TTG TST
CONSULTING ENGINEERS

GREATROCK NORTH WATER AND SANITATION DISTRICT
ENGINEER'S REPORT
October 28, 2013

System Development Fee Analysis

Attached are two items:

1) System Development Fee Analysis summary distributed at the October Board meeting, and
2) Memo regarding Area Water Service Fees

I can address any questions the Board members or staff may have regarding these items at the November Board meeting.

Concentrate Disposal and Evaporation Options

Reclassification of Box Elder Creek

I have discussed a couple of reclassifications with Andrew Ross, of WQCD's Standards Unit. Mr. Ross is gathering information for me to review for a stream reclassification associated with a discharge from the Keenesburg lagoons. Mr. Ross also suggested I contact Blake Beyea, of WQCD's Standards Unit, in pursuit of information for a stream reclassification associated with a discharge from the Kit Carson lagoons.

Concentrate as a Dust Suppressant

I have pursued contacts with Adams County and Weld County for consideration of our concentrate as a dust suppressant.

1) Mark Russell, a Permit Administrator for Adams County, suggested I contact Anthony Zamora, of the Public Work Transportation Department. I have left messages for Mr. Zamora to contact me.
2) Mike Livingood, of Weld County's Public Works Department, has suggested I contact Curtis Hall, of Public Works Operations. I have left a message for Mr. Hall. I have also attached a brochure regarding Weld County's "Dust Control and Road Acceptance Policy". Please read the section of "Dust Control" for possible discussion at the November board meeting.

Blending to Improve Water Quality

Attached is a spreadsheet that summarizes the September 2013 water production, treatment, and distribution to estimate the anticipated TDS concentration of 687 milligrams per liter. This value is not far from the result (694 mg/l) of the September 23 sample from the Box Elder Creek Ranch pump station.

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The compilation of this spreadsheet has raised a couple of questions that I need to review with Jeff Rabas, but it results in a model that allows me to project TDS concentrations going forward based upon modifications to the blending scenarios.

I can address any questions the Board members or staff may have regarding these items at the November Board meeting.

Generator Alarm Relays for Box Elder Creek Ranch and Greatrock North

Cummins Rocky Mountain has quoted a not-to-exceed price of $850 per site to install alarm outputs (analog/relay) in each generator control panel, but this price does not include the installation of the conduit and wiring for the proposed generator alarm relays. I have requested a quote from TLECC to install the conduit and wiring and address programming for the proposed generator alarm relays for Box Elder Creek Ranch and Greatrock North. The Rocking Horse Farms generator, serviced by Wagner Power Systems, has been more difficult to resolve due to its age.

2014 Water Rates Analysis

I have initiated an analysis of the 2014 water rates and will be prepared to discuss my findings at the November Board meeting, taking into consideration information developed during the October 29 Budget Workshop.

Other Activities

- 2014 Budget meetings
- Customer relations – Rainey's concentrate conveyance line cleanout (16271 Rayburn Street)
- Rocking Horse Farms fire pump inspection coordination
- EDOP status follow-up with Solid Waste and Materials Management Program
- Newsletter article on water treatment changes and expectations

GREATROCK NORTH WATER AND SANITATION DISTRICT
SYSTEM DEVELOPMENT FEE ANALYSIS

		System Development Fees		
	Cost	BECR	RHF	GN
Wells				
Alluvial (2)	$ 150,000	$ 64	$ 138	$ 145
UKA (3)	$ 420,000	$ 296	$ 632	$ 668
LFH (3)	$ 750,000	$ 119	$ 654	$ 496
Treatment				
RO WTP	$ 1,375,200	$ 1,174	$ 2,505	$ 2,648
Conc. Ponds (2)	$ 1,300,000	$ 989	$ 2,082	$ 2,186
Storage				
BECR (S)	$ 489,000	$ 1,530	$ -	$ -
RHF	$ 367,000	$ -	$ 3,902	$ -
GN	$ 500,000	$ -	$ -	$ 3,817
BECR (N)	$ 436,000	$ 425	$ 950	$ 950
Pump Stations				
BECR	$ 248,750	$ 303	$ 674	$ 674
RHF	$ 238,125	$ -	$ 2,533	$ -
GN	$ 105,435	$ -	$ -	$ 805
Transmission/Distribution				
Transmission (wells and augmentation)	$ 242,000	$ 520	$ 520	$ 520
Distribution (supply)	$ 487,550	$ 1,040	$ 1,040	$ 1,040
	Subtotal	$ 6,460	$ 15,630	$ 13,949
Mechanical & Electrical	12%	$ 775	$ 1,876	$ 1,674
Instrumentation & Control	5%	$ 323	$ 782	$ 697
	Subtotal	$ 7,558	$ 18,287	$ 16,320
Contingency	10%	$ 756	$ 1,829	$ 1,632
Subtotal (Construction Costs)		*$ 8,314*	*$ 20,116*	*$ 17,952*
Planning & Design	10%	$ 831	$ 2,012	$ 1,795
Project Administration	10%	$ 831	$ 2,012	$ 1,795
	Total	$ 9,977	$ 24,139	$ 21,543
System Development Fee Computed (/SFE)		**$ 9,977**	**$**	**22,627**
		BECR	**RHF and GN**	

	SFEs Current	SFEs Buildout	Ann. Avg. Usage GPMo/Home
BECR (F1-3)	179	243	4,960
RHF	94	94	10,586
GN	130	131	11,189

TST
CONSULTING ENGINEERS

MEMORANDUM

TO: Lisa Johnson, District Manager

FROM: Brad Simons

RE: Greatrock North Water and Sanitation District
Area Water Service Fees

DATE: October 23, 2013

TST PROJECT NO.: 0148001.00

In accordance with recent direction, I have surveyed a number of water providers in the area of the District regarding service fees and charges. Following is a summary of my findings:

City of Brighton

The City of Brighton charges $8,400 (with water rights) for its water plant investment fee. The water plant investment fee is comprised of a water system improvements fee and a water resource fee. The water system improvements fee is utilized to reimburse the City for its costs in providing improvements to the City's water system, including wells, raw water transmission lines, water treatment, water storage, pumping and treated water transmission lines. The water resource fee is utilized to recover the costs to the City of acquiring sufficient and satisfactory water rights to serve property.

The City also has tap fees ($66 for a ¾-inch tap size) charged for the right to physically connect to a water distribution line.

Finally, the City recognizes non-potable water systems which have been approved for the provision of non-potable water or irrigation. Such dual systems are eligible for a reduction in the water plant investment fees based upon an analysis of many factors.

Water charges are $9.86 per month for a Monthly Fixed Charge, plus:

- Volume Based Charges
  - $4.09 per 1,000 gallons (0 to 25,000 gallons)
  - $4.49 per 1,000 gallons (26,000 to 30,000 gallons)
  - $4.69 per 1,000 gallons (31,000 to 35,000 gallons)
  - $5.11 per 1,000 gallons (36,000 to 40,000 gallons)
  - $5.51 per 1,000 gallons (Over 40,000 gallons)

Town of Hudson

The Town of Hudson's website has a "2013 Fee Schedule" posted:

- Water Tap Fee
  - Residential Connection Fee of $1,022.40 per unit
  - Residential Plant Investment Fee of $1,704.01 per unit

Water charges are $14.35 per month for Base User Charge, plus:

- Volume Based Charges
  - $3.43 per 1,000 gallons (0 to 5,000 gallons)
  - $3.72 per 1,000 gallons (6,000 to 12,000 gallons)
  - $4.14 per 1,000 gallons (Over 12,000 gallons)

South Adams County Water and Sanitation District

Currently, the District has over 16 different connection fee schedules based upon numerous water resource agreement, dual water systems, as well as the location of the property with the District's boundaries. Each Water Connection Fee can range from $6,756 to $25,037 and include a number of components, including:

- System Development Charge – The charge collected to pay for existing and planned water systems.
- Water Resource Development Fee – The fee collected for the development of water supplies.
- Meter Charge – The cost of the meter and meter installation only.
- Tap-In Charge – A component of the Water Connection Fee that pays for the costs of installing and/or inspecting water service and/or meter connection.

Water charges are $6.90 per month (5/8-inch meter) and $19.00 per month (3/4-inch meter) for Monthly Water Service Fees, plus Residential Water Charges of:

- $3.75 per 1,00 gallons (1,000 to 11,999 gallons)
- $3.95 per 1,000 gallons (12,000 to 17,999 gallons)
- $4.85 per 1,000 gallons (18,000 to 29,999 gallons)
- $7.30 per 1,000 gallons (30,000 to 45,999 gallons)
- $10.75 per 1,000 gallons (46,000 gallons and over)

Town of Lochbuie

The Town of Lochbuie has a number of fees associated with its water system identified in its Municipal Code. In all cases, the current fee schedules are set by resolution of the Board of Trustees. I have left messages with the Town Manager and Town Clerk in an effort to obtain the current fee schedules for:

- Plant Investment Fee
- Water Resource Development Fee
- Water Tap Fee
- Water Tap Inspection Fee
- Water Meter Fees
- Meter Pit Fees

Water charges are $40.07 per month (5/8-inch meter) and $59.01 per month (3/4-inch meter) for Base Rate Charge, plus a Water Usage Charge of $3.79 per 1,000 gallons.

Summary

As you can see from this survey, each entity approaches their system of fees and charges differently.

Please contact me if you have any questions.

Road Acceptance Policy

Weld County does not maintain private roads, lanes or driveways. Sponsors desiring Weld County to maintain a road, shall first address the request to the Board of County Commissioners for their consideration during the Monday and Wednesday scheduled business meetings held at 915 10th ST Greeley, CO 80622.

Sponsors are responsible for the entire cost including notification of adjacent landowners and right-of-way purchase. The road must meet the following minimum conditions:

1. The road width shall be a minimum of 26 feet of graveled surface or meet the minimum design guidelines for the anticipated traffic on the roadway segment being considered.

2. The road right-of-way shall be secured to the satisfaction of Weld County.

3. The road right-of-way shall be clearly staked and flagged for construction by a licensed land surveyor.

4. The width of the right-of-way cannot be less than 60 feet.

5. The road shall serve a minimum of 3 legal lots, which must have residential dwellings.

Properties abutting an already existing road do not count toward the three lots.

6. The roadway cross slope/crown, from centerline, shall not be less than three percent.

7. All road side ditches shall be sufficient to carry the five-year storm and all cross road drainage shall be sufficient to carry the ten-year storm.

8. Ditches shall be a minimum of 24 inches deep with 3:1 side slopes and graded to provide adequate drainage.

9. A minimum of 4 inches of compacted gravel meeting Colorado Department of Transportation specifications for Class VI material must be provided on the traveled surface. The subgrade shall be compacted to 95% of AASHTO Standard, Proctor T-99 (Method A). The Department of Public Works shall test and inspect the roadbed subgrade for structural adequacy and acceptable materials.

10. The road cannot be fenced or gated. If cattle have cross access to the roadway, a cattle guard shall be installed in accordance with Weld County cattle guard policy.

11. If a fence exists along the section line on which the road is to be built, relocation of the fence to the road right-of-way lines shall be the responsibility of the sponsor.

Dust Control and Road Acceptance Policy

Weld County
Public Works

1111 H Street
PO Box 758
Greeley, CO 80632

Tel: (970) 304-6496

Dust Control

Weld County Dust Control

Growth throughout Weld County has led to increased vehicular traffic on all roadways under the county's jurisdiction resulting in dissatisfaction with the levels of dust caused by vehicles traveling the unpaved roadways. Therefore, Weld County will make reasonable efforts, within budgetary constraints, to comply with regulations established by the State Air Quality Control Commission regarding this issue. Generally the regulations state that unpaved roadway segments that maintain an Annual Average Daily Traffic (AADT) volumes exceeding 200 vehicles per day may qualify for a form of mitigation to inhibit fugitive dust. (See County Code Sec. 8-6-100 for more details)

AADT counts will be taken, on average, every three years for approximately 1500 miles of gravel roadway segments in areas of Weld County which are determined to have significant growth trends. When the 48 hour counts indicate raw traffic volumes are near or more than 200 vehicles per day, the counters will remain in place for up to 72 consecutive hours.

If the AADT count exceeds 200 vehicles per day, the roadway segment will be recounted in 90 days to confirm the original count.

Private Application Dust Control

At the expense of property owners roadway segments with AADT volumes below 200 vehicles per day may also be treated for fugitive dust. The following conditions apply.

Landowner or applicator must contact the Weld County Public Works Department to coordinate the application of dust control.

All dust control agents used on county roads shall be approved for use by the Weld County Health Department and the Department of Public Works. Materials currently approved for use include: potable or natural ground water, magnesium chloride, and calcium chloride. Weld County reserves the right to add or delete materials from the approved list at anytime without prior notice. Petroleum products and used oil that contain naphtha or other combustible material may not be used.

Weld County will make every effort not to disturb the section of road that has been treated with dust control chemicals unless it is necessary to restore a reasonable roadway surface for the traveling public.

Dust control chemicals must be applied in such a manner that will not contaminate any waters of the State. Therefore, any materials that may wash from the roadbed will not be suitable.

It is the County's decision at what point the roadway must be graded or gravel applied to restore a safe roadway surface. Weld County is not responsible for reapplying dust control chemicals.

Weld County will grade the roadbed prior to the application of dust control chemicals at no cost to the landowner.

September 2013 Water Production, Treatment, and Distribution

	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
8	Est. TDS							Est. TDS		Est. TDS					
9	700	900						100		400	475				
10	ALV-1	ALV-2	ALV	RO BP	%	RO Feed	RO Conc	RO Perm	%	UKA3	UKA1	UKA	%	To BCER Tanks	Calc. TDS
11	-	174,833	174,833	173,835	65	998	248	750	0	9,647	84,838	94,485	35	269,070	749
12	-	140,970	140,970	141,633	66	(663)	(164)	(498)	(0)	7,250	67,478	74,728	35	215,863	749
13	192,303	-	192,303	185,436	65	6,866	1,704	5,163	2	9,324	83,196	92,521	33	283,120	630
14	-	162,925	162,925	161,959	65	966	240	726	0	8,834	78,479	87,313	35	249,998	750
15	-	128,519	128,519	129,085	66	(566)	(140)	(425)	(0)	6,600	61,429	68,029	35	196,689	750
16	187,854	-	187,854	181,145	65	6,709	1,665	5,044	2	9,147	81,243	90,390	33	276,579	630
17	133,459	-	133,459	129,944	66	3,515	872	2,643	1	6,112	57,339	63,452	32	196,039	629
18	-	177,414	177,414	176,429	65	985	244	740	0	9,706	85,792	95,498	35	272,667	750
19	-	162,272	162,272	162,989	66	(717)	(178)	(539)	(0)	8,349	77,486	85,835	35	248,285	750
20	72,307	-	72,307	68,564	64	3,743	929	2,814	3	3,731	31,605	35,337	33	106,715	632
21	-	63,873	63,873	62,188	63	1,685	418	1,267	1	3,771	31,598	35,370	36	98,825	750
22	10,085	-	10,085	7,854	53	2,230	553	1,677	11	621	4,740	5,361	36	14,892	653
23	78,155	-	78,155	76,133	65	2,022	502	1,520	1	4,086	35,290	39,375	34	117,028	626
24	-	15,709	15,709	13,972	57	1,737	431	1,306	5	1,040	8,338	9,377	38	24,656	756
25	-	83,568	83,568	83,811	64	(243)	(60)	(183)	(0)	4,876	42,490	47,366	36	130,994	743
26	63,246	-	63,246	59,827	63	3,419	848	2,570	3	3,457	29,348	32,806	34	95,203	629
27	-	15,696	15,696	13,948	56	1,747	434	1,314	5	1,044	8,392	9,436	38	24,699	756
28	-	92,990	92,990	93,376	64	(386)	(96)	(290)	(0)	5,441	47,707	53,148	36	146,233	742
29	68,768	-	68,768	65,103	63	3,665	909	2,755	3	3,751	32,120	35,871	35	103,730	628
30	-	14,304	14,304	12,581	56	1,724	428	1,296	6	965	7,706	8,670	38	22,547	756
31	-	117,565	117,565	118,133	64	(568)	(141)	(427)	(0)	6,836	60,022	66,858	36	184,564	742
32	91,477	-	91,477	87,366	63	4,111	1,020	3,091	2	4,928	42,421	47,349	34	137,806	627
33	-	69,882	69,882	68,529	62	1,353	336	1,017	1	4,241	36,084	40,325	37	109,871	745
34	12,646	-	12,646	10,448	55	2,198	545	1,653	9	781	6,183	6,965	37	19,065	643
35	117,475	-	117,475	114,495	65	2,980	739	2,240	1	6,211	54,383	60,594	34	177,329	625
36	-	61,925	61,925	60,520	62	1,405	349	1,057	1	3,825	32,497	36,321	37	97,898	744
37	63,673	-	63,673	60,103	63	3,571	886	2,685	3	3,514	29,718	33,231	35	96,019	629
38	-	15,843	15,843	13,955	56	1,888	469	1,420	6	1,058	8,490	9,548	38	24,923	757
39	-	91,796	91,796	92,196	64	(400)	(99)	(301)	(0)	5,412	47,139	52,552	36	144,447	742
40	92,162	-	92,162	88,148	63	4,014	996	3,018	2	5,012	43,071	48,083	35	139,249	627
41	1,183,609	1,590,084	2,773,693	2,713,704	**64**	59,989	14,885	45,105	**1**	149,570	1,316,624	1,466,194	**35**	4,225,002	**687**
42	ALV-1	ALV-2	ALV	RO BP	%	RO Feed	RO Conc	RO Perm	%	UKA3	UKA1	UKA	%	To BCER Tanks	TDS

Colorado Analytical LABORATORIES, INC.

Analytical Results

TASK NO: 130924041

Report To: Wayne Ramey
Company: Ramey Environmental Compliance, Inc.
P.O. Box 99
Firestone CO 80520

Bill To: Wayne Ramey
Company: Ramey Environmental Compliance, In
P.O. Box 99
Firestone CO 80520

Task No.: 130924041
Client PO:
Client Project: Greatrock North W&S District CO 0101063

Date Received: 9/24/13
Date Reported: 9/30/13
Matrix: Water - Ground

Customer Sample ID Box Elder
Sample Date/Time: 9/23/13 3:00 PM
Lab Number: 130924041-01

Test	Result	Method	LQL	Date Analyzed	Analyzed By
Total Dissolved Solids	**694 mg/L**	SM 2540-C	5	9/30/13	ISG

Abbreviations/ References:

LQL = Lower Quantification Limit
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed
SM = "Standard Methods for the Examination of Water and Wastewater"; APHA; 19th Edition; 1995
EPA = "Methods of Chemical Analysis of Water and Wastes"; USEPA; EPA-600/4-79-020 Rev 3/83

DATA APPROVED FOR RELEASE BY

240 South Main Street / Brighton, CO 80601-0507 / 303-659-2313
Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507 / Fax: 303-659-2315

Chain of Custody Form

Colorado Analytical LABORATORIES, INC

Brighton Lab
240 South Main Street
Brighton, CO 80601
Lakewood Lab
12860 W. Cedar Dr, Suite 100A
Lakewood CO 80228

Phone: 303-659-2313
Fax: 303-659-2315

www.coloradolab.com

Report To Information	Bill To Information (If different from report to)	Project Name
Company Name: RKC	Company Name:	Great Rock
Contact Name: Jeff Rabas	Contact Name:	
Address: Po Box 99	Address:	Task Number (Lab Use Only)
City F. Restone State Co Zip 80520	City State Zip	
Phone: 303-833-5505 Fax: 5535	Phone: Fax:	13092404 1
Email:	Email:	Sample Disp. Date(LabUse Only)
Sampler Name: Mike A	PO No.:	

Sample Matrix (Select One Only)

Waste Water ☐	Soil ☐	Plant Tissue ☐
Ground Water ☒	Sludge ☐	Other ☐
Surface Water ☐	Compost ☐	

Date	Time	Sample ID	No. of Containers	Grab	Composite	TDS
9-23-13	15:00	Box elder	1	X		X

Instructions:

C/S Info:

Deliver Via: hand

C/S Charge ☐

Seals Present Yes ☐ No ☒

Temp. 7 °C/Ice Y

Sample Pres. Yes ☒ No ☐

Relinquished:	Date/Time:	Received By:	Date/Time:	Relinquished By:	Date/Time:	Received By:	Date/Time:
Mike Atwood	9-24-13 14:12	MS	9/24/13 1413				