

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED
JUN 24 2015
Department of Water Resources
Eastern 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. 22-13826/22-139141. Owner D & C Properties LLCPhone No. (208) 356 5491Current address PO Box 390, Rexburg ID 834402. Examiner's name Bryce A. ContorEXAM DATE 29 March 20153. Accompanied by James WaltersEmail pourboy@silverstar.comAddress SameRelationship to permit holder EmployeePhone No. Same4. Source Ground Water

tributary to _____

B. OVERLAP REVIEW1. Other water rights with the same place of use 22-7394, 22-119002. Other water rights with the same source and point of diversion 22-7394**C. DIVERSION AND DELIVERY SYSTEM**

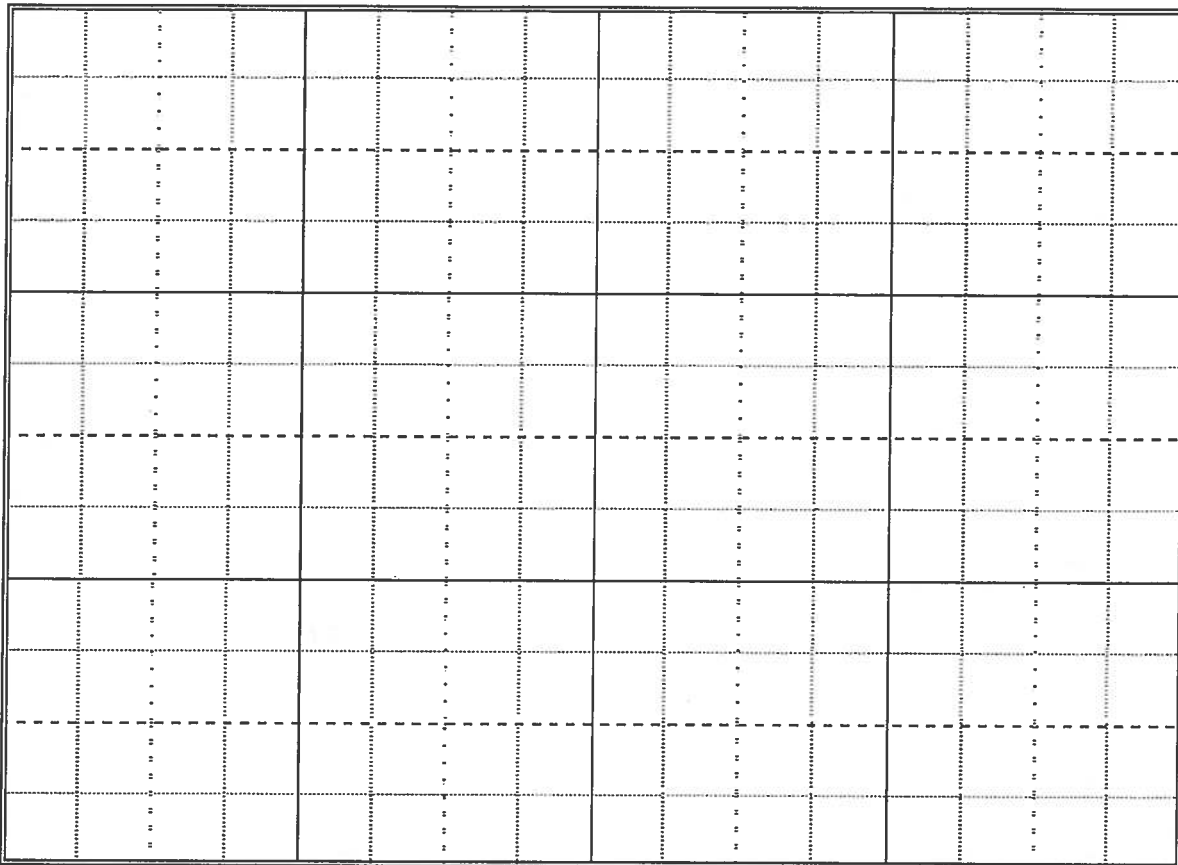
1. Point(s) of Diversion:

Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
West		SW	NE	SW	30	5N	46E	Teton	GPS/aerial photo/site observation
East		SE	NE	SE	30	5N	46E	Teton	" "

2. Place(s) of Use: Method of determination Aerial photo/site observation

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
5N	46E	30																	

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
West well	US	100	(see section E)	unknown	8"
East well	US	75*	(see section E)	unknown	6"

*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
Collins type (east well)	pitot	N. WMD	N/A	N/A	N/A	N/A
Installed flowmeter (west well)	propellor	McCromet	saddle	09-08338-12	12"	2009*

2. **Measurements:** _____

West well 2.95 cfs by installed flowmeter.

East well 1.65 cfs by Collins type flowmeter

Total flow 4.60 cfs.

E. NARRATIVE/REMARKS/COMMENTS

Item A: Permits 22-13826 and 22-13914 are for the same uses on the same POU, from the same PODs. This exam applies to both permits.

Item B2: 22-7394 POD overlaps east POD.

Item C4: West motor SN: P 03 7342122-0011 R 00 17

East motor SN: 6327 R05R035R156R-4

East motor is labeled "75 hp" but applicant believes it has been re-wound to 100 hp. Electrical consumption of 65 KW is approximately equal to 87 hp.

Item D: Manufacture date of McCrometer meter is 2009. From shiny, clean appearance this appears to have been unused stock only recently installed.

Misc. Remarks: Observed wire-to-water efficiency of 45% at the east well likely indicates that the industrial use operates at a lower pressure than irrigation use, "off" the pump curve. If this is correct it means the Power Consumption Coefficient (PCC) described below may somewhat over-estimate pumping volume for irrigation. 45% is within (but on the low side) of typical observed field wire-to-water efficiency.

Permit Conditions: Calculated flowmeter multiplier for west well is 1.0006. This is derived from the ratio of (installed inside diameter) to (specified inside diameter) or (11.7344/11.731).

Calculated power consumption coefficient for volume estimation from east well is 643 KWH/Acre foot at observed condition of 52 psi discharge and 82.38 measured pumping depth-to-water.

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:

Collins-type pitot tube for east well, see attached sheet. 1.65 cfs.

Installed McCrometer meter for west well, see attached sheet. 2.95 cfs.

Total flow rate (1.65 + 2.95) = 4.60 cfs

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

 $V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ _____ $V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 =$ _____ $V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$ _____

2. Volume Calculations for Other Uses:

Equivalent of 30 weeks of operation over 8 months. 30 weeks x 5 days/week x 10 hrs/day = 1500 hours.

22-13826: 1500 hrs x 60 min/hr x 60 sec/min x 0.78 ft³/sec x 1 acre foot/43560 ft³ = 96.7 acre ft/yr22-13914: 1500 hrs x 60 min/hr x 60 sec/min x 4.60 ft³/sec x 1 acre foot/43560 ft³ = 570.2 acre ft/yr**H. RECOMMENDATIONS**

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
22-13826: Industrial	4/1	10/31	0.78 cfs	96.7 acre ft/yr
22-13914: Industrial	4/1	10/31	4.60 cfs	570.2 acre ft/yr
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Totals:			4.60 cfs	570.2 acre ft/yr

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

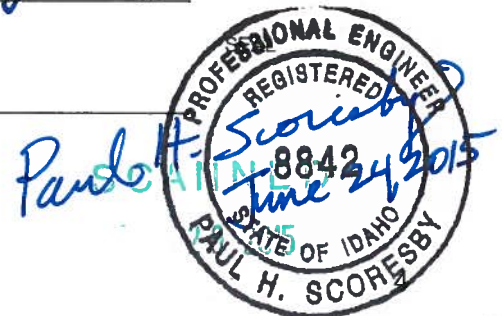
Byron A. Couton

Date

24 June 2015

Reviewer _____

Date _____



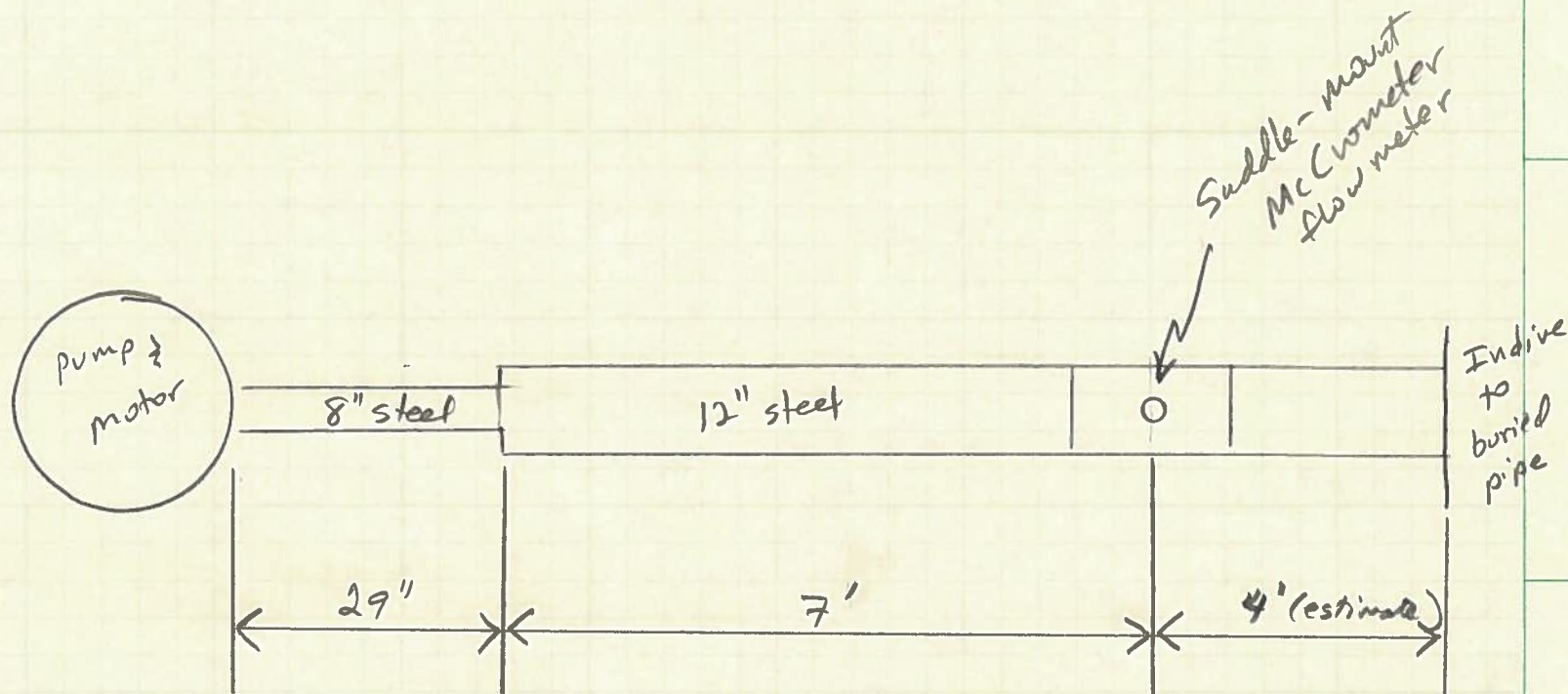
Part C3: Delivery System Diagram, West POD

22-13826 / 22-13914



13-782 500 SHEETS, FILLER 5 SQUARE
42-361 50 SHEETS EYE-EASER 5 SQUARE
42-362 100 SHEETS EYE-EASER 5 SQUARE
42-368 200 SHEETS EYE-EASER 5 SQUARE
42-392 100 RECYCLED WHITE 5 SQUARE
42-399 200 RECYCLED WHITE 5 SQUARE
Made in U.S.A.

North
→



Scale: 1" = 2'. Features only approximately to scale

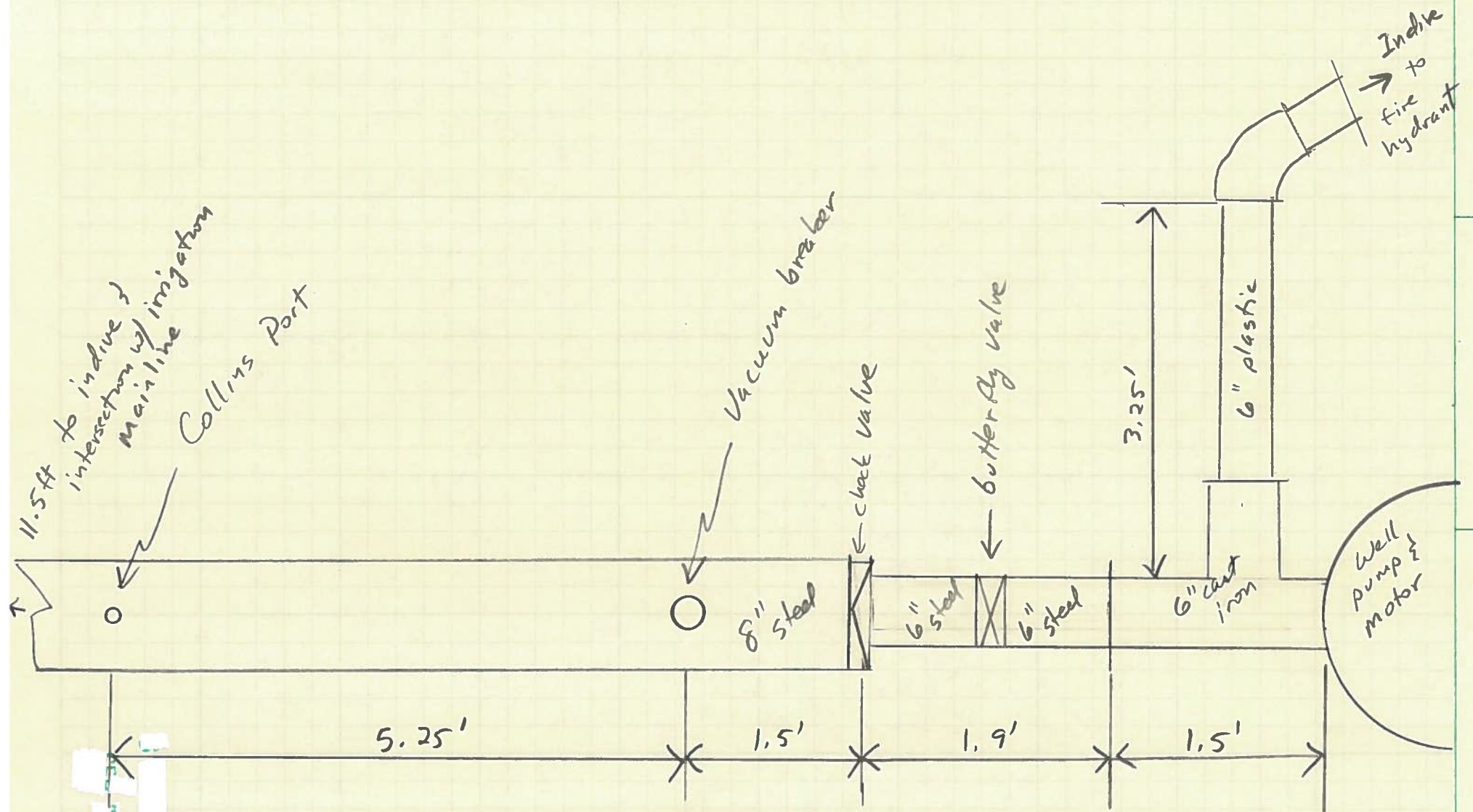


13-782 500 SHEETS, FILLER 5 SQUARE
42-381 50 SHEETS EYE-EASE 5 SQUARE
42-382 100 SHEETS EYE-EASE 5 SQUARE
42-389 200 SHEETS EYE-EASE 5 SQUARE
42-392 100 RECYCLED WHITE 5 SQUARE
42-399 200 RECYCLED WHITE 5 SQUARE
Made in U.S.A.

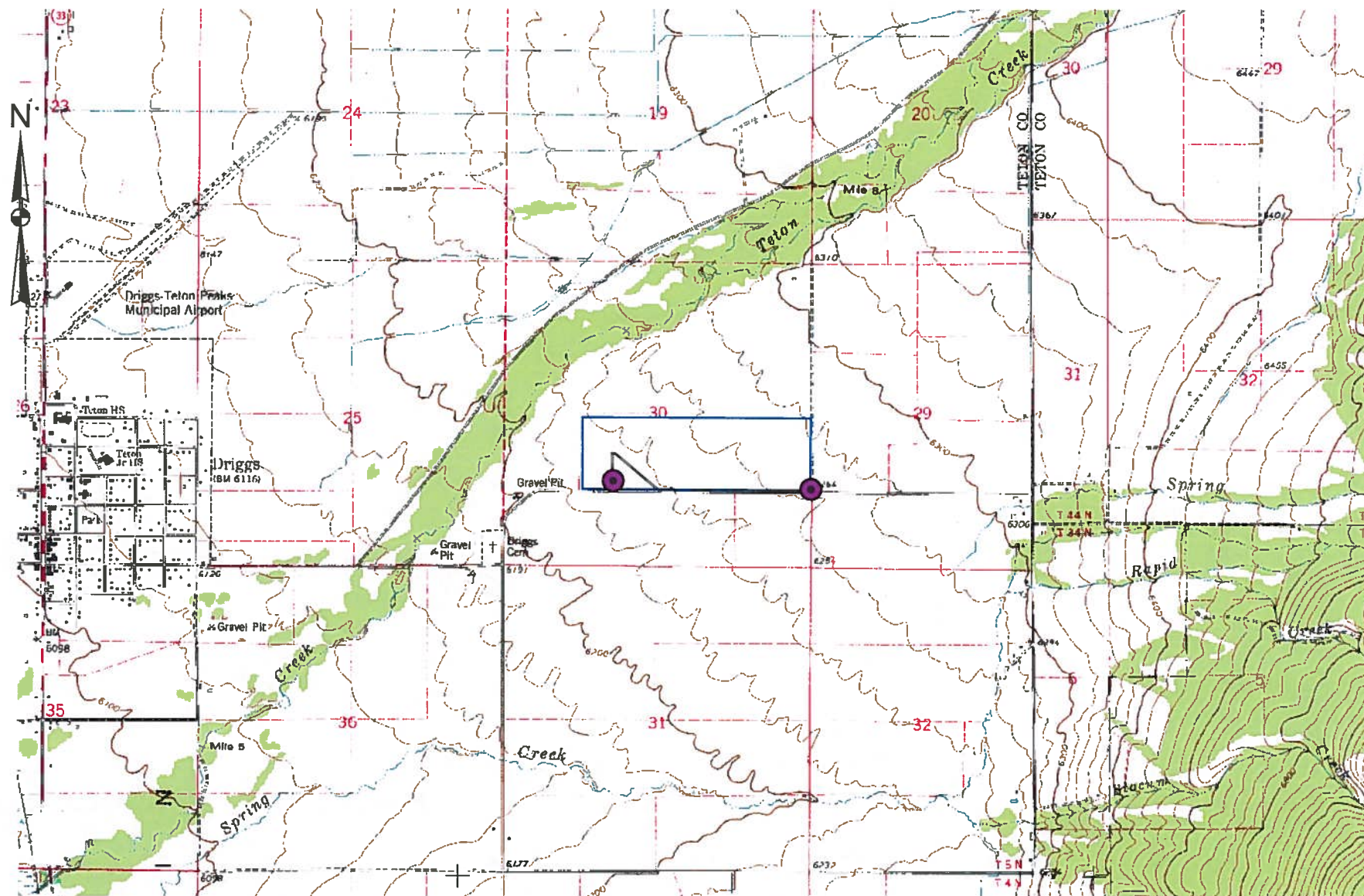
Part C3: Delivery System Diagram, East POD

22-13826 / 22-13914

→ North



Scale: 1" = 1' Features only approximately to scale

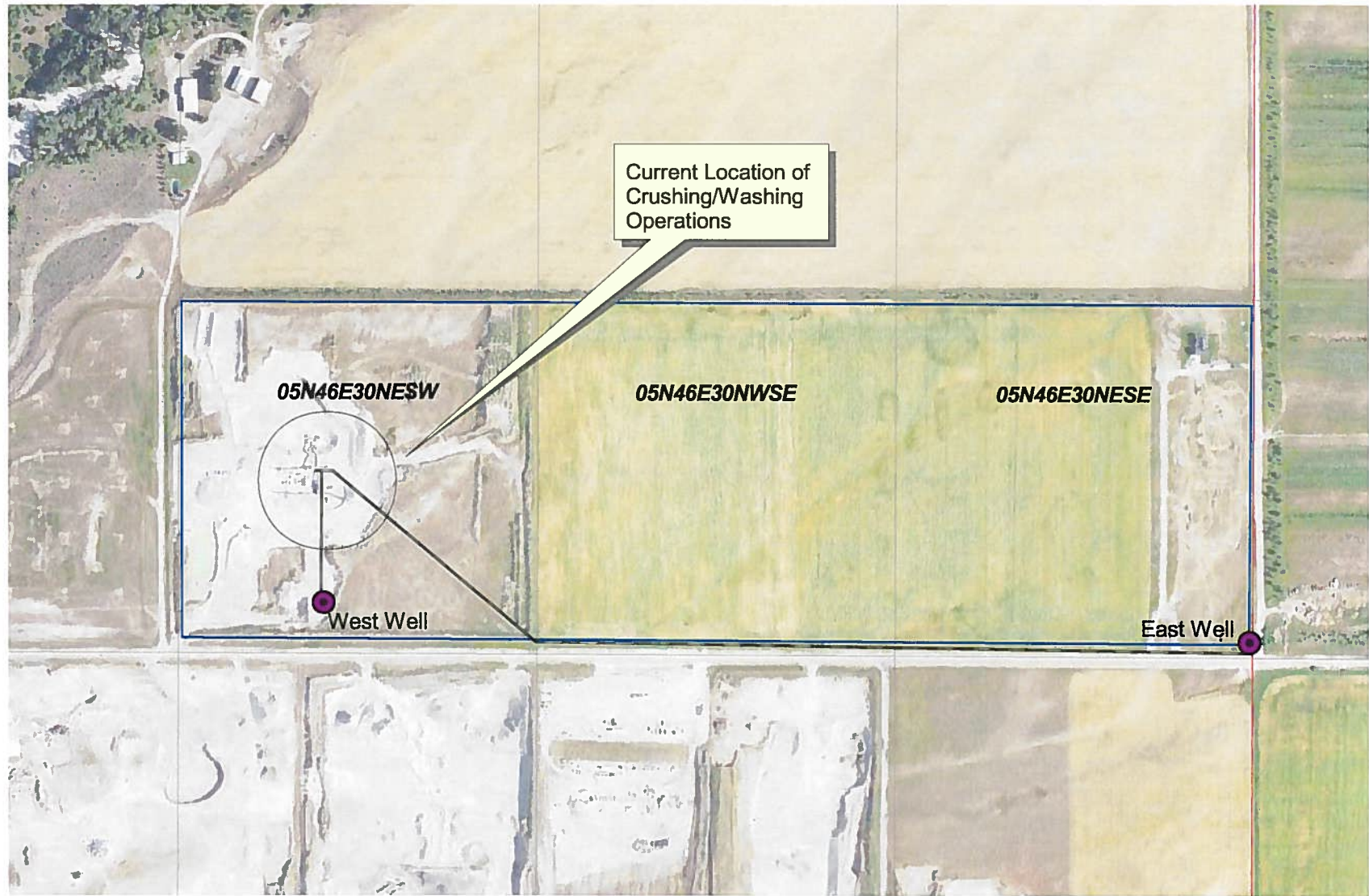


**Rocky Mountain
ENVIRONMENTAL**
ASSOCIATES, INC.

482 Constitution Way, Idaho Falls, ID 83402
208-524-2353

Item C3: Topographic Map
Water Right Permit Field Exams
22-13826 and 22-13914
D & C Properties LLC
Project 14-0053





440 0 440 880 1320 1760 Feet



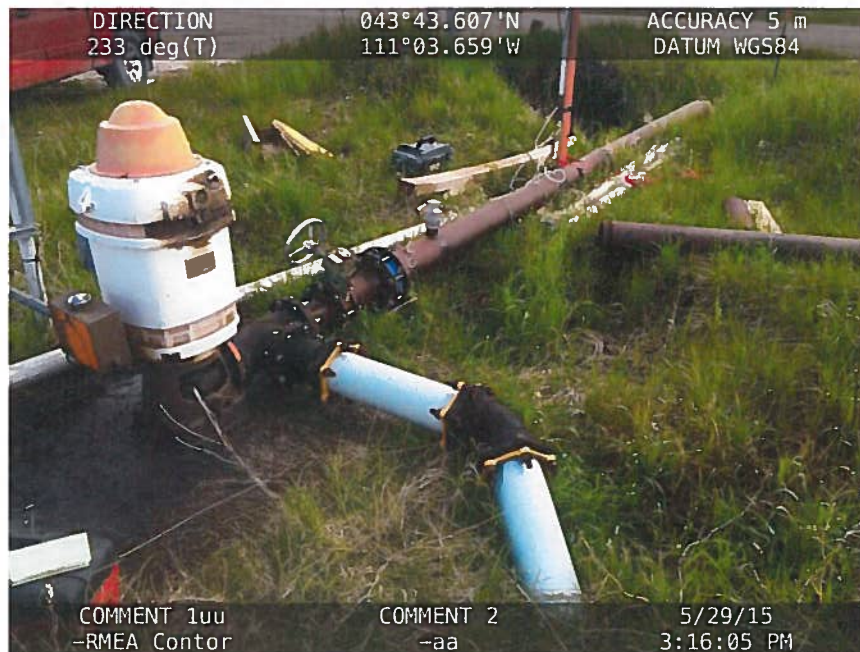
48 Constitution Way, Idaho Falls, ID 83402
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-  PODs
-  Pipelines
-  POU
-  SectionPLS
-  Quarter-Quarter

22-13826/22-13914

Item C3: Photos of Diversion Works



East Well



West Well

West well discharge measured using installed McCrometer flowmeter, SN 09-08338-12						
Start	56815000					
Stop	56826000					
Gallons	11000					
Time	08:19.5					
Decimal Minutes	8.325					
Gallons/Minute	1321.3213					
Raw CFS	2.94					
Specified ID	11.731 inches					
Area	0.7505808 ft ²					
Measured OD	12.015625 inches (12 1/64 inch w/ diameter tape)					
Thickness	0.140625 inches (1/8" + 2/128" measured two places w/ vernier caliper)					
ID	11.734375 inches (OD minus 2 x ID)					
Area	0.7510128 ft ²					
Factor	1.0005755 (measured area/specified)					
Adjusted CFS	2.95					

COLLINS

ARTHUR L. COLLINS FLOW GAGE
Corrected G. P. M.

STANDARD PIPE.

8-18-64.
For Pipes 13" to 16" diam. add 1.2% for tube area correction.

Nominal Diameter Inches	Inside Diameter Inches	Thick-ness Inches	.707 times Radius	G. P. M. at 1 ft. per Sec.	Correction in Percent	G. P. M. Corrected
1	1.05	.133	.37	2.45		
1-1/4	1.38	.140	.49	3.89		
1-1/2	1.61	.145	.57	5.51		
2	2.07	.154	.73	9.79		
2-1/2	2.47	.203	.87	15.30	Deduct % 12.1	13.45
3	3.07	.216	1.08	22.04	" 8.9	20.07
3-1/2	3.55	.226	1.25	29.99	" 7.1	27.87
4	4.03	.237	1.42	39.17	" 5.7	36.85
5	5.05	.258	1.78	61.20	" 3.6	59.00
6	6.07	.280	2.14	90.04	" 2.2	88.05
8	7.98	.322	2.82	156.66	" 0.5	155.81
10	10.02	.365	3.54	244.86	Add 0.5	246.10
12	12.00	.375	4.24	352.20	" 1.2	356.36
CASING						
2-3/4	2.77	.116	1.08	18.75	Deduct % 10.5	16.83
3-1/4	3.25	.125	1.15	25.86	" 8.1	23.75
3-3/4	3.73	.134	1.32	34.09	" 6.5	31.87
4-1/4	4.22	.142	1.49	43.50	" 5.2	41.24
4-3/4	4.70	.152	1.66	53.98	" 4.2	51.70
5-5/8	5.67	.164	2.00	78.77	" 2.6	76.72
6-5/8	6.65	.174	2.35	107.71	" 1.5	106.10
7-5/8	7.63	.186	2.70	142.40	" 0.8	141.20
8-5/8	8.61	.196	3.04	181.07	Add 0.2	181.43
9-5/8	9.58	.209	3.39	224.73	" 0.3	225.40
10-5/8	10.55	.224	3.73	272.70	" 0.7	274.64
11-5/8	11.51	.243	4.07	324.40	" 1.0	327.81

FOR PIPES 13" TO 16" DIAM. ADD 1.2% FOR TUBE AREA CORRECTION.

Power from dedicated utility meter			
Make	GE		
Utility	Rocky Mtn Power		
SN	53 885 391		
Mult	1		
Kt	21.6		
Kh	21.6		
Demand	65.53 KW		
Timing:	No Turns	No Seconds	
	35	41.87	
	35	41.75	
	35	41.5	
	Avg	41.70667	
$Kw = 3.6 \times Kh \times Mult \times \#Revs / Time \text{ (seconds)}$			
Kw	65.25575 KW		

22-13826/22-13914 Item F: Flow Measurements. File East_Well_Measurement_Calcs.xlsx: Worksheet
Theoretical Check

Water Horsepower = (TDH * GPM)/3960							
TDH	Lift	82.38	ft (from "Depth_to_Water" worksheet)				
	Friction	5	ft (assumed)				
	Gauge elev	5	ft				
	Pressure	120.12	ft (52 psi measured w/ new pressure gauge, x 2.31 ft/psi)				
	TDH	212.5	ft				
GPM		738.8869	(Collins cfs x 448.83 gpm/cfs)				
Water Horsepower		39.64986					
Electrical Horsepower							
KW		65.25575	(from "Power" worksheet)				
Factor		1.341	hp/KW				
Horsepower		87.50797					
Wire-to-water efficiency		45%	(water horsepower/electrical horsepower)				
Power Consumption Coefficient (PCC):							
PCC = KW x 5431/GPM =		643.2051					