STOEL RIVES LLP
ATTORNEYS AT LAW

770 L Street, Suite 800
Sacramento, California 95814
main 916.447.0700
fax 916.447.4781
www.stoel.com

JOHN A. MCKINSEY
Direct (916) 319-4746
jamckinsey@stoel.com

December 14, 2006

BY E-MAIL AND HAND DELIVERY

Mr. Christopher Meyer
Compliance Project Manger
California Energy Commission
1516 Ninth Street, MS-
Sacramento, CA 95814

Re: Bottle Rock Power Plant (79-AFC-4C)
Compliance Submittal - Condition of Certification 10-5

Dear Mr. Meyer:

Dear Mr. Meyer:

On December 13, 2006, at the regularly scheduled Business Meeting for the California Energy Commission ("CEC"), the Commission unanimously approved Bottle Rock Power, LLC's ("BRP") Petition to Re-Start the Bottle Rock Power Plant ("BRPP"). To that end, compliance activities related to BRPP's re-start have begun. BRP addresses these activities herein.

Condition of Certification ("COC") 10-5, related to *Structural Engineering*, requires the project owner to file with the CEC Compliance Project Manager ("CPM") substantial design changes to the final plans as required by CBSC 2001. "Substantial changes" are defined to include "all changes requiring an alteration in design concept and preparation of new design plans consistent with the [Application for Certification] conditions of certification..." Therefore, the following changes are considered "substantial" pursuant to COC 10-5. As such, BRP submits the enclosed detailed information in compliance with COC 10-5 regarding the following:

- Installation of vacuum pumps to maintain vacuum in the condenser versus reliance upon steam injectors;
- Installation of a distributive control system for the plant;
- Addition of mercury vapor filter system upstream of the Stretford H_2S abatement system;
- Addition of air spargers in the oxidizer tanks of the Stretford H_2S abatement system; and,
- Changes to the design and operation of the secondary H_2S abatement system.

Should you have any questions or require additional information regarding these documents, please do not hesitate to contact me at the above number.

Very truly yours,

John A. McKinsey

JAM:kjh

Enclosures.

cc: Ronald E. Suess, JD, President, Bottle Rock Power, LLC

BOTTLE ROCK POWER CORPORATION (BRPC)
VACUUM PUMP INSTALLATION

BRPC is recommending that two 50% capacity vacuum pumps be installed at the facility to assist in the removal of non-condensable gas (NCG). The current NCG removal system is two stages of ejectors. The existing ejector system will be rebuilt and will remain fully functional and serve as a backup system to the proposed vacuum pumps. The seal water from the vacuum pumps will be returned to either the hot-well or to the rich condensate system (both options are currently piped and available). Vacuums pumps are slightly more energy efficient than the ejectors but the main advantages to the plant are as follows:

- The use of vacuum pumps will significantly reduce (almost eliminate) the need to vent unabated steam or NCG's during a plant start. Vacuum can be pulled with the pumps and then the steam line warmed up through the turbine bypass directly to the condenser.
- The vacuum pumps will forward the NCG stream to the Stretford Process at a higher pressure. This will reduce back pressure shut downs and problems caused by minor restrictions (plugging) in the Stretford.
- Vacuum pumps produce less ambient noise than ejectors.

Please see attached drawing showing pumps installed with existing ejectors.

BOTTLE ROCK POWER CORPORATION

COBB, CALIFORNIA

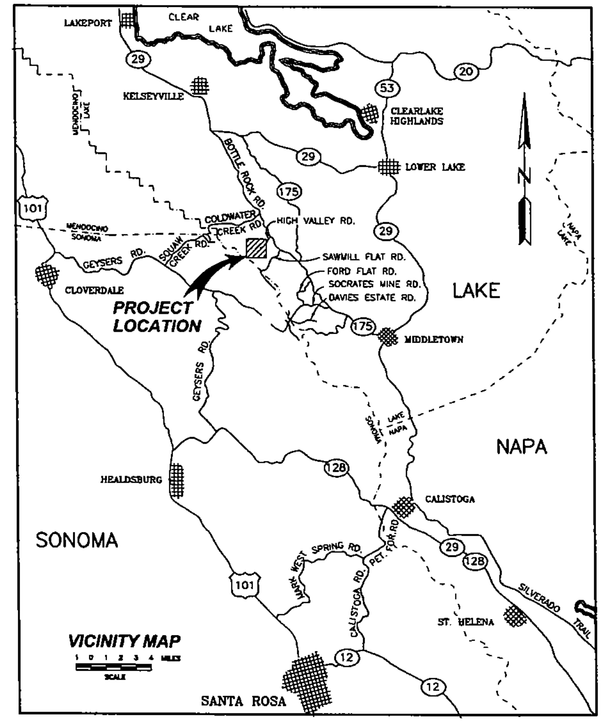
CONTRACT DRAWINGS

FOR CONSTRUCTION OF

VACUUM PUMP INSTALLATION

LAKE COUNTY, CALIFORNIA

JUNE 2006



DRAWING LIST

SHT #	TITLE	SHT #	TITLE
1	TITLE SHEET	7A	SEAL WATER SUPPLY & RETURN PLAN
2	NOTES, LEGEND AND ABBREVIATIONS	8	STANDARD DETAILS
3	GENERAL PLAN	9	FOUNDATION AND GROUNDING DETAILS
4A	P & ID LEGEND - Sht 1	10	VACUUM PUMP AREA E & I PLAN
4B	P & ID LEGEND - Sht 2	11	VACUUM PUMP SINGLE LINE DIAGRAM
4C	P & ID LEGEND - Sht 3	12	VACUUM PUMP TYPICAL CONTROLLER
4D	P & ID	13	VACUUM PUMP INSTRUMENTATION
5	VACUUM PUMP & PIPING PLAN	14	SEPARATOR LEVEL CONTROL DETAILS
6	VACUUM PUMP DETAILS - 1	15	I & C DETAILS
7	VACUUM PUMP DETAILS - 2		

NO.	REVISIONS	BY	APPR.	DATE
B	ADDED SHEET 7A	MKK	HEV	8/23/06
A	ISSUED FOR BID	MAP	HGV	7/31/06

WARNING
IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE
0 1
1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET - SUITE 400 - SAN FRANCISCO - CA 94103
TEL: 415 394 8855 FAX: 415 394.8866

DESIGNED BY FC
CHECKED BY MAP
DRAFTED BY JCH
APPROVED BY HGV
DATE 6/20/06
SCALE NO SCALE

Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

TITLE SHEET

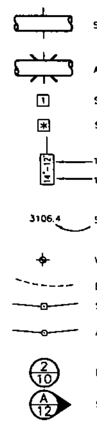
PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-07
SHEET NO. 1
REV. NO. B

J:\253\003\003-07.DWG 6/20/06

ABBREVATIONS

AB	ANCHOR BOLT
∠	ANGLE
AC	ASPHALT CONCRETE
AGG	AGGREGATE
AHD	AHEAD
ALT	ALTERNATE
@	AT
B∠	BEND ANGLE
BC	BEGIN HORIZONTAL CURVE
BEG	BEGIN
BK	BACK
BLDG	BUILDING
BM	BENCH MARK
BOP	BOTTOM OF PIPE
BVC	BEGIN VERTICAL CURVE
C∠	CUT ANGLE
C-C	CENTER TO CENTER
CF	CUBIC FOOT
℄, CL	CENTER LINE
CL	CLASS
CLR	CLEAR, CLEARANCE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CONST	CONSTRUCT(ION)
COORD	COORDINATE
CORR	CORRUGATED
CSP	CORRUGATED STEEL PIPE
CULV	CULVERT
CY	CUBIC YARD
D	DEPTH
DET	DETAIL
DBL	DOUBLE
DIA, ⌀	DIAMETER
DIST	DISTANCE
DWG	DRAWING
E	EAST COORDINATE
EA	EACH
EC	END HORIZONTAL CURVE
EF	EACH FACE
EL, ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EQ	EQUAL, EQUATION
EVC	END VERTICAL CURVE
EW	EACH WAY
EXC	EXCAVATION
EXIST	EXISTING
EXP	EXPANSION
FND	FOUNDATION
FG, FIN.GR.	FINISH GRADE
FL	FLOW LINE
FT	FOOT OR FEET
FTG	FOOTING
GA	GAGE
GAL	GALLON
GALV	GALVANIZED
GB	GRADE BREAK
GRND	GROUND
H	HEIGHT
HORIZ	HORIZONTAL
HP	HINGE POINT OR HORSE POWER
ID	INSIDE DIAMETER
IN	INCHES
INV	INVERT
JT	JOINT
LCV	LEVEL CONTROL VALVE
L	LENGTH
LB	POUND
LTFC	LIQUID TIGHT FLEXIBLE CONDUIT
LF	LINEAR FOOT
LOL	LAYOUT LINE
LONGIT	LONGITUDINAL
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MI	MILE(S)
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MODIFIED OR MODIFY
MTL	MATERIAL
N	NORTH COORDINATE
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OG	ORIGINAL GROUND
OH	OVERHEAD
PCC	POINT OF COMPOUND CURVE
PCVC	POINT OF COMPOUND VERTICAL CURVE
PERM	PERMEABLE, PERMANENT
PI	POINT OF INTERSECTION
P/L	PROPERTY LINE
PL	PLATE
POC	POINT ON HORIZONTAL CURVE
POL	POINT ON LINE
POT	POINT ON TANGENT
POVC	POINT ON VERTICAL CURVE
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PRVC	POINT OF REVERSE VERTICAL CURVE
PS	PIPE SUPPORT
PT	POINT
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R	RADIUS
RC	REINFORCED CONCRETE
RD	ROAD
REINF	REINFORCED OR REINFORCING
REQD	REQUIRED
RET	RETAINING
RP	REFERENCE POINT
RT	RIGHT
R/W	RIGHT OF WAY
RW	RETAINING WALL
S	SOUTH COORDINATE, SLOPE
SCH	SCHEDULE
SEC	SECTION
SERWWTP	SOUTHEAST REGIONAL WWTP
SG	SUBGRADE
SHT	SHEET
SIM	SIMILAR
SPECS	CONTRACT SPECIFICATIONS
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
SS	SLOPE STAKE
STA	STATION
STD	STANDARD
SQ	SQUARE
SYM ABT	SYMMETRICAL ABOUT
TEMP	TEMPORARY
T&B	TOP AND BOTTOM
TC	TOP OF CURVE
TG	TOP OF GRATE
THRD	THREADED
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TRANS	TRANSITION
TYP	TYPICAL
UG	UNDERGROUND
U.O.N.	UNLESS OTHERWISE NOTED
V&A	VEIZADES & ASSOCIATES, INC.
VC	VERTICAL CURVE
VERT	VERTICAL
VPI	VERTICAL POINT OF INTERSECTION
W	WEST COORDINATE OR WIDTH
WIO	WHERE IT OCCURS
W/	WITH
W/O	WITHOUT
WP	WORK POINT
WT	WEIGHT
WWTP	WASTEWATER TREATMENT PLANT
XING	CROSSING
XS	EXTRA STRONG

LEGEND



SUPPORT

ANCHOR

SHOE GUIDE LOCATION (INCHES)

SHOE GUIDE LOCATION (* = 1/2")

12' - DRILLED FOOTING DEPTH (FEET)

14" - PIPE STANCHION DIAMETER (INCHES)

3106.4 SPOT ELEVATION ON EXISTING SURFACE

WORK POINT

EXISTING GROUND

SURVEYED POINTS STAKED IN THE FIELD

ALIGNMENT POINTS TO BE SET BY CONTRACTOR

DETAIL 2 SHOWN ON SHEET 10

SECTION A SHOWN ON SHEET 12

GENERAL NOTES

1. 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.
2. EXISTING UTILITIES SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY THE LOCATION, SIZE, TYPE AND ELEVATION OF ALL UTILITIES PRIOR TO CONSTRUCTION AND SHALL INFORM THE ENGINEER OF ANY CONFLICTS.
3. CONTRACTOR SHALL POTHOLE ALL UNDERGROUND UTILITY CROSSINGS A MINIMUM OF TWO WEEKS IN ADVANCE OF TRENCHING OPERATIONS IN ORDER TO VERIFY CLEARANCE FOR THE PROPOSED WORK. REPORT ANY CONFLICTS TO ENGINEER IMMEDIATELY.
4. INSULATION IS EASILY DAMAGED. CONTRACTOR IS RESPONSIBLE FOR REPLACING INSULATION DAMAGED DURING CONSTRCUTION.

PIPELINE SCHEDULE

LINE DESIGNATOR	LINE SIZE	BEND TYPE	FLANGE CLASS	INSULATION
NC GAS HEADER	16"x 0.188"	LR	150	NONE
NC GAS VACUUM PUMP SUCTION	8"x 0.148"	LR	150	NONE
NC GAS VACUUM PUMP DISCHARGE	6"x 0.134"	LR	150	NONE
NC GAS START-UP RECIRC LINE	3"x 0.216"	LR	150	NONE
SEAL WATER SUPPLY	1-1/2"x 0.216" 2"x 0.154"	LR LR	150 150	NONE NONE
SEAL WATER RETURN	2"x 0.154"	LR	150	NONE

B	ISSUE FOR BID	MAP	HGV	7/31/06
A	ISSUED FOR CLIENT REVIEW	FSC	HGV	6/20/06
NO.	REVISIONS	BY	APPR.	DATE

WARNING

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

0 1

1 INCH

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

DESIGNED BY FSC

CHECKED BY MAP

DRAFTED BY JCH

APPROVED BY HGV

DATE 6/20/06

SCALE NO SCALE

Bottle Rock Power Corporation

COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT

HYBRID NC GAS EXTRACTION SYSTEM

NOTES, LEGEND AND ABBREVIATIONS

PROJECT NO. 253-003

CONTRACT NO.

CADFILE NO. 003-08

SHEET NO. 2

REV. NO. B

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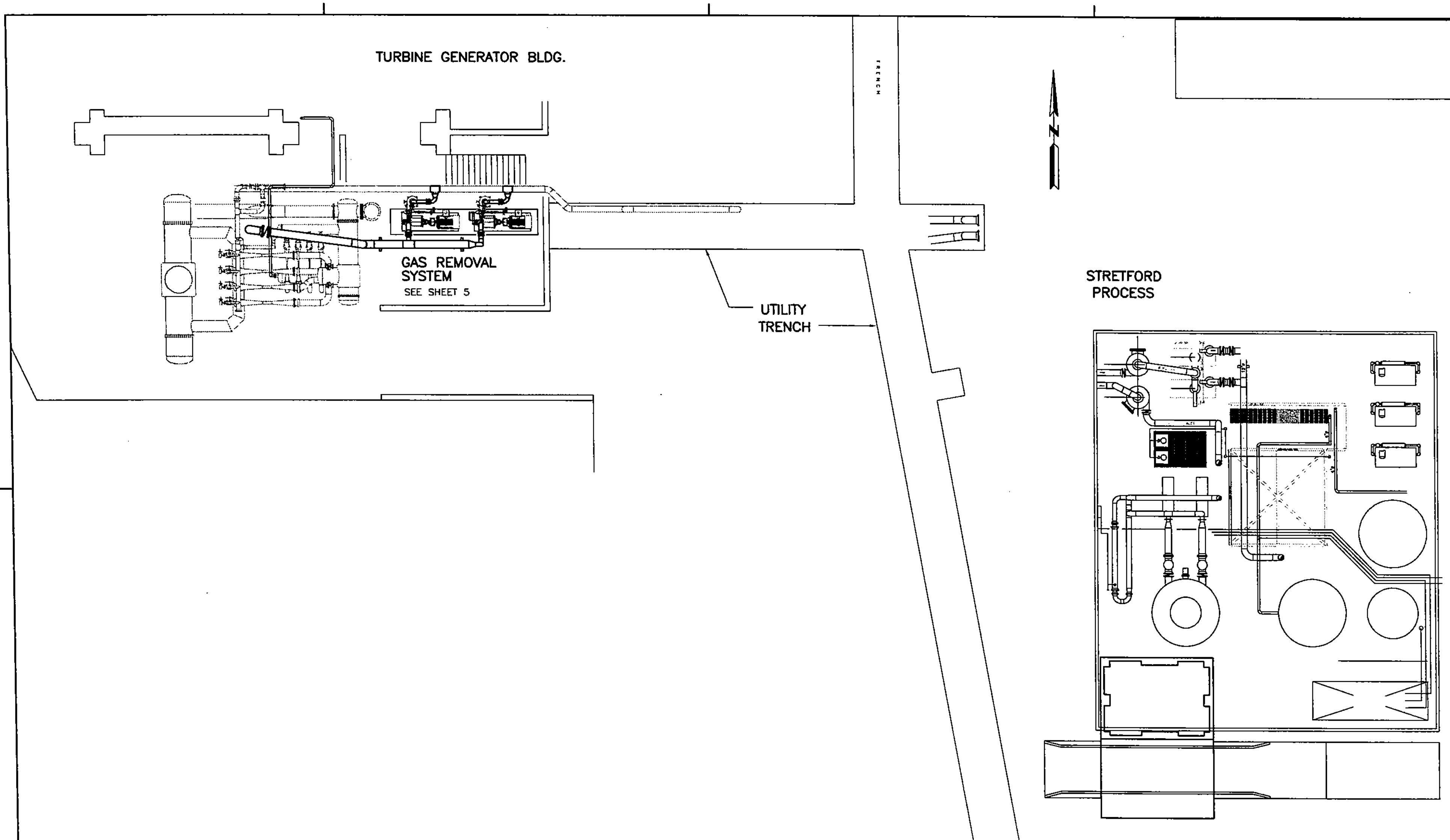

NO.	REVISIONS	BY	APPR.	DATE
B	ISSUE FOR BID	SSC	HGV	7/31/06
A	ISSUED FOR CLIENT REVIEW	MAP	HGV	5/23/06

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TEL: 415. 394.8855 FAX: 415. 394.8866

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APPROVED BY HGV
DATE 5/23/08
SCALE 1/8"=1'-0"

Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

GENERAL PLAN

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-04
SHEET NO. 3
REV. NO. B

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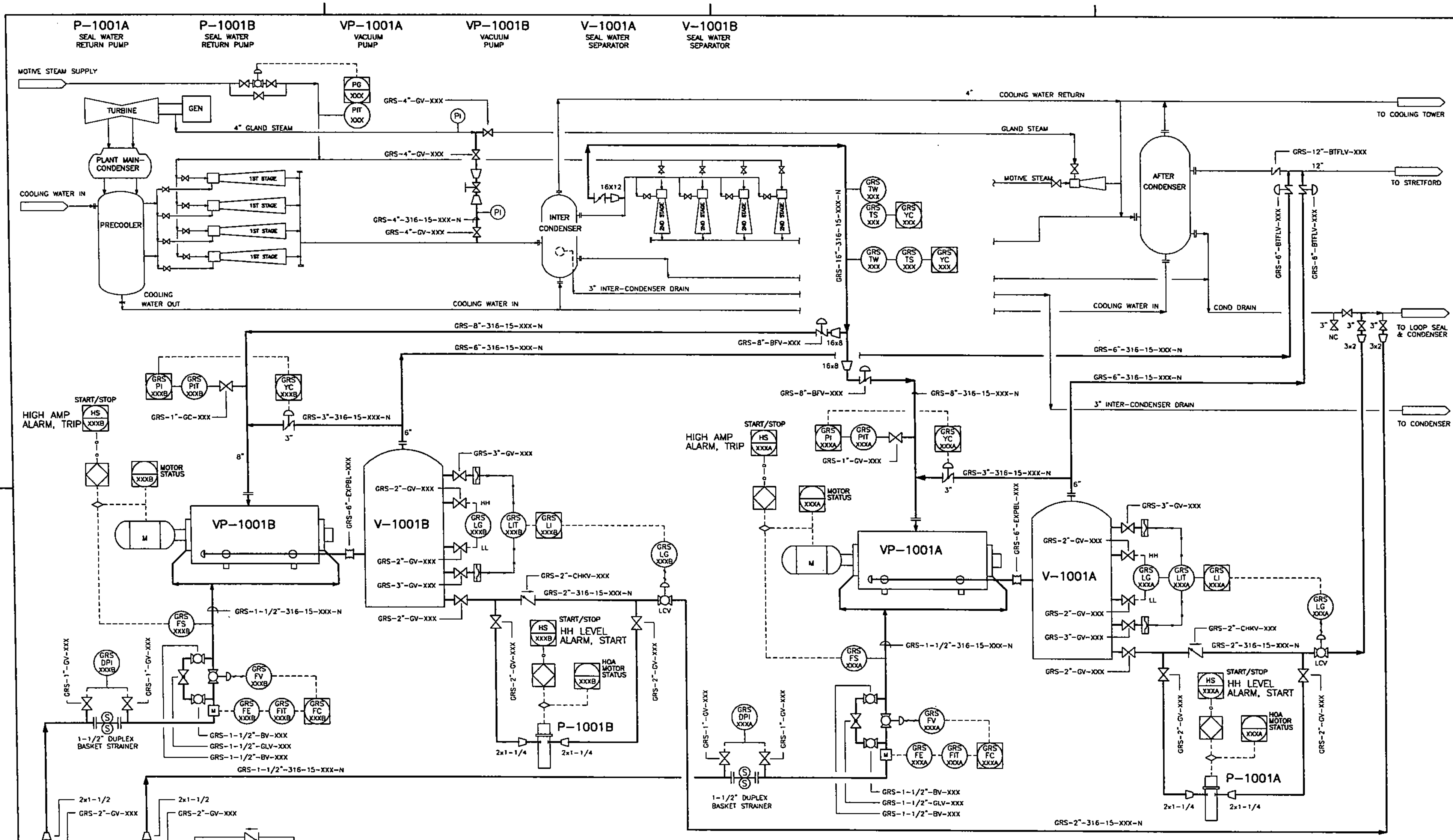

D	REVISED NCG HEADER TO 16" & TIE-IN	MAP	HGV	8/29/06
C	ISSUE FOR BID	MAP	HGV	7/28/06
B	REVISED PER CLIENT MEETING	MAP	HGV	06/02/06
A	ISSUED FOR CLIENT REVIEW	MAP	HGV	5/23/06
NO.	REVISIONS	BY	APPR.	DATE

WARNING
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0 1
1 INCH

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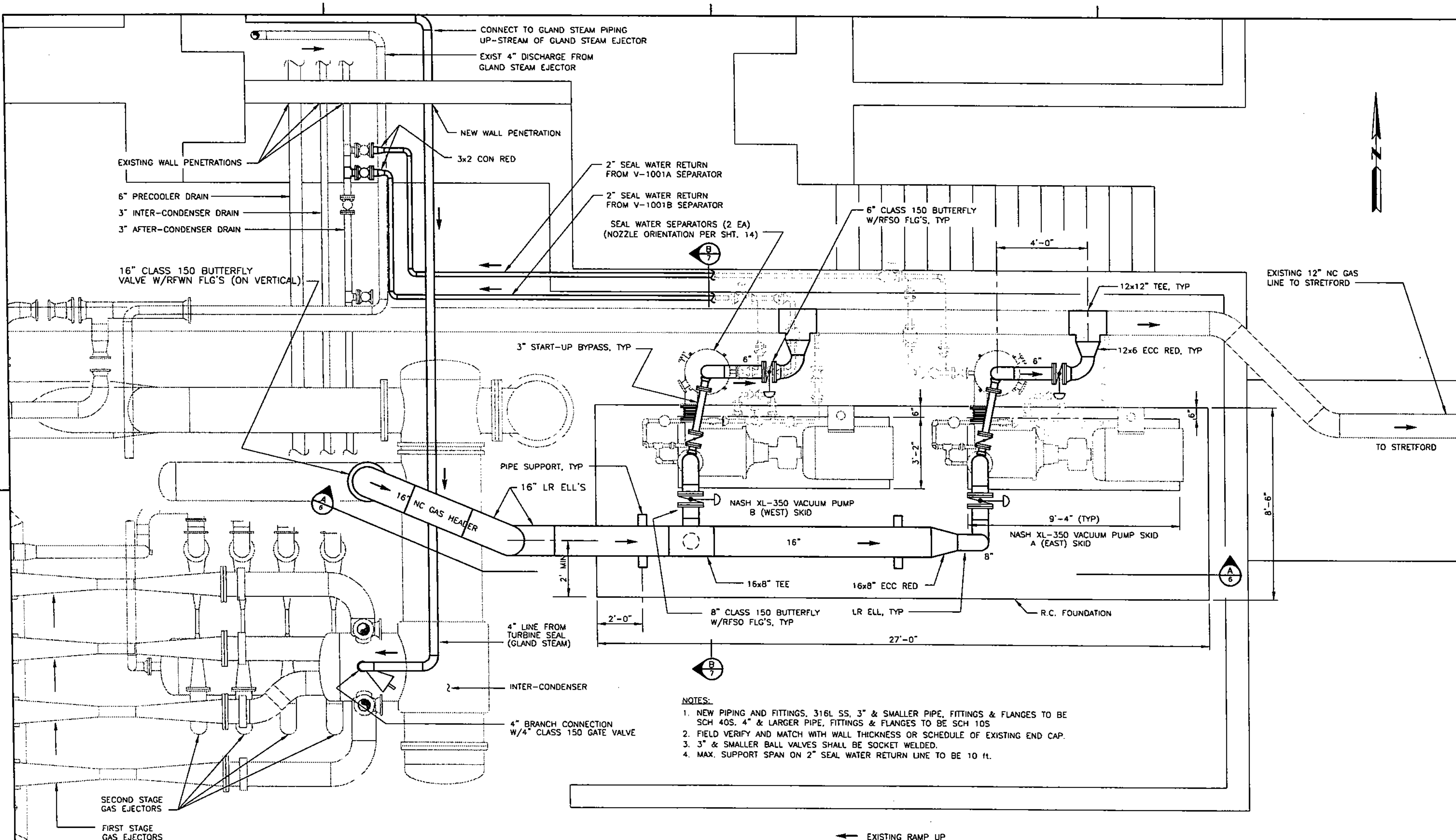
DESIGNED BY MAP
CHECKED BY MKK
DRAFTED BY JCH
APPROVED BY HGV
DATE 5/23/06
SCALE NONE

Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

P & ID

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-05
SHEET NO. 4D
REV. NO. D



NOTES:

1. NEW PIPING AND FITTINGS, 316L SS, 3" & SMALLER PIPE, FITTINGS & FLANGES TO BE SCH 40S. 4" & LARGER PIPE, FITTINGS & FLANGES TO BE SCH 10S
2. FIELD VERIFY AND MATCH WITH WALL THICKNESS OR SCHEDULE OF EXISTING END CAP.
3. 3" & SMALLER BALL VALVES SHALL BE SOCKET WELDED.
4. MAX. SUPPORT SPAN ON 2" SEAL WATER RETURN LINE TO BE 10 ft.

NO.	REVISIONS	BY	APPR.	DATE
D	REVISED NCG HEADER TO 16" & TIE-IN	MAP	HGV	8/29/06
C	ISSUE FOR BID	MAP	HGV	7/28/06
B	ISSUED FOR NASH REVIEW	MAP	HEV	6/21/06
A	ISSUED FOR CLIENT REVIEW	FC	HGV	6/20/06

WARNING
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0 1
1 INCH

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CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394.8855 FAX: 415. 394.8866

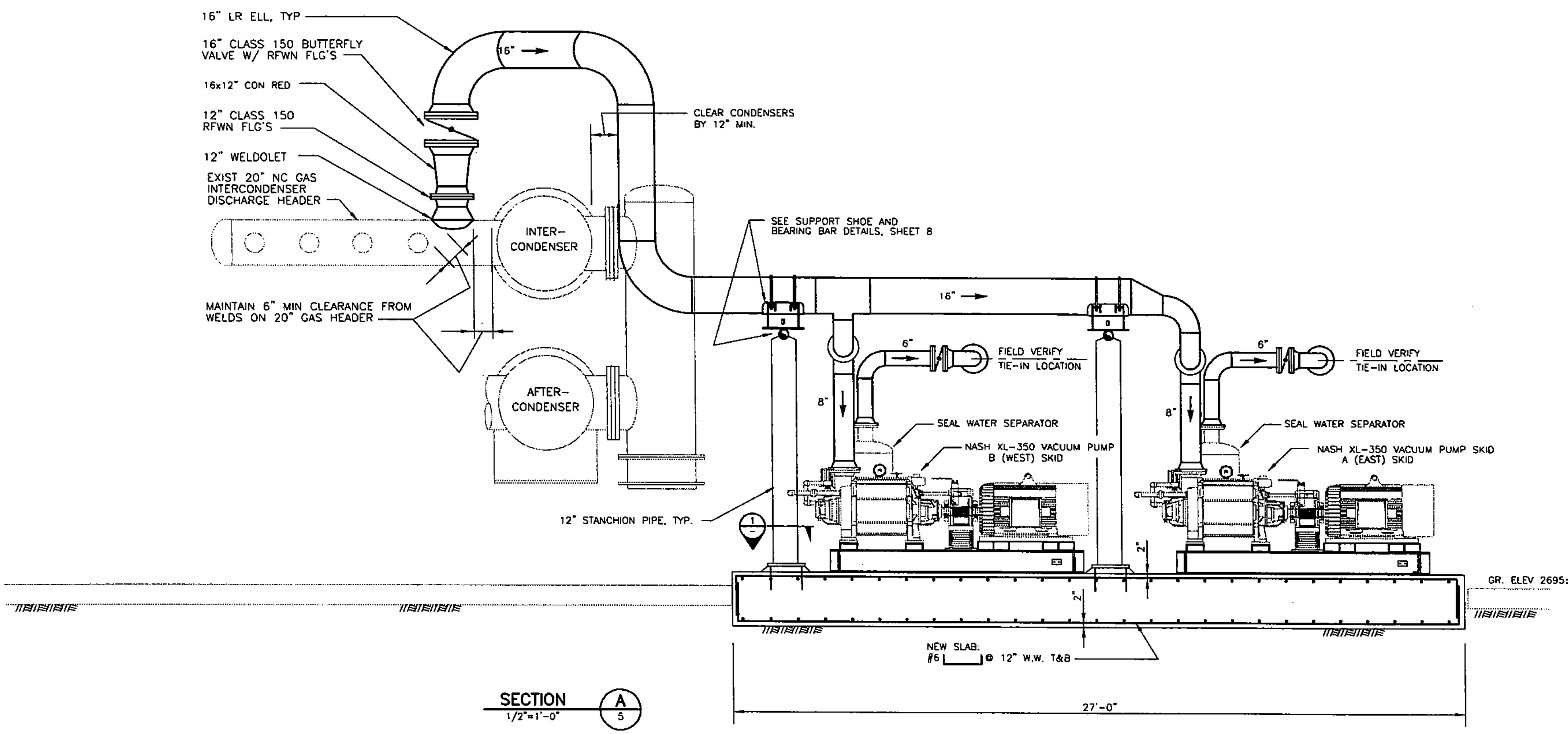
DESIGNED BY MAP
CHECKED BY MKK
DRAFTED BY JCH
APPROVED BY HGV
DATE 6/17/06
SCALE 1/2"=1'-0"

Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

VACUUM PUMP & PIPING PLAN

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-06
SHEET NO. 5
REV. NO. D



NO.	REVISIONS	BY	APPR.	DATE
C	REVISED NCG HEADER TO 16" & TIE-IN	MAP	HGV	8/29/06
B	ISSUE FOR BID	MAP	HGV	7/28/06
A	ISSUED FOR CLIENT REVIEW	FC	HGV	6/20/06

WARNING
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1 INCH

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DESIGNED BY MAP
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DRAFTED BY JCH
APPROVED BY HGV
DATE 6/17/06
SCALE 1/2"=1'-0"

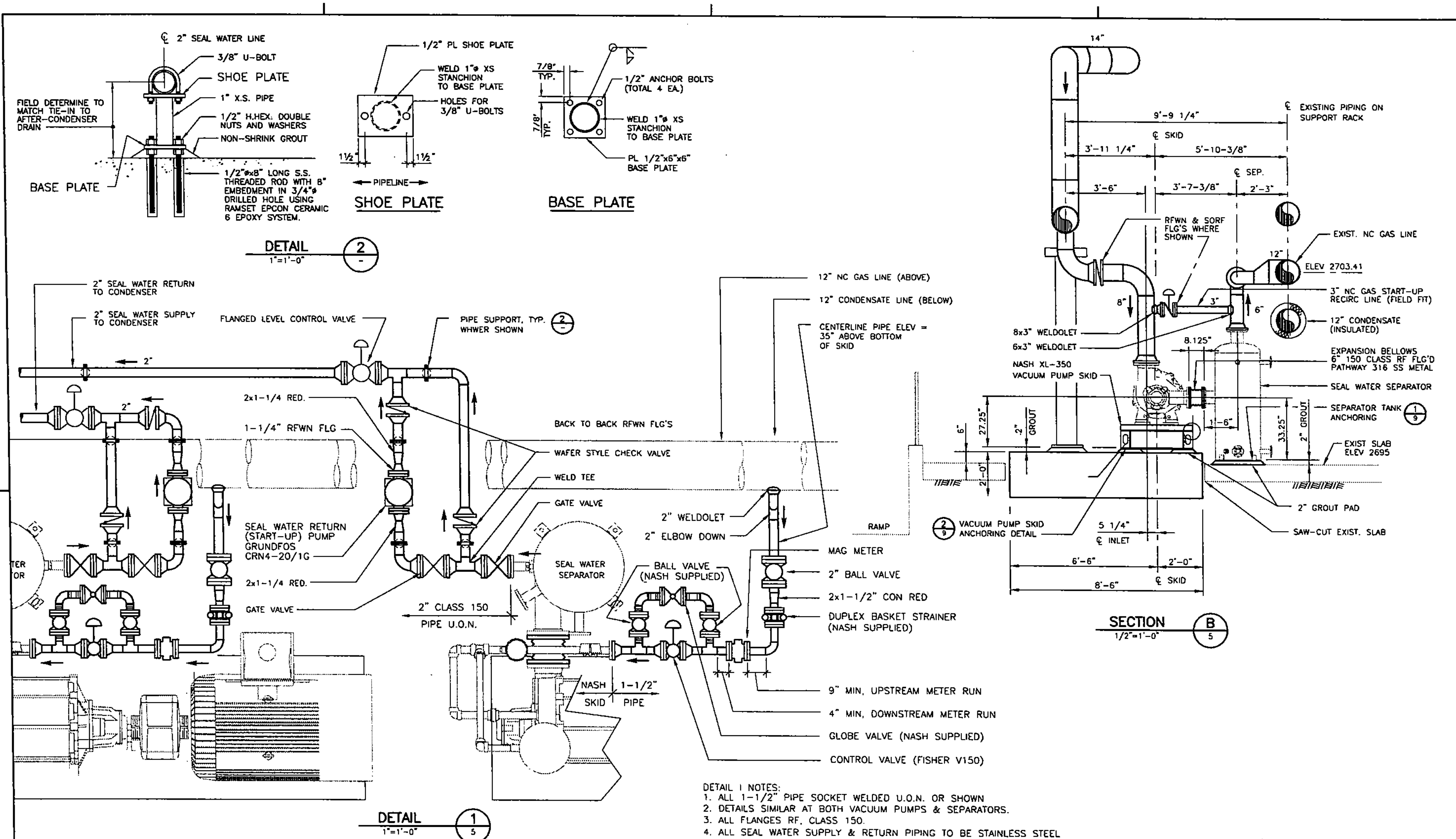
Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

VACUUM PUMP DETAILS – 1

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-06
SHEET NO. 6
REV. NO. C

J:\253\003\003-06.DWG 6/17/06



DETAIL I NOTES:
1. ALL 1-1/2" PIPE SOCKET WELDED U.O.N. OR SHOWN
2. DETAILS SIMILAR AT BOTH VACUUM PUMPS & SEPARATORS.
3. ALL FLANGES RF, CLASS 150.
4. ALL SEAL WATER SUPPLY & RETURN PIPING TO BE STAINLESS STEEL AND MAX. SUPPORT SPAN OF 10'.

NO.	REVISIONS	BY	APPR.	DATE
C	RE-ISSUE FOR BID	SSC	MKK	7/31/08
B	ISSUED FOR NASH REVIEW	MAP	HEV	6/21/08
A	ISSUED FOR CLIENT REVIEW	FC	HGV	6/20/08

WARNING
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1 INCH

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5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
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DATE 6/17/08
SCALE 1/2"=1'-0"

Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

VACUUM PUMP DETAILS – 2

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-06
SHEET NO. 7
REV. NO. C

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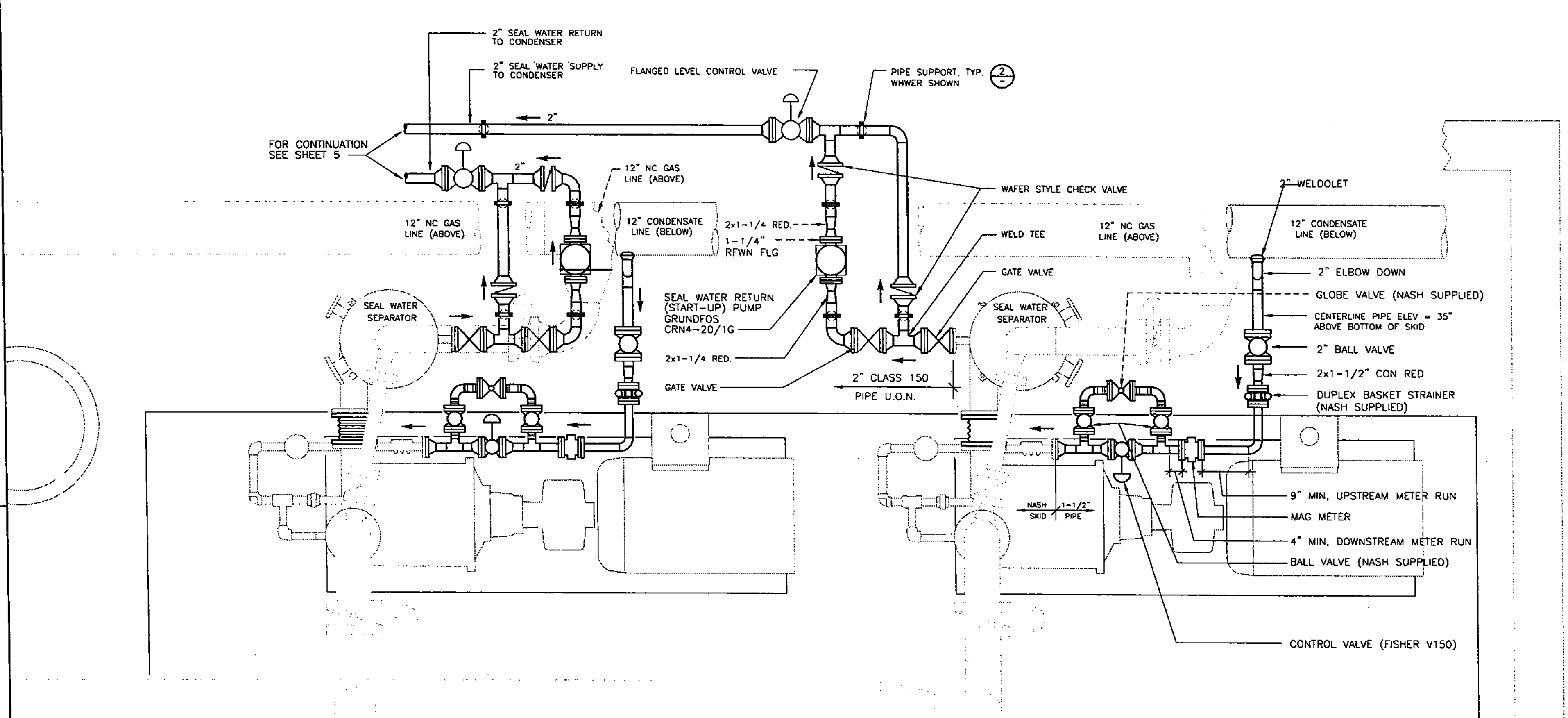

DETAIL I NOTES:
1. ALL 1-1/2" PIPE SOCKET WELDED U.O.N. OR SHOWN
2. DETAILS SIMILAR AT BOTH VACUUM PUMPS & SEPARATORS.
3. ALL FLANGES RF, CLASS 150.
4. ALL SEAL WATER SUPPLY & RETURN PIPING TO BE STAINLESS STEEL AND MAX. SUPPORT SPAN OF 10'.

SEAL WATER SUPPLY & RETURN – PLAN

1"=1'-0"

NO.	REVISIONS	BY	APPR.	DATE
D	EXPANDED SHEET 7 FOR CLARITY	MKK	HEV	8/23/06
C	RE-ISSUE FOR BID	SSC	MKK	7/31/06
B	ISSUED FOR NASH REVIEW	MAP	HEV	6/21/06
A	ISSUED FOR CLIENT REVIEW	FC	HGV	8/20/06

WARNING
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0 1
1 INCH

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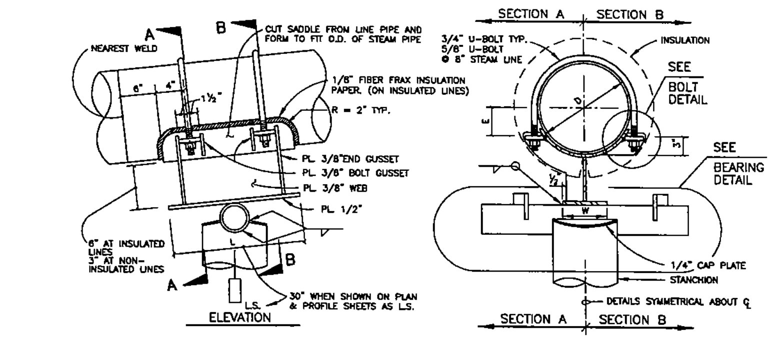
SCALE 1/2"=1'-0"

Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

SEAL WATER SUPPLY & RETURN PLAN

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-08
SHEET NO. 7A
REV. NO. D



PIPE SUPPORT TYPE PS

8" – 24" PIPE

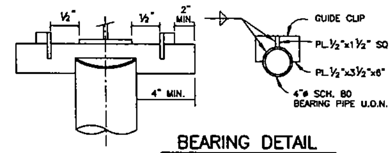
NO SCALE

TABLE

D	8	10	12	14
W	6	6	6	6
L	18*	18*	18*	18*
E	2⅞	3¼	3⅞	3¾
G	2¼	2½	2½	2½

(D=NOM. DIA.) (VALUES IN INCHES)

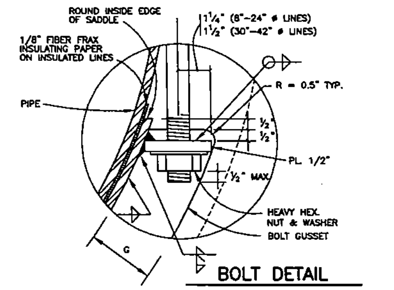
* 30" FOR LONG SHOE WHEN "L.S." SHOWN ON PLAN & PROFILE SHEETS



BEARING DETAIL

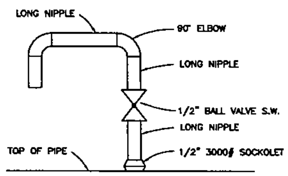
NO SCALE

NOTE: TORQUE U-BOLT NUTS UNIFORMLY TO: 80 FT-LBS FOR 3/4" BOLTS 120 FT-LBS FOR 1" BOLTS



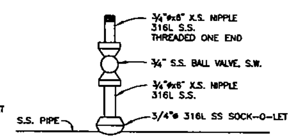
BOLT DETAIL

NO SCALE



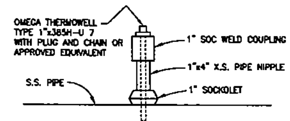
NOTE: ALL MATERIAL STAINLESS STEEL

AIR VENT DETAILS



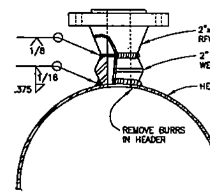
NOTE: ALL MATERIAL 316L STAINLESS STEEL

PRESSURE TAP



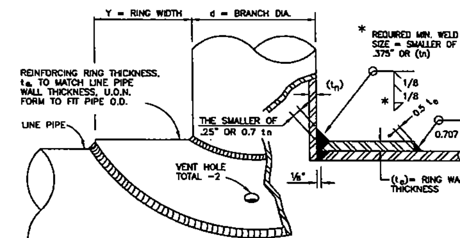
NOTE: ALL MATERIAL 316L STAINLESS STEEL

TEMPERATURE TAP



NOTE: ALL MATERIAL 316L STAINLESS STEEL

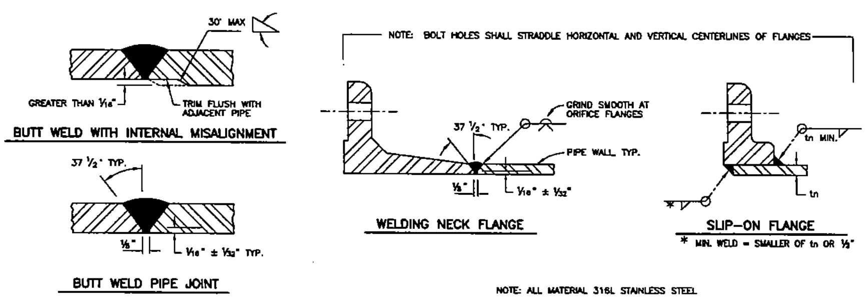
TAP CONNECTION



NOTE: ALL MATERIAL 316L STAINLESS STEEL

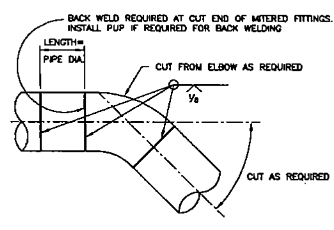
WELDED BRANCH CONNECTION

VALUES IN INCHES	
d NORMAL	Y
3 - 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



NOTE: ALL MATERIAL 316L STAINLESS STEEL

PIPE WELDING DETAILS



WELDING FITTING DETAIL

(ELBOW SHOWN – TEE SIMILAR)

A	ISSUED FOR BID	MAP	HGV	7/31/06
NO.	REVISIONS	BY	APPR.	DATE

WARNING

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0 1

1 INCH

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CONSULTING ENGINEERS

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DESIGNED BY FSC

CHECKED BY MAP

DRAFTED BY JCH

APPROVED BY HGV

DATE 6/20/06

SCALE NO SCALE

Bottle Rock Power Corporation

COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT

HYBRID NC GAS EXTRACTION SYSTEM

STANDARD DETAILS

PROJECT NO. 253-003

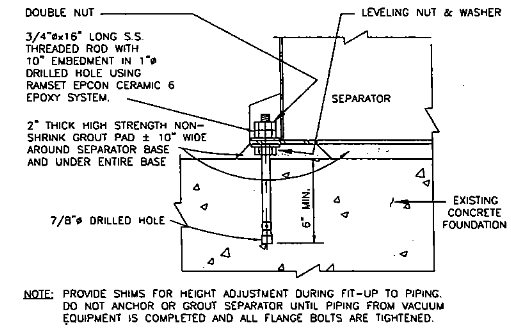
CONTRACT NO.

CADFILE NO. 003-09

SHEET NO. 8

REV. NO. A

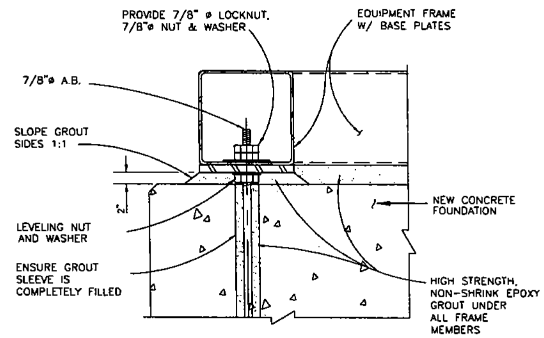
J:\253\003\003-09.DWG 6/20/06



NOTE: PROVIDE SHIMS FOR HEIGHT ADJUSTMENT DURING FIT-UP TO PIPING. DO NOT ANCHOR OR GROUT SEPARATOR UNTIL PIPING FROM VACUUM EQUIPMENT IS COMPLETED AND ALL FLANGE BOLTS ARE TIGHTENED.

SEPARATOR TANK ANCHORING DETAIL (1/7)

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

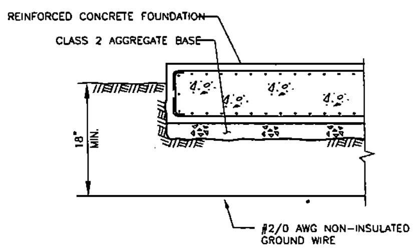


VACUUM PUMP SKID ANCHORING DETAIL (2/7)

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

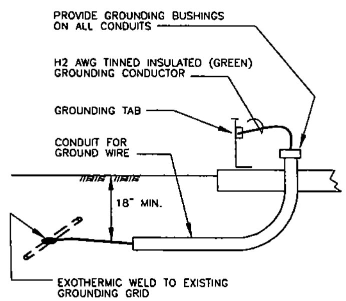
GROUNDING NOTES

1. GROUNDING GRID SHOWN FOR ILLUSTRATION, MUST FIELD LOCATE AFTER DEMOLITION OF CONCRETE SLAB.
2. GROUND CABLE LOOP SHALL BE OF AWG, 2/0, HEAVILY TINNED BARE COPPER CABLE INSTALLED A MINIMUM OF 18" BELOW GRADE. ALL GROUNDING CABLES ABOVE GROUND SHALL BE INSULATED WITH GREEN INSULATION.
3. ALL NON-CURRENT-CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT AND INSTALLATIONS SHALL BE CONNECTED TO GROUND LOOP. THESE INCLUDE VESSELS, PUMPS WIREWAY, BUSWAYS, RACEWAYS, AND MOTORS.
4. ALL CABLE CONNECTIONS BELOW GRADE SHALL BE MADE BY EXOTHERMIC WELDING PROCESS (CADWELD AS MANUFACTURED BY ERICO, INC., OR EQUAL). ABOVE GRADE THEY SHALL BE EITHER EXOTHERMICALLY WELDED OR CONNECTED BY PRESSURE CONNECTORS.
5. CONNECTION TO ABOVE GRADE EQUIPMENT SHALL BE BY CLOSED LOOP TERMINAL LUG. SPADE-TYPE CONNECTORS ARE NOT PERMITTED.



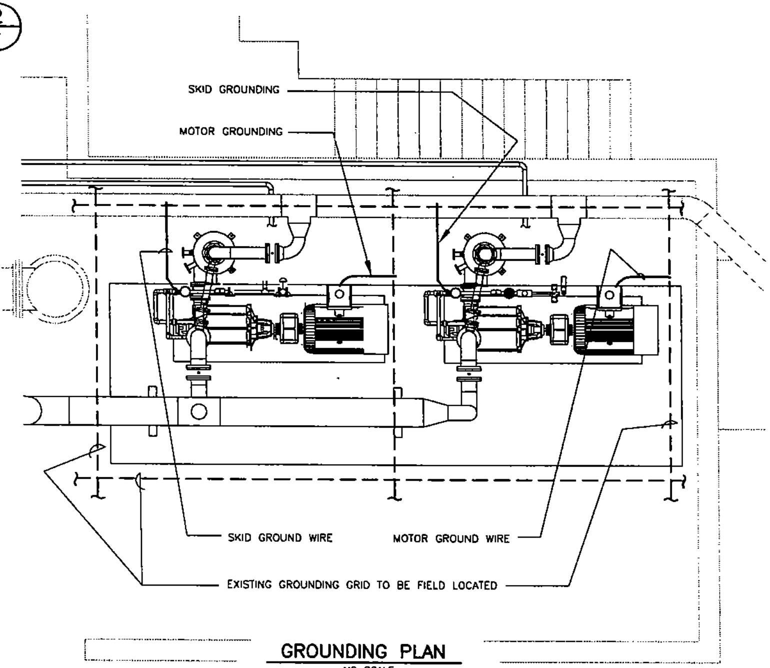
TYPICAL GROUND WIRE SECTION

NO SCALE



TYPICAL GROUNDING DETAIL

NO SCALE



GROUNDING PLAN

NO SCALE

A	ISSUED FOR BID	MAP	HGV	7/31/06
NO.	REVISIONS	BY	APPR.	DATE

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0 — 1 INCH

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APPROVED BY: HGV
DATE: 6/20/06
SCALE: AS SHOWN

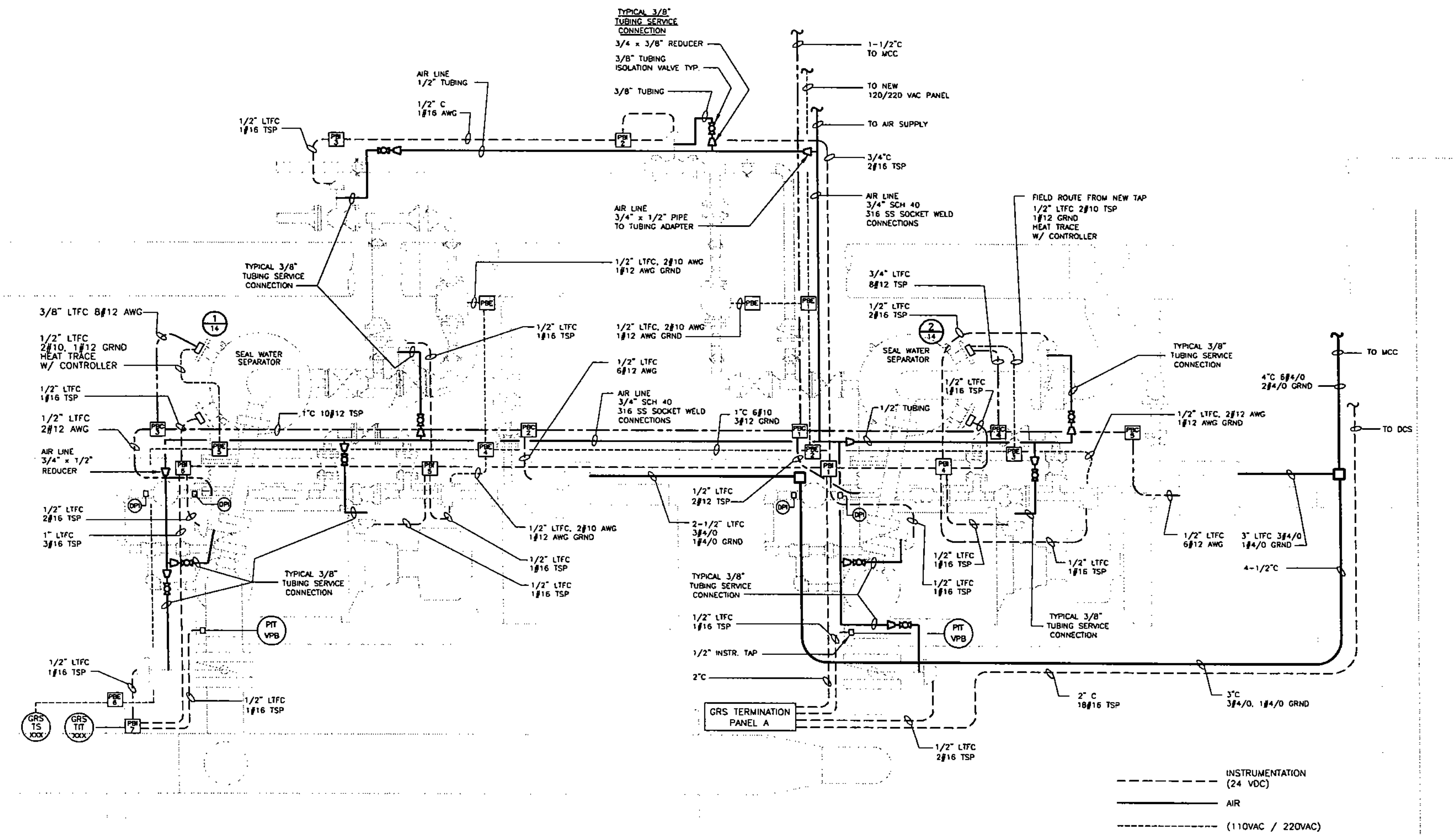
Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

FOUNDATION & GROUNDING DETAILS

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-11
SHEET NO. 9
REV. NO. A

J:\253\003\003-11.DWG 6/20/06



ELECTRICAL & INSTRUMENTATION PLAN

NO SCALE

A	ISSUED FOR CLIENT REVIEW	MKK	HEV	8/23/06
NO.	REVISIONS	BY	APPR.	DATE

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0 1
1 INCH

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APPROVED BY HEV
DATE 8/18/06
SCALE 1/2"=1'-0"

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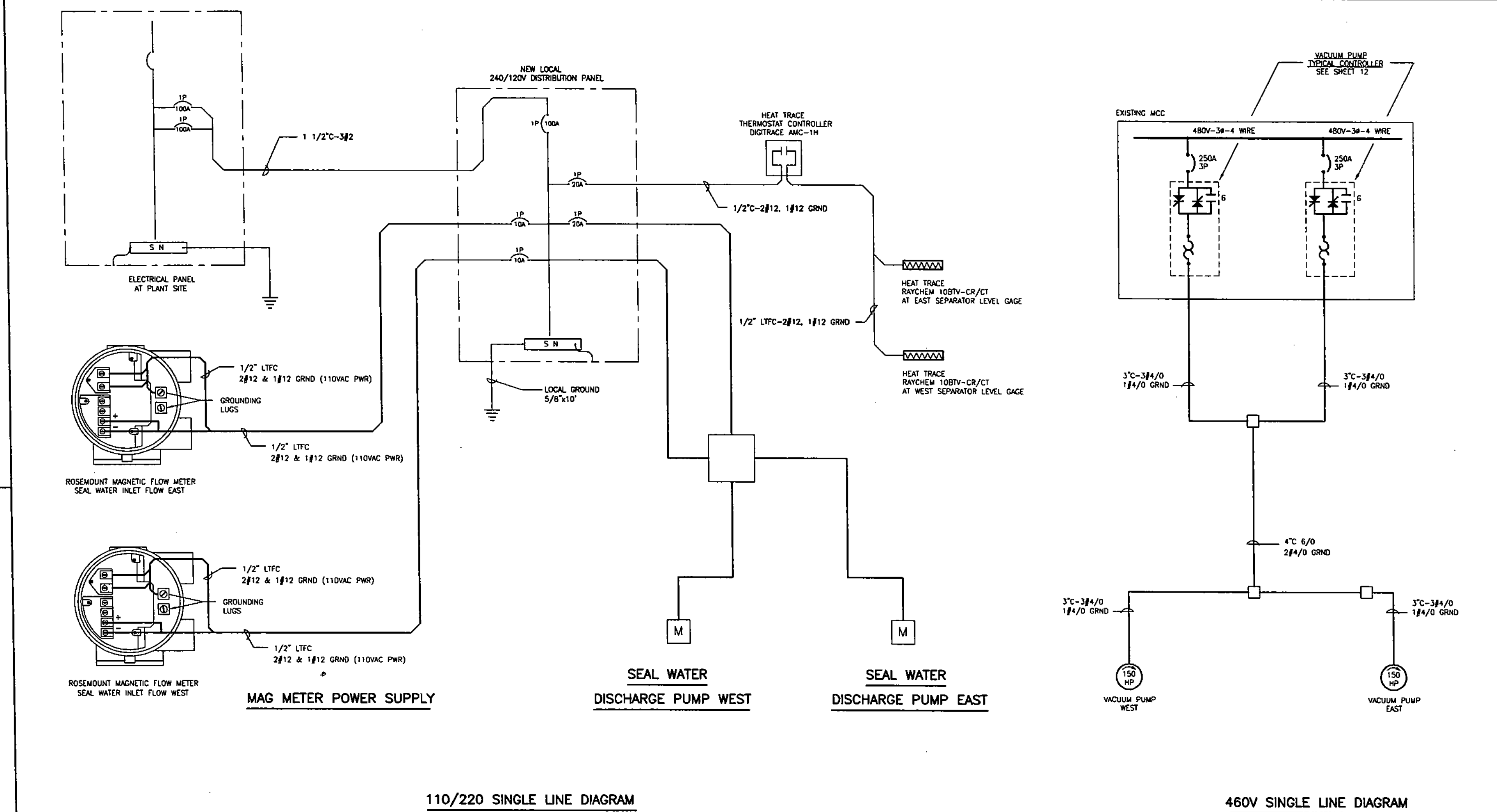
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

VACUUM PUMP AREA ELECT. & INSTR. PLAN

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-06E
SHEET NO. 10
REV. NO. A



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A	ISSUED FOR CLIENT REVIEW	MKK	HEV	8/23/06

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0 1
1 INCH

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APPROVED BY HGV
DATE 22/AUG/06
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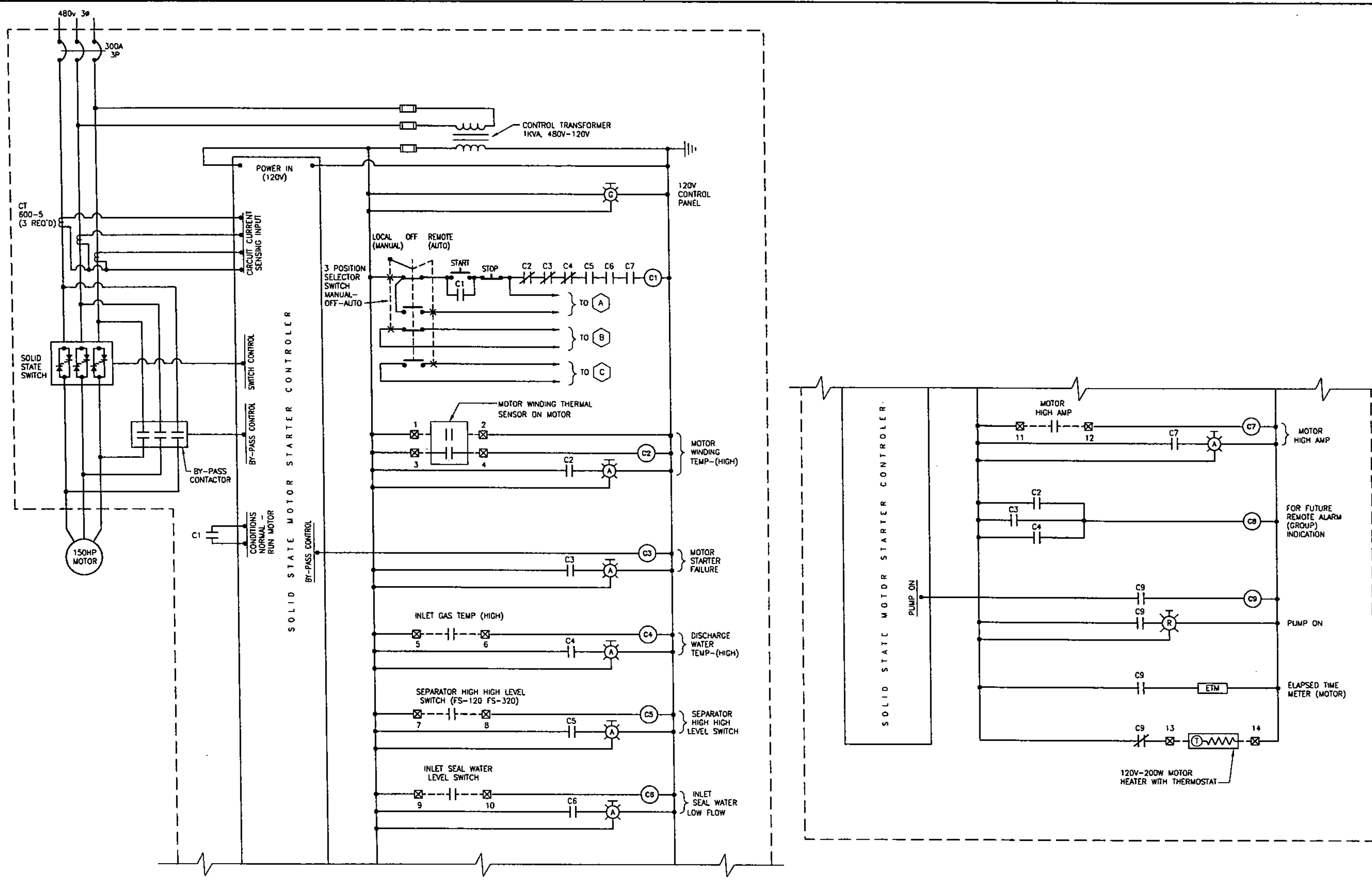
BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

VACUUM PUMP SINGLE LINE DIAGRAM

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-19
SHEET NO. 11
REV. NO. A



NO.	REVISIONS	BY	APPR.	DATE
A	ISSUED FOR CLIENT REVIEW	MKK	HEV	8/23/06

WARNING
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0 1
1 INCH

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BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

VACUUM PUMP TYPICAL CONTROLLER

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-18
SHEET NO. 12
REV. NO. A

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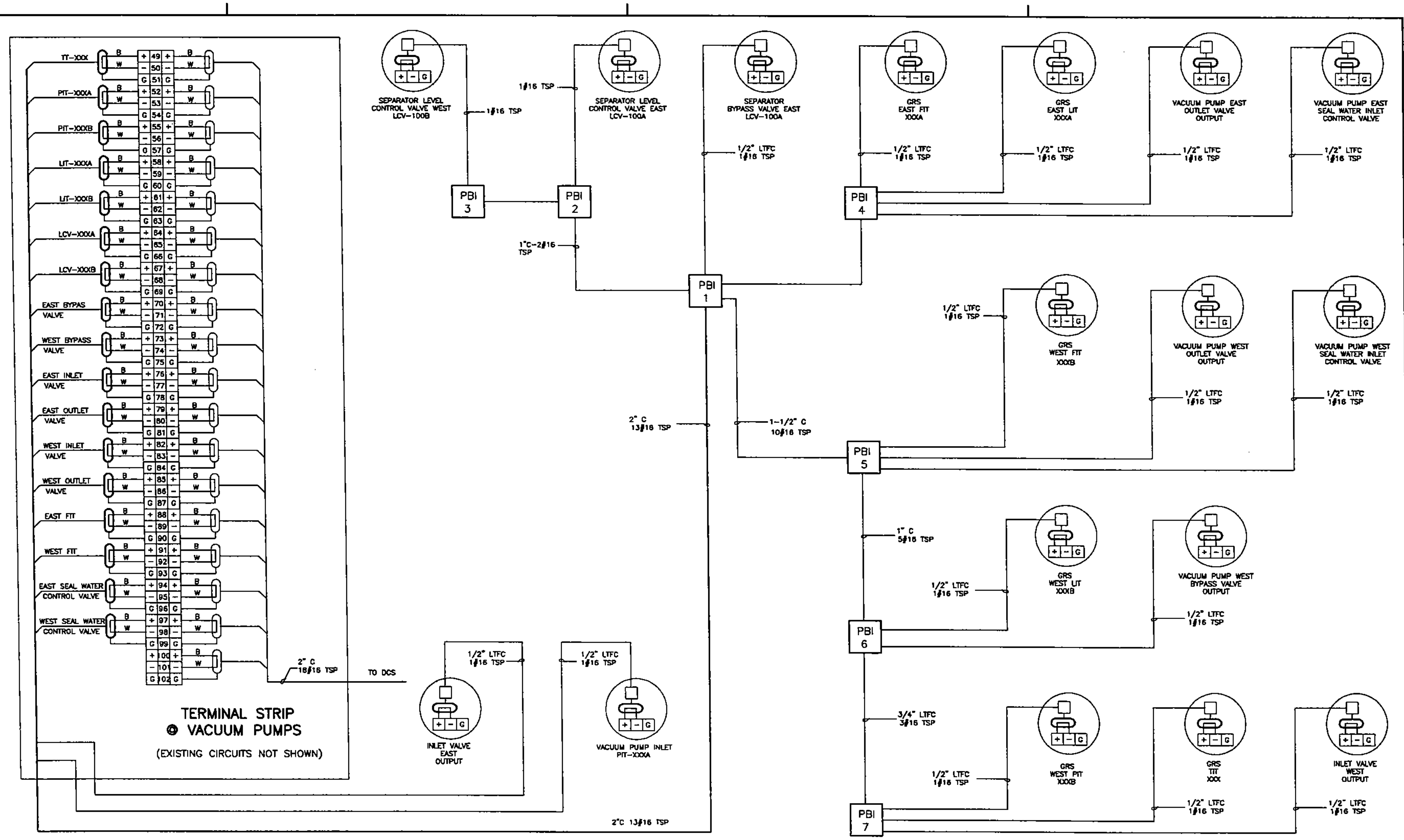

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WARNING
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0 1
1 INCH

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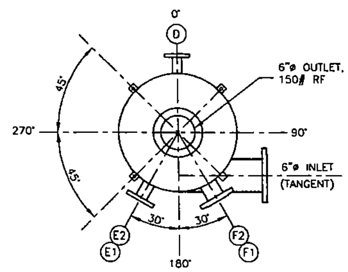
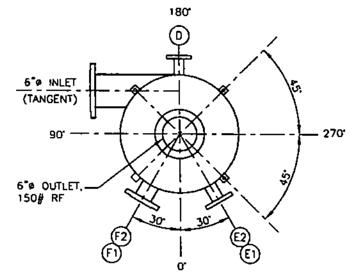
BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

VACUUM PUMP INSTRUMENTATION

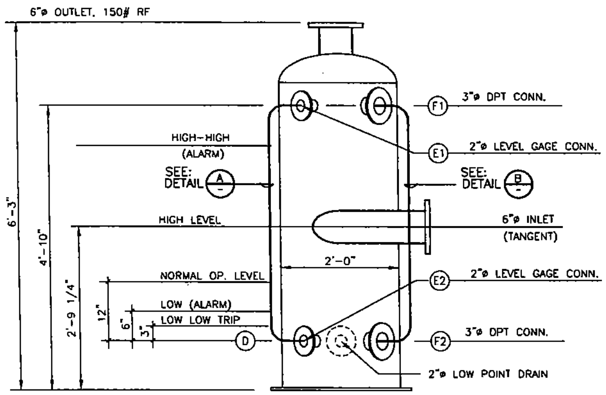
PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-13
SHEET NO. 13
REV. NO. A



PLAN VIEW (WEST PUMP)



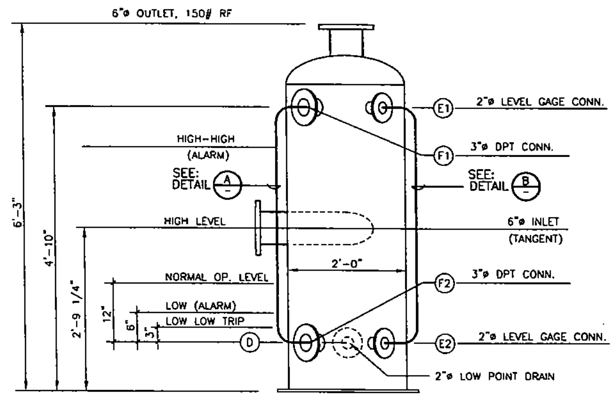
PLAN VIEW (EAST PUMP)



SET POINTS FOR DCS CONTROL
XL350 VACUUM PUMP
24" DIA. SEPARATOR
1"=1'-0"

XL350 SEAL WATER
NORMAL OP. FLOW = 22 GPM
MIN. FLOW (PUMP TRIP) = 15 GPM

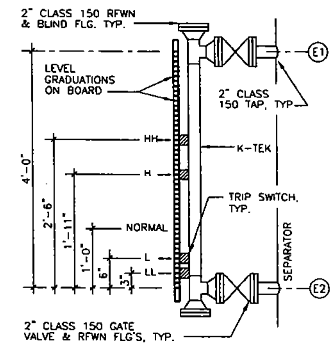
AT WEST VACUUM PUMP
1/10



SET POINTS FOR DCS CONTROL
XL350 VACUUM PUMP
24" DIA. SEPARATOR
1"=1'-0"

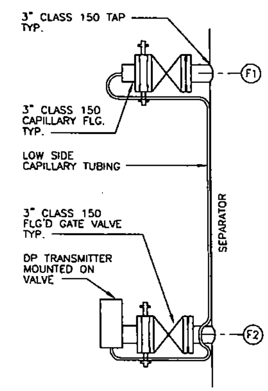
XL350 SEAL WATER
NORMAL OP. FLOW = 22 GPM
MIN. FLOW (PUMP TRIP) = 15 GPM

AT EAST VACUUM PUMP
2/10



SEPARATOR LEVEL GAGE
(NOZZLES E)

DETAIL A
NO SCALE



SEPARATOR LEVEL GAGE
(NOZZLES F)

DETAIL B
NO SCALE

NO.	REVISIONS	BY	APPR.	DATE
A	ISSUED FOR CLIENT REVIEW	MKK	HEV	8/23/06

WARNING
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0 1
1 INCH

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APPROVED BY HGV
DATE 22/AUG/06
SCALE 1"=1'-0"

Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

SEPARATOR LEVEL CONTROL DETAILS

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-18
SHEET NO. 14
REV. NO. A

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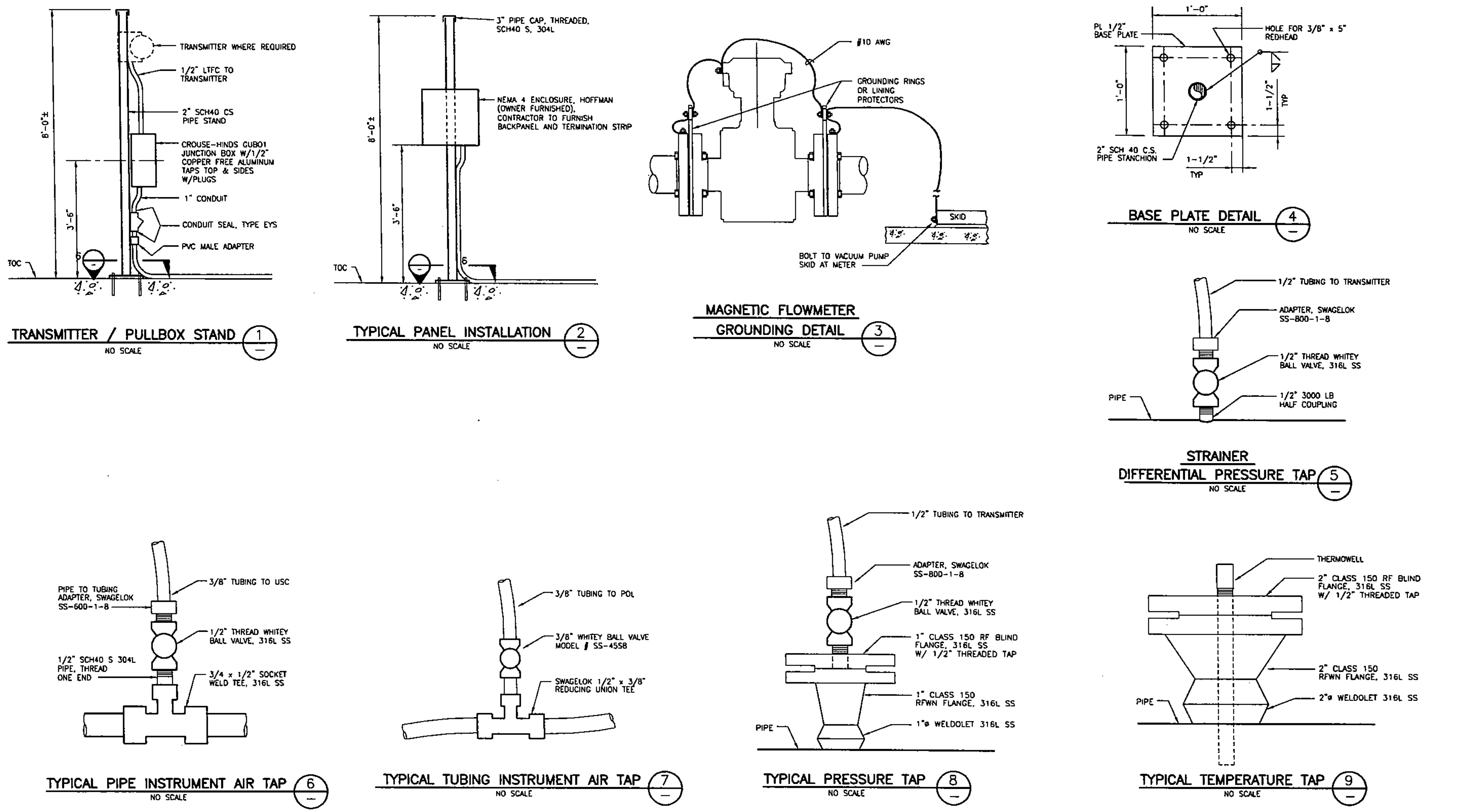

NO.	REVISIONS	BY	APPR.	DATE
A	ISSUED FOR CLIENT REVIEW	MKK	HEV	8/23/06

WARNING
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1 INCH

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DATE 6/20/06
SCALE NO SCALE

Bottle Rock Power Corporation
COBB, CALIFORNIA

BOTTLE ROCK GEOTHERMAL POWER PLANT
HYBRID NC GAS EXTRACTION SYSTEM

I & C DETAILS

PROJECT NO. 253-003
CONTRACT NO.
CADFILE NO. 003-20
SHEET NO. 15
REV. NO. A

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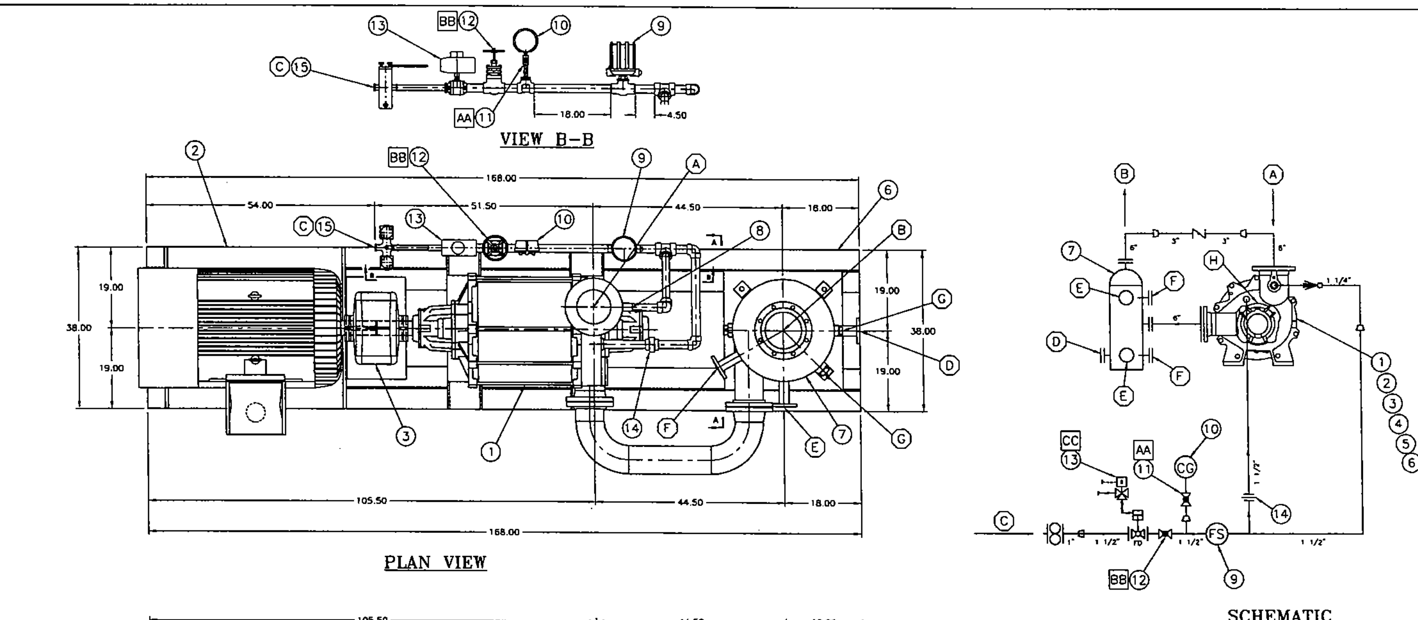


VIEW B-B

PLAN VIEW

SCHEMATIC

CUSTOMER CONNECTIONS

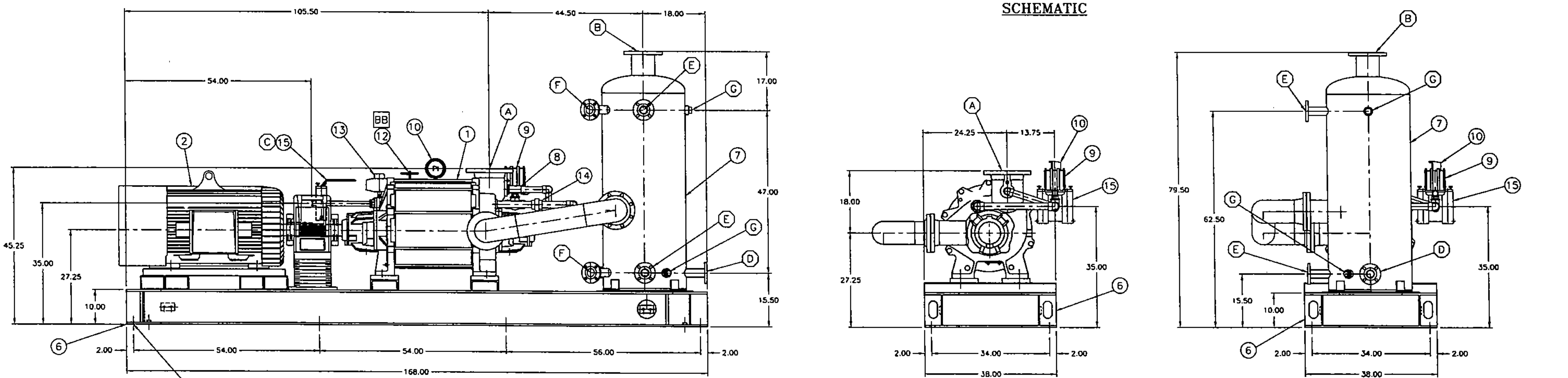
ITEM	QTY	SIZE	DESCRIPTION	SERVICE
A	1	8"	FLANGE RF 150#	PROCESS INLET
B	1	6"	FLANGE RF 150#	PROCESS DISCHARGE
C	1	1"	NPT	SEAL WATER INLET
D	1	2"	FLANGE RF 150#	DRAIN
E	2	2"	FLANGE RF 150#	LEVEL CONTROL (BY OTHERS)
F	2	2"	FLANGE RF 150#	LEVEL GAUGE (BY OTHERS)
G	2	1 1/2"	NPT	AUXILIARY CONNECTION
H	2	1/2"	NPT	MECHANICAL SEAL FLUSH

OPERATING VALVES

ITEM	QTY	SIZE	DESCRIPTION	SERVICE
AA	1	1/2"	BALL VALVE: NPT	GAUGE ISOLATION
BB	1	1 1/2"	GLOBE VALVE: NPT	SEAL WATER
CC	1	1 1/2"	AUTOMATED BALL VALVE: NPT	SEAL WATER

BILL OF MATERIALS

ITEM	DESCRIPTION	BOM ITEM#
1	XL-350 SS VACUUM PUMP	452VX35050000
2	MOTOR: 449T FRAME	EC-001
3	COUPLING: 1090T10	EC-002
4	COUPLING MOTOR HUB: 1090T10	CP-4382
5	COUPLING GUARD:	PU-20766
6	BASE:	EC-003
7	SEPARATOR: 24" O.D.	EC-004
8	SPRAY NOZZLE: 1 ½" HD 10	80-0183
9	FLOW SWITCH: 1 ½" NPT	EC-005
10	COMPOUND VACUUM PRESSURE GAUGE: ½" NPT	EC-006
11	BALL VALVE: 1/2" NPT	PU-8654
12	GLOBE VALVE: 1 ½" NPT	EC-007
13	ACTUATED BALL VALVE: 1½" NPT	EC-008
14	ORIFICE UNION: 1 ½" NPT (⅛" ID)	EC-009
15	DUPLEX BASKET STRAINER: 1" NPT	EC-010



ELEVATION VIEW

VIEW A-A

SIDE VIEW

NOTES:
1. ALL DIMENSIONS ARE IN INCHES.
2. FOR INSTALLATION AND OPERATION SEE MANUALS.
3. SOLIDLY GROUND UNIT. DO NOT USE PIPING SYSTEM FOR GROUND.
4. A ¼" COARSE MESH & #40 FINE MESH SCREEN FOR PUMP INLET SUPPLIED BY NASH FOR PROTECTION FROM FOREIGN MATERIAL DURING START-UP PERIOD. FINE MESH SCREEN SHOULD BE INSTALLED ON THE UPSTREAM SIDE OF THE COARSE MESH SCREEN.
5. APPROXIMATE WEIGHT: 8500 lbs.
6. PIPING SUPPLIED TO BE AS FOLLOWS:
   : ALL PIPING CONFORMS TO ANSI B31.1.
   A. PIPING MATERIAL IS 316 STAINLESS STEEL SCHEDULE 40.
   : 2" & SMALLER – 150# THREADED FITTINGS
   : 2 1/2" & LARGER – BUTTWELD FITTINGS, SCHEDULE 40 BORE.
   : FLANGES – 150# RF
   : GASKET – 1/8" THICK, NON-ASBESTOS.
   : BOLTING – SA-193-B7 w/SA-194-2H (ZINC PLATED) NUTS.
7. PAINT: ALL CARBON STEEL COMPONENTS WI-12-025 GDN SIGNAL BLUE EPOXY. (DO NOT PAINT STAINLESS STEEL).
8. FOUNDATION BOLTS ARE NOT FURNISHED.
9. NASH TO SUPPORT ALL INTERCONNECTING PIPING.
10. HYDROTEST WELDED PIPE SPOOLS FOR 30 min. @ 30 psig.
11. FLANGE BOLT HOLES STRADDLE CENTER LINES.
12. PUMPS AND SEALS SHOULD NEVER BE RUN DRY. PRIME PUMP BEFORE OPERATION.
13. PROVIDE 23 GPM OF SEAL WATER AT 5"HgV ON P.I. (EC-006). FOR CONE SEAL AND 1/4-1/2 GPM OF CLEAN WATER AT 10 PSIG MINIMUM SUPPLY PRESSURE PER MECHANICAL SEAL FLUSH.
14. "➡" INDICATES BREAK POINT FOR SHIPMENT
15. QUANTITY OF 2 SYSTEMS TOTAL

☒ For Approval: Tentative shipping promise is established upon return of approved print. [illegible] 06/07/06

☐ For Final Approval: This print covers equipment on which mat'l has been ordered, however, no mfg. has started. Delivery is established upon return of final approved print.

☐ Certified For Construction: This print covers equipment on which mfg. has started. Any change is subject to price and shipping promise adjustment.

DO NOT USE THIS PRINT FOR CONSTRUCTION UNLESS CERTIFIED AND DATED.

REVISIONS

REV.	DESCRIPTION	DATE	APPVD
0	ORIGINAL	6/5/06	

NASH Gardner Denver Nash LLC

TITLE: XL-350-V-04-01-0

PURCHASER: BOTTLE ROCK POWER CORP. PO# 176-06 PROJ# 101843 SALES# 101284

USER: SAME

SCALE: NTS | DRAWN BY: M.A. | APPVD. BY: | DATE:

DWG. NO.: D-804072 | REV. 0 | DATE: 06/2006

BOTTLE ROCK POWER CORPORATION (BRPC)
POWER PLANT AND STEAMFIELD CONTROL SYSTEM

Introduction

The supervisory control system originally installed at the Bottle Rock facility is at present in a non-operational state due to failed and missing equipment. The technologies utilized in the existing system are non-standard, are in general obsolete, and are severely handicapped by a lack of suitable repair parts and maintenance equipment necessary for startup and long term operations and maintenance. Other concerns include a lack of integration between the power block, gas treatment, and steam field control sub-systems, high operational manpower requirements, and in general a lack of redundancy in any of the subsystems. BRPC is recommending that a new Digital Control System (DCS) be installed that will use all of the existing measurement and control points, but will now allow these points to be viewed and controlled from either the power plant control room or from the Stretford control area.

Replacement System Criteria

Due to the aforementioned issues, a replacement control system has been designed to provide superior total project performance through tight system integration and enhanced control system algorithms, reduced operational and maintenance manpower loading by the utilization of advanced system and human machine interface (HMI) programming packages, advanced data collection, monitoring, and manipulation capabilities, continued long term hardware and software support, reduced spare parts inventory, and high overall reliability. Allen Bradley, the market share leader in PLC based automation systems, has been selected to provide the system hardware and programming software for the project. An Allen Bradley approved system integrator, Wood Group, has been contracted to engineer, construct, program, and commission the system.

System Description

The Bottle Rock control system architecture is based on Allen Bradley's ControlLogix family of automation processors. These processors are among the most advanced automation controllers available in the market today, offering a high performance control platform for multidiscipline control as well as the widest range of communication, analog, and digital I/O modules available in the industry.

The proposed system implementation for the Bottle Rock project is outlined in Figure 1. Redundant ControlLogix processors and power supplies on the turbine/generator, balance of plant, and H2S abatement control subsystems provide bumpless switchover to the backup process assembly in the highly unlikely event of a processor or power supply failure. Communications between the processors and their associated I/O modules is accomplished using Allen Bradley ControlNet protocol, allowing high speed, deterministic bi-directional transfer of time critical data. The ControlNet protocol also supports media redundancy to ensure continued system operation in the event of failure of one of the redundant data highways.

Communications between the Operator Interface Consoles, I/O Servers, and the processor controller systems will utilize Industrial Ethernet protocol. Industrial Ethernet provides ease of networking, seamless integration with standard IT systems, as well as a nearly endless selection of hardware and software options. Redundant I/O servers located in the Main and Stretford control rooms will allow operations personnel to perform all plant operations from either location as well as allow continued plant operation in the event of a single I/O server failure. Citech HMI software will enable all plant and wellfield process variables to be monitored, logged, and adjusted as required from any of the OIC or server workstations.

Communications between the remote wellfield control systems and the main plant control will be accomplished via encrypted wireless Ethernet. Non-redundant CompactLogix processors will be utilized as hot standby is not required, however a full complement of spares will be located on site to enable expedient system repairs if required.

Required electrical protection protective relaying will utilize modern microprocessor based equipment designed to provide adequate system protection as well as meet CAISO and PG&E system protection requirements. Redundant relays will be installed as required ensure high system availability.

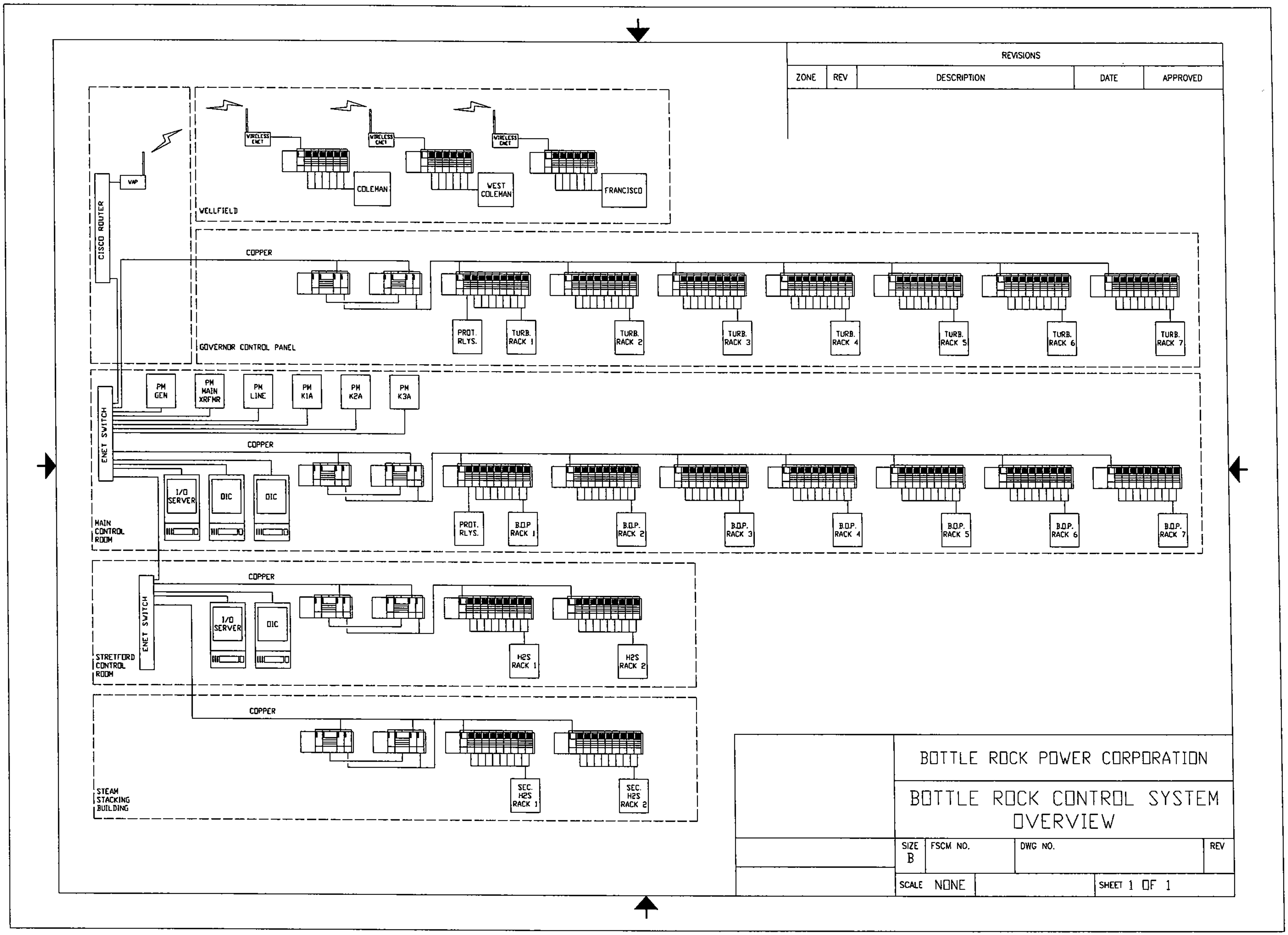
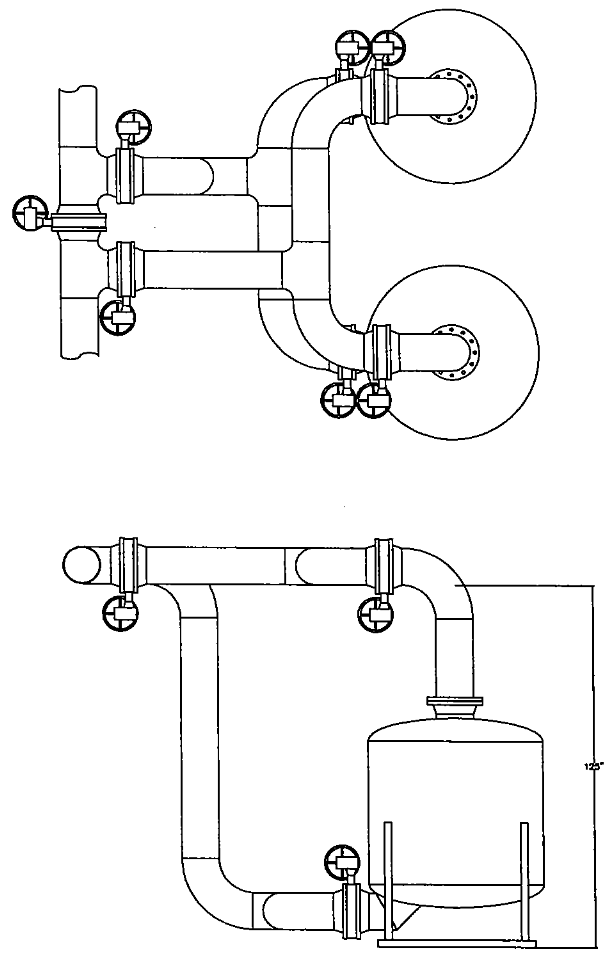


Figure 1. Control System Overview

BOTTLE ROCK POWER CORPORATION (BRPC)
STRETFORD SYSTEM MODIFICATION

Installation of carbon filters.

The plant proposes adding one (and in the future possibly a second) 100% flow, carbon bed filters to aid in the removal of mercury from the non-condensable gas stream. The size is yet to be determined but will be approximately 120 cubic feet of carbon.



REVISIONS							
ZONE	REV	DESCRIPTION	DATE	DRN	DSGN	CKD	APPD
	0	PRELIMINARY DESIGN	08/05/06	LEB	LEB		

REFERENCE DRAWINGS

BOTTLE ROCK POWER

US RENEWABLES GROUP
HIGH VALLEY ROAD

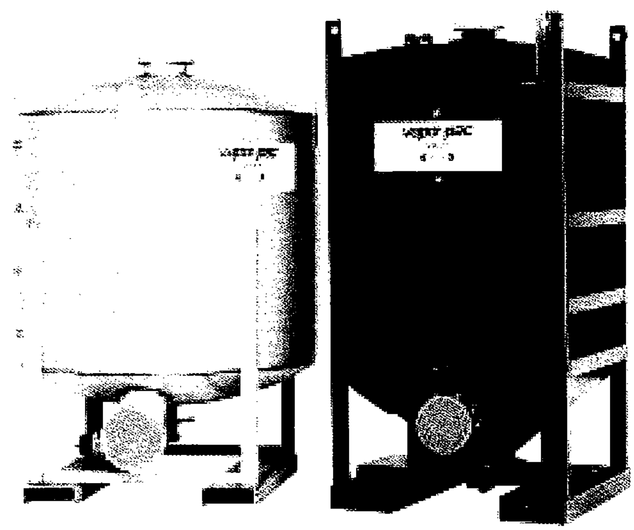
BOTTLE ROCK POWER

CARBON FILTER INSTALLATION

SIZE	FILE NAME:	DWG NO.	REV
B	BRP-MECH-SFD-CF-001.DWG	BRP-MECH-SFD-CF-001	0

SCALE NONE | SHEET 1 OF 1

VAPOR-PAC®
Service Based Equipment



VAPOR-PAC® Stainless Steel VAPOR-PAC® Plastic

Calgon Carbon's VAPOR-PAC® Service meets industrial needs for cost-effective removal of volatile organic compounds (VOCs) at air emission sources.

The VAPOR-PAC® Service features a small, easily transportable adsorber which contains 1,800 pounds of activated carbon. The adsorber can handle air flows up to 1,000 cfm.

Designed to remove both toxic and non-toxic VOCs, the adsorption system is especially useful for short term projects and for treatment of low volume flows that contain low to moderate VOC concentrations. Common applications include VOC removal from process vents, soil remediation vents, and air stripper off-gases.

To accommodate a wide variety of process conditions, VAPOR-PAC® adsorbers are available in two basic designs: a polyethylene model that offers excellent corrosion-resistance, and a stainless steel model that can withstand higher temperatures and slight pressure or vacuum conditions.

Calgon Carbon provides the adsorber, carbon, spent carbon handling, and carbon reactivation (after the carbon meets the company's acceptance criteria) as part of the VAPOR-PAC® Service. Ductwork and fans are the only equipment that require a capital expenditure by the user.

When carbon becomes saturated with VOCs, the system is replaced with another adsorber containing fresh carbon.

By using this unique service, users can generally achieve VOC removal and regulatory compliance objectives, minimize operating costs, and eliminate maintenance cost because the equipment is owned and maintained by Calgon Carbon.* Additionally, because organic compounds are safely destroyed through the carbon reactivation process, costs and regulations typically associated with waste disposal can be eliminated.

Please contact a Calgon Carbon Technical Sales Representative to learn more about the advantages of VAPOR-PAC® Service for your specific VOC control needs.

* Damage to VAPOR-PAC® Unit caused by negligence or misapplication is the responsibility of the user.

Features and Benefits of VAPOR-PAC® Service

- Adsorbers are specifically designed for ease of installation and operation.
- Adsorbers are available in plastic (polyethylene) and metal (stainless steel) construction to accommodate a wide variety of applications.
- Can operate in series or parallel mode or a combination of both to handle various flows and concentrations.
- System exchange eliminates on-site carbon handling.
- Recycling of spent carbon (as approved by carbon acceptance testing) eliminates disposal problems.
- Capital expenditure is eliminated since Calgon Carbon Corporation owns and maintains the equipment.

Installation Instructions

See bulletin #ES-IB1026-0305 for details on how to install a VAPOR-PAC®.

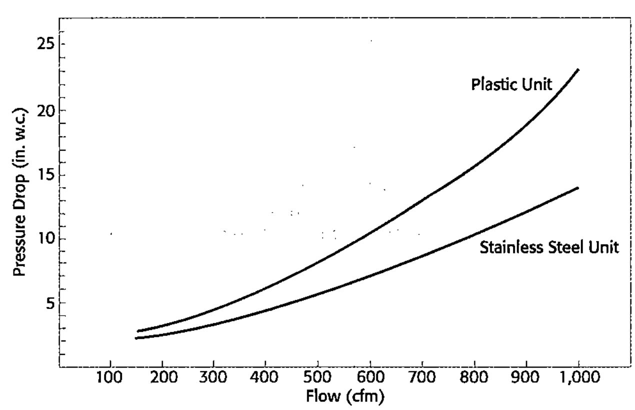
Safety Considerations

See safety bulletin #TI-006-08/94 for important safety considerations.

Optional Equipment

Inlet and outlet flange adaptors for ANSI flange or stub hose connections.

Vapor Pac Unit Pressure Drop
(upflow with 1,800 lbs., 4x10 mesh dense packed carbon)



VAPOR-PAC®
Service Based Equipment

CalSolutions™

VAPOR-PAC® (Plastic) Specifications

Vessel Dimensions	44 1/4″ x 44 1/4″ x 89 3/8″
Inlet & Discharge Connections	6″ PS 15-69 duct flanges
Carbon Volume	60 cu. ft. (1,800 lbs.)
System Shipping Weight	Empty - 2,400 lbs., Spent - 4,200 lbs.
Temperature Rating	150° F (max)
Static Pressure Rating above Carbon Level	20″ w.c. (max)
Vacuum Pressure Rating above Carbon Level	2″ w.c. (max)

Materials of Construction

Vessel	Polyethylene
Frame	Expoxy coated carbon steel
Inlet Flanges, Elbow, Septum	PVC
Discharge Flange	Polyethylene
Fasteners & Bottom Valve Support Plate	Steel, plated
Sample Fittings & Sample Canister	PVC

VAPOR-PAC® (Stainless Steel) Specifications

Vessel Diameter	5′
Vessel Height	7′ 1″
Inlet & Discharge Connections	8′ PS 15-69 duct flanges
Carbon Volume	60 cu. ft. approx. (1,800 lbs.)
System Shipping Weight	Empty - 2,800 lbs., Spent - 4,600 lbs.
Static Pressure Rating above Carbon Level	15 psig
Vacuum Pressure Rating above Carbon Level	Full

Materials of Construction

Vessel	316L stainless steel
Skid and Support Frame	304 stainless steel
Inlet Flanges, Elbow, Septum	316L stainless steel
Discharge Flange	316L stainless steel
Fasteners & Bottom Valve	300 series stainless steel
Sample Fittings & Sample Canister	PVC

Caution

Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing activated carbon, appropriate sampling and work procedures for potentially low oxygen spaces should be followed, including all applicable Federal and State requirements.

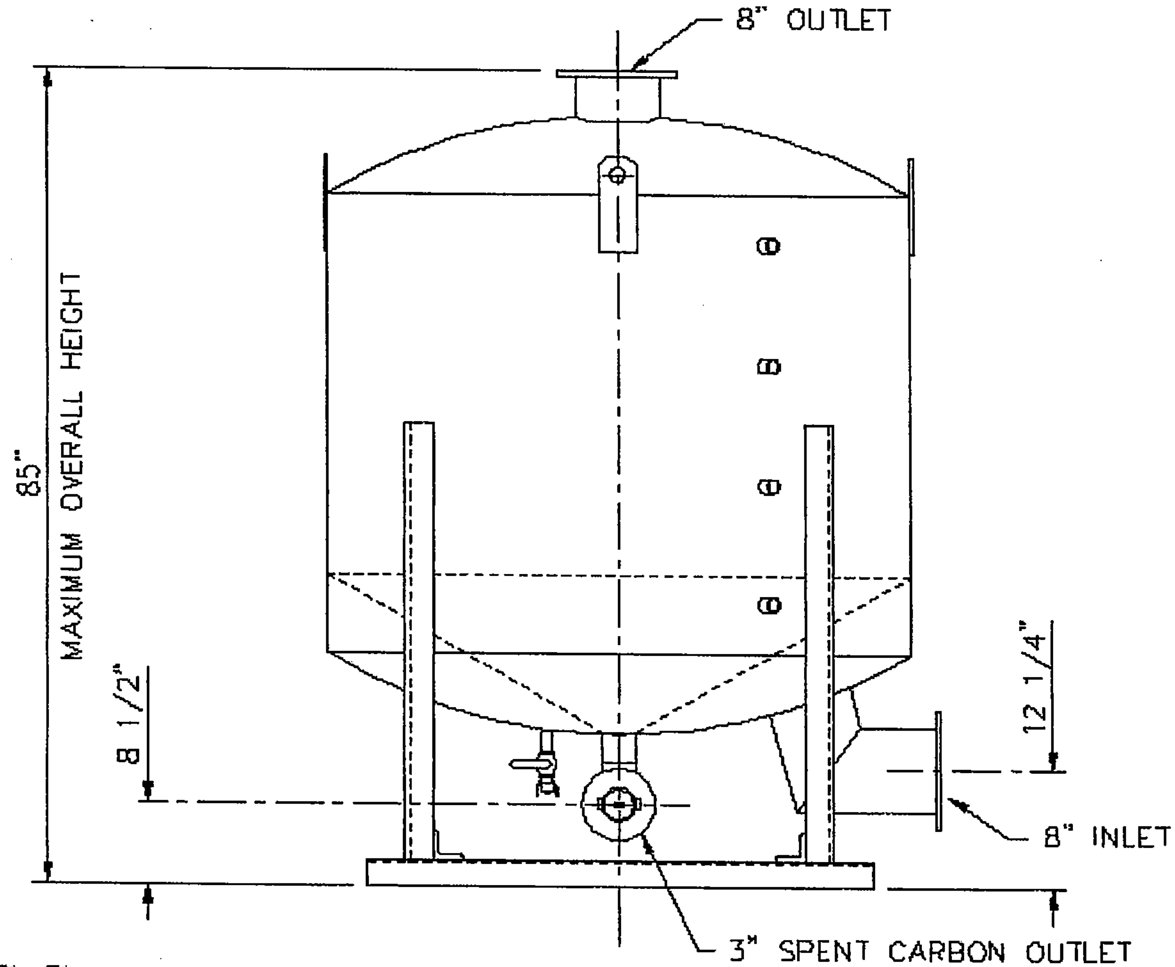
CALGON
CALGON CARBON CORPORATION

Calgon Carbon Corporation
P.O. Box 717
Pittsburgh, PA USA 15230-0717
1-800-422-7266
Tel: 412-787-6700
Fx: 412-787-6713

Calgon Carbon Asia
65 Chulia Street
#37-03 OCBC Centre
Singapore 049513
Tel: +65 6 221 3500
Fx: +65 6 221 3554

Chemviron Carbon
European Operations of
Calgon Carbon Corporation
Zoning Industriel C de Feluy
B-7181 Feluy, Belgium
Tel: + 32 (0) 64 51 18 11
Fx: + 32 (0) 64 54 15 91

Your local office



VaporPac S.S.
Elevation View

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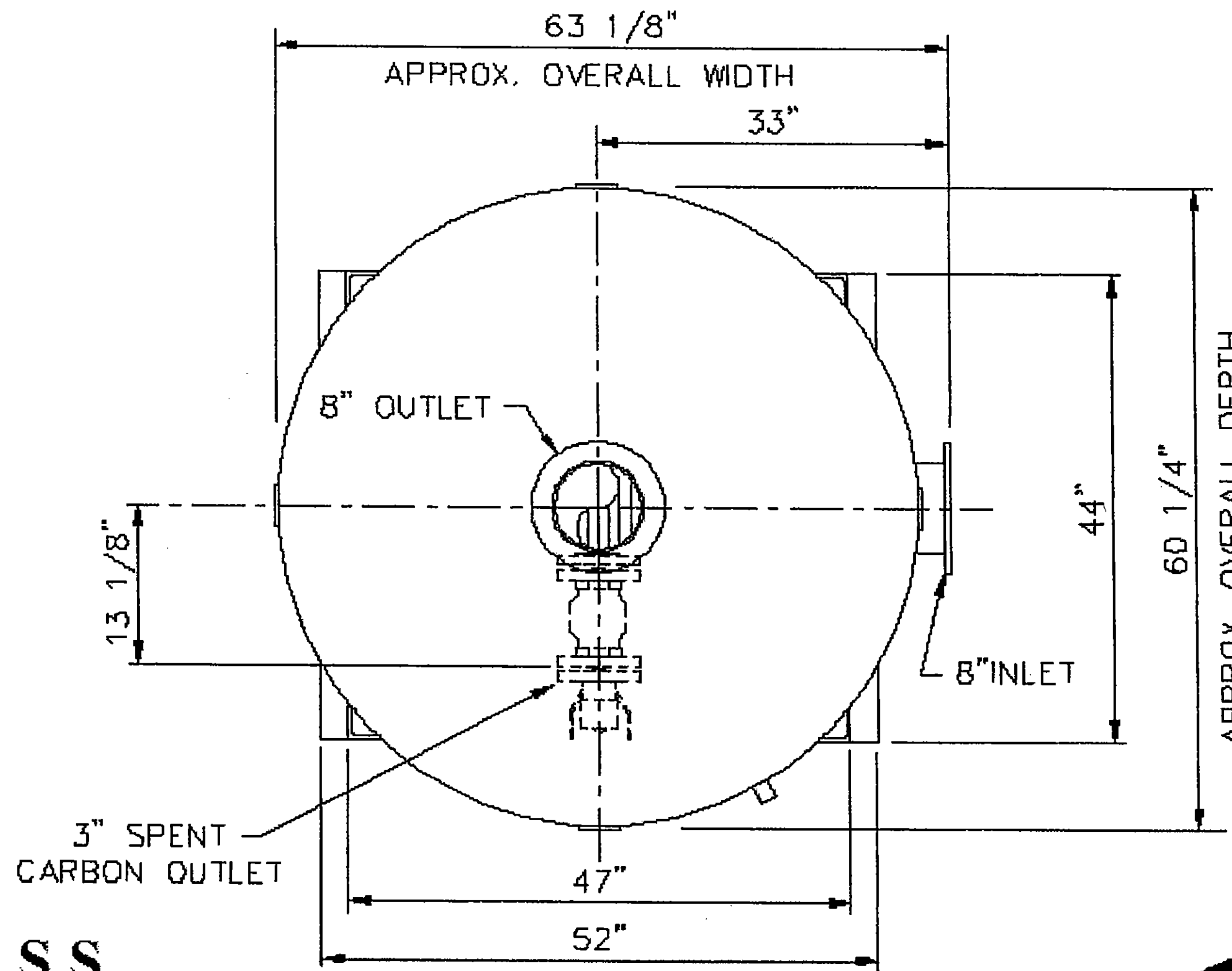
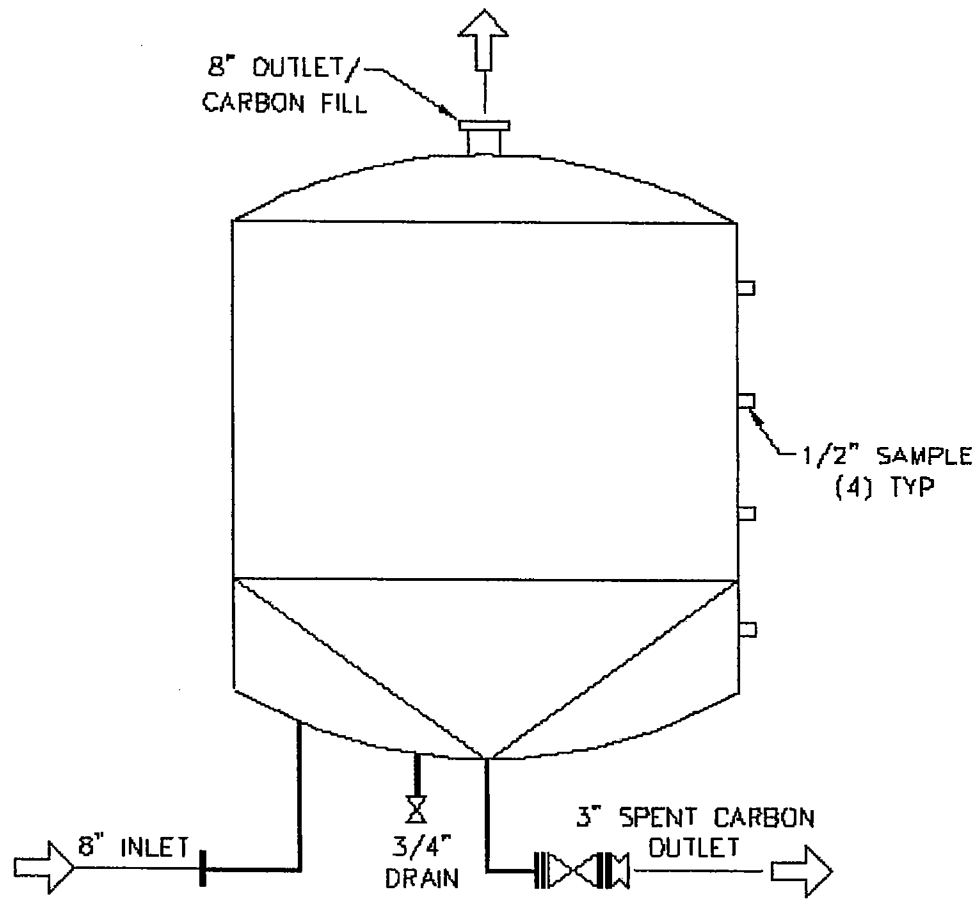


VaporPac S.S.
Plan View

CALGON
CALGON CARBON CORPORATION



VaporPac S.S. Flow Diagram

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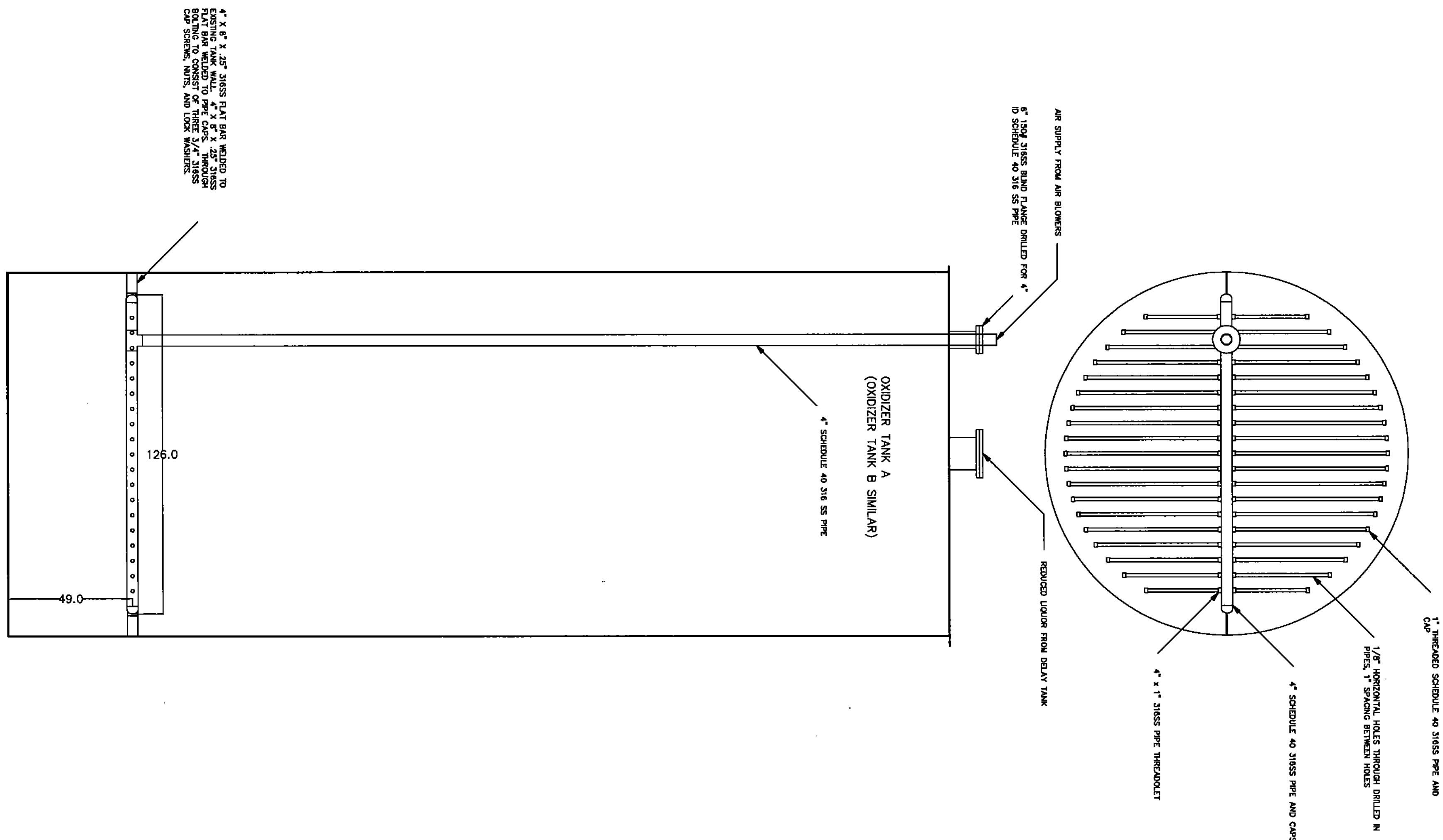
BOTTLE ROCK POWER CORPORATION (BRPC)
STRETFORD SYSTEM MODIFICATION

Delivery of atmospheric air to the oxidizer tanks.

Air is currently introduced into the oxidizer tanks at four mixing venturis per tank. Atmospheric air commingles with Stretford solution that is discharging into the delay tank. The air and Stretford solution enters the delay tank about 4' off the bottom of the tank. The venturis have a tendency to plug due to small amount of elemental sulphur precipitating out at this point.

The plant proposes adding a sparging header inside each tank about 5' off the bottom. This header will deliver air more evenly and will potentially eliminate the plugging that occurs in the venturis. The original delivery system described above will remain in place and fully functional.



REVISIONS

ZONE	REV	DESCRIPTION	DATE	DRN	DSGN	CKD	APPD
	0	PRELIMINARY DESIGN	08/05/06	LEB			

REFERENCE DRAWINGS

BOTTLE ROCK POWER
US RENEWABLES GROUP
HIGH VALLEY ROAD

BOTTLE ROCK POWER

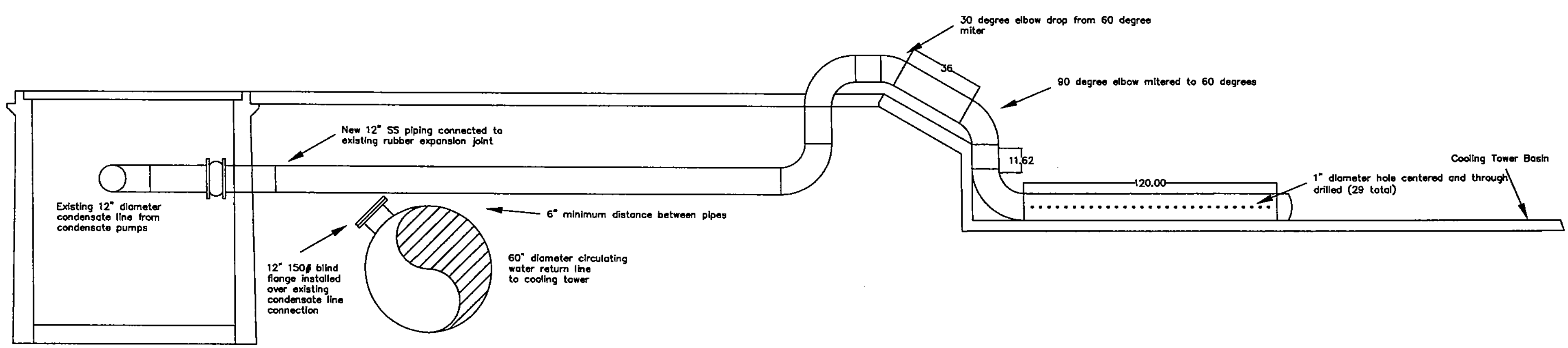
STRETFORD OXIDIZER AIR SPARGER MODIFICATIONS

SIZE	FILE NAME:	DWG NO.	REV
B	BRP-MECH-SFD-OX-001.DWG	BRP-MECH-SFD-OX-001	0

SCALE NONE — SHEET 1 OF 1

BOTTLE ROCK POWER CORPORATION (BRPC)
Cooling Tower Sparger

Per the request of LCAQMD the plant is submitting a design for returning hotwell condensate directly to the cooling tower basin and dispensing the condensate through a distribution header. Also, BRPC currently has multiple options for routing the condensate: (A) Commingle the condensate with the circulating water just prior to the cooling tower risers. (B) Commingle the condensate with the circulating water at the discharge of the condenser. (C) Commingle the condensate with the circulating water at the inlet to the condenser. (D) In combination with any of the above listed condensate flow paths, up to 50% of the hotwell condensate can be reinjected through a spray header into the vacuum side of the main condenser. Thus offering an additional opportunity to volatilize entrained hydrogen sulfide.



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ZONE	REV	DESCRIPTION	DATE	DRN	DSGN	CKD	APPD
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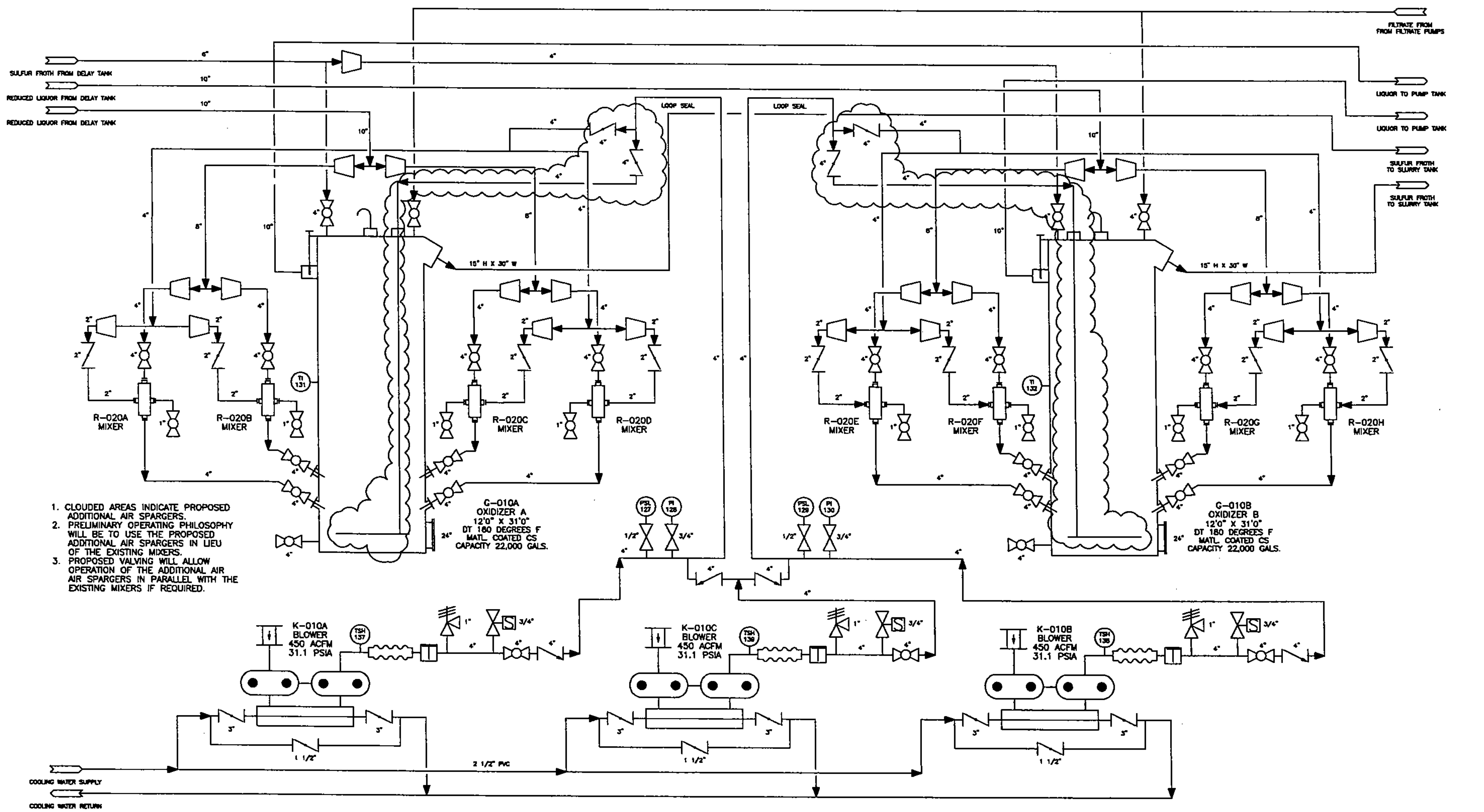
REFERENCE DRAWINGS

BOTTLE ROCK POWER
US RENEWABLES GROUP
HIGH VALLEY ROAD

BOTTLE ROCK POWER

CONDENSATE SPARGING SYSTEM

SIZE	FILE NAME:	DWG NO.	REV
B	BRP-MECH-CT-SPG-001.DWG	BRP-MECH-CT-SPG-001	0
SCALE NONE		SHEET 1 OF 1	



REVISIONS

ZONE	REV	DESCRIPTION	DATE	DRN	DSGN	CKD	APPD
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REFERENCE DRAWINGS

BOTTLE ROCK POWER
US RENEWABLES GROUP
HIGH VALLEY ROAD

BOTTLE ROCK POWER

STRETFORD OXIDIZER UNIT A AND B P AND ID

SIZE	FILE NAME:	DWG NO.	REV
B	BRP-PID-STRET-002.DWG	BRP-PID-STRET-002	1

SCALE NONE | SHEET 1 OF 1