WHITE—DIVISION OF WATER RESOURCES
CANARY—CLIENT'S COPY
PINK—WELL DRILLER'S COPY

PRINT OR TYPE ONLY
DO NOT WRITE ON BACK

STATE OF NEVADA
DIVISION OF WATER RESOURCES

WELL DRILLER'S REPORT

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

OFFICE USE ONLY
Log No. 91780
Permit No.
Basin 110C

NOTICE OF INTENT NO. 46326

1. OWNER US ARMY CORP OF ENGRS
MAILING ADDRESS 1325 J Street
Sacramento, CA 95814

ADDRESS AT WELL LOCATION well IRP MW 56
HAWTHORNE ARMY DEPOT
Hawthorne, Nevada

2. LOCATION NW ¼ NW ¼ Sec. 8 T 8 N/S R 30 E Mineral County

PERMIT NO. (Issued by Water Resources) Parcel No. Subdivision Name

3. WORK PERFORMED
☒ New Well ☐ Replace ☐ Recondition
☐ Deepen ☐ Abandon ☐ Other

4. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Test
☐ Municipal/Industrial ☒ Monitor ☐ Stock

5. WELL TYPE
☐ Cable ☐ Rotary ☐ RVC
☐ Air ☒ Other H.S.A.

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
SILTY SAND YELLOW		0	60	
SANDY SILT YELLOW		60	70	
POORLY GRADED SAND		70	100	
SILTY SAND YELLOW				
SILTY SAND YELLOW		100	140	
	145		180	
SILTY SAND YELLOW		140	180	
LIGHT BROWN				

Date started 8/13/02, 19
Date completed 8/23/02, 19

7. WELL TEST DATA
TEST METHOD: ☒ Bailer ☐ Pump ☐ Air Lift

G.P.M.	Draw Down (Feet Below Static)	Time (Hours)

8. WELL CONSTRUCTION
Depth Drilled 180 Feet Depth Cased 180 Feet

HOLE DIAMETER (BIT SIZE)

	From	To
10 Inches	0 Feet	180 Feet
Inches	Feet	Feet
Inches	Feet	Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
4		sch. 40	0	140

Perforations:
Type perforation machined slot
Size perforation .010
From 140 feet to 180 feet
From feet to feet
From feet to feet
From feet to feet
From feet to feet

Surface Seal: ☒ Yes ☐ No
Depth of Seal 1-135
Placement Method: ☐ Pumped ☒ Poured
Seal Type: ☐ Neat Cement ☐ Cement Grout ☐ Concrete Grout

Gravel Packed: ☒ Yes ☐ No
From 138 feet to 180 feet

9. WATER LEVEL
Static water level 145 feet below land surface
Artesian flow G.P.M. P.S.I.
Water temperature °F Quality

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision and the report is true to the best of my knowledge.
Name Cascade Drilling, Inc. (Contractor)
Address 3632 Omec Circle (Contractor)
Rancho Cordova, CA 95742
Nevada contractor's license number issued by the State Contractor's Board C23 51207
Nevada driller's license number issued by the Division of Water Resources, the on-site driller M-1908
Signed (By driller performing actual drilling on site or contractor)
Date 10-9-02

(Rev. 3-91) USE ADDITIONAL SHEETS IF NECESSARY (O)-627

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FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

SEE pg 2 of 9

CLIENT	USACE
LOCATION	Hawthorne, NV
PROJECT NAME	HWAD
JOB NUMBER	00729.002
DRILLING CONTRACTOR	Cascade
RIG TYPE (CIRCLE ONE)	HSA DP MUD ARCH NONE OTHER
DRILLING METHOD, FLUID USED	HSA - CME 95 rig
SOIL SAMPLING METHOD (CIRCLE ONE)	SPLIT SPOON CC ACETATE NONE OTHER
MONITORING INSTRUMENT (CIRCLE ONE)	PID FID LEL RAD NONE OTHER
SURFACE CONDITIONS (CIRCLE ONE)	ASPHALT CONCRETE DRY DEC WET OTHER

BORING NUMBER: IRPMW56

SHEET 1 OF 9

DRILLING	START	FINISH
TIME	1045	1230
DATE	08.14.02	08.15.02

WELL CONSTRUCTION	START	FINISH
TIME	1230	0830
DATE	08.15.02	08.16.02

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/l), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SAMPLER USED	BLOWS/6" INTERVAL	INTERVAL SAMPLED	RECOVERY	ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INTIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE: INTERVAL: DESCRIPTION
		SS						0	0	SM	0-10 Sandy silt w/ gravel, yellow-lt brown, SM (20,35,45), nonplastic, no-low dry strength, no dilatancy, no toughness, dry, no odor, homogeneous, high-med perm
Neat Cement Grout	4" SCH 40 PVC Blank							5			
			50 x x					10	8.0		10- Silty sand, yellow-lt brown, (10,40,50), nonplastic, subangular/subrounded no-low dry strength, no dilatancy, no toughness, well sorted, homogeneous, weak cementation, med perm
								15			
								20			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A _____ D _____

B _____ E _____

C _____ F _____

91780 3/16

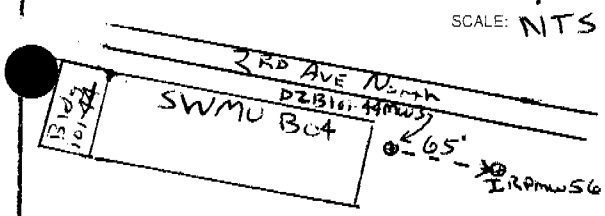
FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

W E

SCALE: NTS



CLIENT	USACE
LOCATION	Hawthorne, Nv
PROJECT NAME	HWAD
JOB NUMBER	00727.002
DRILLING CONTRACTOR	Cascade
RIG TYPE (CIRCLE ONE)	HSA (X) DP MUD ARCH NONE OTHER
DRILLING METHOD, FLUID USED	HSA
SOIL SAMPLING METHOD (CIRCLE ONE)	SPLIT SPOON (X) CC ACETATE NONE OTHER
MONITORING INSTRUMENT (CIRCLE ONE)	PID (X) FID LEL RAD NONE OTHER
SURFACE CONDITIONS (CIRCLE ONE)	ASPHALT CONCRETE DIRT (X) DRY (X) WET OTHER

BORING NUMBER: IRPMW56

SHEET 2 OF 9

DRILLING	START	FINISH
TIME	1045	1230
DATE	08.14.02	08.15.02

WELL CONSTRUCTION	START	FINISH
TIME	1230	0830
DATE	08.15.02	08.16.02

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/f), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SAMPLER USED	BLOWS/6" INTERVAL	INTERVAL SAMPLED	RECOVERY	ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INTIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE, INTERVAL: DESCRIPTION
Neat Cement Grout	4" SCH 40 PVC Blank	SS	70 X X					20	4.0	ML	20-30 Sandy silt, ~~H~~ yellow-lt brown, ML (5,35,60), nonplastic, no-low dry strength, no dilatancy, no toughness, dry, no odor, homogeneous, med perm
								25			
											30-50 ~~Sand~~ silty sand, yellow, ~~SM~~, SP (15,55,30) nonplastic, subrounded/subangular, dry, no odor, homogeneous, weak cementation, med perm, poorly graded, Fine sand
			80 X X					30	6.6	~~SM~~ SP	
								35			
								40			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A _____ D _____

B _____ E _____

C _____ F _____

91780 4/16

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT	USACE
LOCATION	Hawthorne, NV
PROJECT NAME	HWAD
JOB NUMBER	00729.002
DRILLING CONTRACTOR	Cascade
RIG TYPE (CIRCLE ONE)	HSA DP MUD ARCH NONE OTHER
DRILLING METHOD, FLUID USED	HSA
SOIL SAMPLING METHOD (CIRCLE ONE)	SPLIT SPOON CC ACETATE NONE OTHER
MONITORING INSTRUMENT (CIRCLE ONE)	PID FID LEL RAD NONE OTHER
SURFACE CONDITIONS (CIRCLE ONE)	ASPHALT CONCRETE DIRT DRY WET OTHER

BORING NUMBER: IRPMW56

SHEET 3 OF

DRILLING	START	FINISH
TIME	1045	1230
DATE	08.14.02	08.15.02

WELL CONSTRUCTION	START	FINISH
TIME	1230	
DATE	08.15.02	

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/f), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INTIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE: INTERVAL: DESCRIPTION
Neat Cement Grout	4" SCH 40 PVC Blank		80x x x					40	1.0	SP	40-50 Same as 30'
								45			50 - Sandy silt, yellow, ML (5, 25, 70), nonplastic, no-low dry strength, no dilatancy, no toughness, dry, no odor, homogeneous, low-med perm
			50x x x					50	13	ML	
								55			
								60			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A _____ D _____

B _____ E _____

C _____ F _____

9178Ø 5/1Ø

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

SEE pg 2 of 9

CLIENT: USACE

LOCATION: Hawthorne, NJ

PROJECT NAME: HWAD

JOB NUMBER: 00729.002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA DP MUD ARCH NONE OTHER

DRILLING METHOD, FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DIRT DRY WET OTHER

BORING NUMBER: IRPmw56

SHEET 4 OF 9

DRILLING	
START	FINISH
TIME 1045	TIME 1230
DATE 08.14.02	DATE 08.15.02

WELL CONSTRUCTION	
START	FINISH
TIME 08.15.02	TIME
DATE 1230	DATE

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	BLOWS/6"	INTERVAL	INTERVAL SAMPLED	RECOVERY	ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION / COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/f), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION / SAMPLE TYPE: INTERVAL: DESCRIPTION
Neat Cement Grout	4" SCH 40 PVC Blank		50(6) X Y						60	2.0	ML	60-70 Same as above
									65			70-100 Poorly graded sand w/ silt (yellow-yellowish orange, SP, (5,60,35) nonplastic, no dry strength, subangular, dry, no odor, homogeneous, mod cementation, low-med perm; Fine dense sands
			60(6) X Y						70	2.5	SP	
									75			
									80			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A _____ D _____

B _____ E _____

C _____ F _____

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FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT: USACE

LOCATION: Hawthorne, NV

PROJECT NAME: HLWAD

JOB NUMBER: 00791.002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA DP MUD ARCH NONE OTHER

DRILLING METHOD, FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DIRT DRY WET OTHER

BORING NUMBER: IRPMW56

SHEET 5 OF

DRILLING	
START	FINISH
TIME 1045	TIME 1230
DATE 08.14.02	DATE 08.15.02

WELL CONSTRUCTION	
START	FINISH
TIME 1230	TIME
DATE 08.15.02	DATE

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/f), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE: INTERVAL: DESCRIPTION
Neat Cement Grout	4" SCH 40 PVC Blank		50/5 X X					80	7.5	~~mt~~ SP	80- Same as 70
											90- Same as above
			50 X X					90	2.5	~~mt~~ SP	
								95			
								100			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A B C D E F

91780 7/10

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT	USACE
LOCATION	Hawthorne, NV
PROJECT NAME	HWAD
JOB NUMBER	00729.002
DRILLING CONTRACTOR	Cascade
RIG TYPE (CIRCLE ONE)	HSA DP MUD ARCH NONE OTHER
DRILLING METHOD, FLUID USED	HSA
SOIL SAMPLING METHOD (CIRCLE ONE)	SPLIT SPOON CC ACETATE NONE OTHER
MONITORING INSTRUMENT (CIRCLE ONE)	PID FID LEL RAD NONE OTHER
SURFACE CONDITIONS (CIRCLE ONE)	ASPHALT CONCRETE DIRT DRY WET OTHER

BORING NUMBER: IRPMW56

SHEET 6 OF 9

DRILLING	START	FINISH
TIME	1045	1230
DATE	08.14.02	08.15.02

WELL CONSTRUCTION	START	FINISH
TIME	1230	
DATE	08.15.02	

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/l), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INTIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE, INTERVAL, DESCRIPTION
Neat Cement Grout	2" SCH 40 PVC Blank		100(5) X X					100	2.0	SM	100-110 Silty sand, yellow-lt brown, SM (15, 65, 20), nonplastic, no-low dry strength, no dilatancy, no-~~low~~ toughness, dry, no odor, homogeneous, low-med perm
								105			
											110- sandy silt, yellow-lt brown, ML (15, 25, 60), nonplastic, low-med dry strength, no dilatancy, no toughness, dry, no odor, homogeneous, low perm
			100(6) X X					110	1.5	ML	
								115			
								120			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A _____ D _____

B _____ E _____

C _____ F _____

91780 8/10

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT	USACE
LOCATION	Hawthorne, Nv
PROJECT NAME	HLWAD
JOB NUMBER	0029.002
DRILLING CONTRACTOR	Cascade
RIG TYPE (CIRCLE ONE)	HSA DP MUD ARCH NONE OTHER
DRILLING METHOD, FLUID USED	HSA
SOIL SAMPLING METHOD (CIRCLE ONE)	SPLIT SPOON CC ACETATE NONE OTHER
MONITORING INSTRUMENT (CIRCLE ONE)	PID FID LEL RAD NONE OTHER
SURFACE CONDITIONS (CIRCLE ONE)	ASPHALT CONCRETE DRY WET OTHER

BORING NUMBER: IRPMW56

SHEET 7 OF 9

DRILLING	
START	FINISH
TIME 1045	TIME 1230
DATE 08.14.02	DATE 08.15.02
WELL CONSTRUCTION	
START	FINISH
TIME 1230	TIME
DATE 08.15.02	DATE

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/l), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE: INTERVAL: DESCRIPTION
			60 x x					120	1.0	ML	120-130 Sandy silt, Yellow-lt brown, ML (15, 25, 60), non plastic, med dry strength, no dilatancy, no toughness, dry, no odor, homogeneous, hard, low perm
								125			
											130- Same as above except high dry strength
			60 x x					130	1.7	ML	
								135			
								140			

Cement grout

4" SCH 40 PVC Blank

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A _____ D _____

B _____ E _____

C _____ F _____

917806 9/16

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT	USACE
LOCATION	Hawthorne, NV
PROJECT NAME	HWAD
JOB NUMBER	00229.002
DRILLING CONTRACTOR	Cascade
RIG TYPE (CIRCLE ONE) / OTHER	HSA / DP / MUD / ARCH / NONE
DRILLING METHOD, FLUID USED	HSA
SOIL SAMPLING METHOD (CIRCLE ONE) / OTHER	SPLIT SPOON / CC / ACETATE / NONE
MONITORING INSTRUMENT (CIRCLE ONE) / OTHER	PID / FID / LEL / RAD / NONE
SURFACE CONDITIONS (CIRCLE ONE) / OTHER	ASPHALT / CONCRETE / DIRT / DRY / WET

BORING NUMBER: IRPMW56

SHEET 8 OF 9

DRILLING	START	FINISH
TIME	1045	1230
DATE	08.14.02	08.15.02

WELL CONSTRUCTION	START	FINISH
TIME	1230	
DATE	08.15.02	

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/f), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	BLOWS/6" INTERVAL	INTERVAL SAMPLED	RECOVERY	ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE: INTERVAL: DESCRIPTION
#2 RMC SAND	4" .010 Slotted SCH 40 PVC		60					14.0	1.0	SM	14.0- Silty sand, yellow-lt brown, SM (10, ~~20~~ 70, 20) no plasticity, low dry strength, no dilatancy, no toughness, dry, no odor, homogeneous, soft, low-med perm, fine-very fine sand, weak cementation, subrounded/subangular
							▽	14.5			
			50					15.0	1.0	SM	15.0. ~~Sand, Silt~~ Silty sand, lt brown, SM (5, ~~35~~ 60, ~~60~~ 35) no plasticity, subangular/subrounded, wet, no odor, homogeneous, weak cementation, med perm, fine sand
								15.5			
								16.0			

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A _____ D _____

B _____ E _____

C _____ F _____

917800 10/10

FORSGREN ASSOCIATES/BROWN AND CALDWELL

BOREHOLE/WELL LOG

LOCATION OF BORING

N W E S

SCALE:

CLIENT: USACE

LOCATION: Hawthorne, NV

PROJECT NAME: HWAD

JOB NUMBER: 00729.002

DRILLING CONTRACTOR: Cascade

RIG TYPE (CIRCLE ONE): HSA DP MUD ARCH NONE OTHER

DRILLING METHOD, FLUID USED: HSA

SOIL SAMPLING METHOD (CIRCLE ONE): SPLIT SPOON CC ACETATE NONE OTHER

MONITORING INSTRUMENT (CIRCLE ONE): PID FID LEL RAD NONE OTHER

SURFACE CONDITIONS (CIRCLE ONE): ASPHALT CONCRETE DIRT DRY WET OTHER

BORING NUMBER: IRPmw56

SHEET 9 OF 9

DRILLING	
START	FINISH
TIME 1045	TIME 1230
DATE 08.14.02	DATE 08.15.02

WELL CONSTRUCTION	
START	FINISH
TIME 1230	TIME
DATE 08.15.02	DATE

FINE GRAINED AND ORGANIC SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, SIZE DISTRIBUTION, PLASTICITY, DRY STRENGTH, DILATANCY, TOUGHNESS, MOISTURE, ODOR, STRUCTURE, CONSISTENCY, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, CONTACT DESCRIPTION

COARSE GRAINED SOIL DESCRIPTION: GROUP NAME, MUNSELL COLOR, COLOR, GRADATION (g/s/l), SIZE DISTRIBUTION, PLASTICITY, SHAPE, ANGULARITY, MOISTURE, ODOR, STRUCTURE, CEMENTATION, RELATIVE PERMEABILITY, LOCAL GEOLOGIC NAME, MINERALOGY, CONTACT DESCRIPTION

WELL CONSTRUCTION: ANNULUS	WELL CONSTRUCTION: CASING	SOIL SAMPLING: SAMPLER USED	SOIL SAMPLING: BLOWS/6" INTERVAL	SOIL SAMPLING: INTERVAL SAMPLED	SOIL SAMPLING: RECOVERY	SOIL SAMPLING: ANALYTICAL SAMPLE (A,B,C)	WATER LEVEL (INITIAL/STATIC)	DEPTH (FEET)	INSTRUMENT READING (ppm)	USCS GROUP SYMBOL	SAMPLE TYPE: INTERVAL: DESCRIPTION
	#2 RMC SAND	SS									
			27 50 X					160	4.0	SP	160 - 170 Silty sand, lt brown, SP (5, 70, 25), nonplastic, low dry strength, subrounded/subangular, wet, no odor, homogeneous, weak cementation, med perm, fine sand, poorly graded
	4" .010 slotted SCH 40 PVC							165			
											170 - 180 Silty sand lt brown, SP (5, 75, 20) low plasticity ~~nonplastic~~, med-high dry strength, subrounded, moist, no odor, homogeneous, moderate cementation, low ~~med~~ perm, fine, poorly graded, dense sand
			Soil X X					170	35	SP	
											180 same as above
								175			Well materials: - 40' .010 slotted screen, 140' blank SCH 40, 6" threaded cap. Sand: 180-138: 42' × 0.44 ft³/ft = 18.5 ft³ used 24. Seal: 3 - 50 lb bags of Enviroplug bentonite chipper 5' seal. Neat cement grout: 132 ft × 3.46 gal/ft = 456 gals. Used 43 sacks 8/15/02. Used 47 total 14 bags 08 16 02. 34 bags concrete
			12 18 50					180	40	SP	

ANALYTICAL SAMPLE ID (SEE ABOVE FOR LOCATION)

A

B

C

D

E

F