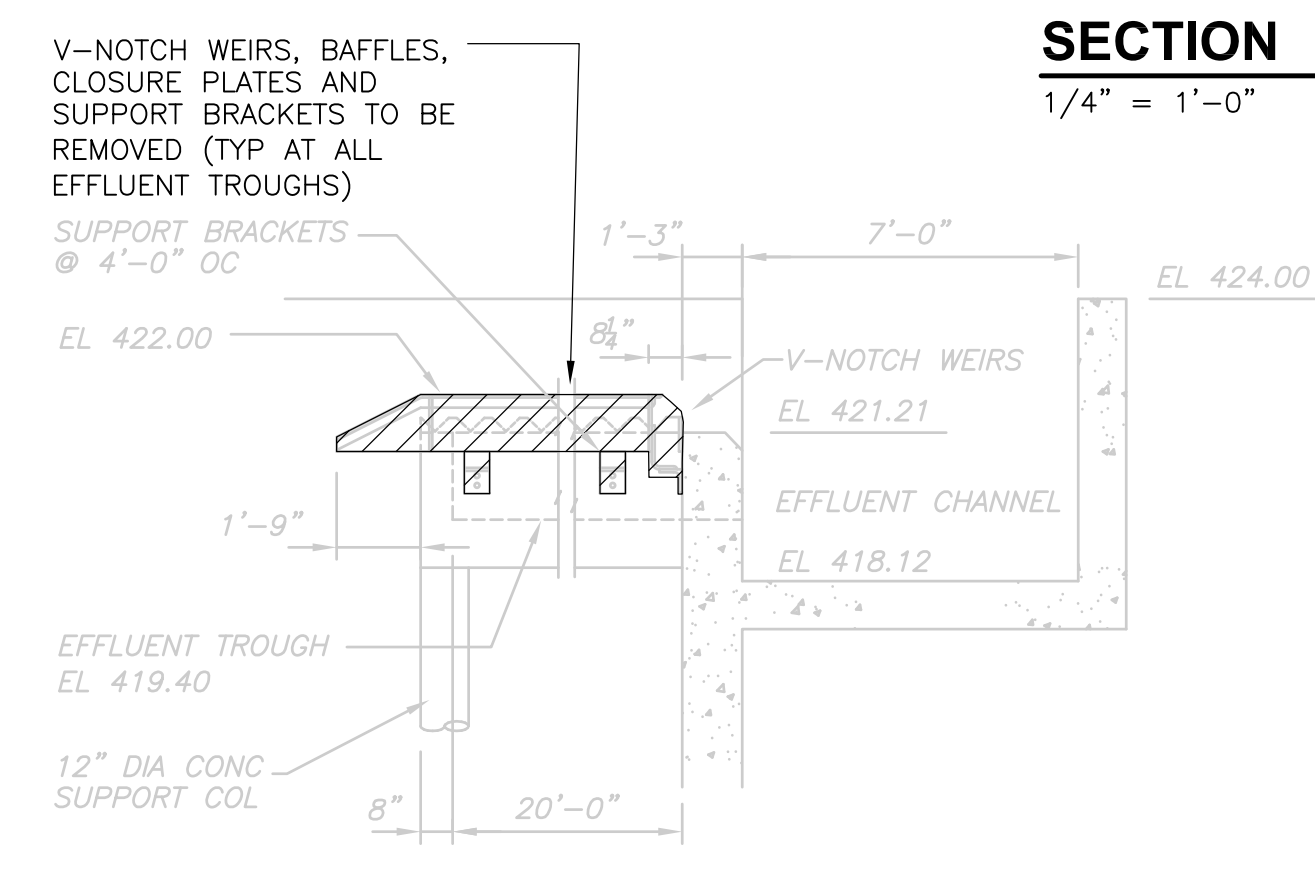
DEMOLITION SETTLING TANKS  
**PLAN**  
 1/16" = 1'-0"



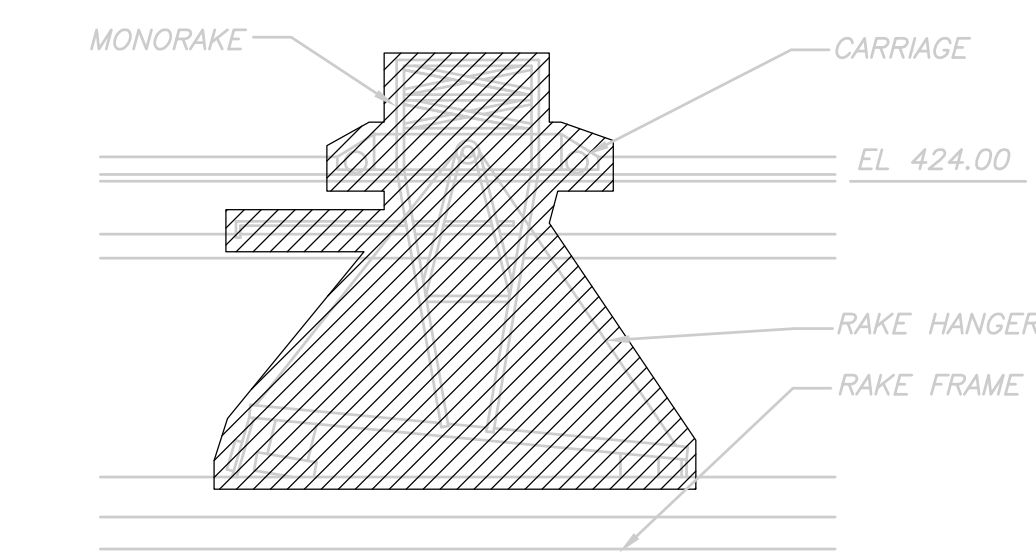
DEMOLITION - AIR DIFFUSER PIPING  
**DETAIL A**  
 1/2" = 1'-0"



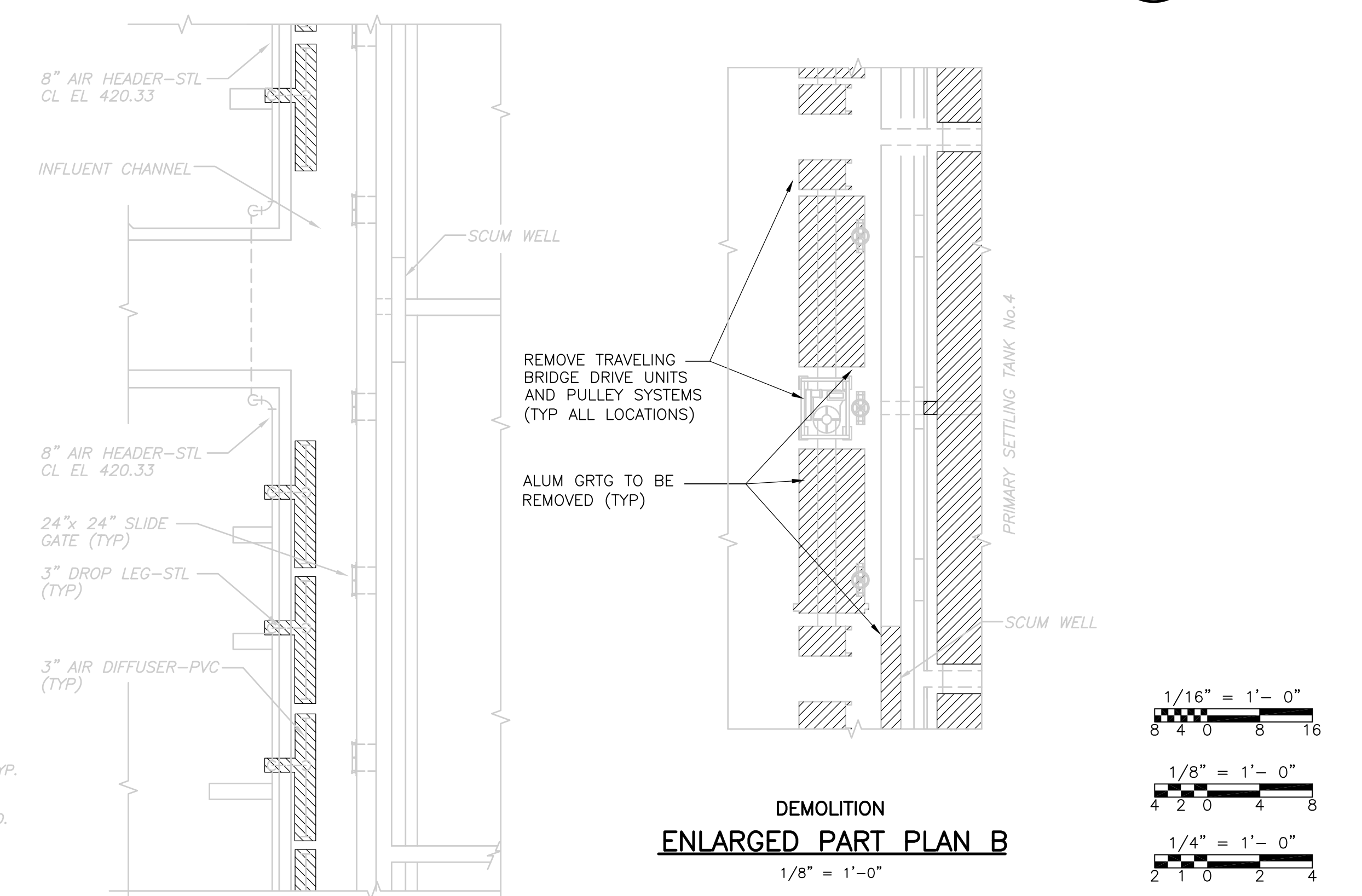
DEMOLITION - EFFLUENT WEIRS  
**SECTION 1**  
 1/4" = 1'-0"



DEMOLITION - EFFLUENT WEIR  
**SECTION 2**  
 1/4" = 1'-0"



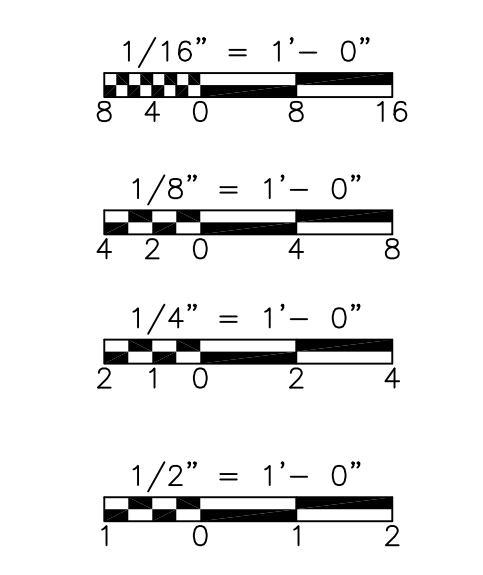
DEMOLITION - TRAVELING BRIDGE  
**SECTION 3**  
 1/8" = 1'-0"



DEMOLITION  
**ENLARGED PART PLAN A**  
 1/8" = 1'-0"

DEMOLITION  
**ENLARGED PART PLAN B**  
 1/8" = 1'-0"

FOR GENERAL NOTES RELATING TO DEMOLITION REFER TO SHEET GD-M-1  
 RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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DESIGNED BY:	W.D. GREEN
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J.E. MADDEN
DATE:	MAY 2006

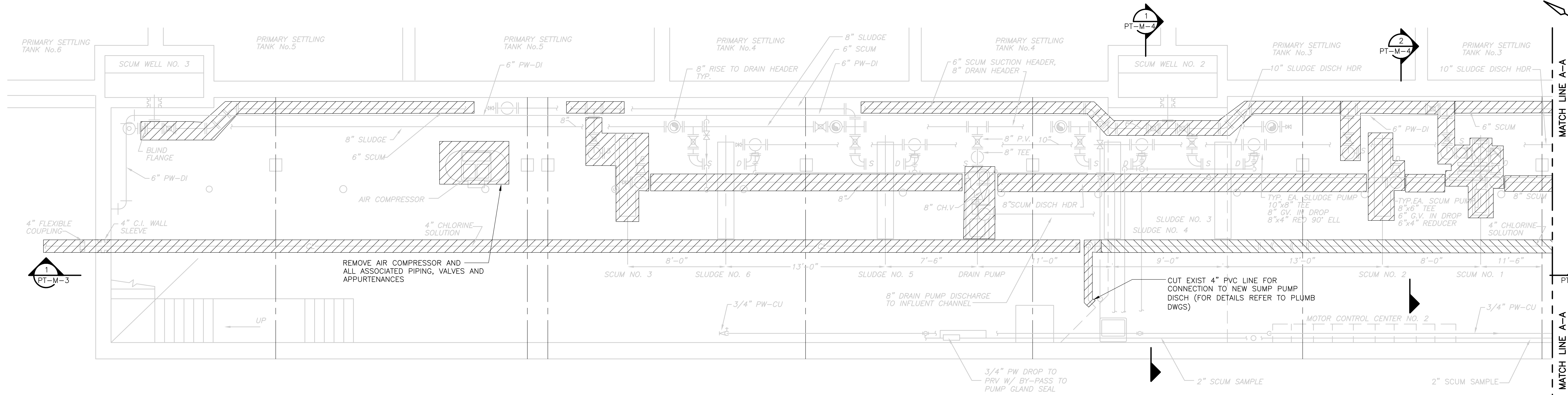
CDM	Camp Dresser & McKee Inc.
consulting	engineering
construction	operations

UPPER BLACKSTONE	WATER POLLUTION ABATEMENT DISTRICT	CONTRACT No. UB 2024
<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		

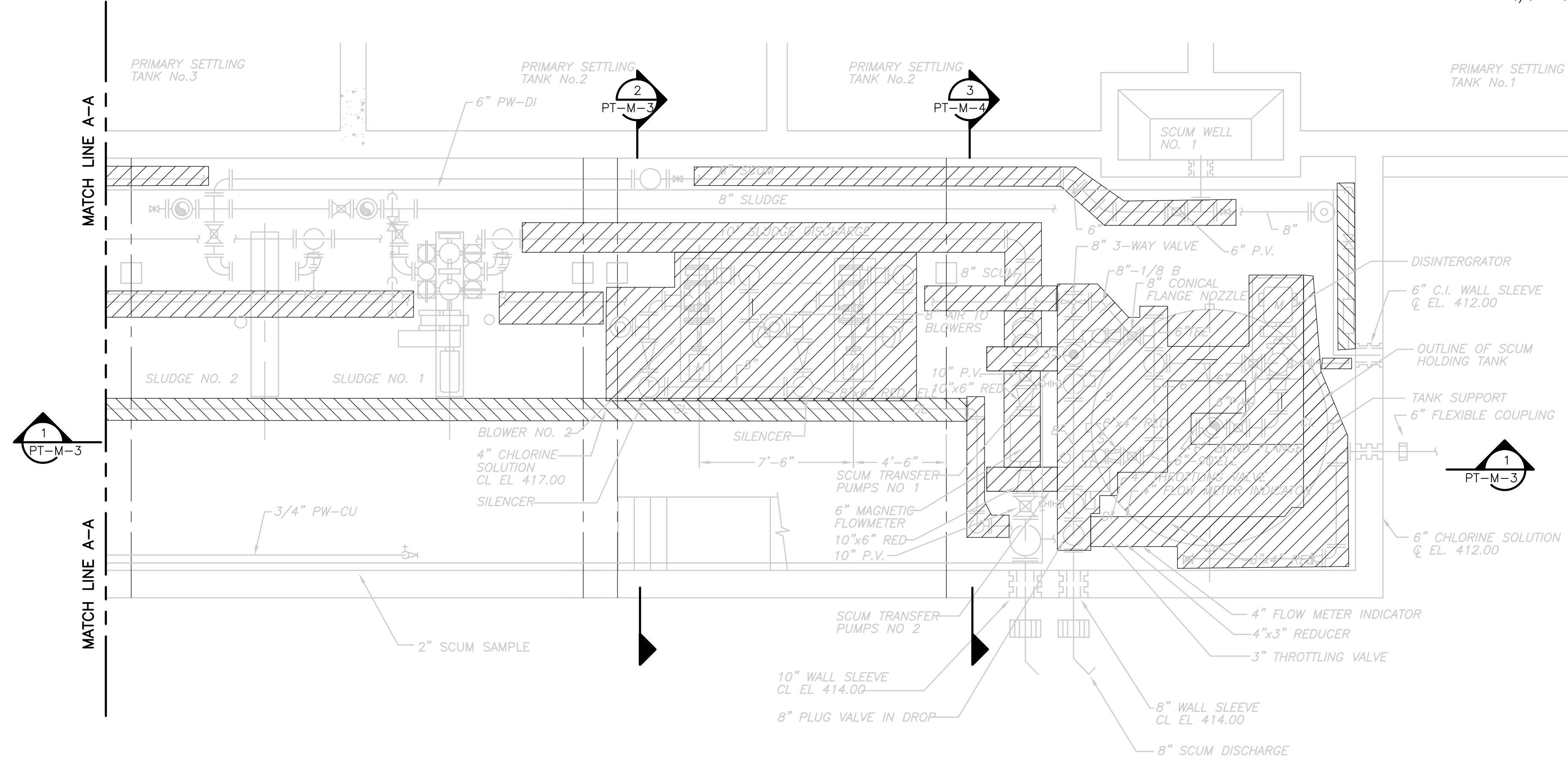
<b>PRIMARY SETTLING TANKS</b>	
<b>DEMOLITION - PLANS AND SECTIONS</b>	

PROJECT NO.	1289\35370
Sht.	160 of 386
<b>PT-M-1</b>	

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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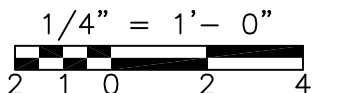


DEMOLITION PIPE GALLERY  
**PLAN**  
 1/4" = 1'-0"



DEMOLITION PIPE GALLERY  
**PLAN**  
 1/4" = 1'-0"

FOR GENERAL NOTES  
 RELATING TO DEMOLITION  
 REFER TO SHEET GD-M-1



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
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DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J.E. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 DEMOLITION - PLANS II**

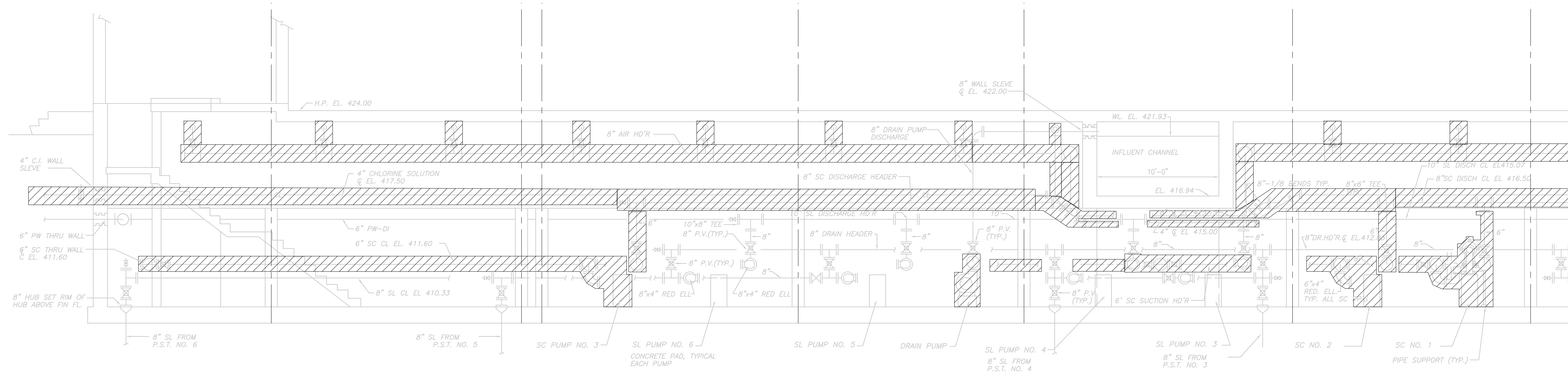
PROJECT NO.  
 1289\35370

Sht. 161 of 386

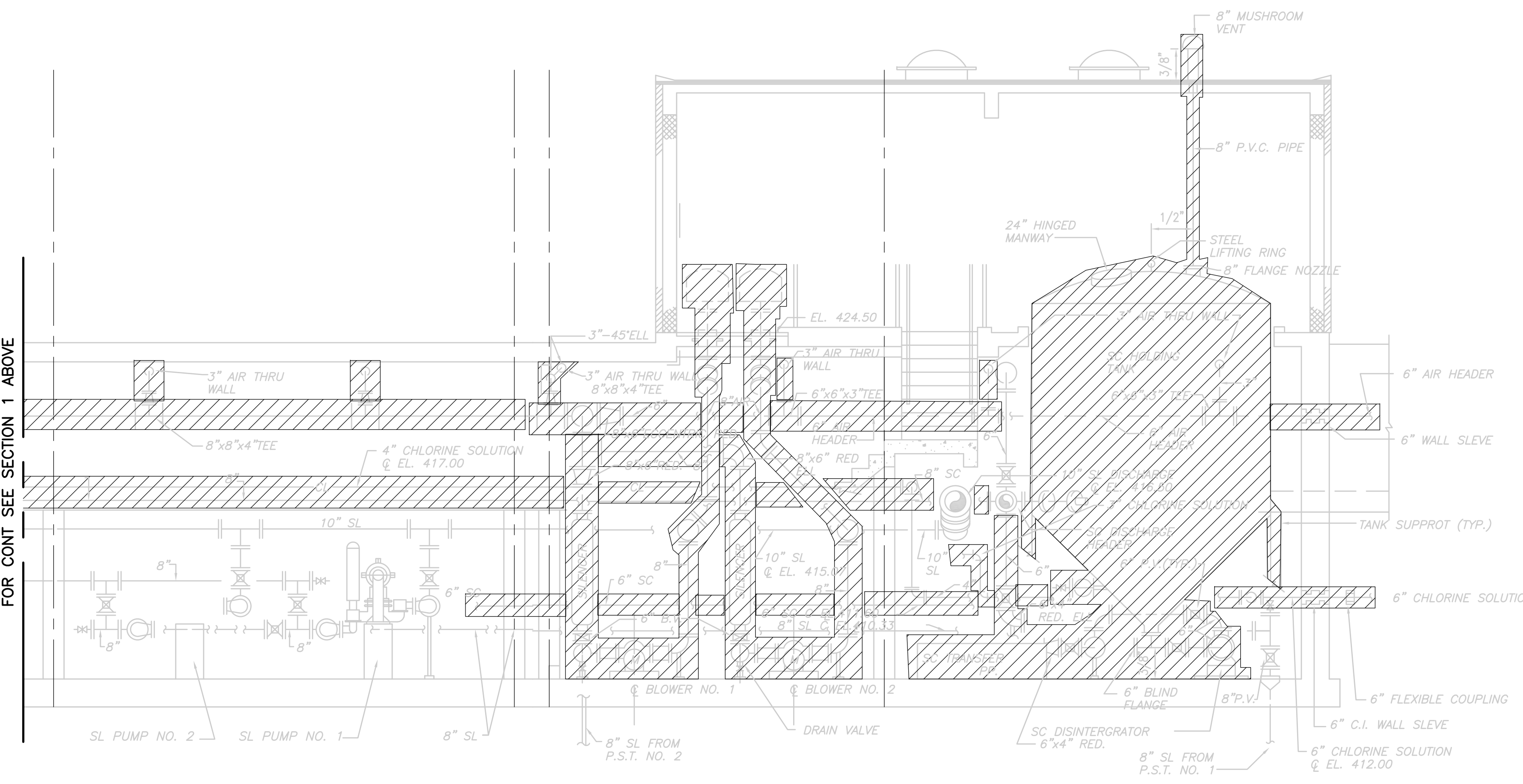
**PT-M-2**



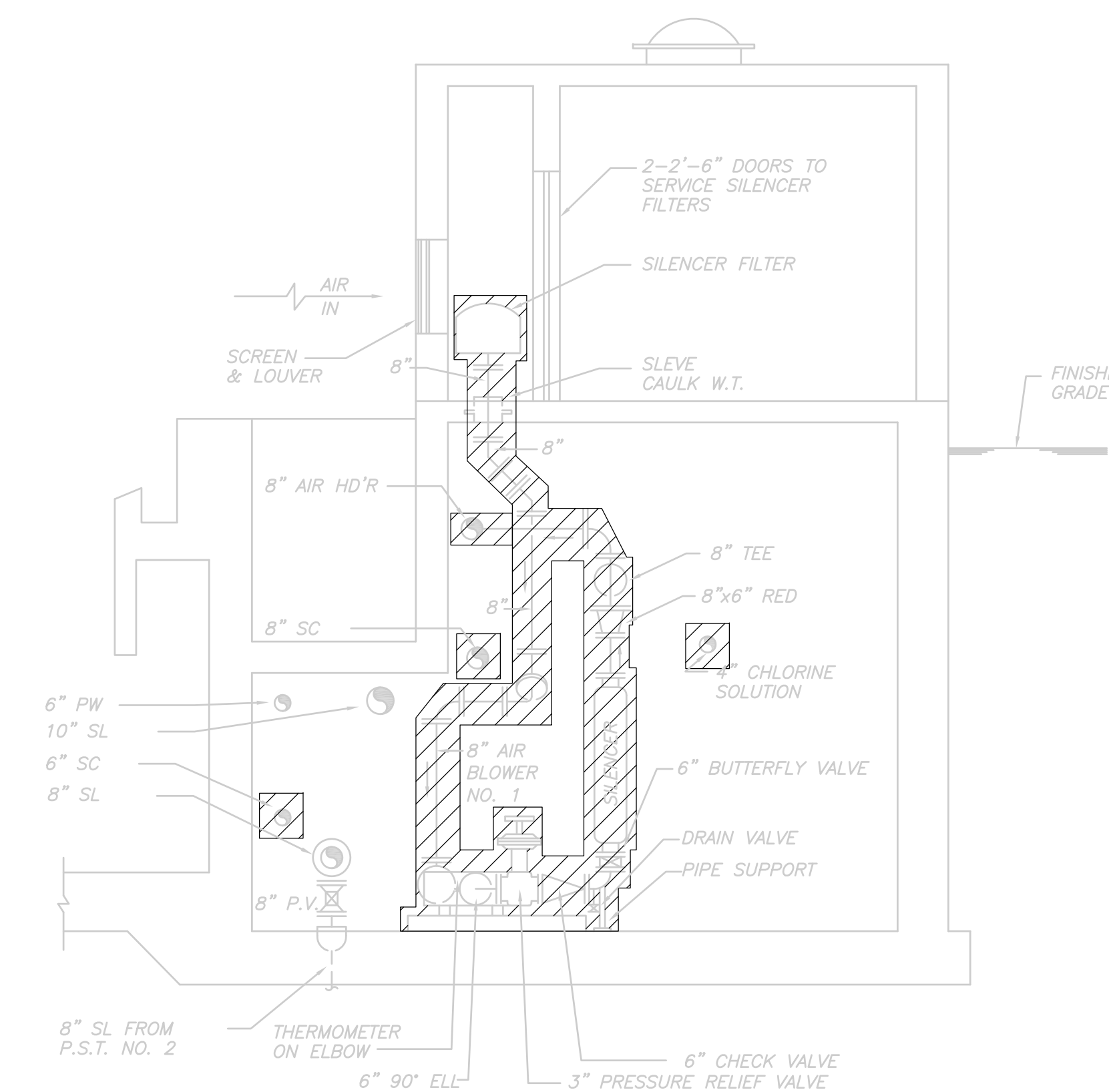
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**DEMOLITION SECTION 1**  
 1/4" = 1'-0" PT-M-2

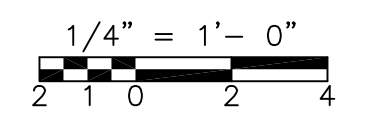


**DEMOLITION SECTION 1**  
 1/4" = 1'-0" PT-M-2



**DEMOLITION SECTION 2**  
 1/4" = 1'-0" PT-M-2

FOR GENERAL NOTES RELATING TO DEMOLITION REFER TO SHEET GD-M-1



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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DESIGNED BY:	W.D.GREEN
DRAWN BY:	W. DORSEY
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APPROVED BY:	J.E.MADDEN
DATE:	MAY 2006

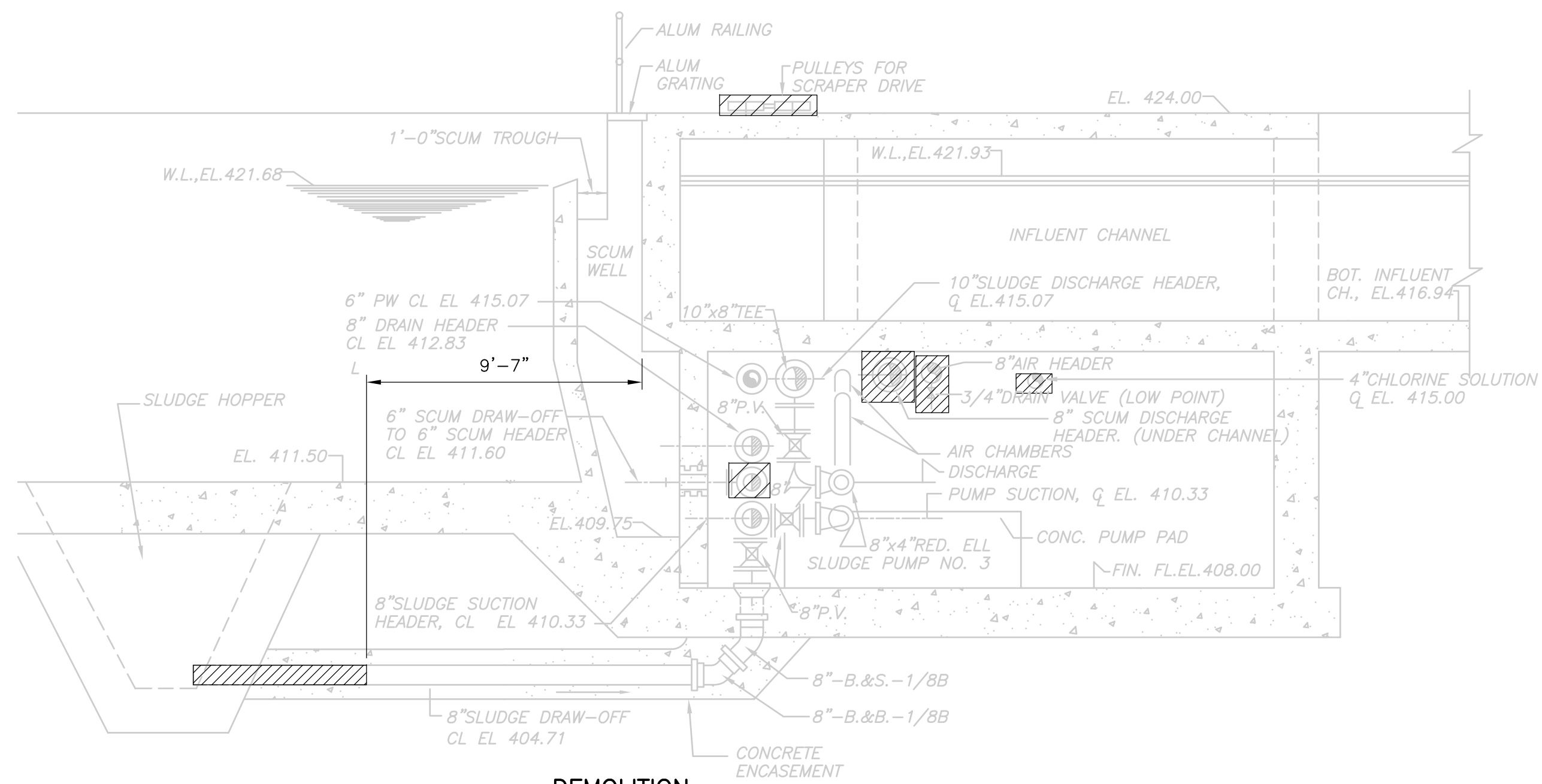
**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

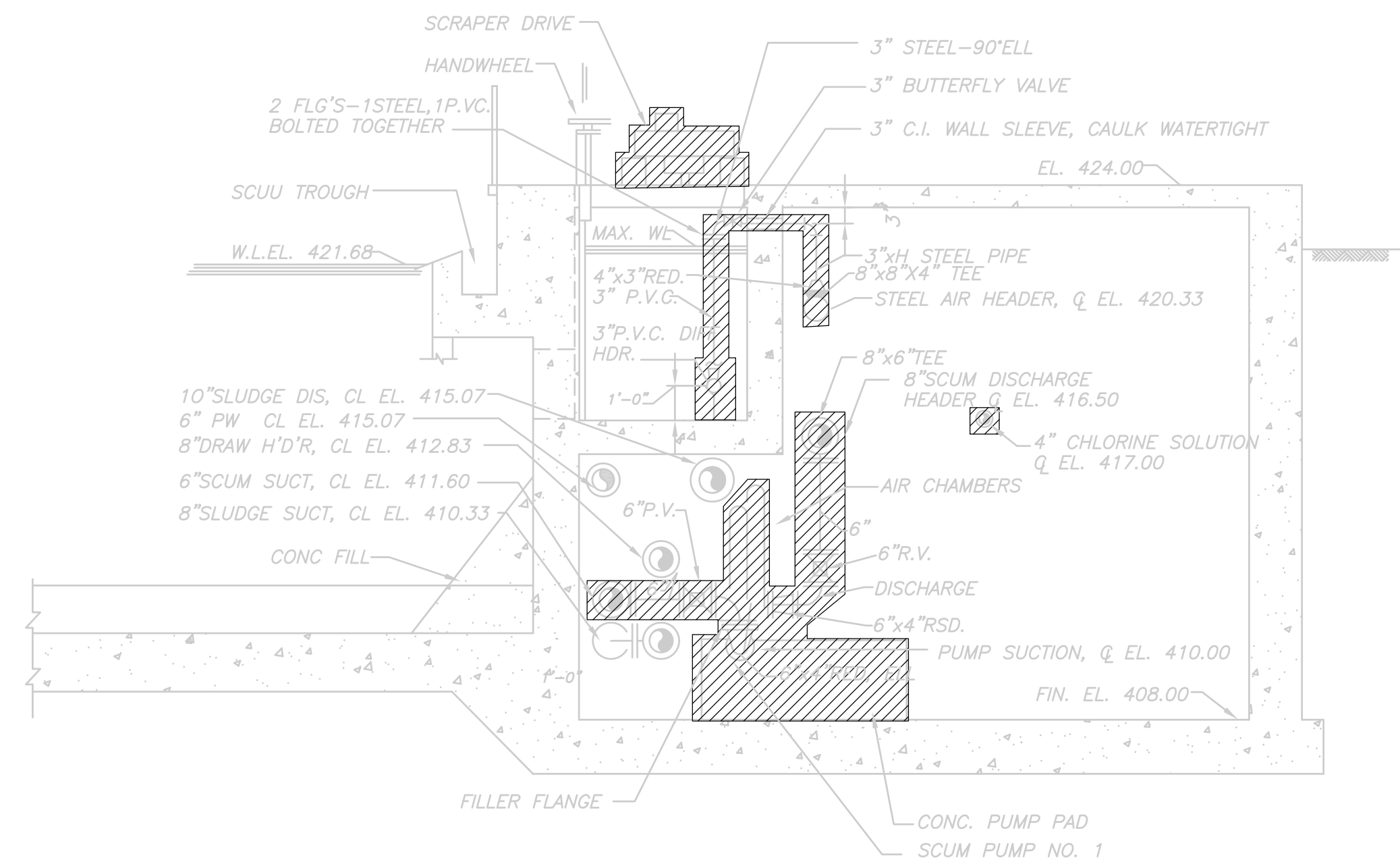
**PRIMARY SETTLING TANKS**  
**DEMOLITION SECTIONS I**

PROJECT NO. 1289\35370  
 Sht. 162 of 386  
**PT-M-3**  
CONSTRUCTION NO. 1289-65582

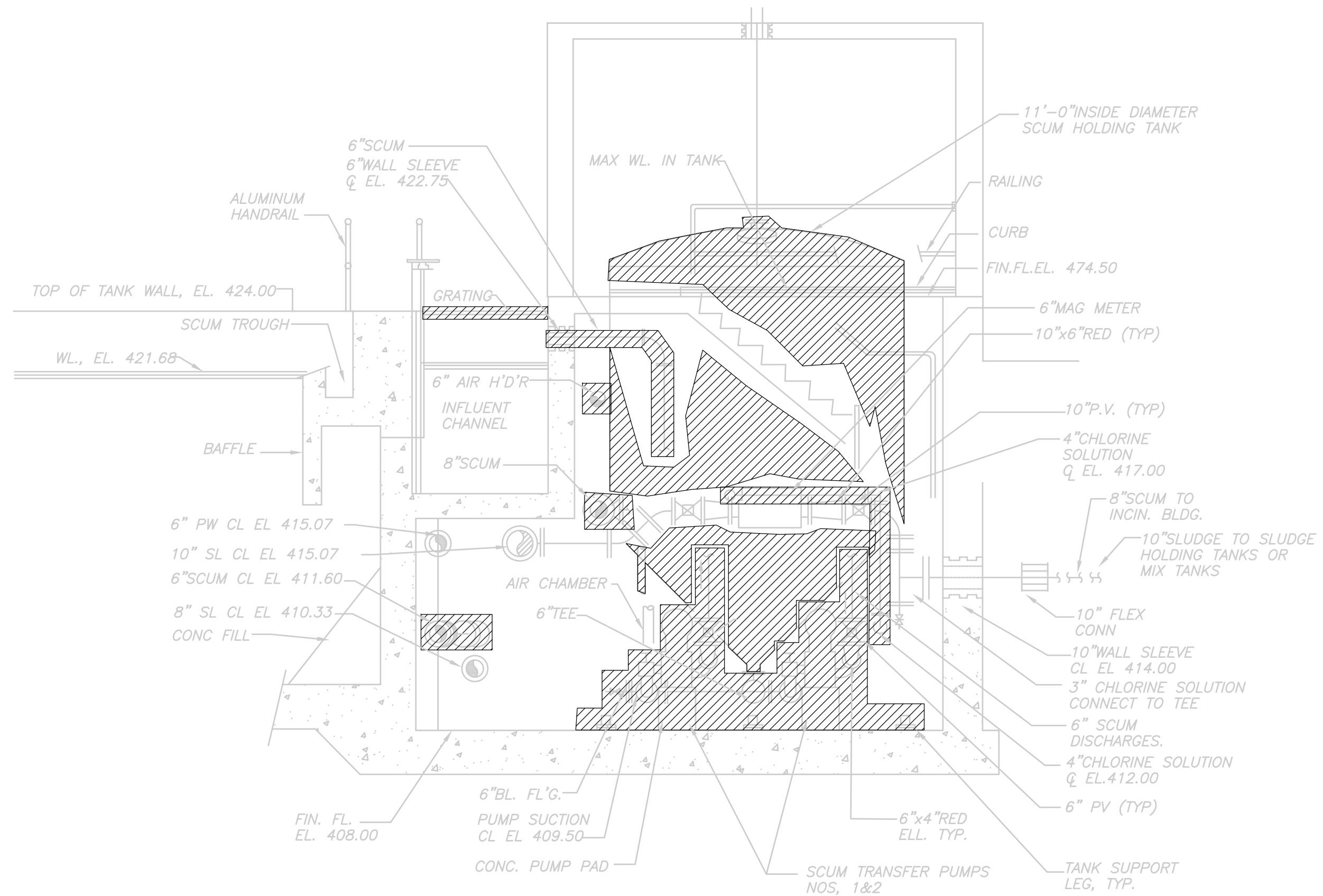
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**DEMOLITION SECTION 1**  
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 PT-M-2

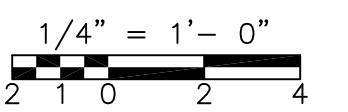


**DEMOLITION SECTION 2**  
 1/4" = 1'-0"  
 PT-M-2



**DEMOLITION SECTION 3**  
 1/4" = 1'-0"  
 PT-M-2

FOR GENERAL NOTES  
 RELATING TO DEMOLITION  
 REFER TO SHEET GD-M-1



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J.E. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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operations

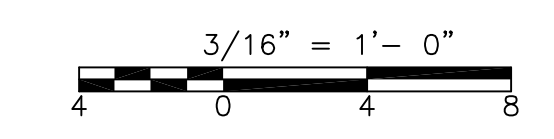
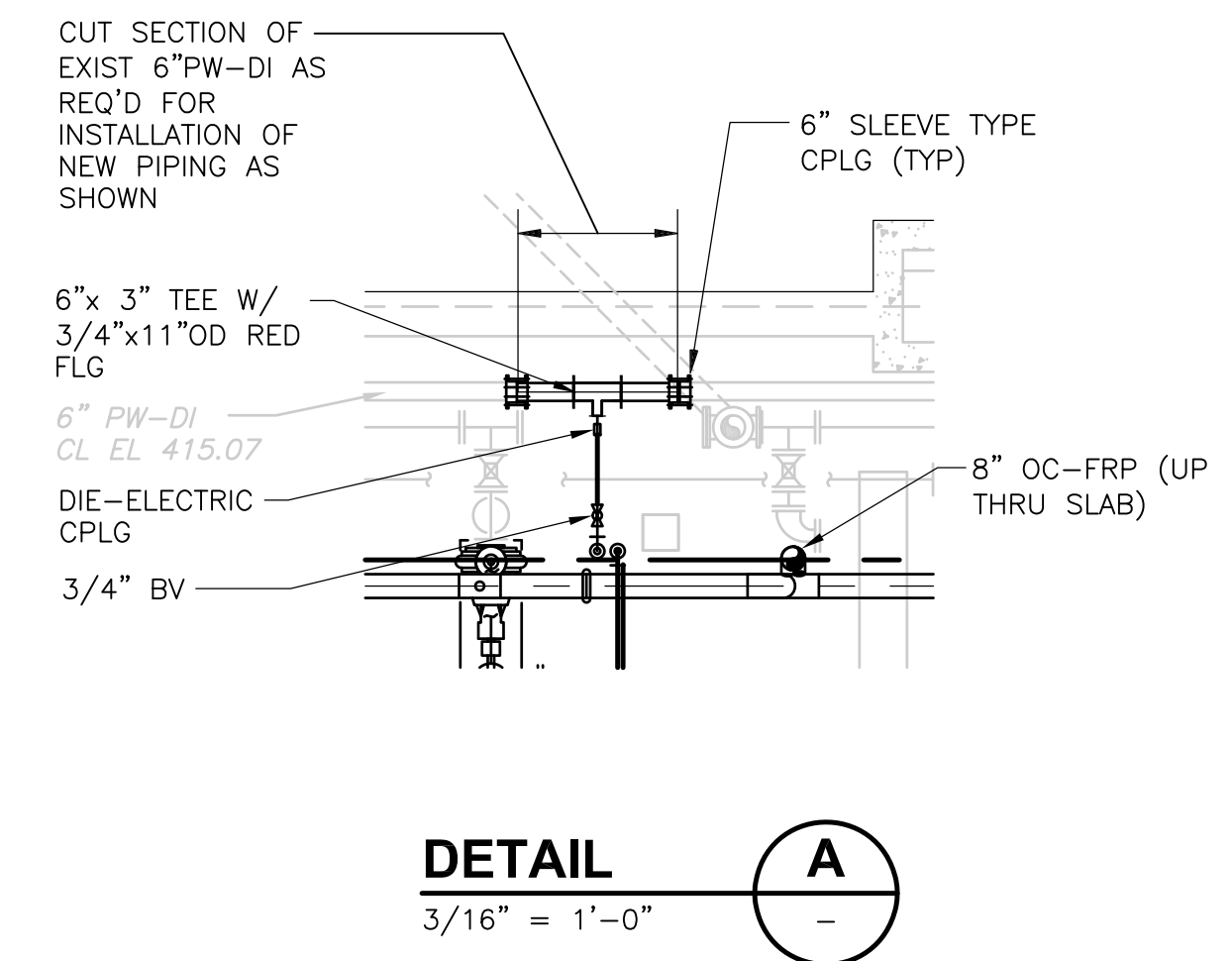
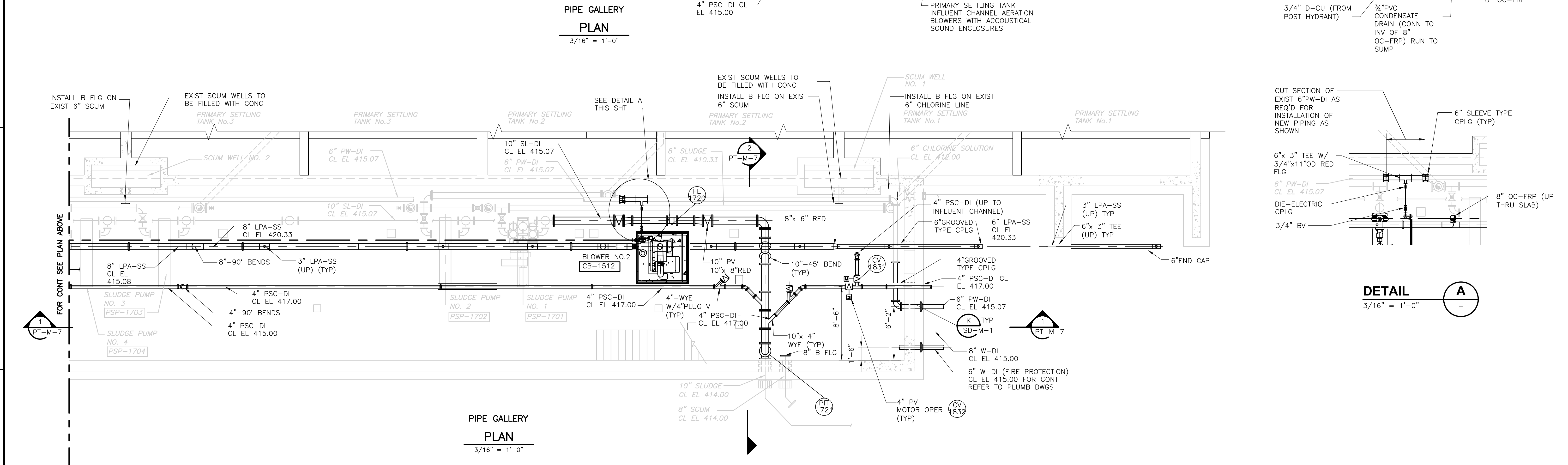
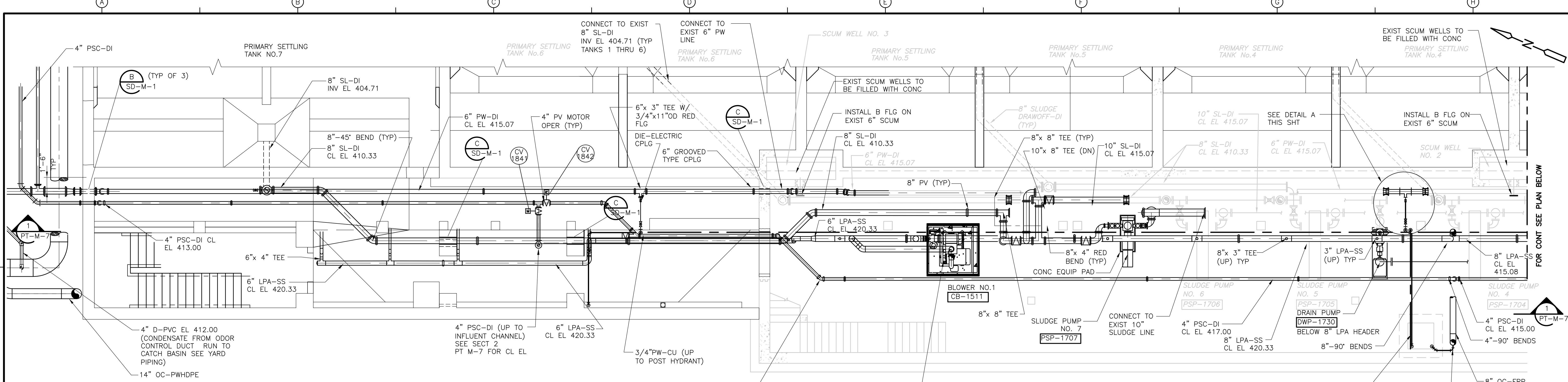
**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**  
  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 DEMOLITION SECTIONS II**  
  
**PT-M-4**

PROJECT NO.	1289\35370
Sht.	163 of 386

ACCESSION NO. 1289-65563

UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
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8/07	SPV	ADT		REVISED FOR THE RECORD

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DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	W.D. GREEN
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APPROVED BY:	J.E. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

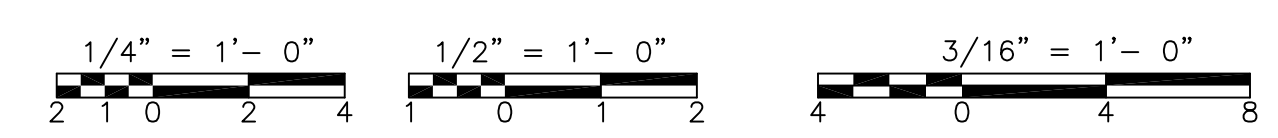
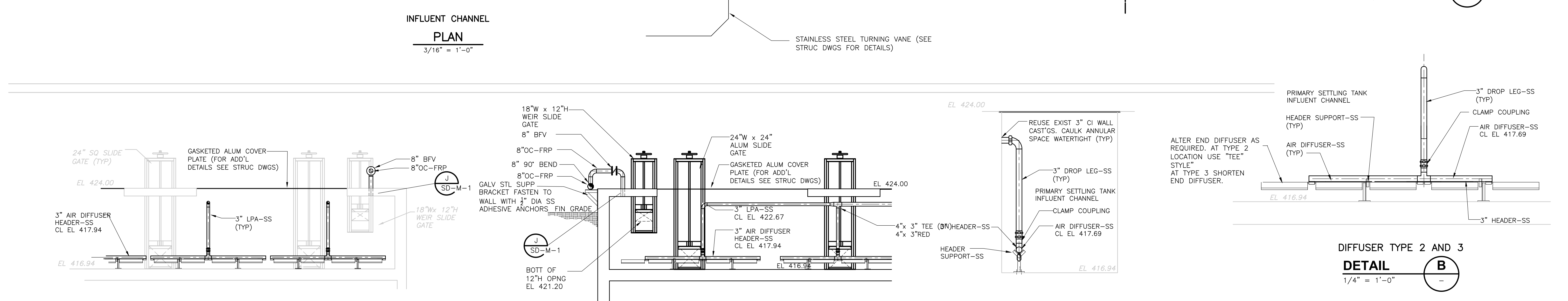
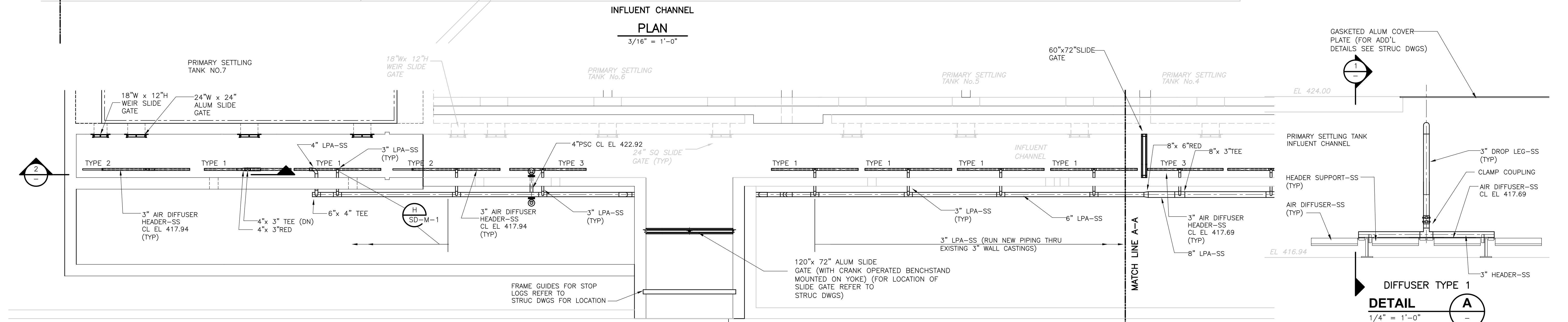
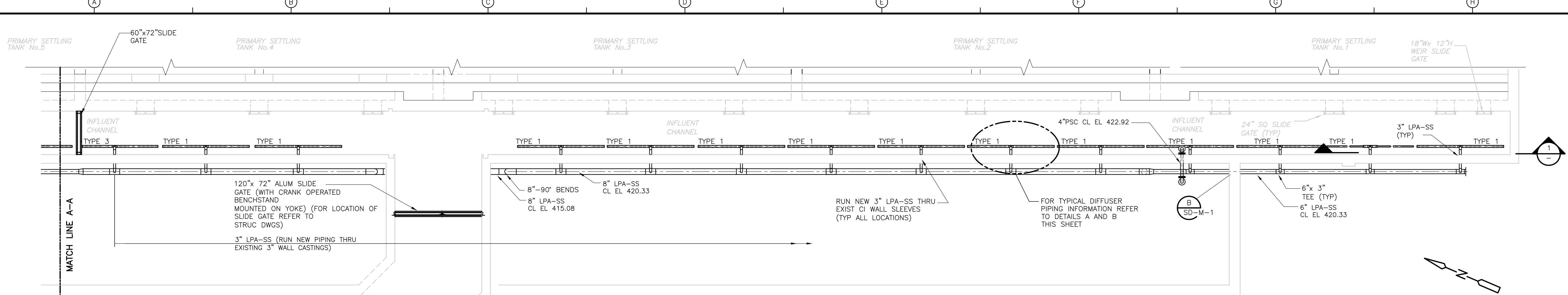
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**PRIMARY SETTLING TANKS PLAN**  
**PIPE GALLERY**

PROJECT NO. 1289\35370  
 Sht. 164 of 386  
**PT-M-5**

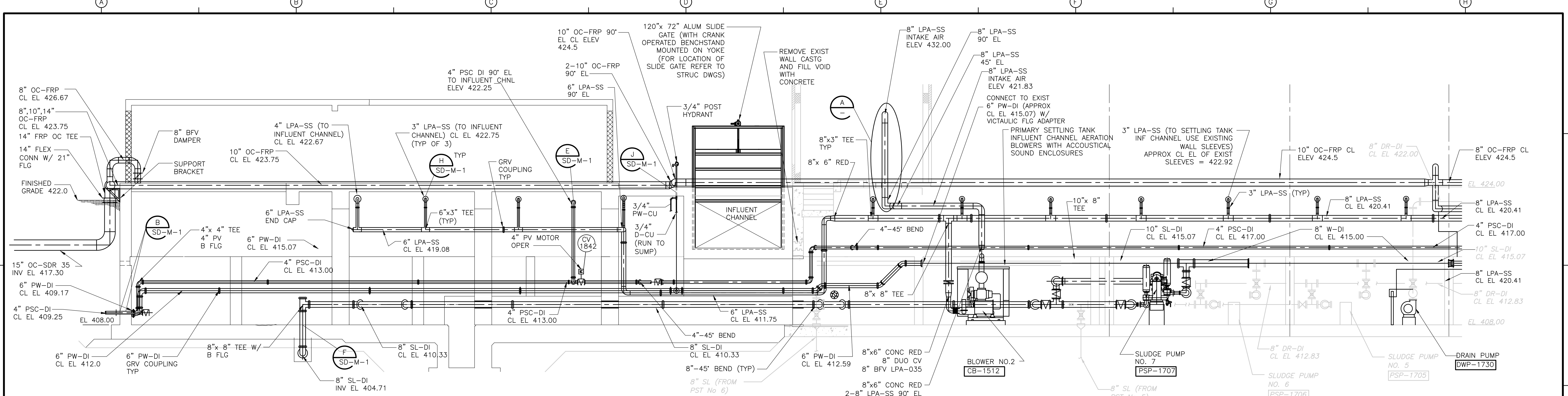
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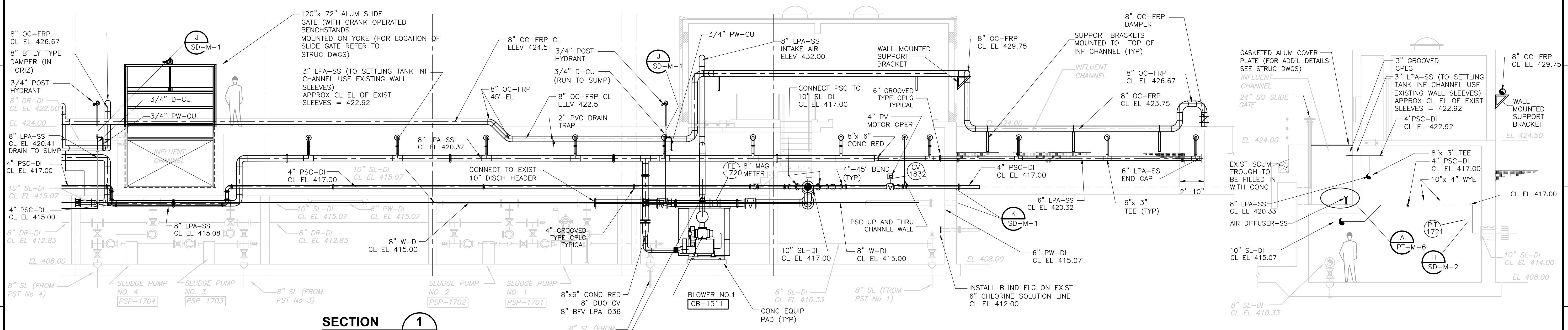
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REV. NO.	DATE	DRWN	CHKD	REMARKS																	
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Accession No. 1289-65365

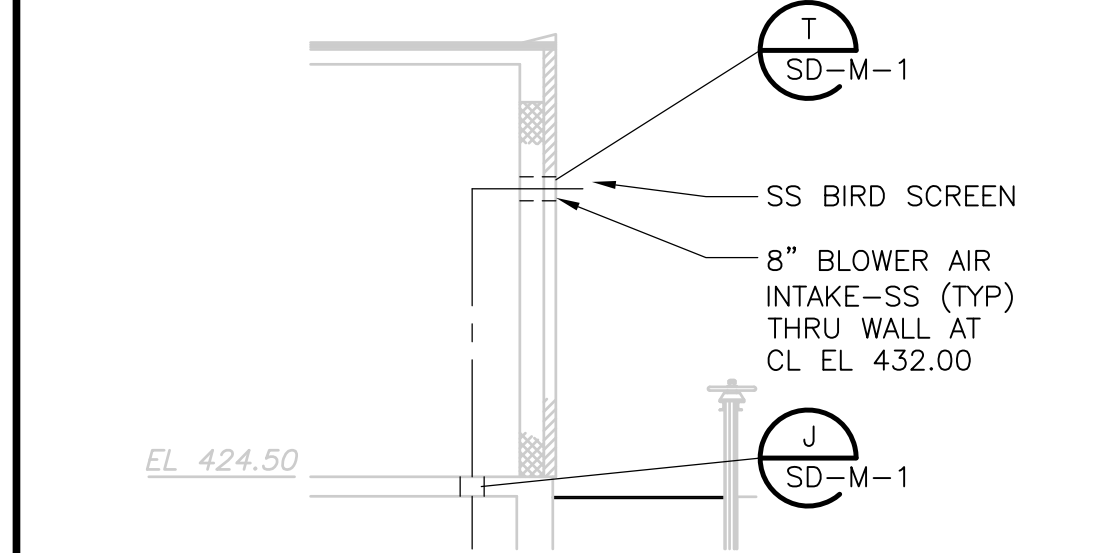


**SECTION 1**  
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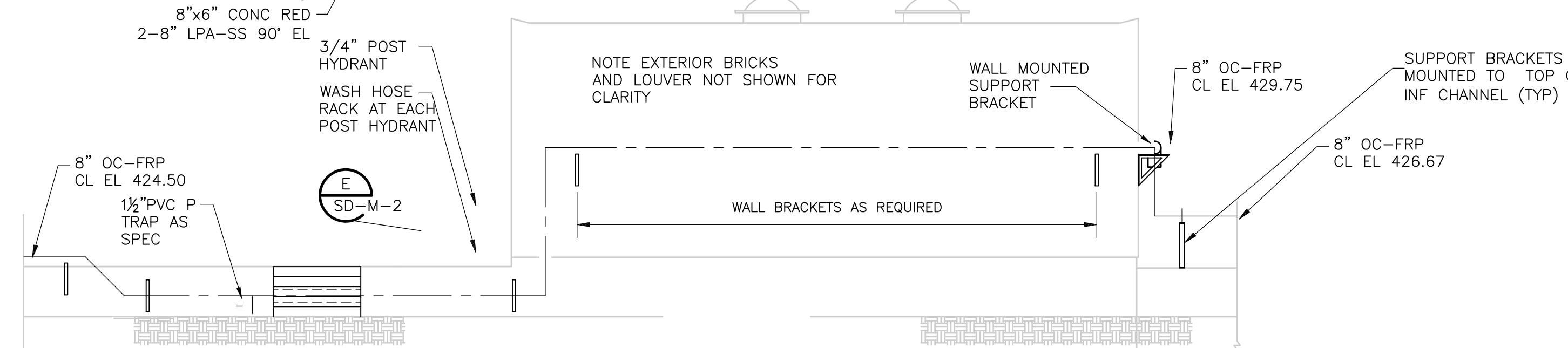


**SECTION 1**  
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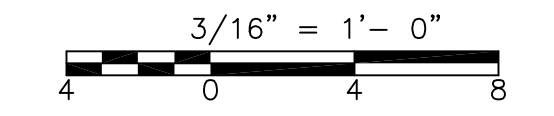
**SECTION 2**  
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**DETAIL A**  
 1/4" = 1'-0"



**ELEVATION**  
 3/16" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ELS		REVISED FOR THE RECORD

CADD FILE NO.	MPSS003.DWG
DESIGNED BY:	W.D. GREEN
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

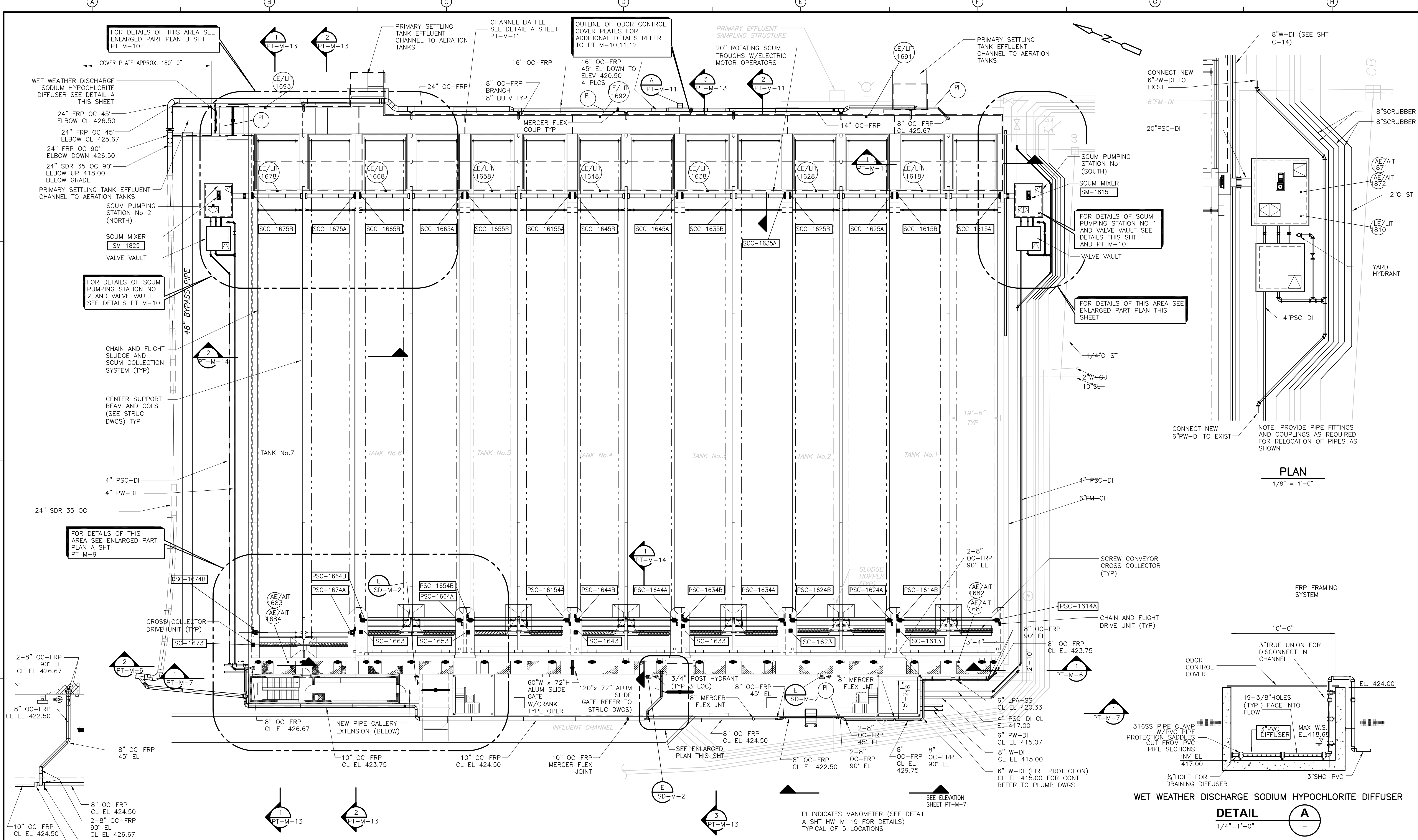
<b>CDM</b> <small>consulting          engineering          construction          operations</small>	Camp Dresser & McKee Inc.
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<b>UPPER BLACKSTONE</b> WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
<b>WASTEWATER TREATMENT FACILITY</b> IMPROVEMENTS

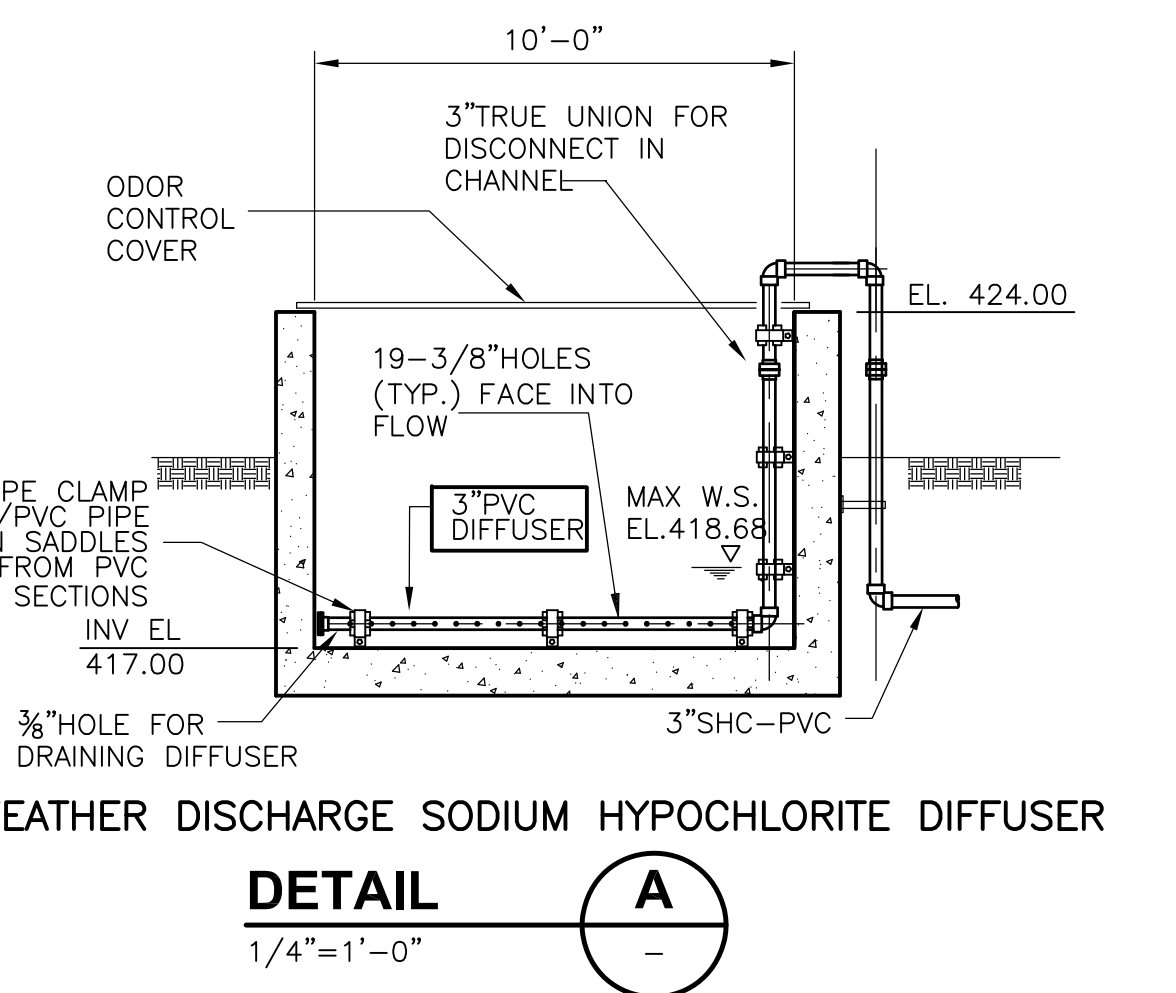
<b>PRIMARY SETTLING TANKS</b> <b>PIPE GALLERY SECTIONS</b>
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PROJECT NO. 1289\35370	Sht. 166 of 386
<b>PT-M-7</b>	

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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**PLAN**  
 1/8" = 1'-0"



**DETAIL A**  
 1/4" = 1'-0"

**ENLARGED PLAN**  
 1/8" = 1'-0"

**PLAN**  
 1/16" = 1'-0"

1/16" = 1'-0"  
 8 4 0 8 16

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
4/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MPSPL001.DWG
DESIGNED BY:	W.D. GREEN
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J.E. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering  
 construction  
 operations

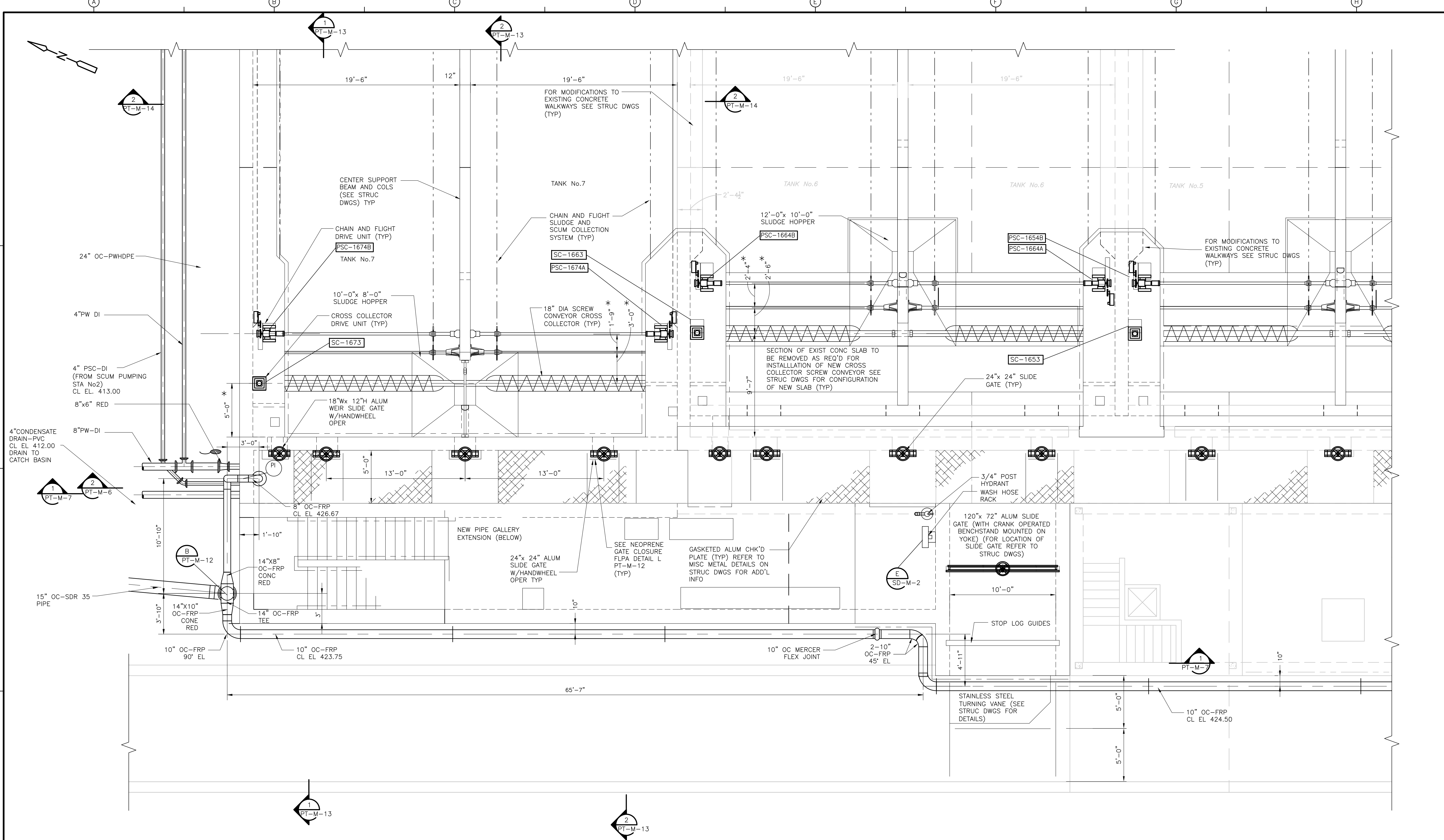
**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 PLAN**

PROJECT NO. 1289\35370  
 Sht. 167 of 386  
**PT-M-8**

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File name: P:\1289\35370\PHASE I\RECORD\MECH\MPSPL002.dwg Xref's: [C24X36H\_SFSWP100.MPSPL001.] Plotted by: CROSSHA Time: 12/16/08 6:25:38 PM



**NEW WORK**  
**PLAN**  
1/4" = 1'-0"

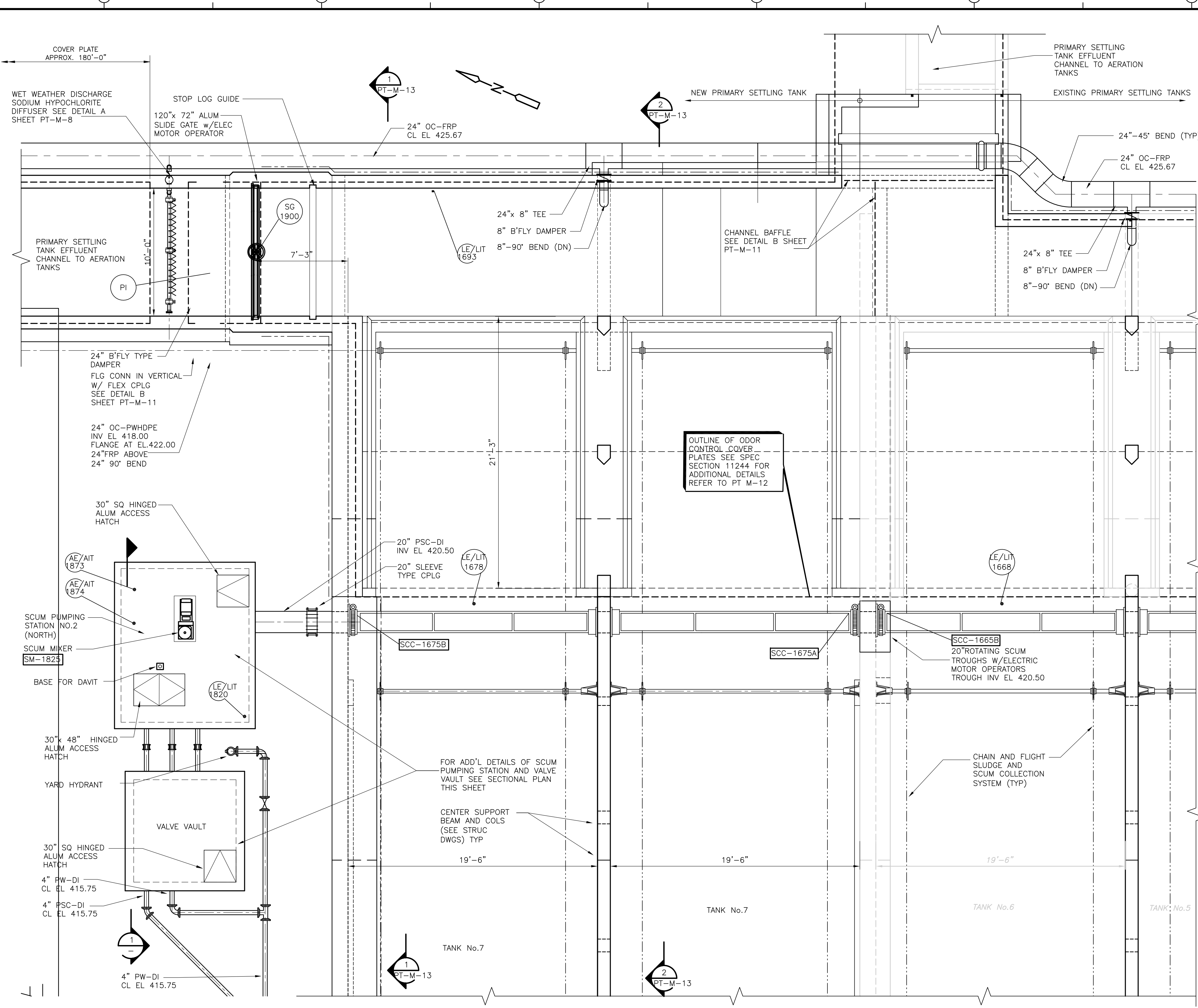
1/4" = 1'-0"  
0 1 2 3 4

RECORD DRAWING

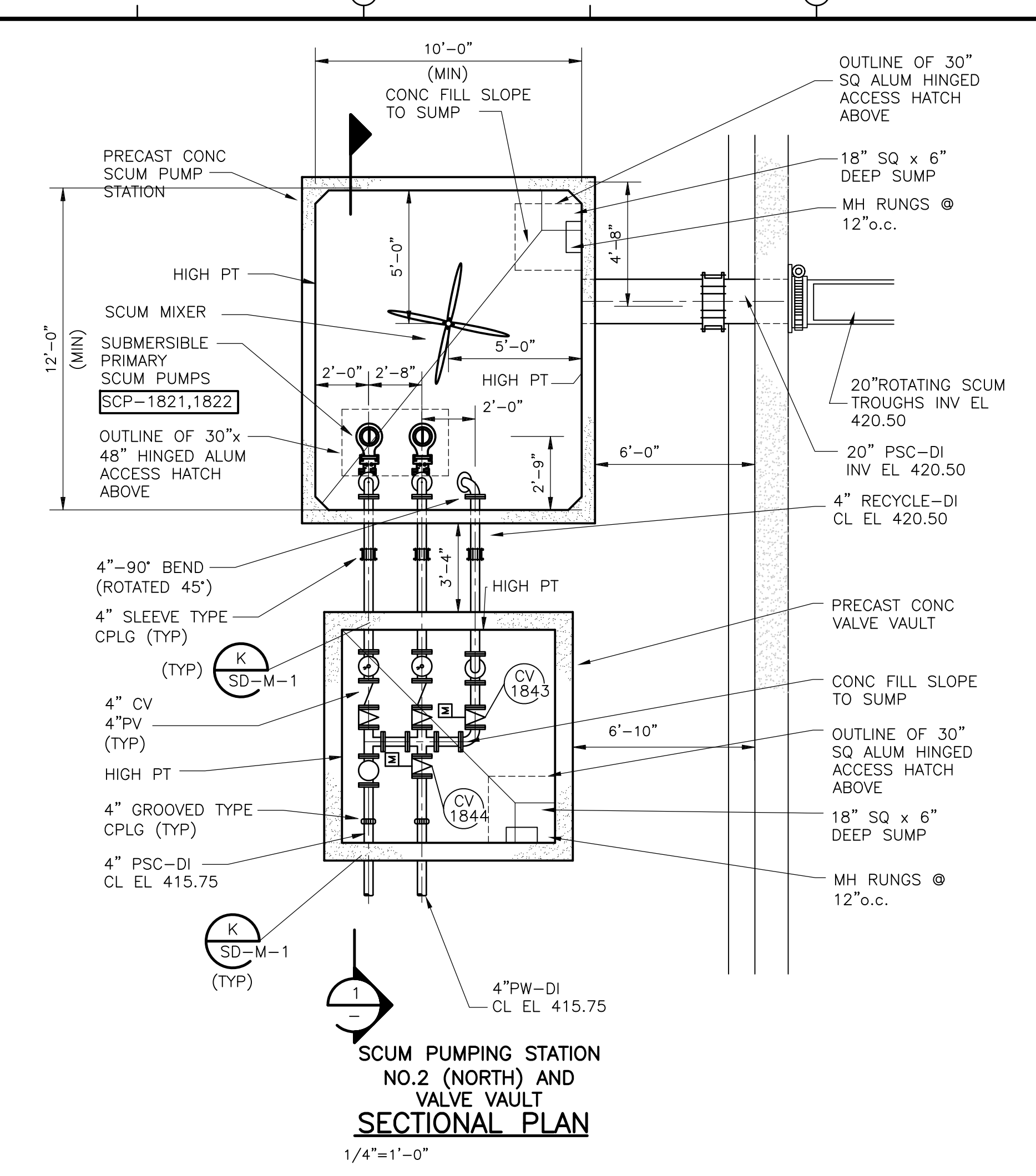
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REV. NO.	DATE	DRWN	CHKD	REMARKS																	
8/07	SPV	ADT		REVISED FOR THE RECORD																	

ACCESSION NO. 1289-65588

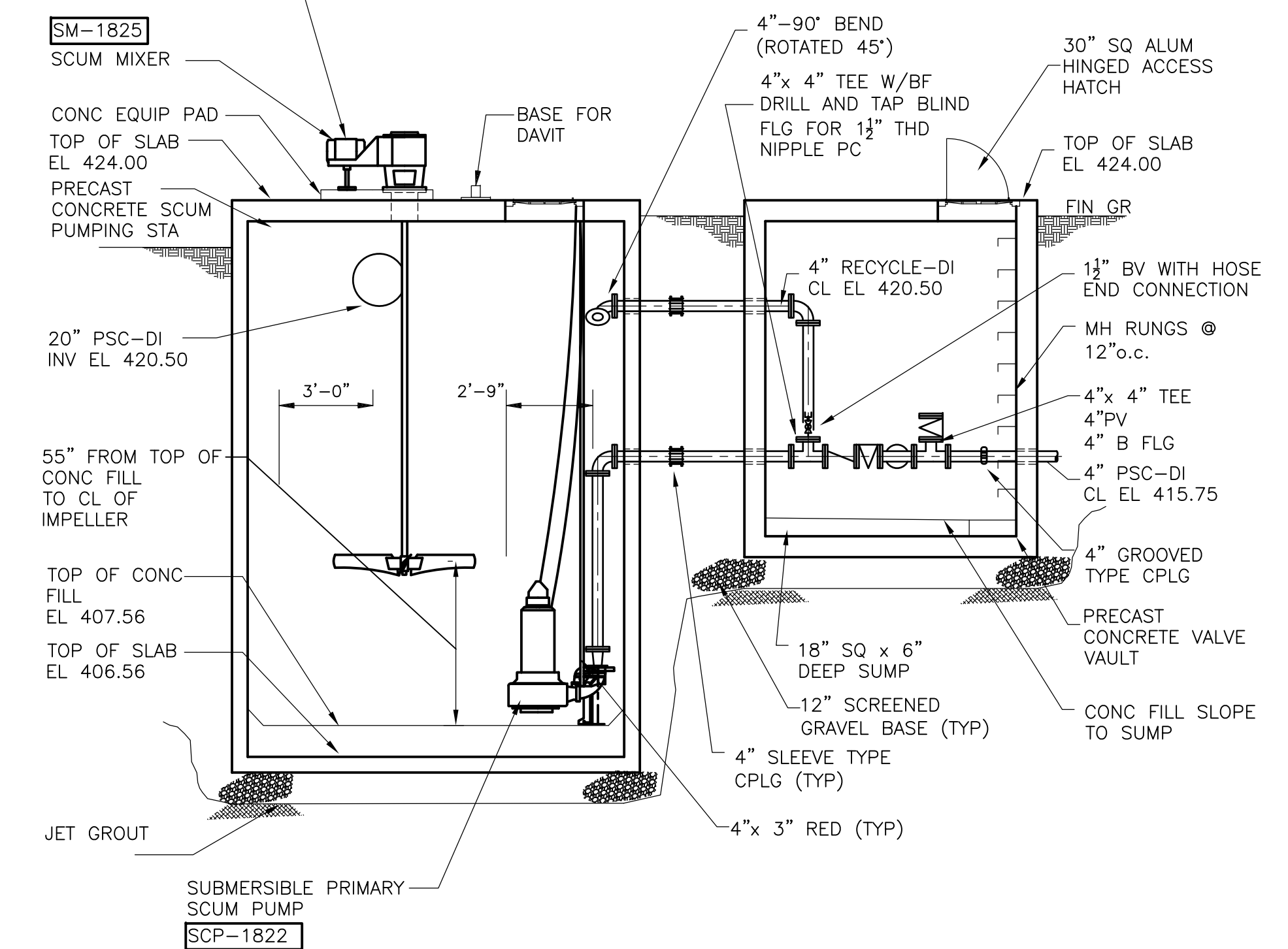
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PLAN  
1/4" = 1'-0"



FLR CAST'G FOR SCUM MIXER TO BE SUPPLIED BY MIXER MFR (CASTG TO BE GROUTED IN PLACE PRIOR TO POURING OF MIXER EQUIP PAD)



SCUM PUMPING STA NO2  
SECTION 1  
1/4" = 1'-0"

1/4" = 1'-0"  
0 1 2 3 4

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MPSPL003.DWG
DESIGNED BY:	W.D. GREEN
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J.E. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024

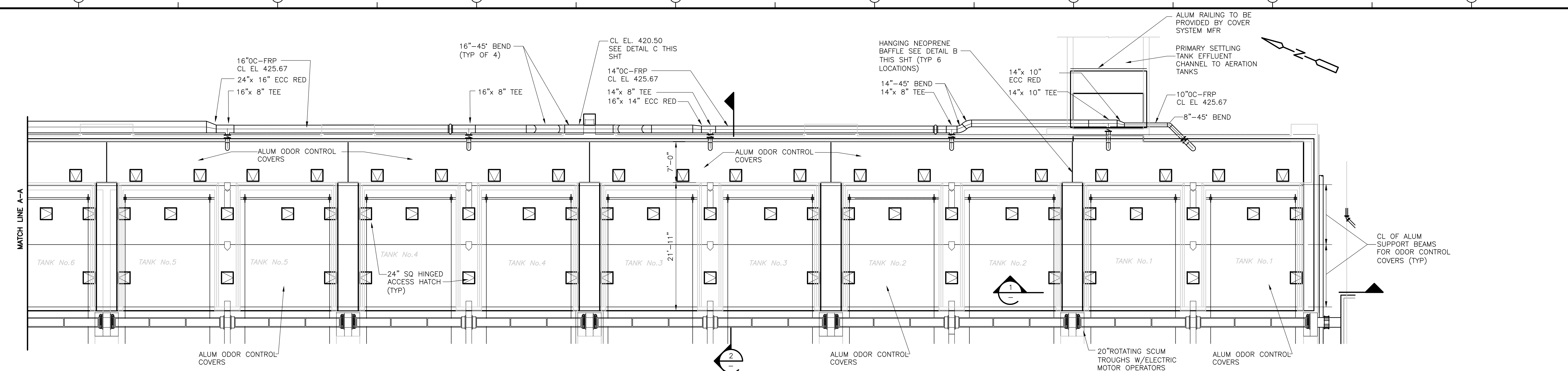
**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
PART PLAN B**

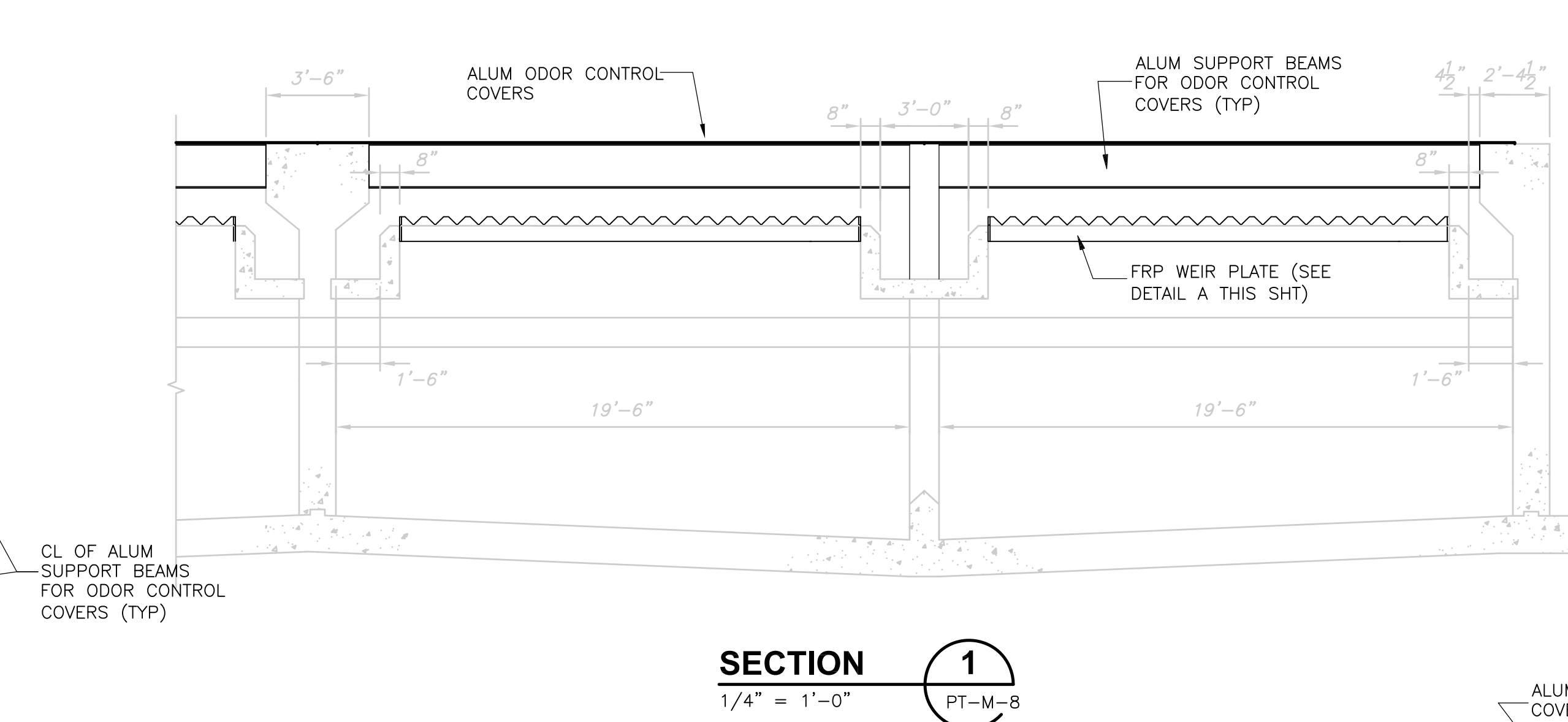
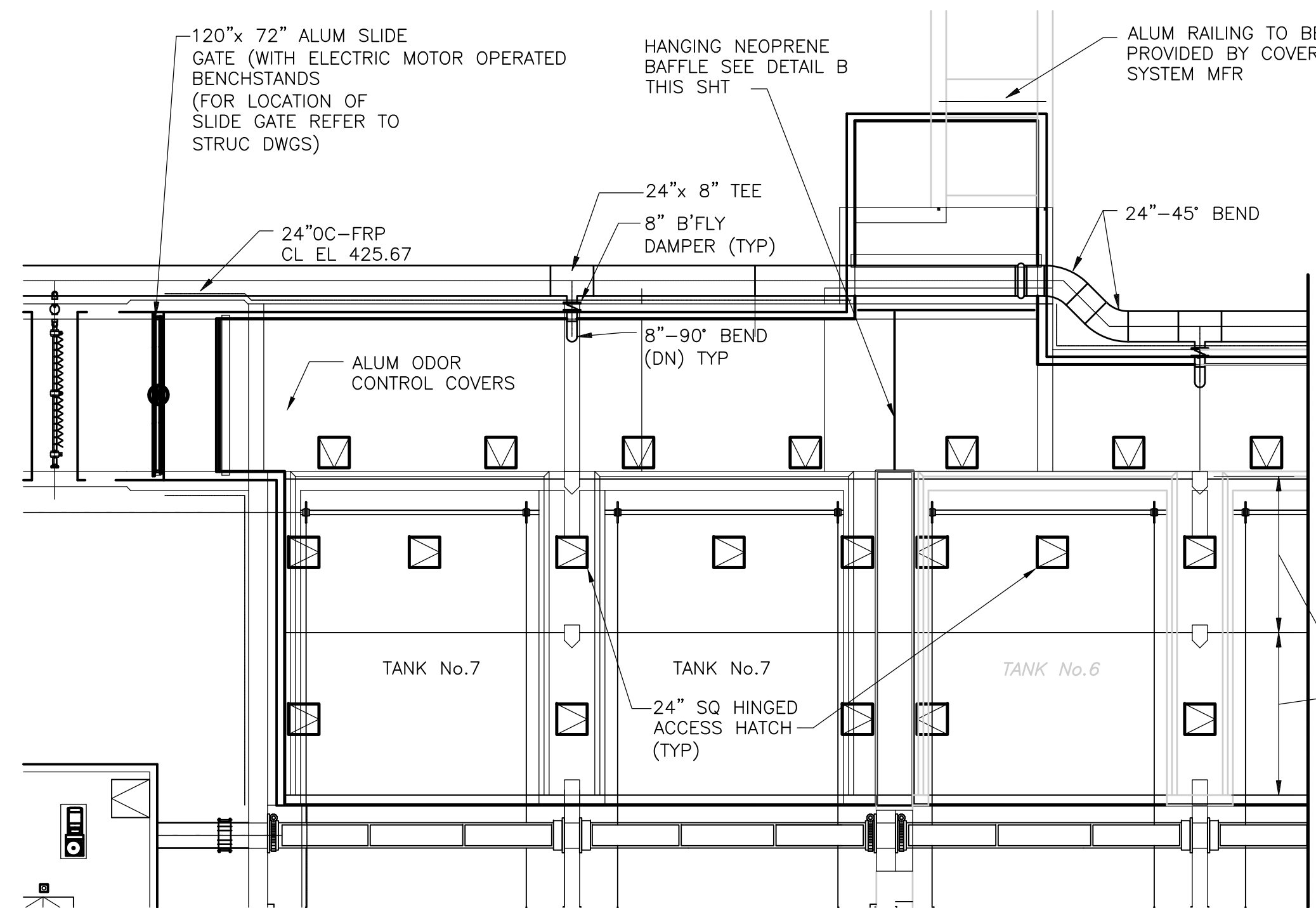
PROJECT NO. 1289\35370  
Sht. 169 of 386  
**PT-M-10**



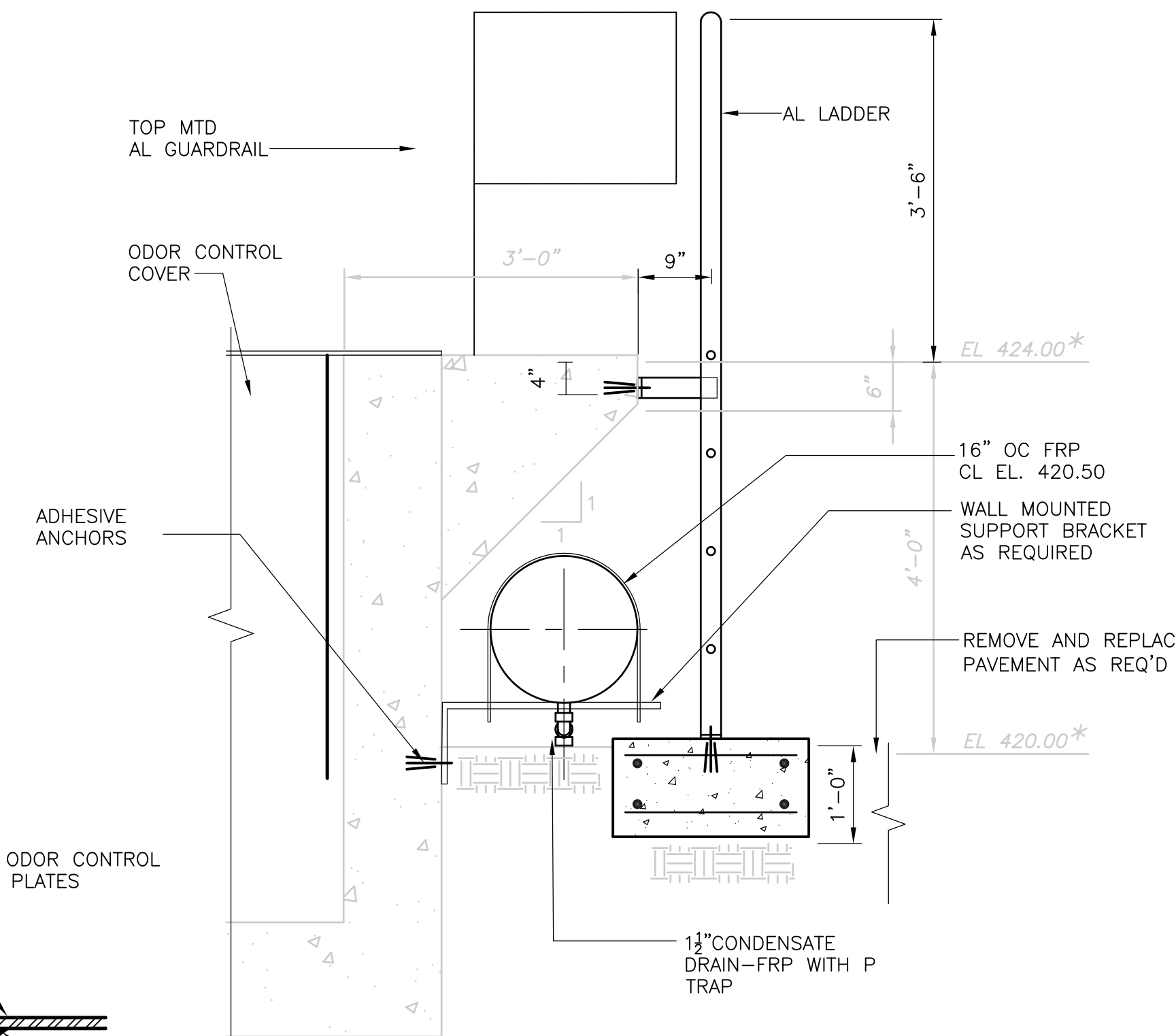
UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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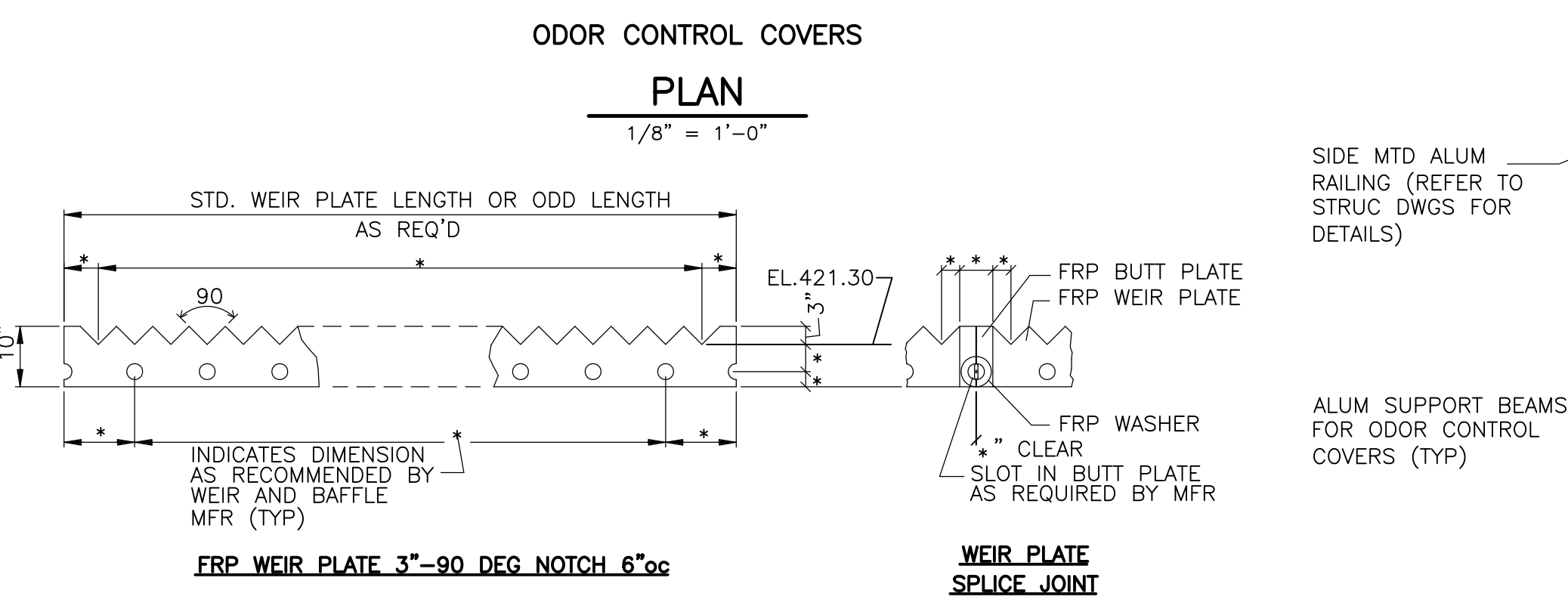
**ODOR CONTROL COVERS**  
**PLAN**  
 1/8" = 1'-0"



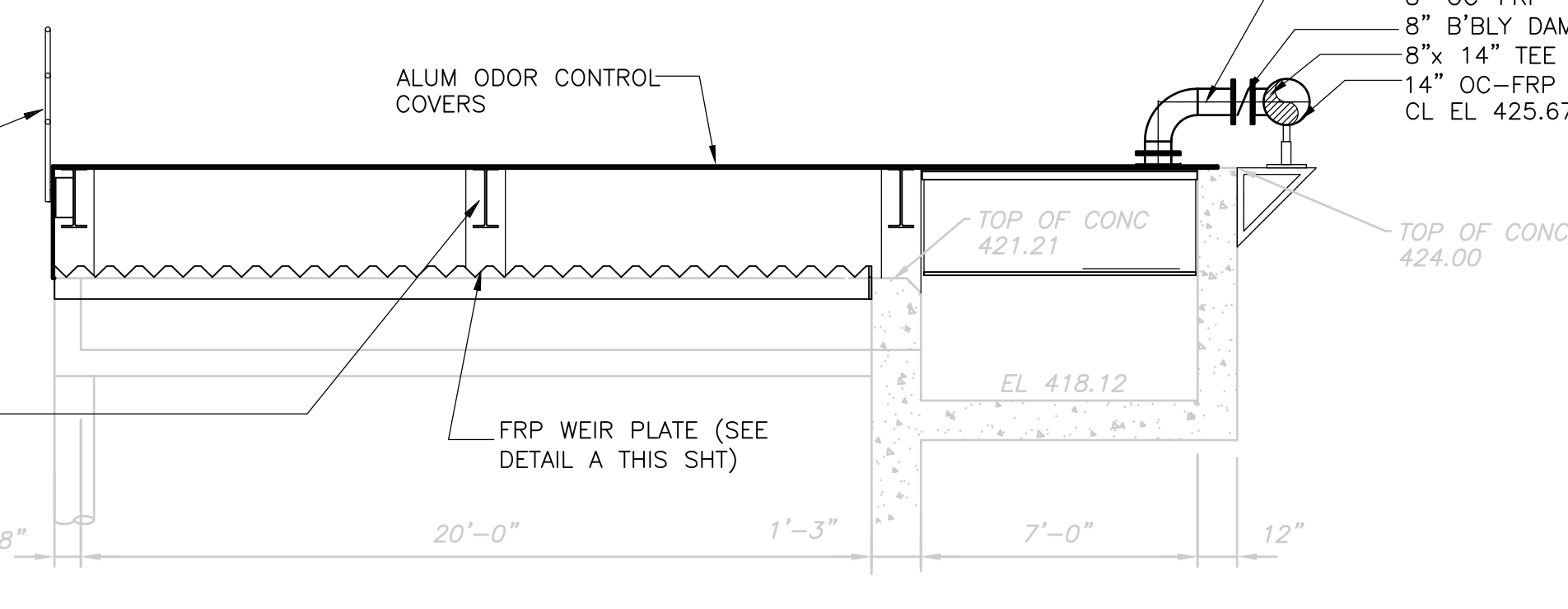
**SECTION 1**  
 1/4" = 1'-0" PT-M-8



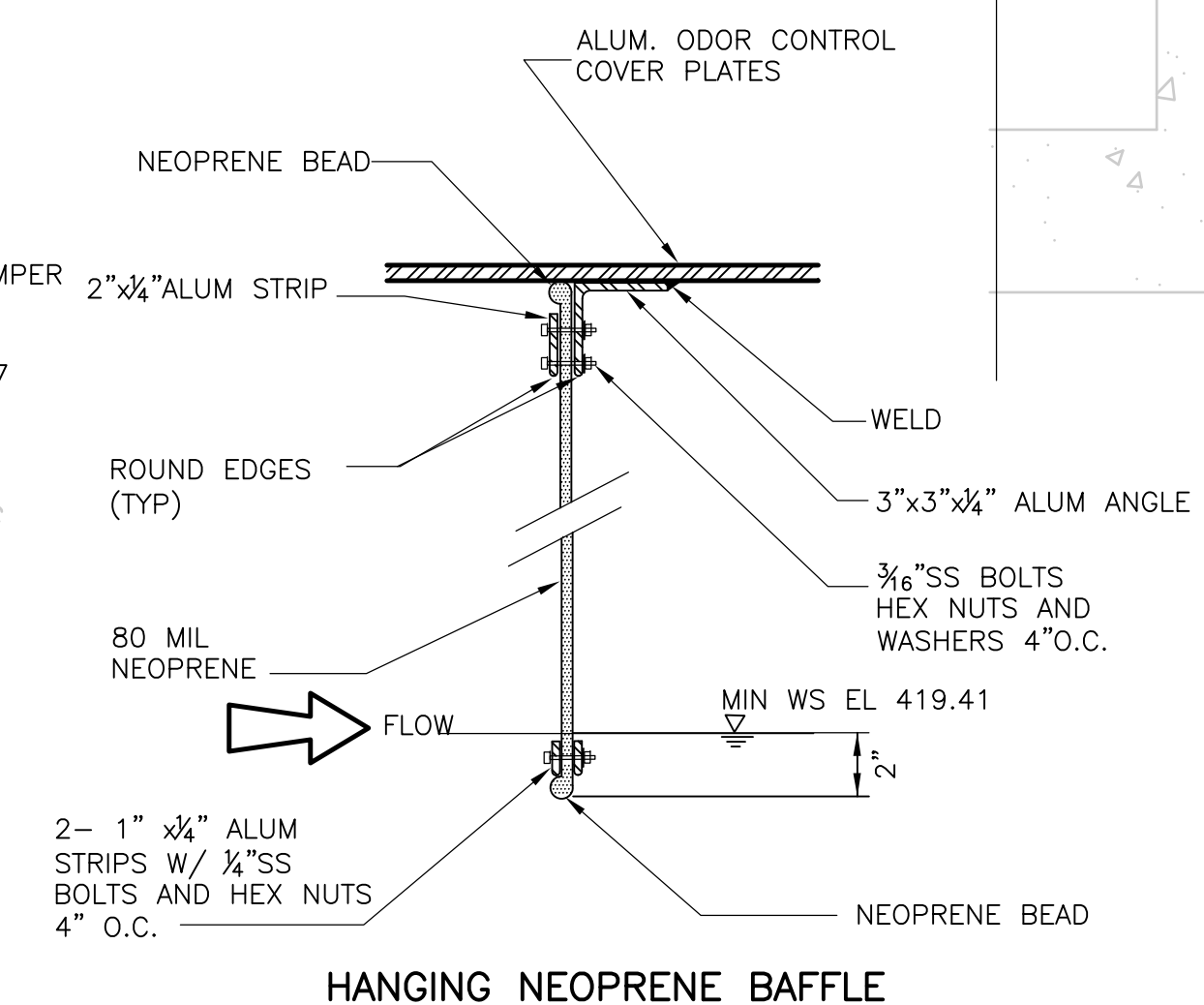
**DETAIL C**  
 3/4" = 1'-0"



**FRP WEIR PLATE**  
**DETAIL A**  
 1/4" = 1'-0"



**SECTION 2**  
 1/4" = 1'-0" PT-M-8,11



**DETAIL B**  
 2" = 1'-0"

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

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. MPSPL004.DWG  
 DESIGNED BY: W.D. GREEN  
 DRAWN BY: W. DORSEY  
 SHEET CHK'D BY: W.D. GREEN  
 SCALE: AS SHOWN  
 APPROVED BY: J.E. MADDEN  
 DATE: MAY 2006

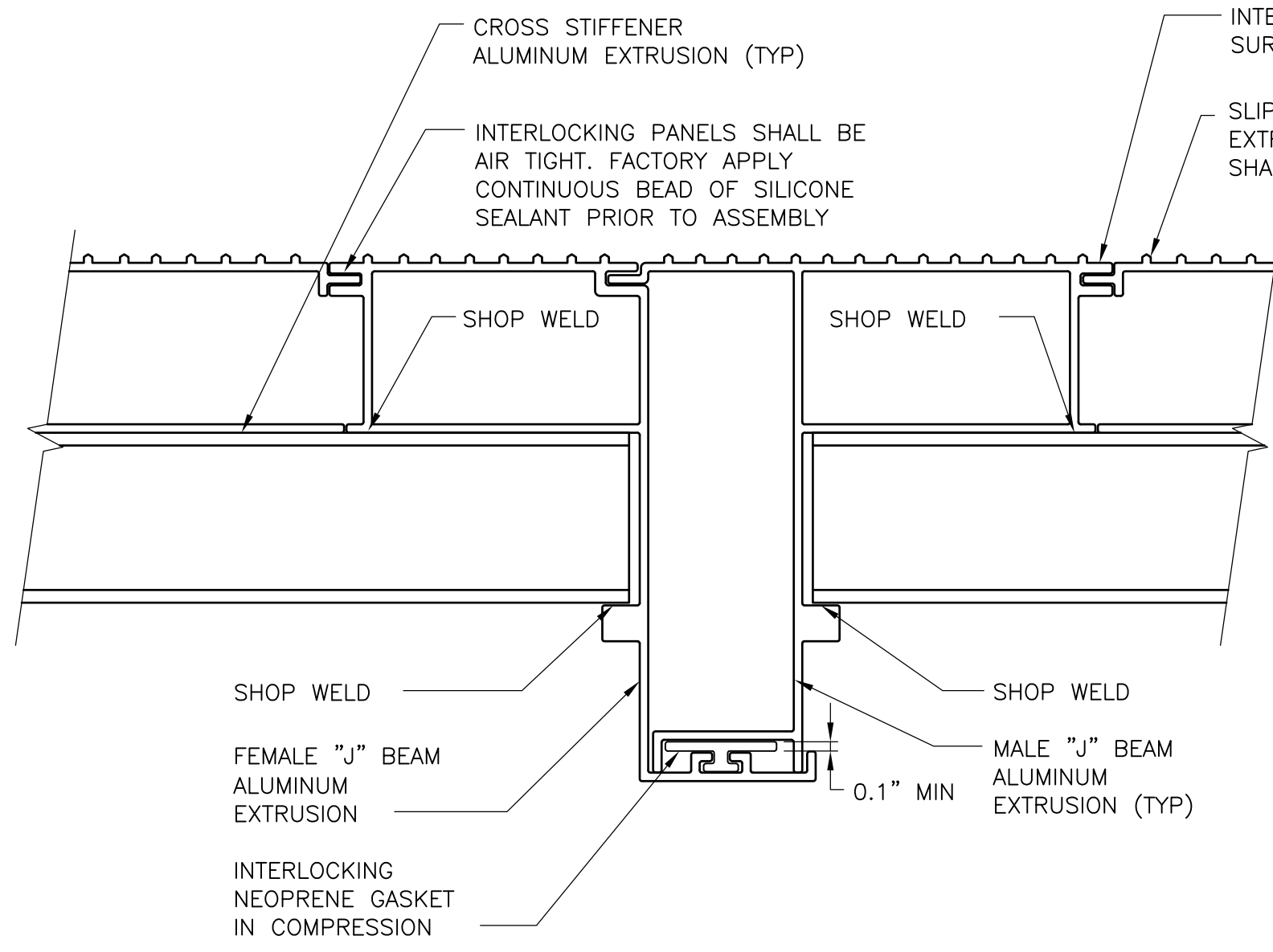
**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 PLANS  
 ODOR CONTROL COVERS**

PROJECT NO.  
 1289\35370  
 Sht. 170 of 386  
**PT-M-11**  
Accession No. 1289-65270

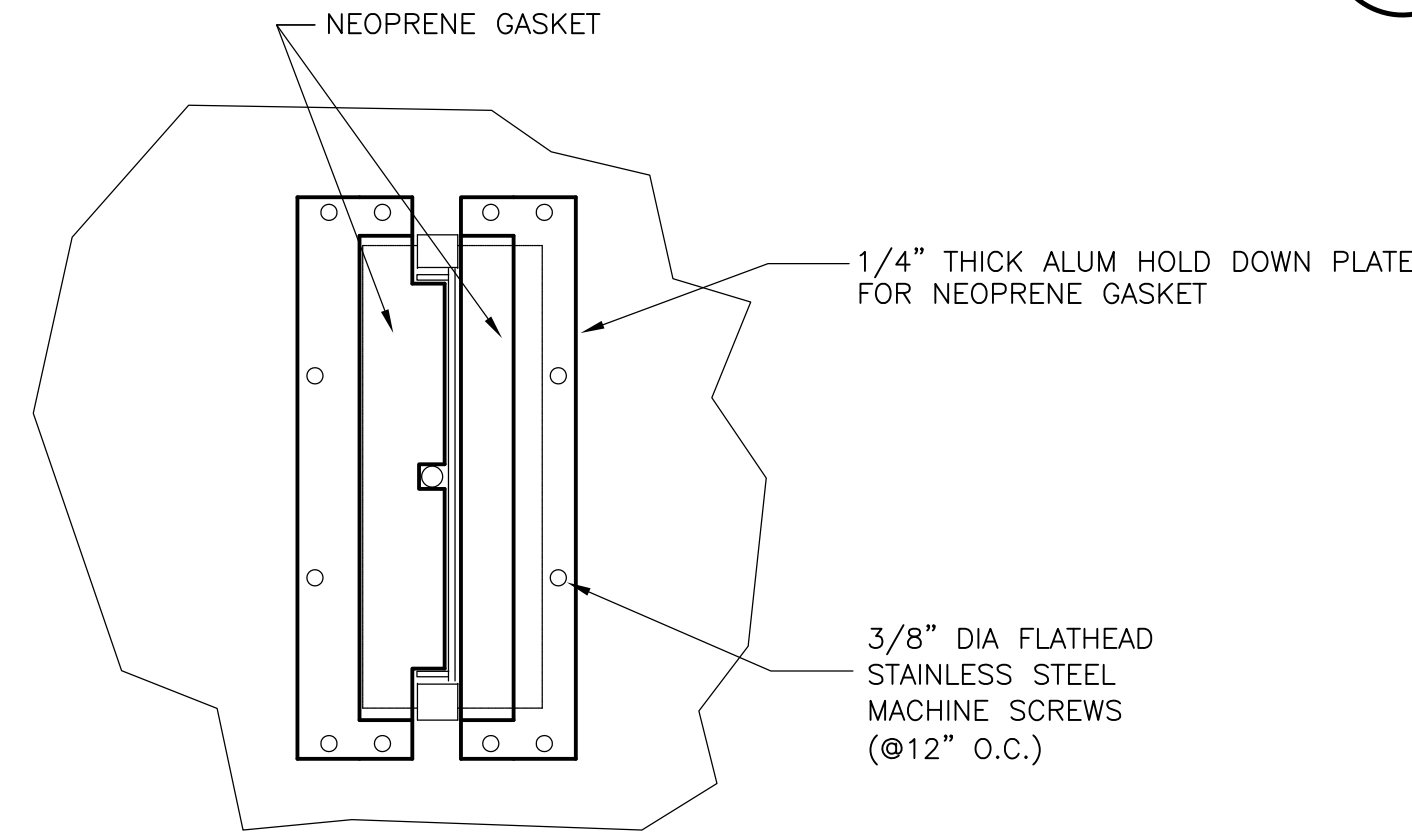
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**PANEL TO PANEL (MALE/FEMALE) INTERLOCK FOR ALUMINUM COVERS AT PRIMARY SETTLING TANKS AND AERATED GRIT TANKS**

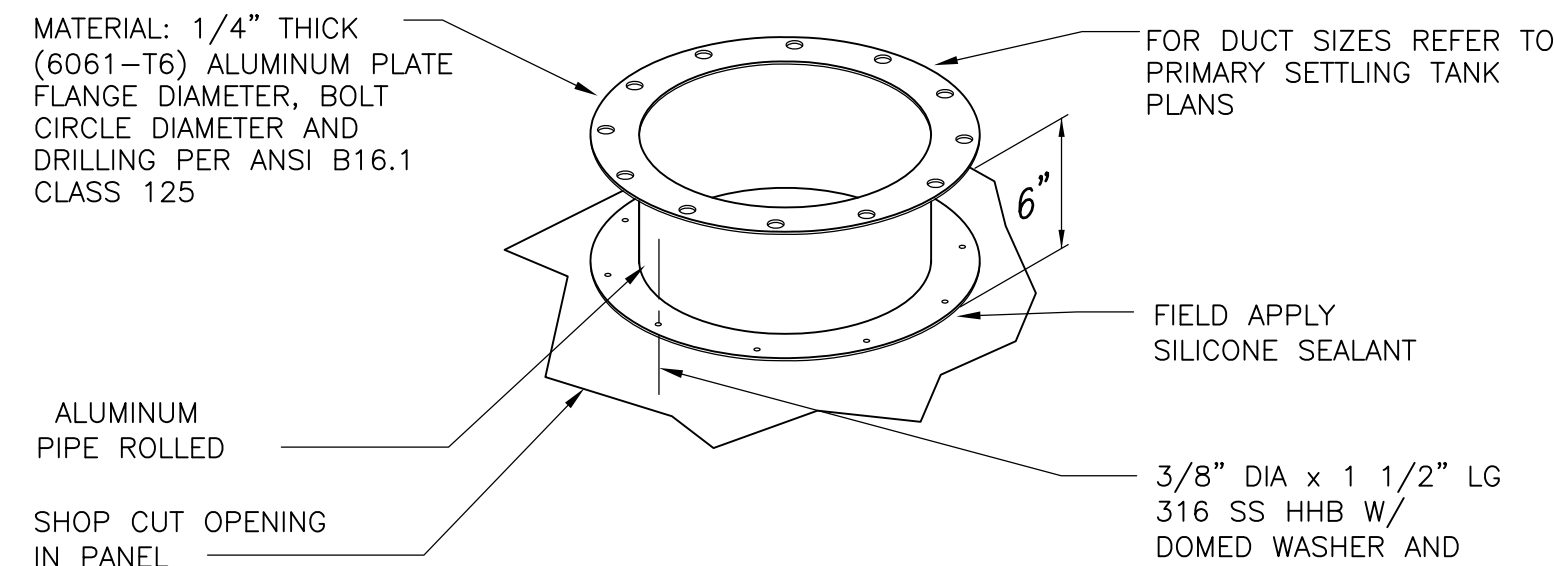
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SUBTITLE  
**SECTION #**  
 SCALE DWG

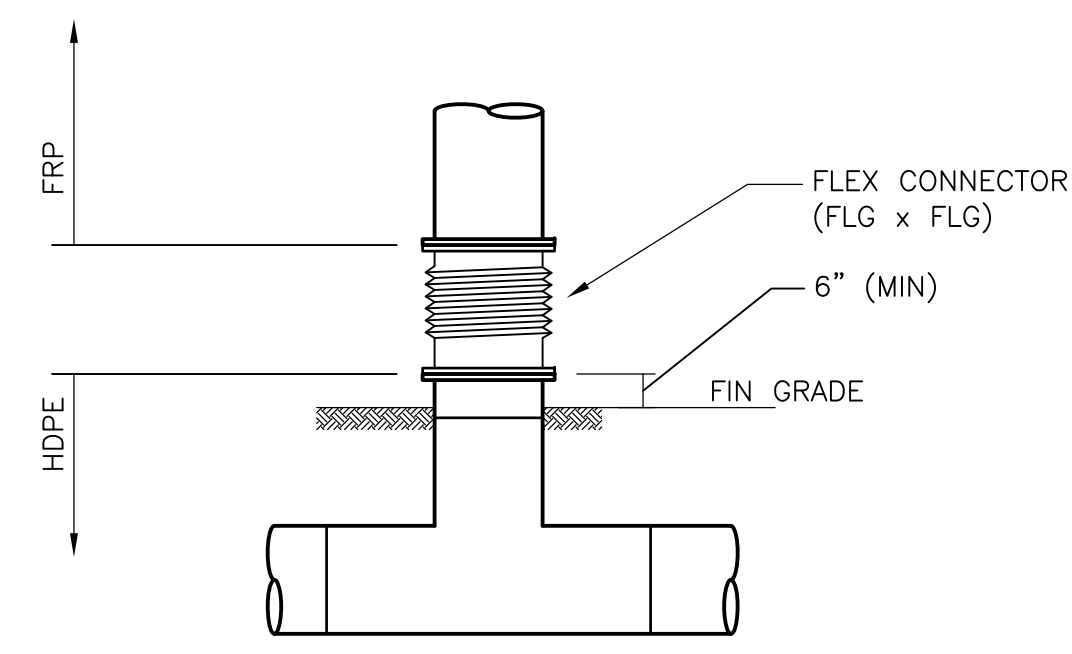


PLAN-NEOPRENECLOSURE FLAP AT SLIDE GATE

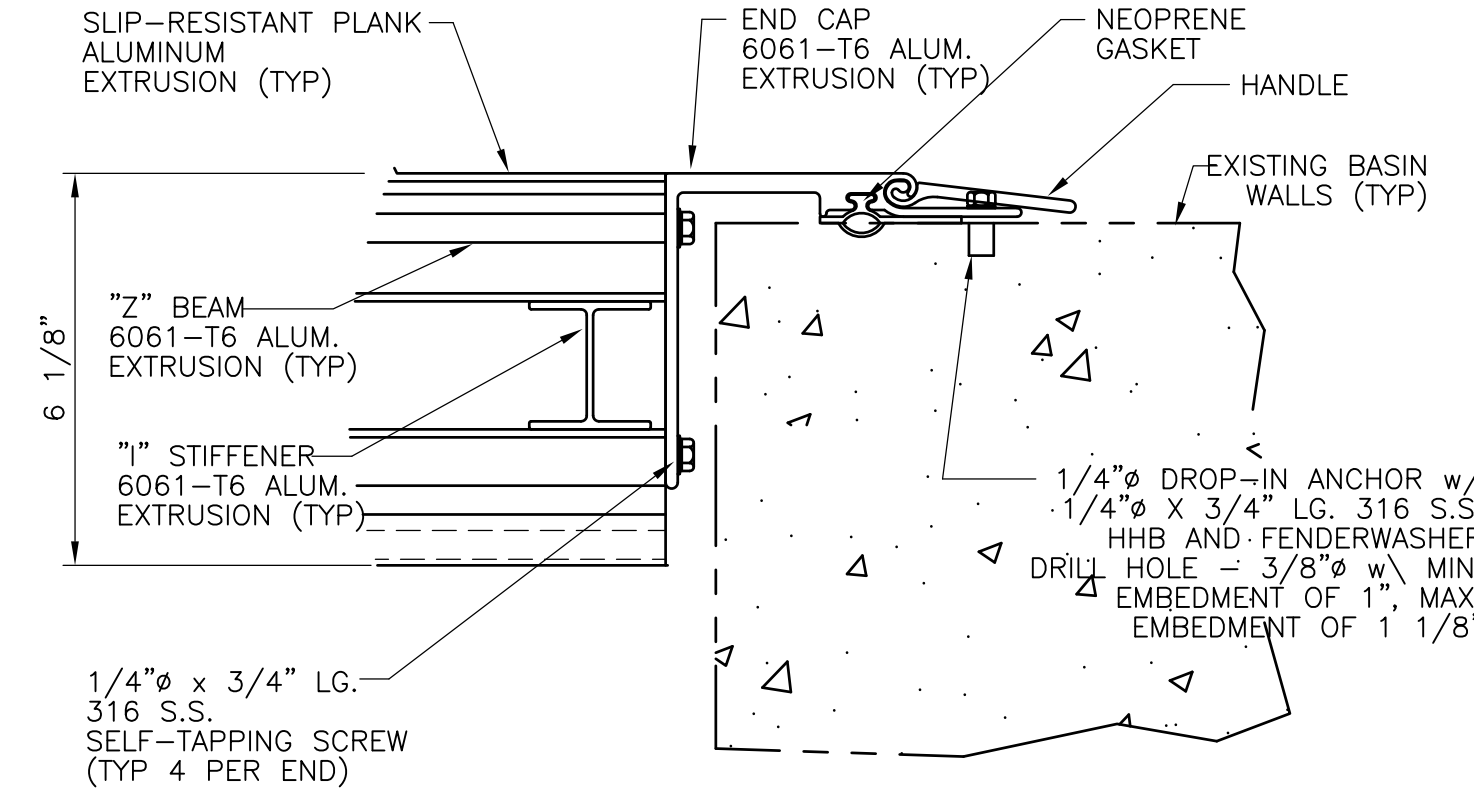
**DETAIL C**  
 NTS PT-M-9



**DUCT CONNECTION**  
**DETAIL A**  
 NTS



**DUCT CONNECTION**  
**DETAIL B**  
 NTS PT-M-10, 12



PANEL ATTACHMENT TO CONCRETE WALL

**DETAIL D**  
 NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MPSPL007.DWG
DESIGNED BY:	W.D. GREEN
DRAWN BY:	J. COMPONESCHI
SHEET CHK'D BY:	K. BISBEE
SCALE:	AS SHOWN
APPROVED BY:	M. GOULD
DATE:	MAY 2006

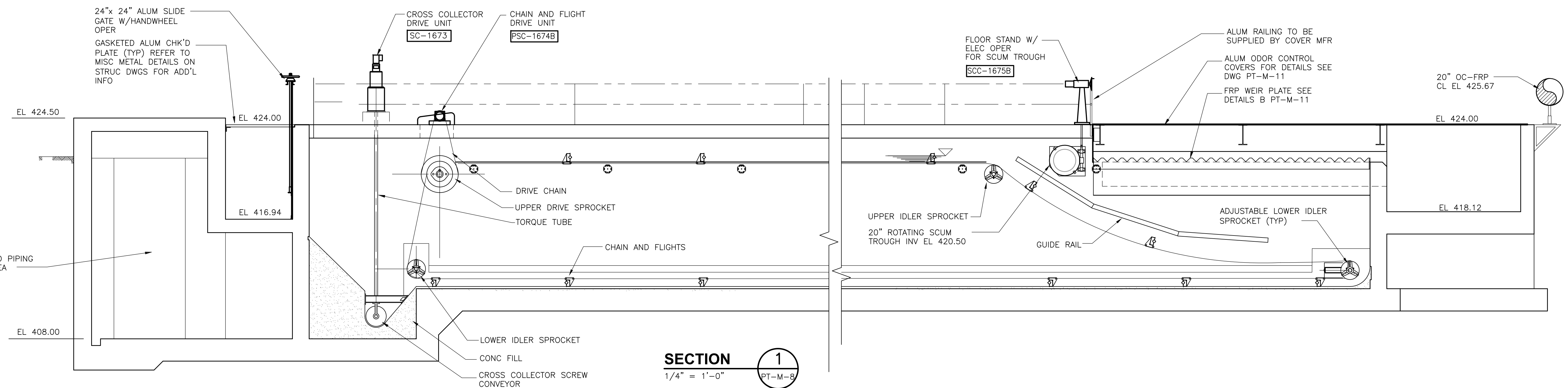
**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

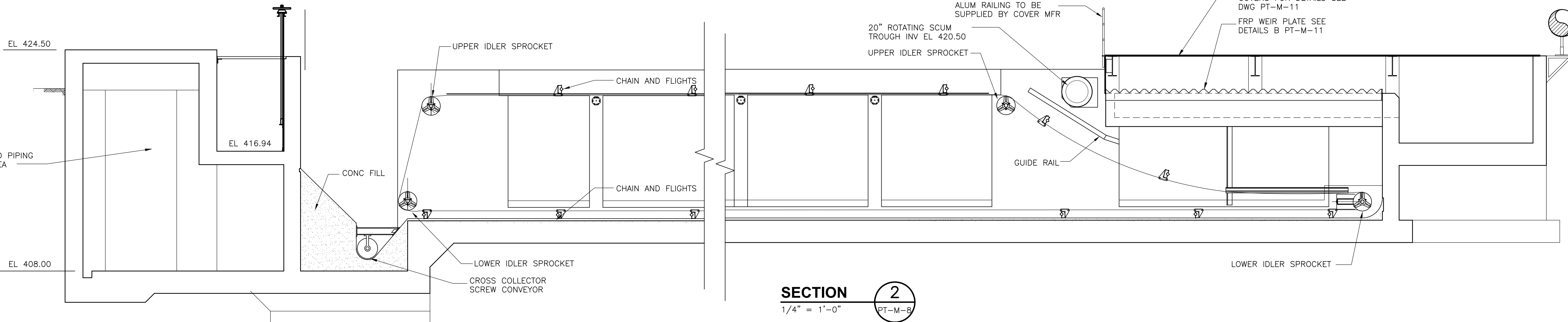
**PRIMARY SETTLING TANKS PLANS**  
**ODOR CONTROL COVERS DETAILS**

PROJECT NO.  
 1289\35370  
 Sht. 171 of 386  
**PT-M-12**

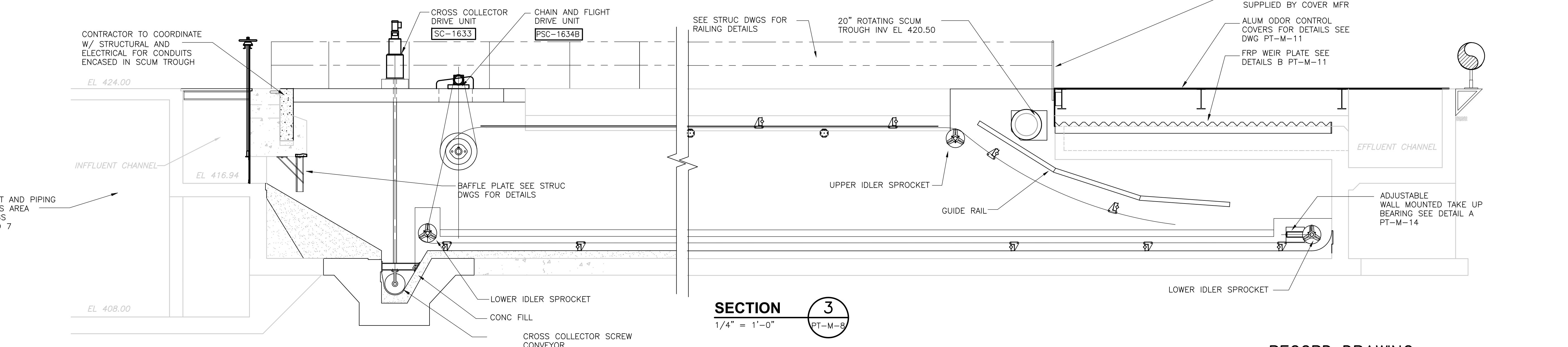
Accession No. 1289-6571



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



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



**SECTION 3**  
1/4" = 1'-0" PT-M-8

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MPSS001.DWG
DESIGNED BY:	W.D. GREEN
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS SHOWN
APPROVED BY:	J.E. MADDEN
DATE:	MAY 2006

CONTRACTOR TO COORDINATE W/ STRUCTURAL AND ELECTRICAL FOR CONDUITS ENCASED IN SCUM TROUGH
---

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

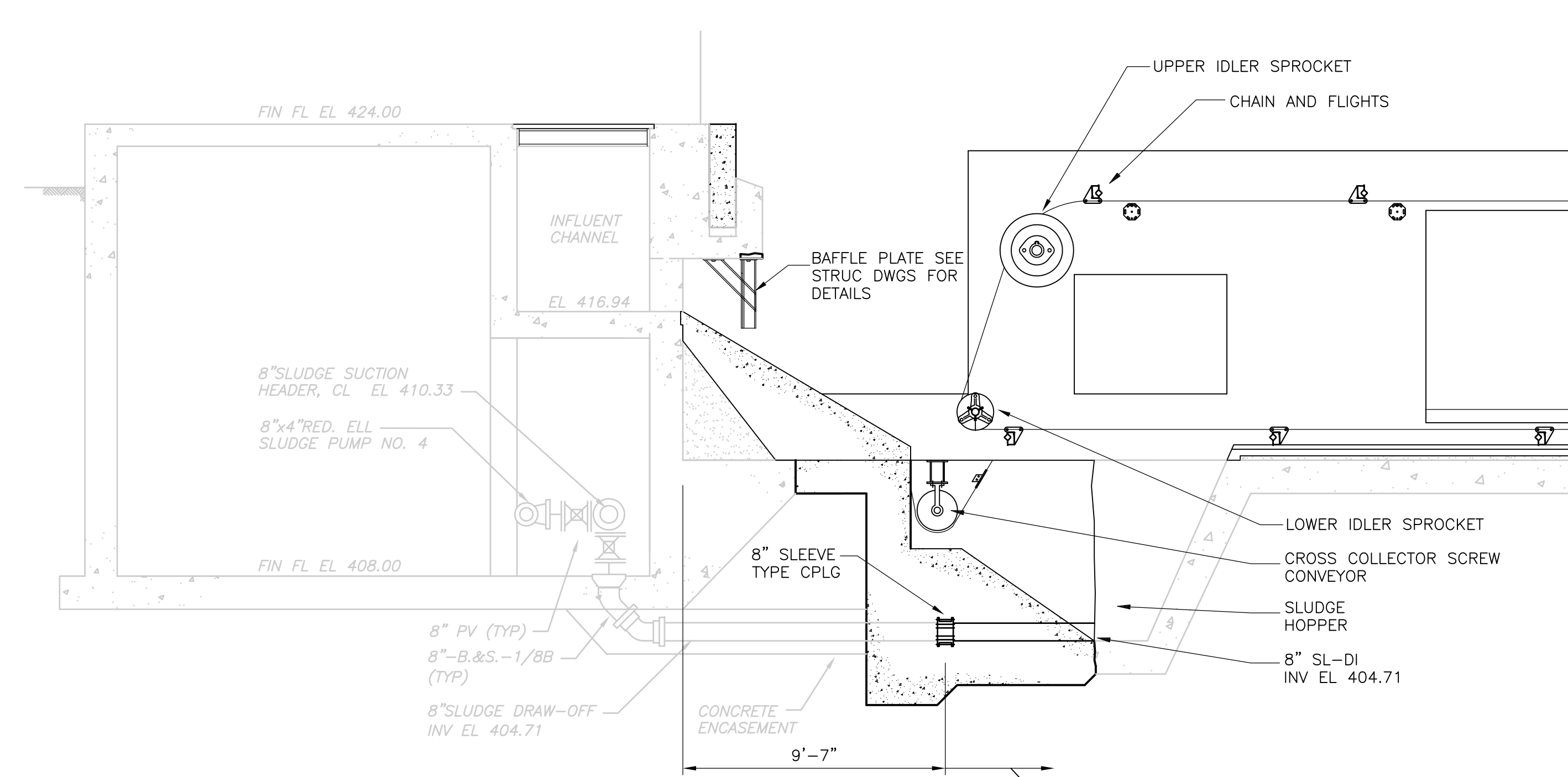
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

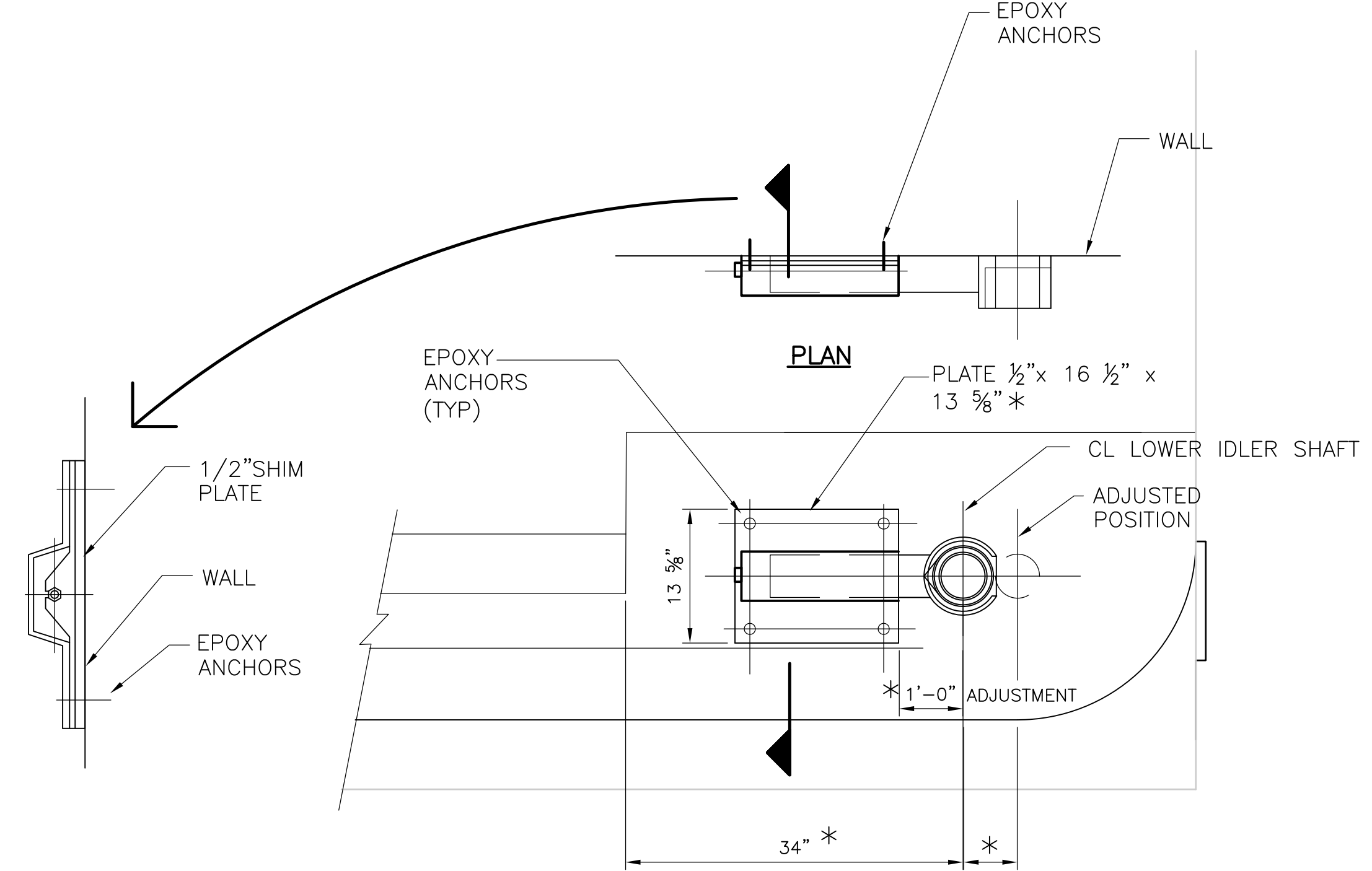
**PRIMARY SETTLING TANKS SECTIONS I**

PROJECT NO. 1289\35370  
Sht. 172 of 386  
**PT-M-13**  
ACCESSION NO. 1289-65972

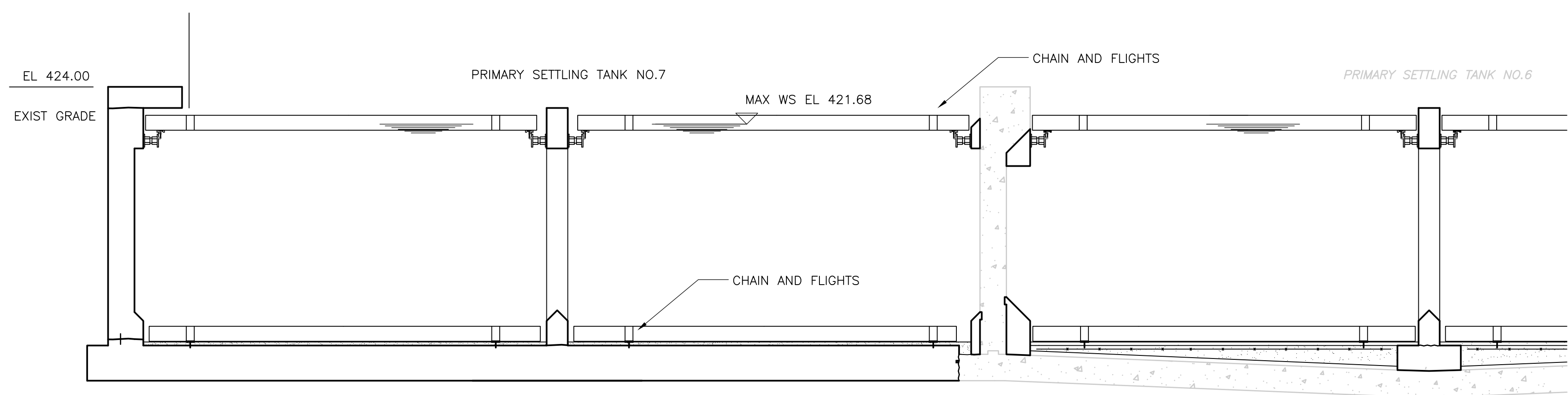
[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\MECH\MPSSC002.dwg Xref's: [C24X3EH, MPSPLO1, SPSSC001, ] Plotted by: CROSSIA Time: 12/16/08 6:26:03 PM



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



**DETAIL A**  
1" = 1'-0"

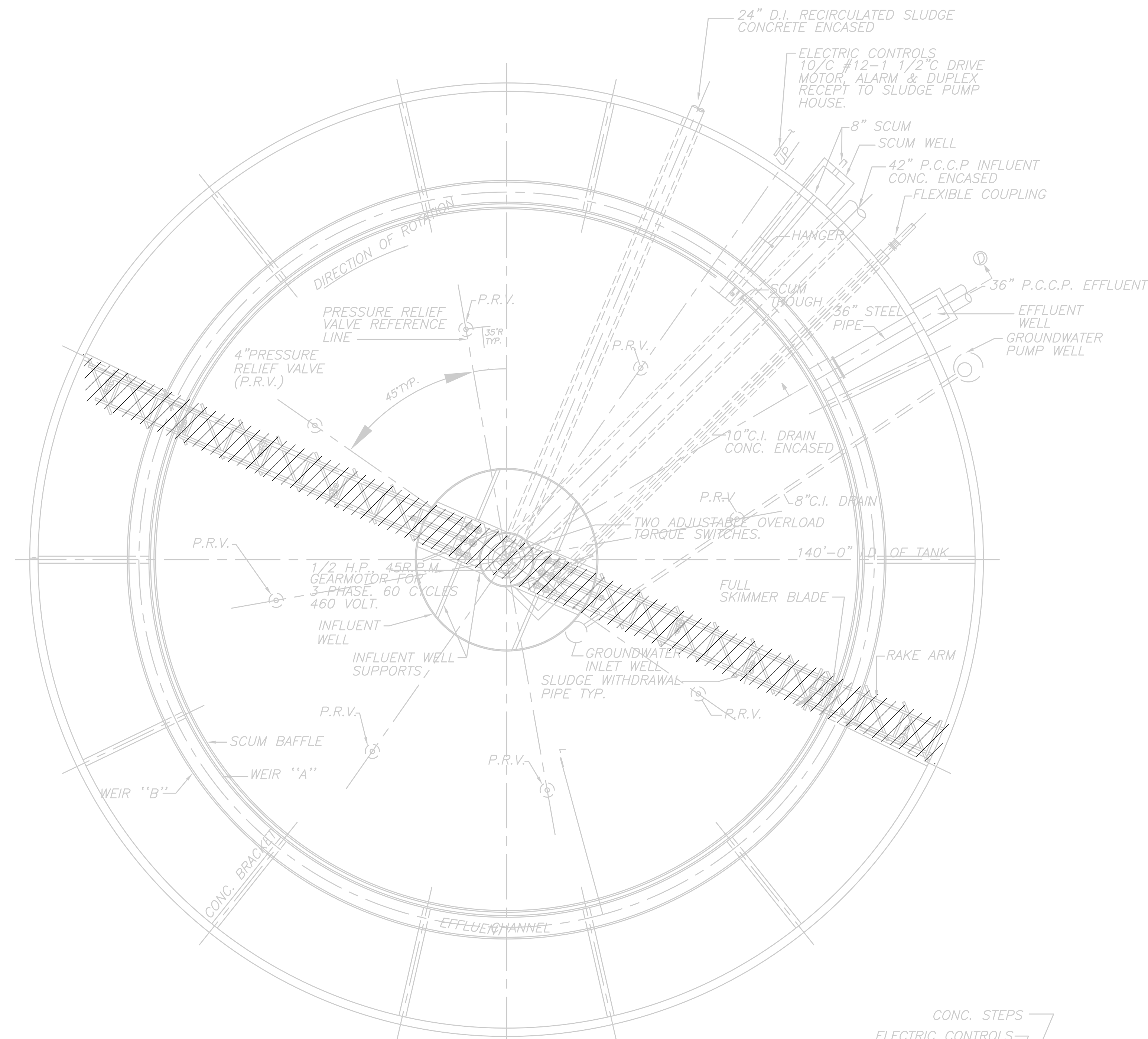


**SECTION 2**  
1/4" = 1'-0" PT-M-8

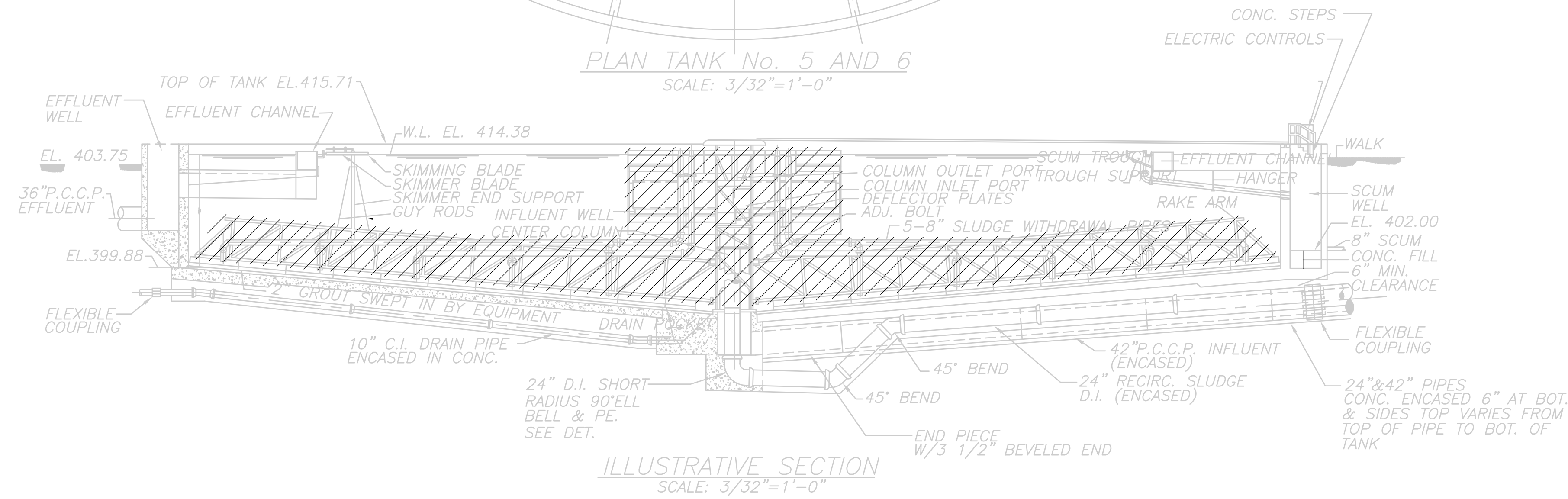
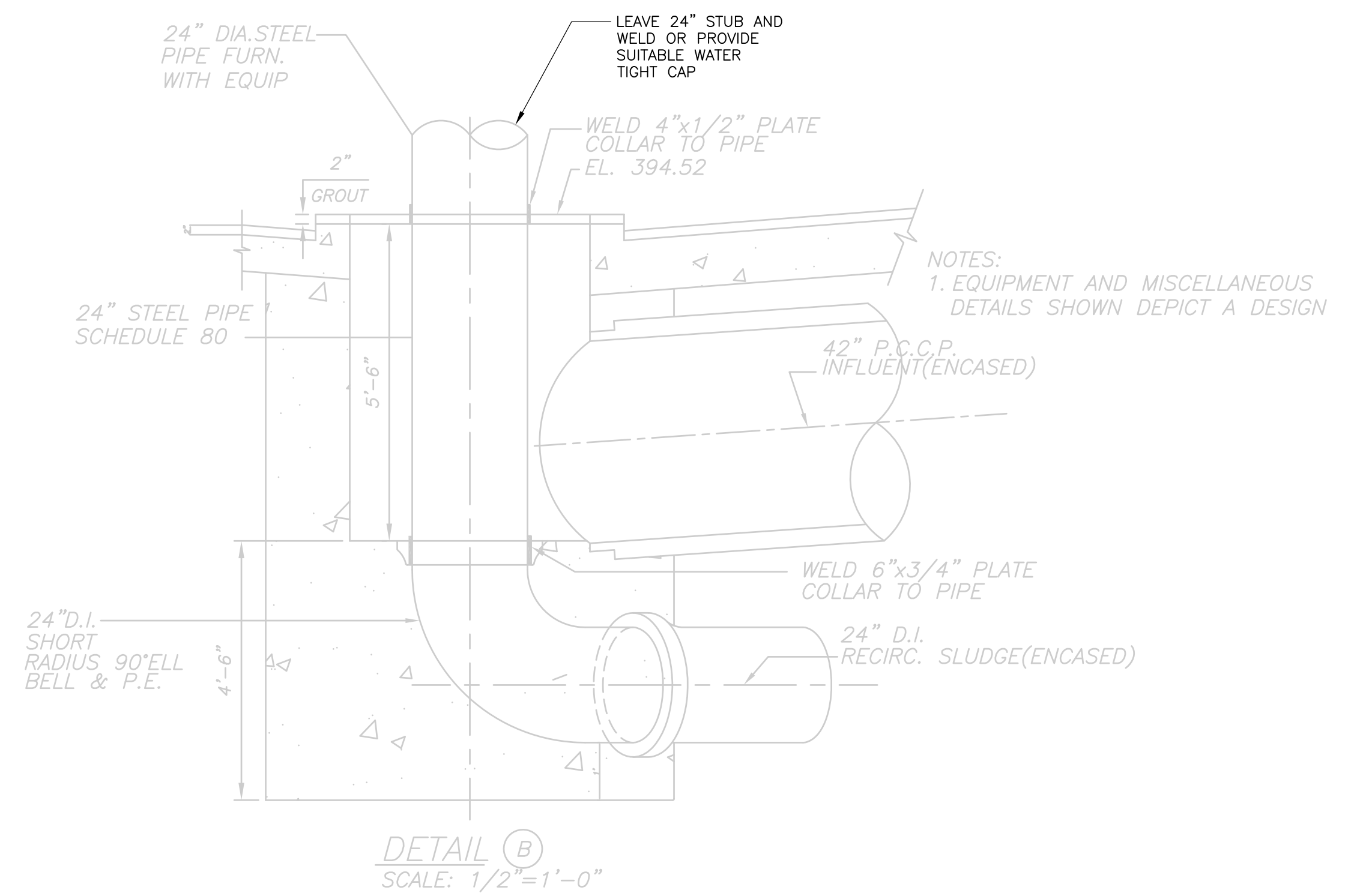
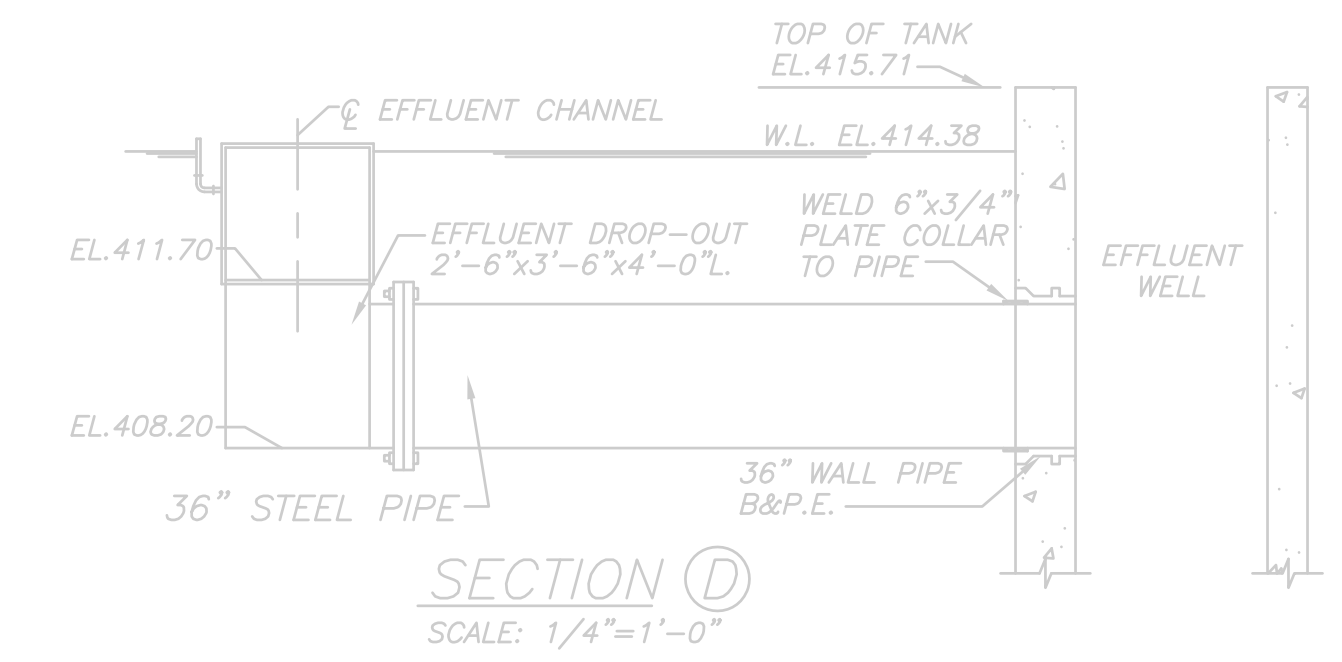
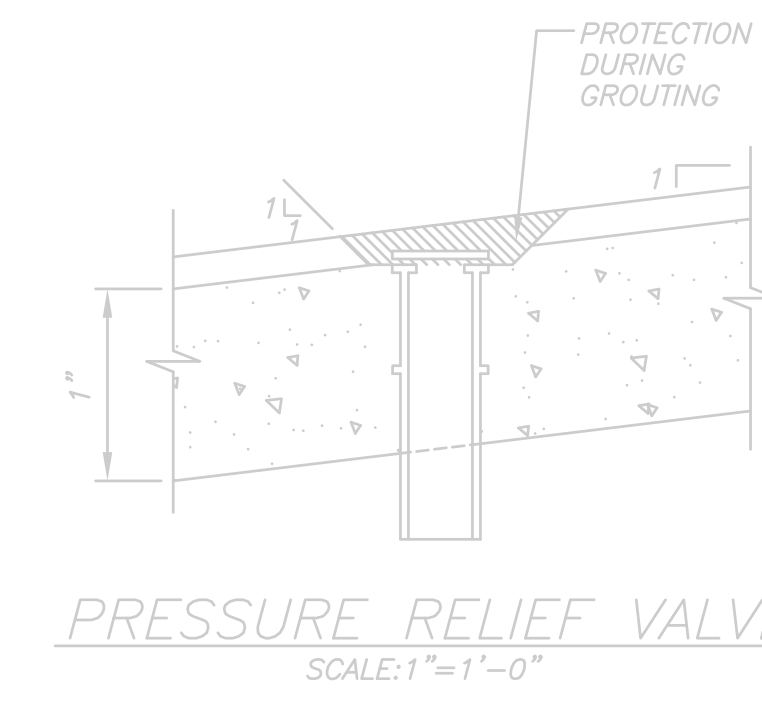
1/4" = 1'-0"  
2 1 0 2 4

RECORD DRAWING

CADD FILE NO. <u>MPSSC002.DWG</u> DESIGNED BY: <u>W.D. GREEN</u> DRAWN BY: <u>W. DORSEY</u> SHEET CHK'D BY: <u>W.D. GREEN</u> SCALE: <u>AS SHOWN</u> APPROVED BY: <u>J.E. MADDEN</u> DATE: <u>MAY 2006</u>					UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>	<b>PRIMARY SETTLING TANKS          SECTIONS II</b>	PROJECT NO. 1289\35370
REV. NO.   DATE   DRWN   CHKD   REMARKS 3/07   SPV   ADT   NO REVISION REQUIRED FOR THE RECORD	Sht. 173 of 386 <b>PT-M-14</b>						



PLAN TANK No. 5 AND 6  
 SCALE: 3/32"=1'-0"



ILLUSTRATIVE SECTION  
 SCALE: 3/32"=1'-0"

**NOTES:**

1. DEMO TO BE CONDUCTED AS SHOWN IN FINAL SETTLING TANKS NO'S 5 & 6
2. ALL EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT, DRIVES, AND DEVICES NOT SHOWN ON THE DRAWING IN EACH FINAL SETTLING TANK SHALL ALSO BE DEMOLISHED.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MFTDM001.DWG
DESIGNED BY:	W.D. GREEN
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

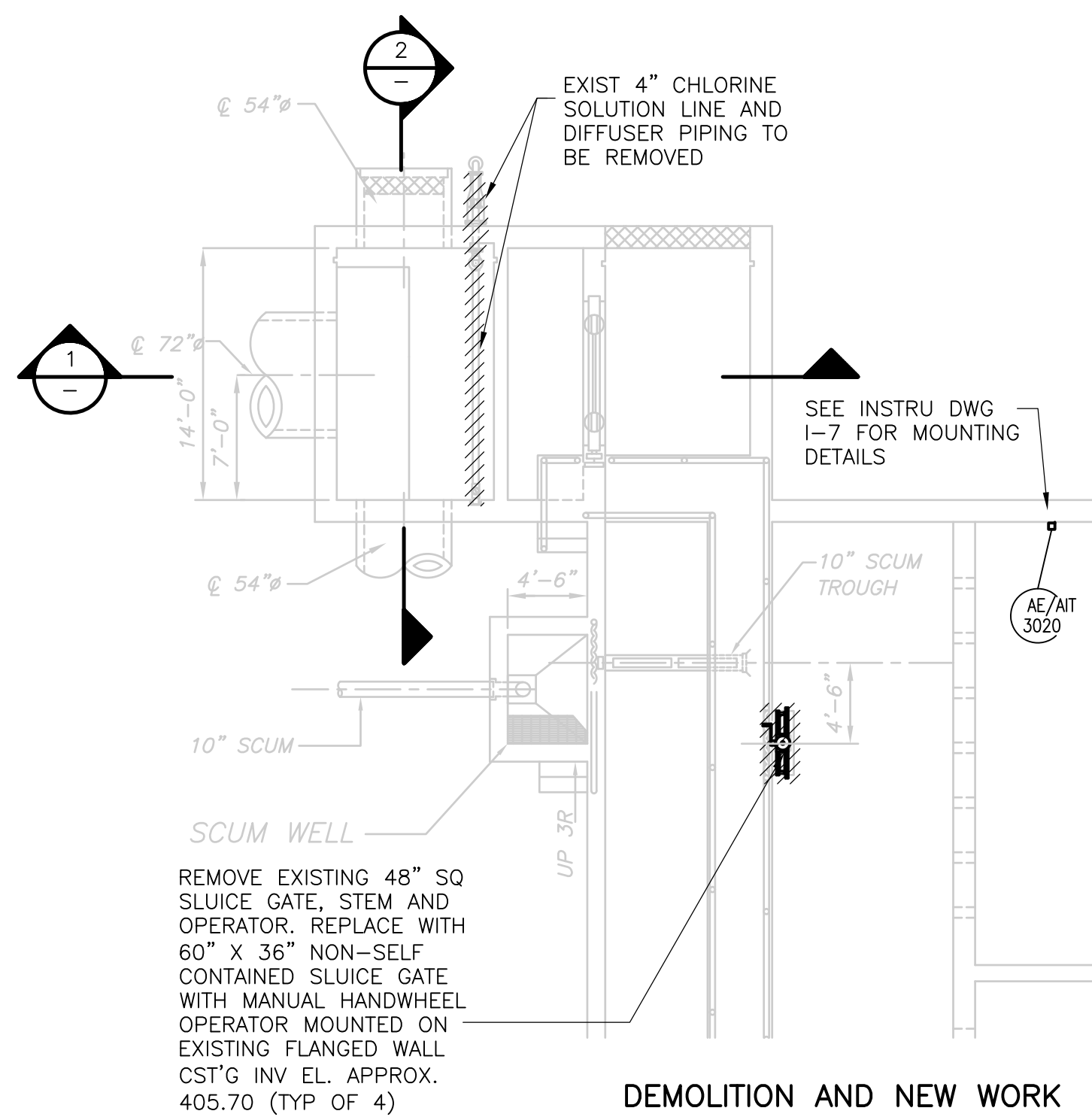
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**FINAL SETTLING TANKS 5 & 6  
 DEMOLITION**

PROJECT NO.  
 1289\35370

Sht. 173A of 386

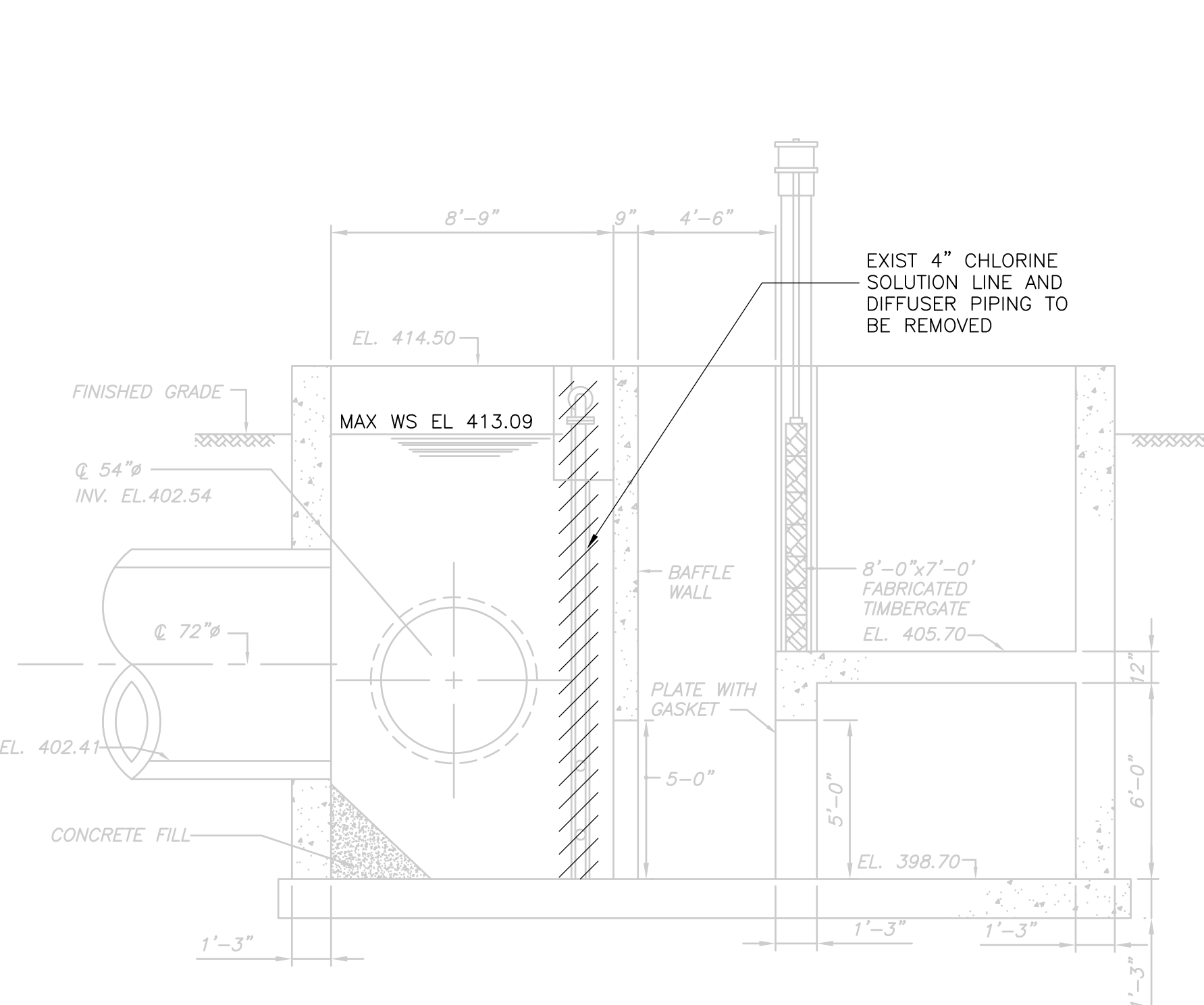
**FT-M-1**



DEMOLITION AND NEW WORK

**PLAN**

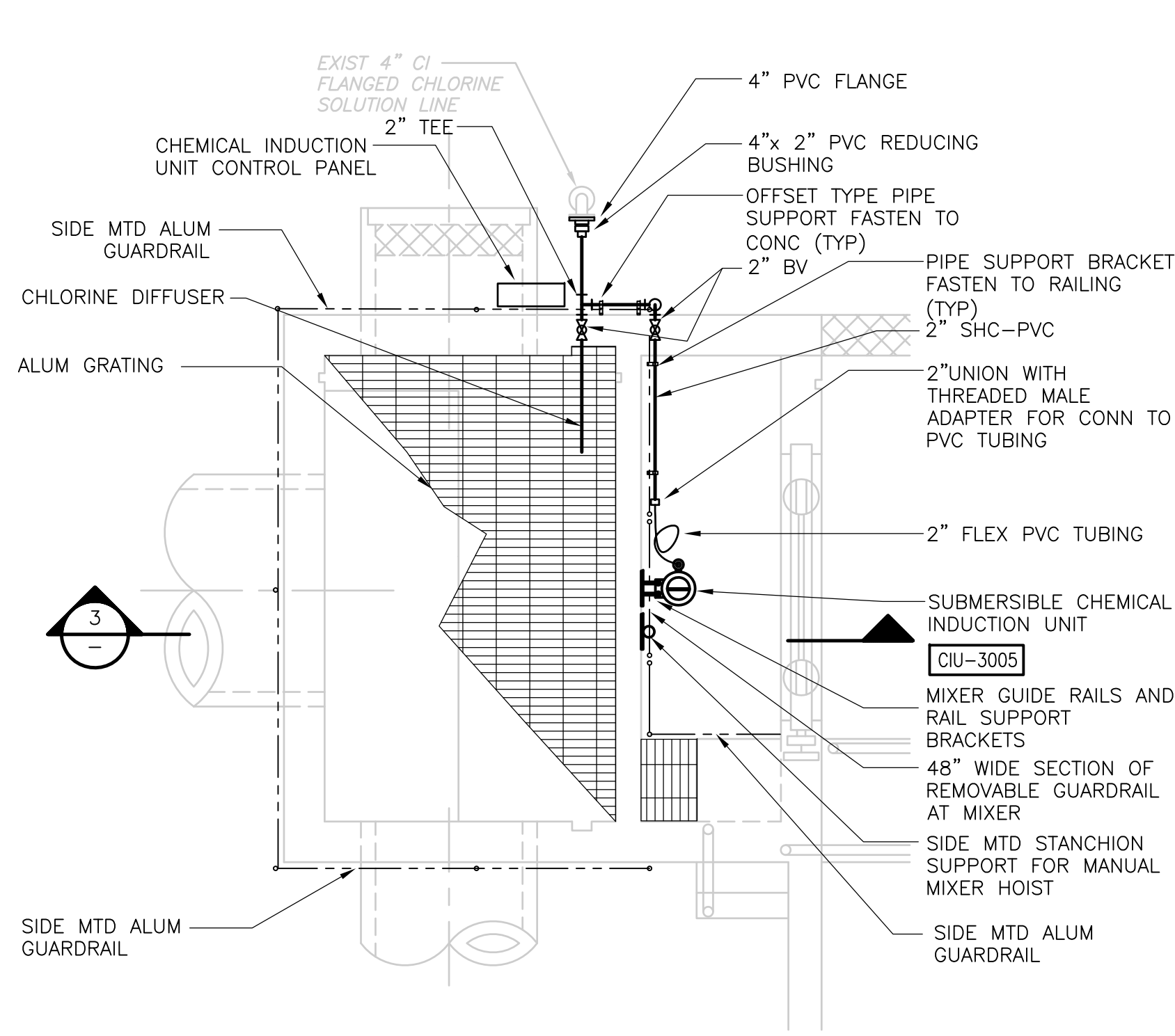
1/8" = 1'-0"



**DEMOLITION**

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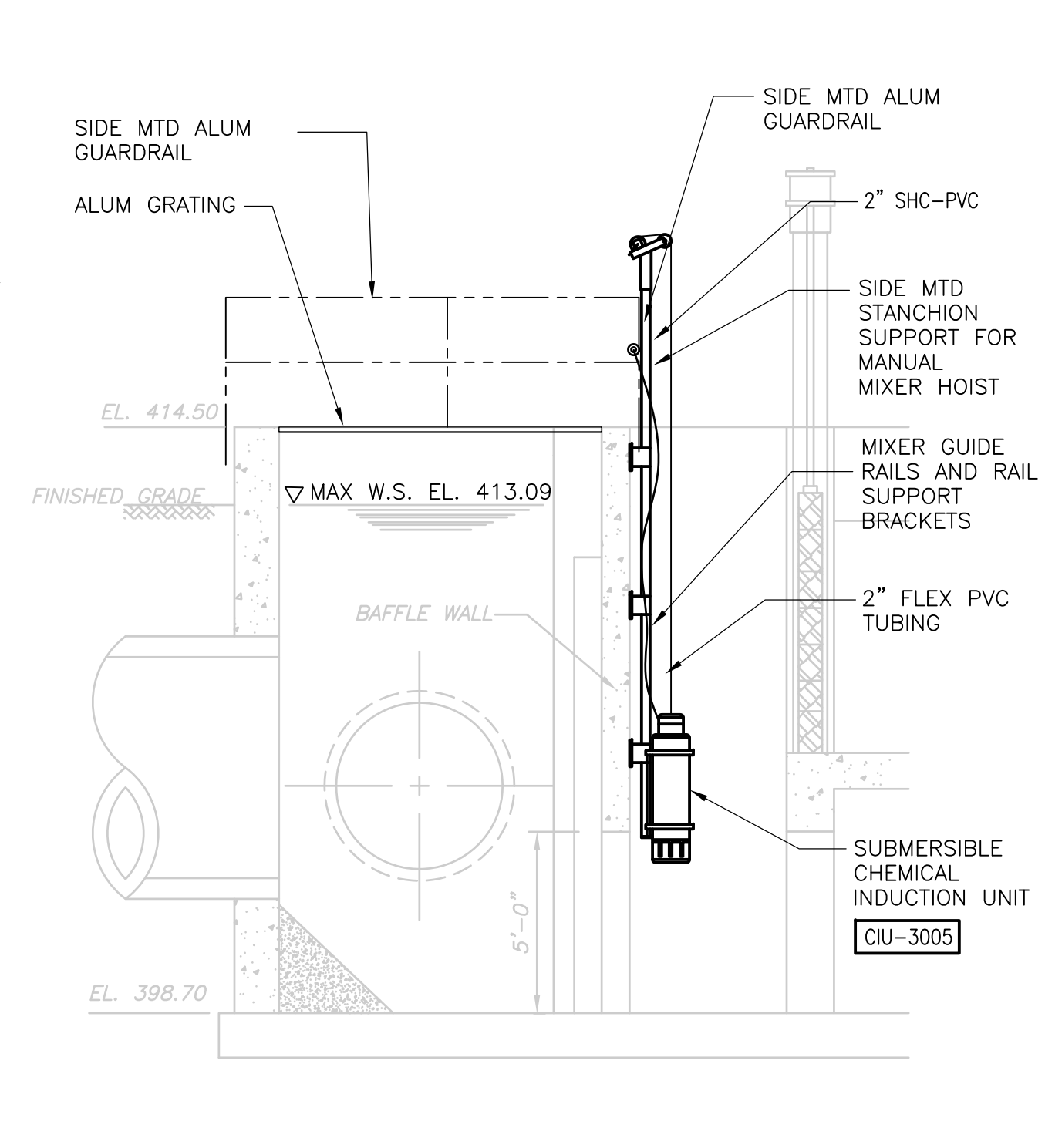
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**NEW WORK**

**PLAN**

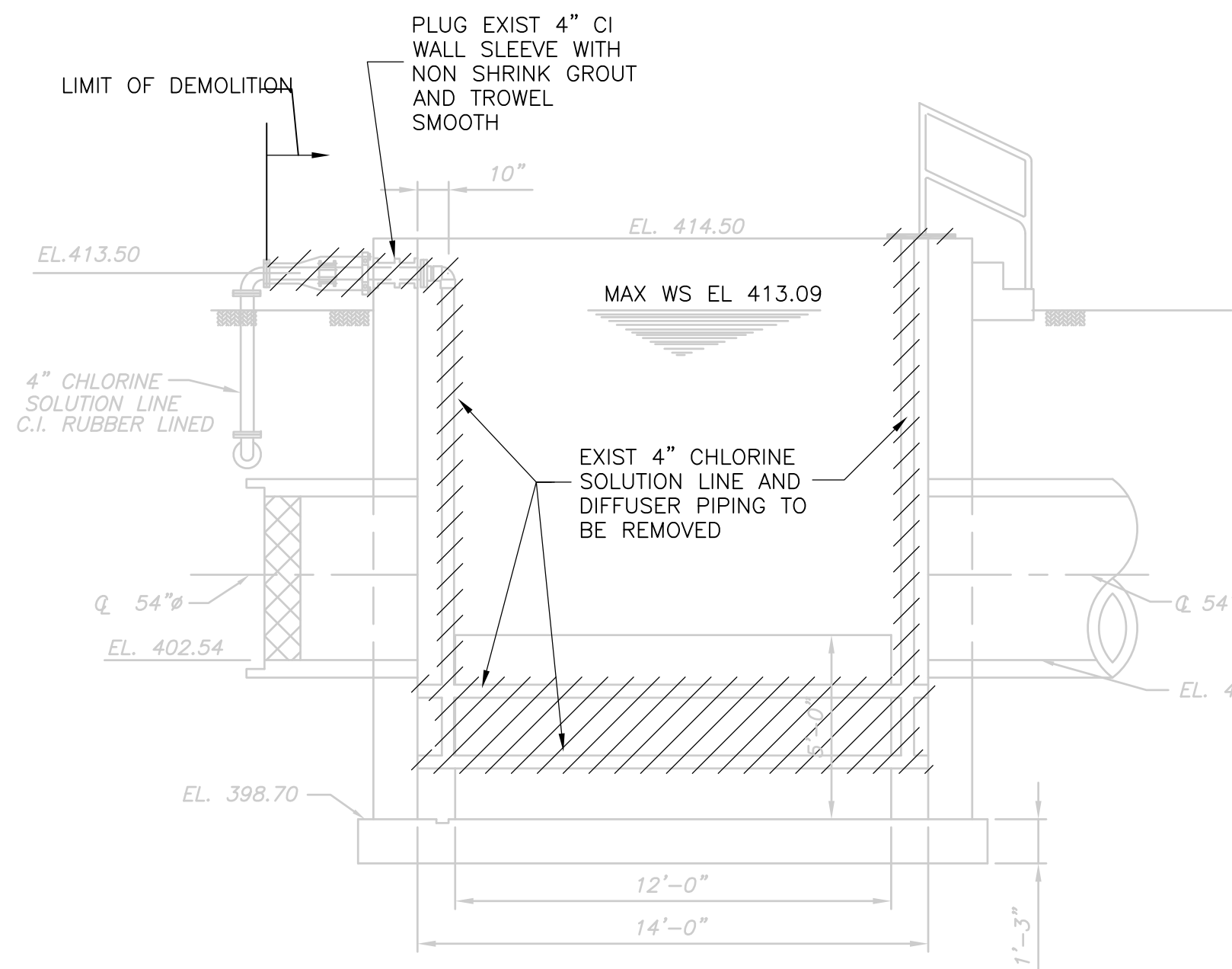
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**NEW WORK**

**SECTION 3**

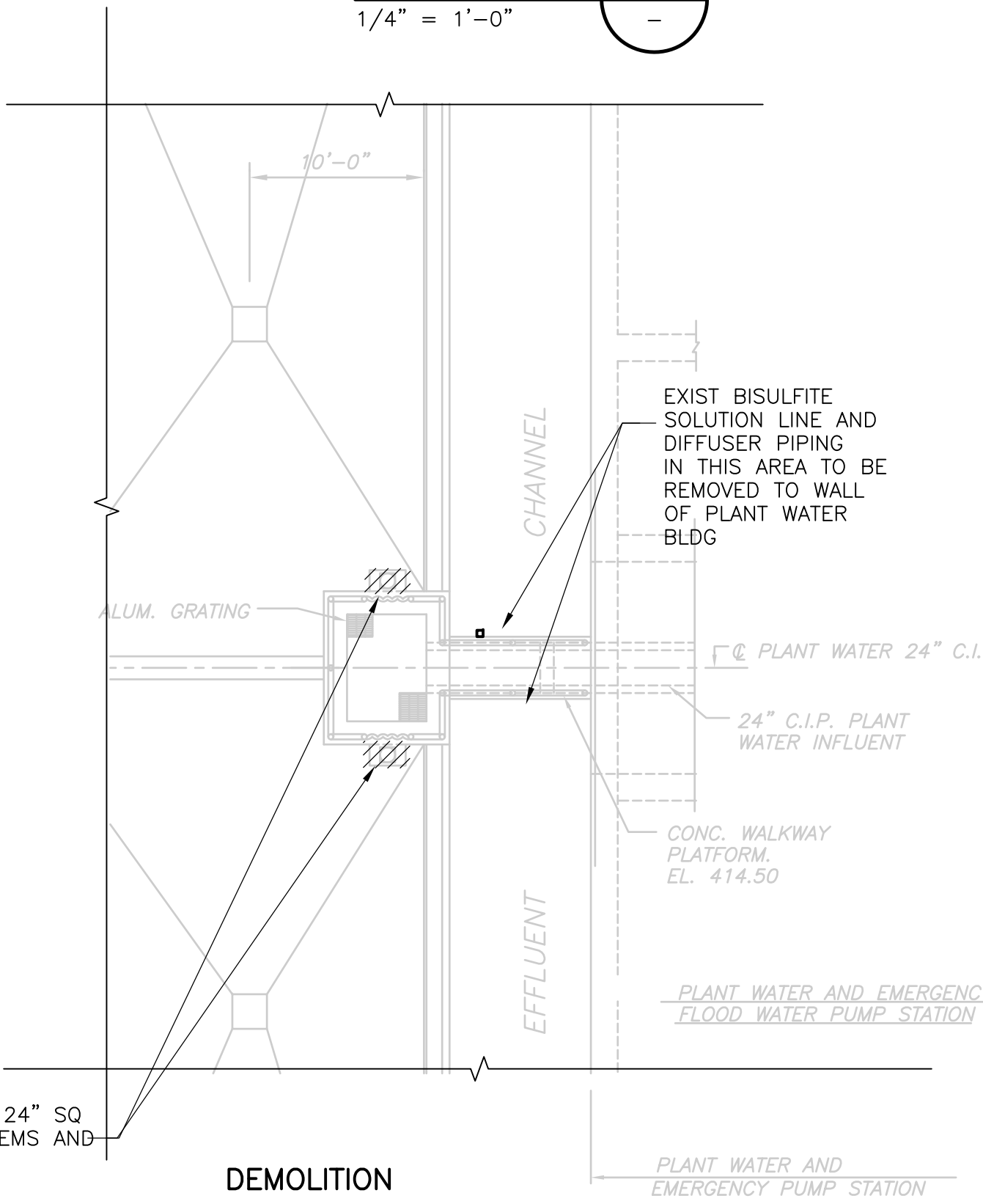
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**DEMOLITION**

**SECTION 2**

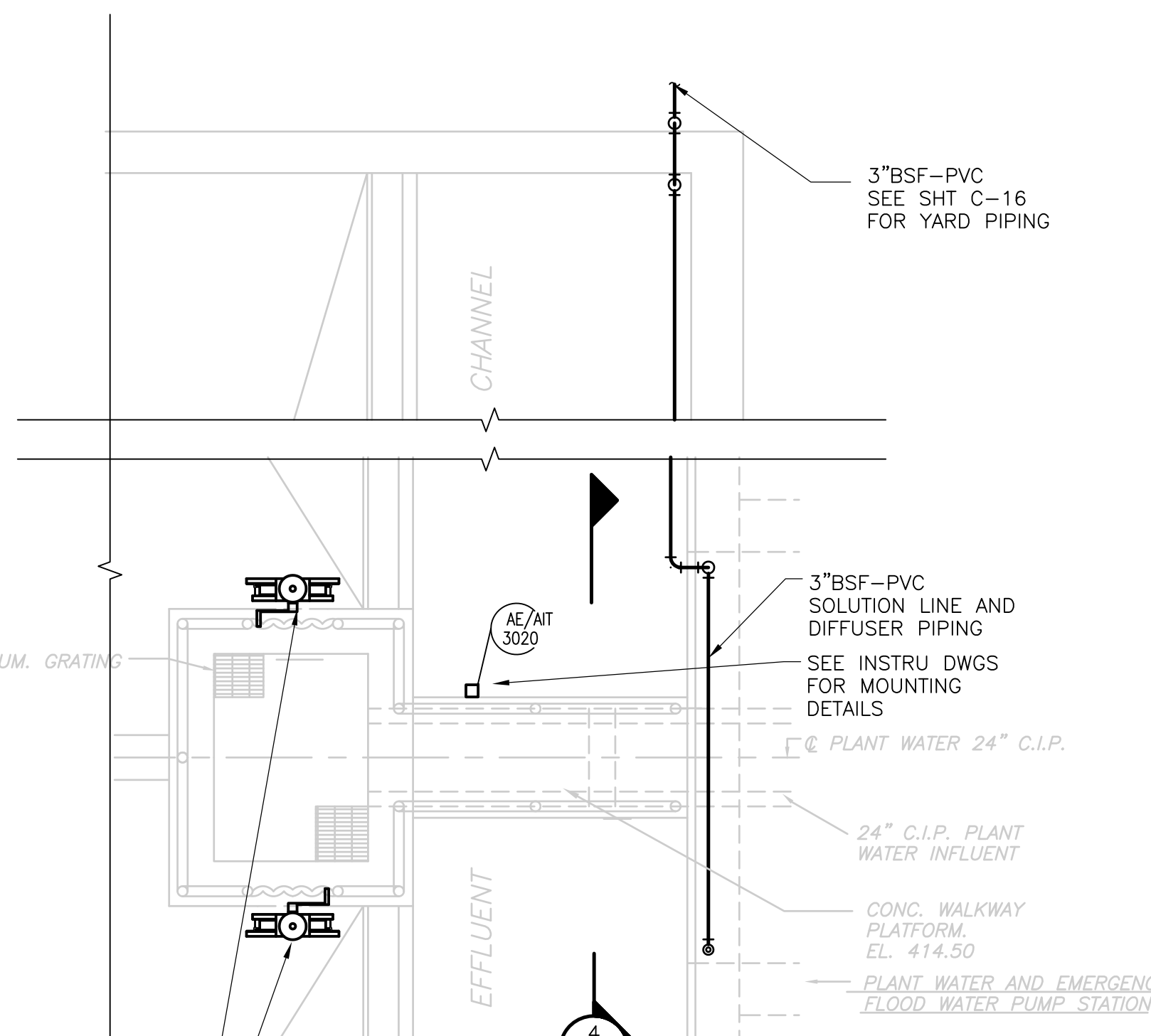
1/4" = 1'-0"



**DEMOLITION**

**PLAN**

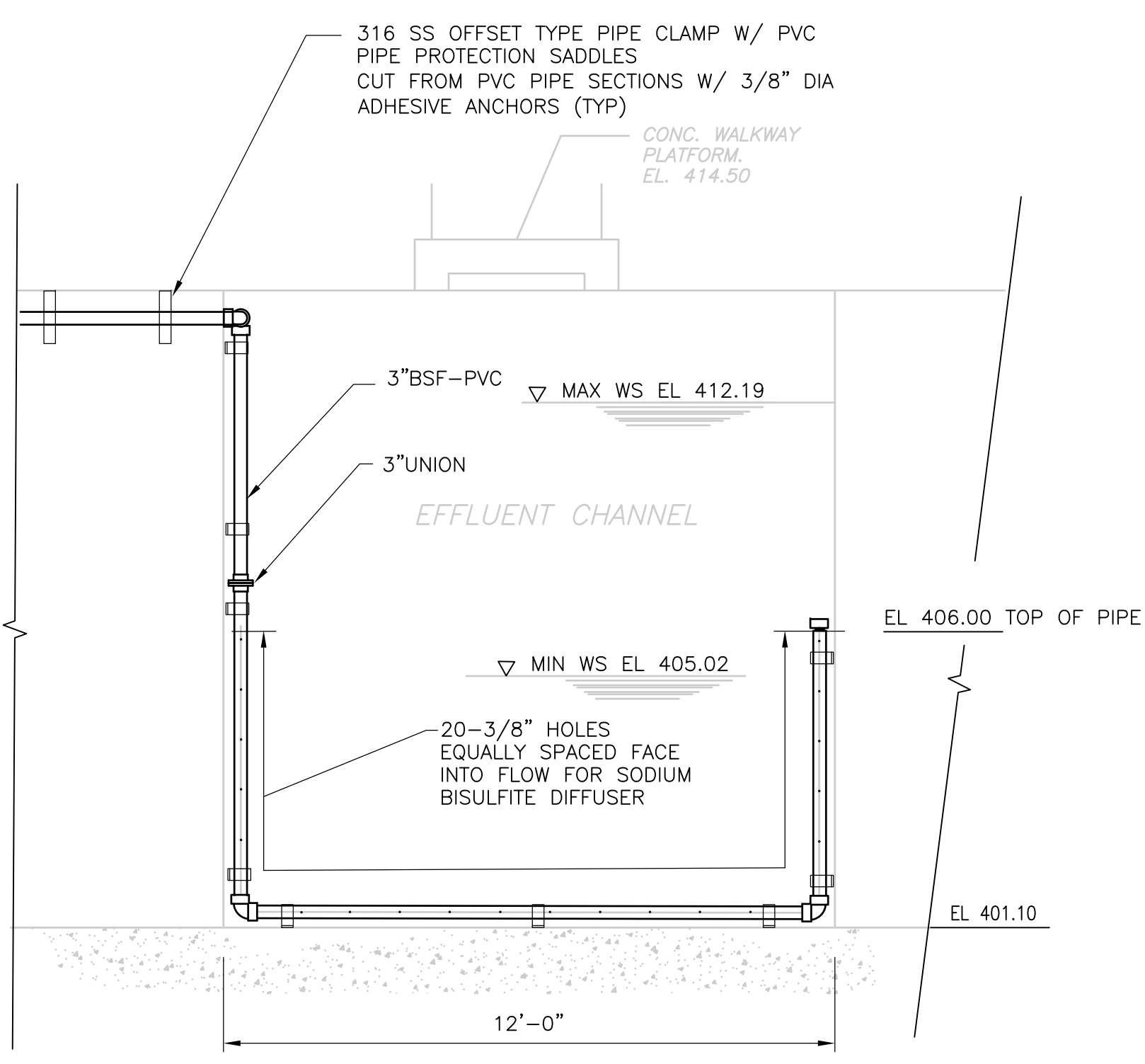
1/8" = 1'-0"



**NEW WORK**

**PLAN**

1/4" = 1'-0"



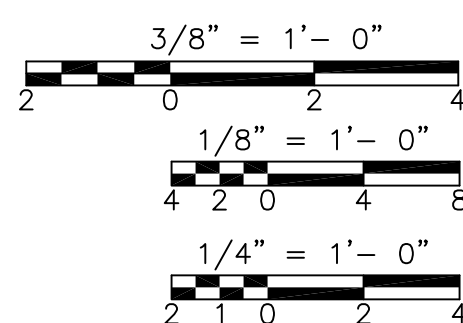
**NEW WORK**

**SECTION 4**

3/8" = 1'-0"

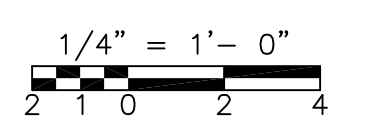
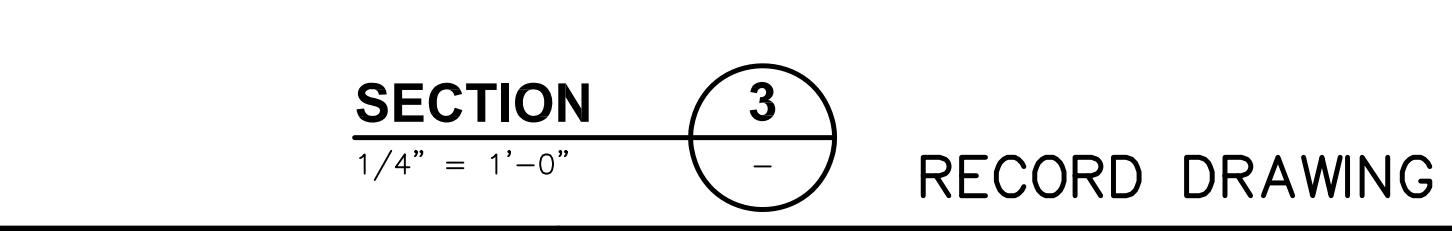
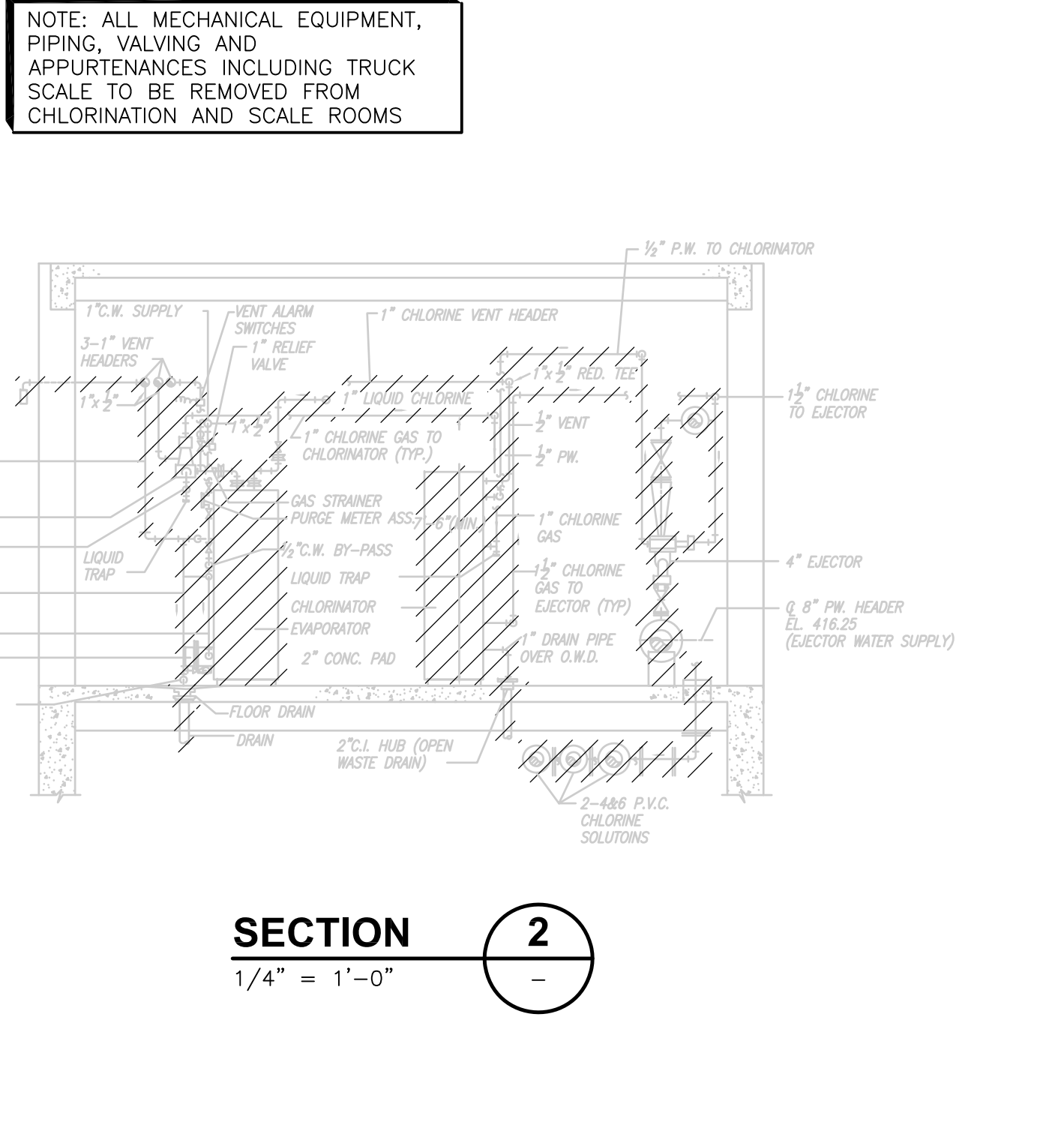
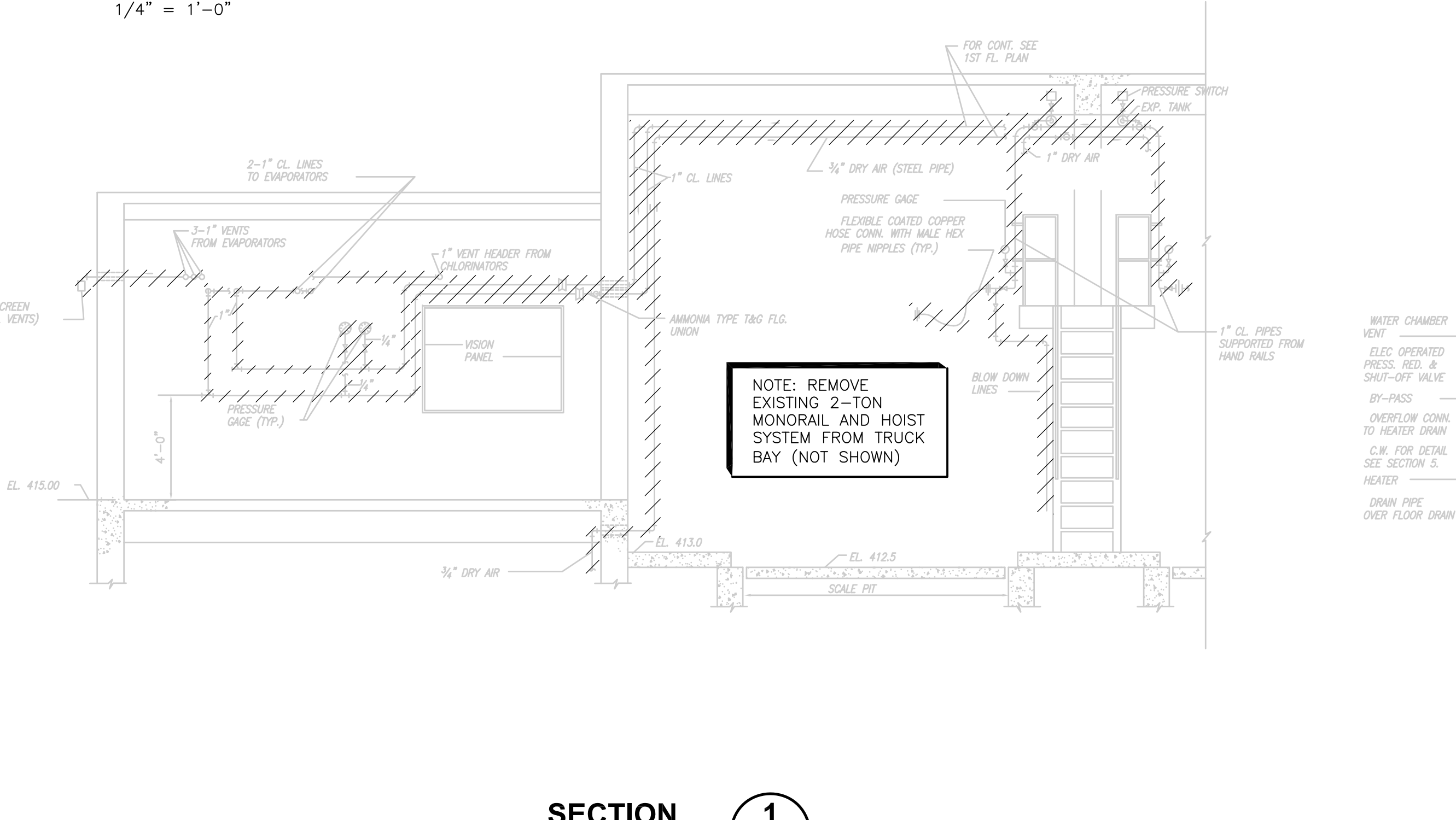
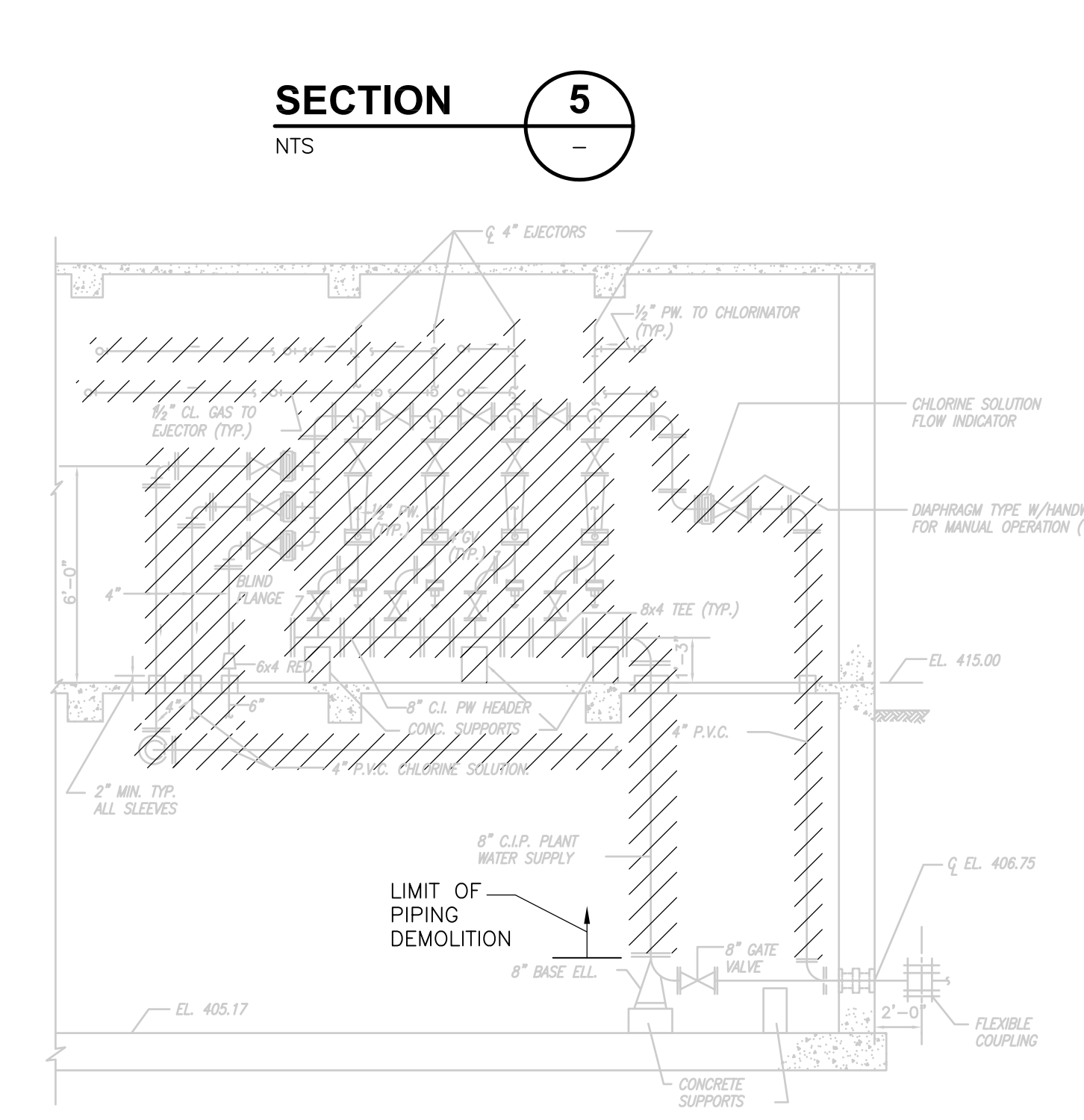
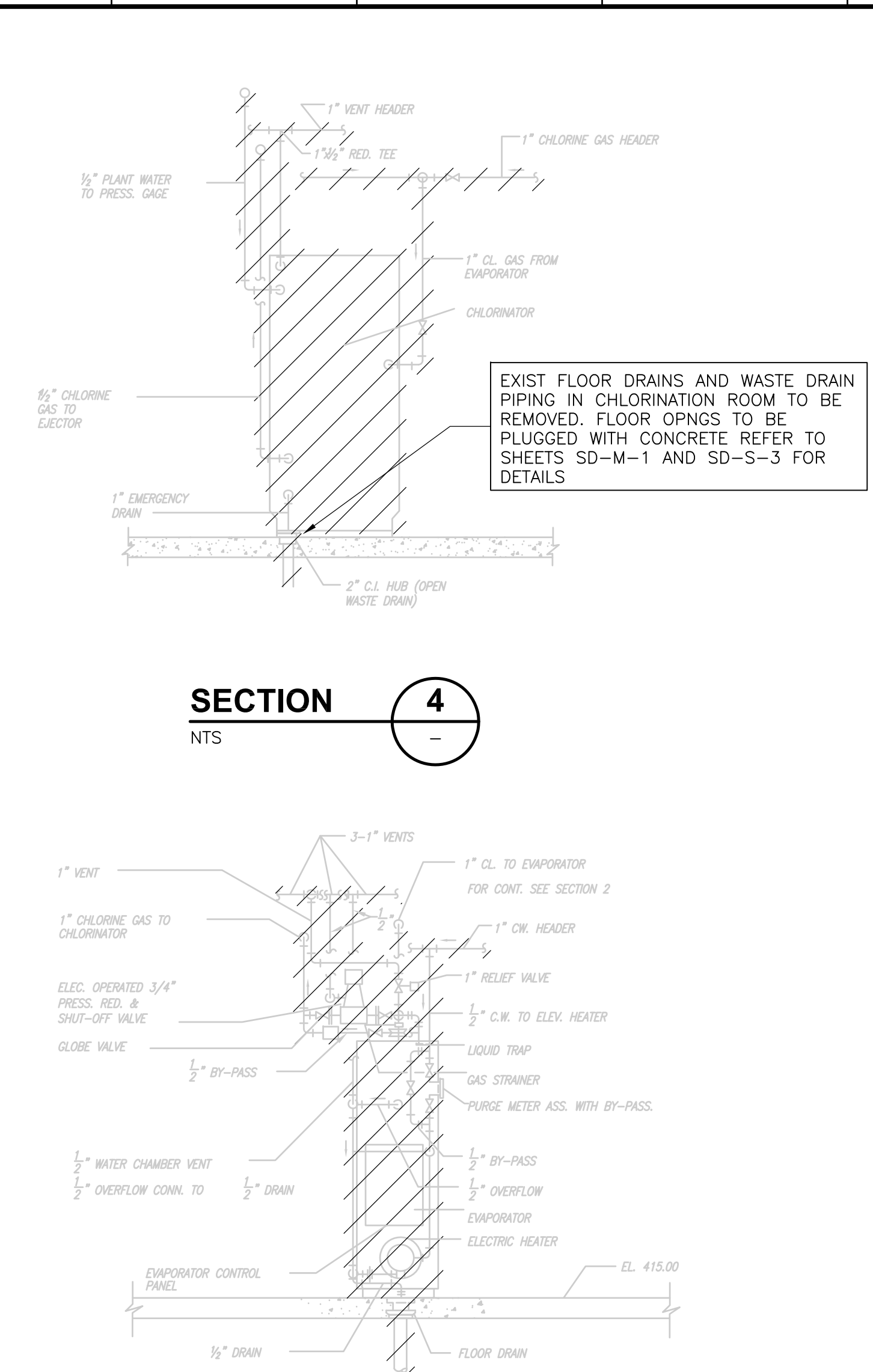
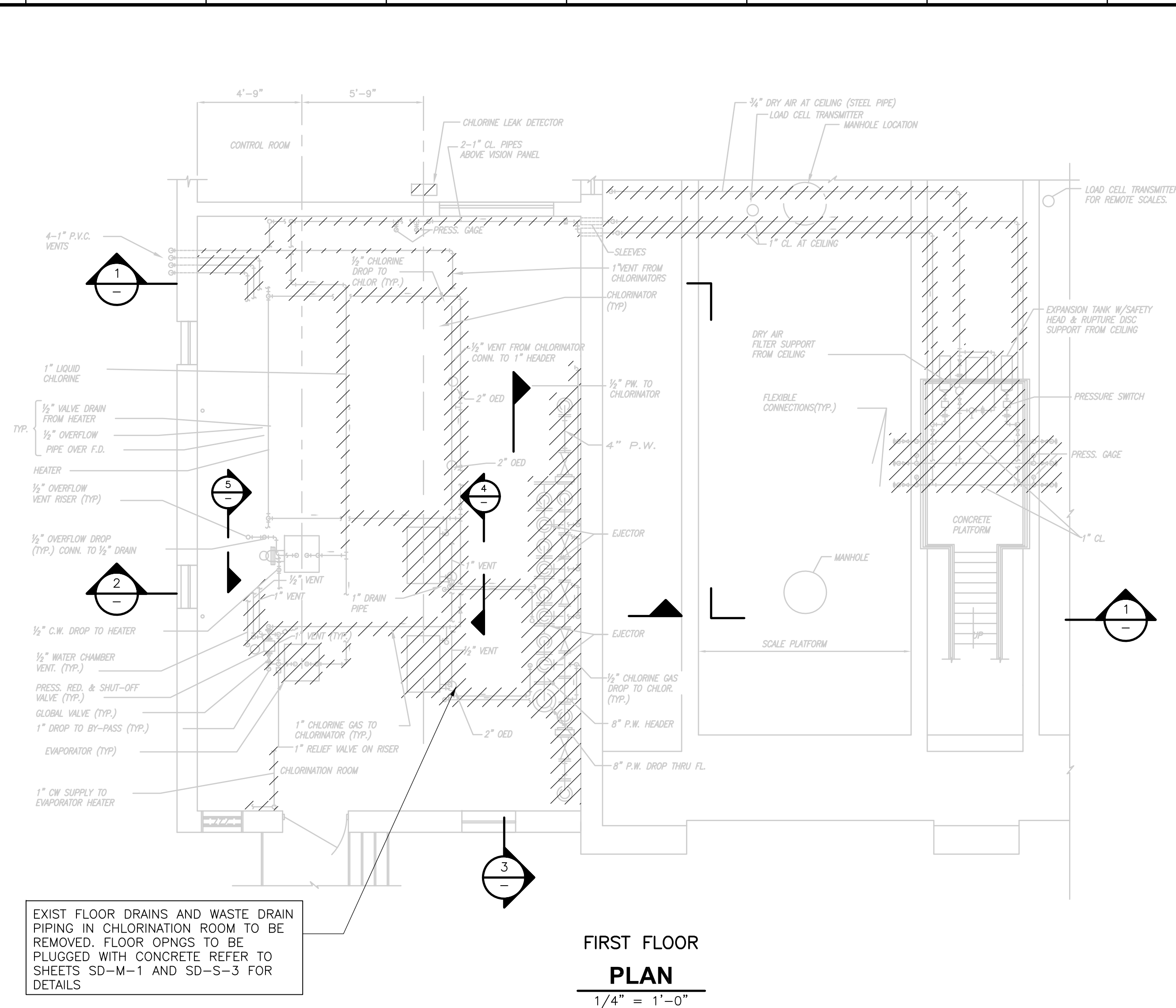
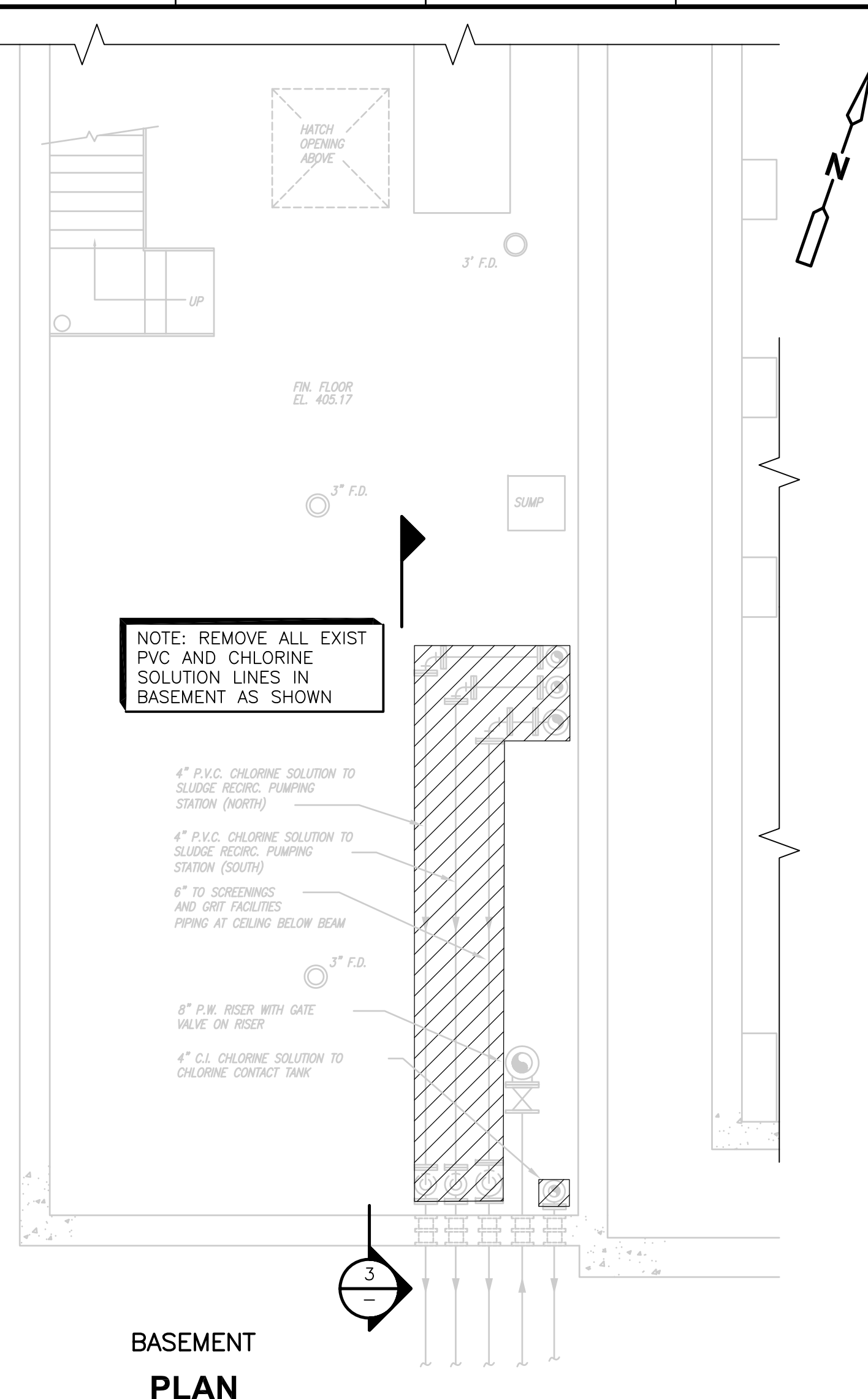
**NOTES:**

- SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM RECORD DRAWINGS PRODUCED BY FAY, SPOFFARD AND THORNDIKE INC. ENGINEERS, TITLED "REGIONAL WASTEWATER TREATMENT FACILITIES, CONTRACT NO. 2", DATED FEBRUARY 1973. ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.



**RECORD DRAWING**

<p>CADD FILE NO. MCTDM001.DWG          DESIGNED BY: K. SANGREY          DRAWN BY: W. DORSEY          SHEET CHK'D BY: K. SANGREY          SCALE: AS NOTED          APPROVED BY: J.E.MADDEN          DATE: MAY 2006</p>				<p><b>CDM</b> Camp Dresser &amp; McKee Inc.          consulting engineering construction operations</p>		<p><b>UPPER BLACKSTONE</b>          WATER POLLUTION ABATEMENT DISTRICT          CONTRACT No. UB 2024</p>		<p><b>CHLORINE CONTACT TANK</b>          DEMOLITION AND NEW WORK          PLANS AND SECTIONS</p>		<p>PROJECT NO. 1289\35370          Sht. 174 of 386  <b>CT-M-1</b></p>	
REV. NO.	DATE	DRWN	CHKD	REMARKS							
5/07	SPV	ADT		REVISED FOR THE RECORD							



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MDFDM001.DWG
DESIGNED BY:	K. SANGREY
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	K. SANGREY
SCALE:	AS NOTED
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

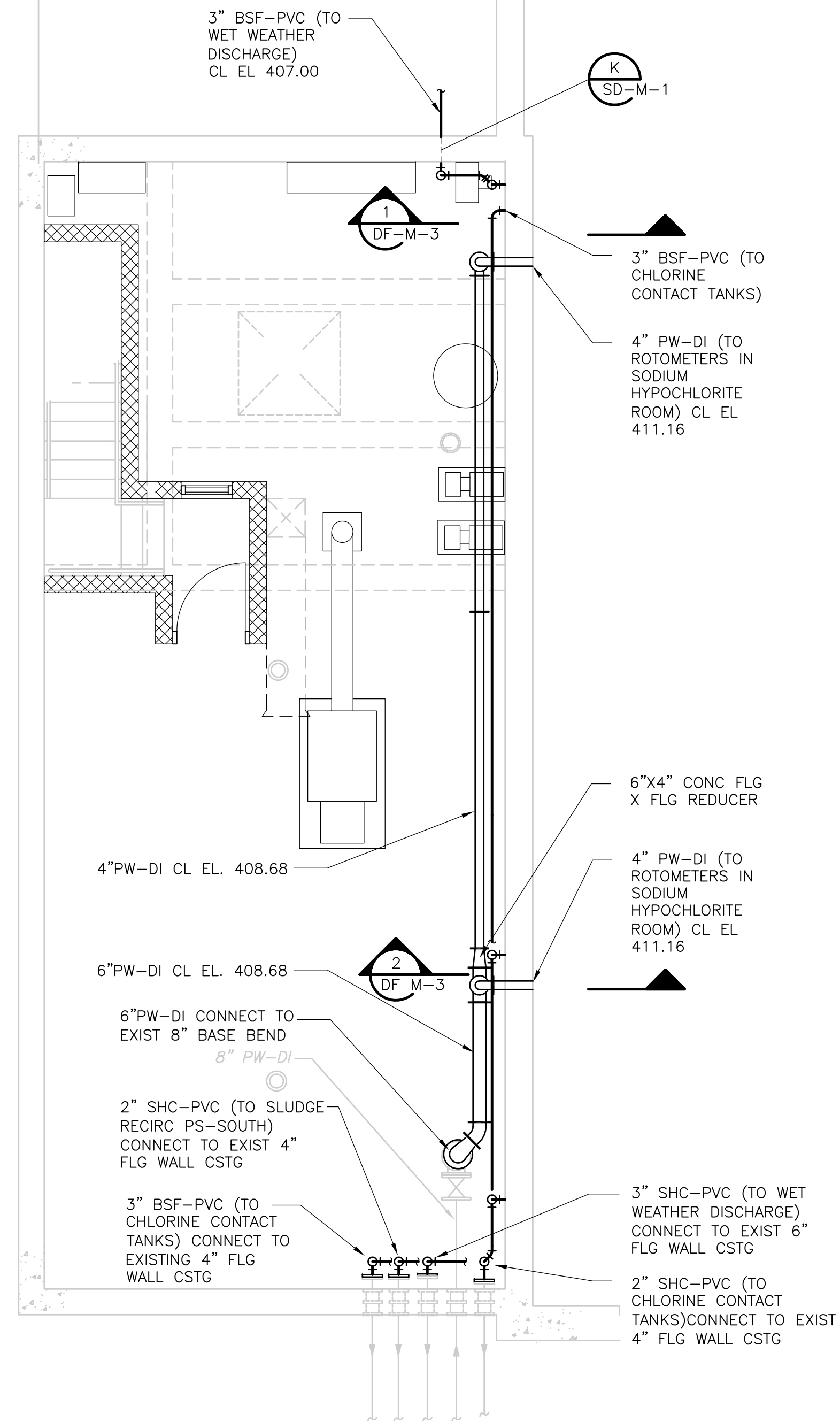
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**DISINFECTION FACILITY**  
**DEMOLITION PLANS AND SECTIONS**

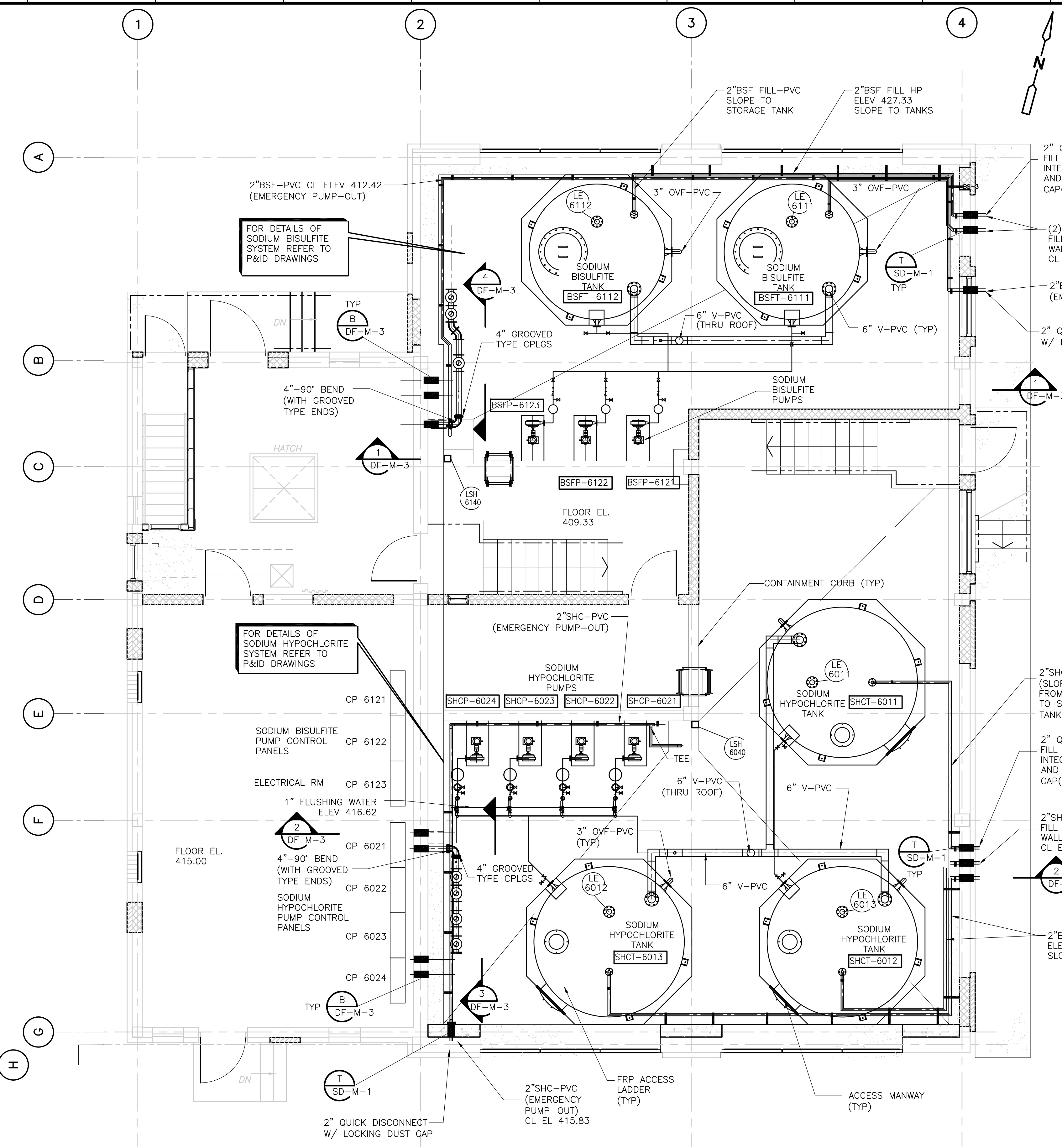
DF-M-1

PROJECT NO. 1289\35370  
 Sht. 175 of 386  
 ACCESSION NO. 1289-65575

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 FILENAME: P:\1289\35370\PHASE I\RECORD\MECH\MDFP001.dwg XREF'S: [C24X36H, ACHPL100, MDFWP002, MDFWS001, MDFWP001, ] PLOTTED BY: CROSSHA Time: 12/16/08 6:26:16 PM



**BASEMENT PLAN**  
 1/4" = 1'-0"



**1ST FLOOR PLAN**  
 1/4" = 1'-0"

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

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MDFP001.DWG
DESIGNED BY:	K. SANGREY
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	K. SANGREY
SCALE:	1/4"=1'-0"
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

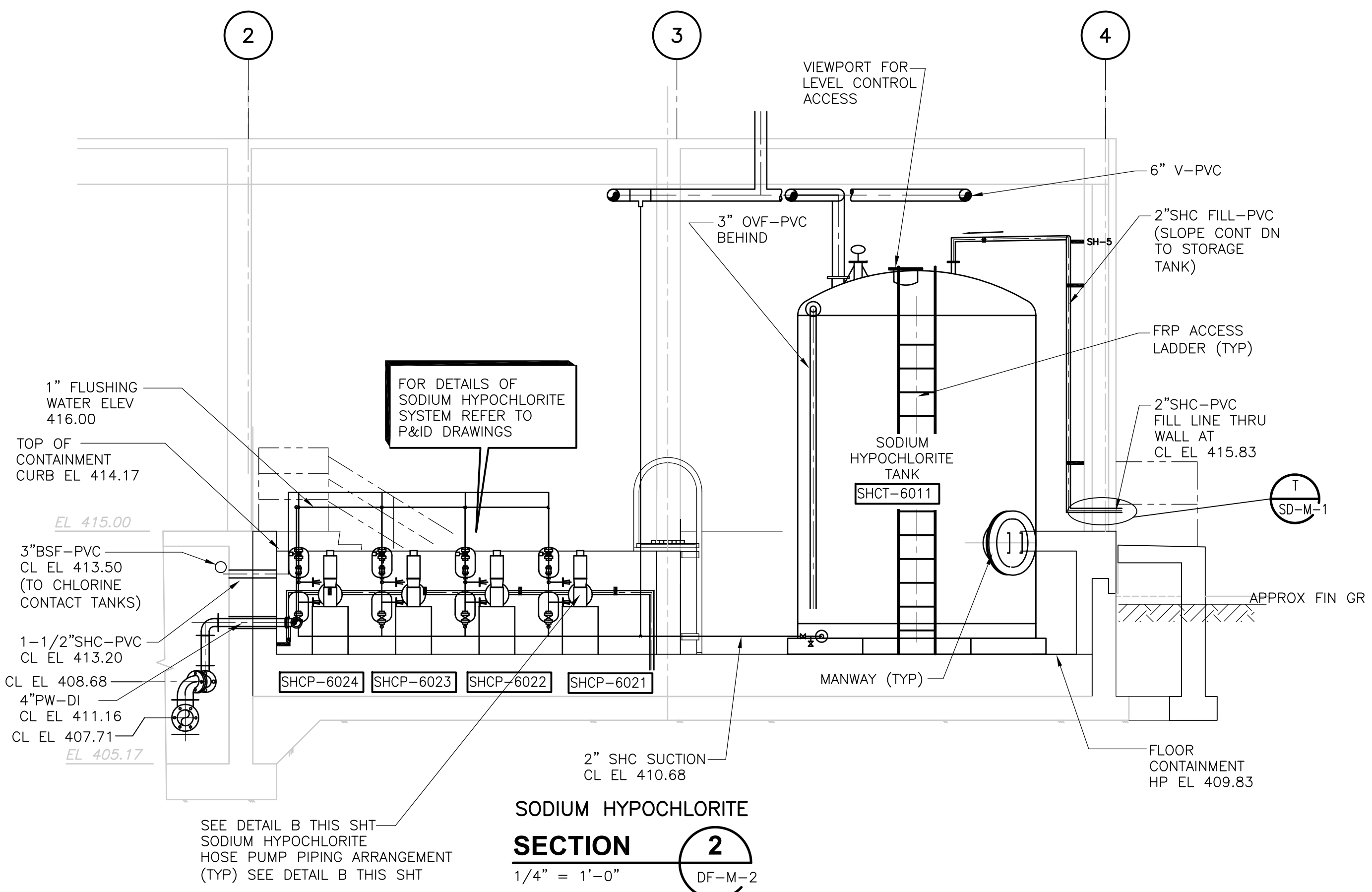
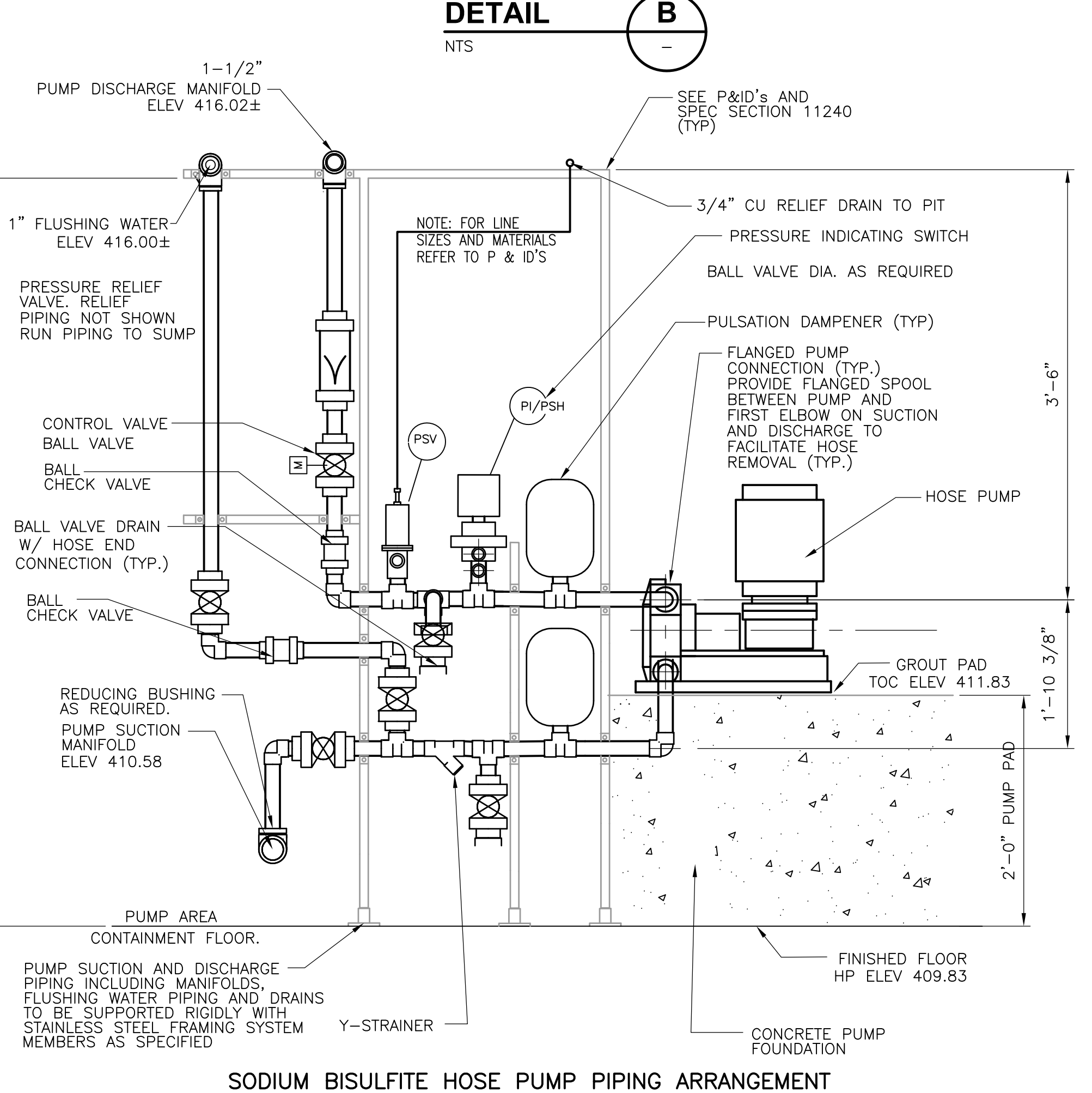
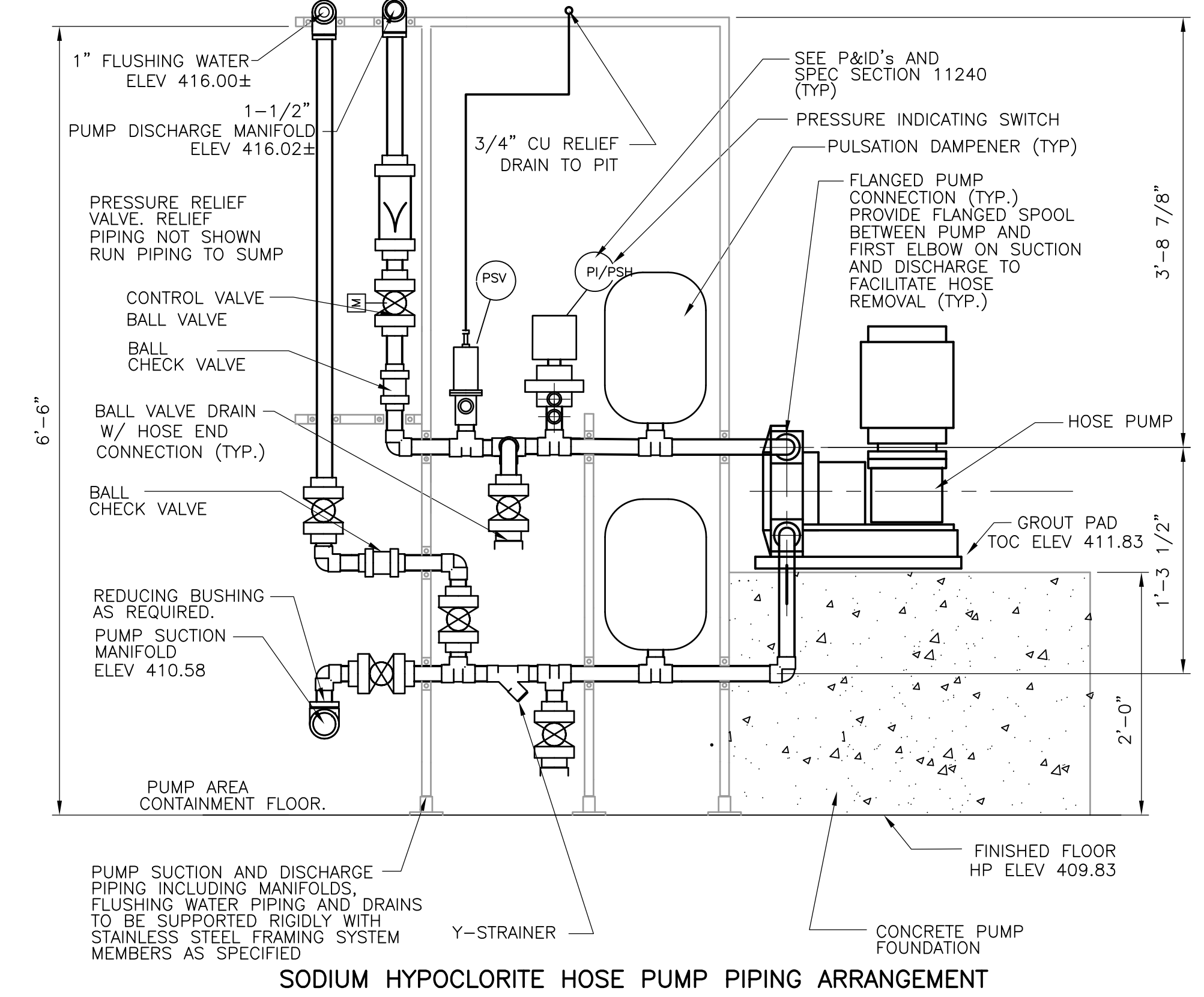
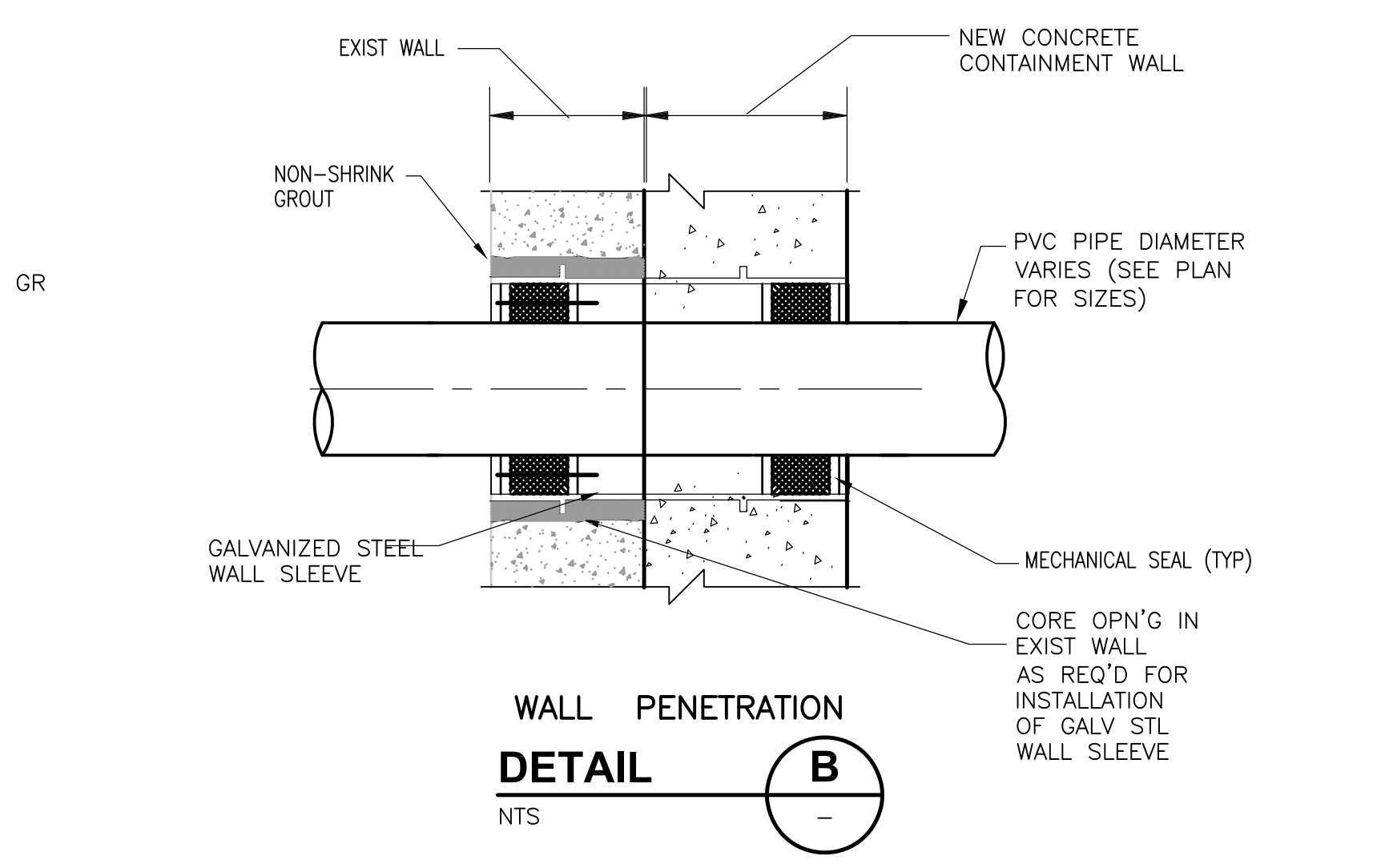
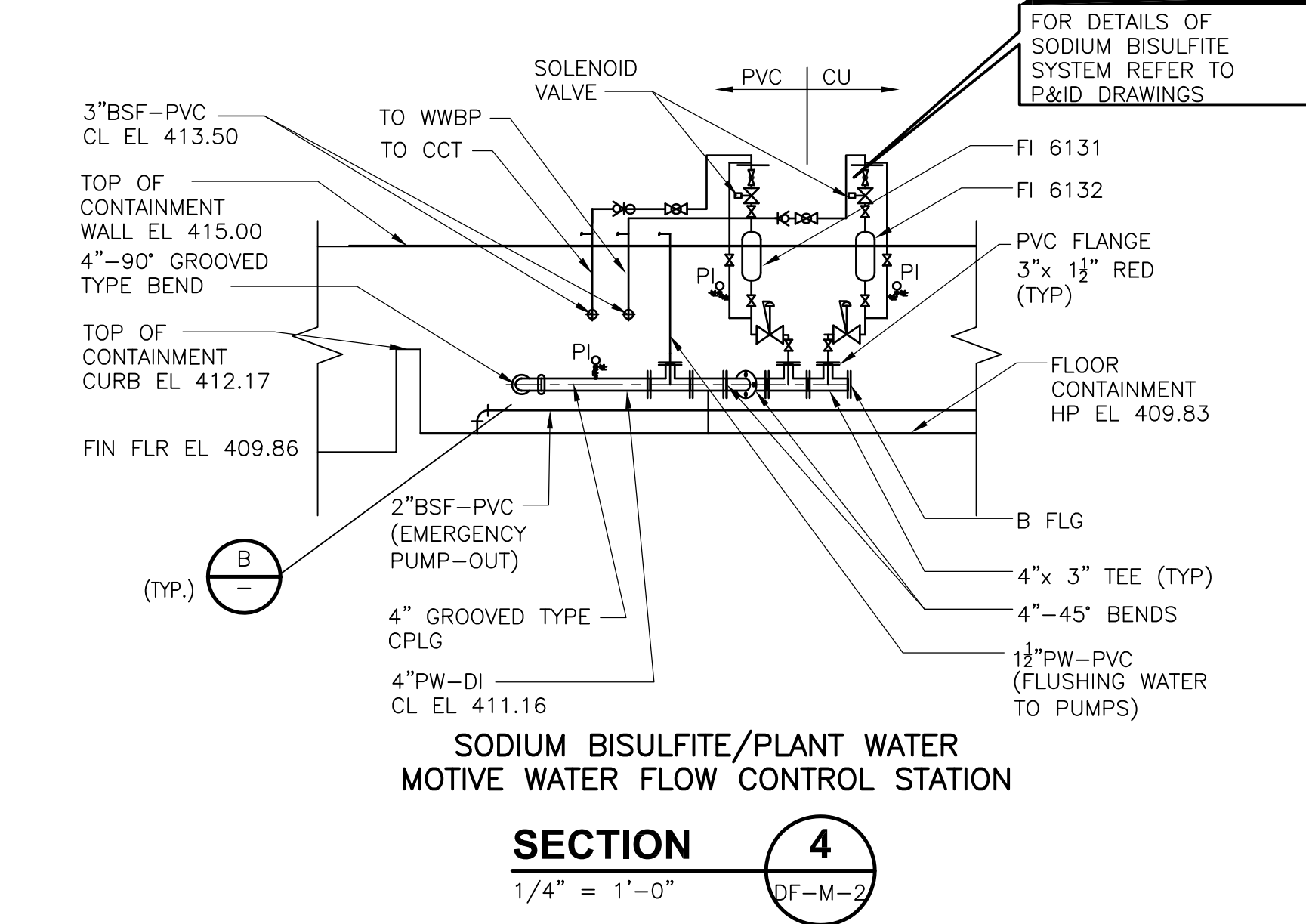
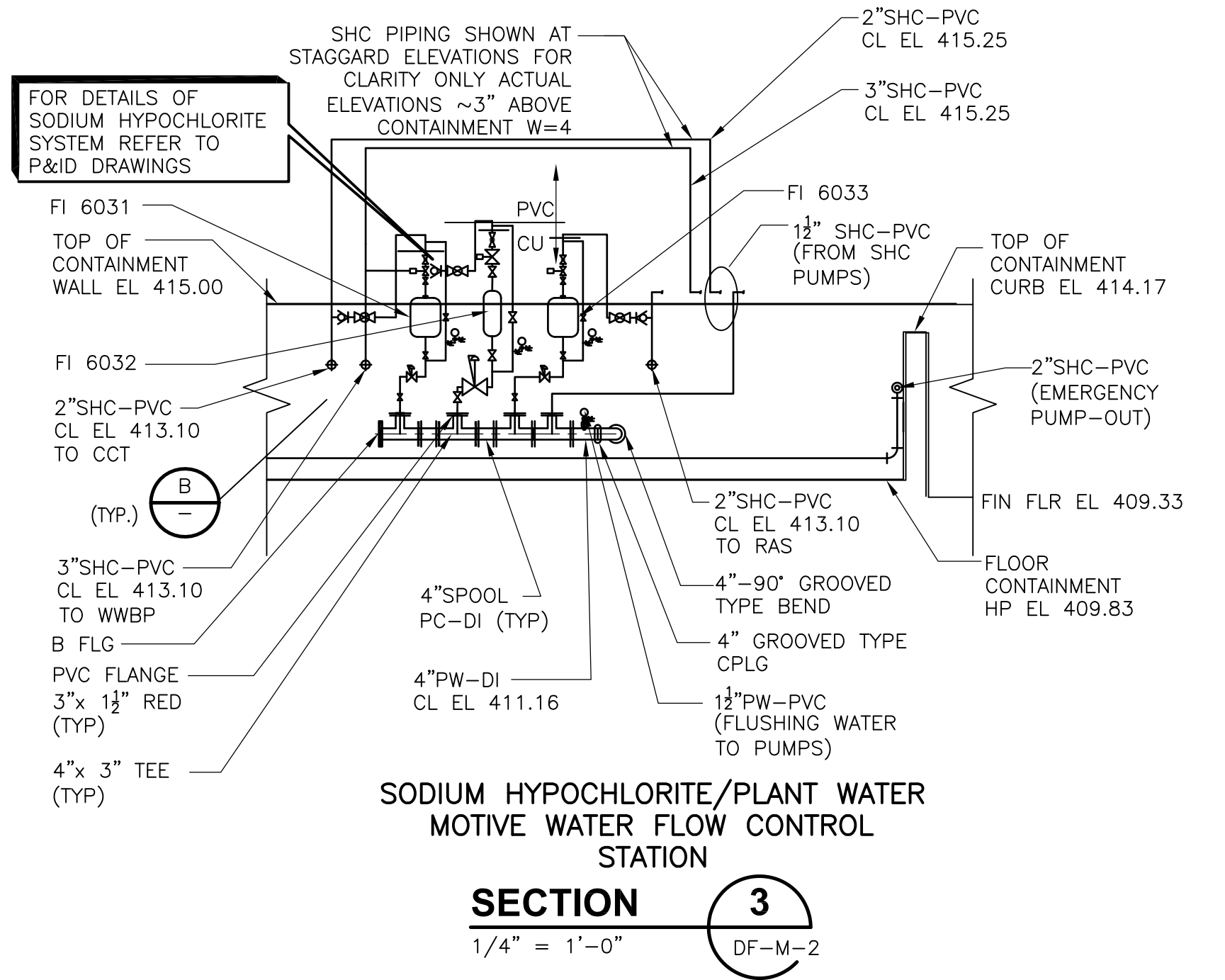
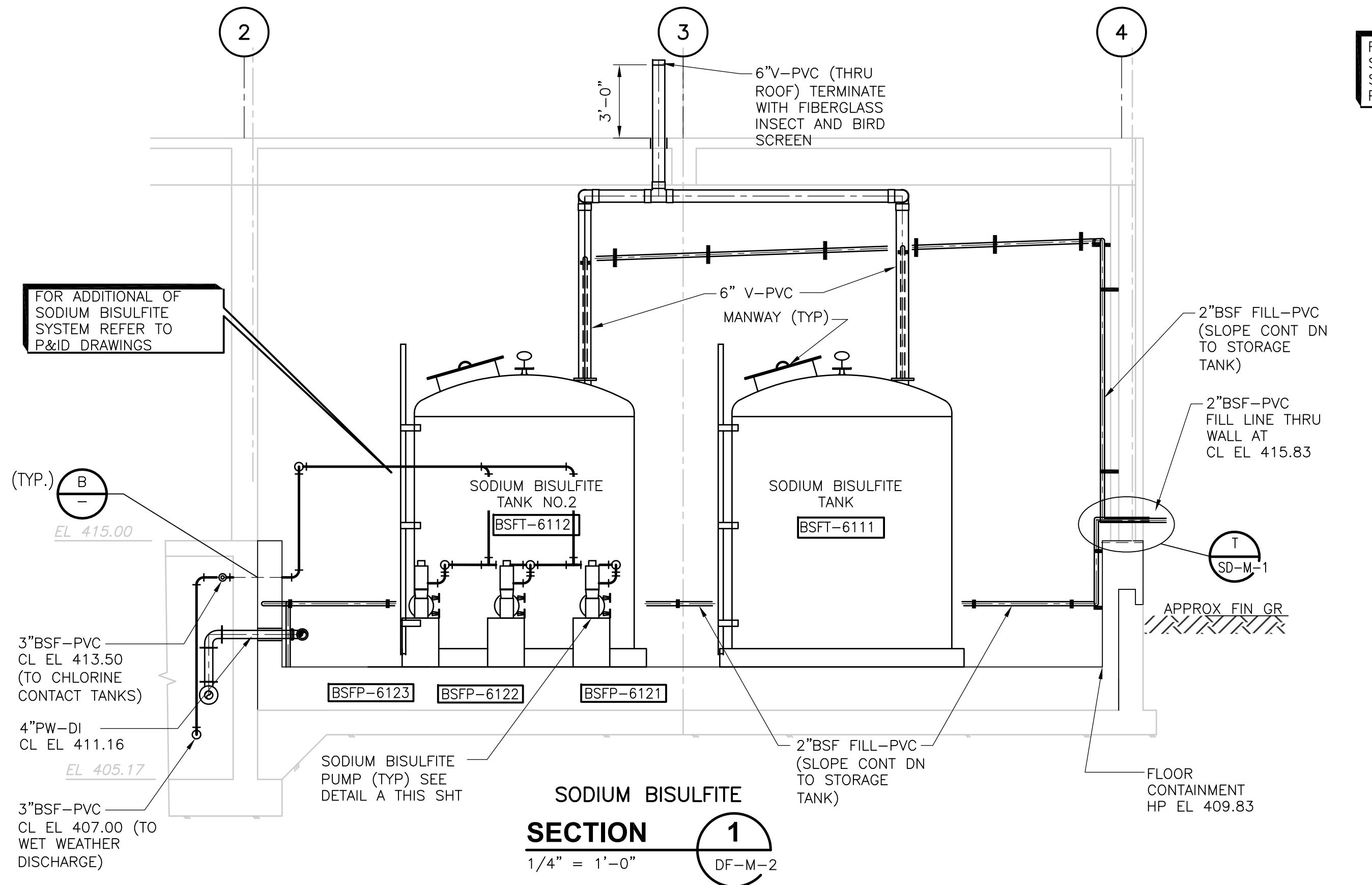
**DISINFECTION FACILITY PLANS**

**DF-M-2**

PROJECT NO.	1289\35370
Sht.	176 of 386



UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 [C24X36H, ACHPL100, MDFW002, MDFW001, ] Plotted by: CROSSIA Time: 12/16/08 6:26:19 PM  
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REV. NO.	DATE	DRWN	CHKD	REMARKS
5/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. <b>MDFSC001.DWG</b>
DESIGNED BY: <b>K. SANGREY</b>
DRAWN BY: <b>W. DORSEY</b>
SHEET CHK'D BY: <b>K. SANGREY</b>
SCALE: <b>AS NOTED</b>
APPROVED BY: <b>J. MADDEN</b>
DATE: <b>MAY 2006</b>

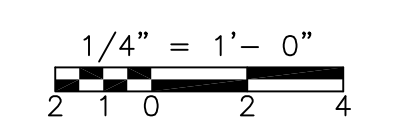
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

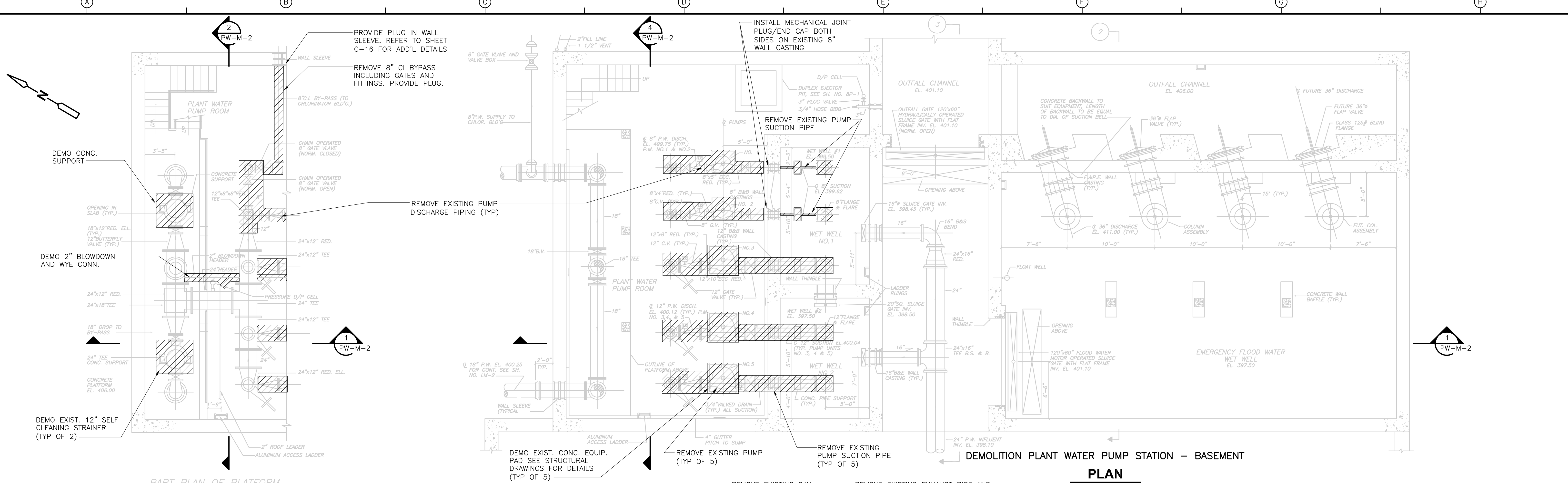
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**DISINFECTION FACILITY**  
**SECTIONS AND DETAILS**

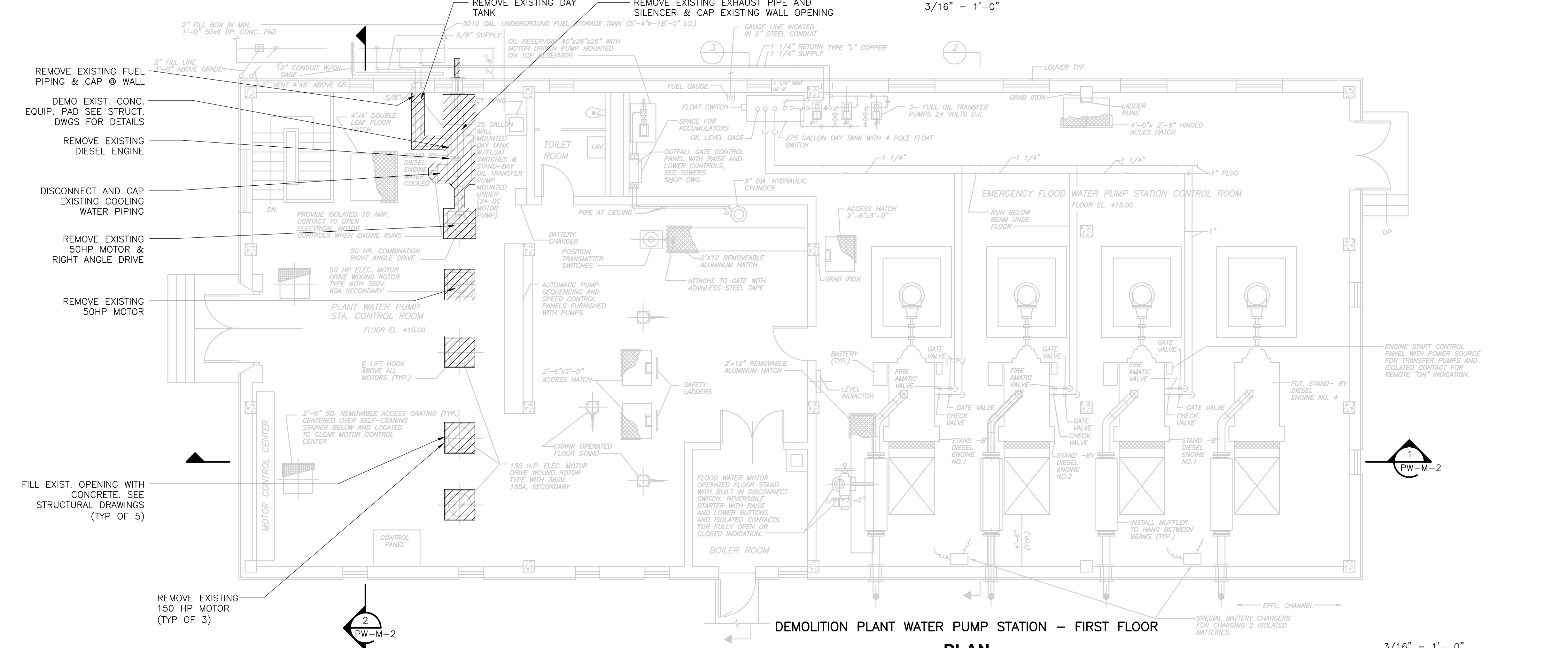
PROJECT NO. 1289\35370  
 Sht. 177 of 386  
**DF-M-3**



RECORD DRAWING



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

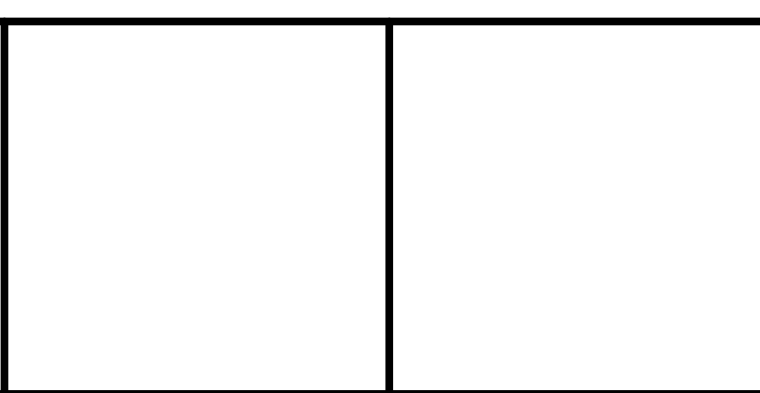


**PLAN**  
 3/16" = 1'-0"

**RECORD DRAWING**  
 3/16" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MPWDM001.DWG
DESIGNED BY:	R. LOF
DRAWN BY:	J. COMPNESCHI
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J.E.MADDEN
DATE:	MAY 2006



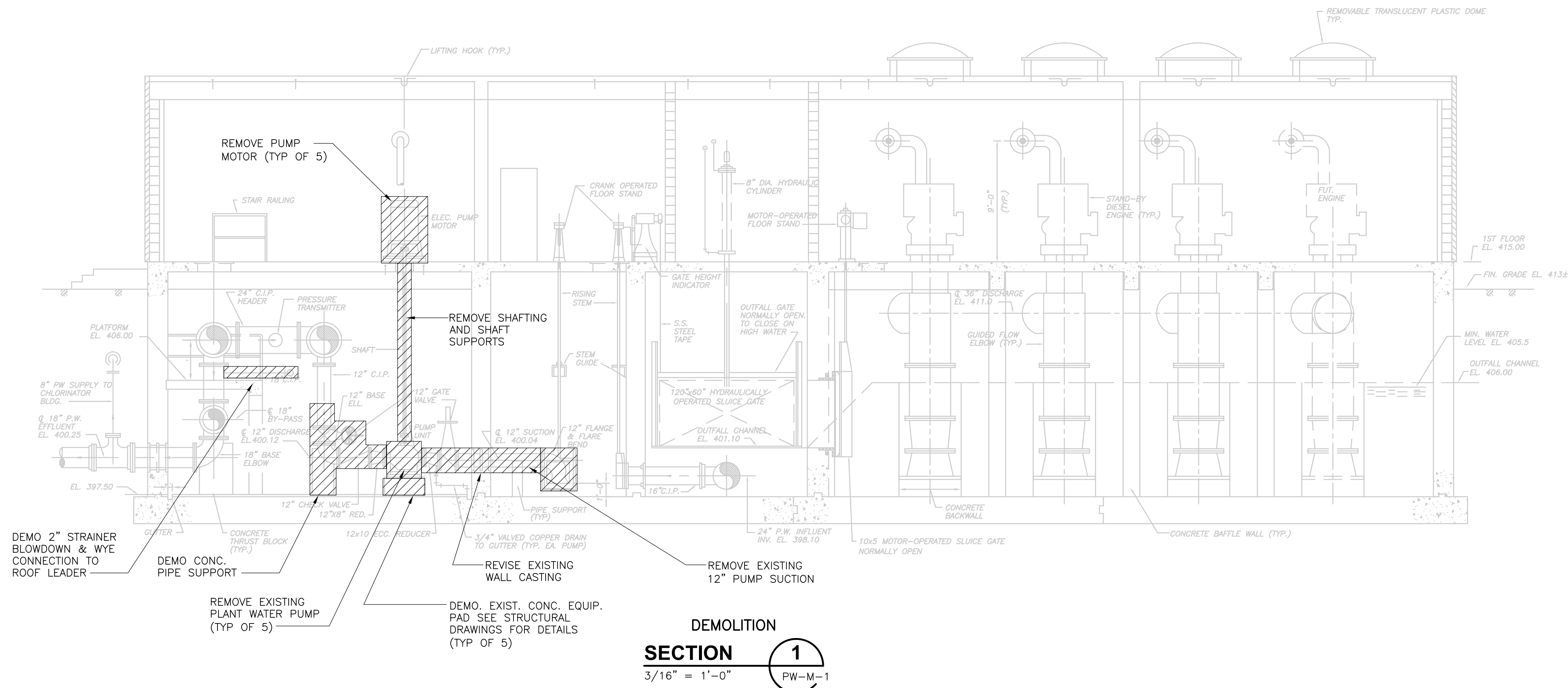
**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

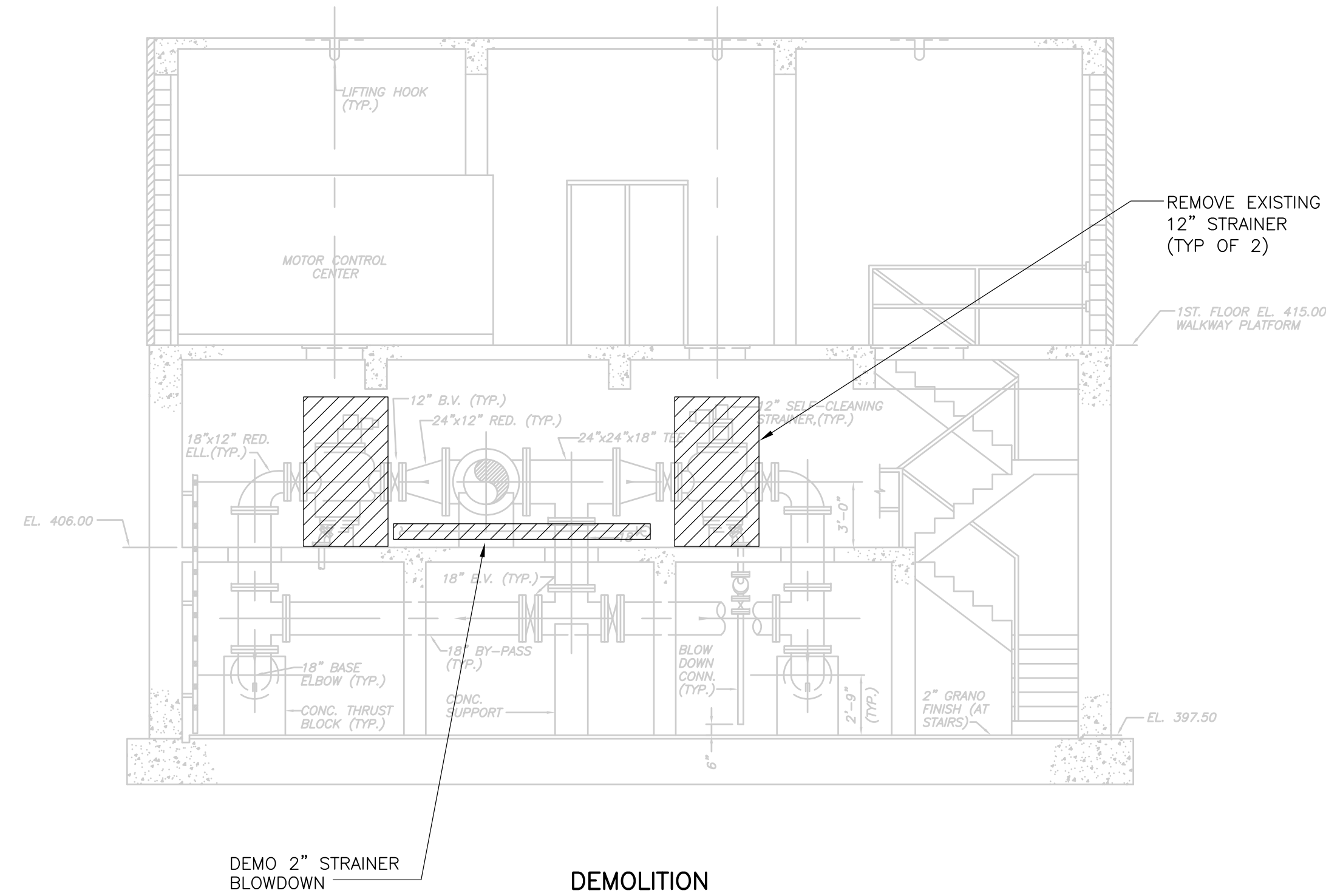
**PLANT WATER PUMP STATION**  
**DEMOLITION - PLANS AND SECTIONS**

PROJECT NO.  
 1289\35370  
 Sht. 178 of 386  
**PW-M-1**

UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
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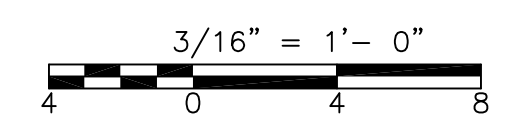


**DEMOLITION SECTION 1**  
 3/16" = 1'-0" PW-M-1



**DEMOLITION SECTION 2**  
 3/16" = 1'-0" PW-M-1

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MPSDM003.DWG
DESIGNED BY:	R. LOF
DRAWN BY:	J.COMPONESCHI
SHEET CHK'D BY:	J.E.MADDEN
SCALE:	AS NOTED
APPROVED BY:	J.E.MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

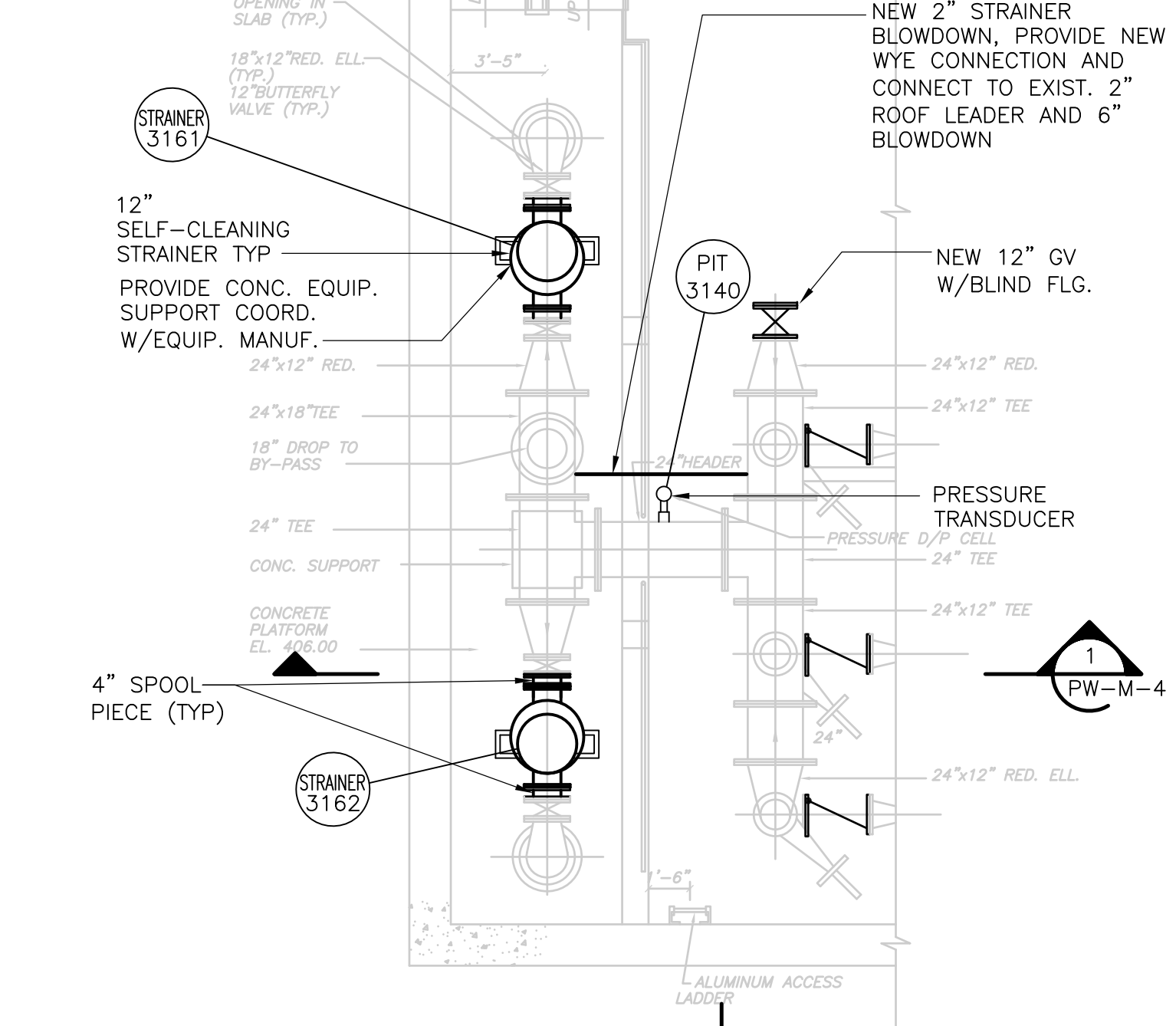
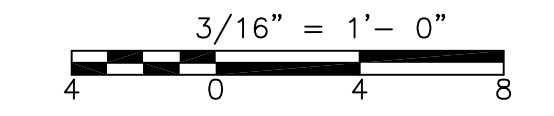
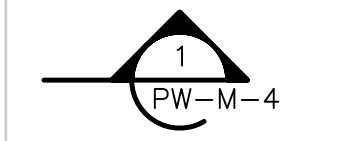
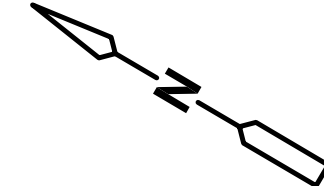
**PLANT WATER PUMP STATION  
 DEMOLITION SECTIONS**

**PW-M-2**

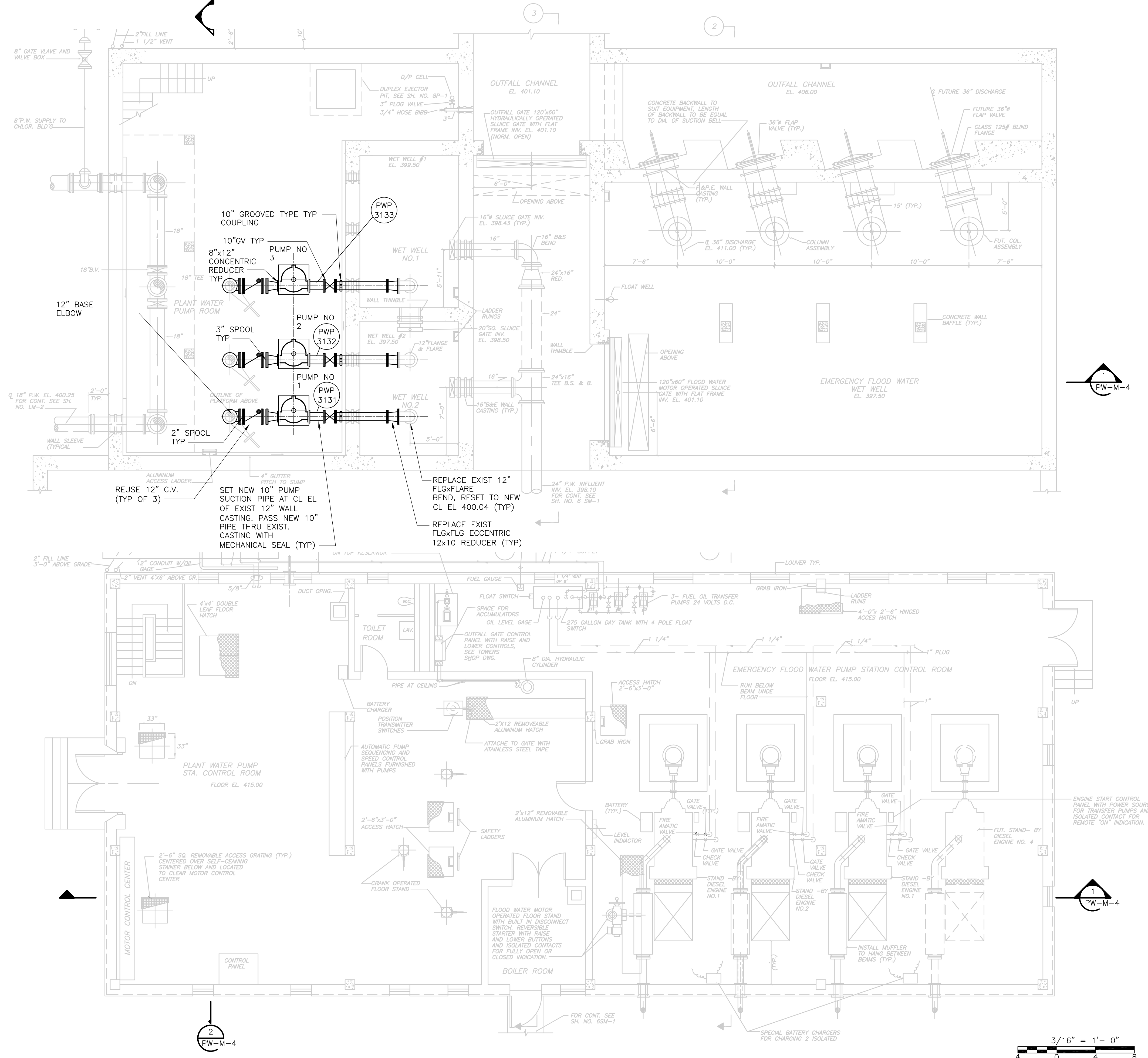
PROJECT NO.  
1289\35370

Sht. 179 of 386

ACCESSION NO. 1289-6579



PART PLAN OF PLATFORM



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MPWPL001.DWG
DESIGNED BY:	W.D. GREEN
DRAWN BY:	J. COMPONESCHI
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J. MADDEN
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

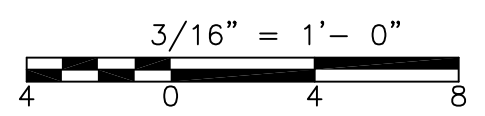
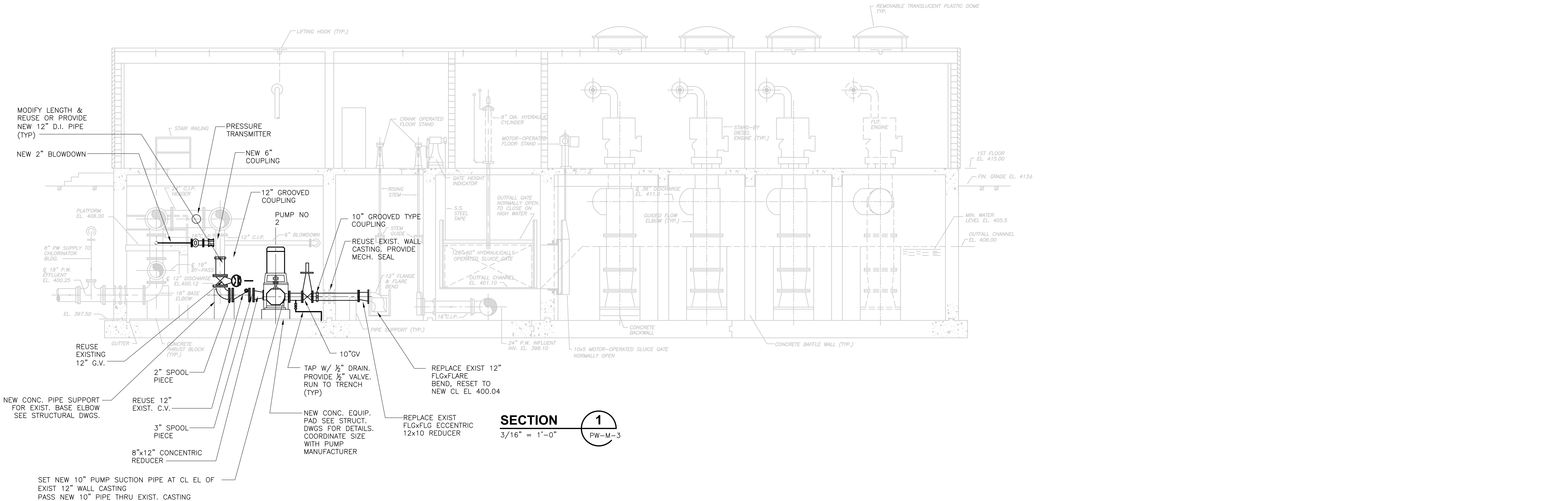
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**PLANT WATER PUMP STATION**  
**PLANS**

**PW-M-3**

PROJECT NO.	1289\35370
Sht.	180 of 386

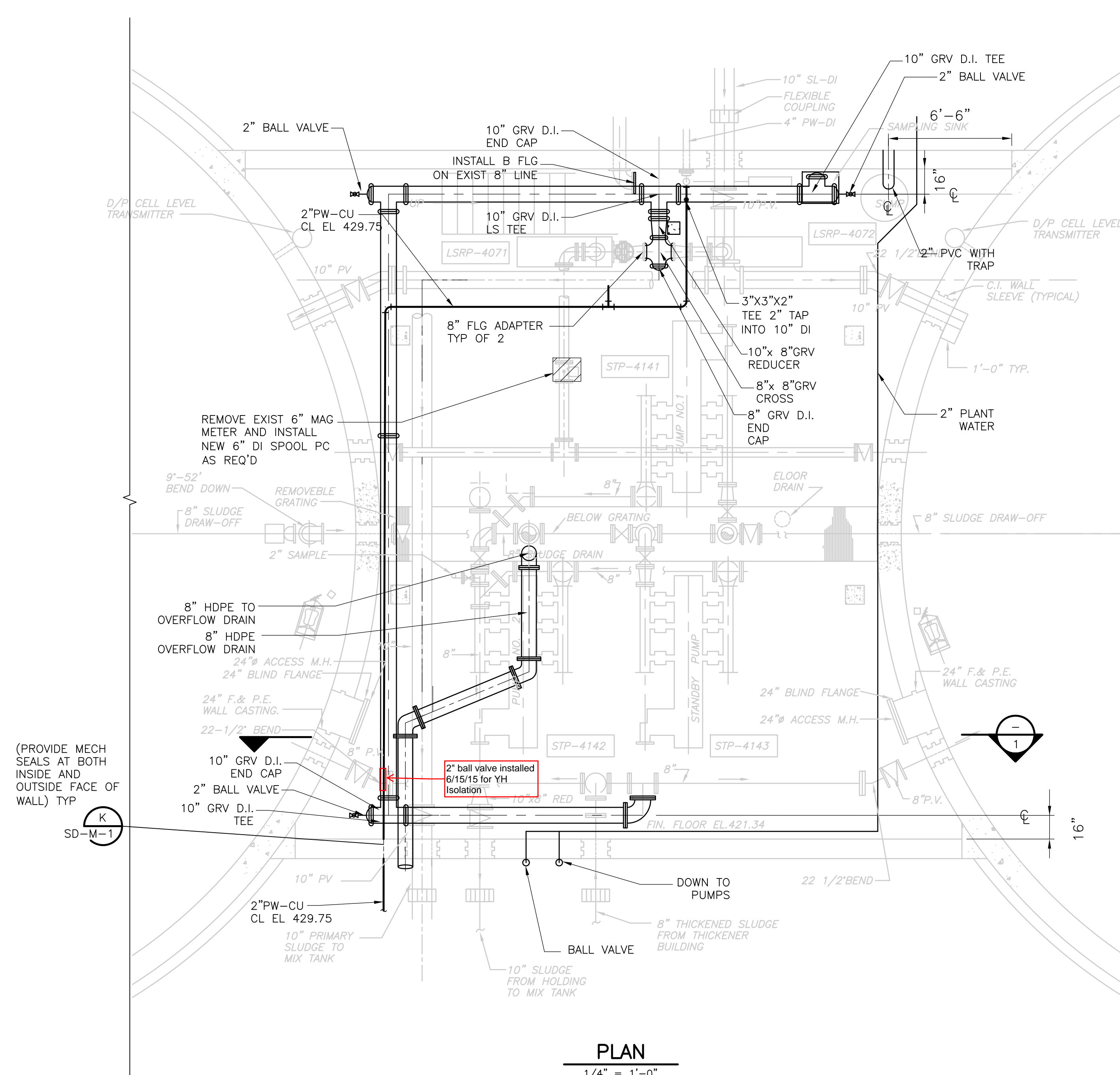
UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
 File name: P:\1289\35370\PHASE1\RECORD\MECH\MPWSC001.dwg  
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 Time: 12/16/08 6:26:31 PM



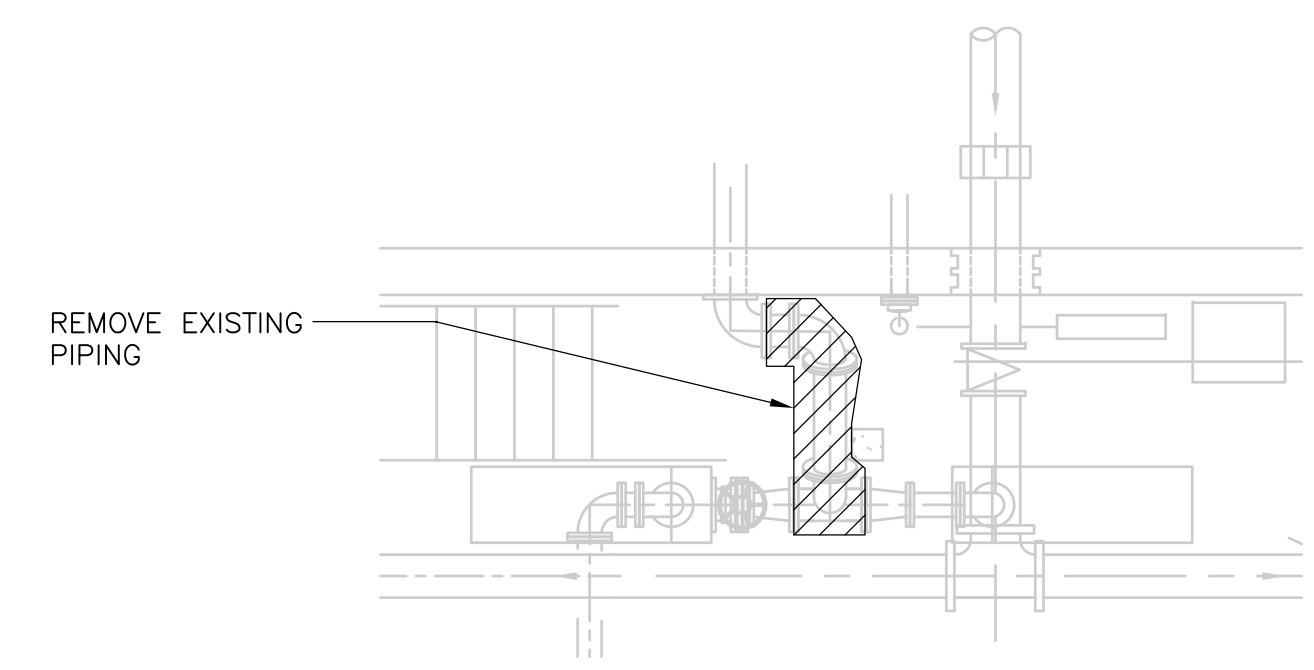
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REV. NO.	DATE	DRWN	CHKD	REMARKS																			
	3/07	SPV	ADT	REVISED FOR THE RECORD																			

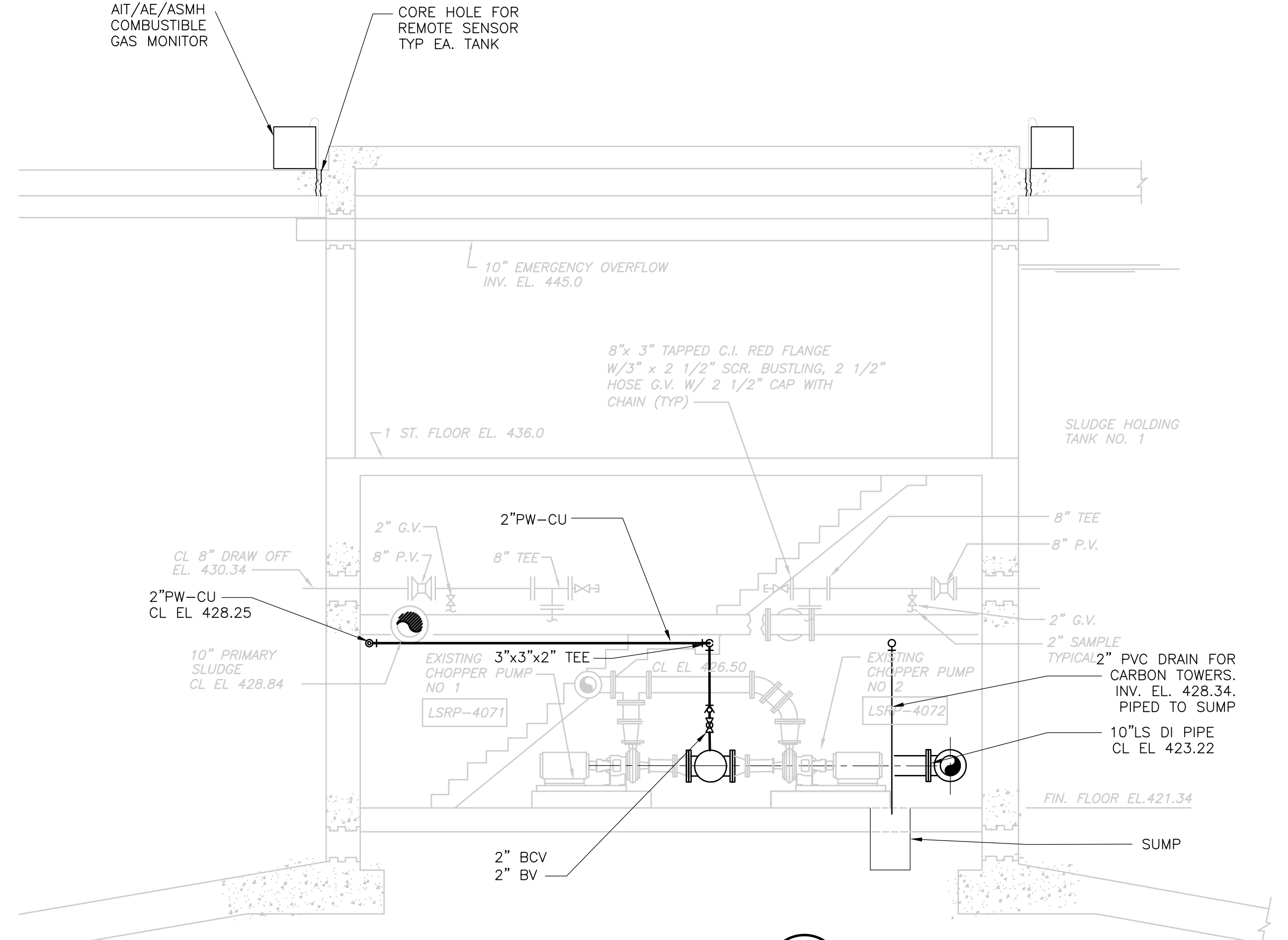
Accession No. 1289-6581



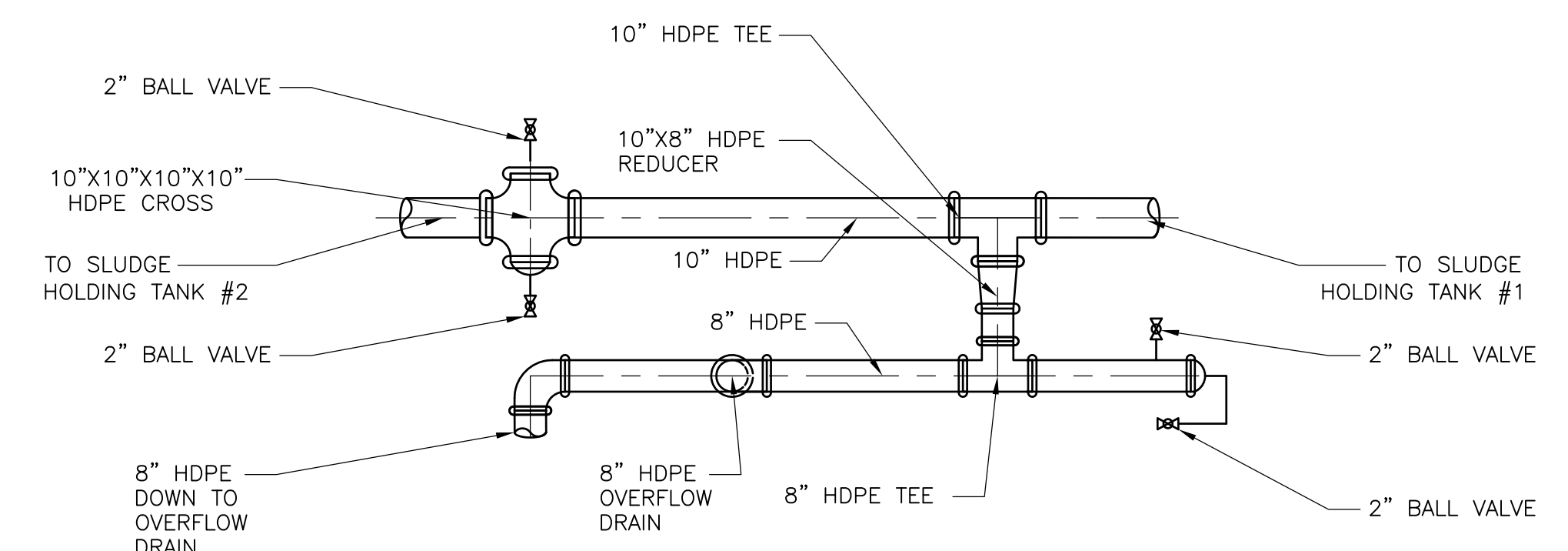
**PLAN**  
1/4" = 1'-0"



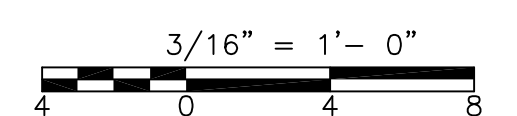
**DEMOLITION PLAN**  
1/4" = 1'-0"



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



**PLAN**  
NTS



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MSTPL001.DWG
DESIGNED BY:	W.D. GREEN
DRAWN BY:	J. COMPONESCHI
SHEET CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	J.E. MADDEN
DATE:	MAY 2006

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**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
CONTRACT No. UB 2024

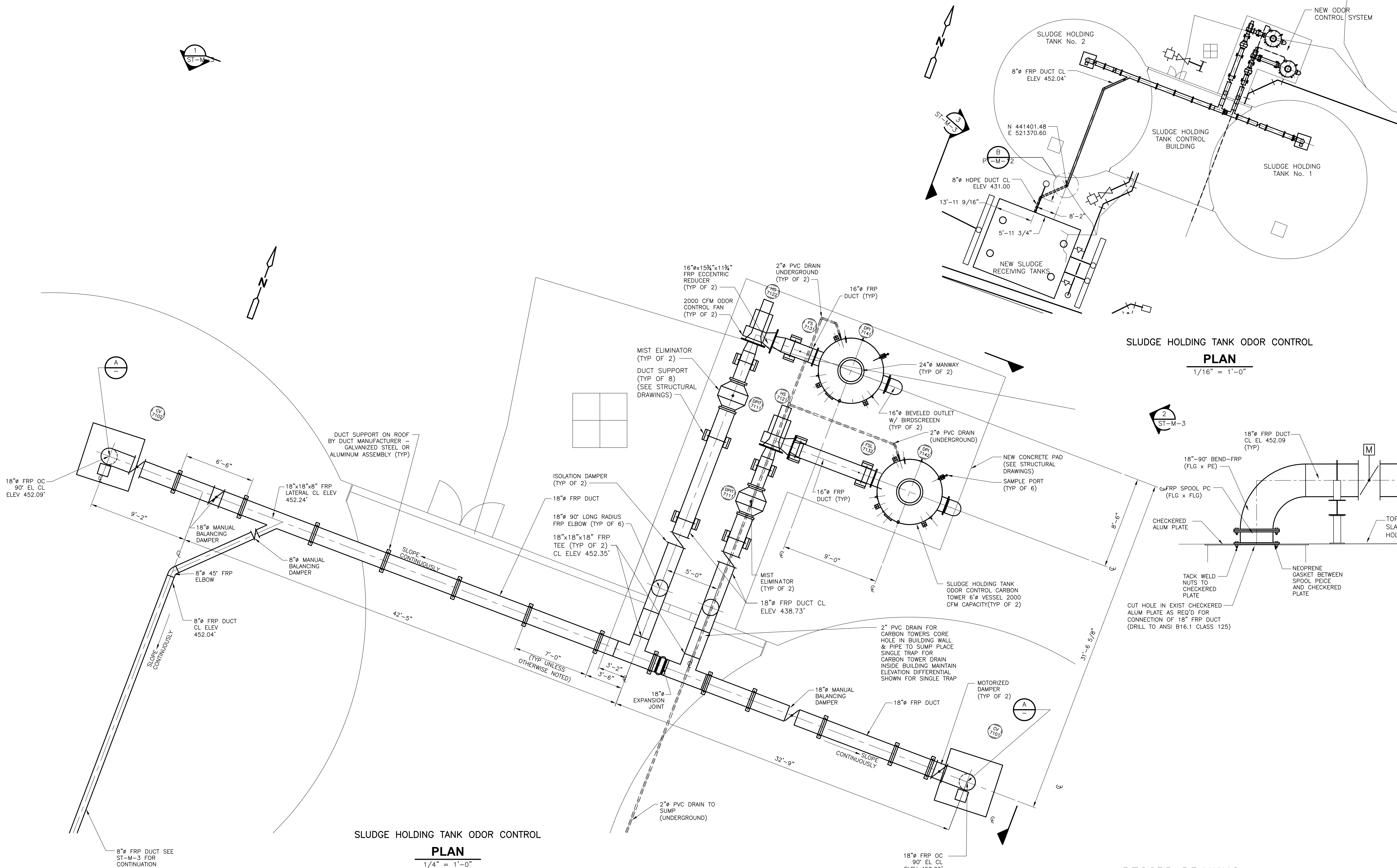
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**SLUDGE HOLDING TANKS PLAN AND SECTIONS**

**ST-M-1**

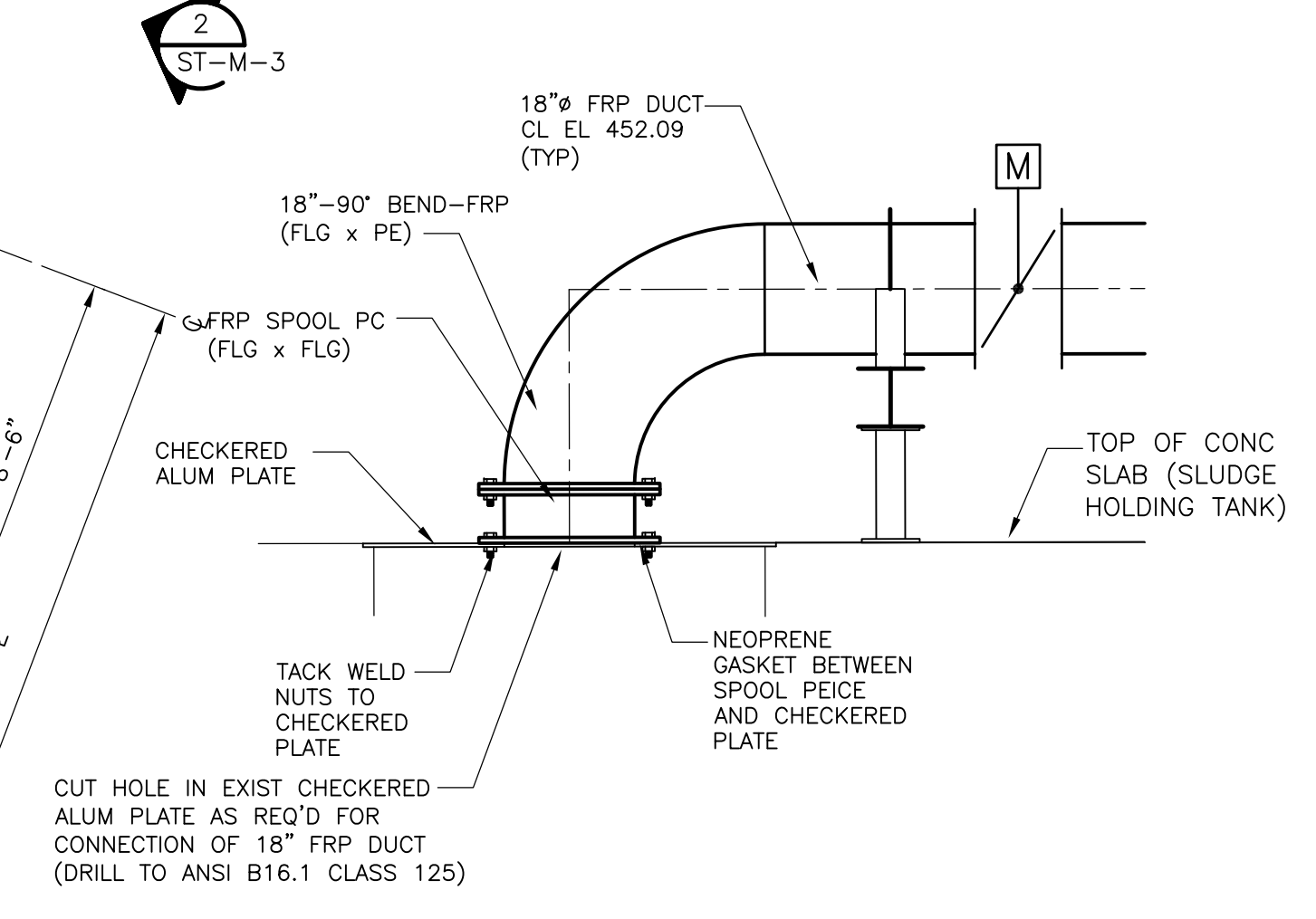
PROJECT NO. 1289\35370  
Sht. 182 of 386

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE I\RECORD\MECH\MOCPL001.dwg Xref: [C24X38H\_CSVPL000\_CBSPL000\_COCPL000\_CYPWP001\_] Plotted by: CROSSJA Time: 12/16/08 6:26:38 PM



**SLUDGE HOLDING TANK ODOR CONTROL**  
**PLAN**  
 1/16" = 1'-0"

**SLUDGE HOLDING TANK ODOR CONTROL**  
**PLAN**  
 1/4" = 1'-0"



CUT HOLE IN EXIST CHECKERED ALUM PLATE AS REQ'D FOR CONNECTION OF 18" FRP DUCT (DRILL TO ANSI B16.1 CLASS 125)

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MOCPL001
DESIGNED BY	K. BISBEE
DRAWN BY	S. TRULLI
SHEET CHK'D BY	R. GAUDES
SCALE	AS NOTED
APPROVED BY	M. GOULD
DATE	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

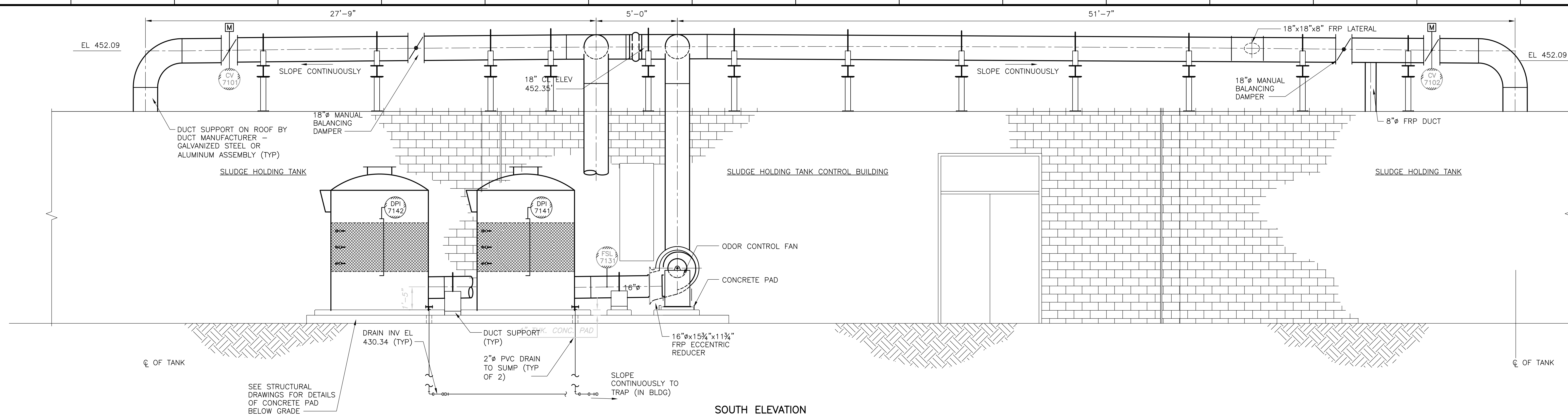
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

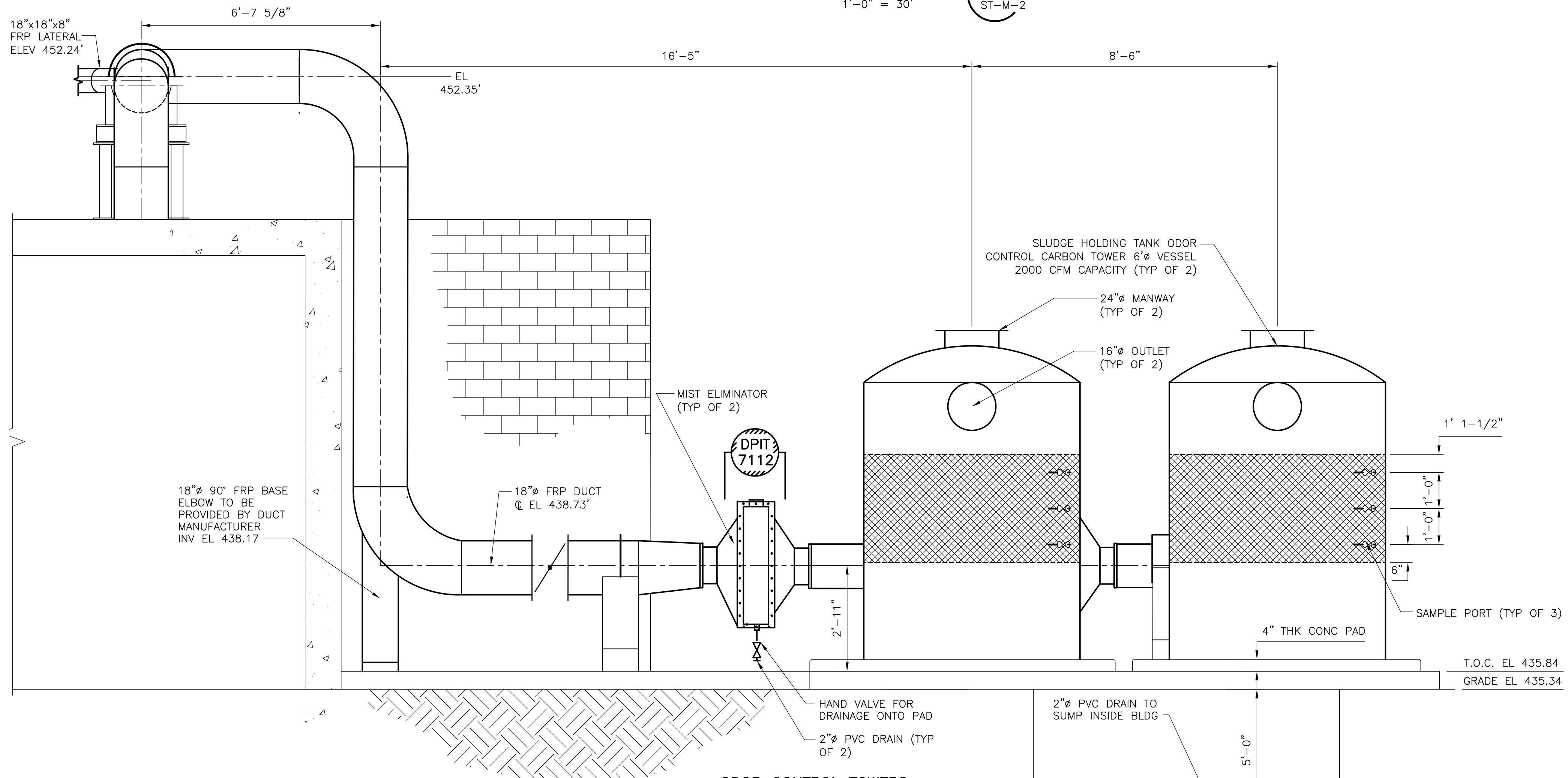
**SLUDGE HOLDING TANKS ODOR CONTROL I**

PROJECT NO. 1289\35370  
 Sht. 183 of 386  
**ST-M-2**

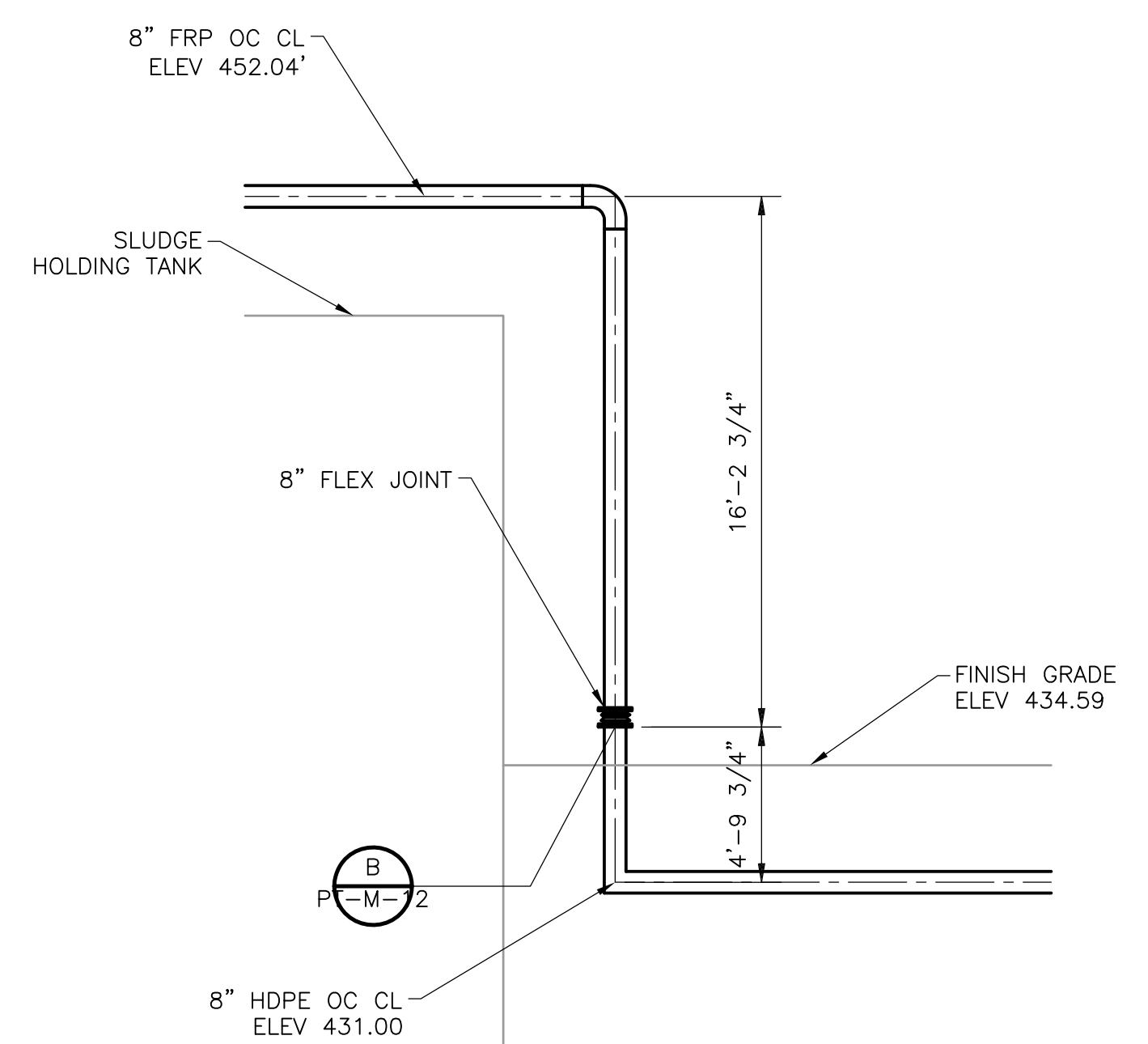
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**SOUTH ELEVATION**  
**SECTION 1**  
 1'-0" = 30'  
 ST-M-2



**ODOR CONTROL TOWERS**  
**SECTION 2**  
 1/2" = 1'-0"  
 ST-M-2



**ODOR CONTROL TOWERS**  
**SECTION 3**  
 NTS  
 ST-M-2

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	ADT	REMARKS
	4/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MOCSC001
DESIGNED BY	K. BISBEE
DRAWN BY	S. TRULLI
SHEET CHK'D BY	R. GAUDES
SCALE	AS NOTED
APPROVED BY	M. GOULD
DATE	MAY 2006

**CDM**  
 Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

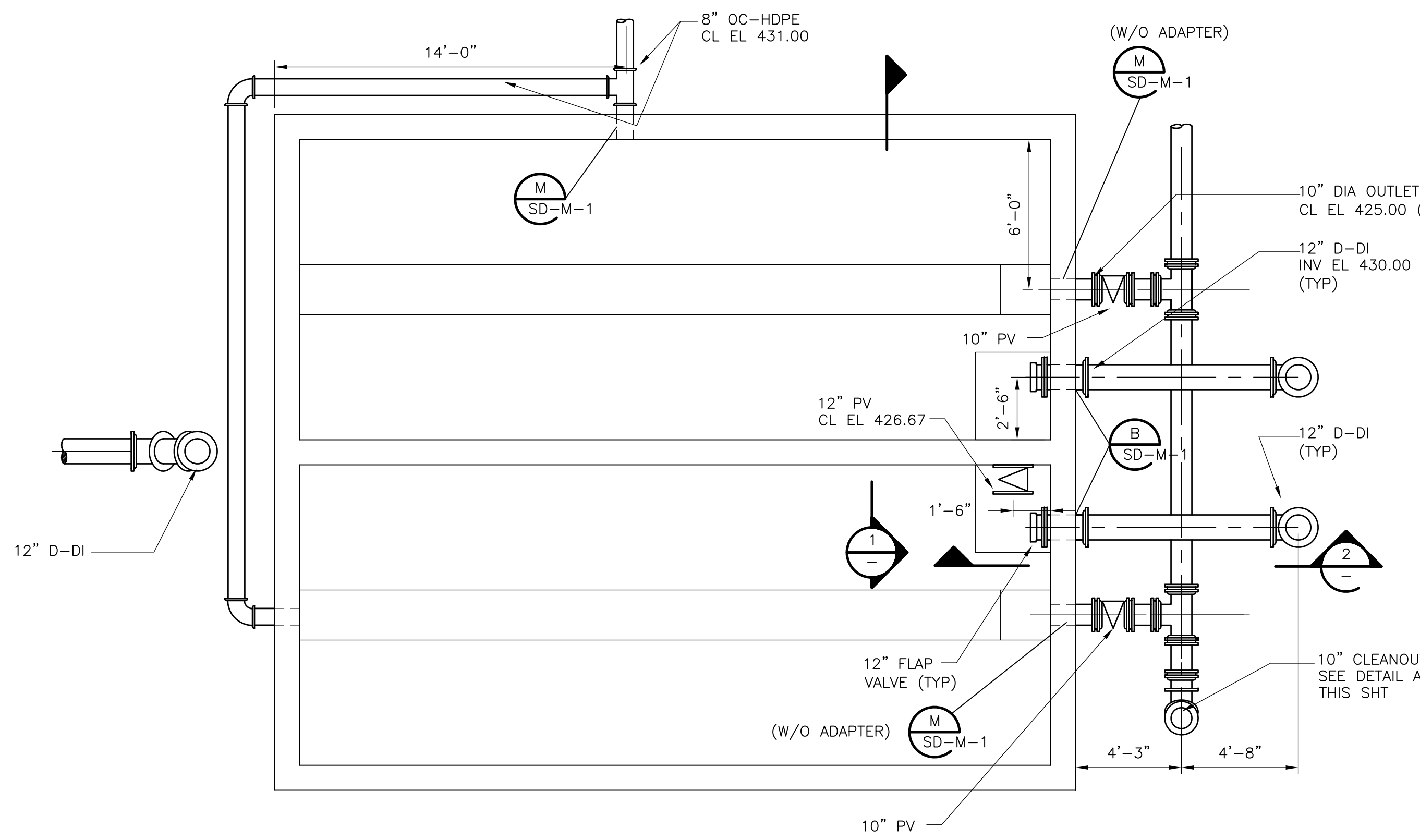
**SLUDGE HOLDING TANKS**  
**ODOR CONTROL II**

PROJECT NO.	1289\35370
Sht.	184 of 386
<b>ST-M-3</b>	

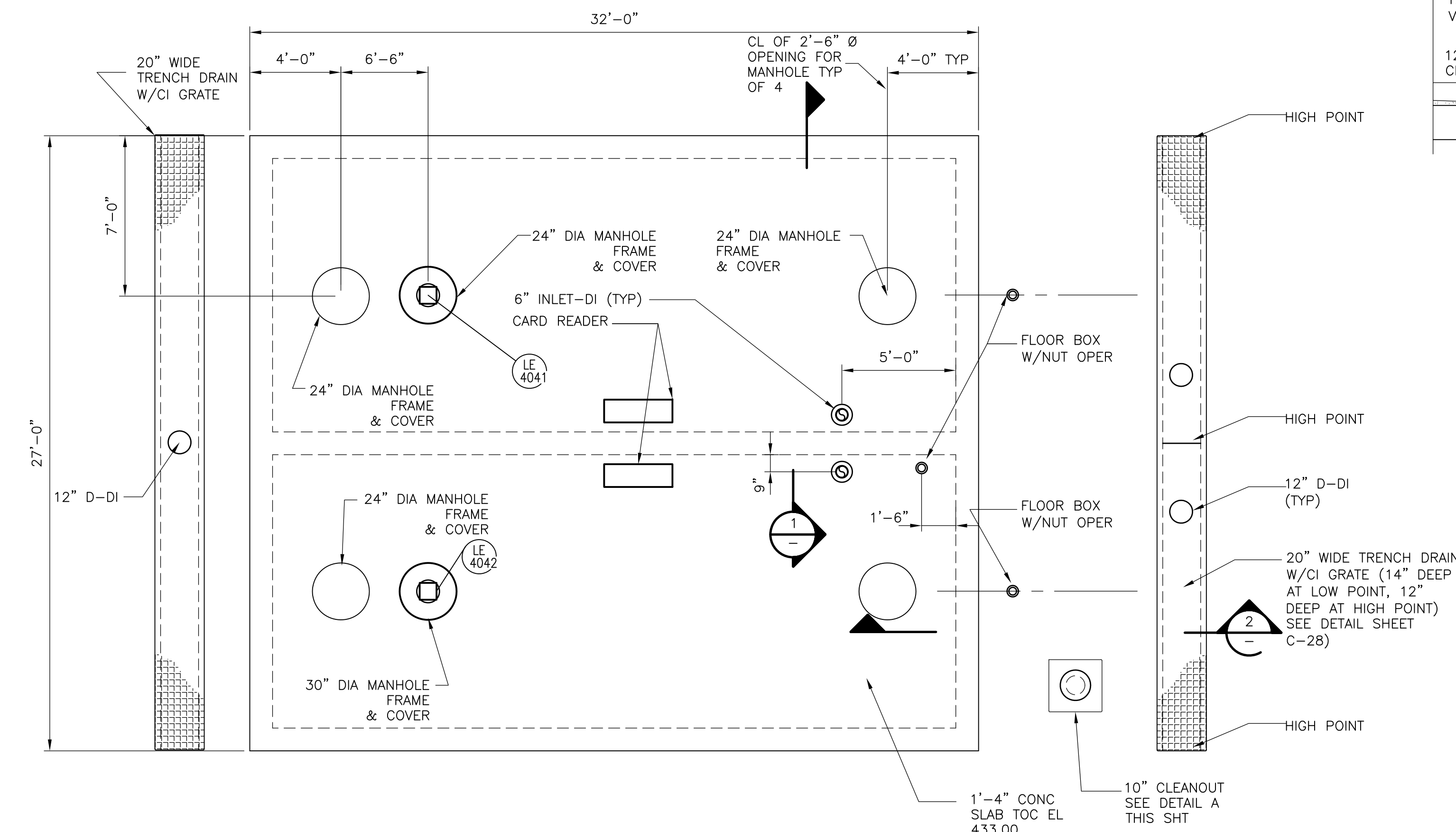
ACCESSION NO. 1289-65584



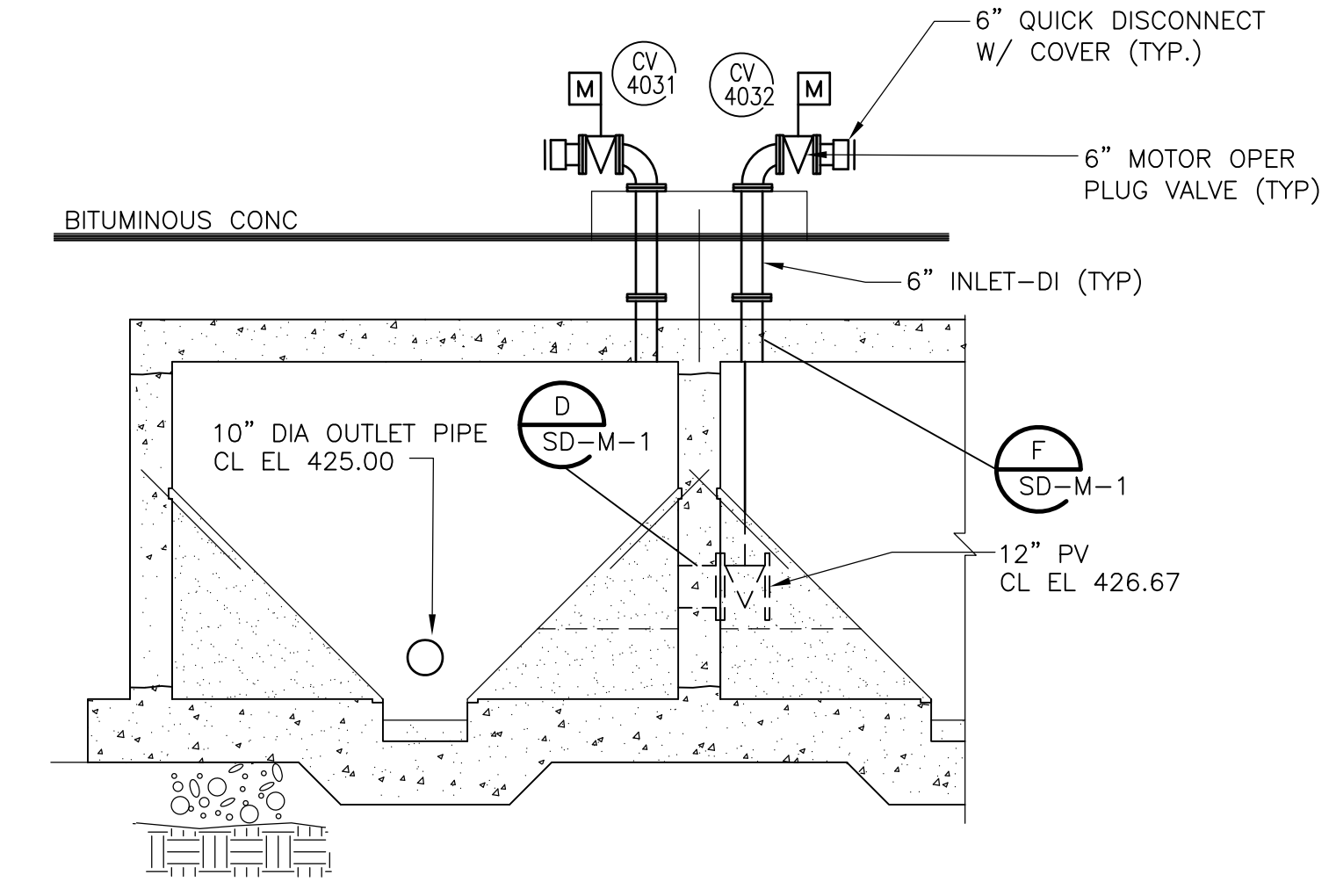
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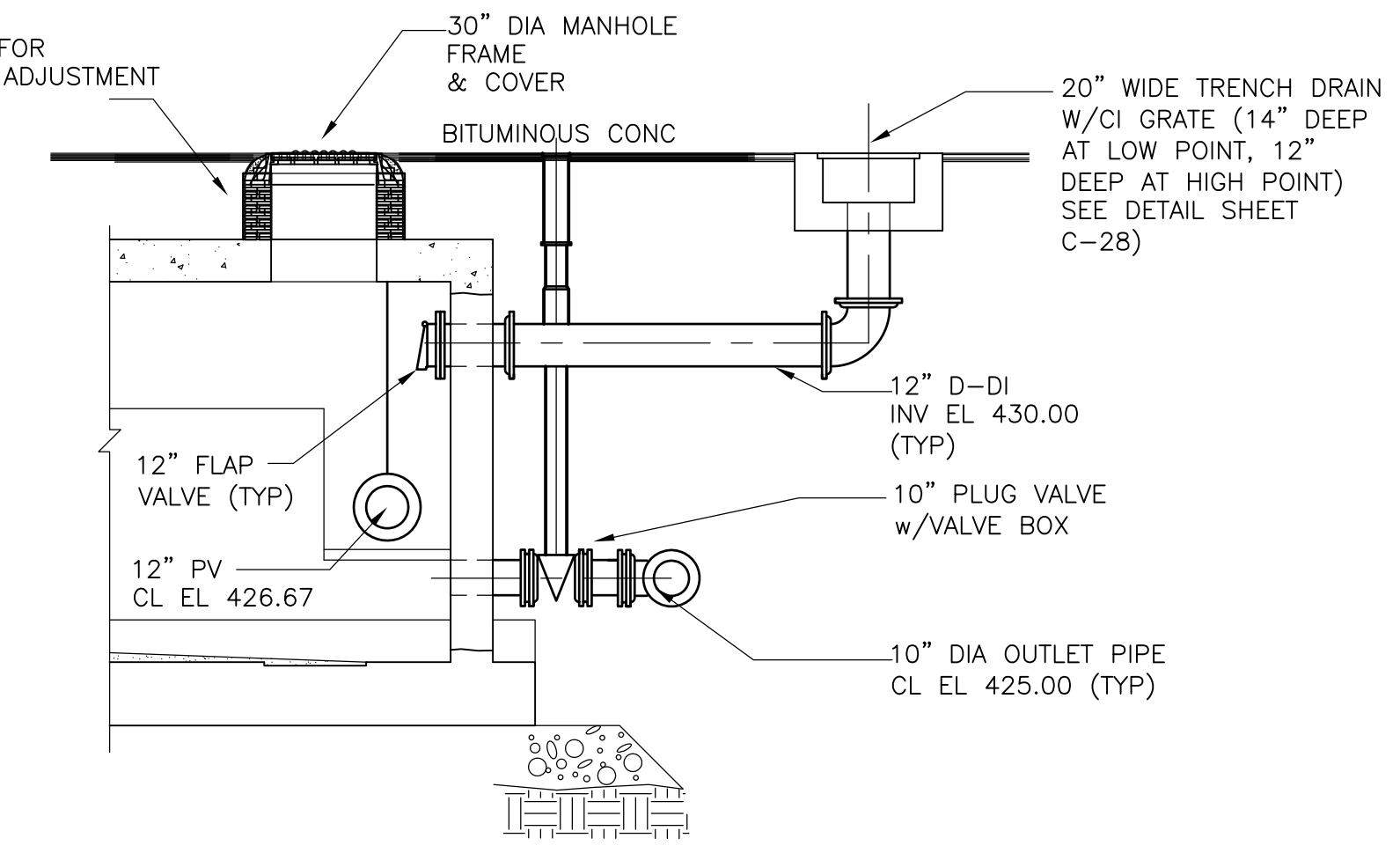
**BASE PLAN**  
1/4" = 1'-0"



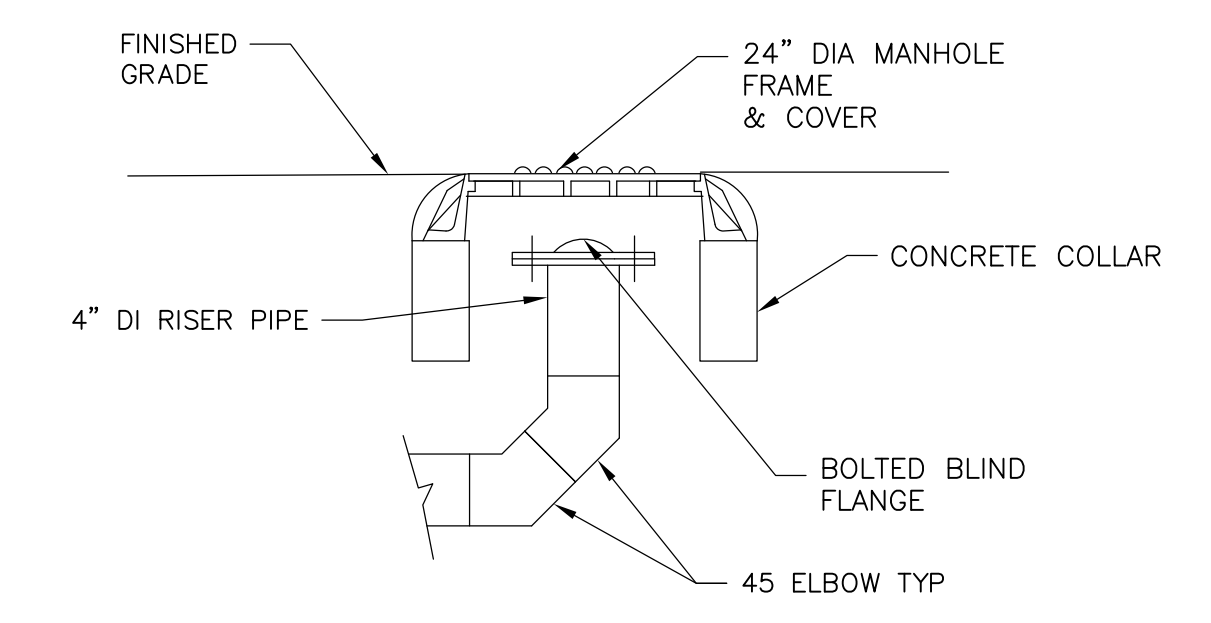
**TOP PLAN**  
1/4" = 1'-0"



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

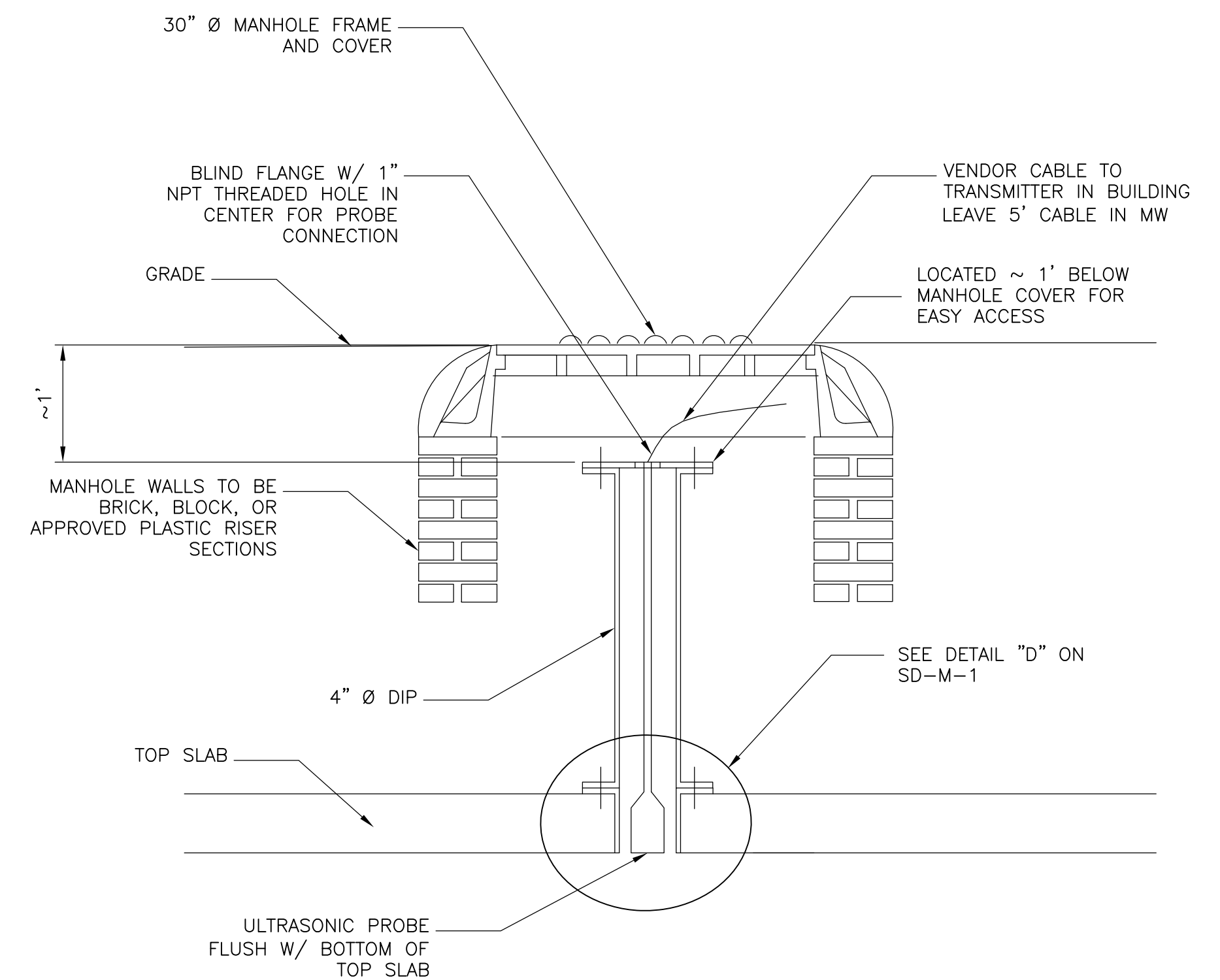


**SECTION 2**  
1/4" = 1'-0"



**PIPELINE CLEANOUT DETAIL A**  
NTS

NOTE: ALL JOINTS TO BE HARNESSSED SEE SPEC FOR DETAILS



**ULTRASONIC LEVEL INSTRUMENT MOUNTING DETAIL TYPICAL**

NOTE: FOR ADDITIONAL DETAILS SEE ENLARGED SITE PLAN SHEET C-29

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MSTPL004
DESIGNED BY	W.D.GREEN
DRAWN BY	W.DORSEY
SHEET CHK'D BY	W.D. GREEN
SCALE	AS NOTED
APPROVED BY	J.MADDEN
DATE	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
*consulting engineering construction operations*

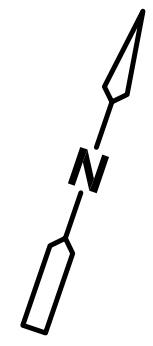
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**SLUDGE RECEIVING TANKS**  
**PLANS SECTIONS AND DETAILS**

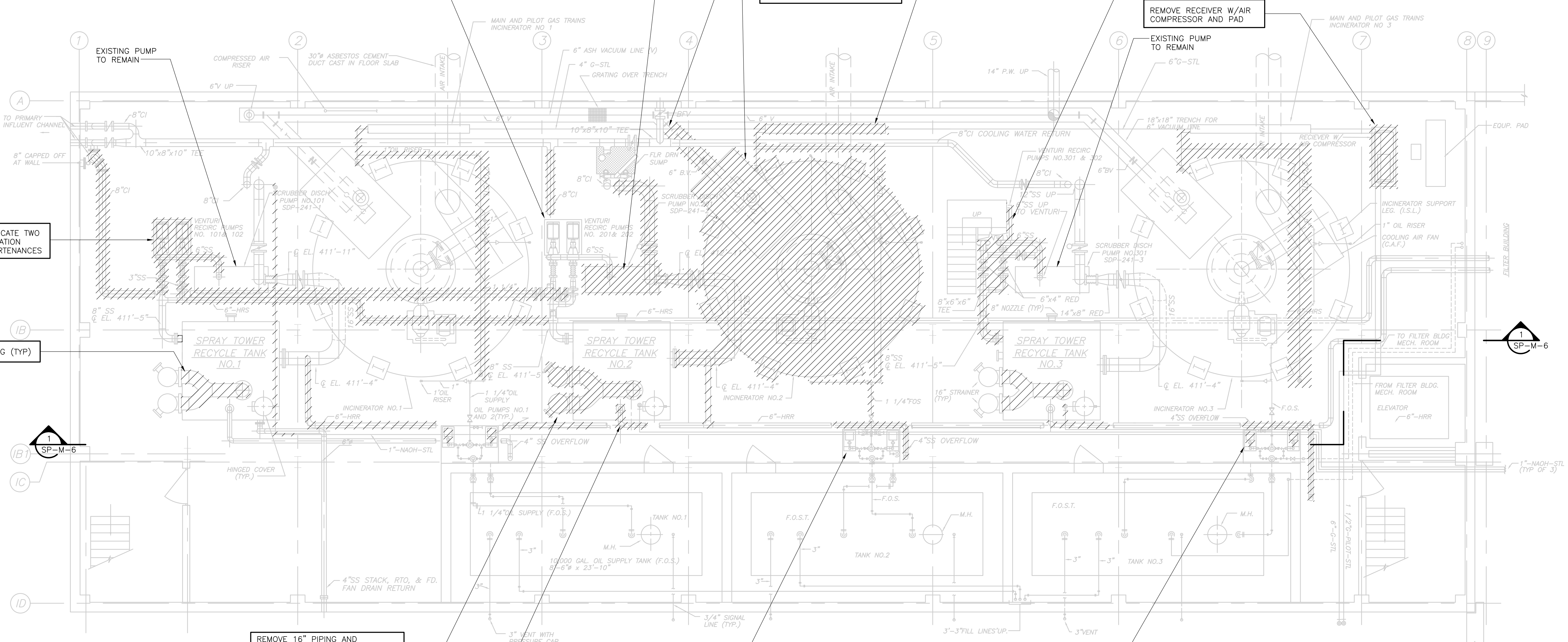
**ST-M-4**

PROJECT NO.	1289\35370
Sht.	185 of 386



REMOVE AND RELOCATE TWO VENTURI RECIRCULATION PUMPS AND APPURTENANCES

REMOVE 16" PIPING (TYP)



REMOVE 16" PIPING AND STRAINERS. LEAVE AS IS VERTICAL PIPES BENEATH STRAINERS

REMOVE 4" DRAIN PIPING AS INDICATED

EXISTING PUMPS TO REMAIN

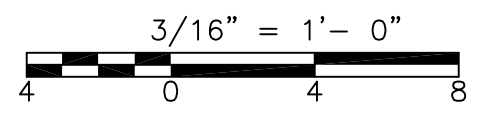
REMOVE FUEL OIL PUMPS (TYP 4)

**PLAN**

3/16" = 1'-0"

**GENERAL NOTES:**

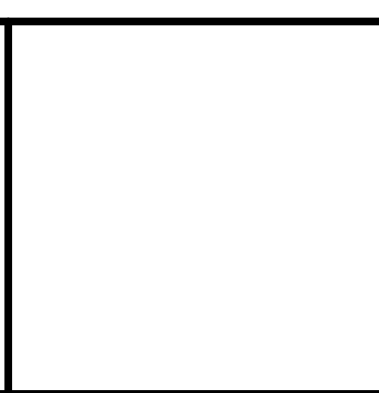
- EXISTING BUILDING OUTLINE, LOCATION OF EXISTING EQUIPMENT, VALVES AND PIPING HAS BEEN OBTAINED FROM SCANNED ORIGINAL RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO.2 FEBRUARY 1973  
 SOME INFORMATION NOT DIRECTLY RELATED TO THE WORK UNDER THIS CONTRACT HAS BEEN OMITTED FOR THE SAKE OF CLARITY. ADDITIONAL EQUIPMENT INFORMATION IS BASED ON PLANT RECORDS AND FIELD MEASUREMENTS. EXACT EQUIPMENT AND PIPING LOCATIONS SHOULD BE VERIFIED.
- FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
- FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
- UNLESS DESIGNATED FOR REUSE WITH NEW WORK, DEMOLITION INCLUDES CONCRETE PADS AND ANCHOR BOLTS.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MSPDM001.DWG
DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006



**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**CBE** CHAVOND-BARRY ENGINEERING CORP.  
 400 Route 518 • P.O. Box 205 • Blawieburg, New Jersey 08504

**UPPER BLACKSTONE**  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

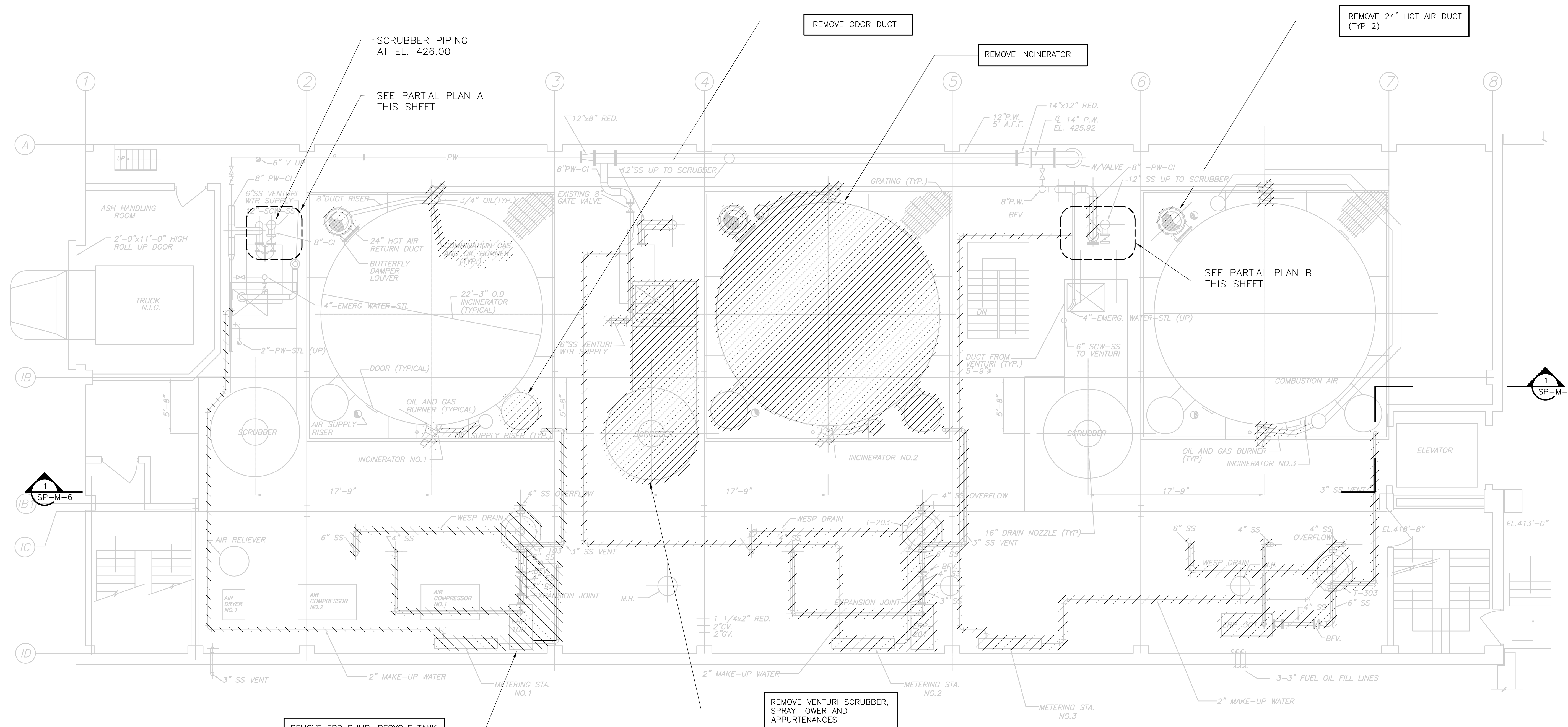
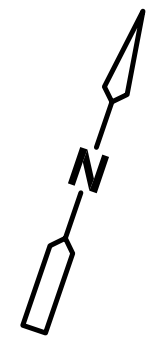
**WASTEWATER TREATMENT FACILITY**  
 IMPROVEMENTS

**INCINERATOR DEMOLITION**  
 SUB BASEMENT PLAN EL. 409.83

PROJECT NO.  
1289\35370

Sht. 186 of 386

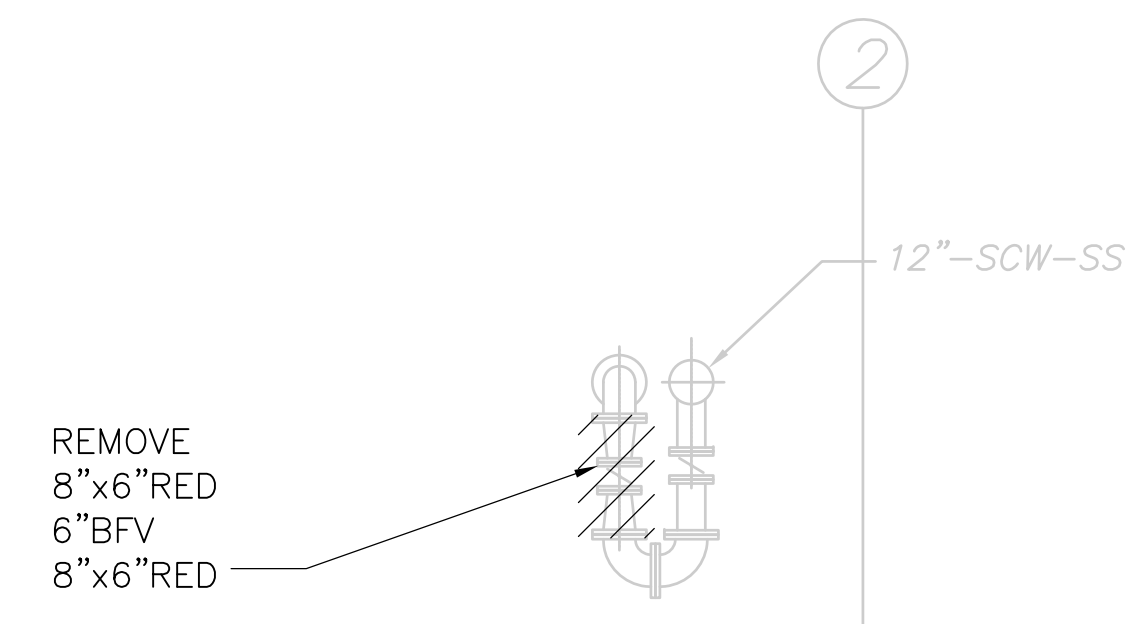
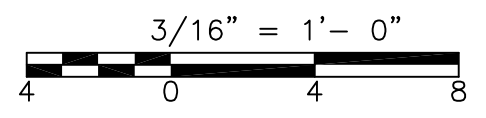
**SP-M-1**



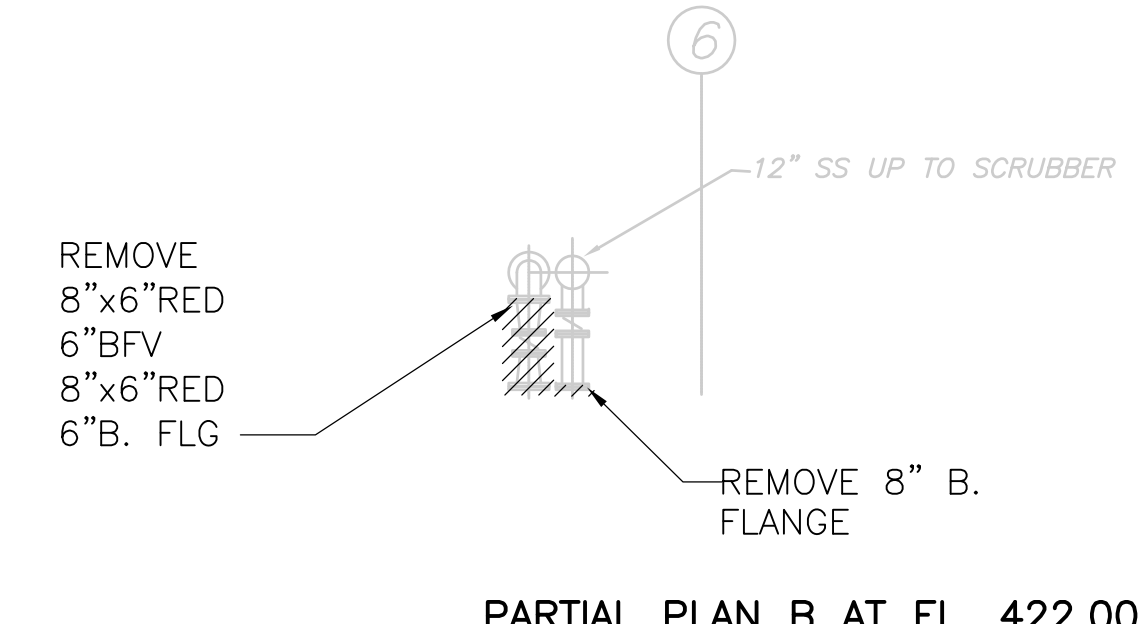
**PLAN**  
 3/16" = 1'-0"

**GENERAL NOTES:**

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 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO.2 FEBRUARY 1973  
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- UNLESS DESIGNATED FOR REUSE WITH NEW WORK, DEMOLITION INCLUDES CONCRETE PADS AND ANCHOR BOLTS.



**PARTIAL PLAN A AT EL. 422.00**  
**PLAN**  
 1/4" = 1'-0"



**PARTIAL PLAN B AT EL. 422.00**  
**PLAN**  
 1/4" = 1'-0"

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MSPDM002.DWG
DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

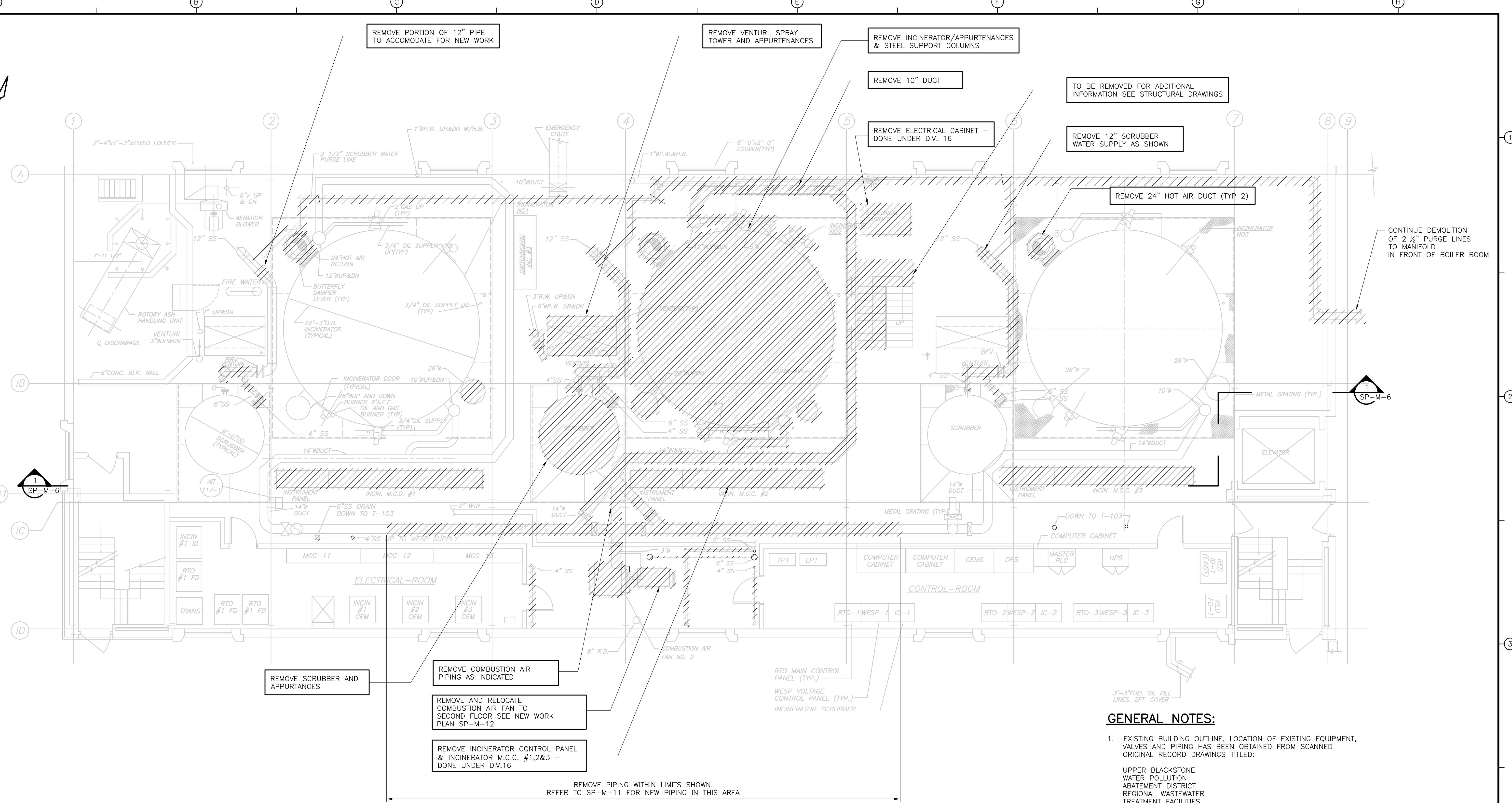
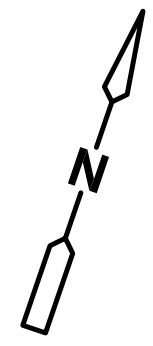
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**INCINERATOR DEMOLITION BASEMENT PLAN EL. 420.67**

**SP-M-2**

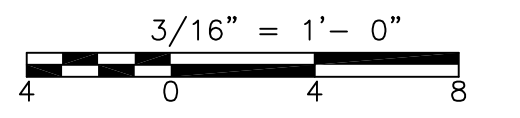
PROJECT NO.	1289\35370
Sht.	187 of 386



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

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RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MSPDM003.DWG
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DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006

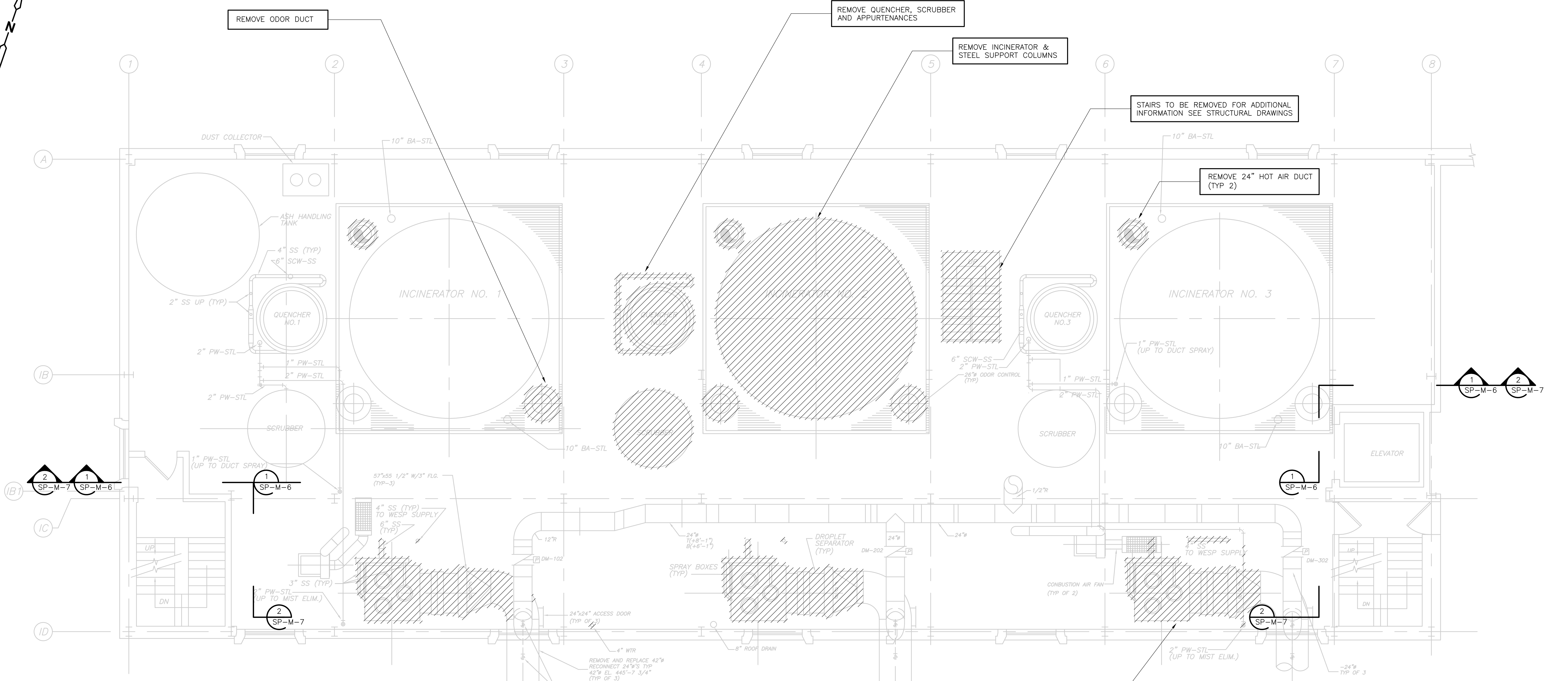
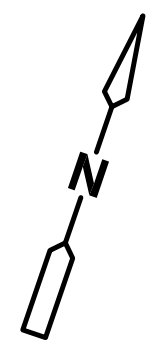
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**INCINERATOR DEMOLITION  
 FIRST FLOOR PLAN EL. 431.00**

PROJECT NO. 1289\35370  
 Sht. 188 of 386  
**SP-M-3**

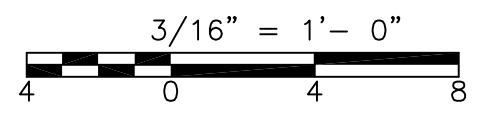


**PLAN**

3/16" = 1'-0"

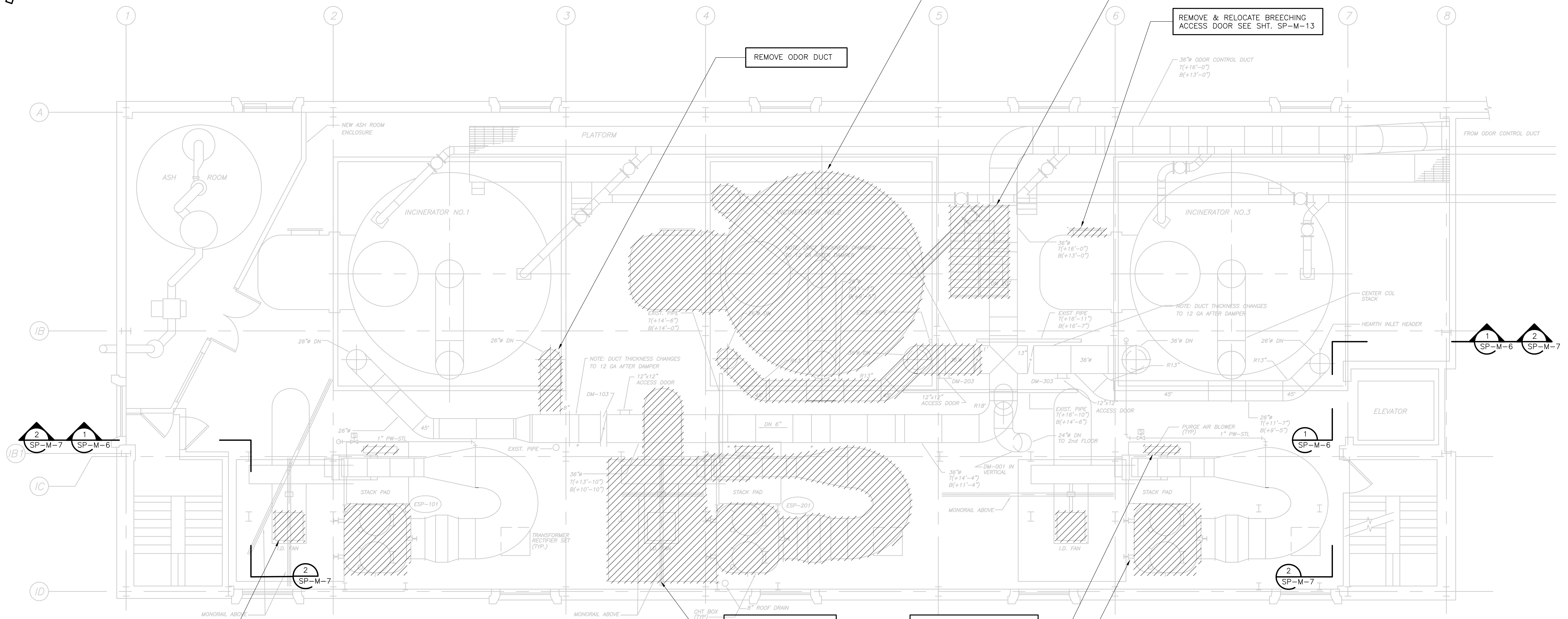
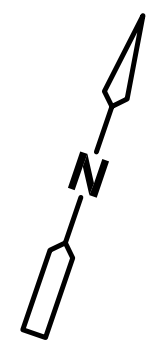
**GENERAL NOTES:**

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 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO.2 FEBRUARY 1973  
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RECORD DRAWING

CADD FILE NO. MSPDM004.DWG DESIGNED BY: F. SAPIENZA DRAWN BY: V. BITTO SHEET CHK'D BY: F. SAPIENZA SCALE: 3/16"=1'-0" APPROVED BY: R. GAUDES DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 189 of 386  <b>SP-M-4</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT		REVISED FOR THE RECORD					



MOTOR TO BE REMOVED (TYP)

REMOVE I.D. FAN AND APPURTENANCES

REMOVE PURGE AIR BLOWER SYSTEM (TYP OF 3)

REMOVE WESP (TYP OF 3)

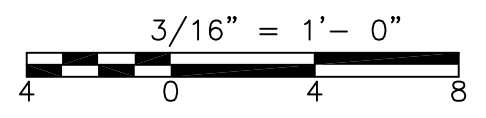
REMOVE INCINERATOR

REMOVE & RELOCATE BREECHING ACCESS DOOR SEE SHT. SP-M-13

REMOVE ODOR DUCT

**GENERAL NOTES:**

- EXISTING BUILDING OUTLINE, LOCATION OF EXISTING EQUIPMENT, VALVES AND PIPING HAS BEEN OBTAINED FROM SCANNED ORIGINAL RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE  
 WATER POLLUTION  
 ABATEMENT DISTRICT  
 REGIONAL WASTEWATER  
 TREATMENT FACILITIES  
 CONTRACT NO.2  
 FEBRUARY 1973  
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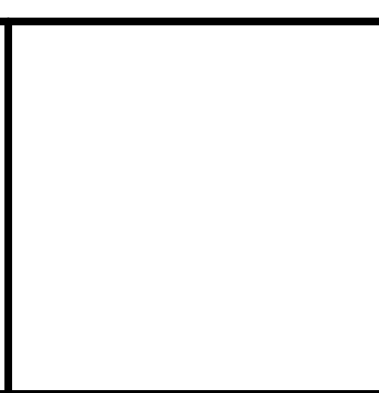


**PLAN**  
3/16" = 1'-0"

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MSPDM005.DWG
DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006

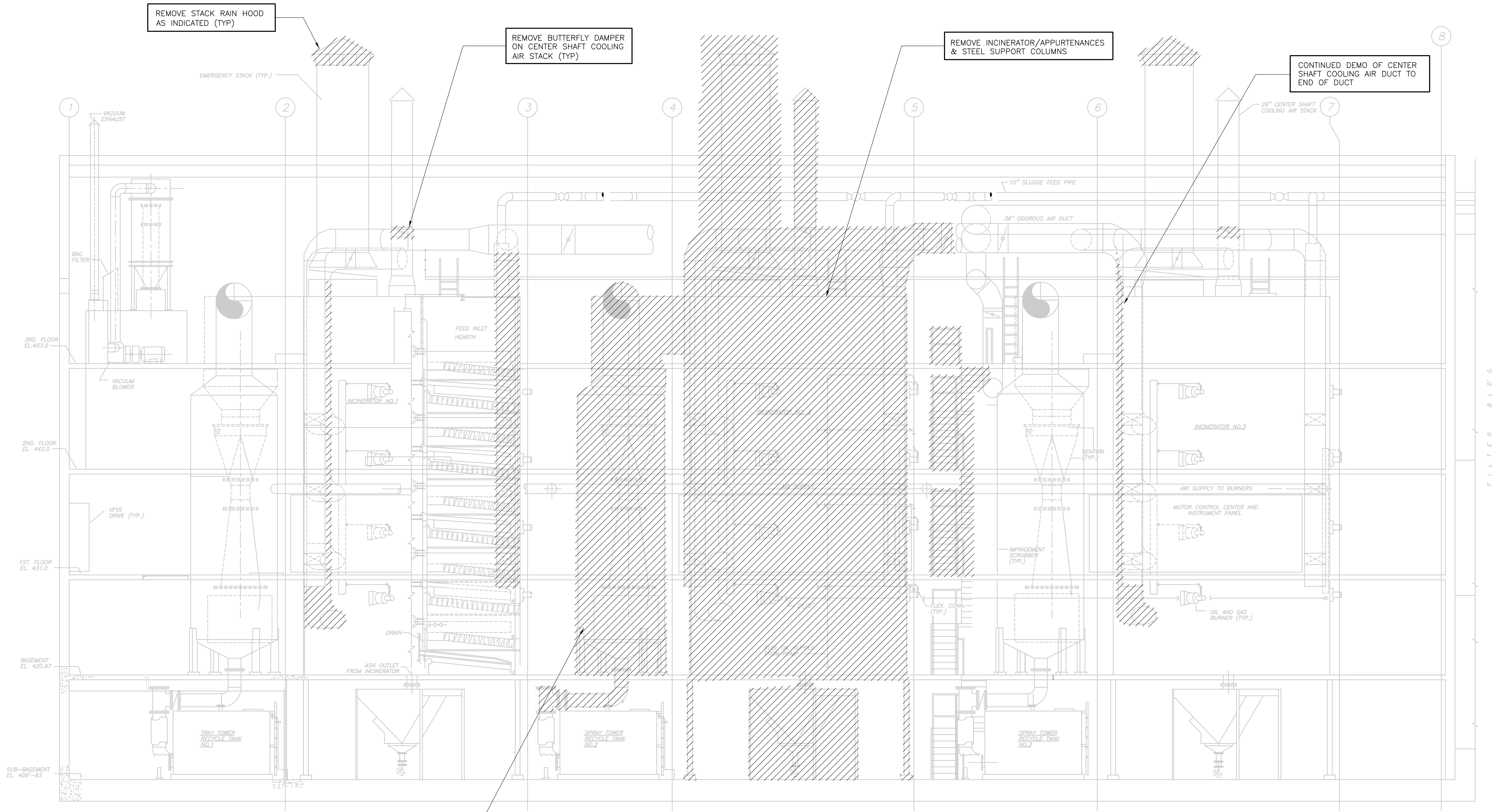


**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**INCINERATOR DEMOLITION  
 THIRD FLOOR PLAN EL. 453.00**

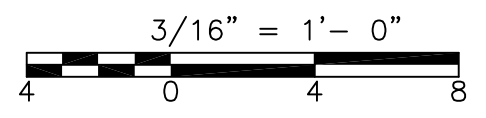
PROJECT NO.  
1289\35370  
Sht. 190 of 386  
**SP-M-5**



**SECTION 1**  
 3/16" = 1'-0" SP-M-1,2,3,4,5

**GENERAL NOTES:**

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 WATER POLLUTION  
 ABATEMENT DISTRICT  
 REGIONAL WASTEWATER  
 TREATMENT FACILITIES  
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RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

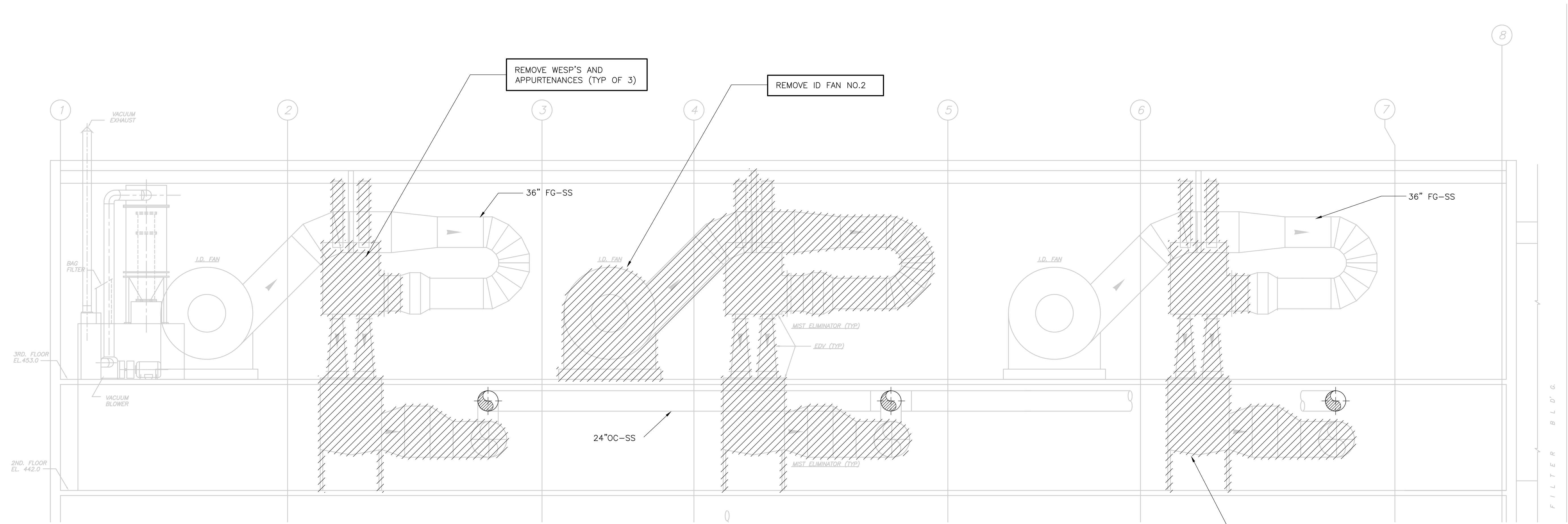
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DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006

CDM	Camp Dresser & McKee Inc.
consulting	engineering
construction	operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
WASTEWATER TREATMENT FACILITY IMPROVEMENTS

INCINERATOR DEMOLITION SECTION I
-------------------------------------

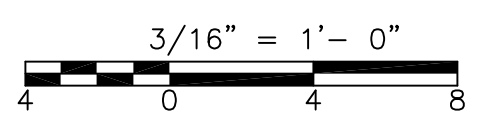
PROJECT NO. 1289\35370
Sht. 191 of 386
SP-M-6



**SECTION 2**  
 3/16" = 1'-0" SP-M-4,5

**GENERAL NOTES:**

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 UPPER BLACKSTONE  
 WATER POLLUTION  
 ABATEMENT DISTRICT  
 REGIONAL WASTEWATER  
 TREATMENT FACILITIES  
 CONTRACT NO.2  
 FEBRUARY 1973  
  
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- SEE STRUCTURAL DRAWINGS FOR FLOOR PENETRATIONS.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. MSPDM006.DWG  
 DESIGNED BY: F. SAPIENZA  
 DRAWN BY: V. BITTO  
 SHEET CHK'D BY: F. SAPIENZA  
 SCALE: 3/16"=1'-0"  
 APPROVED BY: R. GAUDES  
 DATE: MAY 2006



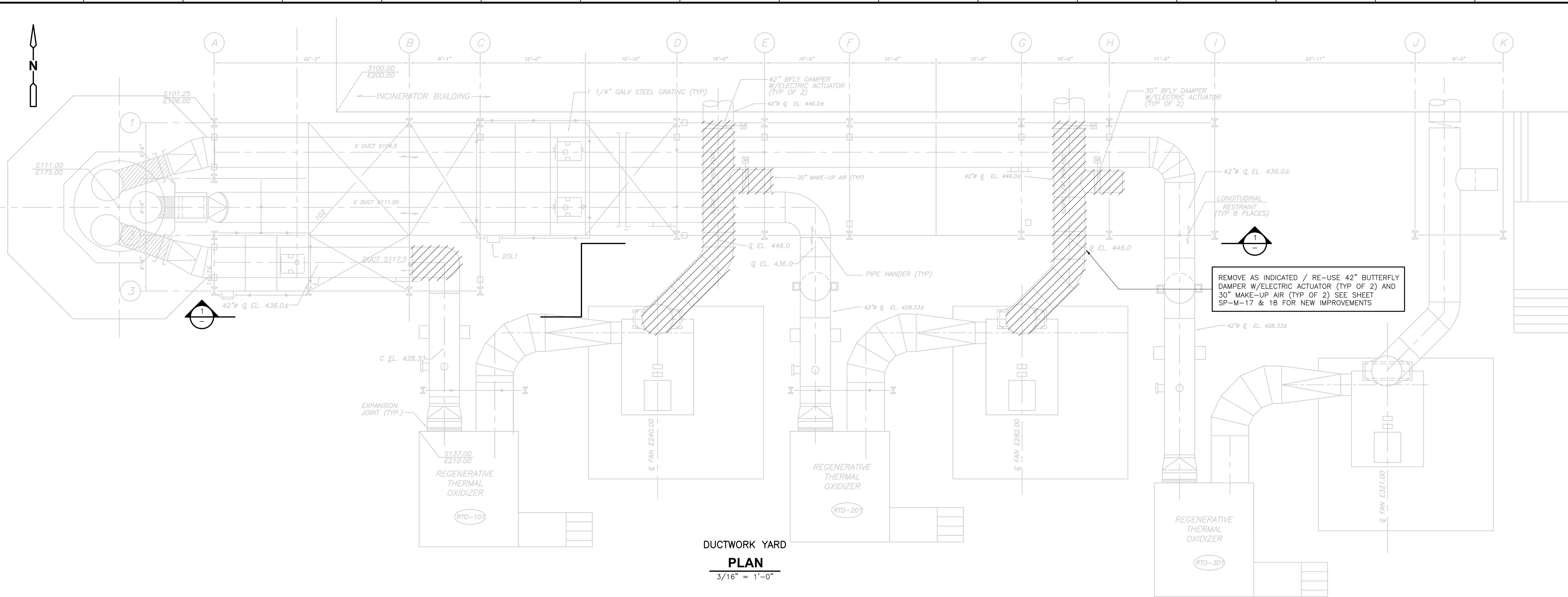
**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**INCINERATOR DEMOLITION**  
**SECTION II**  
**SP-M-7**

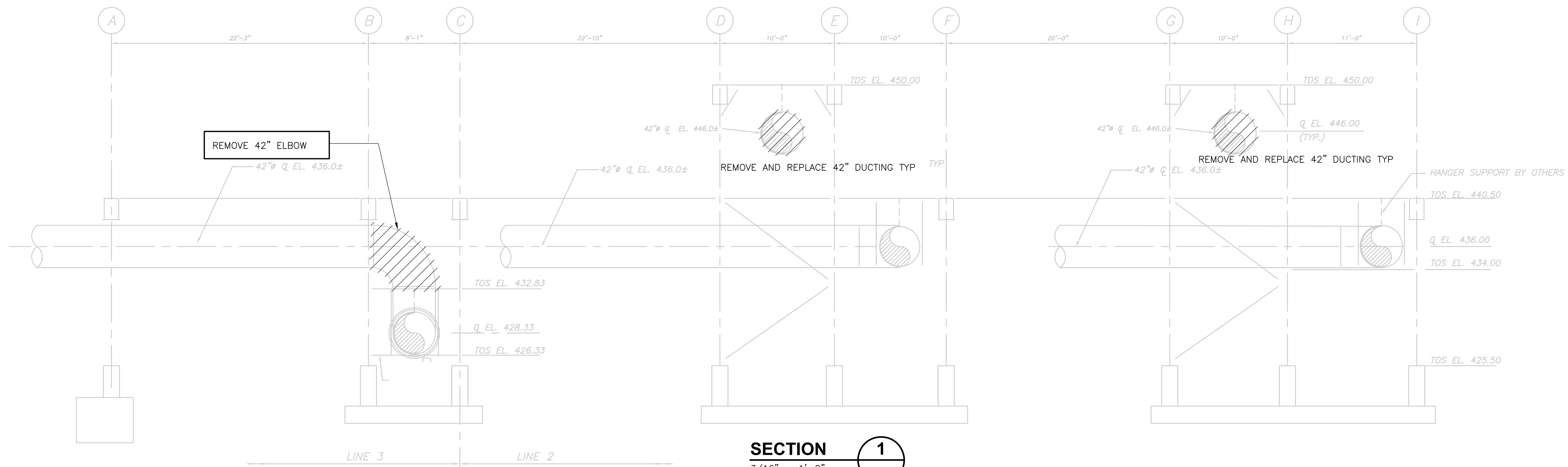
PROJECT NO. 1289\35370  
 Sht. 192 of 386  
ACCESSION NO. 1289-6592



UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
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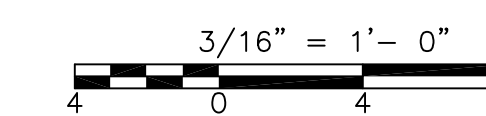


**DUCTWORK YARD**  
**PLAN**  
 3/16" = 1'-0"



**SECTION 1**  
 3/16" = 1'-0"

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

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DRAWN BY: V. BITTO
SHEET CHKD BY: F. SAPIENZA
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APPROVED BY: R. GAUDES
DATE: MAY 2006

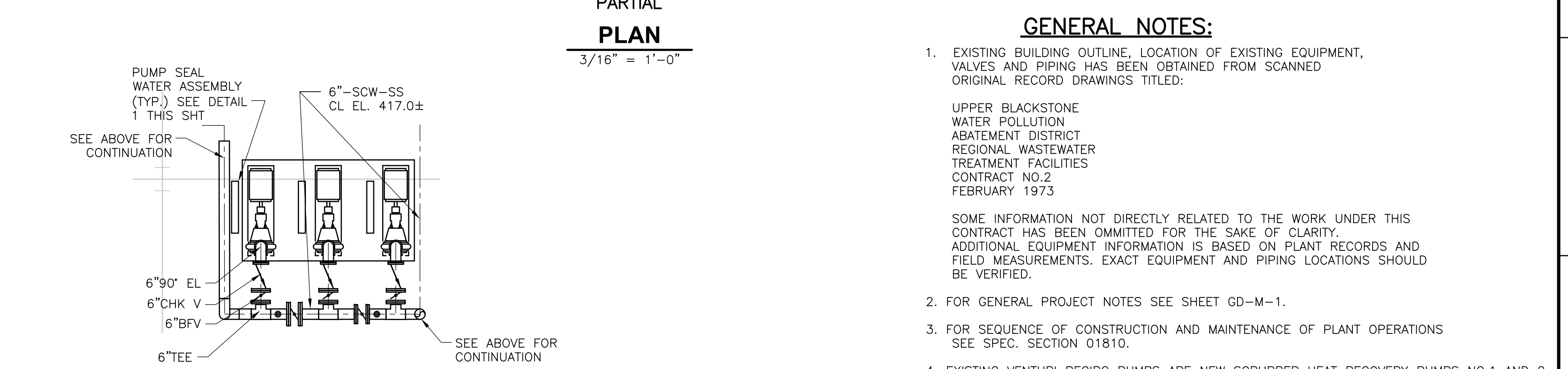
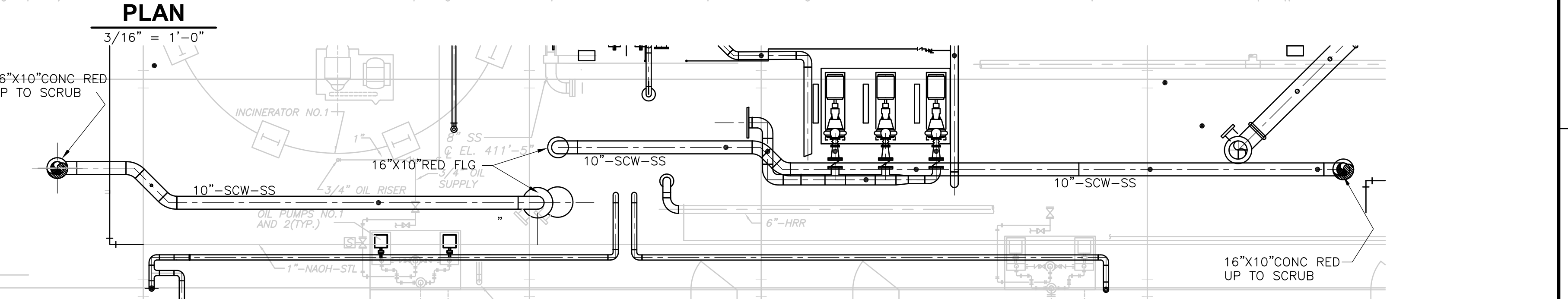
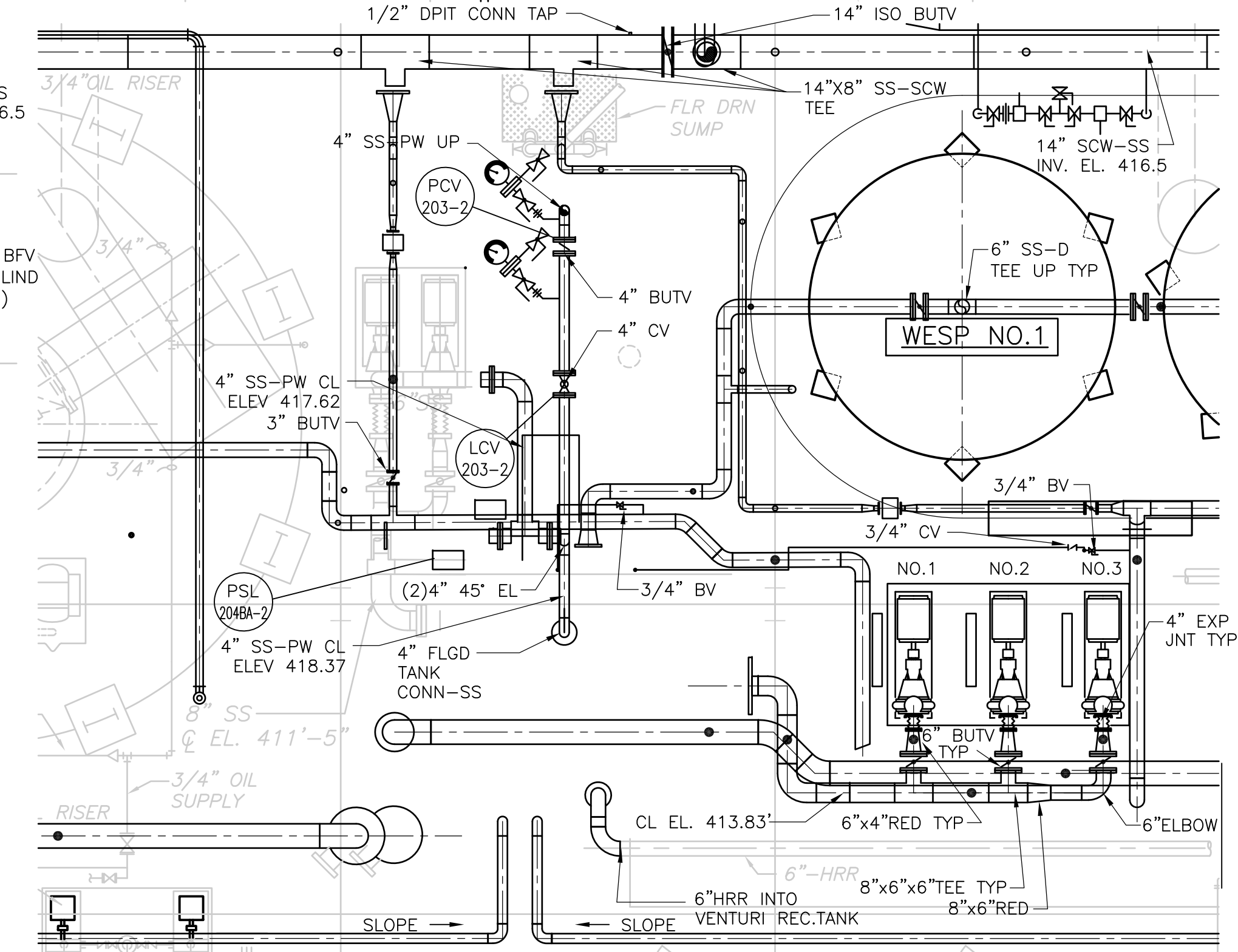
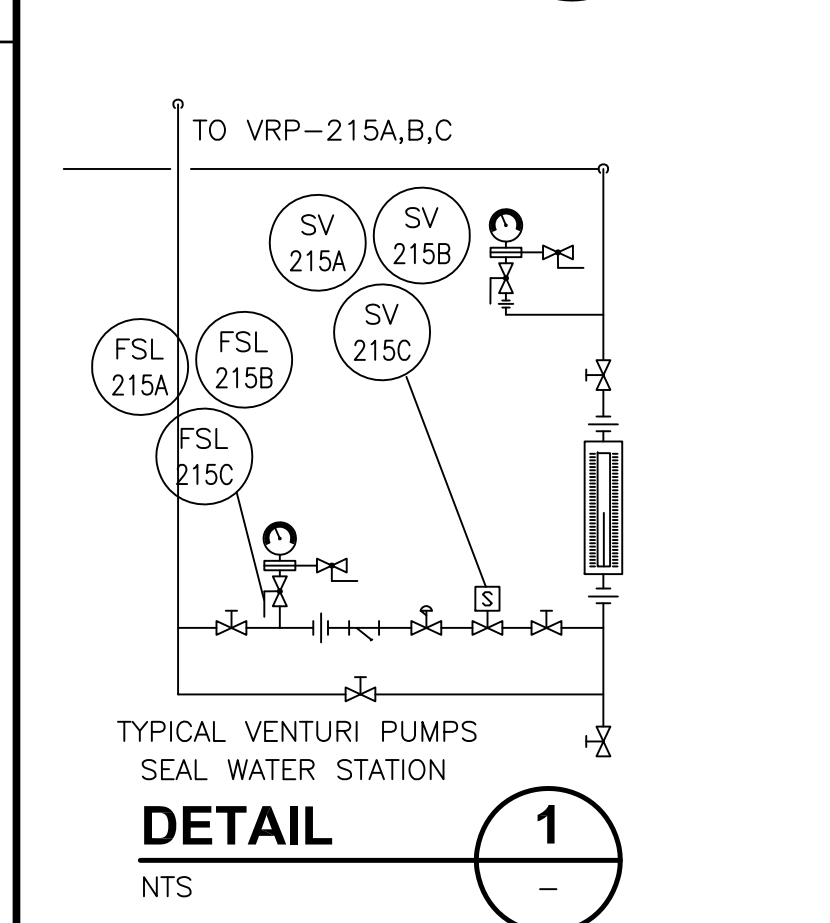
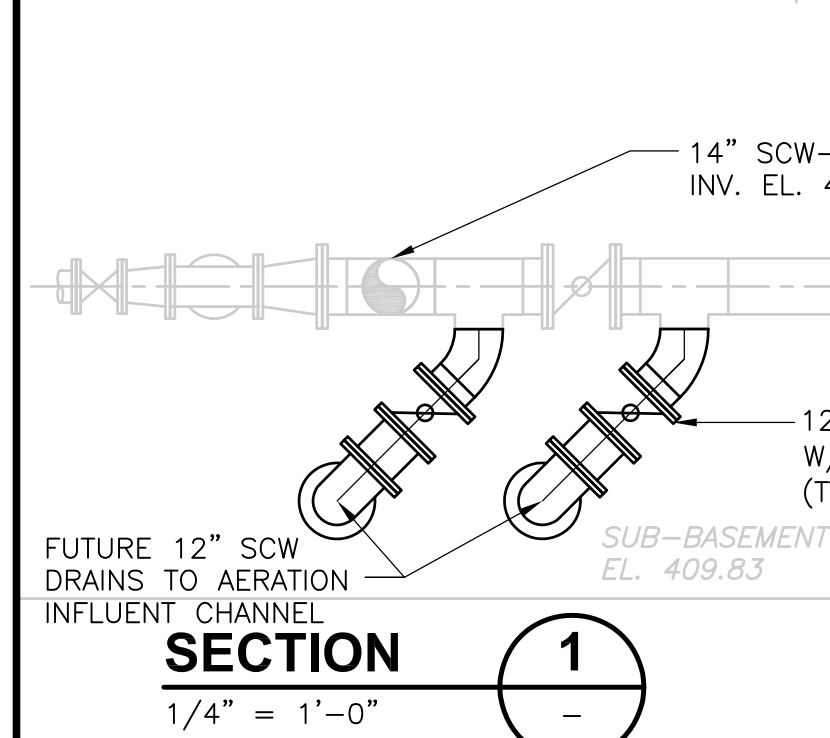
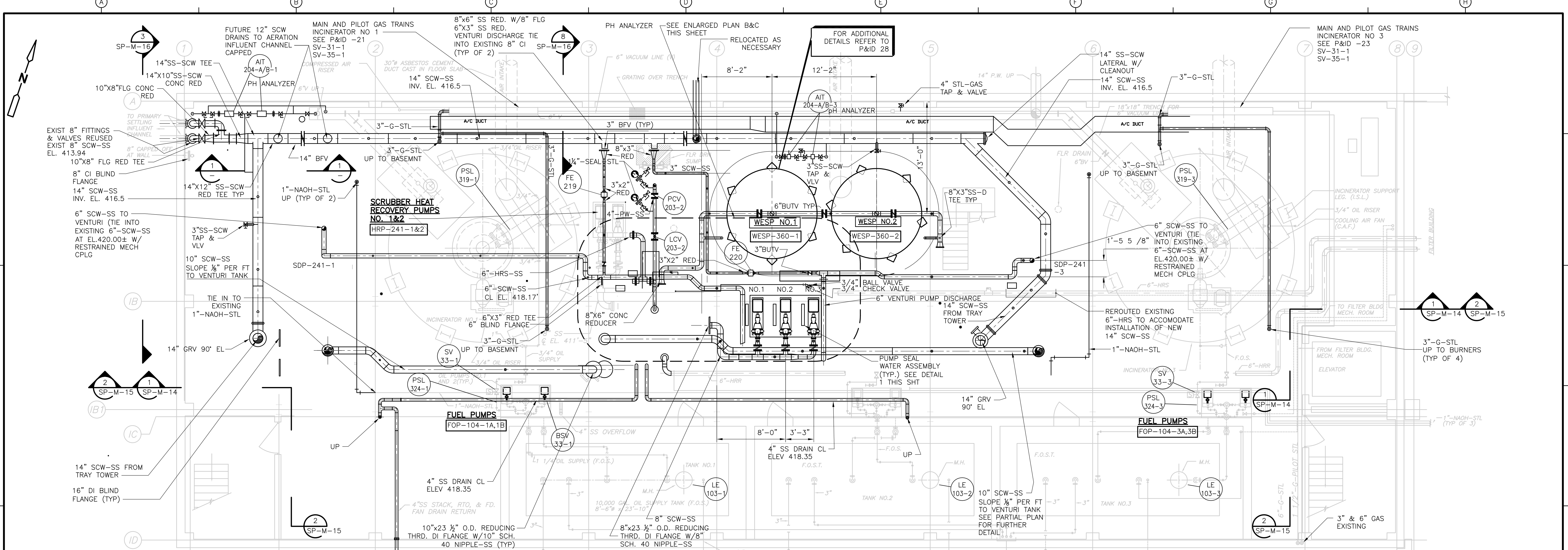
**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**APC DEMOLITION**  
**PLAN AND SECTION**  
**SP-M-8**

PROJECT NO. 1289\35370
Sht. 193 of 386

ACCESSION NO. 1289-65983



- GENERAL NOTES:**
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  - FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
  - EXISTING VENTURI RECIRC PUMPS ARE NEW SCRUBBER HEAT RECOVERY PUMPS NO.1 AND 2.
  - FOR CLARITY, NOT ALL SMALL PIPING, VALVES AND APPURTENANCES ARE SHOWN. REFER TO P&ID'S.

REV. NO.	DATE	DRWN	CHKD	REMARKS
8/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MSPPL001.DWG
DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CH'KD BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006

VERIFY	
--------	--

**CDM**  
 Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

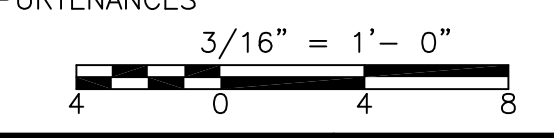
**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

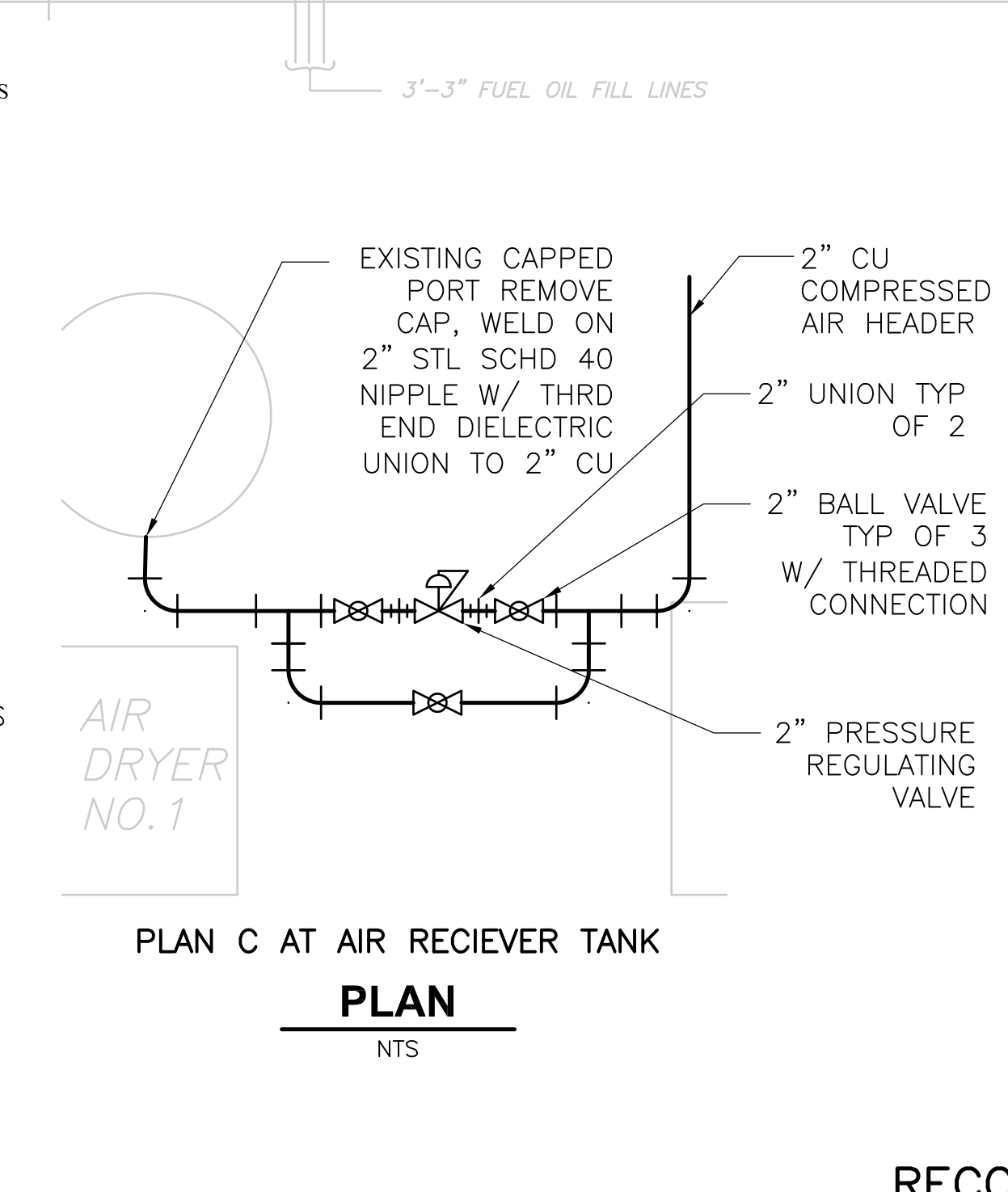
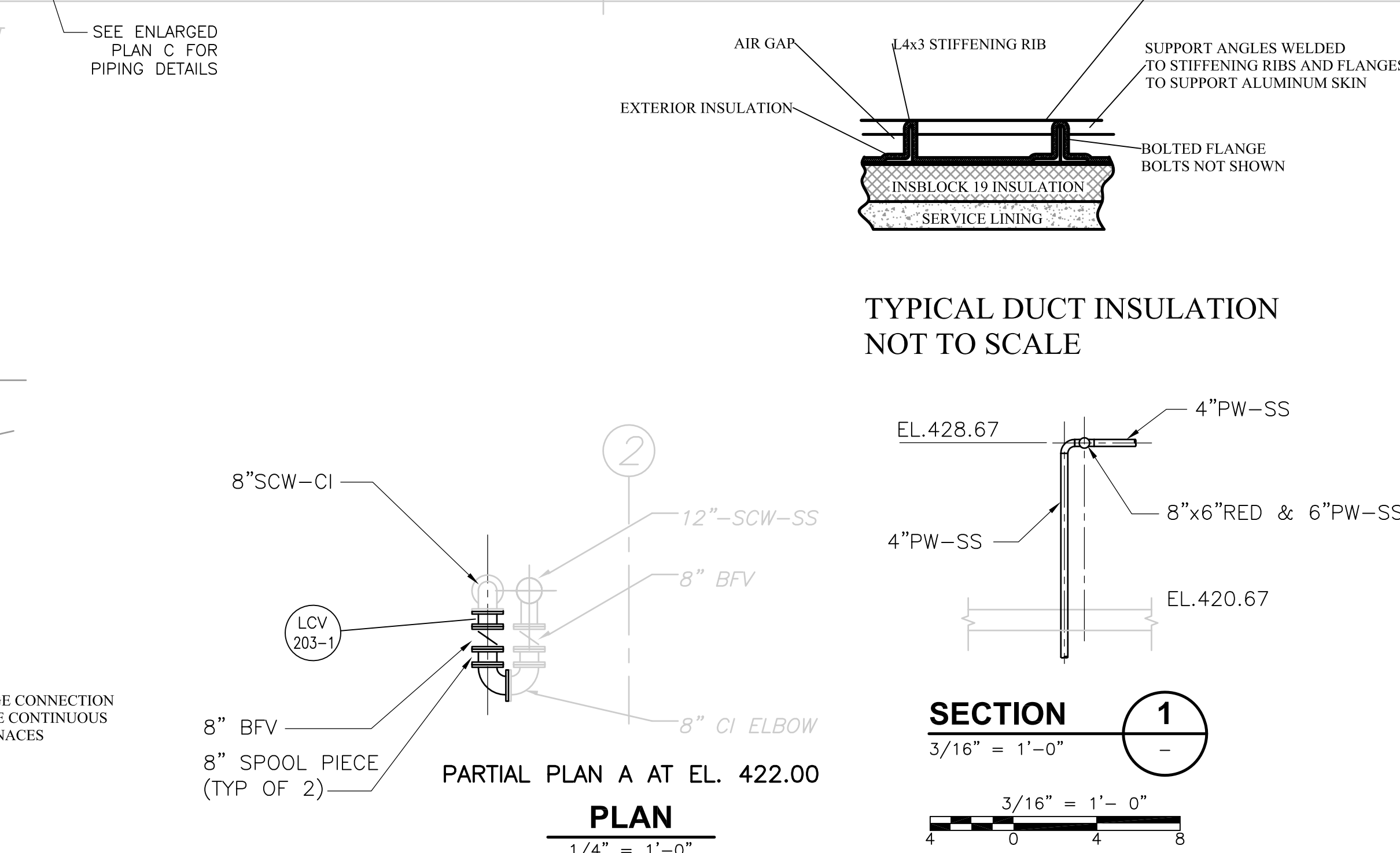
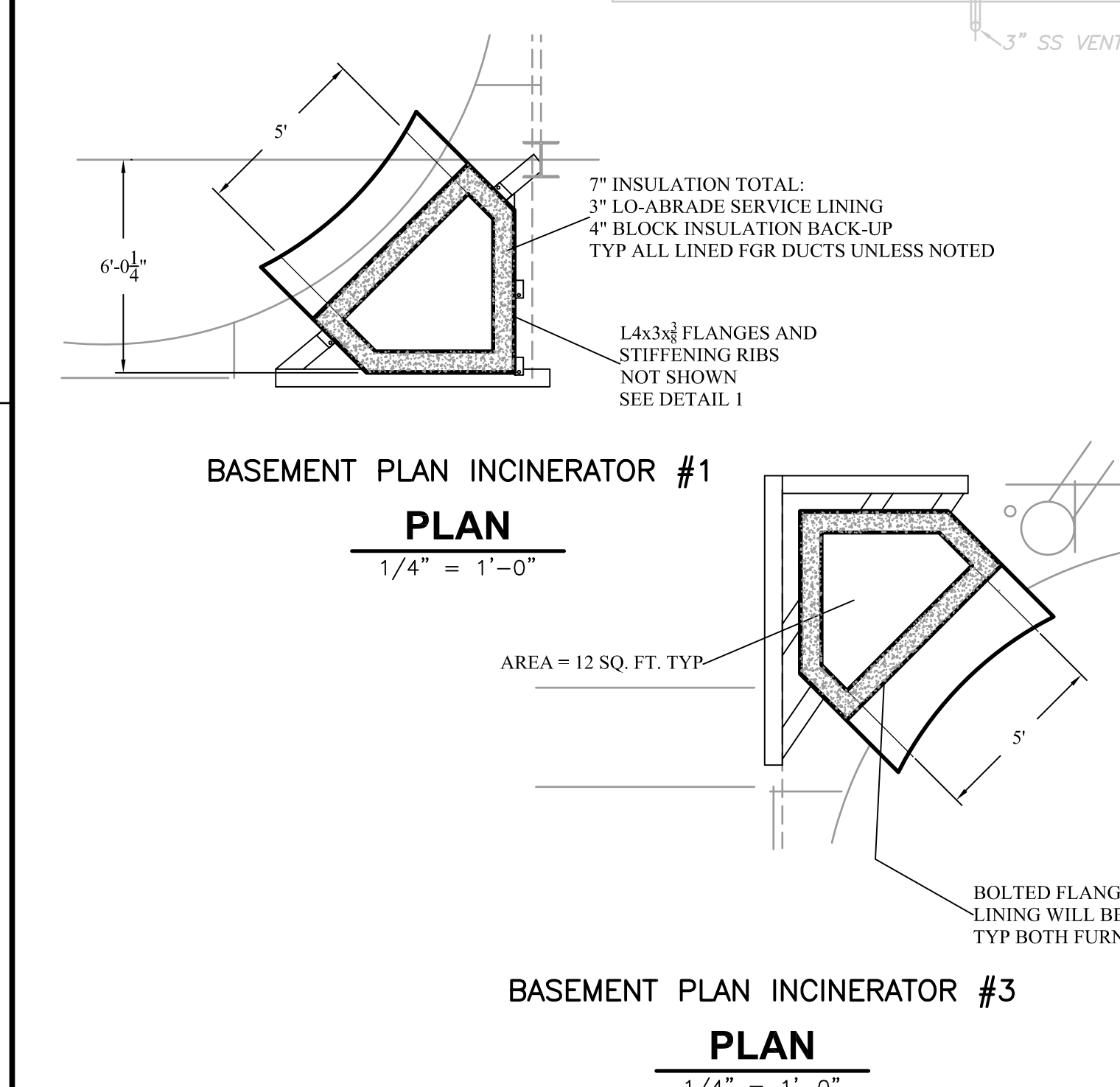
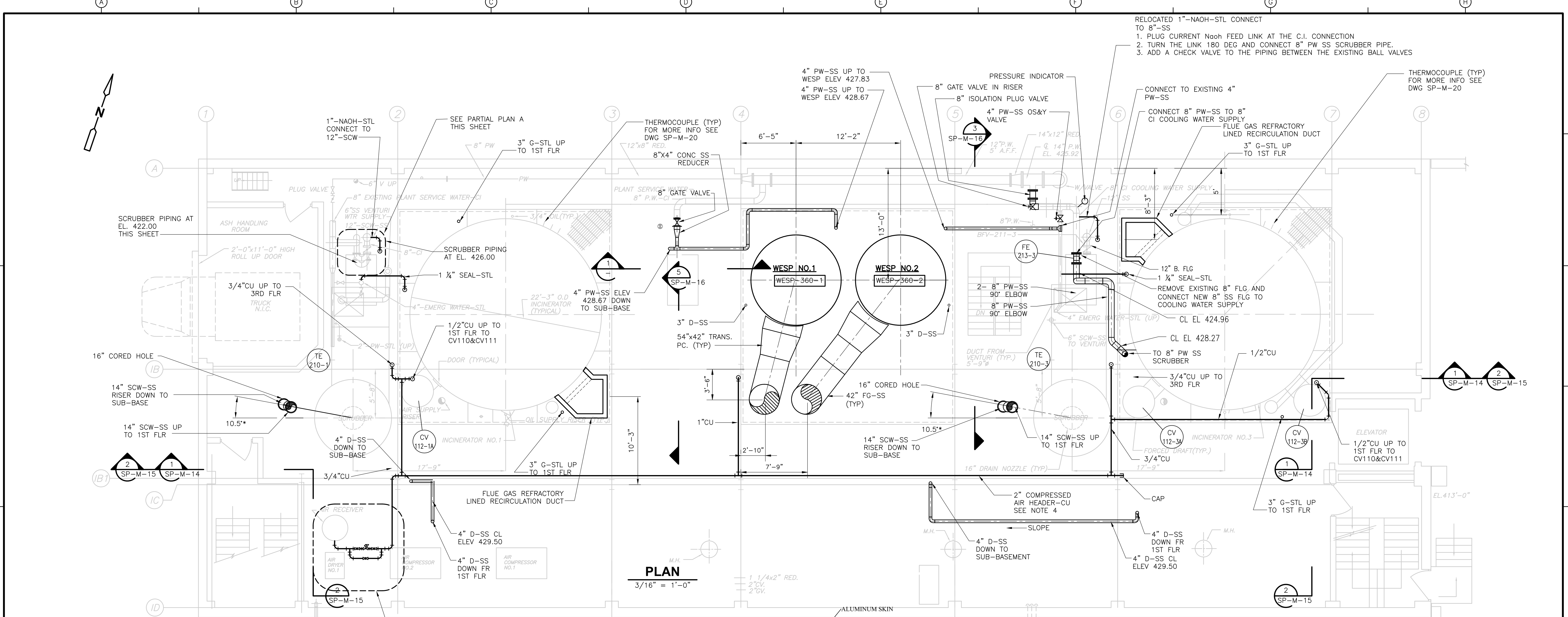
**RECORD DRAWING**

**APC/FGR IMPROVEMENTS  
 SUB BASEMENT PLAN EL. 409.83**

PROJECT NO. 1289\35370  
 Sht. 194 of 386  
**SP-M-9**



UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 [UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Plotted by: CROSSHA Time: 12/16/08 6:27:14 PM  
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- GENERAL NOTES:**
- EXISTING BUILDING OUTLINE, LOCATION OF EXISTING EQUIPMENT, VALVES AND PIPING HAS BEEN OBTAINED FROM SCANNED ORIGINAL RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO.2 FEBRUARY 1973  
 SOME INFORMATION NOT DIRECTLY RELATED TO THE WORK UNDER THIS CONTRACT HAS BEEN OMITTED FOR THE SAKE OF CLARITY. ADDITIONAL EQUIPMENT INFORMATION IS BASED ON PLANT RECORDS AND FIELD MEASUREMENTS. EXACT EQUIPMENT AND PIPING LOCATIONS SHOULD BE VERIFIED.
  - FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
  - FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
  - CONTRACTOR TO FIELD ROUTE ALL INSTRUMENT AIR LINES FROM 2\"/>

REV. NO.	DATE	DRWN	CHKD	REMARKS
2/08	SPV	ELS		REVISED FOR THE RECORD

CADD FILE NO.	MSPPL002.DWG
DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006

**CDM**  
 Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

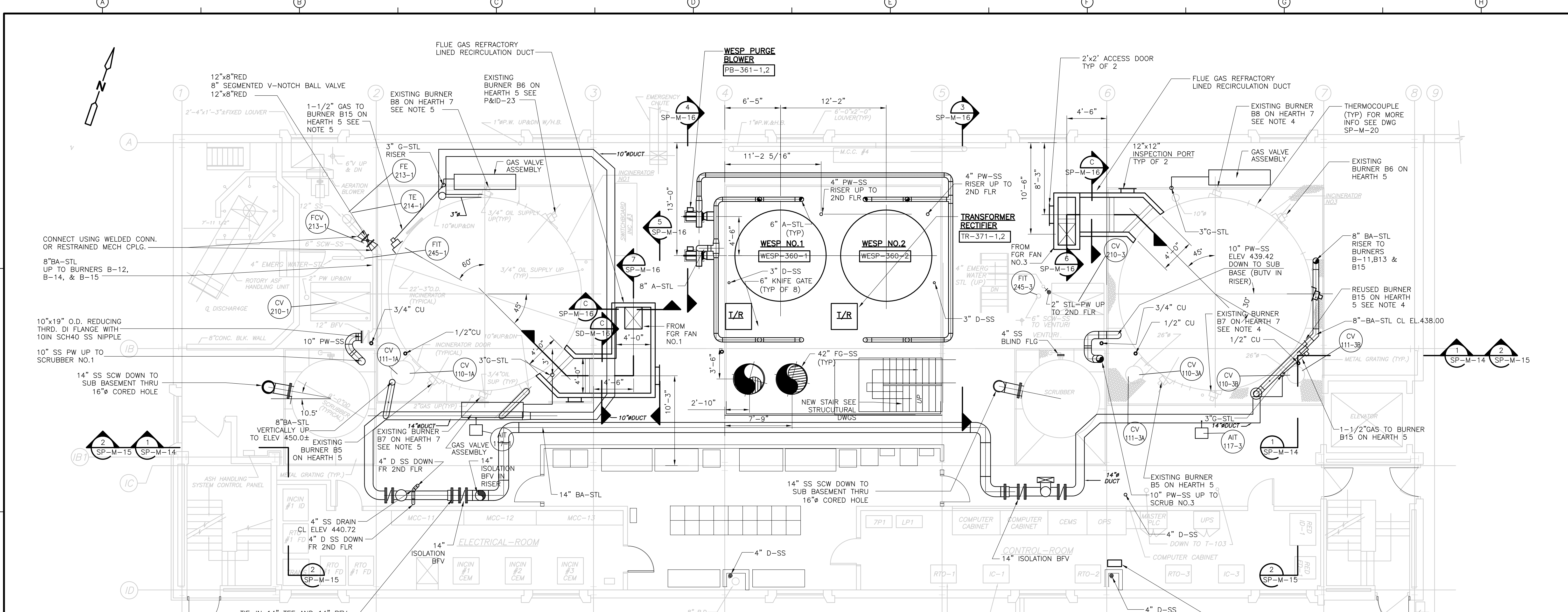
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**RECORD DRAWING**

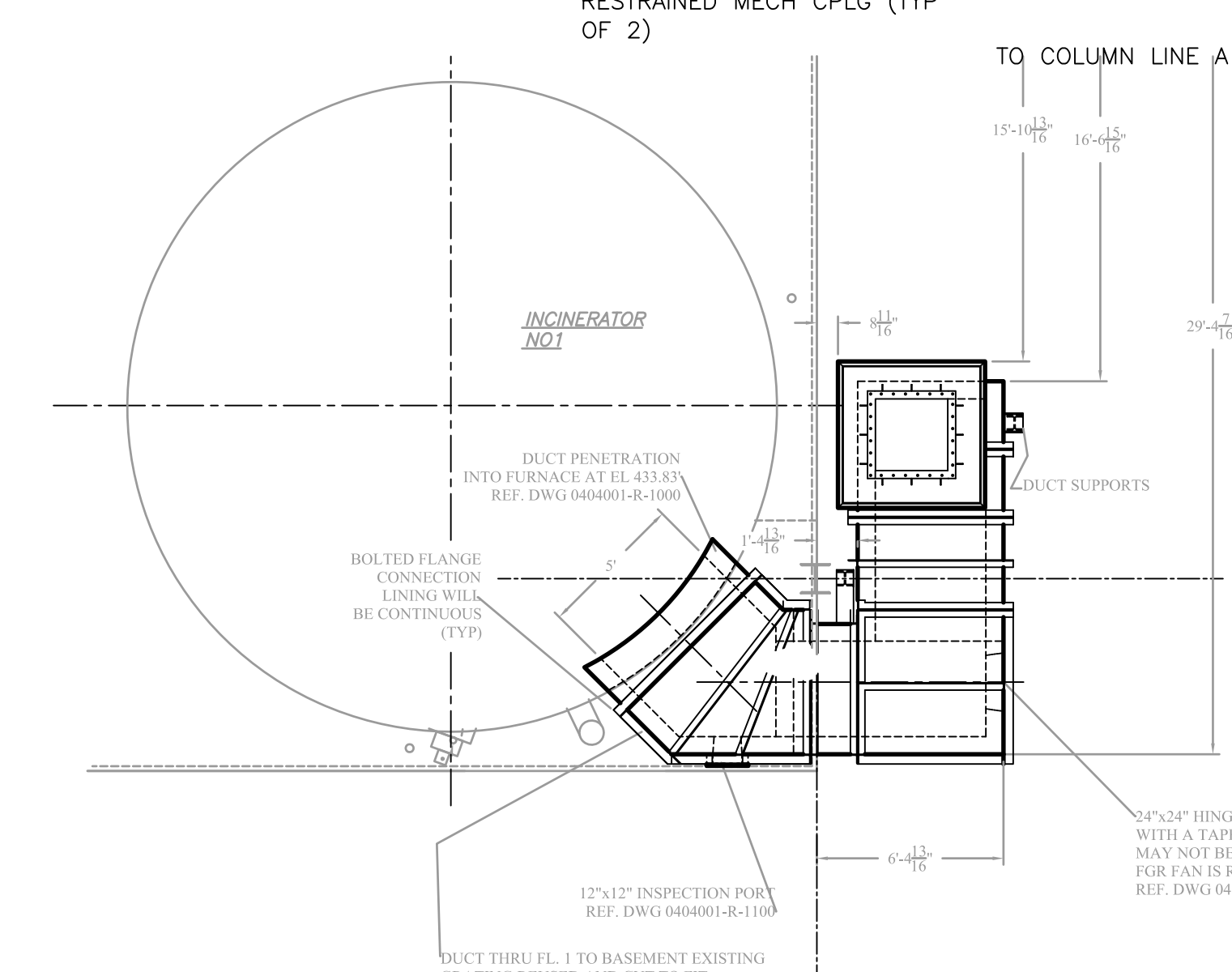
**APC/FGR IMPROVEMENTS  
 BASEMENT PLAN EL. 420.67**

PROJECT NO. 1289\35370  
 Sht. 195 of 386  
**SP-M-10**

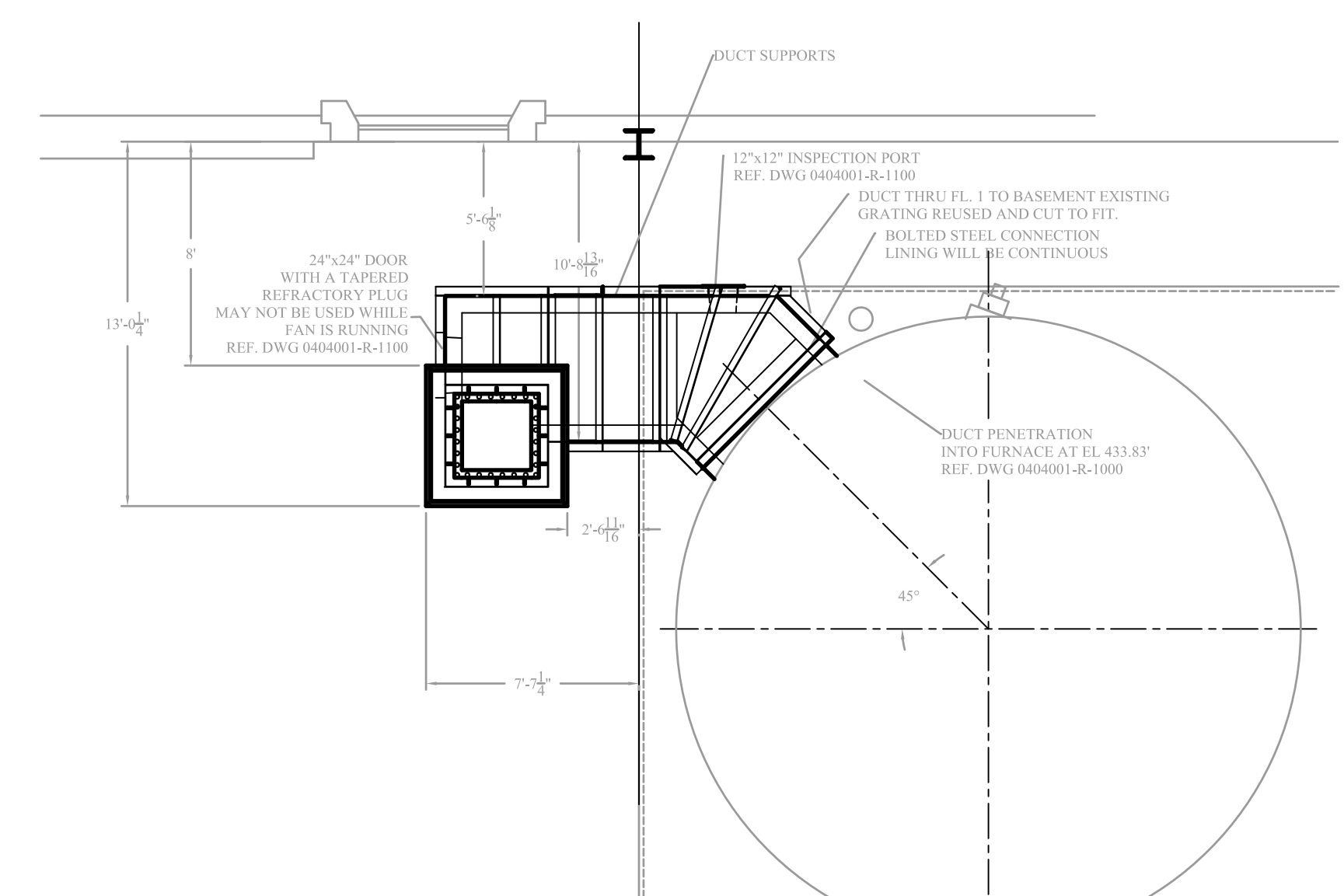
UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
 [C24X36H, CBE\_LOCO, MSPWP003, ASPPL101, ] Plotted by: CROSSHA Time: 12/16/08 6:27:18 PM  
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**PLAN**  
 3/16" = 1'-0"



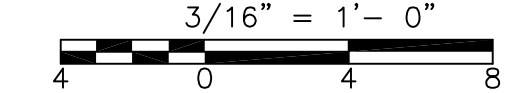
**PLAN**  
 3/16" = 1'-0"



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

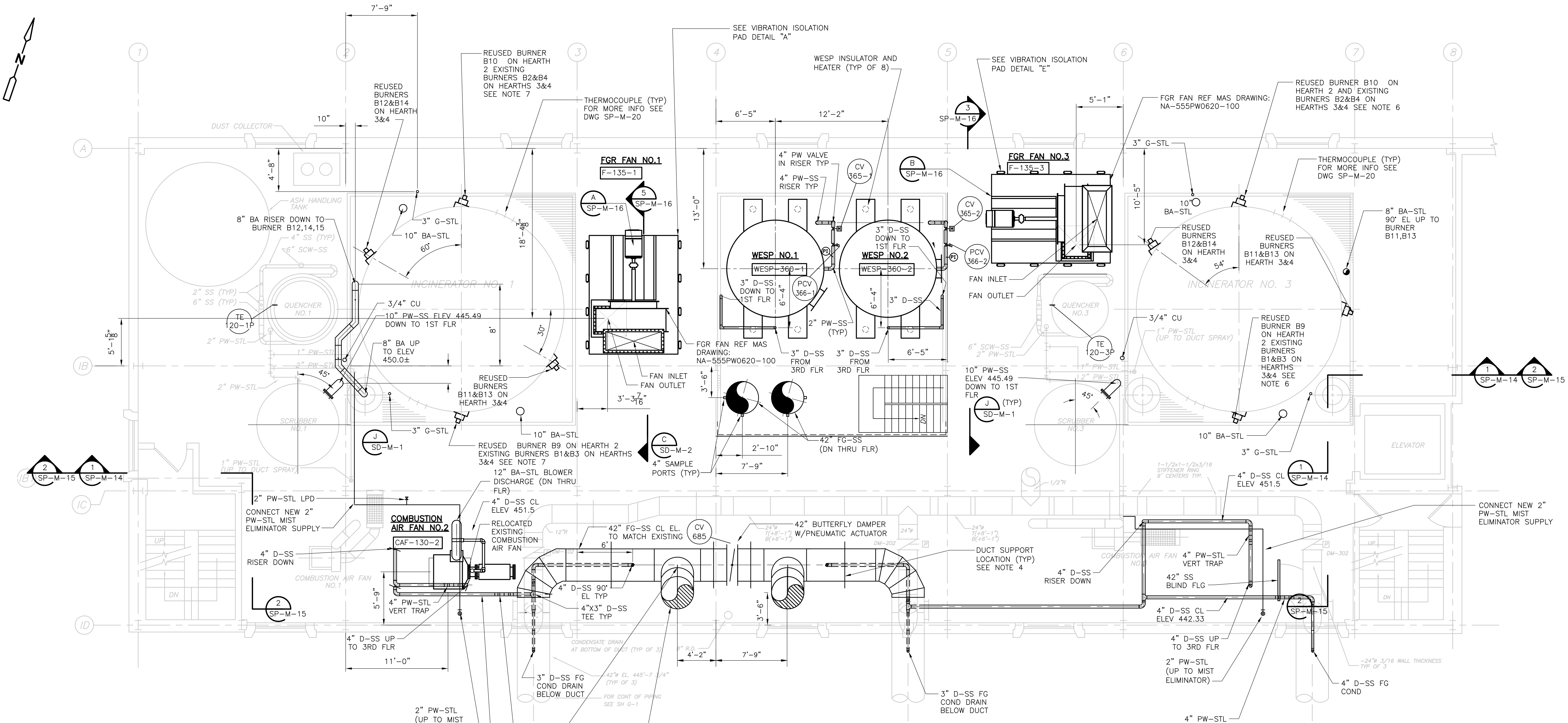
**GENERAL NOTES:**

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- FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
- FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
- SEE P & ID --22, 23 FOR BURNER WORK ON INCINERATOR NO.3
- SEE P & ID --20, 21 FOR BURNER WORK ON INCINERATOR NO. 1
- FOR CLARITY, NOT ALL SMALL PIPING, VALVES AND APPURTENANCES ARE SHOWN. REFER TO P&ID'S.



RECORD DRAWING

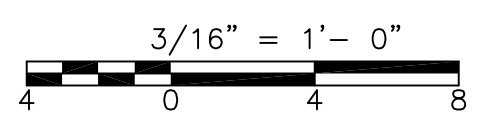
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REV. NO.	DATE	DRWN	CHKD	REMARKS					
2/08	SPV	ADT		REVISED FOR THE RECORD					



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

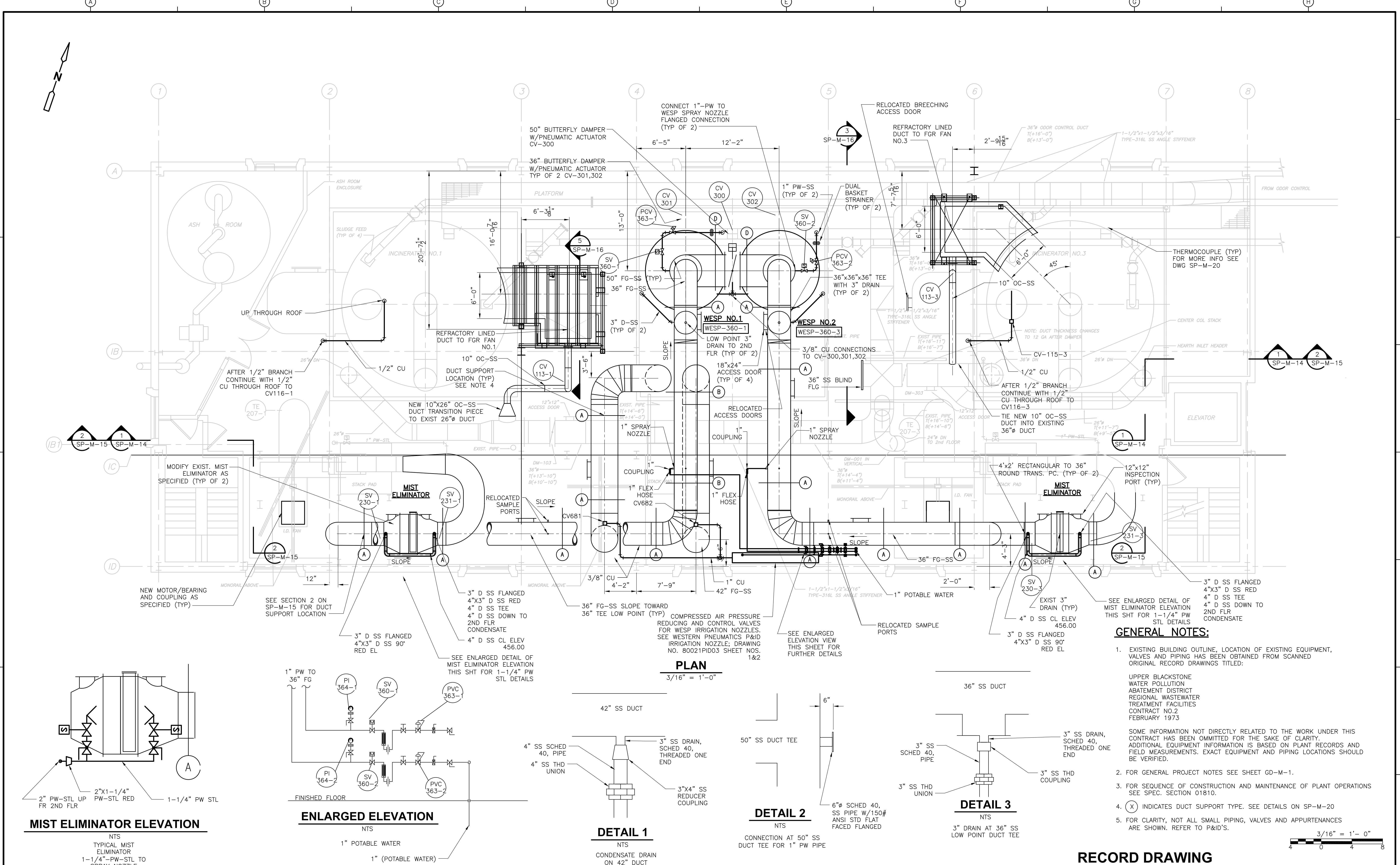
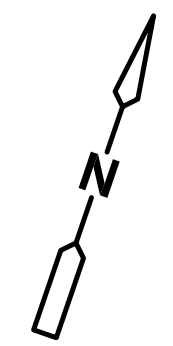
**GENERAL NOTES:**

- EXISTING BUILDING OUTLINE, LOCATION OF EXISTING EQUIPMENT, VALVES AND PIPING HAS BEEN OBTAINED FROM SCANNED ORIGINAL RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO.2 FEBRUARY 1973  
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- FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
- FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
- (X) INDICATES DUCT SUPPORT TYPE. SEE DETAILS ON SP-M-20.
- \*INDICATES DIMENSIONS AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
- SEE P&ID-22, 23 FOR BURNER WORK ON INCINERATOR NO.3.
- SEE P&ID-20, 21 FOR BURNER WORK ON INCINERATOR NO.1
- FOR CLARITY, NOT ALL SMALL PIPING, VALVES AND APPURTENANCES ARE SHOWN. REFER TO P&ID'S.

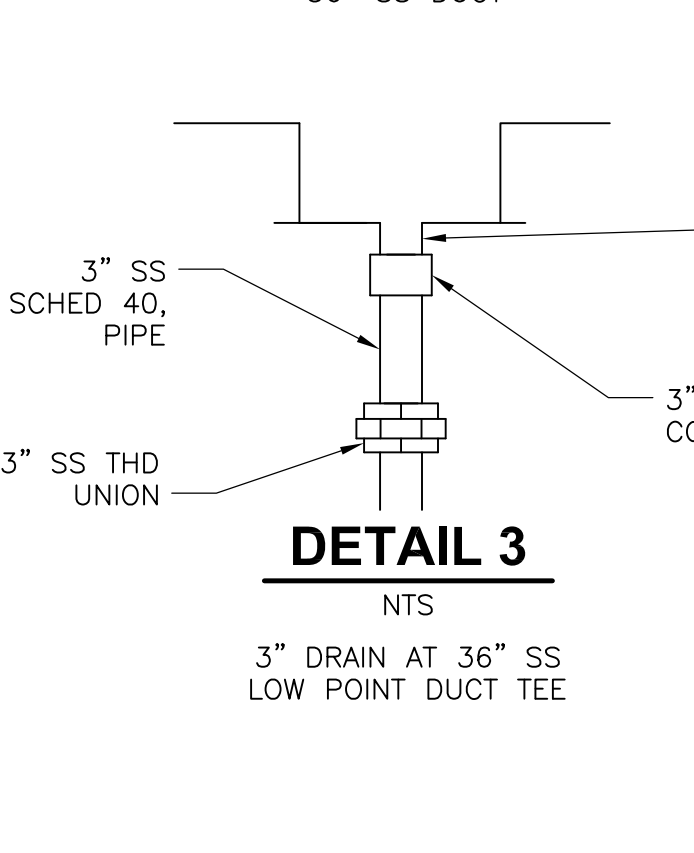
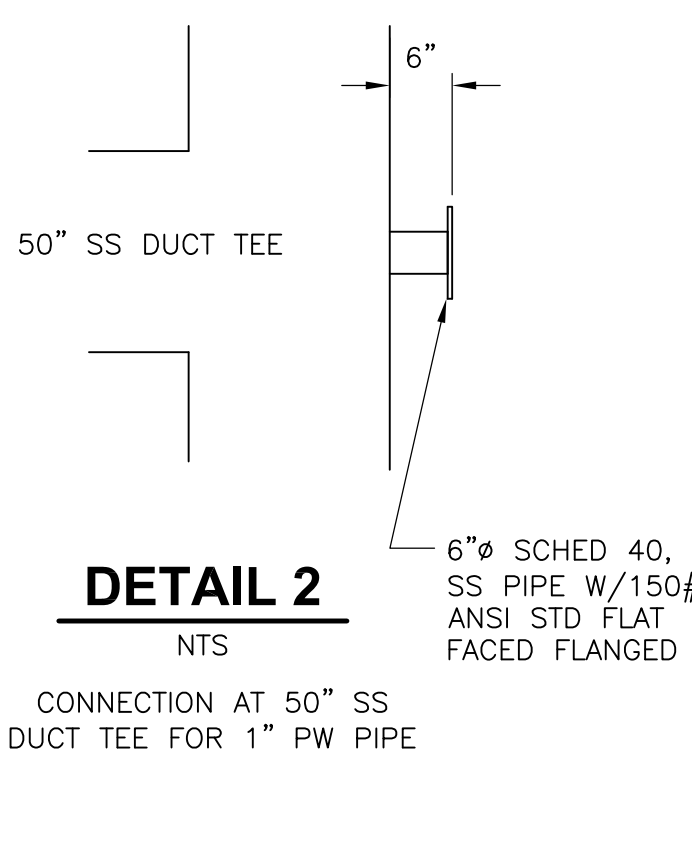
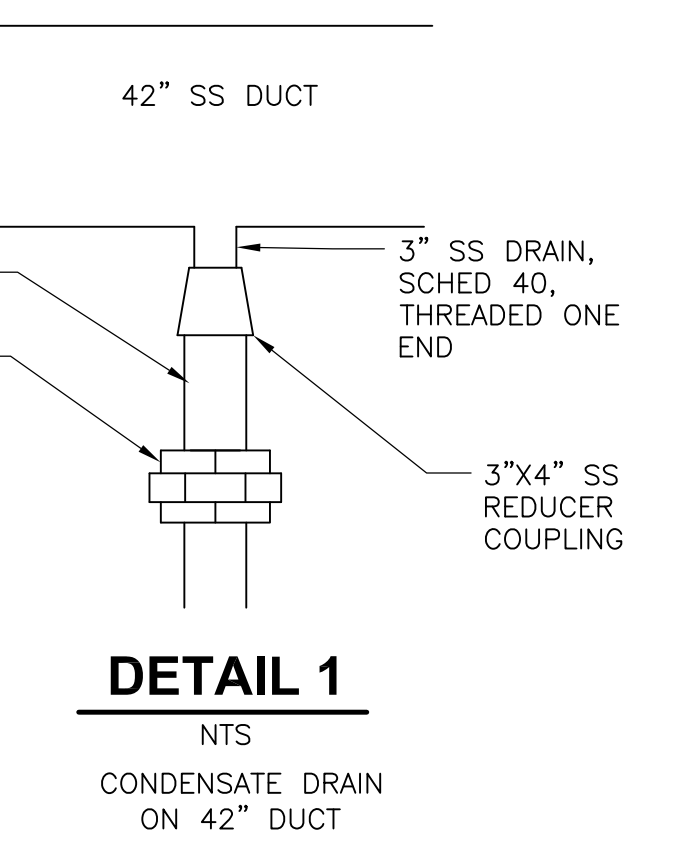
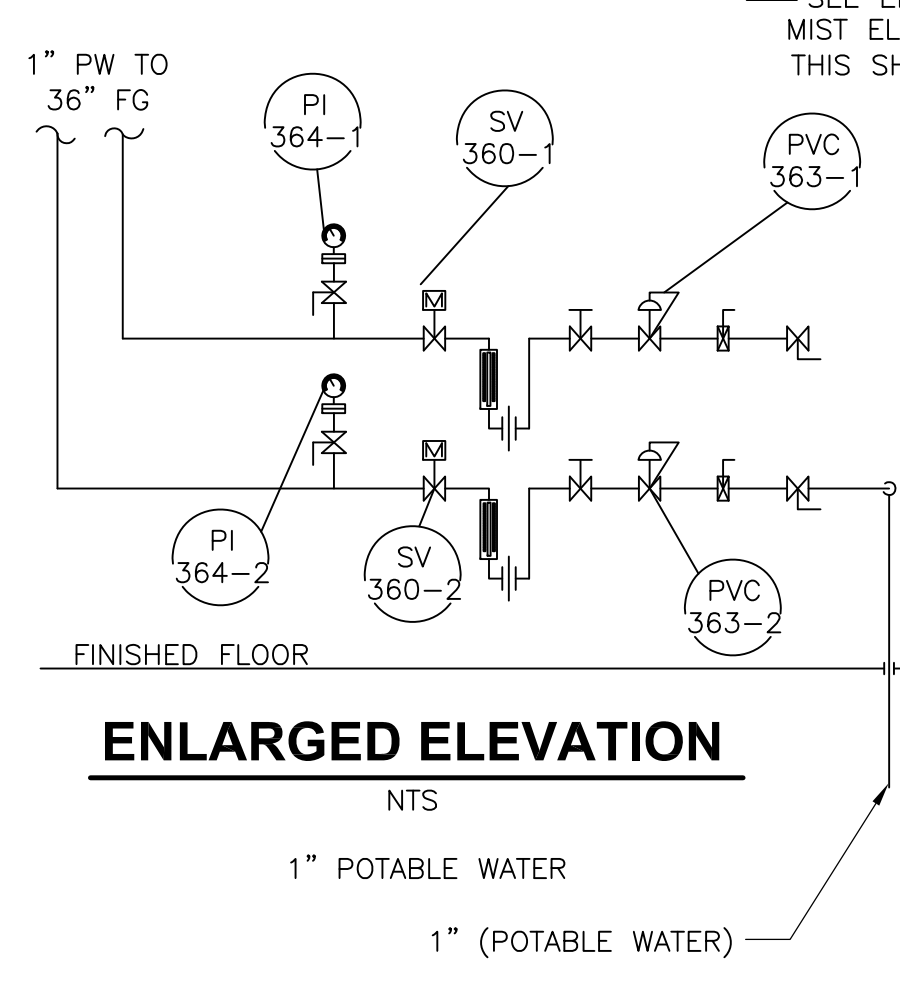
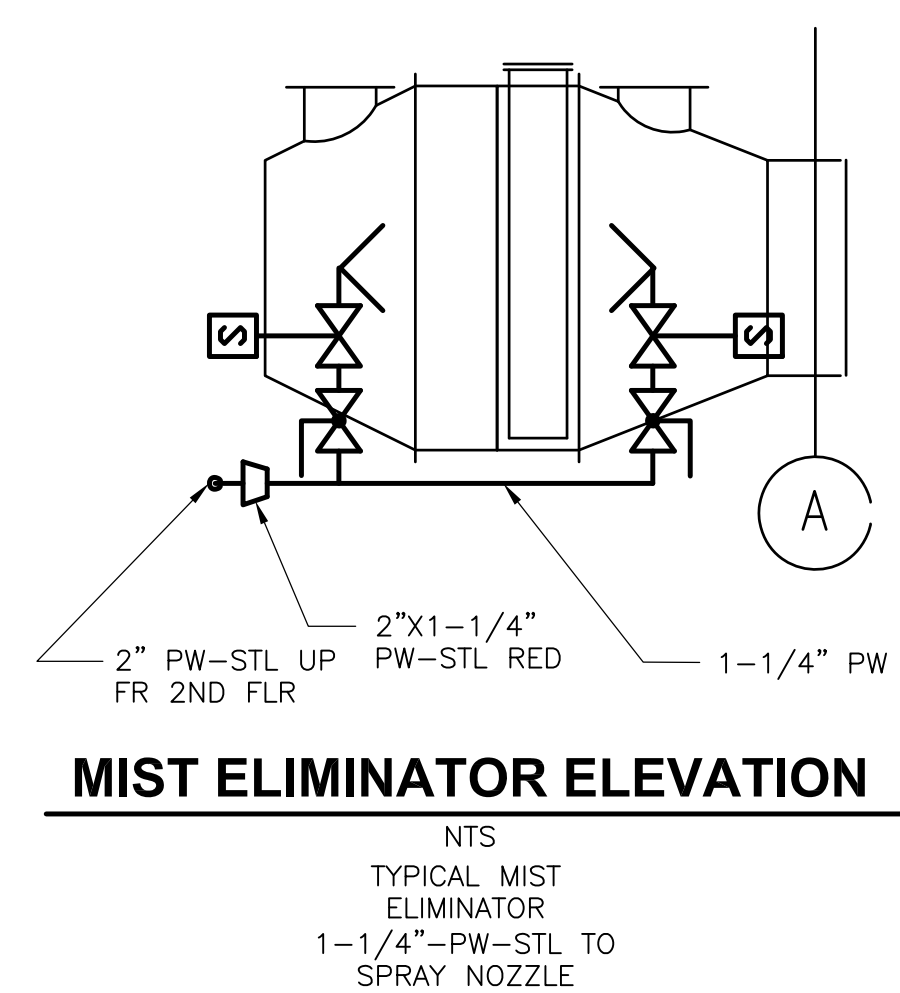


RECORD DRAWING

CADD FILE NO. MSPPL004.DWG DESIGNED BY: F. SAPIENZA DRAWN BY: V. BITTO SHEET CHK'D BY: F. SAPIENZA SCALE: 3/16"=1'-0" APPROVED BY: R. GAUDES DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		<b>UPPER BLACKSTONE          WATER POLLUTION ABATEMENT DISTRICT          CONTRACT No. UB 2024</b>		<b>PROJECT NO.          1289\35370</b>	
REV. NO. DATE DRWN CHKD REMARKS 2/08 SPV ELS REVISED FOR THE RECORD				<b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		<b>APC/FGR IMPROVEMENTS          SECOND FLOOR PLAN EL. 442.00</b>		Sht. 197 of 386 <b>SP-M-12</b>	

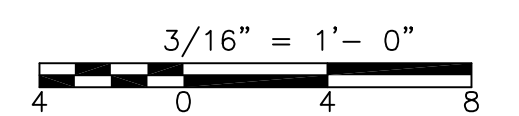


**PLAN**  
 3/16" = 1'-0"



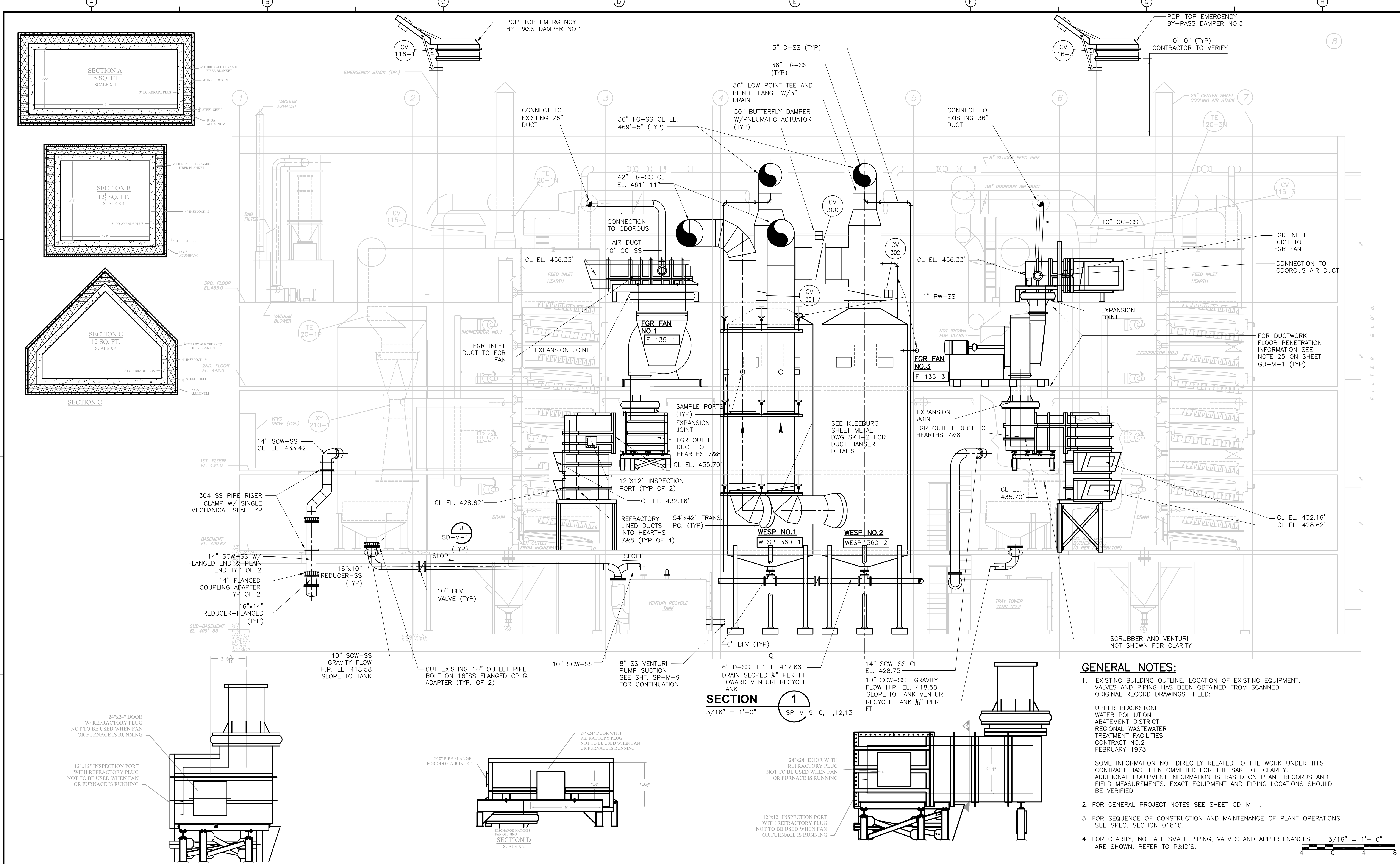
**GENERAL NOTES:**

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 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO.2 FEBRUARY 1973  
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- FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
- FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
- (X) INDICATES DUCT SUPPORT TYPE. SEE DETAILS ON SP-M-20
- FOR CLARITY, NOT ALL SMALL PIPING, VALVES AND APPURTENANCES ARE SHOWN. REFER TO P&ID'S.



**RECORD DRAWING**

CADD FILE NO. MSPPL005.DWG DESIGNED BY: F. SAPIENZA DRAWN BY: V. BITTO SHEET CHK'D BY: F. SAPIENZA SCALE: 3/16"=1'-0" APPROVED BY: R. GAUDES DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024 <b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		PROJECT NO. 1289\35370 Sht. 198 of 386 <b>SP-M-13</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
7/07	SPV	ADT		REVISED FOR THE RECORD					



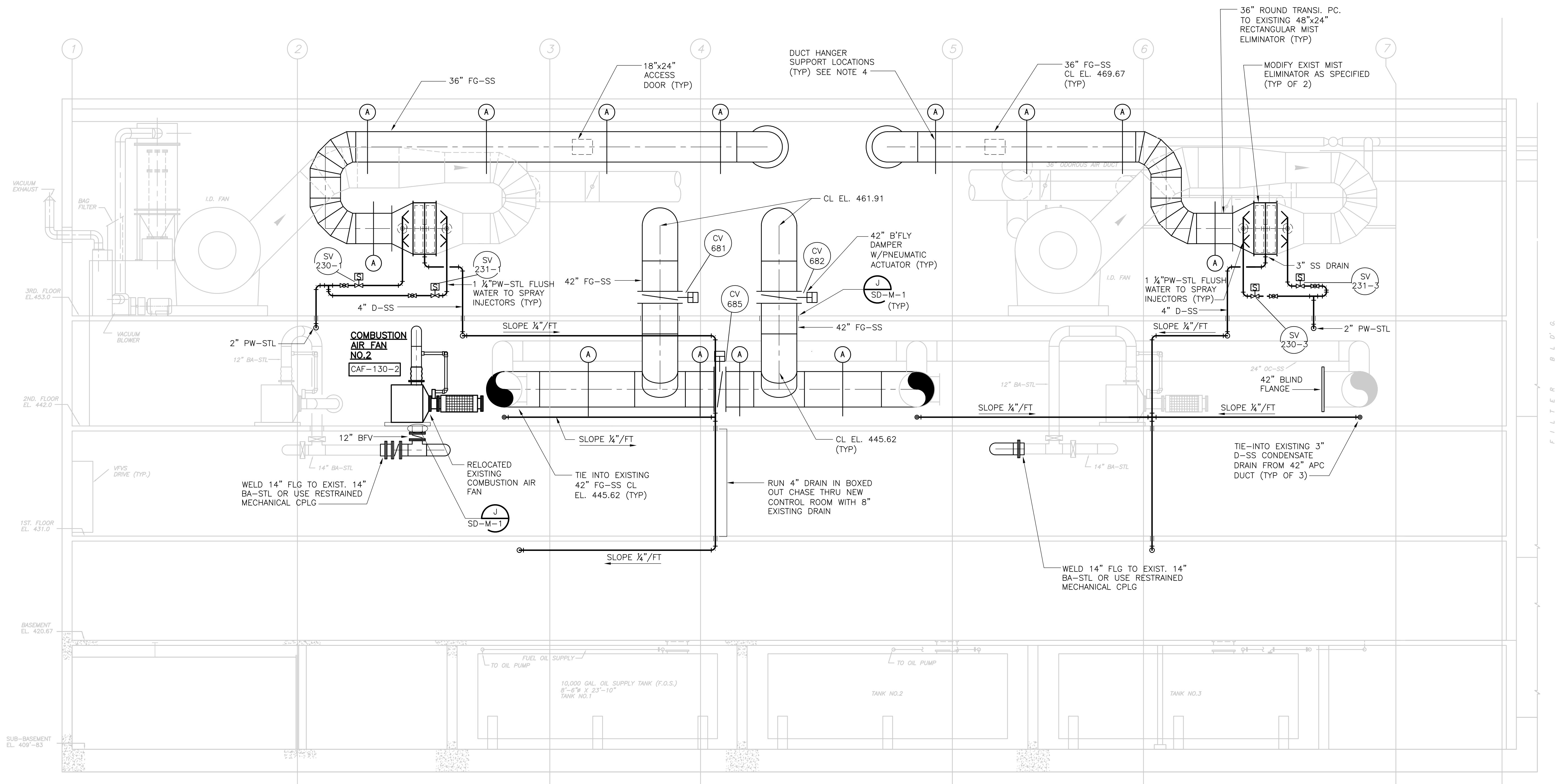
**GENERAL NOTES:**

- EXISTING BUILDING OUTLINE, LOCATION OF EXISTING EQUIPMENT, VALVES AND PIPING HAS BEEN OBTAINED FROM SCANNED ORIGINAL RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 FEBRUARY 1973  
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- FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
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- FOR CLARITY, NOT ALL SMALL PIPING, VALVES AND APPURTENANCES ARE SHOWN. REFER TO P&ID'S.

3/16" = 1'-0"  
 4 0 4 8

<p>SECTION A 15 SQ. FT. SCALE X 4</p> <p>SECTION B 12 SQ. FT. SCALE X 4</p> <p>SECTION C 12 SQ. FT. SCALE X 4</p>				<p>SECTION D SCALE X 2</p> <p>SECTION E SCALE X 2</p> <p>SECTION F SCALE X 2</p>			
<p>304 SS PIPE RISER CLAMP W/ SINGLE MECHANICAL SEAL TYP</p> <p>14" SCW-SS W/ FLANGED END &amp; PLAIN END TYP OF 2</p> <p>14" FLANGED COUPLING ADAPTER TYP OF 2</p> <p>16"x14" REDUCER-FLANGED (TYP)</p> <p>16"x10" REDUCER-SS (TYP)</p> <p>10" SCW-SS GRAVITY FLOW H.P. EL. 418.58 SLOPE TO TANK</p> <p>10" SCW-SS</p> <p>8" SS VENTURI PUMP SUCTION SEE SH. SP-M-9 FOR CONTINUATION</p> <p>6" D-SS H.P. EL. 417.66 DRAIN SLOPED 1/8" PER FT TOWARD VENTURI RECYCLE TANK</p> <p>14" SCW-SS CL EL. 428.75</p> <p>10" SCW-SS GRAVITY FLOW H.P. EL. 418.58 SLOPE TO TANK VENTURI RECYCLE TANK 1/8" PER FT</p>				<p>3/16" = 1'-0"</p>			
<p>24"x24" DOOR W/ REFRACTORY PLUG NOT TO BE USED WHEN FAN OR FURNACE IS RUNNING</p> <p>12"x12" INSPECTION PORT WITH REFRACTORY PLUG NOT TO BE USED WHEN FAN OR FURNACE IS RUNNING</p> <p>90° PIPE FLANGE FOR ODOR AIR INLET</p> <p>24"x24" DOOR WITH REFRACTORY PLUG NOT TO BE USED WHEN FAN OR FURNACE IS RUNNING</p>				<p>24"x24" DOOR WITH REFRACTORY PLUG NOT TO BE USED WHEN FAN OR FURNACE IS RUNNING</p> <p>12"x12" INSPECTION PORT WITH REFRACTORY PLUG NOT TO BE USED WHEN FAN OR FURNACE IS RUNNING</p>			
<p>3/07 SPV ADT REVISED FOR THE RECORD</p>				<p>REMARKS</p>			
<p>CADD FILE NO. MSPSC001.DWG                  DESIGNED BY: F. SAPIENZA                  DRAWN BY: V. BITTO                  SHEET CHK'D BY: F. SAPIENZA                  SCALE: 3/16"=1'-0"                  APPROVED BY: R. GAUDES                  DATE: MAY 2006</p>				<p>CDM Camp Dresser &amp; McKee Inc.                  consulting engineering construction operations</p>			
<p>UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT NO. UB 2024</p>				<p>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</p>			
<p>APC/FGR IMPROVEMENTS</p>				<p>SECTION I</p>			
<p>PROJECT NO. 1289\35370</p>				<p>Sht. 199 of 386</p>			
<p>SP-M-14</p>				<p>SECTION I</p>			

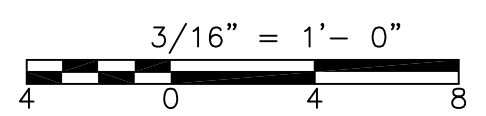
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**SECTION 2**  
 3/16" = 1'-0" SP-M-9,10,11,12,13

**GENERAL NOTES:**

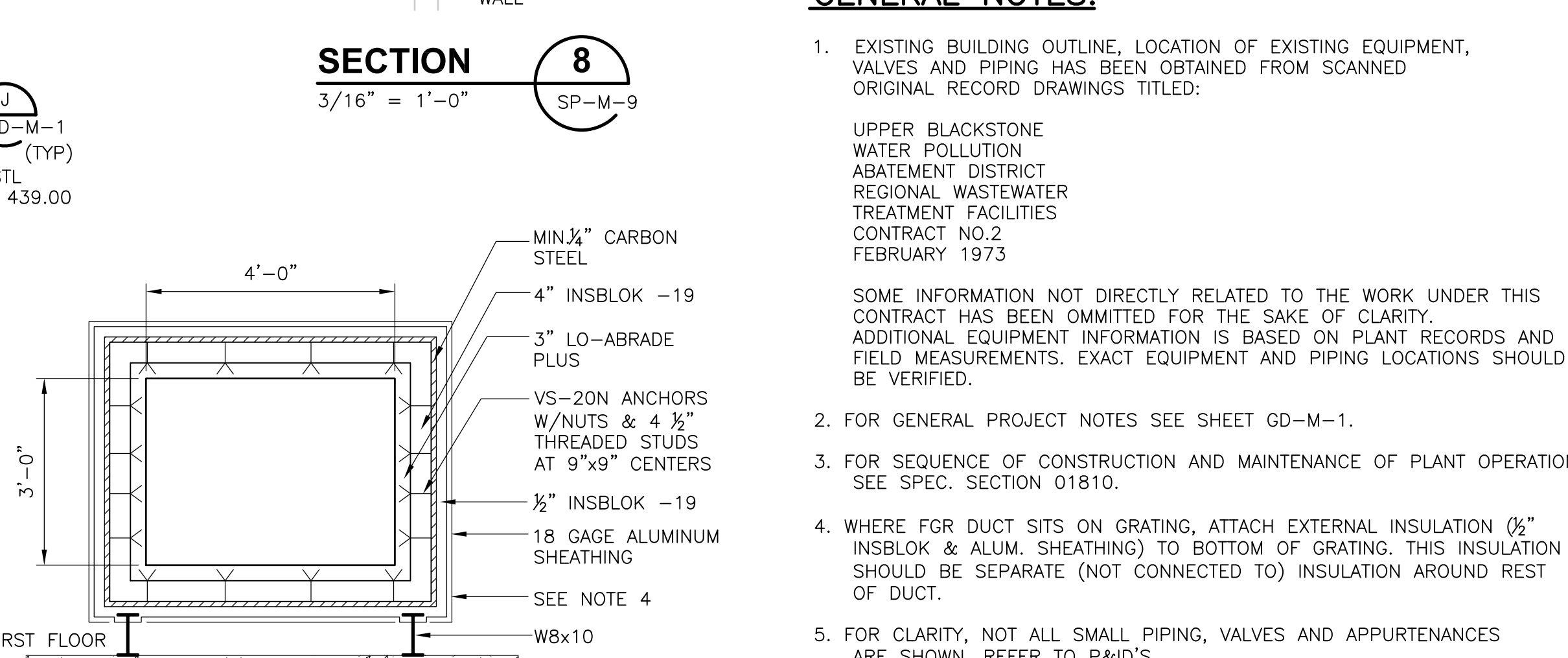
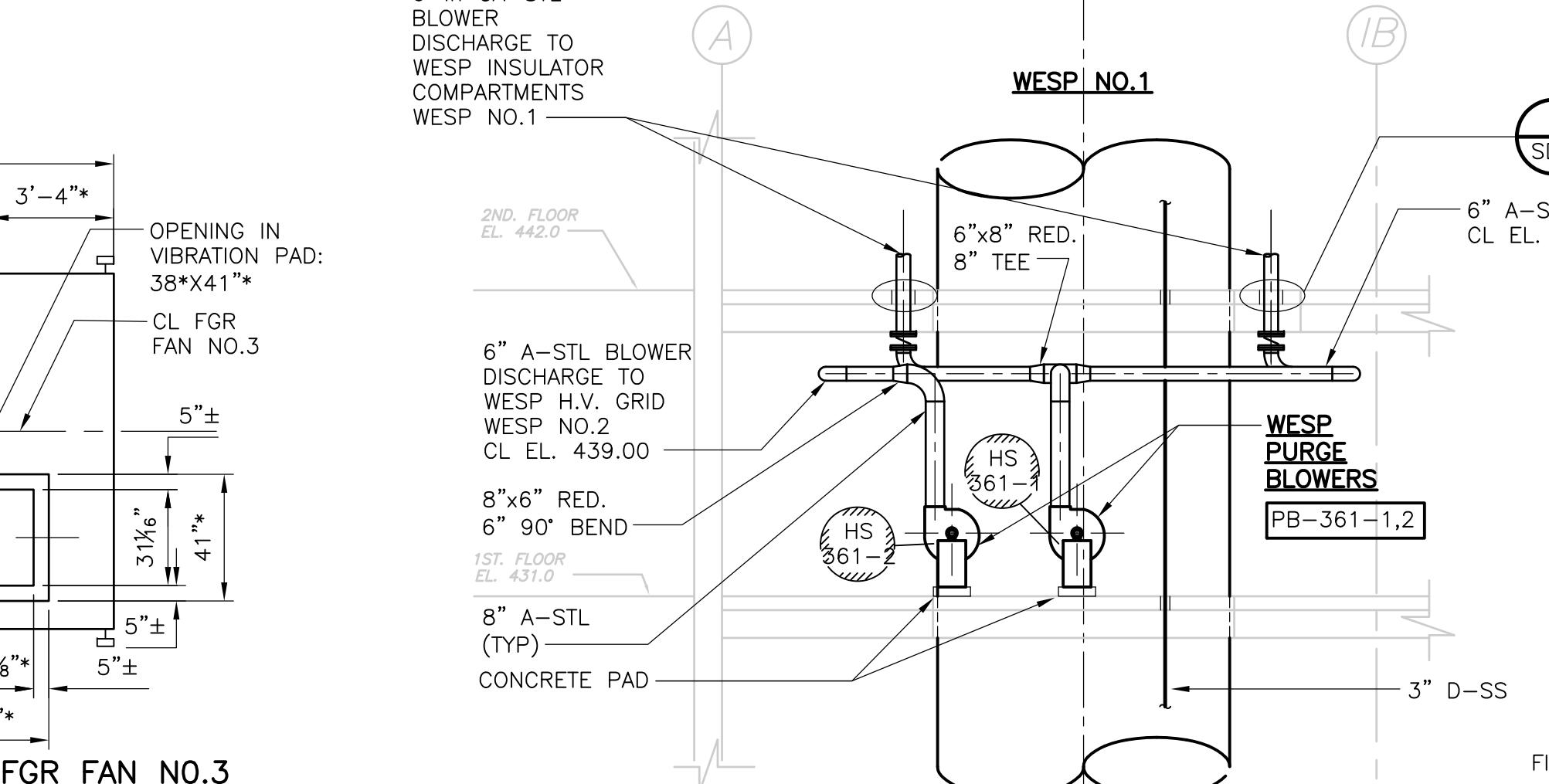
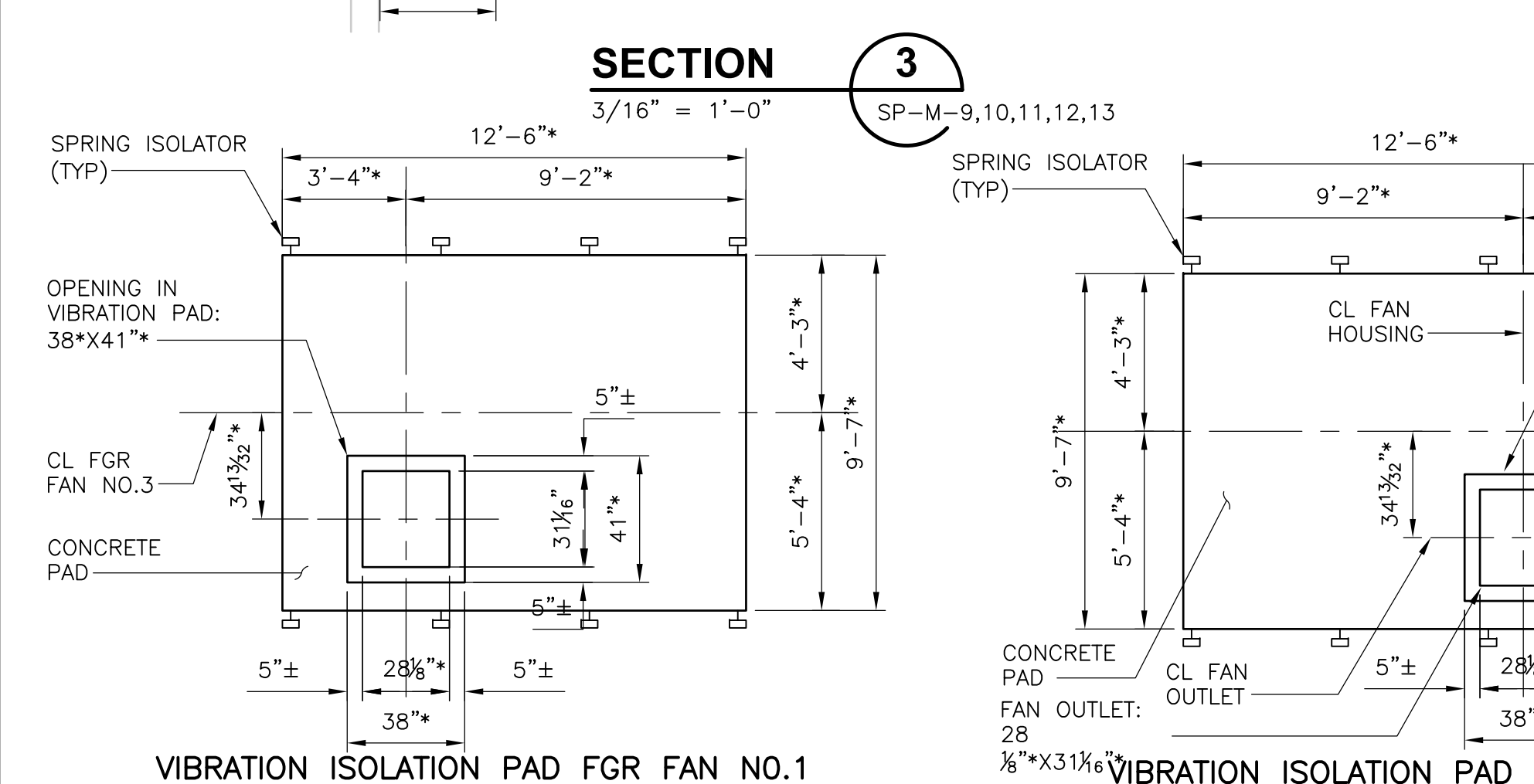
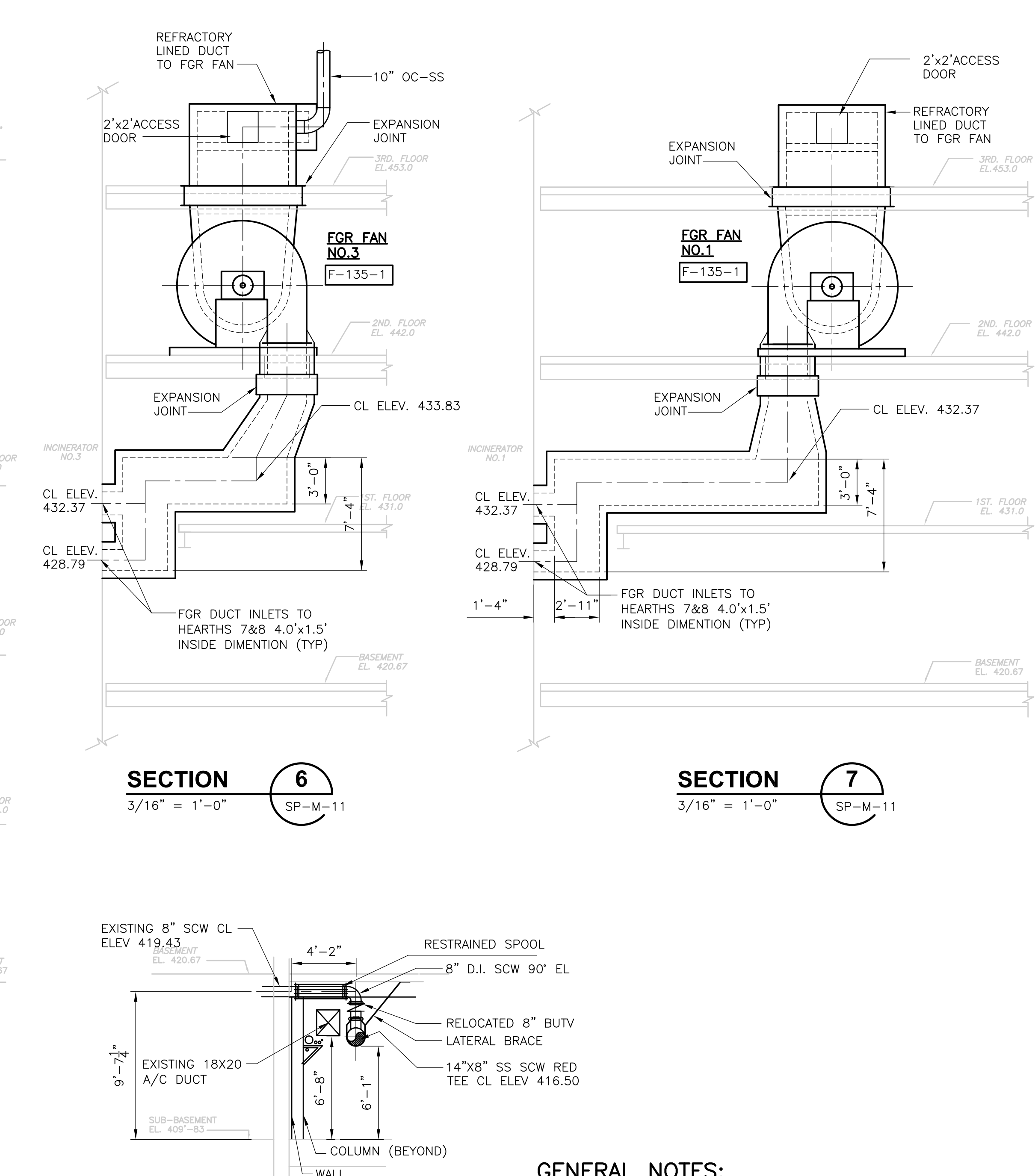
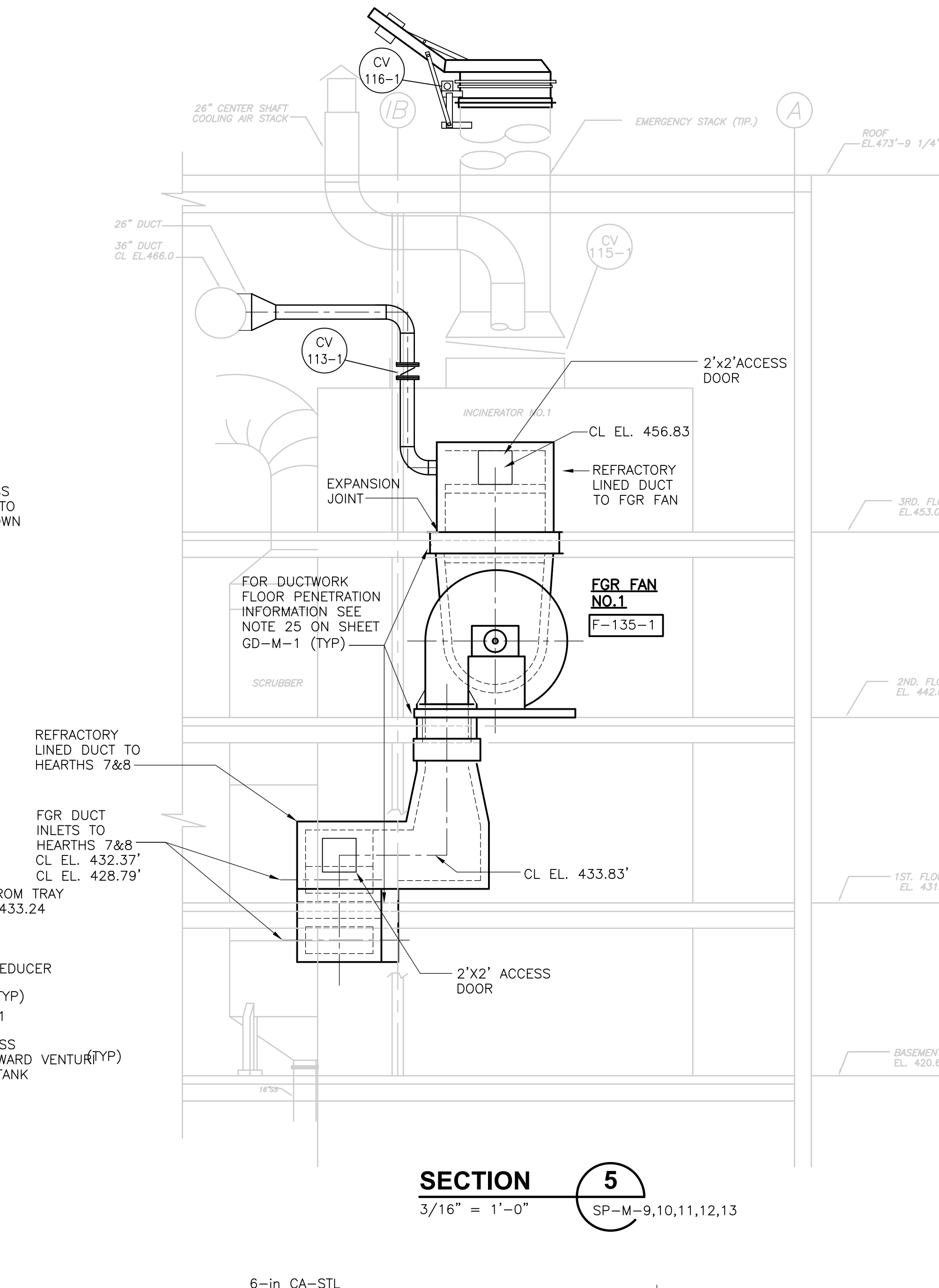
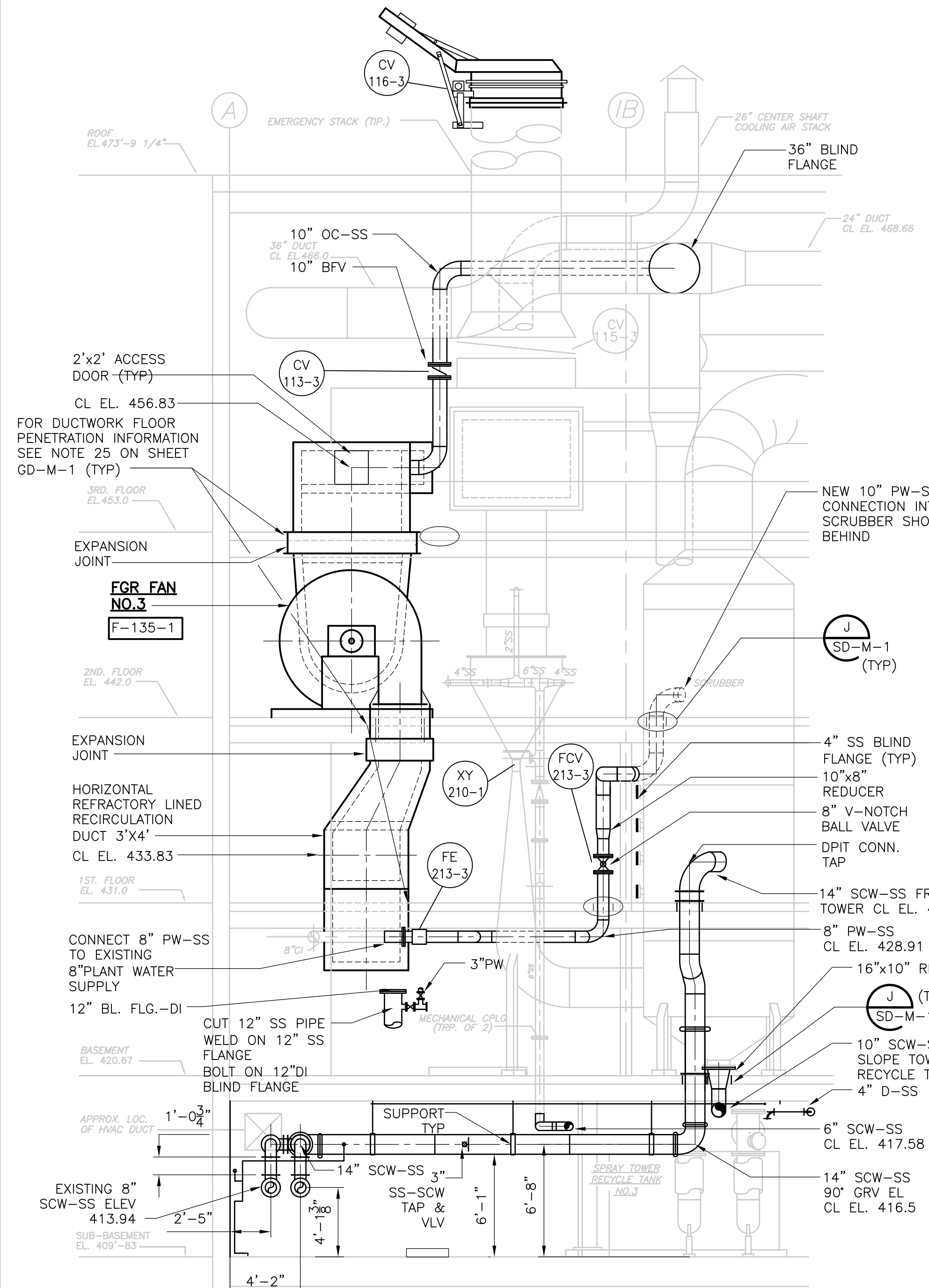
1. EXISTING BUILDING OUTLINE, LOCATION OF EXISTING EQUIPMENT, VALVES AND PIPING HAS BEEN OBTAINED FROM SCANNED ORIGINAL RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO.2 FEBRUARY 1973  
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2. FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
3. FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
4. (X) INDICATES DUCT SUPPORT TYPE. SEE DETAIL ON SP-M-20.
5. FOR CLARITY, NOT ALL SMALL PIPING, VALVES AND APPURTENANCES ARE SHOWN. REFER TO P&ID'S.



RECORD DRAWING

				CADD FILE NO. MSPSC002.DWG DESIGNED BY: F. SAPIENZA DRAWN BY: V. BITTO SHEET CHK'D BY: F. SAPIENZA SCALE: 3/16"=1'-0" APPROVED BY: R. GAUDES DATE: MAY 2006	 <b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>	<b>UPPER BLACKSTONE          WATER POLLUTION ABATEMENT DISTRICT          CONTRACT No. UB 2024</b>  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>	<b>APC/FGR IMPROVEMENTS          SECTION II</b>  <b>SP-M-15</b>	PROJECT NO. 1289\35370  Sht. 200 of 386  <b>SP-M-15</b>  <small>ACCESSION NO. 1289-65800</small>
REV. NO.	DATE	DRWN	CHKD	REMARKS				
	2/08	SPV	ELS	REVISED FOR THE RECORD				





**DETAIL A**  
1/4" = 1'-0" SP-M-11

**DETAIL B**  
1/4" = 1'-0" SP-M-11

REV. NO.	DATE	DRWN	CHKD	REMARKS
7/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MSPSC003.DWG
DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006

**GENERAL NOTES:**

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- FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
- WHERE FGR DUCT SITS ON GRATING, ATTACH EXTERNAL INSULATION (1/2" INSBLK & ALUM. SHEATHING) TO BOTTOM OF GRATING. THIS INSULATION SHOULD BE SEPARATE (NOT CONNECTED TO) INSULATION AROUND REST OF DUCT.
- FOR CLARITY, NOT ALL SMALL PIPING, VALVES AND APPURTENANCES ARE SHOWN. REFER TO P&ID'S.

**NOTES:**

- FOR REFRACTORY LINED DUCT PENETRATIONS, SEE STRUCTURAL DWGS.

**RECORD DRAWING**

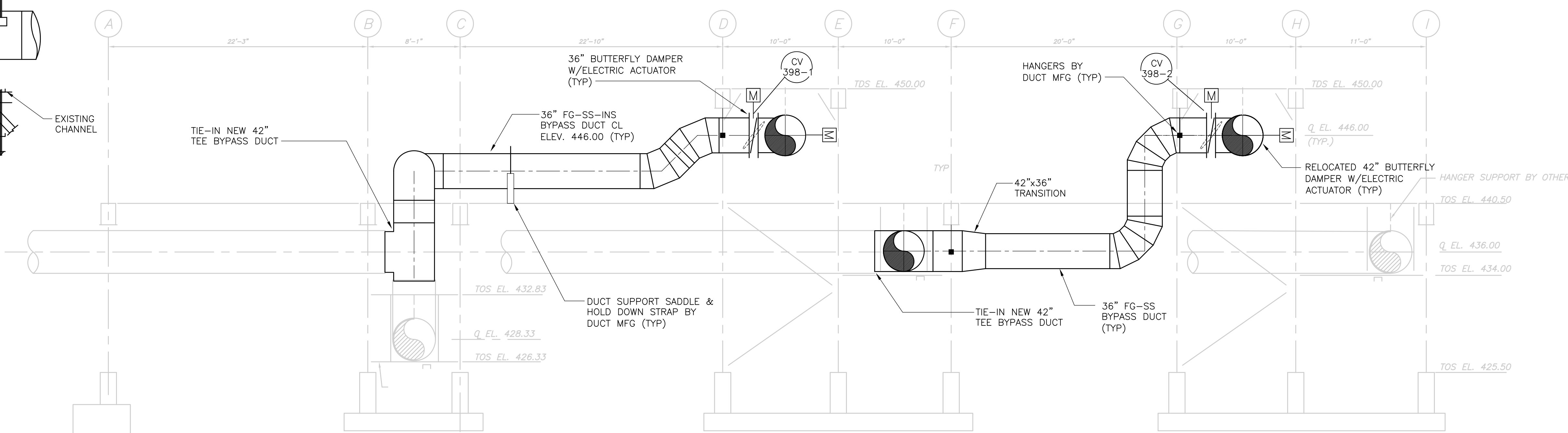
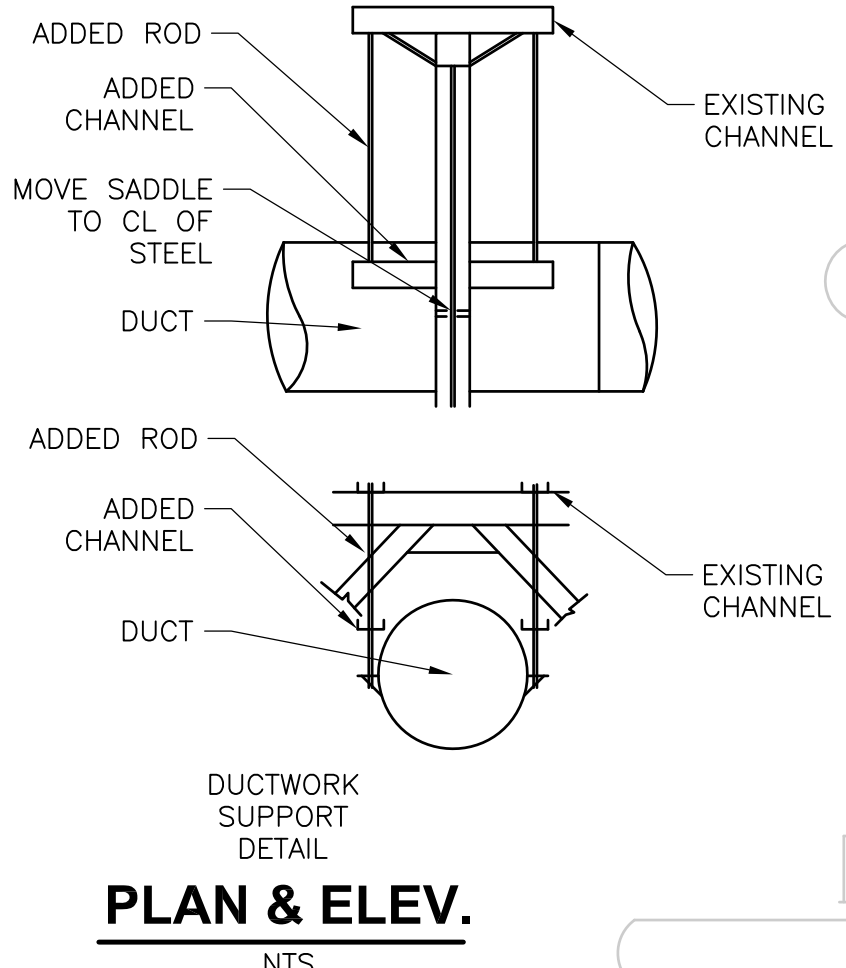
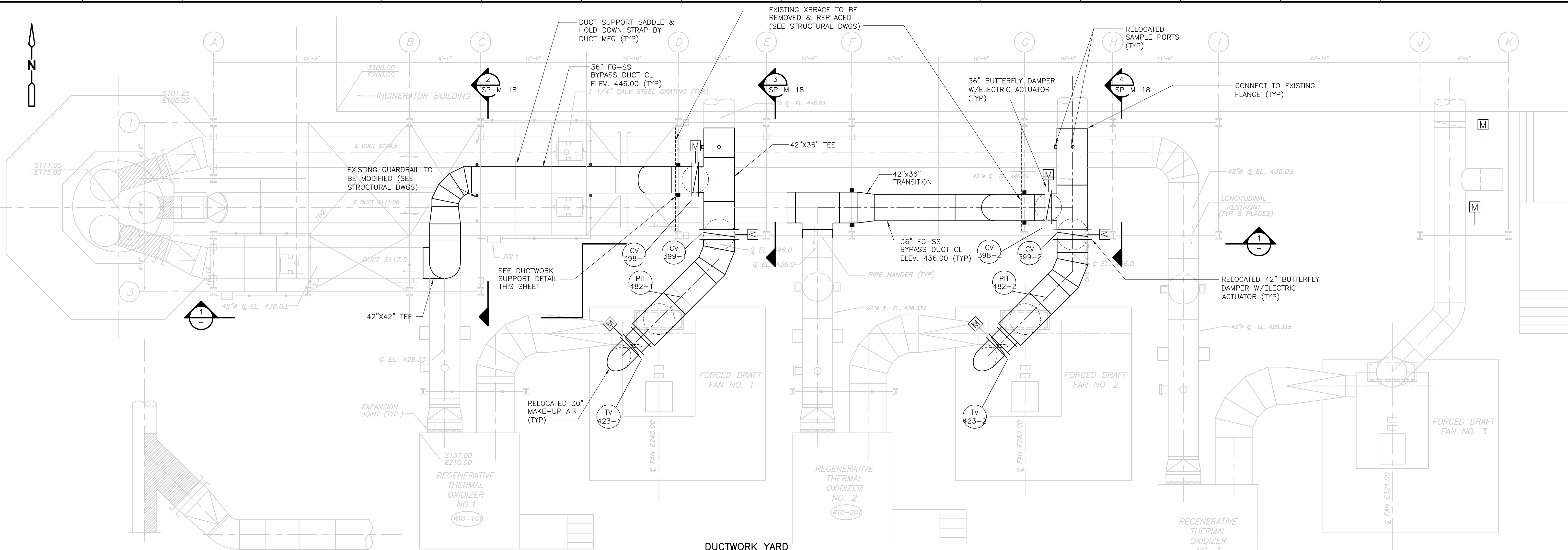
3/16" = 1'-0"

1/2" = 1'-0" SP-M-11

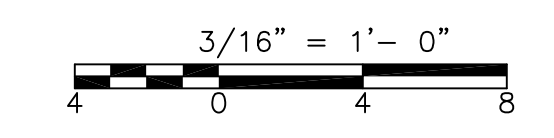
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WASTEWATER TREATMENT FACILITY IMPROVEMENTS		Sht. 201 of 386
APC/FGR IMPROVEMENTS SECTION III AND DETAILS		SP-M-16

Accession No. 1289-65801

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\MECH\MSPPL006.dwg Xref's: [C24X36H\_CBE\_LOCO\_MSPW006\_] Plotted by: CROSSIA Time: 12/16/08 6:27:38 PM



- NOTE:
1. ALL OUTSIDE DUCT TO BE INSULATED AS SPECIFIED.
  2. ELECTRIC BUTTERFLY DAMPERS TO BE HEAT TRACED BY DIVISION 16.
  3. FOR CLARITY, NOT ALL SMALL PIPING, VALVES AND APPURTENANCES ARE SHOWN. REFER TO P&ID'S.



**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
7/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MSPPL006.DWG
DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**CBE** CHAVOND-BARRY ENGINEERING CORP.  
400 Route 518 • P.O. Box 205 • Blawie, New Jersey 08504

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
CONTRACT No. UB 2024

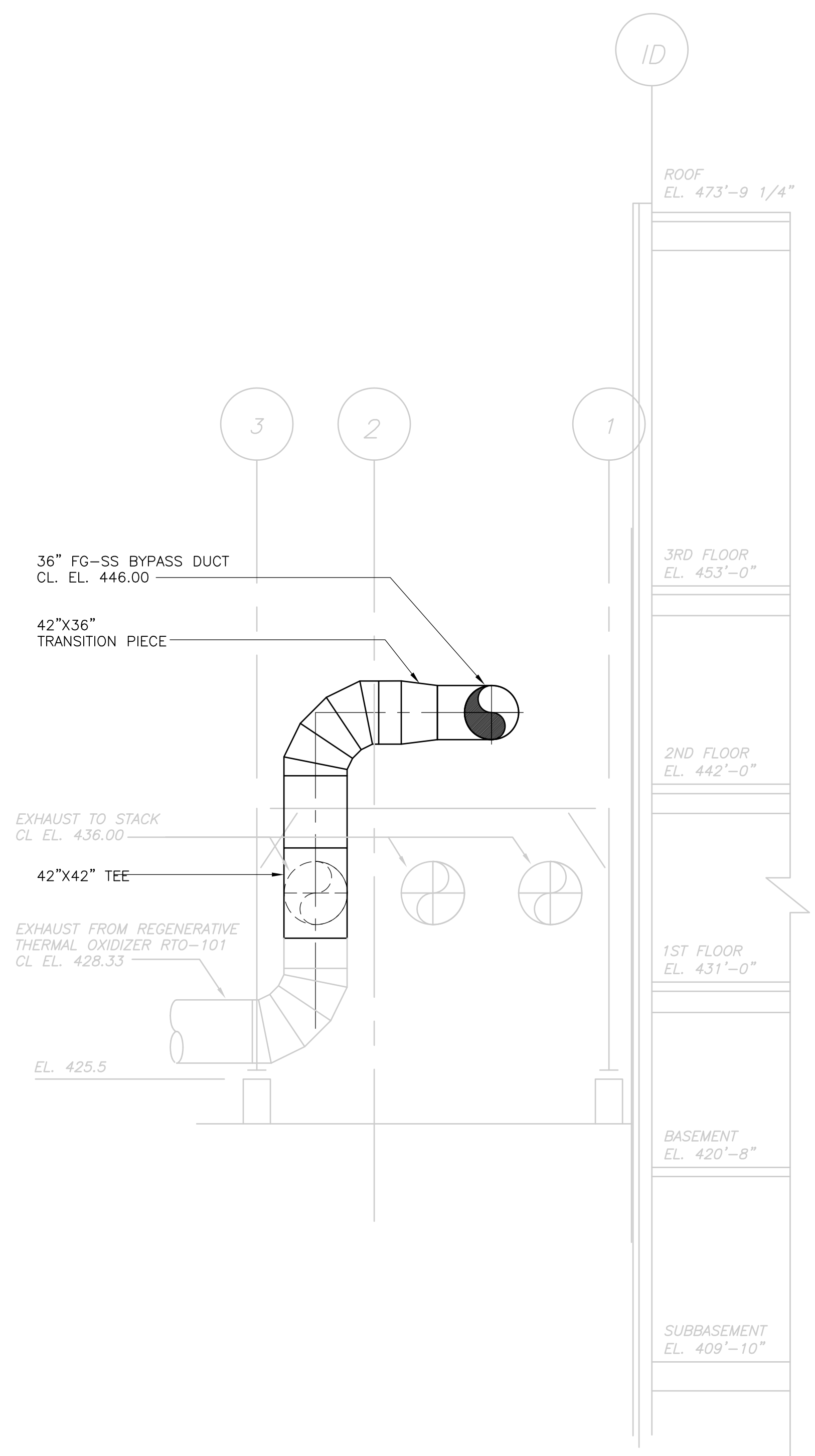
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**APC BYPASS IMPROVEMENTS**  
PLAN AND SECTION

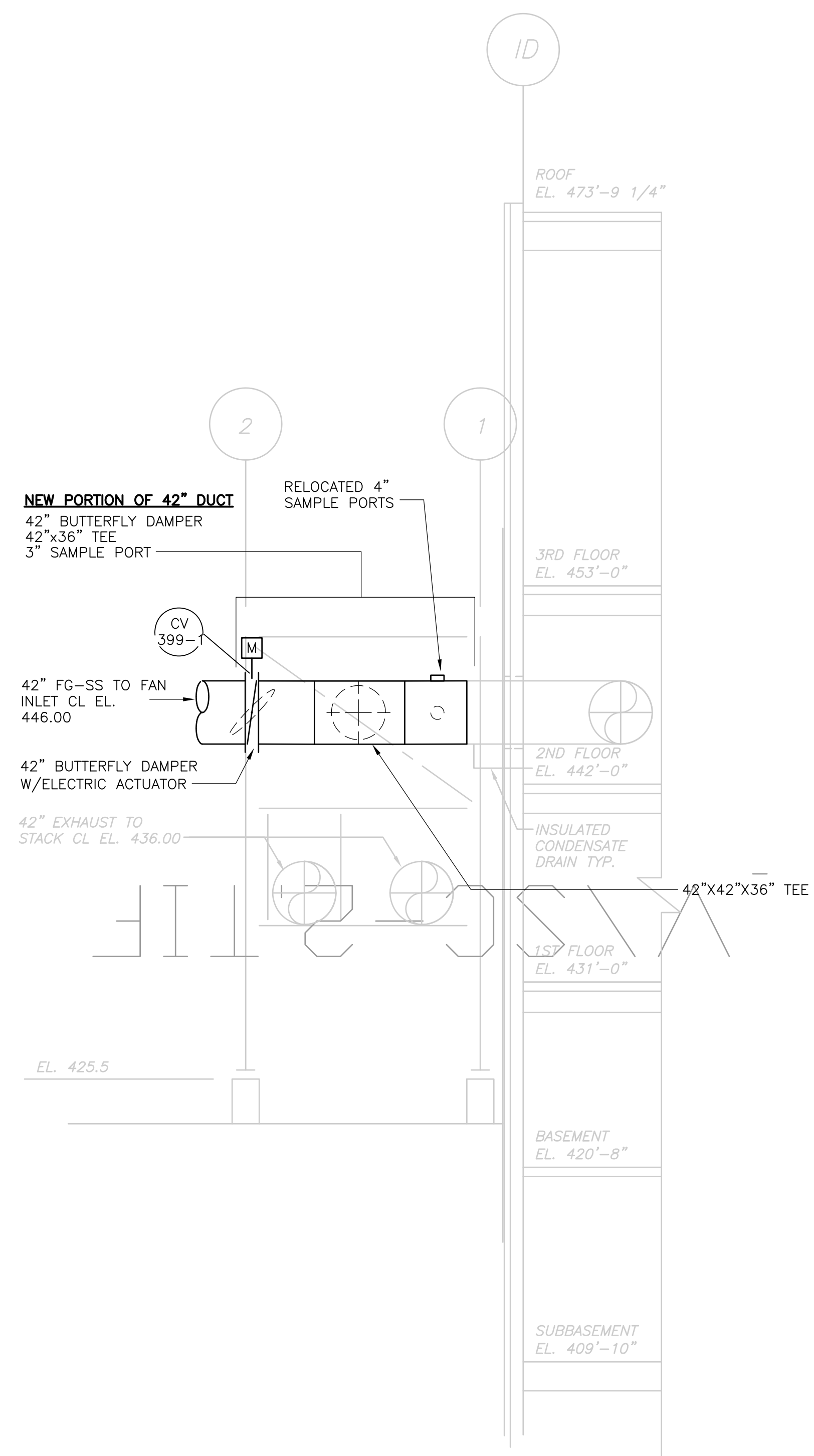
PROJECT NO. 1289\35370  
Sht. 202 of 386  
**SP-M-17**

ACCESSION NO. 1289-55802

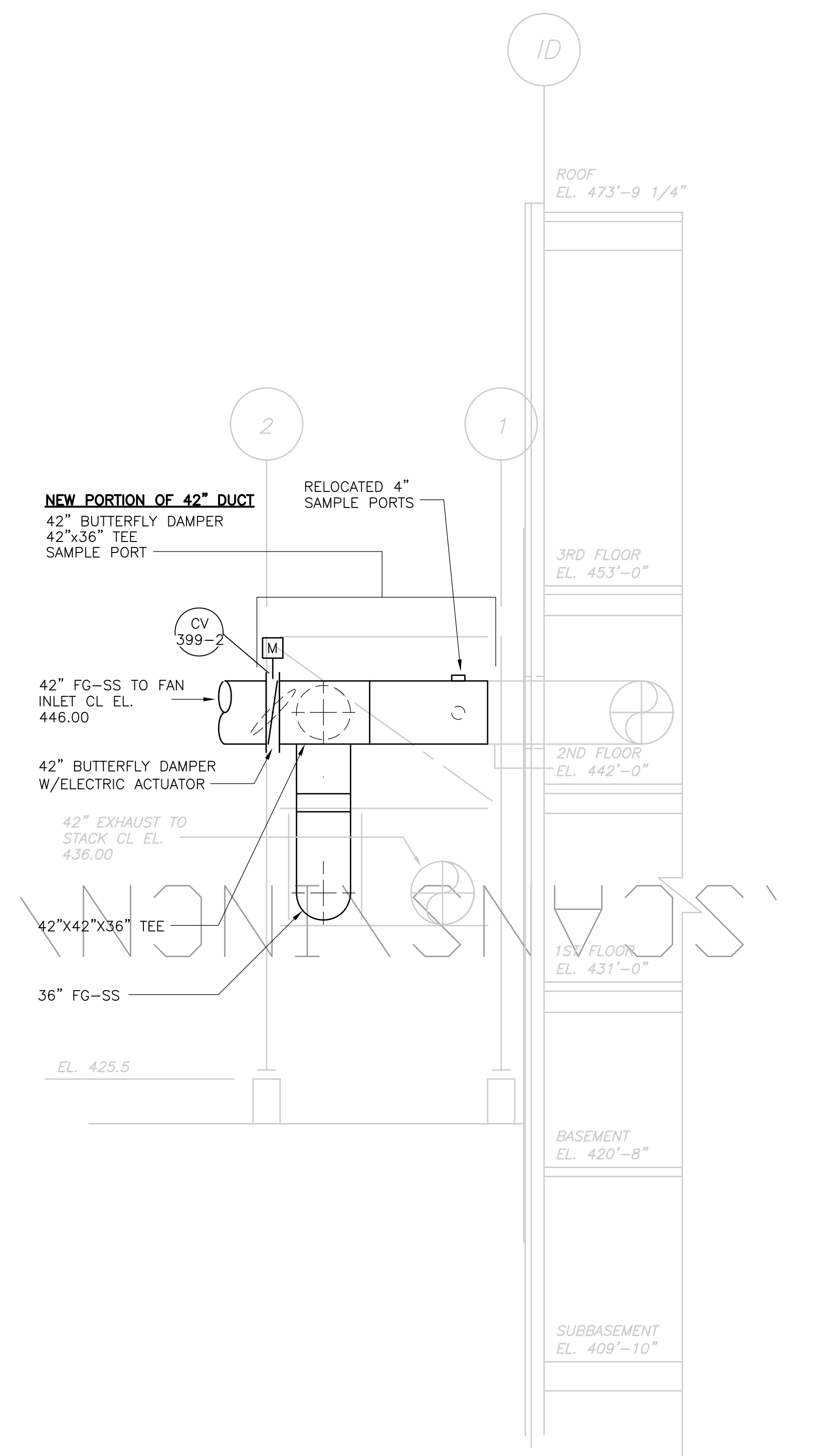
[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File name: P:\1289\35370\PHASE1\RECORD\MECH\MSPFC004.dwg Xref's: [C24X36H, CBE\_LOGO, SSFSC010, ] Plotted by: CROSSJA Time: 12/16/08 6:27:41 PM



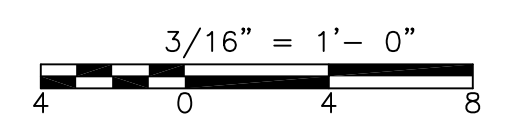
**SECTION 2**  
3/16" = 1'-0"  
SP-M-17



**SECTION 3**  
3/16" = 1'-0"  
SP-M-17

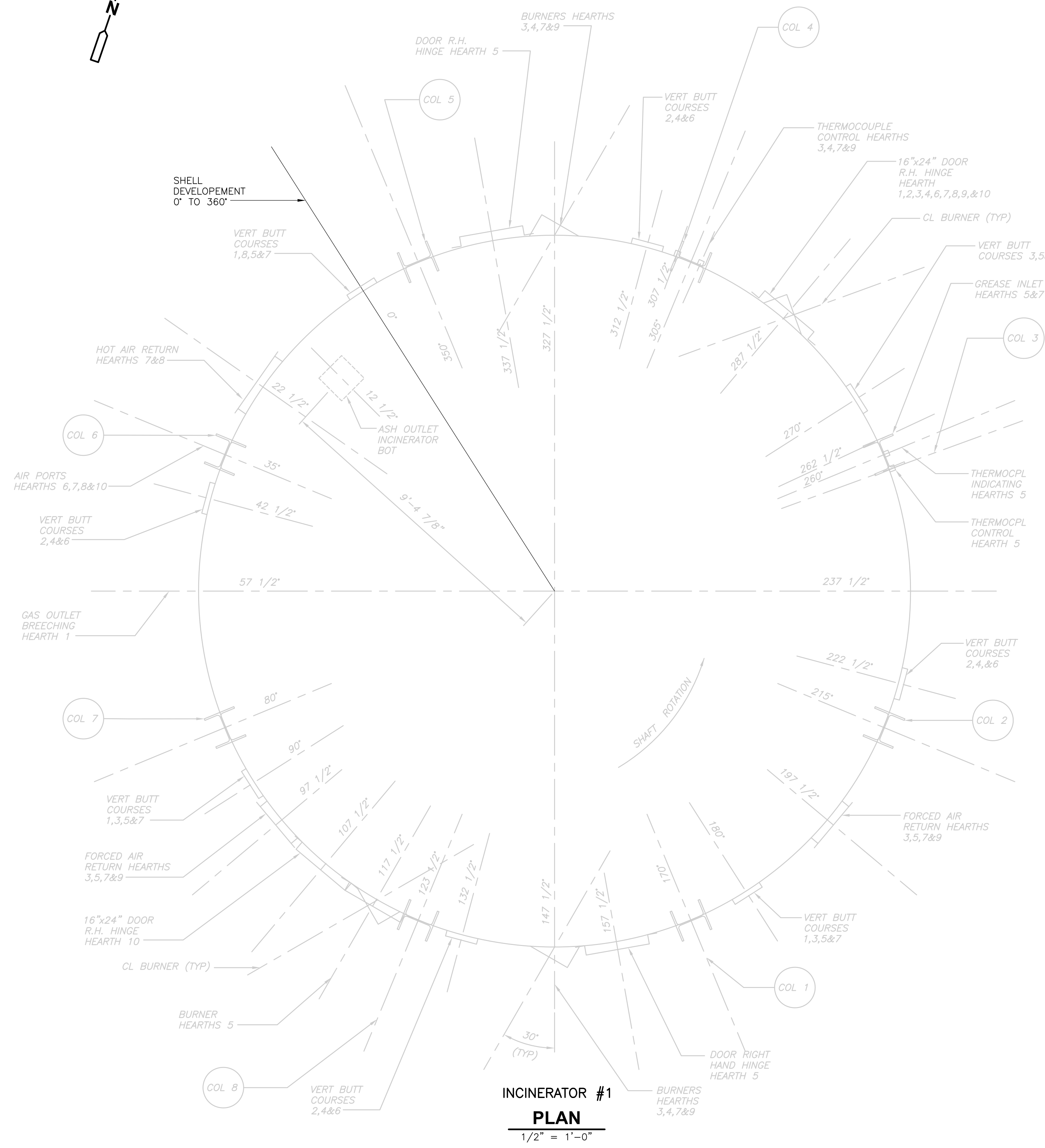
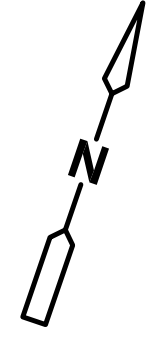


**SECTION 4**  
3/16" = 1'-0"  
SP-M-17

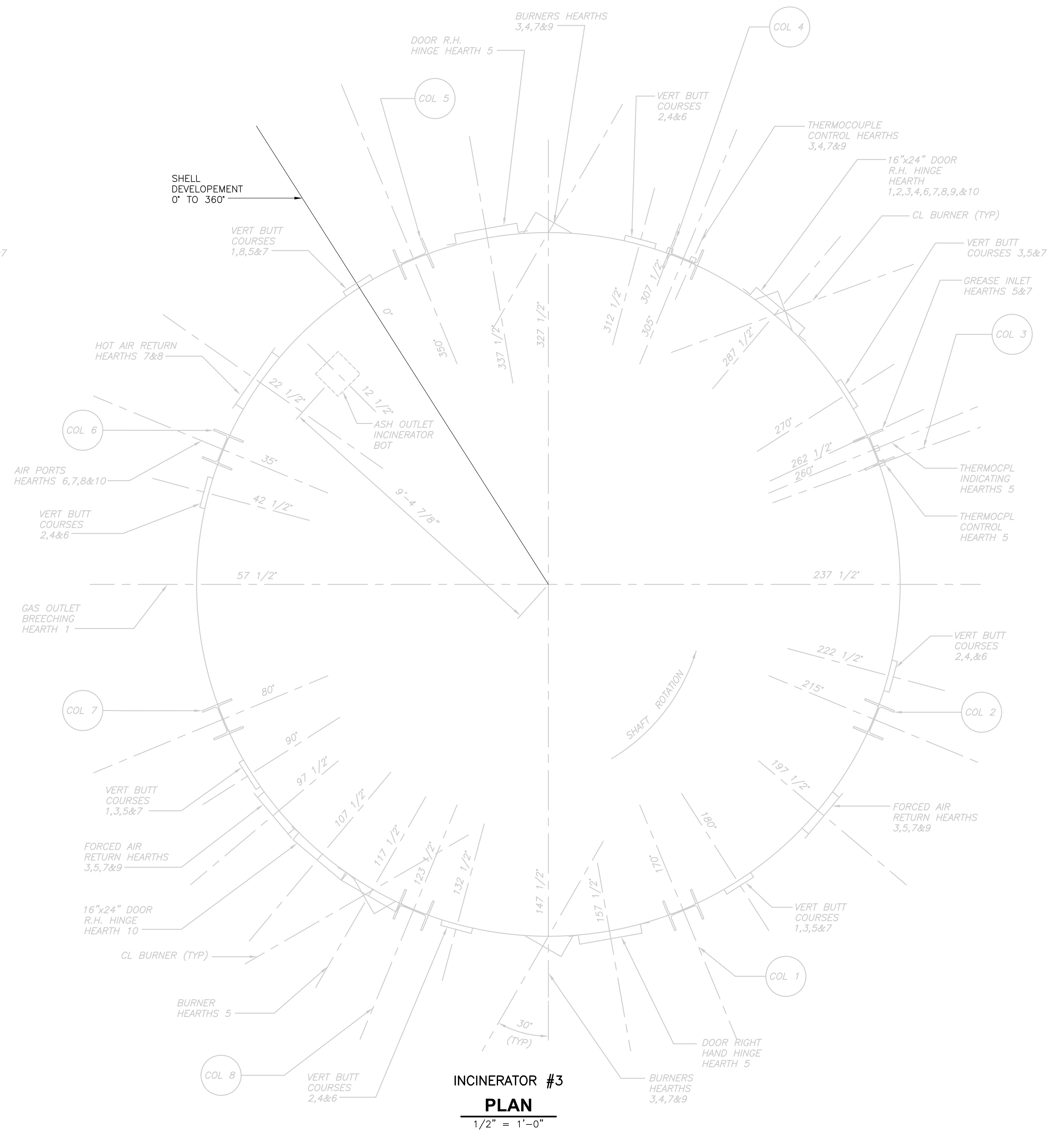


RECORD DRAWING

				CADD FILE NO. <u>MSPPL006.DWG</u>		<b>UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024</b>	<b>APC BYPASS IMPROVEMENTS SECTIONS</b>	PROJECT NO. 1289\35370
				DESIGNED BY: <u>F. SAPIENZA</u>				Sht. 203 of 386
				DRAWN BY: <u>V. BITTO</u>				<b>SP-M-18</b>
				SHEET CHK'D BY: <u>F. SAPIENZA</u>				
				SCALE: <u>3/16"=1'-0"</u>	<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		<b>SP-M-18</b>	
				APPROVED BY: <u>R. GAUDES</u>				
REV. NO.	DATE	DRWN	CHKD	REMARKS	DATE: <u>MAY 2006</u>			<small>ACCESSION NO. 1289-65803</small>
3/07		SPV	ELS	REVISED FOR THE RECORD				

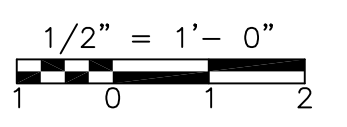


**INCINERATOR #1**  
**PLAN**  
 1/2" = 1'-0"



**INCINERATOR #3**  
**PLAN**  
 1/2" = 1'-0"

THIS SHEET PROVIDED FOR  
 INFORMATIONAL PURPOSES ONLY



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	MSPDT001.DWG
DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	3/16"=1'-0"
APPROVED BY:	R. GAUDES
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**APC/FGR IMPROVEMENTS**  
**INCINERATOR ORIENTATION 1 AND 3**

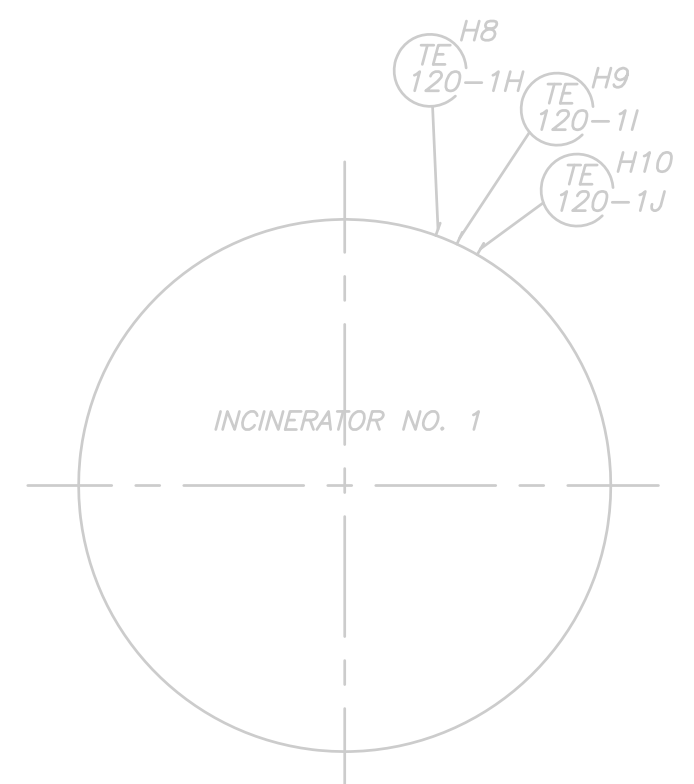
PROJECT NO.  
 1289\35370

Sht. 204 of 386

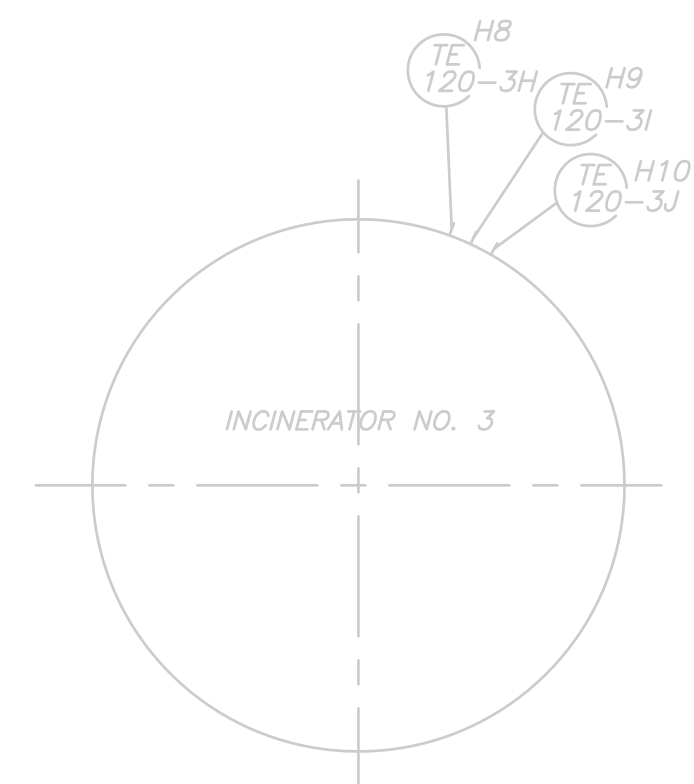
**SP-M-19**

Accession No. 1289-6584

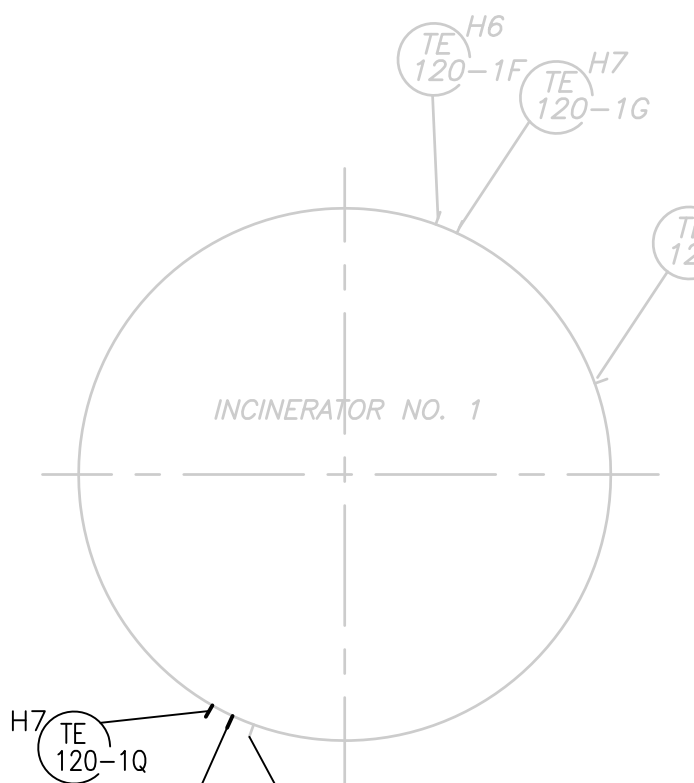
[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
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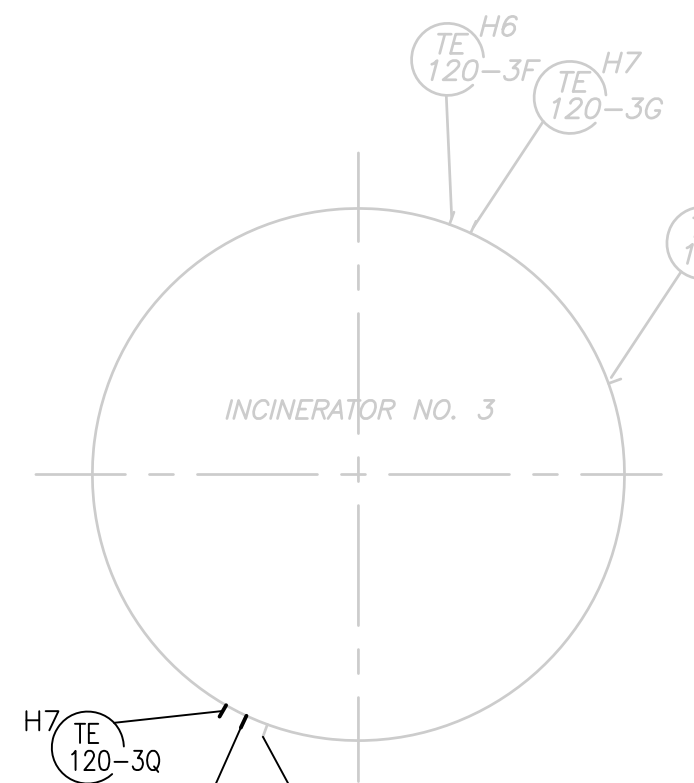
BASEMENT



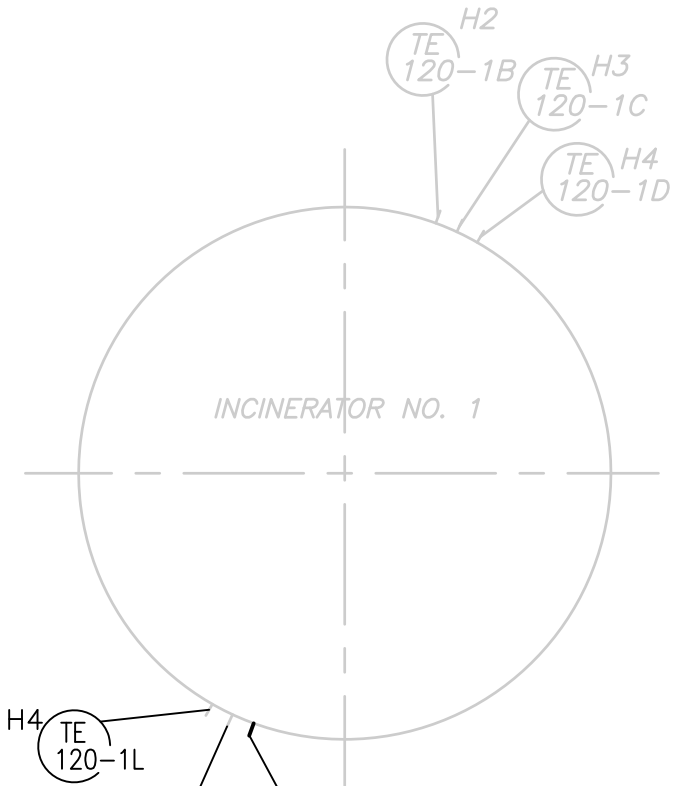
BASEMENT



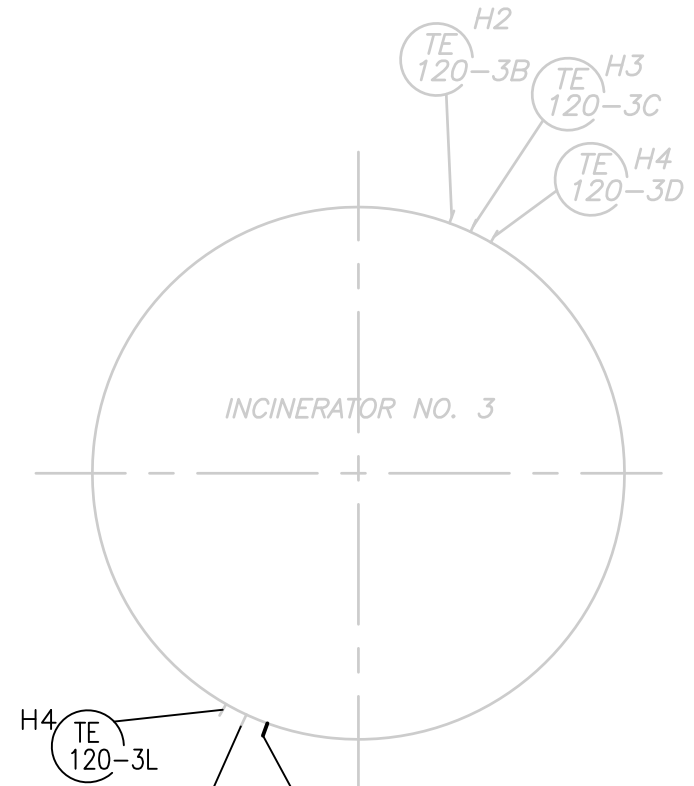
FIRST FLOOR



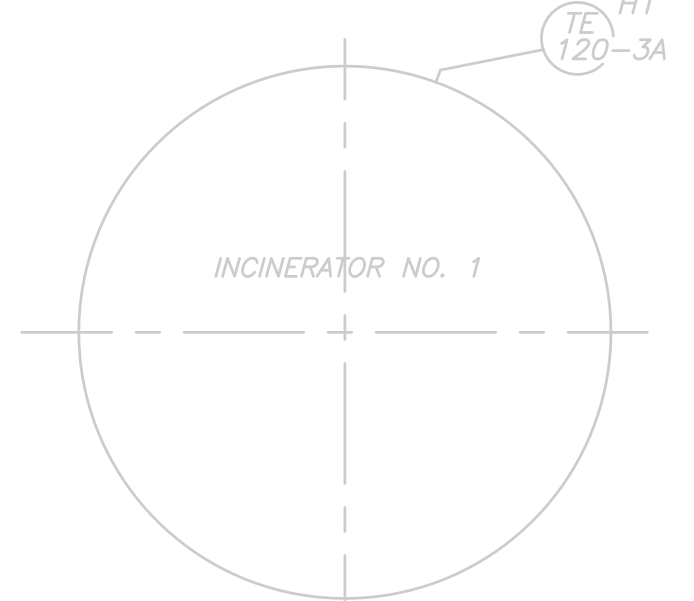
FIRST FLOOR



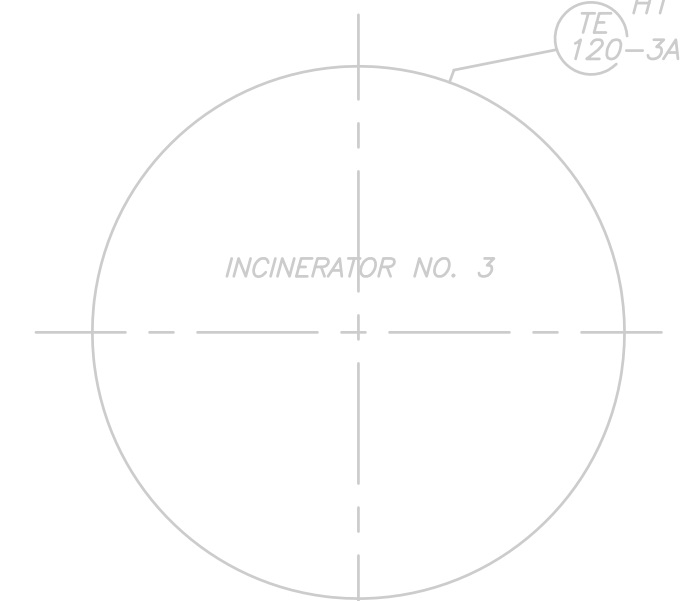
SECOND FLOOR



SECOND FLOOR



THIRD FLOOR



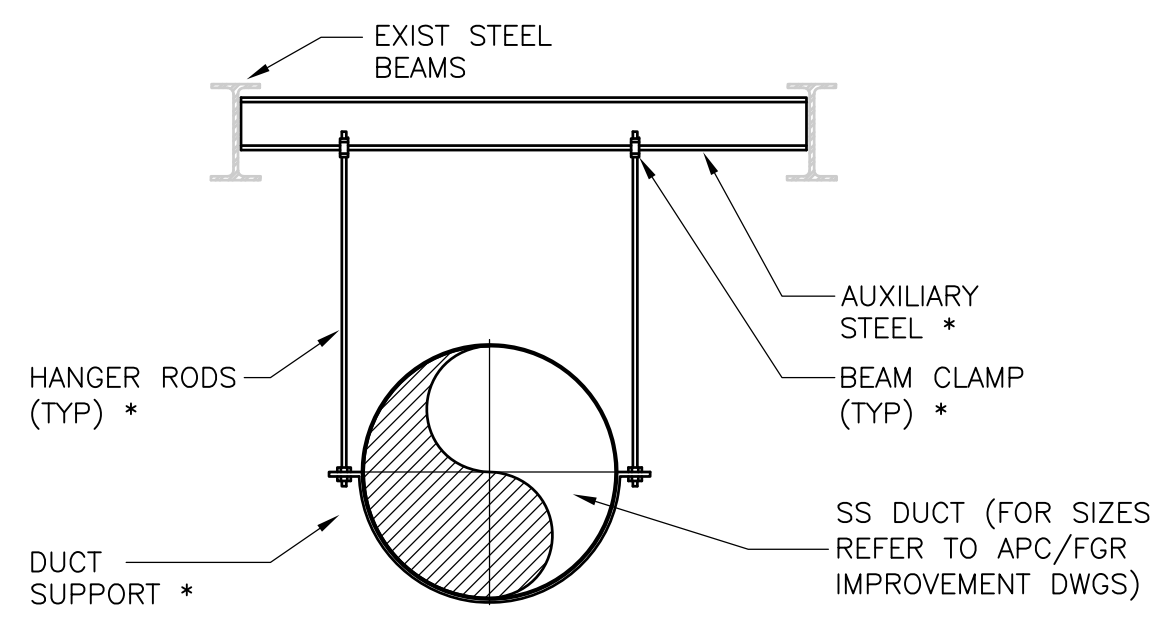
THIRD FLOOR

**THERMOCOUPLE LOCATIONS  
INCINERATOR No.1**

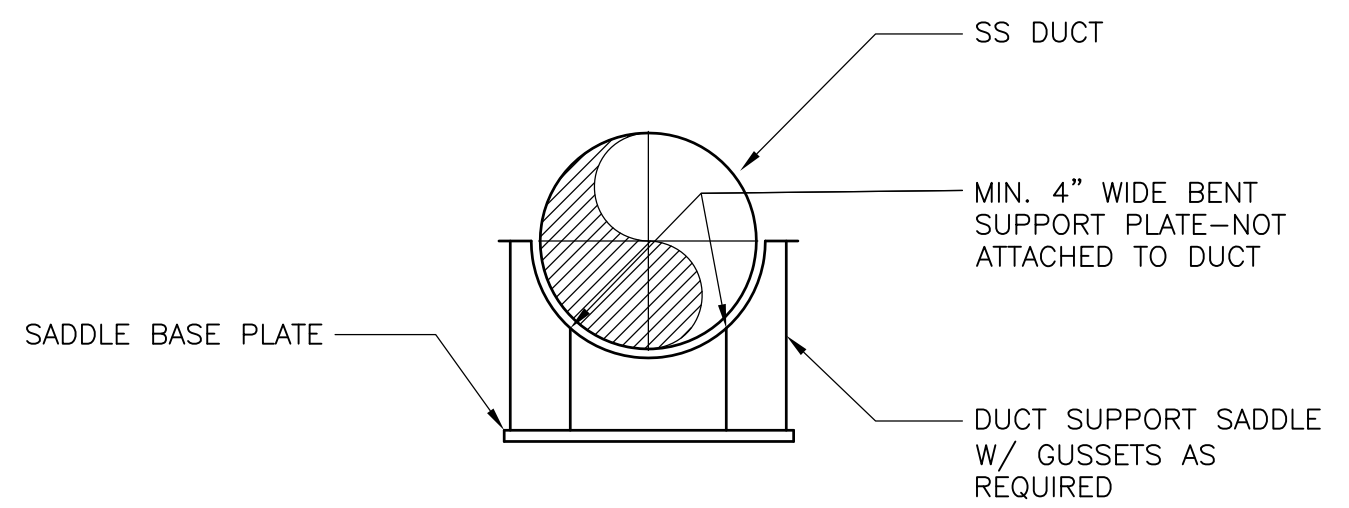
NOTE: HX INDICATES HEARTH NUMBER

**THERMOCOUPLE LOCATIONS  
INCINERATOR No.3**

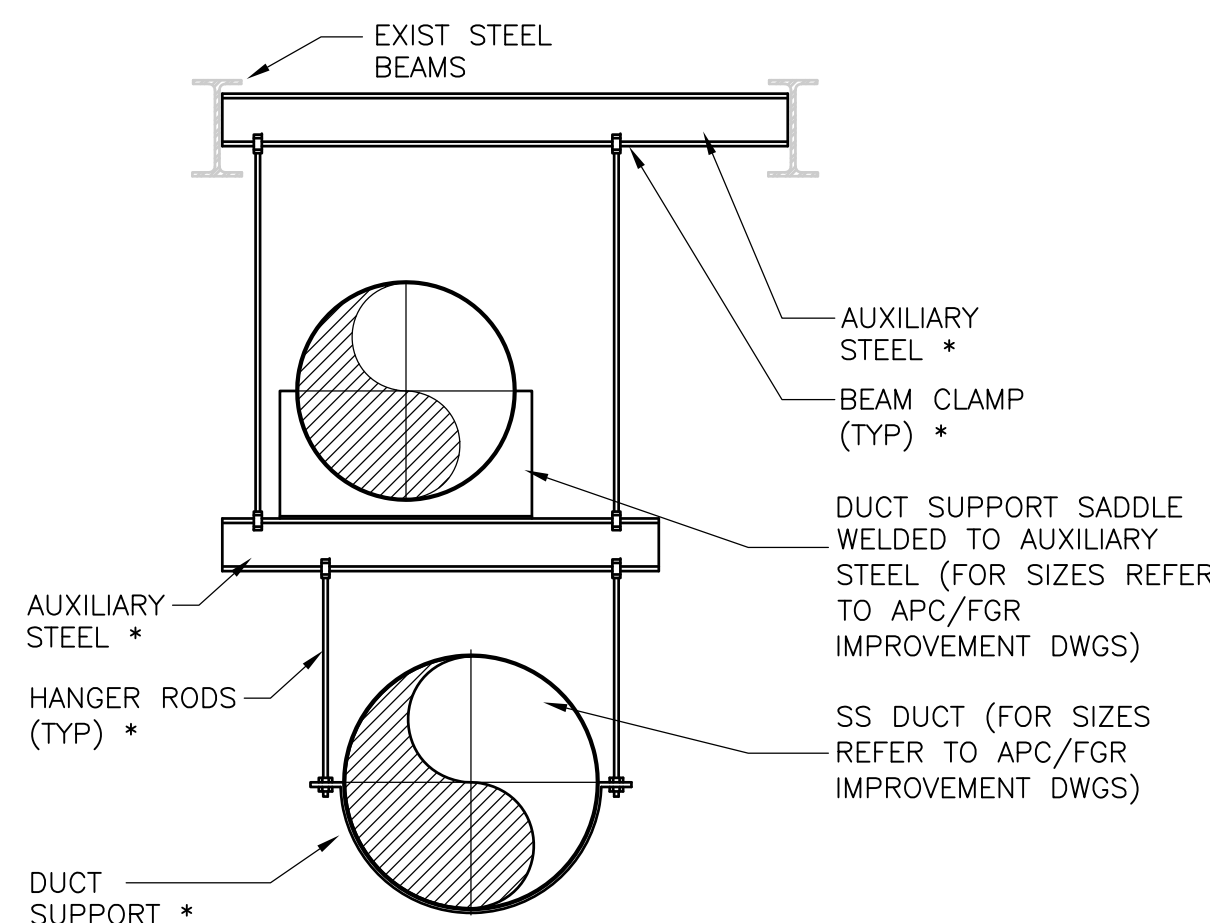
NOTE: HX INDICATES HEARTH NUMBER



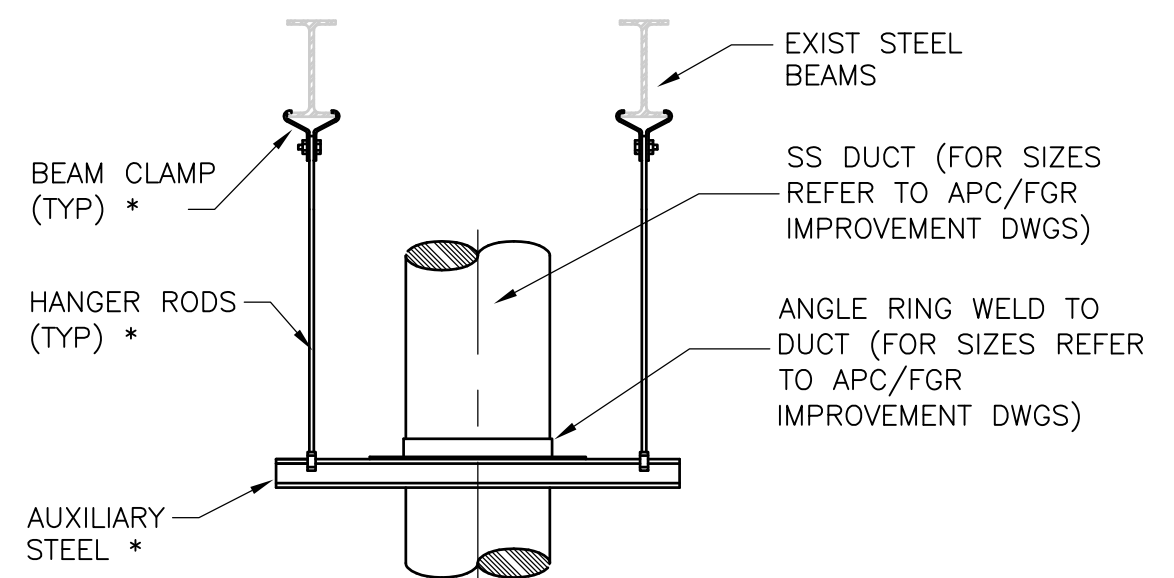
**TYPE A - DUCT SUPPORT**  
3/8"=1'-0"



**TYPE D - DUCT SUPPORT**  
3/8"=1'-0"



**TYPE B - DUCT SUPPORT**  
3/8"=1'-0"



**TYPE C - DUCT SUPPORT**  
3/8"=1'-0"

**NOTES**  
1. \* SEE SECTION 13192 FOR STAINLESS STEEL DUCTWORK AND SUPPORT REQUIREMENTS.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

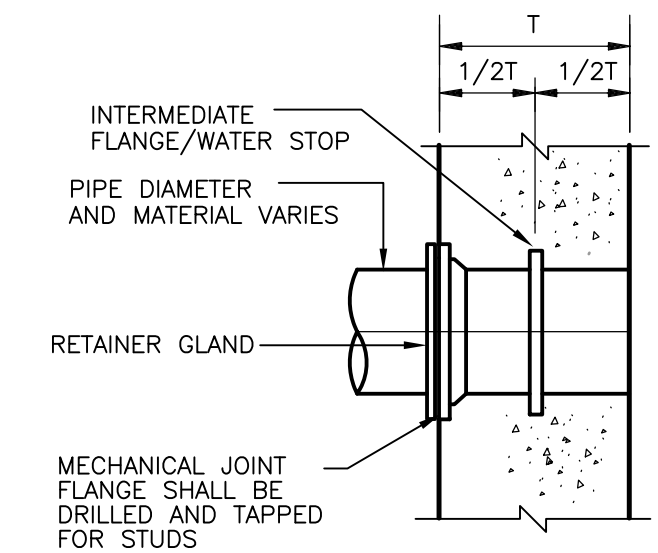
CADD FILE NO.	MSTD003
DESIGNED BY:	F. SAPIENZA
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	AS NOTED
APPROVED BY:	R. GAUDES
DATE:	MAY 2006



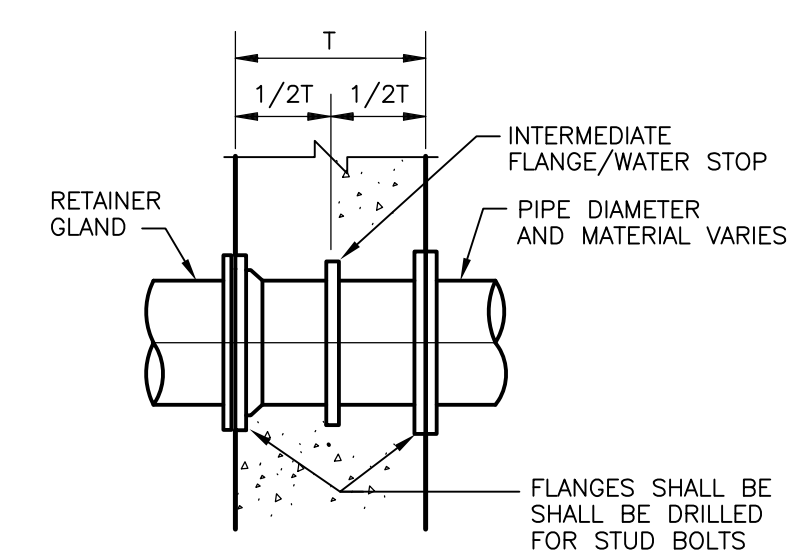
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**APC/FGR IMPROVEMENT DETAILS**  
  
**SP-M-20**

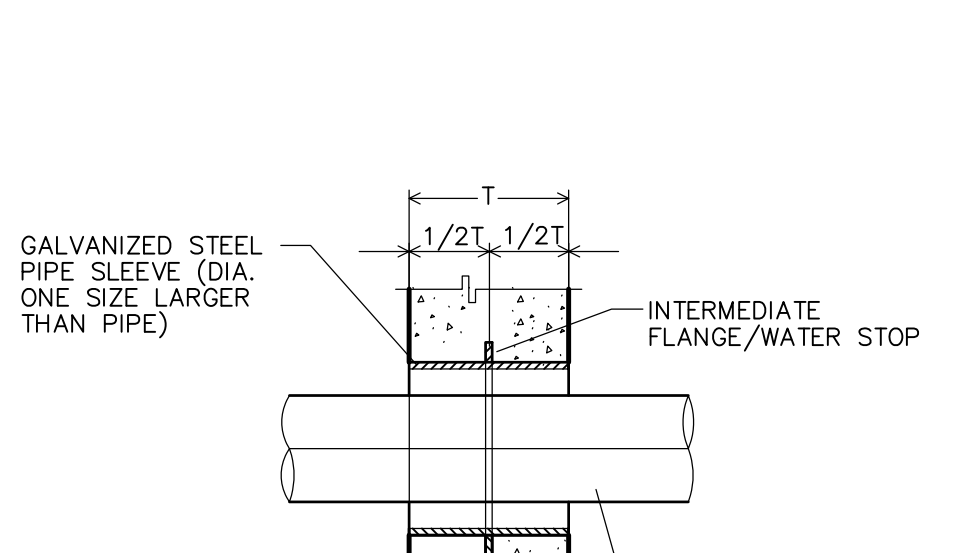
PROJECT NO.  
 1289\35370  
 Sht. 205 of 386  
 ACCESSION NO. 1289-55805



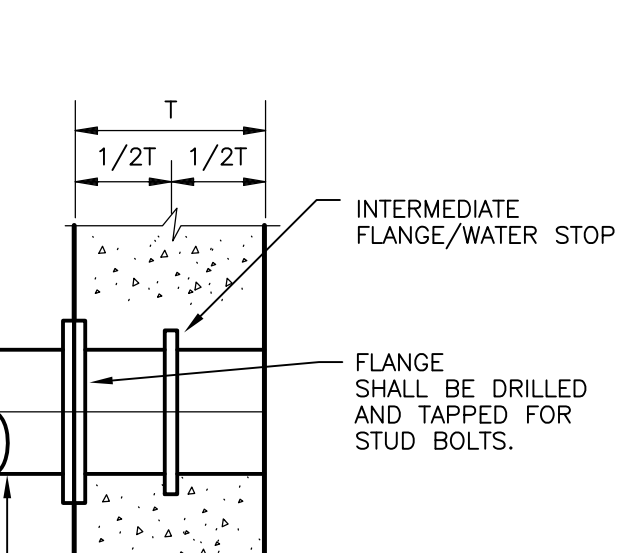
FURNISH RESTRAINED MECHANICAL JOINT WHERE INDICATED ON THE DRAWINGS OR SPECIFIED  
**DETAIL A**  
 NTS



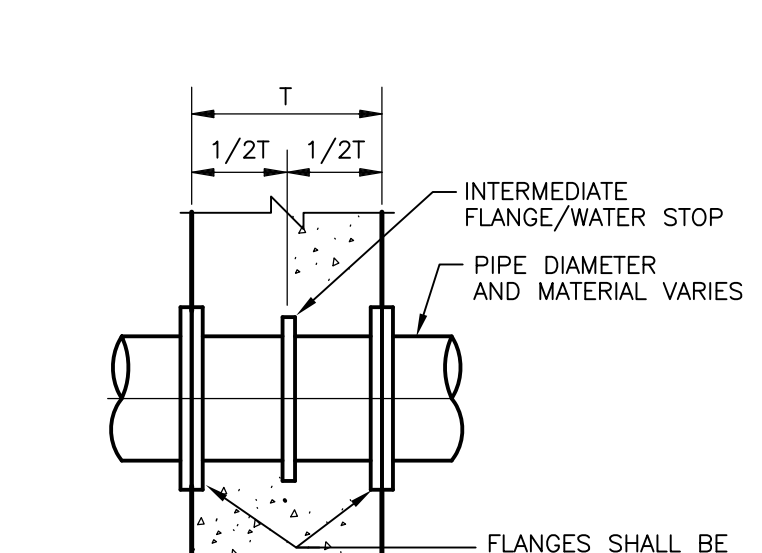
FURNISH RESTRAINED MECHANICAL JOINT WHERE INDICATED ON THE DRAWINGS OR SPECIFIED  
**DETAIL B**  
 NTS



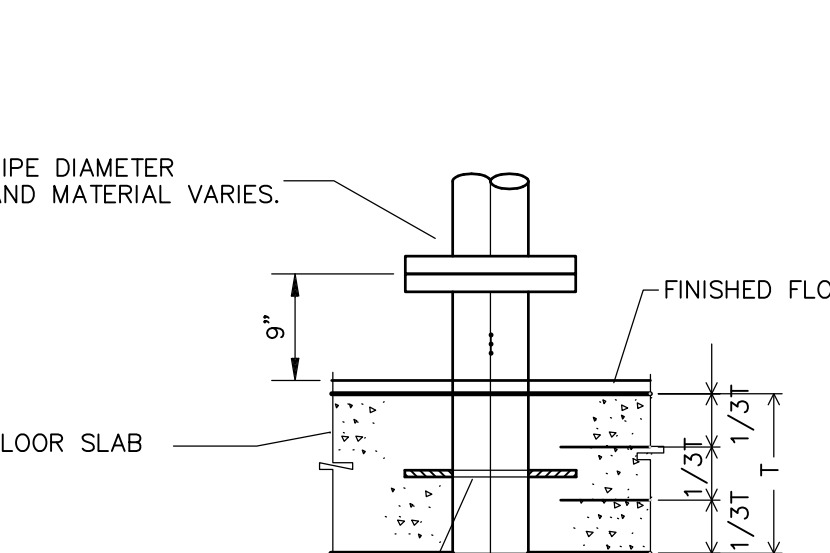
INSULATED PIPING: INTERRUPT INSULATION AT BOTH SIDES OF WALL  
**DETAIL C**  
 SCALE: NONE



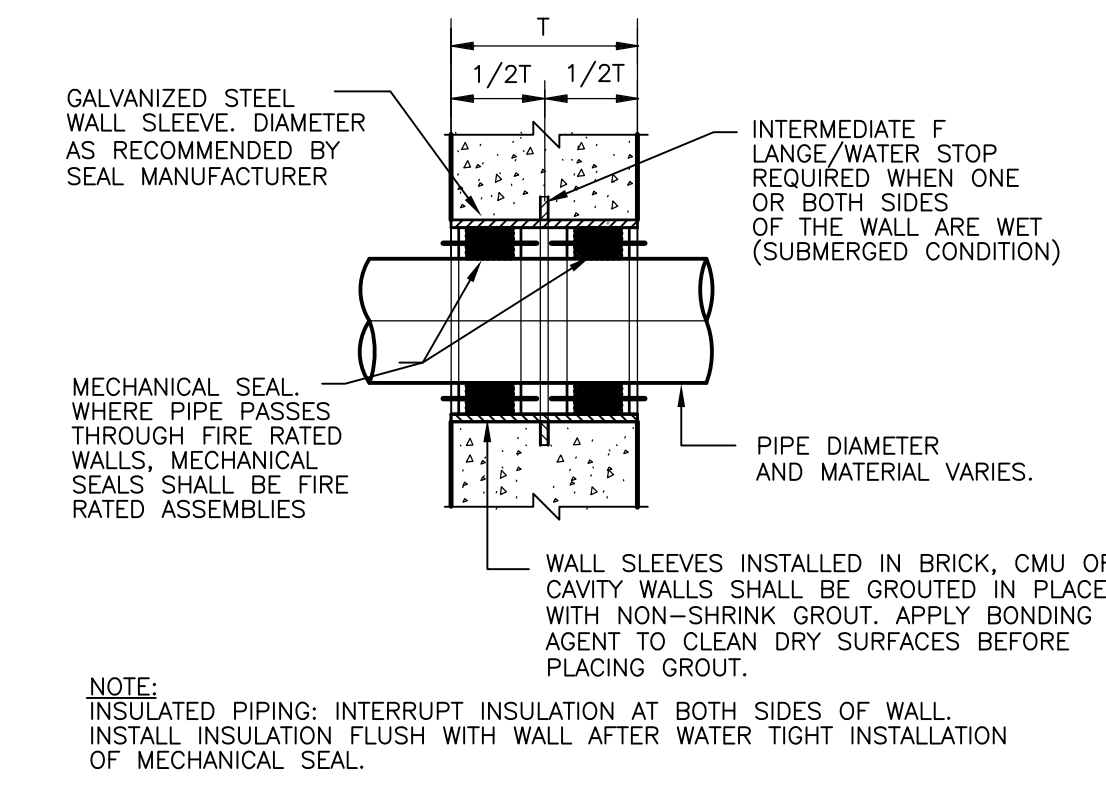
**DETAIL D**  
 NTS



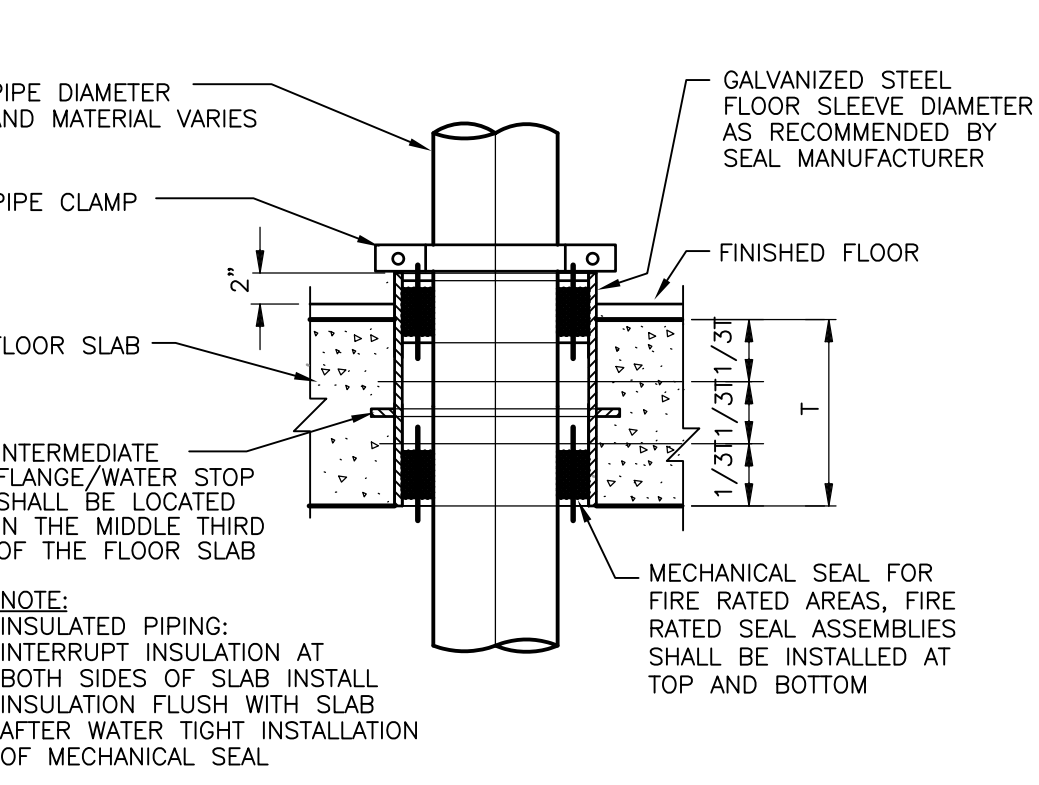
**DETAIL E**  
 NTS



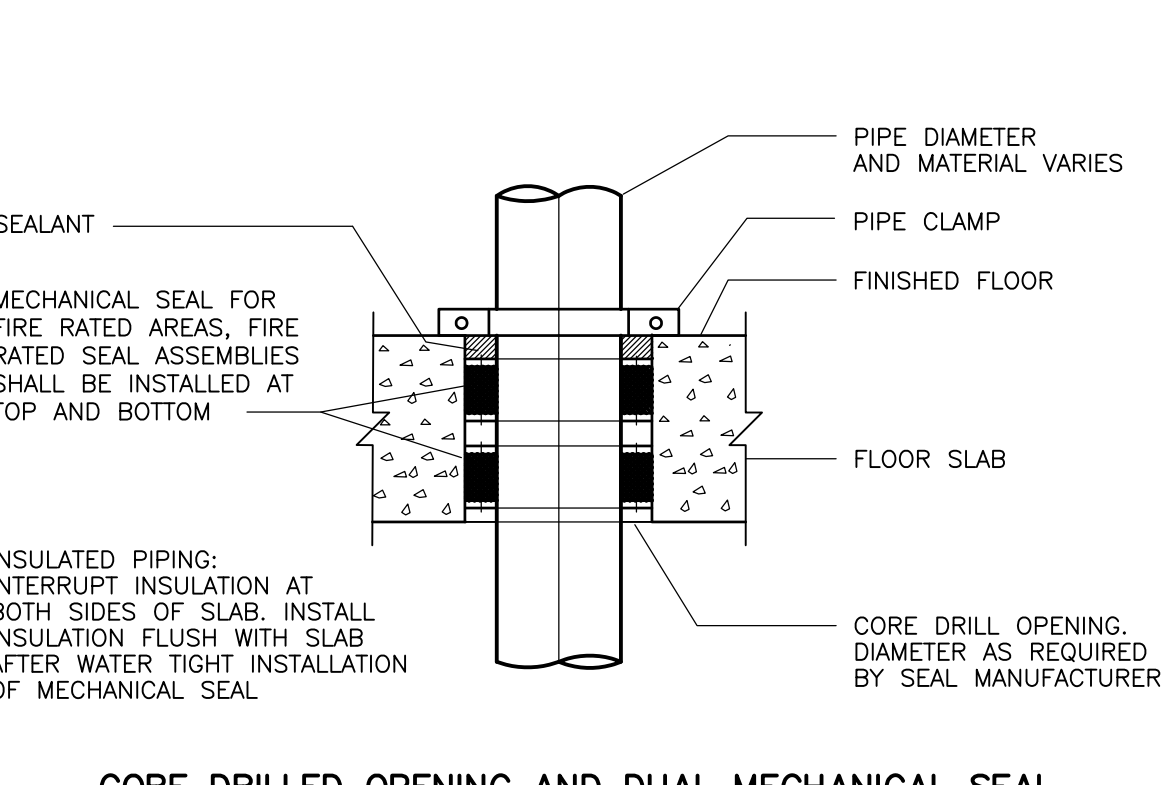
**DETAIL F**  
 SCALE: NONE



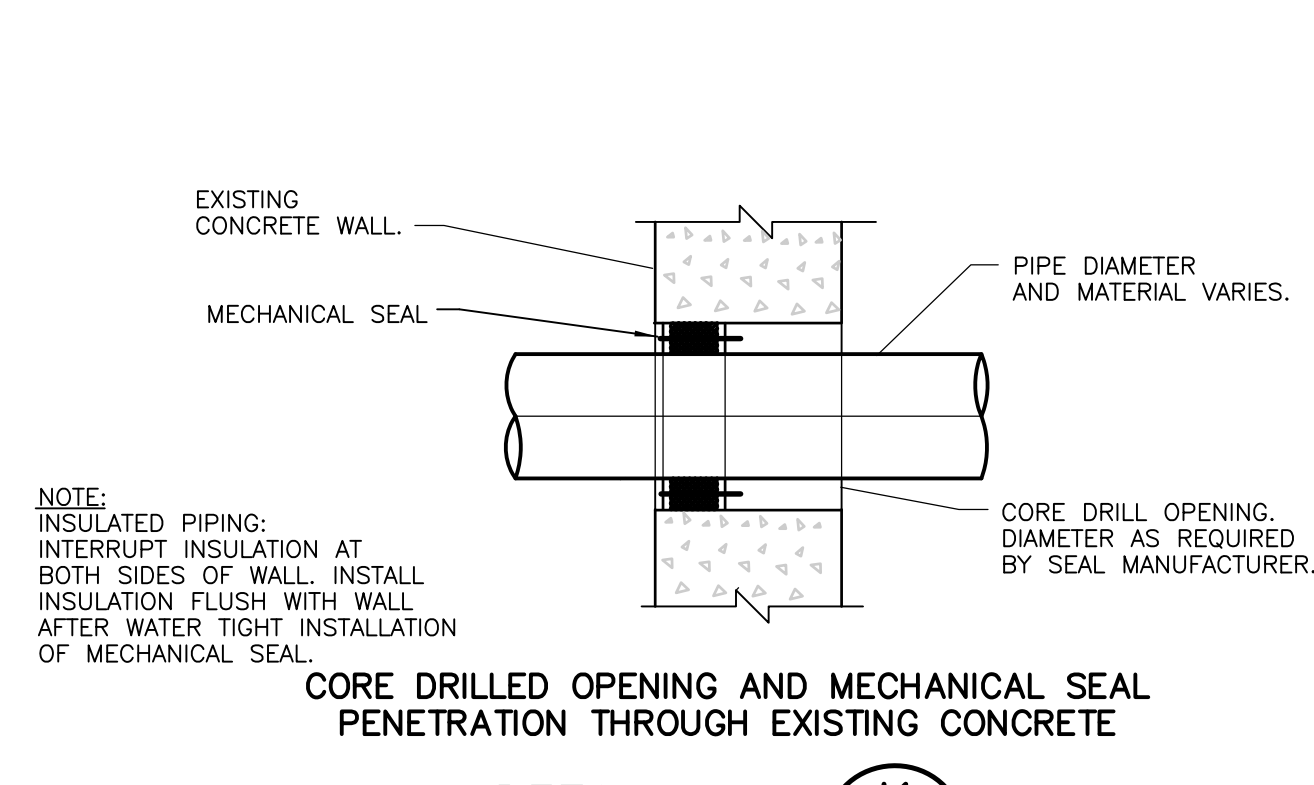
NOTE: INSULATED PIPING: INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.  
**DETAIL H**  
 NTS



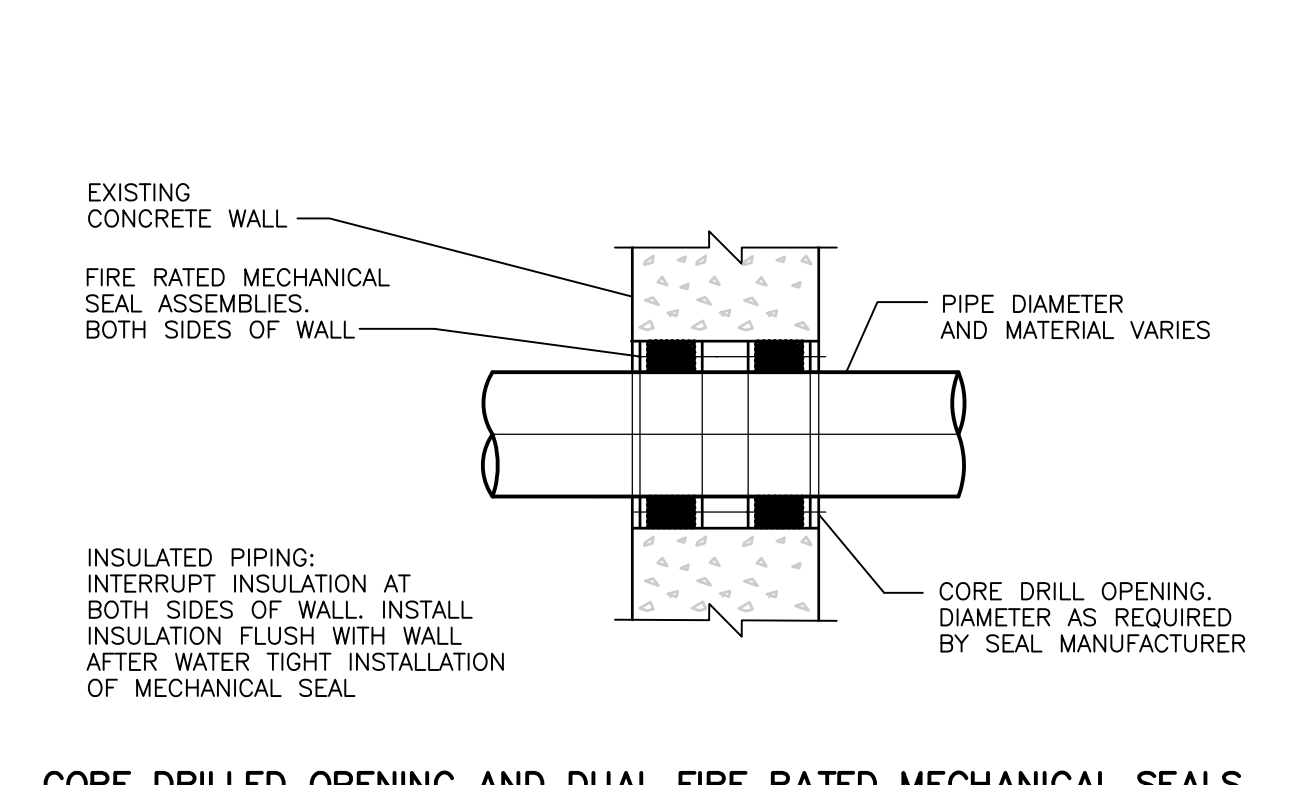
NOTE: INSULATED PIPING: INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.  
**DETAIL I**  
 NTS



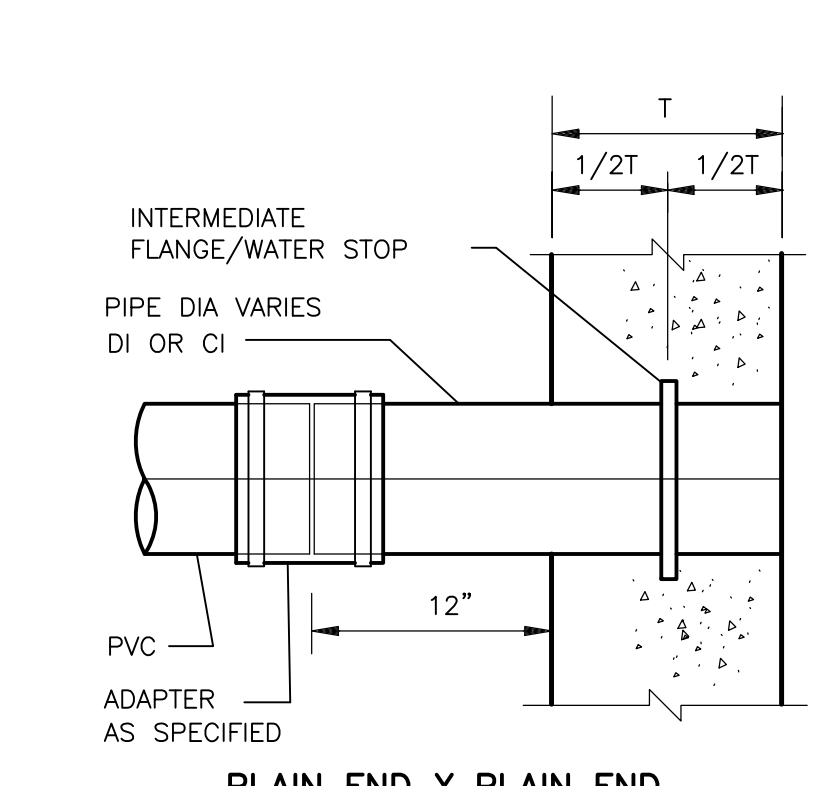
INSULATED PIPING: INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.  
**DETAIL J**  
 NTS



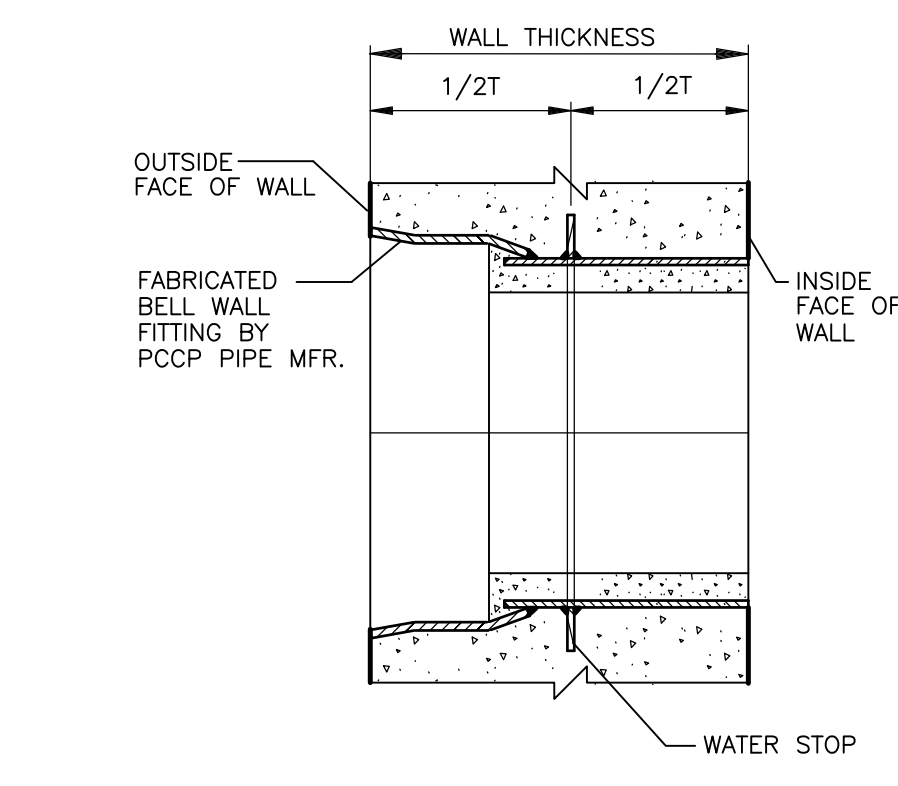
NOTE: INSULATED PIPING: INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.  
**DETAIL K**  
 NTS



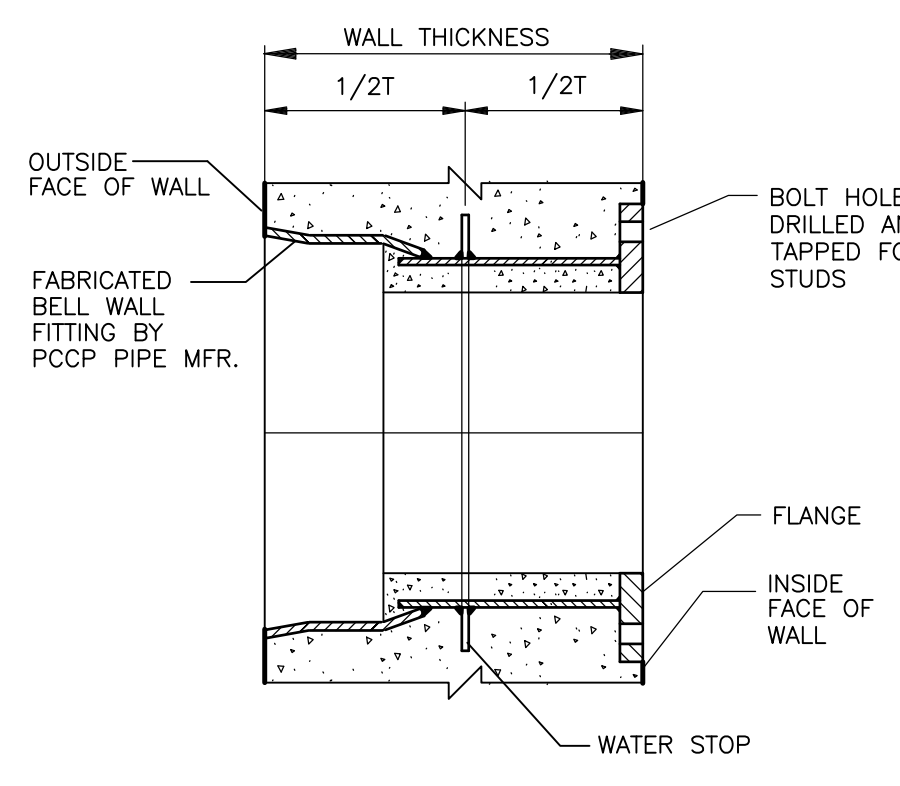
**DETAIL L**  
 NTS



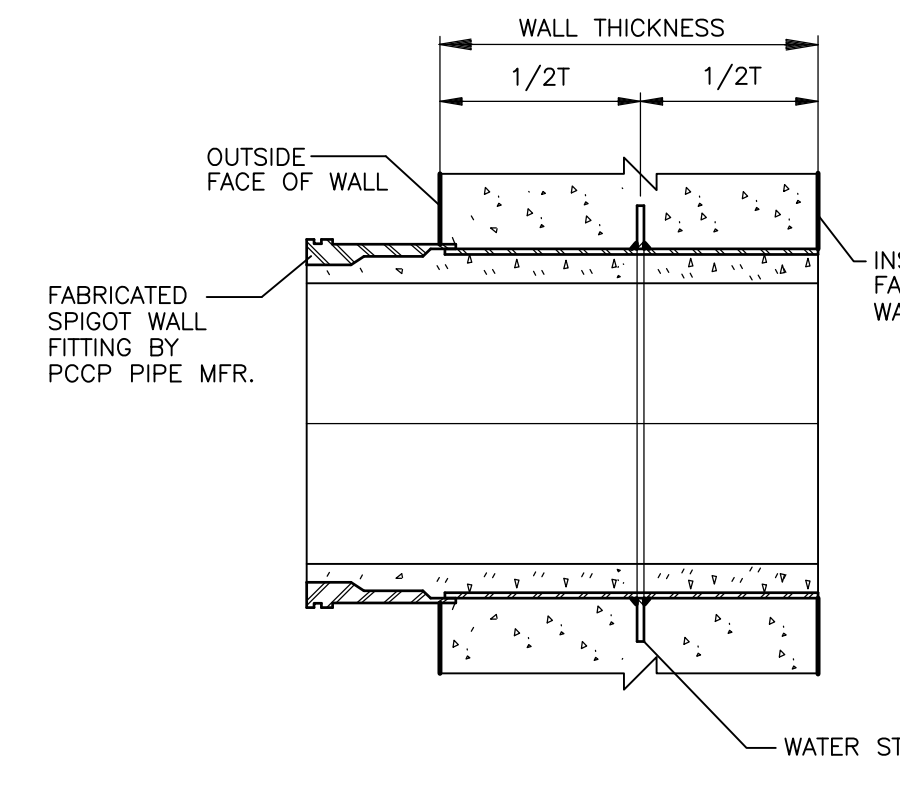
**DETAIL M**  
 NTS



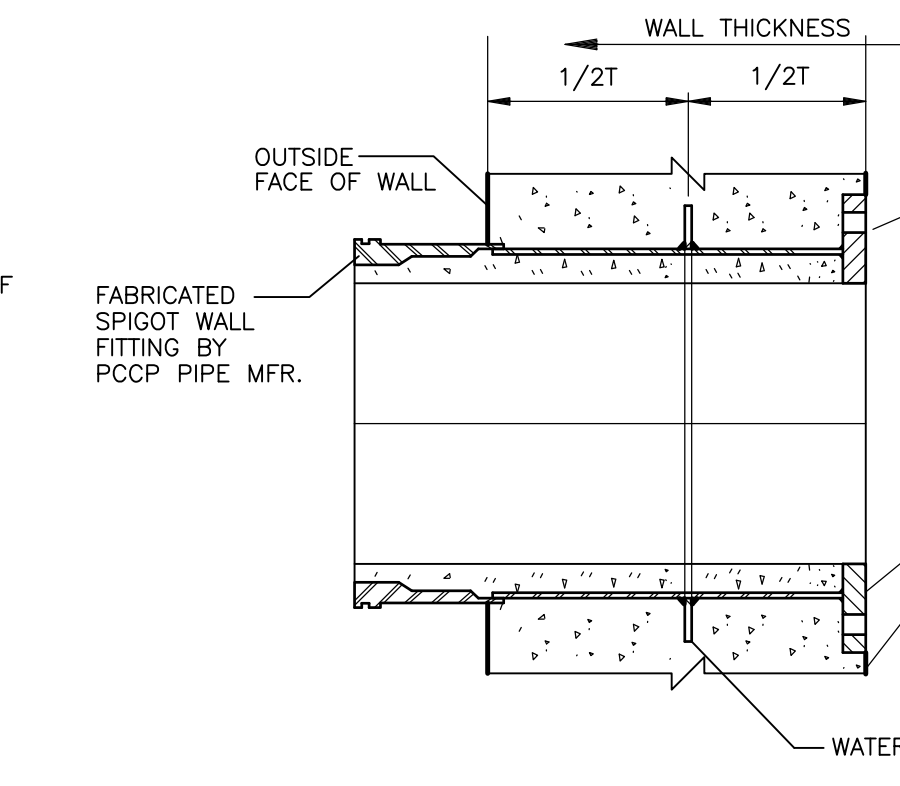
**DETAIL N**  
 NO SCALE



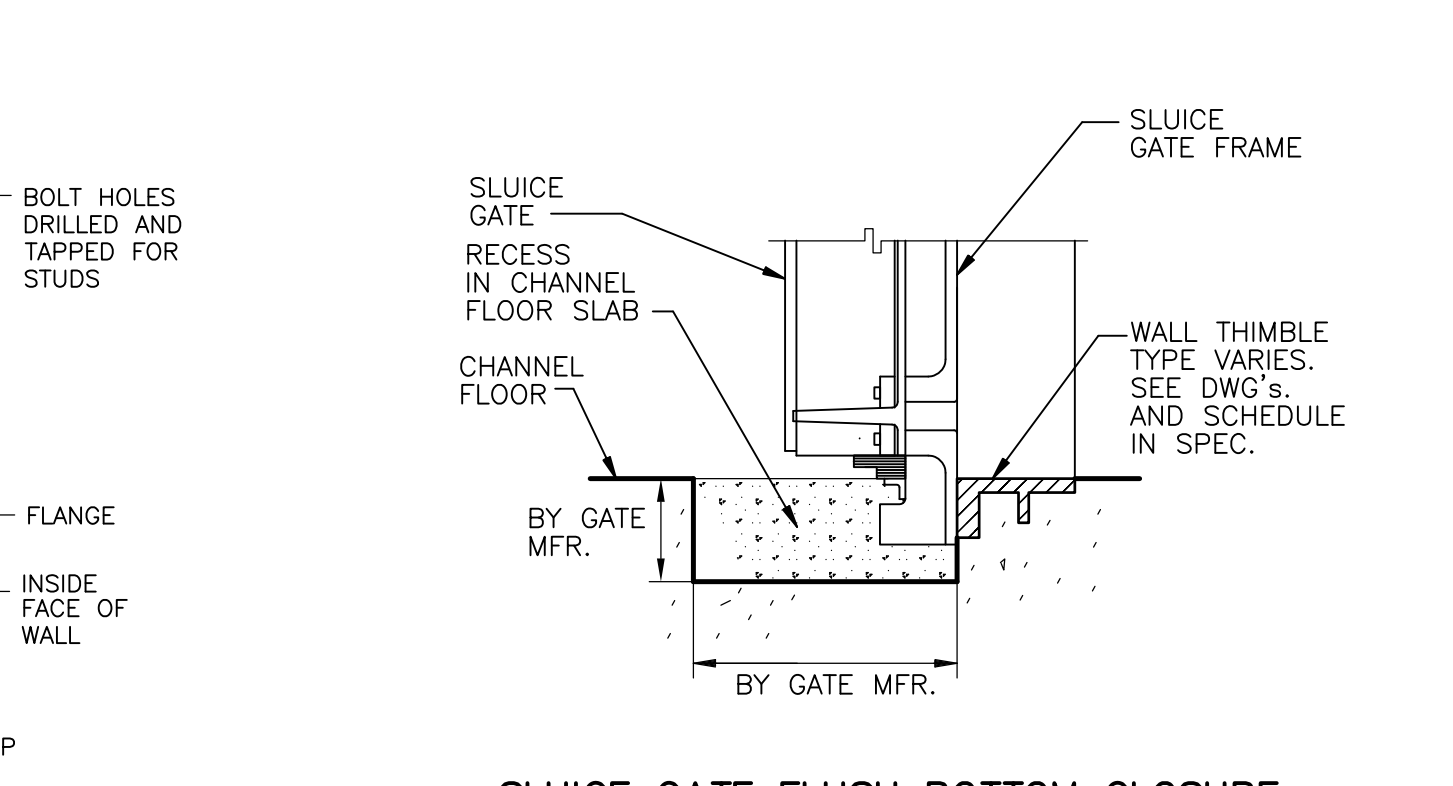
**DETAIL O**  
 NO SCALE



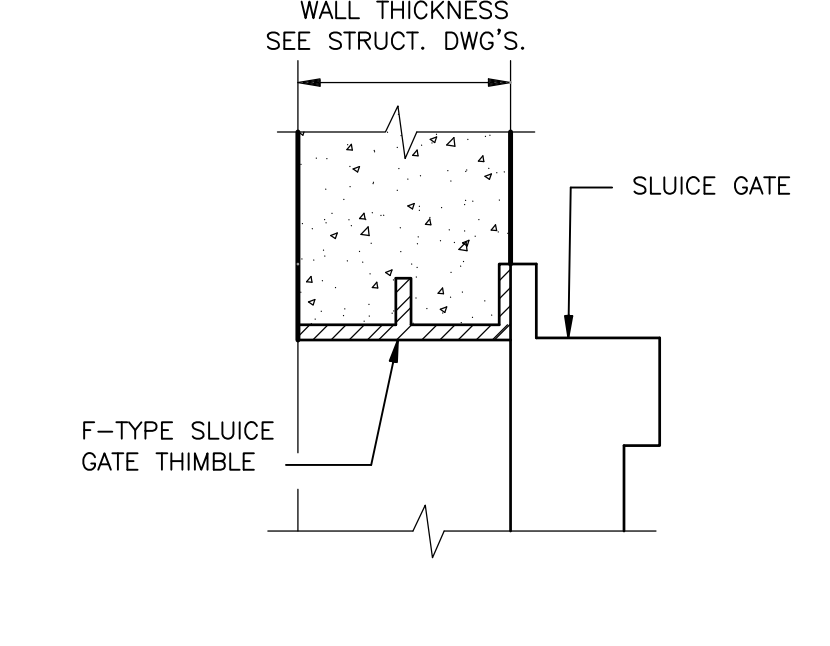
**DETAIL P**  
 NO SCALE



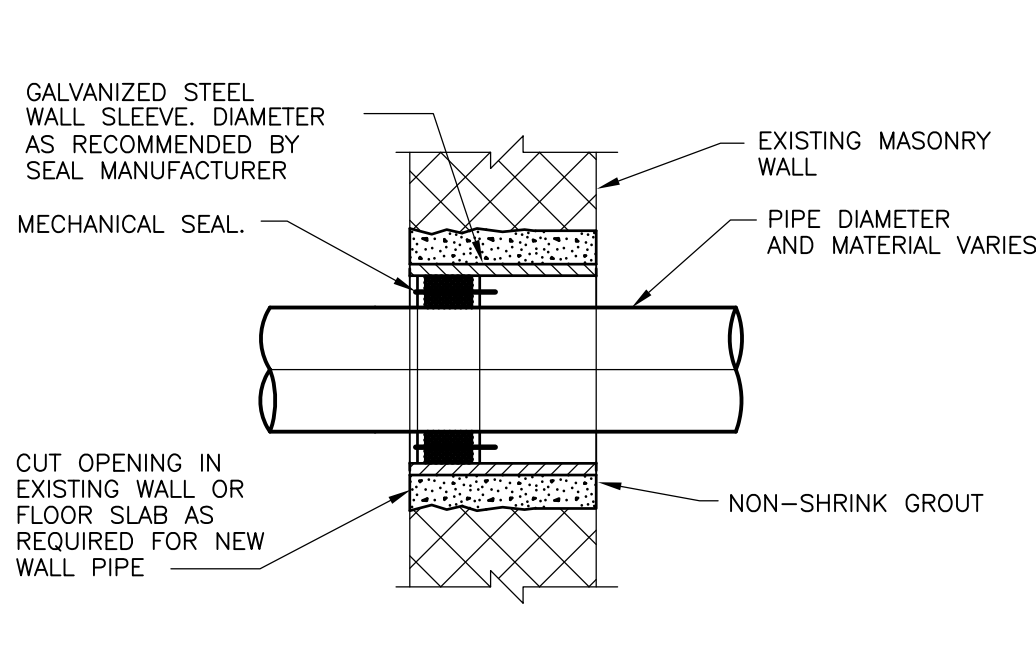
**DETAIL Q**  
 NO SCALE



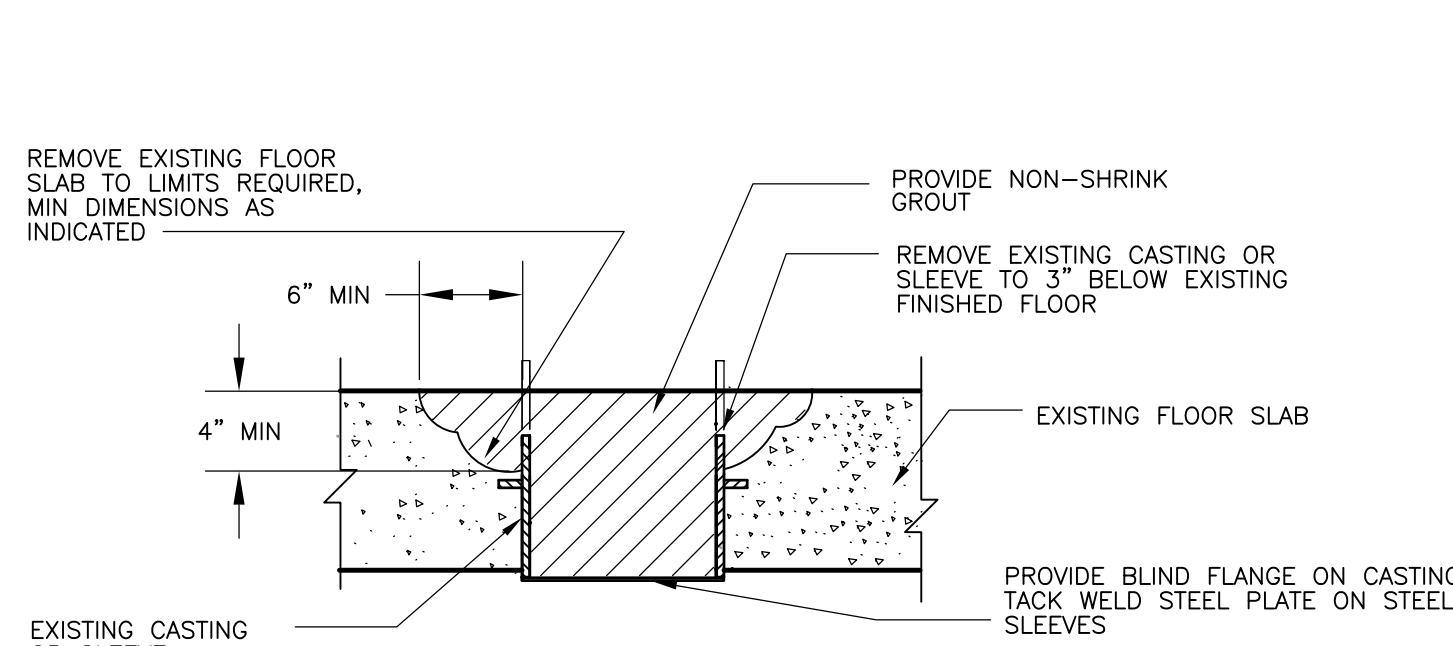
**DETAIL R**  
 NTS



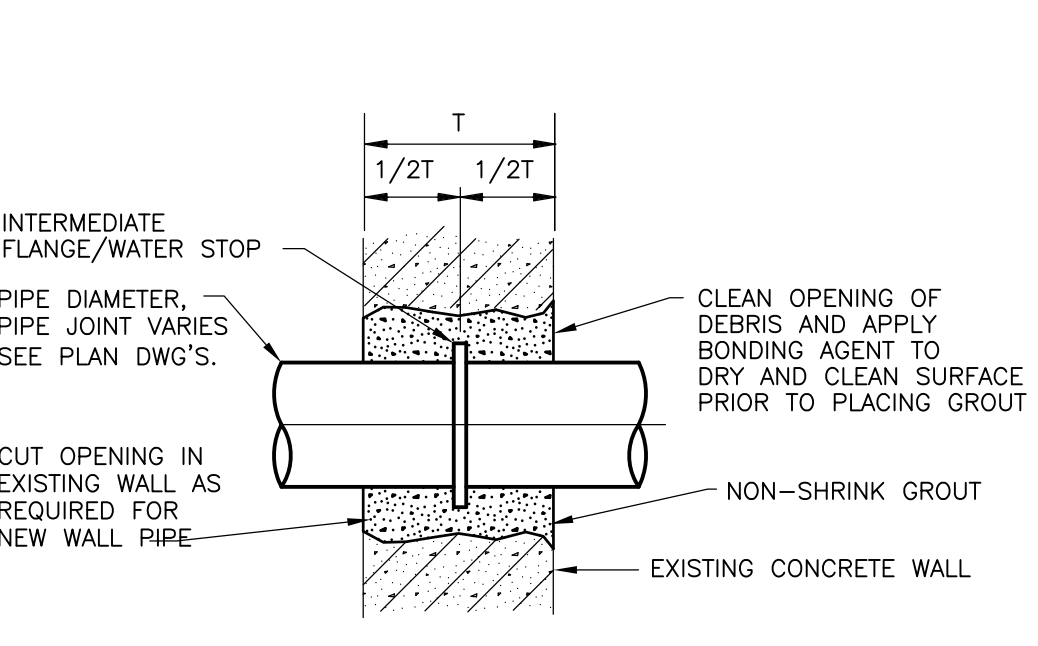
**DETAIL S**  
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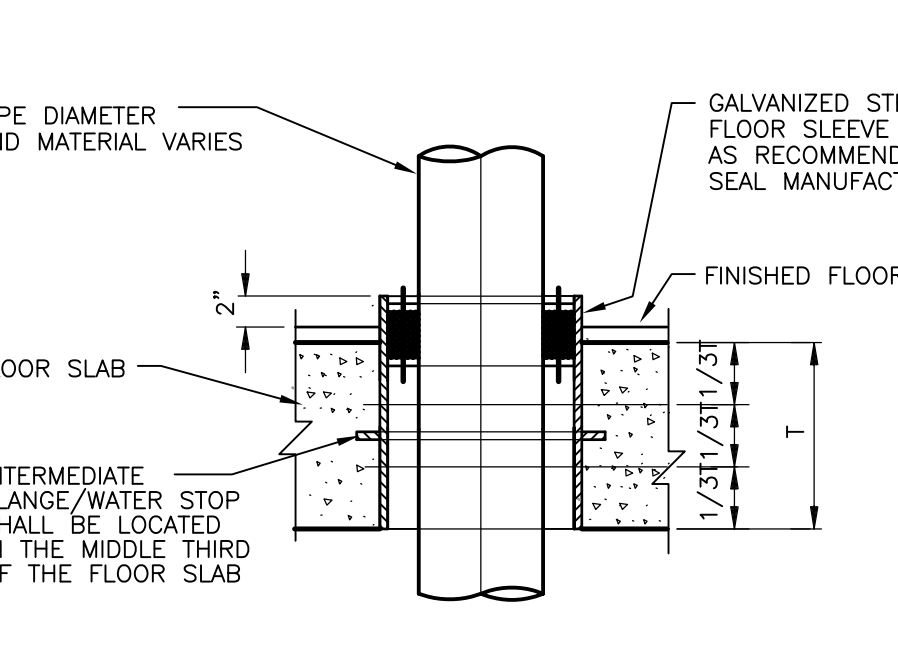
**DETAIL T**  
 NTS



**DETAIL U**  
 NTS



**DETAIL V**  
 NTS



**DETAIL W**  
 NTS

**NOTES:**  
 1 WHERE FLUSH TO WALL FLANGES ARE SHOWN ON THE DRAWINGS, THE CONTRACTOR MAY, AT HIS OPTION USE WALL CASTINGS PENETRATING THE LINE OF THE FORMWORK UP TO 9-INCHES, OR AS OTHERWISE APPROVED.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

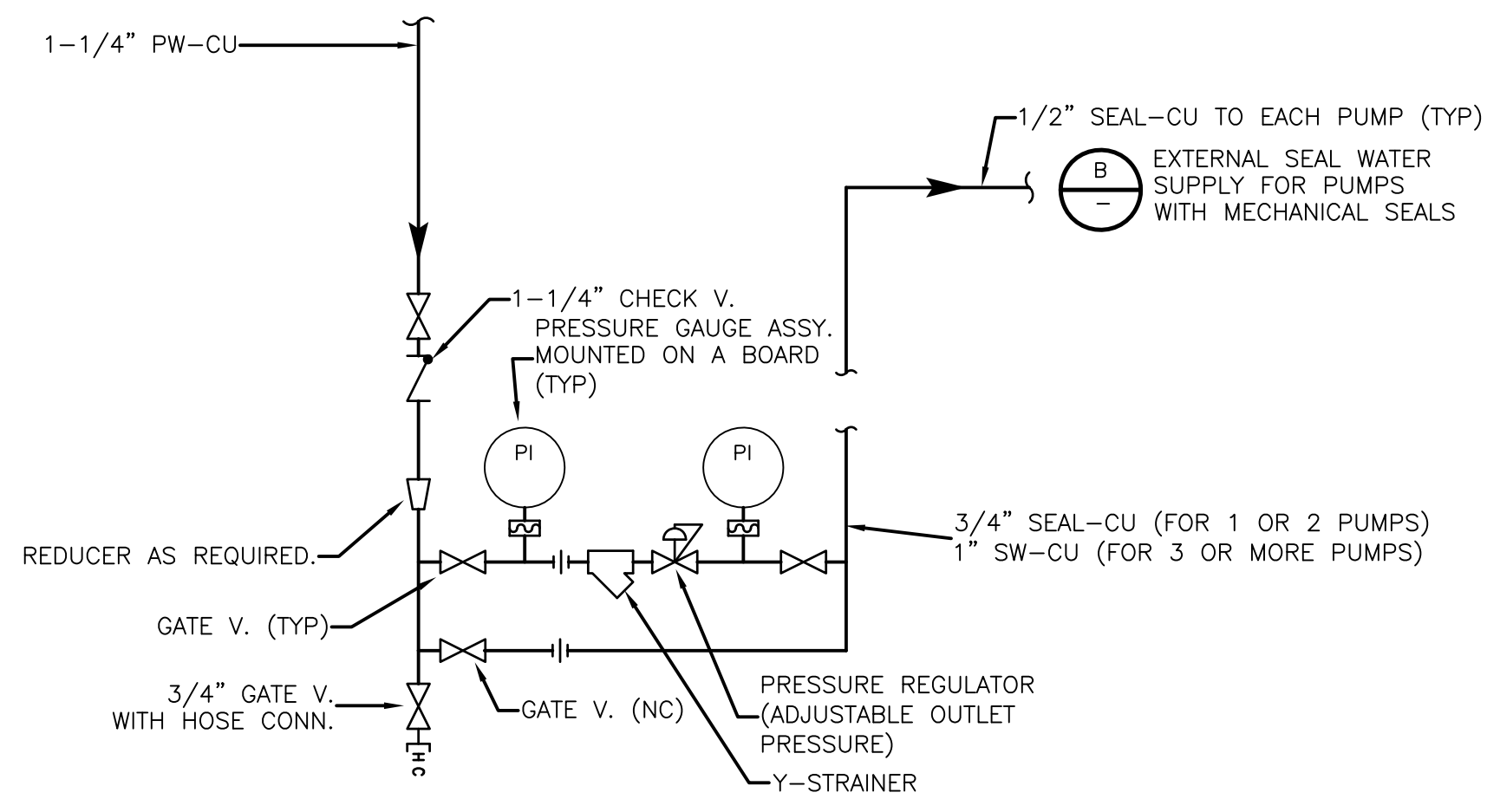
CADD FILE NO.	MSTD001
DESIGNED BY:	K. SANGREY
DRAWN BY:	J. COMPONESCHI
SHEET CHK'D BY:	K. SANGREY
SCALE:	AS SHOWN
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

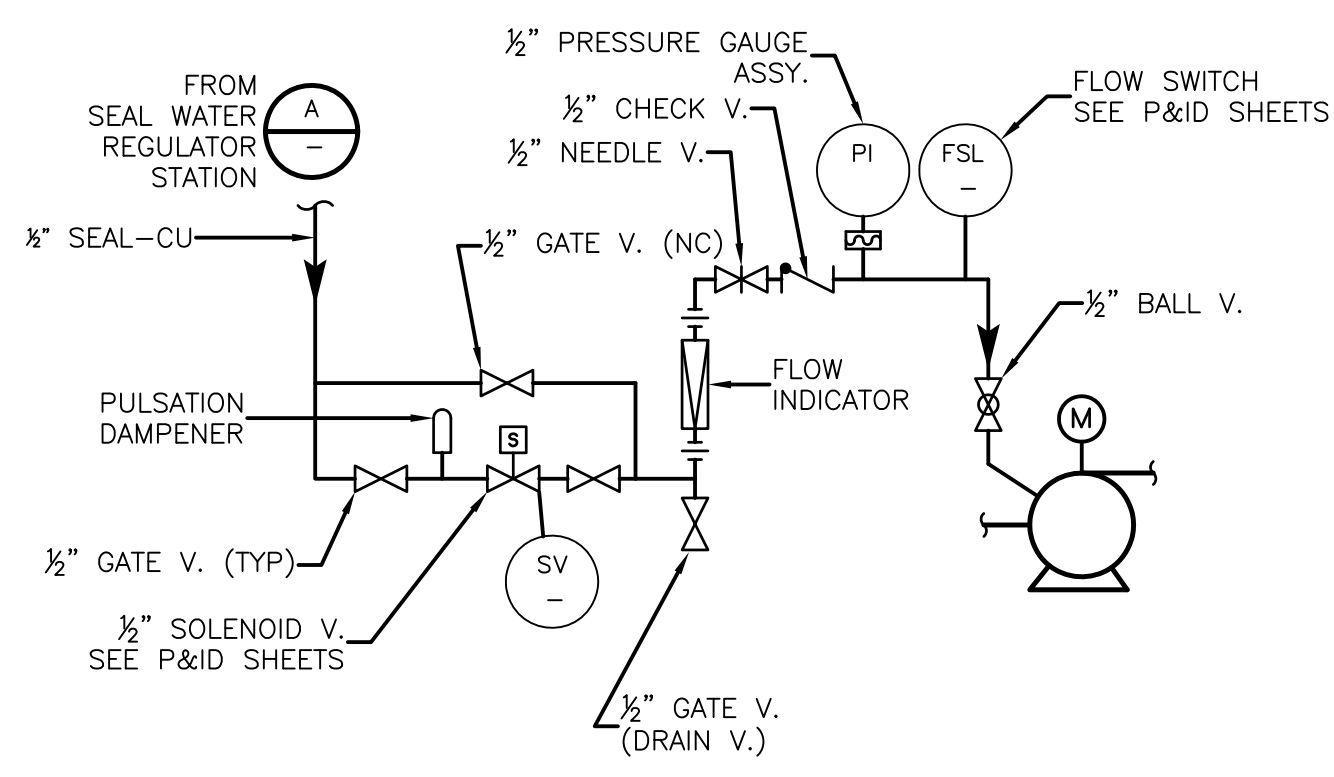
**MECHANICAL DETAILS I**  
 PROJECT NO. 1289\35370  
 Sht. 206 of 386  
**SD-M-1**

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Xref: s: [C24X36H, ] Plotted by: CROSSHA Time: 12/16/08 6:27:52 PM  
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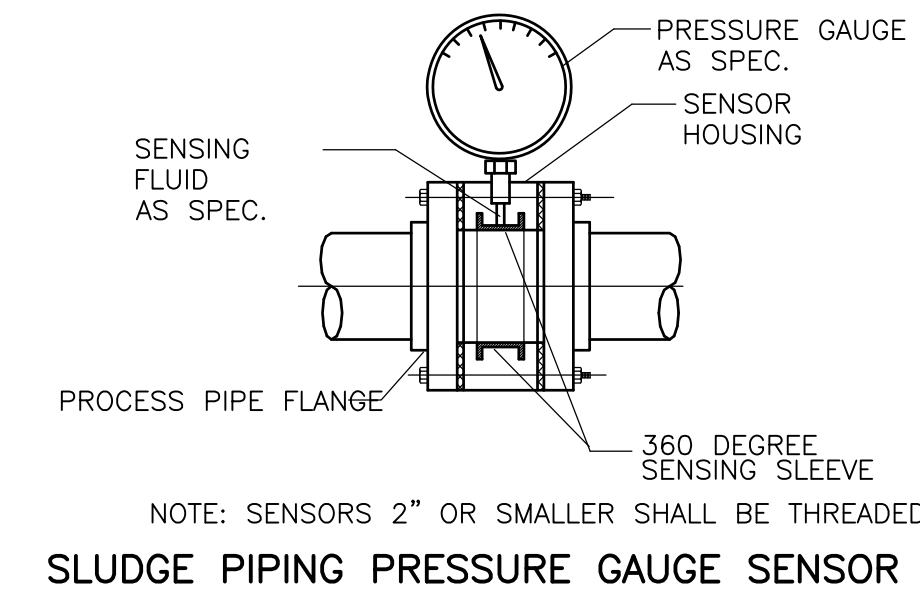
SEAL WATER REGULATOR STATION FOR MULTIPLE PUMPS

DETAIL A  
NO SCALE



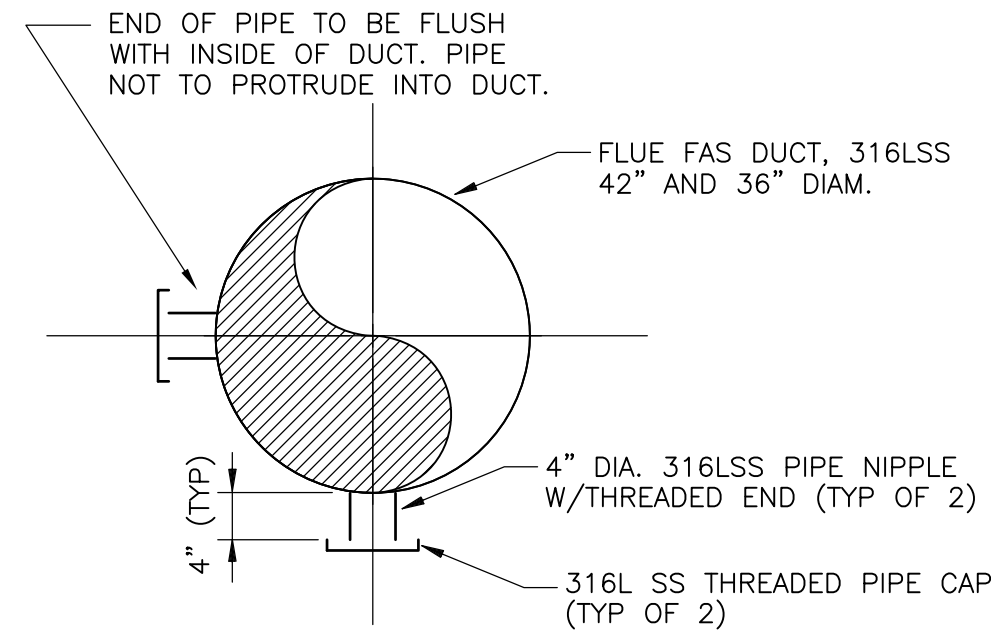
EXTERNAL SEAL WATER SUPPLY FOR PUMPS WITH SINGLE MECHANICAL SEALS, SPLIT SEALS AND STUFFING BOXES

DETAIL B  
NO SCALE



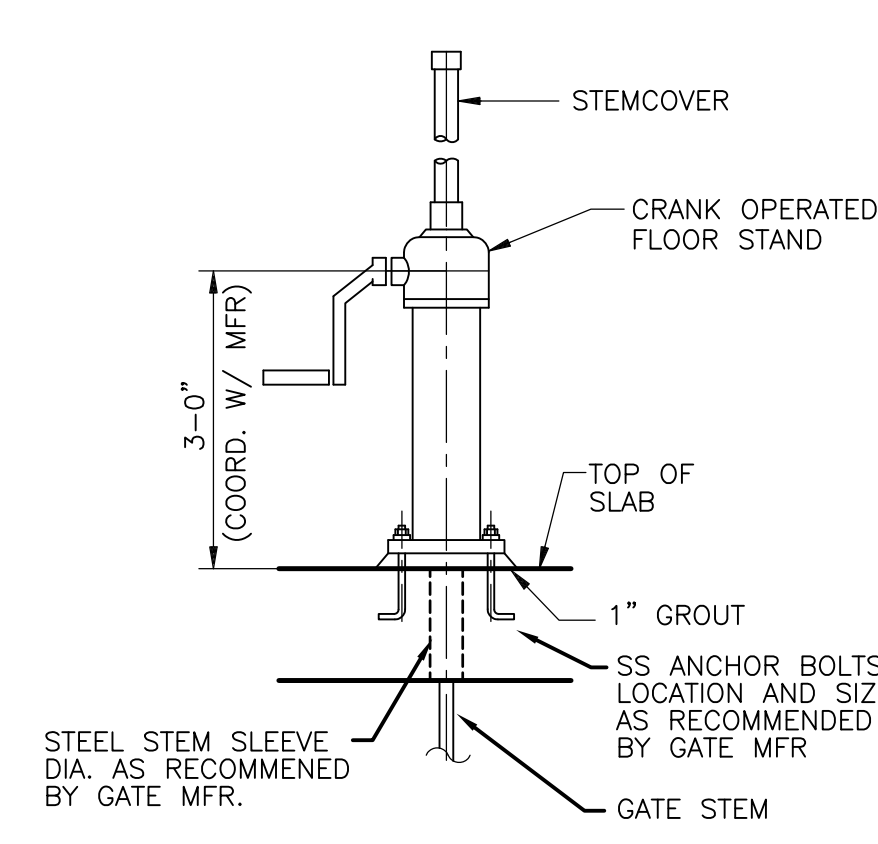
SLUDGE PIPING PRESSURE GAUGE SENSOR

DETAIL H  
NTS



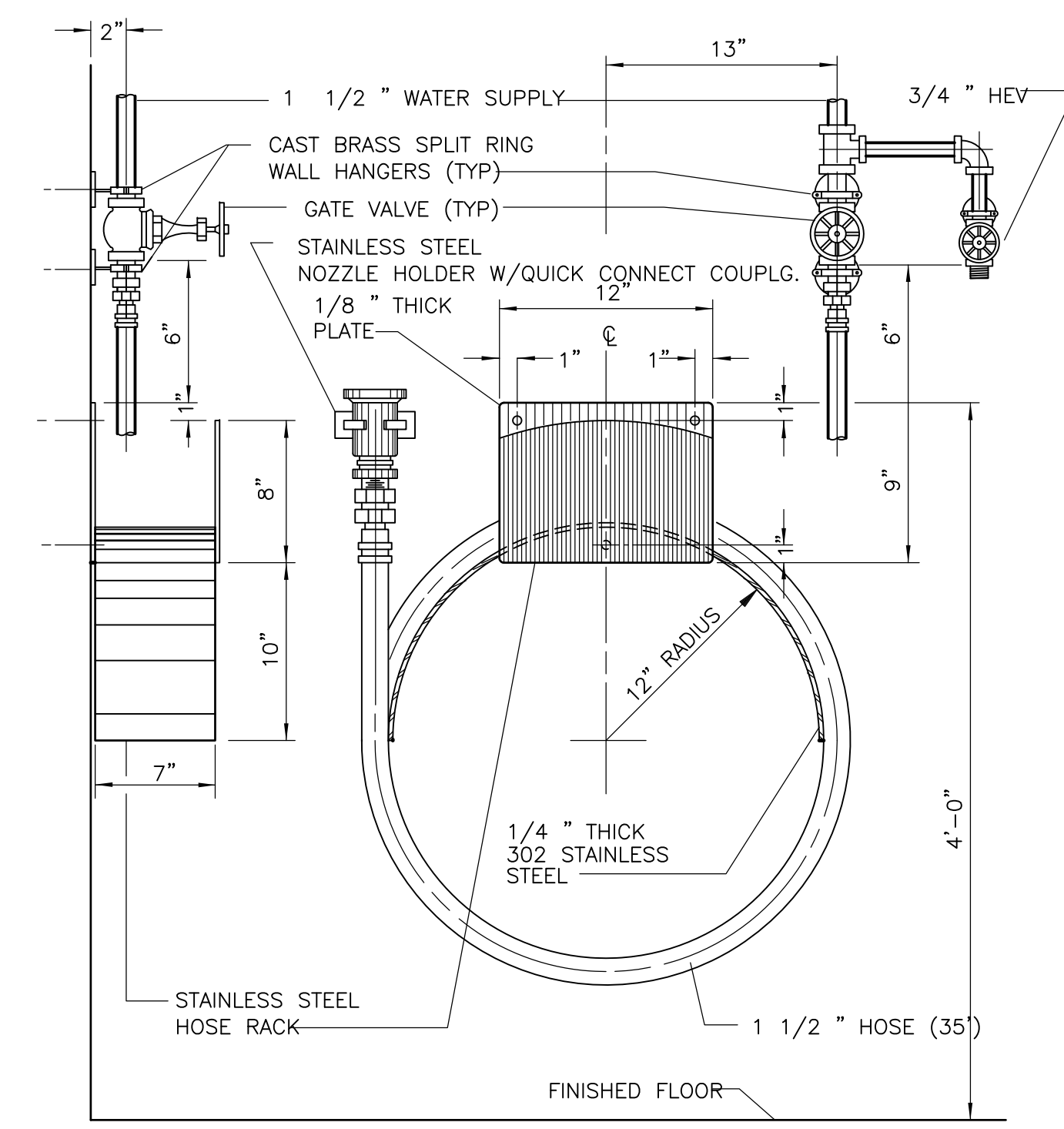
SAMPLE PORTS

DETAIL C  
NTS



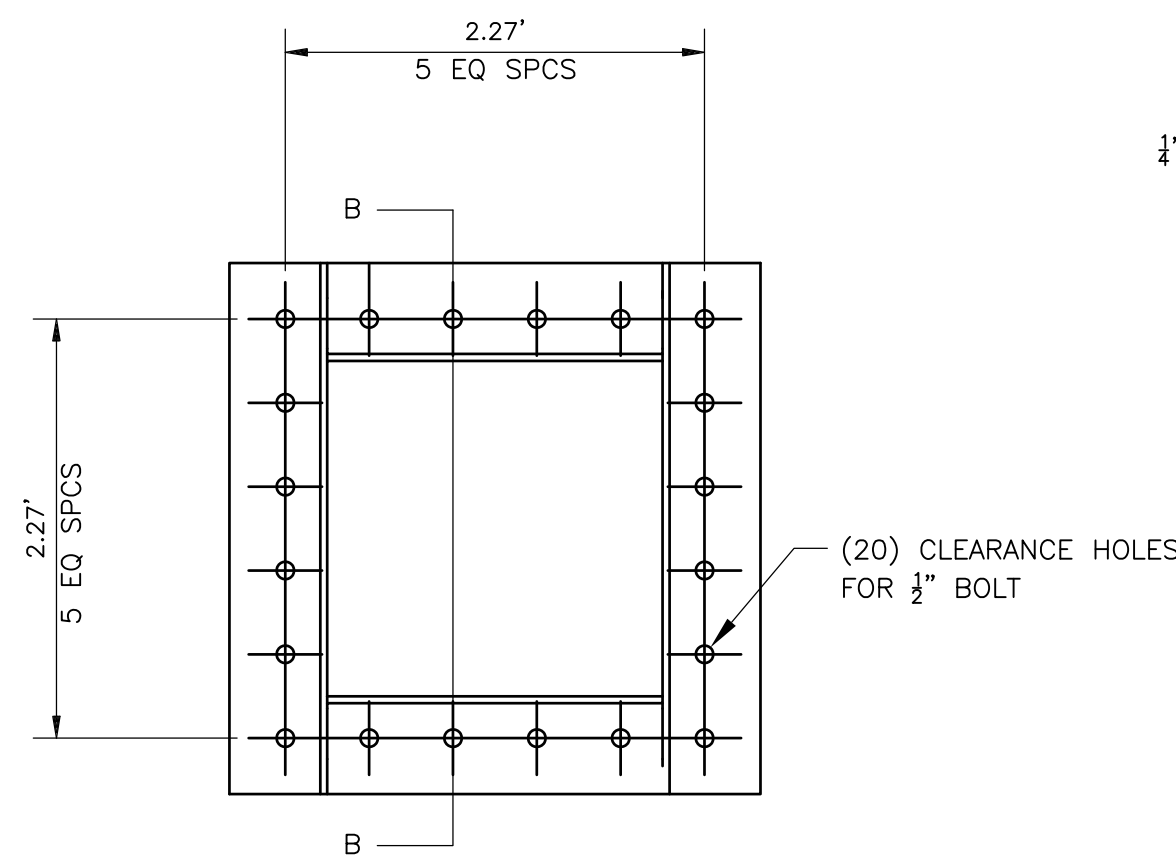
FLOORSTAND ELEVATION

DETAIL D

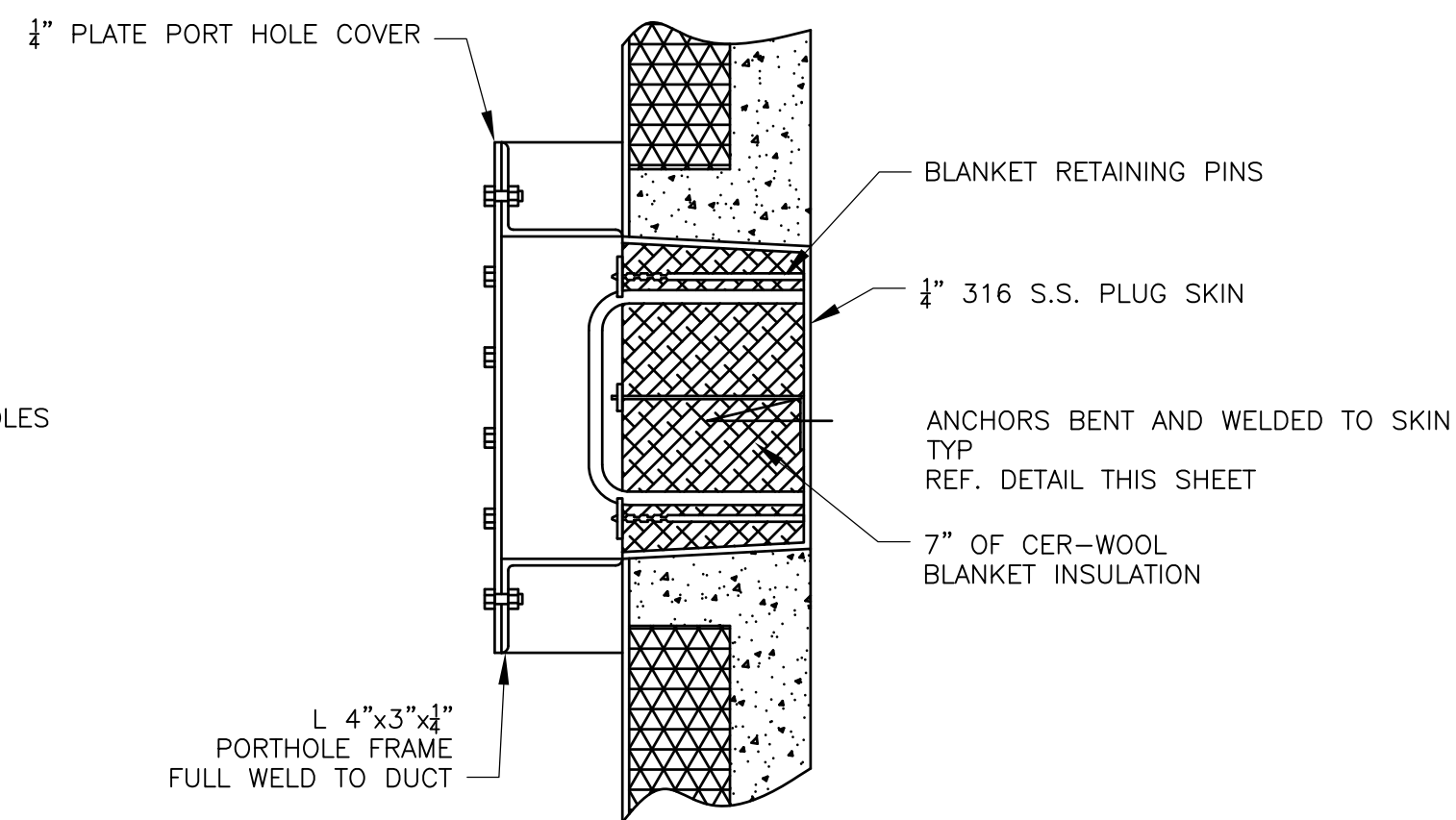


WASH HOSE STATION "C"

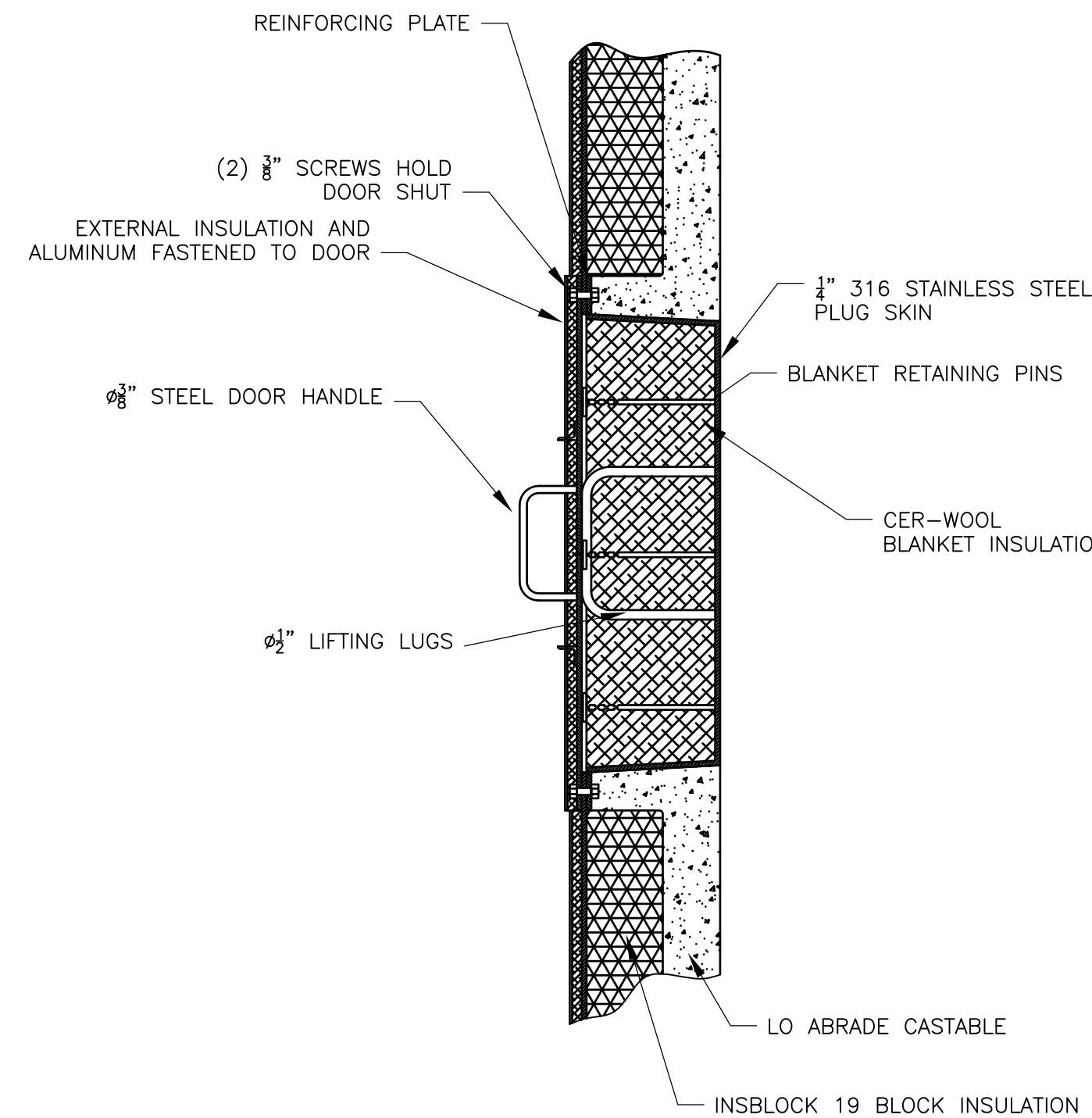
DETAIL F  
NTS



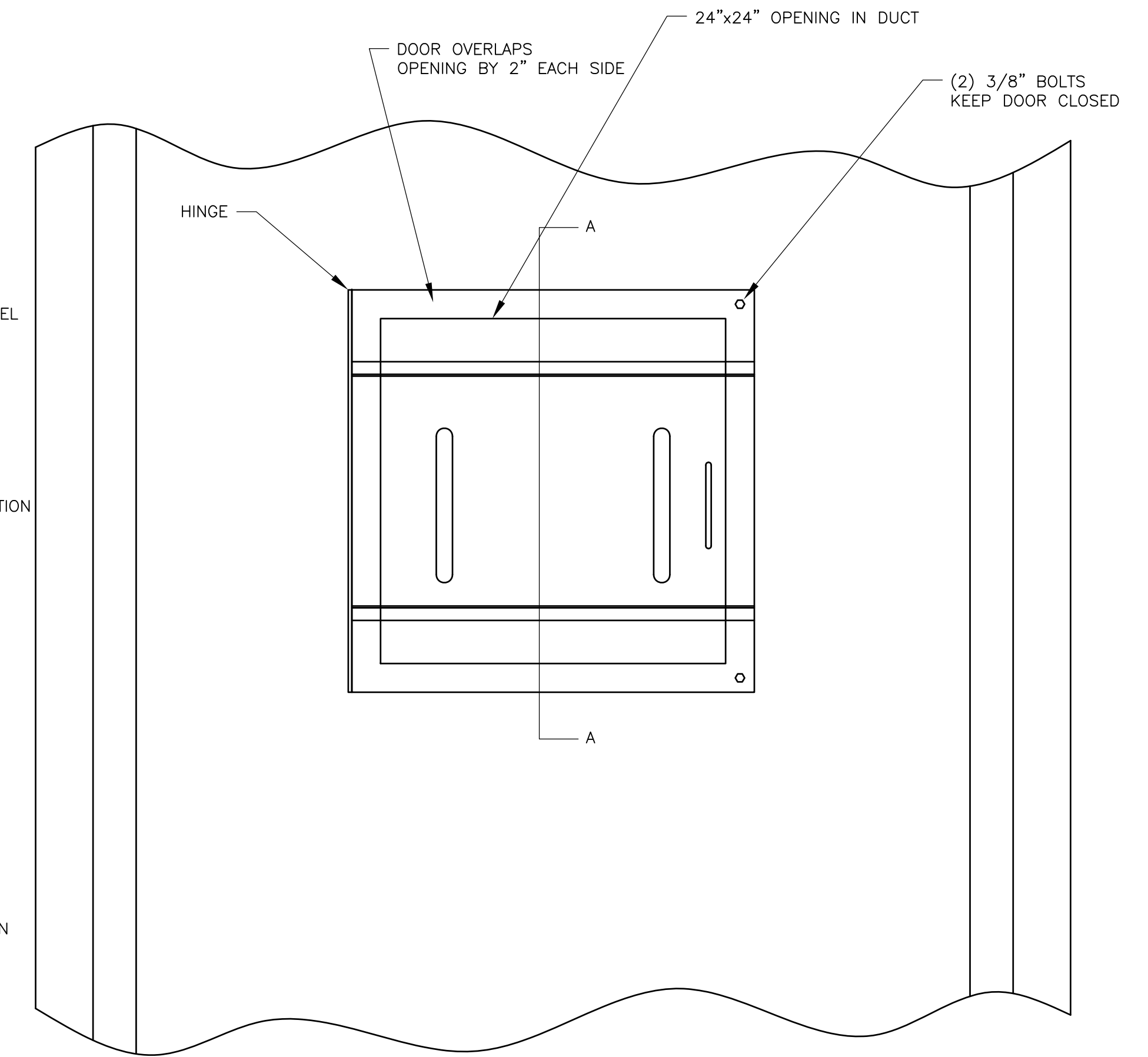
12"x12" INSPECTION PORT HOLE  
(1) REQ'D PER FURNACE



SECTION B-B



SECTION A-A



24"x24" INSPECTION DOORS  
(2) REQ'D PER FURNACE

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
4/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	MSTD002
DESIGNED BY:	K. Sangrey
DRAWN BY:	J. COMPONESCHI
SHEET CHK'D BY:	K. Sangrey
SCALE:	AS NOTED
APPROVED BY:	
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
*consulting engineering construction operations*

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**MECHANICAL DETAILS II**

PROJECT NO.  
1289\35370  
 Sht. 207 of 386  
**SD-M-2**

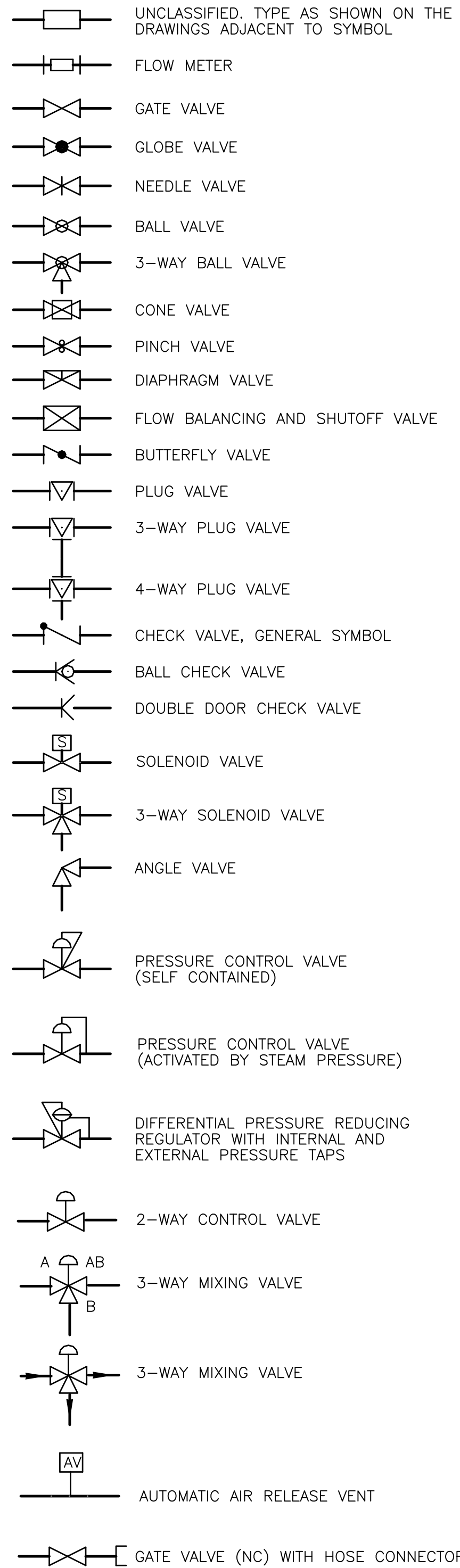
ACCESSION NO. 1289-65807

**GENERAL ABBREVIATIONS**

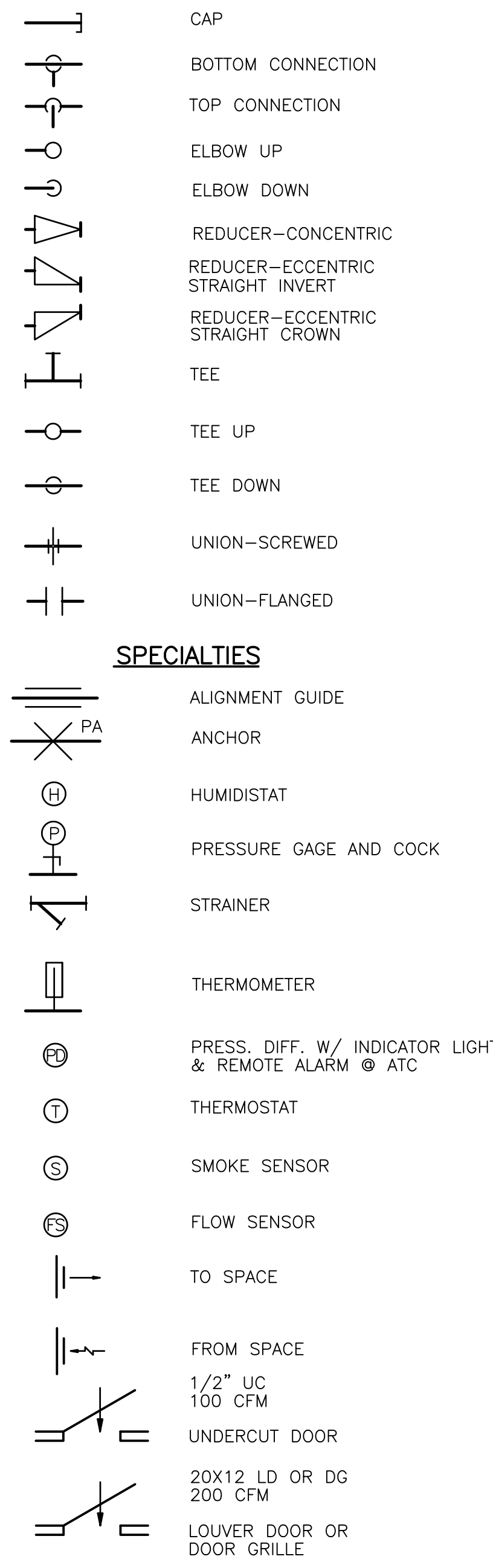
<b>A</b>	ACC ACU AFF AG AHU ALT AP AD ATC AUTO AUX AVG AV	AIR COOLED CONDENSER AIR CONDITIONER UNIT (W/DX OR CHILL. WTR COILS) ABOVE FINISHED FLOOR AIR HANDLING UNIT ALTITUDE ACCESS PANEL ACCESS DOOR AUTOMATIC TEMPERATURE CONTROL AUTOMATIC AUXILIARY AVERAGE AUTOMATIC AIR RELEASE VENT
<b>B</b>	B TO B BHP BOT BTU BBD BBH	BACK TO BACK BRAKE HORSEPOWER BOTTOM BRITISH THERMAL UNIT BACK DRAFT SELF ACTING DAMPER BASE BOARD HEATER
<b>C</b>	C TO C COW CENT CFM CGP CHIL CL CLG CLR COL CTR CV CW	CENTER TO CENTER COUNTER CLOCKWISE CENTRIFUGAL CUBIC FEET PER MINUTE CHILLED WTR GLYCOL PUMP CHILLER (WTR OR AIR COOLED) CENTER LINE CEILING CLEAR COLUMN CENTER VALVE FLOW COEFFICIENT CLOCKWISE
<b>D</b>	D DG DB DIA DISCH DN DWG DX DD	TO DRAIN (NEAREST) DOOR GRILLE DRY BULB DIAMETER DISCHARGE DOWN DRAWING DIRECT EXPANSION COIL DOUBLE DEFLECTION
<b>E</b>	EUH EA EAF ENT ELEC ELEV EMERG EVH EXP	ELECTRIC UNIT HEATER EACH EXHAUST AIR FAN ENTERING ELECTRICAL ELEVATION EMERGENCY EXHAUST EXPANSION/COMPRESSION TANK
<b>F</b>	F FBV FC FD FG FLR FLG FOB FOT FPM FD FS FTR GPM	FARENHEIT FLOW BALANCE & SHUTOFF VALVE FLEX CONNECTION FIRE DAMPER FLOOR GRILLE FLOOR FLANGE FLAT ON BOTTOM FLAT ON TOP FEET PER MINUTE FIRE DAMPER FLOW SENSOR FIN-TUBE RADIATION GALLONS PER MINUTE
<b>H</b>	H-O-A HP H&V HVAC HZ	HAND-OFF-AUTO HORSEPOWER HEATING AND VENTILATING HEATING, VENTILATING AND AIR CONDITIONING HERTZ
<b>I</b>	ID INS INSTR	INSIDE DIAMETER INSULATE, INSULATION INSTRUMENT(ATION)
<b>L</b>	LAT LWT LVG	LEAVING AIR TEMPERATURE LEAVING WATER TEMPERATURE LEAVING

<b>M</b>	MBH MATL MAX MCC MECH MFR MIN MISC MTD	MOTOR THOUSAND BTU PER HOUR MATERIAL MAXIMUM MOTOR CONTROL CENTER MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MOUNTED
<b>N</b>	NC NO NOM NPT NTS	NORMALLY CLOSED NORMALLY OPEN NOMINAL AMERICAN NATIONAL TAPER PIPE THREAD NOT TO SCALE
<b>O</b>	OA OC OD OPP	OUTSIDE AIR ON CENTER OUTSIDE DIAMETER OPPOSITE
<b>P</b>	PSI PSIA PSIG	POUNDS PER SQUARE IN PSI ABSOLUTE PSI GAUGE
<b>R</b>	RA RAF REG RH RPM RED	RETURN AIR RETURN AIR FAN REGISTER RELATIVE HUMIDITY REVOLUTIONS PER MINUTE REDUCER
<b>S</b>	SA SAF SCH SP SPEC SS	SUPPLY AIR SUPPLY AIR FAN SCHEDULE STATIC PRESSURE SPECIFICATION STAINLESS STEEL
<b>T</b>	TAF TD TEMP TOS TXV	TRANSFER AIR FAN TEMPERATURE DIFFERENCE TEMPERATURE TOP OF STEEL THERMAL EXPANSION VALVE
<b>U</b>	UH UL	HEAT TRANSFER COEFFICIENT UNIT HEATER UNDERWRITERS LABORATORY
<b>V</b>	V VAV VEL	VOLTS VARIABLE AIR VOLUME VELOCITY
<b>W</b>	W/ W/O WB WG WAC	WITH WITHOUT WET BULB WALL GRILLE WALL MTD. AIR CONDITIONER

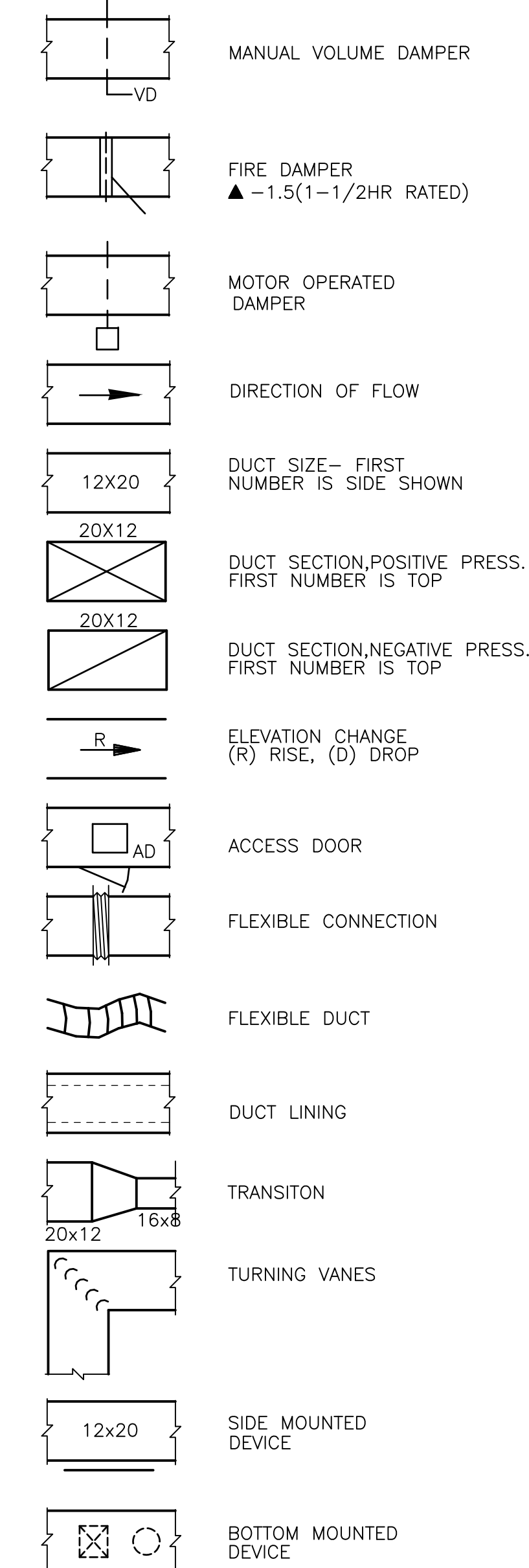
**SYMBOLS VALVES**



**SYMBOLS PIPE FITTINGS**



**SYMBOLS DUCTWORK**



**GENERAL NOTES:**

- HVAC EQUIPMENT DIMENSIONS, LOCATIONS, DUCTWORK AND PIPING SYSTEM LAYOUTS ARE BASED ON EQUIPMENT SELECTED BY THE ENGINEER. IF THE CONTRACTOR PROPOSES TO FURNISH EQUIPMENT THAT REQUIRES AN ARRANGEMENT OR SPACE DIFFERING FROM THAT INDICATED ON THE DRAWINGS OR SPECIFIED, THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER FOR APPROVAL, DETAILED ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, INSTRUMENTATION, HVAC AND ELECTRICAL DRAWINGS AND EQUIPMENT LISTS SHOWING ALL NECESSARY CHANGES AND EMBODYING ALL FEATURES OF THE EQUIPMENT HE PROPOSES TO FURNISH. THIS INFORMATION SHALL INCLUDE BUT NOT BE LIMITED TO PLANS, SECTIONS, DETAILS, AND SCHEMATICS OF ALL APPURTENANCES REQUIRED. SUCH CHANGES IF APPROVED BY THE ENGINEER SHALL BE AT NO EXTRA COST TO THE OWNER. THE CONTRACTOR SHALL ASSUME THE COST OF, AND THE RESPONSIBILITY FOR SATISFACTORILY ACCOMPLISHING ALL THE NECESSARY CHANGES CORRESPONDING TO THE DIMENSIONS AND CHARACTERISTICS OF THE EQUIPMENT SUBMITTED AND APPROVED BY THE ENGINEER. REFER TO SPECIFICATIONS FOR FURTHER DETAILS.
- SIZES OF EQUIPMENT PADS INDICATED ON THE DRAWINGS ARE APPROXIMATE. EXACT DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FOR THE EQUIPMENT FURNISHED. ALL FLOOR MOUNTED EQUIPMENT SHALL BE SET ON CONCRETE PADS CONFORMING TO DETAILS SHOWN ON THE STRUCTURAL DRAWINGS.
- DIELECTRIC COUPLINGS, FLANGES OR UNIONS SHALL BE INSTALLED AT ALL CONNECTIONS OF COPPER PIPE TO OTHER TYPES OF METALLIC PIPING.
- HVAC PIPING AND DUCTWORK DRAWINGS DO NOT SHOW ALL DRAINS, VENTS, OFFSETS AND FITTINGS etc. REQUIRED FOR THE COMPLETE SYSTEM SMALL PIPING IS SHOWN APPROXIMATELY TO SCALE BUT NOT EVERY FITTING AND OFFSET IS SHOWN. SOME VALVES AND APPURTENANCES MAY BE OMITTED FOR THE SAKE OF CLARITY. THE CONTRACTOR SHALL FURNISH, INSTALL AND TEST ALL HVAC SYSTEMS SHOWN ON THE DRAWINGS AND DETAILS, AND/OR AS DEFINED IN THE SPECIFICATIONS TO PROVIDE THE COMPLETE SYSTEM.
- UNLESS OTHERWISE SHOWN ON THE DRAWING ALL FLOOR SLAB AND WALL PENETRATIONS SHALL BE AS SHOWN ON THE WALL PENETRATION DETAILS ABOVE GROUND EXTERIOR WALL AND ROOF PENETRATIONS SHALL BE AS SHOWN ON THE ARCHITECTURAL DRAWINGS. IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY SUBSTITUTE ALTERNATE METHODS PROVIDING THEY MEET INTENDED DESIGN REQUIREMENTS.
- NOT ALL AND ONLY CERTAIN TYPES OF SUPPORTS ARE SHOWN ON THE HVAC DRAWINGS. UNLESS OTHERWISE DETAILED ON THE DRAWINGS ALL PIPE AND DUCT SUPPORTS SHALL BE DESIGNED, FURNISHED AND INSTALLED BY THE CONTRACTOR AS SPECIFIED AND TO THE APPROVAL OF THE ENGINEER.

NOTE: THIS IS A GENERAL LIST OF SYMBOLS AND ABBREVIATIONS. NOT ALL ITEMS SHOWN HERE APPEAR ON THE CONTRACT DRAWINGS.

**BUILDING EQUIPMENT DESIGNATION**  
 HW=HEADWORKS  
 PT=PRIMARY SETTLING TANK  
 DF=DISINFECTION FACILITY  
 ST=SLUDGE HOLDING TANKS  
 SP=SLUDGE BUILDING

**EQUIPMENT TAG**  
 HW-AHU-3  
 ————— EQUIPMENT NO.  
 ————— EQUIPMENT TYPE  
 ————— BUILDING LOCATION

**PIPE MATERIAL CODES**

CU	COPPER
FRP	FIBER REINFORCED PLASTIC
GS	GALVANIZED STEEL
PVC	POLYVINYL CHLORIDE
STL	BLACK STEEL

**FLOW STREAM CODE**

D	DRAIN
RS	REFRIGERANT SUPPLY
RL	REFRIGERANT LIQUID
RG	REFRIGERANT-HOT GAS
HGS	HOT GLYCOL SUPPLY
HGR	HOT GLYCOL RETURN

**REGISTERS GRILLES AND DIFFUSERS**

EAG	EXHAUST GRILLE
EAR	EXHAUST REGISTER
RAG	RETURN GRILLE
RAR	RETURN REGISTER
SAD	SUPPLY DIFFUSER
SAG	SUPPLY GRILLE
SAR	SUPPLY REGISTER
TAG	TRANSFER GRILLE
WAG	WALL GRILLE

**TYPICAL TAG**

TYPE OF DEVICE	SIZE	CAPACITY
EG	20X20	400CFM

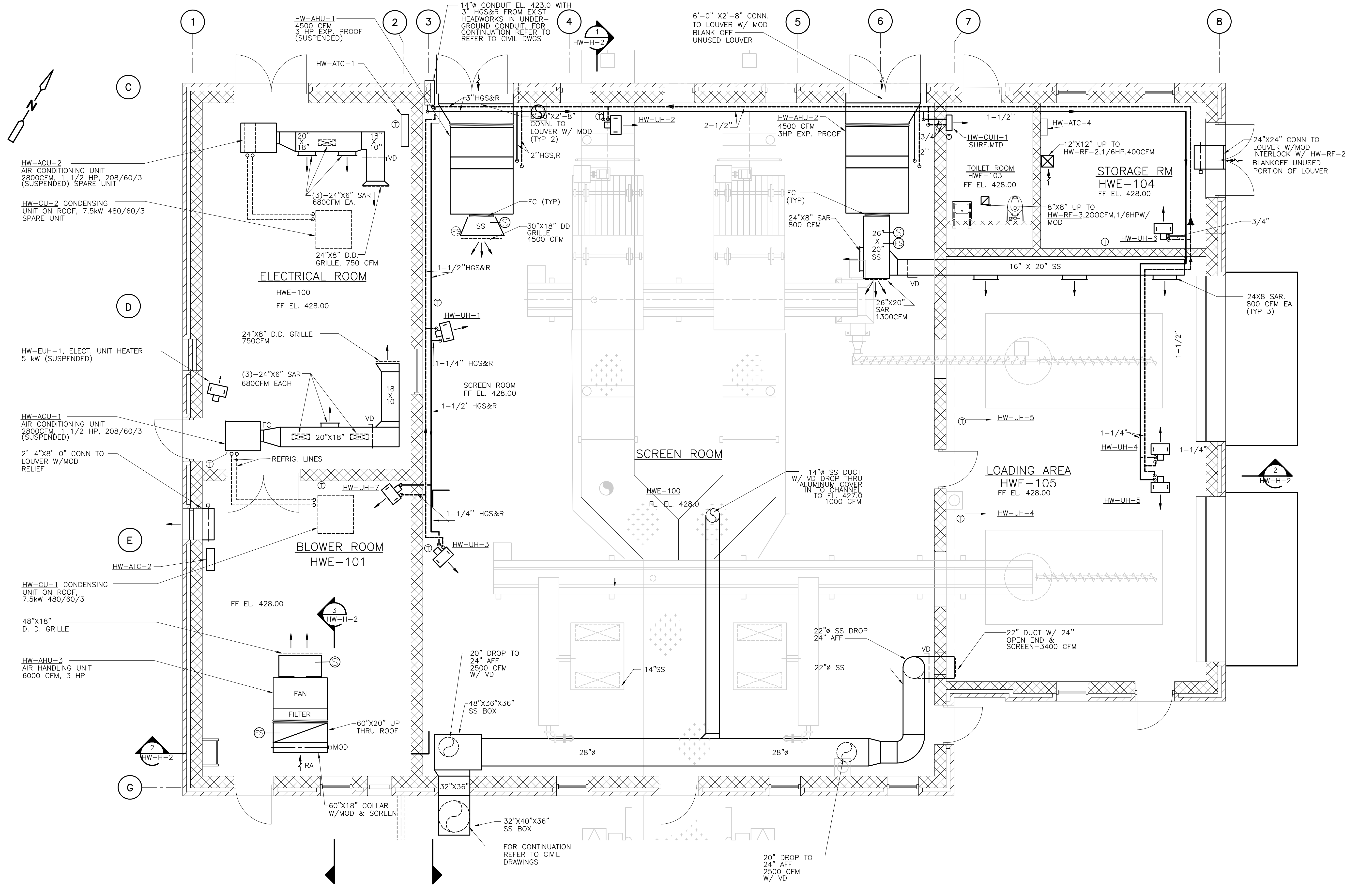
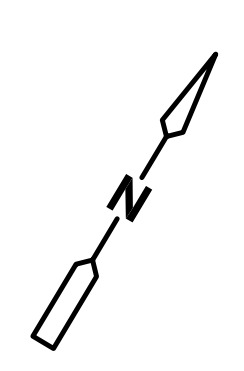
RECORD DRAWING

Progress Plot  
Dec 16, 2008 - 6:27pm

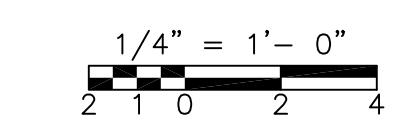
<p>CDM Camp Dresser &amp; McKee Inc. consulting engineering construction operations</p>				<p>UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024</p>				<p>PROJECT NO. 1289\35370</p>			
<p>DESIGNED BY: J. JACOB DRAWN BY: K. RADEMACHER SHEET CHECKED BY: A. RAYCHAUDHURI SCALE: NTS APPROVED BY: A. CHIUCCHIELLO DATE: MAY 2006</p>				<p>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</p>				<p>HVAC LEGEND/SYMBOLS/ABBREVIATIONS</p>			
<p>NO REVISION REQUIRED FOR THE RECORD</p>				<p>GD-H-1</p>				<p>Sht. 208 of 386</p>			
REV. NO.	DATE	DRWN	CHKD	REMARKS							



UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
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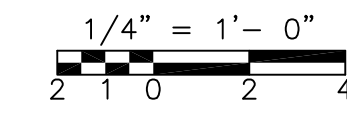
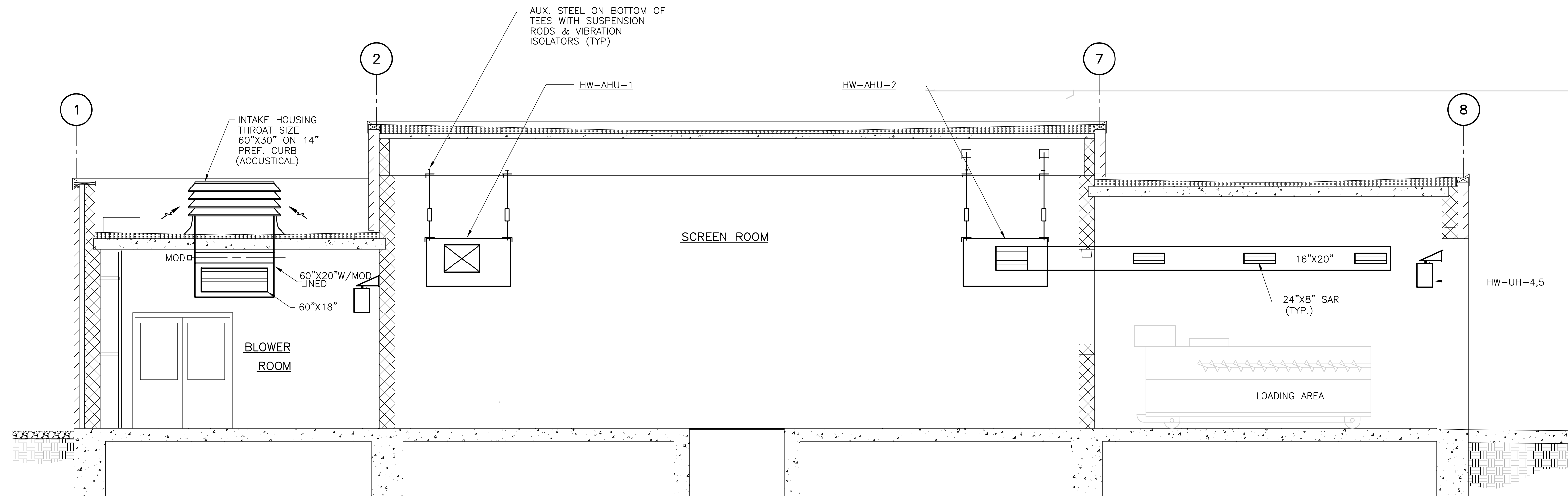
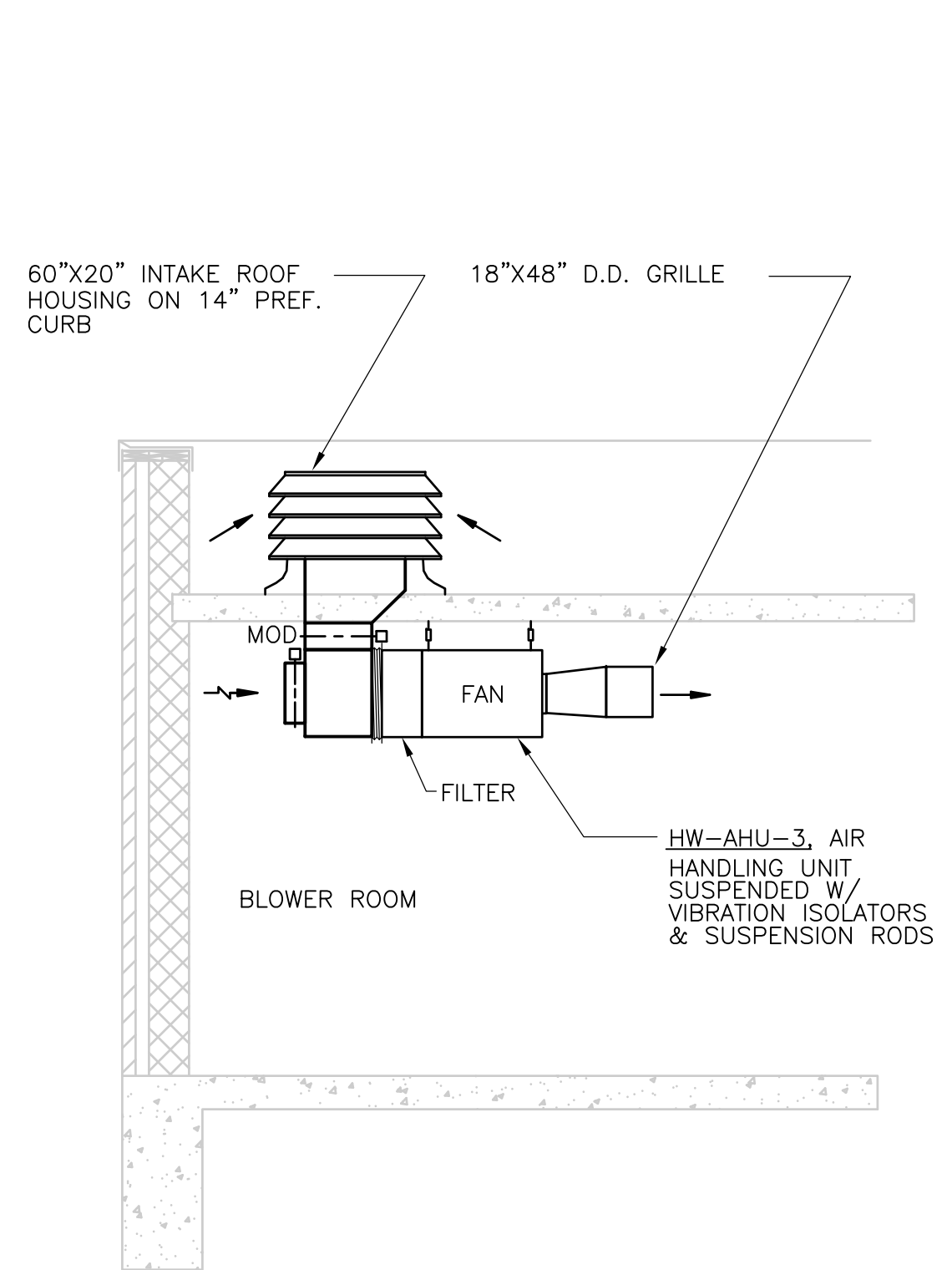
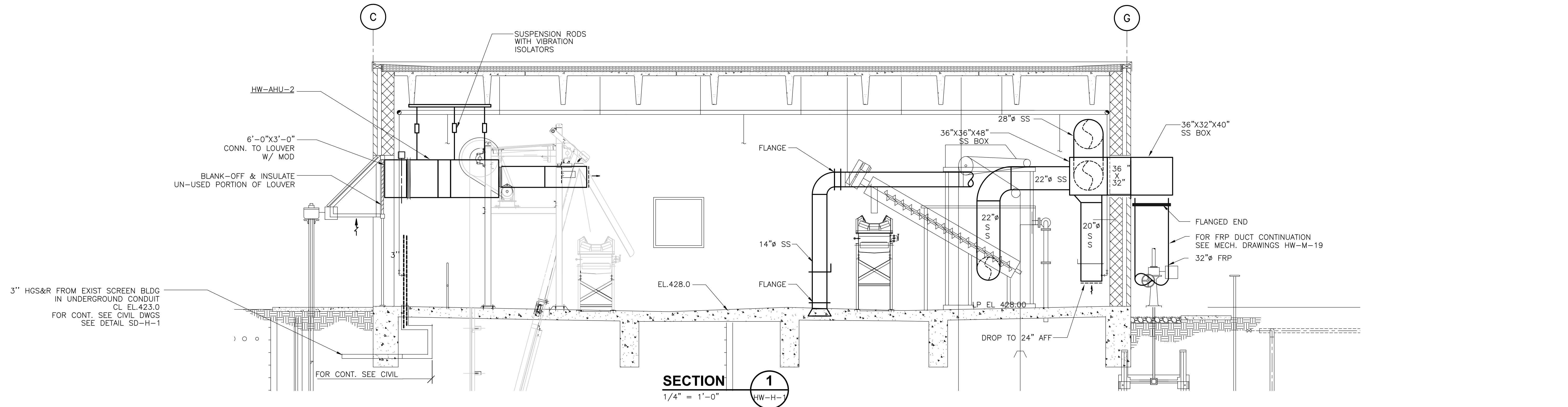
GRIT AND SCREENING FACILITY  
**PLAN**  
 1/4" = 1'-0"



RECORD DRAWING

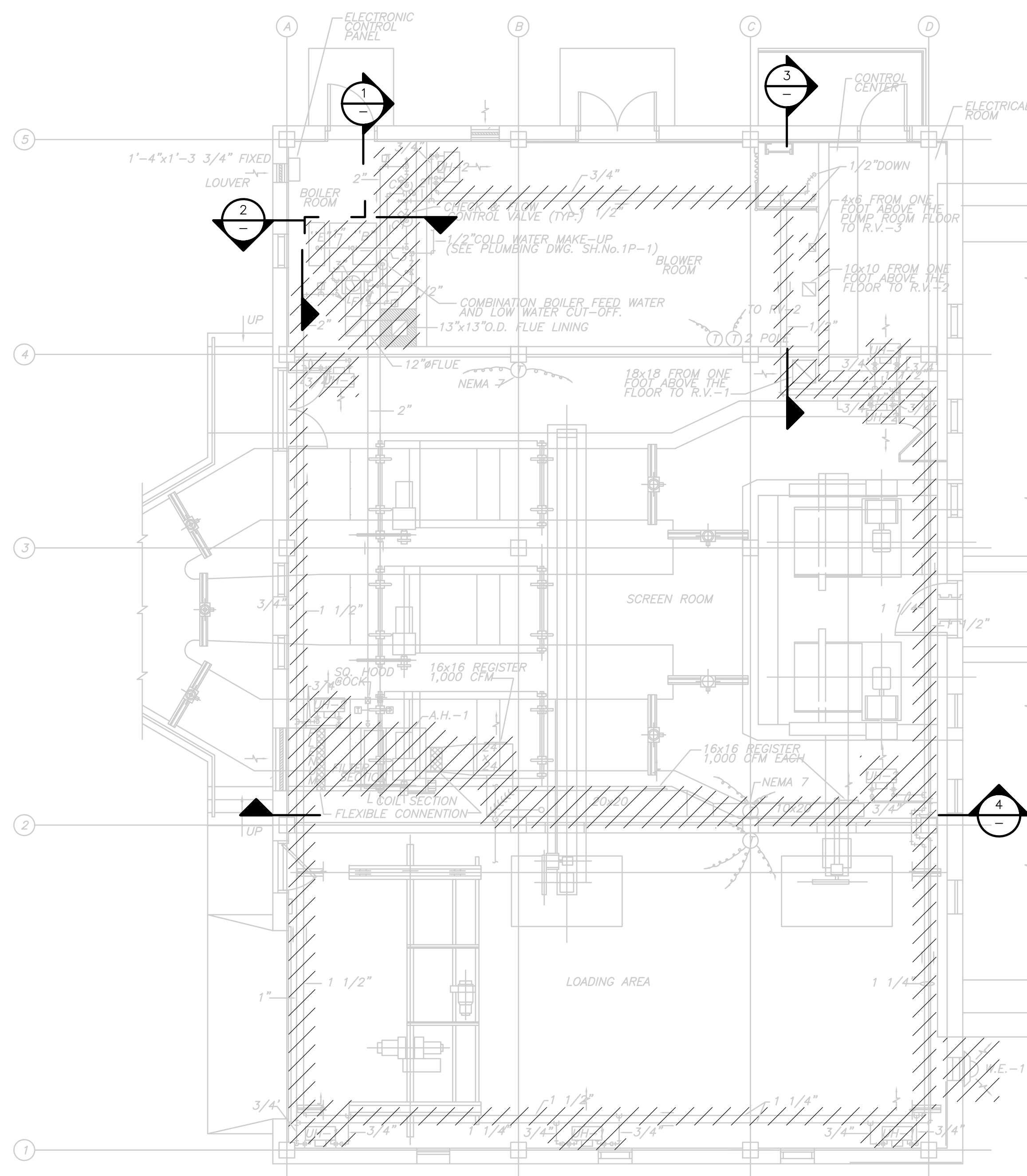
				CADD FILE NO. HGRPL001			UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024	EAST GRIT AND SCREENING FACILITY-- <b>FLOOR PLAN</b>	PROJECT NO. 1289\35370
				DESIGNED BY: A. CHIUCCARIELLO					Sht. 209 of 386
				DRAWN BY: K. RADEMACHER					HW-H-1
				SHEET CHK'D BY: A. RAYCHAUDHURI					
				SCALE: 1/4" = 1'-0"					
				APPROVED BY: A. CHIUCCARIELLO					
				DATE: MAY 2006					
REV. NO.	DATE	DRWN	CHKD	REMARKS					
	10/07	JAL	ADT	REVISED FOR THE RECORD					

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File name: P:\1289\35370\PHASE I\RECORD\HWAC\HGRSC002.dwg Xref to: [C24X36H, AGRW5003, MGRW5001, ] Plotted by: CROSSHA Time: 12/16/08 6:28:01 PM



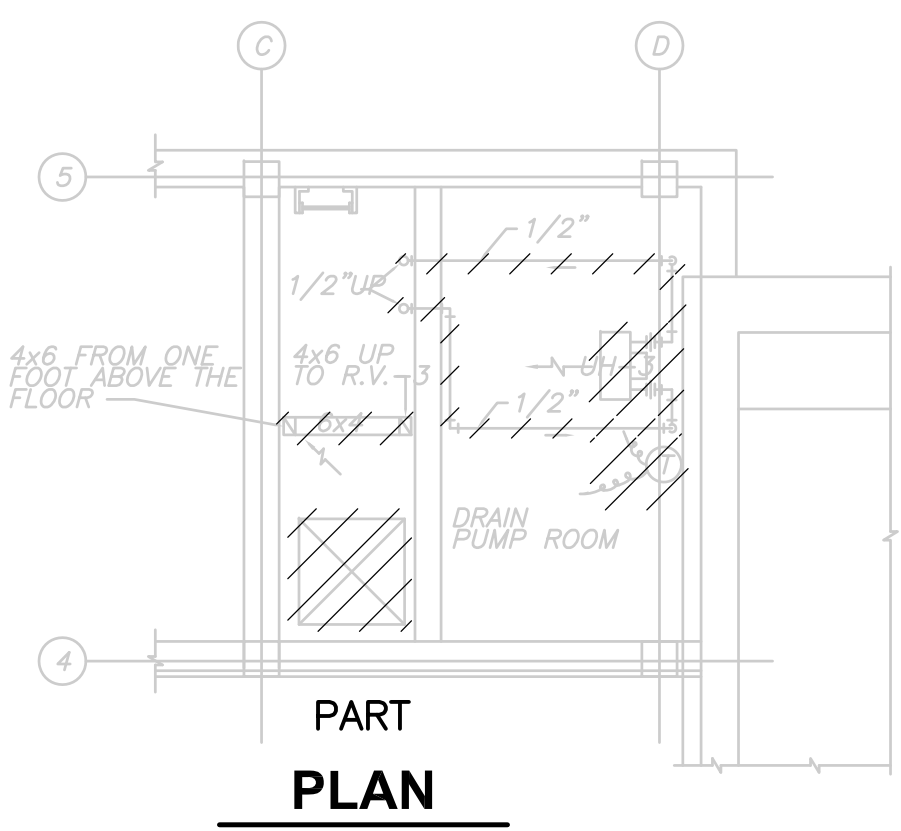
RECORD DRAWING

				CADD FILE NO.: MGRSC002		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024	<b>EAST GRIT AND SCREENING FACILITIES</b>  <b>SECTIONS</b>	PROJECT NO. 1289\35370		
				DESIGNED BY: A. CHIUCCIARIELLO				<b>WASTEWATER TREATMENT FACILITY</b> <b>IMPROVEMENTS</b>	<b>HW-H-2</b>	Sht. 210 of 386
				DRAWN BY: K. RADEMACHER						ACCESSION NO. 1289-65810
				SHEET CHK'D BY: A.R. SCALE: 1/4" = 1'-0"						
REV. NO.	DATE	DRWN	CHKD	REMARKS	APPROVED BY: A. CHIUCCIARIELLO DATE: MAY 2006					
10/07	JAL	ADT		REVISED FOR THE RECORD						

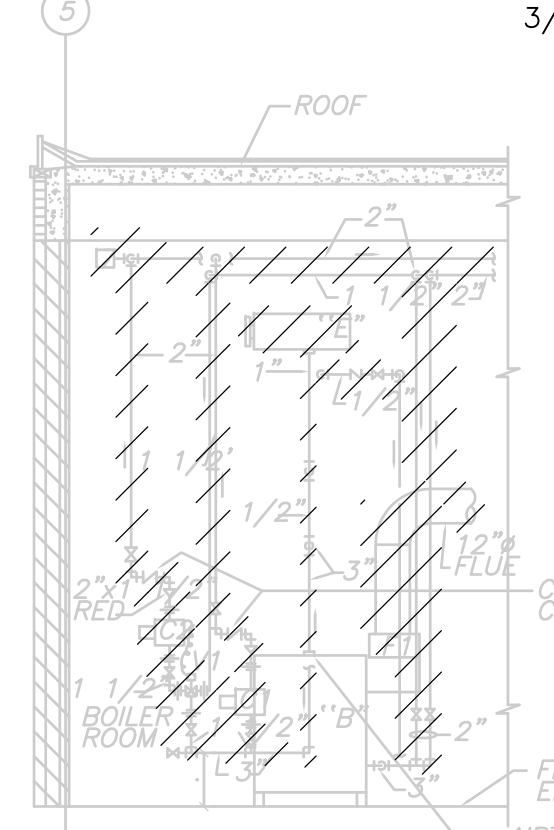


**FLOOR PLAN**  
**PLAN**  
 3/16" = 1'-0"

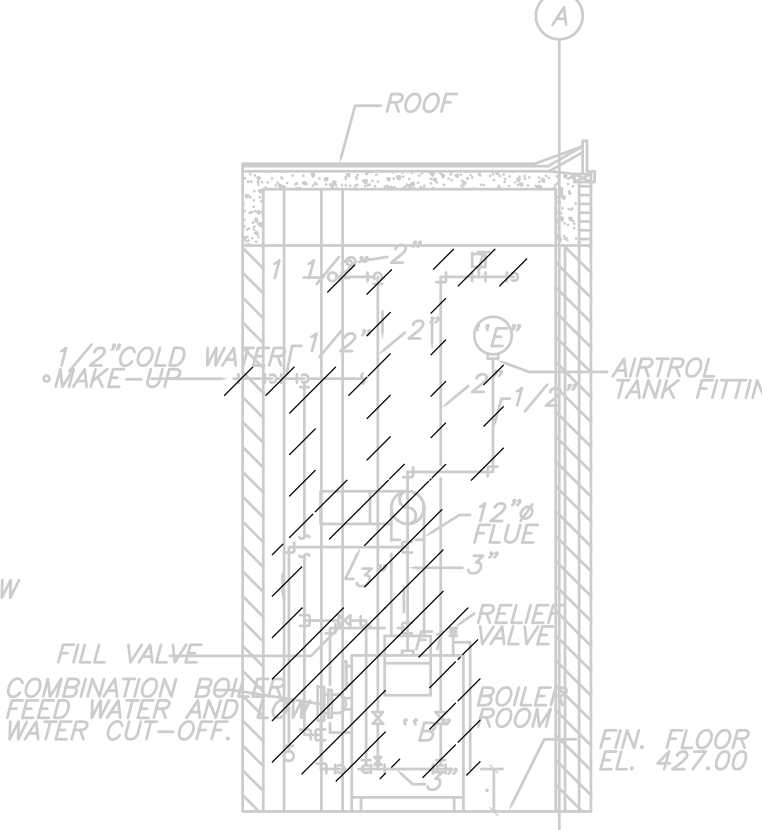
MR. HANDLING UNIT SCHEDULE (DRAW THRU)											
HEATING COIL						FAN SECTION					
MARK	TYPE	AB. NO.	CFM	CFM	MBH	CF	NO. ROWS	NO. ROWS	HP	HP	HP
UH-1	HEATING COIL	1	2,000	24.2	212	25	2	2	1.0	1.0	1.0
UH-2	HEATING COIL	2	2,000	24.2	212	25	2	2	1.0	1.0	1.0



**PART PLAN**  
 3/16" = 1'-0"



**SECTION 1**  
 3/16" = 1'-0"

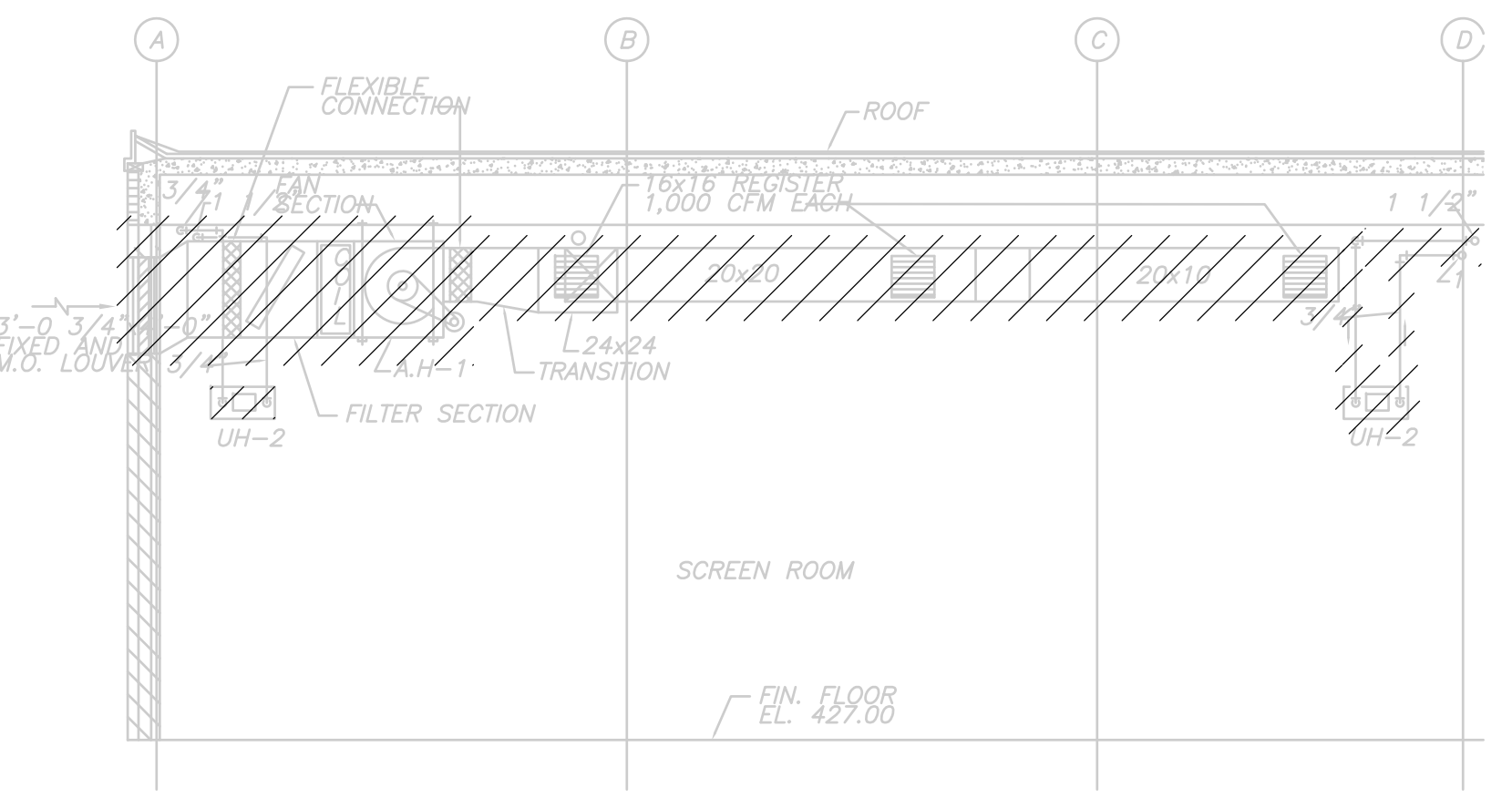


**SECTION 2**  
 3/16" = 1'-0"

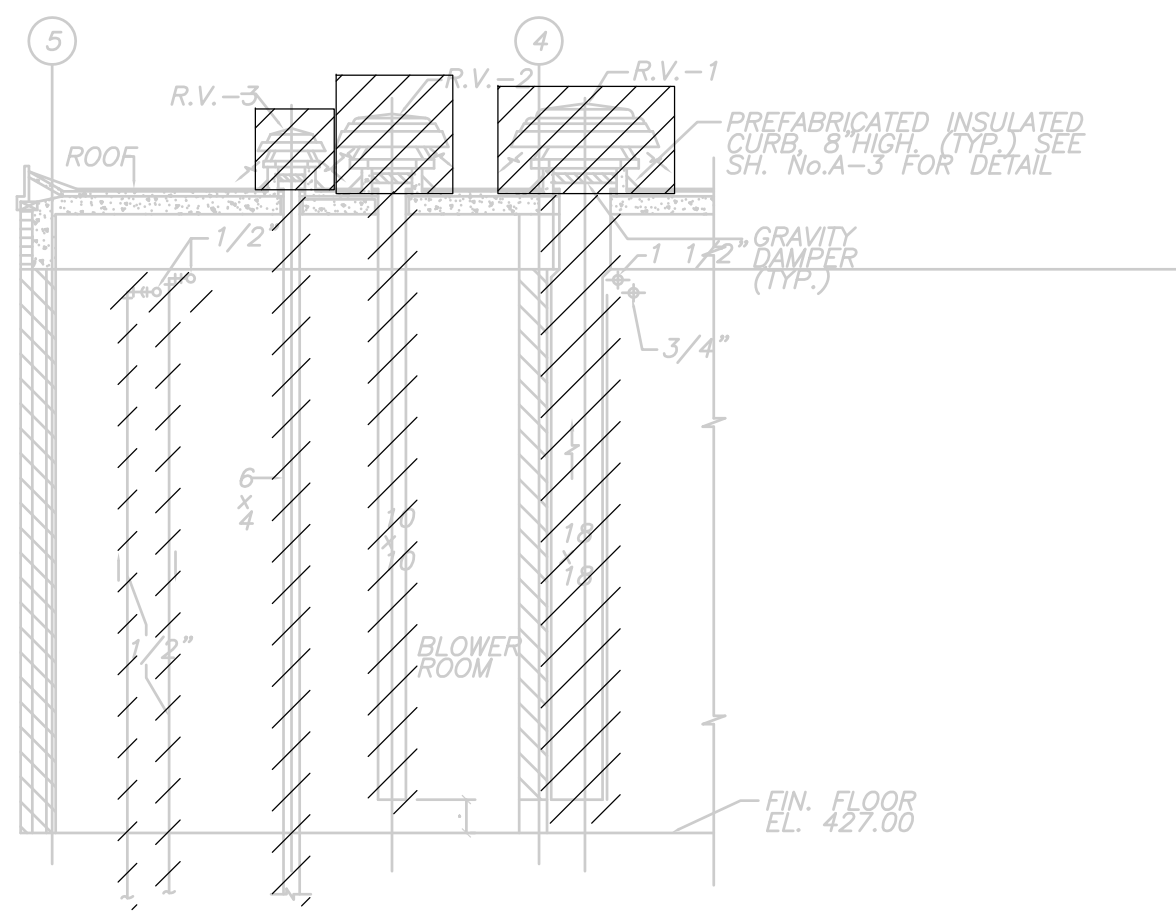
FAN HEATER SCHEDULE											
MARK	TYPE	NO.	TYPE	CAPAC. MBH	G.P.M.	R.P.M.	H.P.	HP	HP	HP	HP
UH-1	HEATER	1	HORIZONTAL	200	700	581	0.550	1.20	0.08		
UH-2	HEATER	2	HORIZONTAL	197	797	593	0.550	1.20	0.08		

ROOF VENTILATOR SCHEDULE											
MARK	TYPE	NO.	TYPE	CAPAC. CFM	R.P.M.	H.P.	HP	HP	HP	HP	HP
UH-1	VENTILATOR	1	ROOF	1,000	1,000	480	3	30	0.50		
UH-2	VENTILATOR	2	ROOF	1,000	1,000	480	3	30	0.50		

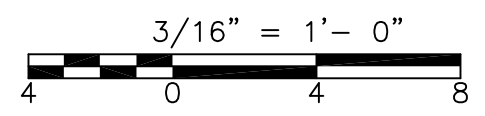
- EQUIPMENT SCHEDULE**
- B - GAS FIERE 1017 WATER BOILER, NET A.B.R. CAPACITY NOT LESS THAN 392.9 MBH.
  - E - EXPANSION TANK, CAPACITY 1/2 GAL/DIS-12 3/4"x33" LONG.
  - F1 - CIRCULATOR FOR UNIT WATER CIRCUIT, 180 GPM @ 8 FT. HEAD, 1/2 H.P., 120V, 1/2" DIA.
  - F2 - CIRCULATOR FOR A.H. UNIT, 212 GPM @ 78 FT. HEAD, 1/2 H.P., 110V, 1/2" DIA.
  - F3 - INSULATED PIPING, 1/2" DIA. (PUMPKO) INSTALLED AND WIRED BY H.V.A.C. CONTRACTOR FOR 1/2" DIA. SING. 1/2" DIA.
  - G - THERMOMETER 30°F TO 240°F.
  - H - 1 1/2" x 3" WATER MIXING VALVE.
  - I - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - J - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - K - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - L - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - M - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - N - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - O - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - P - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - Q - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - R - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - S - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - T - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - U - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - V - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - W - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - X - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - Y - 1/2" x 1/2" x 3" WATER MIXING VALVE.
  - Z - 1/2" x 1/2" x 3" WATER MIXING VALVE.



**SECTION 4**  
 3/16" = 1'-0"



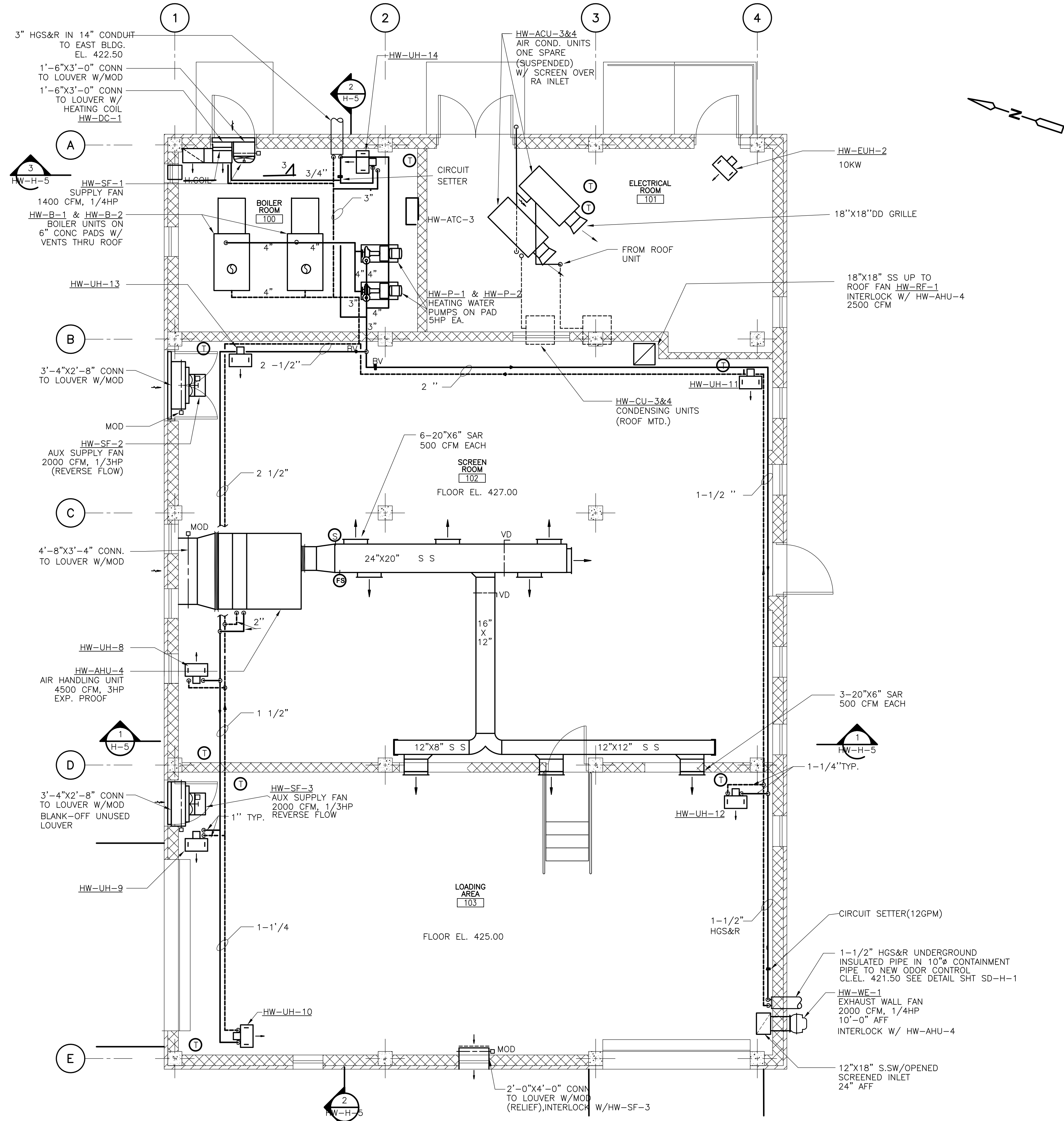
**SECTION 3**  
 3/16" = 1'-0"



RECORD DRAWING

CADD FILE NO. HGRDM001 DESIGNED BY: A. CHIUCCARIELLO DRAWN BY: K. RADEMACHER SHEET CHK'D BY: A.R. SCALE: AS NOTED APPROVED BY: A. CHIUCCARIELLO DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024 <b>WASTEWATER TREATMENT FACILITY                  IMPROVEMENTS</b>		PROJECT NO. 1289\35370 Sht. 211 of 386 <b>HW-H-3</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD					

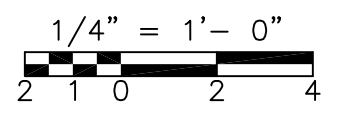
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FIRST FLOOR WEST GRIT AND SCREENING FACILITY

**PLAN**  
 1/4" = 1'-0"

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. HGRPL004  
 DESIGNED BY: A. CHIUCCARIELLO  
 DRAWN BY: K. RADEMACHER  
 SHEET CHK'D BY: A.R.  
 SCALE: 1/4"=1'-0"  
 APPROVED BY: A. CHIUCCARIELLO  
 DATE: MAY 2006

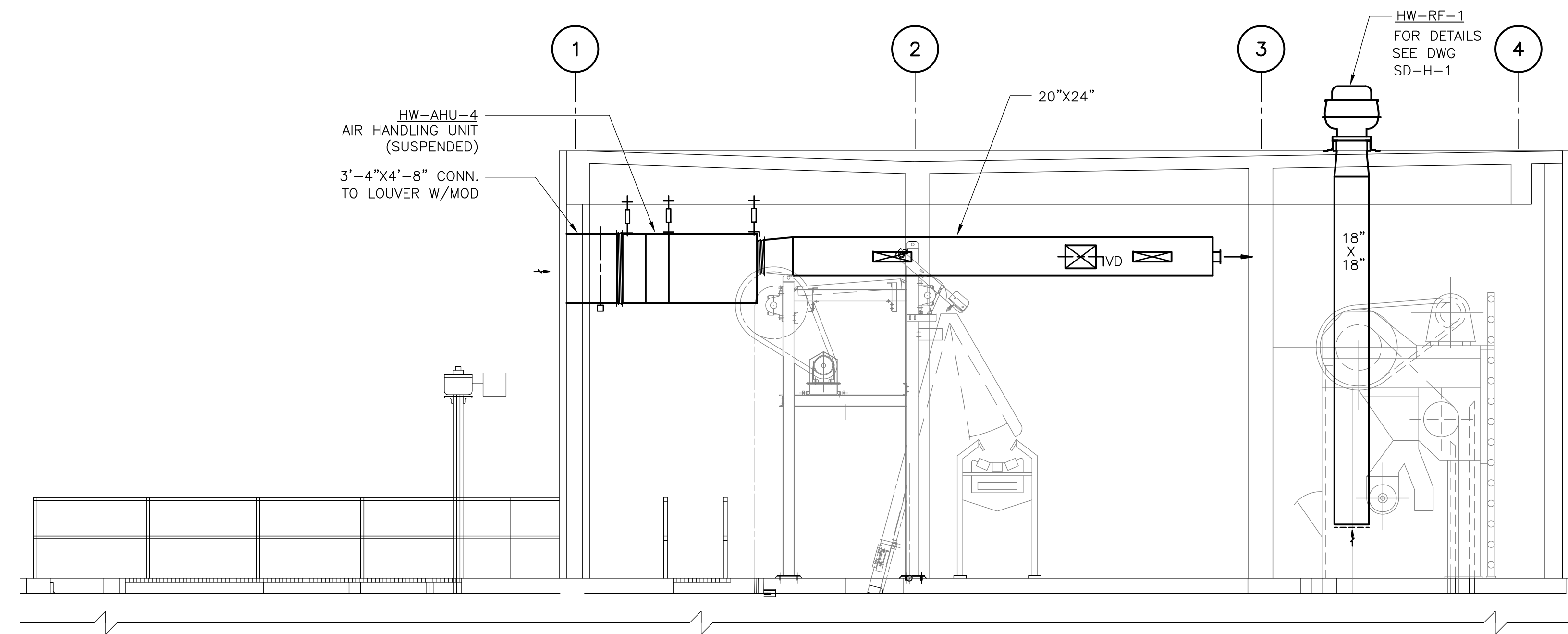


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

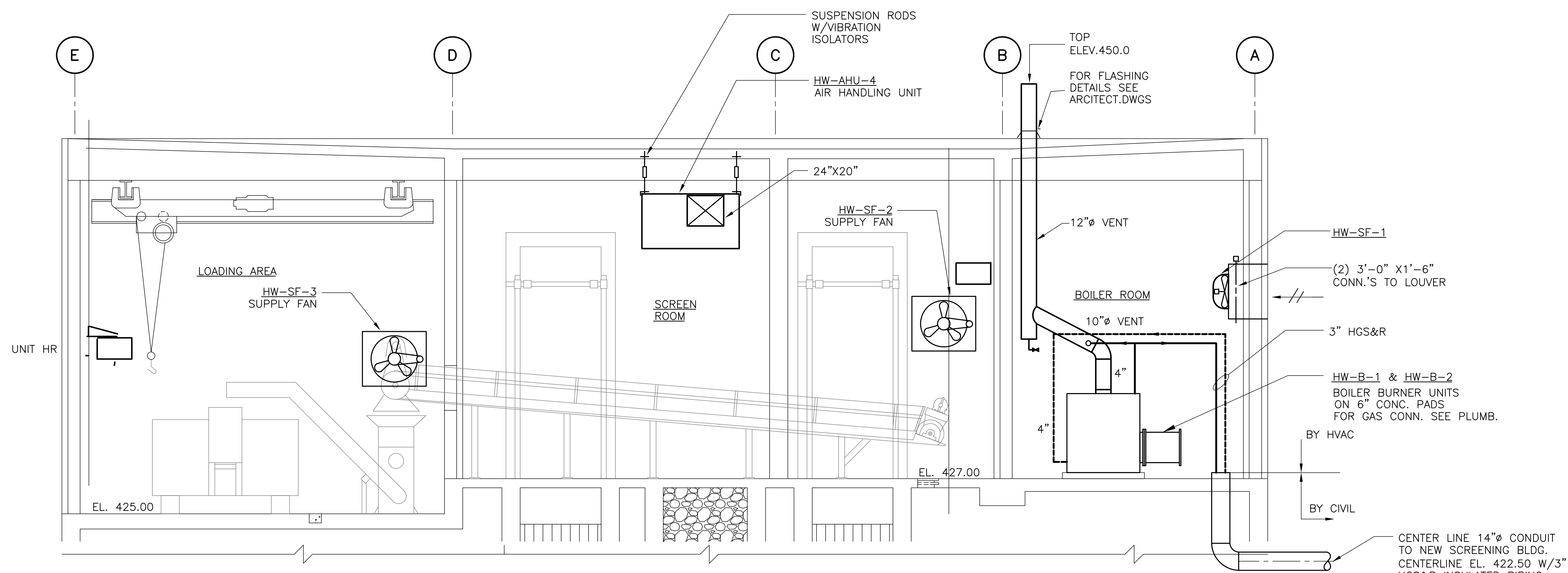
**WEST GRIT AND SCREENING FACILITY --  
 REVISED PLAN**

PROJECT NO.  
 1289\35370  
 Sht. 212 of 386  
**HW-H-4**  
ACCESSION NO. 1289-65812

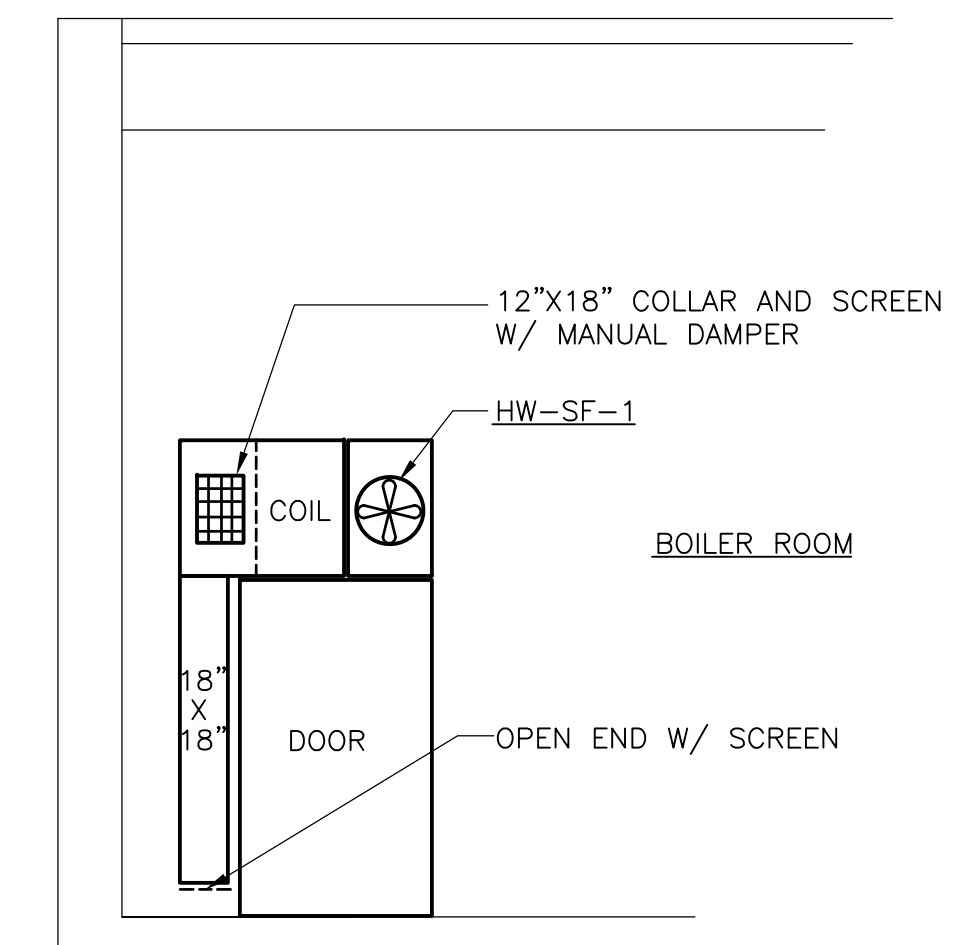
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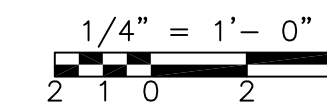
**SECTION 1**  
1/4" = 1'-0" WH-H-4



**SECTION 2**  
1/4" = 1'-0" WH-H-4



**SECTION 3**  
1/4" = 1'-0" WH-H-4



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/07	JAL	ADT	REVISED FOR THE RECORD

CADD FILE NO.	HGRSC014
DESIGNED BY	A. CHIUCCARIELLO
DRAWN BY	K. RADEMACHER
SHEET CHK'D BY	A. RAYCHAUDHURI
SCALE	1/4" = 1'-0"
APPROVED BY	A. CHIUCCARIELLO
DATE	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**WEST GRIT AND SCREENING FACILITY  
 SECTIONS**

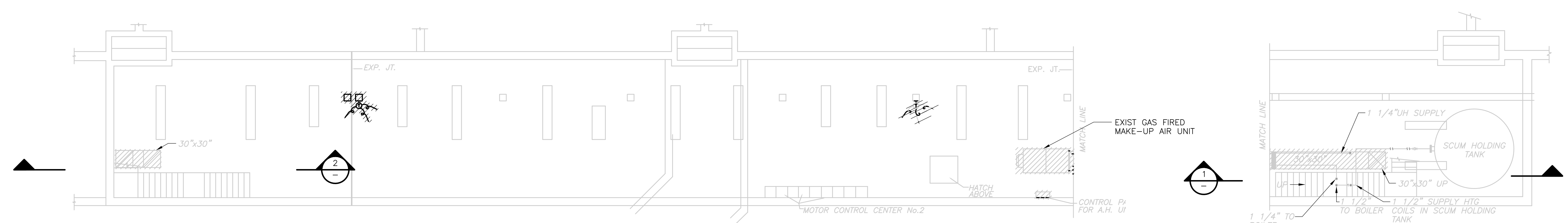
PROJECT NO.  
1289\35370

Sht. 213 of 386

**HW-H-5**

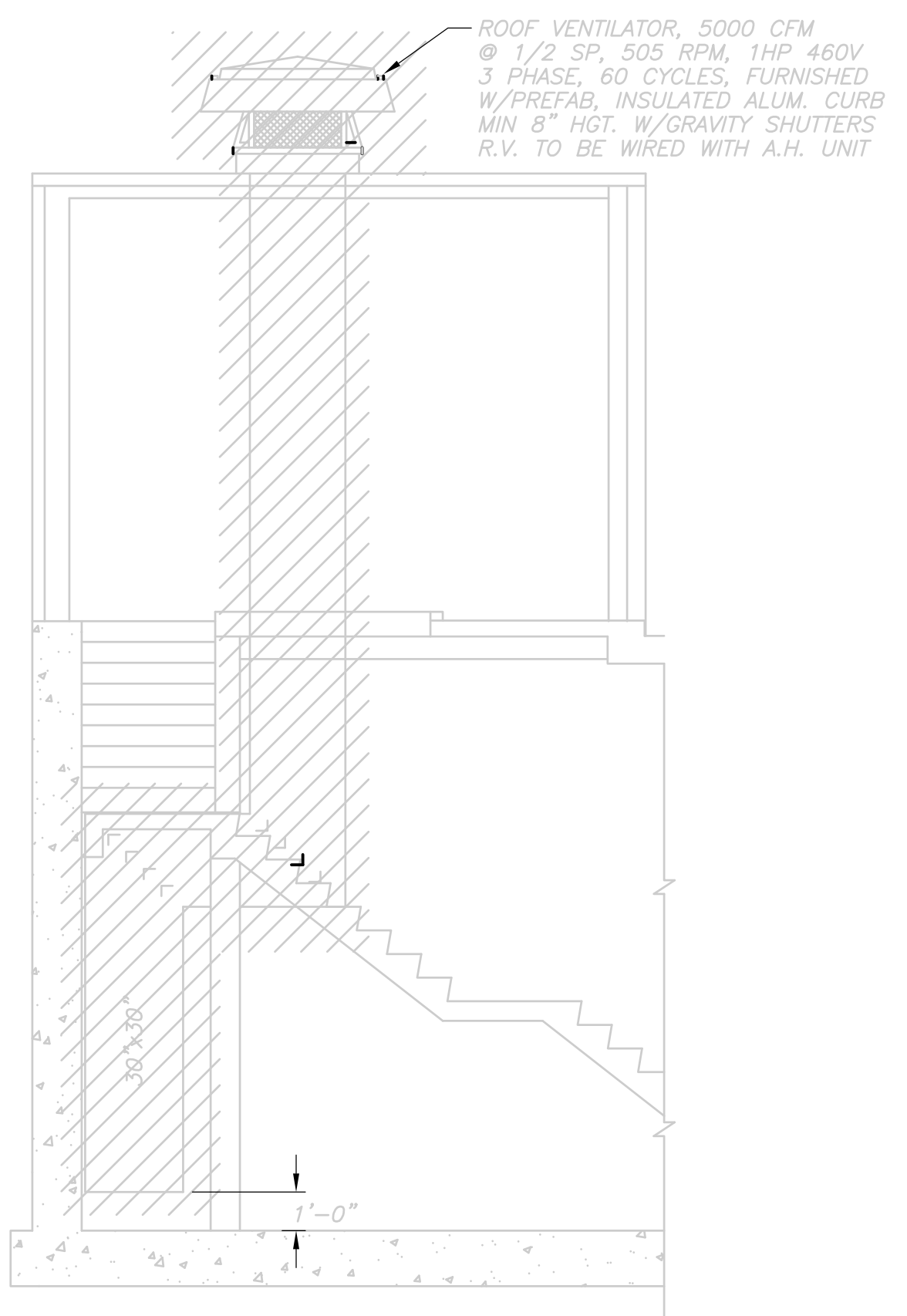
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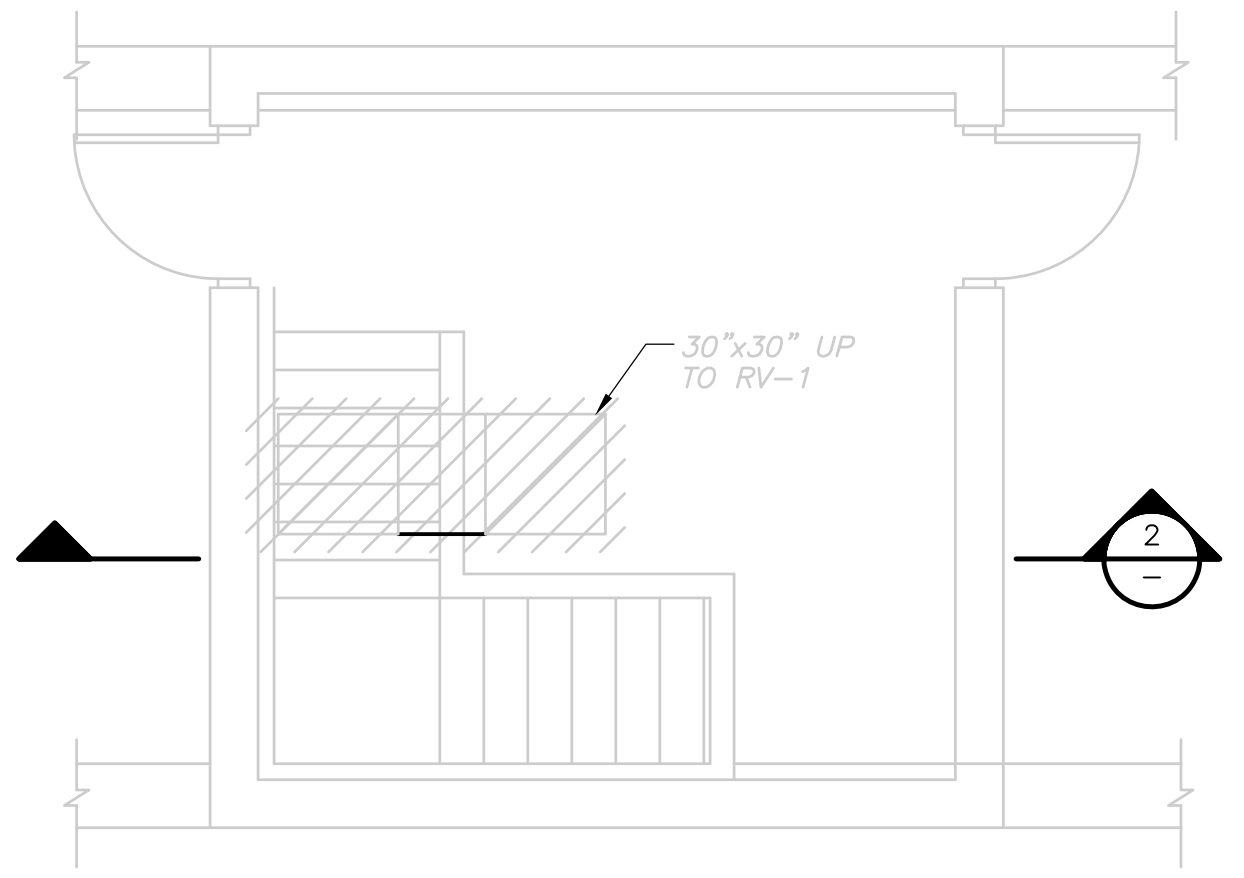


PIPE GALLERY  
**PLAN**  
 1/4" = 1'-0"

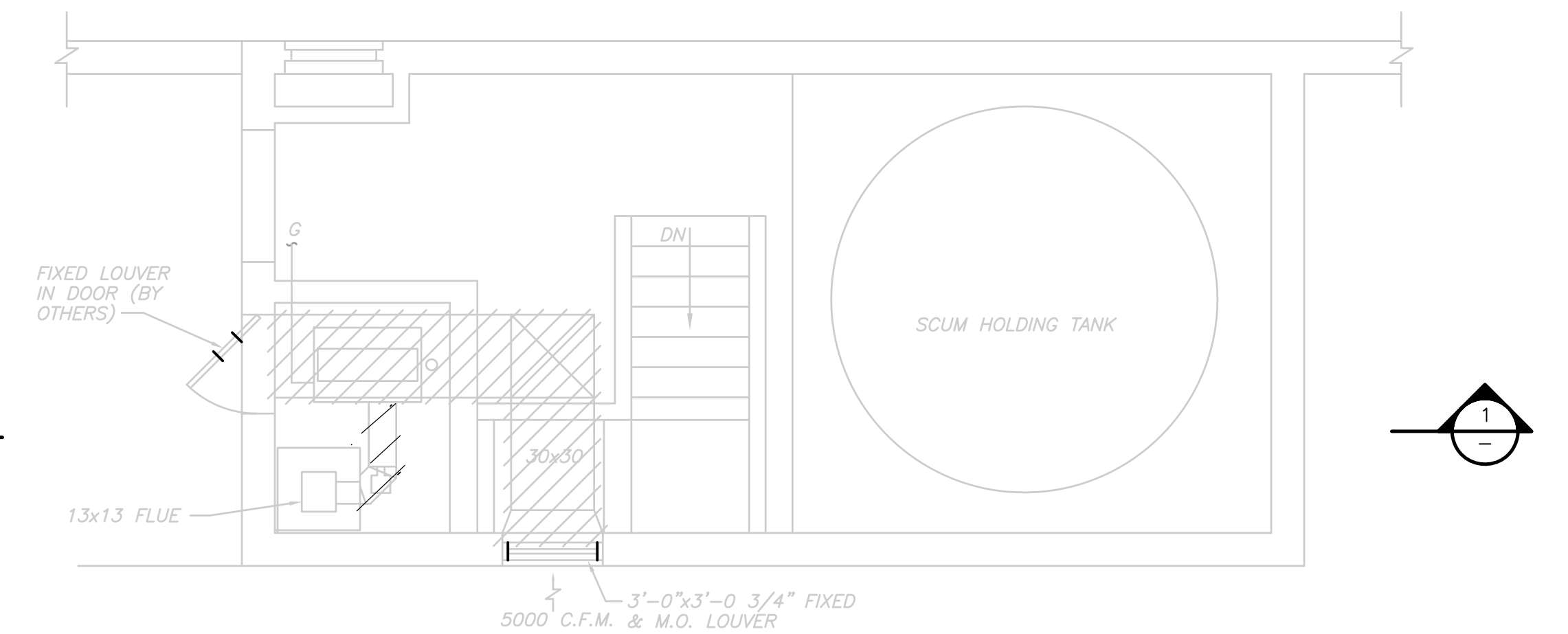
PIPE GALLERY  
**PLAN**  
 1/4" = 1'-0"



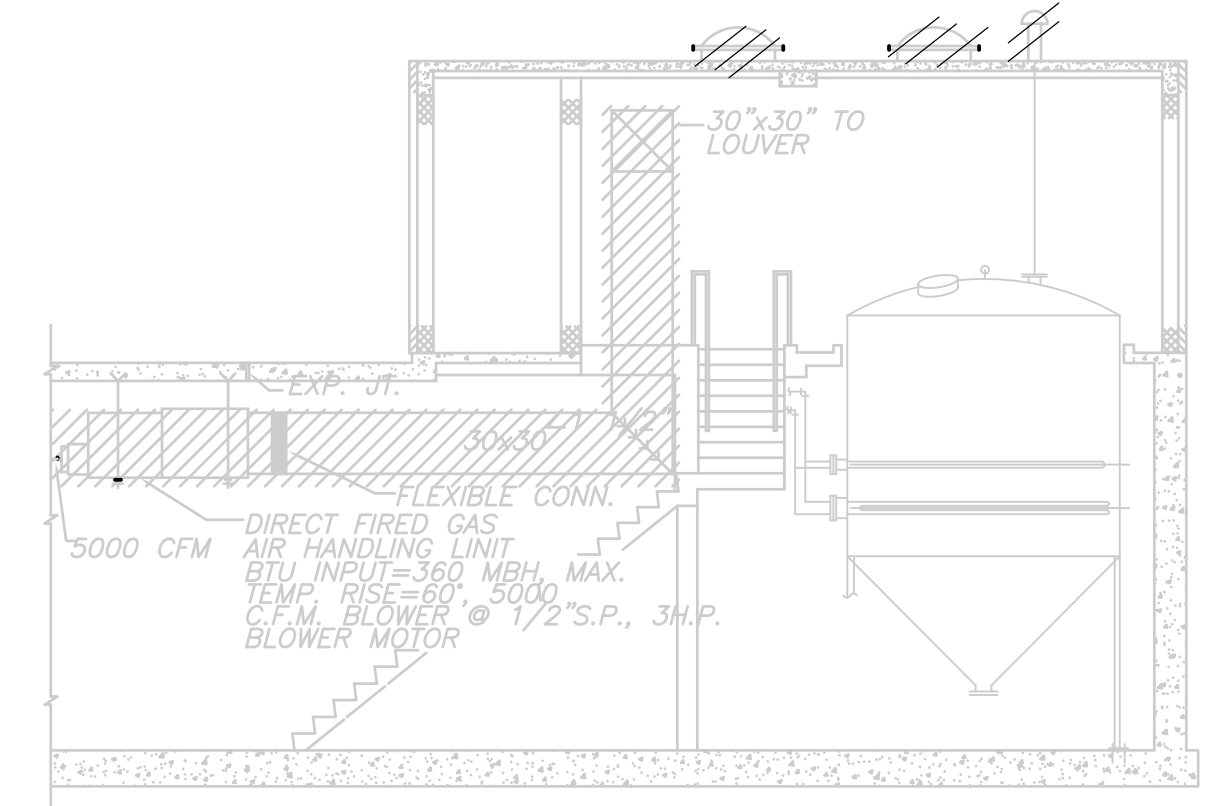
**SECTION 2**  
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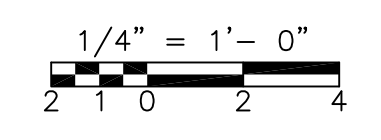
EXISTING NORTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"



EXISTING SOUTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"



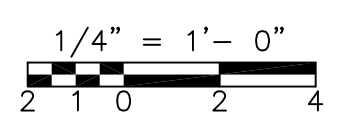
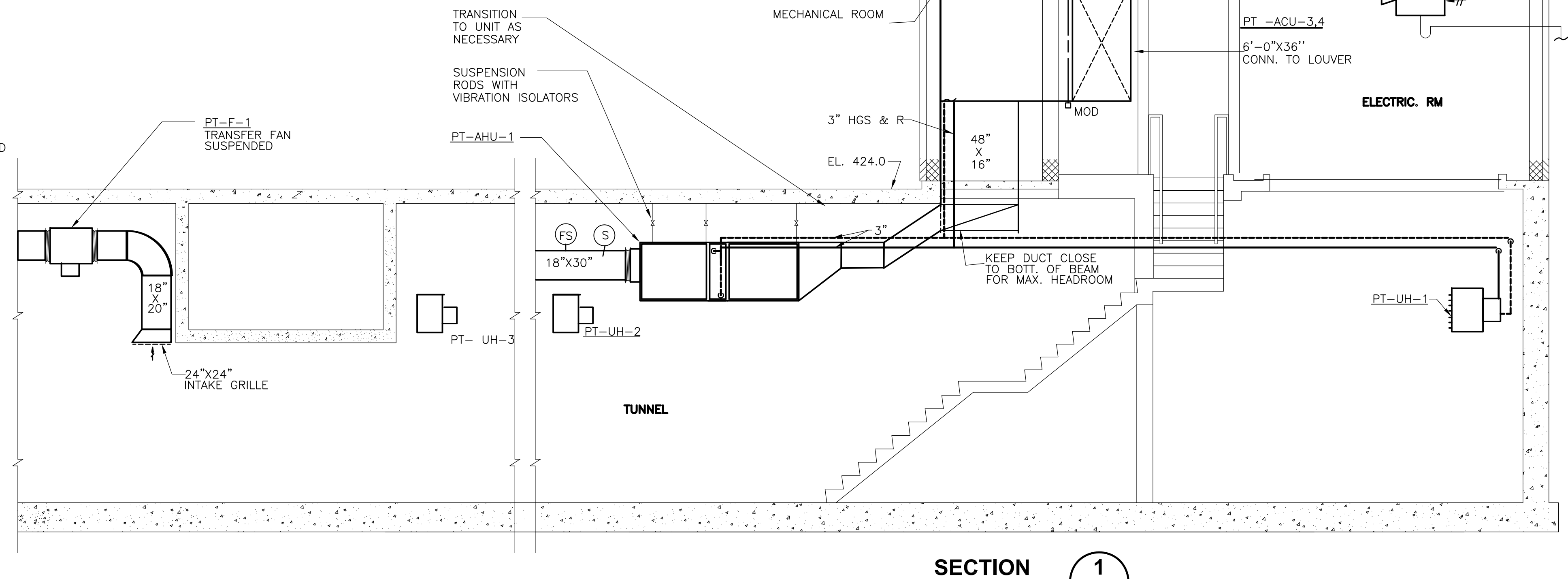
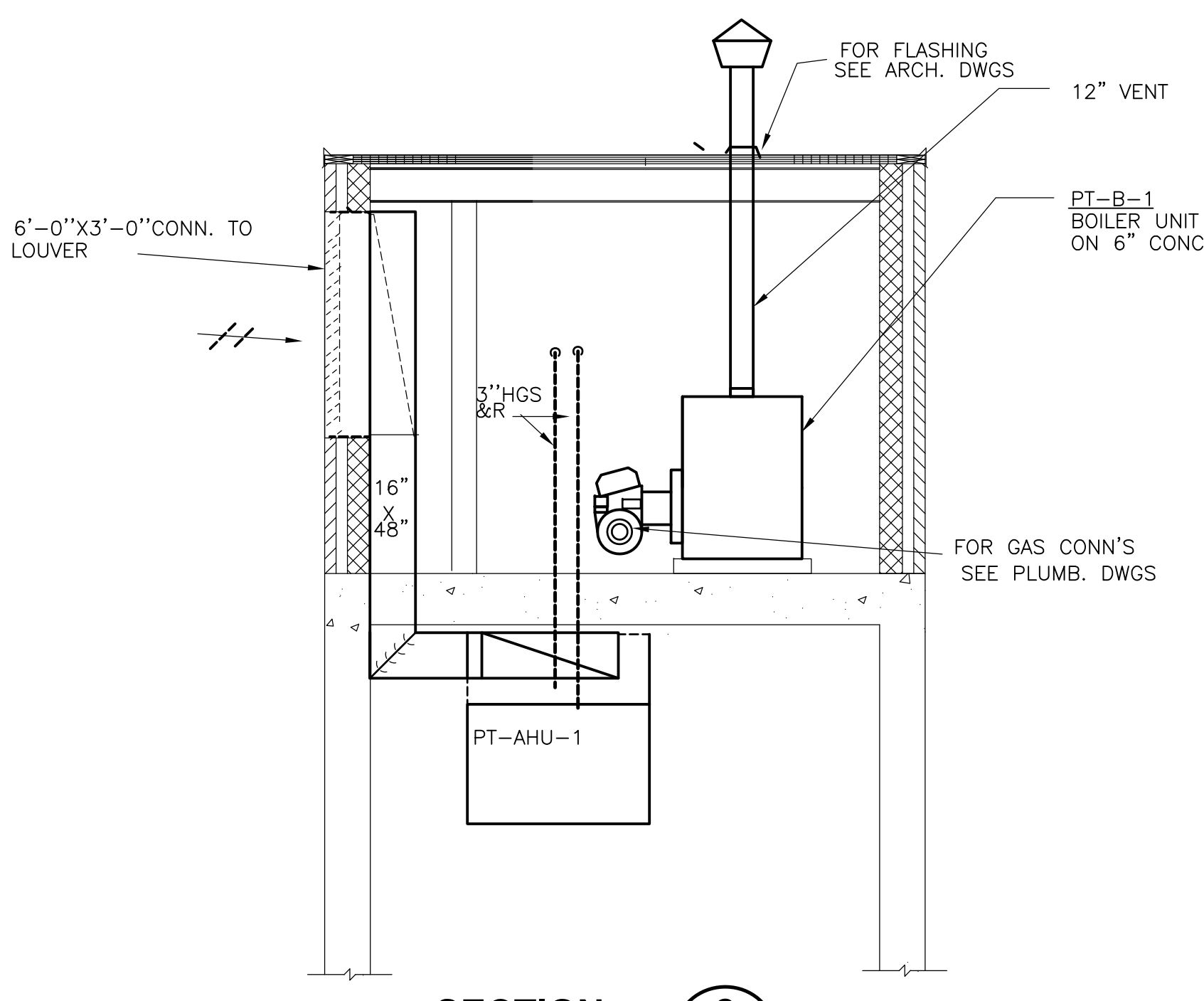
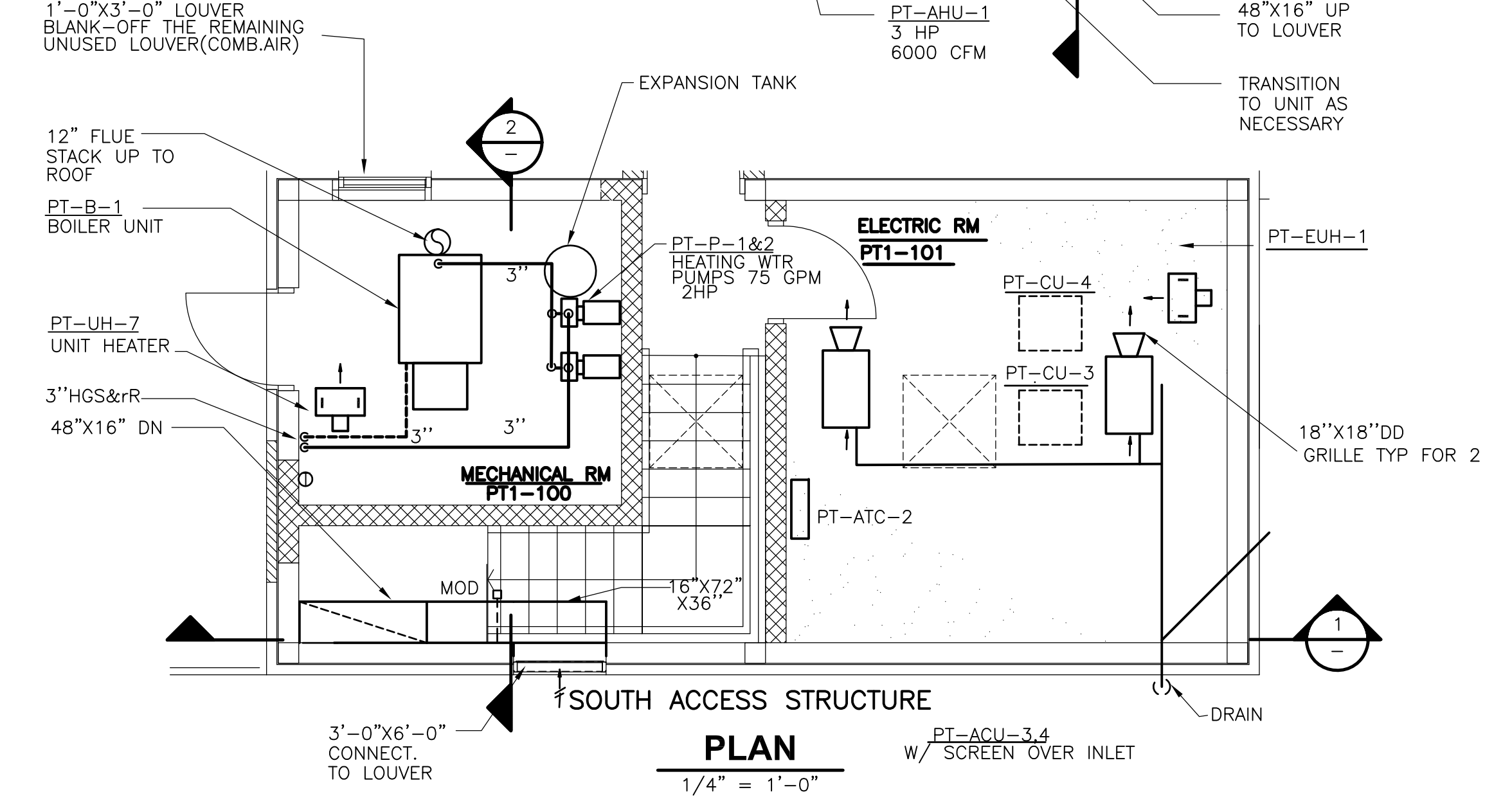
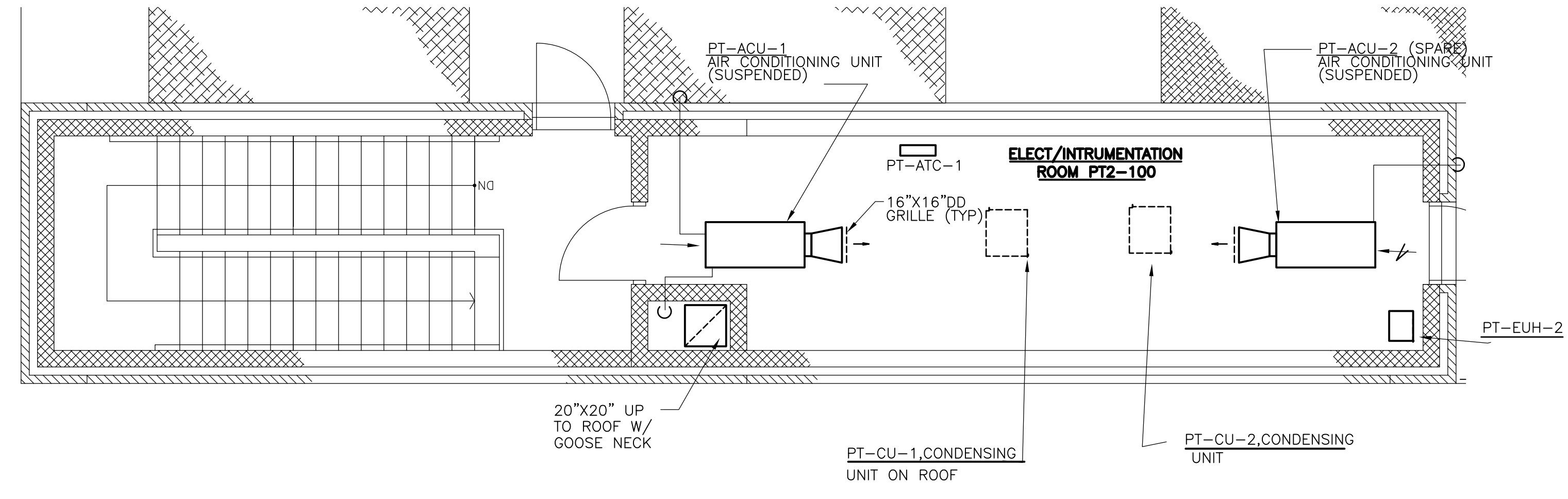
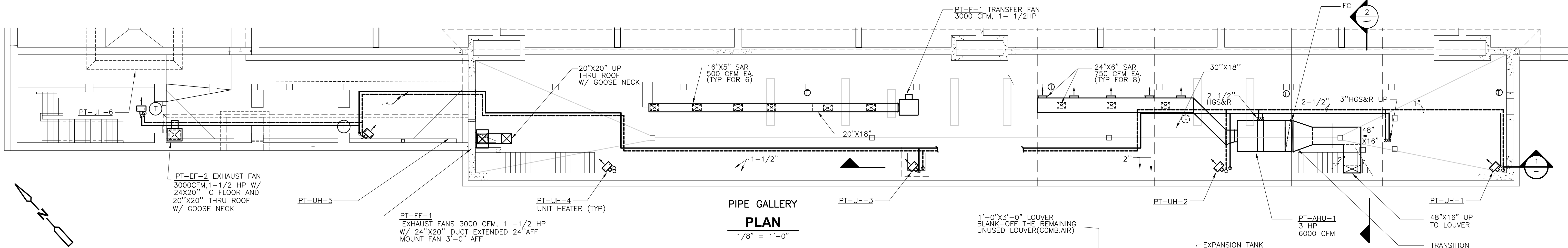
**SECTION 1**  
 1/4" = 1'-0"



RECORD DRAWING

				CADD FILE NO. HPTDM001		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>	<b>PRIMARY SETTLING TANKS PIPE GALLERY          DEMOLITION PLAN</b>	PROJECT NO. 1289\35370
				DESIGNED BY: A. CHIUCCARIELLO				Sht. 214 of 386
				DRAWN BY: K. RADEMACHER				<b>PT-H-1</b>
				SHEET CHK'D BY: A. RAYCHAUDHURI				1289-55814
				SCALE: 1/4" = 1'-0"				
				APPROVED BY: A. CHIUCCARIELLO				
				DATE: MAY 2006				
REV. NO.	DATE	DRWN	CHKD	REMARKS				
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD				

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
 Filename: P:\1289\35370\PHASE1\RECORD\HVAC\HSTMP001.dwg Xrefs: [c24x36h, SPSWP100, SPSWP000, AASPL100, AASPL102, ] Plotted by: CROSSIA Time: 12/16/08 6:28:17 PM



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

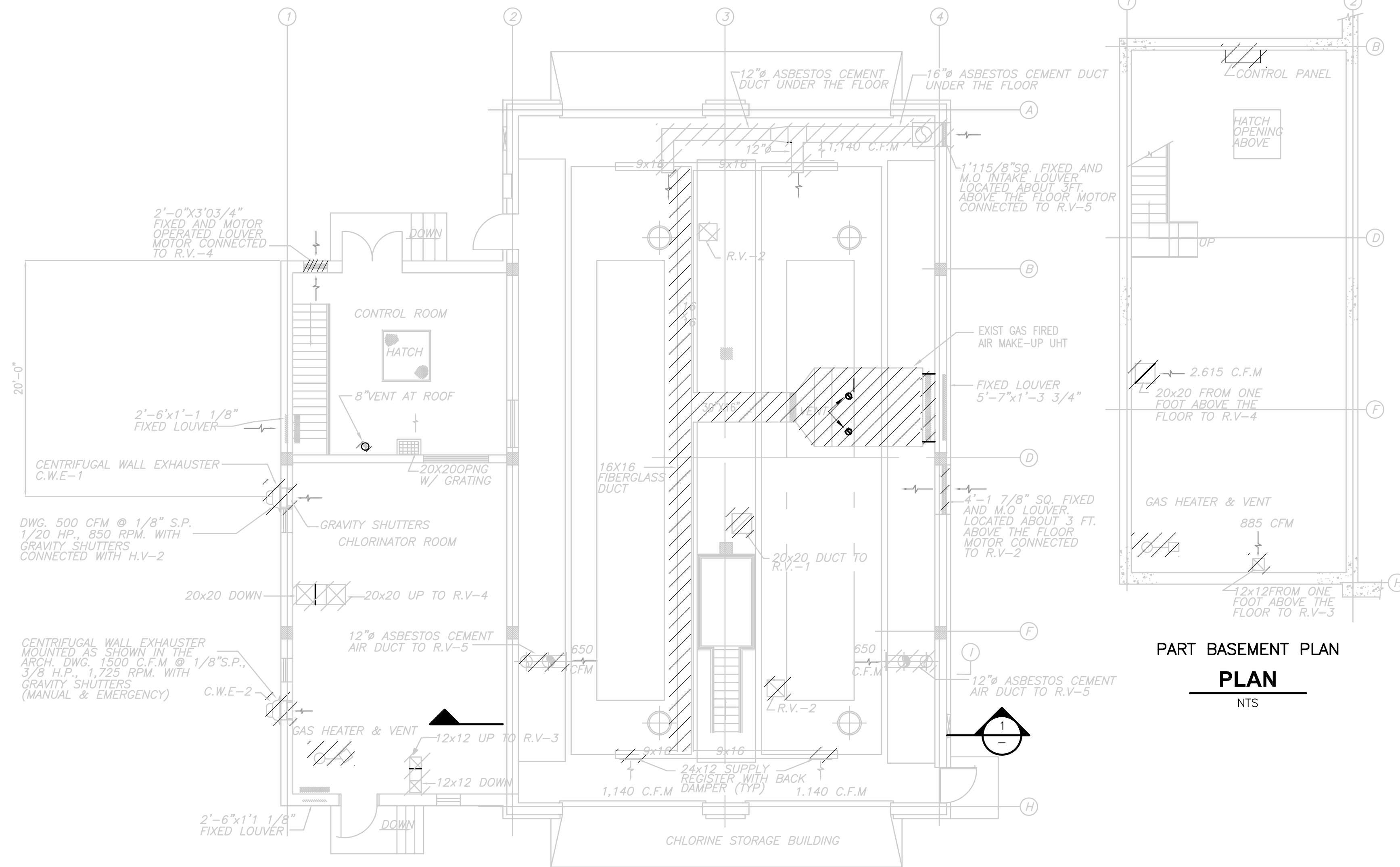
CADD FILE NO. HSTMP001  
 DESIGNED BY: A. CHIUCCARIELLO  
 DRAWN BY: K. RADEMACHER  
 SHEET CHK'D BY: A.R.  
 SCALE: 1/4" = 1'-0"  
 APPROVED BY: A. CHIUCCARIELLO  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

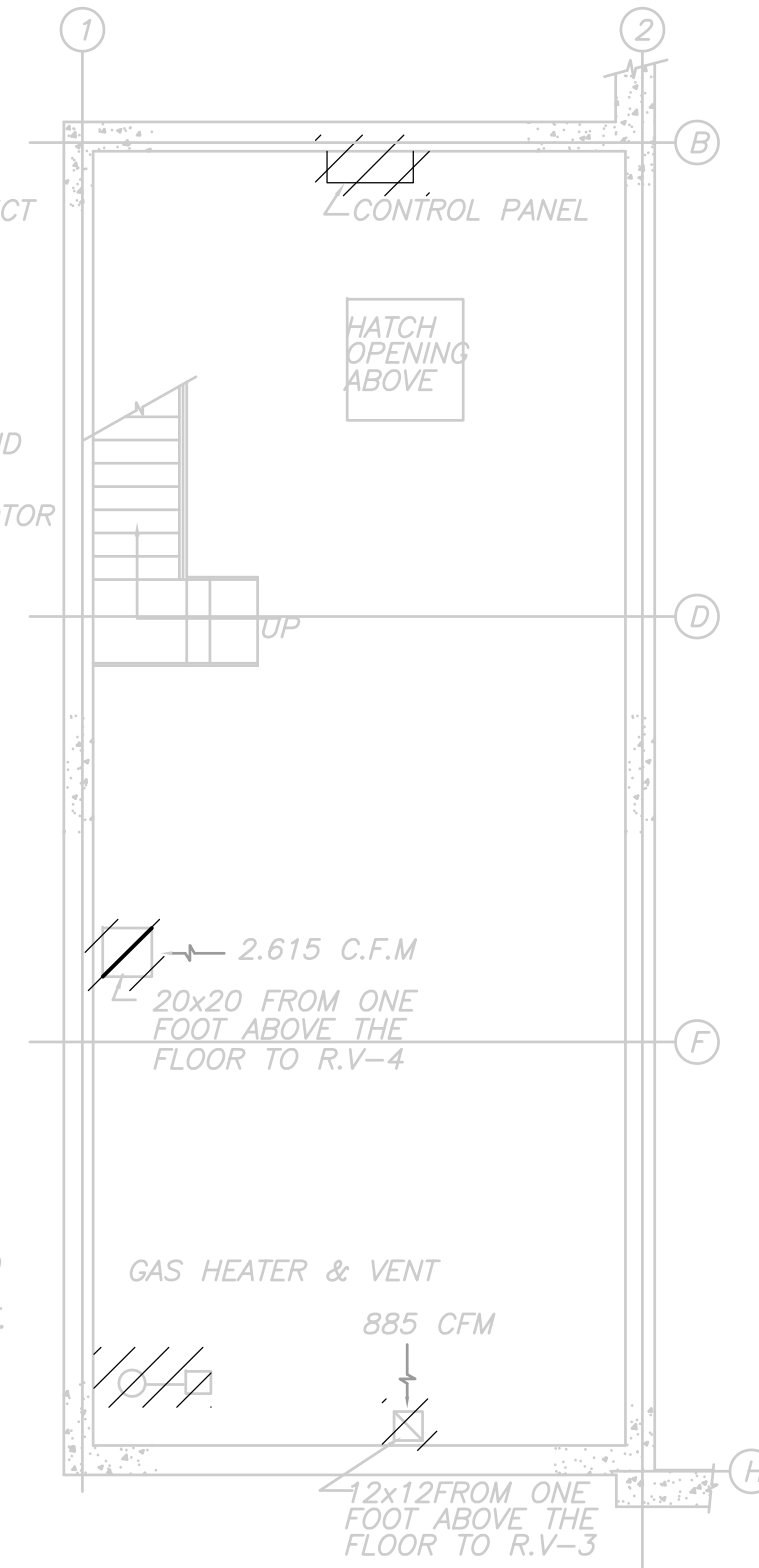
**PRIMARY SETTLING TANK  
 PIPE GALLERY AND ACCESS STRUCTURES  
 MODIFICATION PLAN**

PROJECT NO. 1289\35370  
 Sht. 215 of 386  
**PT-H-2**  
ACCESSION NO. 1289-1

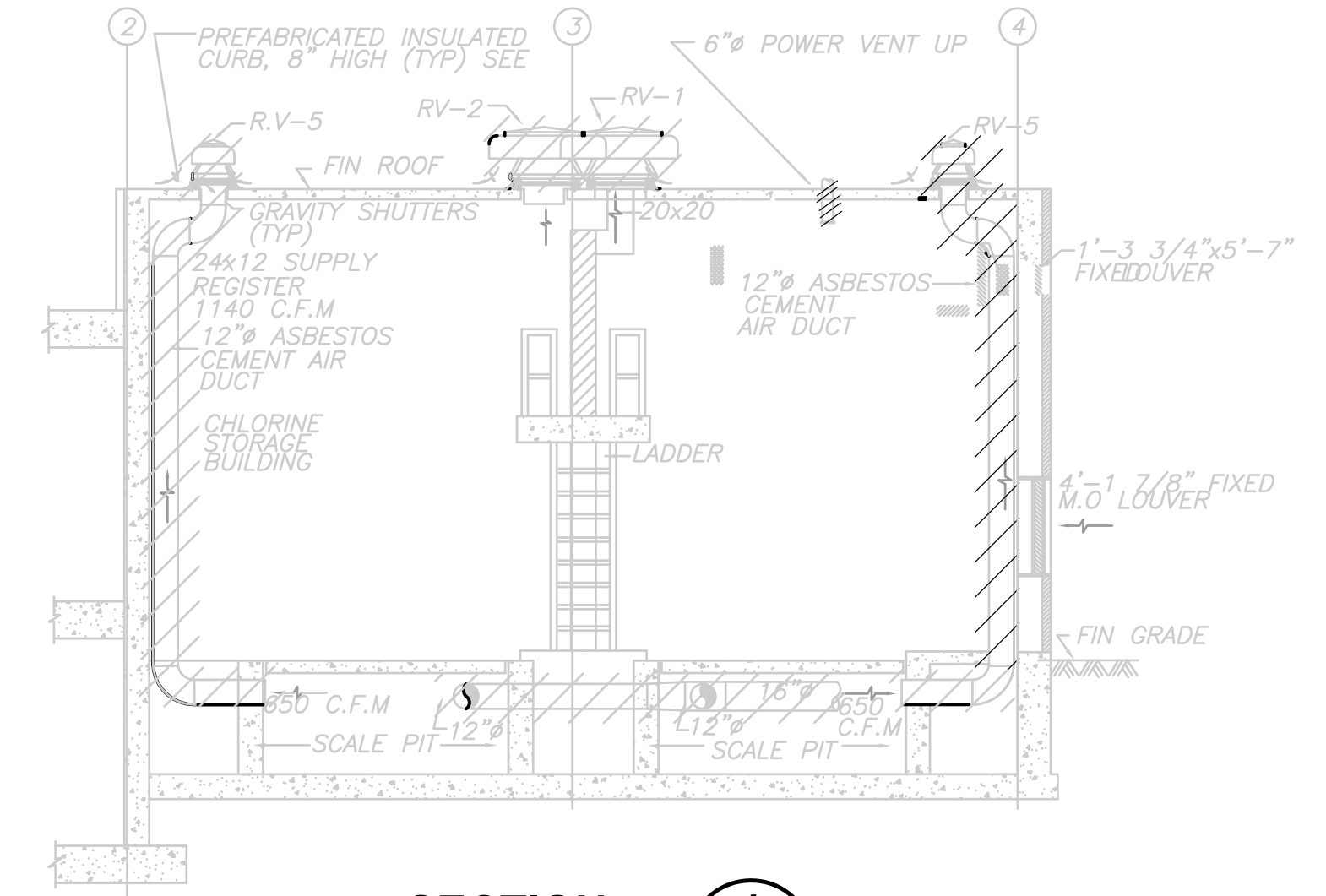


**1ST FLOOR  
 PLAN**  
 NTS

**NOTE: SEE SPECIFICATION SECTION  
 02080 FOR ASBESTOS ABATEMENT**



**PART BASEMENT PLAN**  
**PLAN**  
 NTS



**SECTION 1**  
 NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	HCHDM001
DESIGNED BY:	A. CHIUCCARIELLO
DRAWN BY:	K. RADEMACHER
SHEET CHK'D BY:	A. RAYCHAUDHURI
SCALE:	NTS
APPROVED BY:	A. CHIUCCARIELLO
DATE:	MAY 2006

PROJECT NO.	1289\35370
PROJECT NAME	UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
CONTRACT NO.	UB 2024

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

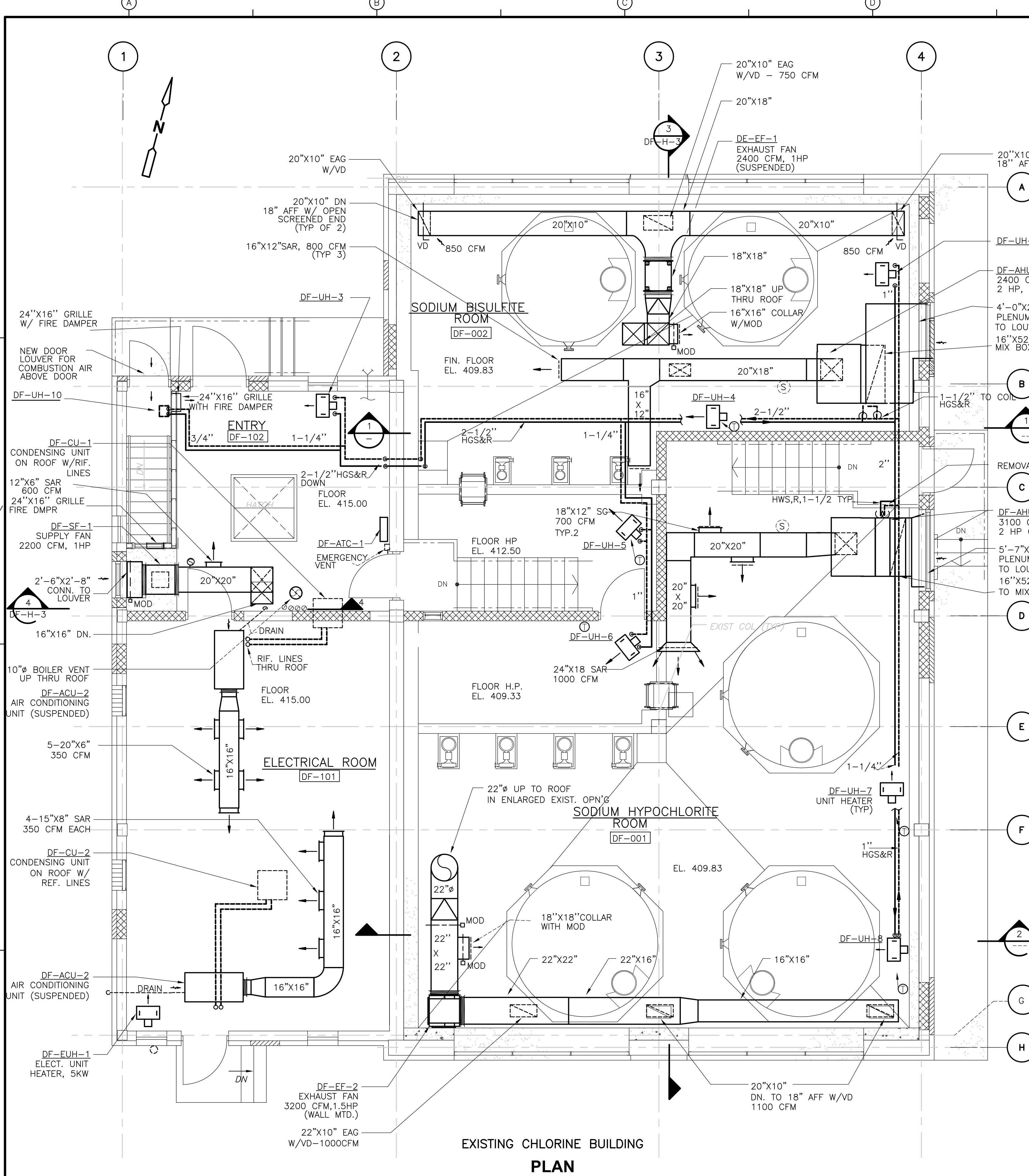
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**DISINFECTION FACILITY  
 DEMOLITION PLANS  
 AND SECTION**

PROJECT NO.	1289\35370
Sht.	216 of 386
<b>DF-H-1</b>	

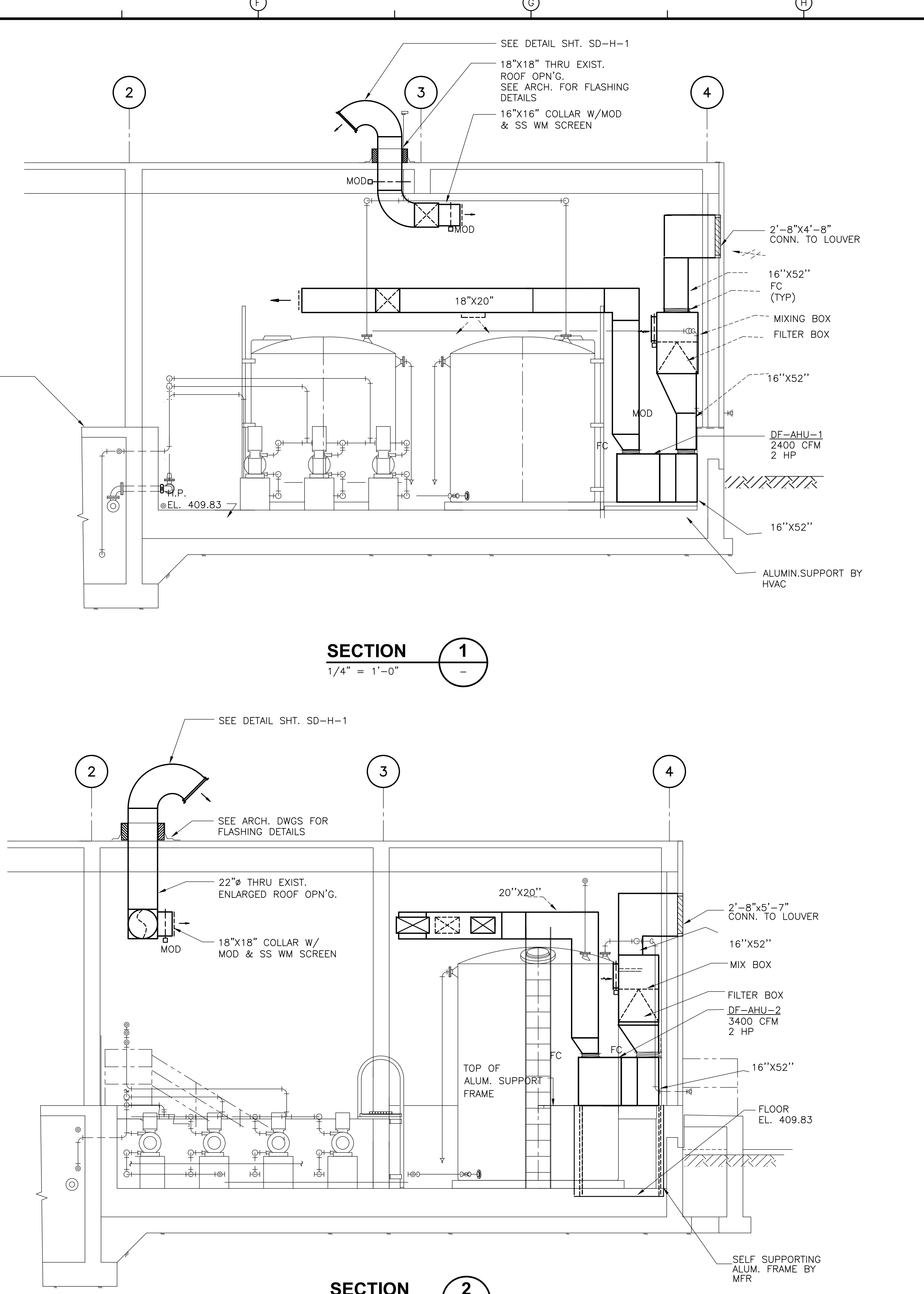


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**EXISTING CHLORINE BUILDING**  
**PLAN**  
 1/4" = 1'-0"

NOTE:  
 FOR PATCH-UP EXIST. ROOF OPENINGS  
 SEE STRUCTURAL DRAWINGS



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

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

RECORD DRAWING

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

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. HCHPL01B.DWG  
 DESIGNED BY: A. CHIUCCARIELLO  
 DRAWN BY: K. RADEMACHER  
 SHEET CHK'D BY: A.R.  
 SCALE: 1/4" = 1'-0"  
 APPROVED BY: A. CHIUCCARIELLO  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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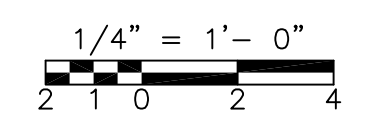
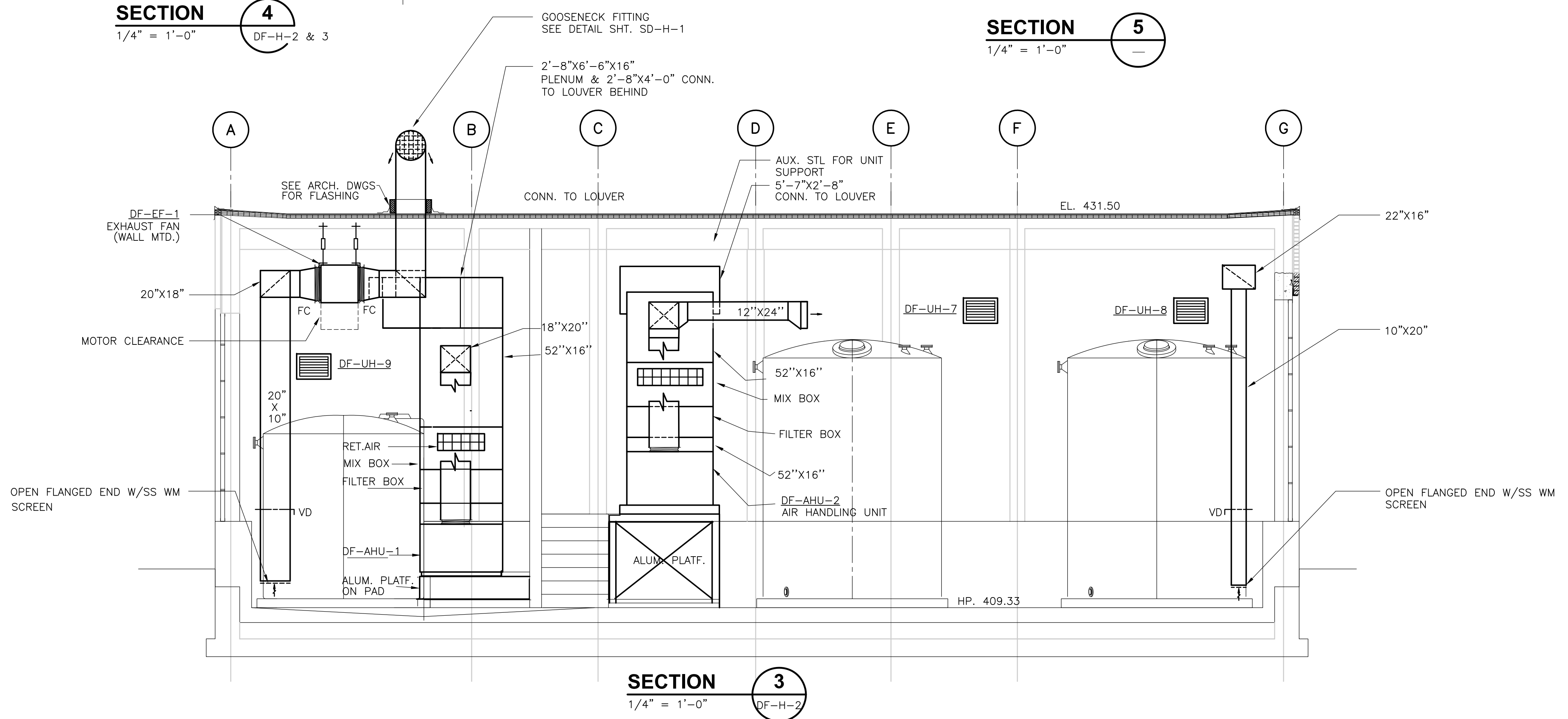
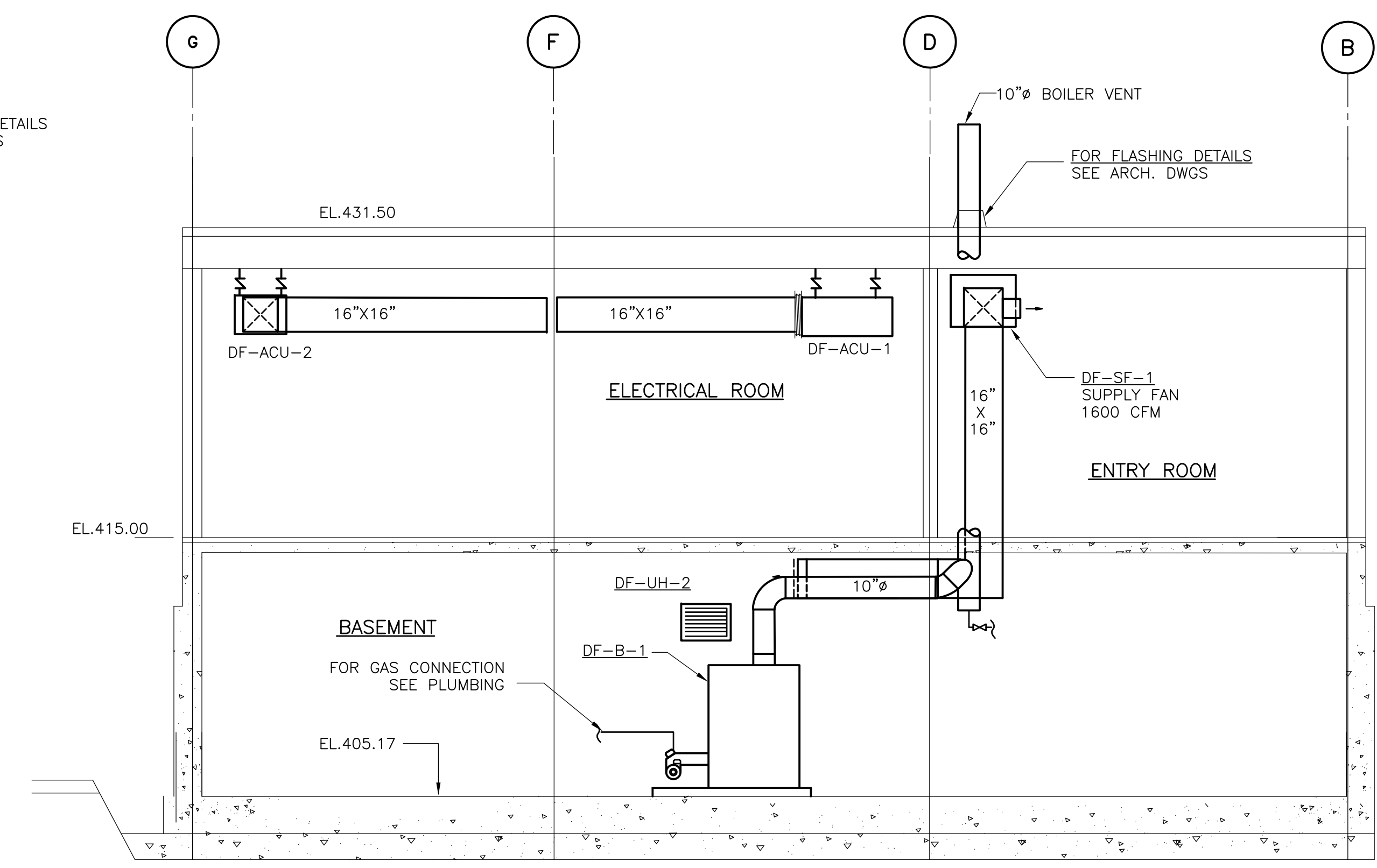
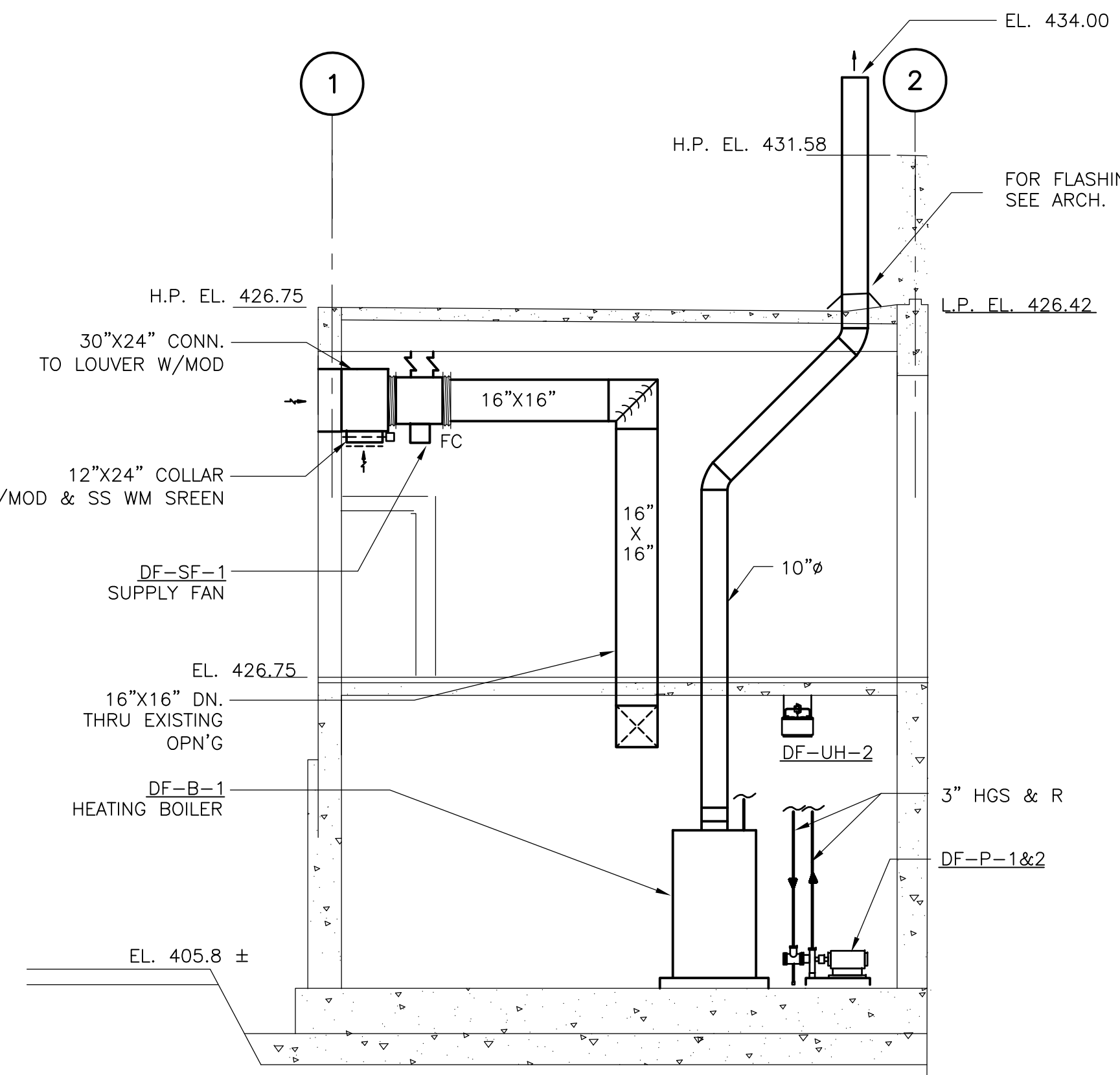
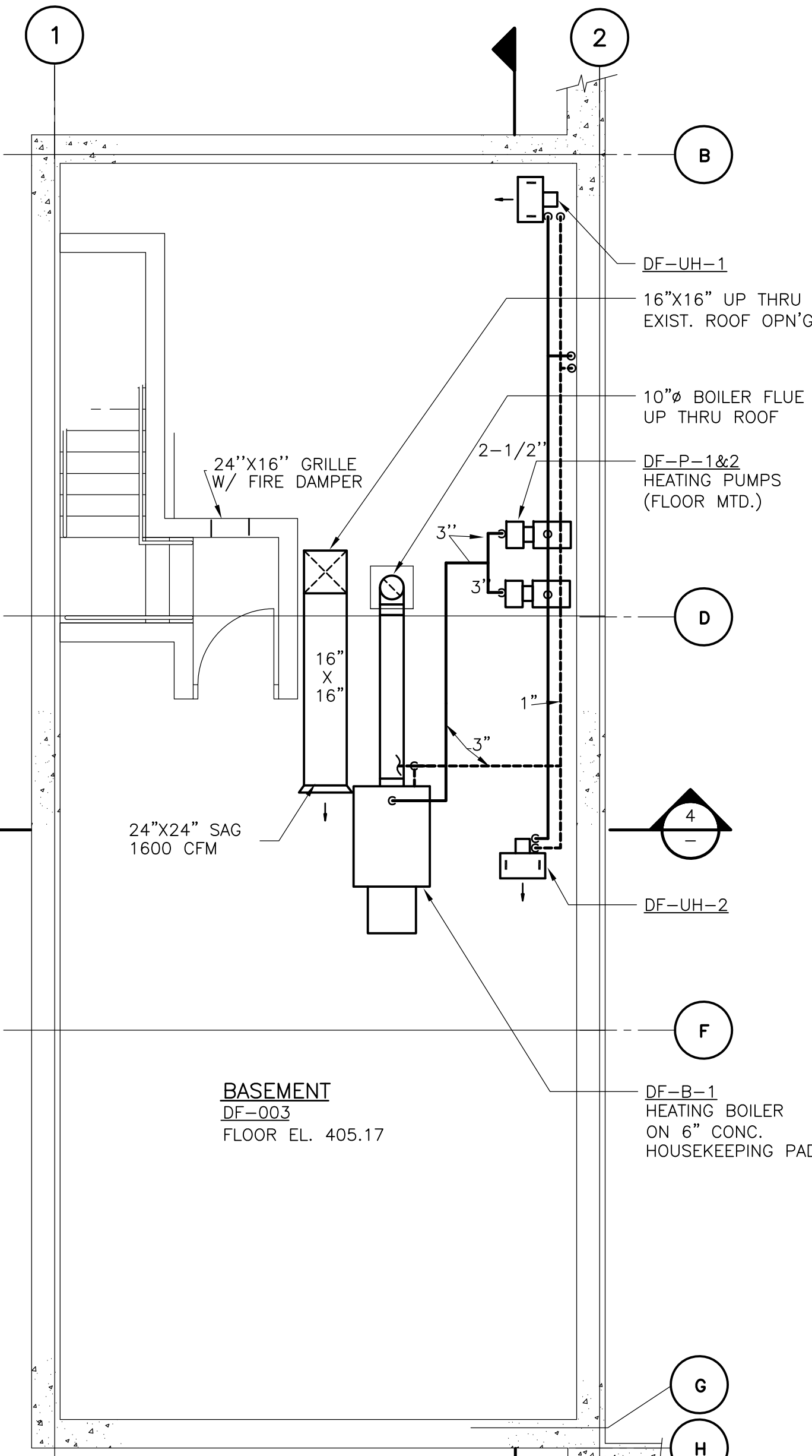
**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**DISINFECTION FACILITY**  
**PLAN AND SECTIONS**

PROJECT NO.  
 1289\35370  
 Sht. 217 of 386  
**DF-H-2**  
ACCESSION NO. 1289-55817

UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:28:26 PM  
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REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HCHDM001  
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 DRAWN BY: K. RADEMACHER  
 SHEET CHK'D BY: A.R.  
 SCALE: 1/4"=1'-0"  
 APPROVED BY: A. CHIUCCARIELLO  
 DATE: MAY 2006

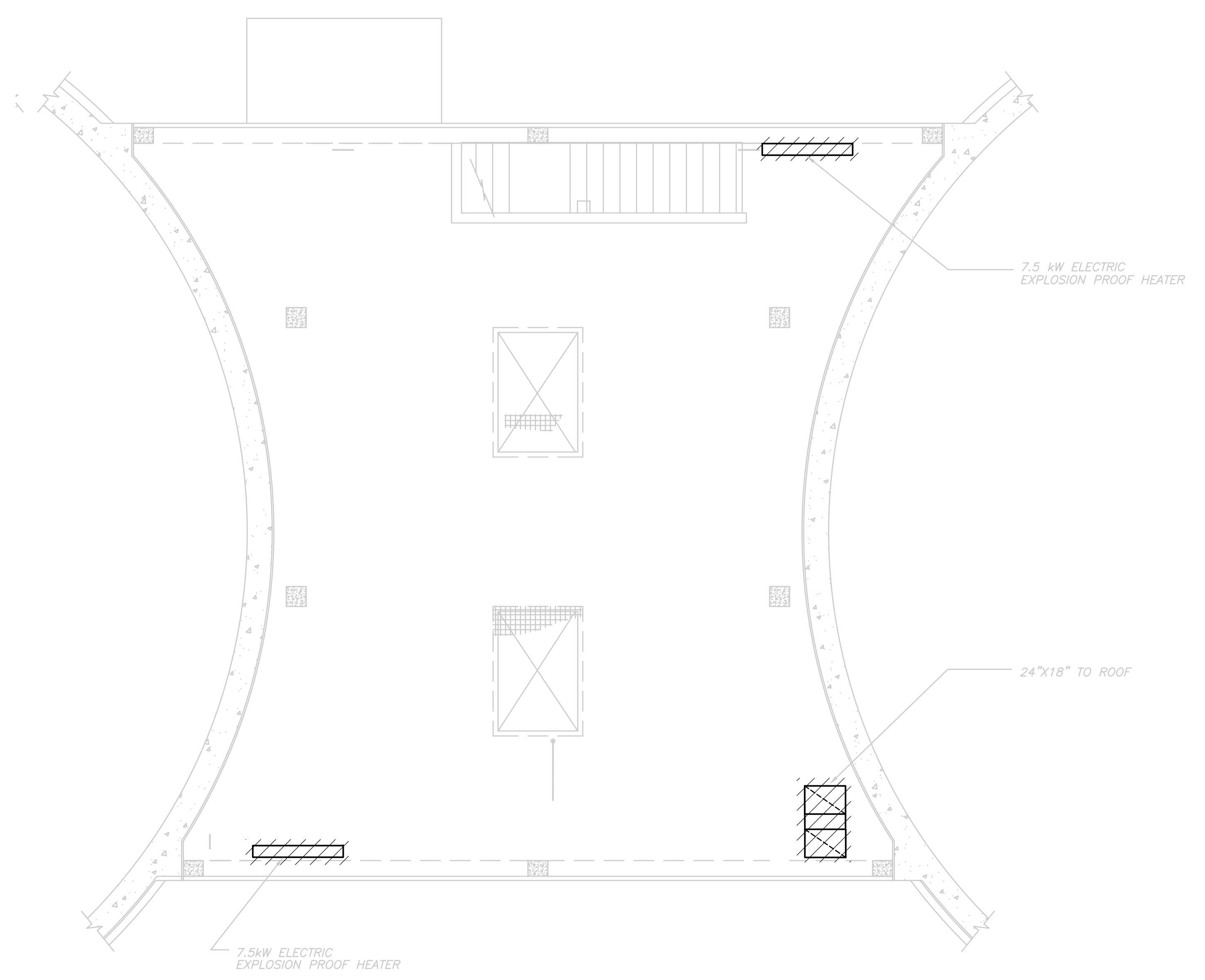
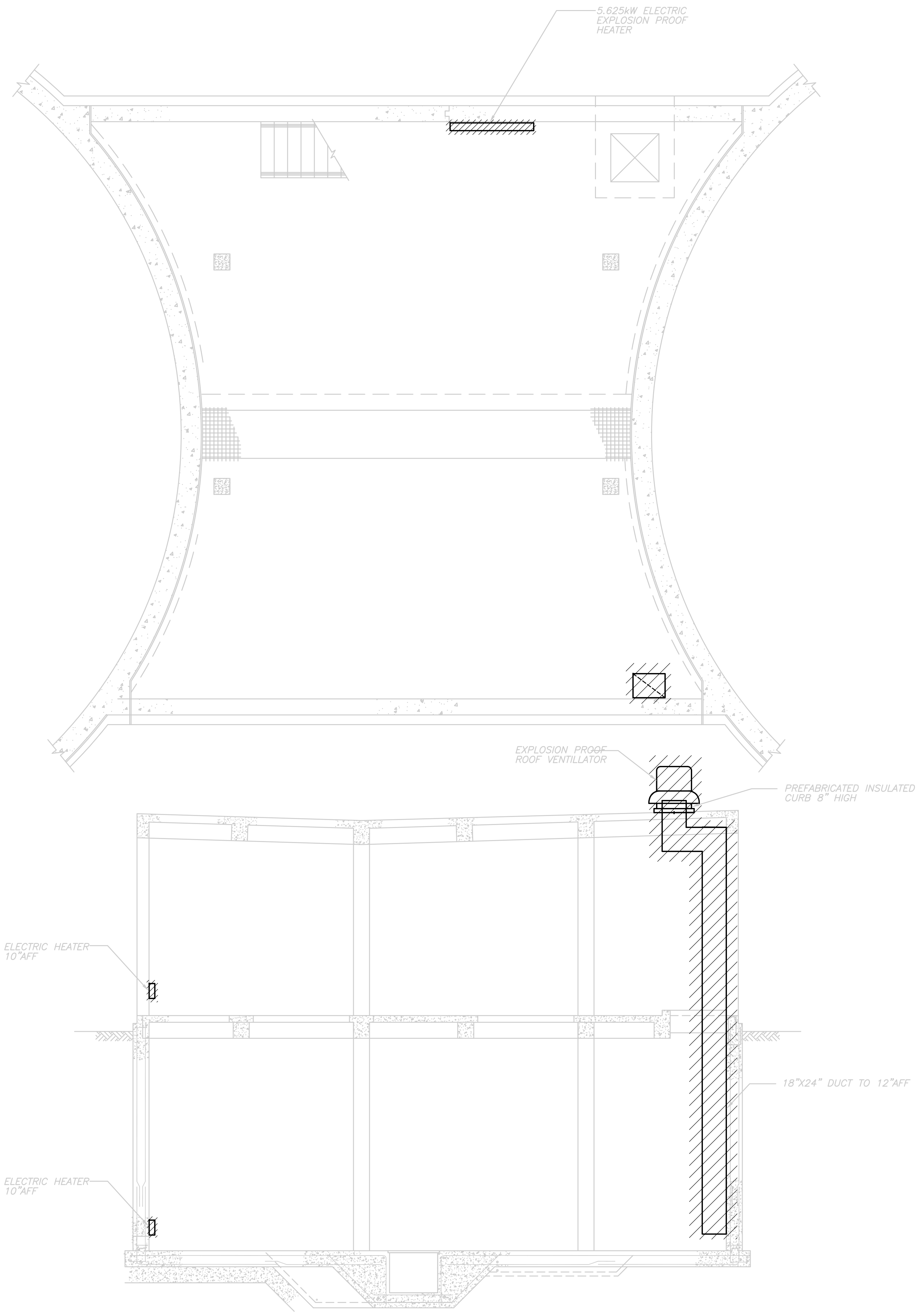
**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**DISINFECTION FACILITY  
 BOILER ROOM AND SECTIONS**

PROJECT NO. 1289\35370  
 Sht. 218 of 386  
**DF-H-3**  
 ACCESSION NO. 1289-65818



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. HSTDM001  
 DESIGNED BY: A. CHIUCCARIELLO  
 DRAWN BY: K. RADEMACHER  
 SHEET CHK'D BY: A.R.  
 SCALE: 1/4"=1'-0"  
 APPROVED BY: A. CHIUCCARIELLO  
 DATE: MAY 2006

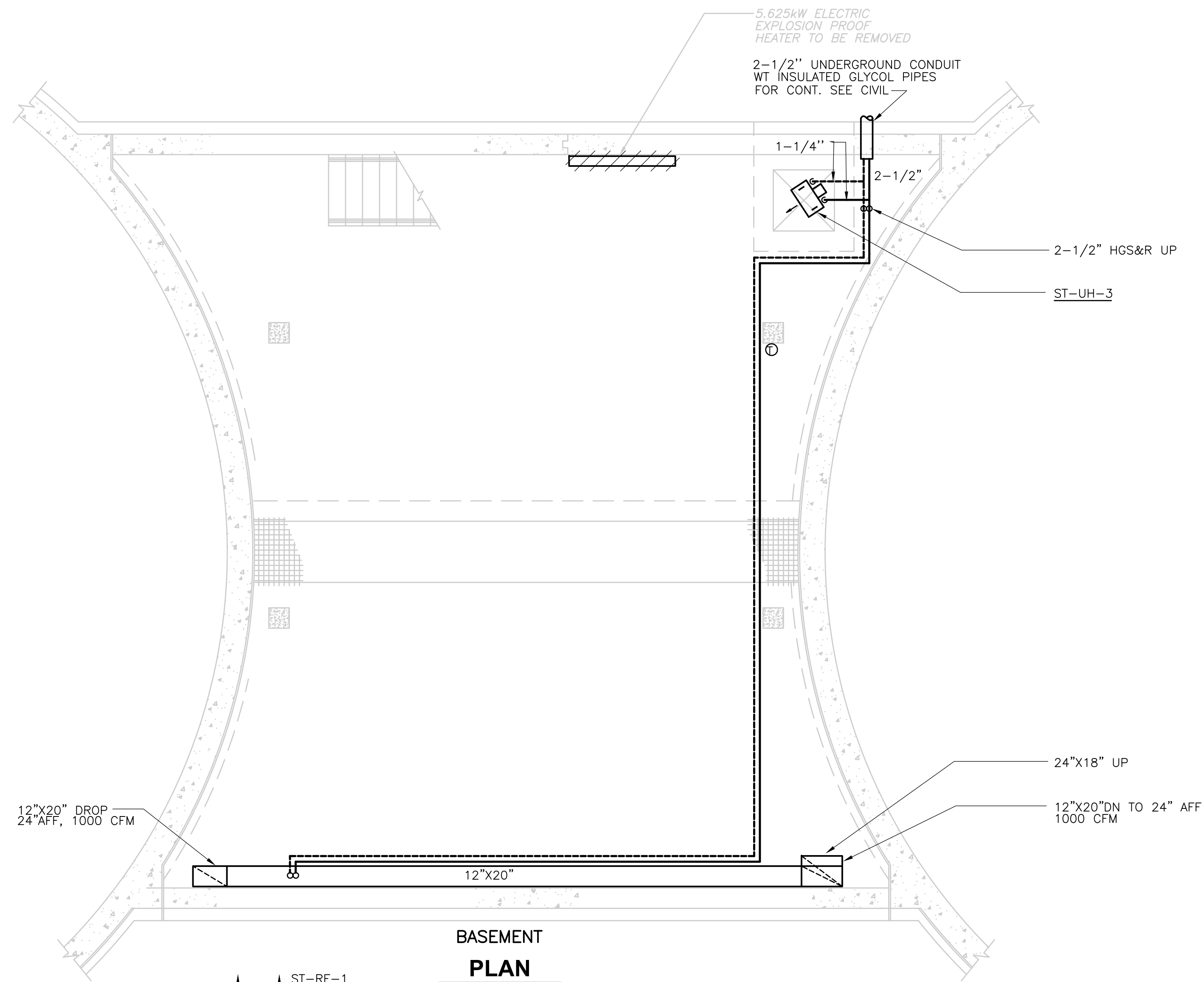
**CDM** Camp Dresser & McKee Inc.  
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 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

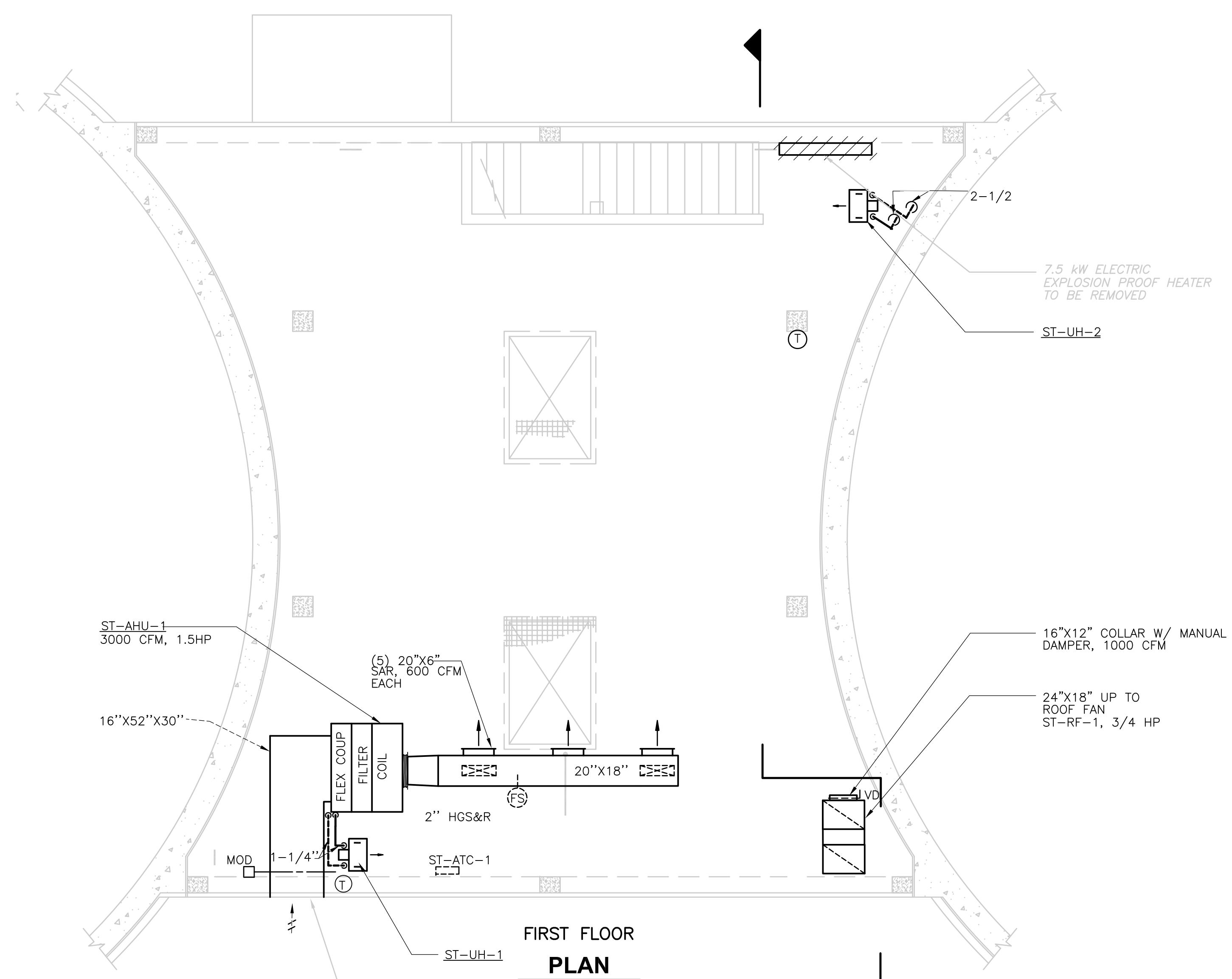
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SLUDGE HOLDING TANKS  
 DEMOLITION PLAN**

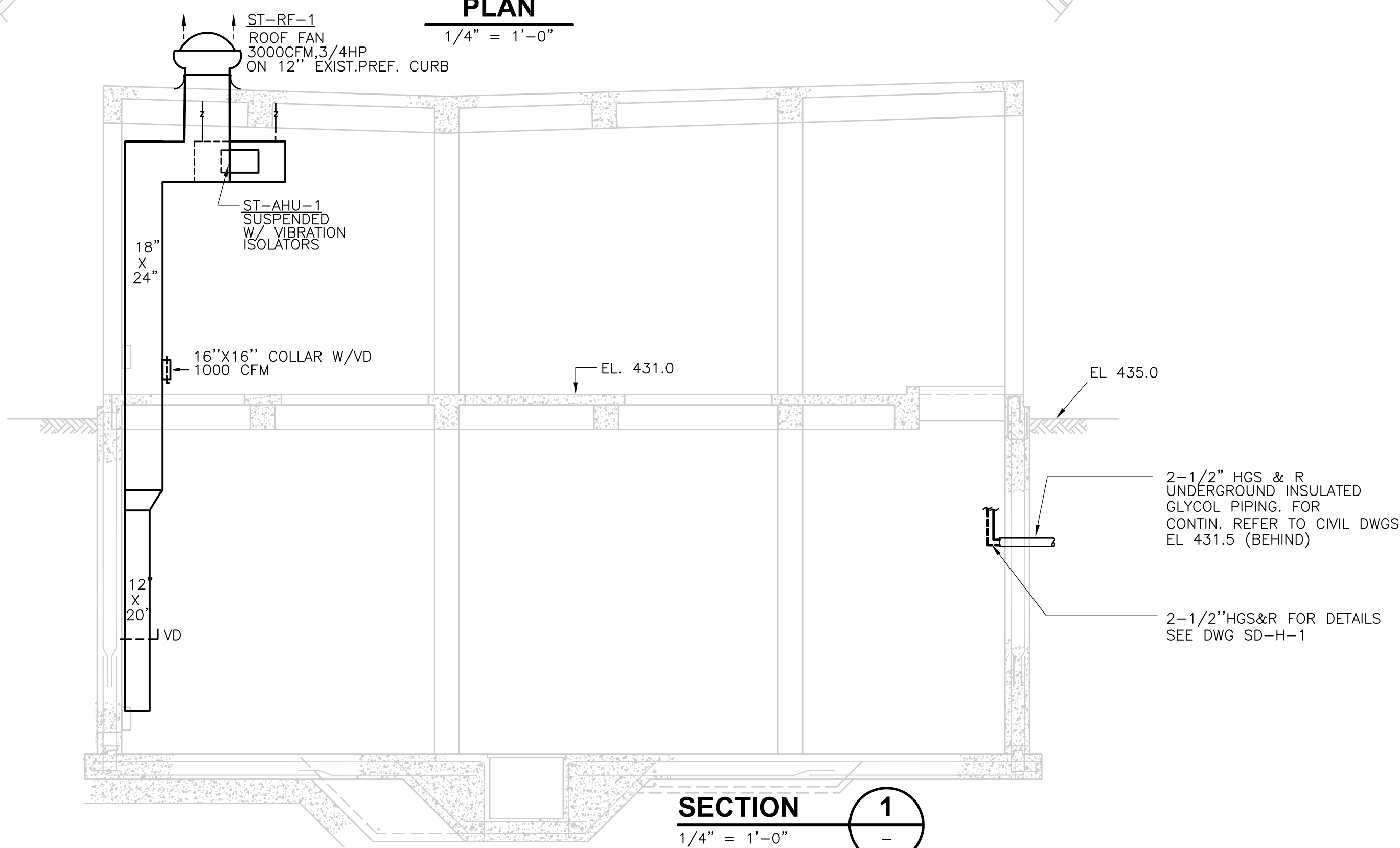
PROJECT NO.  
 1289\35370  
 Sht. 219 of 386  
**ST-H-1**  
ACCESSION NO. 1289-55019



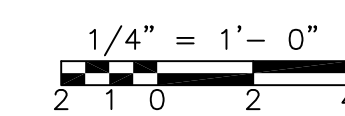
**BASEMENT PLAN**  
1/4" = 1'-0"



**FIRST FLOOR PLAN**  
1/4" = 1'-0"



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



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO.:	HSHSC001
DESIGNED BY:	A.CHIUCCARIELLO
DRAWN BY:	K.RADEMACHER
SHEET CHK'D BY:	A.R.
SCALE:	1/4"=1'-0"
APPROVED BY:	A.CHIUCCARIELLO
DATE:	MAY 2006

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**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

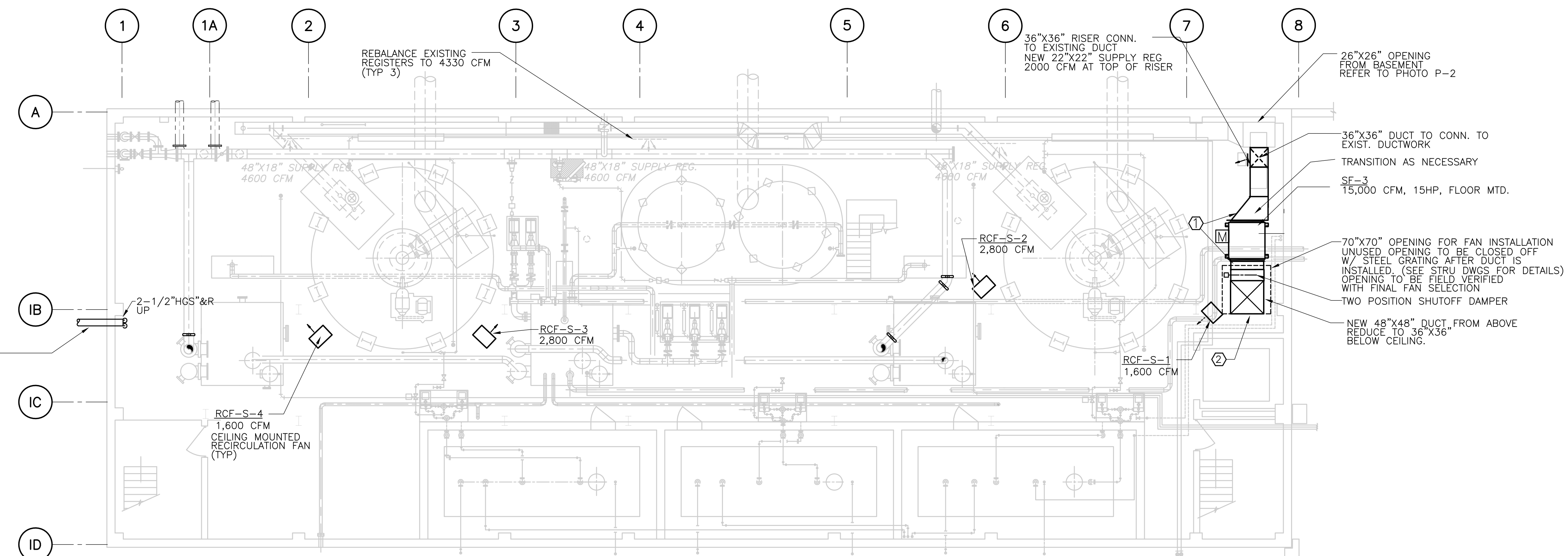
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SLUDGE HOLDING TANKS  
 MODIFICATION PLANS AND SECTIONS**

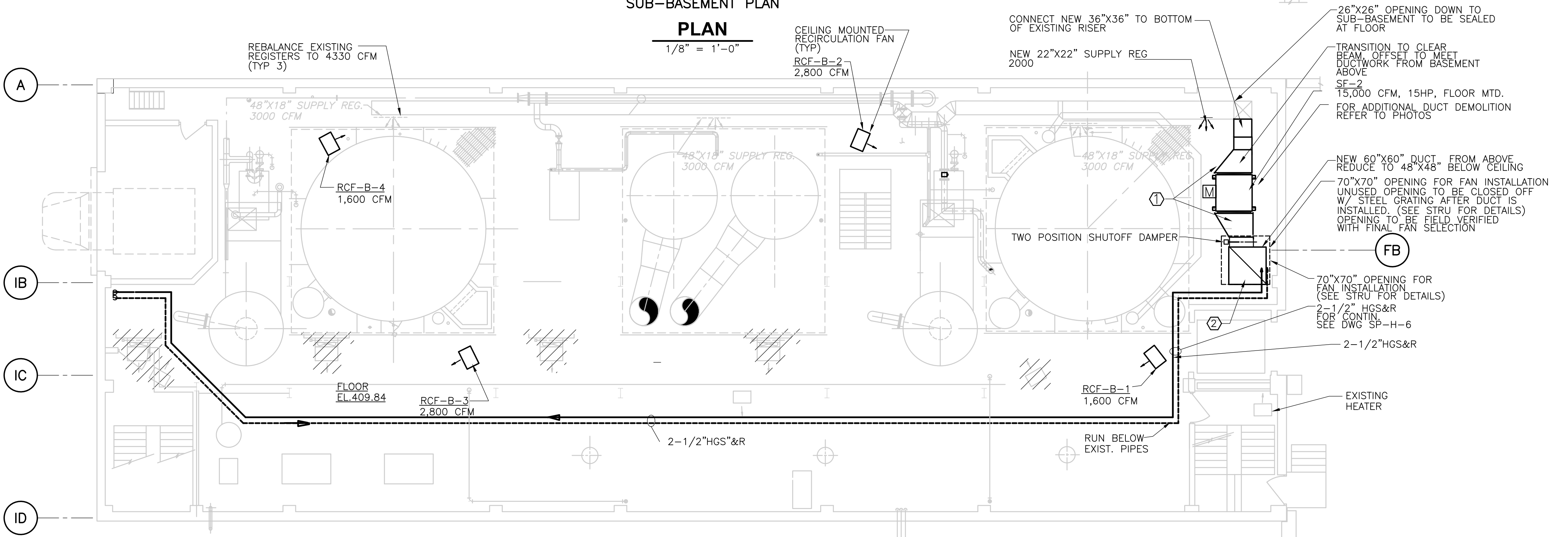
PROJECT NO.  
1289\35370

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**ST-H-2**



SUB-BASEMENT PLAN  
**PLAN**  
1/8" = 1'-0"



BASEMENT PLAN  
**PLAN**  
1/8" = 1'-0"

- NOTES:
- ① TRANSITION FROM FAN CONNECTION TO 36"X36" DUCT. PROVIDE FLEXIBLE CONNECTION AT FAN CONNECTION.
  - ② CONCRETE OPENING SIZED TO DROP FANS SF-1 TO SF-3 FROM THE THIRD FLOOR TO THE FLOOR THEY WILL BE INSTALLED ON.

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		REVISED FOR THE RECORD

CADD FILE NO. HINPLO00.DWG
DESIGNED BY: J. JACOBS
DRAWN BY: K. RADEMACHER
SHEET CHK'D BY: A.R.
SCALE: 1/8"=1'-0"
APPROVED BY: A. CHIUCCARIELLO
DATE: MAY 2006

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construction  
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UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024

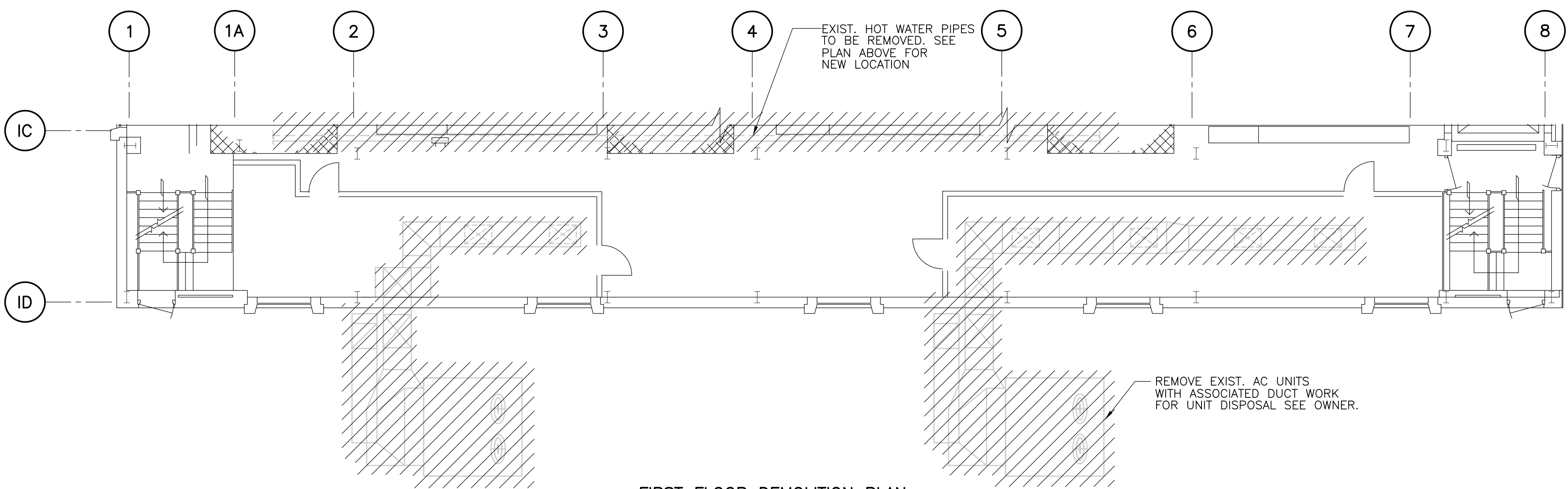
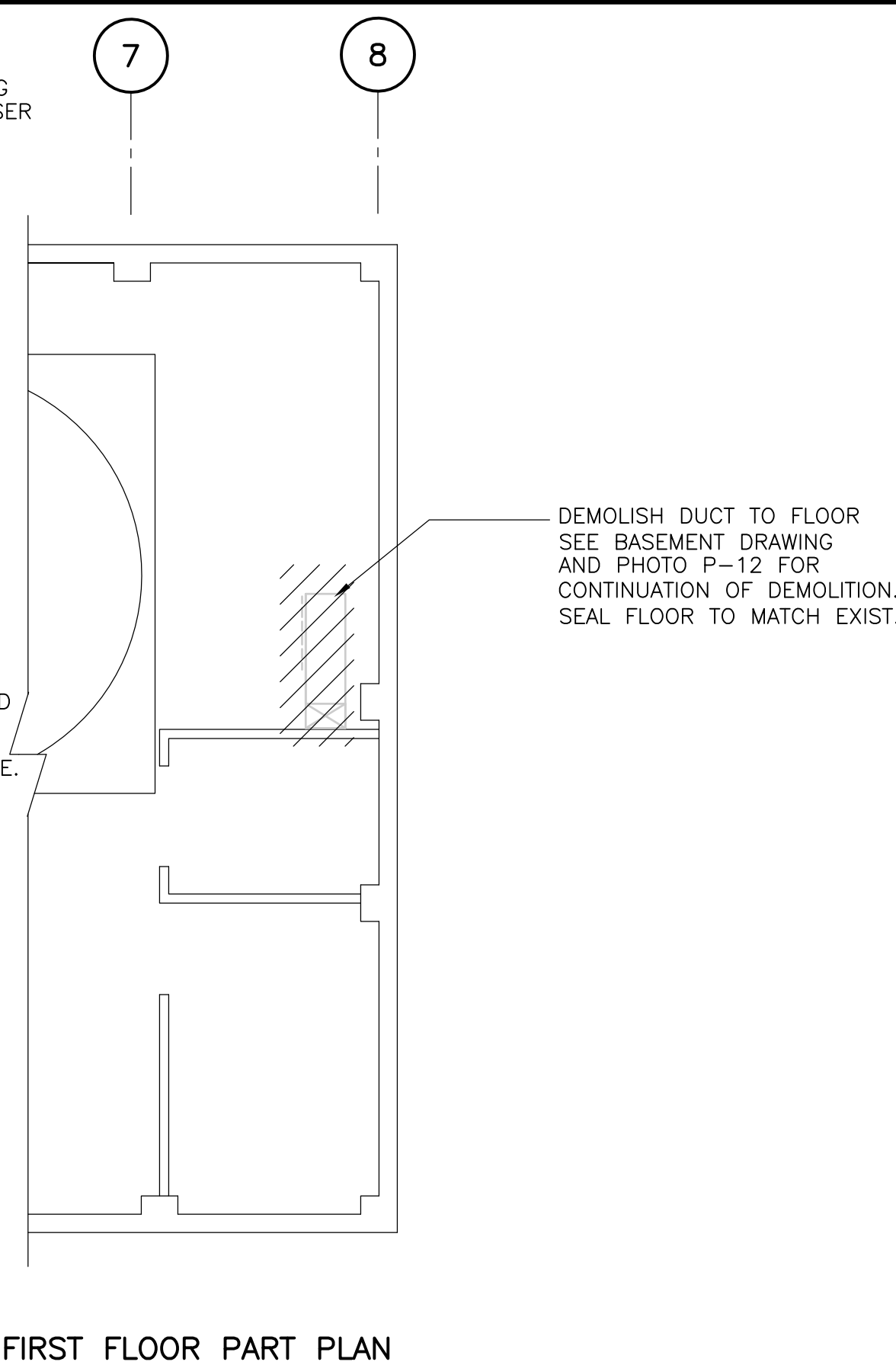
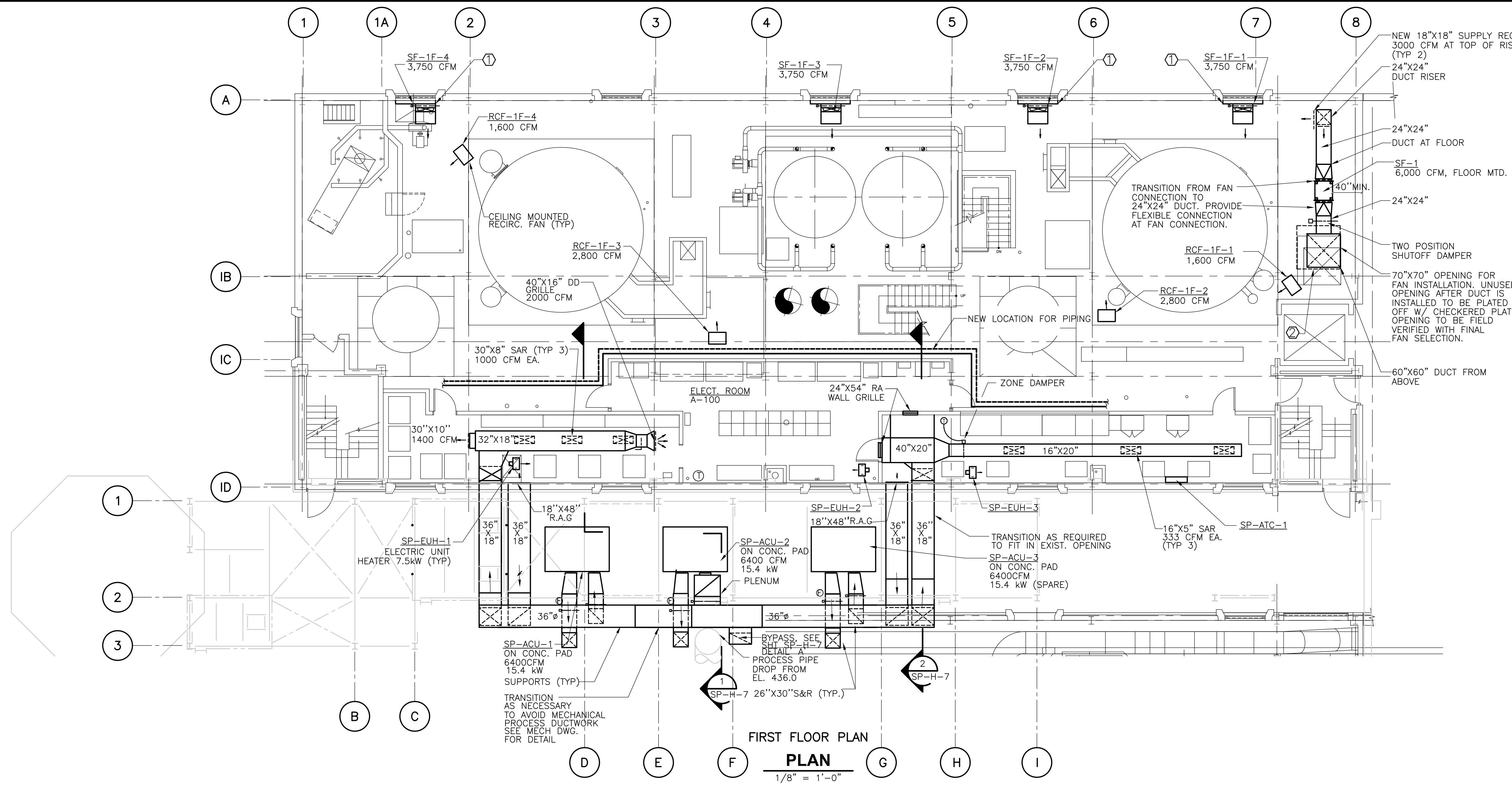
**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

**INCINERATOR BUILDING  
SUB-BASEMENT AND BASEMENT PLANS**

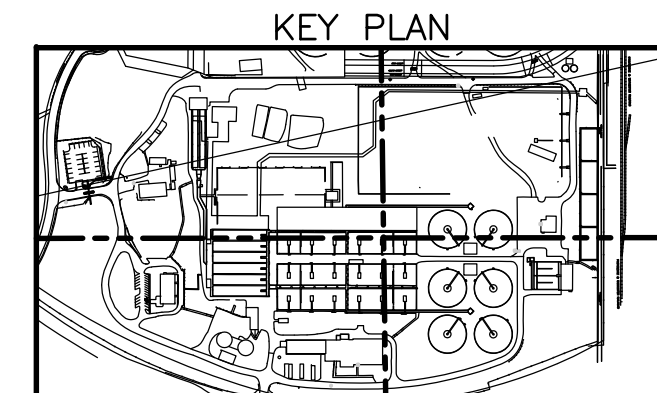
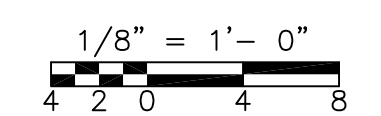
PROJECT NO. 1289\35370  
Sht. 221 of 386  
**SP-H-1**

Accession No. 1289-55921

UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
 [UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] Plotted by: CROSSIA Time: 12/16/08 6:28:38 PM  
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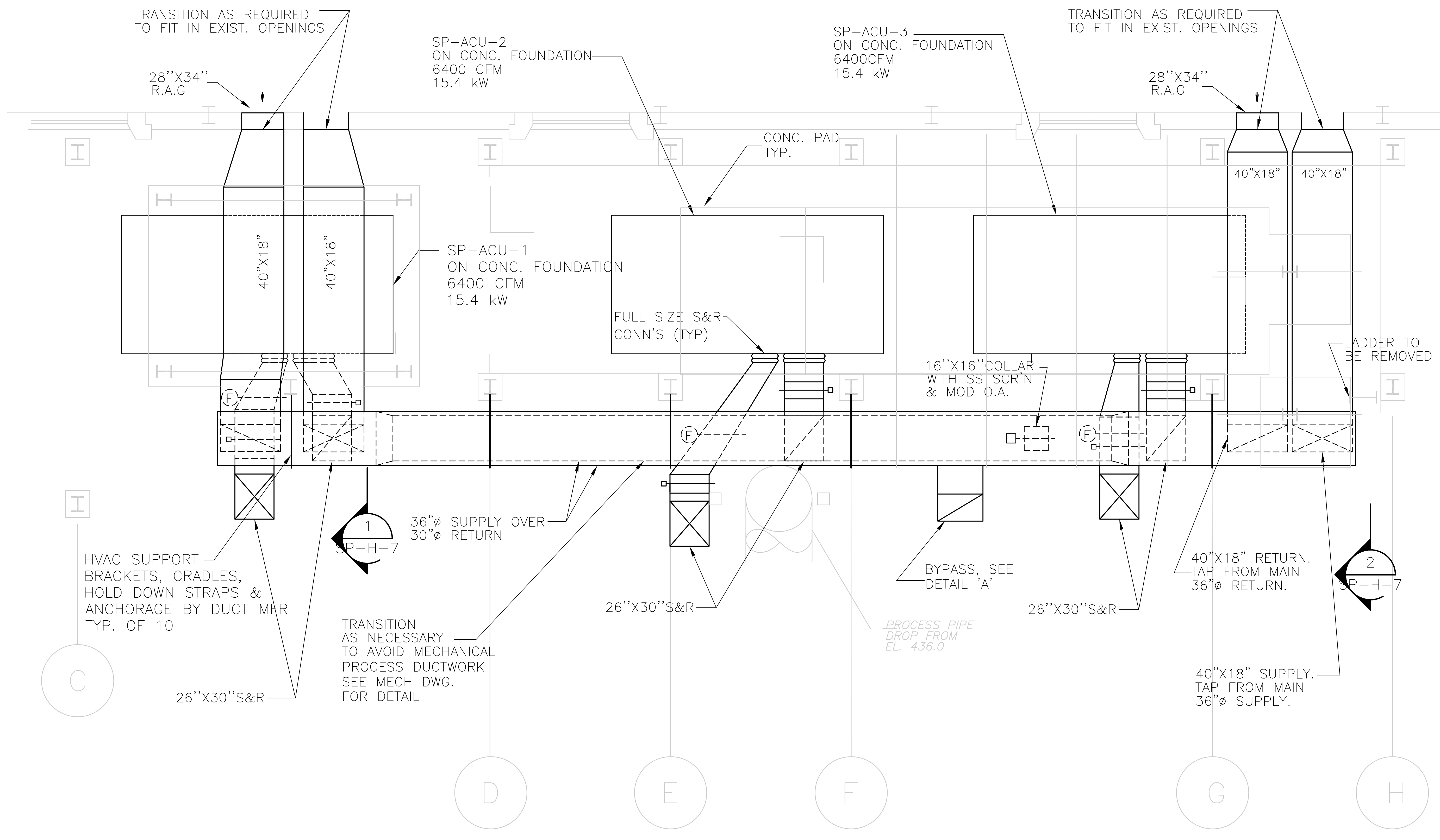


- NOTES:
- ① EXISTING GLASS & LOUVER BEHIND INTAKE PLENUM TO BE REPLACED WITH A NEW COMBINATION LOUVER DAMPER. REFER TO ARCH DRAWINGS. PROVIDE REQUIRED DAMPER OPERATORS TO INTERLOCK TO ASSOCIATED FAN TO OPEN DAMPER WHEN FAN RUNS. UNUSED PORTION OF LOUVER TO BE BLANKED OFF W/ SHEET METAL.
  - ② CONCRETE OPENING SIZED TO DROP FANS SF-1 TO SF-3 FROM THE THIRD FLOOR TO THE FLOOR THEY WILL BE INSTALLED ON.
  - ③ FOR CONTROL DIAGRAMS FOR SP-ACU-1,2,3 SEE DWG SD-H-6



RECORD DRAWING

CADD FILE NO.: HINPLOOR1 DESIGNED BY: A.CHIUCCARIELLO DRAWN BY: K.RADEMACHER SHEET CHK'D BY: A.R. SCALE: 1/8"=1' APPROVED BY: A.CHIUCCARIELLO DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		<b>UPPER BLACKSTONE          WATER POLLUTION ABATEMENT DISTRICT          CONTRACT No. UB 2024</b>		<b>INCINERATOR BUILDING          FIRST FLOOR AND DEMOLITION PLANS</b>		PROJECT NO. 1289\35370 Sht. 222 of 386	
REV. NO.   DATE   DRWN   CHKD   REVISED FOR THE RECORD   REMARKS											
10/07   JAL   ADT     REVISED FOR THE RECORD											
				<b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		<b>SP-H-2</b>		ACCESSION NO. 1289-65822			



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

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 DESIGNED BY: D.PHILLIPS  
 DRAWN BY: D.PHILLIPS  
 SHEET CHK'D BY:  
 SCALE: 1/2"=1'-0"  
 APPROVED BY:  
 DATE: OCTOBER 2006

CDM  
 consulting  
 engineering  
 construction  
 operations

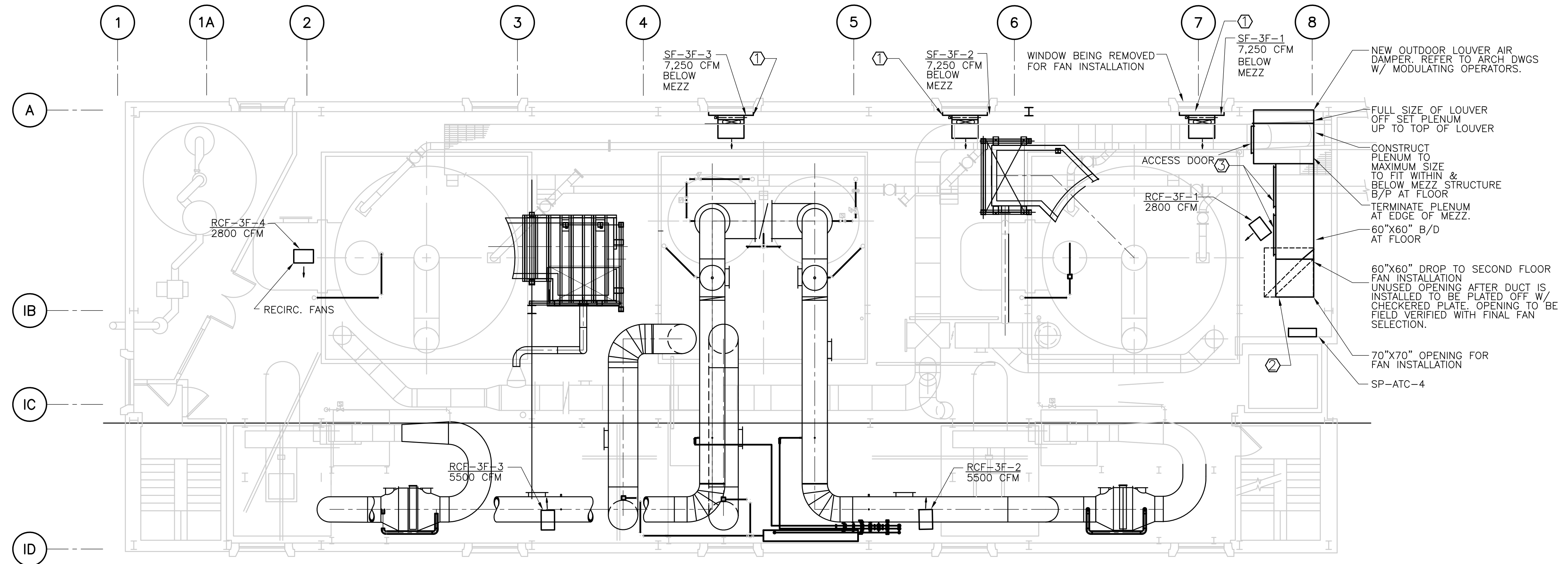
Camp Dresser & McKee Inc.

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
 WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

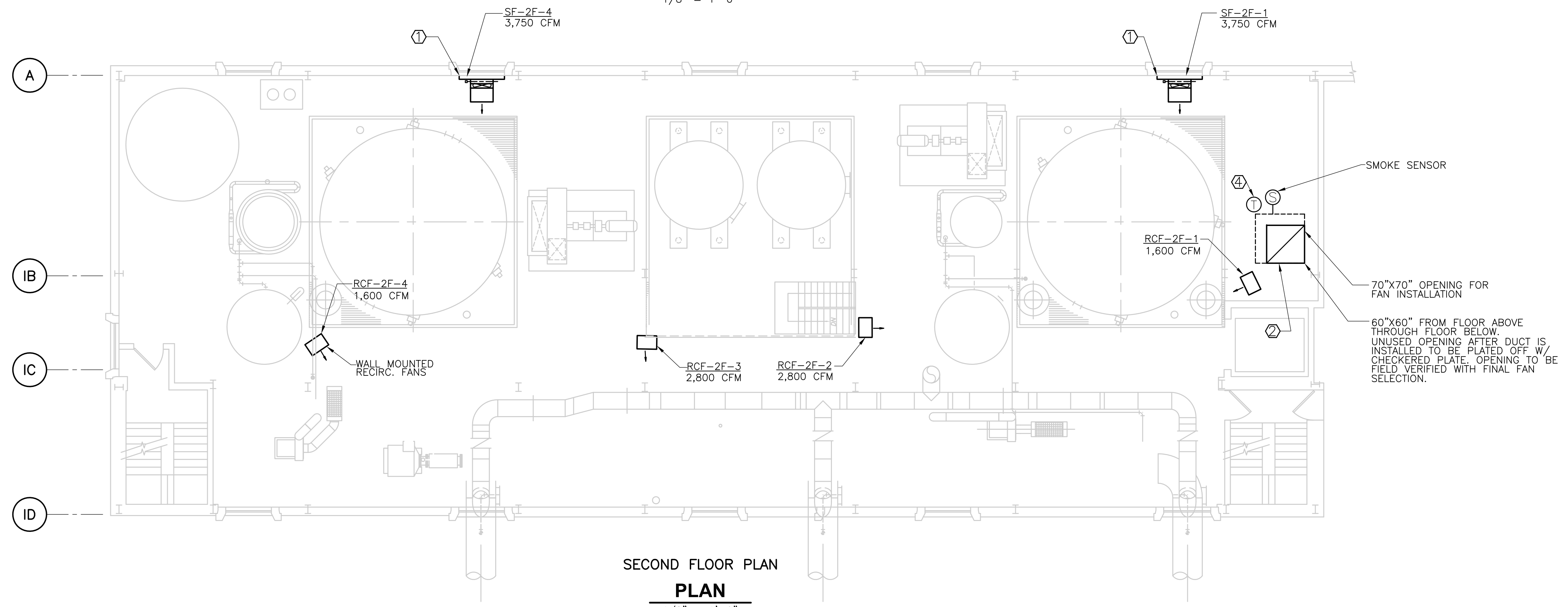
INCINERATOR BUILDING  
 FIRST FLOOR AND DEMOLITION PLANS

PROJECT NO.  
 1289\35370  
 Sht. 222 of 386  
 SP-H-2A  
 REVISION NO. 1289-

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\HVAC\HINPL002.dwg Xref's: [C24X36H, MSPDM004, MSPDM005, MSPDM006, MSPDM007, MSPDM008, MSPDM009, MSPDM010, MSPDM011, MSPDM012, MSPDM013, MSPDM014, MSPDM015, MSPDM016, MSPDM017, MSPDM018, MSPDM019, MSPDM020, MSPDM021, MSPDM022, MSPDM023, MSPDM024, MSPDM025, MSPDM026, MSPDM027, MSPDM028, MSPDM029, MSPDM030, MSPDM031, MSPDM032, MSPDM033, MSPDM034, MSPDM035, MSPDM036, MSPDM037, MSPDM038, MSPDM039, MSPDM040, MSPDM041, MSPDM042, MSPDM043, MSPDM044, MSPDM045, MSPDM046, MSPDM047, MSPDM048, MSPDM049, MSPDM050, MSPDM051, MSPDM052, MSPDM053, MSPDM054, MSPDM055, MSPDM056, MSPDM057, MSPDM058, MSPDM059, MSPDM060, MSPDM061, MSPDM062, MSPDM063, MSPDM064, MSPDM065, MSPDM066, MSPDM067, MSPDM068, MSPDM069, MSPDM070, MSPDM071, MSPDM072, MSPDM073, MSPDM074, MSPDM075, MSPDM076, MSPDM077, MSPDM078, MSPDM079, MSPDM080, MSPDM081, MSPDM082, MSPDM083, MSPDM084, MSPDM085, MSPDM086, MSPDM087, MSPDM088, MSPDM089, MSPDM090, MSPDM091, 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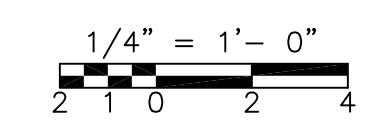


THIRD FLOOR PLAN  
PLAN  
1/8" = 1'-0"



SECOND FLOOR PLAN  
PLAN  
1/8" = 1'-0"

- ① EXISTING GLASS & LOUVER BEHIND INTAKE PLENUM TO BE REPLACED WITH A NEW COMBINATION LOUVER DAMPER. REFER TO ARCH DRAWINGS. PROVIDE REQUIRED DAMPER OPERATORS TO INTERLOCK TO ASSOCIATED FAN OPEN WHEN FAN RUNS. UNUSED PORTION OF LOUVER TO BE BLANKED OFF W/ INSULATED DOUBLE WALL SHEET METAL.
- ② CONCRETE OPENING SIZED TO DROP FANS SF-1 TO SF-3 FROM THE THIRD FLOOR TO THE FLOOR THEY WILL BE INSTALLED ON.
- ③ 60"x50" MODULATING RETURN AIR DAMPERS (TYP 2)
- ④ VENTILATION THERMOSTAT, THERMOSTAT MODULATES OUTDOOR AIR AND RETURN AIR DAMPERS TO MAINTAIN MINIMUM SUPPLY TEMPERATURE.

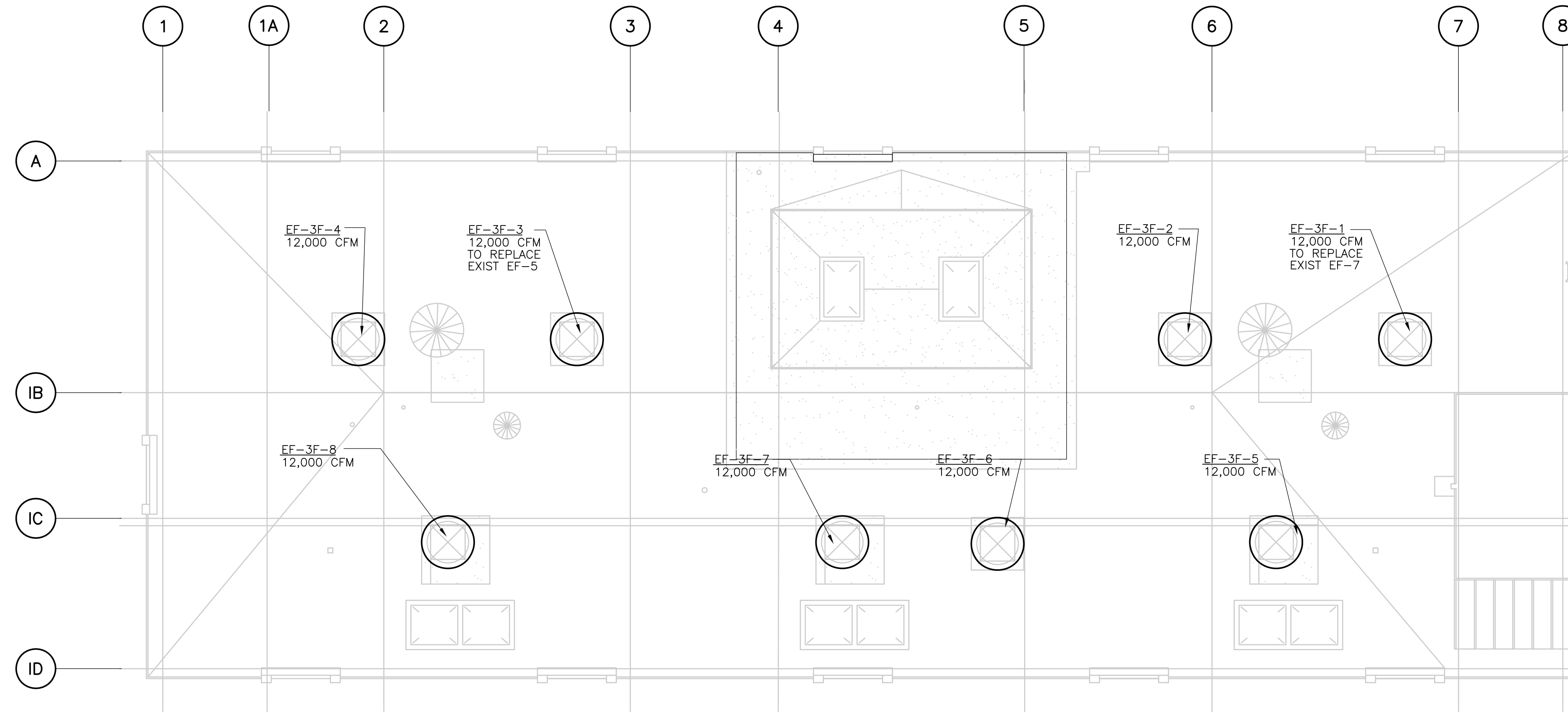


RECORD DRAWING

CADD FILE NO. HINPL002.DWG DESIGNED BY: J. JACOBS DRAWN BY: K. RADEMACHER SHEET CHK'D BY: A.R. SCALE: 1/8" = 1'-0" APPROVED BY: A. CHIUCCARIELLO DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 223 of 386  <b>SP-H-3</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD					

ACCESSION NO. 1289-65823

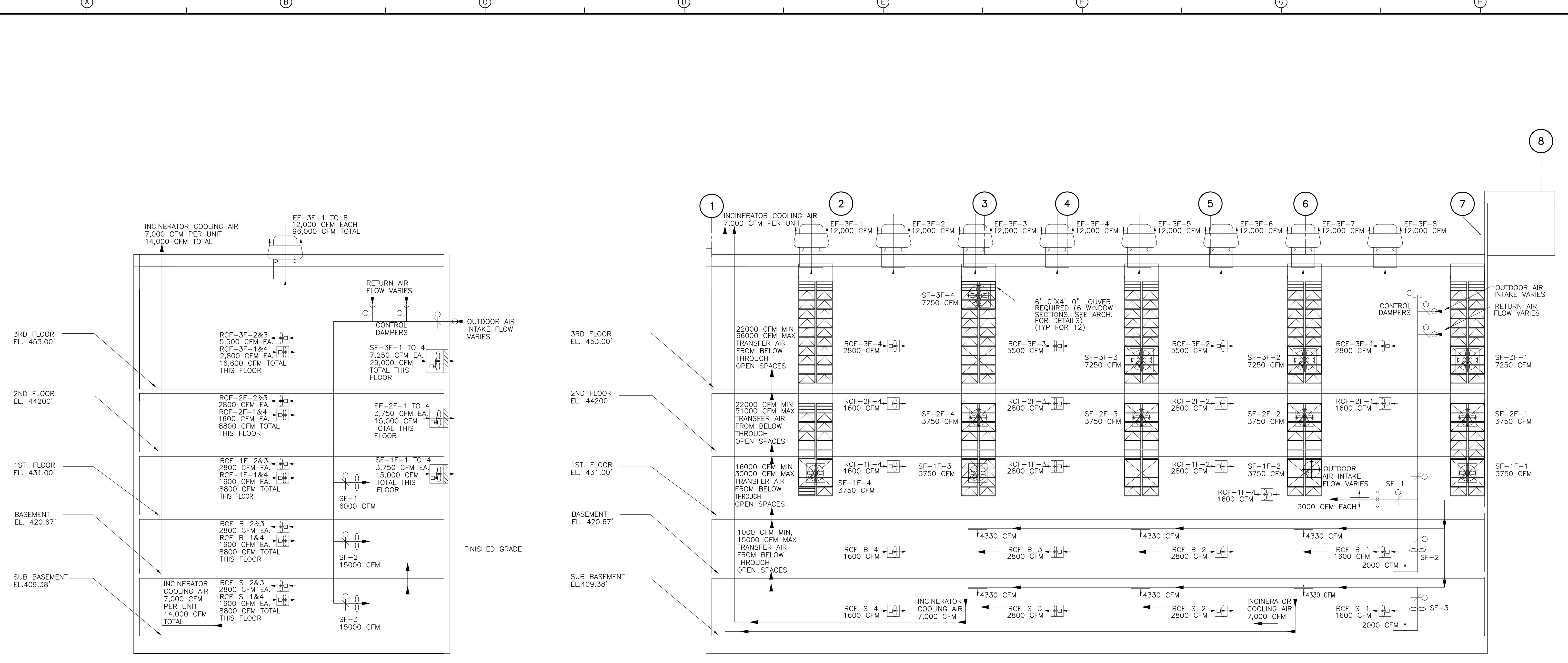




**ROOF PLAN**  
**PLAN**  
 1/8" = 1'-0"  
 NOTE: REMOVE ALL EXISTING ROOF FANS

RECORD DRAWING

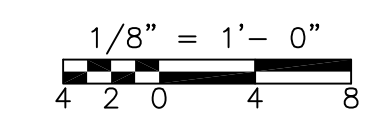
				CADD FILE NO.: HINPL003.DWG DESIGNED BY: J. JACOBS DRAWN BY: K. RADEMACHER SHEET CHK'D BY: A.R. SCALE: 1/8"=1'-0" APPROVED BY: A. CHIQUARRIELLO DATE: MAY 2006				UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		<b>INCINERATOR BUILDING          ROOF PLAN</b>		PROJECT NO. 1289\35370  Sht. 224 of 386  <b>SP-H-4</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS									
	10/07	JAL	ADT	NO REVISION REQUIRED FOR THE RECORD									



**SECTION 1**  
1/8" = 1'-0"  
SP-H-

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

	VENTILATION RATES		RECIRCULATION		OUTDOOR AIR	
	CFM	AC/HR	CFM	AC/HR	CFM	AC/HR
THIRD FLOOR	16600	7	29000	12		
SECOND FLOOR	8800	7	15000	12		
FIRST FLOOR	8800	7	15000	13		
BASEMENT	8800	7	18250	16		
SUB-BASMENT	8800	7	18250	15		
TOTAL	51800	NA	95500	NA		



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

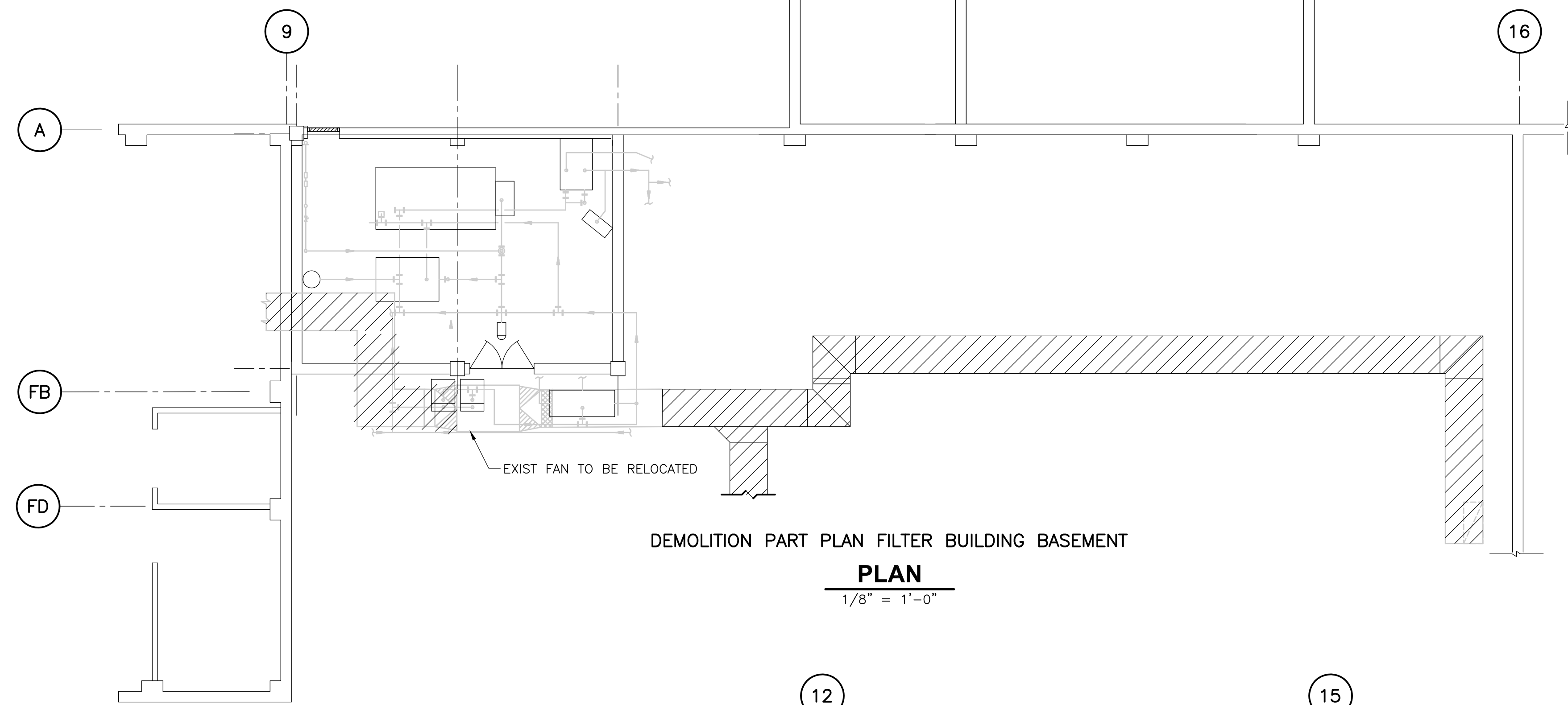
CADD FILE NO.: HINSC000  
 DESIGNED BY: J. JACOBS  
 DRAWN BY: K. RADEMACHER  
 SHEET CHK'D BY: A.R.  
 SCALE: 1/8"=1'-0"  
 APPROVED BY: A. CHIUCCARIELLO  
 DATE: MAY 2006

**CDM** consulting engineering construction operations  
 Camp Dresser & McKee Inc.

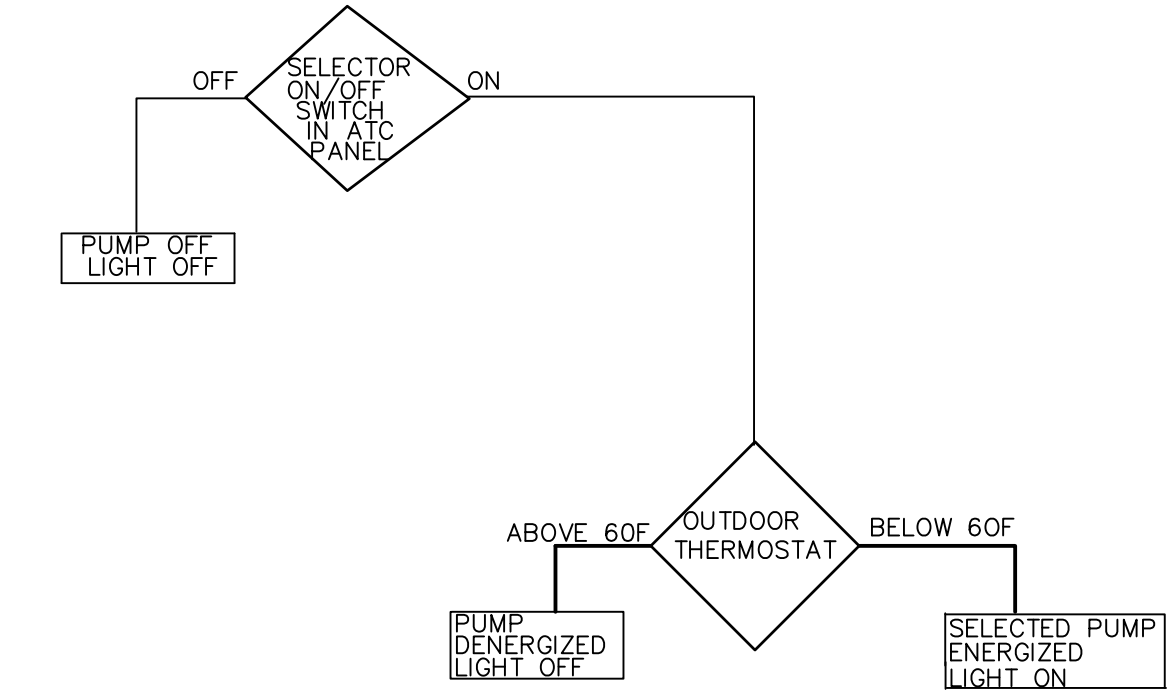
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**INCINERATOR BUILDING  
 SECTIONS**

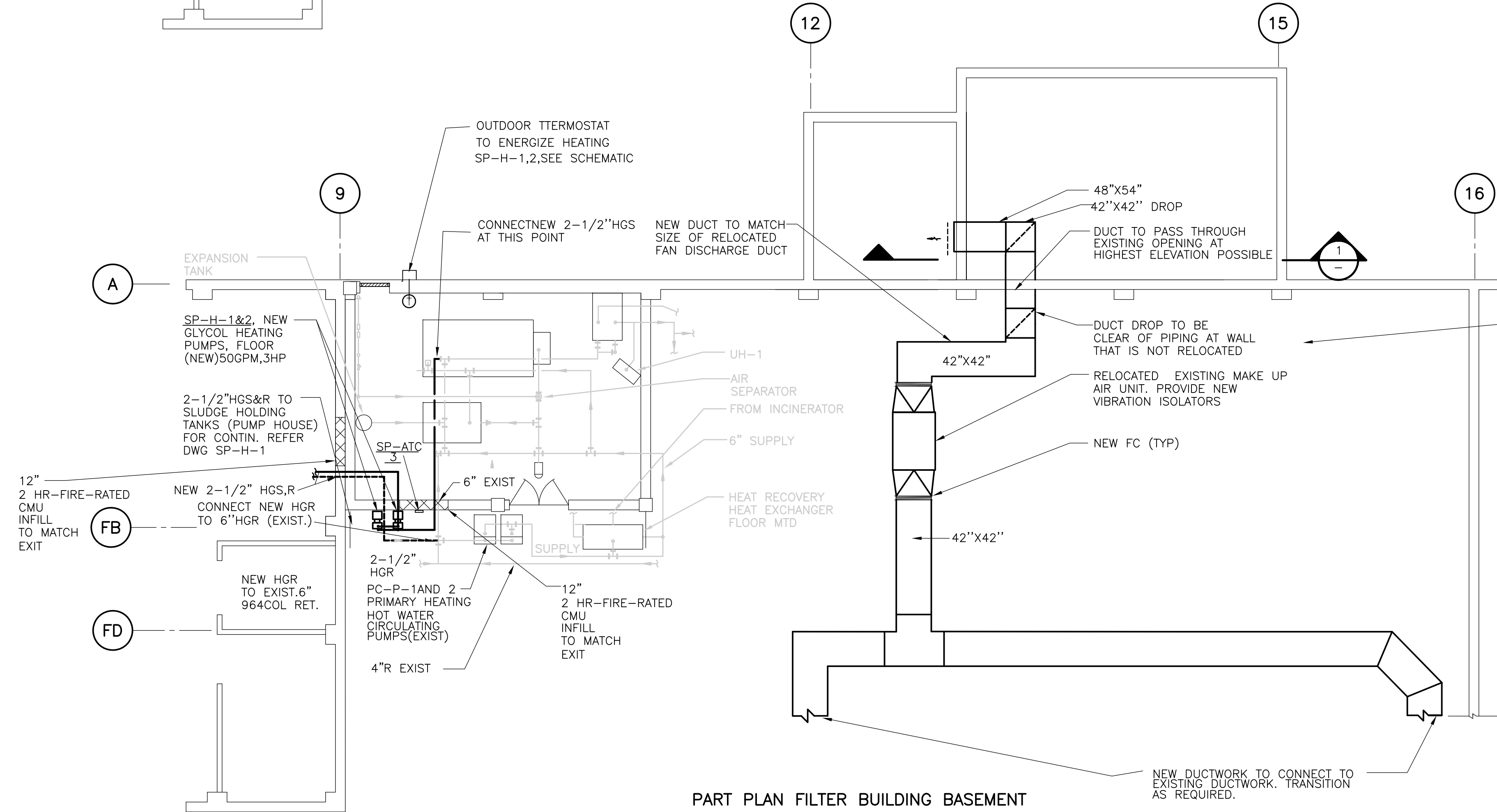
PROJECT NO.  
1289\35370  
 Sht. 225 of 386  
**SP-H-5**  
ACCESSION NO. 1289-55925



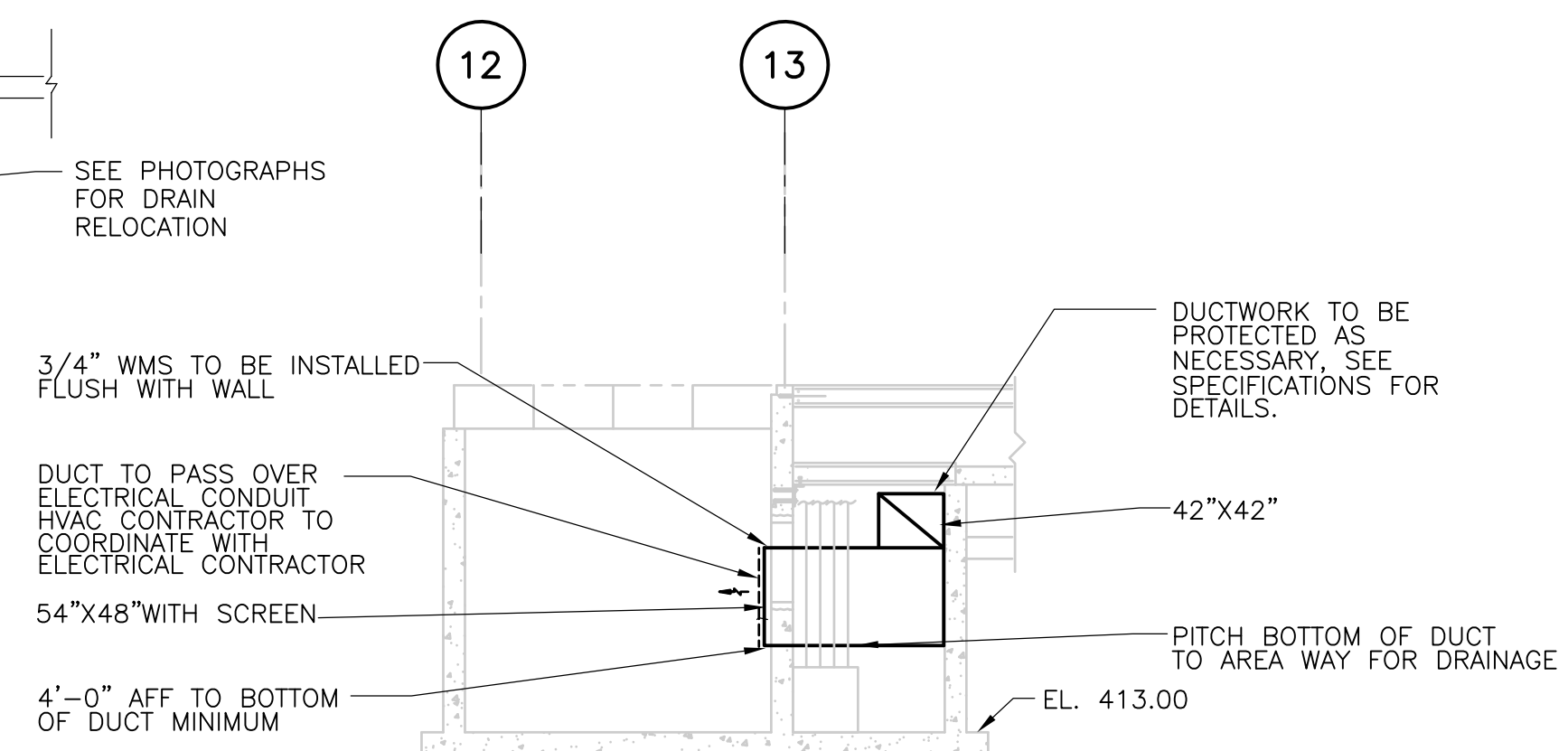
DEMOLITION PART PLAN FILTER BUILDING BASEMENT  
**PLAN**  
 1/8" = 1'-0"



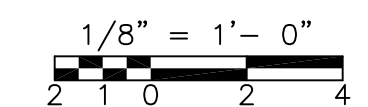
**CONTROL DIAGRAM FOR**  
**HEATING PUMPS HW-P-1,2**  
**ATC PANEL SP-ATC-3**



PART PLAN FILTER BUILDING BASEMENT  
**PLAN**  
 1/8" = 1'-0"



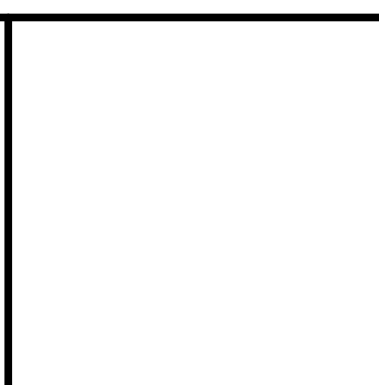
SPB FILTER AREA  
**SECTION 1**  
 1/8" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/07	JAL	ADT	REVISED FOR THE RECORD

CADD FILE NO.	HFBPL002.DWG
DESIGNED BY:	J. JACOBS/A.C.
DRAWN BY:	K. RADEMACHER
SHEET CHK'D BY:	A.R.
SCALE:	1/8"=1'-0"
APPROVED BY:	A. CHIUCCARELLO
DATE:	MAY 2006

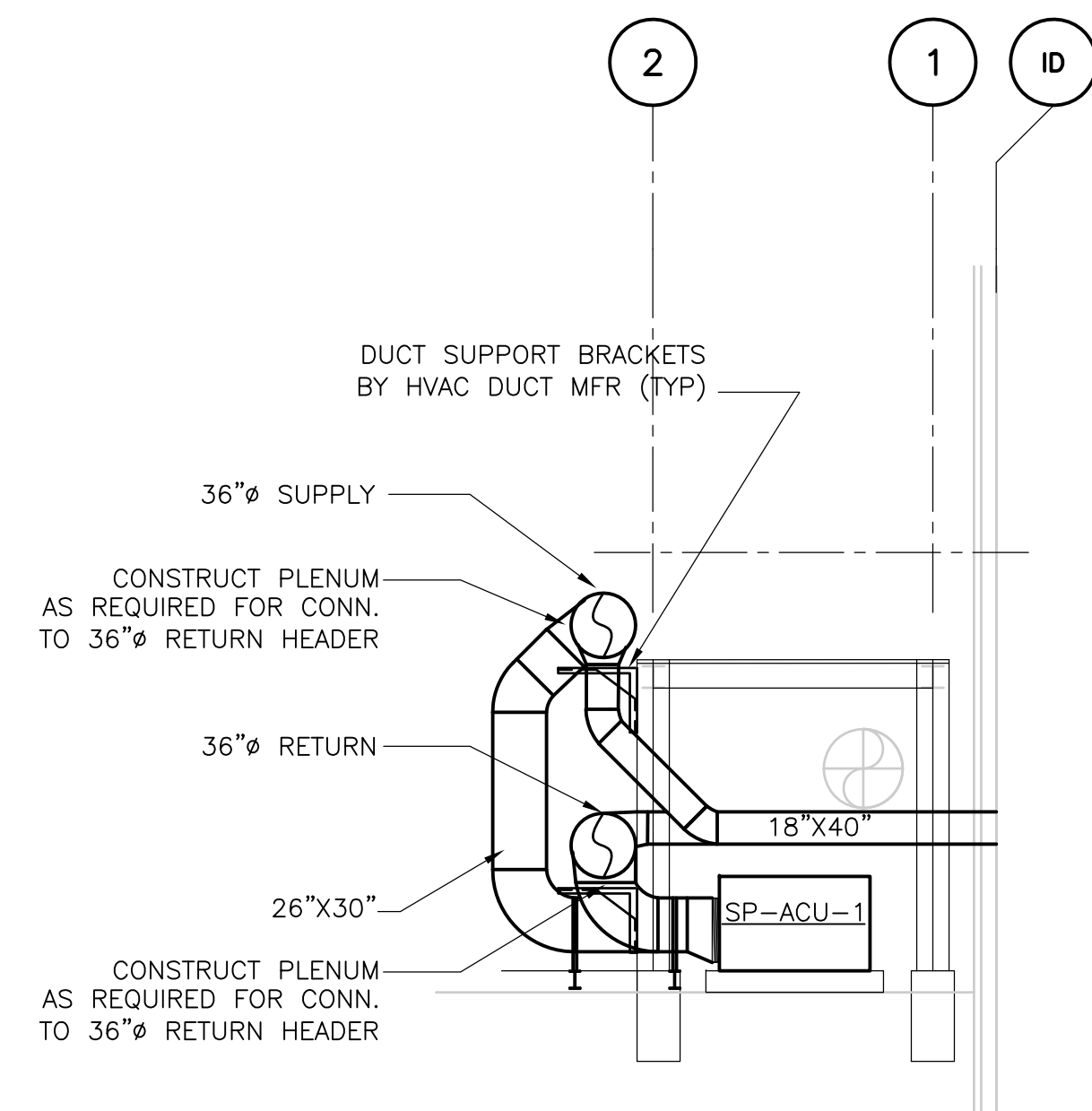


**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

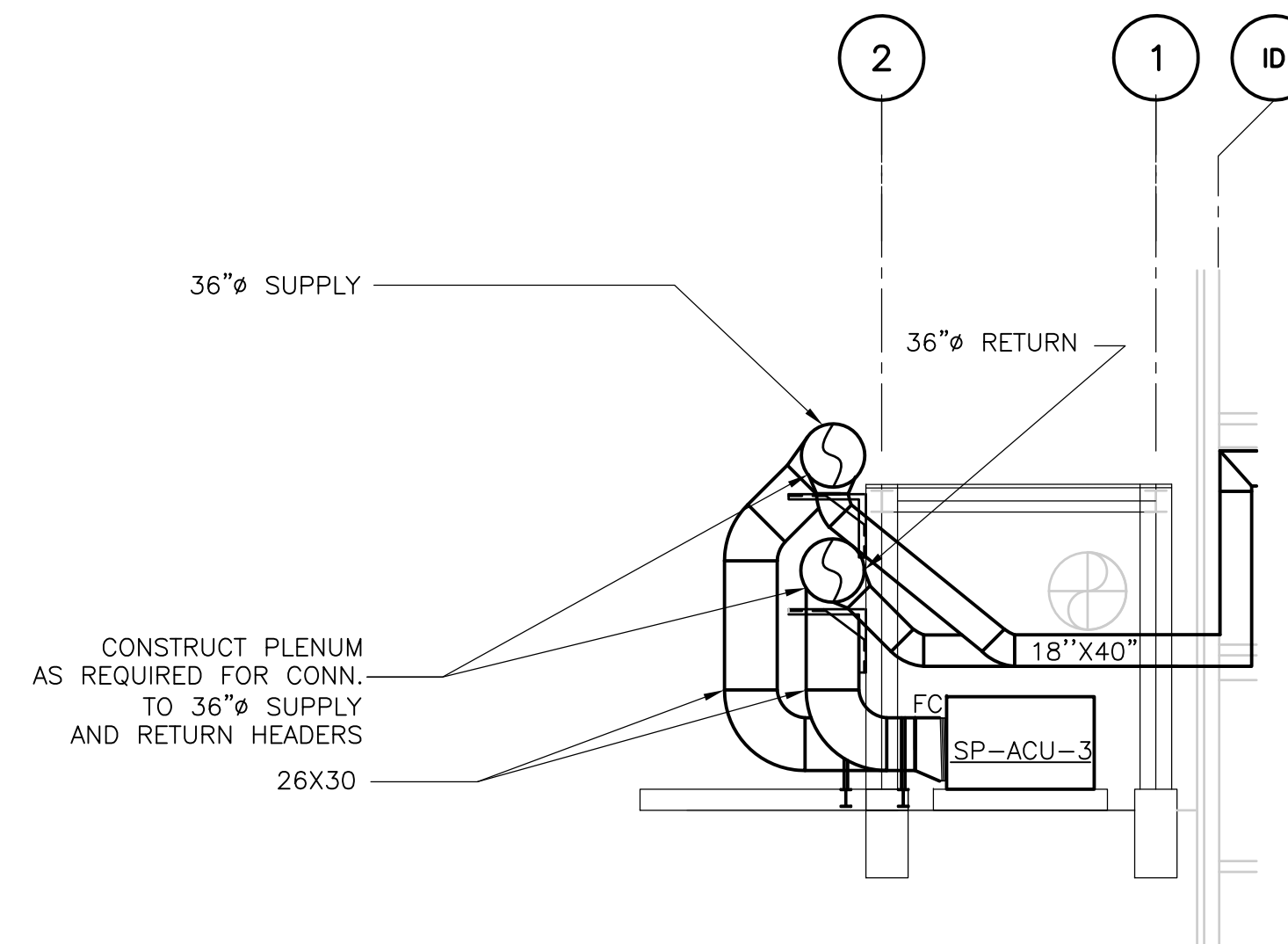
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**FILTER BUILDING**  
**HVAC MODIFICATION**

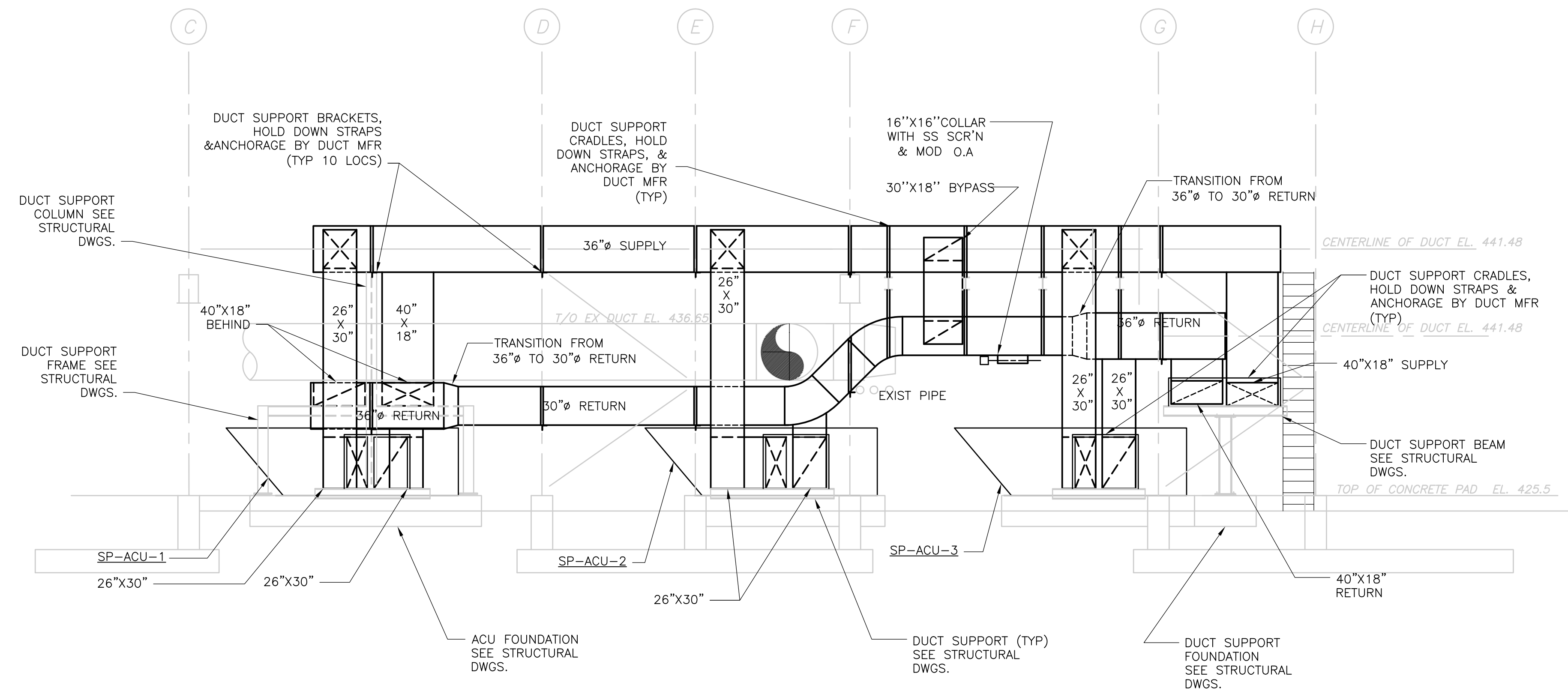
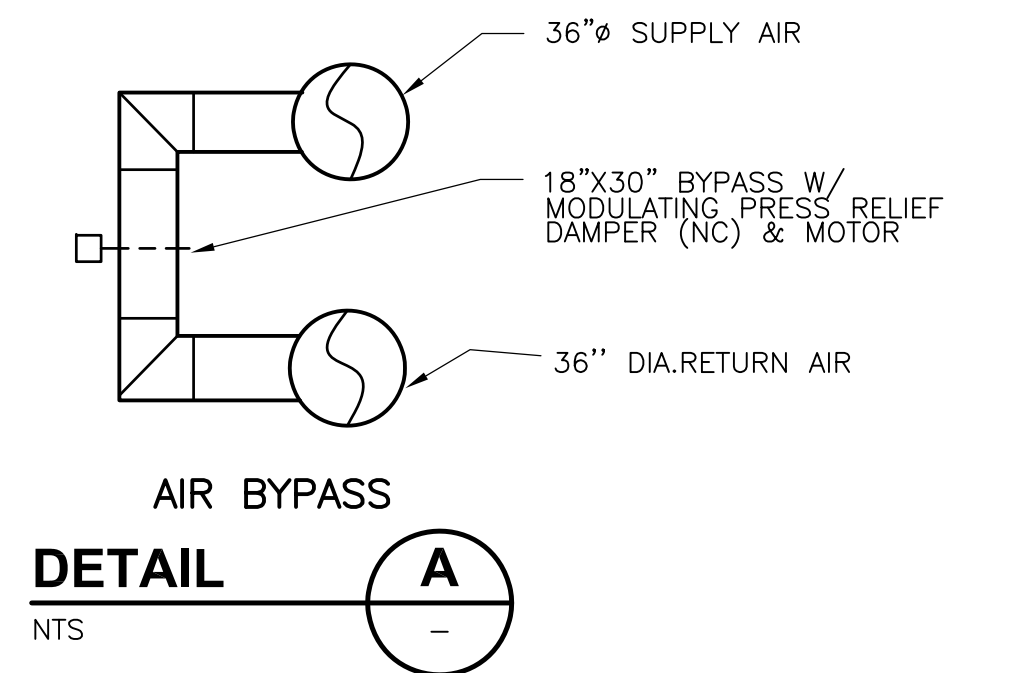
PROJECT NO.  
 1289\35370  
 Sht. 226 of 386  
**SP-H-6**



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



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



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

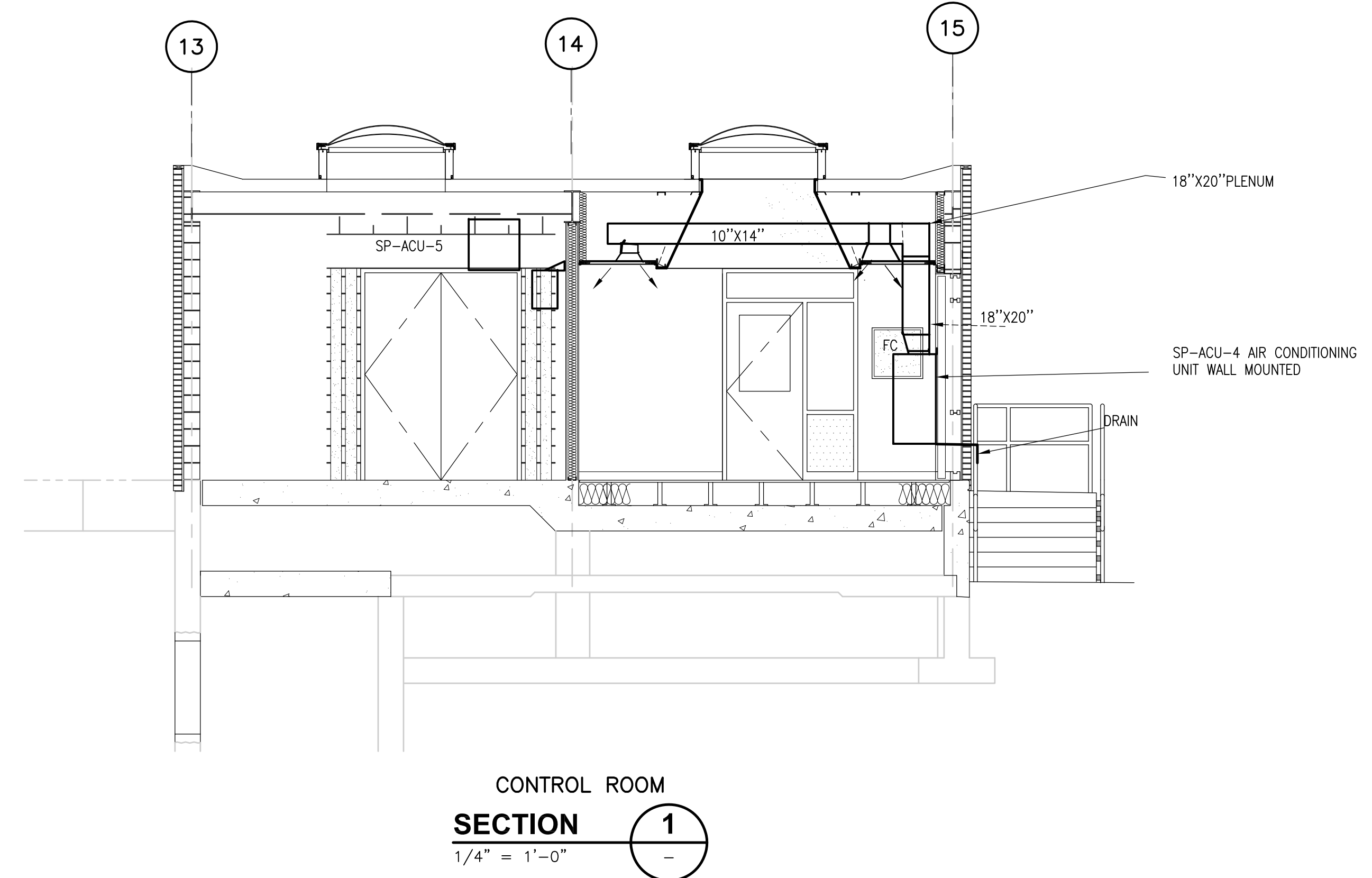
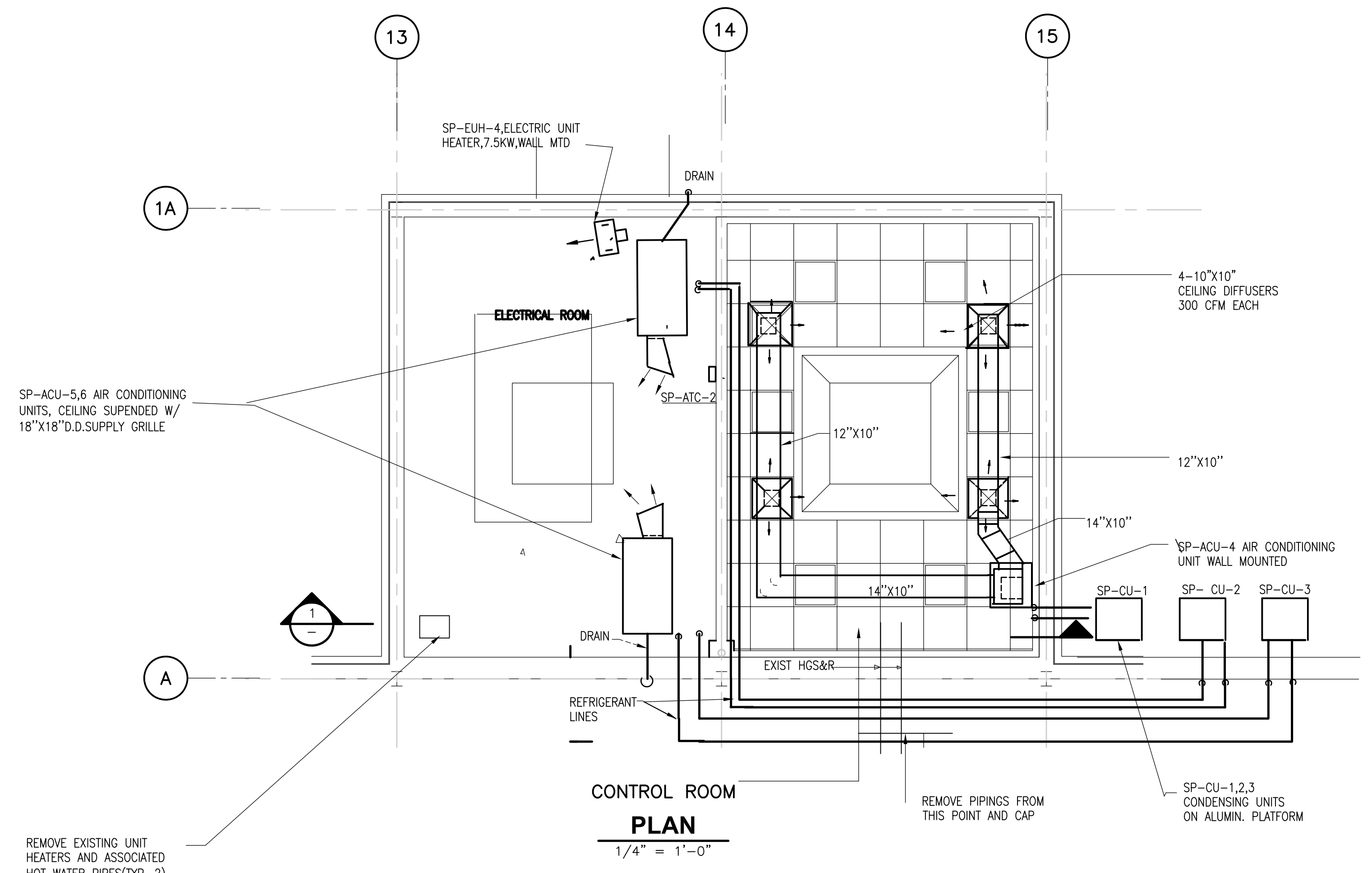
CADD FILE NO.	HINSC001.DWG
DESIGNED BY:	A.CHIUCCARIELLO
DRAWN BY:	K.RADEMACHER
SHEET CHK'D BY:	J.JACOBS
SCALE:	AS NOTED
APPROVED BY:	A.CHIUCCARIELLO
DATE:	AUGUST 2003

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024  
  
WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS

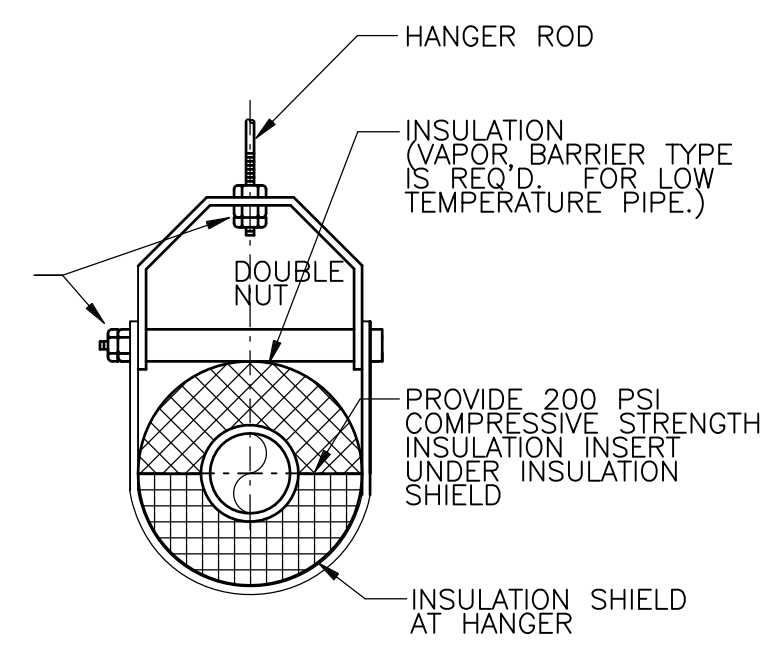
INCINERATOR BUILDING  
SIDE SECTIONS

PROJECT NO.	1289\35370
Sht.	227 of 386
<b>SP-H-7</b>	

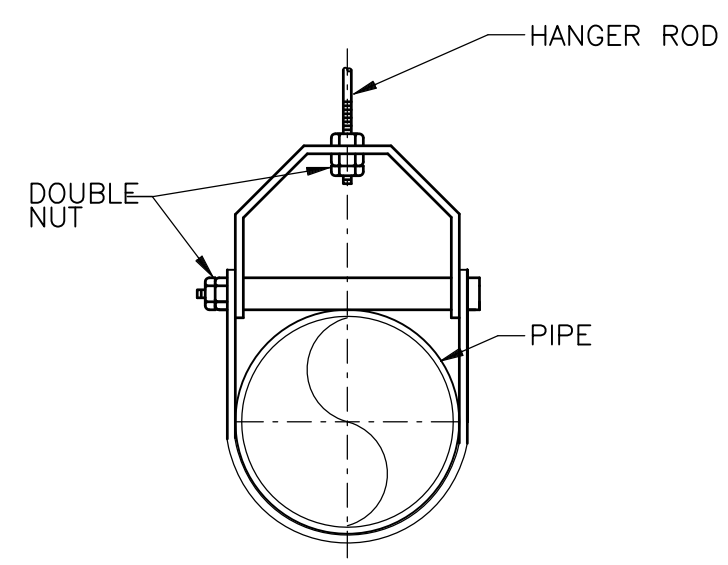


RECORD DRAWING

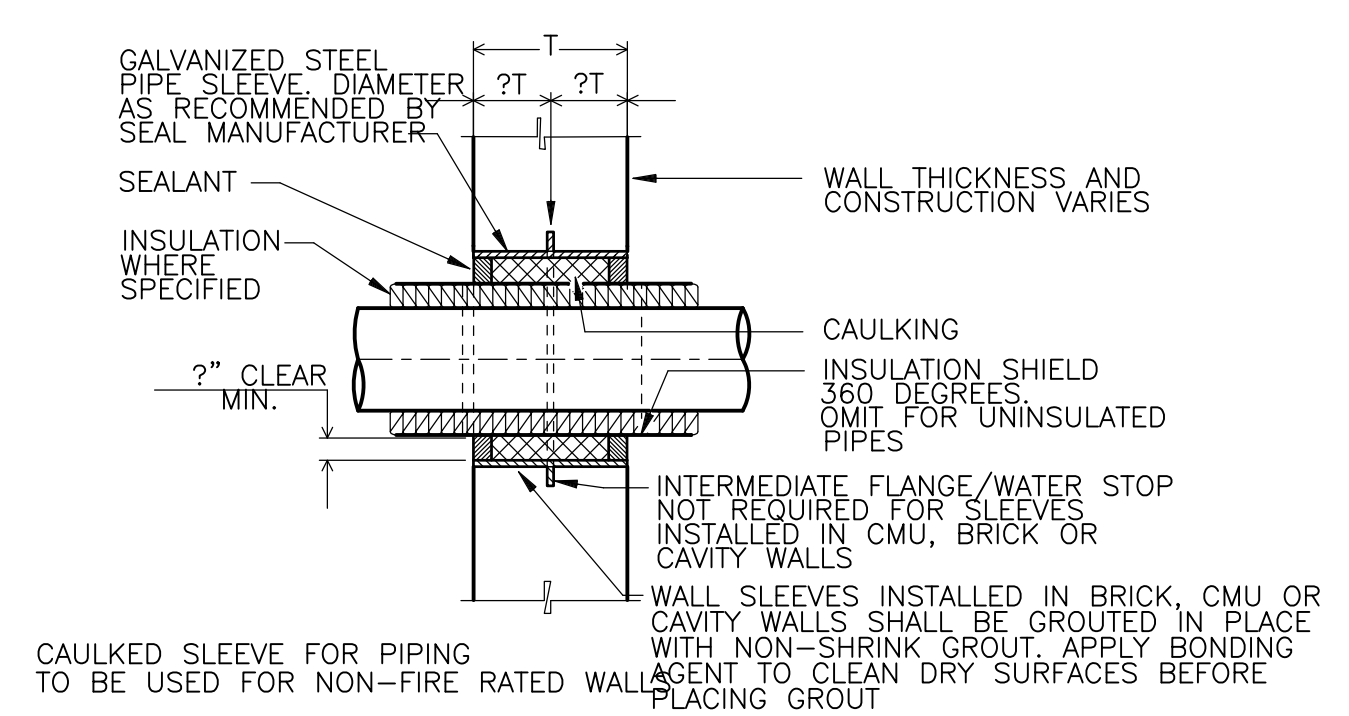
				CADD FILE NO. <u>ACRPL001</u>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>	<b>SLUDGE PROCESSING COMPLEX          NEW CONTROL ROOM AND          NEW ELECTRIC ROOM</b>	PROJECT NO. 1289\35370
				DESIGNED BY: <u>A. CHIUCCARIELLO</u>				Sht. 228 of 386
				DRAWN BY: <u>A. CHIUCCARIELLO</u>				<b>SP-H-8</b>
				SHEET CHK'D BY: <u>A.R.</u>				
				SCALE: <u>1/4" = 1'-0"</u>				
				APPROVED BY: <u>A. CHIUCCARIELLO</u>				
				DATE: <u>MAY 2006</u>				
REV. NO.	DATE	DRWN	CHKD	REMARKS				
	10/07	JAL	ADT	NO REVISION REQUIRED FOR THE RECORD				



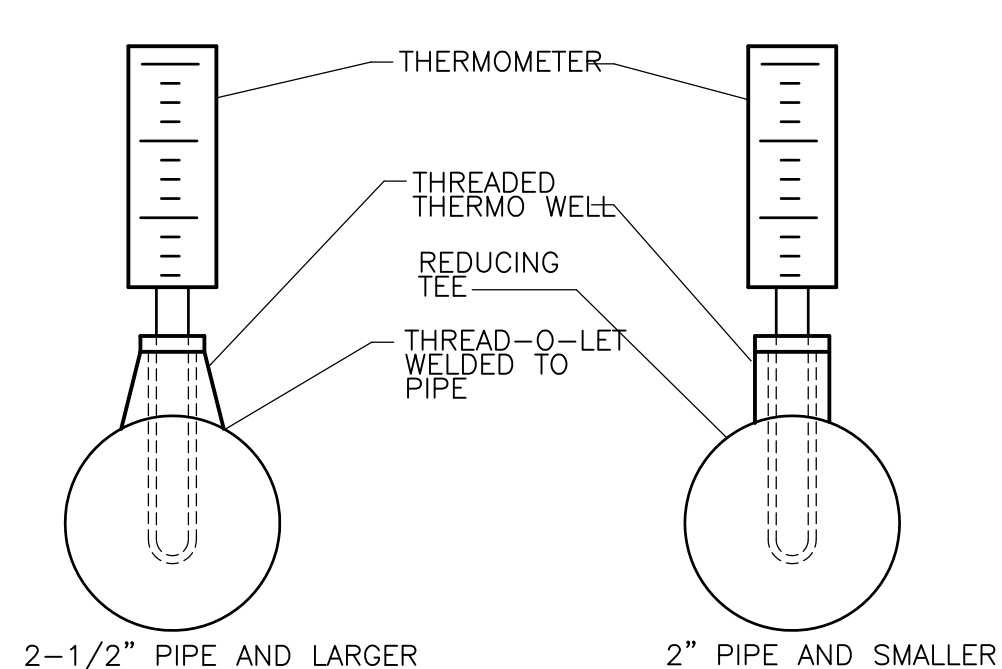
**TYPICAL HANGER FOR PIPING 3" AND SMALLER**  
 NTS



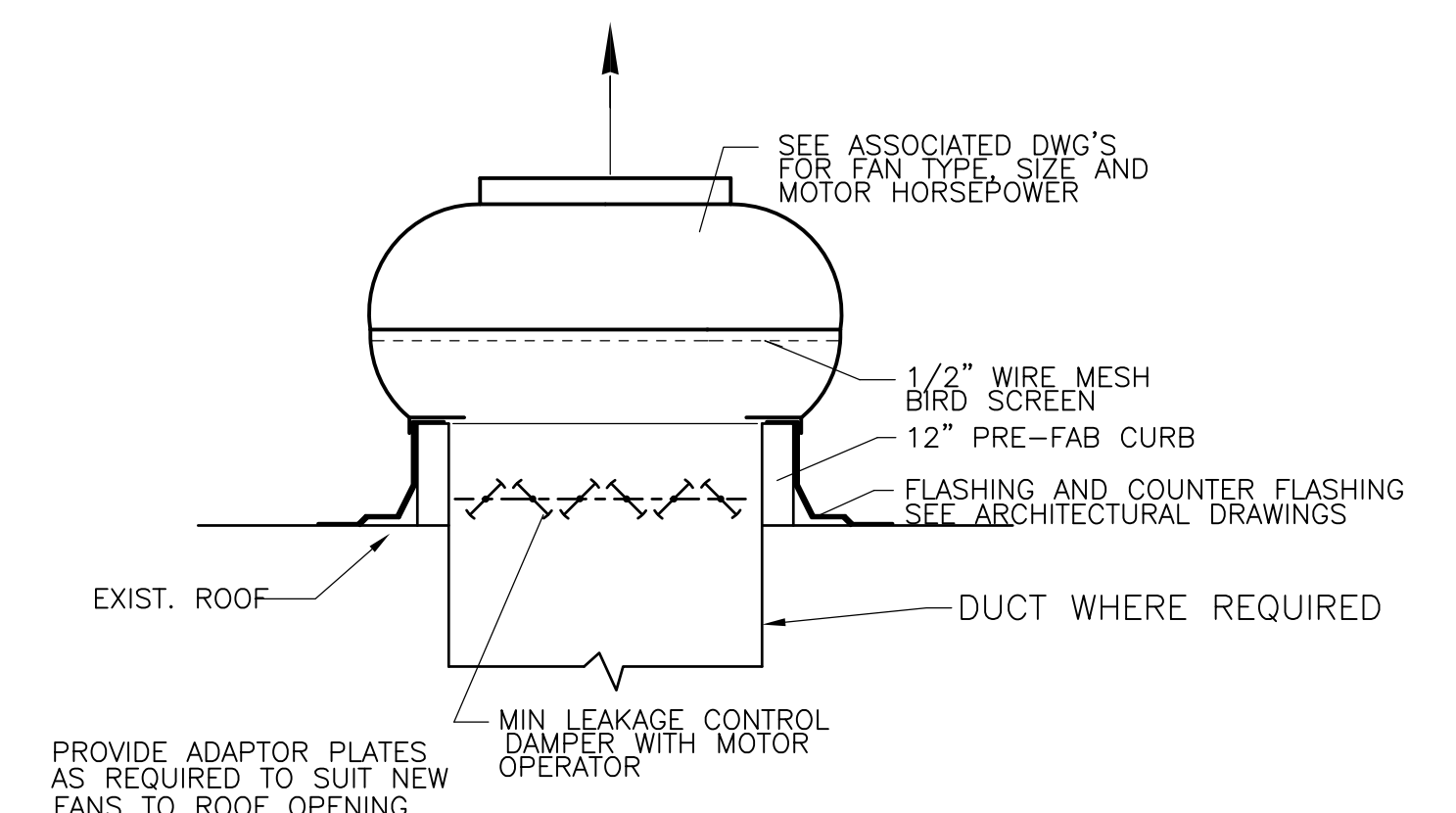
**UNINSULATED PIPE CLEVIS HANGER**  
 NTS



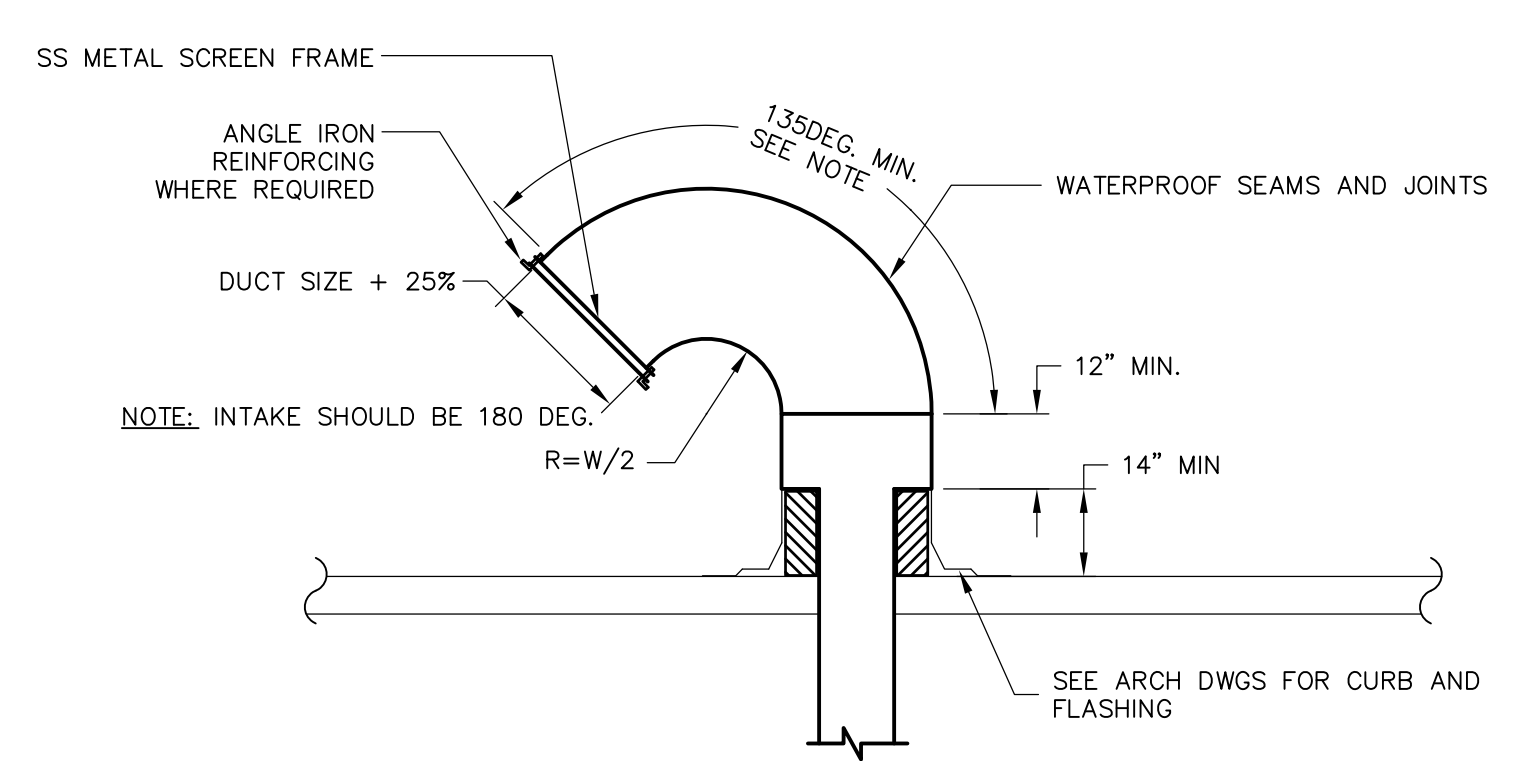
**PIPE PENETRATION**  
 NTS



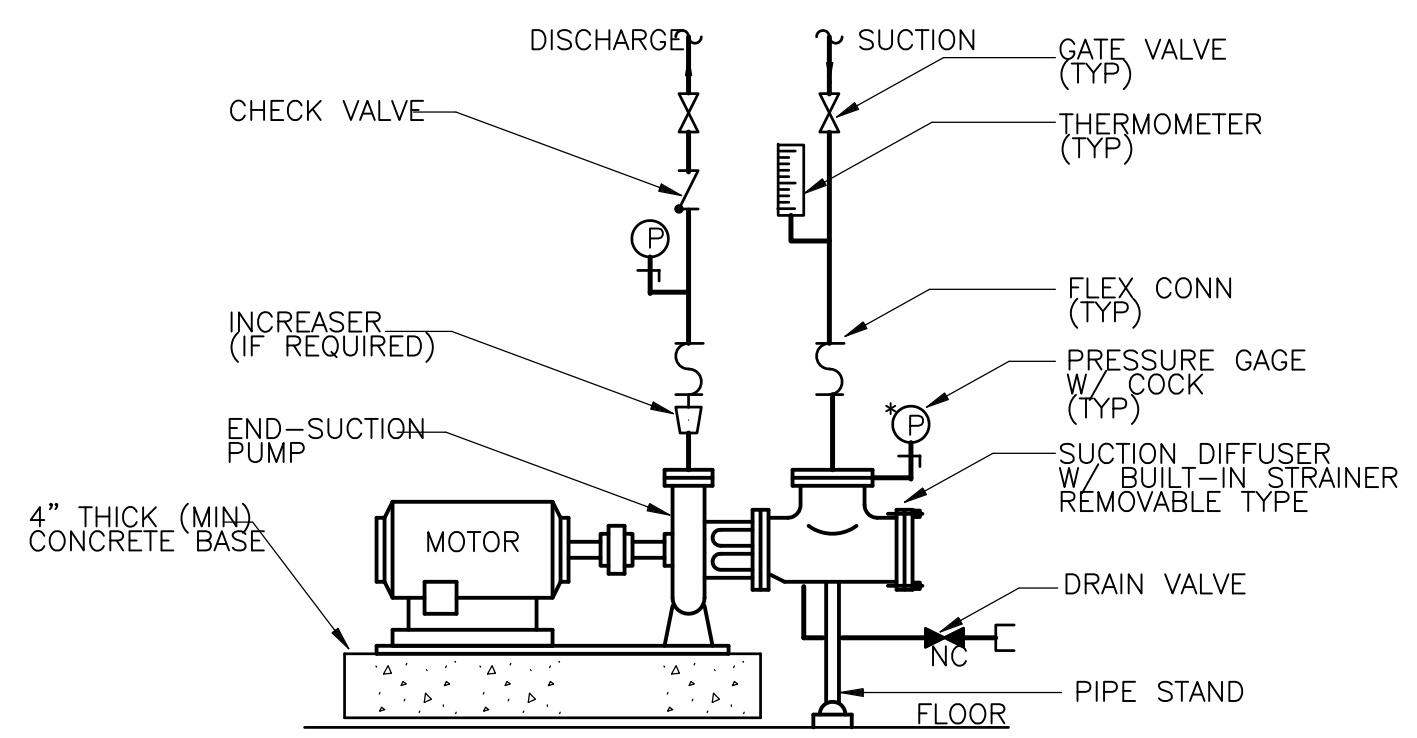
**PIPE MOUNTED THERMOMETER**  
 NTS



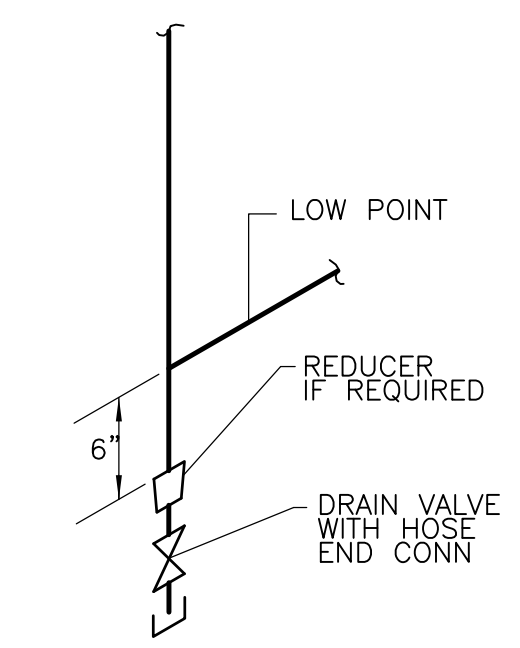
**ROOF FAN**  
 NTS



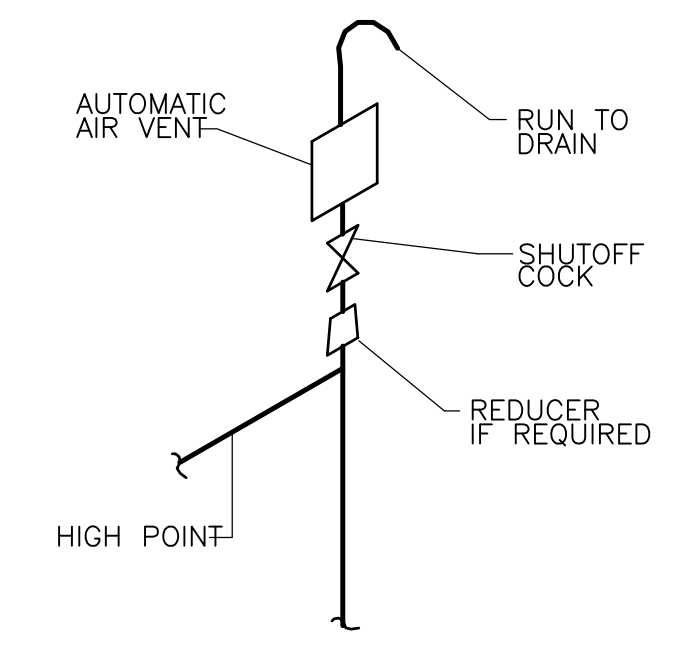
**DUCT SLEEVE THROUGH ROOF**  
 NTS



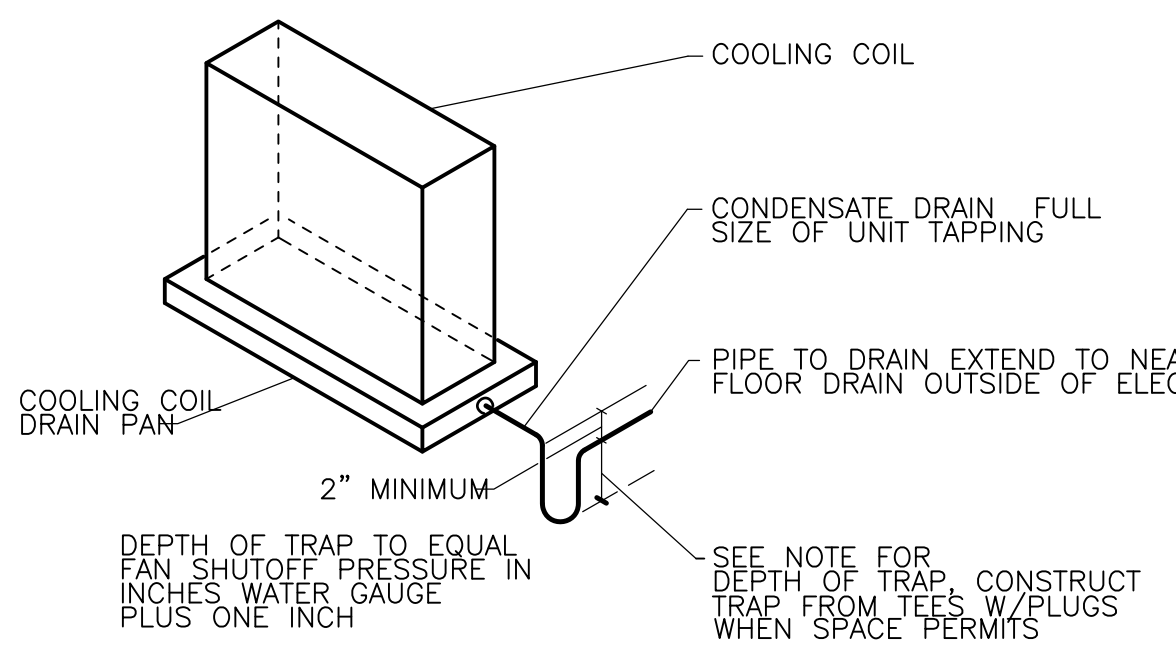
**BASE MOUNTED HOT WATER (GLYCOL) CIRCULATING PUMP**  
 NTS



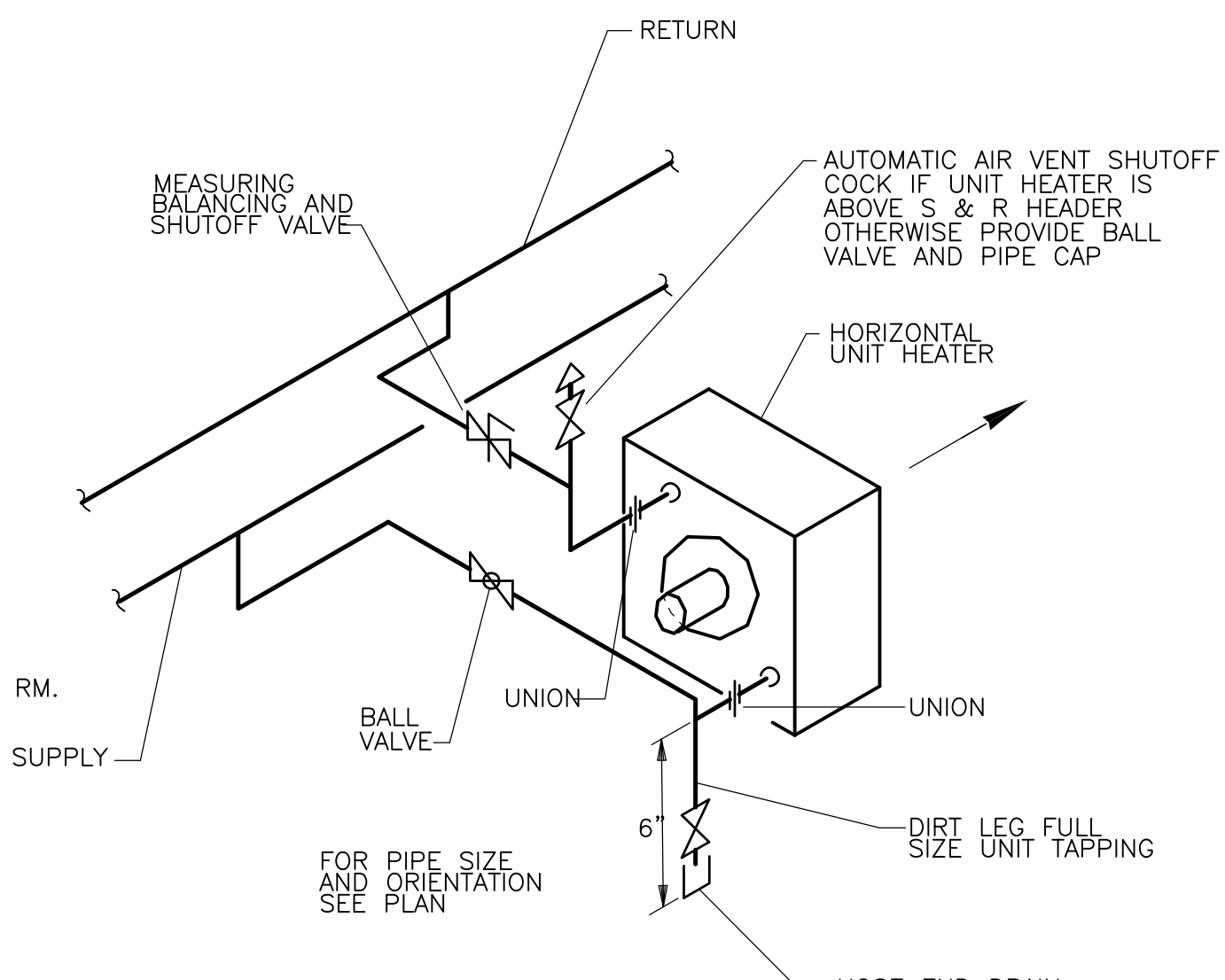
**LOW POINT DRAIN**  
 NTS



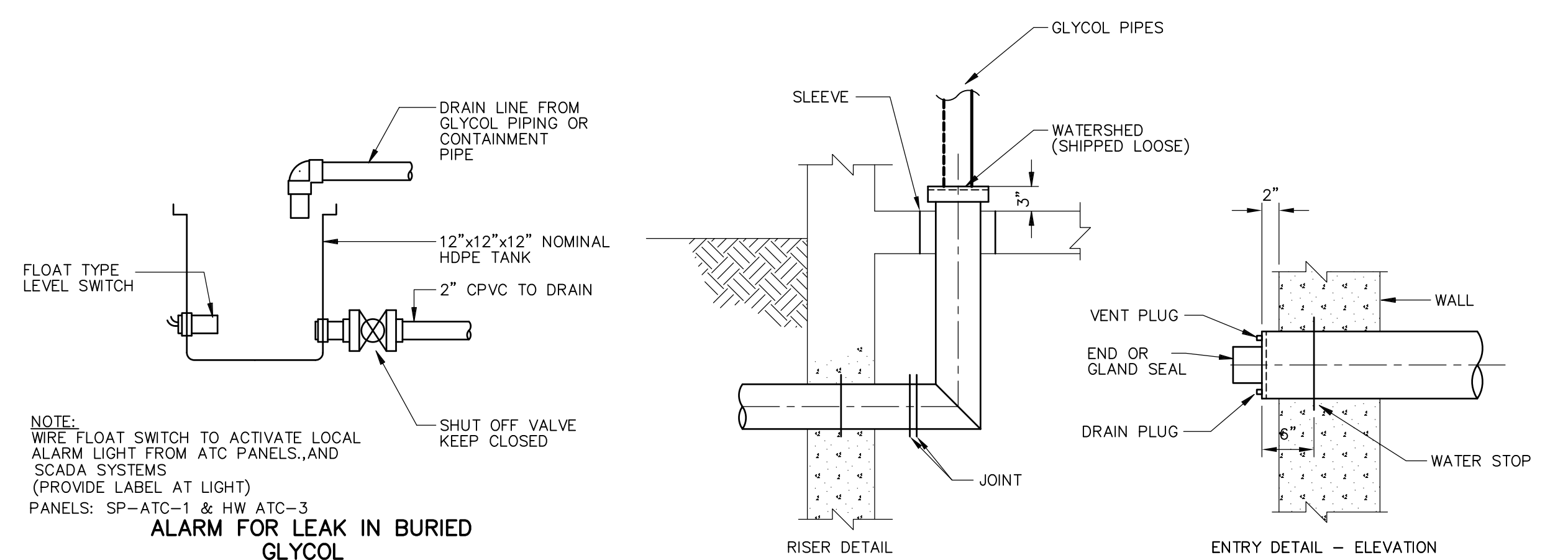
**HIGH POINT VENT**  
 NTS



**COOLING COIL CONDENSATION DRAIN**  
 NTS



**HORIZONTAL GLYCOL UNIT HEATER**  
 NTS



**CONTAINMENT PIPE WALL PENETRATION DETAILS**  
 NTS

TYPICAL 3 LOCATIONS: AT MANHOLES SEE DWG C-13.19 & C-26  
 AT INCINERATOR BLDG SEE DWG SP-H-1  
 AT HEADWORK BLDG. SEE DWG HW-H-1, 2, & 4

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	HSDSD001
DESIGNED BY:	A. CHIUCCIARIELLO
DRAWN BY:	K. RADEMACHER
SHEET CHK'D BY:	A.R.
SCALE:	NTS
APPROVED BY:	A. CHIUCCIARIELLO
DATE:	MAY 2006

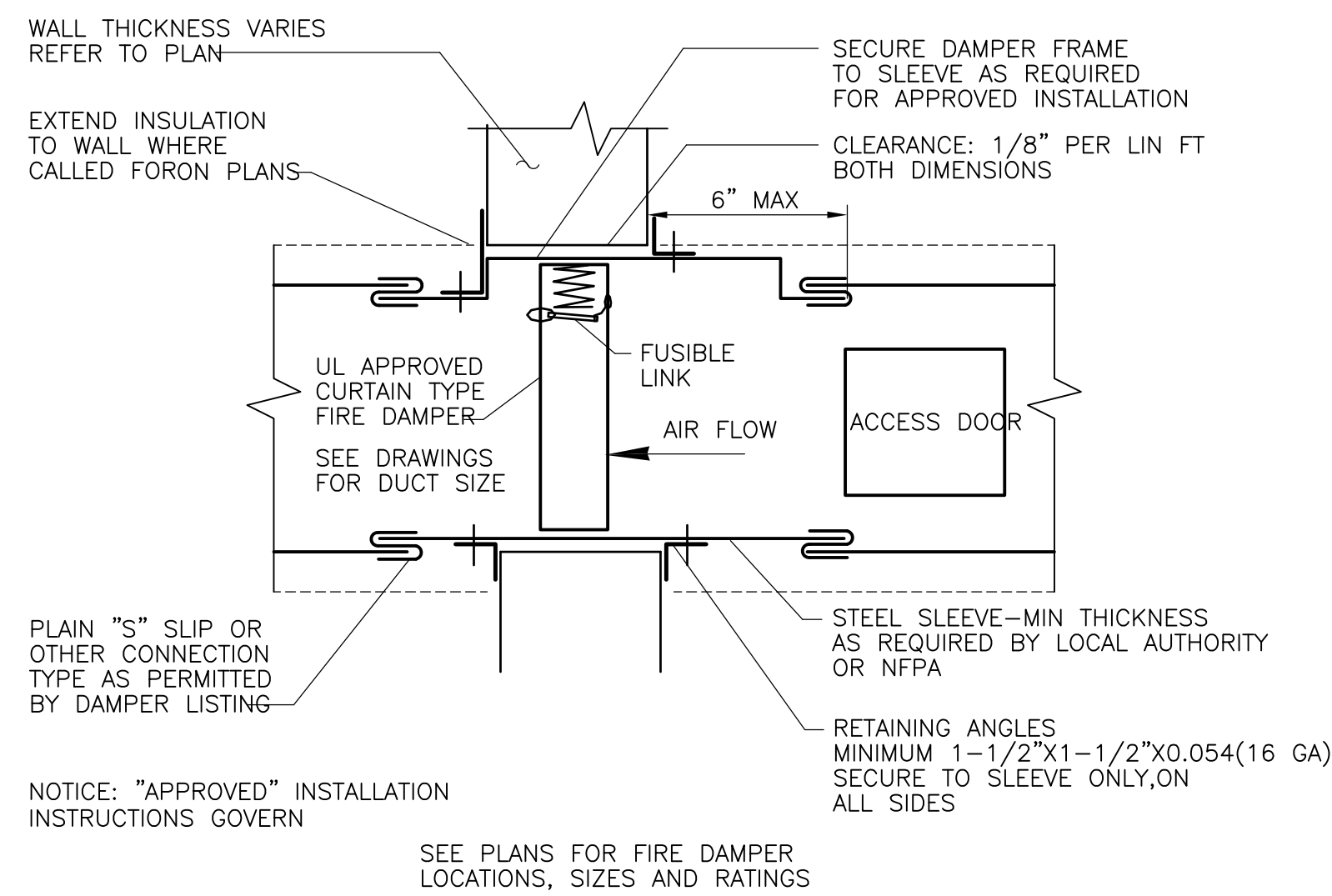
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

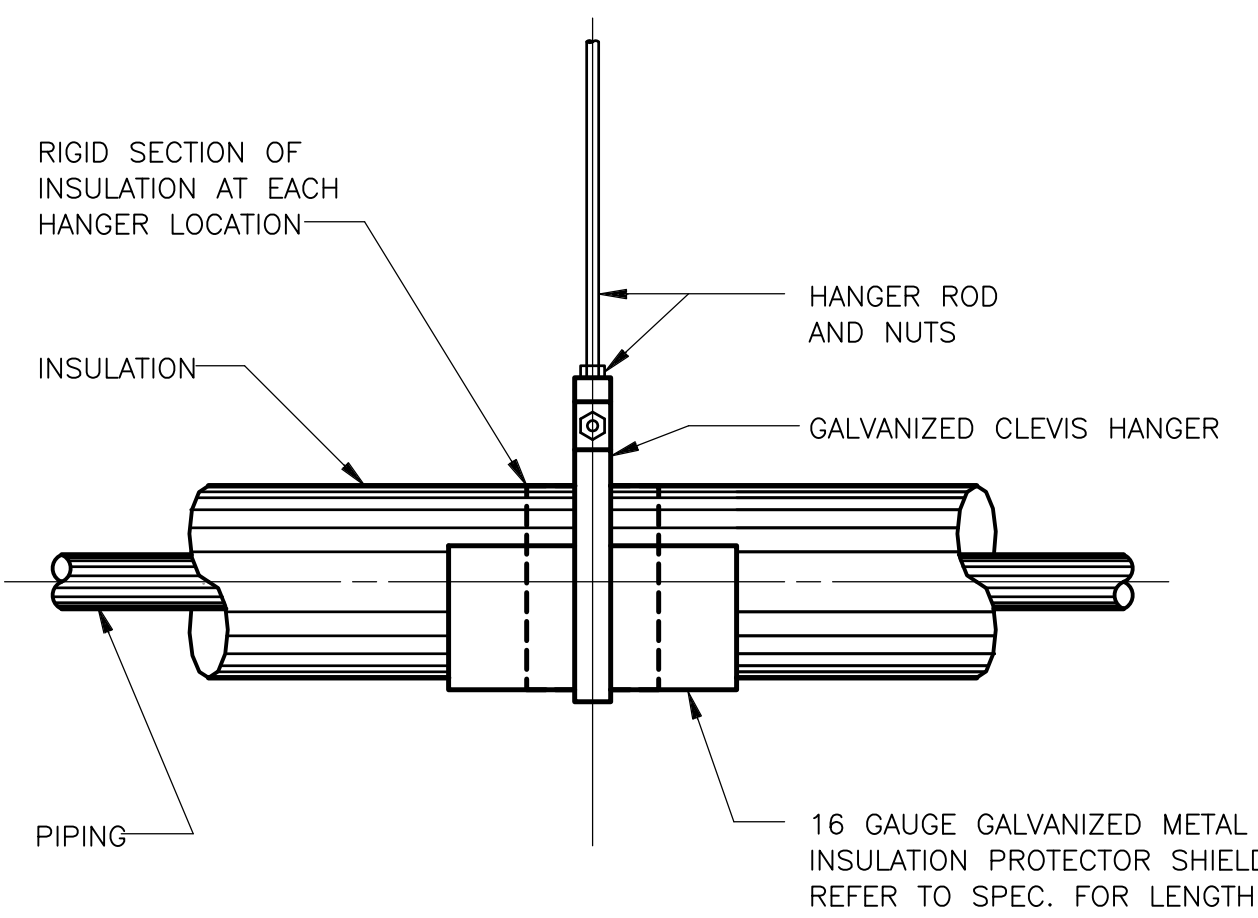
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**HVAC DETAILS I**

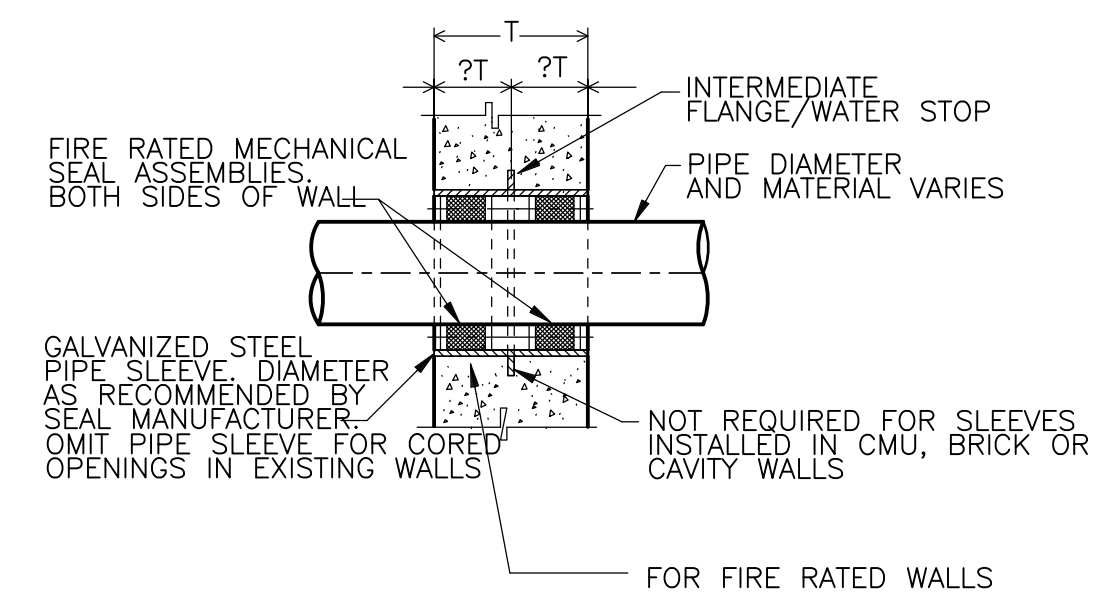
PROJECT NO. 1289\35370  
 Sht. 229 of 386  
**SD-H-1**



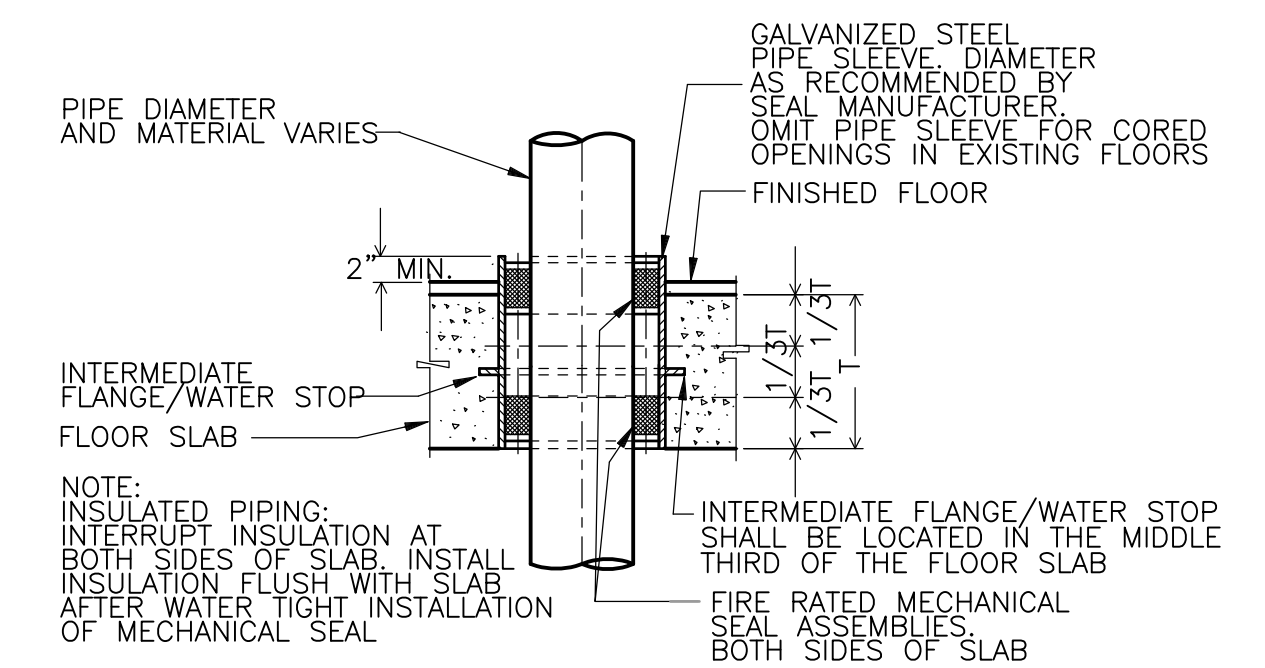
**CURTAIN TYPE HORIZONTAL FIRE DAMPER**  
**DETAIL**  
 NTS



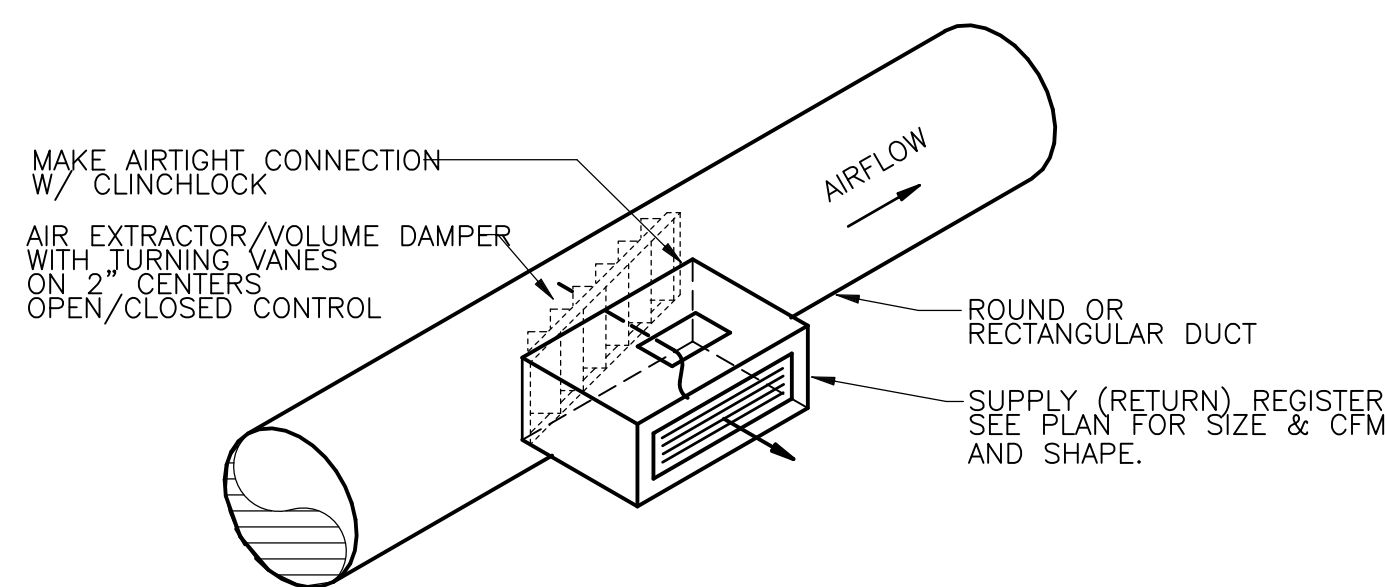
**HANGER SUPPORT SYSTEM INSULATED HORIZONTAL PIPING**  
**DETAIL**  
 NTS



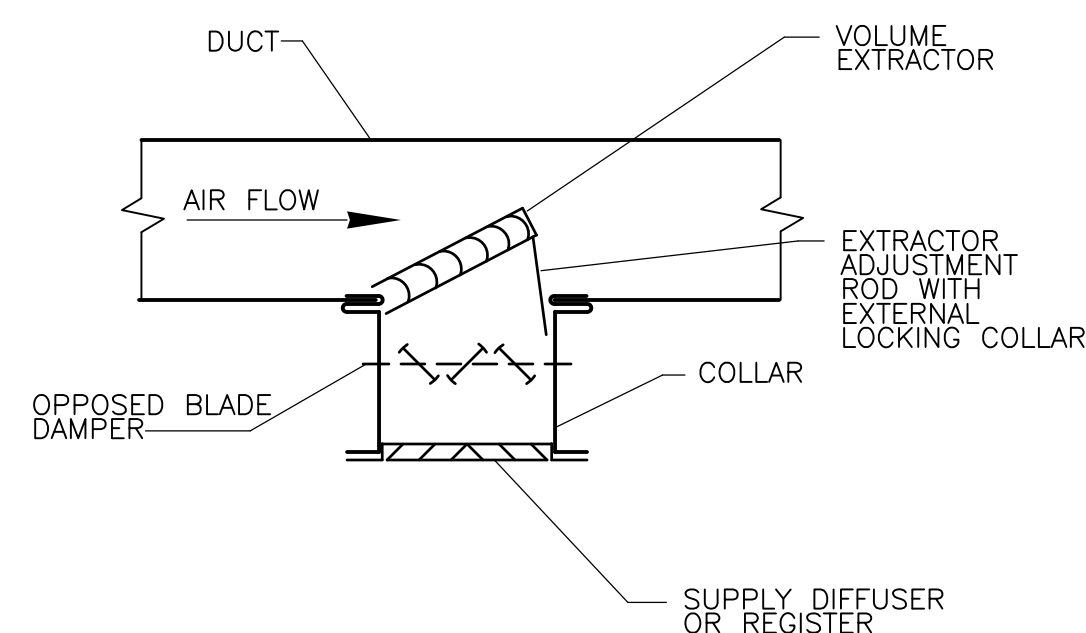
**PIPE PENETRATION**  
**DETAIL**  
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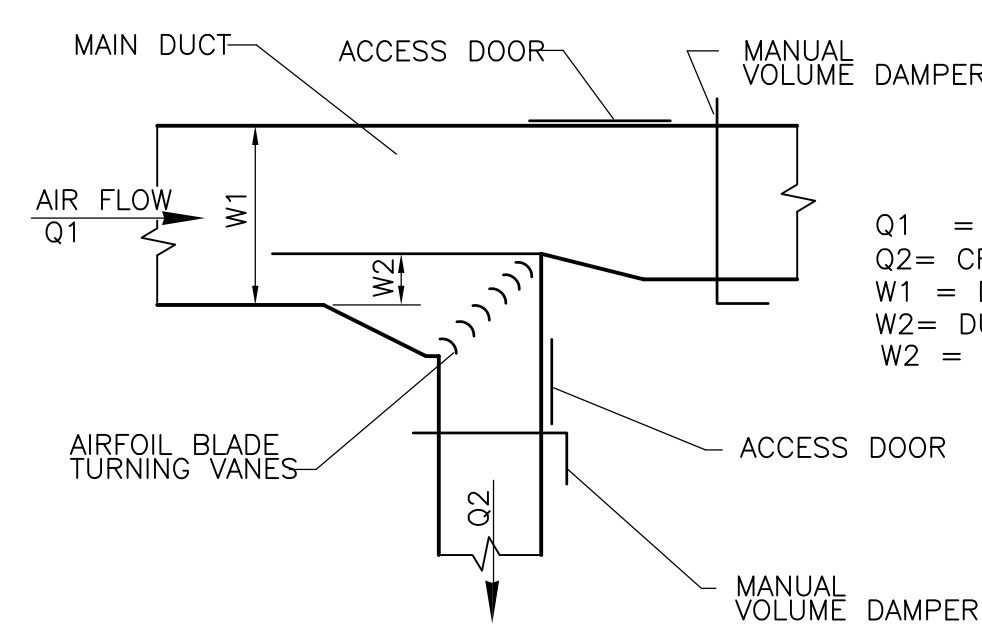
**PIPE PENETRATION**  
**DETAIL**  
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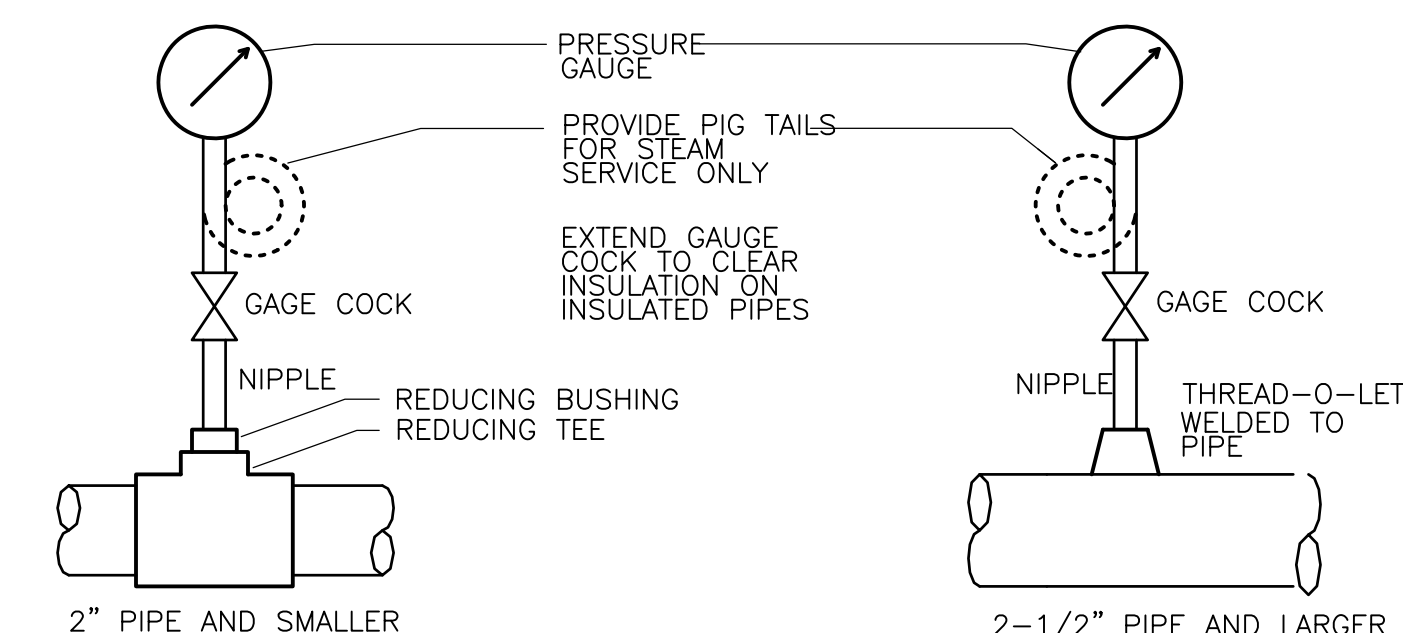
**DUCT MOUNTED REGISTER**  
**DETAIL**  
 NTS



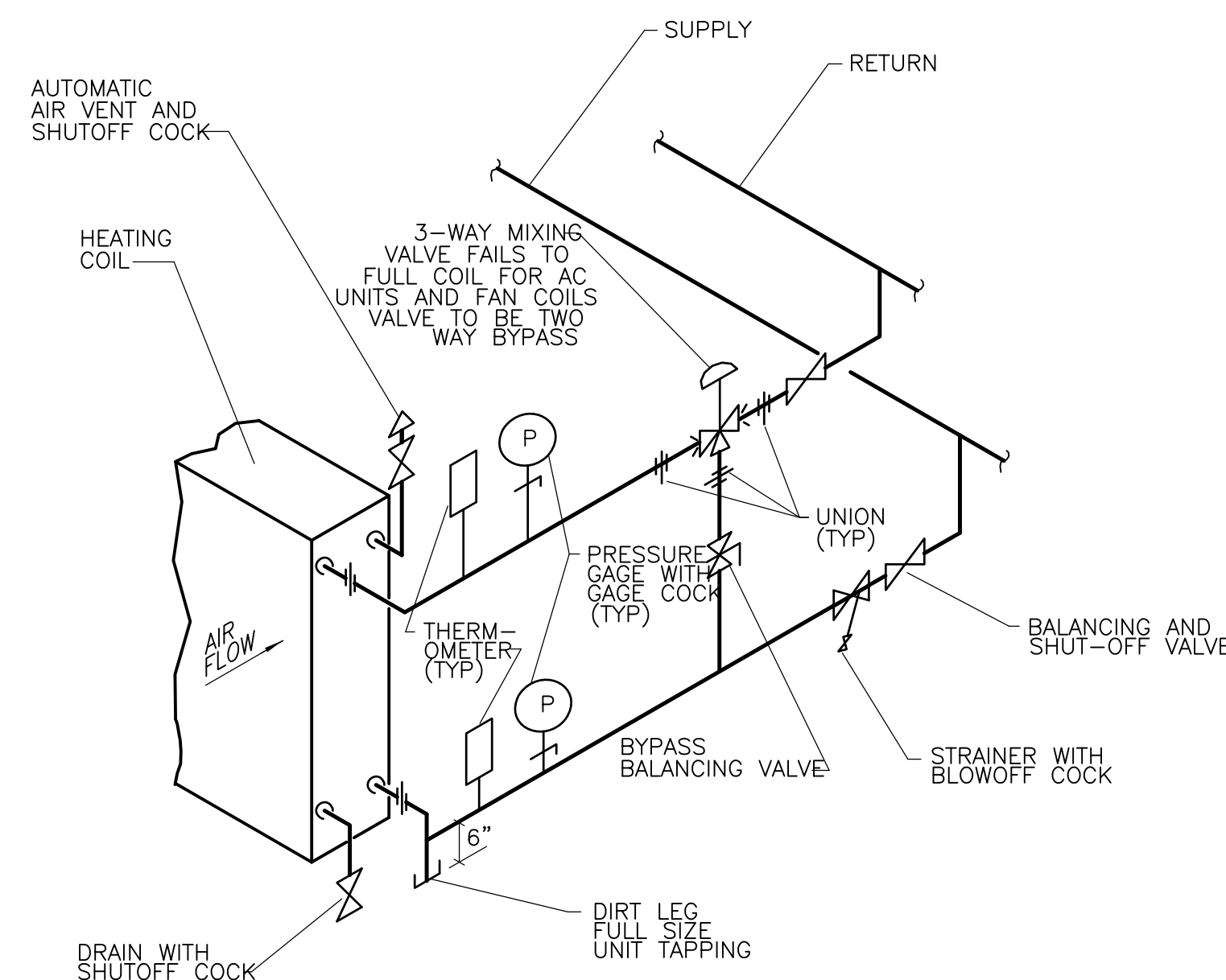
**VOLUME EXTRACTOR**  
**DETAIL**  
 NTS



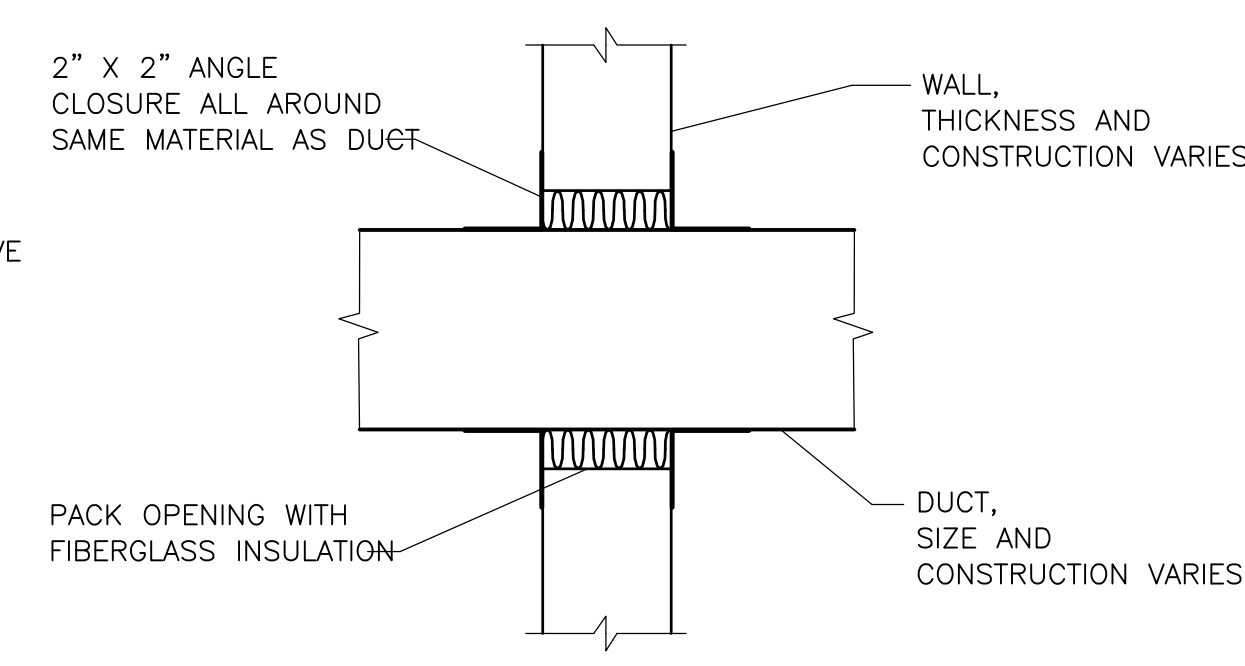
**BRANCH DUCT TAKEOFF WITH MANUAL VOLUME DAMPERS**  
**DETAIL**  
 NTS



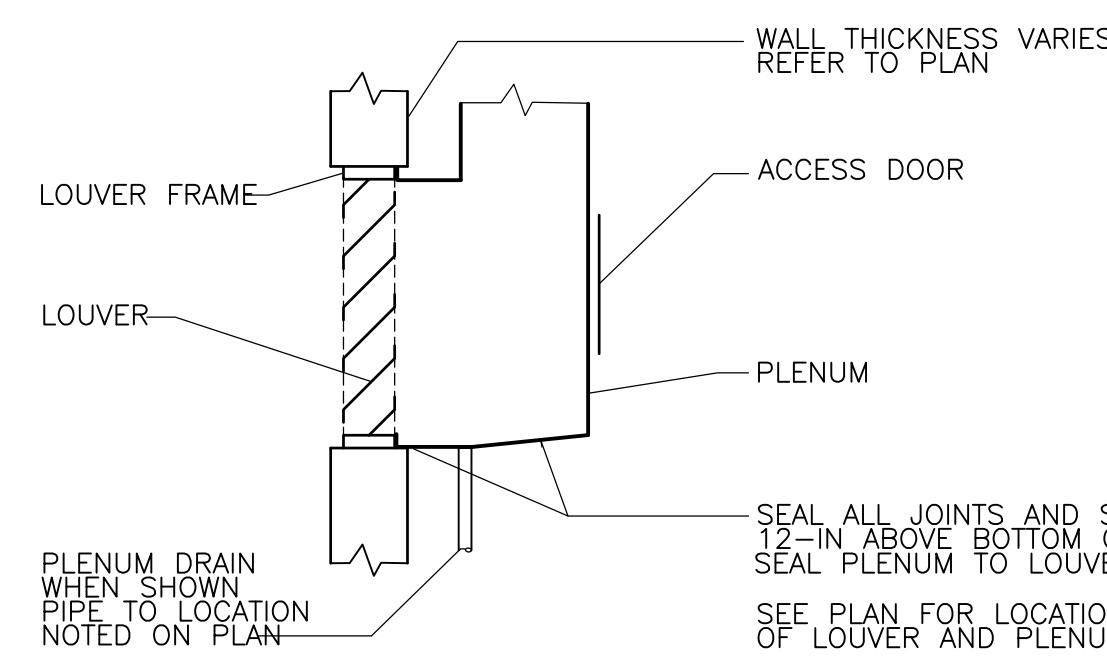
**PRESSURE GAUGES IN PIPES**  
**DETAIL**  
 NTS



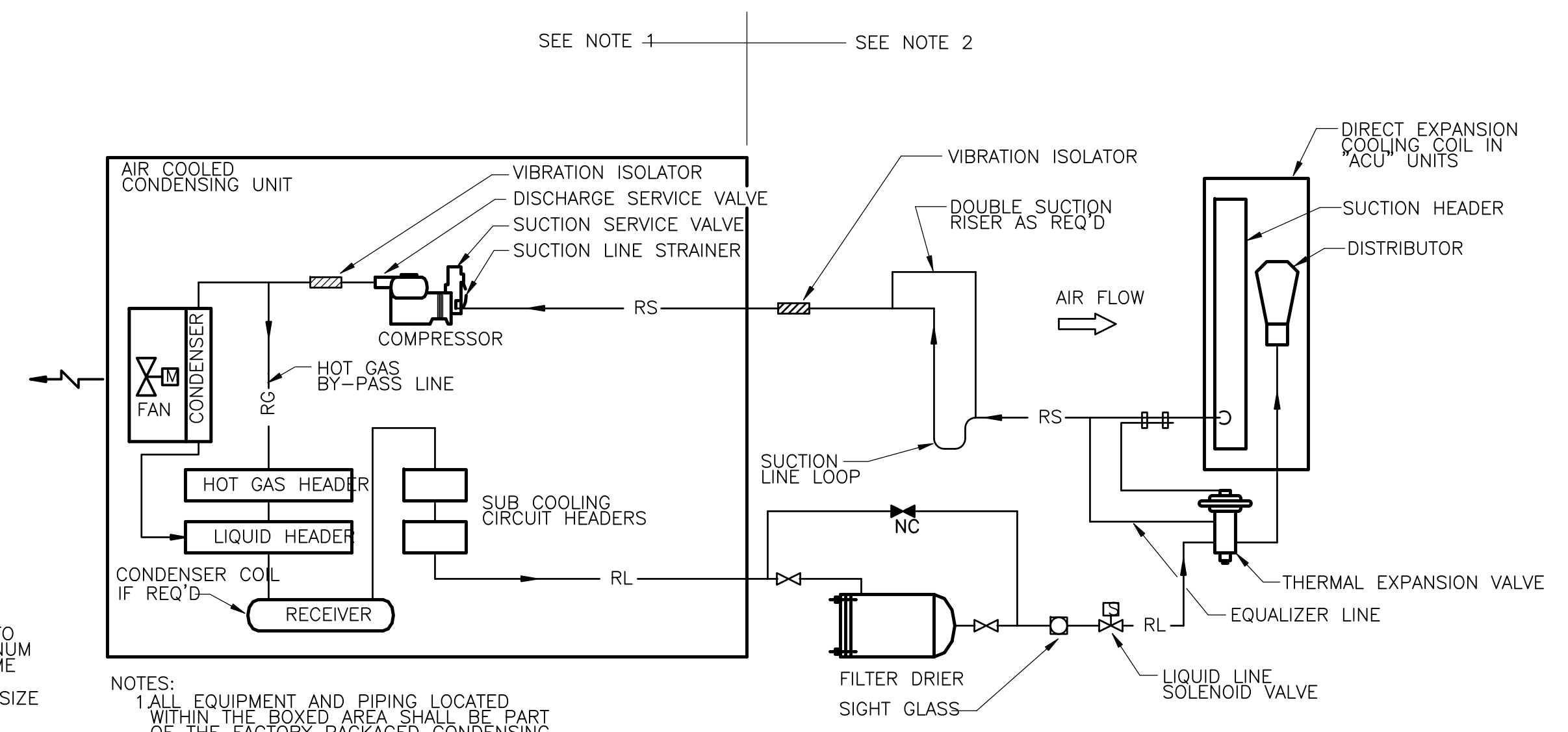
**SINGLE GLYCOL HEATING AND COOLING COIL**  
**DETAIL**  
 NTS



**DUCT WALL PENETRATIONS TO BE USED FOR ALL NON-FIRE RATED WALLS**  
**DETAIL**  
 NTS



**PLENUM CONNECTION TO LOUVER**  
**DETAIL**  
 NTS



**TYPICAL REFRIGERANT PIPING AIR COOLED CONDENSING UNIT**  
**DETAIL**  
 NOT TO SCALE

**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	HSDSD003
DESIGNED BY:	A. CHIUCCIARIELLO
DRAWN BY:	K. RADEMACHER
SHEET CHK'D BY:	A.R.
SCALE:	NTS
APPROVED BY:	A. CHIUCCIARIELLO
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

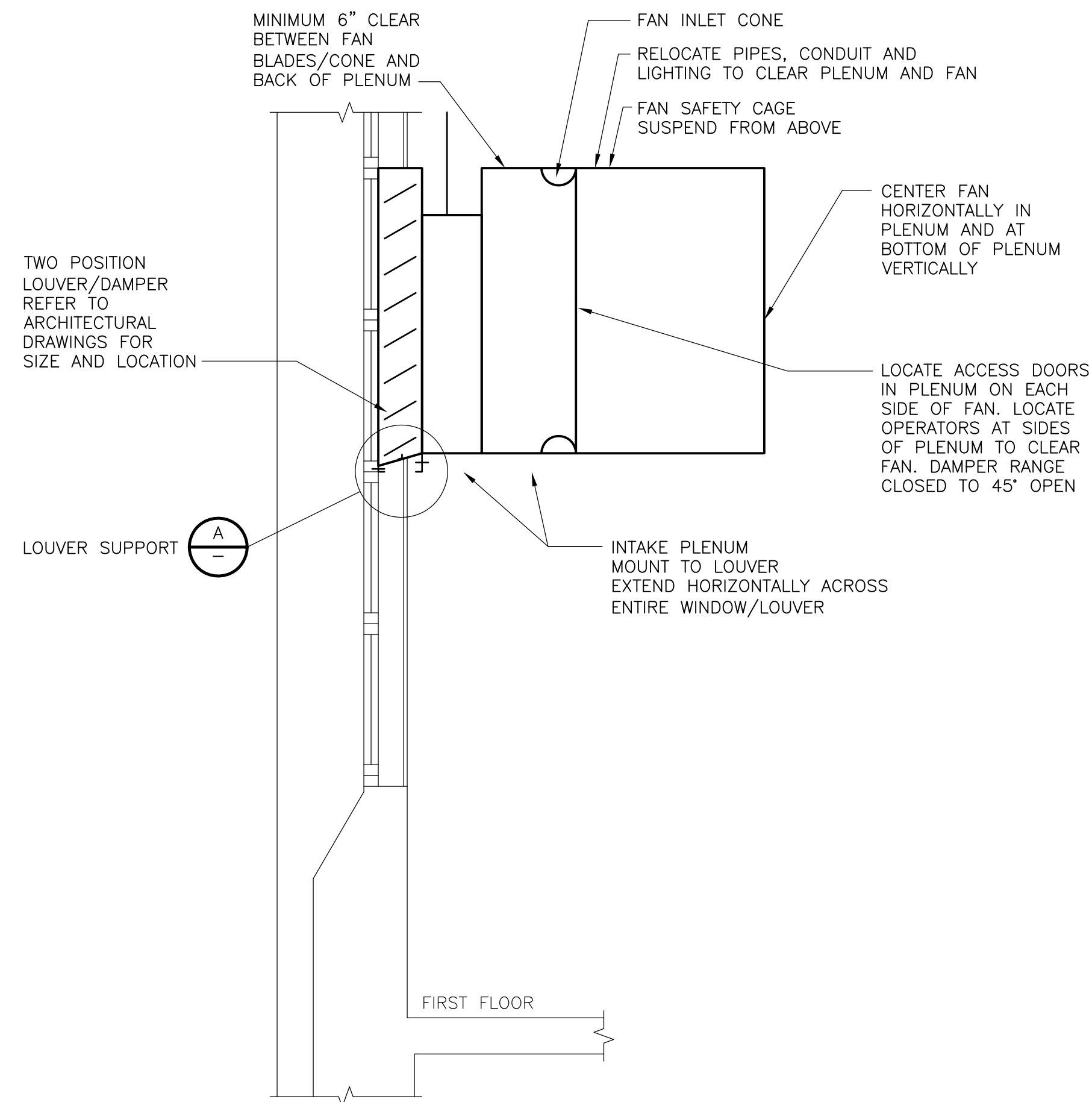
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**HVAC DETAILS II**

PROJECT NO. 1289\35370  
 Sht. 230 of 386  
**SD-H-2**

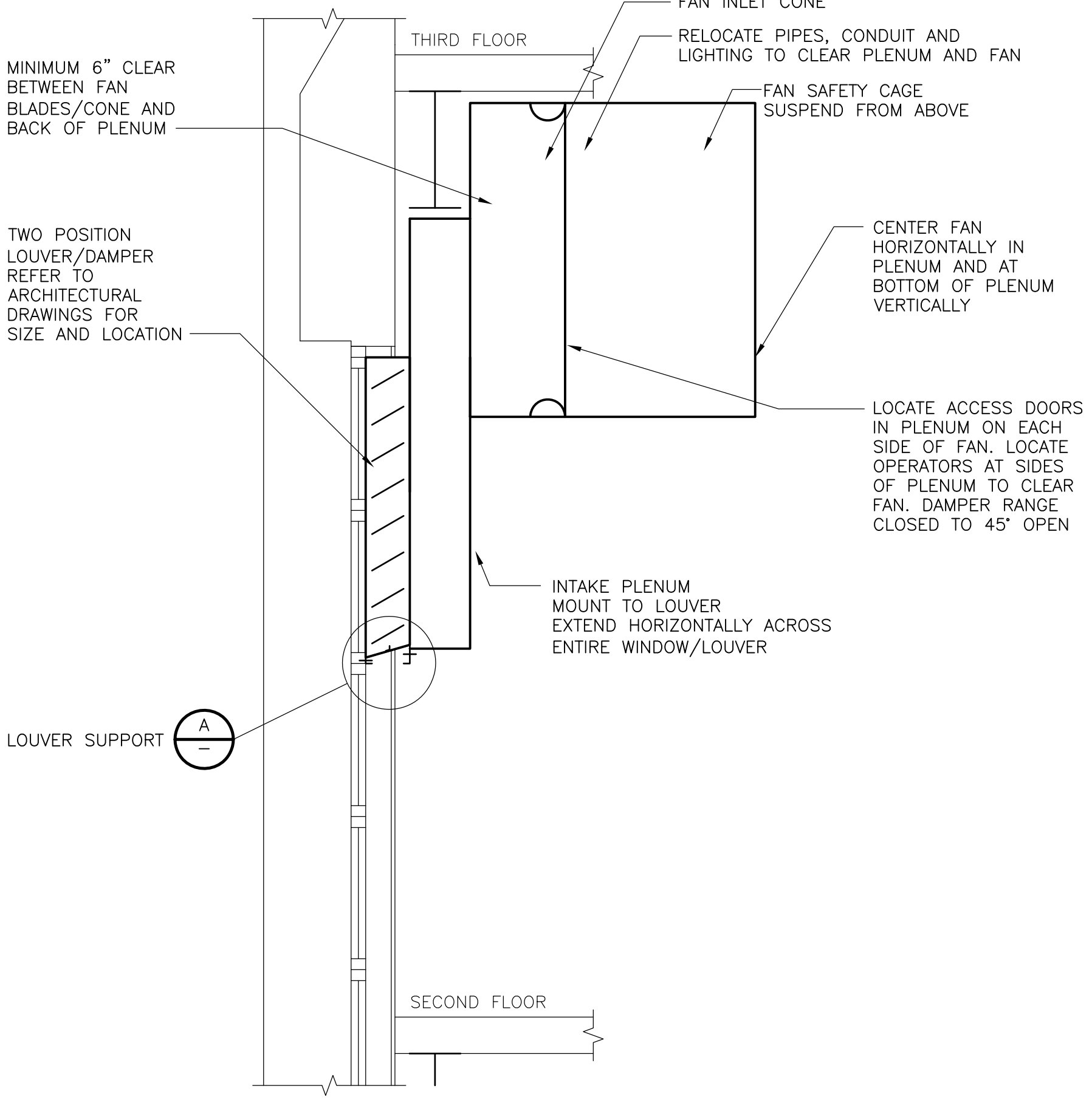
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**INTAKE DETAIL SF-1F-1 TO 3**

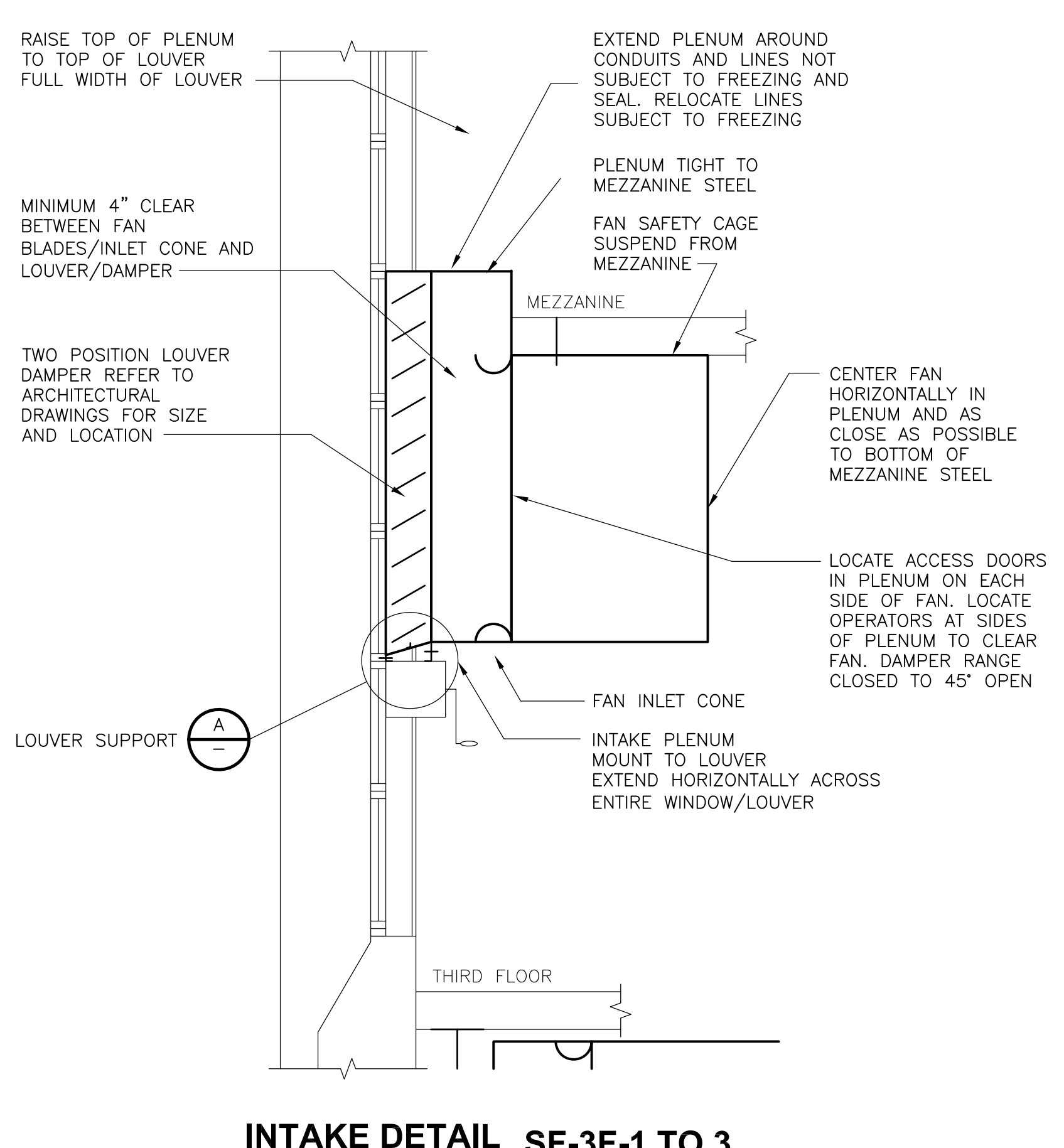
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**NOTE: SF-1F-4 SIMILAR EXCEPT OFFSET FAN TO RIGHT SIDE OF PLENUM TO CLEAR EXISTING EQUIPMENT**



**INTAKE DETAIL SF-2F-1 TO 4**

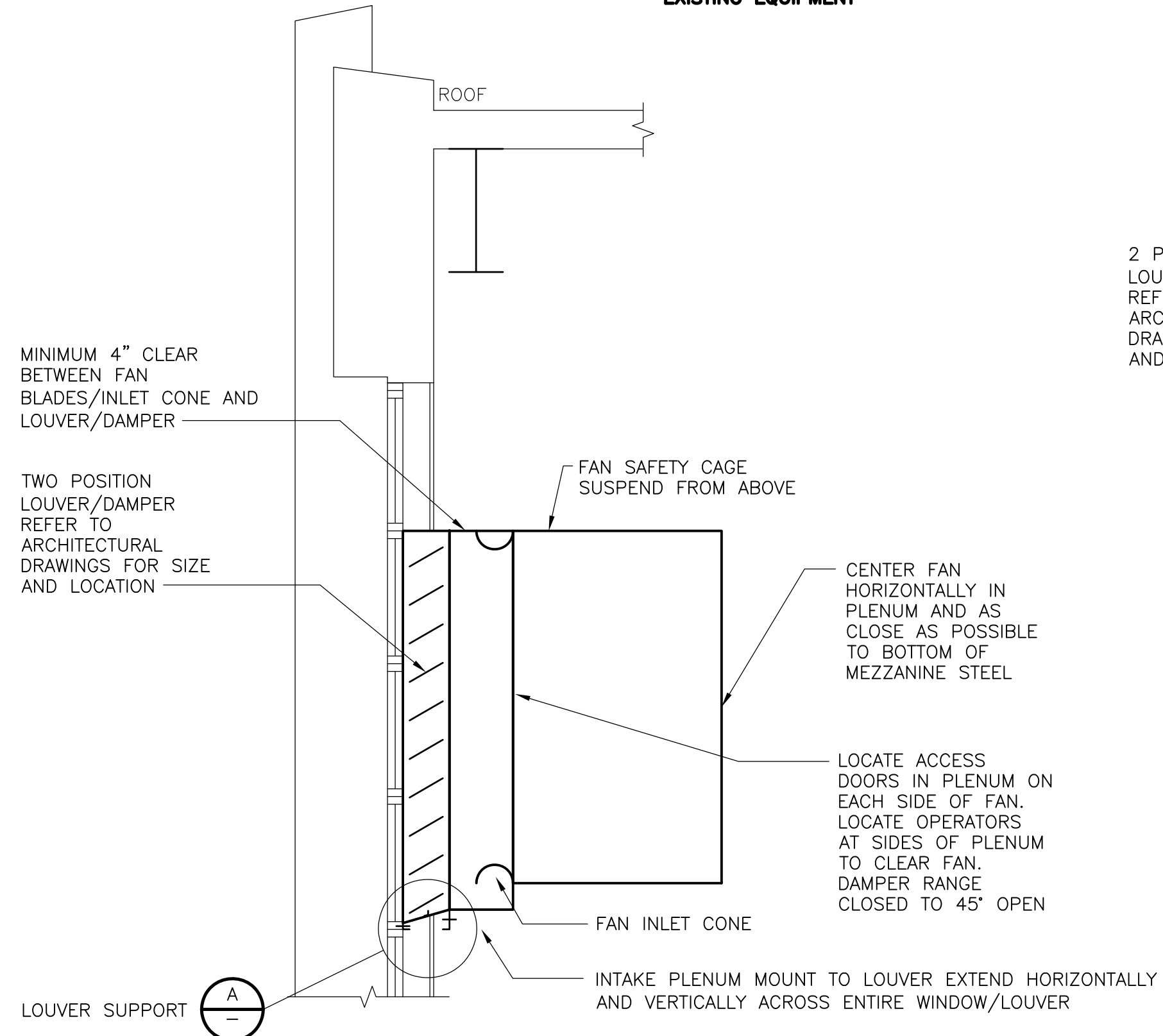
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**INTAKE DETAIL SF-3F-1 TO 3**

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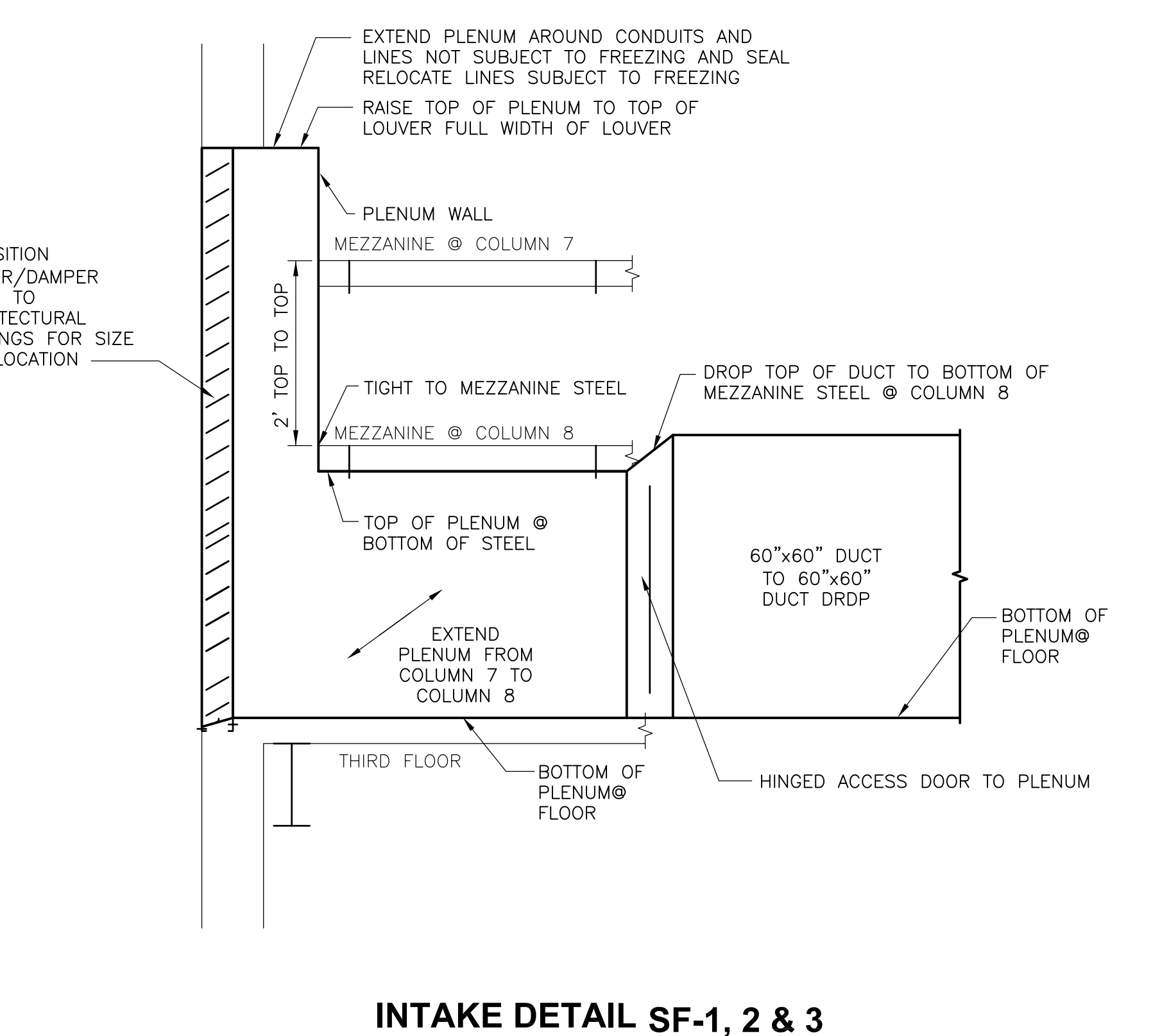
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**INTAKE DETAIL SF-3F-4**

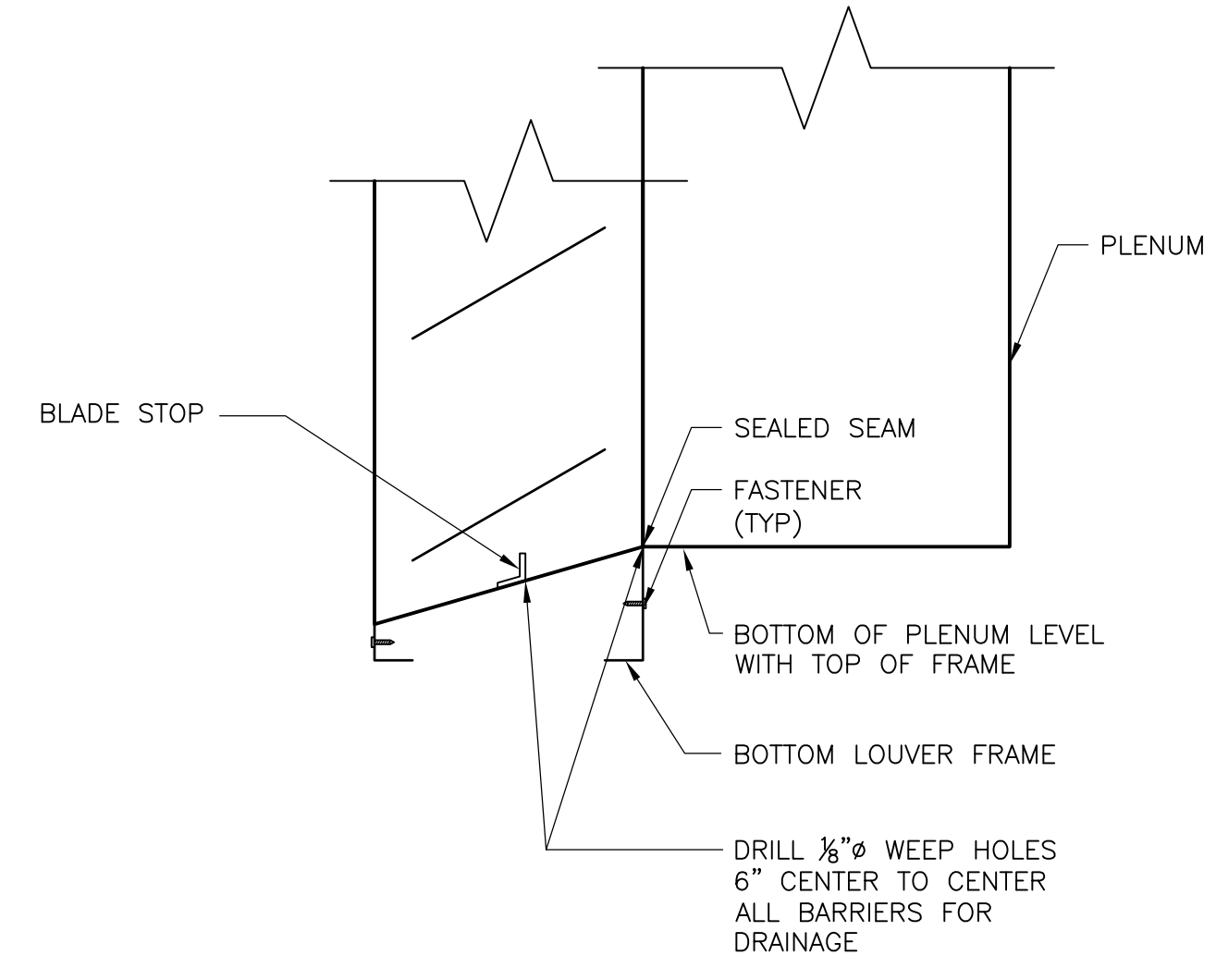
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**INTAKE DETAIL SF-1, 2 & 3**

NTS



**INTAKE DETAIL A**

NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	HSDSD007
DESIGNED BY:	J. JACOBS
DRAWN BY:	S. TRULLI
SHEET CHK'D BY:	J. JACOBS
SCALE:	AS NOTED
APPROVED BY:	A. CHIUCCARELLO
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

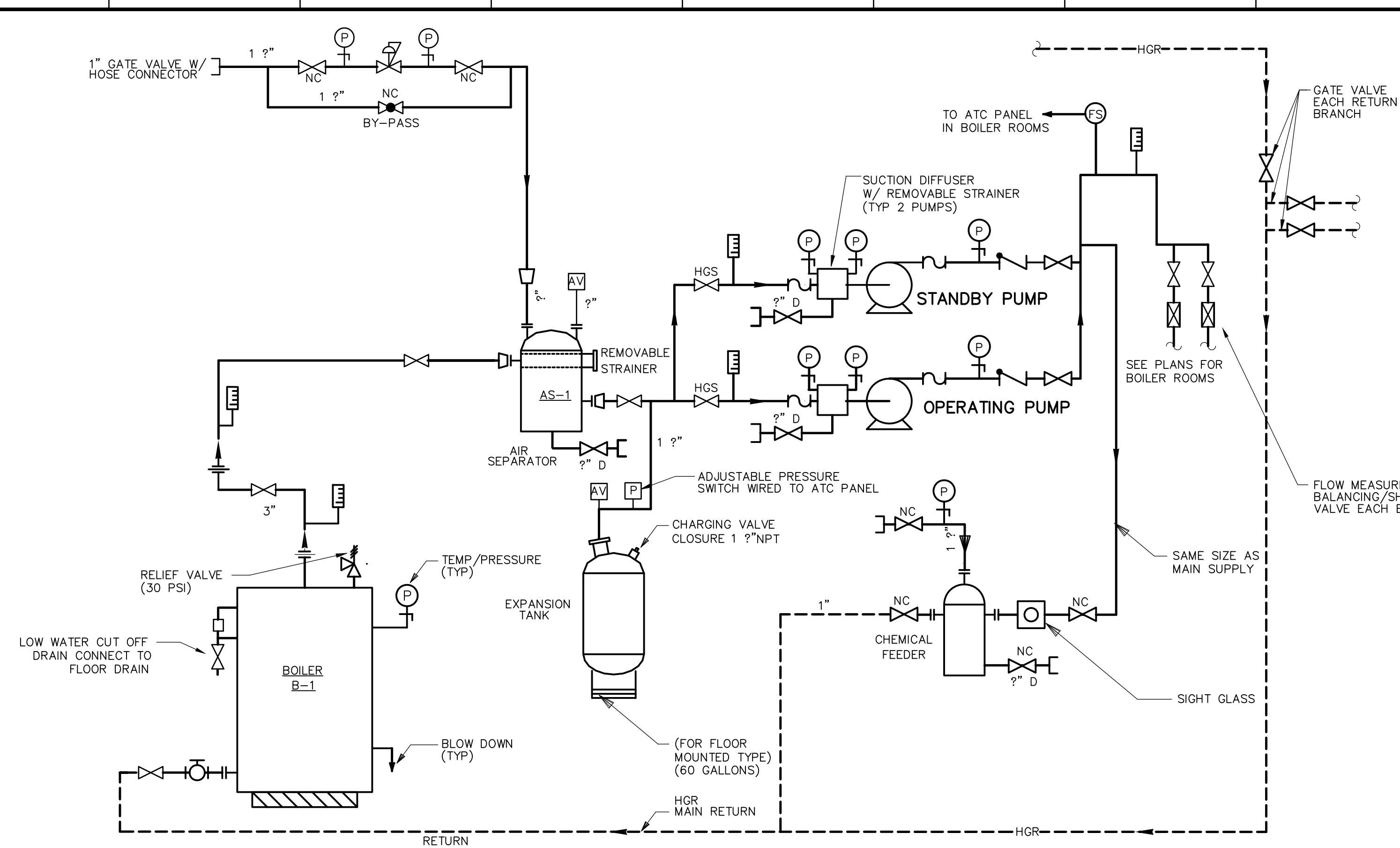
**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**HVAC DETAILS III**  
  
**SD-H-3**

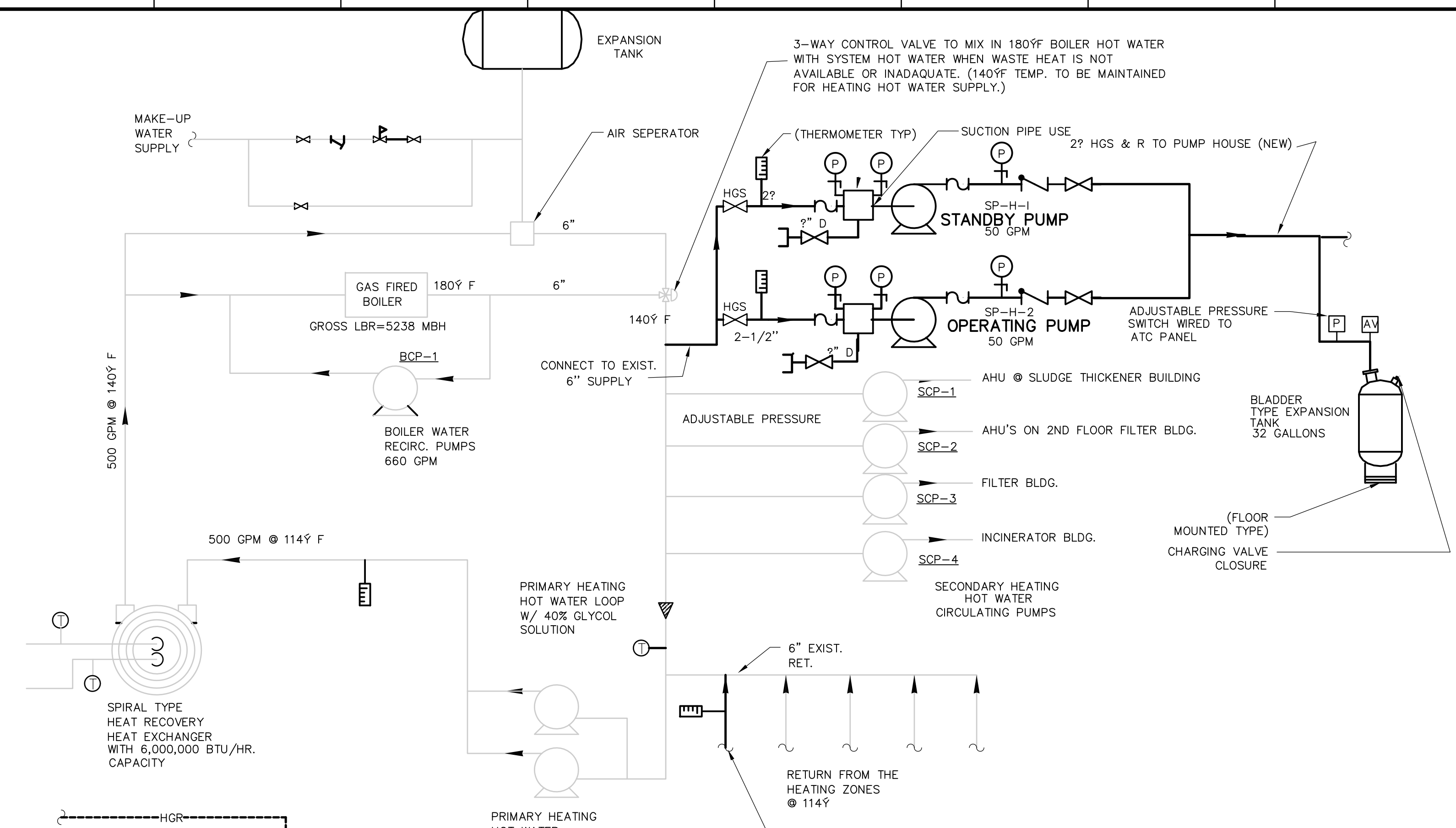
PROJECT NO.  
 1289\35370  
 Sht. 231 of 386  
 ACCESSION NO. 1289-65831



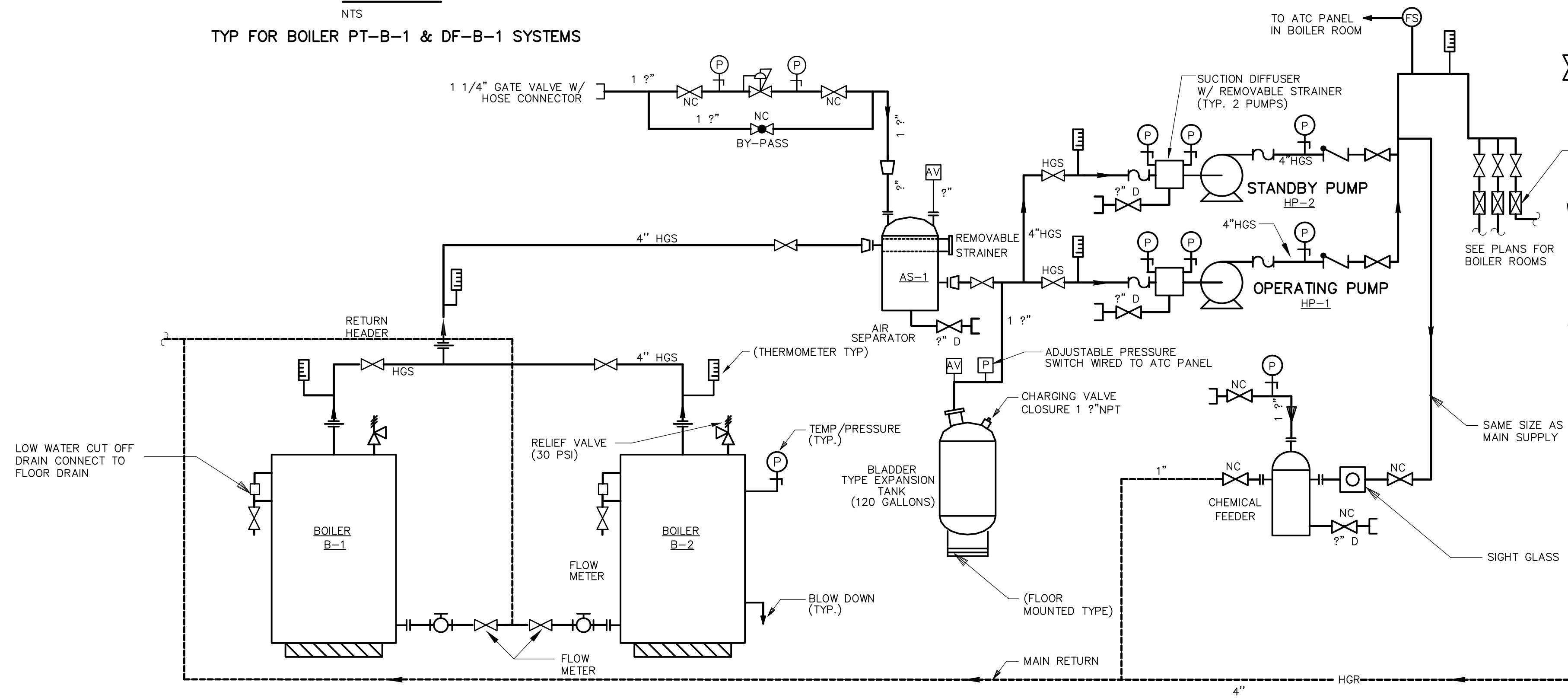
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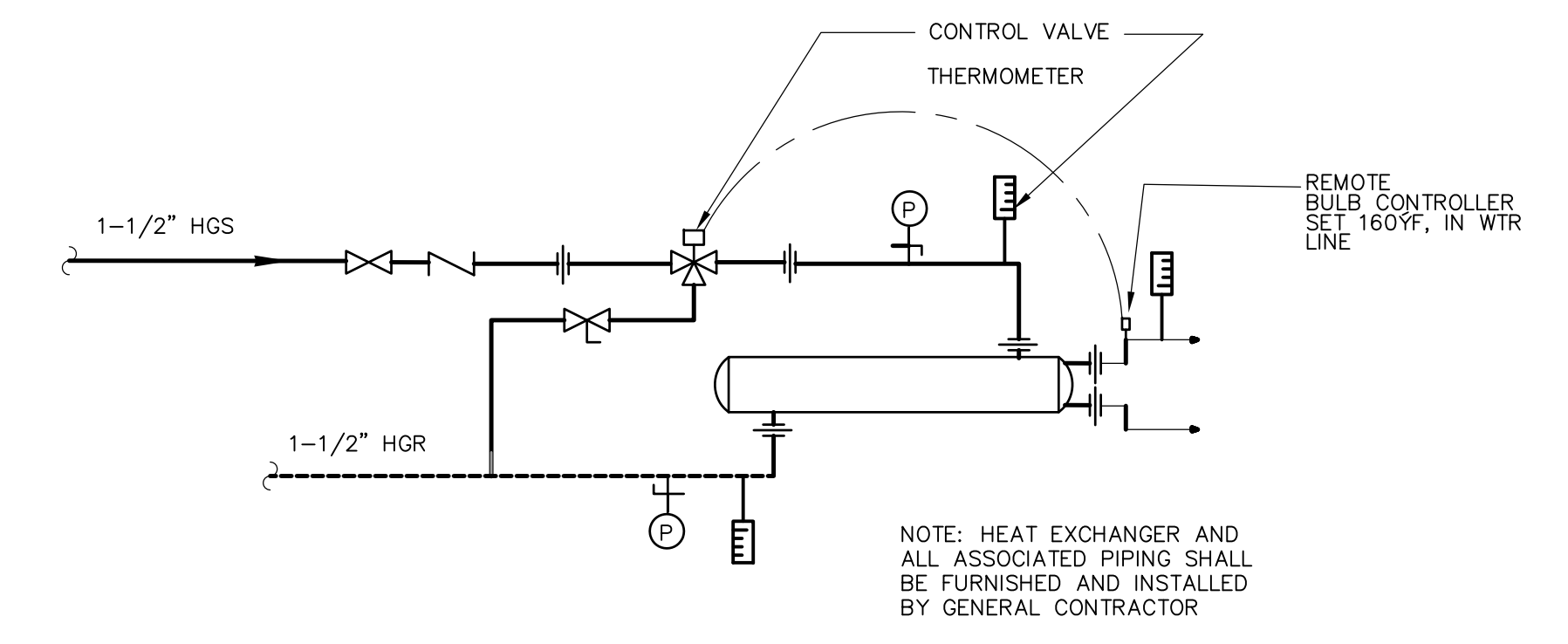
**HOT WATER/GLYCOL HEATING SYSTEMS**  
 40% PROPYLENE 60% WATER  
**DIAGRAM**  
 NTS  
 TYP FOR BOILER PT-B-1 & DF-B-1 SYSTEMS



**EXIST. HEAT RECOVERY SYSTEM AND NEW**  
**HOT WATER HEATING SYSTEM**



**HOT WATER/GLYCOL HEATING SYSTEMS**  
 40% PROPYLENE 60% WATER  
**DIAGRAM FOR BOILERS HW-B-1&2**  
 NTS



**ODOR CONTROL HEAT EXCHANGER PIPING**  
 FOR LOCATION SEE HW-M-20  
 FOR SPECIFICATION SEE SEC. 15550

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	HSDSD004
DESIGNED BY:	A. CHIUCCIARIELLO
DRAWN BY:	KNR
SHEET CHK'D BY:	A.R.
SCALE:	NTS
APPROVED BY:	A. CHIUCCIARIELLO
DATE:	MAY 2006

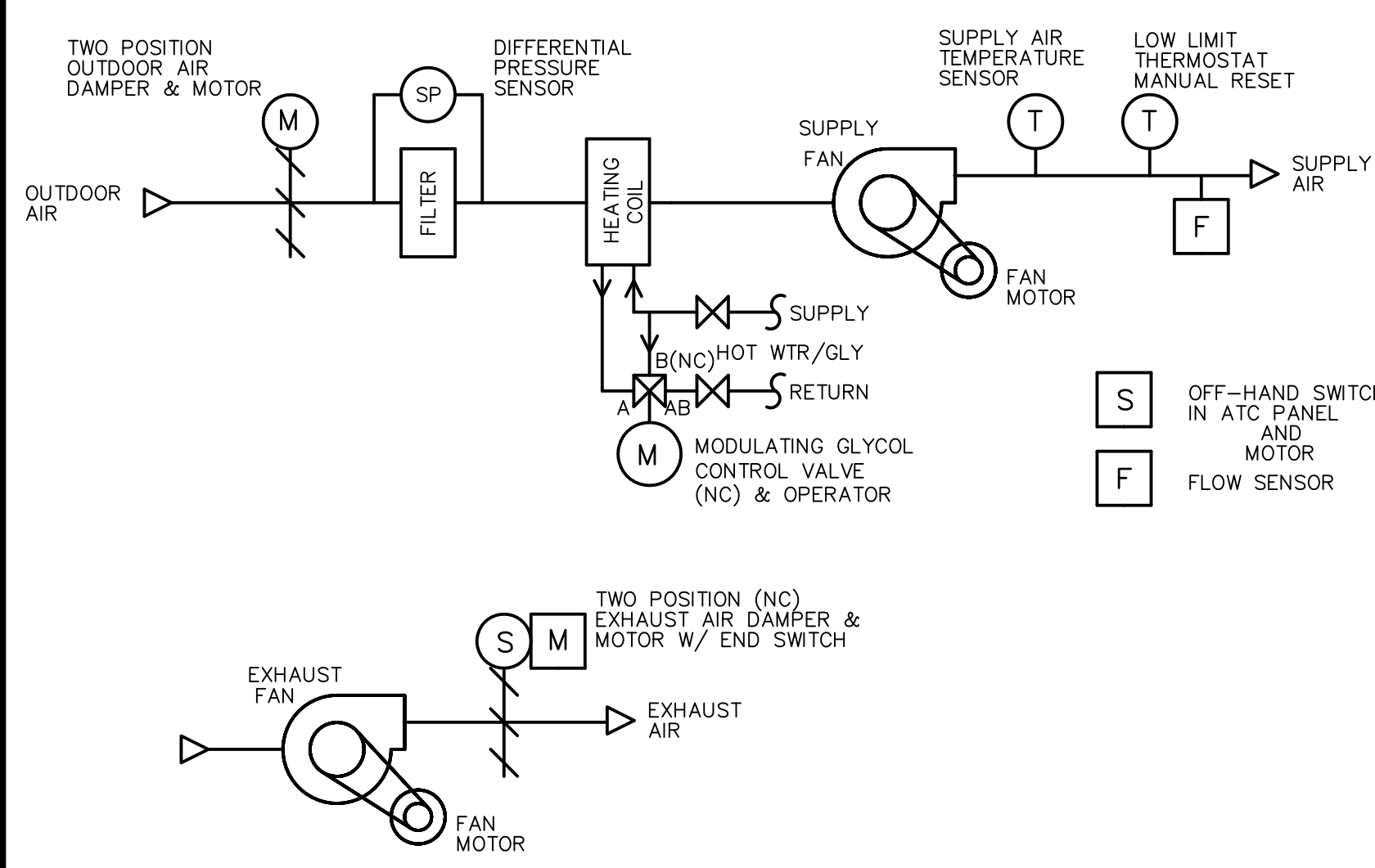
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

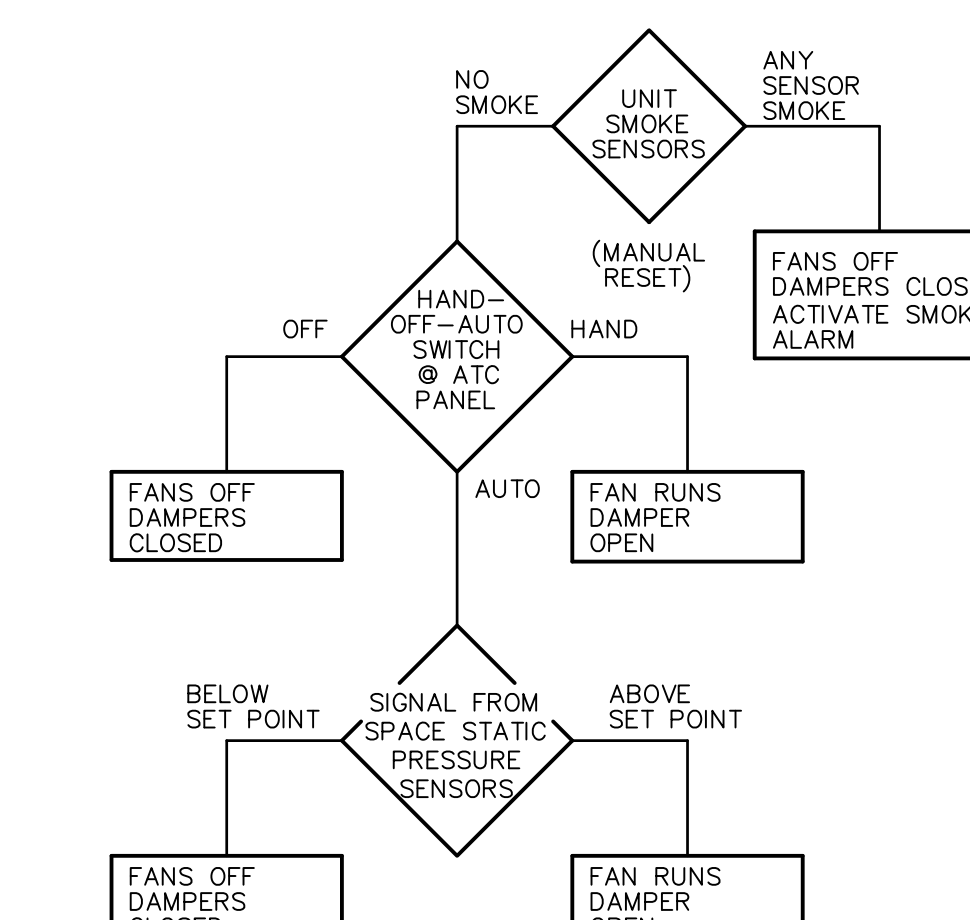
**HOT WATER/GLYCOL HEATING SYSTEMS**  
**BOILER DIAGRAMS**

PROJECT NO.	1289\35370
Sht.	232 of 386
<b>SD-H-4</b>	

CROSSSECTION NO. 1289-55832



**ROOF MOUNTED VENT EXHAUST FAN**



**VENT. EXHAUST FAN W/ SPACE STATIC PRESS. CONTROL**

FOR FAN SYSTEMS WITH SHUT OFF DAMPERS AND AIR FLOWS GREATER THAN 2000 CFM AND FAN OPERATING STATIC PRESSURE GREATER THAN 1 INCH WATER GAGE, FANS SHALL BE STARTED BY DAMPER END SWITCHES. WHEN THE SEQUENCE CALLS FOR THE FAN TO RUN, THE CONTROL SYSTEM SHALL OPEN THE RESPECTIVE DAMPER. WHEN THE DAMPER IS OPEN AS INDICATED BY AN END SWITCH ON THE DAMPER, THE FAN SHALL RUN. WHEN THE SEQUENCE CALLS FOR THE FAN TO SHUT DOWN, THE FAN WILL STOP AND THEN THE DAMPER WILL CLOSE.

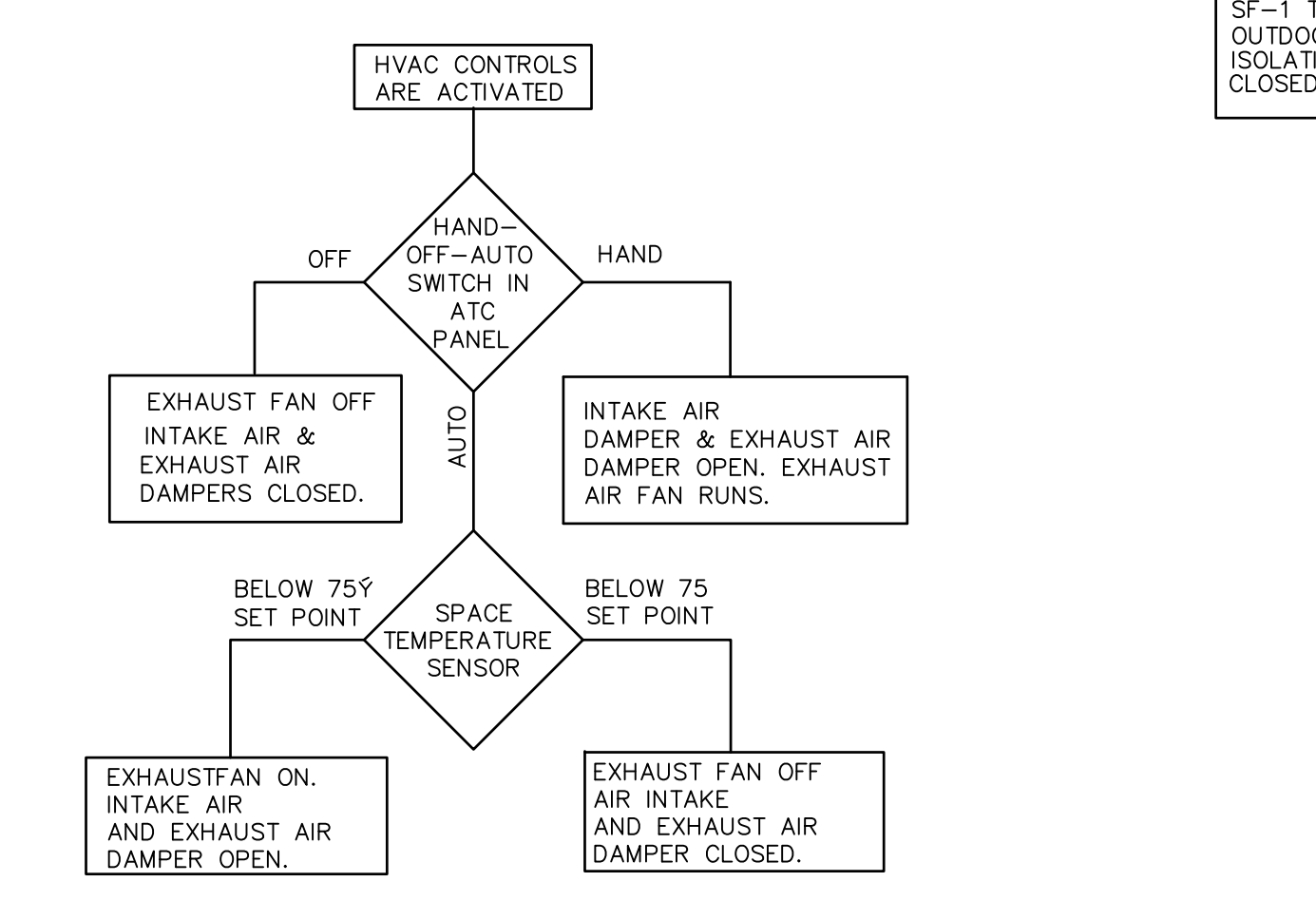
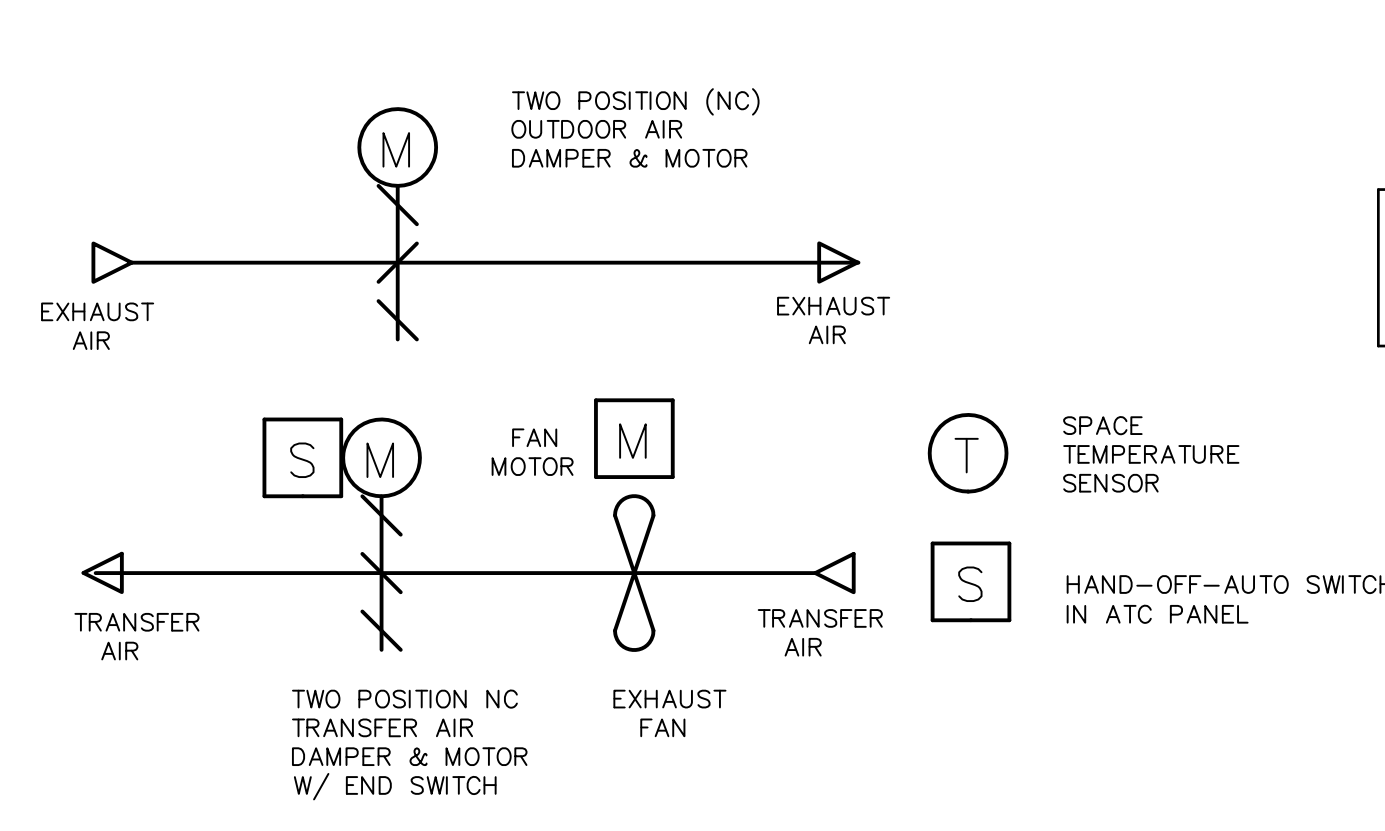
**VENTILATION FAN SYSTEMS**

EXHAUST FAN	FAN TYPE	AREA SERVED	CONT SWITCH	SMOKE SENSOR	ATC PANEL
EF-3F-1,2,3, 4,5,6,7, & 8	ROOF	INCINERATOR-0-A	YES	SP-ATC-4	

**AUTOMATIC CONTROL PANEL**

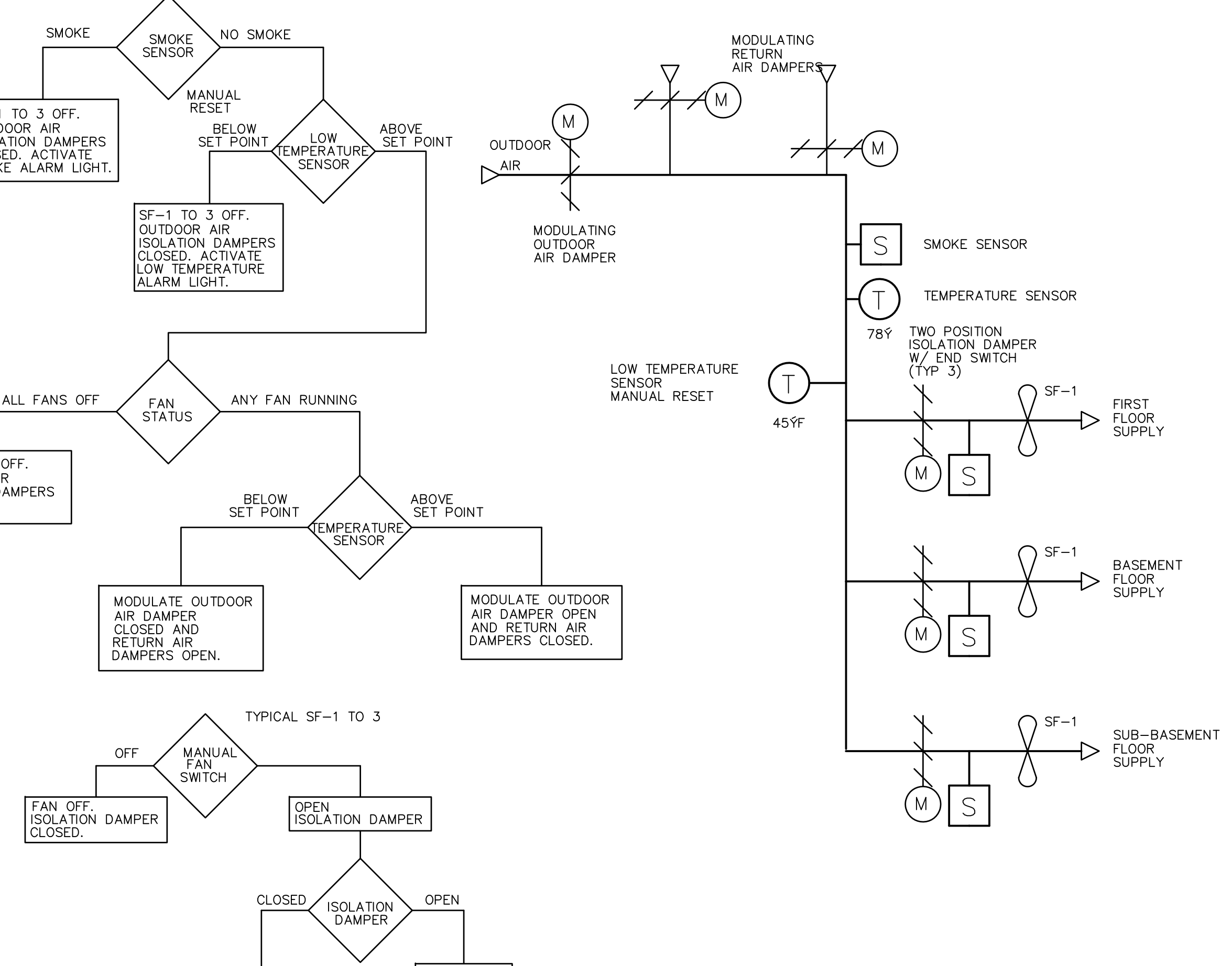
THE FOLLOWING FUNCTIONS WILL BE INCLUDED ON THE CONTROL PANELS FOR EACH UNIT  
 SYSTEM SWITCH O-A, O-H, H-O-A  
 RUN LIGHTS FOR EACH INDIVIDUAL FAN UNIT  
 SMOKE ALARM LIGHT WITH RESET SWITCH  
 ENGRAVED LABELS FOR ALL ALARM LIGHTS

AUDIBLE ALARM TO FUNCTION AT ALL ALARMS  
 AUDIBLE ALARM SILENCE SWITCH  
 ENGRAVED LABELS FOR ALL SYSTEMS  
 ENGRAVED LABELS FOR ALL SWITCHES  
 EXTEND R.A. COLLAR ON MIX BOXES TO ALLOW THE INSTALLATIONS OF SMOKE DETECTORS



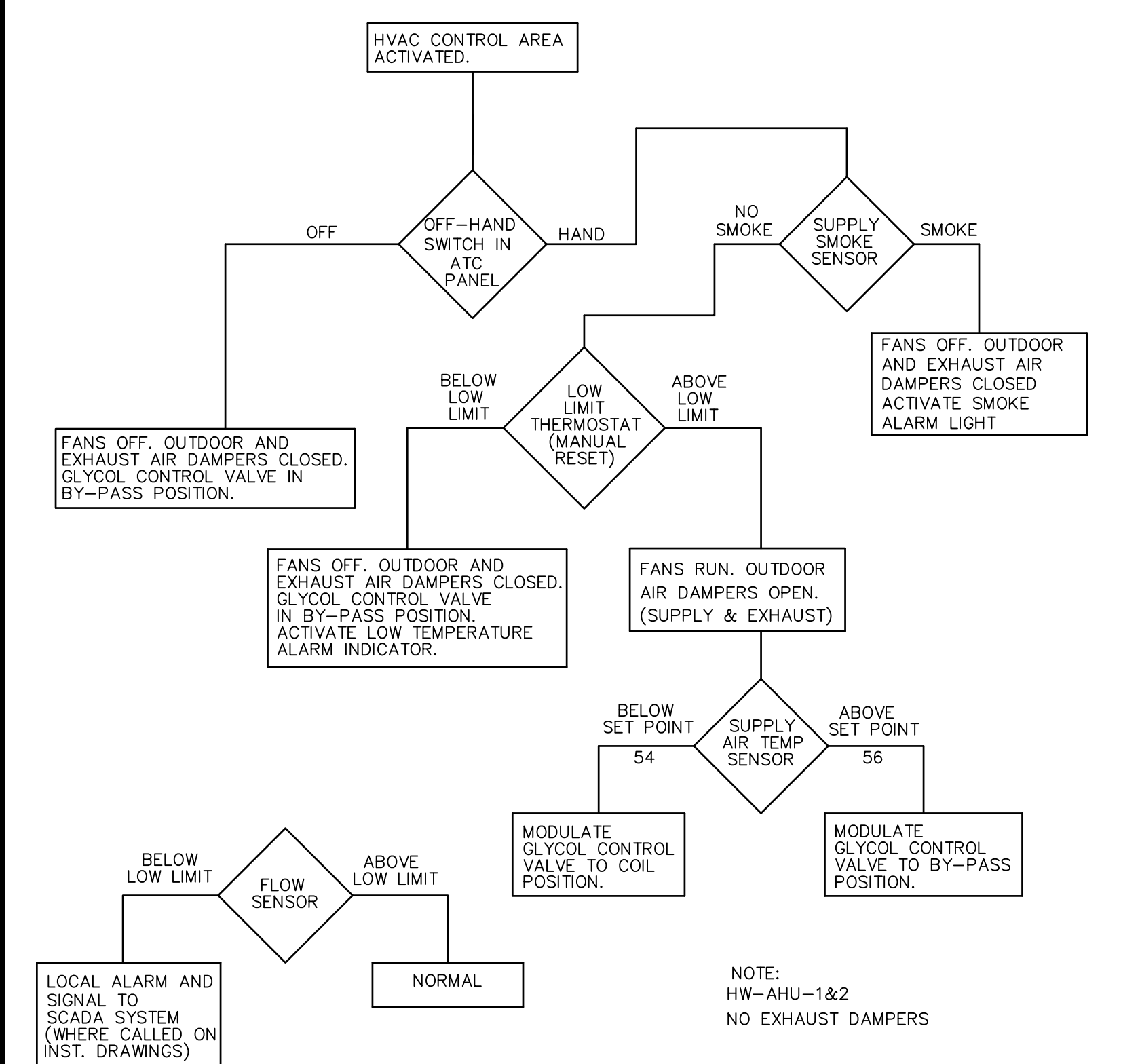
**CONTROL DIAGRAMS FOR EXHAUST FANS**

ATC PANEL HW-ATC-4 UNITS HW-RF-2



**CONTROL DIAGRAM FOR SUPPLY FANS SF-1 TO SF-3**

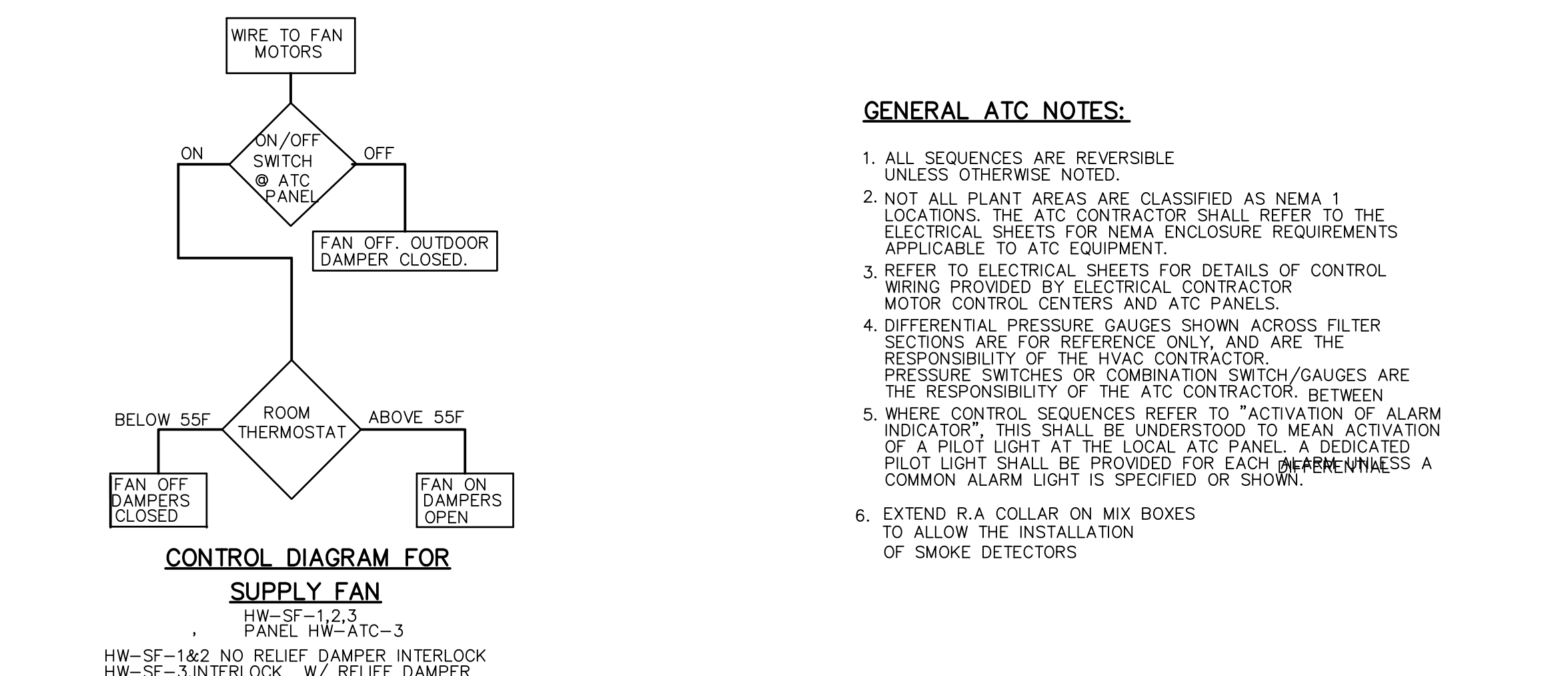
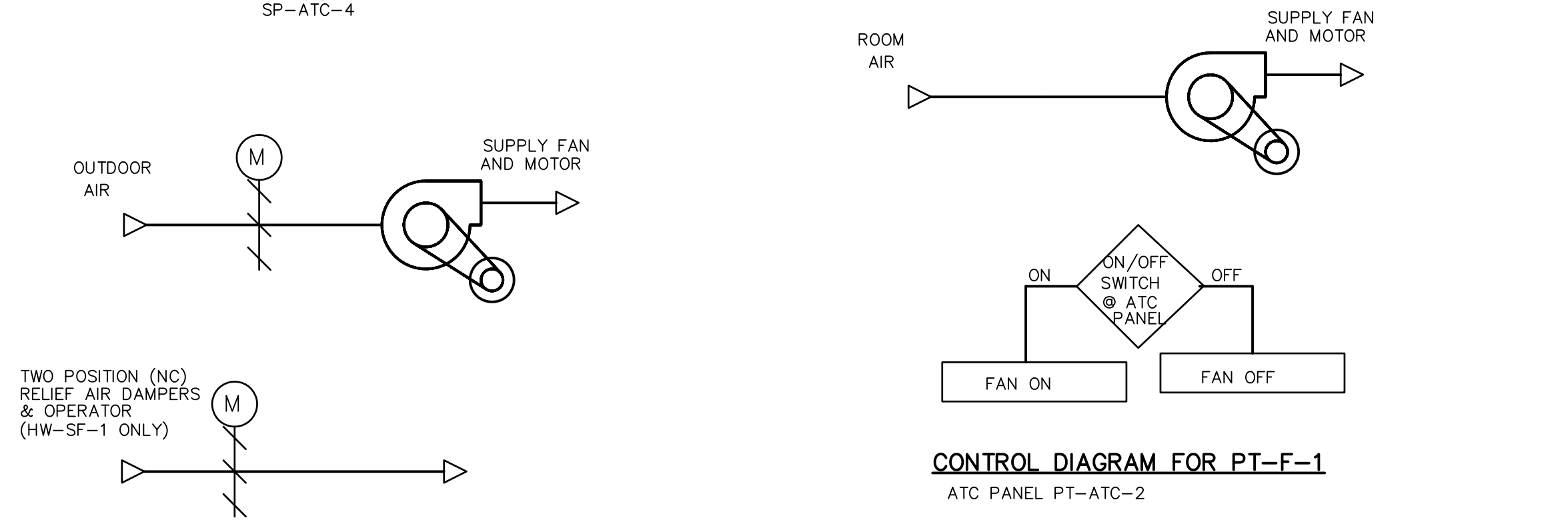
SF-1,2,3 SP-ATC-4



**CONTROL DIAGRAM FOR 100% OUTDOOR AIR UNITS**

ATC PANEL	UNITS	INTERLOCKS
HW-ATC-1	HW-AHU-1,2 W/ODOR CONTROL	
HW-ATC-3	HW-AHU-4W/HW-RF-1 & HW-EF-1	
PT-ATC-2	PT-AHU-1 WITH PT-EF-1&2&PT-F-1	
ST-ATC-1	ST-AHU-1 WITH ST-RF-1	

NOTE: PROVIDE IN ATC PANELS ONE EXTRA SET OF CONTACTS FOR FLOW ALARM WIRED BY ELECTRICAL TO SCADA SYSTEM



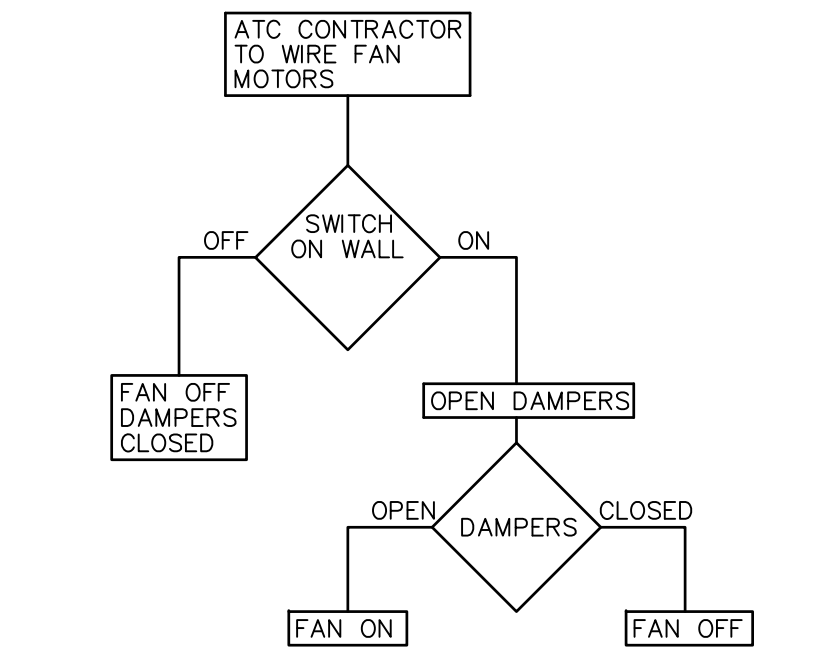
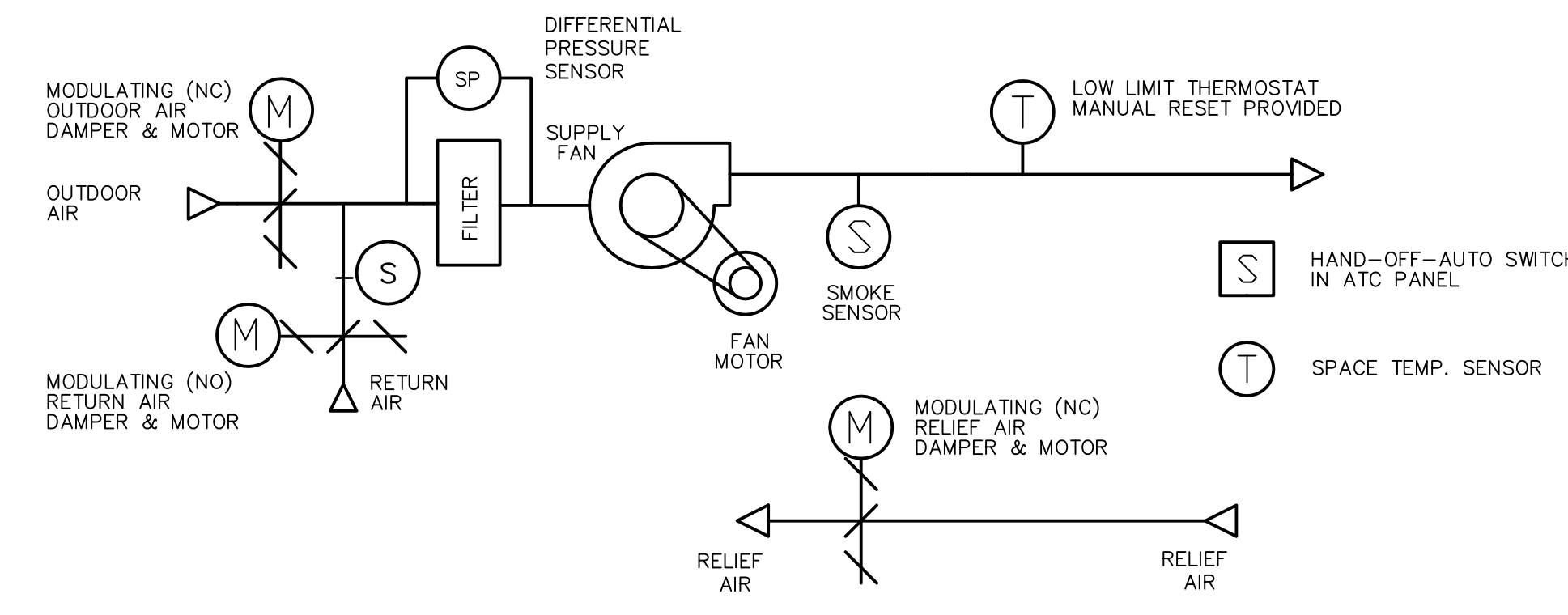
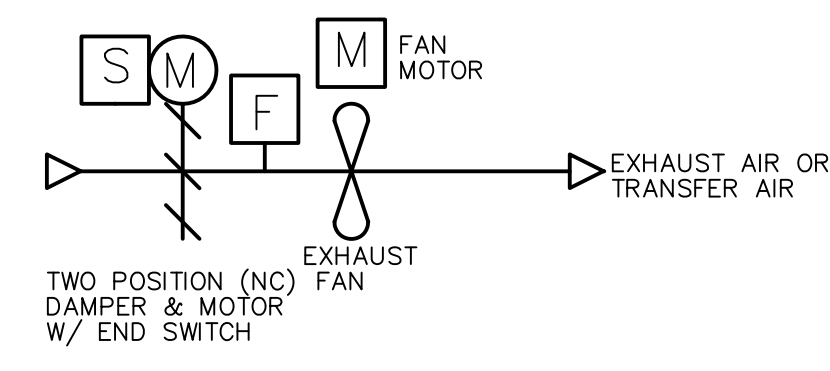
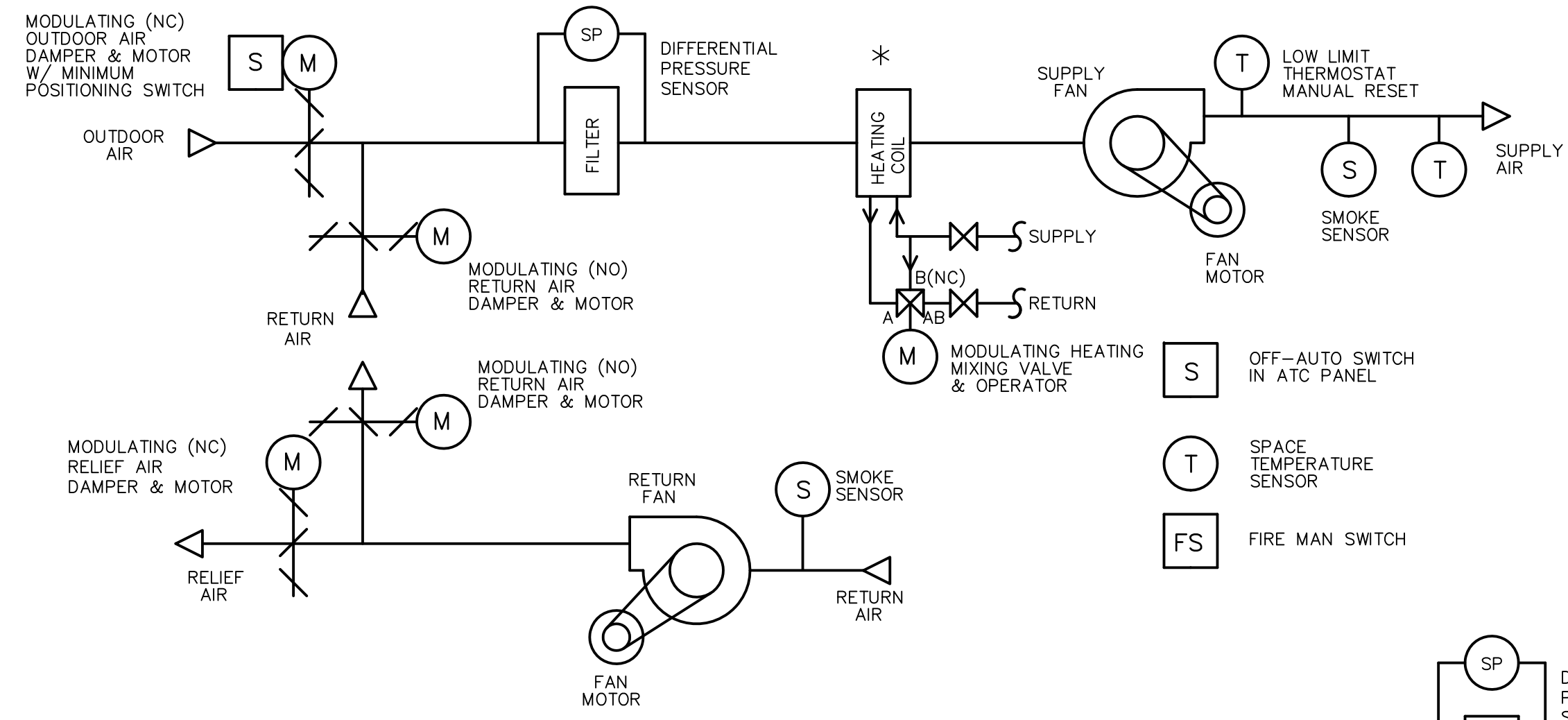
**CONTROL DIAGRAM FOR SUPPLY FAN**

HW-SF-1,2,3 PANEL HW-ATC-3  
 HW-SF-1&2 NO RELIEF DAMPER INTERLOCK  
 HW-SF-3, INTERLOCK W/ RELIEF DAMPER

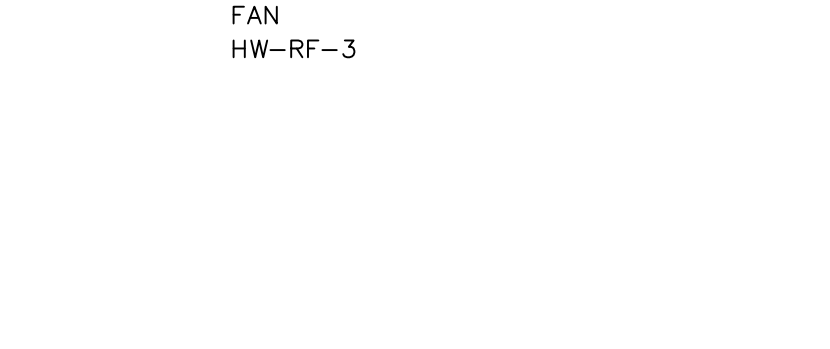
- GENERAL ATC NOTES:**
- ALL SEQUENCES ARE REVERSIBLE UNLESS OTHERWISE NOTED.
  - NOT ALL PLANT AREAS ARE CLASSIFIED AS NEMA 1 LOCATIONS. THE ATC CONTRACTOR SHALL REFER TO THE ELECTRICAL SHEETS FOR NEMA ENCLOSURE REQUIREMENTS APPLICABLE TO ATC EQUIPMENT.
  - REFER TO ELECTRICAL SHEETS FOR DETAILS OF CONTROL WIRING PROVIDED BY ELECTRICAL CONTRACTOR MOTOR CONTROL CENTERS AND ATC PANELS.
  - DIFFERENTIAL PRESSURE GAUGES SHOWN ACROSS FILTER SECTIONS ARE FOR REFERENCE ONLY, AND ARE THE RESPONSIBILITY OF THE HVAC CONTRACTOR. PRESSURE SWITCHES OR COMBINATION SWITCH/GAUGES ARE THE RESPONSIBILITY OF THE ATC CONTRACTOR. BETWEEN
  - WHERE CONTROL SEQUENCES REFER TO "ACTIVATION OF ALARM INDICATOR", THIS SHALL BE UNDERSTOOD TO MEAN ACTIVATION OF A PILOT LIGHT AT THE LOCAL ATC PANEL. A DEDICATED PILOT LIGHT SHALL BE PROVIDED FOR EACH AREA. WHEN A COMMON ALARM LIGHT IS SPECIFIED OR SHOWN.
  - EXTEND R.A. COLLAR ON MIX BOXES TO ALLOW THE INSTALLATION OF SMOKE DETECTORS

RECORD DRAWING

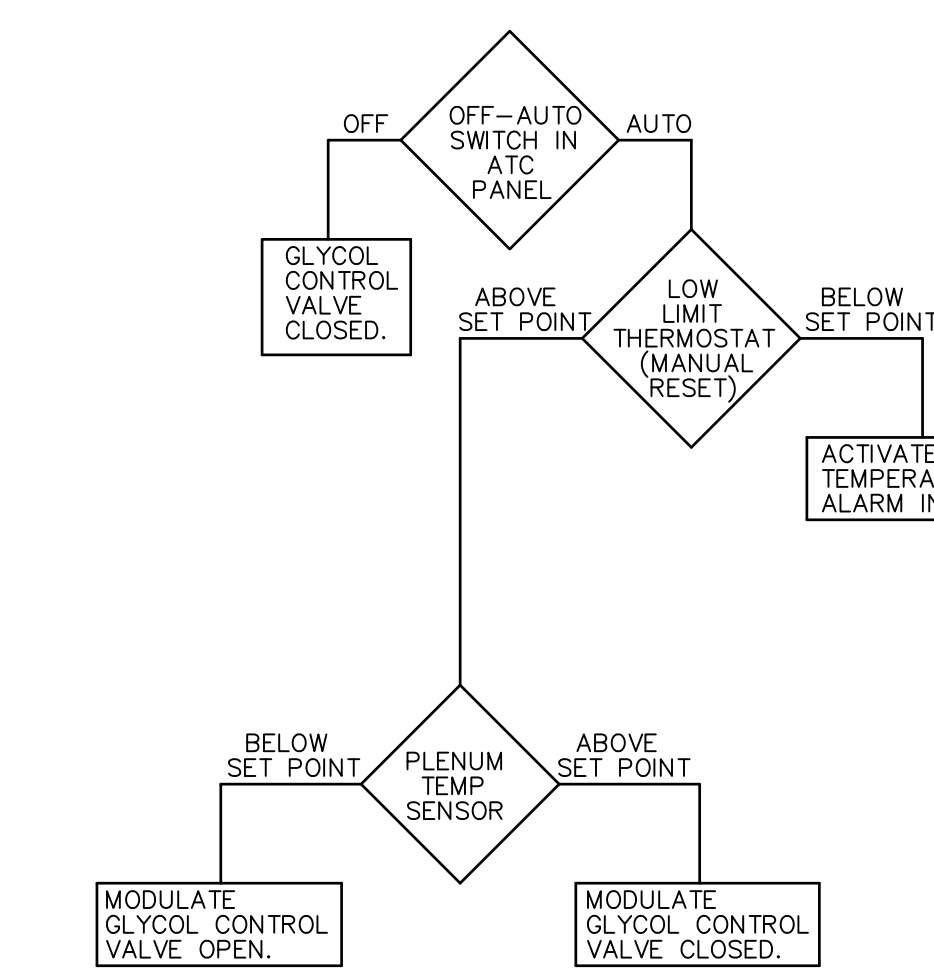
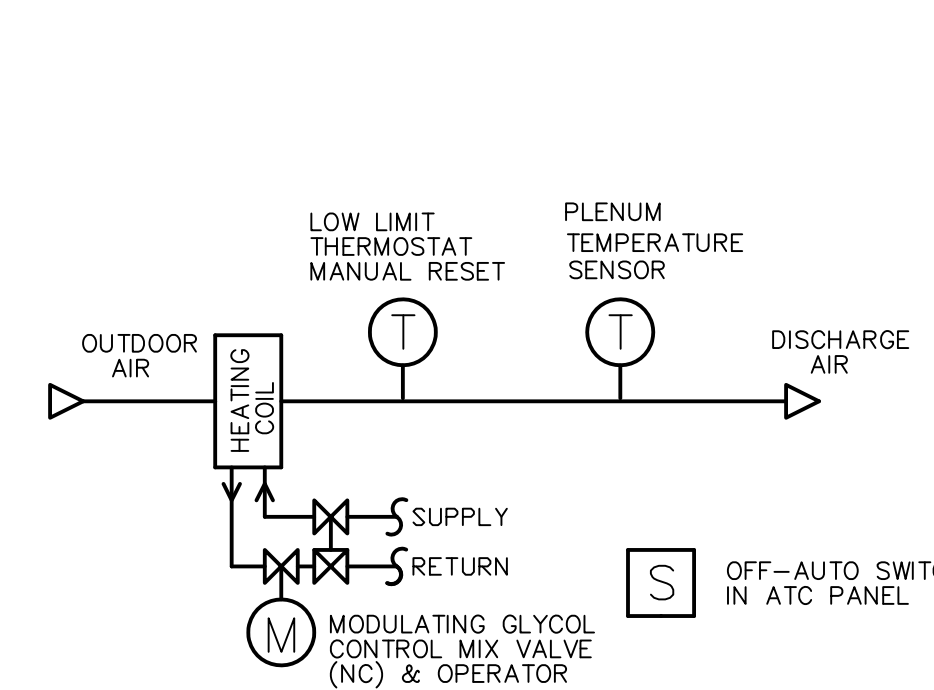
<p>CDM Camp Dresser &amp; McKee Inc.                  consulting engineering construction operations</p>				<p>UPPER BLACKSTONE                  WATER POLLUTION ABATEMENT DISTRICT                  CONTRACT No. UB 2024</p>				<p>PROJECT NO.                  1289\35370</p>	
<p>WASTEWATER TREATMENT FACILITY                  IMPROVEMENTS</p>				<p>ATC DIAGRAM I</p>				<p>Sht. 233 of 386</p>	
<p>DATE: MAY 2006</p>				<p>DATE: MAY 2006</p>				<p>SD-H-5</p>	
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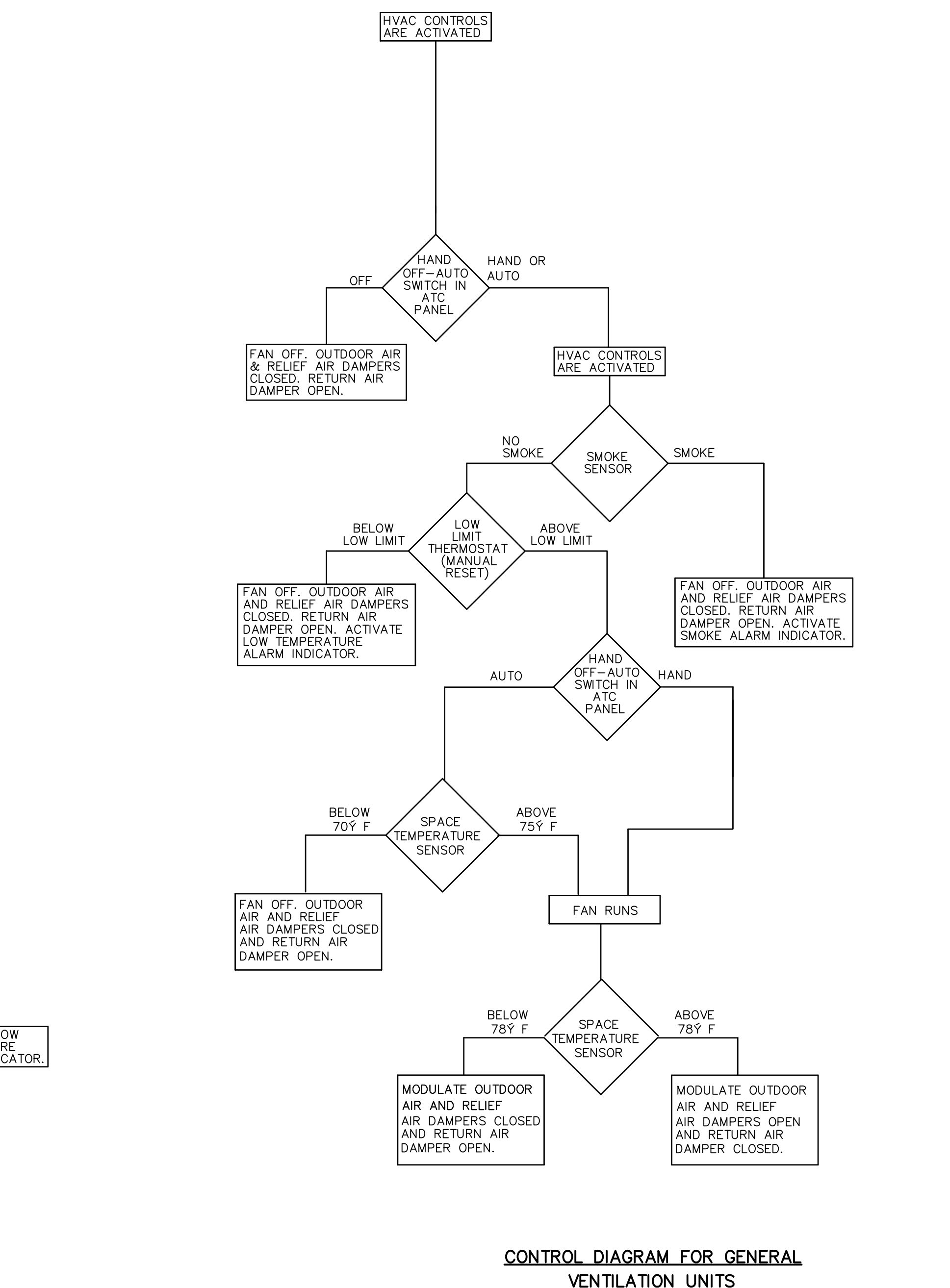
**CONTROL DIAGRAM FOR SUPPLY AND EXHAUST FANS W/DAMPER**



**CONTROL DIAGRAM FOR BOILER COMBUSTION AIR HEATING COIL**

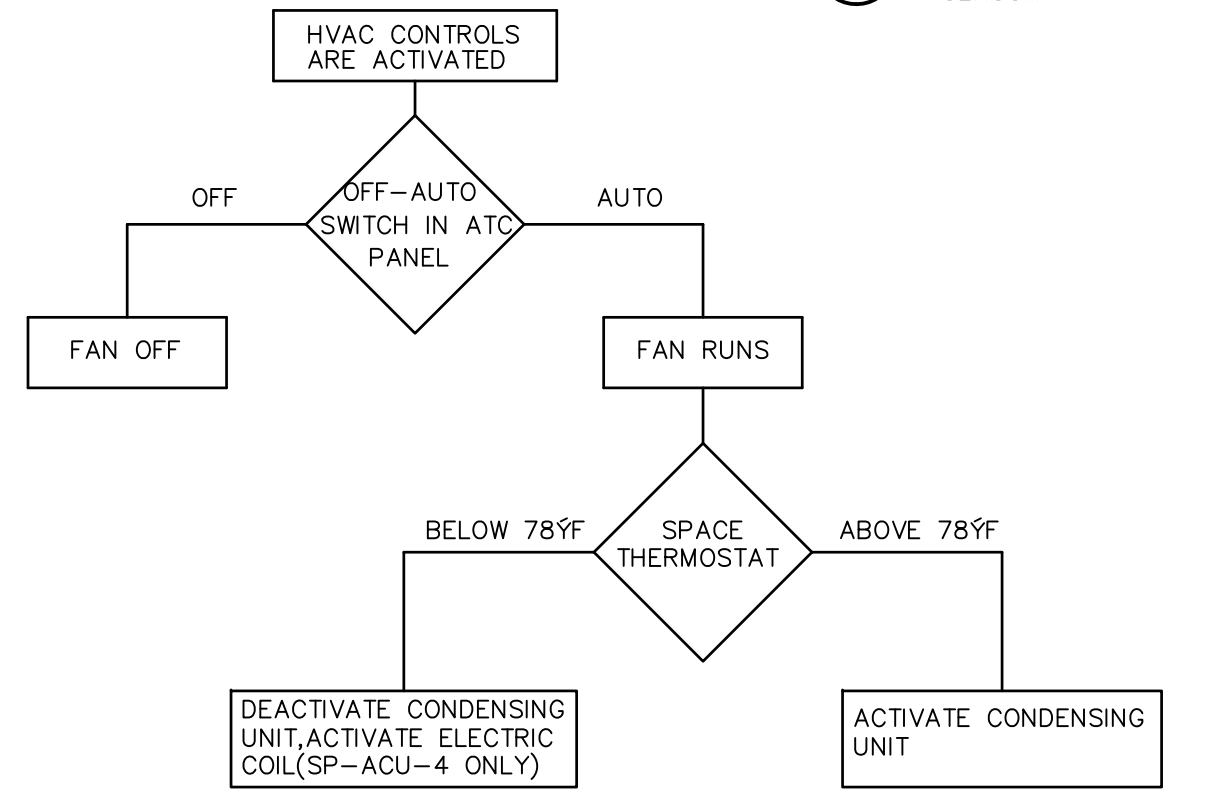
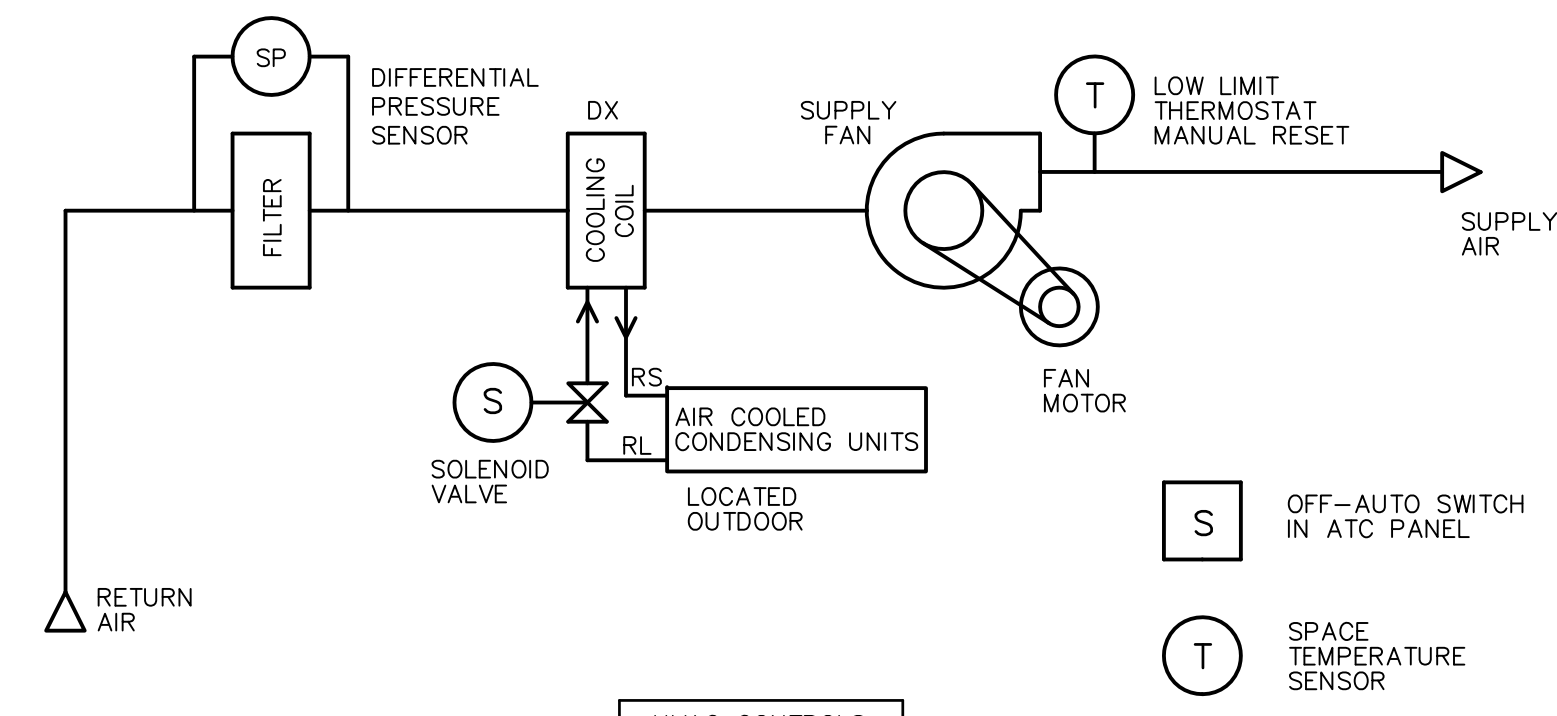


**CONTROL DIAGRAM FOR GENERAL VENTILATION UNITS**



**CONTROL DIAGRAM FOR GENERAL VENTILATION UNITS**

PANEL HW-ATC-2  
 DF-ATC-1  
 UNITS HW-AHU-3  
 DS-F-1

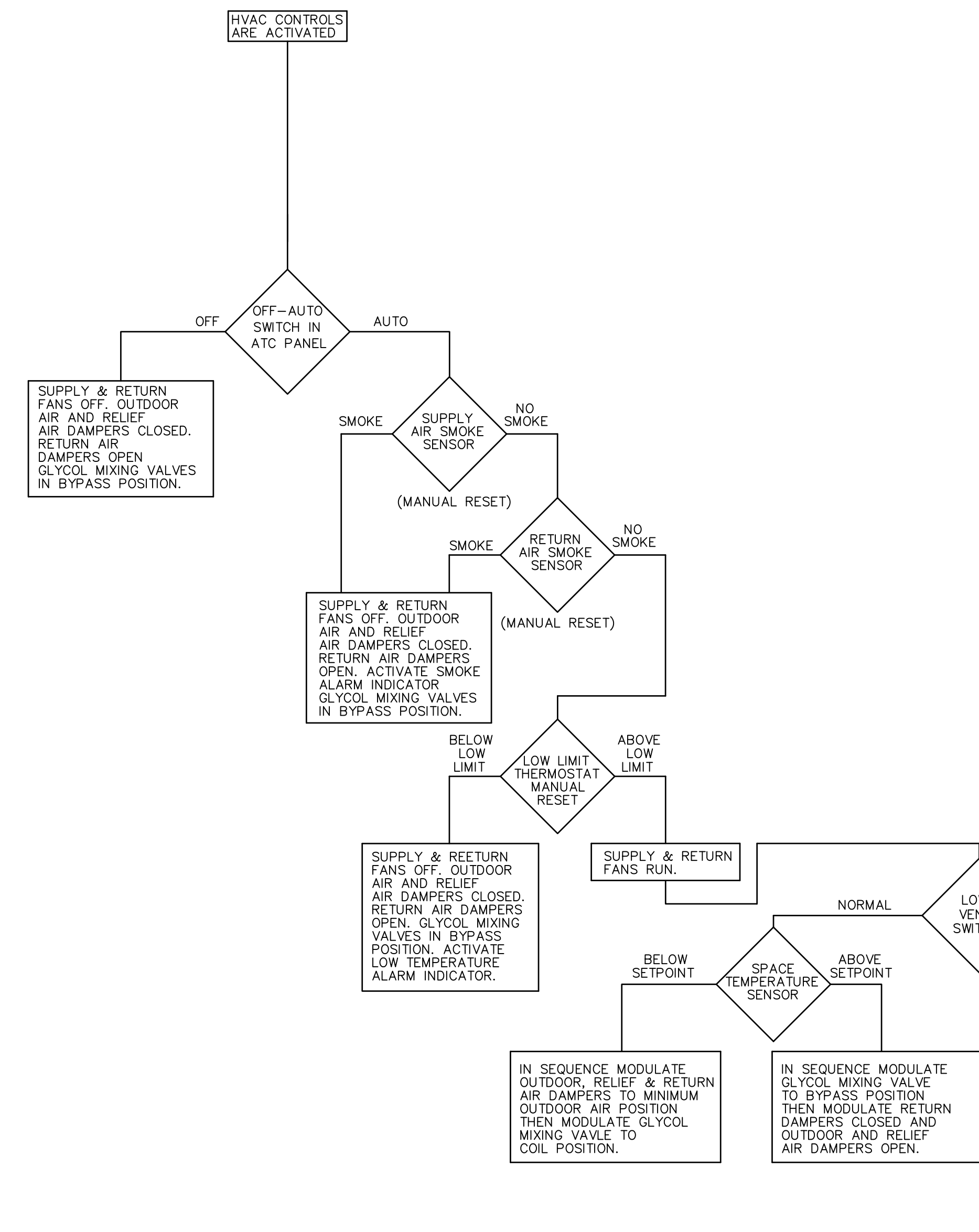


**CONTROL DIAGRAM FOR AIR CONDITIONING UNITS**

ATC PANEL HW-ATC-1 HW-ATC-3 DF A TC-1 SP-ATC-2 PT-ATC-2 PT-ATC-1  
 ATC PANEL HW-ACU-1&2 HW-ACU-3&4 DF ACU-1&2 SP-ACU-4,5,6 PT-ACU-3,4 PT-ATC-1,2  
 NOTE: ELECTRIC COIL POR SP-ACU-4 ONLY

**CONTROL DIAGRAM FOR CHEMICAL AREAS**

ATC PANELS DF-ATC-1 DF-ATC-1  
 UNITS DF-AHU-1 DF-AHU-2  
 INTERLOCKS DF-EF-1 DF-EF-2



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/07	JAL	ADT		NO REVISION REQUIRED FOR THE RECORD

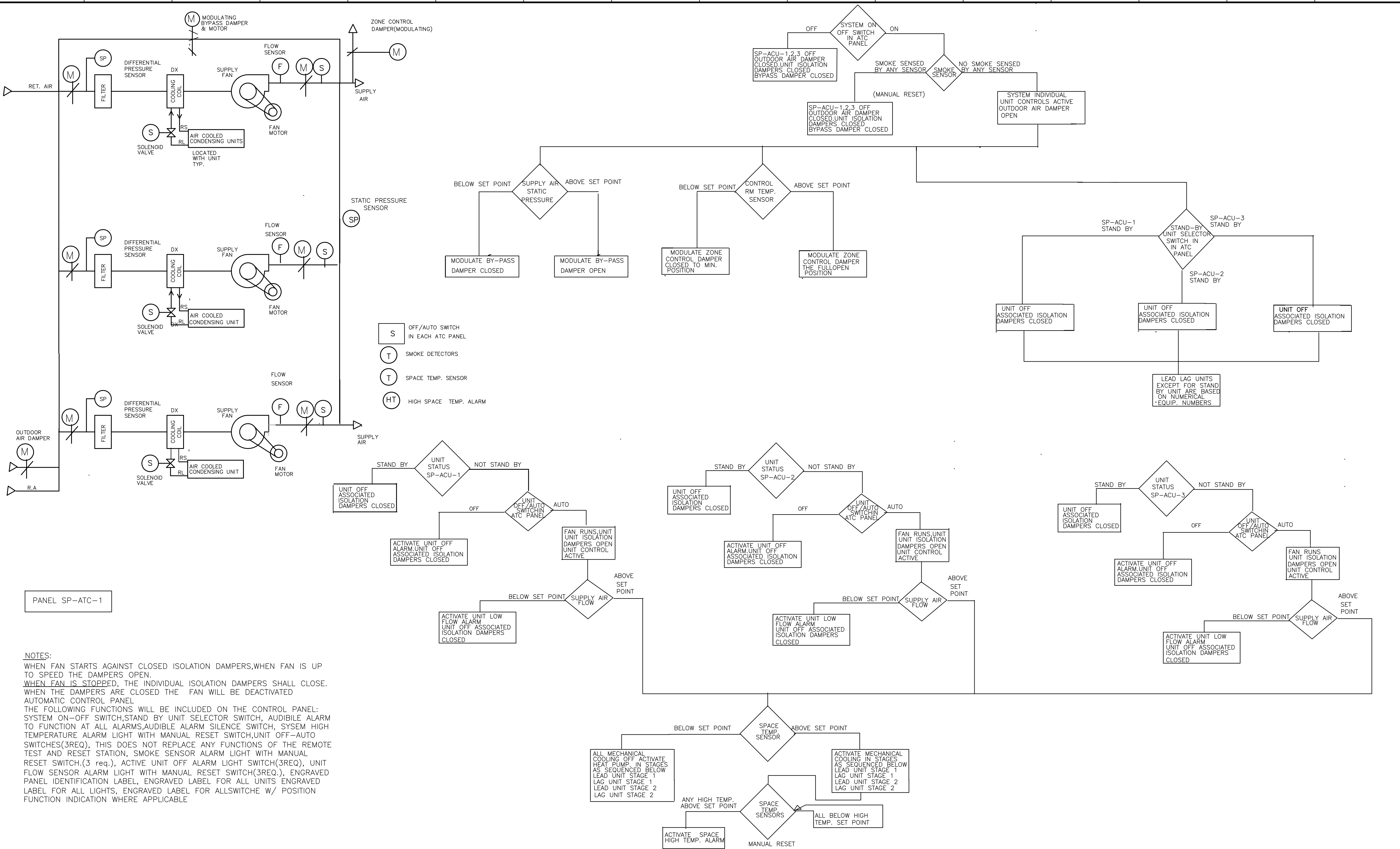
CADD FILE NO.	HSDSD005
DESIGNED BY:	A. CHIUCCHARELLO
DRAWN BY:	M. TRAVERS
SHEET CHK'D BY:	A. CHIUCCHARELLO
SCALE:	NTS
APPROVED BY:	A. CHIUCCHARELLO
DATE:	MAY 2006

CDM	Camp Dresser & McKee Inc.
consulting	engineering
construction	operations

UPPER BLACKSTONE	WATER POLLUTION ABATEMENT DISTRICT	CONTRACT No. UB 2024
WASTEWATER TREATMENT FACILITY IMPROVEMENTS		

PROJECT NO.	1289\35370
Sht.	234 of 386
SD-H-6	

ATC DIAGRAM II	
ACCESSION NO. 1289-6364	



**NOTES:**  
 WHEN FAN STARTS AGAINST CLOSED ISOLATION DAMPERS, WHEN FAN IS UP TO SPEED THE DAMPERS OPEN.  
 WHEN FAN IS STOPPED, THE INDIVIDUAL ISOLATION DAMPERS SHALL CLOSE.  
 WHEN THE DAMPERS ARE CLOSED THE FAN WILL BE DEACTIVATED AUTOMATIC CONTROL PANEL.  
 THE FOLLOWING FUNCTIONS WILL BE INCLUDED ON THE CONTROL PANEL:  
 SYSTEM ON-OFF SWITCH, STAND BY UNIT SELECTOR SWITCH, AUDIBLE ALARM TO FUNCTION AT ALL ALARMS, AUDIBLE ALARM SILENCE SWITCH, SYSTEM HIGH TEMPERATURE ALARM LIGHT WITH MANUAL RESET SWITCH, UNIT OFF-AUTO SWITCHES (3REQ.), THIS DOES NOT REPLACE ANY FUNCTIONS OF THE REMOTE TEST AND RESET STATION, SMOKE SENSOR ALARM LIGHT WITH MANUAL RESET SWITCH (3 req.), ACTIVE UNIT OFF ALARM LIGHT SWITCH (3REQ.), UNIT FLOW SENSOR ALARM LIGHT WITH MANUAL RESET SWITCH (3REQ.), ENGRAVED PANEL IDENTIFICATION LABEL, ENGRAVED LABEL FOR ALL UNITS ENGRAVED LABEL FOR ALL LIGHTS, ENGRAVED LABEL FOR ALL SWITCHES W/ POSITION FUNCTION INDICATION WHERE APPLICABLE

RECORD DRAWING

CADD FILE NO. HSD01004 DESIGNED BY: J.JACOBS DRAWN BY: A.CHIUCCARIELLO SHEET CHK'D BY: J.JACOBS SCALE: NTS APPROVED BY: A. CHIUCCARIELLO DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024 <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370 Sht. 235 of 386 <b>SD-H-7</b>	
REV. NO. DATE DRWN CHKD REMARKS 10/07 JAL ADT NO REVISION REQUIRED FOR THE RECORD				<b>ATC DIAGRAM III</b> <b>AIR CONDITIONING UNITS HW-AHU-1,2,3</b>		PROJECT NO. 1289\35370 Sht. 235 of 386 <b>SD-H-7</b>			

## GENERAL ABBREVIATIONS

Ⓢ	AT	LBV	LOCKABLE BALL VALVE
AD	AREA DRAIN	LCW	LAB COLD WATER
AFF	ABOVE FINISHED FLOOR	LHW	LAB HOT WATER
AV	ACID VENT	LS	LAB SINK
AW	ACID WASTE	MAX	MAXIMUM
BWV	BACKWATER VALVE	MIN	MINIMUM
BLDG	BUILDING	MR	MOP RECEPTOR
Ⓡ	CENTERLINE	NO	NUMBER
CA	COMPRESSED AIR	OED	OPEN END OR OPEN EQUIPMENT DRAIN
CD	CAVITY DRAIN	PD	PUMP DISCHARGE
CI	CAST IRON	PG	PRESSURE GAUGE
CO	CLEANOUT	PH	POST HYDRANT
CONT	CONTINUOUS, CONTINUE	PP	POLYPROPYLENE
CS	CUP SINK	PRV	PRESSURE REDUCING VALVE
CU FT	CUBIC FEET	PRW	PRESSURE WASTE
CV	CHECK VALVE	PSI	POUNDS PER SQUARE INCH
CW	COLD WATER	P&T	PRESSURE & TEMPERATURE
DI	DUCTILE IRON	PVC	POLYVINYL CHLORIDE
DN	DOWN	PW	PLANT WATER
DWG	DRAWING	RD	ROOF DRAIN
E	EMERGENCY WATER	RL	RAINLEADER
ECO	EXTERIOR CLEANOUT	RM	ROOM
EL	ELEVATION	RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
ES	EMERGENCY SHOWER	S	SOIL
EWC	ELECTRIC WATER COOLER	SH	SHOWER
EWST	EMERGENCY WATER STORAGE TANK	SHT	SHEET
EWU	EYE WASH UNIT	SP	SPRINKLER
FAS	FLOW ALARM SWITCH	SQ	SQUARE
FCO	FLUSH FLOOR CLEANOUT	SS	STAINLESS STEEL
FD	FLOOR DRAIN	SSK	SERVICE SINK
FE	FIRE EXTINGUISHER	SW	SERVICE WATER
FHV&C	FIRE HOSE VALVE AND CABINET	TD	TRENCH OR TROUGH DRAIN
FS	FLOW SWITCH	THK	THICK(NESS)
FV	FIRE VALVE	TYP	TYPICAL
F/BS	FACE/BODY SPRAY	UR	URINAL
G	GAS	V	VENT
GW	GLASSWARE WASHER	VAC	VACUUM
GPM	GALLONS PER MINUTE	VB	VACUUM BREAKER
HB	HOSE BIBB	VE	VACUUM EXHAUST
HEV	HOSE END VALVE	VTR	VENT THROUGH ROOF
HP	HANDICAPPED	W	WASTE
HW	HOT WATER	W/	WITH
HWR	HOT WATER RETURN	WC	WATER CLOSET
INV	INVERT	WCO	WALL CLEANOUT
IOS	INSTALLED BY OTHER SECTION	WF	WASH FOUNTAIN
IPS	IRON PIPE SIZE	WH	WALL HYDRANT
KS	KITCHEN SINK	WHS	WASH HOSE STATION
KU	KITCHEN UNIT	W&V	WASTE & VENT
LAB	LABORATORY		
LAV	LAVATORY		

NOTES:  
 1. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE GENERAL AND MAY NOT HAVE BEEN USED ON THIS PROJECT.

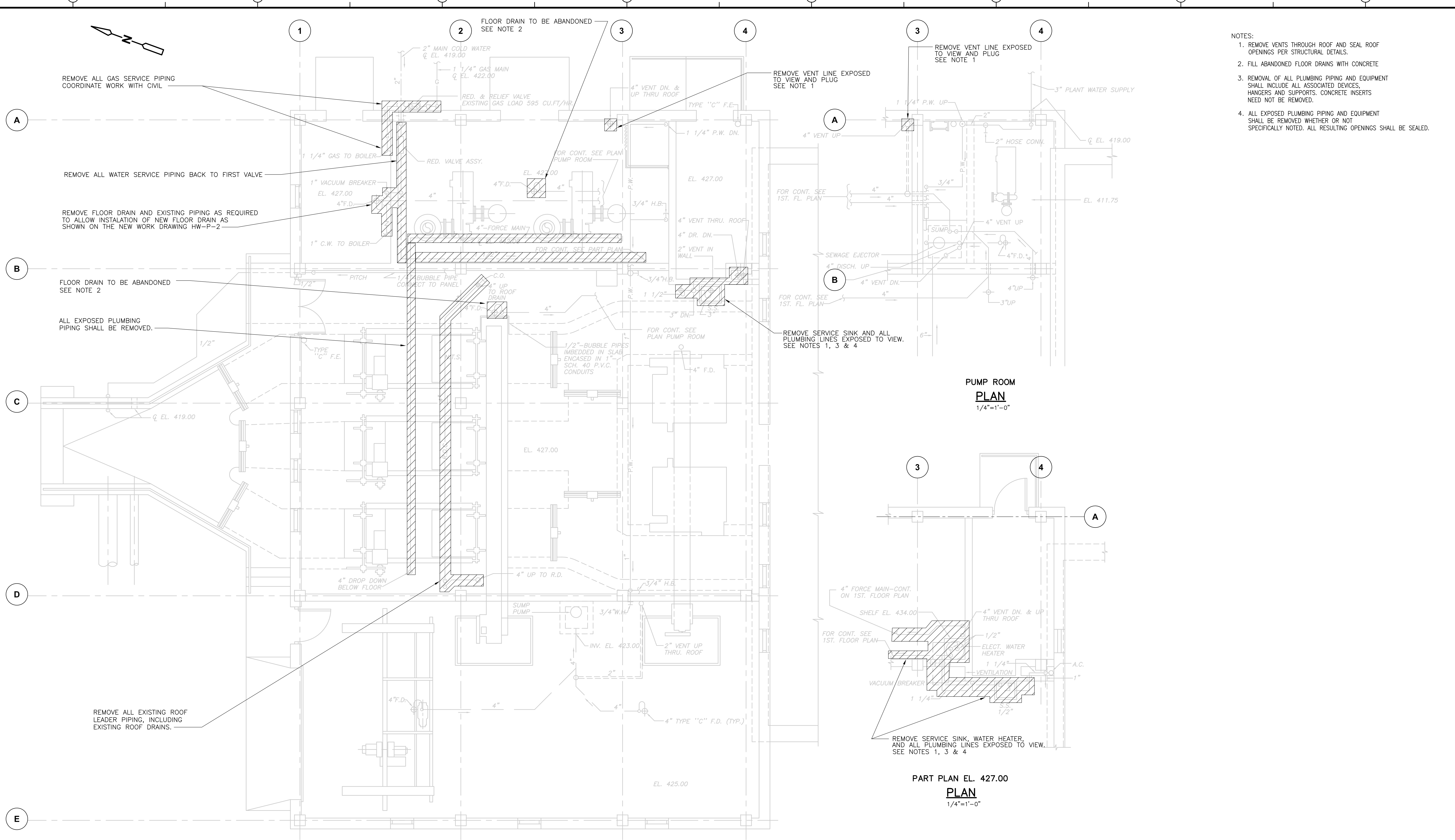
## SYMBOLS

	SOIL OR WASTE
	VENT
	COLD WATER (POTABLE)
	HOT WATER (POTABLE)
	COMPRESSED AIR
	ACID VENT
	ACID WASTE
	EMERGENCY WATER
	EMERGENCY WATER (EMERGENCY SHOWER-LAB ONLY)
	FIRE LINE
	FIRE SERVICE WATER (POTABLE)
	GAS
	HOT WATER RETURN (POTABLE)
	LABORATORY COLD WATER (NON-POTABLE)
	LABORATORY HOT WATER (NON-POTABLE)
	PUMP DISCHARGE
	PROTECTED WATER (NON-POTABLE)
	PROTECTED HOT WATER (NON-POTABLE)
	PRESSURE WASTE
	RAINLEADER
	SPRINKLER LINE
	SERVICE WATER
	VACUUM
	VACUUM EXHAUST
	VALVE
	LOCKABLE BALL VALVE
	CHECK VALVE
	FLOW ALARM SWITCH
	EMERGENCY SHOWER
	CLEANOUTS
	FLUSH FLOOR CLEANOUT
	WATER PROOF SLEEVE
	FLOOR DRAIN OR ROOF DRAIN
	PROTECTED WATER CONNECTION IDENTIFICATION NUMBER
	OPEN END DRAIN
	PIPING AND EQUIPMENT TO BE DEMOLISHED
	EQUIPMENT HIGHLIGHTING
	DN OR DROP ("DN" DENOTES PIPES WHICH PENETRATE THE FLOOR BELOW. "DROP" DENOTES PIPES WHICH DO NOT.)
	UP OR RISE ("UP" DENOTES PIPES WHICH PENETRATE THE FLOOR ABOVE. "RISE" DENOTES PIPES WHICH DO NOT.)

THE TERMS "DN" "DROP" "UP" & "RISE" ARE USED TO INDICATE THE VERTICAL DIRECTION IN WHICH A PIPE LINE CONTINUES FROM THE IMAGINARY PLANE OF VIEW. THE TERMS HAVE NO RELEVANCE TO THE DIRECTION OF FLOW WITHIN THE PIPE LINE.

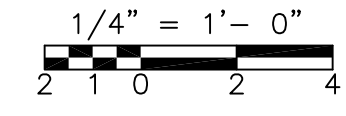
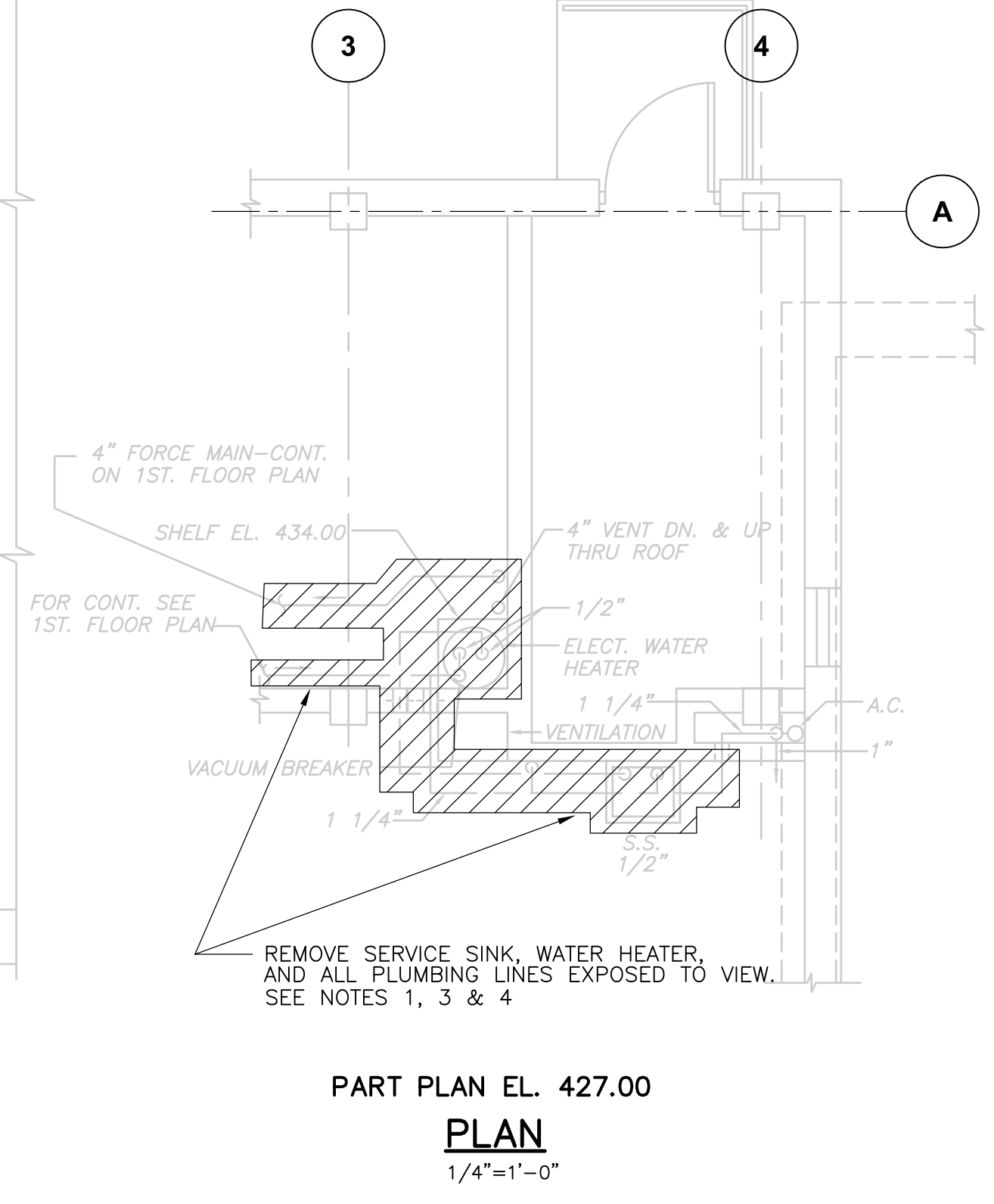
RECORD DRAWING

				CADD FILE NO.: PWTG001	Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>	UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024	PROJECT NO. 1289\35370
				DESIGNED BY: T. LAQUIDARA			
				DRAWN BY: T. LAQUIDARA	<b>PLUMBING ABBREVIATIONS/SYMBOLS SHEET</b>		
				SHEET CHK'D BY: A. RAYCHDHURI			
				SCALE: NONE	APPROVED BY: A. RAYCHDHURI DATE: MAY 2006		
				APPROVED BY: A. RAYCHDHURI			
				DATE: MAY 2006	REMARKS		
REV. NO.	DATE	DRWN	CHKD				
	3/07	SPV	ADT				



- NOTES:
1. REMOVE VENTS THROUGH ROOF AND SEAL ROOF OPENINGS PER STRUCTURAL DETAILS.
  2. FILL ABANDONED FLOOR DRAINS WITH CONCRETE
  3. REMOVAL OF ALL PLUMBING PIPING AND EQUIPMENT SHALL INCLUDE ALL ASSOCIATED DEVICES, HANGERS AND SUPPORTS. CONCRETE INSERTS NEED NOT BE REMOVED.
  4. ALL EXPOSED PLUMBING PIPING AND EQUIPMENT SHALL BE REMOVED WHETHER OR NOT SPECIFICALLY NOTED. ALL RESULTING OPENINGS SHALL BE SEALED.

**PUMP ROOM PLAN**  
 1/4"=1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. PGRPL001  
 DESIGNED BY: T. LAQUIDARA  
 DRAWN BY: T. LAQUIDARA  
 SHEET CHK'D BY: RAYCHAUDHURI  
 SCALE: 1/4" = 1'-0"  
 APPROVED BY: A. RAYCHAUDHURI  
 DATE: MAY 2006

WEST GRIT AND SCREENINGS FACILITY  
**PLAN**  
 1/4"=1'-0"

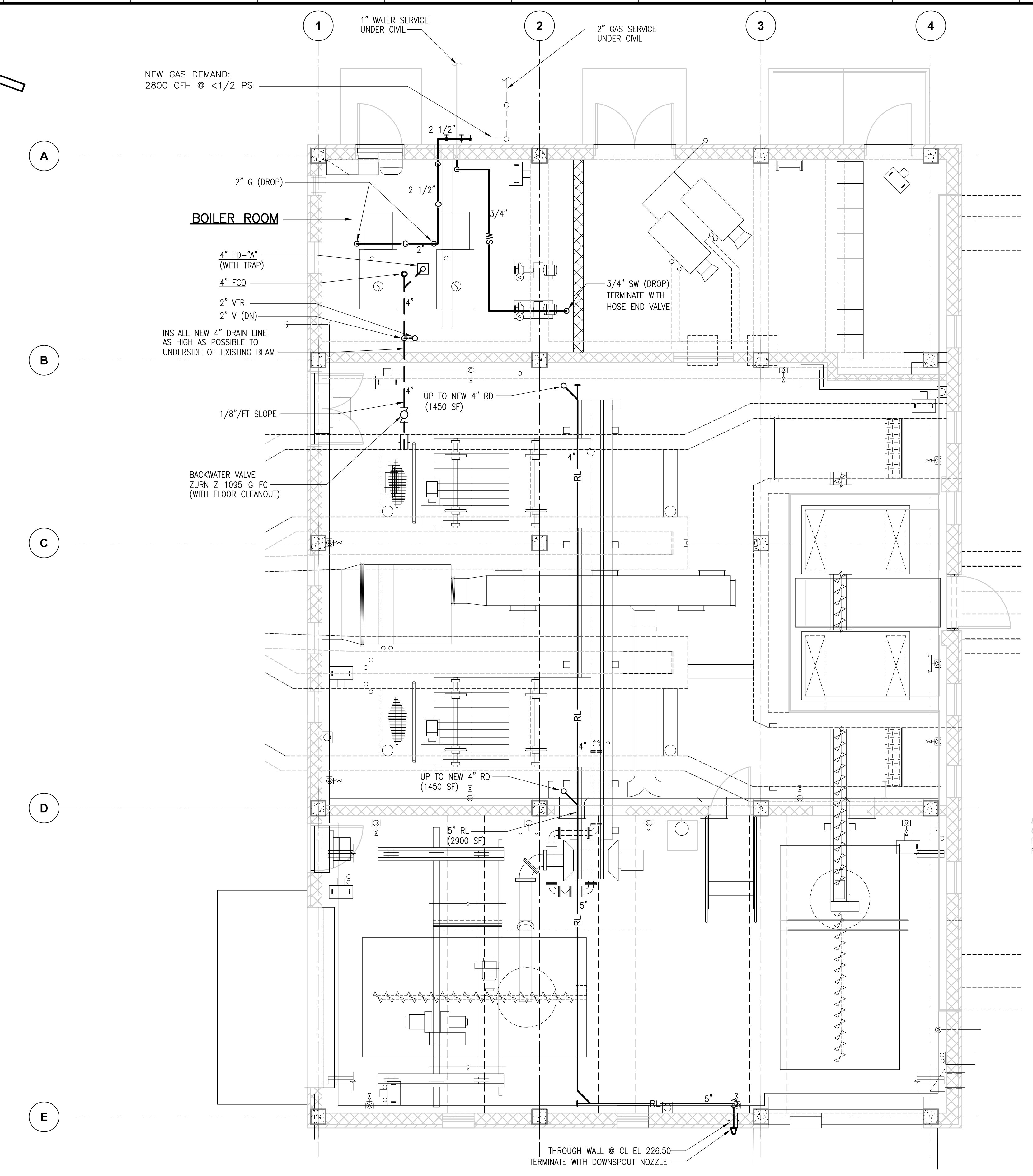
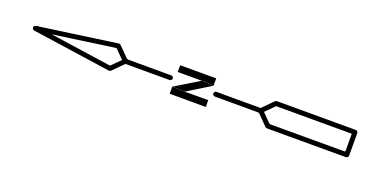
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

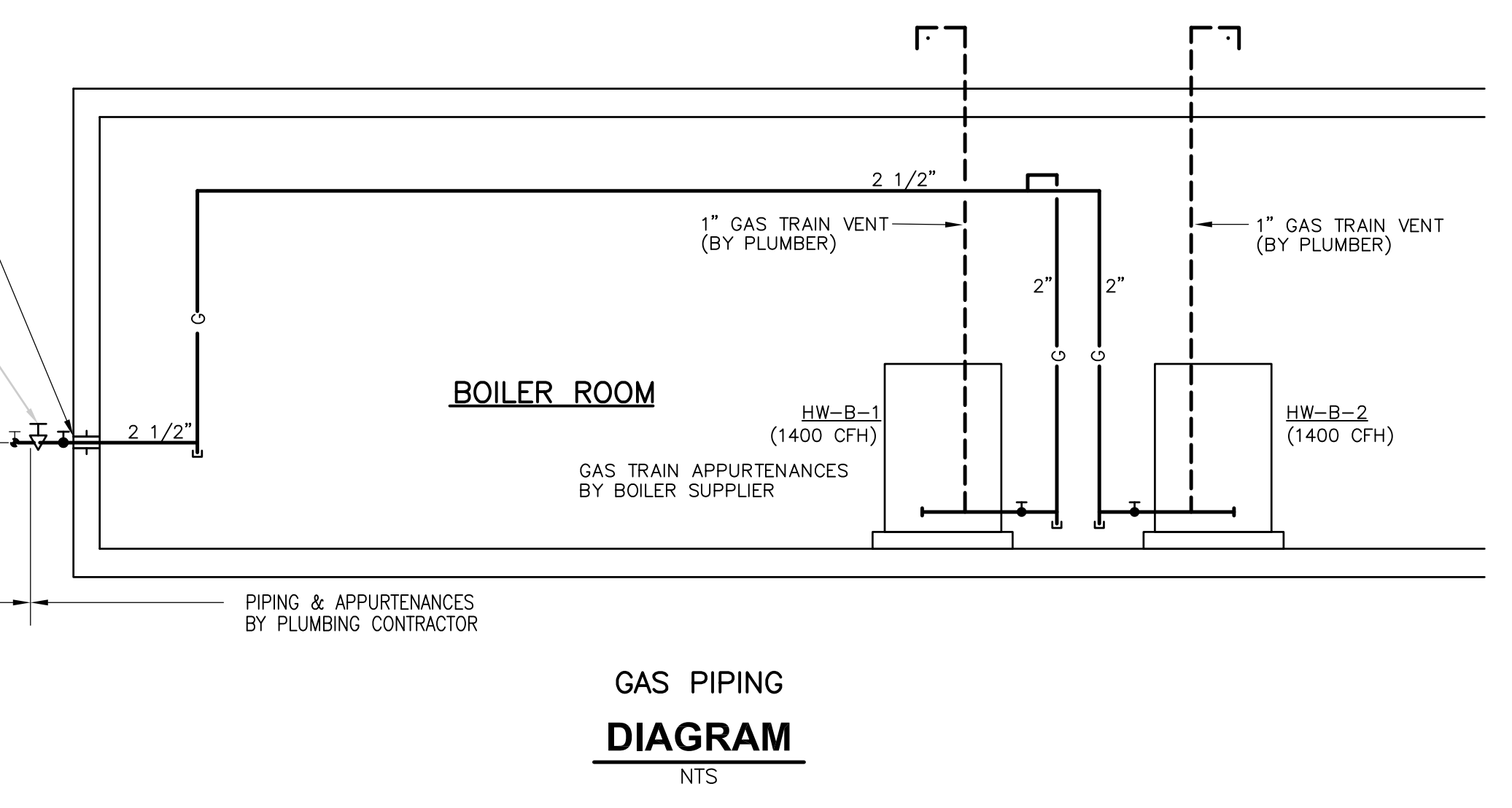
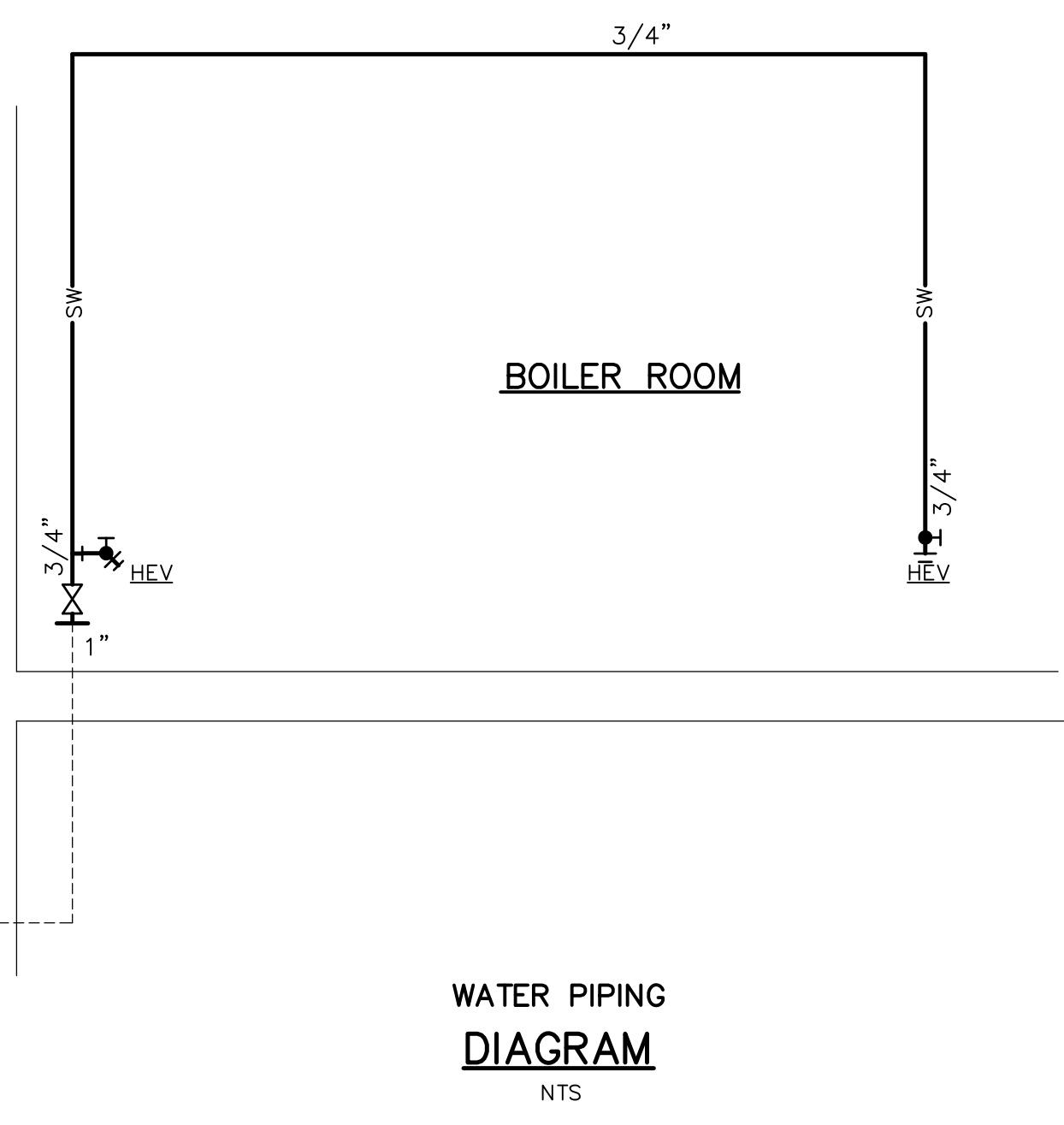
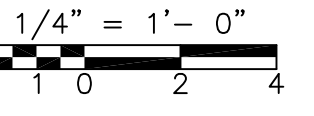
**WEST GRIT AND SCREENING FACILITY DEMOLITION**

PROJECT NO. 1289\35370  
 Sht. 237 of 386  
**HW-P-1**

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
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**WEST GRIT AND SCREENINGS FACILITY**  
**PLAN**  
 1/4" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.: PGRPL001  
 DESIGNED BY: T. LAQUIDARA  
 DRAWN BY: T. LAQUIDARA  
 SHEET CHK'D BY: RAYCHAU DHURI  
 SCALE: 1/4" = 1'-0"  
 APPROVED BY: A. RAYCHAU DHURI  
 DATE: MAY 2006

Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

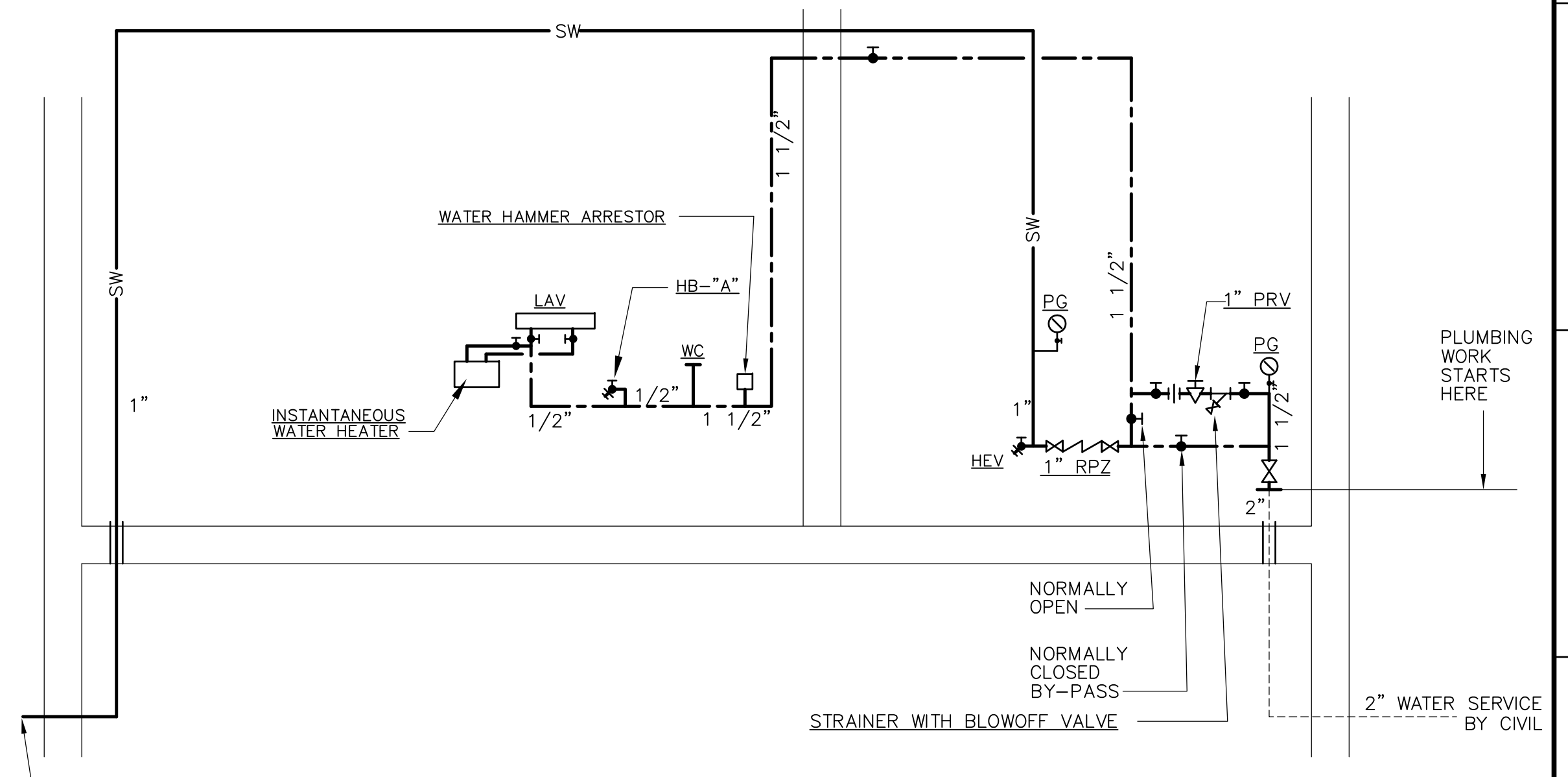
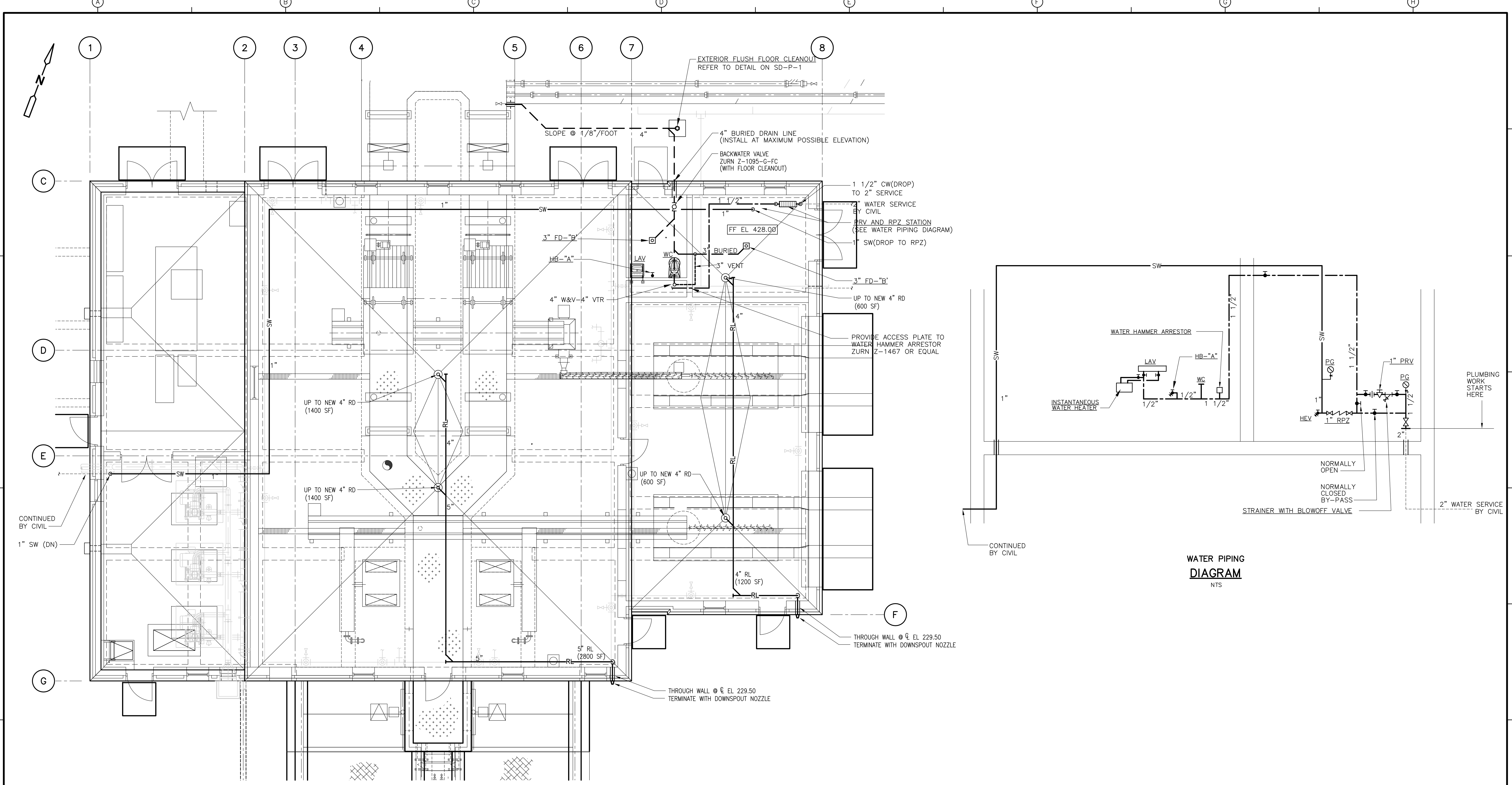
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 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**WEST GRIT AND SCREENING FACILITY**  
**NEW WORK**  
**HW-P-2**

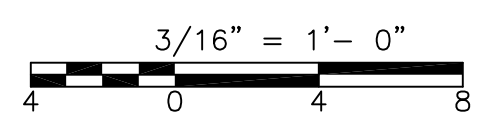
PROJECT NO.  
 1289\35370  
 Sht. 238 of 386

ACCESSION NO. 1289-65838

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
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EAST GRIT AND SCREENINGS FACILITY  
**PLAN**  
 3/16" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	PGRPL002
DESIGNED BY:	T. LAQUIDARA
DRAWN BY:	T. LAQUIDARA
SHEET CHK'D BY:	RAYCHAUDHURI
SCALE:	AS NOTED
APPROVED BY:	A. RAYCHAUDHURI
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

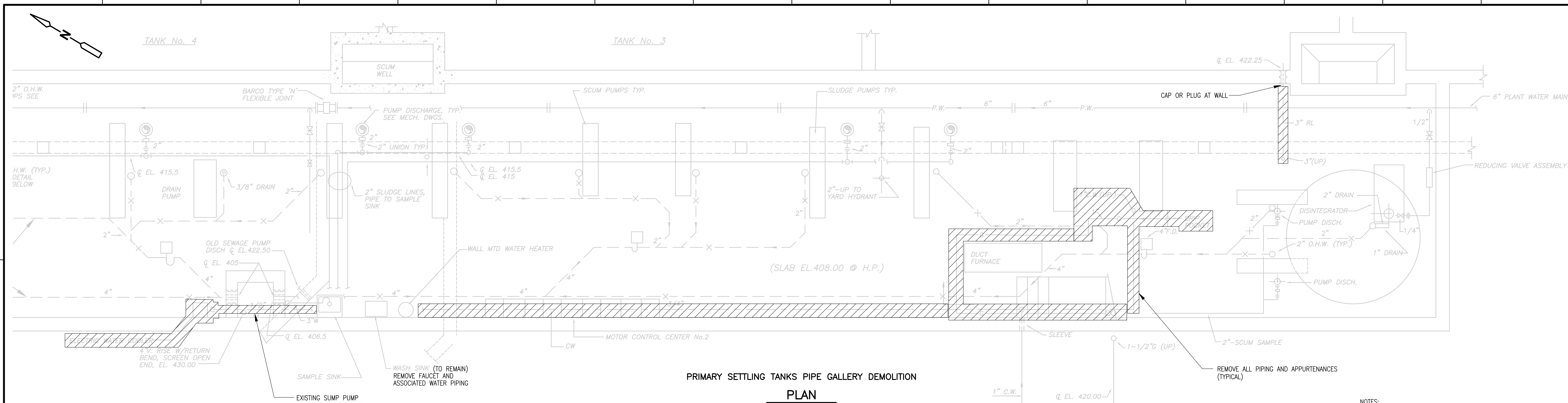
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**EAST GRIT AND SCREENING FACILITY  
 PLAN**

PROJECT NO.  
 1289\35370  
 Sht. 239 of 386  
**HW-P-3**



[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Plotted by: CROSSHA Time: 12/16/08 6:29:31 PM  
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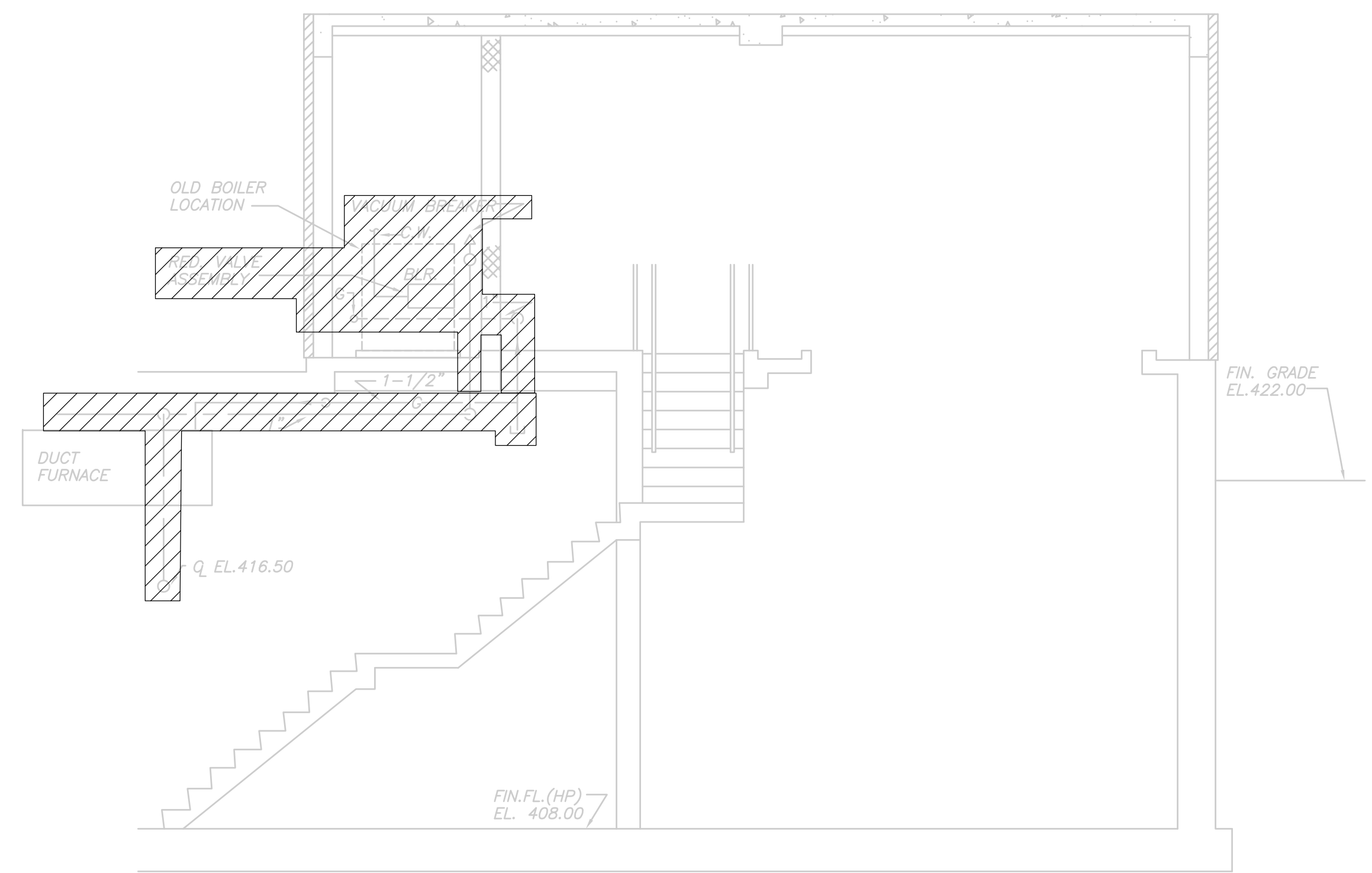


**PRIMARY SETTLING TANKS PIPE GALLERY DEMOLITION**

**PLAN**

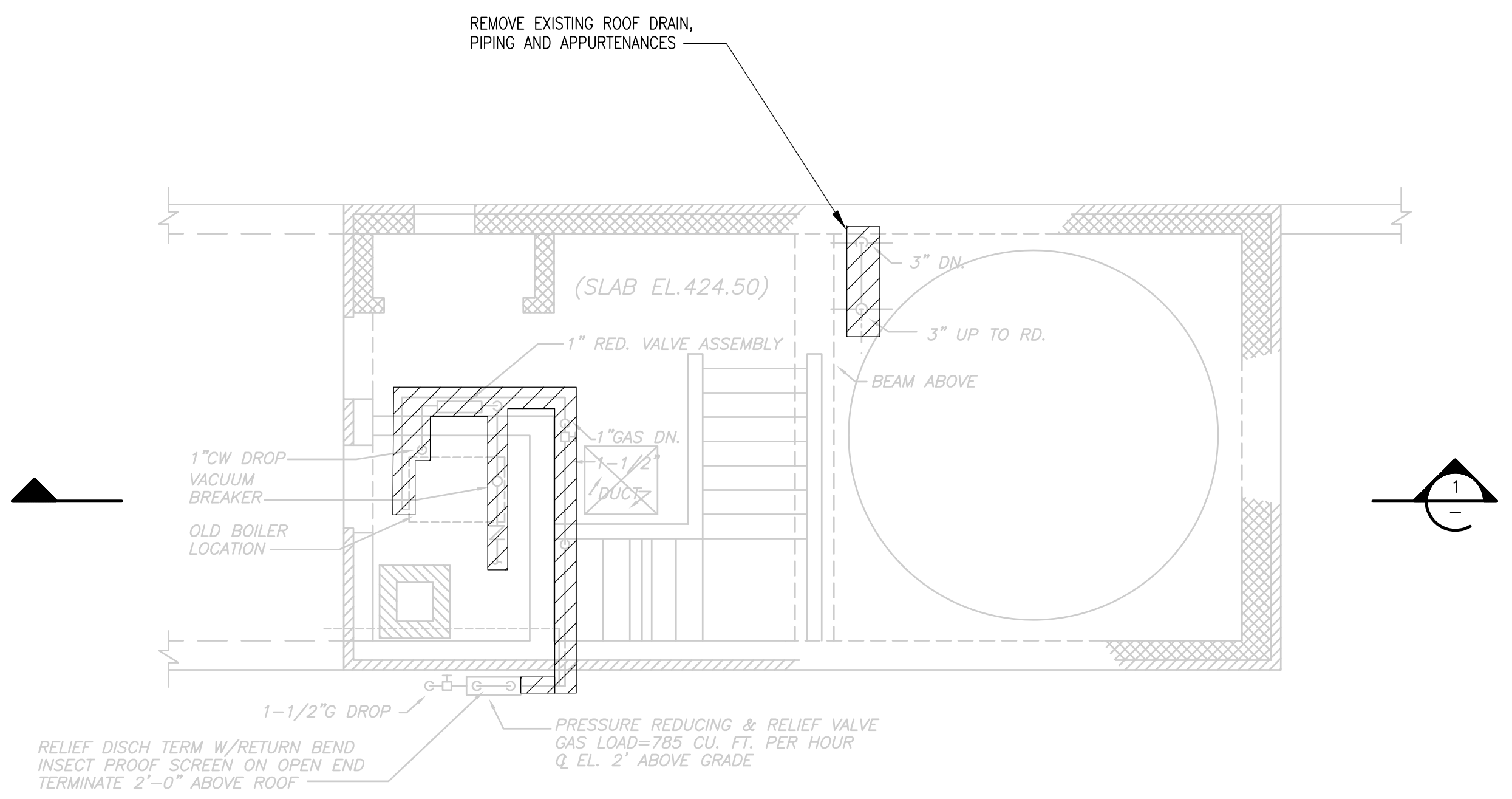
1/4" = 1'-0"

- NOTES:**
1. TAKE NOTE THAT THE EXISTING PIPING SHOWN ON THIS DRAWING MAY VARY SLIGHTLY FROM THE ACTUAL EXISTING INSTALLATION. IT IS THE INTENT THAT ALL EXPOSED GAS AND CITY WATER PIPING BE COMPLETELY REMOVED.
  2. ALL OPENINGS IN WALLS AND SLABS RESULTING FROM THE REMOVAL OF PIPING SHALL BE PATCHED PER STRUCTURAL DETAILS.



**SECTION 1**

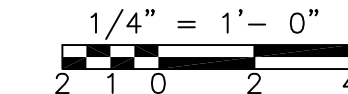
1/4" = 1'-0"



**EXISTING SOUTH ACCESS STRUCTURE**

**PLAN**

1/4" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	PPSPLO01
DESIGNED BY:	T. LAQUIDARA
DRAWN BY:	T. LAQUIDARA
SHEET CHK'D BY:	RAYCHAUDHURI
SCALE:	AS NOTED
APPROVED BY:	A. RAYCHAUDHURI
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

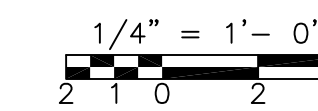
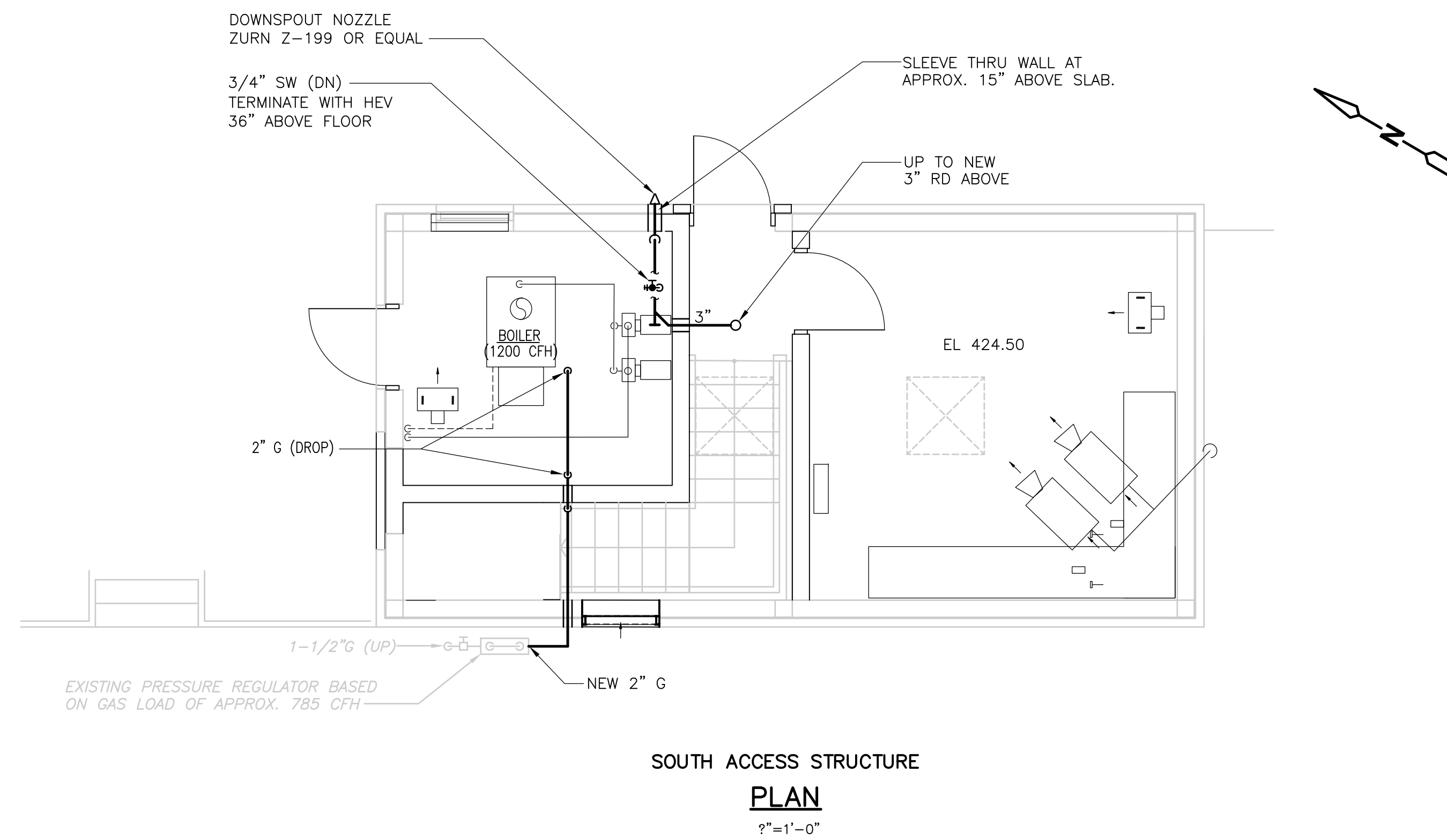
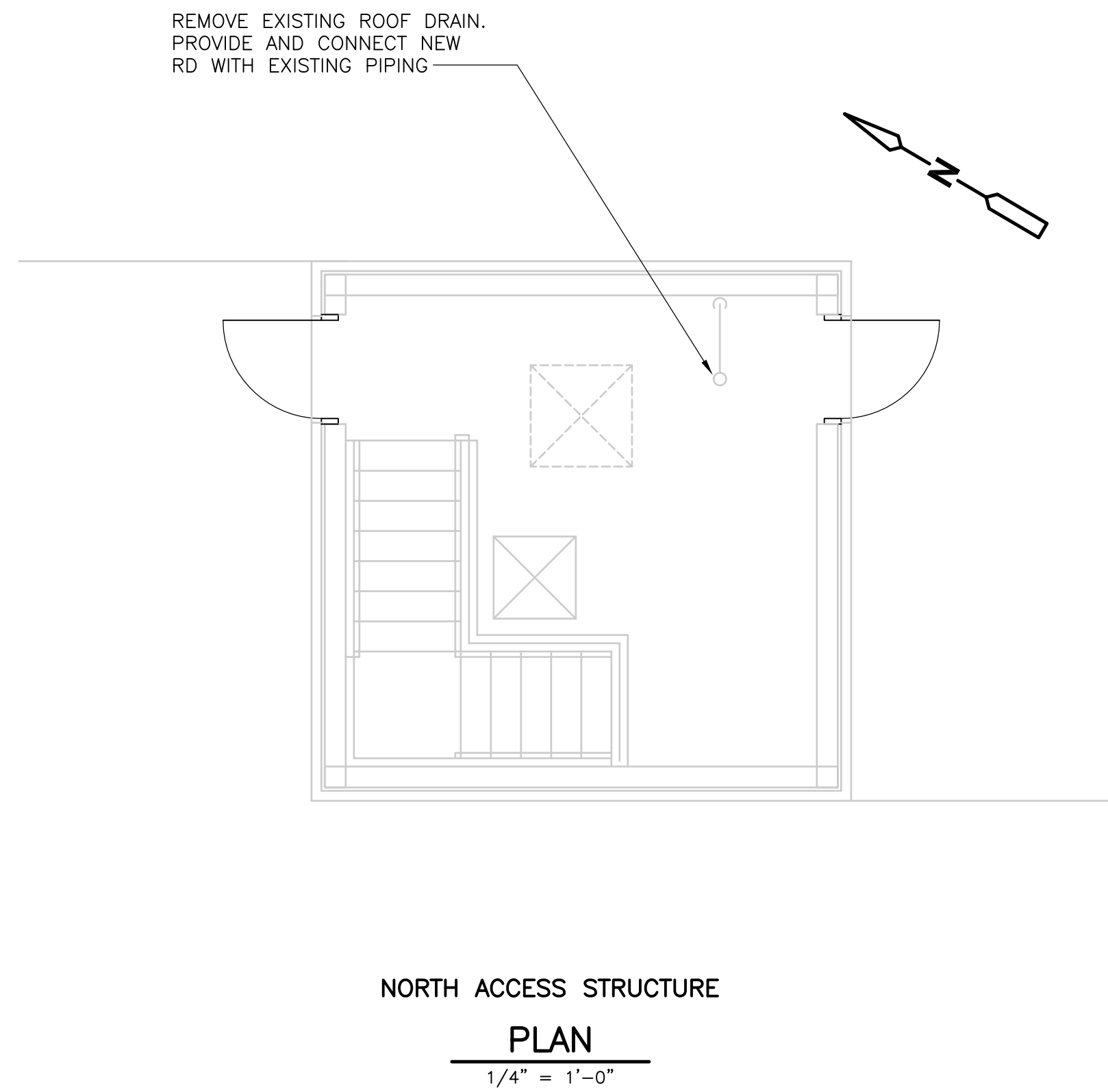
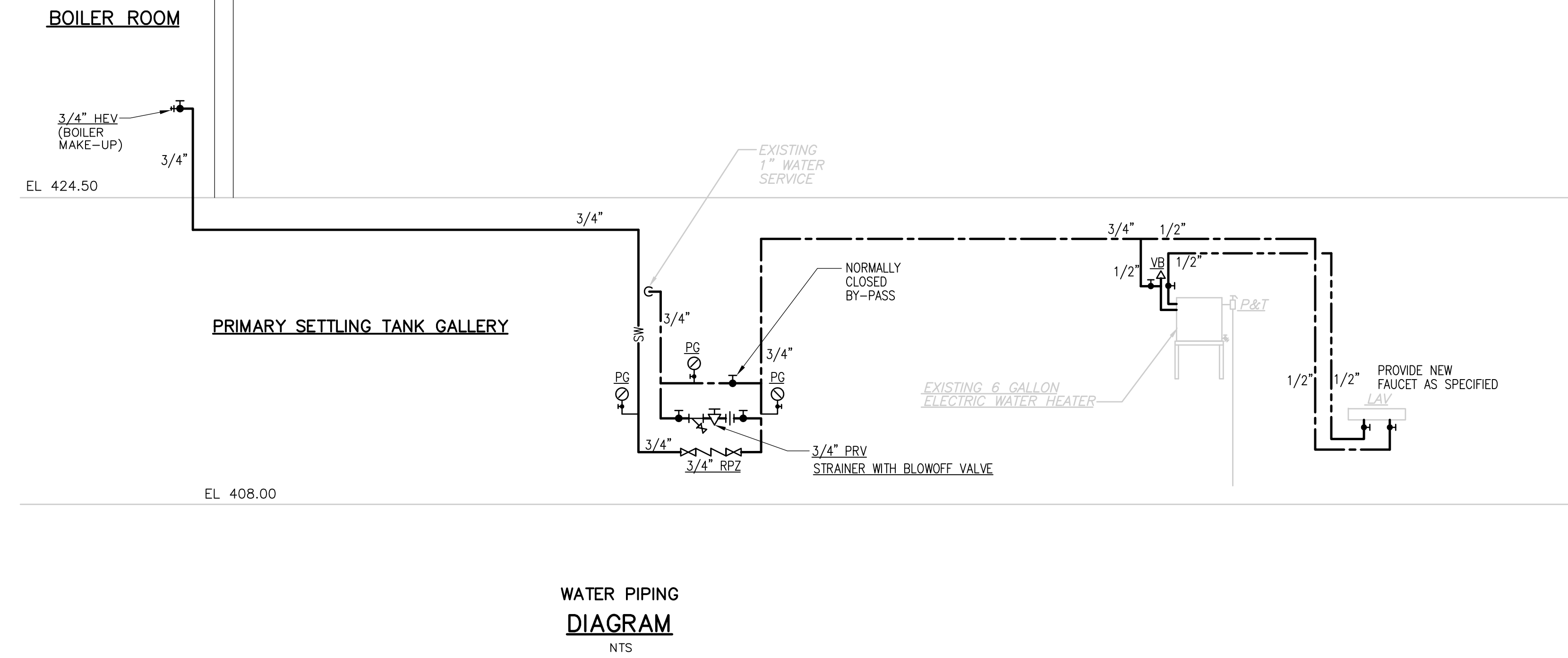
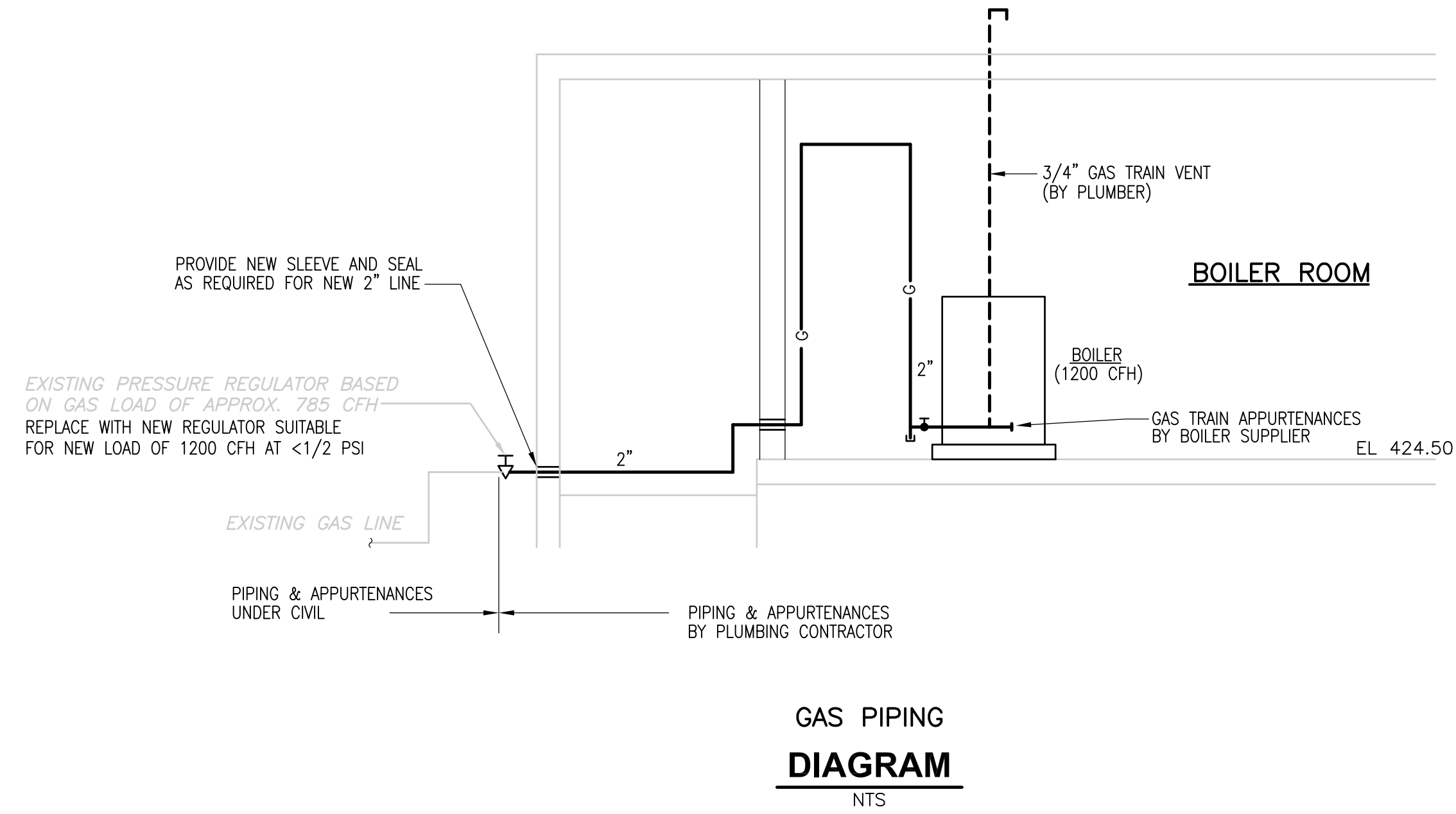
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**EXIST. PRIMARY SETTLING TANKS PIPE GALLERY  
 DEMOLITION**

PROJECT NO. 1289\35370  
 Sht. 240 of 386  
**PT-P-1**



[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\PLMB\PPSPLO03.dwg Xref's: [C24X36H, ASPL102, HSTMP001, PPSPL002, PPSPL001, ] Plotted by: CROSSHA Time: 12/16/08 6:29:38 PM



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.: PPSPL003  
 DESIGNED BY: T. LAQUIDARA  
 DRAWN BY: T. LAQUIDARA  
 SHEET CHK'D BY: RAYCHAUDHURI  
 SCALE: 1/4" = 1'-0"  
 APPROVED BY: A. RAYCHAUDHURI  
 DATE: MAY 2006

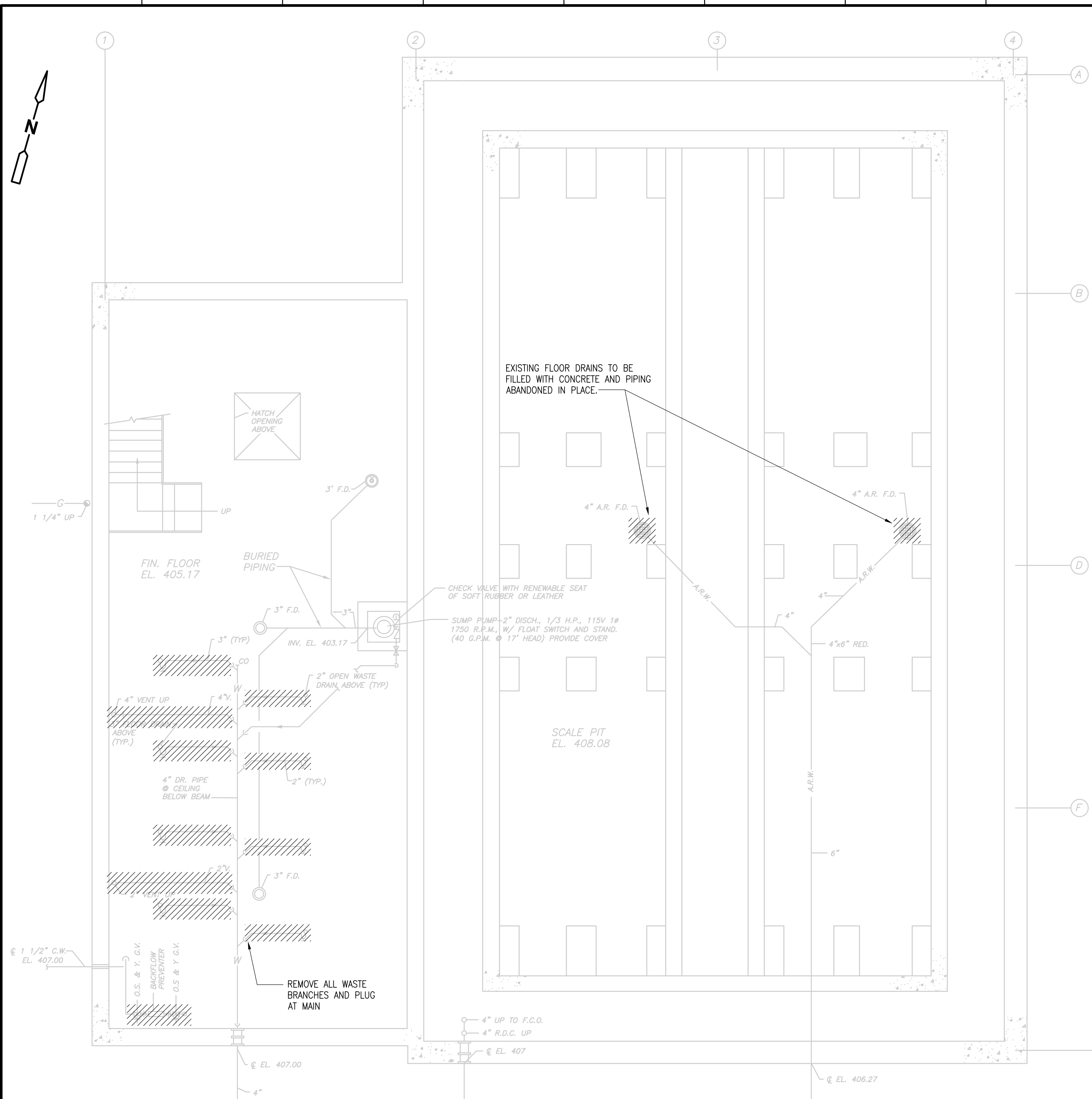
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**PRIMARY SETTLING TANKS PIPE GALLERY ACCESS STRUCTURES AND DIAGRAMS**

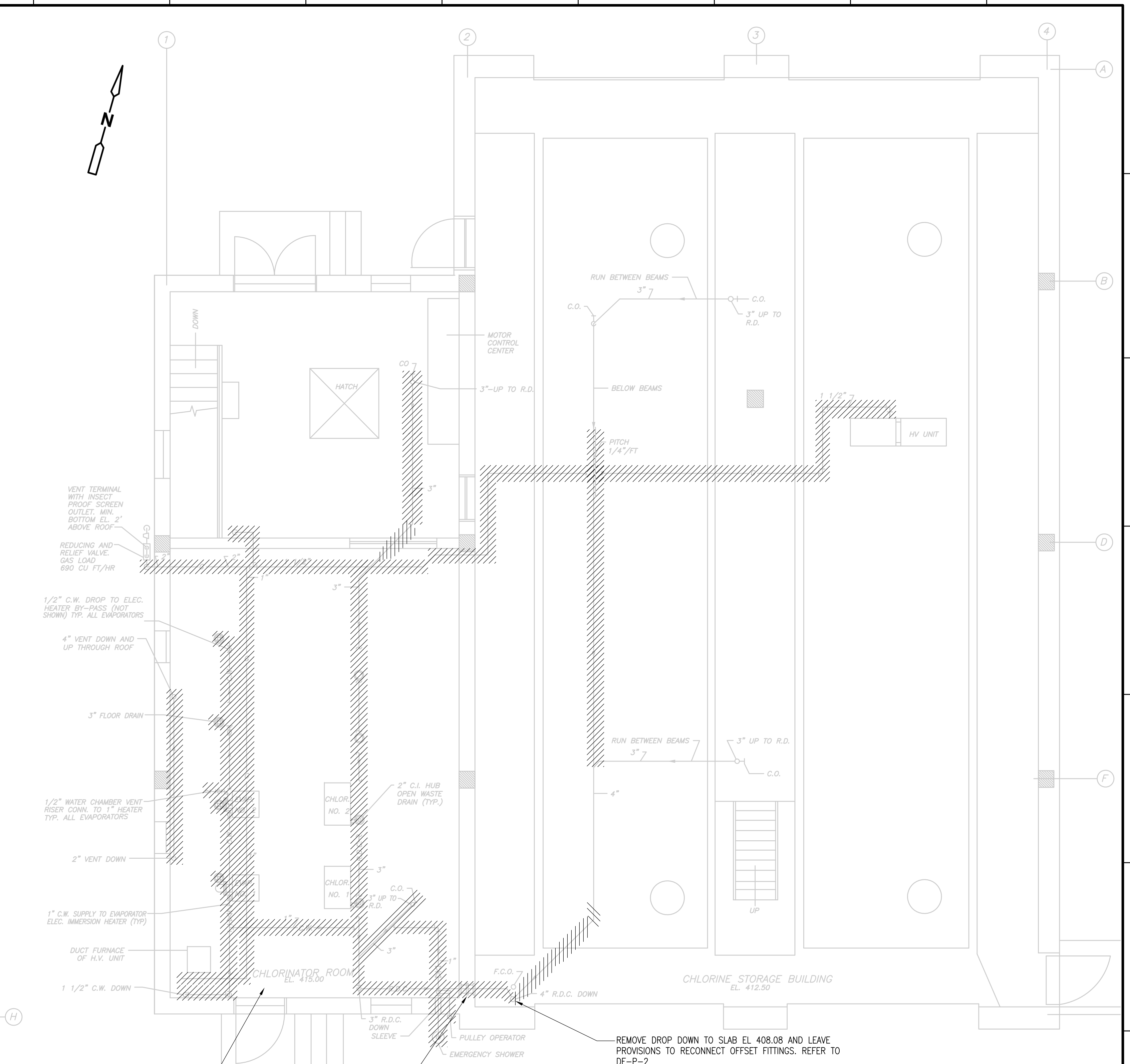
PROJECT NO. 1289\35370  
 Sht. 242 of 386  
**PT-P-3**

ACCESSION NO. 1289-65842

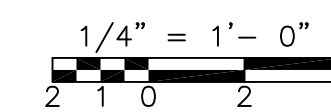


**BASEMENT PLAN**  
1/4"=1'-0"

**EXISTING WATER SERVICE DIAGRAM**  
NONE



**FIRST FLOOR PLAN**  
1/4"=1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.:	PCHPL001
DESIGNED BY:	T. LAQUIDARA
DRAWN BY:	T. LAQUIDARA
SHEET CHK'D BY:	RAYCHUAHDURI
SCALE:	1/4" = 1'-0"
APPROVED BY:	A. RAYCHUAHDURI
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

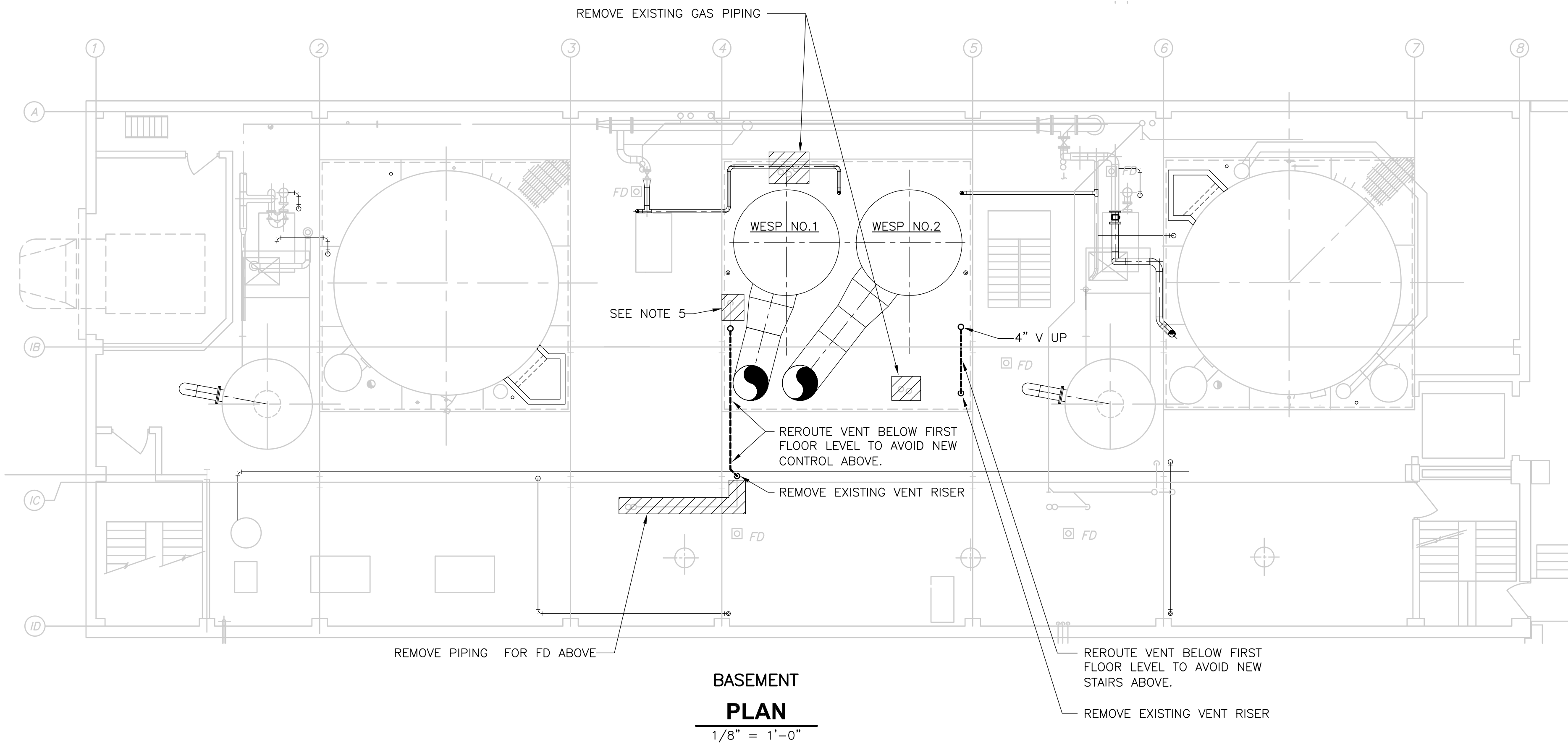
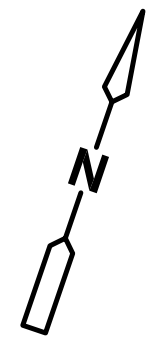
**DISINFECTATION FACILITY**  
**DEMOLITION PLANS & DIAGRAM**

**DF-P-1**

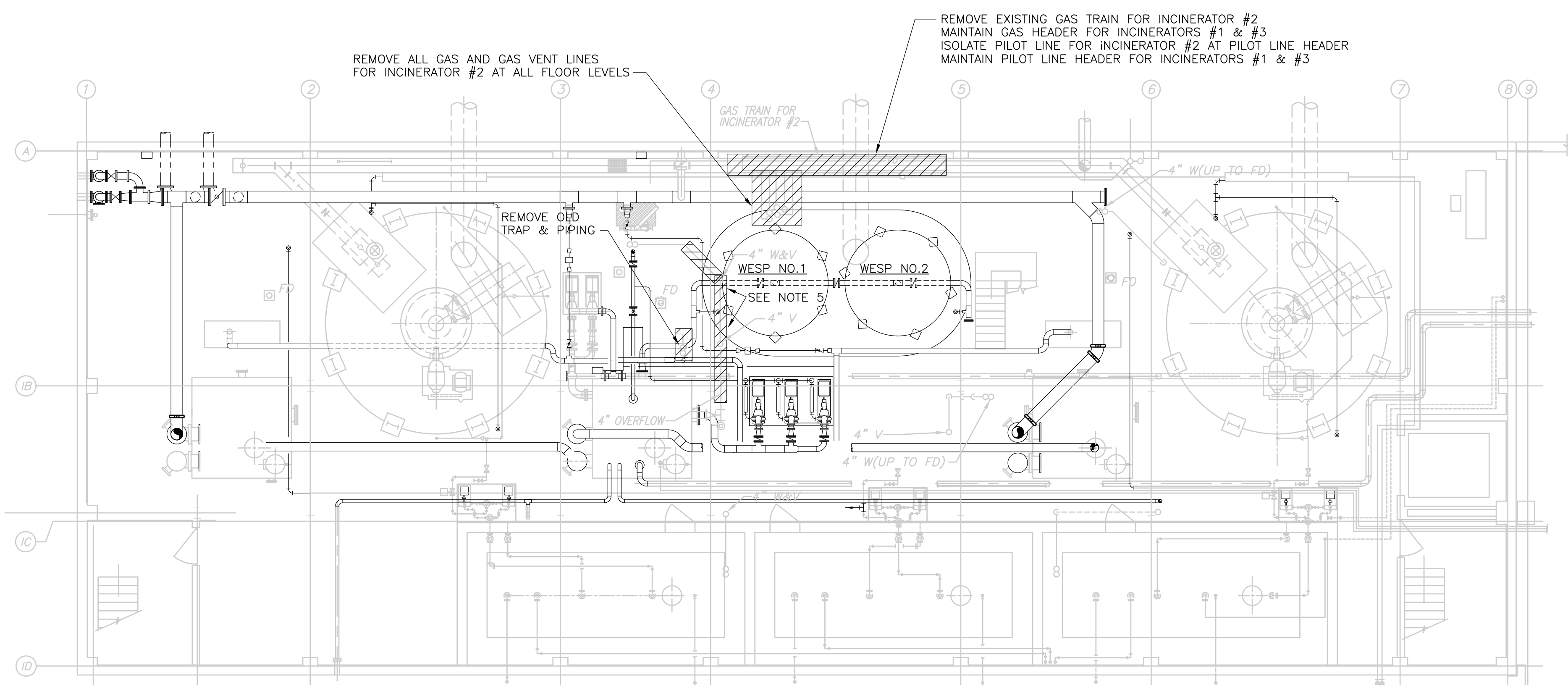
PROJECT NO. 1289\35370  
Sht. 243 of 386



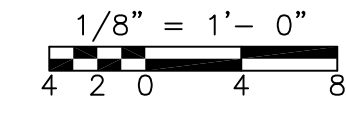
[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE I\RECORD\PLMB\SPPL001.dwg Xref's: [C24X36H, MSPWP001, MSPWP002, PSPWP001, PSPWP002, ] Plotted by: CROSSHA Time: 12/16/08 6:29:49 PM



**BASEMENT PLAN**  
 1/8" = 1'-0"



**SUB BASEMENT PLAN**  
 1/8" = 1'-0"



**GENERAL NOTES:**

1. EXISTING BUILDING OUTLINE, LOCATION OF EXISTING EQUIPMENT, VALVES AND PIPING HAS BEEN OBTAINED FROM SCANNED ORIGINAL RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE  
 WATER POLLUTION  
 ABATEMENT DISTRICT  
 REGIONAL WASTEWATER  
 TREATMENT FACILITIES  
 CONTRACT NO.2  
 FEBRUARY 1973  
  
 SOME INFORMATION NOT DIRECTLY RELATED TO THE WORK UNDER THIS CONTRACT HAS BEEN OMITTED FOR THE SAKE OF CLARITY. ADDITIONAL EQUIPMENT INFORMATION IS BASED ON PLANT RECORDS AND FIELD MEASUREMENTS. EXACT EQUIPMENT AND PIPING LOCATIONS SHOULD BE VERIFIED.
2. FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
3. FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
4. PLANS SHOW THE PROPOSED PROCESS EQUIPMENT AND PIPING WITH INCINERATOR #2 REMOVED. GAS TRAIN AND ALL GAS PIPING ASSOCIATED WITH INCINERATOR #2 SHALL BE REMOVED.
5. REMOVE AND REPLACE EXISTING WASTE, VENT AND OVERFLOW PIPING AS REQUIRED TO ALLOW DEMOLITION OF INCINERATOR AND INSTALLATION OF NEW MECHANICAL EQUIPMENT.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. <u>SPPL001.DWG</u>
DESIGNED BY: <u>T. LAQUIDARA</u>
DRAWN BY: <u>T. LAQUIDARA</u>
SHEET CHK'D BY: <u>RAYCHAUDHURI</u>
SCALE: <u>1/8"=1'-0"</u>
APPROVED BY: <u>A. RAYCHAUDHURI</u>
DATE: <u>MAY 2006</u>

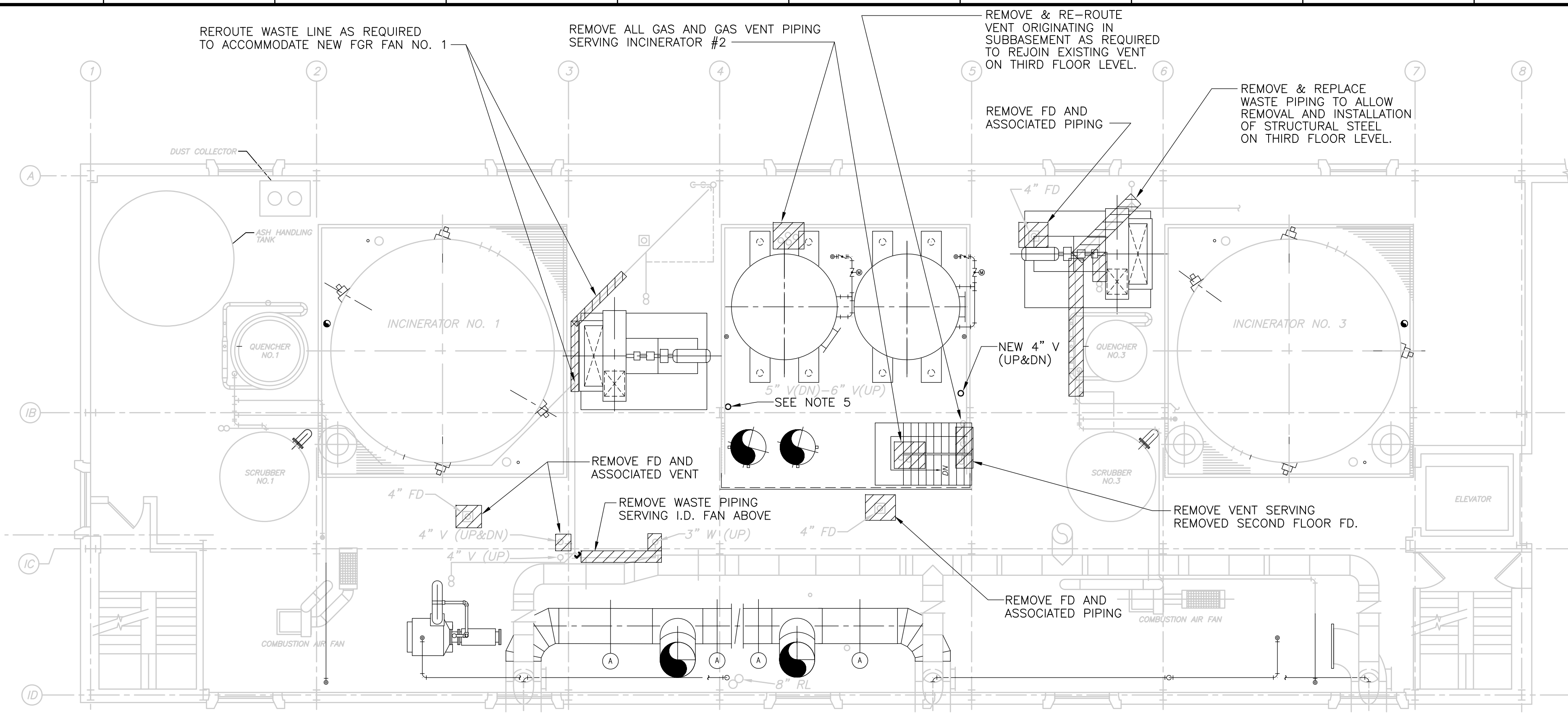
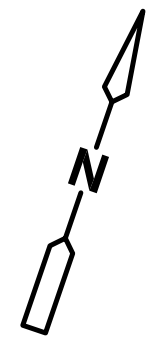
**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT NO. UB 2024**  
  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

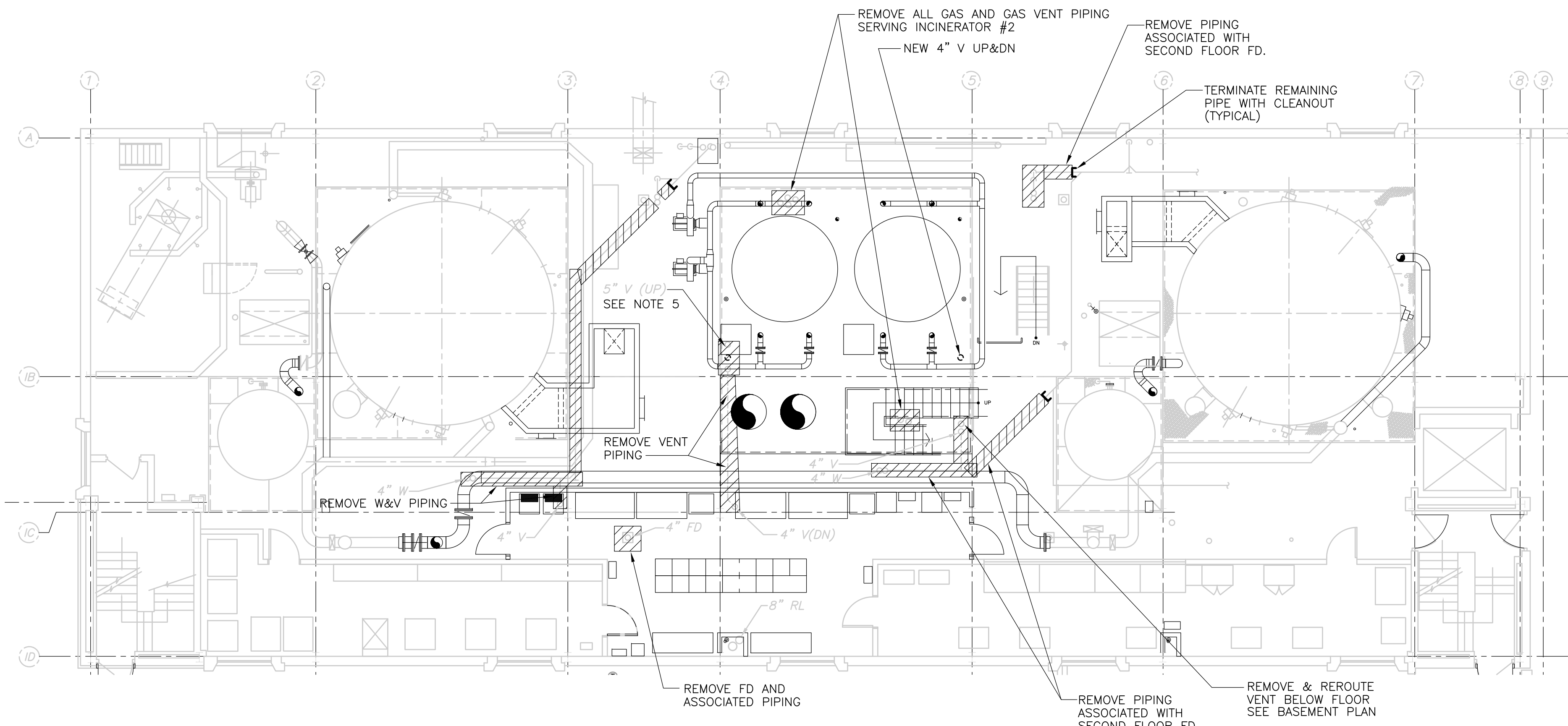
**INCINERATOR BUILDING  
 SUB BASEMENT AND BASEMENT PLANS**

PROJECT NO.  
 1289\35370  
  
 Sht. 245 of 386  
  
**SP-P-1**  
  
ACCESSION NO. 1289-55845

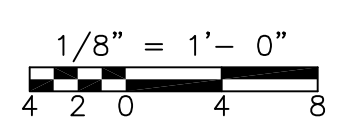
[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]   
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**SECOND FLOOR**  
**PLAN**  
 1/8" = 1'-0"



**FIRST FLOOR**  
**PLAN**  
 1/8" = 1'-0"



**GENERAL NOTES:**

1. EXISTING BUILDING OUTLINE, LOCATION OF EXISTING EQUIPMENT, VALVES AND PIPING HAS BEEN OBTAINED FROM SCANNED ORIGINAL RECORD DRAWINGS TITLED:  
  
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO.2 FEBRUARY 1973
2. FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
3. FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
4. PLANS SHOW THE PROPOSED PROCESS EQUIPMENT AND PIPING WITH INCINERATOR #2 REMOVED. GAS TRAIN AND ALL GAS PIPING ASSOCIATED WITH INCINERATOR #2 SHALL BE REMOVED.
5. REMOVE AND REPLACE EXISTING VENT PIPING SERVING THE SUBBASEMENT AND BASEMENT LEVELS. REROUTE AS REQUIRED TO SUIT INSTALLATION OF NEW MECHANICAL EQUIPMENT.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	DESIGNED BY:	DRAWN BY:	SHEET CHK'D BY:	SCALE:	APPROVED BY:	DATE:
PSPL002.DWG	T. LAQUIDARA	T. LAQUIDARA	RAYCHAUDHURI	1/8"=1'-0"	A. RAYCHAUDHURI	MAY 2006

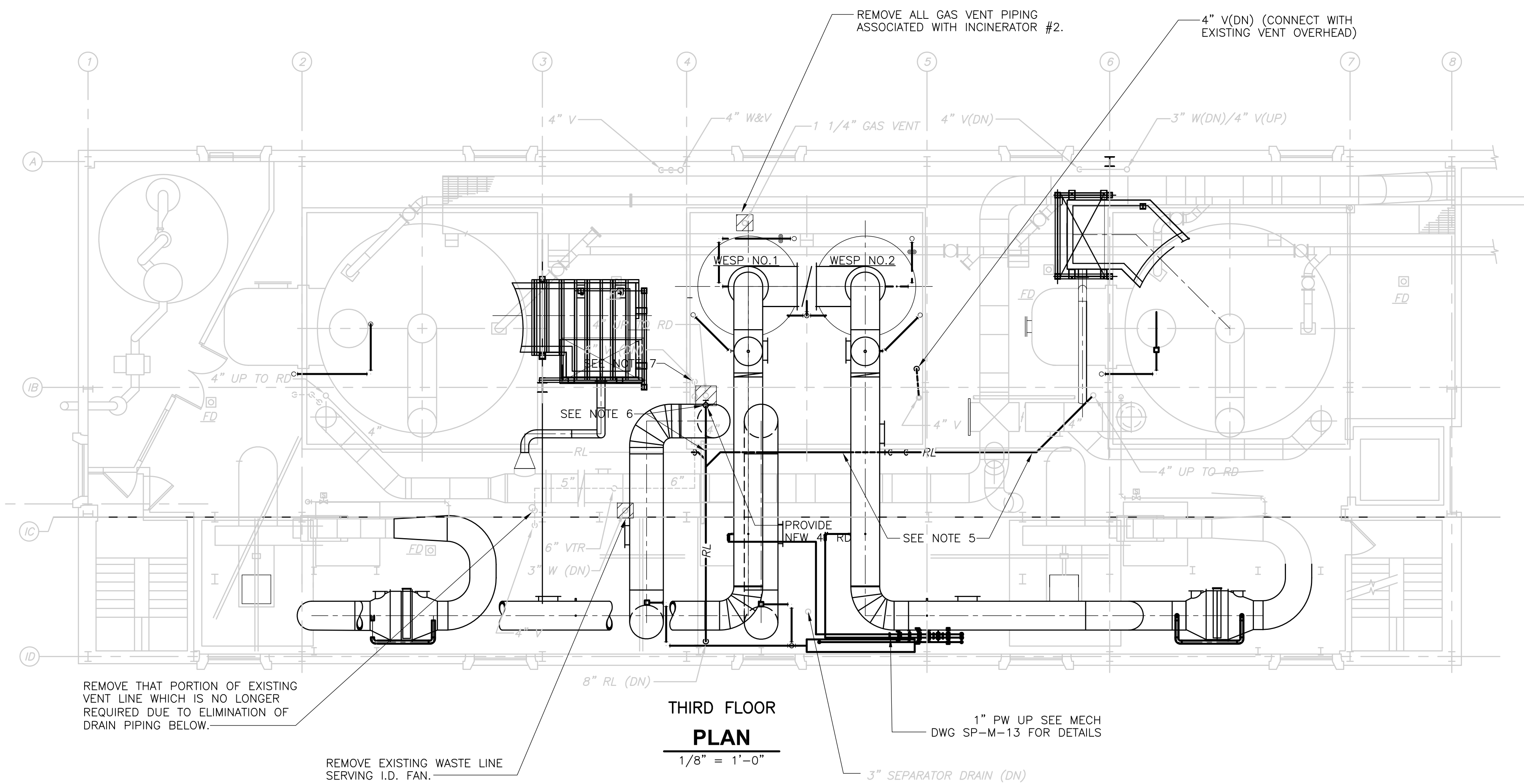
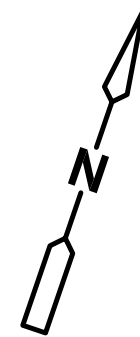
**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**INCINERATOR BUILDING**  
**FIRST AND SECOND FLOOR PLANS**  
  
**SP-P-2**

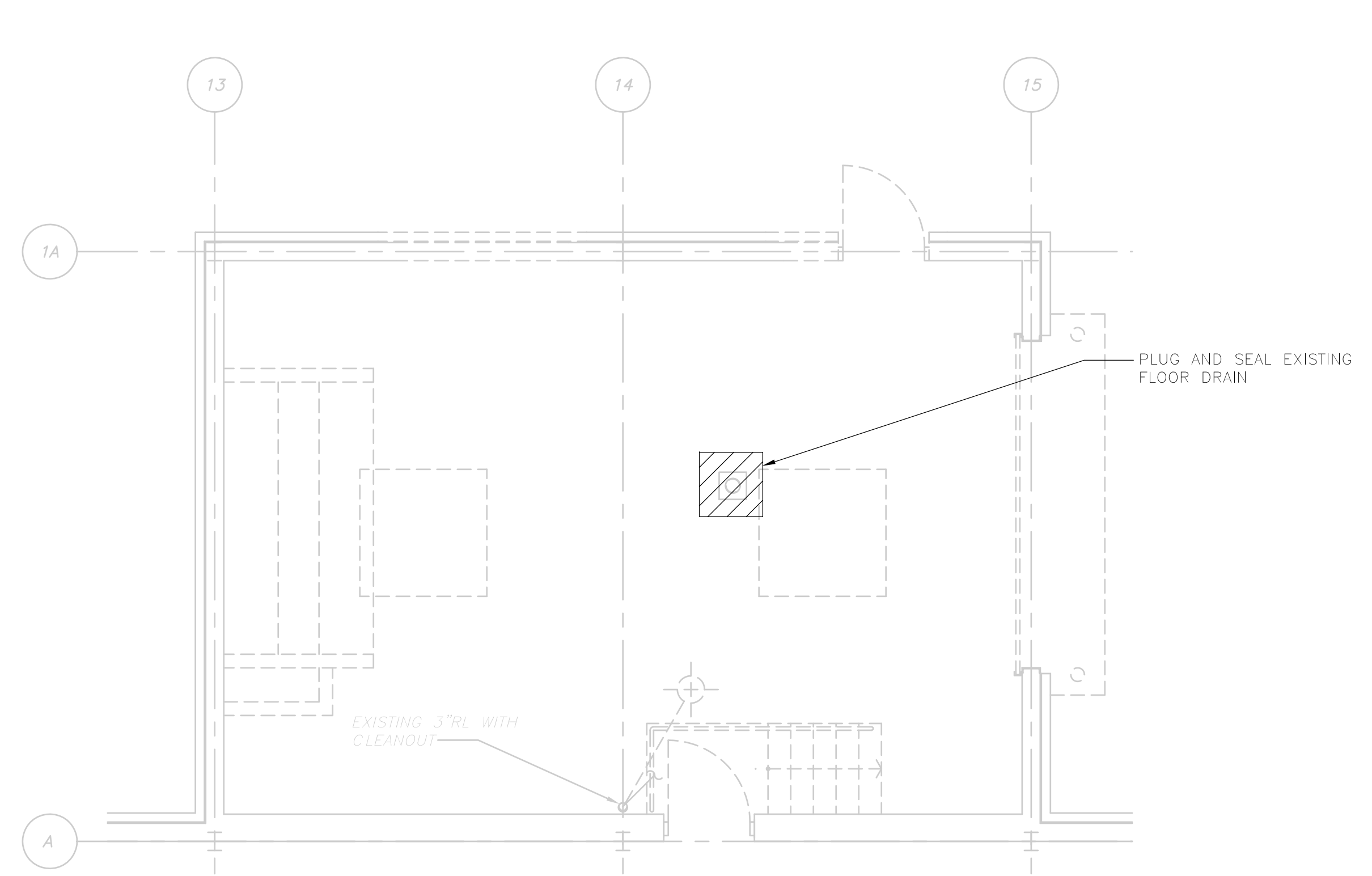
PROJECT NO.	Sht. 246 of 386
1289\35370	

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] Xref's: [C24X36H\_PSPWP005 MSPWP004 ACRPL100, ] Plotted by: CROSSHA Time: 12/16/08 6:29:57 PM  
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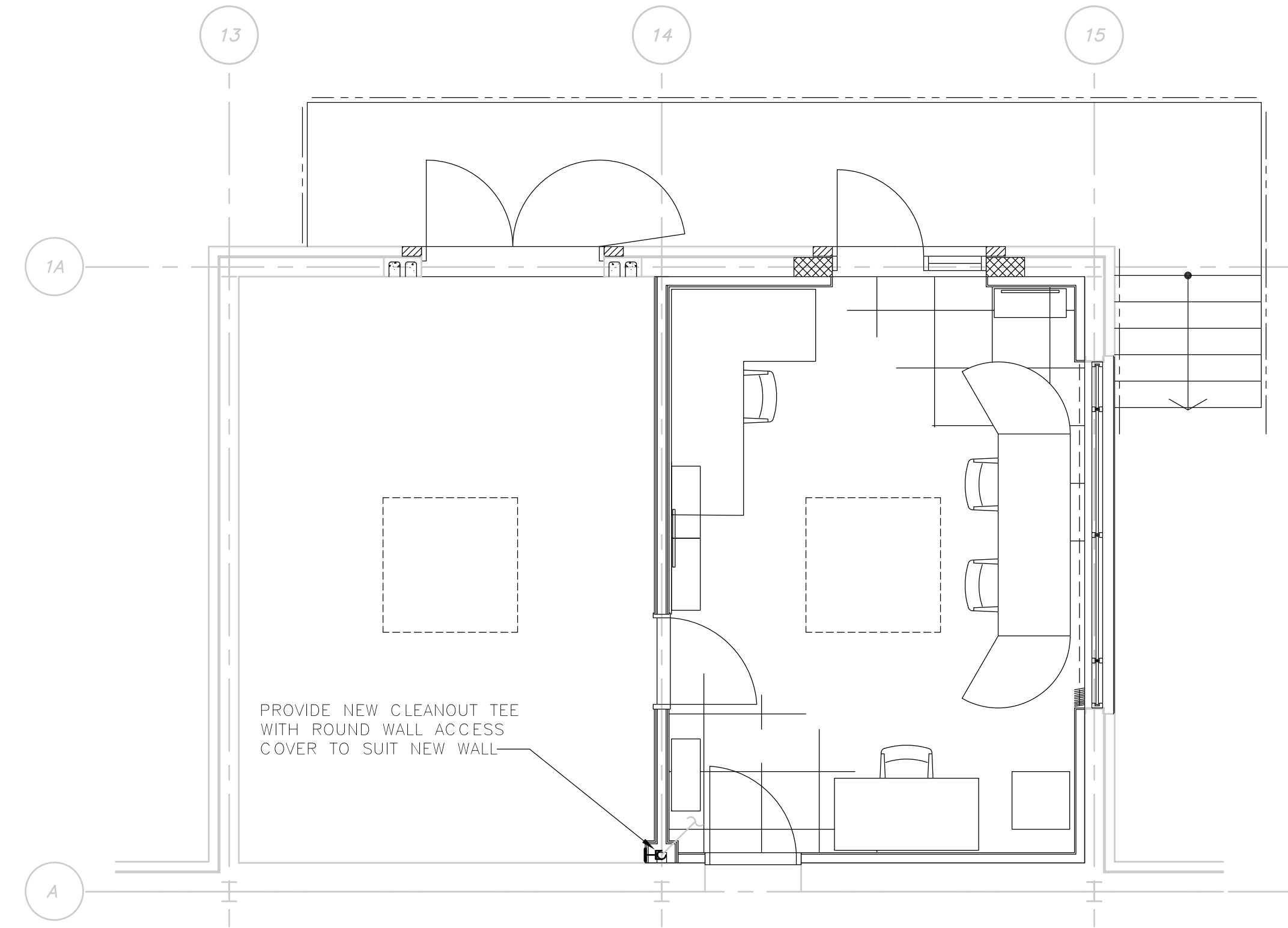
**GENERAL NOTES:**

1. EXISTING BUILDING OUTLINE, LOCATION OF EXISTING EQUIPMENT, VALVES AND PIPING HAS BEEN OBTAINED FROM SCANNED ORIGINAL RECORD DRAWINGS TITLED:  
 UPPER BLACKSTONE  
 WATER POLLUTION  
 ABATEMENT DISTRICT  
 REGIONAL WASTEWATER  
 TREATMENT FACILITIES  
 CONTRACT NO.2  
 FEBRUARY 1973  
 SOME INFORMATION NOT DIRECTLY RELATED TO THE WORK UNDER THIS CONTRACT HAS BEEN OMITTED FOR THE SAKE OF CLARITY. ADDITIONAL EQUIPMENT INFORMATION IS BASED ON PLANT RECORDS AND FIELD MEASUREMENTS. EXACT EQUIPMENT AND PIPING LOCATIONS SHOULD BE VERIFIED.
2. FOR GENERAL PROJECT NOTES SEE SHEET GD-M-1.
3. FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS SEE SPEC. SECTION 01810.
4. PLANS SHOW THE PROPOSED PROCESS EQUIPMENT AND PIPING WITH INCINERATOR #2 REMOVED. GAS TRAIN AND ALL GAS PIPING ASSOCIATED WITH INCINERATOR #2 SHALL BE REMOVED.
5. REPIPE RAINLEADER PIPING TO PROVIDE OFFSET FOR NEW DUCTWORK. CONTINUOUSLY SLOPE AND RECONNECT TO EXISTING 8" VERTICAL DROP.
6. DISCONNECT AND REMOVE EXISTING ROOF DRAIN PIPING TO ALLOW REMOVAL AND REPLACEMENT OF A PORTION OF THE ROOF SLAB. REPIPE NEW ROOF DRAIN TO NEW OFFSET PIPING AS REQUIRED TO AVOID NEW DUCTWORK.
7. REMOVE AND REPLACE 6" VENT AS REQUIRED TO ALLOW DEMOLITION AND INSTALLATION OF MECHANICAL EQUIPMENT AND ROOF SLAB.



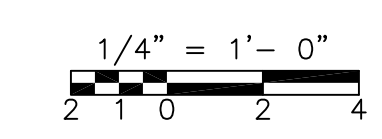
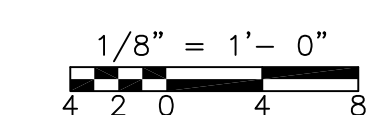
EXISTING GRIT TRANSFER ROOM (NEW CONTROL ROOM & ELECTRIC ROOM)

**PLAN**  
1/4" = 1'-0"



MAIN CONTROL ROOM

**PLAN**  
1/4" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. PSPPLO03.DWG  
 DESIGNED BY: T. LAQUIDARA  
 DRAWN BY: T. LAQUIDARA  
 SHEET CHK'D BY: RAYCHAUDHURI  
 SCALE: AS NOTED  
 APPROVED BY: A. RAYCHAUDHURI  
 DATE: MAY 2006

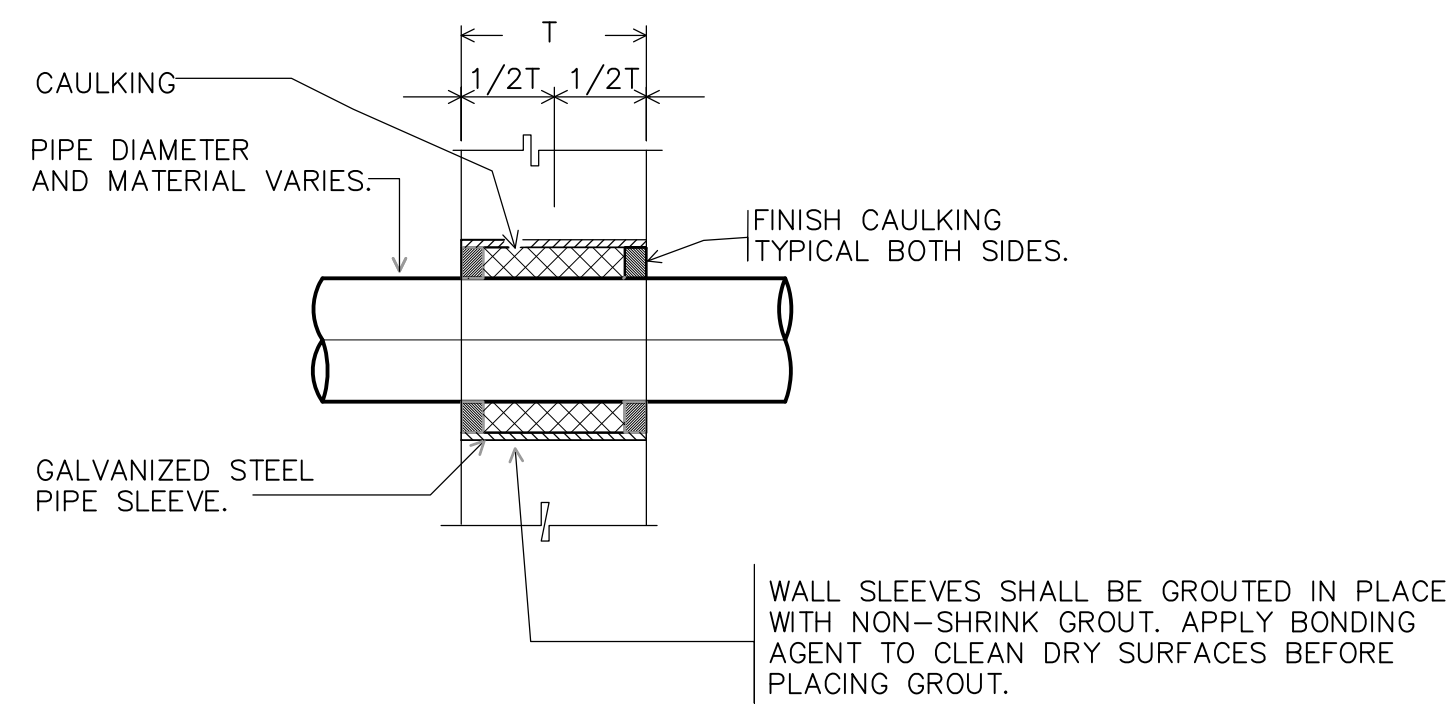
**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT NO. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**INCINERATOR BUILDING**  
**THIRD FLOOR PLAN**  
**AND NEW CONTROL & ELECTRIC ROOMS**

PROJECT NO.  
 1289\35370  
 Sht. 247 of 386  
**SP-P-3**  
PROJECT NO. 1289-65847

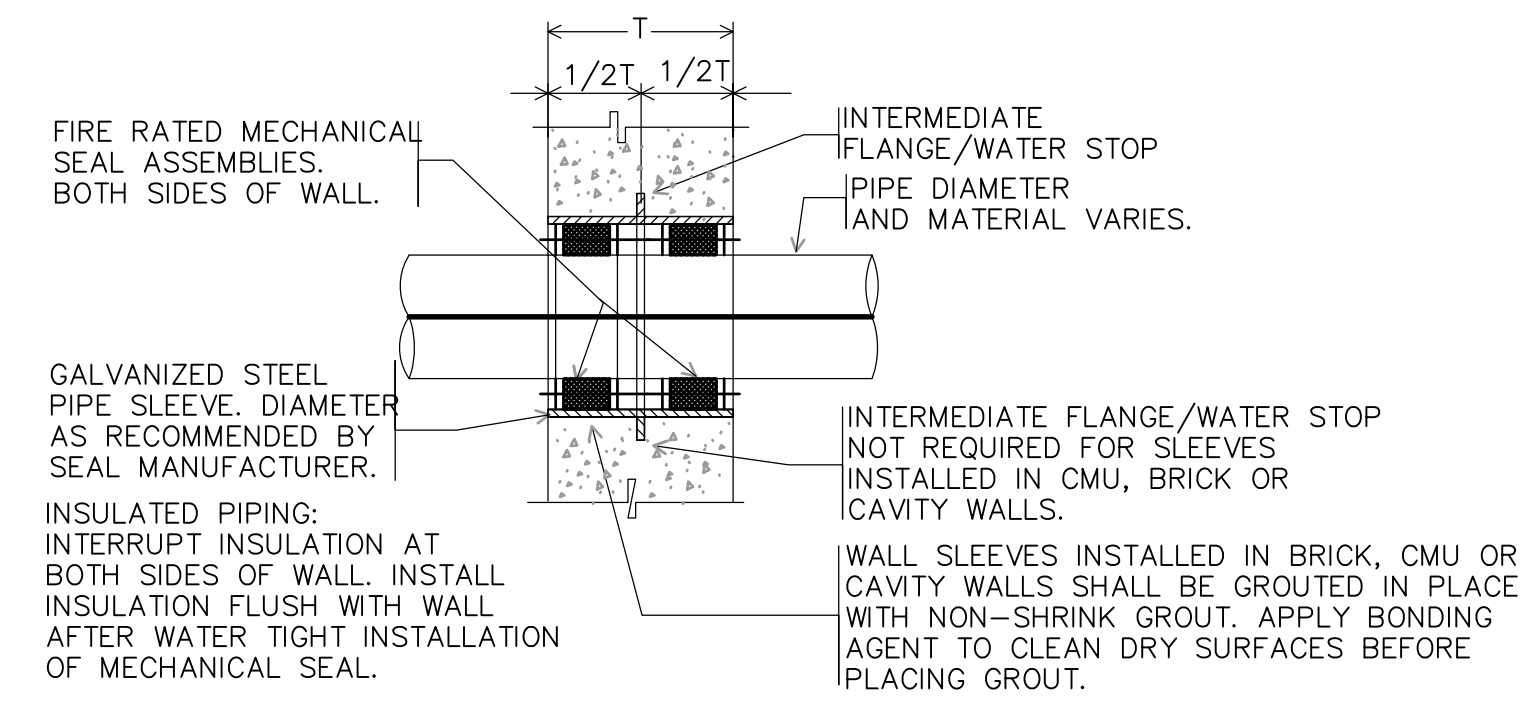




CAULKED WALL SLEEVE FOR CMU, BRICK OR CAVITY WALLS.

**DETAIL**

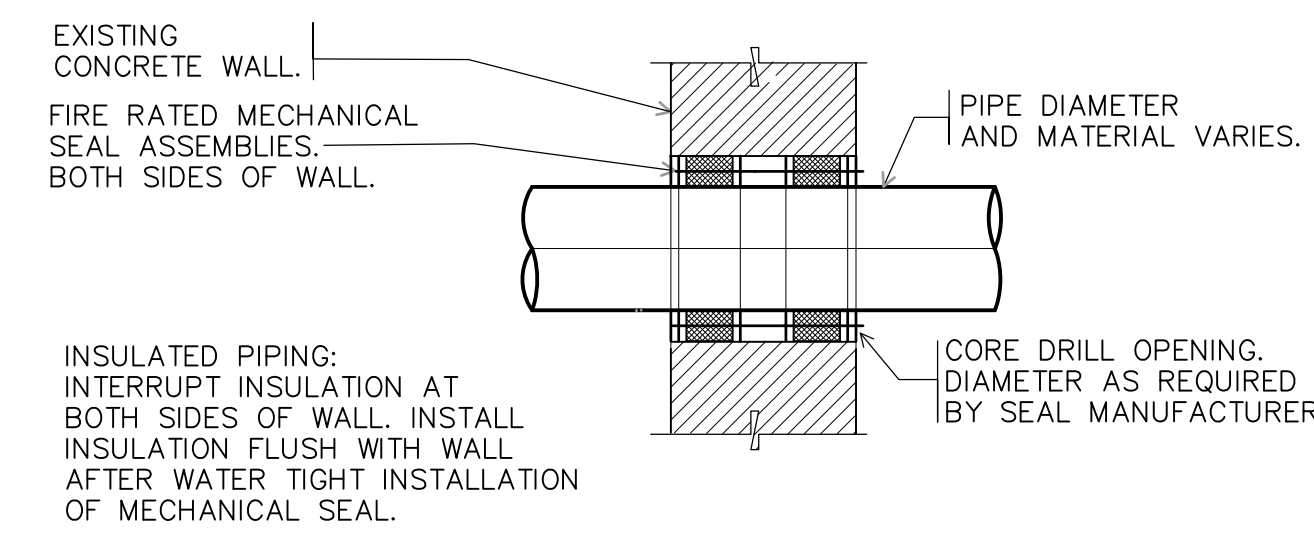
NTS



WALL SLEEVE WITH FIRE RATED MECHANICAL SEALS FOR CONCRETE, BRICK, OR CAVITY WALLS.

**DETAIL**

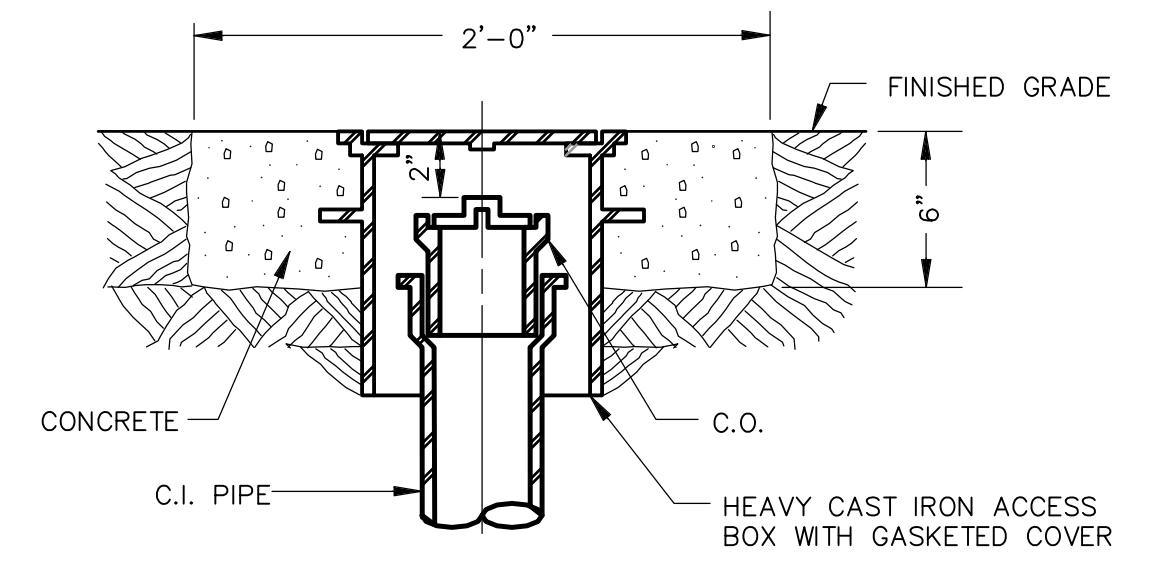
NTS



CORE DRILLED OPENING AND FIRE RATED MECHANICAL SEALS PENETRATION THROUGH EXISTING CONCRETE WALL

**DETAIL**

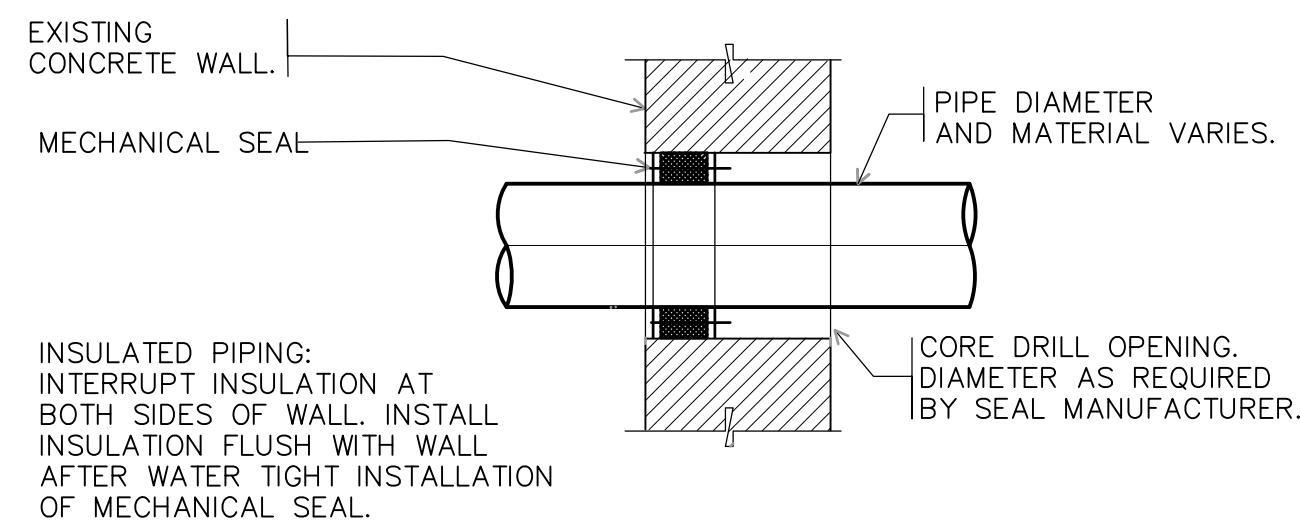
NTS



EXTERIOR FLUSH FLOOR CLEANOUT

**DETAIL**

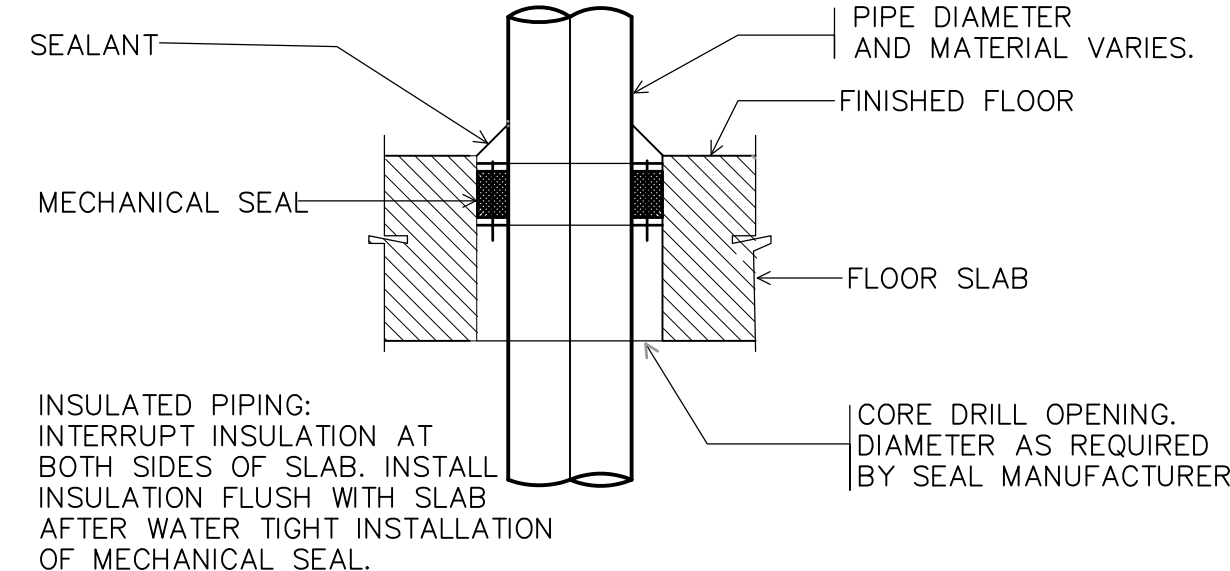
NTS



CORE DRILLED OPENING AND MECHANICAL SEAL PENETRATION THROUGH EXISTING CONCRETE WALL

**DETAIL**

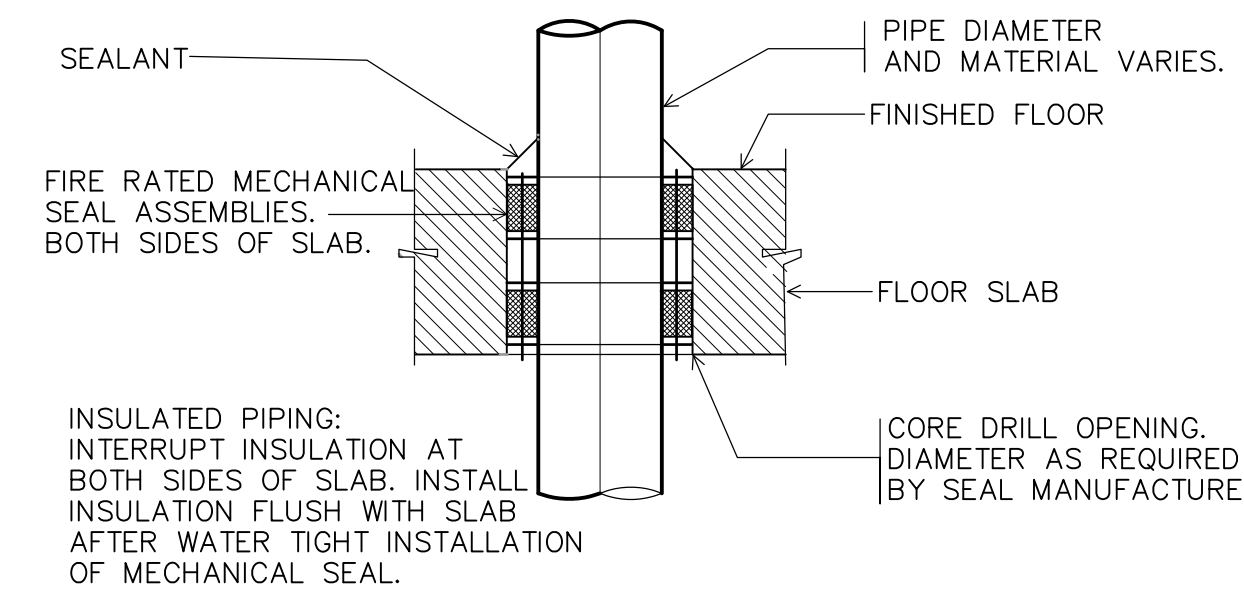
NTS



CORE DRILLED OPENING AND MECHANICAL SEAL PENETRATION THROUGH EXISTING FLOOR SLAB.

**DETAIL**

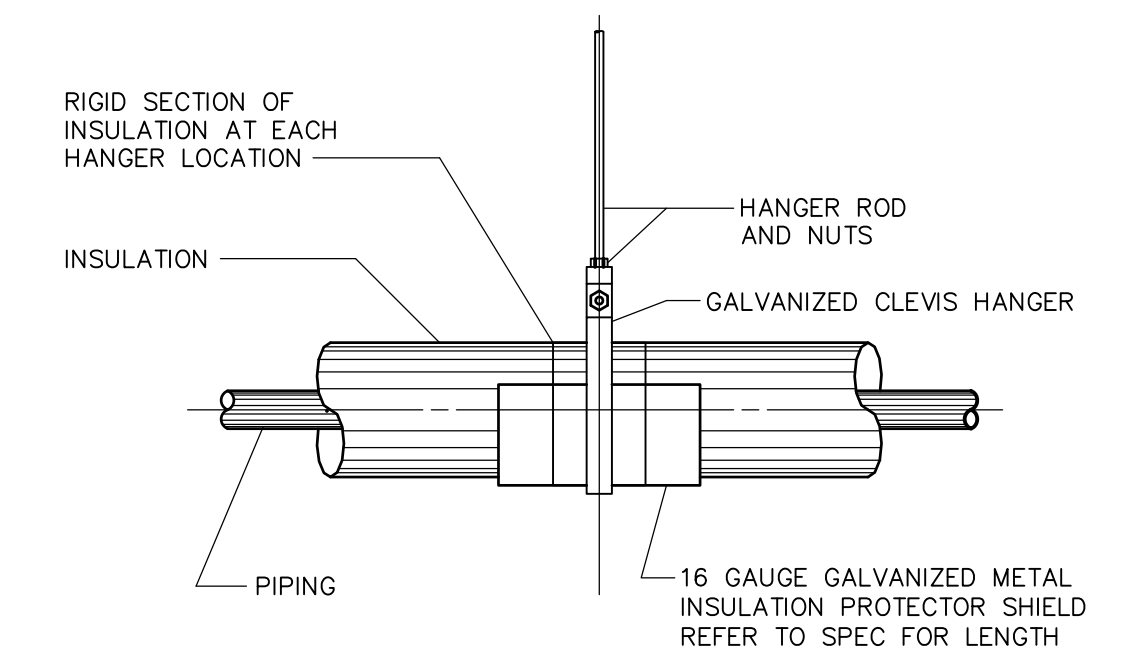
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CORE DRILLED OPENING AND FIRE RATED MECHANICAL SEALS PENETRATION THROUGH EXISTING FLOOR SLAB

**DETAIL**

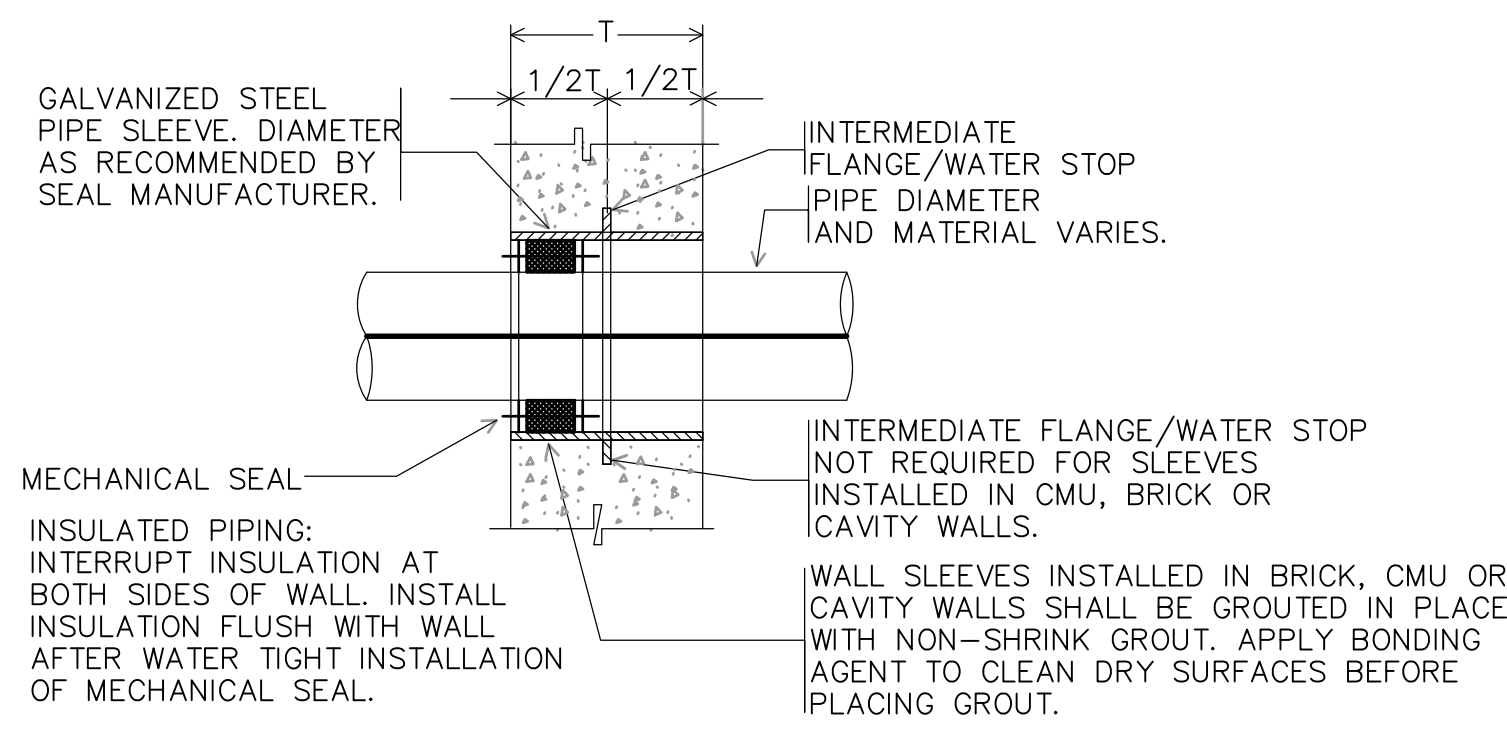
NTS



HANGER SUPPORT SYSTEM INSULATED HORIZONTAL PIPING

**DETAIL**

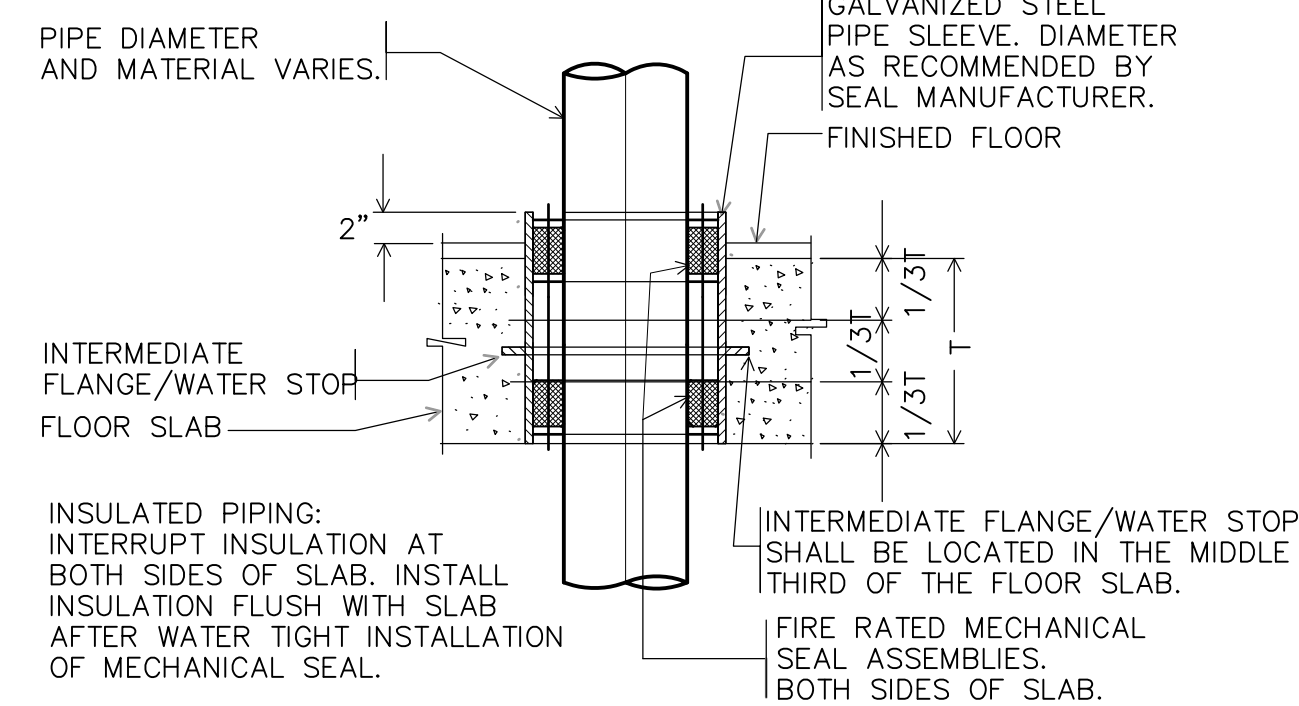
NTS



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

**DETAIL**

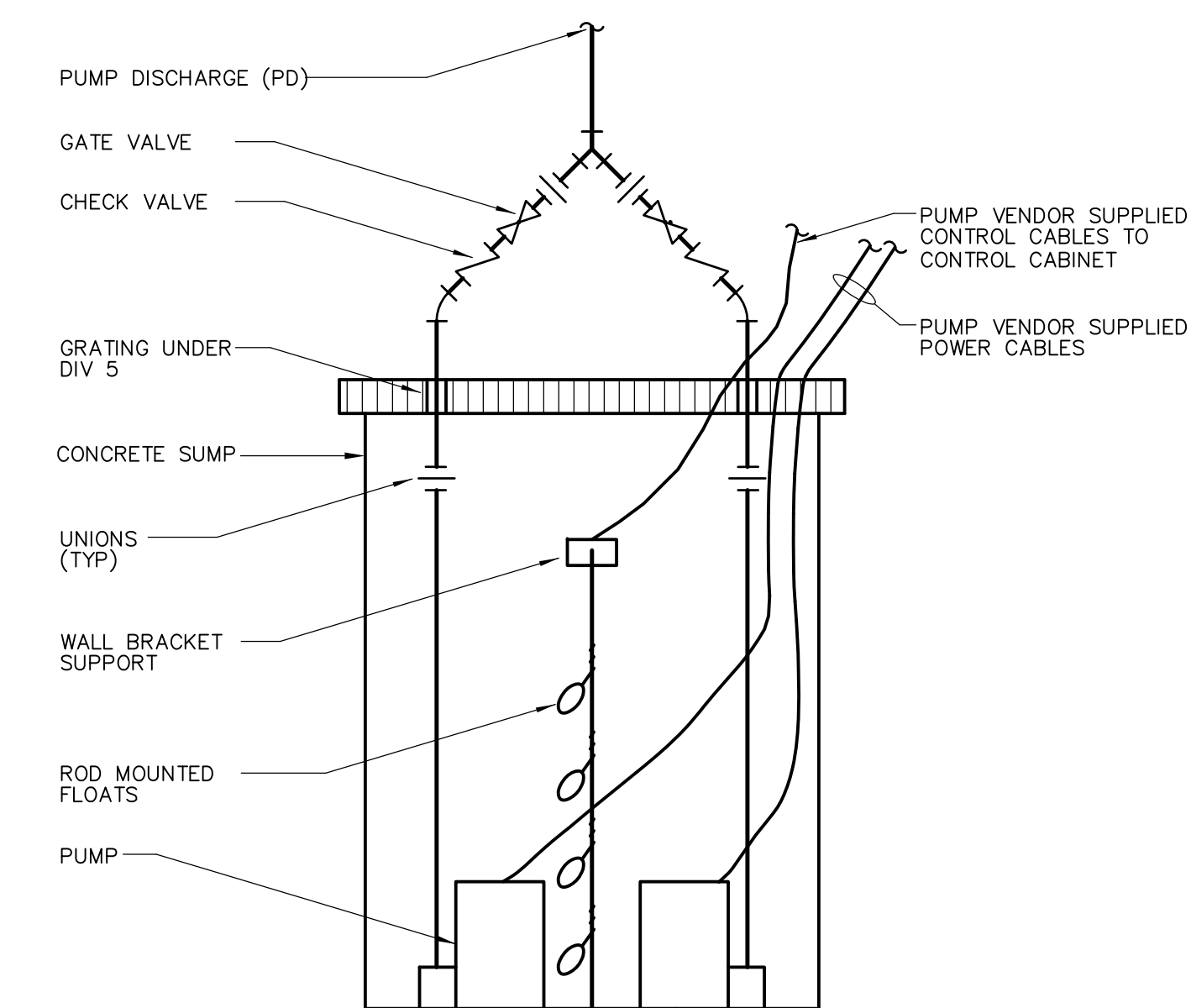
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FLOOR SLEEVE WITH FIRE RATED MECHANICAL SEALS (SHALL BE USED FOR ALL AREAS WHICH HAVE FIRE RATED WALLS.)

**DETAIL**

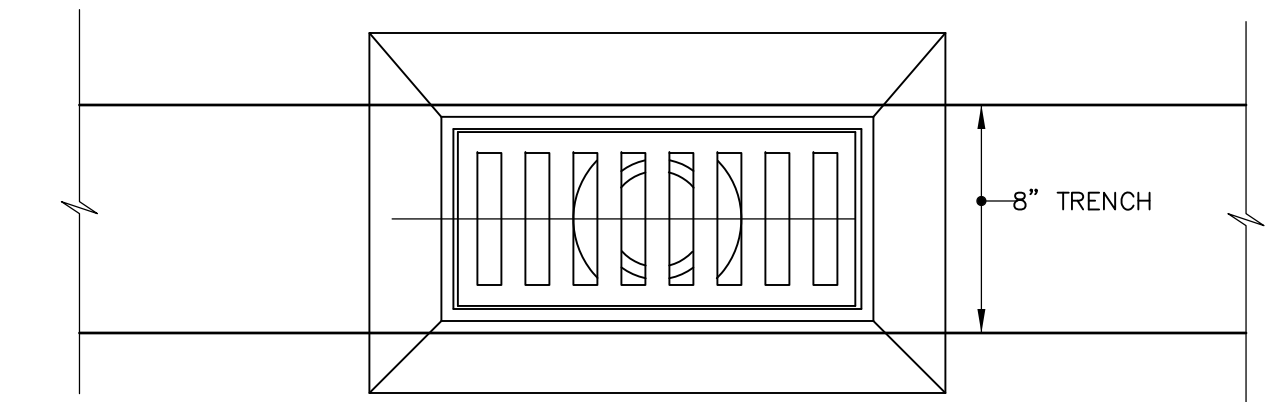
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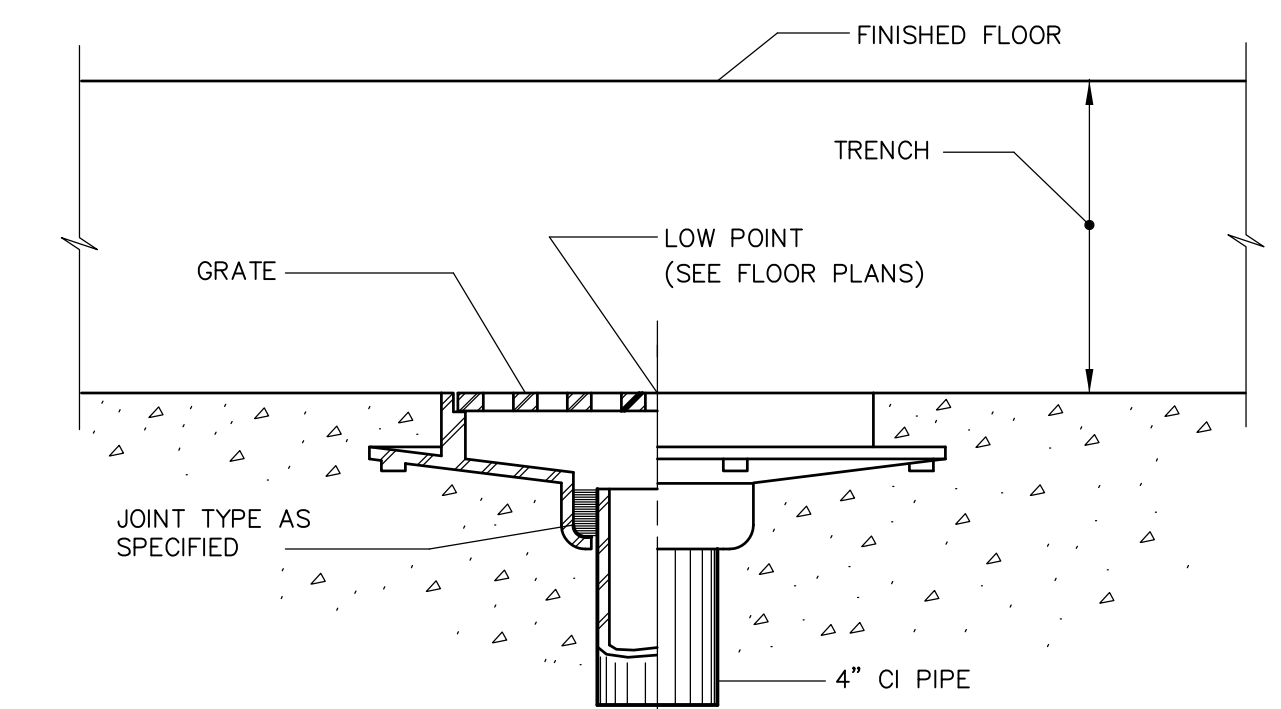
DUPLIX SUMP PUMP

**DETAIL**

NTS



PLAN



SECTION

TRENCH DRAIN (TD)

**DETAIL**

NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	PSTD1001
DESIGNED BY:	T. LAQUIDARA
DRAWN BY:	T. LAQUIDARA
SHEET CHK'D BY:	RAYCHAUDHURI
SCALE:	NONE
APPROVED BY:	A. RAYCHAUDHURI
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

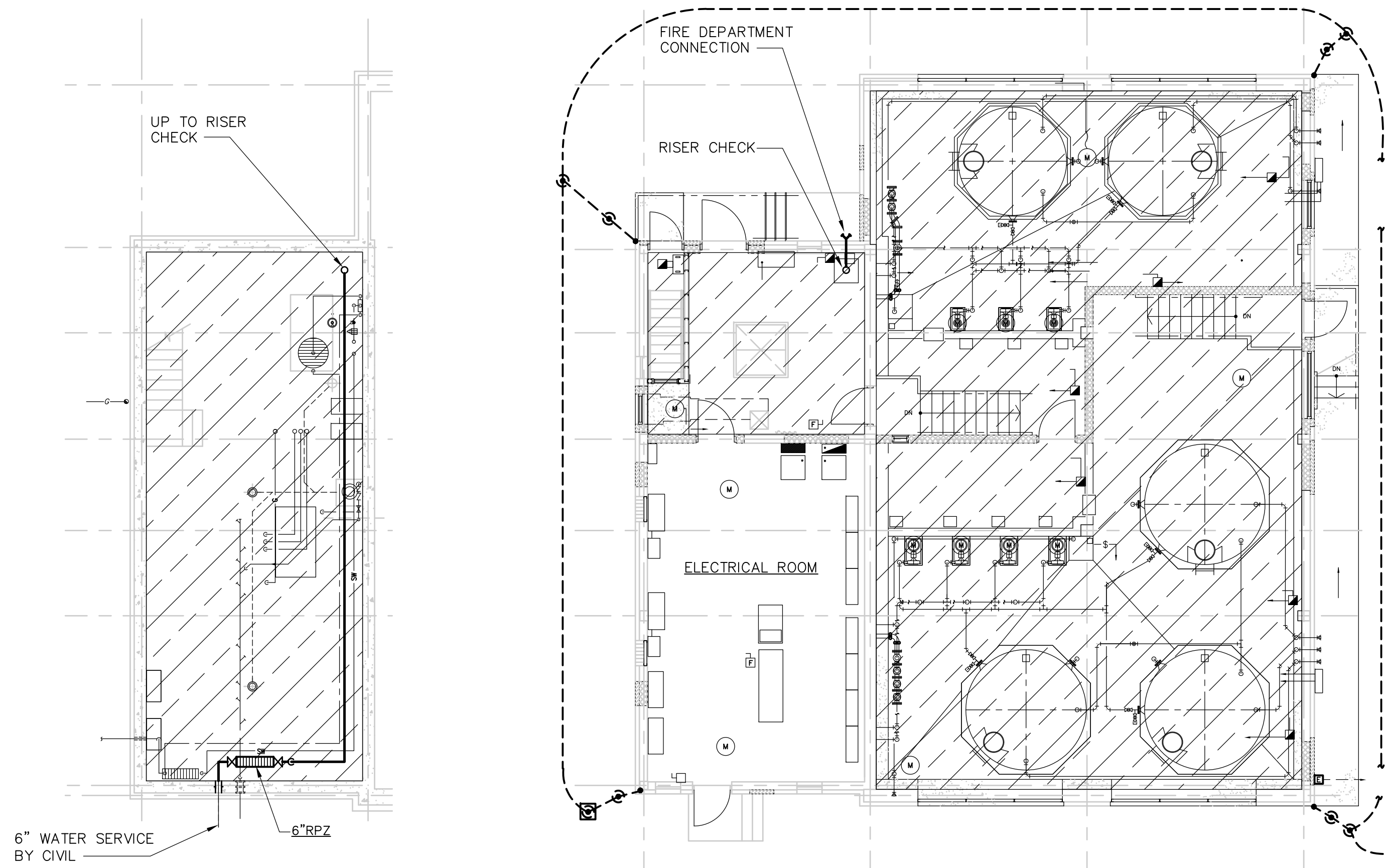
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

PROJECT NO. 1289\35370  
 Sht. 248 of 386

**TYPICAL DETAILS**

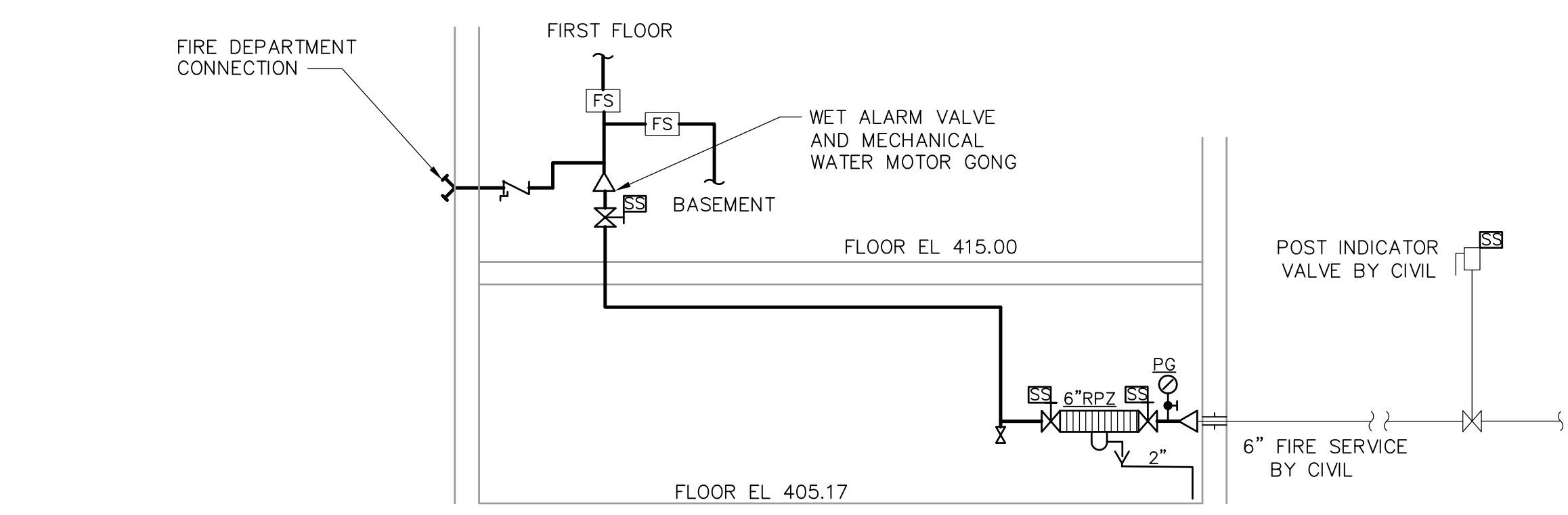
**SD-P-1**

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] [C24X36H, ACHPL100, MDFWP000, SPSWP000, SCLWP000, EDPL001, AASPL100, PPSPL002, ] Plotted by: CROSSIA Time: 12/16/08 6:30:05 PM  
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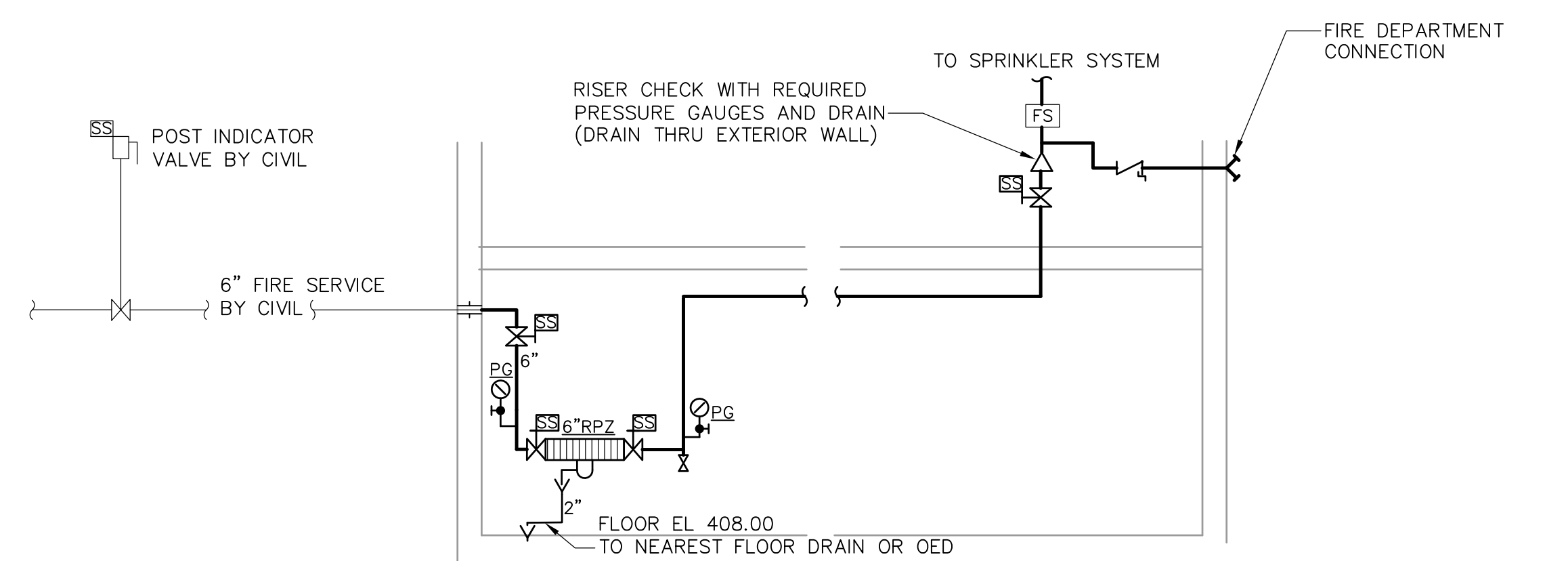


**DISINFECTION FACILITIES BASEMENT**  
**PLAN**  
 1/8" = 1'-0"

**DISINFECTION FACILITIES FIRST FLOOR**  
**PLAN**  
 1/8" = 1'-0"



**DISINFECTION BUILDING - FIRE SERVICE PIPING**  
**DIAGRAM**  
 NTS

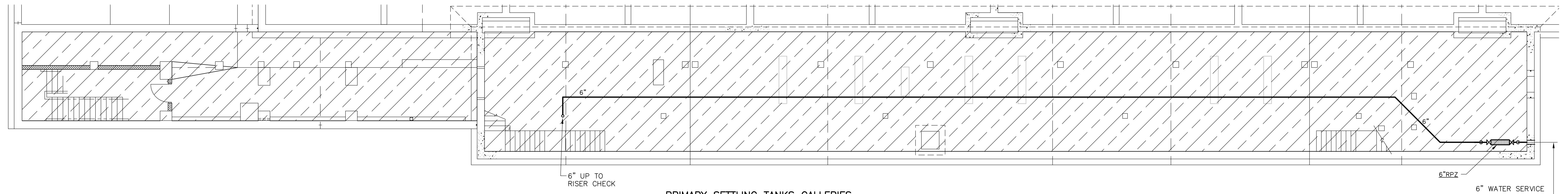


**PRIMARY SETTLING TANKS GALLERIES - FIRE SERVICE PIPING**  
**DIAGRAM**  
 NTS

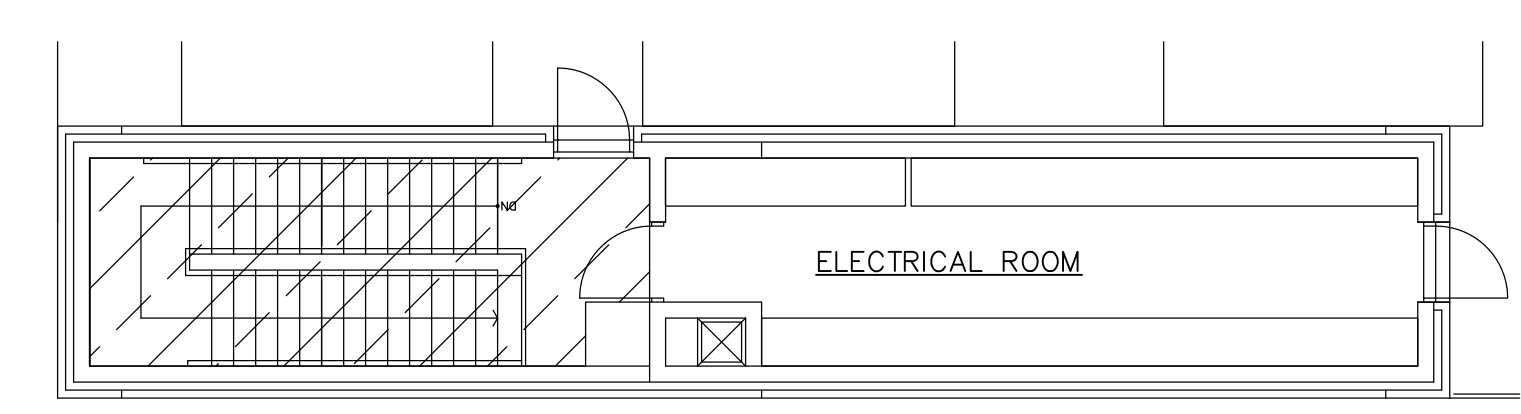
- LEGEND**
- AREAS TO BE SPRINKLERED
  - FLOW SWITCH
  - SUPERVISORY SWITCH
  - PRESSURE GAUGE
  - REDUCED PRESSURE ZONE BACKFLOW PREVENTER
  - CHECK VALVE WITH BALL DRIP

- NOTES**
- FINAL LOCATION OF PUMPER CONNECTION SHALL BE AS REQUIRED BY THE LOCAL FIRE DEPARTMENT.
  - PROVIDE SUPERVISORY SWITCH FOR PIV'S.
  - LOCATIONS OF INSPECTORS TEST CONNECTIONS SHALL TAKE INTO CONSIDERATION PROVISIONS FOR DRAIN.

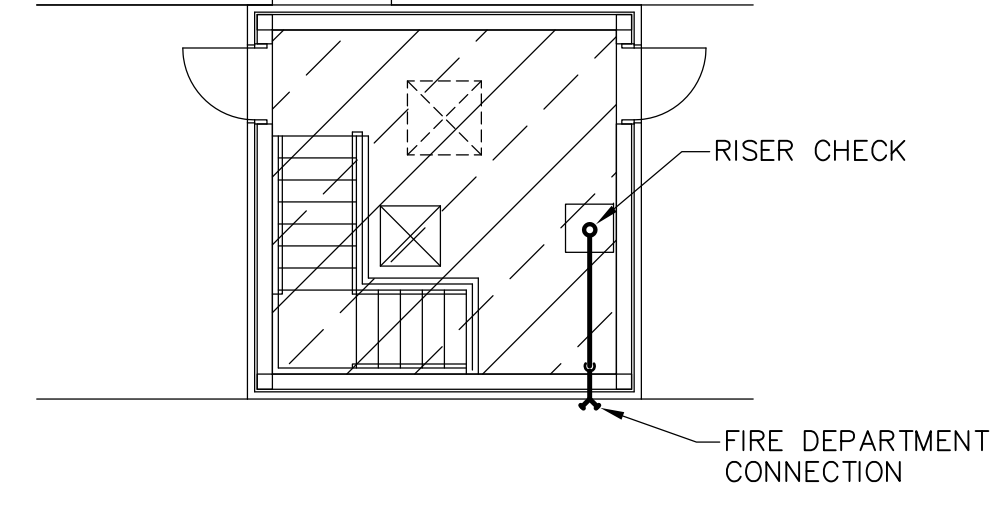
**DESIGN CRITERIA**  
 ENTIRE BUILDINGS, WITH EXCEPTION OF ELECTRICAL ROOMS, SHALL BE DESIGNED FOR ORDINARY GROUP 2 WITH WATER DENSITY OF .19 GPM/SF OVER 2000 SQ FT AREA.



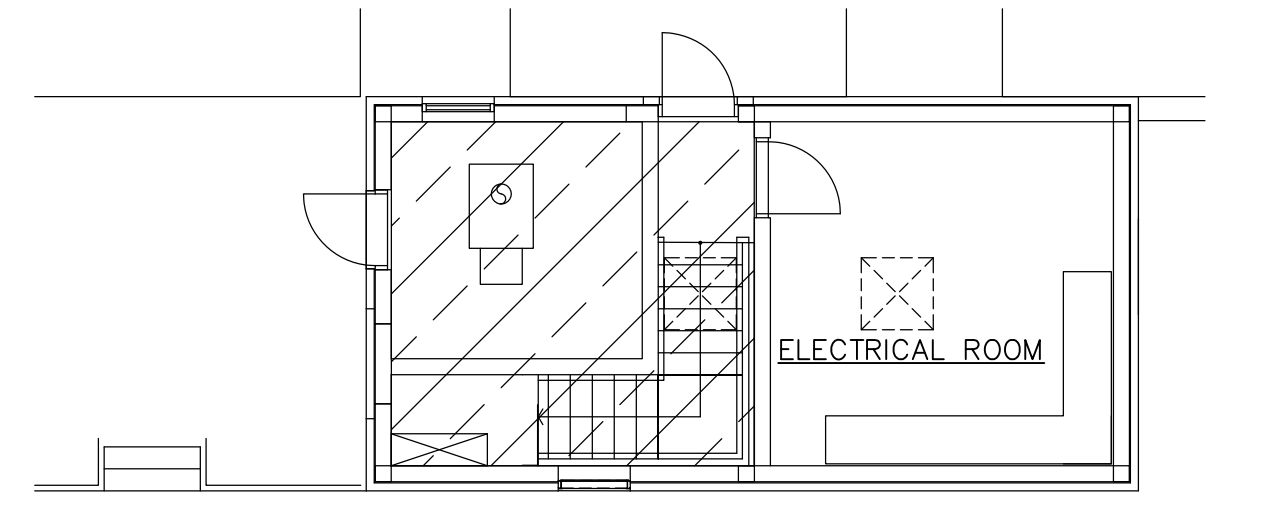
**PRIMARY SETTLING TANKS GALLERIES**  
**PLAN**  
 1/8" = 1'-0"



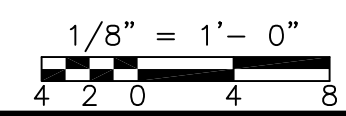
**GALLERY - NEW ACCESS STRUCTURE**  
**PLAN**  
 1/8" = 1'-0"



**GALLERY - NORTH ACCESS STRUCTURE**  
**PLAN**  
 1/8" = 1'-0"



**GALLERY - SOUTH ACCESS STRUCTURE**  
**PLAN**  
 1/8" = 1'-0"



RECORD DRAWING

REV. NO. DATE DRWN CHKD REMARKS 3/07 SPV ADT REVISED FOR THE RECORD				CADD FILE NO. FCHPL001 DESIGNED BY: T. LAQUIDARA DRAWN BY: T. LAQUIDARA SHEET CHK'D BY: RAYCHAUDHURI SCALE: AS NOTED APPROVED BY: A. RAYCHAUDHURI DATE: MAY 2006		<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024 <b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		<b>PROJECT NO.</b> 1289\35370 <b>Sht. 249 of 386</b> <b>FP-1</b>	
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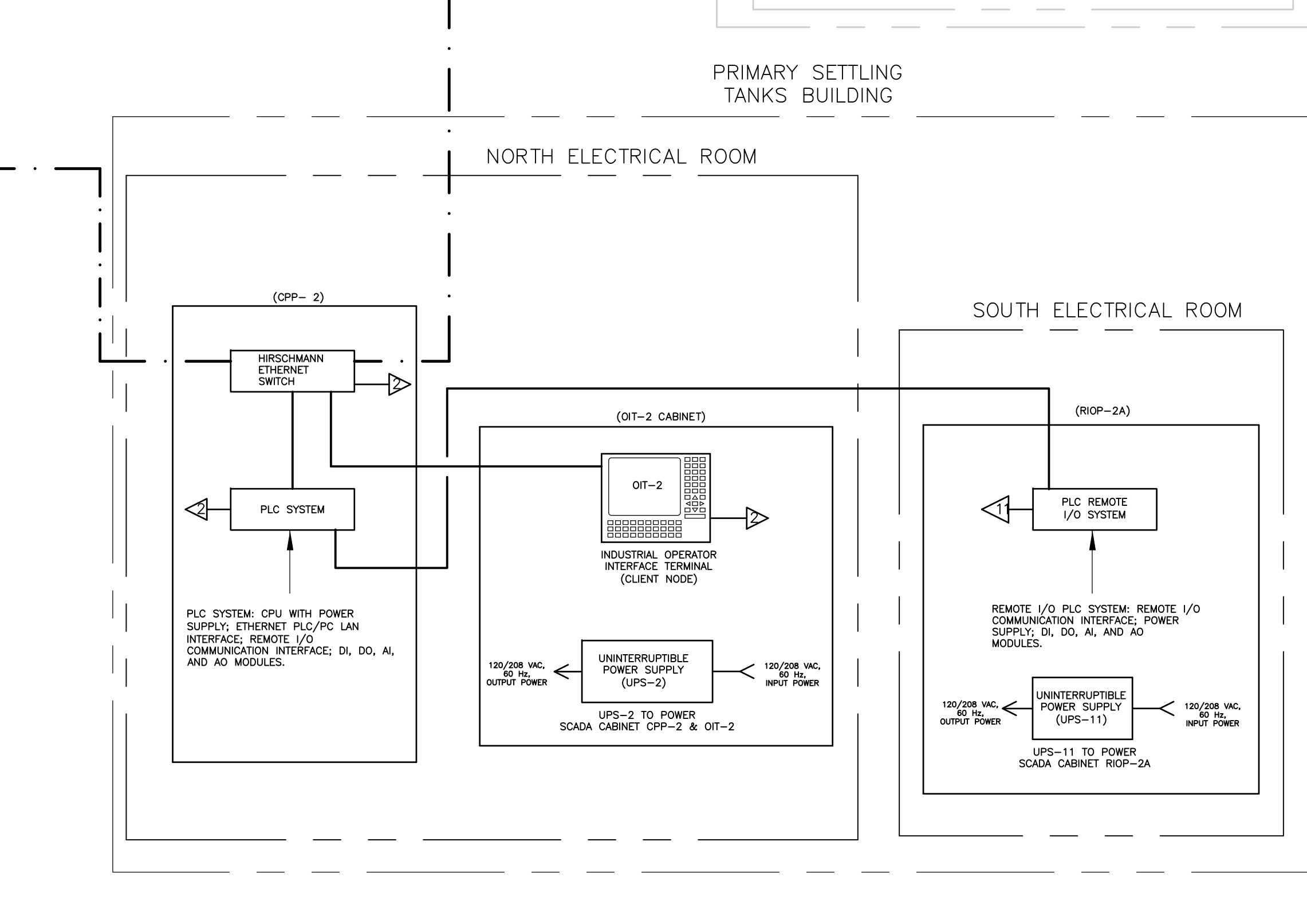
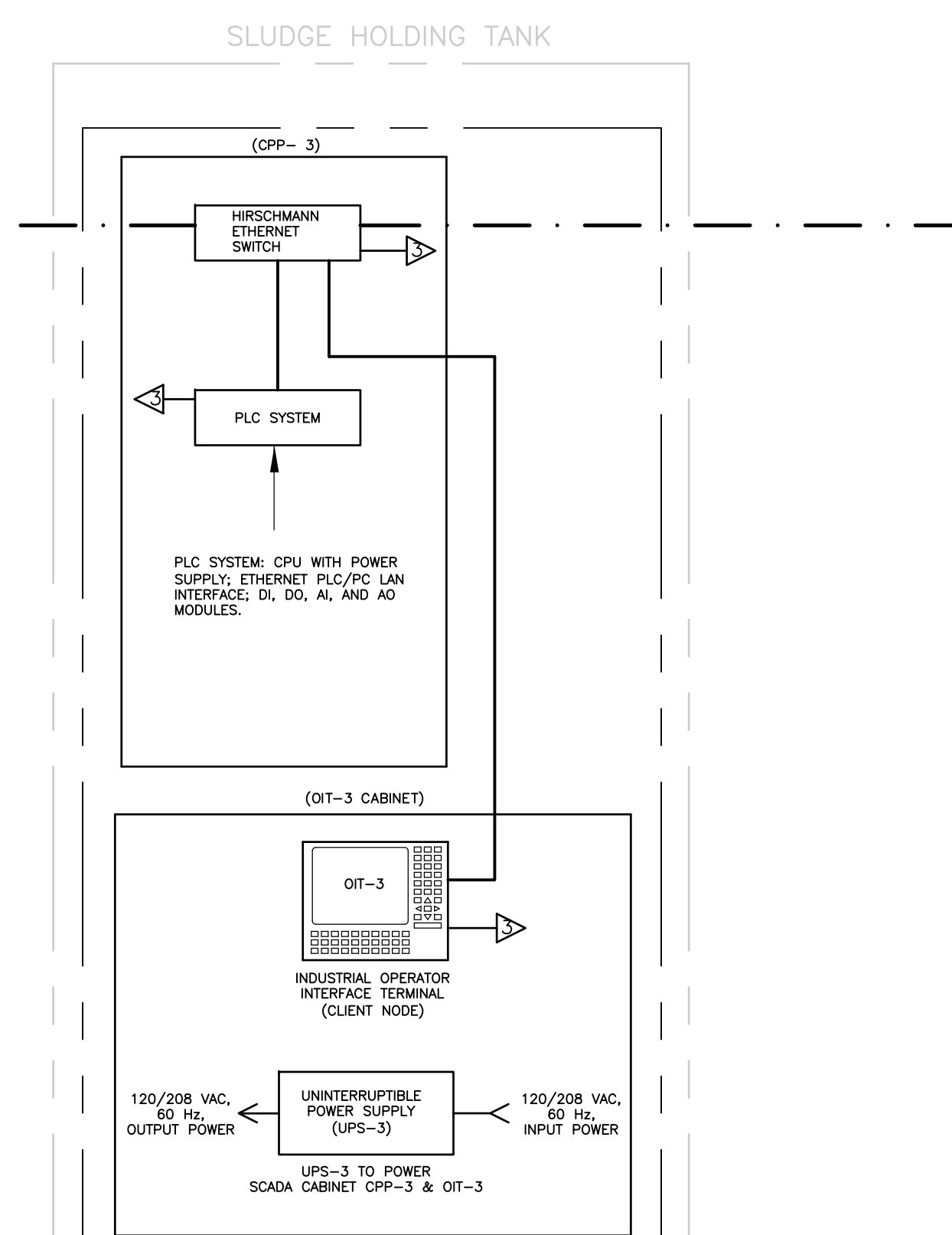
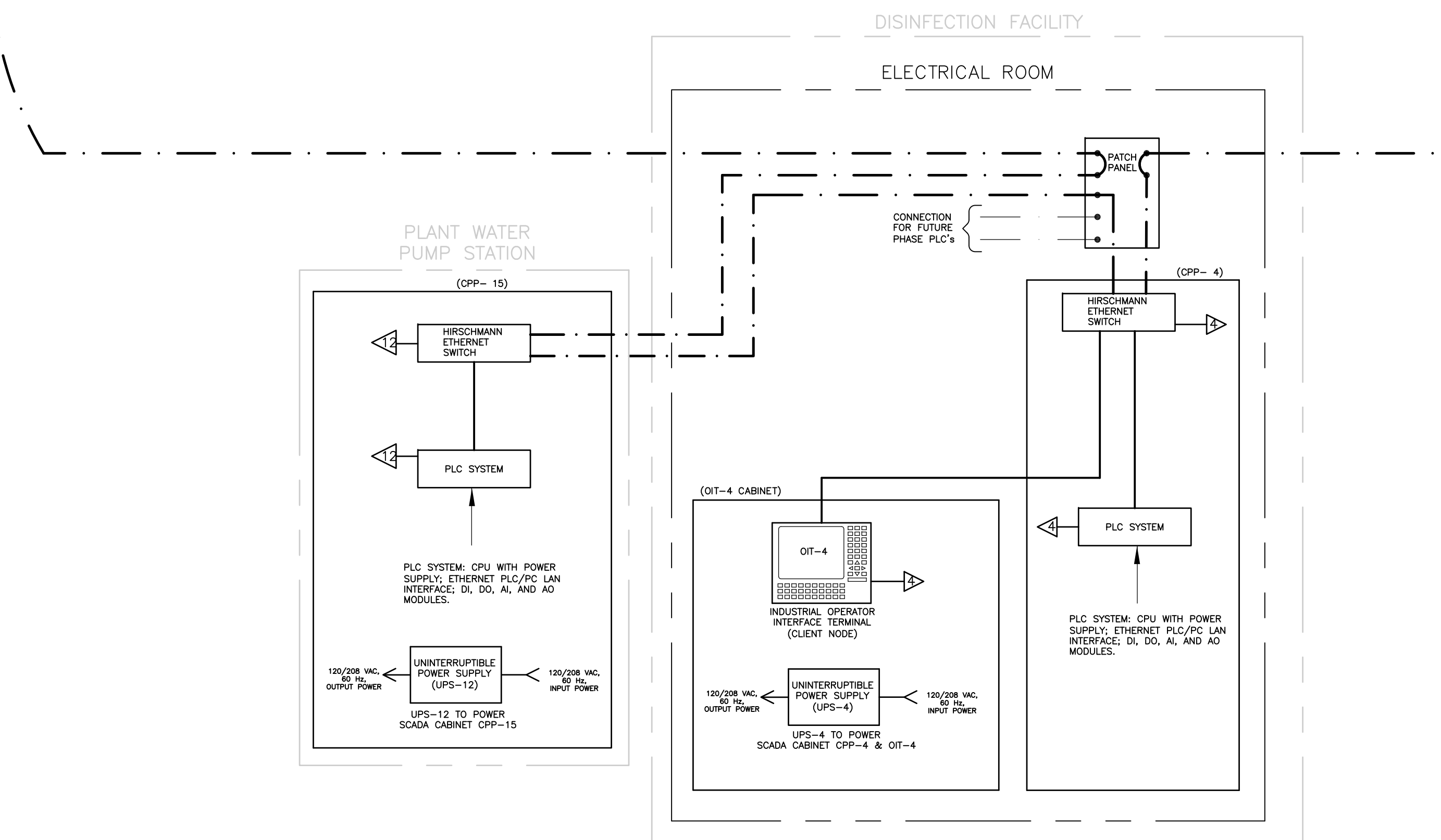
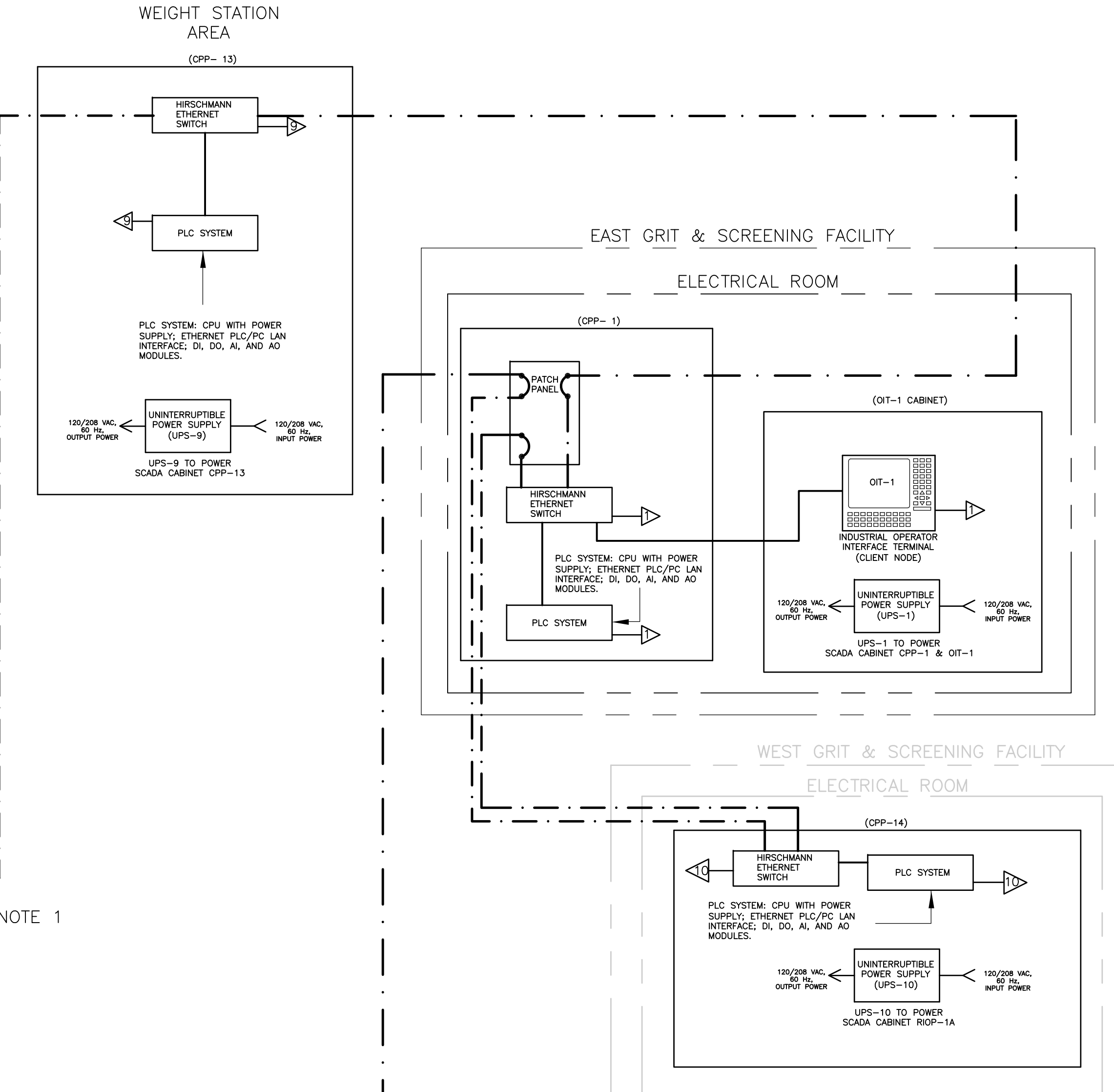
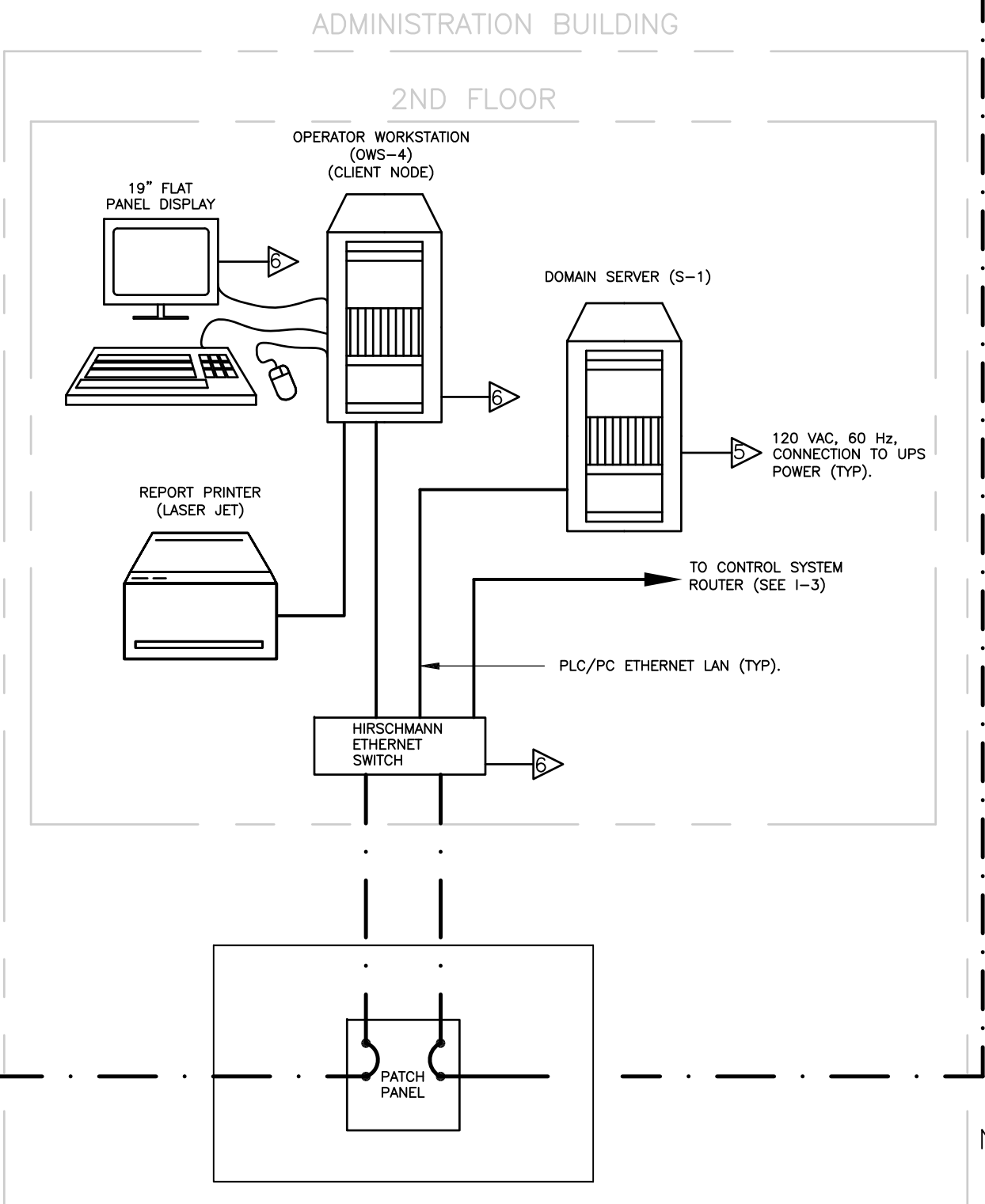
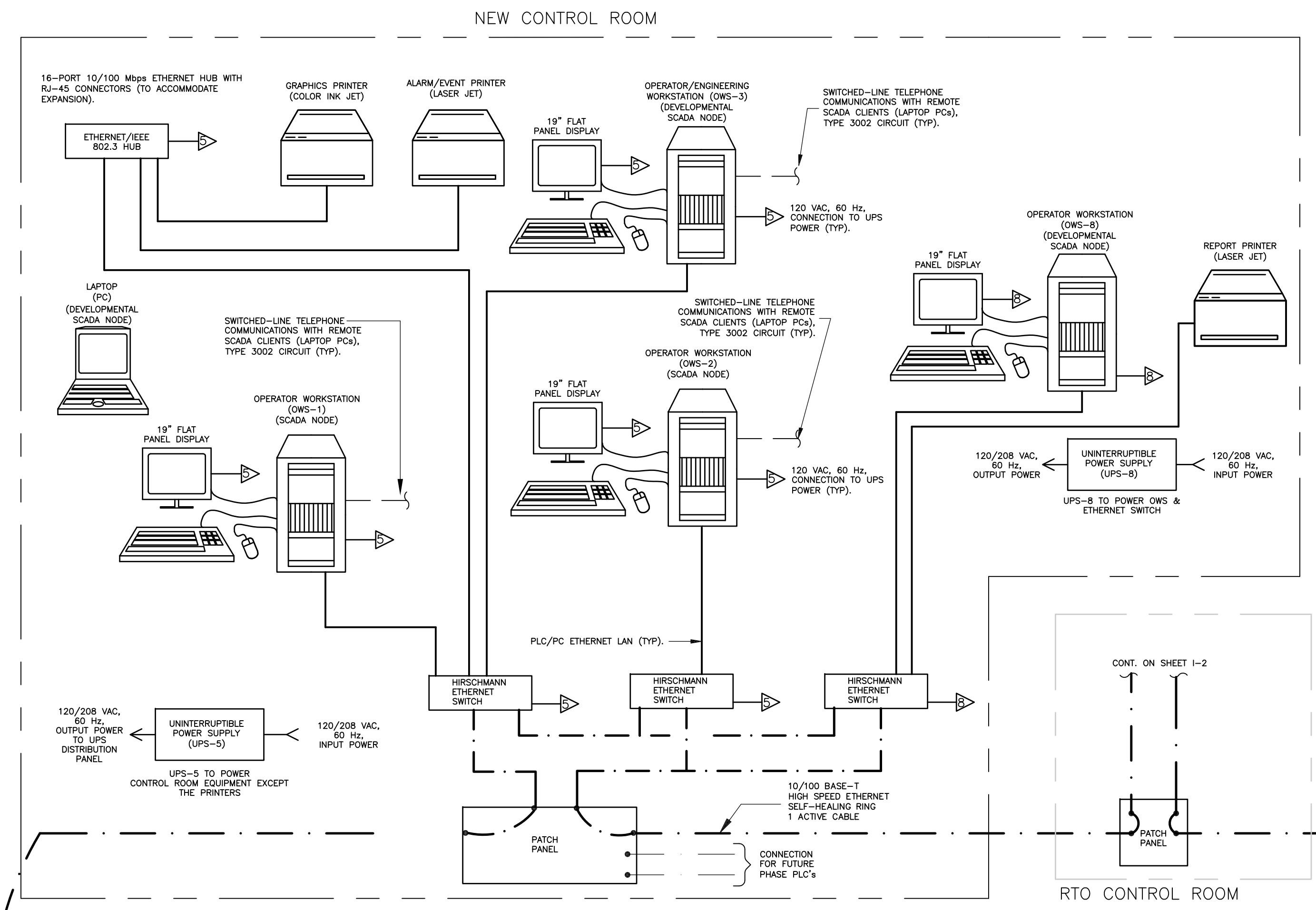
ACCESSION NO. 1289-55849

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE I\RECORD\INST\0000001.dwg Xref: s: [C24X36H, ] Plotted by: CROSSIA Time: 12/16/08 6:30:07 PM

SLUDGE PROCESSING BUILDING

NOTES

1. NEW FIBER OPTIC CABLE TO BE PULLED IN EXISTING CONDUIT BETWEEN RTO CONTROL ROOM AND MAIN GATE AREA.
2. SEE SHEET I-2 AND P&ID-L1 FOR LEGENDS.



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. 10000001.DWG	DESIGNED BY: P. MALACHOWSKI
DRAWN BY: W. FELDER	SHEET CHK'D BY: J. ROMEO
SCALE: NONE	APPROVED BY: E. MICHNOVEZ
	DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction

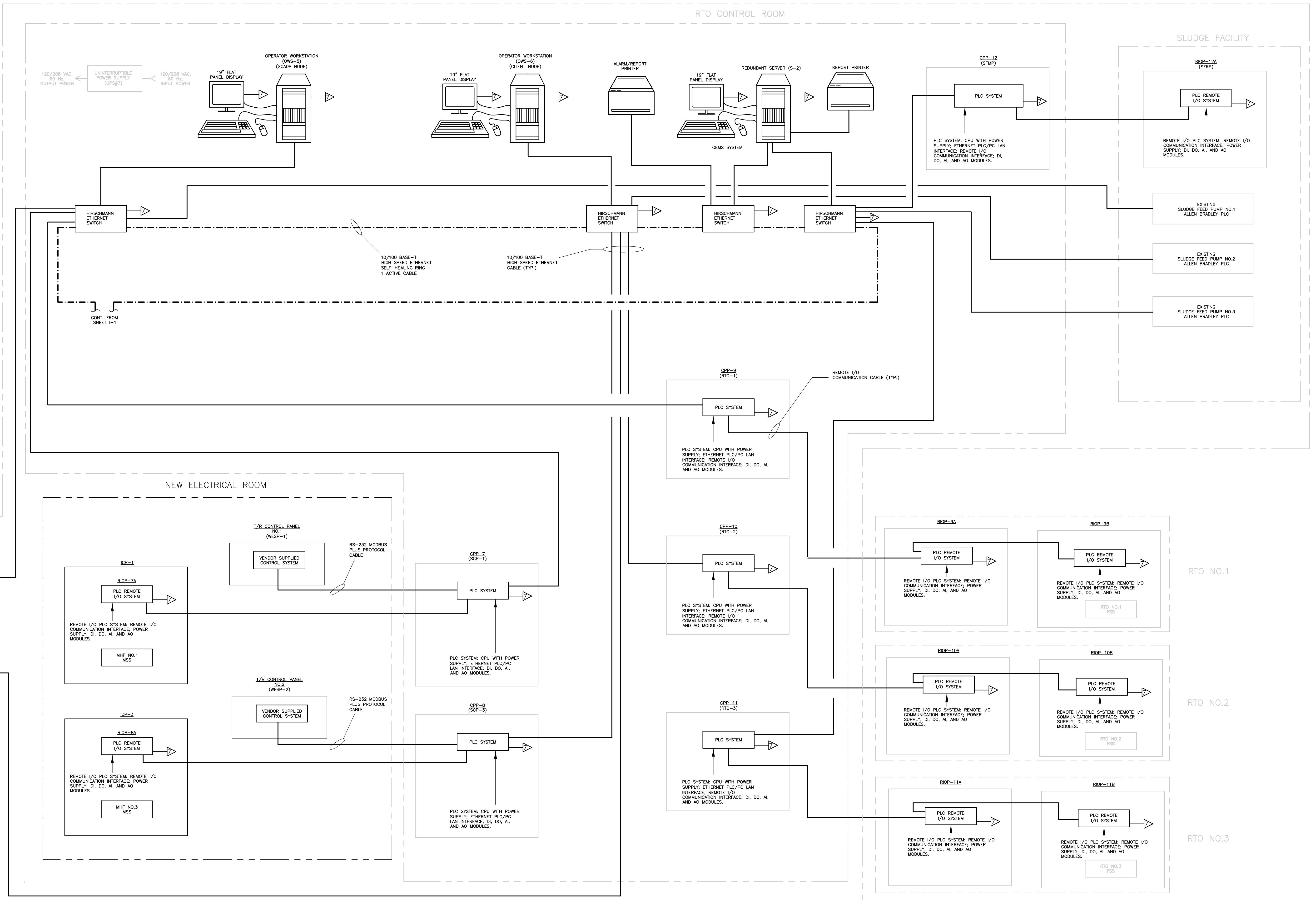
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**CONTROL SYSTEM ARCHITECTURE I**  
 PROJECT NO. 1289\35370  
 Sht. 250 of 386  
**I-1**

RECORD DRAWING

SLUDGE PROCESSING FACILITY

- LEGEND**
- ▶ 120VAC POWER FROM UPS-1
  - ▶ 120VAC POWER FROM UPS-2
  - ▶ 120VAC POWER FROM UPS-3
  - ▶ 120VAC POWER FROM UPS-4
  - ▶ 120VAC POWER FROM UPS-5
  - ▶ 120VAC POWER FROM UPS-6  
 UPS-6 IS AN EXISTING UPS LOCATED IN THE ADMINISTRATION BUILDING
  - ▶ 120VAC POWER FROM UPS-7  
 UPS-7 IS AN EXISTING UPS LOCATED IN THE RTO CONTROL ROOM
  - ▶ 120VAC POWER FROM UPS-8
  - ▶ 120VAC POWER FROM UPS-9
  - ▶ 120VAC POWER FROM UPS-10
  - ▶ 120VAC POWER FROM UPS-11
  - ▶ 120VAC POWER FROM UPS-12
- FIBER OPTIC  
 ——— COPPER



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. 10000002.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: J. ROMEO  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

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**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

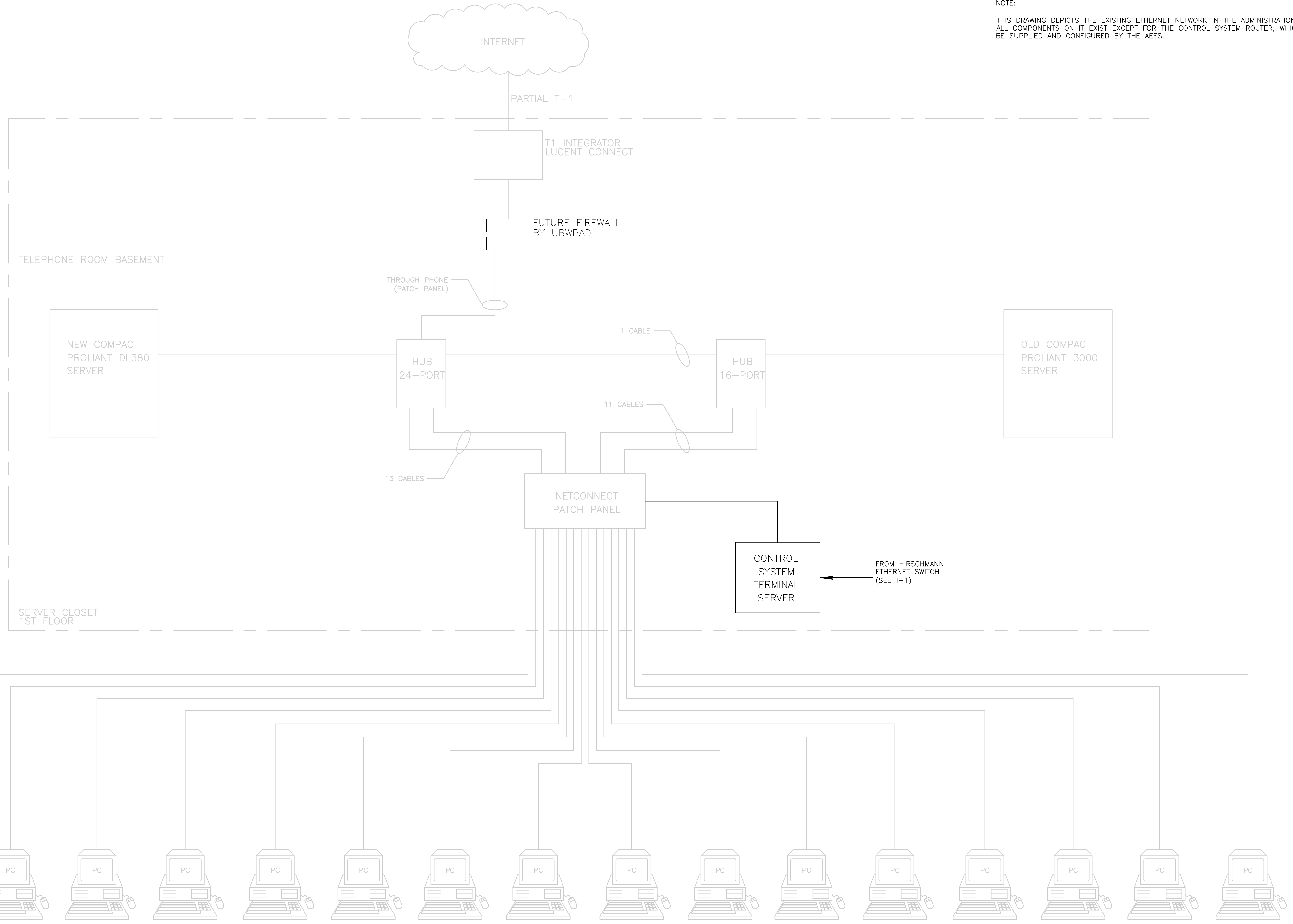
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**CONTROL SYSTEM  
 ARCHITECTURE II**

PROJECT NO.  
 1289\35370  
 Sht. 251 of 386  
**I-2**  
 ACCESSION NO. 1289-5581

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
 Filename: P:\1289\35370\PHASE1\RECORD\INST\0000003.dwg Xref's: [C24X36H, ] Plotted by: CROSSJA Time: 12/16/08 6:30:13 PM

NOTE:  
 THIS DRAWING DEPICTS THE EXISTING ETHERNET NETWORK IN THE ADMINISTRATION BUILDING. ALL COMPONENTS ON IT EXIST EXCEPT FOR THE CONTROL SYSTEM ROUTER, WHICH WILL BE SUPPLIED AND CONFIGURED BY THE AESS.



RECORD DRAWING

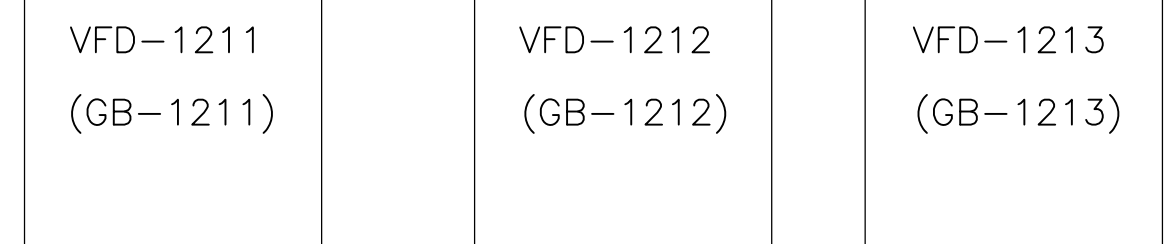
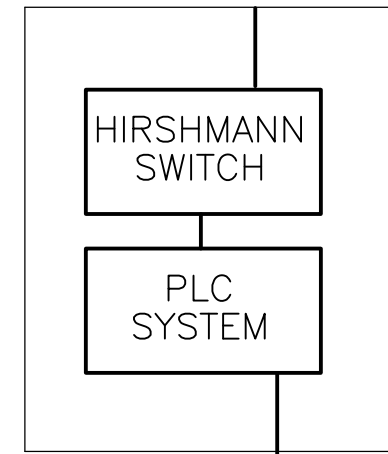
				CADD FILE NO.: 10000003.DWG DESIGNED BY: E. MICHNOVEZ DRAWN BY: W. FELDER SHEET CHK'D BY: P. MALACHOWSKI SCALE: NONE APPROVED BY: E. MICHNOVEZ DATE: MAY 2006		Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 252 of 386  <b>I-3</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS							
	3/07	SPV	ADT	REVISED FOR THE RECORD							

ACCESSION NO. 1289-65692

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
 File name: P:\1289\35370\PHASE1\RECORD\INST\00000004.dwg Xref's: [C24X36H, ] Plotted by: CROSSJA Time: 12/16/08 6:30:15 PM

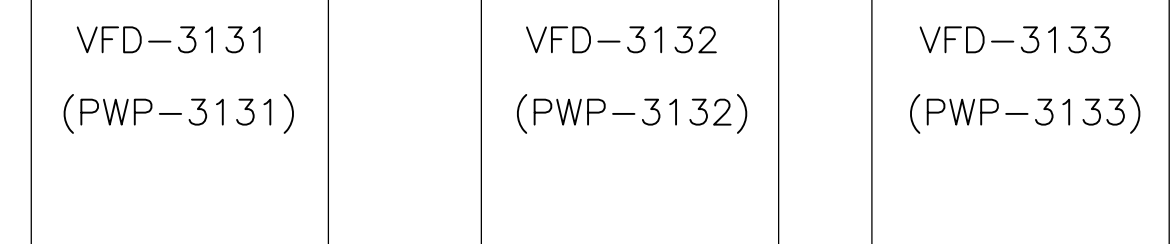
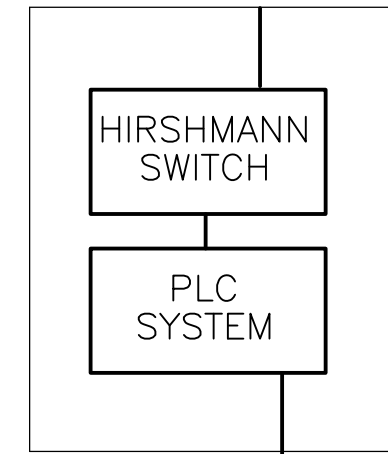
CONNECTION TO SCADA  
FIBER OPTIC NETWORK

CPP-1



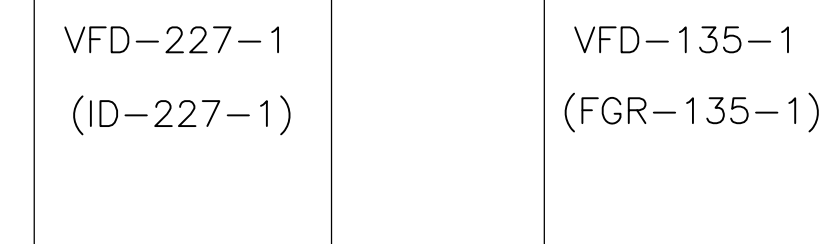
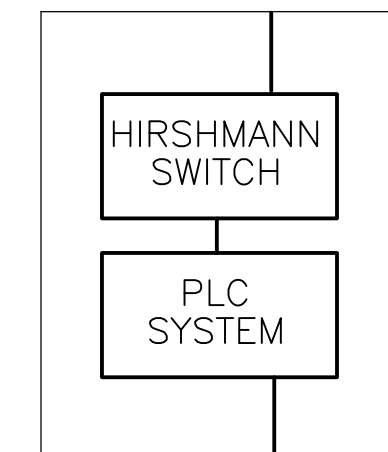
CONNECTION TO SCADA  
FIBER OPTIC NETWORK

CPP-15



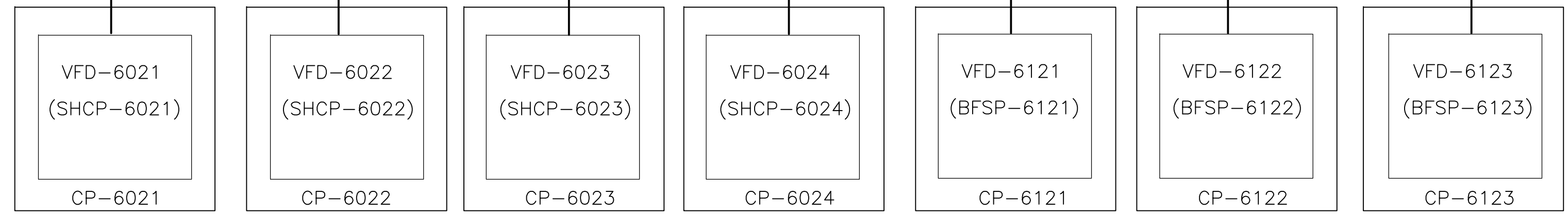
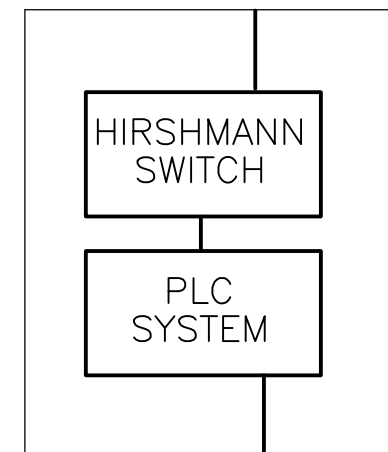
CONNECTION TO SCADA  
FIBER OPTIC NETWORK

CPP-7



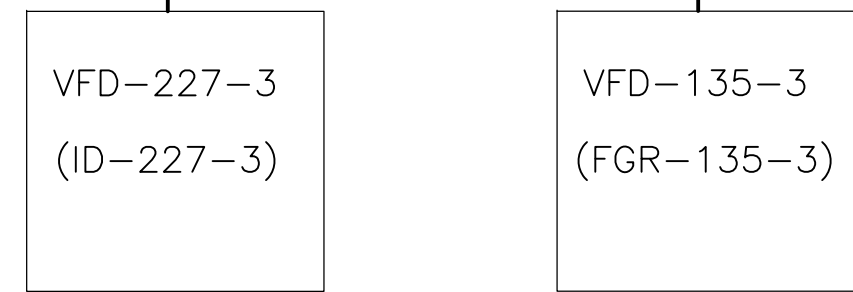
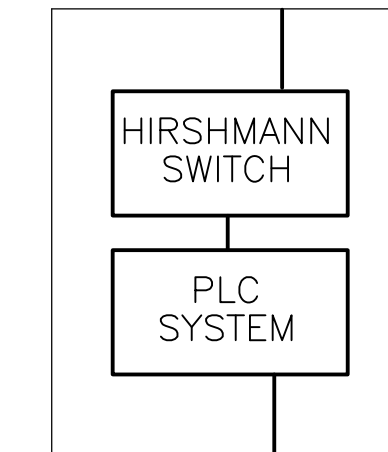
CONNECTION TO SCADA  
FIBER OPTIC NETWORK

CPP-3



CONNECTION TO SCADA  
FIBER OPTIC NETWORK

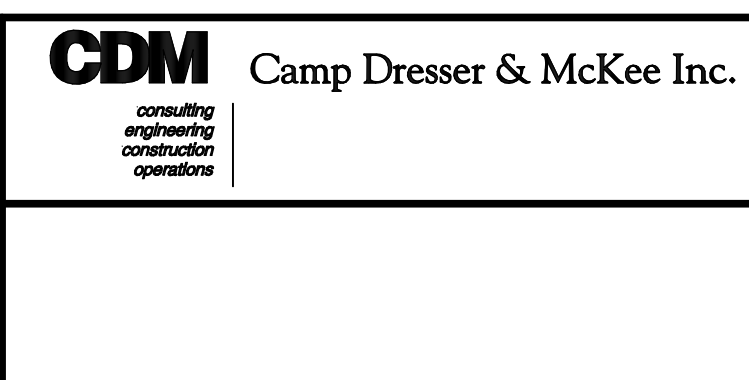
CPP-8



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. 10000004.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: K. PYRA  
 SHEET CHK'D BY: J. ROMEO  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

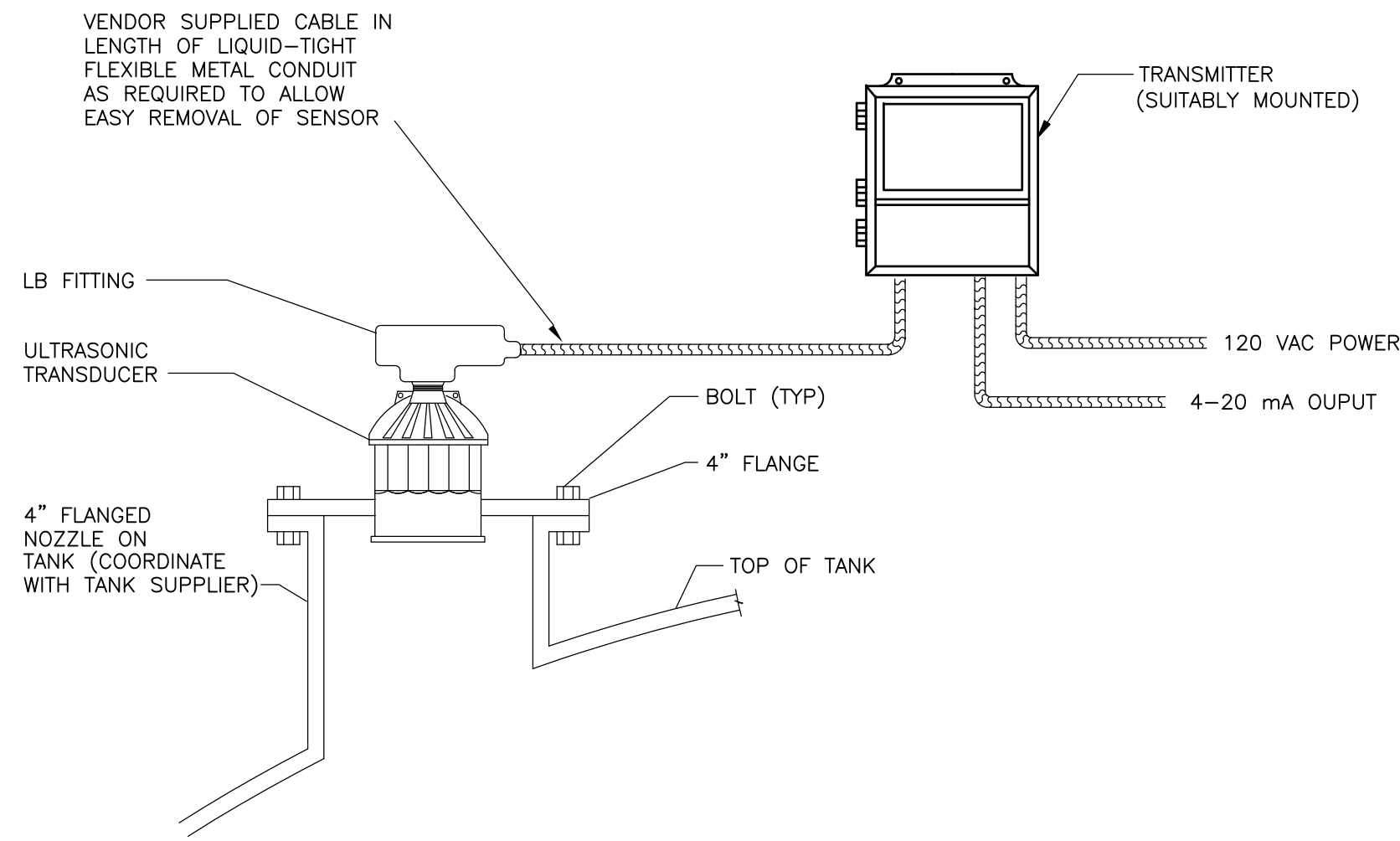


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**VFD COMMUNICATION NETWORKS**  
 I-4

PROJECT NO.  
 1289\35370  
 Sht. 253 of 386

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:30:18 PM  
 Filename: P:\1289\35370\PHASE I\RECORD\INST\0000005.dwg Xref's: [C24X36H, ]

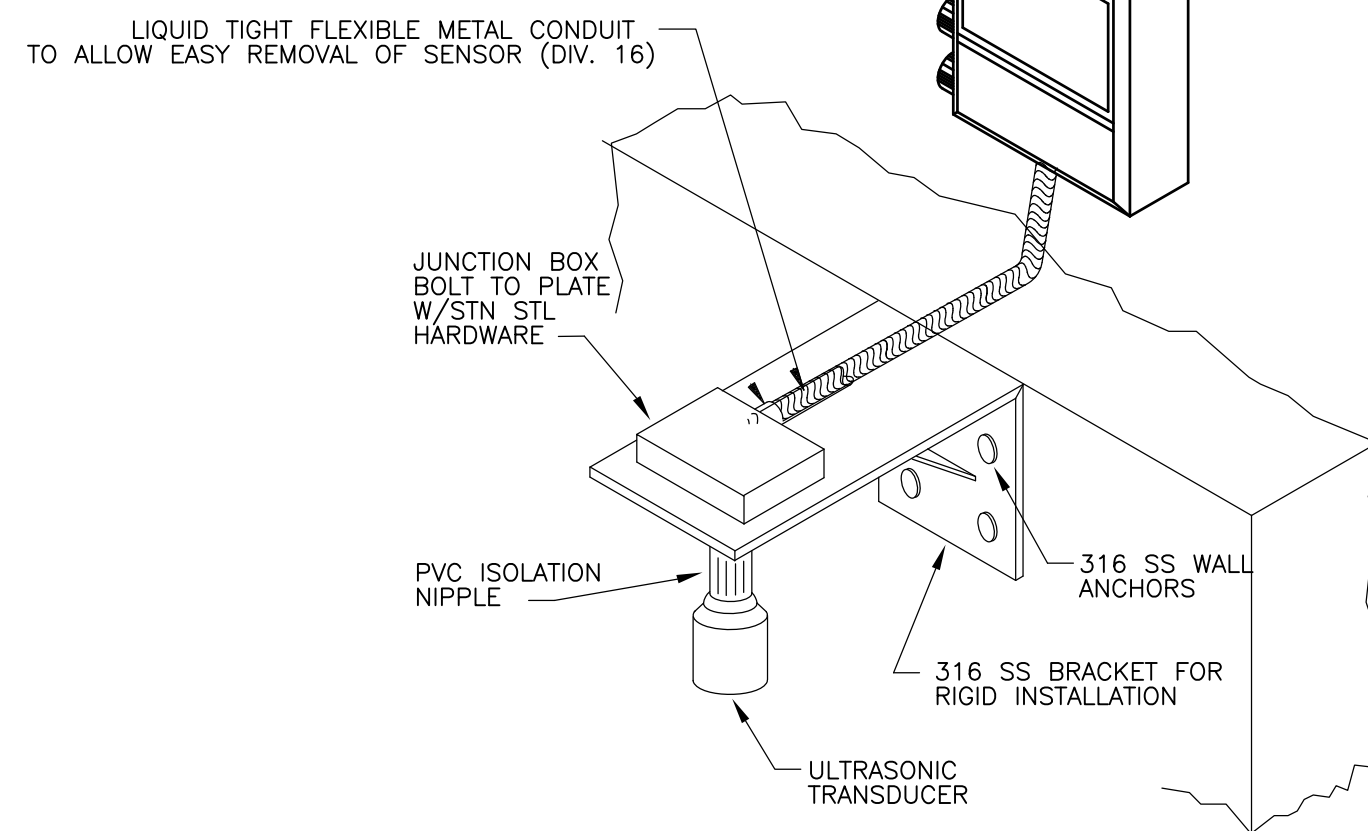


MOUNTING - LIQUID APPLICATIONS

1. FLANGE, GASKET AND HARDWARE SUPPLIED BY CONTRACTOR.

**ULTRASONIC LEVEL SENSOR W/TRANSMITTER  
INSTALLATION DETAIL ON TOP OF TANK**

**DETAIL 1**  
NTS CDM

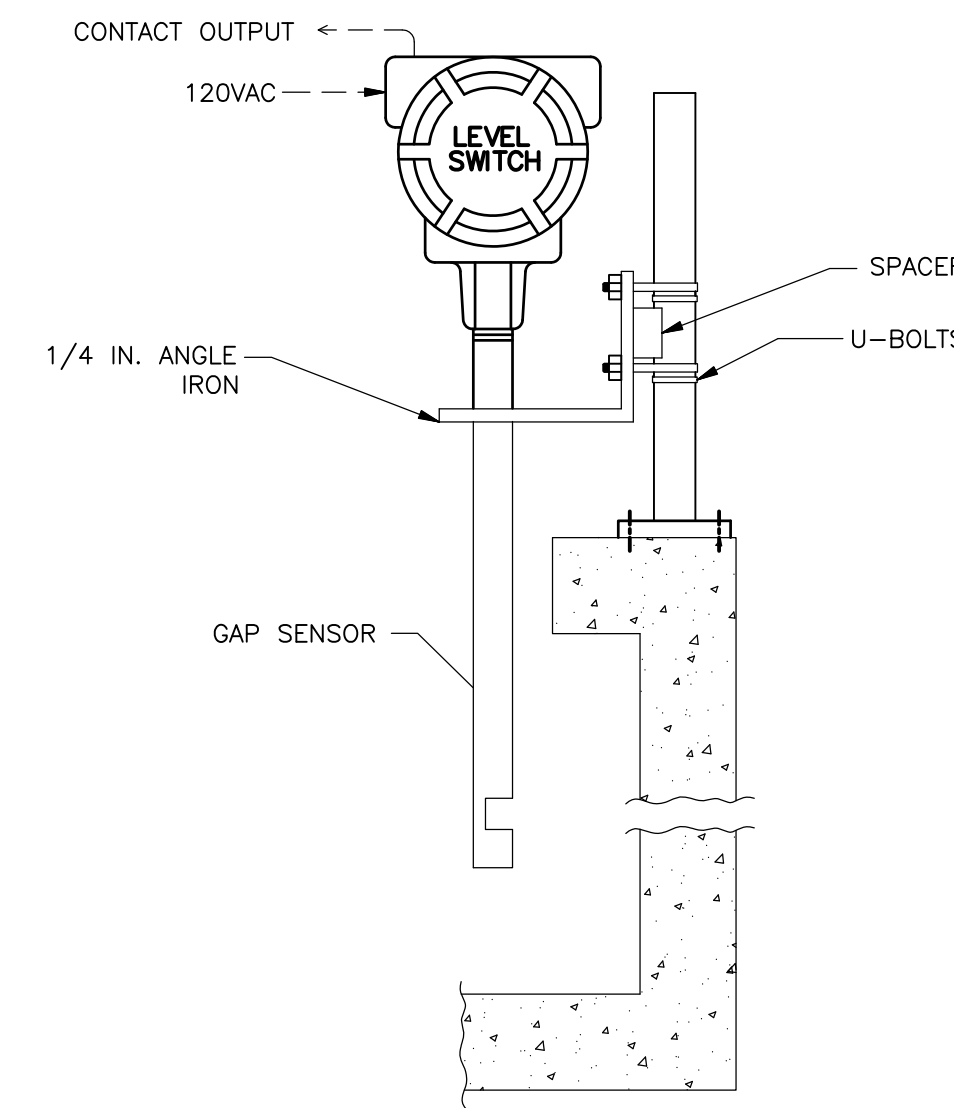


NOTE:

1. PROVIDE AND INSTALL ULTRASONIC TRANSDUCER IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
2. WHERE REQUIRED OR SHOWN ON DRAWINGS PROVIDE 4 INCH DIAMETER PVC PIPE WITH A VENT HOLE FOR A STILLING WELL.
3. 316 SS BRACKET CAN EXTEND ACROSS CHANNEL AND BE SECURED ON OTHER WALL.

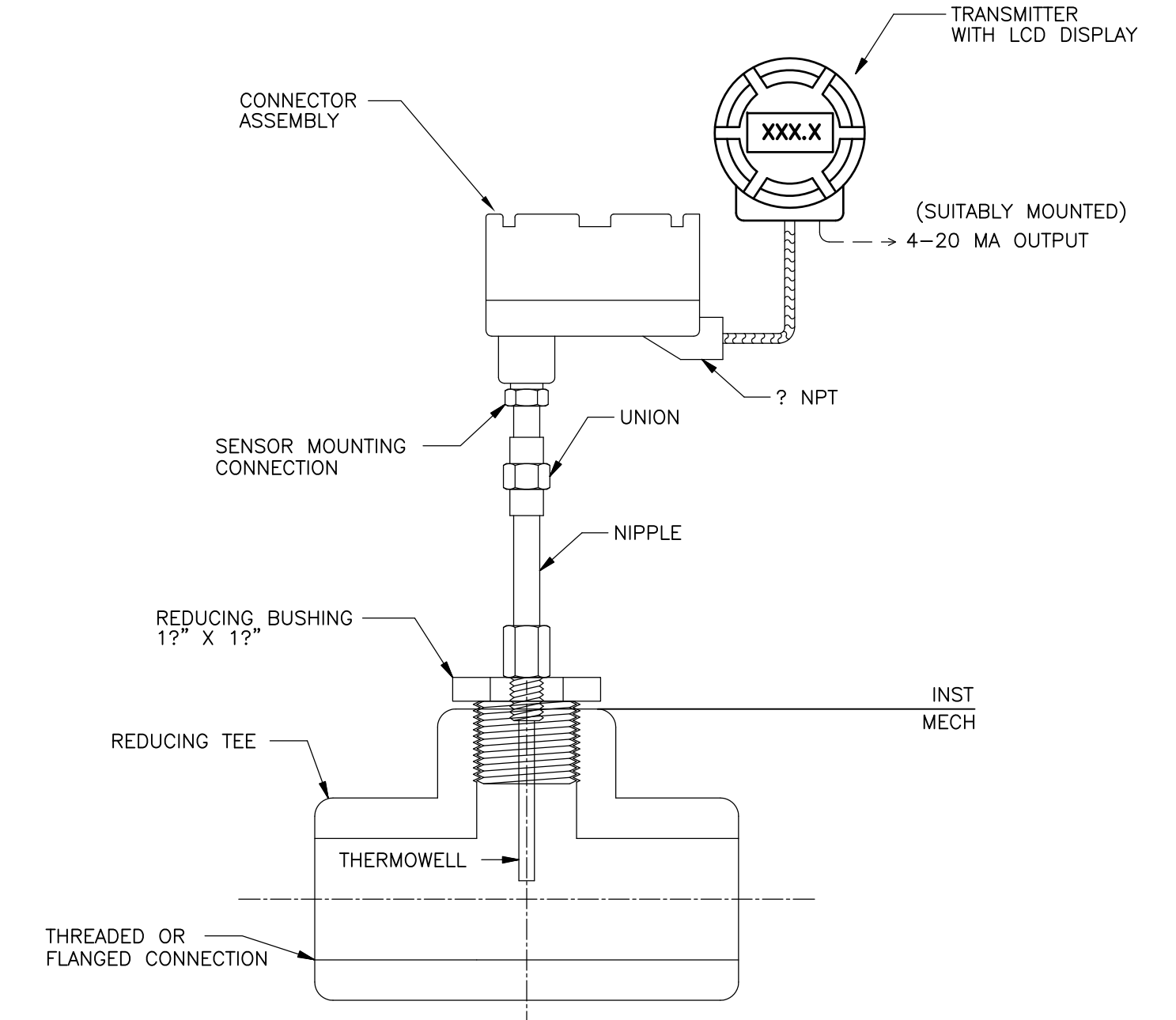
**ULTRASONIC TRANSDUCER ON  
OPEN CHANNEL**

**DETAIL 2**  
NTS CDM



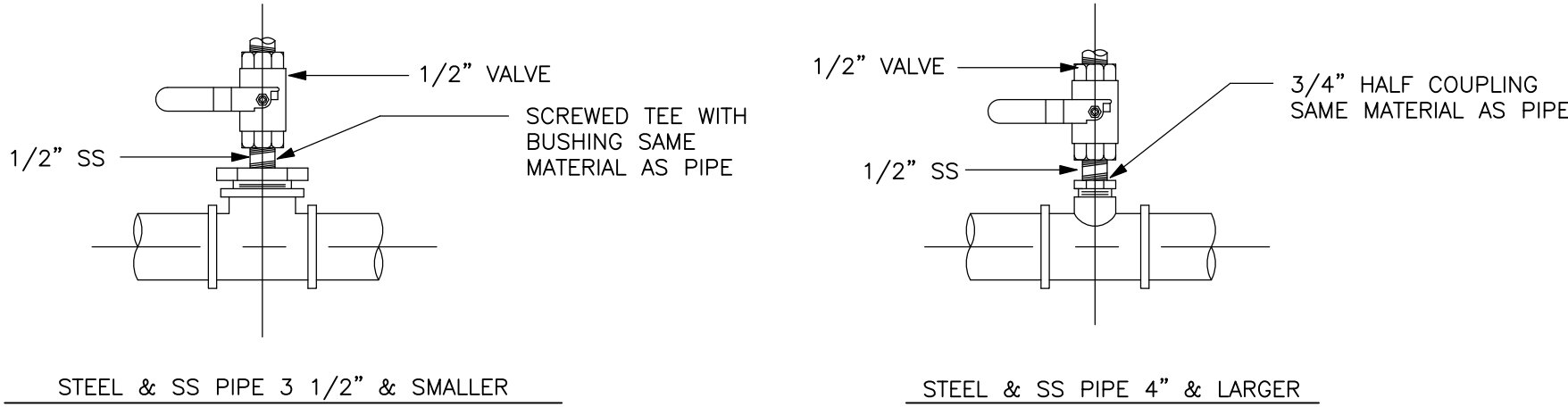
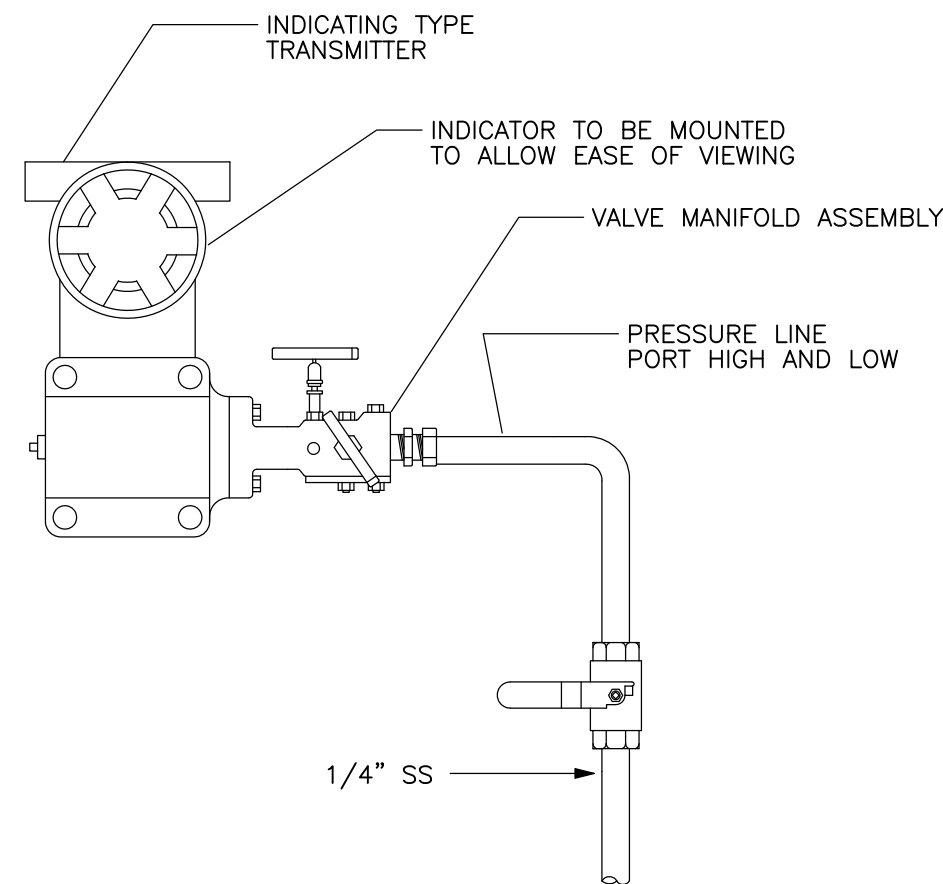
**ULTRASONIC GAP LEVEL SWITCH**

**DETAIL 3**  
NTS CDM



**RTD W/THERMOWELL MOUNTED IN A  
THREADED TEE WIRED TO REMOTE TRANSMITTER**

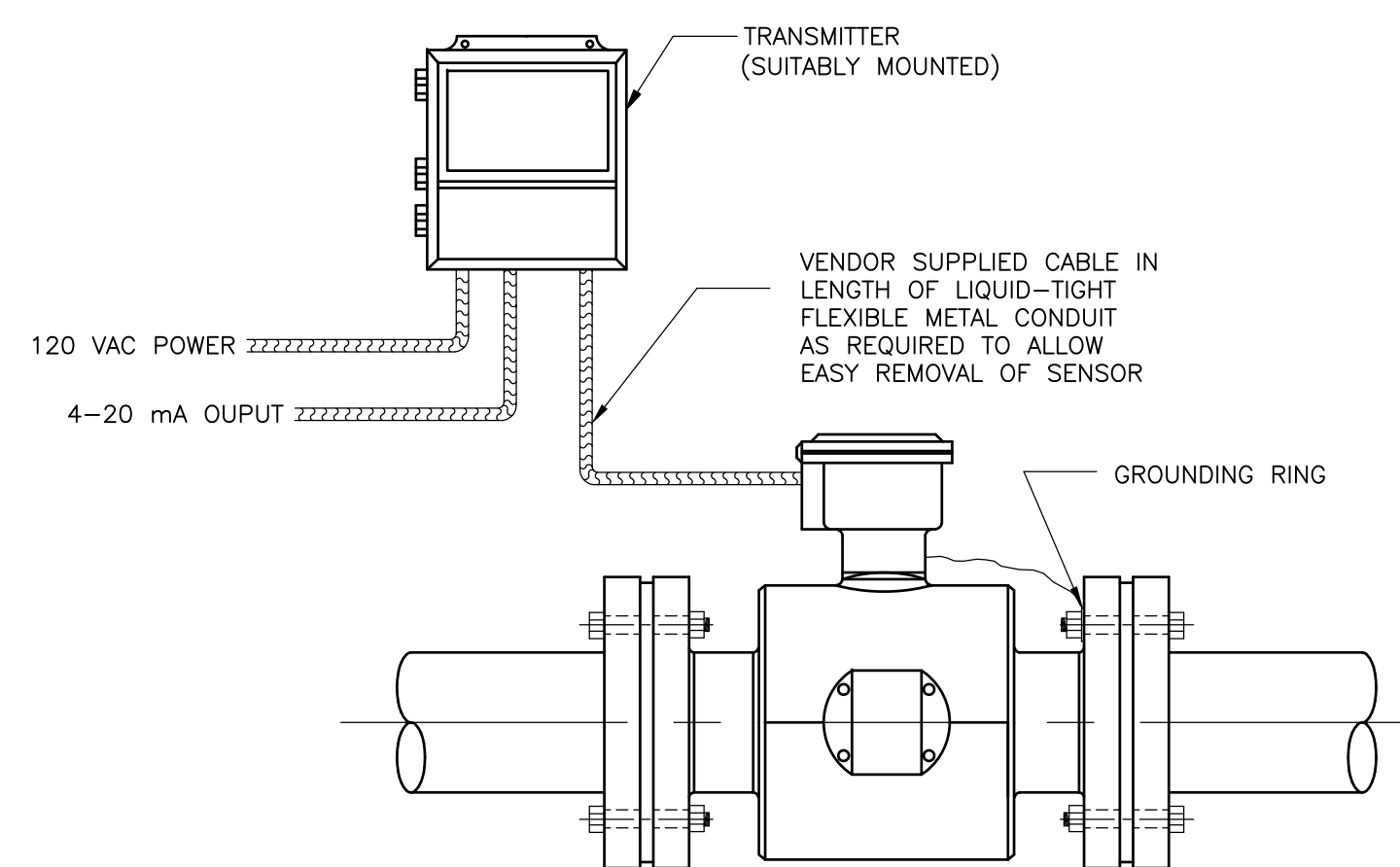
**DETAIL 4**  
NTS CDM



1. IF PROCESS FLUID IS WATER, MOUNT TRANSMITTER AT OR BELOW CENTERLINE OF PIPING AND SLOPE ALL TUBING AND PIPING DOWNWARDS TO TRANSMITTER.
2. IF PROCESS FLUID IS GAS, MOUNT TRANSMITTER AT OR ABOVE CENTERLINE OF PIPING AND SLOPE ALL TUBING DOWNWARDS TOWARDS PIPING. PROVIDE DRAIN VALVE FOR MOISTURE IN LINE.

**PRESSURE INDICATING TRANSMITTER  
AND PIPING INSTALLATION**

**DETAIL 5**  
NTS CDM

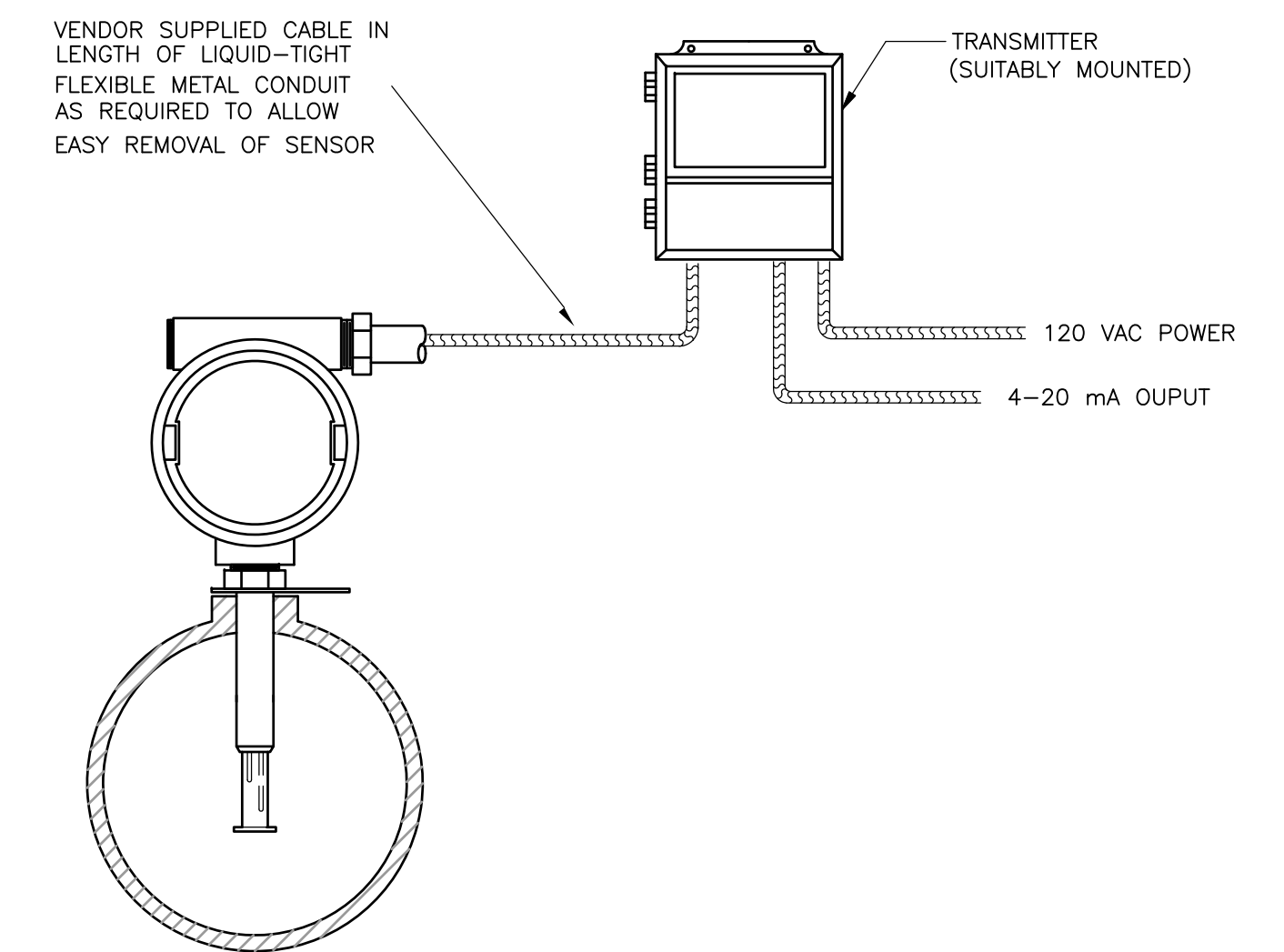


NOTES:

1. FLOW TUBE TO BE FIVE STRAIGHT PIPE DIAMETERS UPSTREAM AND TWO PIPE DIAMETERS DOWNSTREAM.
2. PROVIDE GROUNDING RINGS AS REQUIRED.
3. 120 VAC POWER TO TRANSMITTER AND 4-20 mA OUTPUT SIGNAL SHALL BE ROUTED THROUGH SEPERATE JUNCTION BOXES.

**MAGNETIC FLOW METER AND  
TRANSMITTER INSTALLATION**

**DETAIL 6**  
NTS CDM



**THERMAL MASS TRANSMITTER  
PIPE INSTALLATION**

**DETAIL 7**  
NTS CDM

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	10000005.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	W. GREEN
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

**INSTALLATION DETAILS I**

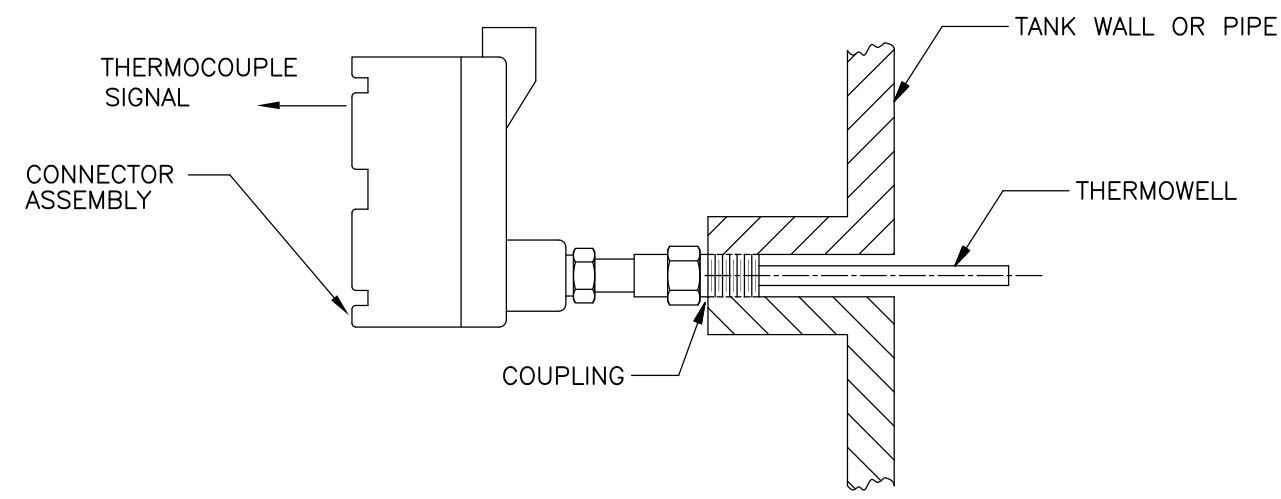
PROJECT NO.  
1289\35370

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**I-5**

ACCESSION NO. 1289-55854

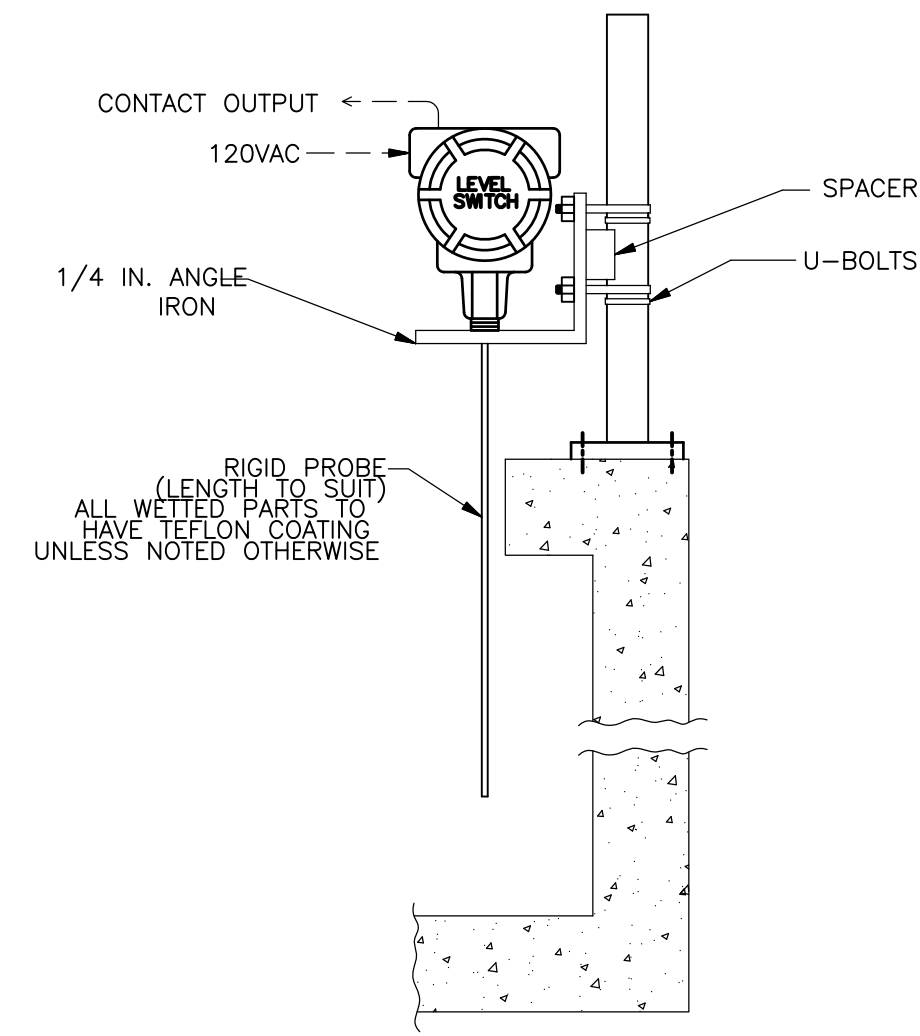
UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:30:21 PM  
 Filename: P:\1289\35370\PHASE1\RECORD\INST\0000006.dwg



NOTES:  
 1. FOR BOTH SINGLE AND DUAL THERMOCOUPLES

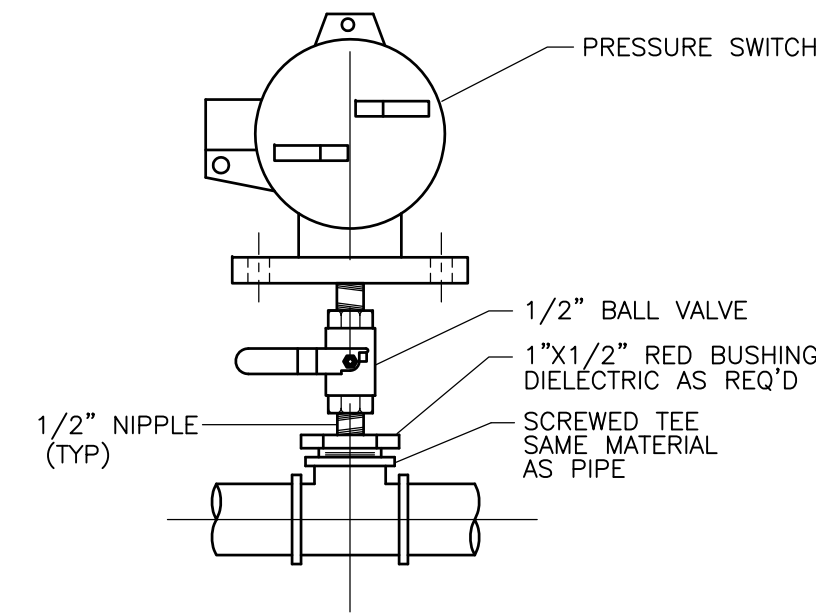
THERMOCOUPLE W/THERMOWELL ON SIDE OF FURNACE

DETAIL 8  
 NTS CDM



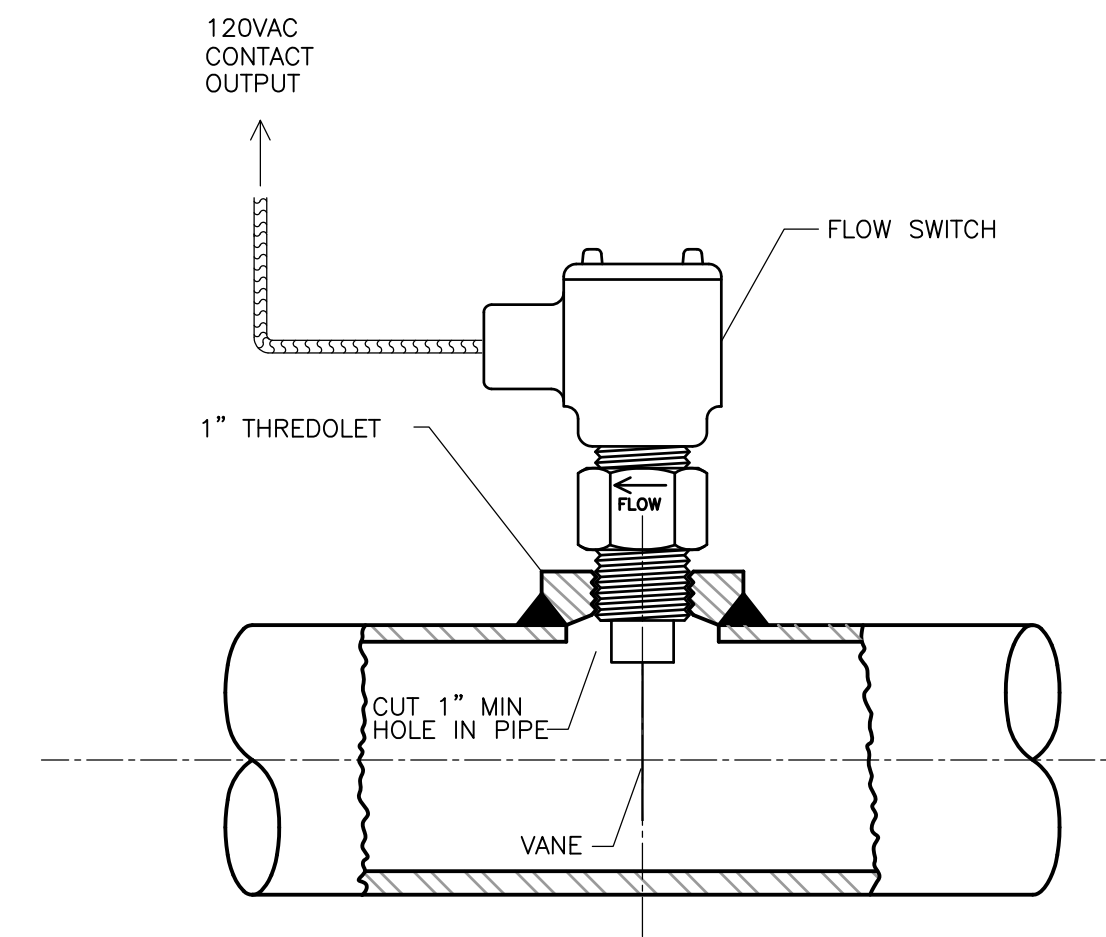
CONTINUOUS LEVEL CAPACITANCE PROBE SWITCH IN PIT

DETAIL 9  
 NTS CDM



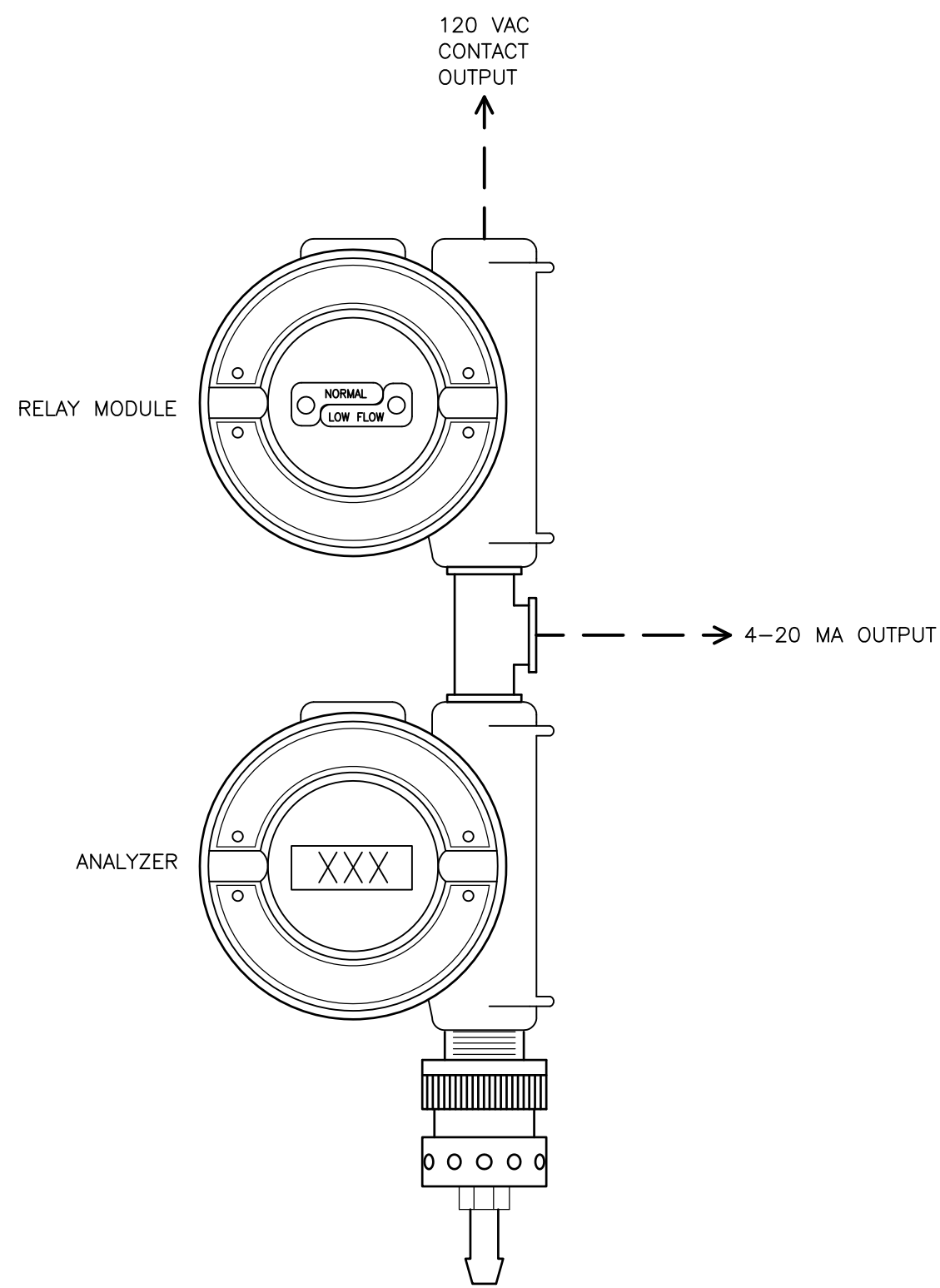
PRESSURE SWITCH

DETAIL 10  
 NTS CDM



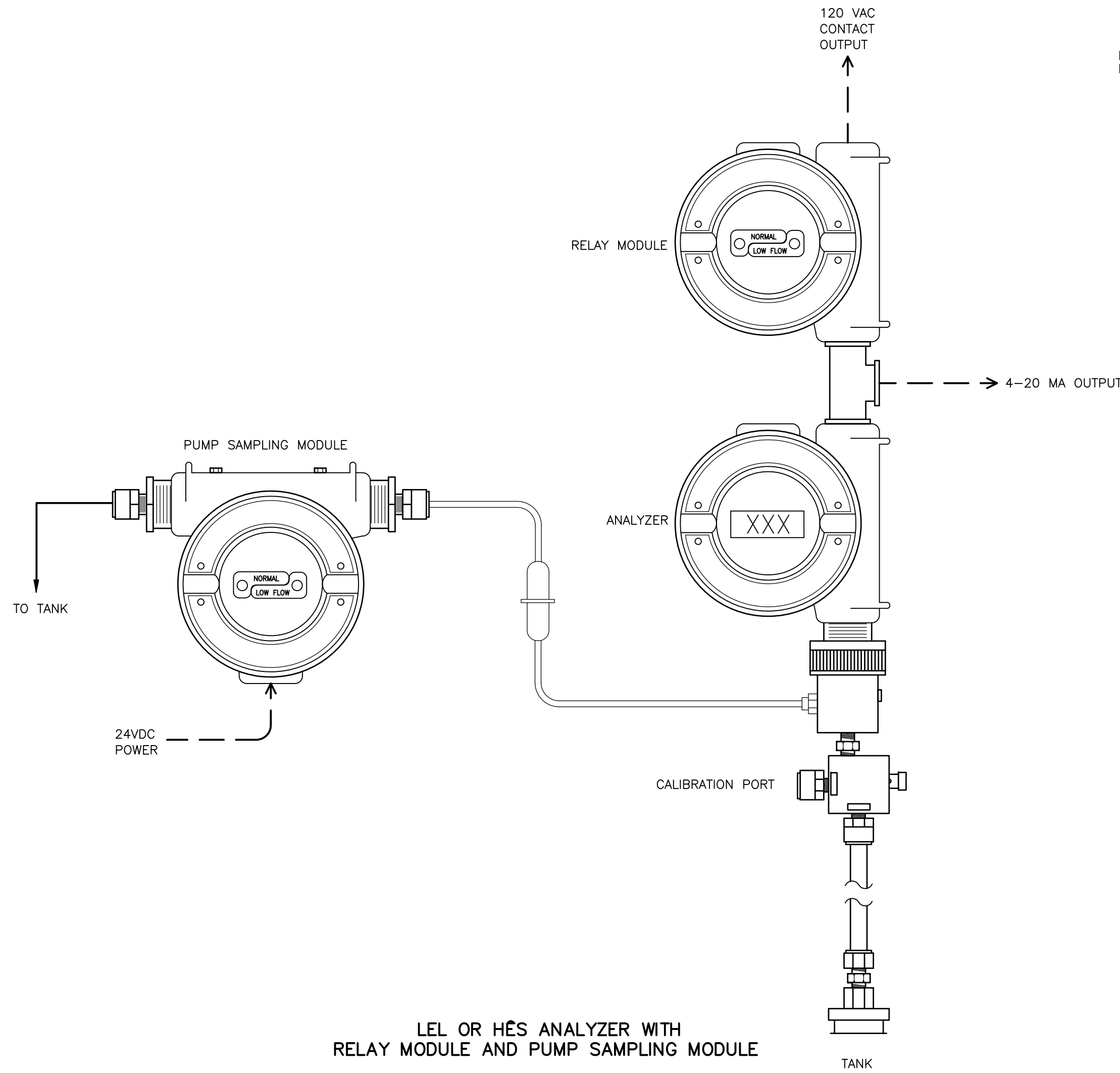
FLOW SWITCH

DETAIL 11  
 NTS CDM



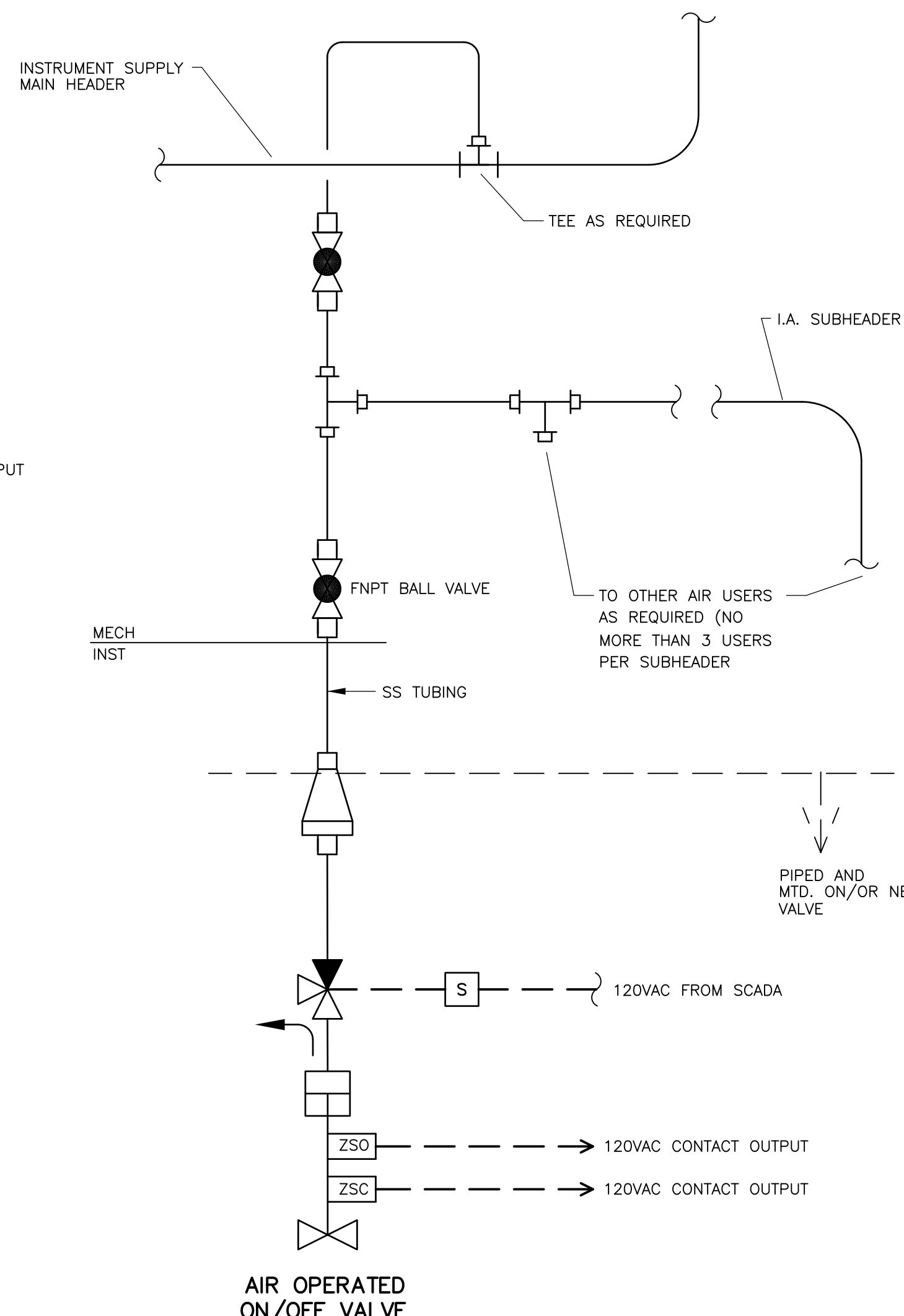
LEL OR HES ANALYZER WITH RELAY MODULE

DETAIL 12  
 NTS CDM



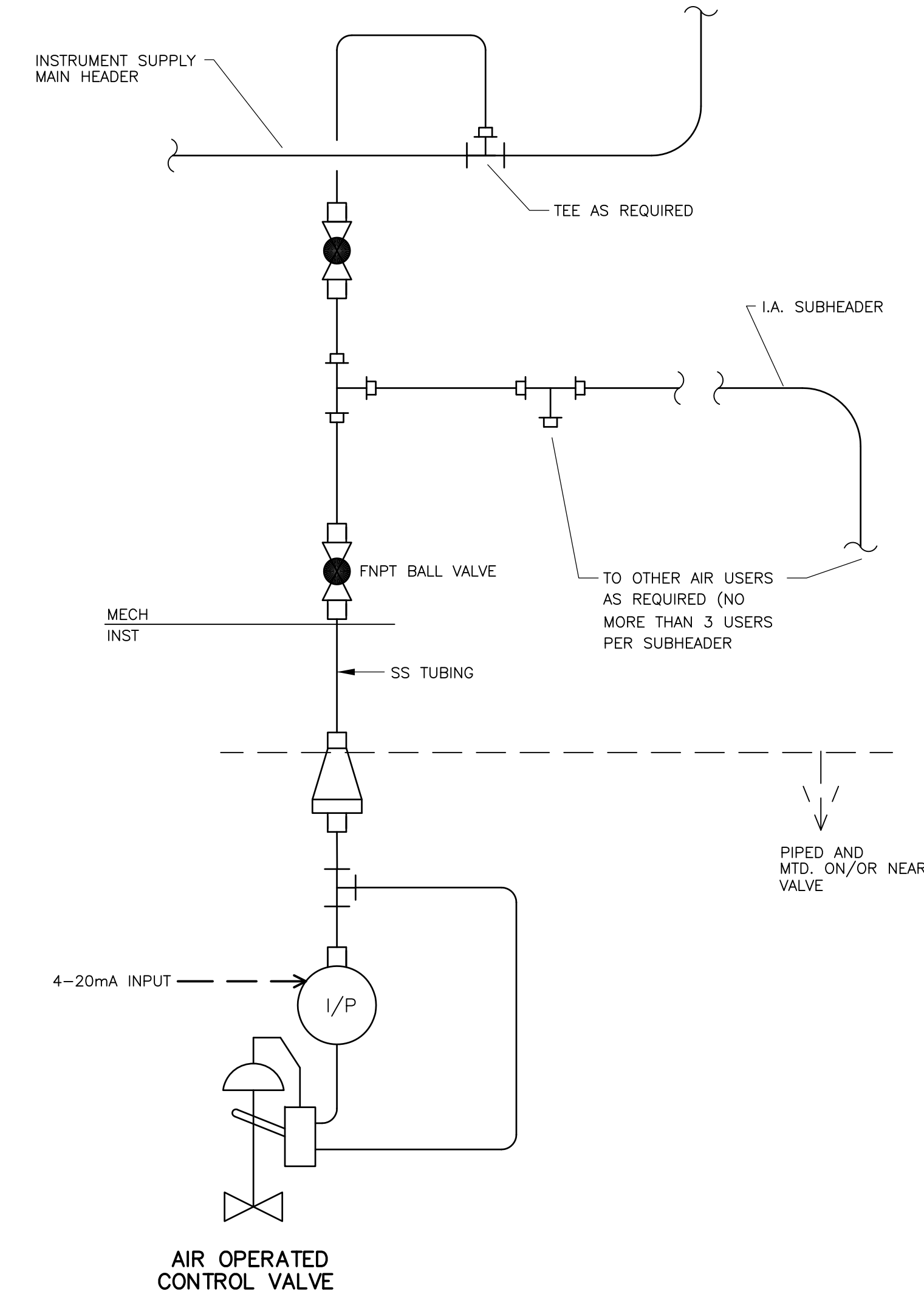
LEL OR HES ANALYZER WITH RELAY MODULE AND PUMP SAMPLING MODULE

DETAIL 13  
 NTS CDM



AIR OPERATED ON/OFF VALVE

DETAIL 14  
 NTS CDM



AIR OPERATED CONTROL VALVE

DETAIL 15  
 NTS CDM

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	10000006.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	L. DESIMINI
SHEET CHK'D BY:	W. GREEN
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**INSTALLATION DETAILS II**

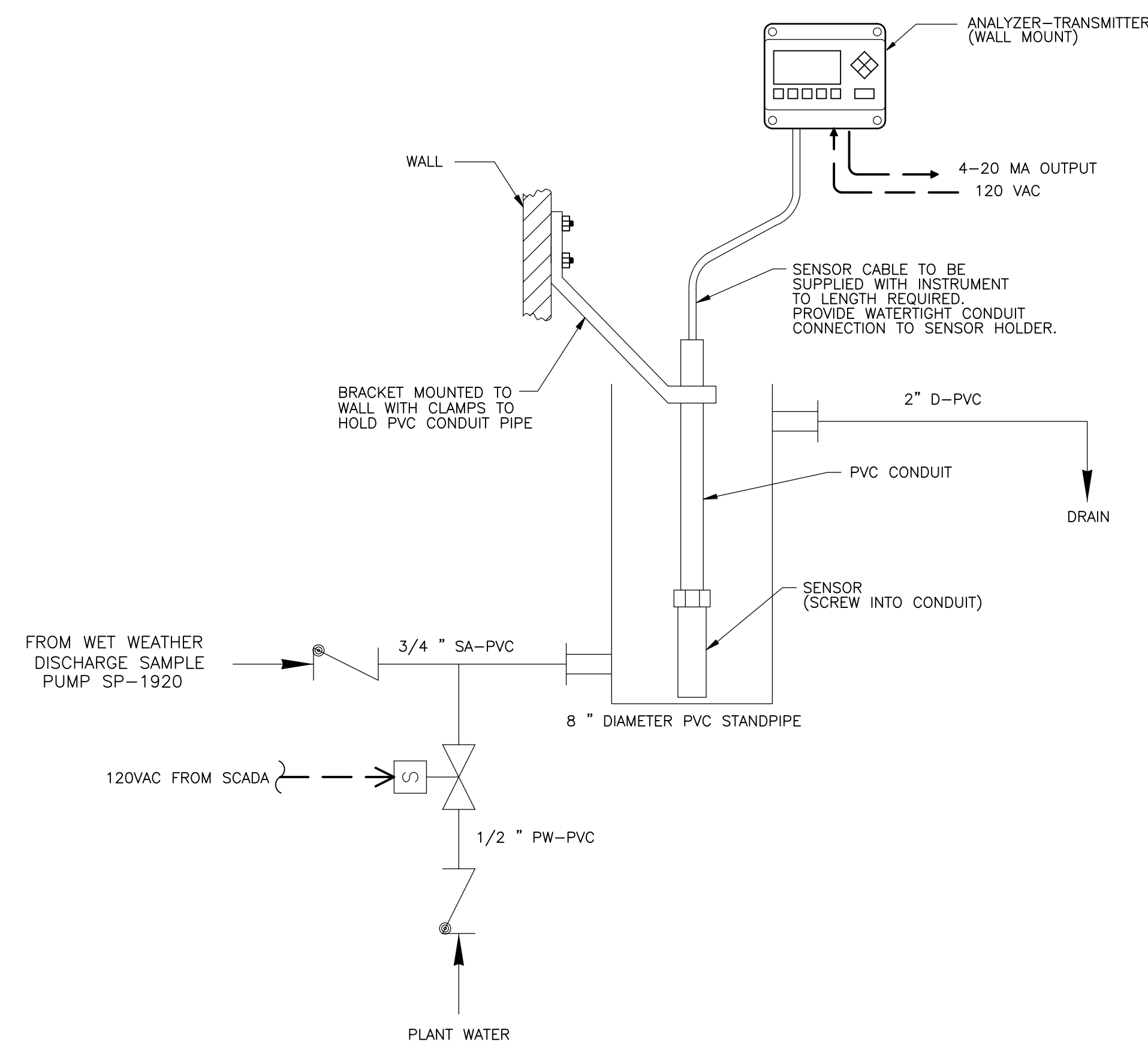
PROJECT NO.  
 1289\35370

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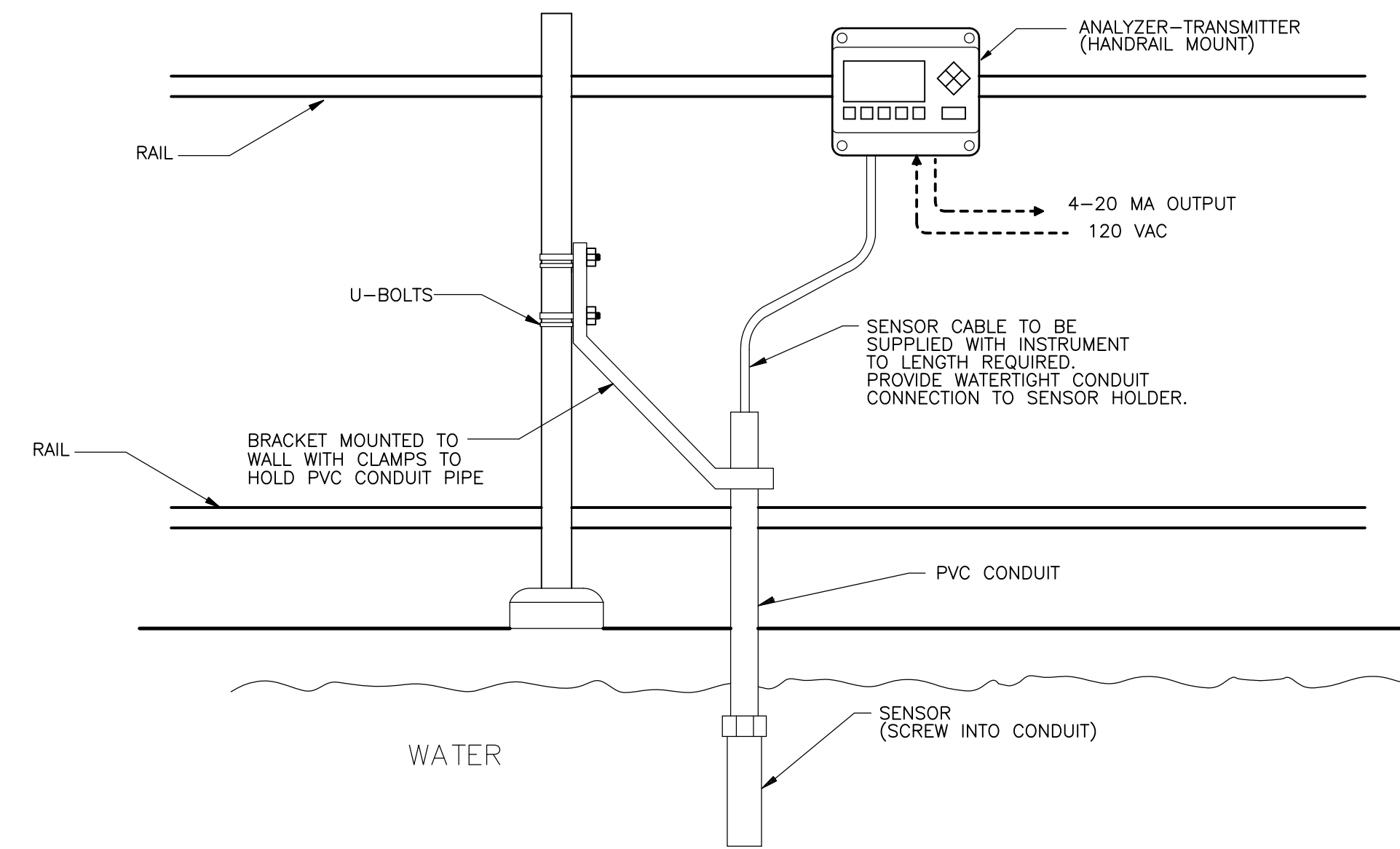
**I-6**



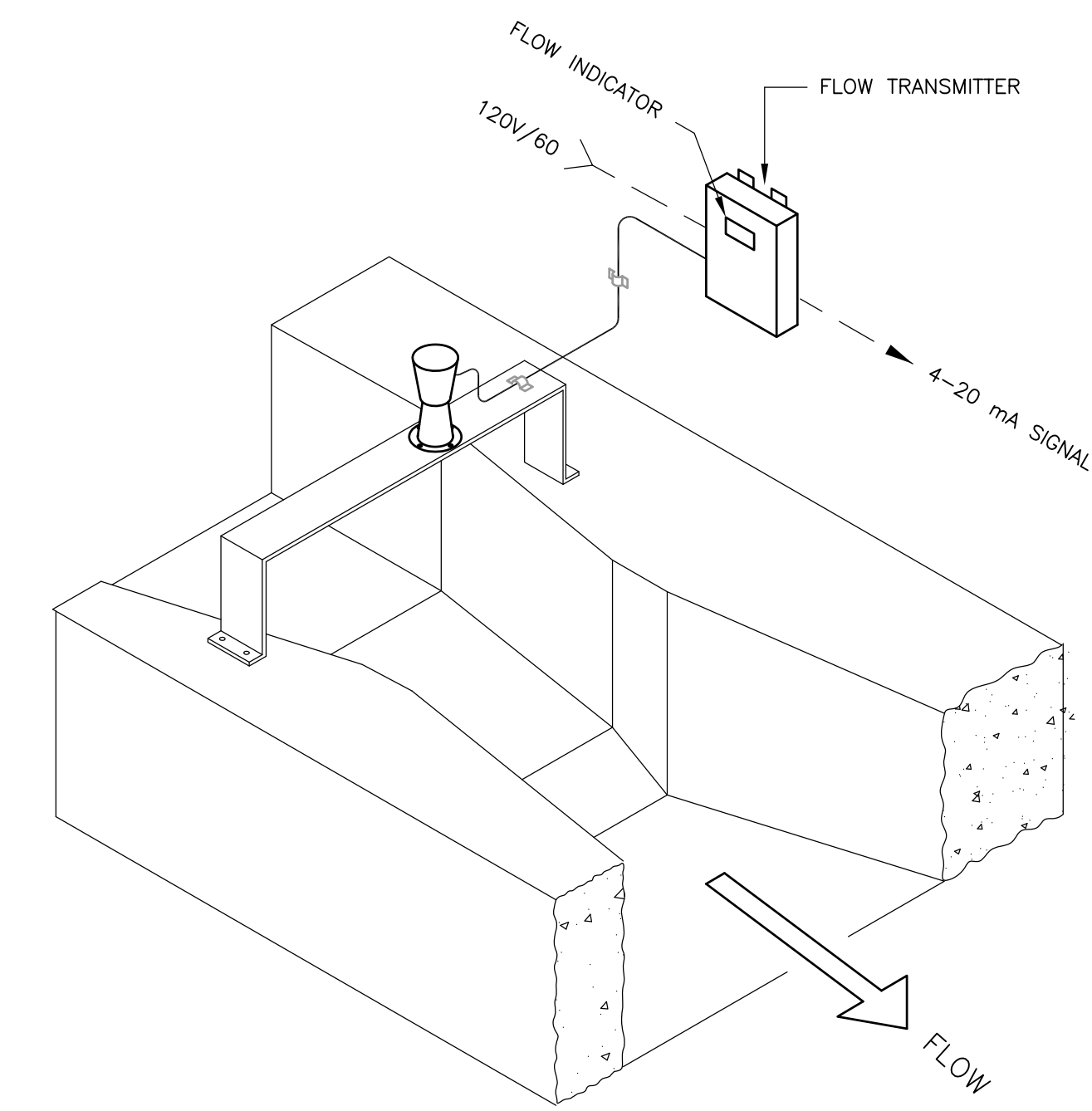
[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
 Plotted by: CROSSHA Time: 12/16/08 6:30:23 PM  
 Filename: P:\1289\35370\PHASE1\RECORD\INST\0000007.dwg



TOTAL RESIDUAL CHLORINE SENSOR  
 FLOW-THRU STANDPIPE INSTALLATION  
 DETAIL 16  
 NTS CDM



TOTAL RESIDUAL CHLORINE SENSOR  
 OPEN TANK INSTALLATION  
 DETAIL 17  
 NTS CDM



ULTRASONIC LEVEL (FLOW)  
 ON FLUME INSTALLATION  
 DETAIL 18  
 NTS CDM

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. 10000007.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: K. SANGREY  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

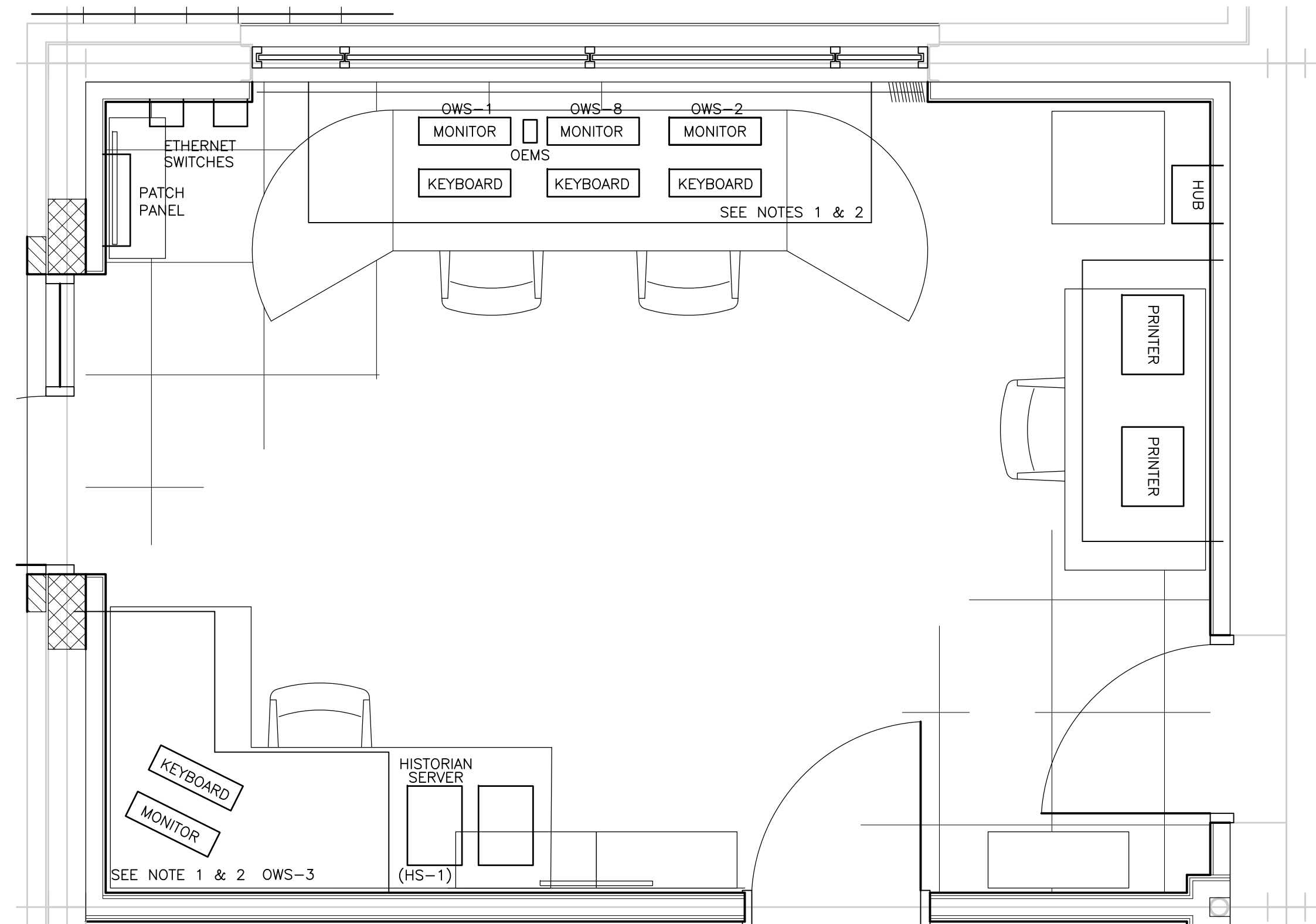
**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**INSTALLATION DETAILS III**

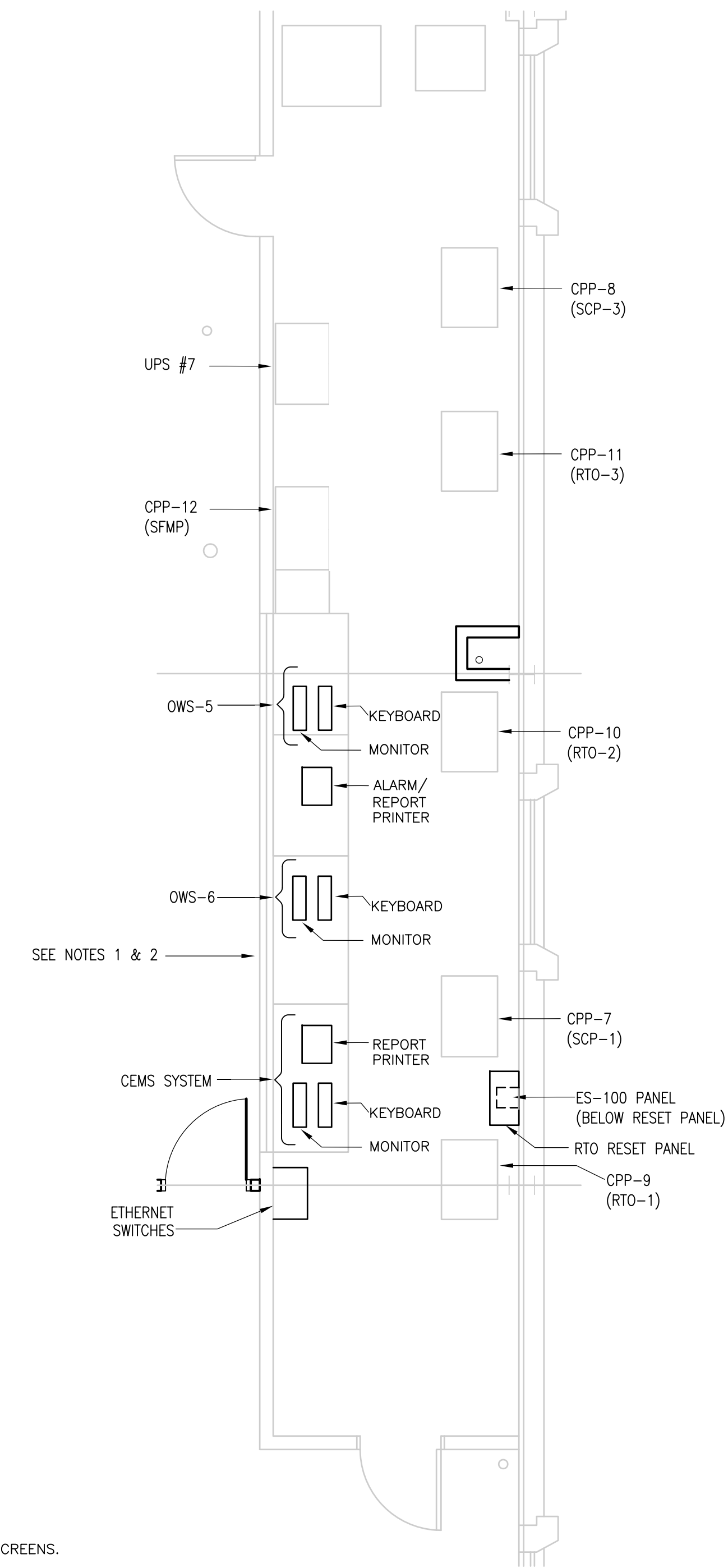
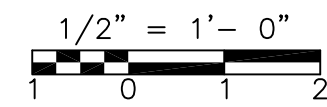
PROJECT NO.  
 1289\35370  
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**I-7**

ACCESSION NO. 1289-65856



- NOTES**
1. MONITORS ARE 19-INCH FLAT SCREENS.
  2. CPU's ARE LOCATED IN SERVER CABINET.

NEW CONTROL ROOM LAYOUT



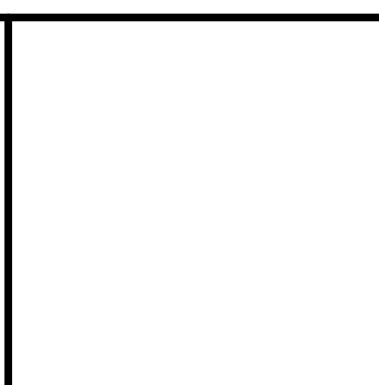
- NOTES**
1. MONITORS ARE 19-INCH FLAT SCREENS.
  2. CPU'S AND REDUNDANT SERVER ARE LOCATED UNDER THE DESK.

RTO CONTROL ROOM LAYOUT

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. 10000008.DWG
DESIGNED BY: P. MALACHOWSKI
DRAWN BY: W. FELDER
SHEET CHK'D BY: J. ROMEO
SCALE:
APPROVED BY: E. MICHNOVEZ
DATE: MAY 2006

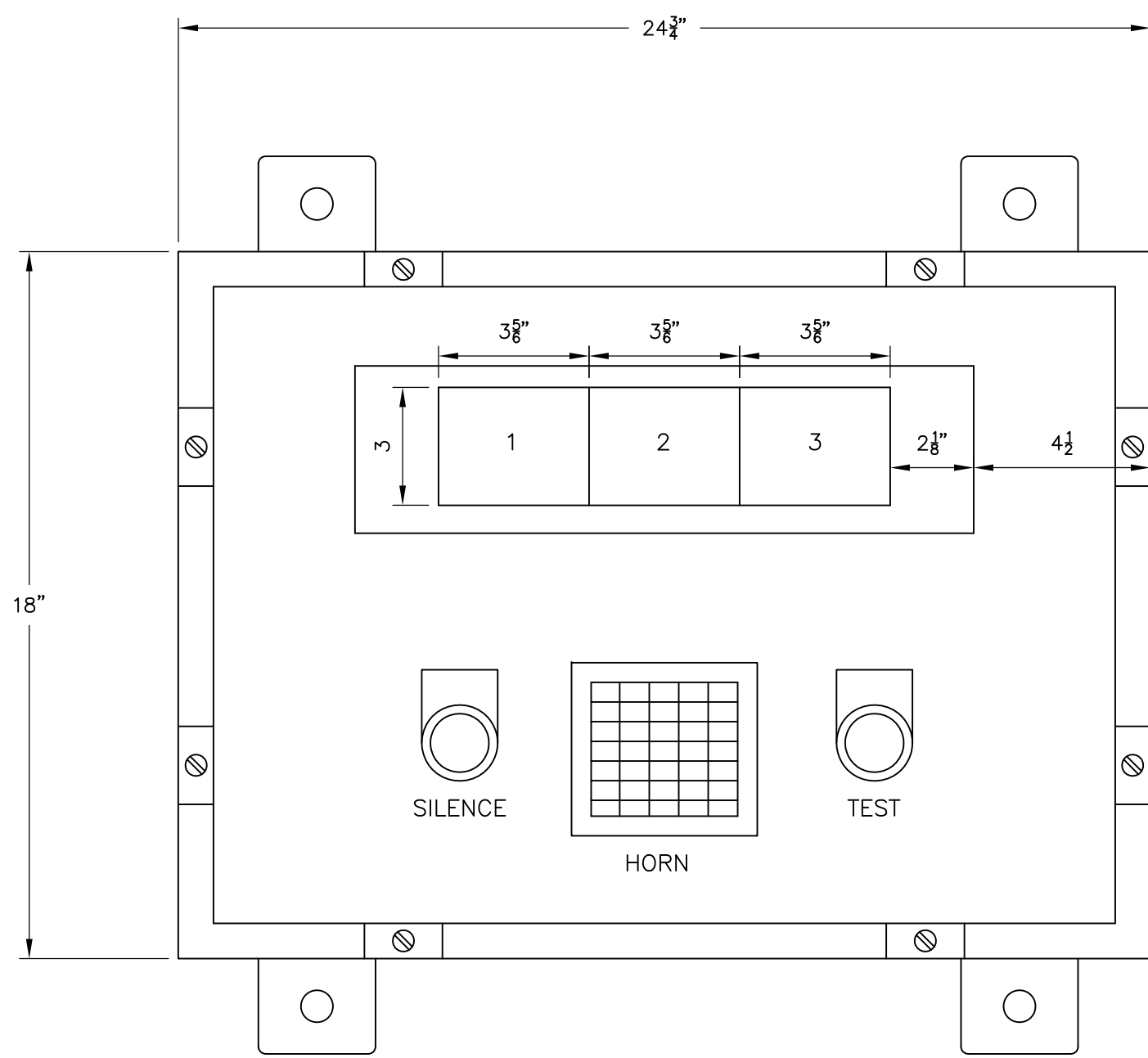


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

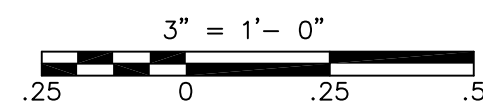
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**CONTROL ROOMS**

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
 Filename: P:\1289\35370\PHASE1\RECORD\INST\0000009.dwg Xref's: [C24X36H, ] Plotted by: CROSSJA Time: 12/16/08 6:30:29 PM



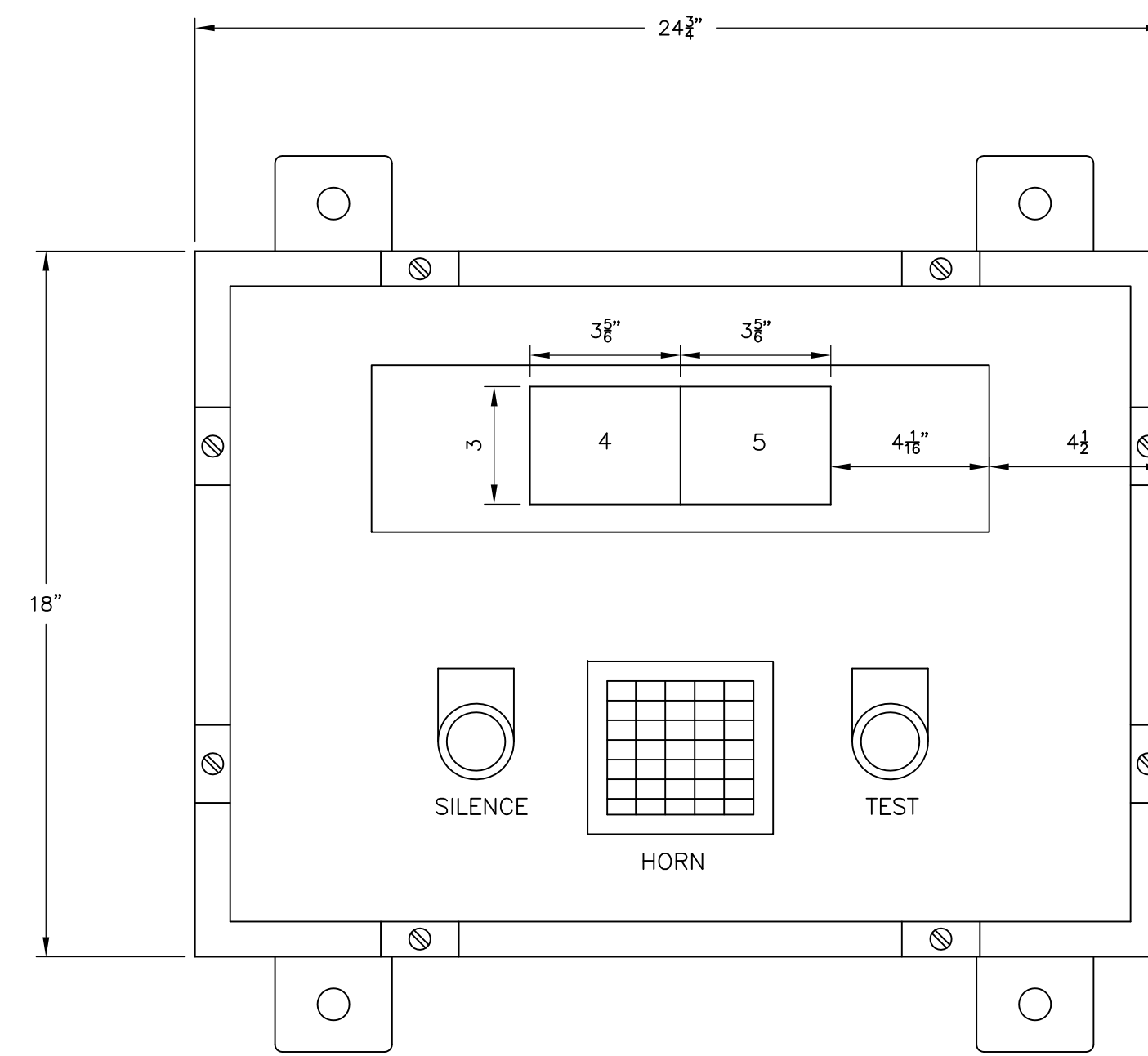
SODIUM HYPOCHLORITE  
TRUCK UNLOADING STATION  
ANNUNCIATOR AND INDICATING PANEL



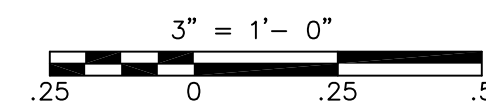
NAMEPLATE SCHEDULE

NO.	DESCRIPTION	TAG
1	SODIUM HYPOCHLORITE STORAGE TANK NO. 1 HIGH LEVEL ALARM	LAH-6011
2	SODIUM HYPOCHLORITE STORAGE TANK NO. 2 HIGH LEVEL ALARM	LAH-6012
3	SODIUM HYPOCHLORITE STORAGE TANK NO. 3 HIGH LEVEL ALARM	LAH-6013
4	SODIUM BISULFITE STORAGE TANK NO. 1 HIGH LEVEL ALARM	LAH-6111
5	SODIUM BISULFITE STORAGE TANK NO. 2 HIGH LEVEL ALARM	LAH-6112

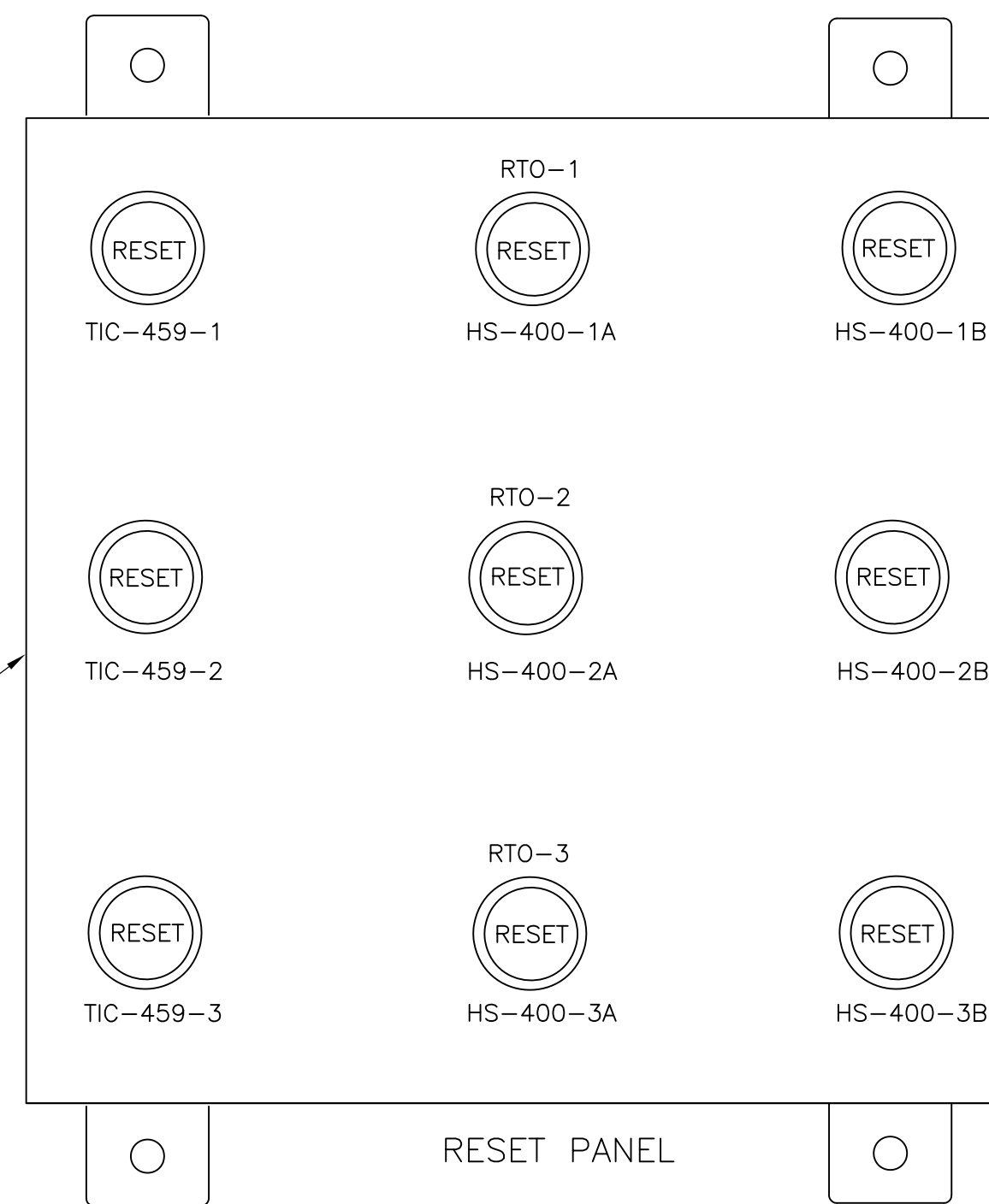
NOTE:  
REFER TO TRUCK UNLOADING STATION ANNUNCIATOR AND INDICATING PANEL SPECIFICATION 13315-2.07.



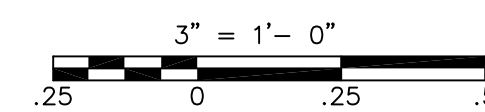
SODIUM BISULFITE  
TRUCK UNLOADING STATION  
ANNUNCIATOR AND INDICATING PANEL



NEMA 12 ENCLOSURE  
(24"H X 24"W X 12"D)



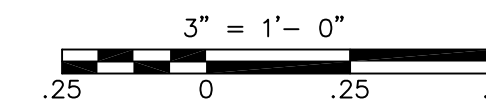
RESET PANEL



NEMA 12 ENCLOSURE  
(36"H X 36"W X 12"D)



ASH SYSTEM PANEL



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. 10000009.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: J. ROMEO  
 SCALE:  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

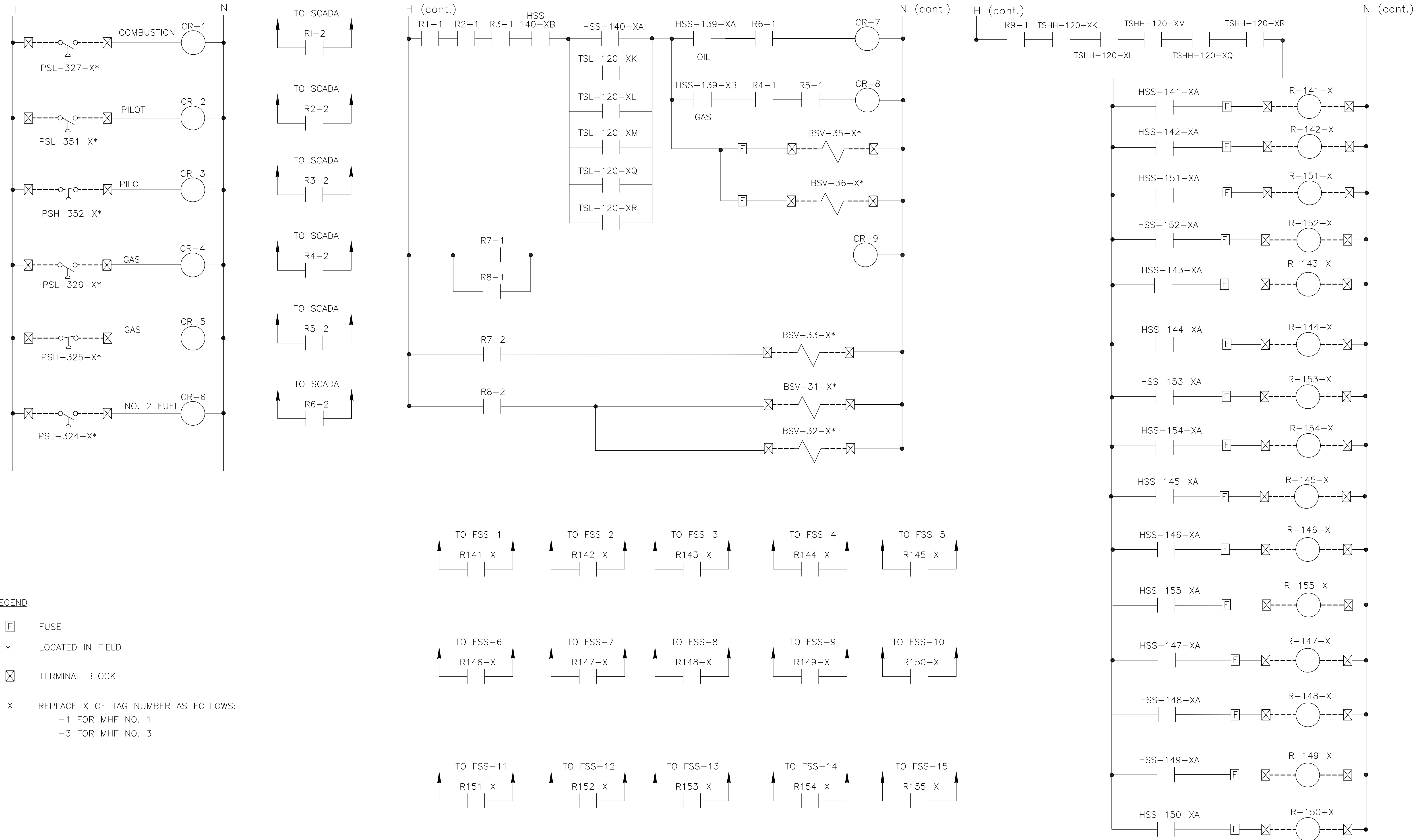
**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PANEL DETAILS I**

PROJECT NO.  
 1289\35370  
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**I-9**

ACCESSION NO. 1289-65658



**LEGEND**

- [F] FUSE
- \* LOCATED IN FIELD
- [X] TERMINAL BLOCK
- X REPLACE X OF TAG NUMBER AS FOLLOWS:  
 -1 FOR MHF NO. 1  
 -3 FOR MHF NO. 3

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	1000010.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

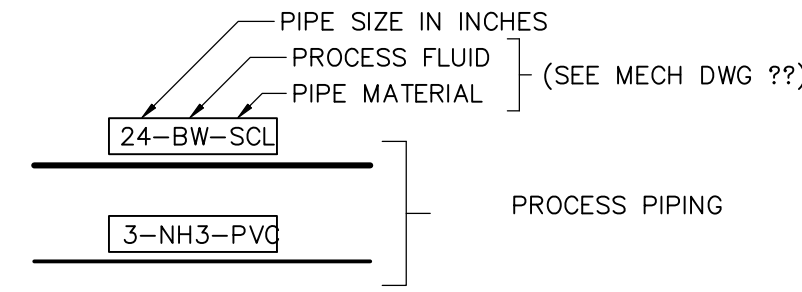
**MHF MSS  
 WIRING DIAGRAM**

PROJECT NO.  
1289\35370

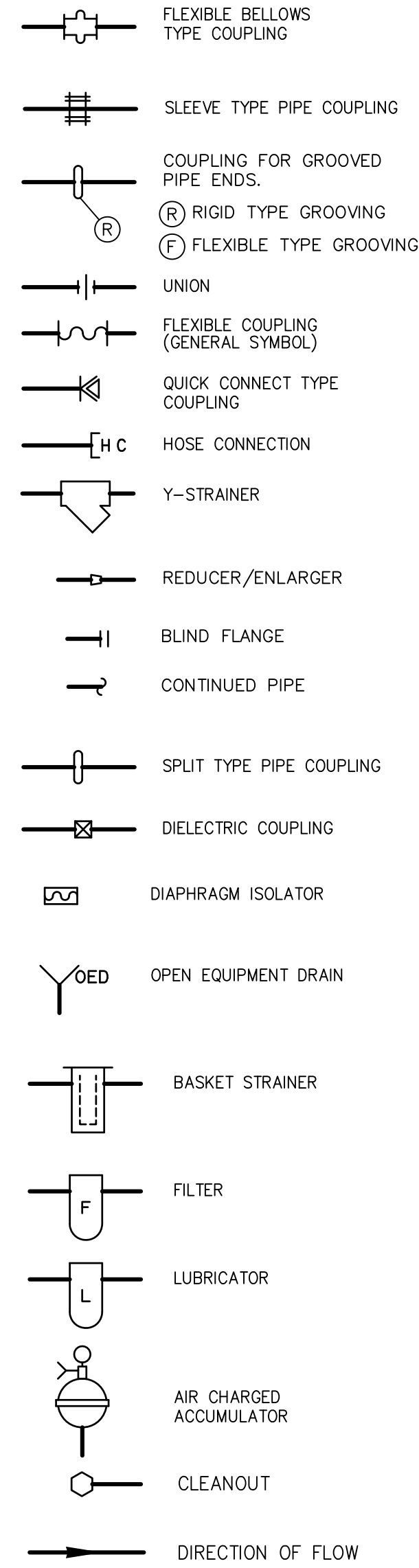
Sht. 259 of 386

**I-10**

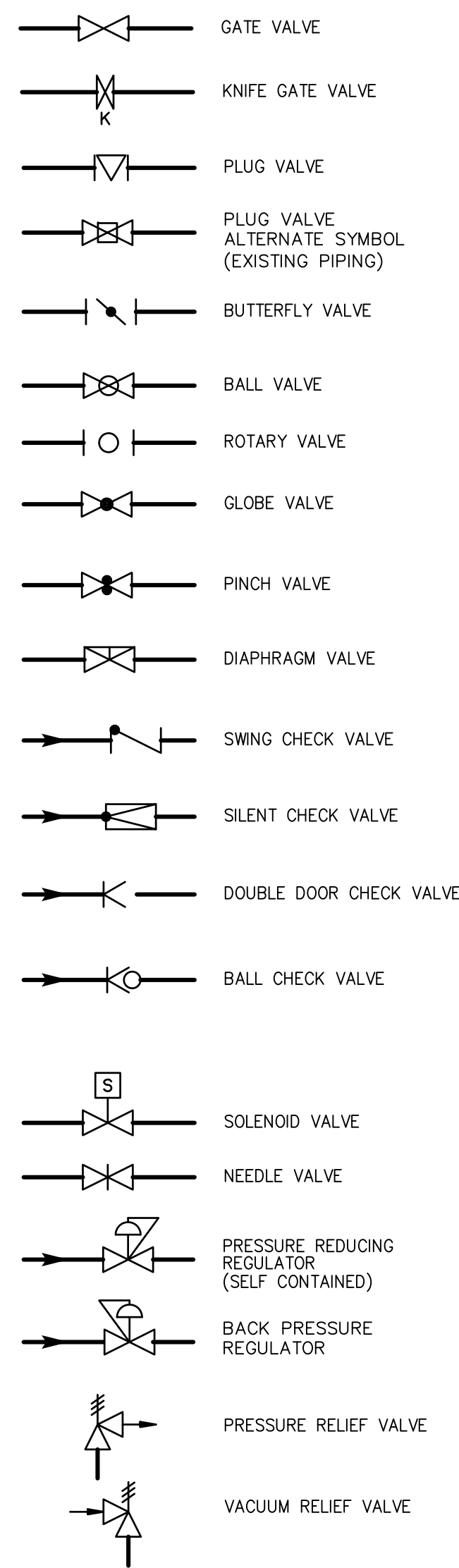
### PIPE LINE SYMBOLS



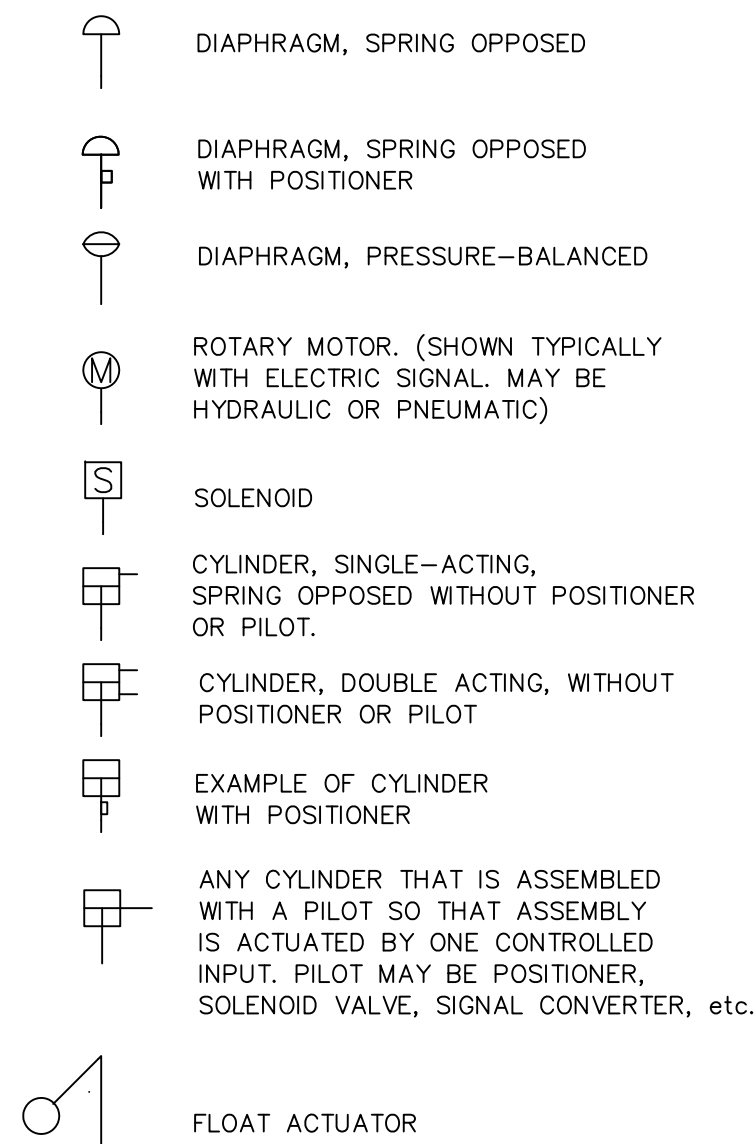
### MISCELLANEOUS FITTINGS AND PIPING COMPONENTS



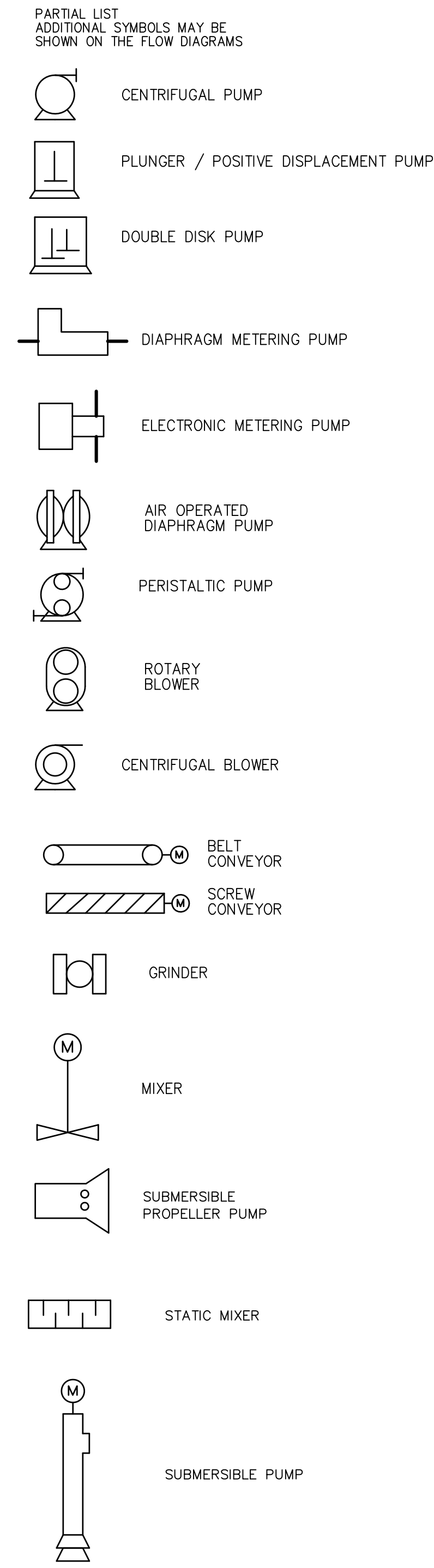
### VALVE SYMBOLS



### VALVE ACTUATORS



### MISCELLANEOUS SYMBOLS



### NOTES

- REFER TO SHEET P&ID-L2 FOR ADDITIONAL INSTRUMENTATION EQUIPMENT IDENTIFICATION, LINE SYMBOLS, ADDITIONAL ABBREVIATIONS AND INSTRUMENT TAGGING CONVENTIONS.
- THIS IS A GENERAL P&ID LEGEND SHEET. SOME SYMBOLS OR NOTATIONS MAY NOT BE USED ON THIS PROJECT.
- STANDARD DETAILS SHALL BE USED FOR ALL PERMANENT WORK EVEN THOUGH THEY ARE NOT CALLED OUT AT ALL LOCATIONS WHERE THEY APPLY.

### SCADA AND VENDOR PANEL LEGEND

CPP-1	SCADA PLC CONTROL PROCESSOR PANEL NUMBER ONE (LOCATED IN EAST SCREENING & GRIT FACILITY'S ELECTRICAL ROOM)	FSS-141-1 TO 155-1	MHF NO.1 BURNER NO.1 TO 15 FLAME SAFETY SYSTEM (LOCATED AT EACH BURNER)
CPP-2	SCADA PLC CONTROL PROCESSOR PANEL NUMBER TWO (LOCATED IN PRIMARY SETTLING TANKS BUILDING'S NORTH ELECTRICAL ROOM)	FSS-141-3 TO 155-3	MHF NO.3 BURNER NO.1 TO 15 FLAME SAFETY SYSTEM (LOCATED AT EACH BURNER)
RIOP-2A	SCADA PLC ON REMOTE I/O PANEL NUMBER TWO A (LOCATED IN PRIMARY SETTLING TANKS BUILDING'S SOUTH ELECTRICAL ROOM)		
CPP-3	SCADA PLC CONTROL PROCESSOR PANEL NUMBER THREE (LOCATED IN SLUDGE HOLDING TANKS BUILDING'S ELECTRICAL ROOM)		
CPP-4	SCADA PLC CONTROL PROCESSOR PANEL NUMBER FOUR (LOCATED IN DISINFECTION FACILITY'S ELECTRICAL ROOM)		
CPP-5	SCADA PLC CONTROL PROCESSOR PANEL NUMBER FIVE (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM'S ELECTRICAL ROOM) (FOR CEM-1)		
CPP-6	SCADA PLC CONTROL PROCESSOR PANEL NUMBER SIX (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM'S ELECTRICAL ROOM) (FOR CEM-2)		
CPP-7	SCADA PLC CONTROL PROCESSOR PANEL NUMBER SEVEN (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM) (FOR SCRUBBER-1)		
ICP-1	INCINERATOR CONTROL PANEL NUMBER ONE (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM) (FOR MHF-1 & SCRUBBER-1) (RIOP-7A & MHF-1 MSS ARE LOCATED IN THIS PANEL)		
RIOP-7A	SCADA PLC ON REMOTE I/O PANEL NUMBER SEVEN A (LOCATED IN ICP-1) (FOR MHF-1 & SCRUBBER-1)		
MHF-1	MULTIPLE HEARTH FURNACE ONE MAIN SAFETY SYSTEM MSS (LOCATED IN ICP-1) (FOR MHF-1 & SCRUBBER-1)		
CPP-8	SCADA PLC CONTROL PROCESSOR PANEL NUMBER EIGHT (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM) (FOR SCRUBBER-3)		
ICP-3	INCINERATOR CONTROL PANEL NUMBER THREE (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM) (FOR MHF-3 & SCRUBBER-3) (RIOP-8A & MHF-3 MSS ARE LOCATED IN THIS PANEL)		
RIOP-8A	SCADA PLC ON REMOTE I/O PANEL NUMBER EIGHT A (LOCATED IN ICP-3) (FOR MHF-3 & SCRUBBER-3)		
MHF-3	MULTIPLE HEARTH FURNACE THREE MAIN SAFETY SYSTEM MSS (LOCATED IN ICP-3) (FOR MHF-3 & SCRUBBER-3)		
CPP-9	SCADA PLC CONTROL PROCESSOR PANEL NUMBER NINE (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM) (RTO-1)		
RIOP-9A	SCADA PLC ON REMOTE I/O PANEL NUMBER NINE A (LOCATED OUTSIDE, AT GROUND FLOOR LEVEL OF RTO NO. 1)		
RTO-1	RTO ONE FLAME SAFETY CONTROL PANEL (LOCATED OUTSIDE, AT TOP LEVEL OF RTO. NO. 1) (RIOP-9B & RTO-1 FSS ARE LOCATED IN THIS PANEL)		
RIOP-9B	SCADA PLC ON REMOTE I/O PANEL NUMBER NINE B (LOCATED IN RTO-1 FSCP) (FOR RTO-1)		
RTO-1	RTO ONE FLAME SAFETY SYSTEM (LOCATED IN RTO-1 FSCP) (FOR RTO-1)		
CPP-10	SCADA PLC CONTROL PROCESSOR PANEL NUMBER TEN (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM) (RTO-2)		
RIOP-10A	SCADA PLC ON REMOTE I/O PANEL NUMBER TEN A (LOCATED OUTSIDE, AT GROUND FLOOR LEVEL OF RTO NO. 2)		
RTO-2	RTO TWO FLAME SAFETY CONTROL PANEL (LOCATED OUTSIDE, AT TOP LEVEL OF RTO. NO. 2) (RIOP-10B & RTO-2 FSS ARE LOCATED IN THIS PANEL)		
RIOP-10B	SCADA PLC ON REMOTE I/O PANEL NUMBER TEN B (LOCATED IN RTO-2 FSCP) (FOR RTO-2)		
RTO-2	RTO TWO FLAME SAFETY SYSTEM (LOCATED IN RTO-2 FSCP) (FOR RTO-2)		
CPP-11	SCADA PLC CONTROL PROCESSOR PANEL NUMBER ELEVEN (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM) (RTO-3)		
RIOP-11A	SCADA PLC ON REMOTE I/O PANEL NUMBER ELEVEN A (LOCATED OUTSIDE, AT GROUND FLOOR LEVEL OF RTO NO. 3)		
RTO-3	RTO THREE FLAME SAFETY CONTROL PANEL (LOCATED OUTSIDE, AT TOP LEVEL OF RTO. NO. 3) (RIOP-11B & RTO-3 FSS ARE LOCATED IN THIS PANEL)		
RIOP-11B	SCADA PLC ON REMOTE I/O PANEL NUMBER ELEVEN B (LOCATED IN RTO-3 FSCP) (FOR RTO-3)		
RTO-3	RTO THREE FLAME SAFETY SYSTEM (LOCATED IN RTO-3 FSCP) (FOR RTO-3)		
CPP-12	SCADA PLC CONTROL PROCESSOR PANEL NUMBER TWELVE (LOCATED IN SLUDGE PROCESSING FACILITY'S RTO CONTROL ROOM) (FOR SLUDGE FACILITY)		
RIOP-12A	SCADA PLC REMOTE I/O PANEL NUMBER TWELVE A (LOCATED IN SLUDGE PROCESSING FACILITY) (FOR SLUDGE FACILITY)		
CPP-13	SCADA PLC CONTROL PROCESSOR PANEL NUMBER THIRTEEN (LOCATED AT WEIGH STATION)		
CPP-14	SCADA PLC CONTROL PROCESSOR PANEL NUMBER FOURTEEN (LOCATED IN WEST SCREENING & GRIT FACILITY'S ELECTRICAL ROOM)		
CPP-15	SCADA PLC CONTROL PROCESSOR PANEL NUMBER FIFTEEN (LOCATED IN PLANT WATER PUMP STATION)		

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
	3/07	SPV	ADT	REVISED FOR THE RECORD

CADD FILE NO.	ILEG0001.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	J. MADDEN
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**LEGEND SHEET I**

PROJECT NO. 1289\35370  
 Sht. 260 of 386  
**P&ID-L1**

### GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	LOCATION NORMALLY NOT ACCESSIBLE TO OPERATOR
PRIMARY LOCATION OR CONTROL PANEL			
SECONDARY LOCATION OR CONTROL PANEL			

- INDICATES A SINGLE INSTRUMENT OR OTHER COMPONENT HAVING MULTIPLE FUNCTIONS
- REPRESENTS EQUIPMENT SPECIFIED AND PROVIDED IN OTHER DIVISIONS AND SECTIONS, OTHER THAN THE INSTRUMENTATION SECTIONS.
- INDICATES INTERLOCK OR LOGIC IN A MOTOR STARTER
- INDICATES GENERAL OR MISCELLANEOUS HARDWIRED INTERLOCK
- SILICONE CONTROLLED RECTIFIER
- VARIABLE SPEED DRIVE
- LOGIC BLOCK
- LOGIC BLOCK
- MODEM

### GATE SYMBOLS

- SLUICE GATE (SLO)
- SLIDE GATE (SG)
- WEIR SLIDE GATE (WSG)
- STOP PLATE GUIDES
- STOP LOG GUIDES

### MISCELLANEOUS SYMBOLS

- MOTOR (CONSTANT SPEED)
- MOTOR (VARIABLE SPEED)
- SILICONE CONTROL RECTIFIER
- VARIABLE FREQUENCY DRIVE

### INSTRUMENTATION FUNCTIONAL CODE

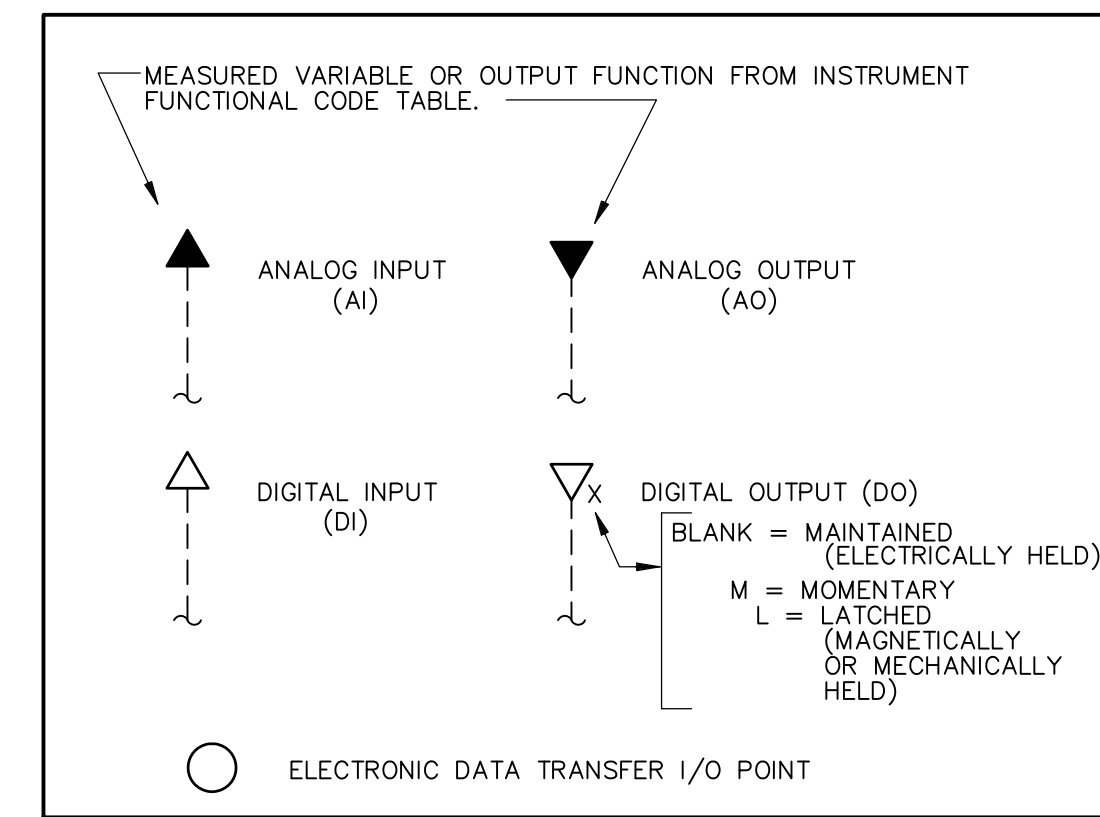
	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	( MODIFIER )	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	( MODIFIER )
A	ANALYSIS		ALARM		
B			(1)	(1)	(1)
C	(1) OR CONTROL			CONTROL	
D	DENSITY (1)	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO			
G	(1)		GLASS OR VIEWING DEVICE		
H	HAND ( MANUAL )				HIGH (OPENED)
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		PILOT LIGHT		LOW (CLOSED)
M	(1)	MOMENTARY		(1)	MIDDLE OR INTERMEDIATE
N	(1)		(1)	(1)	(1)
O	(1)		ORIFICE		(1)
P	PRESSURE OR VACUUM		POINT ( TEST CONNECTION )		
Q	QUANTITY	INTEGRATE OR TOTALIZE			
R			RECORD		
S	SPEED, FREQUENCY OR SOLENOID	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (2)		MULTIFUNCTION (2)	MULTIFUNCTION (2)	MULTIFUNCTION (2)
V	VIBRATION, MECH ANAL, WEIGHT OR FORCE		WELL		
X	STATUS OR UNCLASSIFIED			RELAY, COMPUTE OR CONVERT	
Y	EVENT, STATE OR PRESENCE			DRIVE, ACTUATE OR UNCLASSIFIED FINAL ELEMENT	
Z	POSITION				

TABLE NOTES:  
 (1) USER'S CHOICE  
 (2) WHEN USED SYMBOL OR SIGNAL LINE IS ANNOTATED.

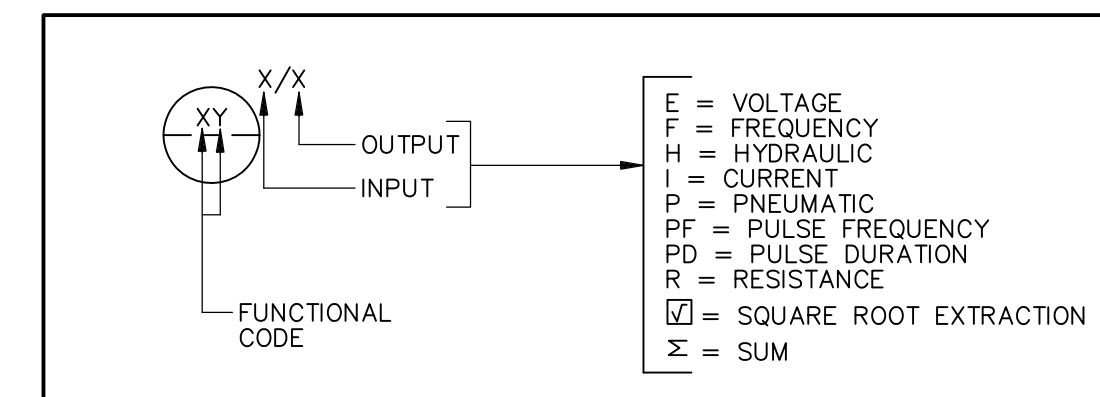
### INSTRUMENT LINE SYMBOLS

- ELECTRICAL SIGNAL
- TELEPHONE SIGNAL
- ELECTROMAGNETIC OR SONIC SIGNAL
- PNEUMATIC SIGNAL
- CAPILLARY TUBE
- HYDRAULIC SUPPLY
- INSTRUMENT SUPPLY OR CONNECTION TO PROCESS
- SCREENED INSTRUMENT LINES INDICATE EXISTING LINES TO REMAIN AS IS (ELECTRIC SIGNAL SHOWN - TYPICAL FOR OTHER SIGNALS)
- SOFTWARE OR DATA LINK SIGNAL
- RADIO SIGNAL
- ES ---> ELECTRICAL SOURCE
- IA ---> INSTRUMENT AIR SOURCE

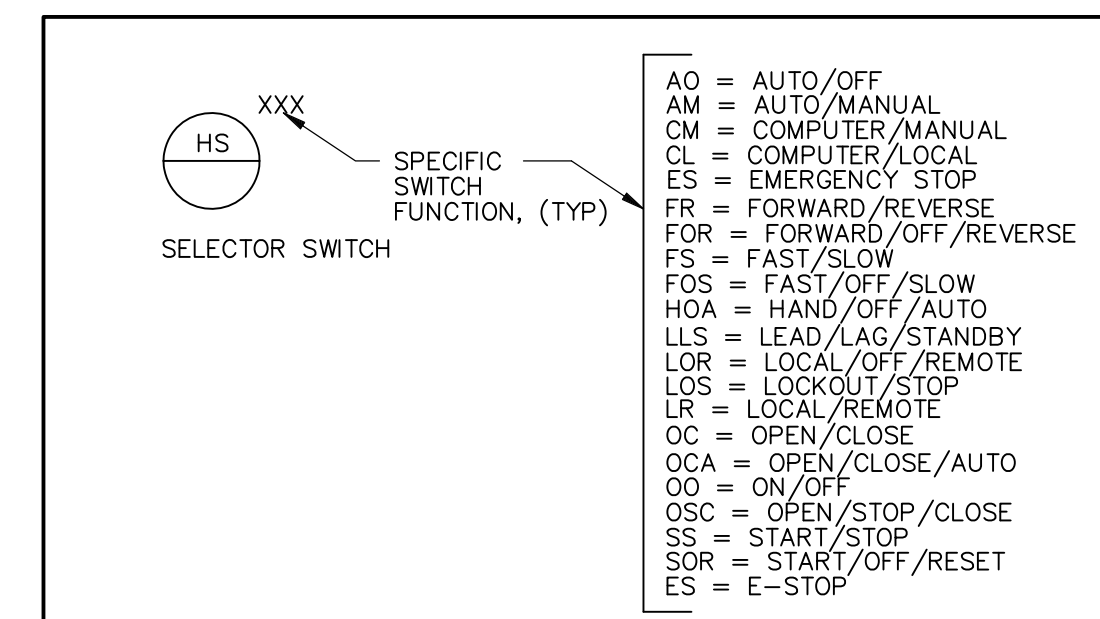
### I/O SIGNALS



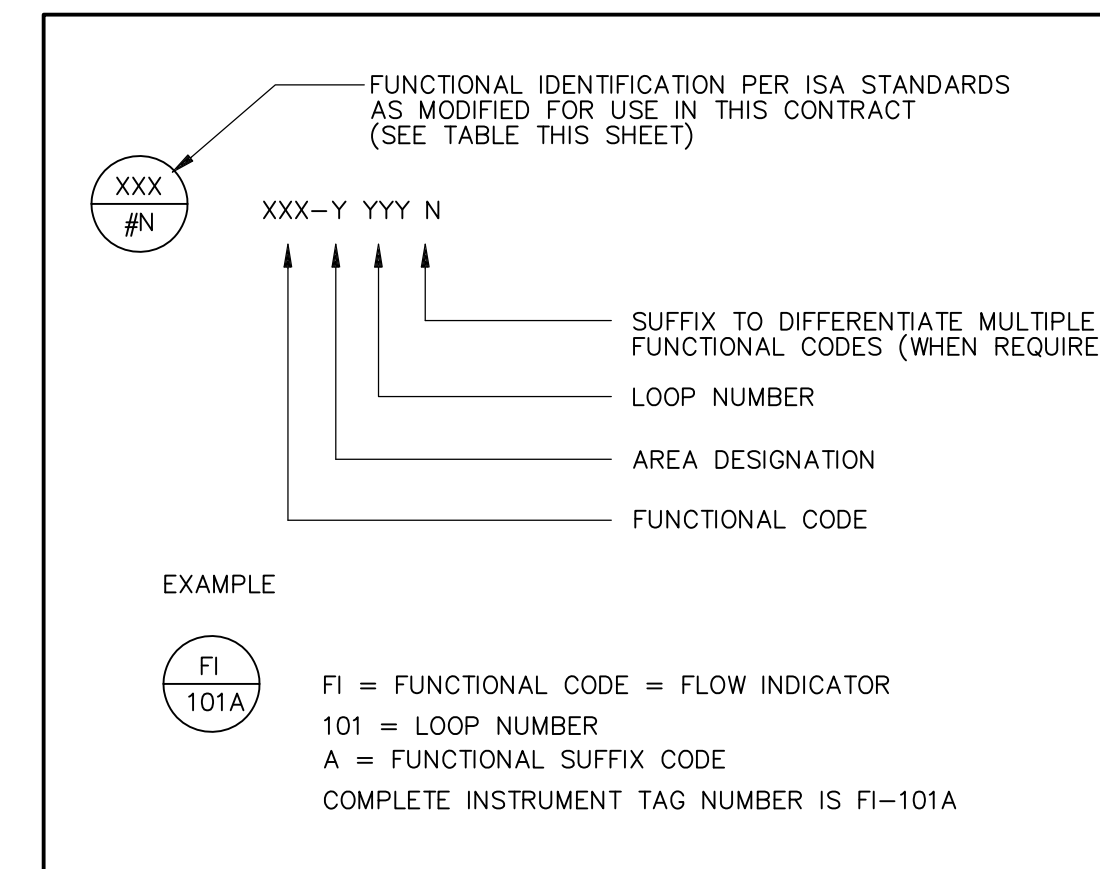
### SIGNAL CONVERTERS



### HAND SWITCHES



### INSTRUMENTATION TAGGING



### GENERAL NOTES

- REFER TO SHEET P&ID-L1 FOR ADDITIONAL NOTES.
- ALL NECESSARY VALVES ARE NOT SHOWN ON THE P&ID'S FOR CLARITY. PROVIDE ISOLATION VALVES ON ALL SAMPLE LINES TO SENSORS, 2 VALVE MANIFOLDS FOR ALL ABSOLUTE AND GAUGE PRESSURE DEVICES, AND FIVE VALVE MANIFOLDS FOR ALL DIFFERENTIAL PRESSURE DEVICES.
- EQUIPMENT AND PIPING SHOWN IN LIGHTER LINE WEIGHT INDICATE EXISTING EQUIPMENT.
- EFFLUENT FLUSHING WATER AND "SEAL" WATER LINES ARE SHOWN DIAGRAMMATICALLY. FOR THE ACTUAL PIPING REFER TO THE MECHANICAL DRAWINGS.
- LIGHTER WEIGHT LINES, SHOWN AS \_\_\_\_\_, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE EXISTING. WEIGHTED LINES, SHOWN AS \_\_\_\_\_, OR HEAVIER \_\_\_\_\_, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE NEW.

### PRIMARY ELEMENTS

- MAGNETIC FLOW METER
- TURBINE FLOW METER
- VENTURI TUBE
- ROTAMETER
- ROTAMETER
- PROBE
- PRESSURE GAUGE
- DIFFERENTIAL PRESSURE GAUGE
- TEMPERATURE GAUGE
- MECHANICAL READOUT FLOW METER
- INDICATOR LIGHT
- ULTRASONIC INLINE FLOW METER
- ULTRASONIC FLOW METER
- ULTRASONIC LEVEL ELEMENT
- ORIFICE PLATE

### RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. ILEG0002.DWG
DESIGNED BY: P. MALACHOWSKI
DRAWN BY: W. FELDER
SHEET CHK'D BY: J. MADDEN
SCALE: NONE
APPROVED BY: E. MICHNOVEZ
DATE: MAY 2006



**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

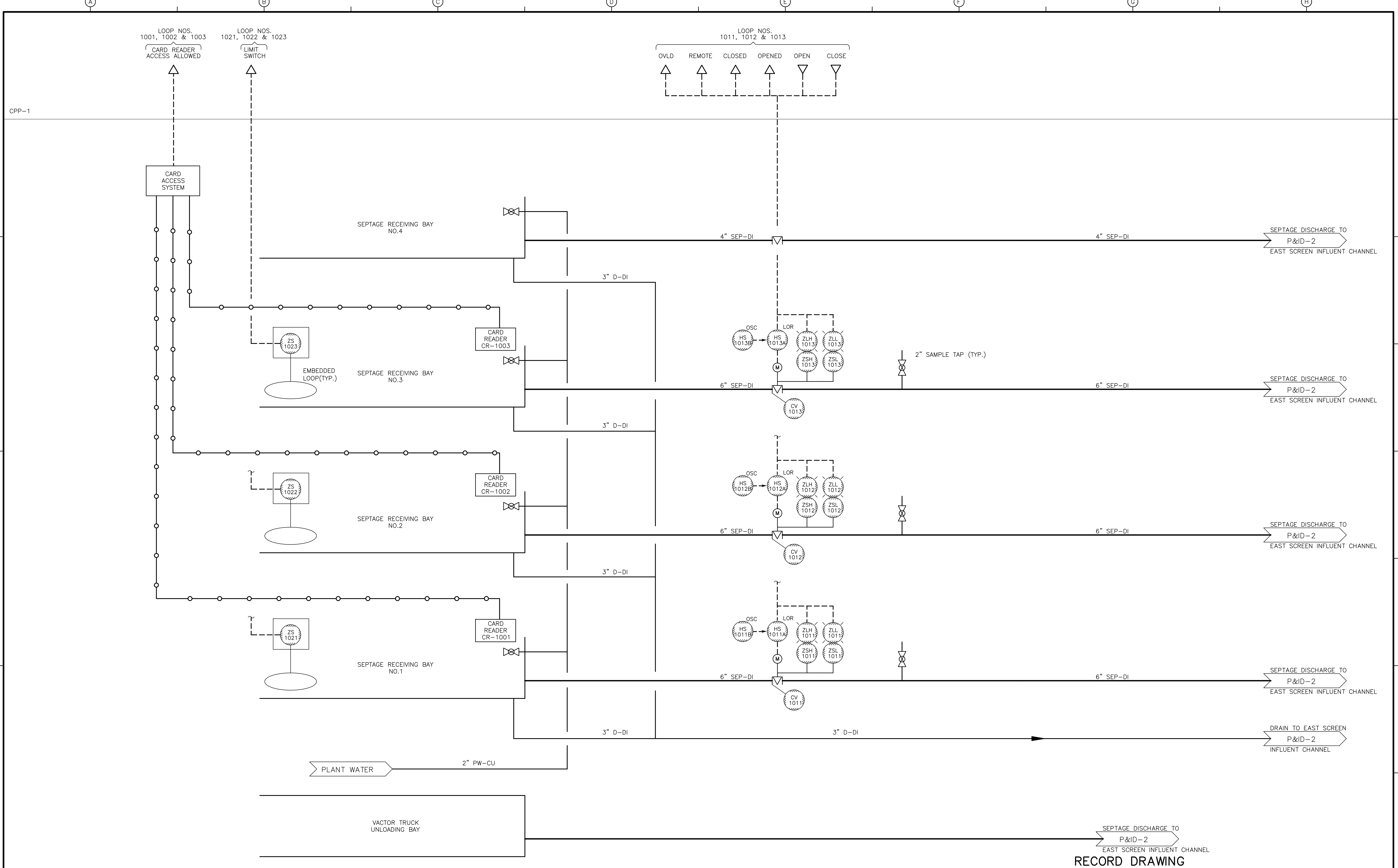
### LEGEND SHEET II

PROJECT NO. 1289\35370

Sht. 261 of 386

P&ID-L2

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
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SEPTAGE DISCHARGE TO  
 P&ID-2  
 EAST SCREEN INFLUENT CHANNEL  
**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

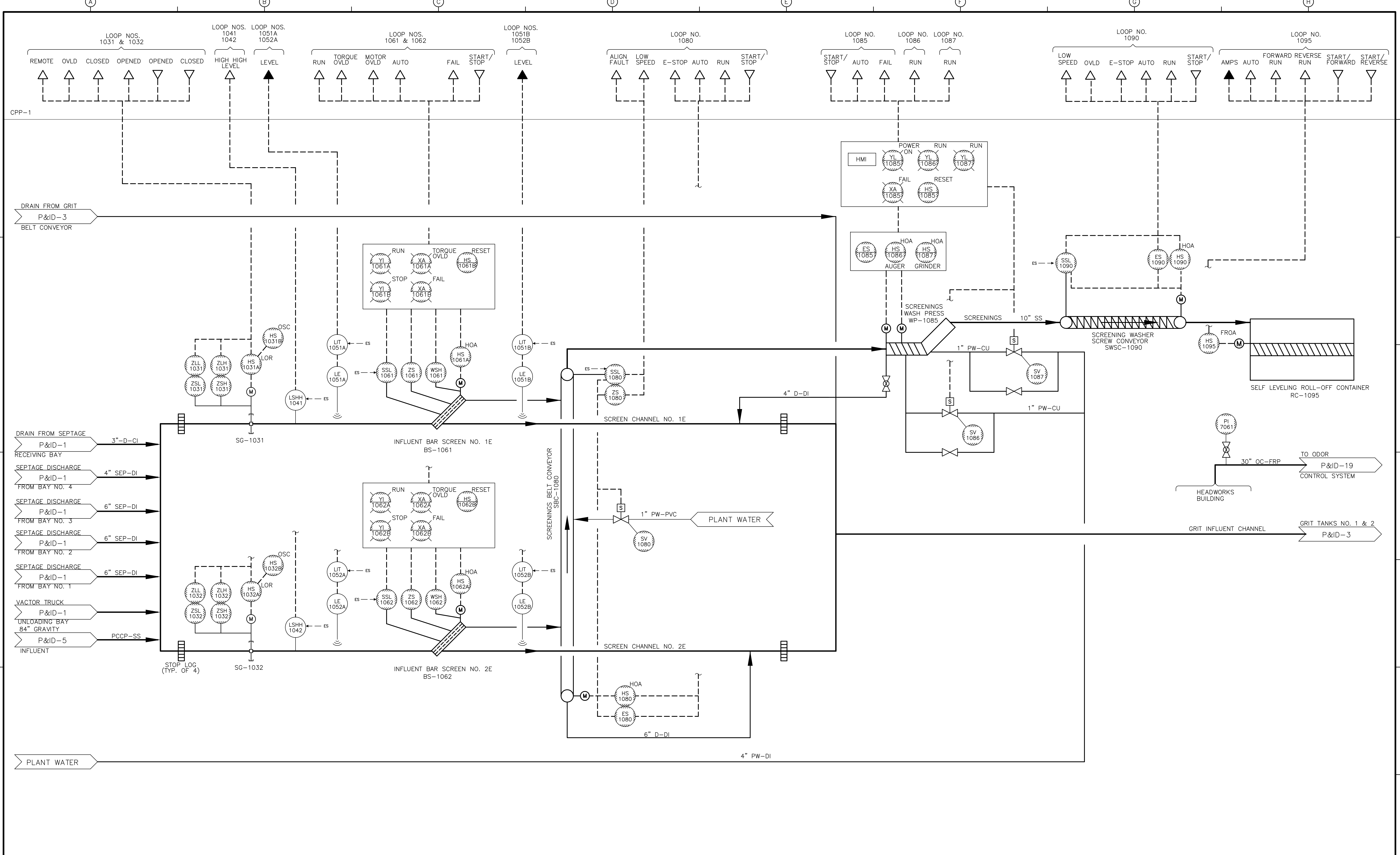
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 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: M. DRAINVILLE  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SEPTAGE RECEIVING SYSTEM**  
**P&ID-1**

PROJECT NO.  
 1289\35370  
 Sht. 262 of 386  
 ACCESSION NO. 1289-



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

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 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: M. DRAINVILLE  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

CDM  
 Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

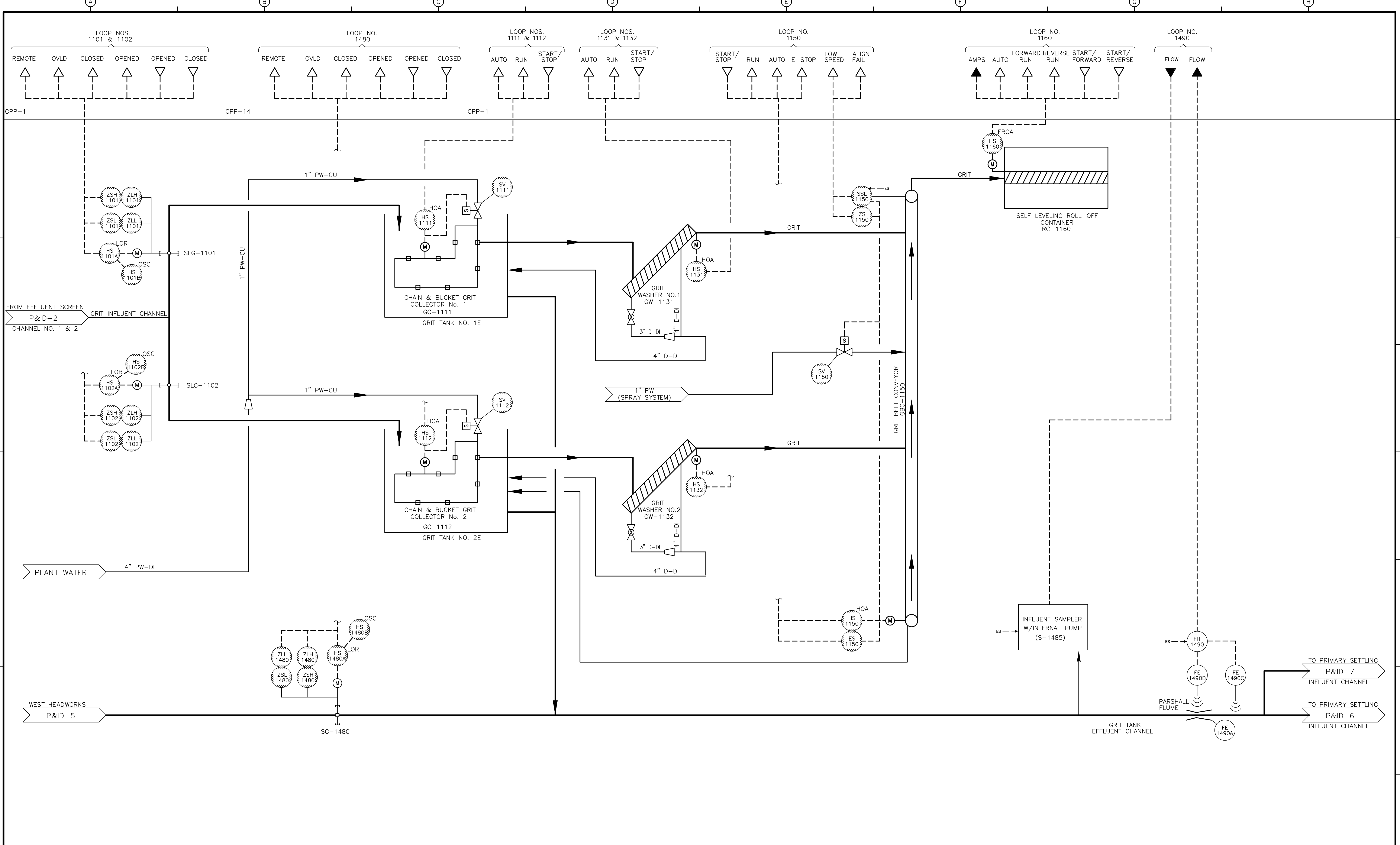
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

EAST HEADWORKS/  
 EAST SCREENING REMOVAL SYSTEM

PROJECT NO.  
 1289\35370  
 Sht. 263 of 386  
 P&ID-2  
 ACCESSION NO. 1289-65683

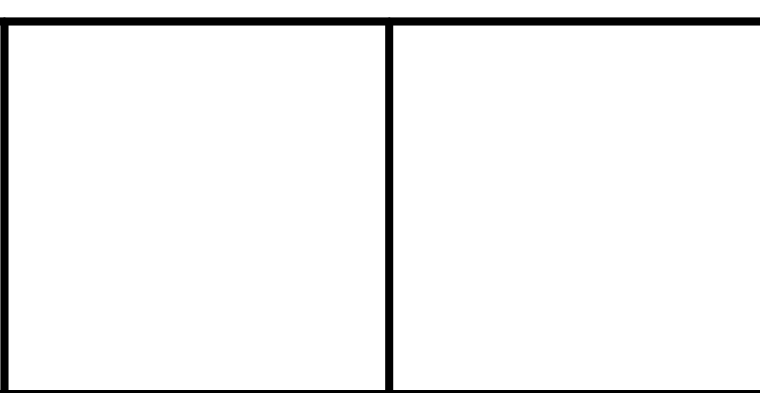




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 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: M. DRAINVILLE  
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 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

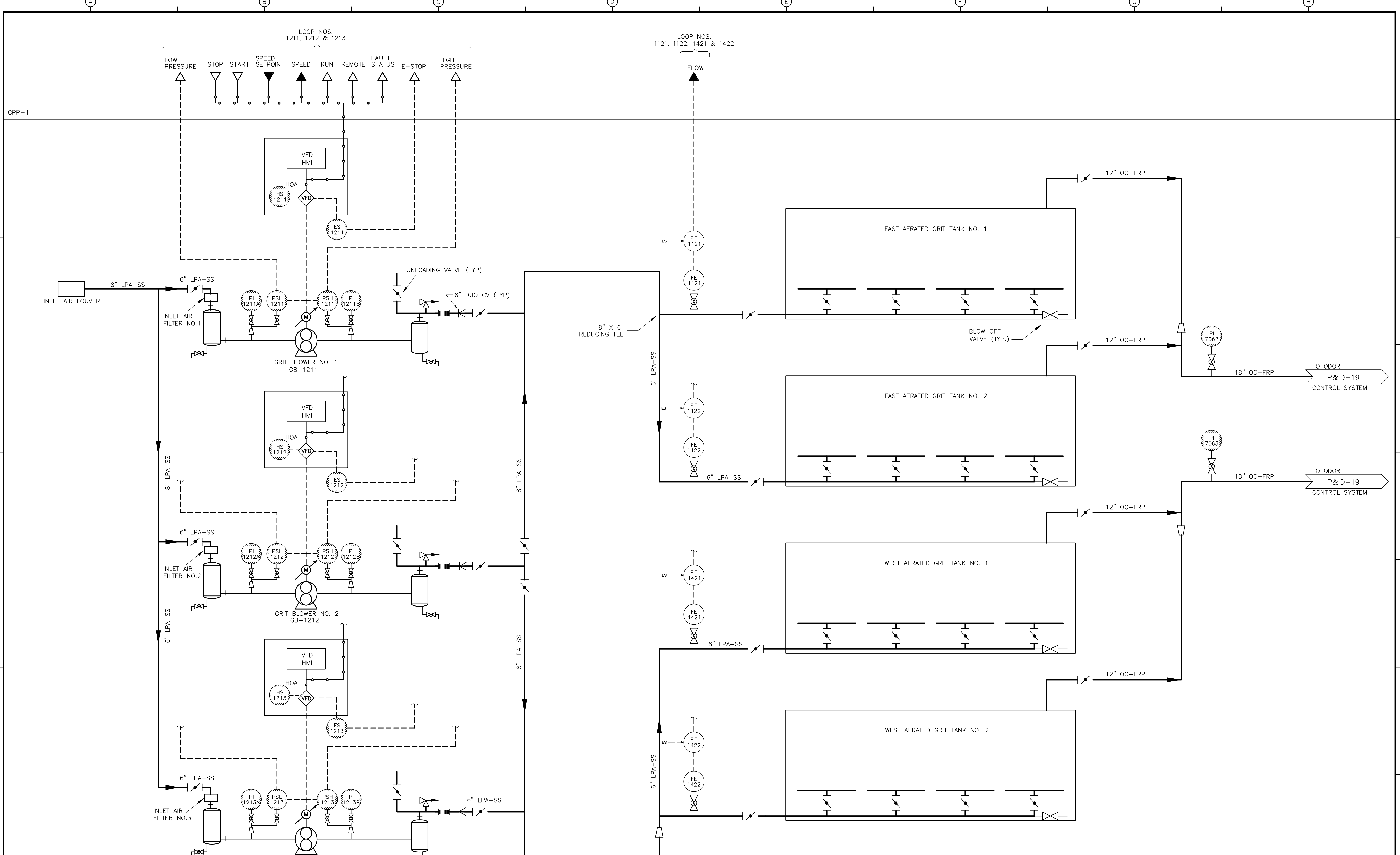


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

EAST GRIT REMOVAL SYSTEM

PROJECT NO. 1289\35370  
 Sht. 264 of 386  
 P&ID-3



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

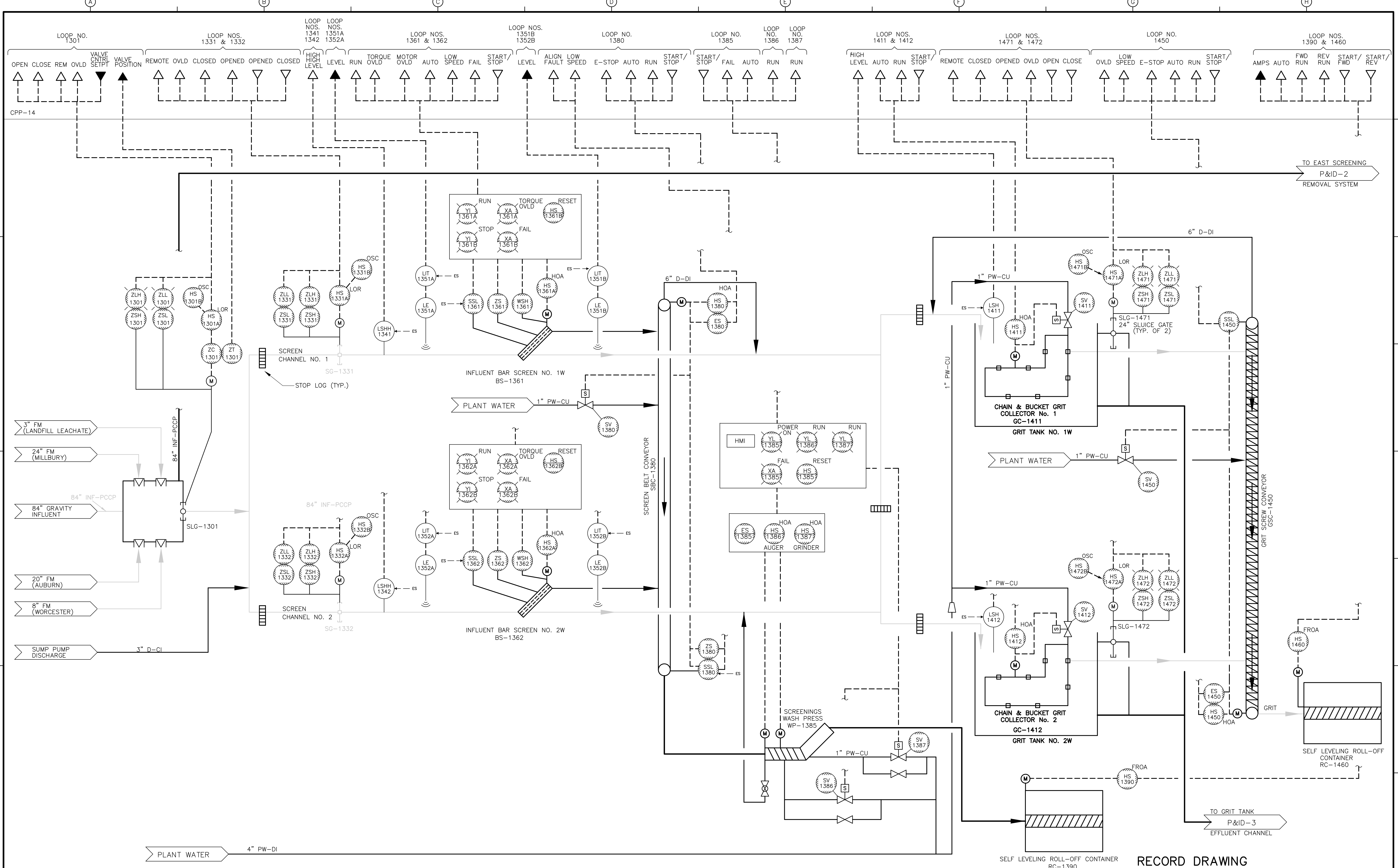
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 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: M. DRAINVILLE  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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 construction  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**EAST & WEST  
 GRIT TANK AERATION  
 SYSTEM**

PROJECT NO.  
 1289\35370  
 Sht. 265 of 386  
**P&ID-4**  
ACCESSION NO. 1289-55865



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

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 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: M. DRAINVILLE  
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 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

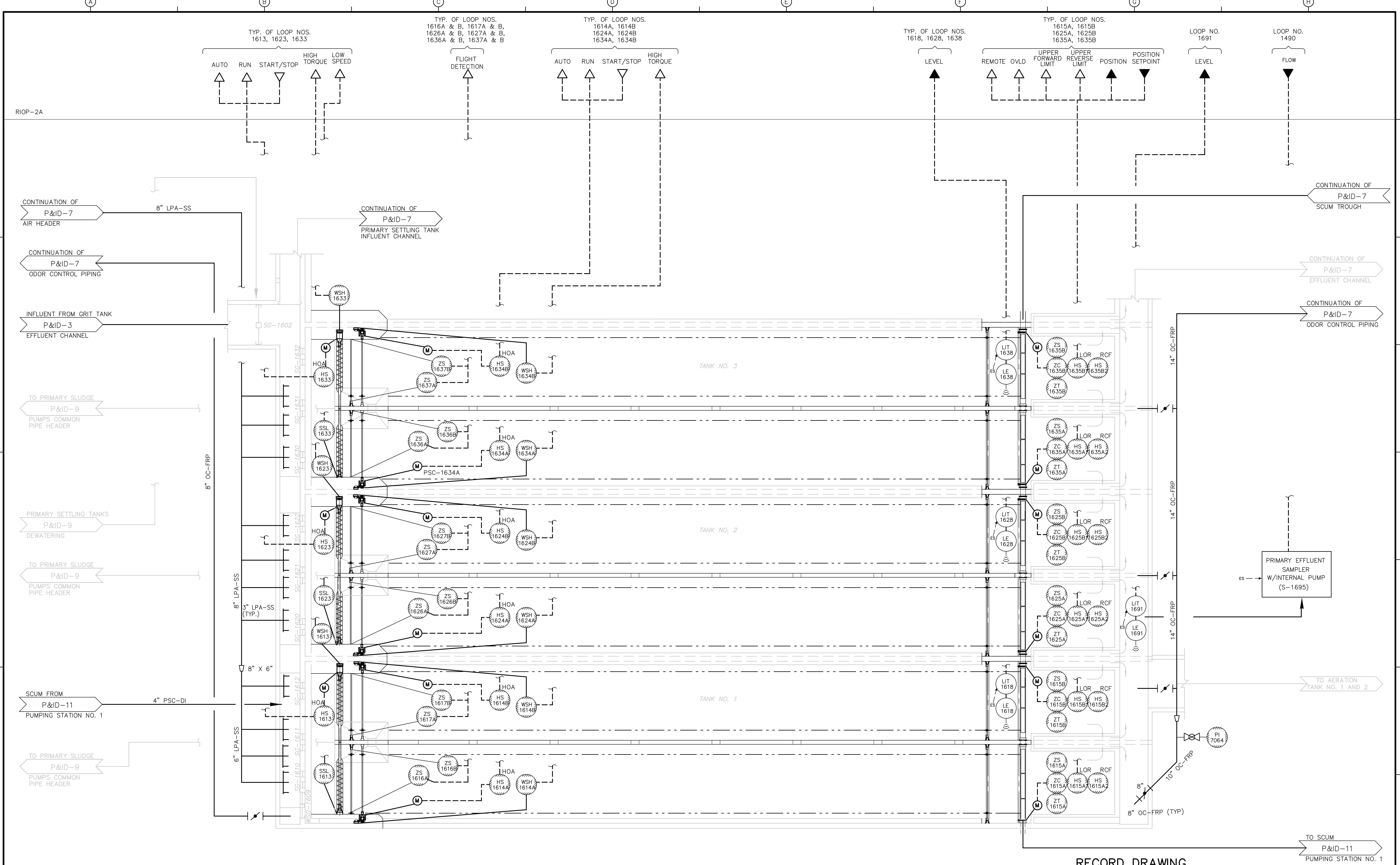
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 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WEST HEADWORKS/  
 WEST SCREENINGS REMOVAL SYSTEM

PROJECT NO.  
 1289\35370  
 Sht. 266 of 386  
**P&ID-5**

RECORD DRAWING



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. IPID006.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: W. GREEN  
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 DATE: MAY 2006

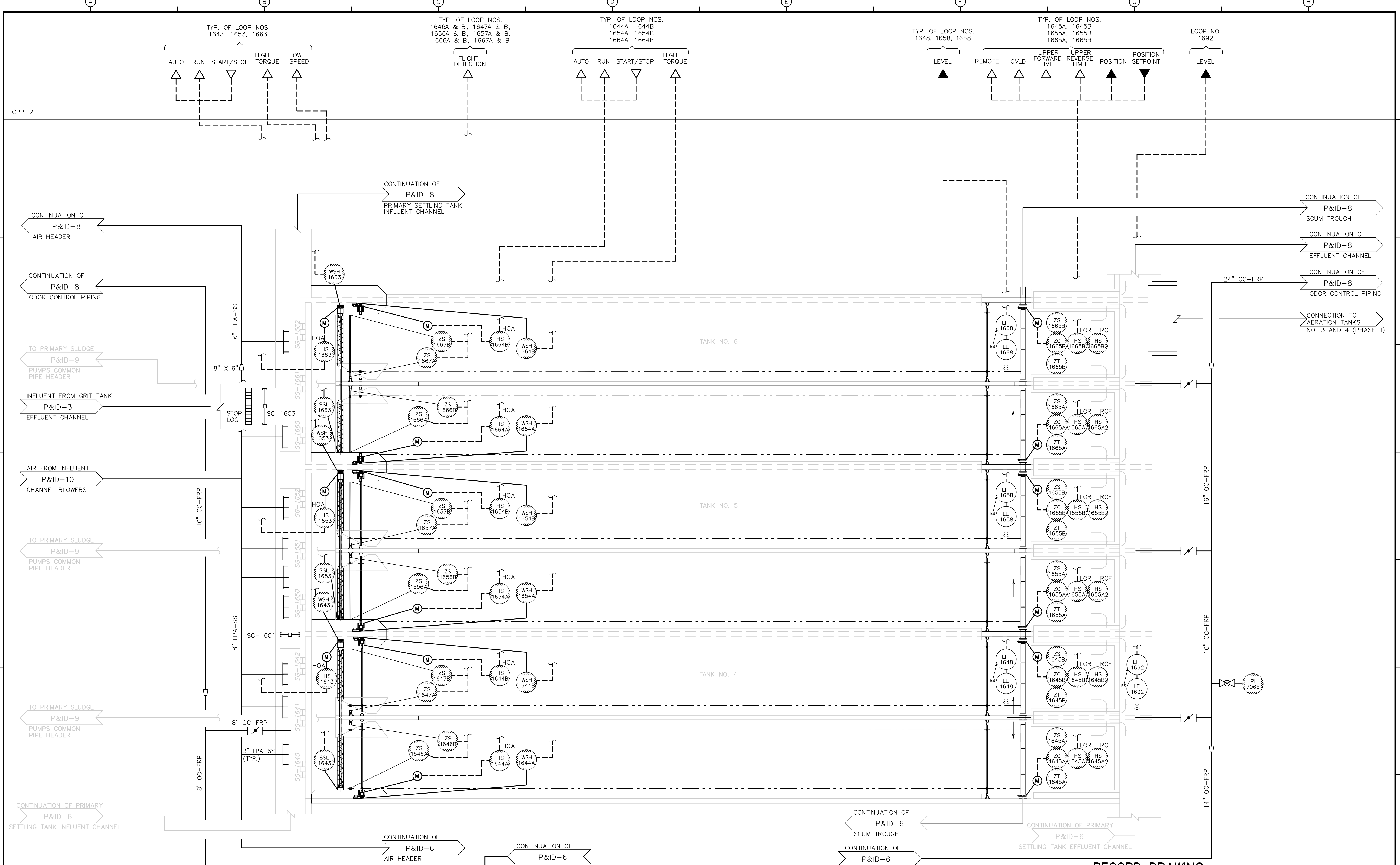
CDM  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

PRIMARY SETTLING TANKS NO. 1-3  
 P&ID-6

PROJECT NO.  
 1289\35370  
 Sht. 267 of 386  
 P&ID-6  
 ACCESSION NO. 1289-65867



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	PIID0007.DWG
DESIGNED BY:	W. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	W. GREEN
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

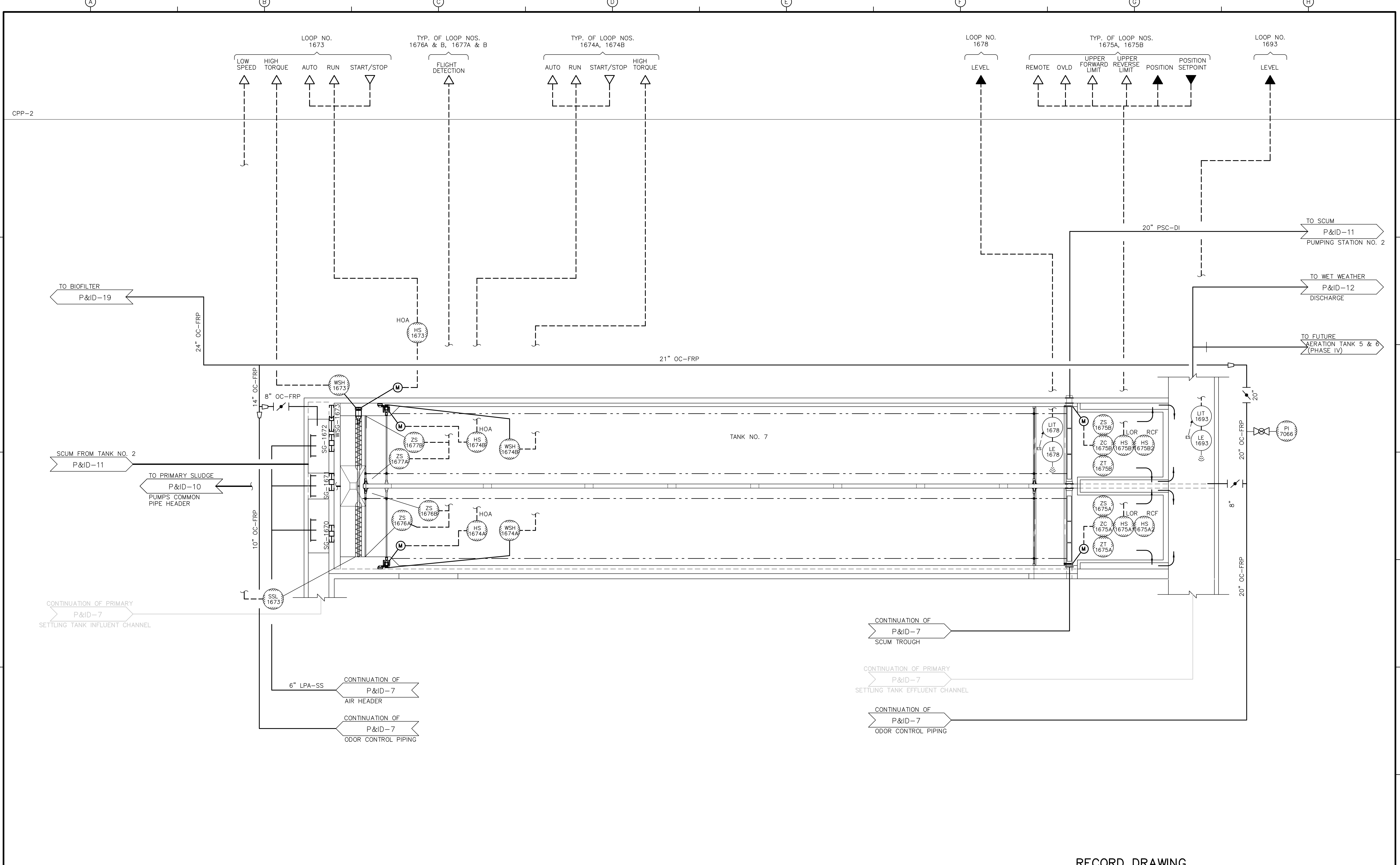
**UPPER BLACKSTONE**  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**PRIMARY SETTLING TANKS NO. 4-6**

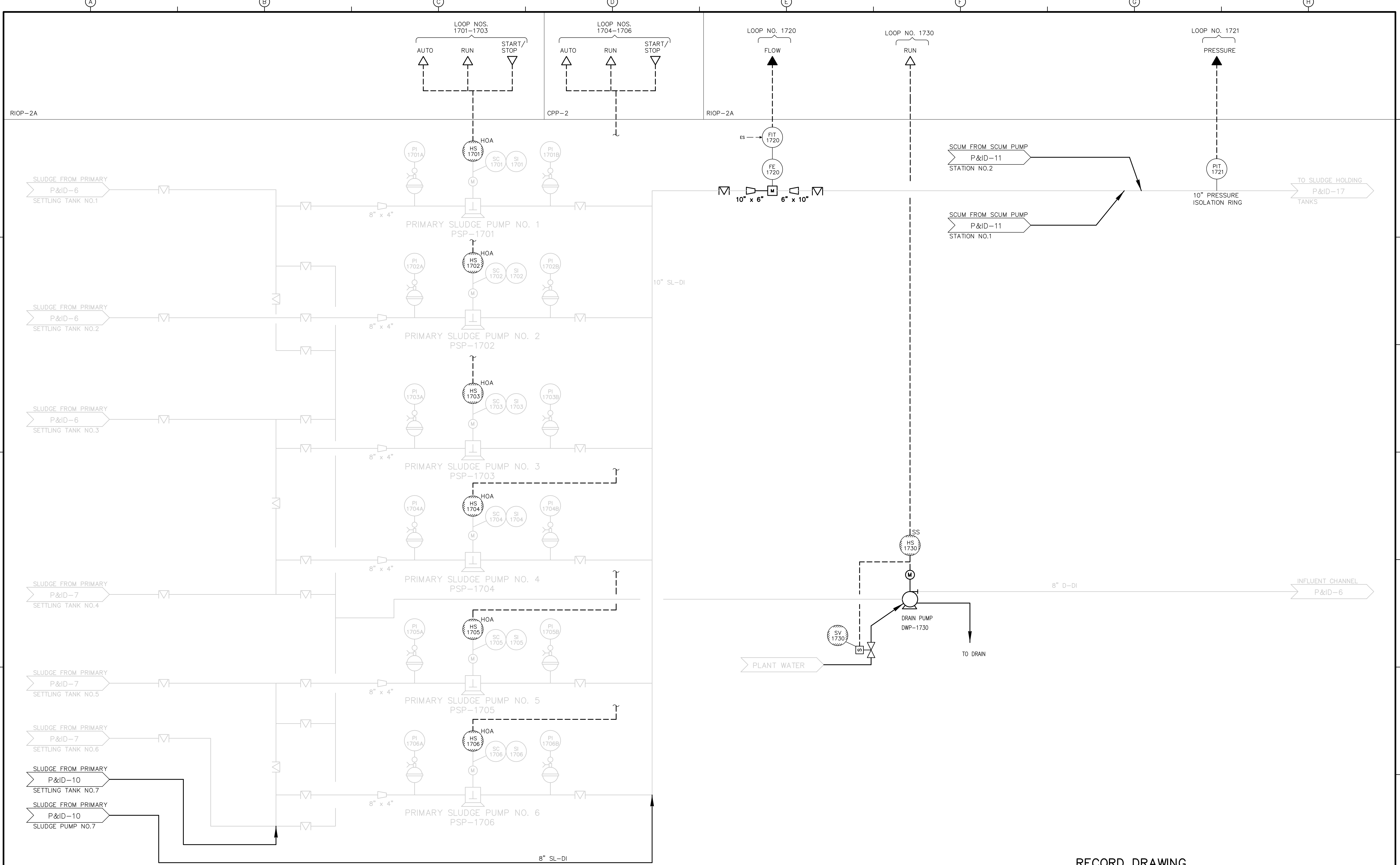
**P&ID-7**

PROJECT NO. 1289\35370  
 Sht. 268 of 386  
 ACCESSION NO. 1289-6568



RECORD DRAWING

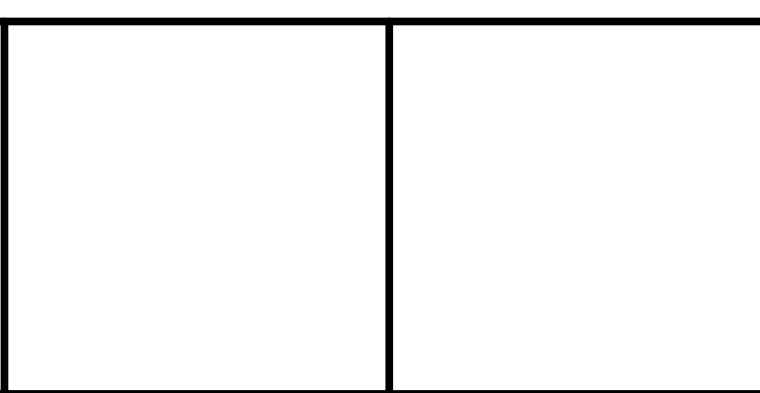
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				DESIGNED BY: <u>P. MALACHOWSKI</u>			
				DRAWN BY: <u>W. FELDER</u>			
				SHEET CHK'D BY: <u>W. GREEN</u>			
				SCALE: <u>NONE</u>	<b>WASTEWATER TREATMENT FACILITY                  IMPROVEMENTS</b>	<b>PRIMARY SETTLING TANK NO. 7</b>	ACCESSION NO. 1289-65889
				APPROVED BY: <u>E. MICHNOVEZ</u>			
				DATE: <u>MAY 2006</u>			
REV. NO.	DATE	DRWN	CHKD	REMARKS			
	3/07	SPV	ADT	REVISED FOR THE RECORD			



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. IPID0009.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: W. GREEN  
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 DATE: MAY 2006

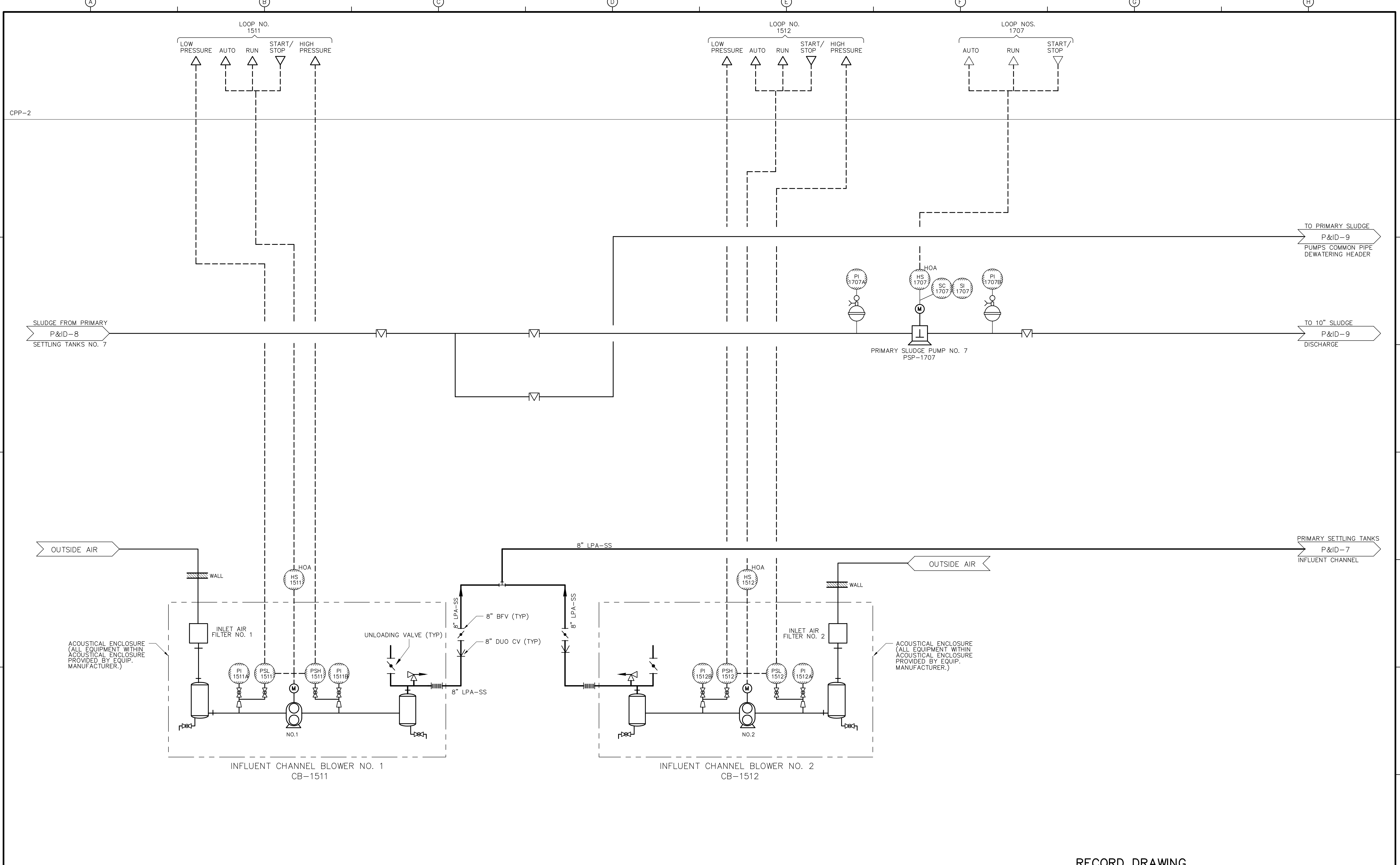


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SLUDGE PUMPS NO. 1-6**

PROJECT NO. 1289\35370  
 Sht. 270 of 386  
**P&ID-9**  
ACCESSION NO. 1289-65870



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	W. GREEN
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

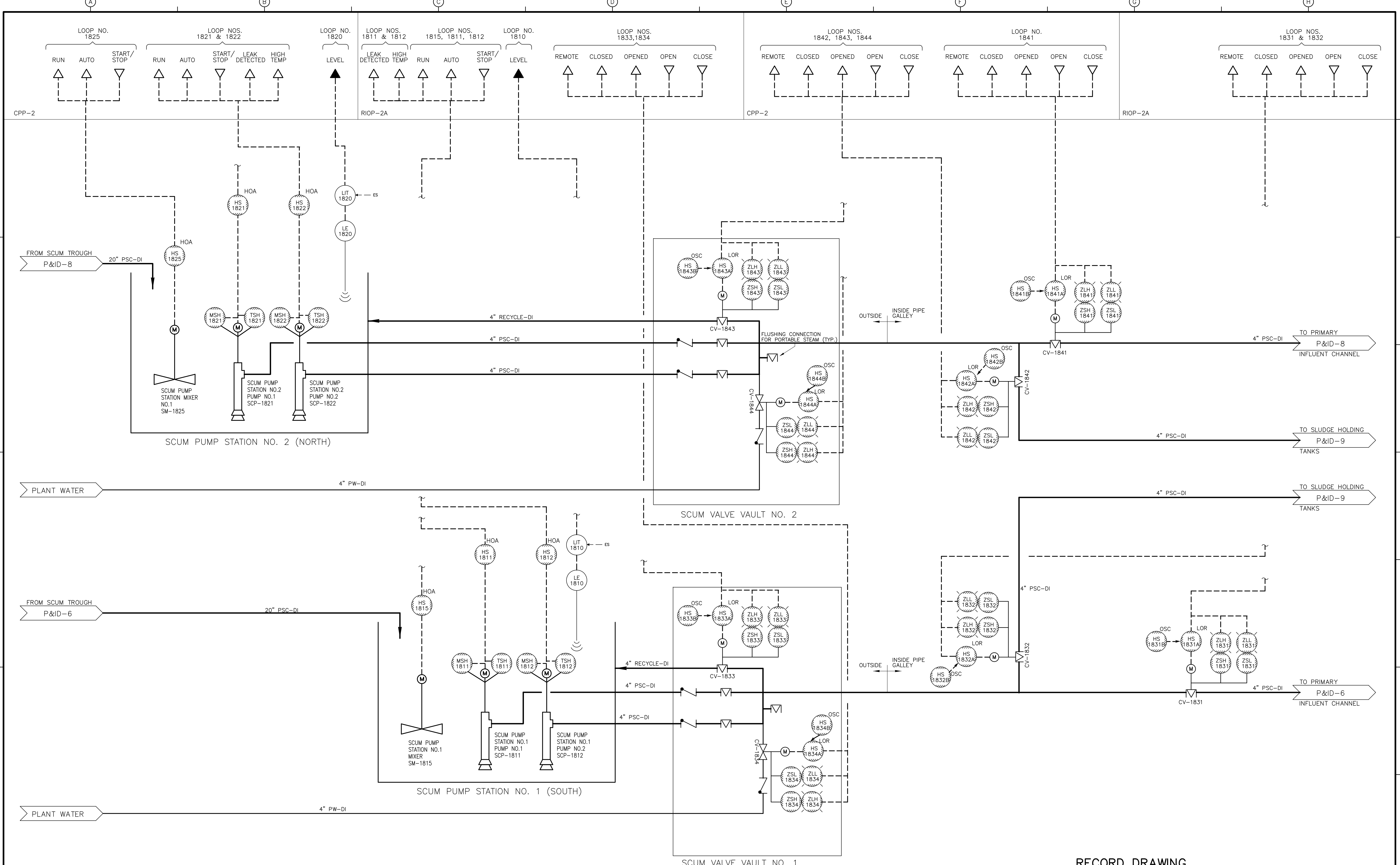
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SLUDGE PUMP NO. 7  
 AND  
 INFLUENT CHANNEL BLOWERS**

PROJECT NO.	1289\35370
Sht.	271 of 386
<b>P&amp;ID-10</b>	



[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File name: P:\1289\35370\PHASE1\RECORD\INST\PID0011.dwg Xref's: [C24X36H, ] Plotted by: CROSSHA Time: 12/16/08 6:31:06 PM



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REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: W. GREEN  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

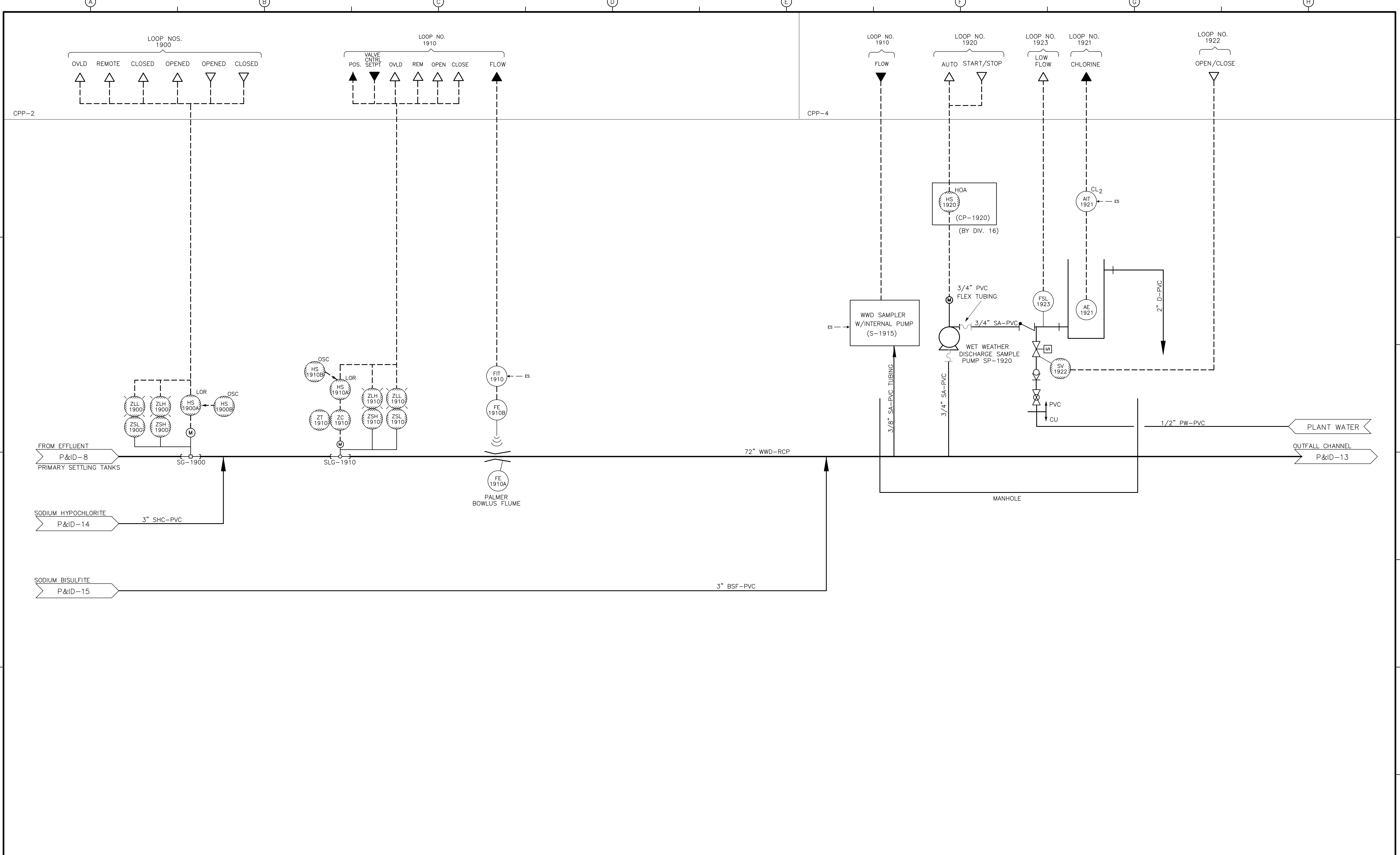
CDM  
 Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

PROJECT NO.  
 1289\35370  
 Sht. 272 of 386  
**P&ID-11**

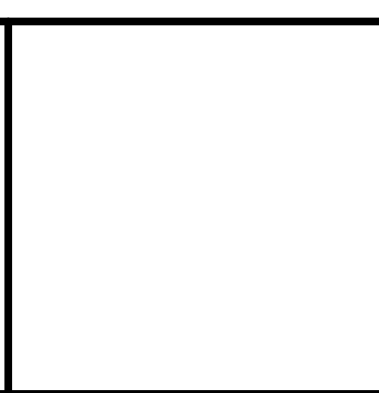
ACCESSION NO. 1289-65872



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	K. SANGREY
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006



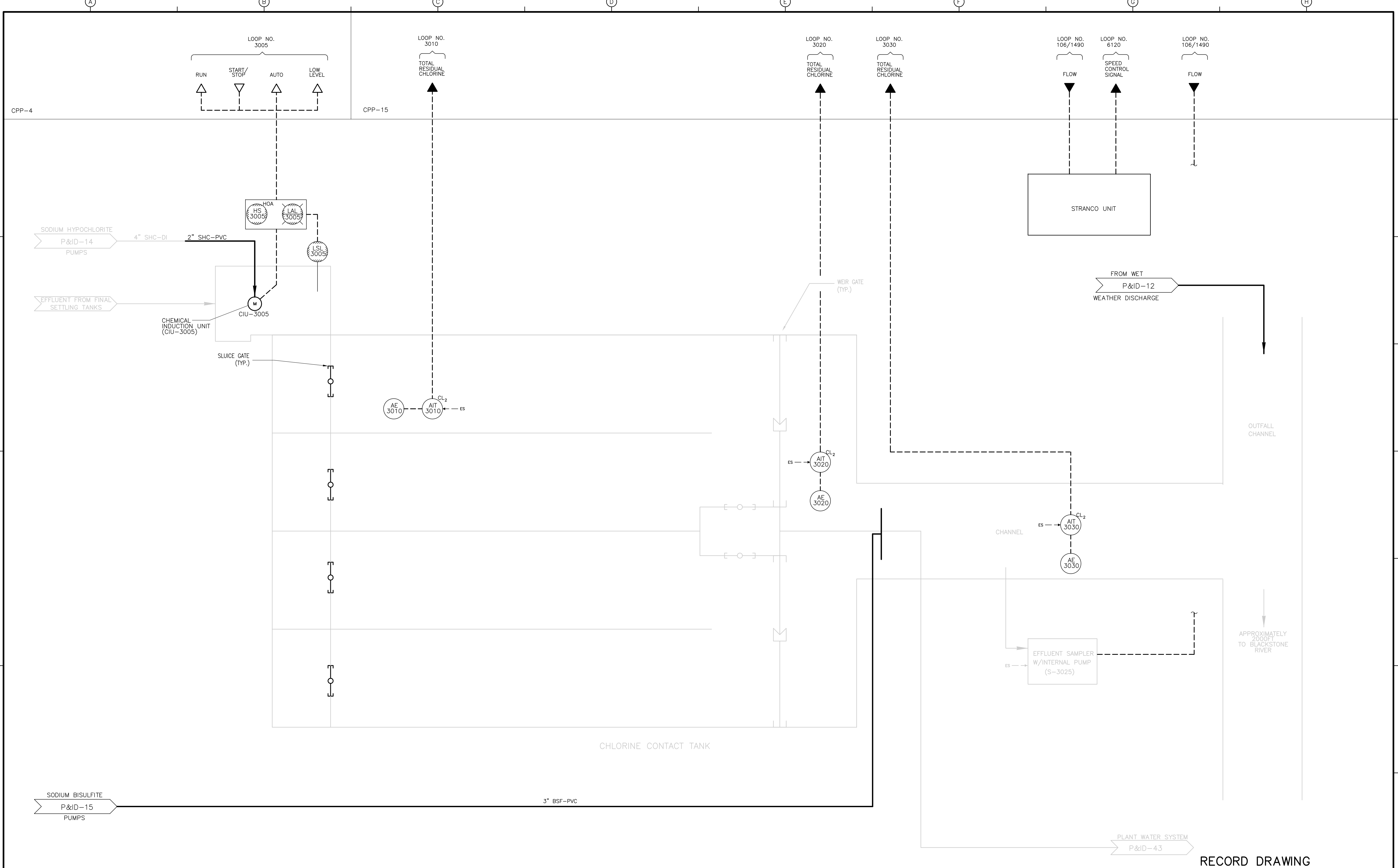
UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS

WET WEATHER DISCHARGE

PROJECT NO.  
1289\35370  
Sht. 273 of 386  
P&ID-12  
ACCESSION NO. 1289-65873

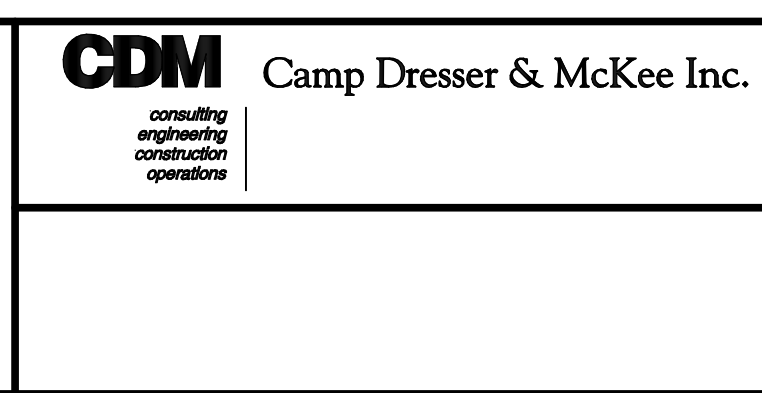
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REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. IPID0013.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: K. SANGREY  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

SODIUM BISULFITE  
 P&ID-15  
 PUMPS

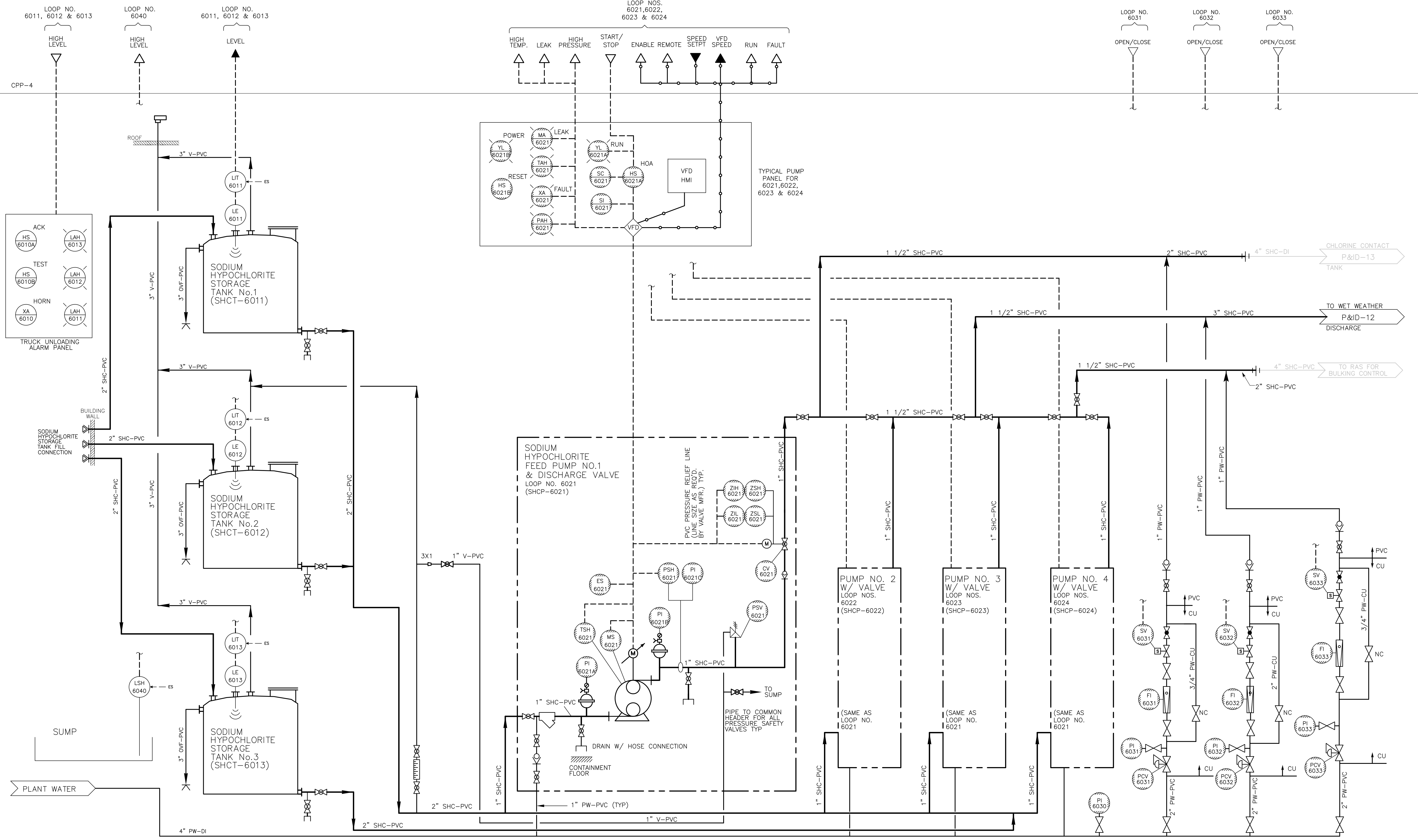


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**CHLORINE CONTACT TANK**  
 RECORD DRAWING

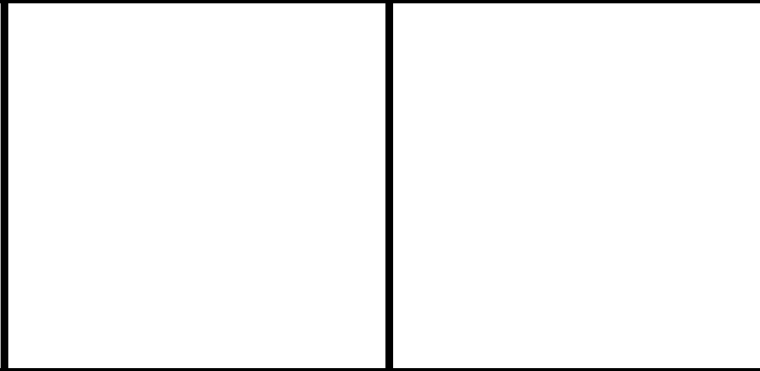
PROJECT NO.  
 1289\35370  
 Sht. 274 of 386  
**P&ID-13**  
ACCESSION NO. 1289-65874

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 File name: P:\1289\35370\PHASE1\RECORD\INST\IPID0014.dwg Xref's: [C24X36H, ] Plotted by: CROSSHA Time: 12/16/08 6:31:14 PM



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. IPID0014.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: K. SANGREY  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006



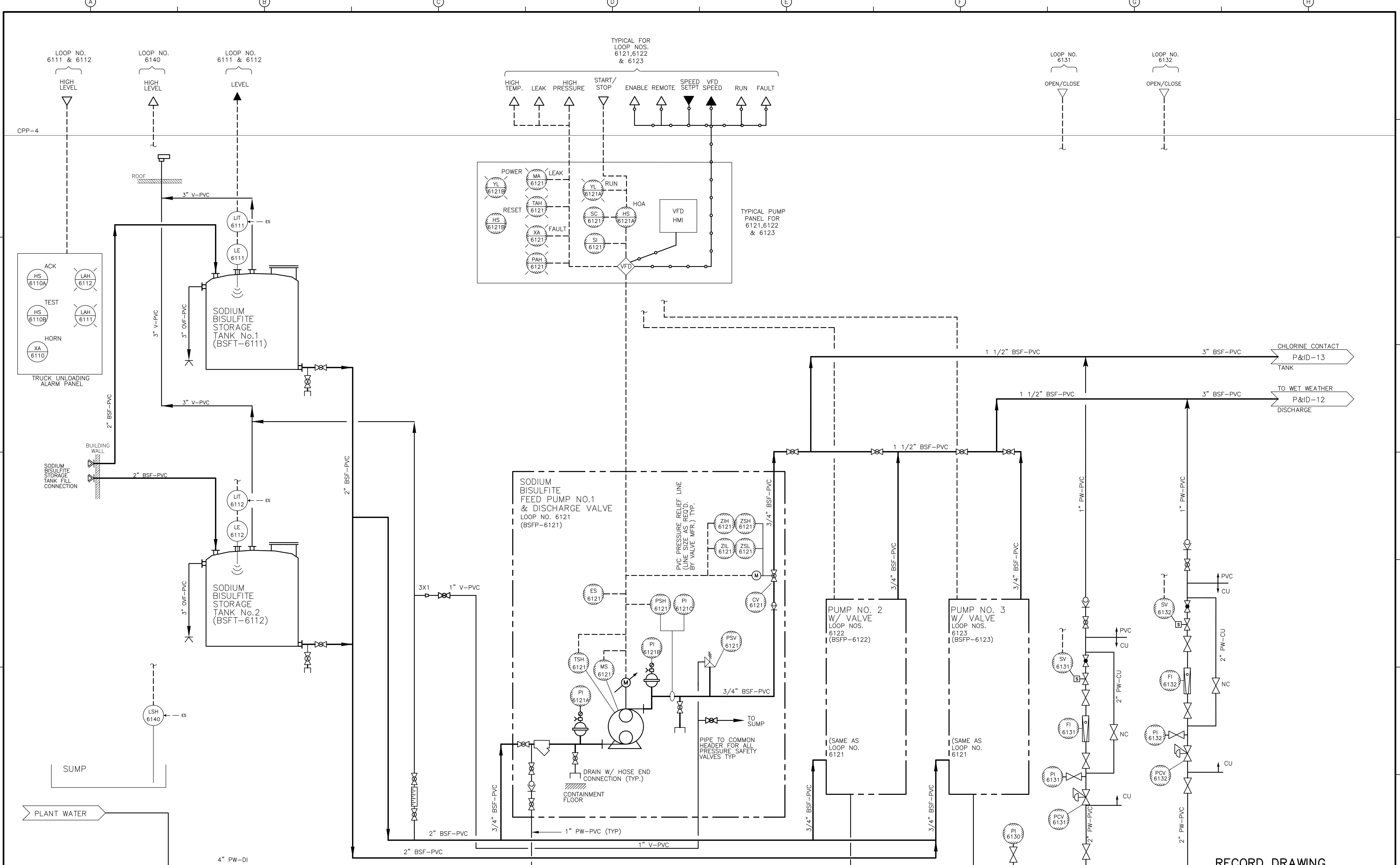
**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**SODIUM HYPOCHLORITE STORAGE**  
**TANKS AND FEED PUMPS**  
 RECORD DRAWING

PROJECT NO. 1289\35370  
 Sht. 275 of 386  
**P&ID-14**  
 ACCESSION NO. 1289-65875

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
 File name: P:\1289\35370\PHASE1\RECORD\INST\PID0015.dwg Xref's: [C24X36H, ] Plotted by: CROSSJA Time: 12/16/08 6:31:16 PM



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

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DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	K. SANGREY
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

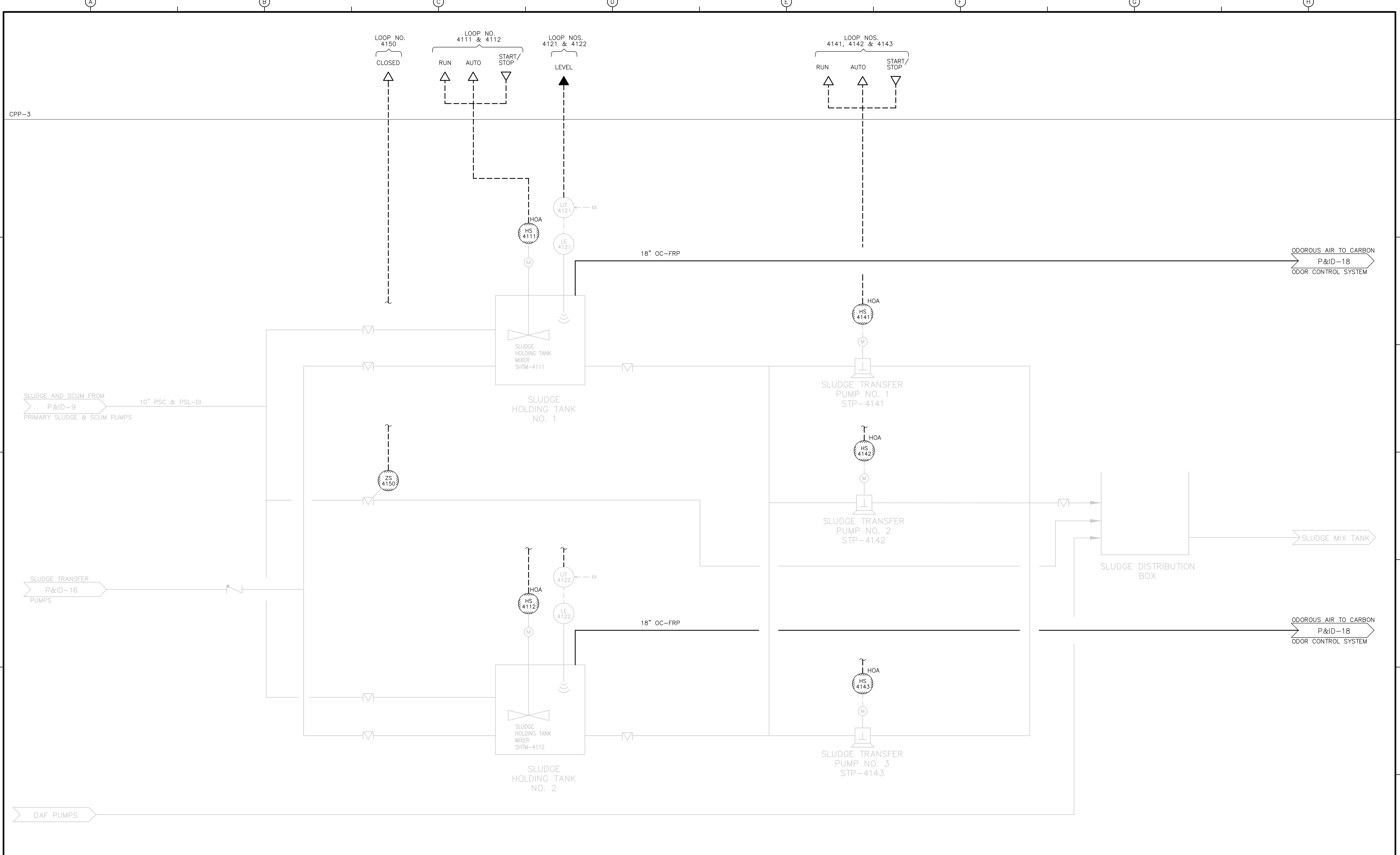
**CDM** Camp Dresser & McKee Inc.  
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 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SODIUM BISULFITE STORAGE  
 TANKS AND FEED PUMPS**

PROJECT NO.  
 1289\35370  
 Sht. 276 of 386  
**P&ID-15**  
ACCESSION NO. 1289-65876





RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. IPID0017.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: W. GREEN  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

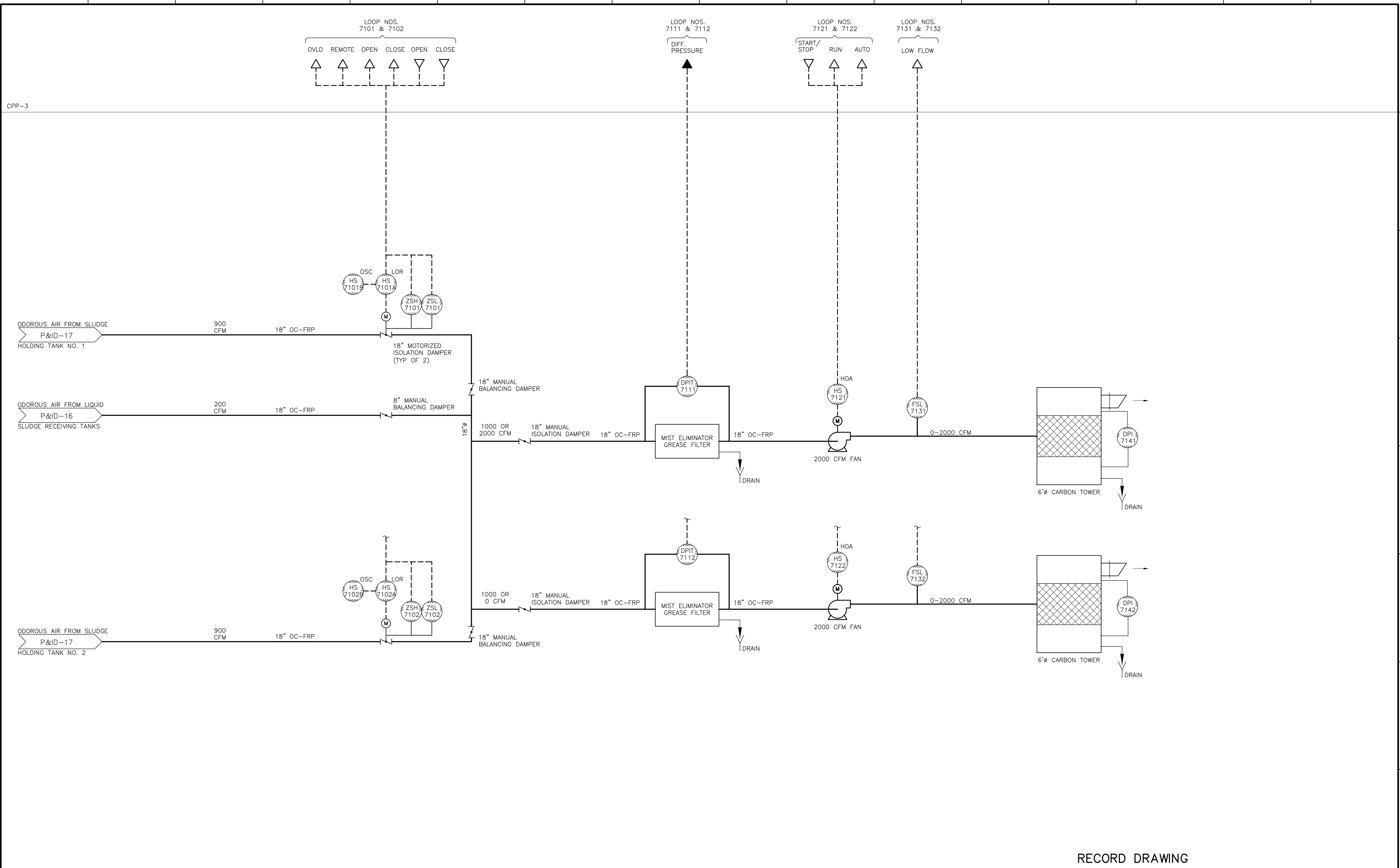
PROJECT NO. 1289\35370  
 Sht. 278 of 386  
**P&ID-17**

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
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**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SLUDGE HOLDING TANKS  
 AND  
 SLUDGE TRANSFER PUMPS**



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	IPID0018.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	M. GOULD
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SLUDGE STORAGE TANKS  
 ODOR CONTROL SYSTEM**

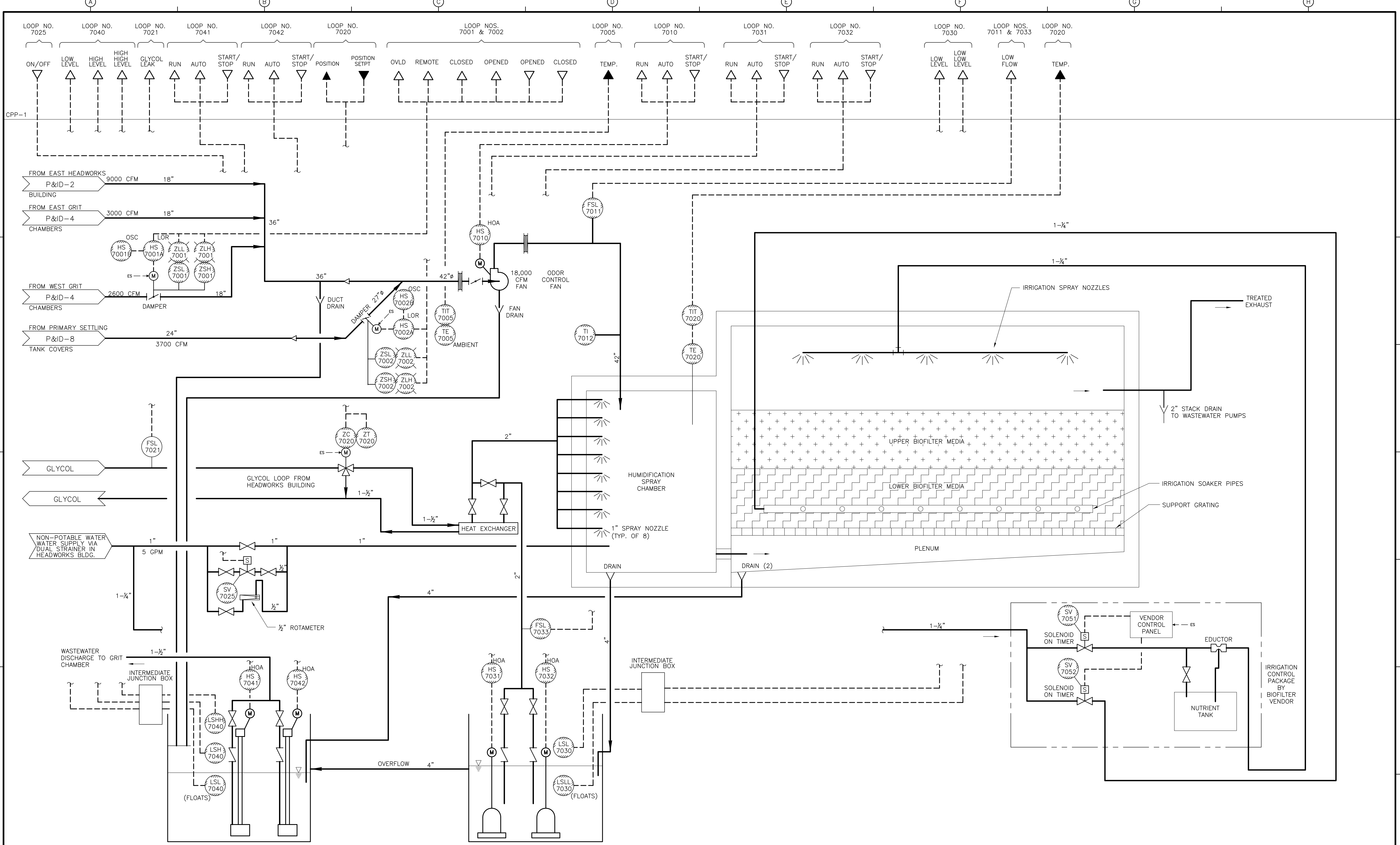
PROJECT NO.  
 1289\35370

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**P&ID-18**



UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
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RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. IPID0019.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: M. GOULD  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

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 engineering  
 construction  
 operations

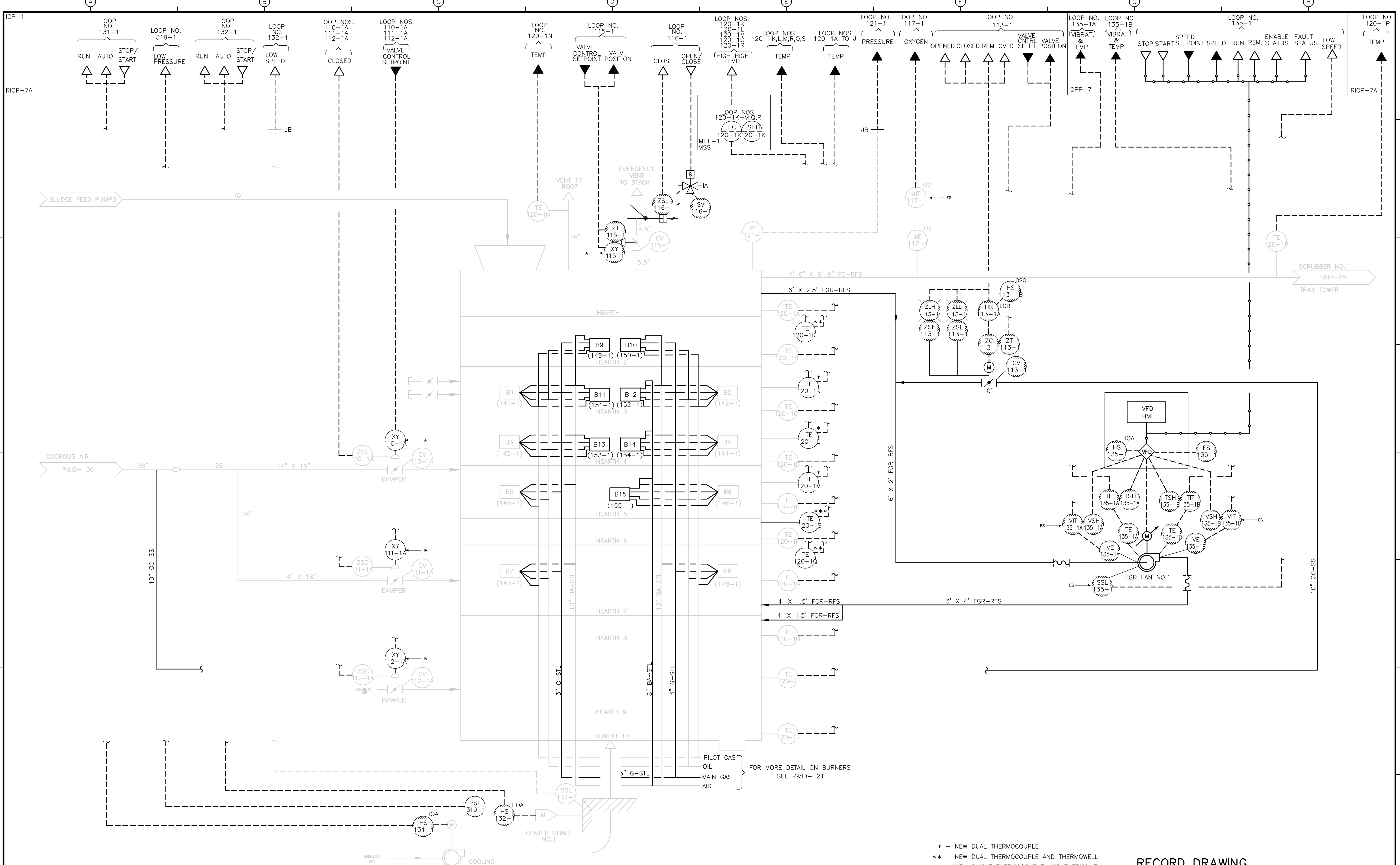
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

PRIMARY SETTLING TANKS  
 AND HEADWORKS  
 ODOR CONTROL SYSTEM

PROJECT NO.  
 1289\35370  
 Sht. 280 of 386  
 P&ID-19

PROCESS NO. 1289-65880



\* - NEW DUAL THERMOCOUPLE  
 \*\* - NEW DUAL THERMOCOUPLE AND THERMOWELL  
 \*\*\* - NEW SINGLE THERMOCOUPLE AND THERMOWELL

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. IPID0020.DWG
DESIGNED BY: P. MALACHOWSKI
DRAWN BY: W. FELDER
SHEET CHK'D BY: F. SAPIENZA
SCALE: NONE
APPROVED BY: E. MICHNOVEZ
DATE: MAY 2006

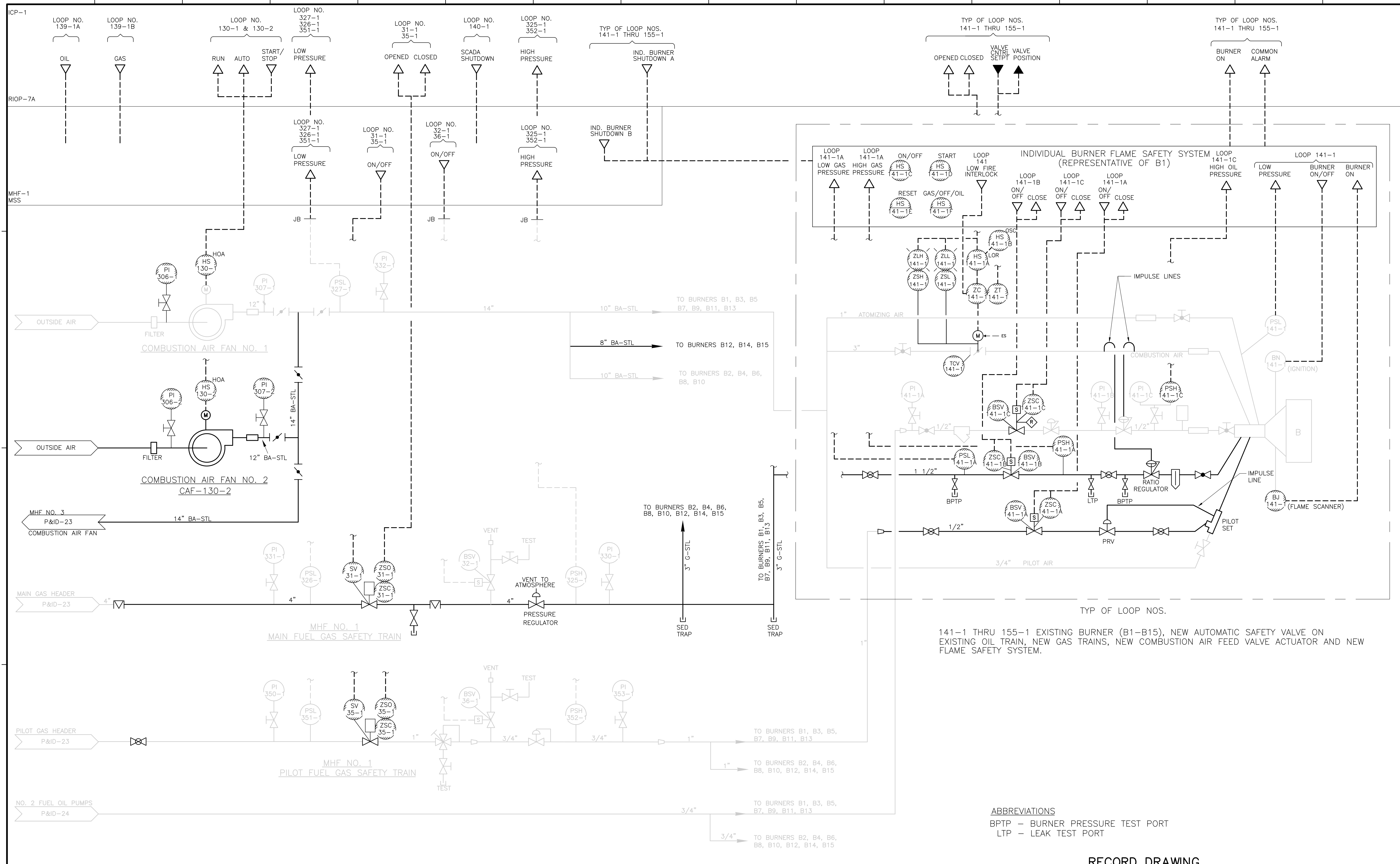
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**MHF NO.1**

PROJECT NO. 1289\35370  
 Sht. 281 of 386  
**P&ID-20**



141-1 THRU 155-1 EXISTING BURNER (B1-B15), NEW AUTOMATIC SAFETY VALVE ON EXISTING OIL TRAIN, NEW GAS TRAINS, NEW COMBUSTION AIR FEED VALVE ACTUATOR AND NEW FLAME SAFETY SYSTEM.

ABBREVIATIONS  
 BPTP - BURNER PRESSURE TEST PORT  
 LTP - LEAK TEST PORT

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	IPID0021.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

PROJECT NO.	1289\35370
PROJECT NAME	UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
SHEET NO.	282 of 386
SHEET TITLE	MHF NO.1 BURNERS AND GAS & AIR FUEL SYSTEMS
PROJECT LOCATION	WASTEWATER TREATMENT FACILITY IMPROVEMENTS
PROJECT MANAGER	
PROJECT ENGINEER	
PROJECT SUPERVISOR	
PROJECT OPERATOR	

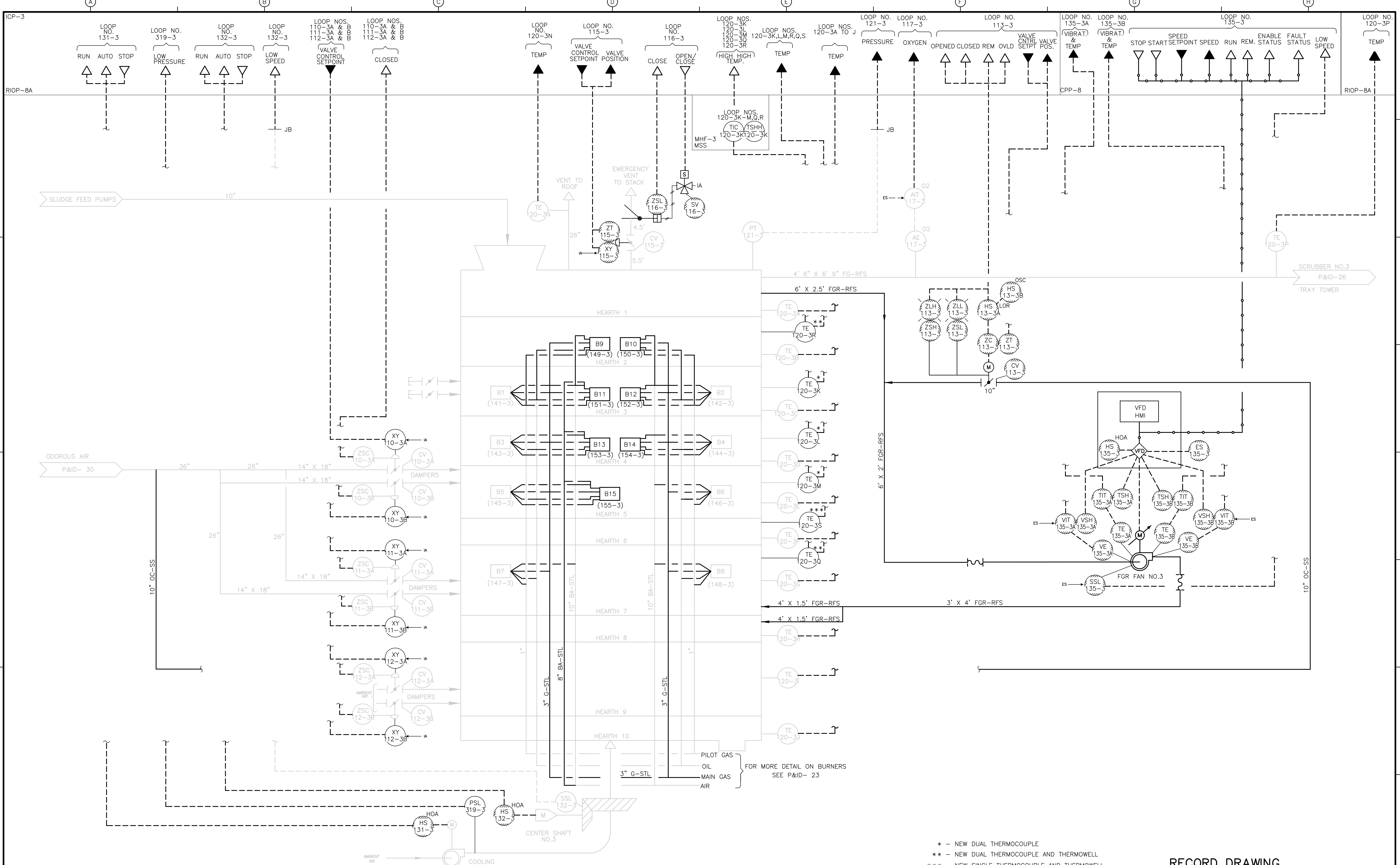
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**MHF NO.1 BURNERS AND GAS & AIR FUEL SYSTEMS**

**P&ID-21**



\* - NEW DUAL THERMOCOUPLE  
 \*\* - NEW DUAL THERMOCOUPLE AND THERMOWELL  
 \*\*\* - NEW SINGLE THERMOCOUPLE AND THERMOWELL

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. IPID0022.DWG
DESIGNED BY: P. MALACHOWSKI
DRAWN BY: W. FELDER
SHEET CHK'D BY: F. SAPIENZA
SCALE: NONE
APPROVED BY: E. MICHNOVEZ
DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**MHF NO. 3**

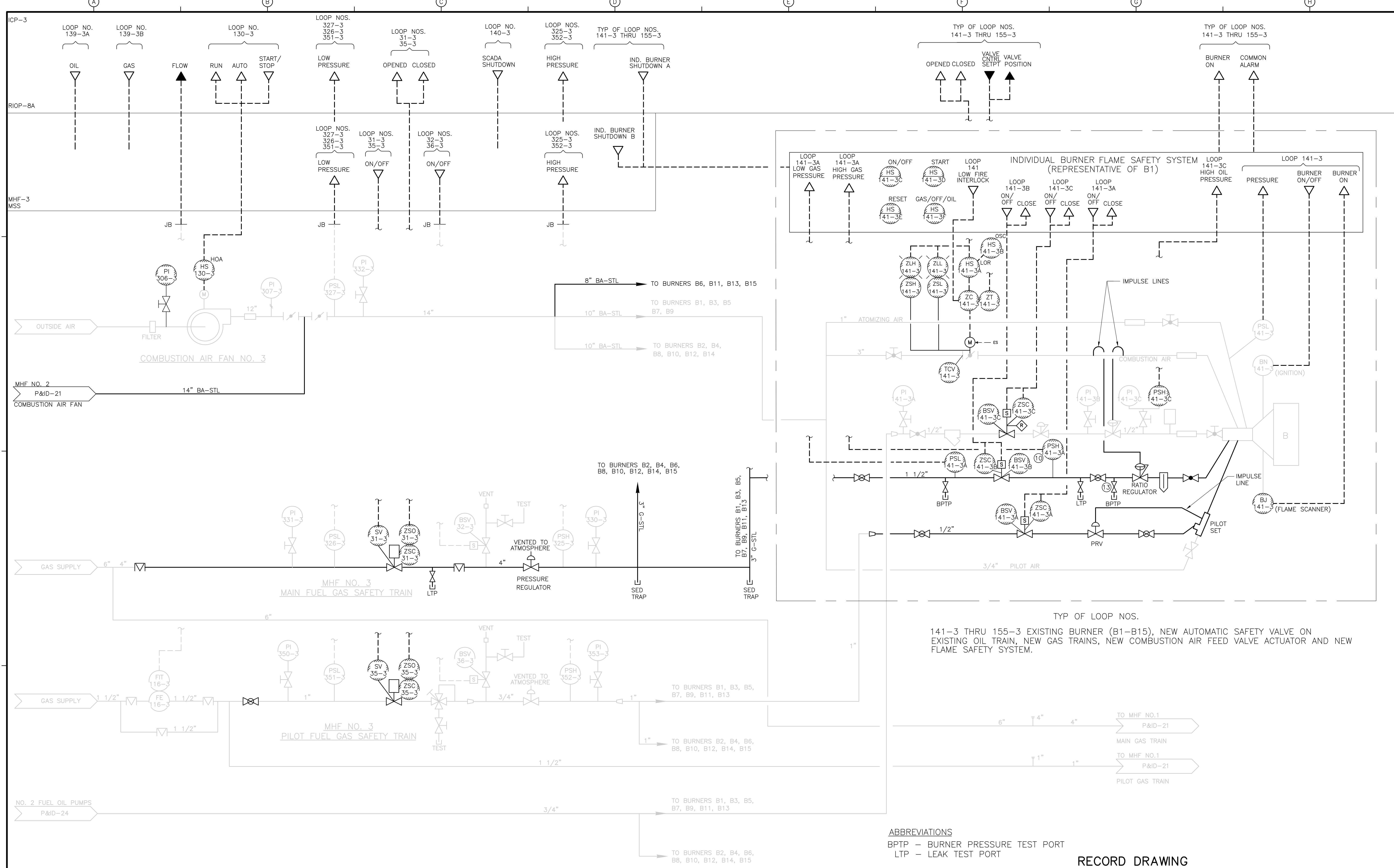
PROJECT NO.  
1289\35370

Sht. 283 of 386

**P&ID-22**

ACCESSION NO. 1289-55861

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
 File name: P:\1289\35370\PHASE1\RECORD\INST\PID0023.dwg Xref's: [C24X36H, ] Plotted by: CROSSHA Time: 12/16/08 6:31:37 PM



**ABBREVIATIONS**  
 BPTP - BURNER PRESSURE TEST PORT  
 LTP - LEAK TEST PORT

**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	IPID0023.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	NONE
APPROVED BY:	F. MICHNOVEZ
DATE:	MAY 2006

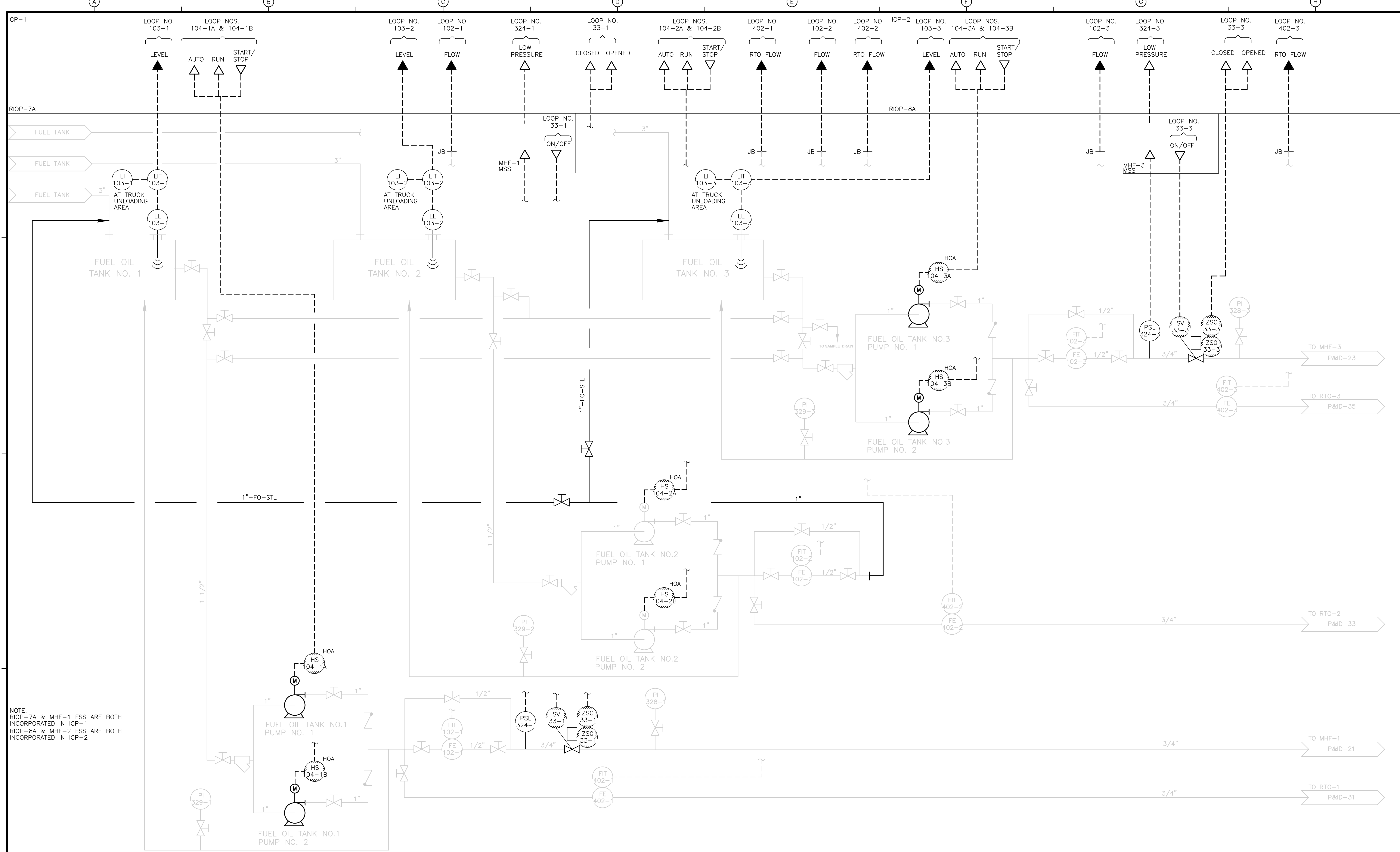
**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**MHF NO.3 BURNERS AND**  
**GAS & AIR FUEL SYSTEMS**

PROJECT NO.  
 1289\35370  
 Sht. 284 of 386  
**P&ID-23**

ACCESSION NO. 1289-55864

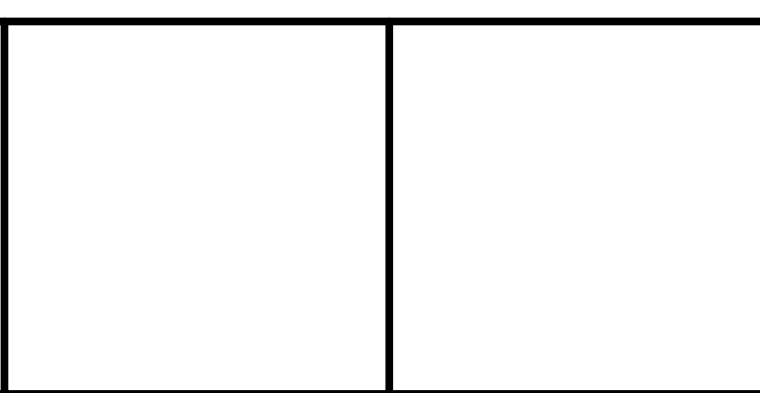


NOTE:  
 RIOP-7A & MHF-1 FSS ARE BOTH INCORPORATED IN ICP-1  
 RIOP-8A & MHF-2 FSS ARE BOTH INCORPORATED IN ICP-2

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

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 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: F. SAPIENZA  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006



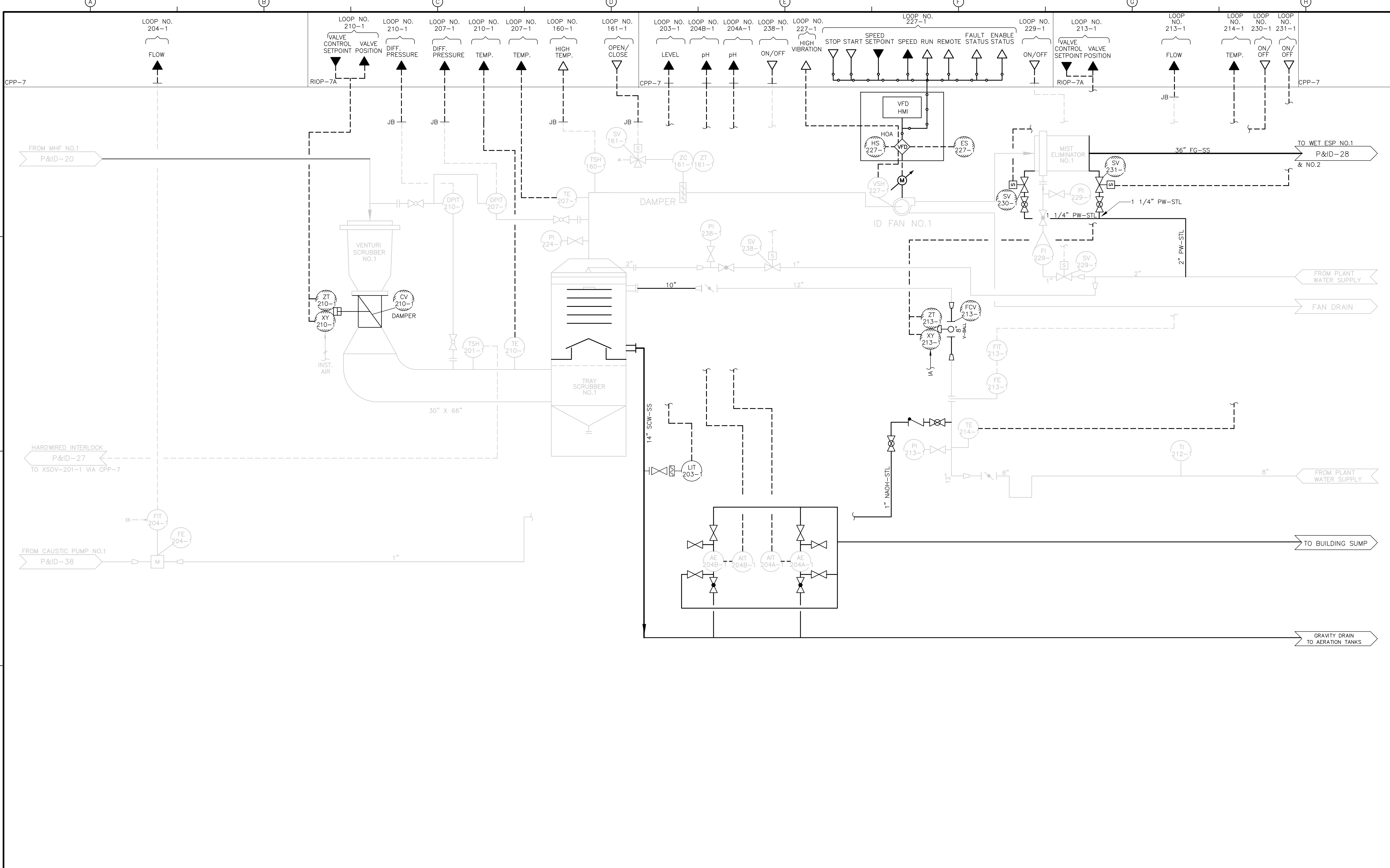
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**NO. 2 FUEL OIL STORAGE TANKS AND FEED PUMPS**

PROJECT NO. 1289\35370  
 Sht. 285 of 386  
**P&ID-24**

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
 File name: P:\1289\35370\PHASE1\RECORD\INST\IPID0025.dwg Xref's: [C24X36H, ] Plotted by: CROSSJA Time: 12/16/08 6:31:42 PM



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1/10/08	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. <u>IPID0025.DWG</u>
DESIGNED BY: <u>P. MALACHOWSKI</u>
DRAWN BY: <u>W. FELDER</u>
SHEET CHK'D BY: <u>F. SAPIENZA</u>
SCALE: <u>NONE</u>
APPROVED BY: <u>E. MICHNOVEZ</u>
DATE: <u>MAY 2006</u>

**CDM** Camp Dresser & McKee Inc.  
 consulting  
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 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

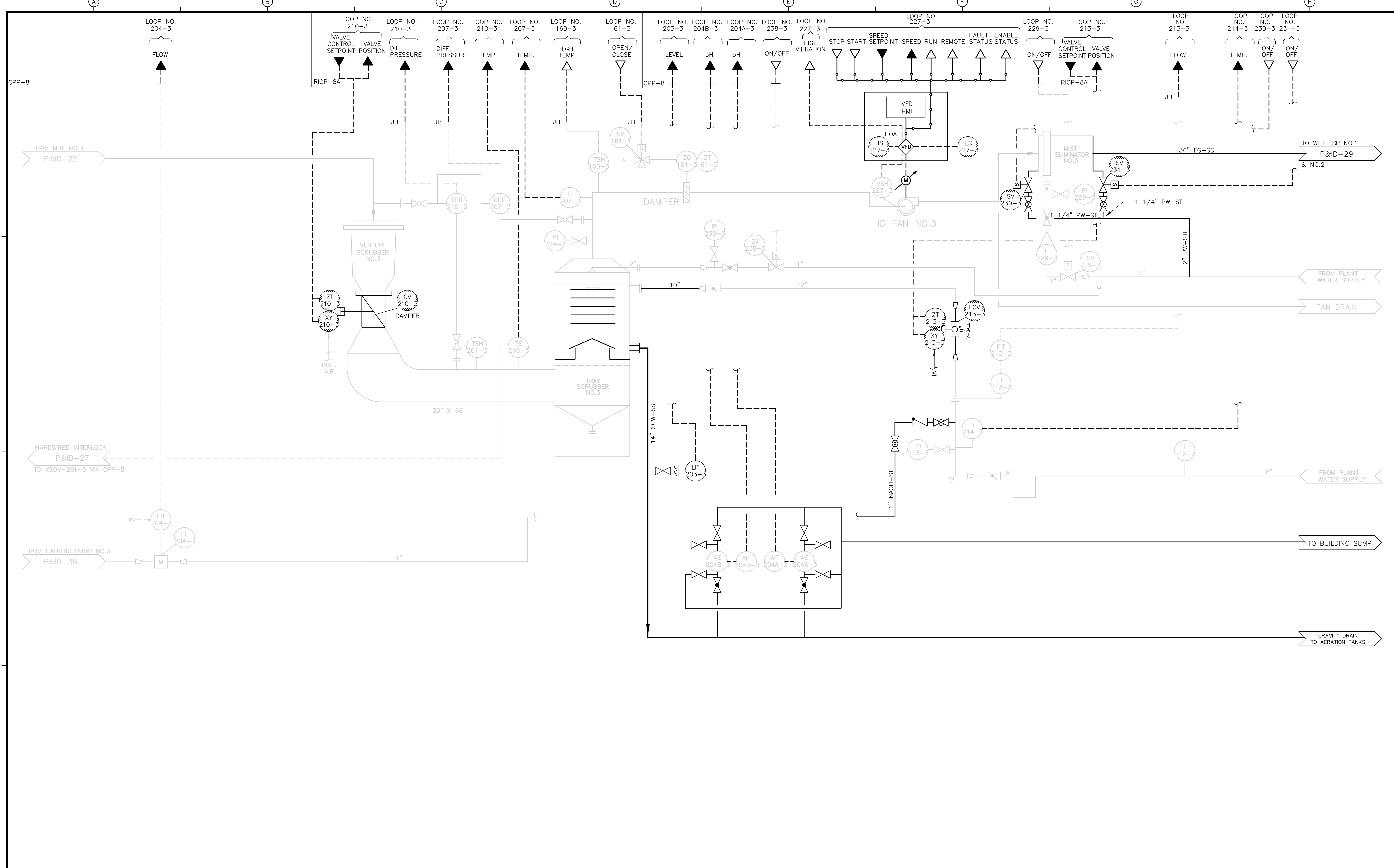
**SCRUBBER NO. 1  
 TRAY TOWER**

PROJECT NO.  
1289\35370

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**P&ID-25**

Accession No. 1289-55886



REV. NO.	DATE	DRWN	CHKD	REMARKS
1/10/08	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. <u>IPID0026.DWG</u>
DESIGNED BY: <u>P. MALACHOWSKI</u>
DRAWN BY: <u>W. FELDER</u>
SHEET CHK'D BY: <u>F. SAPIENZA</u>
SCALE: <u>NONE</u>
APPROVED BY: <u>E. MICHNOVEZ</u>
DATE: <u>MAY 2006</u>

**CDM** Camp Dresser & McKee Inc.  
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 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SCRUBBER NO. 3  
 TRAY TOWER**

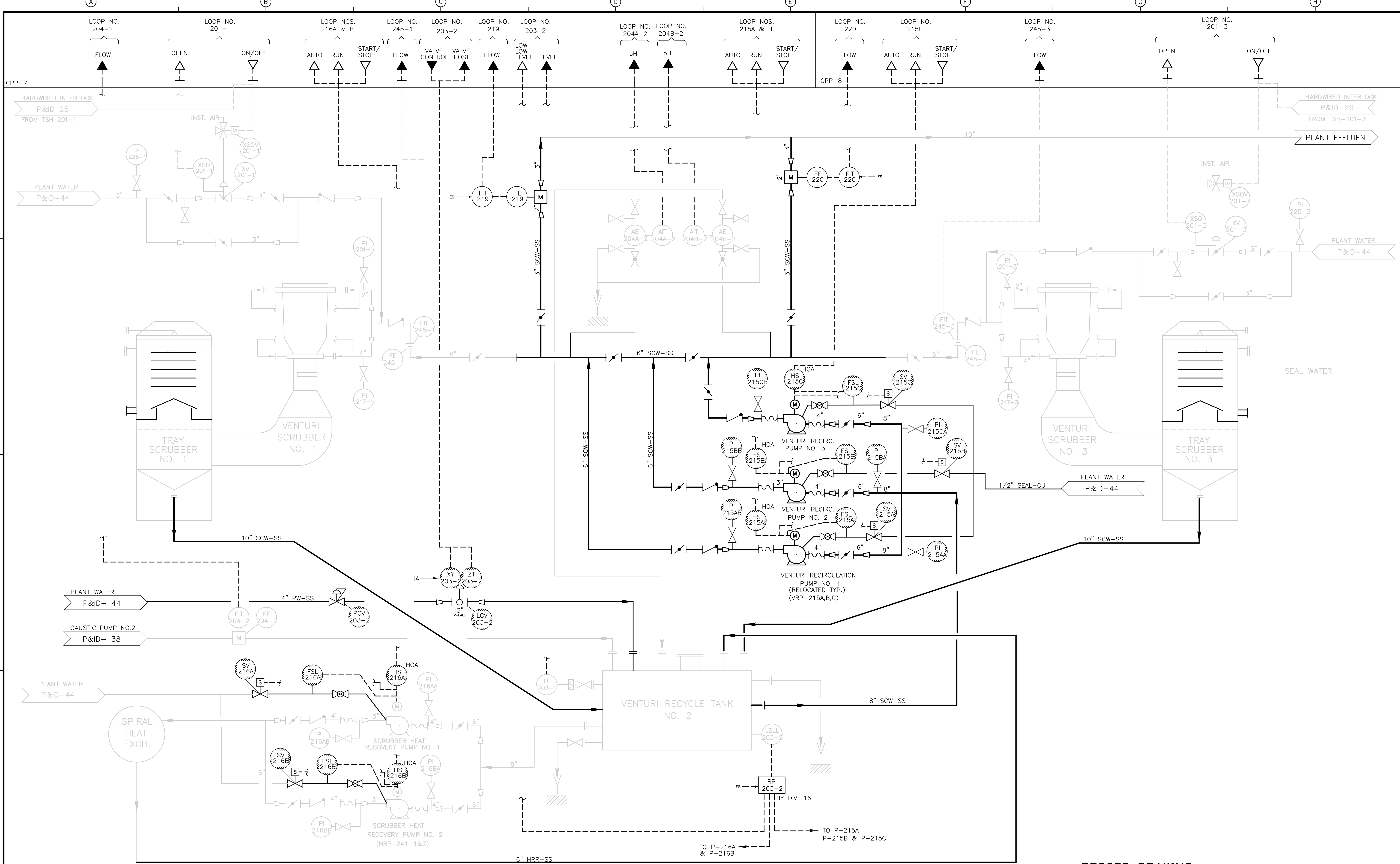
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1289\35370

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**P&ID-26**



[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\INST\IPID0027.dwg Xref: s: [C24X36H, ] Plotted by: CROSSHA Time: 12/16/08 6:31:47 PM



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3/07	SPV	ADT		REVISED FOR THE RECORD

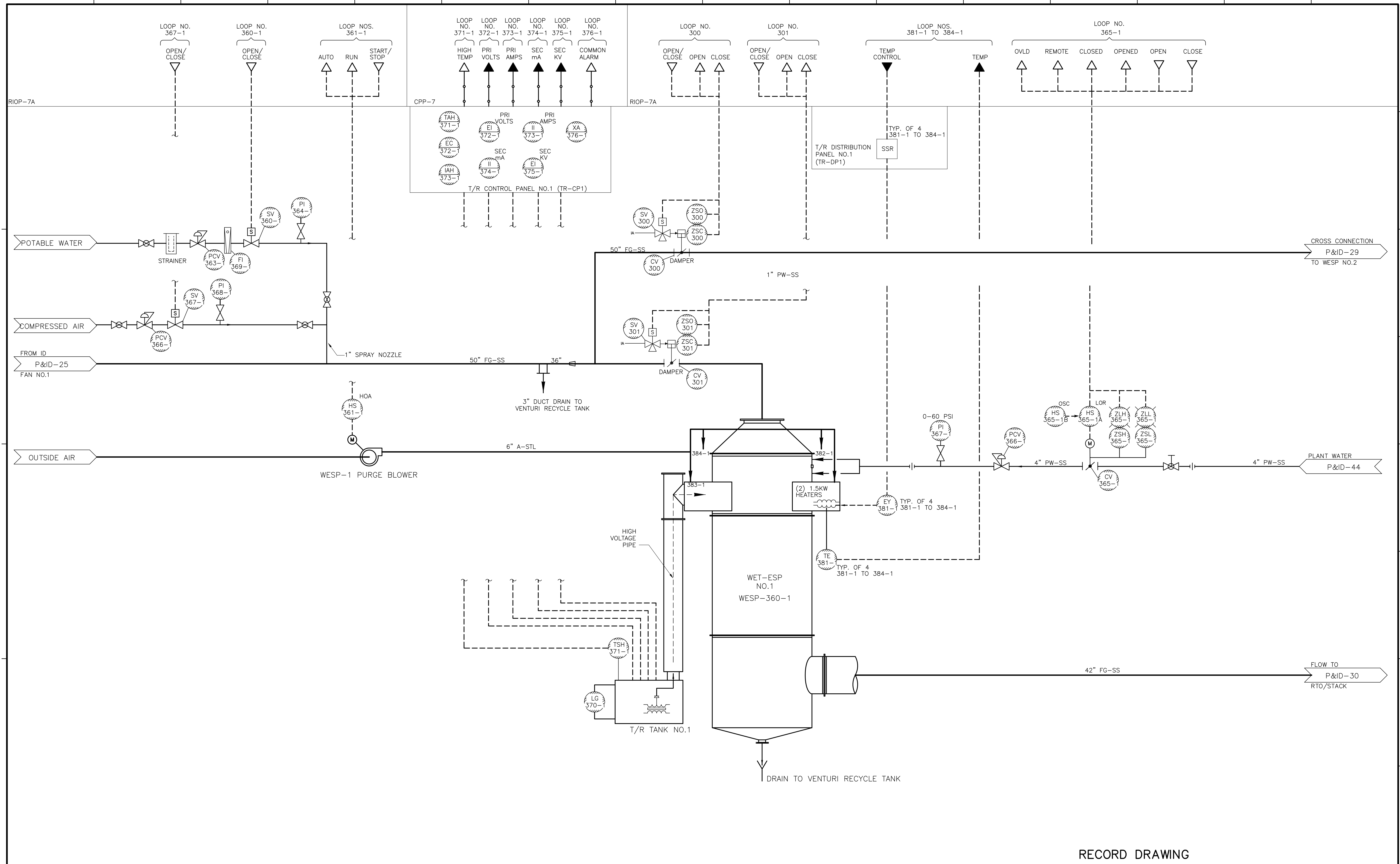
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DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	A. DOSSANTOS
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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 engineering  
 construction  
 operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

**VENTURI SCRUBBERS NO. 1 & NO. 3**  
**RECIRCULATION SYSTEM**  
  
**P&ID-27**

PROJECT NO.  
 1289\35370  
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 ACCESSION NO. 1289-5588



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. IPID0028.DWG
DESIGNED BY: P. MALACHOWSKI
DRAWN BY: A. DOSSANTOS
SHEET CHK'D BY: F. SAPIENZA
SCALE: NONE
APPROVED BY: E. MICHNOVEZ
DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

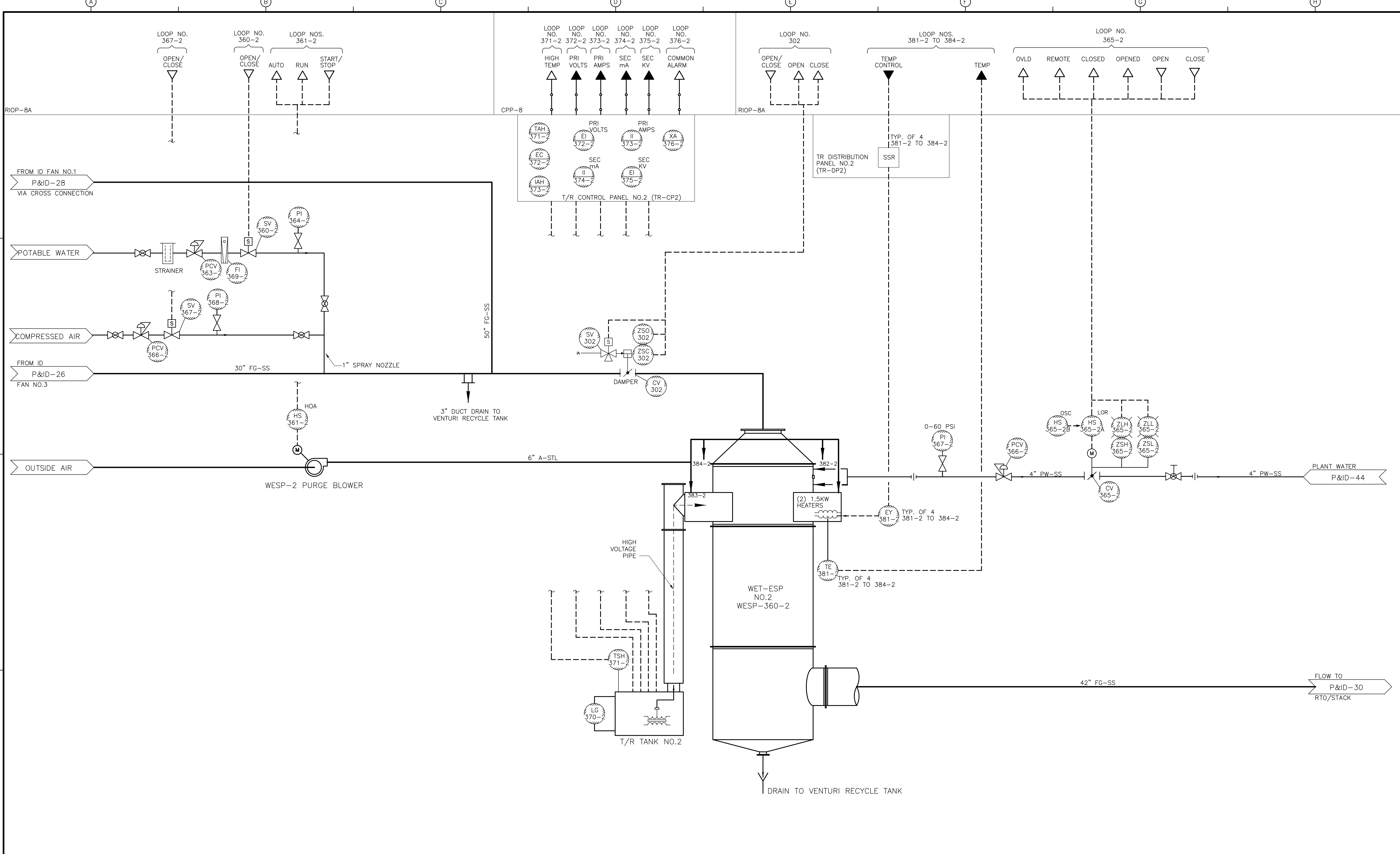
**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**WESP NO.1**

PROJECT NO. 1289\35370
Sht. 289 of 386
<b>P&amp;ID-28</b>

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS]  
 File name: P:\1289\35370\PHASE1\RECORD\INST\IPID0029.dwg Xref's: [C24X36H, ] Plotted by: CROSSJA Time: 12/16/08 6:31:52 PM



RECORD DRAWING

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3/07	SPV	ADT		REVISED FOR THE RECORD

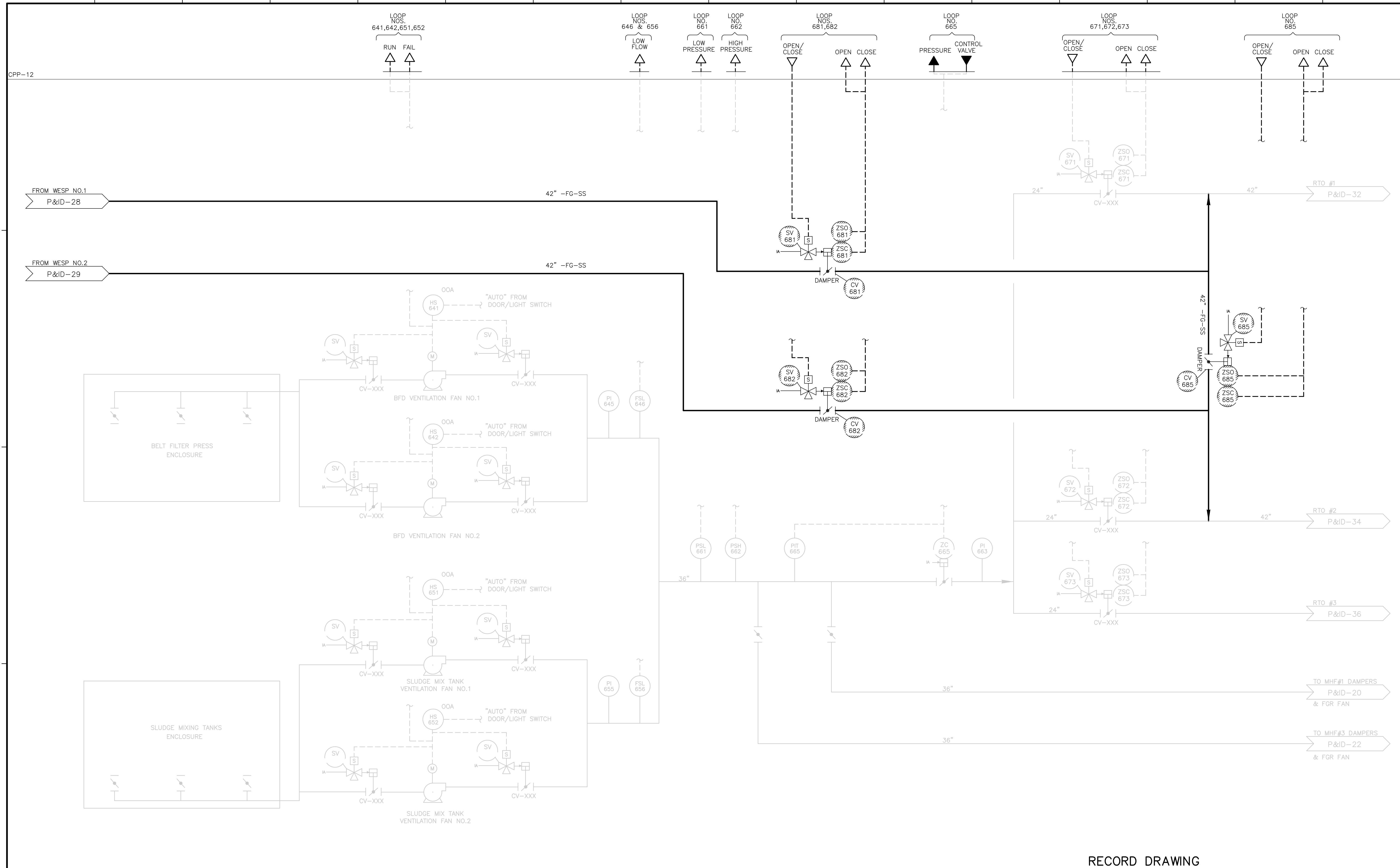
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DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	A. DOSSANTOS
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

<b>WESP NO.2</b>		PROJECT NO. 1289\35370
<b>P&amp;ID-29</b>		Sht. 290 of 386

ACCESSION NO. 1289-65860



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	IPID0030.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

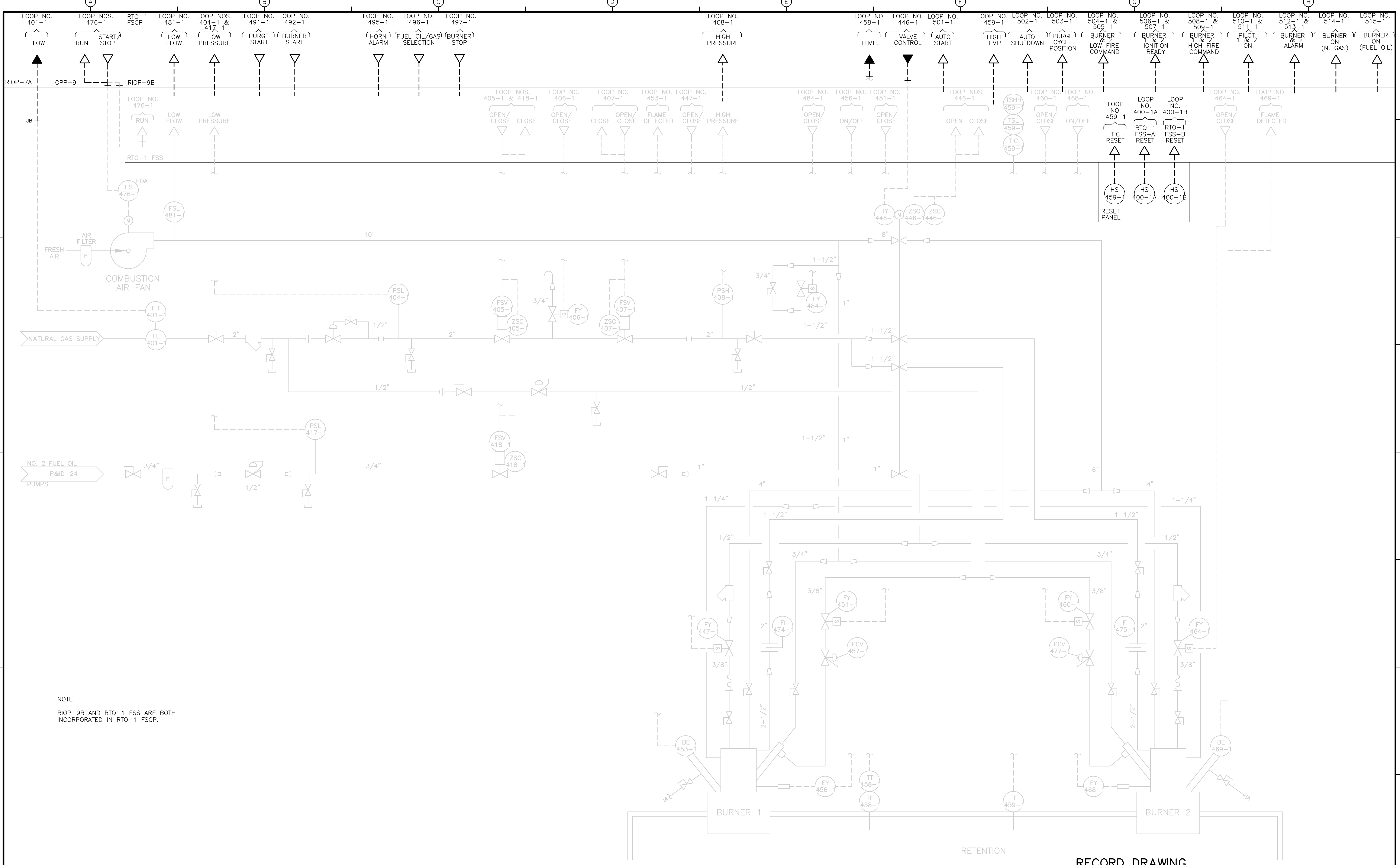
**SLUDGE FACILITY ODOR CONTROL  
 VENTING SYSTEM/ WESP DISCHARGE  
 VENTING SYSTEM**

PROJECT NO.  
1289\35370

Sht. 291 of 386

**P&ID-30**

Accession No. 1289-6591

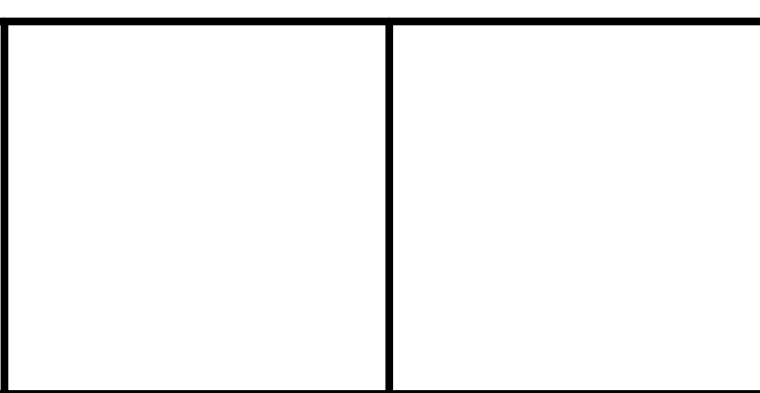


NOTE  
 RIOP-9B AND RTO-1 FSS ARE BOTH  
 INCORPORATED IN RTO-1 FSCP.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. IPID0031.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: F. SAPIENZA  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006



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 construction  
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**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

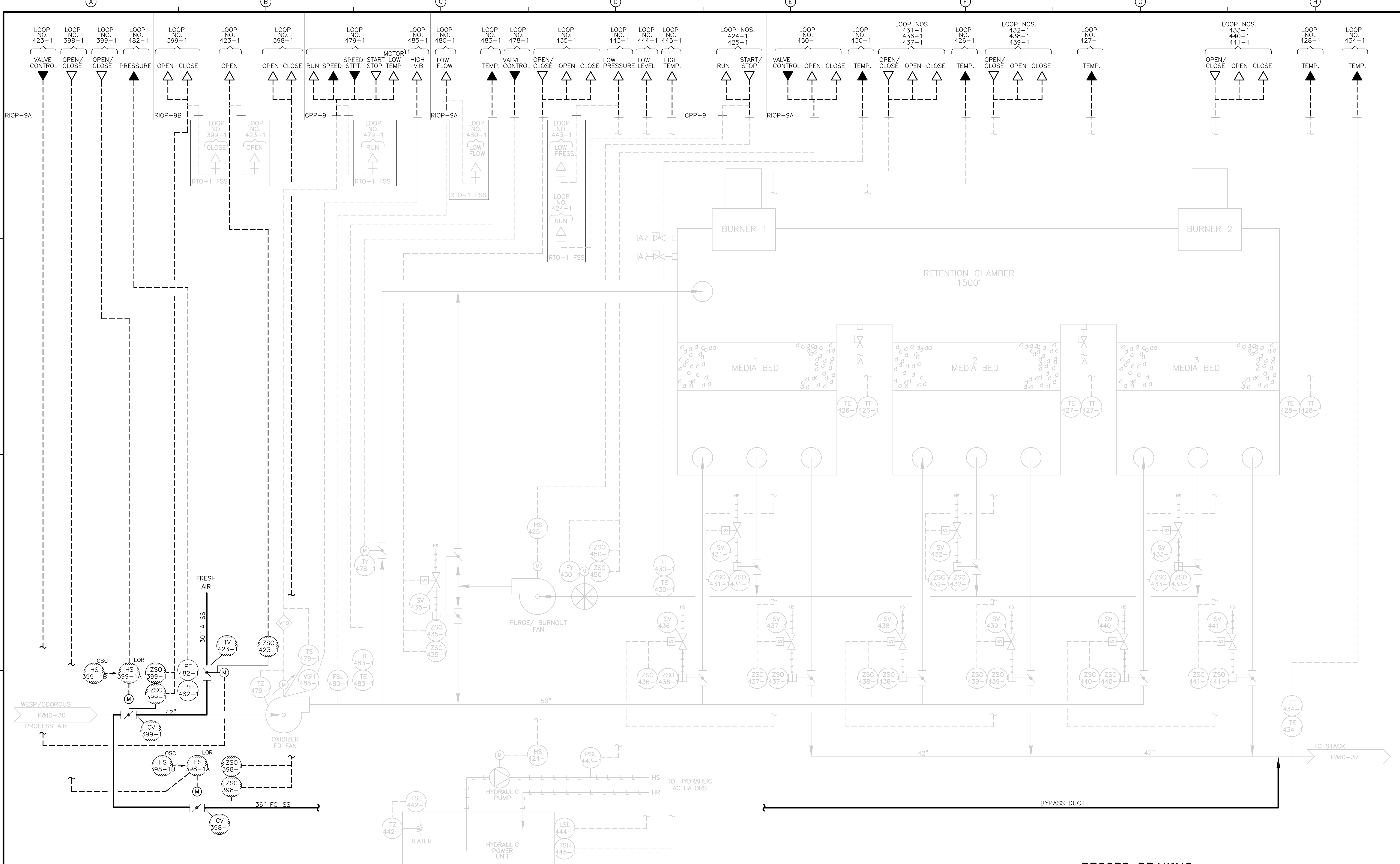
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**RTO NO. 1  
 BURNER CONTROL**

PROJECT NO.  
 1289\35370

Sht. 292 of 386

**P&ID-31**



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. IPID0032.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: F. SAPIENZA  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

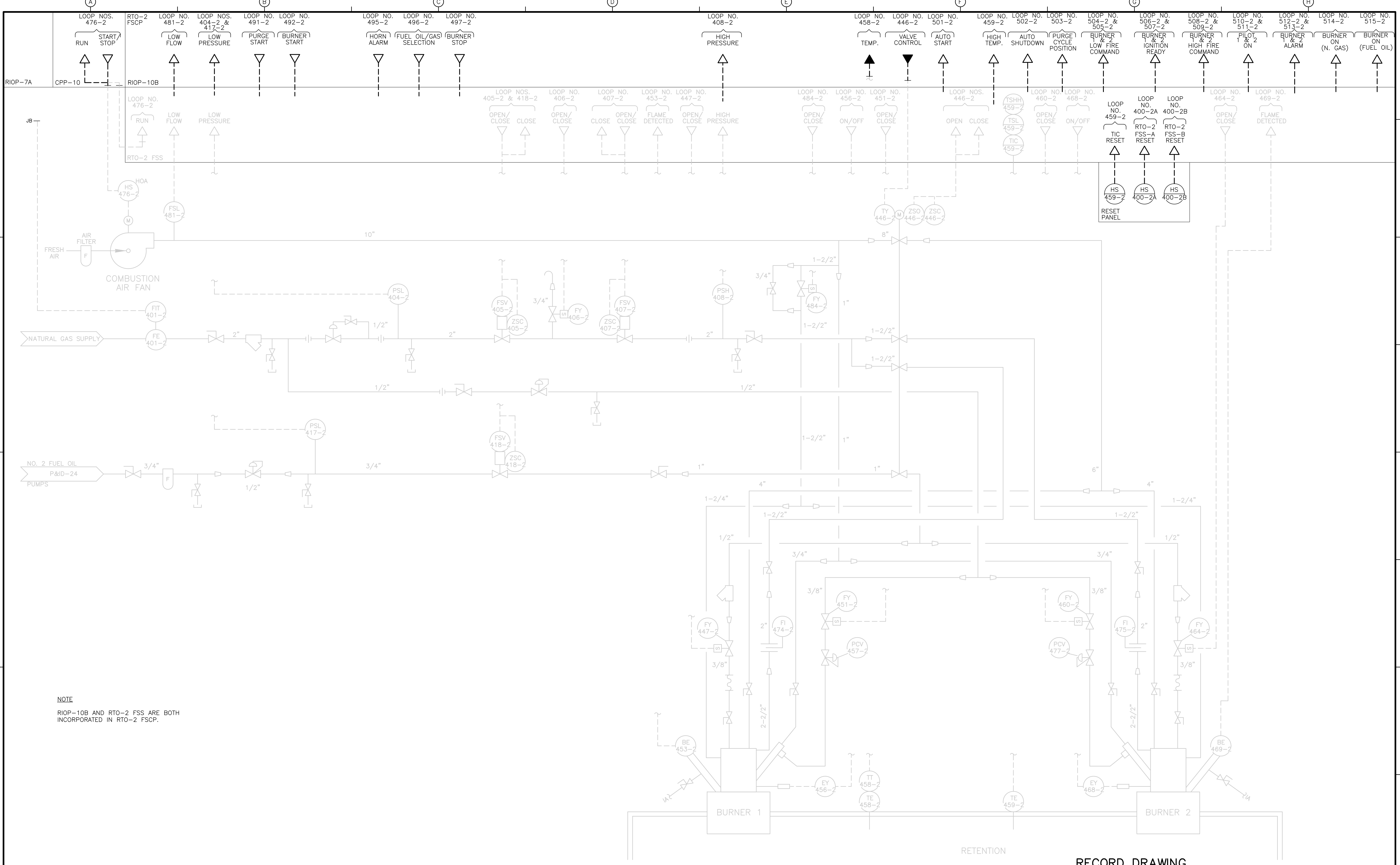
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

RTO NO. 1  
 RETENTION CHAMBER CONTROL

PROJECT NO.  
 1289\35370  
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 P&ID-32



**NOTE**  
 RIOP-10B AND RTO-2 FSS ARE BOTH INCORPORATED IN RTO-2 FSCP.

RETENTION  
 RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	IPID0033.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

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 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

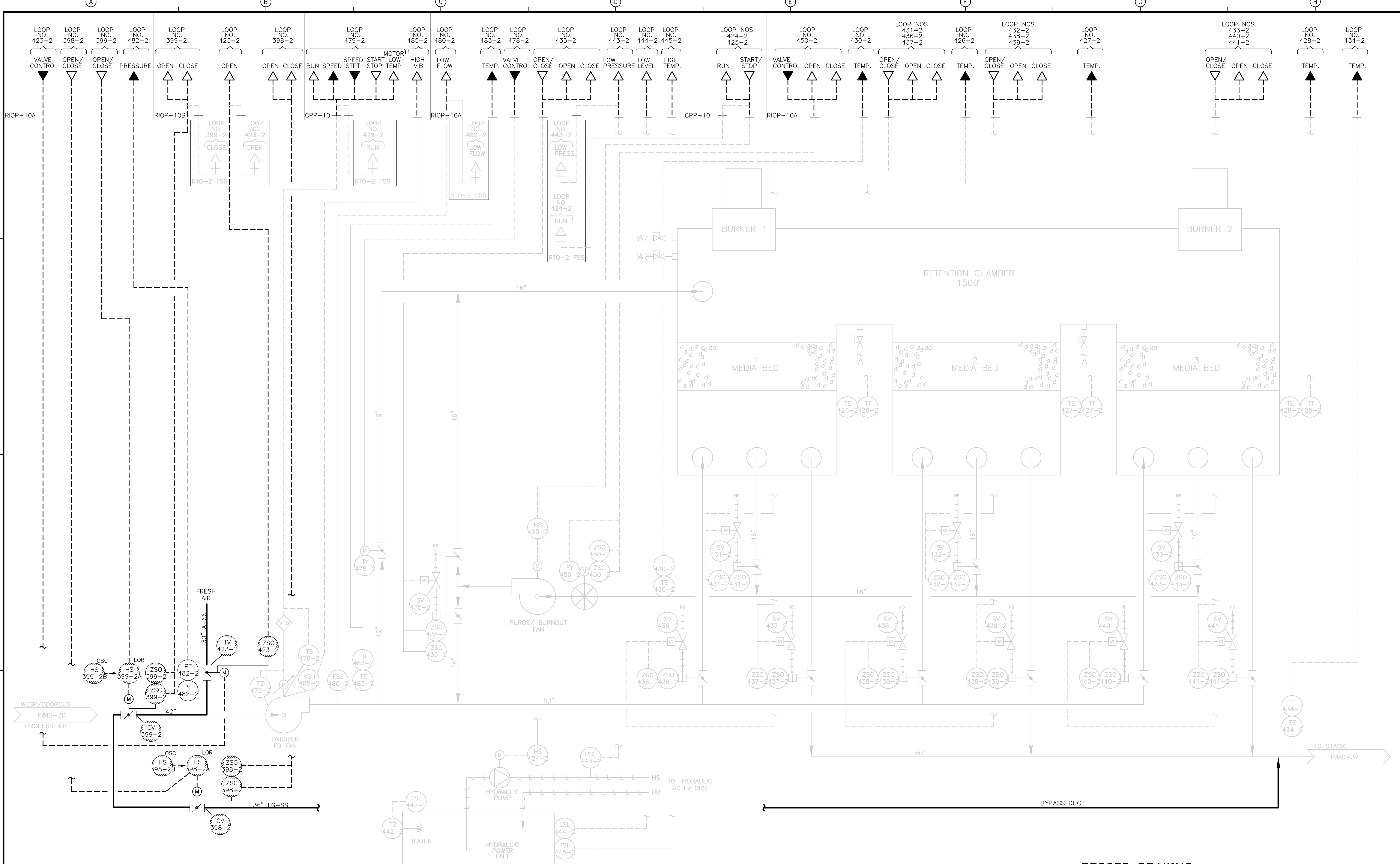
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**RTO NO. 2  
 BURNER CONTROL**

PROJECT NO.  
 1289\35370

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**P&ID-33**



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. IPID0034.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: F. SAPIENZA  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

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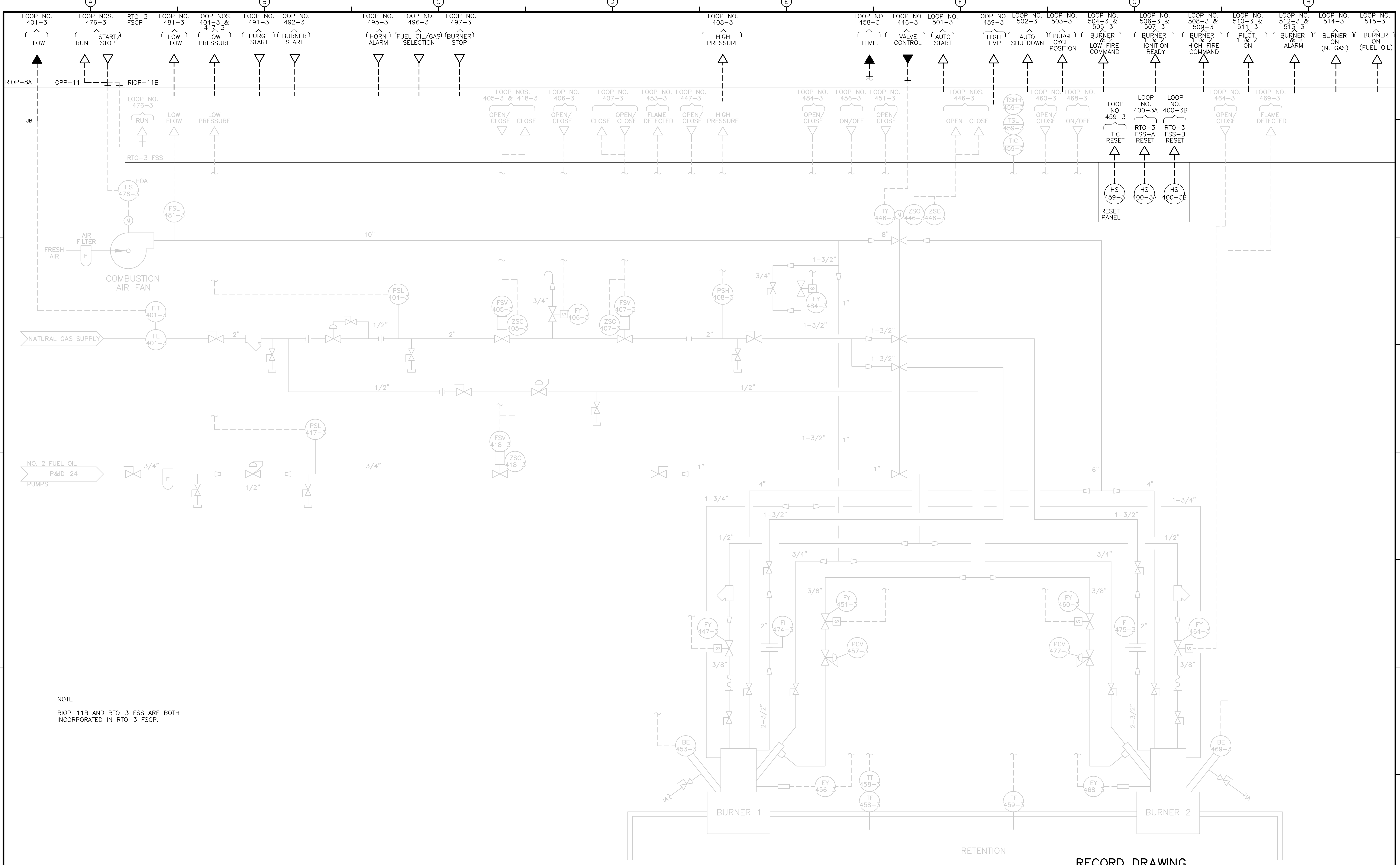
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

RTO NO. 2  
 RETENTION CHAMBER CONTROL

PROJECT NO.  
 1289\35370  
 Sht. 295 of 386  
**P&ID-34**

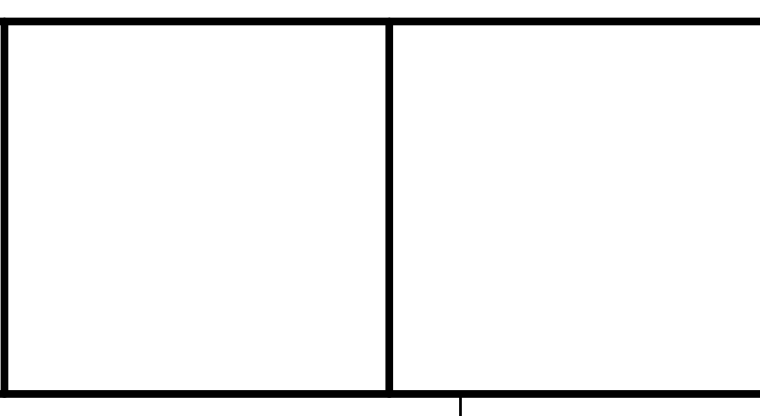




RETENTION  
 RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

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 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: F. SAPIENZA  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

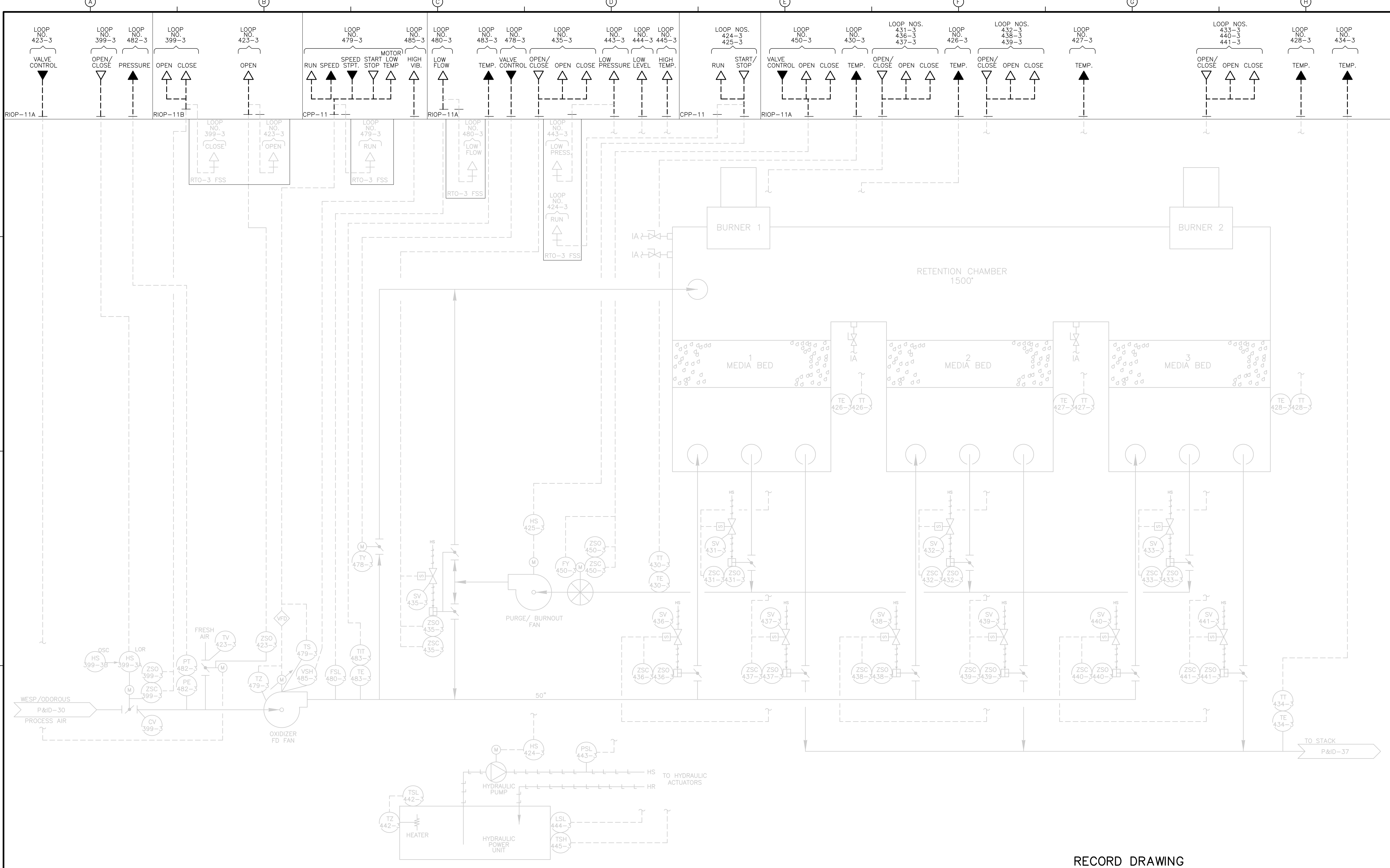


**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**RTO NO. 3  
 BURNER CONTROL**

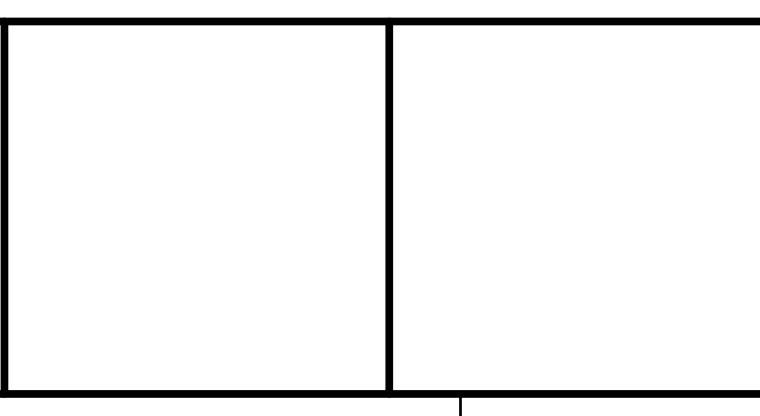
PROJECT NO. 1289\35370  
 Sht. 296 of 386  
**P&ID-35**



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. IPID0036.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: F. SAPIENZA  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006



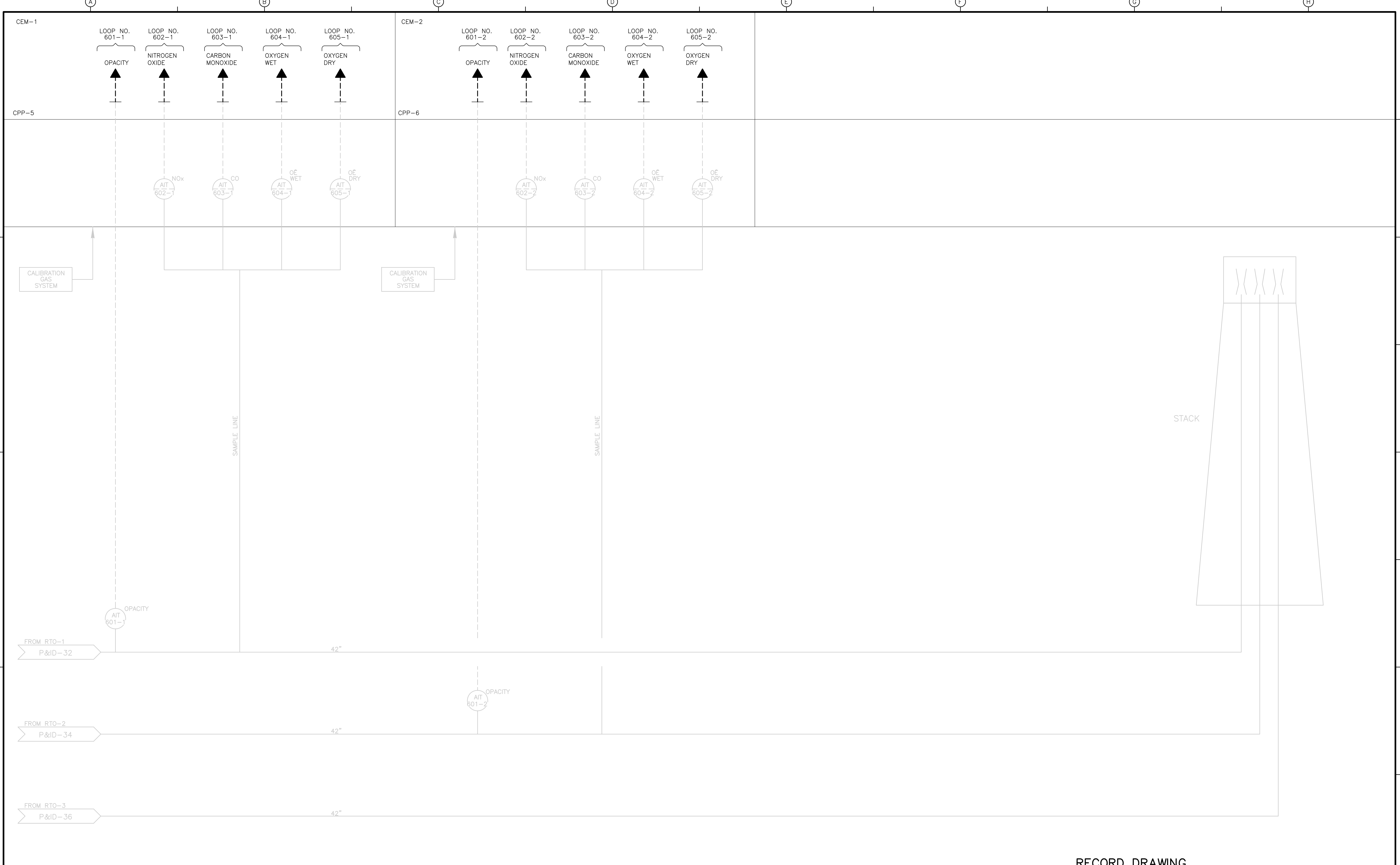
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**RTO NO. 3  
 RETENTION CHAMBER CONTROL**

PROJECT NO. 1289\35370  
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**P&ID-36**

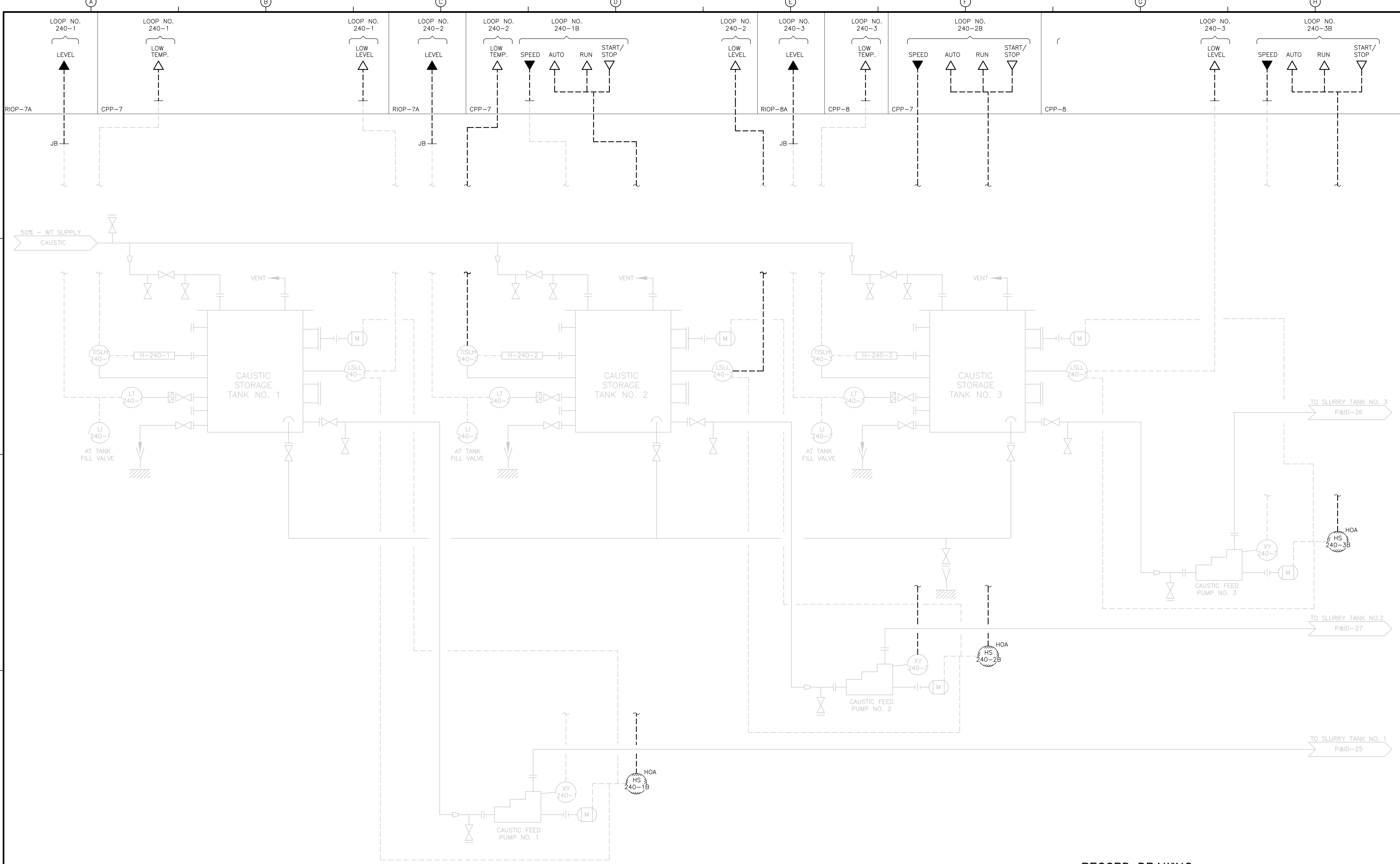
[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\INST\IPID0037.dwg Xref: [C24X36H, ] Plotted by: CROSSHA Time: 12/16/08 6:32:13 PM



RECORD DRAWING

				CADD FILE NO. IPID0037.DWG DESIGNED BY: P. MALACHOWSKI DRAWN BY: W. FELDER SHEET CHK'D BY: F. SAPIENZA SCALE: NONE APPROVED BY: E. MICHNOVEZ DATE: MAY 2006		<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 298 of 386  <b>P&amp;ID-37</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS							
	3/07	SPV	ADT	NO REVISION REQUIRED FOR THE RECORD							

ACCESSION NO. 1289-65898



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	IPID0038.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	W. FELDER
SHEET CHK'D BY:	F. SAPIENZA
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

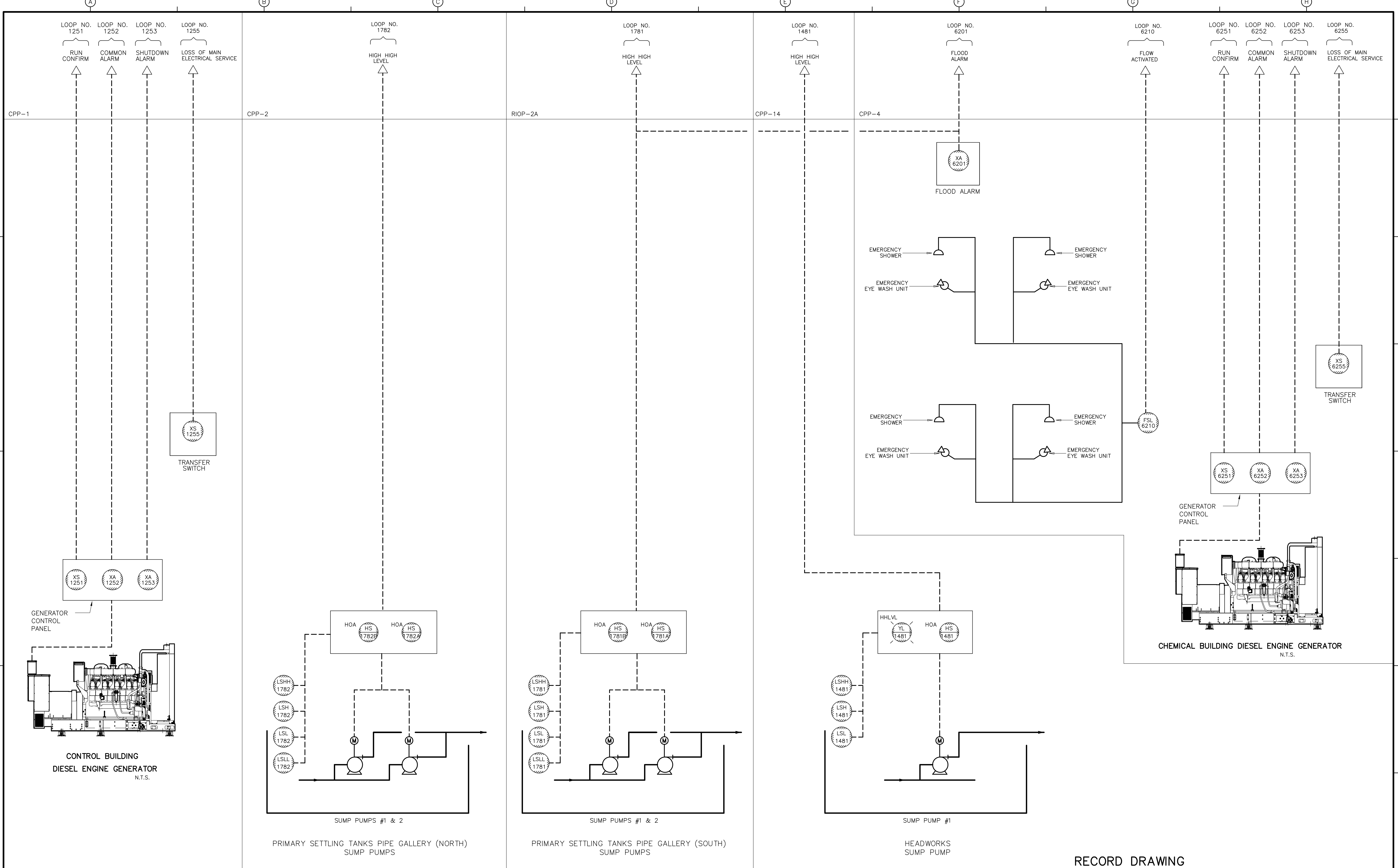
**CDM** Camp Dresser & McKee Inc.  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**CAUSTIC STORAGE TANKS  
 AND FEED PUMPS**

PROJECT NO. 1289\35370  
 Sht. 299 of 386  
**P&ID-38**



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO. IPID0039.DWG  
 DESIGNED BY: P. MALACHOWSKI  
 DRAWN BY: W. FELDER  
 SHEET CHK'D BY: T. LAQUIDARA  
 SCALE: NONE  
 APPROVED BY: E. MICHNOVEZ  
 DATE: MAY 2006

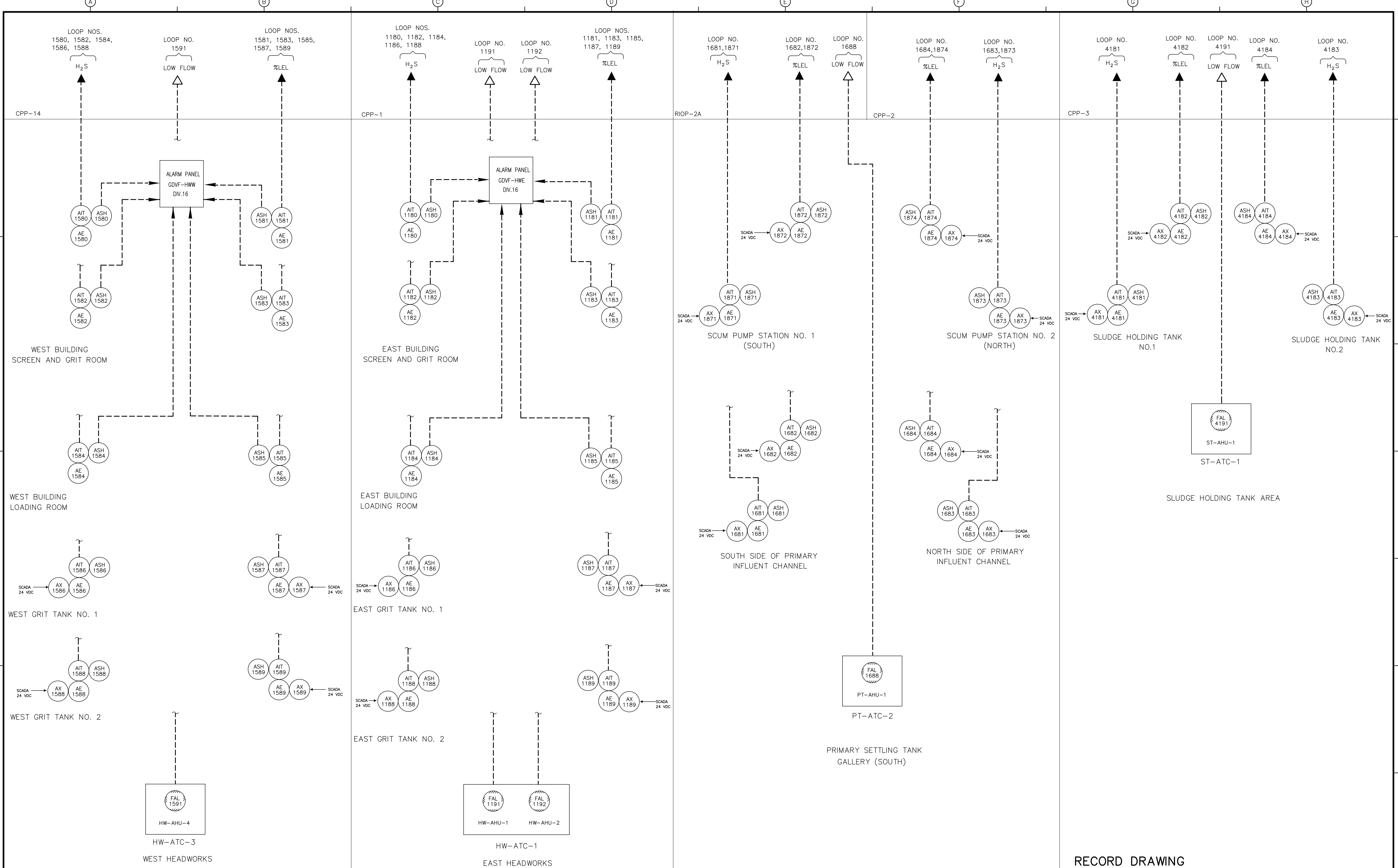
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

MISCELLANEOUS DRAWING I

PROJECT NO.  
1289\35370  
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**P&ID-39**  
ACCESSION NO. 1289-65700



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	IPID0040.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	L. DESIMINI
SHEET CHK'D BY:	D. GREEN
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

HW-AHU-1	HW-AHU-2
HW-ATC-1	HW-ATC-2

**CDM** Camp Dresser & McKee Inc.  
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**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**RECORD DRAWING**

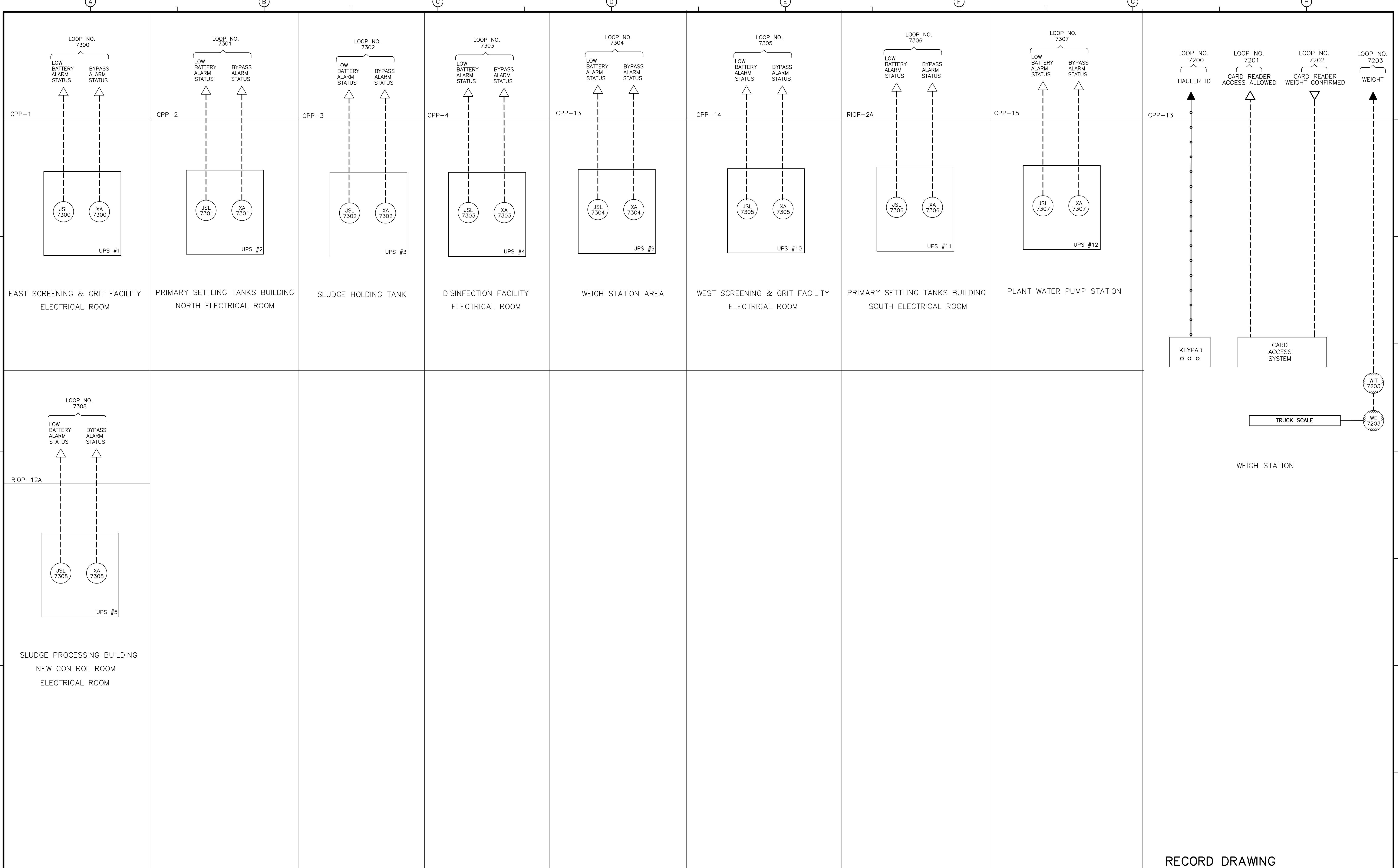
**MISCELLANEOUS DRAWING II**

PROJECT NO.  
1289\35370

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**P&ID-40**

ACCESSION NO. 1289-65701



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		NO REVISION REQUIRED FOR THE RECORD

CADD FILE NO.	IPID0041.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	L. DESIMINI
SHEET CHK'D BY:	J. ROMEO
SCALE:	NONE
APPROVED BY:	E. MICHNOVEZ
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

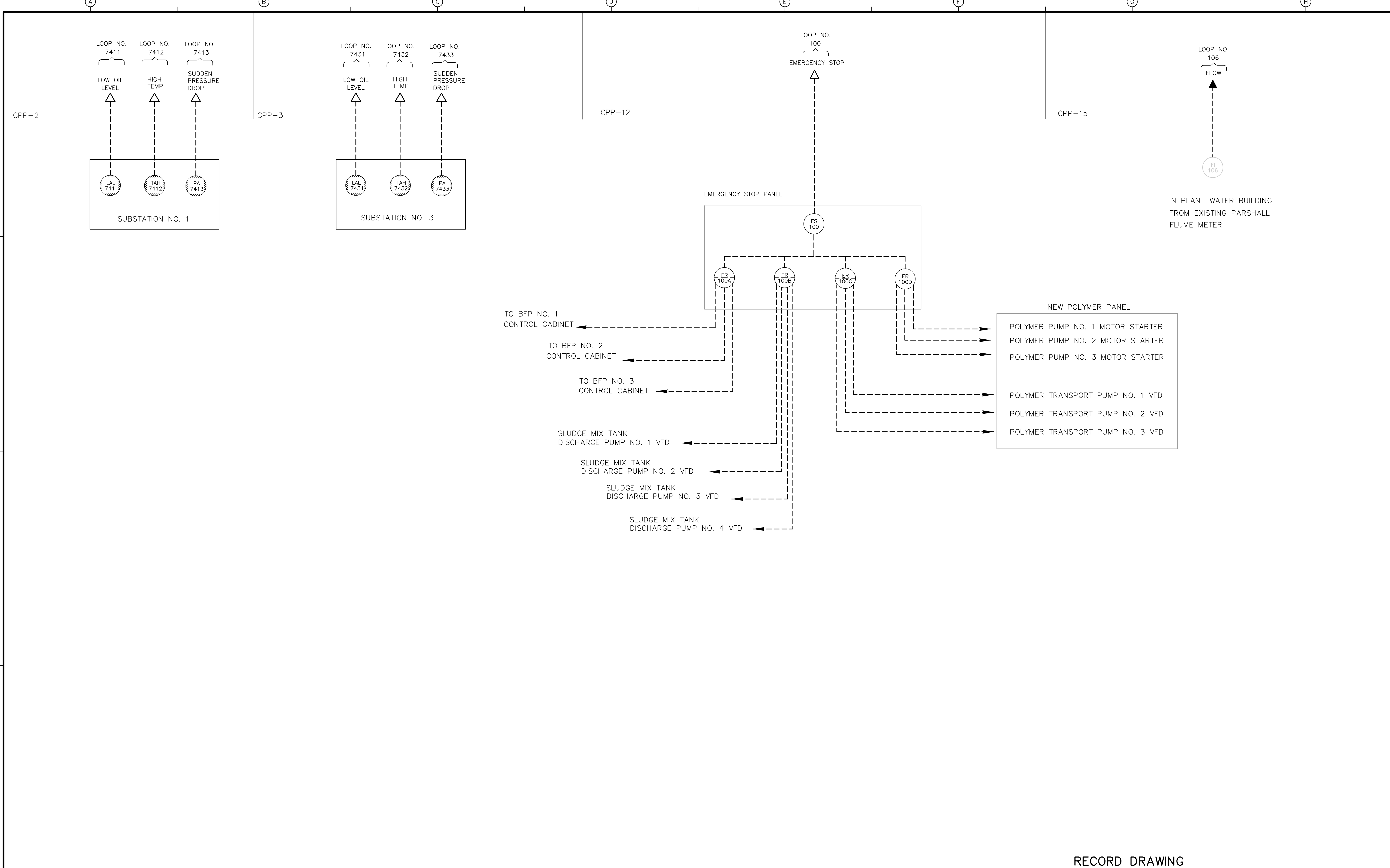
**MISCELLANEOUS DRAWING III**

PROJECT NO.  
1289\35370

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**P&ID-41**

Accession No. 1289-65702

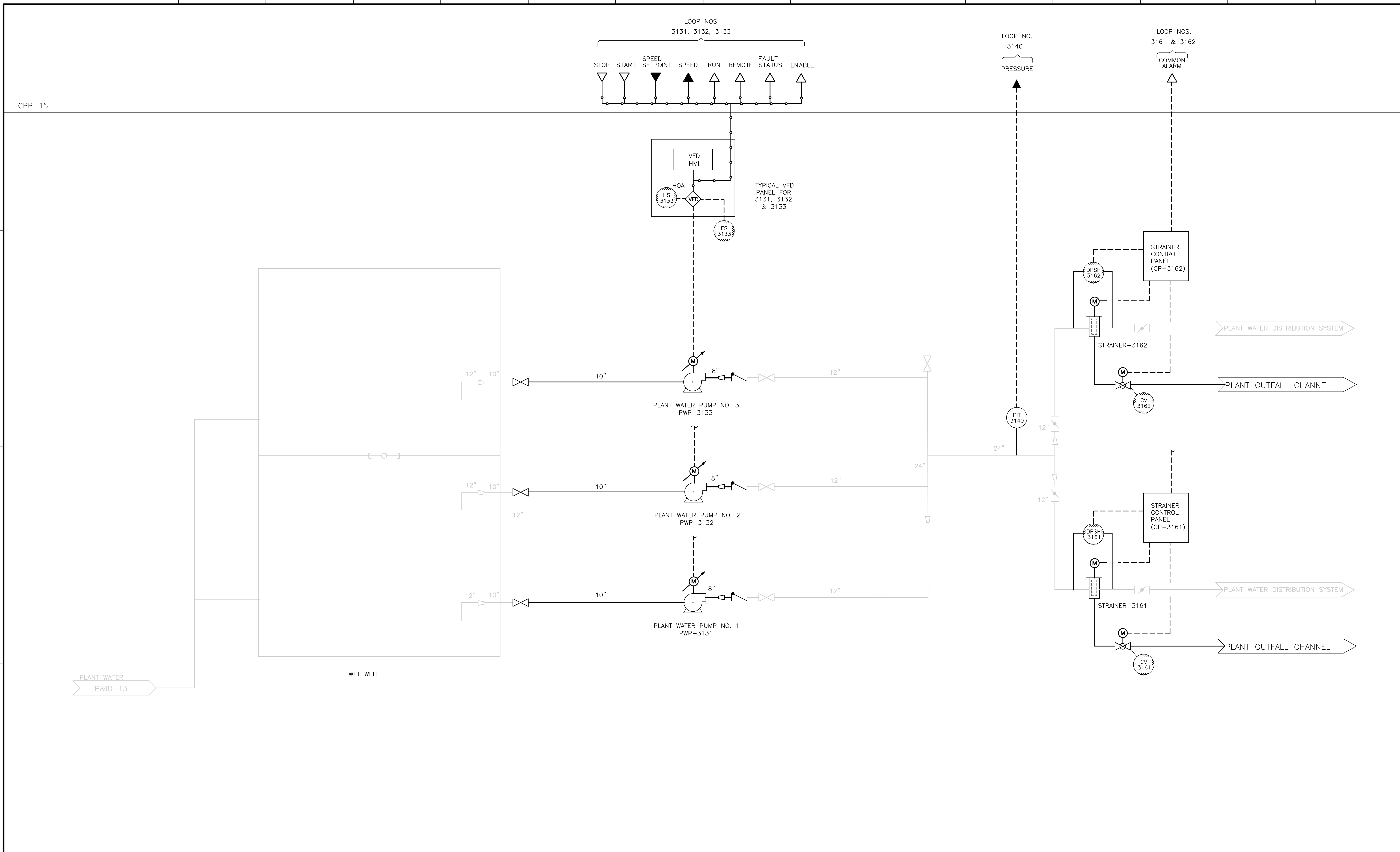


RECORD DRAWING

				CADD FILE NO. <u>IPID0042.DWG</u> DESIGNED BY: <u>P. MALACHOWSKI</u> DRAWN BY: <u>L. DESIMINI</u> SHEET CHK'D BY: <u>J. ROMEO</u> SCALE: <u>NONE</u> APPROVED BY: <u>E. MICHNOVEZ</u> DATE: <u>MAY 2006</u>				UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024		PROJECT NO. 1289\35370	
						<b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		<b>MISCELLANEOUS DRAWING IV</b>		Sht. 303 of 386 <b>P&amp;ID-42</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS							
	3/07	SPV	ADT	NO REVISION REQUIRED FOR THE RECORD							



[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
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RECORD DRAWING

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REV. NO.	DATE	DRWN	CHKD	REMARKS							
	3/07	SPV	ADT	NO REVISION REQUIRED FOR THE RECORD							

Accession No. 1289-6504

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	CS	MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER CS=CONTROL SWITCH
	CB	LOW VOLTAGE AIR OR MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED.
	⊠	COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE NOTED: *FVR - FULL VOLTAGE REVERSING RVNR - REDUCED VOLTAGE NON-REVERSING 2S1W - TWO SPEED, ONE WINDING 2S2W - TWO SPEED, TWO WINDING RVAT - REDUCED VOLTAGE AUTOTRANSFORMER RVSS - REDUCED VOLTAGE, SOLID STATE
	□	NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A
	F	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE, AMPERE RATING AND FUSE SIZE AS NOTED * AMPERE RATING NOTED IF OTHER THAN 30A * FUSE RATING
	P 2	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD HEATER, 1 POLE UNLESS OTHERWISE NOTED "P" INDICATES WITH PILOT LIGHT "2" INDICATES TWO POLE
		DRAWOUT TYPE EQUIPMENT OR DEVICE
		MEDIUM VOLTAGE CABLE TERMINATION
		MEDIUM VOLTAGE AIR INTERRUPTER SWITCH
		MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH * FUSE RATING
		MEDIUM VOLTAGE FUSED MOTOR CONTROLLER
	T	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED, UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS. ALL DRY TYPE TRANSFORMERS SERVING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 4. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING
	A TO 5	CURRENT TRANSFORMER * QUANTITY A = PRIMARY AMPERES
	V TO 120	POTENTIAL TRANSFORMER * QUANTITY V = PRIMARY VOLTAGE
	G	GENERATOR, RATINGS AND CONNECTIONS AS NOTED
		AUTOMATIC OR MANUAL TRANSFER SWITCH NO.1 (ATS-1), (MTS-1) "N" INDICATES NORMAL OR PREFERRED SOURCE "S" INDICATES STANDBY OR ALTERNATE SOURCE 100A INDICATES CONTINUOUS CURRENT RATING
	*	VARIABLE SPEED DRIVE CONTROLLER *D.C. = D.C. DRIVE CONTROLLER SCR= SILICON CONTROLLED RECTIFIER VFD= VARIABLE FREQUENCY DRIVE
	#KW OR #KW	UNIT HEATER - ELECTRIC HEATING COIL AND FAN # - RATING
	U	UNIT HEATER - STEAM OR WATER HEATING COIL AND FAN
	S (M)	MOTOR, NUMERAL INDICATES HORSEPOWER
	VS (VM)*	VOLTMETER WITH SWITCH, 3 PHASE
	AS (AM)*	AMMETER WITH SWITCH, 3 PHASE

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION																
		METER * WM - WATTMETER WHM - WATTHOUR METER WHDM - WATTHOUR DEMAND METER WHDR - WATTHOUR DEMAND RECORDER PF - POWER FACTOR METER ETM - ELAPSED TIME METER TRANSUDUCER AX - CURRENT TRANSUDUCER WX - WATT TRANSUDUCER WHX - WATTHOUR TRANSUDUCER																
	R	RELAY, NO. AS INDICATED 25 - SYNCHRONISM CHECK RELAY 27 - UNDERVOLTAGE RELAY 32 - DIRECTIONAL POWER RELAY 38 - BEARING PROTECTIVE DEVICE 40 - LOSS OF EXCITATION RELAY 42 - RUNNING CONTACTOR/PILOT RELAY 46 - REVERSE PHASE/PHASE BALANCE/CURRENT RELAY 47 - PHASE SEQUENCE VOLTAGE RELAY 49 - MACHINE OR TRANSFORMER THERMAL RELAY 50/51 - INSTANTANEOUS/TIME OVERCURRENT RELAY 50G - INSTANTANEOUS GROUND 51 - TIME OVERCURRENT RELAY 51G - TIME OVERCURRENT RELAY, GROUNDING RESISTOR TYPE 51N - TIME OVERCURRENT RELAY, RESIDUAL TYPE 51V - TIME OVERCURRENT RELAY WITH VOLTAGE RESTRAINT 51X - AUXILIARY RELAY (TRIPS CB AND ALARMS) 59 - OVERVOLTAGE RELAY 60 - NEGATIVE SEQUENCE VOLTAGE RELAY 62 - TIME DELAY RELAY 63 - OVERPRESSURE RELAY 64 - GENERATOR FIELD GROUND RELAY 67 - AC DIRECTIONAL OVERCURRENT RELAY 74 - ALARM LATCHING RELAY 83 - AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY 86 - LOCKING-OUT RELAY 87 - DIFFERENTIAL PROTECTIVE RELAY B - SUFFIX INDICATES "BUS" G - SUFFIX INDICATES "GENERATOR" CF - GROUND FAULT ST - SHUNT TRIP SUFFIX INDICATES "TRANSFORMER" X - SUFFIX INDICATES "AUXILIARY"																
		SPECIAL CAPACITOR * SC - SURGE CAPACITOR PF - POWER FACTOR CORRECTION CAPACITOR																
		TUNED POWER FACTOR CORRECTION CAPACITOR																
		PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED																
		PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN																
	ES	EMERGENCY STOP PUSHBUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)																
	PBL	START-STOP PUSHBUTTON CONTROL STATION (MOMENTARY CONTACT) WITH LOCKOUT DEVICE ON STOP																
	PBM	START-STOP PUSHBUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP																
	S/S	OFF/ON SELECTOR SWITCH																
	LR	LOCAL/REMOTE SELECTOR SWITCH																
		3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O-OPEN X-CLOSED <table border="1"> <thead> <tr> <th>POSITION</th> <th>TOP CONTACT</th> <th>MIDDLE CONTACT</th> <th>BOTTOM CONTACT</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>X</td> <td>O</td> <td>O</td> </tr> <tr> <td>B</td> <td>O</td> <td>O</td> <td>O</td> </tr> <tr> <td>C</td> <td>O</td> <td>O</td> <td>X</td> </tr> </tbody> </table>	POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT	A	X	O	O	B	O	O	O	C	O	O	X
POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT															
A	X	O	O															
B	O	O	O															
C	O	O	X															
		* NAMEPLATE (A/B/C) RSL - RAISE/STOP/LOWER HOA - HAND/OFF/AUTO TOA - TEST/OFF/AUTO HOR - HAND/OFF/REMOTE LOR - LOCAL/OFF/REMOTE (NOTE) 3/4" WITH NUMBER OF CONDUCTORS SHOWN ON ONE-LINE DIAGRAMS.																
	GDVF-*	GAS DETECTOR / VENTILATION FAILURE ALARM * INDICATES PANEL DESIGNATION																
	VF-*	VENTILATION FAILURE ALARM * INDICATES PANEL DESIGNATION																

**GENERAL NOTE**  
 THIS IS A STANDARD LEGEND.  
 SOME SYMBOLS MAY NOT APPEAR  
 ON THE DRAWINGS.

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	42	MOTOR STARTER COIL, NUMBER AS INDICATED TO DENOTE INTERLOCKING ONLY
	CR	CONTROL RELAY COIL, NUMBER AS INDICATED
		PILOT LIGHT, COLOR AS NOTED * R - RED G - GREEN B - BLUE W - WHITE A - AMBER
		TIME DELAY RELAY RANGE AS NOTED SETPOINT AS NOTED #NUMBER AS INDICATED TDD-TIME DELAY AFTER DE-ENERGIZATION-OFF DELAY
		NCTO-NORMALLY OPEN, TIMED CLOSING WHEN ENERGIZED
		NCTC-NORMALLY CLOSED, TIMED CLOSING WHEN DE-ENERGIZED
	*-##	FIELD INSTRUMENT, TAG NO. AS INDICATED * - INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS OR P & ID ## - INDICATES LOOP NO.
	LS OR ■	LIQUID LEVEL (FLOAT) SWITCH NORMALLY OPEN, CLOSING ON RISING LEVEL NORMALLY CLOSED, OPENS ON RISING LEVEL
	PS OR ■	PRESSURE OR VACUUM SWITCH NORMALLY OPEN, CLOSING ON RISING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE
	TS OR T OR ■	TEMPERATURE SWITCH OR THERMOSTAT NORMALLY OPEN, CLOSING ON RISING TEMPERATURE NORMALLY OPEN, CLOSING ON DROPPING TEMP. NORMALLY CLOSED, OPENS ON RISING TEMPERATURE NORMALLY CLOSED, OPENS ON DROPPING TEMP.
	FS OR ■	FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSING ON INCREASED FLOW NORMALLY CLOSED, OPENS ON INCREASED FLOW
	ZS OR ■	POSITION (LIMIT) SWITCH NORMALLY OPEN NORMALLY OPEN - HELD CLOSED NORMALLY CLOSED NORMALLY CLOSED - HELD OPEN
	TQ OR ■	TORQUE SWITCH NORMALLY OPEN, CLOSING ON HIGH TORQUE NORMALLY CLOSED, OPENS ON HIGH TORQUE
	#	UTILIZED IN CONJUNCTION WITH OTHER CONTROL SCHEMATIC SYMBOLS TO DEPICT THE PHYSICAL LOCATION OF THE DEVICE # REPRESENTS LOCATION SEE LOCATION LEGEND ON DRAWING

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
		CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED
		CONDUCTORS ELECTRICALLY CONNECTED
		INDICATES LIMITS OF ELECTRICAL EQUIPMENT OR WIRING ENCLOSURE
	LA	LIGHTNING ARRESTER
	⊙	GROUND OR GROUND ROD
	30A	FUSE, AMPERE RATING AS NOTED
	HTR	STRIP HEATER OR HEATING ELEMENT
		INDUCTOR
	TG	TACHOMETER GENERATOR
		CONTACT, NORMALLY OPEN (NO)
		CONTACT, NORMALLY CLOSED (NC)
		OVERLOAD RELAY HEATER
	K	KEY INTERLOCK
	TB	TERMINAL OR TEST BLOCK
	RTD	RESISTANCE TEMPERATURE DETECTOR
	VE OR VE	VIBRATION DETECTOR
	DM	DAMPER MOTOR
	ETM	ELAPSED TIME METER
	MO BY DIV. 16 OR M BY OTHERS	MOTOR OPERATED VALVE, GATE OR ACTUATOR

**ABBREVIATIONS**  
(CONTINUED)

SA	SURGE ARRESTER
SC	SURGE CAPACITOR
SEC	SECONDS OR SECONDARY
SH	SHIELDED
SHH	SIGNAL HANDHOLE
SHT	SHEET
SN	SOLID NEUTRAL
SS	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
<TBR>	TO BE REMOVED
TC	TIME TO CLOSE OR TRAY CABLE
TEL	TELEPHONE
THH	TELEPHONE HANDHOLE
TM	TELEPHONE BACKBOARD
TO	TIME TO OPEN
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TS	TWISTED SHIELDED
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPS
VAR	VOLT AMPS REACTIVE
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE, WATTS, WITH, WIDTH
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER

**ABBREVIATIONS**

A	AMPS
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
AIC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
BLDG	BUILDING
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLB	CURRENT LIMITING BREAKER
CLF	CURRENT LIMITING FUSE
CPT	CONTROL PANEL
CR	CONTROL RELAY
CS	CONTROL SWITCH
CT	CURRENT TRANSFORMER
CU	COPPER
CWS	CONDUIT WALL SEAL
DC	DIRECT CURRENT
DIA	DIAMETER
DMU	DIGITAL METERING UNIT
DN	DOWN
EC	EMPTY CONDUIT
ELEC	ELECTRICAL
ELEV	ELEVATION
EM	EMERGENCY
ENCL	ENCLOSURE OR ENCLOSED
EQUIP	EQUIPMENT
ETRY	EXISTING TO REMAIN
EW	ELECTRIC WATER COOLER
EW	ELECTRIC WATER HEATER
EX	EXISTING
FBO	FURNISHED BY OTHERS
FO	FIBER OPTIC
FRP	FIBERGLASS REINFORCED PLASTIC
FU	FUSE
GCP	GENERATOR CONTROL PANEL
GEN	GENERATOR
GB	GROUND BAR
G, GRD	GROUND
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
HH	HANDHOLE
HT	HEIGHT
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HZ	HERTZ
INST	INSTANTANEOUS
INSTR	INSTRUMENT OR INSTRUMENTATION
K	KILO (PREFIX)
KCMIL	1000 CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LA	LIGHTNING ARRESTER
LGTS	LIGHTS
LTG	LIGHTING
LP	LIGHTING PANEL
LV	LOW VOLTAGE
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MCM	1000 CIRCULAR MILS
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLU	MAIN LUGS ONLY
MMU	MICROPROCESSOR METERING UNIT
MTG	MOUNTING
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N	NEUTRAL
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
OH	OVERHEAD
PB	PULL BOX
OL	OVERLOAD
PCP	PUMP CONTROL PANEL
PH	PHASE
PHH	POWER MANHOLE
PMS	POWER MONITORING SYSTEM
PNL	PANEL OR PANELBOARD
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RECPT	RECEPTACLE
REQD	REQUIRED

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. ESYMB001.DWG
DESIGNED BY: JAR
DRAWN BY: MJF
SHEET CHK'D BY: BDS
SCALE: AS NOTED
APPROVED BY: B. SQUIBB
DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering constructor

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**ELECTRICAL SYMBOLS AND ABBREVIATIONS I**

PROJECT NO. 1289\35370  
 Sht. 305 of 386  
**GD-E-1**

RECORD DRAWING

SYMBOL	DESCRIPTION
	INCANDESCENT, COMPACT FLUORESCENT OR H.I.D. TYPE LIGHTING FIXTURE "A" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "b" - CONTROLLED BY SWITCH "b" "3" - CIRCUIT NUMBER
	FLUORESCENT TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	WALL MOUNTED INCANDESCENT, COMPACT FLUORESCENT OR H.I.D. TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	CROSS HATCH INDICATES LIGHTING FIXTURE UNSWITCHED FOR A WALKTHROUGH LIGHTING.
	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS "BU-1" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" - SUPERVISORY CIRCUIT "3" - FIXTURE TAG #
	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS "R-2" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" - HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
	COMBINATION BATTERY UNIT AND EXIT SIGN
	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS
	WALL MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS
	REMOTE EMERGENCY CEILING LIGHTING FIXTURE. "RH-3" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" - SUPERVISORY CIRCUIT "3" - HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
	BRANCH CIRCUIT CONDUIT WITH 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UN. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS. ALSO INDICATES UNDERGROUND DUCT BANK ON SITE PLANS.
	BRANCH CIRCUIT CONDUIT WITH 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UN. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS.
	BRANCH CIRCUIT CONDUIT INSTALLED EXPOSED TURNING UP. CONDUIT TO CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UN. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS.
	BRANCH CIRCUIT CONDUIT INSTALLED EXPOSED TURNING DOWN. CONDUIT TO CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UN. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS.
	BRANCH CIRCUIT CONDUIT INSTALLED CONCEALED TURNING UP. CONDUIT TO CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UN. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS.
	BRANCH CIRCUIT CONDUIT INSTALLED CONCEALED TURNING DOWN. CONDUIT TO CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UN. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS.
	CONDUIT STUBBED OUT AND CAPPED
	DENOTES A QUANTITY OF TWO (2) 3-INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND 1 NO. 2 AWG GROUND CONDUCTOR.
	DENOTES A QUANTITY OF TWO INSTRUMENT CABLES. EACH CABLE TO CONSIST OF TWO NO. 16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
	SAME AS ABOVE EXCEPT CABLE TO CONSIST OF THREE NO. 16 AWG CONDUCTORS TWISTED, SHIELDED AND COVERED WITH AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
	THREE 4-INCH CONDUITS
	FLEXIBLE METAL CONDUIT "WHIP" (2#12, 1#12G, 3/4" C. UNLESS OTHERWISE NOTED) FOR RECESSED LIGHTING FIXTURES AND LIQUID TIGHT MOTOR CONNECTIONS
	HOMERUN, CIRCUIT NO. 3 RUN TO PANEL LP1 OR EQUIPMENT AS NOTED. CONDUIT SHALL BE 3/4" WITH 2 NO. 12 AWG AND 1 NO. 12 AWG GROUND UNLESS OTHERWISE INDICATED.
	CONDUIT SEAL FITTING SHOWN IN OTHER THAN CODE REQUIRED LOCATIONS.
	INDICATES MOTOR STARTER AND/OR MOTOR CONTROL EQUIPMENT WITHIN THE ENCLOSURE.

SYMBOL	DESCRIPTION
	SINGLE POLE SWITCH "b" INDICATES FIXTURES CONTROLLED.
	DOUBLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED.
	THREE WAY SWITCH "c" INDICATES FIXTURES CONTROLLED.
	FOUR WAY SWITCH "a" INDICATES FIXTURES CONTROLLED.
	SINGLE POLE, DOUBLE THROW MOMENTARY CONTACT SWITCH, CENTER OFF
	SINGLE POLE SWITCH AND PILOT LIGHT
	DIMMER LIGHTING CONTROL SWITCH
	LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED
	TIME SWITCH
	INDICATES ALL LIGHTING FIXTURES WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED. SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	LIGHTING PANELBOARD (LP)
	POWER PANELBOARD (PP), DISTRIBUTION PANELBOARD (DP) OR RECEPTACLE PANELBOARD (RP); VOLTAGE AS SHOWN ON DRAWING
	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W * C - MOUNTED ABOVE COUNTER-TOP GF - GROUND FAULT INTERRUPTER TYPE WP - WEATHERPROOF T - TRANSIENT VOLTAGE SURGE SUPPRESSOR IC - ISOLATED GROUND 4 - CIRCUIT NUMBER
	SIMPLEX RECEPTACLE, 20A, 120V, 2P, 3W, NOTATIONS SAME AS ABOVE FOR DUPLEX RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE - VOLT RATING = 480, 3P - NUMBER OF POLES = 3 POLE - AMPERE RATING = 20 AMP - NEMA L16-20R
	COMBINATION 20A, 120V, 2P, 3W DUPLEX AND 20A, 240V, 2P, 3W SINGLE RECEPTABLES UNDER COMMON PLATE
	SINGLE FACE, SINGLE GANG PEDESTAL WITH 20A, 120V, 2P, 3W DUPLEX RECEPTACLE, FURNISHED AND INSTALLED UNDER DIVISION 16 UNLESS OTHERWISE NOTED. * DENOTES FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS BUT INSTALLED UNDER DIVISION 16
	DOUBLE FACE, SINGLE GANG PEDESTAL WITH 20A, 120V, 2P, 3W DUPLEX RECEPTACLE AND 20A, 240V, 2P, 3W SINGLE RECEPTACLE, FURNISHED AND INSTALLED UNDER DIVISION 16 UNLESS OTHERWISE NOTED. * DENOTES FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS BUT INSTALLED UNDER DIVISION 16
	DOUBLE RECEPTACLE, 20A, 120V, 2P, 3W MOUNTED IN BOX CURB FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS BUT INSTALLED UNDER DIVISION 16
	MULTI-OUTLET ASSEMBLY, SYMBOL DENOTES RECEPTACLE TYPE
	FLOOR OUTLET BOX WITH TYPE OUTLET INDICATED
	UNDERFLOOR DUCT SYSTEM WITH TYPE OUTLETS INDICATED
	THREE CELL UNDERFLOOR DUCT SYSTEM JUNCTION BOX
	JUNCTION BOX
	PULL BOX
	CONTROL STATION * REFER TO CONTROL WIRING DIAGRAMS FOR DEVICES AT STATION.
	OCCUPANCY SENSOR
	PHOTOCELL

SYMBOL	DESCRIPTION
	EMERGENCY SHOWER ALARM STATION WITH FLOW SWITCH(ES)
	SINGLE FACE CLOCK AND CLOCK HANGER OUTLET
	GAS DETECTOR/VENTILATION FAILURE ALARM, # INDICATES TYPE OF UNIT. 1 = MASTER, 2 = REMOTE
	FIBER OPTIC INTERFACE PANEL (AS REQUIRED FOR SPECIFIC SYSTEM)
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 12 CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR CORROSION RESISTANT CONSTRUCTION SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL CONFORM TO N.E.C. REQUIREMENTS FOR THE HAZARDOUS AREA CLASSIFICATION 3R.
	GROUND SYSTEM GRID OR LOOP, 36" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED.
	INDICATED EQUIPMENT AND MATERIALS TO BE DEMOLISHED
	EXOTHERMIC WELD CONNECTION
	INDICATE EQUIPMENT TO BE ABANDONED IN PLACE
<b>COMMUNICATIONS SYSTEMS</b>	
	TELEPHONE OUTLET FOR DESK TYPE HANDSET K = KEY SYSTEM
	TELEPHONE OUTLET FOR WALL TYPE HANDSET (MOUNT UP 4'-6") K = KEY SYSTEM
	PAGE/PARTY TELEPHONE OUTLET FOR DESK TYPE HANDSET
	PAGE/PARTY TELEPHONE OUTLET FOR WALL TYPE HANDSET (MOUNT UP 4'-6")
	PAGING SPEAKER, WALL MOUNTED H = DENOTES HORN TYPE W = DENOTES WIDE ANGLE TYPE
	PAGING SPEAKER, WALL MOUNTED, BI-DIRECTIONAL, HORN TYPE W = DENOTES WIDE ANGLE TYPE
	PAGING SPEAKER, FLUSH MOUNTED CEILING TYPE
	PAGING SPEAKER, SURFACE MOUNTED CEILING TYPE
	REMOTE WALL MOUNTED VOLUME CONTROL FOR CEILING SPEAKER (MOUNT UP 5'-0")
	PAGING SPEAKER AMPLIFIER ASSEMBLY
	TELEPHONE CABINET OR BACKBOARD AS NOTED
	DATA INPUT/OUTPUT CABLE OUTLET. "P" DENOTES PROCESS COMPUTER SYSTEM
<b>SECURITY SYSTEMS</b>	
	SECURITY ALARM CONTROL PANEL
	SECURITY ALARM DOOR SWITCH
	SECURITY ALARM KEY PAD
	SECURITY SYSTEM CARD ACCESS READER
	SECURITY ALARM WINDOW SWITCH
	SECURITY ALARM MOTION DETECTOR
	CLOSED CIRCUIT TV CAMERA
	PAN, TILT, ZOOM CAMERA LENS CONTROLS
	GLASS BREAK DETECTOR

SYMBOL	DESCRIPTION
<b>POWER MONITORING</b>	
	MULTI-METERING UNIT (REFER TO SPECS)
	DIGITAL METERING UNIT (REFER TO SPECS)
	ETHERNET SWITCH
<b>FIRE ALARM SYSTEMS</b>	
	FIRE ALARM HEAT DETECTOR 135°F FIXED TEMPERATURE UNLESS OTHERWISE NOTED. "200" DENOTES 200°F FIXED TEMPERATURE. "R" DENOTES FIXED TEMPERATURE RATE-OF-RISE TYPE. ADDR ID#PT-11 W/ DB-11 BASE
	CONVENTIONAL EXPLOSION PROOF THERMAL DETECTOR DT-190EP
	FIRE ALARM SMOKE DETECTOR PHOTOELECTRIC TYPE UNLESS OTHERWISE NOTED. "I" DENOTES IONIZATION TYPE.
	FIRE ALARM DUCT SMOKE DETECTOR
	FIRE ALARM CONTROL PANEL MXLV
	FIRE ALARM VENTILATION PANEL WITH GRAPHIC PANEL
	REMOTE FIRE ALARM ANNUNCIATOR PANEL
	FIRE ALARM MASTER BOX
	FIRE ALARM HORN, MOUNT UP 7'-6"
	FIRE ALARM STROBE, MOUNT UP 6'-8". * = CANDELA RATING AS SHOWN ON PLANS
	FIRE ALARM HORN AND STROBE LIGHT COMBINATION, MOUNT UP 6'-8". * = CANDELA RATING AS SHOWN ON PLANS
	WEATHER PROOF HORN LOUDSPEAKER STH-15SR AND WEATHER PROOF STROBE ONLY UNIT WP-SBB-R. NOTE: DEVICES MOUNT SEPARATELY
	EXPLOSION PROOF HORN LOUDSPEAKER AM-302-X AND EXPLOSION PROOF STROBE ONLY UNIT 27XST. NOTE: DEVICES MOUNT SEPARATELY
	FIRE ALARM MANUAL PULL STATION, MOUNT UP 4'-0"
	CONVENTIONAL WEATHER PROOF MANUAL PULL STATION #MSM-K-WP, MOUNT UP 4'-0"
	CONVENTIONAL EXPLOSION PROOF MANUAL PULL STATION #MSM-EXP, MOUNT UP 4'-0"
	SPRINKLER VALVE SUPERVISORY SWITCH.
	SPRINKLER FLOW ALARM SWITCH
	FIRE ALARM BELL
	WEATHERPROOF HI-INTENSITY FIRE ALARM STROBE LIGHT WITH HORN
	PASSIVE INFRARED DETECTOR
	SMOKE BEAM DETECTOR (RECEIVER)
	SMOKE BEAM DETECTOR (TRANSMITTER)
	FIRE ALARM SMOKE DETECTOR REMOTE INDICATOR AND TEST SWITCH
	ZONE ADDRESSIBLE MODULE
	INDIVIDUAL ADDRESSIBLE MODULE
	GAS DETECTION & VENTILATION FAILURE ALARM HORN/STROBE UNIT CLASSIFICATIONS
	GAS DETECTION & VENTILATION FAILURE ALARM HORN FOR "XP" AREA CLASSIFICATIONS
	GAS DETECTION & VENTILATION FAILURE ALARM BEACON FOR "XP" AREA CLASSIFICATIONS
	INTELLIGENT ADDRESSIBLE MONITORING MODULE TRI-B6M
	INTELLIGENT ADDRESSIBLE SINGLE INPUT MONITORING MODULE W/ RELAY MODULE TRI-R
	INTELLIGENT ADDRESSIBLE DUAL INPUT MONITORING MODULE TRI-D
	INTELLIGENT ADDRESSIBLE SINGLE INPUT MONITORING MODULE TRI-S
	DUAL SYNCHRONIZATION MODULE DSM
	LIGHTNING ARRESTER CP-2297

**NOTES:**

- THE PLANS DO NOT SHOW RACEWAYS AND CONDUCTORS BETWEEN RECEPTABLES, LIGHTING FIXTURES AND SWITCHES. HOWEVER, THE CONTRACTOR SHALL FURNISH AND INSTALL THESE CONNECTIONS IN ACCORDANCE WITH THE ASSIGNED FIXTURE OR RECEPTACLE CIRCUIT NUMBER AND SWITCH DESIGNATIONS. HOMERUNS SHOWN CONCEALED SHALL BE INDICATIVE OF ENTIRE CIRCUIT INSTALLATION. THE SAME SHALL APPLY FOR HOMERUNS SHOWN EXPOSED. REFER TO SPECIFICATIONS FOR MATERIALS AND INSTALLATION REQUIREMENTS.
- CONDUIT AND WIRE (NOT SHOWN) FOR FIXTURES, SWITCHES AND/OR RECEPTABLES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE:
  - 1" (MIN.) CONDUIT RUN
  - EXPOSED IN UNFINISHED AREAS.
  - CONCEALED ABOVE HUNG CEILINGS AND IN WALLS AND SLABS IN FINISHED AREAS.
  - NO. 12 COPPER (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED.
- THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
- SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTABLES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. EXCEPT RECEPTABLES IN OFFICES OR AREAS WITH HUNG CEILINGS, OR AREAS WITH 9-INCH CONCRETE BLOCK WALLS, WHICH SHALL BE MOUNTED 1'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
- SWITCHGEAR AND MCC COMPARTMENT DESIGNATIONS AS INDICATED BELOW:
  - BLANK: NOT INTENDED FOR USE. PLATE ONLY
  - SPACE: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS WITHIN SIZE RANGE SHOWN
  - SPARE: CONTAINS A COMPLETE BREAKER OR STARTER INSTALLED TO SPECIFICATIONS FOR FUTURE USE

SHEET NO. WHERE DETAIL IS DRAWN

**SYMBOL WHERE THERE IS A DETAIL**

SUBTITLE  
**DETAIL**  
1" = 1"

SHEET NO. WHERE THERE IS A DETAIL

**SYMBOL WHERE DETAIL IS DRAWN**

SUBTITLE  
**DETAIL SYMBOL**

SHEET NO. WHERE SECTION IS DRAWN

**SYMBOL WHERE THERE IS A SECTION**

SUBTITLE  
**SECTION**  
1" = 1"

SHEET NO. WHERE SECTION IS TAKEN

**SYMBOL WHERE SECTION IS DRAWN**

SUBTITLE  
**SECTION SYMBOL**

**GENERAL NOTE**

THIS IS A STANDARD LEGEND.  
SOME SYMBOLS MAY NOT APPEAR  
ON THE DRAWINGS.

**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

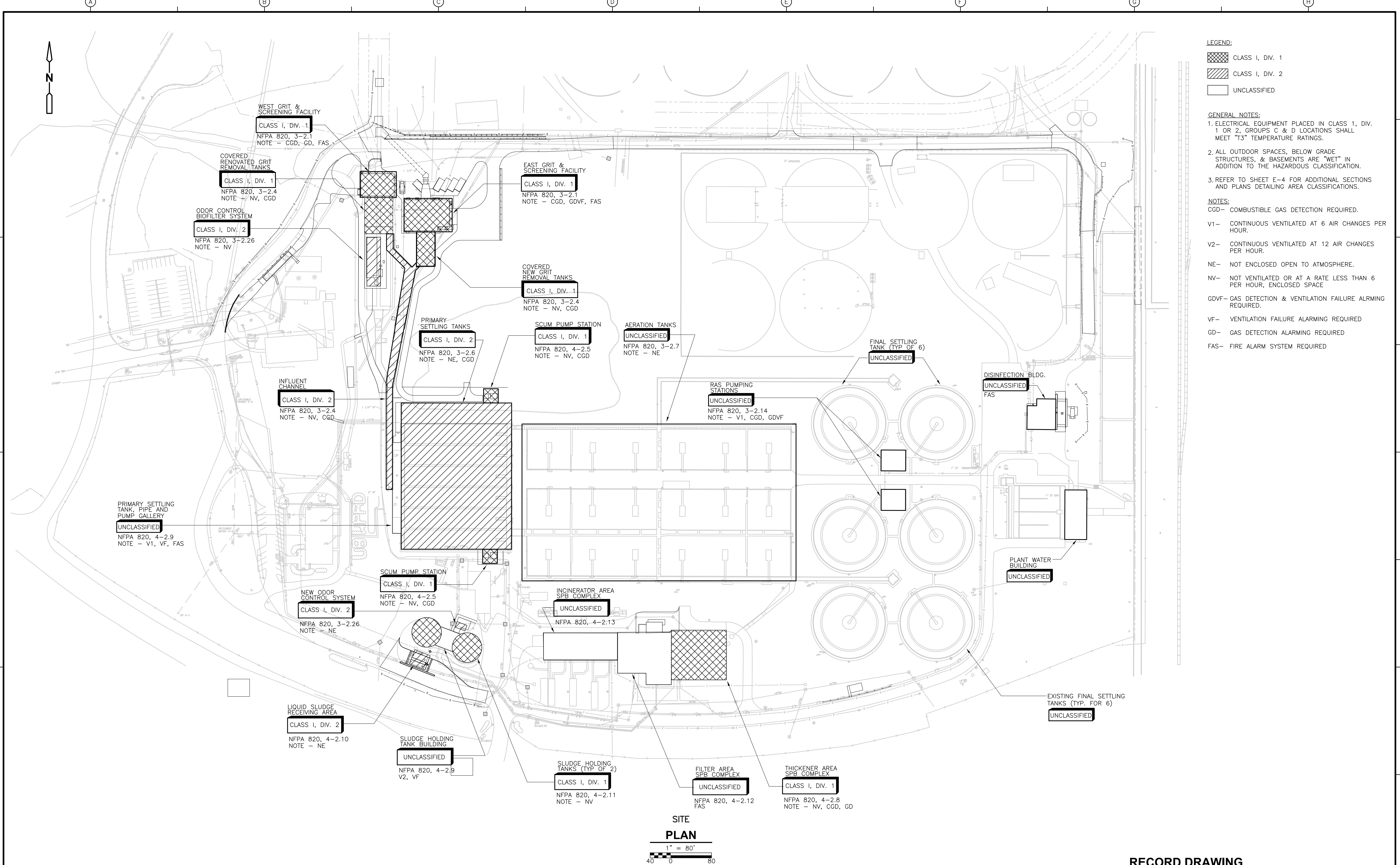
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DESIGNED BY: <b>JAR</b>
DRAWN BY: <b>MJF</b>
SHEET CHK'D BY: <b>BDS</b>
SCALE: <b>AS NOTED</b>
APPROVED BY: <b>B. SQUIBB</b>
DATE: <b>MAY 2006</b>

<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations
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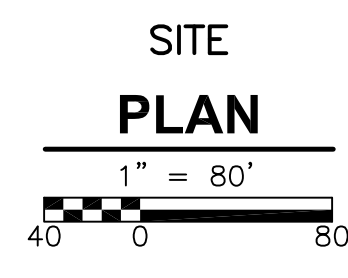
<b>UPPER BLACKSTONE</b> WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
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<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>
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<b>ELECTRICAL SYMBOLS AND ABBREVIATIONS II</b>
PROJECT NO. 1289\35370
Sht. 306 of 386
<b>GD-E-2</b>



- LEGEND:**
- CLASS I, DIV. 1
  - CLASS I, DIV. 2
  - UNCLASSIFIED
- GENERAL NOTES:**
1. ELECTRICAL EQUIPMENT PLACED IN CLASS 1, DIV. 1 OR 2, GROUPS C & D LOCATIONS SHALL MEET "T3" TEMPERATURE RATINGS.
  2. ALL OUTDOOR SPACES, BELOW GRADE STRUCTURES, & BASEMENTS ARE "WET" IN ADDITION TO THE HAZARDOUS CLASSIFICATION.
  3. REFER TO SHEET E-4 FOR ADDITIONAL SECTIONS AND PLANS DETAILING AREA CLASSIFICATIONS.
- NOTES:**
- CGD- COMBUSTIBLE GAS DETECTION REQUIRED.
  - V1- CONTINUOUS VENTILATED AT 6 AIR CHANGES PER HOUR.
  - V2- CONTINUOUS VENTILATED AT 12 AIR CHANGES PER HOUR.
  - NE- NOT ENCLOSED OPEN TO ATMOSPHERE.
  - NV- NOT VENTILATED OR AT A RATE LESS THAN 6 PER HOUR, ENCLOSED SPACE
  - GDVF- GAS DETECTION & VENTILATION FAILURE ALARMING REQUIRED.
  - VF- VENTILATION FAILURE ALARMING REQUIRED
  - GD- GAS DETECTION ALARMING REQUIRED
  - FAS- FIRE ALARM SYSTEM REQUIRED



**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. <u>EPLAN002.DWG</u>
DESIGNED BY: <u>JAR</u>
DRAWN BY: <u>MJF</u>
SHEET CHK'D BY: <u>BDS</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>B. SQUIBB</u>
DATE: <u>MAY 2006</u>

**CDM**  
Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

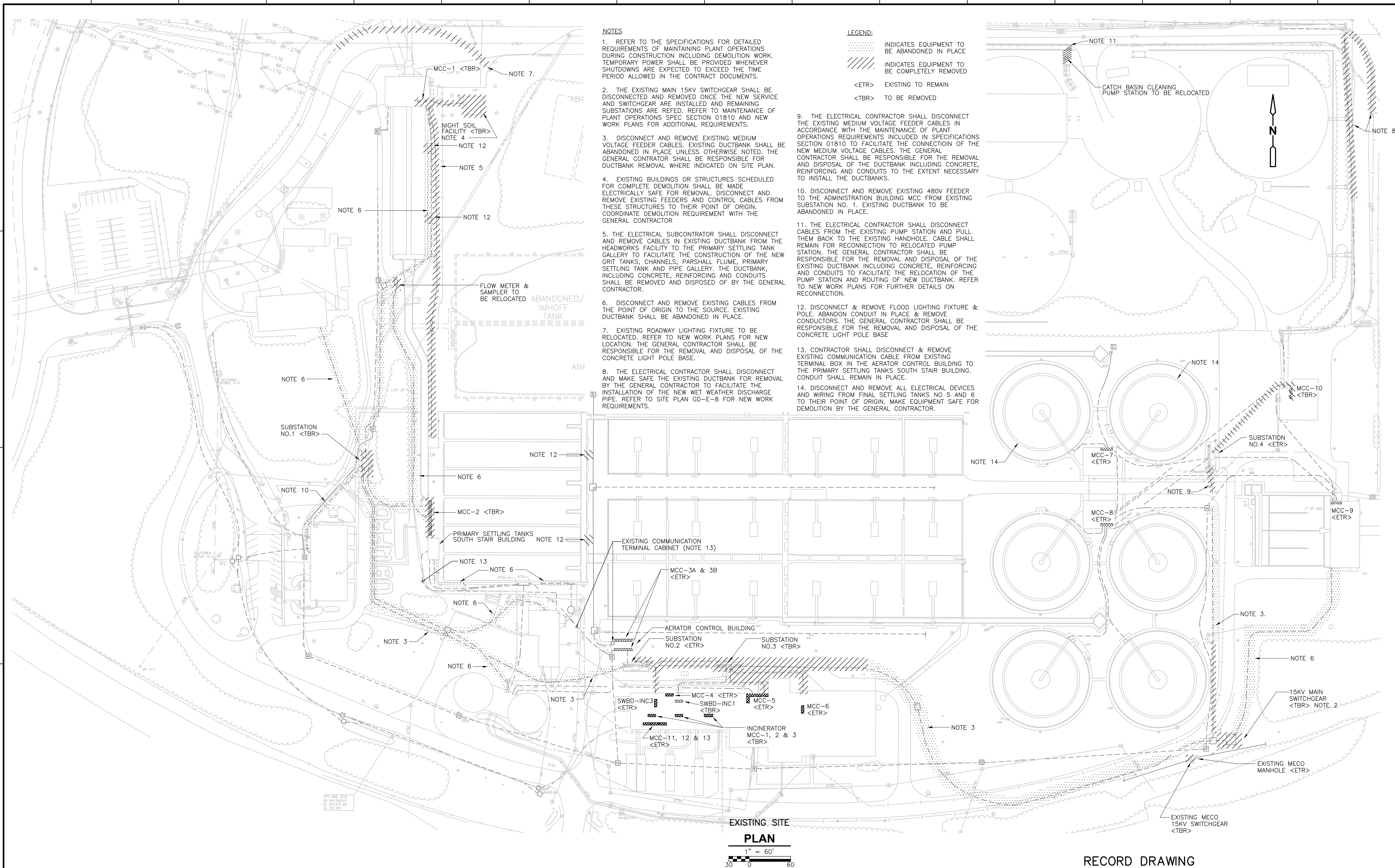
**ELECTRICAL AREA  
CLASSIFICATION SITE PLAN**

PROJECT NO.  
1289\35370

Sht. 307 of 386

**GD-E-3**





RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	ESTDM001
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

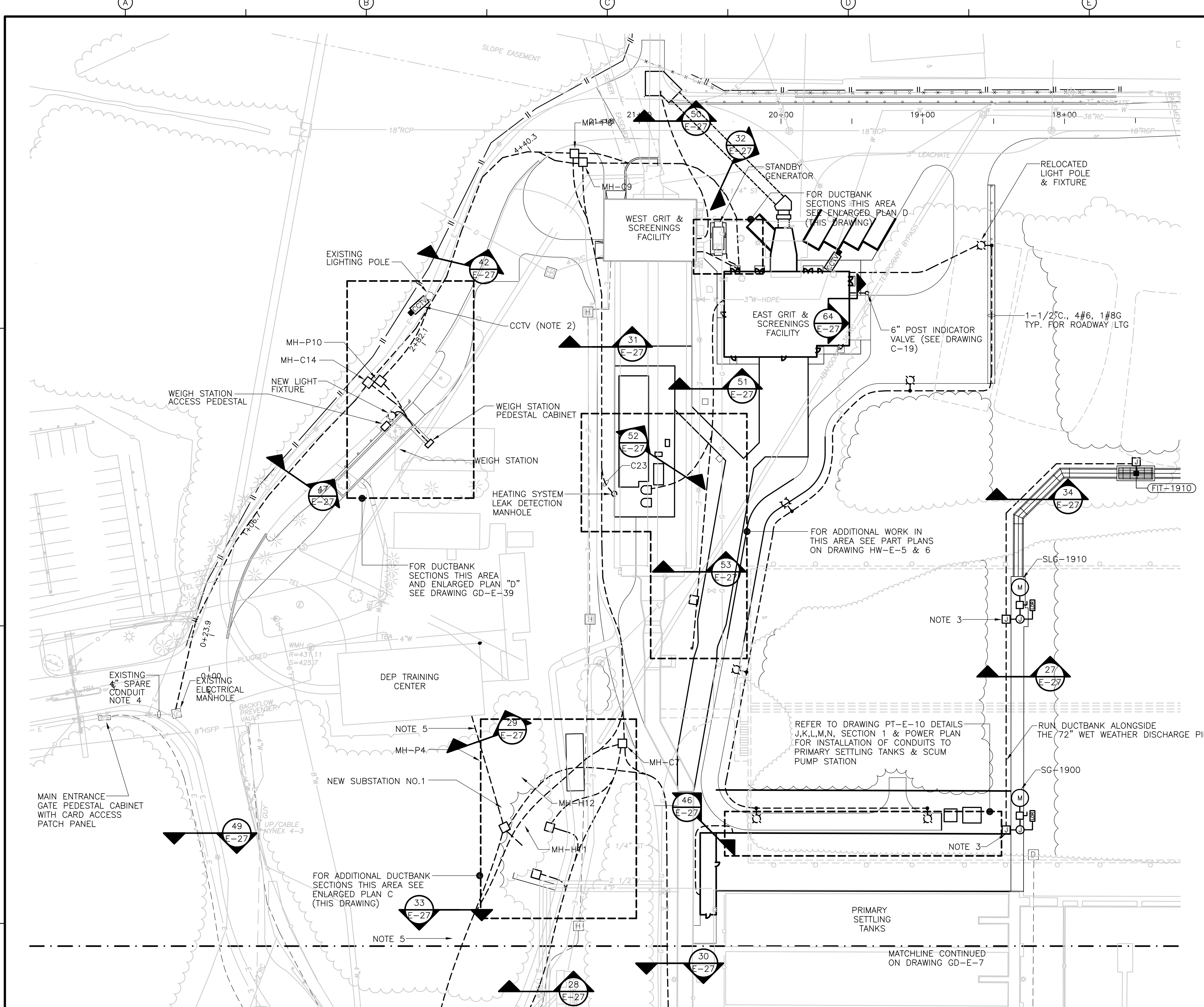
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY**  
 IMPROVEMENTS

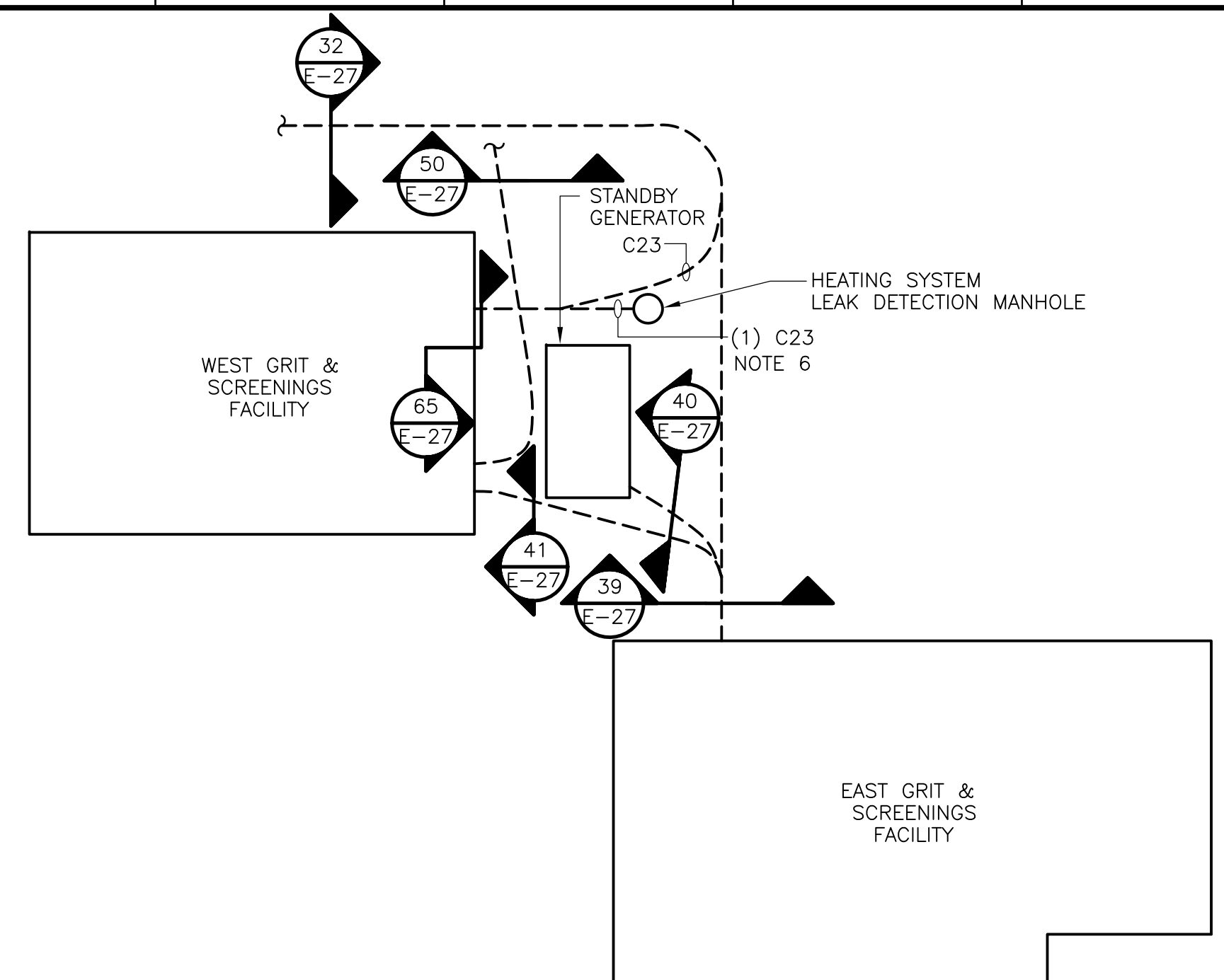
**OVERALL ELECTRICAL SITE**  
 DEMOLITION PLAN

PROJECT NO. 1289\35370  
 Sht. 309 of 386  
**GD-E-5**

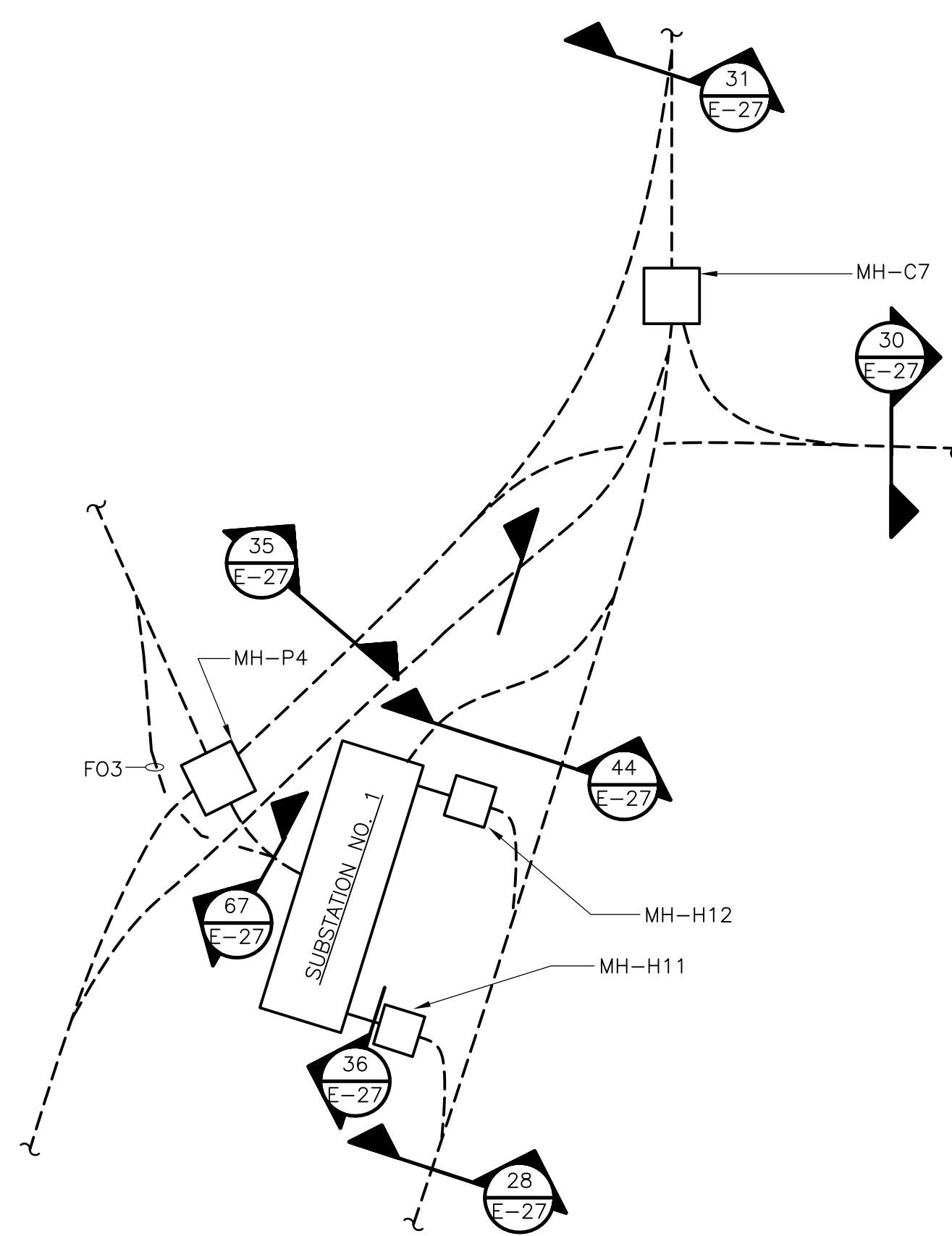


- NOTES:**
- ALL DUCTBANK SECTIONS DRAWING REFERENCE IDENTIFICATION IS PREFIXED BY THE SUFFIX GD-
  - MOUNT NEW CCTV CAMERA ON EXISTING POLE. CONTRACTOR SHALL PROVIDE ALL REQUIRED MOUNTING HARDWARE TO ATTACH CAMERA HOUSING TO POLE.
  - PROVIDE & INSTALL BARRIER IN JUNCTION BOX TO SEGREGATE ANALOG (4-20mA) SIGNALS FROM POWER & DIGITAL SIGNALS.
  - USE EXISTING 4" SPARE CONDUIT TO RUN FIBER OPTIC CABLE FOR CCTV & CARD ACCESS (FO2 & T1) FROM MAIN GATE PEDESTAL CABINET TO WEIGH STATION PEDESTAL CABINET, REFER TO DRAWING GD-E-32.
  - COORDINATE NEW DUCTBANK WITH EXISTING TREES. PROPOSED DUCTBANK ROUTING SHALL BE STAKED BY CONTRACTOR PRIOR TO EXCAVATION FOR APPROVAL BY OWNER & ENGINEER.
  - FOR CONDUIT & CONDUCTOR SIZES REFER TO DRAWING GD-E-26.
  - FOR DUCTBANK AND EQUIPMENT LOCATION REFER TO WALSH AS-BUILT SITE PLAN FOR DETAILS.

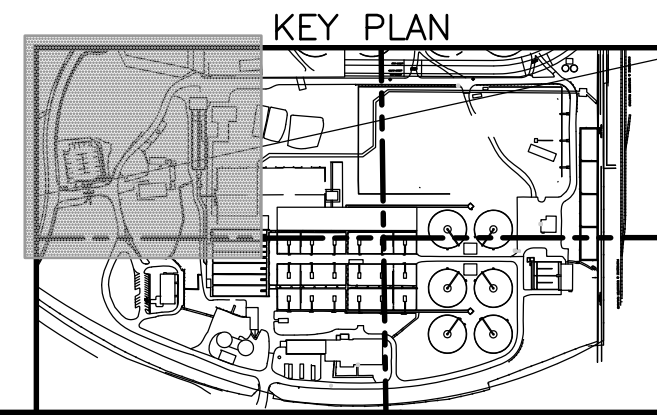
**ELECTRICAL SITE I  
PLAN**  
1" = 40'  
0 20 40



**ENLARGED PLAN D  
PLAN**  
NTS



**ENLARGED PLAN C  
PLAN**  
NTS



**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	ESITE001.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

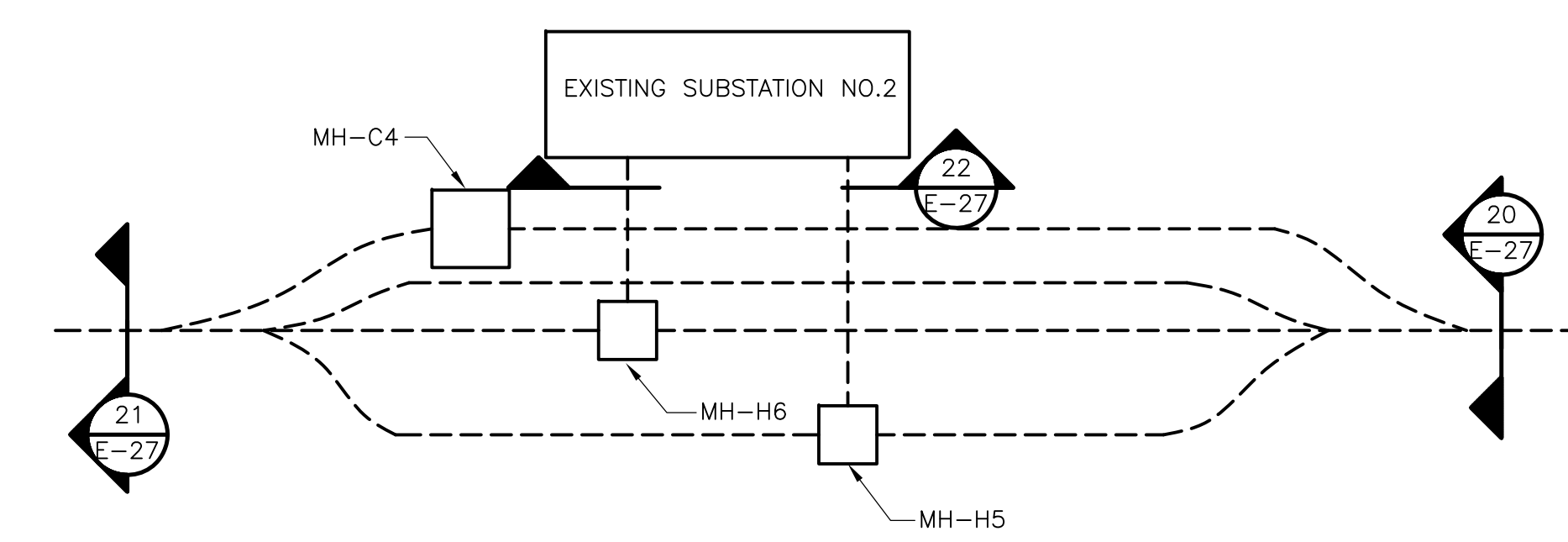
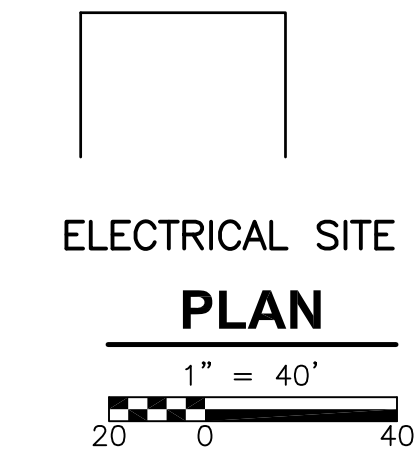
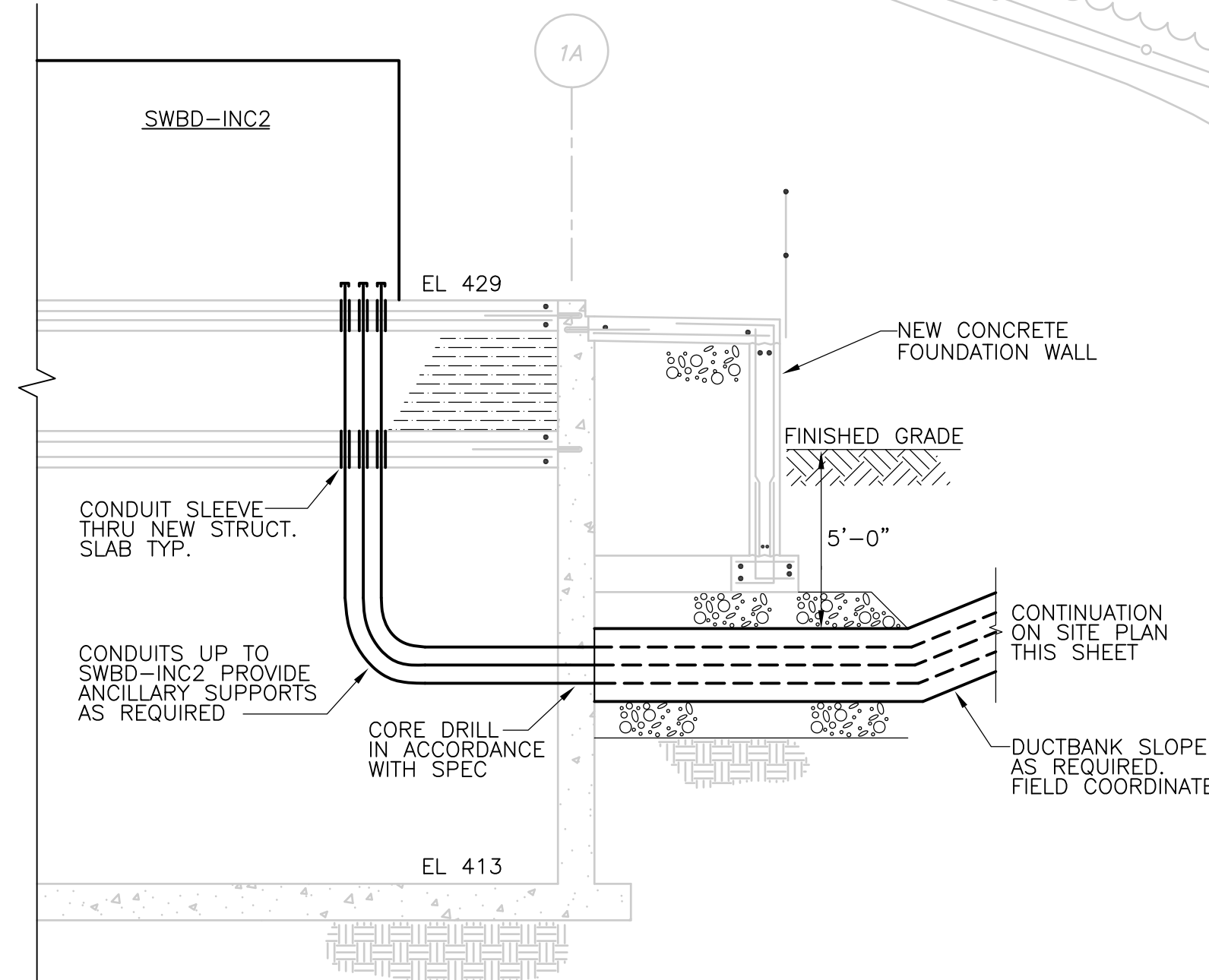
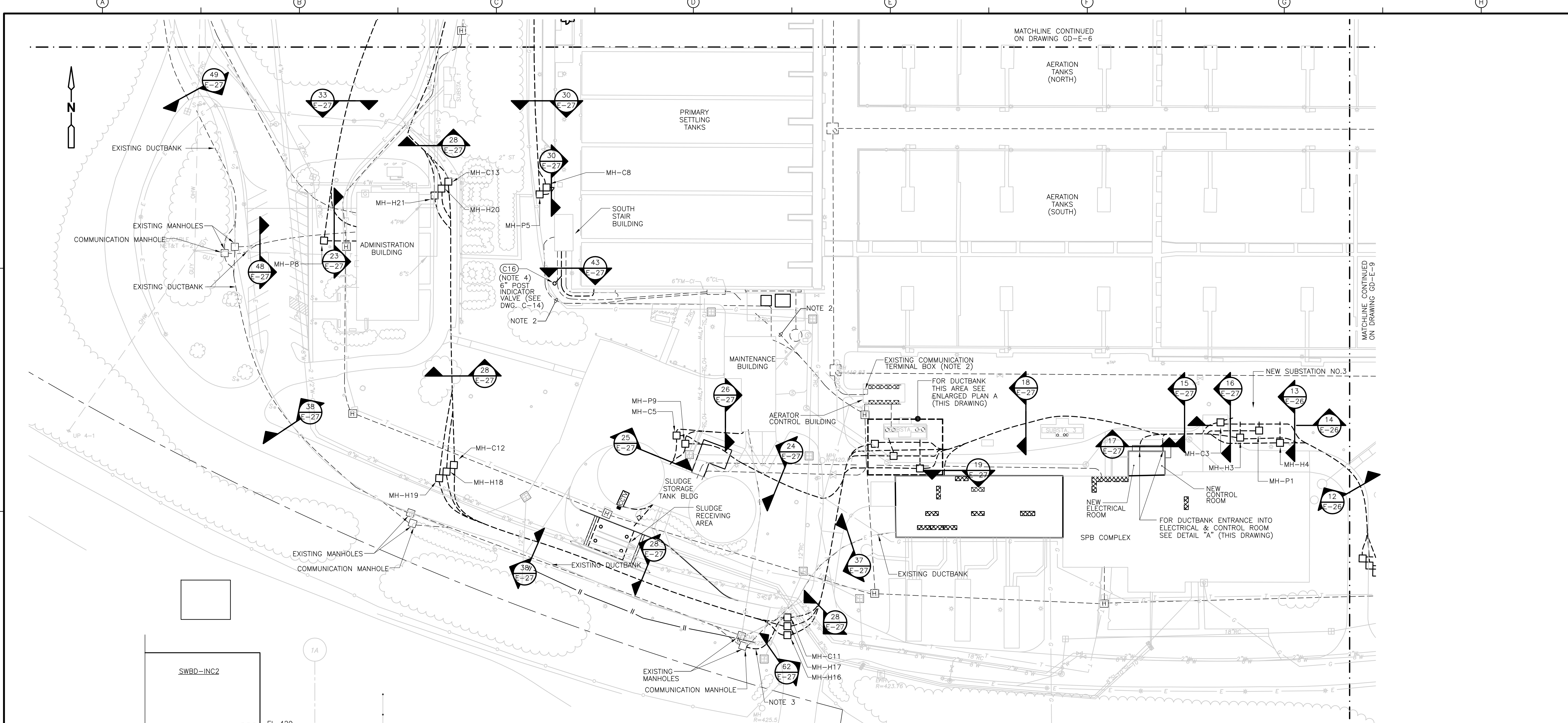
**ELECTRICAL  
SITE PLAN I**

PROJECT NO.  
1289\35370

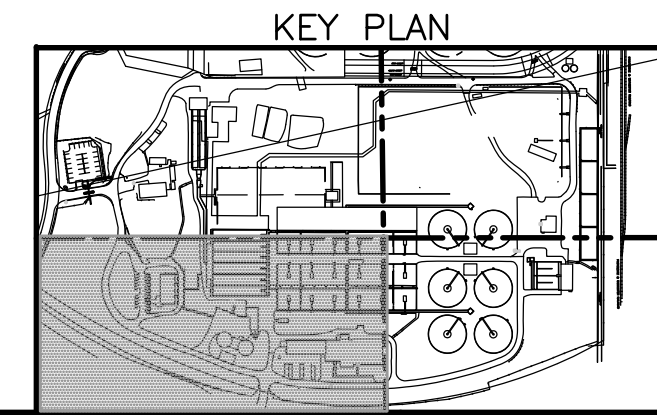
Sht. 310 of 386

**GD-E-6**

[UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS] File: P:\1289\35370\PHASE I\RECORD\ELEC\ESITE02.dwg Xref's: [C24\36H, ESITE00, EBSPL000, CBSPL000, CSVPLO00, ] Plotted by: CROSSHA Time: 12/16/08 6:32:57 PM



- NOTES:**
1. ALL DUCTBANK SECTIONS DRAWING REFERENCE IDENTIFICATION IS PREFIXED BY THE SUFFIX GD-
  2. PROVIDE & INSTALL NEW COMMUNICATION CABLE FROM TERMINAL BOX LOCATED IN THE AERATOR CONTROL BUILDING TO THE SEDIMENTATION TANKS SOUTH STAIR BUILDING USING EXISTING DUCTBANK AS INDICATED ON DEMO PLAN DRAWING GD-E-5
  3. INSTALL 2-2" SCH. 40 PVC CONDUITS FROM EXISTING COMMUNICATION MANHOLE TO MH-C11 FOR ROUTING OF TELEPHONE CABLE.
  4. REFER TO DUCTBANK SECTIONS AND SCHEDULES FOR CONDUIT & CONDUCTOR SIZES.



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. ESITE002.DWG  
 DESIGNED BY: JAR  
 DRAWN BY: JAR  
 SHEET CHK'D BY: BDS  
 SCALE: AS NOTED  
 APPROVED BY: B. SQUIBB  
 DATE: MAY 2006

PROJECT NO. 1289\35370  
 SHEET NO. 311 OF 386  
 DRAWING NO. GD-E-7

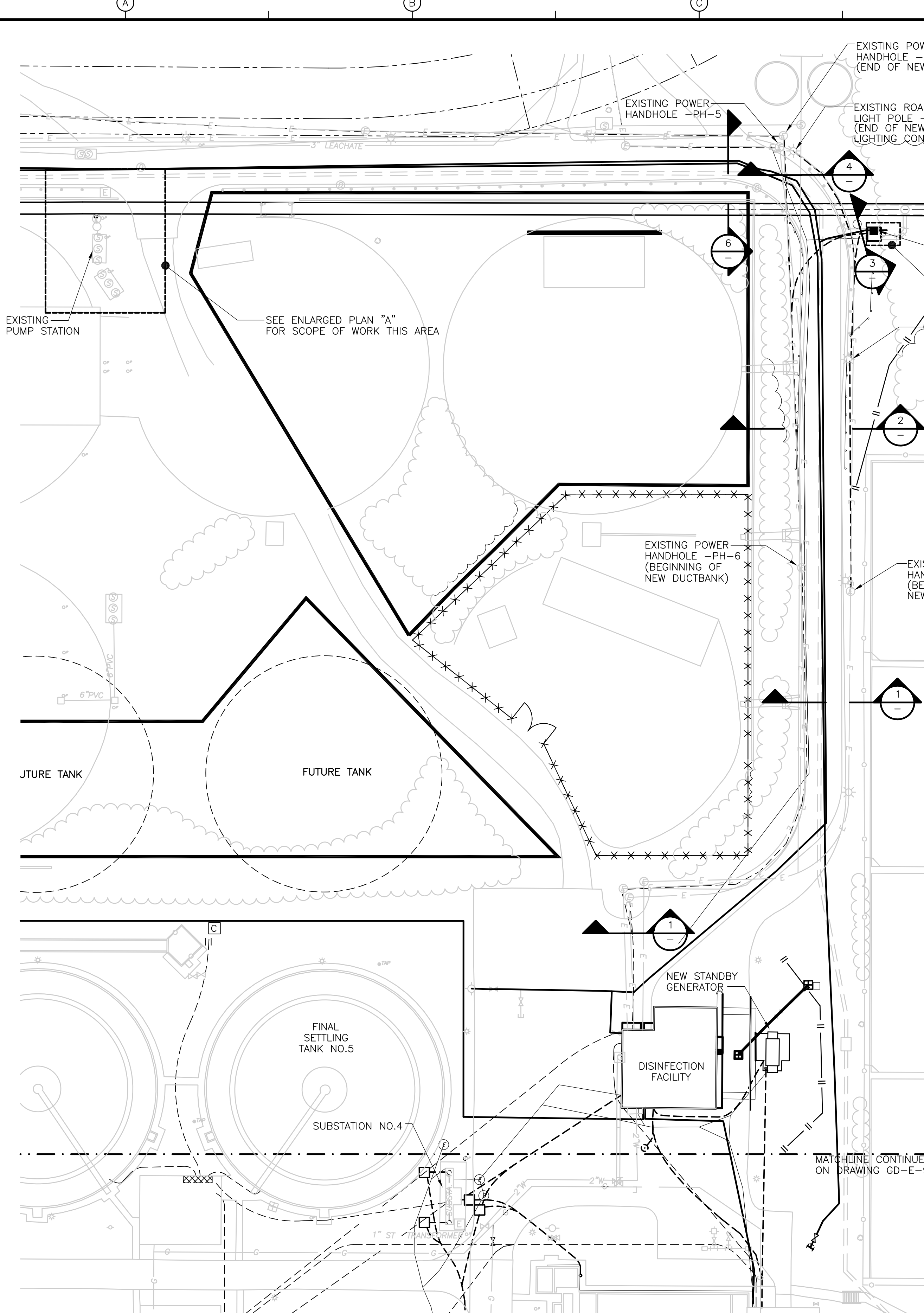
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

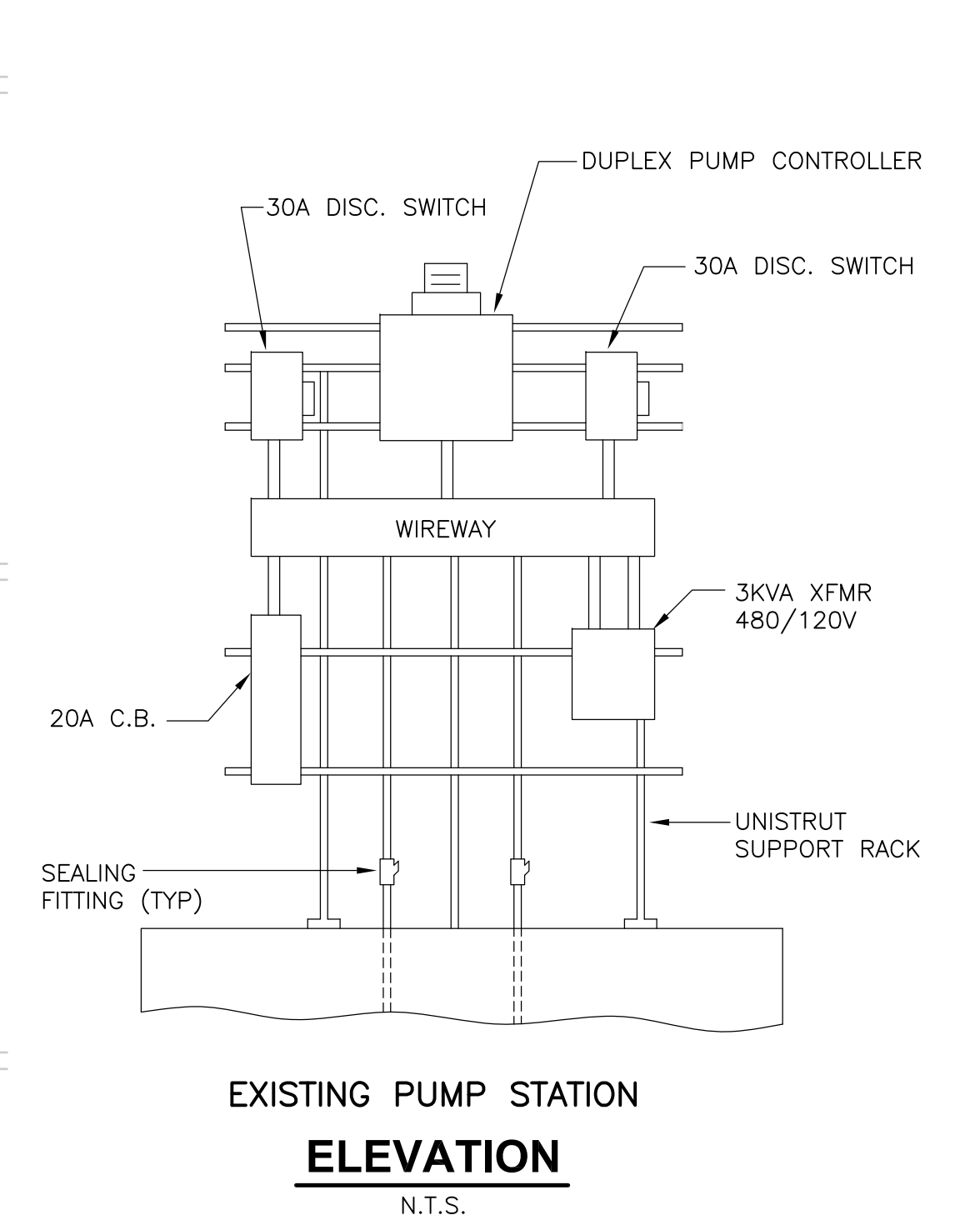
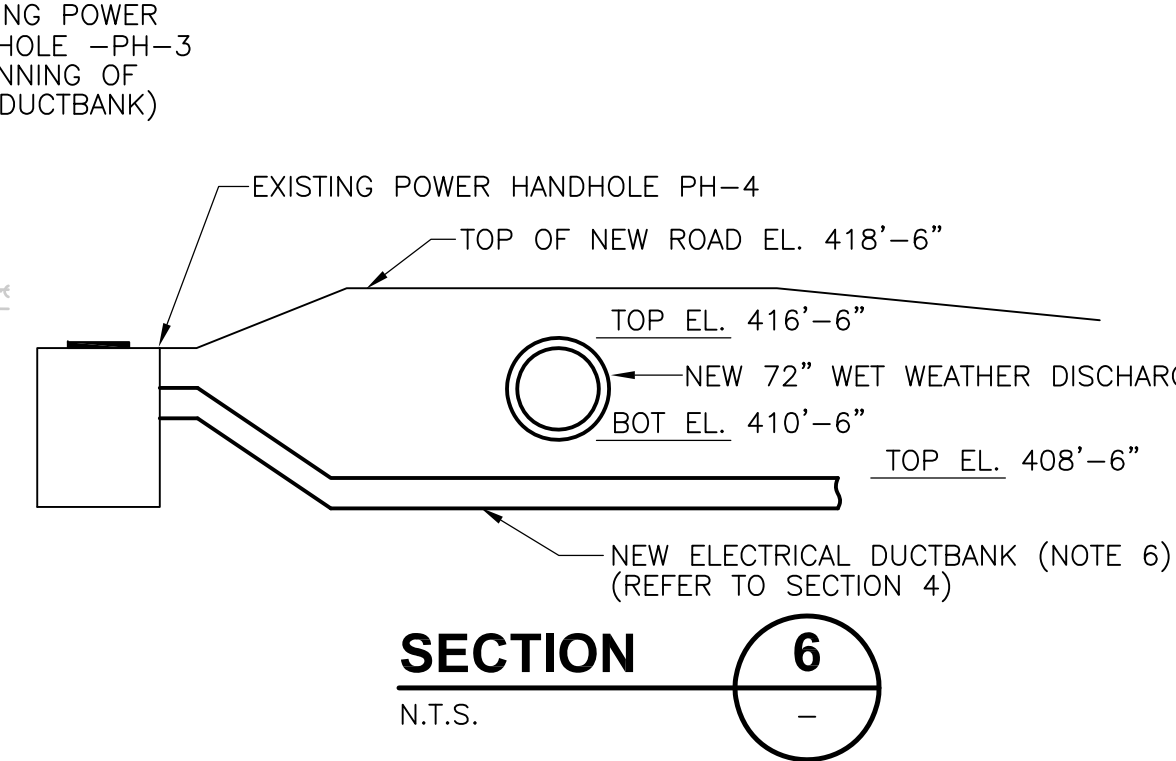
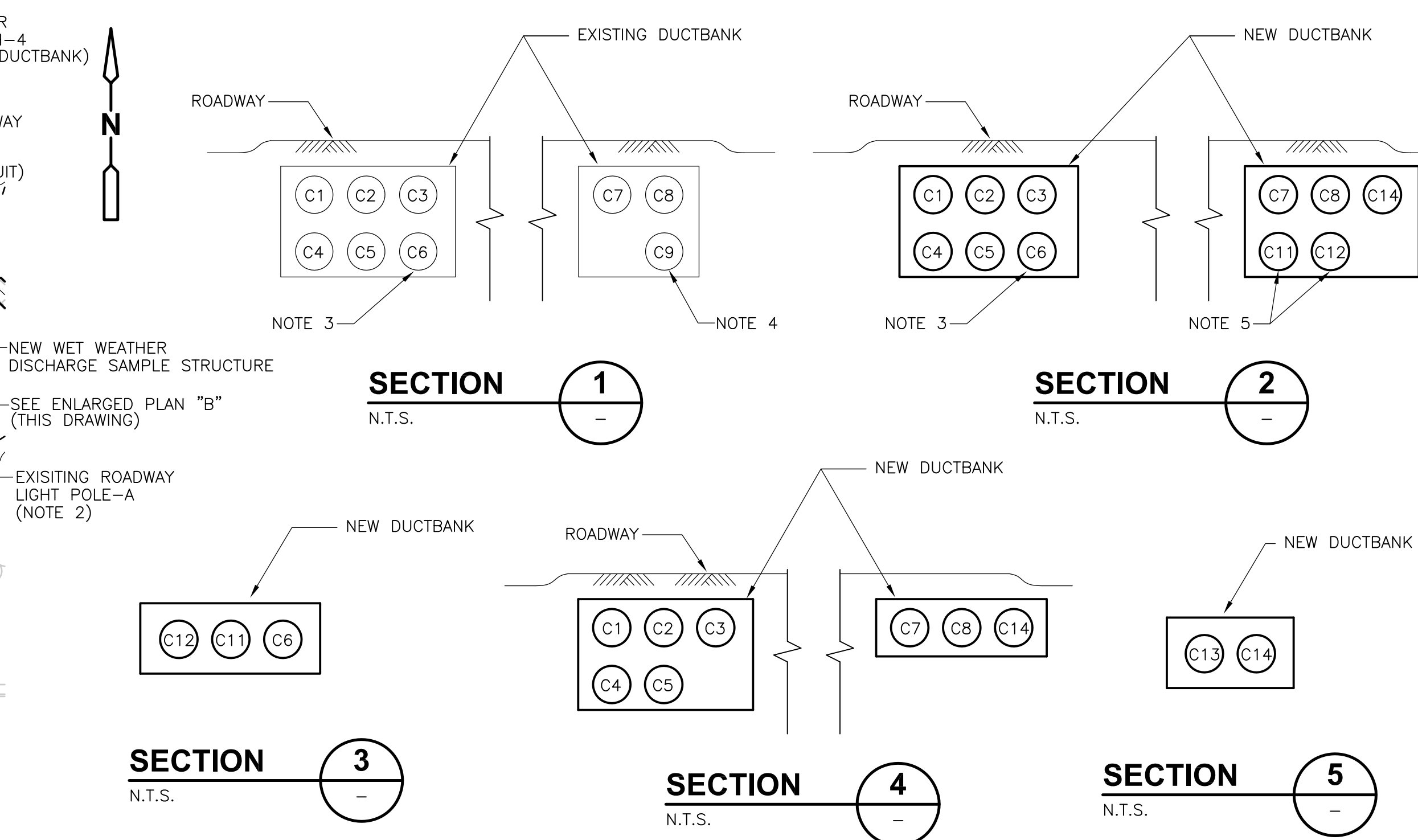
**RECORD DRAWING**  
**ELECTRICAL SITE PLAN II**  
 PROJECT NO. 1289\35370  
 Sht. 311 of 386  
**GD-E-7**



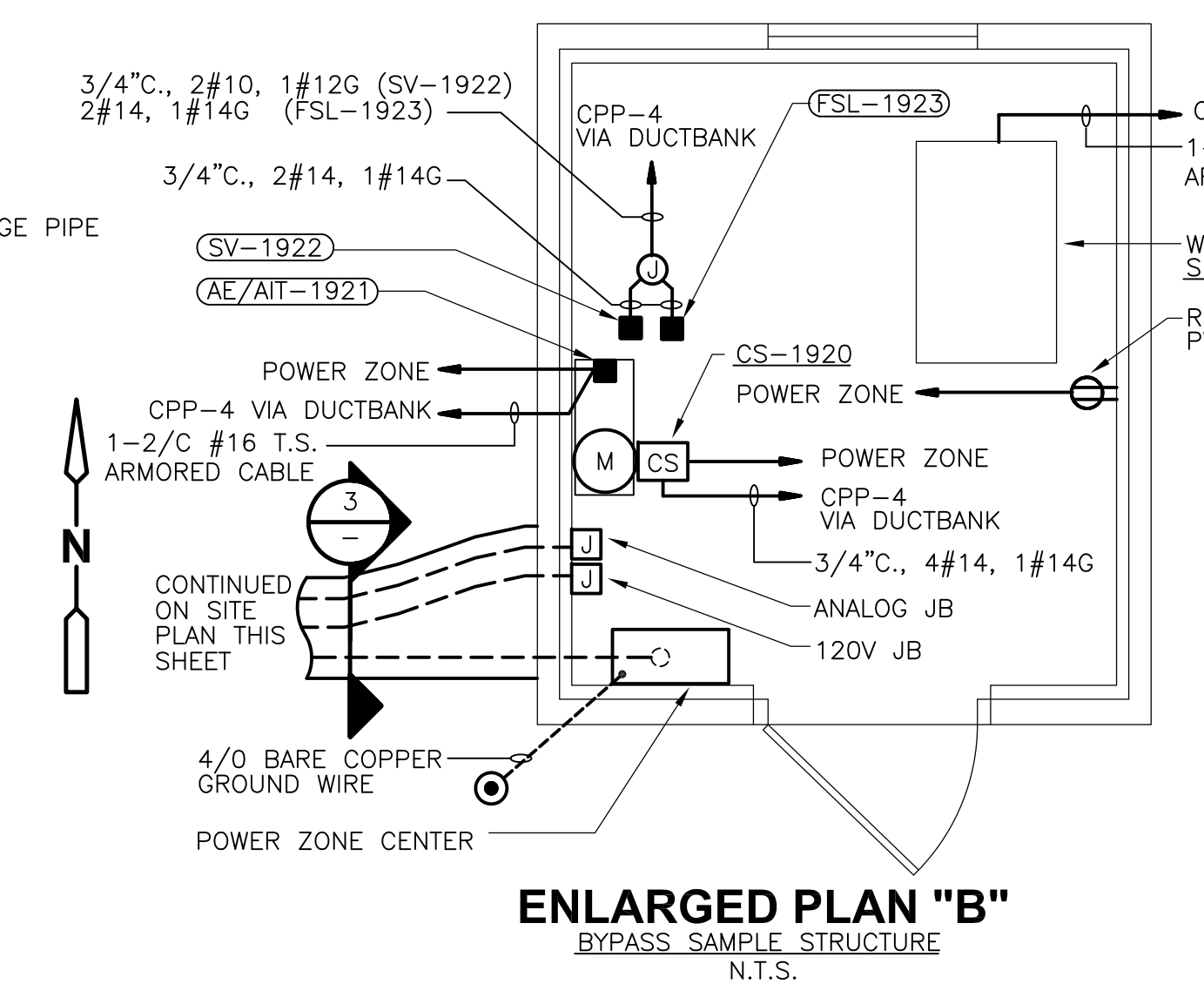
UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 Plotted by: CROSSHA Time: 12/16/08 6:33:02 PM  
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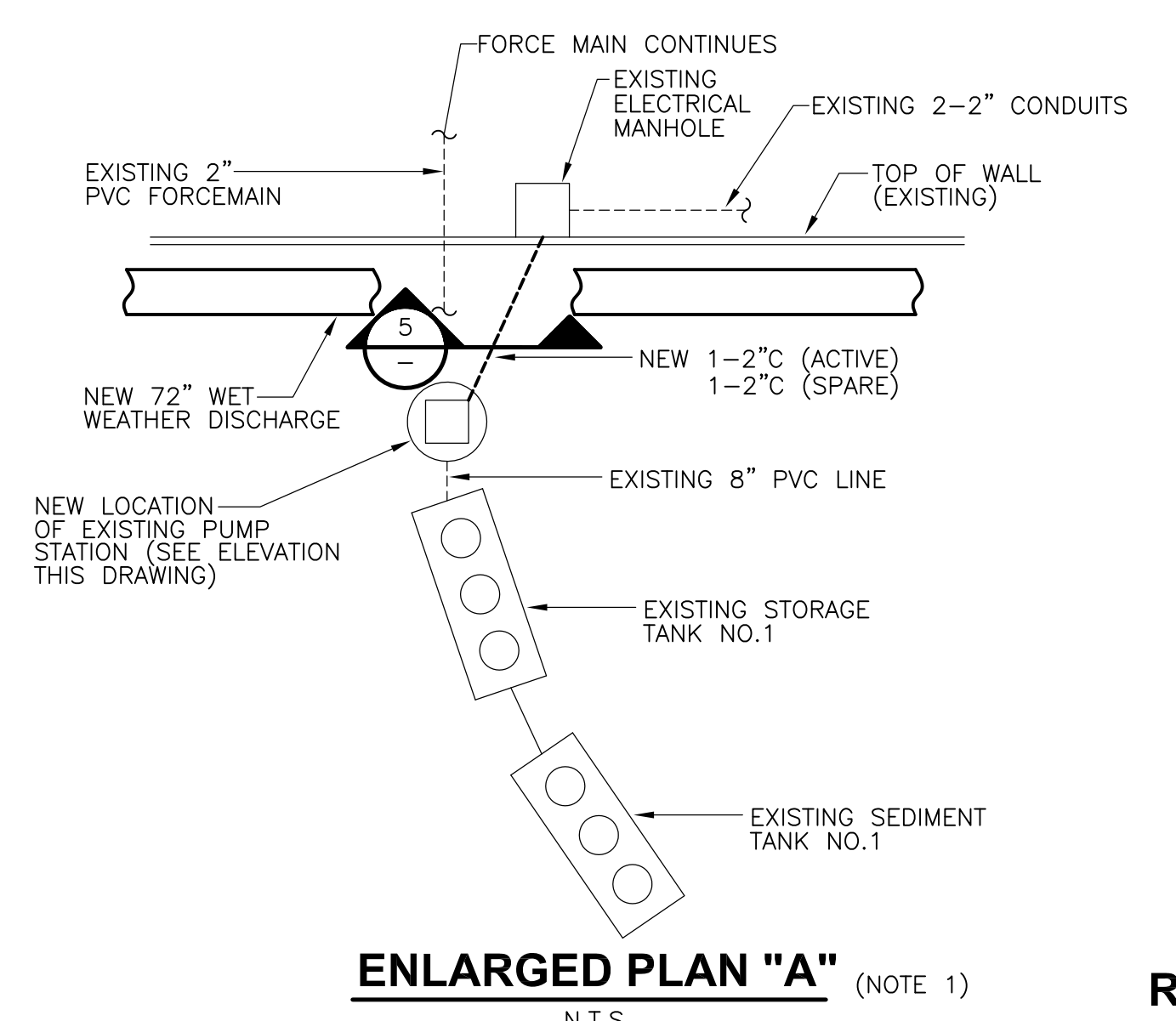
**ELECTRICAL SITE III**  
**PLAN**  
 1" = 40'  
 20 0 40



**EXISTING PUMP STATION**  
**ELEVATION**  
 N.T.S.



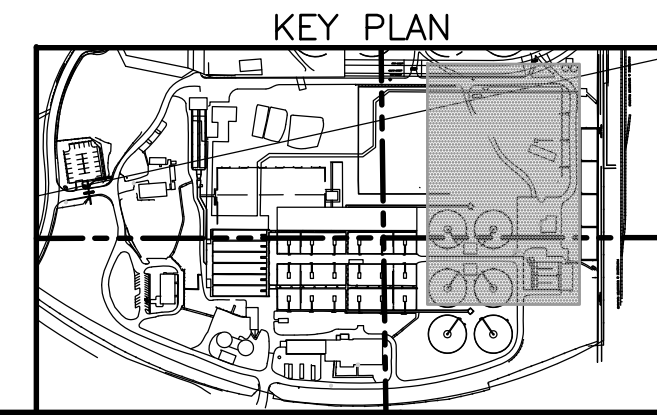
**ENLARGED PLAN "B"**  
 BYPASS SAMPLE STRUCTURE  
 N.T.S.



**ENLARGED PLAN "A"** (NOTE 1)  
 N.T.S.

- NOTES:**
- CONTRACTOR SHALL PERFORM THE FOLLOWING WORK:
    - DISCONNECT CABLES & PULL BACK INTO EXISTING ELECTRICAL MANHOLE.
    - RELOCATE ALL ELECTRICAL DEVICES & SUPPORTS ASSOCIATED WITH PUMP STATION TO NEW LOCATION.
    - PROVIDE & INSTALL NEW UNDERGROUND CONCRETE ENCASED CONDUITS.
    - SPLICE AT EXISTING MANHOLE WITH NEW 3#6, 1#8C POWER & 2#10 CONTROL CONDUCTORS AND RETERMINATE AT NEW PUMP STATION LOCATION.
    - PROVIDE ANY ADDITIONAL SUPPORTS IF REQUIRED.
    - SPARE CONDUIT SHALL BE CAPPED.
    - PROVIDE & INSTALL NEW SEALING FITTINGS.
    - INSTALLATION SHALL BE A COMPLETE WORKING SYSTEM.
  - PROVIDE & INSTALL CABLES FROM LIGHT POLE "A" TO LIGHT POLE "B" AND RETERMINATE. REFER TO SCHEDULE THIS DRAWING FOR CONDUCTOR SIZES.
  - ROUTE 480V FEEDER CABLES FOR POWER ZONE CENTER (C6) LOCATED IN THE BYPASS SAMPLE STRUCTURE, IN EXISTING 2" SPARE CONDUIT.
  - FURNISH AND INSTALL 2 NEW 2/C#16 T.S. ARMORED CABLES AND 10#14, 2#10, 1#10G IN EXISTING 4" SPARE CONDUIT.
  - ROUTE ANALOG & DIGITAL WIRING FROM POWER HANDHOLE PH-3 TO SAMPLE STRUCTURE BY USING C11 & C12 CONDUITS AS SHOWN IN DUCTBANK SECTIONS 2 & 3. TRANSITION CABLES IN PH-3 FROM C11 & C12 TO CONDUIT C9. REFER TO SCHEDULE BELOW, SECTIONS AND SITE PLANS FOR ADDITIONAL DETAILS.
  - IN ORDER TO INSTALL THE 72" DISCHARGE PIPE THE CONTRACTOR SHALL PERFORM THE FOLLOWING WORK:
    - CUT AND PULL BACK CABLES PRESENTLY INSTALLED AND INDICATED IN DUCTBANK SECTION 1 AND UNDERGROUND RACEWAY SCHEDULE FROM PH-4 AND PH-5 TO POWER HANDHOLES PH-6 & PH-3 RESPECTIVELY.
    - DEMO EXISTING DUCTBANKS FROM THE EXISTING POWER HANDHOLES PH-3 & PH-6 TO EXISTING POWER HANDHOLES PH-4 & PH-5.
    - INSTALL NEW DUCTBANKS AS SHOWN IN SECTIONS 2, 3 & 4 FROM EXISTING POWER HANDHOLES PH-3 AND PH-6.
    - SPLICE NEW CABLES AT POWER HANDHOLES PH-3, PH-4, PH-5 & PH-6.
    - INSTALLATION SHALL BE A COMPLETE WORKING SYSTEM.
  - FOR DUCTBANK AND EQUIPMENT LOCATION REFER TO WALSH AS-BUILT SITE PLAN FOR DETAILS.

EXISTING/NEW UNDERGROUND RACEWAY SCHEDULE				
CONDUIT ID NO.	CONDUIT SIZE	CONDUCTOR		REMARKS
		QTY	SIZE	
C1	2"	3	#2+G	LEACHATE PUMP MOTOR NO.1
C2	2"	3	#8+G	LEACHATE PUMP MOTOR NO.2
C3	1 1/2"	18	#12	CONTROL WIRING TO LEACHATE PUMP CONTROL PANEL
C4	2"	3	#6+G 2#10	CONTROL WIRING TO PUMP CONTROL PANEL
C5	1 1/2"	2	#8+G	480V-1Ø TO LEACHATE SYSTEM
C6	2"	3	#4 #8G	480V FEEDER TO POWER ZONE CENTER AT SAMPLE STRUCTURE
C7	1 1/2"	4	#6 #8G	ROADWAY LIGHTING
C8	4"	3	300MCM #4G	480V POWER-FROM CHLORINE BLDG MCC TO MODULAR STORAGE BUILDING
C9	4"	2	2/C#16 T.S. ARMORED CABLES 10#14 2#10, 1#12G	EXISTING SPARE 4" CONDUIT TO PH-3 SEE NOTE 4 AND 5
C10	-	-	-	NOT USED
C11	2"	-	10#14 2#10, 1#12G	SAMPLE PUMP & INSTR. DIGITAL WIRING
C12	2-1/2"	2	2/C#16 T.S. ARMORED CABLES	NEW CONDUIT 4-20mA WIRING
C13	2"	3	#8 #10	PUMP STATION POWER AND CONTROL
C14	2"	-	-	SPARE CONDUIT



**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.: ESITE003.DWG  
 DESIGNED BY: JAR  
 DRAWN BY: JAR  
 SHEET CHK'D BY: BDS  
 SCALE: AS NOTED  
 APPROVED BY: B. SQUIBB  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

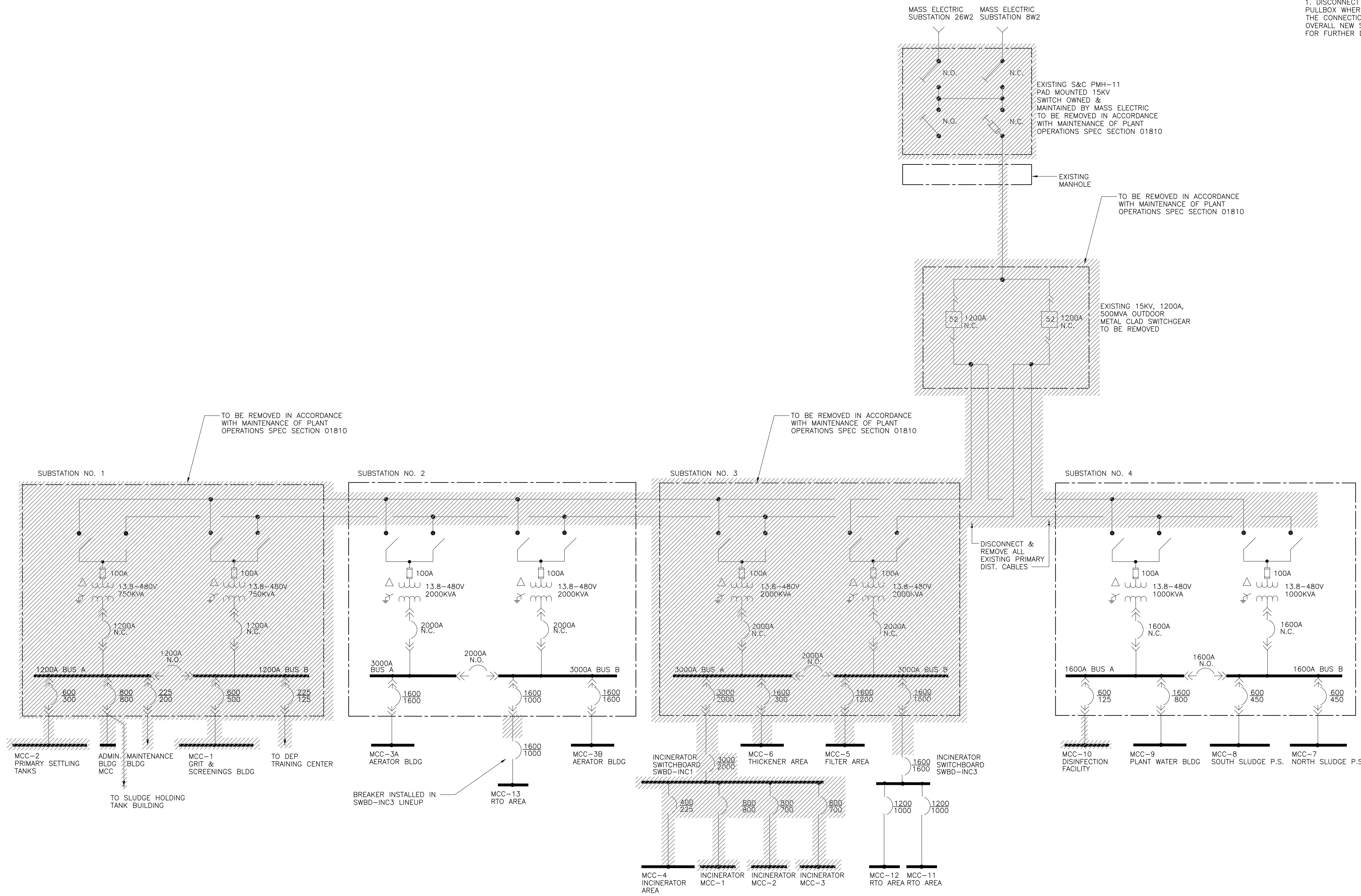
**ELECTRICAL**  
**SITE PLAN III**

PROJECT NO. 1289\35370  
 Sht. 312 of 386  
**GD-E-8**



NOTES:

1. DISCONNECT EXISTING PLANT WATER BUILDING FEEDER AT THE PULLBOX WHERE CABLES ENTER THE BUILDING TO FACILITATE THE CONNECTION OF A NEW TRANSFER SWITCH. REFER TO OVERALL NEW SYSTEM DRAWING GD-E-11 AND BUILDING PLANS FOR FURTHER DETAILS.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EOLDI001.DWG
DESIGNED BY:	JAR
DRAWN BY:	MJF
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

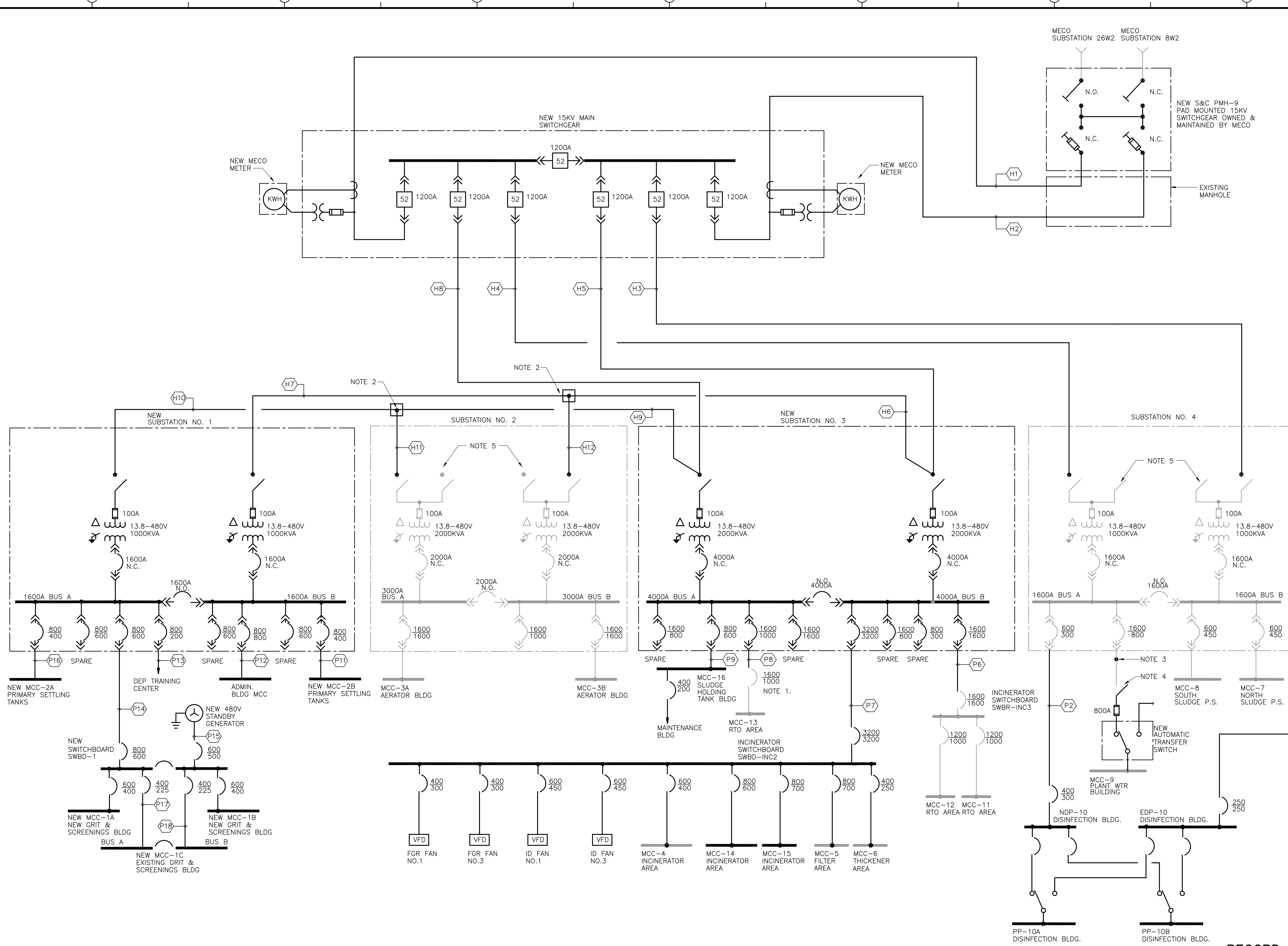
**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**EXISTING ELECTRICAL OVERALL ONE LINE DIAGRAM**

PROJECT NO. 1289\35370  
 Sht. 314 of 386  
**GD-E-10**  
ACCESSION NO. 1289-65714



- NOTES:**
- 1600 AMP BREAKER FOR MCC-13 IS INSTALLED IN INCINERATOR SWITCHBOARD SWBD-INC3 ENCLOSURE, BUSSING IS SEPARATE FOR TWO MAINS.
  - PROVIDE & INSTALL 15KV SPLICE AT MANHOLE.
  - SPLICE TO EXISTING FEEDER CABLES, SEE PW-E-1.
  - NEW 800A SERVICE ENTRANCE RATED DISCONNECT SWITCH.
  - EXISTING LOAD BREAK SWITCH SHALL BE ABANDONED IN PLACE. PROVIDE SIGNAGE ON EXTERIOR OF SWITCH ENCLOSURE STATING "CAUTION LOAD BREAK SWITCH NOT CONNECTED"

CONDUIT AND WIRE LEGEND	
NO.	DESCRIPTION
(H1)	5" C., 3-500MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H2)	5" C., 3-500MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H3)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H4)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H5)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H6)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H7)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H8)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H9)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H10)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H11)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(H12)	5" C., 3-250MCM (15KV), 1#4/0G AND 1-5" C SPARE
(P2)	4" C., 3-350MCM, 1#4G AND 1-4" C SPARE
(P4)	2(4" C., 3-350MCM, 1#1G) AND 1-4" C SPARE
(P5)	4" C., 3-250MCM, 1#4G AND 1-4" C SPARE
(P6)	6(4" C., 3-500MCM, 1#4/0G) AND 2-4" C SPARE
(P7)	8(5" C., 600MCM, 1#500MCM) AND 4-5" C SPARE
(P8)	3(4" C., 3-500MCM, 1#2/0G) AND 1-4" C SPARE
(P9)	2(4" C., 3-500MCM), 1#1/0G) AND 1-4" C SPARE
(P11)	4" C., 3-600MCM, 1#2G AND 1-4" C SPARE
(P12)	3(4" C., 3-350MCM, 1#3/0G) AND 1-4" C SPARE
(P13)	4" C., 3-4/0, 1#4G AND 1-4" C SPARE
(P14)	2(4" C., 3-500MCM, 1#1/0G) AND 2-4" C SPARE
(P15)	2(4" C., 3-250MCM, 1#1G) AND 1-4" C SPARE
(P16)	4" C., 3-600MCM, 1#2G AND 1-4" C SPARE
(P17)	4" C., 3#4/0, 1#1G AND 1-4" C SPARE
(P18)	4" C., 3#4/0, 1#1G AND 1-4" C SPARE

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EOLDI01A.DWG
DESIGNED BY:	JAR
DRAWN BY:	MJF
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

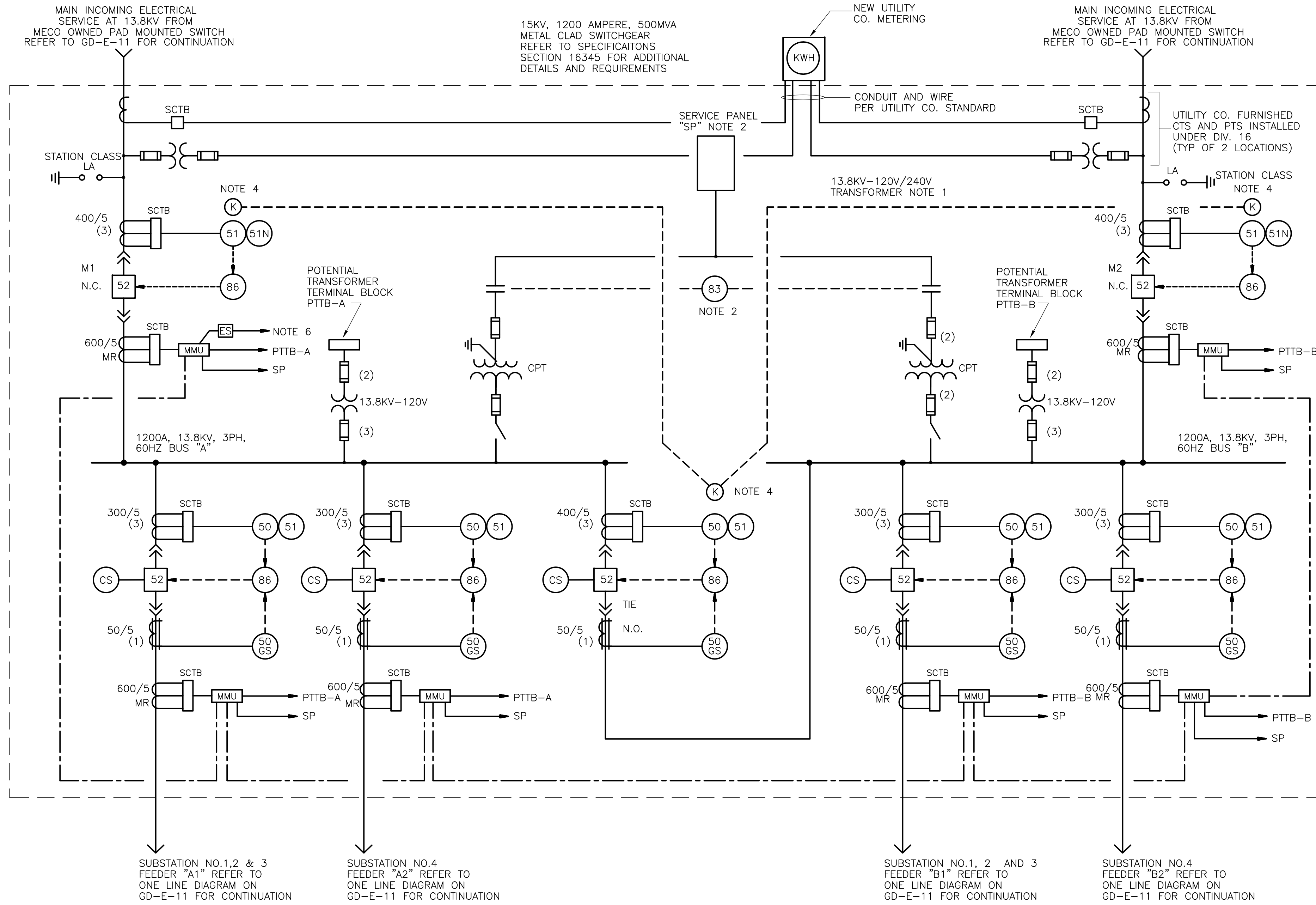
**ELECTRICAL**  
**OVERALL NEW SYSTEM**  
**ONE LINE DIAGRAM**

PROJECT NO.  
1289\35370

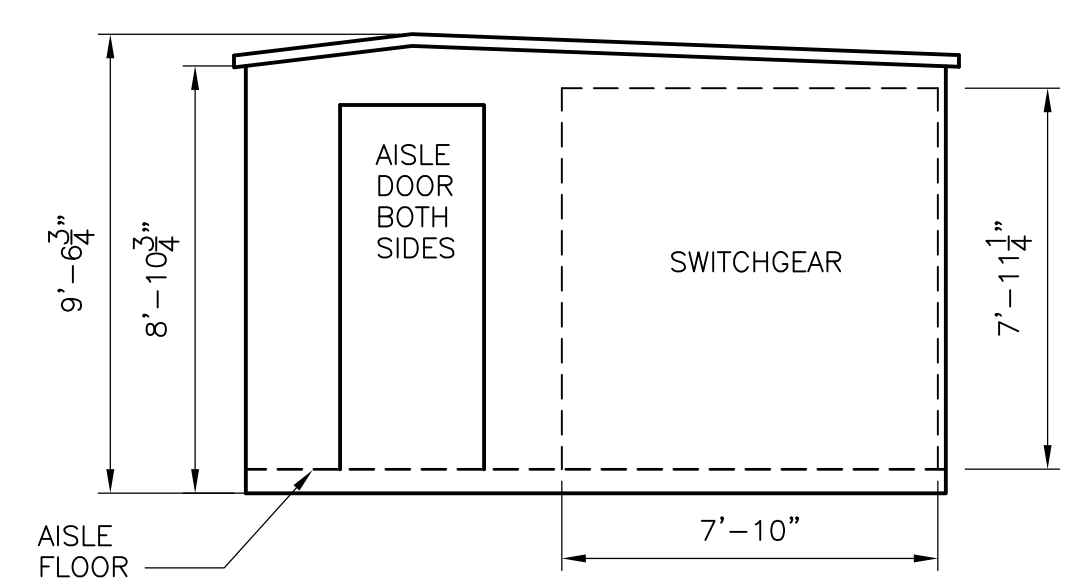
Sht. 315 of 386

**GD-E-11**

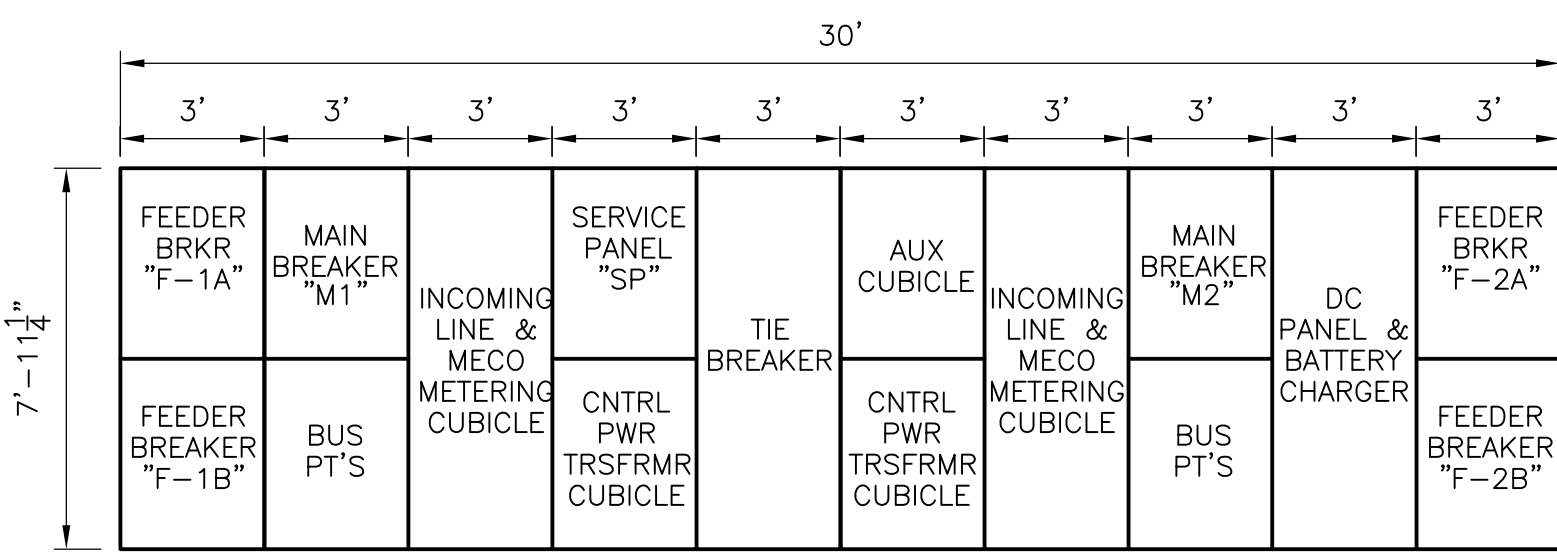
UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
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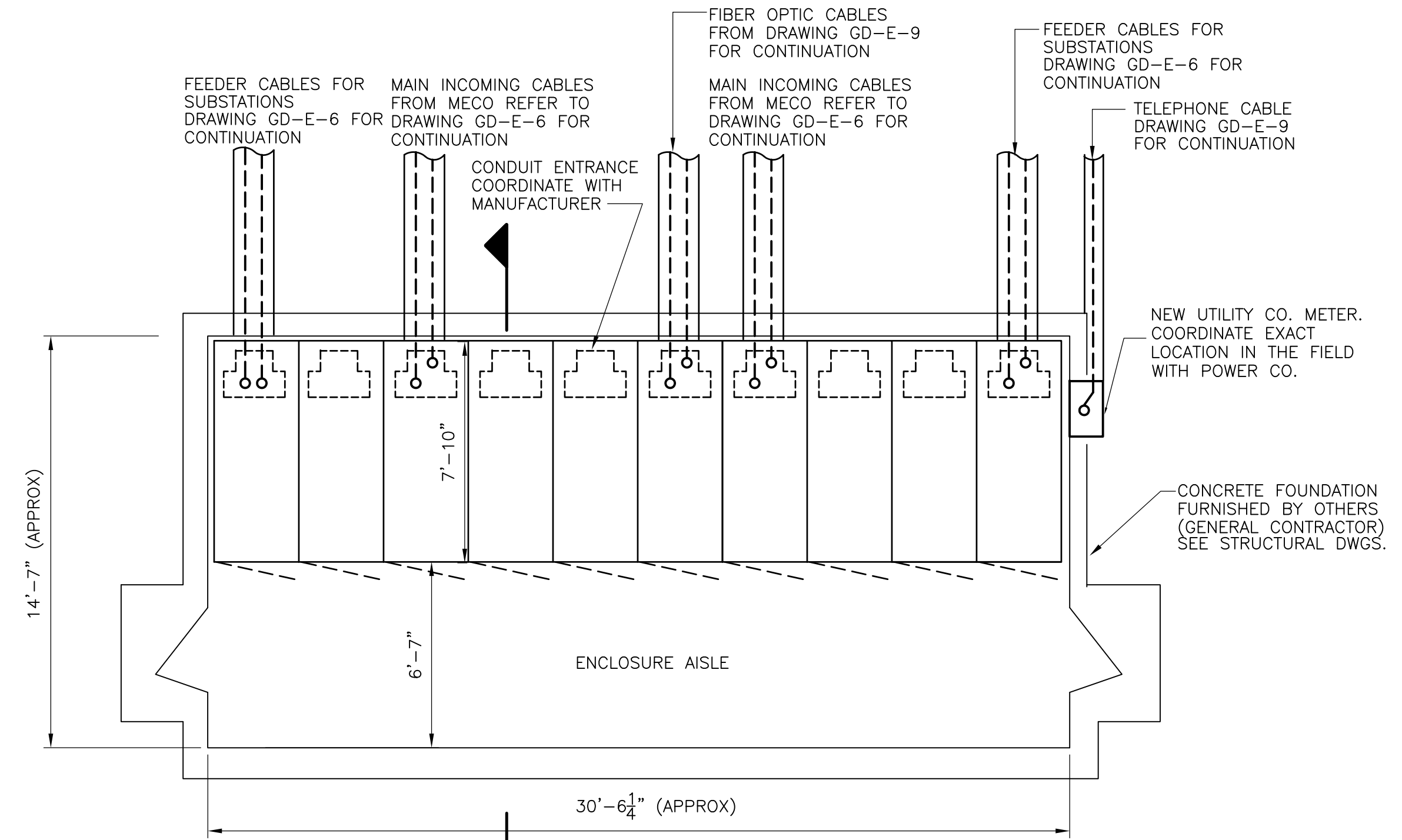
**NEW MAIN SWITCHGEAR  
 DIAGRAM 1**  
 N.T.S.



**MAIN SWITCHGEAR  
 SECTION 2**  
 1/4" = 1'-0"



**MAIN SWITCHGEAR  
 ELEVATION**  
 1/4" = 1'-0"



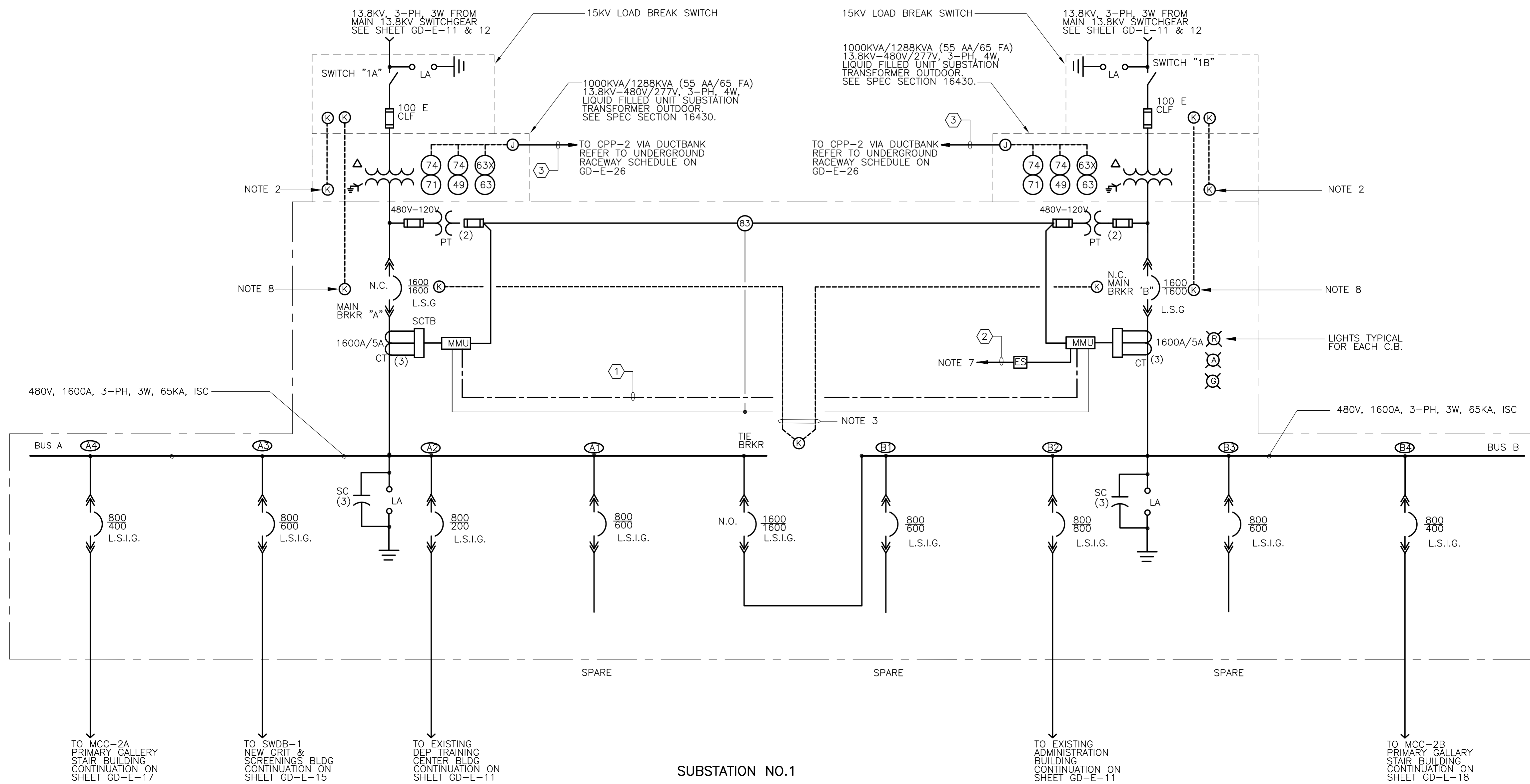
**MAIN SWITCHGEAR  
 PLAN**  
 1/4" = 1'-0"

- NOTES:**
1. PROVIDE A SERVICE TRANSFORMER SIZED IN ACCORDANCE WITH THE NEC TO SUPPLY THE PANELBOARD LOADS.
  2. PROVIDE A 120/240, SINGLE PHASE, 24-POLE MINIMUM PANELBOARD WITH MAIN AND BRANCH CIRCUIT BREAKERS AS REQUIRED BY LOADS, 6-POLE 100 AMP CONTACTOR AND CONTROL RELAY TO SWITCH FROM BUS "A" TO BUS "B".
  3. TO SWITCHGEAR DC VOLTAGE CONTROL CIRCUITS.
  4. KEY INTERLOCK THE MAIN BREAKERS WITH THE TIE BREAKER SUCH THAT A MAIN BREAKER MUST BE OPENED BEFORE THE TIE BREAKER CAN BE CLOSED.
  5. PROVIDE SHORTING TERMINAL BLOCKS (SCTB) ON ALL CURRENT TRANSFORMERS. PROVIDE MULTI TAP CT'S FOR FEEDER OVERCURRENT PROTECTION AND MMU'S.
  6. TO FIBER OPTIC POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS.
  7. FOR CONDUIT & WIRE SIZES REFER TO OVERALL ONE LINE & SCHEDULE ON SHEET GD-E-11.
  8. EQUIPMENT ELEVATION AND PLAN LAYOUTS ARE SUGGESTED. THE MANUFACTURER SHALL BE RESPONSIBLE FOR THE ACTUAL LAYOUT CONSTRUCTED AND IT SHALL BE THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO COORDINATE WITH THAT LAYOUT.
  9. FOR EXACT EQUIPMENT LAYOUT PLEASE REFER TO MANUFACTURE'S SHOP DRAWINGS.

RECORD DRAWING

CADD FILE NO.: EOLDI002.DWG DESIGNED BY: JAR DRAWN BY: JAR SHEET CHK'D BY: BDS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting          engineering          construction          operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 316 of 386  <b>GD-E-12</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT		REVISED FOR THE RECORD					

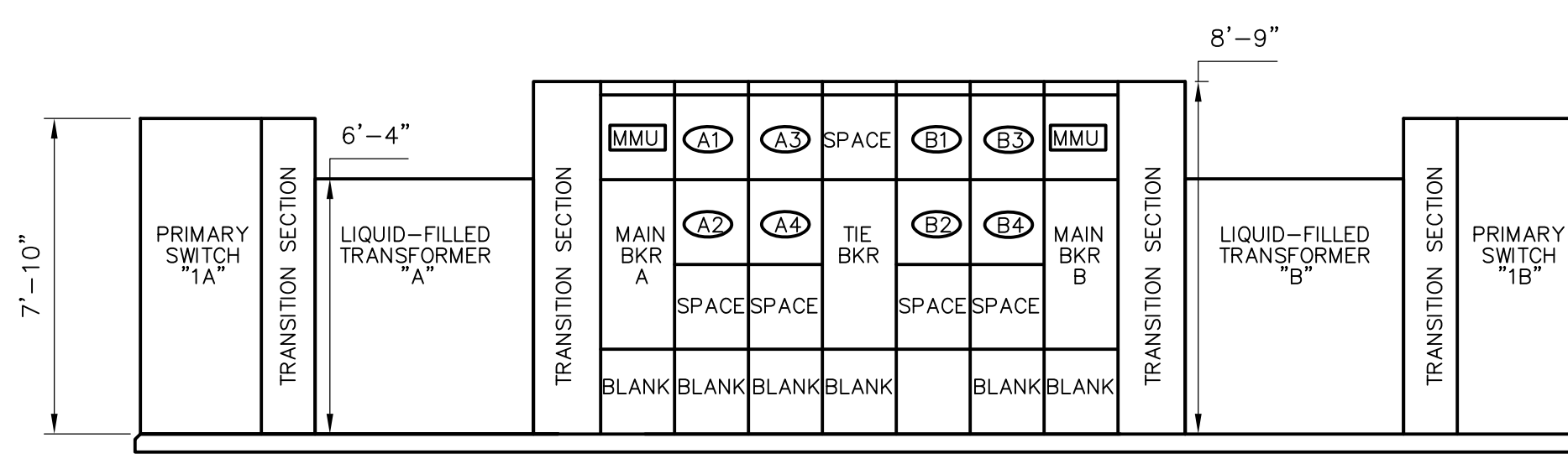
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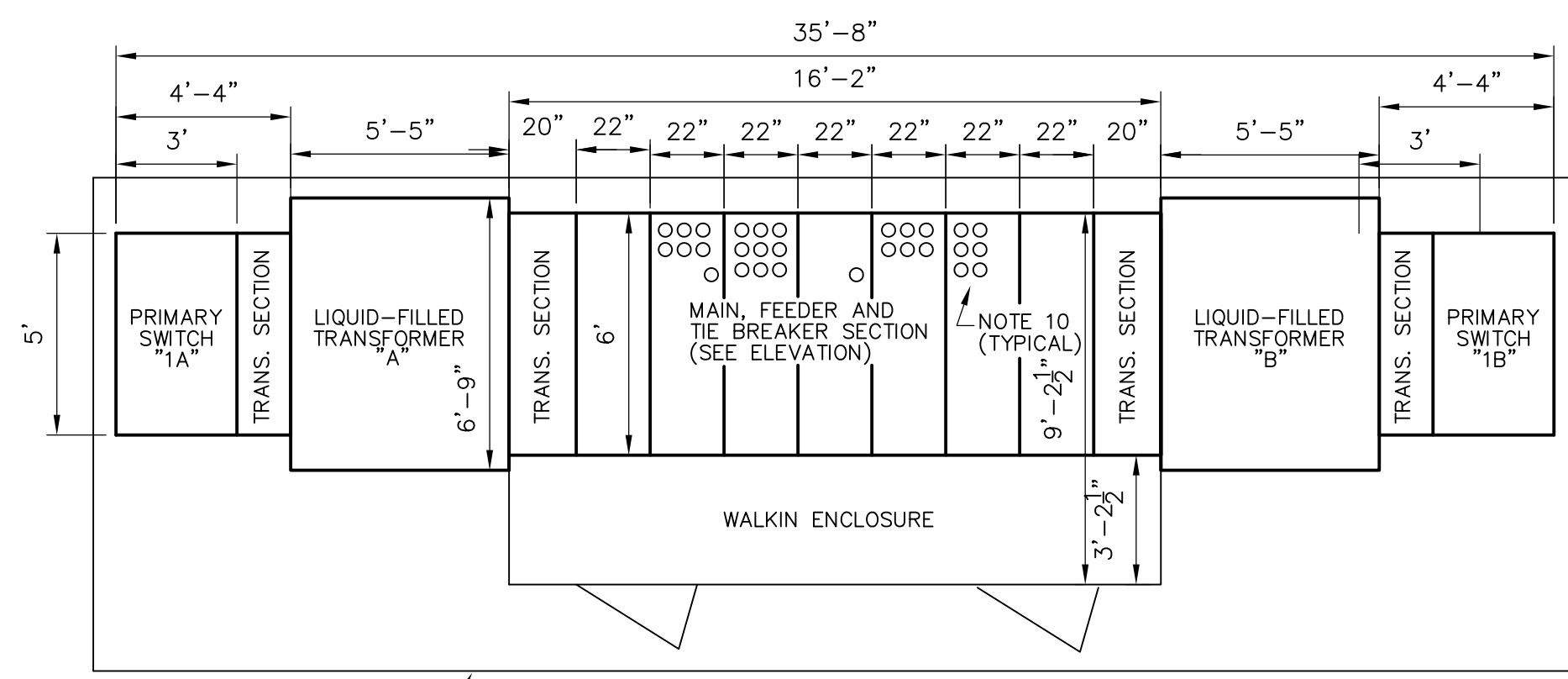
- NOTES:**
- FOR CONDUIT AND WIRE SIZES NOT SHOWN IN THE CONDUIT AND WIRE LEGEND SEE OVERALL ONE LINE & SCHEDULES ON SHEET GD-E-11.
  - FURNISH KEY INTERLOCK ON TRANSFORMER TAP CHANGER.
  - KEY INTERLOCK EACH MAIN CIRCUIT BREAKER WITH TIE CIRCUIT BREAKER SUCH THAT ONE MAIN MUST BE OPENED BEFORE THE TIE CAN BE CLOSED.
  - ALL CIRCUIT BREAKERS AND COMPONENTS SHALL BE FULLY RATED FOR 65,000 AMPERES RMS SYMMETRICAL.
  - BUSES SHALL BE BRACED FOR 65,000 AMPERES RMS SYMMETRICAL.
  - ETHERNET CABLE FOR POWER MONITORING NETWORK INSTALLED BY SUB STATION MANUFACTURER.
  - FIBER OPTIC COMMUNICATIONS FOR POWER MONITORING
  - FOR ADDITIONAL DETAILS, NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM IS NOT SHOWN ON THE FLOOR PLAN. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33.
  - WITH BREAKER CLOSED KEY SHALL REMAIN CAPTIVE. THE MANUFACTURER SHALL BE RESPONSIBLE FOR THE ACTUAL LAYOUT CONSTRUCTED AND IT SHALL BE THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO COORDINATE WITH THAT LAYOUT.
  - MINIMUM REQUIRED CONDUIT ENTRY. REFER TO SITE PLANS, SECTIONS AND UNDERGROUND RACEWAY SCHEDULE FOR ADDITIONAL DETAILS ON SIZE AND QUANTITY OF CONDUITS ENTERING EACH SECTION.
  - FOR EXACT EQUIPMENT LAYOUT PLEASE REFER TO MANUFACTURE'S SHOP DRAWINGS.

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	1"∅, NOTE 6
②	REFER TO PMS RISER DIAGRAM ON GD-E-33
③	3/4"∅, 8#14, 1#14G

**SUBSTATION NO.1**  
**ONE LINE DIAGRAM 1**  
 N.T.S.



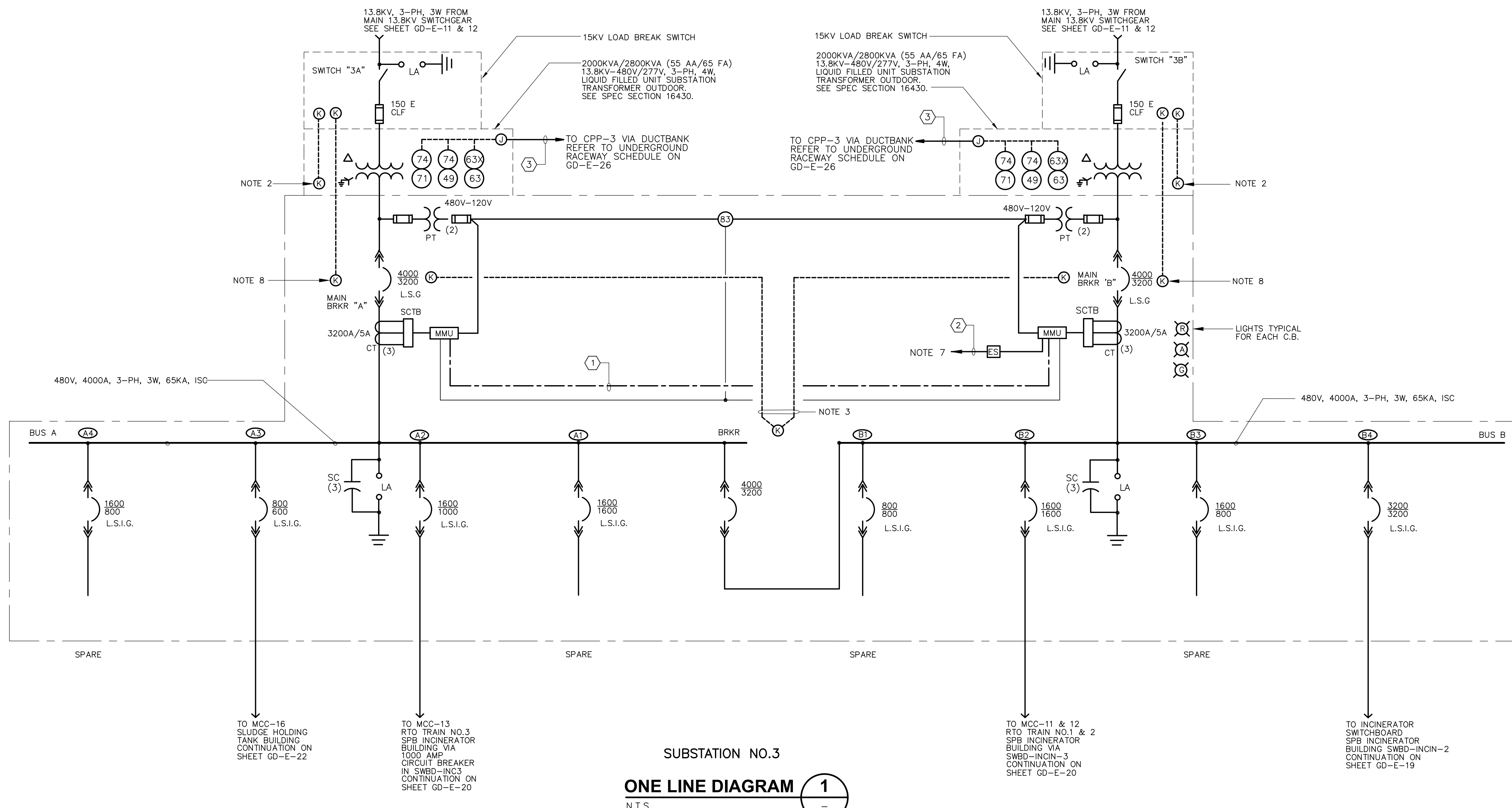
**SUBSTATION NO.1**  
**ELEVATION**  
 1/4" = 1'-0"



**SUBSTATION NO.1**  
**PLAN**  
 1/4" = 1'-0"

RECORD DRAWING

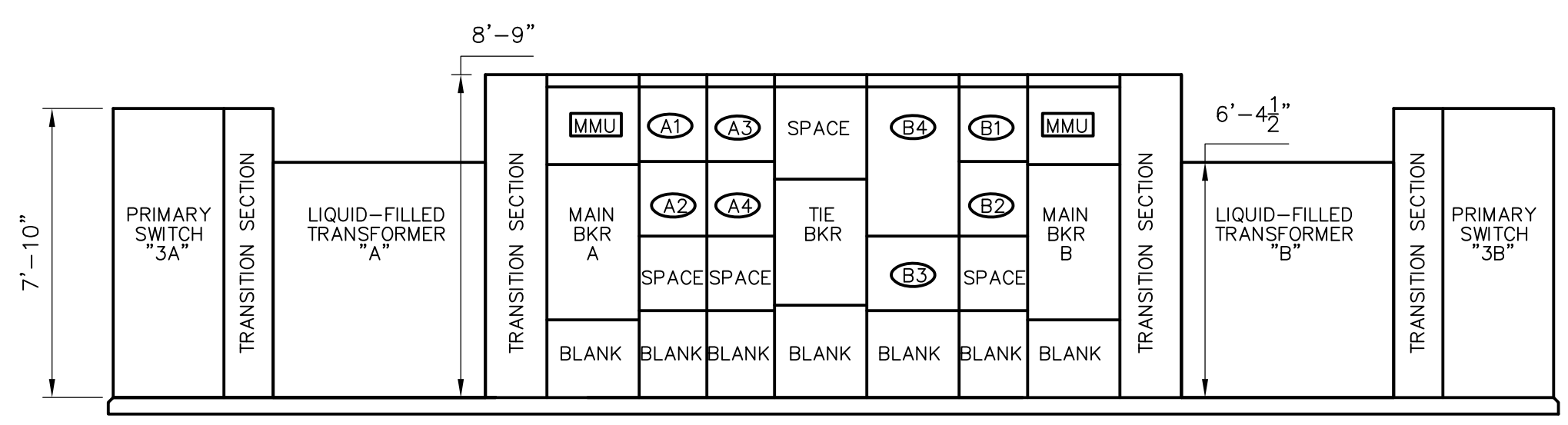
CADD FILE NO.: EOLDI003.DWG DESIGNED BY: JAR DRAWN BY: JAR SHEET CHK'D BY: BAS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY                  IMPROVEMENTS</b>		PROJECT NO. 1289\35370 Sht. 317 of 386 <b>GD-E-13</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
	3/07	SPV	ADT	REVISED FOR THE RECORD					



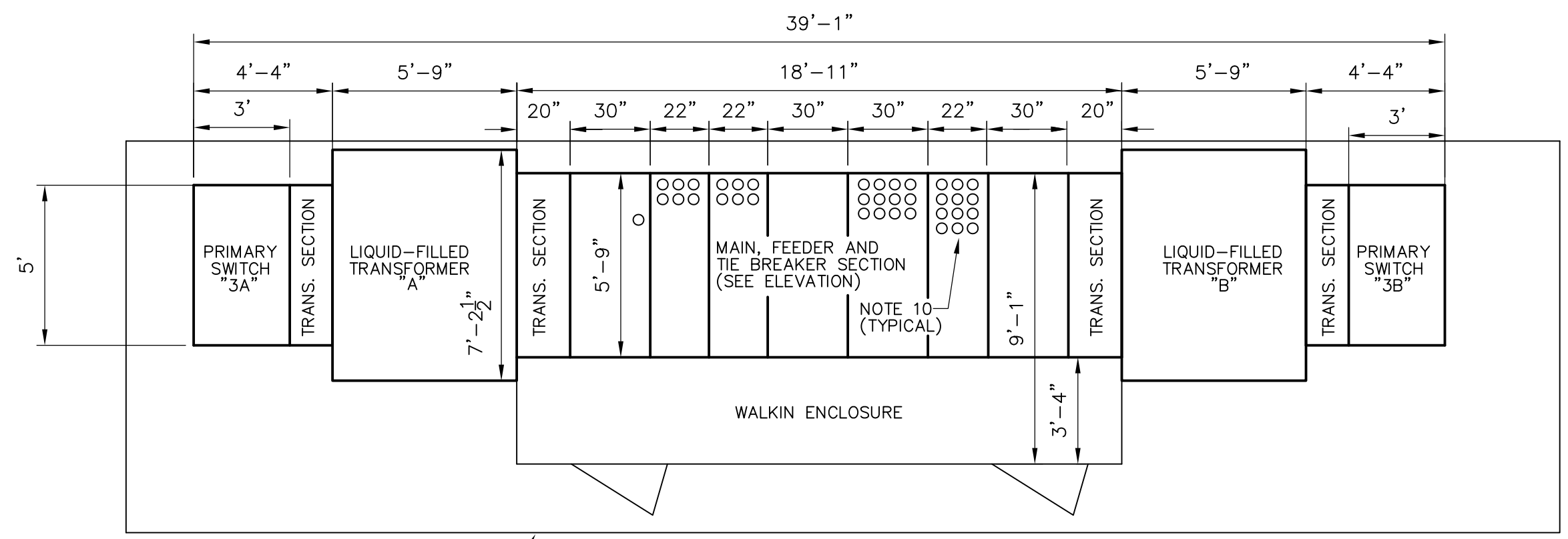
- NOTES:**
- FOR CONDUIT AND WIRE SIZES NOT SHOWN IN THE CONDUIT AND WIRE LEGEND SEE OVERALL ONE LINE & SCHEDULES ON SHEETS GD-E-11.
  - FURNISH KEY INTERLOCK ON TRANSFORMER TAP CHANGER.
  - KEY INTERLOCK EACH MAIN CIRCUIT BREAKER WITH THE CIRCUIT BREAKER SUCH THAT ONE MAIN MUST BE OPENED BEFORE THE TIE CAN BE CLOSED.
  - ALL CIRCUIT BREAKERS AND COMPONENTS SHALL BE FULLY RATED FOR 65,000 AMPERES RMS SYMMETRICAL.
  - BUSES SHALL BE BRACED FOR 65,000 AMPERES RMS SYMMETRICAL.
  - ETHERNET CABLE FOR POWER MONITORING NETWORK INSTALLED BY SUBSTATION MANUFACTURER.
  - FIBER OPTIC COMMUNICATIONS FOR POWER MONITORING NETWORK, REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM IS NOT SHOWN ON THE FLOOR PLANS.
  - WITH BREAKER CLOSED KEY SHALL REMAIN CAPTIVE.
  - EQUIPMENT ELEVATION AND PLAN LAYOUTS ARE SUGGESTED. THE MANUFACTURER SHALL BE RESPONSIBLE FOR THE ACTUAL LAYOUT CONSTRUCTED AND IT SHALL BE THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO COORDINATE WITH THAT LAYOUT.
  - MINIMUM REQUIRED CONDUIT ENTRY. REFER TO SITE PLANS, SECTIONS AND UNDERGROUND RACEWAY SCHEDULE FOR ADDITIONAL DETAILS ON SIZE AND QUANTITY OF CONDUITS ENTERING EACH SECTION.
  - FOR EXACT EQUIPMENT LAYOUT PLEASE REFER TO MANUFACTURE'S SHOP DRAWINGS.

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	1" C, NOTE 6
②	REFER TO PMS RISER DIAGRAM ON GD-E-XX
③	3/4" C, 8#14, 1#14G.

**SUBSTATION NO.3**  
**ONE LINE DIAGRAM 1**  
N.T.S.



**SUBSTATION NO.3**  
**ELEVATION**  
1/4" = 1'-0"



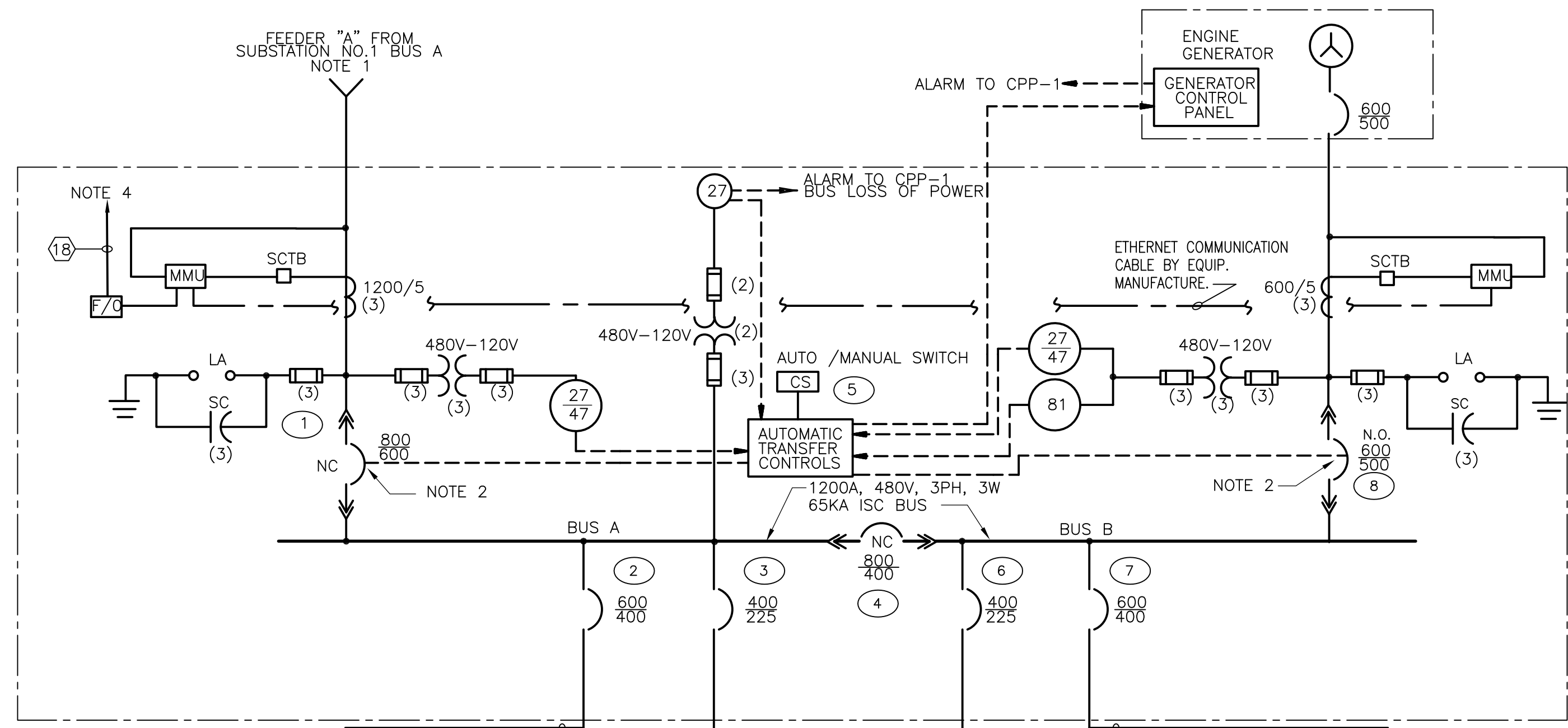
**SUBSTATION NO.3**  
**PLAN**  
1/4" = 1'-0"

RECORD DRAWING

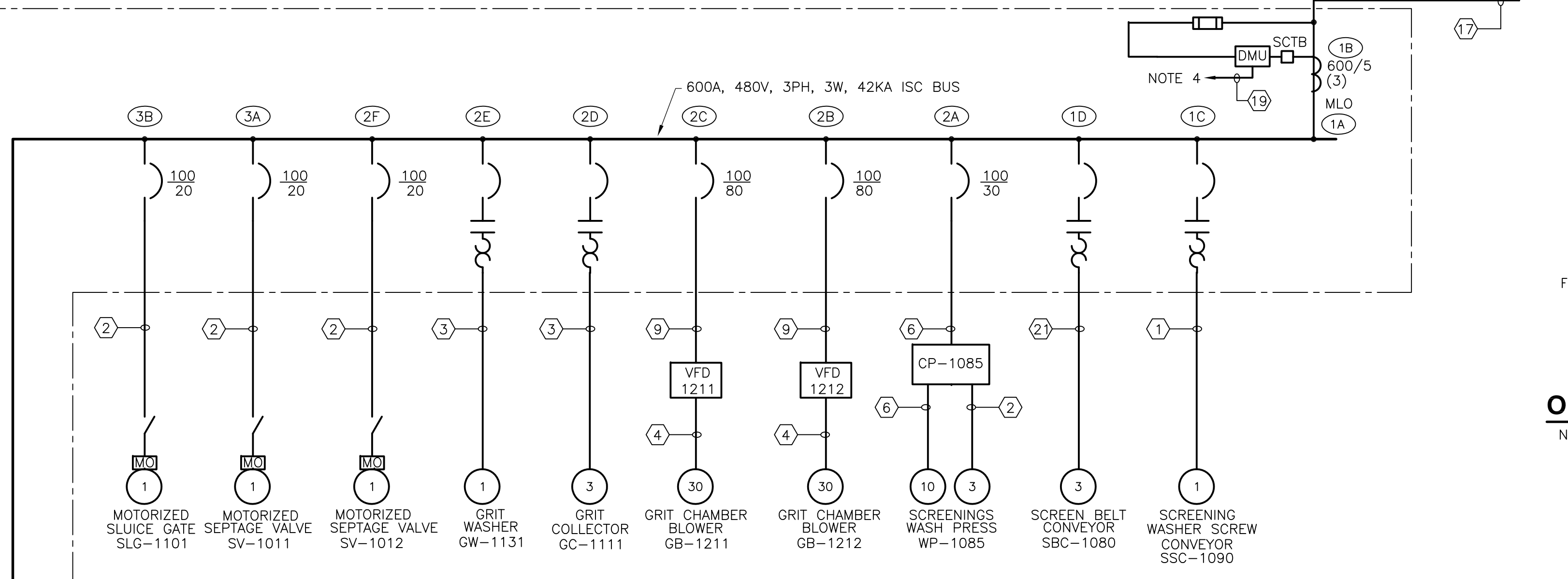
CADD FILE NO.: EOLDI004.DWG DESIGNED BY: JAR DRAWN BY: JAR SHEET CHK'D BY: BDS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		<b>UPPER BLACKSTONE</b> <b>WATER POLLUTION ABATEMENT DISTRICT</b> CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY</b> <b>IMPROVEMENTS</b>		<b>ELECTRICAL</b> <b>SUBSTATION NO.3</b> <b>ONE LINE DIAGRAM</b>		PROJECT NO. 1289\35370  Sht. 318 of 386  <b>GD-E-14</b>
REV. NO.	DATE	DRWN	CHKD	REMARKS						
3/07	SPV	ADT		REVISED FOR THE RECORD						

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)			
NO.	DESCRIPTION	NO.	DESCRIPTION
①	1" C., 3#12, 1#12G, 16#14	⑪	3/4" C., 4#10, 1#10G
②	3/4" C., 3#12, 1#12G	⑫	NOT USED
③	1" C., 3#12, 1#12G, 10#14	⑬	NOT USED
④	1" C., 3#6, 1#8G	⑭	1 1/4" C., 3#10, 1#10G, 14#14
⑤	1-1/2" C., 4#2, 1#6G.	⑮	3/4" C., 3#12, 1#12G, 6#14
⑥	3/4" C., 3#10, 1#10G	⑯	1" C., 4#6, 1#8G
⑦	1 1/2" C., 4#1, 1#8G	⑰	4" C., 3-500MCM, 1#1/0G
⑧	1 1/4" C., 3#4, 1#8G, 8#14	⑱	1" C., PMS FO CABLE
⑨	1-1/4" C., 3#3, 1#6G	⑲	1" C., PMS ETHERNET CABLE
⑩	1" C., 3#8, 1#10G	⑳	3/4" C., 1-#6 COPPER GROUND
		㉑	1 1/4" C., 3#12, 1#12G, 20#14

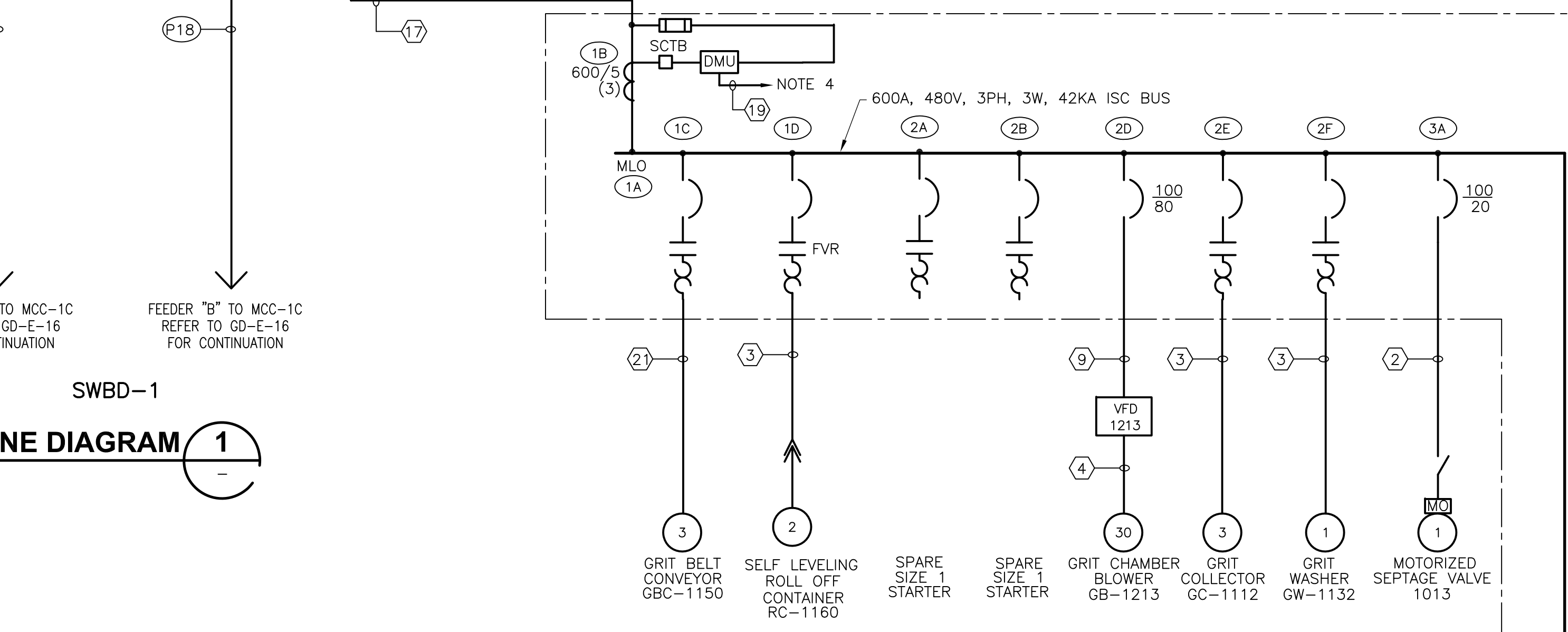
- NOTES:
- FOR CONTINUATION SEE DRAWING GD-E-13.
  - CIRCUIT BREAKER RATED AS SERVICE ENTRANCE.
  - FOR VOLTAGE AND CURRENT READING ONLY.
  - ETHERNET COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM IS NOT SHOWN ON THE FLOOR PLANS.
  - COORDINATE EXACT FUSE SIZE WITH EQUIPMENT SUPPLIER.



**SWBD-1**  
**ONE LINE DIAGRAM 1**  
 N.T.S.



**MCC-1A**  
**ONE LINE DIAGRAM 2**  
 N.T.S.



**MCC-1B**  
**ONE LINE DIAGRAM 3**  
 N.T.S.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. <u>FOLDI005.DWG</u>
DESIGNED BY: <u>JAR</u>
DRAWN BY: <u>OR</u>
SHEET CHK'D BY: <u>BDS</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>B. SQUIBB</u>
DATE: <u>MAY 2006</u>

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

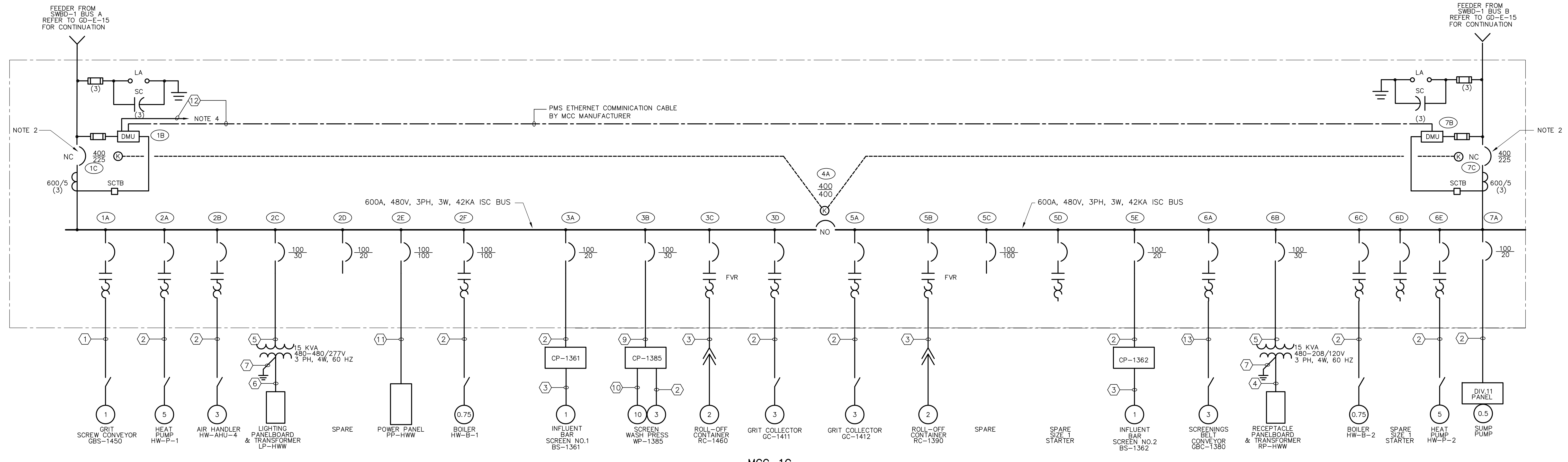
**SWBD-1, MCC-1A & MCC-1B**  
**ONE LINE DIAGRAMS**

PROJECT NO.  
1289\35370

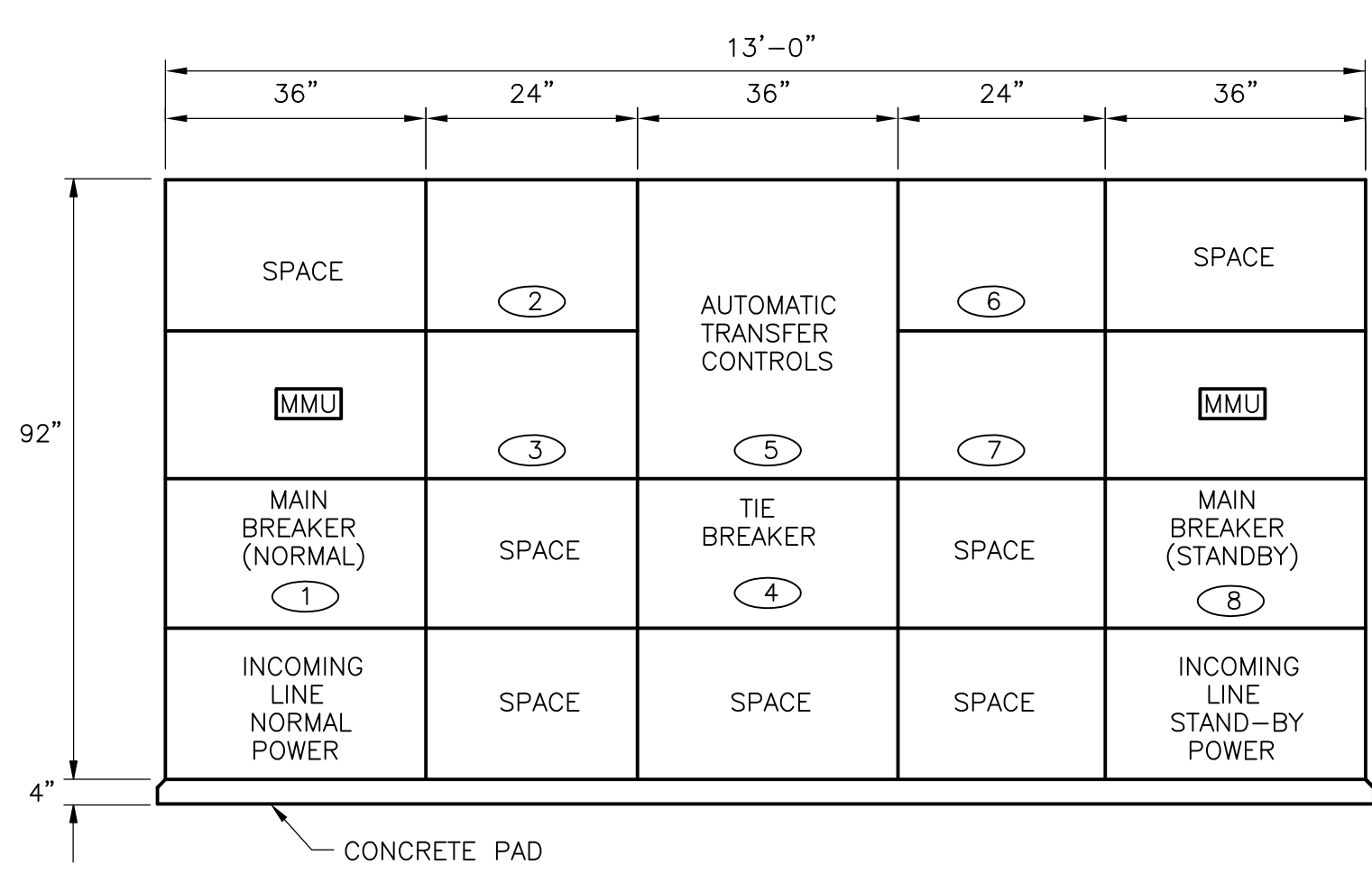
Sht. 319 of 386

**GD-E-15**

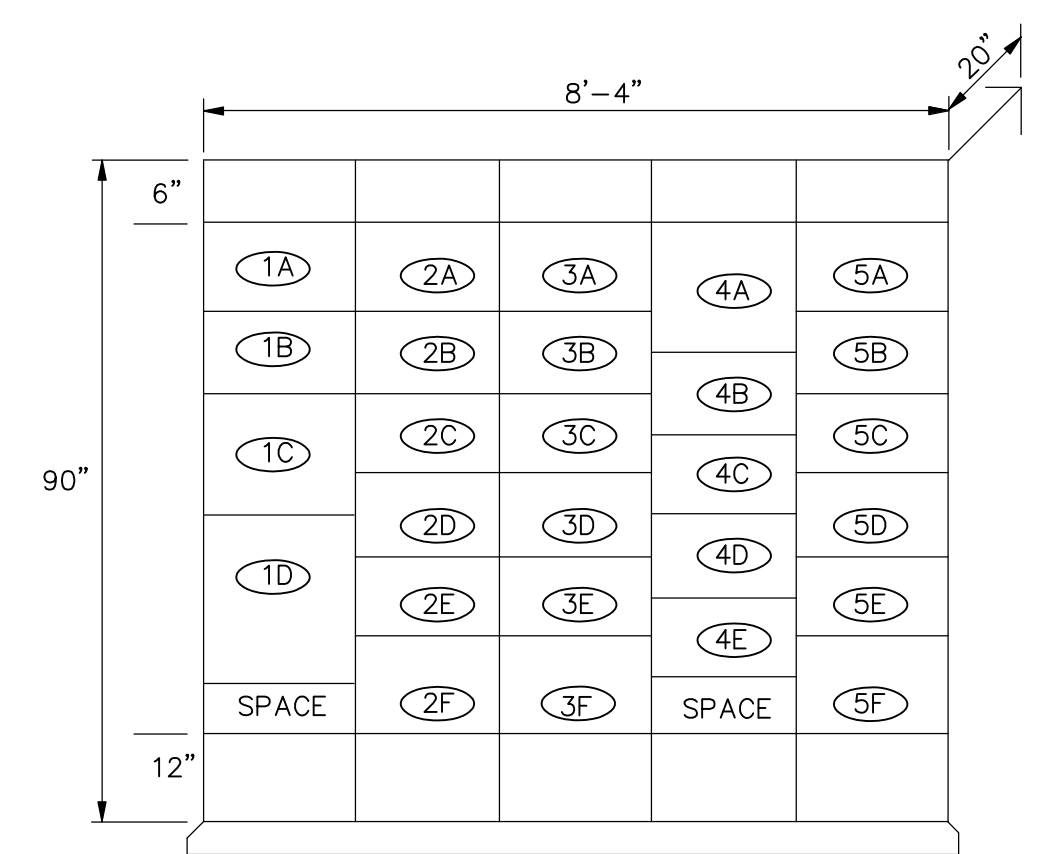




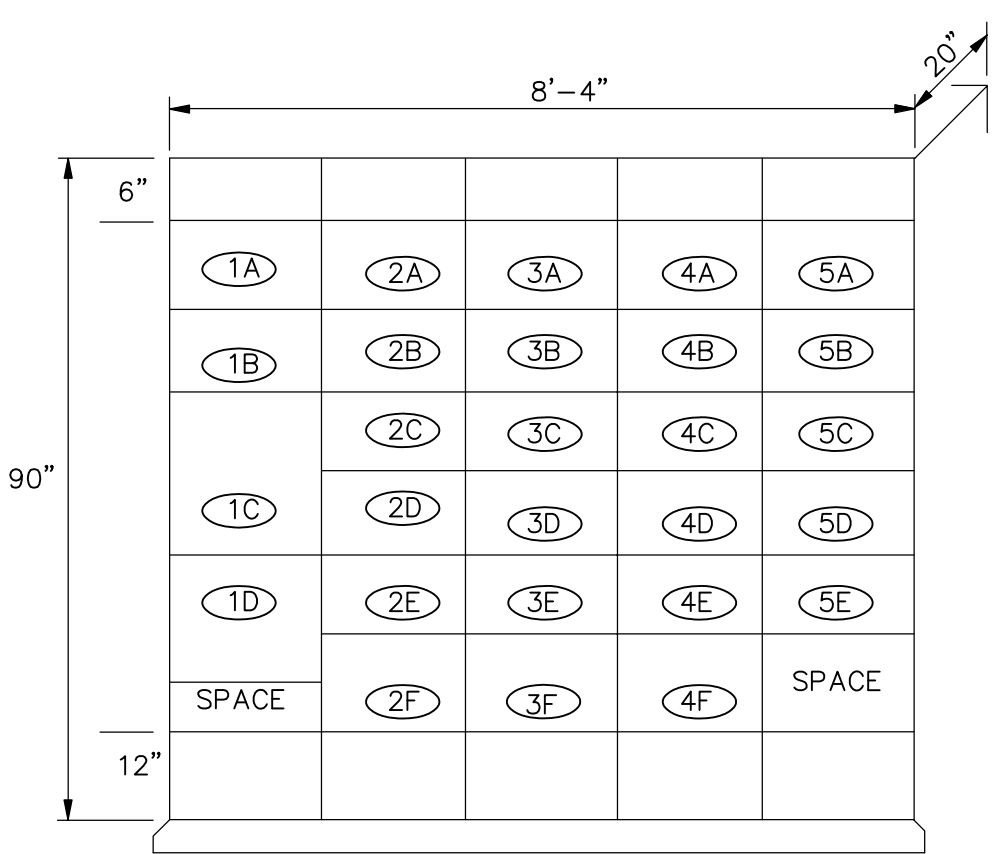
MCC-1C  
 WEST HEADWORKS  
**ONE LINE DIAGRAM 1**  
 N.T.S.



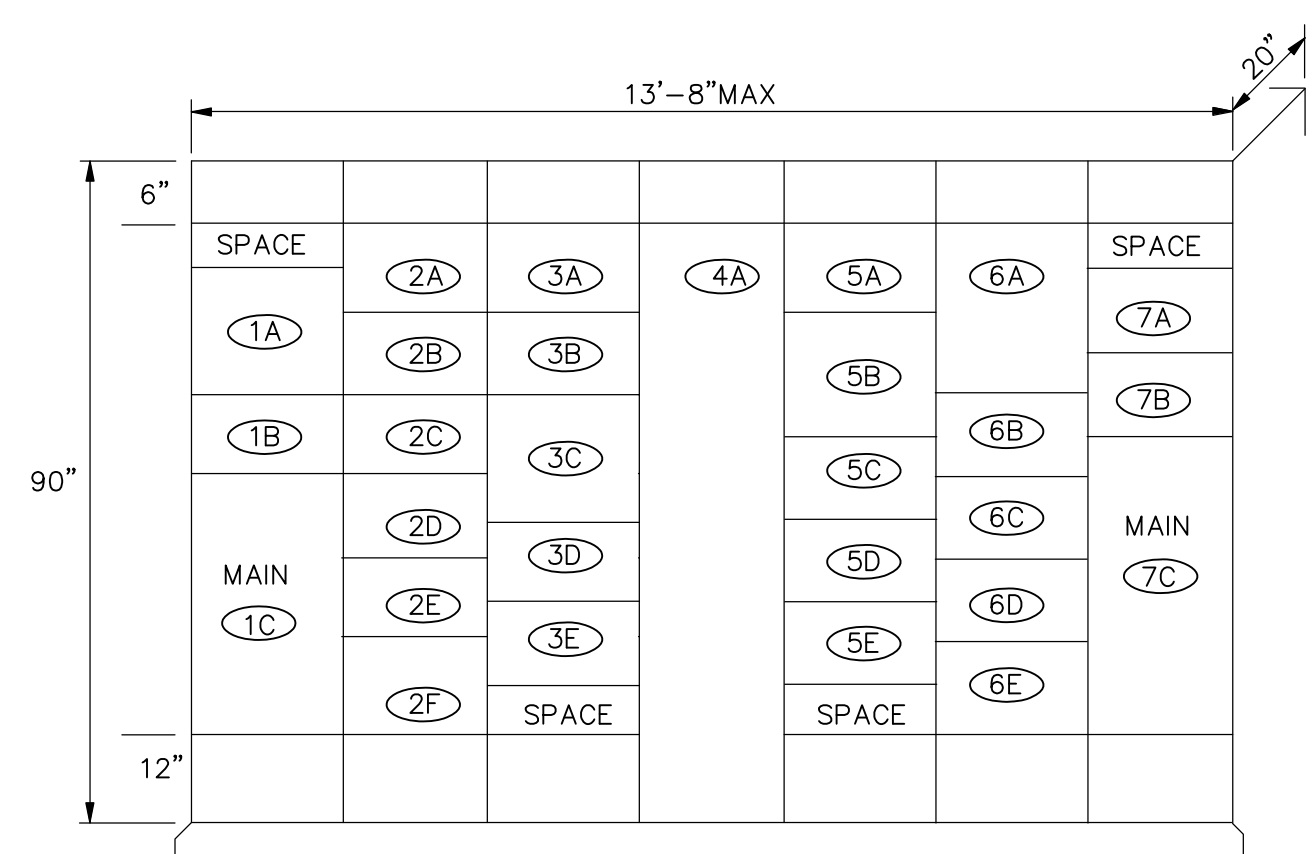
SWITCHBOARD SWBD-1  
**DETAIL A**  
 N.T.S. GD-E-15



MOTOR CONTROL CENTER MCC-1A  
**DETAIL B**  
 N.T.S. GD-E-15



MOTOR CONTROL CENTER MCC-1B  
**DETAIL C**  
 N.T.S. GD-E-15



MOTOR CONTROL CENTER MCC-1C  
**DETAIL D**  
 N.T.S.

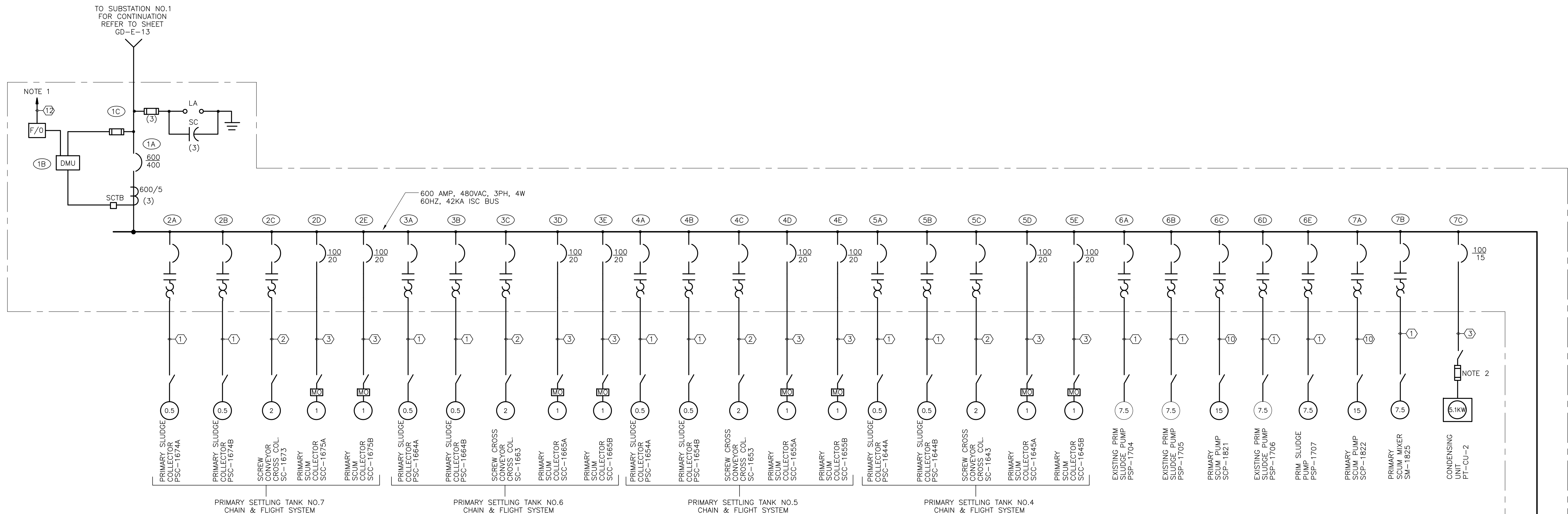
**CONDUIT AND WIRE LEGEND**  
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
1	1" C., 3#12, 1#12G, 16#14
2	3/4" C., 3#12, 1#12G
3	1" C., 3#12, 1#12G, 10#14
4	1-1/4" C., 4#6, 1#8G
5	3/4" C., 3#10, 1#10G
6	3/4" C., 4#10, 1#10G
7	3/4" C., 1-#6 COPPER GROUND
8	NOT USED
9	3/4" C., 3#10, 1#10G
10	1" C., 3#10, 1#10G, 14#14
11	1-1/2" C., 3#1, 1#6G
12	1" C., PMS ETHERNET CABLE
13	1-1/4" C., 3#12, 1#12G, 20#14

- NOTES:**
- FOR CONTINUATION SEE DRAWING GD-E-15.
  - CIRCUIT BREAKER RATED AS SERVICE ENTRANCE.
  - FOR VOLTAGE AND CURRENT READING ONLY
  - ETHERNET COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-? FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM IS NOT SHOWN ON THE FLOOR PLANS.
  - FOR EXACT EQUIPMENT LAYOUT PLEASE REFER TO MANUFACTURE'S SHOP DRAWINGS.

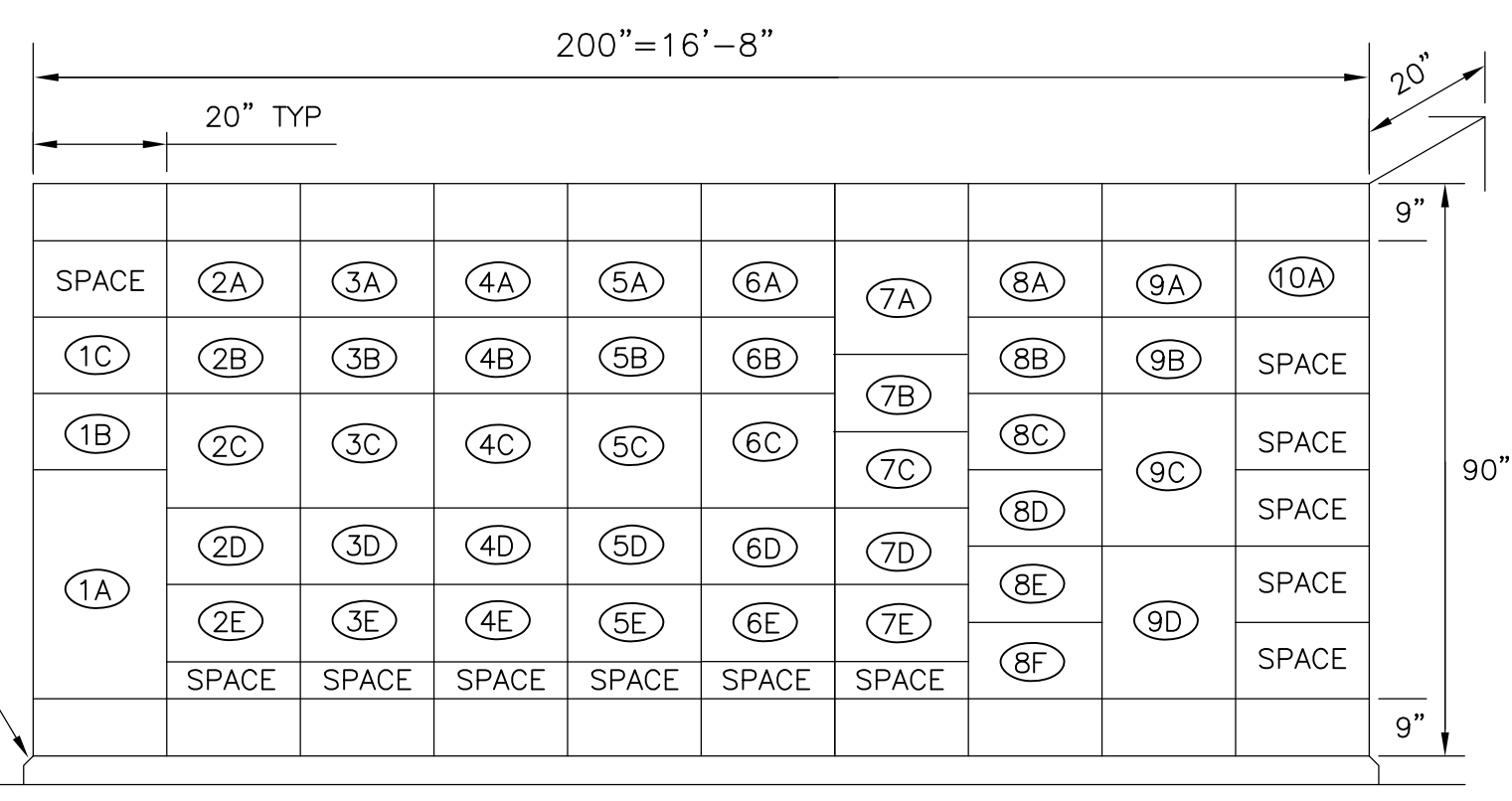
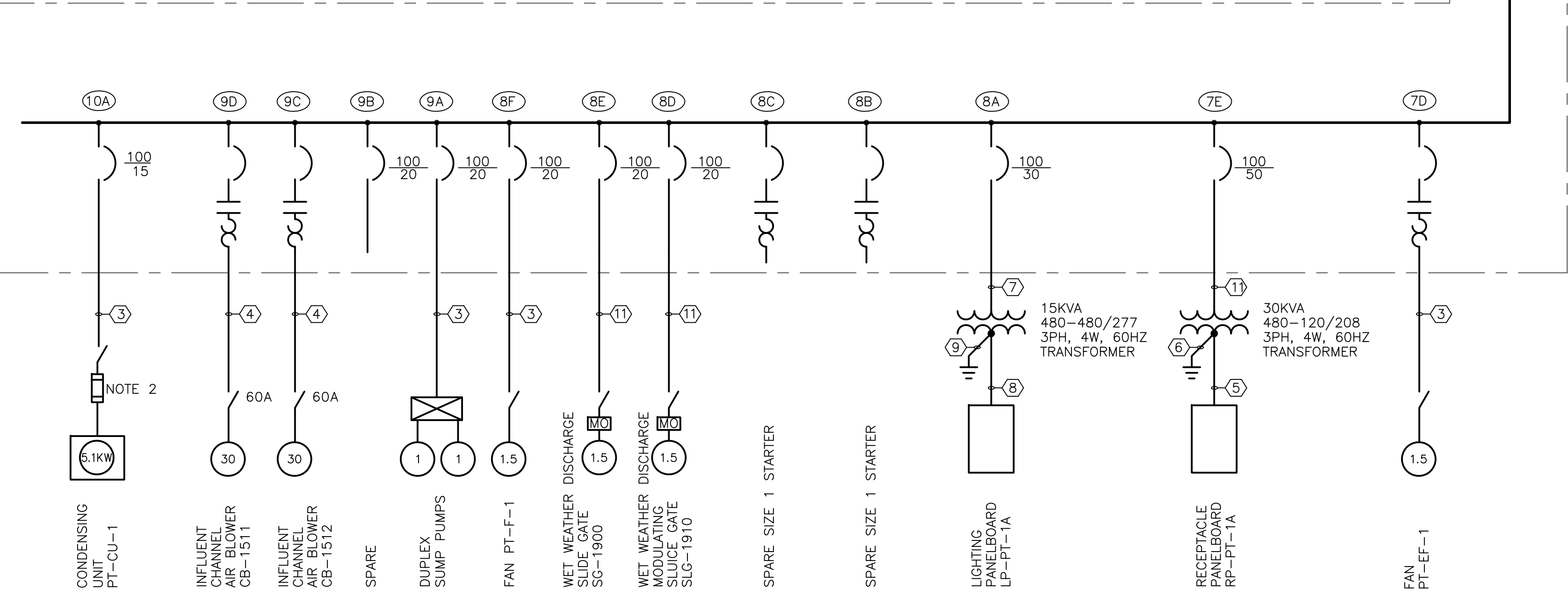
RECORD DRAWING

CADD FILE NO.: EOLDI006.DWG DESIGNED BY: JAR DRAWN BY: OR SHEET CHK'D BY: BDS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		PROJECT NO. 1289\35370 Sht. 320 of 386 <b>GD-E-16</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT		REVISED FOR THE RECORD					



MCC-2A

NORTH STAIR BUILDING  
**ONE LINE DIAGRAM**  
 N.T.S.



MOTOR CONTROL CENTER MCC-2A  
**DETAIL**  
 NTS

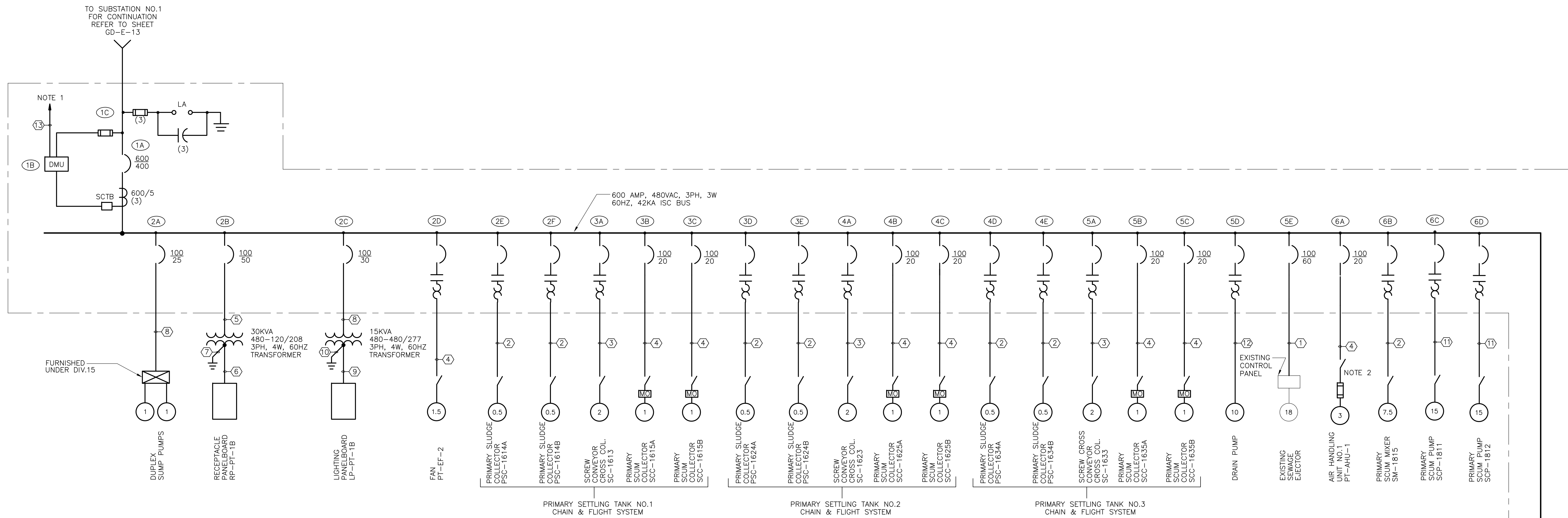
**CONDUIT AND WIRE LEGEND**  
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
1	1" C., 3#10, 1#10G & 12#14
2	1" C., 3#10, 1#10G & 16#14
3	3/4" C., 3#12, 1#12G
4	1 1/4" C., 3#6, 1#10G & 12#14
5	1 1/4" C., 4#1, 1#8G
6	3/4" C., 1#6 COPPER GROUND
7	3/4" C., 3#10, 1#10G
8	3/4" C., 4#10, 1#10G
9	3/4" C., 1#6 COPPER GROUND
10	1 1/4" C., 3#8, 1#10G, 12#14
11	3/4" C., 3#6, 1#10G
12	1" C., PMS FO CABLE

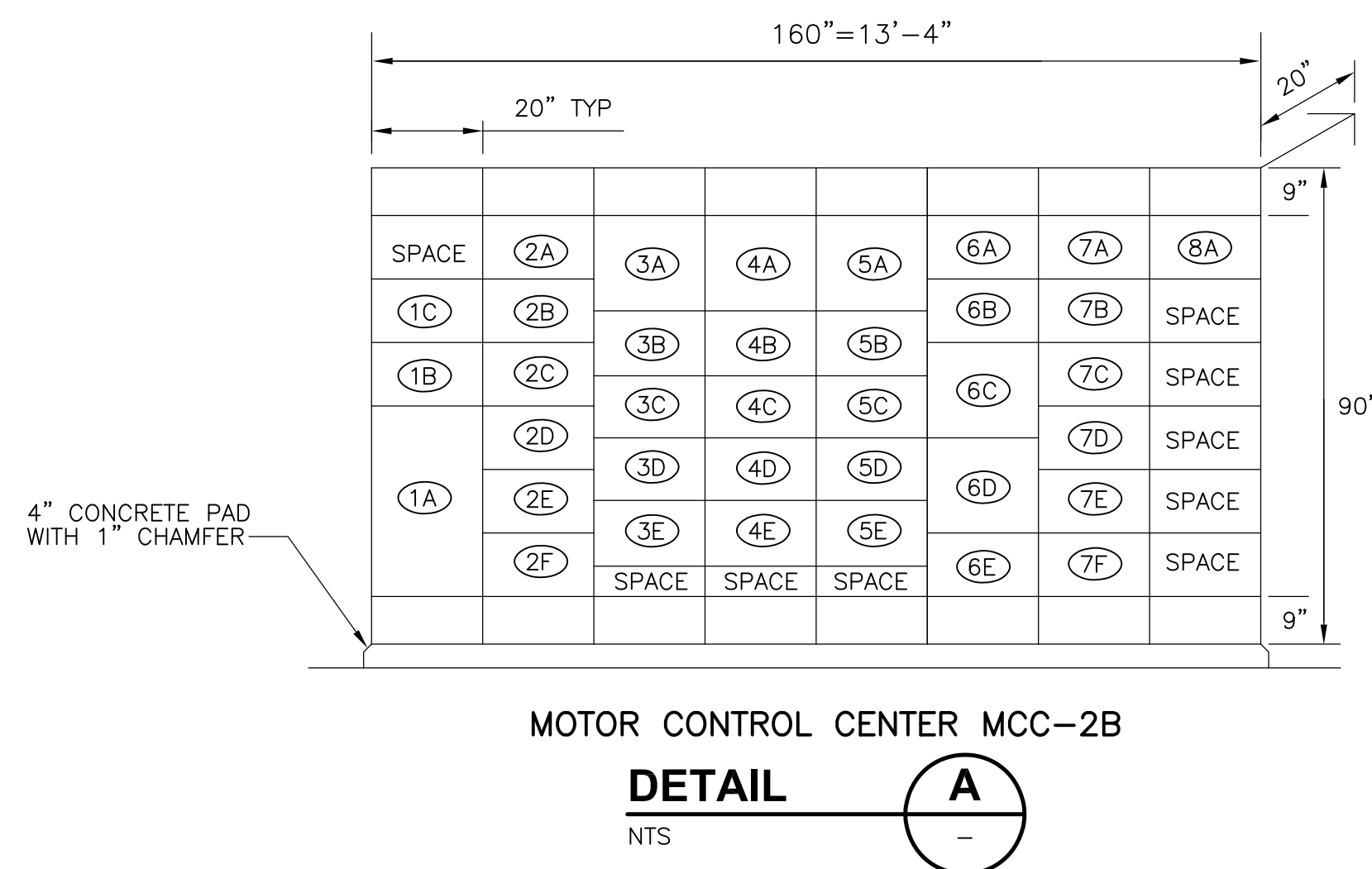
- NOTES:**
- FIBER OPTIC COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM IS NOT SHOWN ON THE FLOOR PLANS.
  - COORDINATE EXACT FUSE SIZE WITH EQUIPMENT SUPPLIER.
  - FOR EXACT EQUIPMENT LAYOUT PLEASE REFER TO MANUFACTURER'S SHOP DRAWINGS.

RECORD DRAWING

CADD FILE NO. EOLD007.DWG DESIGNED BY: JAR DRAWN BY: JAR SHEET CHK'D BY: BDS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		PROJECT NO. 1289\35370 Sht. 321 of 386 <b>GD-E-17</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT		REVISED FOR THE RECORD					



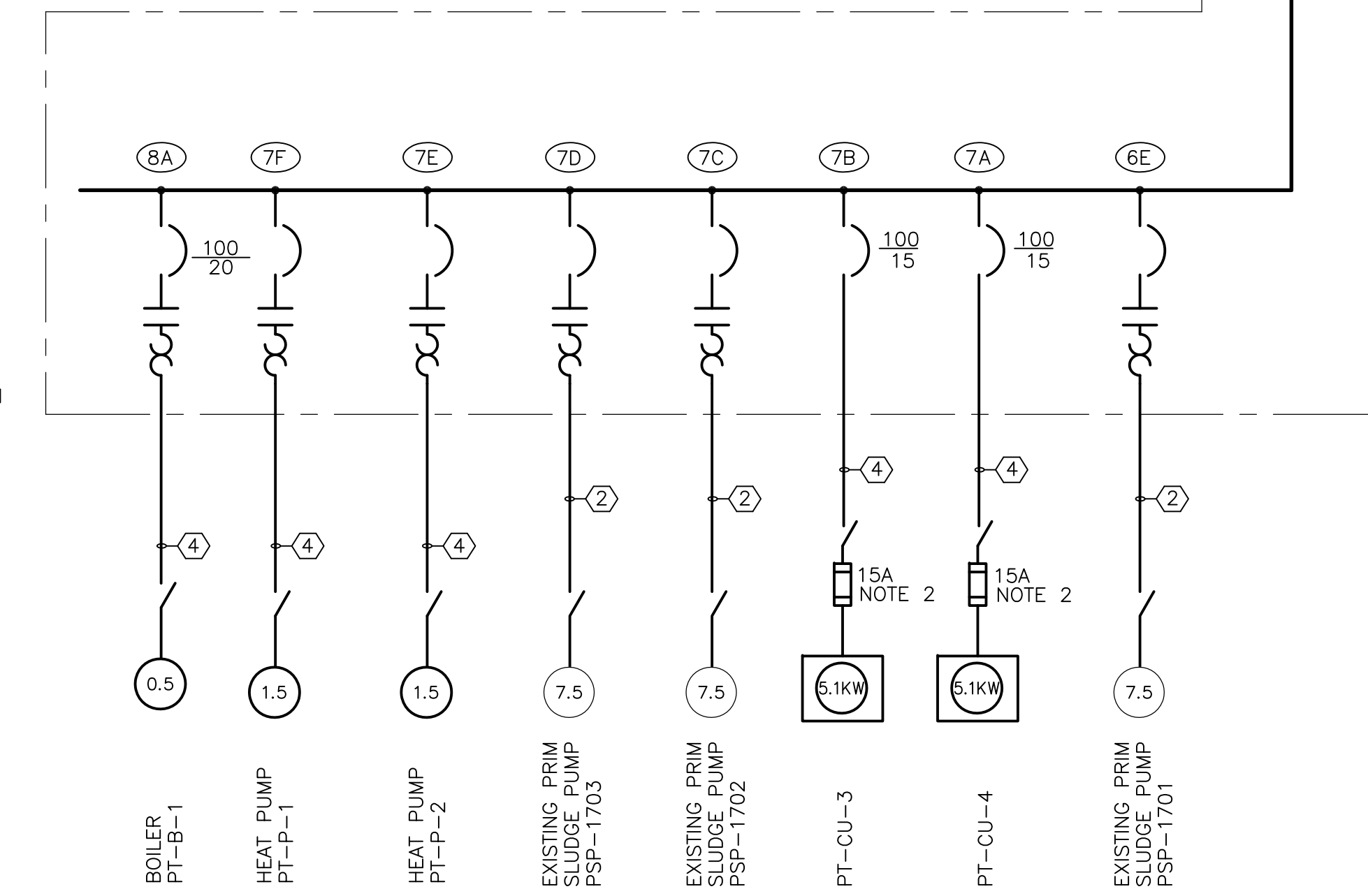
MCC-2B  
 SOUTH STAIR BUILDING  
**ONE LINE DIAGRAM** 1  
 N.T.S.



**CONDUIT AND WIRE LEGEND**  
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	1" C., 3#6 & 1#10G
②	1" C., 3#10, 1#10G & 12#14
③	1" C., 3#10, 1#10G & 16#14
④	3/4" C., 3#12, 1#12G
⑤	3/4" C., 3#6, 1#10G
⑥	1 1/4" C., 4#1, 1#8G
⑦	3/4" C., 1#6 COPPER GROUND
⑧	3/4" C., 3#10, 1#10G
⑨	3/4" C., 4#10, 1#10G
⑩	3/4" C., 1#6 COPPER GROUND
⑪	1 1/4" C., 3#8, 1#10G, 12#14
⑫	3/4" C., 3#10, 1#10G., 3#14
⑬	1" C., PMS ETHERNET CABLE

- NOTES:
- ETHERNET COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM IS NOT SHOWN ON THE FLOOR PLANS.
  - COORDINATE FUSE SIZE WITH EQUIPMENT FURNISHED UNDER DIV.15. FUSE SHALL NOT EXCEED MAX O.C.D. LISTED BY MANUFACTURER.
  - FOR EXACT EQUIPMENT LAYOUT PLEASE REFER TO MANUFACTURE'S SHOP DRAWINGS.



RECORD DRAWING

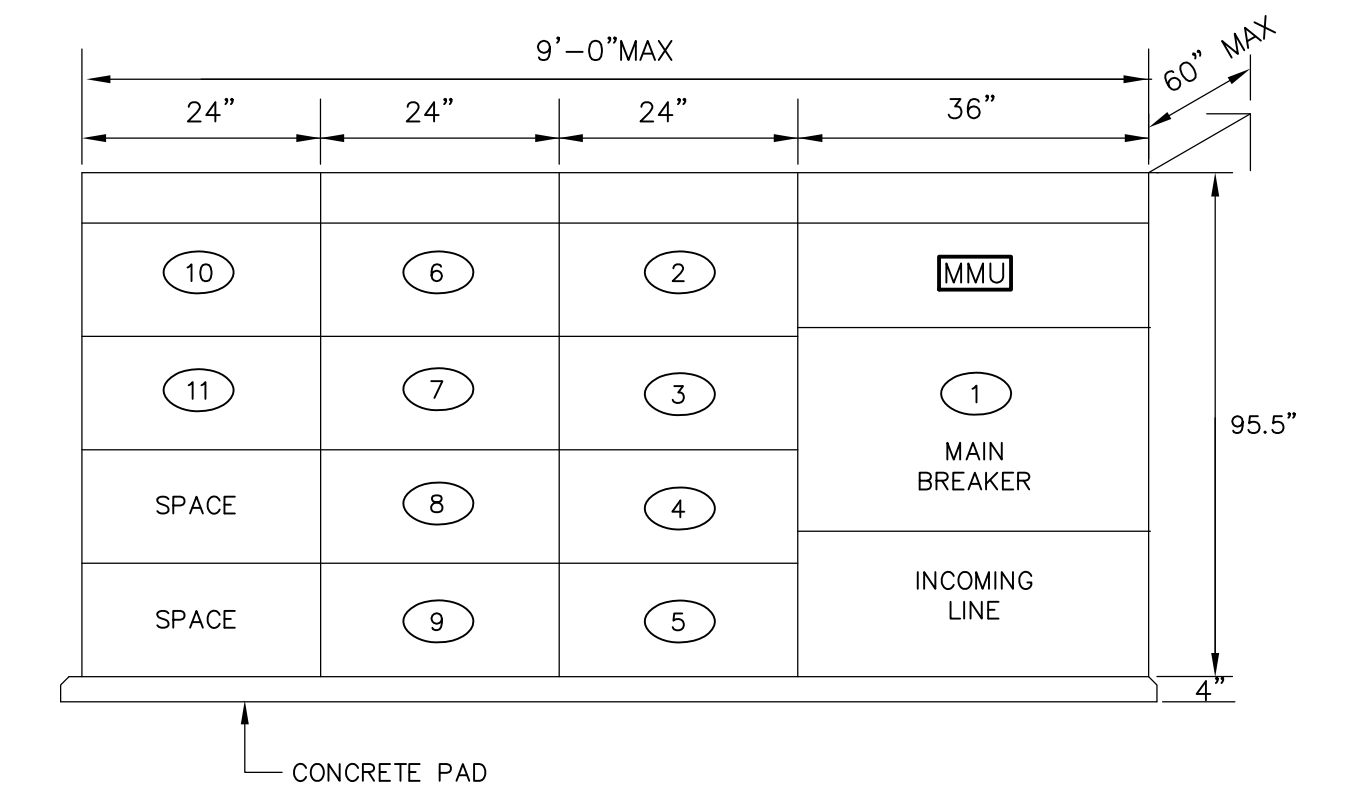
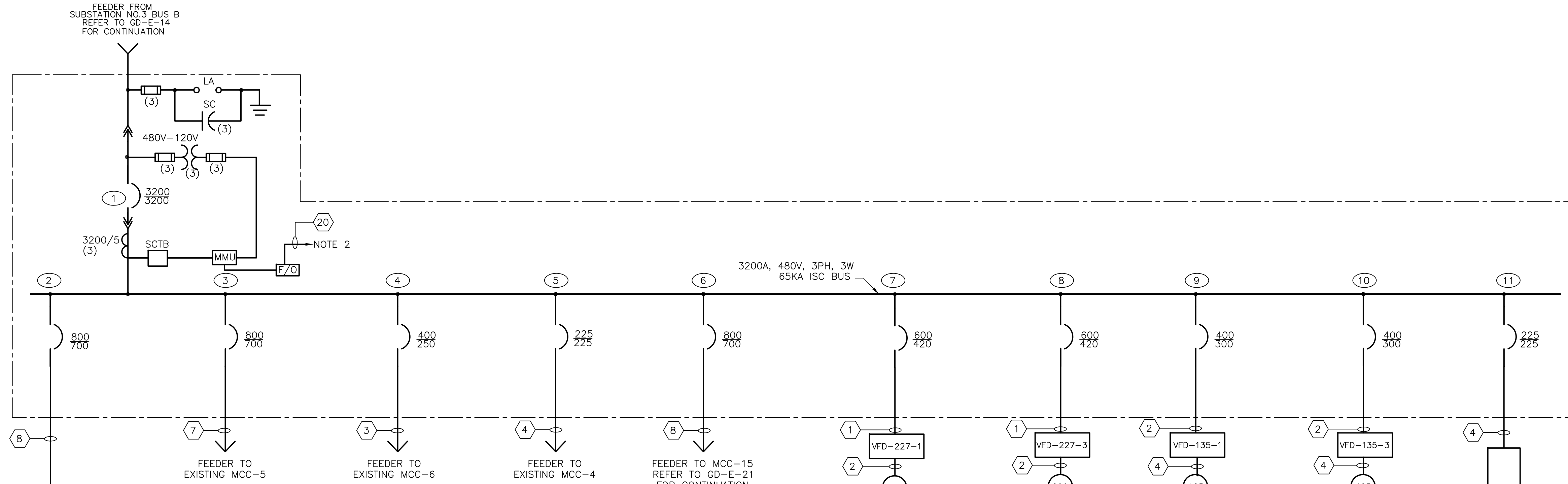
REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	FOLDIO08.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

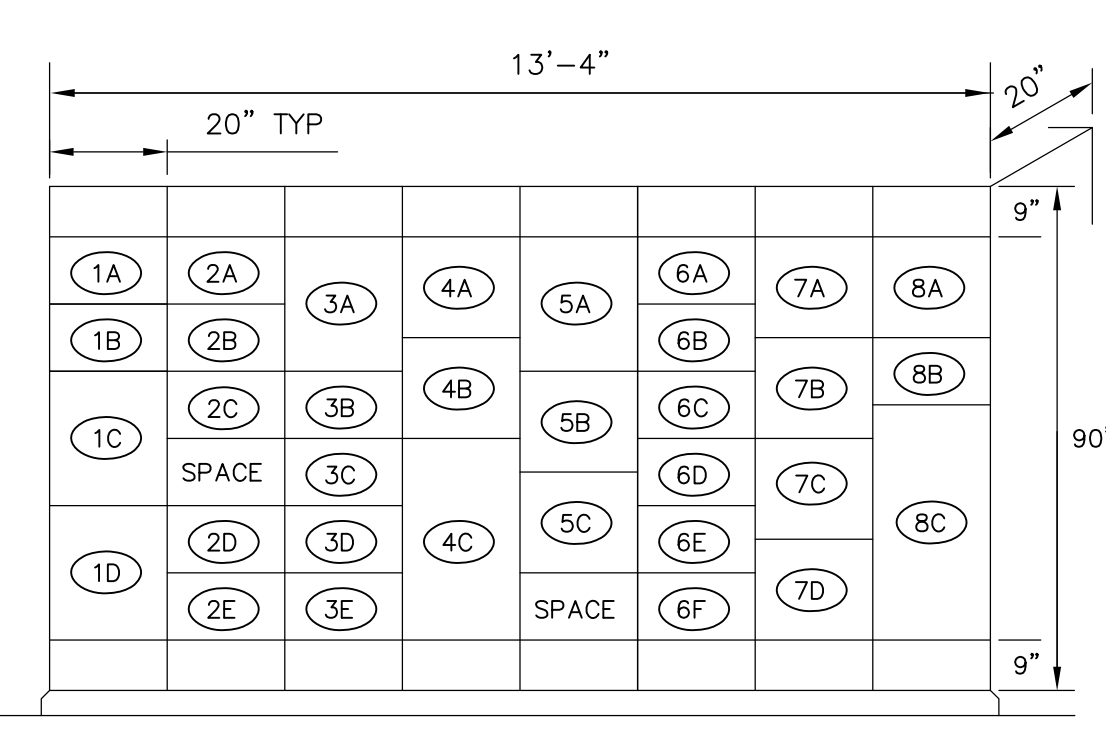
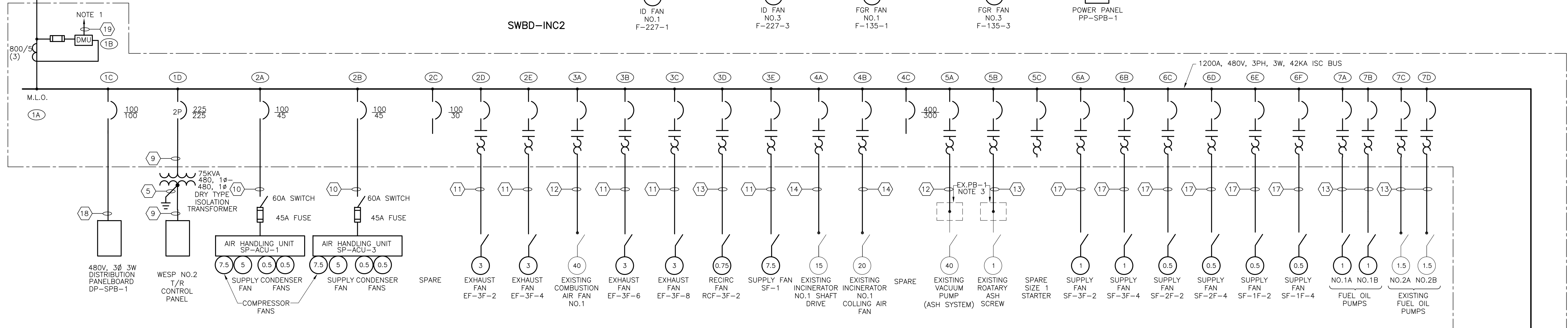
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**MCC-2B**  
**ONE LINE DIAGRAM**



SWITCHBOARD SWBD-INC2  
DETAIL A  
NTS

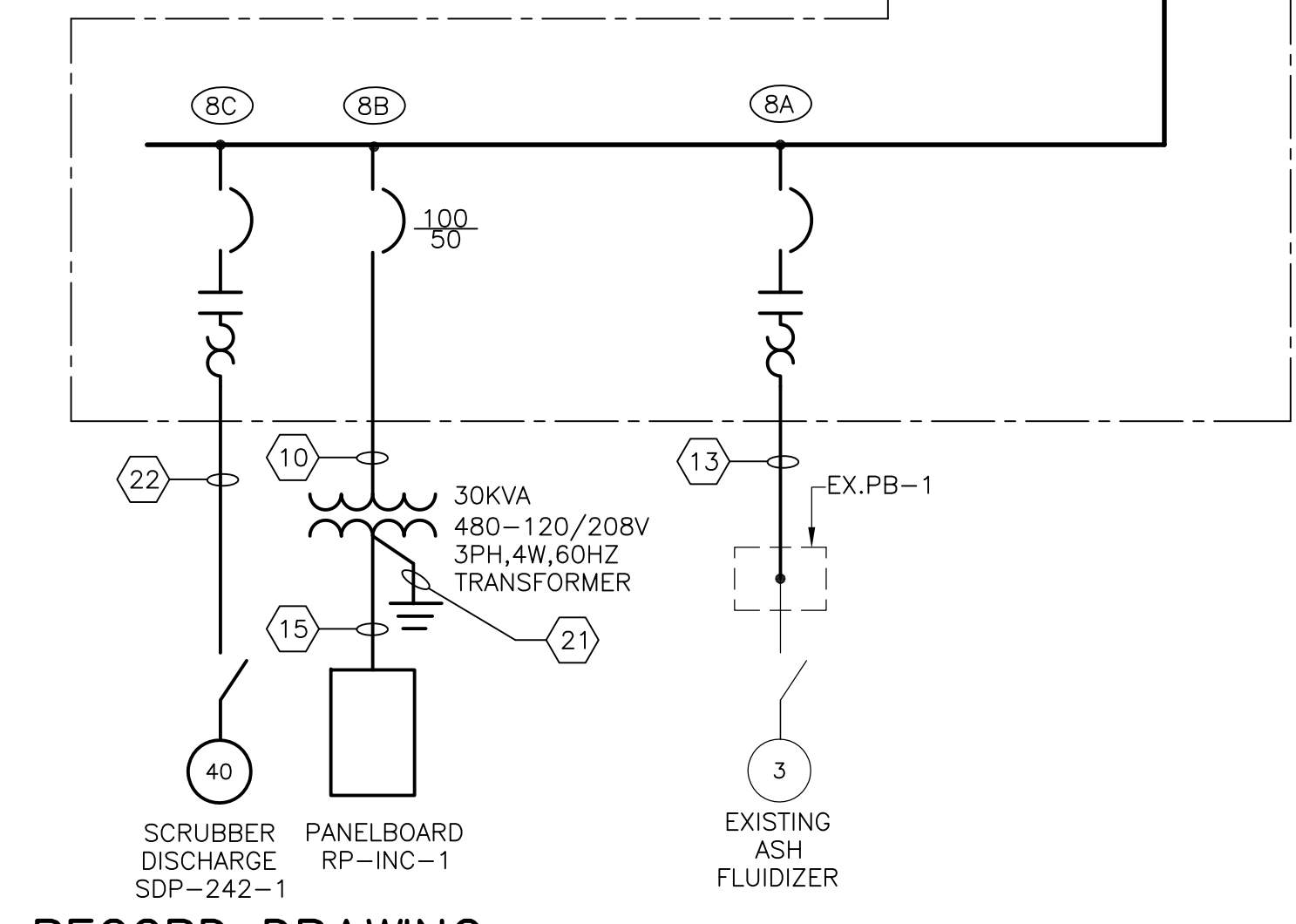


MOTOR CONTROL CENTER MCC-14  
DETAIL B  
NTS

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)			
NO.	DESCRIPTION	NO.	DESCRIPTION
1	1-4" C, 3#600MCM, 1#2G	12	1 1/4" C, 3#4, 1#8G, 4#14
2	3" C, 3#350MCM, 1#3G	13	3/4" C, 3#12, 1#12G, 4#14
3	3" C, 3#250MCM, 1#3G	14	1" C, 3#8, 1#8G, 4#14
4	2" C, 3#4/0, 1#4G	15	1 1/2" C, 4#1, 1#6G
5	1" C, 1#2 COPPER GROUND	16	2" C, 3#1, 1#6G, 4#14
6	3/4" C, 1#6 COPPER GROUND	17	3/4" C, 5#12, 1#12G, 4#14
7	2 (4" C, 3#500MCM, 1#1/0G)	18	1 1/2" C, 3#1, 1#6G
8	2 (4" C, 3#600MCM, 1#1/0G)	19	1" C, PMS ETHERNET CABLE
9	1 1/2" C, 2#4/0, 1#4G	20	1" C, PMS FO CABLE
10	1" C, 3#6, 1#8G	21	3/4" C, 1#6 COPPER GROUND
11	3/4" C, 3#12, 1#12G	22	1 1/2" C, 3#4, 1#8G, 10#14

MCC-14  
SPB INCINERATOR AREA  
DIAGRAM 1  
N.T.S.

- NOTES
- ETHERNET COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM NOT SHOWN ON THE FLOOR PLANS.
  - FIBER OPTIC COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM NOT SHOWN ON THE FLOOR PLANS.
  - SPLICE NEW FEEDER CABLES TO EXISTING FEEDERS TO MOTORS IN PULL BOX.
  - FOR EXACT EQUIPMENT LAYOUT PLEASE REFER TO MANUFACTURE'S SHOP DRAWINGS.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

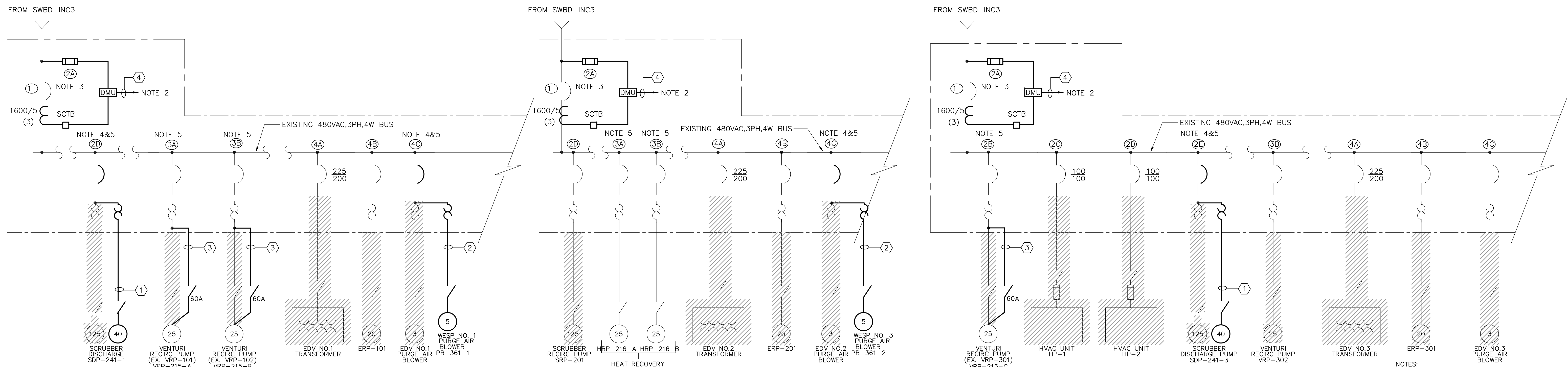
CADD FILE NO.	EOLDI009.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

CDM	Camp Dresser & McKee Inc.
consulting	engineering
construction	operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
WASTEWATER TREATMENT FACILITY IMPROVEMENTS

PROJECT NO. 1289\35370
Sht. 323 of 386
GD-E-19

SWBD-INC2 & MCC-14 ONE LINE DIAGRAMS
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EXISTING MCC-11  
 SPB INCINERATOR AREA  
**DIAGRAM 1**  
 N.T.S.

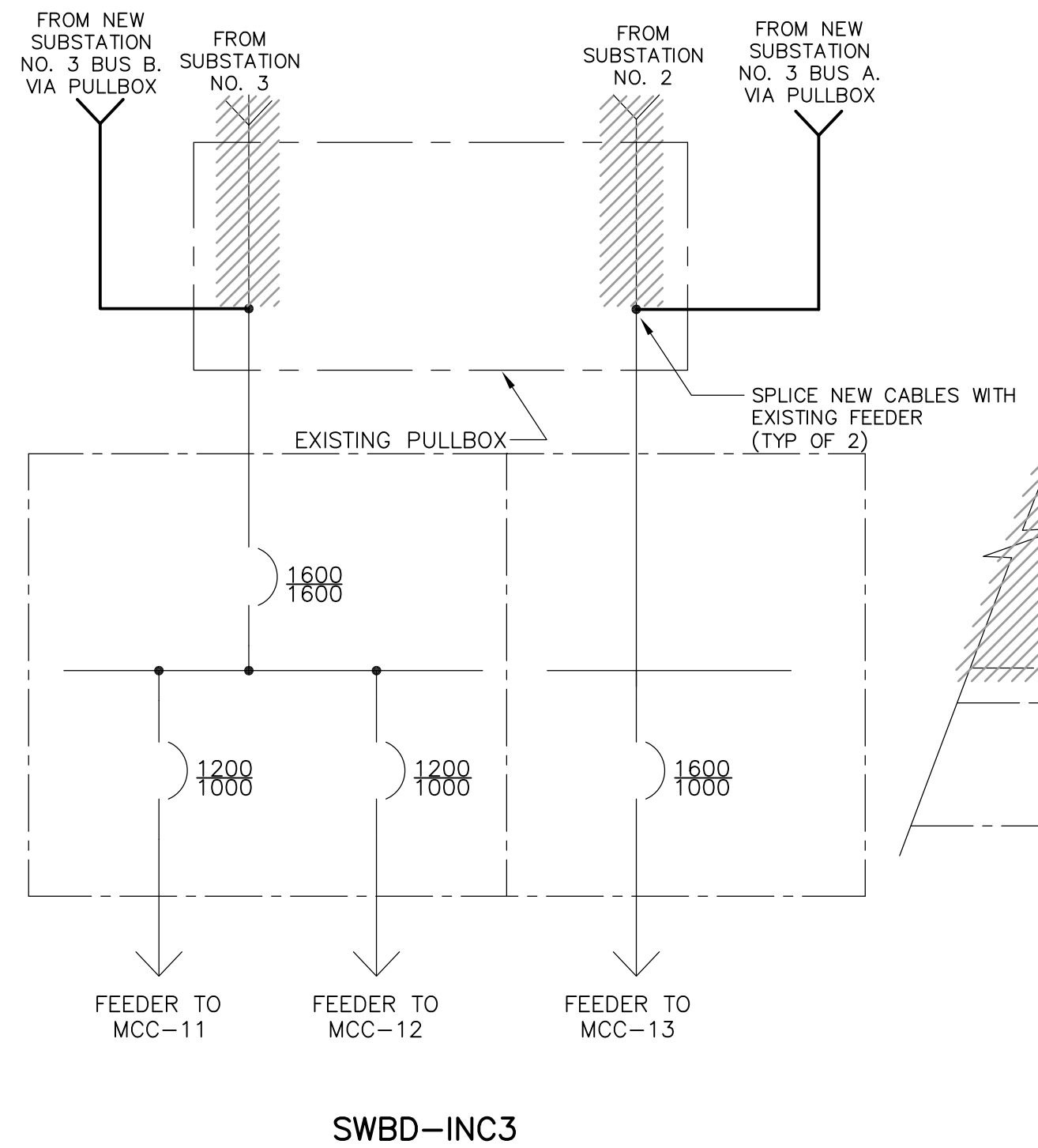
EXISTING MCC-12  
 SPB INCINERATOR AREA  
**DIAGRAM 2**  
 N.T.S.

EXISTING MCC-13  
 SPB INCINERATOR AREA  
**DIAGRAM 3**  
 N.T.S.

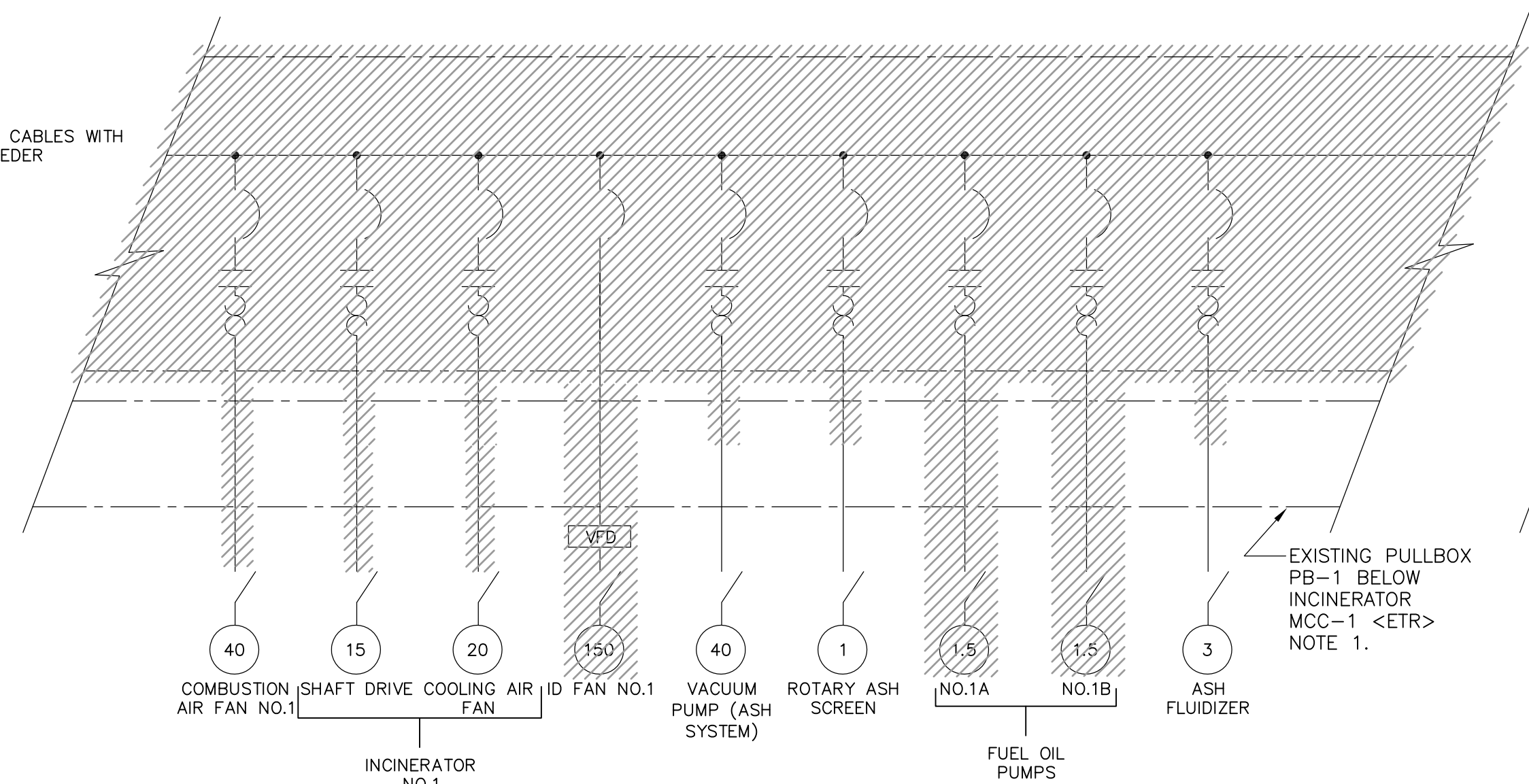
**CONDUIT AND WIRE LEGEND**  
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	1 1/2" C, 3#4, 1#8G, 10#14
②	1" C, 3#12, 1#12G, 6#14
③	1 1/2" C, 3#6, 1#8G, 10#14
④	1" C, PMS ETHERNET CABLE

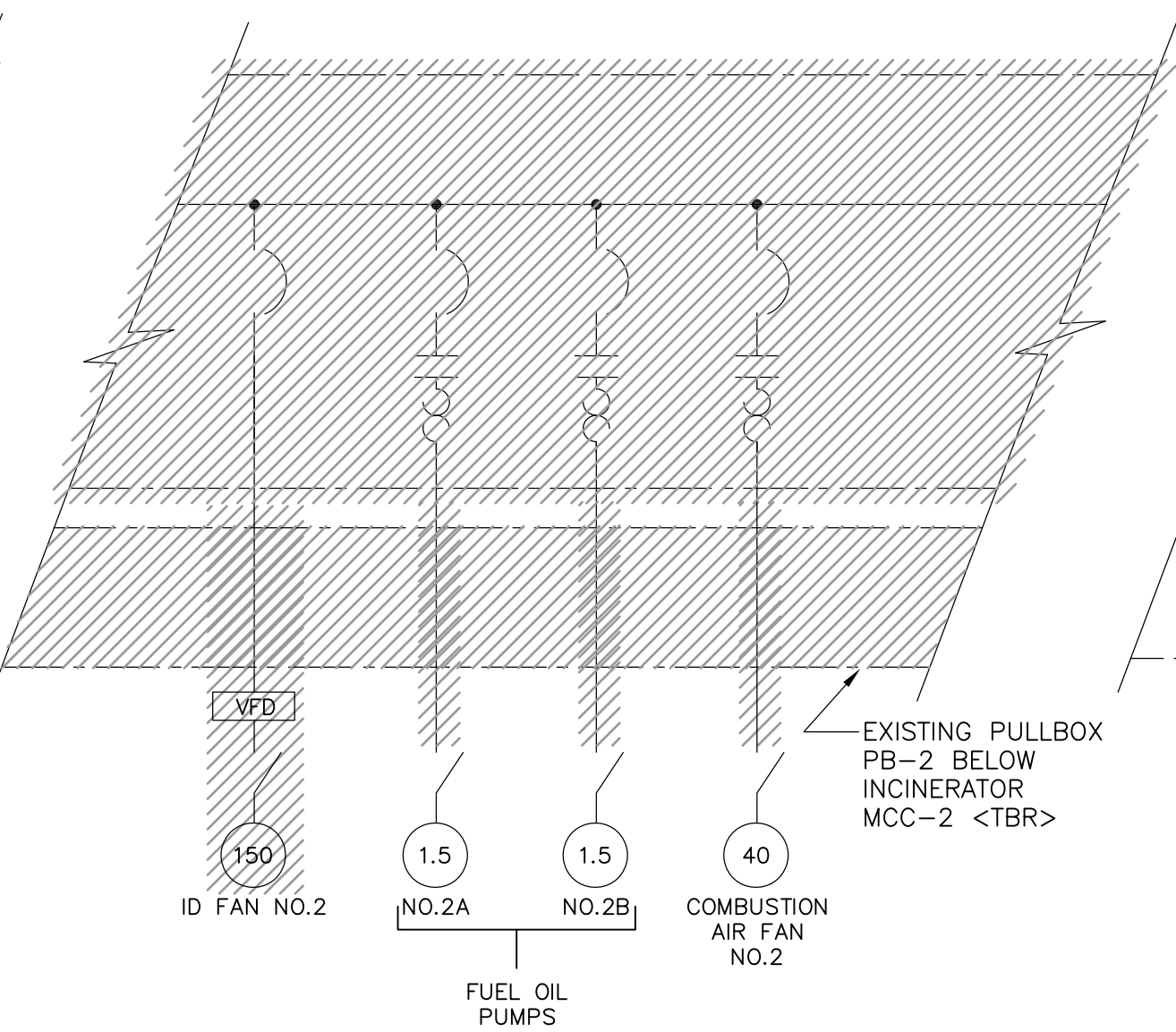
- NOTES:
- REFER TO DRAWINGS GD-E-19 AND GD-E-21 FOR RECONNECTION OF EXISTING MOTORS TO REMAIN.
  - ETHERNET COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-? FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM IS NOT SHOWN ON THE FLOOR PLANS.
  - FURNISH AND INSTALL NEW DIGITAL UNIT IN EXISTING MCC AS SHOWN ON SINGLE LINE DIAGRAM. MAKE ALL MODIFICATION NECESSARY TO MCC INCLUDING COMPARTMENT DOOR TO RETROFIT NEW METER INTO EXISTING MCC.
  - REPLACE MOTOR CIRCUIT PROTECTOR AND OVERLOADS TO MATCH NEW MOTOR F.L.A. NEW MCP SHALL MATCH EXISTING IN ALL RESPECTS INCLUDING SHORT CIRCUIT RATING.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING THE CONTROL CIRCUITRY AS REQUIRED TO MATCH THE DIAGRAMS SHOWN ON GD-E-35, 36, & 37



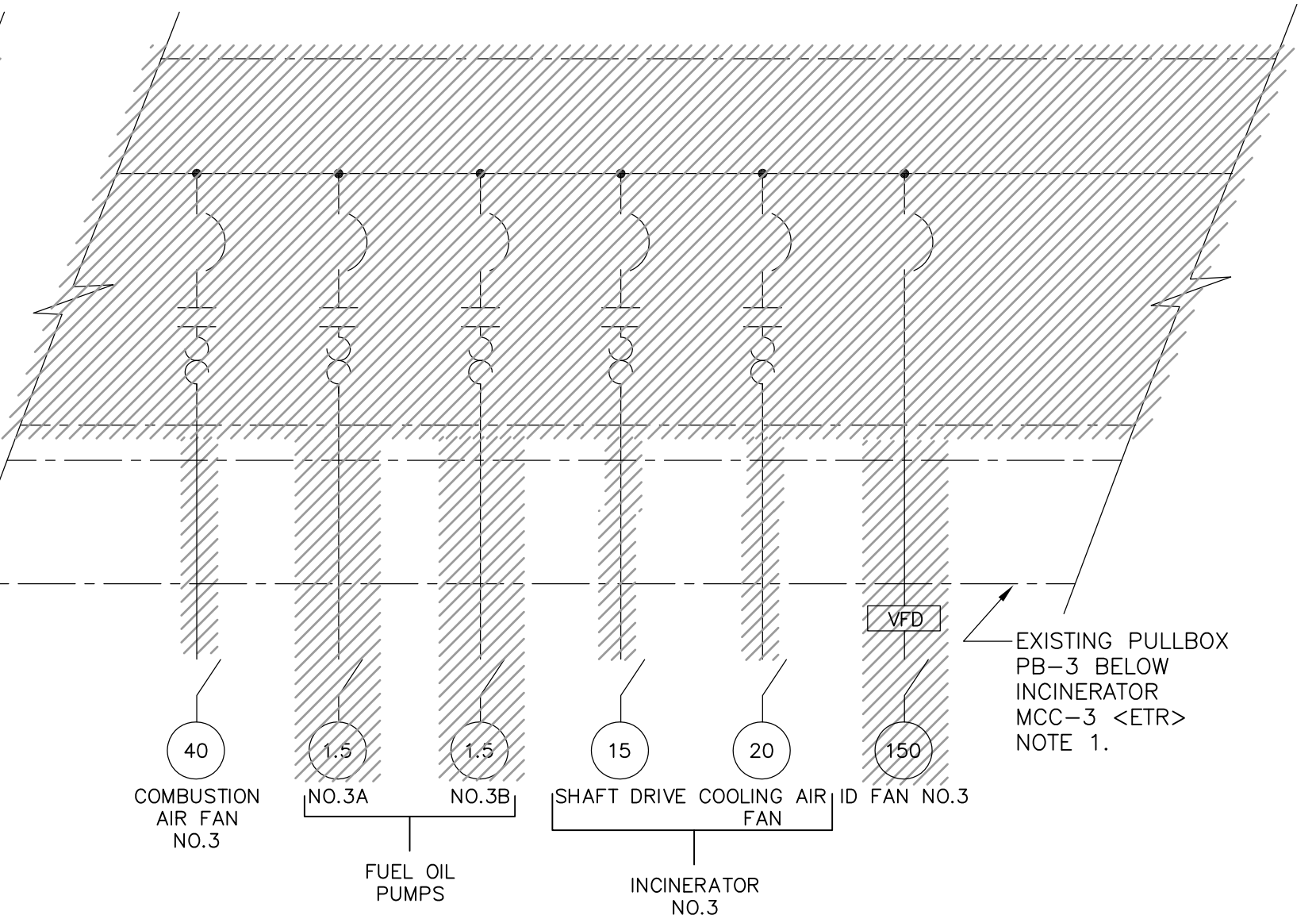
SWBD-INC3  
 SPB INCINERATOR AREA  
**DIAGRAM 4**  
 N.T.S.



INCINERATOR MCC-1  
 SPB INCINERATOR AREA  
**DIAGRAM 5**  
 N.T.S.



INCINERATOR MCC-2  
 SPB INCINERATOR AREA  
**DIAGRAM 6**  
 N.T.S.



INCINERATOR MCC-3  
 SPB INCINERATOR AREA  
**DIAGRAM 7**  
 N.T.S.

**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

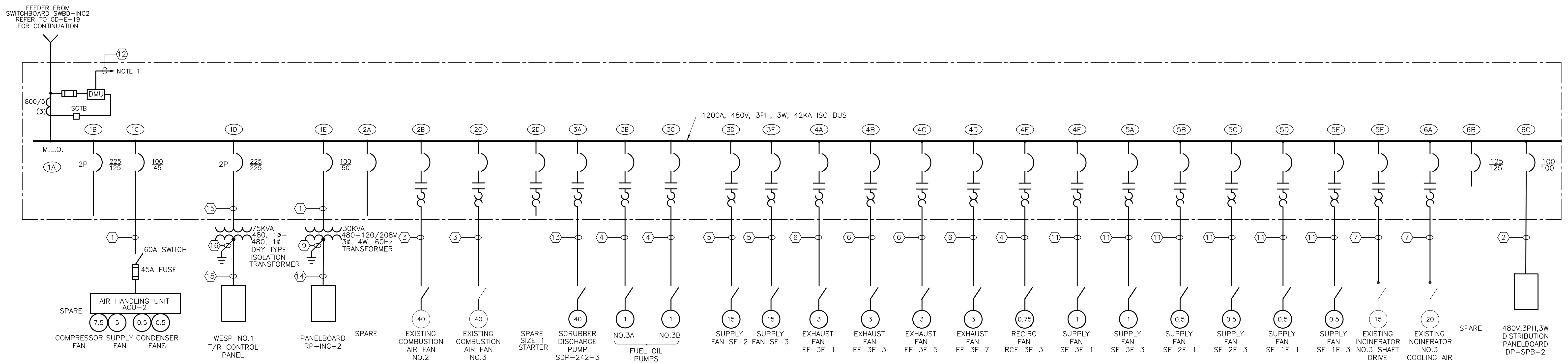
CADD FILE NO.	EOLDIG10
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

CDM	Camp Dresser & McKee Inc.
consulting engineering construction operations	

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
<b>WASTEWATER TREATMENT FACILITY          IMPROVEMENTS</b>

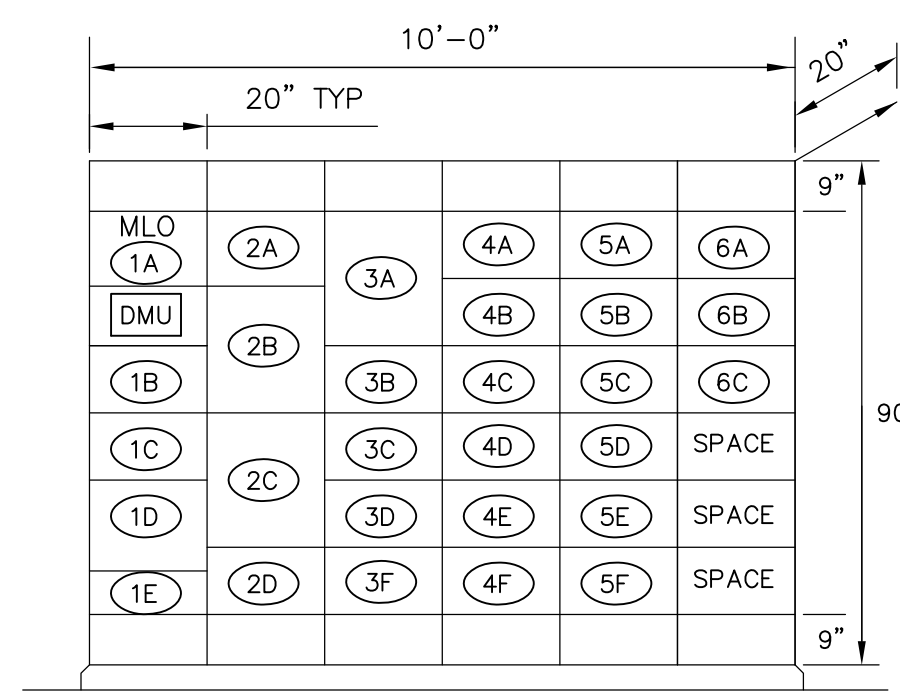
<b>EXISTING MCC-11, 12 &amp; 13 AND          EXISTING INCINERATOR MCC-1, 2 &amp; 3          PARTIAL ONE LINE DIAGRAMS</b>
---

PROJECT NO. 1289\35370
Sht. 324 of 386
<b>GD-E-20</b>



MCC-15  
 SPB INCINERATOR AREA  
**DIAGRAM 1**  
 N.T.S.

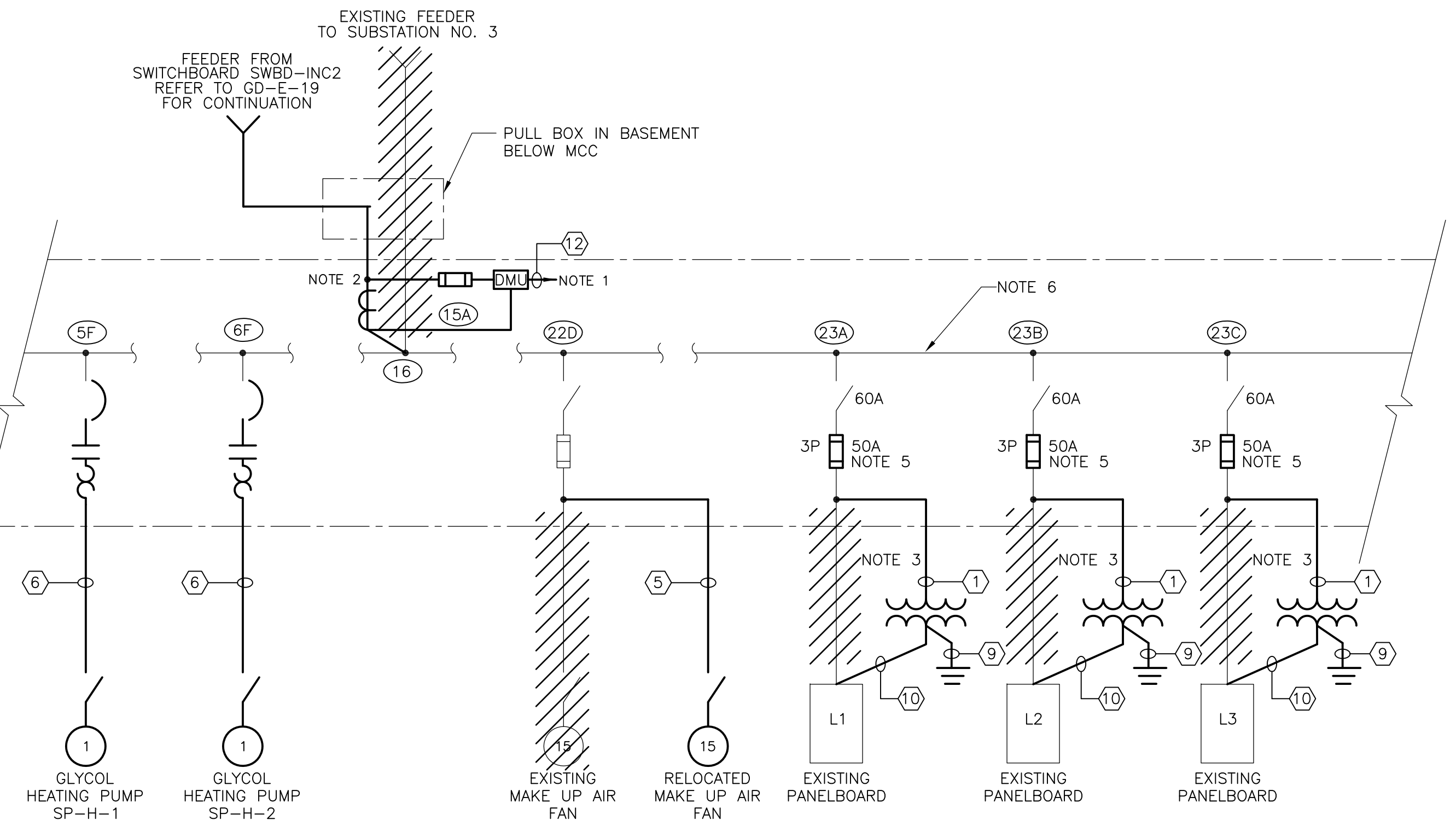
- NOTES**
- ETHERNET COMMUNICATION FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE CONDUIT AND WIRE REQUIRED NOT SHOWN ON PLANS.
  - FURNISH AND INSTALL NEW DIGITAL METERING UNIT IN EXISTING MCC AS SHOWN ON SINGLE LINE DIAGRAM. MAKE ALL MODIFICATIONS REQUIRED TO MCC INCLUDING COMPARTMENT DOOR TO RETROFIT NEW METER INTO EXISTING MCC.
  - FURNISH & INSTALL NEW 30KVA, 480, 3Ø, 3W - TO - 480/277, 3Ø, 4W 60HZ TRANSFORMER. DISCONNECT & REMOVE EXISTING 4 WIRE FEEDER & RECONNECT EXISTING 4 WIRE PANELBOARDS TO NEW 4 WIRE TRANSFORMER SECONDARY.
  - DISCONNECT EXISTING PANELBOARD "L" FROM 3-POLE 50A FUSED SWITCH CONNECTED TO MCC-6 BUS. EXISTING PANEL "L" CIRCUITS TO REMAIN SHALL BE FED FROM NEW 480/277V, 3Ø, 4W PANEL "LP-SPB-1". REFER TO NEW WORK PLANS & SCHEDULES FOR RECONNECTION DETAILS.
  - REPLACE EXISTING FUSES AS SHOWN ON SINGLE LINE DIAGRAM.
  - EXISTING 480/277V VOLT, 3Ø, 4W MCC TO BE RETROFITTED TO 480 VOLT, 3Ø, 3W DISTRIBUTION EQUIPMENT. THE NEUTRAL CONDUCTORS FEEDING THE EXISTING EQUIPMENT SHALL BE REMOVED INCLUDING ANY BONDING JUMPERS BETWEEN THE NEUTRAL BUS & GROUND BUS. THE CONTRACTOR SHALL REPLACE THE EQUIPMENT NAMEPLATE INDICATING NEW DISTRIBUTION VOLTAGE (480V, 3Ø, 3W) & PROVIDE SIGNAGE ON THE GEAR STATING "WARNING 480V, 3Ø, 3 WIRE DISTRIBUTION. NEUTRAL BUS IS NOT CONNECTED".
  - FOR EXACT EQUIPMENT LAYOUT PLEASE REFER TO MANUFACTURER'S SHOP DRAWINGS.



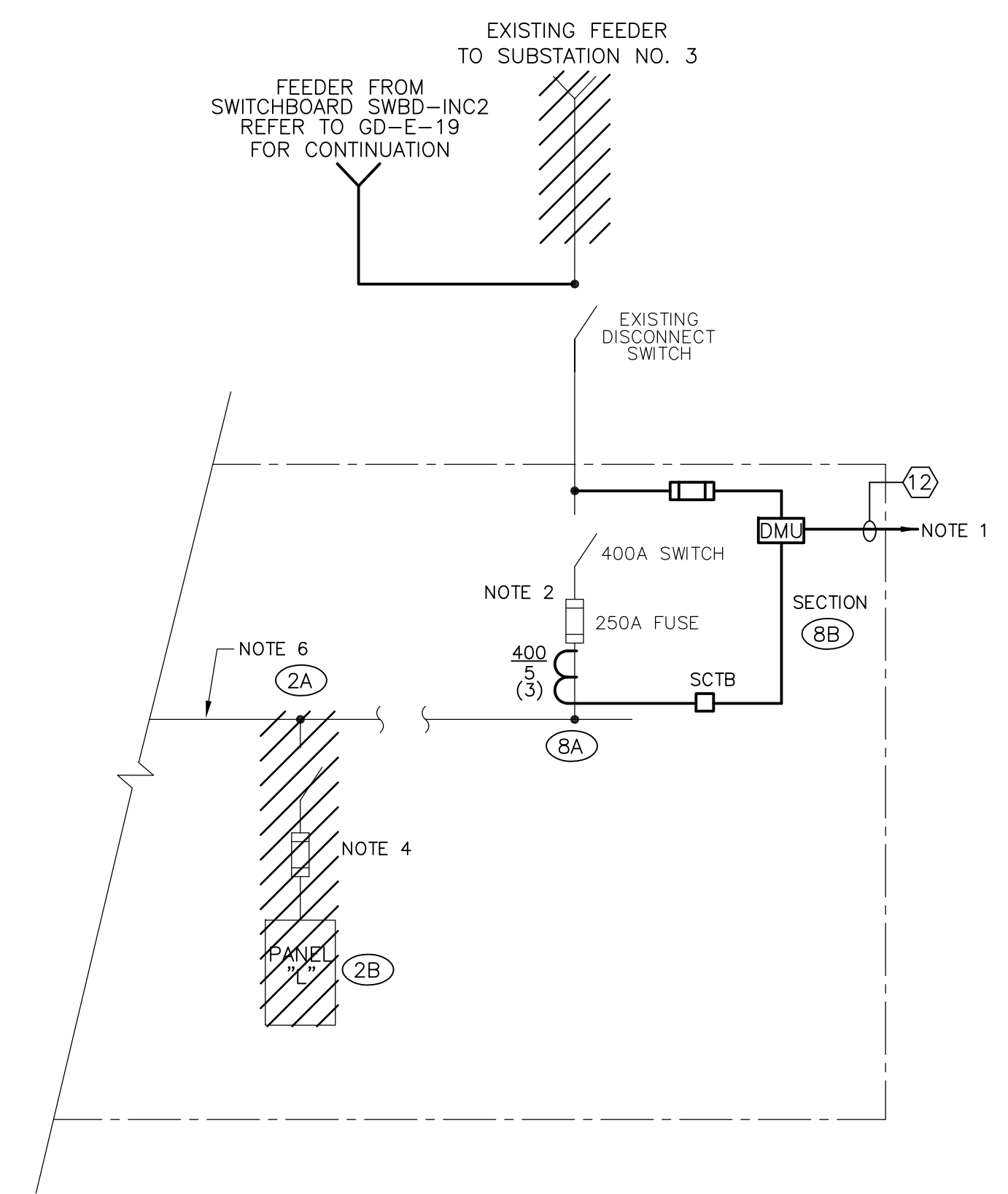
MOTOR CONTROL CENTER MCC-15  
**DETAIL A**  
 N.T.S.

**CONDUIT AND WIRE LEGEND**  
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
1	1" C, 3#6, 1#8G
2	1-1/2", 3#1, 1#6G
3	1-1/4" C, 3#4, 1#8G, 4#14
4	1" C, 3#12, 1#12G, 4#14
5	1" C, 3#8, 1#8G
6	3/4" C, 3#12, 1#12G
7	1-1/4" C, 3#8, 1#8G, 4#14
8	2-1/2" C, 3#250MCM, 1#4G
9	3/4" C, 1#6 COPPER GROUND
10	1-1/4" C, 4#6, 1#6G
11	3/4" C, 5#12, 1#12G 4#14
12	1" C, PMS ETHERNET CABLE
13	1-1/2" C, 3#4, 1#8G, 10#14
14	1 1/2" C, 4#1, 1#6G
15	1 1/2" C, 2#4/0, 1#4G
16	1" C, 1#2 COPPER GROUND



EXISTING MCC-5  
 SPB FILTER AREA  
**DIAGRAM 2**  
 N.T.S.



EXISTING MCC-6  
 SPB THICKENER AREA  
**DIAGRAM 3**  
 N.T.S.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

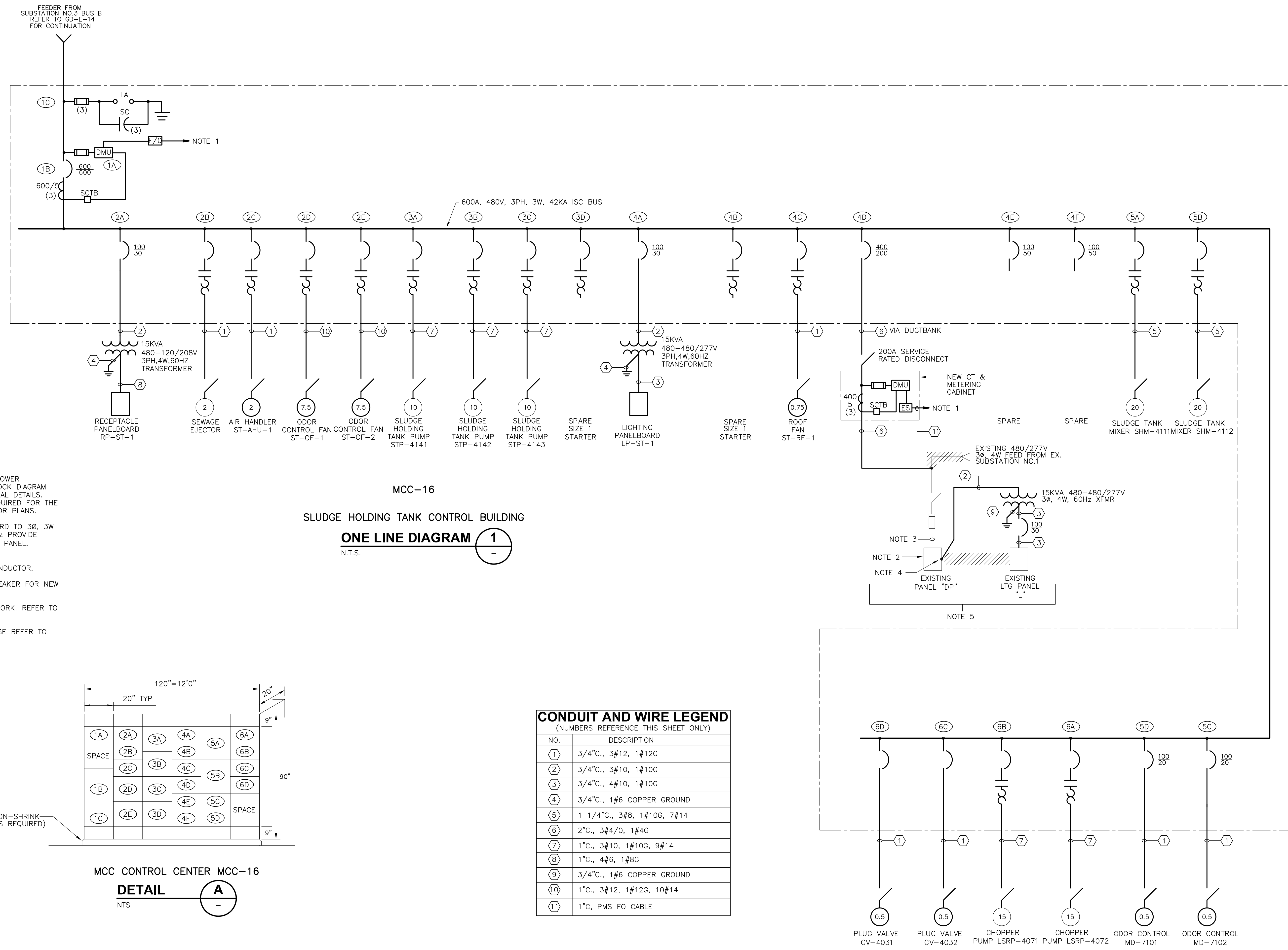
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 DESIGNED BY: JAR  
 DRAWN BY: JAR  
 SHEET CHK'D BY: BDS  
 SCALE: AS NOTED  
 APPROVED BY: B. SQUIBB  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

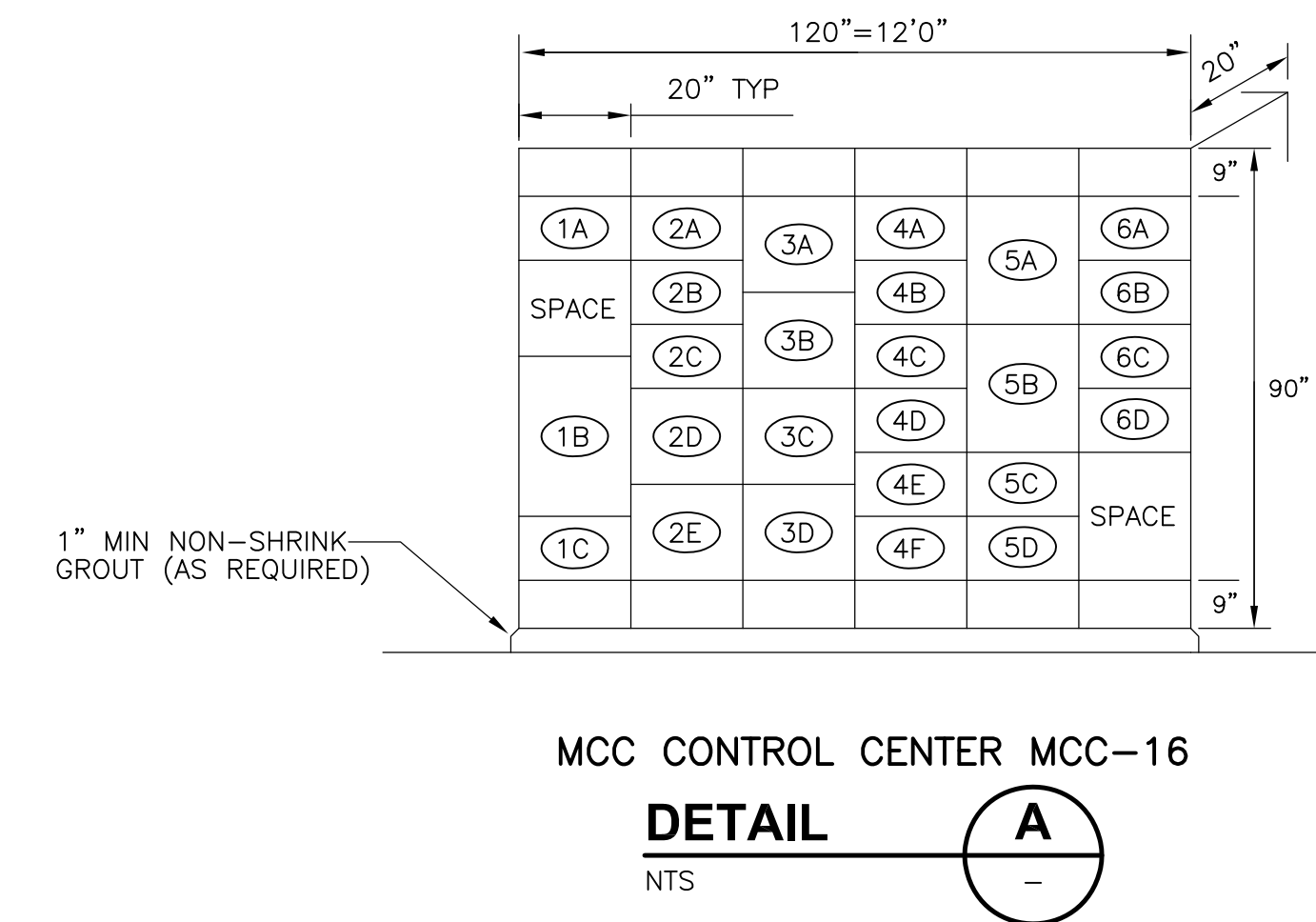
MCC-15  
 EXISTING MCC-5 & 6  
 ONE LINE DIAGRAM

PROJECT NO. 1289\35370  
 Sht. 325 of 386  
**GD-E-21**



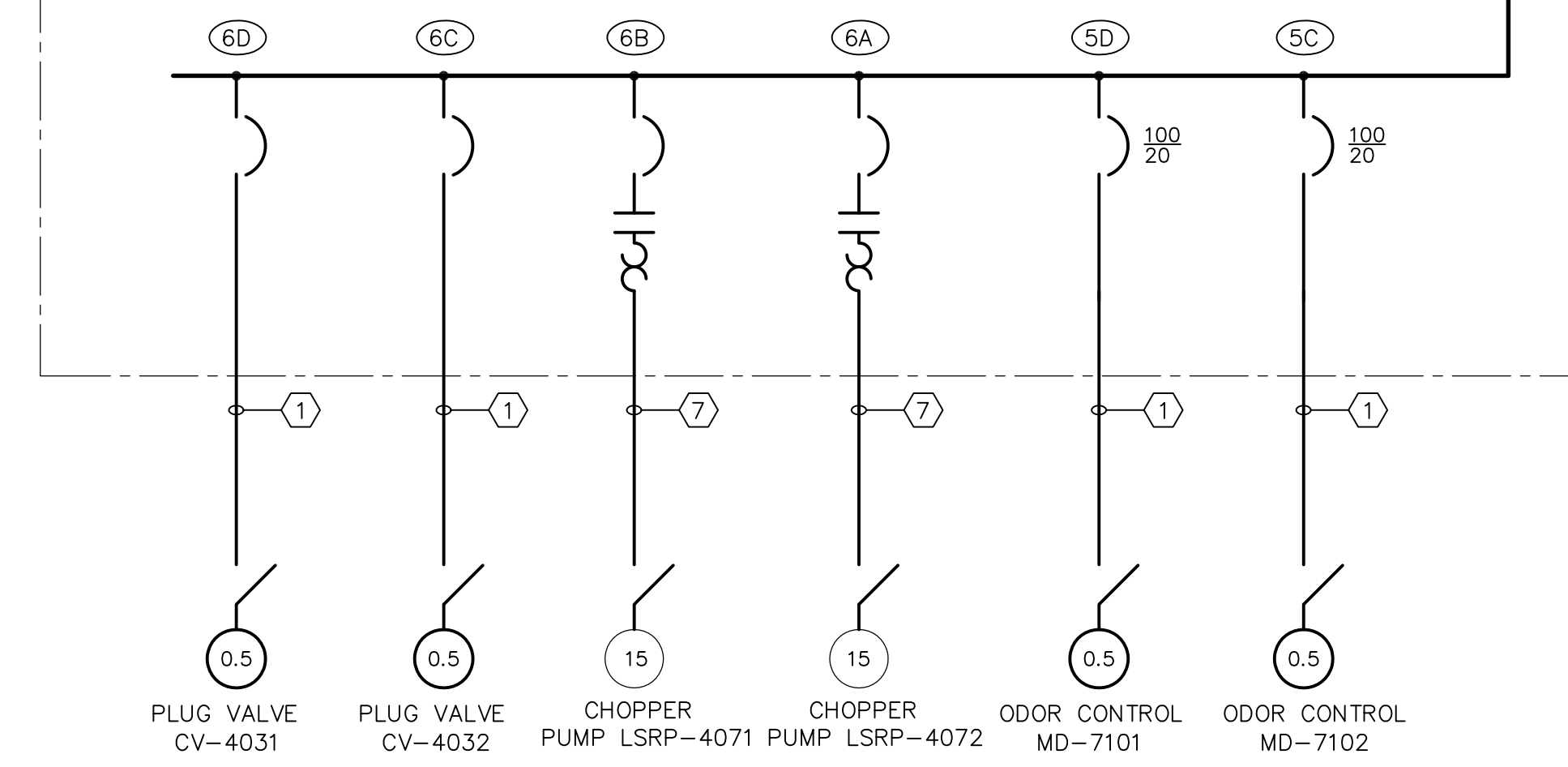
- NOTES:**
- FIBER OPTIC COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR THE SYSTEM IS NOT SHOWN ON THE FLOOR PLANS.
  - RETROFIT EXISTING 4 WIRE PANELBOARD TO 3Ø, 3W AS REQUIRED. REPLACE NAMEPLATE & PROVIDE SIGNAGE TO READ "WARNING, 3Ø, 3W PANEL. NEUTRAL BUS NOT CONNECTED".
  - DISCONNECT & REMOVE NEUTRAL CONDUCTOR.
  - REUSE EXISTING BRANCH CIRCUIT BREAKER FOR NEW CIRCUIT TO TRANSFORMER.
  - MAINTENANCE BUILDING ELECTRICAL WORK. REFER TO DRAWINGS GD-E-11 AND MB-E-1.
  - FOR EXACT EQUIPMENT LAYOUT PLEASE REFER TO MANUFACTURE'S SHOP DRAWINGS.

MCC-16  
 SLUDGE HOLDING TANK CONTROL BUILDING  
**ONE LINE DIAGRAM 1**  
 N.T.S.



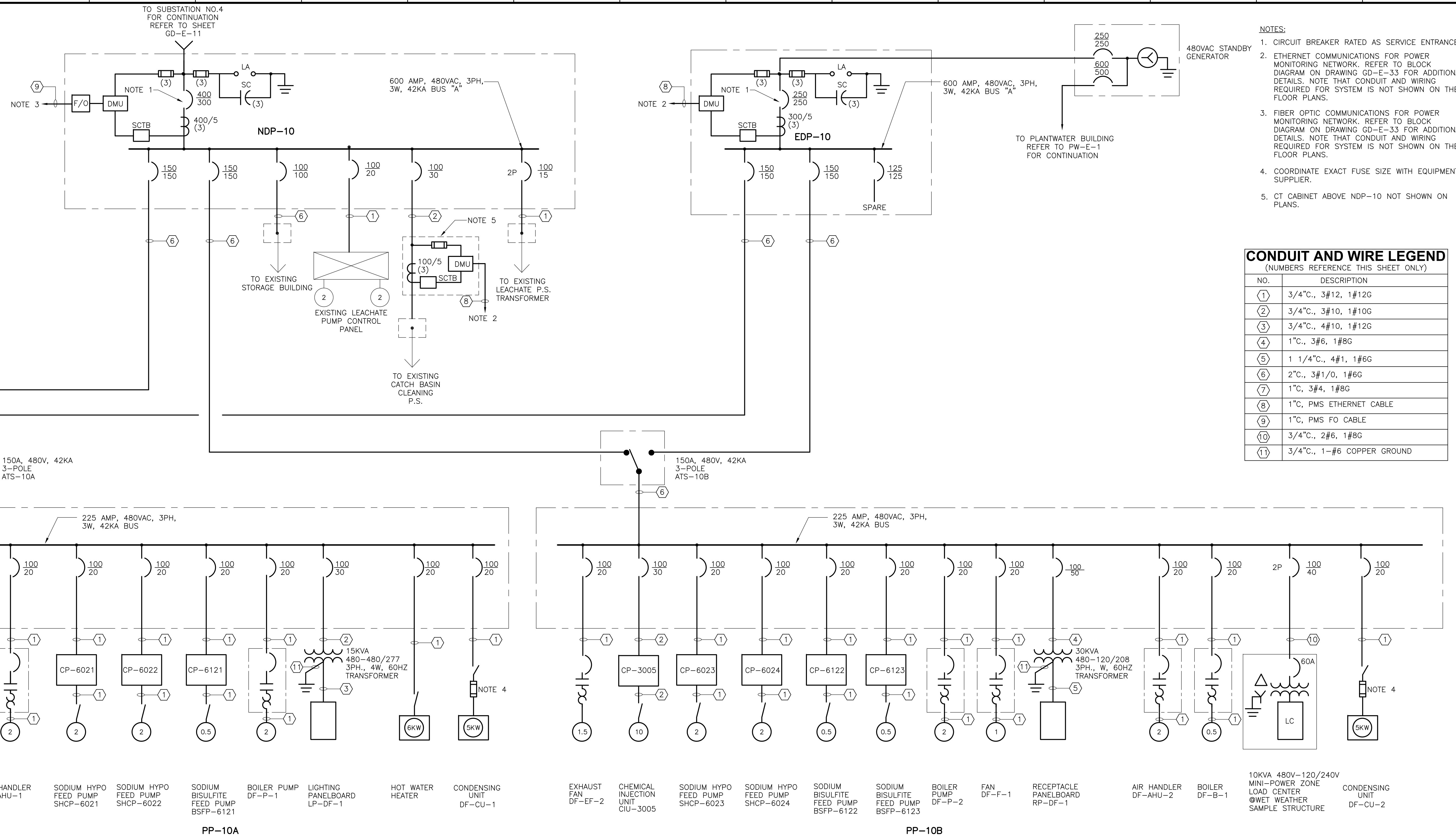
**CONDUIT AND WIRE LEGEND**  
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4"C., 3#12, 1#12G
②	3/4"C., 3#10, 1#10G
③	3/4"C., 4#10, 1#10G
④	3/4"C., 1#6 COPPER GROUND
⑤	1 1/4"C., 3#8, 1#10G, 7#14
⑥	2"C., 3#4/0, 1#4G
⑦	1"C., 3#10, 1#10G, 9#14
⑧	1"C., 4#6, 1#8G
⑨	3/4"C., 1#6 COPPER GROUND
⑩	1"C., 3#12, 1#12G, 10#14
⑪	1"C. PMS FO CABLE



RECORD DRAWING

CADD FILE NO.: EOLDI012.DWG DESIGNED BY: JAR DRAWN BY: JAR SHEET CHK'D BY: BDS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY                  IMPROVEMENTS</b>		PROJECT NO. 1289\35370 Sht. 326 of 386 <b>GD-E-22</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT		REVISED FOR THE RECORD					



- NOTES:
1. CIRCUIT BREAKER RATED AS SERVICE ENTRANCE.
  2. ETHERNET COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR SYSTEM IS NOT SHOWN ON THE FLOOR PLANS.
  3. FIBER OPTIC COMMUNICATIONS FOR POWER MONITORING NETWORK. REFER TO BLOCK DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT AND WIRING REQUIRED FOR SYSTEM IS NOT SHOWN ON THE FLOOR PLANS.
  4. COORDINATE EXACT FUSE SIZE WITH EQUIPMENT SUPPLIER.
  5. CT CABINET ABOVE NDP-10 NOT SHOWN ON PLANS.

**CONDUIT AND WIRE LEGEND**  
 (NUMBERS REFERENCE THIS SHEET ONLY)

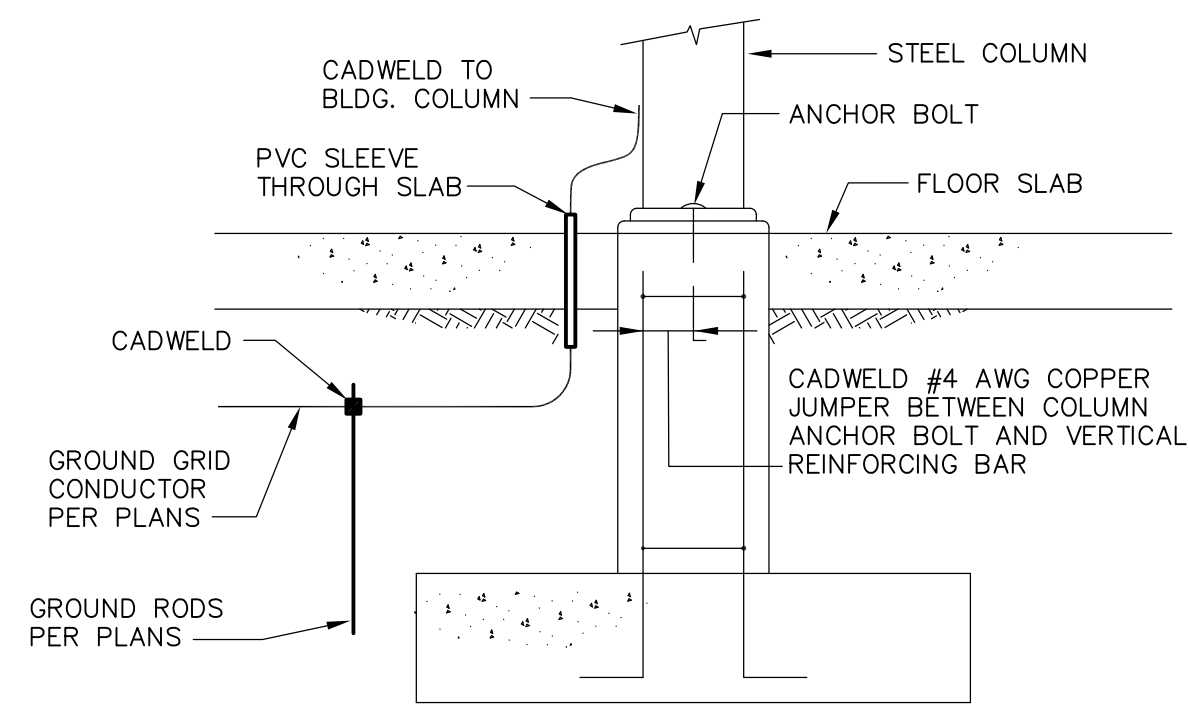
NO.	DESCRIPTION
(1)	3/4" C., 3#12, 1#12G
(2)	3/4" C., 3#10, 1#10G
(3)	3/4" C., 4#10, 1#12G
(4)	1" C., 3#6, 1#8G
(5)	1 1/4" C., 4#1, 1#6G
(6)	2" C., 3#1/0, 1#6G
(7)	1" C., 3#4, 1#8G
(8)	1" C., PMS ETHERNET CABLE
(9)	1" C., PMS FO CABLE
(10)	3/4" C., 2#6, 1#8G
(11)	3/4" C., 1-#6 COPPER GROUND

- SUPPLY FAN DF-SF-1    EXHAUST FAN DF-EF-1    ELECTRICAL UNIT HEATER DF-EUH-1    AIR HANDLER DF-AHU-1    SODIUM HYPO FEED PUMP SHCP-6021    SODIUM HYPO FEED PUMP SHCP-6022    SODIUM BISULFITE FEED PUMP BSFP-6121    BOILER PUMP DF-P-1    LIGHTING PANELBOARD LP-DF-1    HOT WATER HEATER    CONDENSING UNIT DF-CU-1    EXHAUST FAN DF-EF-2    CHEMICAL INJECTION UNIT CIU-3005    SODIUM HYPO FEED PUMP SHCP-6023    SODIUM HYPO FEED PUMP SHCP-6024    SODIUM BISULFITE FEED PUMP BSFP-6122    SODIUM BISULFITE FEED PUMP BSFP-6123    BOILER PUMP DF-P-2    FAN DF-F-1    RECEPTACLE PANELBOARD RP-DF-1    AIR HANDLER DF-AHU-2    BOILER DF-B-1    10KVA 480V-120/240V MINI-POWER ZONE LOAD CENTER @WET WEATHER SAMPLE STRUCTURE    CONDENSING UNIT DF-CU-2

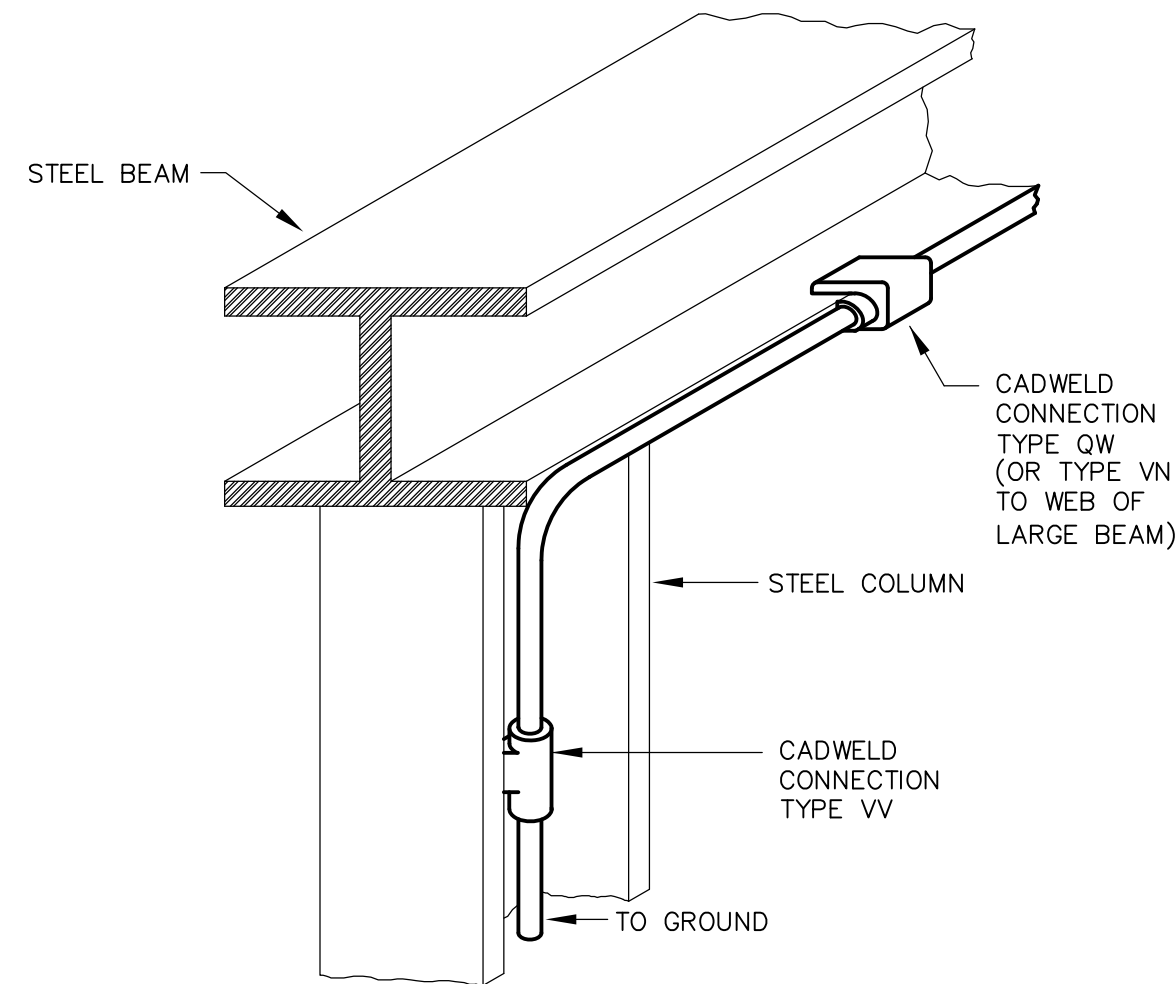
RECORD DRAWING

CADD FILE NO. EOLDI014.DWG DESIGNED BY: JAR DRAWN BY: JAR SHEET CHK'D BY: BDS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <i>consulting engineering construction operations</i>		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		PROJECT NO. 1289\35370 Sht. 327 of 386 <b>GD-E-23</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
	3/07	SPV	ADT	REVISED FOR THE RECORD					

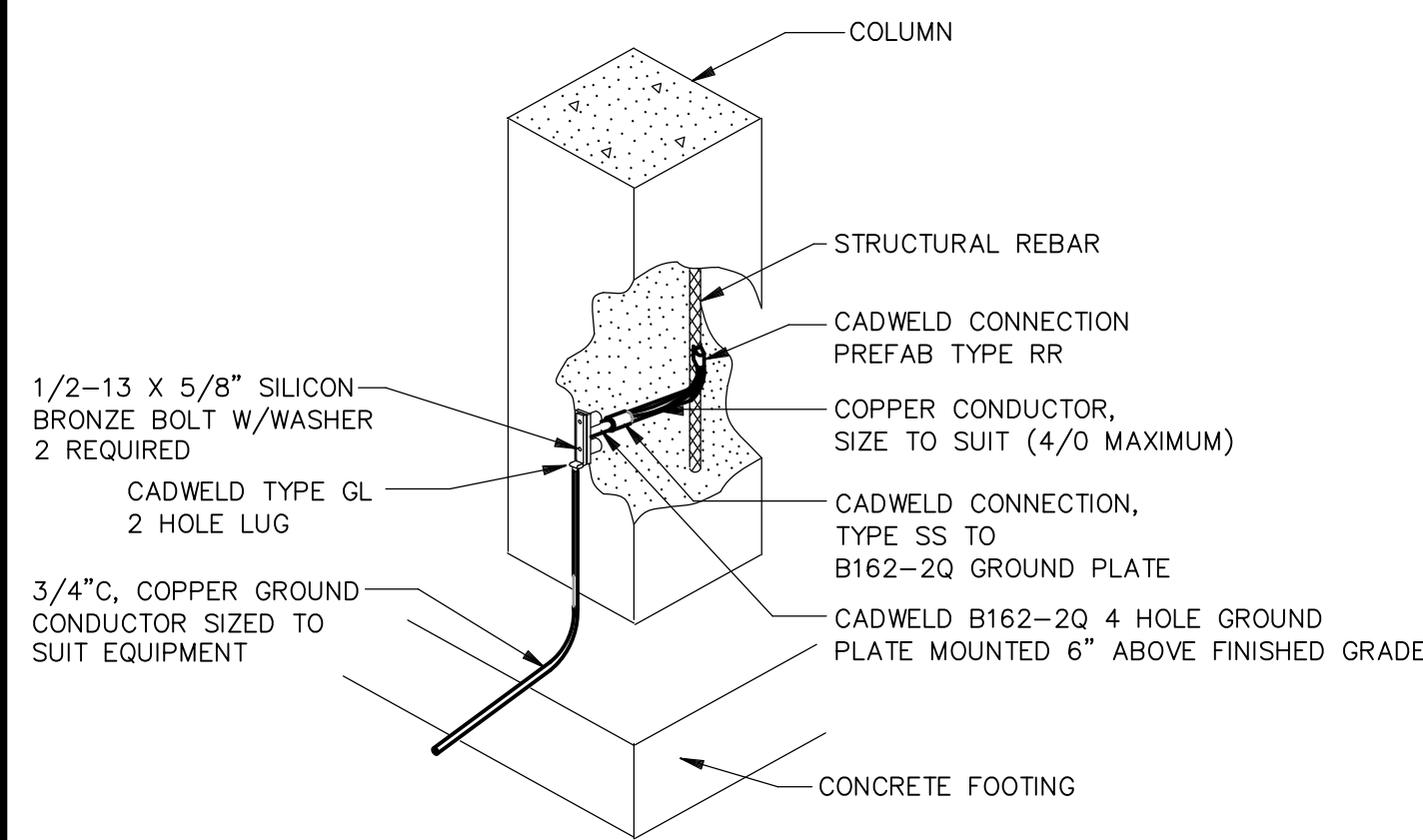




**BUILDING COLUMN GROUNDING**  
**DETAIL A**  
 NTS

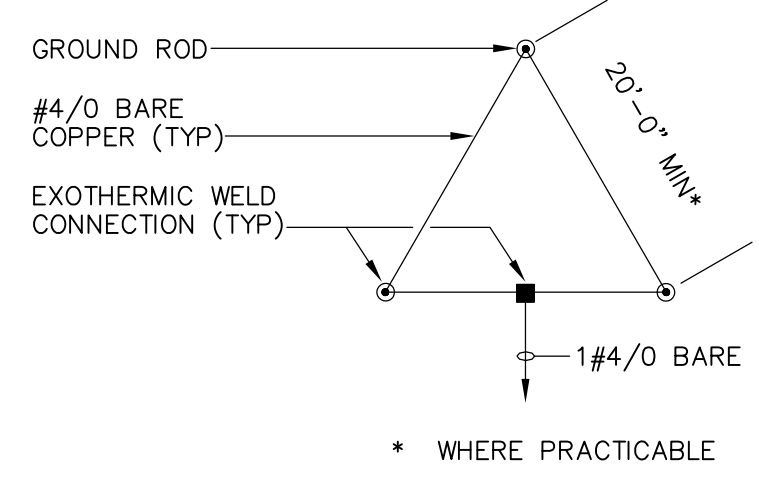


**BUILDING STEEL GROUND**  
**DETAIL B**  
 NTS

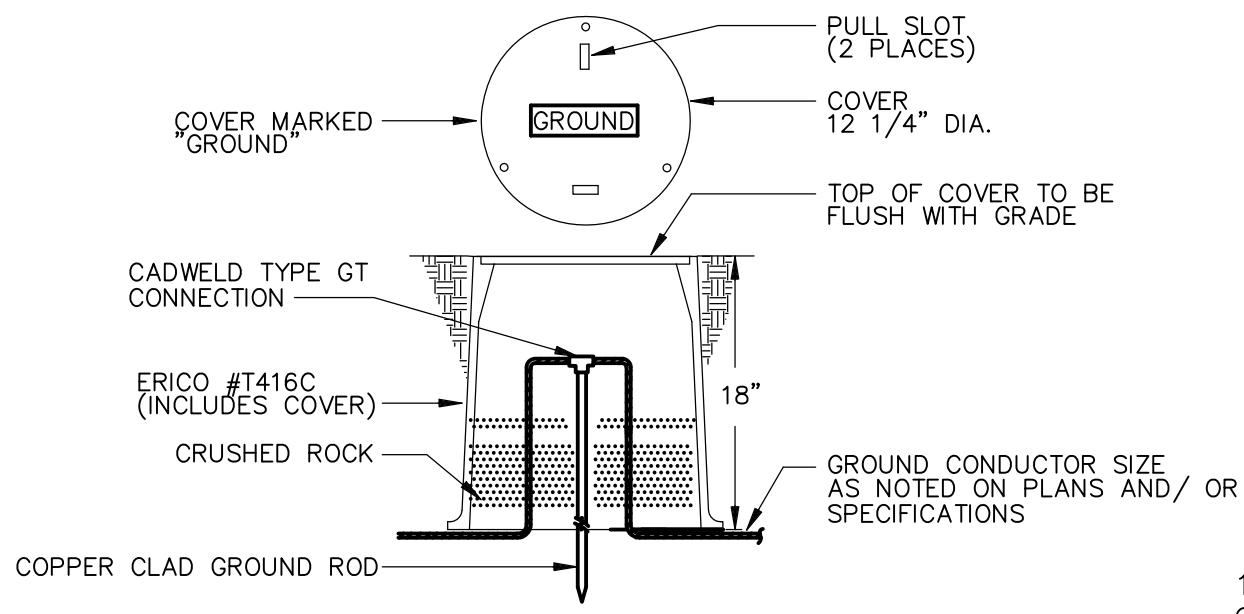


**EQUIPMENT GROUNDING PAD AT CONCRETE/MASONRY COLUMN**  
**DETAIL C**  
 NTS

NOTES:  
 1. BOND COLUMN REBARS TO FOOTER REBARS.  
 2. GROUND FOOTER REBARS TO AN EXTERNAL GROUND GRID OR ROD.  
 3. BOND ANCHOR BOLTS TO REBARS.

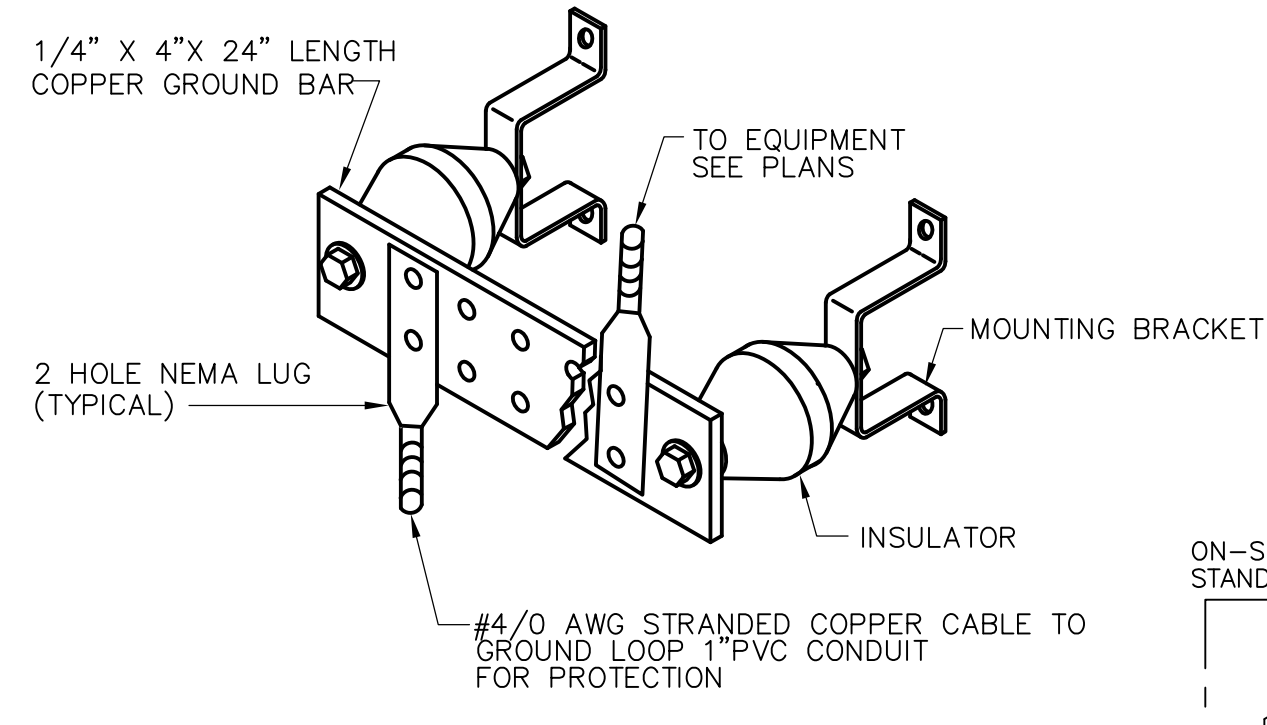


**GROUND GRID**  
**DETAIL D**  
 NTS



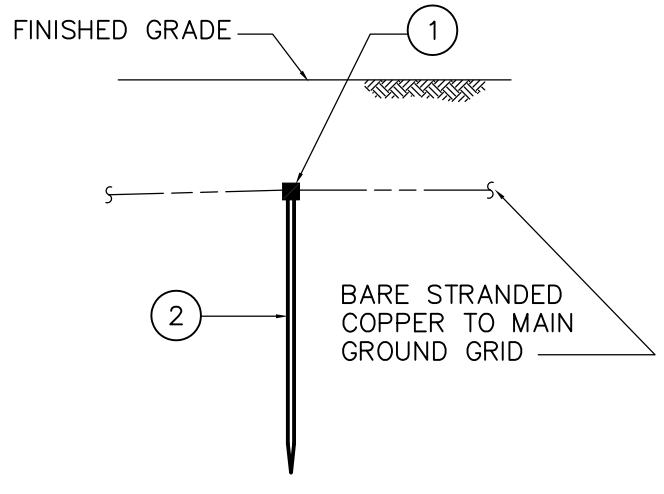
**GROUND ROD INSPECTION HOUSING**  
**DETAIL E**  
 NTS

NOTES:  
 1. TO IMPROVE SYSTEM RESISTANCE, ERICO GEM MAY BE USED AS A BACKFILL MATERIAL IN AN AUGERED HOLE.

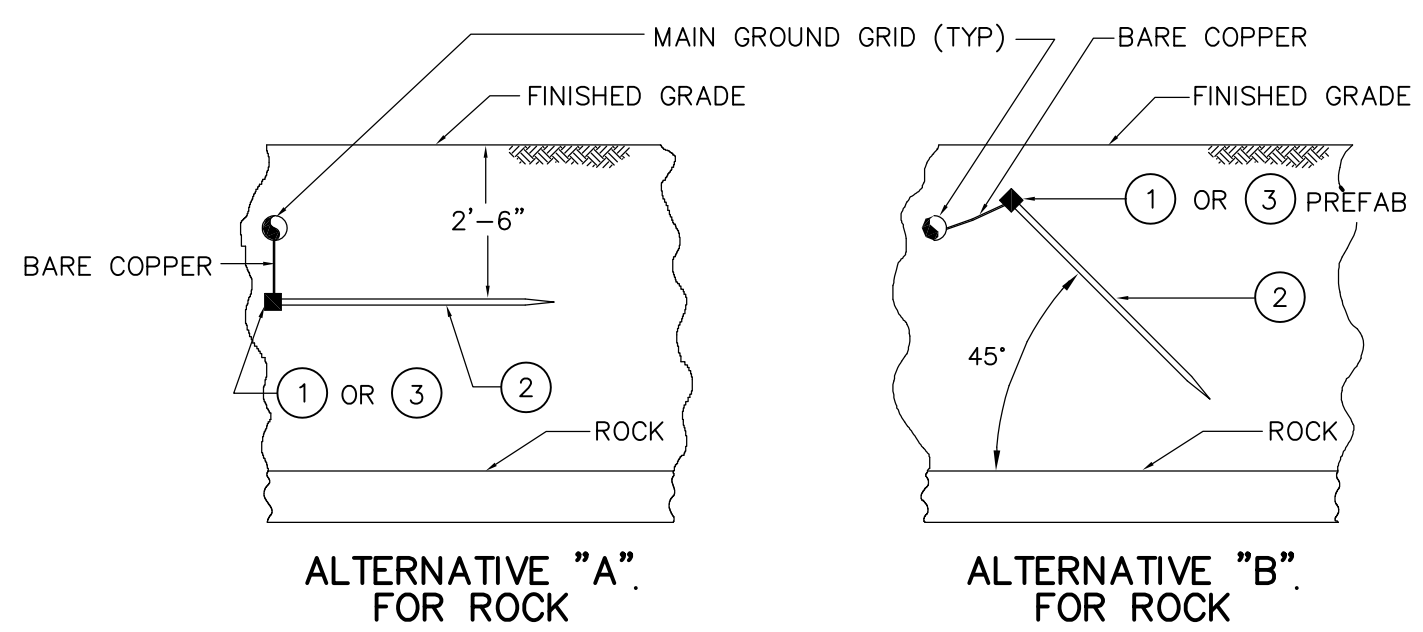


**TYPICAL GROUND BAR (ELECTRICAL ROOMS)**  
**DETAIL H**  
 NTS

ITEM NUMBER	QUANTITY	DESCRIPTION	MANUFACTURER	CAT #
1	1	CADWELD CABLE TO ROD	CADWELD	TYPE GT
2	1	GROUND ROD, COPPER CLAD, LENGTH PER SPEC.	ERITECH	
3	1	CADWELD CABLE TO ROD	CADWELD	TYPE GS



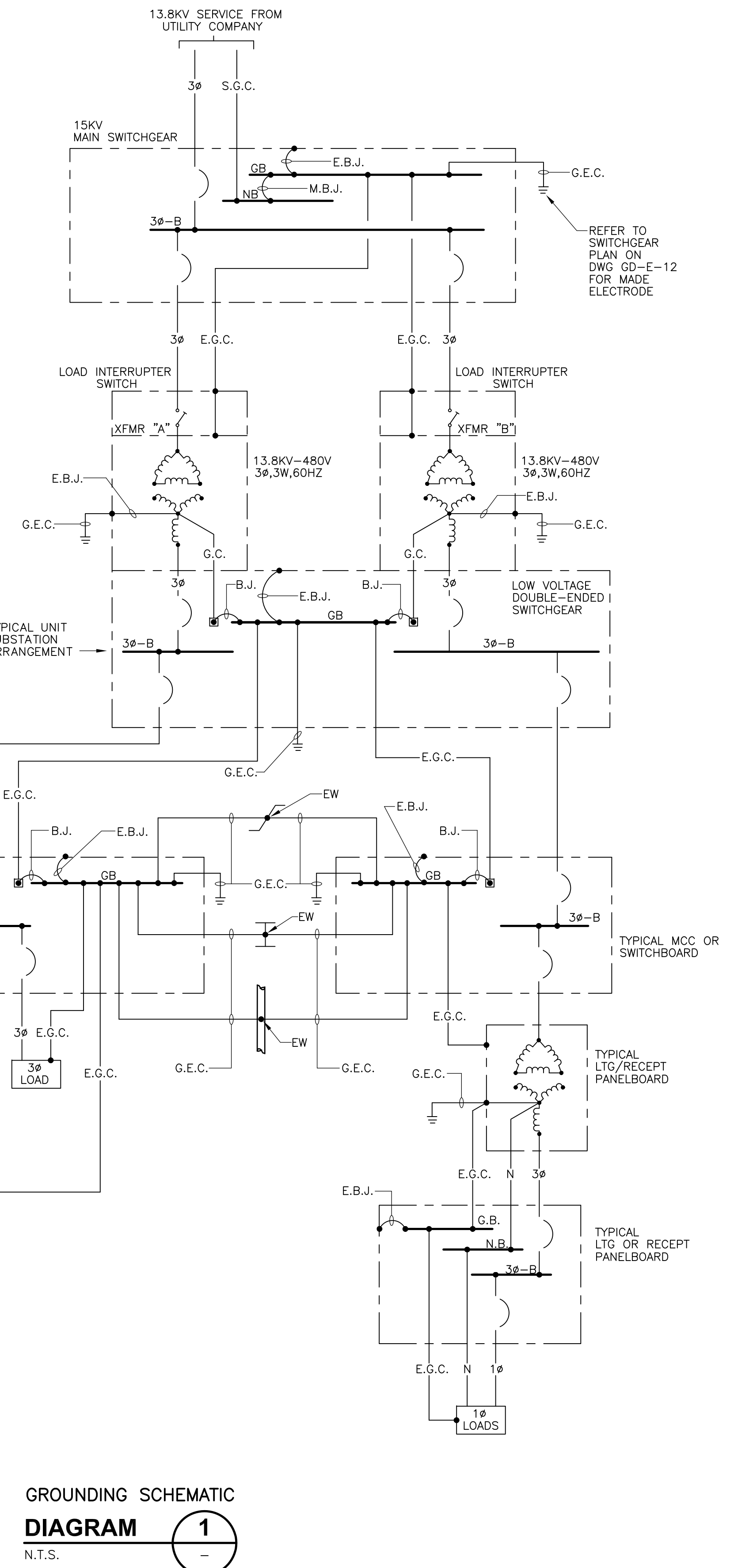
**NORMAL INSTALLATION**



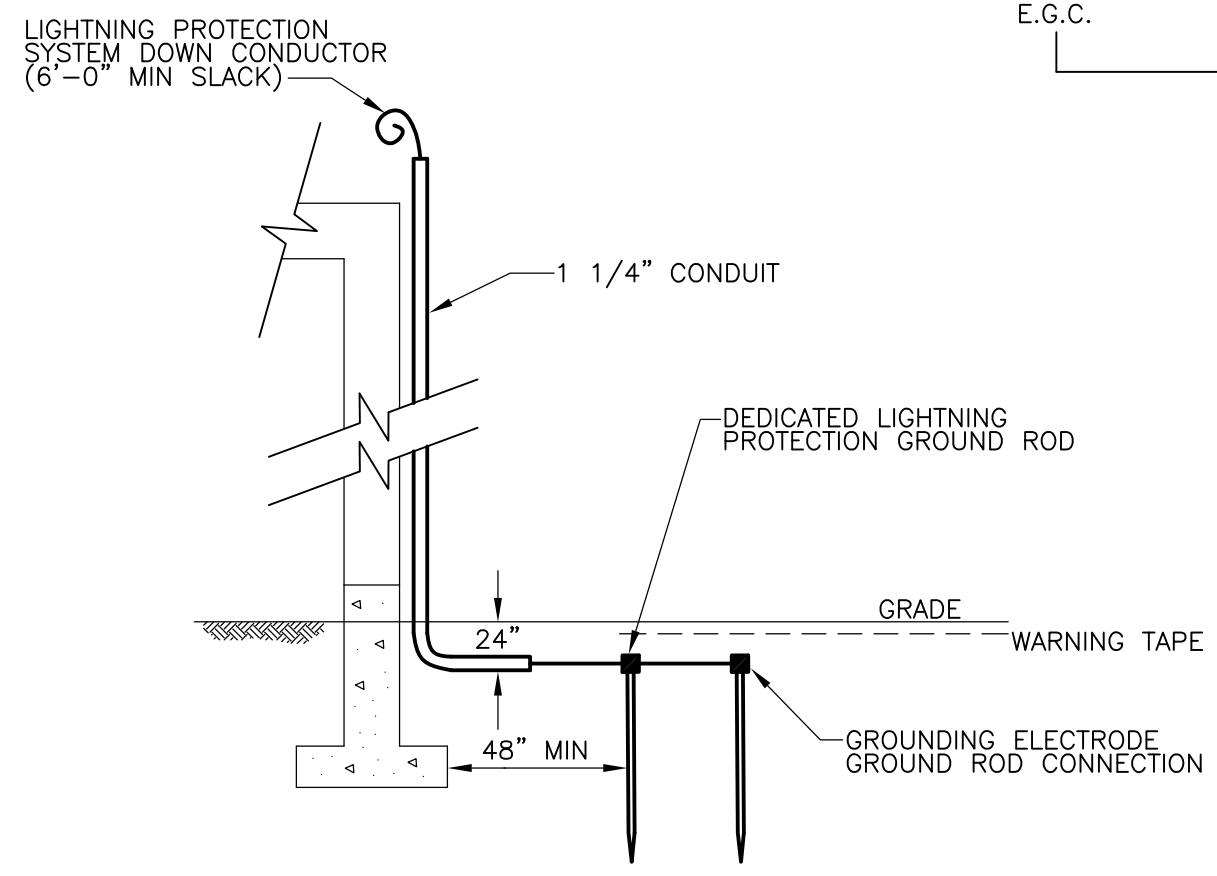
**GROUND ROD INSTALLATIONS PER NEC 250-83(c) (3)**

**DETAIL F**  
 NTS

- LEGEND:**
- E.B.J. EQUIPMENT BONDING JUMPER (SIZED IN ACCORDANCE WITH NEC 250.66)
  - E.G.C. EQUIPMENT GROUNDING CONDUCTOR (SIZED IN ACCORDANCE WITH NEC 250.122)
  - G.E.C. GROUNDING ELECTRODE CONDUCTOR (SIZED IN ACCORDANCE WITH NEC 250.66)
  - G.C. GROUNDED CONDUCTOR (SIZED IN ACCORDANCE WITH NEC 250.66)
  - M.B.J. MAIN BONDING JUMPER (SIZED IN ACCORDANCE WITH NEC 250.66)
  - B.J. BONDING JUMPER (SIZED FOR DERIVED PHASE CONDUCTORS IN ACCORDANCE WITH NEC 250.30.1)
  - S.G.C. SERVICE GROUNDED CONDUCTOR (SIZED IN ACCORDANCE WITH NEC 250.66)
  - E.W. EXOTHERMIC WELD
  - 3Φ 3-PHASE CONDUCTORS
  - 3Φ-B 3-PHASE BUSSES
  - 1Φ SINGLE PHASE CONDUCTORS
  - NB NEUTRAL BUS
  - GB GROUND BUS
  - N NEUTRAL CONDUCTOR (SIZED FOR PHASE CONDUCTOR IN ACCORDANCE WITH NEC)
  - REINFORCING STEEL IN CONCRETE SLAB OR COLUMN
  - STRUCTURAL BUILDING STEEL
  - METAL PIPING
  - NEUTRAL LUG



**GROUNDING SCHEMATIC**  
**DIAGRAM 1**  
 N.T.S.



**LIGHTNING PROTECTION DOWN CONDUCTOR**

**DETAIL G**  
 NTS

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. EGNSC001.DWG
DESIGNED BY: JAR
DRAWN BY: OR
SHEET CHK'D BY: BDS
SCALE: AS NOTED
APPROVED BY: B. SQUIBB
DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

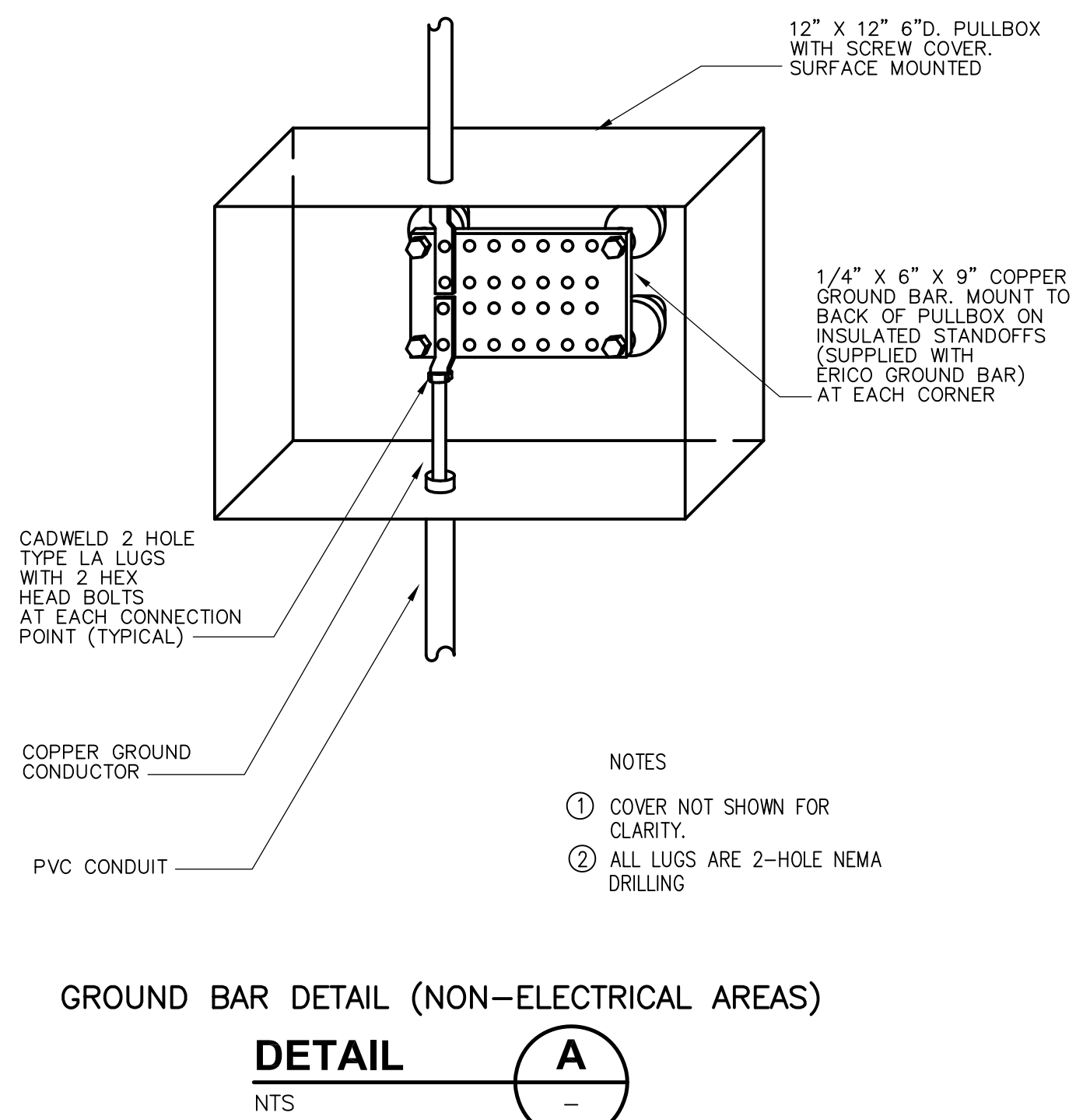
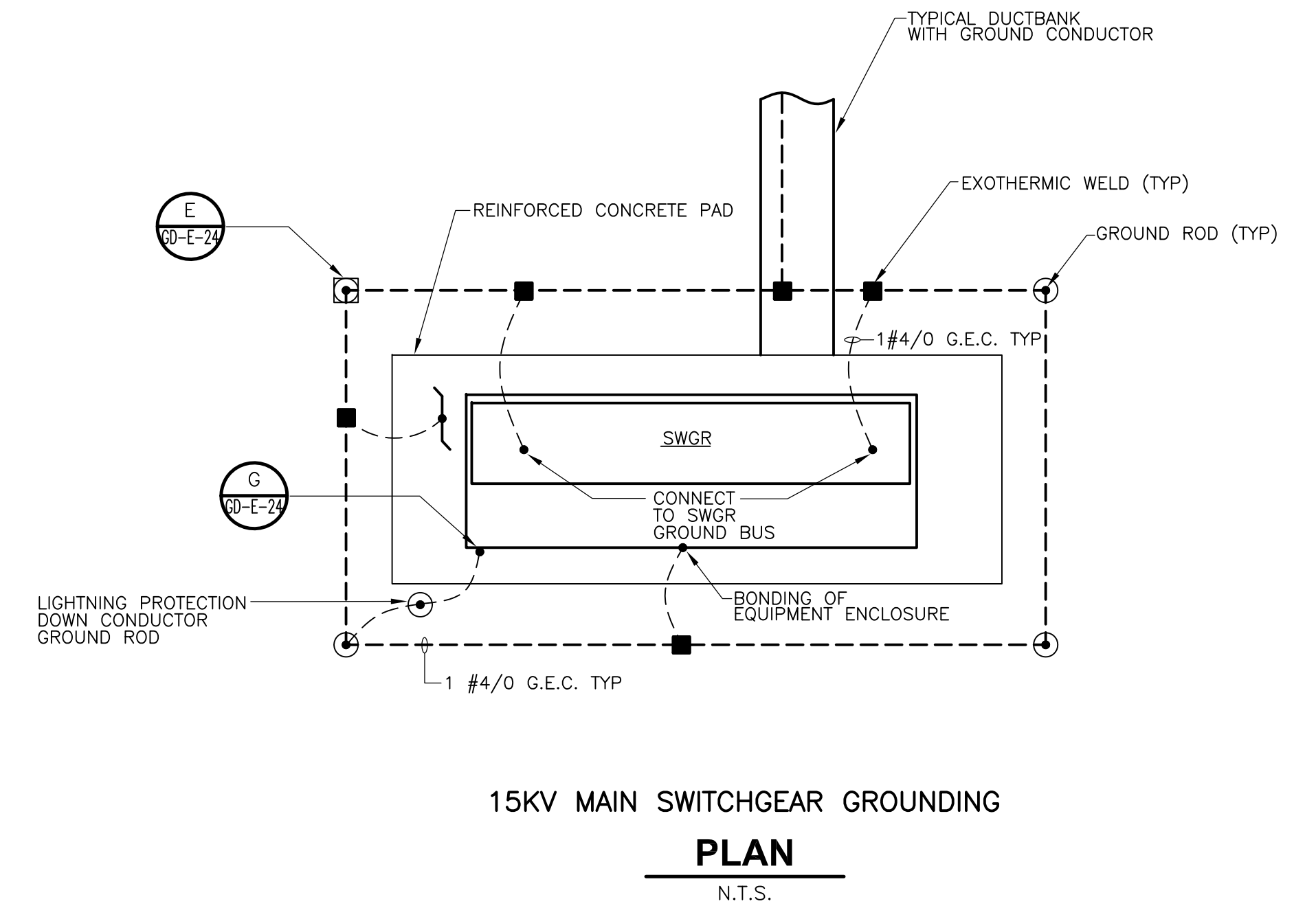
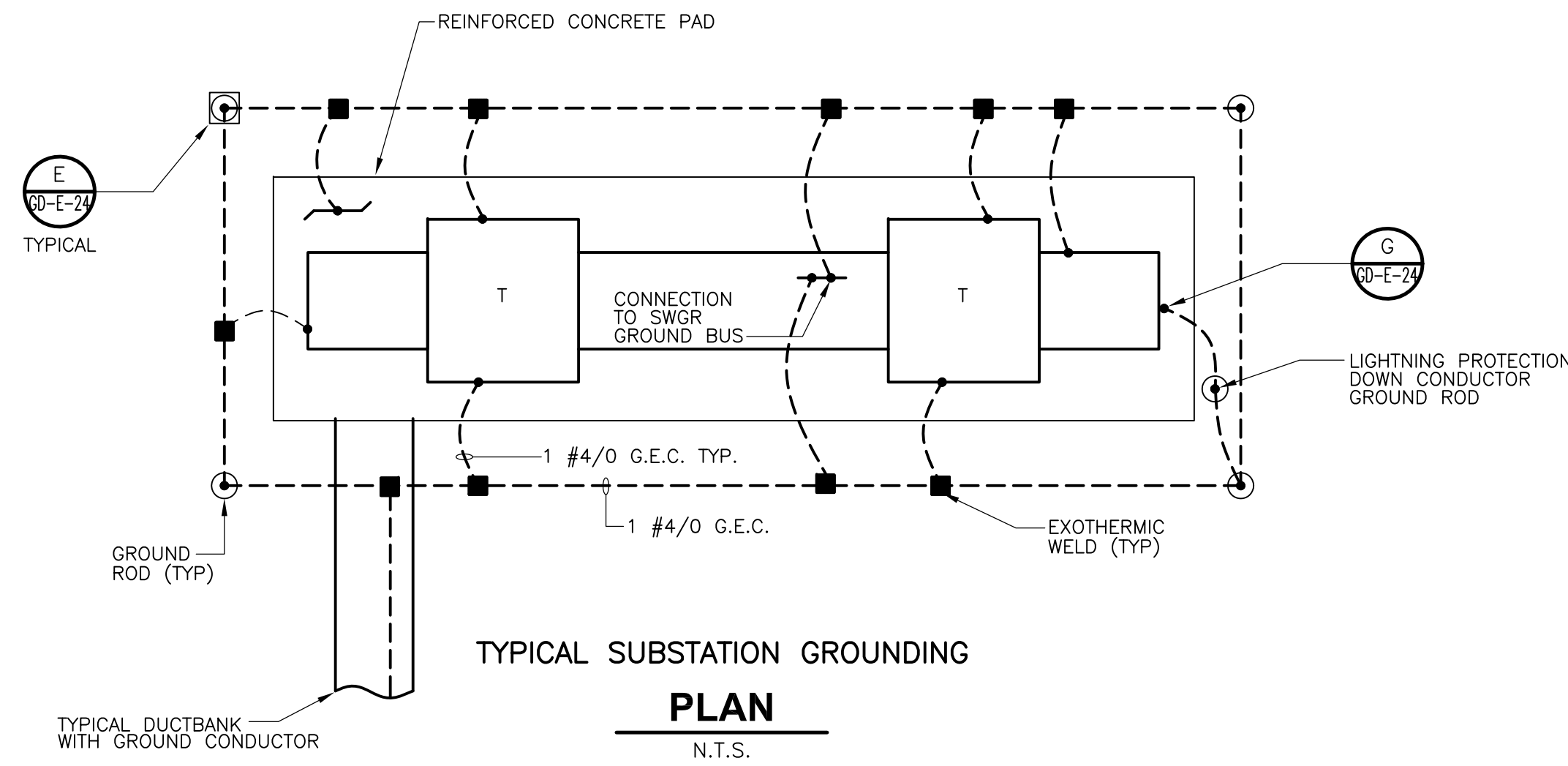
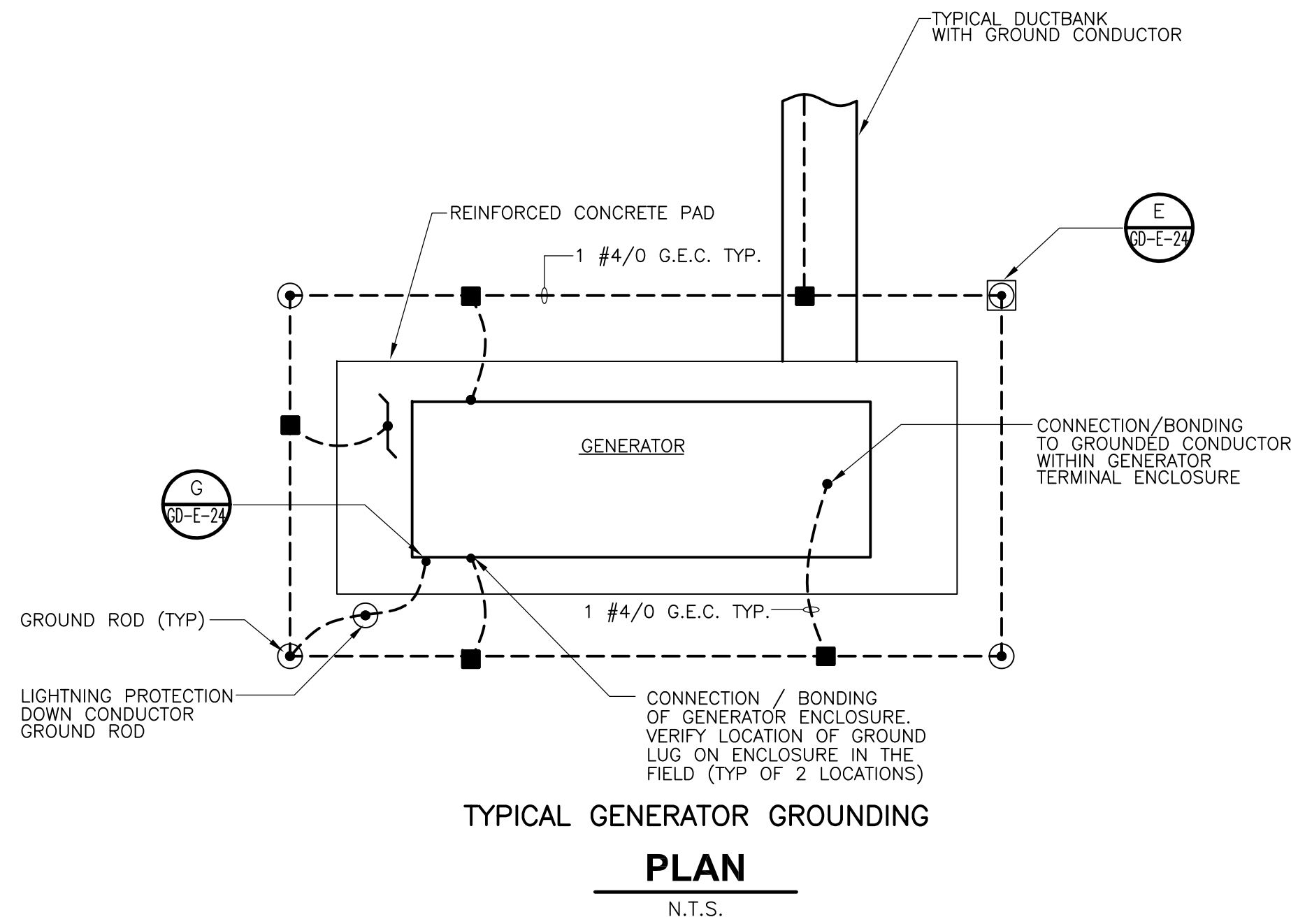
**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

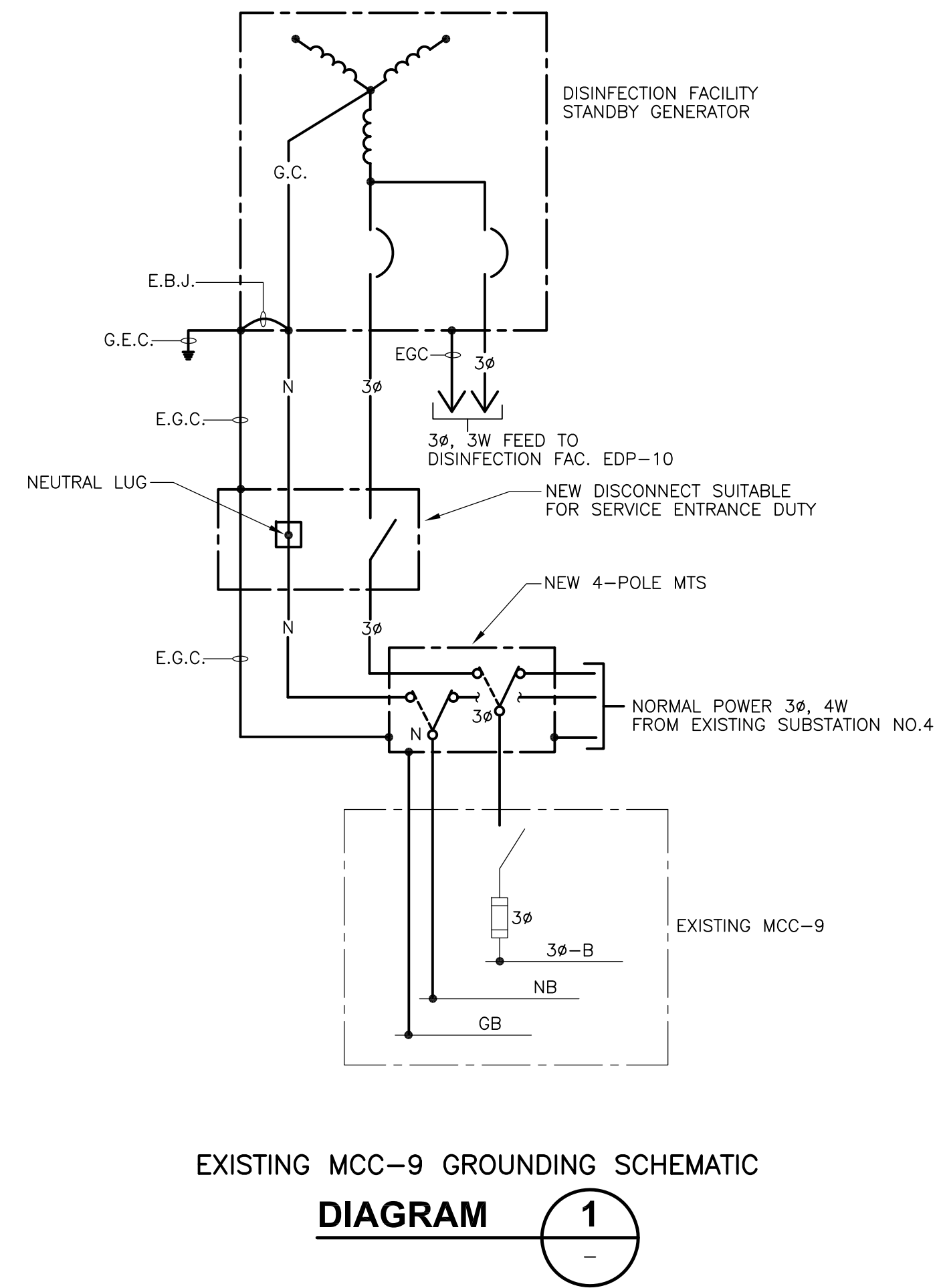
**ELECTRICAL**  
**GROUNDING SCHEMATICS & DETAILS**

PROJECT NO. 1289\35370  
 Sht. 328 of 386  
**GD-E-24**

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] Plotted by: CROSSHA Time: 12/16/08 6:33:49 PM  
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- NOTES
- ① COVER NOT SHOWN FOR CLARITY.
  - ② ALL LUGS ARE 2-HOLE NEMA DRILLING



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EGNPL001.DWG
DESIGNED BY:	JAR
DRAWN BY:	OR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
*consulting engineering construction operations*

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

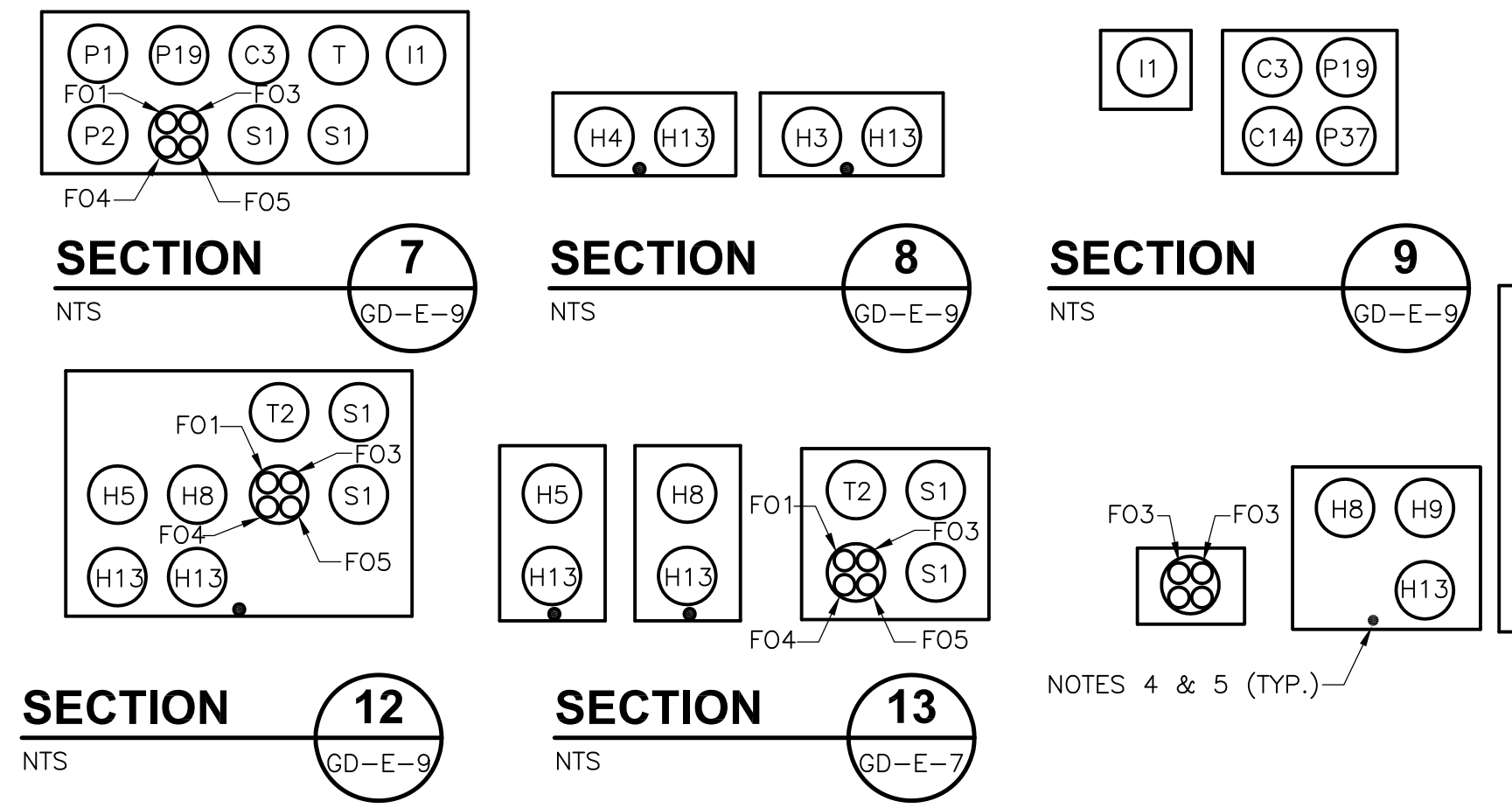
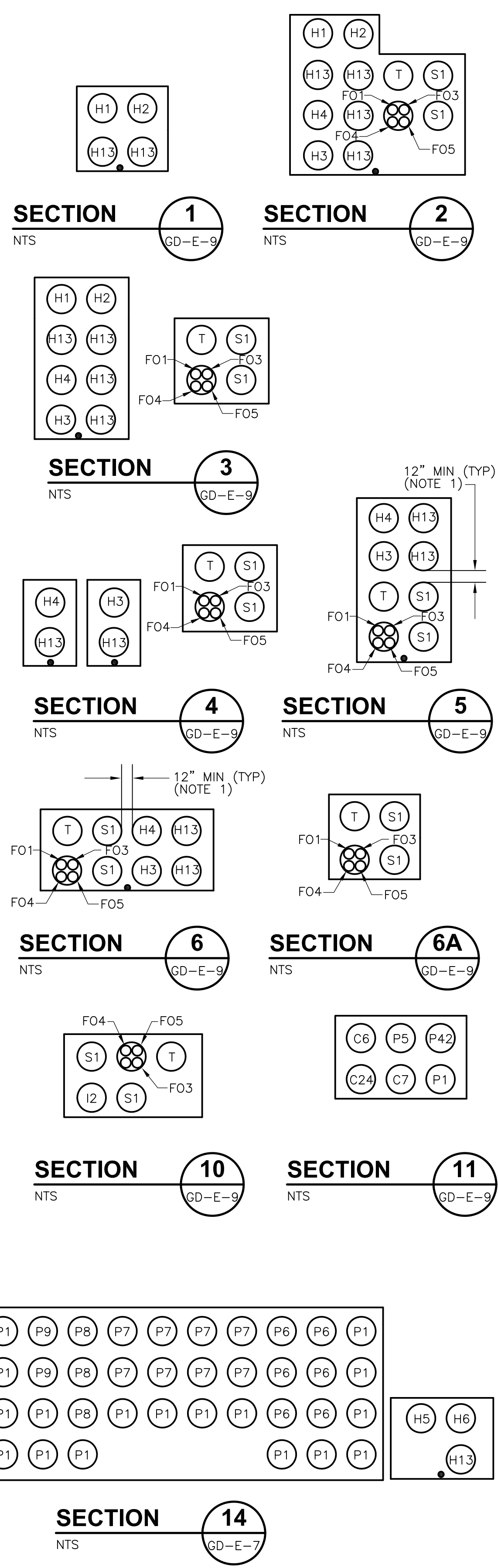
**ELECTRICAL GROUNDING PLANS & DETAILS**

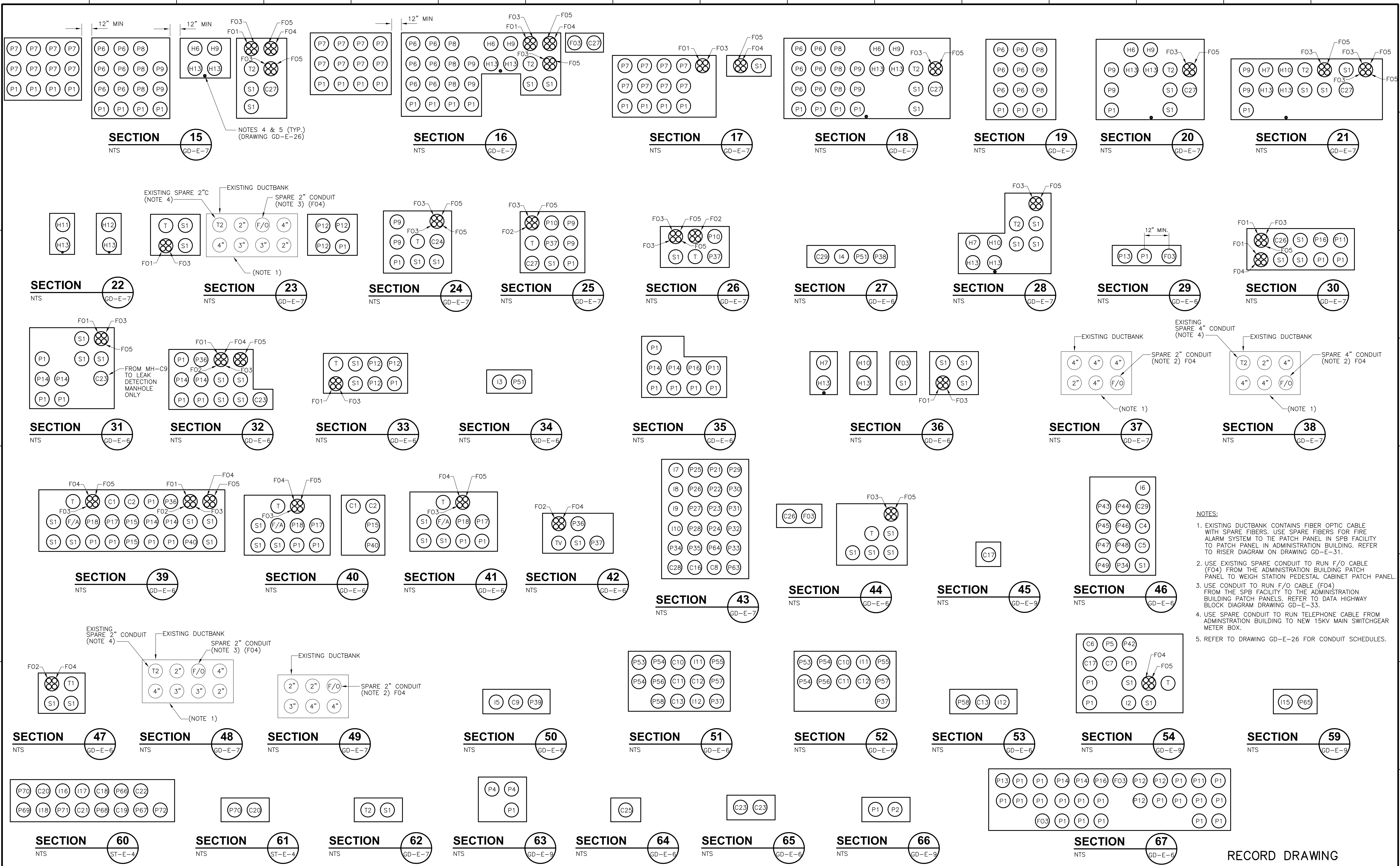
PROJECT NO. 1289\35370  
 Sht. 329 of 386  
**GD-E-25**

UNDERGROUND RACEWAY SCHEDULE						
ID NO.	FROM	TO	CONDUIT SIZE	CONDUCTORS		REMARKS
				QTY.	SIZE	
H1	NEW S&G PMH-9 15KV SWGR	NEW 15KV MAIN SWGR BUS	5"	SEE ONE-LINE DIAGRAM DRAWINGS		
H2	NEW S&G PMH-9 15KV SWGR	NEW 15KV MAIN SWGR BUS B	5"			
H3	NEW 15KV MAIN SWGR	EXIST. SUBSTATION NO.4 XFMR-4B SWITCH	5"			
H4	NEW 15KV MAIN SWGR	EXIST. SUBSTATION NO.4 XFMR-4A SWITCH	5"			
H5	NEW 15KV MAIN SWGR	NEW SUBSTATION NO.3 XFMR-3B SWITCH	5"			
H6	NEW SUBSTATION NO.3 XFMR-3B SWITCH "B1"	NEW MANHOLE "MH-H5"	5"			SPlice AT NEW MH WITH NEW FEEDER H-7 AND H-12
H7	NEW MANHOLE "MH-H5"	NEW SUBSTATION NO.1 XFMR-1B SWITCH	5"			SPlice AT NEW MH WITH H-6 AND H-12
H8	NEW 15KV MAIN SWGR	NEW SUBSTATION NO.3 XFMR-3A SWITCH	5"			
H9	NEW SUBSTATION NO.3 XFMR-3A SWITCH "A1"	NEW MANHOLE "MH-H6"	5"			SPlice AT NEW MH W/ FEEDER H10 & H11
H10	NEW MANHOLE "MH-H6"	NEW SUBSTATION NO.1 XFMR-1A SWITCH	5"			SPlice AT NEW MH WITH NEW FEEDER H9 AND H11
H11	NEW MANHOLE "MH-H6"	EXIST. SUBSTATION NO.2	5"			SPlice AT NEW MH WITH NEW FEEDER H9 AND H10
H12	NEW MANHOLE "MH-H5"	EXIST. SUBSTATION NO.2	5"			SPlice AT NEW MH WITH NEW FEEDER H6 AND H7
H13			5"			SPARE 15KV CONDUIT
P1			4"	SEE ONE-LINE DIAGRAM DRAWINGS		SPARE 480V CONDUIT
P2	EXIST. SUBSTATION NO.4	DISINFECTION BLDG SWBD NSWB-10 (NDP)	4"			480V FEEDER
P3	EXIST. SUBSTATION NO.4	PLANT WATER BLDG MCC-9	4"			480V FEEDER
P4	PLANT WATER MCC-9 (TRANSFER SWITCH)	480V STANDBY GENERATOR	4"			480V FEEDER
P5	DISINFECTION BLDG	480V STANDBY GENERATOR	4"			480V FEEDER
P6	NEW SUBSTATION NO.3	INCINERATOR SWBD-INC3	4"			480V FEEDER
P7	NEW SUBSTATION NO.3	INCINERATOR SWBD-INC2	5"			480V FEEDER
P8	NEW SUBSTATION NO.3	EXISTING MCC-13 RTO AREA	4"			480V FEEDER
P9	NEW SUBSTATION NO.3	MCC-16 SLUDGE HOLDING TANK BUILDING	4"			480V FEEDER
P10	MCC-16 SLUDGE HOLDING TANK BUILDING	MAINTENANCE BLDG	4"			480V FEEDER
P11	NEW SUBSTATION NO.1	NEW MCC-2B PRIMARY SETTLING TANKS (SOUTH STAIR BLDG)	4"			480V FEEDER
P12	NEW SUBSTATION NO.1	ADMINISTRATION BUILDING	4"			480V FEEDER
P13	NEW SUBSTATION NO.1	DEP TRAINING CENTER	4"			480V FEEDER
P14	NEW SUBSTATION NO.1	NEW SWBD-1 (EAST S&G FACILITY)	4"			480V FEEDER
P15	NEW SWBD-1 (EAST S&G FACILITY)	NEW 480V STANDBY GENERATOR	4"			480V FEEDER
P16	NEW SUBSTATION NO.1	NEW MCC-2A PRIMARY SETTLING TANKS (NORTH STAR BUILDING)	4"			480V FEEDER
P17	NEW SWBD-1 EAST S&G FACILITY	NEW MCC-1C (EXISTING S&G FACILITY)	4"			480V FEEDER
P18	NEW SWBD-1 EAST S&G FACILITY	NEW MCC-1C (EXISTING S&G FACILITY)	4"			480V FEEDER
P19	PP-10B (DISINFECTION FACILITY)	HYPOCHLORITE INJECTION MIXER	2"			480V FEEDER
P20	MCC-2B (SOUTH STAIR ELEC. ROOM)	PRIMARY SLUDGE COLLECTOR PSC-1614A & SCUM COLLECTOR SCC-1615A	2"			RUN BOTH FEEDERS & CONTROL WIRING IN SAME CONDUIT
P21	MCC-2B (SOUTH STAIR ELEC. ROOM)	PRIMARY SLUDGE COLLECTOR PSC-1614B & SCUM COLLECTOR SCC-1615B	2"			RUN BOTH FEEDERS & CONTROL WIRING IN SAME CONDUIT
P22	MCC-2B (SOUTH STAIR ELEC. ROOM)	SCREEN COLLECTOR DRIVE SC-1613	2"			POWER & CONTROL WIRING
P23	MCC-2B (SOUTH STAIR ELEC. ROOM)	PRIMARY SLUDGE COLLECTOR PSC-1624A & SCUM COLLECTOR SCC-1625A	2"			RUN BOTH FEEDERS & CONTROL WIRING IN SAME CONDUIT
P24	MCC-2B (SOUTH STAIR ELEC. ROOM)	PRIMARY SLUDGE COLLECTOR PSC-1624B & SCUM COLLECTOR SCC-1625B	2"			RUN BOTH FEEDERS & CONTROL WIRING IN SAME CONDUIT
P25	MCC-2B (SOUTH STAIR ELEC. ROOM)	SCREEN COLLECTOR DRIVE SC-1613	2"			POWER & CONTROL WIRING
P26	MCC-2B (SOUTH STAIR ELEC. ROOM)	PRIMARY SLUDGE COLLECTOR PSC-1634A & SCUM COLLECTOR SCC-1635A	2"			RUN BOTH FEEDERS & CONTROL WIRING IN SAME CONDUIT
P27	MCC-2B (SOUTH STAIR ELEC. ROOM)	PRIMARY SLUDGE COLLECTOR PSC-1634B & SCUM COLLECTOR SCC-1635B	2"			RUN BOTH FEEDERS & CONTROL WIRING IN SAME CONDUIT
P28	MCC-2B (SOUTH STAIR ELEC. ROOM)	SCREEN COLLECTOR DRIVE SC-1633	2"			POWER & CONTROL WIRING
P29	RP-PT-1B LP-PT-1B	CONVENIENCE RCPT 120V WALKWAY LIGHTING 277V	1"	2#12, 1#12G 3#12, 1#12G		
P30	RP-PT-1B	SCUM PUMP STATION (GAS DETECTION PANEL & TRANSMITTER)	1"	2#10, 1#12G		120V POWER
P31	MCC-2B (SOUTH STAIR ELEC. ROOM)	SCUM MIXER SM-1815	2"	SEE ONE-LINE DIAGRAM DRAWINGS		480V FEEDER
P32	MCC-2B (SOUTH STAIR ELEC. ROOM)	SCUM PUMP SCP-1811	2"			480V FEEDER
P33	MCC-2B (SOUTH STAIR ELEC. ROOM)	SCUM PUMP SCP-1812	2"			480V FEEDER
P34			2"			SPARE
P35	LP-PT-1B	CV-1833 & CV-1834 (VALVE PIT SOUTH)	2"	3#10, 1#10G		480V FEEDER

UNDERGROUND RACEWAY SCHEDULE						
ID NO.	FROM	TO	CONDUIT SIZE	CONDUCTORS		REMARKS
				QTY.	SIZE	
P36	MCC-1A	WEIGH STATION MINI POWER ZONE	3"	2#8, 1#10G		480V FEEDER
P37			3"			SPARE 480V CONDUIT
P38	JUNCTION BOX AT SEDIMENTATION TK WALL	SLG-1910	2"			480V FEEDER
P39	MCC-1C (WEST S&G BUILDING)	SLG-1301	2"	3#12, 1#12G		480V FEEDER
P40	PANELBOARD HWE-RP (EAST HEADWORKS)	NEW STANDBY GENERATOR LOAD CENTER	3"	3#4, 1#8G		120/208V FEED TO LOAD CENTER
P41			4"			NOT USED
P42	PANELBOARD RP-DF-1 (DISINFECTION BLDG)	NEW STANDBY GENERATOR LOAD CENTER	3"	3#4, 1#8G		120/208V FEED TO LOAD CENTER
P43	MCC-2A (NORTH STAIR ELEC. ROOM)	SCUM PUMP SCP-1821	2"	SEE ONE-LINE DIAGRAM DRAWING		480V FEEDER
P44	MCC-2A (NORTH STAIR ELEC. ROOM)	SCUM PUMP SCP-1822	2"	SEE ONE-LINE DIAGRAM DRAWING		480V FEEDER
P45	MCC-2A (NORTH STAIR ELEC. ROOM)	SCUM MIXER SCP-1825	2"	SEE ONE-LINE DIAGRAM DRAWING		480V FEEDER
P46	LP-PT-1A	CV-1843 (VALVE VAULT NORTH)	2"	3#10, 1#10G		480V FEEDER
P47	LP-PT-1A	CV-1844 (VALVE VAULT NORTH)	2"	3#10, 1#10G		480V FEEDER
P48	MCC-2A (NORTH STAIR BLDG)	SLG-1910	2"	SEE ONE-LINE DIAGRAM DRAWINGS		480V FEEDER
P49	MCC-2A (NORTH STAIR BLDG)	SG-1900	2"	SEE ONE-LINE DIAGRAM DRAWINGS		480V FEEDER
P51	FE/FIT-1910	CPP-2	2"	SEE RISER DIAGRAMS		120V WIRING TO FE/FIT-1910
P52			2"			SPARE
P53	MCC-1A (EAST S&G BLDG)	ODOR CONTROL FAN	3"	SEE ONE-LINE DIAGRAM DRAWINGS		480V FEEDER
P54	MCC-1B (EAST S&G BLDG)	RECIRCULATION PUMP	3"	SEE ONE-LINE DIAGRAM DRAWINGS		480V FEEDER
P55	MCC-1A (EAST S&G BLDG)	BIOFILTER WASTE PUMP NO.1	2"	SEE ONE-LINE DIAGRAM DRAWINGS		480V FEEDER
P56	RECEPT. PANEL HWE-RP	ODOR CONTROL	2"			120/208V POWER
P57	MCC-1B (EAST S&G BLDG)	BIOFILTER WASTE PUMP NO.2	3"	SEE ONE-LINE DIAGRAM DRAWINGS		480V FEEDER
P58	RECEPT. PANEL HWE-RP	INFLEUNT SAMPLER	2"			120V POWER
P59	WEIGH STATION PEDESTAL-PTZ	CCTV	1"	2#12, 1#12G		120VAC FEED
P60	WEIGH STATION PEDESTAL-PTZ	STANCHION LIGHT FIXTURE	1"	2#12, 1#12G		120VAC FEED
P61	WEIGH STATION PEDESTAL-PTZ	CENTEX INTERCOM PANEL	1"	2#12, 1#12G		120VAC FEED
P62	WEIGH STATION PEDESTAL-PTZ	ACCESS PANEL	1"	2#12, 1#12G		120VAC FEED
P63	MCC-2B (SOUTH STAIR ELEC. ROOM)	EXISTING SEWER EJECTOR	2"	SEE ONE-LINE DIAGRAM DRAWINGS		480V FEEDER
P64			2"			SPARE 480V CONDUIT
P65	EFFLUENT SAMPLER	EXISTING PANEL RP	1"	SEE DRAWING GD-E-9		120VAC FEED
P66	MCC-16	CV-4031	1"	SEE RISER DIAGRAM		480V FEED
P67	MCC-16	CV-4032	1"	SEE RISER DIAGRAM		480V FEED
P68	RP-ST-1	STANCHION LIGHTING	1"			120VAC FEED
P69	LIT-4041 & 4042	CPP-3	1"	SEE RISER DIAGRAM		120VAC FEED
P70	CCTV	RP-ST-1	1"	SEE RISER DIAGRAM GD-E-32		120VAC FEED
P71	RP-ST-1	SLUDGE FILL ALARM PANEL NO.1 & 2	1"			120VAC FEED
P72	RP-ST-1	VEHICLE DETECTION CONTROLLER	1"	SEE RISER DIAGRAM		120VAC FEED
C1	480V GENERATOR	CPP-1	2"	20#14		GENERATOR - CONTROL WIRING
C2			2"			SPARE CONDUIT
C3	CHLORINE CONTACT TANKS CHEMICAL IND. UNIT	DISINFECTION FACILITY (CPP-4)	2"	SEE RISER DIAGRAMS		120V CONTROL WIRING
C4	SCUM PUMP STATION (NORTH)	CPP-2	2"	SEE RISER DIAGRAMS		DIGITAL SIGNALS
C5	CONTROL VALVES CV-1843 & CV-1844	CPP-2	2"	SEE RISER DIAGRAMS		DIGITAL SIGNALS
C6	480V GENERATOR	CPP-4	2"	20#14		GENERATOR-CONTROL WIRING
C7			2"			SPARE CONDUIT
C8	RIOP-2A	SCUM PUMP STATION & VALVE VAULT CV'S (SOUTH)	2"	SEE RISER DIAGRAM		CONTROL WIRING
C9	SLG-1301	CPP-14	2"	SEE RISER DIAGRAM		CONTROL WIRING
C10	RECIRCULATION PUMP CONTROLS	CPP-1	2"	SEE RISER DIAGRAM		CONTROL WIRING
C11	ODOR CONTROL JB	CPP-1	2"	SEE RISER DIAGRAM		CONTROL WIRING
C12	BIOFILTER WASTE PUMP AREA JB	CPP-1	2"	SEE RISER DIAGRAM		CONTROL WIRING
C13	GRIT EFFLUENT PARSHALL FLUME	CPP-1	2"	SEE RISER DIAGRAM		CONTROL WIRING
C14	CHEMICAL INDUCTION UNIT	CPP-4	2"	SEE RISER DIAGRAM		CONTROL WIRING
C15	WEIGH STATION PEDESTAL-PATCH PNL	CCTV	1"	SEE RISER DIAGRAM GD-E-32		
C16	POST INDICATOR VALVE	FACP-PT	2"	4#14, 1#14G		PRIMARY SETTLING TANKS
C17	POST INDICATOR VALVE	FACP-DF	2"	4#14, 1#14G		DISINFECTION BUILDING
C18	CPP-3	CV-4031	1"	SEE RISER DIAGRAM		CONTROL WIRING
C19	CPP-3	CV-4032	1"	SEE RISER DIAGRAM		CONTROL WIRING
C20	CCTV CAMERA	VIDEO TRANSMITTER	1"	SEE RISER DIAGRAM GD-E-32		CONTROL WIRING

UNDERGROUND RACEWAY SCHEDULE						
ID NO.	FROM	TO	CONDUIT SIZE	CONDUCTORS		REMARKS
				QTY.	SIZE	
C21	CPP-3	SLUDGE FILL ALARM PANEL NO. 1 & 2	1"			CONTROL WIRING
C22	CPP-3	ZS-4021, ZS-4022	1"	SEE RISER DIAGRAM		
C23	HEAT SYSTEM LEAK DETECTION MANHOLES	HW-ATC-3 IN WEST HW	1"	PROVIDE PULL WIRE		CONDUITS FOR USE BY ATC CONTRACTOR
C24	GEN. CONTROL PANEL	REMOTE EMERG-STOP	1"	2#14, 1#14G.		
C25	POST INDICATOR VALVE	FACP-HWE	2"	4#14, 1#14G.		EAST HEADWORKS
C26	SUBSTATION NO. 1	CPP-2	2"	14#14, 1#14G.		SUBSTATION TRANSFORMERS ALARMS
C27	SUBSTATION NO. 3	CPP-3	2"	14#14, 1#14G.		SUBSTATION TRANSFORMERS ALARMS
C28	RIOP-2A	SCUM PUMP STATION & VALVE VAULT CV'S (SOUTH)	2"	SEE RISER DIAGRAMS		CONTROL WIRING
C29	CPP-2	SLG-1910	2"	SEE RISER DIAGRAMS		CONTROL WIRING
S1			2"			SPARE CONDUIT
F01	FIRE ALARM		1"	FIBER OPTIC CABLE		
F02	CCTV, CARD ACCESS		1"	FIBER OPTIC CABLE		IN MULTICELL CONDUIT WHERE INDICATED
F03	POWER MONITORING		1"	FIBER OPTIC CABLE		IN MULTICELL CONDUIT WHERE INDICATED
F04	I&C SYSTEM		1"	FIBER OPTIC CABLE		IN MULTICELL CONDUIT WHERE INDICATED
F05	I&C SYSTEM		1"	FIBER OPTIC CABLE		IN MULTICELL CONDUIT WHERE INDICATED
FA	WEST HEADWORK (EAST HEADWORKS)	FACP-HW	2"	16#14 & 1#14G		FIRE ALARM WIRING SEE GD-E-31
I1			2"			4-20mA SIGNAL WIRING (SPARE CONDUIT)
I2	PLANT WATER BLDG	DISINFECTION FACILITY	2"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
I3	FIT-1910	JUNCTION BOX LOCAL TO SLG-1910	1"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
I4	JUNCTION BOX LOCAL TO SLG-1910	JUNCTION BOX AT SED. TANK NO.7	2"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
I5	SLG-1301	CPP-14	2"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
I6	SCUM PUMP STATION (NORTH)	CPP-2	2"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
I7	SEDIMENTATION TANKS COLLECTOR DRIVES AND INSTRUMENTATION	RIOP-2A	2"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
I8	SEDIMENTATION TANKS COLLECTOR DRIVES AND INSTRUMENTATION	RIOP-2A	2"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
I9	SEDIMENTATION TANKS COLLECTOR DRIVES AND INSTRUMENTATION	RIOP-2A	2"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
I10	SCUM PUMP STATION (SOUTH)	RIOP-2A	2"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
I11	ODOR CONTROL JB	CPP-1	2"	4-2/C#16T.S.		4-20mA SIGNAL WIRING
I12	GRIT EFFLUENT PARSHALL FLUME	CPP-1	2"			4-20mA SIGNAL WIRING
I13	WEIGH STATION PEDESTAL-PLC	LOAD CELLS	2"	10-2/C #16 T.S.		4-20mA SIGNAL WIRING
I14	WEIGH STATION PEDESTAL-PLC	ACCESS PANEL - KEY PAD	1"	SEE RISER DIAGRAM GD-E-32		4-20mA SIGNAL WIRING
I15	EFFLUENT SAMPLER	CPP-15	1"	SEE DRAWING GD-E-9		4-20mA SIGNAL WIRING
I16	CARD READER NO.1	CARD ACCESS CONTROLLER	1"	SEE DRAWING GD-E-32		
I17	CARD READER NO.2	CARD ACCESS CONTROLLER	1"	SEE DRAWING GD-E-32		
I18	LIT-4041 LIT-4042	CPP-3	1"	SEE RISER DIAGRAMS		4-20mA SIGNAL WIRING
T			2"			TELEPHONE/COMMUNICATIONS
T1	SENTEX WEIGH STATION INTERCOM SYSTEM	NEW JUNCTION BOX AT MAIN GATE PEDESTAL CABINET	1"	SEE RISER DIAGRAM GD-E-32		VIA MH-C14
T2	TELE/COMM BACKBOARD IN ADMIN BLDG	UTILITY METER AT MAIN SWITCHGEAR	2"	PELE TEL CO. REQUIREMENTS		





- NOTES:**
- EXISTING DUCTBANK CONTAINS FIBER OPTIC CABLE WITH SPARE FIBERS. USE SPARE FIBERS FOR FIRE ALARM SYSTEM TO THE PATCH PANEL IN SPB FACILITY TO PATCH PANEL IN ADMINISTRATION BUILDING. REFER TO RISER DIAGRAM ON DRAWING GD-E-31.
  - USE EXISTING SPARE CONDUIT TO RUN F/O CABLE (FO4) FROM THE ADMINISTRATION BUILDING PATCH PANEL TO WEIGH STATION PEDESTAL CABINET PATCH PANEL.
  - USE CONDUIT TO RUN F/O CABLE (FO4) FROM THE SPB FACILITY TO THE ADMINISTRATION BUILDING PATCH PANELS. REFER TO DATA HIGHWAY BLOCK DIAGRAM DRAWING GD-E-33.
  - USE SPARE CONDUIT TO RUN TELEPHONE CABLE FROM ADMINISTRATION BUILDING TO NEW 15KV MAIN SWITCHGEAR METER BOX.
  - REFER TO DRAWING GD-E-26 FOR CONDUIT SCHEDULES.

RECORD DRAWING

CADD FILE NO. EMISC002.DWG DESIGNED BY: SS DRAWN BY: OR SHEET CHECKED BY: BDS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY                  IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 331 of 386  <b>GD-E-27</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
3/07	SPV	ADT		REVISED FOR THE RECORD					

UPPER BLACKSTONE WPAID - PHASE 1 RECORD DRAWINGS] File: P:\1289\35370\PHASE1\RECORD\ELEC\ESCHD001.dwg Xref: [C24X36H\_ ] Plotted by: CROSSHA Time: 12/16/08 6:33:57 PM

PANELBOARD LP-PT-1A												LOCATION: NORTH STAIR BUILDING		
100AMP BUS RATING			30 AMP MAIN C/B			22KA S.C.R.			30 POLES					
480/277 VOLTS			3PH. 4 WIRE 60 HZ.			SURFACE MOUNTED								
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES	LOAD KVA			DESCRIPTION	C/B AMP/POLES	LOAD KVA			
	A	B	C			A	B	C						
NORTH GALLERY LIGHTS	0.87			20/1	1	20/3	0.25			CV-1841				
NEW NORTH STAIR BUILDING LIGHT	1.17			20/1	3	20/3	0.25							
SED. TANKS 4,5,6, & 7 LIGHTS	0.65			20/1	5	20/3	0.25	0.25		CV-1842				
CV-1843(NORTH VALVE VAULT)	0.25			20/3	7									
CV-1844(NORTH VALVE VAULT)	0.25			20/3	9									
PT-EUH-2	1.66			20/3	11									
	1.66			20/3	13									
SPARE				20/1	15									
SPARE				20/1	17									
SPARE				20/1	19									
SPARE				20/1	21									
SPARE				20/1	23									
SPARE				20/1	25									
SPARE				20/1	27									
SPARE				20/1	29									
TOTAL KVA	9.67	3.03	3.08	2.56			0.5	0.25	0.25	TOTAL KVA				
TOTAL CONNECTED KVA				3.53	0A	3.33	0B	2.81	0C					

PANELBOARD LP-PT-1B												LOCATION: SOUTH STAIR BUILDING		
100AMP BUS RATING			30 AMP MAIN C/B			22KA S.C.R.			30 POLES					
480/277 VOLTS			3PH. 4 WIRE 60 HZ.			SURFACE MOUNTED								
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES	LOAD KVA			DESCRIPTION	C/B AMP/POLES	LOAD KVA			
	A	B	C			A	B	C						
WALKWAY GALLERY LIGHTS	1.26			20/1	1	20/3	0.25			CV-1832				
SOUTH GALLERY LIGHTS	0.87			20/1	3									
CENTRAL GALLERY LIGHTS	0.78			20/1	5	20/3	0.25	0.25						
EXISTING S. STAIR BUILDING LIGHT	1.62			20/1	7					CV-1831				
EXISTING N. STAIR BUILDING LIGHT	0.66			20/1	9			0.80		SEP. TANK 1,2,3, LIGHTS				
CV-1833(SOUTH VALVE VAULT)				20/3	11			0.15		CV-1834 (SOUTH VALVE VAULT)				
PT-B-1 (BOILER)	0.5			20/3	13			1.66	1.66	PT-EUH-1				
	0.5			20/3	15			1.66	1.66					
SPARE				20/1	17									
SPARE				20/1	19									
SPARE				20/1	21									
SPARE				20/1	23									
SPARE				20/1	25									
SPARE				20/1	27									
SPARE				20/1	29									
TOTAL KVA	13.77	3.38	2.03	1.28			2.31	2.71	2.06	TOTAL KVA				
TOTAL CONNECTED KVA				5.69	0A	4.74	0B	3.34	0C					

PANELBOARD LP-ST-1												LOCATION: SLUDGE HOLDING TANK		
100AMP BUS RATING			30 AMP MAIN C/B			22KA S.C.R.			18 POLES					
480/277 VOLTS			3PH. 4 WIRE 60 HZ.			SURFACE MOUNTED								
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES	LOAD KVA			DESCRIPTION	C/B AMP/POLES	LOAD KVA			
	A	B	C			A	B	C						
1ST FLOOR LIGHTS	1.20			20/1	1	20/3	0.25			SPARE				
BASEMENT LIGHTS	1.36			20/1	3					SPARE				
LIGHTS & SLUDGE RECEIVING	0.1			20/1	5					SPARE				
SPARE				20/1	7					SPARE				
SPARE				20/1	9					SPARE				
SPARE				20/1	11					SPARE				
SPARE				20/1	13					SPARE				
SPARE				20/1	15					SPARE				
SPARE				20/1	17					SPARE				
TOTAL KVA	2.66	1.2	1.36	0.1			1.2	0A	1.46	0B	0.1	0C		
TOTAL CONNECTED KVA				1.2	0A	1.46	0B	0.1	0C					

PANELBOARD LP-DF-1												LOCATION: DISINFECTION FACILITY		
100AMP BUS RATING			30 AMP MAIN C/B			22KA S.C.R.			18 POLES					
480/277 VOLTS			3PH. 4 WIRE 60 HZ.			SURFACE MOUNTED								
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES	LOAD KVA			DESCRIPTION	C/B AMP/POLES	LOAD KVA			
	A	B	C			A	B	C						
SODIUM BISULFITE ROOM	1.70			20/1	1	20/3	1.1			ROADWAY LIGHTING				
SODIUM HYPOCHLORITE ROOM	2.25			20/1	3									
CONTROL AND ELECTRICAL ROOMS	1.36			20/1	5			1.1						
BASEMENT	0.74			20/1	7									
SPARE				20/1	9									
SPARE				20/1	11									
SPARE				20/1	13									
SPARE				20/1	15									
SPARE				20/1	17									
TOTAL KVA	9.35	2.44	2.25	1.36			1.1	1.1	1.1	TOTAL KVA				
TOTAL CONNECTED KVA				3.54	0A	3.35	0B	2.46	0C					

PANELBOARD LP-HWW												LOCATION: WEST HEADWORKS BUILDING ELECTRICAL ROOM		
100AMP BUS RATING			30 AMP MAIN C/B			22KA S.C.R.			18 POLES					
480/277 VOLTS			3PH. 4 WIRE 60 HZ.			SURFACE MOUNTED								
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES	LOAD KVA			DESCRIPTION	C/B AMP/POLES	LOAD KVA			
	A	B	C			A	B	C						
LTG. BOILER AND ELEC. ROOMS	1.18			20/1	1	20/3	0.48			LTG. AERATED GRIT TANKS				
LTG. SCREEN ROOM	1.63			20/1	3									
LTG. LOADING AREA	1.25			20/1	5									
SPARE				20/1	7									
SPARE				20/1	9									
SPARE				20/1	11									
SPARE				20/1	13									
SPARE				20/1	15									
SPARE				20/1	17									
TOTAL KVA	4.54	1.18	1.63	1.25			0.48			TOTAL KVA				
TOTAL CONNECTED KVA				1.66	0A	1.63	0B	1.25	0C					

PANELBOARD LP-HWE												LOCATION: EAST HEADWORKS BUILDING ELECTRICAL ROOM		
100AMP BUS RATING			30 AMP MAIN C/B			22KA S.C.R.			18 POLES					
480/277 VOLTS			3PH. 4 WIRE 60 HZ.			SURFACE MOUNTED								
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES	LOAD KVA			DESCRIPTION	C/B AMP/POLES	LOAD KVA			
	A	B	C			A	B	C						
LTG. BOILER AND ELEC. ROOMS	1.56			20/1	1	20/3	0.5			ROADWAY LTG VIA CONACTOR				
LTG. STORAGE AND LOADING ROOM	3.75			20/1	3			0.5						
LTG. PUMP ROOM AND TOILET	0.59			20/1	5			0.5						
SPARE				20/1	7			0.48		LTG-AERATED GRIT TANKS				
SPARE				20/1	9									
SPARE				20/1	11									
SPARE				20/1	13									
SPARE				20/1	15									
SPARE				20/1	17									
TOTAL KVA	7.88	1.56	3.75	0.59			0.98	0.5	0.5	TOTAL KVA				
TOTAL CONNECTED KVA				2.54	0A	4.25	0B	1.09	0C					

PANELBOARD LP-SPB-1												LOCATION: SPB ELEC.ROOM		
100AMP BUS RATING			50 AMP MAIN C/B			22KA S.C.R.			18 POLES					
480/277 VOLTS			3PH. 4 WIRE 60 HZ.			SURFACE MOUNTED								
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES	LOAD KVA			DESCRIPTION	C/B AMP/POLES	LOAD KVA			
	A	B	C			A	B	C						
LTG-CONTROL RM	0.7			20/1	1	20/3	0.5			LTG-ELEC RM				
LTG-THICK. AREA 1ST FLOOR	3.3			20/1	3			2.0		LTG-THICK. AREA BASEMENT				
LTG-THICK. AREA 1ST FLOOR	3.8			20/1	5			2.0		LTG-THICK. AREA BASEMENT				
LTG-THICK. AREA 1ST FLOOR	3.5			20/1	7			3.6		LTG-THICK. AREA BASEMENT				
SPARE				20/1	9									
SPARE				20/1	11									
SPARE				20/1	13									
SPARE				20/1	15									
SPARE				20/1	17									
TOTAL KVA	19.3	4.2	3.3	3.8			8.2	0A	5.3	0B	5.8	0C		
TOTAL CONNECTED KVA				8.2	0A	5.3	0B	5.8	0C					

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
2/08	SPV	ELS		REVISED FOR THE RECORD

CADD FILE NO.	ESCHD001.DWG
DESIGNED BY:	JAR
DRAWN BY:	MJF
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

PANELBOARD SCHEDULES I

PROJECT NO.  
1289\35370

Sht. 332 of 386

**GD-E-28**

UPPER BLACKSTONE WPAD - PHASE I RECORD DRAWINGS  
 Filename: P:\1289\35370\PHASE I\RECORD\ELEC\ESCHD002.dwg Xref's: [C24X36H.] Plotted by: CROSSHA Time: 12/16/08 6:34:00 PM

PANELBOARD RP-PT-1A																
100 AMP BUS RATING 120/208 VOLTS					100 AMP MAIN C/B 3PH. 4 WIRE 60 HZ.					10KA S.C.R.						
					42 POLES					SURFACE MOUNTED						
DESCRIPTION		LOAD KVA			C/B AMP/POLES			LOAD KVA			C/B AMP/POLES			DESCRIPTION		
		A	B	C				A	B	C						
NORTH GALLERY RECEPTACLES	0.54			20/1	1	2	20/1	0.50			PT-ATC-1					
NEW N. STAIR BUILDING RECP.	0.54			20/1	3	4	20/1	0.12			PT-UH-6					
PT-UH-4			0.12	20/1	5	6	20/1		0.12		PT-UH-5					
RECEPT. SED. TANK NO. 6	0.36			20/1	7	8	20/1	0.80			FACP					
RECEPT. ROOF	0.30			20/1	9	10	20/1	0.80			FACP					
UPS-2			3.0	30/1	11	12	20/2		0.25	0.25	PT-ACU-1					
SLUICE GATE - RECEPTACLE	1.20			20/1	13	14		0.25								
SPARE				20/1	15	16	20/2		0.25		PT-ACU-2					
SPARE				20/1	17	18			0.25							
SPARE				20/1	19	20	20/1	0.20			BLOWER ENCLOSURE FANS					
SPARE				20/1	21	22	20/1		0.50		PAGE PARTY					
SPARE				20/1	23	24	20/1				SPARE					
SPARE				20/1	25	26	20/1				SPARE					
SPARE				20/1	27	28	20/1				SPARE					
SPARE				20/1	29	30	20/1				SPARE					
SPARE				20/1	31	32	20/1				SPARE					
SPARE				20/1	33	34	20/1				SPARE					
SPARE				20/1	35	36	20/1				SPARE					
SPARE				20/1	37	38	20/1				SPARE					
SPARE				20/1	39	40	20/1				SPARE					
SPARE				20/1	41	42	20/1				SPARE					
TOTAL KVA	2.10	0.84	3.12					1.75	1.67	0.62	TOTAL KVA					
9.10 TOTAL CONNECTED KVA		KVA			3.85 OA			2.51 OB			3.74 OC					

PANELBOARD RP-PT-1B																
100 AMP BUS RATING 120/208 VOLTS					100 AMP MAIN C/B 3PH. 4 WIRE 60 HZ.					10KA S.C.R.						
					42 POLES					SURFACE MOUNTED						
DESCRIPTION		LOAD KVA			C/B AMP/POLES			LOAD KVA			C/B AMP/POLES			DESCRIPTION		
		A	B	C				A	B	C						
CENTRAL GALLERY RECEPTACLES	0.72			20/1	1	2	20/1	0.12			PT-UH-3					
SOUTH GALLERY RECEPTACLES	0.72			20/1	3	4	20/1	0.12			PT-UH-2					
EXISTING S. STAIR BLDG. RECP.			0.54	20/1	5	6	20/1		0.12		PT-UH-1					
PT-UH-7	0.12			20/1	7	8	20/1	1.10			RECEP. SED. TANK 1 & 3					
SPARE				20/1	9	10	20/1	0.50			GAS DETECTION PNL & LIT-SUM. STATION					
PT-ACU-3			0.25	20/2	11	12	20/1		0.18		RECEP. ROOF					
	0.25			20/2	13	14	30/1	3.60			EXIST. HOT WATER HEATER					
PT-ACU-4			0.25	20/2	15	16	20/1		0.50		EXIST. PRIM. EFFL. SAMPLER					
	0.25			20/2	17	18	20/1		0.50		VF-PT ALARM PANEL					
UPS-11	3.0			30/1	19	20	20/1	0.50			PT-ATC-2					
SLUICE GATE - RECEPTACLE	1.20			20/1	21	22	20/1		0.50		PAGE PARTY					
SPARE				20/1	23	24	20/1				SPARE					
SPARE				20/1	25	26	20/1				SPARE					
SPARE				20/1	27	28	20/1				SPARE					
SPARE				20/1	29	30	20/1				SPARE					
SPARE				20/1	31	32	20/1				SPARE					
SPARE				20/1	33	34	20/1				SPARE					
SPARE				20/1	35	36	20/1				SPARE					
SPARE				20/1	37	38	20/1				SPARE					
SPARE				20/1	39	40	20/1				SPARE					
SPARE				20/1	41	42	20/1				SPARE					
TOTAL KVA	4.09	2.17	1.04					5.32	1.62	0.8	TOTAL KVA					
15.04 TOTAL CONNECTED KVA		KVA			9.41 OA			3.79 OB			1.84 OC					

PANELBOARD RP-INC-1																
100 AMP BUS RATING 120/208 VOLTS					100 AMP MAIN C/B 3PH. 4 WIRE 60 HZ.					10KA S.C.R.						
					42 POLES					SURFACE MOUNTED						
DESCRIPTION		LOAD KVA			C/B AMP/POLES			LOAD KVA			C/B AMP/POLES			DESCRIPTION		
		A	B	C				A	B	C						
RCF-S-3 (1/4 HP)	0.70			20/1	1	2	20/1	0.70			RCF-B-3 (1/4 HP)					
RCF-S-4 (1/4 HP)	0.70			20/1	3	4	20/1	0.70			RCF-B-4 (1/4 HP)					
RCF-1F-3 (1/4 HP)	0.70		0.70	20/1	5	6	20/1		0.70		RCF-2F-3 (1/4 HP)					
RCF-1F-4 (1/4 HP)	0.70			20/1	7	8	20/1	0.70			RCF-2F-4 (1/4 HP)					
PAGE PARTY SUB BSMT & BSMT	1.0			20/1	9	10	20/1	0.70			RCF-3F-4 (1/4 HP)					
PAGE PARTY 1ST & 2ND FLOOR	1.0			20/1	11	12	20/1		0.50		PAGE PARTY 3RD FLOOR					
RTO#1 DAMPER HEAT TRACE	0.36			20/2	13	14	20/1	0.20			ASH HANDLING C.P.					
	0.36			20/2	15	16	20/1				SPARE					
INC#1 BRNR B-1 & TCV-141-1			1.0	20/1	17	18	20/1		1.0		INC#1 BRNR B-2 & TCV-142-1					
INC#1 BRNR B-3 & TCV-143-1	1.0			20/1	19	20	20/1	1.0			INC#1 BRNR B-4 & TCV-144-1					
INC#1 BRNR B-5 & TCV-145-1	1.0			20/1	21	22	20/1	1.0			INC#1 BRNR B-6 & TCV-146-1					
INC#1 BRNR B-7 & TCV-147-1	1.0			20/1	23	24	20/1	1.0			INC#1 BRNR B-8 & TCV-148-1					
INC#1 BRNR B-9 & TCV-149-1	1.0			20/1	25	26	20/1	1.0			INC#1 BRNR B-10 & TCV-150-1					
INC#1 BRNR B-11 & TCV-151-1	1.0			20/1	27	28	20/1	1.0			INC#1 BRNR B-12 & TCV-152-1					
INC#1 BRNR B-13 & TCV-153-1	1.0			20/1	29	30	20/1	1.0			INC#1 BRNR B-14 & TCV-154-1					
INC#1 BRNR B-15 & TCV-155-1	1.0			20/1	31	32	20/1	0.50			HEAT TRACE CONTACTOR					
RTO#2 DAMPER HEAT TRACE	0.36			20/2	33	34	20/1				SPARE					
	0.36			20/2	35	36	20/1				SPARE					
SPARE				20/1	37	38	20/1				SPARE					
SPARE				20/1	39	40	20/1				SPARE					
SPARE				20/1	41	42	20/1				SPARE					
TOTAL KVA	4.76	4.42	5.06					4.10	3.40	4.20	TOTAL KVA					
25.94 TOTAL CONNECTED KVA		KVA			8.86 OA			7.82 OB			9.26 OC					

PANELBOARD RP-DF-1																
100 AMP BUS RATING 120/208 VOLTS					100 AMP MAIN C/B 3PH. 4 WIRE 60 HZ.					10KA S.C.R.						
					42 POLES					SURFACE MOUNTED						
DESCRIPTION		LOAD KVA			C/B AMP/POLES			LOAD KVA			C/B AMP/POLES			DESCRIPTION		
		A	B	C				A	B	C						
ELECTRICAL ROOM RECEPTACLES	0.72			20/1	1	2	20/1	0.75			DF-UH-1, DF-UH-2, DF-UH-3					
CONTROL ROOM RECEPTACLES	0.54			20/1	3	4	20/1	0.75			DF-UH-4, DF-UH-5, DF-UH-6					
SODIUM BISULFITE ROOM RECP.			0.72	20/1	5	6	20/1		0.75		DF-UH-7, DF-UH-8, DF-UH-9					
SODIUM HYDROCHLORITE N.	0.54			20/1	7	8	20/1	0.25			HYPO-FILL PANEL					
SODIUM HYDROCHLORITE S.	0.54			20/1	9	10	20/1	0.25			BISULFITE-FILL PANEL					
BASEMENT RECEPTACLES N.			0.54	20/1	11	12	20/1				SPARE					
BASEMENT RECEPTACLES S.	0.54			20/1	13	14	20/1				SPARE					
DF-ACU-1			0.50	20/2	15	16	20/1				SPARE					
	0.50			20/2	17	18	20/1				SPARE					
HYPO PORTABLE SUMP	1.0			20/1	19	20	20/2	0.50			DF-ACU-2					
ES/EWW-"A"			0.10	20/1	21	22	20/1		0.50							
ES/EWW-"B"			0.10	20/1	23	24	30/1		3.0		UPS-4					
ES/EWW-"A"	0.10			20/1	25	26	20/1	0.80			FACP					
ES/EWW-"B"			0.10	20/1	27	28	20/1	0.80			DF-ATC-1					
ROOF RECEPT.			0.36	20/1	29	30	20/1				DF-UH-10					
SPARE				20/1	31	32	20/1	1.60								
SPARE				20/1	33	34	60/3	1.60			GENERATOR LOAD CENTER					
BISULFITE PORTABLE SUMP			1.0	20/1	35	36	20/1		1.60							
PAGE PARTY	0.50			20/1	37	38	20/1				SPARE					
SPARE				20/1	39	40	20/1				SPARE					
SPARE				20/1	41	42	20/1				SPARE					
TOTAL KVA	3.40	1.78	3.22					3.90	3.90	5.35	TOTAL KVA					
21.55 TOTAL CONNECTED KVA		KVA			7.30 OA			5.68 OB			8.57 OC					

PANELBOARD RP-HWW																
100 AMP BUS RATING 120/208 VOLTS					60 AMP MAIN C/B 3PH. 4 WIRE 60 HZ.					10KA S.C.R.						
					42 POLES					SURFACE MOUNTED						
DESCRIPTION		LOAD KVA			C/B AMP/POLES			LOAD KVA			C/B AMP/POLES			DESCRIPTION		
		A	B	C				A	B	C						
BOILER ROOM	0.72			20/1	1	2	20/1				SPARE					
ELECTRICAL ROOM	0.72			20/1	3	4	20/1	0.80			CARD ACCESS					
SCREEN ROOM			0.72	20/1	5	6	20/1		0.80		FACP					
STORAGE AREA	0.72			20/1	7	8	20/1	0.30			HW-UH-14, 13, 8					
HW-ACU-3	1.20			20/2	9	10	20/1	0.30			HW-UH-9, 10, 11					
	1.20			20/2	11	12	20/1		0.50		HW-ATC-3					
HW-ACU-4			1.20	20/2	13	14	20/1				SPARE					
	1.20			20/2	15	16	20/1				SPARE					
HW-SF-1			0.25	20/1	17	18	20/1				SPARE					
HW-SF-2	0.25			20/1	19	20	20/1									

UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
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PANELBOARD PP-SPB-1 LOCATION SPB ELEC ROOM													
125 AMP BUS RATING		125 AMP MAIN C/B		42 KA SHORT CIRCUIT RATING		42 POLES		SURFACE MOUNTED					
480 VOLTS		3 PH. 3 WIRE		60 HZ.									
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES			LOAD KVA			DESCRIPTION		
A	B	C	A	B	C	A	B	C	A	B	C		
PANEL LP-SPB-1	5.0	5.0	5.0	5 / 3	20 / 3	1.66	1.66	1.66	1.66	1.66	1.66	SP-ACU-4 (5KW COMPRESSOR)	
PANEL RP-SPB-1	5.0	5.0	5.0	5 / 3	20 / 3	1.66	1.66	1.66	1.66	1.66	1.66	SP-ACU-5 (5KW COMPRESSOR)	
SP-EUH-4	2.5	2.5	2.5	20 / 3	20 / 3	1.66	1.66	1.66	1.66	1.66	1.66	SP-ACU-6 (5KW COMPRESSOR)	
SPARE				20 / 3	20 / 3							SPARE	
SPARE				20 / 3	20 / 3							SPARE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
TOTAL KVA	12.5	12.5	12.5			4.98	4.98	4.98	4.98	4.98	4.98	TOTAL KVA	
52.44		TOTAL CONNECTED KVA			17.48 ØA		17.48 ØB		17.48 ØC				

PANELBOARD DP-SPB-1 LOCATION INCINERATOR ELEC.ROOM													
100 AMP BUS RATING		M.L.O		42 KA SHORT CIRCUIT RATING		42 POLES		SURFACE MOUNTED					
480 VOLTS		3 PH. 3 WIRE		60 HZ.									
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES			LOAD KVA			DESCRIPTION		
A	B	C	A	B	C	A	B	C	A	B	C		
CV-399-1	1.0	1.0	1.0	20 / 3	20 / 3	1.0	1.0	1.0	1.0	1.0	1.0	CV-398-1	
SPARE				20 / 3	20 / 3							SPARE	
SPARE				20 / 3	20 / 3							SPARE	
SPARE				20 / 3	20 / 3							SPARE	
CV-113-1	0.33	0.33	0.33	20 / 3	20 / 3	0.33	0.33	0.33	0.33	0.33	0.33	CV-365-1	
SPARE				20 / 3	20 / 3							SPARE	
SPARE				20 / 3	20 / 3							SPARE	
SPARE				20 / 3	20 / 3							SPARE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
TOTAL KVA	1.33	1.33	1.33			2.66	2.66	2.66	2.66	2.66	2.66	TOTAL KVA	
7.98		TOTAL CONNECTED KVA			2.66 ØA		2.66 ØB		2.66 ØC				

PANELBOARD DP-SPB-2 LOCATION INCINERATOR ELEC.ROOM													
100 AMP BUS RATING		M.L.O		42 KA SHORT CIRCUIT RATING		42 POLES		SURFACE MOUNTED					
480 VOLTS		3 PH. 3 WIRE		60 HZ.									
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES			LOAD KVA			DESCRIPTION		
A	B	C	A	B	C	A	B	C	A	B	C		
CV-399-2	1.0	1.0	1.0	20 / 3	20 / 3	1.0	1.0	1.0	1.0	1.0	1.0	CV-398-2	
SPARE				20 / 3	20 / 3							SPARE	
SPARE				20 / 3	20 / 3							SPARE	
SPARE				20 / 3	20 / 3							SPARE	
CV-113-3	0.33	0.33	0.33	20 / 3	20 / 3	0.33	0.33	0.33	0.33	0.33	0.33	CV-365-3	
SPARE				20 / 3	20 / 3							SPARE	
SPARE				20 / 3	20 / 3							SPARE	
SPARE				20 / 3	20 / 3							SPARE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
TOTAL KVA	1.33	1.33	1.33			2.66	2.66	2.66	2.66	2.66	2.66	TOTAL KVA	
7.98		TOTAL CONNECTED KVA			2.66 ØA		2.66 ØB		2.66 ØC				

LOADCENTER LC-UPS-5 LOCATION SPB ELEC.ROOM												
100 AMP BUS RATING		AMP MAIN C/B		10 KA SHORT CIRCUIT RATING		18 POLES		SURFACE MOUNTED				
120/240 VOLTS		1 PH. 4 WIRE		60 HZ. ELECTRONIC GRADE								
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES			LOAD KVA			DESCRIPTION	
A	B	C	A	B	C	A	B	C	A	B	C	
OWS-3	1.0			20 / 1	20 / 1	0.5			0.5			ETHERNET SWITCHES
OWS-2	1.0	1.0		20 / 1	20 / 1	0.5	0.5		0.5	0.5		ETHERNET PRINTER HUB
OWS-1	1.0			20 / 1	20 / 1	1.0			1.0			HISTORIAN SERVER
SPARE				20 / 1	20 / 1							SPARE
SPARE				20 / 1	20 / 1							SPARE
SPARE				20 / 1	20 / 1							SPARE
SPACE												SPACE
SPACE												SPACE
SPACE												SPACE
TOTAL KVA	2.0	1.0				1.5	0.5		1.5	0.5		TOTAL KVA
5.0		TOTAL CONNECTED KVA			3.5 ØA		1.5 ØB					

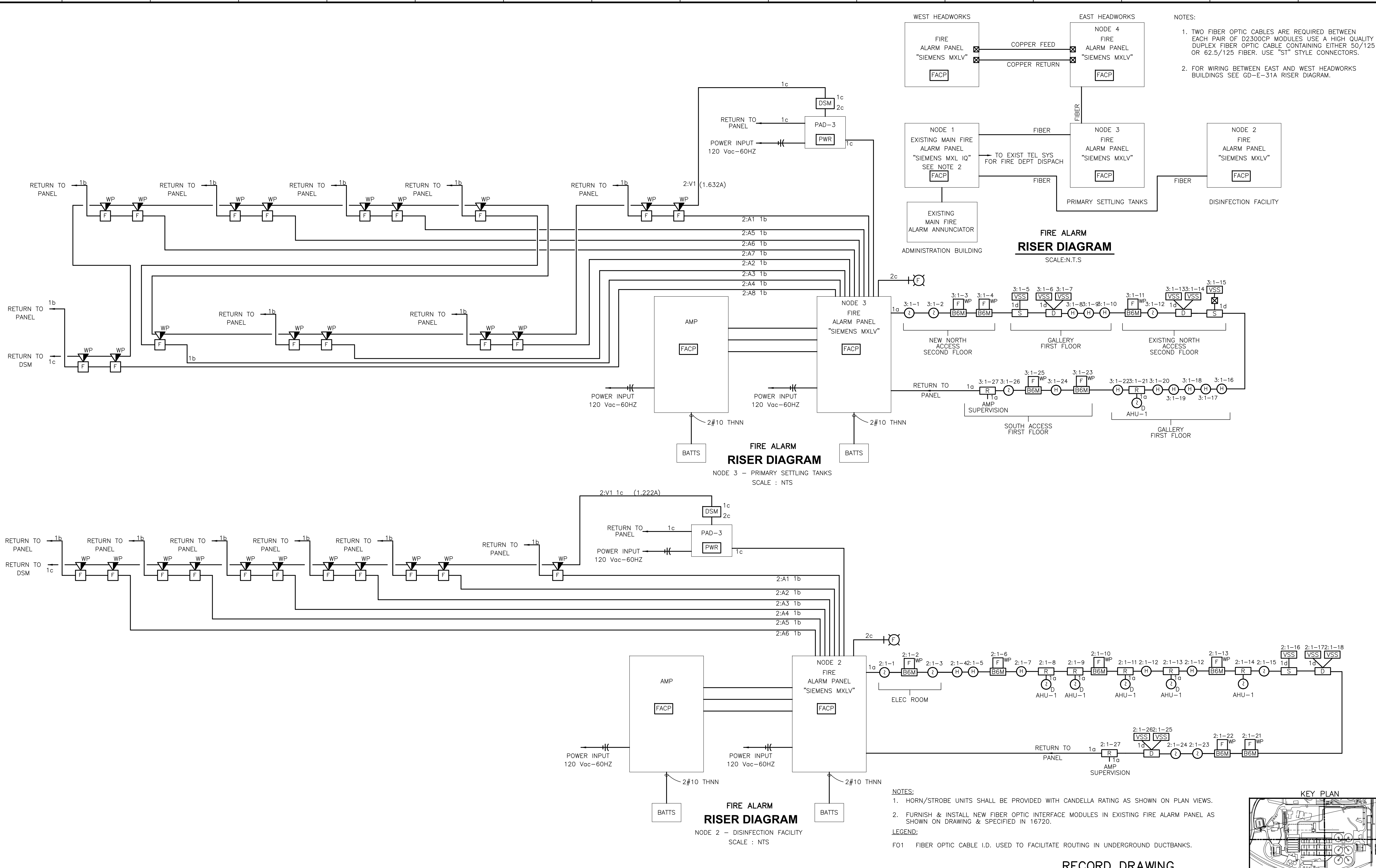
PANELBOARD PP-HWW LOCATION HWW ELEC. RM.													
100 AMP BUS RATING		M.L.O		42 KA SHORT CIRCUIT RATING		42 POLES		SURFACE MOUNTED					
480 VOLTS		3 PH. 3 WIRE		60 HZ.									
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES			LOAD KVA			DESCRIPTION		
A	B	C	A	B	C	A	B	C	A	B	C		
SPARE				20 / 3	20 / 3							OVERHEAD DOOR (GRIT)	
SG-1480 (GRIT EFF)	0.40	0.40		20 / 3	20 / 3	0.40			0.40			OVERHEAD DOOR (SCREEN)	
SG-1471 (HW EFF)	0.18	0.18		20 / 3	20 / 3	0.18	0.18		0.18	0.18		SLG-1301 (FORCE MAIN JB)	
SG-1472 (HW EFF)	0.18	0.18		20 / 3	20 / 3	0.18	0.18		0.18	0.18		SG-1332 (HW INFL)	
HW-EUH-2	1.66	1.66		20 / 3	20 / 3	1.66			1.66			SG-1331 (HW INFL)	
HW-CU-3	2.0	2.0		20 / 3	20 / 3	2.0	2.0		2.0	2.0		HW-CU-4	
SPARE				20 / 3	20 / 3							SPARE	
TOTAL KVA	4.42	4.42	4.42			7.53	7.53	7.53	7.53	7.53	7.53	TOTAL KVA	
22.59		TOTAL CONNECTED KVA			7.53 ØA		7.53 ØB		7.53 ØC				

PANELBOARD RP-INC-2 LOCATION INC. ELEC. ROOM													
100 AMP BUS RATING		100 AMP MAIN C/B		10 KA SHORT CIRCUIT RATING		42 POLES		SURFACE MOUNTED					
120/208 VOLTS		3 PH. 4 WIRE		60 HZ.									
DESCRIPTION	LOAD KVA			C/B AMP/POLES	C/B AMP/POLES			LOAD KVA			DESCRIPTION		
A	B	C	A	B	C	A	B	C	A	B	C		
RCF-S-1 (1/4 HP)	0.70			20 / 1	20 / 1	0.70			0.70			RCF-B-1 (1/4 HP)	
RCF-S-2 (1/4 HP)	0.70			20 / 1	20 / 1	0.70			0.70			RCF-B-2 (1/4 HP)	
RCF-1F-1 (1/4 HP)	0.70			20 / 1	20 / 1	0.70			0.70			RCF-2F-1 (1/4 HP)	
RCF-1F-2 (1/4 HP)	0.70			20 / 1	20 / 1	0.70			0.70			RCF-2F-2 (1/4 HP)	
RCF-3F-1 (1/4 HP)	0.70			20 / 1	20 / 1	0.70			0.70			SPARE	
SPARE				20 / 1	20 / 1							SPARE	
INC#3 BRNR B-1 & TCV-141-3	1.0			20 / 1	20 / 1	1.0			1.0			INC#3 BRNR B-2 & TCV-142-3	
INC#3 BRNR B-3 & TCV-143-3	1.0			20 / 1	20 / 1	1.0			1.0			INC#3 BRNR B-4 & TCV-144-3	
INC#3 BRNR B-5 & TCV-145-3	1.0			20 / 1	20 / 1	1.0			1.0			INC#3 BRNR B-6 & TCV-146-3	
INC#3 BRNR B-7 & TCV-147-3	1.0			20 / 1	20 / 1	1.0			1.0			INC#3 BRNR B-8 & TCV-148-3	
INC#3 BRNR B-9 & TCV-149-3	1.0			20 / 1	20 / 1	1.0			1.0			INC#3 BRNR B-10 & TCV-150-3	
INC#3 BRNR B-11 & TCV-151-3	1.0			20 / 1	20 / 1	1.0			1.0			INC#3 BRNR B-12 & TCV-152-3	
INC#3 BRNR B-13 & TCV-153-3	1.0			20 / 1	20 / 1	1.0			1.0			INC#3 BRNR B-14 & TCV-154-3	
INC#3 BRNR B-15 & TCV-155-3	1.0			20 / 1	20 / 1	1.0			1.0	0.30		SP-ATC-1	
SPARE				20 / 1	20 / 1							SPARE	
SPARE				20 / 1	20 / 1							SPARE	
SPARE				20 / 1	20 / 1							SPARE	
SPARE				20 / 1	20 / 1							SPARE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
SPACE												SPACE	
TOTAL KVA	4.40	4.40	2.70			8.80	7.40	5.40	8.80	7.40	5.40	TOTAL KVA	
21.60		TOTAL CONNECTED KVA			8.80 ØA		7.40 ØB		5.40 ØC				

REV. NO.	2/08	SPV	ELS	NO REVISION REQUIRED FOR THE RECORD
DATE	DRWN	CHKD	REMARKS	

CADD FILE NO. <u>ESCHD003.DWG</u>	DESIGNED BY: <u>JAR</u>	DRAWN BY: <u>MJF</u>	SHEET CHK'D BY: <u>BDS</u>	SCALE: <u>AS NOTED</u>	APPROVED BY: <u>B. SQUIBB</u>	DATE: <u>MAY 2006</u>
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<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>	UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>	RECORD DRAWING  <b>PANELBOARD SCHEDULES III</b>	PROJECT NO. 1289\35370 Sht. 334 of 386 <b>GD-E-30</b>
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RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ELS		REVISED FOR THE RECORD

CADD FILE NO.	ERISR001.DWG
DESIGNED BY:	JAR
DRAWN BY:	DDC
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM**  
 Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

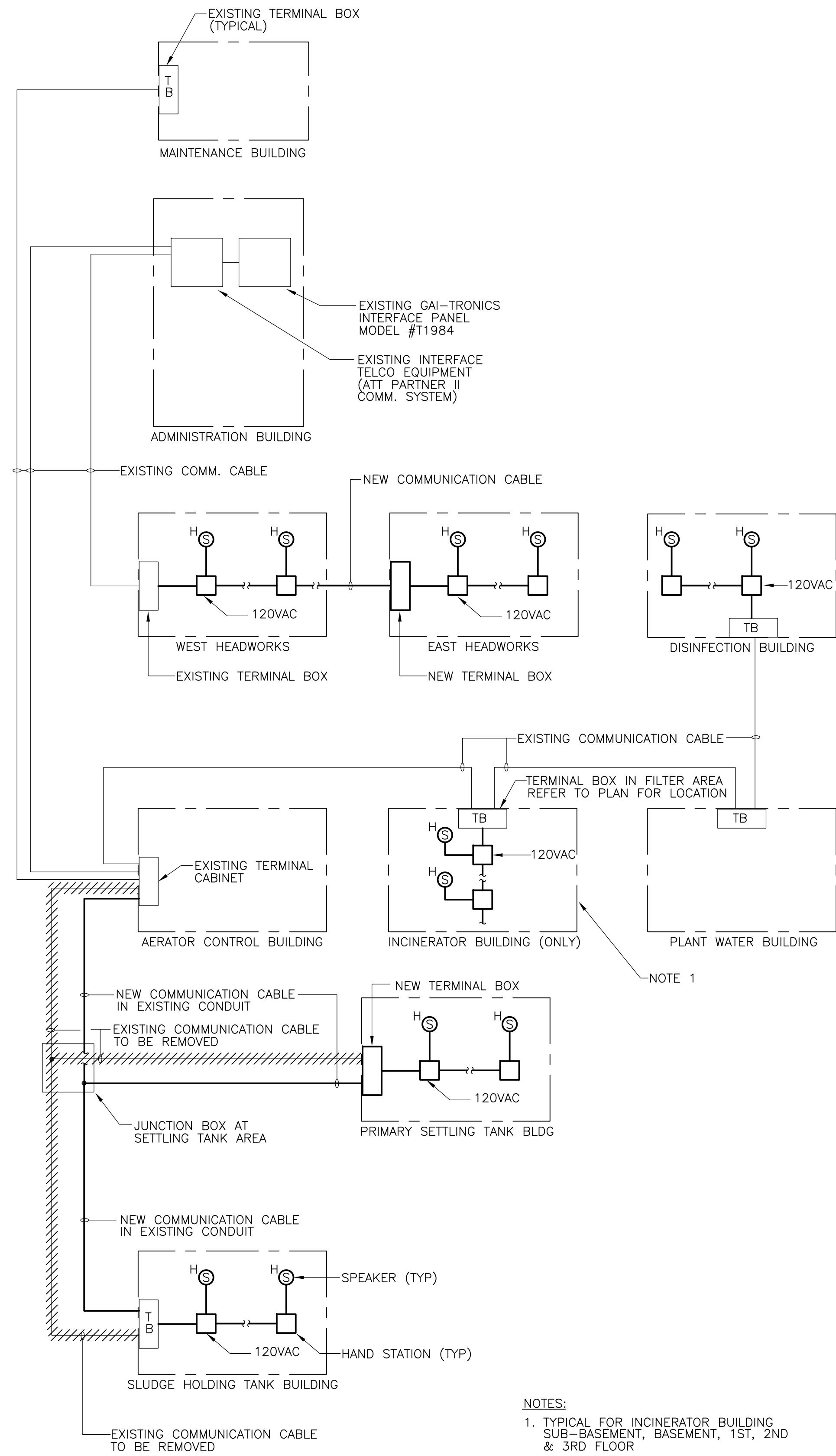
**FIRE ALARM  
 RISER DIAGRAMS**

**PROJECT NO.  
 1289\35370**

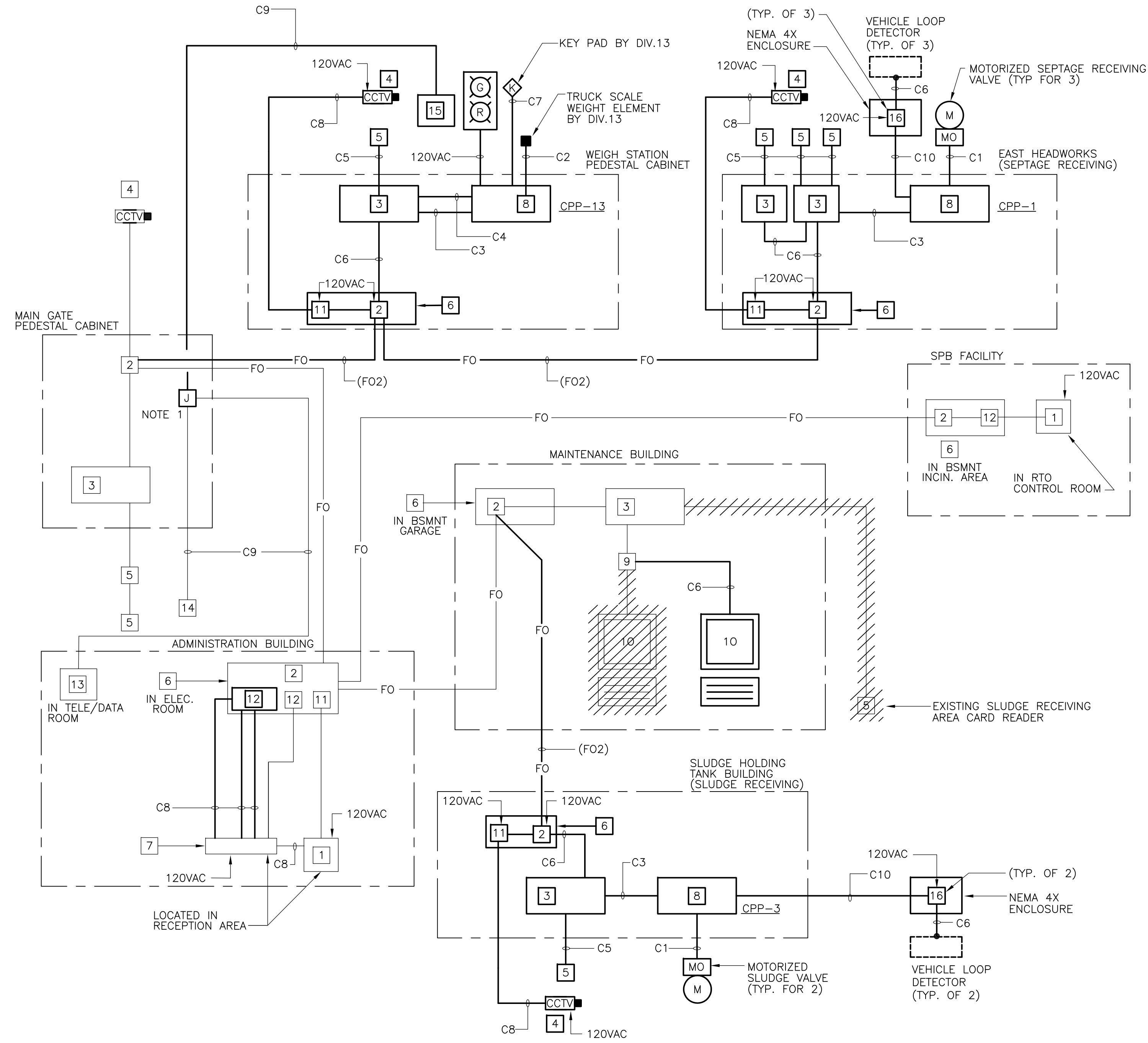
Sht. 335 of 386

**GD-E-31**





PAGE/PARTY SYSTEM RISER  
**DIAGRAM B**  
 NTS



CARD ACCESS & CCTV SYSTEM  
**DIAGRAM A**  
 NTS

**LEGEND:**

- 1 CCTV MONITOR
- 2 FIBER OPTIC CABLE INTERFACE PANEL (F/O TO RS485 CONVERTER)
- 3 CARD ACCESS CONTROLLER (KANTECH 200)
- 4 CCTV CAMERA AND HOUSING
- 5 CARD READER
- 6 EQUIPMENT RACK/PATCH PANEL
- 7 VIDEO MULTIPLEX/RECORDER
- 8 SCADA SYSTEM PLC
- 9 RS 485 TO RS 232 CONVERTER
- 10 PC WITH CARD ACCESS SOFTWARE
- 11 VIDEO TRANSMITTER
- 12 VIDEO RECEIVER
- 13 EXISTING TELEPHONE SYSTEM BACKBOARD AND EQUIPMENT
- 14 EXISTING SENTEX GATE ENTRY INTERCOM SYSTEM
- 15 NEW SENTEX WIEGH STATION INTERCOM SYSTEM
- 16 VEHICLE DETECTION LOOP CONTROLLER

FO FIBER OPTIC CABLE

- C1 3/4" C., 2#14, 1#14G DIGITAL CONTROL FOR VALVE OPEN/CLOSE
  - C2 3/4" C., 1-2/C#16T.S. ANALOG WEIGHT SIGNAL
  - C3 3/4" C., 2#14, 1#14G DIGITAL CONTROL ACCEPTABLE CARD
  - C4 3/4" C., 2#14, 1#14G DIGITAL CONTROL WEIGHT ACKNOWLEDGED
  - C5 3/4" C., 1-6/C#22T.S. ANALOG CARD ACCESS SIGNAL
  - C6 1" C., CABLE PER MANUFACTURER REQUIREMENT
  - C7 3/4" C., 1-6/C#22 T.S. ANALOG ACCESS TOWN CODE SIGNAL
  - C8 3/4" C., COAX CABLE FOR VIDEO
  - C9 3/4" C., 4 PAIR 22 GAUGE TELEPHONE COMMUNICATIONS CABLE
  - C10 3/4" C., 2#14, 1#14G VEHICLE PRESENCE DETECTED
- (FO2) FIBER OPTIC CABLE I.D. USED TO FACILITATE ROUTING IN UNDERGROUND DUCTBANKS.

**NOTES**

1. FURNISH AND INSTALL A NEW JUNCTION BOX IN EXISTING PEDESTAL CABINET AND SPLICE EXISTING PHONE LINE FOR EXTENSION TO NEW WIEGH STATION.
2. NOT ALL CONDUITS SHOWN ON THIS DRAWING ARE SHOWN ON PLAN DRAWINGS.
3. FOR REFERENCE ONLY. SEE MANUFACTURE'S SHOP DRAWINGS FOR MORE INFORMATION.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	01/07	SARV	ADJ	DRAWING FOR OTHER PROJECTS NOS. 1 THROUGH 8

CADD FILE NO. ERISR002.DWG
DESIGNED BY: JAR
DRAWN BY: OR
SHEET CHK'D BY: BDS
SCALE: AS NOTED
APPROVED BY: B. SQUIBB
DATE: MAY 2006

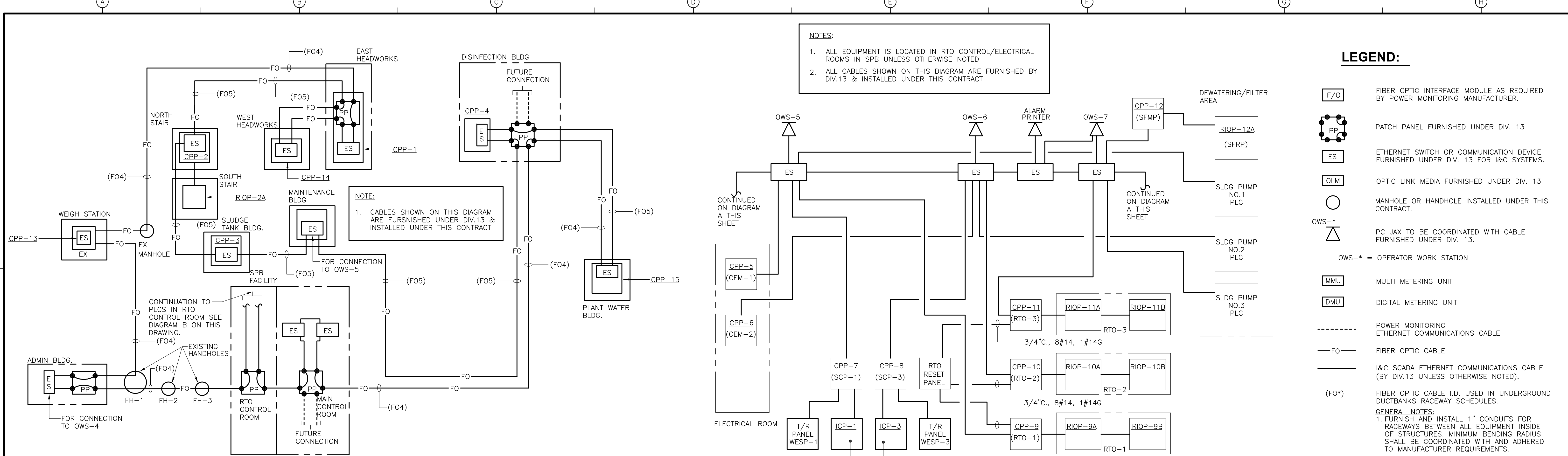

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

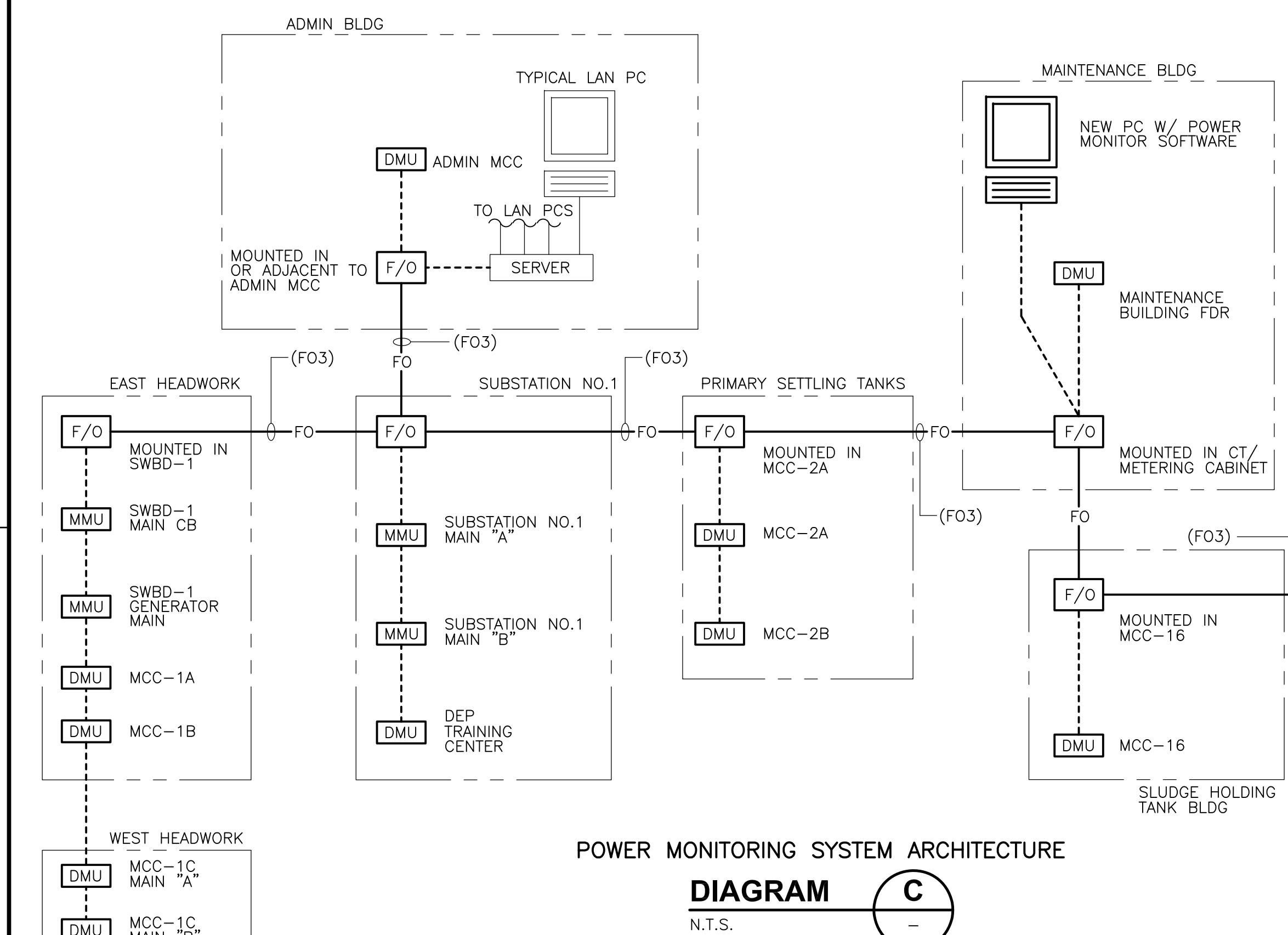
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**CCTV, CARD ACCESS & MISCELLANEOUS SYSTEM RISER DIAGRAMS**

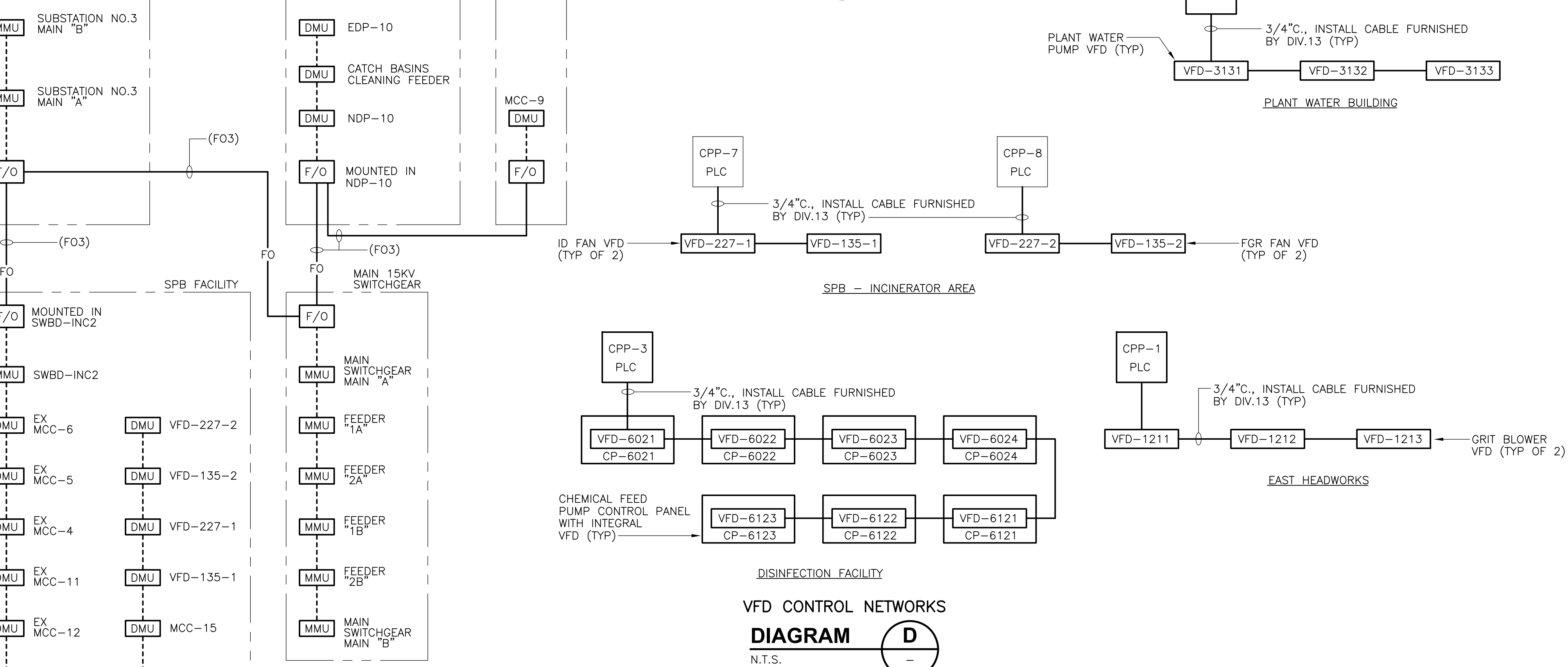
PROJECT NO. 1289\35370  
 Sht. 336 of 386  
**GD-E-32**



**OVERALL I&C SYSTEM ARCHITECTURE**  
**BLOCK DIAGRAM A**  
 N.T.S.



**POWER MONITORING SYSTEM ARCHITECTURE**  
**DIAGRAM C**  
 N.T.S.



**VFD CONTROL NETWORKS**  
**DIAGRAM D**  
 N.T.S.

**NOTES:**  
 1. ALL EQUIPMENT IS LOCATED IN RTO CONTROL/ELECTRICAL ROOMS IN SPB UNLESS OTHERWISE NOTED  
 2. ALL CABLES SHOWN ON THIS DIAGRAM ARE FURNISHED BY DIV.13 & INSTALLED UNDER THIS CONTRACT

- LEGEND:**
- [F/O] FIBER OPTIC INTERFACE MODULE AS REQUIRED BY POWER MONITORING MANUFACTURER.
  - [PP] PATCH PANEL FURNISHED UNDER DIV. 13
  - [ES] ETHERNET SWITCH OR COMMUNICATION DEVICE FURNISHED UNDER DIV. 13 FOR I&C SYSTEMS.
  - [OLM] OPTIC LINK MEDIA FURNISHED UNDER DIV. 13
  - [MANHOLE] MANHOLE OR HANDHOLE INSTALLED UNDER THIS CONTRACT.
  - [OWS-\*] PC JAX TO BE COORDINATED WITH CABLE FURNISHED UNDER DIV. 13.  
 OWS-\* = OPERATOR WORK STATION
  - [MMU] MULTI METERING UNIT
  - [DMU] DIGITAL METERING UNIT
  - POWER MONITORING ETHERNET COMMUNICATIONS CABLE
  - FO— FIBER OPTIC CABLE
  - (FO\*) FIBER OPTIC CABLE I.D. USED IN UNDERGROUND DUCTBANKS RACEWAY SCHEDULES.
- GENERAL NOTES:**  
 1. FURNISH AND INSTALL 1" CONDUITS FOR RACEWAYS BETWEEN ALL EQUIPMENT INSIDE OF STRUCTURES. MINIMUM BENDING RADIUS SHALL BE COORDINATED WITH AND ADHERED TO MANUFACTURER REQUIREMENTS.  
 2. NOT ALL RACEWAYS ARE SHOWN ON PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE RISER DIAGRAMS WITH EQUIPMENT LOCATIONS TO INSTALL A COMPLETE RACEWAY AND CABLING SYSTEM.

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

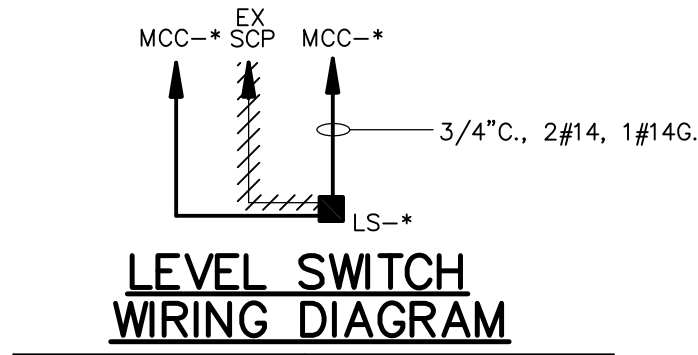
CADD FILE NO.	ESADH001.DWG
DESIGNED BY:	JAR
DRAWN BY:	DDC
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

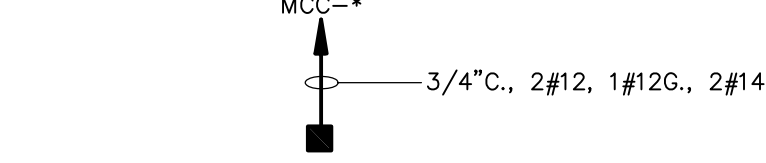
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**INSTRUMENTATION SYSTEM ARCHITECTURE & DATA HIGHWAY BLOCK DIAGRAMS**  
 PROJECT NO. 1289\35370  
 Sht. 337 of 386  
**GD-E-33**

RECORD DRAWING

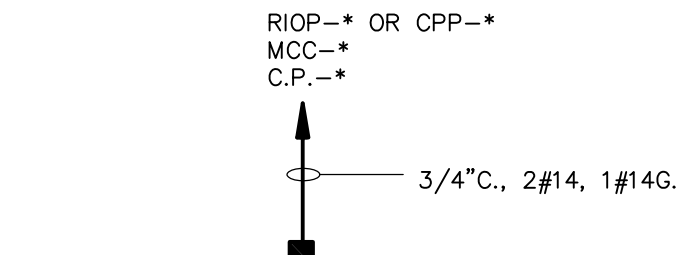


EQUIPMENT ID	MCC#
LSSL-203-1	MCC-11 & MCC-14
LSSL-203-3	MCC-13 & MCC-15



**ZERO SPEED SWITCH WIRING DIAGRAM**

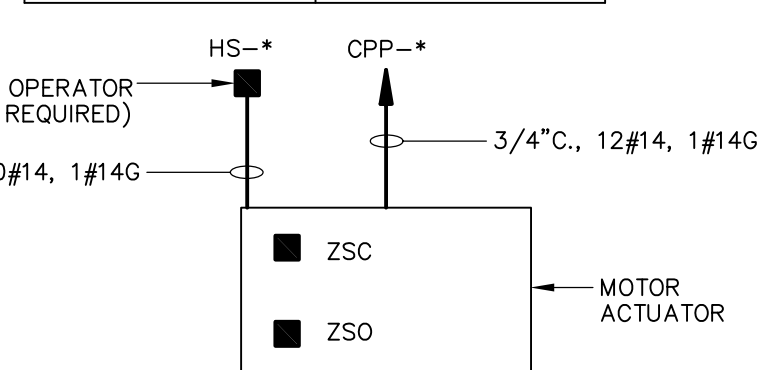
EQUIPMENT ID	CPP OR IO CAB.
SSL-1090	MCC-1A
SSL-1150	MCC-1B
SSL-1380	MCC-1C
SSL-1450	MCC-1C
SSL-1080	MCC-1A
SSL-1613	MCC-2B
SSL-1623	MCC-2B
SSL-1633	MCC-2B
SSL-1643	MCC-2A
SSL-1653	MCC-2A
SSL-1663	MCC-2A
SSL-1673	MCC-2A



**SOLENOID VALVE WIRING DIAGRAM**

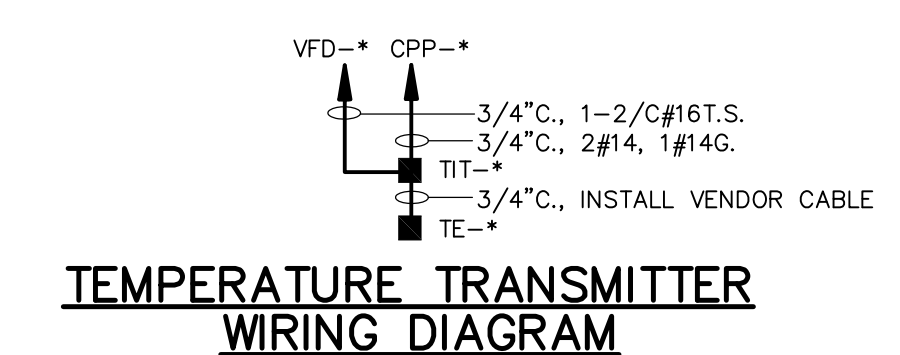
EQUIPMENT ID	CPP OR MCC
SV-1411	MCC-1C
SV-1412	MCC-1C
SV-1111	MCC-1A
SV-1112	MCC-1B
SV-1080	MCC-1A
SV-1086	SCREENING WASH PRESS CONTROL PANEL
SV-1087	SCREENING WASH PRESS CONTROL PANEL
SV-1380	MCC-1C
SV-1386	SCREENING WASH PRESS CONTROL PANEL
SV-1387	SCREENING WASH PRESS CONTROL PANEL

EQUIPMENT ID	CPP OR MCC
SV-6031	CPP-4
SV-6032	CPP-4
SV-6033	CPP-4
SV-6131	CPP-4
SV-6132	CPP-4
SV-1150	MCC-1B
SV-1450	MCC-1C
SV-1730	MCC-2B
SV-116-1	ICP-1
SV-116-3	ICP-3
SV-360-1	ICP-1
SV-360-2	ICP-3
SV-230-1	ICP-1
SV-231-1	ICP-1
SV-230-3	ICP-3
SV-231-3	ICP-3
SV-215A	MCC-11
SV-215B	MCC-11
SV-215C	MCC-13
SV-241-1	MCC-14
SV-242-1	MCC-14
SV-242-3	MCC-15
SV-241-3	MCC-15
SV-216A	MCC-12
SV-216B	MCC-12
SV-1922	CPP-4
SV-7025	CPP-1

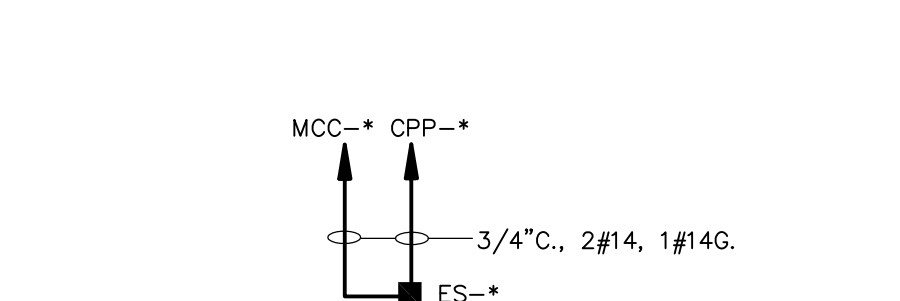


**ELECTRIC DAMPER MOTOR WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
DM-7101	CPP-3
DM-7102	CPP-3
DM-7001	CPP-1
DM-7002	CPP-1

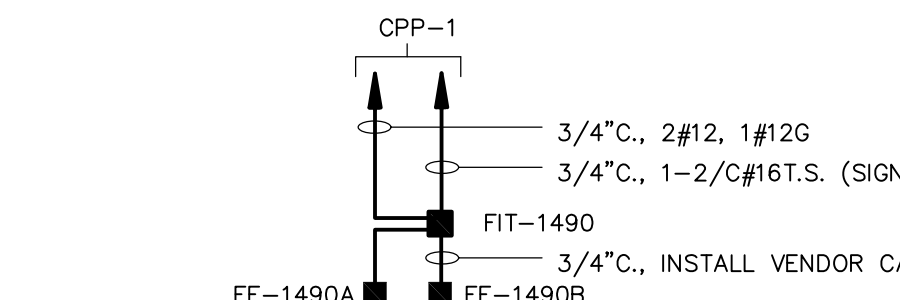


EQUIPMENT ID	CPP OR IO CAB.	VFD
TE/TIT-135-1A	CPP-7	VFD-135-1
TE/TIT-135-1B	CPP-7	VFD-135-1
TE/TIT-135-3A	CPP-8	VFD-135-3
TE/TIT-135-3B	CPP-8	VFD-135-3

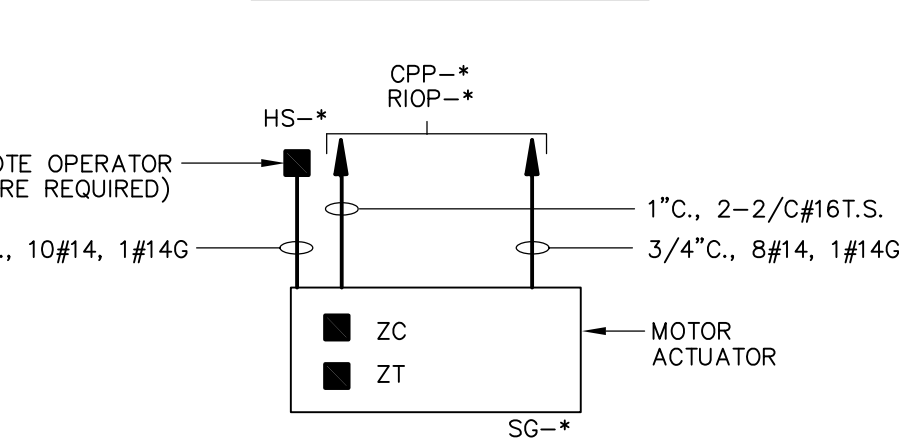


**EMERGENCY PULL CORD WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
ES-1080	CPP-1
ES-1090	CPP-1
ES-1150	CPP-1
ES-1380	CPP-14
ES-1450	CPP-14

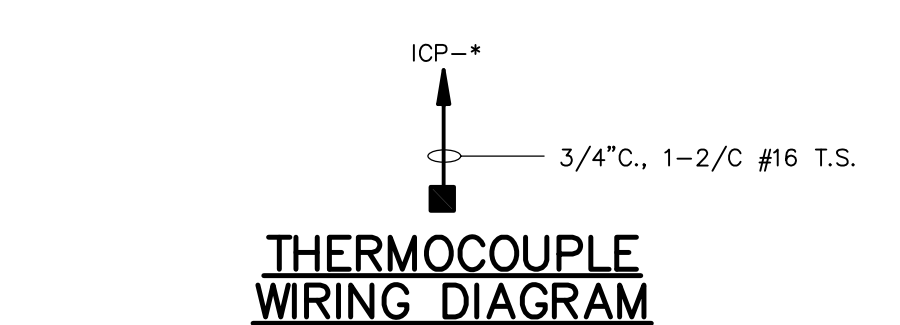


**FLOW TRANSMITTER (LOOP 1490) WIRING DIAGRAM**



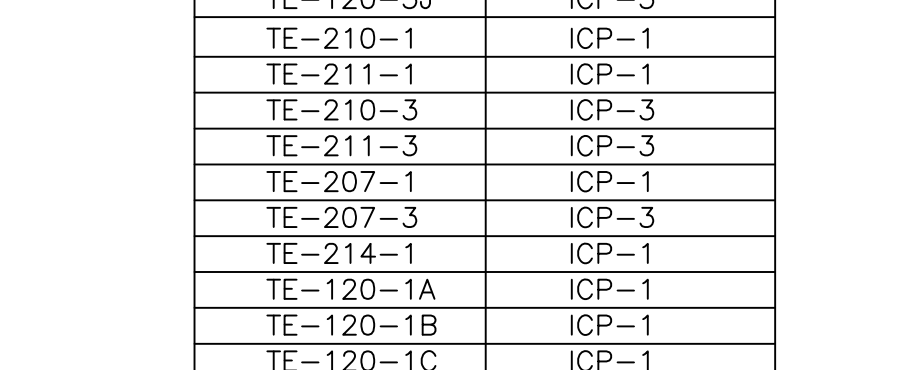
**MODULATING SLUICE/SIDE GATE WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
SLG-1910	CPP-2
SLG-1301	CPP-14



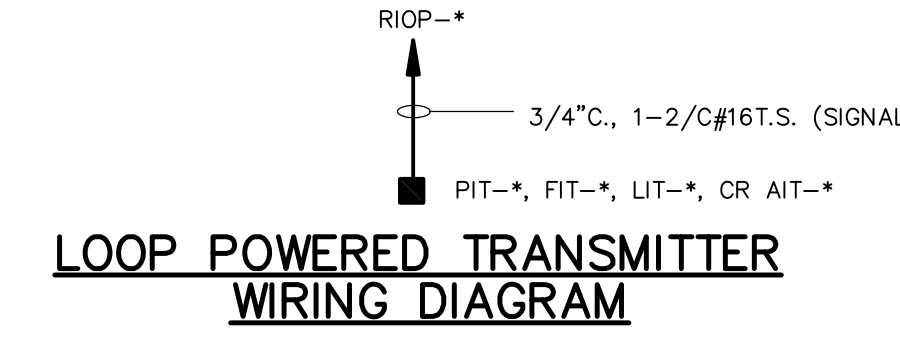
**THERMOCOUPLE WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
TE-120-1N	ICP-1
TE-120-1P	ICP-1
TE-120-1G	ICP-1
TE-120-1H	ICP-1
TE-120-1I	ICP-1
TE-120-1J	ICP-1
TE-120-3N	ICP-3
TE-120-3P	ICP-3
TE-120-3G	ICP-3
TE-120-3H	ICP-3
TE-120-3I	ICP-3
TE-120-3J	ICP-3
TE-210-1	ICP-1
TE-211-1	ICP-1
TE-210-3	ICP-3
TE-211-3	ICP-3
TE-207-1	ICP-1
TE-207-3	ICP-3
TE-214-1	ICP-1
TE-120-1A	ICP-1
TE-120-1B	ICP-1
TE-120-1C	ICP-1
TE-120-1D	ICP-1
TE-120-1E	ICP-1
TE-120-1F	ICP-1
TE-120-1S	ICP-1
TE-120-3A	ICP-3
TE-120-3B	ICP-3
TE-120-3C	ICP-3
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TE-120-3E	ICP-3
TE-120-3F	ICP-3
TE-120-3S	ICP-3

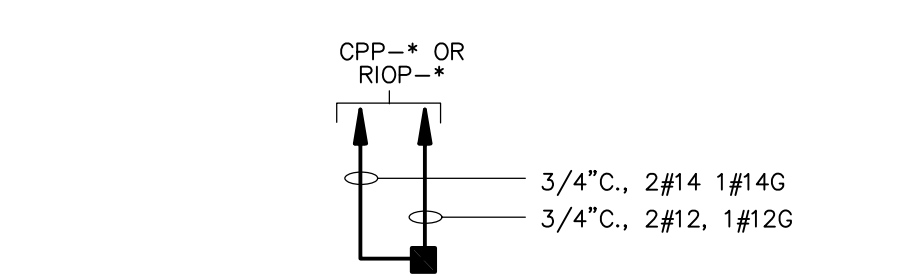


**SLUICE/SIDE GATE WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
SG-1900	CPP-2
SG-1031	CPP-1
SG-1032	CPP-1
SLG-1102	CPP-1
SLG-1101	CPP-1
TE-120-3B	ICP-3
TE-120-3C	ICP-3
TE-120-3D	ICP-3
TE-120-3E	ICP-3
TE-120-3F	ICP-3
TE-120-3S	ICP-3

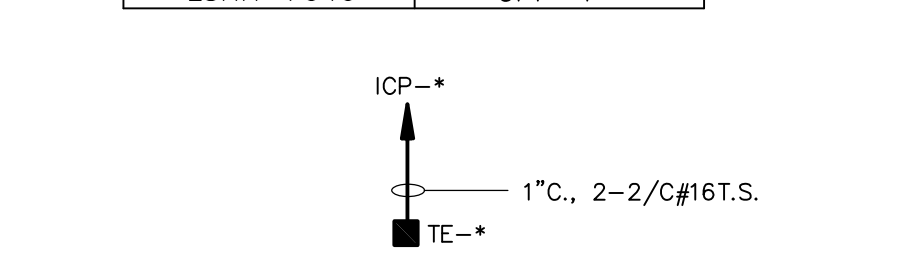


EQUIPMENT ID	CPP OR IO CAB.
DPIT-7111	CPP-3
DPIT-7112	CPP-3
PIT-1721	RIOP-2A
PIT-3140	CPP-15
FE/FIT-204-2	CPP-7
LIT-203-2	CPP-7
AIT-204B-2	CPP-7
AIT-204A-2	CPP-7
PIT-482-1	RIOP-9A
PIT-482-2	RIOP-10A



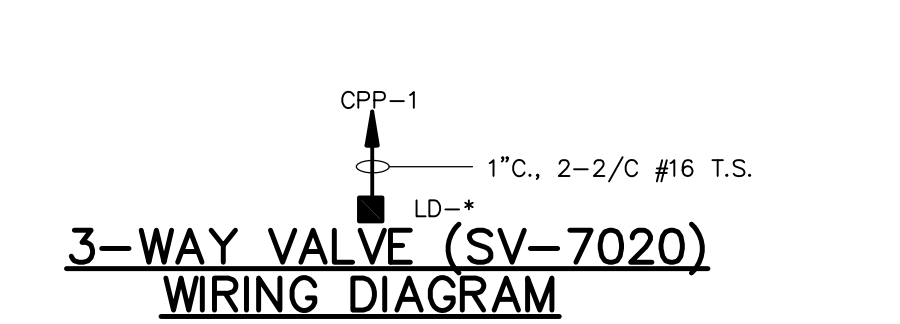
**LEVEL SWITCH WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
LSHH-1341	CPP-14
LSHH-1342	CPP-14
LSH-1411	CPP-14
LSH-1412	CPP-14
LSHH-1041	CPP-1
LSHH-1042	CPP-1
LSH-6040	CPP-4
LSH-6140	CPP-4
LSSL-7030	CPP-1
LSSL-7030	CPP-1
LSSL-7040	CPP-1
LSH-7040	CPP-1
LSHH-7040	CPP-1

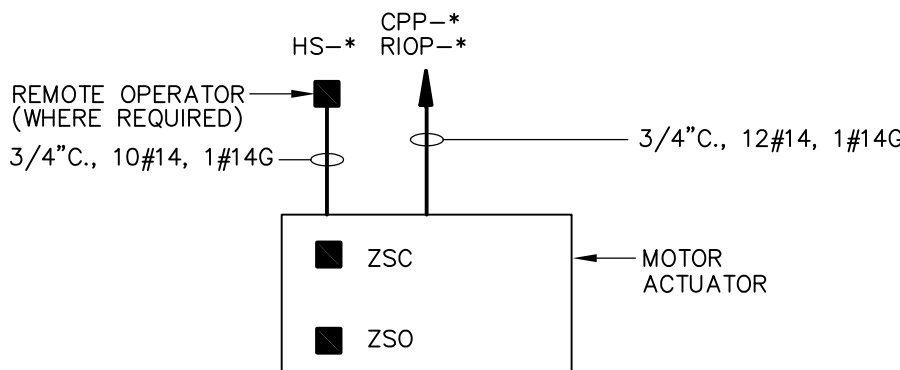


**DUAL THERMOCOUPLE WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
TE-120-1K	ICP-1
TE-120-1L	ICP-1
TE-120-1M	ICP-1
TE-120-1Q	ICP-1
TE-120-1R	ICP-1
TE-120-3K	ICP-3
TE-120-3L	ICP-3
TE-120-3M	ICP-3
TE-120-3Q	ICP-3
TE-120-3R	ICP-3

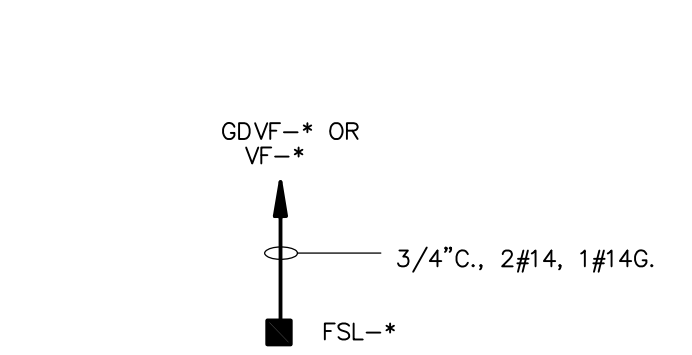


**3-WAY VALVE (SV-7020) WIRING DIAGRAM**



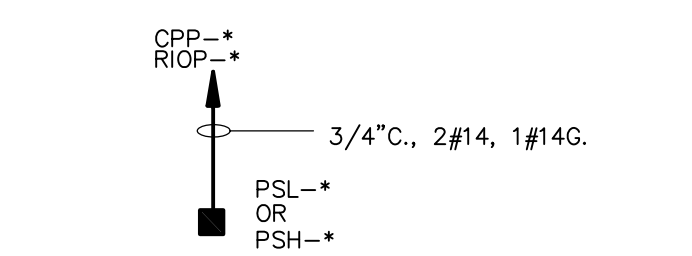
**SLUICE/SIDE GATE WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
SG-1900	CPP-2
SG-1031	CPP-1
SG-1032	CPP-1
SLG-1102	CPP-1
SLG-1101	CPP-1
TE-120-3B	ICP-3
TE-120-3C	ICP-3
TE-120-3D	ICP-3
TE-120-3E	ICP-3
TE-120-3F	ICP-3
TE-120-3S	ICP-3



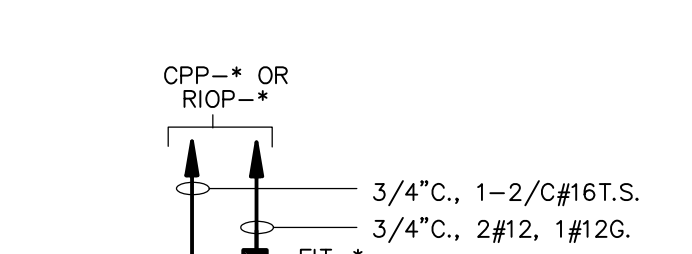
**FLOW SWITCH WIRING DIAGRAM**

EQUIPMENT ID	ALARM PANEL
FSL-1191	GDFV-HWW
FSL-1592	GDFV-HWE
FSL-1686	VF-PT
FSL-4191	VF-ST



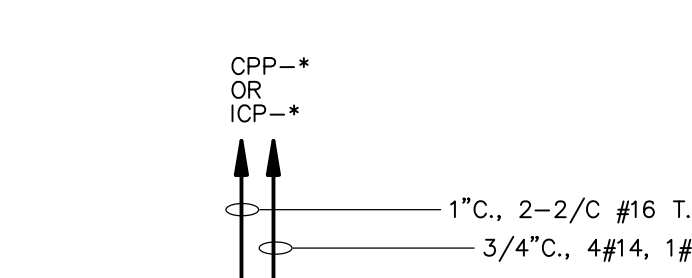
**PRESSURE SWITCH WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
PSL-1511	RIOP-2A
PSH-1511	RIOP-2A
PSL-1512	RIOP-2A
PSH-1512	RIOP-2A
PSL-1211	CPP-1
PSL-1212	CPP-1
PSH-1211	CPP-1
PSH-1212	CPP-1
PSH-1213	CPP-1
PSL-319-1	ICP-1
PSL-319-3	ICP-3
PSL-324-1	ICP-1



**FLOW TRANSMITTER WIRING DIAGRAM**

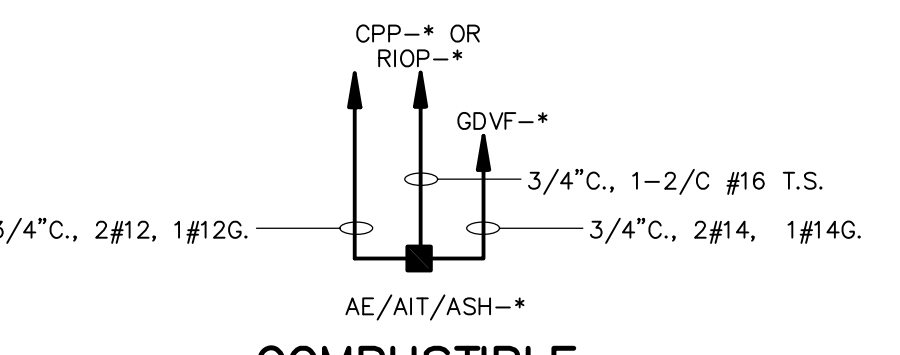
EQUIPMENT ID	CPP OR IO CAB.
FE/FIT-1910	CPP-2
FE/FIT-1720	RIOP-2A
FE/FIT-1121	CPP-1
FE/FIT-1122	CPP-1
FE/FIT-1421	CPP-1
FE/FIT-1422	CPP-1
FIT-106	CPP-15
FE/FIT-219	CPP-7
FE/FIT-220	CPP-8
FE/FIT-213-3	ICP-3
FE/FIT-204-2	CPP-7



**PNEUMATIC ACTUATOR WIRING DIAGRAM**

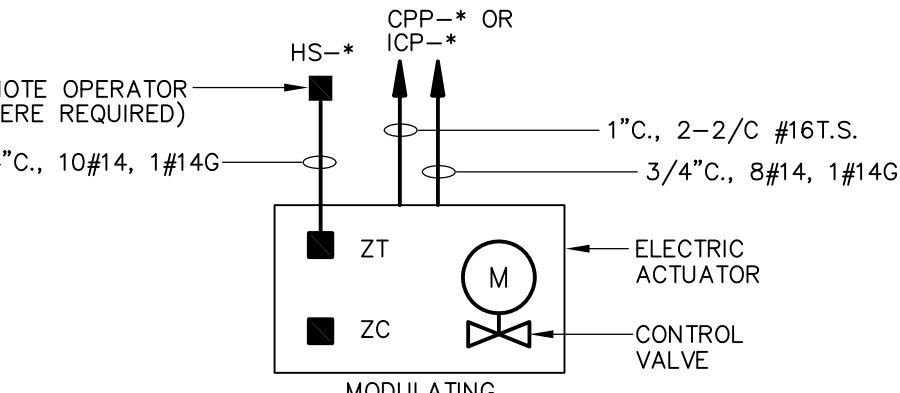
EQUIPMENT ID	CPP OR IO CAB.
CV-115-1	ICP-1
CV-115-3	ICP-3
CV-110-1A	ICP-1
CV-111-1A	ICP-1
CV-112-1A	ICP-1
CV-110-3A	ICP-3
CV-111-3A	ICP-3
CV-112-3A	ICP-3
CV-110-3B	ICP-3
CV-111-3B	ICP-3
CV-112-3B	ICP-3
CV-210-1	ICP-1
FCV-213-1	ICP-1
LCV-203-1	ICP-1
CV-210-3	ICP-3
FCV-213-3	ICP-3
LCV-203-3	ICP-3
FCV-213-1	ICP-1
LCV-203-2	ICP-1

EQUIPMENT ID	CPP OR IO CAB.
LE/LIT-1351A	CPP-14
LE/LIT-1351B	CPP-14
LE/LIT-1352A	CPP-14
LE/LIT-1352B	CPP-14
LE/LIT-1051A	CPP-1
LE/LIT-1051B	CPP-1
LE/LIT-1052A	CPP-1
LE/LIT-1052B	CPP-1
LE/LIT-1820	CPP-2
LE/LIT-1810	RIOP-2A
LE/LIT-4041	CPP-3
LE/LIT-4042	CPP-3
LE/LIT-6011	CPP-4
LE/LIT-6012	CPP-4
LE/LIT-6013	CPP-4
LE/LIT-6111	CPP-4
LE/LIT-6112	CPP-4
LE/LIT-1618	RIOP-2A
LE/LIT-1628	RIOP-2A
LE/LIT-1638	RIOP-2A
LE/LIT-1648	CPP-2
LE/LIT-1658	CPP-2
LE/LIT-1668	CPP-2
LE/LIT-1692	CPP-2
LE/LIT-1691	RIOP-2A
LE/LIT-1678	CPP-2
LE/LIT-1693	CPP-2
LE/LIT-4121	CPP-3
LE/LIT-4122	CPP-3
LIT-203-2	CPP-7



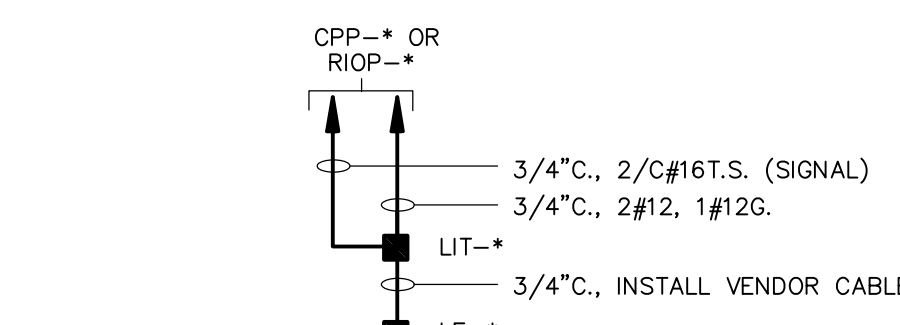
**COMBUSTIBLE GAS DETECTOR WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.	ALARM PANEL
AE/AIT/ASH-1580	CPP-14	GDFV-HWW
AE/AIT/ASH-1582	CPP-14	GDFV-HWW
AE/AIT/ASH-1581	CPP-14	GDFV-HWW
AE/AIT/ASH-1583	CPP-14	GDFV-HWW
AE/AIT/ASH-1186	CPP-1	NA
AE/AIT/ASH-1187	CPP-1	NA
AE/AIT/ASH-1182	CPP-1	GDFV-HWE
AE/AIT/ASH-1181	CPP-1	GDFV-HWE
AE/AIT/ASH-1183	CPP-1	GDFV-HWE
AE/AIT/ASH-1180	CPP-1	GDFV-HWE
AE/AIT/ASH-1184	CPP-1	GDFV-HWE
AE/AIT/ASH-1185	CPP-1	GDFV-HWE
AE/AIT/ASH-1871	RIOP-2A	NA
AE/AIT/ASH-1872	RIOP-2A	NA
AE/AIT/ASH-1873	CPP-2	NA
AE/AIT/ASH-1874	CPP-2	NA
AE/AIT/ASH-1681	RIOP-2A	NA
AE/AIT/ASH-1682	RIOP-2A	NA
AE/AIT/ASH-1683	CPP-2	NA
AE/AIT/ASH-1684	CPP-2	NA
AE/AIT/ASH-4181	CPP-3	NA
AE/AIT/ASH-4182	CPP-3	NA
AE/AIT/ASH-4183	CPP-3	NA
AE/AIT/ASH-4184	CPP-3	NA
AE/AIT/ASH-1586	CPP-14	NA
AE/AIT/ASH-1588	CPP-14	NA
AE/AIT/ASH-1188	CPP-1	NA
AE/AIT/ASH-1189	CPP-1	NA
AE/AIT/ASH-1584	CPP-14	GDFV-HWW
AE/AIT/ASH-1585	CPP-14	GDFV-HWW
AE/AIT/ASH-1587	CPP-14	NA
AE/AIT/ASH-1589	CPP-14	NA



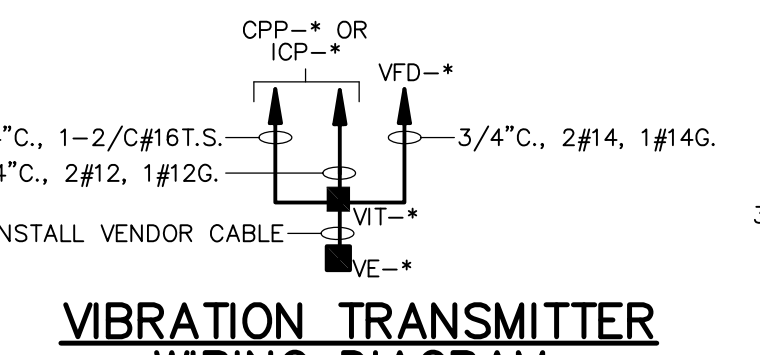
**ELECTRIC ACTUATOR WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
CV-113-1	ICP-1
CV-113-3	ICP-3



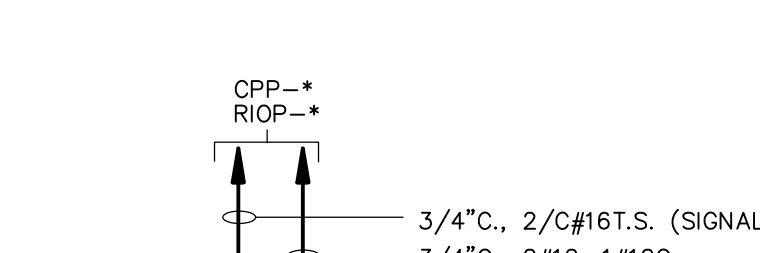
**LEVEL TRANSMITTER WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
CV-1841	CPP-2
CV-1842	CPP-2
CV-1831	RIOP-2A
CV-1832	RIOP-2A
CV-4031	CPP-3
CV-4032	CPP-3
CV-1843	CPP-2
CV-1844	CPP-2
CV-1833	RIOP-2A
CV-1834	RIOP-2A
CV-1011	CPP-1
CV-1012	CPP-1
CV-1013	CPP-1
CV-365-1	ICP-1
CV-365-2	ICP-3



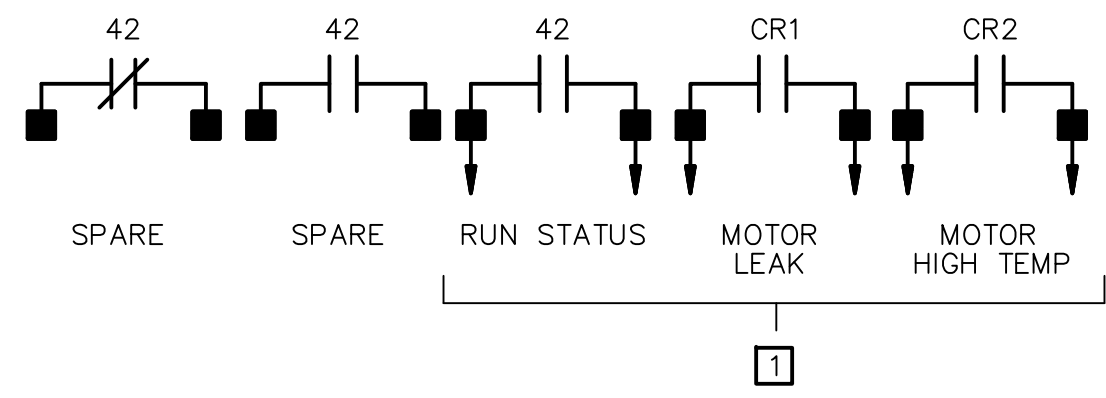
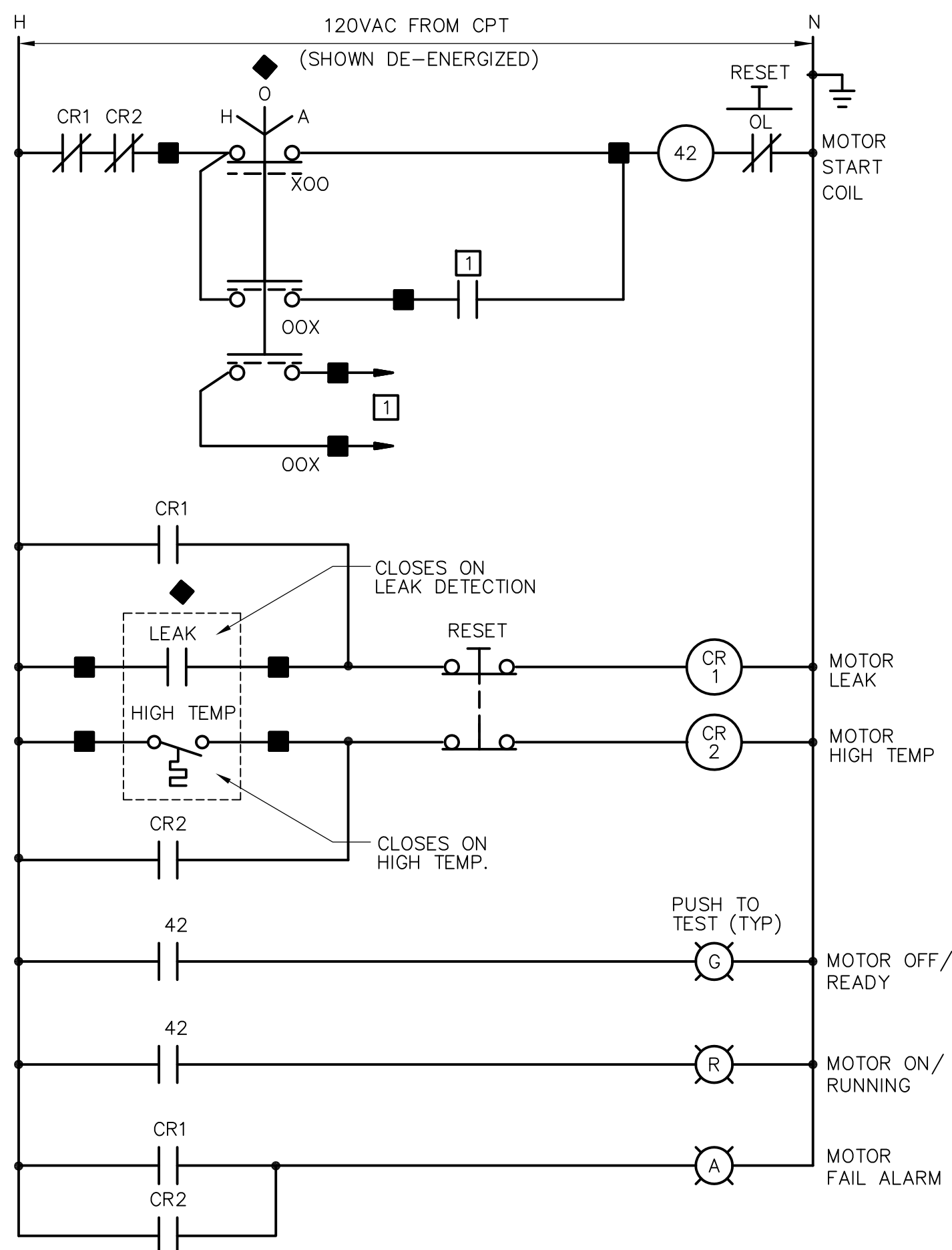
**VIBRATION TRANSMITTER WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.	VFD
VE/VIT-135-1A	CPP-7	VFD-135-1
VE/VIT-135-1B	CPP-7	VFD-135-1
VE/VIT-135-3A	CPP-8	VFD-135-3
VE/VIT-135-3B	CPP-8	VFD-135-3



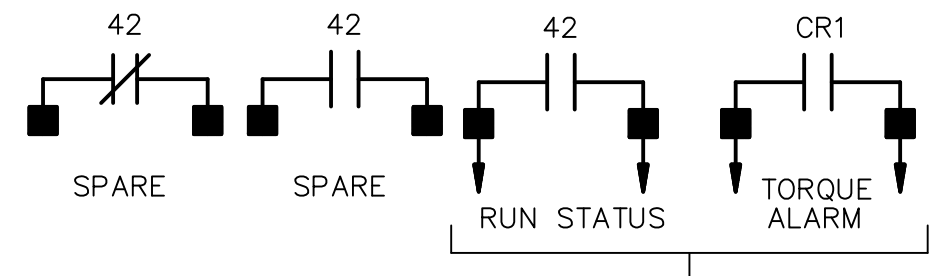
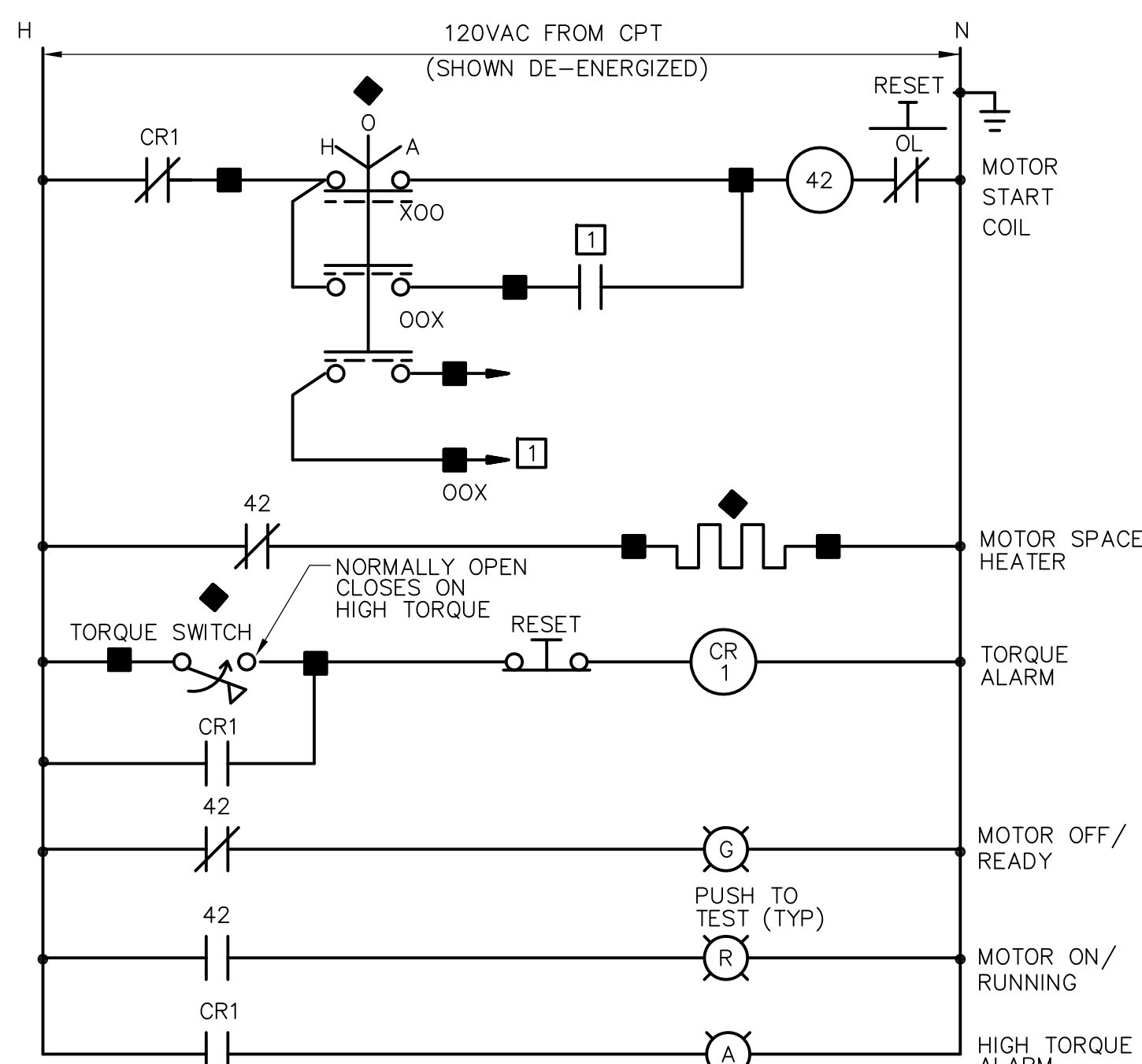
**ANALYZER TRANSMITTER WIRING DIAGRAM**

EQUIPMENT ID	CPP OR IO CAB.
AE/A	



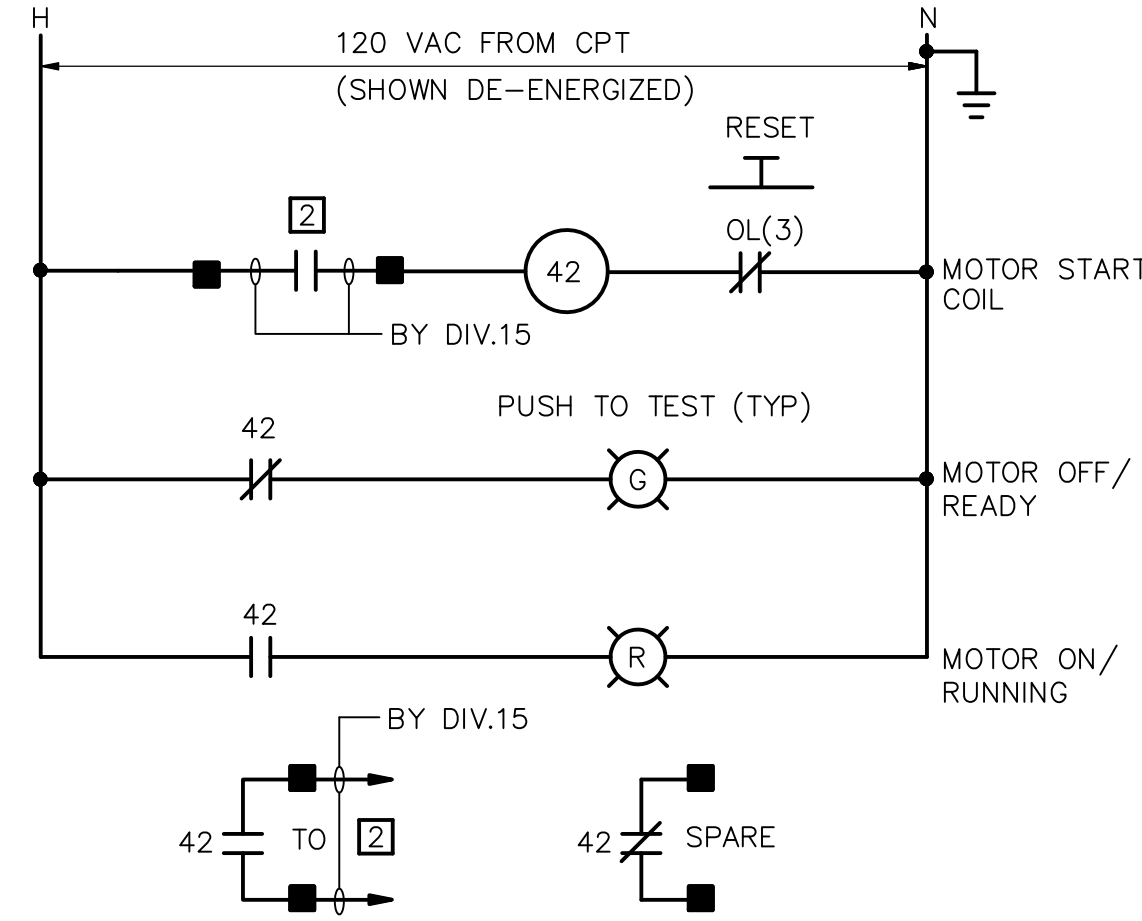
**SUBMERSIBLE SCUM PUMP  
CONTROL WIRING DIAGRAM**

SCUM PUMP OR SCUM MIXER ID NO.	POWER SOURCE MCC-	PROCESS CONTROL PANEL
SCP-1811	MCC-2B	RIOP-2A
SCP-1812	MCC-2B	RIOP-2A
SCP-1821	MCC-2A	CPP-2
SCP-1822	MCC-2A	CPP-2



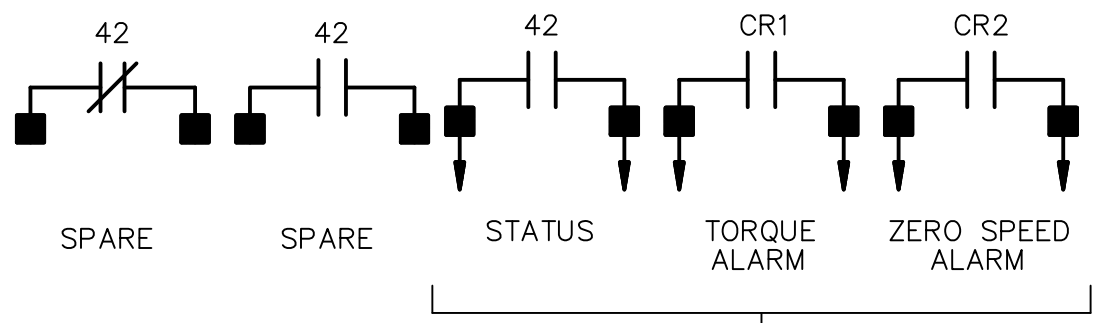
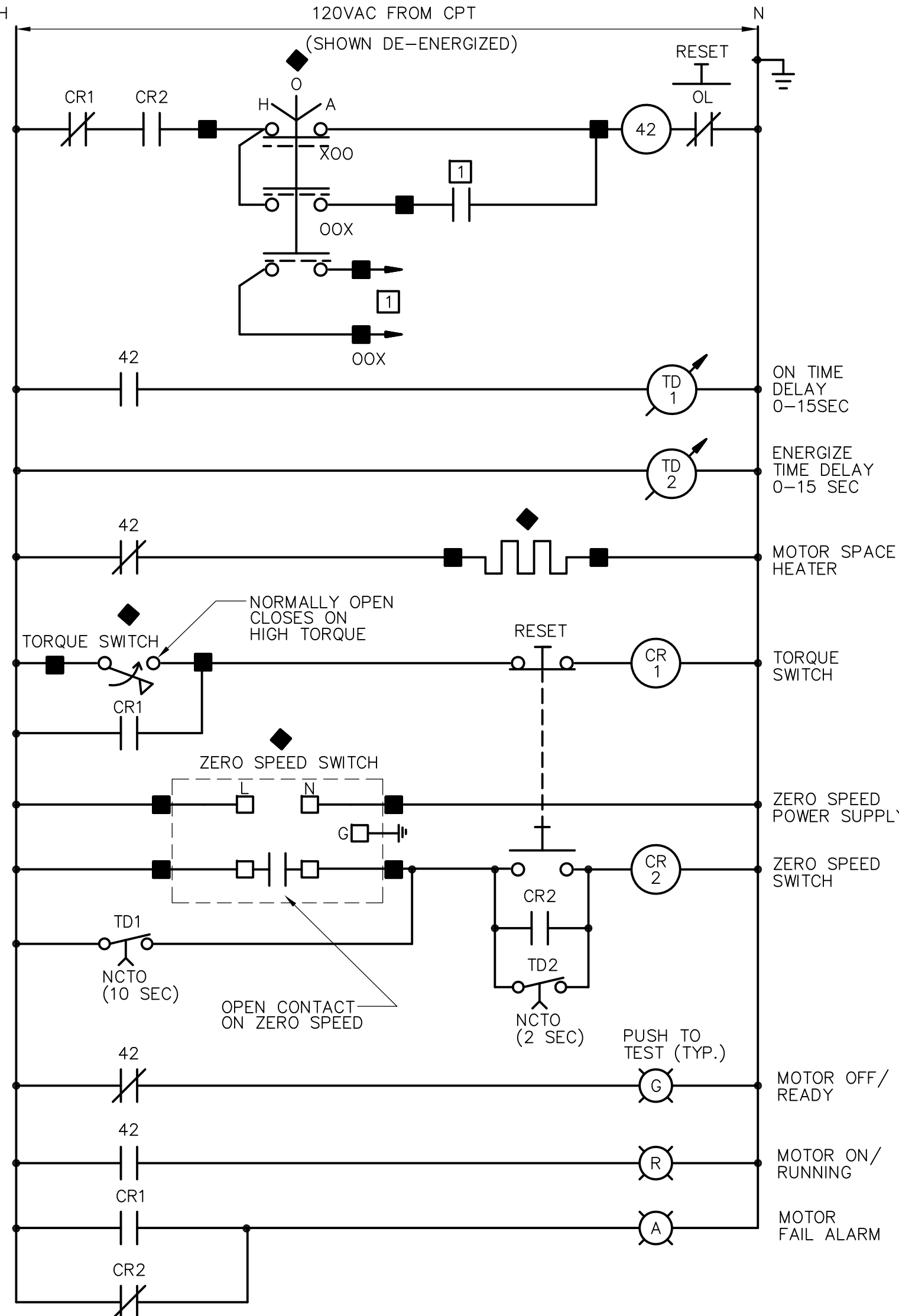
**PRIMARY SLUDGE COLLECTOR DRIVE SYSTEM  
CONTROL WIRING DIAGRAM**

PRIMARY SLUDGE COLLECTOR DRIVE IDENTIFICATION NO.	POWER SOURCE MCC-	PROCESS CONTROL PANEL
PSC-1614A	MCC-2B	RIOP-2A
PSC-1614B	MCC-2B	RIOP-2A
PSC-1624A	MCC-2B	RIOP-2A
PSC-1624A	MCC-2B	RIOP-2A
PSC-1624B	MCC-2B	RIOP-2A
PSC-1634A	MCC-2B	RIOP-2A
PSC-1634B	MCC-2B	RIOP-2A
PSC-1644A	MCC-2A	CPP-2
PSC-1644B	MCC-2A	CPP-2
PSC-1654A	MCC-2A	CPP-2
PSC-1654B	MCC-2A	CPP-2
PSC-1664A	MCC-2A	CPP-2
PSC-1664B	MCC-2A	CPP-2
PSC-1674A	MCC-2A	CPP-2
PSC-1674B	MCC-2A	CPP-2



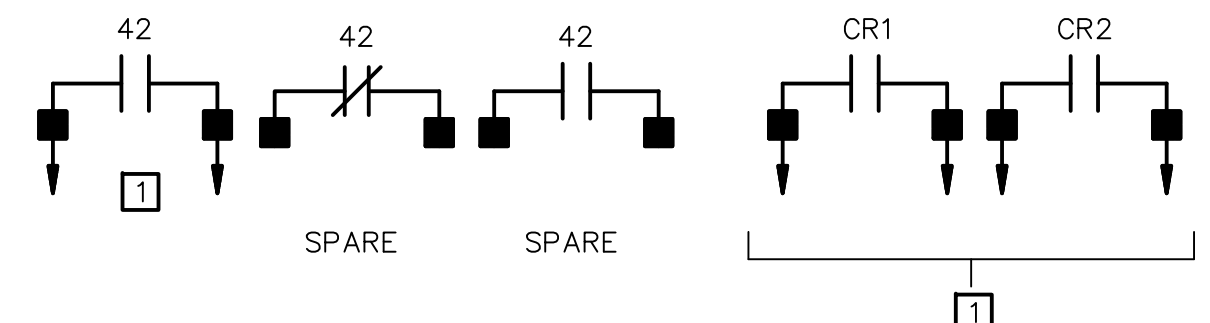
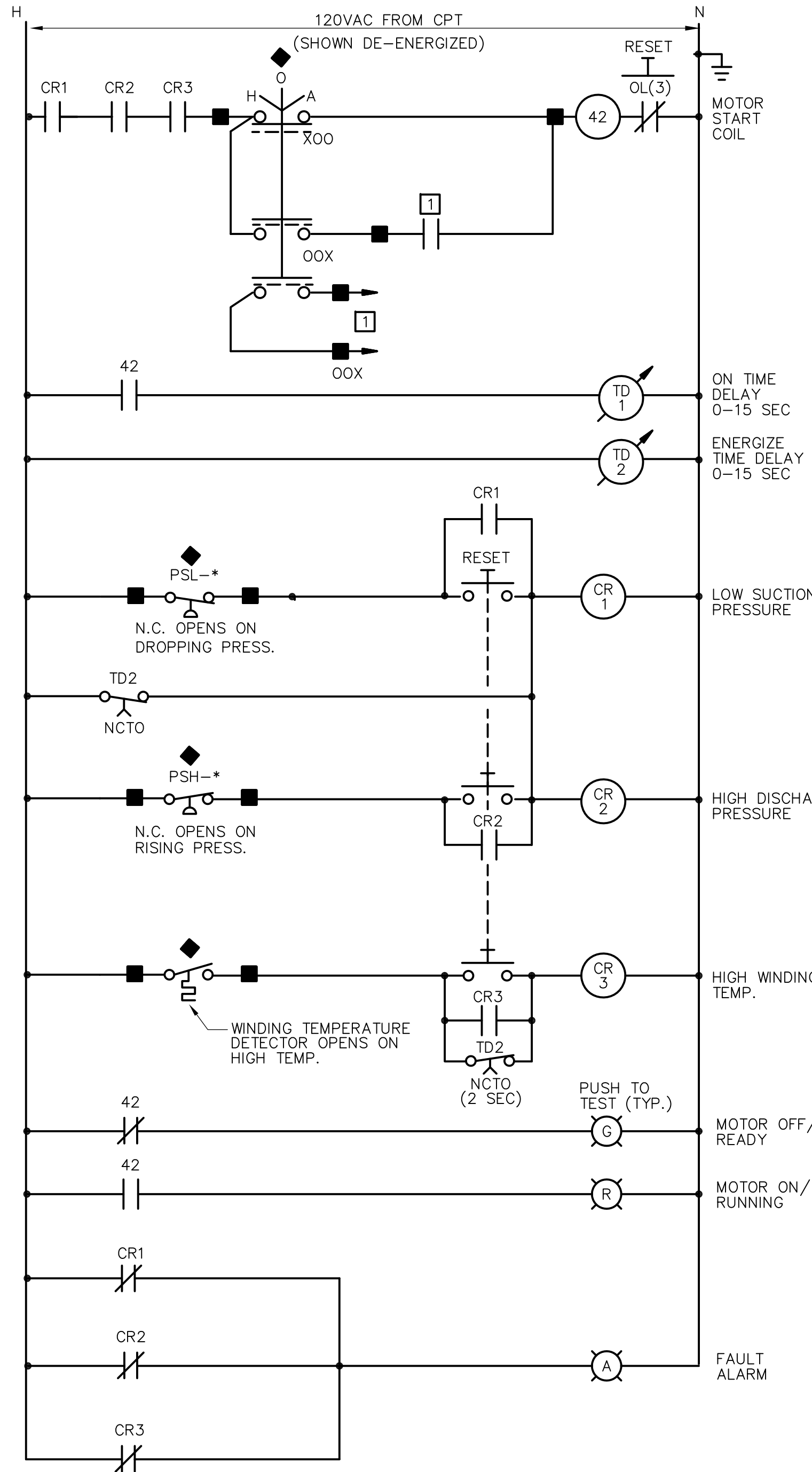
**480VAC & 208VAC HVAC MOTOR  
CONTROL WIRING DIAGRAM**

TYPICAL FOR ALL HVAC (DIV. 15) MOTORS NOT OTHERWISE INDICATED IN A DIAGRAM



**CROSS COLLECTOR DRIVE  
CONTROL WIRING DIAGRAM**

CROSS COLLECTOR DRIVE UNIT ID NO.	POWER SOURCE MCC-	PROCESS CONTROL CABINET
SC-1613	MCC-2B	RIOP-2A
SC-1623	MCC-2B	RIOP-2A
SC-1633	MCC-2B	RIOP-2A
SC-1643	MCC-2A	CPP-2
SC-1653	MCC-2A	CPP-2
SC-1663	MCC-2A	CPP-2
SC-1673	MCC-2A	CPP-2



**INFLUENT CHANNEL BLOWERS  
CONTROL WIRING DIAGRAM**

SCUM PUMP OR SCUM MIXER ID NO.	POWER SOURCE MCC-	PROCESS CONTROL PANEL
CB-1511	MCC-2A	CPP-2
CB-1512	MCC-2A	CPP-2

- NOTES:**
- REFER TO GD-E-36 FOR CONTROL WIRING DIAGRAM NOTES AND LEGEND INFORMATION
  - REFER TO CP DRAWINGS FOR TYPE AND QUANTITY OF CONTROL DEVICE POINTS.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. <u>ESCHM001.DWG</u>
DESIGNED BY: <u>JAR</u>
DRAWN BY: <u>OS</u>
SHEET CHK'D BY: <u>BDS</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>B. SQUIBB</u>
DATE: <u>MAY 2006</u>

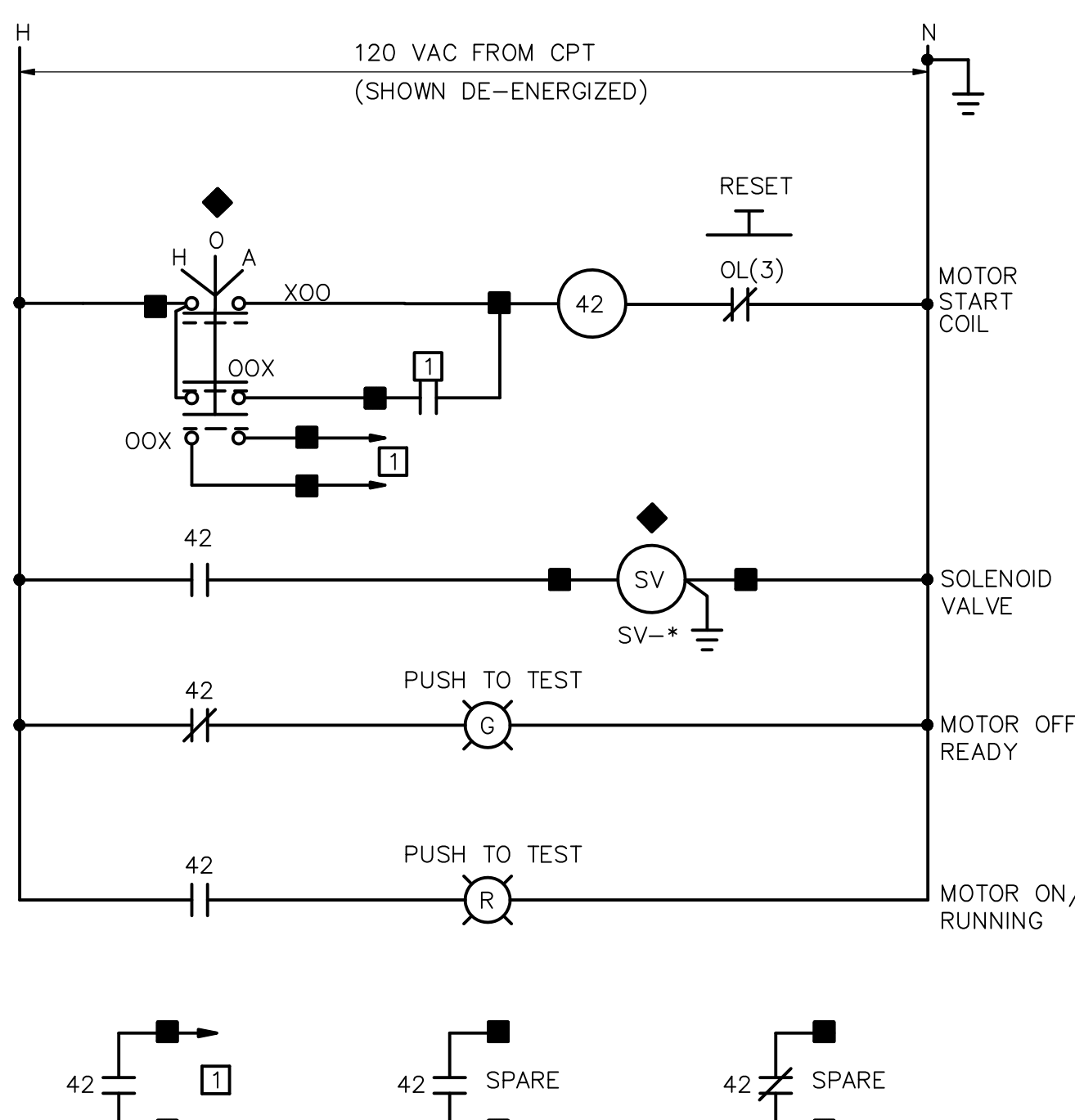
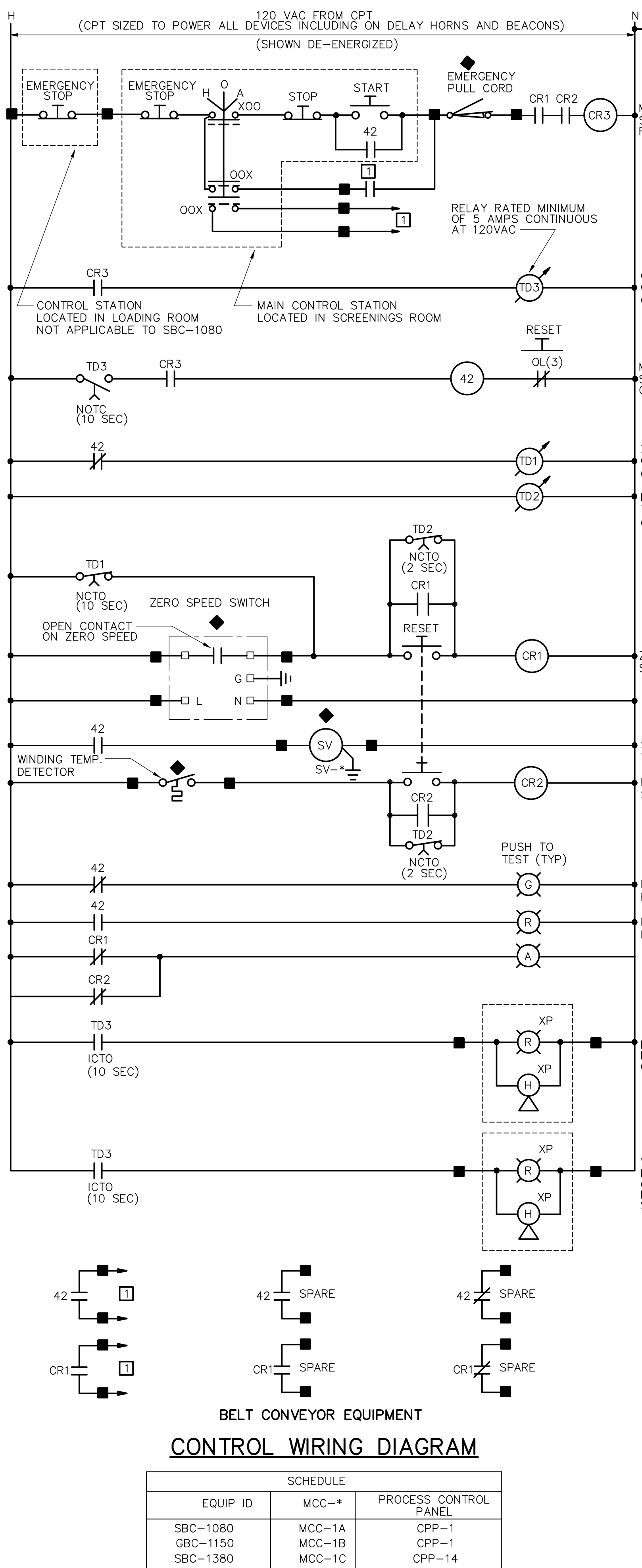
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

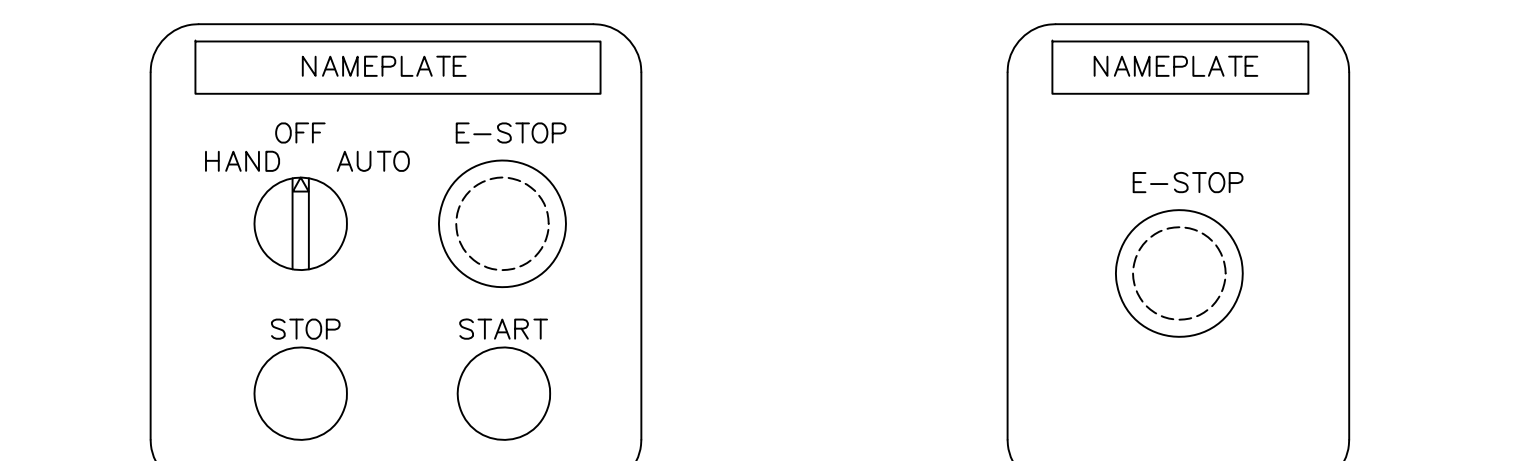
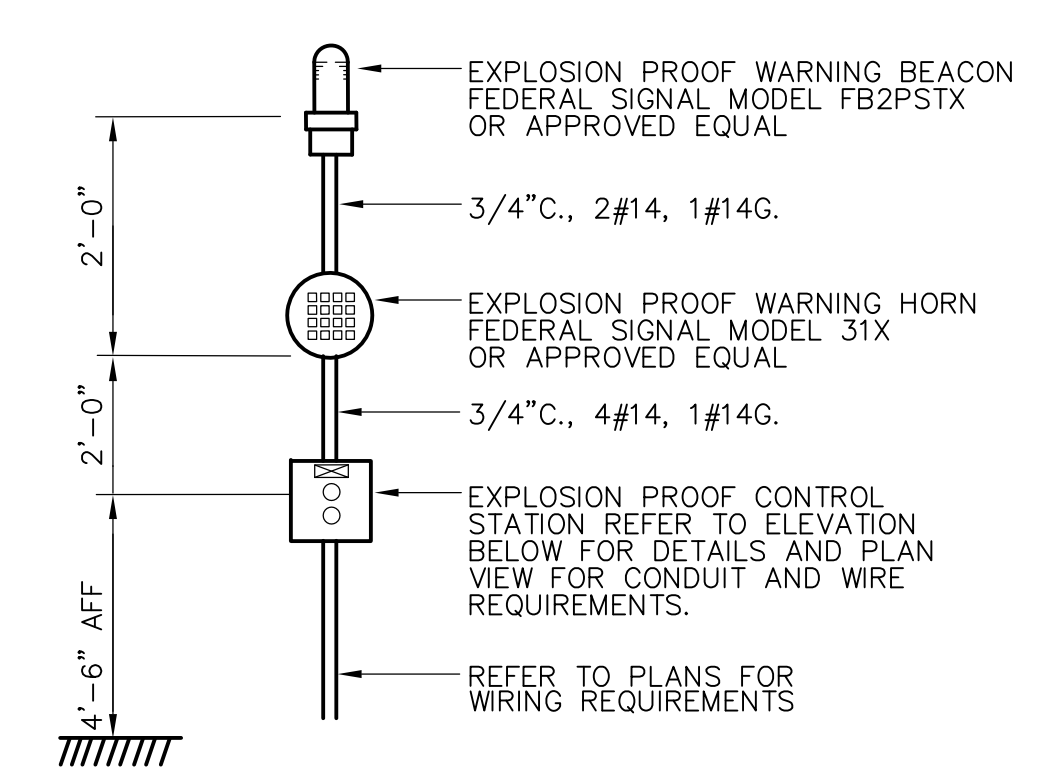
**CONTROL SCHEMATIC DIAGRAMS I**

PROJECT NO. 1289\35370  
 Sht. 339 of 386  
**GD-E-35**

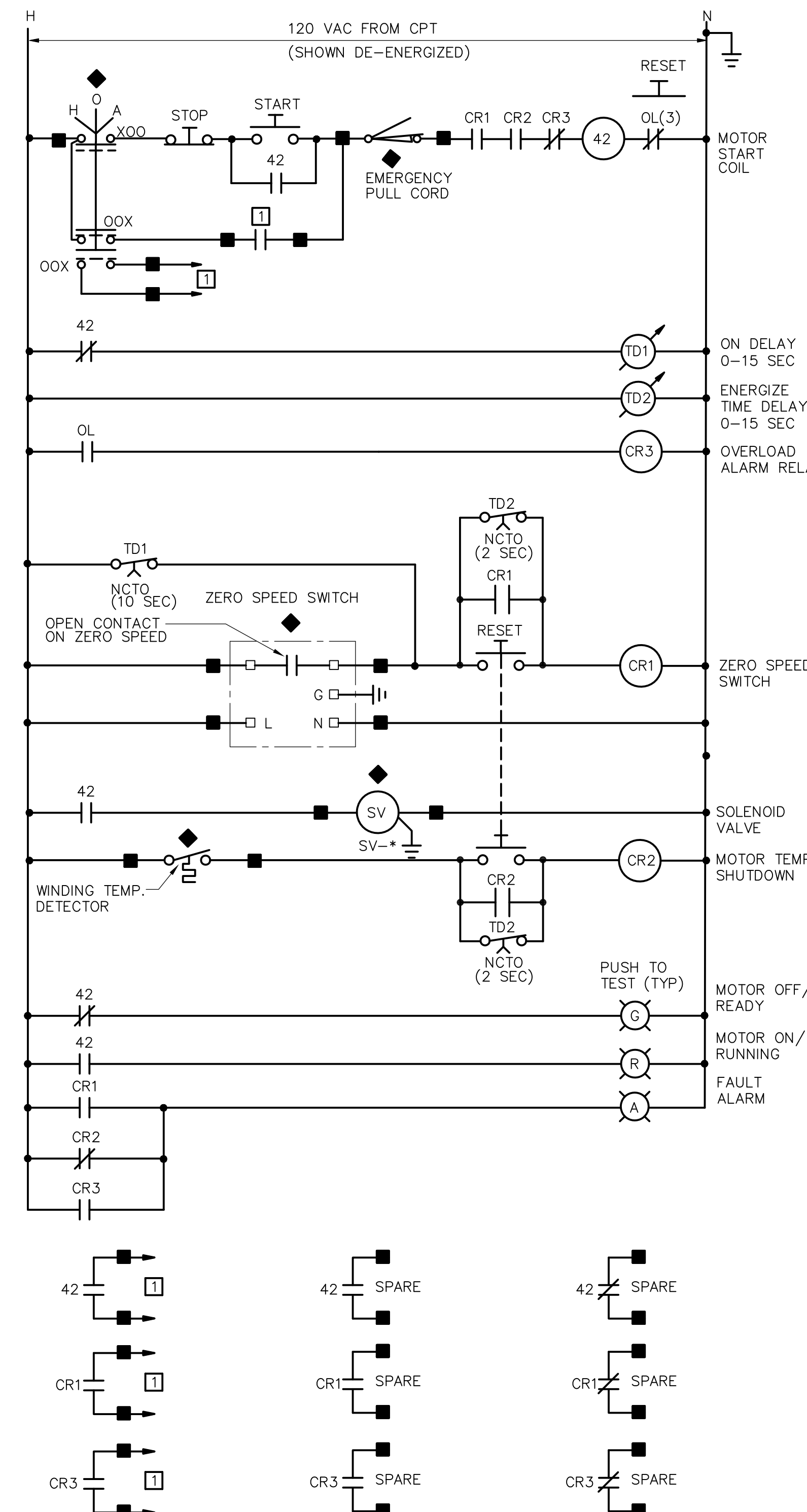


**SCHEDULE**

EQUIP ID	MCC-*	PROCESS CONTROL PANEL
GC-1111	MCC-1A	CPP-1
GC-1112	MCC-1B	CPP-1
GC-1131	MCC-1A	CPP-1
GW-1132	MCC-1B	CPP-1
GC-1411	MCC-1C	CPP-14
GC-1412	MCC-1C	CPP-14

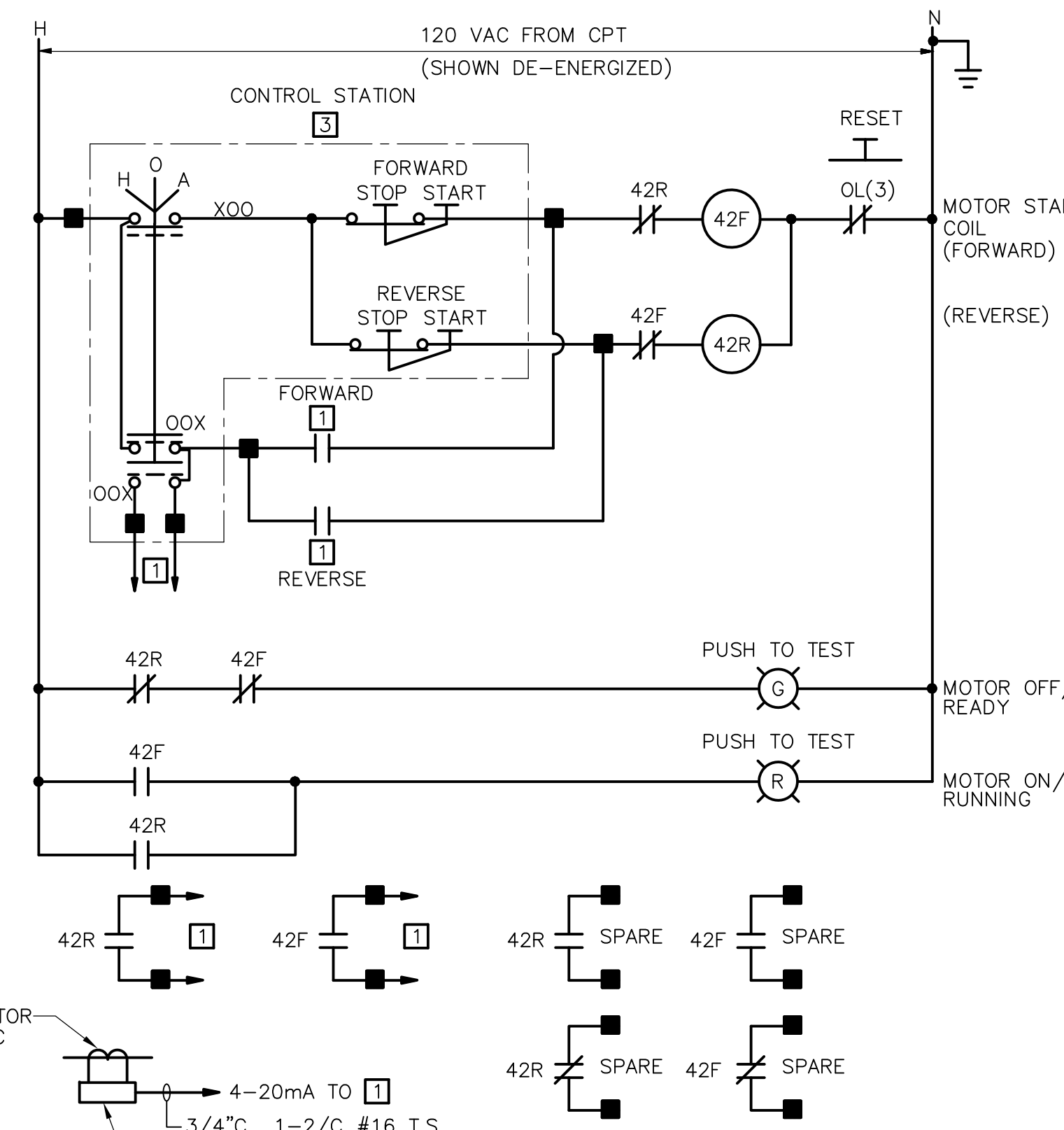


**BELT CONVEYOR CONTROL STATION DETAILS**



**SCHEDULE**

EQUIP ID	MCC-*	PROCESS CONTROL PANEL
SSC-1090	MCC-1A	CPP-1
GSC-1450	MCC-1C	CPP-14



**SCHEDULE**

EQUIP ID	MCC-*	PROCESS CONTROL PANEL
RC-1095	MCC-1A	CPP-1
RC-1160	MCC-1B	CPP-1
RC-1460	MCC-1C	CPP-14
RC-1380	MCC-1C	CPP-14

- LOCATION LEGEND:**
- ◆ AT MOTOR OR DRIVEN EQUIPMENT
  - 1 AT I&C PANEL CPP-\* OR RIOP-\*
  - 2 AT ATC PANEL
  - 3 SEE PLANS FOR LOCATION
  - 4 AT AUTOMATIC TRANSFER SWITCH
  - 5 IN FAN HOUSING OR PROVIDED WITH FAN
  - 6 AT ASH SYSTEM CONTROL PANEL
  - TERMINAL AT MOTOR STARTER FOR FIELD WIRING
- NOTES:**
- ALL COMPONENTS ARE LOCATED AT THE MOTOR CONTROL CENTER OR MOTOR STARTER UNLESS INDICATED OTHERWISE.
  - THE CONTROL DIAGRAMS, ALONG WITH ANY WRITTEN OPERATIONAL DESCRIPTIONS IN THE SPECIFICATIONS AND/OR LOOP DIAGRAMS (DIVISION 13), SHOW THE INTENDED FUNCTIONS OF THE SYSTEMS AND CIRCUITS AND SHALL BE MODIFIED AS REQUIRED TO SUIT THE EQUIPMENT ACTUALLY FURNISHED.
  - CURRENT TRANSDUCER SHALL ACCEPT A 0-2A CURRENT SIGNAL FROM CT(S) ON MOTOR LEADS & TRANSMIT A 4-20mA DC LINEAR SIGNAL. UNIT SHALL BE RATED FOR 120VAC & MANUFACTURED BY MOORE IND., ACTION INSTRUMENTS, ACROMAG OR APPROVED EQUAL.
  - REFER TO CP DRAWINGS FOR TYPE AND QUANTITY OF CONTROL DEVICE POINTS.

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. ESCHM002.DWG  
 DESIGNED BY: JAR  
 DRAWN BY: OS  
 SHEET CHK'D BY: BDS  
 SCALE: AS NOTED  
 APPROVED BY: B. SQUIBB  
 DATE: MAY 2006

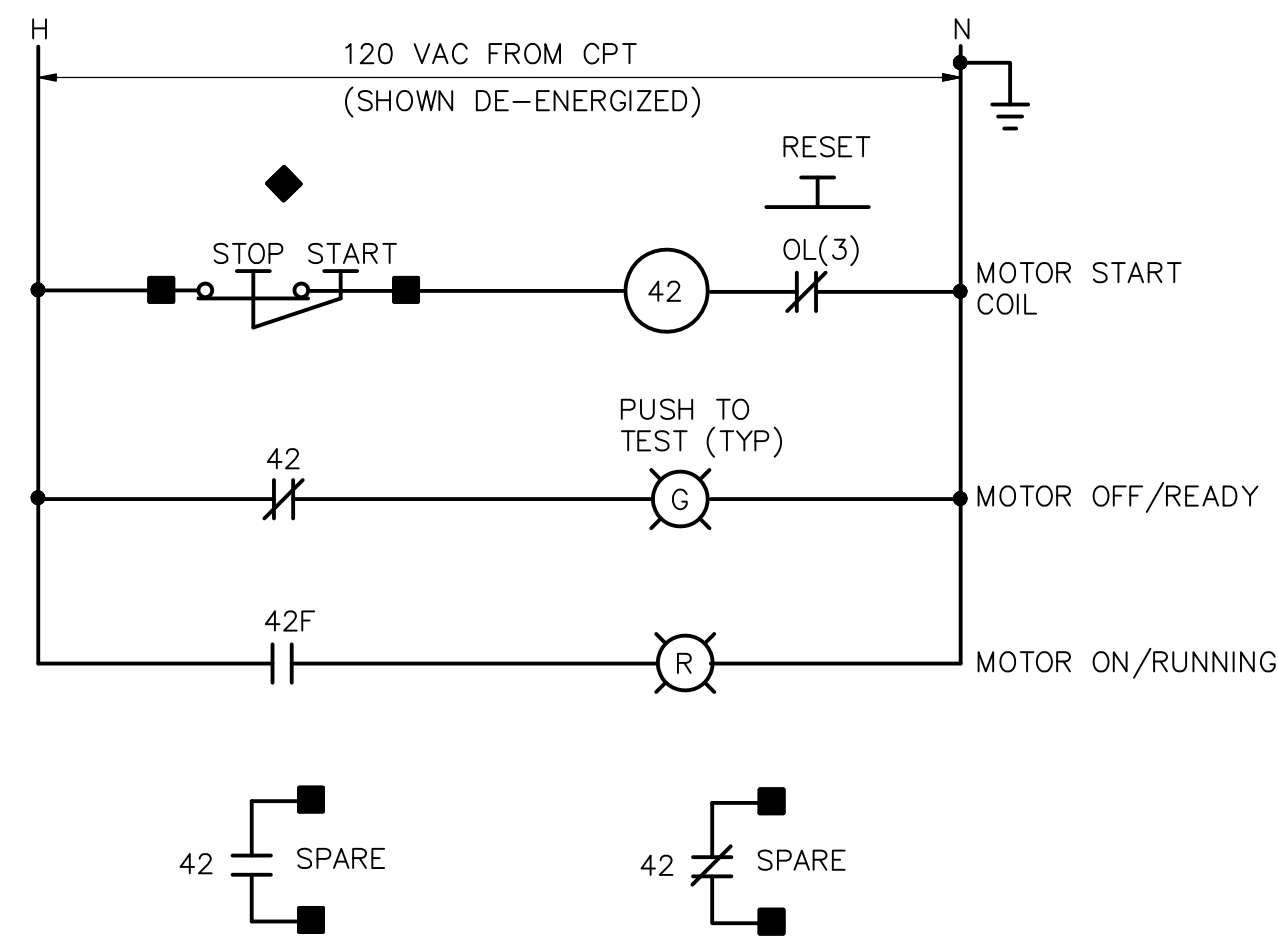
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

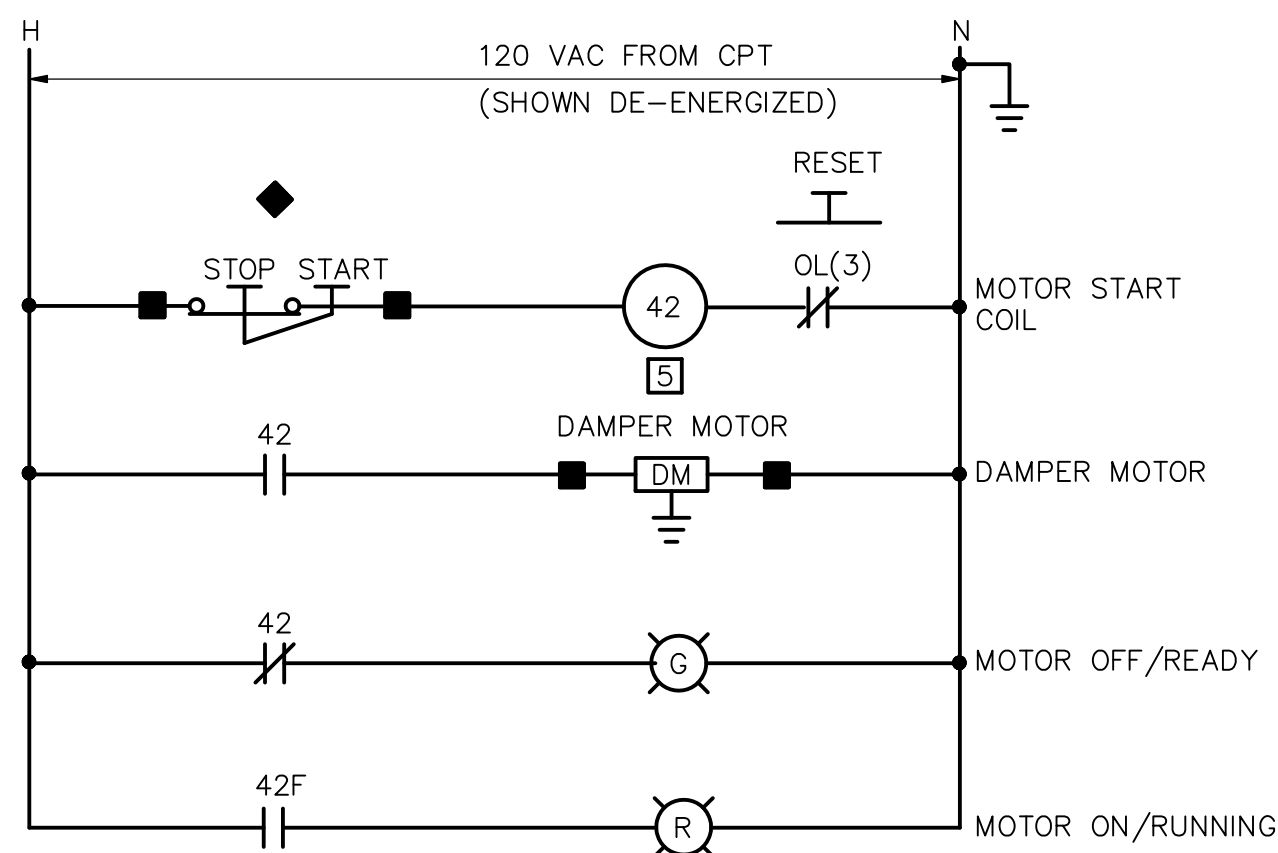
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**CONTROL SCHEMATIC DIAGRAMS II**

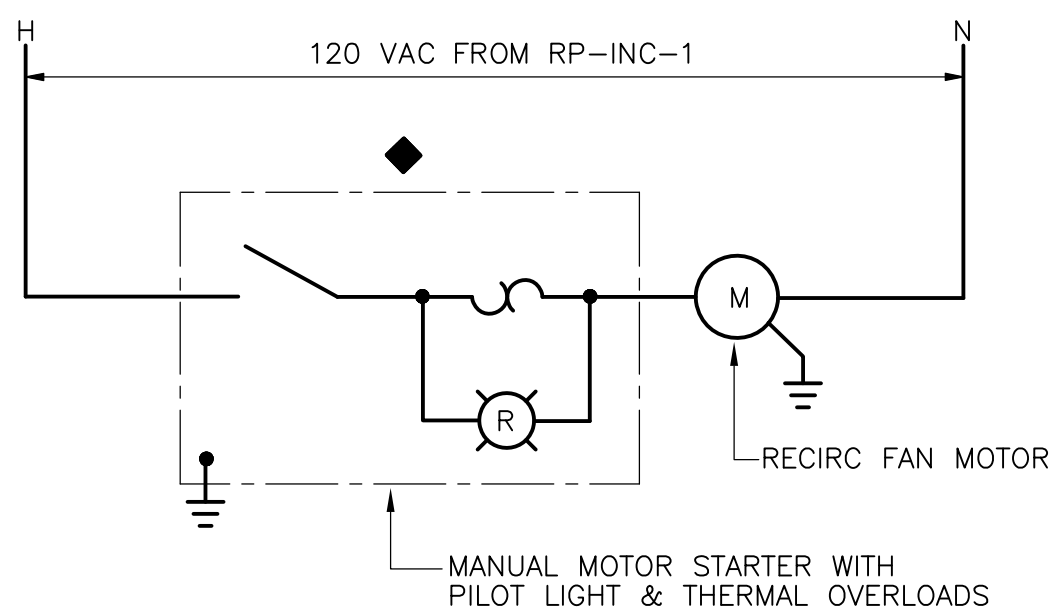
PROJECT NO. 1289\35370  
 Sht. 340 of 386  
**GD-E-36**



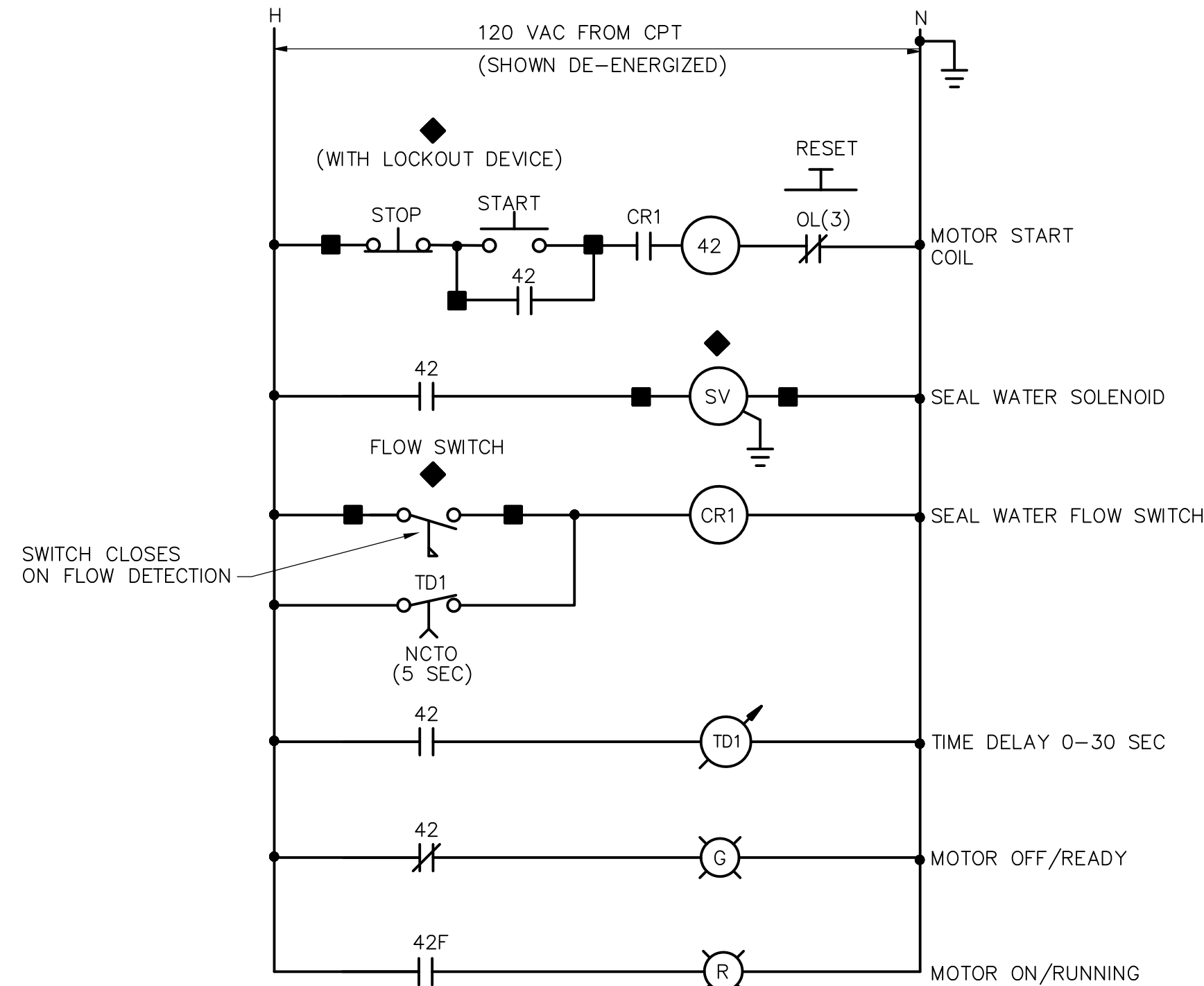
**480V RECIRCULATION FAN  
CONTROL WIRING DIAGRAM**  
TYPICAL FOR RCF-3F-2 & 3



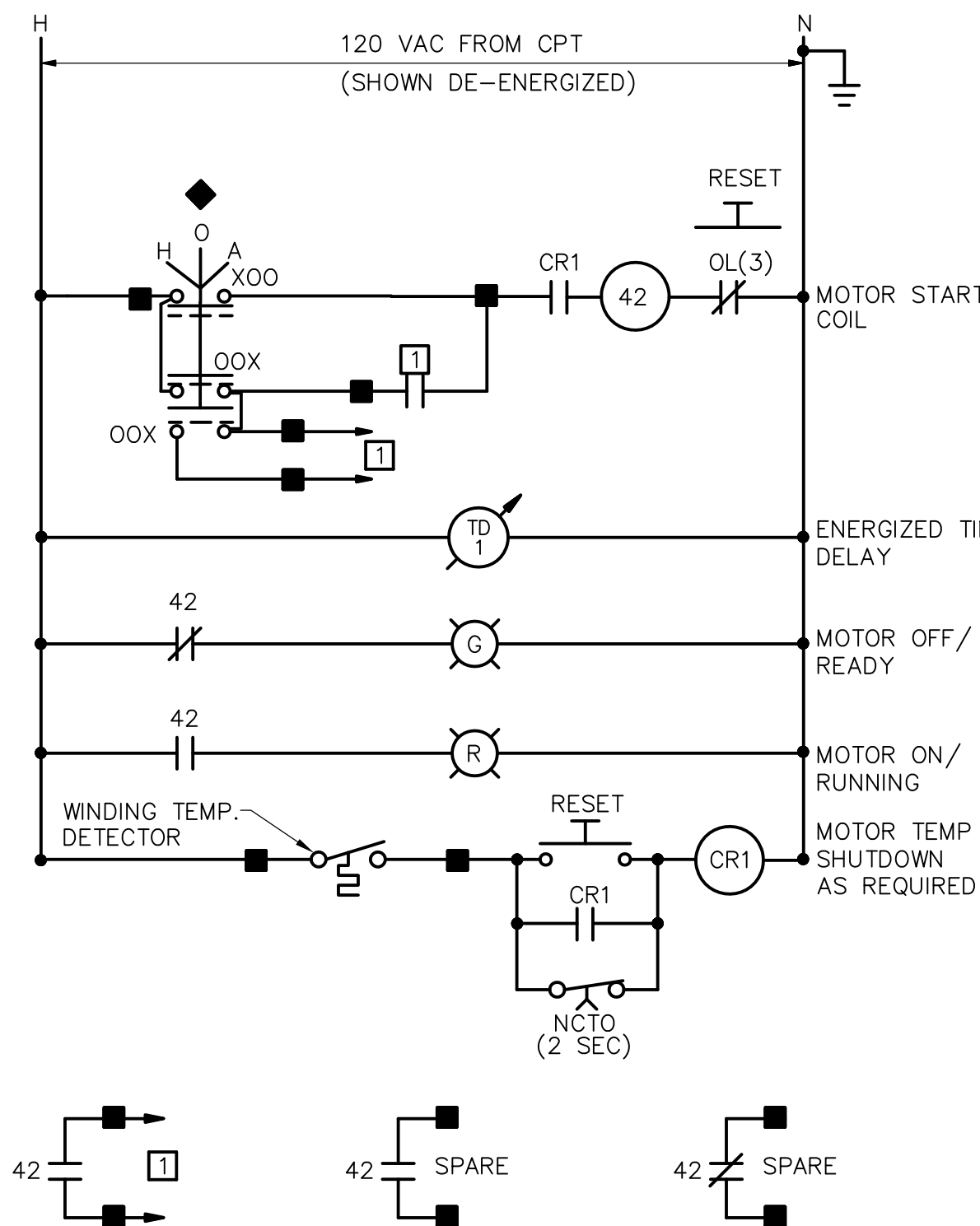
**SUPPLY FAN  
CONTROL WIRING DIAGRAM**  
TYPICAL FOR: SF-3F-1 THRU 4  
SF-2F-1 THRU 4  
SF-1F-1 THRU 4



**120V RECIRCULATION FAN  
CONTROL WIRING DIAGRAM**  
TYPICAL FOR: RCF-3F-1 & 4  
RCF-2F-1 THRU 4  
RCF-1F-1 THRU 4  
RCF-B-1 THRU 4  
RCF-S-1 THRU 4

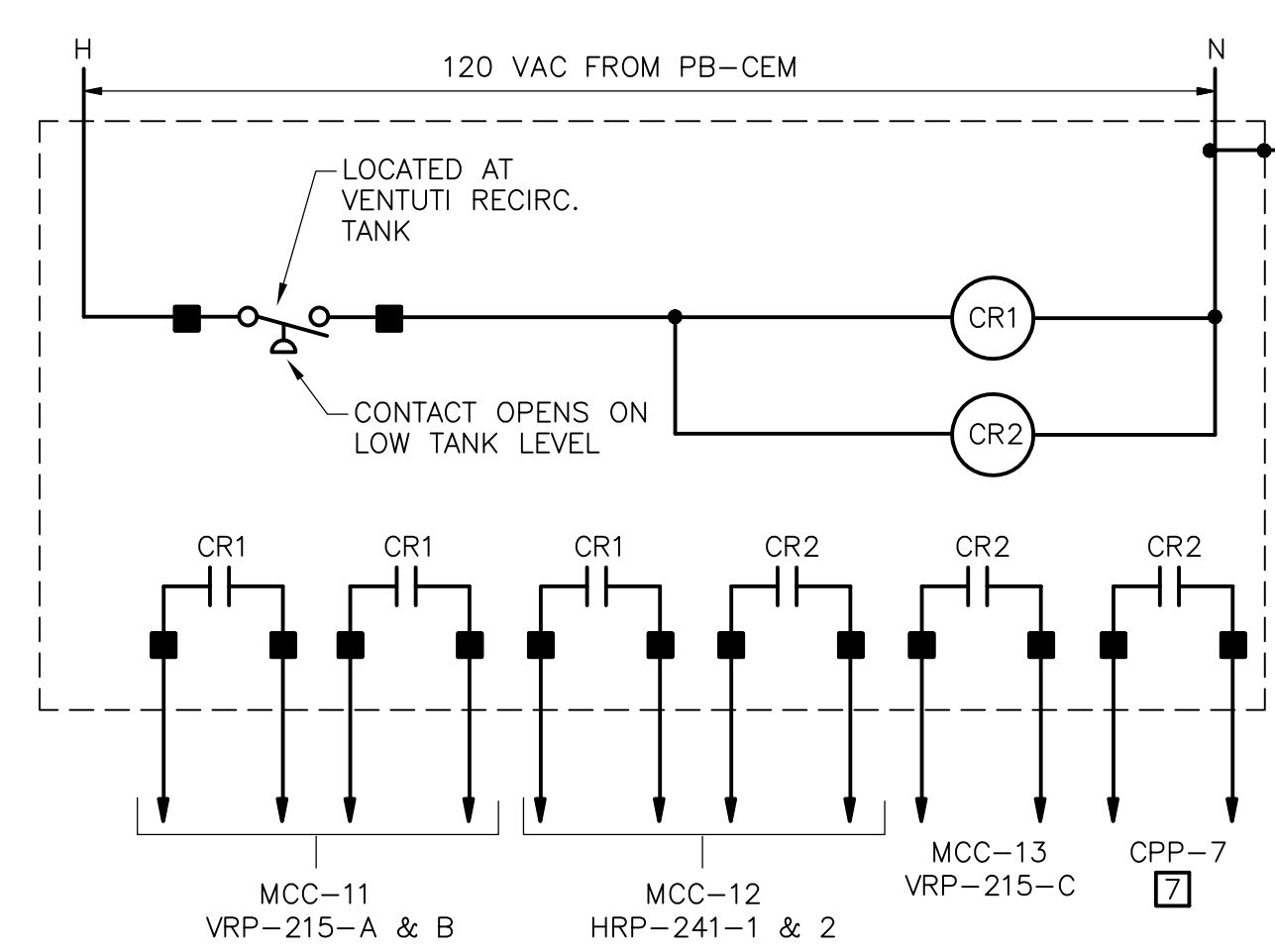


**PST DRAIN PUMP  
CONTROL WIRING DIAGRAM**

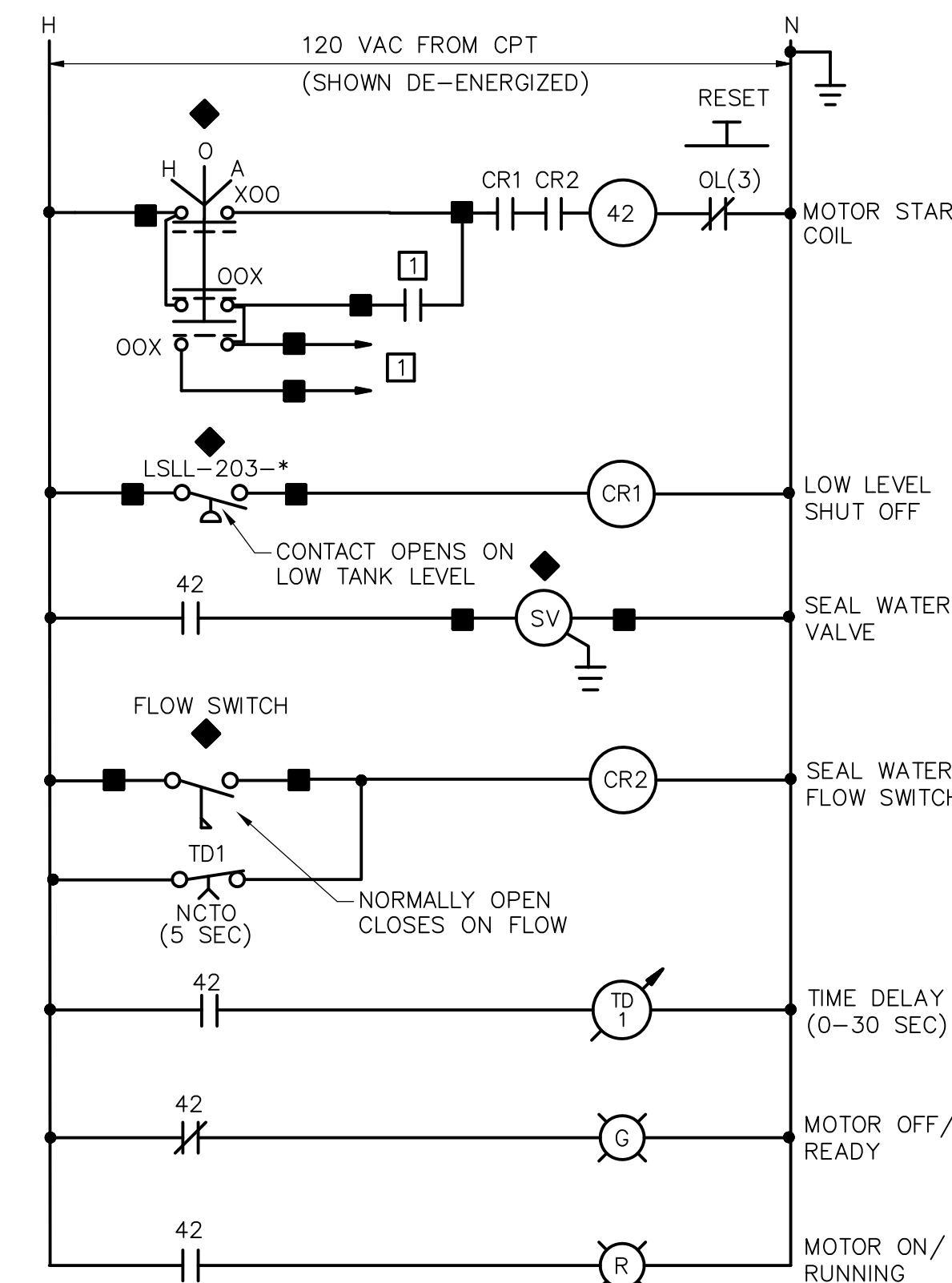


**TYPICAL PROCESS EQUIPMENT  
CONTROL WIRING DIAGRAM**

\* WINDING TEMPERATURE DETECTORS TERMINALS, RELAYS & TIME DELAYS SHALL BE PROVIDED AS REQUIRED BY THE SPECIFICATIONS.

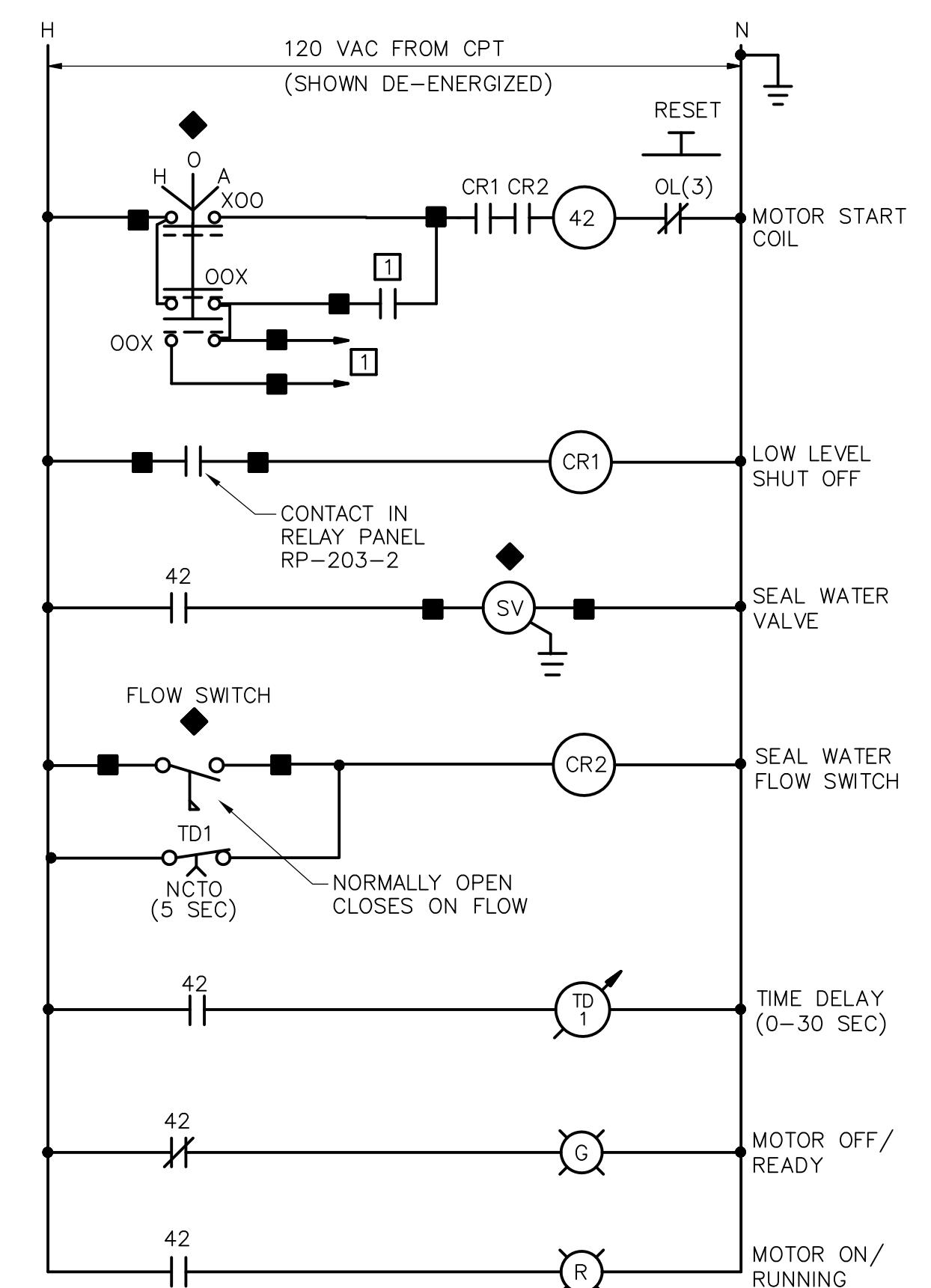


**RELAY PANEL RP-203-2  
CONTROL WIRING DIAGRAM**



**SCRUBBER DISCHARGE PUMP  
CONTROL WIRING DIAGRAM**

EQUIP ID	SCHEDULE MCC-*	PROCESS CONTROL PANEL
SDP-242-1	MCC-14	CPP-7
SDP-241-1	MCC-11	CPP-7
SDP-242-3	MCC-15	CPP-8
SDP-241-3	MCC-13	CPP-8



**VENTURI RECIRC. & HEAT RECOVERY PUMPS  
CONTROL WIRING DIAGRAM**

EQUIP ID	SCHEDULE MCC-*	PROCESS CONTROL PANEL
VRP-215-A	MCC-11	CPP-8
VRP-215-B	MCC-11	CPP-8
VRP-215-C	MCC-13	CPP-8
HRP-241-1	MCC-12	CPP-7
HRP-241-2	MCC-12	CPP-7

- NOTES:
- REFER TO GD-E-36 FOR CONTROL WIRING DIAGRAM NOTES AND LEGEND INFORMATION
  - REFER TO CP DRAWINGS FOR TYPE AND QUANTITY OF CONTROL DEVICE POINTS.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. ESCHM003.DWG
DESIGNED BY: JAR
DRAWN BY: OR
SHEET CHK'D BY: BDS
SCALE: AS NOTED
APPROVED BY: B. SQUIBB
DATE: MAY 2006



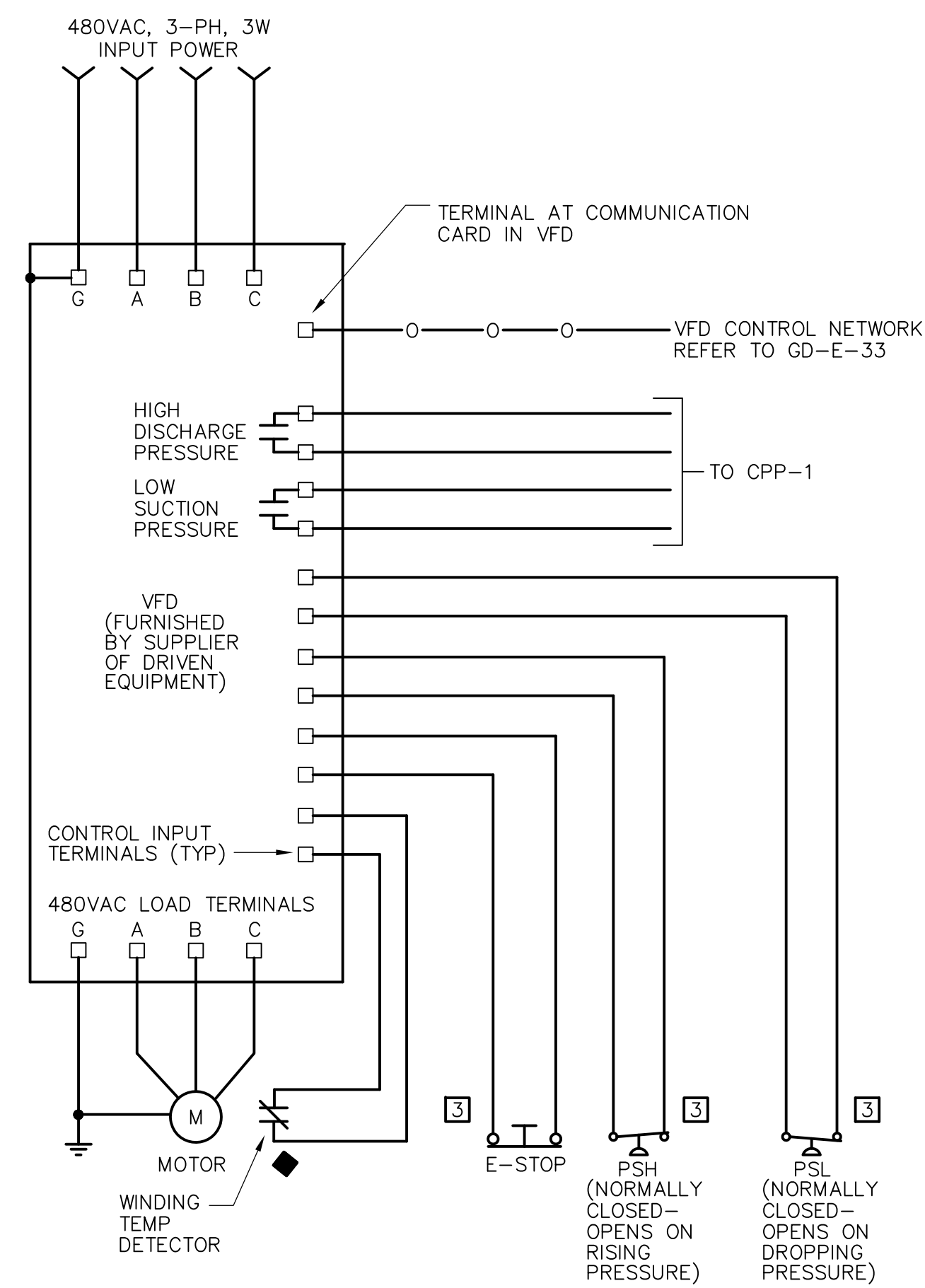
UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024  
  
WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS

CONTROL SCHEMATIC DIAGRAMS III

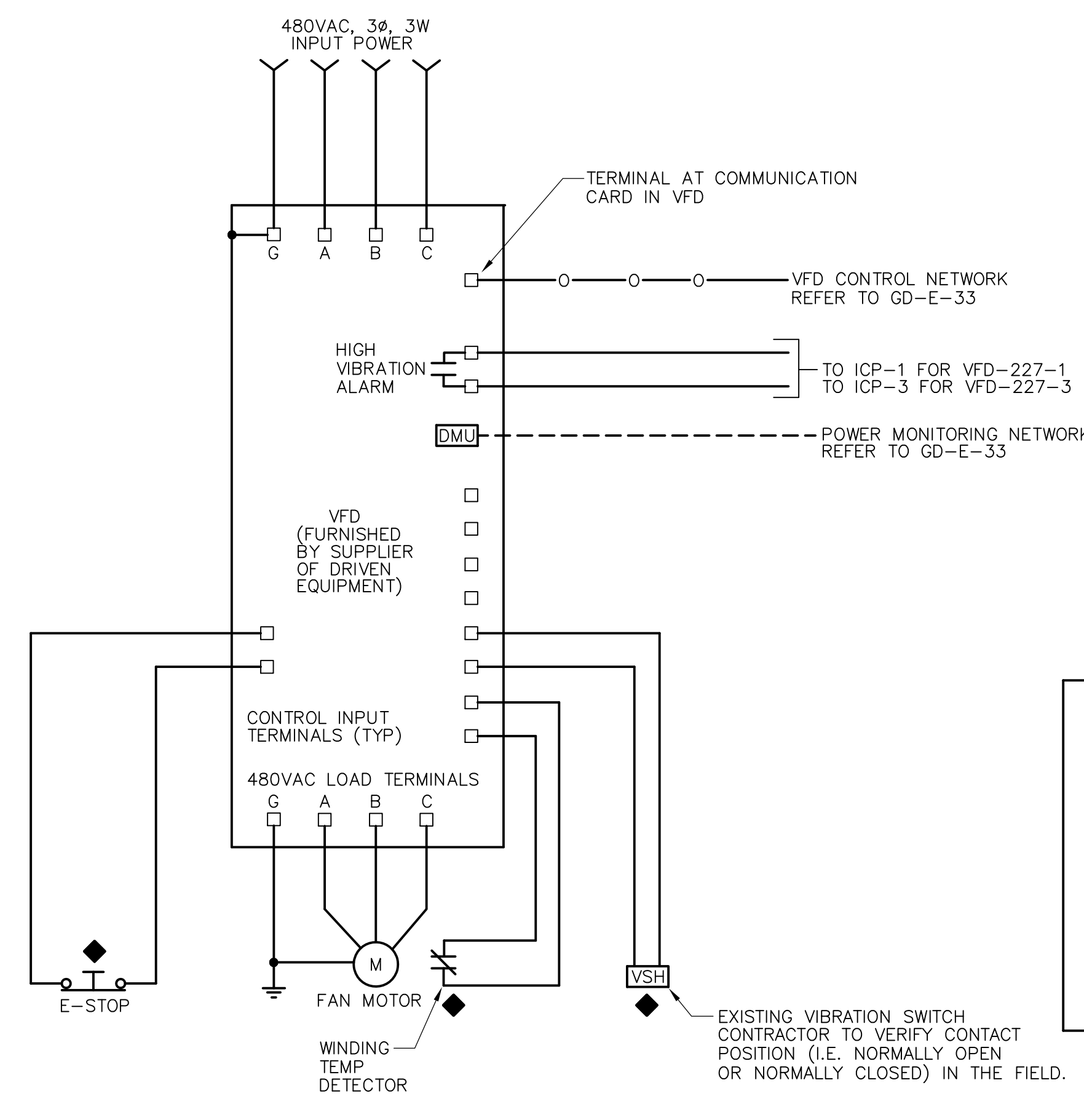
PROJECT NO.  
1289\35370

Sht. 341 of 386

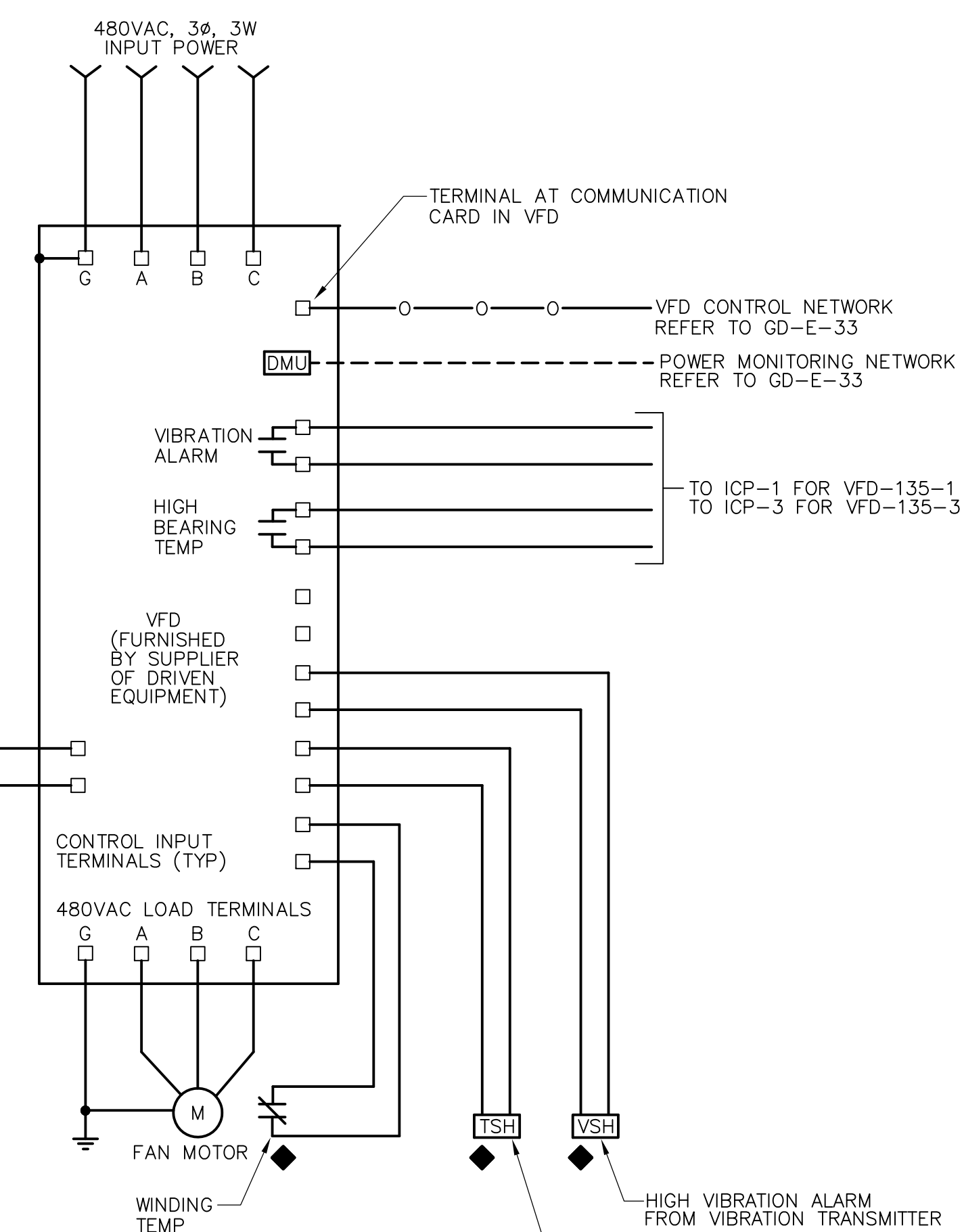
GD-E-37



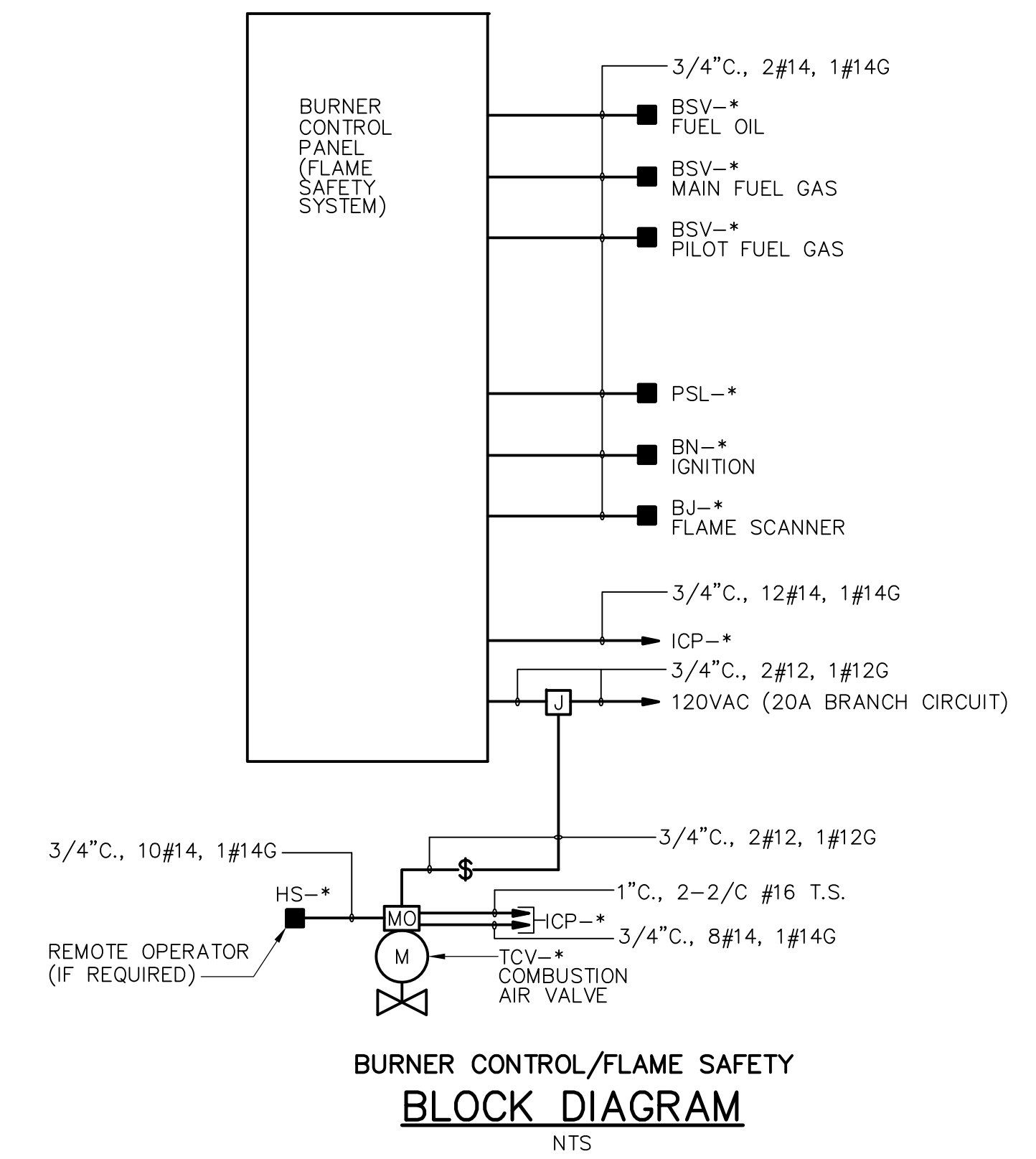
**GRIT TANK BLOWERS  
VFD BLOCK DIAGRAM**  
TYP FOR GB-1211, 1212 & 1213



**INDUCED DRAFT FANS  
VFD BLOCK DIAGRAM**  
TYP FOR VFD-227-1 & VFD-227-3

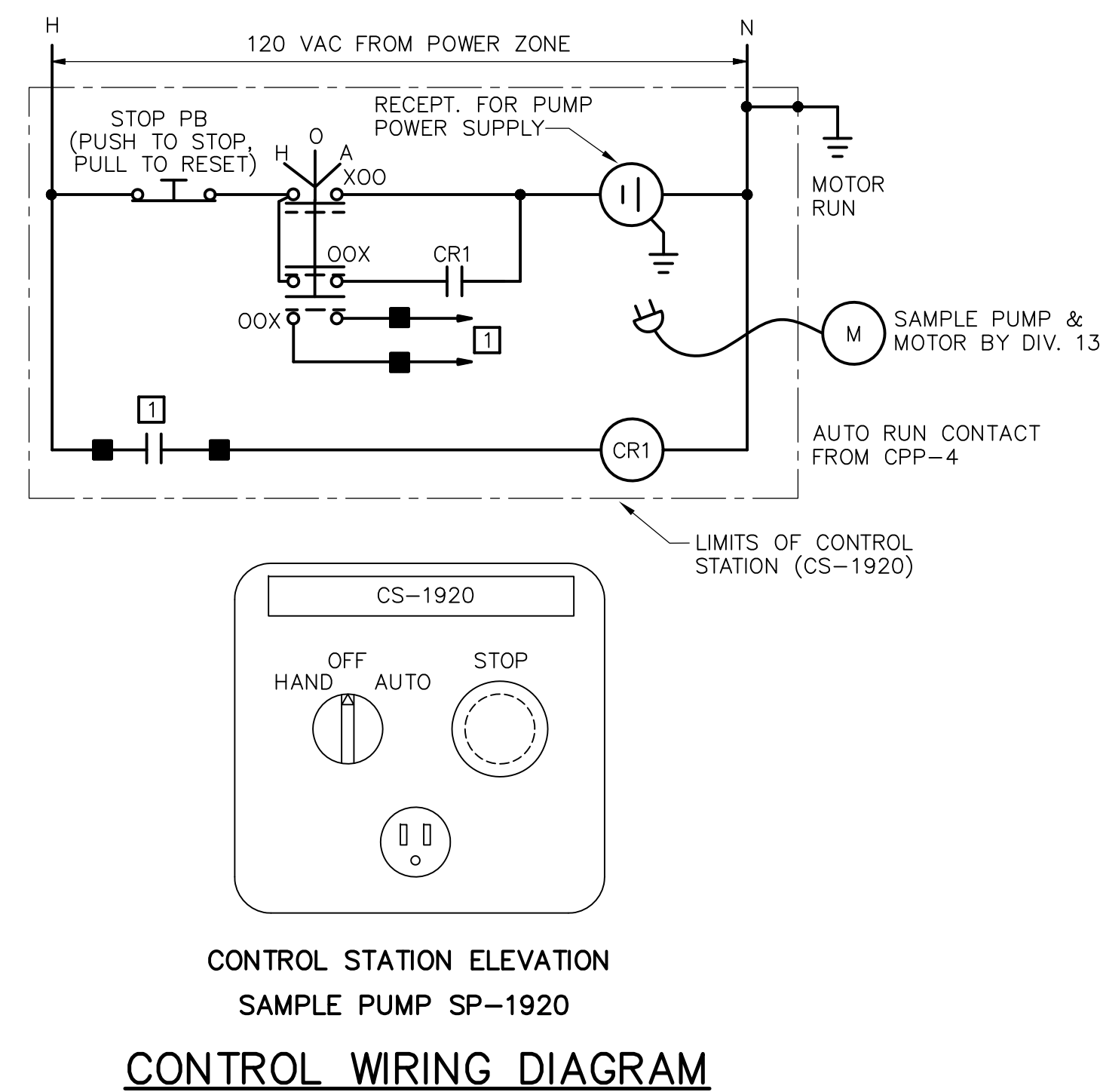


**FLUE GAS RECIRC FAN  
VFD BLOCK DIAGRAM**  
TYP FOR VFD-135-1 & VFD-135-3

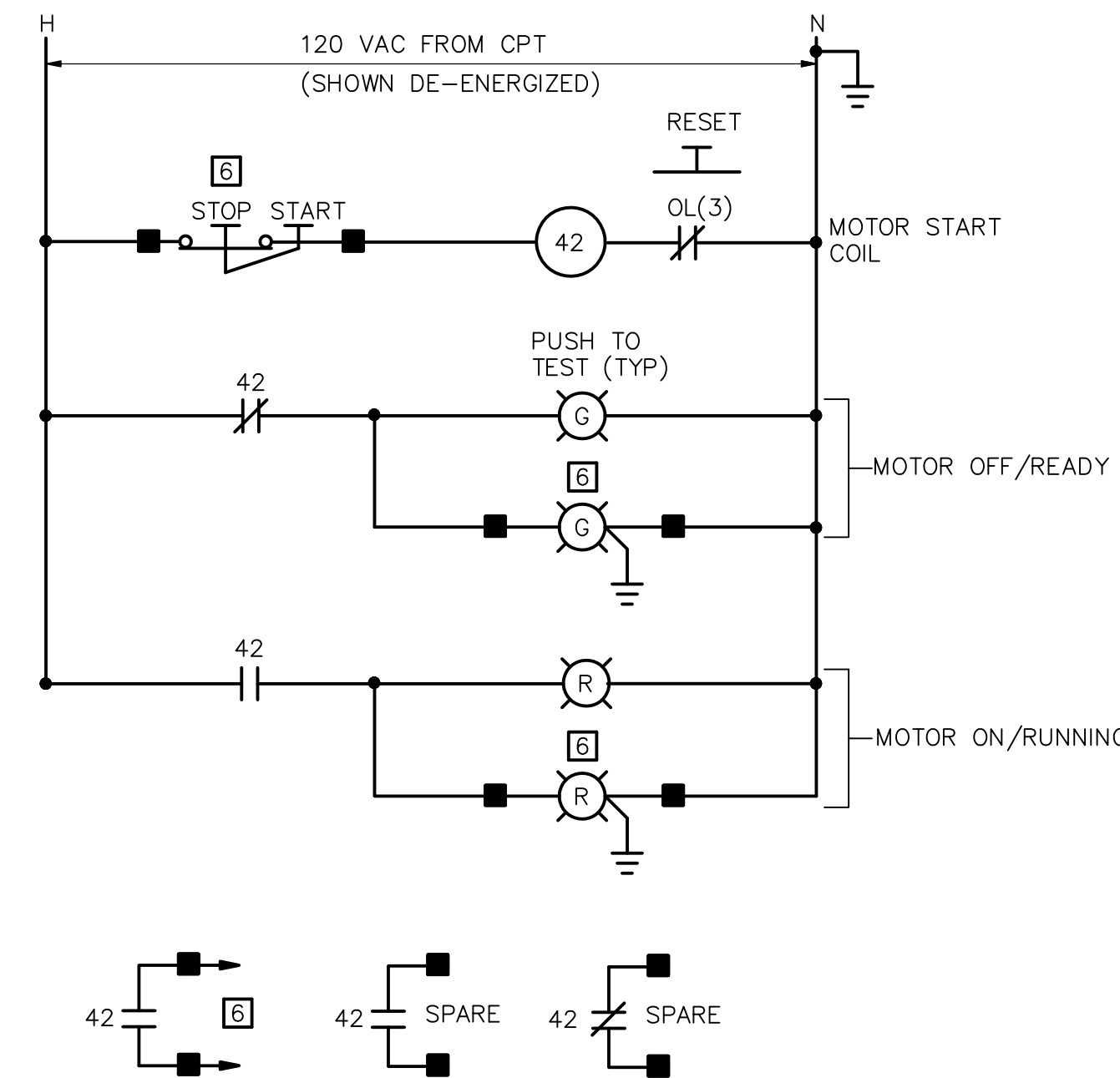


**BURNER CONTROL SCHEDULE**  
(REFERENCE DRAWINGS PID-20 THRU 23)

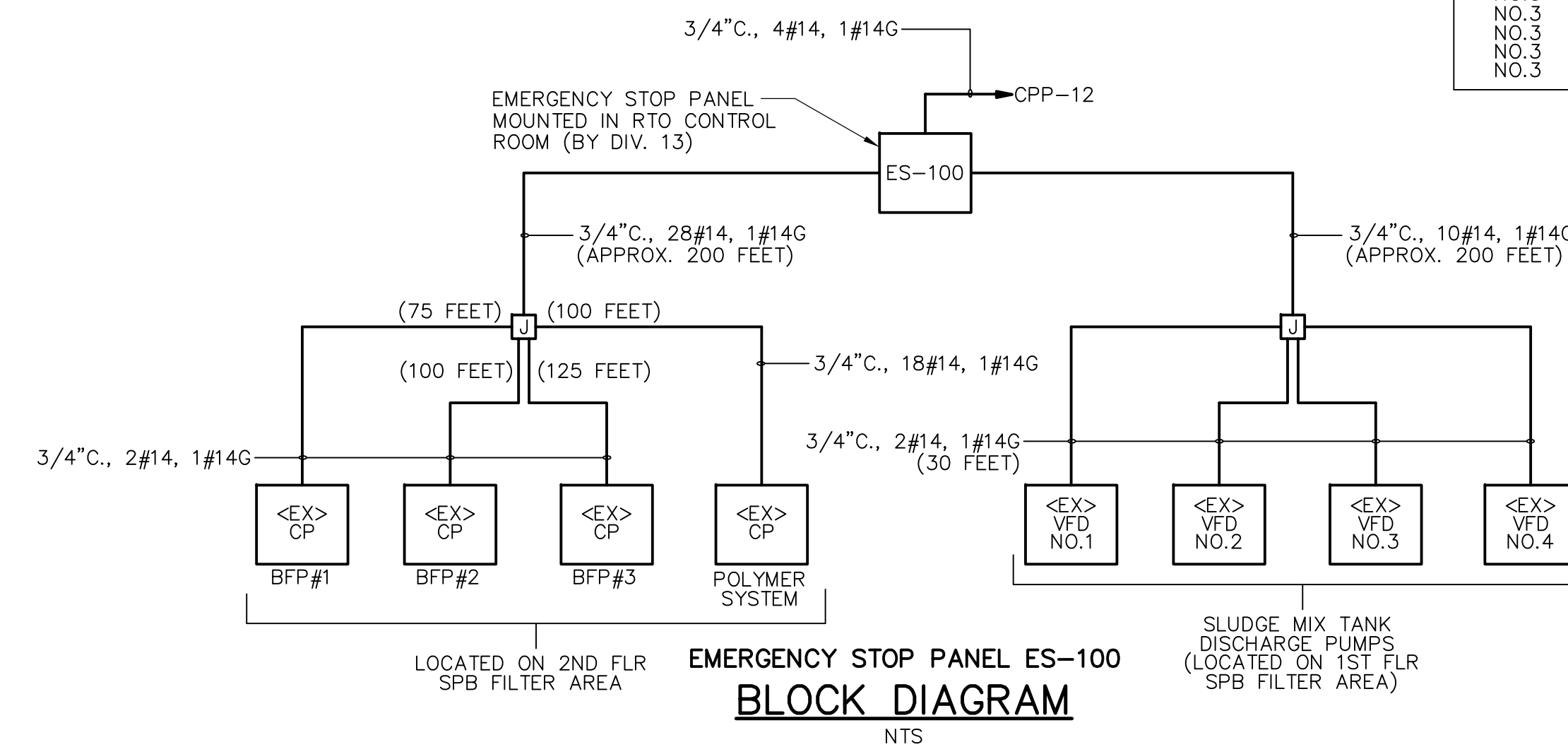
INCIN NO.	BURNER ID	LOOP NO.	ICP	120VAC
NO.1	B1	141-1	ICP-1	RP-INC-1
NO.1	B2	142-1	ICP-1	RP-INC-1
NO.1	B3	143-1	ICP-1	RP-INC-1
NO.1	B4	144-1	ICP-1	RP-INC-1
NO.1	B5	145-1	ICP-1	RP-INC-1
NO.1	B6	146-1	ICP-1	RP-INC-1
NO.1	B7	147-1	ICP-1	RP-INC-1
NO.1	B8	148-1	ICP-1	RP-INC-1
NO.1	B9	149-1	ICP-1	RP-INC-1
NO.1	B10	150-1	ICP-1	RP-INC-1
NO.1	B11	151-1	ICP-1	RP-INC-1
NO.1	B12	152-1	ICP-1	RP-INC-1
NO.1	B13	153-1	ICP-1	RP-INC-1
NO.1	B14	154-1	ICP-1	RP-INC-1
NO.1	B15	155-1	ICP-1	RP-INC-1
NO.3	B1	141-3	ICP-3	RP-INC-2
NO.3	B2	142-3	ICP-3	RP-INC-2
NO.3	B3	143-3	ICP-3	RP-INC-2
NO.3	B4	144-3	ICP-3	RP-INC-2
NO.3	B5	145-3	ICP-3	RP-INC-2
NO.3	B6	146-3	ICP-3	RP-INC-2
NO.3	B7	147-3	ICP-3	RP-INC-2
NO.3	B8	148-3	ICP-3	RP-INC-2
NO.3	B9	149-3	ICP-3	RP-INC-2
NO.3	B10	150-3	ICP-3	RP-INC-2
NO.3	B11	151-3	ICP-3	RP-INC-2
NO.3	B12	152-3	ICP-3	RP-INC-2
NO.3	B13	153-3	ICP-3	RP-INC-2
NO.3	B14	154-3	ICP-3	RP-INC-2
NO.3	B15	155-3	ICP-3	RP-INC-2



**CONTROL STATION ELEVATION  
SAMPLE PUMP SP-1920  
CONTROL WIRING DIAGRAM**



**ASH HANDLING SYSTEM  
CONTROL WIRING DIAGRAM**  
TYPICAL FOR: ASH SCREW, FLUIDIZING,  
BLOWER & VACUUM PUMP



**NOTE WELL:**  
CONTROL PANEL AND VFD'S ARE NOT SHOWN ON PLANS.  
COORDINATE EXACT LOCATIONS IN THE FIELD WITH THE  
OWNER & ENGINEER

- NOTES:**
- REFER TO GD-E-36 FOR CONTROL WIRING DIAGRAM NOTES AND LEGEND INFORMATION
  - REFER TO CP DRAWINGS FOR TYPE AND QUANTITY OF CONTROL DEVICE POINTS.

**RECORD DRAWING**

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. <u>ESCHM004.DWG</u>
DESIGNED BY: <u>JAR</u>
DRAWN BY: <u>OR</u>
SHEET CHK'D BY: <u>BDS</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>B. SQUIBB</u>
DATE: <u>MAY 2006</u>

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

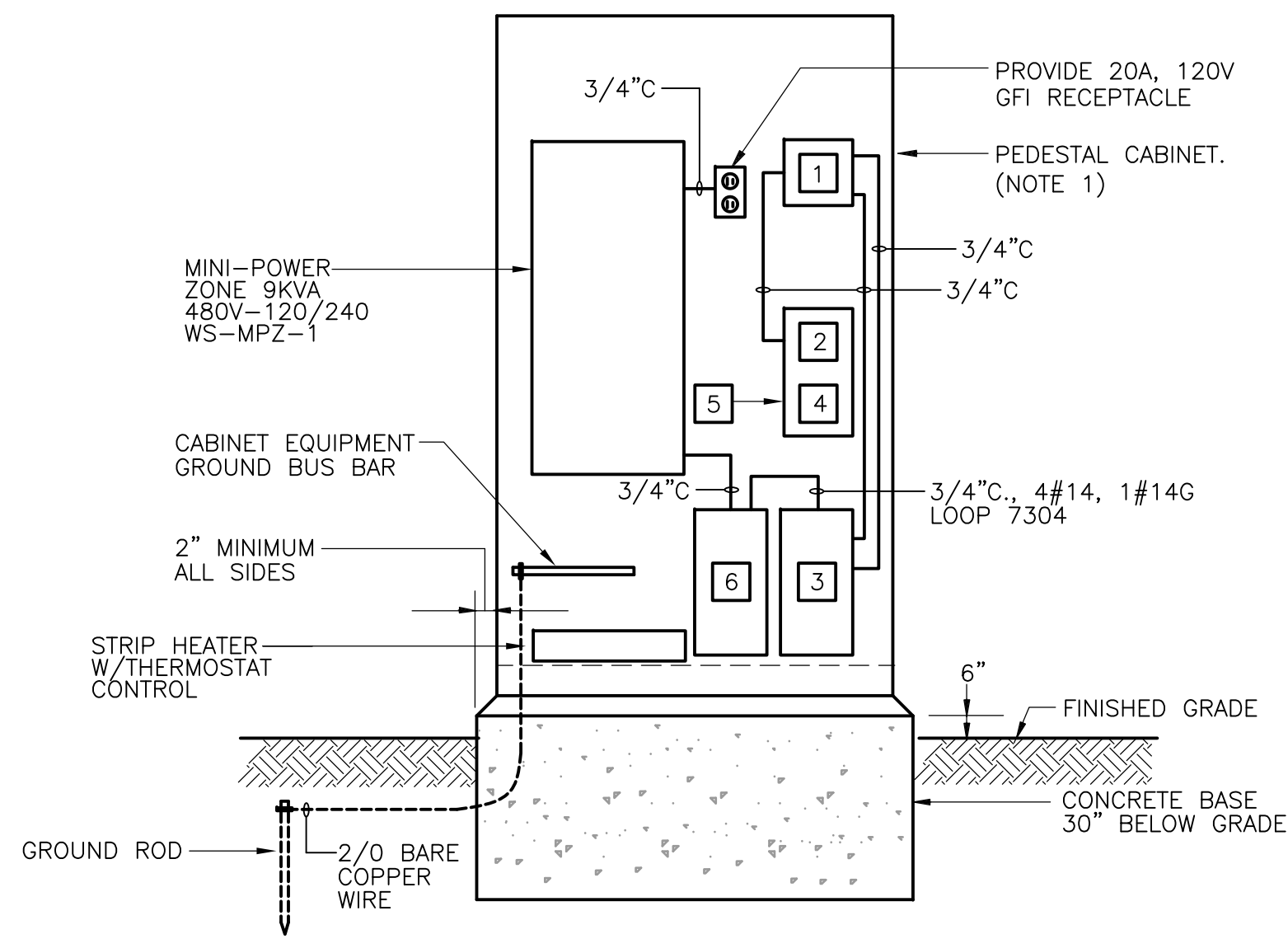
**CONTROL SCHEMATIC DIAGRAMS IV**

**GD-E-38**

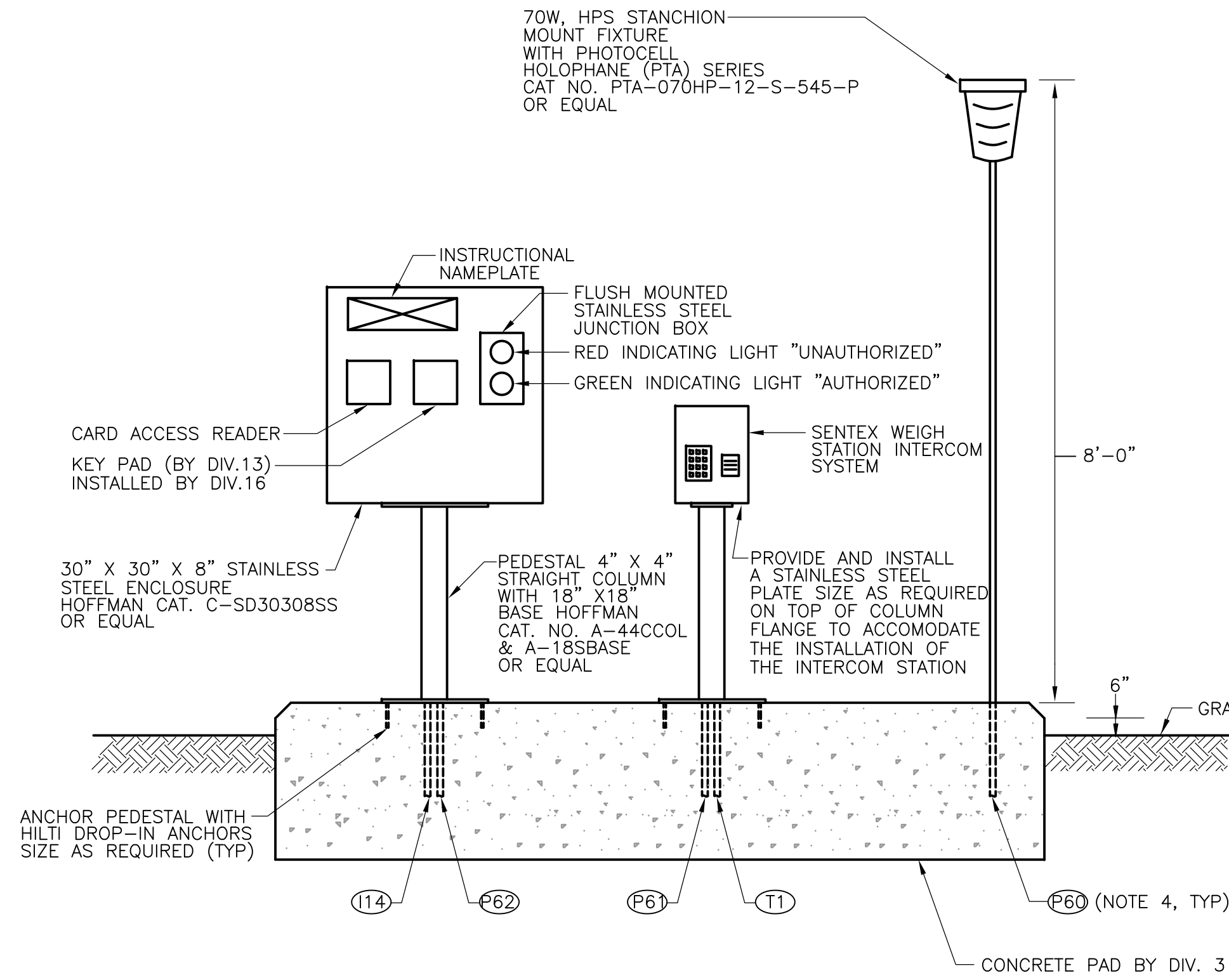
PROJECT NO.  
1289\35370

Sht. 342 of 386

PROCESSING NO. 1289-6542

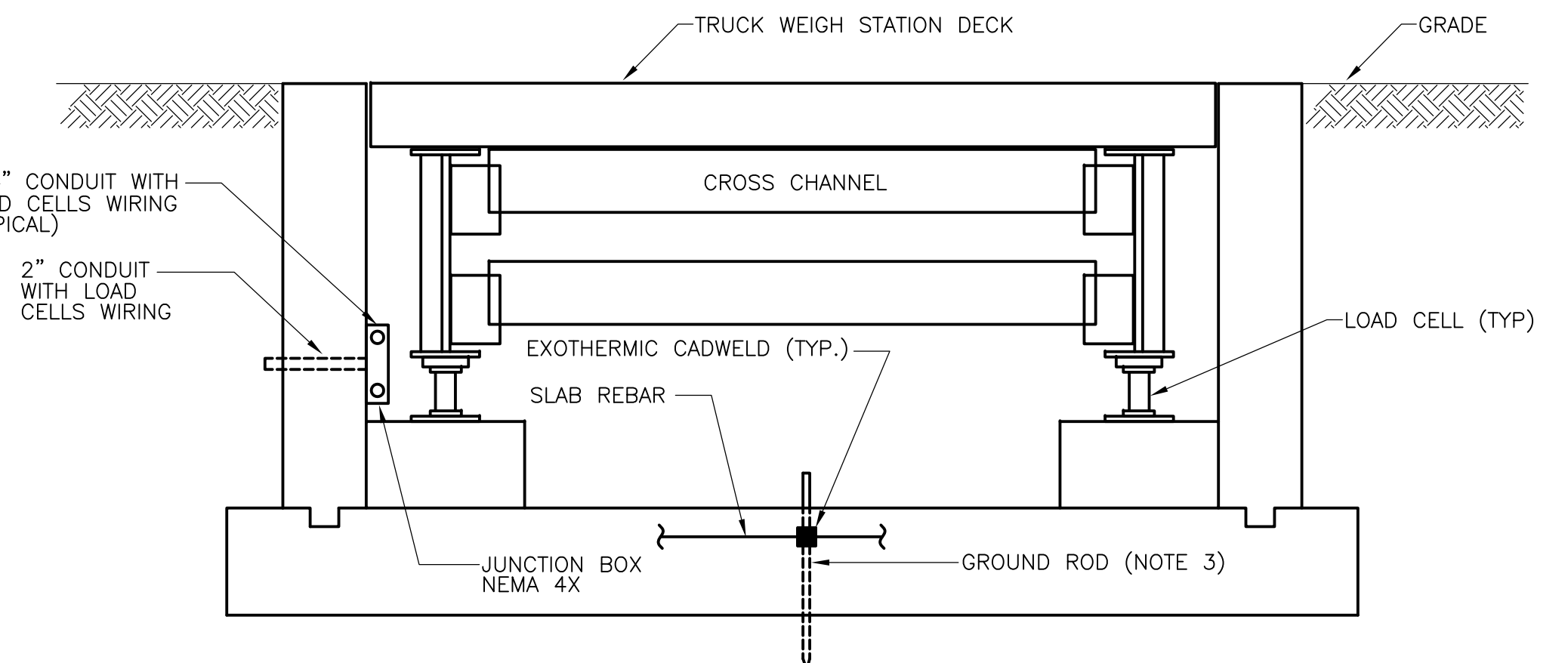


**WEIGH STATION PEDESTAL CABINET BASE DETAIL**  
N.T.S.



**WEIGH STATION ACCESS CABINET BASE DETAIL**  
N.T.S.

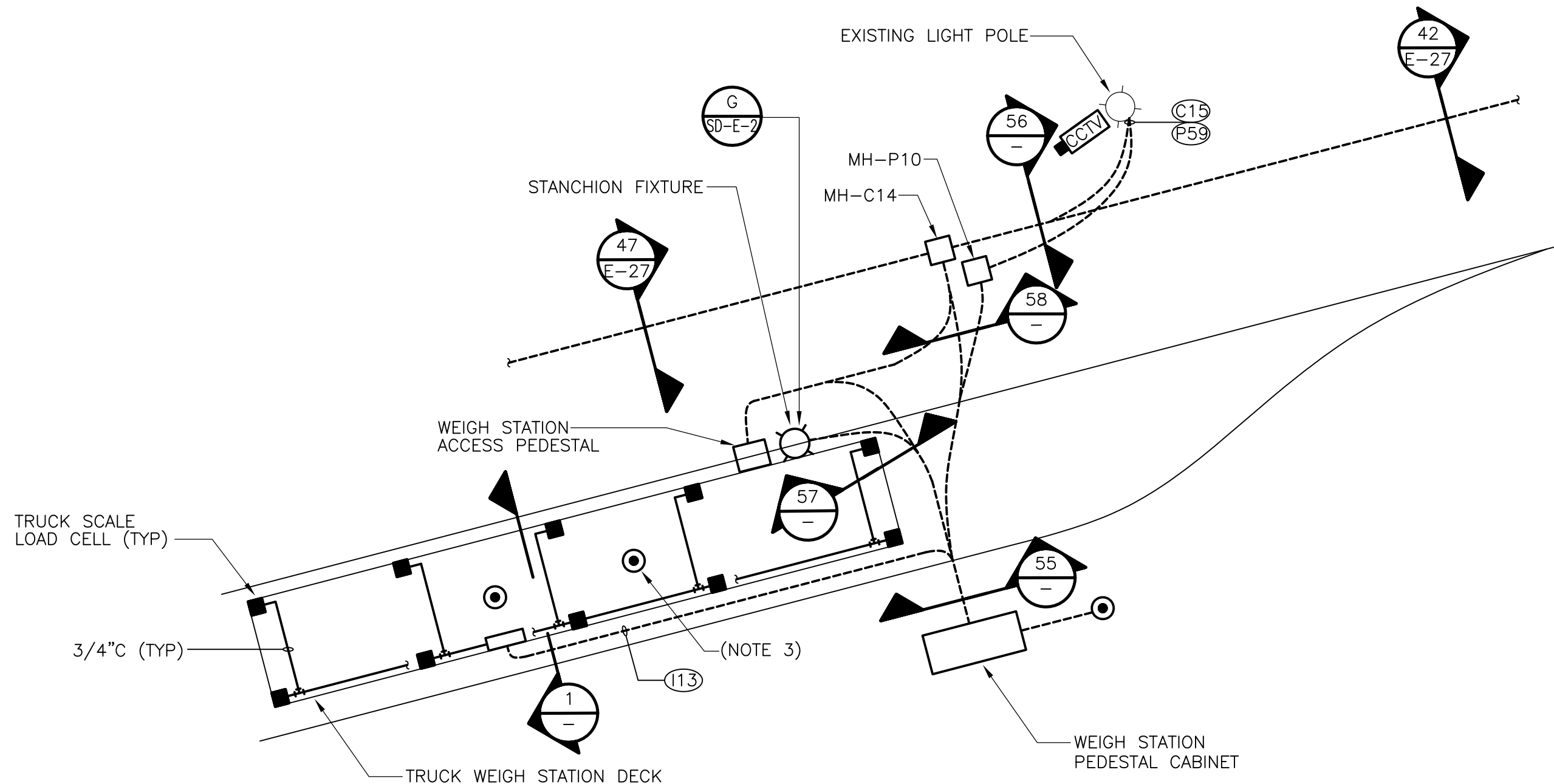
POWER ZONE PANEL WS-MPZ-1 SCHEDULE										LOCATION PEDESTAL CABINET	
TRANSFORMER: 10 KVA		10 POLES		SURFACE MOUNTED							
PRIMARY: 480 VOLTS 1 PH. 2 WIRE 60 HZ.		SECONDARY: 240/120 VOLTS 1 PH. 3 WIRE 60 HZ.		PRIMARY C.B.: 40 AMP RATING		SECONDARY C.B.: 60 AMP RATING					
100 AMP BUS RATING											
DESCRIPTION	LOAD KVA		C.B. AMP/POLES	C.B. AMP/POLES	LOAD KVA		DESCRIPTION				
	A	B			A	B					
RECEPTACLE (CABINET)	.18		20 / 1	20 / 1	.09		LIGHTING (STANCHION)				
CCTV CAMERA		.30	20 / 1	20 / 1		.50	SPACE HEATER 500 WATTS				
SENTEX INTERCOM SYSTEM	.30		20 / 1	20 / 1	1.0		WEIGH STATION ACCESS PANEL				
PLC		1.0	20 / 1	20 / 1			SPARE				
EQUIP. RACK-PATCH PANEL	.30		20 / 1	20 / 1			SPARE				
TOTAL CONNECTED KVA		1.78	1.3	3.67		1.09	.50				



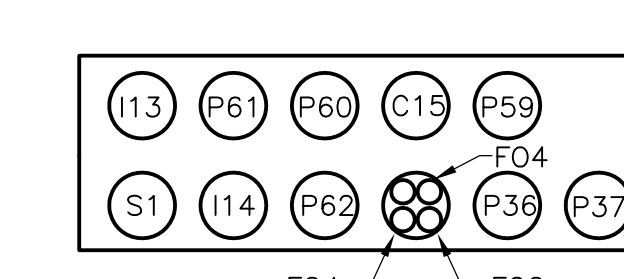
**SECTION 1**  
N.T.S.

- NOTES:**
- PROVIDE A NEMA 4X STAINLESS STEEL LOCKING PEDESTAL CABINET TO HOUSE EQUIPMENT AS SHOWN. ALL CABLING SHALL BE INSTALLED IN CONDUIT, 480V WIRING SHALL BE SEPARATED FROM LOW VOLTAGE WIRING.
  - MOUNT NEW CCTV CAMERA ON EXISTING LIGHT POLE. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL MOUNTING HARDWARE REQUIRED FOR A COMPLETE INSTALLATION. CAMERA SHALL BE INSTALLED 20'-0" ABOVE FINISHED GRADE.
  - INSTALL GROUND RODS NEAR CENTER OF SCALE PIT BOND GROUND ROD TO SLAB REBAR BY CADWELD METHOD MAKING SURE THEY PROTRUDE 4" ABOVE FLOOR AFTER POURING.
  - REFER TO DRAWING GD-E-26 FOR UNDERGROUND RACEWAY SCHEDULE.
  - WORK THIS DRAWING WITH SITE PLAN DRAWING GD-E-6 AND CCTV, CARD ACCESS SYSTEM RISER DIAGRAM GD-E-32.

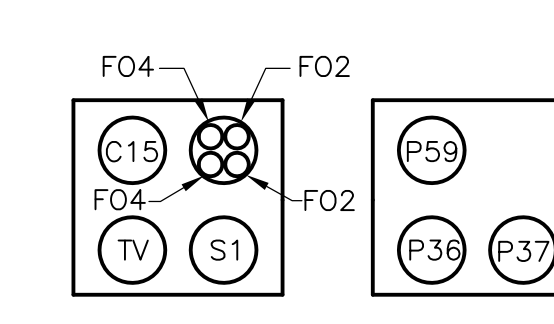
- LEGEND:**
- CARD ACCESS CONTROLLER (KANTECH KT-200)
  - FIBER OPTIC CABLE INTERFACE PANEL (F/O TO RS485 CONVERTER)
  - SCADA SYSTEM PLC
  - VIDEO TRANSMITTER
  - EQUIPMENT RACK / PATCH PANEL
  - UPS



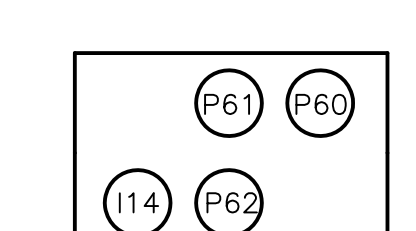
**ENLARGED PLAN "D"**  
N.T.S.



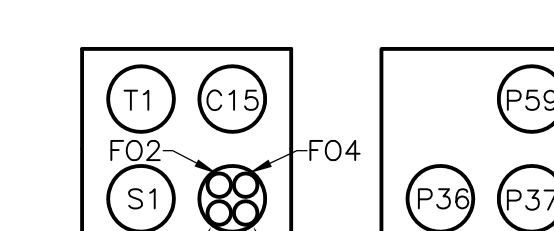
**SECTION 55**  
N.T.S.



**SECTION 56**  
N.T.S.



**SECTION 57**  
N.T.S.

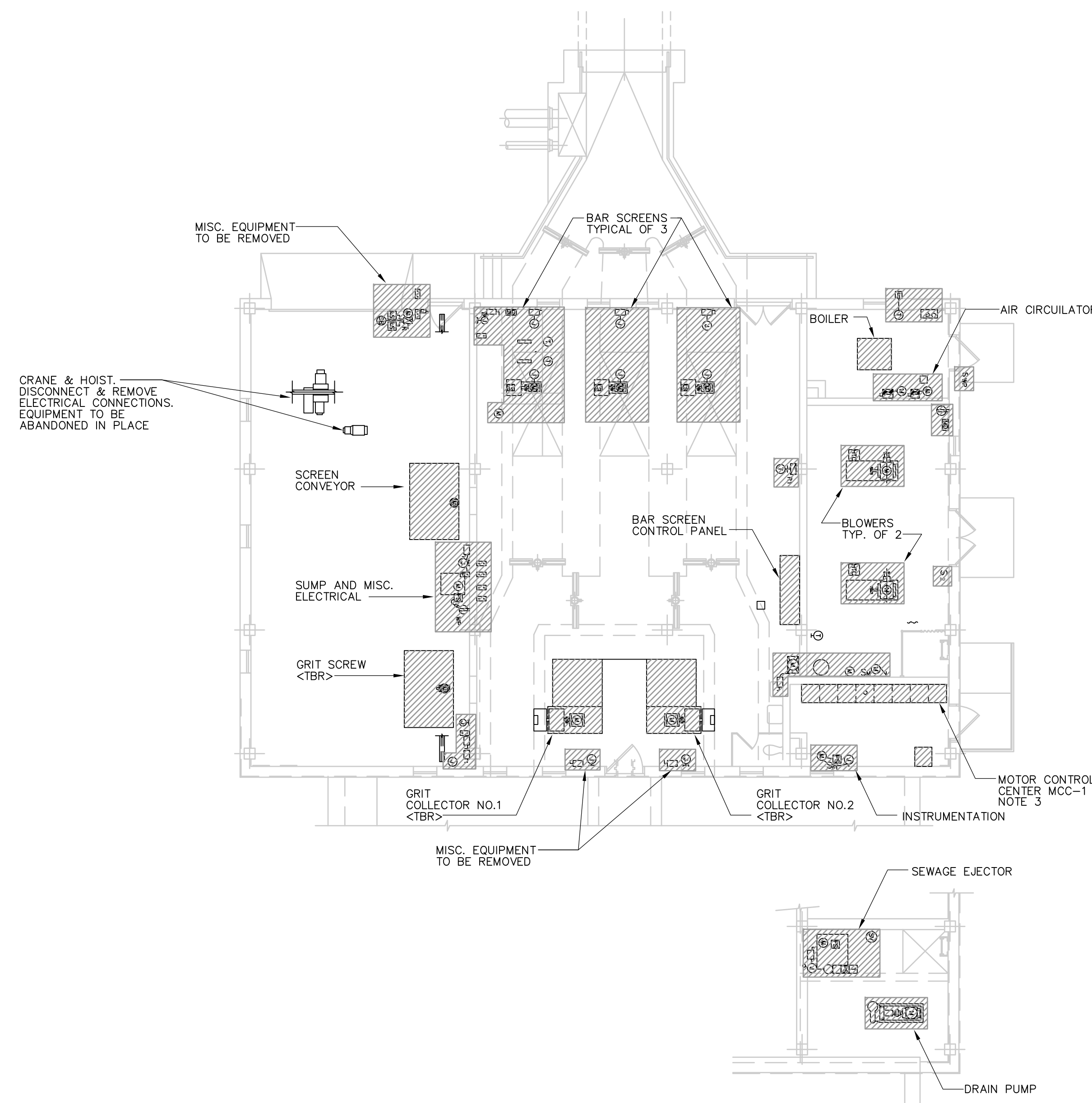


**SECTION 58**  
N.T.S.

RECORD DRAWING

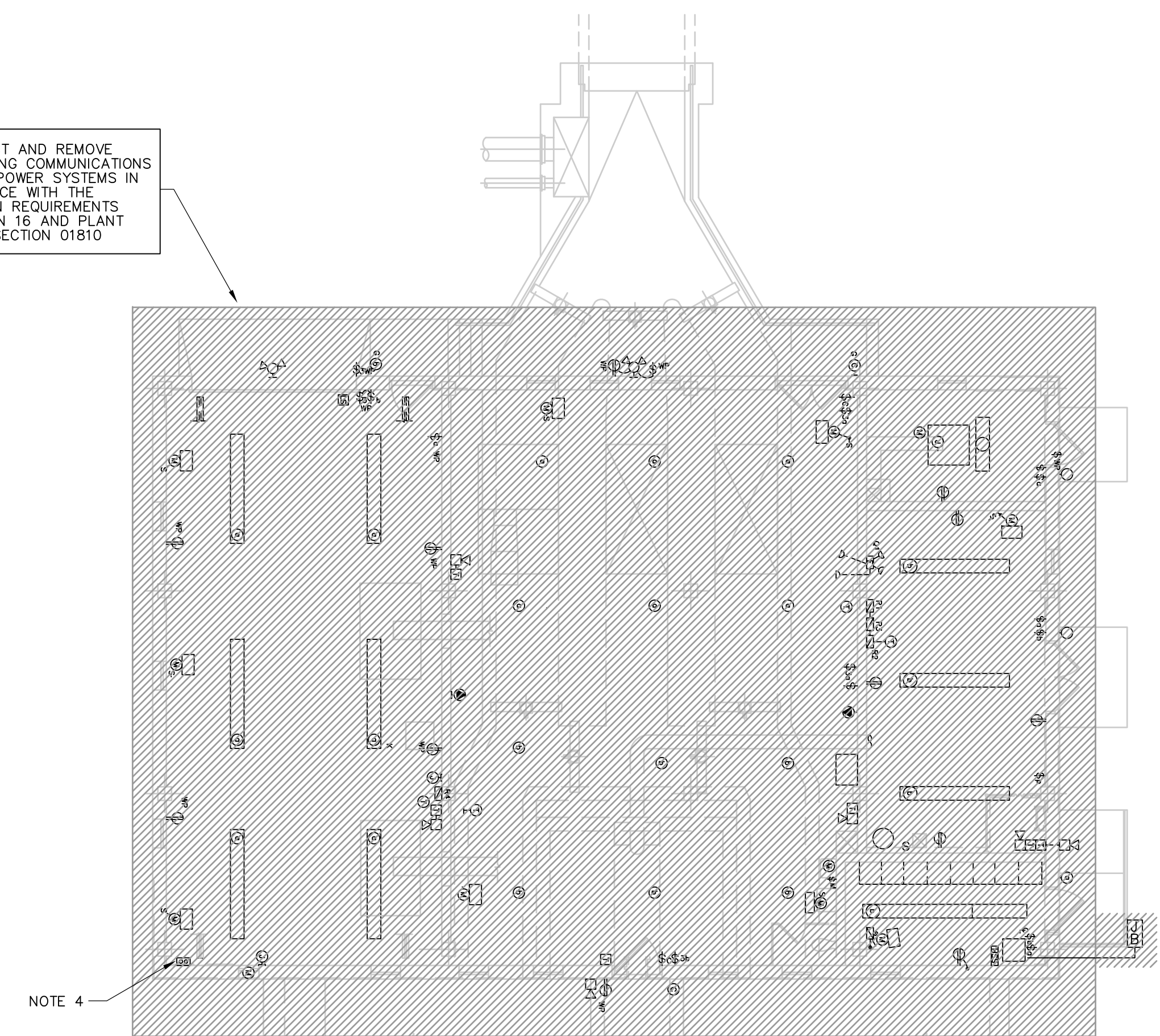
CADD FILE NO. EMISC003.DWG DESIGNED BY: SS DRAWN BY: OR SHEET CHK'D BY: BDS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024		PROJECT NO. 1289\35370 Sht. 343 of 386	
REV. NO. DATE DRWN CHKD REVISED FOR THE RECORD				WASTEWATER TREATMENT FACILITY IMPROVEMENTS		MISCELLANEOUS ELECTRICAL PLANS & DETAILS		GD-E-39	





POWER DEMOLITION  
**PLAN**  
1/8" = 1'-0"  
4 2 0 4 8

DISCONNECT AND REMOVE ALL LIGHTING COMMUNICATIONS & SMALL POWER SYSTEMS IN ACCORDANCE WITH THE DEMOLITION REQUIREMENTS OF DIVISION 16 AND PLANT MOPO IN SECTION 01810



LIGHTING & SYSTEMS DEMOLITION  
**PLAN**  
1/8" = 1'-0"  
4 2 0 4 8

- NOTES:
- EQUIPMENT IDENTIFIED AS EXISTING TO REMAIN "<ETR>" SHALL BE DISCONNECTED AND THE ELECTRICAL WIRING AND RACEWAY SYSTEMS REMOVED IN ITS ENTIRETY. REFER TO NEW WORK PLANS FOR RE-CONNECTION DETAILS.
  - ALL DEMOLITION SHALL BE DONE IN ACCORDANCE WITH PLANT MOPO SECTION 01810 AND THE REQUIREMENTS STATED IN DIVISION 16.
  - AUTOMATIC TRANSFER SWITCH & ASSOCIATE OVERCURRENT & MISC. PROTECTIVE DEVICES INSTALLED IN MCC SHALL BE REMOVED & TURNED OVER TO THE OWNER AT A LOCATION ON SITE TO BE DETERMINED.
  - DISCONNECT & REMOVE EXISTING 12" X 12" X 8" COMMUNICATIONS PULLBOX. EXISTING CABLES FROM UNDERGROUND DUCTBANK SHALL REMAIN FOR CONNECTION TO NEW COMMUNICATIONS TERMINAL BOX & DEVICES. EXISTING CABLES SHALL BE PULLED BACK SUCH TO FACILITATE THE INSTALLATION ON THE NEW PULLBOX INDICATED ON HW-E-2 & GD-E-32.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EHWD001.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024

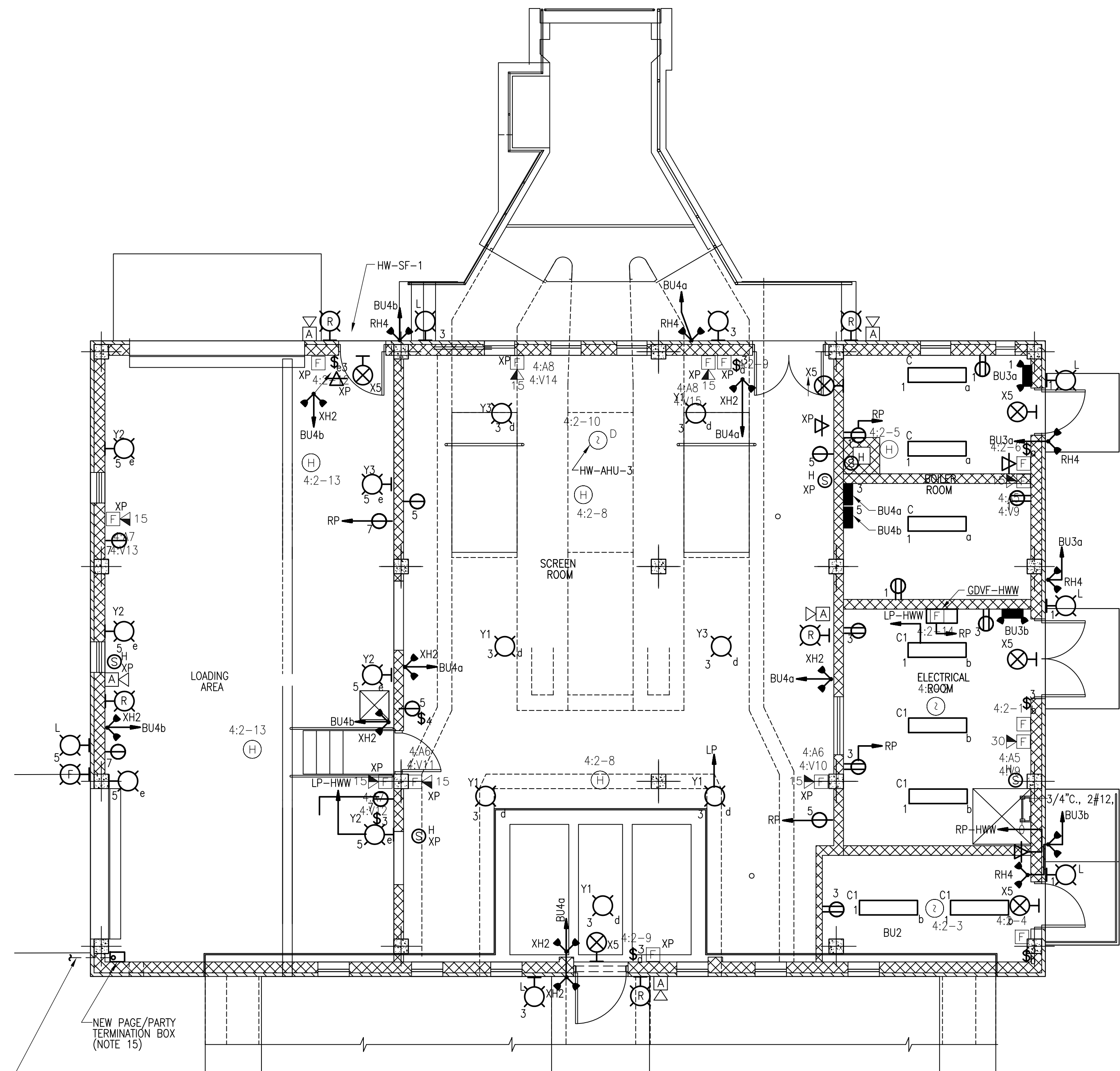
**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

**EXISTING GRIT & SCREENINGS FACILITY  
DEMOLITION PLANS**

PROJECT NO.  
1289\35370

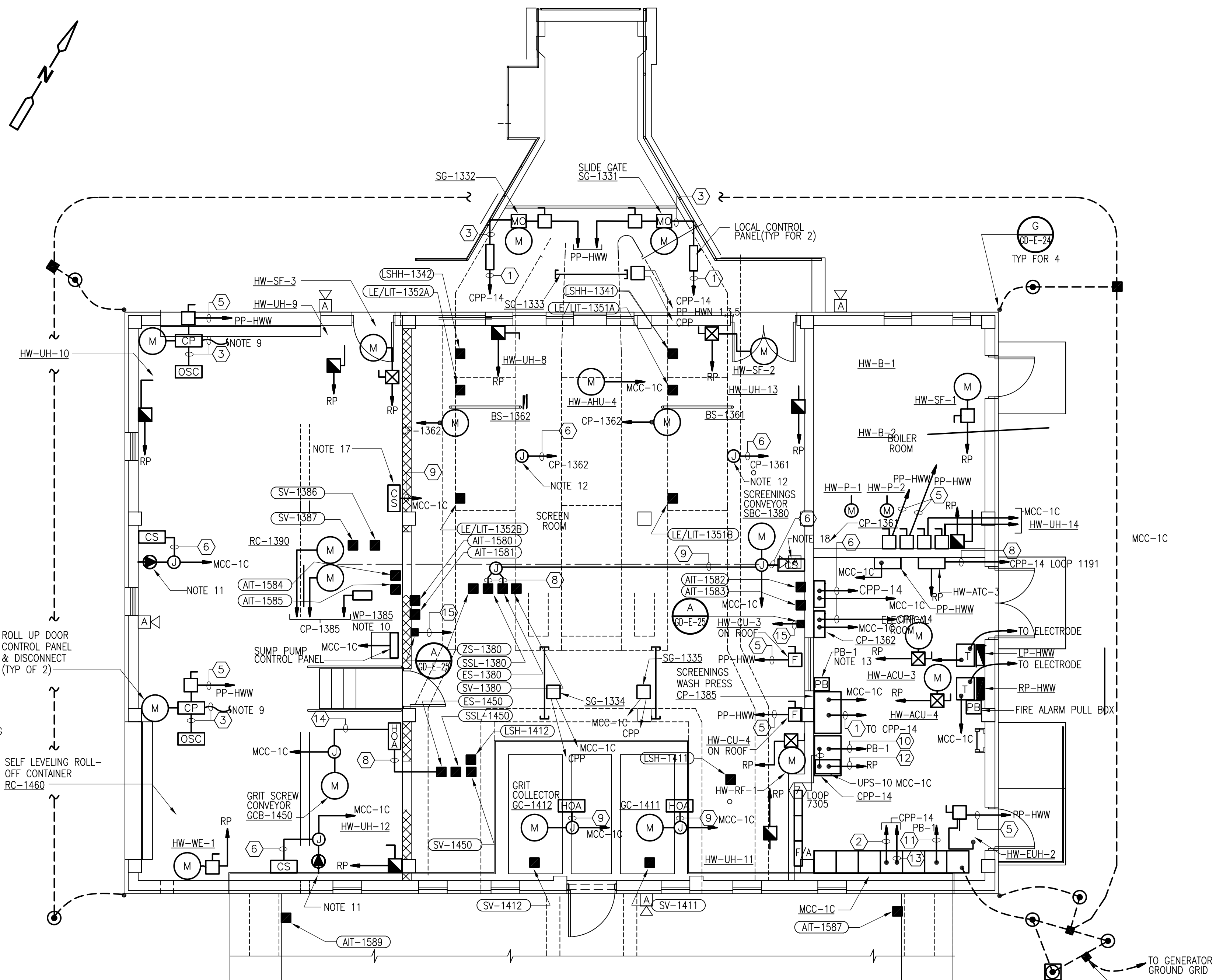
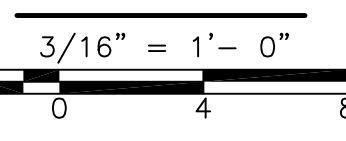
Sht. 344 of 386

**HW-E-1**



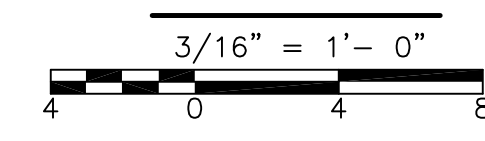
WEST HEADWORKS LIGHTING & SYSTEMS

PLAN



WEST HEADWORKS POWER

PLAN



**CONDUIT AND WIRE LEGEND**  
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C., 12#14, 1#14G
②	3/4" C., 2-2/C T.S. #16 T.S.
③	3/4" C., WIRE BY VENDOR
④	3/4" C., 2#12, 1#12G.
⑤	3/4" C., 3#12, 1#12G.
⑥	3/4" C., 14#14, 1#14G
⑦	3/4" C., 4#14, 1#14G
⑧	3/4" C., 2#14, 1#14G
⑨	3/4" C., 6#14, 1#14G
⑩	3/4" C., INSTALL DIV. 13 CABLE
⑪	3/4" C., PMS ETHERNET CABLE
⑫	3/4" C., 2#10, 1#10G.
⑬	1 1/2" C., 62#14, 1#14G
⑭	3/4" C., 8#14, 1#14G.
⑮	3/4" C., 1#6 COPPER GROUND TO GROUNDING ELECTRODE

- NOTES:**
- FOR AREA CLASSIFICATION SEE DRAWING NO. GD-E-3 AND GD-E-4.
  - MOUNT TYPE "C" & "C1" FIXTURES UP 12'-0".
  - MOUNT TYPE "L" FIXTURES UP 9'-0" AFG.
  - MOUNT TYPE "Y1" FIXTURES UP 14'-0".
  - MOUNT TYPE "Y2" FIXTURES LOADING AREA ONLY UP 14'-0".
  - NOT USED.
  - NOTIFICATIONS LP AND RP ARE USED FOR THIS SHEET ONLY. ON ONE LINE DIAGRAM AND PANEL SCHEDULES. THESE PANELS ARE IDENTIFIED AS LP-HWW AND RP-HWW.
  - FUSE SIZE/RATING SHALL NOT EXCEED THE MANUFACTURER'S RECOMMENDED SIZE MARKED ON THE EQUIPMENT.
  - FOR CONNECTION TO OVERHEAD DOOR PROTECTIVE DEVICE.
  - SCREENINGS WASH PRESS AND LOCAL CONTROL STATION BY EQUIPMENT MANUFACTURER.
  - FOR CONNECTION TO SELF LEVELING ROLL-OFF CONTAINER.
  - FOR CONNECTION TO BAR SCREEN CONTROL DEVICES.
  - COMMUNICATIONS CABLE PULL BOX FOR POWER MONITORING AND I&C NETWORK CABLES.
  - FOR LOCATION OF HVAC THERMOSTATS REFER TO DRAWING HW-H-4.
  - PROVIDE & INSTALL COMMUNICATION CABLE FROM TERMINATION BOX TO DEVICES THROUGHOUT THIS BUILDING AND TIE TO COMMUNICATION CABLE SERVING THE EAST S&G FACILITY. REFER TO DRAWING HW-E-4.
  - ALL RECEPTACLES IN SCREENINGS LOADING AREA SHALL BE EXPLOSION PROOF.
  - SBC-1380 CONTROL STATION REFER TO GD-E-36 FOR ADDITIONAL DETAILS.
  - SBC-1380 MAIN CONTROL STATION REFER TO GD-E-36 FOR ADDITIONAL DETAILS.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EHWPLO1.DWG
DESIGNED BY:	JAR
DRAWN BY:	OR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

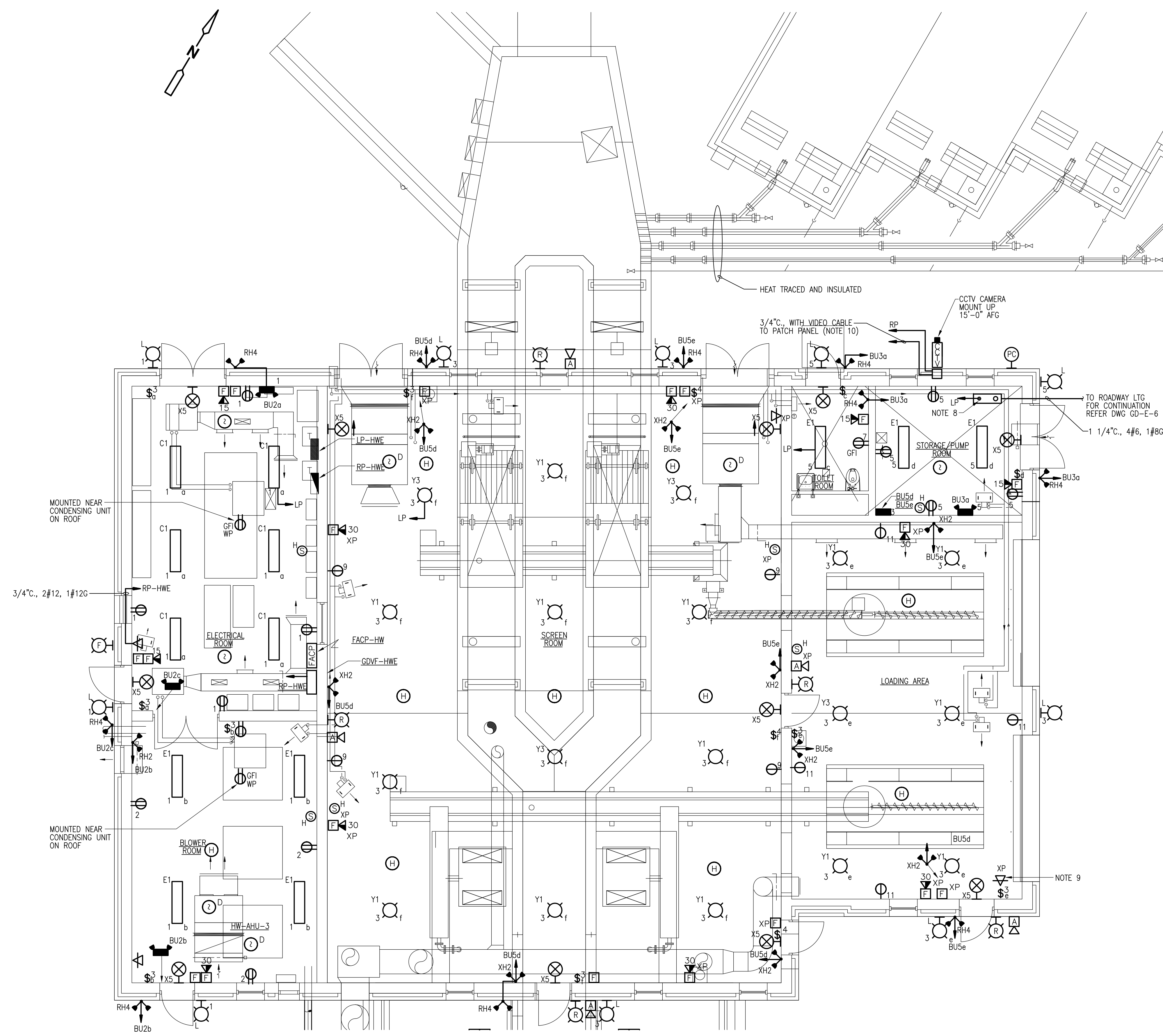
UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS

WEST GRIT & SCREENINGS FACILITY  
POWER, LIGHTING & SYSTEM PLAN

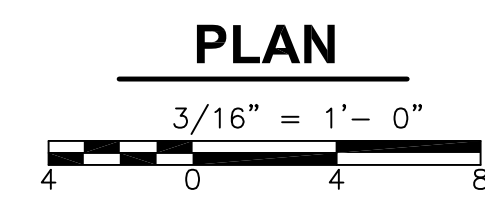
PROJECT NO. 1289\35370  
Sht. 345 of 386  
HW-E-2





- NOTES:
1. FOR AREA CLASSIFICATION REFER TO DRAWING GD-E-3 AND GD-E-4.
  2. MOUNT TYPE "C1" FIXTURES UP 10'-0".
  3. MOUNT TYPE "E1" FIXTURES UP 10'-0".
  4. MOUNT TYPE "Y1" FIXTURES SCREEN ROOM ONLY UP 14'-0".
  5. MOUNT TYPE "Y1" FIXTURES LOADING AREA ONLY UP 12'-6".
  6. MOUNT TYPE "L" FIXTURES UP 9'-0".
  7. NOT USED.
  8. ROADWAY LTC CONTACTOR & HAND SWITCH REFER TO WIRING DIAGRAM ON SD-E-2
  9. COMMUNICATION SYSTEM CABLE SHALL TIE TO WEST GRIT & SCREENINGS FACILITY USING UNDERGROUND DUCTBANKS. REFER TO DRAWING GD-E-6 AND GD-E-27 FOR DUCTBANKS & SECTIONS.
  10. REFER TO CCTV, CARD ACCESS RISER DIAGRAM DRAWING GD-E-32.

EAST HEADWORKS LIGHTING & SYSTEMS



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EHWEPL02.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**EAST GRIT & SCREENINGS FACILITY  
 LIGHTING & SYSTEM PLAN**

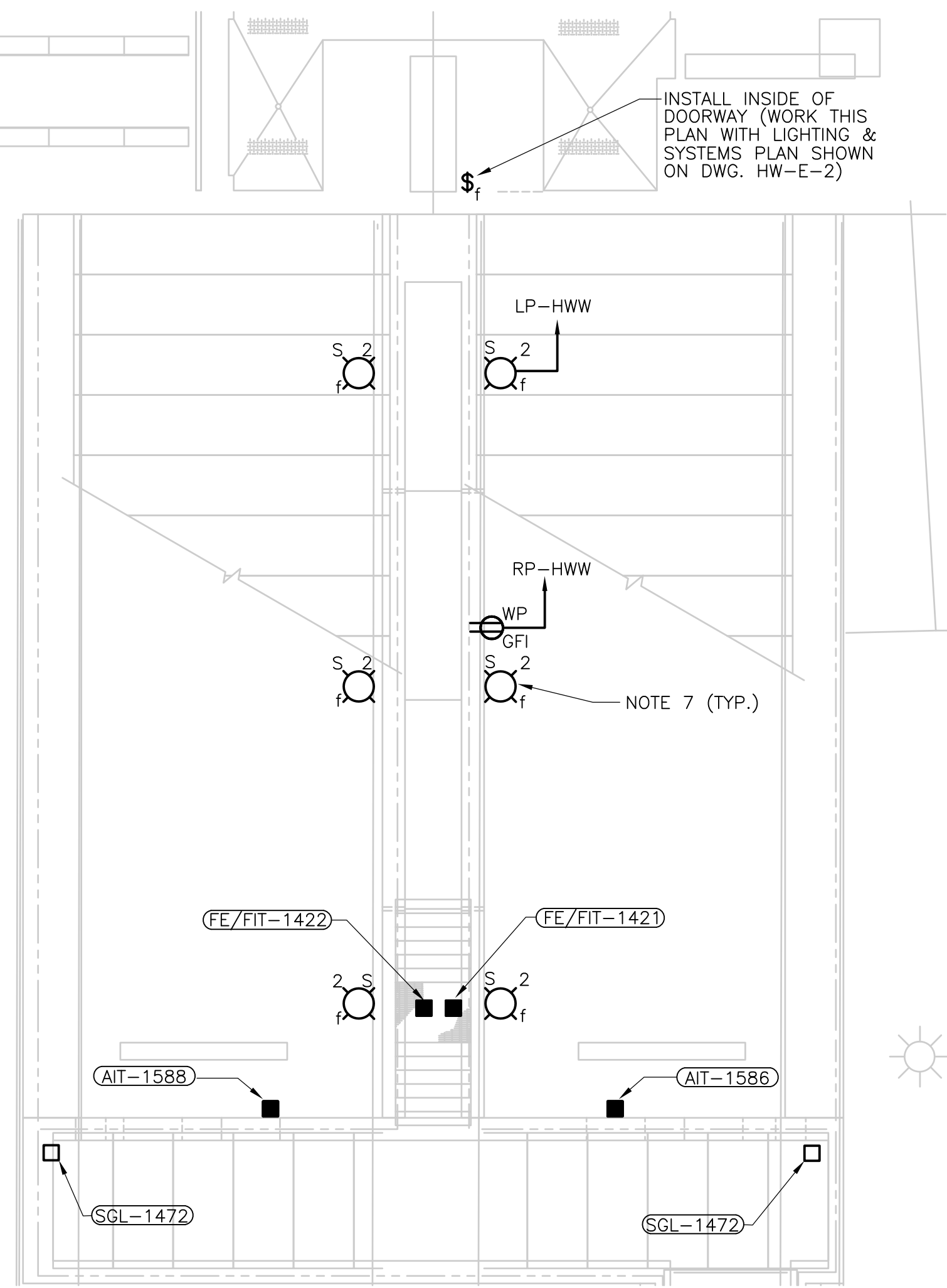
PROJECT NO.  
1289\35370

Sht. 347 of 386

**HW-E-4**

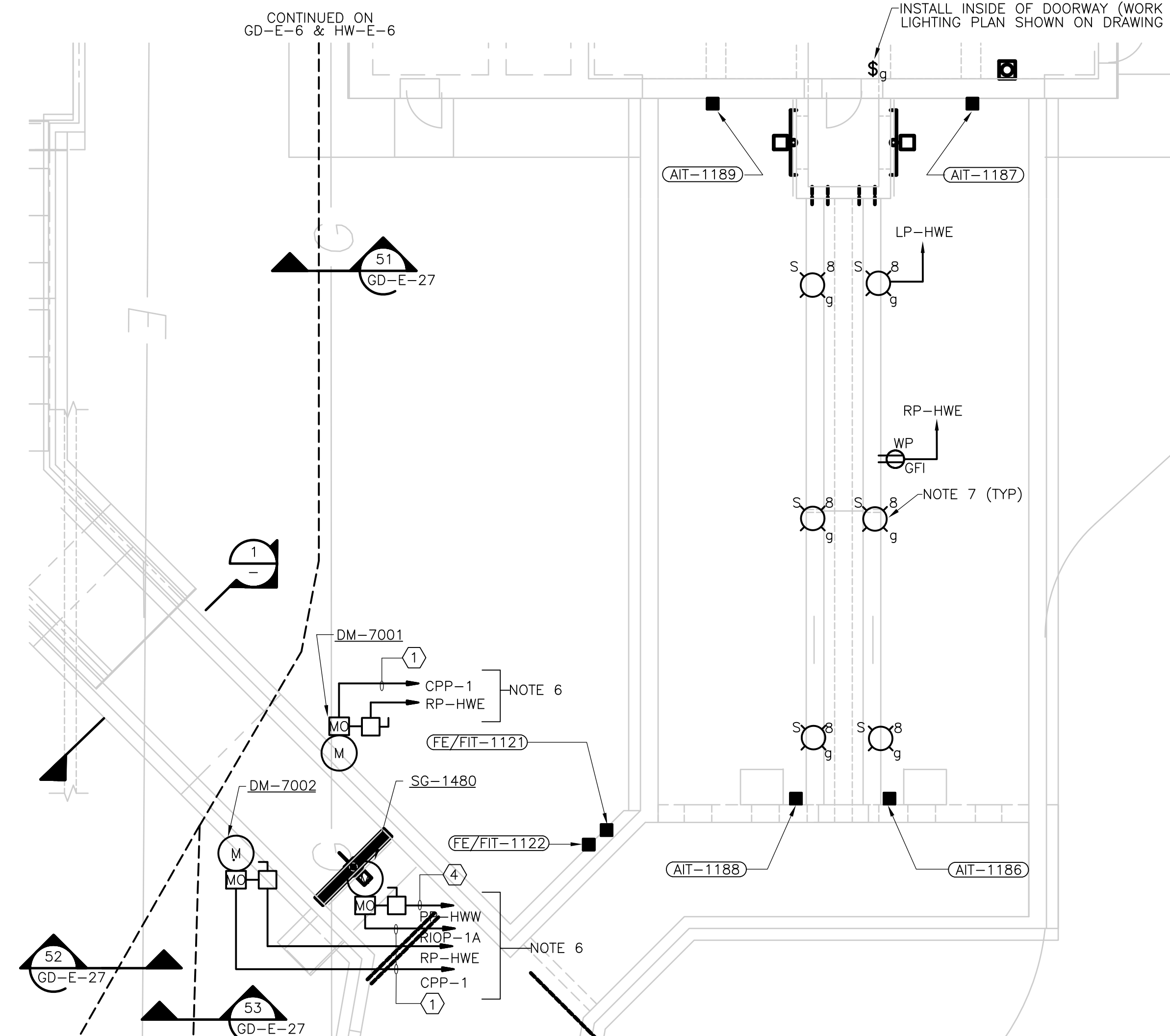
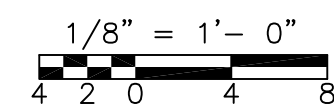
ACCESSION NO. 1289-65747

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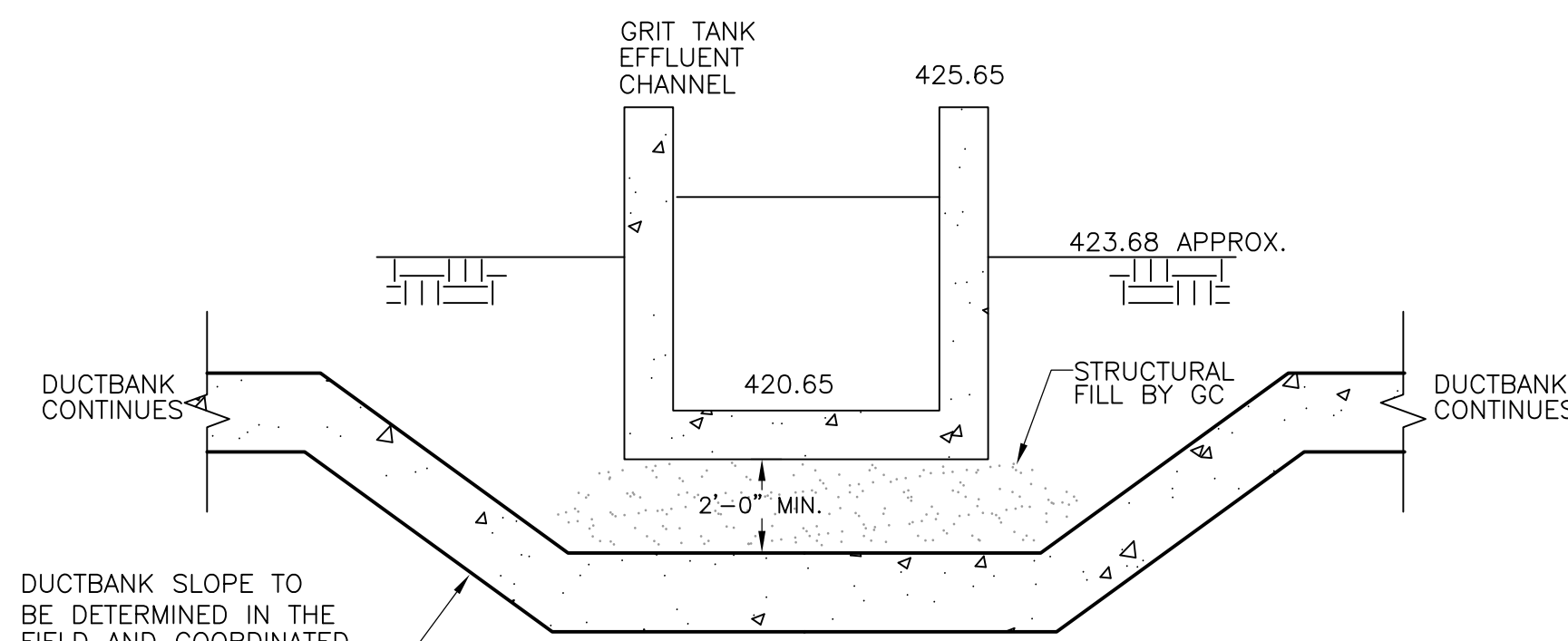
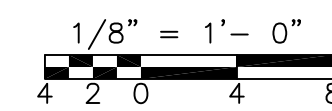
WEST HEADWORKS AERATED GRIT TANKS LIGHTING

PLAN

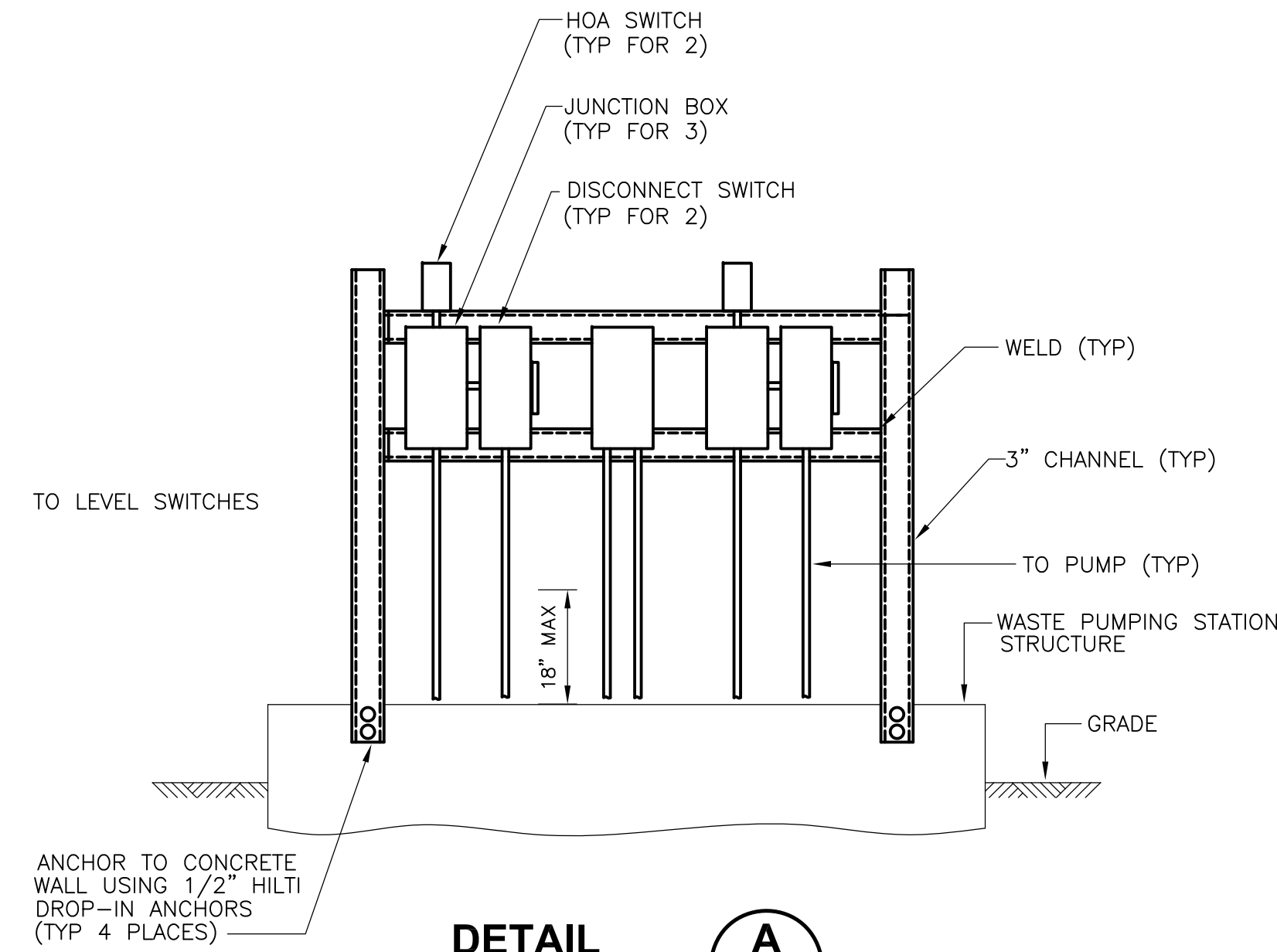


AERATED GRIT TANKS

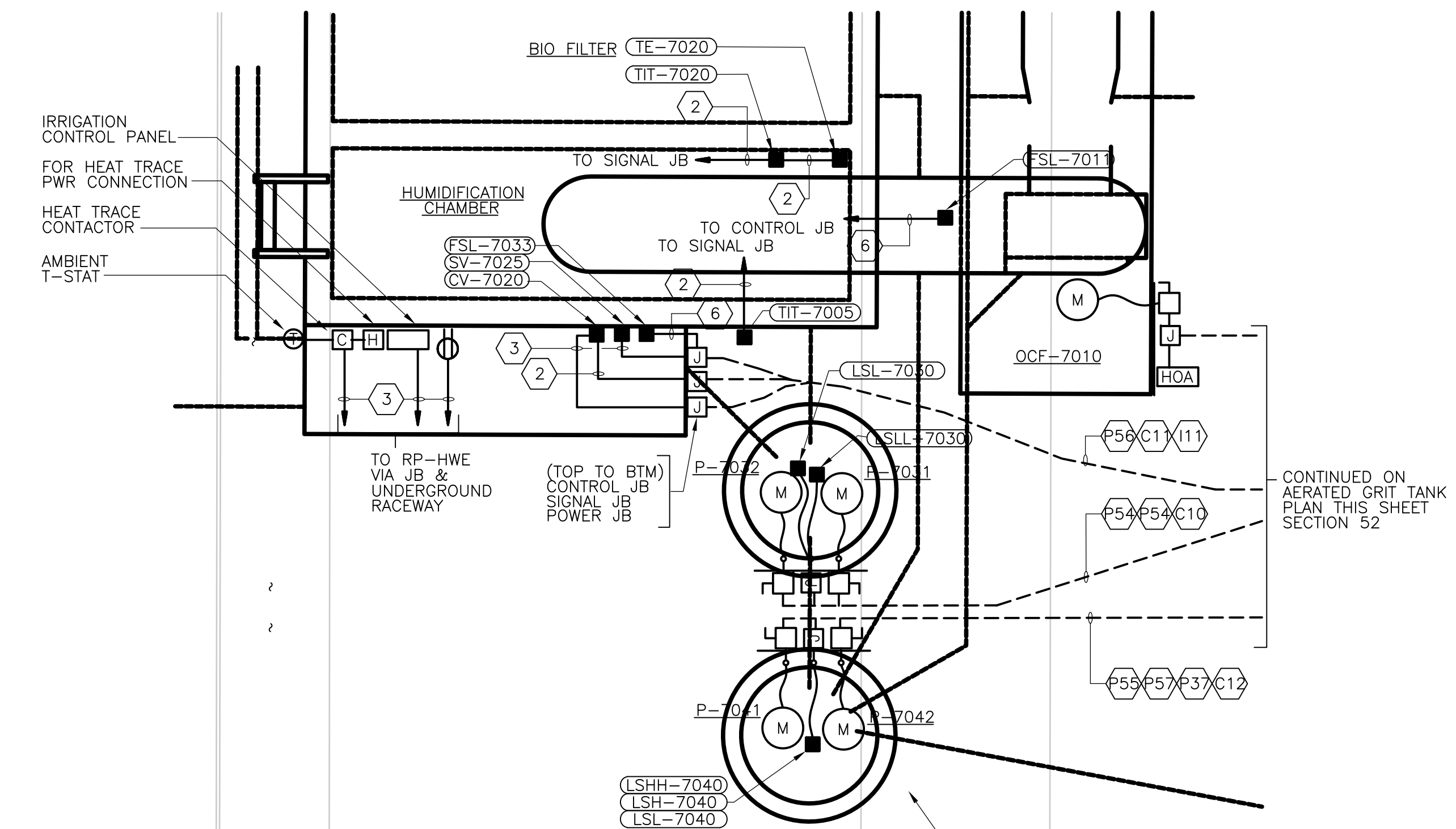
PLAN



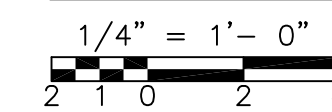
DUCTBANK/CHANNEL INTERSECTION  
SECTION 1  
N.T.S.



DETAIL A  
N.T.S.



ENLARGED ODOR CONTROL  
PLAN



RECORD DRAWING

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4" C., 14#14, 1#14G
②	3/4" C., 2-2/C #16 T.S.
③	3/4" C., 2#12, 1#12G
④	3/4" C., 3#12, 1#12G
⑤	3/4" C., 4#14, 1#14G
⑥	3/4" C., 2#14, 1#14G

NOTES:

- FOR CONTINUATION SEE DRAWINGS HW-E2 AND HW-E3.
- FOR ELECTRICAL CONNECTIONS SEE ONE LINE DIAGRAM ON DRAWING GD-E-15.
- FESTOON CABLE PROVIDED BY EQUIPMENT MANUFACTURER.
- FOR WIRES AND CONDUITS NOT SHOWN ON THIS DRAWING REFER TO ONE LINE DIAGRAMS ON DRAWINGS GD-E-15 AND GD-E-16.
- SUBMERSIBLE CABLES PROVIDED BY PUMP MANUFACTURERS.
- CONDUITS SHALL BE RUN EXPOSED ALONG EXTERIOR TANK WALLS. PROVIDE SUPPORTS AS NECESSARY.
- MOUNT STANCHION LIGHT FIXTURE FACING TOWARD AERATED GRIT TANKS.

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. EGRPLO01.DWG
DESIGNED BY: JAR
DRAWN BY: JAR
SHEET CHK'D BY: BDS
SCALE: AS NOTED
APPROVED BY: B. SQUIBB
DATE: MAY 2006

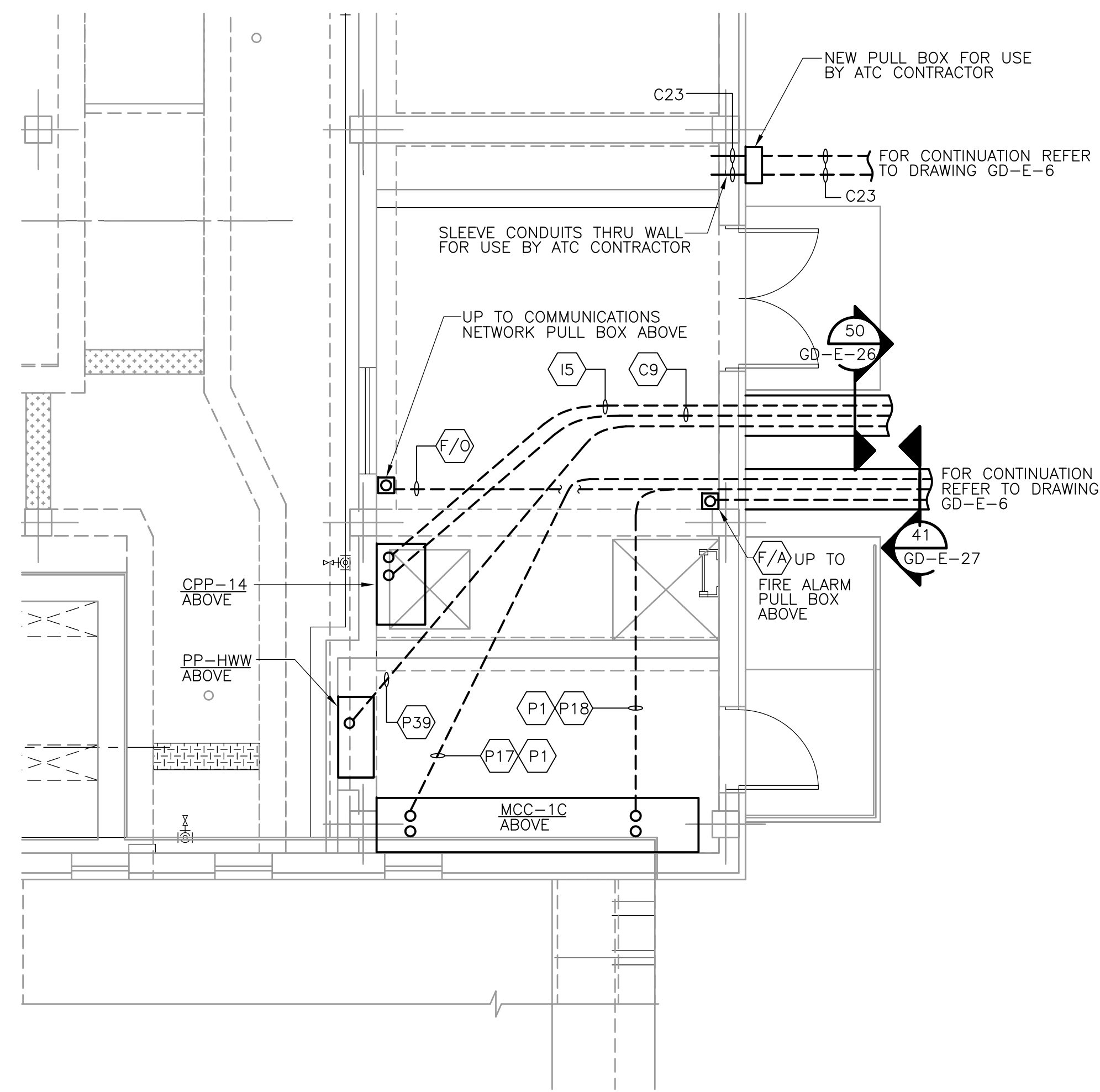


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

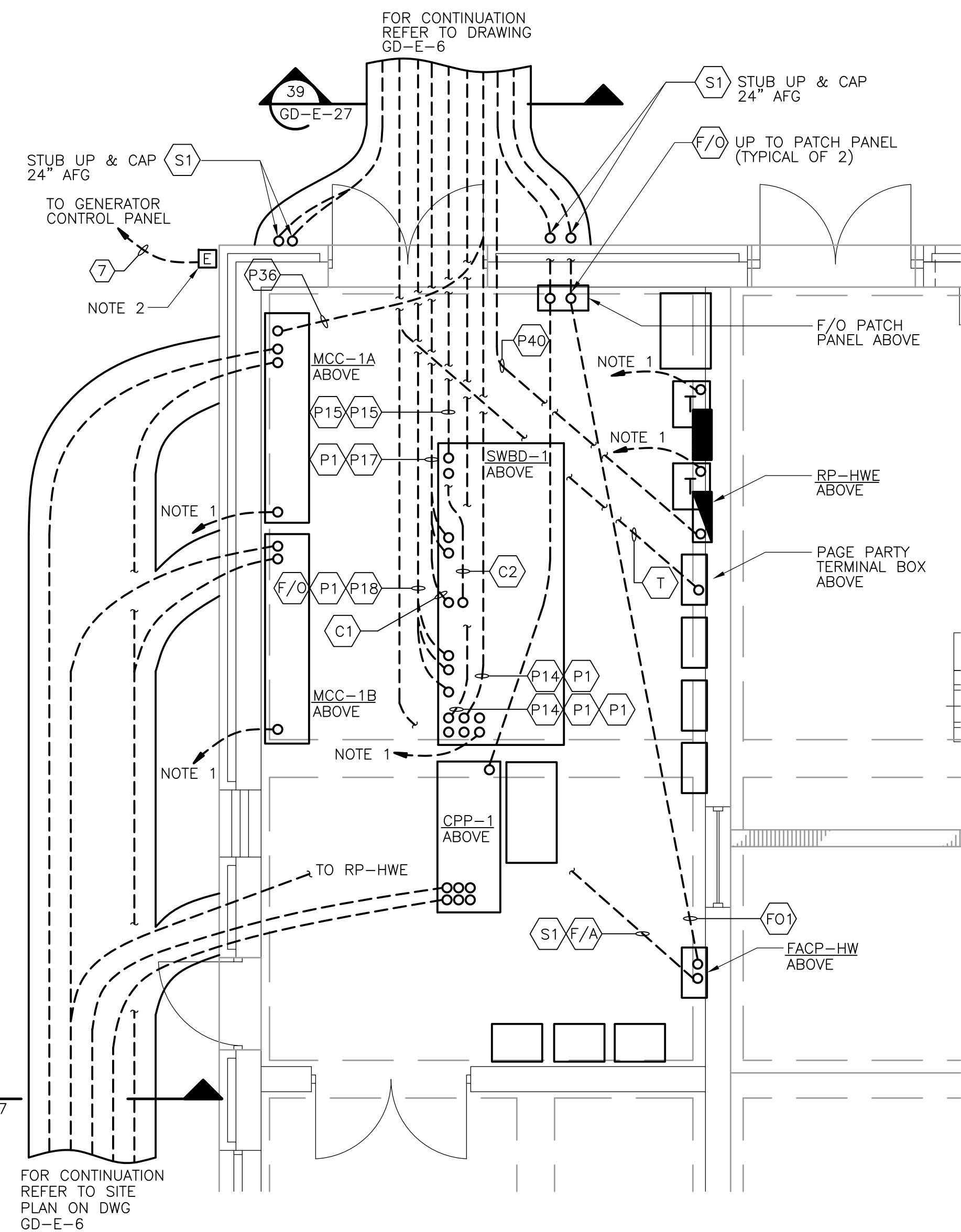
**ENLARGED SITE PLAN  
 GRIT AND SCREENINGS AREA**

PROJECT NO. 1289\35370
Sht. 348 of 386
<b>HW-E-5</b>

ACCESSION NO. 1289-6748



**WEST HEADWORK BURIED CONDUIT  
PLAN**  
1/4" = 1'-0"  
2 1 0 2 4

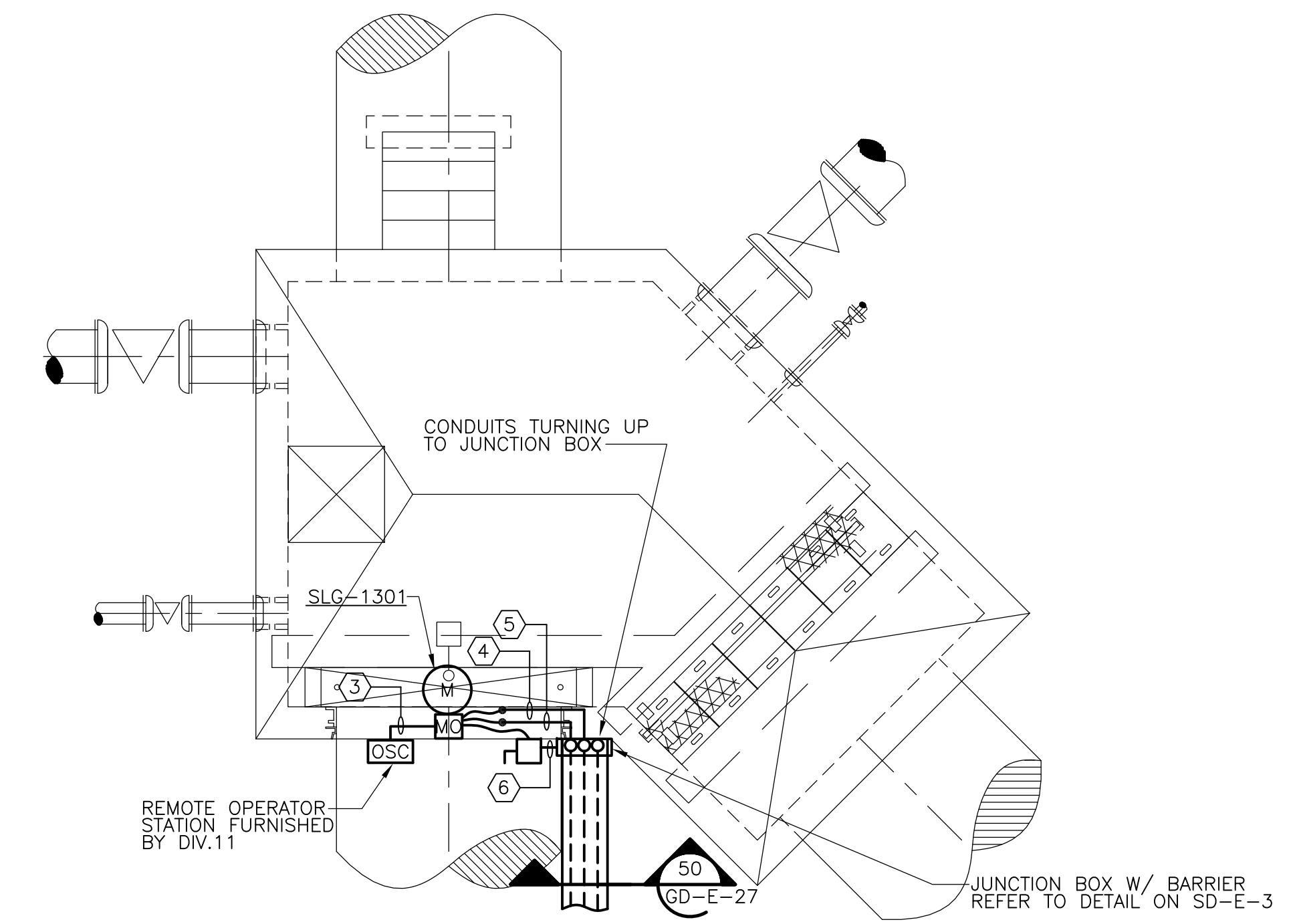


**EAST HEADWORK BURIED CONDUIT  
PLAN**  
1/4" = 1'-0"  
2 1 0 2 4

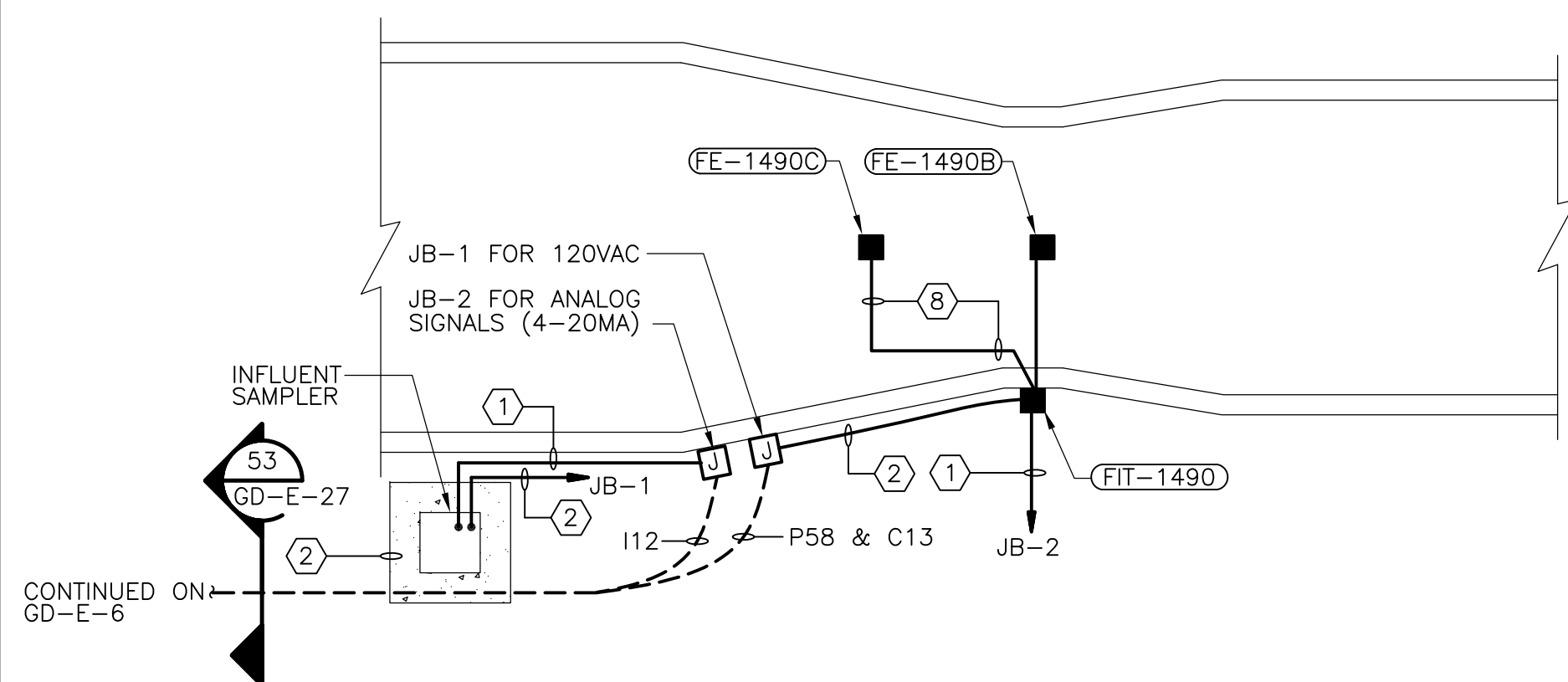
- NOTES:**
1. TO GROUNDING ELECTRODE GROUND GRID.
  2. GENERATOR REMOTE EMERGENCY STOP BUTTON FURNISHED LOOSE BY GENSET MANUFACTURER UNDER DIV.11 TO BE INSTALLED & WIRED UNDER THIS CONTRACT.

**CONDUIT AND WIRE LEGEND**  
(NUMBER REFERENCE THIS SHEET ONLY)

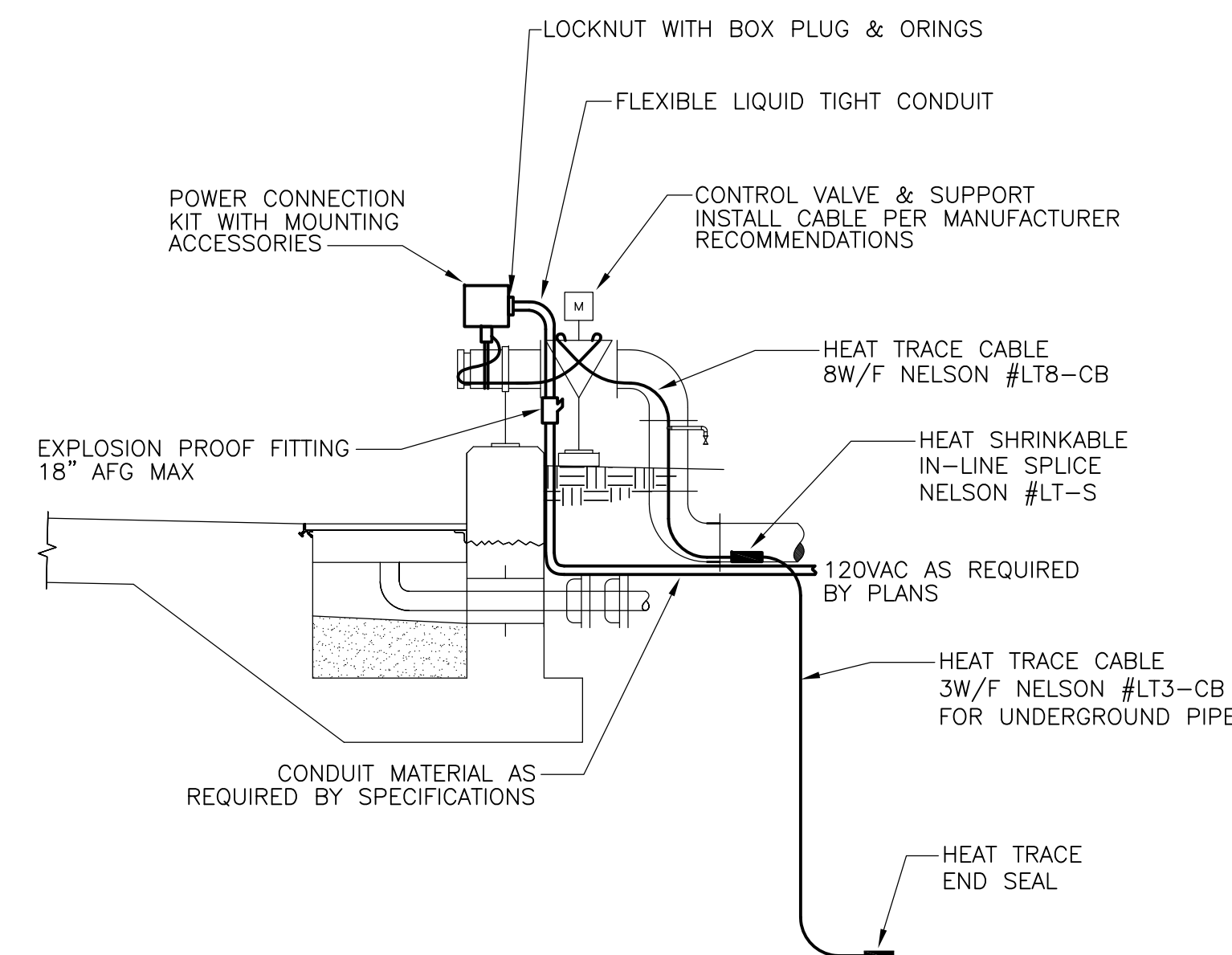
NO.	DESCRIPTION
1	3/4"C., 1-2/C #16 T.S.
2	3/4"C., 2#12, 1#12G
3	3/4"C., 6#4, 1#14G
4	3/4"C., 10#14, 1#14G
5	3/4"C., 2-2/C #16 T.S.
6	3/4"C., 3#12, 1#12G
7	3/4"C., 2#14, 1#14G
8	1"C., INSTALL CABLE FURNISHED BY DIV. 13



**FORCE MAIN JUNCTION BOX  
PLAN**  
1/4" = 1'-0"  
2 1 0 2 4



**GRIT EFFLUENT PARSHALL FLUME  
PLAN**  
1/4" = 1'-0"  
2 1 0 2 4



**SEPTAGE RECEIVING BAYS  
DETAIL 1**  
1/2" = 1'-0"

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EHWSC01.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

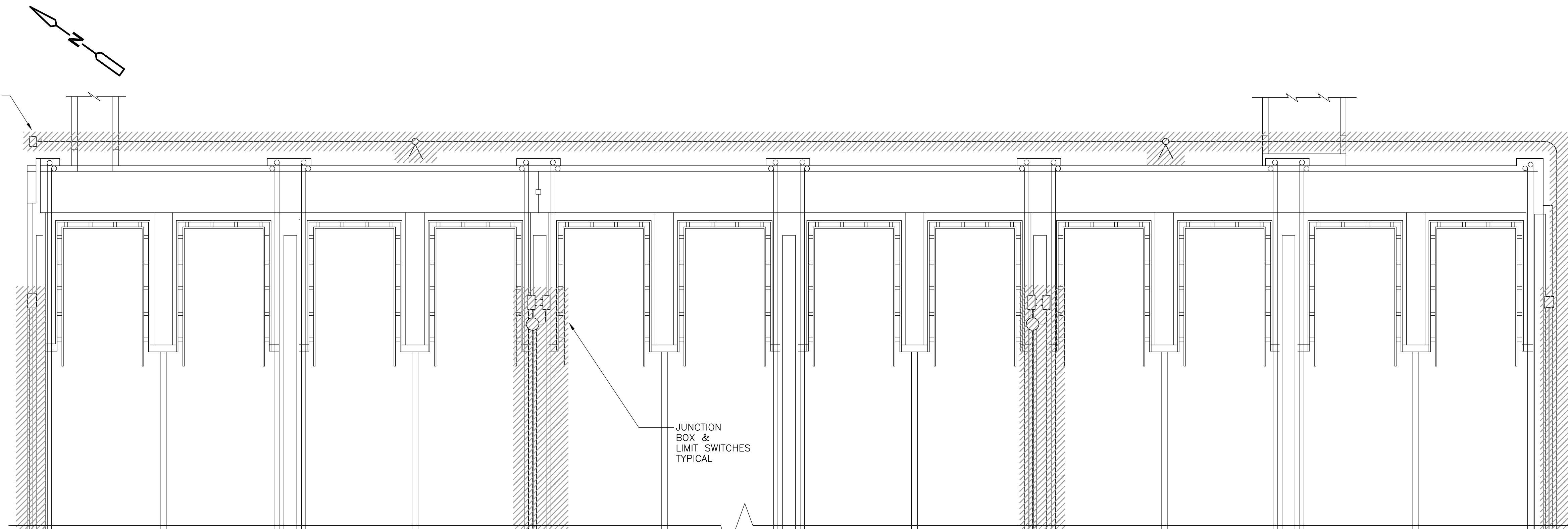
**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS**

**MISCELLANEOUS PART PLANS  
AND DETAILS**

PROJECT NO.  
1289\35370  
Sht. 349 of 386  
**HW-E-6**

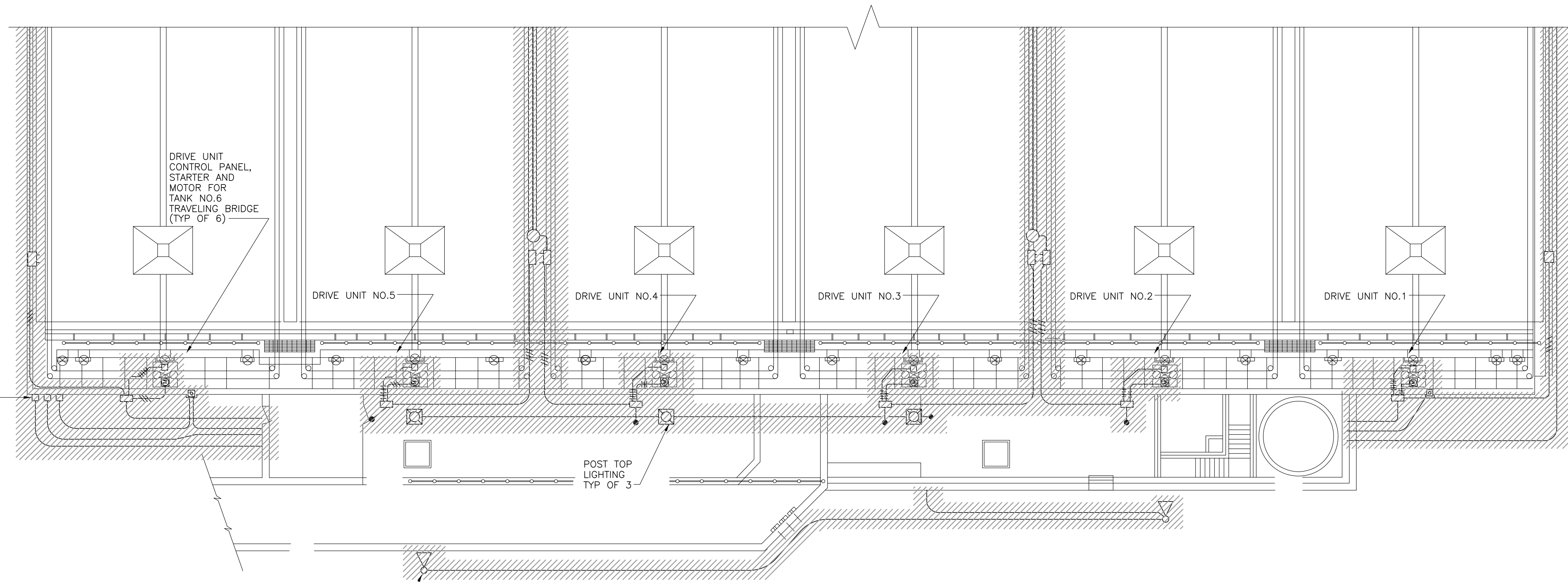
JUNCTION BOX FOR ADDITIONAL FLOOD LIGHTING



JUNCTION BOX & LIMIT SWITCHES TYPICAL

- NOTES**
- EQUIPMENT IDENTIFIED AS EXISTING TO REMAIN "<ETR>" SHALL BE DISCONNECTED AND THE ELECTRICAL WIRING AND RACEWAY SYSTEMS REMOVED IN IT'S ENTIRITY. REFER TO NEW WORK PLANS FOR RE-CONNECTION DETAILS.
  - ALL DEMOLITION SHALL BE DONE IN ACCORDANCE WITH PLANT MOPO SECTION 01810 AND THE REQUIRMENTS STATED IN DIVISION 16.

SPARE JUNCTION BOXES AND RACEWAYS



DRIVE UNIT CONTROL PANEL, STARTER AND MOTOR FOR TANK NO.6 TRAVELING BRIDGE (TYP OF 6)

DRIVE UNIT NO.5

DRIVE UNIT NO.4

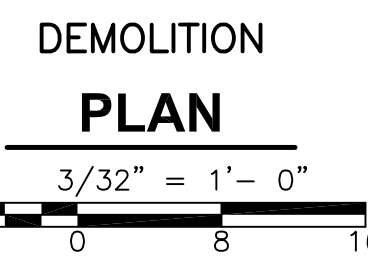
DRIVE UNIT NO.3

DRIVE UNIT NO.2

DRIVE UNIT NO.1

POST TOP LIGHTING TYP OF 3

FLOOD LIGHT TYPICAL OF 4



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
	3/07	SPV	ADT	REVISED FOR THE RECORD

CADD FILE NO.	EPTDM001.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

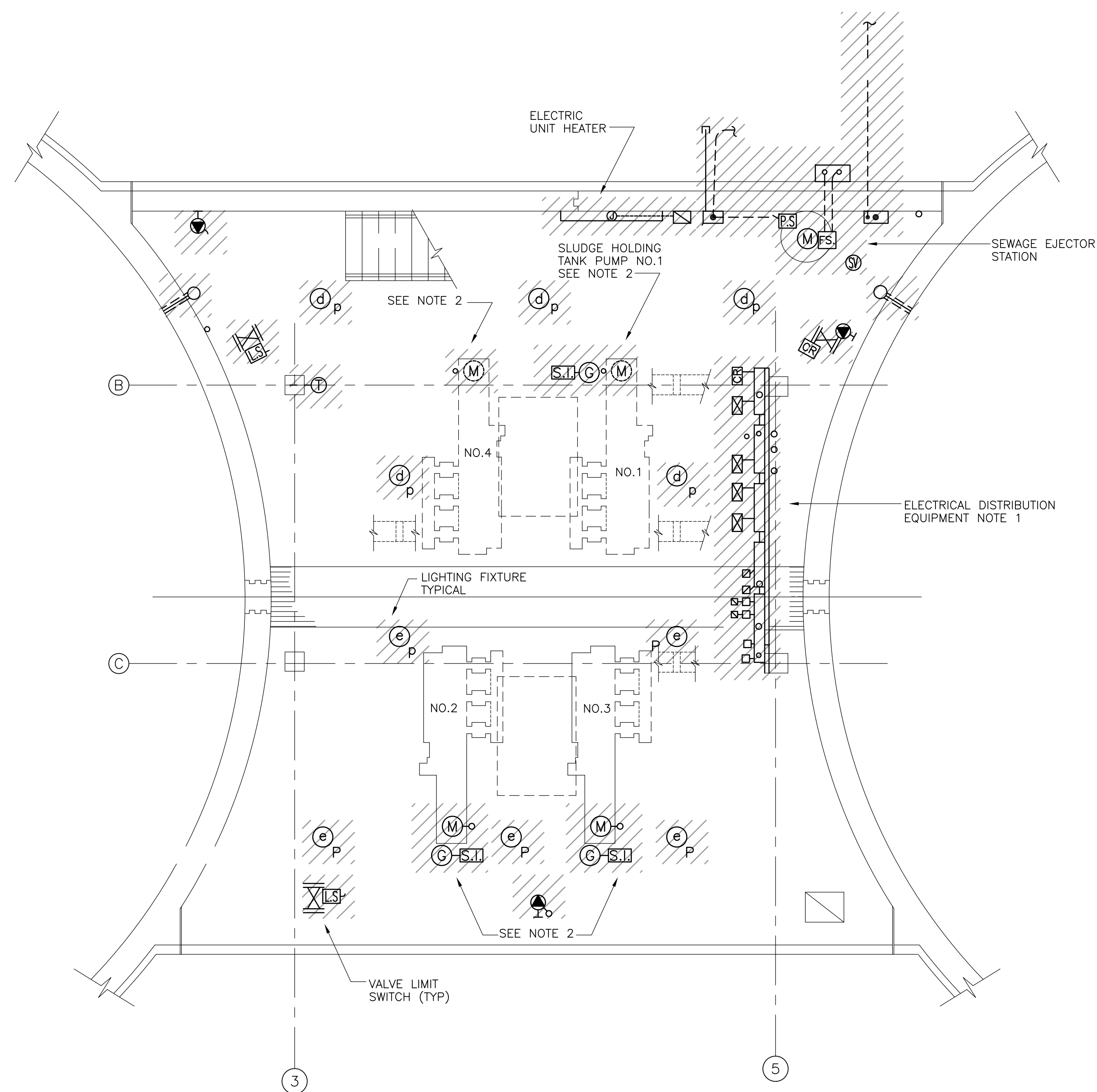
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 DEMOLITION PLAN**

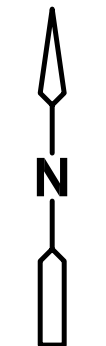
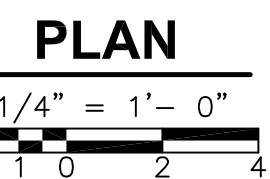
PROJECT NO.  
1289\35370

Sht. 350 of 386

**PT-E-1**

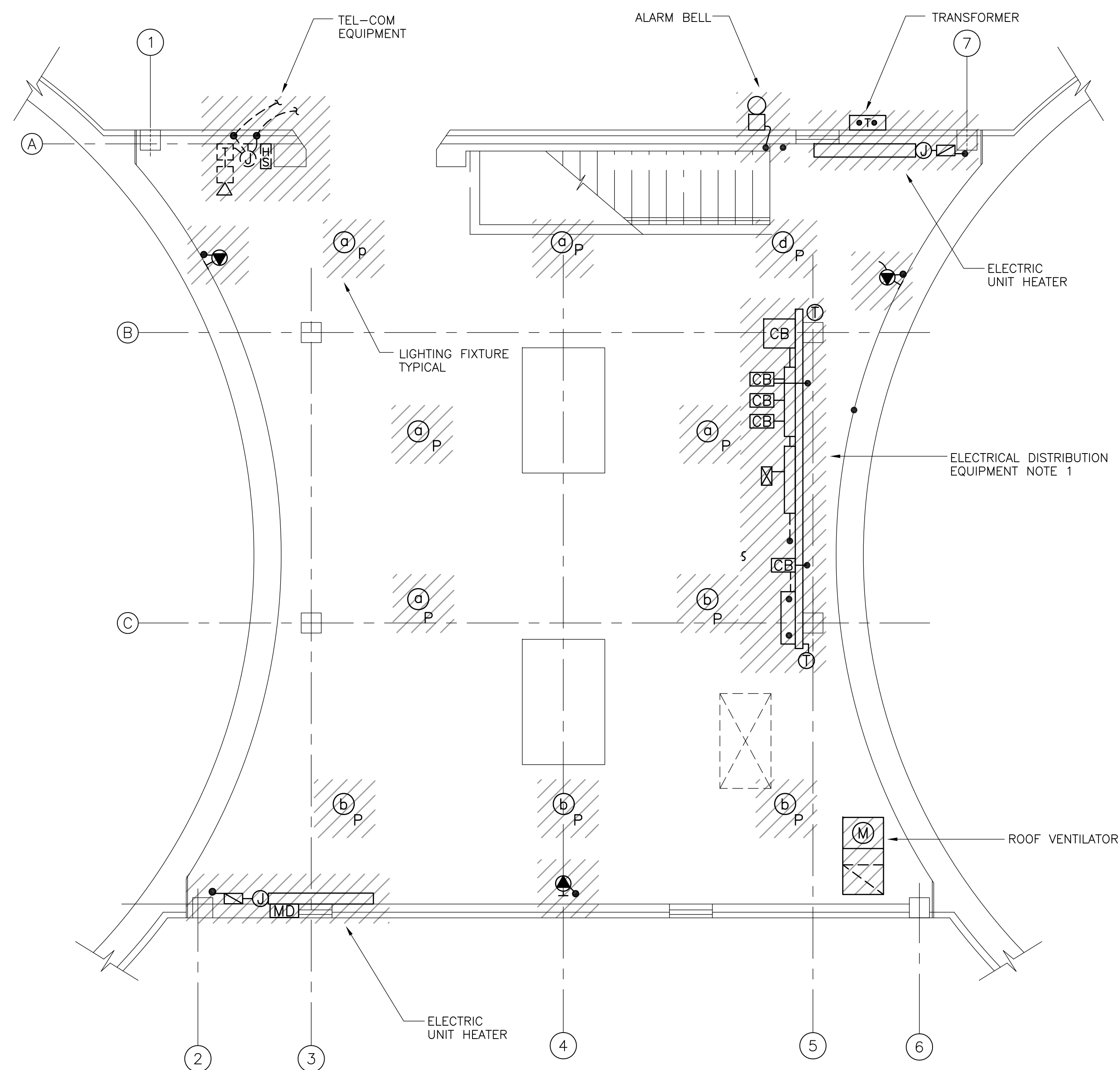


BASEMENT DEMOLITION

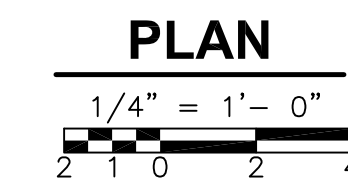


NOTES:

1. DISCONNECT AND REMOVE EXISTING DISTRIBUTION EQUIPMENT INCLUDING MOUNTING HARDWARE AND SUPPORTS IN ACCORDANCE WITH PLANT MOPO SECTION 01810 AND DIVISION 16 REQUIREMENTS.
2. DISCONNECT AND REMOVE CONDUIT, WIRE AND ANCILLARY DEVICES ASSOCIATED WITH THE SLUDGE STORAGE TANK PUMPS. FOR RECONNECTION DETAILS REFER TO NEW WORK PLANS.



FIRST FLOOR DEMOLITION



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

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DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

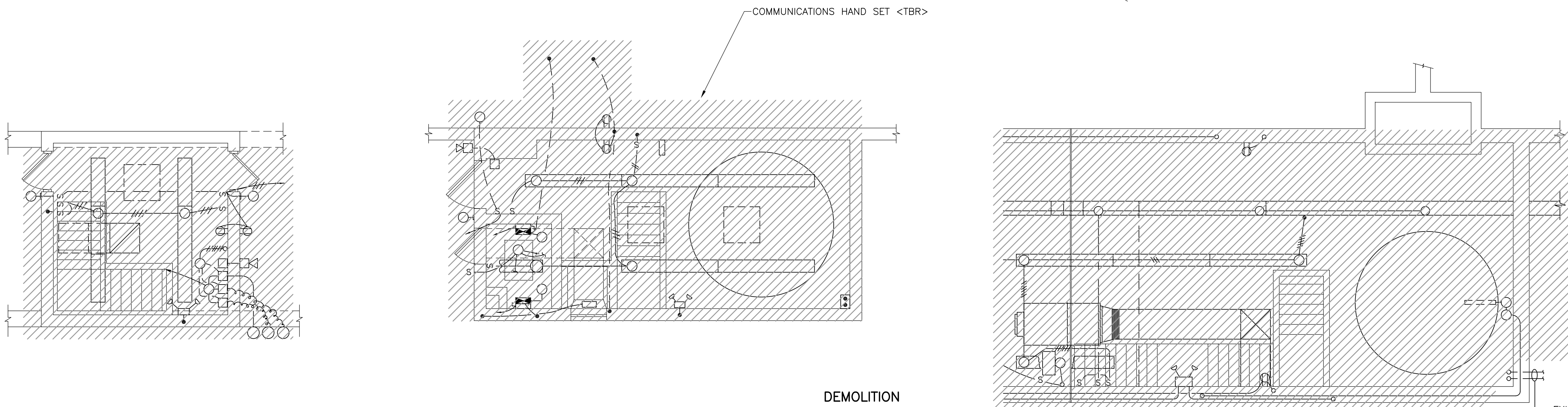
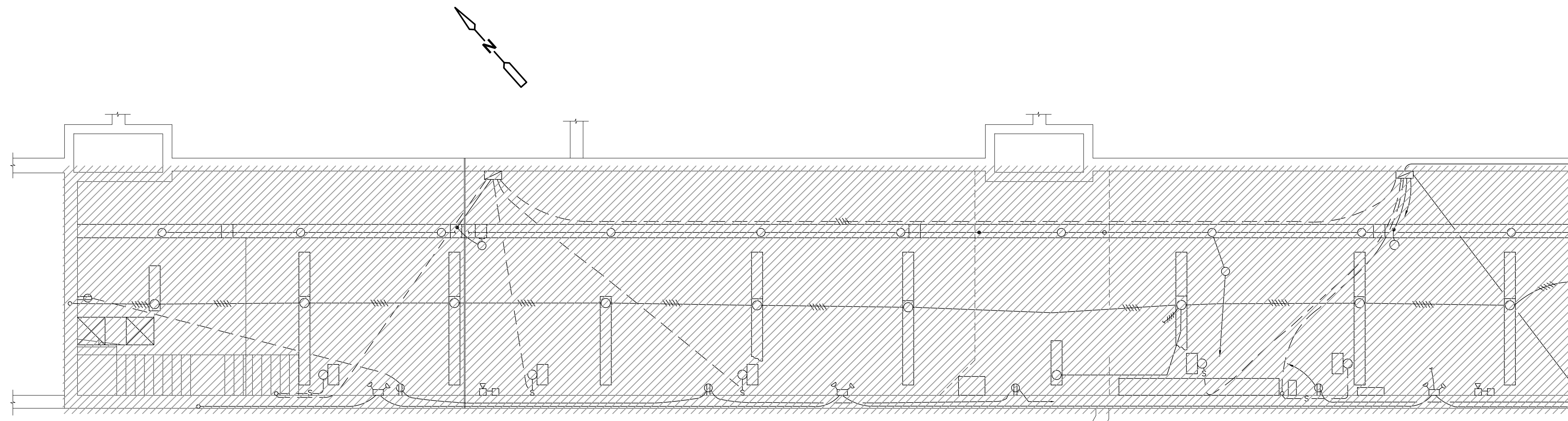
**SLUDGE HOLDING TANK BUILDING  
 DEMOLITION PLANS**

PROJECT NO.  
1289\35370

Sht. 364 of 386

**ST-E-1**





**DEMOLITION PLAN**  
 3/16" = 1'-0"

- NOTES**
- EQUIPMENT IDENTIFIED AS EXISTING TO REMAIN "<ETR>" SHALL BE DISCONNECTED AND THE ELECTRICAL WIRING AND RACEWAY SYSTEMS REMOVED IN IT'S ENTIRETY. REFER TO NEW WORK PLANS FOR RE-CONNECTION DETAILS.
  - ALL DEMOLITION SHALL BE DONE IN ACCORDANCE WITH PLANT MOPO SECTION 01810 AND THE REQUIREMENTS STATED IN DIVISION 16.
  - DISCONNECT & REMOVE ALL LIGHTING COMMUNICATIONS & SMALL POWER SYSTEM IN ACCORDANCE WITH THE DEMOLITION REQUIREMENTS OF DIVISION 16 AND PLANT MOPO IN SECTION 01810

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

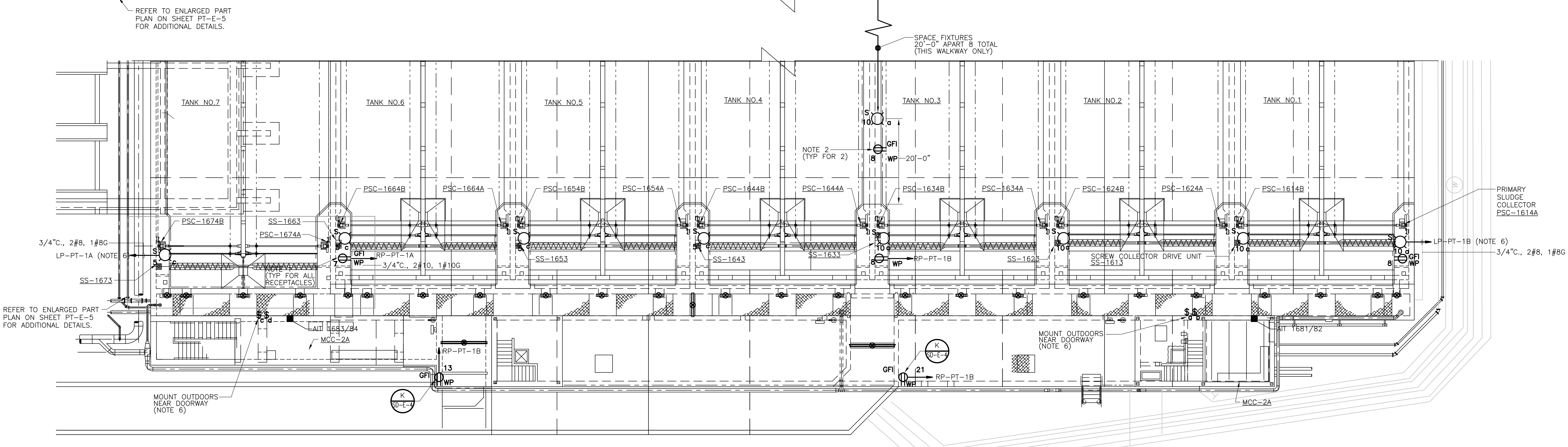
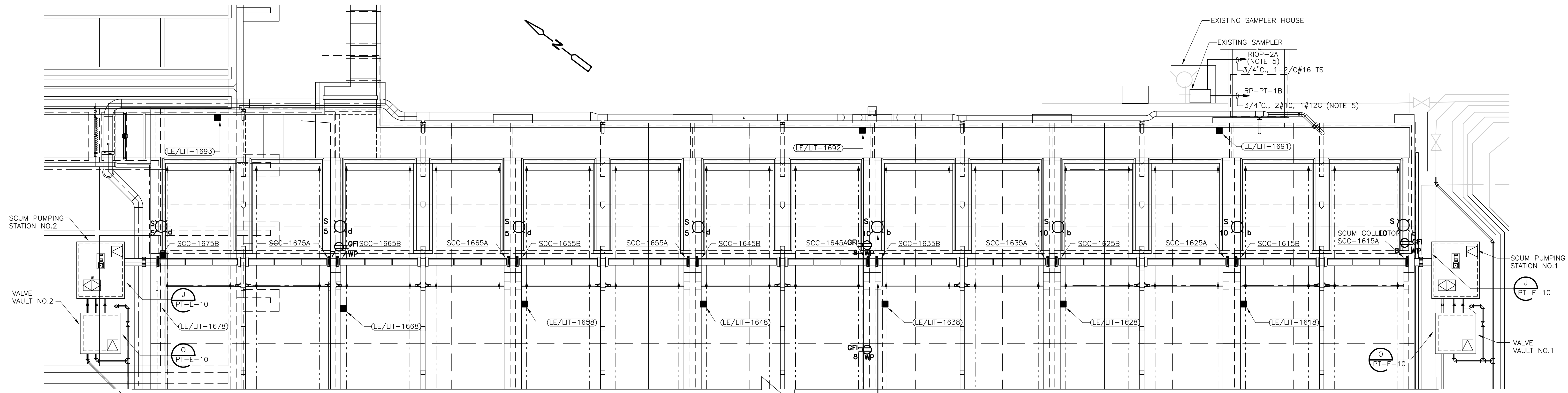
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 DRAWN BY: JAR  
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 APPROVED BY: B. SQUIBB  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 PIPE GALLERY & STAIR BUILDINGS  
 LIGHTING DEMOLITION PLANS**

PROJECT NO.  
 1289\35370  
 Sht. 352 of 386  
**PT-E-3**  
ACCESSION NO. 1289-65752

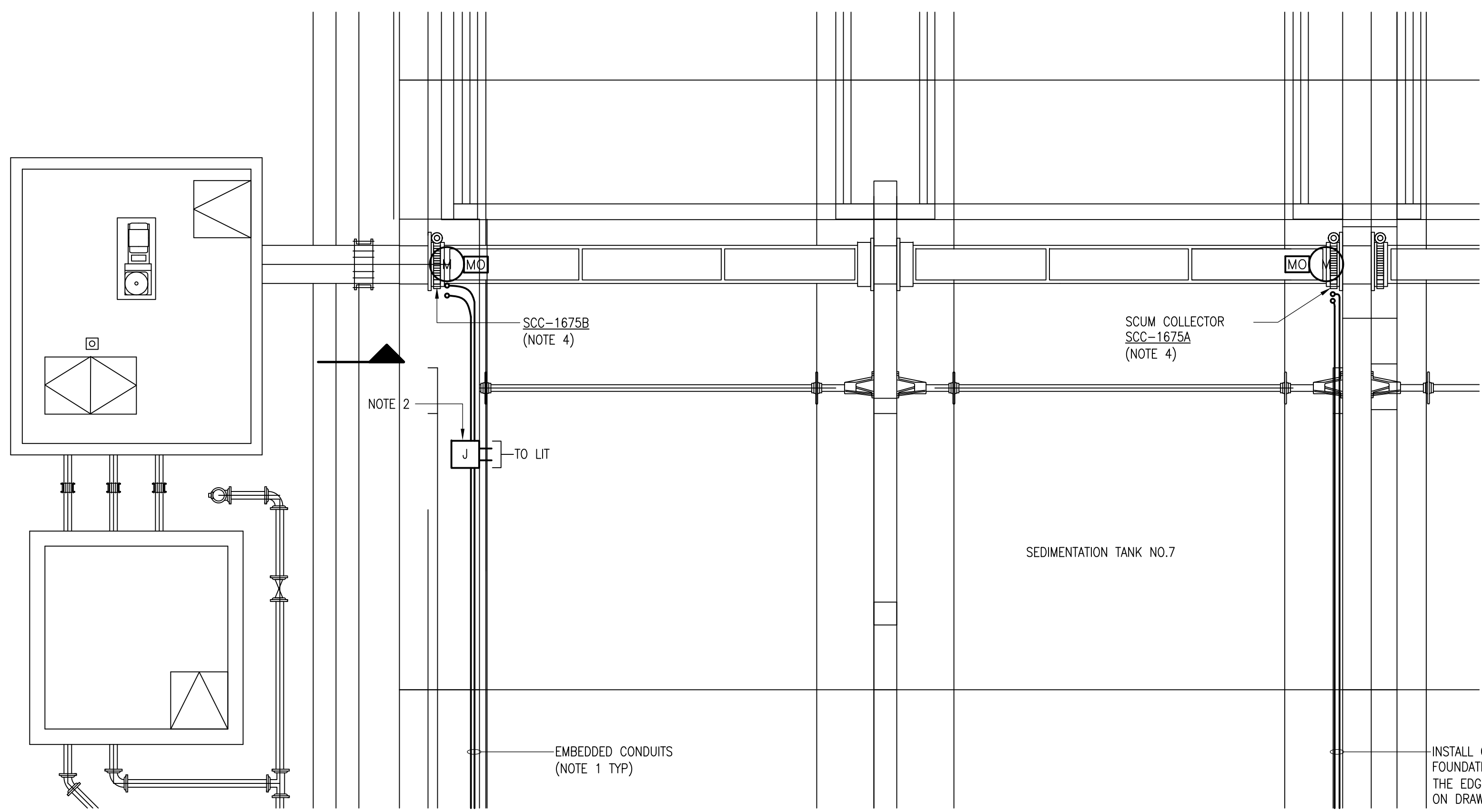


- NOTES:**
1. MOUNT RECEPTACLES OUTSIDE OF THE CLASSIFIED AREA, MINIMUM 24" ABOVE WORKING PLATFORM AREA.
  2. MOUNT RECEPTACLES 60 FEET APART.
  3. LIGHTS FOR SETTLING TANKS 4,5,6,7 ARE FED FROM PANELBOARD LP-PT-1A LOCATED IN THE NORTH STAIR BUILDING.
  4. LIGHTS FOR SETTLING TANKS 1,2 & 3 ARE FED FROM PANELBOARD LP-PT-1B LOCATED IN THE SOUTH STAIR BUILDING.
  5. ROUTE CONDUITS ALONG THE SETTLING TANK WALL TO APPROPRIATE JUNCTION BOXES AND UNDERGROUND DUCTBANKS, REFER TO DWG. PT-E-10.
  6. CONDUIT TO LIGHT FIXTURES AND SWITCHES SHALL BE RUN IN THE CONCRETE SLAB.

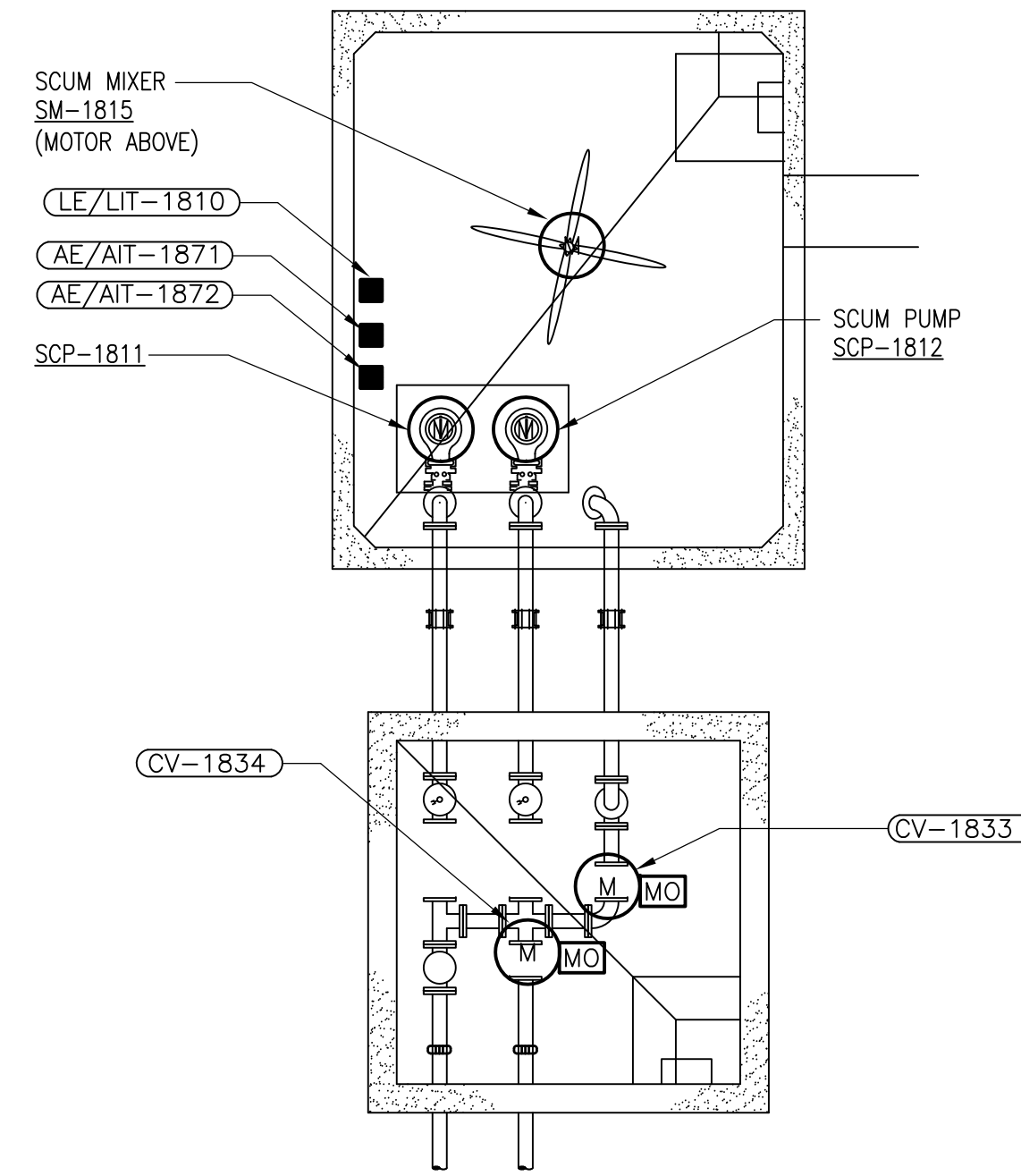
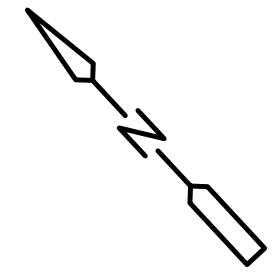
**PRIMARY SETTLING TANKS POWER PLAN**  
 3/32" = 1'-0"

RECORD DRAWING

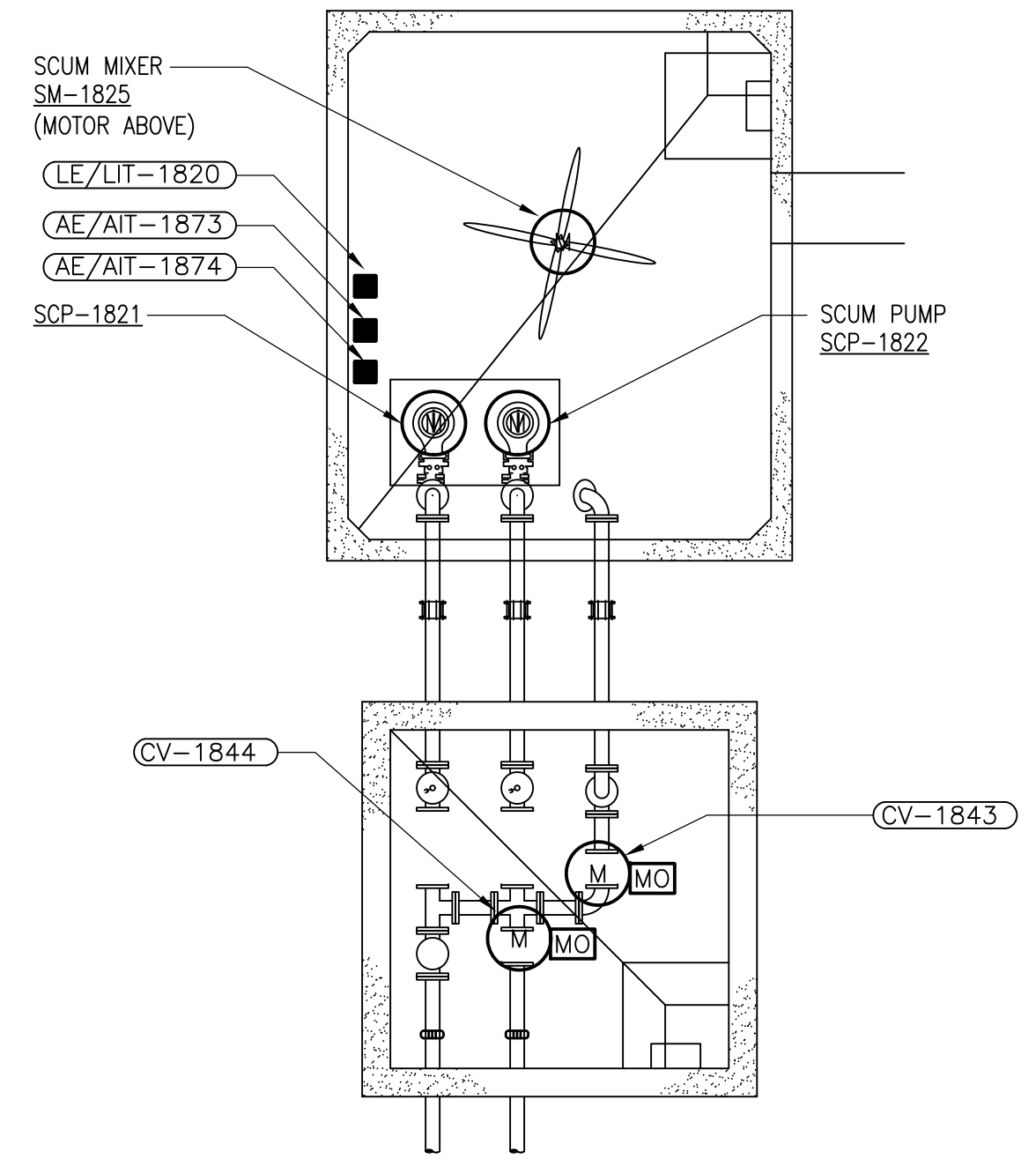
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REV. NO.	DATE	DRWN	CHKD	REMARKS																	
	3/07	SPV	ADT	REVISED FOR THE RECORD																	



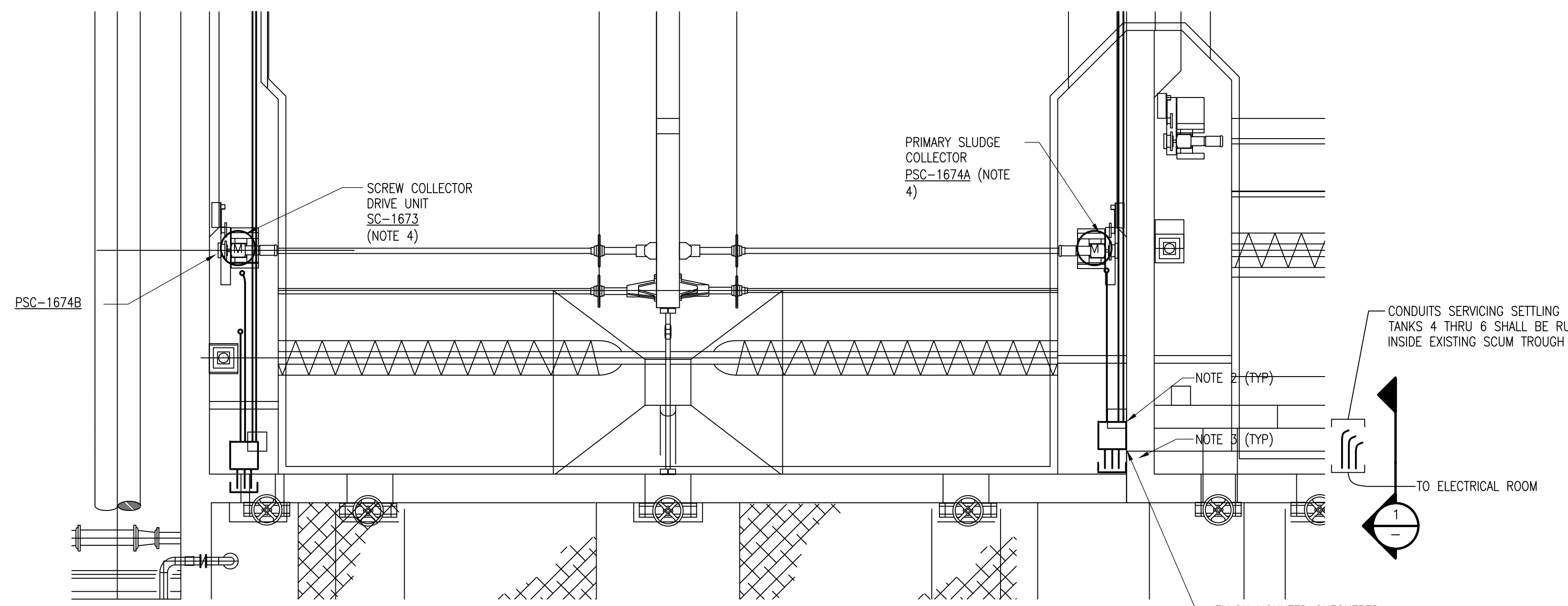
**PARTIAL SETTLING TANK & SCUM PUMP STATION**  
**PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4



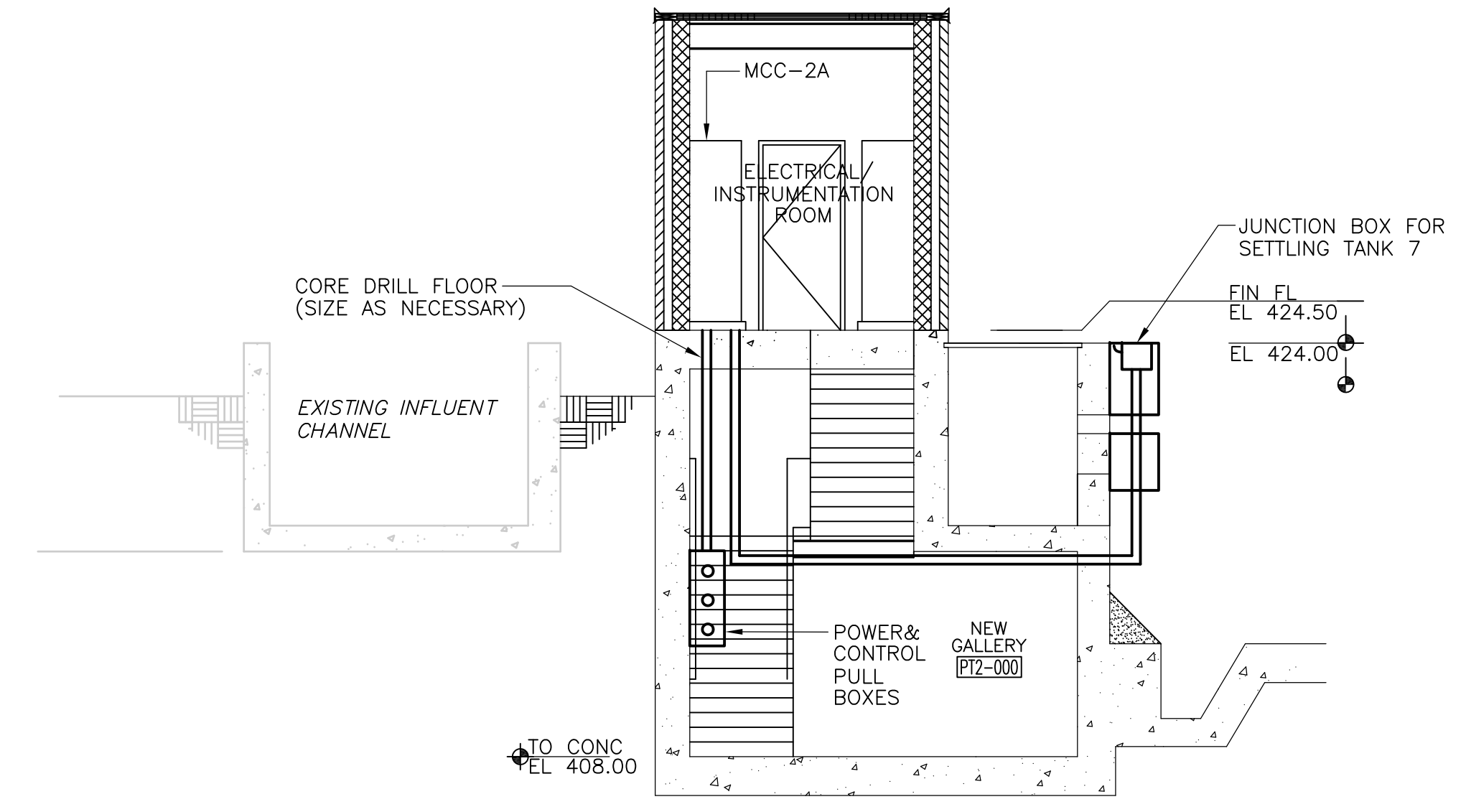
**SOUTH SCUM PUMPING STATION (NOTE 5)**  
**PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4



**NORTH SCUM PUMPING STATION (NOTE 5)**  
**PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4



**PARTIAL SETTLING TANK**  
**PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4



**SECTION 1**  
 NTS

- NOTES:**
- FOR EXACT NUMBER & SIZE OF CONDUITS REFER TO "POWER PLAN" DETAIL FOR TANKS 4 THRU 7" SHOWN ON DRAWING PT-E-10
  - ANALOG SIGNALS (4-20mA) SHALL BE SEPARATED FROM OTHER WIRING RUN IN SEPARATE CONDUIT. INSTALL BARRIER IN JUNCTION BOX TO INSURE SEPARATION.
  - INSTALL SEALING FITTINGS 18" ABOVE WORKING PLATFORM.
  - REFER TO DRAWINGS PT-E-6 & SD-E-3 FOR WIRING & INSTALLATION DETAILS.
  - WORK THIS PLAN WITH DRAWING PT-E-10.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS

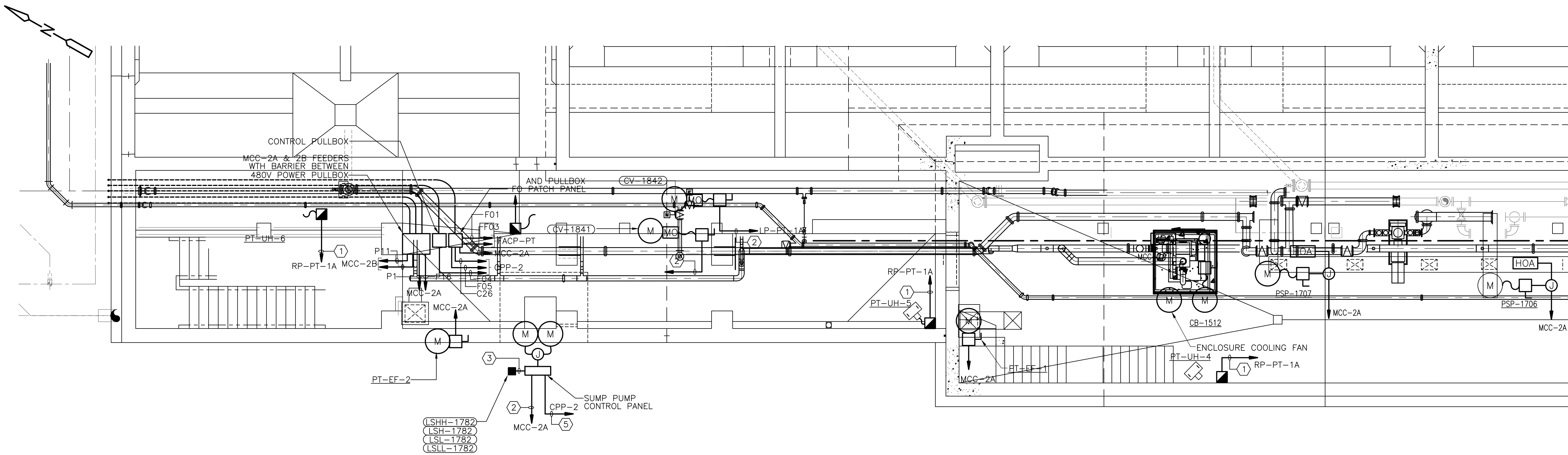
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DRAWN BY: <u>OR</u>
SHEET CHK'D BY: <u>BDS</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>B. SQUIBB</u>
DATE: <u>MAY 2006</u>


**CDM**  
 Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

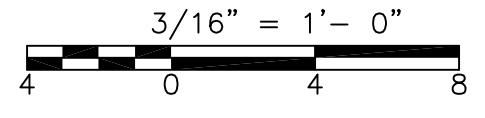
**PRIMARY SETTLING TANKS**  
**MISCELLANEOUS PART PLANS**

PROJECT NO.  
 1289\35370  
 Sht. 354 of 386  
**PT-E-5**  
ACCESSION NO. 1289-6574

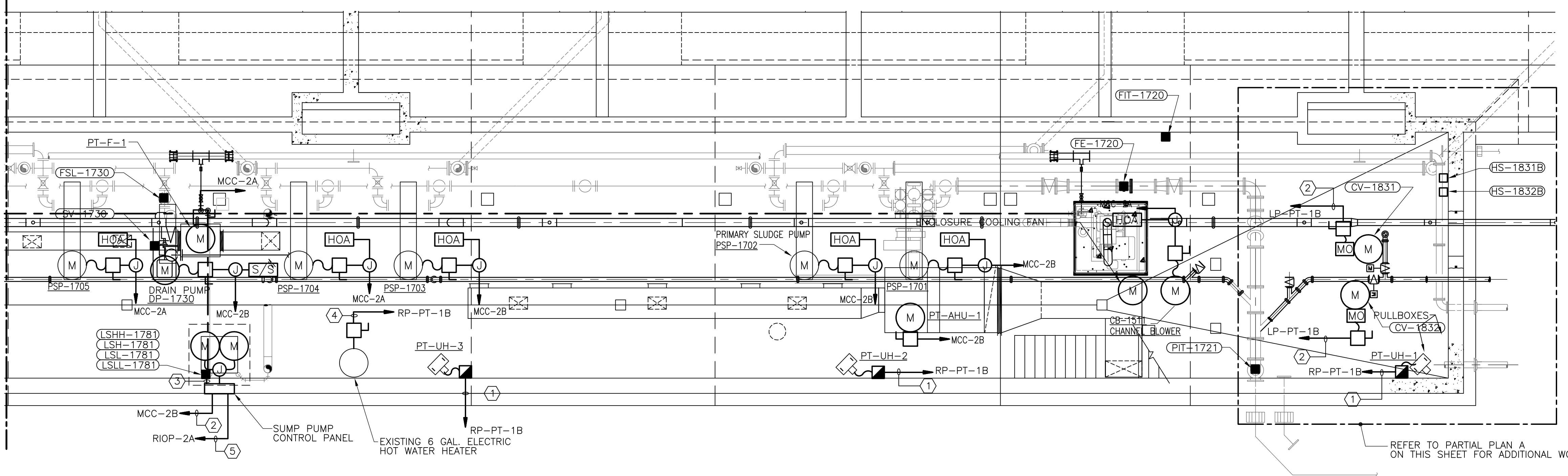


MATCHLINE, FOR CONTINUATION SEE VIEWPORT BELOW

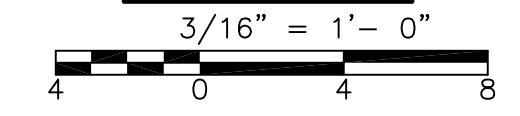
GALLERY POWER  
PLAN  
3/16" = 1'-0"



MATCHLINE, FOR CONTINUATION SEE VIEWPORT ABOVE

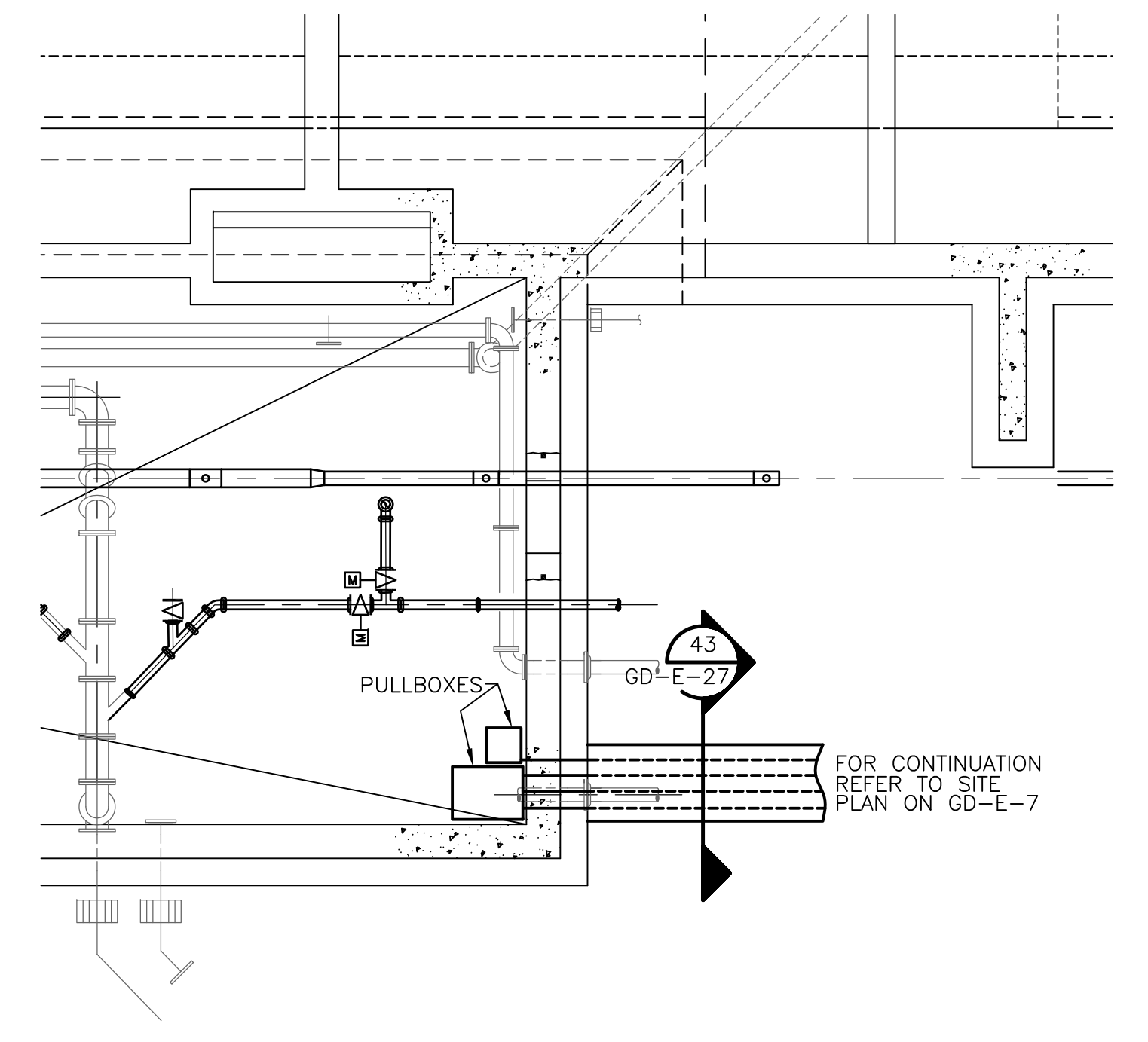


GALLERY POWER  
PLAN  
3/16" = 1'-0"

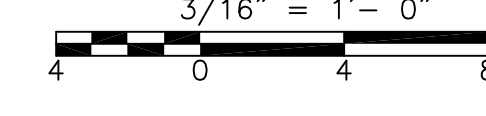


CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4" C., 2#12, 1#12G
②	3/4" C., 3#12, 1#12G
③	3/4" C., 8#14, 1#14G
④	3/4" C., 2#10, 1#12G
⑤	3/4" C., 2#14, 1#14G

- NOTES:
1. MOUNT CONTROL STATION (HS-\*) AT NEAREST WALL 4'-6" A.F.F.
  2. FOR LOCATION OF HVAC THERMOSTATS SEE DRAWING PT-H-2.
  3. REFER TO SINGLE LINE DIAGRAMS & UNDERGROUND RACEWAY SCHEDULES FOR CONDUIT & WIRE NOT SHOWN ON THIS DRAWING.
  4. ALL PULLBOXES ARE NOT DIMENSIONALLY ACCURATE. BOXES SHALL BE SIZED IN ACCORDANCE WITH NEC.



PARTIAL PLAN A  
PLAN  
3/16" = 1'-0"



FOR CONTINUATION REFER TO SITE PLAN ON GD-E-7

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EPSPL003.DWG
DESIGNED BY:	SS
DRAWN BY:	OR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

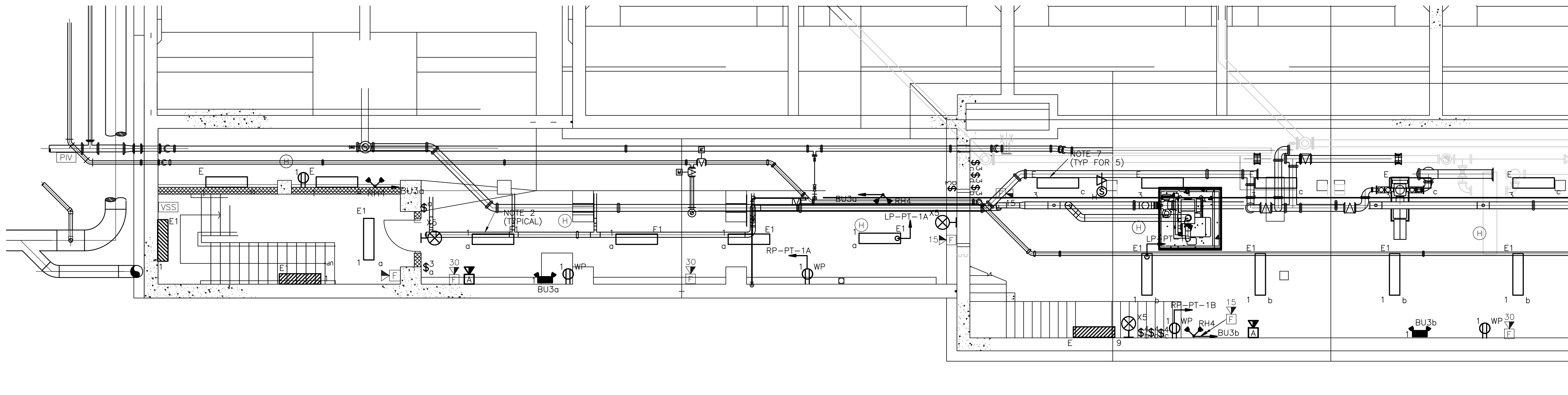
CDM Camp Dresser & McKee Inc. consulting engineering construction operations
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UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024
--

WASTEWATER TREATMENT FACILITY IMPROVEMENTS
---

PROJECT NO. 1289\35370
Sht. 355 of 386
PRIMARY SETTLING TANKS PIPE GALLERY POWER PLAN
PT-E-6

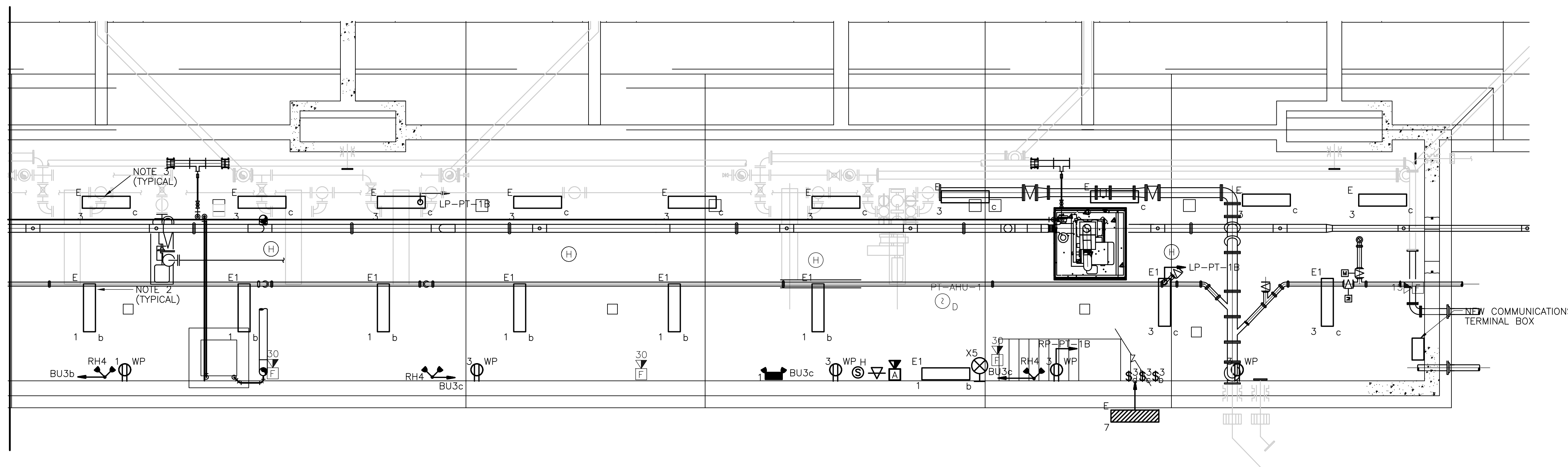
PROJECT NO. 1289\35370
Sht. 355 of 386
PT-E-6



GALLERY  
 PLAN  
 3/16" = 1'-0"  
 4 0 4 8

- NOTES:
1. FOR AREA CLASSIFICATION REFER TO DRAWINGS NO. GD-E-3 AND GD-E-4.
  2. MOUNT TYPE "E1" FIXTURES 12'-0" A.F.F.
  3. MOUNT TYPE "E" FIXTURES 7'-6" A.F.F.
  4. MOUNT EXIT SIGNS 7'-6" A.F.F.
  5. MOUNT EMERGENCY BATTERY LIGHTS 7'-6" A.F.F.
  6. MOUNT RECEPTACLES 24" A.F.F.

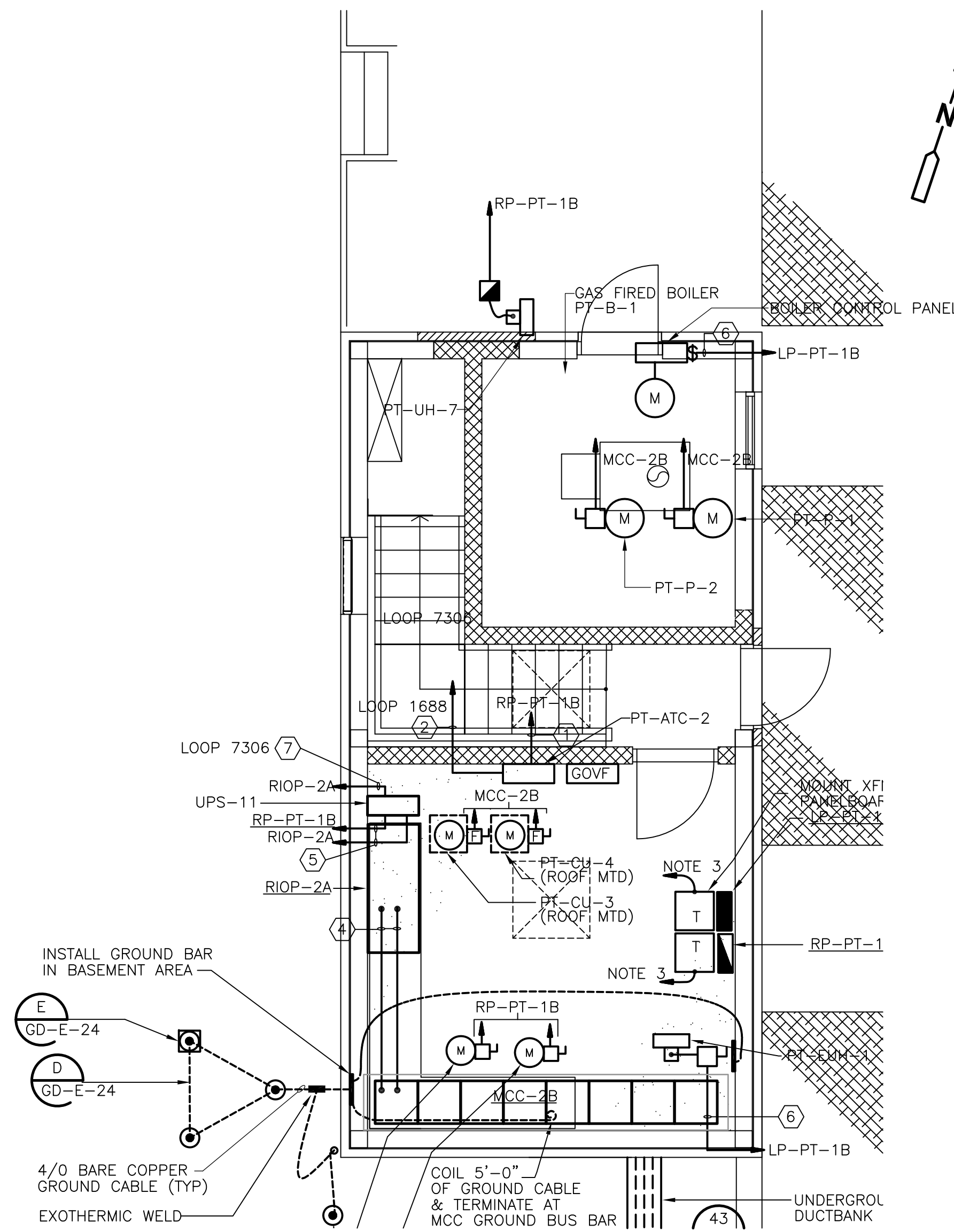
MATCHLINE, FOR CONTINUATION SEE PLAN ABOVE



GALLERY  
 PLAN  
 3/16" = 1'-0"  
 4 0 4 8

RECORD DRAWING

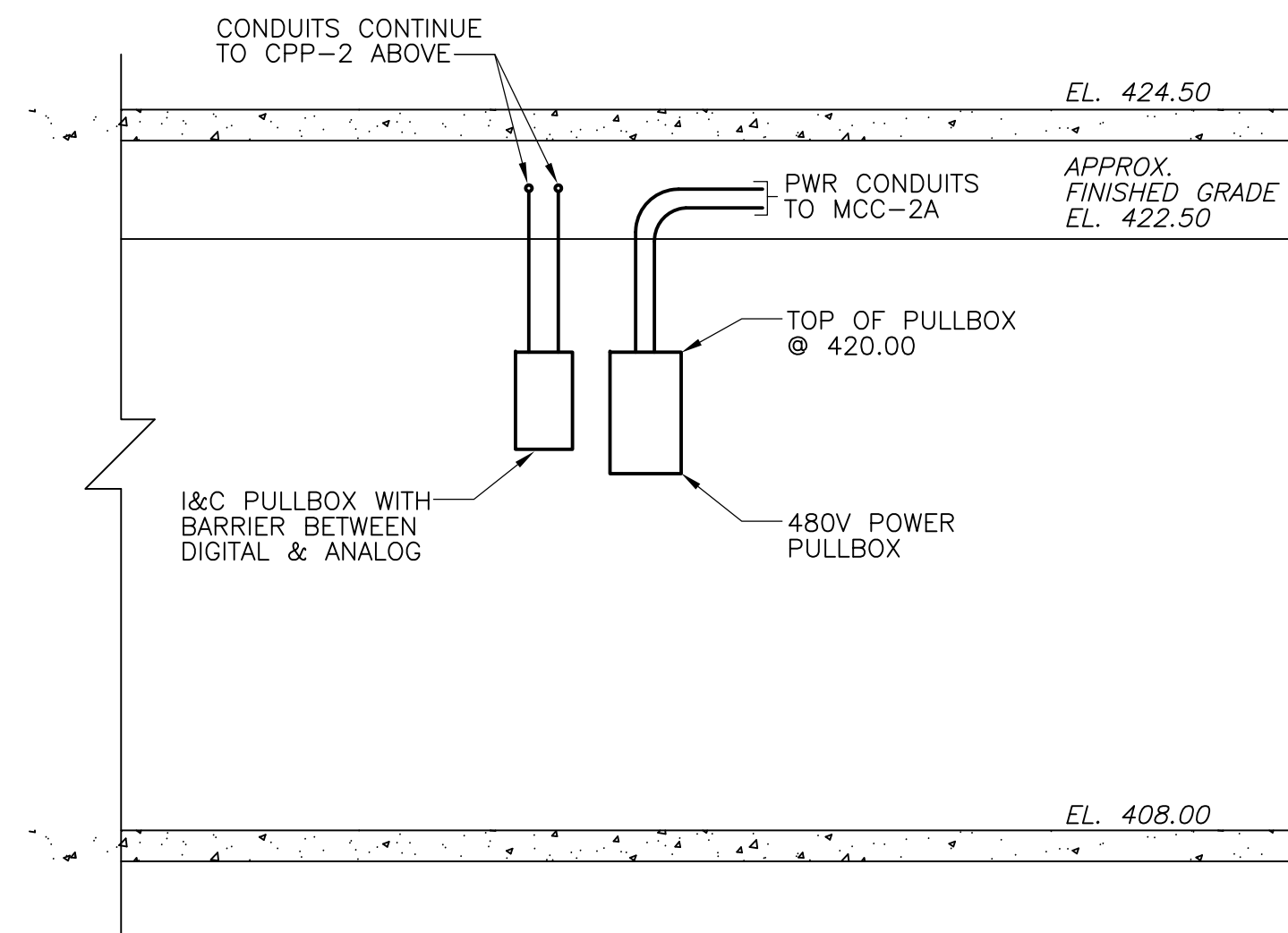
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REV. NO.	DATE	DRWN	CHKD				REMARKS
3/07	SPV	ADT	REVISED FOR THE RECORD				



EXISTING SOUTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"

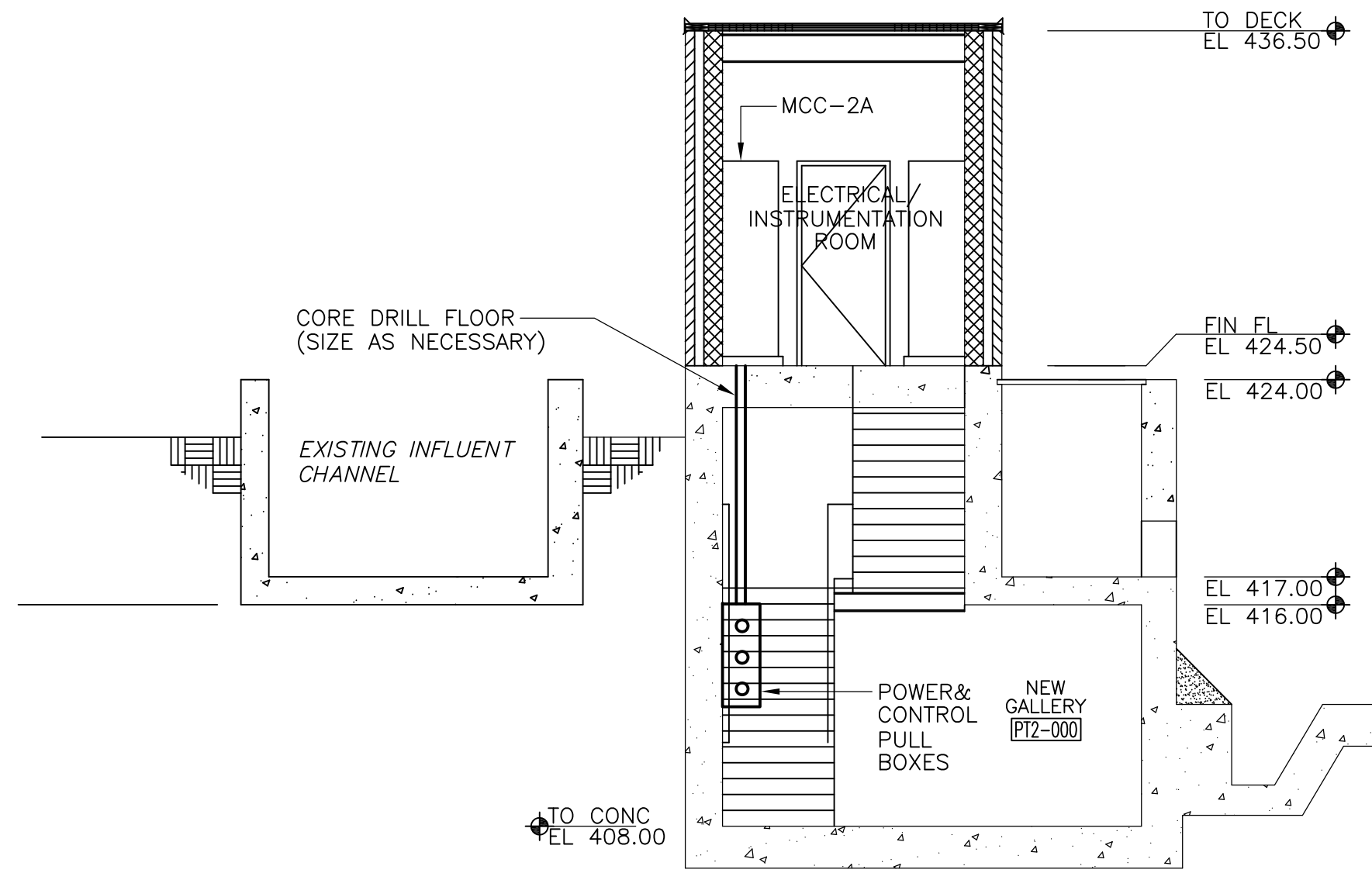
CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4"C., 2#12, 1#12G
②	3/4"C., 2#14, 1#14G
③	2"C., 116#14, 1#14G
④	2"C., 100#14, 1#14G
⑤	3/4"C., 2#10, 1#10G
⑥	3/4"C., 3#12, 1#12G
⑦	3/4"C., 4#14, 1#14G

- NOTES:**
1. INSTALL BARRIER BETWEEN MCC-2A & MCC-2B FEEDERS.
  2. FOR LOCATION OF HVAC THERMOSTATS SEE DRAWING PT-H-2.
  3. RUN GROUND CONDUCTOR IN CONDUIT TO GROUND BAR IN BASEMENT AREA.
  4. GROUND WIRE BELOW FLOOR SLAB SHALL BE RUN IN CONDUIT.
  5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE REQUIRED PULLBOX SIZES WITH THE ACTUAL CONDUIT ARRANGEMENTS INSTALLED IN ACCORDANCE WITH THE NEC.

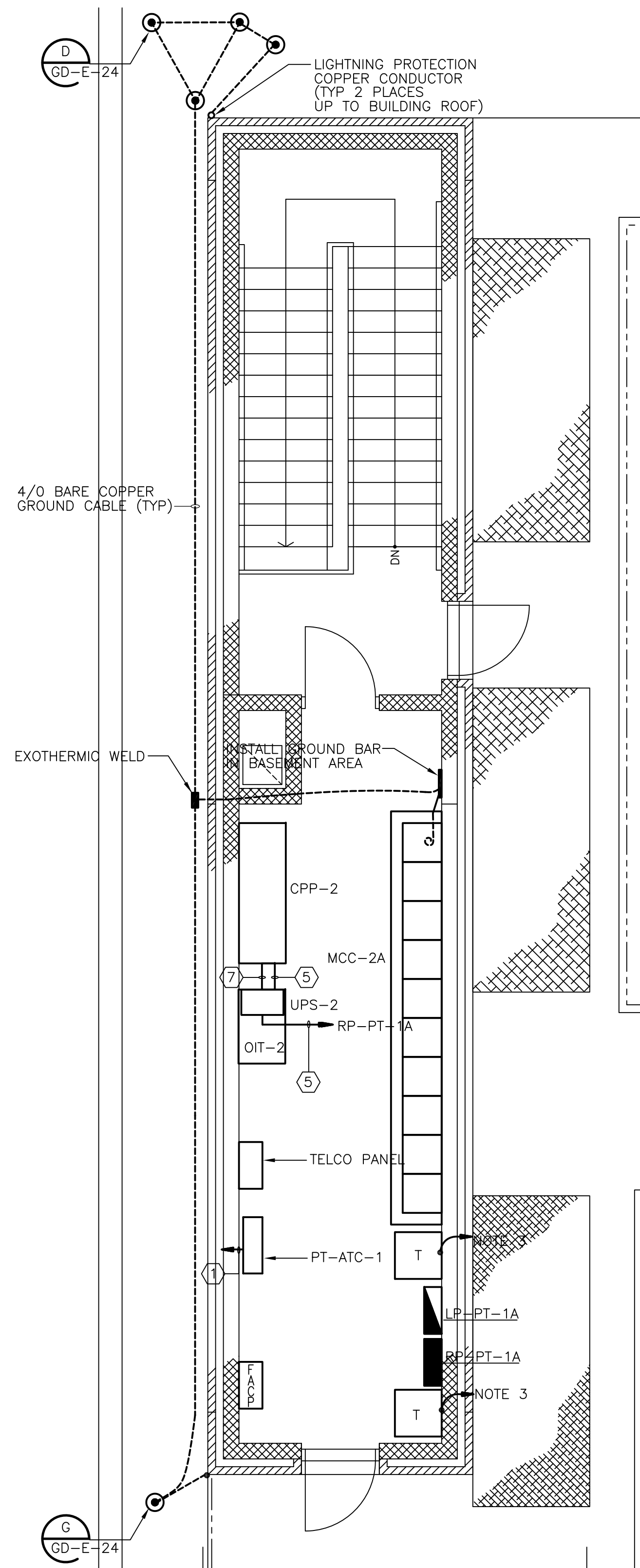


- NOTES:**
1. REFER TO UNDERGROUND RACEWAY SCHEDULES & SINGLE LINE DIAGRAMS FOR CONDUIT & WIRE REQUIREMENTS.

**SECTION 4**  
 NTS  
 PT-E-6

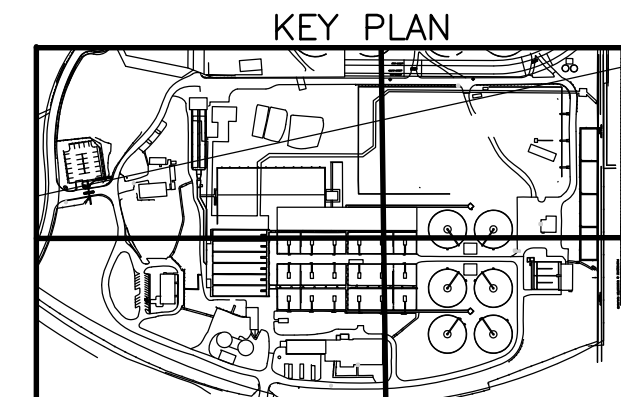


**SECTION 3**  
 NTS  
 PT-E-6



NEW NORTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

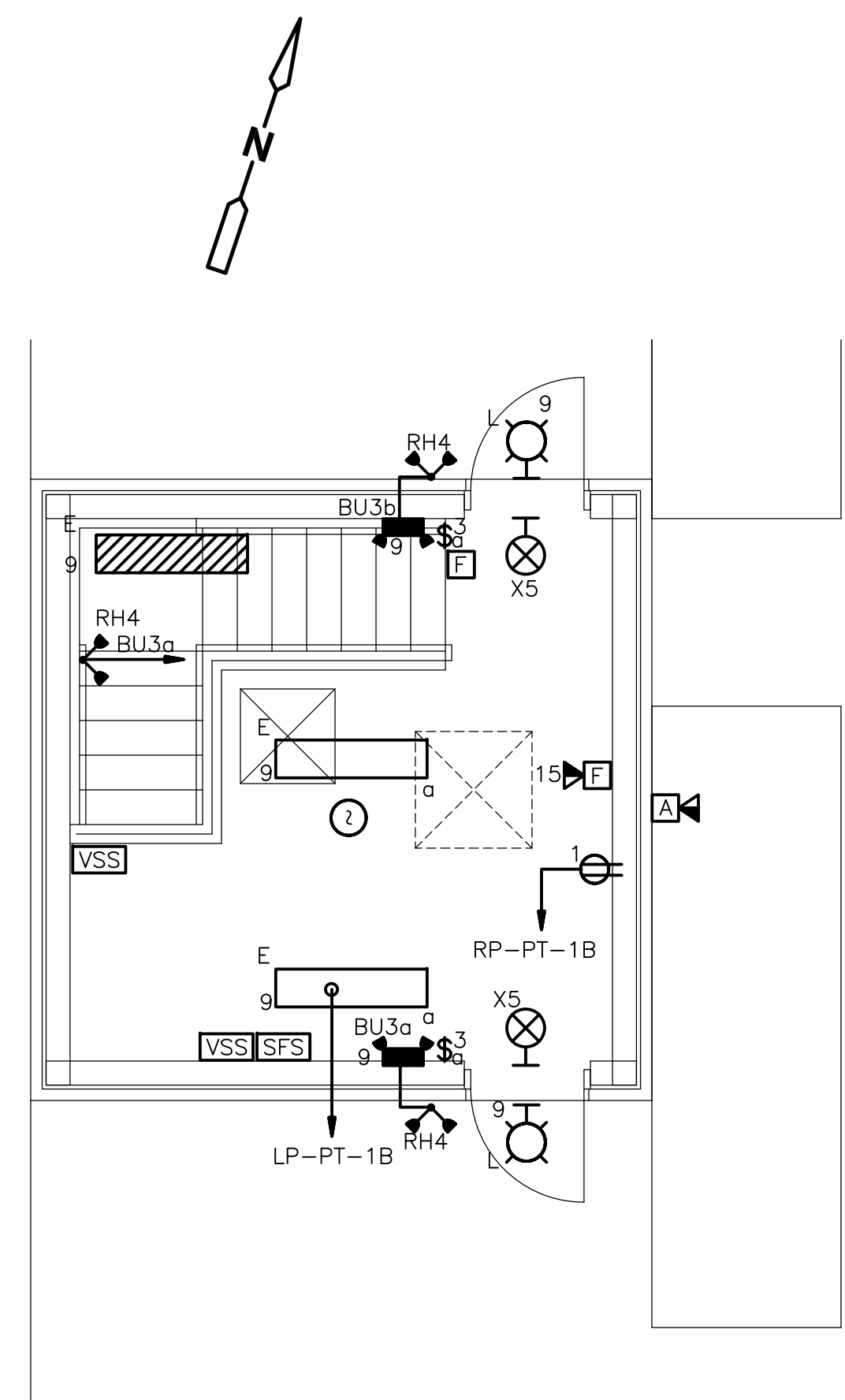
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DRAWN BY:	OR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

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consulting  
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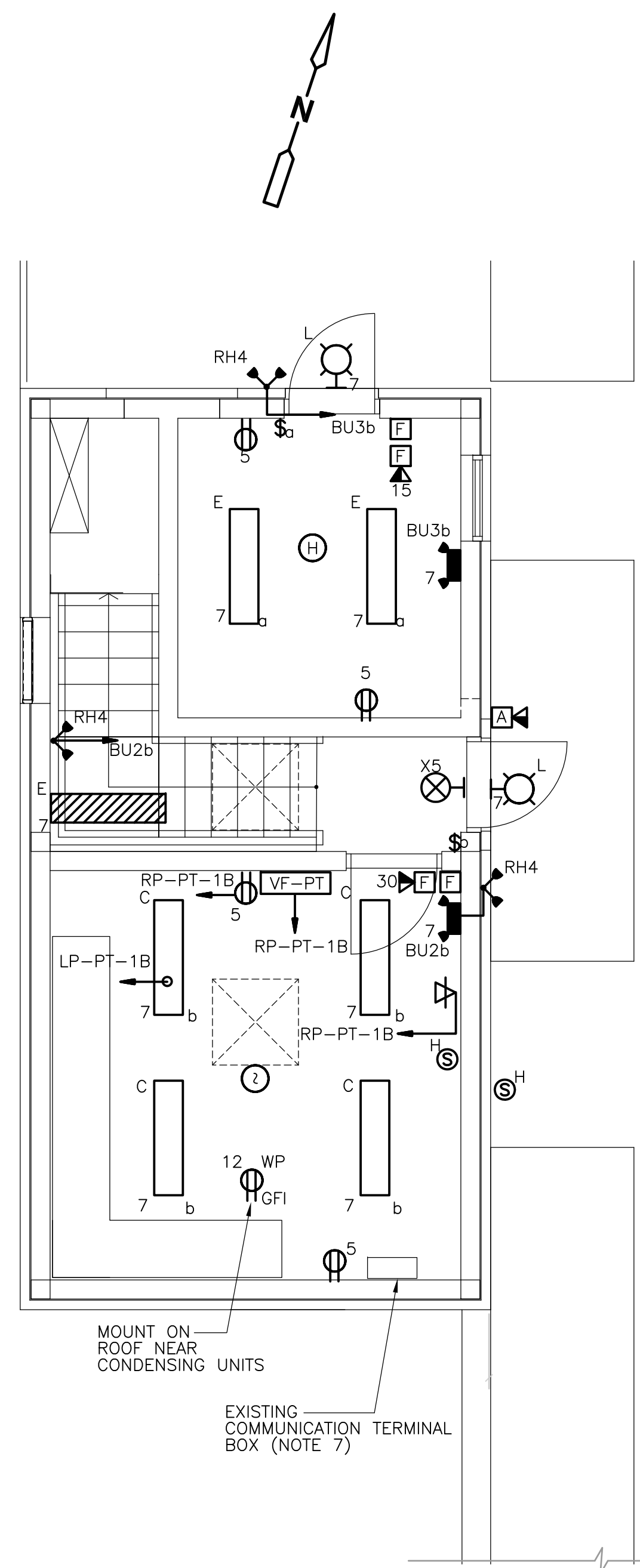
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**PRIMARY SETTLING TANKS  
 ACCESS STRUCTURE POWER PLANS**

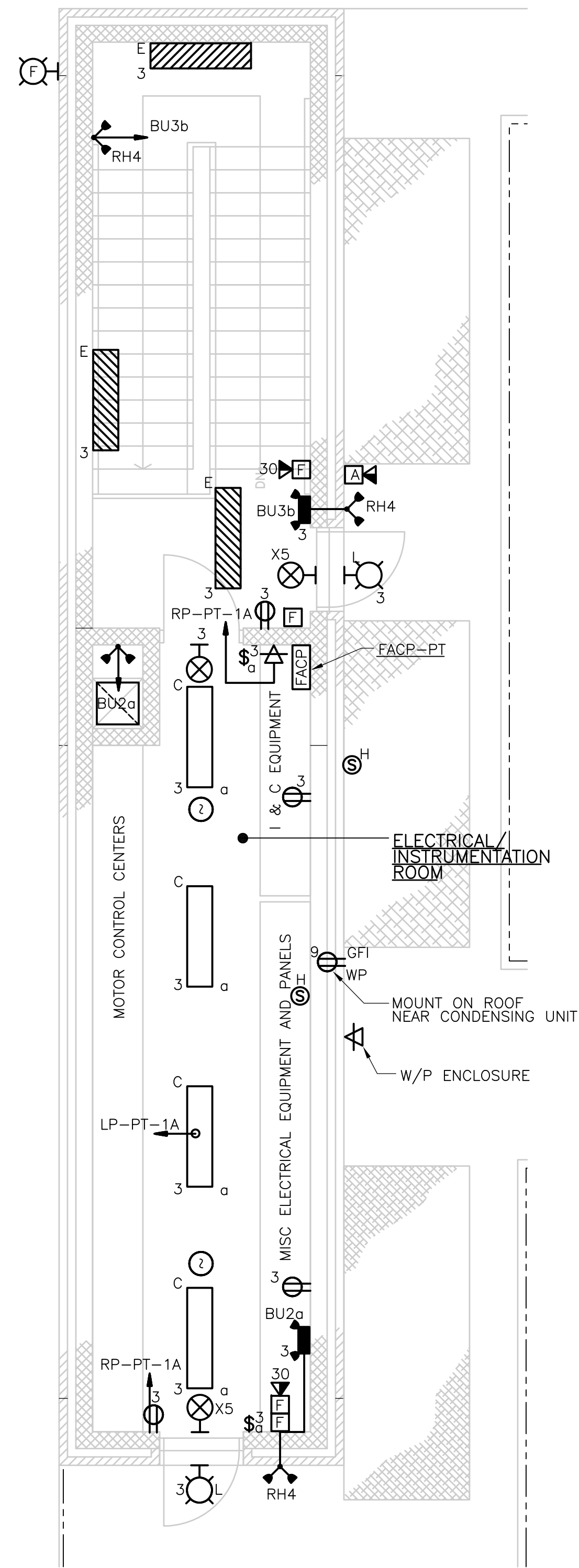
PROJECT NO.  
 1289\35370  
 Sht. 357 of 386  
**PT-E-8**  
ACCESSION NO. 1289-65757



EXISTING NORTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"



EXISTING SOUTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"



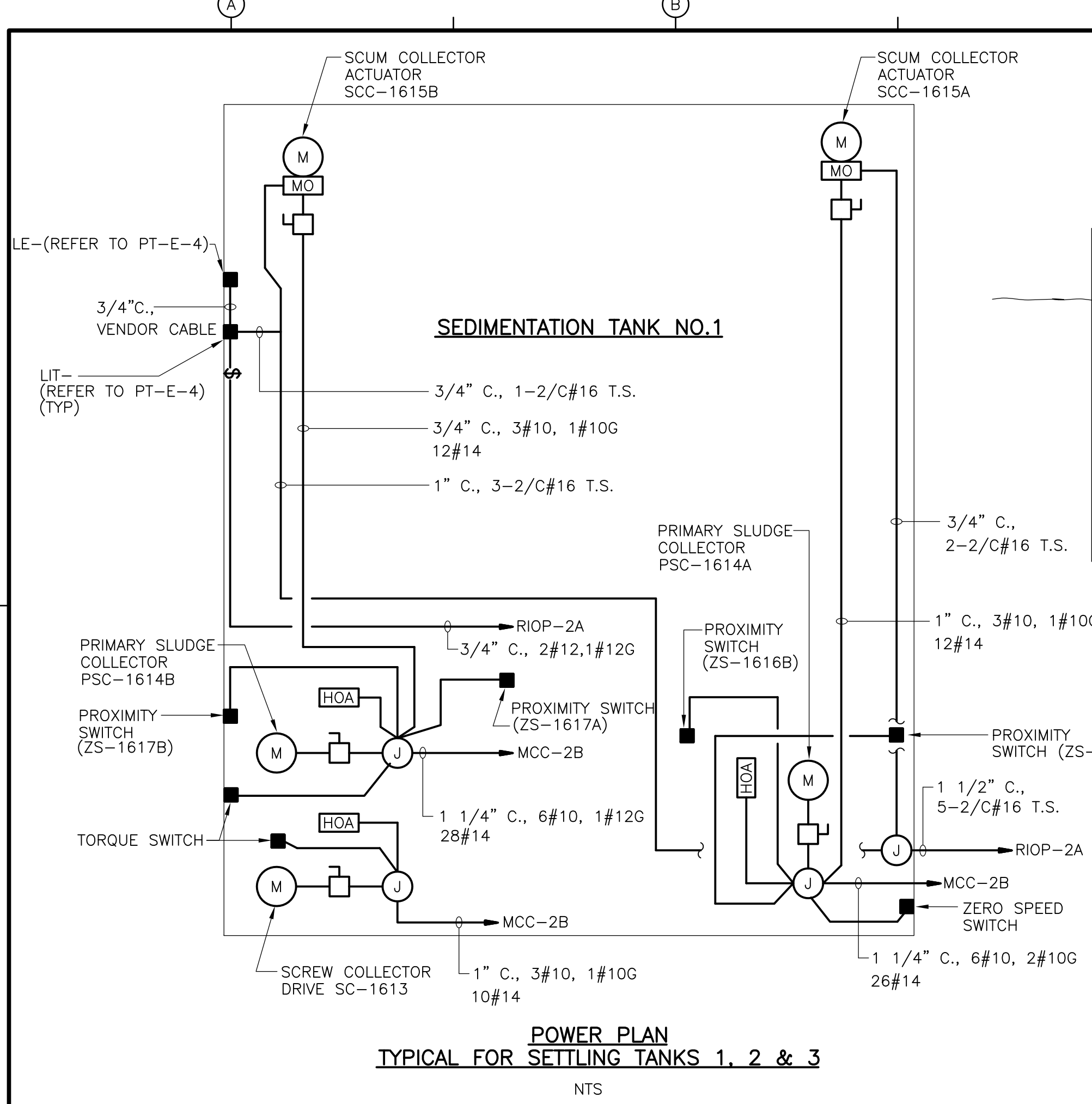
NEW NORTH ACCESS STRUCTURE  
**PLAN**  
 1/4" = 1'-0"

- NOTES:**
1. FOR AREA CLASSIFICATION REFER TO DRAWINGS NO. GD-E-3 AND GD-E-4.
  2. MOUNT TYPE "C" FIXTURES NEW NORTH STAIR BUILDING 10'-0" A.F.F.
  3. MOUNT TYPE "C" FIXTURES EXISTING SOUTH STAIR BUILDING 10'-0" A.F.F.
  4. MOUNT TYPE "E1" FIXTURES 12'-0" A.F.F.
  5. MOUNT TYPE "E" FIXTURES 8'-0" A.F.F.
  6. MOUNT TYPE "L" FIXTURES 8'-0" A.F.F.
  7. PROVIDE & INSTALL COMMUNICATION CABLE FROM EXISTING TERMINAL BOX TO DEVICES IN THE NORTH/SOUTH STAIR BUILDING AND PIPE GALLERY.

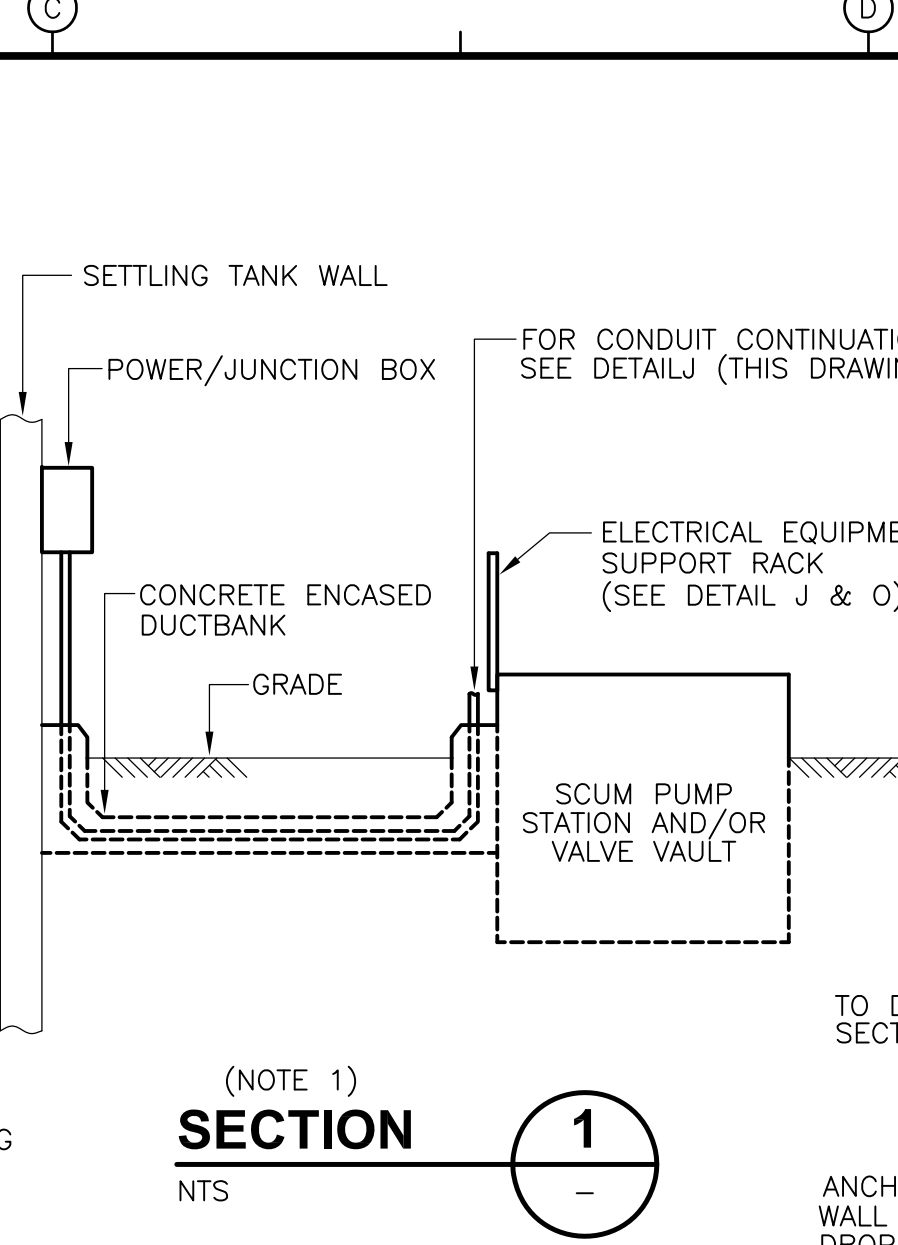
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REV. NO.	DATE	DRWN	CHKD	REMARKS						
	3/07	SPV	ADT	REVISED FOR THE RECORD						

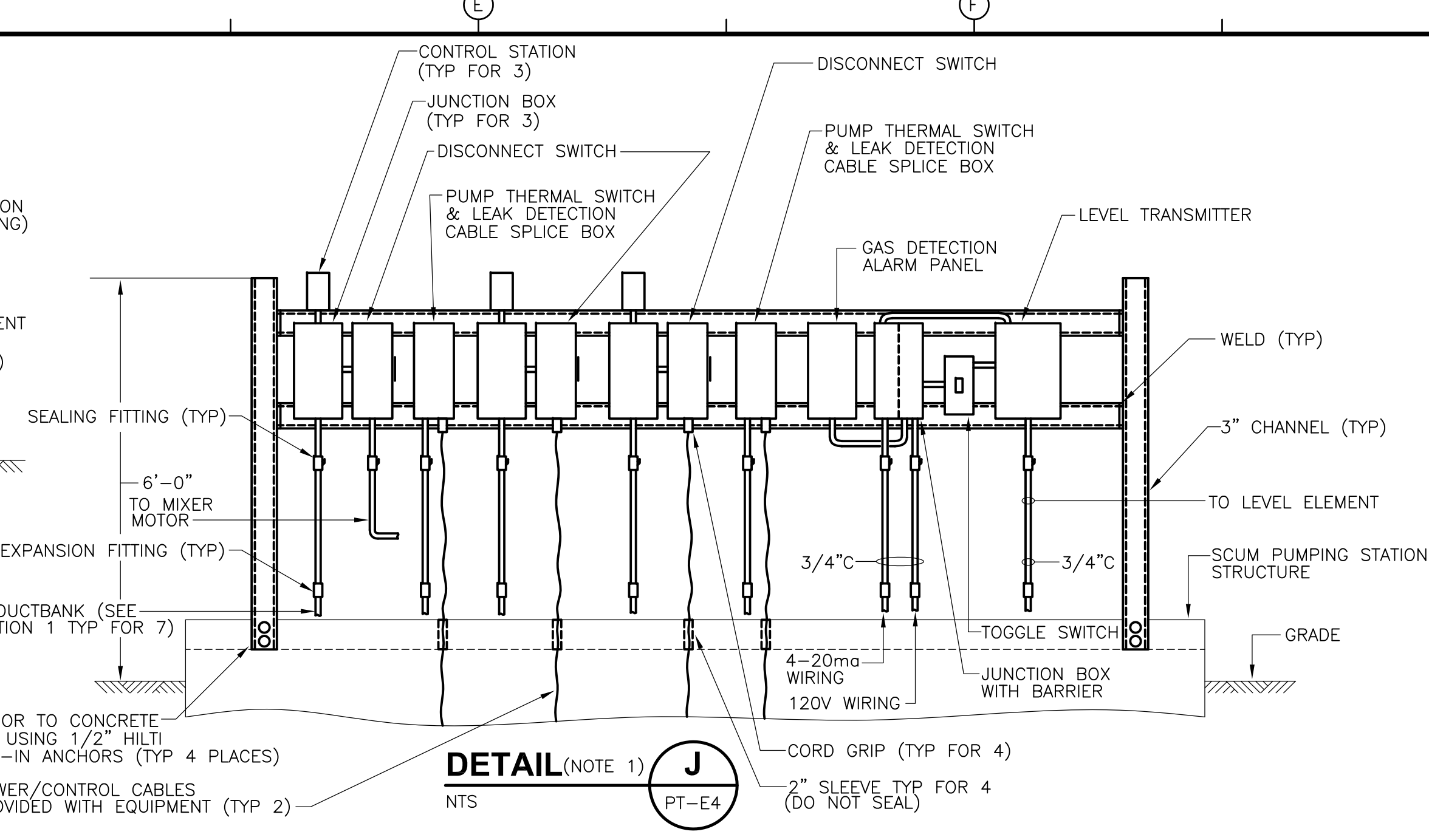
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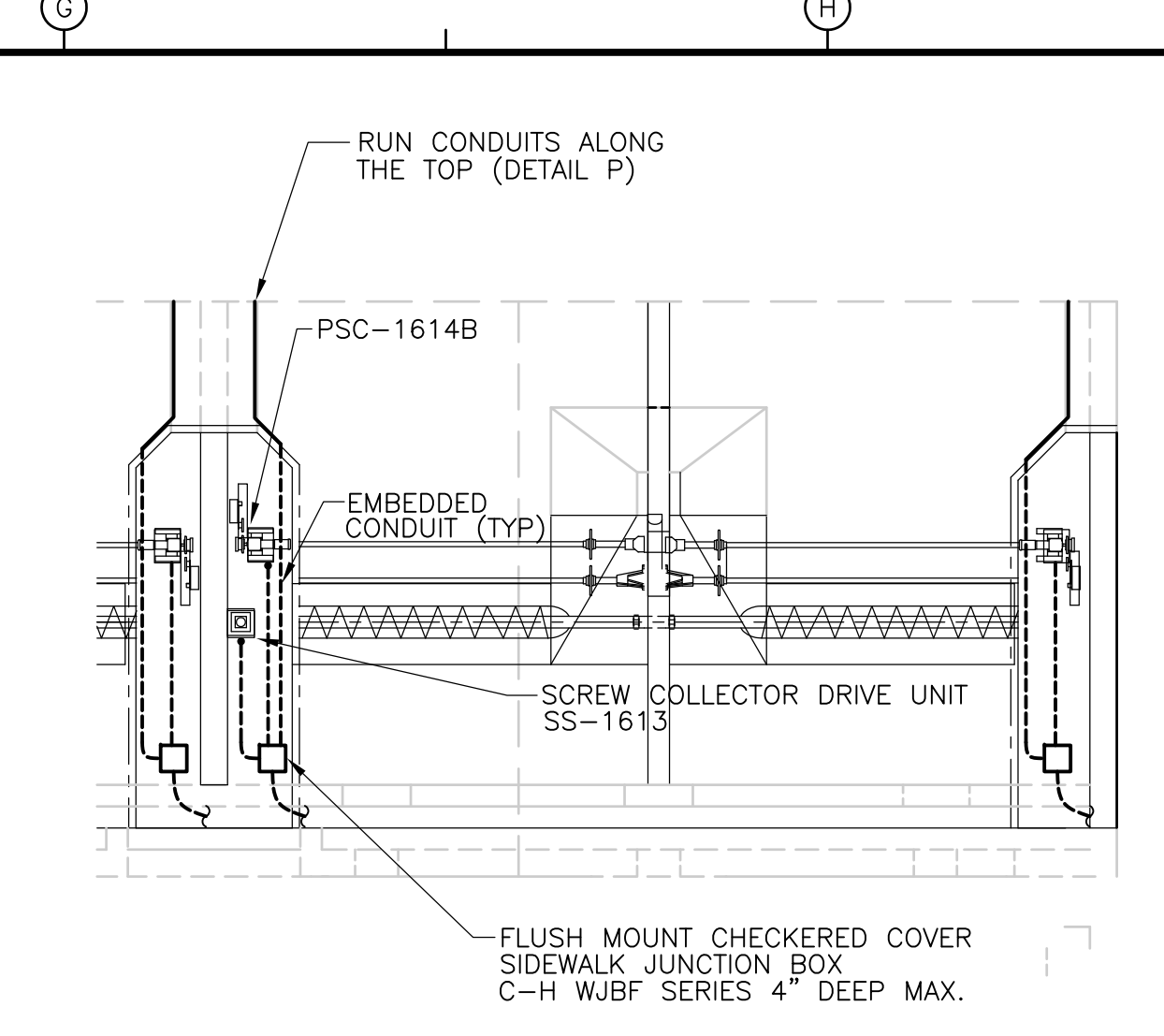
**POWER PLAN**  
TYPICAL FOR SETTLING TANKS 1, 2 & 3  
NTS



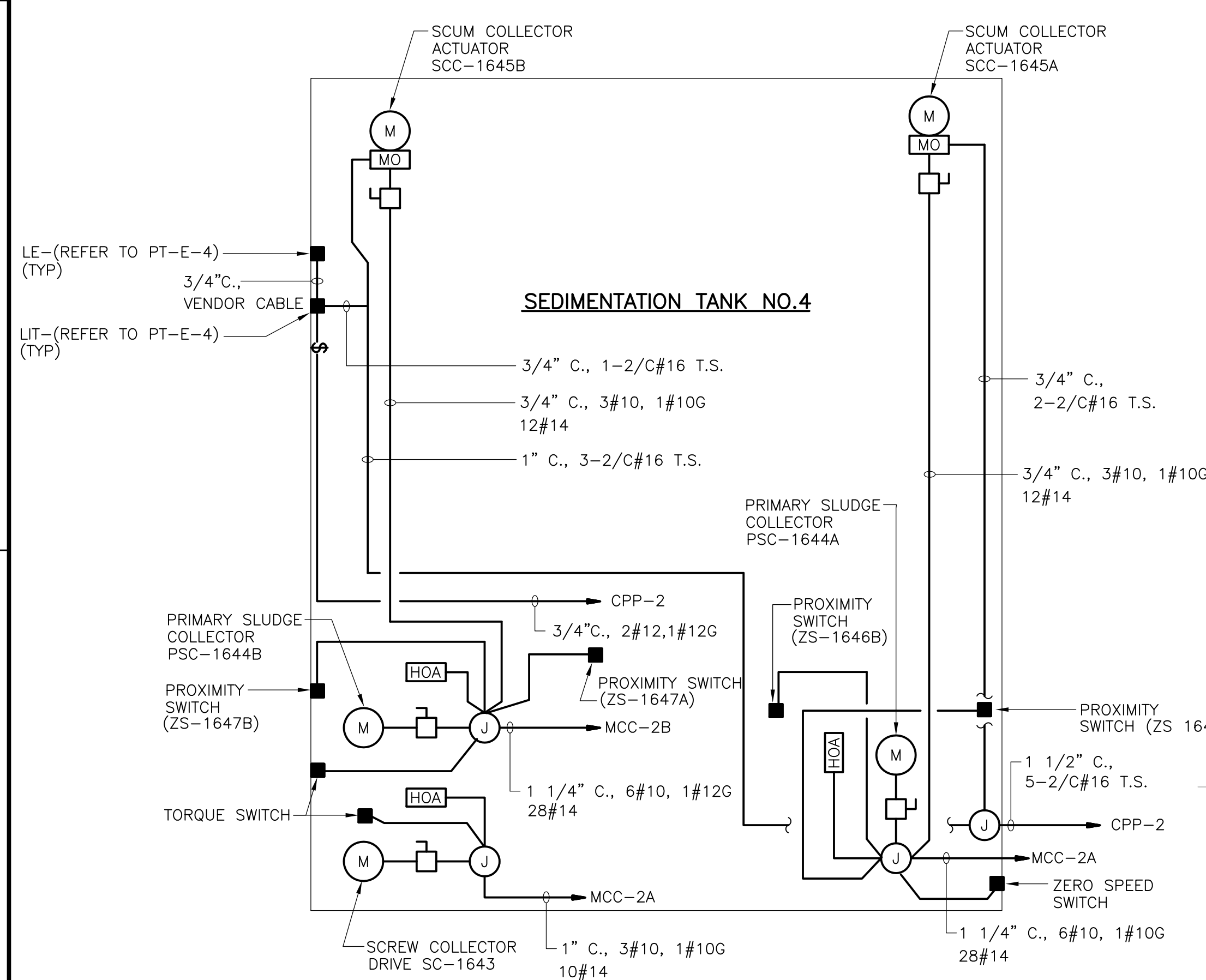
(NOTE 1)  
**SECTION 1**  
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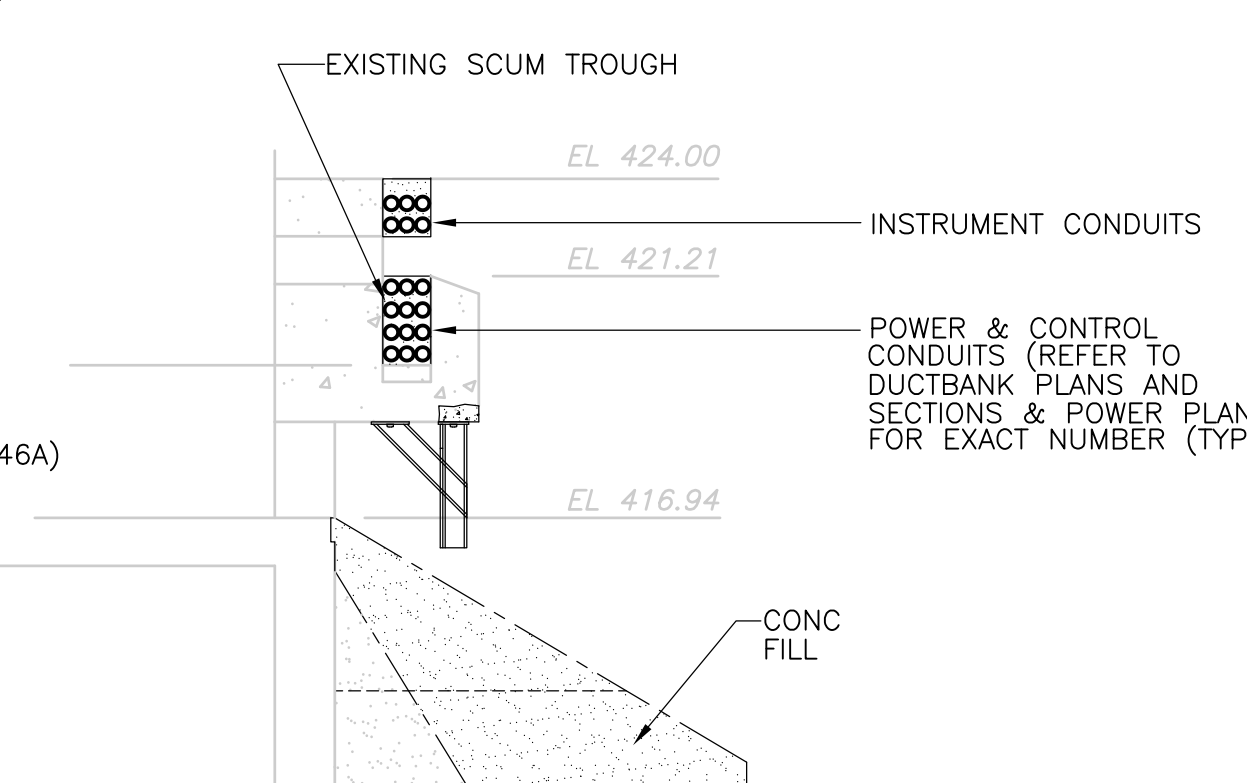
**DETAIL (NOTE 1) J**  
NTS



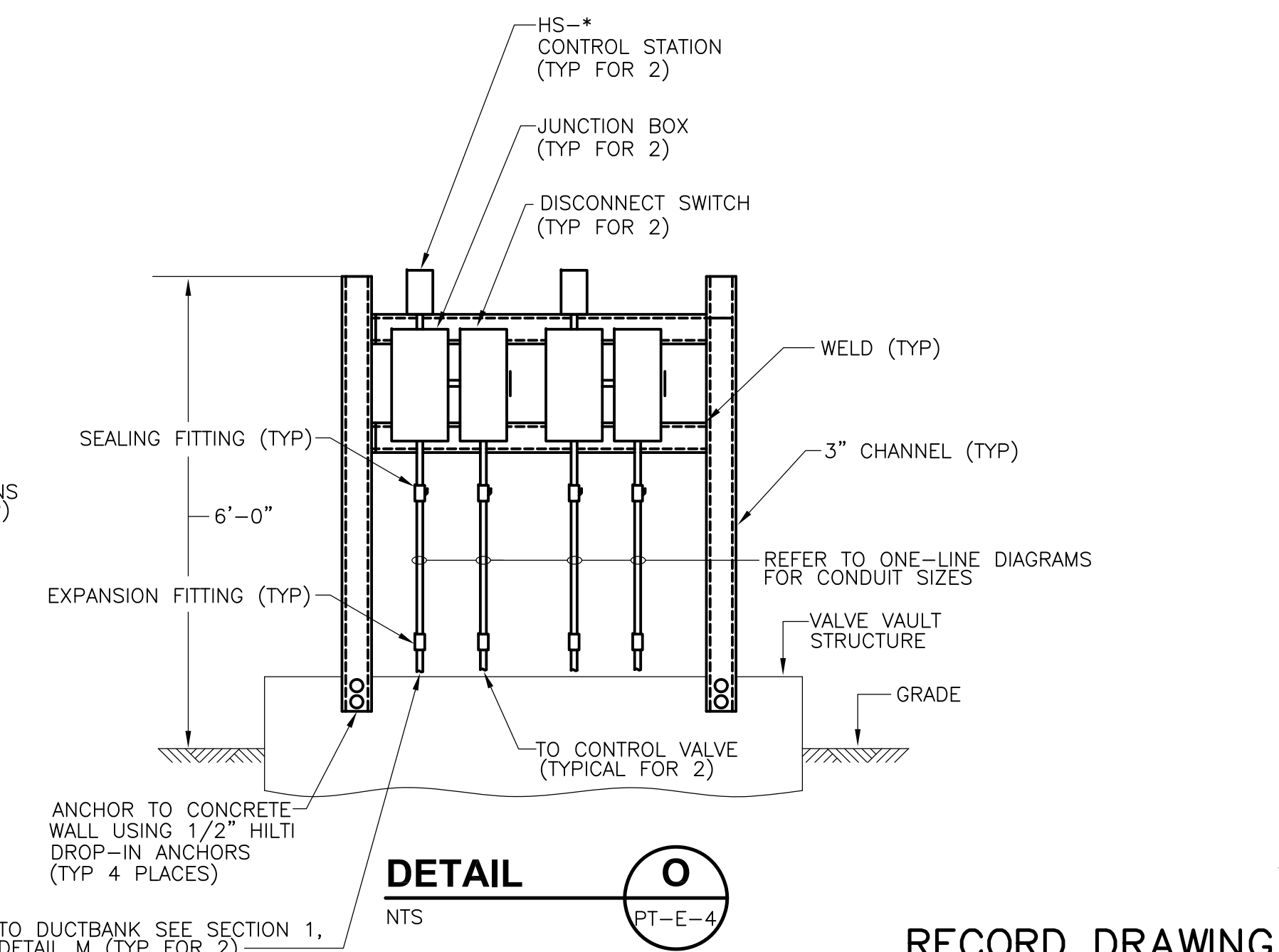
**DETAIL K**  
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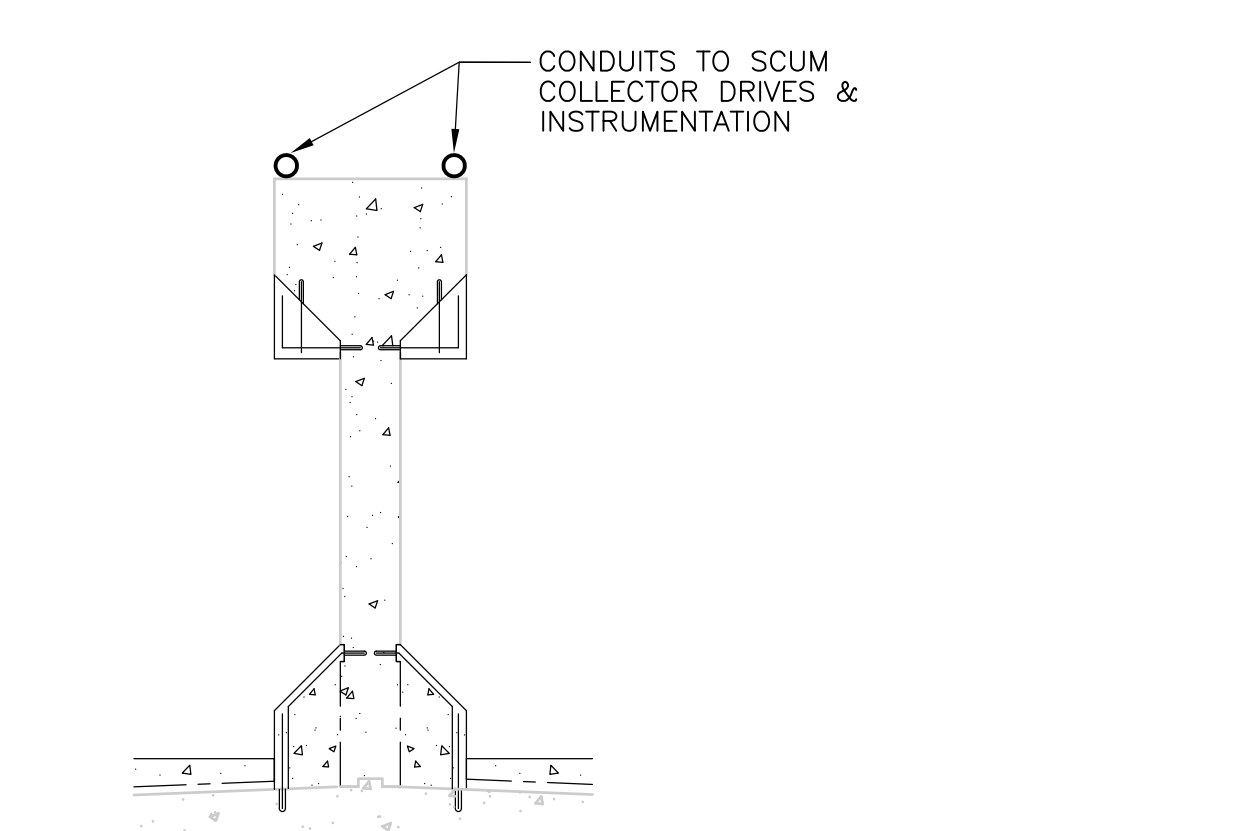
**POWER PLAN**  
TYPICAL FOR SETTLING TANKS 4 THRU 7  
NTS



**DETAIL N**  
NTS



**DETAIL O**  
NTS



**DETAIL P**  
NTS

NOTES:  
1. REFERENCE DRAWING PT-E-5 FOR SCUM PUMP STATION AND VALVE VAULT LOCATION OF ELECTRICAL EQUIPMENT.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EPSDT001.DWG
DESIGNED BY:	JAR
DRAWN BY:	OR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

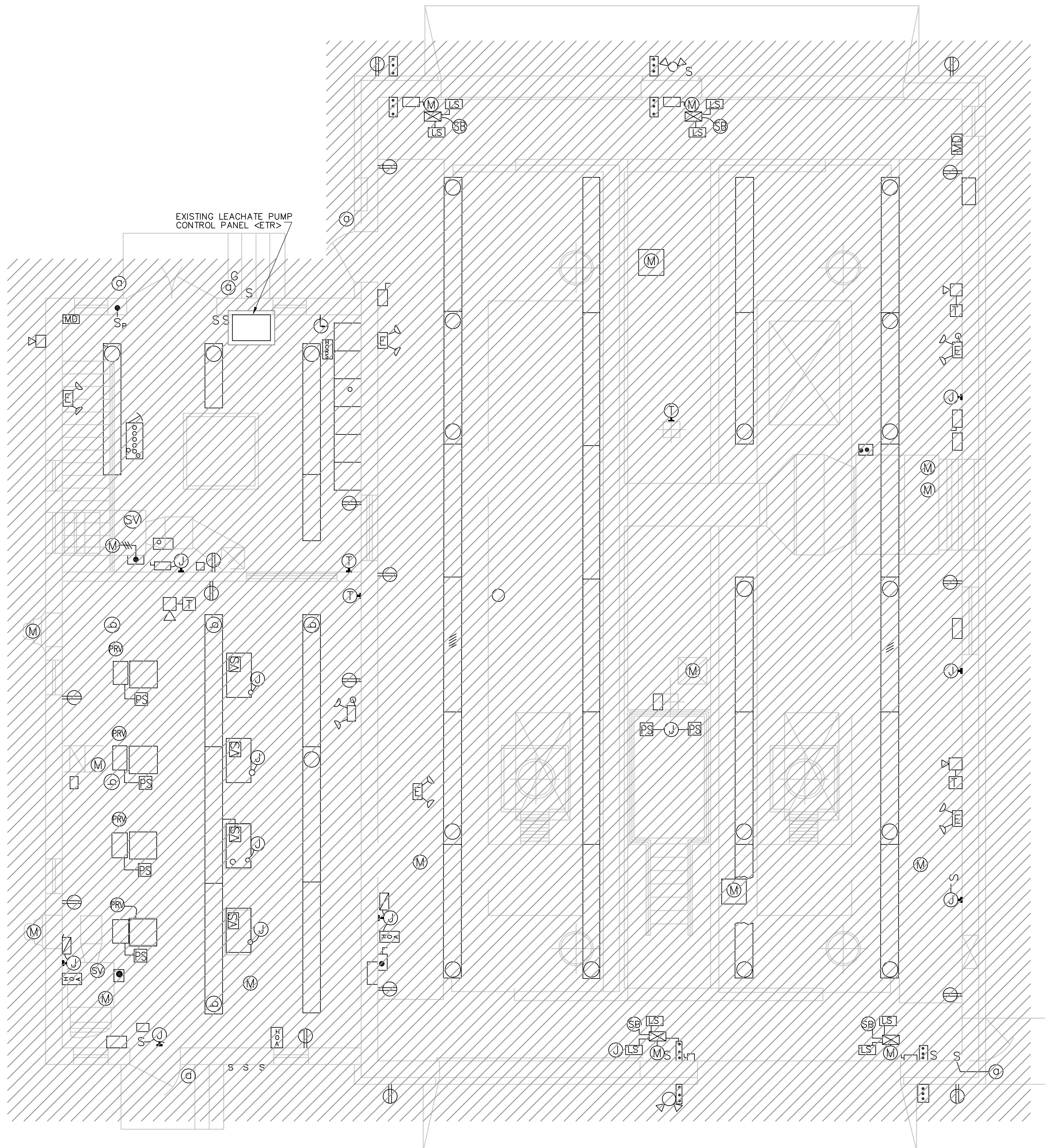
**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

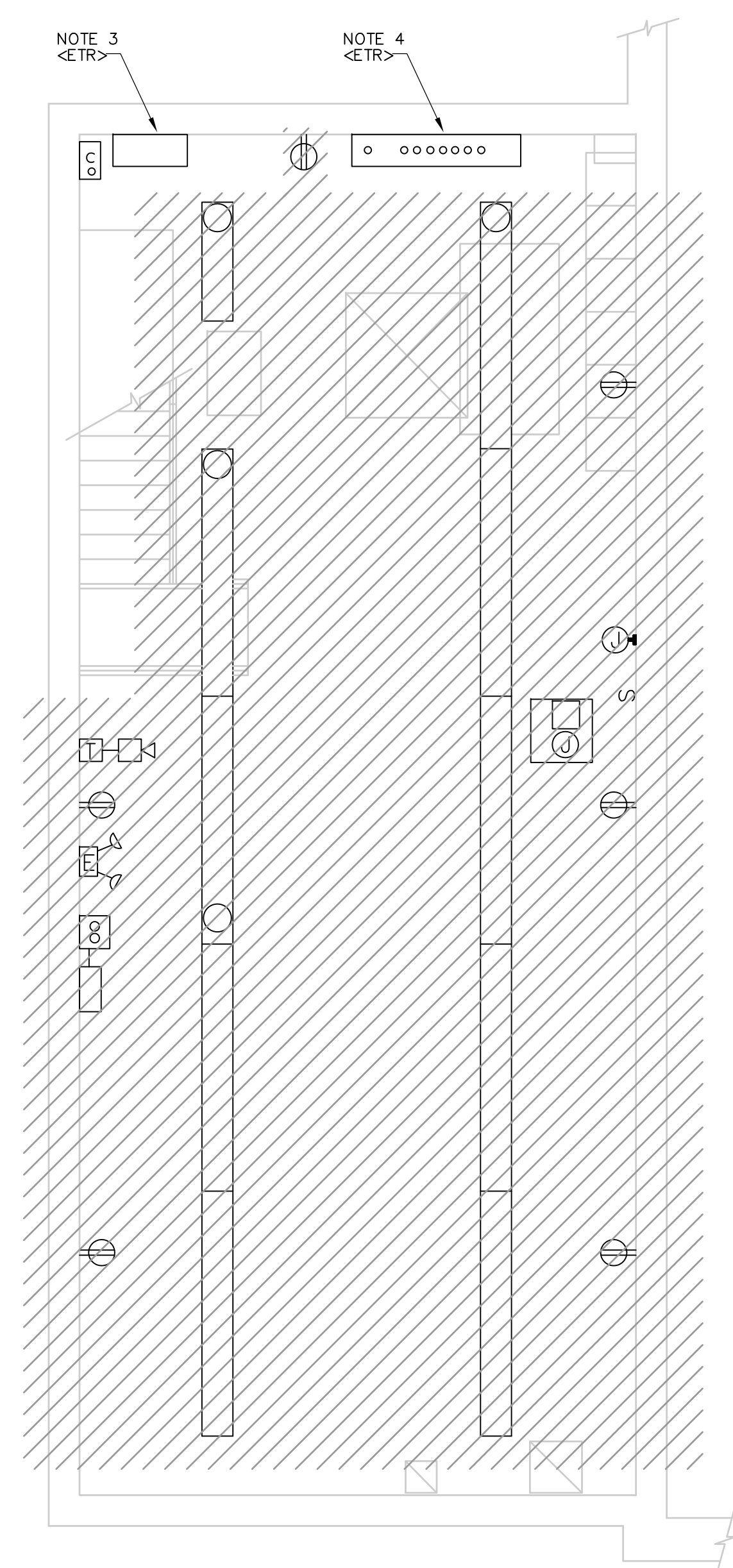
**PRIMARY SETTLING TANKS  
 ELECTRICAL DETAILS**

PROJECT NO.  
1289\35370  
 Sht. 359 of 386  
**PT-E-10**  
PROCESSING NO. 1289-60791





**FIRST FLOOR DEMOLITION  
 PLAN**  
 1/4" = 1'- 0"  
 2 1 0 2 4



**BASEMENT DEMOLITION  
 PLAN**  
 1/4" = 1'- 0"  
 2 1 0 2 4

- NOTES:**
1. EQUIPMENT IDENTIFIED AS EXISTING TO REMAIN "<ETR>" SHALL BE DISCONNECTED AND THE ELECTRICAL WIRING AND RACEWAY SYSTEMS REMOVED IN ITS ENTIRETY. REFER TO NEW WORK PLANS FOR RE-CONNECTION DETAILS.
  2. ALL DEMOLITION SHALL BE DONE IN ACCORDANCE WITH PLANT MOPD SECTION 01810 AND THE REQUIREMENTS STATED IN DIVISION 16.
  3. EXISTING PULLBOX FOR STORAGE BUILDING FEEDER TO REMAIN. EXISTING CONDUITS TO EXISTING MCC SHALL BE REMOVED. CABLES SHALL BE PULLED BACK TO PULLBOX FOR RECONNECTION TO NEW FEEDER. REFER TO NEW WORK PLANS FOR FURTHER DETAILS.
  4. EXISTING PULLBOX FOR ROADWAY LIGHTING, LEACHATE PUMPS (2), LEACHATE P.S. TRANSFORMER AND CATCH BASIN CLEANING P.S. TO REMAIN. EXISTING CONDUITS TO EXISTING MCC SHALL BE REMOVED. CABLES SHALL BE PULLED BACK TO PULLBOX FOR RECONNECTION TO NEW FEEDER. REFER TO NEW WORK PLANS FOR FURTHER DETAILS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EDFDM001.DWG
DESIGNED BY: JAR
DRAWN BY: JAR
SHEET CHK'D BY: BDS
SCALE: AS NOTED
APPROVED BY: B. SQUIBB
DATE: MAY 2006


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**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**DISINFECTION FACILITY  
 DEMOLITION PLANS**

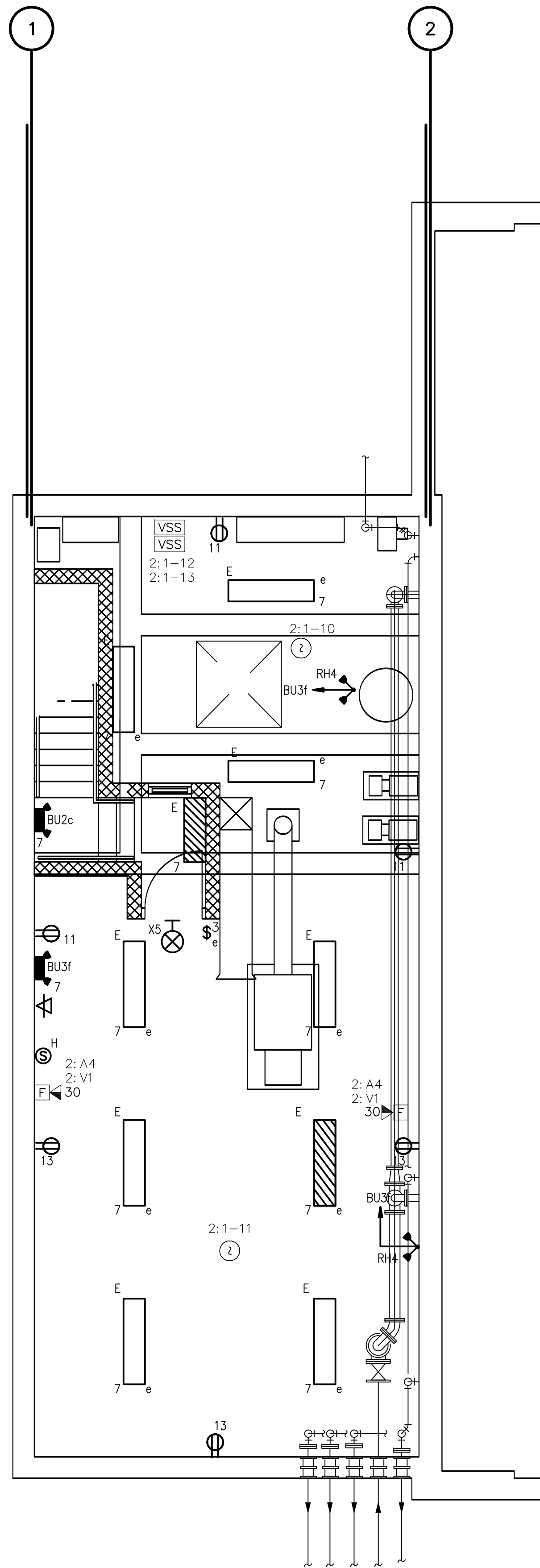
PROJECT NO.  
1289\35370

Sht. 360 of 386

**DF-E-1**

ACCESSION NO. 1289-65760

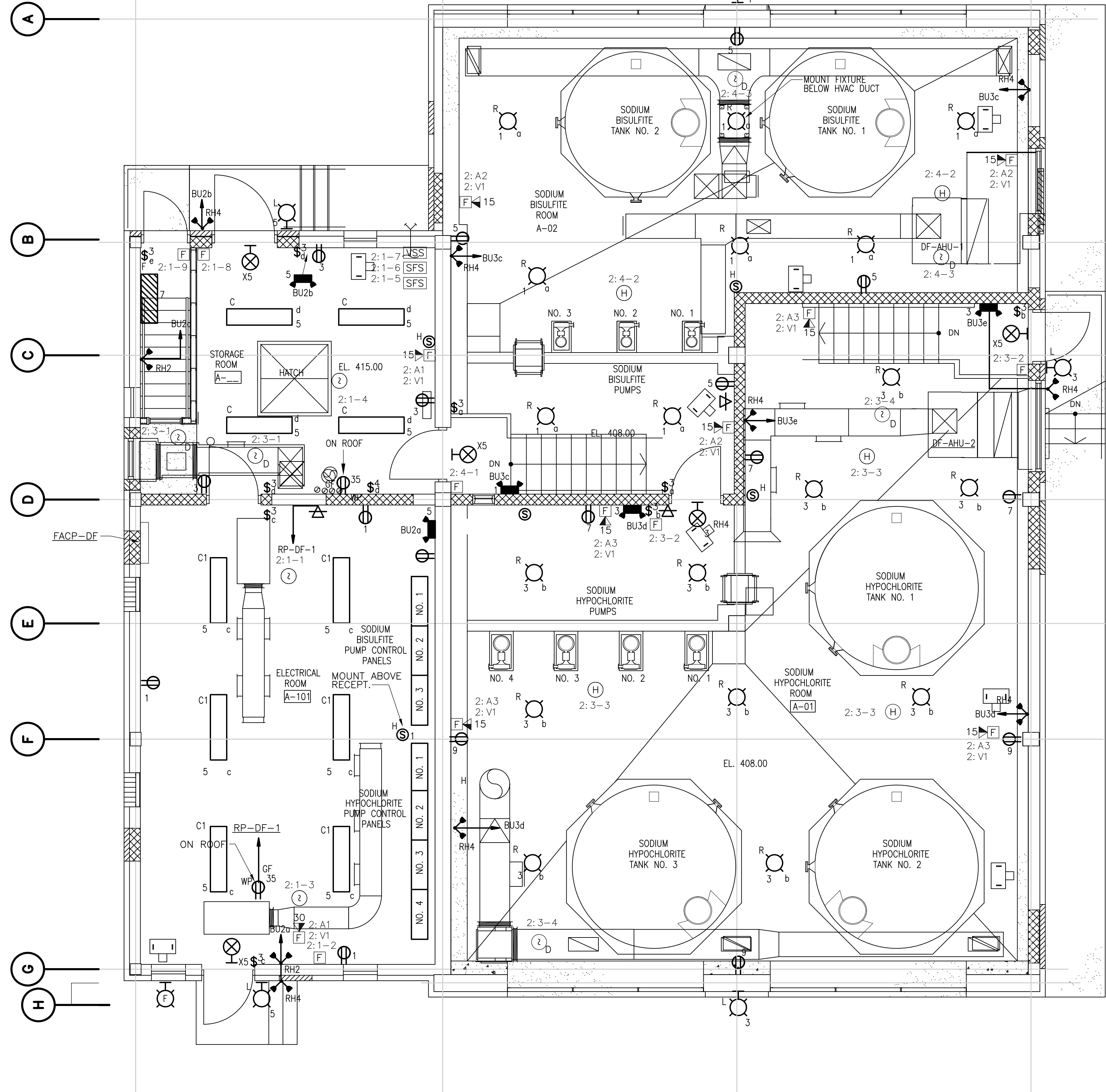
[PIV]  
2:1-15



BASEMENT LIGHTING & SYSTEMS

PLAN

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



FIRST FLOOR LIGHTING & SYSTEMS

PLAN

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

NOTE:  
 1. FOR AREA CLASSIFICATION SEE FIGURE NO. GO-E-3 AND GO-E-4.  
 2. MOUNT TYPE "RT" FIXTURES UP 18'-0".  
 3. MOUNT TYPE "L" FIXTURES UP 8'-0".  
 4. MOUNT TYPE "C1" FIXTURES UP 10'-0".  
 5. MOUNT TYPE "E" FIXTURES UP 10'-0".  
 6. PROVIDE & INSTALL COMMUNICATION CABLE FROM EXISTING JUNCTION BOX TO DEVICES WITHIN THE BUILDING.

REV. NO.	DATE	DRWN	CHKD	REMARKS

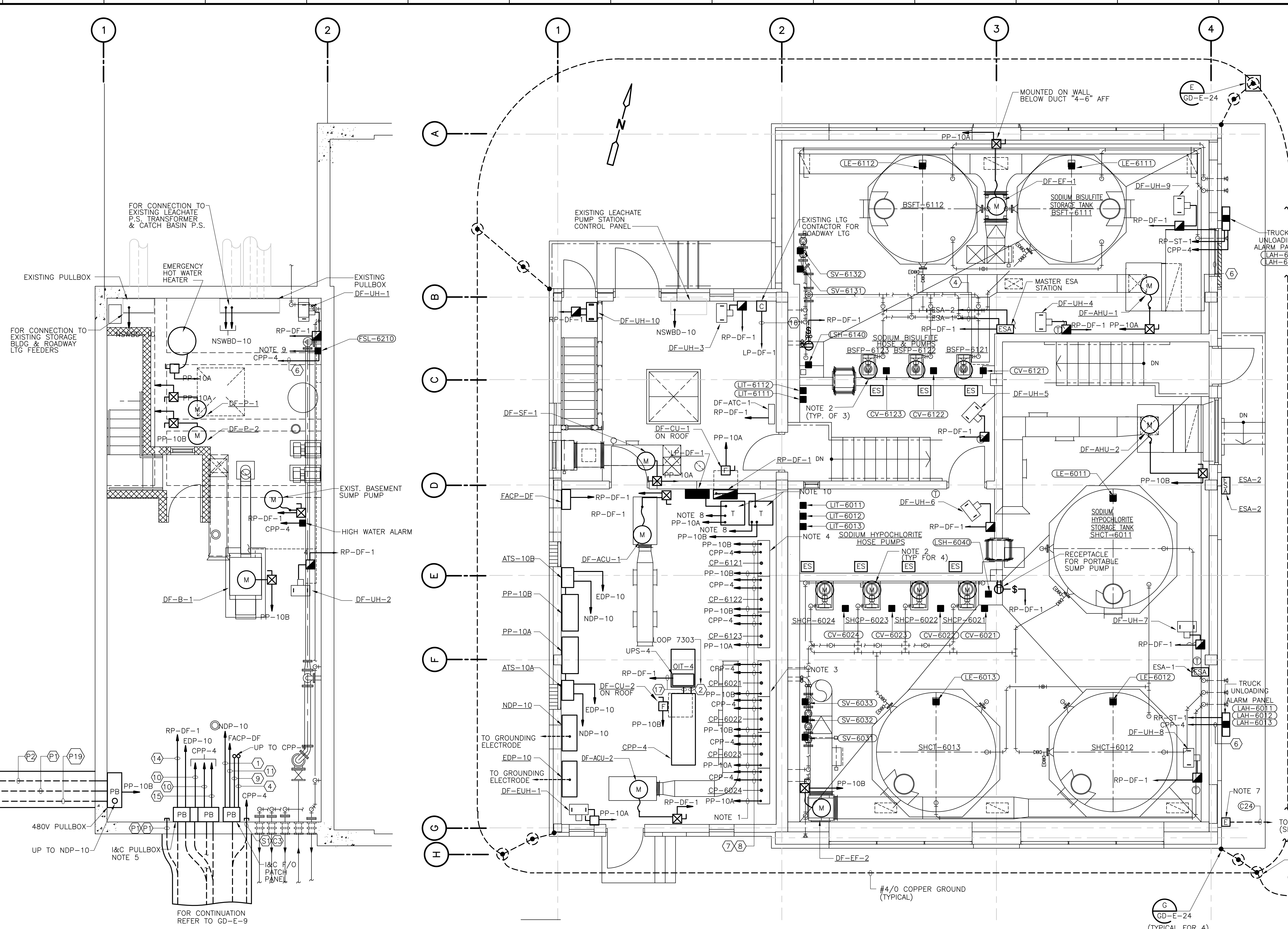
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DESIGNED BY: <u>JAR</u>
DRAWN BY: <u>JAR</u>
SHEET CHK'D BY: <u>BDS</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>B. SQUIBB</u>
DATE: <u>MAY 2006</u>

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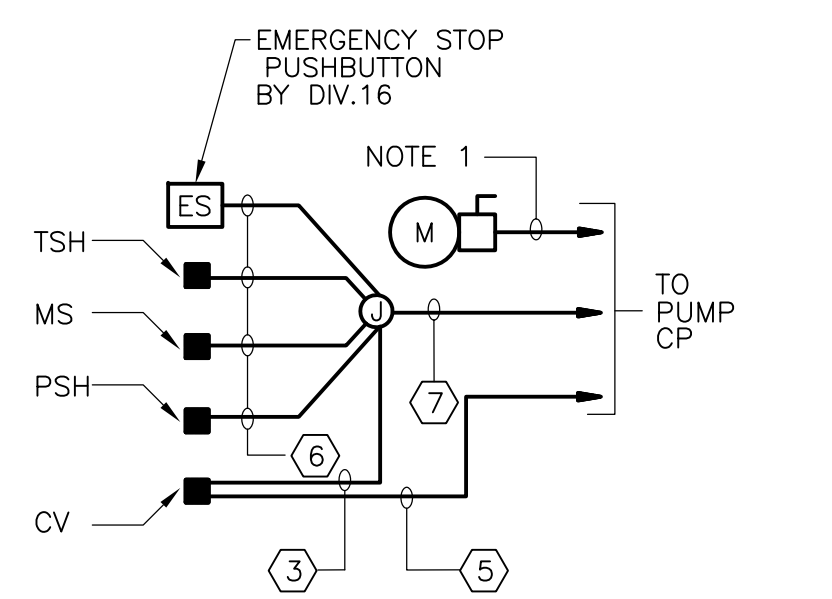
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**DISINFECTION FACILITY  
 LIGHTING & SYSTEMS PLANS**

PROJECT NO.  
1289\35370  
 Sht. 362 of 386  
**DF-E-3**  
ACCESSION NO. 1289-65782



- NOTES:**
- FOR CONDUITS AND WIRE SIZES NOT SHOWN ON THIS DRAWING REFER TO DRAWING GD-E-23.
  - FOR DETAILS SEE WIRING DIAGRAM ON THIS DRAWING.
  - SODIUM HYPOCHLORITE HOSE PUMP CONTROL PANELS TYPICAL FOR 4. LOOPS 6021, 6022, 6023 AND 6024.
  - SODIUM BISULFITE PUMP CONTROL PANELS TYPICAL FOR 3. LOOPS 6121, 6122 AND 6123.
  - PROVIDE BARRIER BETWEEN POWER/DISCRETE AND SIGNAL CONDUITS.
  - FOR LOCATION OF HVAC THERMOSTATS SEE DRAWING DF-H-2.
  - REMOTE GENERATOR EMERGENCY SHUTDOWN BUTTON PROVIDED BY GENSET MANUFACTURER & INSTALLED UNDER THIS CONTRACT.
  - TO GROUNDING ELECTRODE.
  - TO MASTER ESA (EMERGENCY SHOWER ALARM) STATION.
  - TRANSFORMERS STACKED ON TOP OF EACH OTHER IN CORNER.



**SODIUM BISULFITE & SODIUM HYPOCHLORITE HOSE PUMPS WIRING DIAGRAM**  
 (LOOPS 6021, 6022, 6023, 6024, 6121, 6122, 6123)

**CONDUIT AND WIRE LEGEND**  
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	1" C., F03, POWER MONITORING
②	3/4" C., 4#14, 1#14G
③	3/4" C., 6#14, 1#14G
④	3/4" C., 10#14, 1#14G
⑤	3/4" C., 2#12, 1#12G
⑥	3/4" C., 2#14, 1#14G
⑦	1" C., 14#14, 1#14G
⑧	3/4" C., BY DIVISION 13
⑨	1" C., F04, F05 FIBER OPTIC BY DIV. 13
⑩	3/4" C., 1/2C#16TS
⑪	1" C., F01 FIRE ALARM
⑫	NOT USED
⑬	3/4" C., 3-1/2C#16TS
⑭	2" C., 3#4, 1#4G
⑮	1" C., 20#14, 1#14G
⑯	3/4" C., 3#12, 1#12G
⑰	3/4" C., 3#10, 1#10G

**BASEMENT POWER PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4

**FIRST FLOOR POWER PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. <u>EDFP001.DWG</u>
DESIGNED BY: <u>JAR</u>
DRAWN BY: <u>JAR</u>
SHEET CHK'D BY: <u>BDS</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>B. SQUIBB</u>
DATE: <u>MAY 2006</u>

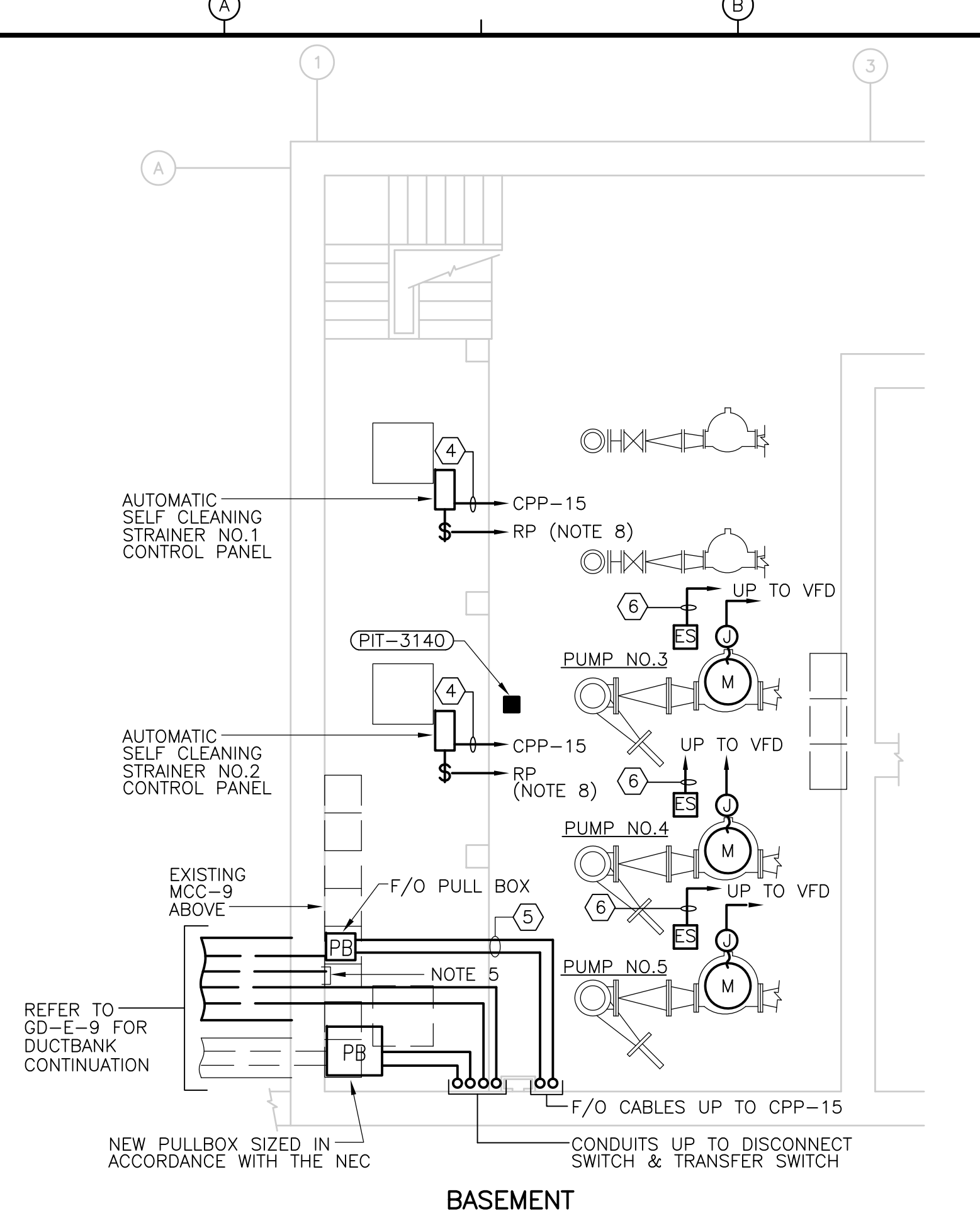
**CDM** Camp Dresser & McKee Inc.  
 consulting engineering constructor operators

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

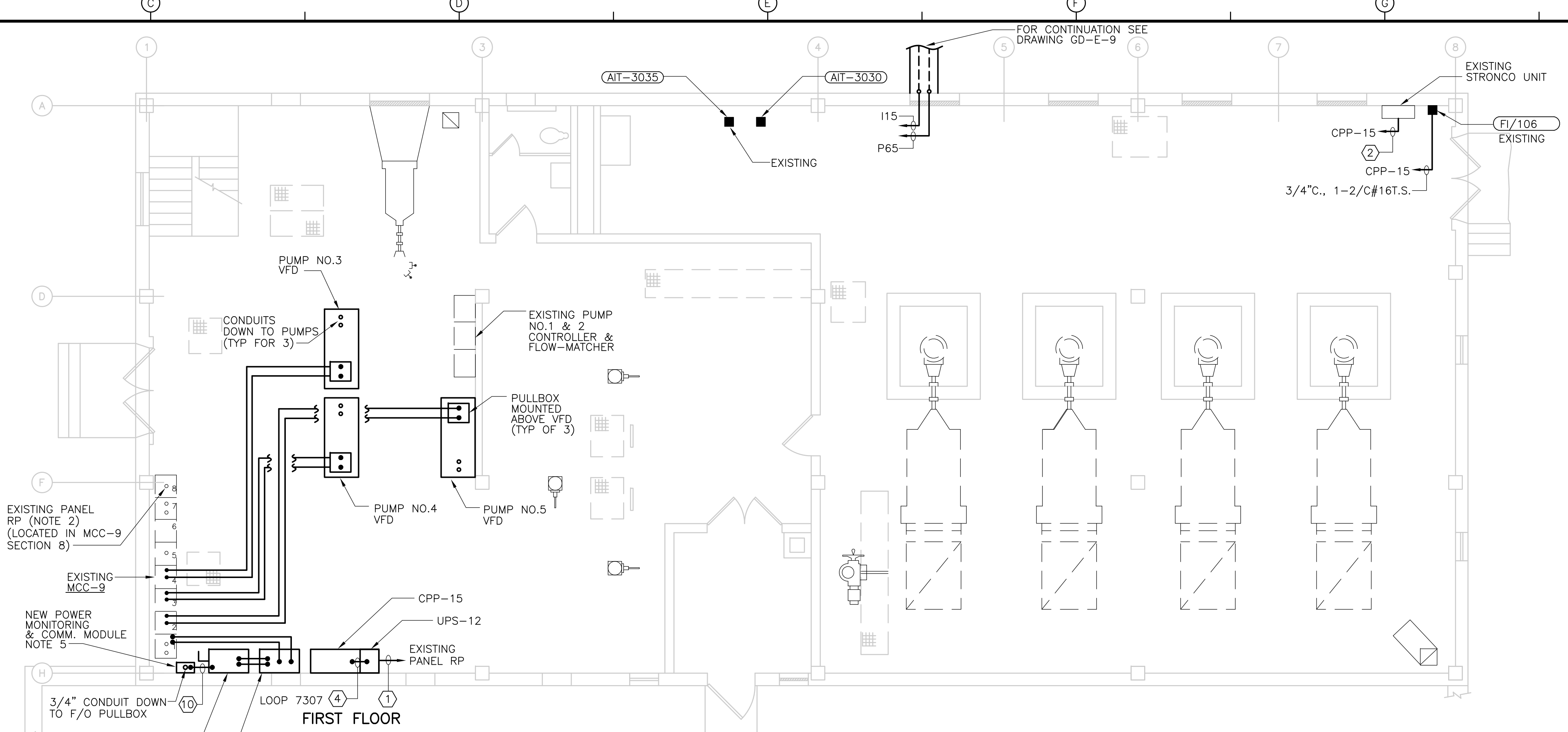
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**DISINFECTION FACILITY POWER PLANS**

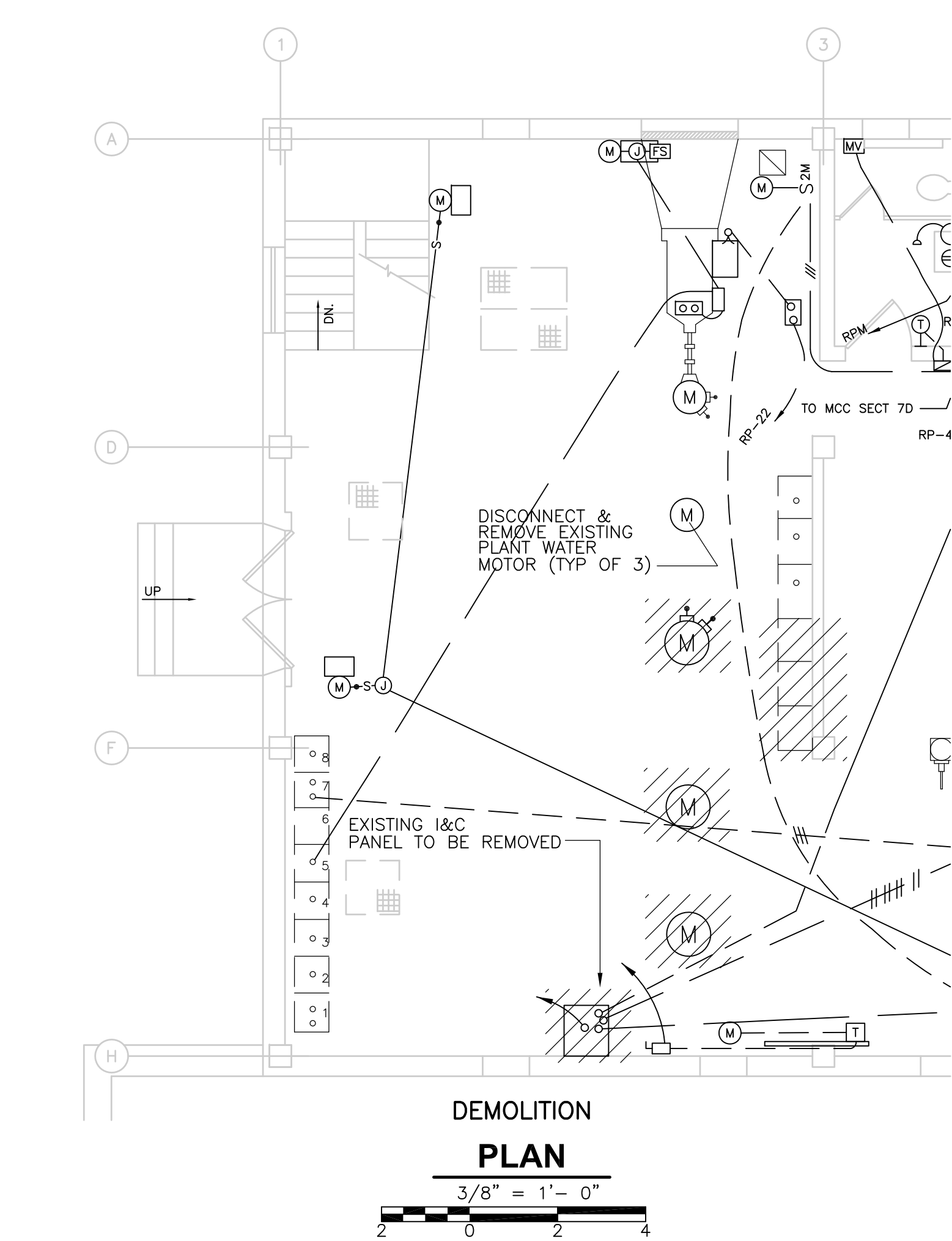
PROJECT NO. 1289\35370  
 Sht. 361 of 386  
**DF-E-2**



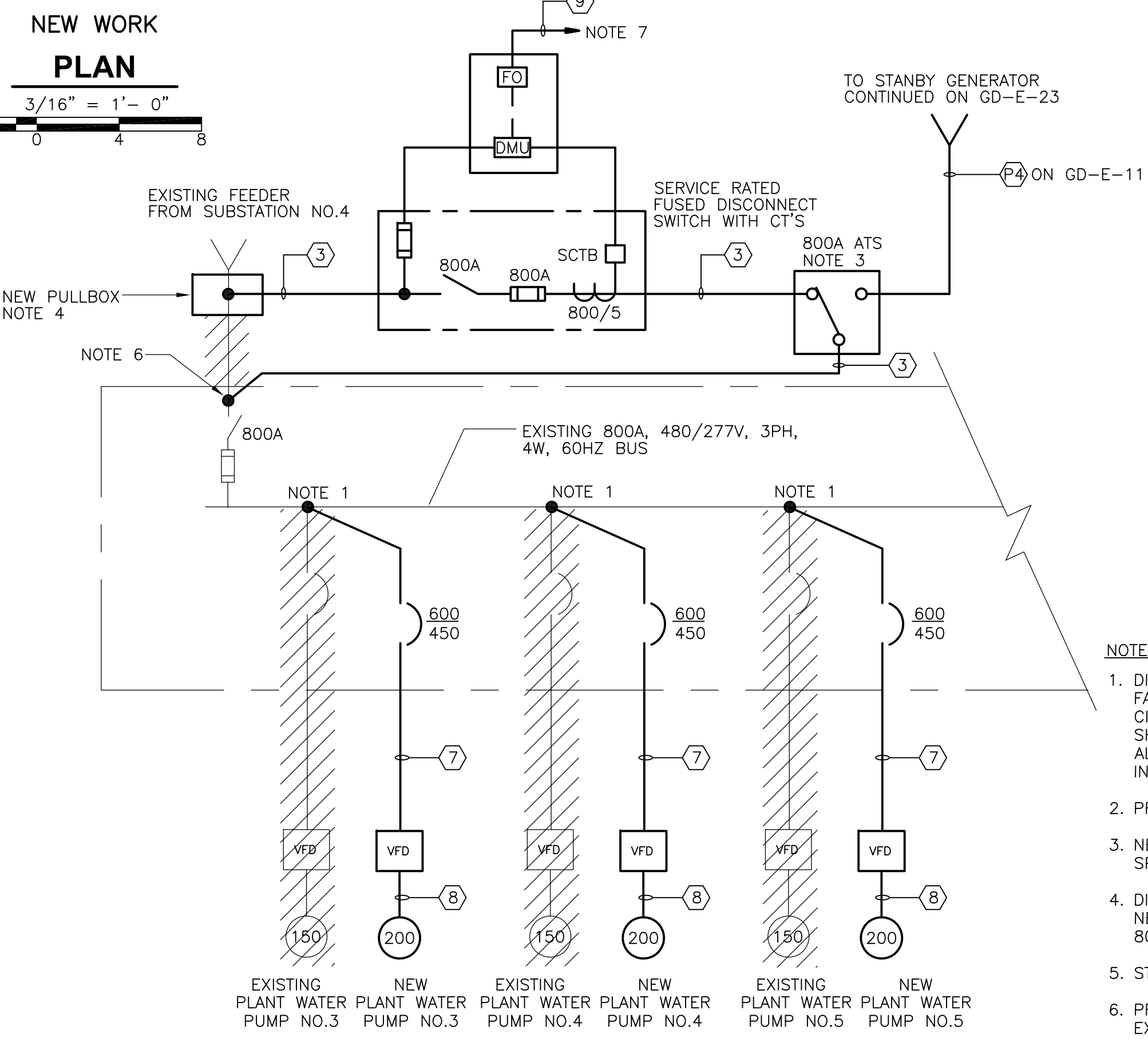
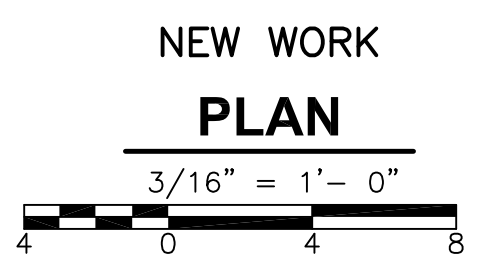
**BASEMENT**



**FIRST FLOOR**



**DEMOLITION PLAN**



**PARTIAL MCC-9 ONE-LINE DIAGRAM 1**  
 N.T.S. RECORD DRAWING

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4"C., 3#10, 1#10G.
②	1"C., 3-2/C#16T.S.
③	2(4"C., 4-600MCM, & 1#4/0G)
④	3/4"C., 4#14, 1#14G
⑤	1"C., F/O CABLE BY DIV. 13
⑥	3/4"C., 2#14, 1#14G
⑦	2(3"C., 3-250MCM, 1#1G)
⑧	3"C., 3#350MCM, 1#2G
⑨	1"C., PMS F/O CABLE
⑩	1"C., 10#12, 1#12G (CT/PT WIRING)

- NOTES**
- DISCONNECT AND REMOVE EXISTING PLANT WATER PUMP VFD BREAKERS AS INDICATED TO FACILITATE NEW FEEDER BREAKER INSTALLATION. INSTALL NEW 600A FRAME, 450A TRIP 3-POLE CIRCUIT BREAKERS IN VACATED SPACES AS INDICATED. NEW BREAKERS SHALL MATCH THE SHORT CIRCUIT RATING OF EXISTING BREAKERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MODIFICATIONS INCLUDING COMPARTMENT DOOR TO COMPLETELY RETROFIT THE NEW BREAKER INTO THE EXISTING MCC.
  - PROVIDE & INSTALL A 30A-2P BREAKER IN EXISTING PANEL RP.
  - NEW 800A, 4 POLE, AUTOMATIC, ELECTRICALLY OPERATED TRANSFER SWITCH. REFER TO SPECIFICATIONS FOR DETAILED REQUIREMENTS.
  - DISCONNECT CONDUITS & PULL BACK EXISTING FEEDER CABLES TO FACILITATE INSTALLATION OF NEW PULLBOX. SPLICE EXISTING CABLES WITH NEW CABLES IN PULLBOX & ROUTE TO NEW 800A SWITCH AS SHOWN ON SINGLE LINE DIAGRAM.
  - STUB & CAP SPARE CONDUIT INSIDE PLANT WATER BUILDING.
  - PROVIDE ALL MODIFICATIONS NECESSARY TO MCC-9 TO MAKE TOP CONDUIT ENTRY. REPAIR EXISTING CONDUIT SLEEVES & BOTTOM ENTRY ONCE EXISTING BOTTOM FEED IS DISCONNECTED.
  - FIBER OPTIC COMMUNICATIONS FOR PMS NETWORK. REFER TO PMS DIAGRAM ON DRAWING GD-E-33 FOR ADDITIONAL DETAILS. NOTE THAT CONDUIT & WIRING FOR THE SYSTEM IS NOT SHOWN ON FLOOR PLANS.
  - FURNISH AND INSTALL A 20A-1P CIRCUIT BREAKER IN EXISTING PANEL "RP" FOR EACH STRAINER.

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EPWDM001.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

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**CDM** Camp Dresser & McKee Inc.  
 consulting engineering construction operations

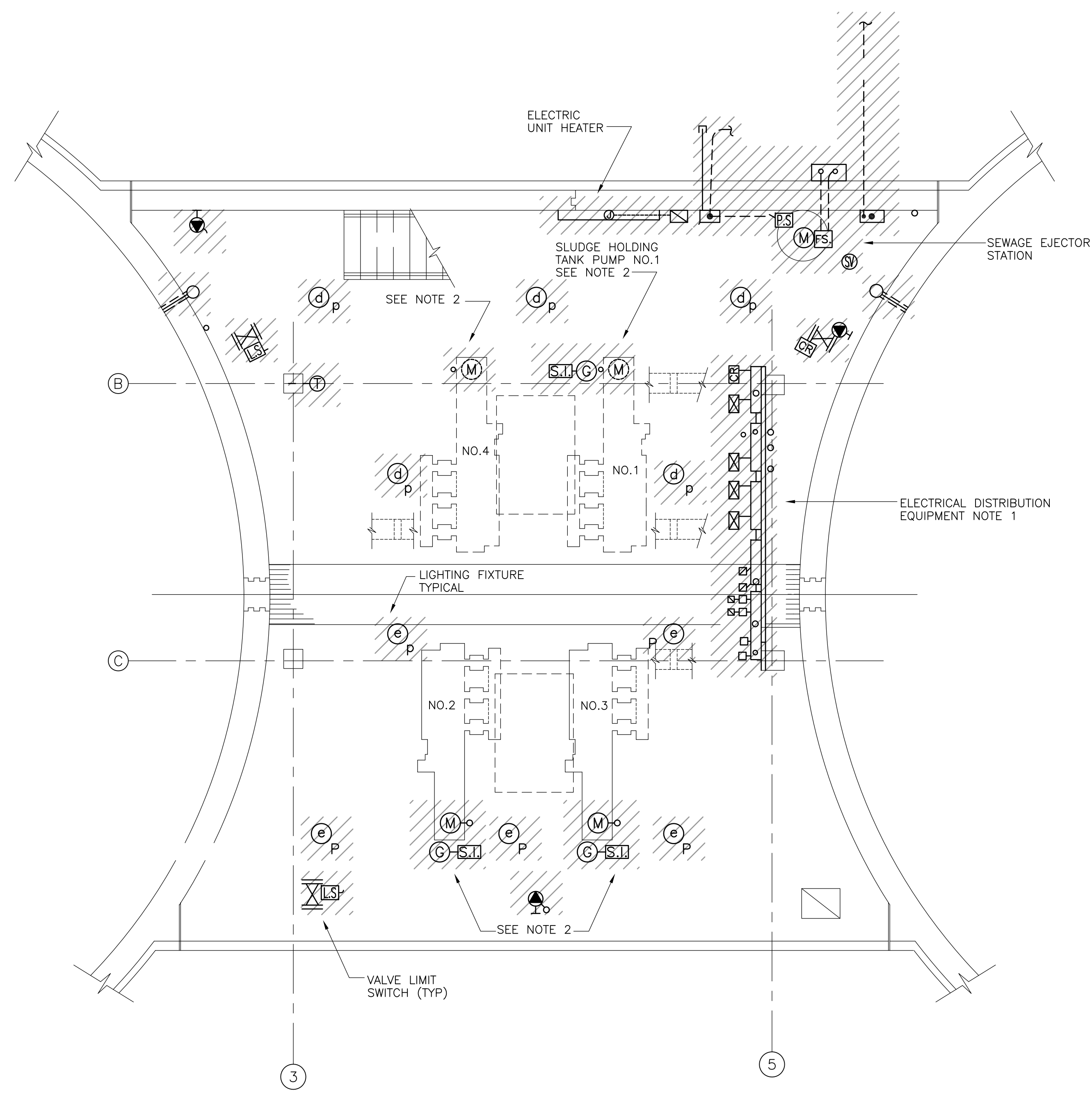
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

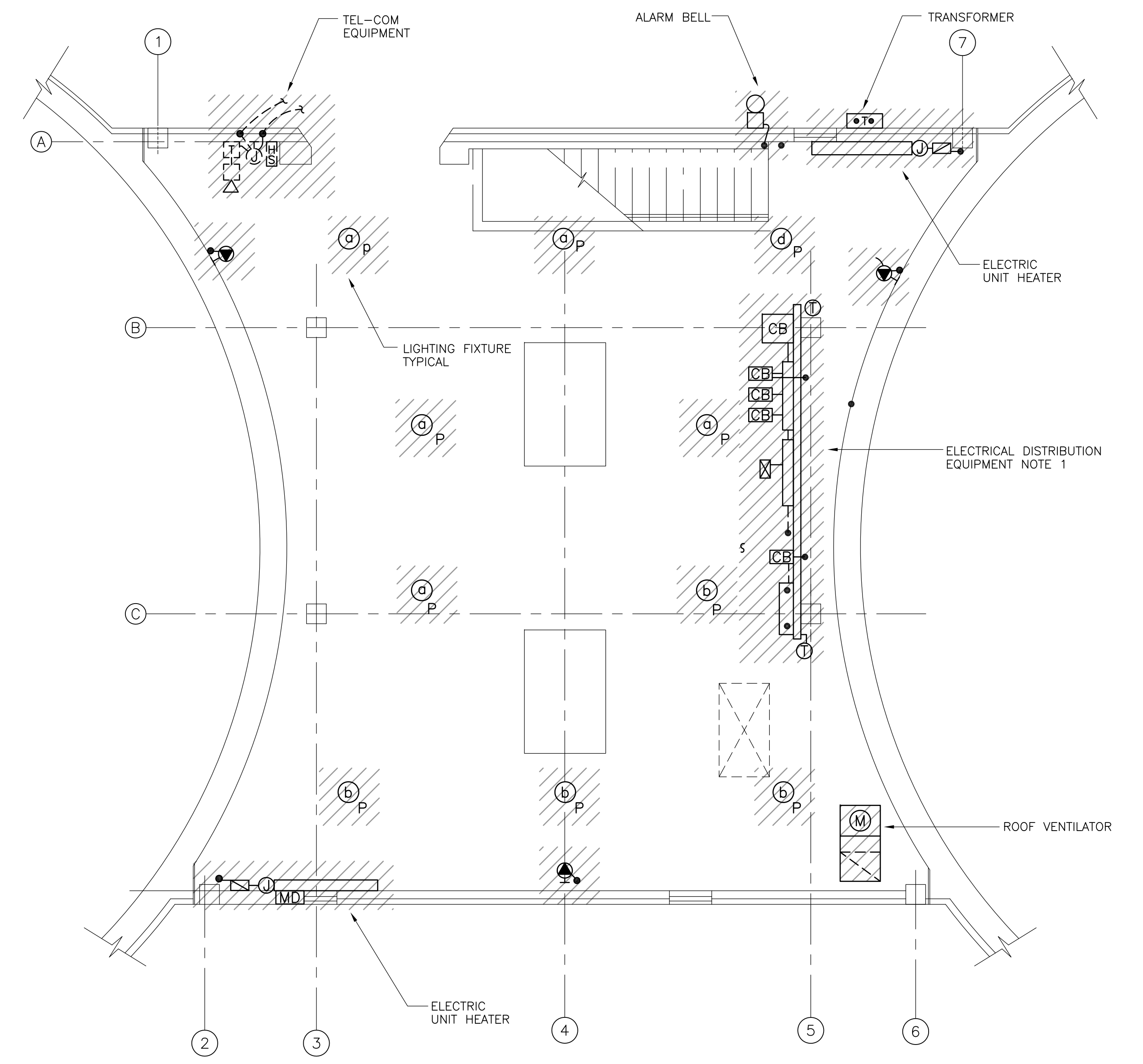
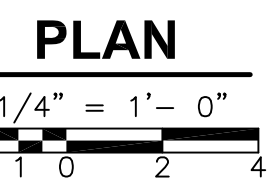
**EXISTING PLANT WATER BUILDING**

**MISCELLANEOUS PLANS**

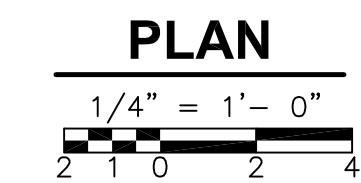
PROJECT NO. 1289\35370  
 Sht. 363 of 386  
**PW-E-1**



**BASEMENT DEMOLITION**



**FIRST FLOOR DEMOLITION**



**NOTES:**

1. DISCONNECT AND REMOVE EXISTING DISTRIBUTION EQUIPMENT INCLUDING MOUNTING HARDWARE AND SUPPORTS IN ACCORDANCE WITH PLANT MOPO SECTION 01810 AND DIVISION 16 REQUIREMENTS.
2. DISCONNECT AND REMOVE CONDUIT, WIRE AND ANCILLARY DEVICES ASSOCIATED WITH THE SLUDGE STORAGE TANK PUMPS. FOR RECONNECTION DETAILS REFER TO NEW WORK PLANS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. <u>ESTDM002.DWG</u>
DESIGNED BY: <u>JAR</u>
DRAWN BY: <u>JAR</u>
SHEET CHK'D BY: <u>BDS</u>
SCALE: <u>AS NOTED</u>
APPROVED BY: <u>B. SQUIBB</u>
DATE: <u>MAY 2006</u>

**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

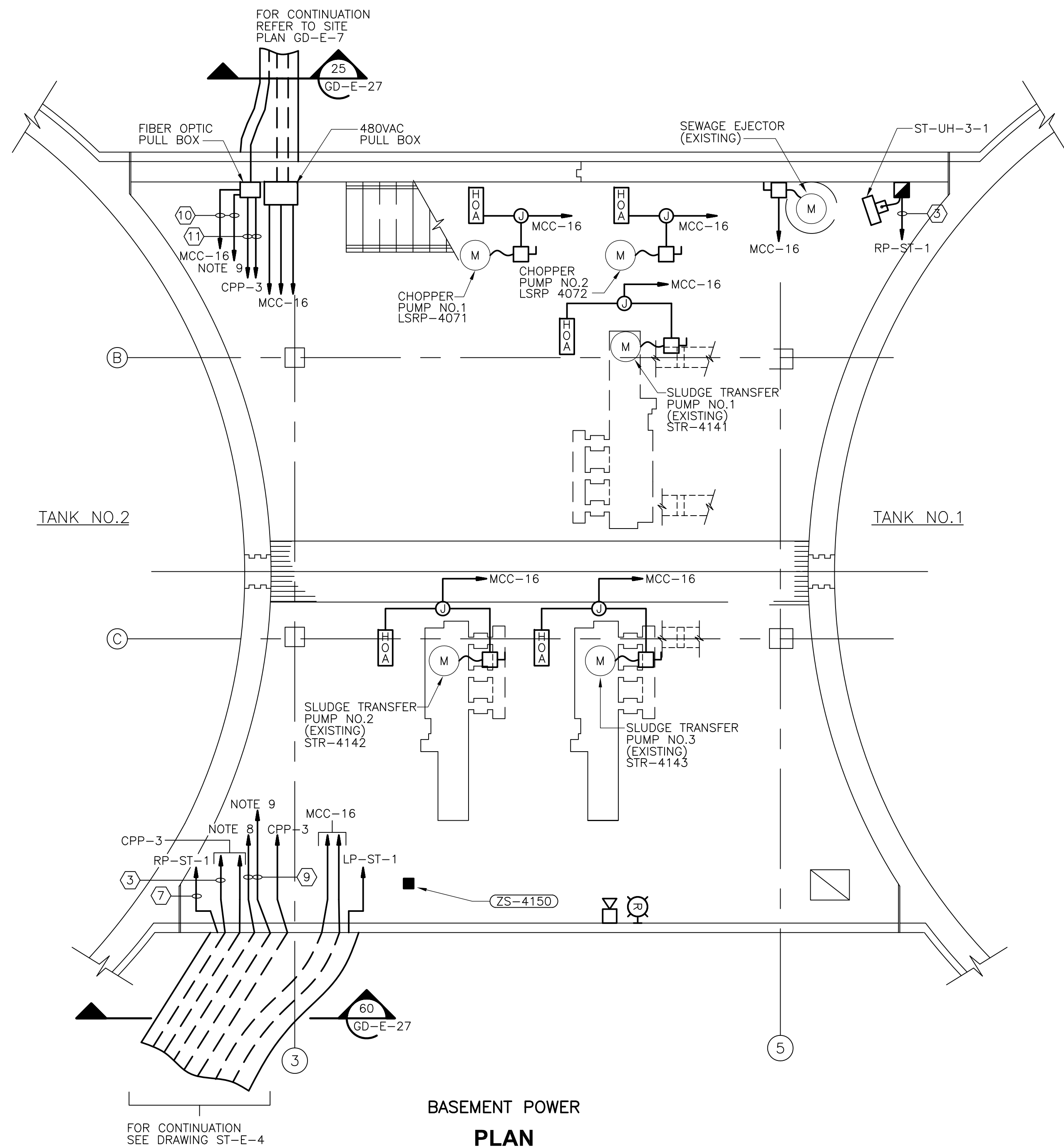
**SLUDGE HOLDING TANK BUILDING  
 DEMOLITION PLANS**

PROJECT NO.  
1289\35370

Sht. 364 of 386

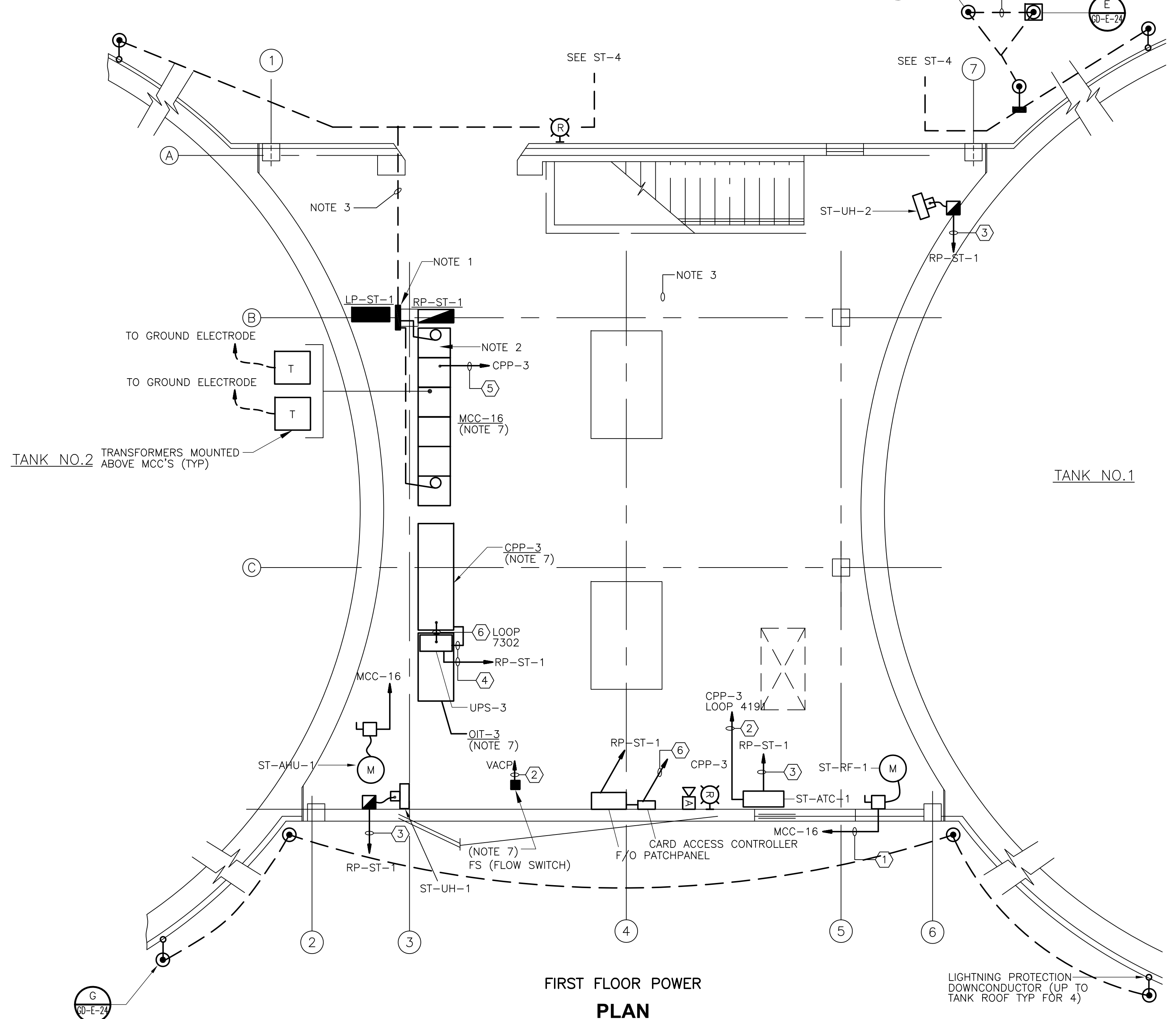
**ST-E-1**

ACCESSION NO. 1289-65784



**BASEMENT POWER PLAN**

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



**FIRST FLOOR POWER PLAN**

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

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4" C., 3#12, 1#12G
②	3/4" C., 2#14, 1#14G
③	3/4" C., 2#12, 1#12G
④	3/4" C., 2#10, 1#10G
⑤	2" C., 110 #14, 1#14G
⑥	3/4" C., 4#14, 1#14G
⑦	3/4" C., 4#12, 2#12G
⑧	1" C., 30#14, 1#14G
⑨	3/4" C., CABLES PER MANUFACTURER REQUIREMENTS (SEE RISER DIAGRAM ON GD-E-32)
⑩	1" C., INSTALL F/O CABLE AS REQUIRED
⑪	1" C., INSTALL F/O CABLE FURNISHED BY DIV.13

- NOTES:**
- MOUNT GROUNDING BUS BAR ON COLUMN IN BASEMENT AREA.
  - COIL 4 FEET OF 4/0 COPPER GROUND CABLE FOR TERMINATION TO MCC GROUNDING BUS BAR. PROVIDE NECESSARY CORE DRILLED HOLES REQUIRED FOR GROUNDING CABLE ROUTING.
  - INSTALL GROUND CABLE IN CONDUIT NEATLY BELOW 1ST FLOOR SLAB.
  - NOT USED
  - PROVIDE NECESSARY CORE DRILLED HOLES FOR THE ROUTING OF COPPER GROUND CABLE.
  - FOR LOCATION OF HVAC THERMOSTATS SEE DRAWING ST-H-2.
  - MOUNT EQUIPMENT ON EXISTING CONCRETE FLOOR USING 1" NON SHRINK GROUT (MIN) AS REQUIRED. LOCATE DRILLED-IN ANCHORAGE TO MISS EXISTING SLAB REINFORCING.
  - TO VIDEO TRANSMITTER IN F/O PATCH PANEL.
  - TO F/O CARD ACCESS SYSTEM CONVERTER IN F/O PATCH PANEL.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. ESTPL001.DWG  
 DESIGNED BY: JAR  
 DRAWN BY: JAR  
 SHEET CHK'D BY: BDS  
 SCALE: AS NOTED  
 APPROVED BY: B. SQUIBB  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
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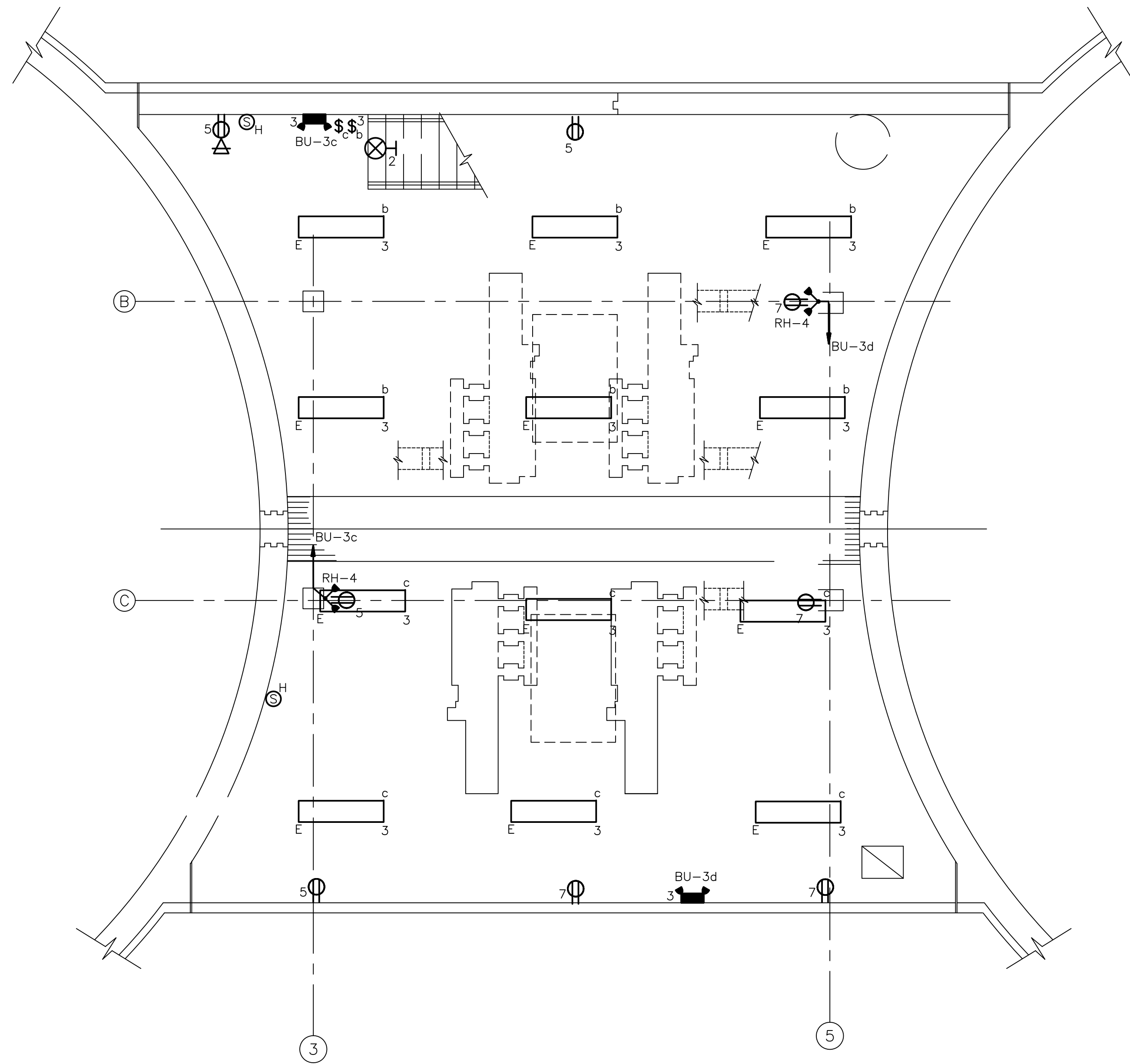
**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

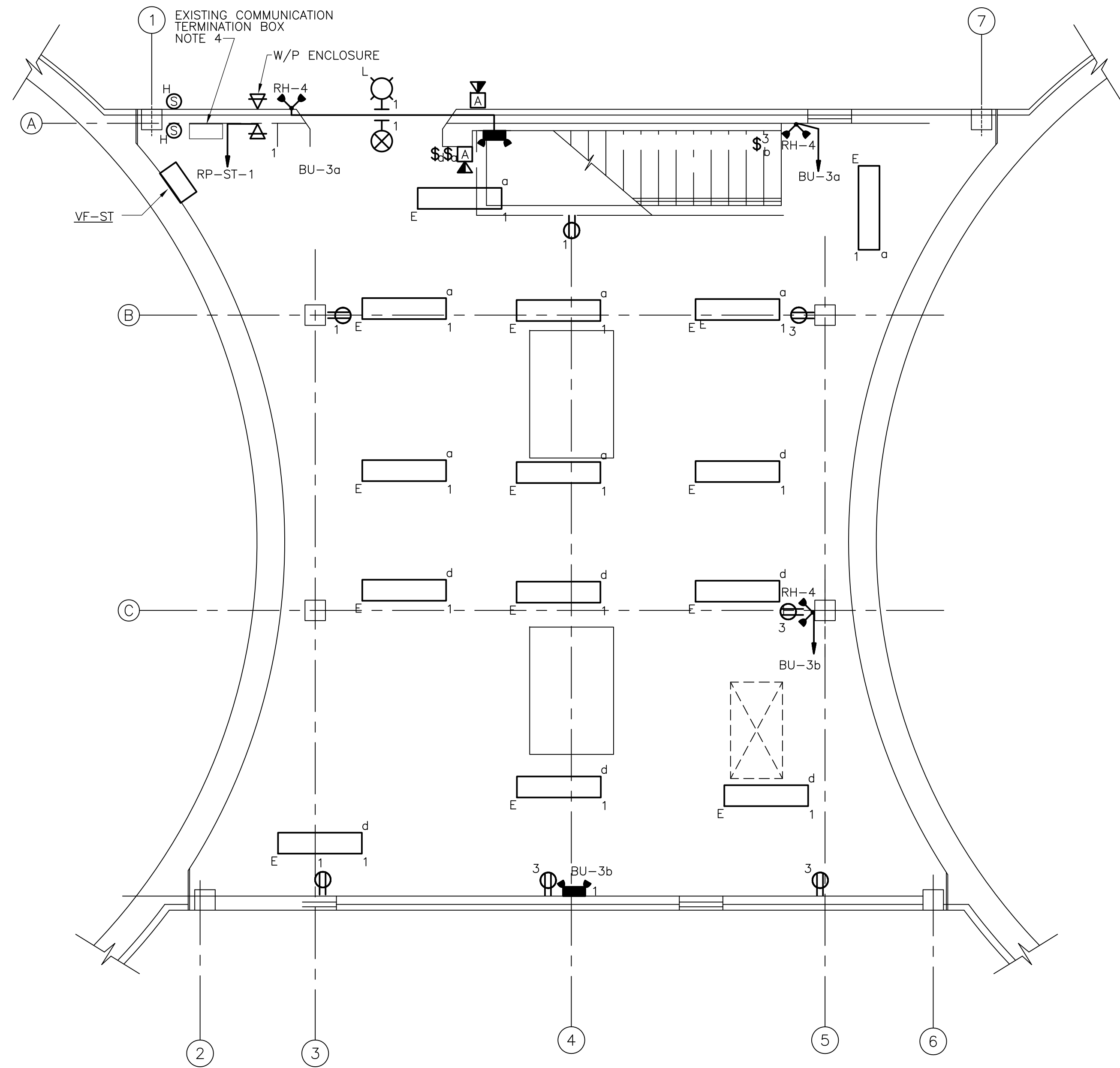
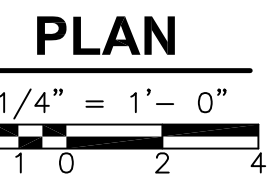
**SLUDGE HOLDING TANK BUILDING POWER PLANS**

**ST-E-2**

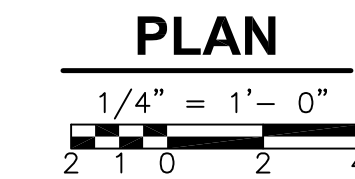
PROJECT NO. 1289\35370  
 Sht. 365 of 386  
 ACCESSION NO. 1289-65765



BASEMENT LIGHTING & SYSTEMS



FIRST FLOOR LIGHTING & SYSTEMS



**NOTES:**

1. FIXTURE TYPE "E" SHALL BE MOUNTED 10'-0" AFF.
2. FIXTURE TYPE "E1" SHALL BE MOUNTED 12"-0" AFF
3. REMOTE HEADS AND BATTERY UNITS SHALL BE MOUNTED 7'-0" AFF.
4. PROVIDE & INSTALL COMMUNICATION CABLE FROM EXISTING TERMINATION BOX TO DEVICES WITHIN THIS BUILDING.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	ESTPL002.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
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UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**SLUDGE HOLDING TANK BUILDING  
 LIGHTING & SYSTEMS PLANS**

PROJECT NO.  
 1289\35370

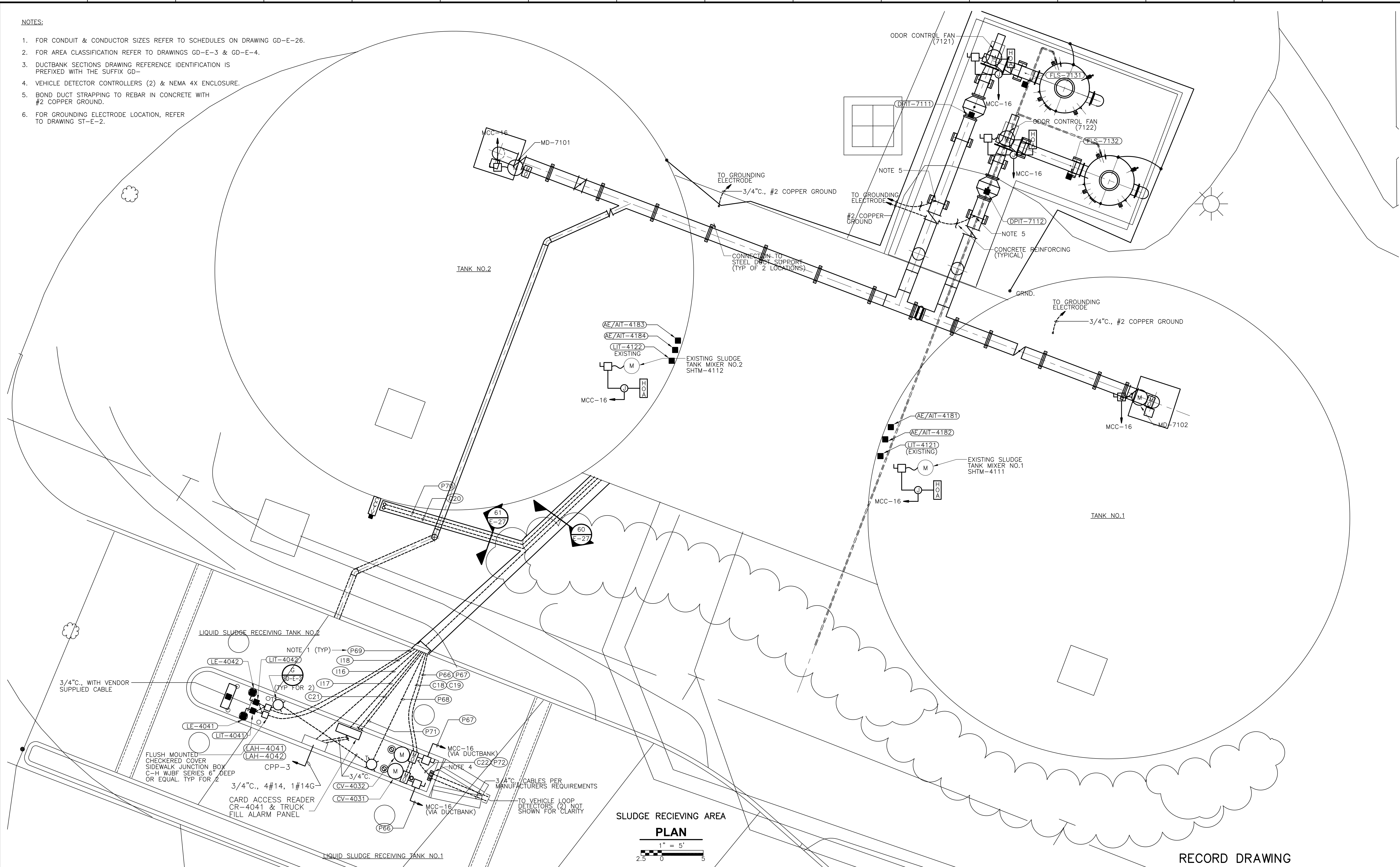
Sht. 366 of 386

**ST-E-3**

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
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**NOTES:**

1. FOR CONDUIT & CONDUCTOR SIZES REFER TO SCHEDULES ON DRAWING GD-E-26.
2. FOR AREA CLASSIFICATION REFER TO DRAWINGS GD-E-3 & GD-E-4.
3. DUCTBANK SECTIONS DRAWING REFERENCE IDENTIFICATION IS PREFIXED WITH THE SUFFIX GD-
4. VEHICLE DETECTOR CONTROLLERS (2) & NEMA 4X ENCLOSURE.
5. BOND DUCT STRAPPING TO REBAR IN CONCRETE WITH #2 COPPER GROUND.
6. FOR GROUNDING ELECTRODE LOCATION, REFER TO DRAWING ST-E-2.



**SLUDGE RECEIVING AREA**  
**PLAN**  
 1" = 5'  
 2.5 0 5

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	ESTD1001.DWG
DESIGNED BY:	SS
DRAWN BY:	OR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

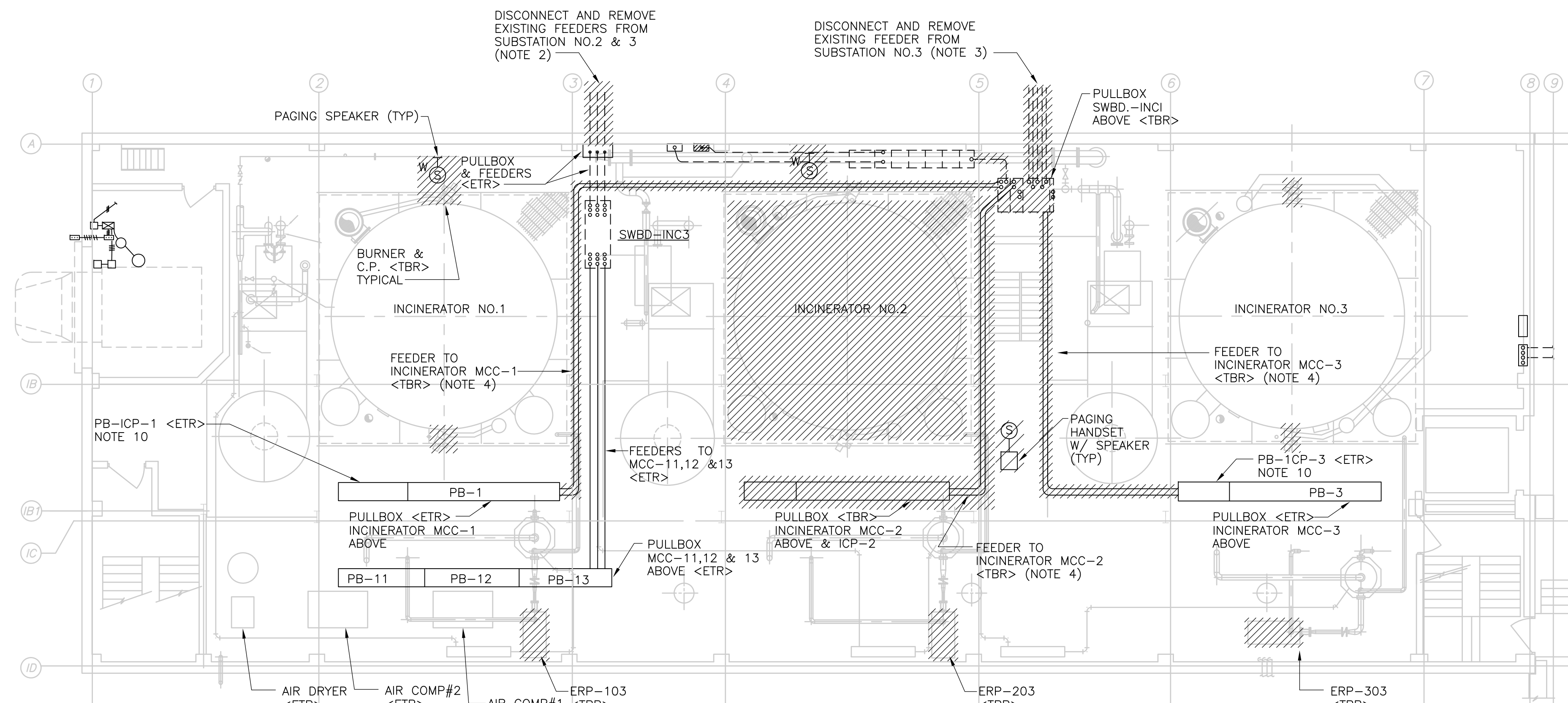
**CDM** Camp Dresser & McKee Inc.  
consulting  
engineering  
construction  
operations

**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

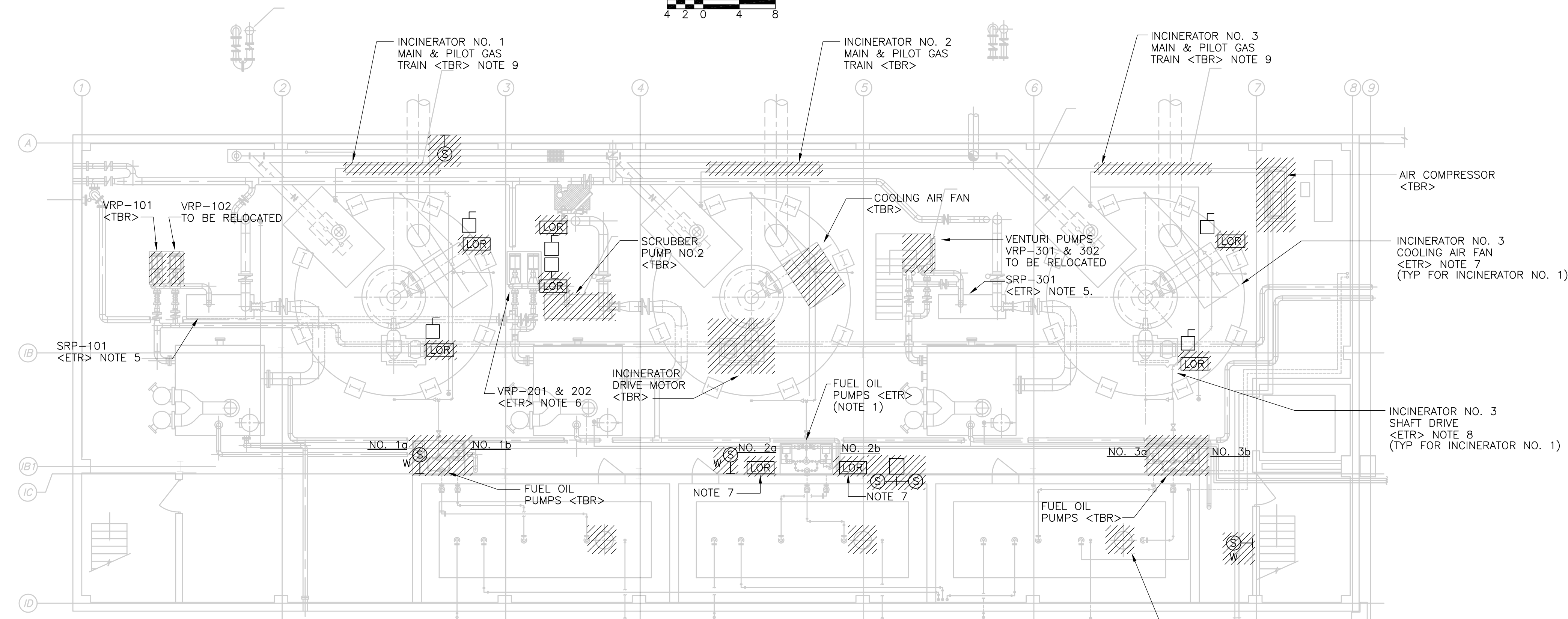
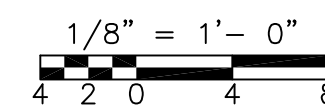
**SLUDGE RECEIVING AREA**  
**POWER, LIGHTING & SYSTEMS PLAN**  
**ST-E-4**

PROJECT NO.	1289\35370
Sht.	367 of 386

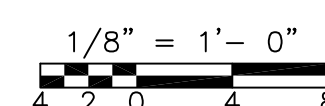




**BASEMENT DEMOLITION PLAN**



**SUB-BASEMENT DEMOLITION PLAN**



**NOTES:**

1. EXISTING FUEL OIL PUMPS FED FROM INCINERATOR MCC-2 TO REMAIN. DISCONNECT AND REMOVE EXISTING CONDUIT AND WIRE INCLUDING ANCILLARY DEVICES ASSOCIATED WITH THE PUMPS IN ACCORDANCE WITH DIV.16 DEMO REQUIREMENTS. REFER TO NEW WORK PLANS FOR DETAILS ON RECONNECTION.
2. DISCONNECT AND REMOVE EXISTING FEEDERS TO SWBD-INC3 FROM SUBSTATION NO.2 & NO.3 IN ACCORDANCE WITH DIV.16 AND PLANT MOPO REQUIREMENTS. REFER TO EXISTING OVERALL ONE LINE DIAGRAM GD-E-10 FOR EXISTING DISTRIBUTION DETAILS AND NEW WORK PLANS INCLUDING NEW OVERALL ONE LINE ON GD-E-11 FOR RECONNECTION DETAILS.
3. DISCONNECT AND REMOVE EXISTING FEEDER TO SWBD-INC1 FROM SUBSTATION NO.3 IN ACCORDANCE WITH DIV.16 AND PLANT MOPO REQUIREMENTS. REFER TO EXISTING OVERALL ONE LINE DIAGRAM GD-E-10 FOR EXISTING DISTRIBUTION DETAILS AND NEW WORK PLANS INCLUDING NEW OVERALL ONE LINE ON GD-E-11 FOR RECONNECTION DETAILS.
4. DISCONNECT AND REMOVE EXISTING FEEDER TO INCINERATOR MCC FROM SWBD-INC1 IN ACCORDANCE WITH DIV.16 AND PLANT MOPO REQUIREMENTS. REFER TO EXISTING OVERALL ONE LINE DIAGRAM GD-E-10 FOR EXISTING DISTRIBUTION DETAILS AND NEW WORK PLANS INCLUDING NEW OVERALL ONE LINE ON GD-E-11 FOR RECONNECTION DETAILS.
5. EXISTING SCRUBBER RECIRC PUMPS TO REMAIN. PUMP MOTOR DISCONNECT & FEEDER TO BE REMOVED. REFER TO ONE LINE DIAGRAM ON DRAWING GD-E-20 FOR ADDITIONAL DETAILS ON WORK REQUIRED.
6. EXISTING VENTURI RECIRC PUMPS TO REMAIN AND BE RETROFITTED TO HEAT RECOVERY PUMP. EXISTING POWER FEED AND DISCONNECTS TO REMAIN. REMOVE EXISTING LOR SWITCH AS INDICATED.
7. DISCONNECT & REMOVE EXISTING LOR SWITCH & PRESSURE SWITCH TO FACILITATE INSTALLATION OF NEW HOA SWITCH & PRESSURE DEVICE. REFER TO SP-E-4 FOR NEW WORK REQUIREMENTS.
8. DISCONNECT & REMOVE EXISTING LOR SWITCH TO FACILITATE INSTALLATION OF NEW HOA SWITCH. REFER TO SP-E-4 FOR NEW WORK REQUIREMENTS.
9. DISCONNECT & REMOVE EXISTING CONDUIT & WIRING TO GAS TRAIN SOLENOIDS TO FACILITATE NEW PIPING & VALVE INSTALLATION.
10. DISCONNECT ALL WIRING TERMINATIONS AT ICP-1 & 3 & PULL BACK WIRES INTO PULLBOX TO FACILITATE THE REMOVAL OF THE CONTROL PANELS. REFER TO DRAWING SP-E-5 FOR NEW TERMINATION & SPLICE FOR WIRING RECONNECTIONS REQUIRED.

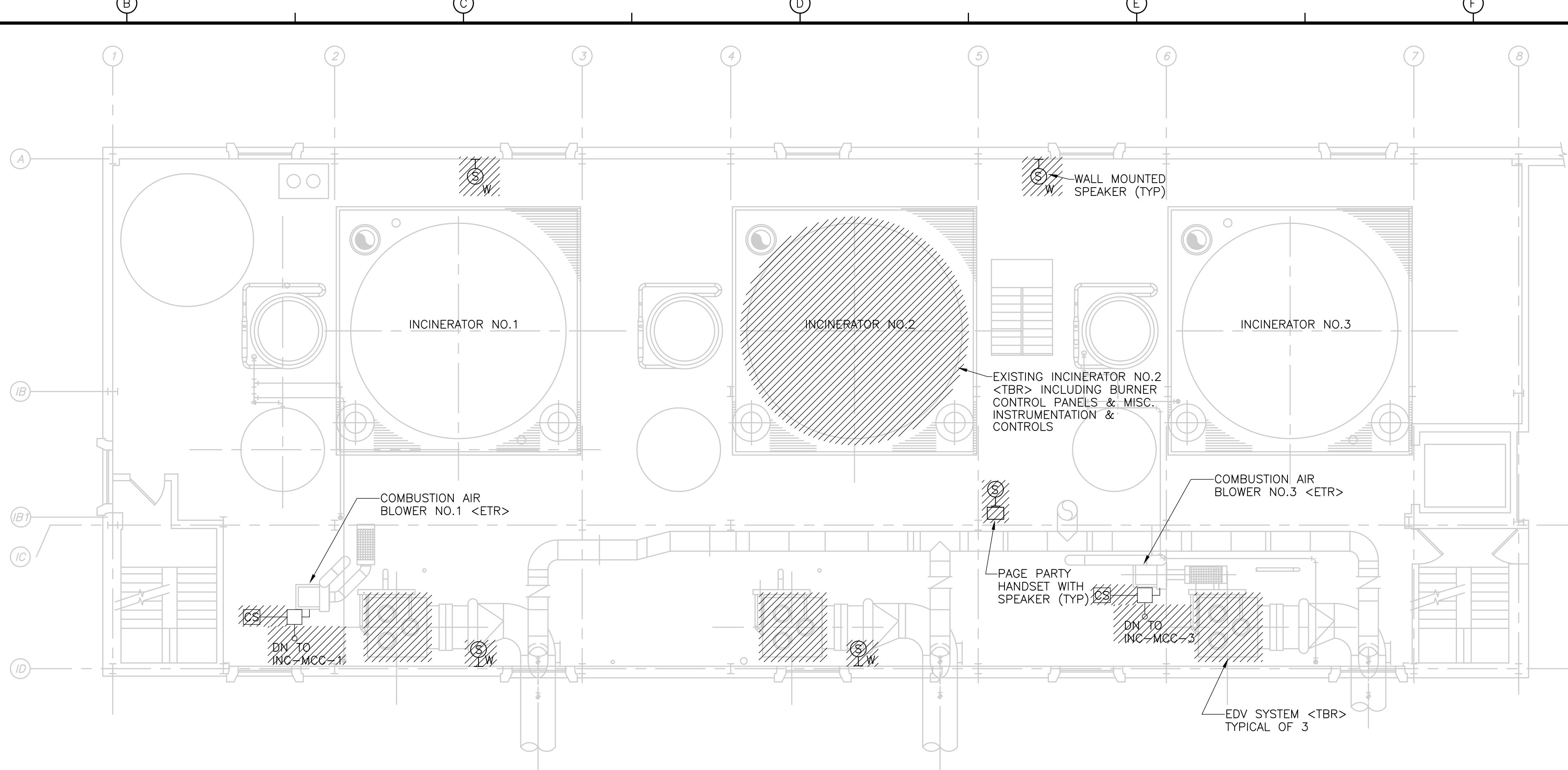
**INCINERATOR NO. 1 & NO. 3 MODIFICATION NOTES:**

1. THE MODIFICATION TO EXISTING INCINERATOR(S) REQUIRES, BUT IS NOT NECESSARILY LIMITED TO, THE FOLLOWING DEMOLITION. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE THE DISCONNECTION AND REMOVAL OF EQUIPMENT WITH THE ELECTRICAL DEMO PLANS AND SPECS AS WELL AS THE PROCESS & INSTRUMENTATION DIAGRAMS AND PROCESS MECHANICAL PLANS. ALL DEMOLITION DESCRIBED BELOW SHALL BE DONE IN ACCORDANCE WITH THE DIVISION 16 DEMO REQUIREMENTS AND SECTION 01810 MAINTENANCE OF PLANT OPERATIONS SPECIFICATION.
  - a. DISCONNECT AND REMOVE EXISTING BURNER CONTROL PANELS (TYP OF 8 ON EACH INCINERATOR) AND ASSOCIATED CONDUIT AND WIRE TO ANCILLARY DEVICES (I.E. VALVES, INSTRUMENTS AND FLAME SCANNERS).
  - b. DISCONNECT AND REMOVE EXISTING CONDUIT AND WIRING ASSOCIATED WITH THE EXISTING THERMOCOUPLES ON EACH INCINERATOR FROM THE INSTRUMENT TO THE EXISTING ICP PANELS.
  - c. DISCONNECT AND REMOVE THE CONDUIT AND WIRING FOR THE EXISTING ODOROUS AIR CONTROL VALVES AND EXISTING AMBIENT AIR VALVES TO FACILITATE THE INSTALLATION OF NEW VALVE OPERATORS.
  - d. DISCONNECT & REMOVE THE CONDUIT AND WIRING FOR MISCELLANEOUS I & C DEVICES SCHEDULED FOR DEMOLITION BY THE GENERAL CONTRACTOR AND MECHANICAL PLANS.

RECORD DRAWING

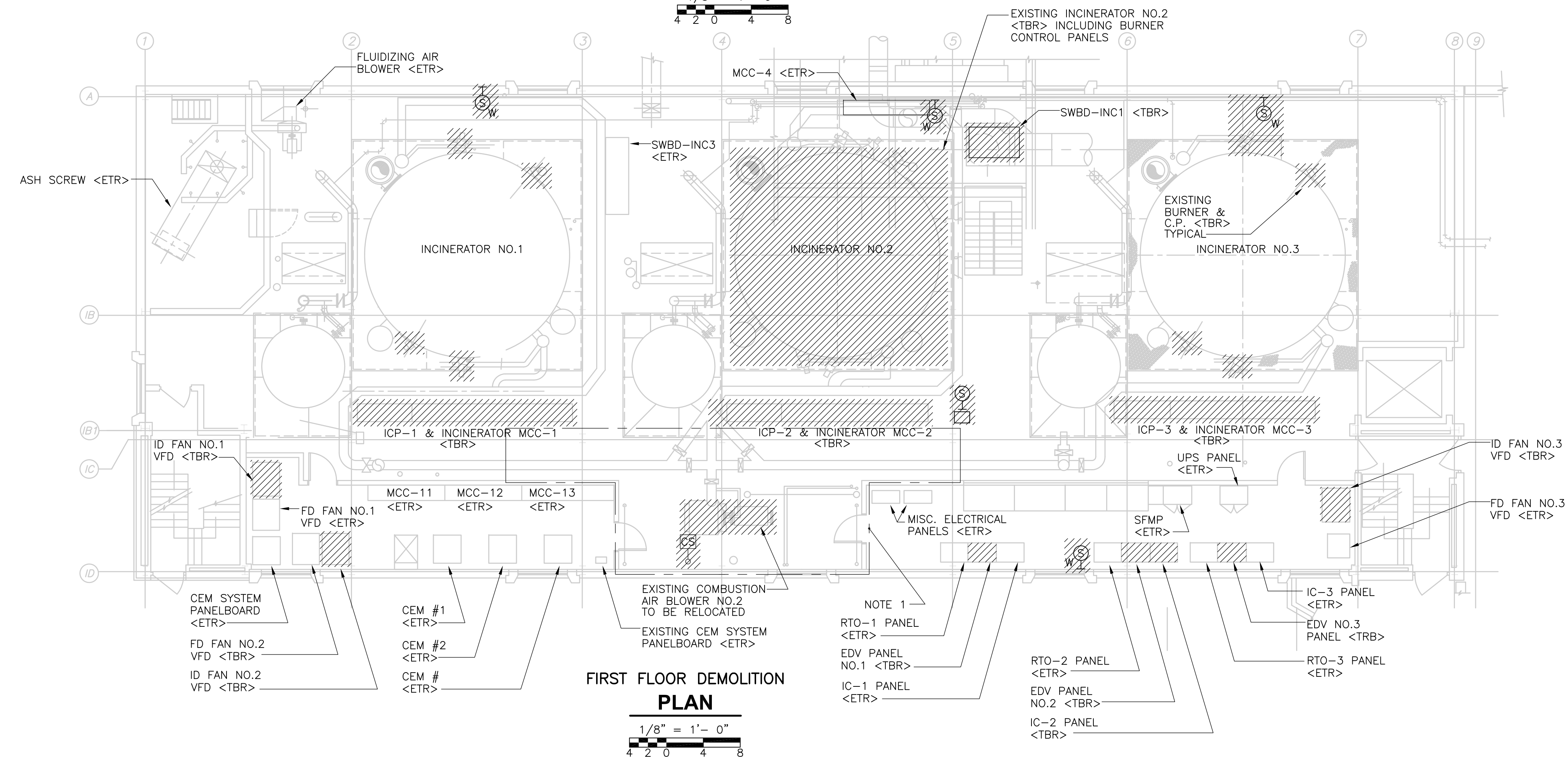
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								<b>INCINERATOR BUILDING SUB-BASEMENT &amp; BASEMENT DEMOLITION PLANS</b>		<b>SP-E-1</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS							
	3/07	SPV	ADT	REVISED FOR THE RECORD							

[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS] Plotted by: CROSSJA Time: 12/16/08 6:35:58 PM  
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**NOTES**

1. DISCONNECT & REMOVE EXISTING LIGHTING FIXTURES IN THIS AREA TO FACILITATE CONSTRUCTION OF ELECTRIC ROOM. RECONNECT EXISTING FIXTURES TO REMAIN EFFECTED BY THIS DEMO WORK.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	ESPD002.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
*consulting engineering construction operations*

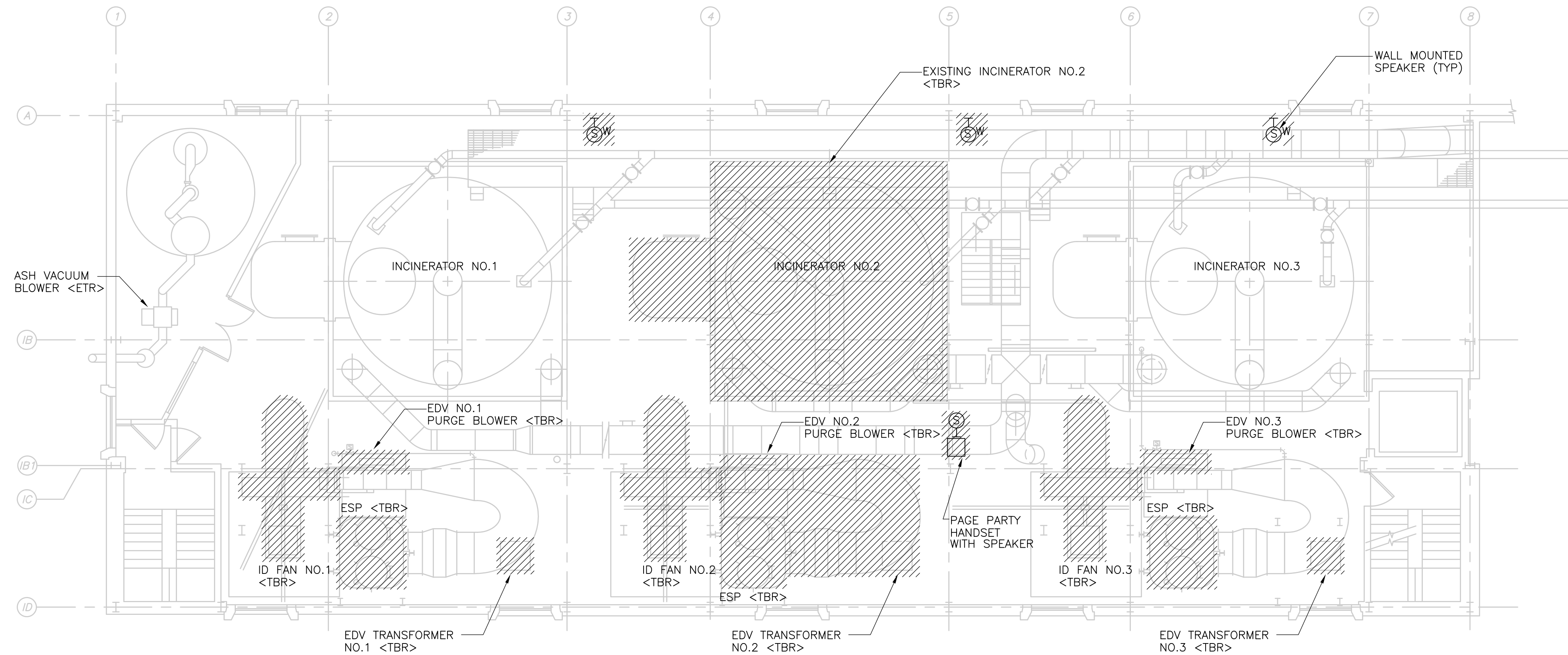
**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

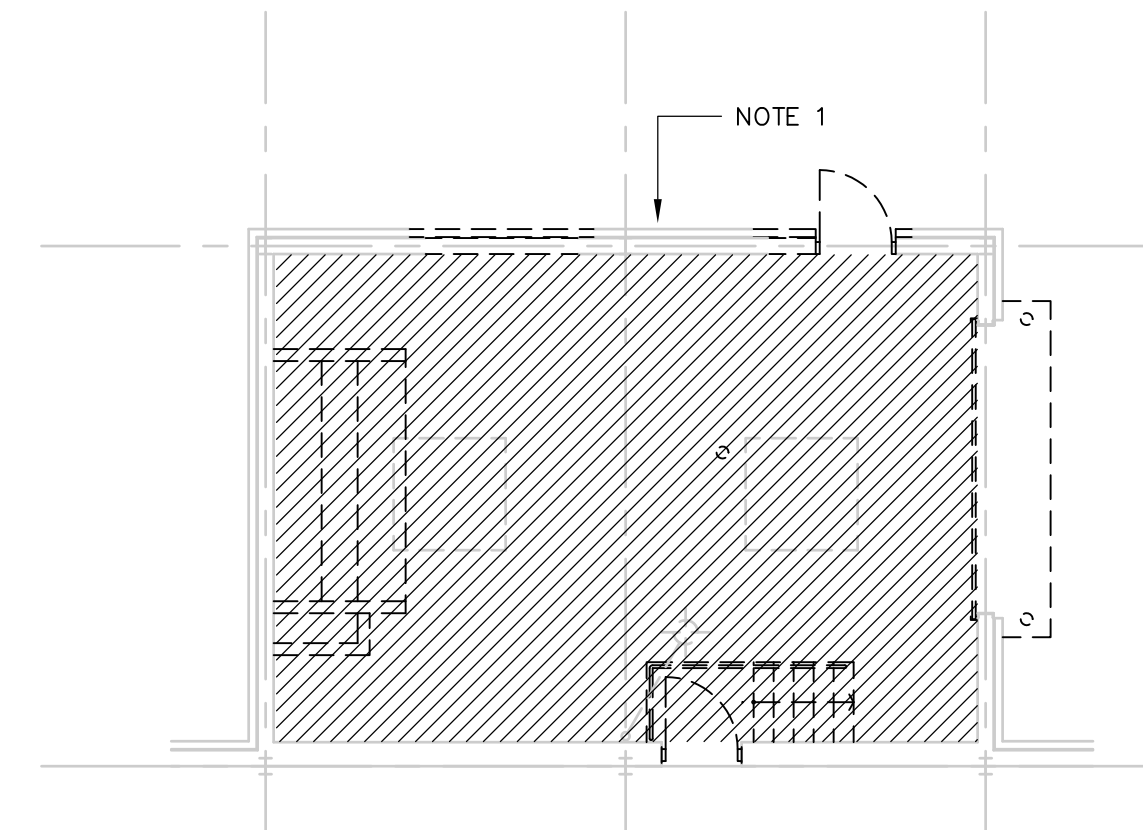
**INCINERATOR BUILDING  
 1ST AND 2ND FLOOR  
 DEMOLITION PLANS**

PROJECT NO.  
1289\35370  
 Sht. 369 of 386  
**SP-E-2**  
ACCESSION NO. 1289-65769

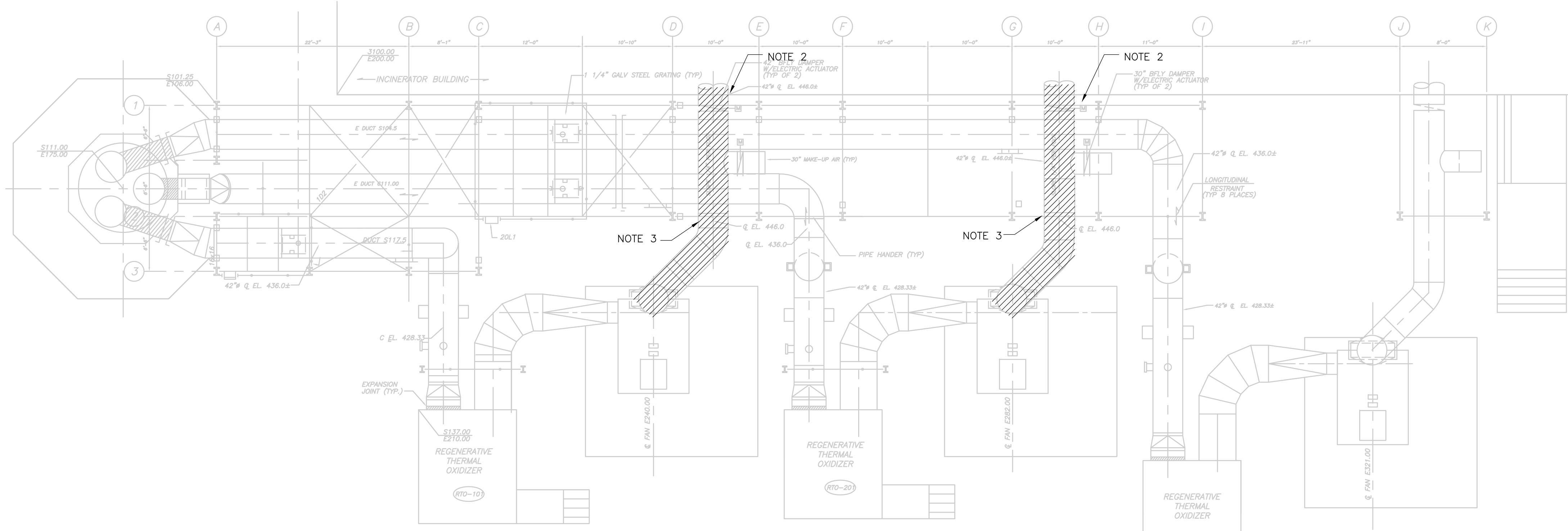
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**THIRD FLOOR DEMOLITION PLAN**  
 1/8" = 1'-0"  
 4 2 0 4 8



**TRANSFER ROOM DEMOLITION PLAN**  
 1/8" = 1'-0"  
 4 2 0 4 8



**RTO AREA PLAN**  
 1/8" = 1'-0"  
 4 2 0 4 8

- NOTES:**
- DISCONNECT AND REMOVE EXISTING ELECTRICAL EQUIPMENT IN THIS AREA TO FACILITATE THE CONSTRUCTION OF THE NEW ELEC./CONTROL ROOMS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR RELOCATING ANY FOREIGN SYSTEMS (I.E. CONDUIT, WIRE, ECT.) PASSING THROUGH THIS AREA THAT ARE INTENDED TO REMAIN.
  - DISCONNECT AND REMOVE EXISTING POWER AND CONTROLS TO ODOROUS AIR DAMPER ACTUATOR TO FACILITATE REMOVAL OF DAMPER AND DUCTWORK BY GENERAL CONTRACTOR.
  - DISCONNECT AND REMOVE EXISTING POWER AND CONTROLS TO AMBIENT AIR DAMPER ACTUATOR TO FACILITATE REMOVAL OF DAMPER AND DUCTWORK BY GENERAL CONTRACTOR.
  - ALL DEMOLITION WORK SHALL BE DONE IN ACCORDANCE WITH THE DIVISION 16 DEMO REQUIREMENTS AND MAINTENANCE OF PLANT OPERATION SECTION 01810.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

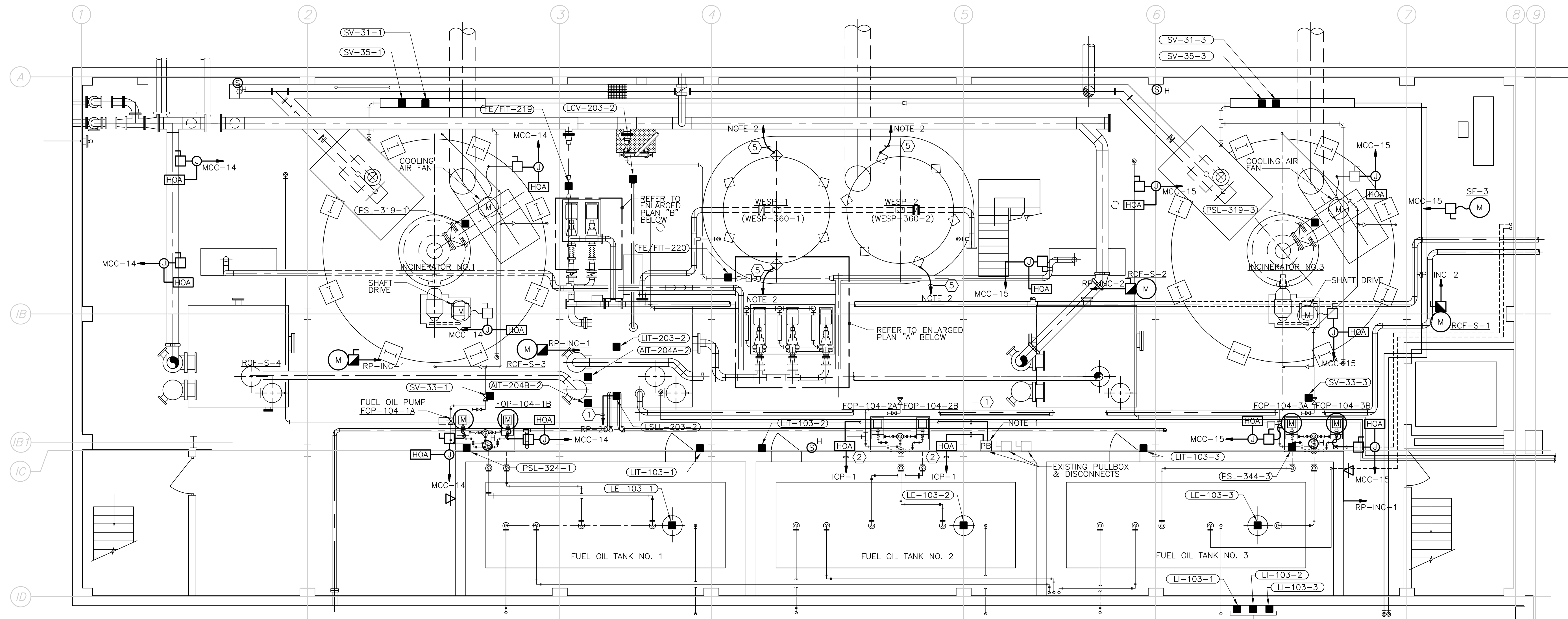
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 DESIGNED BY: JAR  
 DRAWN BY: JAR  
 SHEET CHK'D BY: BDS  
 SCALE: AS NOTED  
 APPROVED BY: B. SQUIBB  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

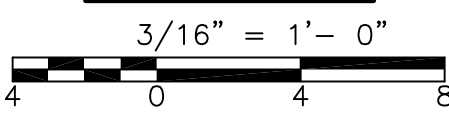
**INCINERATOR BUILDING  
 3RD FLOOR MISCELLANEOUS  
 DEMOLITION PLANS**

PROJECT NO.  
 1289\35370  
 Sht. 370 of 386  
**SP-E-3**  
Accession No. 1289-6570

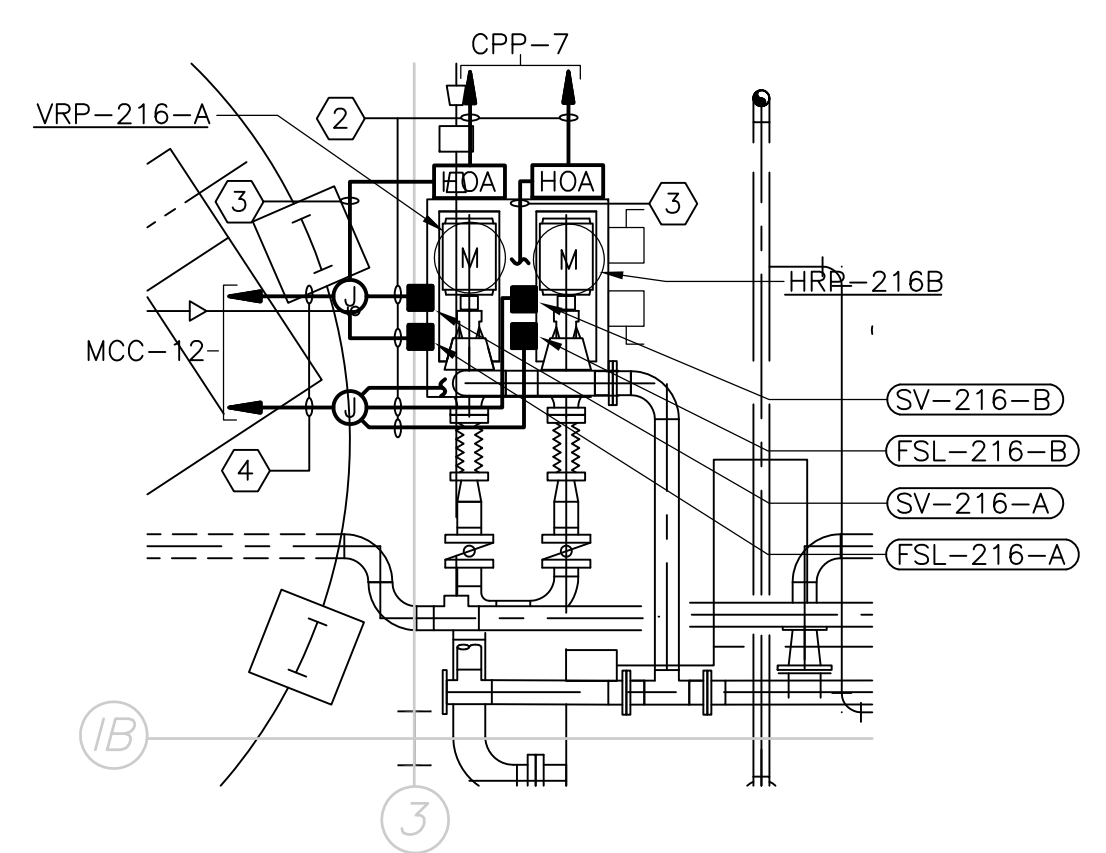


SUB-BASEMENT POWER & SYSTEMS

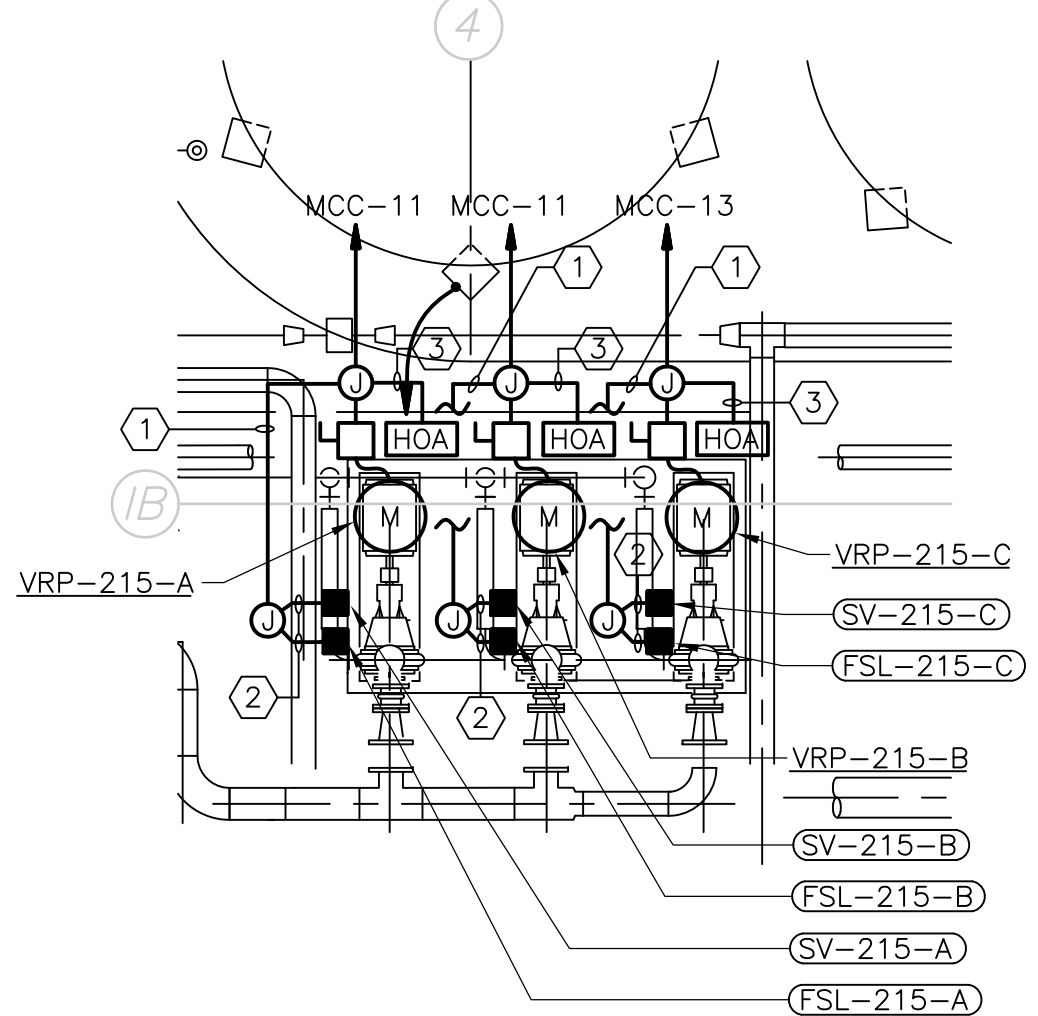
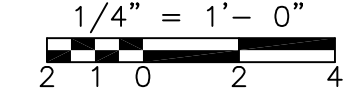
PLAN



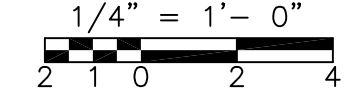
LOCAL INDICATORS MOUNTED AT GRADE LEVEL  
 ELEV. 425.50 UP 4'-6". LOCATION SHALL BE  
 ADJACENT TO TANK FILL CONNECTIONS.  
 VERIFY IN FIELD.



HEAT RECOVERY PUMPS  
 ENLARGED PLAN B



VENTURI RECIRC. PUMPS  
 ENLARGED PLAN A



CONDUIT AND WIRE LEGEND  
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C., 4#14, 1#14G
②	3/4" C., 2#14, 1#14G
③	3/4" C., 6#14, 1#14G.
④	3/4" C., 10#14, 1#14G.
⑤	1" C., #4/0 GROUND CONDUCTOR

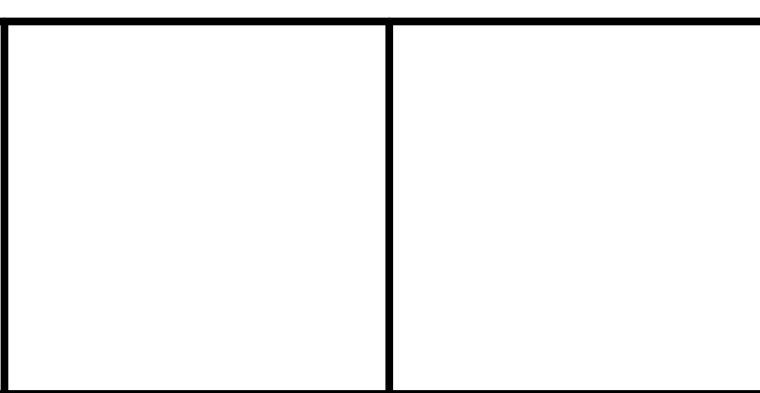
NOTES:

1. SPLICE NEW HOA SWITCH & WIRING INTO EXISTING CIRCUIT CONTROL WIRING IN PULLBOX.
2. TO GROUNDING ELECTRODE. REFER TO DRAWING SP-E-13 FOR MADE ELECTRODE.
3. FOR CONDUITS & WIRE SIZES NOT SHOWN ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS FOR POWER & FOR INSTRUMENT RISERS ON GD-E-34.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. _ESPFL001.DWG
DESIGNED BY: JAR
DRAWN BY: JAR
SHEET CHK'D BY: BDS
SCALE: AS NOTED
APPROVED BY: B. SQUIBB
DATE: MAY 2006

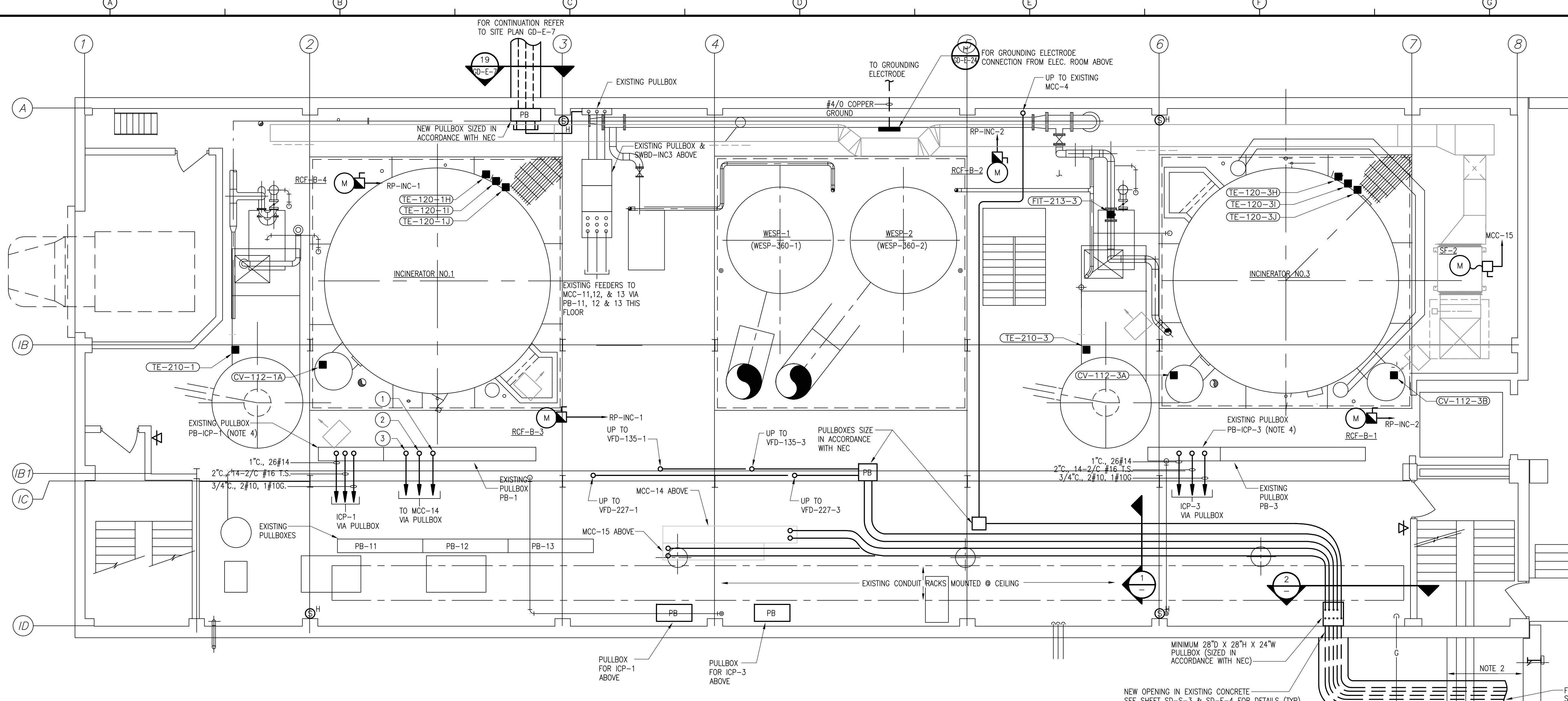


UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS

INCINERATOR BUILDING  
 SUB-BASEMENT  
 POWER & SYSTEMS PLAN

PROJECT NO.  
 1289\35370  
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 SP-E-4



- NOTES:**
1. ALL PULLBOXES ARE MOUNTED TO THE UNDERSIDE OF SLAB ABOVE (I.E. AT CEILING).
  2. NEW CONDUITS TO BE RUN UNDER EXISTING CONCRETE SLAB. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, EXCAVATION & REPAIR WORK REQUIRED TO STAIRS. SEE STRUCTURAL FOR DETAILS.
  3. VERIFY EXACT LOCATION OF EXISTING GAS LINE IN THE FIELD. COORDINATE NEW CONDUIT ROUTING TO AVOID EXISTING GAS LINE.
  4. FOR CONDUITS & WIRE SIZES NOT SHOWN ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS FOR POWER & FOR INSTRUMENT RISERS ON GD-E-34.

**I/O RECONNECTION SCHEDULE**

ICP-1 & PB-ICP-1				ICP-3 & PB-ICP-3			
LOOP ID	DIGITAL SIGNAL	ANALOG SIGNAL	120VAC	LOOP ID	DIGITAL SIGNAL	ANALOG SIGNAL	120VAC
SSL-132-1	X		X	SSL-132-3	X		X
PSL-327-1	X			PSL-327-3	X		
PSL-326-1	X			PSL-326-3	X		
PSL-351-1	X			PSL-351-3	X		
BSV-32-1			X	BSV-32-3			X
BSV-36-1			X	BSV-36-3			X
PSH-325-1	X			PSH-325-3	X		
PSH-352-1	X			PSH-352-3	X		
TSH-160-1	X			TSH-160-3	X		
SV-161-1			X	SV-161-3			X
PT-121-1		X		PT-121-3		X	
FIT-101-1	X	X	X	FIT-101-3	X	X	X
FIT-102-1	X	X	X	FIT-102-3	X	X	X
FIT-402-1	X	X	X	FIT-402-3	X	X	X
FIT-102-2	X	X	X	DPIT-210-3	X		
FIT-402-2	X	X	X	DPIT-207-3	X		
DPIT-210-1	X			FIT-401-3	X		X
DPIT-207-1	X			LIT-240-3	X		
FIT-213-1	X	X					
FIT-401-1	X	X					
FIT-401-2	X	X					
LIT-240-1	X						
LIT-240-2	X						

**GENERAL NOTES:** (APPLICABLE TO THE I/O RECONNECTION SCHEDULE)

FURNISH AND INSTALL SEPARATE TERMINAL BLOCKS FOR 120VAC INSTRUMENT POWER, DIGITAL I/O AND ANALOG SIGNALS. ALL TERMINAL BLOCKS SHALL BE FASTENED TO THE PULLBOX ENCLOSURE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. 120VAC AND DIGITAL I/O TERMINAL BLOCKS SHALL BE GROUNDED (I.E. BONDED) TO THE PULL BOX ENCLOSURE.

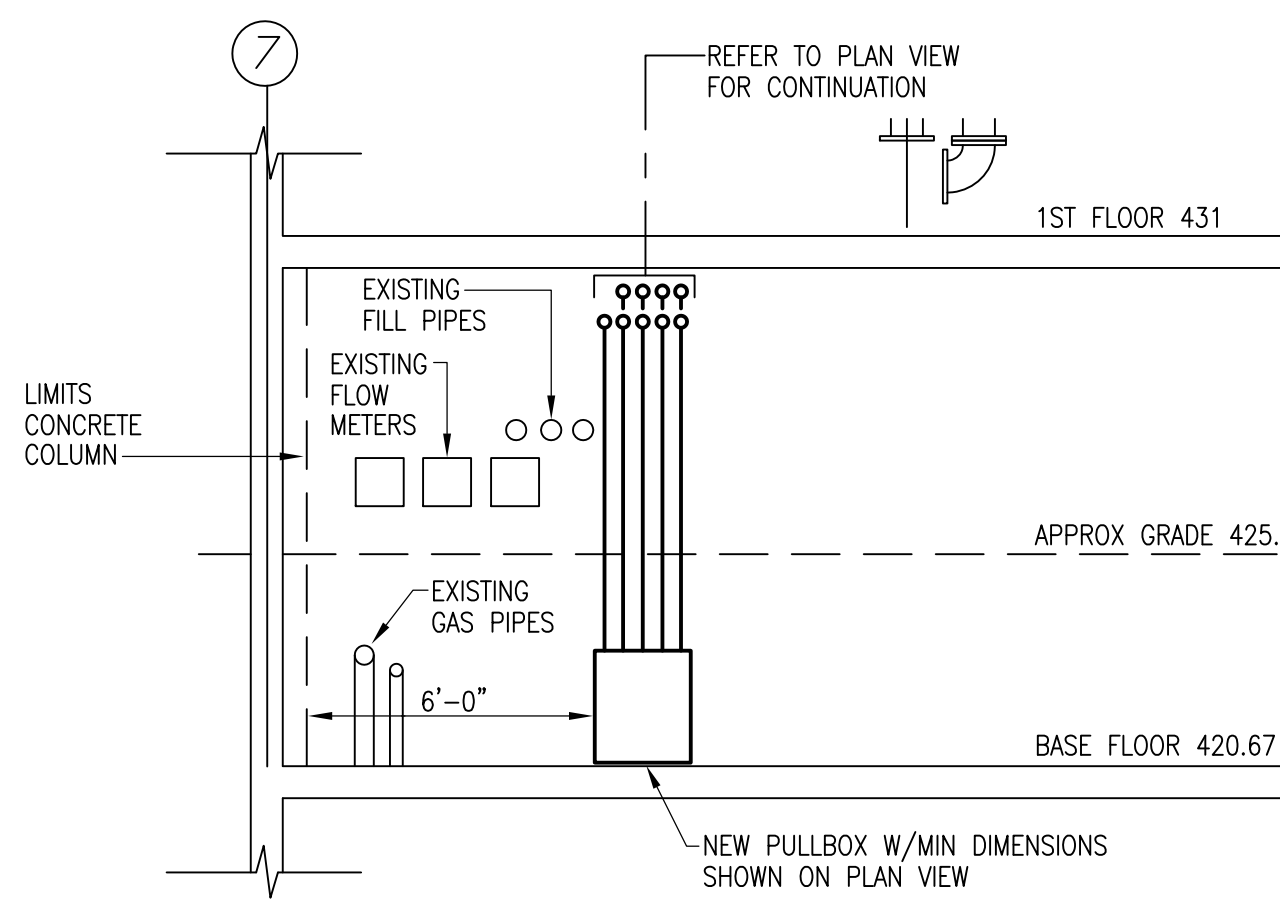
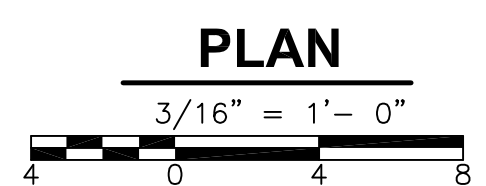
**ANALOG TERMINAL BLOCK(S):** PROVIDE SEPARATE DEDICATED TERMINAL BLOCKS FOR ANY ANALOG SIGNALS REQUIRING ISOLATED SHIELD GROUNDING. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE THIS REQUIREMENT IN THE FIELD WITH THE ISS SUPPLIER OF THE NEW ICP(S) AS PART OF THE GENERAL CONTRACT. TERMINAL BLOCK SHALL BE FURNISHED WITH 20% SPARE CAPACITY.

**DIGITAL TERMINAL BLOCK:** PROVIDE NEW DIGITAL TERMINAL BLOCK WITH 50% SPARE CAPACITY.

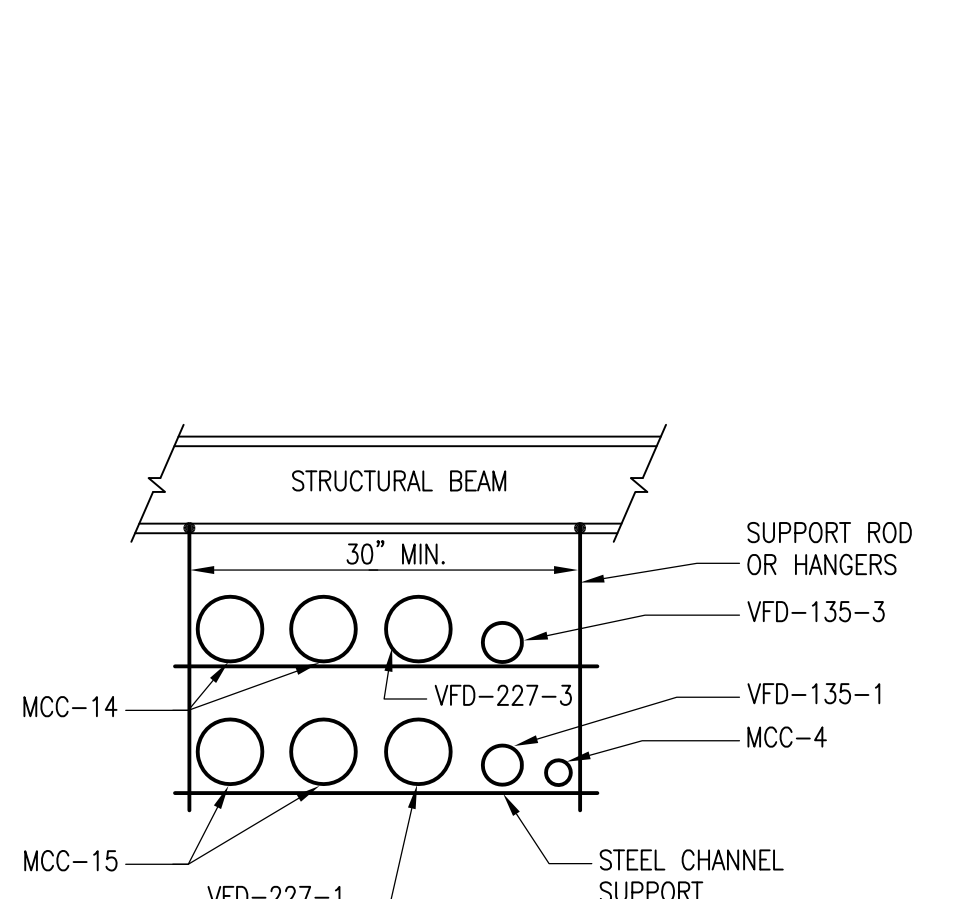
**120VAC TERMINAL BLOCK:** THE 120VAC TERMINAL BLOCK SHALL BE A FUSED BLOCK TYPE WITH 1 AMP FUSES FOR EACH 120VAC POWER SUPPLY INDICATED ON THE SCHEDULE. 120VAC POWER TO THE TERMINAL BLOCK SHALL BE SUPPLIED FROM THE ASSOCIATED ICP. TERMINAL BLOCK SHALL BE FURNISHED WITH 20% SPARE CAPACITY.

REFER TO THE I/O RECONNECTION SCHEDULE FOR TERMINAL REQUIREMENTS. MAKE ALL TERMINATIONS AND MODIFICATIONS TO THE WIRING WITHIN THE EXISTING PULLBOXES TO MAKE THE NEW SYSTEM COMPLETELY OPERATIONAL. COORDINATE THIS WORK IN THE FIELD WITH THE ISS OF THE GENERAL CONTRACT.

**BASEMENT POWER & SYSTEMS PLAN**



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



**SECTION 1**  
N.T.S.

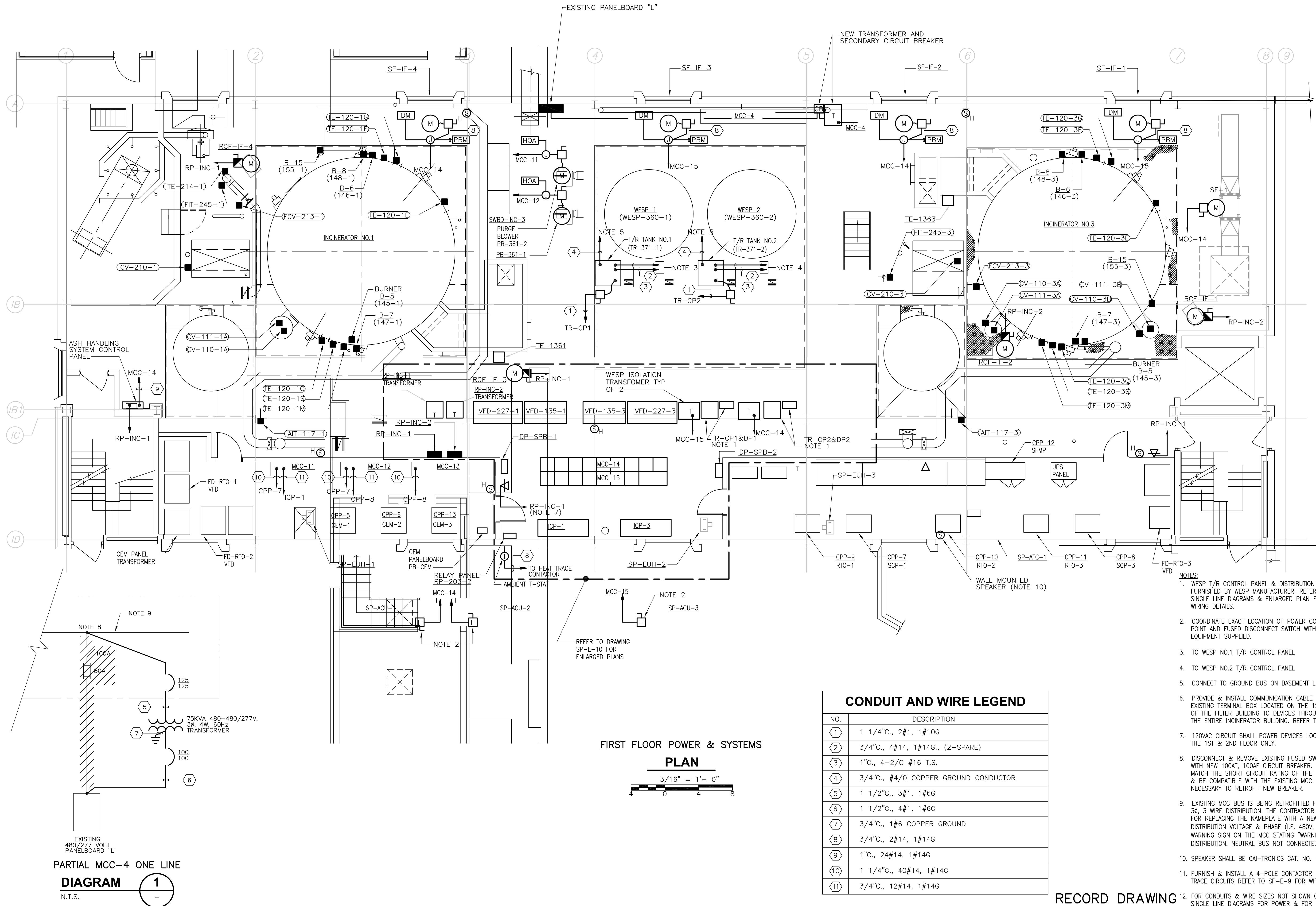
NOTE: REFER TO DETAIL ON SD-E-4 FOR ADDITIONAL MOUNTING TRAPEZE REQUIREMENTS.

**480V RE-CONNECTION SCHEDULE**  
(THIS DRAWING ONLY)

ID	EQUIPMENT	MCC-#	REFERENCE ONE-LINE DWG#	REFERENCE DEMO DWG#
1	ASH HANDLING SYSTEM VACUUM PUMP	MCC-14	GD-E-19 GD-E-20	SP-E-3
2	ASH HANDLING SYSTEM ROTARY ASH SCREW	MCC-14	GD-E-19 GD-E-20	SP-E-2
3	ASH HANDLING SYSTEM ASH FLUIDIZER	MCC-14	GD-E-19 GD-E-20	SP-E-2

**RECORD DRAWING**

CADD FILE NO. <u>ESPPL002.DWG</u> DESIGNED BY: <u>JAR</u> DRAWN BY: <u>JAR</u> SHEET CHK'D BY: <u>BDS</u> SCALE: <u>AS NOTED</u> APPROVED BY: <u>B. SQUIBB</u> DATE: <u>MAY 2006</u>				<b>CDM</b> Camp Dresser & McKee Inc. consulting engineering construction operations		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024  <b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		PROJECT NO. 1289\35370  Sht. 372 of 386  <b>INCINERATOR BUILDING BASEMENT POWER &amp; SYSTEMS PLAN</b> <b>SP-E-5</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS					
	3/07	SPV	ADT	REVISED FOR THE RECORD					



PARTIAL MCC-4 ONE LINE  
**DIAGRAM 1**  
 N.T.S.

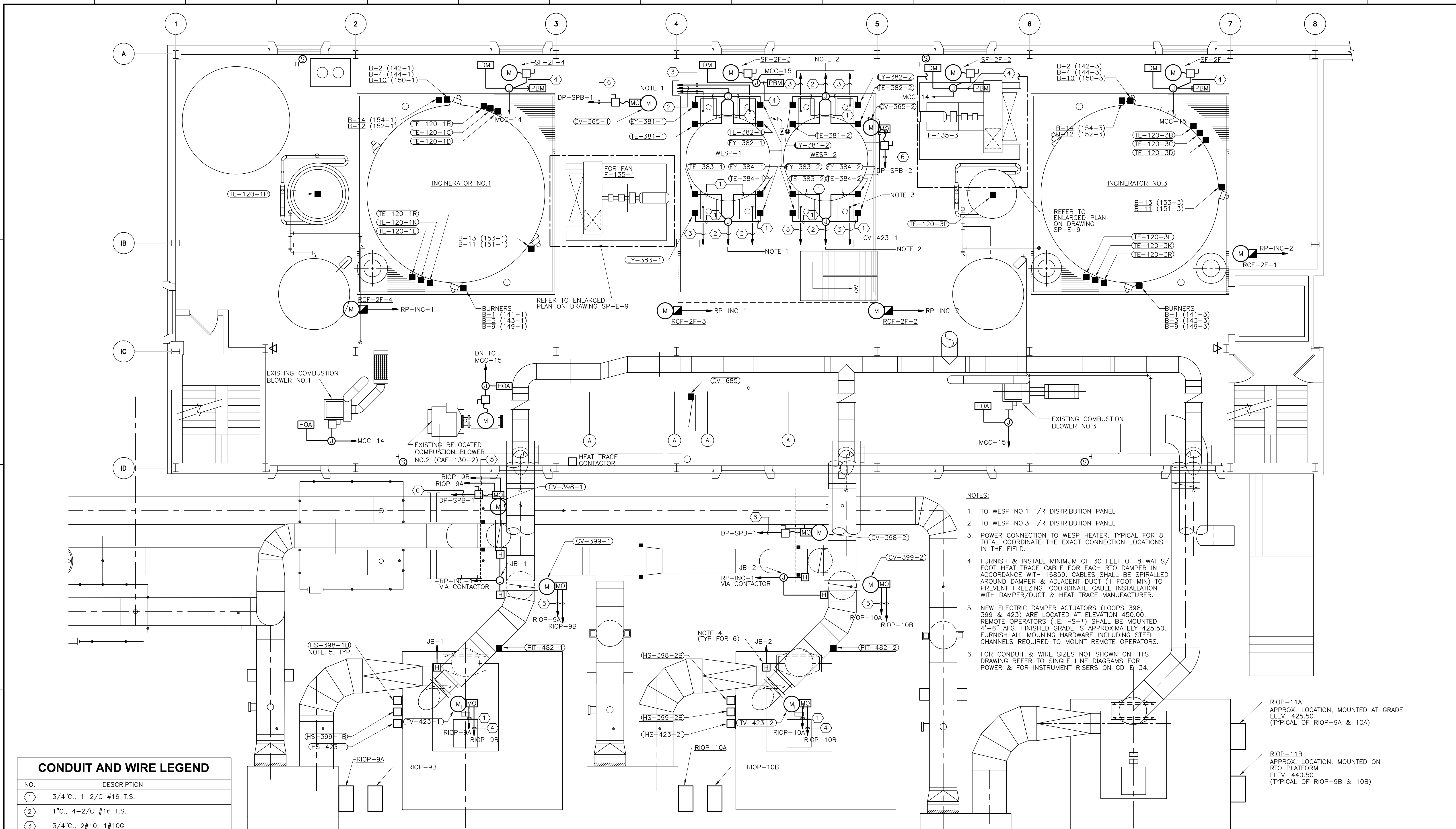
FIRST FLOOR POWER & SYSTEMS  
**PLAN**  
 3/16" = 1'-0"

CONDUIT AND WIRE LEGEND	
NO.	DESCRIPTION
①	1 1/4"., 2#1, 1#10G
②	3/4"., 4#14, 1#14G., (2-SPARE)
③	1"., 4-2/C #16 T.S.
④	3/4"., #4/0 COPPER GROUND CONDUCTOR
⑤	1 1/2"., 3#1, 1#6G
⑥	1 1/2"., 4#1, 1#6G
⑦	3/4"., 1#6 COPPER GROUND
⑧	3/4"., 2#14, 1#14G
⑨	1"., 24#14, 1#14G
⑩	1 1/4"., 40#14, 1#14G
⑪	3/4"., 12#14, 1#14G

- NOTES:
- WESP T/R CONTROL PANEL & DISTRIBUTION PANEL FURNISHED BY WESP MANUFACTURER. REFER TO SINGLE LINE DIAGRAMS & ENLARGED PLAN FOR WIRING DETAILS.
  - COORDINATE EXACT LOCATION OF POWER CONNECTION POINT AND FUSED DISCONNECT SWITCH WITH THE EQUIPMENT SUPPLIED.
  - TO WESP NO.1 T/R CONTROL PANEL
  - TO WESP NO.2 T/R CONTROL PANEL
  - CONNECT TO GROUND BUS ON BASEMENT LEVEL.
  - PROVIDE & INSTALL COMMUNICATION CABLE FROM EXISTING TERMINAL BOX LOCATED ON THE 1ST FLOOR OF THE FILTER BUILDING TO DEVICES THROUGHOUT THE ENTIRE INCINERATOR BUILDING. REFER TO DRAWING SP-E-12.
  - 120VAC CIRCUIT SHALL POWER DEVICES LOCATED IN THE 1ST & 2ND FLOOR ONLY.
  - DISCONNECT & REMOVE EXISTING FUSED SWITCH & REPLACE WITH NEW 100A, 100A CIRCUIT BREAKER. NEW BREAKER SHALL MATCH THE SHORT CIRCUIT RATING OF THE EXISTING EQUIPMENT & BE COMPATIBLE WITH THE EXISTING MCC. MAKE ALL MODIFICATIONS NECESSARY TO RETROFIT NEW BREAKER.
  - EXISTING MCC BUS IS BEING RETROFITTED FROM 3Ø, 4WIRE TO 3Ø, 3 WIRE DISTRIBUTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING THE NAMEPLATE WITH A NEW NAMEPLATE INDICATING NEW DISTRIBUTION VOLTAGE & PHASE (I.E. 480V, 3Ø, 3W) & PROVIDE A WARNING SIGN ON THE MCC STATING "WARNING-480V, 3Ø, 3W DISTRIBUTION. NEUTRAL BUS NOT CONNECTED".
  - SPEAKER SHALL BE GAI-TRONICS CAT. NO. 1201A.
  - FURNISH & INSTALL A 4-POLE CONTACTOR FOR RTO DAMPER HEAT TRACE CIRCUITS REFER TO SP-E-9 FOR WIRING DIAGRAM.
  - FOR CONDUITS & WIRE SIZES NOT SHOWN ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS FOR POWER & FOR INSTRUMENT RISERS ON GD-E-34.

RECORD DRAWING

CADD FILE NO. ESPPL003.DWG DESIGNED BY: JAR DRAWN BY: JAR SHEET CHK'D BY: BDS SCALE: AS NOTED APPROVED BY: B. SQUIBB DATE: MAY 2006				<b>CDM</b> Camp Dresser & McKee Inc. <small>consulting engineering construction operations</small>		<b>UPPER BLACKSTONE</b> <b>WATER POLLUTION ABATEMENT DISTRICT</b> CONTRACT No. UB 2024		<b>INCINERATOR BUILDING</b> <b>1ST FLOOR</b> <b>POWER &amp; SYSTEMS PLAN</b>		PROJECT NO. 1289\35370 Sht. 373 of 386 <b>SP-E-6</b>	
REV. NO.	DATE	DRWN	CHKD	REMARKS							
3/07	SPV	ADT		REVISED FOR THE RECORD							



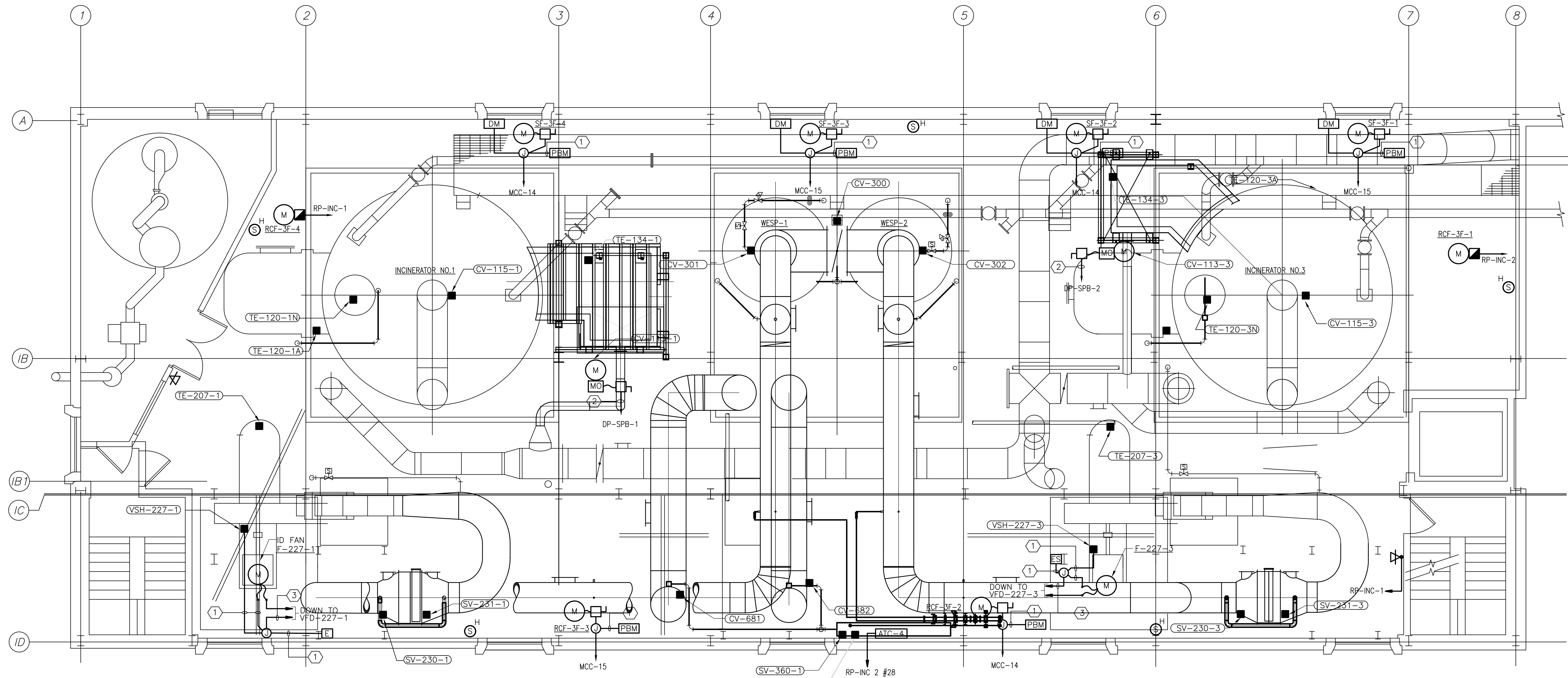
- NOTES:**
- TO WESP NO.1 T/R DISTRIBUTION PANEL
  - TO WESP NO.3 T/R DISTRIBUTION PANEL
  - POWER CONNECTION TO WESP HEATER. TYPICAL FOR 8 TOTAL COORDINATE THE EXACT CONNECTION LOCATIONS IN THE FIELD.
  - FURNISH & INSTALL MINIMUM OF 30 FEET OF 8 WATTS/FOOT HEAT TRACE CABLE FOR EACH RTO DAMPER IN ACCORDANCE WITH 16859. CABLES SHALL BE SPIRALLED AROUND DAMPER & ADJACENT DUCT (1 FOOT MIN) TO PREVENT FREEZING. COORDINATE CABLE INSTALLATION WITH DAMPER/DUCT & HEAT TRACE MANUFACTURER.
  - NEW ELECTRIC DAMPER ACTUATORS (LOOPS 398, 399 & 423) ARE LOCATED AT ELEVATION 450.00. REMOTE OPERATORS (I.E. HS+) SHALL BE MOUNTED 4'-6" AFG. FINISHED GRADE IS APPROXIMATELY 425.50. FURNISH ALL MOUNTING HARDWARE INCLUDING STEEL CHANNELS REQUIRED TO MOUNT REMOTE OPERATORS.
  - FOR CONDUIT & WIRE SIZES NOT SHOWN ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS FOR POWER & FOR INSTRUMENT RISERS ON GD-E-34.

CONDUIT AND WIRE LEGEND	
NO.	DESCRIPTION
①	3/4"C., 1-2/C #16 T.S.
②	1"C., 4-2/C #16 T.S.
③	3/4"C., 2#10, 1#10G
④	3/4"C., 2#14, 1#14G
⑤	3/4"C., 4#14, 1#14G
⑥	3/4"C., 3#12, 1#12G

**SECOND FLOOR POWER & SYSTEMS PLAN**  
 3/16" = 1'-0"  
 0 4 8

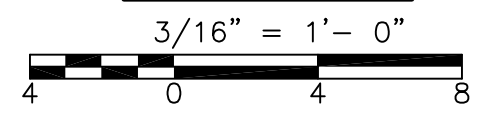
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REV. NO.	DATE	DRWN	CHKD	REMARKS				
	3/07	SPV	ADT	REVISED FOR THE RECORD				



THIRD FLOOR POWER & SYSTEMS

PLAN



NOTES:  
 1. FOR CONDUITS & WIRE SIZES NOT SHOWN ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS FOR POWER & FOR INSTRUMENT RISERS ON GD-E-34.

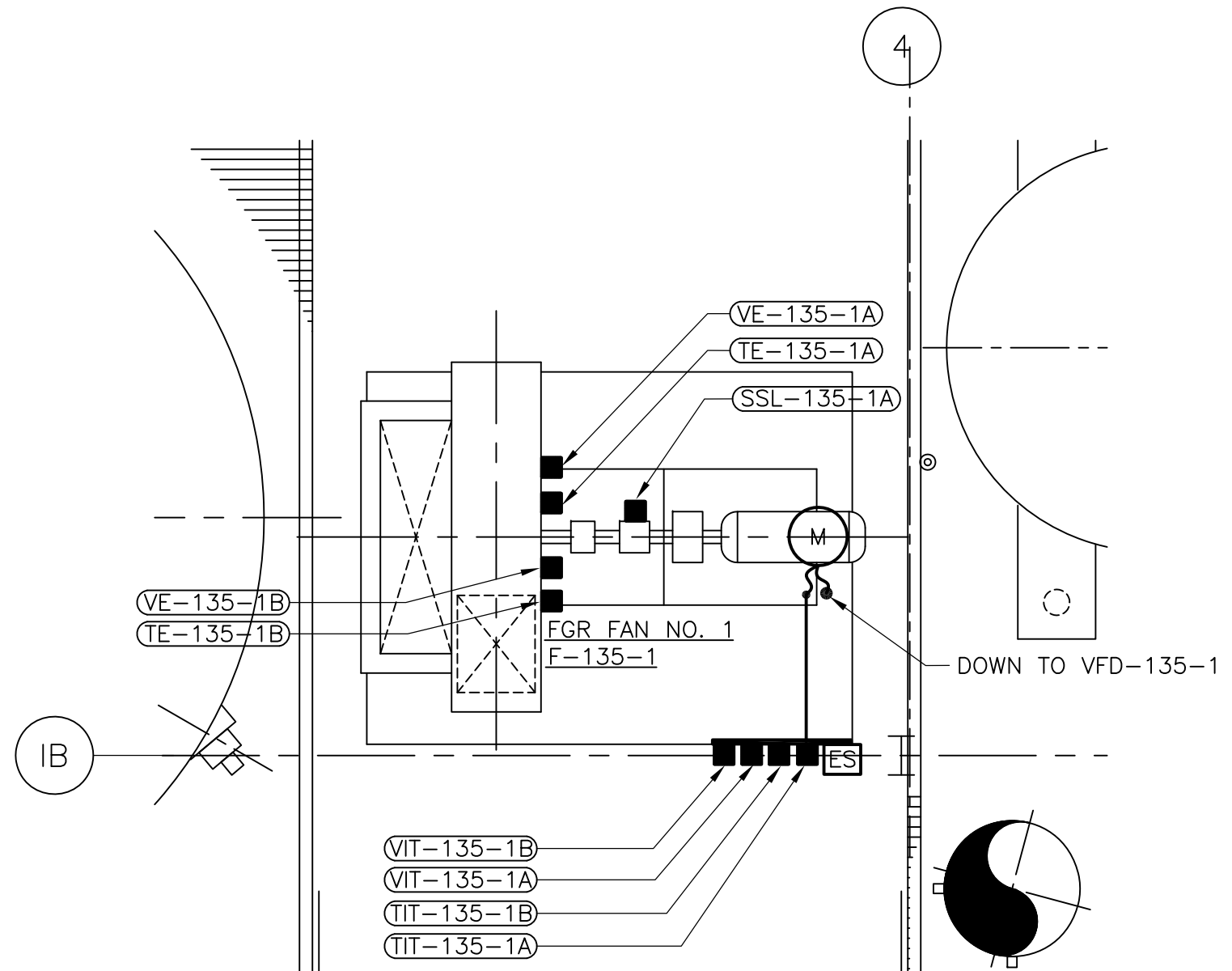
CONDUIT AND WIRE LEGEND	
NO.	DESCRIPTION
①	3/4"C., 2#14, 1#14G
②	3/4"C., 3#12, 1#12G
③	3/4"C., 6#14, 1#14G.

RECORD DRAWING

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REV. NO.	DATE	DRWN	CHKD	REMARKS						
	3/07	SPV	ADT	REVISED FOR THE RECORD						

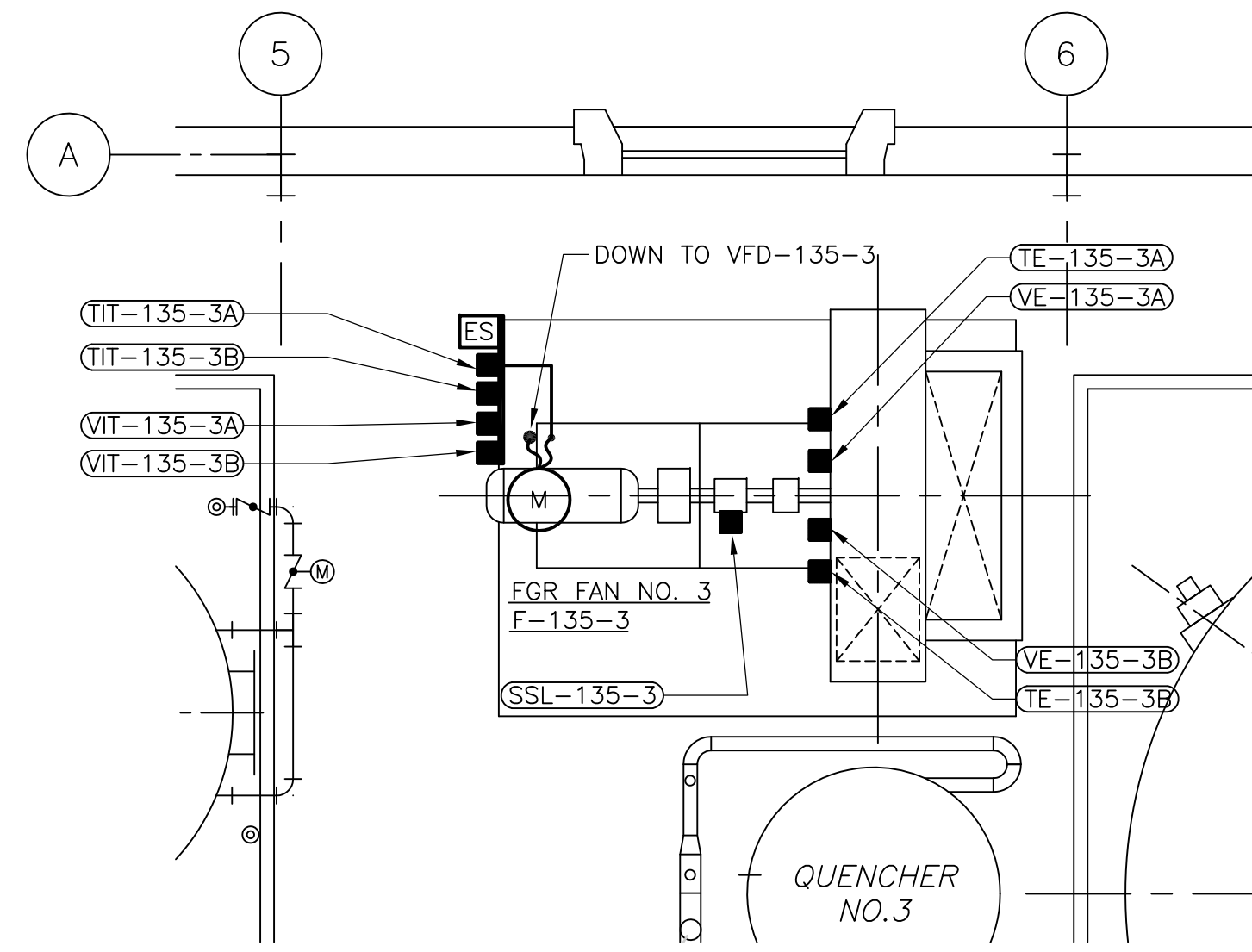
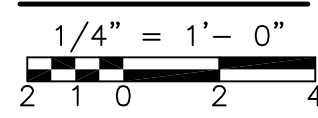


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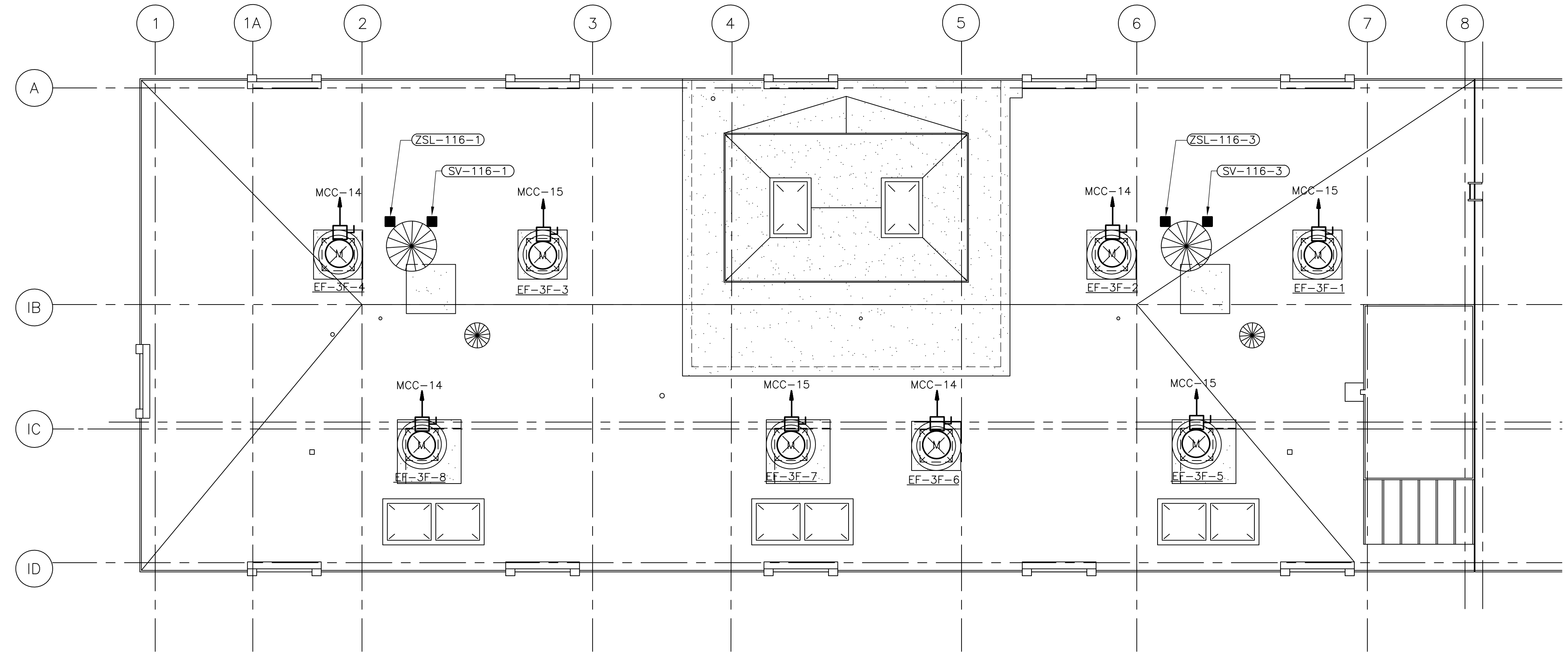
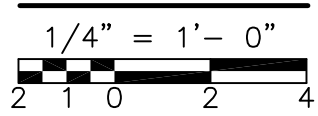
ENLARGED FGR NO. 1

PLAN



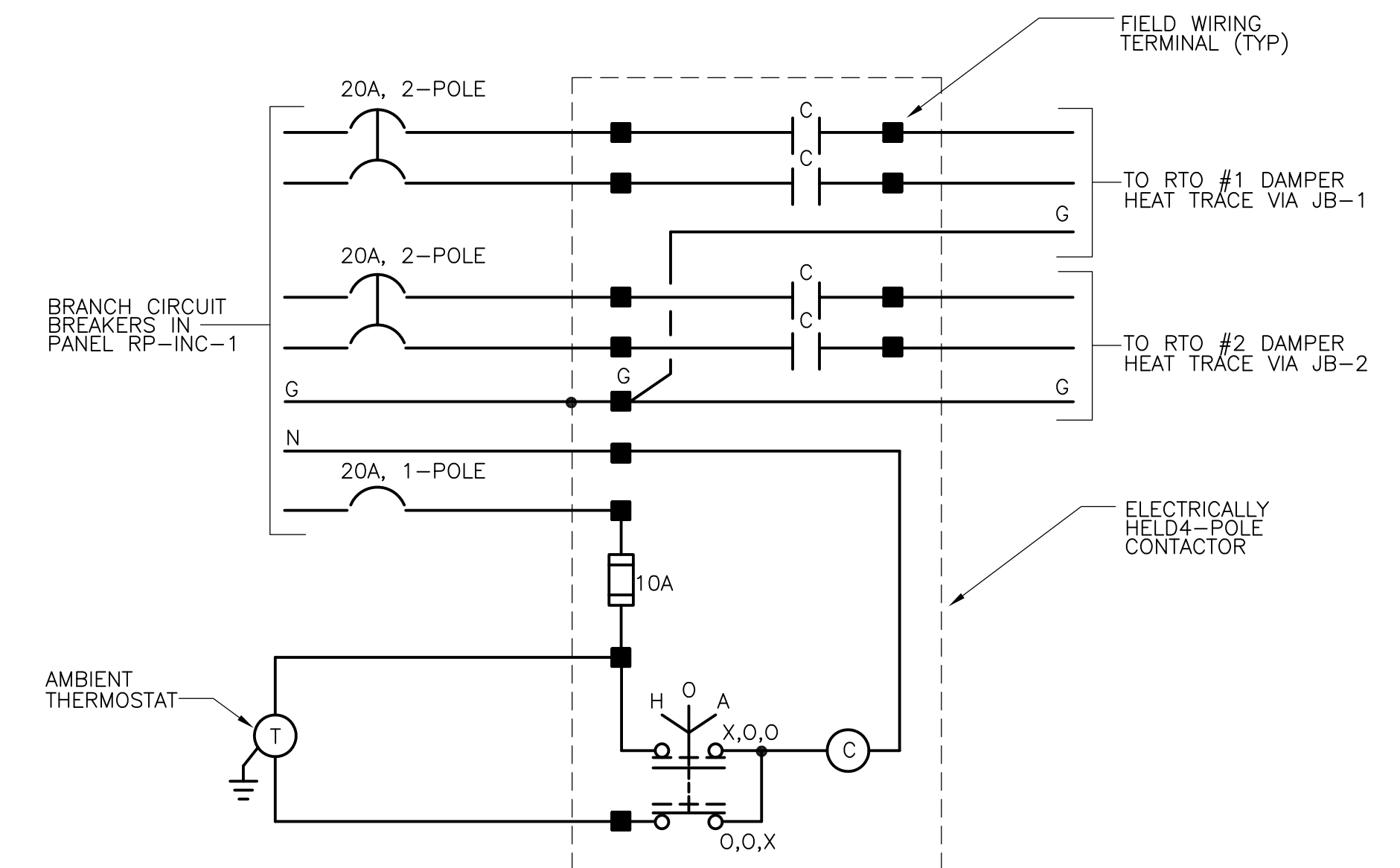
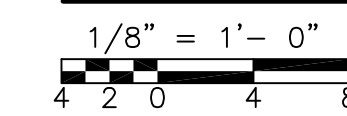
ENLARGED FGR NO. 3

PLAN



ROOF POWER

PLAN



RTO DAMPER HEAT TRACE WIRING

DIAGRAM 1

NTS

RECORD DRAWING

- NOTES:
- FOR CONDUITS & WIRE SIZES NOT SHOWN ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS FOR POWER & FOR INSTRUMENT RISERS ON GD-E-34.

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

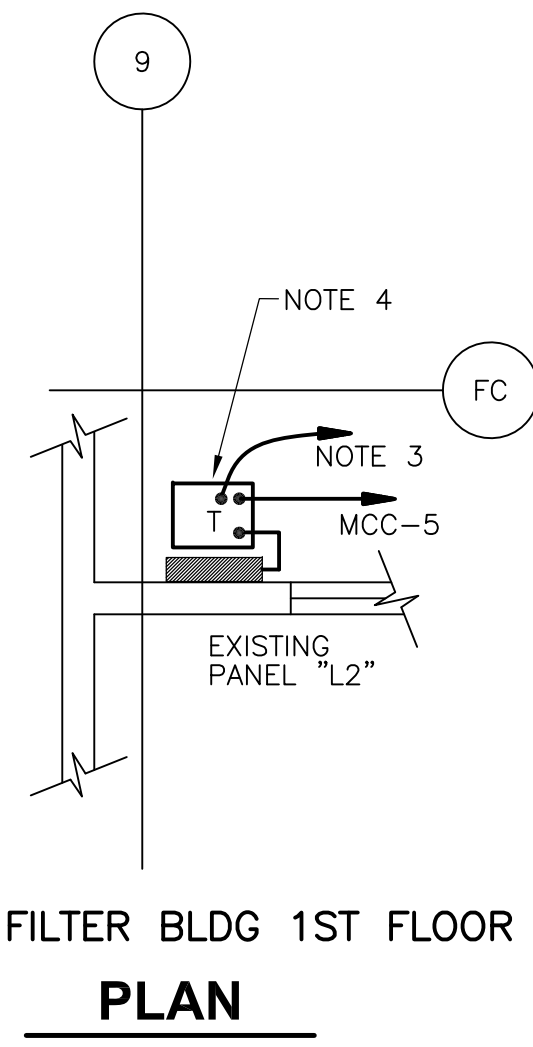
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DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

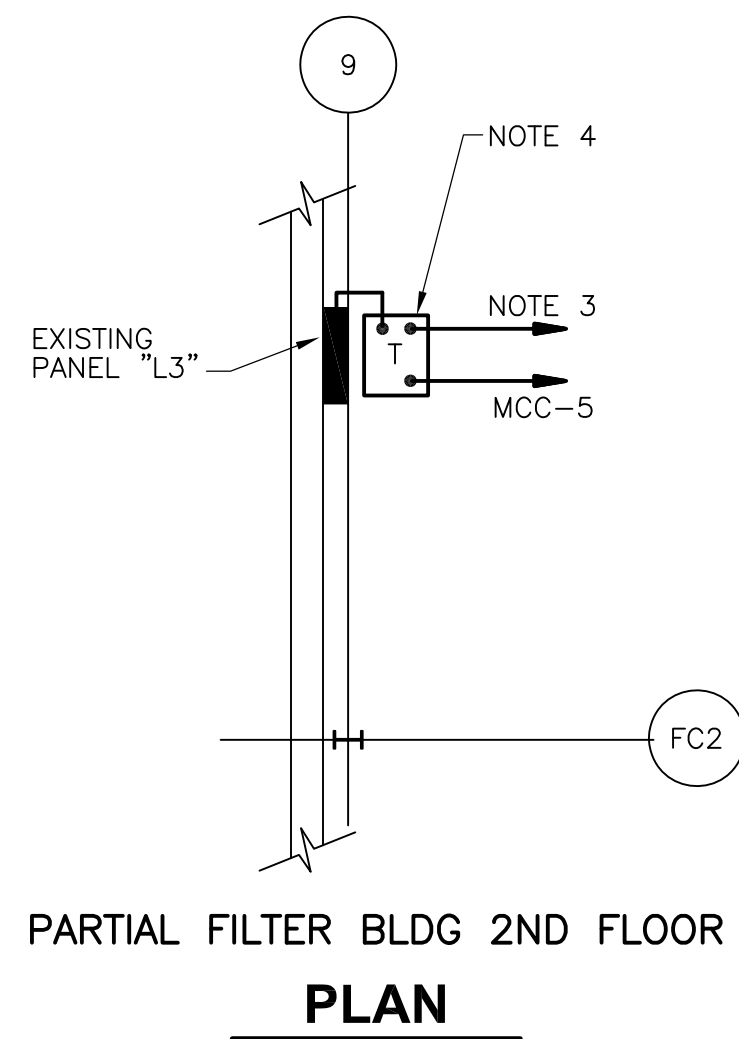
UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**INCINERATOR BUILDING  
 ROOF  
 POWER PLAN**

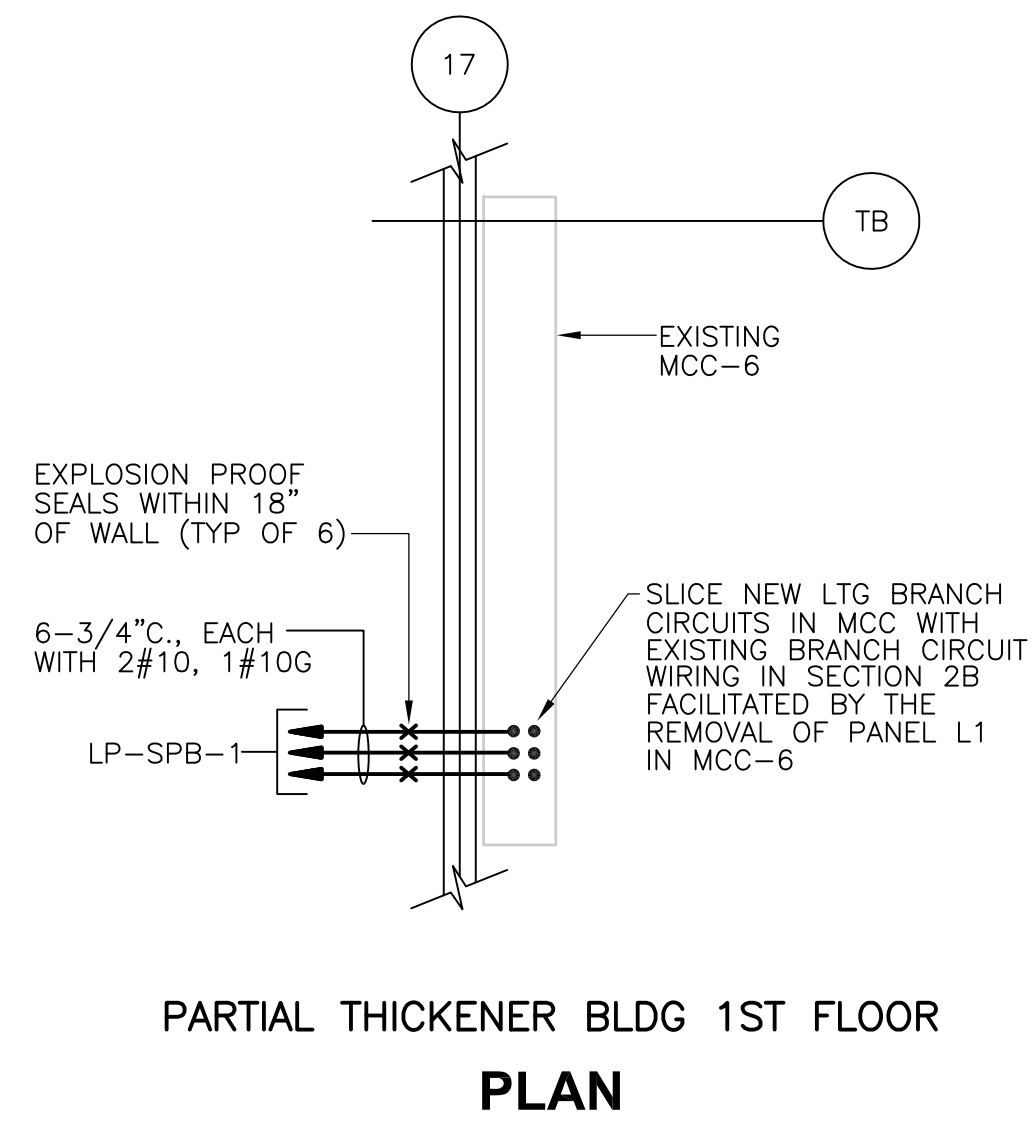
PROJECT NO.  
 1289\35370  
 Sht. 376 of 386  
**SP-E-9**



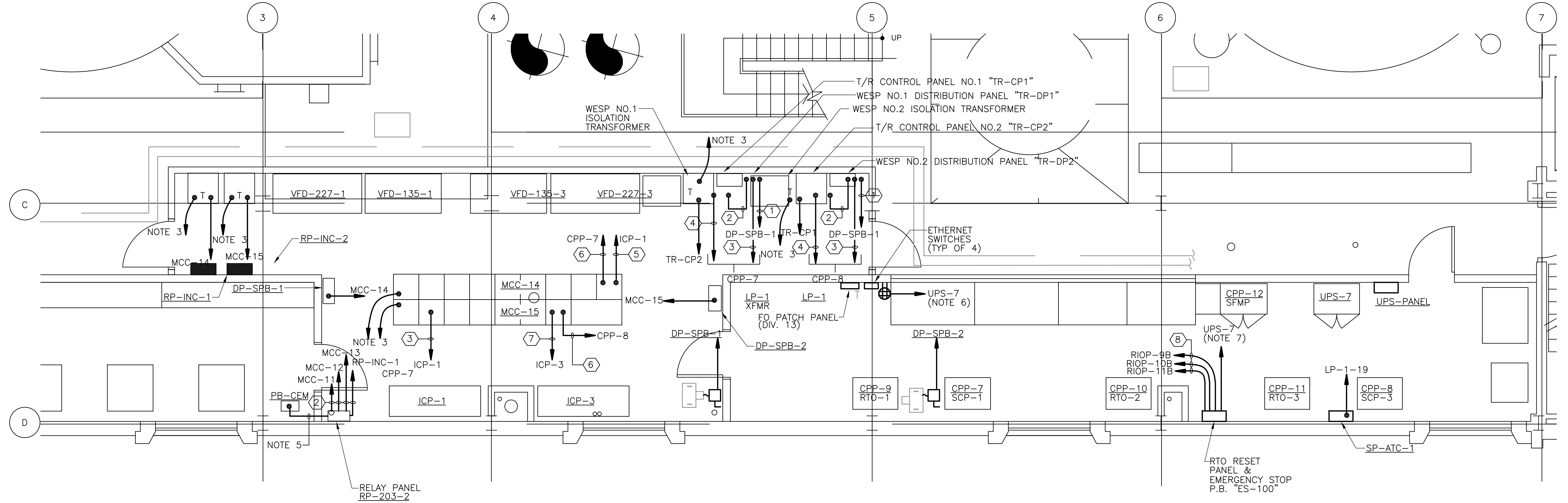
**PARTIAL FILTER BLDG 1ST FLOOR PLAN**



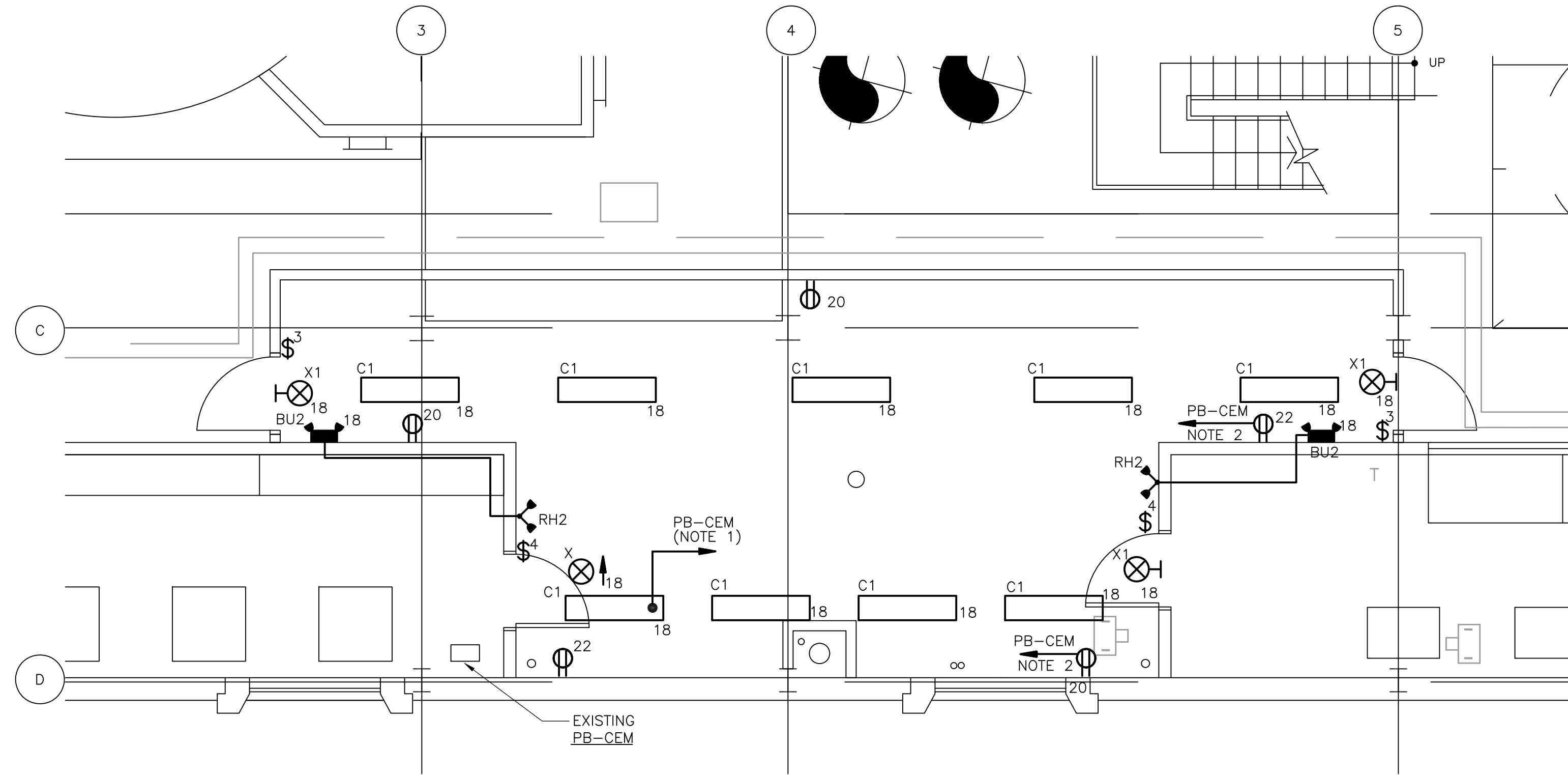
**PARTIAL FILTER BLDG 2ND FLOOR PLAN**



**PARTIAL THICKENER BLDG 1ST FLOOR PLAN**



**POWER PLAN**



**LIGHTING PLAN**

- NOTES:**
- CONNECT NEW BRANCH CIRCUIT WIRING FOR LIGHTING TO EXISTING SPARE CIRCUIT BREAKER, #18 IN PANELBOARD PB-CEM.
  - CONNECT NEW BRANCH CIRCUIT WIRING FOR RECEPTACLES TO EXISTING SPARE CIRCUIT BREAKERS, #20 & 22 IN PANELBOARD PB-CEM.
  - TO GROUND BUS ON BASEMENT LEVEL.
  - MOUNT TRANSFORMER ABOVE PANELBOARD.
  - CONNECT NEW BRANCH CIRCUIT WIRING FOR RELAY PANEL TO EXISTING SPARE CIRCUIT BREAKERS #17 IN PANELBOARD PB-CM.
  - CONNECT NEW BRANCH CIRCUIT TO SPARE BREAKER IN UPS-7 FOR 120VAC POWER TO NEW RECEPTACLE FOR PATCH PANEL & ETHERNET SWITCHES.
  - CONNECT NEW BRANCH CIRCUIT TO SPARE BREAKER IN UPS-7 FOR 120VAC POWER TO NEW DIV.13 EMERGENCY STOP PANEL.
  - FOR CONDUITS & WIRE SIZES NOT SHOWN ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS FOR POWER & FOR INSTRUMENT RISERS ON GD-E-34.

CONDUIT AND WIRE LEGEND	
NO.	DESCRIPTION
①	1 1/4" C., 2#1, 1#6G
②	3/4" C., 4#14, 1#14G
③	3/4" C., 12#14, 1#14G
④	1" C., INSTALL VENDOR CABLE
⑤	1 1/4" C., 52#14, 1#14G
⑥	1" C., 20#14, 1#14G
⑦	1 1/4" C., 40#14, 1#14G
⑧	3/4" C., 6#12, 1#12G

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

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DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

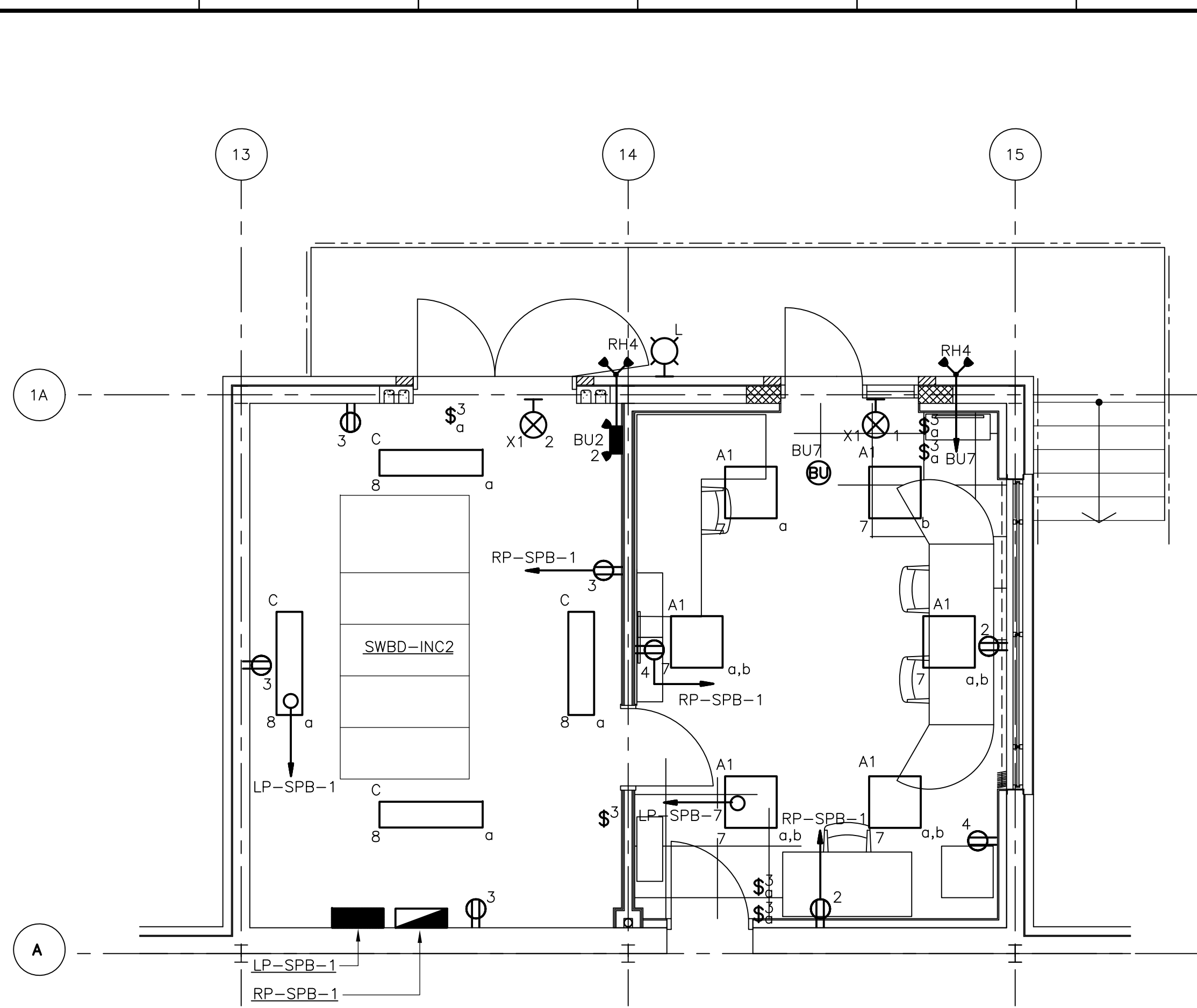
**INCINERATOR ELECTRICAL ROOM  
 AND MISCELLANEOUS  
 PART PLANS**

PROJECT NO.  
1289\35370

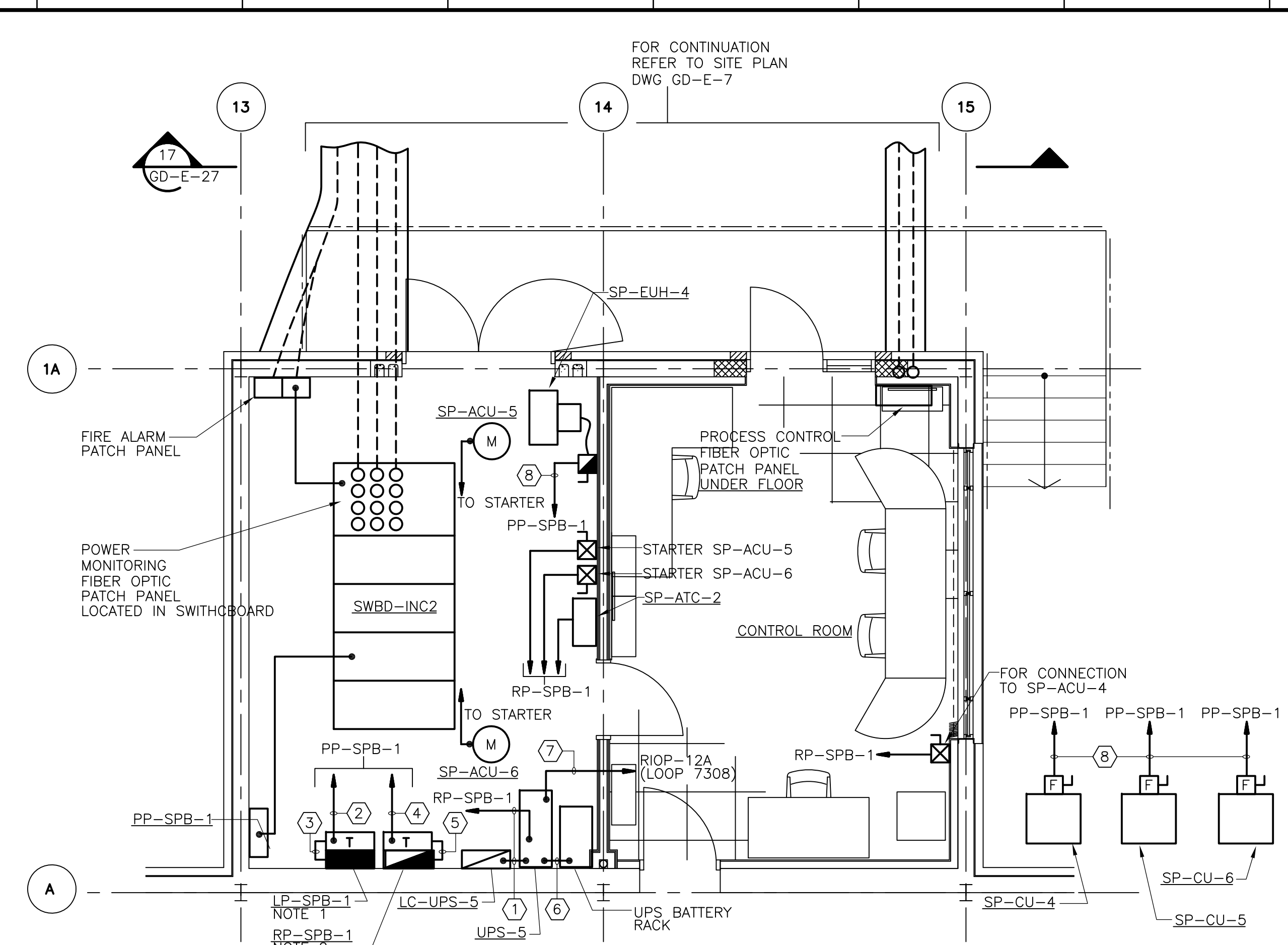
Sht. 377 of 386

**SP-E-10**

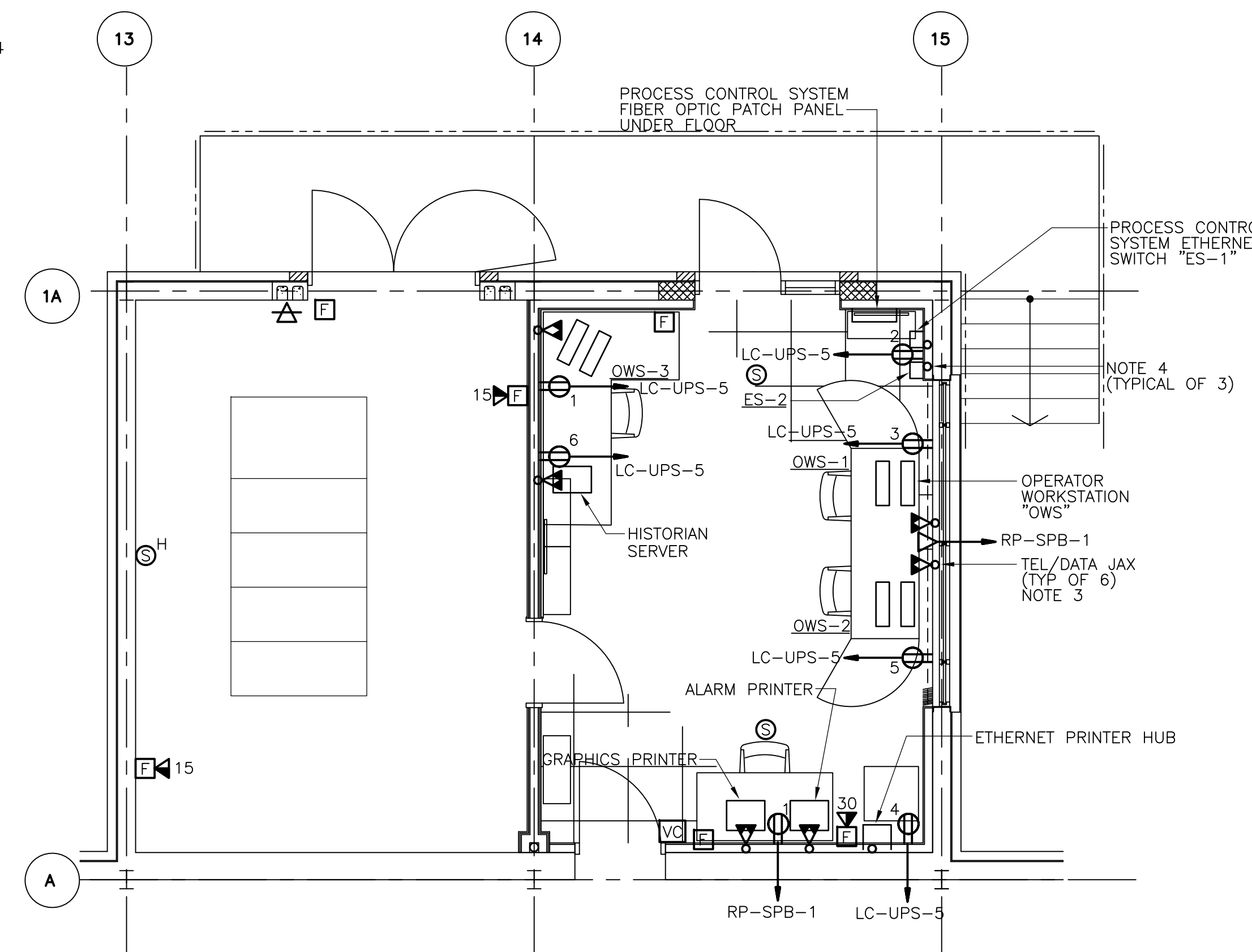
UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS  
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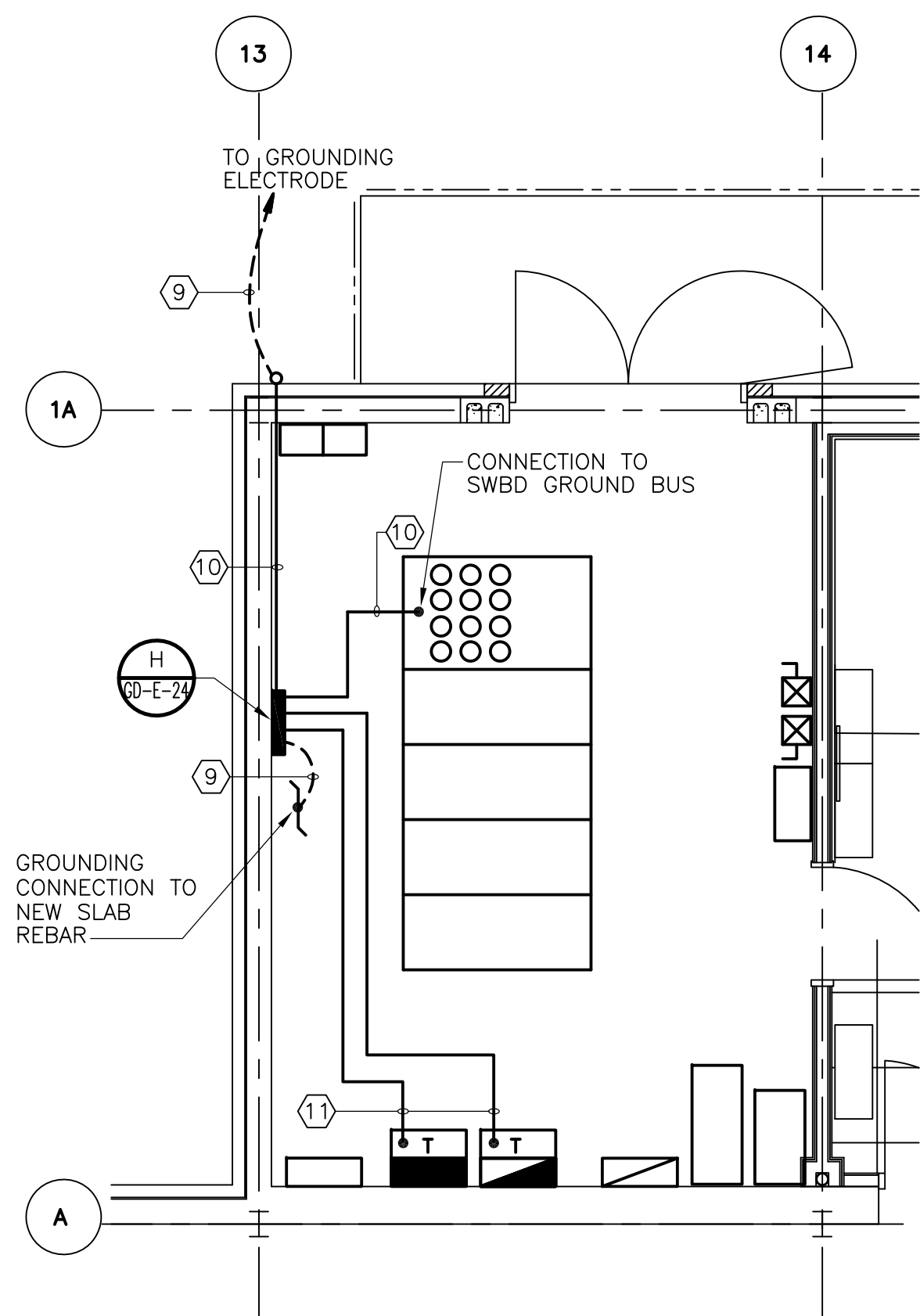
**LIGHTING PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4



**POWER PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4



**SYSTEM PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4



**GROUNDING PLAN**  
 1/4" = 1'-0"  
 2 1 0 2 4

- NOTES:**
1. TRANSFORMER MOUNTED ABOVE LP-SPB-1 SHALL BE 30KVA, 480-480/277V, 3PH, 4W, 60Hz.
  2. TRANSFORMER MOUNTED ABOVE RP-SPB-1 SHALL BE 30KVA, 480-120/208V, 3PH, 4W, 60Hz.
  3. FURNISH AND INSTALL TEL/DATA JAX & RECESSED BOX WITH DEVICE WALL PLATE AS REQUIRED BY I&C SYSTEM COMPONENT. RUN EMPTY CONDUIT FROM DEVICE BOX DOWN TO UNDERSIDE OF RAISED FLOOR. CABLES SHALL BE PROVIDED BY DIV. 13 & INSTALLED UNDER THIS CONTRACT PER I&C REQUIREMENTS.
  4. FURNISH & INSTALL A RECESSED JUNCTION BOX WITH EMPTY CONDUIT DOWN TO UNDERSIDE OF RAISED FLOOR. CABLES SHALL BE PROVIDED BY DIV. 13 & INSTALLED UNDER THIS CONTRACT PER I&C SYSTEM REQUIREMENTS.

**CONDUIT AND WIRE LEGEND**  
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	1" C., 3#4, 1#8G.
②	1" C., 3#6, 1#8G.
③	1 1/4" C., 4#4, 1#4G.
④	1" C., 3#6, 1#8G.
⑤	1" C., 4#6, 1#8G.
⑥	BY DIVISION 13
⑦	3/4" C., 4#14, 1#14G.
⑧	3/4" C., 3#12, 1#12G.
⑨	#4/0 COPPER GROUND
⑩	1" C., #4/0 COPPER GROUND
⑪	3/4" C., 1#6 COPPER GROUND

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO. ESPPLO08.DWG  
 DESIGNED BY: JAR  
 DRAWN BY: JAR  
 SHEET CHK'D BY: BDS  
 SCALE: AS NOTED  
 APPROVED BY: B. SQUIBB  
 DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

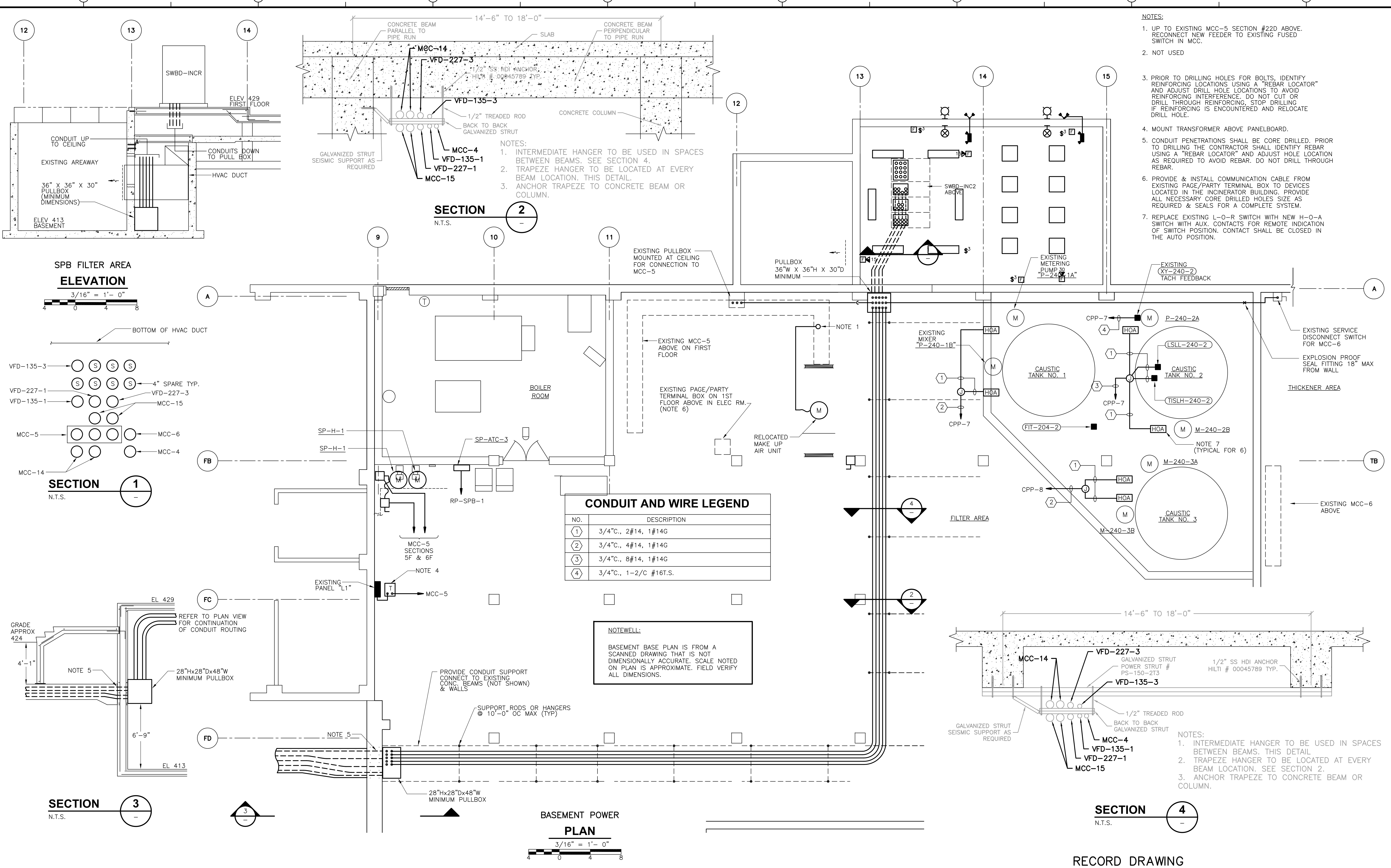
**UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024**

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**MAIN CONTROL ROOM  
 AND MISCELLANEOUS  
 PART PLANS**

PROJECT NO. 1289\35370  
 Sht. 378 of 386  
**SP-E-11**

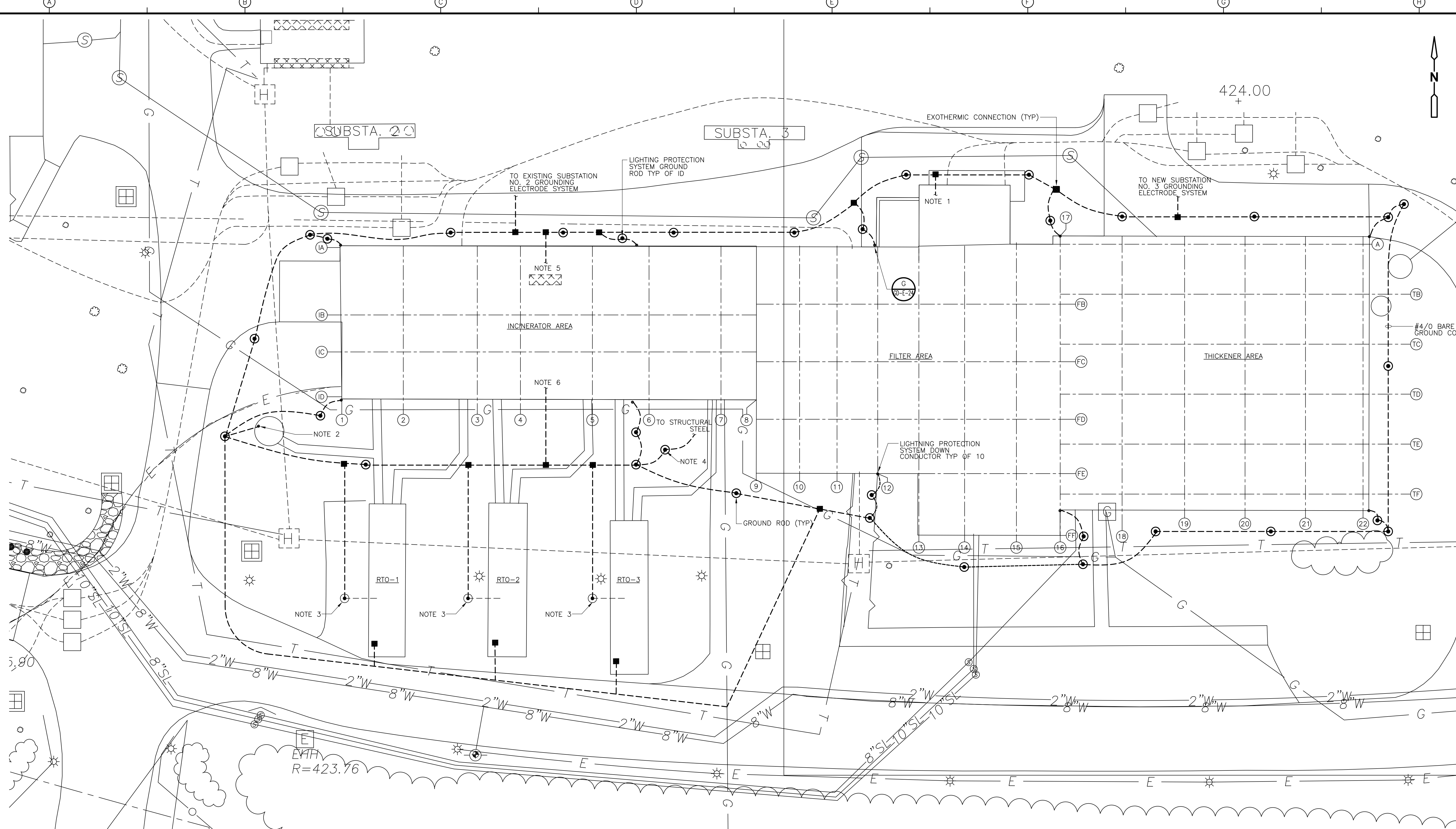
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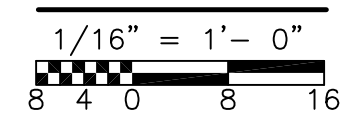
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[UPPER BLACKSTONE WPAD - PHASE 1 RECORD DRAWINGS]  
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GROUNDING & LIGHTNING PROTECTION

PLAN



NOTES:

1. GROUNDING ELECTRODE TO NEW GROUND BUS IN ELECTRICAL ROOM
2. CONNECT RTO EXHAUST STACK TO GROUND GRID VIA GROUND LUG ON EXISTING STACK.
3. EXISTING RTO GROUND ROD. CONTRACTOR SHALL VERIFY LOCATION IN THE FIELD & MAKE CONNECTION TO NEW GROUNDING ELECTRODE SYSTEM.
4. EXISTING STRUCTURAL STEEL GROUND ROD. CONTRACTOR SHALL VERIFY LOCATION IN THE FIELD & MAKE CONNECTION TO NEW GROUNDING ELECTRODE SYSTEM.
5. GROUNDING ELECTRODE TO WESP(S).
6. GROUNDING ELECTRODE TO NEW GROUND BUS IN RTO ELECTRIC ROOM.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

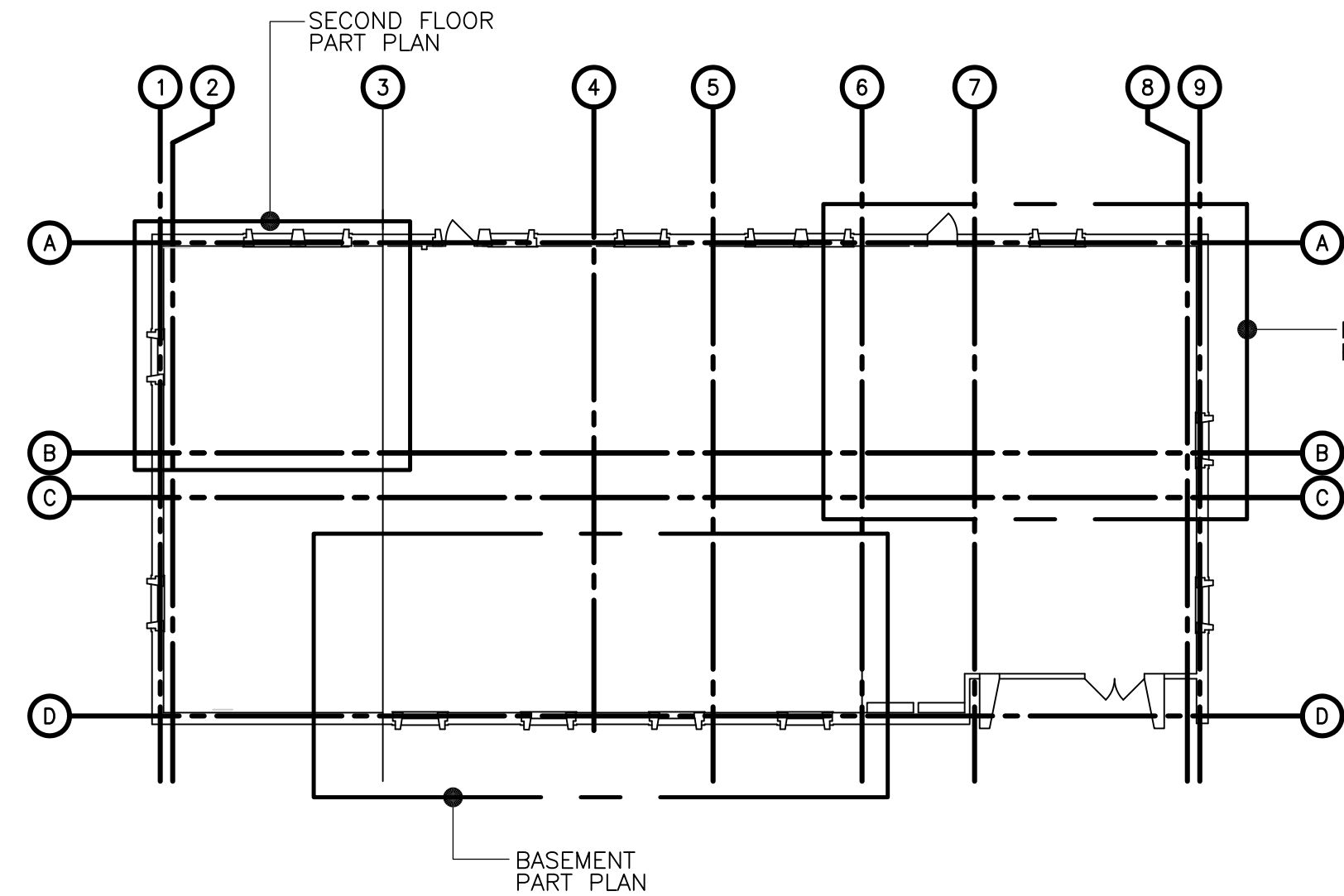
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 APPROVED BY: B. SQUIBB  
 DATE: MAY 2006



**UPPER BLACKSTONE**  
**WATER POLLUTION ABATEMENT DISTRICT**  
 CONTRACT No. UB 2024  
  
**WASTEWATER TREATMENT FACILITY**  
**IMPROVEMENTS**

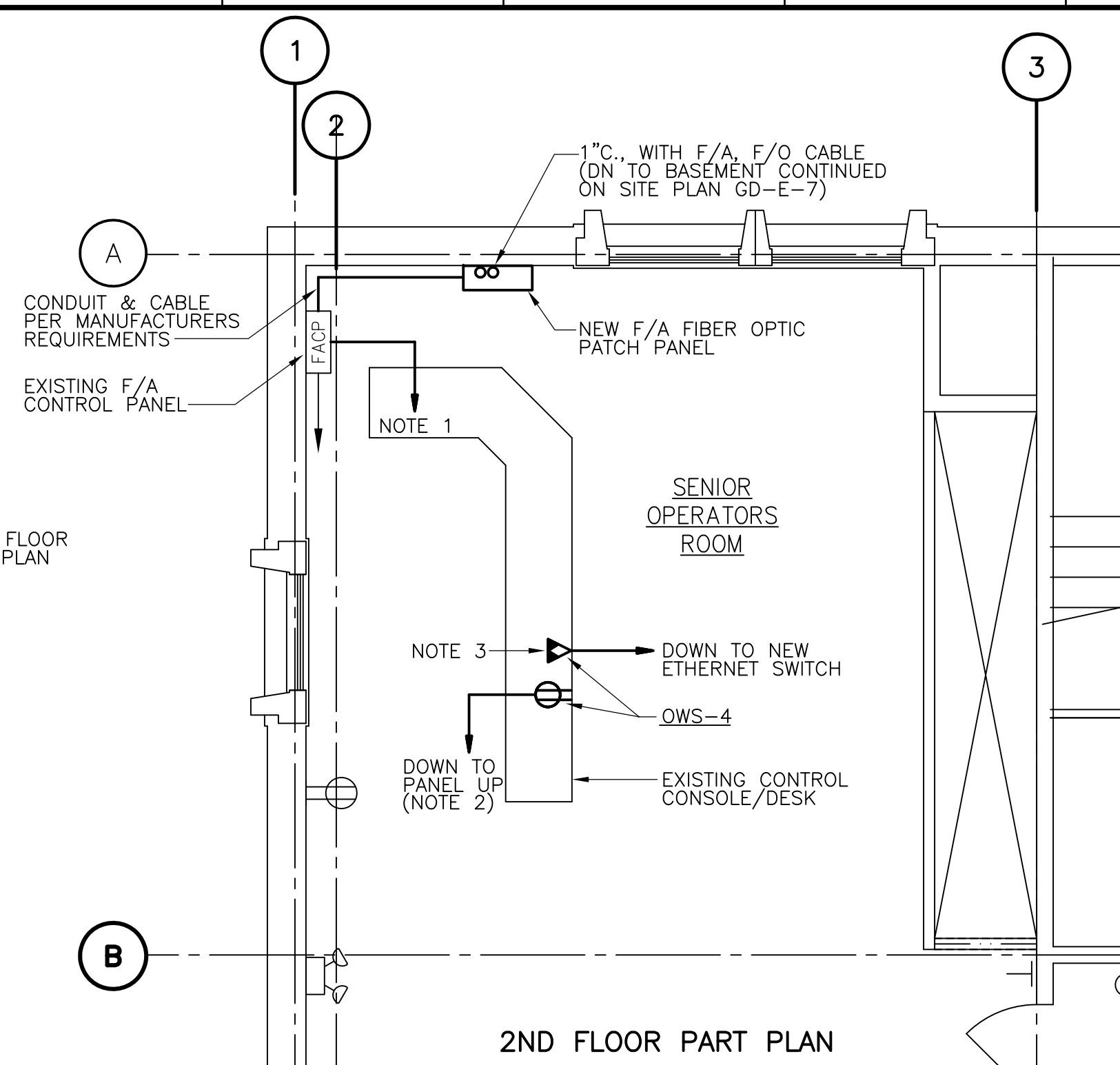
**SLUDGE PROCESSING COMPLEX**  
**GROUNDING & LIGHTNING PROTECTION**  
**PLANS**

PROJECT NO.  
 1289\35370  
 Sht. 380 of 386  
**SP-E-13**  
ACCESSION NO. 1289-65780



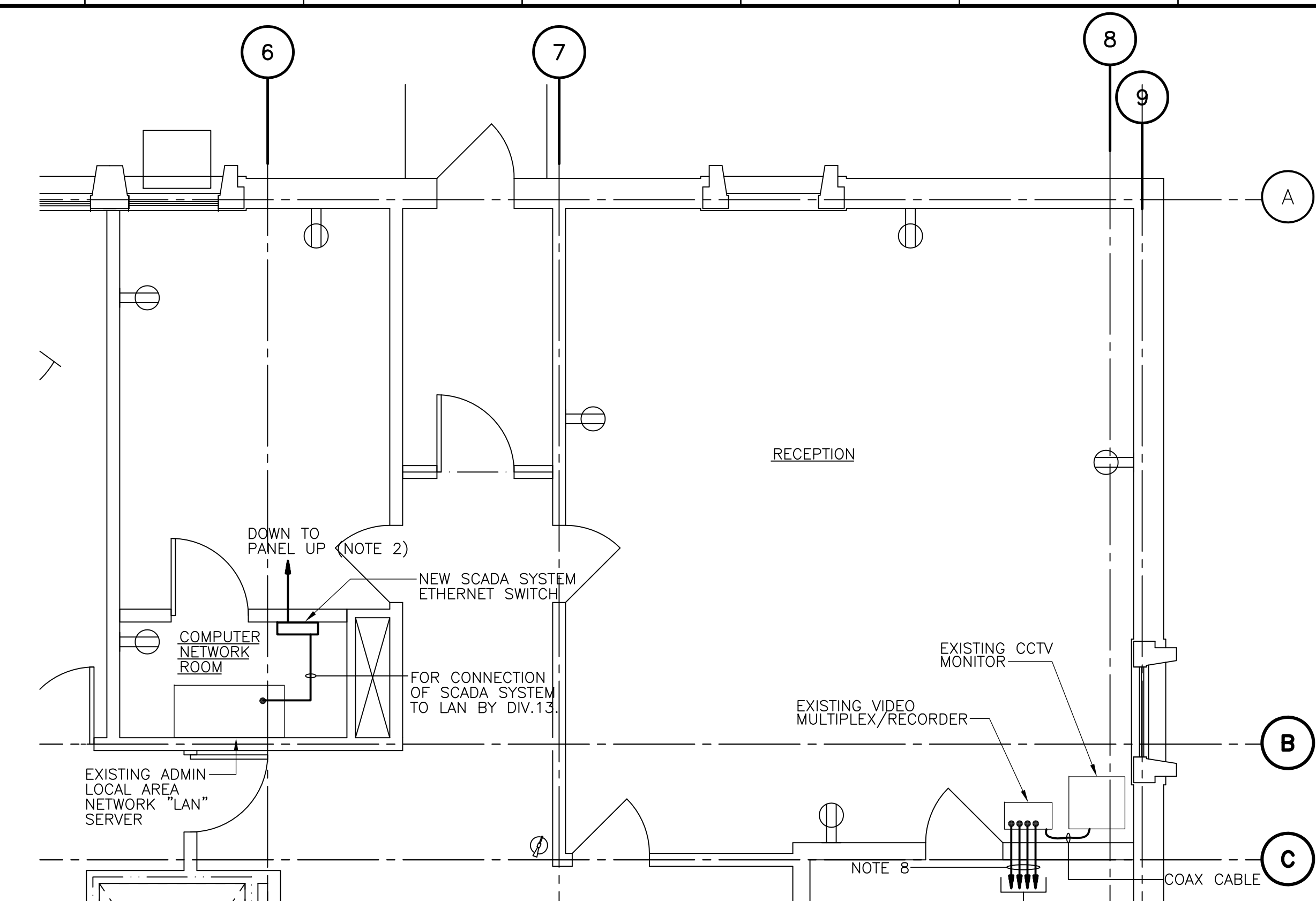
OVERALL ADMINISTRATION BUILDING PLAN

1/16" = 1'-0"  
8 4 0 8 16



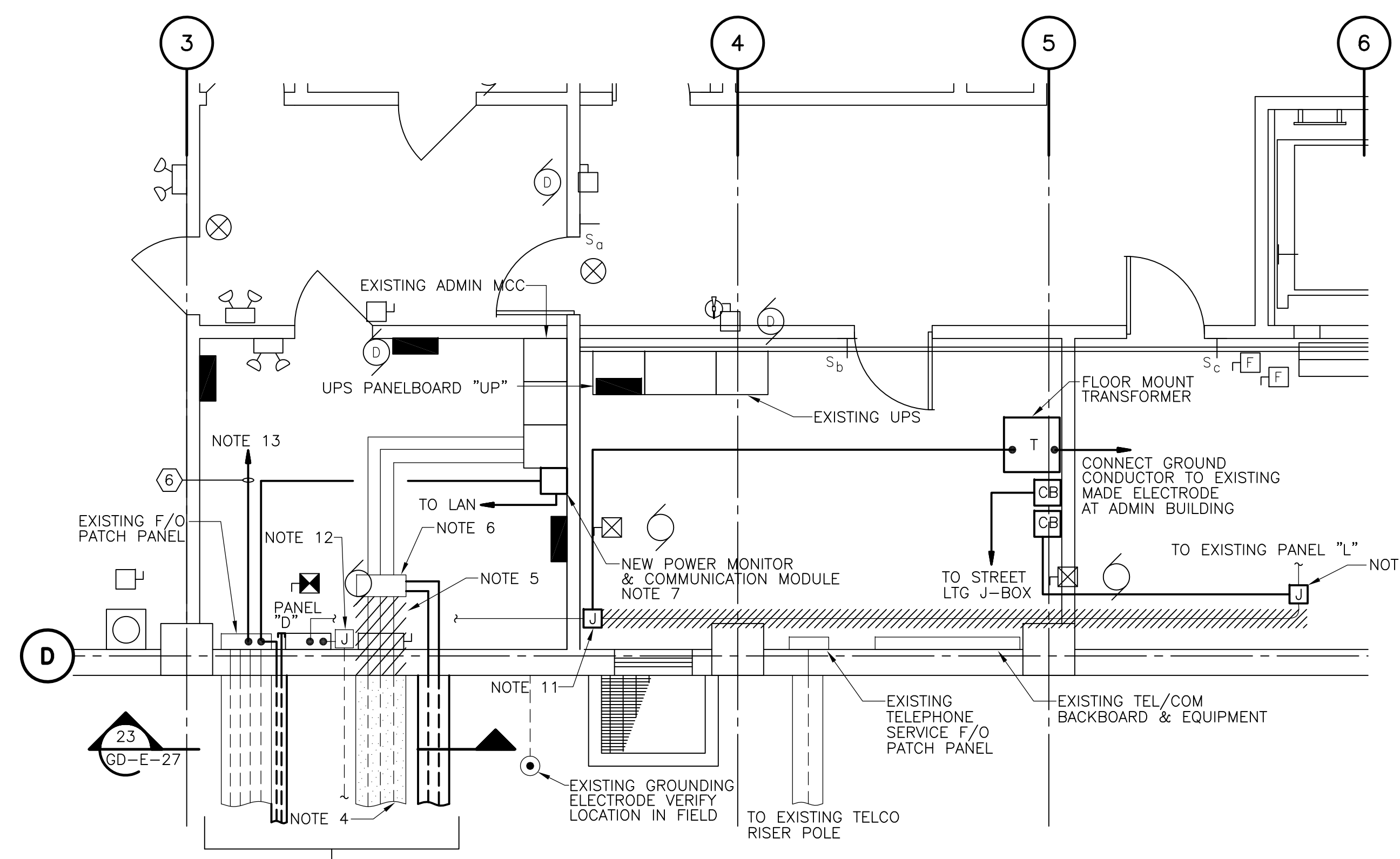
2ND FLOOR PART PLAN

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



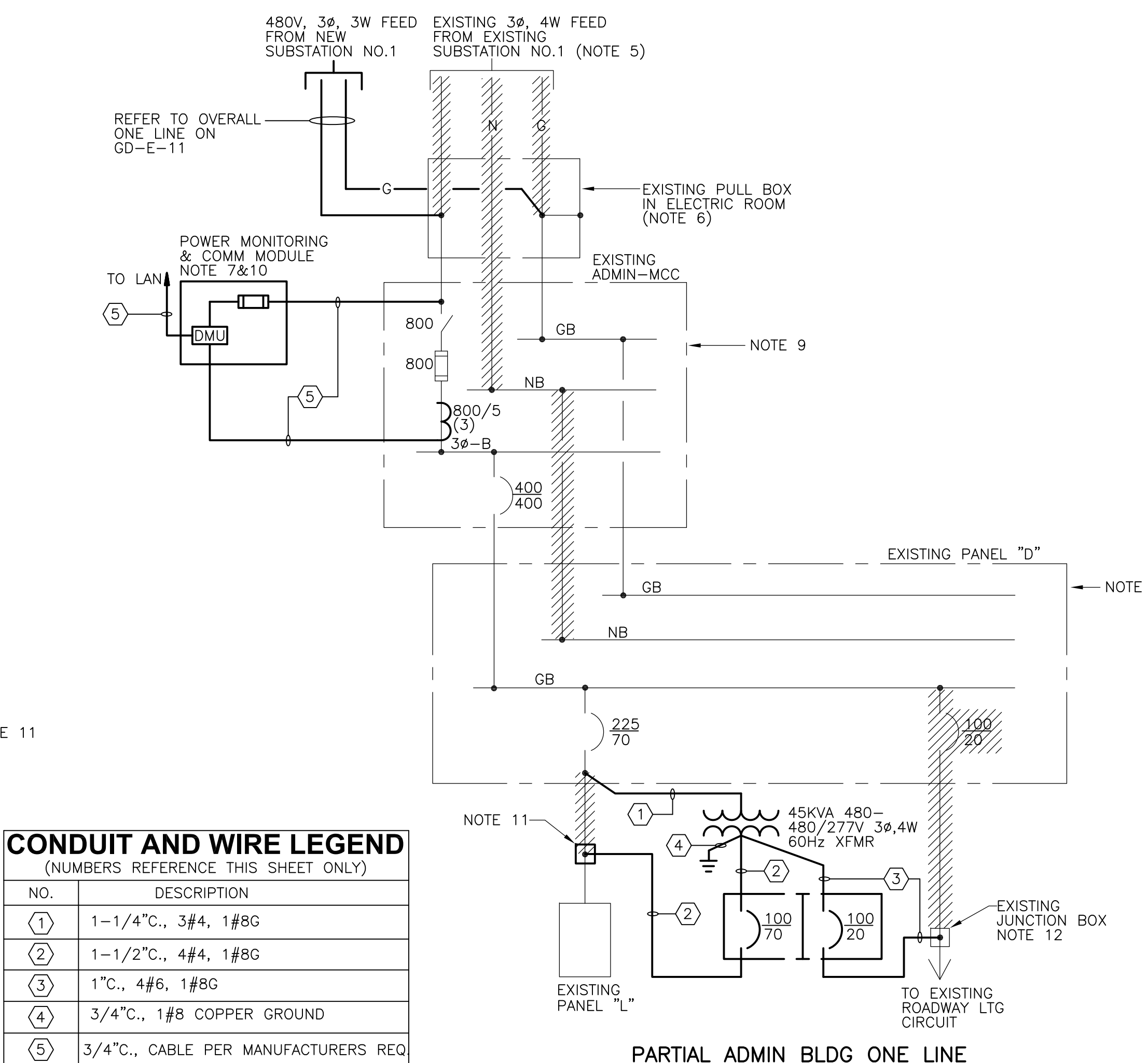
1ST FLOOR PART PLAN

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



BASEMENT PART PLAN

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



PARTIAL ADMIN BLDG ONE LINE DIAGRAM 1

CONDUIT AND WIRE LEGEND	
(NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	1-1/4" C., 3#4, 1#8G
②	1-1/2" C., 4#4, 1#8G
③	1" C., 4#6, 1#8G
④	3/4" C., 1#8 COPPER GROUND
⑤	3/4" C., CABLE PER MANUFACTURERS REQ
⑥	3/4" C., CABLE PER TEL CO. REQ.

- NOTES:
- CONDUIT (1" MIN) & CABLE PER FIRE ALARM MANUFACTURERS REQUIREMENTS DOWN TO EXISTING PATCH PANEL LOCATED IN BASEMENT LEVEL ELECTRIC ROOM.
  - FURNISH & INSTALL A NEW 20A, 1-POLE CIRCUIT BREAKER IN EXISTING PANELBOARD UP. NEW BREAKER SHALL MATCH EXISTING BREAKERS IN ALL RESPECTS INCLUDING SHORT CIRCUIT RATING.
  - COORDINATE SCADA COMMUNICATION JAX & DEVICE BOX WITH I&C REQUIREMENTS IN THE FIELD WITH THE SCADA SYSTEM CONTRACTOR.
  - REMOVE CABLES & ABANDON DUCTBANK AS SHOWN ON EXISTING SITE PLAN IN ACCORDANCE WITH MOPO SPEC REQUIREMENTS.
  - DISCONNECT & REMOVE EXISTING ADMIN BUILDING FEEDER AS SHOWN ON THE SINGLE LINE DIAGRAMS IN ACCORDANCE WITH MOPO SPECIFICATIONS.
  - SPLICE NEW FEEDER TO EXISTING CABLES & REMOVE EXISTING NEUTRAL CONDUCTOR IN PULLBOX AS SHOWN ON SINGLE LINE DIAGRAM & IN ACCORDANCE WITH PLANT MOPO SPECIFICATIONS.
  - FURNISH & INSTALL NEW POWER MONITOR & COMMUNICATIONS MODULE & PROVIDE ALL NECESSARY MODIFICATIONS TO ADMIN MCC TO MAKE THE SYSTEM COMPLETE.
  - COAX CABLES PER VIDEO SYSTEM MANUFACTURERS REQUIREMENTS SHALL BE INSTALLED IN EXISTING CABLE TRAYS ABOVE HUNG CEILING WHERE POSSIBLE & IN RACEWAYS WHERE CABLE TRAY IS NOT AVAILABLE. VERIFY IN FIELD.
  - EXISTING 4 WIRE EQUIPMENT TO BE RETROFITTED TO 3Ø, 3 WIRE DISTRIBUTION. DISCONNECT NEUTRAL CONDUCTORS TO EQUIPMENT AS SHOWN. THE CONTRACTOR SHALL REPLACE THE EQUIPMENT NAMEPLATES WITH NEW INDICATING 3Ø, 3WIRE DISTRIBUTION. FURTHERMORE, PROVIDE SIGNAGE ON EACH PANEL STATING "WARNING 3PH, 3 WIRE, PANEL. NEUTRAL BUS NOT CONNECTED".
  - REFER TO BLOCK DIAGRAM ON GD-E-33 FOR ADDITIONAL DETAILS ON POWER MONITORING SYSTEM.
  - CONTRACTOR SHALL INTERCEPT EXISTING RACEWAYS & SPLICE NEW CONDUCTORS WITH EXISTING TO RECONNECT EXISTING PANELS THROUGH NEW TRANSFORMER AS SHOWN ON SINGLE LINE. PROVIDE NEW CONDUIT & WIRE AS REQUIRED.
  - EXISTING STREET LIGHTING CIRCUIT JUNCTION BOX. FOR CONNECTION TO NEW BRANCH CIRCUIT.
  - TO EXISTING TELEPHONE & COMMUNICATIONS BACKBOARD. CONNECT TO EXISTING TELEPHONE EQUIPMENT & COORDINATE WITH TELE. COMPANY FOR SERVICE REQUIRED.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

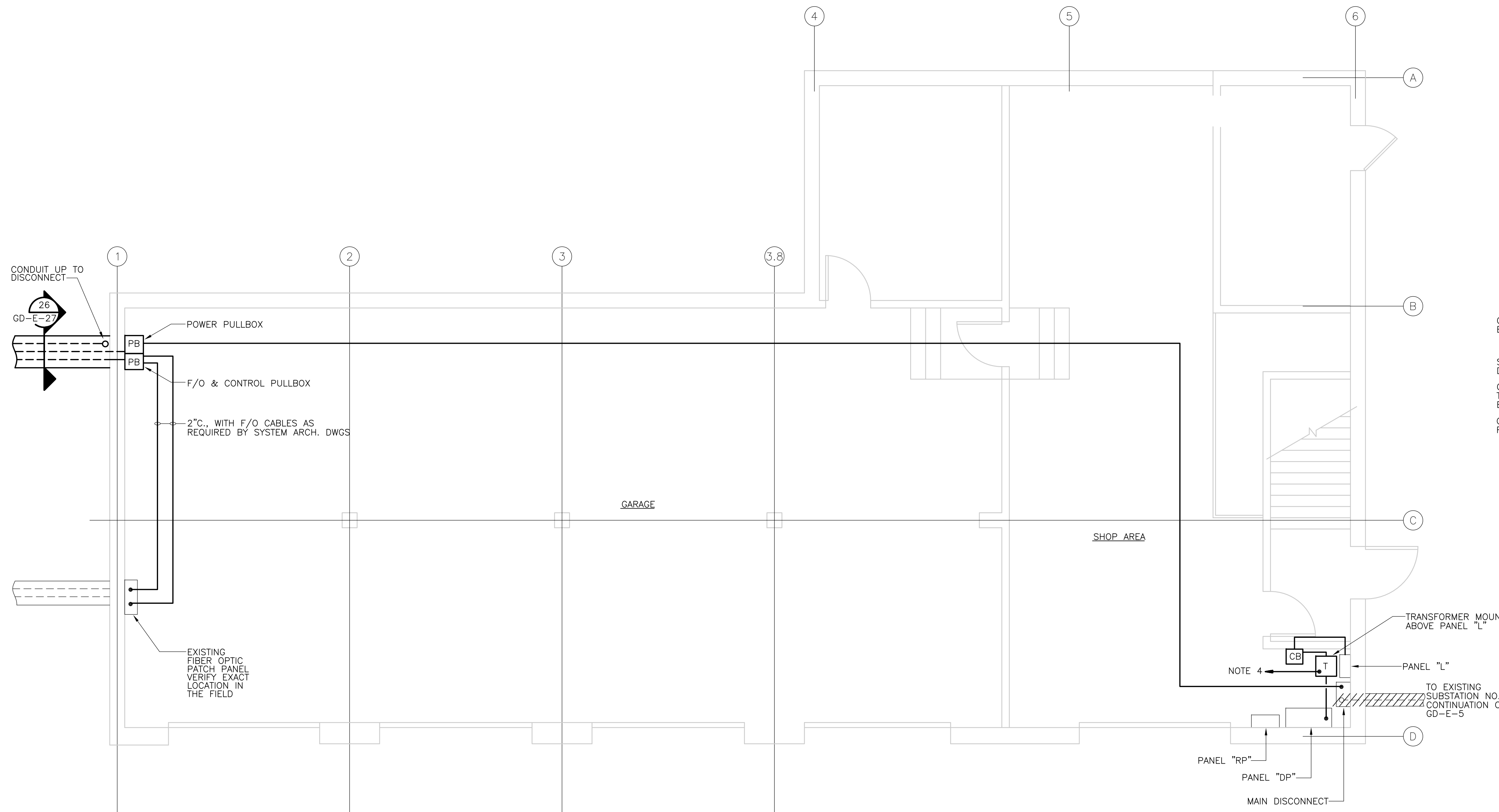
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DRAWN BY:	OR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

UPPER BLACKSTONE  
WATER POLLUTION ABATEMENT DISTRICT  
CONTRACT No. UB 2024  
  
WASTEWATER TREATMENT FACILITY  
IMPROVEMENTS

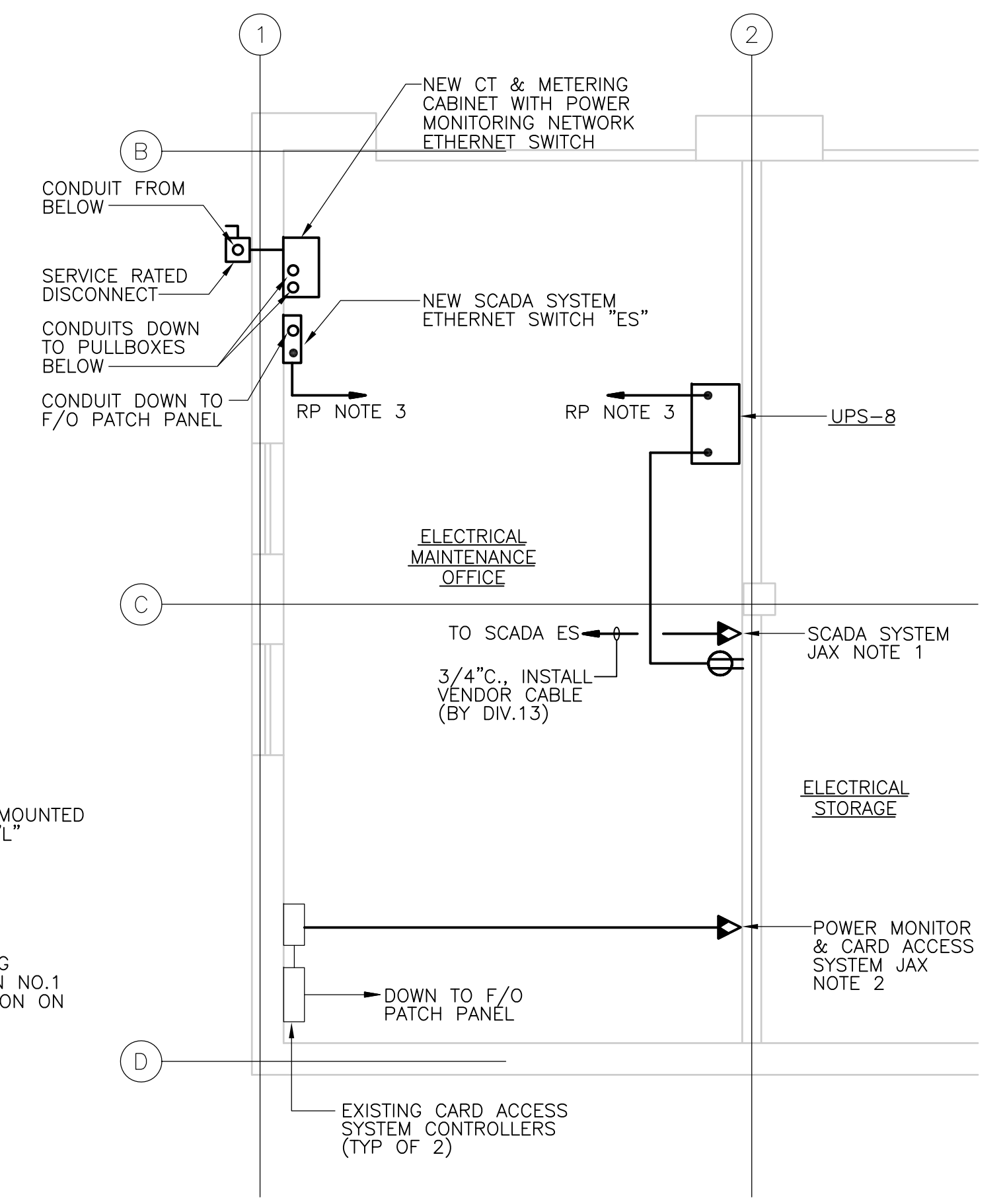
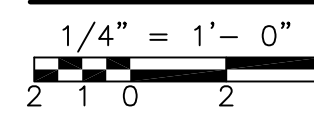
ADMINISTRATION BUILDING  
PLANS

PROJECT NO.  
1289\35370  
Sht. 381 of 386  
**AB-E-1**



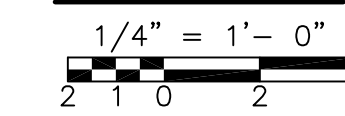
LOWER LEVEL

PLAN



UPPER LEVEL

PLAN



NOTES:

- COORDINATE SCADA COMMUNICATION JAX WITH THE I&C SYSTEM SUPPLIER IN THE FIELD.
- COORDINATE POWER MONITORING & CARD ACCESS SYSTEM COMMUNICATION JAX WITH SYSTEM SUPPLIERS IN THE FIELD.
- FURNISH & INSTALL 20A, 1-POLE CIRCUIT BREAKERS IN EXISTING PANEL RP. NEW BREAKERS SHALL MATCH EXISTING BREAKERS IN ALL RESPECTS INCLUDING SHORT CIRCUIT RATING.
- TO EXISTING BUILDING GROUNDING ELECTRODE SYSTEM. VERIFY CONNECTION LOCATION IN THE FIELD.
- REFER TO GD-E-22 FOR CONDUIT & WIRE SIZES NOT SHOWN ON THIS SHEET.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
3/07	SPV	ADT		REVISED FOR THE RECORD

CADD FILE NO.	EMBPL001.DWG
DESIGNED BY:	JAR
DRAWN BY:	OR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

**MAINTENANCE BUILDING  
 PLANS**

PROJECT NO.  
1289\35370

Sht. 382 of 386

**MB-E-1**

ACCESSION NO. 1289-65782

### LIGHTING FIXTURE SCHEDULE

TYPE	LAMPS	MOUNTING	DESCRIPTION	ACCEPTABLE MANUFACTURER'S CATALOG NUMBERS * VOLTAGE (SEE NOTE 6)			REMARKS
A	2-FB031/841	CEILING RECESSED	2'x2' FLUORESCENT UNIT WITH 9 CELL, SEMI-SPECULAR 3" DEEP PARABOLIC LOUVER AND HEAT REMOVAL AIR HANDLING CAPABILITY	DAYBRITE 2P3GC231U1-33SL-1/2EB	LITHONIA 2PM3-N-2U316-9LD-D	COLUMBIA P4-22-2C-49 3338 * EOC	SEE NOTE 1 MOUNTING TYPES
A1	3-FB031/841	CEILING RECESSED	2'x2' FLUORESCENT UNIT WITH 9 CELL, SEMI-SPECULAR 3" DEEP PARABOLIC LOUVER AND HEAT REMOVAL AIR HANDLING CAPABILITY	DAYBRITE 2P3GC331U1-33SL-1/3EB	LITHONIA 2PM3N-3U31-9LD-D-1/3	COLUMBIA P4-22-3C-49 3338 * EOC	SEE NOTE 1 MOUNTING TYPES
A2	3-FB031/841	CEILING RECESSED	SAME AS A1 EXCEPT 2 BALLASTS	DAYBRITE 2P3GC331U1-33SL-1/21EB	LITHONIA 2PM3N-EU31-9LD		SEE NOTE 1 MOUNTING TYPES
B	3-F032/841	CEILING RECESSED	2'x4' FLUORESCENT UNIT WITH .125" THICK ACRYLIC PRISMATIC LENS AND HEAT REMOVAL AIR HANDLING CAPABILITY	DAYBRITE 2DGC332 FS12*1/3EB	COLUMBIA 2F-332WR7B EX.125MIN-EB	LITHONIA 2SPB-332-A12*-D-1/3	SEE NOTE 1 MOUNTING TYPES
B1	2-F032/841	CEILING RECESSED	2'x4' FLUORESCENT UNIT WITH .125" THICK ACRYLIC PRISMATIC LENS AND HEAT REMOVAL AIR HANDLING CAPABILITY	DAYBRITE 2DGC232 FS12*1/2EB	COLUMBIA 2F-232WR7B EX.125MIN-EB	LITHONIA 2SPB-D-232-A12*-1/2	SEE NOTE 1 MOUNTING TYPES
B2	3-F032/841	CEILING RECESSED	SAME AS B EXCEPT 2 BALLASTS	DAYBRITE 2DGC332 FS12*1/21EB		LITHONIA 2SPB-D-232-A12*-1/3	
C	2-F032/841	CEILING PENDANT	FLUORESCENT INDUSTRIAL UNIT WITH 10/15% UPLIGHT PORCELAIN ENAMEL REFLECTOR	DAYBRITE 1F232-PR-1/2EB	LITHONIA AF-10-232-PO	HUBBELL 100420-PE10B	
C1	3-F032/841	CEILING PENDANT	FLUORESCENT INDUSTRIAL UNIT WITH 10/15% UPLIGHT PORCELAIN ENAMEL REFLECTOR	DAYBRITE 1F332-PR-1/3EB	LITHONIA AF-10-332-PO	HUBBELL 100430-PE10B	
D	2-F032/841	CEILING PENDANT	FLUORESCENT ENCLOSED AND GASKETED INDUSTRIAL UNIT WITH TEMPERED 3/16" GLASS LENS AND BE OF CORROSION FREE CONSTRUCTION	DAYBRITE VTP1-232-TG-1/2EB	LIGHTOLIER HPFVT240 * SO	CROUSE-HINDS FVN4232TG *	PHOENIX LFV7-232
D1	3-F032/841	CEILING PENDANT	FLUORESCENT ENCLOSED AND GASKETED INDUSTRIAL UNIT WITH TEMPERED 3/16" GLASS LENS AND BE OF CORROSION FREE CONSTRUCTION	DAYBRITE VTP1-332-TG-1/3EB	LIGHTOLIER HPFVT340 * SO	CROUSE-HINDS FVN4332TG *	HAZLUX DFP341EL1G
D2	2-F032/841	WALL ANGLE	FLUORESCENT ENCLOSED AND GASKETED INDUSTRIAL UNIT WITH TEMPERED GLASS LENS AND BE OF CORROSION FREE CONSTRUCTION	DAYBRITE VTPA-232-TG-1/2EB	LIGHTOLIER HPFVT240 * SO HN45	CROUSE-HINDS FVN4232TG-AG *	HAZLUX DFP241EL1G-AG
D3	3-F032/841	WALL ANGLE	FLUORESCENT ENCLOSED AND GASKETED INDUSTRIAL UNIT WITH TEMPERED GLASS LENS AND BE OF CORROSION FREE CONSTRUCTION	DAYBRITE VTPA-332-TG-1/3EB	LIGHTOLIER HPFVT340 * SO HN45	CROUSE-HINDS FVN42332TG-AG *	HAZLUX DFP341EL1G-AG
E	2-F032/841	CEILING PENDANT	FLUORESCENT ENCLOSED AND GASKETED INDUSTRIAL UNIT WITH ACRYLIC LENS AND NON-METALLIC HOUSING AND BE FOR NEMA 4X AREAS	DAYBRITE V2WAE232* 1/2EB	METALUX VRV7232DR * EBDL	LITHONIA PMW-232 *	
E1	3-F032/841	CEILING PENDANT	FLUORESCENT ENCLOSED AND GASKETED INDUSTRIAL UNIT WITH ACRYLIC LENS AND NON-METALLIC HOUSING AND BE FOR NEMA 4X AREAS	DAYBRITE V2WAE332* 1/3EB	LITHONIA DMW-332 *		
F	2-F032/841	WALL SURFACE	COMPACT FLUORESCENT INDUSTRIAL UNIT FOR NEMA 4 & 4X AREAS	LEGION 14-232-ACP-EBO-WL*	METALUX VRV7240DR * EBDL	CROUSE-HINDS FVS20 *	HAZLUX DFP222EL1G-KH
G	2-F130BX/SPX35	CEILING RECESSED	COMPACT FLUORESCENT SHOWER UNIT WITH OPAL GLASS LENS & DAMP LABEL	CAPRI F6213-RI-PSH17P	LIGHTOLIER 1178T *	LITHONIA FLE213DT2-F6LD3 *	
H	4-F032/730	CEILING RECESSED	8'-0" FLUORESCENT WALL SLOT UNIT WITH REGRESSED BLADE BAFFLES (TWIN LAMP)	DAY-0-LITE PNR-2-96-FLR-PBL-T-*ELEC	LITHONIA 9RL2RSOC * SSB PC28	LIGHTCONTROL 85N-2418-BW *	FOR "G" GRID TYPE CEILINGS CHECK CATALOG FOR OTHER MOUNTING TYPES FURNISH UNLIT SECTS. WHERE REQ'D.
H1	4-F025/730	CEILING RECESSED	6'-0" FLUORESCENT WALL SLOT UNIT WITH REGRESSED BLADE BAFFLES (TWIN LAMP)	DAY-0-LITE PNR-2-72-FLR-PBL-T-*ELEC	LITHONIA 9RL2RSOC * SSB PC26	ALKCO 11727-3218-EOCT*	FOR "G" GRID TYPE CEILINGS CHECK CATALOG FOR OTHER MOUNTING TYPES FURNISH UNLIT SECTS. WHERE REQ'D.
H2	2-F032/730	CEILING RECESSED	4'-0" FLUORESCENT WALL SLOT UNIT WITH REGRESSED BLADE BAFFLES (TWIN LAMP)	DAY-0-LITE PNR-2-48-FLR-PBL-T-*ELEC	LITHONIA 9RL2RSOC * SSB PC24	ALKCO 11727-4218-EOCT*	FOR "G" GRID TYPE CEILINGS CHECK CATALOG FOR OTHER MOUNTING TYPES FURNISH UNLIT SECTS. WHERE REQ'D.
K	2-F130BX/SPX27	CEILING RECESSED	COMPACT FLUORESCENT DOWNLIGHT WITH CLEAR ALZAK REFLECTOR	OMEGA OMB2H13QPLBBS	PRESCOLITE CFR813-572 * HPF	LITHONIA AF2/13T9A9 * HPF	
K1	2-F26BX/SPX27	CEILING RECESSED	COMPACT FLUORESCENT DOWNLIGHT WITH CLEAR ALZAK REFLECTOR	OMEGA OMB2H26QPLBBS	PRESCOLITE CFR826-492 * HPF	LITHONIA AF2/26Q9A9 * HPF	
L	100LU	WALL SURFACE	H.P.S. UNIT FOR ASYMMETRIC DISTRIBUTION	DAY-BRITE #WLM100SMT-PC	HOLOPHANE WL2K100HPMTBZ *	LITHONIA TWH100S * DMB	HAZLUX WAS010H04E
L1	150LU	WALL SURFACE	H.P.S. UNIT FOR ASYMMETRIC DISTRIBUTION	DAY-BRITE #WLM150SMT-PC	HOLOPHANE WL2K150HPMTBZ *	LITHONIA TWH150S * DMB	HAZLUX WAS015H04E
L2	100LU	BRACKET	H.P.S. SUBSTATION UNIT WITH PRISMATIC GLASS REFRACTOR MOUNTING BRACKET AND PHOTO ELECTRIC RELAY	HOLOPHANE SU1A-100 HP12LTP	NO EQUALS		
M	250LU	CEILING PENDANT	H.P.S. LOW BAY UNIT WITH PRISMATIC ACRYLIC REFRACTOR	DAYBRITE #HB0250SMTAR22	LITHONIA TXR 250S * PA25D	HOLOPHANE EN250HP12N8	
M1	250LU	CEILING PENDANT	H.P.S. LOW BAY UNIT WITH PRISMATIC REFRACTOR, WITH AUTOMATIC HI-LO ENERGY REDUCTION SYSTEM.	DAYBRITE #HB0250SMTAR22-HLSM	LITHONIA TXR 250S * PA25D KWA	HOLOPHANE EN250HP12N8 A50	
M2	250LU & 150QCLDC	CEILING PENDANT	H.P.S. LOW BAY UNIT WITH PRISMATIC REFRACTOR, STAND BY RELAY AND QUARTZ LAMP	DAYBRITE #HB0250SMTAR22-Q	LITHONIA TXR 250S * PA25D KWA QTZR	HOLOPHANE EN250HP12N8 A50 EM	
N	250LU	CEILING PENDANT	H.P.S. HIGH BAY UNIT WITH LOW BRIGHTNESS REFLECTOR	DAYBRITE HBS250SMT TGL16	LITHONIA TX250SPA16 * LC3PPPH	HOLOPHANE IX250HP*PNUS	HAZLUX (NOTE 6) VS0250C04L-R0B-P2E VS0250C04L-RLB-P2TD NO QUICK DISCONNECT
N1	250LU & 150QCL/DC	CEILING PENDANT	H.P.S. HIGH BAY UNIT WITH LOW BRIGHTNESS REFLECTOR, STANDBY RELAY AND QUARTZ LAMP	DAYBRITE HBS250SMT TGL16QTZ	LITHONIA TX250SPA16 * KWA	HOLOPHANE IX250HP*PNUS-EM	HAZLUX (NOTE 6) VS0250C04L-R0B-P2D VS0250C04L-RCB-P2TD 100W QUARTZ LAMP DUAL ARC LAMP
N2	400LU	CEILING PENDANT	H.P.S. HIGH BAY UNIT WITH LOW BRIGHTNESS REFLECTOR	DAYBRITE HBS400SMTAR22 TGL16	HUBBELL HBS-400SX-OU-CHL-PX *	HOLOPHANE IX400HP*PNUS	HAZLUX (NOTE 6) VS0400C04L-R0B-P2E VS0400C04L-RCB-P2TE
N3	400LU & 250QCL/DC	CEILING PENDANT	H.P.S. HIGH BAY UNIT WITH LOW BRIGHTNESS REFLECTOR, STANDBY RELAY AND QUARTZ LAMP	DAYBRITE HBS400SMTAR22-Q TGL16QTZ	HUBBELL HBS-400SX-OU-CHL-PX *	HOLOPHANE IX400HP*PNUS-EM	HAZLUX (NOTE 6) VS0400C04L-R0B-P2E VS0400C04L-RCB-P2TE
P	MVR 400/U	CEILING PENDANT	MH CHANDELIER WITH PRISMATIC GLASS REFRACTORS WITH 40% UPLIGHT AND 60% DOWNLIGHT	HOLOPHANE BL2400MHMTJ1 BL2A-CO-EM	N.E.		FURNISH WITH BALLAST COVER
P1	MVR 400/U & 250QCL/DC	CEILING PENDANT	MH CHANDELIER WITH PRISMATIC GLASS REFRACTORS WITH 40% UPLIGHT AND 60% DOWNLIGHT, STANDBY RELAY AND QUARTZ LAMP	HOLOPHANE BL2400MHMTJ1 BL2A-CO-EM	N.E.		FURNISH WITH BALLAST COVER
R	175MH	CEILING PENDANT	METAL HALIDE E&G UNIT FOR CLASS I DIV.2 & CORROSIVE (NEMA 4X & MARINE) LOCATIONS WITH DOME REFLECTOR & GLASS GLOBE.	RIG-A-LITE SAF17HR5PSRRSD	HOLOPHANE PETL175MH*525P	HAZLUX PM017H*7GP24	

### LIGHTING FIXTURE SCHEDULE CONTINUED

TYPE	LAMPS	MOUNTING	DESCRIPTION	ACCEPTABLE MANUFACTURER'S CATALOG NUMBERS * VOLTAGE (NOTE 6)			REMARKS
R1	175MH	WALL SUPPORT	METAL HALIDE E&G UNIT FOR CLASS I, DIV.2 CORROSIVE (NEMA 4X & MARINE LISTED) LOCATIONS WITH ANGLE REFLECTOR & GLASS GLOBE	RIG-A-LITE SAF17HR5SR25A	HOLOPHANE PETL175MH*52500	HAZLUX PM017H*7GP24	
S	70LU	STANCHION MOUNTING	H.P.S. UNIT WITH PRISMATIC GLASS REFRACTOR & SYMMETRIC REFRACTOR	HOLOPHANE PETROLUX II (PTA SERIES) CAT No. PTA-070HP-27-5-545 OR EQUAL			
T	70LU	STANCHION MOUNTING	H.P.S. UNIT WITH PRISMATIC GLASS REFRACTOR WITH INTEGRAL PHOTOCONTROL & SYMMETRIC REFRACTOR	HOLOPHANE PETROLUX II (PTA SERIES) CAT No. PTA-070HP-27-5-545-P OR EQUAL			
X	LED	CEILING PENDANT	SINGLE FACE LED SELF POWERED, EXIT SIGN WITH RED LETTERS ON A STENCIL FACE PANEL	EMERGI-LITE * DXN1R	DUAL-LITE CWRNB-LPLEDE * -FC-PPM	CHLORIDE ISPLSDIAR * KIT	LITHONIA LES-IR-ELN-ELAUSXX
X1	LED	WALL SURFACE	SINGLE FACE LED SELF POWERED, EXIT SIGN WITH RED LETTERS ON A STENCIL FACE PANEL	EMERGI-LITE * DXN1R	DUAL-LITE CWRNB-LPLEDE *	CHLORIDE ISPLSDIAR * KIT	LITHONIA LES-IR-ELN
X2	LED	WALL SURFACE	SINGLE FACE LED SELF POWERED, EXIT SIGN WITH RED LETTERS ON A STENCIL FACE PANEL AND DIRECTIONAL ARROW	EMERGI-LITE * DXN1R	DUAL-LITE CWRNB-LPLEDE *	CHLORIDE ISPLSDIAR * KIT	LITHONIA LES-IR-ELN
X3	LED	CEILING SURFACE	SINGLE FACE LED SELF POWERED, EXIT SIGN WITH RED LETTERS ON A STENCIL FACE PANEL, DIFFERENT MOUNTING	EMERGI-LITE * DXN2R	DUAL-LITE CWRNB-LPLEDE *	CHLORIDE ISPLSDIAR * KIT	LITHONIA LES-IR-ELN
X4	LED	WALL SURFACE	SINGLE FACE LED SELF POWERED, NEMA SERIES EXIT SIGN UNIT	EMERGI-LITE * SXN1R	DUAL-LITE N4XER-LEDE *	HOLOPHANE MNLIR3W *	LITHONIA LES-IR-ELN
X5	N.A.	AS SHOWN ON DWG	SELF LUMINOUS EXIT SIGN FOR HAZARDOUS & CORROSIVE AREAS	EMERGI-LITE EVER LITE SERIES	HOLOPHANE MAGELLAN SL SERIES	EXIDE SELF-LUMINOUS SERIES	
X6	2-60T10	AS SHOWN ON DWG	INCANDESCENT EXIT SIGN FOR CLASS 1, DIVISION 1 HAZARDOUS AREAS	DAYBRITE SERIES	HOLOPHANE DSHR*-12-10E	CROUSE HINDS EXL SERIES	
Y	175MH	CEILING SURFACE	METAL HALIDE E.C & G UNIT FOR CLASS 1 DIVISION 1, HAZARDOUS AREAS WITH A DOME REFLECTOR & GLASS GLOBE	RAL #SX17H04-SR25D SR25D5XP25GLSXPC	HOLOPHANE PETM-175MH-*SY-CE-PETMSY	CROUSE HINDS EVMCX92170 *-RD739	
Y1	175MH	CEILING PENDANT	METAL HALIDE E.C & G UNIT FOR CLASS 1 DIVISION 1, GROUP D, HAZARDOUS AREAS WITH A DOME REFLECTOR & GLASS GLOBE	RAL #SX17H04-SR25D SR25D5XP25GLSXPP	HOLOPHANE PETM-175MH-*SY-PD-PETMSY	CROUSE HINDS EVMA93170 *-RD739	
Y2	175MH	WALL BRACKET	METAL HALIDE E.C & G UNIT FOR CLASS 1 DIVISION 1, GROUP D, HAZARDOUS AREAS WITH AN ANGLE REFLECTOR & GLASS GLOBE	RAL #SX17H04-SR25D SR25D5XP25GLSXPW	HOLOPHANE PETM-175MH-*SY-WL-PETMAS	CROUSE HINDS EVMBX92170 *-RA73	
Y3	175MH	CEILING PENDANT	METAL HALIDE E.C & G UNIT FOR CLASS 1 DIVISION 1, GROUP D, HAZARDOUS AREAS WITH A DOME REFLECTOR, STANDBY RELAY AND QUARTZ LAMP	RAL #SX17H04-SR25D-SQTZ	HOLOPHANE PETM-175MH-*SY-PD-PETMSY	CROUSE HINDS EVMA93170 *-RD73-QTZ	
Y4	250MH	AS SHOWN ON DWG.	METAL HALIDE E.C & G UNIT FOR CLASS 1 DIVISION 1, GROUP D, HAZARDOUS AREAS WITH A HI-BAY REFLECTOR	RAL #SX25H04-SR25D	HOLOPHANE PETM-250MH-*SY-PD-PETMSY	CROUSE HINDS EVMA93250 *-EV3912	
Z	2-F032/841	WALL SURFACE	FLUORESCENT UNIT WITH ACRYLIC PRISMATIC LENS	DAYBRITE CD-232B * 1/2EB	ALKCO 6232B *	METALUX BE232 * VEB81	LITHONIA WP232-B-BF
AB	2-F032/841	CEILING PENDANT	FLUORESCENT UNIT WITH INJECTION MOLDED, PRISMATIC, ACRYLIC WRAP-AROUND LENS	DAYBRITE AWW232 * 1/2EB	LITHONIA YC-232-GE8	HOLOPHANE M7100/324 * L	
AC	150/99	WALL BRACKET	INCANDESCENT UNIT WITH GUARD FOR CLASS 1, DIVISION 1 HAZARDOUS AREAS	RAL XPI-W75G	APPLETON AASBA1550G	CROUSE HINDS EVJ110	
AD	150/99	CEILING PENDANT	INCANDESCENT UNIT WITH DOME REFLECTOR FOR CLASS 1, DIVISION 1 HAZARDOUS AREAS	RAL XPI-P75G	APPLETON AAPA1550-ST	CROUSE HINDS EVA101-RD63	
AE	70LU	STANCHION	H.P.S. E.C & G UNIT FOR CLASS 1 DIVISION 2 AREAS WITH GLASS REFRACTOR AND GUARD	RAL SAF070S04R5G51	HOLOPHANE PETL070HPMT545SA PETLWGA	CROUSE HINDS DMVSP070R54MT	HAZLUX (NOTE 6) DS007H040-R5G-S5E DS007H040-R5G-S5TE
AF	100LU	STANCHION	H.P.S. E.C & G UNIT FOR CLASS 1 DIVISION 2 AREAS WITH GLASS REFRACTOR AND GUARD	RAL SAF10S04R5G51	HOLOPHANE PETL100HPMT545SA PETLWGA	CROUSE HINDS DMVSP100R54MT	HAZLUX (NOTE 6) DS010H040-R5G-S5E DS010H040-R5G-S5TE
AG	100/ HAL	WALL SURFACE	INCANDESCENT VAPORTIGHT UNIT WITH GUARD	RAL CVP15I-12-GW	CROUSE-HINDS VXBFB15GP	CANLET QWIF5	HAZLUX VXBFB15GP
AH	50LU	WALL SURFACE	H.P.S. VAPORTIGHT UNIT WITH POLYCARBONATE LENS	NEW STAR L81V-50HPS	PRESCOLITE WB-58 *	KENALL 5010-HPF *	HAZLUX (NOTE 6) VS005H040-CBDL-B2E VS005H040-CBDL-B2TE
AJ	50R20/FL	CEILING RECESSED	INCANDESCENT DOWNLIGHT WITH CLEAR SPECULAR ALZAK REFLECTOR	OMEGA OM450PAR20CS	LIGHTOLIER A7701CL-A400	HALO 999-H99T	LITHONIA ASAR
AK	MVR-100	CEILING RECESSED	MH DOWNLIGHT WITH LENSED FRAME	OMEGA OM8100ED17MHCS	PEACHTREE PMHF-7100/ * PCCL-7200-8	LIGHTOLIER LD7VI-OHA *	LITHONIA LGH-100M-7RW-773
AL	2-F032/841	COVE	4'-0" FLUORESCENT STAGGERED LAMP STRIP	DAYBRITE #SS232-*1/2EB	LITHONIA SS-2-32- *		
AL1	4-F032/841	COVE	8'-0" FLUORESCENT STAGGERED LAMP STRIP	DAYBRITE #TSS232*1/4EB	LITHONIA SS-4-32- *		
SL1	250LU	POLE	H.P.S. ONE PIECE DIE CAST ALUMINUM FLOOD LIGHT	GARDCO DF12SP1AMFL250 HPS*BRP COMPOSITE POLE-SHAKESPEARE 5" X 5" SQUARE	LITHONIA KFL2-250S-SP-MFL		POLE HEIGHT (NOTE 7) (DIRECT BURIAL) (BASE MOUNTED) PROVIDE BASE COVER
SL2	400LU	POLE	H.P.S. ONE PIECE DIE CAST ALUMINUM FLOOD LIGHT	GARDCO DF12SP1AMFL400 HPS*BRP COMPOSITE POLE-SHAKESPEARE 5" X 5" SQUARE	LITHONIA KFL3-400S-MFL		POLE HEIGHT (NOTE 7) (DIRECT BURIAL) (BASE MOUNTED) PROVIDE BASE COVER
SL3	100LU	STANTION	H.P.S. ONE PIECE DIE CAST ALUMINUM DESIGNER WALL WASHER	GARDCO DF7SPSTVFL100 HPS*BRP	LITHONIA KFL2-100S-VFL-KFLSTM		
SL4	175LU	STANTION	H.P.S. ONE PIECE DIE CAST ALUMINUM DESIGNER WALL WASHER	GARDCO DF7SPSTVFL175 HPS*BRP	LITHONIA KFL2-175S-VFL-KFLSTM		
SL5	250LU	POLE	H.P.S. ONE PIECE DIE CAST ALUMINUM FULL CUT-OFF 1.2 EPA FIXTURE SINGLE HEAD	GARDCO G1813XL250HPS *BRP COMPOSITE POLE-SHAKESPEARE 5" X 5" SQUARE	HOLOPHANE G250HPMTLWFAZ		POLE HEIGHT (NOTE 7) (DIRECT BURIAL) (BASE MOUNTED) PROVIDE BASE COVER
SL6	400LU	POLE	H.P.S. ONE PIECE DIE CAST ALUMINUM FULL CUT-OFF 1.2 EPA FIXTURE SINGLE HEAD	GARDCO G1813XL400HPS *BRP COMPOSITE POLE-SHAKESPEARE 5" X 5" SQUARE	HOLOPHANE G400HPMTLWFAZ		POLE HEIGHT (NOTE 7) (DIRECT BURIAL) (BASE MOUNTED) PROVIDE BASE COVER
SL7	250LU	POLE	H.P.S. ONE PIECE DIE CAST ALUMINUM FULL CUT-OFF 1.2 EPA FIXTURE SINGLE HEAD ARCHITECTURAL CLASS 1 ANODIZING	GARDCO EH1913250HPS *BRP COMPOSITE POLE-SHAKESPEARE 5" X 5" SQUARE	HOLOPHANE SMST250HPMTBZCL		POLE HEIGHT (NOTE 7) (DIRECT BURIAL) (BASE MOUNTED) PROVIDE BASE COVER
SL8	400LU	POLE	H.P.S. ONE PIECE DIE CAST ALUMINUM FULL CUT-OFF 1.2 EPA FIXTURE SINGLE HEAD ARCHITECTURAL CLASS 1 ANODIZING	GARDCO EH1913400HPS *BRP COMPOSITE POLE-SHAKESPEARE 5" X 5" SQUARE	HOLOPHANE SMST400HPMTBZCL		POLE HEIGHT (NOTE 7) (DIRECT BURIAL) (BASE MOUNTED) PROVIDE BASE COVER
SL9	150LU	POLE	H.P.S. ONE PIECE CAST ALUMINUM TRADITIONAL GLOBE WITH POLYCARBONATE GLOBE SILICONE GASKETED ROTOMATIC SYSTEM	LUMEX 150HPS-L23-PCFC -RRR3D-CRCWM-GNGTX	HOLOPHANE GV15AHPMTS25NNU		POLE HEIGHT (NOTE 7)

- NOTES:
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH LIGHTING FIXTURES DESIGNED FOR INSTALLATION IN THE TYPE OF SUSPENDED CEILING SYSTEM TO BE PROVIDED.
  - ALL OF THE LIGHTING EQUIPMENT SCHEDULED ON THIS SHEET MAY NOT BE INDICATED FOR USE ON THE ACCOMPANYING DRAWINGS.
  - TO BE FURNISHED WITH 5 MINUTE TIME DELAY RELAY WHERE USED FOR AREAS WITH H.I.D. LIGHTING.
  - PROVIDE MATCHING UNIT, END SECTIONS AS REQUIRED.
  - ALL LIGHTING FIXTURES WITH PENDANTS 12" OR LONGER SHALL HAVE HOOK TYPE ACCESSORIES WITH STAINLESS STEEL AIRCRAFT CABLE SECURED TO CEILING SO AS TO MEET SEISMIC TYPE II REQUIREMENTS.
  - ALL LIGHTING FIXTURES SHALL BE FURNISHED WITH BALLASTS RATED FOR 277 UNLESS OTHERWISE INDICATED ON PLANS OR PANELBOARD SCHEDULES.
  - POLE HEIGHT AS SHOWN IN DRAWINGS.
  - REFER TO LIGHTING FIXTURE OPERATION AND MAINTENANCE MANUAL FOR EXACT FIXTURE INFORMATION.

CADD FILE NO. \_ELT\SCH01.DWG  
DESIGNED BY: JAR  
DRAWN BY: JAR  
SHEET CHK'D BY: BDS  
SCALE: AS NOTED  
APPROVED BY: B. SQUIBB  
DATE: MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024**  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**ELECTRICAL LIGHTING FIXTURE SCHEDULE I**

PROJECT NO. 1289\35370  
Sht. 383 of 386  
**SD-E-1**

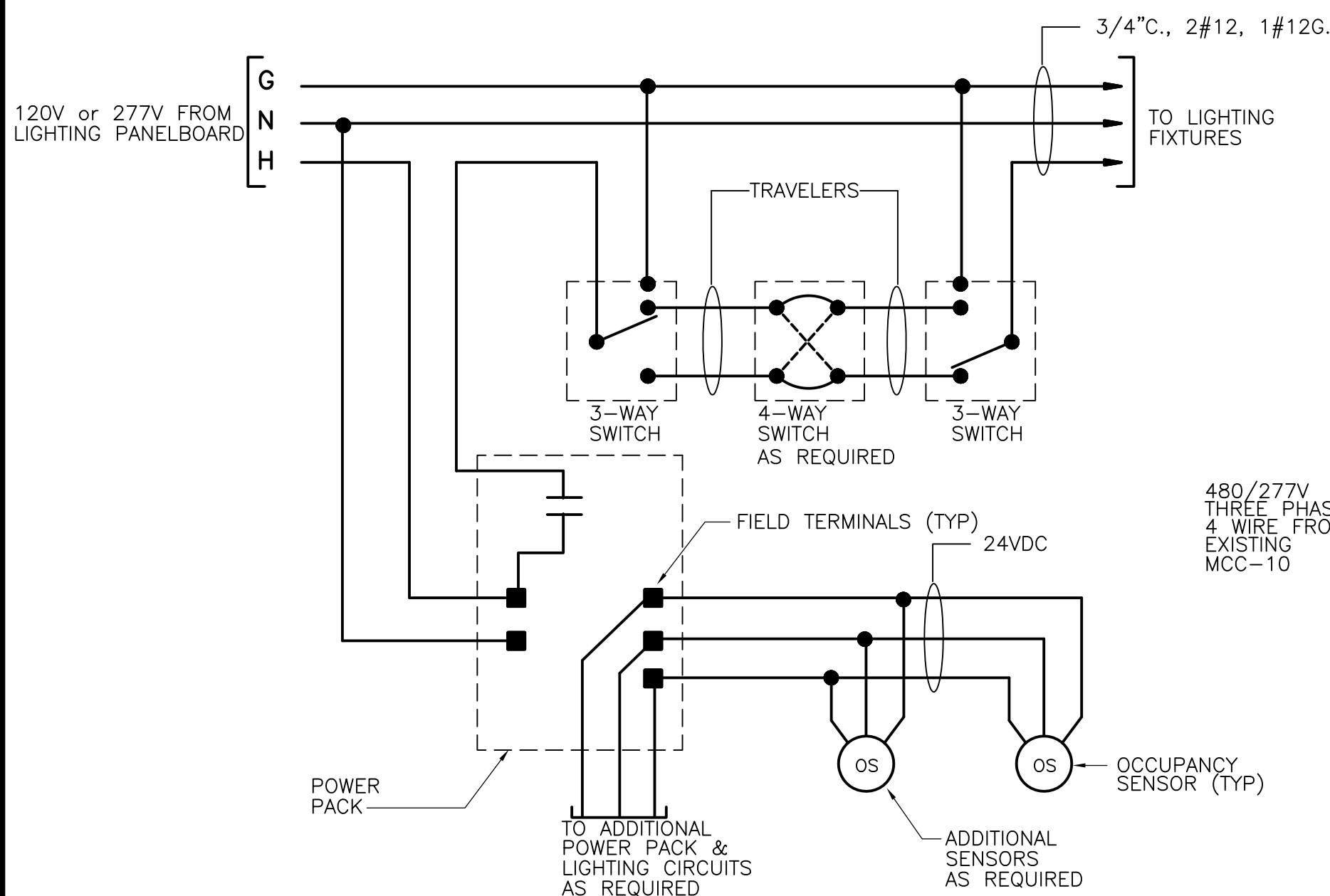
RECORD DRAWING



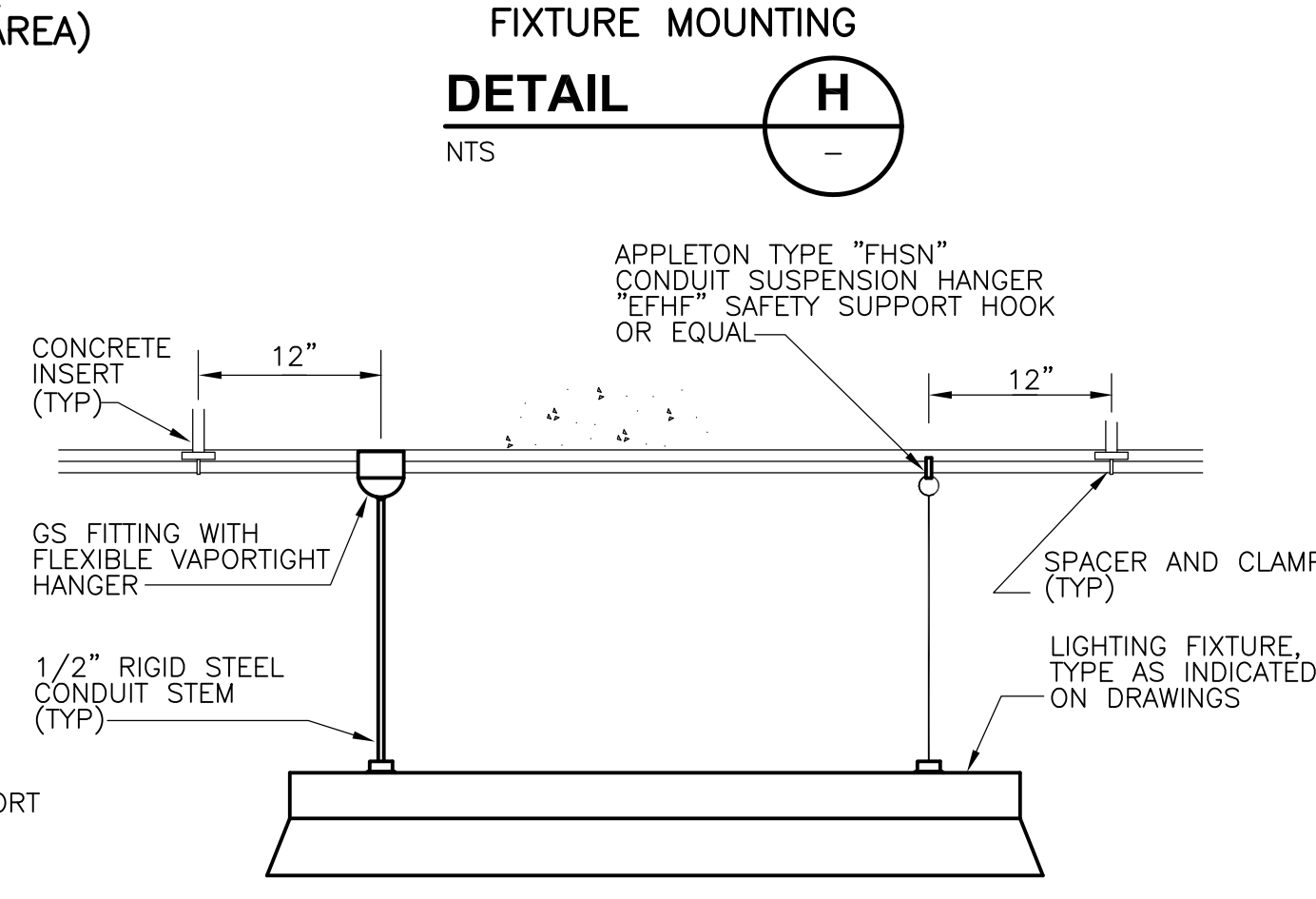
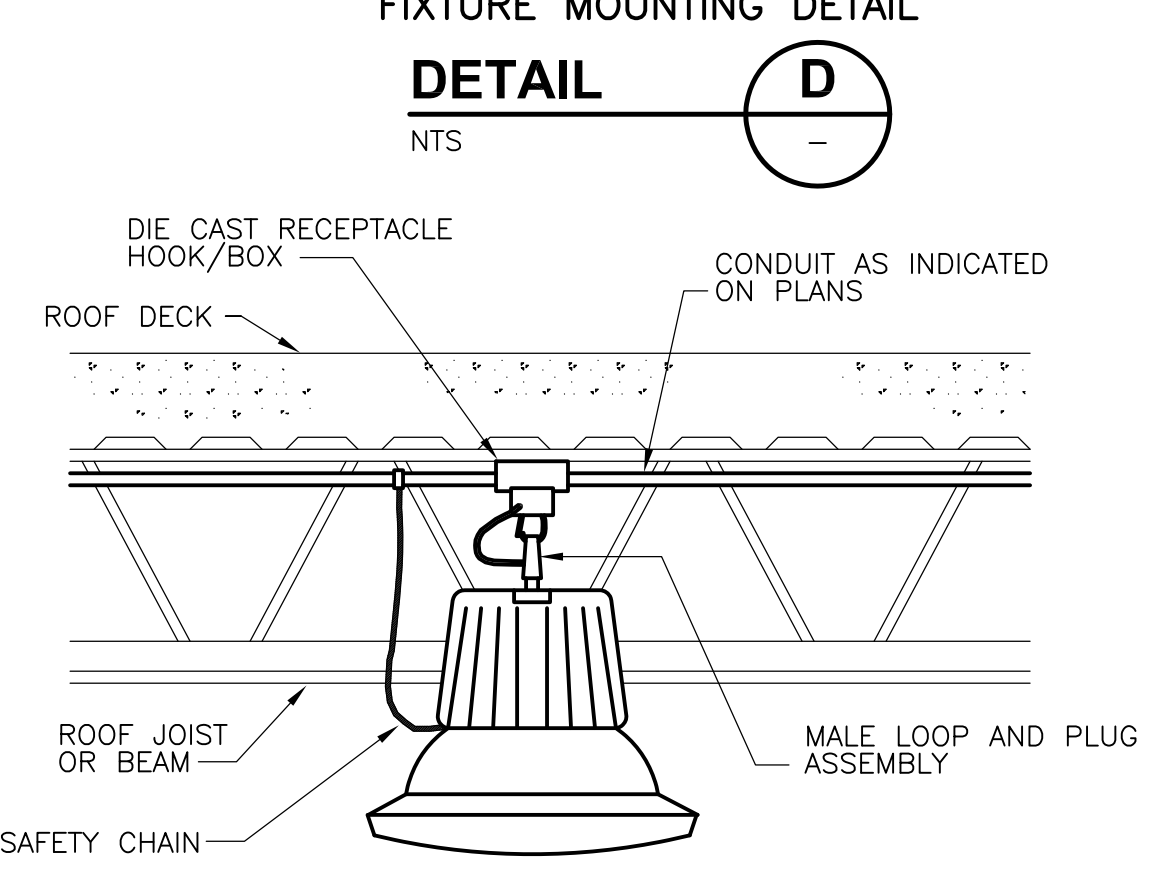
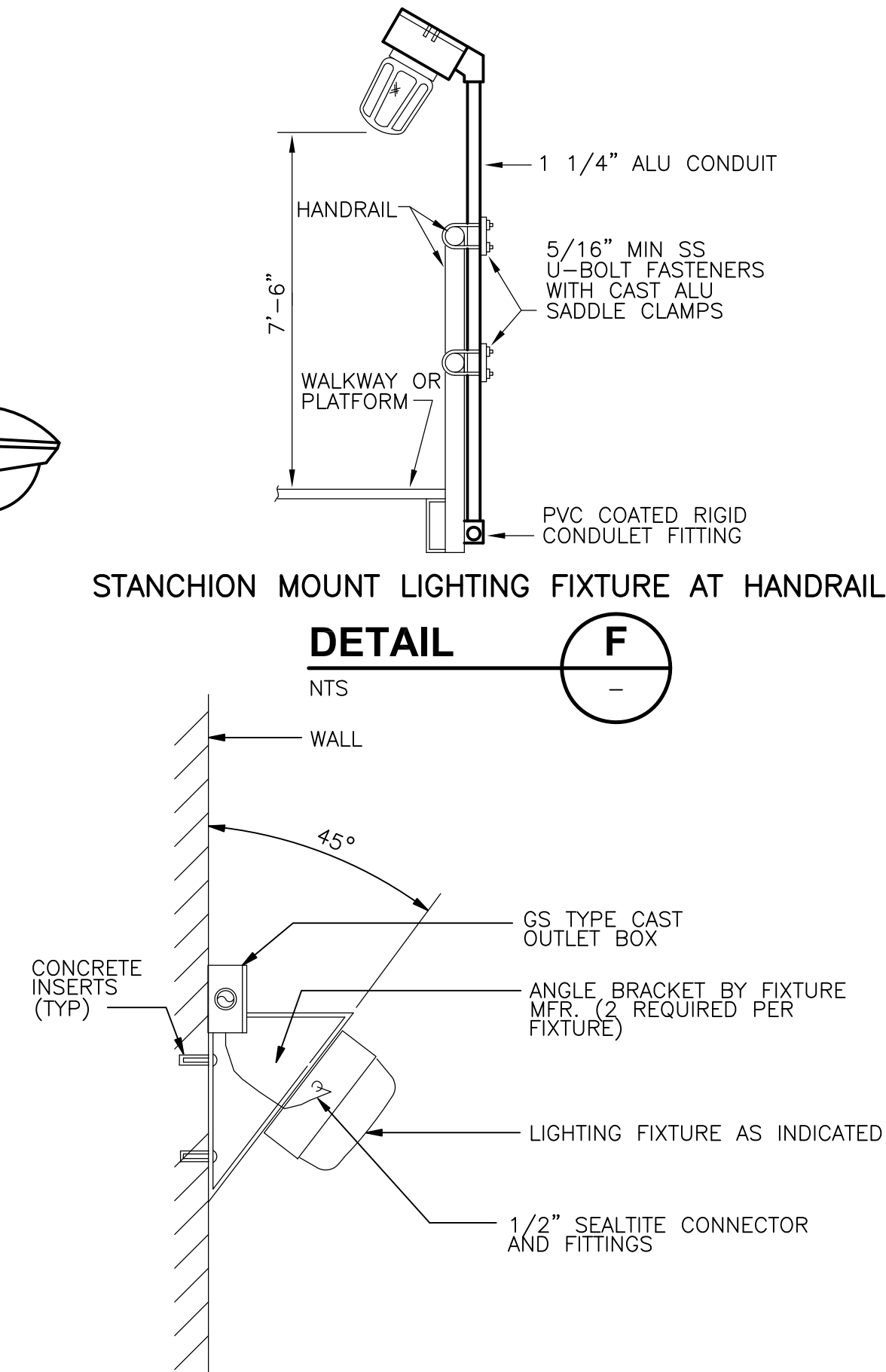
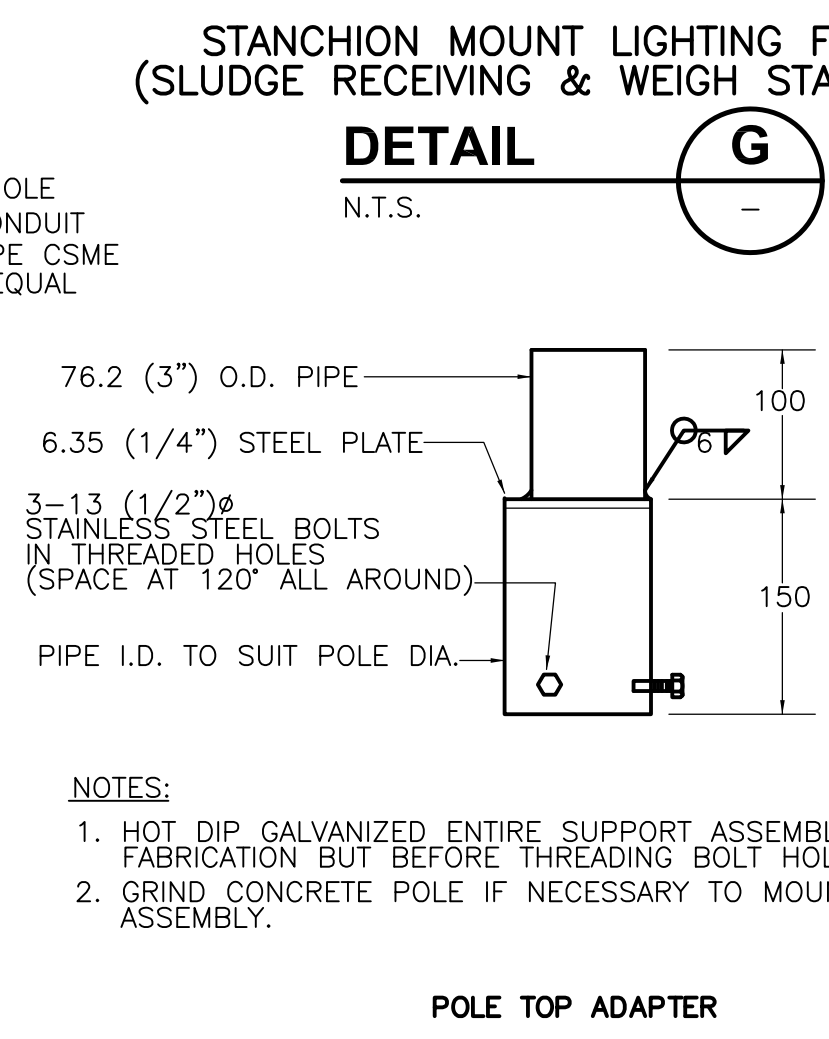
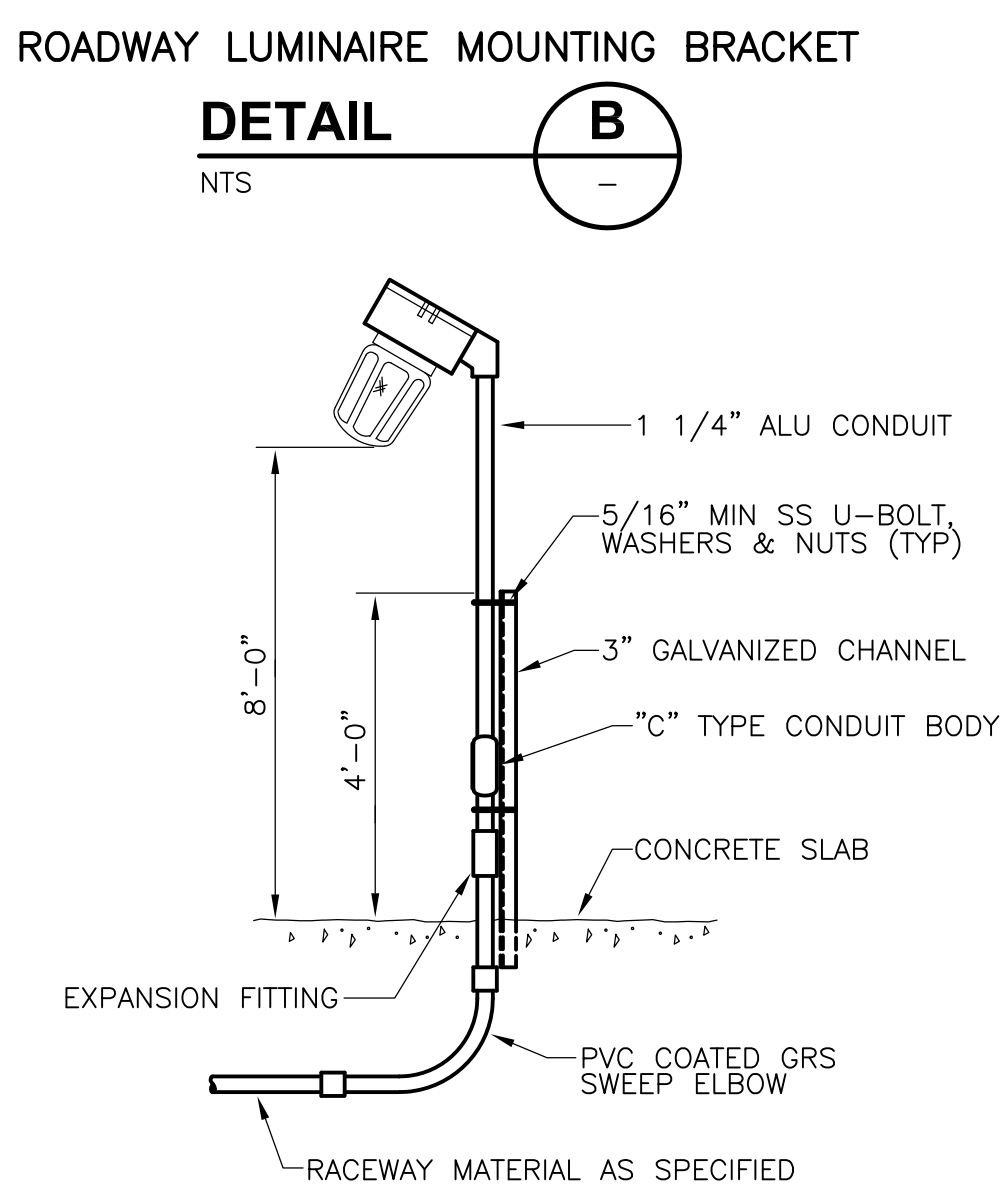
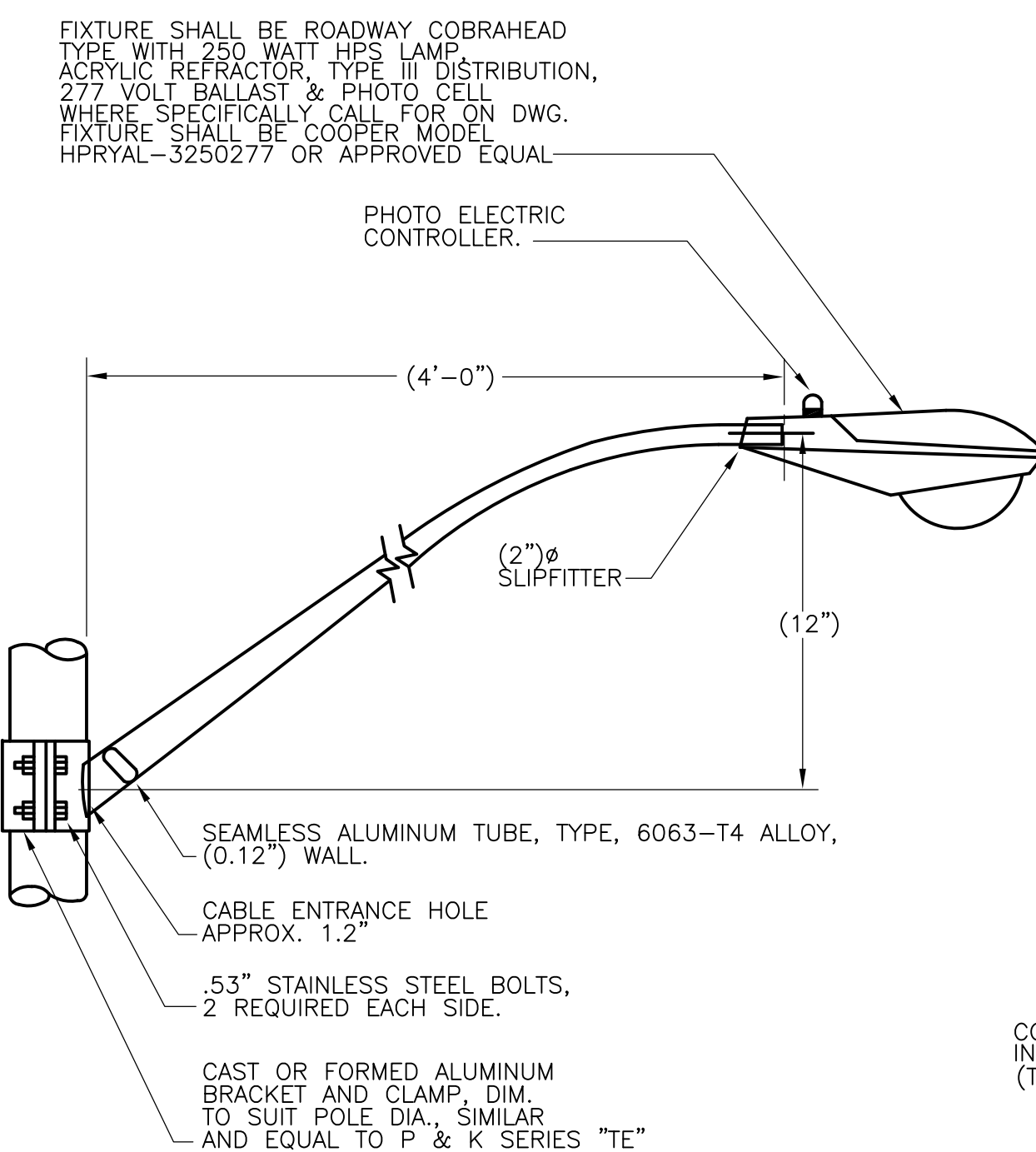
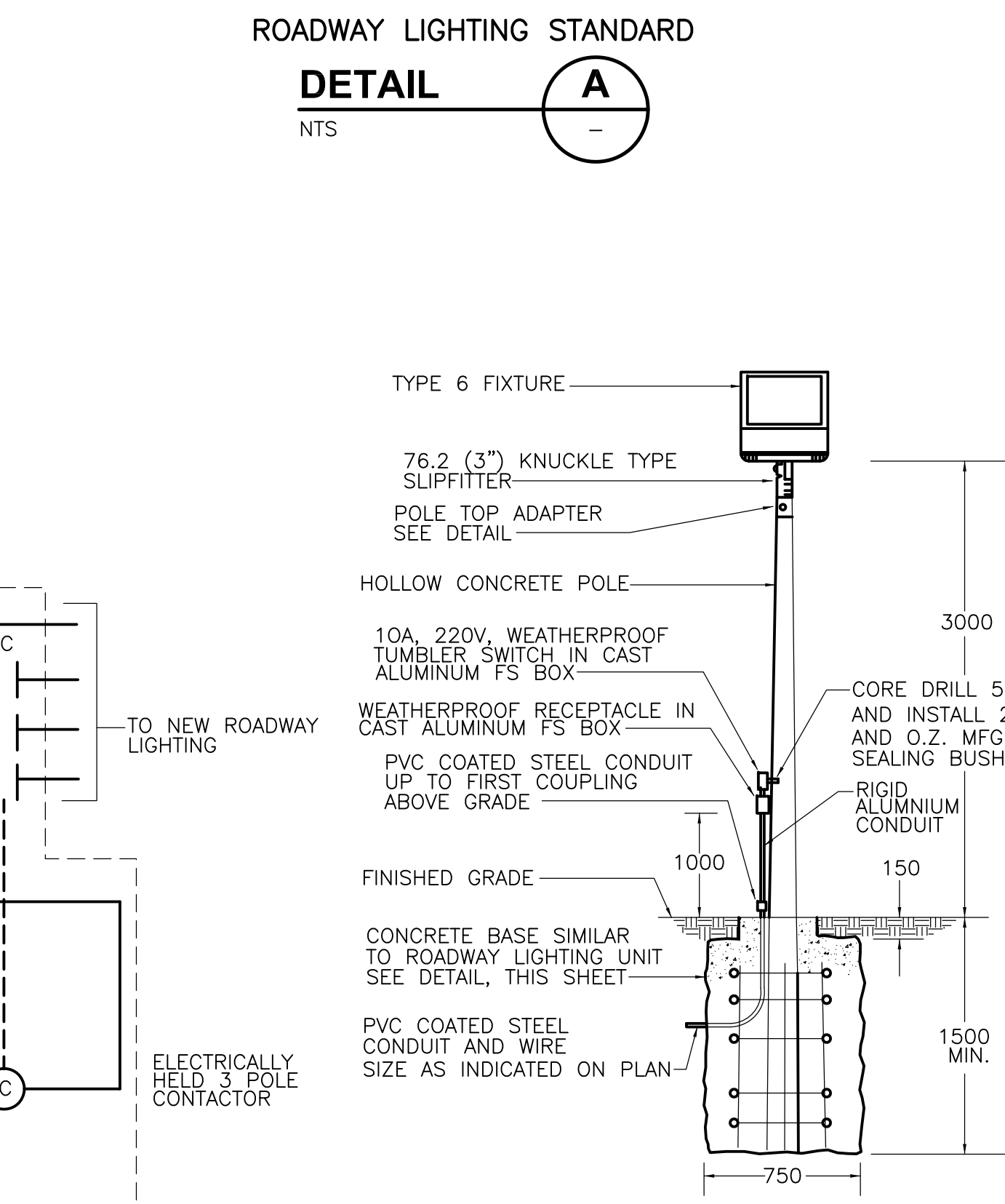
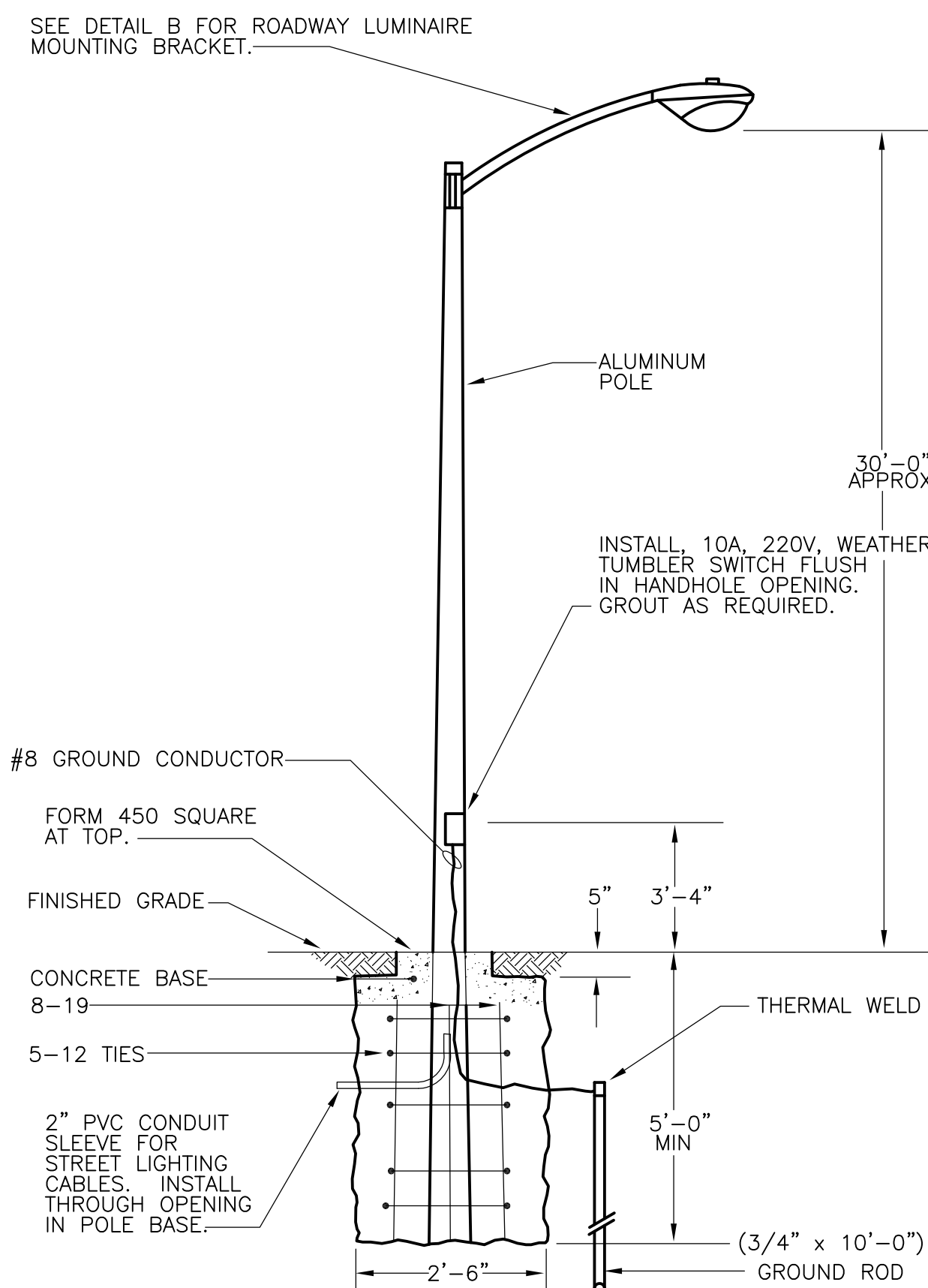
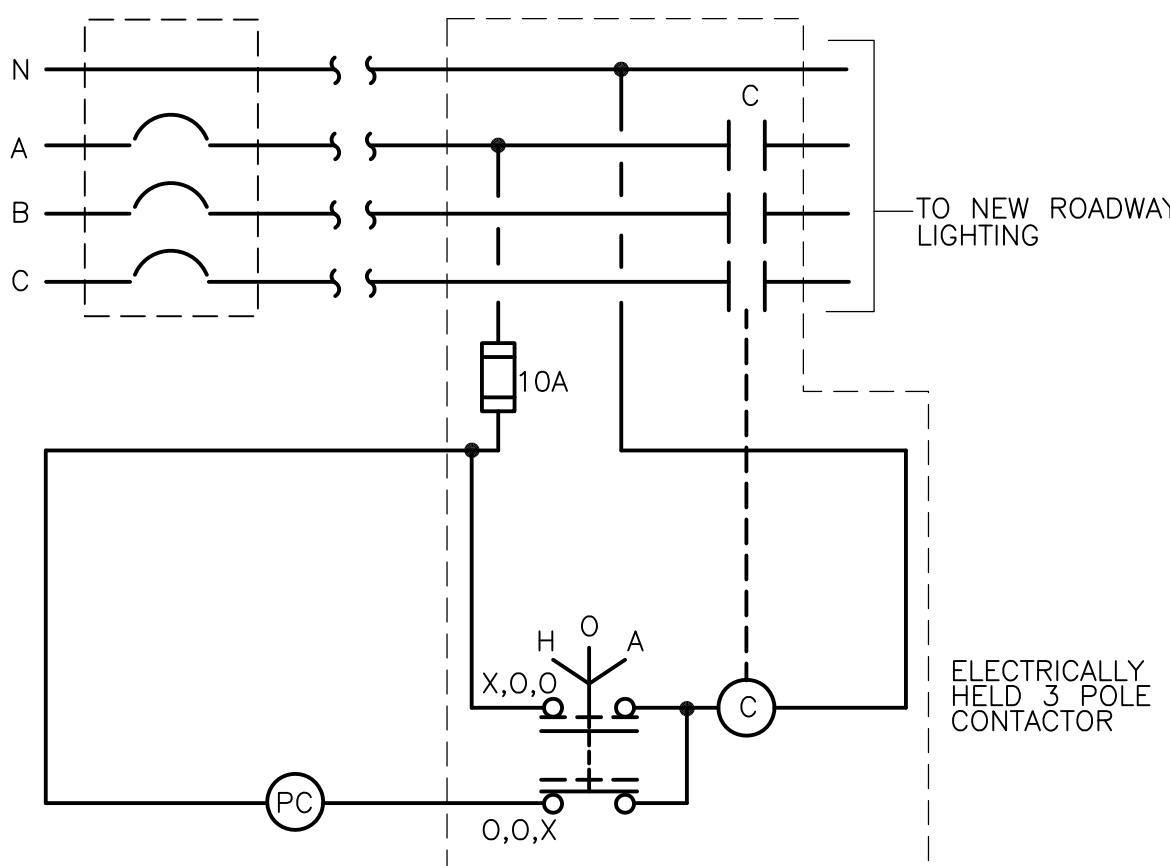
## EMERGENCY LIGHTING BATTERY UNITS & REMOTE HEADS

TYPE	DESCRIPTION	ACCEPTABLE MANUFACTURER'S CATALOG NUMBERS * ADD VOLTAGE				REMARKS
		EMERGI-LITE	LITHONIA	CHLORIDE		
BU1	12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, 100 WATT MINIMUM CAPACITY, VOLTMETER, NO HEADS, NEMA 1 & 12	EMERGI-LITE 12LS SERIES	LITHONIA ELT SERIES	CHLORIDE TLC SERIES		BAKED ENAMEL HOUSING NOTE 3 ON SD-E-1
BU2	12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, 100 WATT MINIMUM CAPACITY, VOLTMETER, TWO HEADS, NEMA 1 & 12	EMERGI-LITE 12LS SERIES	LITHONIA ELT SERIES	CHLORIDE TLC SERIES		BAKED ENAMEL HOUSING NOTE 3 ON SD-E-1
BU3	12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, 100 WATT MINIMUM CAPACITY, VOLTMETER, TWO HEADS, NEMA 4 & 4X (FIBER GLASS ENCLOSURE)	EMERGI-LITE KSM SERIES	LITHONIA ELT SERIES	CHLORIDE TD2L SERIES		POLYCARBONATE HOUSING NOTE 3 ON SD-E-1
BU4	12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, 250 WATT MINIMUM CAPACITY, VOLTMETER, NO HEADS, NEMA 1 & 12	EMERGI-LITE 12LS SERIES	LITHONIA ELT SERIES	CHLORIDE TLC SERIES		BAKED ENAMEL HOUSING NOTE 3 ON SD-E-1
BU5	12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, 250 WATT MINIMUM CAPACITY, VOLTMETER, TWO HEADS, NEMA 1 & 12	EMERGI-LITE 12LS SERIES	LITHONIA ELT SERIES	CHLORIDE TLC SERIES		BAKED ENAMEL HOUSING NOTE 3 ON SD-E-1
BU6	12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, 250 WATT MINIMUM CAPACITY, VOLTMETER, TWO HEADS, NEMA 4 & 4X (FIBER GLASS ENCLOSURE)	EMERGI-LITE KSM SERIES	LITHONIA ELT SERIES	CHLORIDE TD2L SERIES		POLYCARBONATE HOUSING NOTE 3 ON SD-E-1
BU7	12-VOLT CEILING MOUNTED MAINTENANCE FREE LEAD CALCIUM UNIT WITH TWO ADJUSTABLE HEADS, VOLTMETER, NEMA 1	EMERGI-LITE 12XC SERIES	DUAL-LITE XPB SERIES	LITHONIA ELM SERIES	CHLORIDE CR SERIES	METAL CHASSIS PLASTIC COVER NOTE 3 ON SD-E-1
XU1	12-VOLT MAINTENANCE FREE NICKEL CADMIUM BATTERY UNIT, 100 WATT CAPACITY, AND CHARGER FOR REMOTE FIXTURE APPLICATIONS, EXPLOSION-PROOF	EMERGI-LITE 12EXC SERIES	DUAL-LITE XPB SERIES	LITHONIA ZX SERIES		
XU2	12-VOLT MAINTENANCE FREE NICKEL CADMIUM BATTERY UNIT, 100 WATT CAPACITY, CHARGER, TRANSFER PANEL TO OPERATE EXIT SIGNS IN NORMAL AND EMERGENCY MODES, EXPLOSION-PROOF	EMERGI-LITE EXOTSXP SERIES	DUAL-LITE XPB SERIES	LITHONIA ELAZX SERIES		
XU3	12-VOLT MAINTENANCE FREE NICKEL CADMIUM BATTERY UNIT, WITH TWO HEADS 100 WATT CAPACITY, CHARGER, TRANSFER PANEL TO OPERATE EXIT SIGNS IN NORMAL AND EMERGENCY MODES, EXPLOSION-PROOF	EMERGI-LITE EXOTSXP SERIES	DUAL-LITE XPB SERIES	LITHONIA ELAZX SERIES		
BUEX	12-VOLT COMBINATION NICKEL CADMIUM BATTERY UNIT WITH TWO 8-WATT HALOGEN LAMPS AND LED SINGLE FACE EXIT SIGN, WALL MOUNTED, 120 VOLT INPUT, DAMP LOCATIONS	LITHONIA LHOM-S-WQ RW-120-H-N	DUAL-LITE NWRW SERIES	HOLOPHANE MAST SERIES EPN-1-1-R-W		
RH1	9 WATT, 12 VOLT HALOGEN, REMOTE, ADJUSTABLE WALL LIGHTING HEAD	EMERGI-LITE EF-9	LITHONIA ELAH-1212	CHLORIDE IBMG1		
RH2	9 WATT, 12 VOLT TWIN HALOGEN, REMOTE ADJUSTABLE LIGHTING HEADS	EMERGI-LITE EF-9D	LITHONIA ELAH2-1212	CHLORIDE 2-IBMG2		
RH3	18WATT, 12 VOLT, REMOTE CEILING MOUNTED LIGHTING HEAD	EMERGI-LITE EF-13	LITHONIA ELA-RR	CHLORIDE V-12-21-1		
RH4	9 WATT, 12-VOLT, TWIN HALOGEN, REMOTE ADJUSTABLE WALL LIGHTING HEADS, SUITABLE FOR WEATHER-PROOF APPLICATIONS	EMERGI-LITE EF-11D	DUAL-LITE EXT-05	CHLORIDE MP-1-WP	LITHONIA NX	
XH1	12 WATT, 12-VOLT, HALOGEN, REMOTE ADJUSTABLE WALL LIGHTING HEAD FOR CLASS 1, DIVISION 1, HAZARDOUS AREA	EMERGI-LITE 12FEP1HGRD-12"	SURE-LITES 12X15HZB	CHLORIDE EVLA12	LITHONIA ZX	
XH2	12 WATT, 12-VOLT, TWIN HALOGEN, REMOTE ADJUSTABLE WALL LIGHTING HEAD FOR CLASS 1, DIVISION 1, HAZARDOUS AREA	EMERGI-LITE 12FEP2HGRD-12"	SURE-LITES 2-12X15HZB	CHLORIDE EVLA12	LITHONIA ZX	

NOTES:  
 1. REFER TO LIGHTING FIXTURE OPERATION AND MAINTENANCE MANUAL FOR EXACT FIXTURE INFORMATION.

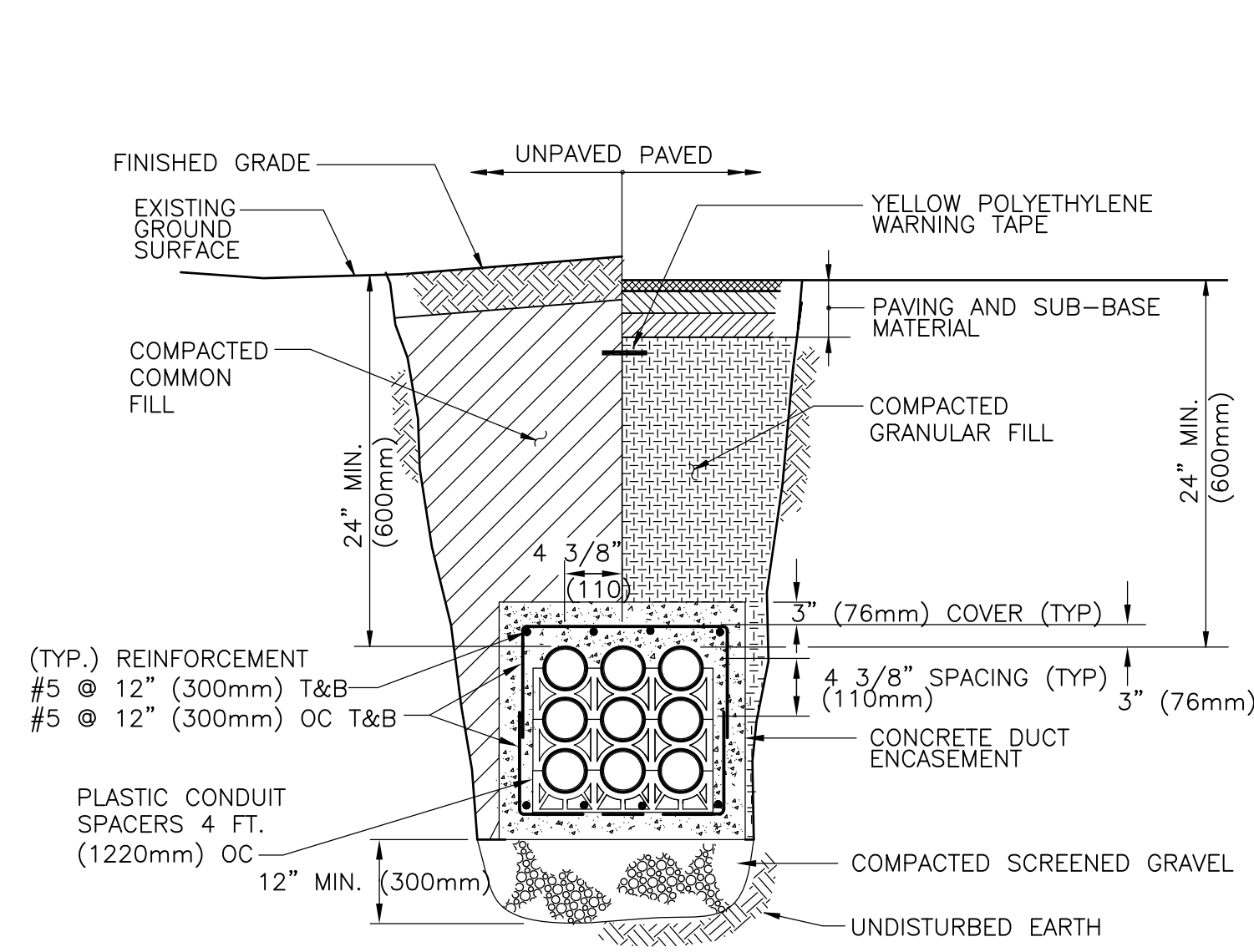


NOTES:  
 1. SENSORS SHALL BE LOCATED A MINIMUM OF 6 FEET FROM HVAC DIFFUSERS.  
 2. ONE POWER PACK IS REQUIRED FOR EACH LIGHTING BRANCH CIRCUIT.  
 3. CONTRACTOR IS RESPONSIBLE FOR INSTALLING SENSORS AND POWER PACKS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE CODES.



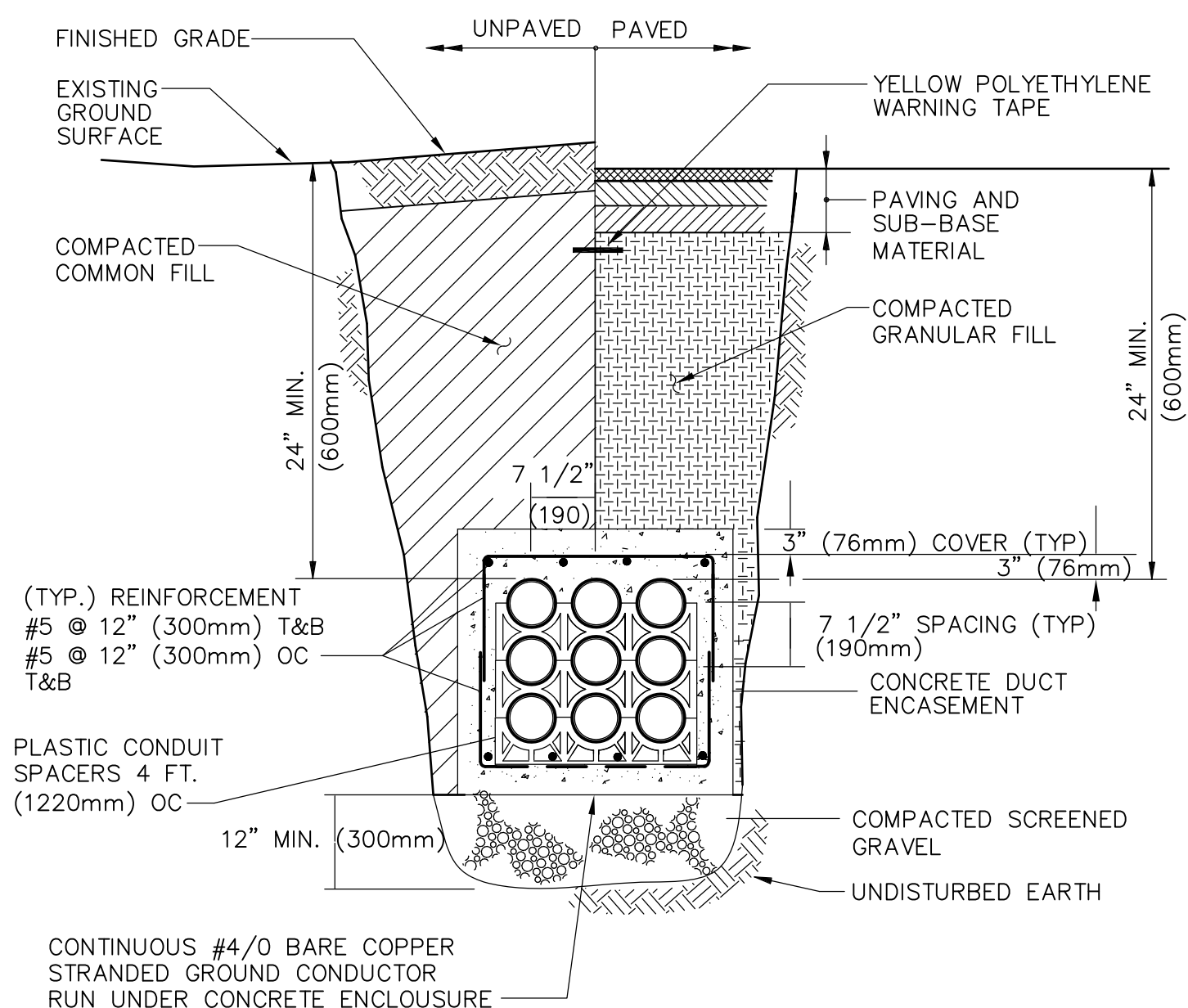
RECORD DRAWING

	CADD FILE NO. <u>ELT\SCH02.DWG</u>		<b>CDM</b> Camp Dresser & McKee Inc.	UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. UB 2024	PROJECT NO. 1289\35370
	DESIGNED BY: <u>JAR</u>			<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>	Sht. 384 of 386
	DRAWN BY: <u>JAR</u>				<b>SD-E-2</b>
	SHEET CHK'D BY: <u>BDS</u>				ACCESSION NO. 1289-65784
	SCALE: <u>AS NOTED</u>				
	APPROVED BY: <u>B. SQUIBB</u>				
	DATE: <u>MAY 2006</u>				
REV. NO.	DATE	DRWN	CHKD	REMARKS	
3/07	SPV	ADT		REVISED FOR THE RECORD	



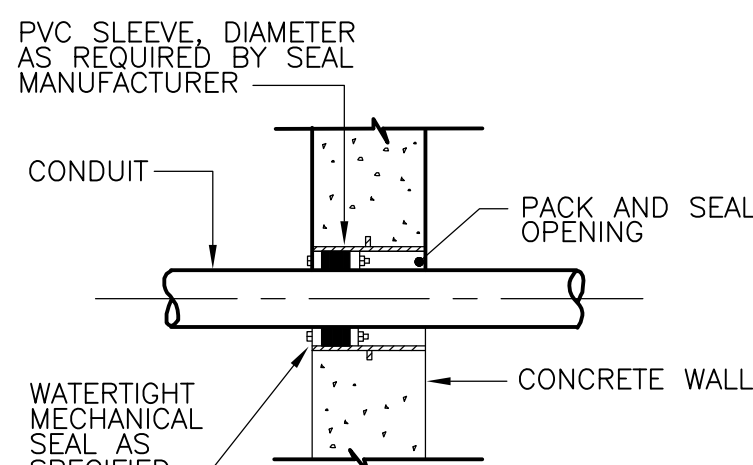
UNDERGROUND SIGNAL DUCT BANK

**DETAIL A**  
 NTS



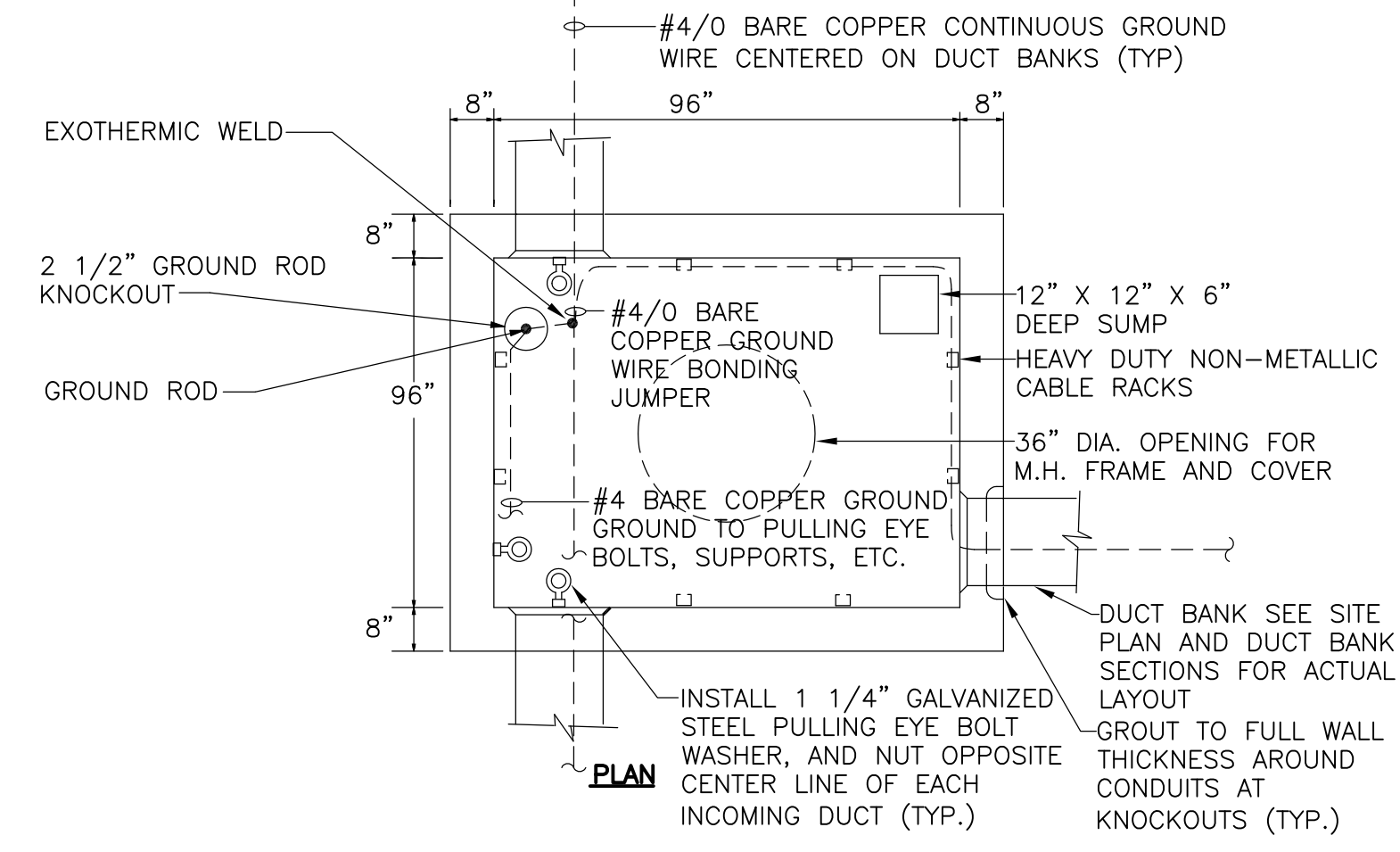
UNDERGROUND POWER DUCT BANK

**DETAIL B**  
 NTS



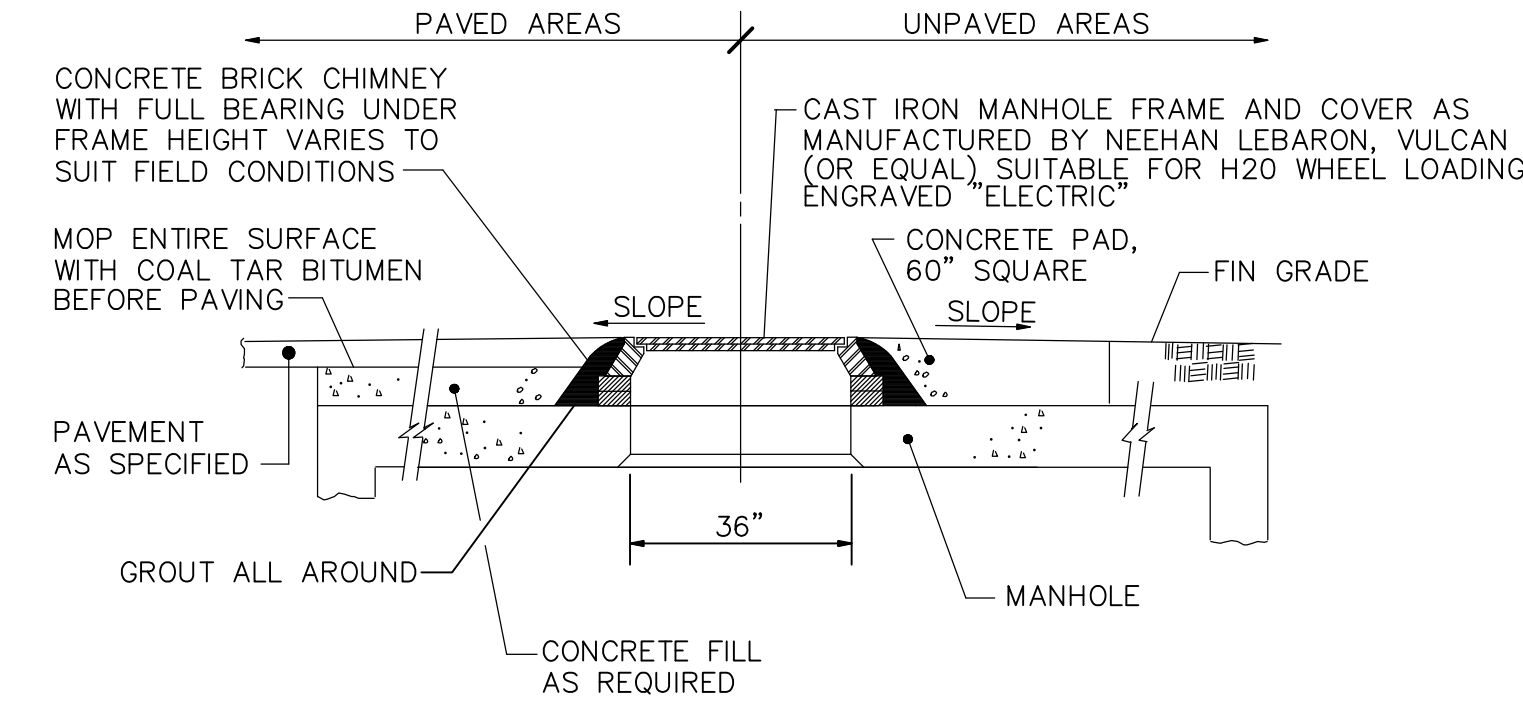
WATERTIGHT CONDUIT PENETRATION

**DETAIL H**  
 NTS



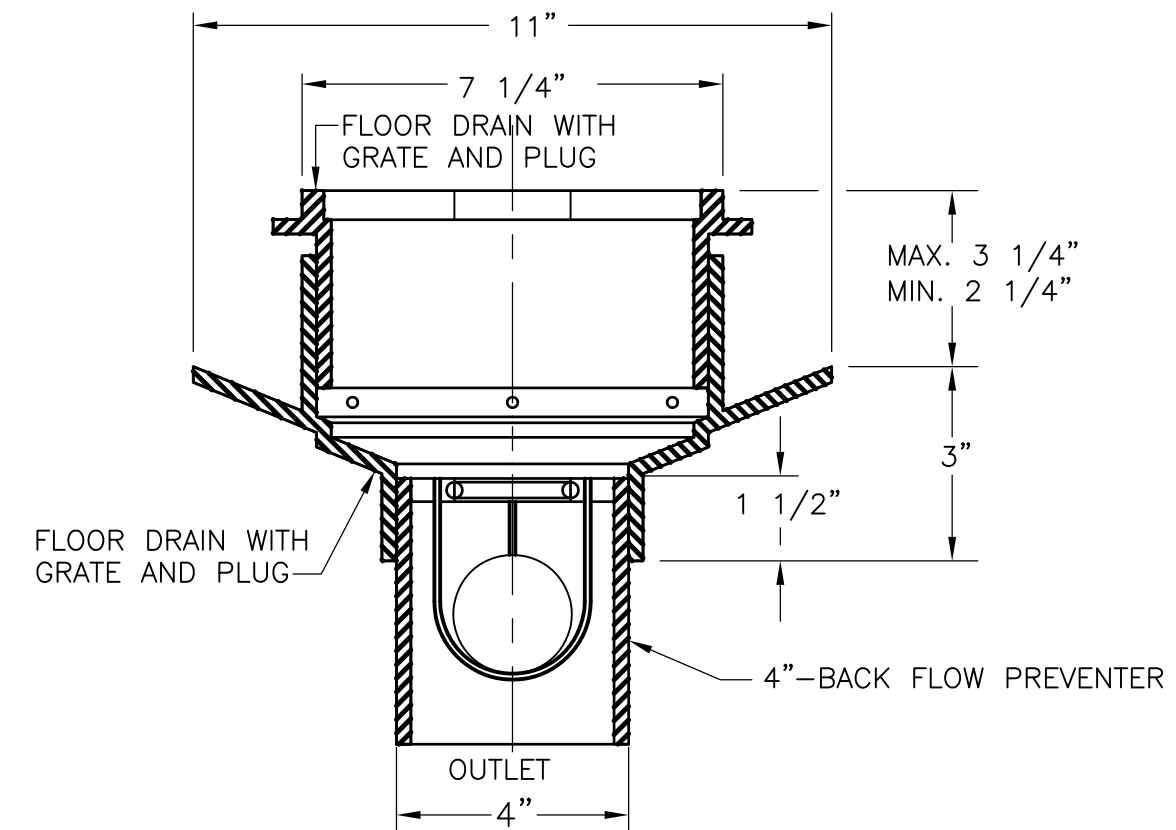
TYPICAL SIGNAL (C) MANHOLE DETAIL (AS SHOWN)  
 TYPICAL 15KV (H), 480V (P) MANHOLE DETAIL (INTERIOR DIMENSIONS: 72"X72"X78")

**DETAIL C**  
 N.T.S.



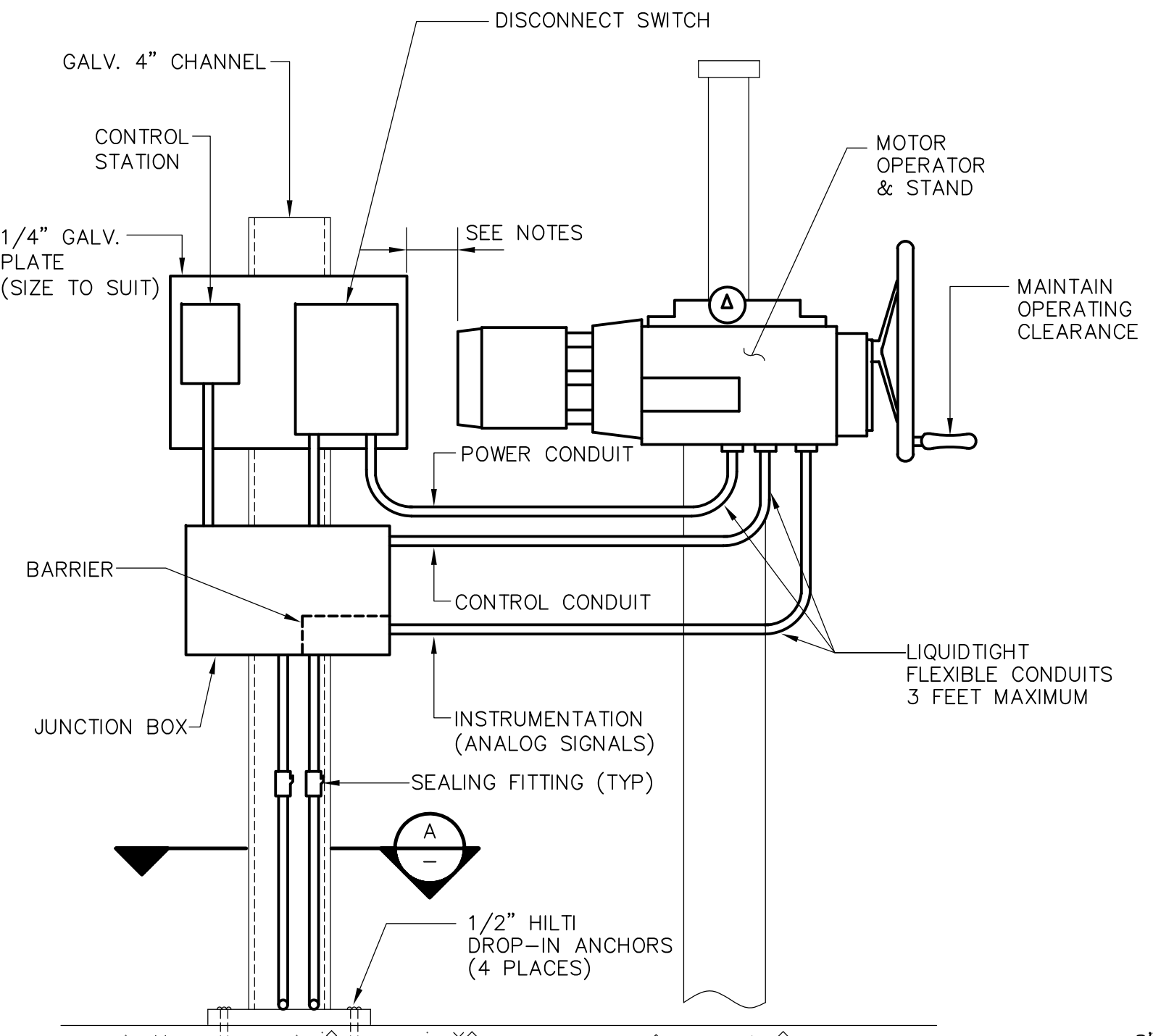
MANHOLE FRAME AND COVER

**DETAIL D**  
 NTS



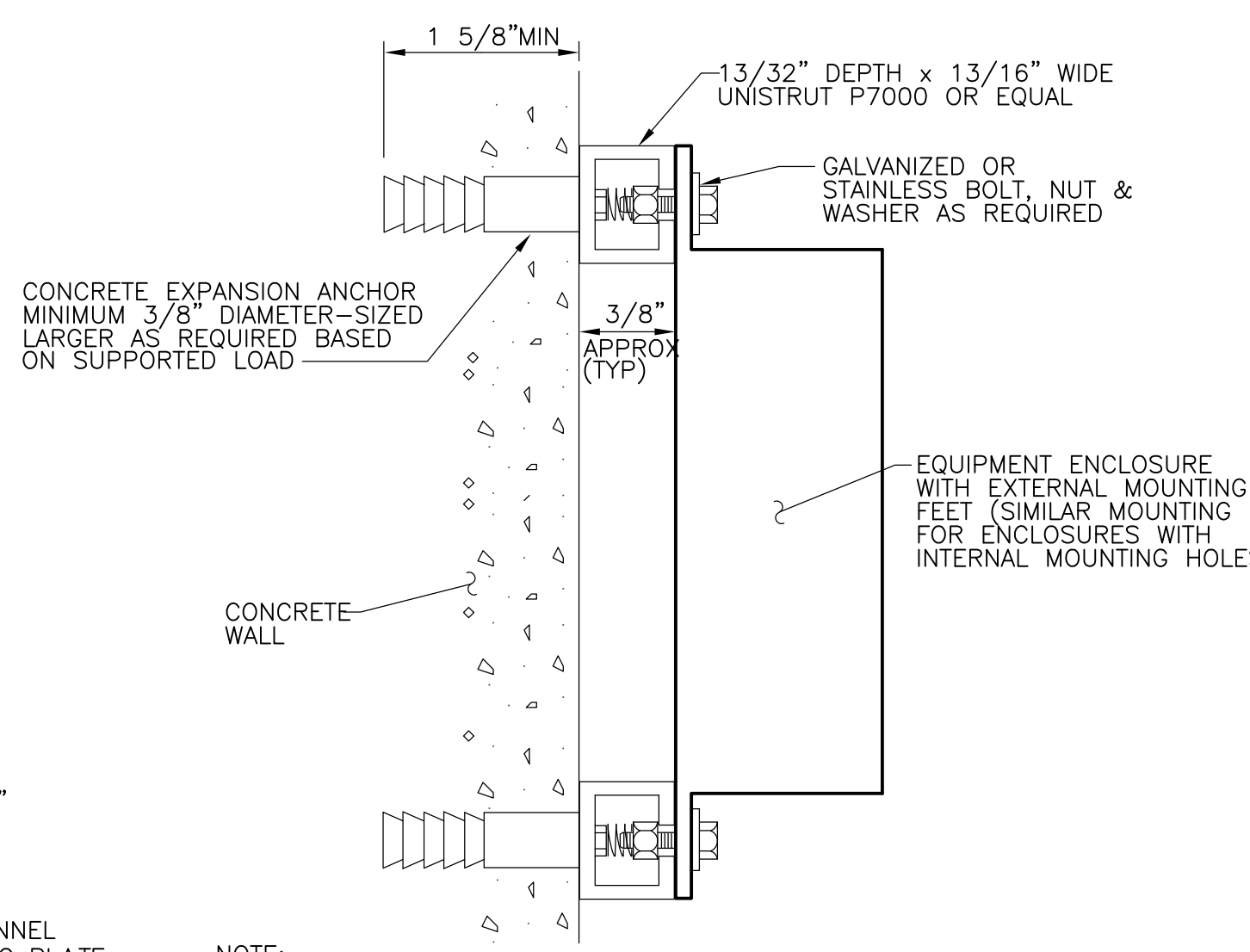
FLOOR DRAIN WITH GRATE AND PLUG 4" - BACK FLOW PREVENTER

**DETAIL I**  
 NTS



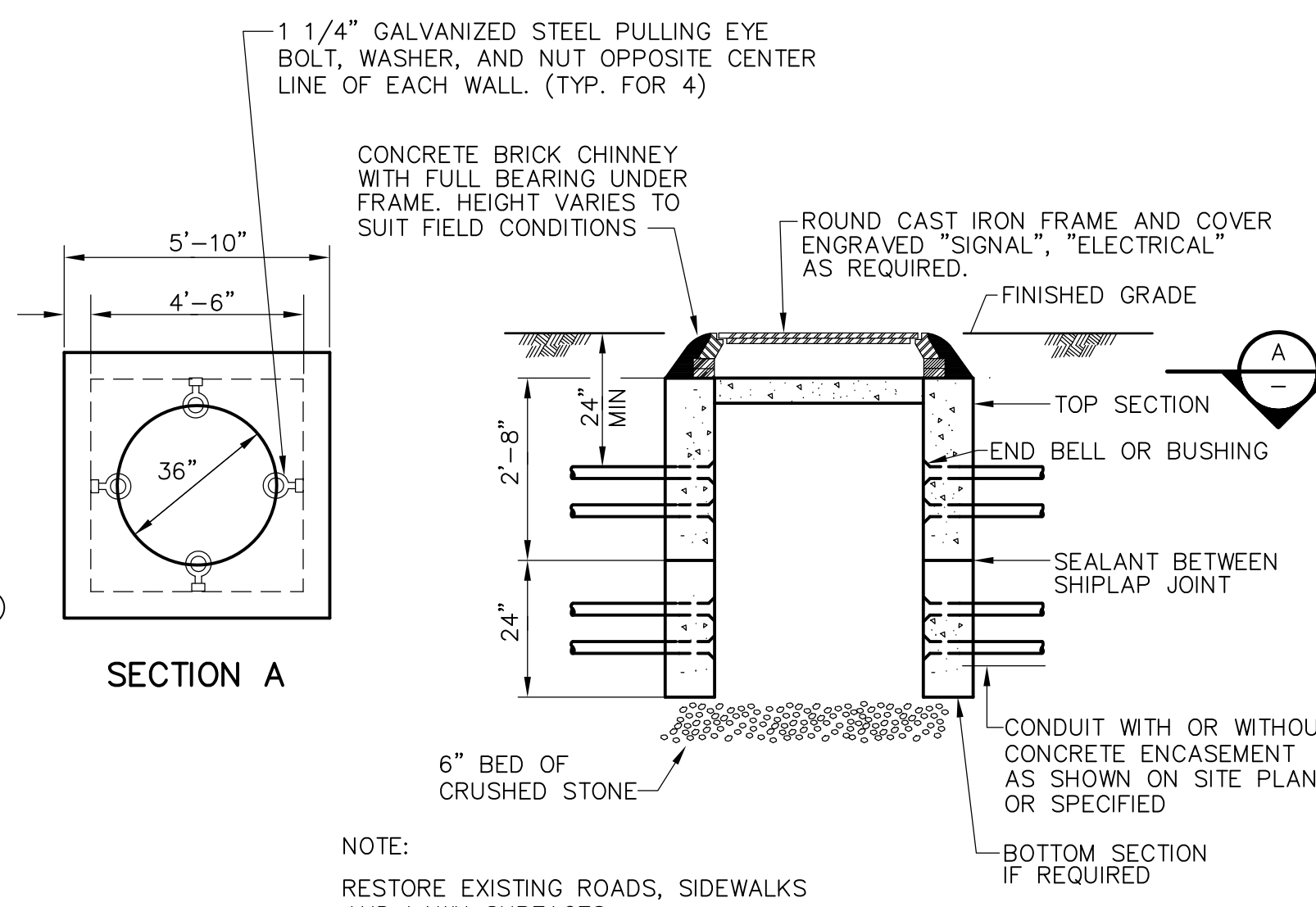
MOTOR OPERATED ACTUATOR CONNECTION

**DETAIL E**  
 NTS



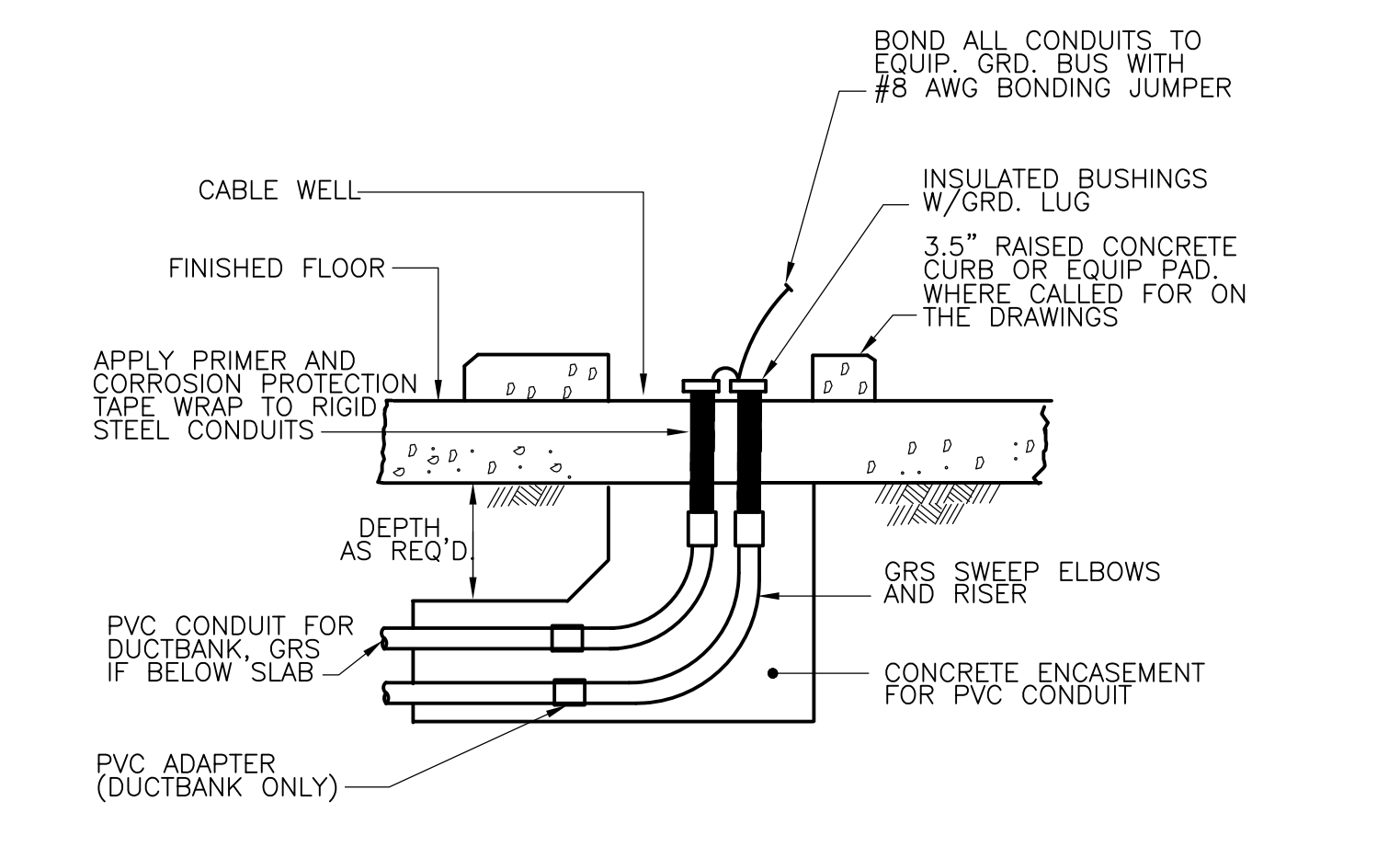
EQUIPMENT ENCLOSURE MOUNTING ON CONCRETE WALL

**DETAIL F**  
 NTS



ELECTRICAL HANDHOLE  
 (3 OR MORE CONDUITS PER SIDE)

**DETAIL G**  
 N.T.S.



TYPICAL CONDUIT STUB-UP FROM BELOW FLOOR SLAB

**DETAIL J**  
 NTS

NOTE:  
 ORIENT MOTOR OPERATOR AND CONTROL STATION STAND AS REQUIRED TO:  
 - ALLOW MAINTENANCE CLEARANCE TO MOTOR OPERATOR  
 - ALLOW ACCESS TO HAND WHEEL

NOTE:  
 APPLICABLE FOR ALL NON CAST-IRON ENCLOSURES OR BOXES

NOTE:  
 RESTORE EXISTING ROADS, SIDEWALKS  
 AND LAWN SURFACES

BOND ALL CONDUITS TO  
 EQUIP. GRD. BUS WITH  
 #8 AWG BONDING JUMPER

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	EDTL001.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
 consulting  
 engineering  
 construction  
 operations

UPPER BLACKSTONE  
 WATER POLLUTION ABATEMENT DISTRICT  
 CONTRACT No. UB 2024

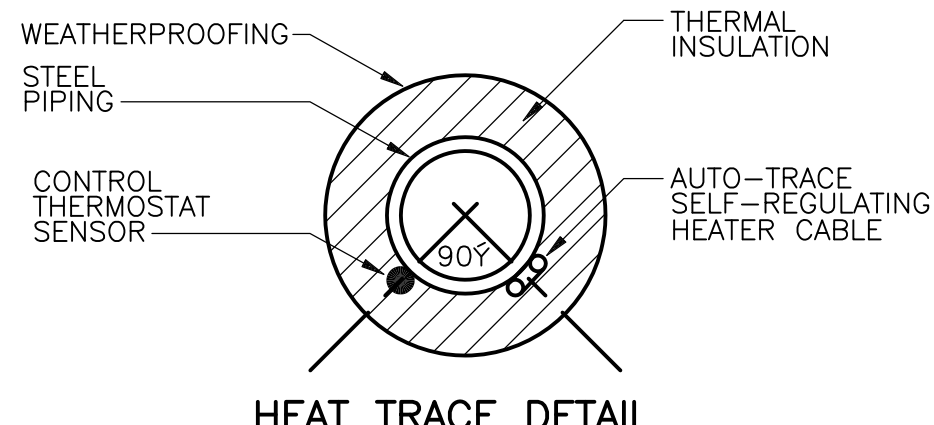
**WASTEWATER TREATMENT FACILITY  
 IMPROVEMENTS**

PROJECT NO.  
 1289\35370

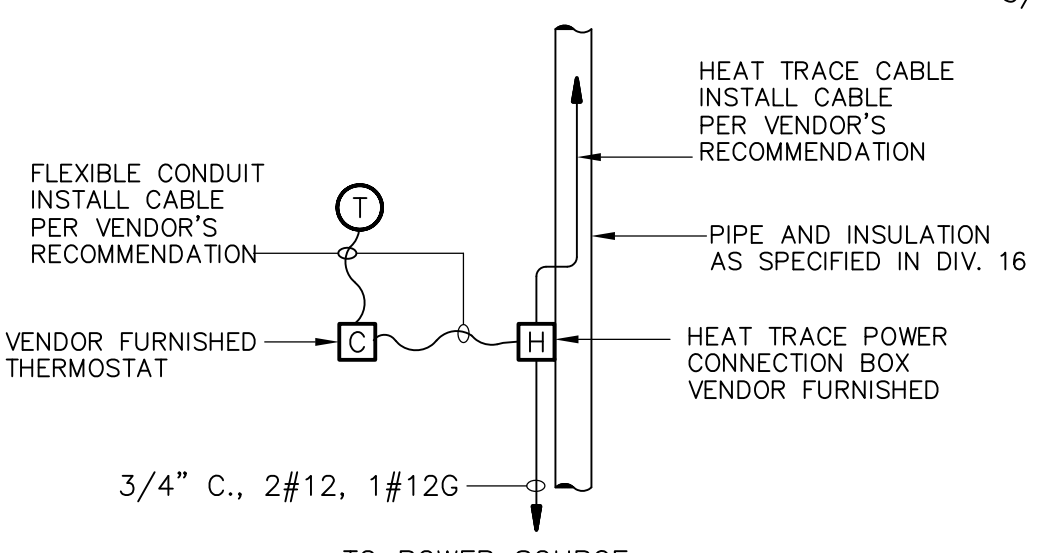
Sht. 385 of 386

**ELECTRICAL DETAILS I**

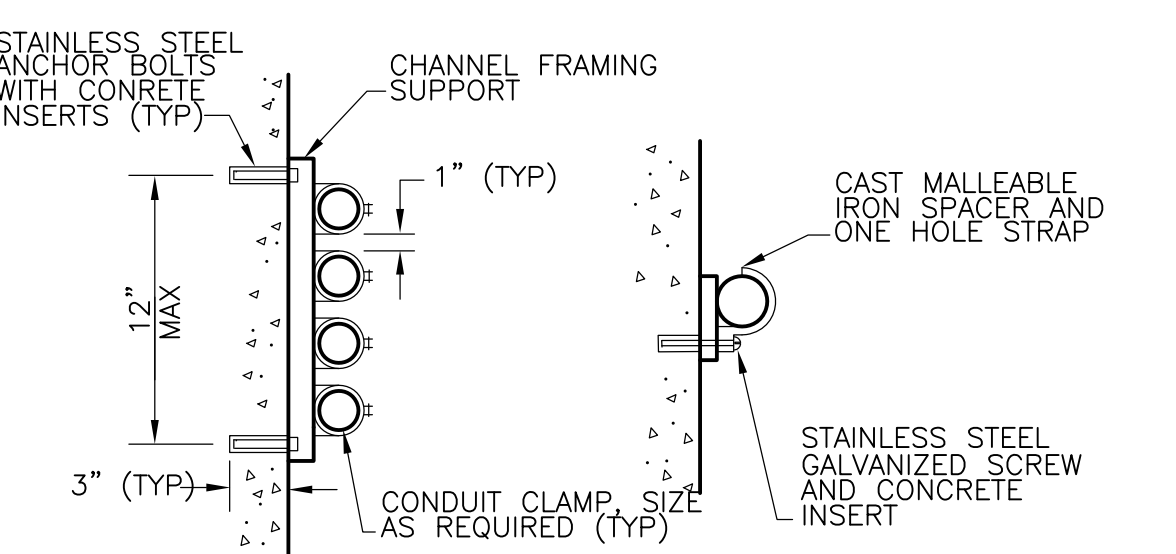
**SD-E-3**



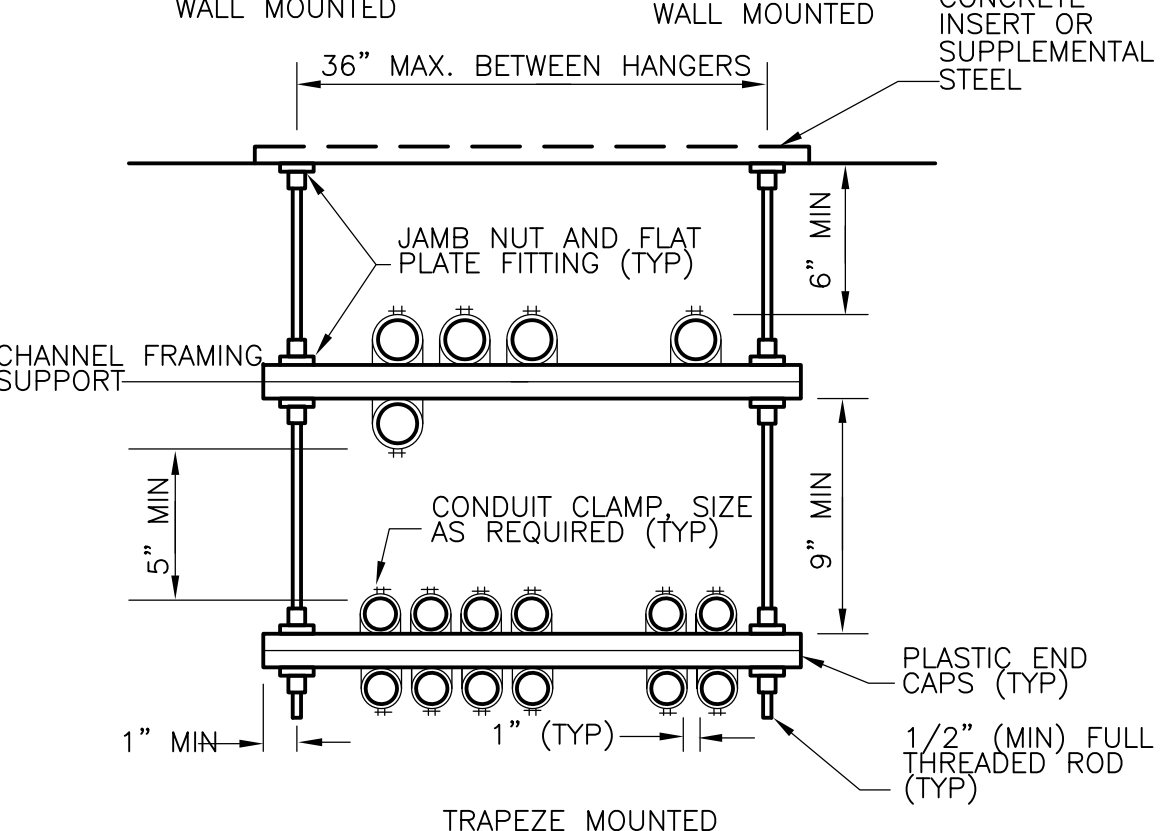
**HEAT TRACE DETAIL**  
DETAIL A  
NTS



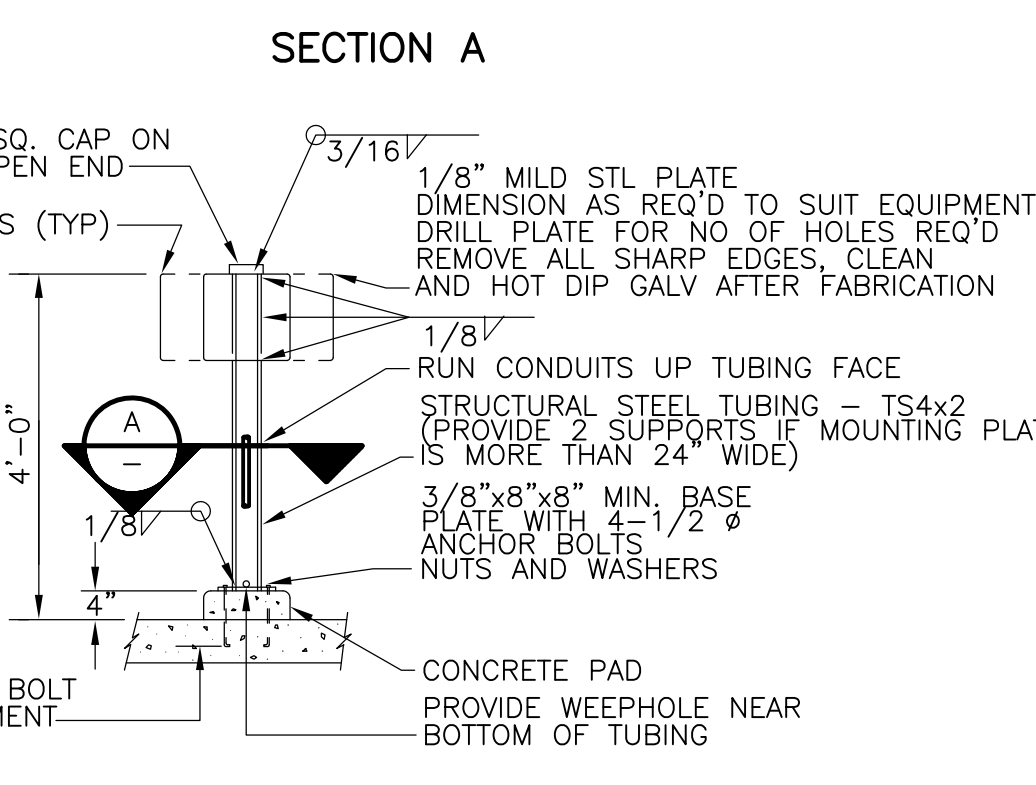
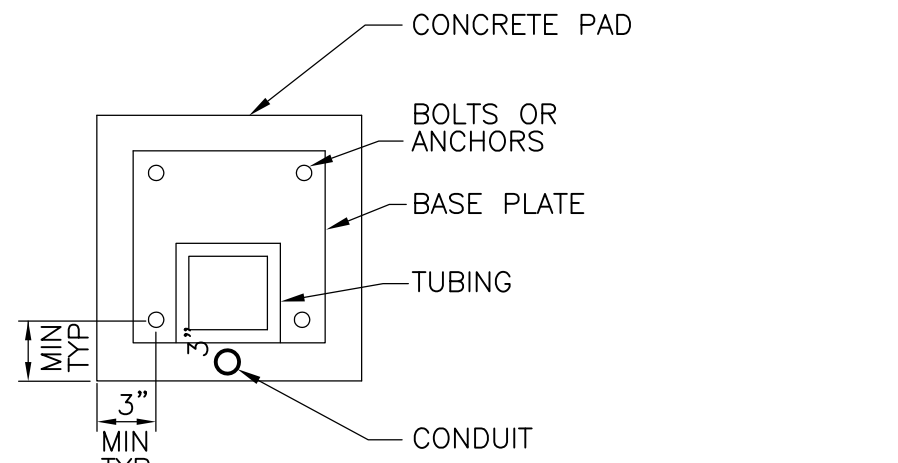
**HEAT TRACE CONNECTION WIRING DIAGRAM**  
DETAIL B  
NTS



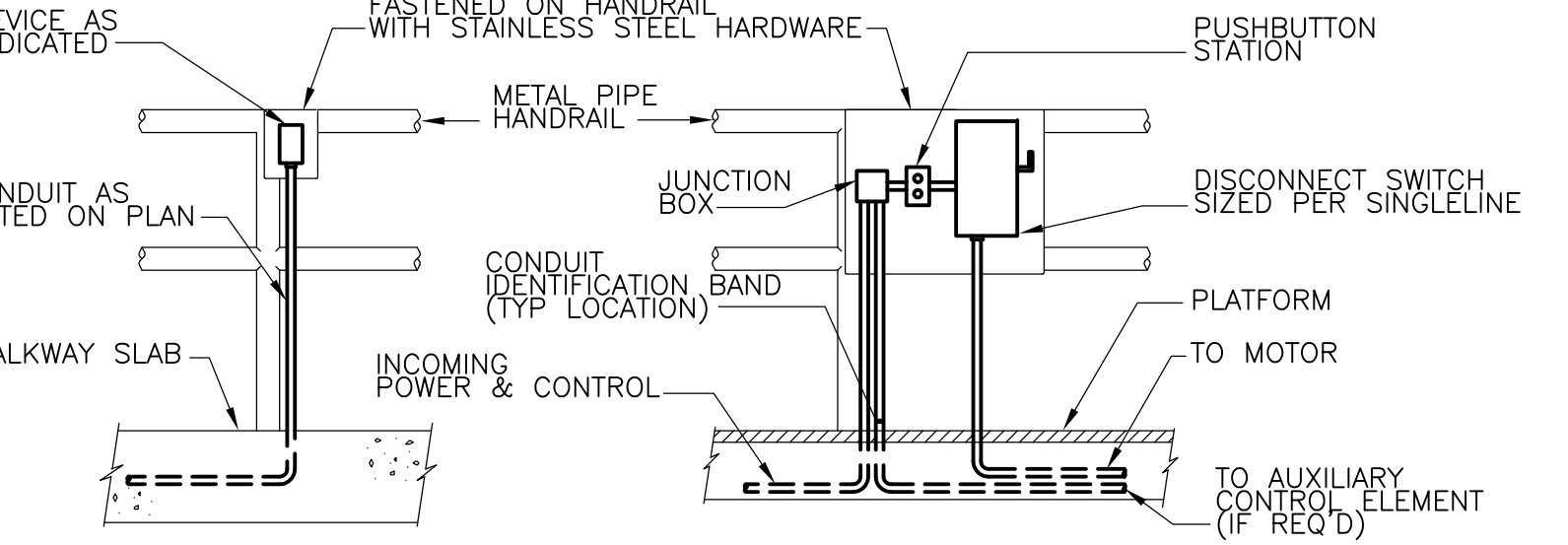
**CONDUIT MOUNTING**  
DETAIL C  
NTS



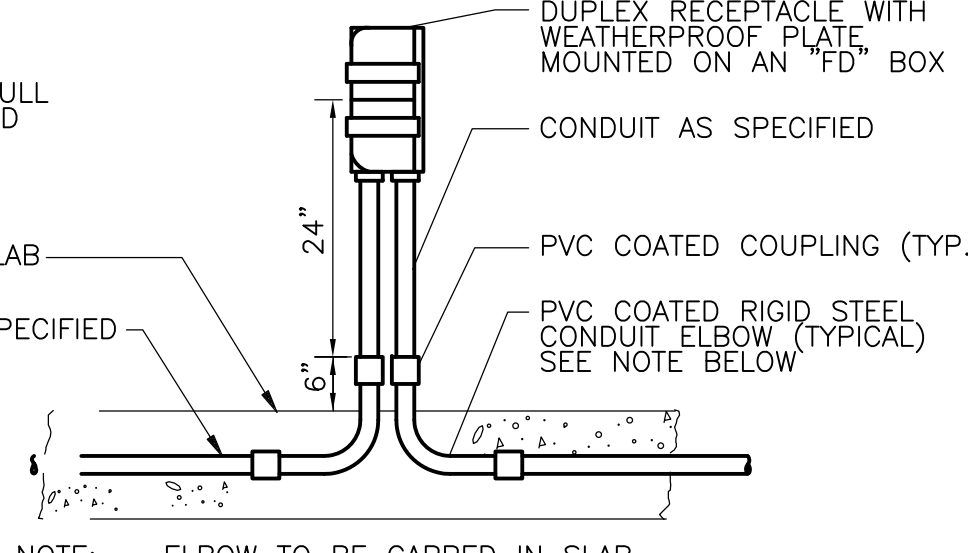
**CONDUIT MOUNTING**  
DETAIL C  
NTS



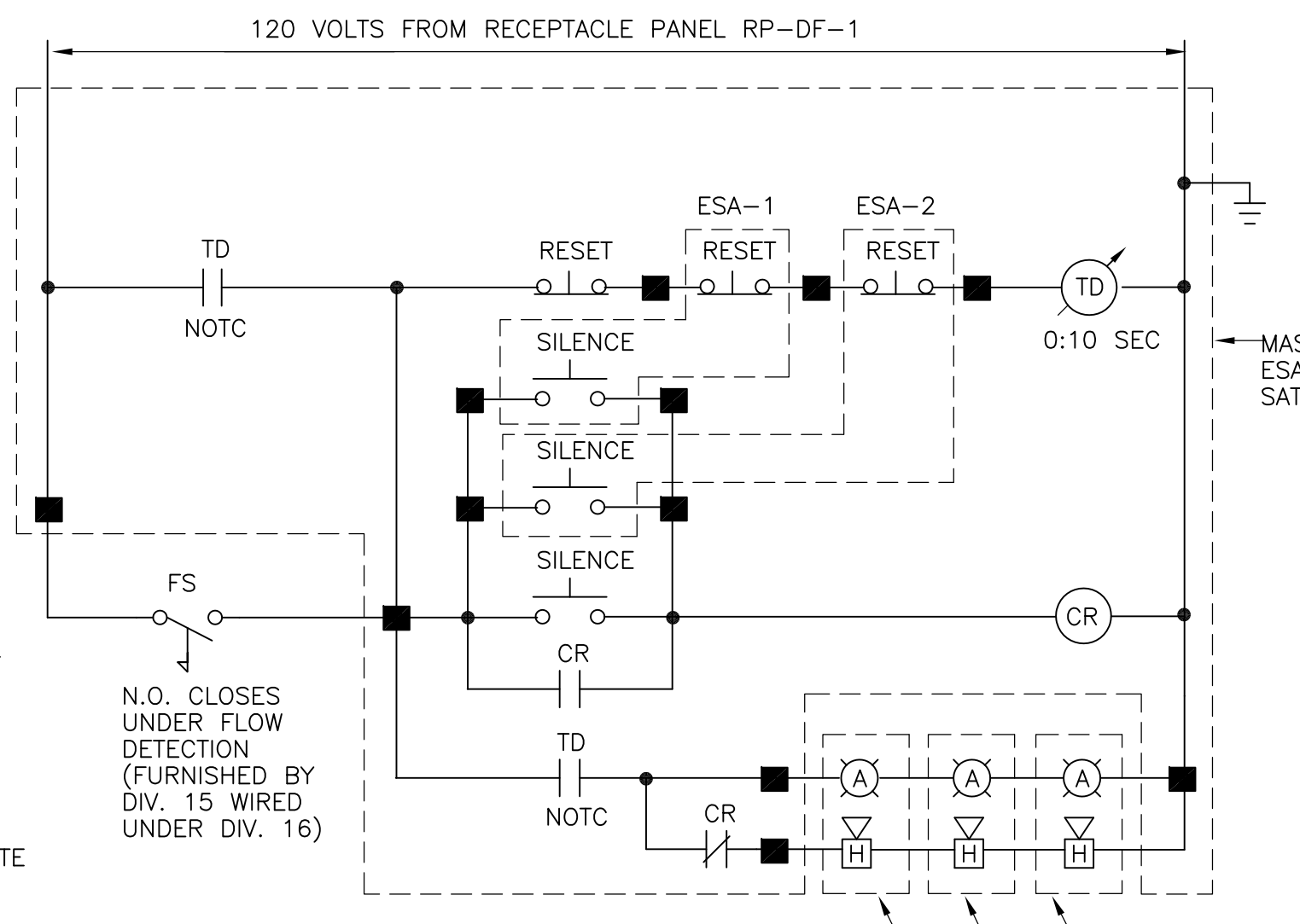
**CONTROL STATION MOUNTING STAND**  
DETAIL D  
NTS



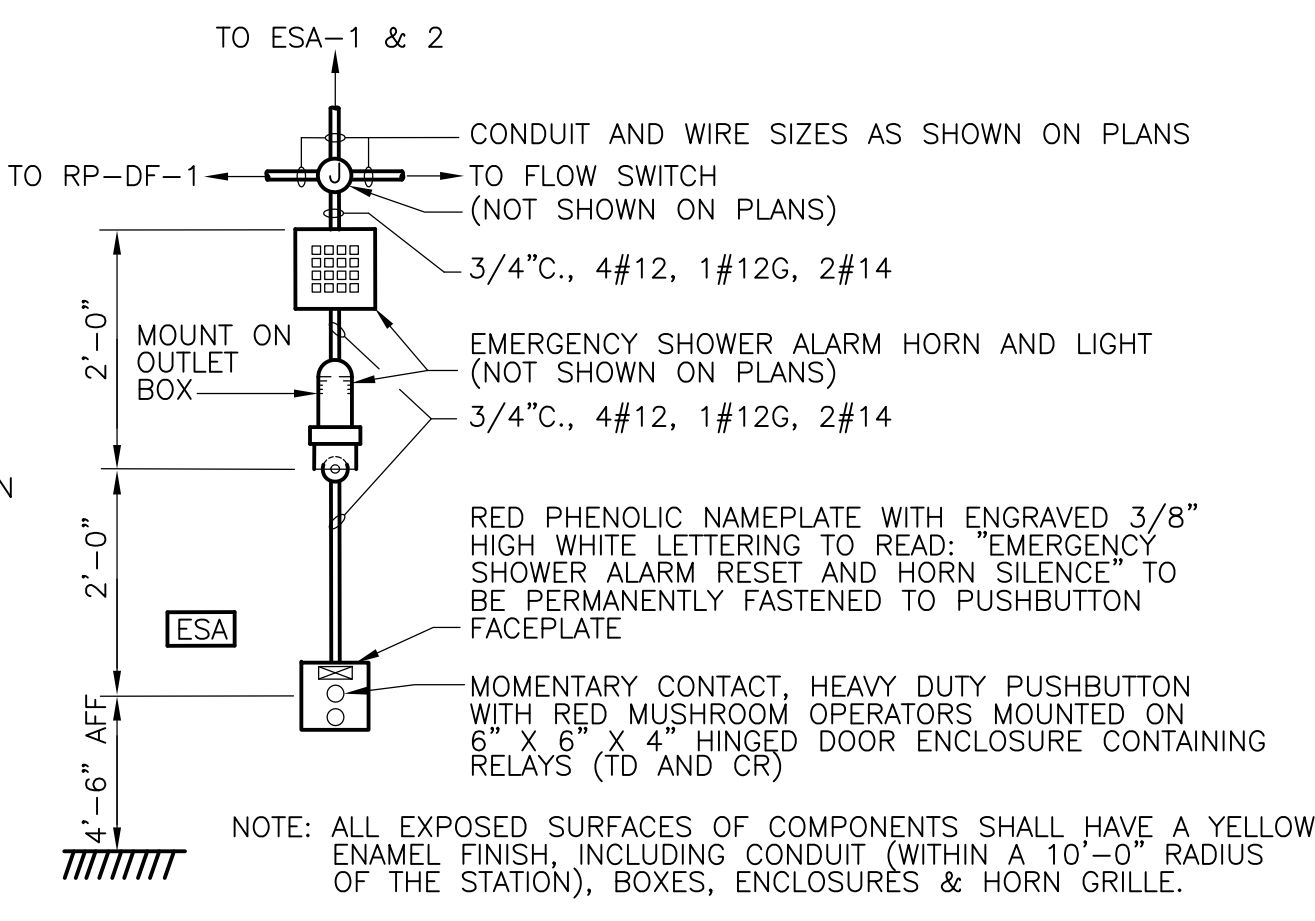
**INSTALLATION OF EQUIPMENT ON HANDRAIL**  
DETAIL E  
NTS



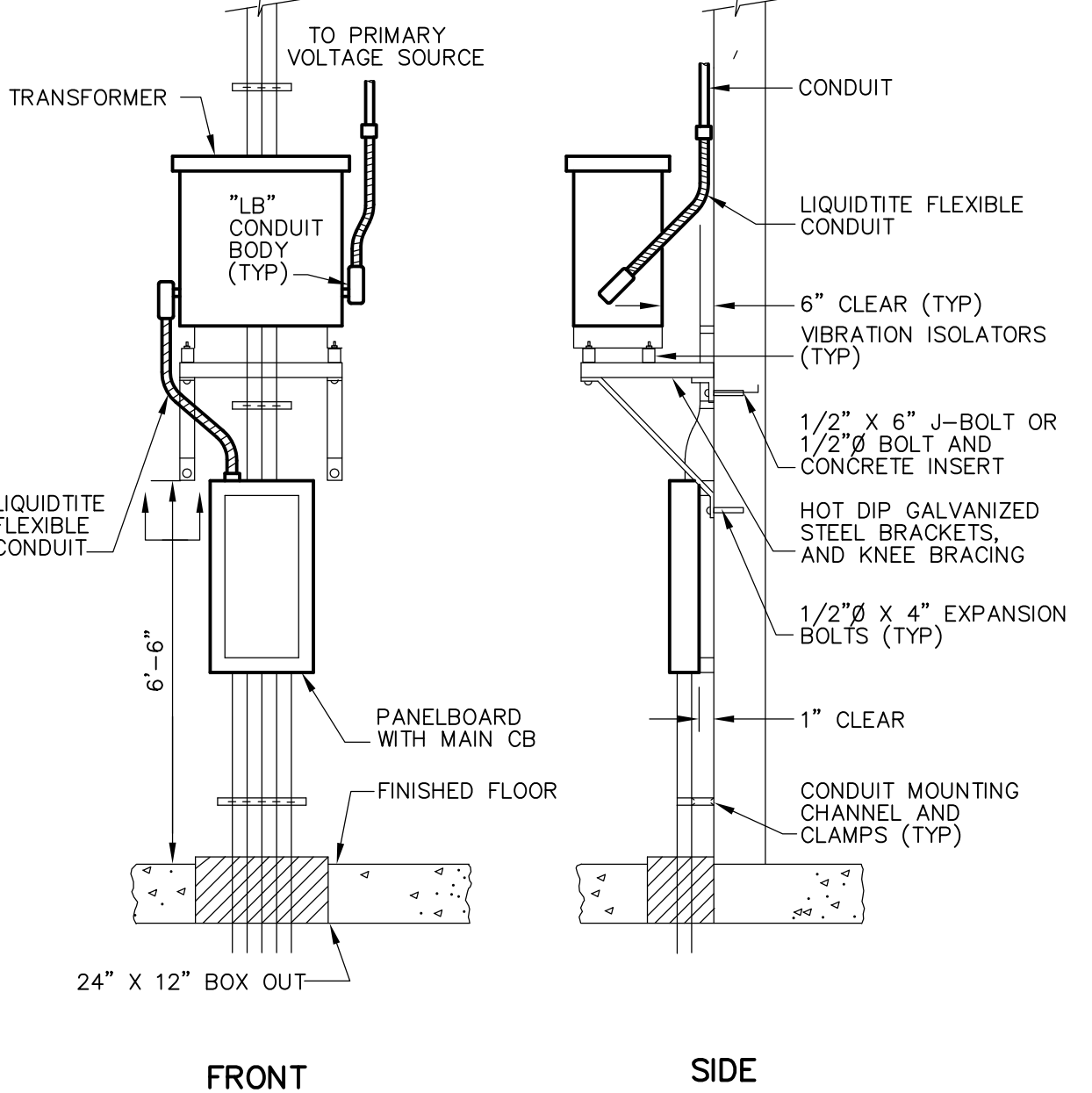
**DECK MOUNTED RECEPTACLE**  
DETAIL F  
NTS



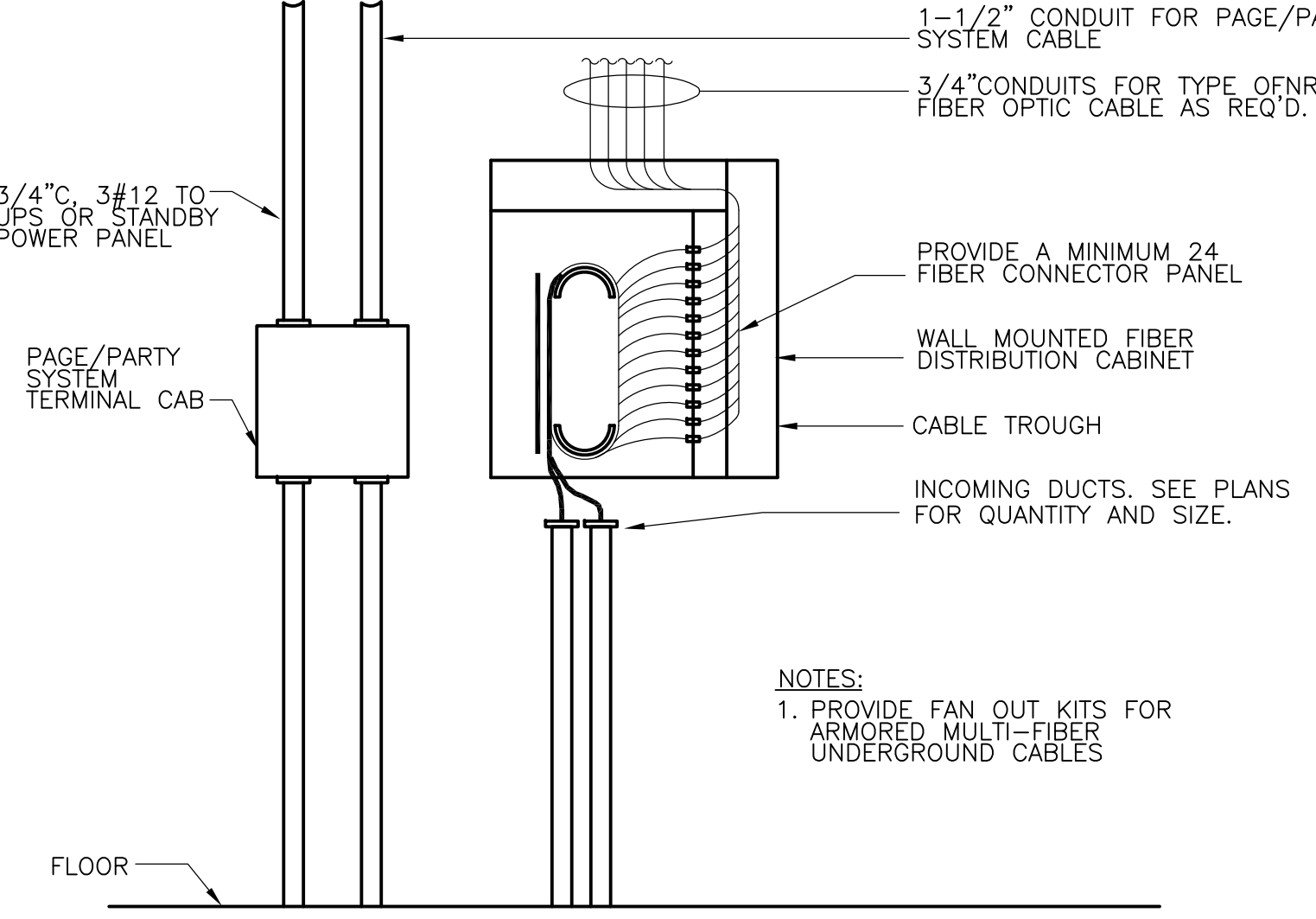
**EMERGENCY SHOWER ALARM (ESA) STATION DETAIL**  
DETAIL G  
NTS



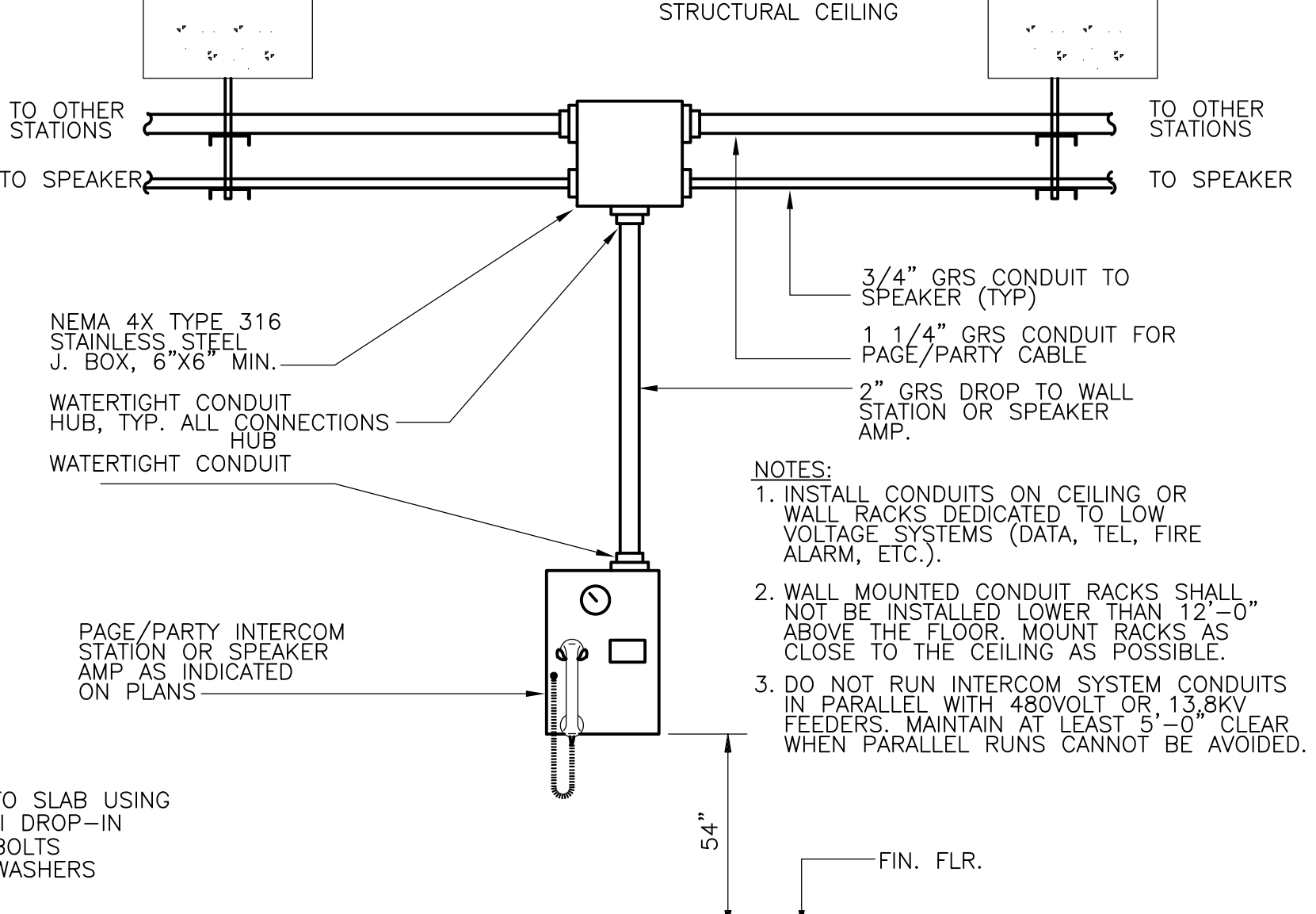
**MASTER STATION ASSEMBLY DETAIL**  
DETAIL G  
NTS



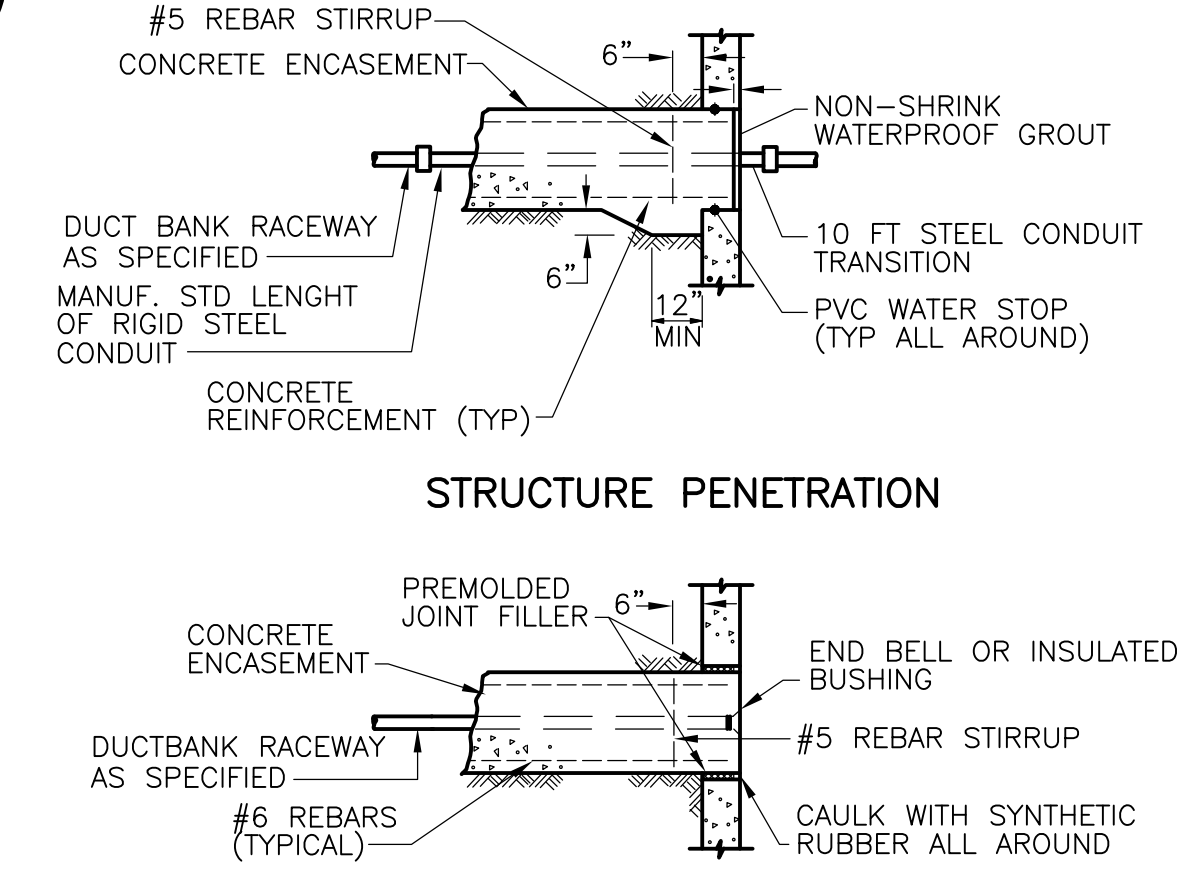
**LIGHTING PANEL AND TRANSFORMER INSTALLATION**  
DETAIL I  
NTS



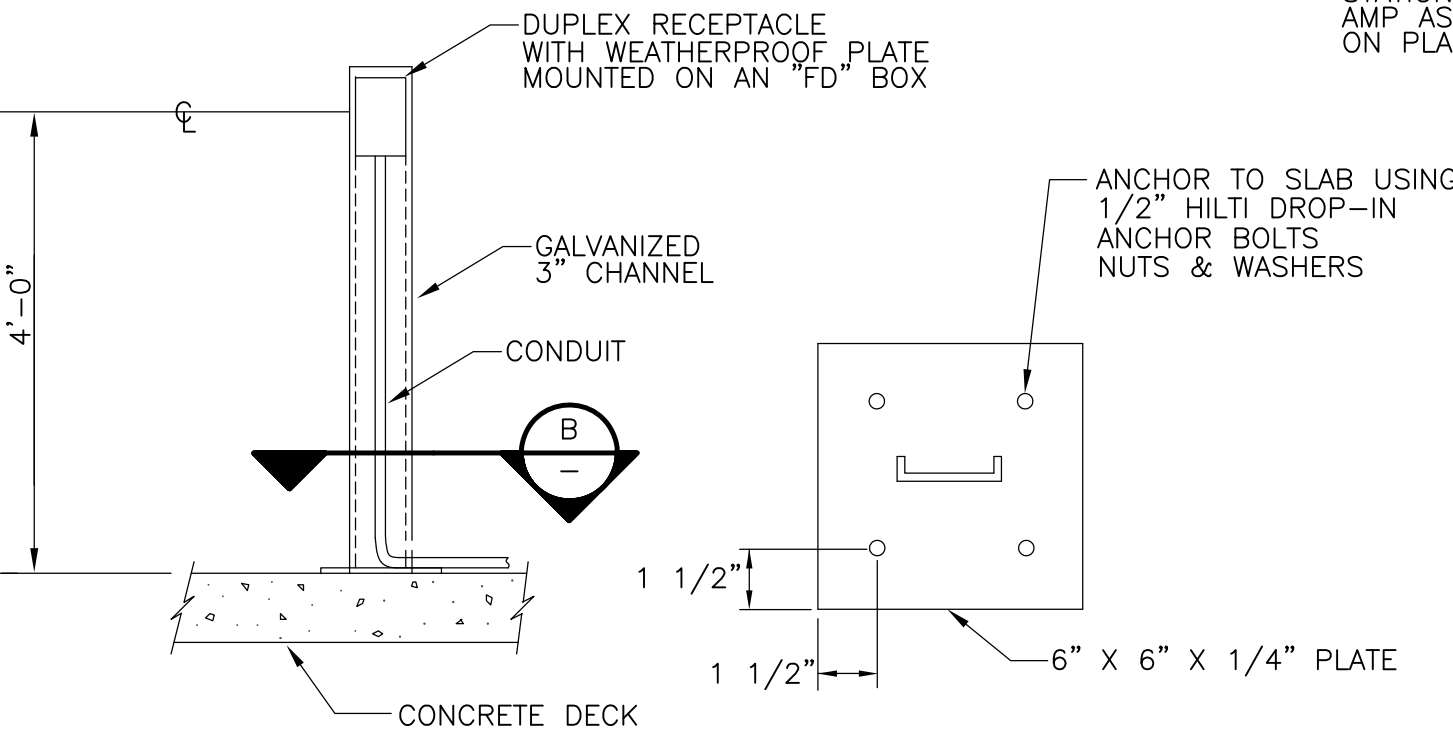
**TYPICAL FIBER OPTIC DISTRIBUTION CABINET**  
DETAIL H  
NTS



**TYPICAL INSTALLATION DETAIL PAGE/PARTY INTERCOM OR SPEAKER AMP STATION**  
DETAIL J  
SCALE



**CONCRETE ENCASED CONDUIT PENETRATION AT MANHOLE OR STRUCTURE**  
DETAIL L  
NTS



**DECK MOUNTED RECEPTACLE**  
DETAIL K  
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.:	EDTL002.DWG
DESIGNED BY:	JAR
DRAWN BY:	JAR
SHEET CHK'D BY:	BDS
SCALE:	AS NOTED
APPROVED BY:	B. SQUIBB
DATE:	MAY 2006

**CDM** Camp Dresser & McKee Inc.  
consulting engineering construction operations

**UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT**  
CONTRACT No. UB 2024  
**WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

**ELECTRICAL DETAILS II**  
PROJECT NO. 1289\35370  
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**SD-E-4**