

RECEIVED**SEP 18 2012****DEPT OF WATER RESOURCES**

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED**SEP 14 2012****WATER RESOURCES
WESTERN REGION**

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 INFORMATIONPermit No. 63-117731. Owner Mark and /or Susan TracyPhone No. (208) 467-3006Current address 2422 12th Ave Rd, Box 377, Nampa, ID 836862. Examiner's name Terry Scanlan, P.E. (Examiner No. 129)EXAM DATE 8-24-12 & 8-27-123. Accompanied by Mark Tracy

Email _____

Address _____

Relationship to permit holder Permit HolderPhone No. (208) 467-30064. Source Ground Water

tributary to _____

B. OVERLAP REVIEW1. Other water rights with the same place of use 63-3597B2. Other water rights with the same source and point of diversion 63-3597B**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			SW	NW	10	2N	3W	Canyon	Field Exam, Aerial Photo
2			SW	NW	10	2N	3W	Canyon	

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

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
2N	3W	10							37	39	6	9							91

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
Well 1 - 16"		50	Submersible	Goulds 9 WAHC	6-inch
Well 2 - 12"		50	Submersible	Franklin 450ST8	6-inch
Booster Pumps	Baldor-Reliance	15/20	see Section E	Berkeley B3TPM	3-inch (6.50" & 5.94" impeller)

*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
GE TransPort PT878	ultrasonic	GE	PT878	07140		3/16/2012

2. **Measurements:** _____

Measured 468 gpm from Well 1 and 420 gpm from Well 2 for a total of 888 gpm. Discharge pressure DS of Well 1 booster was 73 psi, pressure DS of Well 2 booster was 65 psi. Five wheel lines and 20 hand lines were operating at the time of measurement.

E. NARRATIVE/REMARKS/COMMENTS

A 2-well system supplies primary ground water to 91 acres irrigation via sprinkler irrigation. The 91 acres are currently decreed for irrigation at less than full appropriation under water right 63-3597B (0.8 cfs and 388.8 AFA for 97 acres). The purpose of permit 63-11773 is to increase the system capacity to allow full appropriation of 0.02 cfs/acre for the 91-acre place of use currently irrigated.

Well 1 is a 16-inch well drilled in 2009 as a replacement to the original well authorized under water right 63-3597B. Well 1 was drilled 520 feet deep and is equipped with a 50-hp submersible pump and a 20-hp booster pump (motor SN Z0802012676). Well 2 is a 12-inch well drilled 385 feet deep in 2011 and is equipped with a 50-hp submersible pump and a 15-hp booster pump (motor SN F1206060995). Approved transfer 76041 allowed Well 2 to be added as a second point of diversion to water right 63-3597B. Total system capacity is 1.98 cfs.

Water right 63-3597B allows diversion of 0.00825 cfs/ac and 4.0 ac-ft/acre for irrigation of the 91 acres. The differences between the decreed rates and full appropriation have been recommended for licensing under this permit (0.0115 cfs/ac). The 91 acres are limited to 0.02 cfs/ac (1.82 cfs) and 4.5 ac-ft/acre (409.5 AFA) when rights 63-3597B and 63-11773 are combined. The remaining 6 acres under 63-3597B receive 0.00825 cfs/ac (0.05 cfs) and 4.0 AFA. Therefore, rights 63-3597B and 63-11773, in combination, are limited to 1.87 cfs and 433.5 AFA.

Note: A separate domestic well in the NESW Section 10 supplies culinary water to the existing home. The home's landscape area has been included as part of the 91-acres recommended for licensing.

A total of 97 acres were decreed to water right 63-3597B. Six of those acres are no longer irrigated due to development. An application to lease those acres to the Idaho Water Supply Bank accompanies this report.

Attachment A is a copy of the permit and the original proof of beneficial use.

Attachment B is the well driller's reports and pump performance curves.

Attachment C is an aerial photo and topographical map.

Attachment D are photos of the points of diversion and place of use.

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?

Authorized water bearing zone: 170 to 480 feet

Developed water bearing zone for Well 1: 360 to 470 feet

Well 2: 200 to 350 feet

ATTACHMENT A

PERMIT RECORD AND PROOF OF BENEFICIAL USE

[Close](#)IDAHO DEPARTMENT OF WATER RESOURCES
Water Permit Report

8/16/2012

WATER RIGHT NO. 63-11773

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	MARK S TRACY
Current Owner	SUSAN TRACY
	2422 12TH AVE RD BOX 377
	NAMPA, ID 83686
	(208)467-3006

Priority Date: 04/16/1992
Status: Active

<u>Source</u>	<u>Tributary</u>
GROUND WATER	

<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
IRRIGATION	03/01	11/15	1.14 CFS	
DOMESTIC	01/01	12/31	0.04 CFS	
Total Diversion			1.18 CFS	

Location of Point(s) of Diversion:

GROUND WATER	SWNW	Sec. 10	Township 02N	Range 03W	CANYON County
GROUND WATER	SWNW	Sec. 10	Township 02N	Range 03W	CANYON County

Place(s) of use:

Place of Use Legal Description: IRRIGATION CANYON County

<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>
02N	03W	10		SWNW	37		SENE	40						
				NESW	10		NWSW	10						

Place of Use Legal Description: DOMESTIC CANYON County

<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>
02N	03W	10		SENE										

Total Acres: 97

Conditions of Approval:

1. X35 Rights 63-11773 and 63-3597B when combined shall not exceed a total diversion rate of 1.94 cfs, a total annual maximum diversion volume of 436.5 af at the field headgate, and the irrigation of 97 acres.
2. 121 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.
3. 046 Right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code and applicable Well Construction Rules of the Department.
4. R65 This right when combined with all other rights shall provide no more than 0.02 cfs per acre nor more than 4.5 afa per acre at the field headgate for irrigation of the lands above.
5. X01 Domestic use is for 1 home.
6. Water bearing zone to be appropriated is from 170 to 480 feet.
7. 01M After specific notification by the Department, the right holder shall install a suitable measuring device or shall enter into an agreement with the Department to use power records to determine the amount of water diverted and shall annually report the information to the Department.

Dates:

Proof Due Date: 05/01/2015

Proof Made Date:

Approved Date: 05/06/2008

Moratorium Expiration Date:

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Application Received Date: 04/16/1992

Protest Deadline Date:

Number of Protests: 0

Field Exam Date::

Date Sent to State Off:

Date Received at State Off:

Other Information:

State or Federal:

Owner Name Connector:

Water District Number:

Generic Max Rate per Acre: 0.02

Generic Max Volume per Acre: 4.5

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: False

[Close](#)

ATTACHMENT B

WELL DRILLERS' REPORTS AND PUMP CURVES

3

Form 238-7
6/07IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

WELL 1

855058

1. WELL TAG NO. D 0052556Drilling Permit No. 907488-855058Water right or injection well # 63-35978

2. OWNER:

Name Mark TracyAddress 10506 Farmer RdCity Nampa State ID Zip 88686

3. WELL LOCATION:

Twp. 2 North ☒ or South ☐ Rge. 3 East ☐ or West ☒Sec. 10 1/4 S/W 1/4 N/W 1/4Gov't Lot _____ County CanyonLat. 43 ° 31.649 (Deg. and Decimal minutes)Long. 116 ° 41.532 (Deg. and Decimal minutes)Address of Well Site approx .28 mile So of Locust Ln.04 mile E of Farmer Rd City Nampa

(Give at least name of road + Distance to Road or Landmark)

Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☒ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☒ New well ☒ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☐ Air Rotary ☐ Mud Rotary ☐ Cable ☒ Other reverse

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method/procedure
bentonite chip	0	60	213sk	poured
cement	60	360	140 sk	pumped

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
16"	2	360	375	steel	☒	☐	☐	☒
10"	340	370	365	steel	☐	☒	☐	☒
10"	395	410	365	steel	☐	☒	☐	☒
10"	425	450	365	steel	☐	☒	☐	☒

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____Manufactured screen ☒ Y ☐ N Type Johnson V-wire 304

Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
370	395	30		10"	stnls steel	
410	425	30		10"	stnls steel	
450	470	30		10"	stnls steel	

Length of Headpipe 30 Length of Tailpipe 0Packer ☒ Y ☐ N Type figure K swedge pkr 12", 5'

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method
8-12	340	470	7500#	poured

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) _____ Static water level (ft) 130'Water temp. (°F) 66 Bottom hole temp. (°F) _____

Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
153'	517	420

Test method:

Pump ☒ Bailer ☐ Air ☐ Flowing artesian ☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water	
				Y	N
19	0	3	topsoil		X
	3	12	caliche		X
	12	43	sand & lg gravel		X
	43	62	cemented sand & gravel		X
	62	87	tan clay w/ thin sand streaks		X
	87	105	fine to medium sand, some small gravel		X
	105	134	tan clay		X
	134	160	medium sand & small gravel	X	
	160	190	tan clay		X
	190	210	fine sand	X	
	210	241	tan clay, little blue clay		X
	241	261	medium to fine sand	X	
	261	335	dry blue clay		X
	335	350	dry blue clay w/ thin fine sand streaks		X
	350	370	blue clay		X
	370	394	fine to medium sand	X	
	394	407	tan & blue clay		X
	407	426	fine sand	X	
	426	446	blue grey clay		X
	446	472	fine to medium sand	X	
	472	491	blue grey clay		X
	491	507	fine sand, some clay	X	
	507	520	blue clay		X

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AUG 06 2009

WATER RESOURCES
WESTERN REGIONCompleted Depth (Measurable): 470'Date Started: 4/6/09 Date Completed: 7/7/09

14. DRILLER'S CERTIFICATION:

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

Company Name Stevens & Sons Co. No. 153Principal Driller [Signature] Date 7/28/09Driller [Signature] Date _____

Operator II _____ Date _____

Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

WELL 2

80131

Form 238-7
6/07IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0057999

Drilling Permit No. 912482-861131

Water right or injection well # 63-11773

2. OWNER: Mark Tracy

Name _____

Address PO Box 377

City Boise State ID Zip 83686

3. WELL LOCATION:

Twp. 02 North ☒ or South ☐ Rge. 03 East ☐ or West ☒

Sec. 10 1/4 SW 1/4 NW 1/4

Gov't Lot _____ County Canyon

Lat. N 43° 31.538 (Deg and Decimal minutes)

Long. W116° 41.564 (Deg and Decimal minutes)

Address of Well Site Locust Ln & W Lewis Ln, 60' off of Farmer Rd, .42 mile S of Locust city Nampa

(Give at least name of road - Distance to Road or Landmark)

Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☒ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☐ Air Rotary ☐ Mud Rotary ☐ Cable ☒ Other Reverse

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method/procedure
Bentonite chips	0	185	22,500	Dry pour
Bentonite chips	225	270	3,750	Dry pour

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
12	+2	200	.250	Steel	☒	☐	☐	☒
12	220	290	.250	Steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____Manufactured screen ☒ Y ☐ N Type Johnson Wire Wrap

Method of installation Lower in

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
200	220	.025		12	Mild Steel	
290	350	.025		12	Mild Steel	

Length of Headpipe _____ Length of Tailpipe 5'

Packer ☐ Y ☒ N Type _____

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method
#10-20 Sand	185	225	10,500	Dry pour
#10-20 Sand	270	355	13,500	Dry pour

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 120' Static water level (ft) 120'

Water temp. (°F) 76° Bottom hole temp. (°F) 76° HoboTemp

Describe access port 2" Pipe on side

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
No well test	Test at later date	

Test method:

Pump	Boiler	Air	Flowing artesian
☐	☐	☐	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water	
				Y	N
20	0	4	Top soil		X
20	4	8	Caliche		X
20	8	53	Sand, gravel		X
20	53	85	Tan clay		X
20	85	94	Fine sand		X
20	94	95	Tan sand		X
20	95	112	Sand, clay mix in streaks		X
20	112	121	Tan clay		X
20	121	125	Fine sand	X	
20	125	129	Tan clay		X
20	129	155	Fine sand	X	
20	155	171	Coarse sand	X	
20	171	207	Tan clay		X
20	207	220	Coarse sand	X	
20	220	232	Tan clay		X
20	232	263	Blue clay		X
20	263	265	Brown clay		X
20	265	272	Tan clay		X
20	272	275	Blue clay		X
20	275	289	Tan clay		X
20	289	299	Brown sand	X	
20	299	307	Tan clay		X
20	307	325	Fine brown sand	X	
20	325	345	Coarse sand	X	
20	345	350	Fine sand	X	
20	350	385	Blue clay		X

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SEP 30 2011

WATER RESOURCES

WESTERN REGION
Completed Depth (Measurable): 355'

Date Started: Jun 15, 2011

Date Completed: Aug 30, 2011

14. DRILLER'S CERTIFICATION:

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

Company Name Riverside Inc Co. No. 333

*Principal Driller Date 9-26-11

*Driller Date 9-26-11

*Operator II Date

Operator Date 9-26-11

* Signature of Principal Driller and rig operator are required.



P.O. Box 1005

Nampa, Idaho 83653

208-466-7376

August 16, 2012

SPF Water Engineering
Attn: Lori
300 E. Mallard, Ste. 350
Boise, ID 83706

Lori,

Here is the information you requested.

Mark Tracy Wells

Well #1 16" well
50hp sub set at 300'
Pump design 500gpm @ 300'tdh
Goulds 9 WAHC 2 stage

Booster
Pump design 500gpm @ 110'tdh
Berkeley B3TPM 20hp

Well #2 12" well
50hp sub set at 260;
Pump design 425gpm @ 265'tdh
Franklin 450ST8

Booster
Pump design 425gpm @ 110'tdh
Berkeley B3TPM 15hp

This information is solely based on our records and we do not guarantee accuracy as there may have been services provided by other companies that may have altered the details for these wells.

Steve Truesdell
Layne of Idaho, Inc.

PUMP DATA SHEET Submersible 60 Hz

Layne of Idaho, Inc.

Customer:

08/28/09

Order No:



Model: 9WAHC (2 stages)

Speed: 3600 rpm

Impeller: E6209WAPCO

Efficiency: 81%

Dimensions:

Vertical Turbine:

Limits:

Temperature: 120 °F
Pressure: 530 psi g
Shaft size: 0.4 in

Speed: 3450 rpm
Dia: 6.6875 in

Impeller:

Ns: 1600

Nss: —

Suction: — in

Discharge: — in

Bowl size: 9.25 in

Max lateral: 0.75 in

Thrust K factor: 3.75 lb/ft

Search Criteria:

Flow: 500 US gpm

Head: 300 ft

Fluid:

Water

SG: 1

Viscosity: 1.105 cP

NPSHa: — ft

Temperature: 60 °F

Vapor pressure: 0.2563 psi a

Atm pressure: 14.7 psi a

Motor:

Standard: NEMA

Enclosure: SUB

Size: 60 hp

Speed: 3600

Frame: 6"

Sizing criteria: Max Power on Design Curve

Data Point

Flow: 500 US gpm

Head: 305 ft

Eff: 80%

Power: 47.9 hp

SHr: 22 ft

Design Curve

Shutoff Head: 369 ft

Shutoff dP: 160 psi

Flow: — US gpm

Eff: 81%

@ 430 US gpm

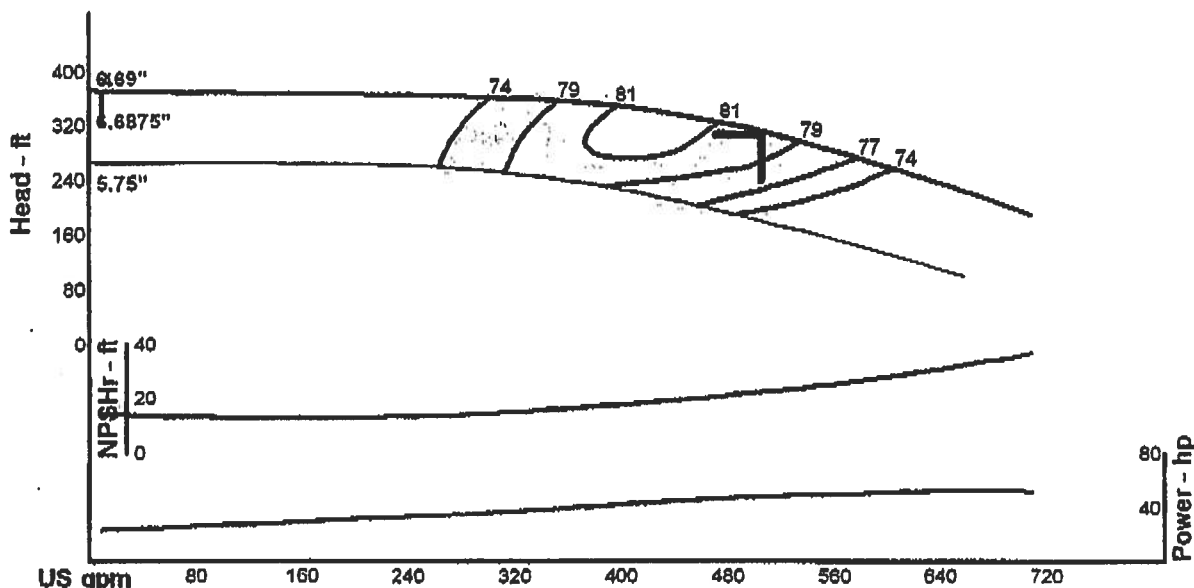
Power: 51.9 hp

@ 701 US gpm

Max Curve

Power: 52 hp

@ 702 US gpm



Performance Evaluation:

Flow US.gpm	Speed rpm	Head ft	Pump %eff	Power hp	NPSHr ft
600	3450	251	73.9	51.3	27.9
500	3450	305	80	47.9	22
400	3450	342	81	42.5	17.4
300	3450	357	74.2	36.3	14.1
200	3450	361	50.3	31.8	14

Home | New Item | Documents | Selection Performance | Feedback | Help | Logout

Pentair Water Electronic Catalog

Selection Criteria
Conditions of Service
Product Lines
Size List

Selection Results
Search Results
Performance Curve
Performance Datasheet
Life Cycle Cost

WELL 1 BOOSTER

Units | Curve Preferences | Print | Show Flow #2 | Multi-Speed Curves

Performance Datasheet | Additional Data | Multiple Conditions

Header Information

Performance Details

Size	: 3 x 4 x 8 M (B3TPM)	Based on curve number	: 5005
Stages	: 1		
Operating Conditions		Liquid	
Flow, rated	500.0 USgpm	Liquid type	: Water
Differential head / pressure, rated (requested)	110.0 ft	Additional liquid description	
Differential head / pressure, rated (actual)	108.0 ft	Solids diameter, max	0.00 in
Suction pressure, rated / max	0.00 / 0.00 psig	Solids concentration, by volume	0.00 %
NPSH available (actual)	Ampin ft	Temperature, max	88.00 deg F
Frequency	60 Hz	Fluid density, rated / max	1.000 / 1.000 SG
		Viscosity, rated	1.00 cP
		Vapor pressure, rated	0.00 psia
Performance		Material	
Speed criteria	☒ Synchronous ☐ Variable	Material requested	: Auto
Speed, rated	☒ set @ 3,450 rpm	Material selected	: Not specified
Impeller diameter, rated	☐ set @ 6.18 in ☐ Catalog only	Pressure Data	
Impeller diameter, maximum	: 6.50 in	Maximum working pressure	: 63.11 psig
Impeller diameter, minimum	: 4.94 in	Maximum allowable working pressure	: 150.0 psig
Efficiency	: 79.49 %	Maximum allowable suction pressure	: N/A
NPSH required / margin required	: 17.82 / 0.00 ft	Hydrostatic test pressure	: N/A
nq (imp. eye flow) / S (imp. eye flow)	: 35 / 178 Metric units	Driver & Power Data	
MCSF	: 175.8 USgpm	Driver sizing specification	: Rated power
Head, maximum, rated diameter	: 145.0 ft	Margin over specification	: 0.00 %
Head rise to shutoff	: 27.99 %	Service factor	☒ Use service factor 1.00
Flow, best eff. point (BEP)	: 437.6 USgpm	Power, hydraulic	: 13.89 hp
Flow ratio (rated / BEP)	: 114.20 %	Power, rated	: 17.47 hp
Diameter ratio (rated / max)	: 95.19 %	Power, maximum, rated diameter	: 17.84 hp
Cutwater ratio (rated / cutwater)	: 2.07 %	Power reserve (rated / max / sizing spec)	: 14.40 / 12.09 / 14.46 %
Head ratio (rated dia / max dia)	: 80.82 %	Minimum recommended motor rating	☒ set @ 20.00 hp / 14.91 kW
Ca/Cn/Cs : ANSI/HI 9.8.7-2010	: 1.00 / 1.00 / 1.00		
Selection status	: Acceptable		

Performance Curve

Curve Comment
Create/edit curve comment

Y Axis Settings

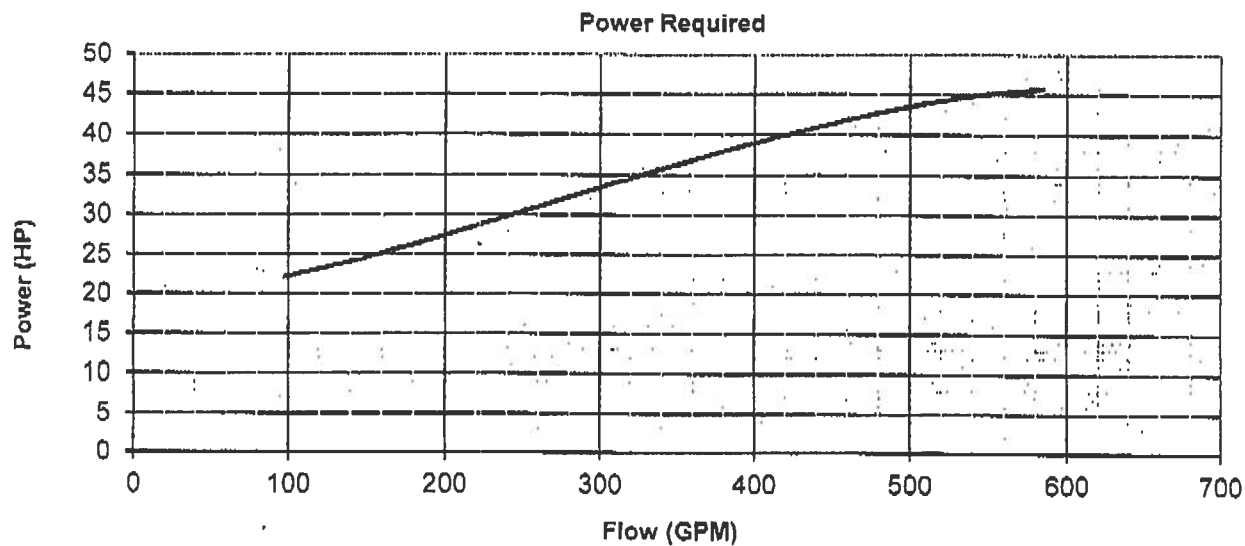
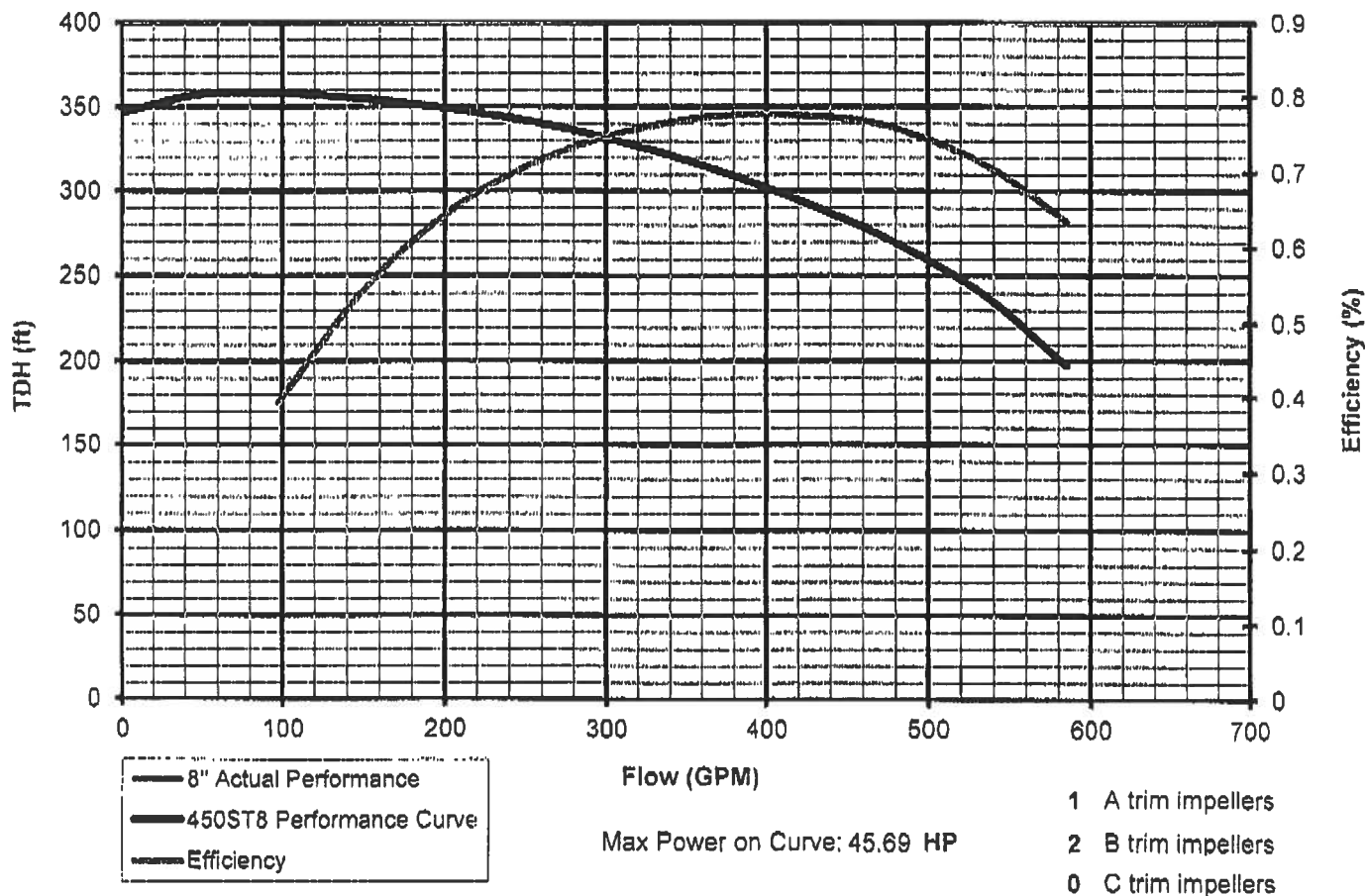
Chart	Start at zero	☒ Max value ☐ Major increment
Power	☒	☐ set @ 20.00
Head	☒	☐ set @ 200.0
NPSHr	☒	☐ set @ 30.00

All axis settings will be reset when plugging any size from the Size List or Search Results page.
Click the "Curve Preferences" button at the top of the page for more settings.

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**Franklin Electric**
Bluffton, Indiana 48714 • www.franklin-electric.com**450 GPM 8" Pump Performance**

WELL Z



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Pentair Water Electronic Catalog

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[Size List](#)
[Selection Details](#)
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WELL 2 BOOSTER

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▼ Header Information

▼ Performance Details

Size : 3 x 4 x 0 M (537PM)
 Stage : 1

Operating Conditions

Flow, rated : 425.0 USgpm
 Differential head / pressure, rated (requested) : 107.0 ft
 Differential head / pressure, rated (actual) : 108.1 ft
 Suction pressure, rated / max : 0.00 / 0.00 psi.g
 NPSH available (N/A/C/M) : Ample ft
 Frequency : 60 Hz

Performance

Speed criteria : ☒ Synchronous ☐ Variable
 Speed, rated : ☒ set @ 3,450 rpm
☐ set @ 5.94 in ☐ Catalog only
 Impeller diameter, rated : 0.50 in
 Impeller diameter, maximum : 4.94 in
 Impeller diameter, minimum : 4.94 in
 Efficiency : 80.71 %
 NPSH required / margin required : 14.88 / 0.00 ft
 nq (imp. nys flow) / B (imp. oys flow) : 35 / 178 Metric units
 MCSF : 163.7 USgpm
 Head, maximum, rated diameter : 120.4 ft
 Head due to shutoff : 10.20 %
 Flow, best eff. point (BEP) : 410.7 USgpm
 Flow ratio (rated / BEP) : 103.48 %
 Diameter ratio (rated / max) : 91.30 %
 Cutwater ratio (rated / cutwater) : 1.07 %
 Head ratio (rated dia / max dia) : 71.64 %
 Cat/Cut ANSII 9.8.7-2010 : 1.00 / 1.00 / 1.00
 Selection status : Acceptable

Based on curve number

5006

Liquid

Liquid

Additional liquid description

Water

Solids diameter, max

0.00 in

Solids concentration, by volume

0.00 %

Temperature, max

88.00 deg F

Fluid density, rated / max

1.000 / 1.000 SG

Viscosity, rated

1.00 cP

Vapor pressure, rated

0.00 psi.a

Material

Material requested

Ade

Material selected

Not specified

Pressure Data

Maximum working pressure

95.25 psi.g

Maximum allowable working pressure

150.0 psi.g

Maximum allowable suction pressure

N/A

Hydrostatic test pressure

N/A

Driver & Power Data

Driver sizing specification

Rated power

Margin over specification

0.00 %

Service factor

☐ Use service factor 1.00

Power, hydraulic

11.48 hp

Power, rated

14.23 hp

Power, maximum, rated diameter

14.04 hp

Power margin (rated / max / sizing spec)

5.43 / 1.06 / 5.43 %

Minimum recommended motor rating

☒ set @ 15.00 hp / 11.18 kW

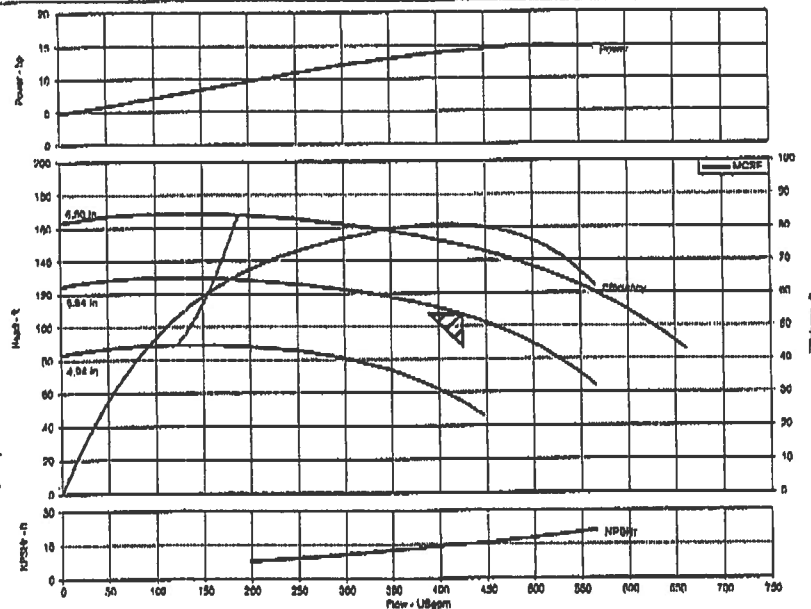
▼ Performance Curve

Curve Comment
 Generated curve comment

Y Axis Settings

Chart	Start at zero	Max value	Major increment
Power	☒	☒ set @ 20.00	
Head	☒	☒ set @ 200.0	
NPSH	☒	☒ set @ 30.00	

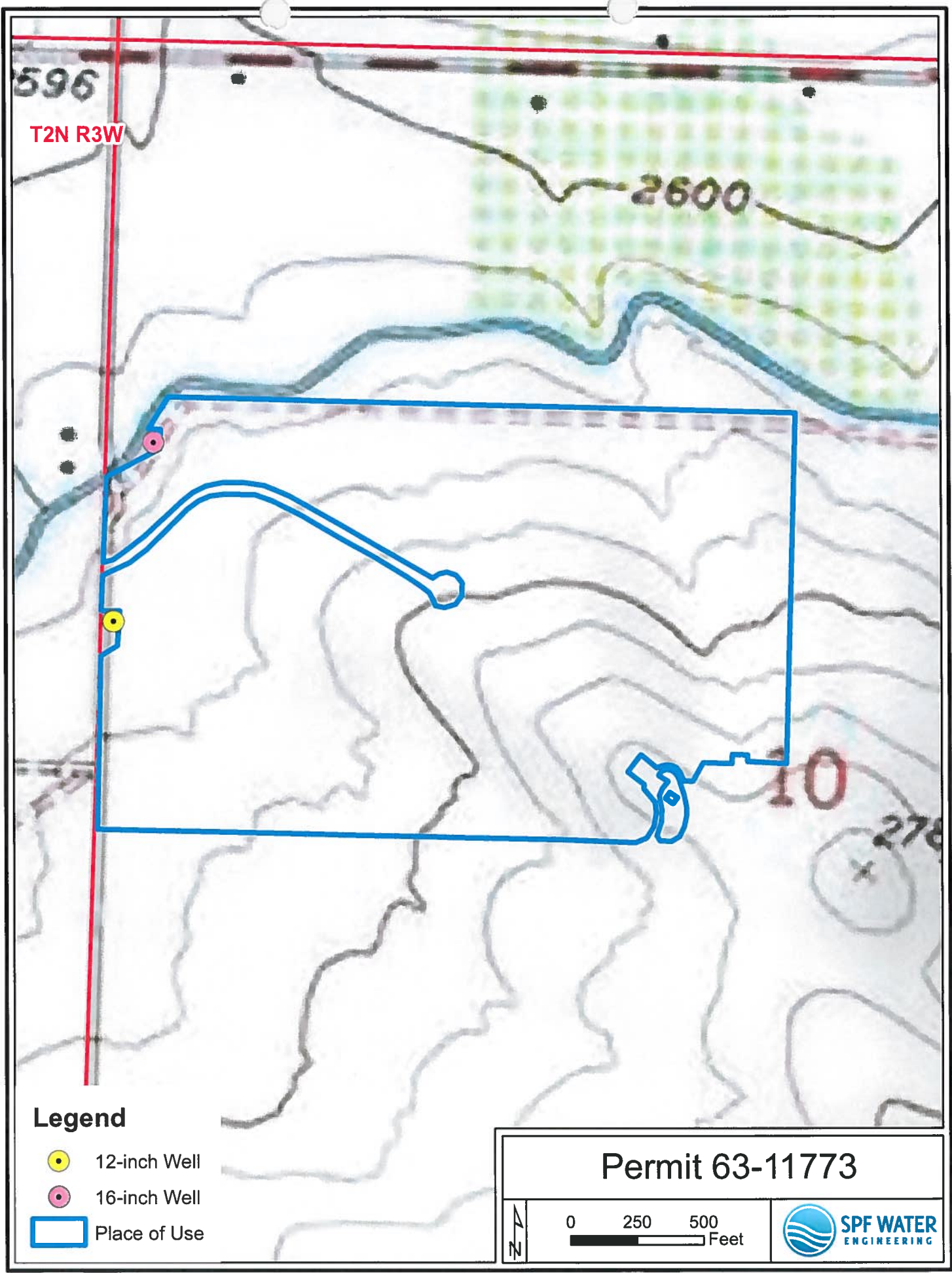
All axis settings will be reset when picking any size from the Size List or Search Results page.
 Click the "Curve Preferences" button at the top of this page for more settings.



ORDERED

ATTACHMENT C

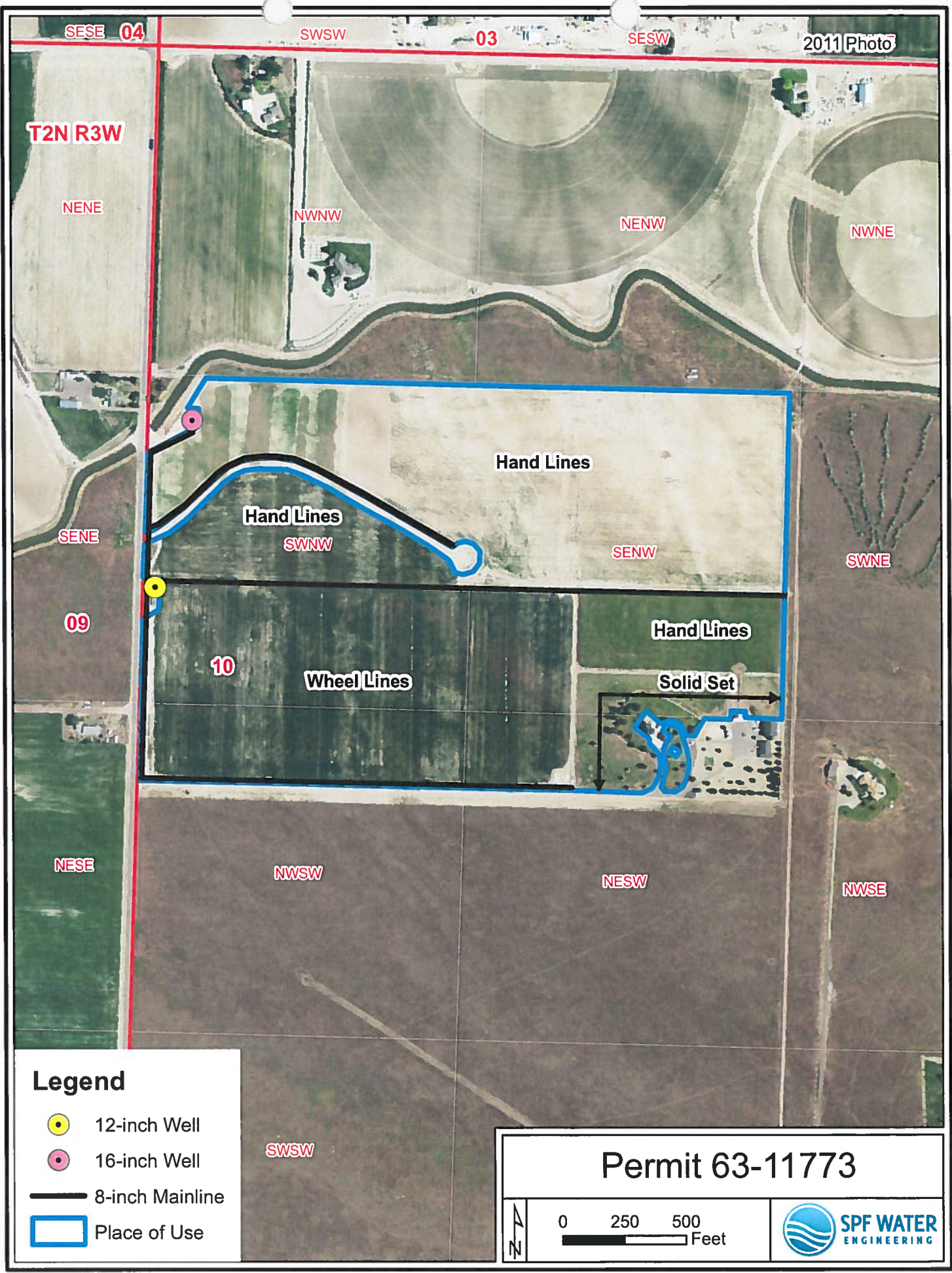
2011 AERIAL PHOTO AND TOPO MAP



Legend

-  12-inch Well
-  16-inch Well
-  Place of Use

Permit 63-11773		
		
		



ATTACHMENT D
PHOTOS



Well 1 Motor Controls



Well 1; 20-hp booster pump beneath A-frame sun shade.



Well 1 20-hp booster pump (with sun shade removed)



Well 1 booster pump motor nameplate



Well 1 tag (D0052556)



Well 2 motor controls



Well 2 discharge piping



Well 2 (lower right) and 15-hp booster (upper left)



West end of center mainline



Mainline and handline sprinklers along road in center of farm.



Cut alfalfa and wheel line in southwest portion of the place of use.



Pasture around house with solid set sprinklers



Solid set sprinklers in pasture north of house



Handline sprinklers in field north of house