



Resource Engineering, Inc.
909 Colorado Avenue
Glenwood Springs, CO 81601
(970)-945-6777 Voice
(970)-945-1137 Facsimile

Memorandum

To: BWCD BOARD OF DIRECTORS
From: ERIC MANGEOT 
CC: CHRIS GEIGER
Date: NOVEMBER 29, 2017
File: APPLICATION – CRAWFORD PROPERTIES, LLC (EAGLE CREST NURSERY)

Applicant Name: Crawford Properties, LLC for Eagle Crest Nursery

Type of Use: Domestic Commercial
Industrial Agricultural

Amount: 9.2 AF 0.033 cfs 15 gpm

Location: Area A A-4 Area B Inclusion
County: EAGLE Contiguous:
BWCD Division: 6

Mid Valley Metro District Notice Required? Yes No

Blue Creek Water Rights Applied? Yes No

02CW77 Umbrella Plan Water Rights Applied? Yes No **Cost:** \$1,200

This application is to cover depletions associated with the Eagle Crest Nursery on a 9.301 acre parcel of land owned by Crawford Properties, LLC (Applicant). Proposed agricultural uses for commercial production is the irrigation of 5.1 acres of trees and shrubs. Other commercial uses are serviced by Mid Valley Metropolitan District. The total estimated demand is 10.59 acre-feet (AF) and total depletions are 9.2 AF as estimated by the Applicant’s Engineer (SGM) and adjusted by RESOURCE to include reservoir releases and transit losses. A copy of the water requirement table and supporting engineering including delayed depletions from the well is attached. The land (is located in the South ½ pf Section 34, Township 7 South, Range 87 West, of the 6th P.M. in Eagle County (Parcel No. 239134408001).

Diversions from March 1st to approximately April 30th will be from the Crawford Nursery Well located in the SE1/4 SW1/4 of Section 34, Township 7 South, Range 87 West, of the 6th P.M. at a point 750 feet from the South section line and 2,430 feet from the West section line. Diversions from approximately May 1st through October 31st will be from the Robinson Ditch structure. The headgate of the Robinson Ditch is located in the NE1/4 SE1/4 of Section 11, Township 8 South, Range 87 West, of the 6th P.M. at a point 1,914 from the South section line and 934 feet from the East section line.

Water User :	Crawford Properties, LLC - Eagle Crest Nursery	
Analysis Date :	November 29, 2017	
District Area:	A	
Source Series:	4	
Maximum Demand:	15	0.033
	(GPM)	(CFS)

**BASALT WATER CONSERVANCY DISTRICT
WATER REQUIREMENTS
(acre feet)**

Month	Total Demand						Consumptive Use						*(13) Delayed Depletions	(14) Source of Aug/Replace
	(1) Domestic In-house	(2) Commercial or Other	(3) Irrigation	(4) Crop Irrigation	(5) Livestock	(6) TOTAL	(7) Domestic In-house	(8) Commercial or Other	(9) Irrigation	(10) Crop Irrigation	(11) Livestock	*(12) TOTAL		
January	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	GNM
February	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	GNM
March	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.000	GNM
April	0.00	0.00	0.17	0.00	0.00	0.17	0.00	0.00	0.13	0.00	0.00	0.14	0.044	GNM
May	0.00	0.00	1.28	0.00	0.00	1.28	0.00	0.00	0.96	0.00	0.00	1.06	1.375	GNM
June	0.00	0.00	2.78	0.00	0.00	2.78	0.00	0.00	2.09	0.00	0.00	2.30	2.739	GNM
July	0.00	0.00	3.34	0.00	0.00	3.34	0.00	0.00	2.50	0.00	0.00	2.75	3.058	GNM
August	0.00	0.00	2.28	0.00	0.00	2.28	0.00	0.00	1.71	0.00	0.00	1.88	1.793	GNM
September	0.00	0.00	0.67	0.00	0.00	0.67	0.00	0.00	0.50	0.00	0.00	0.55	0.165	GNM
October	0.00	0.00	0.06	0.00	0.00	0.06	0.00	0.00	0.05	0.00	0.00	0.06	0.000	GNM
November	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	GNM
December	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	GNM
TOTALS -->	0.00	0.00	10.59	0.00	0.00	10.59	0.00	0.00	7.95	0.00	0.00	8.75	9.174	

Assumptions					
(1)	NUMBER OF RESIDENCES	0	(5)	# of Livestock @ 11 gals/day	0
	# persons/residence	3.5	(7)	% CU for Domestic/Commercial	15
	# gallons/person/day	100	(9)	% Irrigation Efficiency	75
(2)	Commercial/Other Demand (af)	0.000	Office	Consumption of Irrig. (af/ac)	1.570
(3)	Sq. Ft. of Lawn Irrigated	222,156	(5.1 Acres)	(10) % Crop Irrig. Efficiency	80
	Irrigation Application Rate (af/ac)	2.076		Consumption of Irrig. (af/ac)	0.000
(4)	Acres of Crop Irrigated	0.00	(9-10)	Elevation (feet)	6470
	Crop Application Rate (af/ac)	0.000			

Area A-4
Roaring Fork River
Well supply from March 1 - April 30
 (Individual Glover by Applicant Engineer)
Ditch supply from May 1 - October 31
 (Surface Supply No Delayed Depletions)

Note:
 (13) Postive values from Table 1
 Column (7) x for 10% transit loss.

*(12), (13) Total Includes 5% Transit Loss from Ruedi Res.,
 10% from Green Mtn.

TABLE 1
Crawford - Eagle Crest Nursery
Water Demand and Impacts to Roaring Fork River

Month	(1) Unit IWR (AF/acre)	(2) IWR (Consumptive Use) (AF)	(3) Water Application Demand (AF)	(4) Source	(5) Well Delayed Impacts (AF)	(6) Ditch Return Flows (AF)	(7) Total Impact (AF)
Nov	-	-	-			0.13	(0.13)
Dec	-	-	-			0.04	(0.04)
Jan	-	-	-			0.01	(0.01)
Feb	-	-	-			0.00	(0.00)
Mar	0.00	0.01	0.01	Well	0.00		0.00
Apr	0.03	0.13	0.17	Well	0.04		0.04
May	0.19	0.96	1.28	Ditch	0.05	0.08	1.25
Jun	0.41	2.09	2.78	Ditch	0.03	0.31	2.49
Jul	0.49	2.50	3.34	Ditch	0.01	0.57	2.78
Aug	0.34	1.71	2.28	Ditch	0.01	0.66	1.63
Sep	0.10	0.50	0.67	Ditch		0.51	0.15
Oct	0.01	0.05	0.06	Ditch		0.29	(0.23)
Annual	1.57	7.94	10.58	-	0.14	2.60	7.94

Notes:

- (1) Unit Irrigation Water Requirement for Orchard without Cover (see Table 2).
- (2) Irrigation Water Requirement for 5.1 acres (see Table 3).
- (3) Water application rate assuming 75% efficiency for sprinkler irrigation.
- (4) Water supply sources include the Crawford -Nursery Well and the Robinson Ditch. The Robinson Ditch typically begins diverting by May 1st.
- (5) = (2) * Table 1A. Identifies the well lagged impact to the Roaring Fork River with the assumption that all non-consumed water returns to the alluvium.
- (6) = [(3) - (2)] * Table 1A. Identifies lagged return flows to the Roaring Fork River from ditch irrigation.
- (7) = (3) + (5) - (6), except for April and May where the calculation is (7) = (5) - (6).

Table 1 A: Lagging factors were determined from the Glover Method on the State provided IDS AWAS program using a transmissivity of 300,000 gpd/ft, storativity of 0.25%, distance to stream of 2,500 feet, distance to stream boundary of 4,000 feet. Monthly results were truncated 5 months when 96% of the full impacts were realized and redistributed. The methods and aquifer parameters are consistent with the Crawford Properties recent water court application in Case No. 16CW3177 and based on supporting data in Case No. 93CW319.

TABLE 1A
Lagging Schedule to
Roaring Fork River

Current Month	26%
Month 1	41%
Month 2	19%
Month 3	9%
Month 4	4%
Total	100%

TABLE 2
Crawford Eagle Crest Nursery
Unit Irrigation Water Requirement - Orchard without Cover
(All values are in acre-foot / acre)

Year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
1997	-	-	-	-	-	-	0.15	0.40	0.48	0.32	0.04	-	1.39
1998	-	-	-	-	-	-	0.29	0.29	0.41	0.37	0.17	-	1.52
1999	-	-	-	-	0.01	-	0.07	0.37	0.49	0.30	0.06	0.01	1.31
2000	-	-	-	-	-	0.09	0.25	0.41	0.51	0.37	0.13	0.05	1.81
2001	-	-	-	-	-	0.03	0.19	0.43	0.48	0.33	0.12	-	1.58
2002	-	-	-	-	-	0.07	0.31	0.55	0.59	0.40	0.03	-	1.95
2003	-	-	-	-	-	0.03	0.12	0.38	0.63	0.40	0.06	0.07	1.67
2004	-	-	-	-	0.02	0.01	0.25	0.36	0.50	0.35	0.08	-	1.56
2005	-	-	-	-	-	0.02	0.25	0.35	0.56	0.34	0.06	-	1.56
2006	-	-	-	-	-	0.06	0.27	0.50	0.46	0.30	0.05	-	1.63
2007	-	-	-	-	-	0.07	0.23	0.44	0.51	0.40	0.06	-	1.71
2008	-	-	-	-	-	-	0.14	0.42	0.56	0.39	0.13	0.04	1.67
2009	-	-	-	-	-	-	0.16	0.31	0.48	0.37	0.14	-	1.45
2010	-	-	-	-	-	-	0.19	0.40	0.49	0.24	0.17	-	1.49
2011	-	-	-	-	-	-	0.11	0.40	0.43	0.40	0.12	-	1.46
2012	-	-	-	-	0.00	0.06	0.23	0.39	0.47	0.35	0.13	0.01	1.65
2013	-	-	-	-	-	-	0.16	0.47	0.49	0.33	0.06	-	1.51
2014	-	-	-	-	-	0.05	0.18	0.44	0.48	0.22	0.09	-	1.47
2015	-	-	-	-	-	0.05	0.07	0.45	0.39	0.35	0.15	-	1.46
2016	-	-	-	-	-	-	0.17	0.49	0.52	0.29	0.13	0.02	1.62
2017	-	-	-	-	-	0.01	0.17	0.39	0.48	0.34	0.09	-	1.49
Average	-	-	-	-	0.00	0.03	0.19	0.41	0.49	0.34	0.10	0.01	1.57

Notes: StateCU Modified Blaney Criddle Irrigation Water Requirement Analysis

Crop Coefficients: For 1 acre of Orchard without Cover (AF/acre) using TR-21 elevation adjusted coefficients. Maximum root zone = 4.9 feet; Maximum application depth = 3 inches (StateCU defaults for Orchard w/o Cover).

Climate Station: Glenwood #2 and Aspen 1SW climate stations (weighted 50% each) and with orographic temperature adjustment (3.60 deg F per 1000 feet of elevation) to Eagle Crest elevation (6,470). Missing climate data filled with historical average (record of 1980 - 2017 available).

Begin growing season: Mean temp = 30 deg F. **End growing season:** Mean temp = 30 deg F.
 Growing season is limited to Mar 1 - Oct 31. Early & late season use is expected because the nursery has a greenhouse.

TABLE 3
Crawford Eagle Crest Nursery
Irrigation Water Requirement for 5.1 acres
(All values in acre-feet)

Year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
1997	-	-	-	-	-	-	0.77	2.01	2.45	1.61	0.20	-	7.05
1998	-	-	-	-	-	-	1.46	1.47	2.06	1.86	0.87	-	7.71
1999	-	-	-	-	0.04	-	0.35	1.89	2.50	1.53	0.30	0.06	6.66
2000	-	-	-	-	-	0.46	1.28	2.08	2.59	1.86	0.66	0.26	9.19
2001	-	-	-	-	-	0.13	0.96	2.19	2.45	1.65	0.60	-	7.99
2002	-	-	-	-	-	0.36	1.59	2.79	2.97	2.01	0.13	-	9.86
2003	-	-	-	-	-	0.15	0.59	1.94	3.18		0.29	0.33	6.47
2004	-	-	-	-	0.08	0.06	1.25	1.84	2.51	1.77	0.40	-	7.91
2005	-	-	-	-	-	0.08	1.27	1.75	2.82	1.70	0.30	-	7.92
2006	-	-	-	-	-	0.30	1.35	2.52	2.32	1.53	0.25	-	8.28
2007	-	-	-	-	-	0.35	1.17	2.21	2.56	2.05	0.30	-	8.64
2008	-	-	-	-	-	-	0.72	2.10	2.82	1.96	0.66	0.18	8.44
2009	-	-	-	-	-	-	0.81	1.56	2.41	1.86	0.70	-	7.35
2010	-	-	-	-	-	-	0.94	2.05	2.50	1.20	0.86	-	7.54
2011	-	-	-	-	-	-	0.56	2.03	2.16	2.02	0.63	-	7.41
2012	-	-	-	-	0.02	0.29	1.17	2.00	2.36	1.77	0.68	0.04	8.33
2013	-	-	-	-	-	-	0.79	2.38	2.47	1.69	0.30	-	7.64
2014	-	-	-	-	-	0.26	0.92	2.25	2.43	1.11	0.48	-	7.45
2015	-	-	-	-	-	0.23	0.38	2.28	1.96	1.77	0.77	-	7.39
2016	-	-	-	-	-	-	0.87	2.50	2.63	1.45	0.67	0.10	8.22
2017	-	-	-	-	-	0.04	0.88	2.00	2.41	1.74	0.48	-	7.55
Average	-	-	-	-	0.01	0.13	0.96	2.09	2.50	1.71	0.50	0.05	7.94

Notes:

Eagle Crest Nursery irrigated area 5.1 acres

Irrigation Water Requirement = Unit Irrigation water requirement * number of acres irrigated

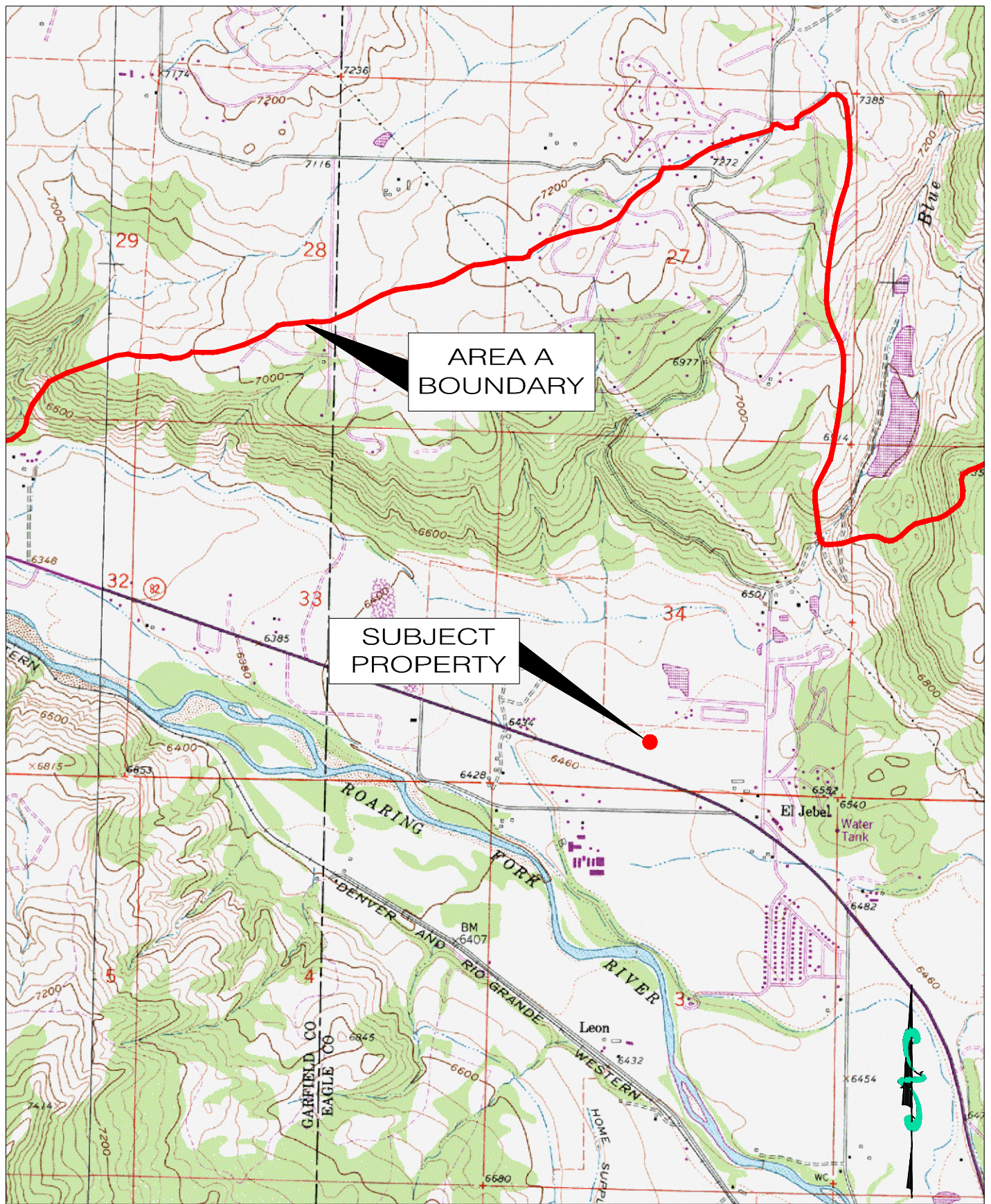
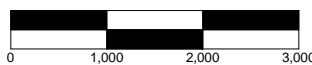


Figure 1: Crawford Properties, LLC
Eagle Crest Nursery Application

File: 033-7.2
Date: 11/28/17

Basalt Water Conservancy District



Scale: 1"=2,000'

RESOURCE
ENGINEERING, INC.

909 Colorado Avenue
Glenwood Springs, CO 81601
(970) 945-6777 Voice 945-1137 Facsimile

**APPLICATION FOR WATER ALLOTMENT CONTRACT
BASALT WATER CONSERVANCY DISTRICT**

1. Applicant(s) Contact Information

- a. Name: Crawford Properties, LLC
- b. Mailing Address: 60 El Jebel Rd. Unit 105
El Jebel, CO 81623
- c. Street Address: 60 El Jebel Rd. Unit 105
El Jebel, CO 81623
- d. Telephone Numbers: (970) 963-2684
- e. Email Address: info@eljebel.co
- f. If Applicant is represented by an Attorney, please provide the Attorney's contact information, including name, address, telephone, and email:

Kevin Patrick, Esq.
229 Midland Avenue
Basalt, CO 81621
patrick@waterlaw.com

- g. Emergency Local Contact Information, including name, address, telephone, and email:

Crawford Properties, LLC
60 El Jebel Rd, Unit 105
El Jebel, CO 81623

- h. Contact Information of property manager, caretaker, irrigator, system operator, or agent who should be provided a copy of this contract, including name, address, telephone, and email:

Crawford Properties, LLC
60 El Jebel Rd, Unit 105
El Jebel, CO 81623

2. Type of land use (development) proposed for water allotment contract (i.e. single family home, subdivision, gravel pit, etc.):

Garden and Plant Nursery

3. Legal description and address of property on which District's water rights and/or contract water will be used (attach map and vesting deed with proof of ownership)*:

See attached Eagle County Property Card

4. Elevation of property: ~6,483 6-7,000 ft., _____ 7-8,000 ft., _____ 8-9,000 ft.

5. Name and legal description of water supply diversion point(s):

a. Name of Diversion Crawford - Nursery Well

Type of Diversion Well (e.g., a well, spring, ditch, pipeline, etc.)

Legal Description: SE Quarter, SW Quarter, Section 34, Township 7 N S,
Range 87 E W of the 6th Principal Meridian, at a location 2,430 feet from
the W Section line and 750 feet from the S Section line.

UTM Coordinates (NAD 83):

Northing: 4362983

Easting: 319490

 Zone 12 / X Zone 13.

If diversion point is a well, please provide the Well Permit No. TBD

Is the well operational/active? _____ Yes, X No

Is there currently an operating well meter? _____ Yes, X No

b. Name of Diversion Robinson Ditch

Type of Diversion Ditch (e.g., a well, spring, ditch, pipeline, etc.)

Legal Description: NE Quarter, SE Quarter, Section 11, Township 8 N S,
Range 87 E W of the 6th Principal Meridian, at a location 1,914 feet from the
S Section line and 934 feet from the E Section line.

UTM Coordinates (NAD 83):

Northing: 4359863

Easting: 321622

 Zone 12 / X Zone 13.

If diversion point is a well, please provide the Well Permit No. _____.

Is the well operational/active? _____ Yes, _____ No

Is there currently an operating well meter? X Yes, _____ No

Notice: A valid well permit with operating well meter will be required under the contract.

6. Legal Water Supply: (please check one)

 X Applicant requests consideration by the District to be included in the District's Umbrella Plan for Augmentation decreed in Case No. 02CW77.*

*Note: Certain applicants may qualify to be included in the District's Umbrella Plan at the District's discretion. In order to be included in the District's Umbrella Plan, the Applicant's depletions must occur within the District's defined "Area A" and the Applicant must reimburse the District its *pro rata* share of the District's expenses in obtaining the Umbrella Plan decree. Costs of reimbursement are contingent upon location and intensity of the uses, and range from \$1,200 for contractees with less than 2 units (EQRs) in certain areas, to \$5,000 for more than 8 EQRs in Area A-3 (generally the Roaring Fork drainage above its confluence with the Fryingpan Rivers).

 Applicant will obtain its own plan for augmentation by applying to the Water Court, Water Division 5 within 2 years of this application. If Applicant has already applied for its own change/approval of plan for augmentation, the Water Court Case Number is: _____.

7. Proposed waste water treatment system: (please check)

 Tap to central waste water treatment facility

 Septic tank/leachfield system

 Evapotranspiration system

 X Other: Not applicable

8. Proposed use of water (please check)

- Domestic/Municipal (single family home(s), duplex(s), condominium(s), mobile home(s), apartment). Please complete page four of this application.
- Commercial (hotel, office, warehouse, restaurant, bar, retail). Please complete page five of this application.
- Industrial (gravel pit, manufacturing). Please complete page six of this application.
- Agricultural (crop irrigation, stock watering). Please complete page seven of this application.

Date on which the county or other applicable governmental entities approved the land use for which you seek legal water service: _____. (Note: Copy of the Resolution of other documentation evidencing such approval should be submitted with application.)

Eagle Crest Nursery has been operation at the existing site for over 20 years. This application is prompted by a need to formalize and augment non-potable water demands for the agricultural operation.

9. What other water rights are associated with or used on the property?

The historical irrigation rights on the property were quantified and changed in Case No. 93CW319

10. What other uses of water occur on the property?

Potable water service provider for the property recently changed to Mid Valley Metro District.

Please complete this page if you selected agricultural use on Page 3, No. 8.

AGRICULTURAL WATER USE

Irrigation

Type of crop(s) (pasture, alfalfa, beans, etc.) and irrigation system:

Crop: <u>Trees & Shrubs</u>	Acres: <u>5.1</u>	Sprinkler: <u>100%</u>	Flood: _____
Crop: _____	Acres: _____	Sprinkler: _____	Flood: _____
Crop: _____	Acres: _____	Sprinkler: _____	Flood: _____
Crop: _____	Acres: _____	Sprinkler: _____	Flood: _____

Stock Watering (cattle, horses, etc.) N/A

Number of animals:

Months of use:

Other agricultural uses not listed:

Well usage will be from March 1 until the first day of the Robinson Ditch is diverting water (Typically around May 1). The Robinson Ditch will be utilized throughout the irrigation season typically until October 31. The water demand and consumptive use schedule is attached.

VERIFICATION

STATE OF Colorado)
) ss.
COUNTY OF Eagle)

I, Prentice Hubbell (name of Applicant or Applicant's duly authorized representative),
being first duly sworn, upon oath, depose and state as follows:

- 1) I am the Applicant or a duly authorized officer, manager, agent or attorney-in-fact for the Applicant for this Application for Water Allotment Contract;
- 2) I have read and know the contents of this Application;
- 3) The information contained herein is an accurate and complete description of the Applicant's intended use of the Basalt Water Conservancy District's water rights;
- 4) The Applicant acknowledges that the accuracy and truth of all statements in this Application are conditions of approval of this Application by the Basalt Water Conservancy District and of the Contract to be made pursuant to such approval; and
- 5) I acknowledge that this application shall be subject to the District's Water Allotment Contract as approved and issued by the District.

Date: 11/27/17

By: 

Print Name: Prentice Hubbell

Title: COO

Subscribed and sworn before me this 27 day of November, 2017 by
Prentice Hubbell

Witness my hand and seal.


Notary Public

My commission expires:

4-7-19

