MEMORANDUM

TO: Water Right File 63-34869

FROM: Daniel Nelson – Analyst 3

DATE: September 21, 2020

SUBJECT: Licensing Review of Water Right 63-34869

The field exam for this right was performed by Certified Water Right Examiner Terry Scanlan of SPF Water Engineering. Mr. Scanlan recommended 0.05 cfs and 14.9 af for irrigation of 3.3 acres from ground water. After Mr. Scanlan submitted is original field report, he sent a second field report with some minor corrections in the narrative. The main corrections were that he stated 3.2 acres were irrigated instead of 3.3 acres as he listed in both place of use tables.

Point of Diversion Place of Use:

I don't have any issues with the point of diversion and places of use recommended by Mr. Scanlan. When I went to recreate the place of use, I came up with 3.4 acres instead of the 3.3 acres Mr. Scanlan found. I will go with the 3.3 acres Mr. Scanlan recommended, since he was at the site. According to the application permit, the point of diversion is the sane well used for domestic purposes for this property. I spoke with Terry Scanlan about this issue in a telephone call and he confirmed that that the domestic use is diverted from the same well, and since the domestic use was in place prior to the filing of the irrigation use, the domestic use is authorized as an exempt use. There is no requirement to file a water right for the domestic use from this well.

Diversion Rate and Volume:

Mr. Scanlan measured the system at the well site, but when viewing the pictures for this system, it is clear that a measurement couldn't have been made on the small piping used. Mr. Scanlan did provide some analysis using the timed fill method, and sprinkler method, and found almost twice as much water could be used from this system of 0.144 cfs, but it is unlikely that the hoses would be running at the same time as the sprinkler system. The sprinkler system itself is designed to run at 0.098 cfs, which is still above the amount that can be authorized by this license, and the hoses add an additional 0.046 cfs. The pump curve and theoretical both show that this pump should be able to supply between 60 (0.13 cfs) and 80 gpm (0.18 cfs). I am reasonably confident that the capacity of the well pump is well above the 0.05 cfs (22.44 gpm) that is authorized by the permit.

Based on the number of acres, the system would have been limited to 0.10 cfs (3.3 acres X 0.03 cfs/acre = 0.099 cfs). The limiting factor for the diversion rate is the permit, which limits this use to 0.05 cfs, which is what Mr. Scanlan Recommended.

Mr. Scanlan recommended an annual volume of 14.9 af, which meets the Department's standards. I have no issues with the volume recommended.

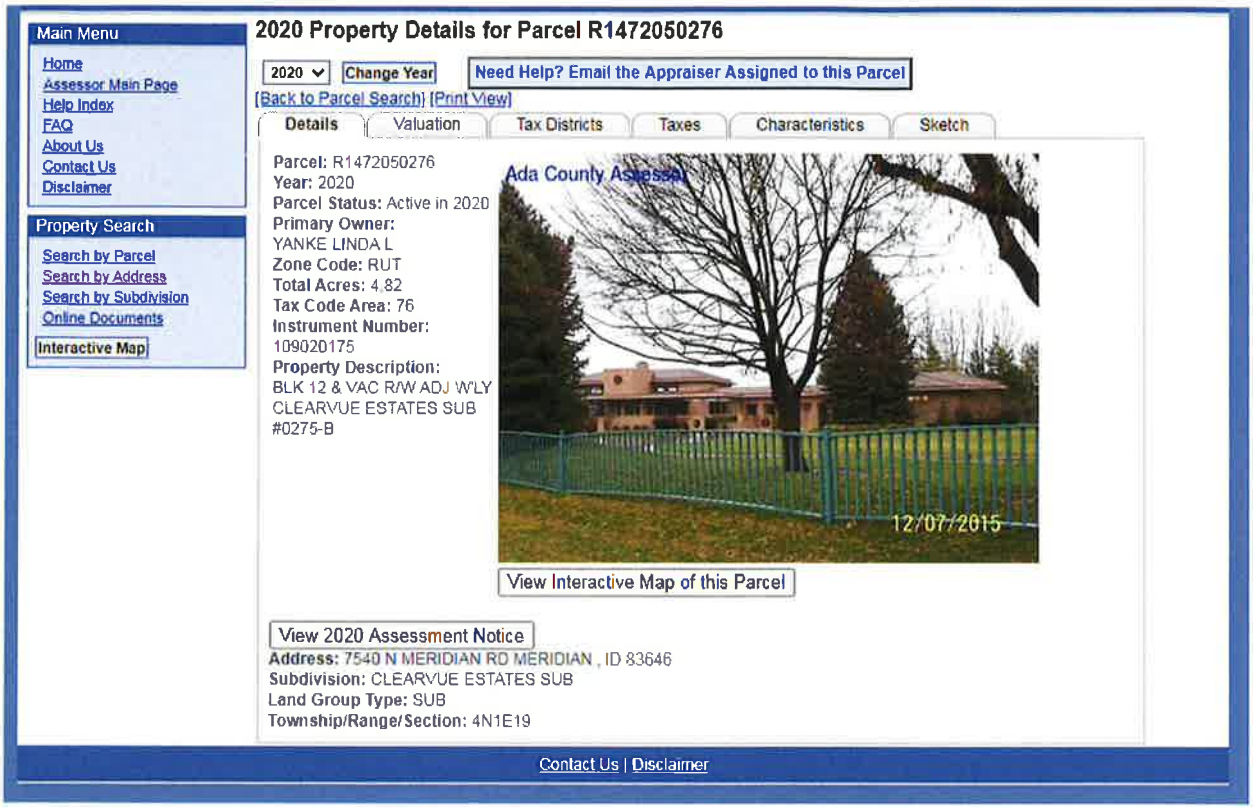
Mitigation:

The permit holder purchased 4 shares of Thurman Mill Ditch Company water for mitigation, which is equal to 4 acres. The mitigation was for non-use. The total number of acres to be irrigated is 3.3 acres, which may leave approximately 0.7 acres less than the original permitted acres. The diversion rate is based on the use of this well when the Thurman Mill Ditch Company water right is at 60% regulation. Since the diversion rate is not going to be reduced at licensing, the mitigation requirement would be the same as listed on the permit. I spoked with Terry Scanlan by telephone about this issue, and he stated that Thurman Mill Ditch Company doesn't split their shares this small, and the permit holder was not interested in pursuing this issued.

Conditions:

Conditions R61, WB7, 943, and 170 will be carried forward to licensing. Condition 121 will be changed to condition 103 as is standard. Condition WB7 will be altered to change the volume limitation to 14.9 af as recommended by Mr. Scanlan. Condition 170 will remain at 0.08 cfs and 4.0 acres to ensure that a diversion rate can be used for this right when right 63-30130 is reduced to the 60% diversion rate pursuant to the Stewart Decree.

Tax lot information:



Nelson, Dan

From: Terry Scanlan <TScanlan@spfwater.com>
Sent: Wednesday, September 02, 2020 2:39 PM
To: Nelson, Dan
Cc: Kit Clark
Subject: Revised Beneficial Use Field Report 63-34869
Attachments: 63-34869 Beneficial Use Field Report.pdf; 63-34869 revised BUFR submittal.pdf

Dan,

Last week I mailed to you a hard copy of the original proof statement and a beneficial use report. I updated the beneficial use report today due to a couple of minor errors in the narrative; there are no changes to the recommendations. The updated report is attached. Let me know if you need a hard copy or if you have any questions. Thanks.

Terry M. Scanlan, P.E., P.G. | Principal Engineer/Hydrogeologist
SPF Water Engineering, LLC
300 E Mallard Drive, Suite 350 | Boise, ID 83706
p. 208.383.4140 | **f.** 208.383.4156 | **d.** 208.489.2121
e. tscanlan@spfwater.com | **w.** www.spfwater.com

SPF WATER ENGINEERING

September 2, 2020

Dan Nelson
Idaho Department of Water Resources
322 East Front Street
Boise, ID 83702-7371

Subject: 63-34869 – Amended Beneficial Use Field Report

Dear Dan:

Last week I mailed to you a Statement of Completion for Submitting Proof of Beneficial Use and a Beneficial Use Field Report for permit 63-34869.

In reviewing the report, the permit holder's representative noticed that the narrative (Section E) mistakenly referred to the irrigated area in two places as 3.2 acres rather than 3.3 acres. The correct acreage is 3.3 acres. I have enclosed an updated report with the correct acres listed in the narrative.

Please contact me with any questions.

Sincerely,

Terry M. Scanlan

Terry M. Scanlan, P.E., P.G.
Principal Engineer/Hydrogeologist

Cc: Kit Clark – Yanke Machine Shop

Enclosures

SPF file number: 1523.0010

300 E. Mallard Drive, Suite 350, Boise, Idaho 83706 Tel: 208-383-4140 Fax: 208-383-4156

Form 219 07/11

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

BENEFICIAL USE FIELD REPORT

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATION

Permit No. 63-34869

1. Owner Linda L. Yanke Phone No. 208-342-8901
   Current address PO Box 5405, Boise, ID 83705
2. Examiner's name Terry Scanlan, P.E., P.G., CWRE 129 EXAM DATE August 12, 2020
3. Accompanied by Christopher "Kit" Clark Email kitclark@yankemachine.com
   Address PO Box 5405, Boise, ID 83705
   Relationship to permit holder General Counsel Yanke Machine Shop, Inc. Phone No. 208-342-8901
4. Source Ground Water tributary to

B. OVERLAP REVIEW

1. Other water rights with the same place of use 63-287B
2. Other water rights with the same source and point of diversion None

C. DIVERSION AND DELIVERY SYSTEM

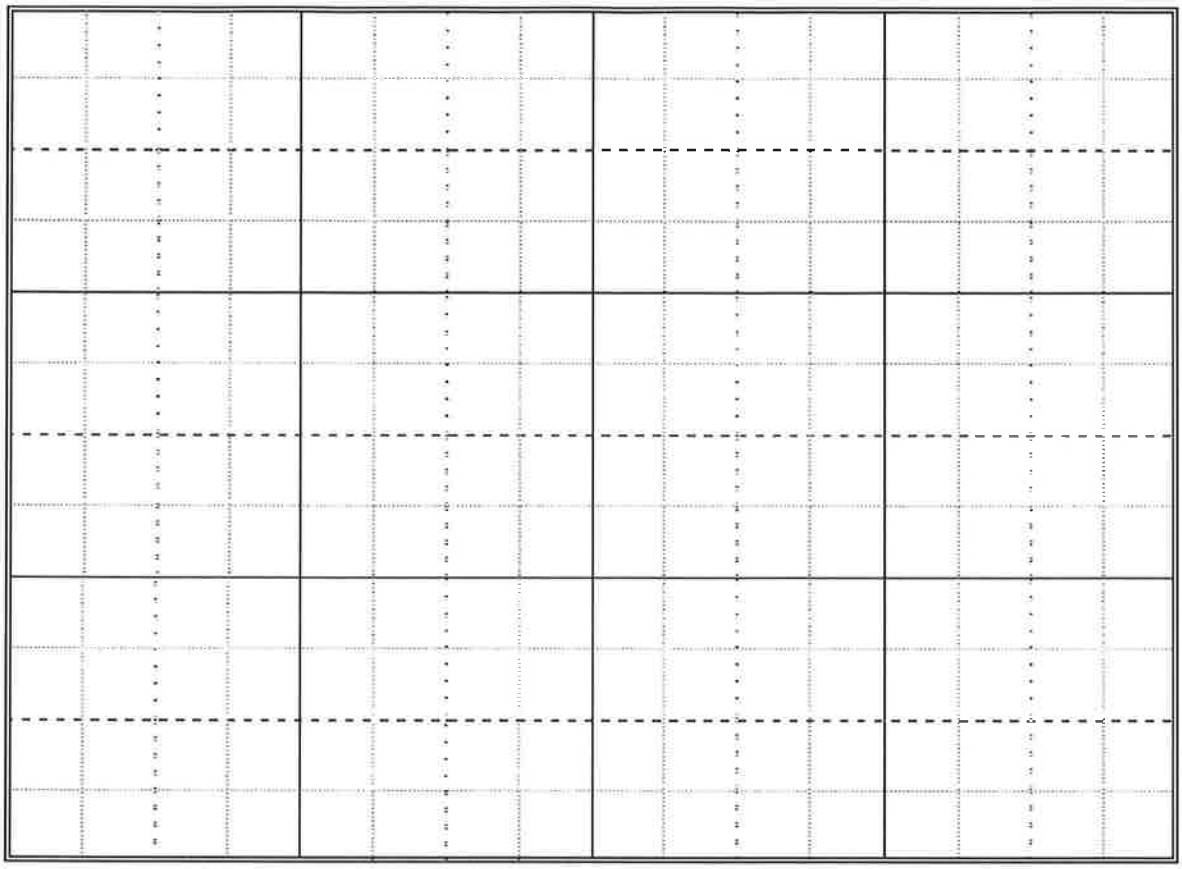
1. **Point(s) of Diversion:**

Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
	4		SW	NW	19	4N	1E	Ada	2019 aerial photo, BUFE

2. **Place(s) of Use:** Method of determination 2017 aerial photo, BUFE

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	19							3.3										3.3
									L4										

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
1999 Well	submersible	7.5	submersible	Sta-Rite 50 series	4-inch

****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
5-gallon bucket and stop watch						
Sprinkler head count	rotor	Rainbird	Falcon			

2. **Measurements:** _____

Simultaneous operation of three hose bibs and one sprinkler station with 11 Rainbird Falcon rotors. Hose bibs were 49, 33, and 56 seconds per 5 gallons, for 6.1, 9.1, and 5.4 gpm. Rotors estimated at 4 to 10 gpm each depending on nozzel. Assuming 4 gpm/sprinkler (44 gpm), total is 65 gpm. Pressure 38 psi with hoses on, 70 psi with hoses off.

E. NARRATIVE/REMARKS/COMMENTS

Permit 63-34869 authorizes diversion of 0.05 cfs for irrigation of 4 acres, of which 3.3 were found irrigated and have been recommended for licensing.

The ground water system consists of a 6-inch well, 129 feet deep, equipped with a 7.5 hp Sta-Rite submersible pump rated 60 gpm at 300 feet TDH. Well has 44-foot static water level and 12 feet drawdown at 60 gpm (per drillers log). Assuming 56-foot pumping water level (44+12) and 40 feet of friction loss (generous), the pump should produce 60 gpm with 204 feet of pressure (88 psi). Measured rate was 21 gpm to hoses plus estimated 44 gpm for sprinklers, for 65 gpm (0.14 cfs) total. Based on this information, the well and pump can easily produce the 0.05 cfs permitted flow rate for irrigation of 3.3 acres.

The groundwater under this permit is supplemental to surface water right 63-287B. Surface water is delivered into the property through a buried lateral that enters in the southeast corner and flows through a small irrigation pond. Water is pumped from the pond into the sprinkler system using a 5-hp pump. Surface water pump was tested and is operational. Well was isolated from sprinklers and surface water pumped supplied 60 psi to same sprinkler station (11 rotors) that was supplied by the well at 70 psi with the surface water pump off.

Water right permit is mitigated by non-diversion of 0.08 cfs (4 shares) of Thurman Mill Ditch Company water right 63-30130.

Note, the well report incorrectly lists the well in the NENW tract.

Attachment A: Permit Record and Proof of Beneficial Use

Attachment B: Topographical Map and 2017 aerial photo map

Attachment C: Well & Pump Information

Attachment D: Exam photos

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:
volumetric and sprinkler heads

5 gallons measured from three hoses in 49, 33, and 56 seconds = 6.1, 9.1, and 5.4 gpm = 20.6 gpm total = 0.046 cfs

11 sprinkler heads averaging 4 gpm per head, 11 x 4 gpm = 44 gpm = 0.098 cfs

Total = 0.046 cfs + 0.098 cfs = 0.144 cfs

limit license to permit amount of 0.05 cfs

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R}$ = (Acres Irrigated) x (Irrigation Requirement) = 3.3 x 4.5 afa/ac = 14.9 afa

$V_{D.R}$ = [Diversion Rate (cfs)] x (Days in Irrigation Season) x 1.9835 = 0.05 cfs X 260 days X 1.9835 = 25.8

V = Smaller of $V_{I.R.}$ and $V_{D.R.}$ = 14.9 afa

2. Volume Calculations for Other Uses:

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use From	Period of Use To	Rate of Diversion Q (cfs)	Annual Volume V (afa)
Irrigation	3/1	11/15	0.05 cfs	14.9 afa
		Totals:	0.05 cfs	14.9 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 Terry M. Scanlan Date September 2, 2020

Reviewer _____ Date _____

PROFESSIONAL ENGINEER LICENSED 6266 SEAL STATE OF IDAHO TERRY M. SCANLAN

Attachment A

Permit Record, Proof of Beneficial Use

State of Idaho
Department of Water Resources

Permit to Appropriate Water

No. 63-34869

Priority: March 13, 2020 **Maximum Diversion Rate:** 0.05 CFS

This is to certify that

LINDA L YANKE PO BOX 5405 BOISE ID 83705-0405

has applied for a permit to appropriate water from:

Source : GROUND WATER **Tributary:** BOISE RIVER

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

Beneficial Use	Period of Use	Rate of Diversion
IRRIGATION	03/01 to 11/15	0.05 CFS

Location of Point(s) of Diversion

GROUND WATER L4 (SW¼ NW¼), Sec. 19, Twp 04N, Rge 01E, B.M. ADA County

Place of Use: IRRIGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
04N	01E	19							4.0 L4										4.0

Total Acres: 4.0

Conditions of Approval

1. Proof of application of water to beneficial use shall be submitted on or before **July 01, 2025.**
2. Subject to all prior water rights.
3. This right when combined with all other rights shall provide no more than 4.5 afa per acre at the field headgate for irrigation of the place of use.
4. This right when combined with all other rights shall provide no more than 0.03 cfs per acre nor exceed a combined annual maximum diversion volume of 18.0 af at the field headgate for the place of use.
5. The right holder shall make full beneficial use of all surface water available to the right holder for irrigation of lands within the authorized place of use for this right. The right holder may divert ground water under this right to irrigate land with appurtenant surface water rights when the surface water supply is not reasonably sufficient to irrigate the place of use for this water right or is not available due to drought, curtailment by priority, or the seasonal startup and shutoff or maintenance schedule for canal company deliveries. The right holder shall not divert ground water for irrigation purposes under this right if use of the surface water supply is intentionally discontinued or reduced (for example abandoned, forfeited, sold, disallowed by court decree, or leased to the Water Supply Bank), or is not deliverable due to non-payment of annual assessments, without an approved transfer pursuant to Idaho Code § 42-222 or other Department approval.
6. To mitigate for the depletion of water resulting from the use of water under this right and to prevent injury to senior water right holders, the right holder shall cease diverting and using water as authorized by the following water rights for the purposes and amounts specified below. Moreover, the official record for the following water right will be changed to show that diversion and use of water is not authorized because the rights, or portion thereof, are being dedicated to mitigation by non-use.

State of Idaho
Department of Water Resources

Permit to Appropriate Water

No. 63-34869

The mitigating right may also include a condition stating that the mitigation by non-use is for the benefit of this right.

Right No.	Use Changed to Mitigation by Non-Use	Mitigation Rate (cfs)	Mitigation Acres
63-30130	Irrigation	0.08	4.0

The land that will no longer be irrigated under this right is located within the Thurman Mill Ditch Co. service boundary. If the specified mitigation right, or portion thereof, is sold, transferred, leased, used on any place of use, or is not deliverable due to a shortage of water or a priority call, then the amount of water authorized for diversion under this right approval shall be reduced by the same proportion as the reduction to the mitigation rights.

7. Right holder shall comply with the drilling permit requirements of Idaho Code § 42-235 and applicable Well Construction Rules of the Department.
8. The Director retains jurisdiction to require the right holder to provide purchased or leased natural flow or stored water to offset depletion of Lower Snake River flows if needed for salmon migration purposes. The amount of water required to be released into the Snake River or a tributary, if needed for this purpose, will be determined by the Director based upon the reduction in flow caused by the use of water pursuant to this permit.

This permit is issued pursuant to the provisions of Idaho Code § 42-204.

Signed this 30 day of June, 2020.

Patrick Kelly

PATRICK KELLY
Water Rights Supervisor

State of Idaho
Department of Water Resources

Attachment to Permit to Appropriate Water

63-34869

This map depicts the IRRIGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

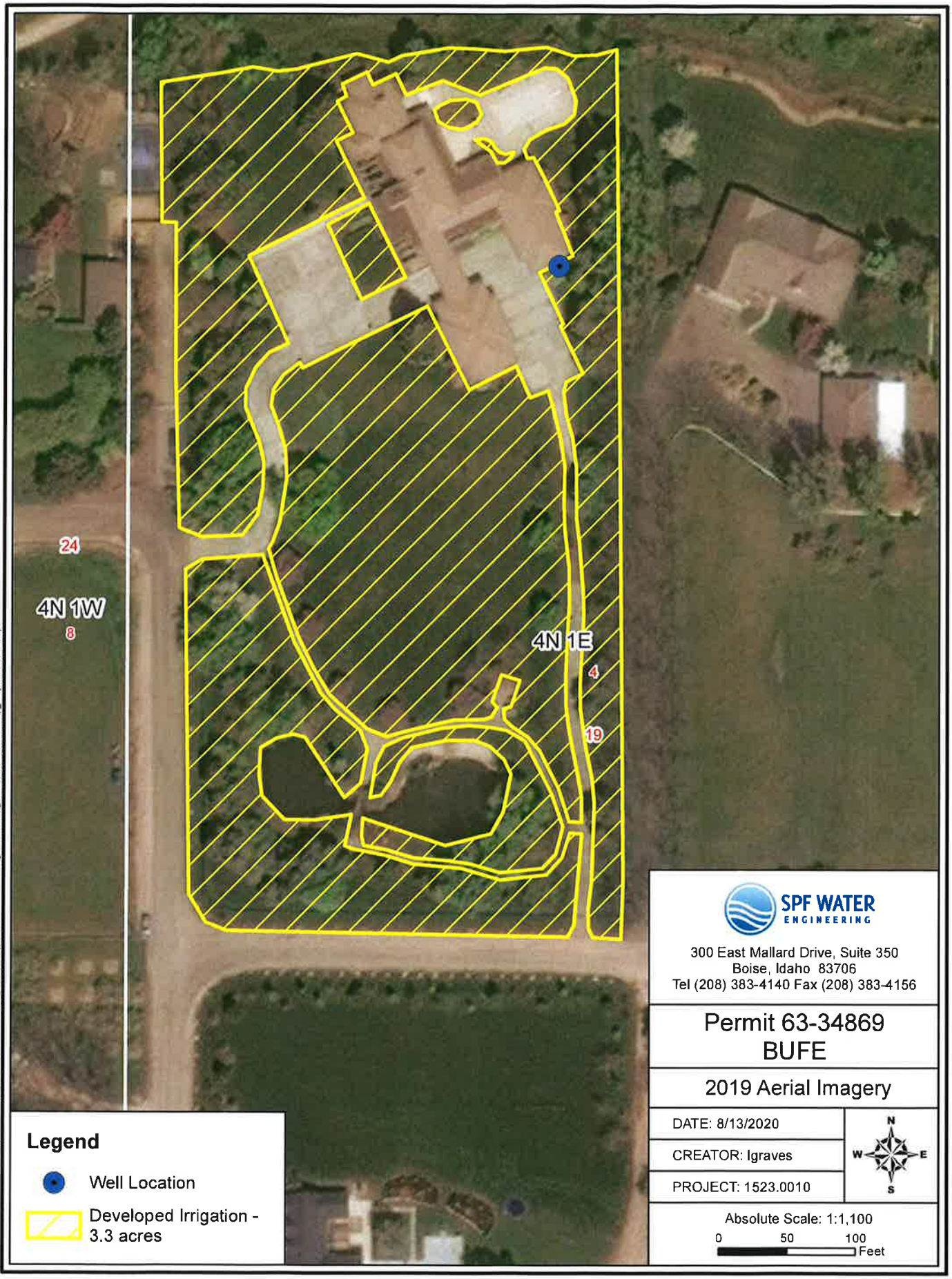
Point of Diversion
Place Of Use Boundary
Townships
PLS Sections
Quarter Quarters

0 0.035 0.07 0.14 Miles

N

Attachment B

Topographical Map and 2017 Aerial Photo Map



SPF WATER ENGINEERING
300 East Mallard Drive, Suite 350
Boise, Idaho 83706
Tel (208) 383-4140 Fax (208) 383-4156

Permit 63-34869 BUFE

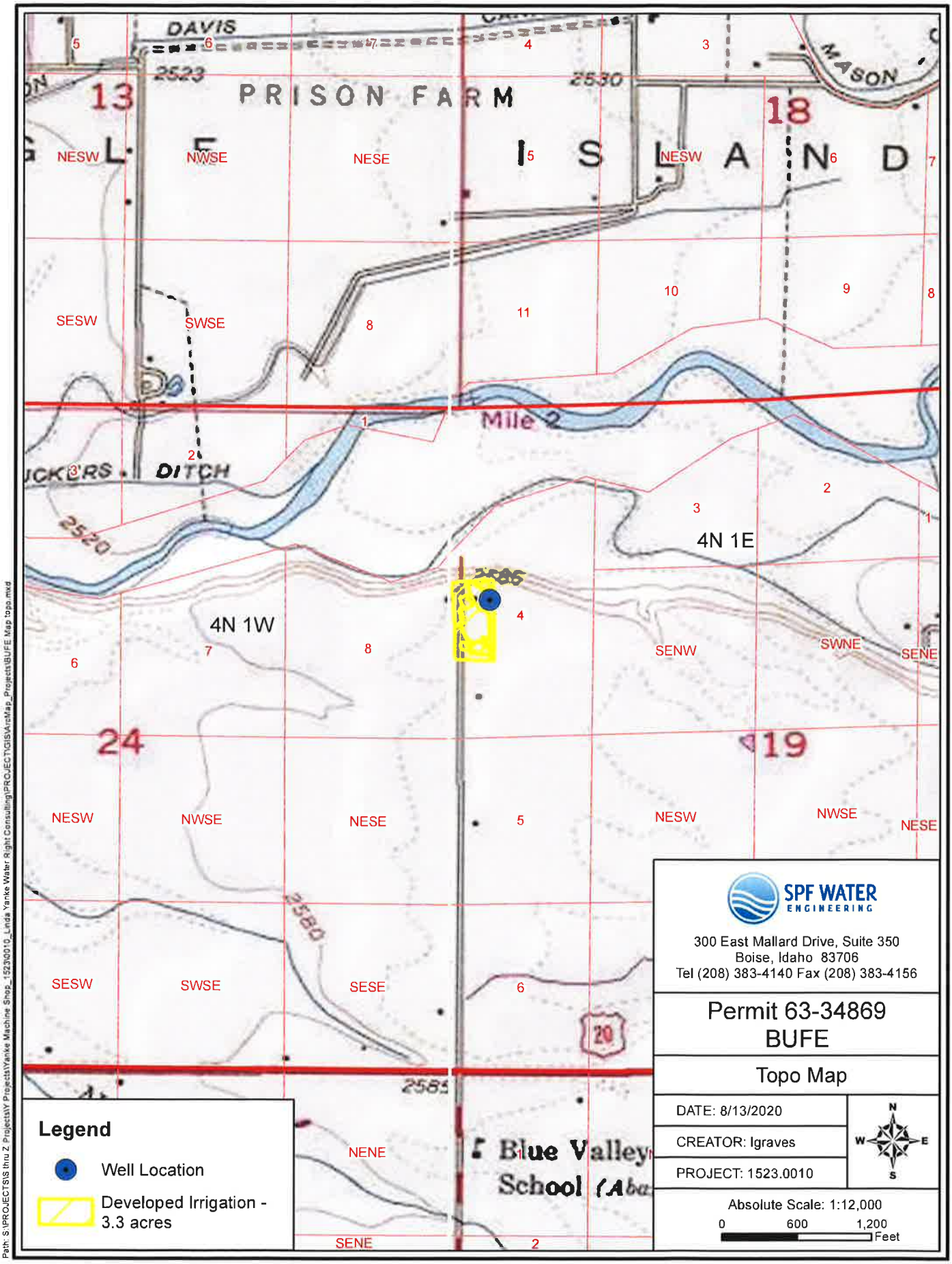
2019 Aerial Imagery

DATE: 8/13/2020
CREATOR: lgraves
PROJECT: 1523.0010

N W E S

Absolute Scale: 1:1,100
0 50 100 Feet

Path: S:\PROJECTS\S thru Z Projects\Y Projects\Yanke Machine Shop_1523\0010_Linda Yanke Water Right Consulting\PROJECTS\GIS\ArcMap_Projects\BUFE Map aerial.mxd


DAVIS
PRISON FARM
MASON
13
18
24
19
20
NESW
NWSE
NESE
SESW
SWSE
SESE
NENE
SENE
SENW
SWNE
4N 1E
4N 1W
Mile 2
DITCH
2520
2580
2585
2586
Blue Valley
School
Legend
Well Location
Developed Irrigation - 3.3 acres
SPF WATER ENGINEERING
300 East Mallard Drive, Suite 350
Boise, Idaho 83706
Tel (208) 383-4140 Fax (208) 383-4156
Permit 63-34869
BUFE
Topo Map
DATE: 8/13/2020
CREATOR: lgraves
PROJECT: 1523.0010
Absolute Scale: 1:12,000
0 600 1,200 Feet
Path: S:\PROJECTS\S thru Z Projects\Y Projects\Yanke Machine Shop_1523\0010_Linda Yanke Water Right Consulting\PROJECTGIS\ArcMap_Projects\BUFE Map topo.mxd

Attachment C

Well & Pump Information

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

94773

Office Use Only
Inspected by _____
Twp____ Rge____ Sec ____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 63-98-W-0814-000 -____
Other IDWR No. tag #D0007944

2. OWNER:
Name Ron-Linda Yanke
Address 10425 W Estate Dr
City Boise State ID Zip 83709

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 4 North XX or South ☐
Rge. 1 East XX or West ☐
Sec. 19 1/4 (10 acres) N/E 1/4 (40 acres) N/W 1/4 (160 acres)
Gov't Lot ____ County Ada
Lat: : : Long: : :
Address of Well Site _____
City Meridian
(Give at least name of road + Distance to Road or Landmark)

Lt. 12 Blk. ____ Sub. Name Clearview Sub

4. USE:
XX Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
XX New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD
☐ Air Rotary XX Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite grout	0	22	120#	slurry pit

Was drive shoe used? XX Y ☐ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y XX N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+18"	117	.250	steel	XX	☐	XX	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 4'6" Length of Tailpipe 1'

9. PERFORATIONS/SCREENS
☐ Perforations Method ____
XX Screens Screen Type Johnson 304

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
114	118			5	steel	☐	XX
118	128	20		5	stainless	☐	XX
128	129			5	steel	☐	XX

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
44 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____

11. WELL TESTS:
☐ Pump XX Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
60	12'	56	1 hr

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encountered ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	5	brown clay topsoil		X
6	5	7	brown clay topsoil		X
	7	40	sand & gravel		X
	40	49	brown sand		X
	49	52	brown clay		X
	52	56	brown sand	X	
	56	58	brown clay		X
	58	73	brown sand	X	
	73	75	brown clay		X
	75	79	brown sand	X	
	79	118	[illegible]		
			brown clay with sand streaks		X
	118	127	sand	X	
	127	129	brown clay		X

RECEIVED
JAN 25 1999
Department of Water Resources

RECEIVED
JAN 21 1999
WATER RESOURCES
WESTERN REGION

MICROFILMED
MAR 08 1999

Completed Depth 129' (Measurable)
Date: Started 12/28/98 Completed 1/5/99

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Stevens & Sons Firm No. 153
Firm Official [signature] Date 1/19/99
and
Supervisor or Operator Steve Matlock Date ____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

BERKELEY® MS Stainless Steel Series
4" Submersible Pumps — 10, 15, 20, 30 and 50 GPM

POWERED BY PENTEK®

Precision-engineered, high-quality, rugged Stainless Steel Series Pumps deliver efficient, dependable performance even in rough, aggressive water. Heads to 1,950 feet and capacities to 65 GPM. Built to deliver long-term, trouble-free service. Floating impeller design resists sand and reduces sand locking. These pumps feature the proven SignaSeal™ staging system.

APPLICATIONS

- **Water systems...** for residential, industrial, commercial, multiple housing and farm use.

SPECIFICATIONS

Shell – Stainless steel
Diameter – 3-7/8"
Discharge – Stainless steel
Discharge Bearing – Nylatron®
Intermediate Bearing – (On larger units) Polycarbonate, nitrile rubber and stainless steel
Impellers – Acetal
Diffusers – Polycarbonate
Suction Caps – Polycarbonate with stainless steel insert
Thrust Pads – Proprietary spec.
Shaft and Coupling – Stainless steel
Intake – Stainless steel
Intake Screen – Polypropylene
Cable Guard – Stainless steel
Check Valve – Acetal†
Agency Listings – CSA

FEATURE

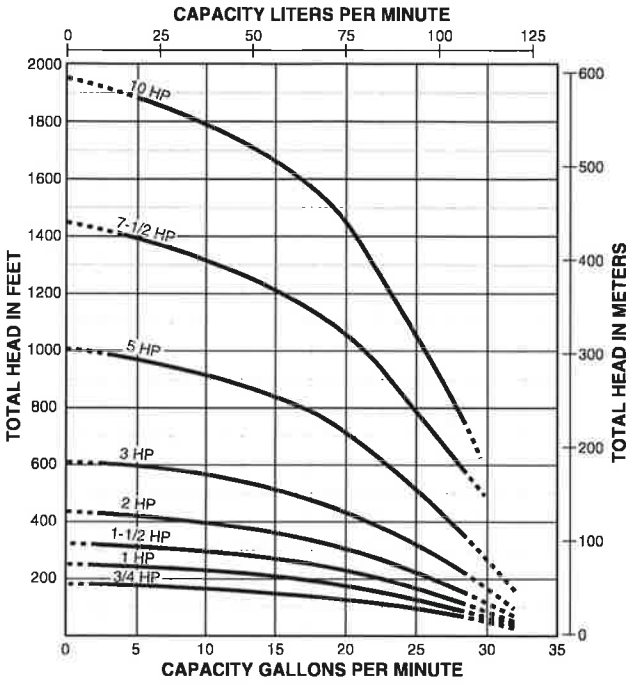
Proven Staging System – Our proven SignaSeal staging system incorporates a harder-than-sand ceramic wear surface that when incorporated with our floating impeller design, greatly reduces problems with abrasives, sand lock-up and running dry.
Discharge – Corrosion-resistant 300 grade stainless steel for durability in aggressive water. Large wrench flats for ease of installation.
Discharge Bearing – Self-lubricating Nylatron® bearing resists wear from sand.
Intake – Corrosion-resistant 300 grade stainless steel for durability in aggressive water.
Shaft – Positive drive from 7/16" hexagonal heavy-duty 300 grade stainless steel.
Coupling – Stainless steel press fit to pump shaft. Couples to all standard NEMA motors.
Shell – Highest grade, heavy-walled corrosion-resistant stainless steel. Threaded for easy servicing.
Hardware – All screws, washers and nuts are corrosion-resistant 300 grade stainless steel.
Check Valve† – Durable internal spring-loaded check valve.
Cable Guard – Corrosion-resistant stainless steel guard protects motor leads. Tapered ends prevent pump from catching on well.
Intake Screen – Corrosion-proof.
PENTEK® XE Series™ Motor – 2 and 3 wire NEMA standard all stainless construction water-filled motors.

†Except where noted.

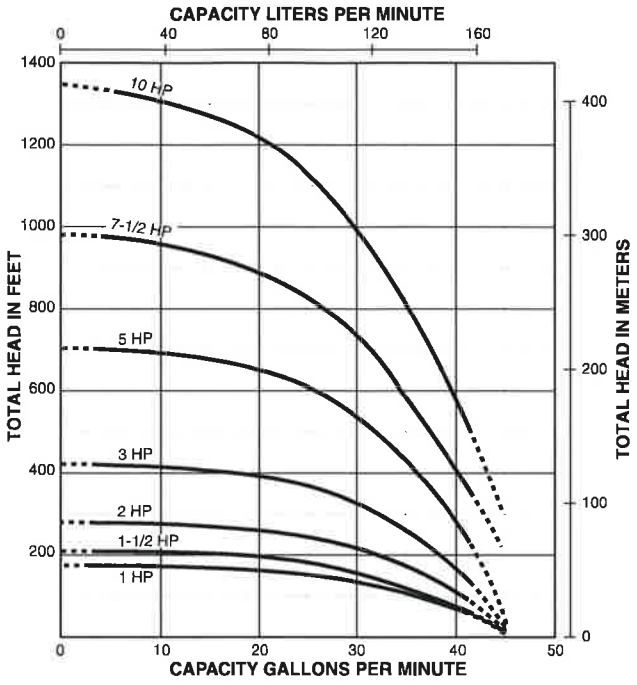
Nylatron® is a registered trademark of Polymer Corp.
All other brand or product names are trademarks or registered marks of Pentair Ltd.

BERKELEY® MS Stainless Steel Series
4" Submersible Pumps — 10, 15, 20, 30 and 50 GPM

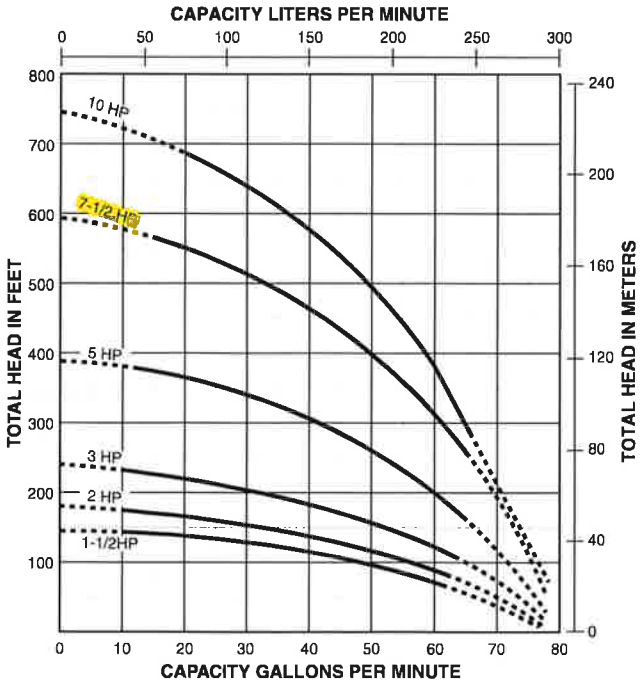
PUMP PERFORMANCE – 20 GPM



PUMP PERFORMANCE – 30 GPM



PUMP PERFORMANCE – 50 GPM



BERKELEY® MS Stainless Steel Series
4" Submersible Pumps — 10, 15, 20, 30 and 50 GPM

50 Gallons per Minute		PUMP PERFORMANCE (Capacity in Gallons Per Minute)																	
		Pumping Depth in Feet																Shut-Off Head	
HP	PSI	20	40	60	80	100	125	150	175	200	250	300	350	450	550	650	700	Feet	PSI
1-1/2	0	—	—	—	58.2	49.3	33.5											145	63
	20	—	55.9	46.5	32.5														
	30	54.8	45.0	30.0															
	40	43.3	26.9																
	50	21.9																	
	60																		
2	0	—	—	—	63.3	57.0	47.8	33.9										180	78
	20	—	62.2	55.1	46.8	37.1	13.0												
	30	61.1	53.6	46.0	34.3	14.1													
	40	52.8	45.0	32.5	11.0														
	50	42.7	27.9																
	60	25.2																	
3	0	—	—	—	—	64.5	59.4	52.5	45.0	33.8								235	102
	20	—	—	63.7	59.0	53.5	46.5	36.2	18.2										
	30	—	62.9	58.1	53.0	47.0	37.0	20.5											
	40	62.5	57.6	52.0	46.2	38.8	22.1												
	50	56.5	51.0	44.7	36.2	22.8													
	60	50.0	43.7	34.0	20.5														
5	0	—	—	—	—	—	—	65.9	63.2	59.9	51.9	41.9	22.5					385	166
	20	—	—	—	—	—	63.5	60.8	56.1	52.4	42.5	24.9							
	30	—	—	—	—	63.8	60.9	56.9	53.0	47.9	35.5	12.9							
	40	—	—	65.5	63.2	61.0	57.0	53.2	48.0	43.5	27.0								
	50	—	65.1	63.0	60.8	57.1	53.3	48.1	43.6	36.4	14.2								
	60	64.9	62.4	60.0	56.9	53.7	48.7	44.1	37.5	28.0									
7-1/2	0	—	—	—	—	—	—	—	—	—	66.0	61.0	55.3	43.1	20.0			595	257
	20	—	—	—	—	—	—	—	—	64.8	61.1	56.0	50.0	34.9					
	30	—	—	—	—	—	—	—	64.9	63.3	58.7	53.2	47.2	28.8					
	40	—	—	—	—	—	—	65.0	63.6	61.7	56.2	50.9	44.1	22.0					
	50	—	—	—	—	—	65.1	63.7	61.8	58.9	53.9	47.5	41.0	13.2					
	60	—	—	—	—	65.2	63.8	61.9	59.0	56.5	51.1	44.9	36.0						
10	0	—	—	—	—	—	—	—	—	—	—	65.0	62.1	54.2	44.7	29.0	15.2	745	322
	20	—	—	—	—	—	—	—	—	—	65.5	62.5	59.1	50.1	39.2	17.1			
	30	—	—	—	—	—	—	—	—	66.9	64.1	61.2	56.9	47.5	35.0	10.5			
	40	—	—	—	—	—	—	—	67.0	65.8	63.0	59.3	54.9	45.2	30.5				
	50	—	—	—	—	—	—	67.1	65.9	64.2	61.5	57.2	53.0	42.9	25.0				
	60	—	—	—	—	—	67.2	66.0	64.3	63.2	59.9	55.0	51.0	40.6	19.7				

CAUTION: DO NOT use pump at flow rates indicated by the symbol '—'. To do so can cause premature failure of unit. Pump warranty void when failure occurs under these conditions.

Tested and rated in accordance with Water Systems Council Standards.

NOTE: Pumps installed with a PRO-Source® tank require a 100 PSI relief valve. Pumps installed with a conventional tank require a 75 PSI relief valve. Relief valve must be capable of relieving entire flow of pump at relief pressure.

Operating Range

- Precipitation rate: 0.37 to 1.14 inches per hour (9 to 29 mm/h)
- Radius: 39 to 65 feet (11.9 to 19.8 m)
- Pressure: 30 to 90 psi (2.1 to 6.2 bar)
- Flow: 2.9 to 21.7 gpm (0.66 to 4.93 m³/h; 10.8 to 82.2 l/m)

Specifications

- 1" (26/34) female NPT or BSP threaded inlet
- SAM check device holds up to 10 feet (3.1 m) of elevation change
- Rain Curtain™ Nozzles: 04-black; 06-light blue; 08-dark green; 10-grey; 12-beige; 14-light green; 16-dark brown; 18-dark blue
- Nozzle outlet trajectory is 25°

Dimensions

- Overall height: 8½" (21.6 cm)
- Pop-up height: 4" (10.2 cm)
- Exposed surface diameter: 2" (5.1 cm)

Note: *Pop-up height is measured from cover to center of nozzle. Overall body height is measured popped down*

Models

- F4-FC: Full-circle
- F4-PC: Part-circle
- F4-FC-NP: Full-circle, non-potable cover
- F4-PC-NP: Part-circle, non-potable cover
- F4-FC-SS: Full-circle, stainless steel
- F4-PC-SS: Part-circle, stainless steel
- F4-FC-SS-HS: Full-circle, stainless steel, high speed rotation
- F4-PC-SS-HS: Part-circle, stainless steel, high speed rotation
- F4-FC-SS-NP: Full-circle, stainless steel, non-potable cover
- F4-PC-SS-NP: Part-circle, stainless steel, non-potable cover

Note: *All models available with BSP threads*

Falcon® 6504 Rain Curtain™ Nozzles

Falcon® 6504 Nozzle Performance

Pressure psi	Nozzle	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
30	4	39	2.9	0.37	0.42
	6	43	4.2	0.44	0.50
40	4	41	3.3	0.38	0.44
	6	45	4.9	0.47	0.54
	8	49	6.6	0.53	0.61
	10	51	8.1	0.60	0.69
	12	53	9.7	0.66	0.77
	14	55	11.3	0.72	0.83
	16	55	12.6	0.80	0.93
	18	59	13.7	0.76	0.87
50	4	41	3.7	0.42	0.49
	6	49	5.5	0.44	0.51
	8	51	7.4	0.55	0.63
	10	53	9.1	0.62	0.72
	12	55	11.0	0.70	0.81
	14	59	12.7	0.70	0.81
	16	61	14.3	0.74	0.85
	18	59	15.4	0.85	0.98
60	4	41	4.0	0.46	0.53
	6	47	6.0	0.52	0.60
	8	51	8.2	0.61	0.70
	10	55	10.0	0.64	0.73
	12	57	12.2	0.72	0.83
	14	61	14.0	0.72	0.84
	16	63	15.7	0.76	0.88
	18	63	17.1	0.83	0.96
70	4	41	4.4	0.50	0.58
	6	49	6.3	0.51	0.58
	8	51	8.9	0.66	0.76
	10	57	10.8	0.64	0.74
	12	59	13.2	0.73	0.84
	14	61	15.2	0.79	0.91
	16	63	16.9	0.82	0.95
	18	65	18.3	0.83	0.96
80	4	43	4.6	0.48	0.55
	6	49	6.9	0.55	0.64
	8	53	9.4	0.64	0.74
	10	55	11.6	0.74	0.85
	12	61	14.0	0.72	0.84
	14	61	16.2	0.84	0.97
	16	63	18.1	0.88	1.01
	18	65	19.6	0.89	1.03
90	18	65	21.7	0.99	1.14

Precipitation rates based on half-circle operation

■ *Square spacing based on 50% diameter of throw*

▲ *Triangular spacing based on 50% diameter of throw*

Performance data collected in zero wind conditions

Performance data derived from tests that conform with ASAE Standards; ASAE S398.1.
See page 224 for complete ASAE Test Certification Statement.

Attachment D

Exam Photos

Well casing (left) with sprinkler connection, pressure gage and backflow preventer in foreground

View of well (right) and plumbing. Connection to sprinkler system at top of image.

Sprinkler controller in garage.

Yard hydrant along driveway adjacent to garaage. Well is located in vault to the right of the hydrant.

Irrigation in front yard with rotor sprinklers. Surface water pump station in building near center of image.

Irrigation in front yard with rotor sprinklers.

Irrigated hillside on north side of property.

Irrigated landscape in back yard.

Irrigated landscape at southwest corner of yard.

Surface water lateral box in southeast corner of yard.

RECEIVED
SEP 0 2 2020
DEPARTMENT OF
WATER RESOURCES

SPF WATER ENGINEERING

August 28, 2020

Dan Nelson
Idaho Department of Water Resources
322 East Front Street
Boise, ID 83702-7371

Subject: 63-34869 – Proof of Beneficial Use and Beneficial Use Field Report

Dear Dan:

Enclosed on behalf of the Linda Yanke is a Statement of Completion for Submitting Proof of Beneficial Use and a Beneficial Use Field Report for permit 63-34869.

The permit authorizes 4 acres of supplemental irrigation from ground water near the Boise River north of Meridian. Evaporation losses are mitigated by non-diversion of Thurman Mill water right 63-30130.

The exam found irrigation of 3.3 acres of irrigation. The full permit diversion rate, 0.05 cfs, is recommended for licensing.

Please contact me with any questions.

Sincerely,

Terry M. Scanlan, P.E., P.G.
Principal Engineer/Hydrogeologist

Cc: Kit Clark – Yanke Machine Shop

Enclosures

SPF file number: 1523.0010

300 E. Mallard Drive, Suite 350, Boise, Idaho 83706 Tel: 208-383-4140 Fax: 208-383-4156

Form 219 07/11

RECEIVED
SEP 02 2020
DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

BENEFICIAL USE FIELD REPORT

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATION

Permit No. 63-34869

1. Owner Linda L. Yanke Phone No. 208--342-8901
   Current address PO Box 5405, Boise, ID 83705
2. Examiner's name Terry Scanlan, P.E., P.G., CWRE 129 EXAM DATE August 12, 2020
3. Accompanied by Christopher "Kit" Clark Email kitclark@yankemachine.com
   Address PO Box 5405, Boise, ID 83705
   Relationship to permit holder General Counsel Yanke Machine Shop, Inc. Phone No. 208-342-8901
4. Source Ground Water tributary to

B. OVERLAP REVIEW

1. Other water rights with the same place of use 63-287B
2. Other water rights with the same source and point of diversion None

C. DIVERSION AND DELIVERY SYSTEM

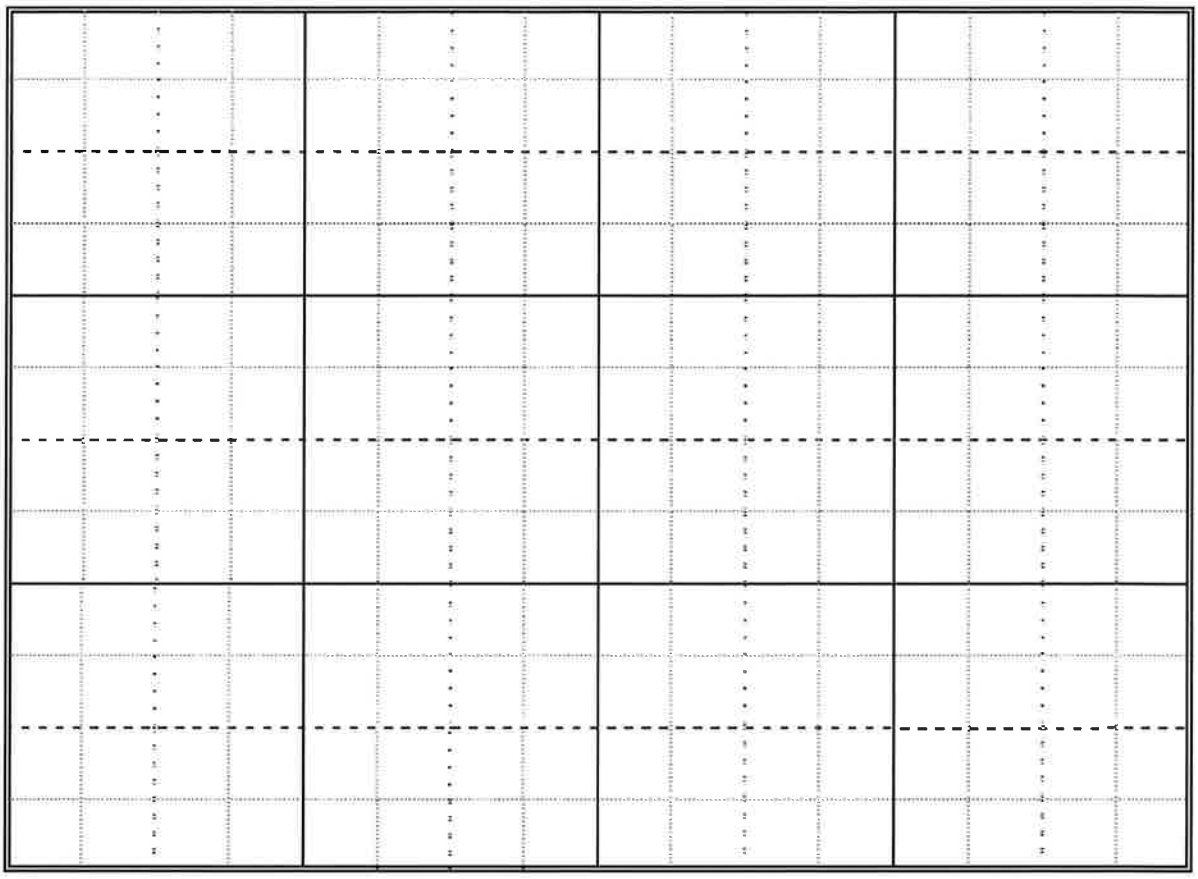
1. **Point(s) of Diversion:**

Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
	4		SW	NW	19	4N	1E	Ada	2019 aerial photo, BUFE

2. **Place(s) of Use:** Method of determination 2017 aerial photo, BUFE

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	19							3.3										3.3
									L4										

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**
1999 Well	submersible	7.5	submersible	Sta-Rite 50 series	4-inch

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**
5-gallon bucket and stop watch						
Sprinkler head count	rotor	Rainbird	Falcon			

2. **Measurements:** _____

Simultaneous operation of three hose bibs and one sprinkler station with 11 Rainbird Falcon rotors. Hose bibs were 49, 33, and 56 seconds per 5 gallons, for 6.1, 9.1, and 5.4 gpm. Rotors estimated at 4 to 10 gpm each depending on nozzel. Assuming 4 gpm/sprinkler (44 gpm), total is 65 gpm. Pressure 38 psi with hoses on, 70 psi with hoses off.

E. NARRATIVE/REMARKS/COMMENTS

Permit 63-34869 authorizes diversion of 0.05 cfs for irrigation of 4 acres, of which 3.2 were found irrigated and have been recommended for licensing.

The ground water system consists of a 6-inch well, 129 feet deep, equipped with a 7.5 hp Sta-Rite submersible pump rated 60 gpm at 300 feet TDH. Well has 44-foot static water level and 12 feet drawdown at 60 gpm (per drillers log). Assuming 56-foot pumping water level (44+12) and 40 feet of friction loss (generous), the pump should produce 60 gpm with 204 feet of pressure (88 psi). Measured rate was 21 gpm to hoses plus estimated 44 gpm for sprinklers, for 65 gpm (0.14 cfs) total. Based on this information, the well and pump can easily produce the 0.05 cfs permitted flow rate for irrigation of 3.2 acres.

The groundwater under this permit is supplemental to surface water right 63-287B. Surface water is delivered into the property through a buried lateral that enters in the southeast corner and flows through a small irrigation pond. Water is pumped from the pond into the sprinkler system using a 5-hp pump. Surface water pump was tested and is operational. Well was isolated from sprinklers and surface water pumped supplied 60 psi to same sprinkler station (11 rotors) that was supplied by the well at 70 psi with the surface water pump off.

Water right permit is mitigated by non-diversion of 0.08 cfs (4 shares) of Thurman Mill Ditch Company water right 63-30130.

Note, the well report incorrectly lists the well in the NENW tract.

Attachment A: Permit Record and Proof of Beneficial Use
Attachment B: Topographical Map and 2017 aerial photo map
Attachment C: Well & Pump Information
Attachment D: Exam photos

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:
volumetric and sprinkler heads

5 gallons measured from three hoses in 49, 33, and 56 seconds = 6.1, 9.1, and 5.4 gpm = 20.6 gpm total = 0.046 cfs

11 sprinkler heads averaging 4 gpm per head, 11 x 4 gpm = 44 gpm = 0.098 cfs

Total = 0.046 cfs + 0.098 cfs = 0.144 cfs

limit license to permit amount of 0.05 cfs

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R}$ = (Acres Irrigated) x (Irrigation Requirement) = 3.3 x 4.5 afa/ac = 14.9 afa

$V_{D.R}$ = [Diversion Rate (cfs)] x (Days in Irrigation Season) x 1.9835 = 0.05 cfs X 260 days X 1.9835 = 25.8

V = Smaller of $V_{I.R.}$ and $V_{D.R.}$ = 14.9 afa

2. Volume Calculations for Other Uses:

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use From	Period of Use To	Rate of Diversion Q (cfs)	Annual Volume V (afa)
Irrigation	3/1	11/15	0.05 cfs	14.9 afa
		Totals:	0.05 cfs	14.9 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 Terry M. Scanlan Date 8/14/2020

Reviewer _____ Date _____

PROFESSIONAL ENGINEER LICENSED 6266 STATE OF IDAHO TERRY M. SCANLAN

Attachment A

Permit Record, Proof of Beneficial Use

State of Idaho
Department of Water Resources

Permit to Appropriate Water

No. 63-34869

Priority: March 13, 2020 **Maximum Diversion Rate:** 0.05 CFS

This is to certify that

LINDA L YANKE PO BOX 5405 BOISE ID 83705-0405

has applied for a permit to appropriate water from:

Source : GROUND WATER **Tributary:** BOISE RIVER

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

Beneficial Use	Period of Use	Rate of Diversion
IRRIGATION	03/01 to 11/15	0.05 CFS

Location of Point(s) of Diversion

GROUND WATER L4 (SW¼ NW¼), Sec. 19, Twp 04N, Rge 01E, B.M. ADA County

Place of Use: IRRIGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
04N	01E	19							4.0 L4										4.0

Total Acres: 4.0

Conditions of Approval

1. Proof of application of water to beneficial use shall be submitted on or before **July 01, 2025.**
2. Subject to all prior water rights.
3. This right when combined with all other rights shall provide no more than 4.5 afa per acre at the field headgate for irrigation of the place of use.
4. This right when combined with all other rights shall provide no more than 0.03 cfs per acre nor exceed a combined annual maximum diversion volume of 18.0 af at the field headgate for the place of use.
5. The right holder shall make full beneficial use of all surface water available to the right holder for irrigation of lands within the authorized place of use for this right. The right holder may divert ground water under this right to irrigate land with appurtenant surface water rights when the surface water supply is not reasonably sufficient to irrigate the place of use for this water right or is not available due to drought, curtailment by priority, or the seasonal startup and shutoff or maintenance schedule for canal company deliveries. The right holder shall not divert ground water for irrigation purposes under this right if use of the surface water supply is intentionally discontinued or reduced (for example abandoned, forfeited, sold, disallowed by court decree, or leased to the Water Supply Bank), or is not deliverable due to non-payment of annual assessments, without an approved transfer pursuant to Idaho Code § 42-222 or other Department approval.
6. To mitigate for the depletion of water resulting from the use of water under this right and to prevent injury to senior water right holders, the right holder shall cease diverting and using water as authorized by the following water rights for the purposes and amounts specified below. Moreover, the official record for the following water right will be changed to show that diversion and use of water is not authorized because the rights, or portion thereof, are being dedicated to mitigation by non-use.

State of Idaho
Department of Water Resources

Permit to Appropriate Water

No. 63-34869

The mitigating right may also include a condition stating that the mitigation by non-use is for the benefit of this right.

Right No.	Use Changed to Mitigation by Non-Use	Mitigation Rate (cfs)	Mitigation Acres
63-30130	Irrigation	0.08	4.0

The land that will no longer be irrigated under this right is located within the Thurman Mill Ditch Co. service boundary. If the specified mitigation right, or portion thereof, is sold, transferred, leased, used on any place of use, or is not deliverable due to a shortage of water or a priority call, then the amount of water authorized for diversion under this right approval shall be reduced by the same proportion as the reduction to the mitigation rights.

7. Right holder shall comply with the drilling permit requirements of Idaho Code § 42-235 and applicable Well Construction Rules of the Department.
8. The Director retains jurisdiction to require the right holder to provide purchased or leased natural flow or stored water to offset depletion of Lower Snake River flows if needed for salmon migration purposes. The amount of water required to be released into the Snake River or a tributary, if needed for this purpose, will be determined by the Director based upon the reduction in flow caused by the use of water pursuant to this permit.

This permit is issued pursuant to the provisions of Idaho Code § 42-204.

Signed this 30 day of June, 2020.

Patrick Kelly

PATRICK KELLY
Water Rights Supervisor

State of Idaho
Department of Water Resources

Attachment to Permit to Appropriate Water

63-34869

This map depicts the IRRIGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

Point of Diversion

Place Of Use Boundary

Townships

PLS Sections

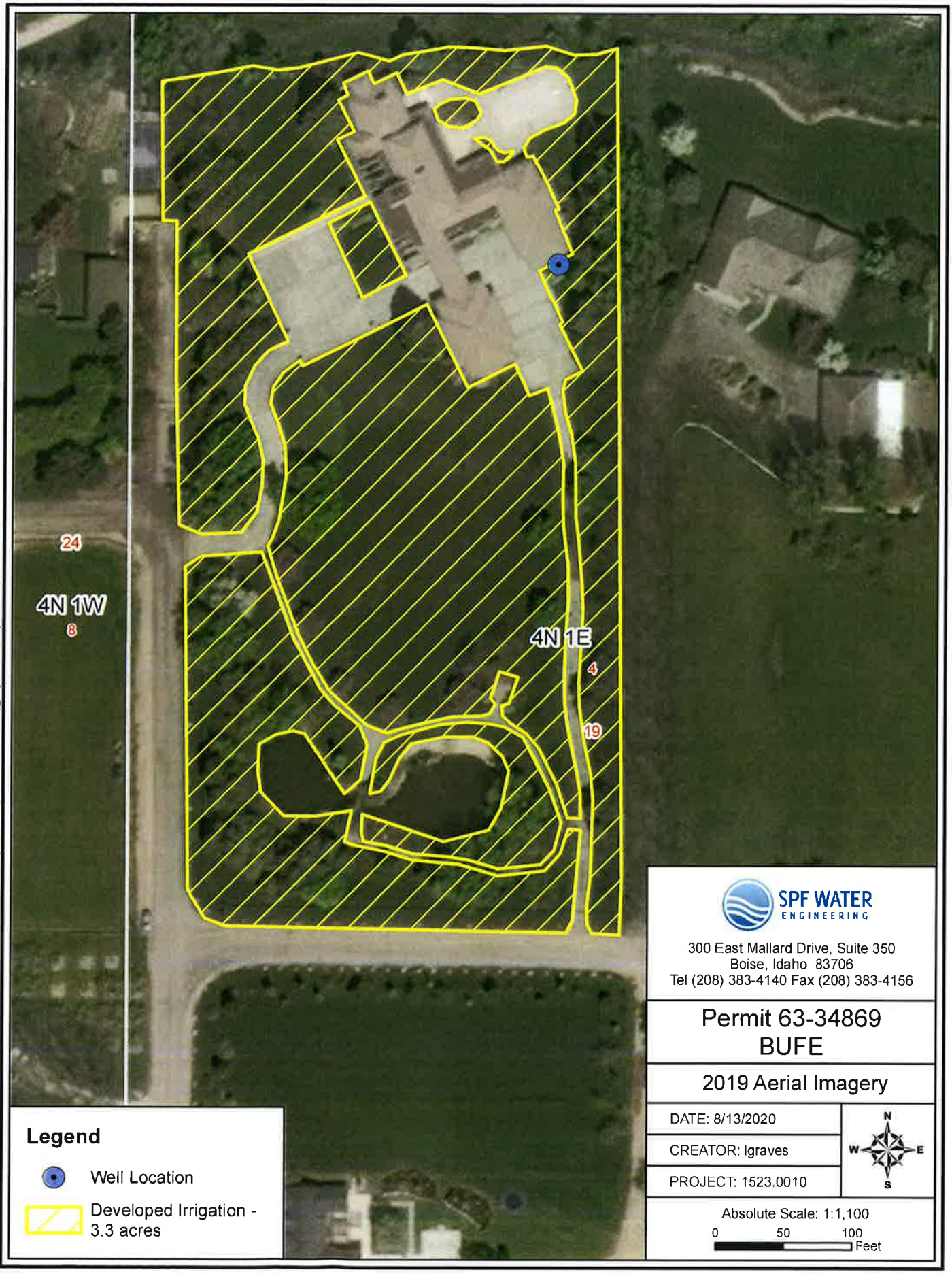
Quarter Quarters

0 0.035 0.07 0.14 Miles

N

Attachment B

Topographical Map and 2017 Aerial Photo Map



Legend

- Well Location
- Developed Irrigation - 3.3 acres

SPF WATER ENGINEERING
300 East Mallard Drive, Suite 350
Boise, Idaho 83706
Tel (208) 383-4140 Fax (208) 383-4156

Permit 63-34869 BUFE

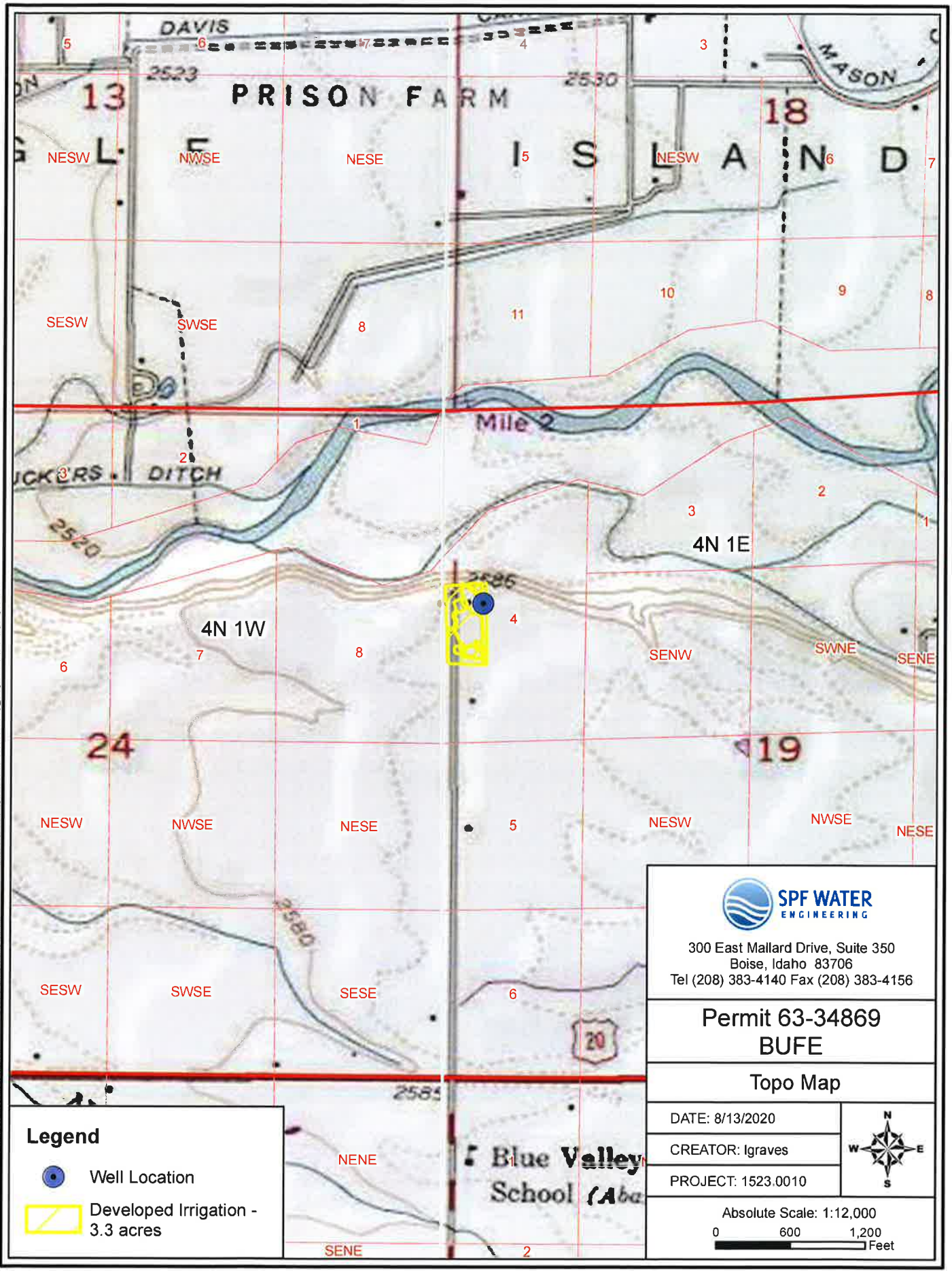
2019 Aerial Imagery

DATE: 8/13/2020
CREATOR: lgraves
PROJECT: 1523.0010

N W E S

Absolute Scale: 1:1,100
0 50 100 Feet

Path: S:\PROJECTS\1s thru Z Projects\Y Projects\Yanke Machine Shop_1523\0010_Linda Yanke Water Right Consulting\PROJECT\GIS\ArcMap_Projects\BUFE Map aerial.mxd



Path: S:\PROJECTS\S thru Z Projects\Yanke Machine Shop_1523\0010_Linda Yanke Water Right Consulting\PROJECTS\GIS\ArcMap_Projects\BUFE_Map topo.mxd

Attachment C

Well & Pump Information

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

94773

Office Use Only
Inspected by _____
Twp____ Rge____ Sec____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 63-98-W-0814-000 -____
Other IDWR No. tag #D0007944

2. OWNER:
Name Ron-Linda Yanke
Address 10425 W Estate Dr
City Boise State ID Zip 83709

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 4 North XX or South ☐
Rge. 1 East XX or West ☐
Sec. 19 ____ 1/4 (10 acres) N/E 1/4 (10 acres) N/W 1/4 (160 acres)
Gov't Lot ____ County Ada
Lat: : : Long: : :
Address of Well Site _____
City Meridian
(Give at least name of road + Distance to Road or Landmark)
Lt. 12 Blk. ____ Sub. Name Clearview Sub

4. USE:
XX Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
XX New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☐ Air Rotary XX Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite grout	0	22	120#	slurry pit

Was drive shoe used? XX Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y XX N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+18"	117	.250	steel	XX	☐	XX	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 4'6" Length of Tailpipe 1'

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
XX Screens Screen Type Johnson 304

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
114	118			5	steel	☐	XX
118	128	20		5	stainless	☐	XX
128	129			5	steel	☐	XX

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
44 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump XX Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
60	12'	56	1 hr

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____
Depth first Water Encountered _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	5	brown clay topsoil		X
6	5	7	brown clay topsoil		X
	7	40	sand & gravel		X
	40	49	brown sand		X
	49	52	brown clay		X
	52	56	brown sand	X	
	56	58	brown clay		X
	58	73	brown sand	X	
	73	75	brown clay		X
	75	79	brown sand	X	
	79	118	~~illegible~~		
			brown clay with sand streaks		X
	118	127	sand	X	
	127	129	brown clay		X

RECEIVED
JAN 25 1999
Department of Water Resources

RECEIVED
JAN 21 1999
WATER RESOURCES
WESTERN REGION

MICROFILMED
MAR 08 1999

Completed Depth 129' (Measurable)
Date: Started 12/28/98 Completed 1/5/99

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Stevens & Sons Firm No. 153
Firm Official [signature] Date 1/19/99
and
Supervisor or Operator Steve Matlock Date _____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

BERKELEY® MS Stainless Steel Series
4" Submersible Pumps — 10, 15, 20, 30 and 50 GPM

POWERED BY PENTEK®

C SP US NSF/ANSI 61 Drinking Water

Precision-engineered, high-quality, rugged Stainless Steel Series Pumps deliver efficient, dependable performance even in rough, aggressive water. Heads to 1,950 feet and capacities to 65 GPM. Built to deliver long-term, trouble-free service. Floating impeller design resists sand and reduces sand locking. These pumps feature the proven SignaSeal™ staging system.

APPLICATIONS

- **Water systems...** for residential, industrial, commercial, multiple housing and farm use.

SPECIFICATIONS

Shell – Stainless steel
Diameter – 3-7/8"
Discharge – Stainless steel
Discharge Bearing – Nylatron®
Intermediate Bearing – (On larger units) Polycarbonate, nitrile rubber and stainless steel
Impellers – Acetal
Diffusers – Polycarbonate
Suction Caps – Polycarbonate with stainless steel insert
Thrust Pads – Proprietary spec.
Shaft and Coupling – Stainless steel
Intake – Stainless steel
Intake Screen – Polypropylene
Cable Guard – Stainless steel
Check Valve – Acetal†
Agency Listings – CSA

FEATURE

Proven Staging System – Our proven SignaSeal staging system incorporates a harder-than-sand ceramic wear surface that when incorporated with our floating impeller design, greatly reduces problems with abrasives, sand lock-up and running dry.

Discharge – Corrosion-resistant 300 grade stainless steel for durability in aggressive water. Large wrench flats for ease of installation.

Discharge Bearing – Self-lubricating Nylatron® bearing resists wear from sand.

Intake – Corrosion-resistant 300 grade stainless steel for durability in aggressive water.

Shaft – Positive drive from 7/16" hexagonal heavy-duty 300 grade stainless steel.

Coupling – Stainless steel press fit to pump shaft. Couples to all standard NEMA motors.

Shell – Highest grade, heavy-walled corrosion-resistant stainless steel. Threaded for easy servicing.

Hardware – All screws, washers and nuts are corrosion-resistant 300 grade stainless steel.

Check Valve† – Durable internal spring-loaded check valve.

Cable Guard – Corrosion-resistant stainless steel guard protects motor leads. Tapered ends prevent pump from catching on well.

Intake Screen – Corrosion-proof.

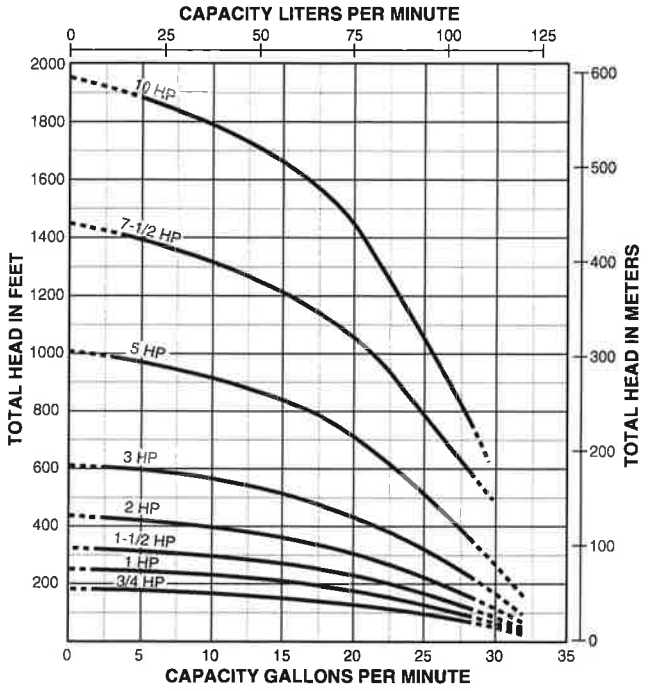
PENTEK® XE Series™ Motor – 2 and 3 wire NEMA standard all stainless construction water-filled motors.

†Except where noted.

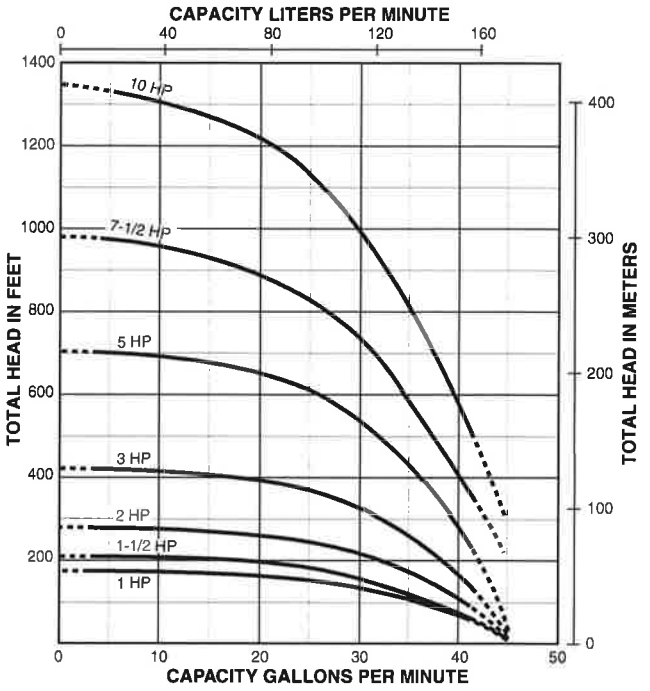
Nylatron® is a registered trademark of Polymer Corp.
All other brand or product names are trademarks or registered marks of Pentair Ltd.

BERKELEY® MS Stainless Steel Series
4" Submersible Pumps — 10, 15, 20, 30 and 50 GPM

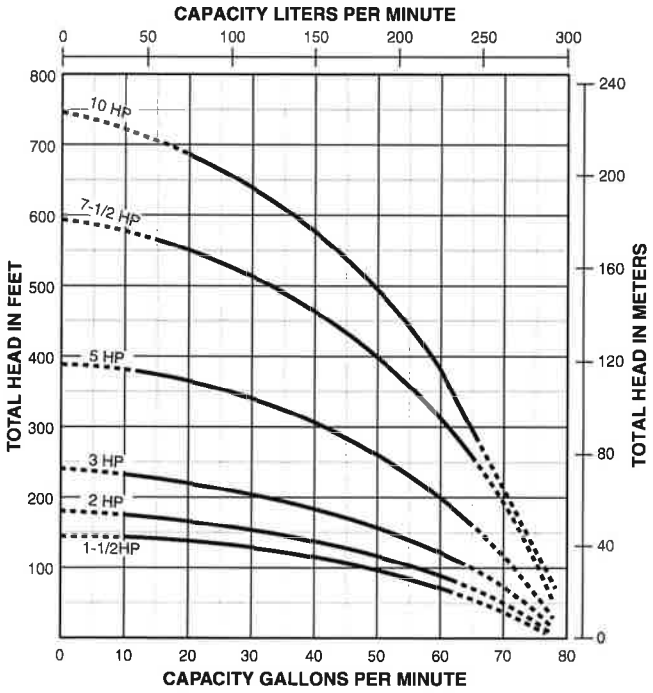
PUMP PERFORMANCE – 20 GPM



PUMP PERFORMANCE – 30 GPM



PUMP PERFORMANCE – 50 GPM



BERKELEY® MS Stainless Steel Series
4" Submersible Pumps — 10, 15, 20, 30 and 50 GPM

50 Gallons per Minute		PUMP PERFORMANCE (Capacity in Gallons Per Minute)																	
		Pumping Depth in Feet																Shut-Off Head	
HP	PSI	20	40	60	80	100	125	150	175	200	250	300	350	450	550	650	700	Feet	PSI
1-1/2	0	—	—	—	58.2	49.3	33.5											145	63
	20	—	55.9	46.5	32.5														
	30	54.8	45.0	30.0															
	40	43.3	26.9																
	50	21.9																	
	60																		
2	0	—	—	—	63.3	57.0	47.8	33.9										180	78
	20	—	62.2	55.1	46.8	37.1	13.0												
	30	61.1	53.6	46.0	34.3	14.1													
	40	52.8	45.0	32.5	11.0														
	50	42.7	27.9																
	60	25.2																	
3	0	—	—	—	—	64.5	59.4	52.5	45.0	33.8								235	102
	20	—	—	63.7	59.0	53.5	46.5	36.2	18.2										
	30	—	62.9	58.1	53.0	47.0	37.0	20.5											
	40	62.5	57.6	52.0	46.2	38.8	22.1												
	50	56.5	51.0	44.7	36.2	22.8													
	60	50.0	43.7	34.0	20.5														
5	0	—	—	—	—	—	—	65.9	63.2	59.9	51.9	41.9	22.5					385	166
	20	—	—	—	—	—	63.5	60.8	56.1	52.4	42.5	24.9							
	30	—	—	—	—	63.8	60.9	56.9	53.0	47.9	35.5	12.9							
	40	—	—	65.5	63.2	61.0	57.0	53.2	48.0	43.5	27.0								
	50	—	65.1	63.0	60.8	57.1	53.3	48.1	43.6	36.4	14.2								
	60	64.9	62.4	60.0	56.9	53.7	48.7	44.1	37.5	28.0									
7-1/2	0	—	—	—	—	—	—	—	—	—	66.0	61.0	55.3	43.1	20.0			595	257
	20	—	—	—	—	—	—	—	—	64.8	61.1	56.0	50.0	34.9					
	30	—	—	—	—	—	—	—	64.9	63.3	58.7	53.2	47.2	28.8					
	40	—	—	—	—	—	—	65.0	63.6	61.7	56.2	50.9	44.1	22.0					
	50	—	—	—	—	—	65.1	63.7	61.8	58.9	53.9	47.5	41.0	13.2					
	60	—	—	—	—	65.2	63.8	61.9	59.0	56.5	51.1	44.9	36.0						
10	0	—	—	—	—	—	—	—	—	—	—	65.0	62.1	54.2	44.7	29.0	15.2	745	322
	20	—	—	—	—	—	—	—	—	—	65.5	62.5	59.1	50.1	39.2	17.1			
	30	—	—	—	—	—	—	—	—	66.9	64.1	61.2	56.9	47.5	35.0	10.5			
	40	—	—	—	—	—	—	—	67.0	65.8	63.0	59.3	54.9	45.2	30.5				
	50	—	—	—	—	—	—	67.1	65.9	64.2	61.5	57.2	53.0	42.9	25.0				
	60	—	—	—	—	—	67.2	66.0	64.3	63.2	59.9	55.0	51.0	40.6	19.7				

CAUTION: DO NOT use pump at flow rates indicated by the symbol '—'. To do so can cause premature failure of unit. Pump warranty void when failure occurs under these conditions.

Tested and rated in accordance with Water Systems Council Standards.

NOTE: Pumps installed with a PRO-Source® tank require a 100 PSI relief valve. Pumps installed with a conventional tank require a 75 PSI relief valve. Relief valve must be capable of relieving entire flow of pump at relief pressure.

Operating Range

- Precipitation rate: 0.37 to 1.14 inches per hour (9 to 29 mm/h)
- Radius: 39 to 65 feet (11.9 to 19.8 m)
- Pressure: 30 to 90 psi (2.1 to 6.2 bar)
- Flow: 2.9 to 21.7 gpm (0.66 to 4.93 m³/h; 10.8 to 82.2 l/m)

Specifications

- 1" (26/34) female NPT or BSP threaded inlet
- SAM check device holds up to 10 feet (3.1 m) of elevation change
- Rain Curtain™ Nozzles: 04-black; 06-light blue; 08-dark green; 10-grey; 12-beige; 14-light green; 16-dark brown; 18-dark blue
- Nozzle outlet trajectory is 25°

Dimensions

- Overall height: 8½" (21.6 cm)
- Pop-up height: 4" (10.2 cm)
- Exposed surface diameter: 2" (5.1 cm)

Note: *Pop-up height is measured from cover to center of nozzle. Overall body height is measured popped down*

Models

- F4-FC: Full-circle
- F4-PC: Part-circle
- F4-FC-NP: Full-circle, non-potable cover
- F4-PC-NP: Part-circle, non-potable cover
- F4-FC-SS: Full-circle, stainless steel
- F4-PC-SS: Part-circle, stainless steel
- F4-FC-SS-HS: Full-circle, stainless steel, high speed rotation
- F4-PC-SS-HS: Part-circle, stainless steel, high speed rotation
- F4-FC-SS-NP: Full-circle, stainless steel, non-potable cover
- F4-PC-SS-NP: Part-circle, stainless steel, non-potable cover

Note: *All models available with BSP threads*

Falcon® 6504 Rain Curtain™ Nozzles

Falcon® 6504 Nozzle Performance

Pressure psi	Nozzle	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
30	4	39	2.9	0.37	0.42
	6	43	4.2	0.44	0.50
40	4	41	3.3	0.38	0.44
	6	45	4.9	0.47	0.54
	8	49	6.6	0.53	0.61
	10	51	8.1	0.60	0.69
	12	53	9.7	0.66	0.77
	14	55	11.3	0.72	0.83
	16	55	12.6	0.80	0.93
	18	59	13.7	0.76	0.87
50	4	41	3.7	0.42	0.49
	6	49	5.5	0.44	0.51
	8	51	7.4	0.55	0.63
	10	53	9.1	0.62	0.72
	12	55	11.0	0.70	0.81
	14	59	12.7	0.70	0.81
	16	61	14.3	0.74	0.85
	18	59	15.4	0.85	0.98
60	4	41	4.0	0.46	0.53
	6	47	6.0	0.52	0.60
	8	51	8.2	0.61	0.70
	10	55	10.0	0.64	0.73
	12	57	12.2	0.72	0.83
	14	61	14.0	0.72	0.84
	16	63	15.7	0.76	0.88
	18	63	17.1	0.83	0.96
70	4	41	4.4	0.50	0.58
	6	49	6.3	0.51	0.58
	8	51	8.9	0.66	0.76
	10	57	10.8	0.64	0.74
	12	59	13.2	0.73	0.84
	14	61	15.2	0.79	0.91
	16	63	16.9	0.82	0.95
	18	65	18.3	0.83	0.96
80	4	43	4.6	0.48	0.55
	6	49	6.9	0.55	0.64
	8	53	9.4	0.64	0.74
	10	55	11.6	0.74	0.85
	12	61	14.0	0.72	0.84
	14	61	16.2	0.84	0.97
	16	63	18.1	0.88	1.01
	18	65	19.6	0.89	1.03
90	18	65	21.7	0.99	1.14

Precipitation rates based on half-circle operation

■ *Square spacing based on 50% diameter of throw*

▲ *Triangular spacing based on 50% diameter of throw*

Performance data collected in zero wind conditions

Performance data derived from tests that conform with ASAE Standards; ASAE S398.1. *See page 224 for complete ASAE Test Certification Statement.*

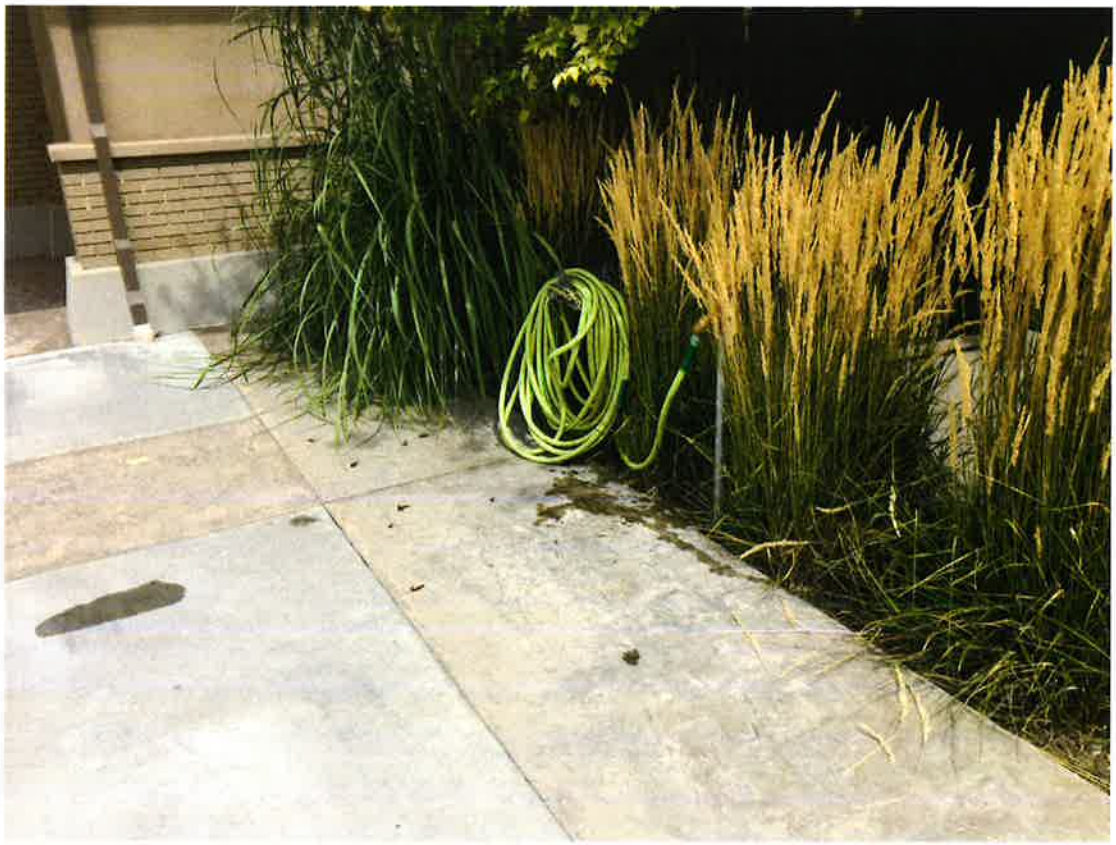
Attachment D

Exam Photos

Well casing (left) with sprinkler connection, pressure gage and backflow preventer in foreground

View of well (right) and plumbing. Connection to sprinkler system at top of image.

Sprinkler controller in garage.



Yard hydrant along driveway adjacent to garaage. Well is located in vault to the right of the hydrant.

Irrigation in front yard with rotor sprinklers. Surface water pump station in building near center of image.

Irrigation in front yard with rotor sprinklers.

Irrigated hillside on north side of property.

Irrigated landscape in back yard.

Irrigated landscape at southwest corner of yard.

Surface water lateral box in southeast corner of yard.

Surface water pump intake in pond

5 hp surface water pump

Surface water pump intake in pond

5 hp surface water pump