

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-34629

Exam Date:

1. Current Owner:
PACIFIC WEST COMMUNITIES INC 430 E STATE ST STE 100 EAGLE ID 83616
2. Accompanied by: Ken Venturelli
Phone No: (208) 318-8720
Email: kenventurelli@esiconstruction.com
Relationship to permit Holder: ESI Construction Superintendent

3. **SOURCE:**
GROUND WATER

Method of Determination: Permit application, ArcMap, aerial imagery, and USGS topography.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
N/A	N/A	N/A	N/A

Comments: Overlap review found that overlapping POU rights are pertinent to neighboring properties.

2. Other water rights with the same point-of-diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
N/A	N/A	N/A	N/A

Comments: No overlapping POD.

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER NW¼ SW¼, Sec. 8, Twp 03N, Rge 01W, B.M. CANYON County

Method of Determination: Field exam, aerial imagery, ArcMap, and GPS.

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	
03N	01W	8									2.8	3.5				2.0			8.3

Total Acres: 11.0

Method of Determination: Field exam, aerial imagery, ArcMap, and GPS.

3.
 - ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
 - ☒ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
 - ☒ Aerial Photo Attached (required for irrigation of 10+ acres).
 - ☒ Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
	Grundfos MS 4000	3	N/A	Flowise submersible pump S series	N/A

D. FLOW MEASUREMENTS

Unable to take flow measurements.

E. FLOW CALCULATIONS

X

Additional Computation Sheets Attached

Theoretical Flow Calculation:

$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Horsepower 3
Pumping Level 15
Discharge Pressure 50-55
Rate of Flow (cfs) 0.14 cfs

Sprinkler Calculation:**45 Zones**

Number of sprinklers that run at one time varies

**See photo of irrigation schedule and irrigation map*

Drip Irrigation = 0.4 gph per emitter

Sprinkler Irrigation Range = 0.52 gpm to 1.85 gpm

Maximum Sprinkler Diversion Rate = 20 Heads * 1.86 gpm = 37gpm = **0.08 CFS**

Maximum Drip Diversion Rate = 0.4 gph * 400 ft = 160 gph

Irrigation Permit: 0.09 cfs
Sprinkler Calculation 0.09 cfs
Theoretical Rate 0.14 cfs
B.U. Proof Fee: \$50 → 0.01 cfs to 0.20 cfs

License Recommendation**0.09 cfs****F. VOLUME CALCULATIONS**

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 11 \text{ Acres} \times 4.5 \text{ AF} = 49.5$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = .09 \text{ CFS} \times 260 \text{ days} \times 1.9835 = 46.41$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \mathbf{46.41}$$

G. NARRATIVE/REMARKS/COMMENTS

The field exam was conducted July 13, 2020 by Kate Huelse.

The permit was assigned to Pacific West Communities Inc on November 29, 2018. The proof of beneficial use was submitted March 25, 2020 by Justin Parrish. Current Ada county taxlot data represent the AVM Holdings LLC as the current owner of the land pertinent to the place of use and point of diversion.

The permit authorized 11.0 acres for irrigation, as-builts and aerial imagery were used to verify the area of irrigated lands based on where the permit holder demonstrated as the POU during the field exam. The 11 acres of irrigation is made up of parking islands, swales, planters, and trees throughout the property. Ground water comes from a well drilled in 1987. The well log gives both the legal description and the GPS coordinates in Degrees-Minutes- Seconds. Both of these methods place the well in Section 08, Township 03 North, Range 01 West, NW 1/4, SW 1/4. The system diverts water using a 3 horsepower pump to both a sprinkler irrigation system and a drip irrigation system to irrigate 11 of grass and trees in parking islands and swales throughout the property. The productivity test recorded by Adamson Pump and Drilling suggests the system is capable of 31 GPM at 48 PSI.

A theoretical average flow rate of 0.14 cfs was calculated based on a 3 hp pump set at 15 feet in the well with a range of discharge pressures from 45 to 55 psi. According to the irrigation plan provided by LawnCo the POU is irrigated using drip irrigation with emitter flows of 0.4 gph and Rainbird pop up spray heads and rotors ranging from 0.52 gpm to 1.85 gpm. There are a total of 287 pop up sprinklers and approximately 3,500 feet of drip irrigation. The irrigation schedule demonstrates 45 zones. Pop up zones are irrigated 10 minutes per day, Rotors zones 20 minutes per day, and drip zones 25 minutes per day. The maximum sprinkler diversion rate was calculated to be 0.09 CFS using the irrigation plan map and the irrigation schedule. The right was permitted as supplemental and will be licensed as such. It was confirmed by Mike Magil of ESI construction that surface water is delivered to the property, the Water enters the property in the southeast corner and flows through the property's existing users ditch north to the drain.

The Place of Use boundary was drafted based on a site visit coupled with the as-built irrigation figure Mike Magil of ESI construction provided, as such it is clear that a portion of the POU is in the NW SE. Based on what was developed the GIS acres reflect 2.75 acres in the NESW 3.5 acres in the NWSW and 2 acres in the NWSE, because the permit did not specify acreage in the NWSE an amendment of permit was required.

I am recommending a licensed flow rate of 0.09 cfs, based on the rating of the sprinklers, the theoretical rate determined, limits of the permit, and observance during the site visit 0.09 cfs will be capable of providing sufficient water for the system's needs.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>
IRRIGATION	03/01 to 11/15	0.09 CFS

Totals: 0.09 CFS

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ None

I. AUTHENTICATION Kate Huelse - Water Resource Agent

Field Examiner's Name Kate Huelse Date 12/18/20

Reviewer Patricia Kelly Date 01-20-2021

Huelse, Kate

From: Mike Magill <MikeMagill@esiconstruction.com>
Sent: Friday, December 18, 2020 8:49 AM
To: Huelse, Kate
Subject: FW: NIB - IDWR Permit

Good morning,

Here is the answer. Let me know if you need anything else.

Mike

From: Nathan Cleaver [mailto:ncleaver@Kellerassociates.com]
Sent: Thursday, December 17, 2020 4:22 PM
To: Kelsie Styrlund <kstyrlund@Kellerassociates.com>; Justin Parrish <JustinParrish@esiconstruction.com>; Mike Magill <MikeMagill@esiconstruction.com>
Subject: RE: NIB - IDWR Permit

Mike/Justin,

Surface water is delivered to the property. The original supply ditch is still in place on the far east end. See image below. Water enters the property in the southeast corner and flows thru the property's existing users ditch north to the drain.



NATHAN CLEAVER, PE
Keller Associates, Inc.
CELL 208-484-3843 / MS TEAMS CONF PHONE 208-918-2989

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 63-34629
 Reviewer: Kate Huelse
 Date of Review: 9/14/2020

P/D No.:	Scenario 1	Scenario 2	Scenario 3
PUMP HORSEPOWER	3	3	3
BOOSTER HORSEPOWER	0	0	0
PUMPING LEVEL	15	15	15
DISCHARGE PRESSURE	45	50	55
RATE OF FLOW (cfs)	0.16	0.14	0.13 0.14

The above calculates the formula = $Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$

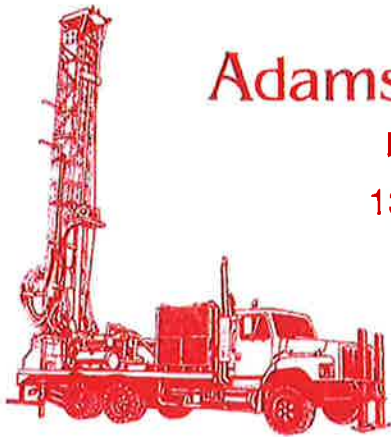
Assumptions: %70 efficiency.
 No Friction

Examiners Notes:

Field exam reports a 3 hp pump for irrigation use. A lift of 15 feet was obtained from Burgess Pump who installed the pump. A range of discharge pressures were assumed given this is for a small irrigation use and the requested diversion rate is relatively small. Theoretical average flow rate is 0.14 cfs

October 1987

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



Adamson Pump & Drilling, Inc.

Pumps • *Dave Adamson* • Wells

1320 Smith Avenue • Nampa, ID 83651

208-466-6439 • Fax 208-466-0008

July 24, 2018

ESI – Nampa Industrial
16378 Star Rd.
Caldwell, ID 83687
Re: Productivity Test
Location: 16378 Star Rd., Nampa

Productivity Test Results

Static Water Level: 13'

Pumping Level: 18'

Flow Rate: 31 GPM @ 48 PSI

Visual Water Quality: Clean, clear and cold.

Please email or call if you have any questions.

Deirdre Ford – Office Manager
deirdre@adamsonpumpanddrilling.com

683-34629

15 Series MPR

30° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip In/h	Precip In/h
15F 	15	11	2.60	2.07	2.39
	20	12	3.00	2.01	2.32
	25	14	3.30	1.62	1.87
	30	15	3.70	1.58	1.83
15H 	15	11	1.30	2.07	2.39
	20	12	1.50	2.01	2.32
	25	14	1.65	1.62	1.87
	30	15	1.85	1.58	1.83
15Q 	15	11	0.65	2.07	2.39
	20	12	0.75	2.01	2.32
	25	14	0.82	1.62	1.87
	30	15	0.92	1.58	1.83

Note: All MPR nozzles tested on 4" (10.2 cm) pop-ups

■ Square spacing based on 50% diameter of throw

▲ Triangular spacing based on 50% diameter of throw

15 Series MPR

METRIC

30° Trajectory

Nozzle	Pressure bar	Radius m	Flow m³/h	Flow l/m	Precip mm/h	Precip mm/h
15F 	1.0	3.4	0.60	9.8	52	60
	1.5	3.9	0.72	11.8	47	55
	2.0	4.5	0.84	13.7	41	48
	2.1	4.6	0.84	14.0	40	46
	2.1	4.6	0.84	14.0	40	46
15H 	1.0	3.4	0.30	4.9	52	60
	1.5	3.9	0.36	5.9	47	55
	2.0	4.5	0.42	6.8	41	48
	2.1	4.6	0.42	7.0	40	46
	2.1	4.6	0.42	7.0	40	46
15Q 	1.0	3.4	0.15	2.5	52	60
	1.5	3.9	0.18	2.9	47	55
	2.0	4.5	0.21	3.4	41	48
	2.1	4.6	0.21	3.5	40	46
	2.1	4.6	0.21	3.5	40	46

Performance data taken in zero wind conditions

Note: Radius reduction over 25% of the normal throw of the nozzle is not recommended

5 Series MPR Stream Bubbler Nozzles

0° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm
5F-B 	15	5	1.50
	20	5	1.50
	25	5	1.50
	30	5	1.50
5H-B 	15	5	1.00
	20	5	1.00
	25	5	1.00
	30	5	1.00
5Q-B 	15	5	0.50
	20	5	0.50
	25	5	0.50
	30	5	0.50
5CST-B 	15	5	0.50
	20	5	0.50
	25	5	0.50
	30	5	0.50

Note: Indicates adjusted radius at psi shown

Note: Flow at adjusted radius of 5 feet (1.5 m)

5 Series MPR Stream Bubbler Nozzles

METRIC

0° Trajectory

Nozzle	Pressure bar	Radius m	Flow m³/h	Flow l/m
5F-B 	1.0	1.5	0.35	5.7
	1.5	1.5	0.35	5.7
	2.0	1.5	0.35	5.7
	2.1	1.5	0.35	5.7
	2.1	1.5	0.35	5.7
5H-B 	1.0	1.5	0.23	3.8
	1.5	1.5	0.23	3.8
	2.0	1.5	0.23	3.8
	2.1	1.5	0.23	3.8
	2.1	1.5	0.23	3.8
5Q-B 	1.0	1.5	0.12	1.9
	1.5	1.5	0.12	1.9
	2.0	1.5	0.12	1.9
	2.1	1.5	0.12	1.9
	2.1	1.5	0.12	1.9
5CST-B 	1.0	1.5	0.12	1.9
	1.5	1.5	0.12	1.9
	2.0	1.5	0.12	1.9
	2.1	1.5	0.12	1.9
	2.1	1.5	0.12	1.9

Did you know?

You can use HE-VAN or U-Series nozzles to have better coverage and save water vs. VAN nozzles.

- Stronger streams and larger water droplets for increased wind resistance.
- Superior close-in watering and edges provide better coverage.
- Shortened run times saves up to 35% in water



8 Series MPR					
10° Trajectory					
Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip In/h	Precip In/h
	15	5	0.74	2.85	3.29
	20	6	0.86	2.30	2.66
	25	7	0.96	1.89	2.18
	30	8	1.05	1.58	1.82
	15	5	0.37	2.85	3.29
	20	6	0.42	2.25	2.59
	25	7	0.47	1.85	2.13
	30	8	0.52	1.56	1.81
	15	5	0.18	2.77	3.20
	20	6	0.21	2.25	2.59
	25	7	0.24	1.89	2.18
	30	8	0.26	1.56	1.81

8 Series MPR						
10° Trajectory						
Nozzle	Pressure bar	Radius m	Flow m³/h	Flow l/m	Precip mm/h	Precip mm/h
	1.0	1.7	0.16	2.8	72	84
	1.5	2.1	0.20	3.4	58	68
	2.0	2.4	0.23	3.9	48	55
	2.1	2.4	0.24	4.0	40	46
	1.0	1.7	0.08	1.4	72	84
	1.5	2.1	0.10	1.7	57	66
	2.0	2.4	0.12	1.9	47	54
	2.1	2.4	0.12	2.0	40	46
	1.0	1.7	0.04	0.7	70	81
	1.5	2.1	0.05	0.8	57	66
	2.0	2.4	0.06	1.0	48	55
	2.1	2.4	0.06	1.0	40	46

10 Series MPR					
15° Trajectory					
Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip In/h	Precip In/h
	15	7	1.16	2.28	2.63
	20	8	1.30	1.96	2.26
	25	9	1.44	1.71	1.98
	30	10	1.58	1.52	1.75
	15	7	0.58	2.28	2.63
	20	8	0.65	1.96	2.26
	25	9	0.72	1.71	1.98
	30	10	0.79	1.52	1.75
	15	7	0.29	2.28	2.63
	20	8	0.33	1.96	2.26
	25	9	0.36	1.71	1.98
	30	10	0.39	1.52	1.75

10 Series MPR						
15° Trajectory						
Nozzle	Pressure bar	Radius m	Flow m³/h	Flow l/m	Precip mm/h	Precip mm/h
	1.0	2.1	0.26	4.2	58	67
	1.5	2.4	0.29	4.8	50	58
	2.0	3.0	0.35	6.0	39	45
	2.1	3.1	0.36	6.0	37	43
	1.0	2.1	0.13	2.4	58	67
	1.5	2.4	0.14	2.4	50	58
	2.0	3.0	0.18	3.0	39	45
	2.1	3.1	0.18	3.0	37	43
	1.0	2.1	0.06	1.2	58	67
	1.5	2.4	0.07	1.2	50	58
	2.0	3.0	0.09	1.2	39	45
	2.1	3.1	0.09	1.2	37	43

12 Series MPR					
30° Trajectory					
Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip In/h	Precip In/h
	15	9	1.80	2.14	2.47
	20	10	2.10	2.02	2.34
	25	11	2.40	1.91	2.21
	30	12	2.60	1.74	2.01
	15	9	0.90	2.14	2.47
	20	10	1.05	2.02	2.34
	25	11	1.20	1.91	2.21
	30	12	1.30	1.74	2.01
	15	9	0.45	2.14	2.47
	20	10	0.53	2.02	2.34
	25	11	0.60	1.91	2.21
	30	12	0.65	1.74	2.01

12 Series MPR						
30° Trajectory						
Nozzle	Pressure bar	Radius m	Flow m³/h	Flow l/m	Precip mm/h	Precip mm/h
	1.0	2.7	0.40	6.8	55	63
	1.5	3.2	0.48	8.3	47	54
	2.0	3.6	0.59	9.7	46	53
	2.1	3.7	0.60	9.8	44	51
	1.0	2.7	0.20	3.4	55	63
	1.5	3.2	0.24	4.2	47	54
	2.0	3.6	0.30	4.9	46	53
	2.1	3.7	0.30	4.9	44	51
	1.0	2.7	0.10	1.7	55	63
	1.5	3.2	0.12	2.1	47	54
	2.0	3.6	0.15	2.4	46	53
	2.1	3.7	0.15	2.5	44	51

Note: All MPR nozzles tested on 4" (10.2 cm) pop-ups
 Square spacing based on 50% diameter of throw
 Triangular spacing based on 50% diameter of throw

Performance data taken in zero wind conditions
 Note: Radius reduction over 25% of the normal throw of the nozzle is not recommended

15 Strip Series			
30° Trajectory			
Nozzle	Pressure psi	W x L ft.	Flow gpm
	15	4 x 13	0.45
	20	4 x 14	0.50
	25	4 x 14	0.56
	30	4 x 15	0.61
	15	4 x 26	0.89
	20	4 x 28	1.00
	25	4 x 28	1.11
	30	4 x 30	1.21
	15	3 x 11	0.35
	20	3 x 12	0.40
	25	4 x 14	0.45
	30	4 x 15	0.49
	15	3 x 11	0.35
	20	3 x 12	0.40
	25	4 x 14	0.45
	30	4 x 15	0.49
	15	4 x 26	0.89
	20	4 x 28	1.00
	25	4 x 28	1.11
	30	4 x 30	1.21
	15	9 x 15	1.34
	20	9 x 16	1.47
	25	9 x 18	1.60
	30	9 x 18	1.73

W = Width of coverage pattern L = Length of coverage pattern

Note: Radius reduction over 25% of the normal throw of the nozzle is not recommended

15 Strip Series				METRIC
30° Trajectory				
Nozzle	Pressure bar	W x L m	Flow m³/h	Flow l/m
	1.0	1.2 x 4.0	0.10	1.7
	1.5	1.2 x 4.3	0.11	2.0
	2.0	1.2 x 4.3	0.13	2.3
	2.1	1.2 x 4.6	0.14	2.3
	1.0	1.2 x 7.9	0.20	3.4
	1.5	1.2 x 8.5	0.23	4.0
	2.0	1.2 x 8.5	0.25	4.5
	2.1	1.2 x 9.2	0.27	4.6
	1.0	0.8 x 3.2	0.08	1.3
	1.5	1.0 x 3.9	0.09	1.6
	2.0	1.2 x 4.5	0.11	1.8
	2.1	1.2 x 4.6	0.11	1.9
	1.0	0.8 x 3.2	0.08	1.3
	1.5	1.0 x 3.9	0.09	1.6
	2.0	1.2 x 4.5	0.11	1.8
	2.1	1.2 x 4.6	0.11	1.9
	1.0	1.2 x 7.9	0.20	3.4
	1.5	1.2 x 8.5	0.23	4.0
	2.0	1.2 x 8.5	0.25	4.5
	2.1	1.2 x 9.2	0.27	4.6
	1.0	2.7 x 4.6	0.30	5.1
	1.5	2.7 x 4.9	0.33	5.8
	2.0	2.7 x 5.5	0.36	6.5
	2.1	2.7 x 5.5	0.39	6.5

Performance data taken in zero wind conditions

8 FLT Series MPR					
5° Trajectory					
Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip In/h	Precip In/h
	15	6	0.56	3.36	3.88
	20	7	0.65	2.91	3.36
	25	7	0.72	2.60	3.01
	30	8	0.79	2.38	2.75
	15	6	0.28	3.32	3.83
	20	7	0.32	2.87	3.32
	25	7	0.36	2.57	2.97
	30	8	0.39	2.35	2.71

Note: All MPR nozzles tested on 4" (10.2 cm) pop-ups

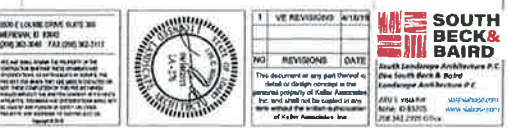
■ Square spacing based on 50% diameter of throw

▲ Triangular spacing based on 50% diameter of throw

8 FLT Series MPR						METRIC
5° Trajectory						
Nozzle	Pressure bar	Radius m	Flow m³/h	Flow l/m	Precip mm/h	Precip mm/h
	1.0	1.7	0.12	2.1	87	101
	1.5	2.1	0.15	2.6	71	82
	2.0	2.4	0.18	2.9	62	71
	2.1	2.4	0.18	3.0	60	70
	1.0	1.7	0.06	1.1	86	100
	1.5	2.1	0.07	1.3	71	81
	2.0	2.4	0.09	1.4	61	71
	2.1	2.4	0.09	1.5	60	69

Performance data taken in zero wind conditions

Note: Radius reduction over 25% of the normal throw of the nozzle is not recommended

[illegible]

DATE: 01/13/2019
PROJECT NO: 218098
CMA PACKAGE 3
SHEET
L-200.3
CMA S&B INFORMATION
1. PLOT

ESI **NAMPA INDUSTRIAL BUILDING**
16376, 16378 & 16382 STAR ROAD NAMPA, ID

3330 E LOUISE DRIVE SUITE 500 MERIDIAN, ID 83642 (208) 387-3080 FAX (208) 387-3113 www.esimakeproduction.com

Adjust during hottest months to add extra day of watering for all zones

AWINGS

AIR



Point of diversion-
Well house



Point of diversion-
Well and Flowise
submersible pump
S series



Place of Use-
Trees lining
perimeter of POU
uses drip irrigation.



Place of Use-
Area adjacent to
building, uses pop
up rainbirds.



Place of Use -
Parking islands
uses drip irrigation.