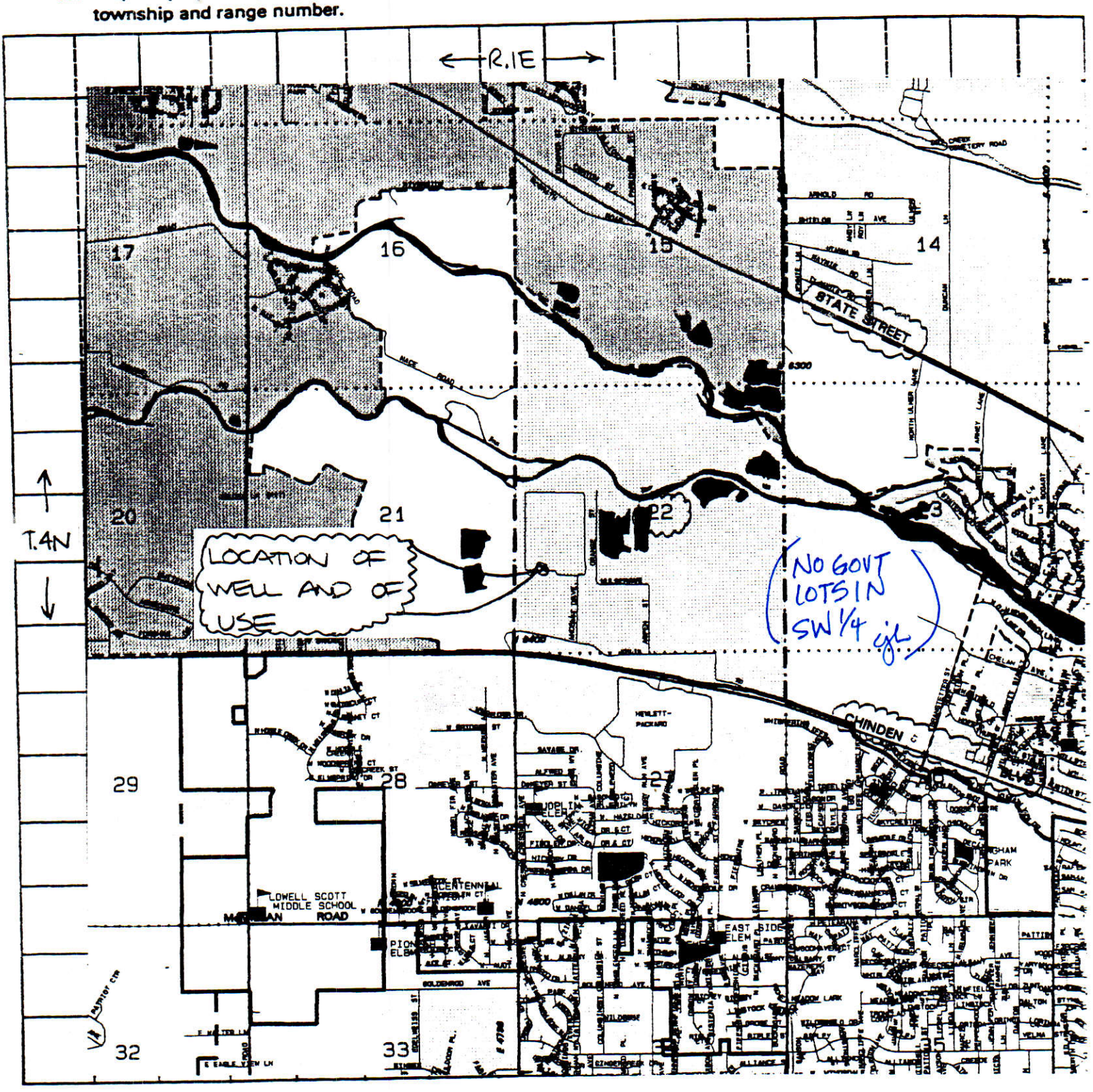
13. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



Scale: 2 inches equal 1 mile.

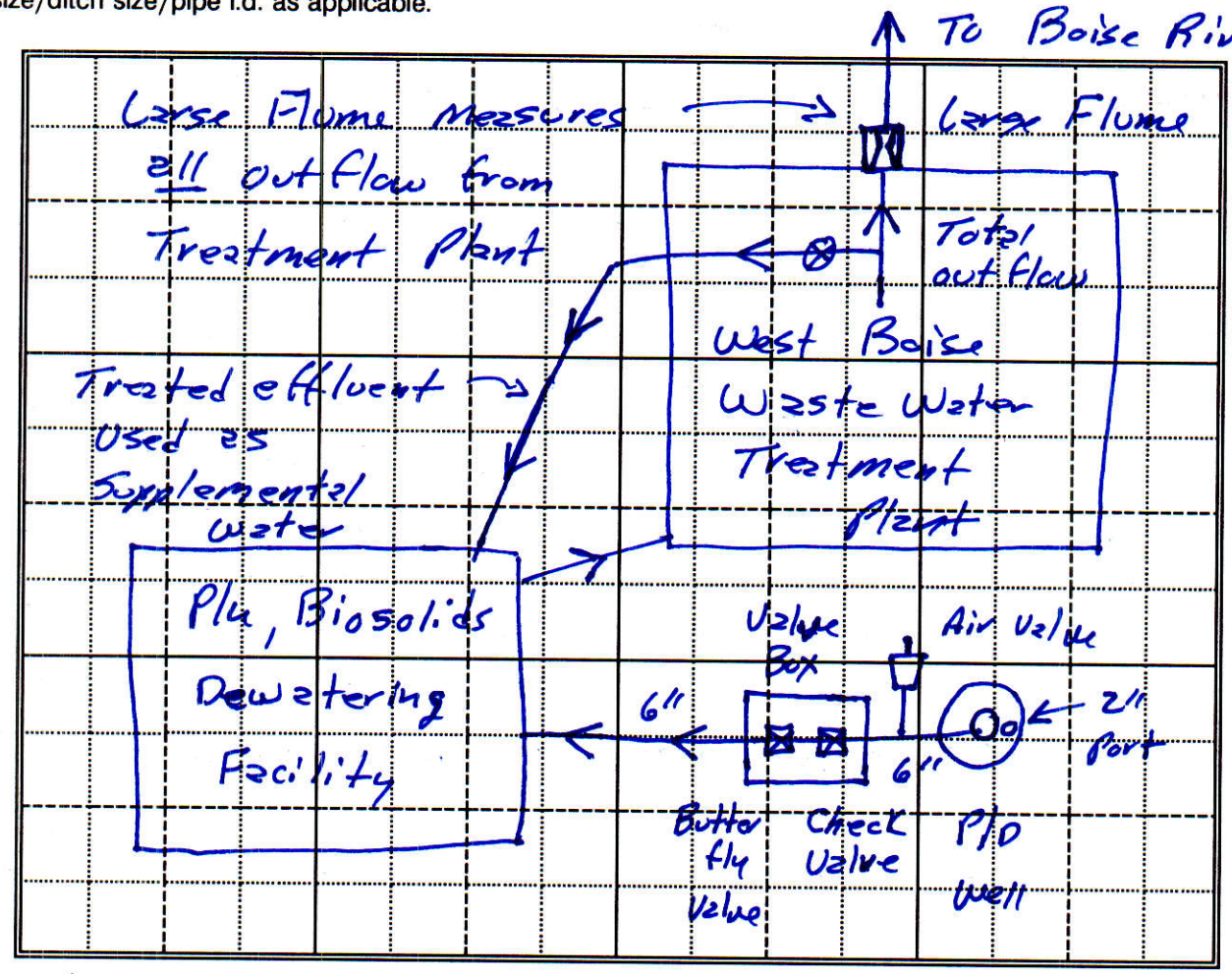
BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

MICROFILMED
NOV 0 7 1996

(Applicant)

H. Brent Coles, Mayor

3. **Delivery System Diagram**: Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable.



Scale: 1" = None

✓ Copy of USGS Quadrange Attached Showing location(s) of point(s) of diversion and place(s) of use (required).

___ Aerial Photo Attached (required for irrigation of 10+ acres)

✓ Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Model Motor ~~Serial~~ No.	Pump Make	Pump Serial No. or Discharge Size
(Single Well)		40	HZ1938	Crown	SN# 3G7-14954
					Model [redacted] 56-350
					5-Stage Vertical Turbine

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS Installed Flow Meter: 237 GPM on meter

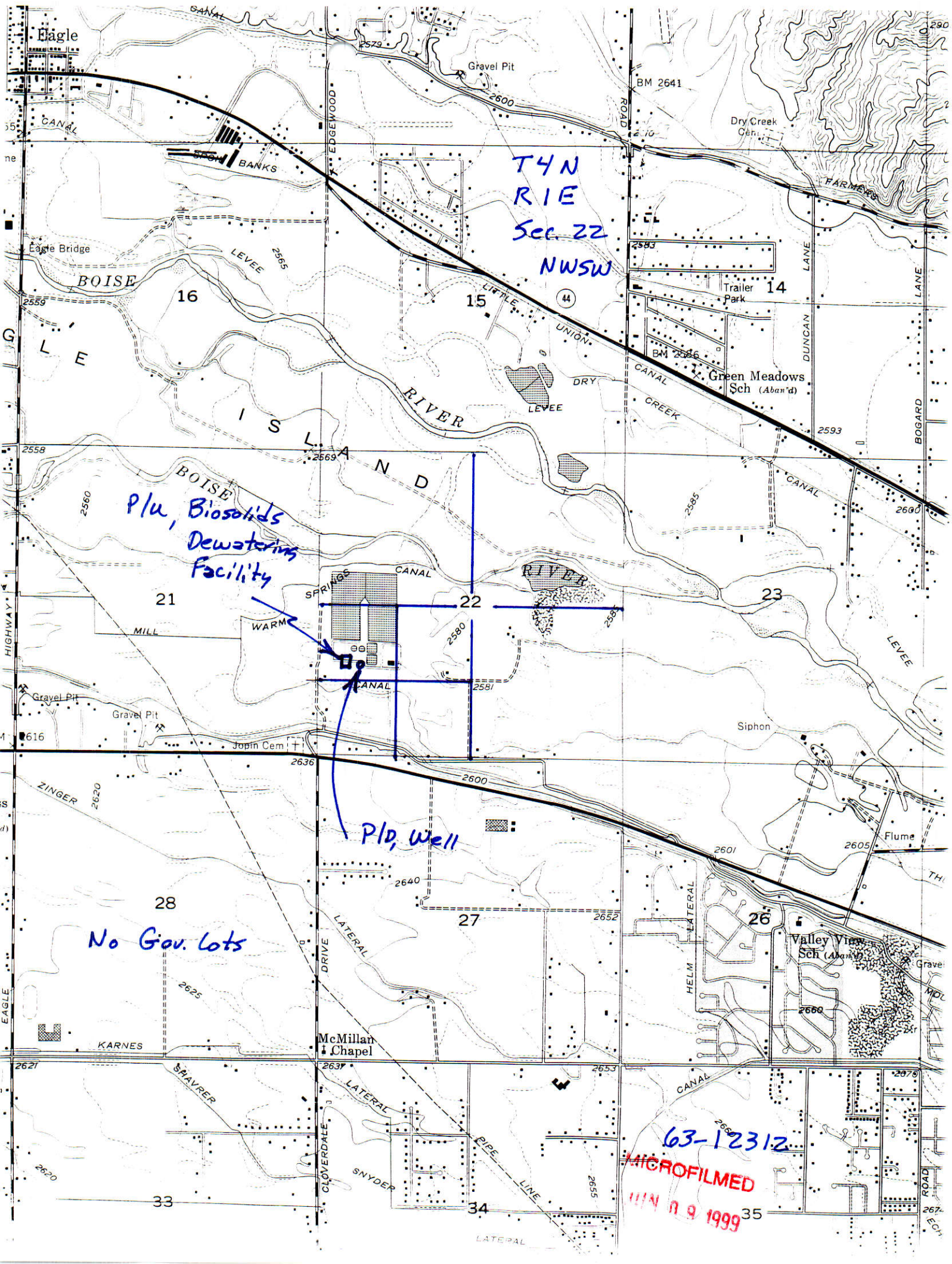
1.

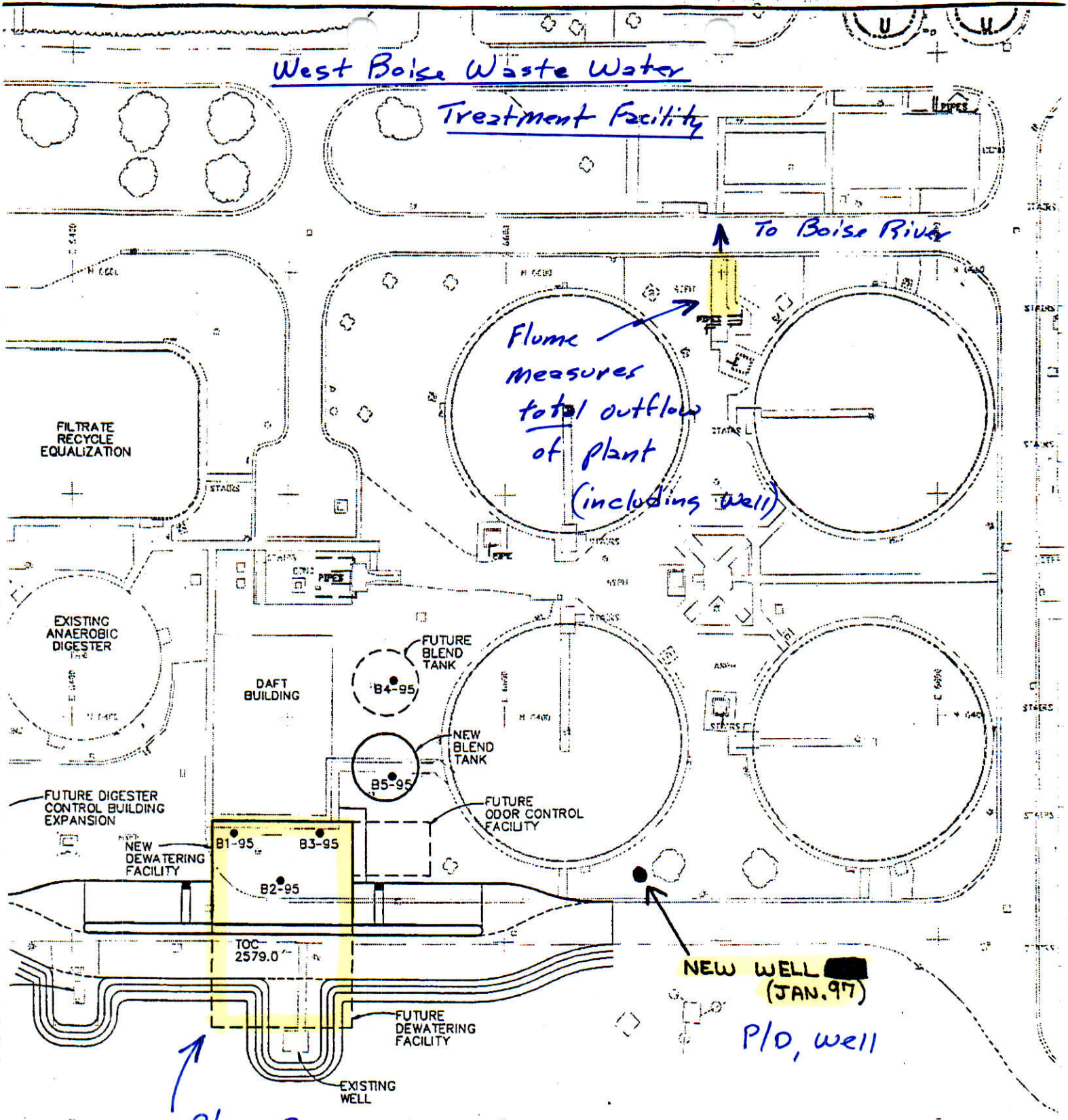
Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Flow Meter	Tot.	F-P		96W0465	4"	
(Fischer-Porter)				MICROFILMED		

JUN 09 1999

2. **Measurements:** None; operating pressure controlled at 95 psi normally. 56 psi on gage at time of exam - well was off - flow & pressure is effluent from Treatment plant being used, at time of exam.

[operating pressure Range is 90-95 psi]


Eagle
CANAL
Gravel Pit
BM 2641
ROAD
Dry Creek Cem.
EDGEWOOD
BANKS
T4N
R1E
Sec. 22
NWSW
FARMERS
LANE
Eagle Bridge
LEVEE
BOISE
16
15
14
Trailer Park
LITTLE
UNION
DUNCAN
LANE
BM 2586
Green Meadows Sch (Aban'd)
DRY
CREEK
LEVEE
BOGARD
GLENNS
ISLAND
RIVER
BOISE
P/U, Biosolids Dewatering Facility
SPRINGS
CANAL
21
22
23
WARM
MILL
HIGHWAY
Gravel Pit
Gravel Pit
Jopin Cem
Siphon
ZINGER
P/D, Well
Flume
28
No Gov. Lots
27
26
LATERAL
DRIVE
HELM
Valley View Sch (Aban'd)
EAGLE
KARNES
McMillan Chapel
SHAVRER
CLOVERDALE
SNYDER
PIPE LINE
33
34
35
63-12312
MICROFILMED
JUN 09 1999



MICROFILMED
JUN 09 1999

63-12312

Figure 1
WEST BOISE WWTF
BIOSOLIDS DEWATERING FACILITY
SITE PLAN AND BORING LOCATIONS
CITY OF BOISE
BIOSOLIDS DEWATERING FACILILTY

RIO RIO QA QA RC OOI QI QA RIO FI OOI (2) RC (2) QA (2) QI (2)

PIC V-41

AFD-V-39-1 480V 120V

AFD-V-39-2 480V 120V

LCP-V-40 ** 120V

PSV-V-41 PI V-41

T-V-41 W5 BLADDER TANK

PDSH V-40 ** PDI V-40 **

FAIL ON AUTO HS V-40 OOA QL V-40 ON HS V-40 OO

PSH V-39 PIT V-41 FIT V-41 120V

M-V-40 AUTOMATIC STRAINER ** DR BYP

FC-V-41

E FCV-V-40 ** DR

PI V-39-1 TSH V-39-1 ARV-V-39-1 AS P-V-39-1 WELL PUMP NO. 1

PI V-39-2 TSH V-39-2 ARV-V-39-2 P-V-39-2 WELL PUMP NO. 2

PID, Well

Variable speed pump Control and Bladder Tank (Air Tank) provides water on demand.

Treated effluent is used as a supplemental water supply when the well is off-line

MICROFILMED JUN 09 1999

Plant Non-Potable water - [Treated Effluent]

4" Flow Meter

Backflow Peventer Isolation Values

Value

ON FAIL AUTO HS V-27-1 OOA RESET HS V-27-1 (2) (2) QL V-27-1 ON HS V-27-1 OO

PI V-27-1-1 M PCV-27-1-1 CS P-V-27-1 BOOSTER PUMP NO. 1

PI V-27-1-2 PSH V-27-1 PI V-27 PCV-27

BWW W5 BWW V-D 0123 TO BELT FILTER PRESSES

BOOSTER PUMP NO. 2 SYSTEM (SEE ABOVE)

W5 GBT BOOSTER PUMP

W5 V-G 0123 FILTRATE SUMP WASH

W5 WASHDOWN HOSE(S)

W5 V-B 0126 POLYMER SYSTEM

W5 V-C 0126 POLYMER SYSTEM

W5 MISCELLANEOUS USES

P/u

P/u

P/u

P/u

High Use Period:
10 HRS/Day, 5 Days/week
Low Use Period:
Weekends and Holidays

63-12312

CH2M HILL ® 700 CLEARWATER LANE P.O. BOX 8748 BOISE, IDAHO 83707 (208) 345-5310

VERIFY SCALES (IF LINE IS 2" LONG AT FULL SIZE, IF NOT 2" - SCALE ACCORDINGLY)

DRAWN H.J. SUCHY DESIGNED E.R. SCHULZ CHECKED R. EMANUEL PCP FILE TMSFULL.PCP

PROJECT NO. RMW37394.D2 SHEET 141 OF 156

BOISE PUBLIC WORKS 150 N. CAPITOL BLVD. BOISE, IDAHO 83702 (208) 384-3900

ZONE	REV.	DESCRIPTION REVISIONS	BY	DATE	APP.

CITY OF BOISE, IDAHO
WEST BOISE WWTF
BIOSOLIDS DEWATERING
Facility

P & ID
W5 AND HIGH PRESSURE WATER PUMPING

SCALE	CAD FILE NO.
1=1	WPIP127.DWG
DATE	PROJECT NO.
OCT 1995	F/B-95-221
DRAWING NUMBER	
W-PID-PI-0127	

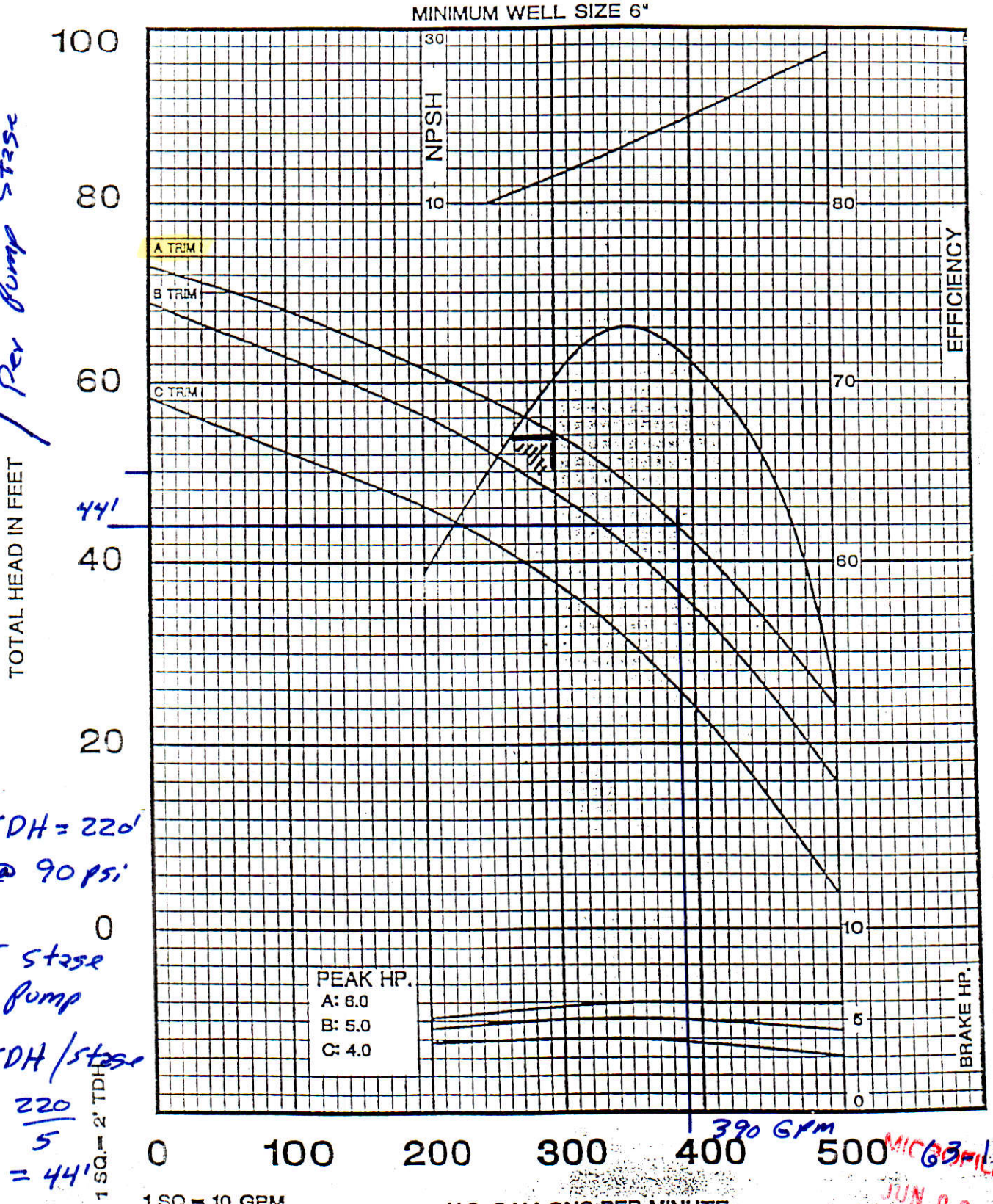
CROWN

S6-350

C04 ITEM 6
SHEET 67 OF 87

MODEL S6-350

PERFORMANCE CHARACTERISTICS



Per pump stage

44'

TDH = 220'
@ 90 psi

5 stage pump

TDH / stage
= 220 / 5
= 44'

300 GPM @ 270' TDH

5 STAGE

MICROFILMED
JUN 09 1999

390 GPM @ 220' TDH = 0.87 cfs

CROWN PUMP CORPORATION , 101 BIVAR , DE LEON , TEXAS , 76444

8. **POSSIBLE CONTAMINATION SOURCES:**

Is there evidence of Chemigation? [ ] Yes [✓] No

If yes, is there a check-valve present? [ ] Yes [ ] No

Is there a possible source of contamination nearby? [✓] Yes [ ] No

If yes, what Type? Waste Water Treatment Plant

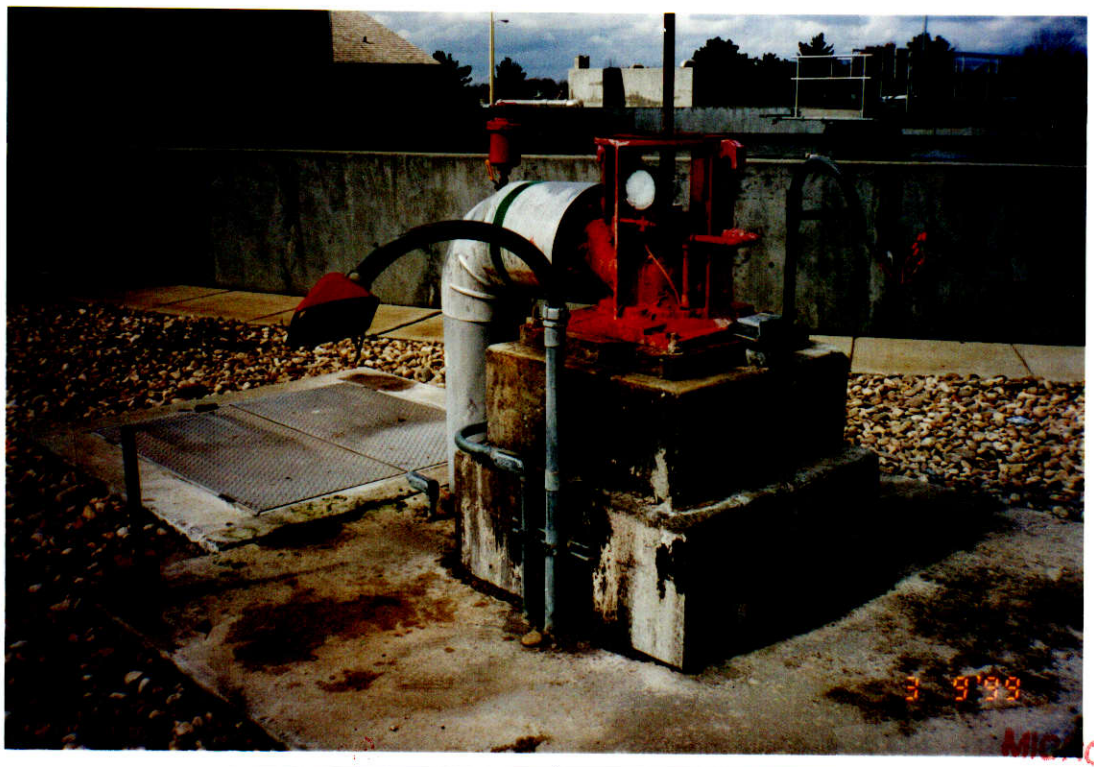
How far away from the well is this source? Well is located at plant site.

9. **REMARKS:** This well supplies water to the Biosolids Dewatering Facility at the West Boise Wastewater Treatment Facility. The water is considered to be non-potable, non-consumptive, and is treated after use and discharged to the Boise River.

Dan Temick Water Rights Examiner — 3-9-99

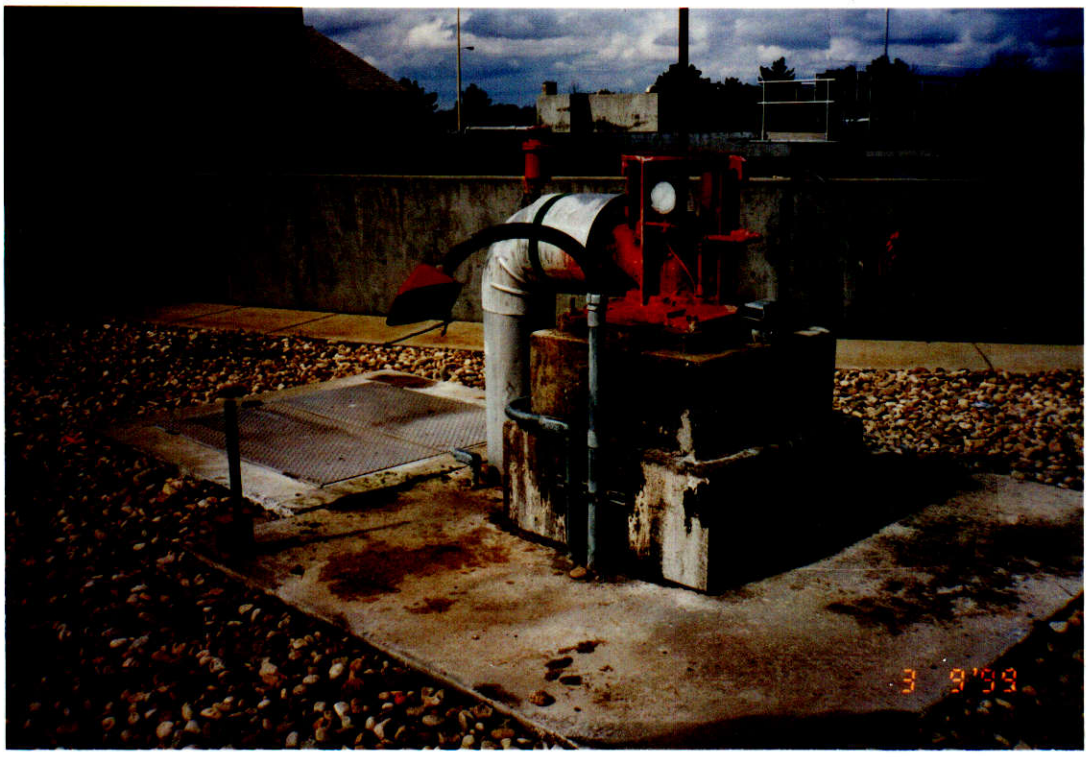
Signature of Dept. Representative & Title — Inspection Date

PHOTOS, DRAWINGS, OTHER ATTACHMENTS: The electric motor has been removed for replacement of bearings and packing.



MED
JUN 1999

1 of 4



P/D

Well

Note that Motor has been removed for replacement of bearings and packing seals.



P/U

Biosolids

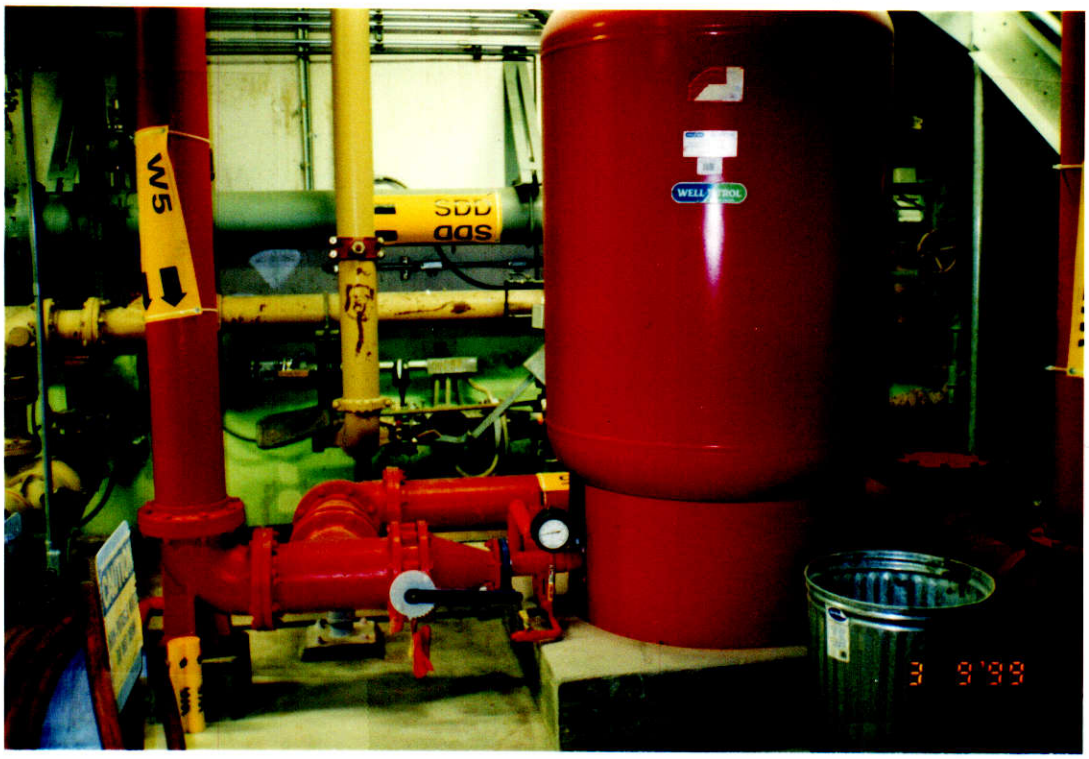
Dewatering

Facility.

MICROFILMED
JUN 09 1999

63-12312

2 of 4



P/u

Bladder (Air) Tank, Pressure Gage, etc.

All Red Lines are water system from well.



P/u

Flow Meter, Blue/Gray Device.

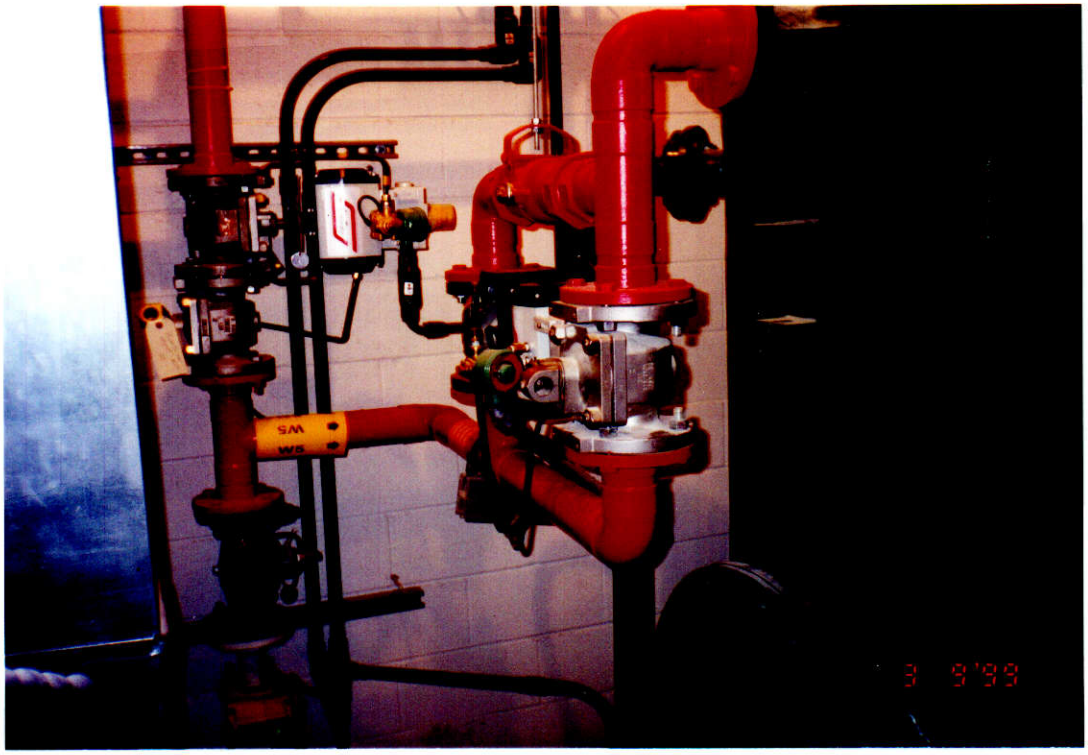
Red lines in background - on right of photo - is treated effluent water.

MICROFILMED
JUN 09 1999

63-12312

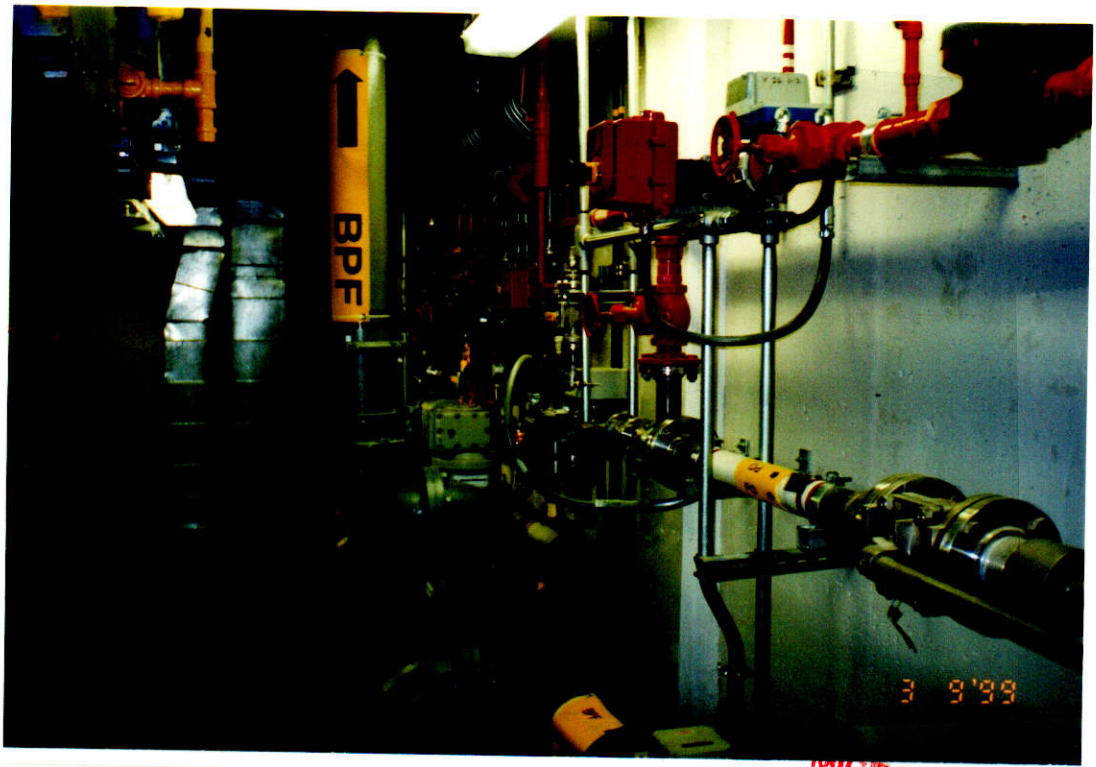
Treated effluent water Cross-Connection next to flow meter.

3 of 4



Plu

Red Lines feed well water to one of two Polymer systems.



Plu

Red Lines one well water system

MICROFILMED
JUN 09 1999

63-12312

4 of 4

P/u

Truck
Wash





Large
Flume
that
measures
Total
outflow
from
Waste
Water
Treatment
Plant.

Water from this
flume is piped
to Boise River

MICROFILMED
JUN 0 4 1999

63-12312

14-Apr-1995 FIG1SITE.DWG

EXISTING SLUDGE HOLDING TANK

FILTRATE RECYCLE EQUALIZATION

EXISTING ANAEROBIC DIGESTER

EXISTING ANAEROBIC DIGESTER

DAFT BUILDING

FUTURE BLEND TANK

B4-95

NEW BLEND TANK

B5-95

FUTURE DIGESTER CONTROL BUILDING EXPANSION

FUTURE ODOR CONTROL FACILITY

NEW DEWATERING FACILITY

B1-95

B3-95

B2-95

FUTURE DIGESTER

TOC 2579.0

EXISTING WASTE GAS FLARE

FUTURE DEWATERING FACILITY

EXISTING WELL

FUTURE DIGESTER

N

0 30 60 90 120

SCALE: 1"=60'

LEGEND:

B2-95 SOIL BORING LOCATION AND NUMBER

MICROFILMED
SEP 11 1997

Figure 1

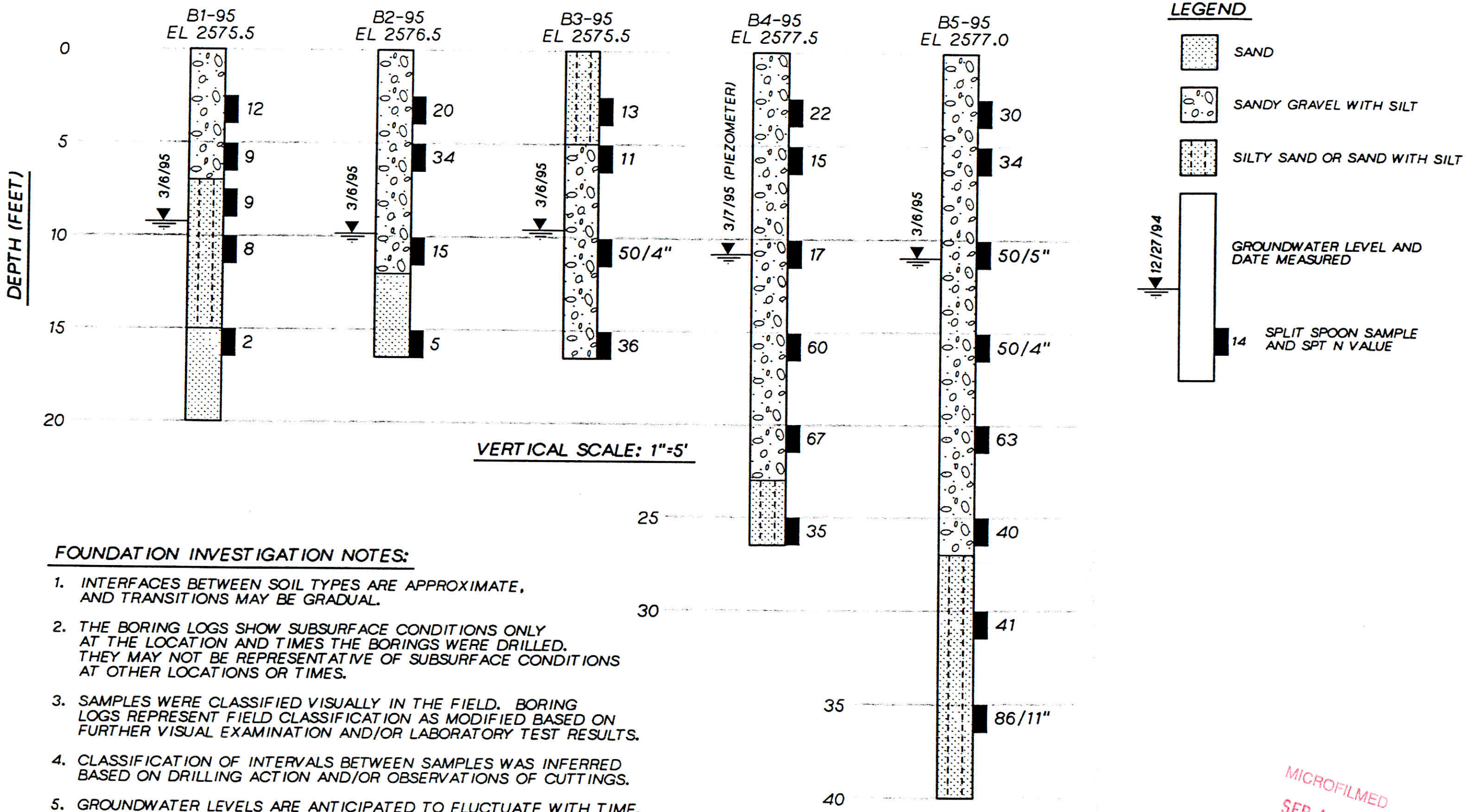
WEST BOISE WWTF
BIOSOLIDS DEWATERING FACILITY
SITE PLAN AND BORING LOCATIONS

CITY OF BOISE
BIOSOLIDS DEWATERING FACILITY

CH2MHILL

RMW37394.06

FIG1SITE.DWG



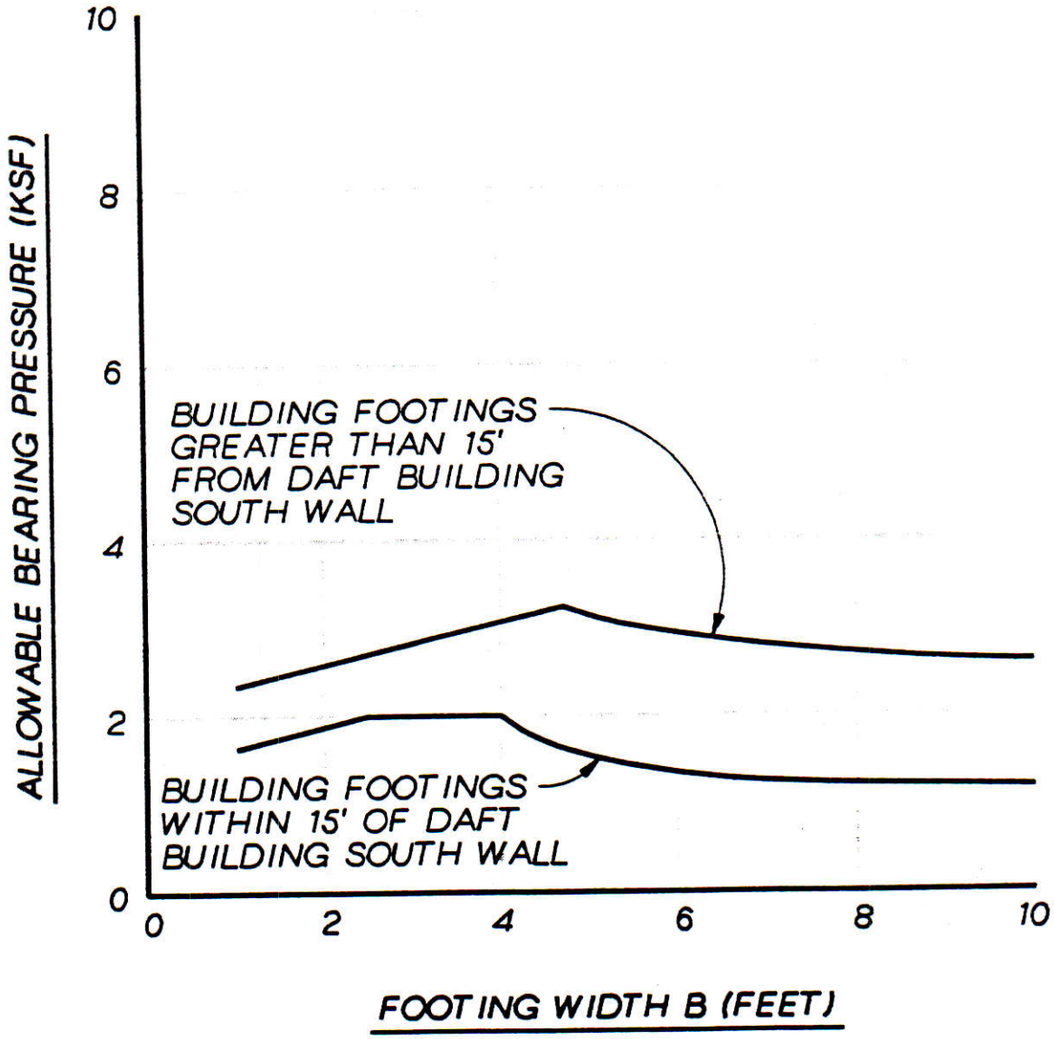
FOUNDATION INVESTIGATION NOTES:

1. INTERFACES BETWEEN SOIL TYPES ARE APPROXIMATE, AND TRANSITIONS MAY BE GRADUAL.
2. THE BORING LOGS SHOW SUBSURFACE CONDITIONS ONLY AT THE LOCATION AND TIMES THE BORINGS WERE DRILLED. THEY MAY NOT BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS OR TIMES.
3. SAMPLES WERE CLASSIFIED VISUALLY IN THE FIELD. BORING LOGS REPRESENT FIELD CLASSIFICATION AS MODIFIED BASED ON FURTHER VISUAL EXAMINATION AND/OR LABORATORY TEST RESULTS.
4. CLASSIFICATION OF INTERVALS BETWEEN SAMPLES WAS INFERRED BASED ON DRILLING ACTION AND/OR OBSERVATIONS OF CUTTINGS.
5. GROUNDWATER LEVELS ARE ANTICIPATED TO FLUCTUATE WITH TIME.
6. BORINGS WERE DRILLED ON MARCH 6, 1995.

MICROFILMED
SEP 11 1997

Figure 2
GRAPHIC BORING LOGS
CITY OF BOISE
BIOSOLIDS DEWATERING FACILITY

CH2MHILL

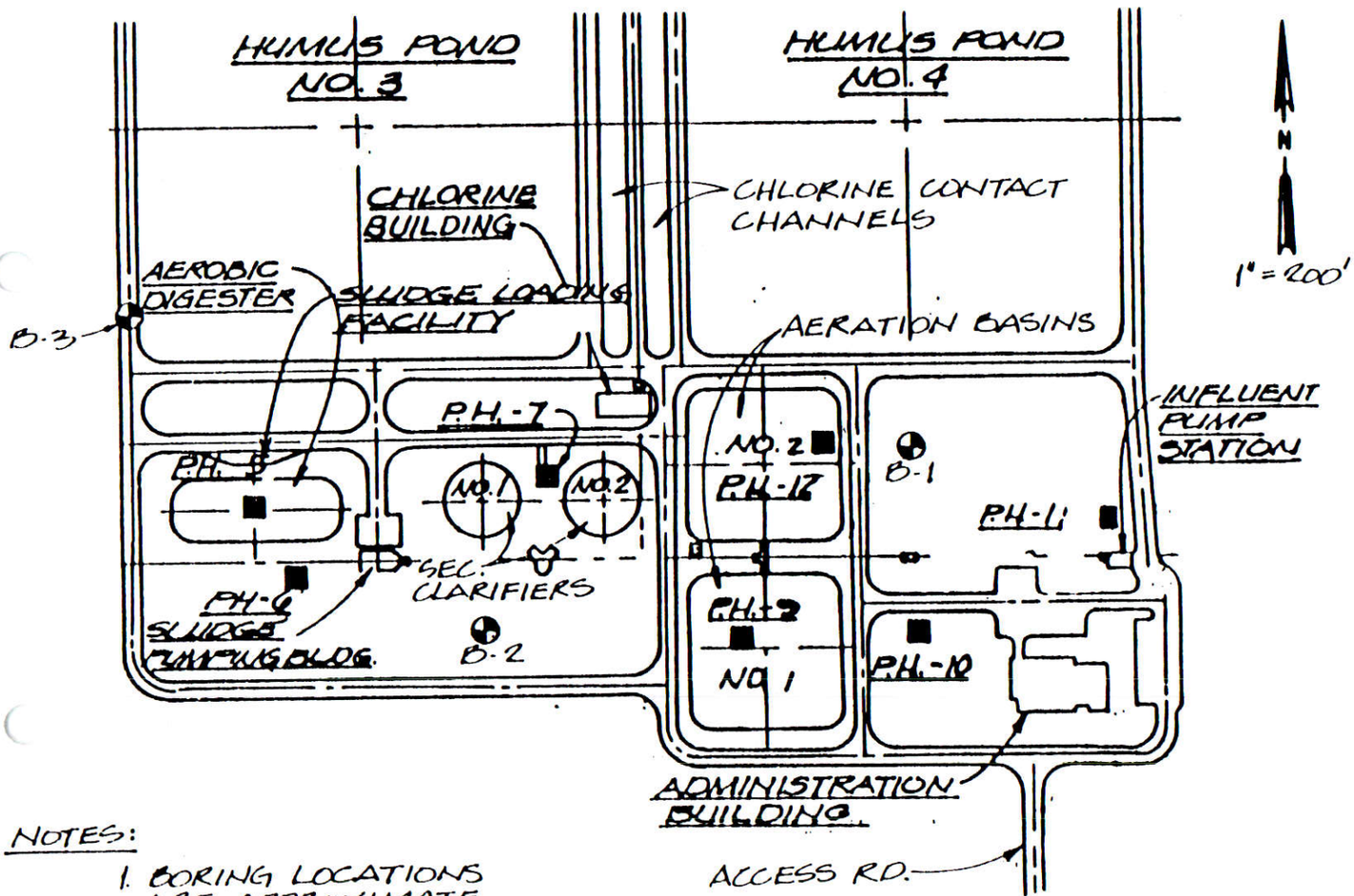


MICROFILMED
SEP 1 1 1997

Figure 3
ALLOWABLE BEARING PRESSURE CHART
CITY OF BOISE
BIOSOLIDS DEWATERING FACILITY

CH2MHILL

RMT37394.D2
14-APR-1995 PC* 0 ABCC.DGN



MICROFILMED
SEP 11 1987

NOTES:

1. BORING LOCATIONS ARE APPROXIMATE.

◓ BORINGS DRILLED IN MAY 1981

■ PROBE HOLES DRILLED IN 1974

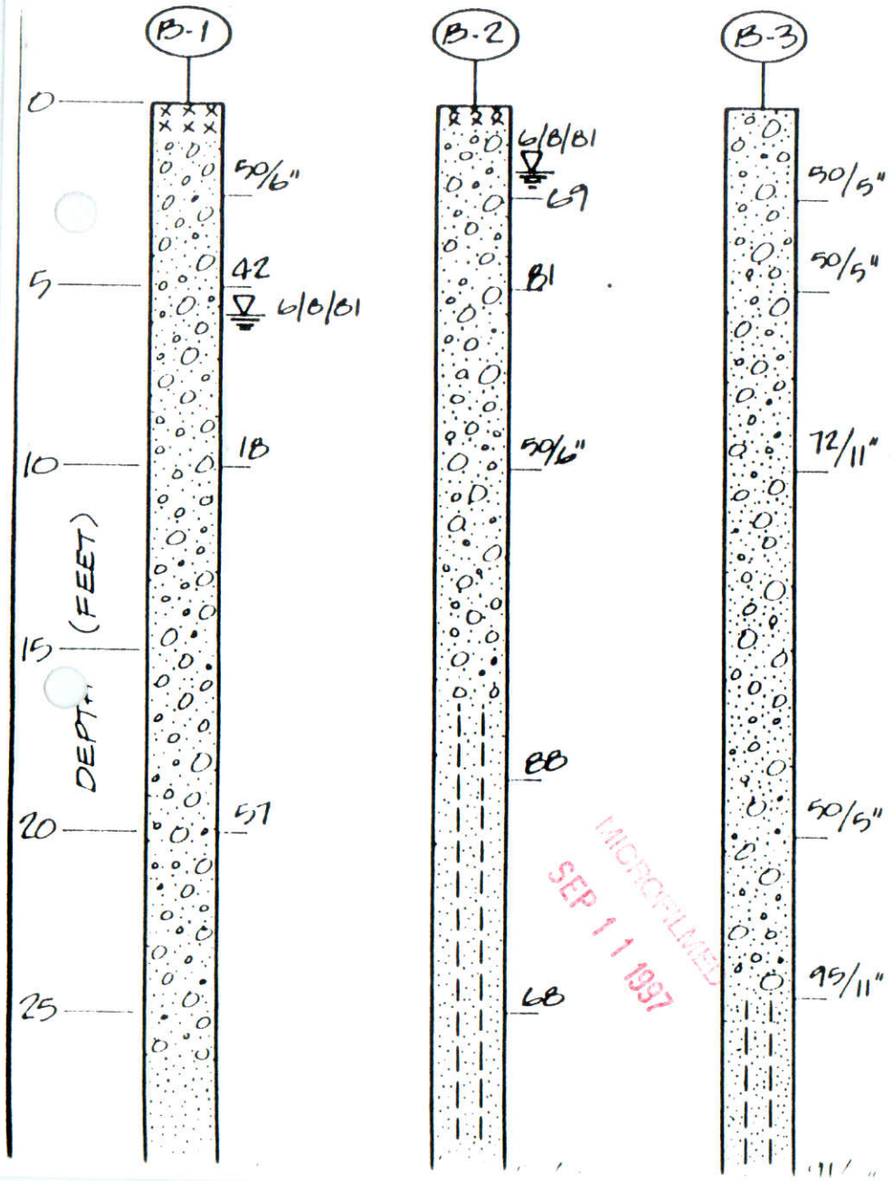
FIGURE 1

GEOTECHNICAL INVESTIGATION
WEST BOISE WASTEWATER
TREATMENT PLANT EXPANSION
BOISE, IDAHO

SITE PLAN

CH2M HILL

B 12430.01



BORING HOLE LEGEND

- TOPSOIL
- SILTY SAND
- SAND
- SAND, GRAVEL & COBBLES
- B-3 — BORING HOLE NUMBER
- 69 — "N" VALUE - STANDARD PENETRATION RESISTANCE (ASTM D-1586)
- GROUNDWATER LEVEL AND DATE RECORDED
- 50/6" — "N" VALUE FOR LESS THAN ONE FOOT PENETRATION

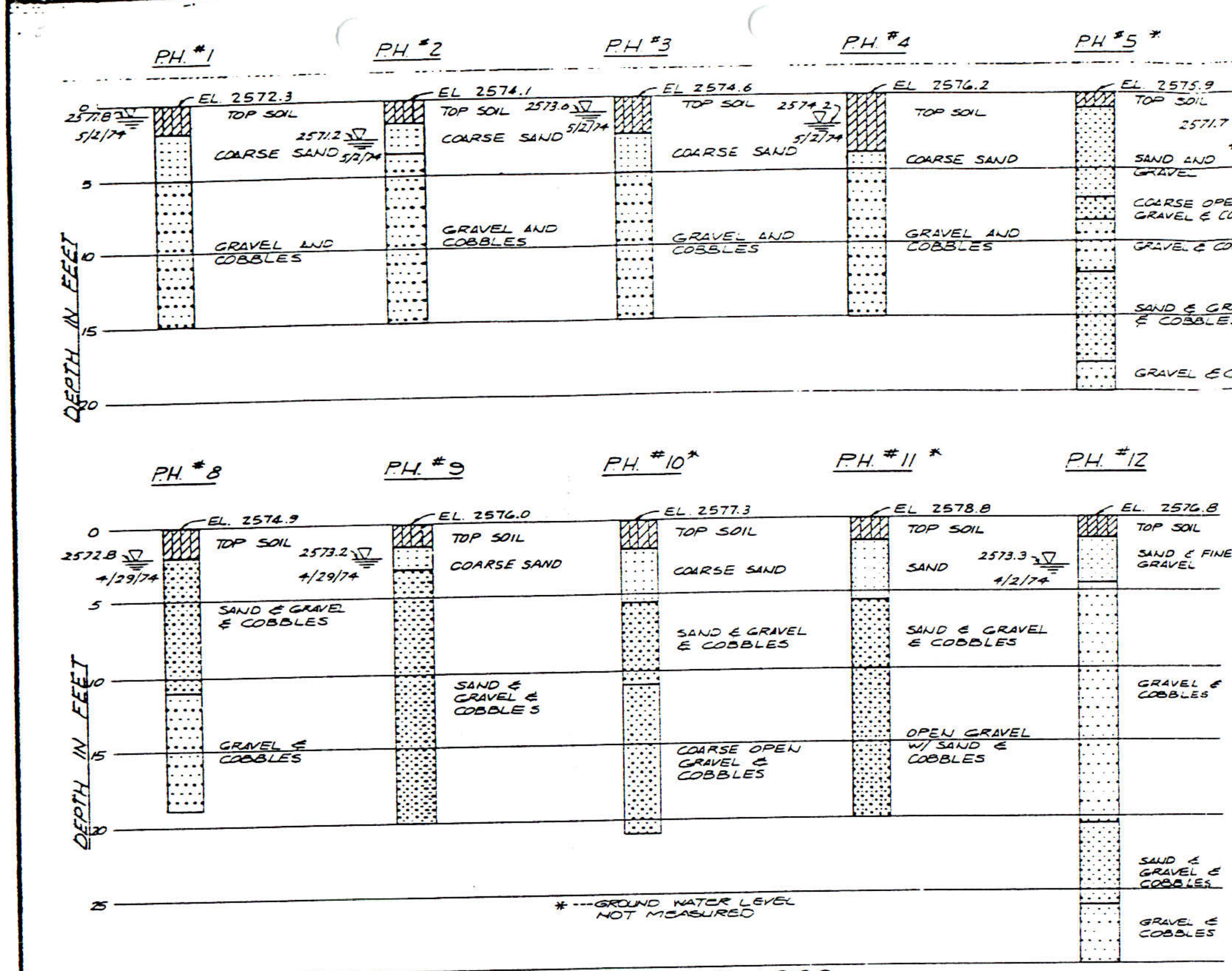
NOTES:

1. THE DEPTH OF INDICATED INTERFACES BETWEEN SOIL TYPES IS APPROXIMATE & THE TRANSITION BETWEEN SOIL TYPES MAY BE GRADUAL.
2. GROUNDWATER LEVEL WAS RECORDED ON JUNE 8, 1981. GROUNDWATER WAS NOT MEASURED IN B-3.

MICROFILMED SEP 11 1987

FIGURE 2

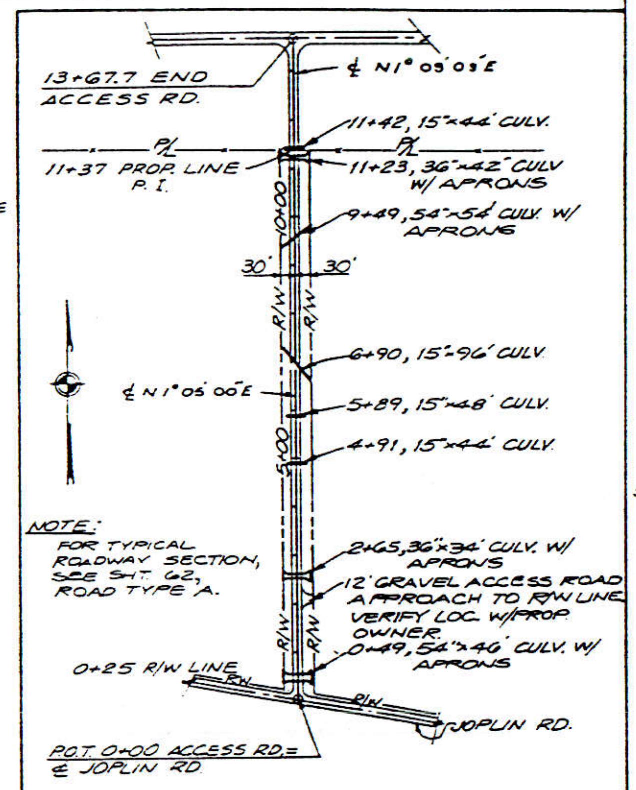
GEOTECHNICAL INVESTIGATION
WEST BOISE WASTEWATER
TREATMENT PLANT EXPANSION
BOISE, IDAHO



TEST HOLE LOGS

■ TEST HOLE SYMBOL

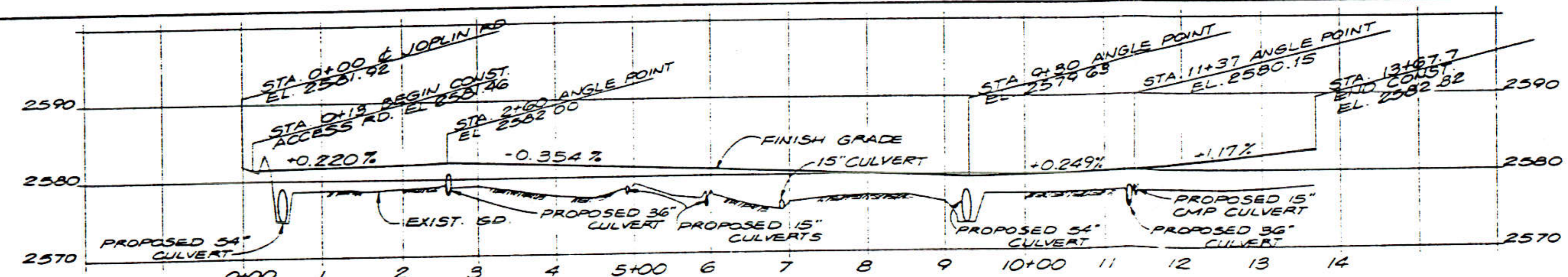
NOTE:
TEST HOLE INFORMATION WAS OBTAINED FROM THREE-INCH DIAMETER PROBE HOLES USING A SMALL ROTARY DRILL RIG.



NOTE:
FOR TYPICAL ROADWAY SECTION, SEE SHT. G2, ROAD TYPE A.

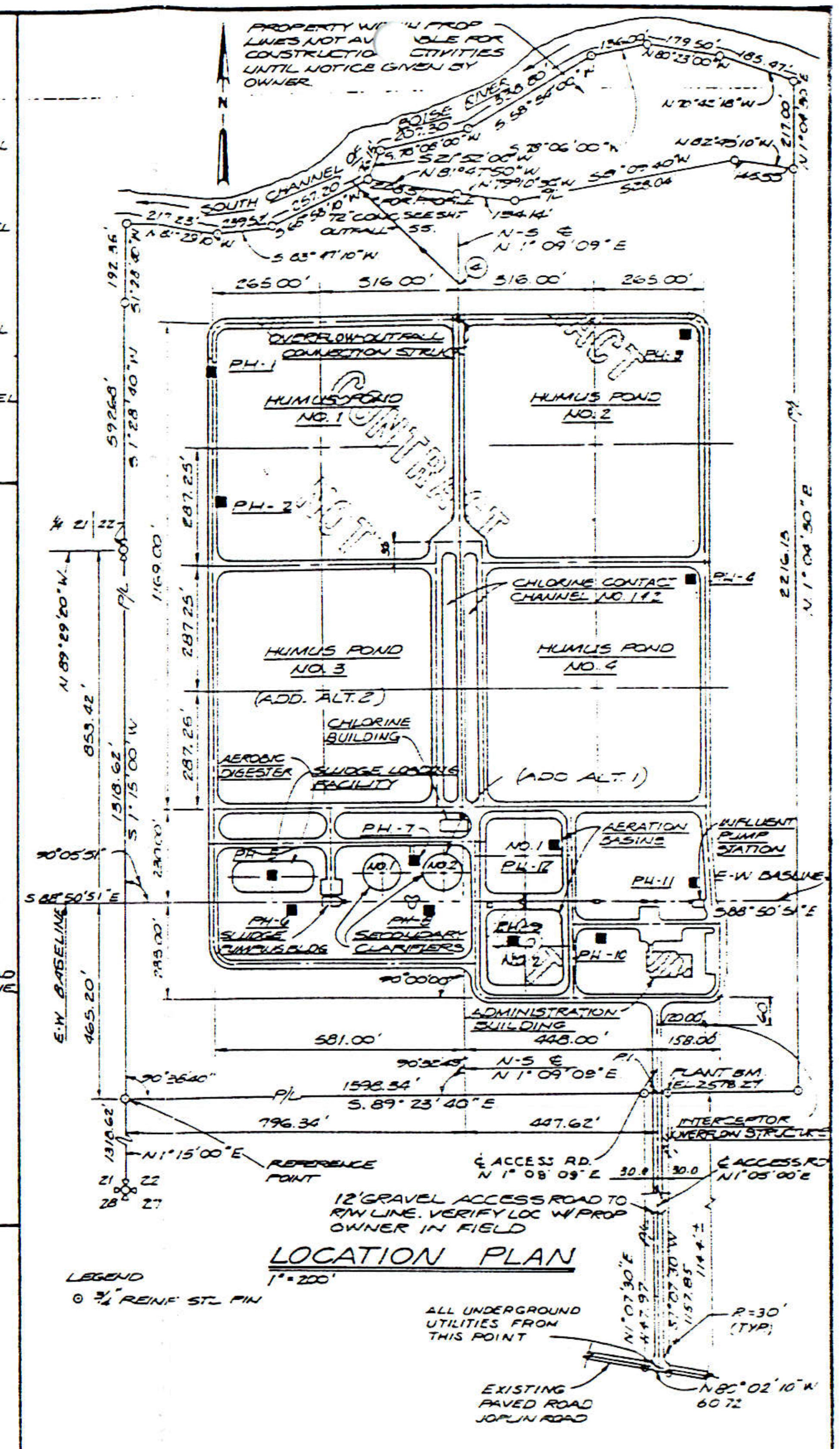
ACCESS ROAD PLAN

1" = 200'



ACCESS RD. PROFILE

VERT.: 1"=10'
HORZ.: 1"=100'



LOCATION PLAN

1" = 200'

LEGEND
⊙ 3/4" REINF. STL. PIN

MICROFILMED
SEP 1 1 1992

THIS PRINT IS REDUCED TO ONE-HALF OF THE ORIGINAL SCALE

CH2M HILL		
DES. TAK	DR. JLL	CHK. GAR
APPD. RRB		

NO | DATE | REVISION | BY | APPD.

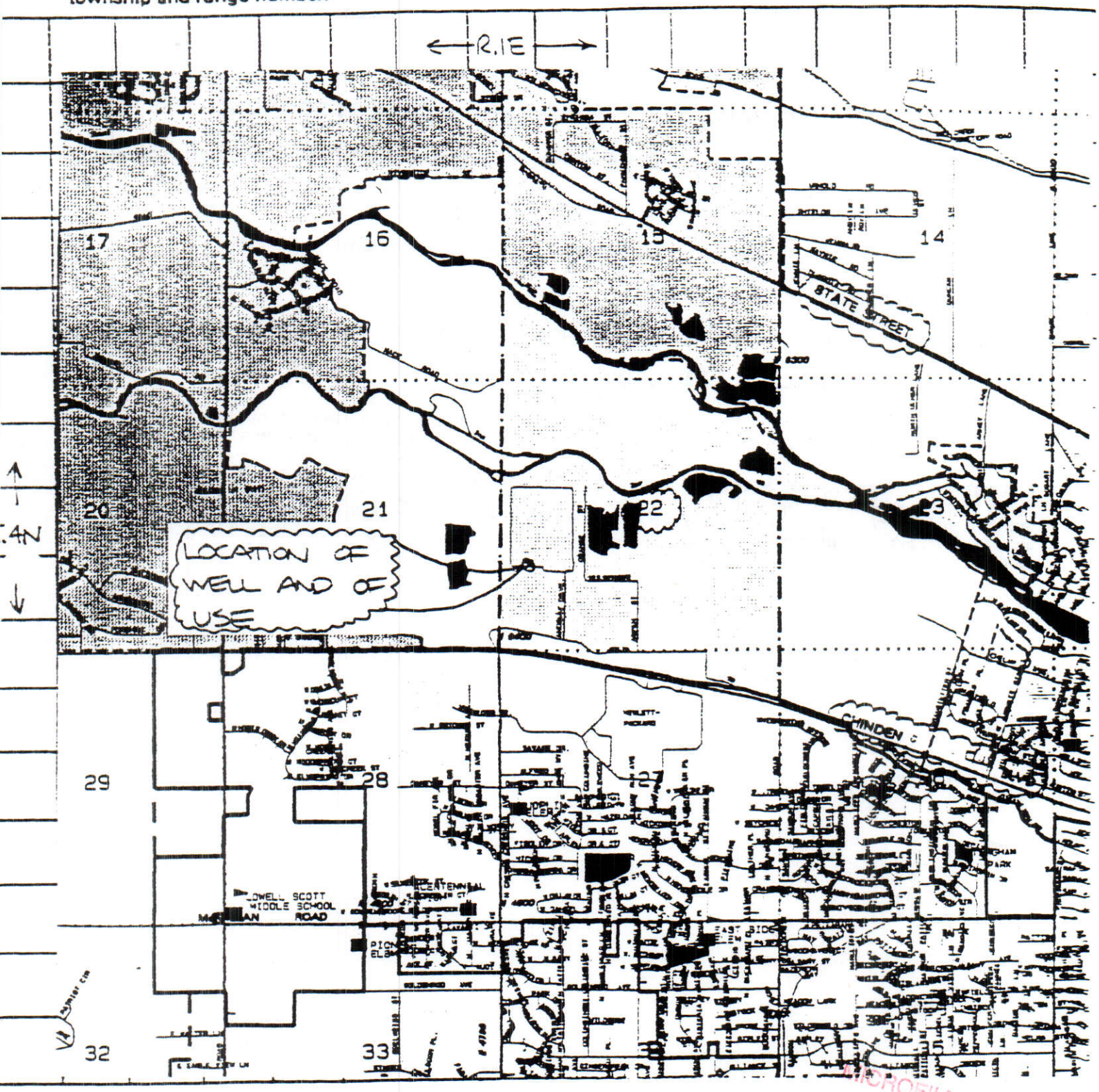
CITY OF BOISE, IDAHO
WEST BOISE WASTEWATER TREATMENT PLANT
PHASE I

GENERAL PLANS

LOCATION PLAN AND TEST HOLES

SHEET 3
DATE MAY 1974
DWG NO. C7927-1

*3. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



MICROFILMED
SEP 14

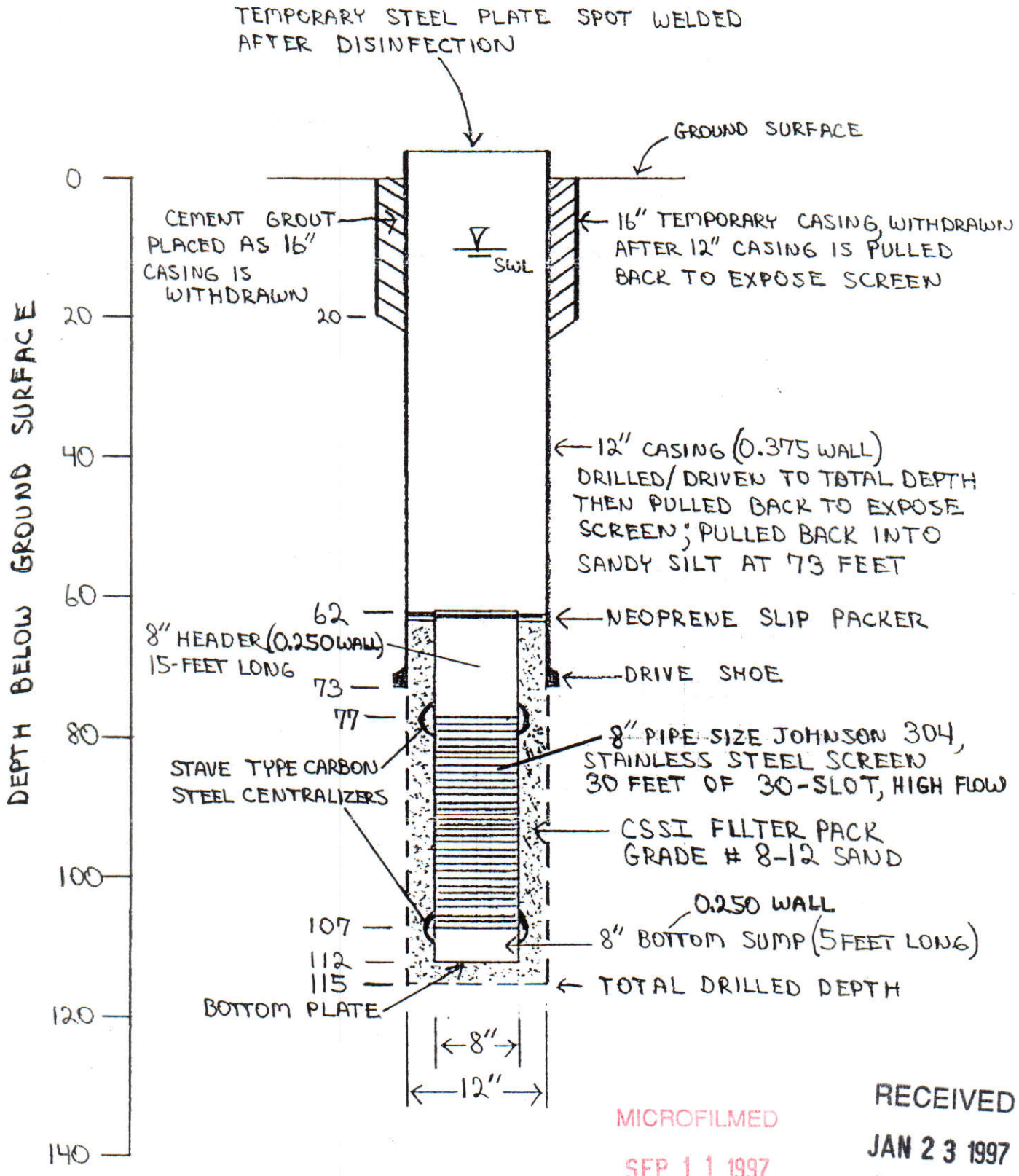
BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

(Applicant)

Brian Coles, Mayor

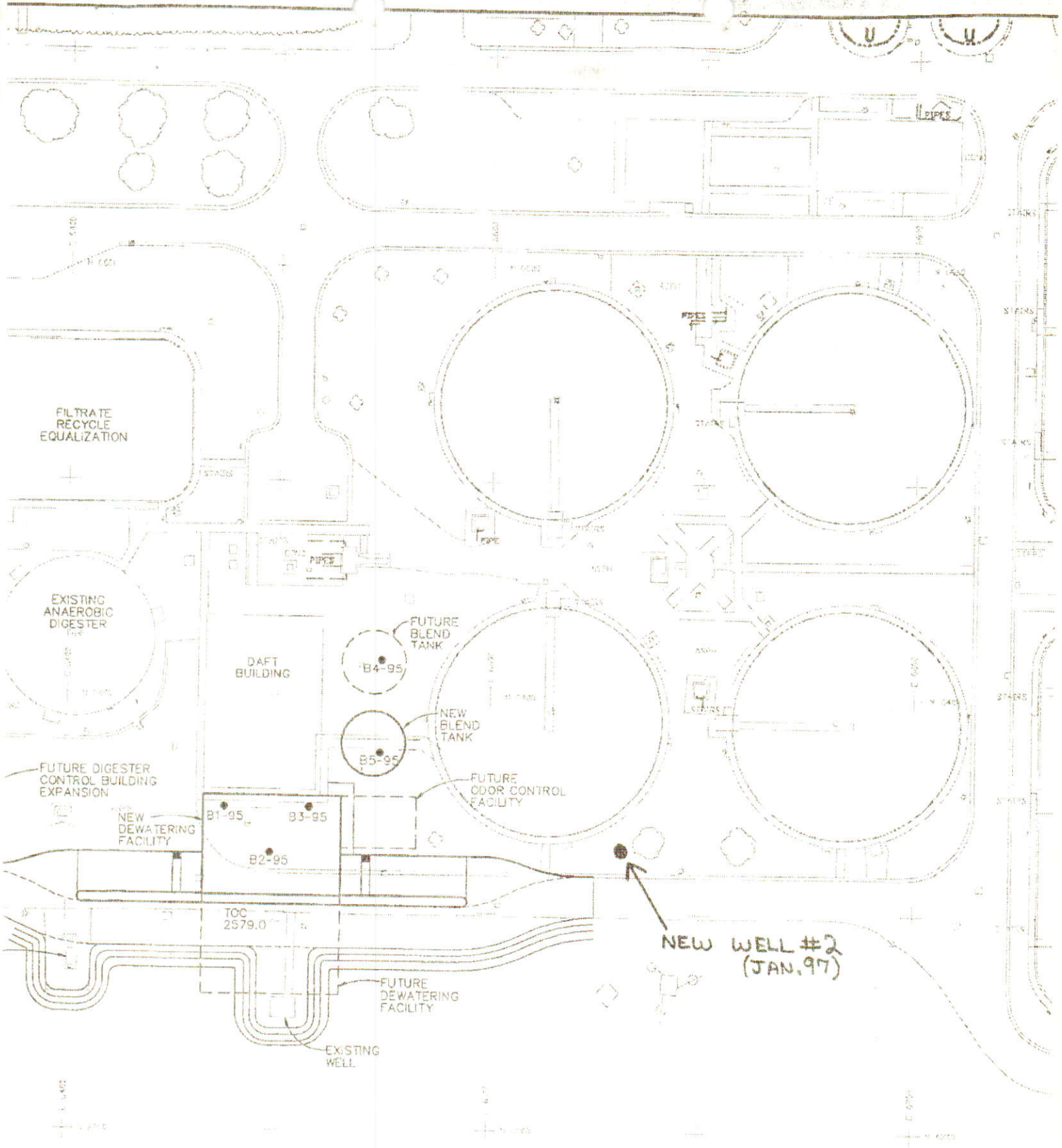
SUBJECT RECOMMENDED FINAL WELL DESIGN
WELL NO.2- WBWWTP

BY GARRETT BROWN
SHEET NO. 1 of 1 DATE 1-21-97
PROJECT NO. 109195.C4.05



MICROFILMED
SEP 11 1997

RECEIVED
JAN 23 1997
WATER RESOURCES
WESTERN REGION



LEGEND:

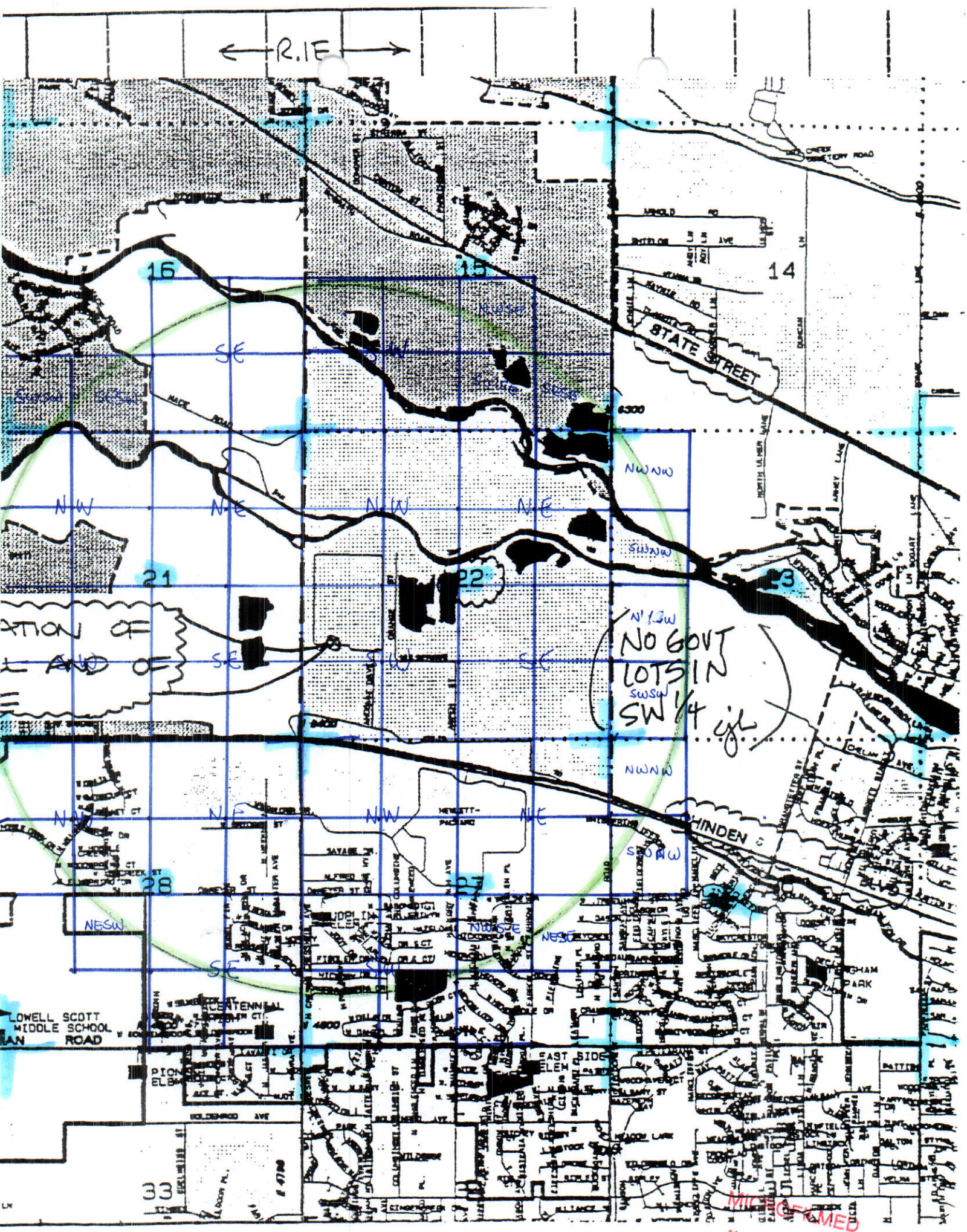
B2-95 SOIL BORING LOCATION AND NUMBER

Figure 1
WEST BOISE WWTF
BIOSOLIDS DEWATERING FACILITY
SITE PLAN AND BORING LOCATIONS

CITY OF BOISE
BIOSOLIDS DEWATERING FACILILTY

MICROFILMED
SEP 1 1 1997

01/15/97 WED 10:23 FAX 208 345 5315 CH2M HILL 004


R.1E
16
15
14
21
22
23
28
27
33
STATE STREET
NO GOVT LOTS IN SW 1/4
HINDEN
LOWELL SCOTT MIDDLE SCHOOL
EAST SIDE
MICROFILMED
NOV 07 1996

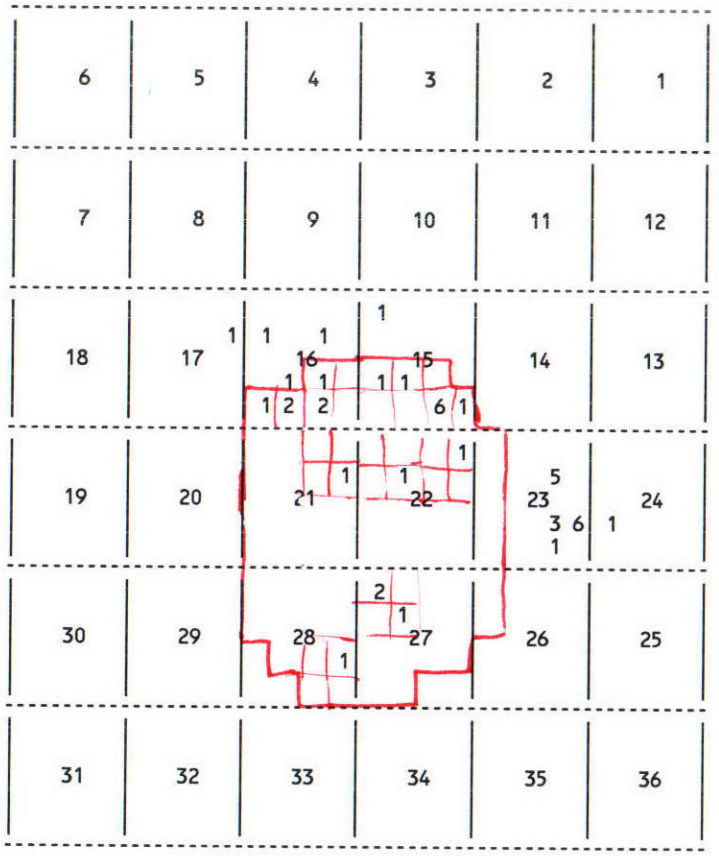
WR5822NP

Idaho Department of Water Resources
PoD/PoU Map Report

Date: 09/27/96
Time: 14:26:32
Page: 1

Map Of: POD

Township: 04N Range: 01E



* Indicates more than 9 PoDs/PoUs in that Quarter/Quarter

S15 NESW 63-00258A - Boise R.
NWSW 63-00198AA - Boise R.
SWSE 1) 63-0234
2) 63-00235 "
3) 63-00236 "
4) 63-00237 "
5) 63-00238 "
6) 63-00239D "
SESE 63-11954 - Pond (Moratoriumhold)

S16 SWSW 63-09421 - Boise R.
SESW 1) 63-00132K - Boise R.
2) 63-00133K "

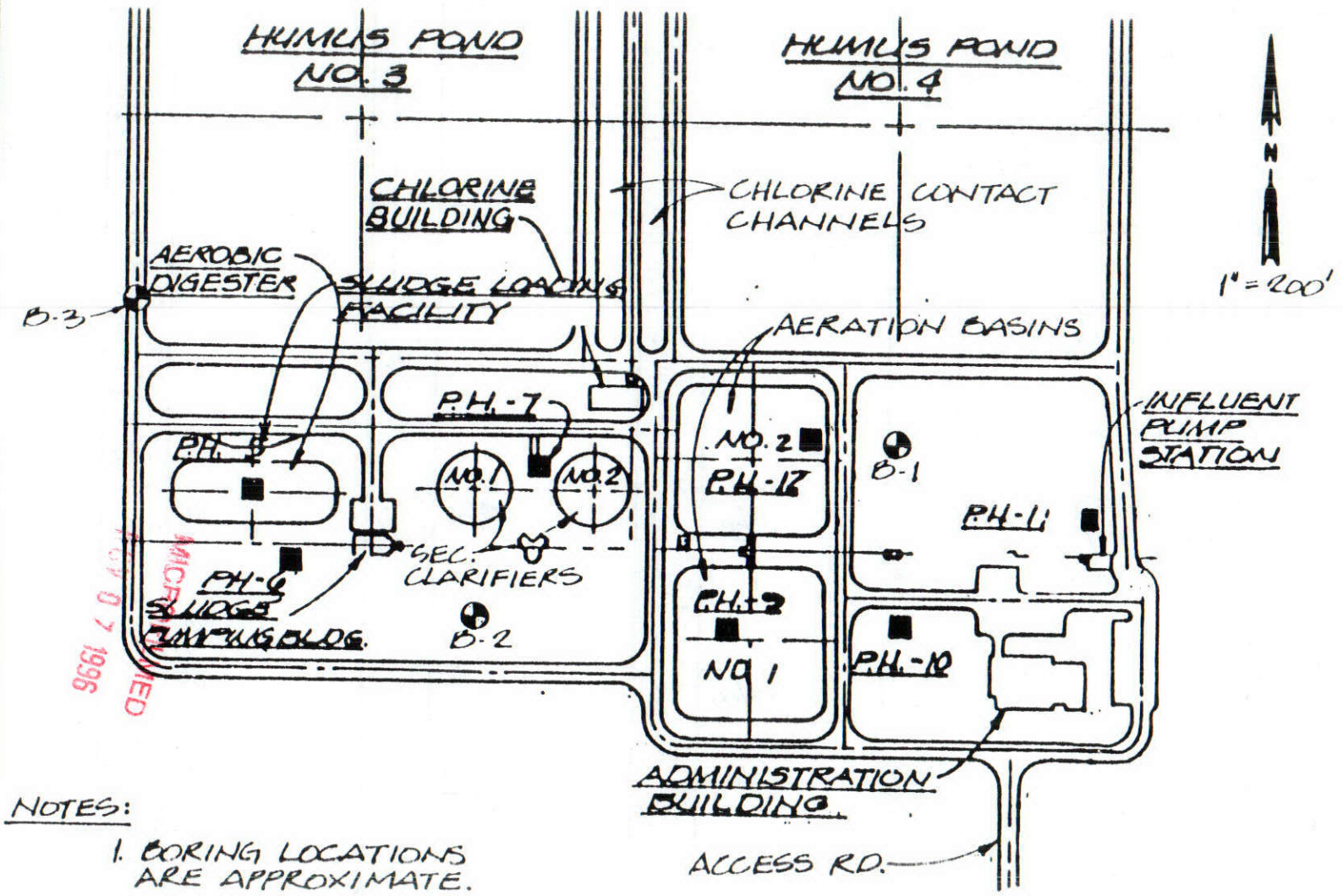
S21 SWNE

S22 NENE 63-11954 (Appl.) - Pond
SENW 63-00220 Boise R.

S27 NWNW 1) 63-02111 - Unnamed Str. Trib. to Boise R.
2) 63-02574 - Unnamed Str. Trib. to Boise R.
SENW 63-03433 - Unnamed Drain / Boise R.

S28 NESE 63-02807 - Unnamed Str. / Boise R.

MICROFILMED
NOV 07 1996



NOTES:

1. BORING LOCATIONS ARE APPROXIMATE.

◓ BORINGS DRILLED IN MAY 1981.

■ PROBE HOLES DRILLED IN 1974.

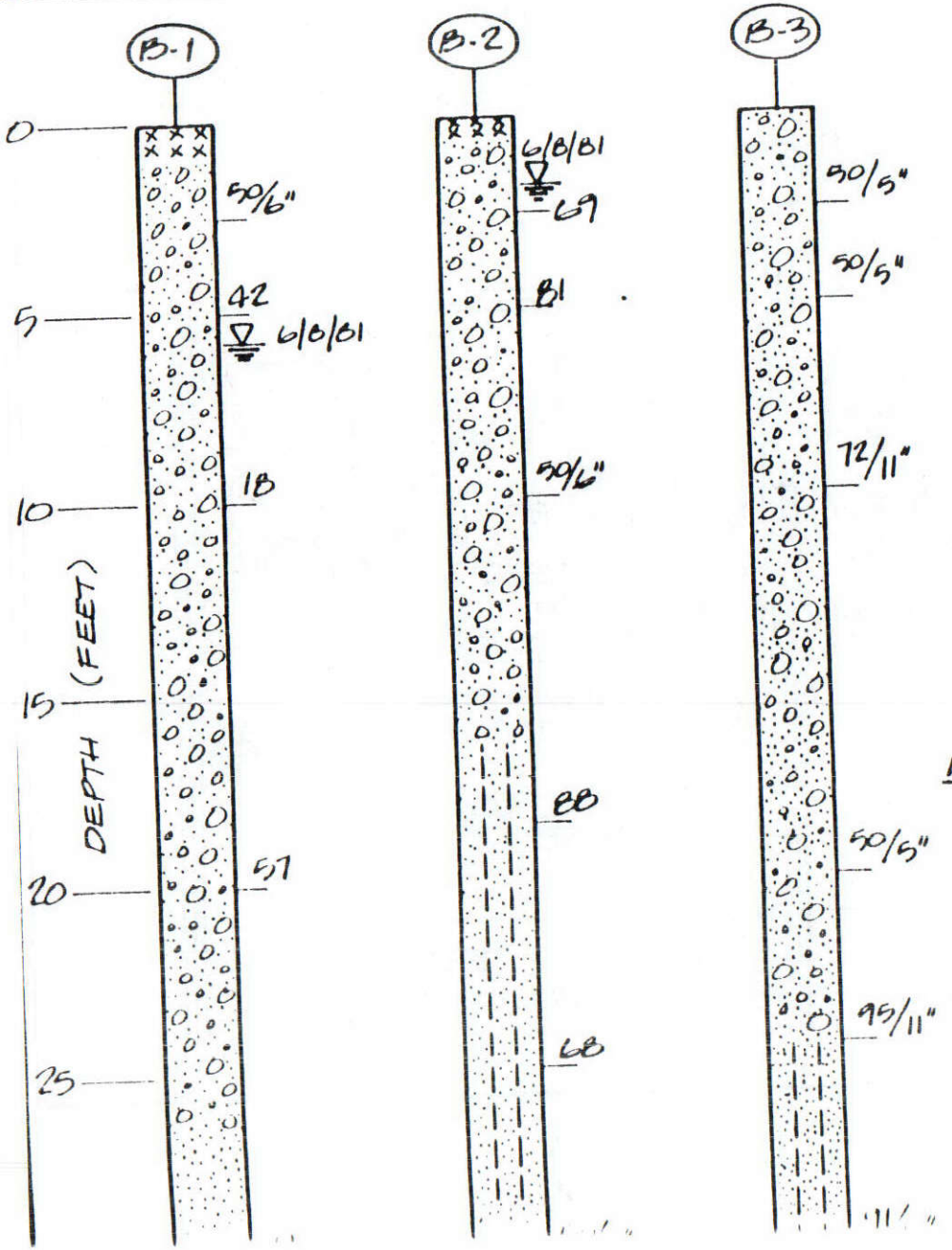
FIGURE 1

GEOTECHNICAL INVESTIGATION
WEST BOISE WASTEWATER
TREATMENT PLANT EXPANSION
BOISE, IDAHO

SITE PLAN

B 12430.01

CH2M HILL



BORING HOLE LEGEND

TOPSOIL

SILTY SAND

SAND

SAND, GRAVEL & COBBLES

B-3 BORING HOLE NUMBER

69 "N" VALUE - STANDARD PENETRATION RESISTANCE (ASTM D-1586)

GROUNDWATER LEVEL AND DATE RECORDED

50/6" "N" VALUE FOR LESS THAN ONE FOOT PENETRATION

NOTES:

1. THE DEPTH OF INDICATED INTERFACES BETWEEN SOIL TYPES IS APPROXIMATE & THE TRANSITION BETWEEN SOIL TYPES MAY BE GRADUAL.
2. GROUNDWATER LEVEL WAS RECORDED ON JUNE 8, 1981. GROUNDWATER WAS NOT MEASURED IN B-3.

FIGURE 2

GEOTECHNICAL INVESTIGATION
WEST BOISE WASTEWATER
TREATMENT PLANT EXPANSION
BOISE, IDAHO

14-Apr-1995 FIG1SITE.DWG

EXISTING SLUDGE HOLDING TANK

FILTRATE RECYCLE EQUALIZATION

EXISTING ANAEROBIC DIGESTER

EXISTING ANAEROBIC DIGESTER

DAFT BUILDING

FUTURE BLEND TANK

B4-95

NEW BLEND TANK

B5-95

FUTURE DIGESTER CONTROL BUILDING EXPANSION

FUTURE ODOR CONTROL FACILITY

NEW DEWATERING FACILITY

B1-95

B3-95

B2-95

FUTURE DIGESTER

TOC 2579.0

EXISTING WASTE GAS FLARE

FUTURE DEWATERING FACILITY

EXISTING WELL

FUTURE DIGESTER

N

0 30 60 90 120

SCALE: 1"=60'

LEGEND:

B2-95 SOIL BORING LOCATION AND NUMBER

Figure 1

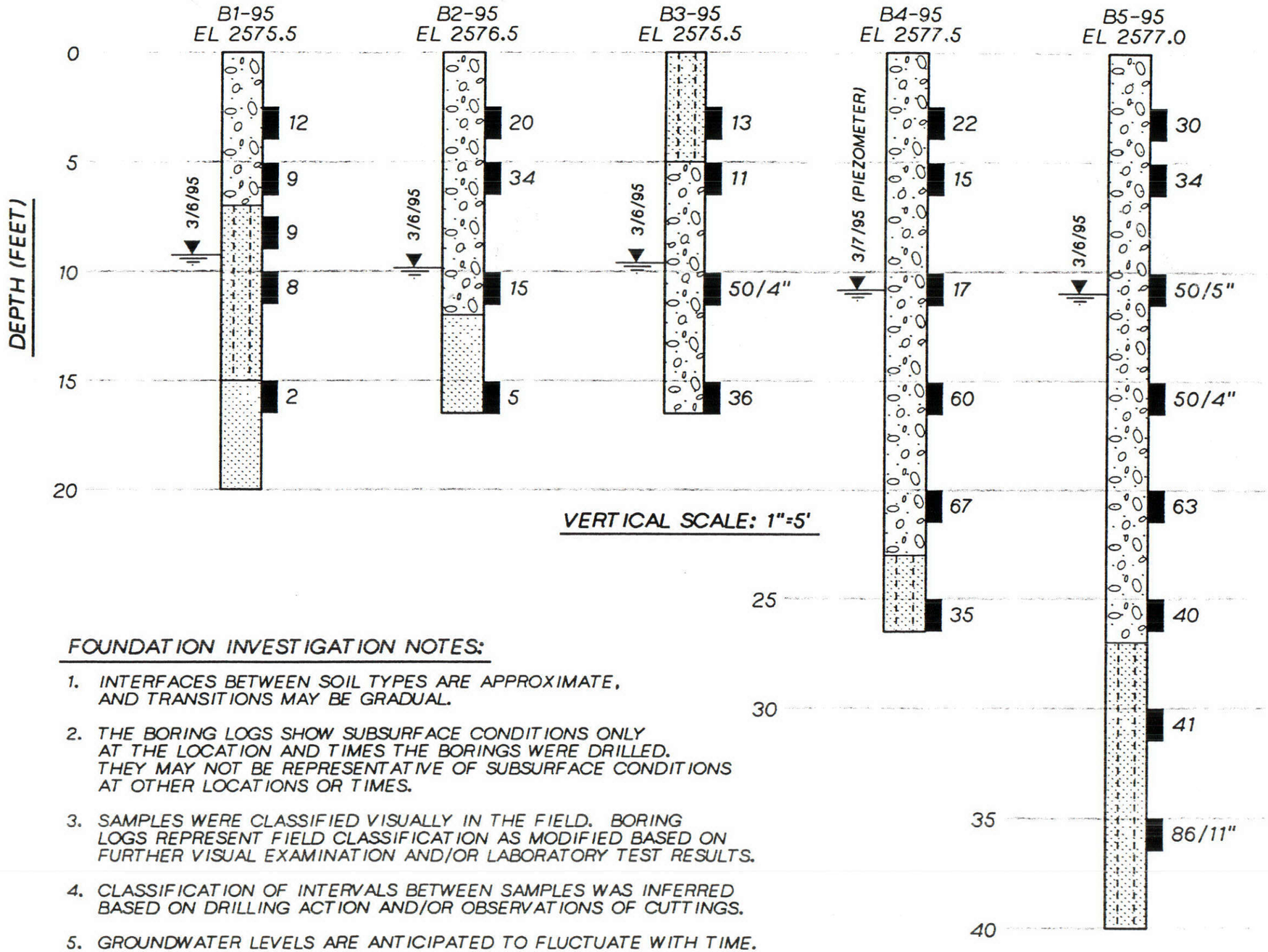
WEST BOISE WWTF
BIOSOLIDS DEWATERING FACILITY
SITE PLAN AND BORING LOCATIONS

CITY OF BOISE
BIOSOLIDS DEWATERING FACILILTY

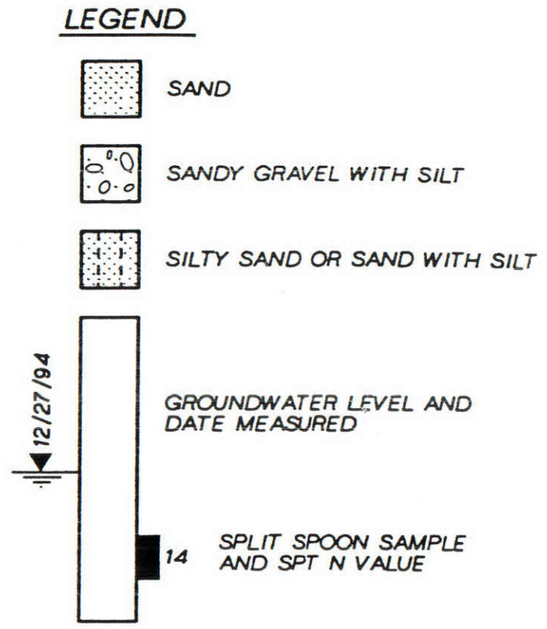
CH2MHILL

RMW37394.06

FIG1SITE.DWG



VERTICAL SCALE: 1"=5'



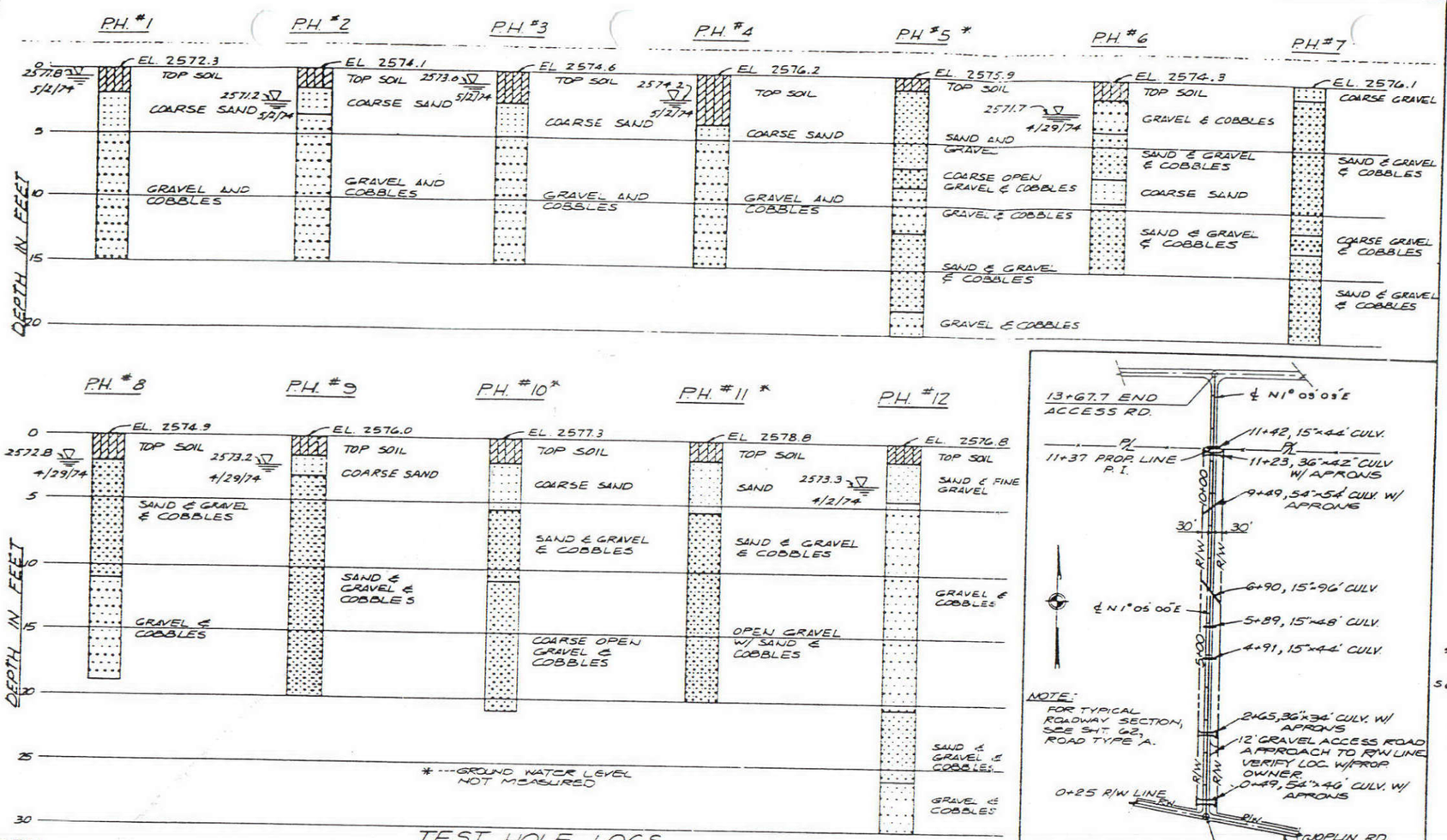
FOUNDATION INVESTIGATION NOTES:

1. INTERFACES BETWEEN SOIL TYPES ARE APPROXIMATE, AND TRANSITIONS MAY BE GRADUAL.
2. THE BORING LOGS SHOW SUBSURFACE CONDITIONS ONLY AT THE LOCATION AND TIMES THE BORINGS WERE DRILLED. THEY MAY NOT BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS OR TIMES.
3. SAMPLES WERE CLASSIFIED VISUALLY IN THE FIELD. BORING LOGS REPRESENT FIELD CLASSIFICATION AS MODIFIED BASED ON FURTHER VISUAL EXAMINATION AND/OR LABORATORY TEST RESULTS.
4. CLASSIFICATION OF INTERVALS BETWEEN SAMPLES WAS INFERRED BASED ON DRILLING ACTION AND/OR OBSERVATIONS OF CUTTINGS.
5. GROUNDWATER LEVELS ARE ANTICIPATED TO FLUCTUATE WITH TIME.
6. BORINGS WERE DRILLED ON MARCH 6, 1995.

Figure 2
GRAPHIC BORING LOGS
CITY OF BOISE
BIOSOLIDS DEWATERING FACILITY

CH2MHILL

RMW37394.D2
14-MAR-1996 PC+ 0 LOGS.DGN



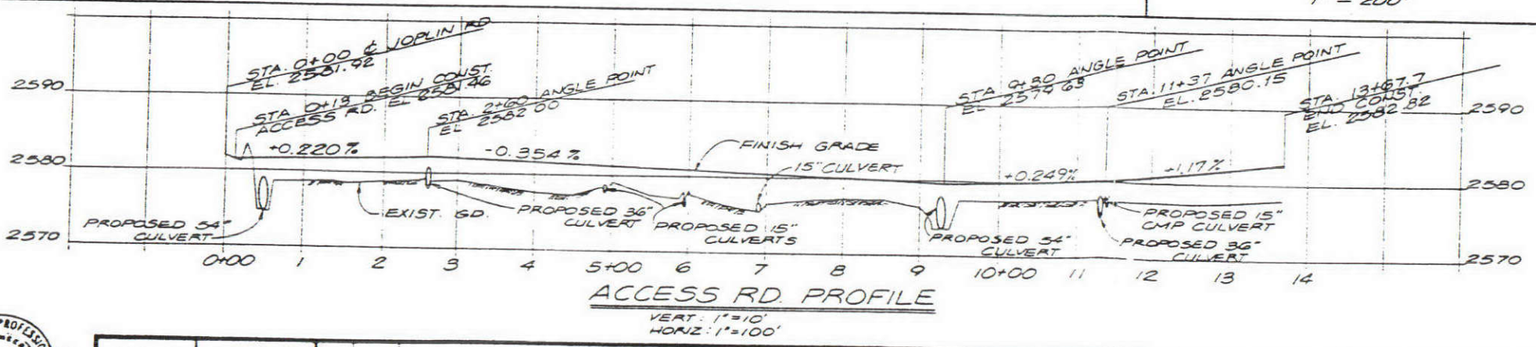
TEST HOLE LOGS

■ TEST HOLE SYMBOL

NOTE:
TEST HOLE INFORMATION WAS OBTAINED FROM THREE-INCH DIAMETER PROBE HOLES USING A SMALL ROTARY DRILL RIG.

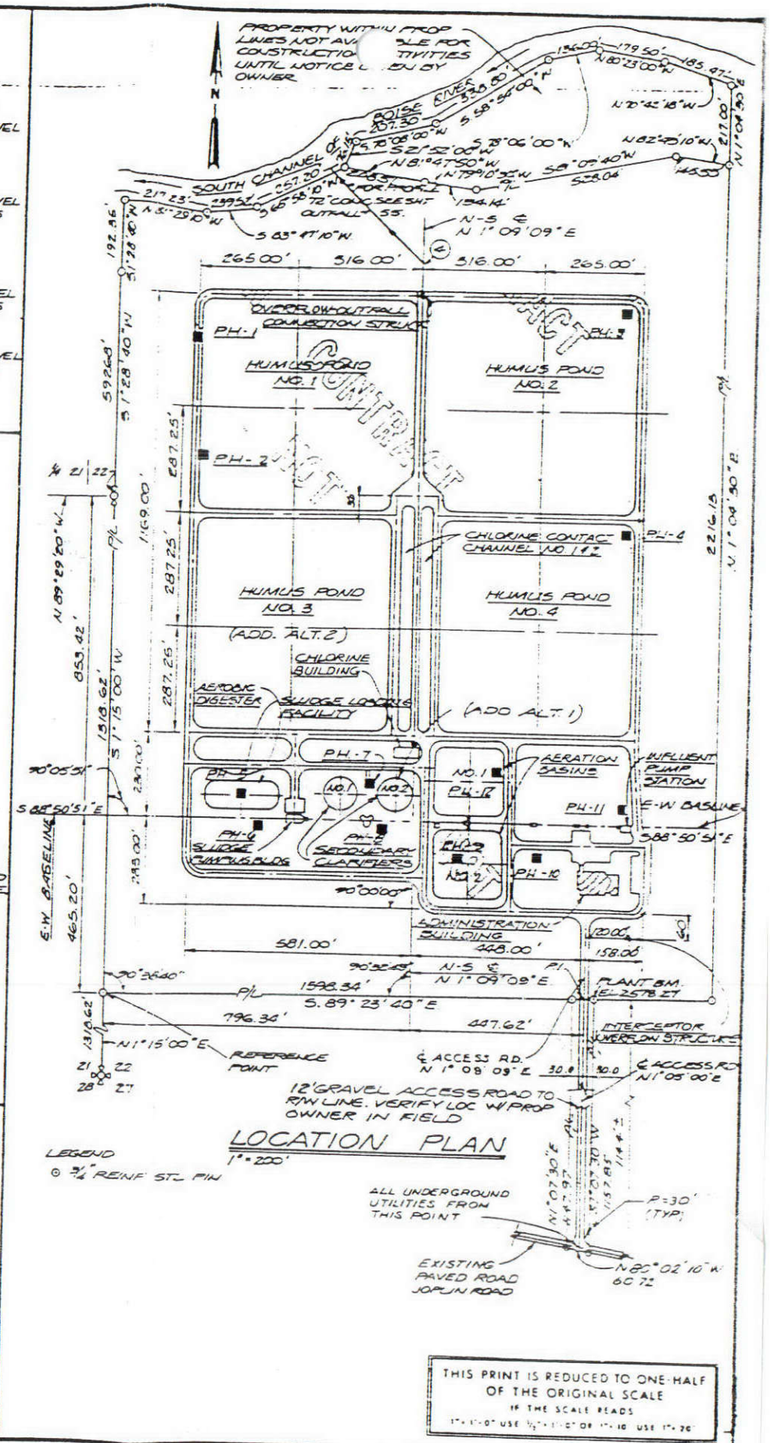
ACCESS ROAD PLAN

1" = 200'



ACCESS RD. PROFILE

VERT.: 1"=10'
HORIZ.: 1"=100'



LOCATION PLAN

1" = 200'

THIS PRINT IS REDUCED TO ONE-HALF OF THE ORIGINAL SCALE
IF THE SCALE READS
1"=1'-0" USE ½"=1'-0" OR 1"=10' USE 1"=20'

REGISTERED PROFESSIONAL ENGINEER STATE OF IDAHO KEITH L. BOYTIN

CH2M HILL

DES.	TAK
DR.	JLL
CHK.	GAR
APPD.	RRB

NO.	DATE	REVISION	BY	APPD

CITY OF BOISE, IDAHO

WEST BOISE WASTEWATER TREATMENT PLANT

PHASE I

GENERAL PLANS

LOCATION PLAN AND TEST HOLES

SHEET	3 OF 78
PROJ. NO.	87821.1
DATE	MAY 1874
DWG NO.	G7927-1

RECEIVED

AUG 2 6 1996

WATER RESOURCES
WESTERN REGION

The Idaho Statesman

P.O. BOX 40, BOISE, IDAHO 83707

LEGAL ADVERTISING INVOICE

Amount Due
$77.52

Account Number	Identification
047628	NOTICE OF APPLICATION FOR WATER RIGHT 63-12312, 63-12346, 63-12351

Ordered By	P.O. Number	Rate	Run Dates
Sue Taylor		NT	August 15 & 22, 1996

Sue Taylor
IDAHO DEPARTMENT OF WATER RESOURCES
Western Region
2735 Airport Way
Boise, Idaho 83705-5082

Estimated Inches	Real Inches
# Affidavits	Legal Number
1	5679

LEGAL NOTICE

NOTICE OF APPLICATION FOR WATER RIGHT

The Following application(s) have been filed to appropriate the public waters of the State of Idaho:

63-12312

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE, ID 837010500

Source: GROUNDWATER
Diversion Pt: SWNWSW Sec 22 T04N R01E in ADA County.
Use: INDUSTRIAL (2.700 CFS)
Total Diversion: (2.700 CFS)
Date Filed: 2/15/1996
In: ADA County
T04N R01E S22 NWSW
Water bearing zone to be appropriated is 40 to 80 feet. Non-consumptive use at waste treatment plant; return flows to Boise River.

63-12346

CALDWELL, ROBERT E
PO BOX 507
EAGLE, ID 836160507

Source: GROUNDWATER
Diversion Pt: NENW Sec 15 T04N R01W in ADA County.
Use: DOMESTIC (0.040 CFS)
Total Diversion: (0.040 CFS)
Date Filed: 7/12/1996
In: ADA County
T04N R01W S15 NENW

63-12351

CITY OF BOISE
790 LANDER ST
BOISE, ID 83703

Source: GROUNDWATER
Diversion Pt: LOT 2 (NWSE) Sec 32 T04N R02E in ADA County.
Use: HEATING (0.100 CFS)
COOLING (0.100 CFS)
Total Diversion: (0.100 CFS)
Date Filed: 7/1/1996
In: ADA County
T04N R02E S32 Lot 2(NWSE)
Water bearing zone to be appropriated is 20 to 40 feet; all flows to be reinjected into same zone.

Permits will be subject to all prior water rights. Protests may be submitted based on the criteria of Sec. 42-203A, Idaho Code. Any protest against the approval of this application must be filed with the Director, Dept. of Water Resources, Western Region, 2735 Airport Way, Boise, Idaho 83705 together with a protest fee of $25.00 on or before SEPTEMBER 3, 1996. The protestant must also send a copy of the protest to the applicant.

KARL J. DREHER, Director

Pub. August 15 & 22, 1996 5679

LINDA PORTER, being duly sworn, deposes and says: That she is the Principal Clerk of The Idaho Statesman, a daily newspaper printed and published at Boise, Ada County, State of Idaho, and having a general circulation therein and which said newspaper has been continuously and uninterruptedly published in said County during a period of twelve consecutive months prior to the first publication of the notice, a copy of which is attached hereto; that said notice was published in The Idaho Statesman in conformity with Section 60-108, Idaho Code as amended, for TWO

☒ consecutive weekly ☐ consecutive daily ☐ single ☐ odd skip

insertion(s) beginning with the issue of AUGUST 15, 1996

and ending with the issue of AUGUST 22, 1996

Linda Porter

MICROFILMED

NOV 0 7 1996

STATE OF IDAHO)
ss.
COUNTY OF ADA)

On this 22nd day of AUGUST in the year of 1996, before me, a Notary Public, personally appeared LINDA PORTER, known or identified to me to be the person whose name subscribed to the within instrument, and being by me first duly sworn, declared that the statements therein are true, and acknowledged to me that she executed the same.

Janie Madie

Notary Public for Idaho
Residing at Boise, Idaho
My commission expires: 5/97

State of Idaho
Department of Water Resources

Water Right License

WATER RIGHT NO. 63-12312

Priority: February 15, 1996 — Maximum Diversion Rate: 0.87 CFS; Maximum Diversion Volume: 628.7 AF

This is to certify, that CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 83701-0500 has complied with the terms and conditions of the permit, issued pursuant to Application for Permit dated February 15, 1996; and has submitted Proof of Beneficial Use on August 31, 1998. An examination indicates that the works have a diversion capacity of 0.870 cfs of water from a **GROUNDWATER** source, and a water right has been established as follows:

BENEFICIAL USE	PERIOD OF USE	RATE OF DIVERSION	ANNUAL VOLUME
INDUSTRIAL	01/01 to 12/31	0.87 CFS	628.7 AF

LOCATION OF POINT(S) OF DIVERSION: NWSW , Sec. 22, Township 04N, Range 01E
ADA County

PLACE OF USE: INDUSTRIAL

TWN	RGE	SEC	
04N	01E	22	NWSW

CONDITIONS OF APPROVAL AND REMARKS

1. Use of water under this water right will be regulated by the watermaster of State Water District No. 63.
2. Should the use of the water on this right reduce the quality of water available to prior water rights and make it unusable to satisfy the prior appropriations, the right holder shall cease diversion under this right.
3. Use of water under this right shall be non-consumptive.
4. Use of water under this approval shall comply with applicable water quality standards of the Division of Environmental Quality of the Idaho Department of Health and Welfare.
5. Permanent measuring devices must be maintained in such a manner that the amount of water diverted under this right and the amount of water discharged from the treatment facility into the Boise River can be measured.
6. Industrial use if for a biosolids dewatering facility.
7. After specific notification by the department, the right holder shall enter into an agreement to annually report to the department the amount water diverted under this right.

MICROFILMED
JUN 0 9 1999

State of Idaho
Department of Water Resources

Water Right License

WATER RIGHT NO. 63-12312

This license is issued pursuant to the provisions of Section 42-219, Idaho Code. The water right confirmed by this license is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources. Signed and sealed this 28TH day of MAY, 1999.

Acting for KARL J. DREHER, Director

MICROFILMED
JUN 0 9 1999

STATE OF IDAHO
IDAHO DEPARTMENT OF WATER RESOURCES
NOTICE OF CHANGE OF WATER RIGHT OWNERSHIP

RECEIVED
MAR 25 1999
WATER RESOURCES
WESTERN REGION

Please print or type. Attach pages with additional information. Instructions are on the back of this page. Incomplete forms will be returned.

Water Right or Adjudication Claim No(s).: See Attached Sheet

The following **REQUIRED** information must be submitted with this form:

A. A copy of the most recent **DEED, TITLE POLICY, CONTRACT OF SALE** or other legal document indicating your ownership of the property and water rights or claims in question, **WITH ATTACHED LEGAL DESCRIPTION.**

AND

B. **PLAT OF PROPERTY** or **SURVEY MAP** for parcel of ten acres or less. (These are usually attached to your deed or on file with the county.)

OR

C. For water rights or adjudication claims involving ten or more irrigated acres, a USDA Farm Service Agency **AERIAL PHOTO** with irrigated acres outlined and point(s) of diversion clearly marked.

3. Name and Address of Former Owner/Claimant: See Attached Sheet

NAME change only

4. New Owner/Claimant(s): City of Boise

Name Connector (Check one): [ ] and, [ ] or, [ ] and/or

New Mailing Address: Public Works Dept.
P.O. Box 500

City, State and ZIP Code: Boise, ID 83701-0500

New Telephone Number: (208) 384-3901

ADDRESS change

5. Date you acquired the property: ---

6. **If you have acquired only a portion of the former owner's property,** IDWR may need to split the water right(s) or adjudication claim(s). If this applies, describe in detail your portion of each water right or adjudication claim in the spaces below. If necessary, attach additional pages.

Number of acres you irrigate _____ Number and type of stock _____

Diversion rate in CFS _____ Number of homes _____ Other uses _____

If a water right or adjudication claim is being split and you are not sure how to identify your portion of the original right or claim, please contact the nearest IDWR office for assistance.

7. Signature of New Owner or Claimant(s): _____

Corporations or other organizations must submit a list of directors and/or officers demonstrating authority to sign this form.

8. For Snake River Basin Adjudication Claims: Please attach a Notice of Appearance completed by your attorney, if you wish IDWR to correspond with him or her for all matters related to your claims.

MICROFILMED
JUN 09 1999

City of Boise
Public Works Department
Water Rights/Adjudication Claims

63-09139 City of Boise
P.O. Box 500
Boise, ID 83701

63-12351 City of Boise

63-12312 City of Boise
Public Works Dept
PO Box 500
Boise, ID 83701-0550

A63-08125 City of Boise
Wastewater Treatment Plant
11818 Joplin Rd.
Boise, ID 83704

A63-07005B City of Boise
Attn: D. Strickling/B. Ancell
PO Box 500
Boise, ID 837010550

A63-07042B City of Boise
Attn: D. Strickling/B. Ancell
PO Box 500
Boise, ID 837-10500

A63-07053 City of Boise
Attn: D. Strickling/B. Ancell
PO Box 500
Boise, ID 837010550

A63-07055C City of Boise
PO Box 500
Boise, ID 837010500

A63-07055D City of Boise
Attn: D. Strickling/B. Ancell
PO Box 500
Boise, ID 837010550

A63-07064A City of Boise
PO Box 500
Boise, ID 837010500

A63-07064B City of Boise
Attn: D. Strickling/B. Ancell
PO Box 500
Boise, ID 837010550

A63-07078B City of Boise
Attn: D. Strickling/B. Ancell
PO Box 500
Boise, ID 837010550

A63-07755 City of Boise
PO Box 500
Boise, ID 837010500

A63-08130B City of Boise
Attn: D. Strickling/B. Ancell
PO Box 500
Boise, ID 837010550

A63-09243 City of Boise
PO Box 500
Boise, ID 837010500

A63-09359 City of Boise
PO Box 500
Boise, ID 837010500

A63-15489 City of Boise
PO Box 500
Boise, ID 837010500

A63-15491 City of Boise
PO Box 500
Boise, ID 837010500

A63-15492 City of Boise
PO Box 500
Boise, ID 837010500

A63-18683 City of Boise
PO Box 500
Boise, ID 837010500

A63-30137B City of Boise
Attn: D. Strickling/B. Ancell
PO Box 500
Boise, ID 837010550

A63-30138 City of Boise
Attn: D. Strickling/B. Ancell
PO Box 500
Boise, ID 837010550

MICROFILMED
JUN 0 9 1999

Form No. 217
7/94

FOR OFFICE USE ONLY
Amt. of Fee $: 150.00
Receipt No: 043262
Receipt By: LS
Date Receipted: 8/31/98

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

RECEIVED
AUG 3 1 1998
Department of Water Resources

PROOF OF BENEFICIAL USE

The Idaho Department of Water Resources considers this form a statement that the permit holder(s) has/have completed all development that will occur under this permit and that water has been applied according to the provisions of the permit for the beneficial use(s) described below. This form must be accompanied by a license examination fee, when necessary, or be accompanied by a completed field examination report prepared by a certified water right examiner who has been appointed by the department.

1. **Permit No.** 63-12312 **Telephone No.** 208/384-3901

2. **Name(s) of Permit Holder(s):** City of Boise, Public Works Department

3. **Mailing Address:** PO Box 500, Boise ID 83701-0500

4. **Source of Water:** Well **If GROUNDWATER (well), Date Drilled: mo.** 2 **/ yr.** 97

   a. **Well Driller:** Dennis Phipps **Drilling Permit Number:** 63 - 97 - W0009- 000

   b. *OPTIONAL:*
   Pump Horsepower: 40 **Pressure (psi):** 90 **Dynamic pumping level (ft):** 175

5. **Use(s) (as authorized by the water right permit):**

   Domestic (No. of households): _____ **Stockwater (No. and type of stock):** _____

   Irrigation (No. of acres): _____ **Other:** Industrial

6. **Total rate of diversion and/or volume for which proof is submitted:** 2.70 **cfs OR** _____ **acre feet**

7. **Measuring Device Requirement: (refer to the approval conditions on your permit and respond accordingly)**
   (This question is not optional. Please check either yes or no. Proofs returned not checked accordingly, will be considered incomplete)

Measuring Device:	Is a measuring device required?	Yes X **or**	No ____
	Has the measuring device been installed?	Yes X **or**	No ____
Flow Measurement Port:	Is a flow measurement port required?	Yes ____ **or**	No X
	Has the measurement port been installed?	Yes ____ **or**	No X

8. **Fee Enclosed: $** 150.00 **(See Fee Schedule on back of the instructions for filing proof of beneficial use)**

9. **Person to contact to accompany the Department representative during field examination of the water system.**

   Name: Rob Bousfield **Telephone Number:** 208/384-3914

   Address: PO Box 500, Boise ID 83701-0500

10. **The information given on this form is my true statement of the extent to which the above numbered permit has been developed and I relinquish any undeveloped portion of the permit to the State of Idaho.**

Signature of permit holder: Rob Bousfield PROJECT MANAGER **Date:** 8-27-98
(include your title, if on behalf of company of organization)

MICROFILMED
OCT 2 / 1998

m No. 204
04

For Office Use Only
$50 Fee Receipted by JW
Date 8-19-97
Receipt No. C039894

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

RECEIVED
AUG 19 1997
Department of Water Resources

REQUEST FOR EXTENSION OF TIME
TO PROVIDE ADDITIONAL TIME IN WHICH TO SUBMIT PROOF OF BENEFICIAL USE FOR A WATER RIGHT PERMIT

The Idaho Department of Water Resources will consider this form as a request that the permit holder(s) be granted an additional period of time under the provisions of Section 42-204, Idaho Code in which to complete development of a water right.

Permit No. 63-12312

Name(s) of Permit Holder: CITY OF BOISE/PUBLIC WORKS

Mailing Address: PO BOX 500, Boise, ID 83701

Date Proof is Due: 10-01-97 **Telephone No.** (208) 384-3914

Describe what work has been completed toward the development of this water right:
(This must be filled out! If no work has been completed, show "none".)

Well installed and pump ordered; pipe and conduit from well to building installed

Construction of facility 65% complete

Costing $ 3 million
($20,000 for well)

The permit holder(s) has been unable to complete the remainder of the work for the following reasons:

Construction contractor is behind schedule

Permit holder(s) request an extension to October 1, **, 19** 98 .

FEE: $50.00

Zoe Bunsfield, PROJECT MANAGER
(Signature)*

If other than permit holder, Power of Attorney must be supplied.

ACTION OF THE DEPARTMENT OF WATER RESOURCES

IT IS HEREBY ORDERED that the above request for extension of time be APPROVED and the time within which to submit proof of beneficial use is extended to **October 1, 1998.**

MICROFILMED
SEP 11 1997

Signed this 19TH **day of** August , **19** 97 .

L. Gene Taylor
Chief, Water Allocation Bureau

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF PERMIT NO.)
63-12312 IN THE NAME OF THE)
CITY OF BOISE) **ORDER**
_____)

This matter having come before the Idaho Department of Water Resources (department), the department makes the following Findings of Fact, Conclusions of Law and Order:

FINDINGS OF FACT

1. On February 15, 1996, the department issued Permit No. 63-12312 (permit) to the City of Boise (permit holder) with the following Conditions of Approval and Remarks:

> 14. Water bearing zone to be appropriated is 40 to 80 feet.
>
> 15. Wells used to divert water under this right shall be constructed so that they neither penetrate the first confining layer encountered nor exceed 80 feet in depth.

2. On January 22, 1997, the permit holder contacted the department and asked that the conditions/remarks be changed.

CONCLUSIONS OF LAW

1. The department is authorized to issue permits with specific conditions and is authorized to change those conditions as appropriate.

2. The department should change the two (2) conditions of approval as shown in the order below:

ORDER

IT IS THEREFORE, HEREBY ORDERED that Condition of Approval and Remarks Nos. 14. and 15. for Permit No. 63-12312 are changed to be as follows:

> 14. Water bearing zone to be appropriated is 20 to 115 feet.
>
> 15. Wells used to divert water under this right shall be constructed so that they neither penetrate the first confining layer encountered nor exceed 115 feet in depth.

MICROFILMED

SEP 2 7 1997

IT IS FURTHER HEREBY ORDERED that the permit holder shall comply with the remaining conditions of approval.

Dated this 7th day of February, 1997.

L. GLEN SAXTON, Chief
Water Allocation Bureau

RECEIVED
FEB 27 1997

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 63-12312

Proposed Priority: February 15, 1996 Maximum Diversion Rate: 2.70 CFS

This is to certify, that **CITY OF BOISE**
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 83701-0500
has applied for a permit to appropriate water from:
GROUNDWATER tributary of **BOISE RIVER**

and a permit is **APPROVED** for development of water as follows:

BENEFICIAL USE	PERIOD OF USE	RATE OF DIVERSION
INDUSTRIAL	01/01 to 12/31	2.70 CFS

LOCATION OF POINT(S) OF DIVERSION: NWSW , Sec. 22, Township 04N, Range 01E
ADA County

PLACE OF USE: INDUSTRIAL

TWN	RGE	SEC	
04N	01E	22	NWSW

CONDITIONS OF APPROVAL AND REMARKS

1. Proof of construction of works and application of water to beneficial use shall be submitted on or before **October 1, 1997.**
2. Subject to all prior water rights.
3. Use of water under this right is subject to control by the watermaster of State Water District No. 63.
4. After specific notification by the department, the right holder shall annually report the amount of water diverted to the department.
5. Right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code.
6. The right holder shall comply with Idaho well construction standards when constructing a well pursuant to this right.
7. Should the use of the water on this right reduce the quality of water available to prior water rights and make it unusable to satisfy the prior appropriations, then the diversion under this right must cease.
8. The issuance of this right does not grant any right-of-way or easement across the land of another.
9. Use of water under this right shall be non-consumptive.
10. A measuring device and lockable controlling works of a type acceptable to the Department shall be permanently installed and maintained as part of the diverting works prior to diversion of water under this right.

MICROFILMED
NOV 07 1996

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 63-12312

CONDITIONS OF APPROVAL AND REMARKS

11. Permanent measuring devices must be installed in such a manner that the amount of water discharged from the treatment facility into the Boise River can be measured.
12. Two points of diversion are located within NWSW, S22, T04N, R01E.
13. Industrial use is for a biosolids dewatering facility.
14. Water bearing zone to be appropriated is 40 to 80 feet.
15. Wells used to divert water under this right shall be constructed so that they neither penetrate the first confining layer encountered nor exceed 80 feet in depth.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code. Witness the signature of the Director, affixed at Boise, this

17th day of October, 1996.

for Karl J. Dreher, Director

MICROFILMED
NOV 07 1996

RECEIVED

SEP 2 4 1996

Department of Water Resources

Ident. No. **63-12312**

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

1. Name: CITY OF BOISE 208-384-3900
   Address: PUBLIC WORKS DEPT
   PO BOX 500
   BOISE ID 837010500

2. Source: GROUNDWATER Trib. to:
3. Location of Point of Diversion: SWNWSW Sec. 22, Township 04N, Range 01E
   ADA County

4. Water will be used for the following purposes:

Purpose	From	To	CFS	(or)	AF
INDUSTRIAL	01/01	12/31	2.700		

5. Total quantity to be appropriated is:
   2.700 CFS (and/or) AF

6. Proposed diverting works:
   a. Description of ditches, flumes, pumps, headgates, etc.
   WELL, PUMP AND PIPELINE.
   b. Height of storage dam feet; active reservoir capacity
   acre-feet; total reservoir capacity acre-feet; period of
   year when water will be diverted to storage: to inclusive.
   c. Proposed well diameter is inches; proposed depth of well is
   feet.
   d. Is groundwater with a temperature greater than 85F being sought? NO
   e. If well is already drilled, when?
   Drilling Firm
   Well was drilled for

7. Time required for the completion of the works and application of the water to the proposed beneficial use is 1 year(s).

8. Place of Use: INDUSTRIAL

TWN	RGE	SEC	
04N	01E	22	NWSW

MICROFILMED

NOV 0 7 1996

BOISE CITY OF TREES

Robert J. Bousfield, P.E.
PROJECT MANAGER
PUBLIC WORKS DEPARTMENT

208/384-3914

2ND FLOOR • CAPITOL TERRACE GARAGE • 150 NORTH 8TH STREET, SUITE 226
P.O. BOX 500 • BOISE, IDAHO 83701-0500 • FAX 208/384-4384

CH2M HILL

CONSULTANT

Charles F. Feast, P.G.
Senior Hydrogeologist

CH2M HILL
700 Clearwater Lane 83712-7708
P.O. Box 8748
Boise, Idaho 83707-2748

208.345.5310
For Direct Access:
208.345.5314 Extension 213
208.345.5315 (FAX)

Engineers Planners Economists Scientists

9. a. Who owns the property at the point of diversion?
APPLICANT
b. Who owns the land to be irrigated or place of use?
APPLICANT
c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing.

10. Remarks:
~~Two points of diversion within SWNWSW Section 22, T04N R01E. Industrial use is for wastewater biosolid treatment.~~ move to comments

11. Map of proposed point of diversion and place of use attached? [ ]

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

_____
Applicant

Received by _____ Date _____ Time _____ Preliminary check by ejl
$15.00 VR WO 20413 2-15-96
Fee $ 85.00 Receipted by _____ #W020278 Date 1/19/1996
Publication prepared by At Date 8-7-96 Published in Id Statesman
Publication approved At Date 9-18-96

MICROFILMED
NOV 07 1996

Ident. No. 63-12312

Comments: Date: 1/30/1996 User-ID: CHODGES

Subject: INSUFFICIENT FEES

Application received with insufficient fees. $55.00 balance of fees dues and priority date adjusted before advertising.
fees rec'd 2/15/96 cjl

Comments: Date: 1/30/1996 User-ID: CHODGES

Subject: PROCESS DELAY

Processing delayed pending Basin 63 backlog reduction.

Comments: Date: 1/30/1996 User-ID: CHODGES

Subject: MORE INFO

Two wells each with 600 gpm variable speed motors to supply wash and mixing water for a process to dewater wastewater treatment biosolids. After use, water will be returned to the head of the wastewater treatment facility for treatment and discharged to the Boise River under the existing NPDES permit.

MICROFILMED
NOV 07 1996

Form 202
10/92

Ident. No. 63-12312

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

RECEIVED
JAN 19 1996
WATER RESOURCES
WESTERN REGION

1. Name of applicant City of Boise, Public Works Department Phone 384-3900

   Post office address P.O. Box 500; Boise, Idaho 83701-0500

2. Source of water supply Groundwater which is a tributary of NA

3. Location of point of diversion is SW ¼ of NW ¼ of SW ¼, Govt. Lot _____

   Sec. 22 Township 4N Range 1E B.M. Ada County; additional

   points of diversion if any: 2 points

4. Water will be used for the following purposes:

   Amount 2.7cfs (cfs or acre-feet per annum) for Industrial purposes from January 1 to December 31 (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

5. Total quantity to be appropriated is (a) 2.7* (cubic feet per second) and/or (b) _____ (acre feet per annum) *2.7 cfs maximum, 1.0 cfs daily avg.

6. Proposed diverting works:

   a. Description of ditches, flumes, pumps, headgates, etc. Two 600 gpm pumps

   b. Height of storage dam NA feet; active reservoir capacity _____ acre-feet; total reservoir capacity _____ acre-feet; period of year when water will be diverted to storage: _____ to _____ inclusive.

   c. Proposed well diameter is 10 inches; proposed depth of well is 80 feet.

   d. Is ground water with a temperature of greater than 85°F being sought? No

   e. If well is already drilled, when? No ; Drilling firm _____;

   Well was drilled for *(well owner)* _____

7. Time required for the completion of the works and application of the water to be proposed beneficial use is 1.0 years *(minimum 1 year)*.

MICROFILMED
NOV 07 1996

8. Description of proposed uses (*igation only, go to item 9*):

a. Hydropower; show total feet of head and proposed capacity in KW. _____

b. Stockwatering; list number and kind of livestock. _____

c. Municipal; show name of municipality. _____

d. Domestic; show number of households. _____

e. Other; describe fully. Supply wash and mixing water for process to dewater wastewater treatment biosolids.

9. Description of place of use:

a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below.

b. If water is used for other purposes, place a symbol of the use (*example: D for Domestic*) in the corresponding place of use below. See instructions for standard symbols.

TWP	RANGE	SEC.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
4N	1E	22										I							

Total number of acres to be irrigated _____

10. Describe any other water rights used for the same purposes as described above. NA

11. a. Who owns the property at the point of diversion? City of Boise

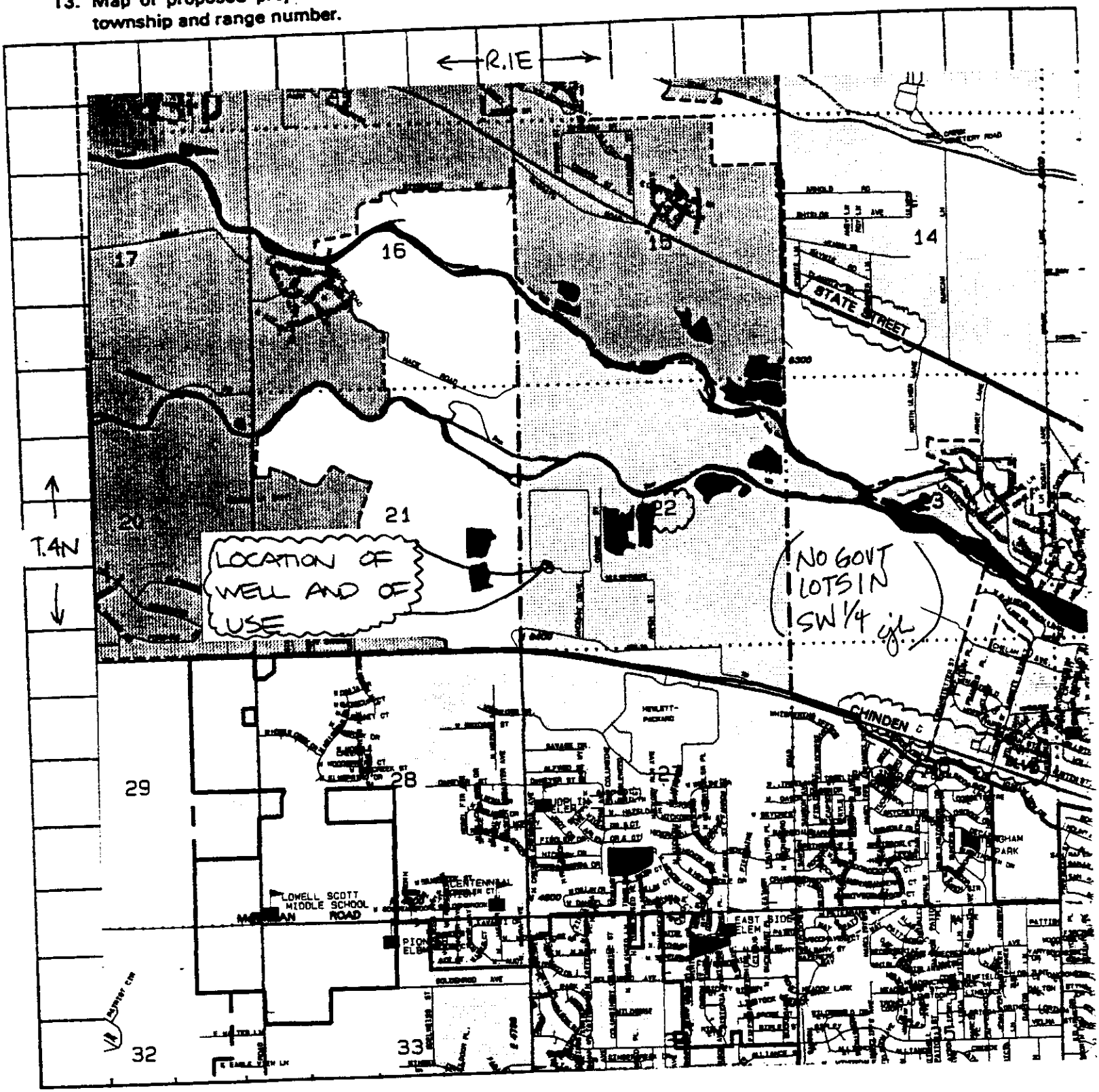
b. Who owns the land to be irrigated or place of use? City of Boise

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing. _____

12. Remarks: After use, water will be treated by the wastewater treatment facility and discharged to the Boise River under the NPDES permit.

MICROFILMED
NOV 0 3 1996

13. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



Scale: 2 inches equal 1 mile.

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

MICROFILMED
NOV 0 7 1996

(Applicant)

J. Brent Coles, Mayor

Received by VR Date 1-3-96 Time 11:00am Prelimina., check by _____

Fee $ 85- Receipted by VR # W020278 Date 1-19-96

Publication prepared by _____ Date _____ Published in _____

Publication approved _____ Date _____

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

This is to certify that I have examined Application for Permit to appropriate the public waters of the State of Idaho No. _____, and said application is hereby _____.

1. Approval of said application is subject to the following limitations and conditions:

   a. SUBJECT TO ALL PRIOR WATER RIGHTS.

   b. Proof of construction of works and application of water to beneficial use shall be submitted on or before _____, 19____.

   c. The rate of diversion, if water is to be used for irrigation under this permit, when combined with all other water rights for the same land shall not exceed 0.02 cubic feet per second for each acre of land.

   d. The water right acquired under this permit if for hydropower purposes shall be junior and subordinate to all rights to the use of water, other than hydropower, within the State of Idaho that are initiated later in time than the priority of this permit and shall not give rise to any right or claim against any future rights to the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this permit.

   e. Other:

MICROFILMED
NOV 07 1996

63-12312

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, P.O. Box 83720, Boise, Idaho 83720-0098
Phone: (208) 327-7900 FAX: (208) 327-7866

June 1, 1999

DIRK KEMPTHORNE
GOVERNOR

KARL J. DREHER
DIRECTOR

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 83701-0500

RE: WATER RIGHT NO. 63-12312

Dear Water Right Holder(s):

The Department of Water Resources (the Department) has issued the enclosed license confirming that a water right has been established in accordance with the permit referenced above. The license is a **preliminary order** issued by the Department pursuant to section 67-5243, Idaho Code. It can and will become a final order without further action of the Department unless a party petitions for reconsideration or files an exception and/or brief as described in the enclosed information sheet.

If you have any questions, please call me at 208-327-7946.

Sincerely,

Shelley Walter Keen

Shelley W. Keen
Water Rights Supervisor

SK:klt

Enclosure

MICROFILMED
JUN 09 1999

CERTIFICATE OF MAILING

I hereby certify that on the **1st** day of **June, 1999**, I mailed a true and correct copy, postage prepaid, of the foregoing **PRELIMINARY ORDER (Approved License)** to the person(s) listed below:

Water Right No. 63-12312

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 83701-0500

Kari Lynn Townsend
Secretary

MICROFILMED
JUN 09 1999

Responding to Preliminary Orders Issued by the Idaho Department of Water Resources

The Idaho Department of Water Resources (Department) issues water right permits, licenses, and transfers as preliminary orders pursuant to section 67-5243, Idaho Code. **A preliminary order can and will become a final order without further action of the department unless a party petitions for reconsideration or files an exception and/or brief as further described below:**

PETITION FOR RECONSIDERATION

Any party may file a petition for reconsideration of a preliminary order with the Department within fourteen (14) days of the service date of the order. The Department will act on a petition for reconsideration within twenty-one (21) days of its receipt, or the petition will be considered denied by operation of law. See section 67-5243(3), Idaho Code.

EXCEPTIONS AND BRIEFS

Within twenty-one (21) days after (a) the service date of a preliminary order, (b) the service date of a denial of a petition for reconsideration from this preliminary order, or (c) the failure within twenty-one (21) days to grant or deny a petition for reconsideration from a preliminary order, any party may in writing support or take exceptions to any part of a preliminary order and may file briefs in support of the party's position on any issue in the proceeding. Otherwise, a preliminary order will become a final order of the Department.

If any party appeals or takes exceptions to a preliminary order, opposing parties shall have twenty-one (21) days to respond to any party's appeal. Written briefs in support of or taking exceptions to the preliminary order shall be filed with the Department. The Department retains the right to review the preliminary order on its own motion.

ORAL ARGUMENT

If the Department grants a petition to review a preliminary order, the Department shall allow all parties an opportunity to file briefs in support of or taking exceptions to the preliminary order and may schedule oral argument in the matter before issuing a final order. If oral arguments are to be heard, the Department will within a reasonable time period notify each party of the place, date and hour for the argument of the case. Unless the Department orders otherwise, all oral arguments will be heard in Boise, Idaho.

MICROFILMED
JUN 0 9 1999

CERTIFICATE OF SERVICE

All exceptions, briefs, requests for oral argument and any other matters filed with the Department in connection with a preliminary order shall be served on all other parties to the proceedings in accordance with Rules of Procedure 302 and 303.

FINAL ORDER

The Department will issue a final order within fifty-six (56) days of receipt of the written briefs, oral argument or response to briefs, whichever is later, unless waived by the parties or for good cause shown. The Department may remand the matter for further evidentiary hearings if further factual development of the record is necessary before issuing a final order. The department will serve a copy of the final order on all parties of record.

Section 67-5246(5), Idaho Code, provides as follows:

Unless a different date is stated in a final order, the order is effective fourteen (14) days after its issuance if a party has not filed a petition for reconsideration. If a party has filed a petition for reconsideration with the agency head, the final order becomes effective when:

(a) the petition for reconsideration is disposed of; or
(b) the petition is deemed denied because the agency head did not dispose of the petition within twenty-one (21) days.

APPEAL OF FINAL ORDER TO DISTRICT COURT

Pursuant to sections 67-5270 and 67-5272, Idaho Code, if this preliminary order becomes final, any party aggrieved by the final order or orders previously issued in this case may appeal the final order and all previously issued orders in this case to district court by filing a petition in the district court of the county in which:

i. A hearing was held,
ii. The final agency action was taken,
iii. The party seeking review of the order resides, or
iv. The real property or personal property that was the subject of the agency action is located.

The appeal must be filed within twenty-eight (28) days of this preliminary order becoming final. See section 67-5273, Idaho Code. The filing of an appeal to district court does not itself stay the effectiveness or enforcement of the order under appeal.

MICROFILMED
JUN 09 1999

MEMORANDUM

TO: File 63-12312

FROM: Sharla

DATE: May 10, 1999

RE: Recommendation Adjustment(s)

The adjustments to licensing recommendations for Permit 63-12312 are as follows:

H. RECOMMENDATIONS

Industrial	1/1 – 12/31	0.87 cfs	628.7 afa

The rate of diversion is based on the pump curve information obtained by the examiner. A theoretical calculation based on the information provided on the proof of beneficial use form yields 0.64 cfs (40 x 8.8 x 7/(2.31 x 90 +175)); the pump curve information will be used for the basis of the rate of diversion. Industrial use requires an annual volume; the nature of the use in this case warrants a continuous diversion volume (.87 x 365 x 1.98).

Exam Date: March 9, 1999
Examiner: Dan Tomich

MICROFILMED
JUN 0 9 1999

LICENSE REVIEW CHECKLIST

PERMIT NO. 63-12312 DATE 5/7/99 REVIEWER: *SHARLA*

Change/OK

NAME OK
Address OK
SOURCE OK — trib as Boise River
Does change clarify orig. intended source? If no, Void permit

POINT OF DIV OK _ Change (P39 /P47) _ Add (P45/P42) Feds - P40

W32 (multiple in ¼¼)
W36 (overlap)
W59 (subd. desc)

Overlaps: Right(s): _____
File reviewed ___ Profile reports printed ___

PLACE OF USE OK _ Change (P41/P47) _ Add (P41/P42) Feds - P43

W60 (subd. desc)
W27 (ppu acre limit)

Overlaps: Right(s): _____
File reviewed ___ Profile reports printed ___

PD & PU amend (P37) Feds - P48

RATE OF DIV
Permitted Rate 2.70 cfs
Fee limit 3.00 cfs #150.00
Measured ___ cfs 90psi and 175' lift (blu form) pump curve
Theoretical 64 cfs
Recommended Total Div Rate .87 cfs

WATER USES OK Change (P46)

Ind	.87 cfs	628.7 af	Irrig -	overlap (R58-R61, R62-R65, R66-R69)
	___ cfs	___ af		supp. gw (WB7/065/079)
	___ cfs	___ af		overlap spec. combined rts (W35)
	___ cfs	___ af		<1acre (W31)
	___ cfs	___ af	Domestic	(W01/WB5/070/071/075)
TOTALS	___ cfs	___ af	Power	(W42 or W43/025/027/R22 or R23)
			Fish (042)	Fire (077) Wtr Quality (081/R07)

Flow rate ___ cfs X ___ days X 1.98 = ___ af

REMARKS 5-1/ Biosolids Dewatering Facility @ W Boise Wastewater Treatment Plant.

ADD'L CONDITIONS 104 Watermaster Control WD# 63
011 GW Measurement/Measuring Device
R11 027 Others Trust (052/R55 - remove 051) Non-trust (048/049)

Advance Priority ___ yes ___ no SRBA Claim ___ Adjust Memo Rate/vol
Amend letters ___

Form 219
6/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

BENEFICIAL USE FIELD REPORT

RECEIVED
APR 27 1999
Department of Water Resources

A. GENERAL INFORMATION

Permit No. 63-12312

1. Owner: City of Boise, Public Works Dept Phone No. (208) 384-3901
Current Address: P.O. Box 500, Boise, ID 83701-0500
2. Accompanied by: Bob Bousfield EXAM DATE: 3-9-99
Address: (Same) Phone No. (208) 384-3914
Relationship to Permit Holder: Project Manager, West Boise WWTF
3. Source: Groundwater tributary to

B. OVERLAP REVIEW

1. Other water rights with the same place of use: City of Boise; Treated Effluent
2. Other water rights with the same point of diversion: None

C. DIVERSION AND DELIVERY SYSTEM

1. **Point(s) of Diversion:**

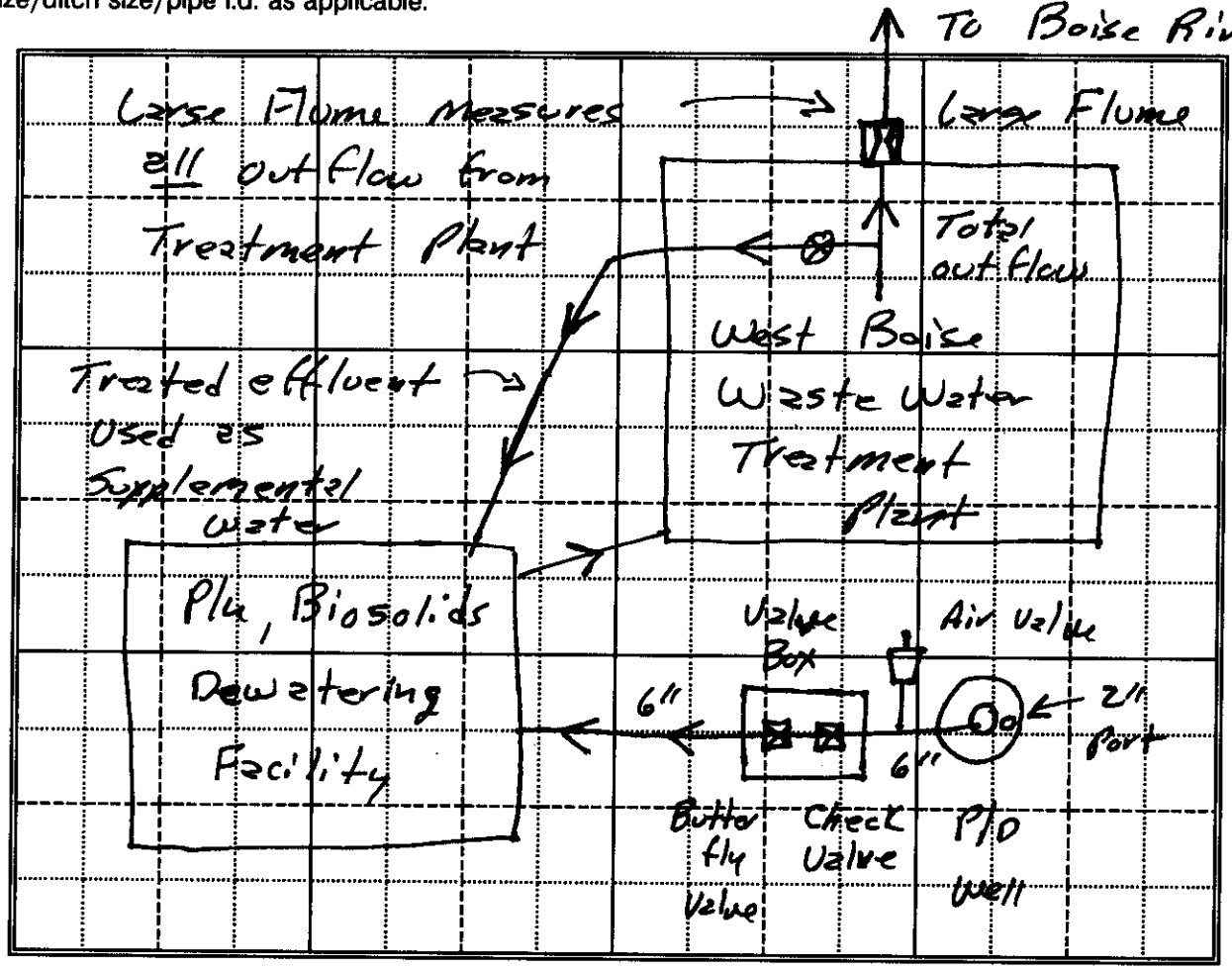
Ident No.	Gov't Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Method of Determination/Remarks
			NW	SW	22	4N	1E	Ada	Site Visit, Maps

2. **Place(s) of Use:** (Industrial) Indicate Method of Determination Site Visit, Maps

TWP	RGE	SEC	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
4N	1E	22										I							
																MICROFILMED			

JUN 03 1999

3. **Delivery System Diagram**: Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable.



Scale: 1" = None

✓ Copy of USGS Quadrange Attached Showing location(s) of point(s) of diversion and place(s) of use (required).

___ Aerial Photo Attached (required for irrigation of 10+ acres)

✓ Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Model Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
(Single Well)		40	H21938	Crown	SN#3G7-14954
					Model [redacted] 56-350
					5-Stage

*Code to correspond with No. on map and aerial photo

Vertical Turbine

D. FLOW MEASUREMENTS Installed Flow Meter: 237 GPM on meter

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Flow Meter	Tot.	F-P		96W0465	59 4"	
(Fischer-Porter)				MICROFILMED		

2. **Measurements:** None; operating pressure Controlled [operating pressure Range is 90-95 PSI] at 95 PSI normally; 56 PSI on gage at time of exam - well was off - flow & pressure is effluent from Treatment Plant being used, at time of exam.

JUN 09 1999

5. There are 2 domestic wells at the plant that are used for other purposes. The water system for this permit is a non-consumptive use, and is separate from other water uses at the plant.

E. NARRATIVE/REMARKS/COMMENTS

1. This permit is for Industrial water use in the Biosolids Dewatering Facility at the West Boise Wastewater Treatment Facility. The water is used to prepare the sludge for shipping, washing, and other misc. uses inside the Dewatering Building. Treated effluent from the plant is also used in the building as a supplemental water supply whenever the well is off-line.

2. A single well supplies water to the building through a 6" service line. All the spent water from the building is then treated at the plant and discharged to the Boise River. A flow meter in the building measures the diversion from the well, and the treated effluent when it is being used. A large flume measures the total outflow of the treatment plant, which includes the water from the well.

3. At the time of the exam, the well was not operating, and treated effluent was being used to operate the Biosolids Dewatering Facility. The well motor had been removed to replace bearings and ~~[illegible]~~ packing seals.

4. The diversion rate calculated for the single well was: theoretical; 1.14 cfs and from the pump performance curve; 0.87 cfs. The permit was for 2.70 cfs from 2 wells, estimated at 1000 gpm each. Only one well was drilled - it is sometimes called well #2. Cond. 14 & 15 were changed to: water bearing zone appropriated is 20' to 115' and cannot exceed 115' depth; letter of 2-10-99.

OK on Cond. 14 & 15. Well is 115'; screens at 79'-109'

Have conditions of permit approval been met? ✓ yes ___ no

MICROFILMED

F. FLOW CALCULATIONS ____ Additional Computation Sheets Attached

Measured Method: None – Well off-Line for Repairs to Motor.

Theoretical Cal.

$$Q = \frac{(8.8)(40\,HP)(70\%)}{8' + (90\,psi)\left(\frac{34'}{14.7\,psi}\right)} = 1.14\,cfs$$

From Pump Perf. Curve:

TDH = 220' @ 90 psi

Q = 390 GPM = 0.87 cfs.

G. VOLUME CALCULATIONS

Av. = 1.01 cfs

1. Volume Calculations for Irrigation:

Allow 1.0 cfs

$V_{I.R.}$ = (Acres Irrigated) x (Irrigation Requirement) = _____

$V_{D.R.}$ = [Diversion Rate (cfs)] x (Days in Irrigation Season) x 1.9835 = _____

V = Smaller of $V_{I.R.}$ and $V_{D.R.}$ = _____

2. Volume Calculations for Other Uses: Industrial; Non-[redacted] Consumptive Use.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use From	Period of Use To	Rate of Diversion Q (cfs)	Annual Volume V (afa)
Industrial	01/01	12/31	1.00	
		Totals:	1.00	

2. Recommended Amendments

___ Change P.D. as reflected above ___ Add P.D. as reflected above ✓ None

___ Change P.U. as reflected above ___ Add P.U. as reflected above ___ Other

Div. Rate is 1.0 cfs based on one well, not 2 wells as in Permit.

I. AUTHENTICATION

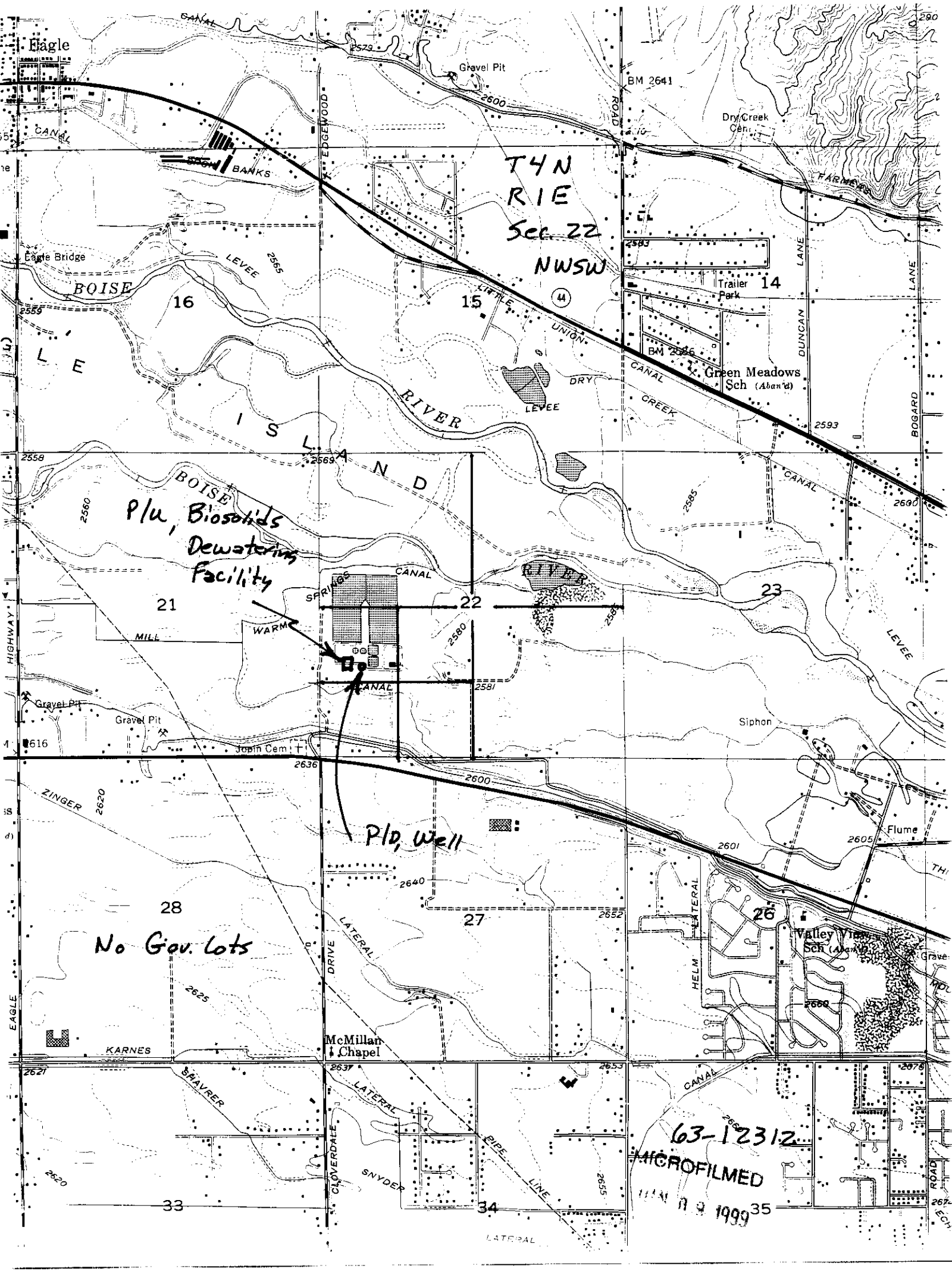
Field Examiner's Name Dan Tomich Date 3-15-95

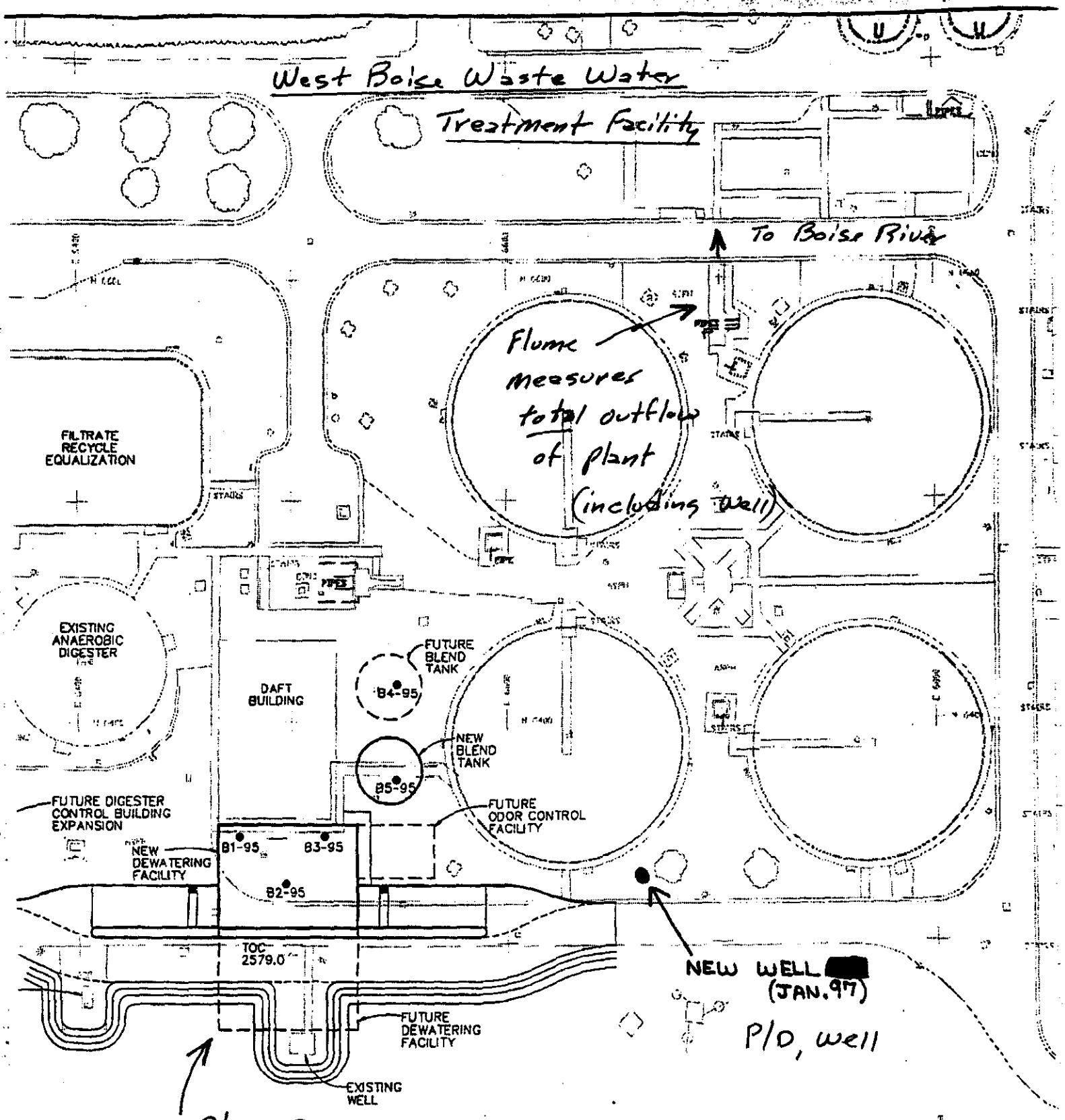
Reviewer _____ Date _____

SEAL

MICROFILMED

JUN 09 1999


Eagle
CANAL
PS29
Gravel Pit
2600
BM 2641
ROAD
Dry Creek Cem
CANAL
BANKS
EDGEWOOD
T4N
R1E
Sec. 22
NWSW
FARMERS
Eagle Bridge
LEVEE
2565
BOISE
16
15
LITTLE
UNION
44
Trailer Park
14
LANE
DUNCAN
LANE
2559
BM 2656
Green Meadows Sch (Aban'd)
L E
DRY
CREEK
CANAL
RIVER
LEVEE
I S L A N D
2593
BOGARD
2558
2569
4
BOISE
2560
P/u, Biosolids Dewatering Facility
CANAL
2585
2600
SPRINGS
CANAL
RIVER
21
22
23
HIGHWAY
MILL
WARM
2580
2584
LEVEE
CANAL
2581
Gravel Pit
Gravel Pit
Siphon
616
Jopin Cem
2636
2600
ZINGER
2620
P/D, Well
Flume
2605
2601
2640
28
27
2652
26
LATERAL
HELM
No Gov. Lots
LATERAL
DRIVE
Valley View Sch (Aban'd)
Grave
2625
EAGLE
KARNES
McMillan Chapel
2621
2637
2653
CANAL
2676
SHAVRER
LATERAL
2660
CLOVERDALE
SNYDER
PIPE
LINE
2655
63-12312
MICROFILMED
1999
33
34
35
LATERAL
ROAD



MICROFILMED
JUN 09 1999

63-12312

Figure 1

WEST BOISE WWTF
BIOSOLIDS DEWATERING FACILITY
SITE PLAN AND BORING LOCATIONS

CITY OF BOISE
BIOSOLIDS DEWATERING FACILILTY

RIO RIO QA QA RC OOI QI QA RIO FI OOI (2) RC (2) QA (2) QI (2)

PIC V-41

AFD-V-39-1 480V 120V

AFD-V-39-2 480V 120V

LCP-V-40** 120V

PSV-V-41 PI V-41

T-V-41 WS BLADDER TANK

4" Flow Meter

FAIL ON AUTO HS V-40 OOA QL V-40 ON HS V-40 OO PDSH V-40 ** PDI V-40 **

PSH V-39 PIT V-41 FIT V-41 120V

M DR BYP

Backflow Peventer Isolation Values

Value

FCV-V-40 E DR

PI V-39-1 PI V-39-2 TSH V-39-1 TSH V-39-2 ARV-V-39-1 ARV-V-39-2 AS P-V-39-1 WELL PUMP NO. 1

P&ID, well

Variable speed pump Control and Bladder Tank (Air Tank) provides water on demand.

Treated effluent is used as a supplemental water supply when the well is off-line

Plant Non-Potable Water - [Treated Effluent]

ON FAIL AUTO HS V-27-1 OOA RESET HS V-27-1 (2) QL V-27-1 ON (2) HS V-27-1 OO

PI V-27-1-1 M PCV-27-1-1 P-V-27-1 BOOSTER PUMP NO. 1 PI V-27-1-2 PSH V-27-1 PI V-27 PCV-27 BWW V-C 0123 TO BELT FILTER PRESSES

WS

BOOSTER PUMP NO. 2 SYSTEM (SEE ABOVE)

P/u

63-12312

W5 GBT BOOSTER PUMP

W5 P/u V-C 0123 FILTRATE SUMP WASH

W5 P/u WASHDOWN HOSE(S)

W5 P/u V-C 0126 POLYMER SYSTEM

V-C 0126 POLYMER SYSTEM

W5 P/u MISCELLANEOUS USES

MICROFILMED JUN 09 1999

CH2MHILL 700 CLEARWATER LANE P.O. BOX 8748 BOISE, IDAHO 83707 (208) 345-5310

PROJECT NO. RMW37394.D2 SHEET 141 OF 156

VERIFY SCALES (LINE IS 2" LONG AT FULL SIZE, IF NOT 2" - SCALE ACCORDINGLY)

DRAWN M.J. SLICHY DESIGNED F.B. SCHULZ CHECKED B. EMANUEL PCP FILE TMSFULL.PCP

BOISE PUBLIC WORKS 150 N. CAPITOL BLVD. BOISE, IDAHO 83702 (208) 384-3900

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
		REVISIONS			

CITY OF BOISE, IDAHO WEST BOISE WWTF BIOSOLIDS DEWATERING Facility

P & ID W5 AND HIGH PRESSURE WATER PUMPING

SCALE	CAD FILE NO.
1=1	WPIP127.DWG
DATE	PROJECT NO.
OCT 1995	F/B-95-221
DRAWING NUMBER	
W-PID-PI-0127	

High Use Period:
10 HRS/Day, 5 Days/week
Low Use Period:
Weekends and Holidays

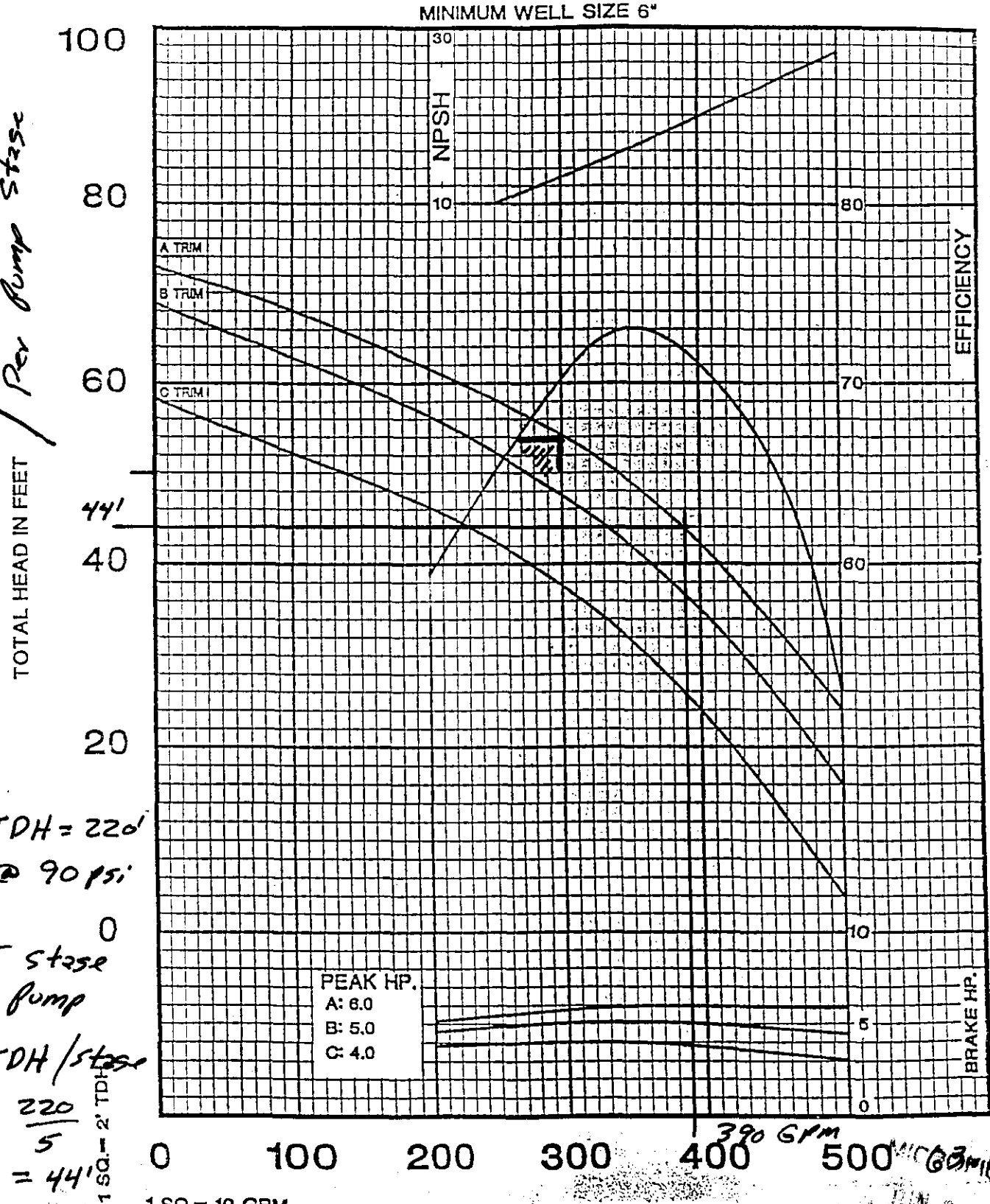
CROWN

S6-350

C04 ITEM 6
SHEET 67 OF 87

MODEL S6-350

PERFORMANCE CHARACTERISTICS



TDH = 220'
@ 90 psi

5 Stage Pump

TDH / Stage
= 220 / 5
= 44'

300 GPM @ 270' TDH 5 STAGE

390 GPM @ 220' TDH = 0.87 cfs

RECEIVED
JUN 09 1999

CROWN PUMP CORPORATION, 101 BIVAR, DE LEON, TEXAS, 76444

238(4)-1
5/93

IDAHO DEPARTMENT OF WATER RESOURCES

WELL INSPECTION FORM

1. **DRILLING PERMIT NO:** 63-97-W-0009-000 **OTHER APPLICABLE NO:** 63-12312

2. **OWNER:** City of Boise Phone: (208) 384-3901
Address: Public Works Dept., P.O. Box 500, Boise, ID 83701-0500

3. **WELL LOCATION:** Twp 4N, Rge. 1E, Sec. 22, NW 1/4 SW 1/4
County Ada (Provide sketch map and photo on reverse.)

4. **DRILLER:** Dennis Shipps Well Drilling Lic. No. 332
When Drilled? 1-6-97 to 3-21-97

5. **WELL CONSTRUCTION:**
Casing Diameter 8 (12 / 2") inches Water tight cap? [X] Yes [ ] No Access Port: [X] Yes [ ] No
Casing ≥ 12 inches above ground? [X] Yes [ ] No - Describe
Depth of Casing 115 ft. Method Drilled Cable Tool
Condition of Well Casing: [X] Good [ ] Fair [ ] Poor Describe
Control Valve? [X] Yes [ ] No Pressure Gauge: [X] Yes [ ] No
Condition of Piping and Valving Good
Auger to a depth of ft. Evidence of Annular Seal [X] Yes [ ] No
Are there obvious constuction problems that may be a source for contamination or waste of water?
[ ] Yes [X] No (Describe in Remarks and Attach Photo - On Reverse)

6. **HYDROLOGIC INFORMATION:**
Depth to Static Water 8 ft. Water Temperature Cold °F
Flowing Artesian [ ] Yes [X] No Pressure: (psi)
Water Sample Taken? [ ] Yes [X] No If yes, describe purpose
Water Quality Measurements/Observations (Describe)

7. **WELL USE:**
[ ] Domestic [ ] Irrigation [ ] Stock
[ ] Test [ ] Municipal [X] Industrial
[ ] Abandoned [ ] Waste Disposal/Injection [ ] Not Used
[ ] Other:

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8. **POSSIBLE CONTAMINATION SOURCES:**

Is there evidence of Chemigation? [ ] Yes [✓] No

If yes, is there a check-valve present? [ ] Yes [ ] No

Is there a possible source of contamination nearby? [✓] Yes [ ] No

If yes, what Type? Waste Water Treatment Plant

How far away from the well is this source? Well is located at plant site.

9. **REMARKS:** This well supplies water to the Biosolids Dewatering Facility at the West Boise Wastewater Treatment Facility. The water is considered to be non-potable, non-consumptive, and is treated after use and discharged to the Boise River.

Dan Jarvis Water Rights Examiner — Signature of Dept. Representative & Title

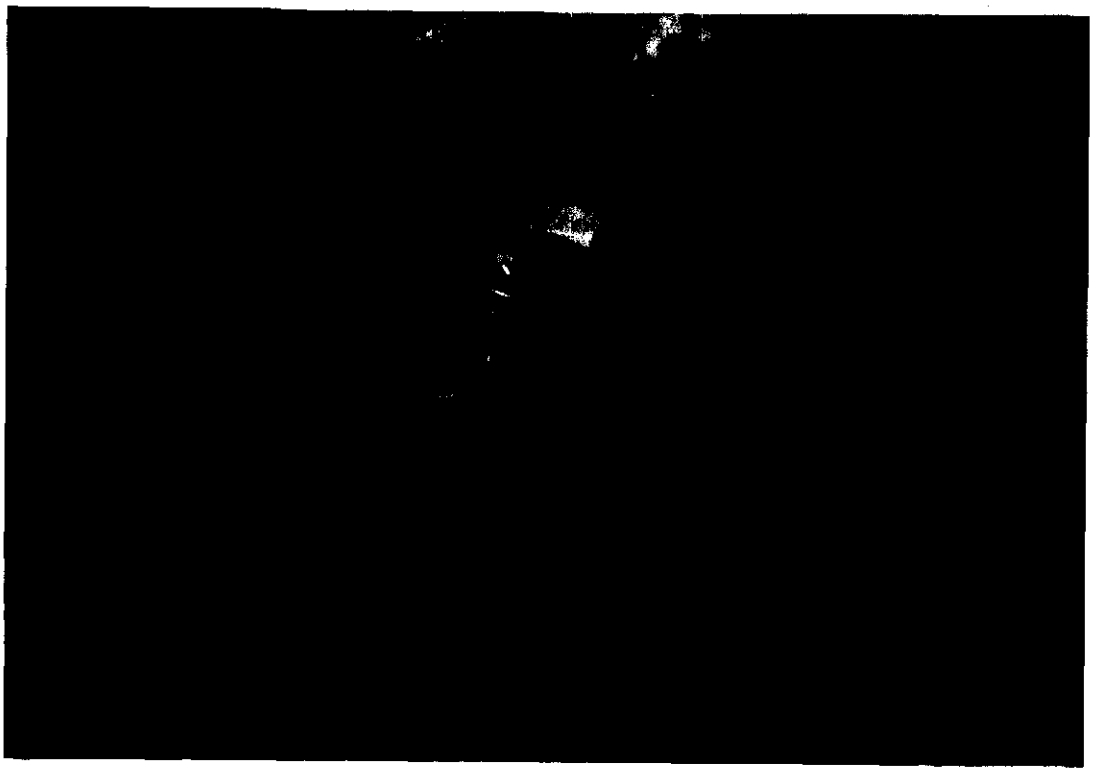
3-9-99 — Inspection Date

PHOTOS, DRAWINGS, OTHER ATTACHMENTS: The electric motor has been removed for replacement of bearings and packing.



MED

999



PlD

well

Note that Motor has been removed for replacement of bearings and packing seals.



Plu

Biosolids

Dewatering

Facility.

MICROFILM
NOV 0 8 1999

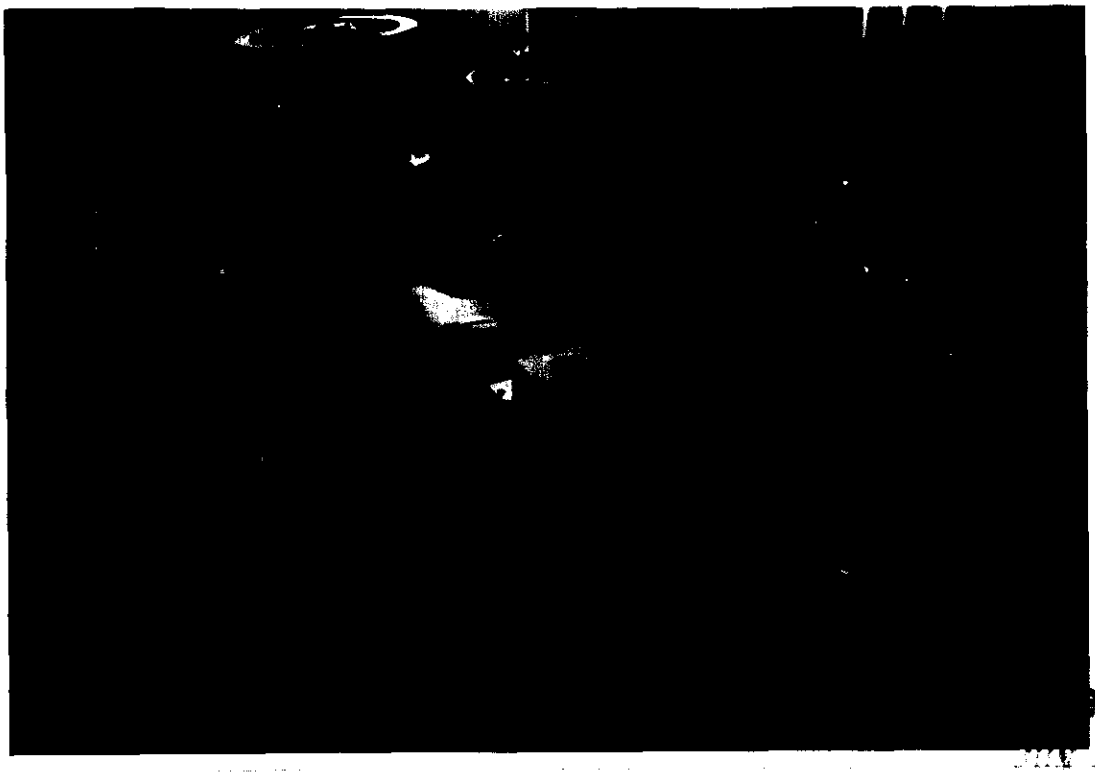
63-12312

2 of 4



P/u
Bladder
(Air)
Tank,
Pressure
Gage, etc.

All Red
Lines are
water
system
from well.



P/u
Flow Meter,
Blue/Gray
Device.

Red lines in
background -
on right of
photo - is
treated
effluent
water.

OFILMED
1999

63-12312

Treated effluent water
Cross-Connection next to flow meter.



P/u

Red Lines feed well water to one of two Polymer systems.



P/u

Red Lines one well water system

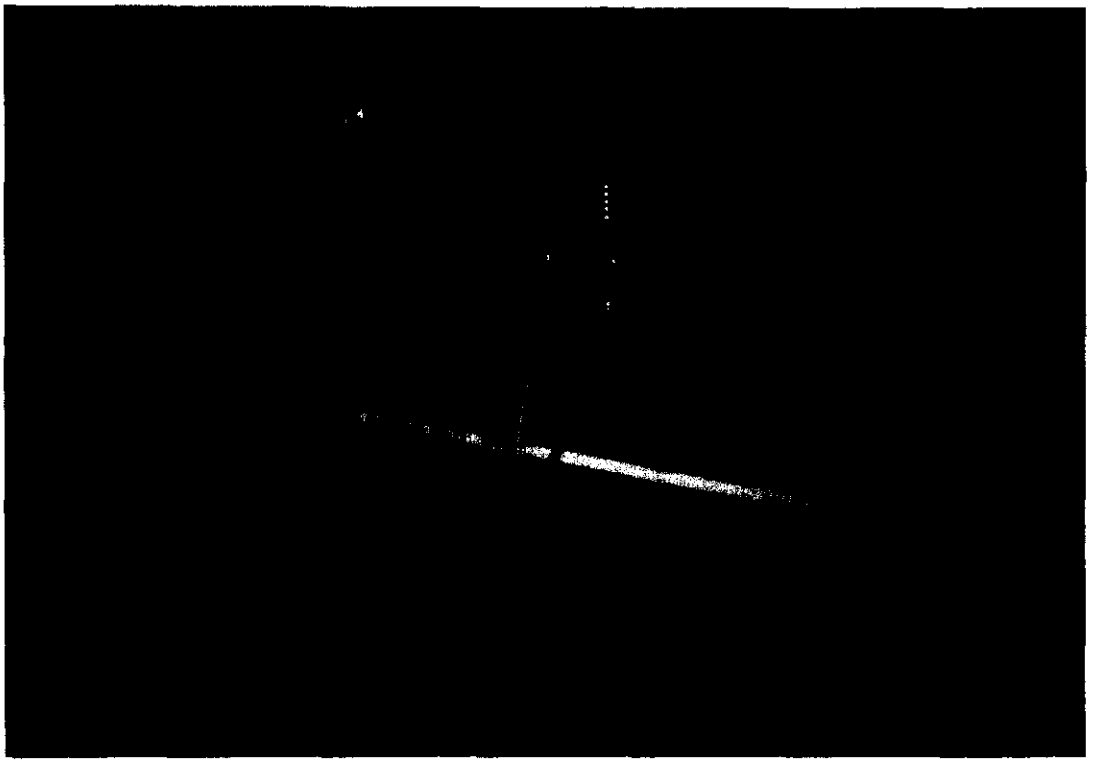
MED
JUN

63-12312

4 of 4

P/u

Truck Wash





Large Flume that measures Total outflow from Waste Water Treatment Plant.

Water from this flume is piped to Boise River

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JUN 4 1999

63-12312

ANALYSIS SHEET
FOR
PROOF OF BENEFICIAL USE

Permit No. 63-12312 Reviewed by [signature] Date 10-20-98

GENERAL CONSIDERATIONS

yes Name same as permit?

yes Address same as permit?

yes Proof timely received? Correct Uses? yes
If not, complete calculation below.

TYPES OF USE

Indust.

SOURCE OF WATER

_____ Surface water source

✓ Ground water source
- yes Drilling permit required?
- NO Copy in the file? Drilling Permit No. 63-97-W-0009-000
- 200- Amount paid for permit yes Correct?
- NO Well log in the file?

LICENSE EXAMINATION FEE

yes Required?

150 Amount Submitted

yes Correct?

MEASURING DEVICE

yes Required?

yes Installed?

_____ Waiver requested?

PRIORITY CALCULATION

Date proof received	_____	_____
Date proof due	_____	- _____
No. of days late	_____	= _____
Priority Date	_____	+ _____
New Priority Date	_____	_____

DEFICIENCIES OR ACTION ITEMS

Proof Acceptable

DATA ENTRY

New Address X Proof Made 8-31-98

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, P.O. Box 83720, Boise, Idaho 83720-0098
Phone: (208) 327-7900 FAX: (208) 327-7866

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

October 21, 1998

City of Boise
Public Works Dept
PO Box 500
Boise ID 83701-0500

PROOF ACKNOWLEDGMENT LETTER

RE: PERMIT NO. 63-12312

Dear Permit Holder:

The department acknowledges receipt of the proof of beneficial use form submitted for the above referenced permit. The next step in the process of developing a water right is for the department to conduct a field examination to determine and confirm the use being made of the water.

Be advised that Section 42-248, Idaho Code, requires you or the owner of this water right to maintain current ownership and address records on file with the department. Forms to file a change of ownership of a water right and/or a change in the address of the water right owner are available from any department office.

If you have questions concerning the field examination, please contact the **WESTERN** Regional Office of the department in Boise at (208)334-2190.

Sincerely,

Julie L. Yarbrough

JULIE L. YARBROUGH
Senior Secretary, Water Allocation Bureau

c: IDWR - Regional Office

MICROFILMED
OCT 27 1998

TRANSMITTAL

Date: August 27, 1998
File: CSP687
Project: Biosolids Dewatering
Subject: Water permit proof of benificial use

ENVIRONMENTAL DIVISION

150 N. Capitol Blvd.
Boise, Idaho 83701
(208)384-3900
(208)384-3905 FAX

Delivery:
x US Mail ☐ Overnight ☐ Interoffice ☐ Hand delivered

☐ FYI x As requested ☐ Please return
☐ For approval ☐ For your use ☐ For review and comment

TO: Julie Yarbrough

FROM: Rob Bousfield

COPIES:	DATE:	DESCRIPTION:
1	8/27/98	Completed "Proof of Benificial Use" form
1		$150.00 fee

COMMENTS: Call me with any questions at 384-3914.

cc: ☐ with attachments

MICROFILMED
OCT 27 1998

July 31, 1998

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 837010500

PROOF DUE NOTICE

RE: PERMIT NO. 63-12312

Dear Permit Holder:

One of the conditions of approval of the above referenced water permit was that proof of the extent of your beneficial use must be submitted to this office on or before October 1, 1998. (See last page of your approved permit or your last approved extension request.) Enclosed is a form which when accompanied by the license examination fee or a complete field examination report prepared by a certified water right examiner may be used to submit the required proof.

If you have not fully completed your project, and you or a previous owner of this permit have not received a prior extension of time, you may request an extension of time if the delay is for reasonable cause as provided in Section 42-204, Idaho Code. If you have been prevented from proceeding by a governmental agency or by litigation which might bring title to the water in question, more than one extension of time can be granted. An extension of time request form is enclosed for your convenience.

Either an acceptable proof of beneficial use submittal or an acceptable request for an extension of time must be received by this department on or before the above described proof due date. If neither is received, the department will send you a lapse notice. Within sixty (60) days of the mailing of the lapse notice, the permit will no longer be of any force nor effect.

SINCERELY,

JULIE L. YARBROUGH
Senior Secretary

Enclosures

MICROFILMED
OCT 27 1998

CERTIFIED MAIL
NO 238 914 918

ANALYSIS SHEET FOR EXTENSION OF TIME

Permit No. 63-12312 Reviewed by [signature] Date 8-19-97

BASIC INFORMATION

8-19-97 Date stamp received

Yes Extension received timely

Yes Fee received and receipted

Yes Name and signature same as permit

NO Address Change

BASIS FOR EXTENSION REQUEST

Yes Has adequate work been completed to demonstrate due diligence?

_____ Has the permit been involved in litigation?
Is supporting documentation needed to complete the file?_____ Requested?_____

_____ Is delay by a government agency?
Is supporting documentation needed to complete the file?_____ Requested?_____

_____ Is the project more than 25,000 acre feet for irrigation or 10,000 acre feet for a reservoir?

ACTION TAKEN Recommend extend to October 1, 1998, on basis of due diligence.

PRIORITY CALCULATION

Date extension received	_____	=	_____
Proof due date	_____	=	_____
Number of days late	_____	=	_____
Priority date	_____	=	_____
New Priority Date	_____	=	_____

DATA ENTRY

New Address X

Change Proof Due Date 10-1-98

Change Priority Date X

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720-9000
Phone: (208) 327-7900 FAX: (208) 327-7866

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

August 19, 1997

City of Boise
Public Works Dept.
PO Box 500
Boise ID 83701

RE: Permit No. 63-12312

Dear Permit Holder:

Enclosed is a copy of the approved request for extension of time submitted in connection with the above referenced permit which extends the time within which to submit proof of beneficial use to **October 1, 1998.** Please note that the department has granted this extension based on **due diligence**. It is important that you work diligently toward the completion of the development during the construction period allowed since the department **will not** be able to grant additional extensions based on due diligence.

Section 42-248, Idaho Code, which became effective on July 1, 1996, requires you or the owner of this water right to maintain current ownership and address records on file with the department. Please contact this office or any regional office of the department for the proper form to file a change of ownership of a water right and/or a change in the address of the owner.

Please contact me at (208)327-7953, if you have any questions regarding this matter

Sincerely,

Julie L. Yarbrough

JULIE L. YARBROUGH
Water Allocation Bureau

C: IDWR - Regional Office

Enclosure

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SEP 1 1 1997

PUBLIC WORKS DEPARTMENT
CITY HALL
4TH FLOOR

BOISE
CITY OF TREES

H. BRENT COLES
MAYOR

COUNCIL MEMBERS

CAROLYN TERTELING
COUNCIL PRESIDENT
MIKE WETHERELL
COUNCIL PRO TEM
SARA BAKER
PAULA FORNEY
ANNE STITES HAUSRATH
M. JEROME MAPP

RECEIVED
AUG 19 1997
Department of Water Resources

August 15, 1997

Idaho Dept. of Water Resources
1301 North Orchard Street
Boise, ID 83720

Re: Permit #63-12312
Request for Extension of Time to Provide Proof of Beneficial Use

Dear Sir / Madam:

Enclosed is a completed request of an extension of time to provide proof of beneficial use for the water permit. The application fee of $50.00 is also enclosed.

As noted on the application, the City has been pursuing completion of the work and has made significant progress. The water well has been installed and utilities to the well have also been completed. The well pump has been ordered but has not yet arrived. Construction of the biosolids dewatering facility, for which the water is required, is approximately 65% complete.

The water system cannot be completed and used by the original deadline because the contractor is behind schedule constructing the facility, and the water will not be needed until construction is completed. Efforts to speed completion of the facility are being made.

Please contact me at 384-3914 if you have any questions regarding this matter. Thank you for your assistance.

Sincerely

Robert J. Bousfield, PE
Project Manager

cc: CF\SF - CSP687

H:\DWP\DEWATER\Dewwtr.wpd
8/15/97

MICROFILMED
SEP 11 1997

July 31, 1997

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 837010500

PSGD062108

PROOF DUE NOTICE

RE: PERMIT NO. 63-12312

Dear Permit Holder:

One of the conditions of approval of the above referenced water permit was that proof of the extent of your beneficial use must be submitted to this office on or before October 1, 1997. (See last page of your approved permit or your last approved extension request.) Enclosed is a form which when accompanied by the license examination fee or a complete field examination report prepared by a certified water right examiner may be used to submit the required proof.

If you have not fully completed your project, and you or a previous owner of this permit have not received a prior extension of time, you may request an extension of time if the delay is for reasonable cause as provided in Section 42-204, Idaho Code. If you have been prevented from proceeding by a governmental agency or by litigation which might bring title to the water in question, more than one extension of time can be granted. An extension of time request form is enclosed for your convenience.

Either an acceptable proof of beneficial use submittal or an acceptable request for an extension of time must be received by this department on or before the above described proof due date. If neither is received, the department will send you a lapse notice. Within sixty (60) days of the mailing of the lapse notice, the permit will no longer be of any force nor effect.

SINCERELY,

JULIE L. YARBROUGH
Senior Secretary

Enclosures

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SEP 1 1 1997

WATER MITIGATION PLAN

FOR

BOISE PUBLIC WORKS

BIOSOLIDS DEWATERING FACILITY

W. BOISE WASTEWATER TREATMENT PLANT

WATER RIGHTS APPLICATION #63-12312

April 23, 1996

DRAFT

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SEP 1 1 1997

EXECUTIVE SUMMARY

Boise Public Works has submitted a permit application for 1.0 cfs of groundwater (daily average) to be utilized for a new Biosolids Dewatering Facility at it's W. Boise wastewater treatment plant. The water is needed for washwater, mixing, and other miscellaneous uses in the facility, which dewaters biosolids (sewage sludge) prior to land application at a farm.

It is proposed that the water be obtained through two shallow (80 ft. deep) wells. Water would be removed from the shallow water bearing unit, which is hydraulically connected to the Boise River (1,700 ft. away).

Washwater and water removed from the biosolids will be returned to the head of the plant to be treated and discharged to the Boise River under the plant NPDES permit. Water use and return calculations show that 707,000 gal/day will be returned while only 576,000 gal/day will be extracted from the aquifer.

The calculations show that the use is non-consumptive. While the water is not returned directly to the aquifer, return to the river does benefit the aquifer by recharge and by providing additional surface water (thereby reducing the demand on the aquifer).

The dewatering facility is needed as soon as possible to replace an inadequate system. It is currently under construction and is scheduled to be operational in April 1997. Because the permit application is on hold until data from the Treasure Valley Groundwater Study is available, we are submitting this mitigation plan so that the permit can be processed without delaying use of the facility.

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SEP 1 1 1997

PART I - DESCRIPTION OF PROPOSED USE

Background: Boise Public Works has submitted a permit application for 1.0 cfs of groundwater (daily average) to be utilized for a new Biosolids Dewatering Facility at it's W. Boise wastewater treatment plant. In early April 1996, we became aware that such permit applications were on hold until some data becomes available from the Treasure Valley Groundwater Study, which is expected in 12-18 months. Because the facility is currently under construction and is scheduled to be completed in April 1997, we are submitting this mitigation plan and seeking approval of the permit now so that use of the facility will not be delayed.

Geological Setting: Shallow geology at the plant consists of sand, gravel and cobbles, deposited by the Boise River (which is approximately 1,700 ft. north of the facility). Groundwater levels vary seasonally, but are generally 1 to 11 ft. below grade and are influenced by the river. A Foundation Investigation Report, completed by CH2M HILL in 1995, is attached as Appendix A for additional information.

Summary of Process: The Biosolids Dewatering Facility is being constructed to dewater biosolids (ie: sewage sludge removed during the treatment process) before hauling to a farm for land application. Biosolids from both the W. Boise and Lander Street plants will be pumped into a blend tank, then pumped to belt filter presses which will dewater the biosolids from approximately 2% solids to 16% solids. Polymer is batched from a dry powder, diluted and mixed with the biosolids upstream of the belt filter presses to facilitate dewatering.

Process water is needed to wash the filter press belts, for truck bay and building washdown, for mixing polymer solution, for diluting the polymer solution, and for miscellaneous uses such as cooling water, pump seal water, etc. Process water is also needed for a gravity belt thickener, which is similar to the belt filter presses but only dewaters the material to 6% solids.

Note that washwater and water removed from the biosolids is returned to the head of the plant for treatment and discharge to the Boise River under the plant NPDES permit. Calculations of projected water use and water return are attached as Appendix B.

Also note that options for utilizing treated water from the plant were considered and rejected because the water quality does not match process requirements.

Proposed Pumping System: Groundwater is proposed to be extracted from two 10" diameter, 80' deep wells, each with a 600 gpm pump. It is anticipated that the wells will be screened from 40' to 80'. Note that though the total pumping capacity is 2.7 cfs, the daily average use will be at or below 1.0 cfs. The exact depth of the wells will be determined during drilling.

Based on other well logs (attached as Appendix C) it is anticipated that the wells will not be installed through a confining unit and that water will be extracted from the shallow water

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SEP 1 1 1997

bearing unit (which is connected with the Boise River).

PART II - MITIGATION

Water Return: As noted above, washwater and water removed from the biosolids will be returned to the head of the plant, treated, and discharged to the Boise River under the plant NPDES permit.

Estimated quantities of water use and water return have been calculated (see Appendix B). These calculations show that, while 576,000 gal/day will be removed from the aquifer, 707,000 gal/day will be returned to the river.

Benefit to Aquifer:
Water use and return calculations show that facility will return over 20% more water to the Boise River than it will extract from the aquifer, and that the use is non-consumptive.

While water is not returned directly to the aquifer, water is returned to the nearby river, which is hydraulically connected to the aquifer. This return to the river benefits the aquifer both by recharge and by providing surface water for downstream uses (thereby reducing the demand on the aquifer).

PART III - CONCLUSION

Boise Public Works feels that the water use proposed is non-consumptive and will not degrade the aquifer. The Biosolids Dewatering Facility will be beneficial to the environment and is needed as soon as possible to replace an inadequate system. We request that the permit be approved in advance of the Treasure Valley Groundwater Study data so that use of the dewatering facility will not be delayed.

APPENDICES

Appendix A	Foundation Investigation Report
Appendix B	Water Use and Return Calculations
Appendix C	Well logs
Appendix D	Application for Permit

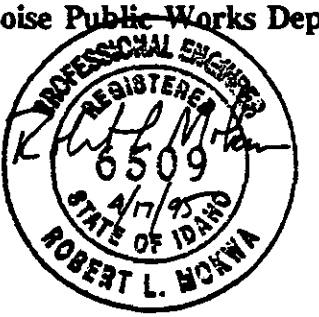
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SEP 1 1 1997

APPENDIX A

Foundation Investigation Report
Biosolids Dewatering Facility
City of Boise, Idaho
West Boise Wastewater Treatment Facility

Prepared for

City of Boise Public Works Department



Prepared by

CH2M HILL

RMW37394.D2

April 1995

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SEP 1 1 1997

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RMW37394.D2

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Purpose and Scope 1
Background 2
Site Location and Description 2
Previous Explorations 4

Technical Data 5
Subsurface Exploration 5
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Subsurface Conditions 8
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Seismic Design Criteria 18
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Summary 20
Site Preparation 20
Groundwater Control 20
Excavations 20
Foundations 20
Lateral Earth Pressures 21
Site Fill and Backfill 21
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Appendix A: Previous Investigation Data
Appendix B: Field Boring Logs
Appendix C: Laboratory Test Results

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Figures

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1	Site Plan and Boring Locations	3
2	Graphic Boring Logs	6
3	Allowable Bearing Pressure Chart	13

Introduction

Authorization

This report was authorized under Task Order No. 2 of the agreement between CH2M HILL and the City of Boise for the project generally described as Boise City RFP 94-18, engineering services for Biosoloids Dewatering Facilities.

Purpose and Scope

The purpose of this geotechnical investigation was to determine subsurface conditions at the location of the proposed facilities, to define pertinent engineering properties of subsurface materials encountered, and to provide recommendations for the design of the foundations, and related earthwork. The scope of the investigation consisted of the following items:

- Review previous investigations and studies of the site
- Drill five borings to determine subsurface conditions
- Perform laboratory tests on selected soil samples
- Conduct engineering analyses and develop foundation design parameters for the subsurface soil conditions that were encountered
- Prepare this report, which summarizes the investigation and presents our conclusions and recommendations

SEP 1 1 03

Background

Site Location and Description

The West Boise Wastewater Treatment Facility (WBWWTF) is located adjacent to the Boise River off of U.S. Highway 20 (Chinden Boulevard), approximately one mile west of the Glenwood Street and Chinden Boulevard intersection. The proposed Biosolids Facility will be located in the southwest quadrant of the treatment plant site, adjacent to the existing DAFT Building.

Following is a brief description of the major project structures. The approximate location of the proposed and future structures are shown in Figure 1.

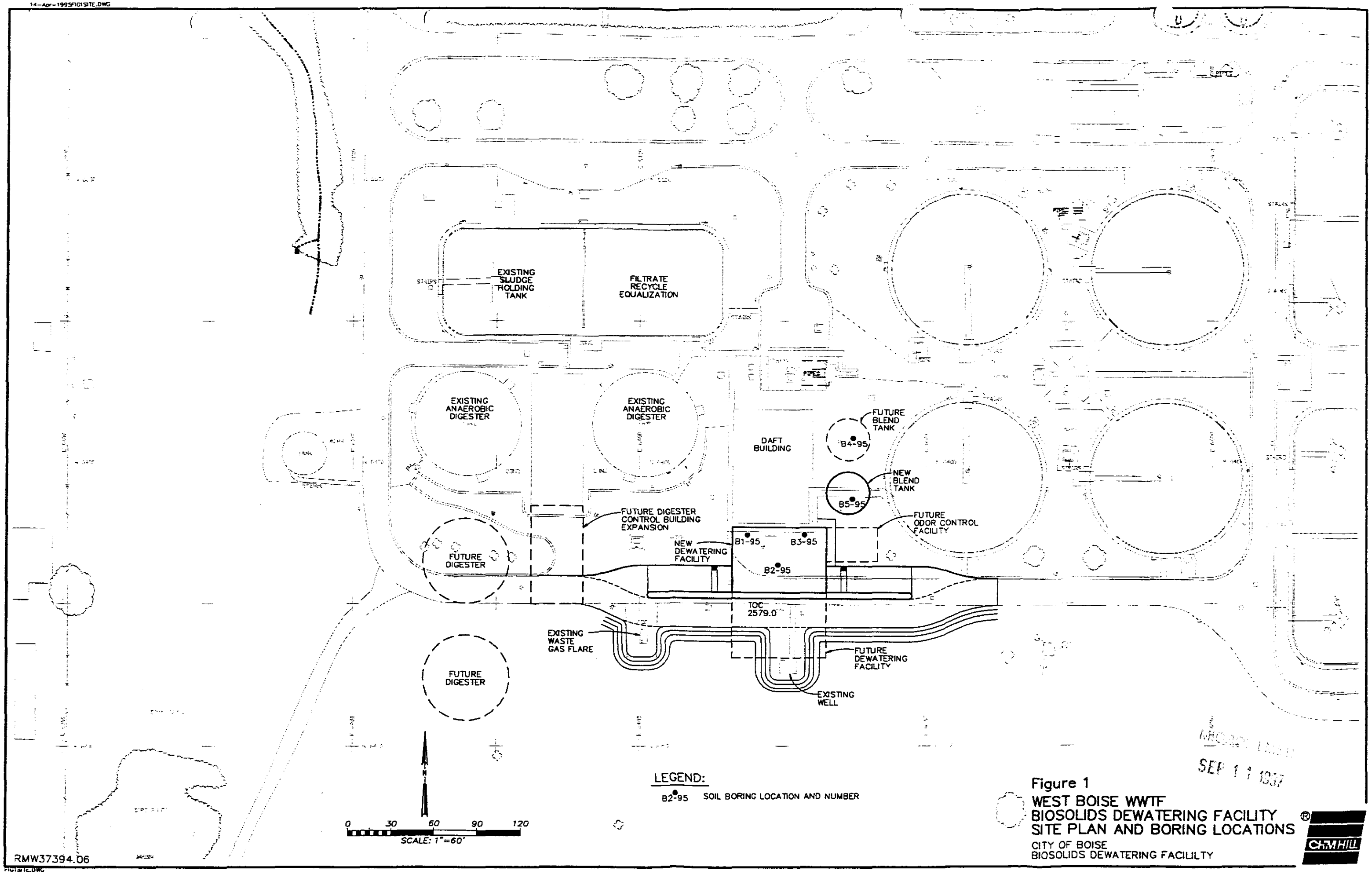
Biosolids Dewatering Building

The proposed building will be a three-story above-grade reinforced concrete structure that contains various mechanical equipment including belt filter presses, storage tanks, pumps, and an overhead monorail system. The building will be approximately 3,000 square feet in plan and will be located immediately south and adjacent to the existing DAFT Building.

Storage/Blend Tank

The storage/blend tank will consist of a permaglass coated, bolted steel circular tank for storage and blending of sludge. The tank will be nominally 31 feet in diameter, rise approximately 35 feet above grade, and extend approximately 6 feet below grade. The tank perimeter will be supported on a reinforced concrete slab. The slab will contain a 12-inch-deep shallow basin that will be filled with sand to support the tank bottom. The tank will have a capacity of approximately 200,000 gallons and will be located between the DAFT Building and Secondary Clarifier No. 3. The tank bottom will be located approximately 5 feet below the design flood groundwater level.

14-Apr-1995 FIG1SITE.DWG



LEGEND:

B2-95 SOIL BORING LOCATION AND NUMBER

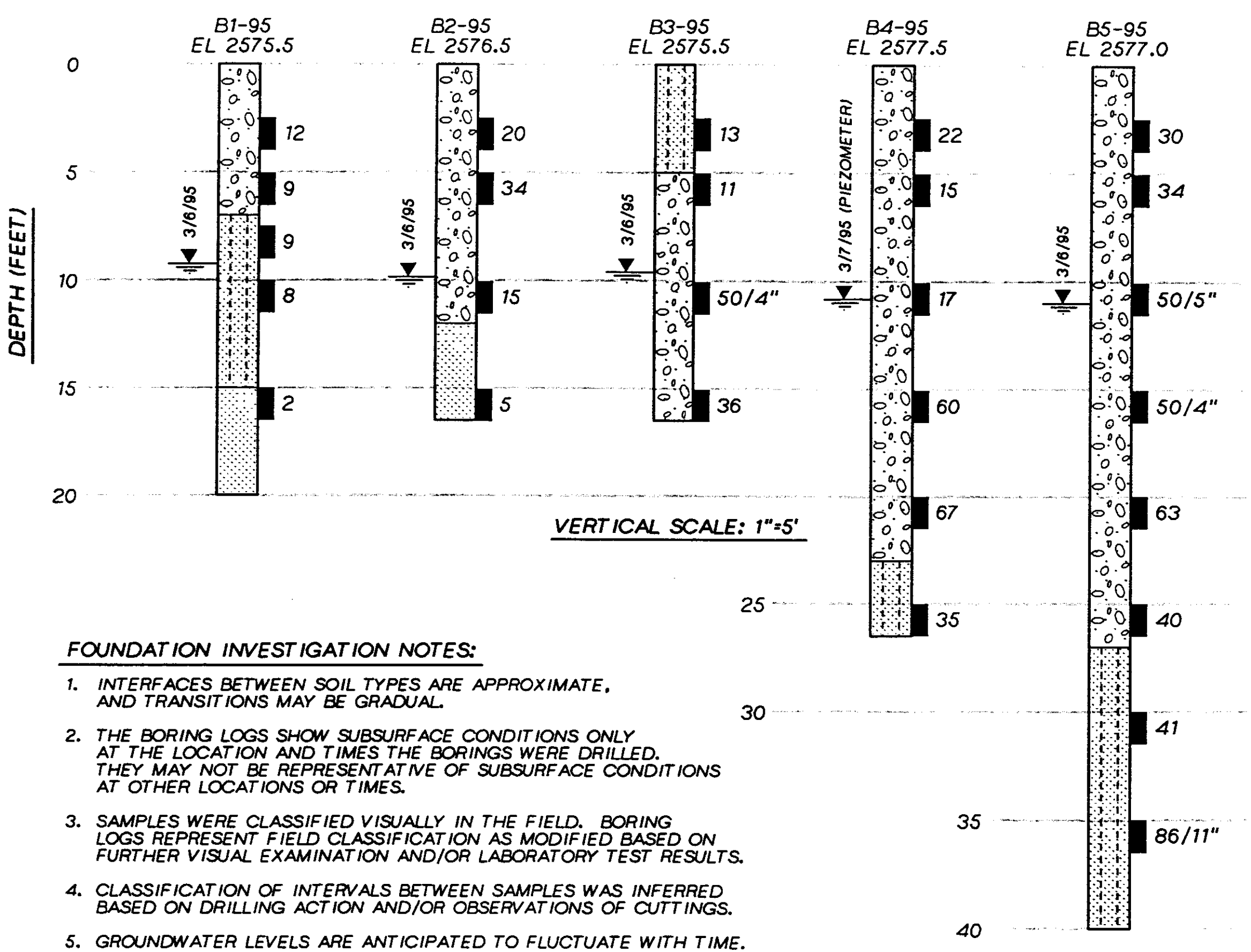
SEP 11 1997

Figure 1
WEST BOISE WWTF
BIOSOLIDS DEWATERING FACILITY
SITE PLAN AND BORING LOCATIONS
CITY OF BOISE
BIOSOLIDS DEWATERING FACILITY

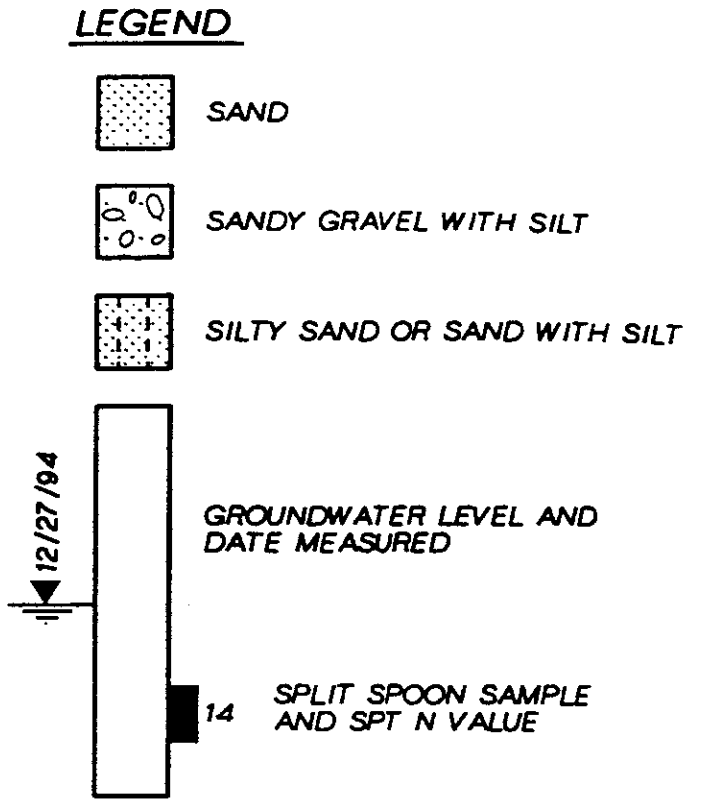
CH2MHILL

RMW37394.06

FIG1SITE.DWG



VERTICAL SCALE: 1"=5'



FOUNDATION INVESTIGATION NOTES:

1. INTERFACES BETWEEN SOIL TYPES ARE APPROXIMATE, AND TRANSITIONS MAY BE GRADUAL.
2. THE BORING LOGS SHOW SUBSURFACE CONDITIONS ONLY AT THE LOCATION AND TIMES THE BORINGS WERE DRILLED. THEY MAY NOT BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS OR TIMES.
3. SAMPLES WERE CLASSIFIED VISUALLY IN THE FIELD. BORING LOGS REPRESENT FIELD CLASSIFICATION AS MODIFIED BASED ON FURTHER VISUAL EXAMINATION AND/OR LABORATORY TEST RESULTS.
4. CLASSIFICATION OF INTERVALS BETWEEN SAMPLES WAS INFERRED BASED ON DRILLING ACTION AND/OR OBSERVATIONS OF CUTTINGS.
5. GROUNDWATER LEVELS ARE ANTICIPATED TO FLUCTUATE WITH TIME.
6. BORINGS WERE DRILLED ON MARCH 6, 1995.

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SEP 11 1997

Figure 2
GRAPHIC BORING LOGS
CITY OF BOISE
BIOSOLIDS DEWATERING FACILITY

CH2MHILL

Technical Data

Subsurface Exploration

CH2M HILL subcontracted the exploration drilling to Haz-Tech Drilling, Inc., Meridian, Idaho. Five borings were drilled using a truck-mounted CME 75 rotary drill rig with 4-inch-inside-diameter hollow-stem augers. The drilling and sampling were performed on March 6, 1995, under the supervision of a CH2M HILL geotechnical engineer.

Disturbed soil samples were obtained at various depths using a 2-inch outside-diameter split-spoon sampler driven as described for the Standard Penetration Test (SPT) by ASTM D1586. The result of the SPT is a blow count (N). The blow count is the number of blows, from a 140-pound hammer free falling from a height of 30 inches, that are required to drive the split-spoon sampler 12 inches (or the distance indicated). Blow counts and graphic descriptions of materials encountered were recorded on boring logs.

The standard penetration value provides a reasonable indication of the in-place density of sandy type materials. However, the standard penetration value only provides an indication of the relative stiffness of cohesive materials, since the penetration resistance for these soils is a function of the moisture content. Considerable care must also be exercised in interpreting the standard penetration value in gravelly soils, particularly where the size of the gravel particle exceeds the inside diameter of the sampling spoon.

Soil samples obtained during the explorations were visually inspected, classified, and logged in the field by a CH2M HILL geotechnical engineer. The borings were located by taping distances from prominent features in the field. The boring locations are shown in Figure 1. Graphic logs of the borings are presented in Figure 2. Copies of the field boring logs are included in Appendix B.

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Future Storage/Blend Tank

The future storage/blend tank may be constructed during subsequent expansions of the Biosolids Facility. The field exploration and geotechnical analyses for this tank were conducted as part of this foundation investigation; foundation design recommendations for both tanks are included in this report.

The future storage/blend tank will be of similar size and construction as described above for the proposed tank. The future tank will be located approximately 10 feet north of the proposed tank, between the DAFT Building and Secondary Clarifier No. 3.

Previous Explorations

The most recent applicable geotechnical investigation at the WBWWTF was conducted in June 1981, for a facility expansion that included the following structures: grit chamber, sludge pump station and blower building, two primary clarifiers, two secondary clarifiers, and two digesters. The results and recommendations obtained during this investigation and subsequent analysis are summarized in the *Geotechnical Investigation Report for the West Boise Wastewater Treatment Plant, Project No. B12430.01, Prepared by CH2M HILL, June 1981.* Copies of the foundation investigation drawing and graphic boring logs for the referenced investigation and an earlier investigation, conducted by CH2M HILL in 1974, are included in Appendix A.

Laboratory Investigation

All samples were visually inspected and classified according to the Unified Soil Classification System. Laboratory tests were performed on selected soil samples to determine the significant engineering properties. Tests included grain size analysis, Atterberg limits, and natural moisture contents. Laboratory tests were performed by Intermountain Materials Testing, Inc., of Boise, Idaho. Copies of the laboratory results are included in Appendix C.

Sampling of the dense gravel was very difficult. Undisturbed samples could not be taken, and disturbed samples were difficult to obtain because of the density and size of the gravel encountered. Strength properties of the dense gravel were determined from the results of the SPT as recorded in the soil boring logs.

Interpretation

Local Geology

The site is located on recent alluvial silt, sand, and gravel deposits of the Boise River. The dense sand and gravel deposits underlying the site are part of the Caldwell and Nampa sediments that form the benches west of Boise. The sediments were deposited by floods flowing from the southeast in the late Pleistocene epoch (about 12,000 years ago). The Boise River has reworked these sediments to form the dense sand and gravel deposits underlying most of downtown Boise and the river floodplain areas. These deposits are overlain by a thin surficial layer of eolian (windblown) deposits of clay, silt, and sand.

Subsurface Conditions

Soil Profile

The general subsurface profile at the site consists of a surficial fill layer of sand or sandy gravel with silt overlying approximately 20 to 25 feet of a dense to very dense coarse-grained alluvial deposit of sand, gravel, and cobble. The coarse grained deposit is underlain by medium dense to very dense fine sand with silt and silty sand. The fine-grained deposit extends at least to a depth of 41.5 feet; the bottom of the deepest boring drilled.

The demarcation between the surficial fill soil and native soil along the south side of the DAFT building could not be determined from the retrieved soil samples or from changes in drilling action. It appears that granular soils obtained from onsite excavations were used as backfill against the DAFT basement wall. We assume, that immediately adjacent to the DAFT building the fill material extends to the bottom of the DAFT basement excavation, which is approximately 17 feet below the adjacent ground surface. A very low blow count (N-value) of N=2 was obtained in submerged sand at a depth of 15 feet in boring B1-95. The low N-value may be indicative of the loose nature of the soil in the immediate vicinity of the DAFT building sump, which is located in the southwest corner of the DAFT building opposite the location of boring B1-95.

Blow counts in the native sand, gravel, and cobble ranged from 15 to greater than 100. Blow counts in the underlying fine sand and silty sand ranged from 35 to greater than 80.

Groundwater

Groundwater was encountered during the investigation at depths ranging from 9.2 to 11.0 feet below the hole collar and corresponded to an approximate elevation range of 2566 to 2567. However, evidence and experience suggest this groundwater level is uncharacteristically depressed for the area. The groundwater measurement was made during the time of year that groundwater is seasonally low and followed an approximate 7-year span characterized by climatologists as a drought period. Previous investigations at the treatment plant site indicate that groundwater fluctuates throughout the year and may be as high as one foot below the ground surface at certain times of the year. Groundwater levels at the site are influenced by the nearby Boise River and can be expected to rise significantly from the levels observed during this investigation.

A 2-inch-diameter slotted PVC observation well (piezometer) was installed in boring B4-95 to obtain information regarding fluctuations of the groundwater level over time. The piezometer was completed using 2-inch-diameter PVC flush-jointed pipe with a 0.002 inch screened section from 19 to 24 feet below the ground surface. Groundwater was measured at a depth of 10.8 feet below the ground surface (approximate elevation 2566.7) 24 hours after completing the borehole. The piezometer is located near the center of the future storage/blend tank, and should be protected and retained during future construction, if possible. We suggest the piezometer be monitored during construction of the proposed storage/blend tank to determine the size of the local zone of groundwater depression resulting from excavation dewatering operations.

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Discussions and Recommendations

Site Preparation

The surface layer of topsoil should be stripped beneath the footprints of the proposed building, tanks, parking area, and access road. From the information gathered during the subsurface investigation, it appears the surface layer of organic topsoil ranges from 0 to 1 foot thick. The site should be backfilled to the subgrade elevation with compacted pit run sandy gravel or sand and gravel from on-site excavations. A 6-inch-thick leveling course of compacted crushed gravel should be placed beneath footings and slabs.

Groundwater Control

Prior to 1981, the U.S. Army Corps of Engineers (USCOE) predicted the 100-year flood occurrence elevation in the vicinity of the WBWWTF outfall at elevation 2576. In December 1981, the USCOE reevaluated Boise River flood occurrences and subsequently revised the predicted 100-year water surface at the location of the WBWWTF outfall to elevation 2571. In December 1991, the USCOE reevaluated Boise River flood occurrences and the predicted 100-year water surface at the location of the WBWWTF outfall remained unchanged from elevation 2571.

Boise River surface water and area irrigation practices impact the groundwater level experienced at the WBWWTF site. Previous design criteria for the structural and foundation design purposes utilized saturated groundwater conditions at elevation 2576, corresponding to previous 100-year flood occurrences. Previous boring logs have demonstrated groundwater levels as high as one foot below the ground surface. As a point of reference, the finish grade around the DAFT Building is approximately 2576.

For structural and foundation design purposes, CH2M HILL recommends using a piezometric (groundwater) elevation of 2576. Therefore, the biosolids storage/blend tank should be designed to resist hydrostatic uplift for groundwater at elevation 2576.

We expect that groundwater will be encountered during excavation of the storage/blend tank foundation and subsurface piping. A positive means of construction dewatering will be required to complete the excavation and placement of reinforcing steel and concrete. Dewatering, using open sumps and collectors or circumferential well points may be used. Sumps and collectors should be sized and located so that foundation soils are not disturbed during the excavation and the groundwater level is maintained below the bottom of the foundation. Failure to adequately dewater the excavation may lead to disturbance of the subgrade soils and undermining and subsequent settlement of adjacent structures. If possible, the construction schedule should be adjusted such that excavation for the storage/blend tank occurs when the groundwater is at a seasonal low; typically between December and March.

Excavations

Excavations for the blend tank foundation and underground utility lines can be performed using conventional earthmoving excavation equipment.

Excavation sloping and shoring should be accomplished in accordance with applicable federal, state, and local regulations. The steepest allowable unshored excavation slope permissible by OSHA Regulation 29 CFR, Part 1926, for the soil conditions at the site is 1.5 horizontal to 1.0 vertical. This is for a maximum 20-foot-deep excavation and is based on a Type C soil.

Shoring of the storage/blend tank excavation slopes adjacent to the DAFT Building and secondary clarifier will be required based on the permissible slope criteria and proximity of the existing and proposed structures. CH2M HILL recommends the contractor be responsible for designing, installing, and maintaining all shoring and excavation bracing. The shoring system should be designed and constructed to withstand soil and hydrostatic loadings, and appropriate equipment and surcharge loadings. Design of the shoring should incorporate the excavation sequence and placement of lateral support elements. We recommend the dewatering and shoring system be designed by a licensed professional engineer and be submitted by the contractor for the engineer's review prior to commencing construction. Collection and control of groundwater will be required to maintain stable excavation slopes.

Foundations

Soil conditions at the Dewatering Building foundation level consist of sand or sandy gravel with silt. Footings located within 15 feet of the existing DAFT Building will be founded in reworked fill, while footings located outside of this zone will be founded in undisturbed native soil. The composition and grain size distribution of the native and fill materials are essentially the same; however, the in-place density of the fill is generally less than the relative density of the undisturbed native soils.

The bearing capacity of footings founded in noncohesive soil is controlled by the shear resistance of the soil and the allowable settlement of the footing. Empirical methods were used to correlate the settlement of footings with the results of the SPT (N-values). The bearing pressure curves presented in Figure 3 are based on N-values and the assumption that groundwater may rise to the base of the footings. The bearing pressures shown may be increased by a factor of one-third for short duration wind and seismic loads. The curves are based on 1 inch of total settlement; differential settlement between adjacent column footings can normally be expected to be about half of the total settlement.

The allowable bearing pressure curves presented in Figure 3 should be used for designing footings founded in undisturbed native soil or fill material. The lateral demarcation between the fill and native soil was estimated to occur approximately 15 feet from the walls of the DAFT building. Exterior shallow footings should be founded a minimum of 30 inches below the finished grade for protection from frost.

The reinforced concrete mat that supports the storage/blend tank should be sized using a net allowable bearing pressure of 1,000 pounds per square foot (psf). This is a reduced bearing pressure to reflect high groundwater conditions, a load that is distributed over a large area, and the presence of loose to medium dense granular fill along the west side of the slab, adjacent to the east wall of the DAFT Building.

Granular backfill consisting of clean 9-inch-minus pit run sand and gravel should be used as fill beneath grade slabs or areas that were overexcavated, if necessary. A 6-inch-thick leveling course of 3/4-inch crushed gravel should be placed directly beneath concrete slabs

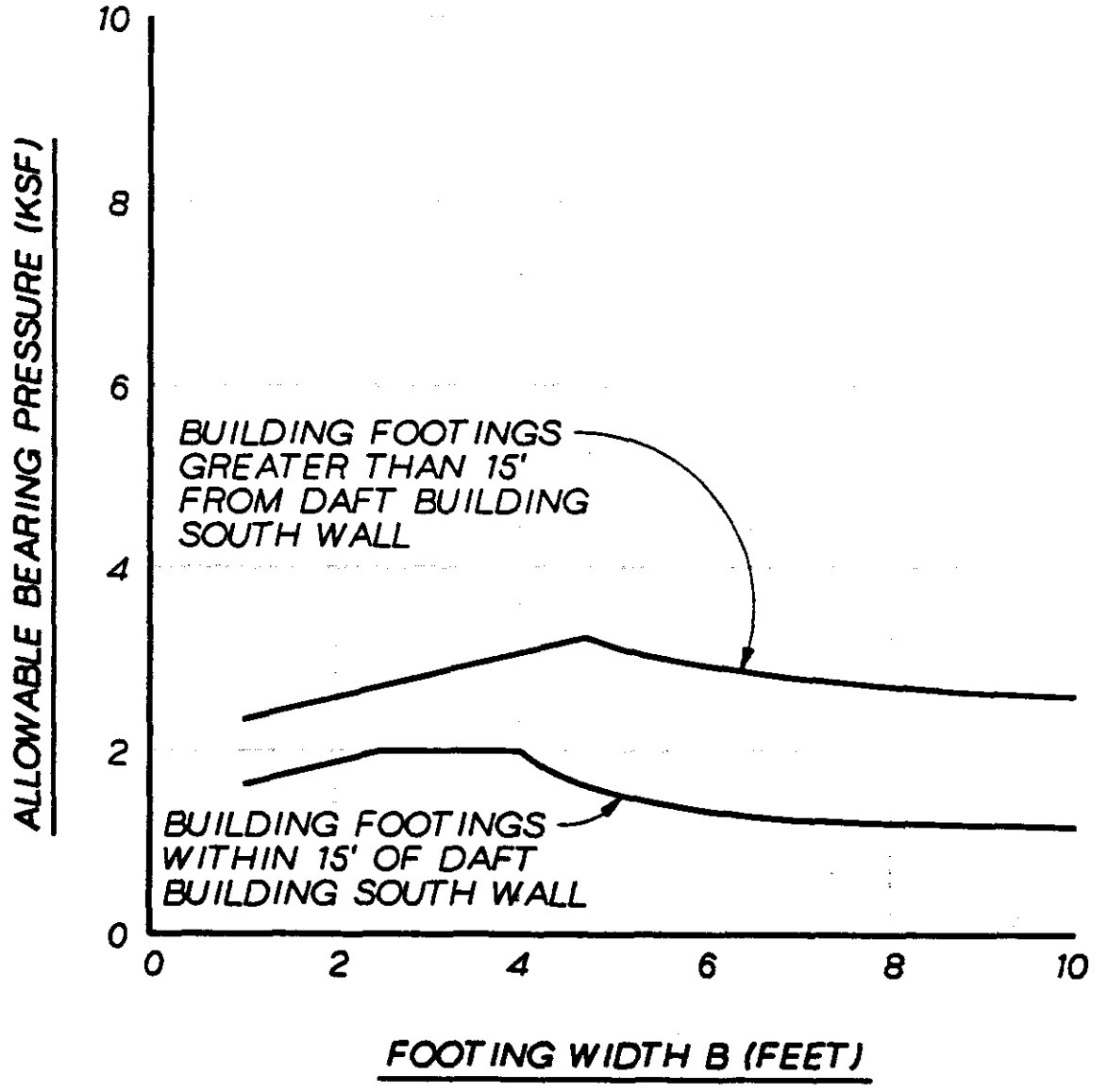


Figure 3

ALLOWABLE BEARING PRESSURE CHART

CITY OF BOISE
BIOSOLIDS DEWATERING FACILITY

RMT37394.D2

14-APR-1995 PC• 0 ABCC.DGN

and footings. Additional recommendations pertaining to backfill material are presented in subsequent sections of this report.

Asphalt Pavement

Following are some general recommendations pertaining to miscellaneous areas associated with this project that may receive asphalt pavement. No asphalt paved areas were identified at the time of this investigation and no samples or tests were performed to obtain asphalt design parameters. The parameters used to develop the recommendations presented below are based on conservative assumptions for soil conditions typically encountered in the western area of Boise.

A typical pavement section consists of a layered system designed to distribute concentrated traffic loads to the subgrade. Performance of the pavement structure is directly related to the physical properties of the existing subgrade soils and imported base material, asphalt surfacing, and traffic loads.

The subbase course for the pavement section was designed based on a subgrade R-value of 40, which is a conservative estimate for the granular material encountered at the site. Soft or pumping clayey or organic soils encountered during excavation or fill placement should be overexcavated to the underlying granular soils and replaced with compacted granular backfill. The maximum amount of overexcavation, if granular soil is not encountered, does not need to exceed 3 feet below the top of the subbase layer (or bottom of the base course layer).

An R-value of 80 was used in the design calculations for imported base course material, and an R-value of 70 was used for pit run granular fill (subbase course).

The following traffic indices were used in the analysis to determine the ballast requirements for asphalt paved parking lots, access roads, and truck staging areas:

- TI = 7 Less than 10 truck passes per day
- TI = 8 Less than 33 heavy truck passes per day
- TI = 9 Less than 85 heavy truck passes per day

These indices are based on procedures and recommendations presented in the Ada County Highway Department Development Services Policy Manual and the State of Idaho Materials Manual.

Following are recommended asphalt pavement sections based on the criteria outlined above:

1) **Parking Lot and Access Roads–Light Truck Traffic** (less than 10 trucks per day, TI = 7)

   - Plantmix Surface Course–3 inches
   - Crushed Aggregate Base Course–4 inches
   - Granular Borrow Subbase Course–9 inches

2) **Access Roads and Areas with Occasional Heavy Truck Traffic** (less than 33 heavy trucks per day, TI = 8)

   - Plantmix Surface Course–3 inches
   - Crushed Aggregate Base Course–4 inches
   - Granular Borrow Subbase Course–12 inches

3) **Access Roads and Areas with Heavy Truck Traffic** (less than 85 heavy trucks per day, TI = 9)

   - Plantmix Surface Course–4 inches
   - Crushed Aggregate Base Course–4 inches
   - Granular Borrow Subbase Course–12 inches

The topsoil along the alignment should be stripped prior to placing granular borrow or base course material. The subgrade should be proofrolled with a heavily loaded pneumatic-tired vehicle. Areas that deform excessively under the wheel loads or that contain soft pumping fine-grained soils should be removed and replaced prior to placing base or subbase course materials. Overexcavated areas should be backfilled in 9-inch-thick lifts with approved granular borrow and compacted to 95 percent of the maximum dry density as determined by ASTM D698. The subgrade should be moistened to optimum moisture content and compacted to 93 percent of the maximum dry density prior to placing subbase material.

The bituminous plant mix, imported base, and granular borrow should meet the State of Idaho Standard Specifications for Highway Design for Class II plant mix asphalt pavement.

Lateral Earth Pressures

Lateral earth pressures are dependent upon the type of backfill material, surcharge, and hydrostatic loading. Sandy silt and silty sand from excavations are not recommended for backfill material because they are weaker and more compressible than the onsite sand and gravel or imported granular material. Onsite sand and gravel from site excavations may be used for backfill provided it contains no compressible or organic materials. If insufficient sand and gravel is available from onsite excavations, imported pit run gravel should be used for structural backfill. Lateral pressures should be adjusted for 1) surcharge; 2) hydrostatic loading; and 3) live loads near walls. Earth pressure coefficients for the active, at rest, and passive cases are presented in Table 1. Coefficients are appropriate for either onsite sand, gravel and cobble, or imported pit run gravel.

Backfill behind retaining walls should be placed in 9-inch-thick lifts and compacted to 93 percent of the maximum dry density as determined by ASTM D698. Care should be taken to avoid overcompaction of backfill so that walls are not displaced or cracked. Compaction within 4 feet of walls should be accomplished with hand-operated compaction equipment.

We estimate the friction factor will be 0.5 for concrete footings founded on undisturbed dense sand and gravel material. A friction factor of 0.35 should be used for footings founded on the loose granular fill within 15 feet of the DAFT Building. This is an ultimate value, and sufficient movement must occur to mobilize full frictional resistance to sliding.

Table 1 Earth Pressure Coefficients					
			Static Earth Pressure Coefficient Unit*		
Material	Weight (pcf)	Phi (Degrees)	Active (Ka)	At Rest (Ko)	Passive (Kp)
Sand and Gravel	135	36	0.26	0.50	3.0

*Where Lateral Earth Pressure = KTH

K = Ka, Ko, Kp

T = Unit Weight of Backfill (pcf)

H = Height of Backfill (feet)

Site Fill and Backfill

Fine-grained or organic soils obtained from site excavations are not recommended for structural fill or backfill. These soils are weak and compressible and will settle with time. Footings and slabs may experience excessive differential settlement if founded on fine-grained or deleterious backfill material.

Sand and gravel from site excavations, free from organics, rubble, or other unsuitable material, may be used for fill under floor slabs; structural fill beneath building footings; subbase course beneath asphalt pavement; and backfill behind retaining walls. Granular fill should be placed in layers not to exceed 12 inches loose thickness. Each layer should be compacted to 95 percent of maximum density, as determined by ASTM D698, prior to placing succeeding layers. Granular fill that contains 30 percent or more of material, by weight, greater than the 3/4-inch sieve, shall be compacted to 80 percent relative density as determined by ASTM D4253 and ASTM D4254 (minimum and maximum compaction tests) in lieu of using the standard Proctor method specified in ASTM D698. Before compaction, the moisture content of site fill should be adjusted as required to near optimum.

All debris and loose soil should be removed prior to placing backfill behind walls and next to footings. Care should be taken to avoid over-compaction of backfill so that walls are not displaced or cracked. Compaction within 4 feet of the walls should be accomplished with hand-held or lightweight, operator-propelled compaction equipment. The backfill level on both sides of foundation walls (that are not designed as retaining walls) should be kept even at all times.

A 6-inch-thick leveling course of 3/4-inch-minus crushed gravel should be provided beneath concrete slabs founded on the dense sand and gravel or compacted fill. The gravel should be compacted to 95 percent of maximum dry density at optimum moisture content as determined by ASTM D698. Prior to compaction, the moisture content should be adjusted, as required, to near optimum.

Sand silty sand or sandy silt obtained from site excavations may be used for general site fill in areas where subsequent settlement is not of concern. Only minimal compaction of general site fill (for instance, landscaping areas and areas that do not support structural loads) is required. Adequate compaction of this material could be accomplished with 2 to 3 passes of heavy earthmoving equipment.

Concrete Slabs

Slabs founded either on the dense sand, gravel, and cobble or on compacted engineered fill should be designed using a modulus of subgrade reaction, K = 300 psi per inch. Slabs founded on the DAFT Building backfill soils should be designed using K = 100 psi per inch. Under no circumstances should slabs be founded on soils containing organic matter or on soft plastic clayey soils. Unsuitable soils encountered after the site stripping operation is complete should be overexcavated and replaced with compacted granular fill.

Seismic Design Criteria

Boise is within Seismic Zone 2b, a moderate damage zone as defined by the 1994 Uniform Building Code (UBC). The site meets the requirements of a firm site with rock deeper

than 200 feet. A seismic site coefficient, S Factor = 1.2, is recommended for the design of structures under seismic loading conditions.

Imported Materials

Crushed gravel used beneath floor slabs, footings, and as a base course for pavement sections should meet the applicable requirements for 3/4-inch minus road base aggregate described in Section 703.04 of the State of Idaho Standard Specifications for Highway Construction. These materials should be free from organics, clay balls, or other deleterious matter. The granular base material should be specified to have a minimum R-value of 80, as determined in accordance with the State of Idaho Test T-8.

Pit run gravel for site fill should be clean, well-graded granular material with less than 8 percent passing the No. 200 sieve. Maximum size of cobble should be 9 inches. The granular material should be free from organics, clay balls, and other deleterious matter.

Summary

Based on our subsurface exploration and engineering analyses of subsurface conditions, we have found the project site suitable for the proposed construction with the following recommendations:

Site Preparation

The top 0 to 12 inches of organics and topsoil should be removed from beneath the footprints of the building, parking area, and access road.

Groundwater Control

The biosolids storage/blend tank should be designed to resist hydrostatic uplift for groundwater at elevation 2576.0. A positive means of construction dewatering will be required to complete the excavation and placement of reinforcing steel and concrete.

Excavations

All excavations should be accomplished in accordance with applicable federal, state, and local standards.

Foundations

The bearing pressure chart presented in Figure 3 should be used to size the building footings based on the anticipated subgrade soil conditions. The mat foundation for the storage/blend tank should be designed using a net allowable bearing pressure of 1,000 psf.

Lateral Earth Pressures

Retaining walls should be designed using the unit weights and appropriate earth pressure coefficients listed in Table 1.

A friction factor of 0.5 should be used to evaluate sliding resistance at the base of footings founded on undisturbed dense sand and gravel. A friction factor of 0.35 should be used for footings founded on granular fill. Passive earth pressures should be determined using the appropriate earth pressure coefficients listed in Table 1.

Site Fill and Backfill

Sand and gravel from site excavations or imported sand and gravel should be used for granular backfill beneath structural elements. Granular backfill should be compacted to 95 percent of the maximum dry density as determined by ASTM D698, or 80 percent relative density, whichever test method is appropriate. Silty sand and sandy silt may be used for site fill where subsequent settlement is not of concern.

Concrete Slabs

A 6-inch-thick leveling course of 3/4-inch crushed gravel should be placed beneath slabs and footings. Slabs founded on the dense sand and gravel or on compacted granular fill should be designed using a modulus of subgrade reaction, K = 300 psi per inch. Slabs supported DAFT Building backfill should be designed using K = 100 psi per inch.

Seismic Design Criteria

The site is located in Zone 2b and meets the criteria for a firm or stiff site as defined by the 1994 UBC.

Limitations

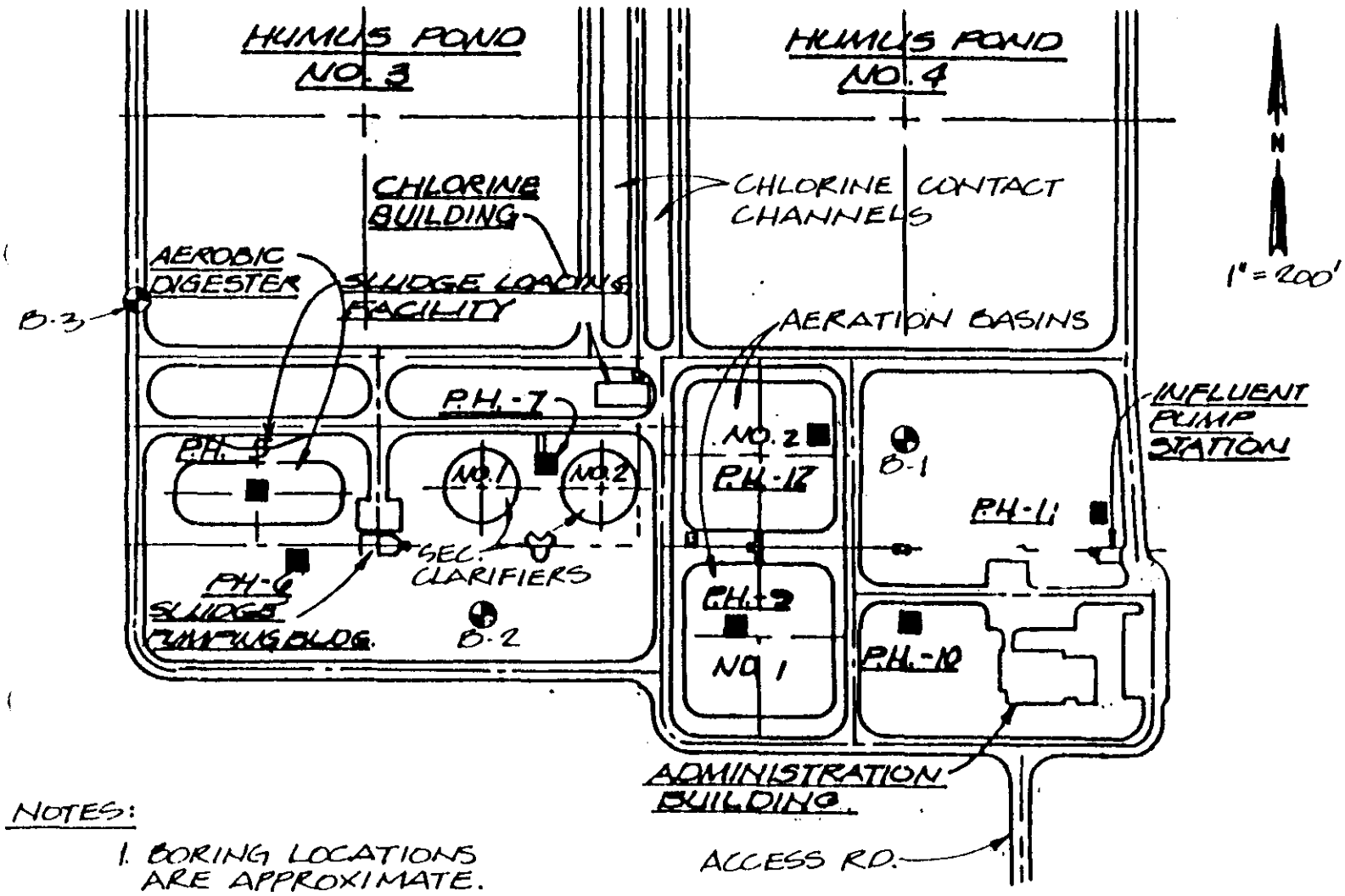
This report has been prepared for the exclusive use of the City of Boise for specific application to the Biosolids Dewatering Facility (RFP 94-18) described herein in accordance with generally accepted geotechnical engineering practice. No other warranty, either expressed or implied, is made.

The analyses and recommendations contained in this report are based on data obtained from previous explorations, 5 soil borings, laboratory testing, and current geotechnical engineering practice. Soil borings indicate subsurface conditions only at specific locations and times, and only to the depths penetrated. They do not necessarily reflect soil, strata, or water level variations that may exist between boring locations. If variations in subsurface conditions are noted during the course of excavation and construction, reevaluation of the exploration and design analyses may be necessary.

In the event that any changes in the nature, design, or location of the facilities are made, the recommendations contained in this report should not be considered valid unless the changes are reviewed and recommendations of this report modified or verified in writing.

CH2M HILL is not responsible for any claims, damages, or liability associated with interpretation of subsurface data, reuse of the subsurface data, or reuse of engineering recommendations without the express written authorization of CH2M HILL.

Appendix A
Previous Investigation Data



NOTES:

1. BORING LOCATIONS ARE APPROXIMATE.

◕ BORINGS DRILLED IN MAY 1981

■ PROBE HOLES DRILLED IN 1974

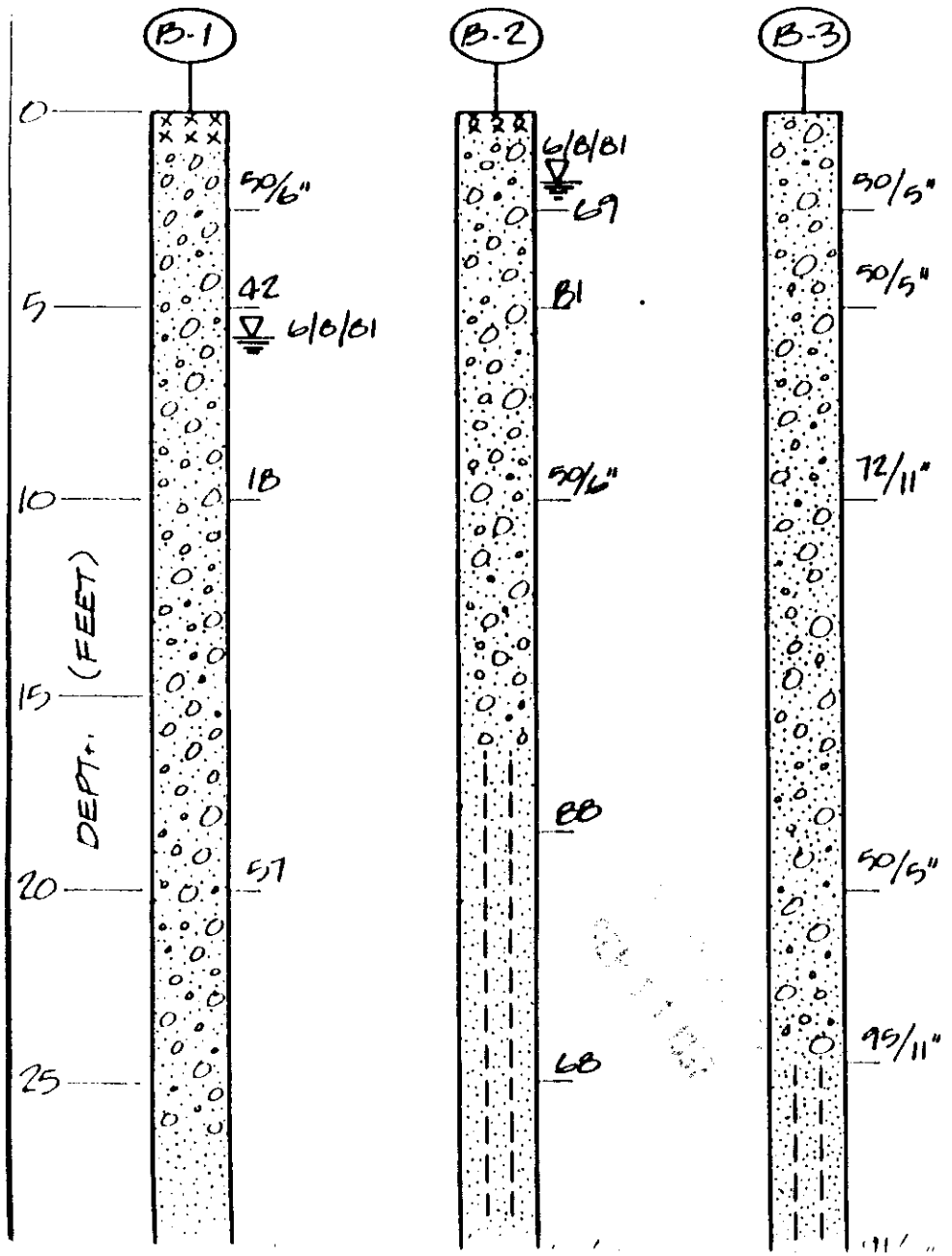
FIGURE 1

GEOTECHNICAL INVESTIGATION
WEST BOISE WASTEWATER
TREATMENT PLANT EXPANSION
BOISE, IDAHO

SITE PLAN

B 12430.01

CH2M HILL



BORING HOLE LEGEND

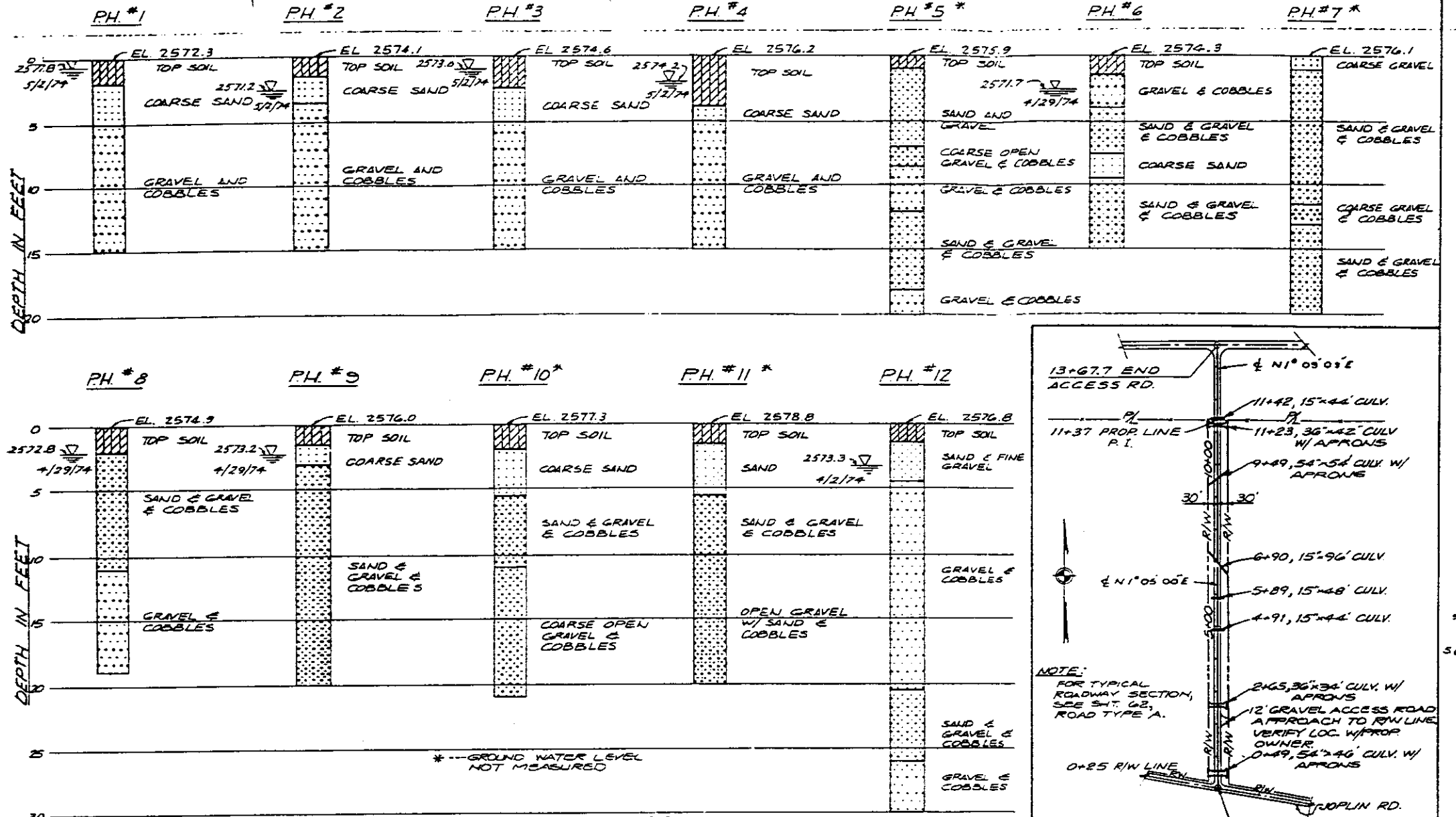
- TOPSOIL
- SILTY SAND
- SAND
- SAND, GRAVEL & COBBLES
- B-3 — BORING HOLE NUMBER
- 69 — "N" VALUE - STANDARD PENETRATION RESISTANCE (ASTM D-1586)
- ▽ — GROUNDWATER LEVEL AND DATE RECORDED
- 50/6" — "N" VALUE FOR LESS THAN ONE FOOT PENETRATION

NOTES:

1. THE DEPTH OF INDICATED INTERFACES BETWEEN SOIL TYPES IS APPROXIMATE & THE TRANSITION BETWEEN SOIL TYPES MAY BE GRADUAL.
2. GROUNDWATER LEVEL WAS RECORDED ON JUNE 8, 1981. GROUNDWATER WAS NOT MEASURED IN B-3.

FIGURE 2

GEOTECHNICAL INVESTIGATION
WEST BOISE WASTEWATER
TREATMENT PLANT EXPANSION
BOISE, IDAHO



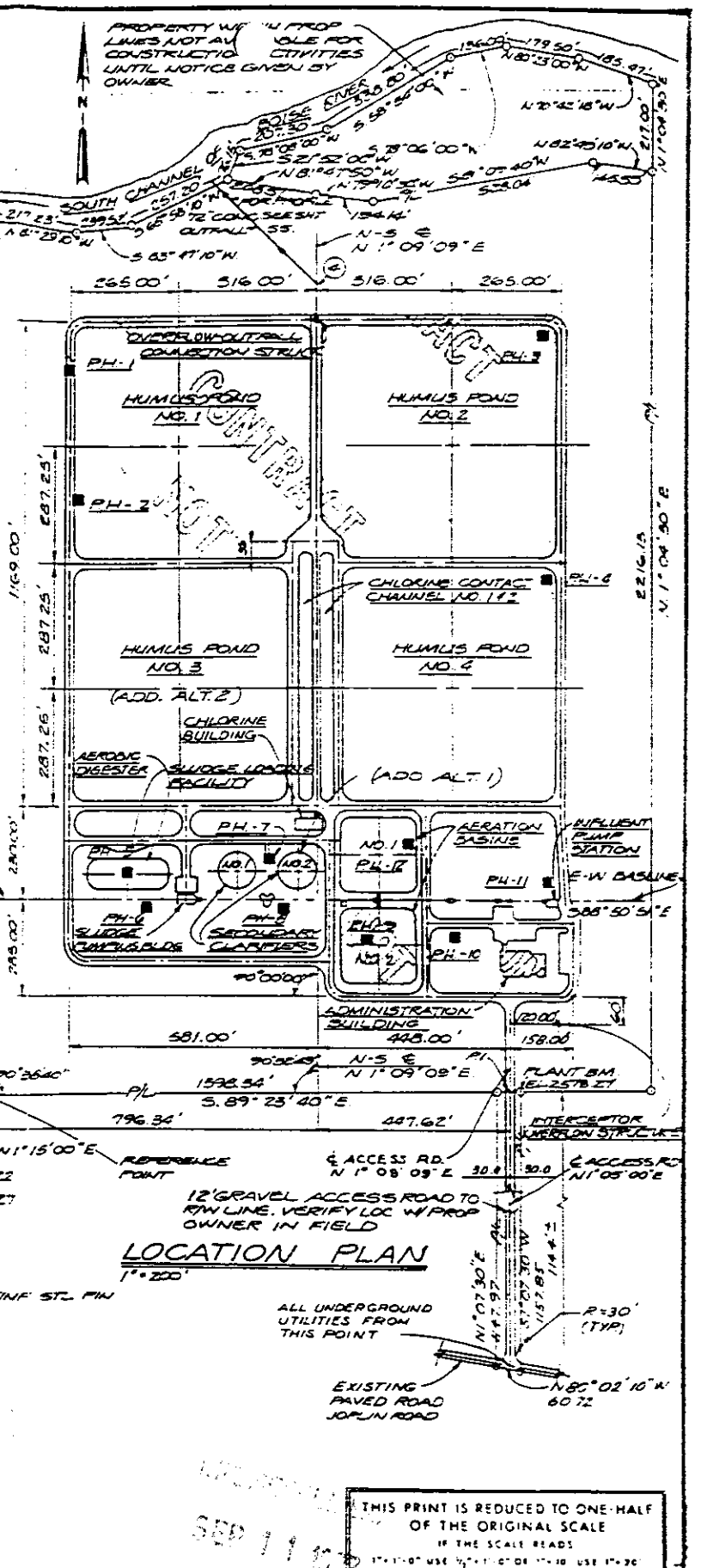
TEST HOLE LOGS

■ TEST HOLE SYMBOL

NOTE:
TEST HOLE INFORMATION WAS OBTAINED FROM THREE-INCH DIAMETER PROBE HOLES USING A SMALL ROTARY DRILL RIG.

ACCESS ROAD PLAN

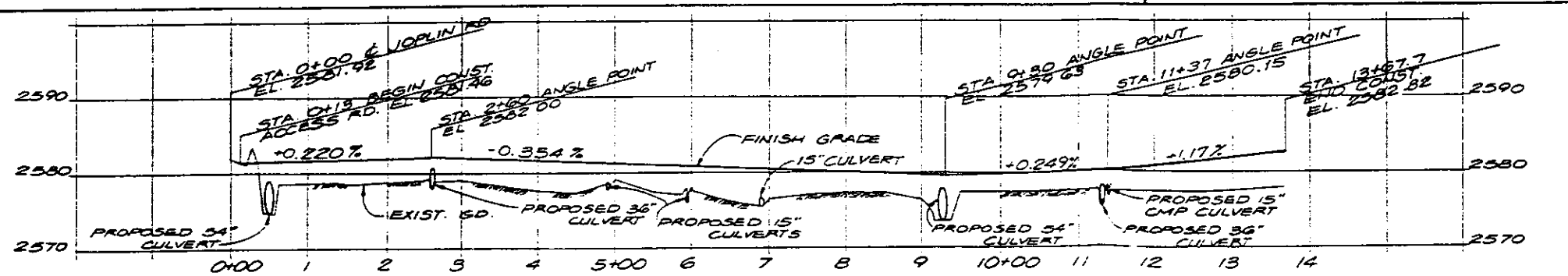
1" = 200'



LOCATION PLAN

1" = 200'

LEGEND
⊙ ¾" REINF. ST. PIN



ACCESS RD. PROFILE

VERT: 1"=10'
HORIZ: 1"=100'

THIS PRINT IS REDUCED TO ONE-HALF OF THE ORIGINAL SCALE
IF THE SCALE READS
1"=1'-0" USE ½"=1'-0" OR 1"=10' USE 1"=20'

REGISTERED PROFESSIONAL ENGINEER STATE OF IDAHO KERR L. ROOTH

CH2M HILL

DES.	JAK
DR.	JLL
CHK.	GAR
APPD.	RRB

NO.	DATE	REVISION	BY	APPD.

CITY OF BOISE, IDAHO
WEST BOISE WASTEWATER TREATMENT PLANT
PHASE 1

GENERAL PLANS
LOCATION PLAN AND TEST HOLES

SHEET	3 OF 78
PROJ. NO.	81821
DATE	MAY 1974
DWG. NO.	C7927-1

APPENDIX B

WATER USE AND RETURN CALCULATIONS 04/16/96
W. BOISE WWTF - BIOSOLIDS DEWATERING FACILITY RJB

I. WATER USE

Item	Typical Flow (gpm)	Hours/ day	Volume/ Day (gal)	Volume to Drain (gal)
Seal water, etc	35	24	50,400	50,400
Filter press belt wash	260	16	249,600	249,600
Gravity thickener belt wash	40	16	38,400	38,400
Sump, etc. wash	300	1	18,000	18,000
Truck washdown	80	2	9,600	9,600
BFP & room washdown	80	1	4,800	4,800
Polymer fill	180	3	32,400	0
Polymer dilution - BFP	100	16	96,000	0
Polymer dilution - GBT	50	16	48,000	0
Other	30	16	28,800	0
			576,000	370,800

=> Total water use = 576,000 gal/day

II. WATER RETURN

Water from biosolids: feed: 400 gpm @ 2.0% solids
dewater to 16.0% solids
=> 350 gpm water extracted = 336,000 gal/day

Water from drains = 371,000 gal/day (see above)

=> Total water returned = 707,000 gal/day

SEP 11 1997

WELL #1 (East)

APPENDIX C

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name West Boise Wastewater Treatment Plant

Address _____

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☒ Waste Disposal or injection

4. METHOD DRILLED

☐ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 8 inches Total depth 375 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
_____ inches	8 inches	0 feet	355 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☒ Yes ☐ No

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation ____ inches by ____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

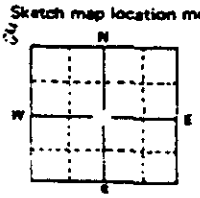
Placed from _____ feet to _____ feet

Surface seal depth 20' Material used in seal ☐ Cement grout ☒ Puddling clay ☐ Well cuttings

Seating procedure used ☐ Slurry pit ☒ Temporary surface casing ☐ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____

Lot No. _____ Block No. _____

County Ada

¼ ¼ Sec. 32 T. 4 N. R. 1 E/W

7. WATER LEVEL

Static water level 0 feet below land surface

Flowing? ☒ Yes ☐ No G.P.M. flow _____

Temperature _____ F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Formation	Water Yes	Water No
8	0	10	Top Soil		X
8	10	90	Cobble Stones & Sand		X
8	50	300	Clay & Fine Sand	X	
8	300	350	Blue Clay		X
8	350	355	Blue Shale		X
8	355	375	Broke out of Shale to fine gray water sand	X	

10.

Work started 3-26-75 finished 3-26-25

11. DRILLER'S CERTIFICATION

Firm Name Treasure Valley Drilling Firm No. 74

Address RT 5, Caldwell Boise Date 3-28-75

Signed by (Firm Official) _____

and

(Operator) Same

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

WELL #2 (South)

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name West Boise Wastewater Treatment Plant

Address

Owner's Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☒ Waste Disposal or Injection

4. METHOD DRILLED

☐ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 8 inches Total depth 225 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
inches	8 inches	+ 1 feet	220 feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

Was casing drive shoe used? ☒ Yes ☐ No

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation inches by inches

Number		From	To
perforations		feet	feet
perforations		feet	feet
perforations		feet	feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name

Type Model No.

Diameter Slot size Set from feet to feet

Diameter Slot size Set from feet to feet

Gravel packed? ☐ Yes ☒ No Size of gravel

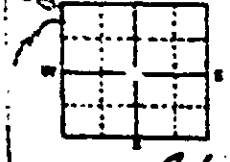
Placed from feet to feet

Surface seal depth 20' Material used to seal ☐ Cement grout ☒ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☒ Temporary surface casing ☐ Overburn to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name

Lot No. Block No.

County Ada

¼ ¼ Sec. 22 T. 4 N/S R. 1 E/W

7. WATER LEVEL

Static water level 2 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow

Temperature ° F. Quality

Artesian closed in pressure p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	10	Top Soil		X
8	10	200	Sand, Clay & Cobble Stone	X	
8	200	220	Clay		X
8	220	225	Water Sand	X	

10. Work started 3-17-75 finished 3-17-75

11. DRILLER'S CERTIFICATION

Firm Name Pearson Water Drilling Firm No. 24

Address Rt. 6, Boise, Idaho Date 3-20-75

Signed by (Firm Official)

and

Operator) SAME

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

APPENDIX D

Form 202
10/92

Ident. No. _____

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

1. Name of applicant City of Boise, Public Works Department Phone 384-3900

   Post office address P.O. Box 500; Boise, Idaho 83701-0500

2. Source of water supply Groundwater which is a tributary of NA

3. Location of point of diversion is SW ¼ of NW ¼ of SW ¼, Govt. Lot _____

   Sec. 22 Township 4N Range 1E B.M. Ada County; additional

   points of diversion if any: _____

4. Water will be used for the following purposes:

   Amount 2.7cfs (cfs or acre-feet per annum) for Industrial purposes from January 1 to December 31 (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

5. Total quantity to be appropriated is (a) 2.7* (cubic feet per second) and/or (b) _____ (acre feet per annum) *2.7 cfs maximum, 1.0 cfs daily avg.

6. Proposed diverting works:

   a. Description of ditches, flumes, pumps, headgates, etc. Two 600 gpm pumps

   b. Height of storage dam NA feet; active reservoir capacity _____ acre-feet; total

   reservoir capacity _____ acre-feet; period of year when water will be diverted to storage:

   _____ to _____ inclusive.

   c. Proposed well diameter is 10 inches; proposed depth of well is 80 feet.

   d. Is ground water with a temperature of greater than 85°F being sought? No

   e. If well is already drilled, when? No ; Drilling firm _____ ;

   Well was drilled for *(well owner)* _____

7. Time required for the completion of the works and application of the water to be proposed beneficial use is

   1.0 years *(minimum 1 year)*.

8. Description of proposed uses (*if irrigation only, go to item 9*):

a. Hydropower; show total feet of head and proposed capacity in KW. _____

b. Stockwatering; list number and kind of livestock. _____

c. Municipal; show name of municipality. _____

d. Domestic; show number of households. _____

e. Other; describe fully. Supply wash and mixing water for process to dewater wastewater treatment biosolids.

9. Description of place of use:

a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below.

b. If water is used for other purposes, place a symbol of the use (*example: D for Domestic*) in the corresponding place of use below. See instructions for standard symbols.

TWP	RANGE	SEC.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
4N	1E	22										I							

Total number of acres to be irrigated _____

10. Describe any other water rights used for the same purposes as described above. NA

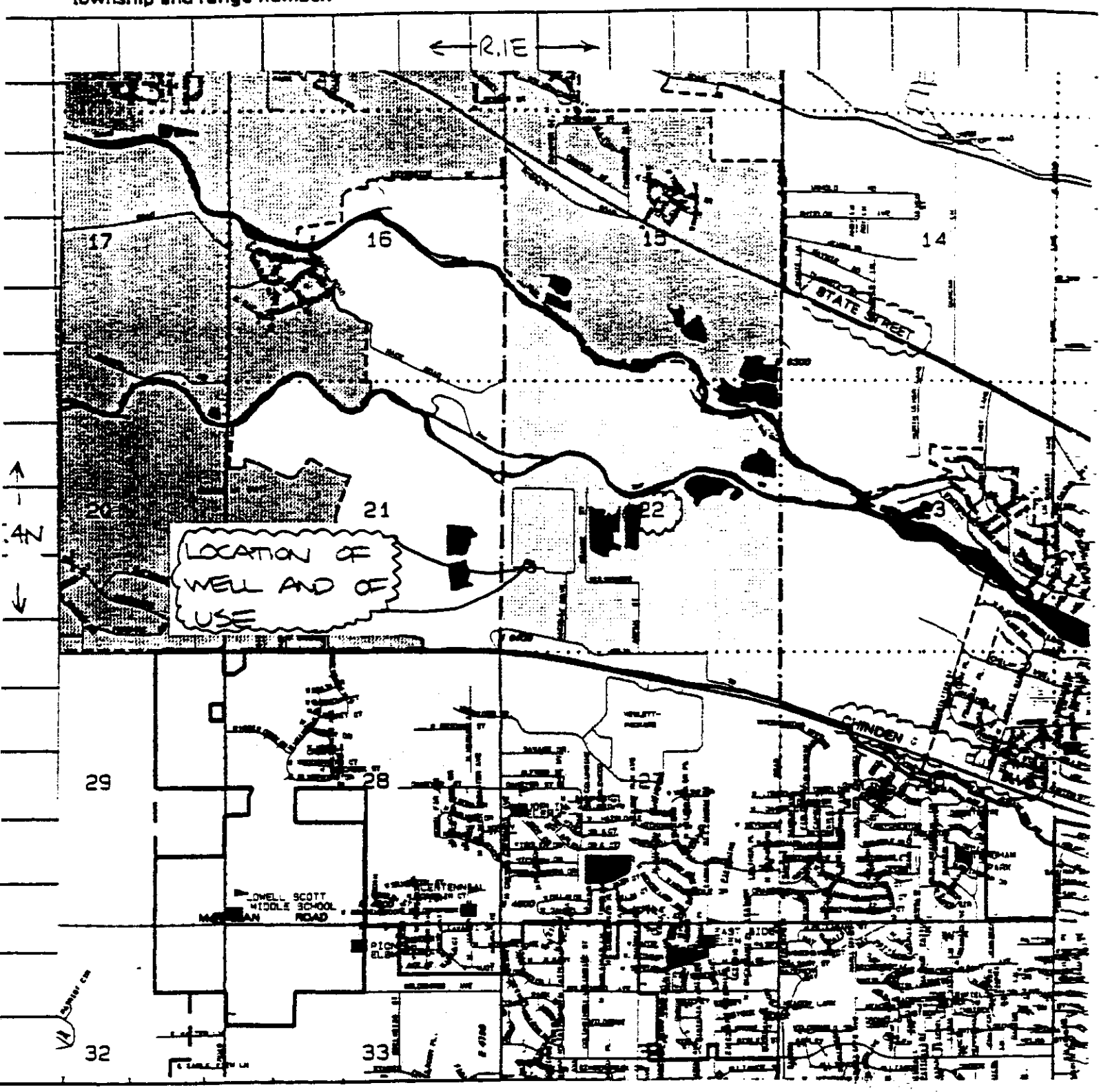
11. a. Who owns the property at the point of diversion? City of Boise

b. Who owns the land to be irrigated or place of use? City of Boise

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing. _____

12. Remarks: After use, water will be treated by the wastewater treatment facility and discharged to the Boise River under the NPDES permit.

*3. Map of proposed project show clearly the proposed point of diversion, place of use, section number, township and range number.



2 inches equal 1 mile.

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

(Applicant)

Tammy Cones, Mayor

Received by _____ Date _____ Time _____ Preliminary check by _____

Fee $ _____ Receipted by _____ # _____ Date _____

Publication prepared by _____ Date _____ Published in _____

Publication approved _____ Date _____

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

This is to certify that I have examined Application for Permit to appropriate the public waters of the State of Idaho No. _____, and said application is hereby _____.

1. Approval of said application is subject to the following limitations and conditions:

   a. SUBJECT TO ALL PRIOR WATER RIGHTS.

   b. Proof of construction of works and application of water to beneficial use shall be submitted on or before _____, 19 ____.

   c. The rate of diversion, if water is to be used for irrigation under this permit, when combined with all other water rights for the same land shall not exceed 0.02 cubic feet per second for each acre of land.

   d. The water right acquired under this permit if for hydropower purposes shall be junior and subordinate to all rights to the use of water, other than hydropower, within the State of Idaho that are initiated later in time than the priority of this permit and shall not give rise to any right or claim against any future rights to the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this permit.

   e. Other:

RECEIVED
FEB 0 7 1997
Department of Water Resources

MEMO

TO: L. Glen Saxton

FROM: Gary Spackman

RE: Permit to Appropriate Water No. 63-12312: Amendment of Conditions to City of Boise's Wastewater Treatment Permit

DATE: February 5, 1997

Attached are documents related to a permit issued to the City of Boise, Public Works Dept. to appropriate 2.70 cfs of groundwater for industrial purposes. Water diverted pursuant to the permit will be used for wastewater treatment at the Boise City wastewater treatment plant located between Glenwood Street and Eagle Road along the Boise River.

The permit was issued with a condition identifying the water bearing zone as 40 to 80 feet. It also stated that construction should not penetrate the first confining layer and should not exceed 80 feet in depth.

According to the memorandums I have attached, it appears that Boise City attempted to find water in the 40 to 80 foot zone specified in the permit, but did not encounter sufficient water. In coordination with Rob Whitney and Steve Lester of this office, Boise City drilled deeper and found sufficient water between 77 and 107 feet. The well has not yet penetrated a confining layer below 80 feet.

I discussed this matter with both Steve Lester and Rob Whitney. They represented to me that the 40 to 80 foot zone originally specified in the permit was not the result of a protest or any technical data in possession of the department. Instead, it appears that Boise City attempted to estimate where they would find water, and did not identify the proper depth within which they could find water. As a result, I can see no harm in allowing Boise City to divert water from a zone between 77 and 107 feet. Boise City requested that the two conditions be changed so that the water bearing zone is identified from zero to 120 feet and also stating that the well should not exceed 120 feet.

This memorandum supports the request in the January 22 letter from CH2M Hill.

MICROFILMED
SEP 1 1 1997

2-7-97

Glen,

1) The well log is not yet received (not due)
2) The well is proposed to be sealed to 20' based on drawing dated 1-27-97 by A. Brown.
3) Static water is at ~ 10' BGS.
4) Screen is proposed from 77 – 107'
5) A shallower interval at 40 – 80 was identified and may ultimately be opened.
6) I suggest a potential production interval of 20' – 115' (T.D.).

MEMORANDUM

PLEASE EXPEDITE PER CITY'S REQUEST - VERBAL APPROVAL REQUESTED AS WRITTEN APPROVAL PREPARED & MAILED

TO: GARY SPACKMAN AND GLEN SAXTON

FROM: STEVE LESTER

DATE: JANUARY 30, 1997

RE: REQUEST TO "AMEND" PERMIT 63-12312

Garrett Brown submitted a request on behalf of the City of Boise to amend the conditions of approval of Permit No. 63-12312. This non-consumptive right was approved under the umbrella of developing shallow ground water considered tributary to the Boise River. Conditions/Remarks #14 and 15 limit the right to water appropriated between 40 and 80 feet and above the first confining layer encountered in drilling.

Drilling Permit 63-97-W-0009-000 authorized a well no deeper than 80 feet. However, actual conditions did not meet the water right parameters. The regional office verbally approved drilling to the lesser of 120 feet or the first confining layer. Mr. Brown worked closely with Rob Whitney and me to properly oversee the well construction.

The city has an opportunity to complete an adequate well while remaining within the spirit of the drilling permit and the water right permit: appropriate shallow ground water tributary to the river by screening the 77-107 ft. interval.

The city has obtained the well screen but will not install it without IDWR approval. Mr. Brown asked for verbal approval to proceed if IDWR decides to revise the conditions/remarks for 63-12312. He can be reached at 345-5310.

It appears that the water right can be revised as requested without an amendment fee or additional legal notice. The region can also update the drilling permit as the water right is revised to synchronize all of the related IDWR records.

c: RBW @ Western

MICROFILMED
SEP 11 1997

RECEIVED
JAN 2 3 1997
WATER RESOURCES
WESTERN REGION

CH2MHILL
Celebrating 50 Years

CH2M HILL
700 Clearwater Lane
Boise, ID
83712-7708
Mailing address:
P.O. Box 8748
Boise, ID
83707-2748
Tel 208.345.5310
Fax 208.345.5315

January 22, 1997

109195.C4.05

Mr. Steve Lester
Idaho Department of Water Resources
Western Regional Office
2735 Airport Way
Boise, ID 83705

Dear Mr. Lester:

Subject: Amendment to the Remarks and Conditions Section of the City of Boise's Permit to Appropriate Water (Permit No. 63-12312)

On behalf of our client, the City of Boise, I would like to request the issuance of an amendment to the "Conditions of Approval and Remarks" section of the permit to appropriate water that was issued to the City on October 17, 1996 (Permit No. 63-12312).

Based on the soil boring log of Well No. 2 at the West Boise Wastewater Treatment Plant, which I previously faxed to you, the City will be unable to obtain the desired yield from the 40 to 80 foot zone specified in the permit. The City would like to place 30 feet of well screen in Well No. 2 in the medium to coarse sand zone found between 77 and 107 feet below ground surface (bgs). I have attached a preliminary well construction diagram for your reference. No significant or continuous clay layers were encountered during the drilling of Well No. 2 to a total depth of 115 feet bgs. Verbal permission was obtained from your office prior to drilling past the 80 foot mark specified in the permit.

The City is requesting Item Nos. 14 and 15 of the Permit be amended to the following:

Item 14. "Water bearing zone to be appropriated is **0 to 120 feet**".

Item 15. Wells used to divert water under this right shall be constructed so that they neither penetrate the first confining layer encountered nor exceed **120 feet** in depth".

MICROFILMED
SEP 1 1 1997

The City is placing the drilling operation and the final completion of Well No. 2 on hold until actions by the IDWR are received. Any expediency on your part in processing the City's request would be greatly appreciated.

If you need any additional information please don't hesitate to call me at 345-5310. I would appreciate being copied on your "actions" letter sent to the City regarding this matter.

Sincerely,

CH2M HILL

Garrett Brown

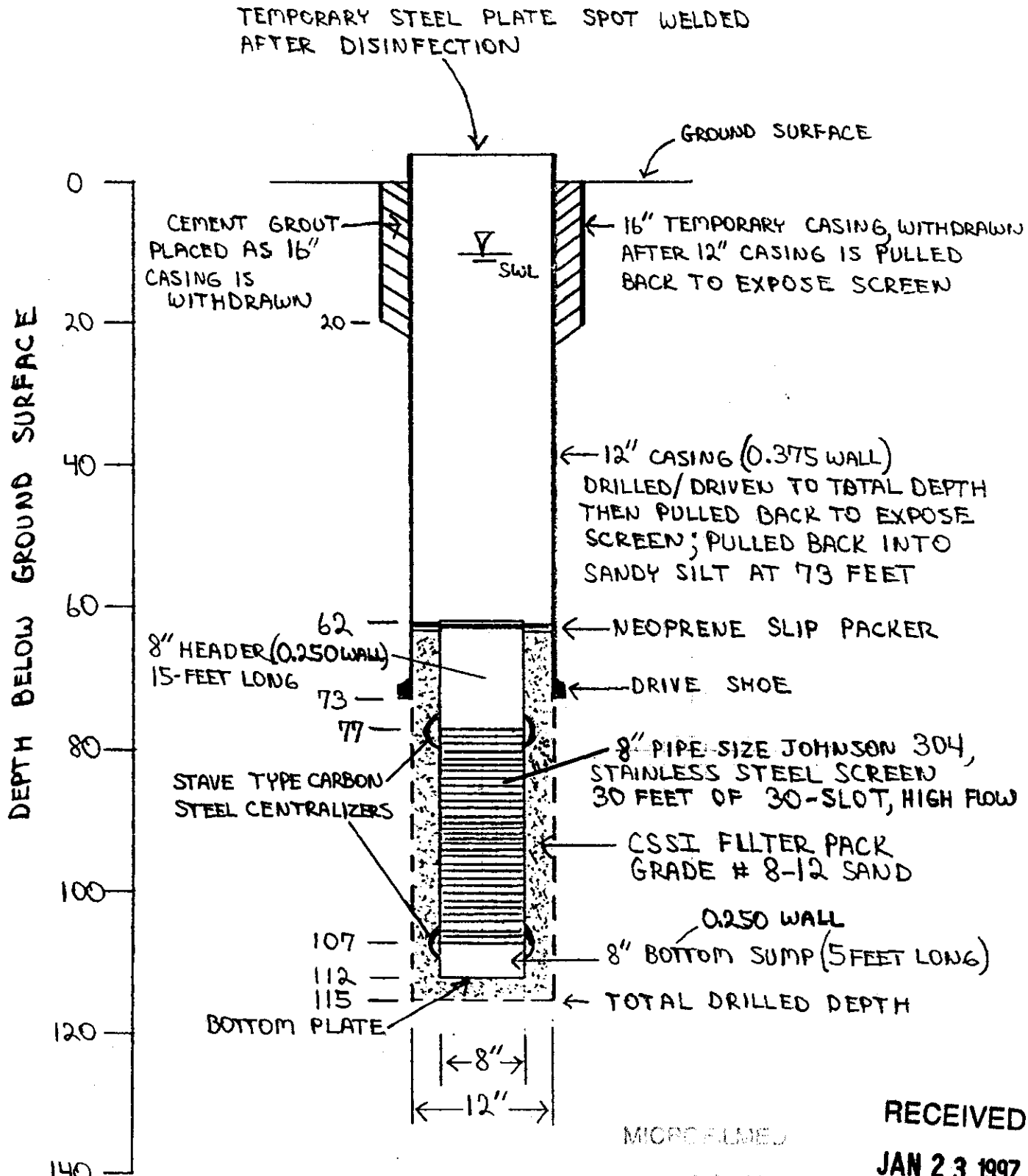
Garrett Brown, P.G.
Project Hydrogeologist

c: Rob Bousfield/City of Boise Public Works
Jim Woodrich/CH2M HILL

MICROFILMED
SEP 1 1 1997

SUBJECT RECOMMENDED FINAL WELL DESIGN
WELL NO. 2 - WBWWTP

BY GARRETT BROWN
SHEET NO. 1 of 1 DATE 1-21-97
PROJECT NO. 109195.C4.05



MICROFILMED
SEP 1 1 1997

RECEIVED
JAN 2 3 1997
WATER RESOURCES
WESTERN REGION

Western

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 63-12312

Proposed Priority: February 15, 1996 **Maximum Diversion Rate:** 2.70 CFS

This is to certify, that **CITY OF BOISE**
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 83701-0500
has applied for a permit to appropriate water from:
GROUNDWATER tributary of **BOISE RIVER**

and a permit is **APPROVED** for development of water as follows:

BENEFICIAL USE	PERIOD OF USE	RATE OF DIVERSION
INDUSTRIAL	01/01 to 12/31	2.70 CFS

LOCATION OF POINT(S) OF DIVERSION: NWSW , Sec. 22, Township 04N, Range 01E
ADA County

PLACE OF USE: INDUSTRIAL

TWN	RGE	SEC	
04N	01E	22	NWSW

CONDITIONS OF APPROVAL AND REMARKS

1. Proof of construction of works and application of water to beneficial use shall be submitted on or before **October 1, 1997.**
2. Subject to all prior water rights.
3. Use of water under this right is subject to control by the watermaster of State Water District No. 63.
4. After specific notification by the department, the right holder shall annually report the amount of water diverted to the department.
5. Right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code.
6. The right holder shall comply with Idaho well construction standards when constructing a well pursuant to this right.
7. Should the use of the water on this right reduce the quality of water available to prior water rights and make it unusable to satisfy the prior appropriations, then the diversion under this right must cease.
8. The issuance of this right does not grant any right-of-way or easement across the land of another.
9. Use of water under this right shall be non-consumptive.
10. A measuring device and lockable controlling works of a type acceptable to the Department shall be permanently installed and maintained as part of the diverting works prior to diversion of water under this right.

RECEIVED
OCT 18 1996
WATER RESOURCES
WESTERN REGION

MICROFILMED
SEP 11 1997

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 63-12312

CONDITIONS OF APPROVAL AND REMARKS

11. Permanent measuring devices must be installed in such a manner that the amount of water discharged from the treatment facility into the Boise River can be measured.
12. Two points of diversion are located within NWSW, S22, T04N, R01E.
13. Industrial use is for a biosolids dewatering facility.
14. Water bearing zone to be appropriated is 40 to 80 feet.
15. Wells used to divert water under this right shall be constructed so that they neither penetrate the first confining layer encountered nor exceed 80 feet in depth.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code. Witness the signature of the Director, affixed at Boise, this

17th day of October, 1996.

for L. Glenn Saxton
Karl J. Dreher, Director

MICROFILMED
SEP 11 1997

PERMIT NUMBER	OWNER CODE	NAME & ADDRESS	TWP	RGE	SEC	TRACT	LOT	ACC FLG	COUNTY
63-97-W-0009-000	O	CITY OF BOISE - PUBLIC WORKS DEPARTMENT	04N	01E	22	NW SW		P	ADA

Subdivision Well Site Location and Description:
Subdivision Name:
Well Site Address: 11818 JOPLIN RD
City, State: BOISE, ID

Lot(s):
Block(s):

Geographic Location:
GPS Site ID:
Lat: : : N
Long: : : W
Accuracy Code:

Injection Permit No.
Water Right No. 63-12312

Well Construction Information: Anticipated Bottom Temp: 85F or less

Proposed Use of Well: Industrial Proposed Casing Diameter: 12 In. Proposed Depth: 100 Ft.

Well Use Comments:

Driller License No: 0332
Firm Name: DENNIS PHIPPS WELL DRILLING
Official: DENNIS L PHIPPS

Permit Status: Permit

Verbal Issued Date:	
Verbal Issued Time:	
Received Date:	01/06/1997
Approved Date:	01/07/1997
Proposed Start Date:	01/06/1997
Extension Date:	
Extension Expiration:	

Receipt No.	Receipt Date	Fee
W021844	01/06/1997	$ 200.00

Specific Conditions: The well must be cased to at least 40 ft depth without perforations or other ability to bear water into the well to that depth.
The well must be constructed to neither penetrate the first confining layer encountered nor exceed 80 ft in depth.
Use of the well is subject to the limitations and conditions of approval of water right No. 63-12312.

OK

we did
- allow deeper drilling per telephone work with Garrett Brown, for city cons.
-JZ
w/ RAW

Permit Remarks:

Conditions of Approval: This drilling permit is valid for two (2) months from the approval date for the start of construction and is valid for one (1) year from the approval date for completion of the well unless an extension has been granted.

This permit does not constitute an approval of the District Health Department or the Idaho Department of Health and Welfare which may be required prior to construction of this well. The local Health Department should be contacted for septic tank/drainfield locations. Domestic wells must not be drilled closer than 100' from any drainfield and 50' from any septic tank. Public Water Supply wells must not be drilled closer than 100' from any drainfield or septic tank.

RECEIVED
SEP 11 '07

WELL DRILLING PERMIT NUMBER INDEX: Permit No. 63-97-W-0009-000 (cont'd)

Conditions of Approval: The well shall be constructed by a driller currently licensed in the state of Idaho who must maintain a copy of the drilling permit at the drilling site.

Approval of this drilling permit does not authorize trespass on the land of another party.

This permit does not constitute other local, county, state or federal approvals which may be required for construction of a well.

This drilling permit does not represent a right to divert and use the water of the State of Idaho.

If the bottom hole temperature of 85 Degrees F (29.44 oC) or greater is encountered, well construction shall cease and the well driller and the well owner shall contact the Department immediately.

Idaho Code, S 55-2201 - 55-2210 requires the applicant and/or his contractors to contact "Digline" (DigLine is a one-call center for utility notification) not less than 2 working days prior to the start of any excavation for this project. The "Dig Line " Number for your area is 1-800-342-1585.

Comments: No Comments Found

SEP 1 1 1997

CONVERSATION MEMORANDUM

CH2MHILL

DATE 1/14/97

FILE 63-12312

63-97-W-0009-000

NAME OF PARTY GARRETT BROWN 345-5310 *

EMPLOYEE SL

RE: WELL DRILLING in Progress

PER RBW - OK continue in COARSE SAND layer until 1st SIGNIFICANT confine layer.

City REQUIRES - STOP @ 100' (cost factors) - NEED discuss for deeper

IDWR " - STOP @ 100' to coordinate with above.

- Send update on lithology so we can decide how to PROCEED > 100'

For Any well drilling > 80' will need evaluate info they submit to see IF NEED W.R. change etc.

As long as KEEP in touch with REGIN (RBW & SL) CAN work this out.

SEP 11 1997

*Onsite contact = CH2MHill trailer 939-3264

Proj. Engr. Jim Woodrick can find Garrett

NOW AT 88' 10:30 A.M!

—cont—

CONVERSATION MEMORANDUM

DATE _____

FILE _____

NAME OF PARTY _____

EMPLOYEE _____

RE: 2nd call from Garrett Brown @ 4 p.m.

ON-site - now @ 100'.

still in coarse sand, casing not yet stabilized.

City wants driller to stop by whichever is 1st:

clay layer @ 120'

Tower concurs, fax info to Western asap once this happens.

MOST RECEIVED
SEP 11 '07

CH2M HILL Engineers Planners Economists Scientists

Boise, Idaho Office
TEL: 345-5310 FAX: 345-5315

FAX

Fax #:	**334-2348**	**Total Pages:**	**3**
To:	**Steve Lester and Rob Whitney**	**From:**	**Garrett Brown**
Company:	**Idaho Department of Water Resources**	**Date:**	**January 16, 1997**

Message:

Steve and Rob

We got to the bottom of the borehole yesterday afternoon at the West Boise Wastewater Treatment Plant. I am sending you the final soil boring log. Although we did not reach a real definitive clay, we were able to stabilize the borehole at a depth of 115 feet below ground surface (bgs) to where the sands were not heaving. The formation varies between a very sandy clay to a clayey sand between 109 and 115. This zone has water in it, and it is not tight or confining, but there is enough clay in the sand to keep the borehole from heaving.

We are in the process of running sieve analyses on several of the grab samples to determine screen size. Tentatively, we would like to place 30 feet of coarser screen approximately from 77 to 107 feet bgs. If the sieve analysis indicates this zone may not yield the desired 600 gpm, we would also like to screen 10 to 20 feet of the finer sand somewhere between 50 and 70 feet bgs.

The surface gravels (0 to 21 feet bgs) will be grouted off from the lower screened section(s) in the sand.

Would you please begin the process of amending the water right to accommodate the zone we would like to produce from? Do you have any ballpark idea of how long this process will take?

Please let me know if you need any additional information.

Sincerely,

Garrett Brown, P.G.

CH2M HILL Ext. 293

MICROFILMED

SEP 11 1997

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01-16-97 THU 11:59 FAX 208 345 5315 CH2M HILL 001

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
109195.C4.05	WELL #2	1	2

SOIL BORING LOG

PROJECT WEST BOISE TREATMENT PLANT LOCATION JOPLIN RD., BOISE
ELEVATION 2580 DRILLING CONTRACTOR DENNIS PHIPPS, MERIDIAN
DRILLING METHOD AND EQUIPMENT CABLE TOOL (BUCYRUS)
WATER LEVELS APPROX 10' BGS START 1-8-97 FINISH 1-16-97 LOGGER G. BROWN

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
10		All samples were grab samples from sand bailer.			Sand and gravel (SP-GP) Poorly sorted sand and angular gravel. Gravel size up to 3 cm. Difficult to characterize formation in detail because the driller added bentonite to the borehole for the first 20 feet to ease drilling.	Drilling/driving 16" temporary surface casing to 19.5' BGS. 0.8' of casing stickup. Borehole has been muddied up with bentonite for this first 20 feet to ease drilling. SWL estimated at 5' BGS by driller. Actual measurement = 9.9' BTSC = 9.1' BGS
20	21	GRAB				Bottom of 16" casing - no drill shoe. E.O.D. - 1/8/97
	23					Drilling/driving 12" casing (0.375" wall) beginning at 20' BGS. Able to drill 5' out past bottom of casing. Drive shoe present on 12" casing. Able to drill out ahead of casing several feet between 29 and 39 feet BGS. End of day → 1/9/97
	25					
	27					
				29'		
30					Silty sand (SM) - light brown, saturated non-cohesive, single grained fine to very fine sand w/ moderate silt content. low to moderate water present.	
	35					
	39			39'		
40	40				Sand (SW) - light brown, saturated, non-cohesive, single grained fine sand w/ slight silt content well sorted	Sand is heaving and borehole won't stay open past end of casing.
	42					
	44					
	47			47'		
	49				Sand (SM) - as above, except more fines (very fine to fine sand w/ moderate silt.)	
50	51					
	53			53'		
	55				Sand (SW-SM) - as above, w/ grading between clean, fine sand and very fine to fine sand w/ moderate to low silt content.	
	59					
60						End' at 61' on 1/10/97.

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SEP 11 1997

01/16/97 THU 12:?? [illegible] 208 343 3315 CH2M HILL 002

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
109195.C4.05	WELL #2	2	2

SOIL BORING LOG

PROJECT WBWTP LOCATION JOPLIN RD., BOISE

ELEVATION ~~28~~ 2580 DRILLING CONTRACTOR DENNIS PHIPPS, MERIDIAN

DRILLING METHOD AND EQUIPMENT CABLE TOOL

WATER LEVELS APPROX 10' BGS START 1-8-97 FINISH 1-16-97 LOGGER G. BROWN

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS: 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	61				61' Sand (SW-SM) - as above	Start of day on 1/13/97
	61-63				64' Sandy clay (ML-CL) - brown, slightly moist, low plasticity, sandy clay	
	65				Sand (SW) - light brown, saturated non-cohesive, single grained, well sorted fine sand w/ low silt content.	Borehole cloudy... won't stay open past bottom of 12" casing.
	67					
70	70					
	72-74				72'	Harder driving casing at 73'
	74				74' Sandy silt (ML) - brown, wet, cohesive	
	76				Sand (SW) - light brown, saturated, clean, moderately sorted, coarse sand w/ very little fines.	Borehole heaving and casing dropping on its own while bailing borehole of sand.
	78				78'	
80	80				Sand (SP) - as above, but poorly sorted fine to coarse grained; clean	
	81					
	83					
	85				85'	
	86				86' Sandy silt (ML) - brown, wet, cohesive	
	89				Sand (SW) - light brown, saturated coarse, clean, moderately well sorted.	End of day → 1/13/97 1/14/97 → Started drilling at 86'
90	91				91'	
	93				93' Sand (SP) - as above, only fine to coarse grained, poorly sorted.	Borehole heaving and casing is dropping on its own while bailing out the sand.
	94					
	97				Sand (SW) - light brown, clean, medium to coarse grained, moderately well sorted.	
	99				99'	
100	101				Sand, medium to coarse as above, only streaked w/ a thin clay lens (2-4") between 99' and 100'. Mostly clean.	End of day at 102' → 1/14/97 Still in heaving coarse sand. 1/15/97 → Started drilling at 102'
	105					MICROFILMED
	107				107'	
	109				109' Silty sand (SM) - light brown, saturated fine to coarse w/ increasing silt (30%)	SEP 11 1997
110	113				Sandy clay (ML-CL) - brown, moist, plastic	→ Free water & sand in clay. Saturated, not tight, viscous
					113' Less plasticity and more sand at 113'	
					Clayey sand (SC) - brown fine to coarse sand w/ moderate clay.	12" casing driven to 115' bgs. Borehole moderately stable.
120					T.D = 115' B.G.S.	WL not static but around 10' BGS

REV

(8/30)

003 CH2M HILL 208 345 5315 JAN-16-97 THU 12:00 PM

Engineers
Planners
Economists
Scientists

CH2M HILL

Boise, Idaho Office
TEL: 345-5310 FAX: 345-5315

F A X

Fax #:	**334-2348**	**Total Pages:**	**10**
To:	**Steve Lester and Rob Whitney**	**From:**	**Garrett Brown, P.G.**
Company:	**Idaho Department of Water Resources**	**Date:**	**January 15, 1997**

Message:

Steve and Rob-

I am faxing you a copy of the soil boring log, to date, for the new production well that is being drilled by Dennis Phipps out at the West Boise Wastewater Treatment Plant. At the end of the day yesterday, January 14, 1997, we were down to 102 feet below ground surface (bgs) and still into coarse sands. Steve, as I had explained to you on the phone yesterday, our hope to screen 40 feet of coarse sand beginning around 75 feet bgs. With a 5 foot long tail pipe, that would have us drilling to approximately 120 feet bgs, providing the formation stays coarse and we don't encounter any clay layer before then. If we do hit a clay layer before 120 feet that is noticeable where we can set the casing into to stabilize the heaving sands, we will stop there. If we feel there is not enough coarse sand below 75 feet to obtain our desired yield of 600 gpm, we would also like to screen some of the finer sands between 40 and 72 feet bgs.

Today, January 15, 1997, we hope to be down to 120 feet bgs. I will send you the remaining soil boring information between 102 and 120 when it becomes available. However, it either will be a continuation of the coarse sand or we will have stopped higher at the first obvious clay layer at least one or two feet thick. We have encountered a few zones below 74 feet where there are clay streaks, but they are so thin (2 to 4 inches probably) that we don't become aware of there presence until seeing bits of clay mixed with the predominant coarse sand during bailing.

I am also faxing you a boring location map and five soil boring logs that were down by CH2M HILL in 1995 for the foundation investigation for the dewatering facility. The five logs (B1-95 through B5-95) indicate that the sandy clay encountered in the new production well boring between 21 and 29 feet is not continuous across the site. Thus, there is probably good hydraulic connection between the surface gravels above the sandy clay and the fine to coarse sands below the sandy clay. No significant clay greater than 3 feet thick was encountered below 29 feet, thus far in the production well boring.

Please give me a call if you have any questions or need any further information.

Sincerely,

Garrett Brown, P.G.

CH2M HILL

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SEP 1 1 1997

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001 CH2M HILL 01/15/97 WED 10:20 FAX 208 345 5315

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
109195.C4.05	WELL #2	1	2

SOIL BORING LOG

PROJECT WEST BOISE TREATMENT PLANT LOCATION JOPLIN RD., BOISE

ELEVATION 2580 DRILLING CONTRACTOR DENNIS PHIPPS, MERIDIAN

DRILLING METHOD AND EQUIPMENT CABLE TOOL (BUCYRUS)

WATER LEVELS START 1-8-97 FINISH LOGGER G. BROWN

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
10		All samples were grab samples from end of bailer.			Sand and gravel (SP-GP) Poorly sorted sand and angular gravel. Gravel size up to 3 cm. Difficult to characterize formation in detail because the driller added bentonite to the borehole for the first 20 feet to ease drilling.	Drilling/driving 16" temporary surface casing to 19.5' BGS. 0.5' of casing stick. Borehole has been backfilled up with bentonite for this first 20 feet to ease drilling. SWL estimated at 5' BGS by driller.
20	21	GRAB				Bottom of 16" casing - no drill shoe. E.O.D. - 1/9/97
	23					
	25					
	27				29' Sandy clay (ML-CL) - brown, slightly moist, dense, low plasticity clay with 10-30% fine sand, minor angular gravel. no water	Drilling/driving 12" casing (0.375" wall) beginning at 20' BGS. Able to drill 5' out past bottom of casing. Drive shoe present on 12" casing. Able to drill out ahead of casing several feet between 29 and 39 feet BGS. End of day → 1/9/97
30						
	35				39' Silty sand (SM) - light brown, saturated, non-cohesive, single grained, fine to very fine sand w/ moderate silt content. low to moderate water present.	
	39					
40	40				47' Sand (SW) - light brown, saturated, non-cohesive, single grained, fine sand w/ slight silt content well sorted	Sand is heaving and borehole won't stay open past end of casing.
	42					
	44					
	47					
	49				53' Sand (SM) - as above, except more fines (very fine to fine sand w/ moderate silt.)	
50	51					
	53					
	55				Sand (SW-SM) - as above, w/ grading between clean, fine sand and very fine to fine sand w/ moderate to low silt content.	MICROFILMED SEP 11 1997
	59					
60						End of day at 61' on 1/10/97.

(8 30)

STANDARD FORM D

01 15 '97 WED 10:21 FAX 208 345 3518 CH2M HILL 002

PROJECT NUMBER	BORING NUMBER	SHEET	OF
109195.C4.05	WELL #2	2	2

SOIL BORING LOG

PROJECT WBWTP LOCATION JOPLIN RD., BOISE

ELEVATION ~~28~~ 2580 DRILLING CONTRACTOR DENNIS PHIPPS, MERIDIAN

DRILLING METHOD AND EQUIPMENT CABLE TOOL

WATER LEVELS START 1-8-97 FINISH LOGGER G. BROWN

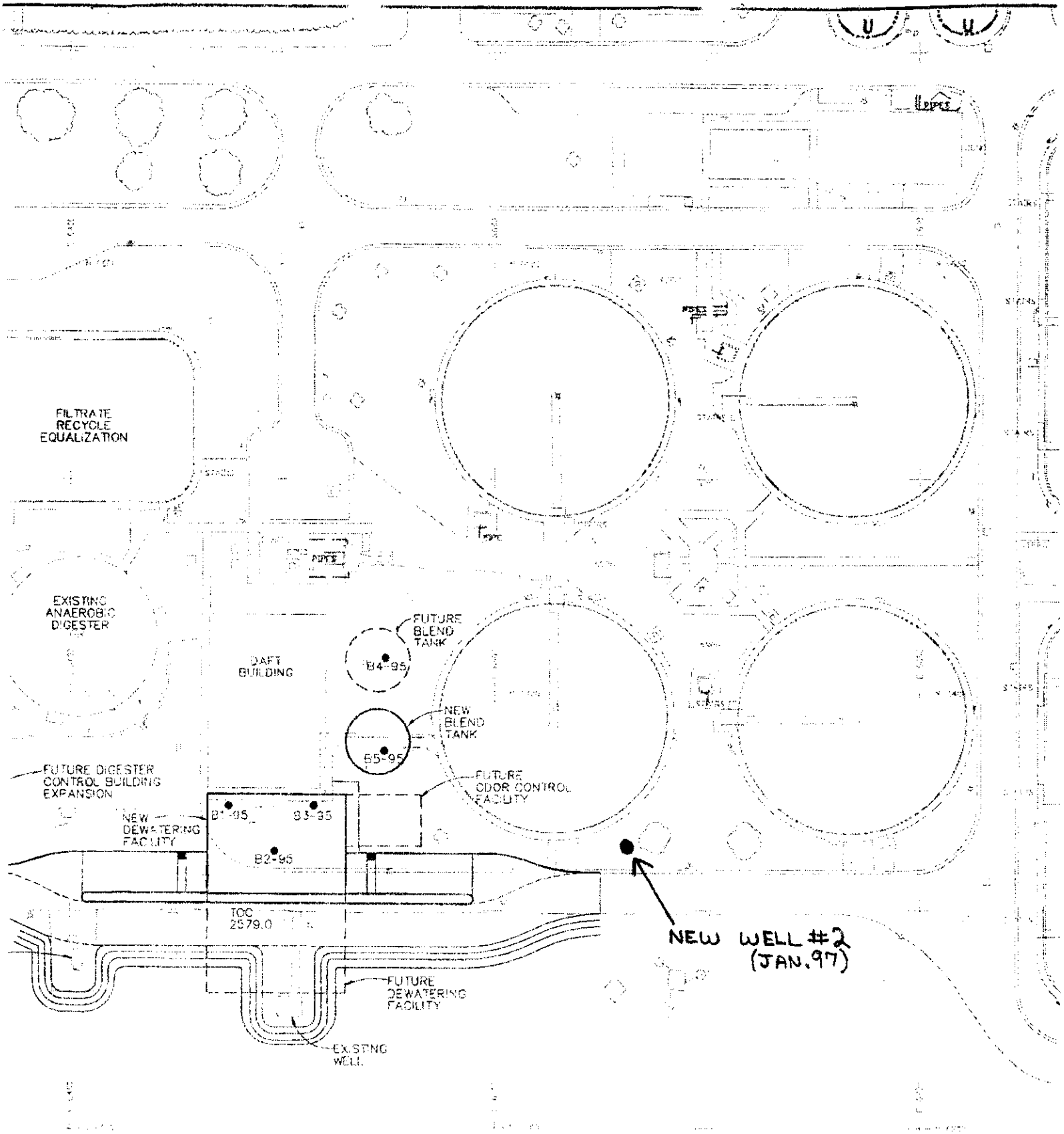
DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	61				61' Sand (SW-SM) - as above	Start of day on 1/13/97
	63-64				64' Sandy clay (ML-CL) - brown, slightly moist, low plasticity, sandy clay	
	65				Sand (SW) - light brown, saturated non-cohesive, single grained, well sorted fine sand w/ low silt content.	Borehole sloughs... won't stay open past bottom of 12" casing.
	67					
70	70					
	72/74				72'	Harder drilling casing at 73'
	74				Sandy silt (ML) - brown, wet, cohesive. 74'	
	76				Sand (SW) - light brown, saturated, clean, moderately sorted, coarse sand w/ very little fines.	Borehole heaving and casing dropping on its own while drilling borehole of sand.
	78				78'	
80	80				Sand (SP) - as above, but poorly sorted fine to coarse grained; clean	
	81					
	83					
	85				85'	
	86				Sandy silt (ML) - brown, wet, cohesive 86'	
	89				Sand (SW) - light brown, saturated coarse, clean, moderately well sorted.	End of day → 1/13/97 1/14/97 → Started drilling at 86'
90	91				91'	
	93				Sand (SP) - as above, only fine to coarse grained, poorly sorted. 93'	Borehole heaving and casing is dropping on its own while drilling out the sand.
	94					
	97				Sand (SW) - light brown, clean, medium to coarse grained, moderately well sorted.	
	99					
100	101				Sand, medium to coarse as above, only interbed w/ a thin clay bed (2-4") between 99' and 100'.	End of day at 102' → 1/14/97 Still in heaving coarse sand.

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(8/90)

01/15/97 WED 10:22 FAX 208 345 3315 CH2M HILL 003



LEGEND:

B2-95 SOIL BORING LOCATION AND NUMBER

Figure 1
WEST BOISE WWTF
BIOSOLIDS DEWATERING FACILITY
SITE PLAN AND BORING LOCATIONS
CITY OF BOISE
BIOSOLIDS DEWATERING FACILITY

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SEP 11 1997

01/15/97 WED 10:23 FAX 208 343 3513 CH2M HILL 004

CH2M HILL

PROJECT NUMBER	BORING NUMBER		
RMW37394.02	B1-95	SHEET 1	OF 1

SOIL BORING LOG

PROJECT WBOI WWTF BIOSOLIDS LOCATION NW BLDG. CORNER

ELEVATION 2575.5 ± (TOPO MAP) DRILLING CONTRACTOR HAZ-TECH, MERIDIAN, ID

DRILLING METHOD AND EQUIPMENT CME 75, H.STEM AUGER

WATER LEVELS 9.2, 3/6/95 (2566.3 ±) START 3/6/95, 0900 FINISH 3/6/95 LOGGER R MOKWA

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0	2.5					Augering thru gravels + sand beginning at ground surface.
	4.0	SS-1	1.0	5-6-6 (12)	POORLY GRADED SAND WITH GRAVEL, (SP) brown, slt. moist, fine to coarse sand, angular gravel, fill, med. dense.	
5	5.0					
	6.5	SS-2	1.0	4-4-5 (9)	POORLY GRD. SAND WITH GRAVEL (SP), Fill. Same as above	
	7.5					
	9.0	SS-3	0.6	5-5-4 (9)	PRLY GD SAND WITH SILT, (SP-SM) moist, loose, med. grained, brown, fill.	(P#200 = 11.5%) Water at 9.2'.
10	10.0					
	11.5	SS-4	0.4	4-3-5 (8)	PRLY. GD. SAND WITH SILT, (SP-SM) moist, loose, med. grain w/ occnl. broken gravel, brown, fill.	Smooth augering 10' to 20' no gravels.
15	15.0					
	16.5	SS-5	0.2	(2)	PRLY. GD. SAND, (SP), brown, wet, v. loose, med. grain.	Augering thru sand to 20'.
20	20.0					
	21.5	SS-6			No sample. Three feet of sand heave in bottom of hole.	
					Bottom of Hole @ 20'.	Backfilled hole with bentonite hole plug.

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SEP 11 1997

(8.30)

REV 11/89 FORM D1586

01/15/97 WED 10:24 FAX 208 345 5315 CH2M HILL 003

CH2M HILL

PROJECT NUMBER	BORING NUMBER		
RMW37394.D2	B2-95	SHEET 1	OF 1

SOIL BORING LOG

PROJECT W80I WWTF BIOSOLIDS LOCATION BLDG. CENTER

ELEVATION 2576.5± (TOPO MAP) DRILLING CONTRACTOR HAZ-TECH MERIDIAN, ID

DRILLING METHOD AND EQUIPMENT CME 75, H. STEM AUGER

WATER LEVELS 9.8', 3/6/95 (2566.7±) START 3/6/95, 1000 FINISH 3/6/95 LOGGER R. MOKWA

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0	2.5					Augering thru gravels + sand
	4.0	SS-1	0.8	6-6-14 (20)	POORLY GD. SANDY GRAVEL, (GP-GM), brown, moist, med. dense, fine to med. sand, broken gravel, with silt.	
5	5.0					(P#200 = 5.5 %)
	6.5	SS-2	0.8	5-17-17 (34)	POORLY GRADED GRAVEL WITH SAND AND SILT, (GP-GM), similar to above, fill.	Slow augering thru gravels and cobbles.
	10.0					Water meas'd. @ 9.8'
10	11.5	SS-3	0.6	7-8-7 (15)	PRLY. GD. SANDY GRAVEL, (GP), gray, wet, med. dense, med. to coarse sand, subrounded gravel.	out of gravels and into sand 12' to 15'
15	15.0					
	16.5	SS-4		4-2-3 (5)	SAND, no recovery.	
20					B.O.H. @ 16.5'	Backfilled hole with bentonite hole plug

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SEP 1 1 1997

006 CH2M HILL 01/15/97 WED 10:24 FAX 208 345 3315

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
RMW37394.02	B3-95	1	1

SOIL BORING LOG

PROJECT WBOI WWTF BIOSOLIDS LOCATION NE BLDG. CORNER

ELEVATION 2575.5 ± (TOPO MAP) DRILLING CONTRACTOR HAZ-TECH, MERIDIAN, ID

DRILLING METHOD AND EQUIPMENT CME 75, H.S. AUGER

WATER LEVELS 9.5, 3/6/95 (2566.0±) START 3/6/95, 1100 FINISH 3/6/95 LOGGER R. MOKWA

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0	2.5					
	4.0	SS-1	1.1	6-6-7 (13)	POORLY GRADED SAND, (SP), brown, moist, med. dense, occnl. gravel, Fill.	Augering thru gravels and cobbles; slow advancement. (P.#200 = 6.0 %)
5	5.0					
	6.5	SS-2	0.7	10-4-7 (11)	POORLY GRD. SAND WITH GRAVEL AND SILT, (SP-SM), tan, slt. moist, fine-med. sand, broken angular gravel, Fill.	Meas'd. water @ 9.5'
10	10.0					
	11.5	SS-3	1.0	25-50/4"	PRLY. GD. SANDY GRAVEL, (GP), tan, moist, v. dense, fine to med. sand, broken gravel	V. slow advancement, grinding on cobbles and thru gravels. Driller reports a softer zone from 13.5' to 15'
15	15.0					
	16.5	SS-4	1.2	7-14-22 (36)	PRLY. GD. SANDY GRAVEL, (GP), brown, wet, dense, fine to med. sand, round broken gravels.	Backfilled hole w/ bentonite hole plug.
					B.O.H. @ 16.5'	
20						

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SEP 11 1997

REV 11/89 FORM D1586

(8.30)

01/15/97 WED 10:25 FAX 208 345 3315 CH2M HILL 007

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
Rmw37394.02	B4-95	1	1

SOIL BORING LOG

PROJECT W30Z WWTF BIOSOLIDS LOCATION Future Blend Tank Location

ELEVATION 2577.5 ± (TOPO MAP) DRILLING CONTRACTOR HAZ-TECH, MERIDIAN, ID

DRILLING METHOD AND EQUIPMENT CME 75, H. STEM AUGER

WATER LEVELS 10.3, 3/7/95, (2566.7±) START 3/6/95, 1215 FINISH 3/6/95 LOGGER R. MOKWA

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0	2.5					
	4.0	SS-1	1.5	6-15-7 (22)	POORLY GRADED SANDY GRAVEL FILL, (GP), brown, moist, med. dense, fine sand, angular gravel;	
5	6.5	SS-2	1.5	6-7-8 (15)	PRLY. GD. SANDY GRAVEL FILL, (GP) Same as above.	
	10.0					Installed 2" ϕ pvc. piezo. Bottom at 24' (P#200=8.5%) 5' of .002 screen to 19' 20' of solid riser 1.2' of stickup above G.S. Backfilled with sand to 18' bgs and granular bentonite to top of hole.
10	11.5	SS-3	1.3	3-5-12 (17)	POORLY GD. SANDY GRAVEL, (GP-GM) brown, wet, med. dence, fine to med. grained sand, broken rounded gravel, with silt.	
15	15.0					Meas'd water at 10.8' in piezo on 3/7/95.
	16.5	SS-4	1.5	10-27-38 (60)	POORLY GRADED SANDY GRAVEL, (GP), v.dense, same as above.	
	20.0					measured water at 19.3' at completion of drilling (not a stabilized value)
20	21.5	SS-5	1.3	8-28-39 (67)	POORLY GD. SANDY GRAVEL, (GP), brown, wet, v.dense, med.-coarse sand, broken round. gravel.	Driller reports smooth drilling at 23'.
	25.0					
25	26.5	SS-6	1.5	9-17-18 (35)	SILTY SAND, (SM), lt. brown, moist, dense, fine sand, slt. plast. silt.	Pocket penet.: 3.5 to 4.0 tsf Torvane: 0.45 tsf (P#200=38.6, Mc=21.1% PI=7, LL=29)
					B.O.H. @ 26.5	
30					SEP 11 1997	

(8.30) REV 11/89 FORM D1586

008 01/15/97 WED 10:26 FAX 208 345 5315 CH2M HILL

CRM HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
Rmw37394.02	BS-95	1	2

SOIL BORING LOG

PROJECT WWTF Biosolids LOCATION Blend Tank

ELEVATION 2577.0± (Topo map) DRILLING CONTRACTOR HAZ-TECH, Meridian, ID

DRILLING METHOD AND EQUIPMENT CME 75, H.S. STEM AUGER

WATER LEVELS 11.0, 3/6/95, (2566.0±) START 3/6/95, 1420 FINISH 3/6/95 LOGGER R. Mahrt

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0						Augering thru gravels
	2.5					
	4.0	SS-1	1.0	9-13-17 (30)	POORLY GRADED SANDY GRAVEL, FILL, (GP), brown, moist, med. dense, fine-med. sand broken subang. gravel.	
	5.0					
5	6.5	SS-2	1.0	8-12-22 (34)	POORLY GD. SANDY GRAVEL, (GP), Same as above.	
	10.0					Augering thru gravel+cobble, slow advancement
10	11.5	SS-3	0.3	50/5"	POORLY GD. SANDY GRAVEL, (GP), Same as above.	Water measd at 11.0' at completion of drilling.
	15.0					
15	16.5	SS-4	0.4	26-50/4"	POORLY GD. SANDY GRAVEL, (GP), it brown wet, v. dense, med.-coarse sand, rounded gravel.	
	20.0					
20	21.5	SS-5	1.5	24-28-35 (63)	PRLY GD. SANDY GRAVEL, (GP), Same as above.	
	25.0					
25	26.5	SS-6	1.0	7-20-20 (40)	POORLY GRADED GRAVEL WITH SILT AND SAND, (GP), it. brown, wet, dense, med.-coarse sand, slt. plast. silt, rounded gravel.	Driller reports strata change from gravel to sand at 27'.
					MICROFILMED SEP 11 1997	
30					Cont'd.	

REV 11/89 FORM 01586

(8 30)

01/15/97 WED 10:27 FAX 208 345 5315 CH2M HILL 009

PROJECT NUMBER [redacted]

BORING NUMBER B5-95 SHEET 2 OF 2

SOIL BORING LOG

LOCATION Blend Tank

DRILLING CONTRACTOR HAZ-TECH, MERIDIAN, ID

EQUIPMENT CME 75, HSA STEM AUGER

DATE 3/6/95 START 3/6/95 FINISH 3/6/95 LOGGER R.M.

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMSOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
30	30-32	SS-[illegible]	1.5	10-18-23 (41)	SILTY SAND, (SM), tan, moist, dense, fine sand, slt. plastic silt	Pocket penet. [illegible] = 2.5 tsf Tor[illegible] = 0.3 tsf
35	35-37	SS-[illegible]	[illegible]	22-36-50/5" (86/11")	POORLY GD. SAND WITH SILT, (SP-SM), tan, wet, v.dense, med. grain. Sand, slt. plastic silt, small gravel pieces @ end of spoon.	[illegible] 40' [illegible] Sand
					B.O.H. @ 40'	[illegible]

[illegible]

SEP 1 1 1997

01 15 97 MON 10:25 FAX 208 345 2315

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720-9000
Phone: (208) 327-7900 FAX: (208) 327-7866

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

February 10, 1997

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 83701-0500

RE: PERMIT NO. 63-12312

Dear Water Right Holder:

Enclosed is an Order which changes Conditions of Approval for nos. 14 and 15 for the above referenced permit.

Please contact the Department if you should have any questions.

Sincerely,

L. GLEN SAXTON, Chief
Water Allocation Bureau

LGS/pah

MICROFILMED
FEB 27 1997

CERTIFICATE OF MAILING

I hereby certify that on the **10th** day of **February, 1997**, I mailed a true and correct copy, postage prepaid, of the foregoing **ORDER** to the person(s) listed below:

WATER RIGHT NO. 63-12312

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 83701-0500

Patti Harrell

Patti Harrell, Secretary

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720-9000
Phone: (208) 327-7900 FAX: (208) 327-7866

October 17, 1996

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 83701-0500

PERMIT APPROVAL NOTICE

RE: PERMIT NO. 63-12312

Dear Permit Holder:

Enclosed is a copy of your approved application for permit. Please be sure to thoroughly review the "Conditions of Approval and Remarks" listing on the permit.

Enclosed is a form entitled "Instructions for Proof of Beneficial Use". Please read the instructions carefully since you must take further action to develop this permit into a licensed water right. Also enclosed is a form entitled "Proof of Beneficial Use". If your project is already completed, you should complete and submit this form immediately.

If a well has not already been constructed you are required to obtain a "drilling permit" from the department. The right to drill a well is not a part of this permit to appropriate water.

Also, please note that as of July 1, 1996, water right owners are required to report any change of water right ownership and any change of mailing address to the department. If you have acquired a water right or have changed your mailing address PRIOR TO July 1, 1996, you have until July 30, 1998, to notify the department. If you acquire a water right or change your mailing address AFTER July 1, 1996, you must notify the department within 120 days of the change.

Failure to report these changes could result in a $100 late filing fee. Contact any office of the department to obtain the proper reporting form.

Sincerely,

Shelley Watte Keen

Shelley W. Keen
Water Rights Supervisor

SK:ph

Enclosures

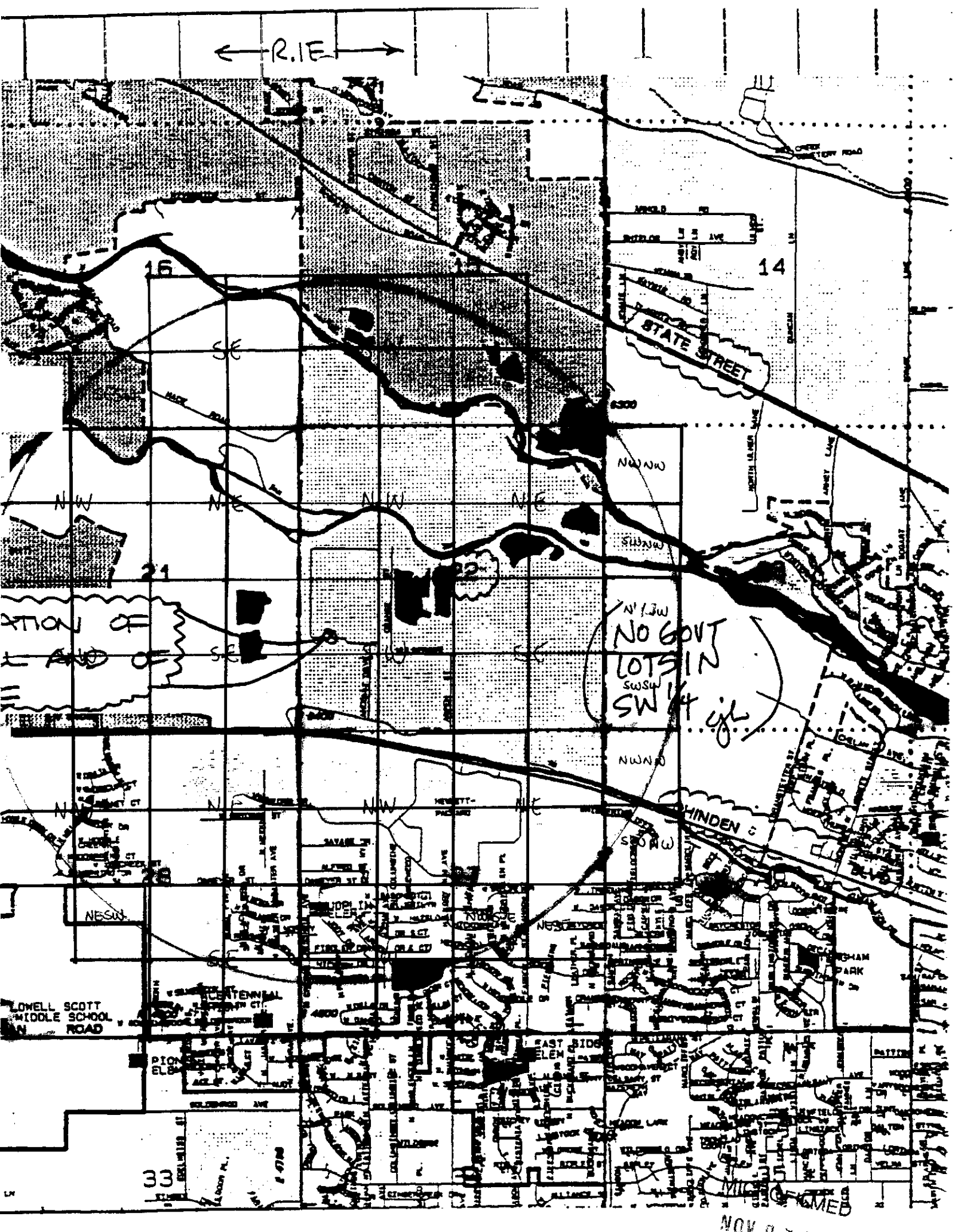
MICROFILMED
NOV 0 7 1996

(WATER RIGHT NUMBERS THAT BEGIN WITH AN '*' ARE ADJUDICATION CLAIMS)
(QUARTER-QUARTERS WITH A '?' HAVE DIFFERENT ACREAGE AMOUNTS--CHECK THE DATA BASE RECORDS)

		NE				NW				SW				SE				
		NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
WR-NUMBER	SOURCE	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	Lt Ac	SUM
P6312312	T04N R01E S22	GROUNDWATER									X							
6300139	BOISE RIVE			07-I				05-I	06-I	I					11-I			
6300140	BOISE RIVE			07-I				05-I	06-I	I					11-I			
6300142	BOISE RIVE			I											I			
6300143	BOISE RIVE													10-I	I	I	I	
A6300146	BOISE RIVE	07																7
6300210	BOISE RIVE											I						
A6300210	BOISE RIVE											35						35
6300211	BOISE RIVE															I		
A6300211	BOISE RIVE											35						35
6300221	BOISE RIVE												I					
A6300221	BOISE RIVE												37					37
6300270	BOISE RIVE		02-I			03-I	04-I											
A6300270	BOISE RIVE	02-12	02-30	07-15	09-16	03-36	04-36	05-02	06-15									162
6302111	UNNAMED ST											05						5
6302387	BOISE RIVE												38	10-18		30	40	126
A6302387B	BOISE RIVE												38	10-18		30	40	126
6302406	WASTE WATE	10																10
A6302406	WASTE WATE	10																10
6302555	JUNCTION D																	
A6302555	JUNCTION D																	
6303060	GROUNDWATE																	
6309681	GROUNDWATE											01						1
A6309681	GROUNDWATE											01						1
6311487	GROUNDWATE	01-04	02-04	07-04	09-04	03-04	04-04	05-04	06-04	04	04	04	04	10-04	11-04	04	04	64
A6318785	BOISE RIVE	07																7
A6319084	BOISE RIVE												38	10-18		30	40	126
A6330125	BOISE RIVE			07-04				05-20	06-21						11-16			61
A6330129	BOISE RIVE													11	23			34
A6330131	BOISE RIVE			04				40	21	40					16			121
PLSS DATA	LEGAL LOOK	01	02	02	01	03	04	05	06									
PLSS DATA	LEGAL LOOK			07	08													
PLSS DATA	LEGAL LOOK				08									08				
PLSS DATA	LEGAL LOOK	09												08				
PLSS DATA	LEGAL LOOK	09			09													
PLSS DATA	LEGAL LOOK				09									10				
PLSS DATA	LEGAL LOOK													10	11			
PLSS DATA	LEGAL LOOK														11			
--86 MAP--	C1Q-X 8									27	29	42	37			42	40	217
NO QTRS	MAPPING	Lot01-08	Lot02-22	Lot03-34	Lot04-35	Lot05-23	Lot06-19	Lot07-14	Lot08-02	Lot10-25	Lot11-40							

63-11487 City of Garden City; pod 4N 1E 27 NENE

MICROFILMED
NOV 0 7 1996


R.1E
16
14
STATE STREET
NW NE NW NE
21
22
NO GOVT LOTS IN SW¼
SW SW
HINDEN
LOWELL SCOTT MIDDLE SCHOOL
ROAD
ECCENTENNIAL
33

NOV 07 1996

S15	NESW	63-00258A	BOISE RIVER
	NWSW	63-00198AA	BOISE RIVER
	SWSW	63-00234	BOISE RIVER
		63-00235	"
		63-00236	"
		63-00237	"
		63-00238	"
		63-00239D	"
	NWSE	A63-15014	WASTE & SEEPAGE
	SESE	63-11954	POND (ON MORATORIUM HOLD)
S16	SWSW	63-09421	BOISE RIVER
		A63-09421	"
		A63-00132	MACE CATLIN DITCH
		A63-00133	"
		A63-00382A	BOISE RIVER
		A63-00382B	MACE CATLIN DITCH
	SESW	63-00132K	BOISE RIVER
		63-00133K	"
		A63-00132K	"
		A63-00133K	"
	NESE	A63-00195	"
		A63-00198AA	"
		A63-00234	"
		A63-00258A	"
		A63-00260B	"
		A63-00264	"
		A63-00285	"
		A63-15238	"
	SWSE	A63-00196	"
		A63-00197	"
S21	NENE	A63-00144B	"
	SENE	A63-00144A	"
		A63-00182	"
S22	?	A63-00192	
		A63-00216C	"
		A63-02387A	DRAIN
		A63-19425	BOISE RIVER
	NENE	63-11954	POND (ON MORATORIUM HOLD)
	SWNE	A63-00270	BOISE RIVER
	SENE	A63-16686	UNNAMED POND
	SENW	63-00220	BOISE RIVER
S23	SWNW	A63-00270	"
S27	NWNW	63-02111	UNNAMED STREAM
		63-02574	"
	SENW	63-03433	UNNAMED DRAIN
S28	NESE	63-02807	UNNAMED STREAM

MICROFILMED
NOV 0 7 1996

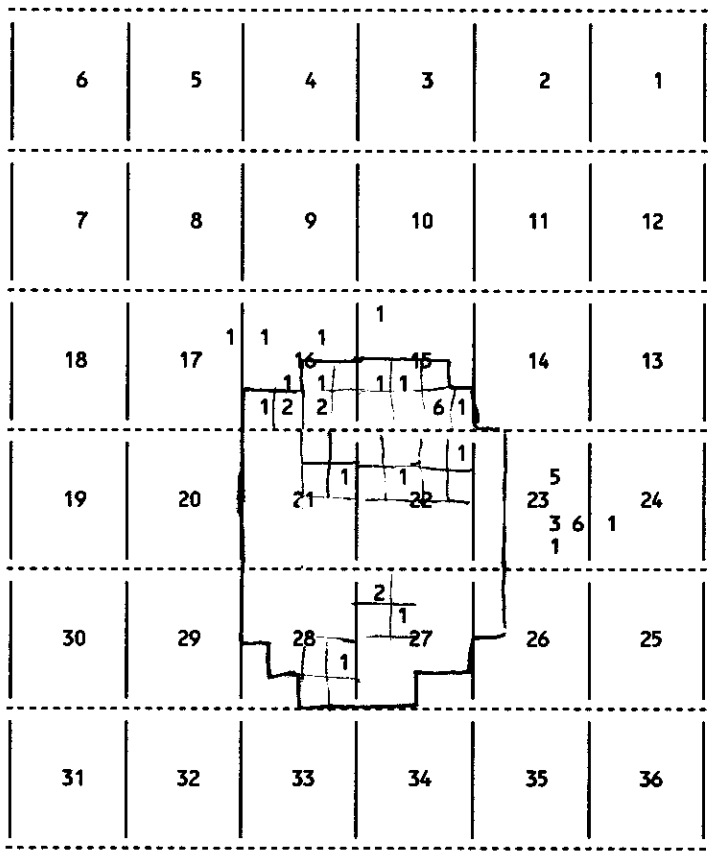
WR5822NP

Idaho Department of Water Resources
PoD/PoU Map Report

Date: 09/27/96
Time: 14:26:32
Page: 1

Map Of: POD

Township: 04N Range: 01E



* Indicates more than 9 PoDs/PoUs in that Quarter/Quarter

S15 NESW 63-00258A - Boise R.
NWSW 63-00198AA - Boise R.
SWSE 1) 63-0234
2) 63-00235 "
3) 63-00236 "
4) 63-00237 "
5) 63-00238 "
6) 63-00239D "
SESE 63-11954 - Pond (Maintenance)

S16 SWSW 63-09421 - Boise R.
SESW 1) 63-00132K - Boise R.
2) 63-00133K "

S21 SWNE

S22 NENE 63-11954 (Appl.) - Pond
SENW 63-00220 Boise R.

S27 NWNW 1) 63-02111 - Unnamed Str. Tributary Boise R.
2) 63-02574 - Unnamed Str. Trib. to Boise R.
SENW 63-03433 - Unnamed Drain / Boise R.

S28 NESE 63-02807 - Unnamed Str. / Boise R.

MICROFILMED

RECEIVED
SEP 24 1996
Department of Water Resources

INTER-DEPARTMENT MEMO--1

FROM Steve Lester

DATE 9/23/96

TO File 63-12312

SUBJECT WATER RIGHT & DRILLING Permit Approvals

RECOMMEND FOR APPROVAL
- SEE 8/14/96 letter + mitigation plan.
- " my 9/23/96 " plus 5th revised sheet conditions.
- water zone 40-80' plus above 1st confining layer.
- Account for "water in - water out" (to river).
- Keep watermaster control for future needs.
- public interest - yes.
- Non-consumptive only.

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NOV 07 1996

SIGNATURE

EXPEDITED PROCESSING REQUESTED - CALL ME ASAP if mitigation plan problems

APPLICATION FOR PERMIT
STATE OFFICE REVIEW
by Cindy Zimmerman

No.: 63-12312 **Name:** City of Boise - PWD. **Date:** 9/2 **Ad OK?** ✓
Correct Fee? ✓ **Receipt #:** ~~W020278~~ W020413 **Priority:** ~~11/9/96~~ 2/15/96 **✓ Gvmt Lts:** ✓

AREA OF CONCERN? mitigated - No/Yes BRD Mor _____ GWMA Trust/Non-trust
PROTESTED: - 020(Protest Agr) or W19(See Final/Prelim Order)
SYSTEM COMPLETED:
- Yes/proof filed - ~~NA~~
- 1 year/no proof - **P16**
- +1 year - ~~26A-P17~~

GROUNDWATER: <✓ *FLO-CH*>
- + 0.2 cfs - 01M
- =/- 0.2 cfs - No MD
- =/+ 5 a. - 01M, 065(if GW use SW 1st)

Drilling Permit:
- Existing well - NA (pre 7/1/87)
- Included w/permit - Permit No. ___-___-___-____-____, **P99**
- No WD permit? - ~~46-~~6B-**P23** (post 7/1/87)
  - irr. in WD - **P05** (new well)

SURFACE WATER <✓ *FLO-CH*>(Surface water that *doesn't sink* is regulated):
- Water District(~~dom~~) - 005 (*req*) WD #_____ <SEE MAP & LISTING>
  - + 0.2 cfs - 01J(meas dev)-**P08**
  - =/- 0.2 cfs - 01H(lock dev)-**P01** or No MD
- ~~In WD~~ + 0.2 cfs - 01M or No MD (in-stream)
  - - 0.2 cfs - No MD
  - =/+ 5 a. irr. - 01M

RIVER BASINS (*Surface water):
- Snake R (01) - 11A-**P04**, NA
  - (02/03-irr) - 007-**P07** (w/remark WB9-↑ Weiser), NA
- Boise R (63) - 05A (if ~~WD~~), 11E (not 42-111 use), NA
- Payette R (65) - 064(regulated uses), 047-**P04**(Payette Lake), NA

USE:
- Domestic *(surface)* - *WB5(Boise R ↑ Star Bridge); 27A(Payette R); NA
- Fish Propagation - 07A-042(*rq*)-010/06A/09E(WQ)-**P10**;044(N 1000 Spr)
- Irr <*POU*> =/- 5 a - 057 (0.03 cfs/A)
  - + 5 a - 03A (0.02 cfs/A)
- Mining - 054 (*req*) & 06A/010/09E-**P10**
- Power - 08A-17K-025-027-028-01F(**P19**)-09E(**P10**); +25 cfs-**P18**; 17G(FERC) or 17M(~~FERC~~); 18B-**P09**
- Storage*(✓ 3 compo.)* - 18A(multi MD in WD), 18B-**P09** (+10′ dam), *W07

LOCATION:
- 42-248 area - In 20/30/40/50/60/70/80 (~~87~~) basin? **P84**
- Boise Front LoGeo - ~~P58~~ (-85° GW temp only)
- In-stream dev. - **P52** (stream channel alteration)
- Irr Dist/Canal Co. - 023 (Twin Falls area)
- Swan Falls Flag - ~~_____~~ <SEE CODE CHART>
  - Trust - 051-052-053-**P74** (Consumptive Uses), NA
  - Non-Trust <1> - 048-049 (Consumptive Uses), NA

OWNERSHIP: Non-land owner - 004 (PD/PU)
OTHER CONDITIONS: - ~~027~~ ~~05~~ ~~0D~~ 013
STANDARD REMARKS: - #2 land use / waste treatment plant.
① W32/NWSW, S22, T4N, R01E
BENEFICIAL USE DUE: - 10-1-1997
COMMENTS: -

~~BASIN 63 DELAY~~
~~DO NOT ADVERTISE~~

Form No. 202a.
1/95

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPROPRIATION APPLICATION ANALYSIS SHEET

OK TO ADVERTISE
8/5/96 cjl

INITIAL REVIEW BY: cjl DATE: 1-30-96 APPLICATION: 63-12312

REQUIRED INFORMATION

- Name: (If applicant is a corporation or partnership, names and addresses for the director, officers, and other partners must be included.)
- Address:
- Source: (See USGS Quad for names of water sources)
- Point of Diversion: (10 acres for spring, lot & block descriptions for Subdivisions, local name)
- County:
- Quantity: (flow and/or volume)
- Period of use:
- Nature of proposed use: (Include description of use)
- Description of diverting works:
- Time required for beneficial use of water:
- Place of use or acres irrigated:
- Map: (show T, R, S, QQ &/or QQQ)
- Subdivision plat: (for > 1 home in restricted area. ≥ 5 homes in non-restricted area)
- Signature: (If applicant is corp., partnership, or municipality, title of signatory is required)
- Fee: $85 rec'd $55 due for rate — OK 2-15-96 DATA ENTRY *
- Yes ____ No* In form to receipt:

Gov't. Lots:
P/D
P/U

TEMP Right = ~~For~~ Changed to P 8/5/96 cjl
COMMENTS = Processing delayed pending BASIN 63 backlog Reduction.

ADDITIONAL INFORMATION

YES	NO	
		Overlapping place of use: (Describe source & relationship to present application on the back.)
		Overlapping point of diversion:
		Field check required: Field check by: _____
		Field report attached:
		Critical groundwater area:
		Groundwater management area:
DELAY		1992 moratorium: LETTER SENT 1/29/96 cjl
		Copy to SCA staff: (perennial stream, non-pump diversion)
		Copy to Dam Safety staff: (for any storage)
		Basin 63 mitigation plan: (where ground water replaces surface water for irrigation, request additional information &/or mitigation plan to address reduced aquifer recharge)
		Send power requirement letter:
		Send fish farm requirement letter:
		Power residency affidavit:
		Power efficiency form:
		Diversion greater than 5 cfs or 500 af or irrigation greater than 200 acres: (If yes, attach Large Diversion supplementary analysis sheet.)
		*REQUEST ADDITIONAL INFORMATION FROM THE APPLICANT

Additional fees. See letter

DATE REQUESTED: 1-29-96

Additional information on reverse side:

* to be CHANGED upon Advertising; Also include WATER

PROCESSING APPLICATION N° 63-12312

YES NO

\ \ In form for advertising:
\ \ Statewide advertising: (> 10 cfs &/or 1000 af)
\ \ Fee amount, receipt number and date recorded on application:

SEND COPIES TO

YES NO

\ I.D. Health and Welfare
\ I.D. District Health
\ I.D. Fish and Game
\ I.D. Lands
\ Adjudication Bureau

YES NO

\ U.S. BLM
\ U.S. Forest Svc.
\ Water Dist. # _____
\ Other _____

IF APPLICABLE - COMMENT LETTERS NOT SENT UNTIL ADVERTISING OCCURS

FINAL REGIONAL PROCESSING REVIEW

YES NO

✓ ___ Affidavit of publication received:
✓ ___ Application published correctly: If not, record action taken.

Publication dates and paper recorded on application:
___ ✓ Protests received. Final date for protest 9-3-96
___ N/A Protest dates, resolution of protest recorded on application:
✓ ___ Recommendations attached: } See my 9/23/96 letter p/ms
✓ ___ Measuring device required: }
___ ✓ Measuring port required:
___ ✓ Water delivered by water master? District # Boise R. #63 - see below cond.
✓ ___ Special conditions of approval or cover letter:

Water bearing zone = 40-80' per legal notice & R. Bousfield's 2/16/96 letter; 004 (consult for piping water to river, access); 27; 46; 002 (measure rate/volume in, measure at least volume out); 005 (may need for future regulation); return flow SCA already covered NPDES permit?

___ ✓ See below for additional information

Recommended Date or Priority Delayed to 2-15-1996 per final fee payment
Recommended by: RZ Date 9/23/96

STATE OFFICE REVIEW

___ See below for additional information. By _____ Date _____

ADDITIONAL INFORMATION

63-8125 City of Boise license for WAQ. P(D = P/u overlap

63-11487 City of Garden City municipal right P/u only (permit)

State of Idaho
DEPARTMENT OF WATER RESOURCES
Western Region, 2735 Airport Way, Boise, Idaho 83705-5082 - (208) 334-2190
FAX (208) 334-2348

September 23, 1996

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

ROBERT J BOUSFIELD P E
BOISE PUBLIC WORKS DEPT
PO BOX 500
BOISE ID 83701-0500

RE: APPLICATION NO. 63-12312, BIOSOLIDS DEWATERING FACILITY

Dear Robert:

Thank you for submitting the mitigation plan for the above-referenced water right application that includes two wells for the West Boise wastewater treatment plant.

The plan appears to sufficiently address the mitigation of water development within the lower Boise River basin. I am forwarding the application to the central office of the department with a recommendation to approve the proposal subject to conditions of approval. *

Such conditions will most likely include the following items in one form or another but may not be limited to just these concepts:

1. acceptable measuring device to record rate of flow and total volume pumped from well(s);

2. acceptable measuring device to record at least total volume delivered from site into Boise River;

3. well construction to be limited to that zone above the first confining layer encountered; and

4. annual water measurements to be reported to the department based upon a need identified by the director.

I anticipate that the department's decision for this application should take another few weeks. Please let me know if you need any assistance in this matter during this period.

Sincerely,

Steve Lester

Steve Lester
Deputy Regional Manager

* Public interest basis to approve - similar to treatment fac. & Meridian for St. Luke's permit: well for new facility approved within Bx. 63 monitoring in last couple of years.

MICROFILMED
NOV 07 1996

PUBLIC WORKS DEPARTMENT
CITY HALL
4TH FLOOR

BOISE
CITY OF TREES

H. BRENT COLES
MAYOR

COUNCIL MEMBERS

CAROLYN TERTELING
COUNCIL PRESIDENT
MIKE WETHERELL
COUNCIL PRO TEM
SARA BAKER
PAULA FORNEY
ANNE STITES HAUSRATH
M. JEROME MAPP

August 14, 1996

Idaho Dept. of Water Resources
Attn: Steve Lester
2735 Airport Way
Boise, ID 83705

RECEIVED
AUG 16 1996
WATER RESOURCES
WESTERN REGION

extra cc kept e Region for mitigation file -SL

Re: Water Rights Application #63-12312
Boise Public Works / Biosolids Dewatering Facility

Dear Steve:

As we discussed on August 5, enclosed are two copies of a Water Mitigation Plan for the referenced water rights application.

The water is needed for the new Biosolids Dewatering Facility at the West Boise wastewater treatment plant. The facility will benefit the environment and is in the best interest of the public. As the plan indicates, we believe that the water use proposed is non-consumptive and will not degrade the aquifer.

We request that you proceed with approval of the water rights application. Approval of the application this fall would allow us to complete the wells, etc. in time for the scheduled start-up of the facility next spring.

Feel free to contact me at 384-3914 if you have any questions. Thank you for your assistance.

Sincerely

Robert J. Bousfield, PE
Project Manager

Enclosure

cc: Chuck Feast - CH2M HILL
Cindy Hodges - IDWR
CF\SF - CSP 687

MICROFILMED
NOV 07 1996

I:\USERS\RBOUSFIE\DWP\DEWATER\DEWWAT3
8/14/96

RECEIVED
AUG 16 1996
WATER RESOURCES
WESTERN REGION

WATER MITIGATION PLAN

FOR

BOISE PUBLIC WORKS

BIOSOLIDS DEWATERING FACILITY

WEST BOISE WASTEWATER TREATMENT PLANT

WATER RIGHTS APPLICATION #63-12312

August 14, 1996

MICROFILMED
NOV 07 1996

2.70 cfs max. rate filed on ✓

PART I - DESCRIPTION OF PROPOSED USE

Background: In late 1995, Boise Public Works submitted a permit application for 1.0 cfs of groundwater (daily average) to be utilized for a new Biosolids Dewatering Facility at it's West Boise wastewater treatment plant. In early April 1996, we became aware that such permit applications were on hold until some data becomes available from the Treasure Valley Groundwater Study, which is expected in 12-18 months. Because the facility is currently under construction and is scheduled to be completed in April 1997, we are submitting this mitigation plan and seeking approval of the permit now so that use of the facility will not be delayed.

Hydrogeologic Setting: Soil borings taken at the site consistently show the shallow geology to be cobbles, gravels and sand to 30 ft. below grade. This is true from the proposed well location to the river (1,700 ft. away). Well logs from two deep wells on the site indicate that this material continues to at least 90 ft. below grade.

Groundwater levels at the site are thought to be influenced by the river. High pumping rates required to dewater indicate that the shallow soils have a high hydraulic conductivity. Both the geology and this dewatering experience suggest that a strong hydraulic connection to the river exists.

A Foundation Investigation Report, completed by CH2M HILL in 1995, is attached as Appendix A for additional information on soil borings, water levels, etc. The deep well boring logs are attached as Appendix B.

Summary of Process: The Biosolids Dewatering Facility is being constructed to dewater biosolids (ie: sewage sludge removed during the treatment process) before hauling to a farm for land application. Biosolids from both the West Boise and Lander Street plants will be pumped into a blend tank, then pumped to belt filter presses which will dewater the biosolids from approximately 2% solids to 16% solids. Polymer is batched from a dry powder, diluted and mixed with the biosolids upstream of the belt filter presses to facilitate dewatering.

Process water is needed to wash the filter press belts, for truck bay and building washdown, for mixing polymer solution, for diluting the polymer solution, and for miscellaneous uses such as cooling water, pump seal water, etc. Process water is also needed for a gravity belt thickener, which is similar to the belt filter presses but only dewaters the material to 6% solids.

Note that washwater and water removed from the biosolids is returned to the head of the plant for treatment and discharge to the Boise River under the plant NPDES permit. Calculations of projected water use and water return are attached as Appendix C.

Also note that options for utilizing treated water from the plant were considered and rejected because the water quality does not match process requirements.

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Proposed Pumping System: Groundwater is proposed to be extracted from two 10" diameter wells up to 80 ft. deep, each with a 600 gpm pump. The depth of the wells will be determined during drilling; they will only be constructed deep enough to ensure adequate production. Note that though the total pumping capacity is 2.7 cfs, the daily average use will be at or below 1.0 cfs.

Based on soil borings and deep well logs, it is anticipated that the wells will not be installed through a confining unit and that water will be extracted from the shallow water bearing unit.

Suggest on completion of approval

PART II - MITIGATION

Water Return: As noted above, washwater and water removed from the biosolids will be returned to the head of the plant, treated, and discharged to the Boise River under the plant NPDES permit.

Estimated quantities of water use and water return have been calculated (see Appendix C). These calculations show that, while 576,000 gal/day will be removed from the aquifer, 707,000 gal/day will be returned to the river.

Benefit to Aquifer: Water use and return calculations show that facility will return over 20% more water to the Boise River than it will extract from the aquifer, and that the use is non-consumptive.

While water is not returned directly to the aquifer, water is returned to the nearby river, which is hydraulically connected to the aquifer. This return to the river benefits the aquifer both by recharge and by providing surface water for downstream uses (thereby reducing the demand on the aquifer).

PART III - CONCLUSION

Boise Public Works believes that the water use proposed is non-consumptive and will not degrade the aquifer. The Biosolids Dewatering Facility will be beneficial to the environment and is in the best interest of the public. The facility is needed as soon as possible to replace an inadequate system. We request that the application be approved in advance of the Treasure Valley Groundwater Study data so that use of the dewatering facility will not be delayed.

APPENDICES

Appendix A	Foundation Investigation Report
Appendix B	Well logs
Appendix C	Water Use and Return Calculations
Appendix D	Application for Permit

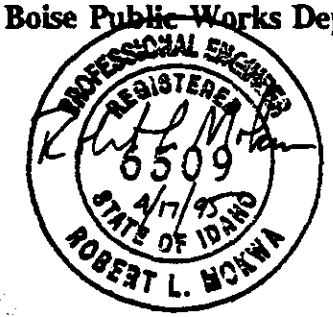
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APPENDIX A

Foundation Investigation Report
Biosolids Dewatering Facility
City of Boise, Idaho
West Boise Wastewater Treatment Facility

Prepared for

City of Boise Public Works Department



Prepared by

CH2M HILL

RMW37394.D2

April 1995

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Introduction

Authorization

This report was authorized under Task Order No. 2 of the agreement between CH2M HILL and the City of Boise for the project generally described as Boise City RFP 94-18, engineering services for Biosoloids Dewatering Facilities.

Purpose and Scope

The purpose of this geotechnical investigation was to determine subsurface conditions at the location of the proposed facilities, to define pertinent engineering properties of subsurface materials encountered, and to provide recommendations for the design of the foundations, and related earthwork. The scope of the investigation consisted of the following items:

- Review previous investigations and studies of the site
- Drill five borings to determine subsurface conditions
- Perform laboratory tests on selected soil samples
- Conduct engineering analyses and develop foundation design parameters for the subsurface soil conditions that were encountered
- Prepare this report, which summarizes the investigation and presents our conclusions and recommendations

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Background

Site Location and Description

The West Boise Wastewater Treatment Facility (WBWWTF) is located adjacent to the Boise River off of U.S. Highway 20 (Chinden Boulevard), approximately one mile west of the Glenwood Street and Chinden Boulevard intersection. The proposed Biosolids Facility will be located in the southwest quadrant of the treatment plant site, adjacent to the existing DAFT Building.

Following is a brief description of the major project structures. The approximate location of the proposed and future structures are shown in Figure 1.

Biosolids Dewatering Building

The proposed building will be a three-story above-grade reinforced concrete structure that contains various mechanical equipment including belt filter presses, storage tanks, pumps, and an overhead monorail system. The building will be approximately 3,000 square feet in plan and will be located immediately south and adjacent to the existing DAFT Building.

Storage/Blend Tank

The storage/blend tank will consist of a permaglass coated, bolted steel circular tank for storage and blending of sludge. The tank will be nominally 31 feet in diameter, rise approximately 35 feet above grade, and extend approximately 6 feet below grade. The tank perimeter will be supported on a reinforced concrete slab. The slab will contain a 12-inch-deep shallow basin that will be filled with sand to support the tank bottom. The tank will have a capacity of approximately 200,000 gallons and will be located between the DAFT Building and Secondary Clarifier No. 3. The tank bottom will be located approximately 5 feet below the design flood groundwater level.

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Technical Data

Subsurface Exploration

CH2M HILL subcontracted the exploration drilling to Haz-Tech Drilling, Inc., Meridian, Idaho. Five borings were drilled using a truck-mounted CME 75 rotary drill rig with 4-inch-inside-diameter hollow-stem augers. The drilling and sampling were performed on March 6, 1995, under the supervision of a CH2M HILL geotechnical engineer.

Disturbed soil samples were obtained at various depths using a 2-inch outside-diameter split-spoon sampler driven as described for the Standard Penetration Test (SPT) by ASTM D1586. The result of the SPT is a blow count (N). The blow count is the number of blows, from a 140-pound hammer free falling from a height of 30 inches, that are required to drive the split-spoon sampler 12 inches (or the distance indicated). Blow counts and graphic descriptions of materials encountered were recorded on boring logs.

The standard penetration value provides a reasonable indication of the in-place density of sandy type materials. However, the standard penetration value only provides an indication of the relative stiffness of cohesive materials, since the penetration resistance for these soils is a function of the moisture content. Considerable care must also be exercised in interpreting the standard penetration value in gravelly soils, particularly where the size of the gravel particle exceeds the inside diameter of the sampling spoon.

Soil samples obtained during the explorations were visually inspected, classified, and logged in the field by a CH2M HILL geotechnical engineer. The borings were located by taping distances from prominent features in the field. The boring locations are shown in Figure 1. Graphic logs of the borings are presented in Figure 2. Copies of the field boring logs are included in Appendix B.

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Future Storage/Blend Tank

The future storage/blend tank may be constructed during subsequent expansions of the Biosolids Facility. The field exploration and geotechnical analyses for this tank were conducted as part of this foundation investigation; foundation design recommendations for both tanks are included in this report.

The future storage/blend tank will be of similar size and construction as described above for the proposed tank. The future tank will be located approximately 10 feet north of the proposed tank, between the DAFT Building and Secondary Clarifier No. 3.

Previous Explorations

The most recent applicable geotechnical investigation at the WBWWTF was conducted in June 1981, for a facility expansion that included the following structures: grit chamber, sludge pump station and blower building, two primary clarifiers, two secondary clarifiers, and two digesters. The results and recommendations obtained during this investigation and subsequent analysis are summarized in the *Geotechnical Investigation Report for the West Boise Wastewater Treatment Plant, Project No. B12430.01, Prepared by CH2M HILL, June 1981*. Copies of the foundation investigation drawing and graphic boring logs for the referenced investigation and an earlier investigation, conducted by CH2M HILL in 1974, are included in Appendix A.

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Laboratory Investigation

All samples were visually inspected and classified according to the Unified Soil Classification System. Laboratory tests were performed on selected soil samples to determine the significant engineering properties. Tests included grain size analysis, Atterberg limits, and natural moisture contents. Laboratory tests were performed by Intermountain Materials Testing, Inc., of Boise, Idaho. Copies of the laboratory results are included in Appendix C.

Sampling of the dense gravel was very difficult. Undisturbed samples could not be taken, and disturbed samples were difficult to obtain because of the density and size of the gravel encountered. Strength properties of the dense gravel were determined from the results of the SPT as recorded in the soil boring logs.

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Interpretation

Local Geology

The site is located on recent alluvial silt, sand, and gravel deposits of the Boise River. The dense sand and gravel deposits underlying the site are part of the Caldwell and Nampa sediments that form the benches west of Boise. The sediments were deposited by floods flowing from the southeast in the late Pleistocene epoch (about 12,000 years ago). The Boise River has reworked these sediments to form the dense sand and gravel deposits underlying most of downtown Boise and the river floodplain areas. These deposits are overlain by a thin surficial layer of eolian (windblown) deposits of clay, silt, and sand.

Subsurface Conditions

Soil Profile

The general subsurface profile at the site consists of a surficial fill layer of sand or sandy gravel with silt overlying approximately 20 to 25 feet of a dense to very dense coarse-grained alluvial deposit of sand, gravel, and cobble. The coarse grained deposit is underlain by medium dense to very dense fine sand with silt and silty sand. The fine-grained deposit extends at least to a depth of 41.5 feet; the bottom of the deepest boring drilled.

The demarcation between the surficial fill soil and native soil along the south side of the DAFT building could not be determined from the retrieved soil samples or from changes in drilling action. It appears that granular soils obtained from onsite excavations were used as backfill against the DAFT basement wall. We assume, that immediately adjacent to the DAFT building the fill material extends to the bottom of the DAFT basement excavation, which is approximately 17 feet below the adjacent ground surface. A very low blow count (N-value) of N=2 was obtained in submerged sand at a depth of 15 feet in boring B1-95. The low N-value may be indicative of the loose nature of the soil in the immediate vicinity of the DAFT building sump, which is located in the southwest corner of the DAFT building opposite the location of boring B1-95.

Blow counts in the native sand, gravel, and cobble ranged from 15 to greater than 100. Blow counts in the underlying fine sand and silty sand ranged from 35 to greater than 80.

Groundwater

Groundwater was encountered during the investigation at depths ranging from 9.2 to 11.0 feet below the hole collar and corresponded to an approximate elevation range of 2566 to 2567. However, evidence and experience suggest this groundwater level is uncharacteristically depressed for the area. The groundwater measurement was made during the time of year that groundwater is seasonally low and followed an approximate 7-year span characterized by climatologists as a drought period. Previous investigations at the treatment plant site indicate that groundwater fluctuates throughout the year and may be as high as one foot below the ground surface at certain times of the year. Groundwater levels at the site are influenced by the nearby Boise River and can be expected to rise significantly from the levels observed during this investigation.

A 2-inch-diameter slotted PVC observation well (piezometer) was installed in boring B4-95 to obtain information regarding fluctuations of the groundwater level over time. The piezometer was completed using 2-inch-diameter PVC flush-jointed pipe with a 0.002 inch screened section from 19 to 24 feet below the ground surface. Groundwater was measured at a depth of 10.8 feet below the ground surface (approximate elevation 2566.7) 24 hours after completing the borehole. The piezometer is located near the center of the future storage/blend tank, and should be protected and retained during future construction, if possible. We suggest the piezometer be monitored during construction of the proposed storage/blend tank to determine the size of the local zone of groundwater depression resulting from excavation dewatering operations.

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Discussions and Recommendations

Site Preparation

The surface layer of topsoil should be stripped beneath the footprints of the proposed building, tanks, parking area, and access road. From the information gathered during the subsurface investigation, it appears the surface layer of organic topsoil ranges from 0 to 1 foot thick. The site should be backfilled to the subgrade elevation with compacted pit run sandy gravel or sand and gravel from on-site excavations. A 6-inch-thick leveling course of compacted crushed gravel should be placed beneath footings and slabs.

Groundwater Control

Prior to 1981, the U.S. Army Corps of Engineers (USCOE) predicted the 100-year flood occurrence elevation in the vicinity of the WBWWTF outfall at elevation 2576. In December 1981, the USCOE reevaluated Boise River flood occurrences and subsequently revised the predicted 100-year water surface at the location of the WBWWTF outfall to elevation 2571. In December 1991, the USCOE reevaluated Boise River flood occurrences and the predicted 100-year water surface at the location of the WBWWTF outfall remained unchanged from elevation 2571.

Boise River surface water and area irrigation practices impact the groundwater level experienced at the WBWWTF site. Previous design criteria for the structural and foundation design purposes utilized saturated groundwater conditions at elevation 2576, corresponding to previous 100-year flood occurrences. Previous boring logs have demonstrated groundwater levels as high as one foot below the ground surface. As a point of reference, the finish grade around the DAFT Building is approximately 2576.

For structural and foundation design purposes, CH2M HILL recommends using a piezometric (groundwater) elevation of 2576. Therefore, the biosolids storage/blend tank should be designed to resist hydrostatic uplift for groundwater at elevation 2576.

We expect that groundwater will be encountered during excavation of the storage/blend tank foundation and subsurface piping. A positive means of construction dewatering will be required to complete the excavation and placement of reinforcing steel and concrete. Dewatering, using open sumps and collectors or circumferential well points may be used. Sumps and collectors should be sized and located so that foundation soils are not disturbed during the excavation and the groundwater level is maintained below the bottom of the foundation. Failure to adequately dewater the excavation may lead to disturbance of the subgrade soils and undermining and subsequent settlement of adjacent structures. If possible, the construction schedule should be adjusted such that excavation for the storage/blend tank occurs when the groundwater is at a seasonal low; typically between December and March.

Excavations

Excavations for the blend tank foundation and underground utility lines can be performed using conventional earthmoving excavation equipment.

Excavation sloping and shoring should be accomplished in accordance with applicable federal, state, and local regulations. The steepest allowable unshored excavation slope permissible by OSHA Regulation 29 CFR, Part 1926, for the soil conditions at the site is 1.5 horizontal to 1.0 vertical. This is for a maximum 20-foot-deep excavation and is based on a Type C soil.

Shoring of the storage/blend tank excavation slopes adjacent to the DAFT Building and secondary clarifier will be required based on the permissible slope criteria and proximity of the existing and proposed structures. CH2M HILL recommends the contractor be responsible for designing, installing, and maintaining all shoring and excavation bracing. The shoring system should be designed and constructed to withstand soil and hydrostatic loadings, and appropriate equipment and surcharge loadings. Design of the shoring should incorporate the excavation sequence and placement of lateral support elements. We recommend the dewatering and shoring system be designed by a licensed professional engineer and be submitted by the contractor for the engineer's review prior to commencing construction. Collection and control of groundwater will be required to maintain stable excavation slopes.

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Foundations

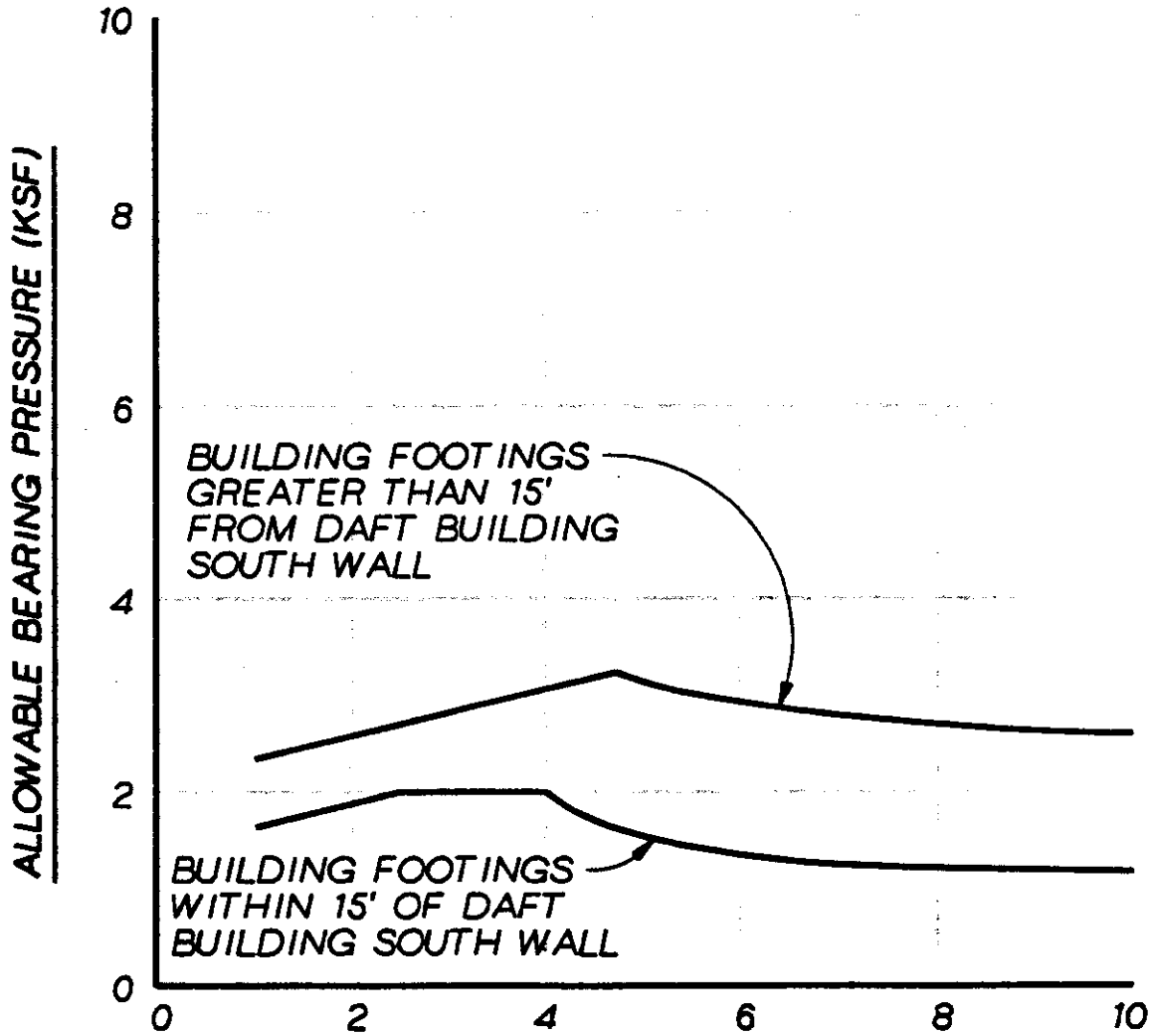
Soil conditions at the Dewatering Building foundation level consist of sand or sandy gravel with silt. Footings located within 15 feet of the existing DAFT Building will be founded in reworked fill, while footings located outside of this zone will be founded in undisturbed native soil. The composition and grain size distribution of the native and fill materials are essentially the same; however, the in-place density of the fill is generally less than the relative density of the undisturbed native soils.

The bearing capacity of footings founded in noncohesive soil is controlled by the shear resistance of the soil and the allowable settlement of the footing. Empirical methods were used to correlate the settlement of footings with the results of the SPT (N-values). The bearing pressure curves presented in Figure 3 are based on N-values and the assumption that groundwater may rise to the base of the footings. The bearing pressures shown may be increased by a factor of one-third for short duration wind and seismic loads. The curves are based on 1 inch of total settlement; differential settlement between adjacent column footings can normally be expected to be about half of the total settlement.

The allowable bearing pressure curves presented in Figure 3 should be used for designing footings founded in undisturbed native soil or fill material. The lateral demarcation between the fill and native soil was estimated to occur approximately 15 feet from the walls of the DAFT building. Exterior shallow footings should be founded a minimum of 30 inches below the finished grade for protection from frost.

The reinforced concrete mat that supports the storage/blend tank should be sized using a net allowable bearing pressure of 1,000 pounds per square foot (psf). This is a reduced bearing pressure to reflect high groundwater conditions, a load that is distributed over a large area, and the presence of loose to medium dense granular fill along the west side of the slab, adjacent to the east wall of the DAFT Building.

Granular backfill consisting of clean 9-inch-minus pit run sand and gravel should be used as fill beneath grade slabs or areas that were overexcavated, if necessary. A 6-inch-thick leveling course of 3/4-inch crushed gravel should be placed directly beneath concrete slabs



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Figure 3

ALLOWABLE BEARING PRESSURE CHART

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and footings. Additional recommendations pertaining to backfill material are presented in subsequent sections of this report.

Asphalt Pavement

Following are some general recommendations pertaining to miscellaneous areas associated with this project that may receive asphalt pavement. No asphalt paved areas were identified at the time of this investigation and no samples or tests were performed to obtain asphalt design parameters. The parameters used to develop the recommendations presented below are based on conservative assumptions for soil conditions typically encountered in the western area of Boise.

A typical pavement section consists of a layered system designed to distribute concentrated traffic loads to the subgrade. Performance of the pavement structure is directly related to the physical properties of the existing subgrade soils and imported base material, asphalt surfacing, and traffic loads.

The subbase course for the pavement section was designed based on a subgrade R-value of 40, which is a conservative estimate for the granular material encountered at the site. Soft or pumping clayey or organic soils encountered during excavation or fill placement should be overexcavated to the underlying granular soils and replaced with compacted granular backfill. The maximum amount of overexcavation, if granular soil is not encountered, does not need to exceed 3 feet below the top of the subbase layer (or bottom of the base course layer).

An R-value of 80 was used in the design calculations for imported base course material, and an R-value of 70 was used for pit run granular fill (subbase course).

The following traffic indices were used in the analysis to determine the ballast requirements for asphalt paved parking lots, access roads, and truck staging areas:

- TI = 7 Less than 10 truck passes per day
- TI = 8 Less than 33 heavy truck passes per day
- TI = 9 Less than 85 heavy truck passes per day

These indices are based on procedures and recommendations presented in the Ada County Highway Department Development Services Policy Manual and the State of Idaho Materials Manual.

Following are recommended asphalt pavement sections based on the criteria outlined above:

1) **Parking Lot and Access Roads–Light Truck Traffic** (less than 10 trucks per day, TI = 7)

   - Plantmix Surface Course–3 inches
   - Crushed Aggregate Base Course–4 inches
   - Granular Borrow Subbase Course–9 inches

2) **Access Roads and Areas with Occasional Heavy Truck Traffic** (less than 33 heavy trucks per day, TI = 8)

   - Plantmix Surface Course–3 inches
   - Crushed Aggregate Base Course–4 inches
   - Granular Borrow Subbase Course–12 inches

3) **Access Roads and Areas with Heavy Truck Traffic** (less than 85 heavy trucks per day, TI = 9)

   - Plantmix Surface Course–4 inches
   - Crushed Aggregate Base Course–4 inches
   - Granular Borrow Subbase Course–12 inches

The topsoil along the alignment should be stripped prior to placing granular borrow or base course material. The subgrade should be proofrolled with a heavily loaded pneumatic-tired vehicle. Areas that deform excessively under the wheel loads or that contain soft pumping fine-grained soils should be removed and replaced prior to placing base or subbase course materials. Overexcavated areas should be backfilled in 9-inch-thick lifts with approved granular borrow and compacted to 95 percent of the maximum dry density as determined by ASTM D698. The subgrade should be moistened to optimum moisture content and compacted to 93 percent of the maximum dry density prior to placing subbase material.

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The bituminous plant mix, imported base, and granular borrow should meet the State of Idaho Standard Specifications for Highway Design for Class II plant mix asphalt pavement.

Lateral Earth Pressures

Lateral earth pressures are dependent upon the type of backfill material, surcharge, and hydrostatic loading. Sandy silt and silty sand from excavations are not recommended for backfill material because they are weaker and more compressible than the onsite sand and gravel or imported granular material. Onsite sand and gravel from site excavations may be used for backfill provided it contains no compressible or organic materials. If insufficient sand and gravel is available from onsite excavations, imported pit run gravel should be used for structural backfill. Lateral pressures should be adjusted for 1) surcharge; 2) hydrostatic loading; and 3) live loads near walls. Earth pressure coefficients for the active, at rest, and passive cases are presented in Table 1. Coefficients are appropriate for either onsite sand, gravel and cobble, or imported pit run gravel.

Backfill behind retaining walls should be placed in 9-inch-thick lifts and compacted to 93 percent of the maximum dry density as determined by ASTM D698. Care should be taken to avoid overcompaction of backfill so that walls are not displaced or cracked. Compaction within 4 feet of walls should be accomplished with hand-operated compaction equipment.

We estimate the friction factor will be 0.5 for concrete footings founded on undisturbed dense sand and gravel material. A friction factor of 0.35 should be used for footings founded on the loose granular fill within 15 feet of the DAFT Building. This is an ultimate value, and sufficient movement must occur to mobilize full frictional resistance to sliding.

Table 1 Earth Pressure Coefficients					
			Static Earth Pressure Coefficient Unit*		
Material	Weight (pcf)	Phi (Degrees)	Active (Ka)	At Rest (Ko)	Passive (Kp)
Sand and Gravel	135	36	0.26	0.50	3.0

*Where Lateral Earth Pressure = KTH

K = Ka, Ko, Kp

T = Unit Weight of Backfill (pcf)

H = Height of Backfill (feet)

Site Fill and Backfill

Fine-grained or organic soils obtained from site excavations are not recommended for structural fill or backfill. These soils are weak and compressible and will settle with time. Footings and slabs may experience excessive differential settlement if founded on fine-grained or deleterious backfill material.

Sand and gravel from site excavations, free from organics, rubble, or other unsuitable material, may be used for fill under floor slabs; structural fill beneath building footings; subbase course beneath asphalt pavement; and backfill behind retaining walls. Granular fill should be placed in layers not to exceed 12 inches loose thickness. Each layer should be compacted to 95 percent of maximum density, as determined by ASTM D698, prior to placing succeeding layers. Granular fill that contains 30 percent or more of material, by weight, greater than the 3/4-inch sieve, shall be compacted to 80 percent relative density as determined by ASTM D4253 and ASTM D4254 (minimum and maximum compaction tests) in lieu of using the standard Proctor method specified in ASTM D698. Before compaction, the moisture content of site fill should be adjusted as required to near optimum.

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All debris and loose soil should be removed prior to placing backfill behind walls and next to footings. Care should be taken to avoid over-compaction of backfill so that walls are not displaced or cracked. Compaction within 4 feet of the walls should be accomplished with hand-held or lightweight, operator-propelled compaction equipment. The backfill level on both sides of foundation walls (that are not designed as retaining walls) should be kept even at all times.

A 6-inch-thick leveling course of 3/4-inch-minus crushed gravel should be provided beneath concrete slabs founded on the dense sand and gravel or compacted fill. The gravel should be compacted to 95 percent of maximum dry density at optimum moisture content as determined by ASTM D698. Prior to compaction, the moisture content should be adjusted, as required, to near optimum.

Sand silty sand or sandy silt obtained from site excavations may be used for general site fill in areas where subsequent settlement is not of concern. Only minimal compaction of general site fill (for instance, landscaping areas and areas that do not support structural loads) is required. Adequate compaction of this material could be accomplished with 2 to 3 passes of heavy earthmoving equipment.

Concrete Slabs

Slabs founded either on the dense sand, gravel, and cobble or on compacted engineered fill should be designed using a modulus of subgrade reaction, K = 300 psi per inch. Slabs founded on the DAFT Building backfill soils should be designed using K = 100 psi per inch. Under no circumstances should slabs be founded on soils containing organic matter or on soft plastic clayey soils. Unsuitable soils encountered after the site stripping operation is complete should be overexcavated and replaced with compacted granular fill.

Seismic Design Criteria

Boise is within Seismic Zone 2b, a moderate damage zone as defined by the 1994 Uniform Building Code (UBC). The site meets the requirements of a firm site with rock deeper

than 200 feet. A seismic site coefficient, S Factor = 1.2, is recommended for the design of structures under seismic loading conditions.

Imported Materials

Crushed gravel used beneath floor slabs, footings, and as a base course for pavement sections should meet the applicable requirements for 3/4-inch minus road base aggregate described in Section 703.04 of the State of Idaho Standard Specifications for Highway Construction. These materials should be free from organics, clay balls, or other deleterious matter. The granular base material should be specified to have a minimum R-value of 80, as determined in accordance with the State of Idaho Test T-8.

Pit run gravel for site fill should be clean, well-graded granular material with less than 8 percent passing the No. 200 sieve. Maximum size of cobble should be 9 inches. The granular material should be free from organics, clay balls, and other deleterious matter.

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Summary

Based on our subsurface exploration and engineering analyses of subsurface conditions, we have found the project site suitable for the proposed construction with the following recommendations:

Site Preparation

The top 0 to 12 inches of organics and topsoil should be removed from beneath the footprints of the building, parking area, and access road.

Groundwater Control

The biosolids storage/blend tank should be designed to resist hydrostatic uplift for groundwater at elevation 2576.0. A positive means of construction dewatering will be required to complete the excavation and placement of reinforcing steel and concrete.

Excavations

All excavations should be accomplished in accordance with applicable federal, state, and local standards.

Foundations

The bearing pressure chart presented in Figure 3 should be used to size the building footings based on the anticipated subgrade soil conditions. The mat foundation for the storage/blend tank should be designed using a net allowable bearing pressure of 1,000 psf.

Lateral Earth Pressures

Retaining walls should be designed using the unit weights and appropriate earth pressure coefficients listed in Table 1.

A friction factor of 0.5 should be used to evaluate sliding resistance at the base of footings founded on undisturbed dense sand and gravel. A friction factor of 0.35 should be used for footings founded on granular fill. Passive earth pressures should be determined using the appropriate earth pressure coefficients listed in Table 1.

Site Fill and Backfill

Sand and gravel from site excavations or imported sand and gravel should be used for granular backfill beneath structural elements. Granular backfill should be compacted to 95 percent of the maximum dry density as determined by ASTM D698, or 80 percent relative density, whichever test method is appropriate. Silty sand and sandy silt may be used for site fill where subsequent settlement is not of concern.

Concrete Slabs

A 6-inch-thick leveling course of 3/4-inch crushed gravel should be placed beneath slabs and footings. Slabs founded on the dense sand and gravel or on compacted granular fill should be designed using a modulus of subgrade reaction, K = 300 psi per inch. Slabs supported DAFT Building backfill should be designed using K = 100 psi per inch.

Seismic Design Criteria

The site is located in Zone 2b and meets the criteria for a firm or stiff site as defined by the 1994 UBC.

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Limitations

This report has been prepared for the exclusive use of the City of Boise for specific application to the Biosolids Dewatering Facility (RFP 94-18) described herein in accordance with generally accepted geotechnical engineering practice. No other warranty, either expressed or implied, is made.

The analyses and recommendations contained in this report are based on data obtained from previous explorations, 5 soil borings, laboratory testing, and current geotechnical engineering practice. Soil borings indicate subsurface conditions only at specific locations and times, and only to the depths penetrated. They do not necessarily reflect soil, strata, or water level variations that may exist between boring locations. If variations in subsurface conditions are noted during the course of excavation and construction, reevaluation of the exploration and design analyses may be necessary.

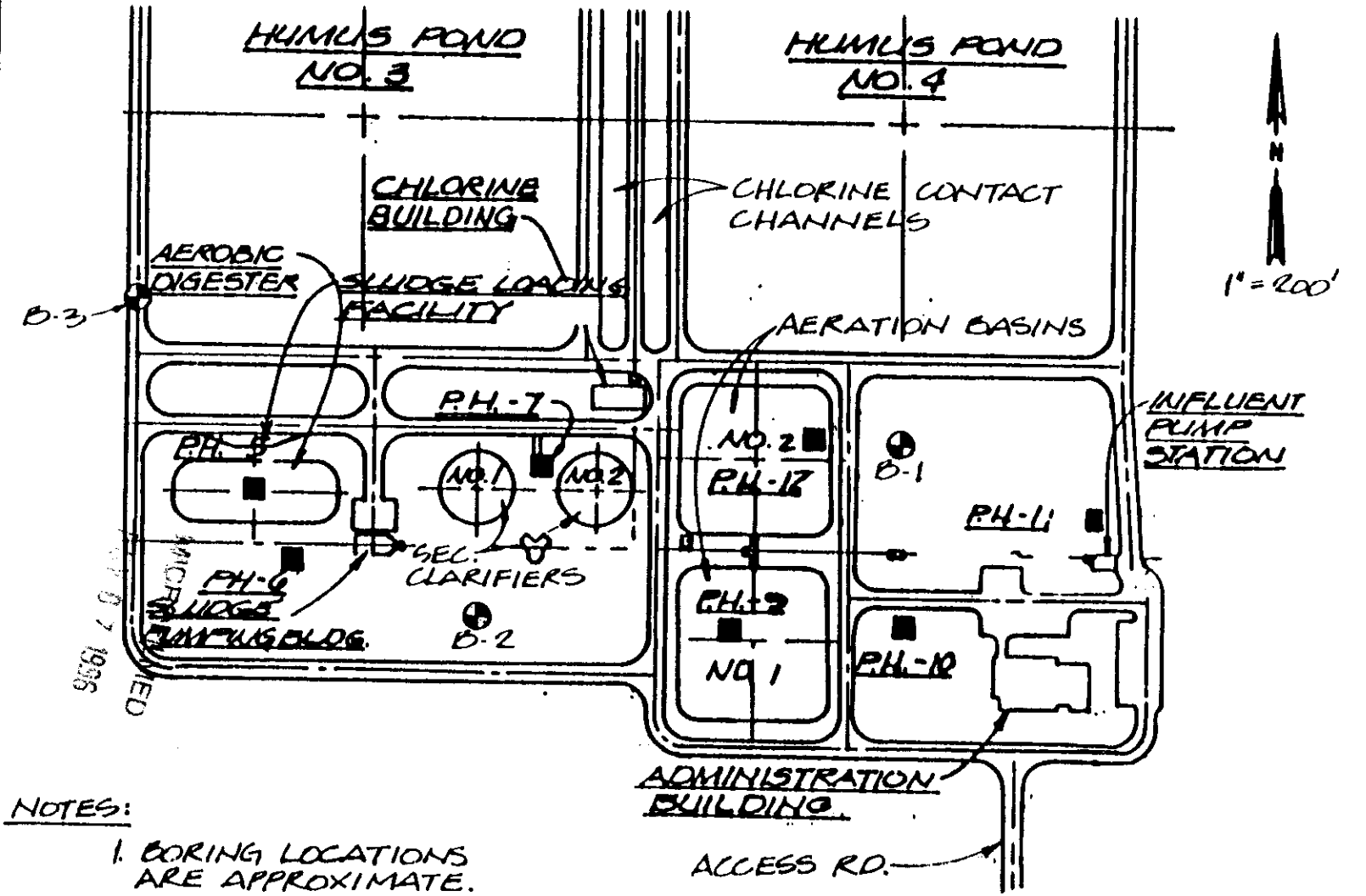
In the event that any changes in the nature, design, or location of the facilities are made, the recommendations contained in this report should not be considered valid unless the changes are reviewed and recommendations of this report modified or verified in writing.

CH2M HILL is not responsible for any claims, damages, or liability associated with interpretation of subsurface data, reuse of the subsurface data, or reuse of engineering recommendations without the express written authorization of CH2M HILL.

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Appendix A
Previous Investigation Data

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NOTES:

1. BORING LOCATIONS ARE APPROXIMATE.

◕ BORINGS DRILLED IN MAY 1981.

■ PROBE HOLES DRILLED IN 1974.

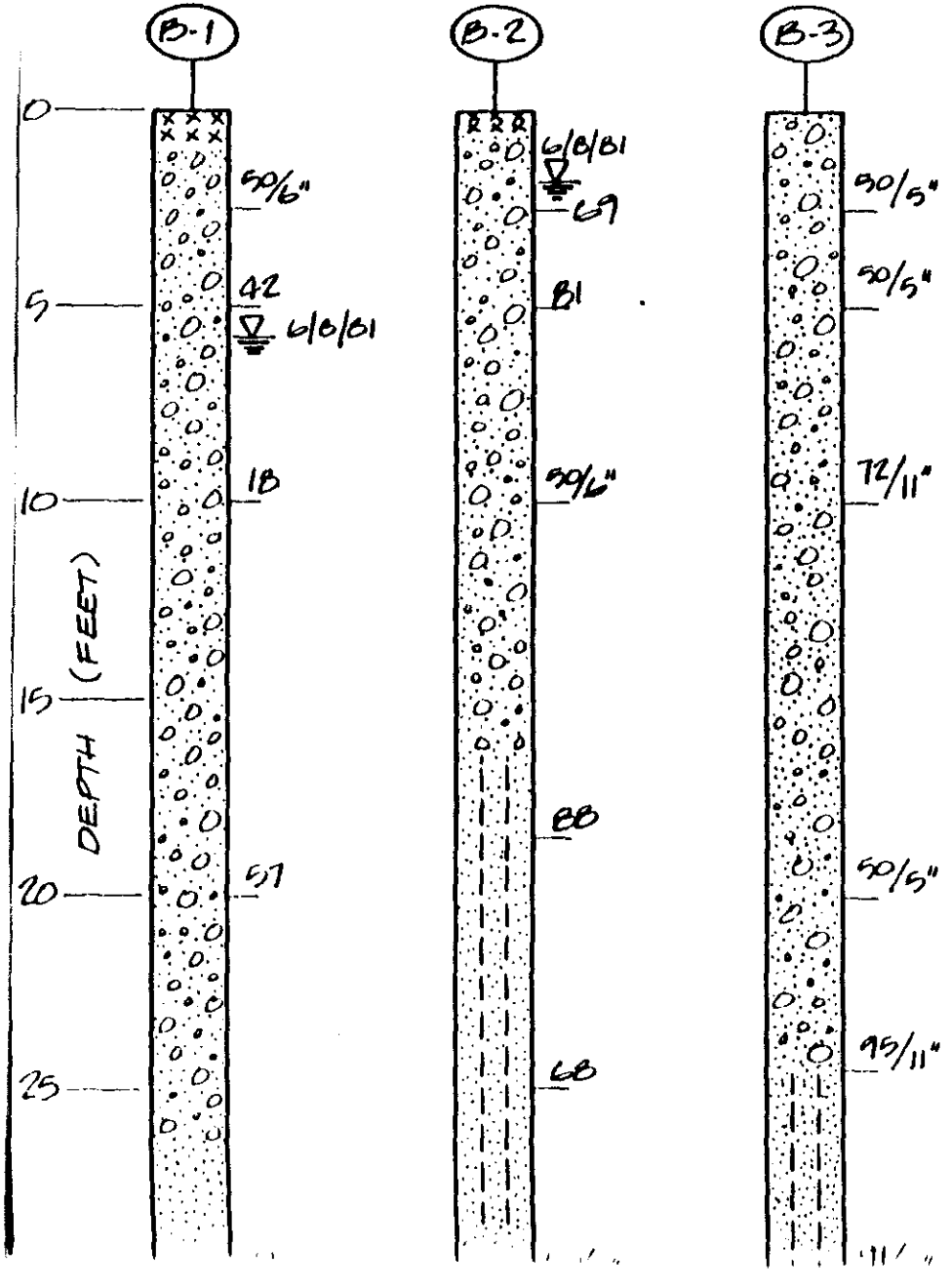
FIGURE 1

GEOTECHNICAL INVESTIGATION
WEST BOISE WASTEWATER
TREATMENT PLANT EXPANSION
BOISE, IDAHO

SITE PLAN

B 12430.01

CH2M HILL



BORING HOLE LEGEND

TOPSOIL

SILTY SAND

SAND

SAND, GRAVEL & COBBLES

B-3 BORING HOLE NUMBER

69 "N" VALUE - STANDARD PENETRATION RESISTANCE (ASTM D-1586)

GROUNDWATER LEVEL AND DATE RECORDED

50/6" "N" VALUE FOR LESS THAN ONE FOOT PENETRATION

NOTES:

1. THE DEPTH OF INDICATED INTERFACES BETWEEN SOIL TYPES IS APPROXIMATE & THE TRANSITION BETWEEN SOIL TYPES MAY BE GRADUAL.
2. GROUNDWATER LEVEL WAS RECORDED ON JUNE 8, 1981. GROUNDWATER WAS NOT MEASURED IN B-3.

FIGURE 2

GEOTECHNICAL INVESTIGATION
WEST BOISE WASTEWATER
TREATMENT PLANT EXPANSION
BOISE, IDAHO

14-Apr-1995\FIG1SITE.DWG

EXISTING SLUDGE HOLDING TANK

FILTRATE RECYCLE EQUALIZATION

EXISTING ANAEROBIC DIGESTER

EXISTING ANAEROBIC DIGESTER

DAFT BUILDING

FUTURE BLEND TANK

B4-95

NEW BLEND TANK

B5-95

FUTURE ODOR CONTROL FACILITY

FUTURE DIGESTER CONTROL BUILDING EXPANSION

NEW DEWATERING FACILITY

B1-95

B3-95

B2-95

FUTURE DIGESTER

TOC 2579.0

EXISTING WASTE GAS FLARE

FUTURE DEWATERING FACILITY

EXISTING WELL

FUTURE DIGESTER

0 30 60 90 120

SCALE: 1"=60'

LEGEND:

B2-95 SOIL BORING LOCATION AND NUMBER

RMW37394.06

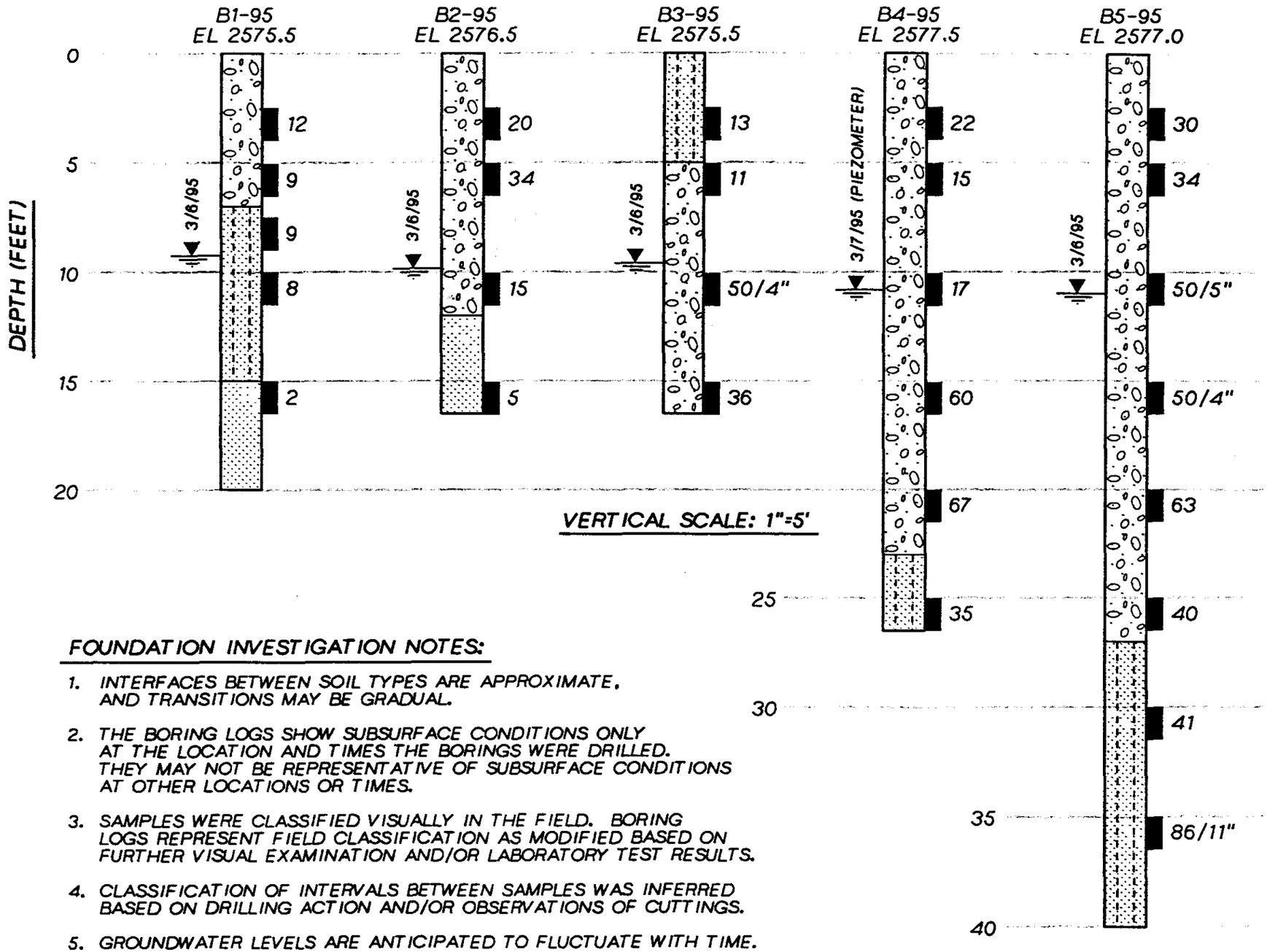
FIG1SITE.DWG

Figure 1

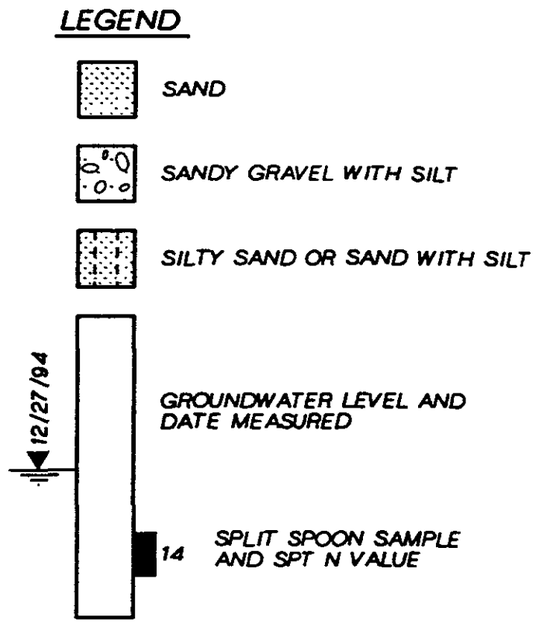
WEST BOISE WWTF
BIOSOLIDS DEWATERING FACILITY
SITE PLAN AND BORING LOCATIONS

CITY OF BOISE
BIOSOLIDS DEWATERING FACILILTY

CH2MHILL



VERTICAL SCALE: 1"=5'

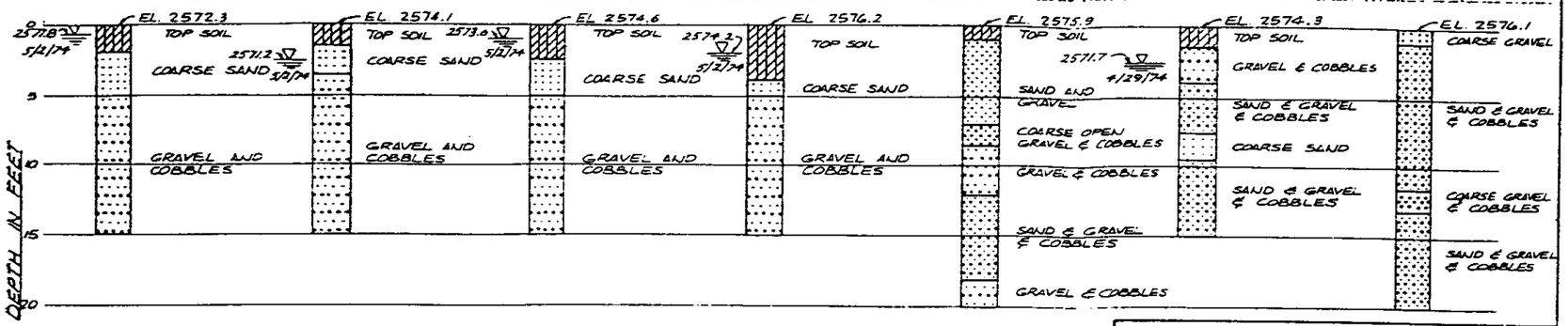


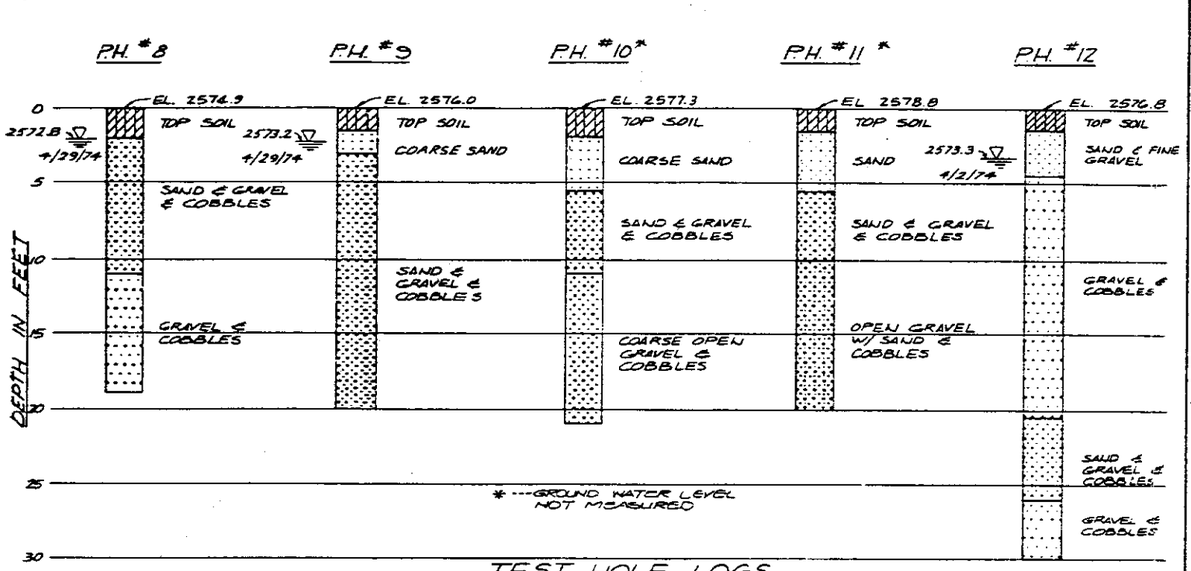
FOUNDATION INVESTIGATION NOTES:

1. INTERFACES BETWEEN SOIL TYPES ARE APPROXIMATE, AND TRANSITIONS MAY BE GRADUAL.
2. THE BORING LOGS SHOW SUBSURFACE CONDITIONS ONLY AT THE LOCATION AND TIMES THE BORINGS WERE DRILLED. THEY MAY NOT BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS OR TIMES.
3. SAMPLES WERE CLASSIFIED VISUALLY IN THE FIELD. BORING LOGS REPRESENT FIELD CLASSIFICATION AS MODIFIED BASED ON FURTHER VISUAL EXAMINATION AND/OR LABORATORY TEST RESULTS.
4. CLASSIFICATION OF INTERVALS BETWEEN SAMPLES WAS INFERRED BASED ON DRILLING ACTION AND/OR OBSERVATIONS OF CUTTINGS.
5. GROUNDWATER LEVELS ARE ANTICIPATED TO FLUCTUATE WITH TIME.
6. BORINGS WERE DRILLED ON MARCH 6, 1995.

Figure 2
GRAPHIC BORING LOGS
CITY OF BOISE
BIOSOLIDS DEWATERING FACILITY

CH2MHILL

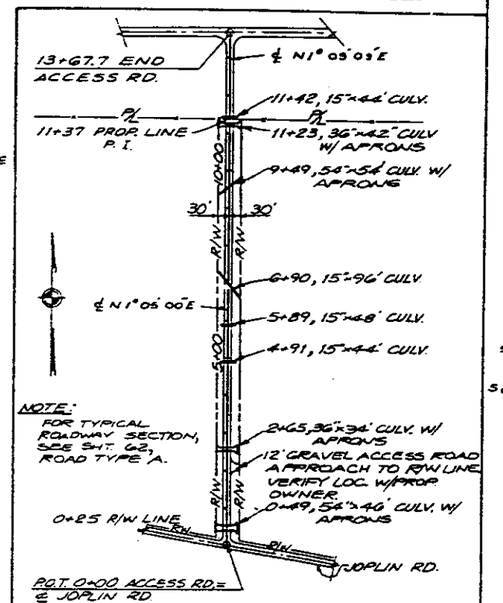




TEST HOLE LOGS

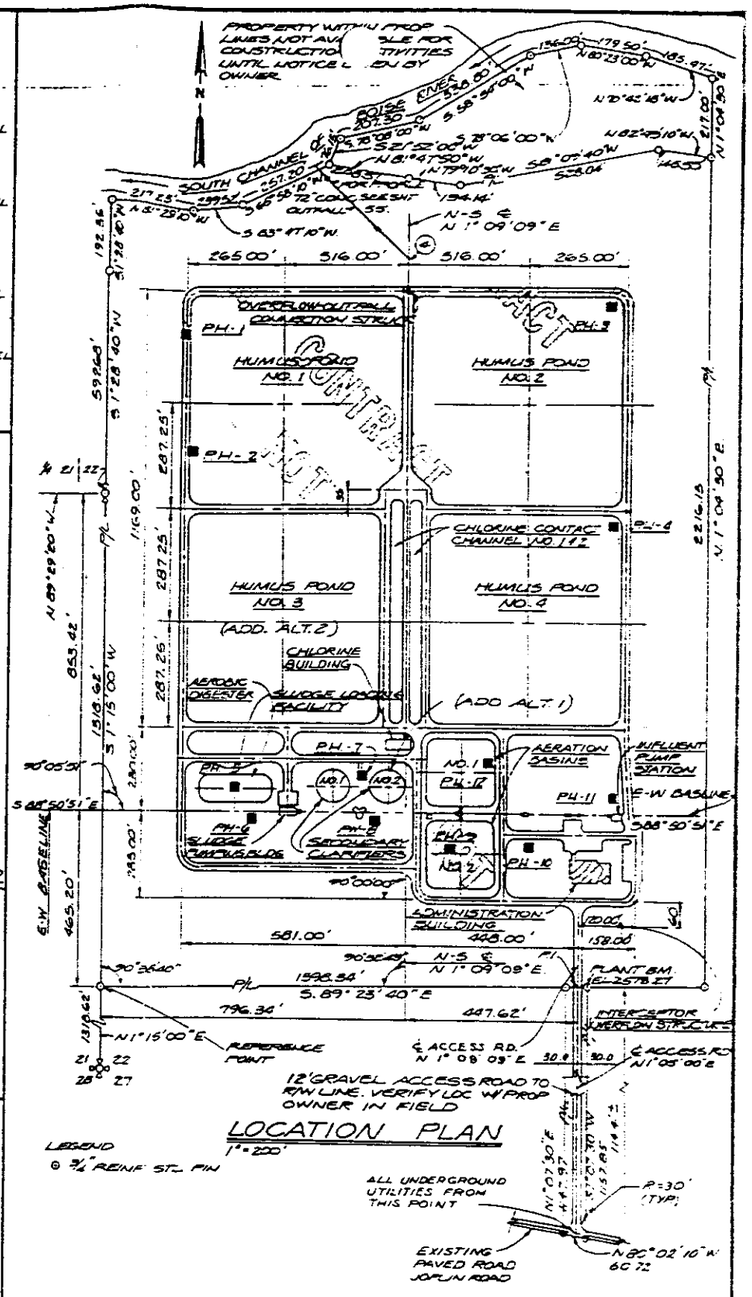
■ TEST HOLE SYMBOL

NOTE:
TEST HOLE INFORMATION WAS OBTAINED FROM THREE-INCH DIAMETER PROBE HOLES USING A SMALL ROTARY DRILL RIG.



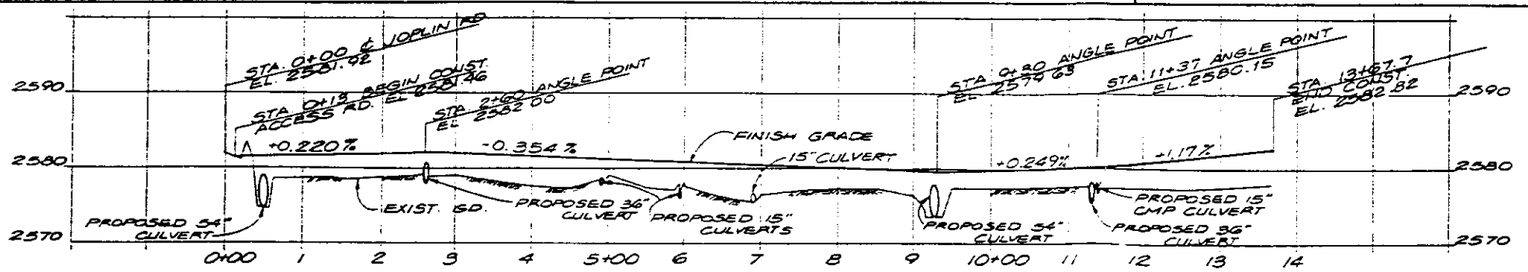
ACCESS ROAD PLAN

1" = 200'



LOCATION PLAN

1" = 200'



ACCESS RD. PROFILE

VERT: 1"=10'
HORIZ: 1"=100'

THIS PRINT IS REDUCED TO ONE-HALF OF THE ORIGINAL SCALE
IF THE SCALE READS
1"=1'-0" USE ½"=1'-0" OR 1"=10' USE 1"=20'

REGISTERED PROFESSIONAL ENGINEER — STATE OF IDAHO — 2028 — KEVIN L. HOXTER

CH2M HILL

DES.	TAK
DR.	JLL
CHK.	GAR
APPD.	RRB

NO.	DATE	REVISION	BY	APPD

CITY OF BOISE, IDAHO
WEST BOISE WASTEWATER TREATMENT PLANT
PHASE 1

GENERAL PLANS

LOCATION PLAN AND TEST HOLES

SHEET NO.	3 OF 78
PROJ. NO.	61827.1
DATE	MAY 1974
DWG NO.	C7927-1

APPENDIX B

WELL #1 (East)

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name West Boise Wastewater Treatment Plant

Address _____

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

_____

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☒ Waste Disposal or Injection

4. METHOD DRILLED

☐ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 8 inches Total depth 375 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
_____ inches	8 inches	0 feet	355 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☒ Yes ☐ No

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

Placed from _____ feet to _____ feet

Surface seal depth 20' Material used in seal ☐ Cement grout ☒ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☒ Temporary surface casing ☐ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.

N / W / E / S

Subdivision Name _____ Lot No. _____ Block No. _____

County Ada

¼ ¼ Sec. 22 T. 4 N/S R. 1 E/W

MICROFILMED NOV 07 1996

7. WATER LEVEL

Static water level 0 feet below land surface

Flowing? ☒ Yes ☐ No G.P.M. flow _____

Temperature _____ °F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	10	Top Soil		X
8	10	90	Cobble Stones & Sand		X
8	90	300	Clay & Fine Sand	X	
8	300	350	Blue Clay		X
8	350	355	Blue Shale		X
8	355	375	Broke out of Shale to fine gray water sand	X	

10.

Work started 3-26-25 finished 3-26-25

IL DRILLERS CERTIFICATION

Firm Name Treasure Valley Drilling Firm No. 74

Address RT 5, Caldwell Idaho Date 3-26-25

Signed by (Firm Official) _____

and

Operator) Same

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

WELL #2 (South)

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name West Boise Wastewater Treatment Plant

Address _____

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☒ Waste Disposal or Injection

4. METHOD DRILLED

☐ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 8 inches Total depth 225 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
_____ inches	8 inches	0 feet	220 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☒ Yes ☐ No

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

Placed from _____ feet to _____ feet

Surface seal depth 20' Material used in seal ☐ Cement grout

☒ Puddling clay ☐ Well cuttings

Drilling procedure used ☐ Mud rotary ☒ Air rotary ☐ Auger

☐ Cable ☐ Other

If mud rotary, how was drilling fluid circulated? ☐ Conventional ☐ Reverse

Depth of completed well 225 feet

Depth of first water encountered 10 feet

Static water level after completion 2 feet below land surface

Was water sample taken for chemical analysis? ☐ Yes ☒ No

Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____

Yield: _____ gallons/minute with _____ feet drawdown after _____ hours

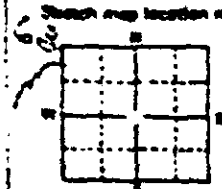
Bailer test: _____ gallons/minute with _____ feet drawdown after _____ hours

Artesian flow: _____ gallons/minute

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____ Lot No. _____ Block No. _____

County Ada

¼ ¼ Sec. 22 T. 4 N/S R. 1 E/W

7. WATER LEVEL

Static water level 2 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	10	Top Soil		X
8	10	200	Sand, Clay & Cobble Stone	X	
8	200	220	Clay		X
8	220	225	Water Sand	X	

10.

Work started 3-17-75 finished 3-17-75

11. DRILLER'S CERTIFICATION

Firm Name Bracken Water Drilling Firm No. 24

Address Rt 6, Boise, Idaho Date 3-25-75

Signed by (First Officer) _____

and

(Operator) Same

MICROFILMED NOV 07 1996

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

APPENDIX C

WATER USE AND RETURN CALCULATIONS **04/16/96**
W. BOISE WWTF - BIOSOLIDS DEWATERING FACILITY **RJB**

I. WATER USE

Item	Typical Flow (gpm)	Hours/ day	Volume/ Day (gal)	Volume to Drain (gal)
Seal water, etc	35	24	50,400	50,400
Filter press belt wash	260	16	249,600	249,600
Gravity thickener belt wash	40	16	38,400	38,400
Sump, etc. wash	300	1	18,000	18,000
Truck washdown	80	2	9,600	9,600
BFP & room washdown	80	1	4,800	4,800
Polymer fill	180	3	32,400	0
Polymer dilution - BFP	100	16	96,000	0
Polymer dilution - GBT	50	16	48,000	0
Other	30	16	28,800	0
			576,000	370,800

=> Total water use = 576,000 gal/day

II. WATER RETURN

Water from biosolids: feed: 400 gpm @ 2.0% solids
dewater to 16.0% solids
=> 350 gpm water extracted = 336,000 gal/day

Water from drains = 371,000 gal/day (see above)

=> Total water returned = 707,000 gal/day

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NOV 07 1996

RECEIVED

AUG 2 6 1996

WATER RESOURCES
WESTERN REGION

The Idaho Statesman

P.O. BOX 40, BOISE, IDAHO 83707

LEGAL ADVERTISING INVOICE

Amount Due
$77.52

Account Number	Identification
047628	NOTICE OF APPLICATION FOR WATER RIGHT 63-12312, 63-12346, 63-12351

Ordered By	P.O. Number	Rate	Run Dates
Sue Taylor		NT	August 15 & 22, 1996

Sue Taylor
IDAHO DEPARTMENT OF WATER RESOURCES
Western Region
2735 Airport Way
Boise, Idaho 83705-5082

Estimated Inches	Real Inches
# Affidavits	Legal Number
1	5679

LEGAL NOTICE

NOTICE OF APPLICATION FOR WATER RIGHT

The Following application(s) have been filed to appropriate the public waters of the State of Idaho:

63-12312

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE, ID 837010500

Source: GROUNDWATER
Diversion Pt: SWNWSW Sec 22 T04N R01E in ADA County.
Use: INDUSTRIAL (2.700 CFS)
Total Diversion: (2.700 CFS)
Date Filed: 2/15/1996
In: ADA County
T04N R01E S22 NWSW
Water bearing zone to be appropriated is 40 to 80 feet. Non-consumptive use at waste treatment plant; return flows to Boise River.

63-12346

CALDWELL, ROBERT E
PO BOX 567
EAGLE, ID 836160567

Source: GROUNDWATER
Diversion Pt: NESW Sec 15 T04N R01W in ADA County.
Use: DOMESTIC (0.040 CFS)
Total Diversion: (0.040 CFS)
Date Filed: 7/12/1996
In: ADA County
T04N R01W S15 NENW

63-12351

CITY OF BOISE
790 LANDER ST
BOISE, ID 83703

Source: GROUNDWATER
Diversion Pt: LOT 2 (NWSE) Sec 32 T04N R02E in ADA County.
Use: HEATING (0.100 CFS)
COOLING (0.100 CFS)
Total Diversion: (0.100 CFS)
Date Filed: 7/1/1996
In: ADA County
T04N R02E S32 Lot 2(NWSE)
Water bearing zone to be appropriated is 20 to 40 feet; all flows to be reinjected into same zone.

Permits will be subject to all prior water rights. Protests may be submitted based on the criteria of Sec. 42-203A, Idaho Code. Any protest against the approval of this application must be filed with the Director, Dept. of Water Resources, Western Region, 2735 Airport Way, Boise, Idaho 83705 together with a protest fee of $25.00 on or before SEPTEMBER 3, 1996. The protestant must also send a copy of the protest to the applicant.

KARL J. DREHER, Director

Pub. August 15 & 22, 1996 5679

LINDA PORTER, being duly sworn, deposes and says: That she is the Principal Clerk of The Idaho Statesman, a daily newspaper printed and published at Boise, Ada County, State of Idaho, and having a general circulation therein and which said newspaper has been continuously and uninterruptedly published in said County during a period of twelve consecutive months prior to the first publication of the notice, a copy of which is attached hereto; that said notice was published in The Idaho Statesman in conformity with Section 60-108, Idaho Code as amended, for TWO

☒ consecutive weekly ☐ consecutive daily ☐ single ☐ odd skip

insertion(s) beginning with the issue of AUGUST 15, 19 96

and ending with the issue of AUGUST 22, 19 96

Linda Porter

MICROFILMED

NOV 0 7 1996

STATE OF IDAHO)
ss.
COUNTY OF ADA)

On this 22nd day of AUGUST in the year of 1996, before me, a Notary Public, personally appeared LINDA PORTER, known or identified to me to be the person whose name subscribed to the within instrument, and being by me first duly sworn, declared that the statements therein are true, and acknowledged to me that she executed the same.

Janie Madie

Notary Public for Idaho
Residing at Boise, Idaho
My commission expires: 5/97

CONVERSATION MEMORANDUM

DATE 8/5/96

NAME OF PARTY Chuck Feast - consultant
Rob Bonstield - City of Boise

FILE 63-12312

EMPLOYEE Steve Keith

RE: Processing - Meeting to discuss

(1) Is this project sufficiently in public interest - so can be processed/Approved despite moratorium (Re: St. Luke's well, Meridian was Approved)?

(2) Shallow, alluvial g.w. strata near River.

(3) pump from well(s), to treatment plant to aid in sludge processing, sludge trucked to Twenty Mile South disposal (land apply) site.

Water recovered @ treatment plant & inject into Boise R. under existing NPDES permit. No ~~new~~ new construction @ River (so sounds like no new SCA issues).

(4) Requests advertising while finalizing comment letters & tech. ~~spec~~ specs. to provide to dept.

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NOV 07 1996

Result

(5) OK TO ADVERTISE WITH CLARIFYING REMARKS:

- W.b. zone 40-50' (See 2/16/96 letter from ROB B.)
- Non-cons. use @ waste treatment plant; re-captured water to be injected into B. River.

CONVERSATION MEMORANDUM

DATE 6/20/96

FILE 63.12312

NAME OF PARTY Rob Bousfield

EMPLOYEE Cindy Hodges

RE: Mitigation

I received a voice mail msg from Mr. Bousfield indicating that a mitigation plan was to be submitted, which may allow processing of this application to continue.

MICROFILMED
NOV 07 1996

PUBLIC WORKS DEPARTMENT
CITY HALL
4TH FLOOR

BOISE
CITY OF TREES

H. BRENT COLES
MAYOR

COUNCIL MEMBERS

PAULA FORNEY
COUNCIL PRESIDENT

CAROLYN TERTELING
COUNCIL PRO TEM

SARA BAKER
ANNE STITES HAUSRATH
M. JEROME MAPP
MIKE WETHERELL

February 16, 1996

Idaho Dept. of Water Resources
Attn: Cindy Hodges
2735 Airport Way
Boise, ID 83705-5082

Re: Water Rights Application #63-12312

Dear Cindy:

As we discussed today, a check in the amount of $55.00 was sent on February 14 for the balance of the application fee. Please resume processing of the application as your backlog allows.

Note that the City desires to begin utilizing the water approximately one year from now. I will contact you in a few months to check on the status of the application.

A well log from another well on the site (approximately 200 feet from the proposed wells) is attached for additional information on the aquifer. The wells are anticipated to be 80 feet deep, with the bottom 40 feet screened. Also, experience from nearby shallow (20 feet deep) dewatering wells indicate an ample shallow water supply.

Feel free to contact me at 384-3914 if you have any questions or if you need additional information. Thank you for your assistance.

Sincerely

Robert J. Bousfield
Project Manager

cc: CF\SF - CSP687.1

I:\USERS\RBOUSFIE\DWP\DEWATER\DEWWAT2
2/16/96

RECEIVED
FEB 20 1996
WATER RESOURCES
WESTERN REGION

RECEIVED
NOV 07 1996

WELL #2 (South)

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name West Boise Wastewater Treatment Plant

Address

Owner's Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☒ Waste Disposal or Injection

4. METHOD DRILLED

☐ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 8 inches Total depth 225 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
inches	8 inches	0 feet	220 feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

Was casing drive shoe used? ☒ Yes ☐ No

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation inches by inches

Number	From	To
perforations	feet	feet
perforations	feet	feet
perforations	feet	feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name

Type Model No.

Diameter Slot size Set from feet to feet

Diameter Slot size Set from feet to feet

Gravel packed? ☐ Yes ☒ No Size of gravel

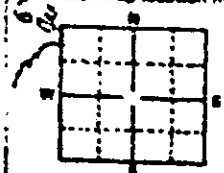
Placed from feet to feet

Surface seal depth 30' Material used to seal: ☐ Cement grout ☒ Puddling clay ☐ Well cuttings

Sealing procedure used: ☐ Slurry pit ☒ Temporary surface casing ☐ Overburn to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name

Lot No. Block No.

County Ada

¼ ¼ Sec. 22 T. 4 N/S R. 1 E/W

7. WATER LEVEL

Static water level 2 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow

Temperature ° F. Quality

Artesian closed in pressure p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Other

Discharge G.P.M.	Drop Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	10	Top Soil		X
8	10	200	Sand, Clay & Cobble Stone	X	
8	200	220	Clay		X
8	220	225	Water Sand	X	

10.

Work started 3-17-75 finished 3-17-75

11. DRILLER'S CERTIFICATION

Firm Name Treasure Valley Drilling Inc. 24

Address Rt. 6, Boise, Idaho Date 3-20-75

Signed by (Firm Official)

and

(Operator) Same

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

RECEIVED
FEB 20 1996
WATER RESOURCES
WESTERN REGION

MICROFILMED
NOV 07 1996

63-12312

CITY OF BOISE
PUBLIC WORKS DEPT
PO BOX 500
BOISE, ID 837010500

Source: GROUNDWATER

Diversion Pt: SWNWSW Sec 22 T 04N R 01E in ADA County.

Use: INDUSTRIAL (2.700 CFS)
Total Diversion: (2.700 CFS)

Date Filed: 2/15/1996

In: ADA County
T04N R01E S22 NWSW

Water bearing zone to be appropriated is 40 to 80 feet.
Non-consumptive use at waste treatment plant; return flows to Boise River.

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State of Idaho
DEPARTMENT OF WATER RESOURCES
Western Region, 2735 Airport Way, Boise, Idaho 83705-5082 - (208) 334-2190
FAX (208) 334-2348

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

January 29, 1996

ROBERT J BOUSFIELD
PUBLIC WORKS DEPT
CITY OF BOISE
PO BOX 500
BOISE ID 83701-0500

RE: Application for Permit

Dear Applicant:

Your application for permit to appropriate ground water for industrial purposes was received on 1/19/1996. Processing of your application must be delayed.

Due to continued drought and to protect existing water rights and water supplies, the Director of this agency declared a moratorium on 5/15/1992 concerning water right applications proposing new consumptive uses of public water. The moratorium has now been lifted, but a backlog of applications filed during the moratorium must first be processed before new applications may be considered.

To facilitate handling of your filing once it can be processed, please provide the proposed depth(s) of the water bearing zone(s) to be developed within the aquifer. For more information on the appropriate water bearing zone for your well, you might contact your driller or review copies of well drilling reports in the project area.

Also, insufficient fees were received with this application. As of July 1, 1994, the attached fee schedule became effective. Balance of fees due for this application are $55.00. These must be received before processing may resume.

This office will hold your application and will begin processing as soon as our backlog has been eliminated. All applications received will be processed in priority order. Delays related to department actions do not affect the date of priority or seniority of your application, once established.

If you have any questions, please feel free to contact this office at 334-2190.

Sincerely,

Cindy Hodges

Cindy Hodges
Sr. Water Resource Agent

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NOV 07 1996

PUBLIC WORKS DEPARTMENT
CITY HALL
4TH FLOOR

BOISE
CITY OF TREES

H. BRENT COLES
MAYOR

COUNCIL MEMBERS

PAULA FORNEY
COUNCIL PRESIDENT

CAROLYN TERTELING
COUNCIL PRO TEM

SARA BAKER
ANNE STITES HAUSRATH
M. JEROME MAPP
MIKE WETHERELL

January 17, 1996

Idaho Department of Water Resources
2735 Airport Way
Boise, ID 83705

RE: Application for permit

Dear Sir/Madam:

Enclosed is a completed Application for Permit to obtain water rights for a proposed well system at the City of Boise's West Boise Wastewater Treatment Plant (11818 Joplin Road; Boise). An application fee of $85.00 is also enclosed.

The proposed system is to provide process water for a new Biosolids Dewatering facility. The system is comprised of two 10" diameter wells, each with a 600 gpm variable speed pump. The maximum pumping rate is 2.7 cfs, but the anticipated daily average rate is 1.0 cfs. After use, process water will be returned to the head of the plant for treatment. We hope to begin construction of the project in February and be complete in February of 1997.

Please review and process the application. Please forward correspondence to my attention at the address on the application. Feel free to contact me with any questions at 384-3914. Thank you for your assistance.

Sincerely

Robert J. Bousfield
Project Manger

Enclosure

cc: CF\SF - CSP687.1

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1/17/96

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JAN 19 1996
WATER RESOURCES
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