STATE OF COLORADO

Ebert - DNR, Jared <jared.ebert@state.co.us>

Re: Kirtright SWSP Revision

Comaniciu - DNR, Ioana <ioana.comaniciu@state.co.us> Fri, Nov 8, 2019 at 5:11 PM
To: Peter Wayland <pwayland@weilandinc.com>
Cc: Jared Ebert - DNR <jared.ebert@state.co.us>

Hello Peter,
Please see attached SWSP approval letter for the Kirtright Pit. Please ensure that Coulson complies with all of the conditions in the SWSP so the plan could be extended through December 31, 2020.
Sincerely,

Ioana Comaniciu, P.E.
Water Resources Engineer

COLORADO
Division of Water Resources
Department of Natural Resources

P 303-866-3581 x 8246
1313 Sherman St., Suite 818, Denver, CO 80203
ioana.comaniciu@state.co.us | www.water.state.co.us

On Thu, Nov 7, 2019 at 1:59 PM Peter Wayland <pwayland@weilandinc.com> wrote:

> Ioana,
>
> I have discovered an error in AI.1, last table. The previous spreadsheet had totaled the unlagged values instead of the lagged values…..
>
> So, I have revised AI.1, AI.2 and the Coulson Summary replacement table.
>
> Michael, you doing the division office review ? If so, I would be extremely grateful if this review could be completed before early next week if possible. Feel free to call with any questions or clarifications.
>
> We are facing a DRMS Board Hearing on the 13th if this is not approved.
>
> Sincerely,
>
> ---
>
> Peter Wayland
>
> Weiland, Inc
>
> 303.518.2182 m

Kirtright Pit Approval 2019-20.pdf
1318K

November 8, 2019

Peter Wayland
Weiland, Inc.
P.O. Box 18087
Boulder, CO 80308

Re: Kirtright Substitute Water Supply Plan (WDID 0402542)
Kirtright Gravel Pit, DRMS File No. M-1986-123 (WDID 0403017)
Section 15, T5N, R68W of the 6th P.M.
Water Division 1, Water District 4, Larimer County
SWSP ID: 3313

Approval Period: November 8, 2019 through March 31, 2020 (or December 31, 2020 subject to Condition of Approval No. 1)
Contact Phone Number for Mr. Peter Wayland: 303-443-9521
Contact Email address for Mr. Peter Wayland: pwayland@weilandinc.com

Dear Mr. Wayland:

This letter is in response to your letter request received on April 5, 2019, the revised letter received on August 21, 2019, and the additional information received on October 15, 2019, all concerning approval of a substitute water supply plan ("SWSP") for a sand and gravel pit owned and operated by Coulson Excavating Company, Inc. ("Coulson" or "Applicant") in accordance with Section 37-90-137(11), C.R.S. The Applicant shall be responsible for compliance with this plan. The required fee of $257 for the substitute water supply plan has been submitted (receipt no. 3690915D).

Plan Operation

This plan seeks to replace depletions resulting from mining at the Kirtright Gravel Pit ("Kirtright Pit"). The Kirtright Pit is located in the SE1/4 of Section 15, Township 5 North, Range 68 West of the 6th P.M. (see Figure 1). Mining at the site has been completed and the site has been reclaimed. Reclamation activities created four unlined ponds with a total exposed surface area of approximately 17.68 acres. Pond 1 measures 1.09 acres of water surface area, Pond 2 measure 1.25 acres, Pond 3 measure 5.93 acres and Pond 4 measure 9.41 acres respectively, as shown on attached Figure 2.

According to previous information received in this office, a total of 2.99 acres of pond surface was exposed within the Kirtright Pit reclamation permit boundary prior to January 1, 1981. Based on the Division 1 Water Court decision in case no. 2009CW49, the replacement of evaporative depletions is not required for groundwater exposed to the atmosphere prior to January 1, 1981 through open mining of sand and gravel, regardless of whether open mining operations continued or were reactivated on or after that date. The Water Court effectively held that Senate Bill 120 of 1989, as amended in Senate Bill 93-260, exempted all pre-1981 exposed groundwater regardless of whether

open mining operations continued or were reactivated on or after January 1, 1981. Accordingly, for the 20.67 acres (2.99 acres exposed prior to January 1, 1981 and 17.68 acres exposed after December 31, 1980) of groundwater currently exposed at the Kirtright Pit, replacement of evaporative depletions is only required from the 17.68 acres exposed after December 31, 1980. **The area exposed prior to 1981 is shown on the attached Figure 2. The credits for the pre-1981 area are tied to the location identified on Figure 2 and may not be re-allocated to other areas of groundwater exposure within the gravel pit permit boundary.**

The previous substitute water supply plan required the applicant to file for a permanent plan for augmentation with the Water Court by December 31, 2017 to include, but not limited to, the long-term evaporation losses. An Application for a Plan for Augmentation, Change of Water Right, and Conditional and Absolute Underground and Surface Water Rights, Including Water Storage Rights was filed with the Division 1 Water Court on August 9, 2019 under case no. 2019CW3157.

In accordance with the letter dated April 30, 2010 (copy attached) from the Colorado Division of Reclamation, Mining, and Safety ("DRMS"), all sand and gravel mining operators must comply with the requirements of the Colorado Reclamation Act and the Mineral Rules and Regulations for the protection of water resources. The April 30, 2010 letter from DRMS requires that you provide information to DRMS to demonstrate you can replace long term injurious stream depletions that result from mining related exposure of groundwater.

In accordance with approach no. 4, you have provided an affidavit dated October 14, 2019, that dedicates 6.8 shares of Hill & Brush Ditch water as replacement water solely for this SWSP for as long as there are depletions at this gravel pit site or until such time as another replacement source is obtained. A copy of the affidavit is attached to this letter. For the purposes of this SWSP, this affidavit will be accepted for the dedication of the shares; however, if the State Engineer determines that a different affidavit or dedication process is necessary to assure proper dedication of the shares, additional information may be required prior to future SWSP approvals.

Depletions

Consumptive use of water at the site is limited to 39.75 acre-feet of evaporation from up to 17.68 acres of groundwater exposed to the atmosphere after December 31, 1980. The Applicant proposed to replace evaporation from exposed ground water at the site based upon evaporation atlases in NOAA Technical Report NWS 33 and the SEO monthly distribution factors for sites below 6,500 feet. Gross annual evaporation at the gravel pit location is estimated to be approximately 39.7 inches per year. Net evaporation is defined as gross evaporation less the consumptive use of water by vegetation that naturally occurred at the site prior to construction of the pit. The historical consumptive use was assumed to be equal to the effective precipitation, which was estimated based on the data from the Loveland (record 1989-2017) NOAA weather station.

Computation of evaporation under this SWSP was reduced during the ice-covered period. You have assumed the ice-covered period will occur during the months of December and January based on average monthly temperatures less than 32°F taken from the Loveland (record 1989-2017) NOAA weather station. However, for the purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed groundwater surface area that may occur during the

assumed ice-covered period (the months of December and January) for any time that the pit is not completely covered by ice.

Computation of the net evaporation during any time that the pit is not completely covered by ice shall be determined as the pro-rata amount of the monthly gross evaporation rate distribution amount identified in the State Engineer's *General Guidelines for Substitute Supply Plans for Sand and Gravel Pits*, subtracting the pro-rata amount of the effective precipitation for that period.

The lagged evaporation depletions from the Kirtright Pit were estimated by the Applicant's consultant using the Integrated Decision Support group's Alluvial Water Accounting System (IDS AWAS) stream depletion model with the following assumptions:

- Distance from the centroid to the river; $X_{Pond\ 1}$ = 1,172 ft, $X_{Pond\ 2}$ = 1,556 ft, $X_{Pond\ 3}$ = 1,404 ft, and $X_{Pond\ 4}$ = 1,436 ft
- Alluvial aquifer width (W) = 3,500 ft
- Specific Yield (S) = 0.2
- Transmissivity (T) = 20,115 (gpd/ft)

The stream depletion model was taken to a steady-state condition and show that the stream depletions will equal the yearly evaporation of 39.75 acre-feet at a monthly rate as shown in the attached Tables AI.1 for each pond. Depletions from evaporation at the mine site will accrue to Big Thompson River in Section 15, Township 5 North, Range 68 West of the 6th P.M.

Replacements

The proposed sources of replacement water for this pit includes historical consumptive use credit from a portion of 19 out of 26 shares of Hill & Brush Ditch (WDID 0400522) water rights from the dry-up of 90.57 acres of land previously used for irrigation at Pfeif/Challenger Farm, a water lease from the City of Loveland, and water stored in the Applicant's Brownwood SE reservoir.

The Hill & Brush Ditch was decreed in 1866 for 61.8010 cfs, of which 34.8010 was abandoned in case no. 84CW204, leaving 27.0 cfs. The historical point of diversion is located in the NE ¼ of Section 24, T5N, R68W, 6th P.M. A review of the irrigation practices at Pfeif/Challenger Farm indicates that 26 shares of the Hill & Brush Ditch were used to irrigate approximately 123.94 acres. The historical consumptive use was estimated using the Modified Blaney-Criddle methodology in the IDS Consumptive Use Model, using the average monthly diversion from 1950 through 1986. A 5 percent ditch loss was determined for the Hill & Brush Ditch based on the short distance of the ditch run to the farm headgate. Temperature and precipitation data were taken from the Fort Collins weather station. Crops were irrigated through wild flood and furrows, therefore the Applicant proposed a maximum 60 percent efficiency for the Pfeif/Challenger parcel. You indicated that the efficiency was based on the ditch-wide analysis performed in support of case no. 2002CW392 for the City of Loveland that changed several ditches in the Big Thompson Valley with similar soil types, available water holding capacity, slope and irrigation practices as the Pfeif/Challenger Farm. **For the purposes of this SWSP approval the claimed maximum irrigation efficiency will be accepted. However, any renewal request for this SWSP must include a maximum efficiency that considers the site-specific potential efficiency and the effects of installation, management and maintenance of the irrigation system on the potential irrigation efficiency. In addition, the SWSP**

request must clearly define how the maximum irrigation efficiency was determined, including all assumptions and calculations.

Water in excess of the crop irrigation requirement was added to the soil moisture bank, which was assumed to be three feet deep with a water holding capacity of 1.92 inches/foot. Irrigated crops included silage corn, alfalfa and pasture grass. Of the irrigation water historically applied to the farm, a portion ran off the fields (surface return) and a portion seeped into the ground below the root zone of the crops (deep percolation). Return flows were assumed to consist of 50 percent surface return flow and 50 percent deep percolation. The timing of surface return flows was assumed to be instantaneous to the stream system. The timing of deep percolation return flows was estimated using the AWAS model alluvial aquifer boundary condition option with the following aquifer parameters: transmissivity (T) = 40,000 gallons per day per foot, specific yield (SY) = 0.2, the distance from the centroid of the farm = 694 feet, and the location of the parallel impermeable boundary was estimated to be 1700 feet from the stream.

The historical consumptive use (HCU) analysis for the 26 shares averaged 160.52 acre-feet per year. The HCU results for the 26 Hill and Brush Ditch shares are summarized in Table 1 below.

Table 1 - HCU results for the 26 Hill and Brush Ditch shares

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Farm Headgate Delivery	0	0	0	0	37.53	111.71	141.17	72.56	14.18	2.2	0	0	379.36
On-Farm Depletion of Surface Water	0	0	0	0	15.83	44.55	58.92	35.27	5.20	0.75	0	0	160.52
Surface Return Flows	0	0	0	0	10.86	33.58	41.13	18.65	4.49	0.73	0	0	109.42
Groundwater Return Flows	0	0	0	0	10.86	33.58	41.13	18.65	4.49	0.73	0	0	109.42
Lagged Groundwater Return Flows	1.02	0.47	0.26	0.13	4.38	16.69	29.23	26.51	15.93	8.58	4.10	2.10	109.40
Total Return Flows	1.02	0.47	0.26	0.13	15.24	50.27	70.36	45.16	20.42	9.31	4.10	2.10	218.84
Average Net Depletion	-1.02	-0.47	-0.26	-0.13	22.29	61.44	70.81	27.40	-6.24	-7.11	-4.10	-2.10	160.52

The historical accretions/depletions for the 19 shares were prorated from the 26 shares, and the HCU for the 19 shares was determined to be 117.31 acre-feet with a total of 159.93 acre-feet of return flows. Of this HCU amount, 31.56 acre-feet have been dedicated to replacement purposes for the Applicant's Challenger Pit. Under this SWSP, 13.95 acre-feet of the remaining available HCU will be dedicated to the Kirtright Pit for use in 2020. The monthly return flow obligations associated with the 13.95 acre-feet of HCU are proposed to be calculated by first pro-rating the total return flow obligations for the 19 shares (19 ÷ 26 = 0.73), then multiplying the resulting monthly values by the proportion of HCU being claimed in this SWSP (13.95 ÷ 117.31 = 0.1189). It should be noted that this office is unable to duplicate the values as calculated by the Applicant, but because the Applicant's calculated return flow obligations are greater than those calculated by this office, their use is acceptable as sufficiently conservative to the stream. **The Applicant's pro-rata return flow calculation procedure is accepted for the first year of use of these shares under this SWSP,**

however any future SWSP should calculate the return flow for the months of September through April based on the percentage of the prior year's actual farm headgate delivery, and those from May through August based on the percentage of that month's actual farm headgate delivery.

For the proper administration of this SWSP adequate measuring devices acceptable to the water commissioner must be installed. This SWSP will not allow any historical consumptive use credits from these shares to be applied to this plan until such time as these shares are adequately diverted, measured, recorded, and accounted for to the satisfaction of the Water Commissioner. If the Applicant intends to use the Hill & Brush Aug Return (WDID 0402811) located in the SW ¼, SW ¼ of Section 20, T5N, R67W of the 6th P.M., the Applicant must coordinate with the Water Commissioner to ensure this structure accurately measures and records the flow of water. **Because the Applicant depends on these shares to provide replacement water in the summer, this plan will only be valid through March 31, 2020 unless the Applicant receives approval from the Water Commissioner that the existing augmentation return structure (WDID 0402811), or a newly constructed augmentation return structure, is acceptable. If approved, this plan may be extended to December 31, 2020. If at any time the Water Commissioner determines that the augmentation return structure is not accurately measuring and recording the flow of water, the Water Commissioner will not authorize the use of that structure.**

Additional replacements for depletions during the non-irrigation season and during months with insufficient credits will be made available throughout the year from a lease of fully consumable water from the City of Loveland's Water and Power Department ("Loveland"). The lease is for a total of 100 acre-feet of fully consumable water which is used for replacement purposes for the Kirtright Pit, Gardels Pit, Challenger Pit, Bonser Pit and Brownwood Pit gravel pits operated by the Applicant. It is anticipated that 17.83 acre-feet of leased water will be used at the Kirtright Pit during the period of August 2019 through December 2019, and 15.35 acre-feet of leased water will be used at the Kirtright Pit during the period of January 2020 through December 2020. A copy of the lease was provided to the State Engineer's Office with the SWSP request and is attached to this letter. The duration of the lease is for a term of twenty-five years ending on December 31, 2022. The replacement water will be delivered to the stream at the Loveland's wastewater treatment plant (WDID 0402300). The point of delivery is approximately 7 miles upstream of the Kirtright Pit therefore a total transit loss of 14 percent (2 percent per mile) has been added to the replacement water provided by Loveland.

Under the terms of the lease, replacements can be made using a variety of water owned by Loveland including, but not limited to, Windy Gap reusable effluent, Loveland Storage Reservoir water pursuant to the terms and conditions of the decree for change of water rights for the City of Loveland, dated June 18, 1985, case no. 82CW202A, and Colorado Big Thompson ("C-BT") Project water. **In the event that Loveland plans to use C-BT water as a replacement source, Loveland shall comply with the Interim Rule issued by the Northern Colorado Water Conservancy District ("Northern District") in May 2005, regarding the use of C-BT Project water in substitute water supply plans.** Prior to the use of C-BT Project water, Loveland is required to notify this office, the division engineer and the water commissioner of the amount of C-BT Project water dedicated to this plan and provide a copy of the Northern District's approval letter as required by paragraph I(g) of the Northern District's May, 2005 Interim Rule.

Additional replacement water for the period of January 2020 through April 2020 and again from November 2020 through December 2020 will be releases from Coulson's Brownwood SE reservoir (WDID 0403398). Currently there are 27 acre-feet of water stored in the reservoir under free river conditions and available for replacement use for the Coulson gravel pit sites. The reservoir releases will be made at a point located in the SE ¼ of the SE ¼ of Section 19, Township 5 North, Range 68 West of the 6th P.M., at a distance of 1194 feet from the north section line and 0 feet from the west section line of said Section 19. A total of 4.94 acre-feet of replacement water from the Brownwood SE reservoir is proposed to be used at the Kirtright Pit during the months of September, October, and December 2019. It is anticipated that a total of 13.84 acre-feet of water from the Brownwood SE reservoir will be used at the Kirtright Pit during 2020.

The monthly depletions and replacements for the Kirtright Pit are found on the attached Table AI.2.

Conditions of Approval

I hereby approve the proposed substitute water supply plan in accordance with §37-90-137(11), C.R.S. subject to the following conditions:

1. This SWSP shall be valid for the period of November 8, 2019 through March 31, 2020, unless otherwise revoked, or superseded by decree. **The plan may be extended until December 31, 2020 if the Applicant receives approval from the Water Commissioner that the existing augmentation return structure (WDID 0402811) or a newly constructed augmentation return structure is acceptable.** If this plan will not be made absolute by a water court action by the plan's expiration date, a renewal request must be submitted to this office with the statutory fee (currently $257) by **February 15, 2020 or November 15, 2020 (if extended).**

2. Well permit no. 76931-F was obtained for the current use and exposed pond surface area in accordance with §37-90-137(2) and (11), C.R.S. The Applicant is required to maintain a valid well permit for the current uses at the site.

3. The total surface area of the groundwater exposed at the Kirtright Pit site after December 31, 1980 must not exceed 17.68 acres, which results in a maximum evaporative annual loss of 39.75 acre-feet.

4. Total consumption at the Kirtright Pit site must not exceed these aforementioned amounts unless an amendment is made to this plan.

5. Approval of this plan is for the purposes as stated herein. This office must first approve any additional uses for the water. Any future additional historical consumptive use credit given (e.g., agricultural water transfer) for this site must consider all previous credits given.

6. The replacement water that is the subject of this plan cannot be sold or leased to any other entity. As a condition of subsequent renewals of this substitute water supply plan, the replacement water must be appurtenant to this site until a plan for augmentation is obtained. All replacement water must be concurrent with depletions in quantity, timing, and locations.

7. In the event Loveland plans to use C-BT Project water as a replacement source, Loveland shall comply with the Interim Rule issued by the Northern District in May 2005 regarding the use of C-BT Project water in substitute water supply plans. Prior to the use of the C-BT

Project water, Loveland shall notify this office, the division engineer and the water commissioner of the amount of C-BT Project water dedicated to this plan and provide a copy of the Northern District's approval letter as required by paragraph I(g) of the Northern District's May, 2005 Interim Rule.

8. All releases of replacement water must be sufficient to cover all out-of-priority depletions in time, place, and amount and must be made under the direction and/or the approval of the water commissioner. The release of replacement water may be aggregated to maximize beneficial use. The water commissioner and/or the division engineer shall determine the rate and timing of an aggregated release.

9. Adequate accounting of depletions and replacements must be provided to the division engineer in Greeley (DNR_Div1Accounting@state.co.us) and the water commissioner (Jean Lever at Jean.Lever@state.co.us) on a monthly basis or other interval acceptable to both of them. The accounting form provided with your application is subject to modification and approval by the division engineer. All amounts shall be in acre-feet. Submitted accounting shall conform to the Administration Protocol "*Augmentation Plan Accounting, Division One - South Platte River" (attached).*

   In addition, the applicant shall verify that the City of Loveland ("Loveland") has submitted a report to the Division Engineer that includes an accounting of **all** replacement water controlled by Loveland, showing the total volume of water under its control and the amount committed to each of the recipients of the water, including the water committed to this plan.

10. The Division Engineer, or his designated representative, will administer all such water transported in the Big Thompson River or its tributaries under this SWSP, including water for replacement of depletions, past intervening headgate to ensure that such water is not intercepted or otherwise diminished in quantity by diversion, use or other interference by intervening water rights and to assure that such water remains available and suitable for Applicant's uses under this SWSP, except when any intervening headgate is diverting the entire flow of ("sweeping") the river. In the event that delivery past headgate which sweep the river requires the installation of a bypass structure or the use of an existing bypass structure by agreement with a third-party, Applicant is responsible for either installation a new bypass structure with a continuous recording measuring device(s) as approved by the Water Commissioner or securing an agreement with a third-party to use an existing bypass structure and providing such information and agreement to the Division Engineer.

11. The name, mailing address, and phone number of the contact person who will be responsible for operation and accounting of this plan must be provided on the accounting forms to the division engineer and water commissioner.

12. **In accordance with the letter dated April 30, 2010 (copy attached) from the Colorado Division of Reclamation, Mining, and Safety ("DRMS"), all sand and gravel mining operators must comply with the requirements of the Colorado Reclamation Act and the Mineral Rules and Regulations for the protection of water resources. The April 30, 2010 letter from DRMS requires that you provide information to DRMS to demonstrate you can replace long term injurious stream depletions that result from mining related exposure of groundwater. The DRMS letter identifies four approaches to satisfy this requirement. If the information you are providing to DRMS is included under the approaches numbered 1 -**

3, a copy of that information needs to also be provided to this office (the Division of Water Resources).

In accordance with approach no. 4, you have provided an affidavit dated October 14, 2019, that dedicates 6.84 shares of Hill and Brush Ditch water as replacement water solely for this SWSP for as long as there are depletions at this gravel pit site or until such time as another replacement source is obtained. A copy of the affidavit is attached to this letter. For the purposes of this SWSP, this affidavit will be accepted for the dedication of the shares; however, if the State Engineer determines that a different affidavit or dedication process is necessary to assure proper dedication of the shares, additional information may be required prior to future SWSP approvals.

13. The Applicant shall perform an inspection and provide verification that the land associated with the changed water right in this SWSP has been removed from irrigation during the term of this SWSP. Verification of dry-up must be in the form of an affidavit signed by an individual with personal knowledge of the dry-up for the entire irrigation season for each parcel of land associated with the change of water right in this SWSP. In accordance with the attached *Administration Protocol - Dry-Up of Irrigated Land*, the Applicant shall provide a written notification to the water commissioner and division engineer **by April 1, 2020** identifying the lands to be dried-up for the **2020** irrigation season. **By October 31, 2020,** the Applicant shall provide an affidavit to the water commissioner and division engineer that confirms dry-up during the **2020** irrigation season. A GIS shapefile outlining the dry-up must accompany each notification and be emailed to Div1Accounting@state.co.us. The shapefile shall include the pending court case number, the WDID of the plan, a delineation of the dried-up land, the acreage of dry-up, and any accompanying metadata. In addition, the datum must be NAD83 and the UTM projection must be Zone 13. If a shapefile of the acreage was provided previously and the proposed dry-up acreage has remained the same, the notice can reference the previously provided shapefile, rather than providing it again. If the actual dry-up does not match the land proposed for dry-up in the spring, a revised GIS shape file must be submitted with the affidavit in the fall.

    The historical consumptive use attributed to the changed surface water right(s) under this SWSP shall not include groundwater contributions. As a result, the historical consumptive use ("HCU") credit calculated for the subject water right to be changed by this SWSP shall be reduced by any ongoing sub-irrigation from groundwater. In order to ensure the required dry-up conditions exist during the approval period of this SWSP, and to ensure no sub-irrigation from groundwater is occurring, the Applicant shall provide records of monthly monitoring of depth to groundwater for all land associated with the change of water right in this SWSP. Information regarding depth to groundwater may be provided using existing irrigation wells, existing or new monitoring wells, or piezometers located on the dried-up fields. Applicant may utilize wells or piezometers located within ¼ mile of each field provided that the Applicant can demonstrate the depth to ground water information available off-site is representative of the depth to groundwater on the dried-up land. The Applicant shall modify its accounting to reduce the amount of the calculated HCU that may be claimed in this SWSP according to the table below. Measurements taken at the start of each month will determine the necessary reduction in credit to be applied during the following month. The Applicant may use another methodology upon review and prior approval by the state engineer and division engineer. (Construction of monitoring holes/wells, or piezometers

require that permits or notices be obtained as described in Table 1 of the Water Well Construction Rules.)

Depth to Groundwater (Feet)	Percent Reduction in CU Credit[1]	
	Native Grass	Alfalfa
1	85%	100%
2	50%	90%
3	30%	75%
4	20%	50%
5	15%	35%
6	10%	20%
7	5%	15%
8	0%	10%

1. Adapted from *EVAPOTRANSPIRATION AND AGRONOMIC RESPONSES IN FORMERLY IRRIGATED MOUNTAIN MEADOWS, South Park, Colorado*, March 1, 1990; Revised September 1, 1991

14. The State Engineer may revoke this SWSP or add additional restrictions to its operation if at any time the State Engineer determines that injury to other vested water rights has occurred or will occur as a result of the operation of this SWSP. Should this SWSP expire without renewal or be revoked prior to adjudication of a permanent plan for augmentation, all excavation of the product from below the water table, and all other use of water at the pit, must cease immediately.

15. In accordance with amendments to Section §25-8-202-(7), C.R.S. and "Senate Bill 89-181 Rules and Regulations" adopted on February 4, 1992, the State Engineer shall determine if this substitute supply is of a quality to meet requirements of use to which the senior appropriation receiving the substitute supply has normally been put. As such, water quality data or analyses may be requested at any time to determine if the requirement of use of the senior appropriator is met.

16. The decision of the state engineer shall have no precedential or evidentiary force, shall not create any presumptions, shift the burden of proof, or serve as a defense in any water court case or any other legal action that may be initiated concerning the substitute water supply plan. This decision shall not bind the State Engineer to act in a similar manner in any other applications involving other plans or in any proposed renewal of this plan, and shall not imply concurrence with any findings of fact or conclusions of law contained herein, or with the engineering methodologies used by the Applicant.

Should you have any questions, please contact Ioana Comaniciu of this office or Michael Hein of our Division office in Greeley at (970) 352-8712.

Sincerely,

for Jeff Deatherage, P.E.
Chief of Water Supply

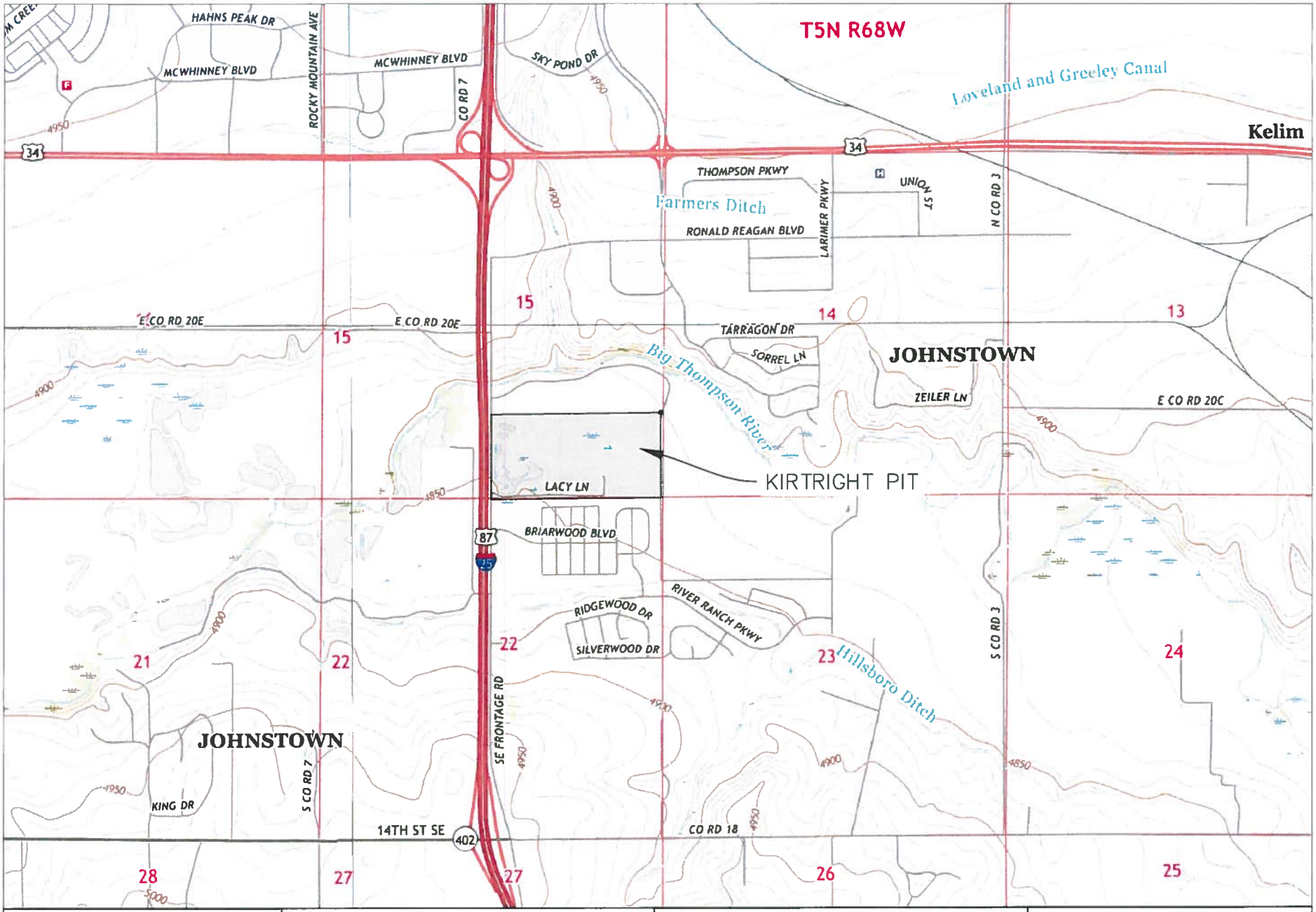
Attachments: Figures 1 and 2, Tables AI.1 and AI.2
Affidavit for dedication of water rights
City of Loveland Lease
Accounting Protocol
Dry-up Protocol

cc: Michael Hein, Lead Assistant Division Engineer (810 9th Street, Ste. 200, Greeley, CO 80631, (970) 352-8712)

Jean Lever, Water Commissioner, District 4 (810 9th Street, Ste. 200, Greeley, CO 80631, (970) 290-7397)

Division of Reclamation Mining and Safety

SRB/IDC-Kirtright SWSP 19-20



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

Welland, Inc.
Environmental & Engineering
PO BOX 18087
BOULDER, CO 80308
ph 303-443-9921

KIRTRIGHT PIT - TEMPORARY SUBSTITUTE WATER SUPPLY PLAN

LARIMER COUNTY, CO

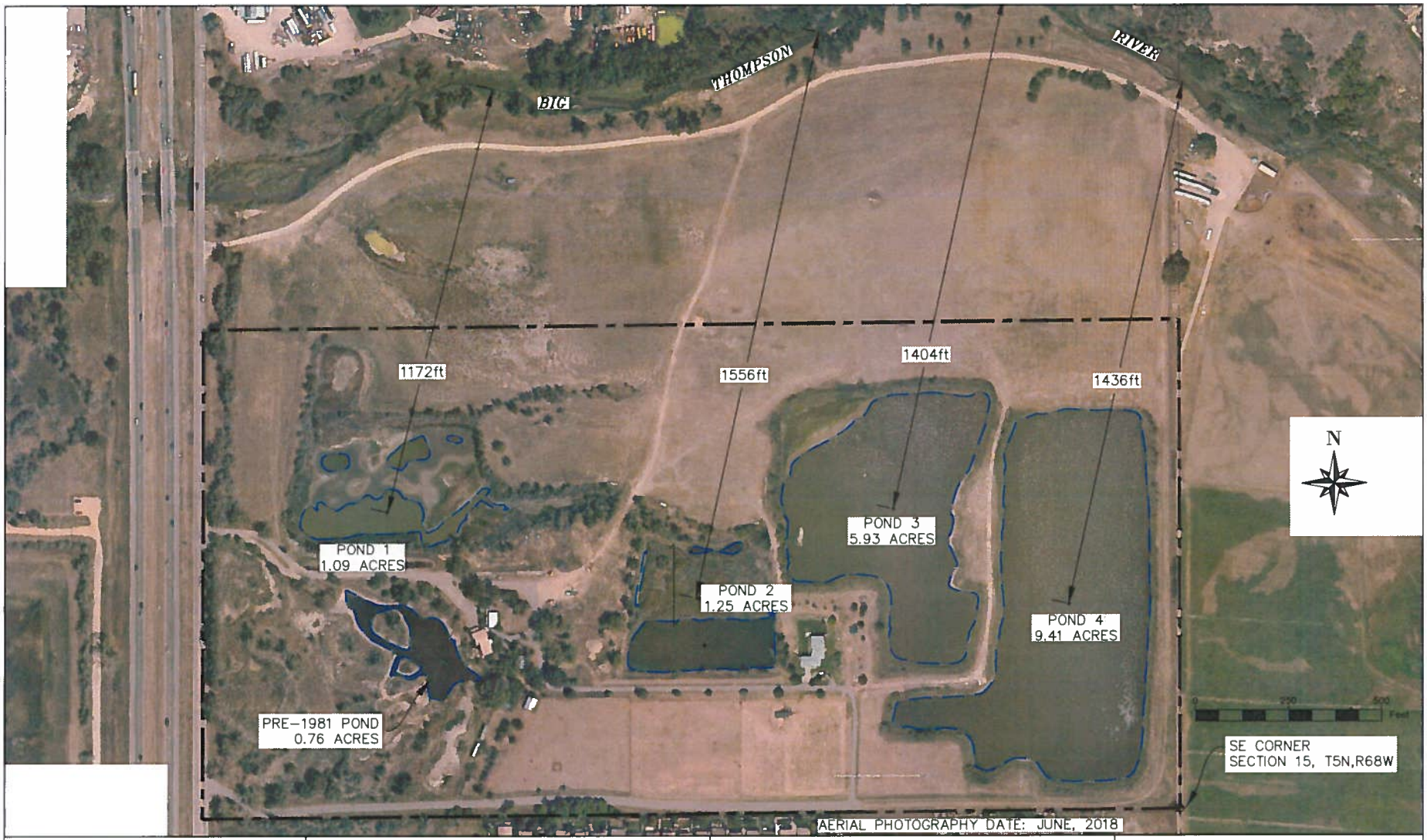
PREPARED FOR: COLSON EXCAVATING, CO., INC.

FIGURE 1

SITE LOCATION MAP

SCALE	DWG NO.	REV.
1"=2,000'	SITE LOC.DWG	REV

DRAWN BY	CHECKED BY	DATE	SHEET
CTW	PFW	04/03/2019	1 OF 1



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

Welland, Inc.
Environmental & Engineering
PO BOX 19087
BOULDER, CO 80308
ph 303-443-8521

KIRTRIGHT PIT - TEMPORARY SUBSTITUTE WATER SUPPLY PLAN

LARIMER COUNTY, CO

PREPARED FOR: COULSON EXCAVATING CO., INC.

FIGURE 2 - EXPOSED GROUNDWATER AREAS

SCALE	DWG NO.	REV.
1"=250'	FIGURE 2.DWG	REV

DRAWN BY	CHECKED BY	DATE	SHEET
CTW	PFW	08/20/2018	1 OF 1

Pond 1 Surface Area: 1.09 acres

Month	(1) Monthly Distribution	(2) Free Water Surface Evaporation	(3) Gross Evaporation Rate	(4) Surface Area	(5) Gross Evaporation	(6) Average Monthly Precip.	(7) Effective Precip. Credit	(8) Net Evaporative Loss (unlagged)	(9) Net Evaporative Loss (lagged)
		[ft./yr.]	[ft./mo.]	[acres]	[acre-ft./mo.]	[ft./mo.]	[acre-ft./mo.]	[acre-ft./mo.]	[acre-ft./mo.]
Jan	0.030	3.310	0.099	1.09	0.00	0.04	0.00	0.00	0.15
Feb	0.035	3.310	0.116	1.09	0.13	0.05	0.04	0.09	0.13
Mar	0.055	3.310	0.182	1.09	0.20	0.12	0.09	0.11	0.14
Apr	0.090	3.310	0.298	1.09	0.32	0.17	0.13	0.19	0.15
May	0.120	3.310	0.397	1.09	0.43	0.22	0.17	0.26	0.17
June	0.145	3.310	0.480	1.09	0.52	0.14	0.11	0.41	0.21
Jul	0.150	3.310	0.497	1.09	0.54	0.13	0.10	0.44	0.25
Aug	0.135	3.310	0.447	1.09	0.49	0.11	0.08	0.41	0.28
Sep	0.100	3.310	0.331	1.09	0.36	0.13	0.10	0.26	0.29
Oct	0.070	3.310	0.232	1.09	0.25	0.10	0.08	0.17	0.26
Nov	0.040	3.310	0.132	1.09	0.14	0.06	0.05	0.09	0.22
Dec	0.030	3.310	0.099	1.09	0.00	0.05	0.00	0.00	0.18
totals			3.310		3.38	1.32	0.95	2.43	2.43

Notes:

(1) = SEO Monthly fraction of evaporation for elevations below 6500 ft from Guidelines for Substitute Water Supply Plans.

(2) = Free Water Surface Evaporation from NOAA Technical Report NWS 33 = Class A Pan Evaporation * Kp, where Kp = 1.0.

(3) = Column (1) * Column (2).

(4) = Total Free Water Surface Area (see Figure 2 - Exposed Groundwater Areas).

(5) = Column (3) * Column (4). For months where Mean Ave. Temp. <32, ice cover = 0.0 Evap.

(6) = From AI.4 Precipitation Data.

(7) = (Column (6) * 70%) * Column (4)

(8) = Column (5) -Column (7).

(9) = Column (8) Lagged utilizing AWAS program (See AI.3).

Pond 2 Surface Area: 1.25 acres

Month	(1) Monthly Distribution	(2) Free Water Surface Evaporation	(3) Gross Evaporation Rate	(4) Surface Area	(5) Gross Evaporation	(6) Average Monthly Precip.	(7) Effective Precip. Credit	(8) Net Evaporative Loss (unlagged)	(9) Net Evaporative Loss (lagged)
		[ft./yr.]	[ft./mo.]	[acres]	[acre-ft./mo.]	[ft./mo.]	[acre-ft./mo.]	[acre-ft./mo.]	[acre-ft./mo.]
Jan	0.030	3.310	0.099	1.25	0.00	0.04	0.00	0.00	0.21
Feb	0.035	3.310	0.116	1.25	0.14	0.05	0.04	0.10	0.18
Mar	0.055	3.310	0.182	1.25	0.23	0.12	0.11	0.12	0.18
Apr	0.090	3.310	0.298	1.25	0.37	0.17	0.15	0.22	0.18
May	0.120	3.310	0.397	1.25	0.50	0.22	0.19	0.31	0.19
June	0.145	3.310	0.480	1.25	0.60	0.14	0.12	0.48	0.22
Jul	0.150	3.310	0.497	1.25	0.62	0.13	0.11	0.51	0.26
Aug	0.135	3.310	0.447	1.25	0.56	0.11	0.10	0.46	0.29
Sep	0.100	3.310	0.331	1.25	0.41	0.13	0.11	0.30	0.30
Oct	0.070	3.310	0.232	1.25	0.29	0.10	0.09	0.20	0.29
Nov	0.040	3.310	0.132	1.25	0.17	0.06	0.05	0.12	0.27
Dec	0.030	3.310	0.099	1.25	0.00	0.05	0.00	0.00	0.24
totals			3.310		3.89	1.32	1.07	2.82	2.82

Notes:

(1) = SEO Monthly fraction of evaporation for elevations below 6500 ft from Guidelines for Substitute Water Supply Plans.

(2) = Free Water Surface Evaporation from NOAA Technical Report NWS 33 = Class A Pan Evaporation * Kp, where Kp = 1.0.

(3) = Column (1) * Column (2).

(4) = Total Free Water Surface Area (see Figure 2 - Exposed Groundwater Areas).

(5) = Column (3) * Column (4). For months where Mean Ave. Temp. <32, ice cover = 0.0 Evap.

(6) = From AI.4 Precipitation Data.

(7) = (Column (6) * 70%) * Column (4)

(8) = Column (5) -Column (7).

(9) = Column (8) Lagged utilizing AWAS program (See AI.3).

Pond 3 Surface Area: 5.93 acres

Month	(1) Monthly Distribution	(2) Free Water Surface Evaporation	(3) Gross Evaporation Rate	(4) Surface Area	(5) Gross Evaporation	(6) Average Monthly Precip.	(7) Effective Precip. Credit	(8) Net Evaporative Loss (unlagged)	(9) Net Evaporative Loss (lagged)
		[ft./yr.]	[ft./mo.]	[acres]	[acre-ft./mo.]	[ft./mo.]	[acre-ft./mo.]	[acre-ft./mo.]	[acre-ft./mo.]
Jan	0.030	3.310	0.099	5.93	0.00	0.04	0.00	0.00	0.92
Feb	0.035	3.310	0.116	5.93	0.69	0.05	0.21	0.48	0.81
Mar	0.055	3.310	0.182	5.93	1.08	0.12	0.50	0.58	0.81
Apr	0.090	3.310	0.298	5.93	1.77	0.17	0.71	1.06	0.83
May	0.120	3.310	0.397	5.93	2.36	0.22	0.91	1.45	0.92
June	0.145	3.310	0.480	5.93	2.85	0.14	0.58	2.27	1.06
Jul	0.150	3.310	0.497	5.93	2.94	0.13	0.54	2.40	1.28
Aug	0.135	3.310	0.447	5.93	2.65	0.11	0.46	2.19	1.44
Sep	0.100	3.310	0.331	5.93	1.96	0.13	0.54	1.42	1.49
Oct	0.070	3.310	0.232	5.93	1.37	0.10	0.42	0.95	1.40
Nov	0.040	3.310	0.132	5.93	0.79	0.06	0.25	0.54	1.27
Dec	0.030	3.310	0.099	5.93	0.00	0.05	0.00	0.00	1.10
totals			3.310		18.46	1.32	5.12	13.34	13.34

Notes:

(1) = SEO Monthly fraction of evaporation for elevations below 6500 ft from Guidelines for Substitute Water Supply Plans.

(2) = Free Water Surface Evaporation from NOAA Technical Report NWS 33 = Class A Pan Evaporation * Kp, where Kp = 1.0.

(3) = Column (1) * Column (2).

(4) = Total Free Water Surface Area (see Figure 2 - Exposed Groundwater Areas).

(5) = Column (3) * Column (4). For months where Mean Ave. Temp. <32, ice cover = 0.0 Evap.

(6) = From AI.4 Precipitation Data.

(7) = (Column (6) * 70%) * Column (4)

(8) = Column (5) -Column (7).

(9) = Column (8) Lagged utilizing AWAS program (See AI.3).

Pond 4 Surface Area: 9.41 acres

Month	(1) Monthly Distribution	(2) Free Water Surface Evaporation [ft./yr.]	(3) Gross Evaporation Rate [ft./mo.]	(4) Surface Area [acres]	(5) Gross Evaporation [acre-ft./mo.]	(6) Average Monthly Precip. [ft./mo.]	(7) Effective Precip. Credit [acre-ft./mo.]	(8) Net Evaporative Loss (unlagged) [acre-ft./mo.]	(9) Net Evaporative Loss (lagged) [acre-ft./mo.]
Jan	0.030	3.310	0.099	9.41	0.00	0.04	0.00	0.00	1.49
Feb	0.035	3.310	0.116	9.41	1.09	0.05	0.33	0.76	1.31
Mar	0.055	3.310	0.182	9.41	1.71	0.12	0.79	0.92	1.29
Apr	0.090	3.310	0.298	9.41	2.80	0.17	1.12	1.68	1.33
May	0.120	3.310	0.397	9.41	3.74	0.22	1.45	2.29	1.46
June	0.145	3.310	0.480	9.41	4.52	0.14	0.92	3.60	1.68
Jul	0.150	3.310	0.497	9.41	4.67	0.13	0.86	3.81	2.00
Aug	0.135	3.310	0.447	9.41	4.20	0.11	0.72	3.48	2.25
Sep	0.100	3.310	0.331	9.41	3.11	0.13	0.86	2.25	2.34
Oct	0.070	3.310	0.232	9.41	2.18	0.10	0.66	1.52	2.22
Nov	0.040	3.310	0.132	9.41	1.25	0.06	0.40	0.85	2.02
Dec	0.030	3.310	0.099	9.41	0.00	0.05	0.00	0.00	1.77
totals			3.310		29.27	1.32	8.11	21.16	21.16

Notes:

(1) = SEO Monthly fraction of evaporation for elevations below 6500 ft from Guidelines for Substitute Water Supply Plans.
(2) = Free Water Surface Evaporation from NOAA Technical Report NWS 33 = Class A Pan Evaporation * Kp, where Kp = 1.0.
(3) = Column (1) * Column (2).
(4) = Total Free Water Surface Area (see Figure 2 - Exposed Groundwater Areas).
(5) = Column (3) * Column (4). For months where Mean Ave. Temp. <32, ice cover = 0.0 Evap.
(6) = From AI.4 Precipitation Data.
(7) = (Column (6) * 70%) * Column (4)
(8) = Column (5) -Column (7).
(9) = Column (8) Lagged utilizing AWAS program (See AI.3).

(1) (2) (3) (4) (5)

Month	Net Evaporative Loss (lagged) Pond 1	Net Evaporative Loss (lagged) Pond 2	Net Evaporative Loss (lagged) Pond 3	Net Evaporative Loss (lagged) Pond 4	**Total Net Evaporative Loss (lagged)**
	[acre-ft.]	[acre-ft.]	[acre-ft.]	[acre-ft.]	**[acre-ft.]**
Jan	0.15	0.21	0.92	1.49	**2.76**
Feb	0.13	0.18	0.81	1.31	**2.44**
Mar	0.14	0.18	0.81	1.29	**2.41**
Apr	0.15	0.18	0.83	1.33	**2.49**
May	0.17	0.19	0.92	1.46	**2.74**
June	0.21	0.22	1.06	1.68	**3.16**
Jul	0.25	0.26	1.28	2.00	**3.79**
Aug	0.28	0.29	1.44	2.25	**4.26**
Sep	0.29	0.30	1.49	2.34	**4.42**
Oct	0.26	0.29	1.40	2.22	**4.18**
Nov	0.22	0.27	1.27	2.02	**3.78**
Dec	0.18	0.24	1.10	1.77	**3.30**
totals	2.43	2.82	13.34	21.16	**39.74**

Notes:
(1) = Column (9) from Pond 1
(2) = Column (9) from Pond 2
(3) = Column (9) from Pond 3
(4) = Column (9) from Pond 4
(5) = Column (1) + Column (2) + Column (3) + Column (4)

AI.2 Net Depletions and Replacements for Kirtright Pit.

2019

Month	(1) **Kirtright** Total Net Evaporative Loss [acre-ft.]	(2) **Total** Net Replacement Requirement w/ Transit Loss [acre-ft.]	(3) Replacement from City of **Loveland** at Boise Ave. [acre-ft.]	(4) Replacement from **Brownwood Reservoir SE** [acre-ft.]
Aug-19	4.26	4.37	6.70	0.00
Sep-19	4.42	4.53	4.34	0.19
Oct-19	4.18	4.28	2.91	1.37
Nov-19	3.78	3.88	3.88	0.00
Dec-19	3.30	3.38	0.00	3.38
totals	19.94	20.44	17.83	4.94

Notes:

(1) = Column (10) of AI.1 - Evaporative Loss Worksheet -Kirtright Pit

(2) =Column (1)+ 2.5% Transit Loss

(3) = Water to be Delivered from City of Loveland

(4) = Water to be Delivered at Brownwood Reservoir SE

AI.2 Net Depletions and Replacements for Kirtright Pit.

2020

Month	(1) **Kirtright** Total Net Evaporative Loss	(2) Available Hill & Brush **HCU** Credits	(3) Total Hill & Brush **HCU** Credits Claimed for Kirtright	(4) Remaining Hill & Brush **HCU** Credits	(5) Net **Defecit** after Applying HCU	(6) Hill & Brush Monthly **Fraction of Total** Return Flow Obligation	(7) Hill & Brush **Return Flow Obligation**	(8) **Total** Net Replacement Requirement w/ Transit Loss	(9) Replacement from City of **Loveland** at Boise Ave.	(10) Replacement from **Brownwood Reservoir SE**	(11) Winter Return Flow Replacements from **Brownwood Reservoir SE**
	[acre-ft.]	[acre-ft.]	[acre-ft.]	[acre-ft.]	[acre-ft.]	[acre-ft.]	[acre-ft.]	[acre-ft.]	[acre-ft.]	[acre-ft.]	[acre-ft.]
Jan-20	2.76	0.00	0.00	0.00	2.76	0.005	0.16	2.83	0.73	2.10	0.16
Feb-20	2.44	0.00	0.00	0.00	2.44	0.002	0.08	2.50	1.47	1.04	0.08
Mar-20	2.41	0.00	0.00	0.00	2.41	0.001	0.04	2.47	1.77	0.70	0.04
Apr-20	2.49	0.00	0.00	0.00	2.49	0.001	0.02	2.55	2.49	0.06	0.02
May-20	2.74	7.27	2.74	4.53	0.00	0.069	2.34	0.00	0.00	0.00	0.00
Jun-20	3.16	26.09	3.16	22.93	0.00	0.230	7.78	0.00	0.00	0.00	0.00
Jul-20	3.79	35.02	3.79	31.24	0.00	0.320	10.80	0.00	0.00	0.00	0.00
Aug-20	4.26	17.37	4.26	13.10	0.00	0.206	6.95	0.00	0.00	0.00	0.00
Sep-20	4.42	0.00	0.00	0.00	4.42	0.095	3.21	4.53	4.34	0.19	0.00
Oct-20	4.18	0.00	0.00	0.00	4.18	0.042	1.42	4.28	2.91	1.37	1.46
Nov-20	3.78	0.00	0.00	0.00	3.78	0.019	0.65	3.88	1.64	2.24	0.67
Dec-20	3.30	0.00	0.00	0.00	3.30	0.010	0.32	3.38	0.00	3.38	0.33
totals	39.74	85.75	13.95	71.80	25.78	1.000	33.77	26.43	15.35	11.08	2.76

Notes:

(1) = Column (10) of AI.1 - Evaporative Loss Worksheet - Kirtright Pit
(2) = Average 1950-1986 Historical Consumptive Use (HCU) and Return Flow Obligation from CGPAP minus Credits Claimed by Challenger Pit
(3) = if Column (1) < Column (2), then = Column (1), else = Column (2)
(4) = Column (2) - Column (3)
(5) = Column (1) - Column (3)
(6) = AIII.5 CGPAP- Monthly Value Column (10) /Total Value Column (10)
(7) = {(Total of Column (3) / Total of Column (11) - AIII.5 CGPAP)*159.93} * Column (6)
(8) =Column (6) + 2.5% Transit Loss.
(9) =Column (7) Winter Months + 2.5% Transit Loss.
(10) =Column (8) - Column(9).
(11) = Winter Months Column (7) + 2.5% Transit Loss.

DEDICATION OF WATER RIGHTS

I Kenneth Coulson, do hereby dedicate 6.84 shares of Hill & Brush Ditch Co. to the operation of the Temporary Substitute Water Supply Plan for the Kirtright Pit (M-1983-123). Coulson Excavating owns 19 shares of Hill & Brush Ditch Co.

Signature _____ Date 10-14-19

LEASE OF FULLY CONSUMABLE WATER

THIS LEASE is made and entered into this 13th day of Jan, 1998, by and between the City of Loveland, Colorado, a Colorado home rule municipality ("City"), whose address is 500 East Third Street, Loveland, Colorado 80537, and Coulson Excavating Company, a Colorado corporation ("Lessee"), whose address is 3609 North County Road 13, Loveland, Colorado 80538.

WHEREAS, the City owns certain water which, pursuant to the water laws of the state of Colorado, may be used, re-used and successively used to extinction (the "Fully Consumable Water"); and

WHEREAS, the Lessee wishes to lease from the City the right to use a portion of the City's Fully Consumable Water; and

WHEREAS, the City is willing to lease to Lessee a portion of its Fully Consumable Water pursuant to certain terms and conditions as set forth in this Lease,

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and other good and valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

1. The City hereby leases to the Lessee the right to receive one hundred acre feet of the City's Fully Consumable Water, as defined in paragraph 4 of this Lease, on an annual basis. This Lease shall be for a term of twenty-five (25) years, ending on December 31, 2022. However, Lessee shall have the option to renew this Lease for successive terms of twenty-five years, which option shall terminate only if Lessee is in default of its payment obligations under paragraphs 6 or 7 of this Lease or if Lessee elects not to exercise its option to renew by giving notice to the City pursuant to paragraph 12 of this Lease not later than three (3) months prior to the end of any twenty-five (25) year term. In the event Lessee is not in default of its payment obligations and elects to renew the Lease for any successive twenty-five year period, Lessee shall not be required to pay any additional amounts under this Lease for the right to receive its allotted amount of the City's Fully Consumable Water as set forth above.

2. The one hundred acre feet of Fully Consumable Water which the Lessee shall be entitled to receive annually is hereinafter referred to as the "Leased Water." The parties

recognize that, simultaneously with the execution of this Lease, the City has leased the right to receive two hundred acre feet of its Fully Consumable Water to Loveland Ready Mix and that the City may, in the future, lease additional portions of its Fully Consumable Water to persons other than Lessee. The Lessee's right to receive one hundred acre feet of the City's Fully Consumable Water pursuant to this Lease shall be equal to the right of Loveland Ready Mix to receive its two hundred acre feet of Fully Consumable Water such that in the event less than three hundred acre feet of Fully Consumable Water is available in any year, Lessee and Loveland Ready Mix shall each be entitled to receive a proportionate share of the available Fully Consumable Water. The right of Lessee to receive one hundred acre feet of the City's Fully Consumable Water under this Lease shall be deemed to be a first right relative to all others, such that in the event the available Fully Consumable Water in any year is in excess of three hundred acre feet but is not sufficient to meet the needs of all persons holding leases of Fully Consumable Water, Lessee shall receive up to its entire one hundred acre feet allotment from the first three hundred acre feet of Fully Consumable Water available.

3. In consideration of the right to receive the Leased Water, Lessee shall, upon execution of this Lease, pay City the sum of Two Hundred Twenty Thousand and 00/100 ($ 220,000.00) Dollars in certified funds. By entering into this Lease with the Lessee, the City is and shall be under no obligation to file an application for a change of water rights or for a plan of augmentation concerning the use of the Leased Water by the Lessee.

The City shall not be responsible for the implementation of any temporary substitute supply plan or augmentation plan concerning the use of the Leased Water. The cost and expense of any such proceeding shall be that of the Lessee. The City agrees to furnish sufficient Leased Water so that, subject to the provisions of this Agreement, the net usable first use or subsequent use water obtained by the Lessee shall be 100 acre feet. The City shall not be obligated to deliver Leased Water to Lessee unless Lessee shall have first provided written notice to the City that Leased Water will be required in a given year by April 1 of the preceding year.

The City shall deliver the Leased Water under this Lease in a total annual quantity as specified by the Lessee and at specific monthly delivery times and in specific monthly quantities according to the evaporation table, attached hereto as

Exhibit A, or as otherwise agreed by the City and the Lessee in writing. In no event shall the monthly deliveries exceed the monthly amounts shown on Exhibit A unless hereafter agreed in writing by the City and the Lessee.

The Lessee shall not have the right to carryover from month to month or from year to year any Leased Water which was deliverable, but not requested for delivery, in a prior time period. If the maximum allowable delivery under this Lease is not requested by Lessee in any month, the right of Lessee to call for the delivery of such water shall lapse and all such water shall remain the sole property of the City.

4. In supplying the Leased Water pursuant to this Lease, the City may use any water, including, but not limited to the following sources of water which may be used to extinction (the "Fully Consumable Water"):

a. Native water from the Big Thompson River basin which, when stored within the City's reservoir system, may be totally consumed pursuant to the terms and conditions of the Decree for Change of Water Rights for the City of Loveland, dated June 18, 1985, Case No. 82-CW-202A, Water Court Division One, State of Colorado or subsequent actions; and

b. Water under an Allotment Contract with the Municipal Sub-District of the Northern Colorado Water Conservancy District (the "Northern District"), commonly known as Windy Gap Water; and

c. Any water subsequently acquired by the City and determined by Water Court Decree to be totally consumable.

5. The City shall have the right to deliver the Leased Water to Lessee from any of the sources of Fully Consumable Water, at the City's sole discretion, and shall have the right to determine if any or all of the Leased Water shall be first use water or subsequent use water. The City shall never be required to deliver first use water, even if it is the only Fully Consumable Water available to meet the terms of this Lease. In the event the only water available to the City to meet the terms of this Lease is first use Windy Gap Water and the City is willing to deliver such first use water, the City shall notify the Lessee prior to delivering such water and the Lessee shall

change at least thirty days prior to the start of the new five year period. In the event the Lessee does not require the delivery of any of the Leased Water in a given year, there shall be no administrative costs charged. The City shall invoice the Lessee for the annual administrative costs in January of each year and Lessee shall pay said costs within thirty days of the invoice date. In the event the Lessee shall fail to pay its accrued administrative costs in any year, the City shall have the right, in addition to any other legal or equitable remedies it may have, to refuse to deliver the Leased Water until such time as all accrued administrative fees have been paid in full.

8. At the option of the City, delivery of the Leased Water shall be made at the City's Waste Water Treatment Plant, 700 South Boise Avenue, Loveland, CO, or at such other downstream location or locations above the Lessee's original point of need as agreed by and between the Lessee and City in writing. Lessee shall not unreasonably withhold its approval of any request by the City to move the point of delivery.

9. Subject to the provisions of paragraph 5, the City shall only be obligated to deliver the Leased Water to the Lessee if water meeting the requirements of this Lease is reasonably available to the City. In the event of a drought or other conditions, restrictions or emergency situations beyond the control of the City which limit the City's ability to receive or deliver all or a portion of the Leased Water to the Lessee, the City shall be relieved of its obligations to deliver such water under the terms of this Lease until such time as conditions permit the City's receipt and delivery of the Leased Water.

10. The Lessee shall take the Leased Water AS IS and the City makes no express or implied warranties of any kind or nature, including the warranties of merchantability or fitness for a particular purpose, concerning the water quality of the Leased Water.

11. In the event the Lessee wishes to assign, encumber or exchange its rights to receive all or any portion of the Leased Water not already used to satisfy a temporary substitute supply plan or permanent augmentation decree to a third party, the City shall have the first right of refusal to reacquire said rights. In such event, Lessee shall notify the City in writing and shall provide the City with a copy of the signed agreement between the Lessee and the third party. The City shall have the right to reacquire the water rights within ninety days from receipt of the notice, by informing Lessee of its intent to exercise its first

If to Lessee, to:
Coulson Excavating Company
3609 North County Road 13
Loveland, Colorado 80538

14. No alteration or other modification of this Lease shall be effective unless such modification shall be in writing and signed by the parties.

15. In the event any portion of this Lease should become invalid, the remainder of the Lease shall remain in full force and effect.

16. This Lease shall be governed by and construed in accordance with the laws of the State of Colorado. This Lease shall inure to the benefit of, and be binding upon, the successors in interest of the respective parties.

IN WITNESS WHEREOF, the parties have executed this Lease on the day and year first above written.

CITY OF LOVELAND

Kathleen G. Gilliland
Mayor

CITY OF LOVELAND SEAL COLORADO

ATTEST:

City Clerk

APPROVED AS TO FORM:

Jane S. Brautigam
City Attorney

LESSEE
COULSON EXCAVATING COMPANY

Coulson Excavating Company Inc.
By: Richard Coleman
Its: President

ATTEST:

Diana Montgomery
Secretary

ADMINISTRATION PROTOCOL
Augmentation Plan Accounting
Division One – South Platte River

This protocol establishes the accounting and reporting process required to enable the division engineer's office to confirm that depletions from all out-of-priority diversions are being replaced so as to prevent injury to vested water rights. The accounting must comport with established "cradle to grave" accounting standards, which allow an audit of the information to track exactly how the data is manipulated as it is translated from raw input data to the resultant impact on the river. While this protocol is subordinate to any decreed language addressing specific accounting requirements, it generally addresses the minimum requirements of such accounting.

The accounting must use the standard convention where a depletion is "negative" and an accretion or other replacement source is "positive". The sum of the impacts will then result in either a "negative" or "positive" impact on the stream.

Wells in plans that have a negative stream impact must provide additional replacement water, curtail pumping or both until the impact is no longer negative. Plans with a negative stream impact that fail to curtail pumping will be ordered to stop pumping until such time as the projected impact of the wells is no longer negative.

1. Accounting must be submitted electronically to the water commissioner (call 970-352-8712 to obtain email address) and division engineer at Div1Accounting@state.co.us within 30 days of the end of the month for which the accounting is being submitted.
2. The accounting must provide the **contact information** including name and address for:
    a. the owner(s) of each well
    b. the person responsible for submitting the accounting
    c. the plan administrator and/or the plan attorney.
3. All **input data** must be in one location, such as an "Input" worksheet, etc. The accounting must show all pumping. Input data includes the information listed below.
    a. The required input data for each **well** is:
        i. the monthly meter reading for wells that use a **presumptive depletion factor** (PDF) to determine the associated consumptive use (CU); or
        ii. the monthly CU in acre-feet (AF) for wells that have a decree or approved SWSP that allows the wells to use a **water balance methodology** to determine the CU of the well. The analysis used to determine the CU must be included with the accounting.
        iii. Wells that are decreed as an **alternate point of diversion** (APOD) to a surface water right must report pumping on a daily basis if any of the diversion during the month is claimed as being "in priority". (See *Administration Protocol – APOD Wells* for more details.)

iv. The well meter serial readings for each meter shall be included if there is more than one meter on a well.

b. Each **recharge site** must comply with the *Administration Protocol - Recharge* and must report the:

i. daily volume in AF diverted into the site;

ii. monthly volume in AF released from the site;

iii. monthly net evaporative loss in AF;

iv. volume of water in AF remaining at the end of the month.

c. The accounting must identify each source of **fully consumable replacement water** actually delivered to the location impacted by the depletions. To demonstrate the water was actually delivered to the required location will require the following information:

i. the originating source of the water, date released and volume of water released;

ii. transportation losses to point of diversion or use, if any, using stream loss factors approved by the water commissioner;

iii. the volume of water actually delivered on a daily basis past any surface water diversion that was sweeping the river as corroborated by the water commissioner.

(See *Administration Protocol – Delivery of Water* for more details on delivering water.)

d. For each source of **replacement water that has been "changed"** for use as a source of augmentation, such as changed reservoir shares, ditch bypass credits or credits from dry-up, etc., the following input information must be reported:

i. the basis and volume of the return flow obligation;

ii. the location the changed water was historically used; this will be the location used to determine the timing of the return flow impact on the river.

4. The accounting must include a monthly **projection** of the plan's operation at least through March 31 of the next calendar year.

5. The accounting must include all input and output files associated with **modeling the delayed impact** of diversions. The output from the modeling must report to a summary table that shows, by month, the ongoing depletions associated with pumping, return flow obligations, etc. and accretions from recharge operations.

6. A **net impact** summary must show the out-of-priority depletions, accretions from each recharge site, volume of replacement water actually delivered to the location of the depletions and the resultant net impact on **a daily basis**. If necessary, the net impact must be done by river reach.

   While **modeling** may use a **monthly step function** to determine the depletions from pumping and accretions from recharge, the monthly result must then be **divided by the number of days in the month** in order to **simulate a daily impact**, as water rights are administered on a daily and not monthly basis.

Replacement water must be provided such that the **daily net impact** (using the simulated daily numbers from the modeling) **is not negative**. If a well is out-of-priority for 15 days during a month, replacement must be made only for the 15 days the well is out-of-priority. The replacement must be made, however, on a daily basis as opposed to, for instance, making an aggregated release equal to the volume of the out-of-priority depletions. Likewise, the simulated daily accretion will only count toward replacing the depletion on the days the well is out-of-priority. The accretions that report to the river when the well is in priority cannot be used to replace the out-of-priority depletions.

The **accretions that impact the river when the well is in priority** are not considered "excess" unless the cumulative net impact of the well is not negative for the entire irrigation year to date. (The irrigation year for this purpose is April 1 thru the following March 31.) Until such time as the cumulative net impact is not negative, the accretions must simply be released to the river and cannot be leased to other plans or recaptured. Plans that show a positive cumulative net impact are still required to make replacements on a daily basis; the cumulative analysis only effects whether or not accretions reporting to the river when the well is in priority are considered "excess" and are, therefore, able to be recaptured.

7. The basis for determining that the depletions are **out-of-priority** must be clearly established and all steps in the calculation included in the accounting. The analysis may be done, unless otherwise limited by decree, for each well or groups of wells, provided the most junior water right associated with the group of wells is used as the reference water right for the group's out-of-priority status.

8. Accounting must include **actual information** for the irrigation year through the month for which the accounting is being submitted **AND projections** of the plan operation through March 31 of the next calendar year.

9. The following **naming convention** must be used for all files submitted pursuant to item 1:

   "Plan**WDID**_YYMMDD"

   where: PlanWDID is the WDID assigned by the division engineer's office
   YYMMDD corresponds to the date the accounting is submitted.

   As an example, the assigned WDID for the former GASP plan was 0103333. If accounting using Excel® was submitted for that plan on May 15, 2004, the file name would be:

   "0103333_040515.xls"

   The name of the file must be in the subject line of the email.

10. All accounting must be reported using the **WDID** for the structure, at a minimum. Other information such as well name, permit number, etc. may also be included as desired. <u>All wells must be decreed by the water court, permitted by the state engineer or included in a decreed plan for augmentation</u>. Unregistered and undecreed wells cannot, in the opinion of the division engineer, be effectively administered because of the need to know the location, allowable diversion rate and use of the well - information that is only available from the decree or permitting process.

11. If a well is covered in multiple SWSP's or augmentation plans, the monthly meter readings must be the same in the accounting for each plan covering the subject well. The accounting for every plan covering the well shall state the proportionate pumping amount covered by each plan to assure all out-of-priority depletions are replaced.

12. The following additional accounting is required for sources of replacement water used for more than one plan. The water right owner of the replacement water is responsible for accounting for the total replacement amount and how much each plan is using of that total amount. The accounting for portions of the replacement water by other users must match the accounting of the water right owner. The amount of replacement water used by the water right owner and other users together shall not exceed the total replacement amount available.

    (See *Administration Protocol – Use Of Unnamed Sources For Replacement* for additional requirements concerning required notice and approval of sources of replacement not specifically described in a SWSP or augmentation plan*)*

ADMINISTRATION PROTOCOL
Dry-Up of Irrigated Land
Division One – South Platte River

As required by either a decreed change of water rights or a substitute water supply plan, a source of irrigation water may be either permanently or temporarily removed from a parcel of land in order to make the historical consumptive use portion of that water supply available for other uses, typically augmentation. This protocol addresses the documentation required to administer the effective "dry-up". To the extent that one or more of the following directives are in direct contradiction with a decree of the court, the terms of the decree must be followed.

Permanent Dry-up Covenant

1. Must be decreed by the court.
2. Must be filed with clerk and recorder's office for the county wherein the land is located.
3. Must email a GIS shapefile to Div1Accounting@state.co.us that includes case number, WDID, and total acreage permanently dried-up, along with any accompanying metadata. The shapefile must be in NAD83 datum, UTM projection, Zone 13North.
4. Must address the issue of noxious weeds as required by §37-92-305(4.5)(a), C.R.S. and/or other county or local ordinances. (DWR is not authorized to administer the issue of noxious weeds; this statement is, therefore, simply informational).

Temporary Dry-up Agreement

1. May be made for a term that is not less than one irrigation season.
2. Unless otherwise stated in the approved SWSP, a written notification, reporting land of intended dry-up, must be submitted prior to April 1 of each irrigation season to the division engineer, water commissioner and Div1Accounting@state.co.us. Along with the written notification, a GIS shapefile reflecting the land of intended dry-up must be submitted. The shapefile must be emailed to Div1Accounting@state.co.us. The shapefile shall include case number, WDID, and acreage of dry-up, along with any accompanying metadata. The shapefile must be in NAD83 datum, UTM projection, Zone 13North.
3. Unless otherwise stated in the approved SWSP, a written affidavit, affirming land actually dried up, must be submitted prior to October 31 of each irrigation season to the division engineer, water commissioner and Div1Accounting@state.co.us. Along with the written affidavit, a GIS shapefile, reflecting the dried up acreage proclaimed in the affidavit, must be submitted. If the submitted affidavit indicates that the intended and actual dry-up acreages are identical, then no GIS shapefile is required. The shapefile must be emailed to Div1Accounting@state.co.us. The shapefile shall include case number, WDID, and acreage of dry-up, along with any accompanying metadata. The shapefile must be in NAD83 datum, UTM projection, Zone 13North.
4. Once written notice has been made to the division engineer and/or water commissioner, the dry-up requirement is irrevocable during the current irrigation season regardless of whether or not the water associated with the historical consumptive use is actually used.