

APPENDIX E: PIPELINE DRAWING PLANS

CALPINE OPERATING SERVICES COMPANY INC.

Construction Drawings

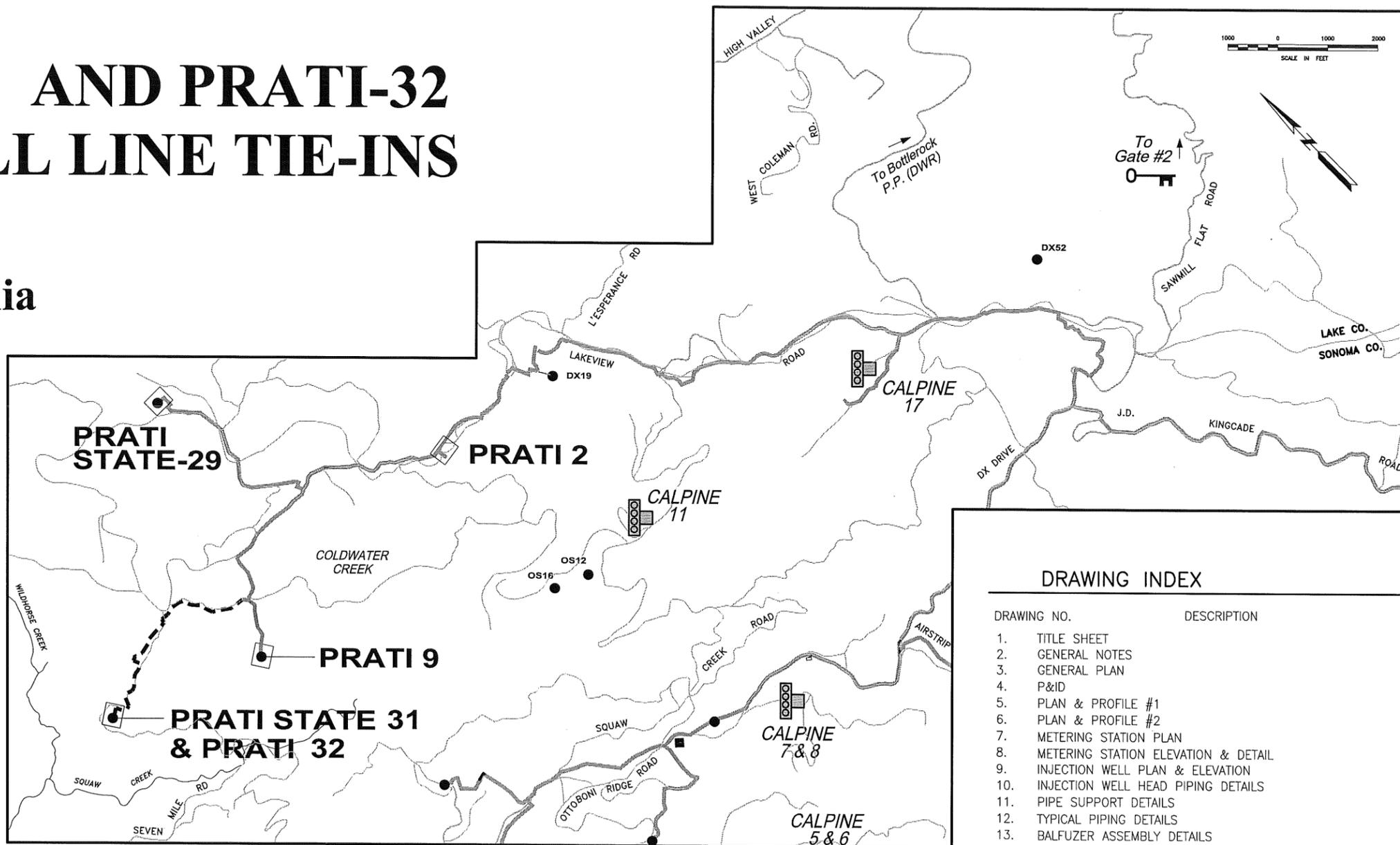
For

PRATI STATE-31 AND PRATI-32 INJECTION WELL LINE TIE-INS

In

Sonoma County, California

VICINITY MAP



P.O. No.

DRAFT

September 2009



DRAWING INDEX

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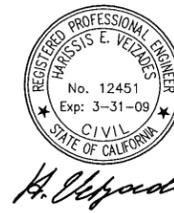
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0	ISSUED FOR CONSTRUCTION	MAP	HEV	09/01/09

WARNING
IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET • SUITE 400 • SAN FRANCISCO • CA 94103
TEL: 415. 394.8855 FAX: 415. 394.8866

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HGV
DRAFTED BY
JCH
APPROVED BY
HEV
DATE
8/13/09
SCALE
NO SCALE



CALPINE OPERATING SERVICES COMPANY
THE GEYSERS, CALIFORNIA

PRATI STATE-31 & PRATI-32
INJECTION WELL LINE TIE-INS

TITLE SHEET

PROJECT NO.
176-141
CONTRACT NO.
CADFILE NO.
141-01
SHEET NO.
1
REV. NO.
A

08/13/09 176\141\141-02.DWG

GENERAL NOTES

- NO CHANGES TO THE WORK DEPICTED ON THESE DRAWINGS SHALL BE MADE WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF THE ENGINEER. ANY DISCREPANCIES BETWEEN THE PLANS, DETAILS OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR ADJUSTMENT PRIOR TO PROCEEDING WITH THE WORK.
- HEAVY TRUCK TRAFFIC IS LIMITED AS STATED IN THE CONSTRUCTION DOCUMENTS.
- THE GENERAL SPEED LIMIT THROUGHOUT THE GEYSERS IS 25 MPH. LOWER SPEED LIMITS MAY BE REQUIRED IN THE VICINITY OF CONSTRUCTION OR MAINTENANCE ACTIVITIES AND/OR WEATHER CONDITIONS.
- EXISTING UTILITIES SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, SIZE, TYPE AND ELEVATION OF ALL UTILITIES PRIOR TO CONSTRUCTION AND SHALL INFORM THE ENGINEER OF ANY CONFLICTS.
- INSULATION OF EXISTING STEAM PIPELINES IS EASILY DAMAGED. CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING INSULATION DAMAGED AS A RESULT OF ITS OPERATIONS.

SURVEY NOTES

- CONTRACTOR IS RESPONSIBLE FOR SETTING ALL CONTROL POINTS ALONG THE PIPELINE ALIGNMENT AS REQUIRED FOR CONSTRUCTION.

EARTHWORK CONSTRUCTION NOTES

- EXCAVATION LIMITS SHOWN IN THE DETAILS ARE GRAPHICAL REPRESENTATIONS ONLY. ACTUAL GRADING LIMITS ARE TO BE DETERMINED BY CONTRACTOR TO PROVIDE FINAL PAD, ROAD, AND RIGHT-OF-WAY AREAS AS SHOWN.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFORMANCE WITH THE LOCAL AND FEDERAL CODES GOVERNING SHORING AND BRACING OF EXCAVATIONS AND TRENCHES.
- ANY REQUIRED CONSTRUCTION RIGHT OF WAY CLEARING AND GRADING FOR INSTALLING CROSS-COUNTRY PIPING (OTHER THAN PIPING INSTALLED ON SIDES OF ROADS AND ALONG EXISTING PIPING) WILL BE PERFORMED BY THE OWNER. HOWEVER, THE CONTRACTOR WILL BE RESPONSIBLE FOR GRADING REQUIRED FOR THE SUPPORT CONSTRUCTION AND PIPING INSTALLATION.

PIPELINE NOTES

GENERAL

- ALL STATIONING AND DISTANCES SHOWN ON THE DRAWINGS ARE BASED ON HORIZONTAL MEASUREMENTS.
- LOCATIONS OF AIR VALVES AND OUTLETS ARE SHOWN IN THEIR APPROXIMATE LOCATION. THE EXACT LOCATION MAY BE ALTERED IN THE FIELD BY THE ENGINEER BASED ON TOPOGRAPHIC READING.
- THE MAXIMUM FABRICATED SPOOL LENGTHS SHALL BE 40 FEET NOMINAL. THE MINIMUM LENGTH SHALL BE 10 FEET NOMINAL.
- THE PIPELINE ALIGNMENT SHOWN ON THE DRAWINGS MAY BE CHANGED AT THE CONTRACTOR'S OPTION AND WITH APPROVAL BY THE ENGINEER. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH ALIGNMENT CHANGES.
- THE PIPELINE AND APPURTENANCES SHALL BE TESTED TO THE TEST PRESSURE SHOWN DRAWINGS. ALL PIPELINE MATERIALS AND APPURTENANCES SHALL BE DESIGNED TO WITHSTAND THE FULL TEST PRESSURES. MATERIALS SHOWN OR SPECIFIED WITH HIGHER RATING SHALL BE DESIGNED AS SUCH.
- ALL PIPELINES SHALL BE SUPPORTED ON SLEEPER TYPE PIPE SUPPORT AT SPACINGS INDICATED, UNLESS OTHERWISE NOTED.

PIPELINE MATERIALS

- ALL PIPING MATERIAL SHALL BE CARBON STEEL, ANSI A53 OR API 5L, GRADE B.
- THE MINIMUM THICKNESS OF PIPE SHALL BE AS SHOWN ON THE DRAWINGS.
- THE CONTRACTOR MAY SUPPLY PIPE WITH THICKER WALL THICKNESS THAN SPECIFIED.
- EXCEPT AS OTHERWISE SPECIFIED ALL PIPING SHALL BE UNCOATED BARE STEEL PIPE.
- ALL FITTING SHALL BE FORGED STEEL FITTINGS. ELBOWS SHALL BE LONG RADIUS. THICKNESS OF FITTINGS SHALL BE AT LEAST EQUAL TO PIPE THICKNESS CONNECTED TO THEM, UNLESS OTHERWISE NOTED.
- FLANGES SHALL BE FORGED STEEL FLANGES ASTM A105 AND ANSI B16.5 CLASS 300 WELDING NECK RAISE FACE (WNRF) UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- ALL CHANGES IN PIPING DIRECTIONS SHALL BE DONE USING LONG RADIUS WELDING FITTINGS. FOR ANGLES LESS THAN 45° THE CONTRACTOR MAY UTILIZE BENDING OF PIPE IN LIEU OF FITTINGS TO EFFECT CHANGES IN HORIZONTAL AND VERTICAL DIRECTION OF THE PIPE. THE BEND RADIUS SHALL NOT BE LESS THAN 10 PIPE DIAMETERS. THIS OPTION IS PERMISSIBLE FOR CROSS COUNTRY PIPING AND WILL NOT BE ALLOWED AT WELL SITES, AT VALVE STATIONS AND WHEN THE BENDING WILL PLACE THE PIPE WITHIN TRAVEL WAYS.

- SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS FOR PIPELINE MATERIALS AND INSTALLATION.
- ALL PIPING 4" AND SMALLER SHALL BE SCHEDULE 80 (EXTRA STRONG), UNLESS OTHERWISE NOTED.
- PIPING INDICATED ON THE DRAWINGS AS STAINLESS STEEL (SS) SHALL BE SEAMLESS ANSI/ASTM A312 GRADE TP316L. WELDING FITTINGS AND FLANGES SHALL MATCH PIPING MATERIALS, UNLESS OTHERWISE NOTED.

(CONT'D)

PIPE JOINT TYPES

- ALL PIPING SHALL BE INSTALLED UTILIZING FULL PENETRATION BUTT WELDING OR FLANGES.
- THE BEVEL FOR BUTT WELDING SHALL BE 37 1/2° UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

LININGS & COATINGS

- EXCEPT AS OTHERWISE NOTED ABOVE GROUND PIPING SHALL BE UNLINED AND UNCOATED.
- BELOW GROUND PIPING SHALL BE WRAPPED WITH A PROTECTIVE EXTERIOR COATING OF EITHER POLYETHYLENE TAPE SYSTEM OR AN EXTRUDED POLYOLEFIN SYSTEM
- ALL STUDS, BOLTS, NUTS, AND WASHERS SHALL BE BLUE XYLAN COATED, MFG BY DANIELS INDUSTRY.

APPURTENANCES

- THE CONTRACTOR SHALL SUBMIT FOR APPROVAL THE CONFIGURATION, MATERIAL SELECTION, SIZES AND OTHER PERTINENT INFORMATION FOR EACH VALVE STATION.
- VALVES

GATE VALVES

SHALL BE 300 OR 600 CLASS, AS SHOWN ON THE DRAWINGS AND AS SPECIFIED IN SECTION 15100

BUTTERFLY VALVES

UNLESS OTHERWISE NOTED ON THE DRAWINGS:

300 OR 600# CLASS AS SHOWN ON THE DRAWINGS FOR ALL PIPINGS.

ALL BUTTERFLY VALVES SHALL BE LUGGED WAFER TYPE.

FOR ALL BUTTERFLY VALVES:

GEAR REDUCTION OPERATOR SHALL BE INSTALLED ON 8" OR LARGER VALVES.

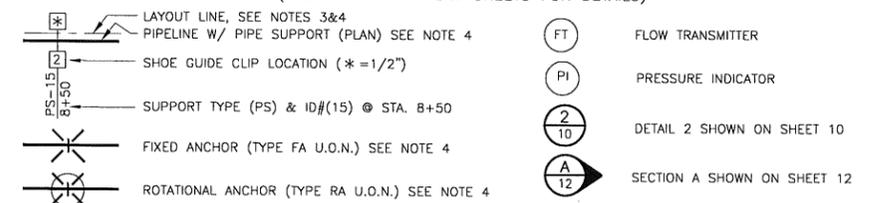
PIPING VALVES		
	GATE VALVE	GV
	GLOBE VALVE	GLV
	EXPANDING GATE VALVE	W1S
	SLAB GATE VALVE	W2S
	BALL VALVE	BV
	BUTTERFLY VALVE	BTFLV
	V BALL CONTROL VALVE	VBCV
	PLUG VALVE	PV
	NEEDLE VALVE	NV
	DIAPHRAGM VALVE	DPHV
	CHECK VALVE	CHKV
	Y STOP CHECK VALVE	VCHKV
	STOP CHECK VALVE	SCHKV
	ANGLE VALVE	ASV
	3-WAY VALVE	3WV
	THREE WAY BALL	3WBV
	ANGLE BLOWDOWN VALVE	ABDV
	ANGLE STOP CHECK VALVE	ACHKV
	KNIFE GATE VALVE	KGV

ABBREVIATIONS

AB	ANCHOR BOLT	LR	LONG RADIUS
L	ANGLE	LT	LEFT
API	AMERICAN PETROLEUM INDUSTRY	LTPC	LIQUID TIGHT FLEXIBLE CONDUIT
ASSY	ASSEMBLY	M	MITERED ANGLE
BC	BOLT CIRCLE	MA	PIPE ANCHOR, TYPE MA (MODIFIED)
BOP	BOTTOM OF PIPE	MCC	MOTOR CONTROL CENTER
BR	BRINE	MH	MANHOLE
BV	BALL VALVE	MAX.	MAXIMUM
C	CONDUIT, CHANNEL	MIN.	MINIMUM
CL	CUT ANGLE	N	NORTH COORDINATE
CC	CONDENSATE COLLECTION	NCG	NON-CONDENSIBLE GAS
C-C	CENTER TO CENTER	NIC	NOT IN CONTRACT
CAPIL	CAPILLARY	NPT	NATIONAL PIPE THREAD
CDP	CONDENSATE DROP POT	NPTF	NATIONAL PIPE THREAD, FEMALE
CL	CENTER LINE OR CLASS	NTS	NOT TO SCALE
CLR	CLEARANCE	OC	ON CENTER
CMP	CORRUGATED METAL PIPE	OD	OUTSIDE DIAMETER
CON RED	CONCENTRIC REDUCER	P	POWER
CONC	CONCRETE	PB	PULL BOX
COND	CONDENSATE	PG	PIPE GUIDE
CONN	CONNECTION	PI	POINT OF INTERSECTION
CONT	CONTINUOUS	PL	PLATE
CR	CONDENSATE RETURN	POL	POINT ON LINE
CS	CARBON STEEL	PS	PIPE SUPPORT
CV	CONTROL VALVE	R	RADIUS
CYL	CYLINDER	RA	PIPE ANCHOR, TYPE RA (ROTATIONAL)
Ø	DIAMETER	RC	REINFORCED CONCRETE
D	DIAMETER	RED	REDUCING FITTINGS
DIA	DIAMETER	RF	RAISED FACE
DISC	DISCHARGE	RFSO	RAISED FACE SLIP-ON
DWG	DRAWING	RFWN	RAISED FACE WELDING NECK
DS	DESUPERHEATING	RT	RIGHT
DWS	DOMESTIC WATER SYSTEM	RTU	REMOTE TERMINAL UNIT
E	EAST COORDINATE	RTJ	RING TYPE JOINT
EA	EACH	RTJWN	RING TYPE JOINT WELDING NECK
ECC RED	ECCENTRIC REDUCER	S	SINGLE
EF	EACH FACE	SCH	SCHEDULE
EL	ELEVATION	SHT	SHEET
EQ	EQUAL	SIM	SIMILAR
ERW	ELECTRIC RESISTANCE WELDED	SMLS	SEAMLESS
EW	EACH WAY	SN	SOLID NEUTRAL
EXIST	EXISTING	SO	SLIP ON
EXP	EXPANSION	SS	STAINLESS STEEL
FA	PIPE ANCHOR, TYPE F (FIXED)	STA	STATION
FAB	FABRICATION	STD	STANDARD
FIG	FIGURE	SQ	SQUARE
FLG	FLANGE	SYM ABT	SYMMETRICAL ABOUT
FIN. GR.	FINISH GRADE	T&B	TOP AND BOTTOM
FOF	FACE OF FLANGE	TC	TAP CONNECTION
FT	FEET	THRD	THREADED
GA	GAUGE	TOC	TOP OF CONCRETE
GALV	GALVANIZED	TOS	TOP OF STEEL
GB	GRADE BREAK	TS	STRUCTURAL TUBING
GRND	GROUND	TSP	TWISTED SHIELDED PAIR
GV	GATE VALVE	TYP	TYPICAL
HORIZ	HORIZONTAL	UG	UNDER GROUND
HL	HORIZONTAL ANGLE	U.O.N.	UNLESS OTHERWISE NOTED
HPS	HIGH PRESSURE STEAM	V&A	VEIZADES & ASSOCIATES, INC.
INS	INSULATION	VAC	VOLTS ALTERNATING CURRENT
INS	INSIDE DIAMETER	VERT	VERTICAL
IN	INCHES	WB	WELL BLEED
INJ	INJECTION	W/O	WHERE IT OCCURS
INSL	INSULATION	W/	WITH
IS	INTERMEDIATE SUPPORT	W/O	WITHOUT
LA	PIPE ANCHOR, TYPE LA (LONGITUDINAL)	WN	WELD NECK
LPS	LOW PRESSURE STEAM	WP	WORK POINT
		WT	WEIGHT
		XS	EXTRA STRONG

LEGEND

(SEE TYPICAL SUPPORT SHEETS FOR DETAILS)



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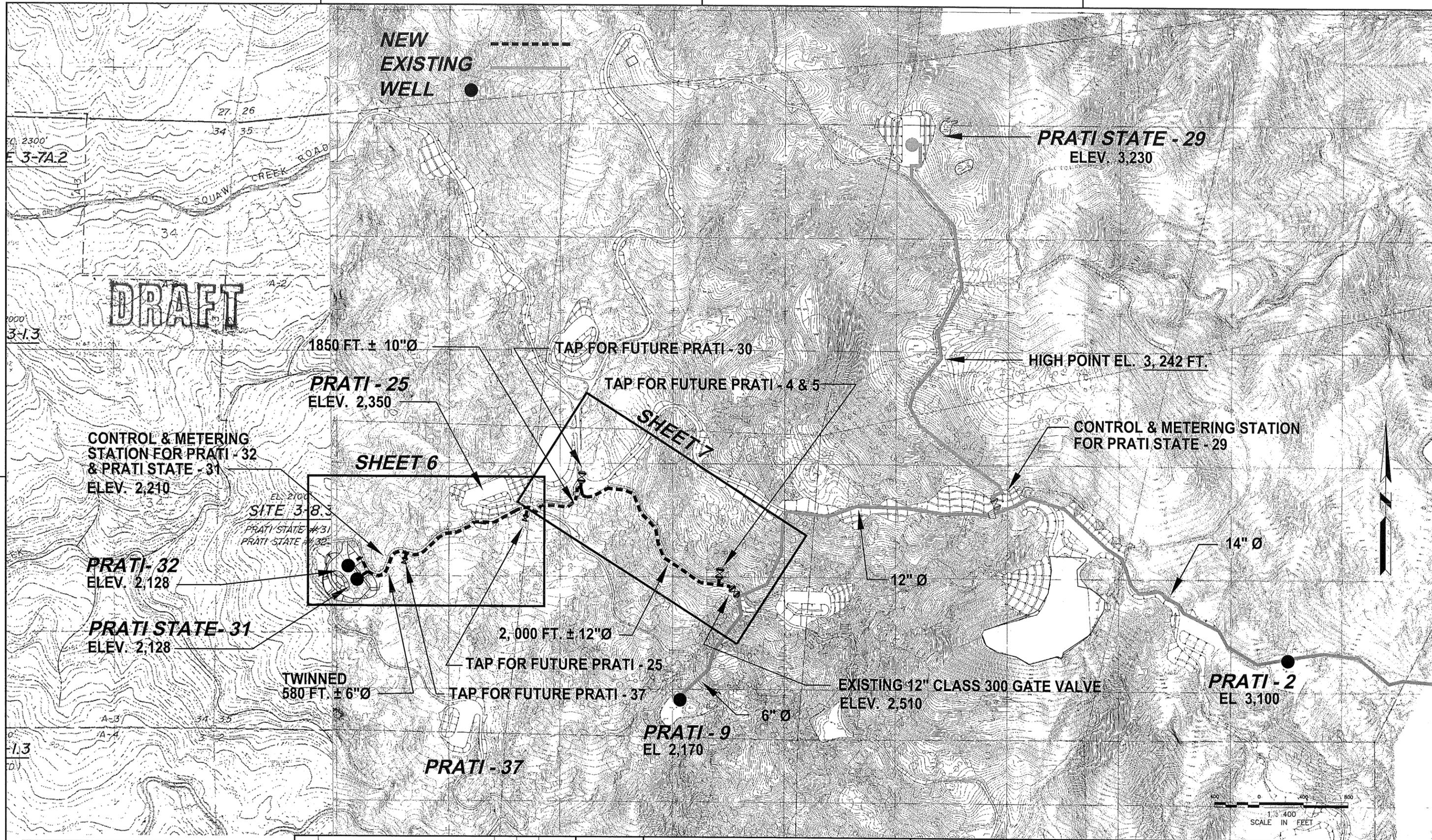
CALPINE OPERATING SERVICES COMPANY
THE GEYSERS, CALIFORNIA

PRATI STATE-31 AND PRATI 32
INJECTION WELL LINE TIE-INS

GENERAL NOTES, LEGEND & ABBREVIATIONS

PROJECT NO.	176-141
CONTRACT NO.	
CADFILE NO.	141-02
SHEET NO.	2
REV. NO.	

08/13/09 176-141-04.DWG



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SCALE	1:400



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THE GEYSERS, CALIFORNIA

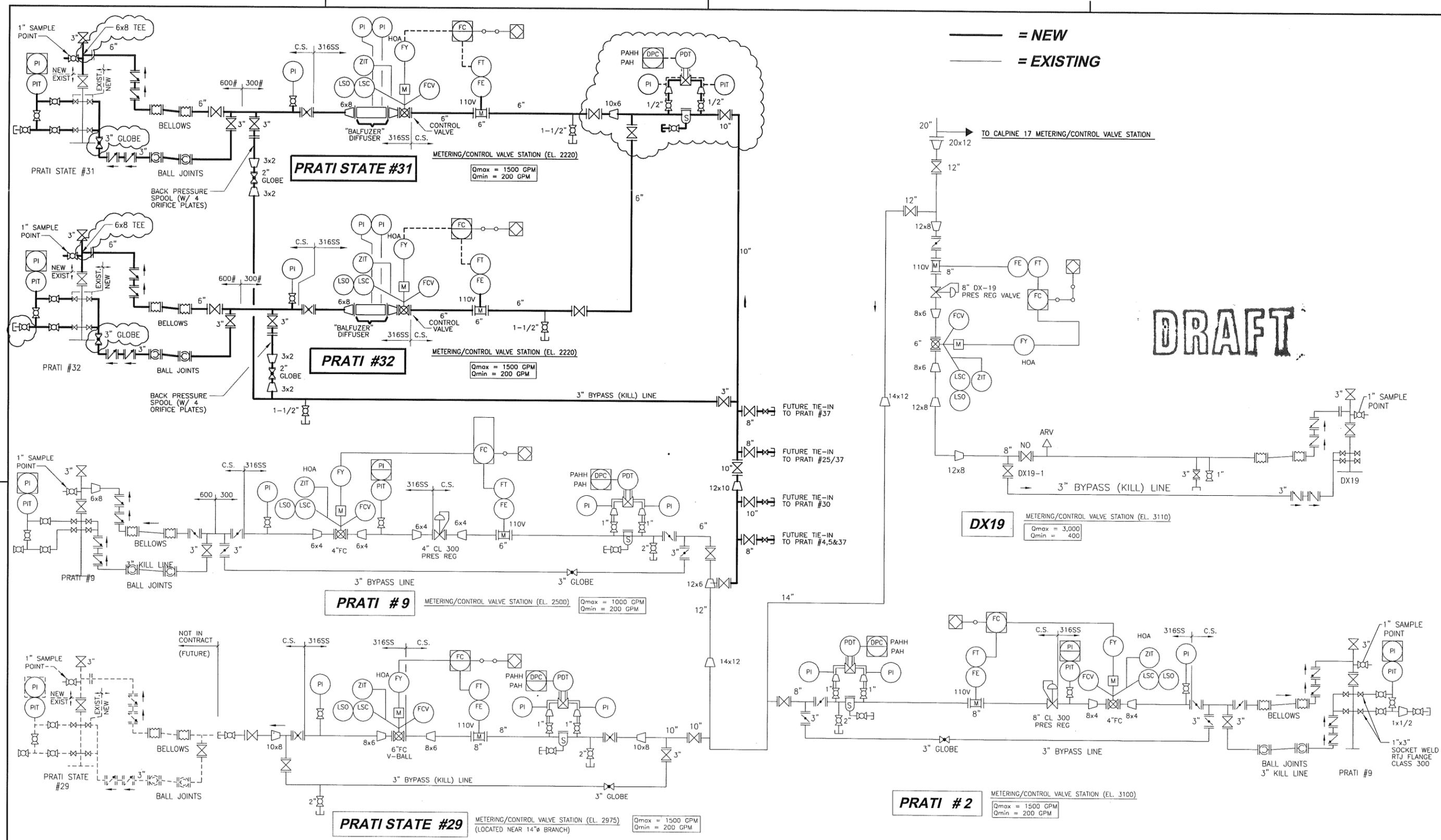
PRATI STATE-31 AND PRATI-32
INJECTION WELL LINE TIE-INS

GENERAL PLAN

PROJECT NO.	176-141
CONTRACT NO.	
CADFILE NO.	141-04
SHEET NO.	3
REV. NO.	0

08/13/09 11:17:14 141-05.DWG

— = NEW
— = EXISTING



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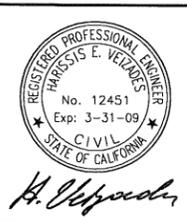
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APPROVED BY HEV
DATE 7/27/09
SCALE AS NOTED

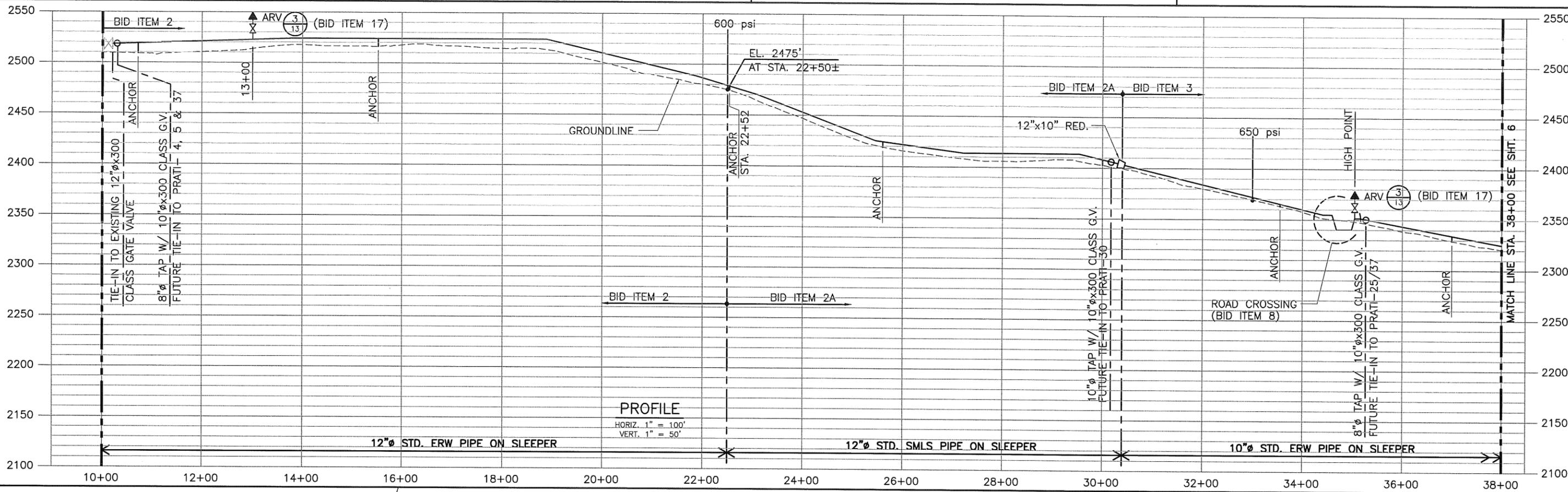


CALPINE OPERATING SERVICES COMPANY
THE GEYSERS, CALIFORNIA

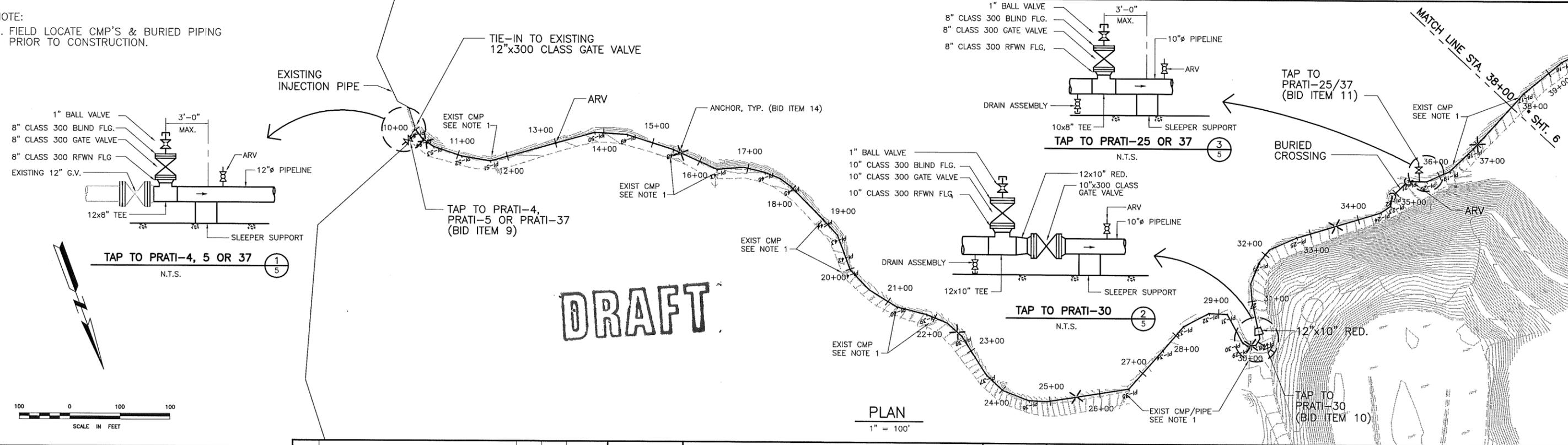
PRATI STATE-31 AND PRATI-32
INJECTION WELL LINE TIE-INS

P & I D

PROJECT NO. 176-141
CONTRACT NO.
CADFILE NO. 141-05
SHEET NO. 4
REV. NO.



NOTE:
1. FIELD LOCATE CMP'S & BURIED PIPING PRIOR TO CONSTRUCTION.



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SCALE 1"=100'



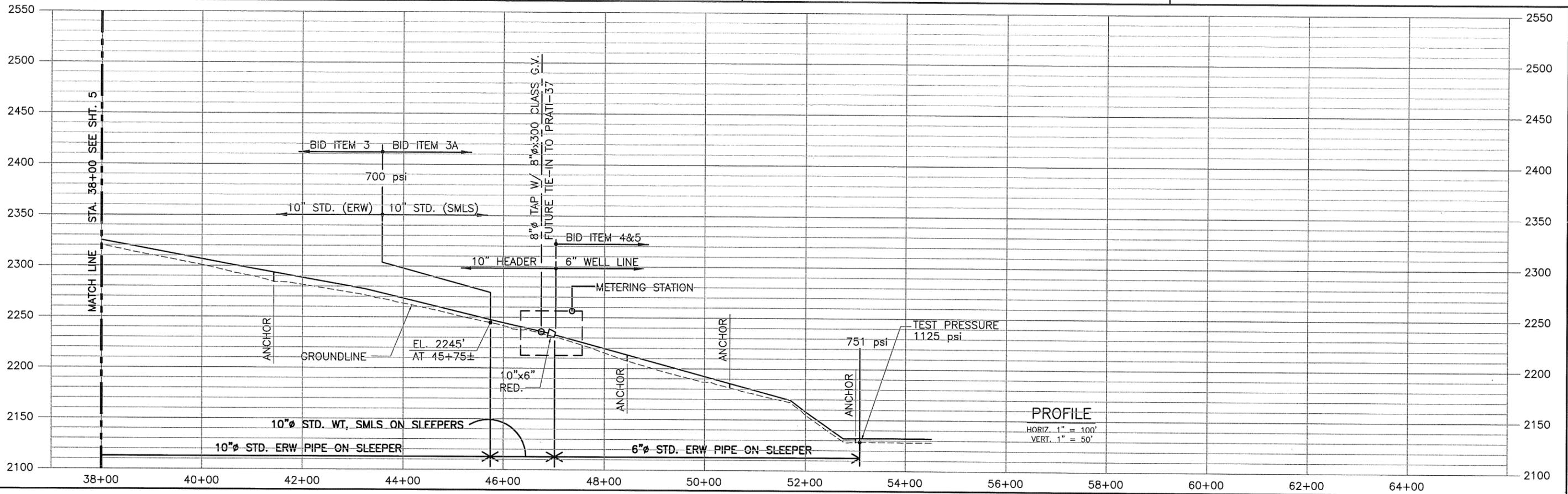
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THE GEYSERS, CALIFORNIA

PRATI STATE-31 AND PRATI-32
INJECTION WELL LINE TIE-INS

PLAN & PROFILE #1

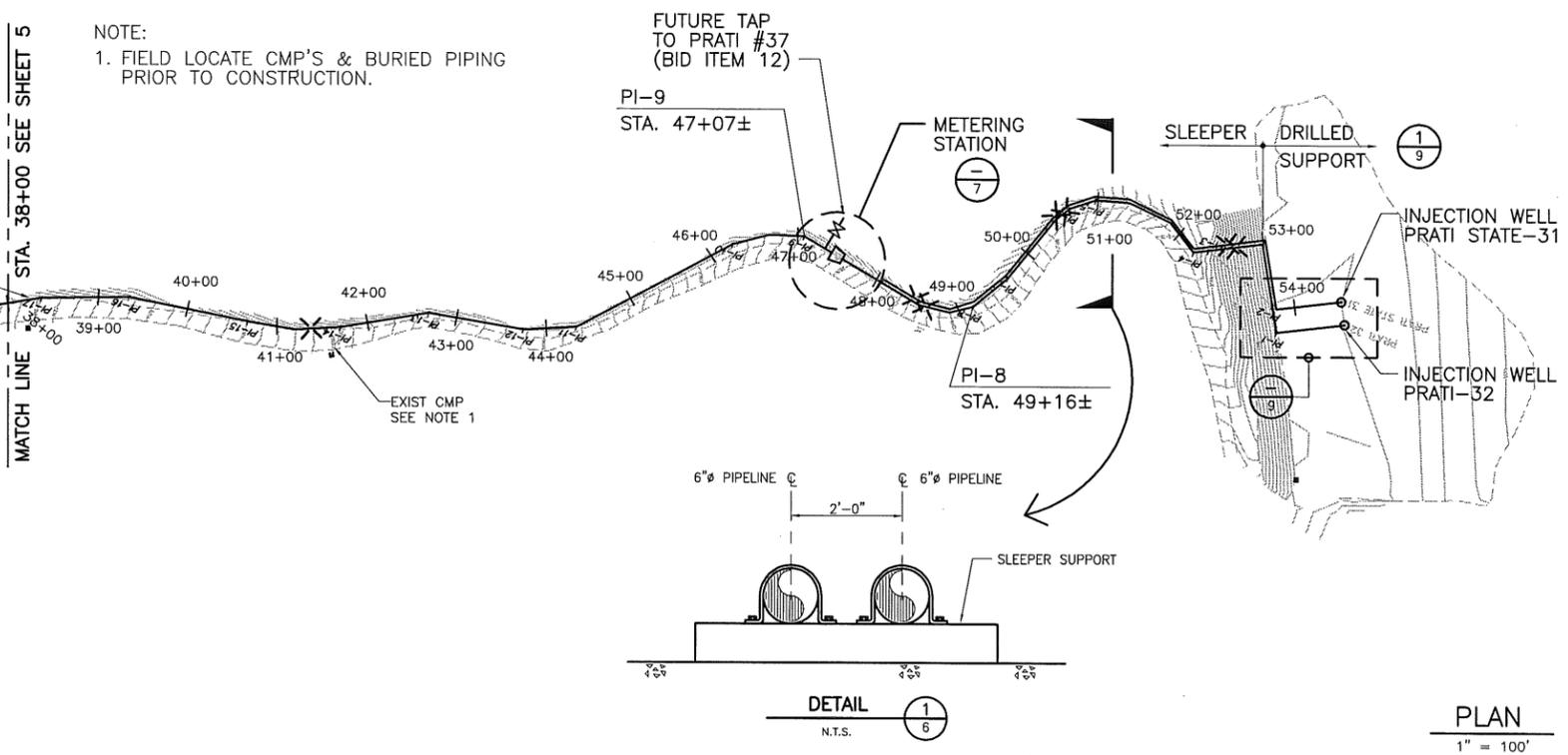
PROJECT NO. 176-141
CONTRACT NO. 141-6-7
CADFILE NO. 141-6-7
SHEET NO. 5
REV. NO. 0

08/13/09 J:176\141\141-1-2DWG



MATCH LINE STA. 38+00 SEE SHEET 5

NOTE:
1. FIELD LOCATE CMP'S & BURIED PIPING PRIOR TO CONSTRUCTION.



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CHECKED BY: HGV
DRAFTED BY: NP
APPROVED BY: HEV
DATE: 08/13/09
SCALE: 1"=100'



CALPINE OPERATING SERVICES COMPANY
THE GEYSERS, CALIFORNIA

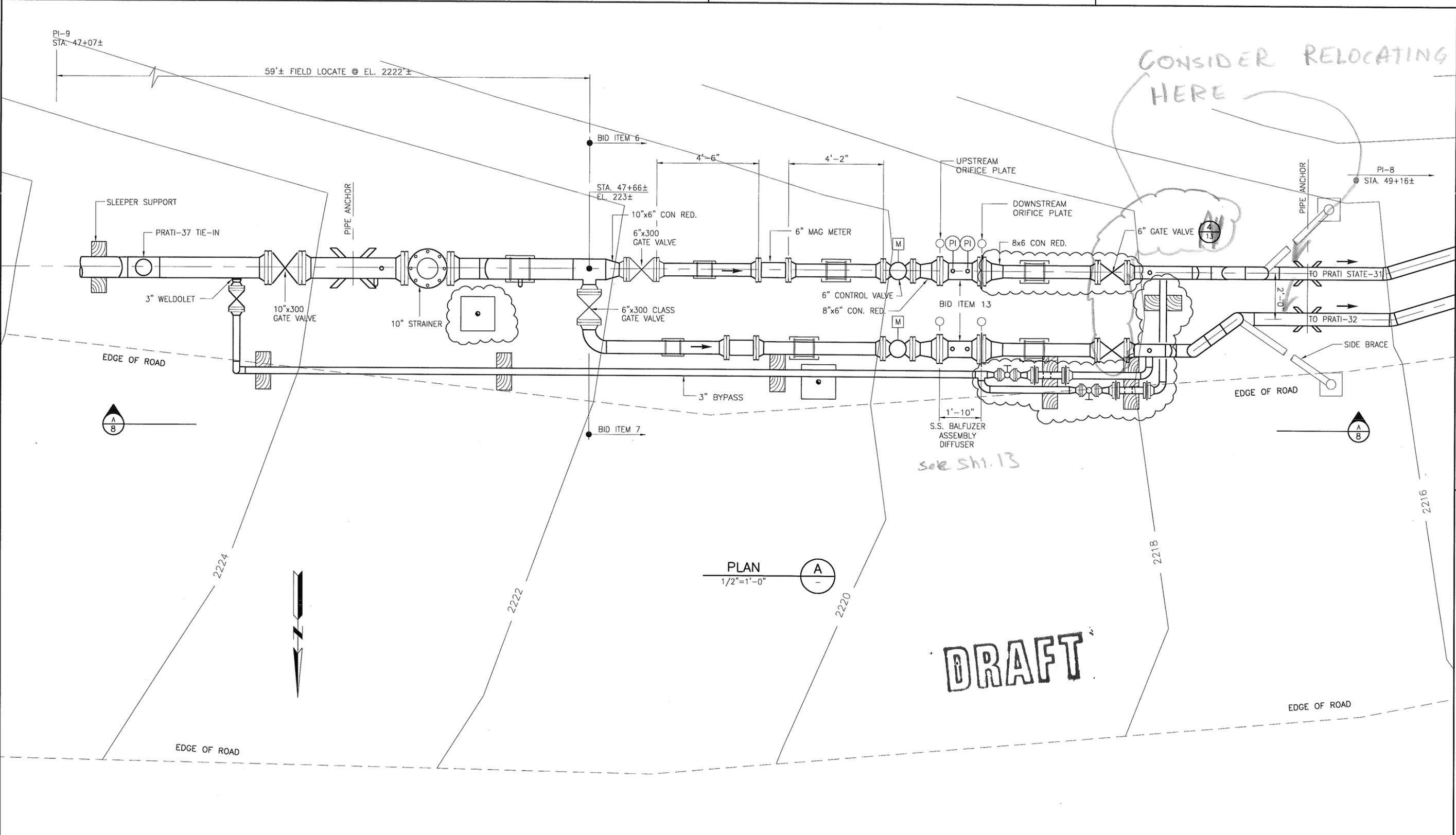
PRATI STATE-31 AND PRATI-32
INJECTION WELL LINE TIE-INS

PLAN & PROFILE #2

PROJECT NO. 176-141
CONTRACT NO. 141-6-7
CADFILE NO. 141-6-7
SHEET NO. **6**
REV. NO.

08/13/09 J:176\141\1-2DWG

08/13/09 J:\176\141\141-08A.DWG



PLAN
1/2"=1'-0"

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0 1
1 INCH

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AS NOTED



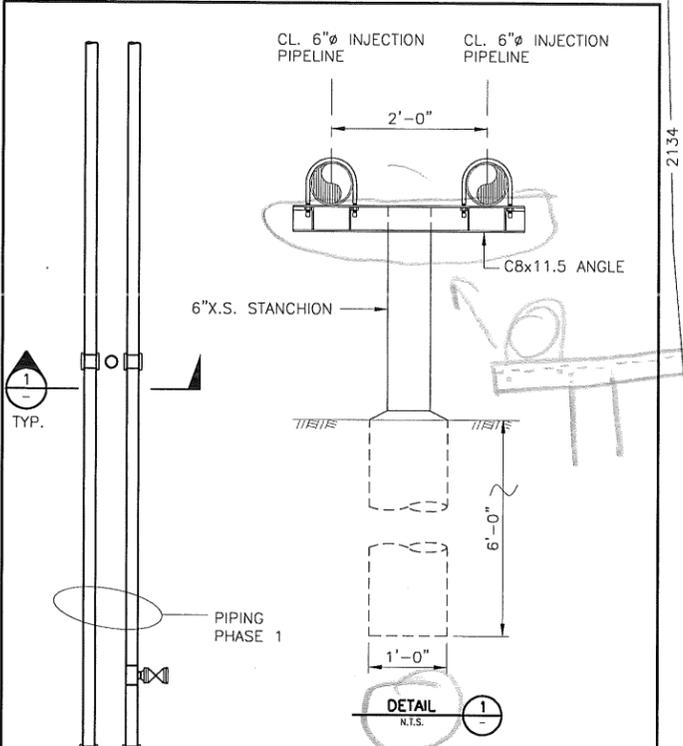
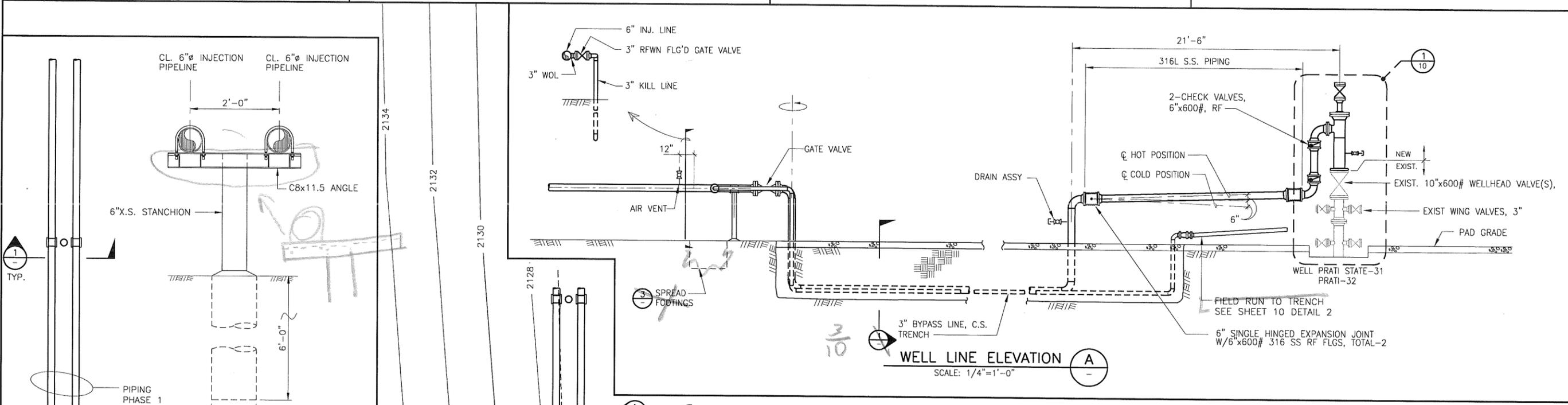
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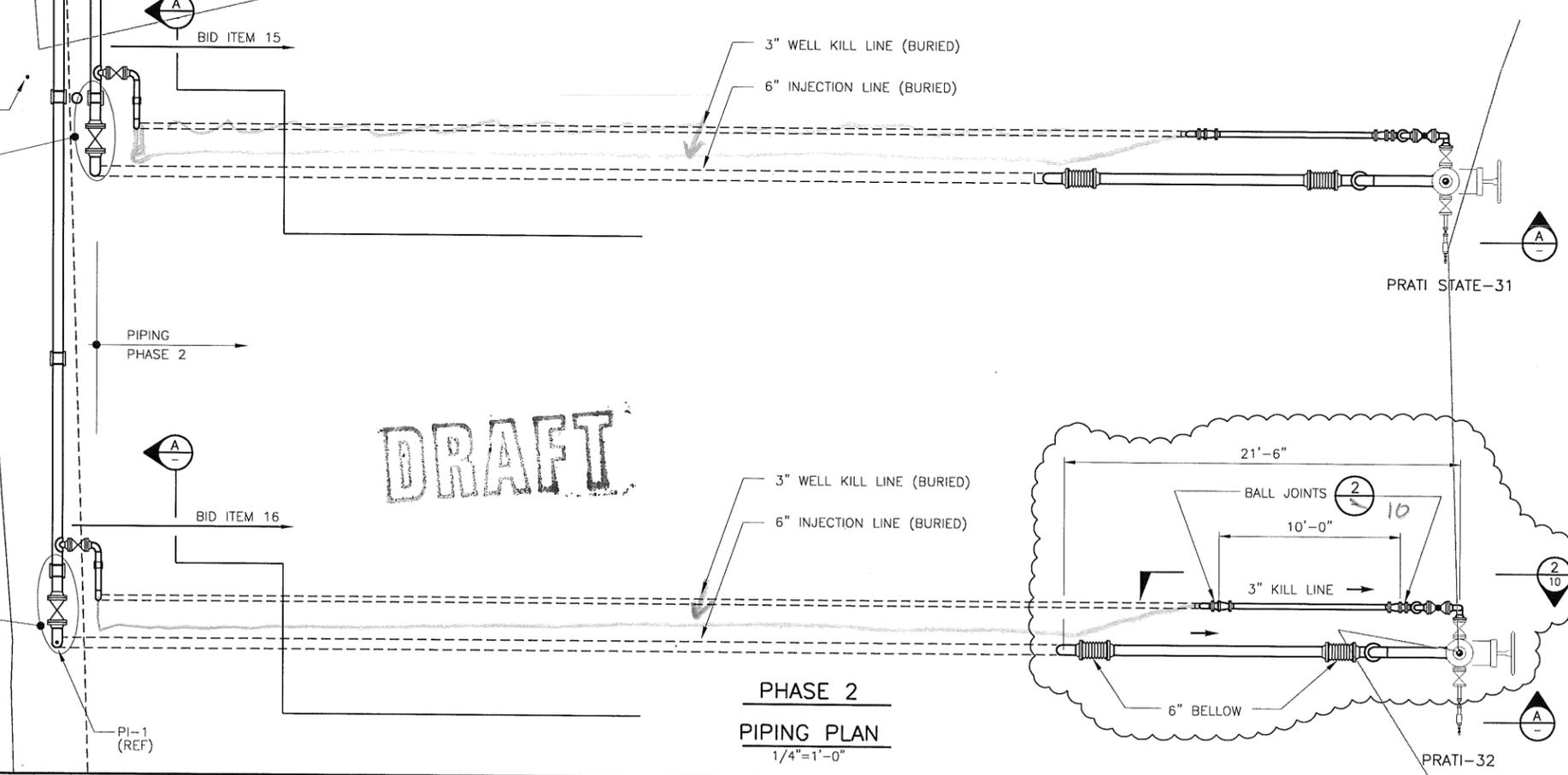
METERING STATION PLAN

PROJECT NO.
176-141
CONTRACT NO.
CADFILE NO.
141-08A
SHEET NO.
7
REV. NO.
0

08/14/09 176-141-141-14B



**PHASE 1
PIPING PLAN**
1/4"=1'-0"



**PHASE 2
PIPING PLAN**
1/4"=1'-0"

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DESIGNED BY MAP
CHECKED BY HGV
DRAFTED BY JCH
APPROVED BY HEV
DATE 8/14/09
SCALE 1/8"=1'-0"



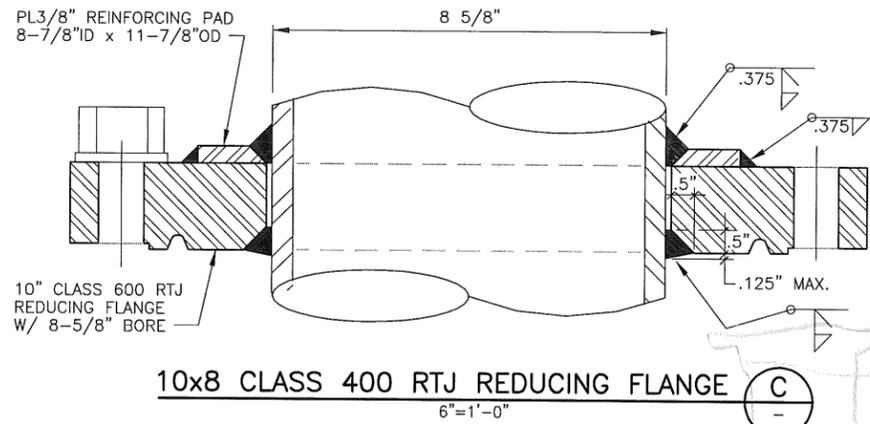
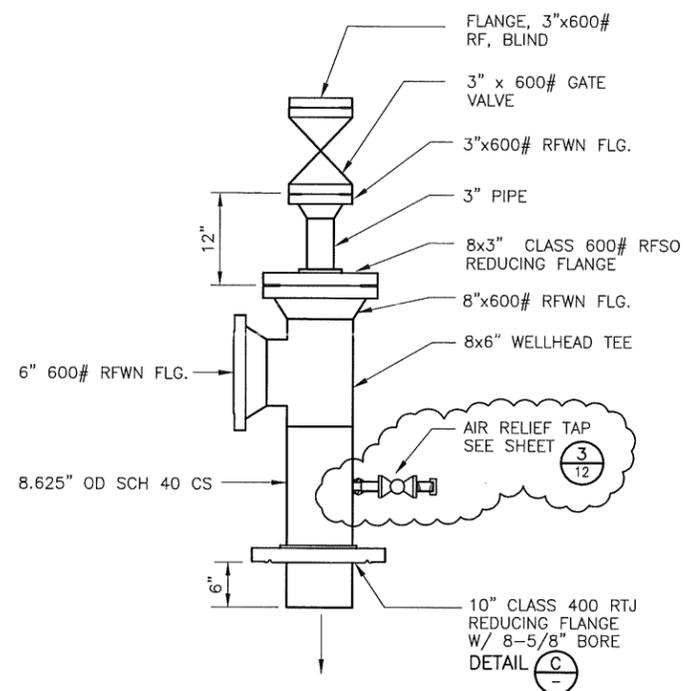
CALPINE OPERATING SERVICES COMPANY
THE GEYSERS, CALIFORNIA

**PRATI STATE-31 & PRATI-32
INJECTION WELL LINE TIE-INS**

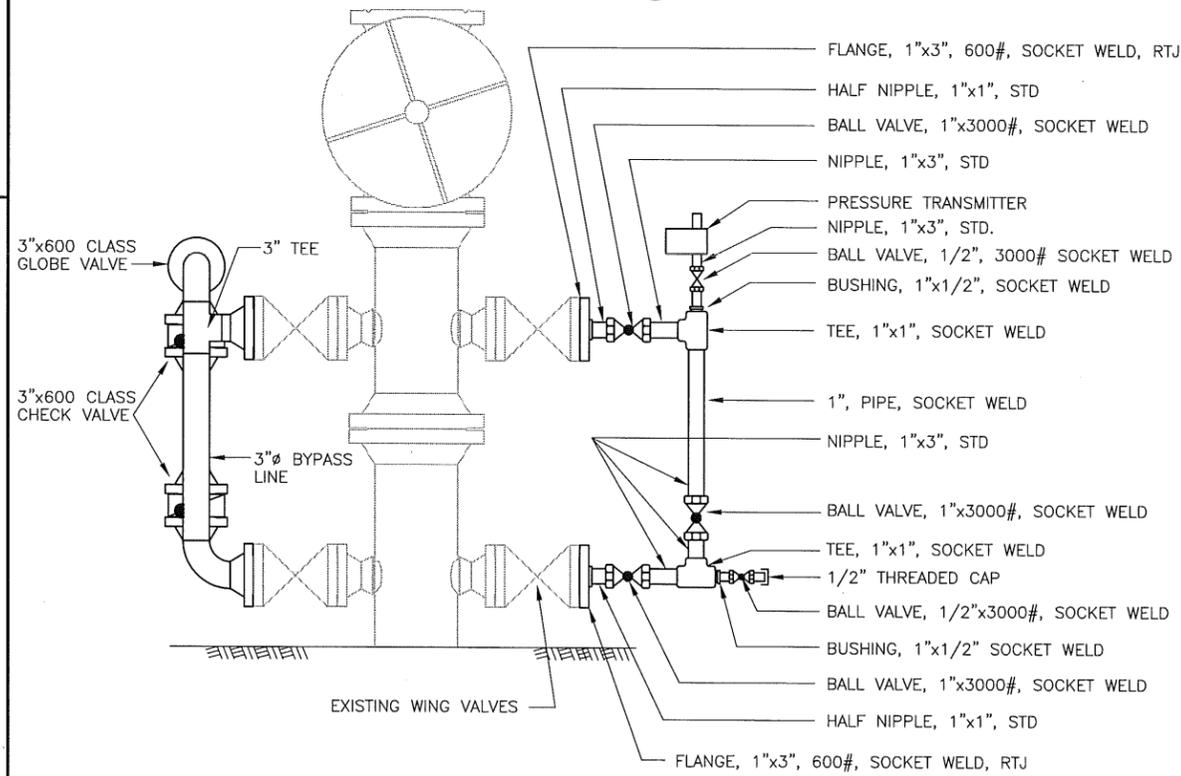
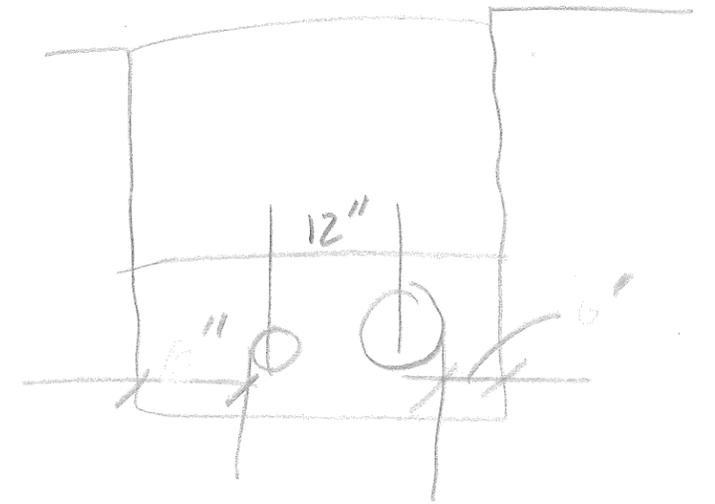
INJECTION WELL PIPING PLAN & ELEVATION

PROJECT NO. 176-141
CONTRACT NO.
CADFILE NO. 141-14B
SHEET NO. **9**
REV. NO. 0

08/14/09 J:176\141\141-17.DWG

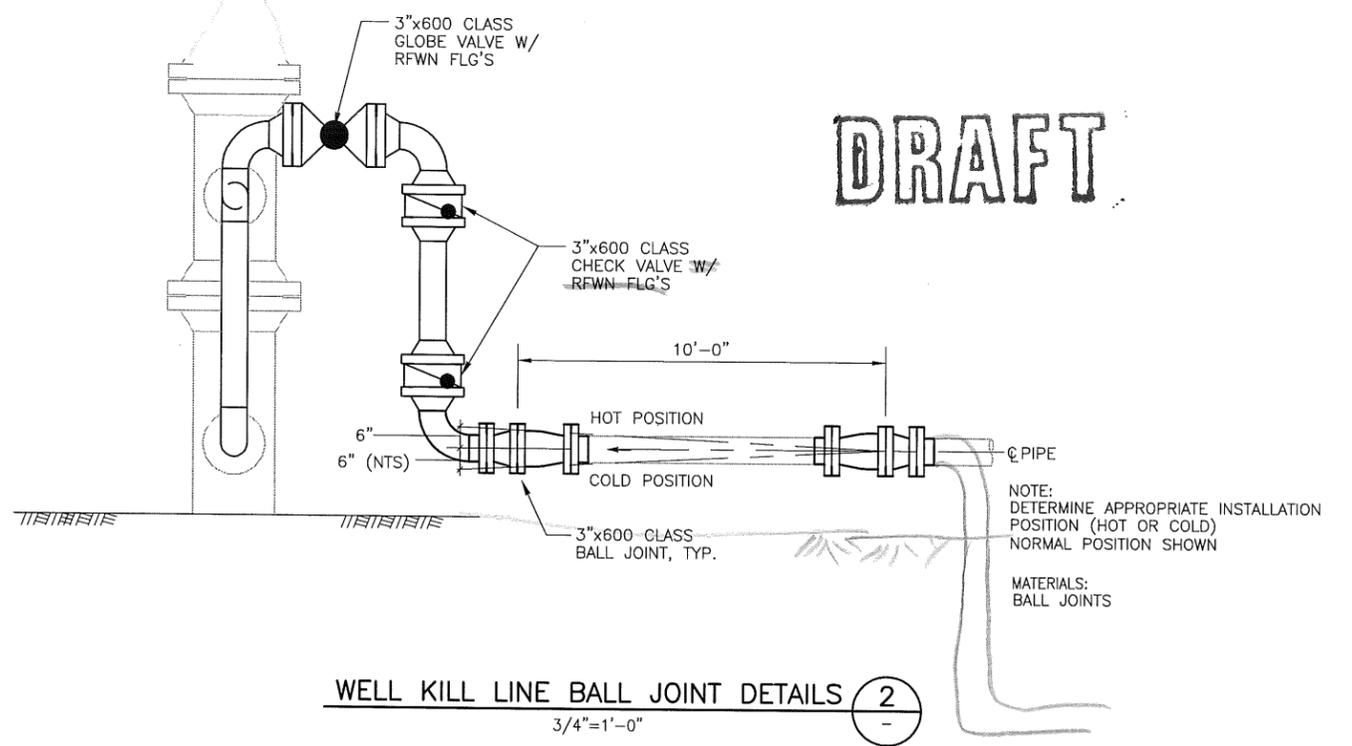


insert
trench
Detail



WELLHEAD PIPING DETAIL (1)

SCALE: 1"=1'-0"



DRAFT

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0 1
1 INCH

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HEV
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7/27/09
SCALE
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CALPINE OPERATING SERVICES COMPANY
THE GEYSERS, CALIFORNIA

PRATI STATE-31 AND PRATI-32
INJECTION WELL LINE TIE-INS

INJECTION WELL HEAD PIPING DETAILS

PROJECT NO.
176-141
CONTRACT NO.
CADFILE NO.
141-17
SHEET NO.
10
REV. NO.
△

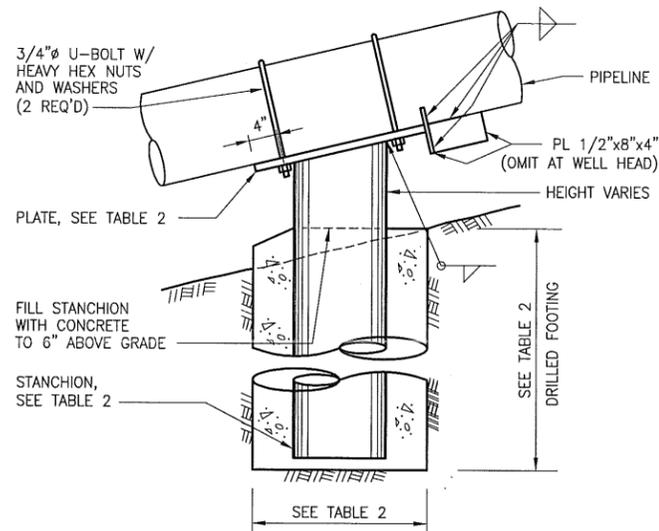
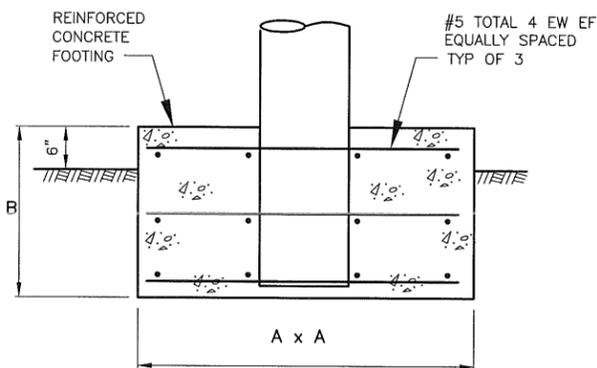


TABLE 2 - PIPE ANCHOR

LINE SIZE	STANCHION PIPE DIA	FOOTING		PLATE SIZE
		DIA	DEPTH	
6"	6" STD.	12"	4'	PL 1/2"x10"x10"
8"	6" STD.	18"	6'	PL 1/2"x14"x14"
10"	8" STD.	18"	8'	PL 1/2"x16"x16"
12" OR 14"	10" STD.	18"	8'	PL 1/2"x18"x18"

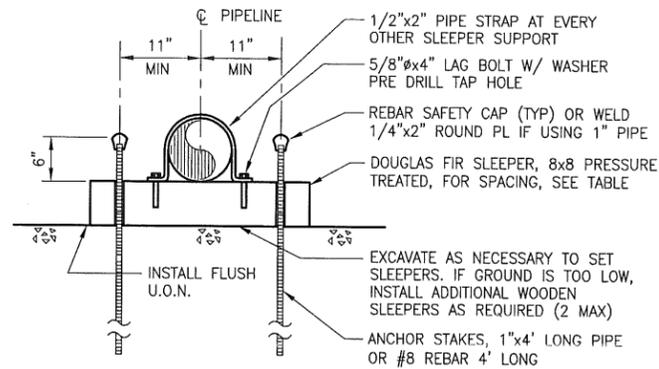
PIPE ANCHOR
NO SCALE



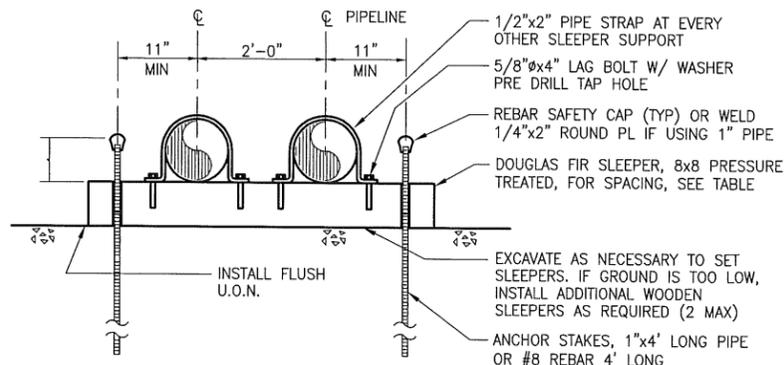
ALTERNATE SPREAD FOOTING FOUNDATION
NO SCALE

FOOTING DIMENSIONS	SUPPORT TYPE A&B		ANCHOR	
	A	B	A	B
8" INJ. LINE	2'	2'	3'	2.5'
10" INJ. LINE	2.5'	2'	3.5'	2.5'
12" INJ. LINE	3'	2'	4'	2.5'

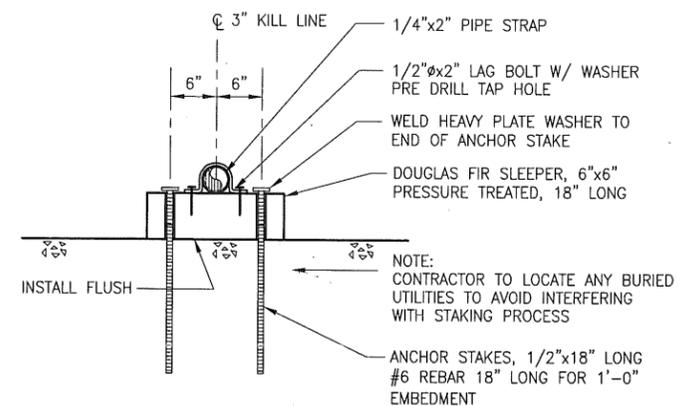
ALTERNATE SPREAD FOOTING FOUNDATION
NO SCALE



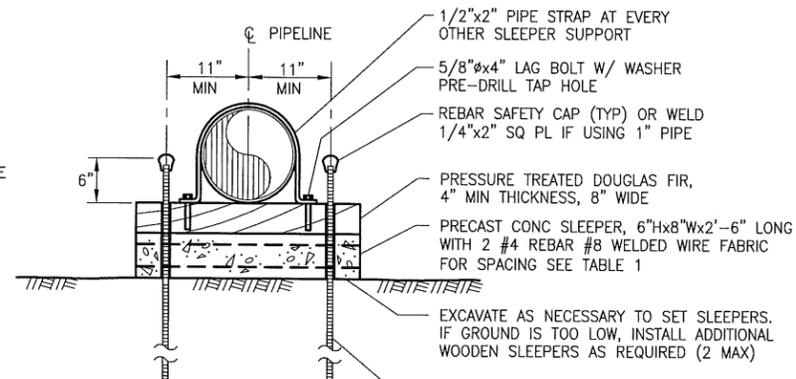
DETAIL @ 6" & 8" LINES



DETAIL @ 6" & 8" DOUBLE LINES



DETAIL @ 3" LINE

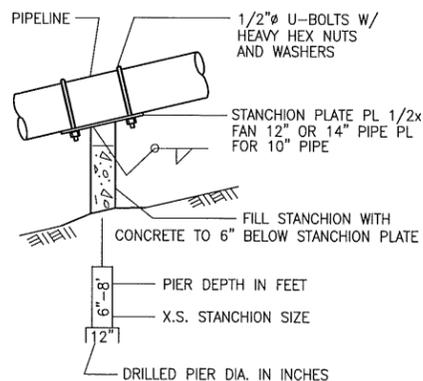


DETAIL @ 10", 12" OR 14" LINES

TABLE 1 - PIPE SUPPORT SPANS

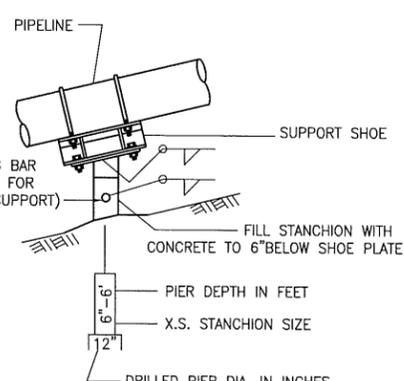
LINE SIZE	SUPPORT SPAN
3"	12' MAX
6"	18' MAX
8"	20' MAX
10"	22' MAX
12"	24' MAX
14"	26' MAX

SLEEPER TYPE PIPE SUPPORT
NO SCALE



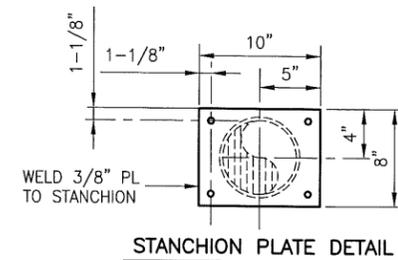
TYPE A

DRILLED PIPE SUPPORT FOR 10", 12" OR 14" PIPE
NO SCALE

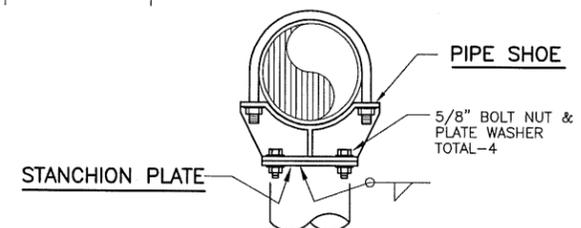
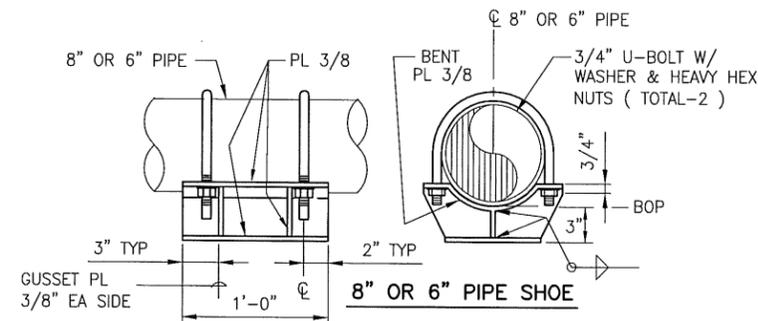
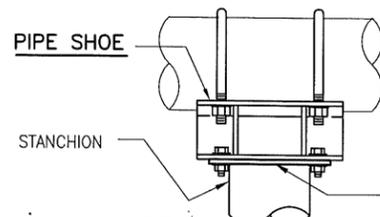


TYPE B

DRILLED PIPE SUPPORT FOR 6" AND 8" PIPE
NO SCALE



STANCHION PLATE DETAIL



SUPPORT SHOE & STANCHION PLATE INSTALLATION
NO SCALE

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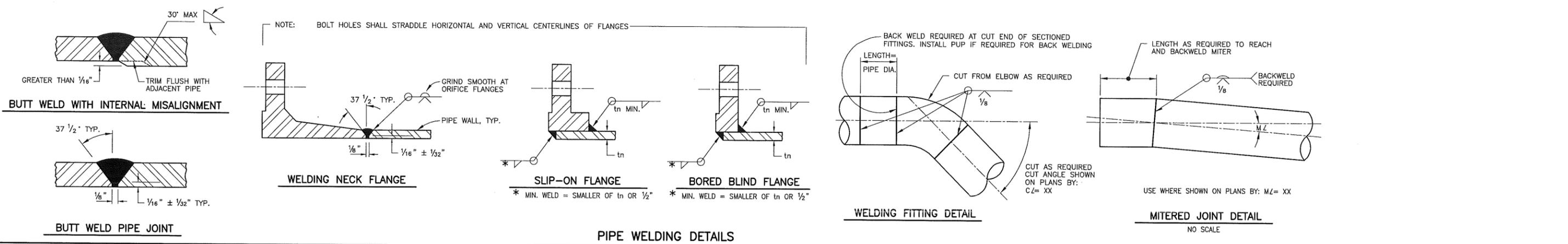


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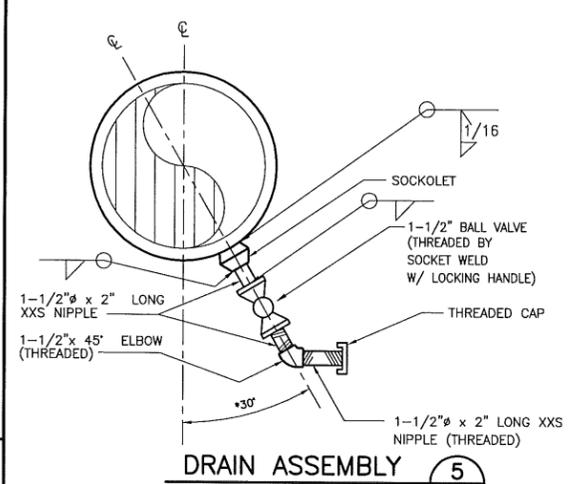
PRATI STATE-31 AND PRATI-32
INJECTION WELL LINE TIE-INS

PIPE SUPPORT DETAILS

PROJECT NO. 176-141
CONTRACT NO.
CADFILE NO. 141-12
SHEET NO. 11
REV. NO. 0

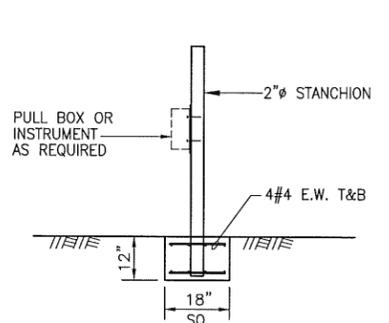


PIPE WELDING DETAILS

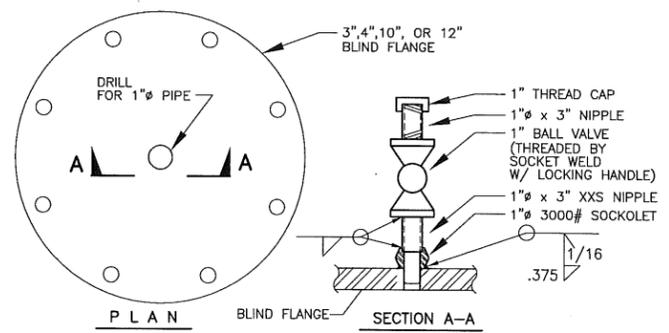


DRAIN ASSEMBLY (5)

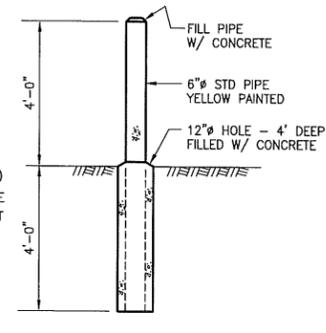
*30' ON SLEEPER SUPPORTED PIPE, 0' WHERE GROUND CLEARANCE AVAILABLE



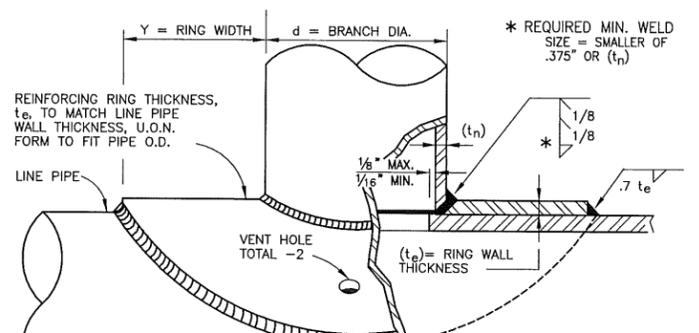
INSTRUMENT STAND (6)



TAPPED BLIND FLANGE DETAIL (7)

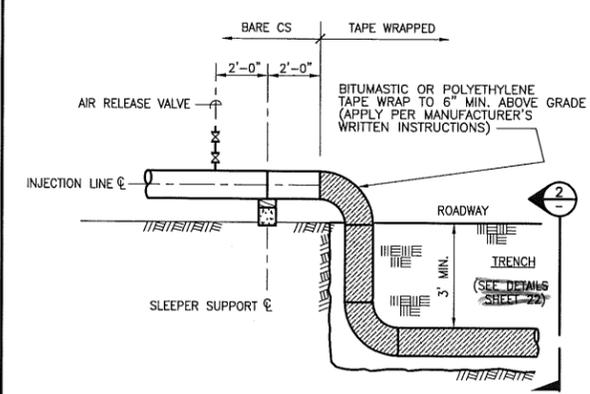


BOLLARD DETAIL (8)

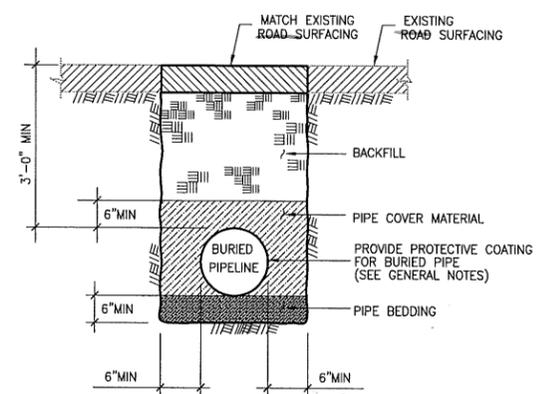


WELDED BRANCH CONNECTION

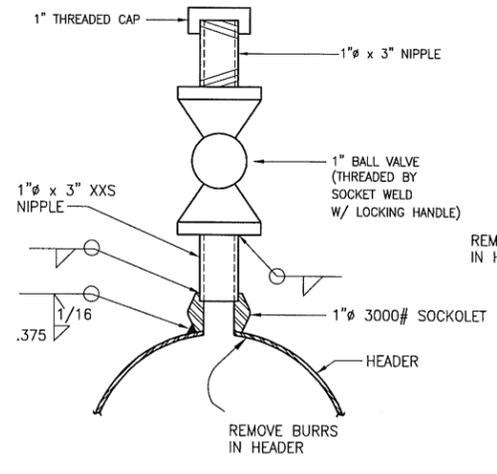
VALUES IN INCHES		
d	NORMAL	Y
4 & 6	2-3/4	
8	3-1/2	
10	4-1/2	
12	5-1/2	
14	6-3/8	
16	7-1/4	
18	8-1/4	
20	9-1/4	
24	11-1/4	
30	14-1/4	
36	17-1/4	



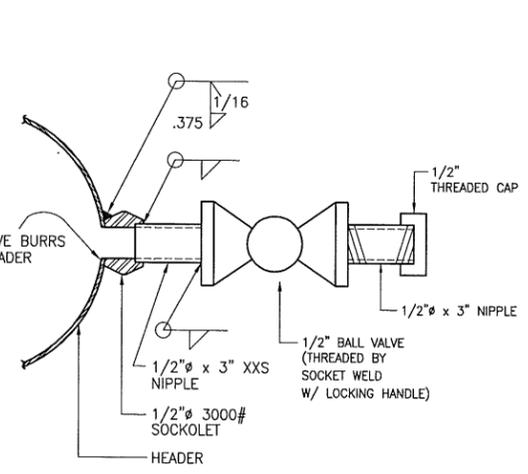
ROAD CROSSING DETAIL (1)



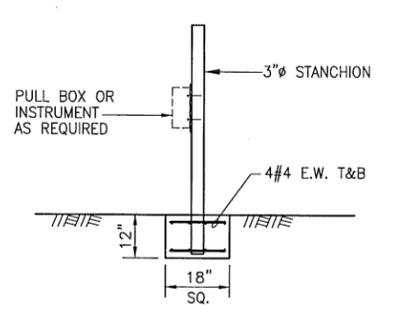
ROAD CROSSING TRENCH DETAIL (2)



AIR RELIEF TAP (3)



INSTRUMENT TAP (4)



ELECTRICAL STAND (9)

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APPROVED BY	HEV
DATE	7/27/09
SCALE	AS NOTED

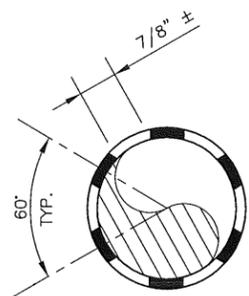


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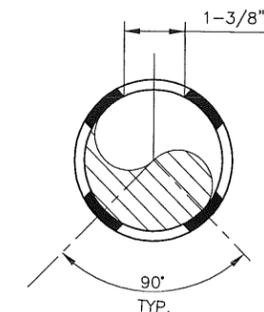
PRATI STATE-31 AND PRATI-32
INJECTION WELL LINE TIE-INS

TYPICAL PIPING DETAILS

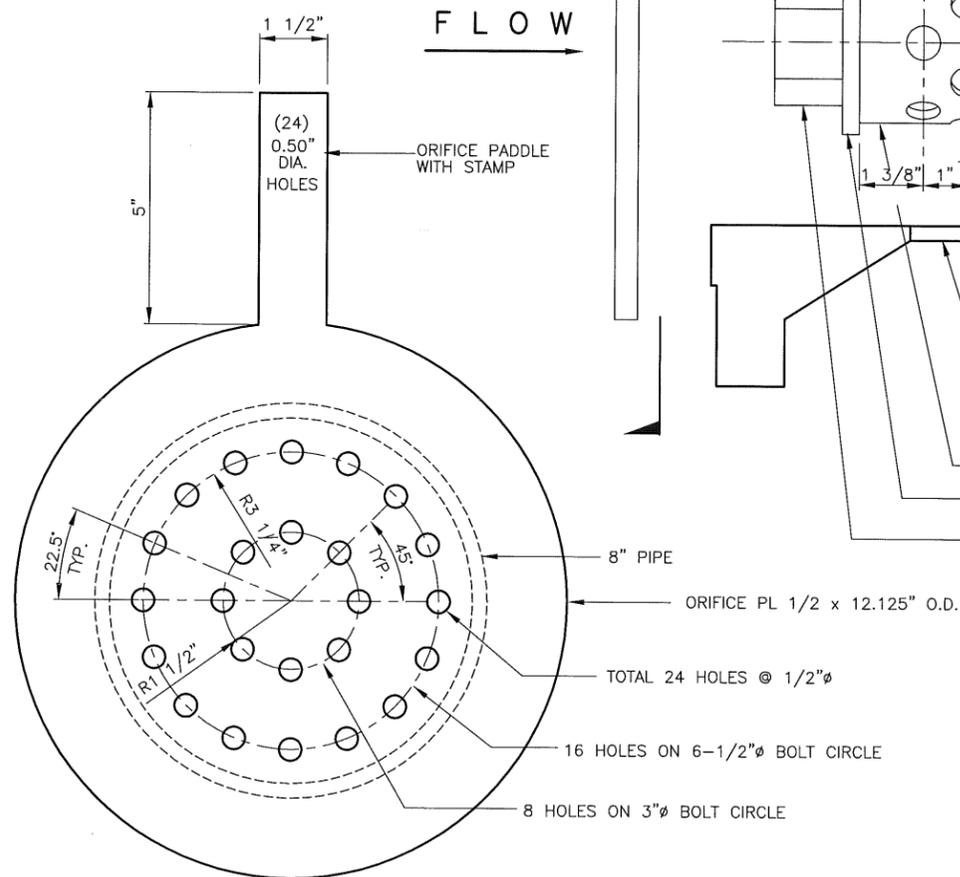
PROJECT NO.	176-141
CONTRACT NO.	
CADFILE NO.	141-13
SHEET NO.	12
REV. NO.	0



SECTION A
6"=1'-0"

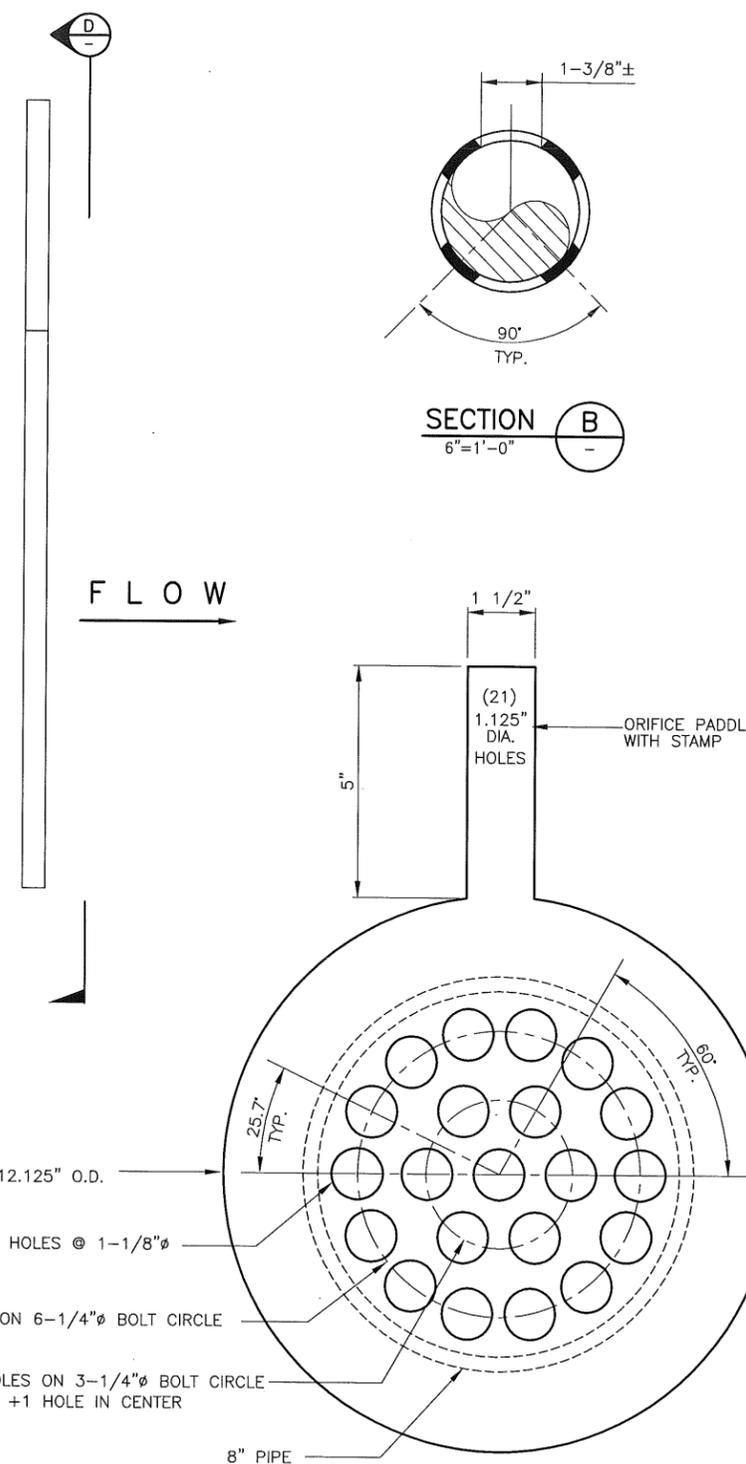
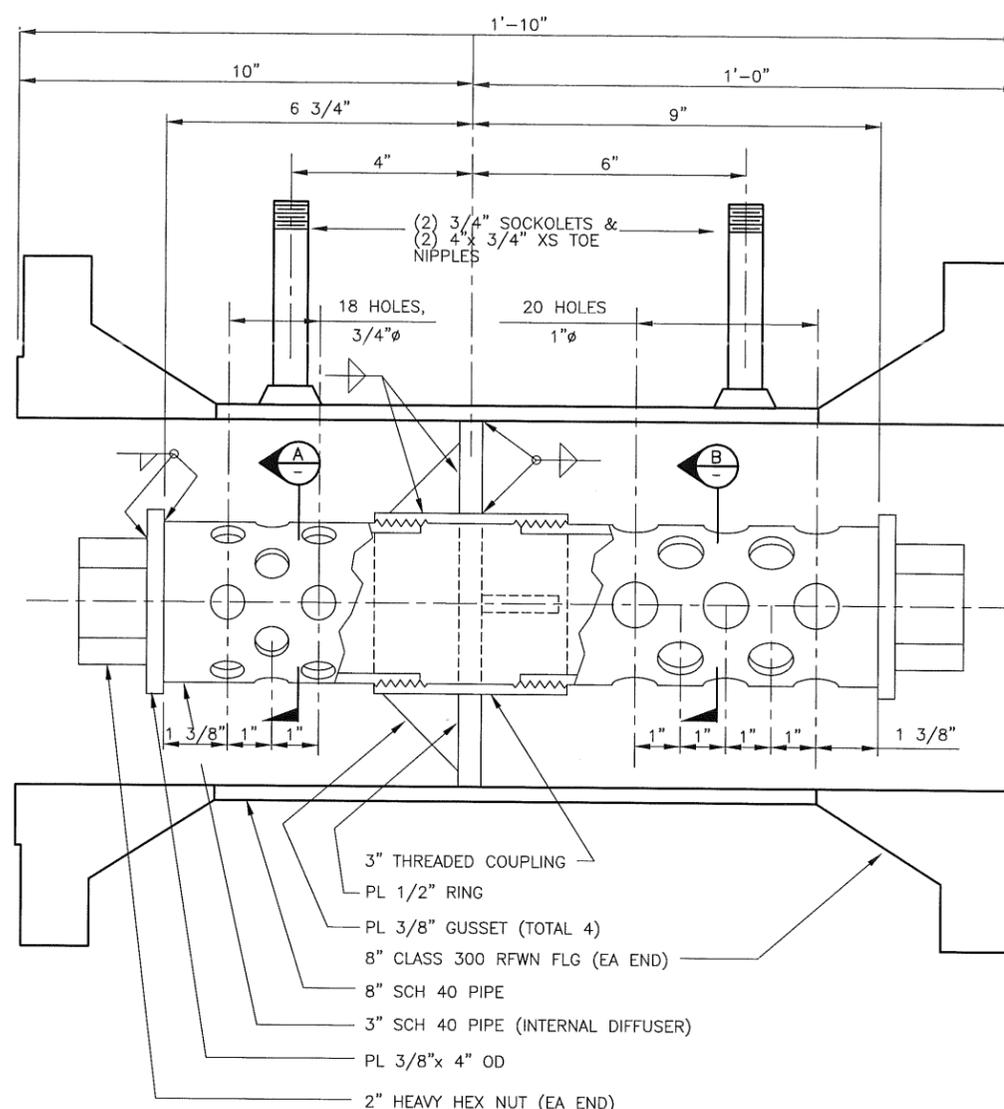


SECTION B
6"=1'-0"



UP-STREAM ORIFICE PLATE

SECTION C
6"=1'-0"



DOWN-STREAM ORIFICE PLATE

SECTION D
6"=1'-0"

FABRICATION NOTES:

- 1) ALL MATERIALS 316L S.S.
- 2) PRIOR TO FINAL ASSEMBLY OF THREADED DIFFUSER, CHASE COUPLING THREADS WITH TAP.
- 3) INSTALL DIFFUSER WITH TEFLON TAPE ONLY AND TORQUE TO 150FT-LB.
- 4) ORIFICE PLATE SURFACING TO BE POLISHED.
- 5) FLOW DIRECTION TO BE STAMPED ON EXTERIOR OF 8" PIPE.
- 6) INTERNAL DIFFUSER HOLE DIAMETER AND QUANTITY TO BE STAMPED ON EXTERIOR OF PIPE.
- 7) SHOP DRAWINGS MUST BE SUBMITTED PRIOR TO FABRICATION.

PROCESS DESIGN CONCEPT BY ALAN BALZER

DRAFT

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CALPINE OPERATING SERVICES COMPANY
THE GEYSERS, CALIFORNIA

PRATI STATE-31 & PRATI-32
INJECTION WELL LINE TIE-INS

BALFUZER ASSEMBLY DETAILS

PROJECT NO. 176-141
CONTRACT NO.
CADFILE NO. 141-18
SHEET NO. 13
REV. NO. 0