



SPF WATER
ENGINEERING, LLC

August 18, 2010

Idaho Department of Water Resources
Northern Regional Office
7600 Mineral Drive, Suite 100
Coeur d'Alene, ID 83815-7763

RECEIVED

AUG 20 2010

IDWR/NORTHERN

*Subject: Black Rock Utilities, Inc.
Permit 95-9045
Statement of Completion for Submitting Proof of Beneficial Use
Beneficial Use Field Exam Report*

Dear Mr. Haynes,

On behalf of our client, Black Rock Utilities, the above-referenced documents pertaining to Permit 95-9045 are enclosed with this correspondence. A digital GIS shapefile of the point of diversion and place of use are available upon request. We look forward to licensing of this permit. Please let me know if you have any questions regarding this report for need any additional information.

Sincerely,

Scott N. King, P.E.
Supervising Engineer

cc: Kyle Capps
Mike Stenbert

File: 866.0010

SCANNED
OCT 26 2010

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No. 95-9045

1. Owner Black Rock Utilities Inc. Phone No. 208-665-2005

Current address PO Box 3070, Coeur d'Alene, ID 83816

2. Examiner's name Scott King EXAM DATE August 10, 2010

3. Accompanied by Kyle Capps Email kylec@blackrockdevelopment.com

Address same as above

Relationship to permit holder V.P. of Site Development and Maintenance Phone No. same as above

4. Source Coeur d'Alene Lake tributary to Spokane River

B. OVERLAP REVIEW

1. Other water rights with the same place of use 95-9055, 95-9248

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
1	1		NE	NE	16	48N	4W	Kootenai	Exam, GPS, 2009 Photo

2. Place(s) of Use: Method of determination Exam, 2009 Photo

POU within the service area of Black Rock Utilities, Inc.

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
48N	04W	4						X (lt 4)	X	X	X	X	X	X		X	X	X	
		5	X (lt 1)	X (lt 2)	X	X	X (lt 3)			X	X			X	X	X	X	X	
		8	X (lt 1)	X (lt 2)	X (lt 7)	X (lt 8)					X	X		X	X	X	X	X	
		9						X (lt 4)	X (lt 5)	X (lt 6)	X	X	X	X			X		
		16	X (lt 1)	X (lt 1)	X (lt 1)		X	X	X (lt 2)	X (lt 3)	X (lt 3)	X (lt 2)							
		17	X			X													

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.

Scale: 1" = _____

- ☒ Copy of USGS Quadrangle 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	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
1 - pump #1	Franklin Electric	100	10D19-12-800078	Grundfos	625S1000-5 (model)
1 - pump #2	Franklin Electric	100	10D19-13-800098	Grundfos	625S1000-5 (model)

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

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Installed Flowmeter	Turbine	Master Meter	unknown	2914949	6-inch	unknown

2. Measurements:

Timed discharge of 1,000 gallons three times (51.27 sec, 51.25 sec, 51.34 sec). Average time 51.29 seconds.
Measured discharge is 1,170 gpm (2.61 cfs).

E. NARRATIVE/REMARKS/COMMENTS

Two 100-hp submersible pumps divert water via submerged intake from Lake Coeur d'Alene. These pumps are controlled by variable frequency drives and are operated to maintain discharge at the permitted rate (2.50 cfs) or less. Flow is piped from the lake to a flowmeter & valve vault located in the NENE Section 17, adjacent to the potable municipal water supply booster station. This vault houses the six-inch Master Meter turbine-type flowmeter that measures all water diverted under this right. From the vault, water is piped and discharged to the southern end of the Main Irrigation Pond in the NWSE Section 8 (pond is identified as #9 in Attachment C Water Storage Features table). The Black Rock Pump Station diverts from the northwest end of this pond with the following: two 75-hp vertical turbines serving irrigation and aesthetic storage pond uses at the The Club at Black Rock golf course; and two 100-hp vertical turbines serving irrigation and fire flow uses for residential units in the The Club at Black Rock Development and boosting water to the Black Rock North irrigation pond. At the Black Rock North irrigation pond, the Black Rock North pump station diverts with the following: four 75-hp vertical turbines serving irrigation and aesthetic storage uses at the Black Rock North golf course; and five 60-hp vertical turbines serving irrigation and fire flow demands for residential units in the Black Rock North Development. Flowmeters are installed at both booster stations, and at individual customer service connections.

The measured discharge during the exam was 2.61 cfs. The two Grundfos Model 625S 100-hp 5-stage pumps diverting from Lake Coeur d'Alene are rated to produce 560 gpm each at approximately 543 feet of head (pump curve included in attachment).

Municipal use includes the following: irrigation of 545 acres, diversion to storage, aesthetic storage, irrigation storage, irrigation from storage, and fire protection. Per permit conditions, total irrigation is limited to 545 acres. Storage volume is limited to 123 af and refill volume is limited to 246 af with total combined volume limited to 369 af.

The public water system number assigned by the Department of Environmental Quality is #1280290.

Irrigated area includes 524 acres of open space and 21 acres within developed residential lots, cottages, and fire station for a total of 545 acres. The average area irrigated within each lot upon which a home is constructed is 0.20 acres. A total of 273 domestic connections are stubbed to platted lots where homes are not constructed. Mike Stenberg, P.E. of Hyalite Engineers (406.587.2781) provided (1) a detailed assessment of irrigated areas which is included in Attachment C, and (2) maps of areas irrigated during 2010 which are included in Attachment D.

Storage capacity developed and filled totals 123 acre-feet. Storage feature size and capacity is documented in Attachment C. A map depicting storage feature locations is included in Attachment D.

Based on the field exam, the SWSE Section 9 is added to the place of use; this tract was inadvertently excluded during prior amendments to the permit. The service area boundary is similarly adjusted to include the area served by the delivery system. A digital GIS shapefile of this boundary is available upon request.

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

F. FLOW CALCULATIONS

Additional computation sheets attached

Measured Method:

Flow was measured using the installed Master Meter flowmeter by timing three sequential 1,000-gallon increments of diverted volume. The individual timed periods for each 1,000 gallon increment were 51.27 sec, 51.25 sec & 51.34 sec. The average of these three timed periods is 51.29 seconds. Measured discharge is 2.61 cfs (1,170 gpm).

1,000 gallons / 51.29 seconds x 60 seconds per minute = 1,170 gallons per minute.

1,170 gpm / 448.8 gpm per cfs = 2.61 cfs

Pump capacity curves are included in Attachment B. The pump curves corroborate measurements.

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 545 \text{ acres} \times 3 \text{ afa/acre} = 1,635 \text{ afa}$

$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = 2.5 \text{ cfs} \times 245 \text{ days} \times 1.9835 = 1,215 \text{ afa}$

$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 1,215 \text{ afa}$

2. Volume Calculations for Other Uses:

See Attachment C detailing pond volumes.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Municipal	1/1	12/31	2.5 cfs	1,215 afa
Totals:			2.5 cfs	1,215 afa

2. Recommended Amendments

- ☐ Change P.D. as reflected on page 1 ☐ Add P.D. as reflected on page 1 ☐ None
☐ Change P.U. as reflected on page 1 ☒ Add P.U. as reflected on page 1 ☐ Other

I. AUTHENTICATION

Field Examiner's Signature

Scott N. King

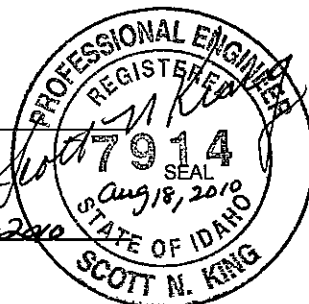
Date 8/18/2010

Reviewer

Eric J. [Signature]

Date

9-30-2010



ATTACHMENT A
PERMIT RECORD AND PROOF OF BENEFICIAL USE

State of Idaho
Department of Water Resources
Amendment of Permit

NO. 95-09045

Priority: April 12, 2000

Maximum Diversion Rate: 2.50 CFS
Maximum Diversion Volume: 1,215.0 AF

This is to certify, that BLACK ROCK UTILITIES INC
KYLE CAPPS, CGCS
PO BOX 3070
COEUR D ALENE ID 83816

has applied for an amendment of a permit and the amendment is APPROVED for development of water as follows:

Source: COEUR D ALENE LAKE Tributary: SPOKANE RIVER

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
MUNICIPAL	01/01 to 12/31	2.50 CFS	1,215.0 AF

LOCATION OF POINT(S) OF DIVERSION:

COEUR D ALENE LAKE L1 (NE1/4NE1/4) Sec. 16, Twp 48N, Rge 04W, B.M.
KOOTENAI County

CONDITIONS OF APPROVAL

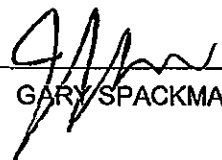
1. Proof of application of water to beneficial use shall be submitted on or before **September 01, 2010**.
2. Subject to all prior water rights.
3. Prior to or in connection with the proof of beneficial use statement to be submitted for municipal water use under this right, the right holder shall provide the department with documentation showing that the water supply system is being regulated by the Idaho Department of Environmental Quality as a public water supply and that it has been issued a public water supply number.
4. Municipal use is for irrigation, diversion to storage, aesthetic storage, irrigation storage, irrigation from storage, and fire protection.
5. Irrigation shall be limited to not more than 545 acres within the service area of the water right holder. The service area encompasses Sections 4, 5, 8, 9, 16, and 17, Township 48 North, Range 4 West, Kootenai County. Irrigation of golf courses, parks, common areas, and other open spaces (hereafter referred to as "open space") must be complete at the time of the filing of proof of beneficial use. The right holder must submit evidence of the following: (a) the number of acres of open space irrigated, (b) the average acreage irrigated within each lot upon which a home is constructed; and (c) the number of domestic connections stubbed to platted lots where homes are not constructed. Any license issued for this right shall limit the irrigated open space to the acreage irrigated during the development period.
6. Aesthetic and irrigation storage may be developed within the service area of the water right holder. The service area encompasses portions of Sections 4, 5, 8, 9, 16, and 17, Township 48 North, Range 4 West, Kootenai County.
7. All storage beneficial uses must be completed at the time of the filing of proof of beneficial use. The right holder must submit evidence of the completion of the storage ponds, the storage capacity of the ponds, and the volume of water stored in the ponds during the development period. Any license issued for this right will limit the total storage component of the municipal use to the volume of water actually constructed and stored during the period of development prior to the filing of proof of beneficial use.

State of Idaho
Department of Water Resources
Amendment of Permit

NO. 95-09045

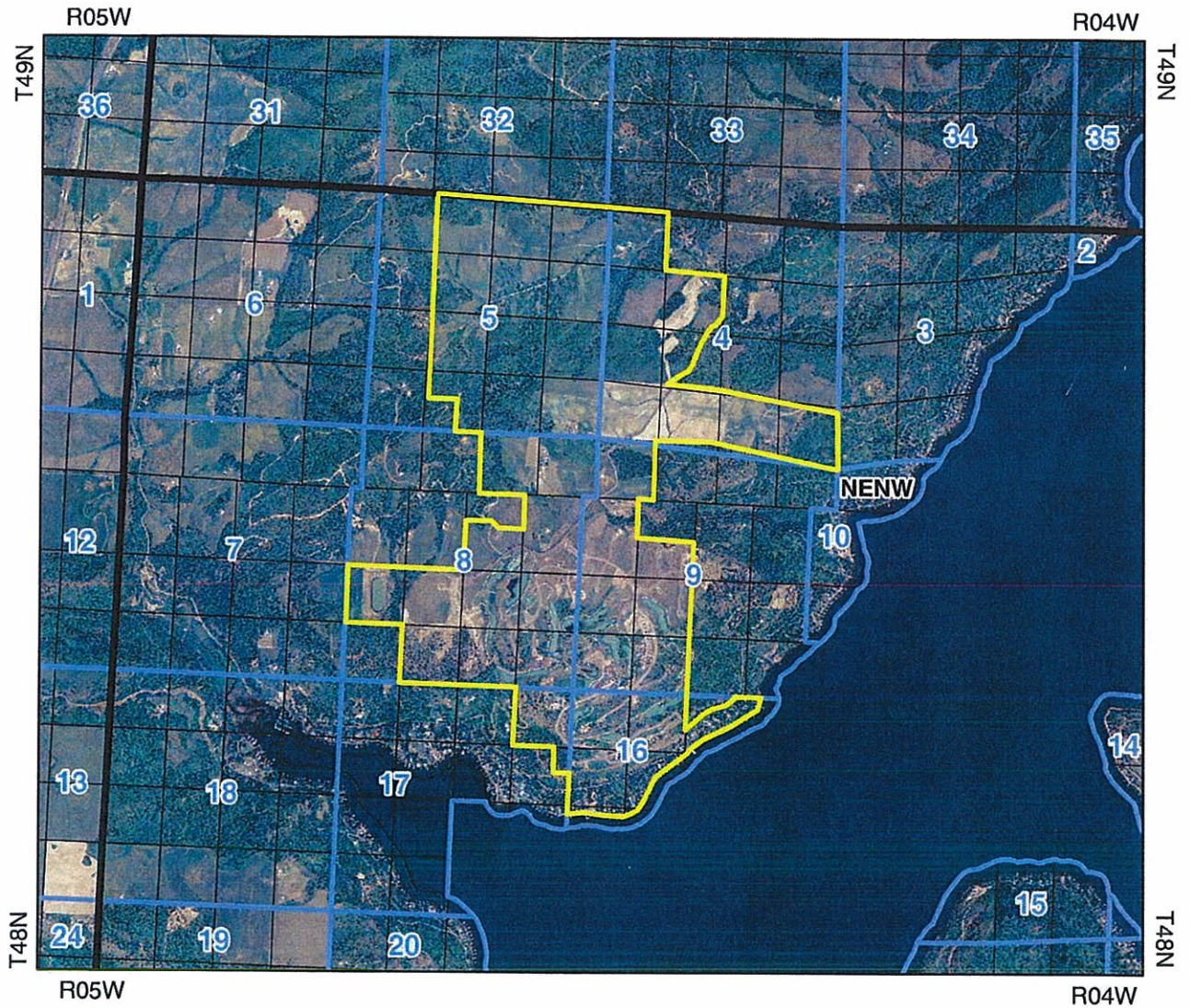
8. Water diverted under this right may be used for construction within the Black Rock North Development during the remainder of the development period.
9. Total physical storage is limited to 123 acre feet.
10. Total annual refill volume for seepage, evaporation, and depletions from the ponds for irrigation shall not exceed 246 acre feet.
11. The total annual volume for all storage and storage uses shall not exceed 369 acre feet.
12. The right holder shall install and maintain impervious liners on the ponds authorized under this right unless the right holder can show that the strata underlying a pond is sufficiently impervious that it will mimic the flow impedance of an impervious liner.
13. Water may only be diverted and used for irrigation from March 15 through November 15.
14. The right holder shall comply with all water quality statutes and rules administered by the Idaho Department of Environmental Quality.
15. The right holder shall install and maintain a fish screen at the point of diversion with ¼ inch or smaller screen mesh.
16. Direct flow use and diversions from storage under this right are limited to irrigation of 545 acres of turf and landscaping and for fire protection. In addition, water diverted under this right may be used for dust suppression and related construction purposes during the initial development and build-out of the project. In this condition, the phrase "direct flow use" will be narrowly interpreted to apply only to the immediate uses of water directly diverted from Lake Coeur d'Alene unrelated to storage, primarily irrigation use.
17. The owner of this right shall install or require to be installed a meter for each of its customers served by this right. The meter shall measure and record the quantity of water delivered to that customer.
18. The owner of this right shall meter and record its diversions from Lake Coeur d'Alene under this right and its diversions out of each water storage unit and shall report annually to IDWR on or before January 10 of each year the total annual diversions from the lake and from storage. Such reports shall be matters of public record.

This amendment of permit is issued pursuant to the provisions of Section 42-211, Idaho Code. Witness the signature of the Director, affixed at Boise, this 29th day of June, 2010.


For GARY SPACKMAN, Interim Director

State of Idaho
Department of Water Resources
Permit to Appropriate Water
95-9045

Water Service Area Boundary for Black Rock Utilities Inc



Legend

- Water Service Area Boundary
- Townships
- PLS Sections
- Quarter Quarters



ATTACHMENT B

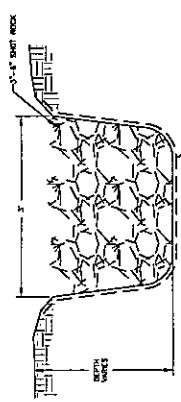
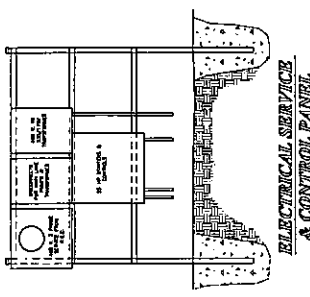
**Point of Diversion
PUMP INFORMATION**



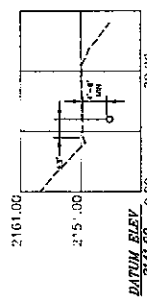
NO.	DATE	DESCRIPTION	BY



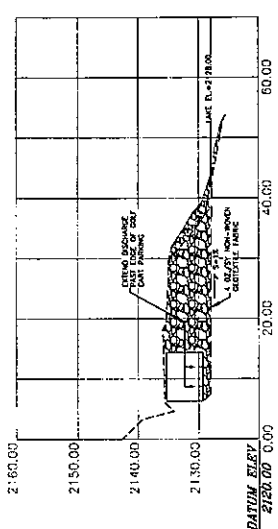
PROJECT NO.	000000
SHEET NO.	60 OF 74
DATE	08-01-01
SCALE	AS SHOWN
DESIGNED BY	DAVID A. BROWN
CHECKED BY	DAVID A. BROWN
APPROVED BY	DAVID A. BROWN



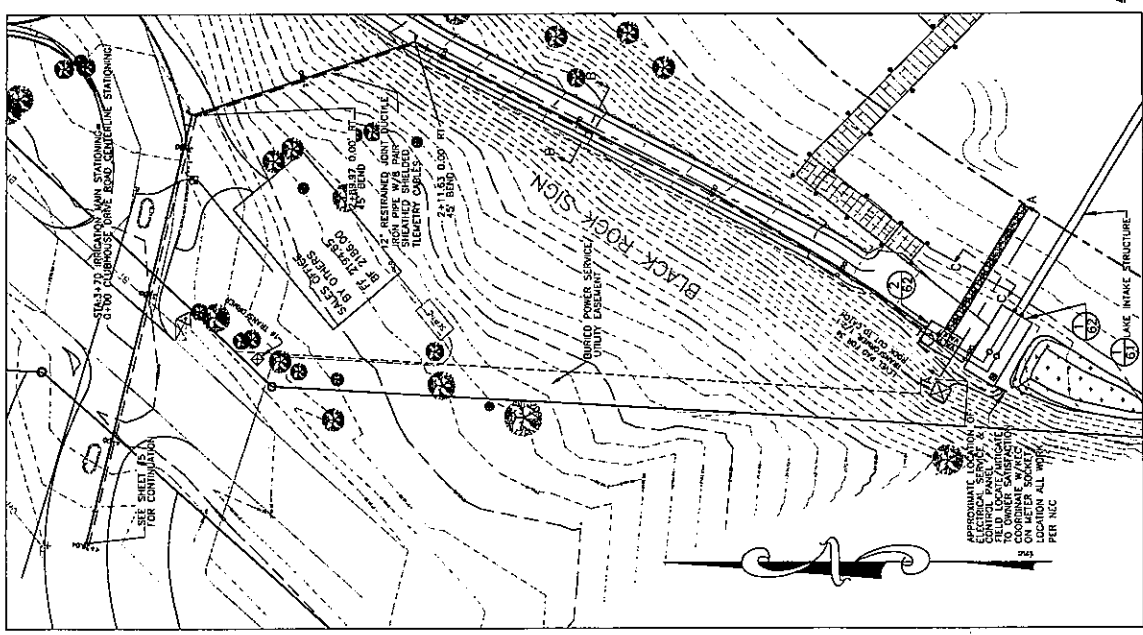
SECTION C-C (ARMOR TRENCH)



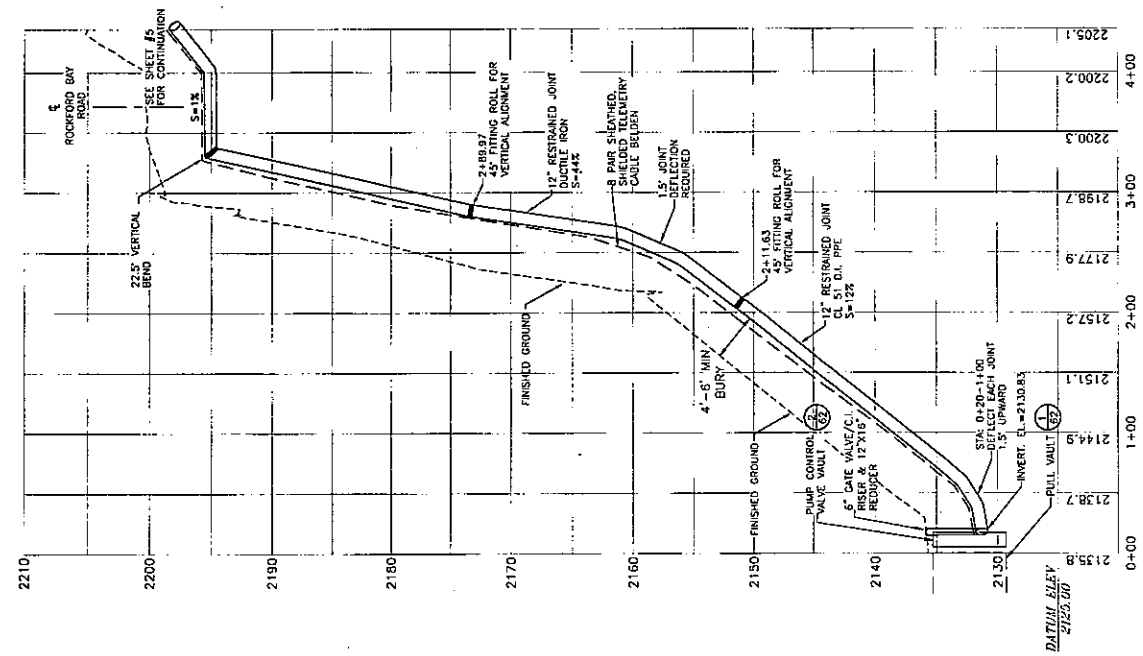
SECTION E-E (PIPE ALIGNMENT)



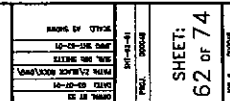
SECTION A-A



PLAN VIEW

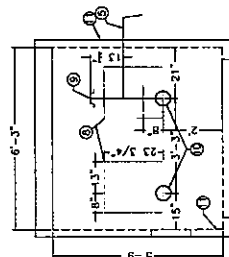


PROFILE VIEW

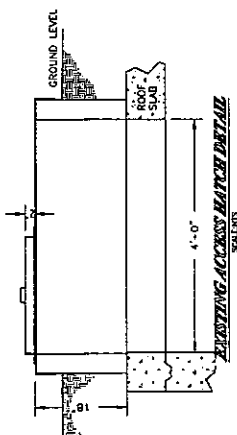


NOTES:

- 1-ALL VALVES SHALL HAVE 250 LB FLANGES.
- 2-ALL PIPING/FITTINGS IN THE VAULT SHALL BE RESTRAINED WITH MEGA-LOC BACKING RINGS OR APPROVED EQUAL.
- 3-VALVE DISCHARGE PIPING AND FLOOR SUMP SHALL BE INSTALLED TO DISCHARGE BENEATH/TROUGH THE RIP RAP ARMOR NOTED ON THE VAULT SECTION.



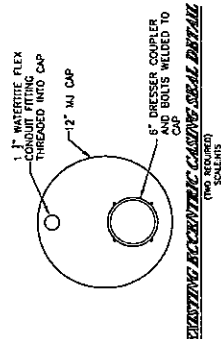
② IRRIGATION PUMP VALVE VAULT
PIPING SCHEMATIC



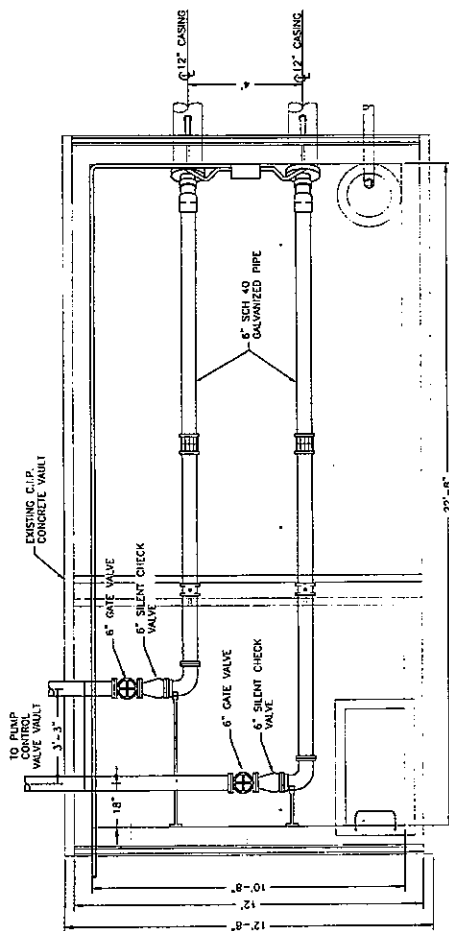
4'-0"

EXISTING ACCESS HATCH DETAIL

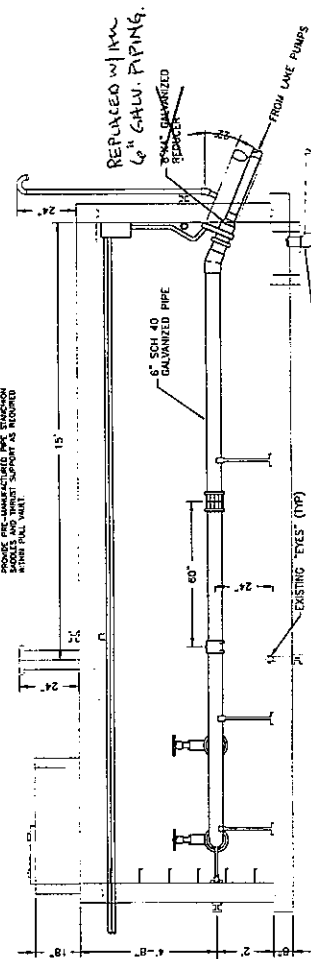
SCALE 1/4"=1'-0"



EXISTING ECCENTRIC CASING SEAL DETAIL
(TWO REQUIRED)
SCALE: NTS



NOTE: PROVIDE PRE-FABRICATED PIPE STATION ON
SADDLES AND THRUST SUPPORT AS REQUIRED
WITHIN PULL VALVE.



① PULL VAULT DETAILS
SCALE: 1/2" = 1'

TESTING OFFSET CLEANOUT AND PLUG (WITH TEN 1" HOLES FOR DRAINAGE) IN SUMP TO ALLOW ROOM FOR SUMP PUMP. SUMP DISCHARGES THROUGH DRILLED 10" OF 4" ADS PIPE AT 2% DISCHARGE TO 2 C.Y. MOUNTFIELD ROCK SUMP.

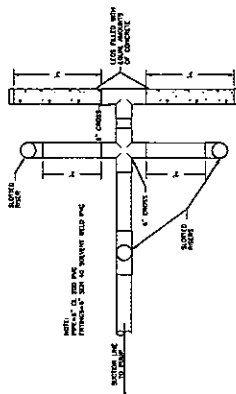
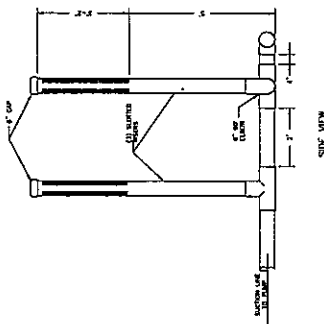
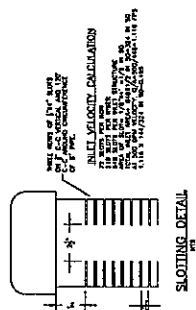


AR	DESCRIPTION	DATE	NO.

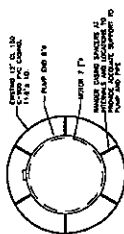
BLACK ROCK
BLACK ROCK PAPER
BLACK PAPER & PAPER CONTROLS, PLANT MATERIAL
PAPER & PAPER
PAPER CONTROLS, PLANT MATERIAL

DATE: 03-08-81	SHEET: 61 OF 74
DATE: 03-08-81	
POLICE 21-600-1000	
SHEET	
LONG 307-41-02	
SCALE: AS SHOWN	

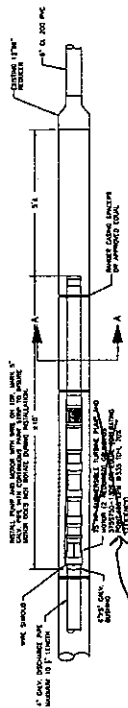
Mar 8 2001



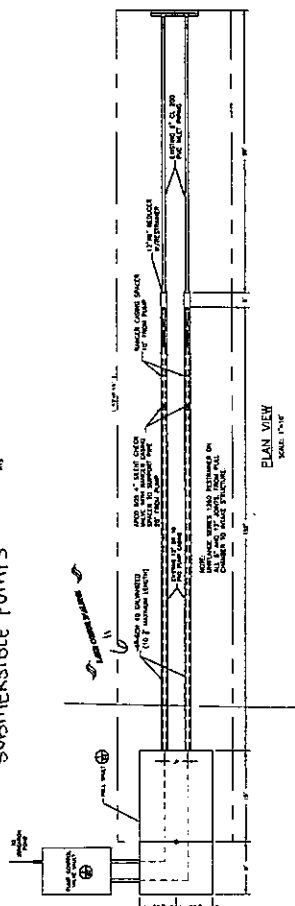
② EXISTING INLET STRUCTURE DETAIL
(ONE FOR EACH PUMP)
see



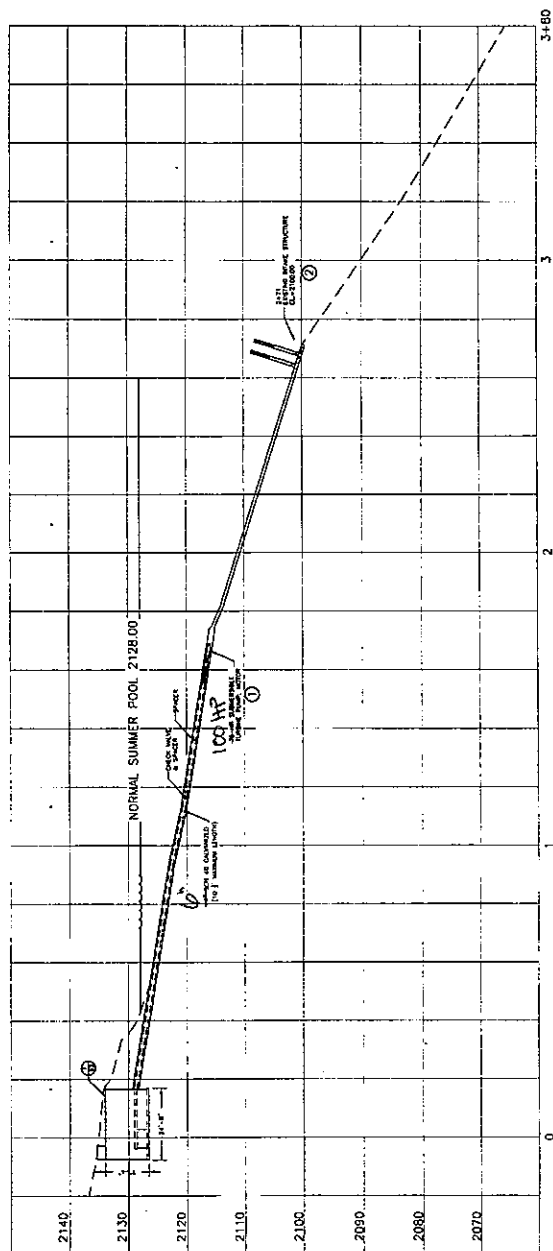
SECTION A--A
(Two Views)



REPLACED w/ 100 HP
SUBMERSIBLE PUMPS



PLAN VIEW



LAKE INTAKE DETAILS

SCALES:

1000-1-2000

**BLACK ROCK LAKE PUMP UPGRADE
MAY 2010
PUMP INFO**

PUMP #1

MOTOR
100 HP 460 VOLT
3 PHASE 60 Hz
DATE CODE 10D19
S/N 10D19-12-800078

WET END
625S1000-5
17BG0005

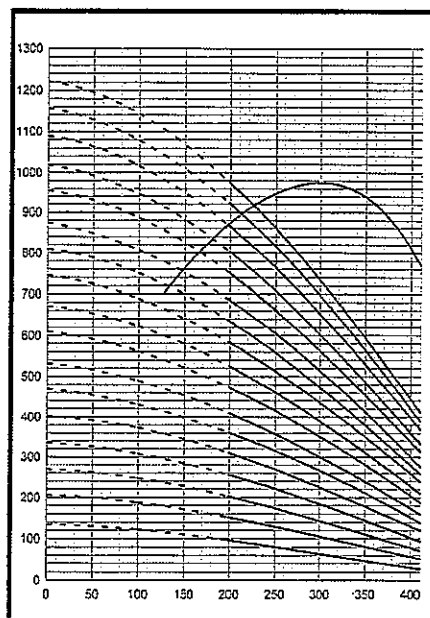
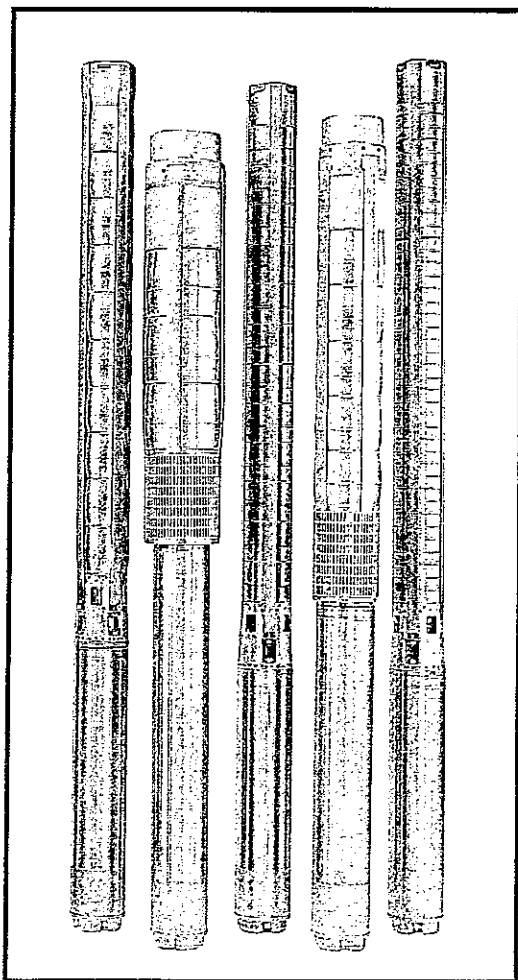
PUMP #2

MOTOR
100 HP 460 VOLT
3 PHASE 60 Hz
DATE CODE 10D19
S/N 10D19-13-800098

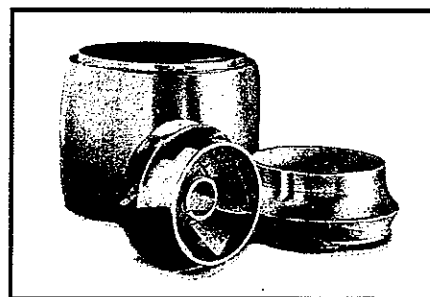
WET END
625S1000-5
17BG0005

Performance Curves and Technical Data

6-Inch, 8-Inch & 10-Inch Submersible Pumps



Performance Curves



Materials of Construction

DIMENSIONS AND WEIGHTS

MODEL NO.	FIG.	HP	MOTOR SIZE	DISCH. SIZE	DIMENSIONS IN INCHES					APPROX. SHIP WT.
					A	B	C	D	E	
625S150-1A	A	15	6"	6" NPT	50.6	25	25.6	5.4	8.3	208
625S250-1	A	25	6"	6" NPT	58.7	33.1	25.6	5.4	8.3	235
625S300-2AA	A	30	6"	6" NPT	63.8	32	31.8	5.4	8.3	296
625S400-2A	A	40	6"	6" NPT	66.2	34.4	31.8	5.4	8.3	307
625S400-2*	A	40	6"	6" NPT	66.2	34.4	31.8	5.4	8.3	320
625S500-3AA*	A	50	6"	6" NPT	93.6	55.7	37.9	5.4	8.3	415
625S600-3A*	A	60	6"	6" NPT	99.6	61.7	37.9	5.4	8.3	448
625S600-3*	A	60	6"	6" NPT	99.6	61.7	37.9	5.4	8.3	448
625S750-4AA	A	75	8"	6" NPT	91.4	47.4	44.0	7.5	8.6	560
625S750-4A	A	75	8"	6" NPT	91.4	47.4	44.0	7.6	8.6	560
625S1000-4	A	100	8"	6" NPT	98.9	54.9	44.0	7.6	8.6	638
625S1000-5AA	A	100	8"	6" NPT	105.0	54.9	50.1	7.6	8.6	661
625S1000-5A	A	100	8"	6" NPT	105.0	54.9	50.1	7.6	8.6	661
625S1000-5	A	100	8"	6" NPT	105.0	54.9	50.1	7.6	8.6	661
625S1250-6AA	A	125	8"	6" NPT	125.0	68.8	56.2	7.7	8.6	855
625S1250-6A	A	125	8"	6" NPT	125.0	68.8	56.2	7.7	8.6	855
625S1250-6	A	125	8"	6" NPT	125.0	68.8	56.2	7.7	8.6	855
625S1250-7AA	A	125	8"	6" NPT	131.2	68.8	62.4	7.7	8.6	890
625S1500-7A	A	150	8"	6" NPT	140.2	77.8	62.4	7.7	8.6	983
625S1500-7	A	150	8"	6" NPT	140.2	77.8	62.4	7.7	8.6	983

NOTES: All models suitable for use in 10" wells unless otherwise noted.

Weights include pump end with motor in lbs.

*Alternate motor sizes available.

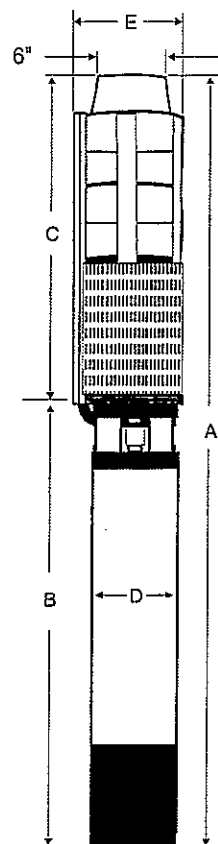


Fig. A

MODEL 625S

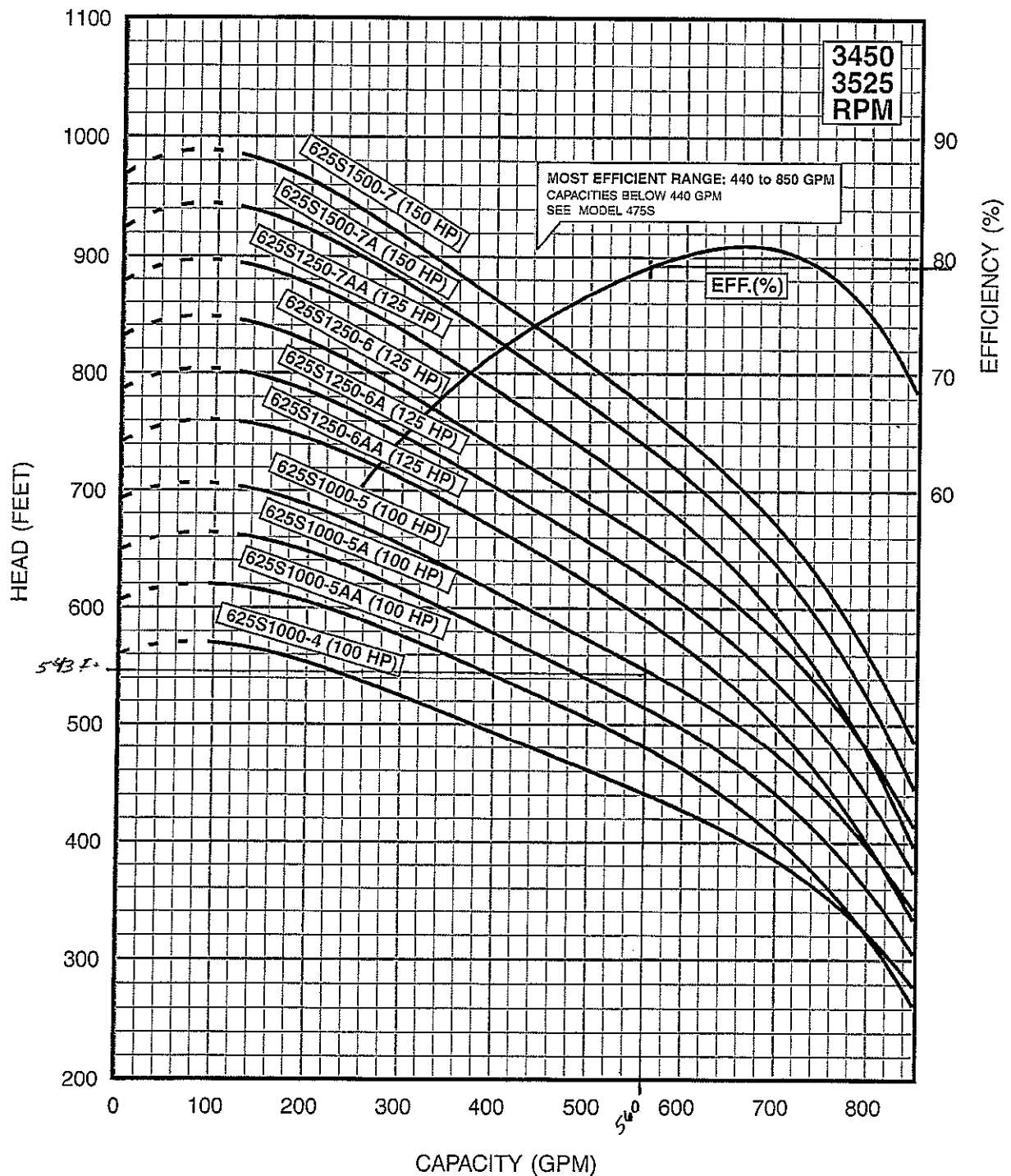
625 GPM

PERFORMANCE CURVES

FLOW RANGE: 125 - 850 GPM

OUTLET SIZE: 6" NPT

NOMINAL DIA. 10"



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

6" MOTOR STANDARD, 15-60 HP/3450 RPM.

8" MOTOR STANDARD, 75-150 HP/3525 RPM.

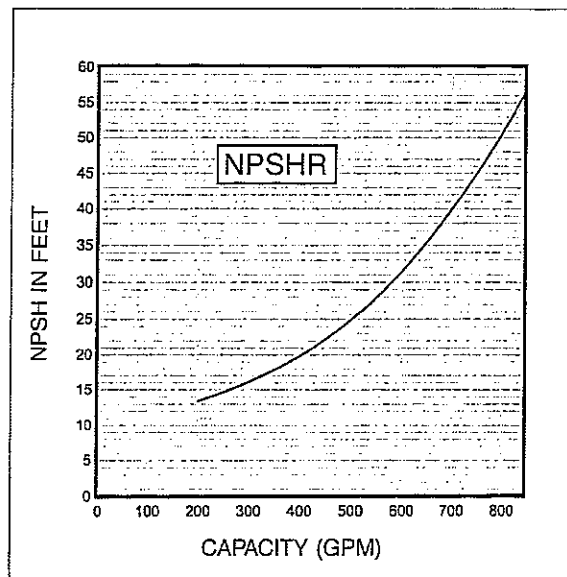
* Alternate motor sizes available.

Performance conforms to ISO 9906 Annex A
@ 10 ft. min. submergence.

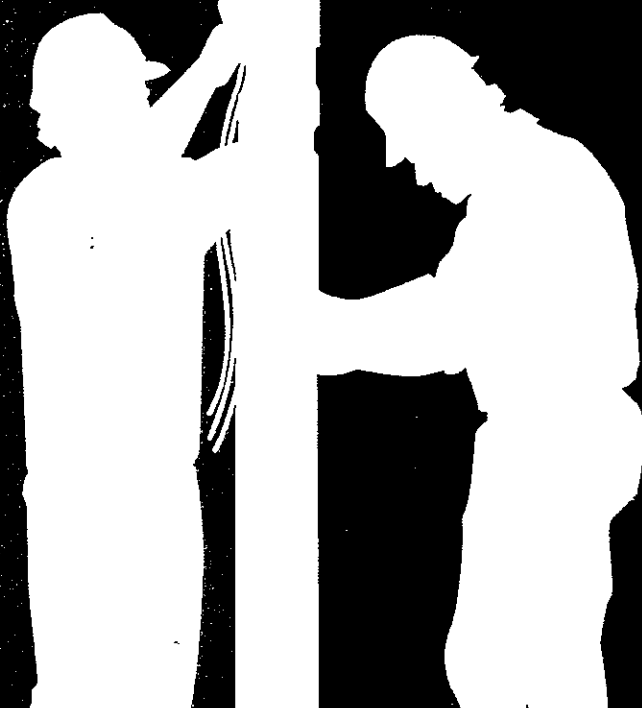
MATERIALS OF CONSTRUCTION

COMPONENT	CYLINDRICAL SHAFT (1-7 Stgs.)
Valve Housing	304 Stainless Steel
Check Valve	304 Stainless Steel
Diffuser Chamber	304 Stainless Steel
Split Cone Nut	304 Stainless Steel
Split Cone	304 Stainless Steel
Impeller	304 Stainless Steel
Suction Interconnector	304 Stainless Steel
Inlet Screen	304 Stainless Steel
Straps	304 Stainless Steel
Cable Guard	304 Stainless Steel
Coupling	316/329 Stainless Steel
Pump Shaft	431 Stainless Steel
Intermediate Bearings	NBR
Impeller Seal Ring	NBR/PPS
Check Valve Seat	NBR/316 Stainless Steel
Top Bearing	NBR/304 Stainless Steel
Upthrust Disc	Carbon/Graphite HY22
Check Valve Spring	401 Stainless Steel
O-Ring	NBR
Valve Seat	304 Stainless Steel
Lower Valve Seat Retainer	304 Stainless Steel
Upper Valve Seat Retainer	316 Stainless Steel
Valve Guide	304 Stainless Steel

NOTES: Specifications are subject to change without notice.



**FRANKLIN ELECTRIC
2009 AIM MANUAL**



SUBMERSIBLE MOTORS
Application • Installation • Maintenance
60 Hz, Single-Phase and Three-Phase Motors



Franklin Electric



APPLICATION Three-Phase Motors

Table 27 Three-Phase Motor Specifications (60 Hz) 3525 rpm

TYPE	MOTOR MODEL PREFIX	RATING					FULL LOAD		MAXIMUM (S.F. LOAD)		LINE TO LINE RESISTANCE OHMS	EFFICIENCY %		LOCKED ROTOR AMPS	KVA CODE
		HP	KW	VOLTS	HZ	S.F.	AMPS	KILOWATTS	AMPS	KILOWATTS		S.F.	FL		
8" STD.	239660	40	30	380	60	1.15	64	35	72	40	.16-.20	86	86	479	J
	239600			460	60	1.15	63	35	60	40	.24-.30	86	86	396	J
	239610			575	60	1.15	42	35	48	40	.39-.49	86	86	317	J
	239661	50	37	380	60	1.15	79	43	88	49	.12-.16	87	87	656	K
	239601			460	60	1.15	64	43	73	49	.18-.22	87	87	542	K
	239611			575	60	1.15	51	43	59	49	.28-.34	87	87	434	K
	239662	60	45	380	60	1.15	92	52	104	60	.09-.11	88	87	797	K
	239602			460	60	1.15	76	52	86	60	.14-.17	88	87	658	K
	239612			575	60	1.15	61	52	89	60	.22-.28	88	87	526	K
	239663	75	55	380	60	1.15	114	64	130	73.5	.06-.09	88	88	1046	L
	239603			460	60	1.15	94	64	107	73.5	.10-.13	88	88	864	L
	239613			575	60	1.15	76	64	86	73.5	.16-.21	88	88	691	L
	~~239664~~	100	75	~~380~~	~~60~~	~~1.15~~	~~159~~	~~85~~	~~172~~	~~97.5~~	~~.05-.06~~	~~89~~	~~89~~	~~1466~~	~~L~~
	239604			460	60	1.15	126	85	142	97.5	.07-.09	89	89	1211	L
	~~239614~~			~~575~~	~~60~~	~~1.15~~	~~101~~	~~85~~	~~114~~	~~97.5~~	~~.11-.15~~	~~89~~	~~89~~	~~969~~	~~L~~
	239165	125	90	380	60	1.15	202	109	228	125	.03-.04	87	86	1596	K
	239105			460	60	1.15	167	109	188	125	.05-.07	87	86	1318	K
	239115			575	60	1.15	134	109	151	125	.08-.11	87	86	1054	K
	239166	150	110	380	60	1.15	235	128	266	146	.02-.03	88	87	1961	K
	239106			460	60	1.15	194	128	219	146	.04-.05	88	87	1620	K
	239116			575	60	1.15	155	128	176	146	.06-.08	88	87	1296	K
	239167	175	130	380	60	1.15	265	150	302	173	.02-.04	88	88	1991	J
	239107			460	60	1.15	219	150	249	173	.04-.05	88	88	1645	J
	239117			575	60	1.15	175	150	200	173	.06-.08	88	88	1316	J
	239168	200	150	380	60	1.15	298	169	342	194	.02-.03	88	88	2270	J
	239108			460	60	1.15	246	169	282	194	.03-.05	88	88	1875	J
	239118			575	60	1.15	197	169	226	194	.05-.07	88	88	1500	J

Table 27A 8" Three-Phase Motor Specifications (60 Hz) 3525 rpm

TYPE	MOTOR MODEL PREFIX	RATING					FULL LOAD		MAXIMUM (S.F. LOAD)		LINE TO LINE RESISTANCE OHMS	EFFICIENCY %		LOCKED ROTOR AMPS	KVA CODE
		HP	KW	VOLTS	HZ	S.F.	AMPS	KILOWATTS	AMPS	KILOWATTS		S.F.	FL		
8" HI-TEMP	279109	40	30	380	60	1.15	69.6	38	78.7	43	.11-.14	79	78	616	M
	279110			460	60	1.15	57.5	38	65.0	43	.16-.19	79	78	509	M
	279111			575	60	1.15	46.0	38	52.0	43	.25-.31	79	78	407	M
	279161	50	37	380	60	1.15	84.3	47	95.4	53	.07-.09	81	80	892	M
	279101			460	60	1.15	69.6	47	78.8	53	.11-.14	81	80	687	M
	279111			575	60	1.15	55.7	47	63.0	53	.18-.22	81	80	550	M
	279162	60	45	380	60	1.15	98.4	55	112	62	.06-.07	83	82	1081	N
	279102			460	60	1.15	81.3	55	92.1	62	.09-.11	83	82	893	N
	279112			575	60	1.15	65.5	55	73.7	62	.13-.16	83	82	715	N
	279163	75	56	380	60	1.15	125	68	141	77	.05-.06	83	82	1175	L
	279103			460	60	1.15	100	68	114	77	.07-.09	83	82	922	L
	279113			575	60	1.15	80	68	97	77	.11-.14	83	82	738	L
	279164	100	75	380	60	1.15	159	88	181	100	.04-.05	86	85	1508	M
	279104			460	60	1.15	131	88	149	100	.05-.07	86	85	1246	M
	279114			575	60	1.15	105	88	119	100	.08-.10	86	85	997	M
	279165	125	93	380	60	1.15	195	109	223	125	.03-.05	86	85	1793	L
	279105			460	60	1.15	161	109	184	125	.04-.06	86	85	1481	L
	279115			575	60	1.15	129	109	148	125	.07-.09	86	85	1185	L
	279166	150	110	380	60	1.15	235	133	269	151	.02-.03	85	84	2012	K
	279106			460	60	1.15	194	133	222	151	.03-.05	85	84	1650	K
	279116			575	60	1.15	155	133	178	151	.05-.07	85	84	1330	K

Model numbers above are for three-lead motors. Six-lead motors with different model numbers have the same running performance, but when Wye connected for starting have locked rotor amps 33% of the values shown. Six-lead individual phase resistance = table X 1.5.

ATTACHMENT C
POND STORAGE CALCULATIONS
and
IRRIGATED AREA SUMMARY

**Black Rock Utilities
Water Storage Features
95-9045**

			Surface	Surface	Volume	Volume		
	Number	Name	Area (sqft)	Area (acres)	(gallons)	(acre-feet)	Constructed	Filled
BRN	1	Irrigation Lake	100,690	2.31	18,830,288	57.79	2007	Sept 2007
BRN	2	Lake #2	48,720	1.12	4,150,814	12.74	2007	Sept 2007
BRN	3	Kootenai Lake	44,895	1.03	9,263,774	28.43	2007	Sept 2007
BRN	4a	Hole #11 to #12	8,800	0.20	78,994	0.24	2008	Sept 2008
BRN	4b	Catch Pond	6,000	0.14	269,298	0.83	2008	Sept 2008
BRN	7A	Hole #3 Stream	3,000	0.07	7,480	0.02	2008	Aug 2008
BRN	7B	Hole #3 Catch Pond	2,080	0.05	48,111	0.15	2008	Aug 2008
BR	8	#3 Waterfall & Pond	900	0.02	15,260	0.05	2002	Apr 2003
BR	9	Irrigation Pond	65,000	1.49	5,000,000	15.34	2002	Aug 2002
BR	10	#8 Ponds	31,250	0.72	403,000	1.24	2002	Sept 2002
BR	11	#9 Ponds	15,900	0.37	596,000	1.83	2002	Sept 2002
BR	12	#11 Waterfalls and pond	9,800	0.22	368,000	1.13	2002	Oct 2002
BR	13	#13 Waterfalls and pond	4,500	0.10	135,000	0.41	2002	Oct 2002
BR	14	#16 Ponds Main Entrance Water	48,300	1.11	906,000	2.78	2002	Sept 2002
BR	15	Features	750	0.02	7,000	0.02	2004	July 2004
TOTALS			390,585	8.97	40,079,019	123.0		

**Black Rock Utilities
Water Right 95-9045
Irrigated area summary
13-Aug-10**

<u>Residential Irrigation</u>	<u>Lot #</u>	<u>Area (sf)</u>	<u>Area (acres)</u>	
	1	5	48,850	1.12
	2	9	14,087	0.32
	3	11	18,459	0.42
	4	12	7065	0.16
	5	19	15,779	0.36
	6	32	5,650	0.13
	7	35/36	6,846	0.16
	8	40	5,876	0.13
	9	49	10,569	0.24
	10	50	6,524	0.15
	11	51	9,506	0.22
	12	52	8,058	0.18
	13	54	6,900	0.16
	14	56	9,144	0.21
	15	60	12,969	0.30
	16	61	8,868	0.20
	17	64	3,427	0.08
	18	65	1,633	0.04
	19	66	4,760	0.11
	20	67	6,017	0.14
	21	68	6,618	0.15
	22	69	5,586	0.13
	23	72	5,914	0.14
	24	74	6,112	0.14
	25	75	10,167	0.23
	26	76	9,177	0.21
	27	77	2,466	0.06
	28	79	2,214	0.05
	29	82	5,795	0.13
	30	83	4,312	0.10
	31	86	10,220	0.23
32-46	98-104/110-117	76,435	1.75	
47-51	105-109	40,314	0.93	
52	125	2,928	0.07	
53-61	128-136	75,667	1.74	
62	153	24,442	0.56	
63	157	12,080	0.28	
64	160	7,622	0.17	
65	167	14,760	0.34	
66	179	5,273	0.12	
67	184	21,774	0.50	
68	189	6,243	0.14	
69	203	12,982	0.30	
70	206	25,622	0.59	
71	207	5,844	0.13	
72	220	8,635	0.20	
73	226	5,126	0.12	
74	240	9,994	0.23	
75	242	6608	0.15	
76	251	14,088	0.32	
77	272	10,008	0.23	
78	277	26,739	0.61	
79-81	292-294	31,545	0.72	
82-87	295-300	54,529	1.25	
88	318	3,752	0.09	
89	319	8,400	0.19	
90	340	26,701	0.61	
91	Fire Station	17,448	0.40	
92-106	Cottages (15)	77,101	1.77	
		912,228	20.94	
Number of Lots			106	
Avg Irr / Lot		8,606	0.198	

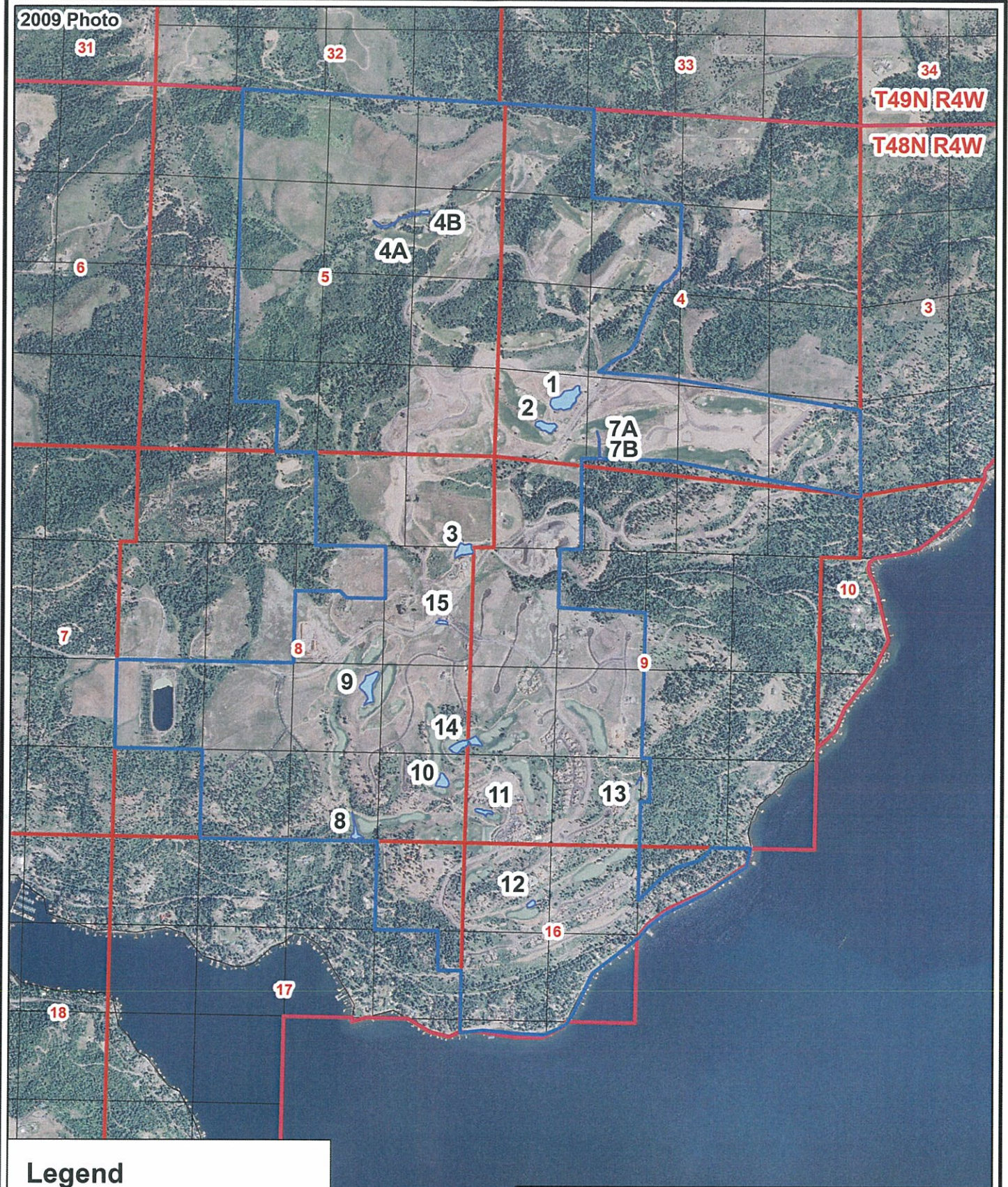
Black Rock Utilities
Water Right 95-9045
Irrigated area summary
13-Aug-10

<u>Additional areas:</u>		<u>Area (sf)</u>	
<i>Developed Lots, Cottages,</i>			20.94
<i>Fire Station, Etc.</i>			
BR entry		43,894	1.01
BRN entry		22,959	0.53
Estates entry		4213	0.10
Polo Cielo entry		6452	0.15
BR cul de sacs	14	50,400	1.16
Polo Cielo cul de sacs	3	12,248	0.28
Platinum entry median		2,762	0.06
Sales office		6,921	0.16
Clubhouse		89,939	2.06
Kootenai Cabin		28,336	0.65
8th addition lots		46,400	1.07
The Club Golf Course			123.90
BRN Golf Course			158.80
Minus Cart Paths			-5.80
THE CLUB NATIVE			
	PC 1		29.90
	PC 2		15.70
	PC 3		2.10
	PC 4		4.90
	BR 1		7.20
	BR 2		17.30
	BR 3-6		34.00
	BR 7		11.60
	BR 9		3.80
	BR 10		15.60
	BR 11		8.80
	BR 12		4.10
	BR 13		2.70
	BR 14		8.60
	BR 16		0.30
	BR 17		0.80
	BR 19		3.70
	BR 20		1.30
NATIVE IN BRN			
	BRN 1		12.20
	BRN 5		7.00
	BRN 6		7.70
	BRN 9		7.40
	BRN 10-11		33.20

TOTAL IRRIGATED ACRES (2010) 544.96

ATTACHMENT D
TOPO MAP AND 2009 AERIAL PHOTOS

2009 Photo



Legend

-  95-9045 Water Features
-  Place of Use Boundary
-  Quarter quarters

Permit 95-9045 Water Storage Features



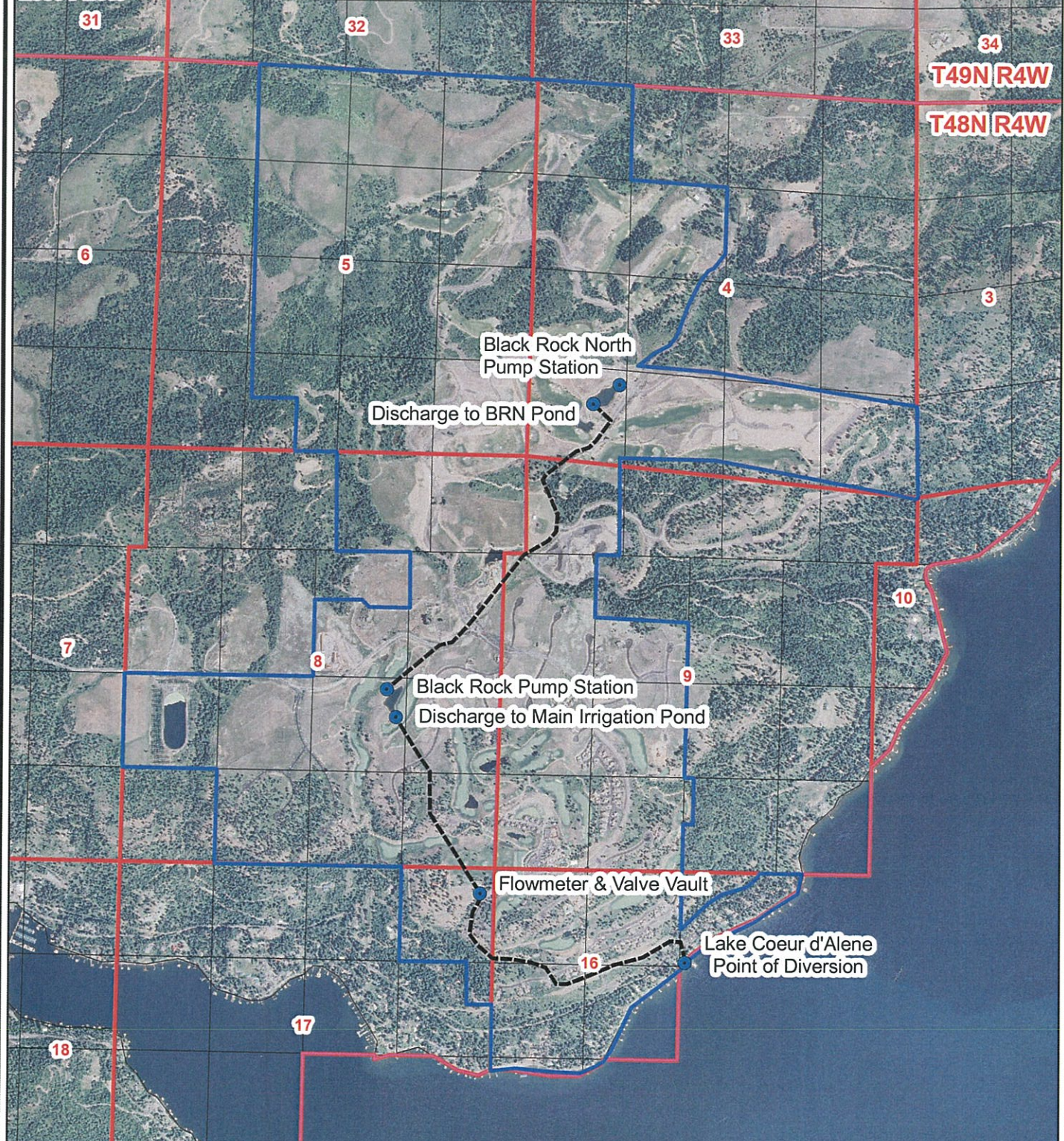
0 0.25 0.5
Miles

snk 8/16/2010





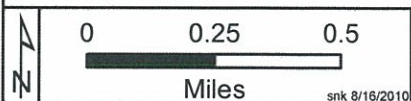
2009 Photo



Legend

- Points
- Primary Pipelines (appx location)
- Place of Use Boundary
- Quarter quarters

Permit 95-9045 Major System Components



ATTACHMENT E
PHOTOS



Photo 1: Point of Diversion. Intake is in lake to photo left. Power transformer, panels, and VFDs are located in the structure behind the Club Car. Access to the vault is at photo right.



Photo 2: Six inch steel pipelines in vault at point of diversion. Intakes are in the lake.



Photo 3: Check and control valves in vault at point of diversion.



Photo 4: Access to valve and flowmeter vault is through this manhole, located in NENE Section 17.



Photo 5: Potable municipal water supply booster station for 95-9055 is located near the valve and flowmeter vault.



Photo 6: Intake end in the valve and flowmeter vault. The six-inch pipeline on right is primary; the four-inch on left is secondary backup used when flowmeter maintenance is required.



Photo 7: Discharge end in the valve and flowmeter vault. The six-inch Master Meter flowmeter is located upstream of the six-inch gate valve.



Photo 8: Black Rock Pump Station is located in this vault at the Black Rock Main Irrigation Pond (#9 in the storage features table).



Photo 9: Black Rock Main Irrigation Pond. Photo taken at the pump station vault facing south. Lake water is discharged into this pond near the south end.



Photo 10: Pumps in the Black Rock Pump Station include two 75-hp (near) and two 100-hp (far) vertical turbines pumping from the irrigation pond.



Photo 11: Black Rock North pump station building.



Photo 12: The Black Rock North pump station building is equipped with four 75-hp vertical turbines (left) and five 60-hp vertical turbines (right).



Photo 13: The Black Rock North Pumping Station diverts from BRN Irrigation Lake (#1 in the storage features table).



Photo 14: Some irrigation is accomplished using fire hydrants as a delivery point. Sprinklers are operating on photo left of the “PC 1” area in NESW & SESW Section 8.



Photo 15: Irrigation of native-type vegetation at “BRN 1” in SENE Section 8.



Photo 16: Photo taken in cul-de-sac at “BR 9” (NWSW Section 9) facing southwest towards practice green.



Photo 17: Controller for golf course irrigation system.



Photo 18: Many golf course perimeter sprinklers are set to rotate full circle to irrigate course turf and adjacent vegetation.



Photo 19: Irrigation of BRN at holes 10, 11 & 13.



Photo 20: Wooden stake in photo lower left marks the location of water services stubbed in to residential lots where homes are not yet constructed.



BLACK ROCK - IRRIGATION MAPPING

REVIEWED & APPROVED

SPF WATER
ENGINEERING

BY: DATE:



AUGUST 2010

1



1 BLACK ROCK OVERALL MAP
1" = 1000'





LEGEND:

- APPROX. SERVICE AREA BOUNDARY
- GOLF COURSE IRRIGATION OUTER LIMITS
- NATIVE IRRIGATION
- 34 AC NATIVE IRRIGATION AREA
- BR 6 IRRIGATION AREA IDENTIFIER
- 0.23 DEVELOPED LOT IRRIGATED ACREAGE



BLACK ROCK - IRRIGATION MAPPING

REVIEWED & APPROVED

SPF WATER ENGINEERING

BY: DATE:



AUGUST 2010

Aerial Image: 2009 NAIP
Lot Lines: Cadastral Mapping from Kootenai County
Coord. System: ID State Plane West Zone NAD 83



BLACK ROCK - IRRIGATION
MAPPING

REVIEWED & APPROVED

SPF WATER
ENGINEERING

BY: DATE:



AUGUST 2010

