State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF DRINKING WATER
Kenneth H. Bousfield, P.E.
Director

April 13, 2016

Val Surrage
Taylor-West Weber WID
2815 W 3300 S
West Haven, UT 84401-9791

Dear Mr. Surrage:

Subject: **Feasibility Evaluation**, Drinking Water Service for the Henry Flats Cluster Subdivision, Taylor-West Weber Water Improvement District, System #29019, File #10391

The Division of Drinking Water (the Division) received your request concerning the capacity of the Taylor-West Weber Water Improvement District (the District) to provide drinking water service to the Henry Flats Cluster Subdivision. Per the Division's database, the District presently has 1,860 residential connections, 7 commercial connections, and 12 agricultural connections. The Henry Flats Cluster Subdivision will add 12 new residential connections, in addition to the 4 new residential connections with Russel Place Subdivision Phase 2; 9 new connections with the Blue Acres Subdivision Phase 4; 74 new connections with the Winslow Farr Jr. Farm Subdivision; and 19 new connections with the Jaquelin Estates Subdivision.

Generally, the number of service connections that may be served is evaluated based on (1) source capacity, (2) storage capacity, and (3) available water rights. The Drinking Water Rule, *R-109-510* Minimum Sizing Requirements, requires a water system to be able to provide 800 gallons per day per equivalent residential connection (ERC) from its sources to meet peak day indoor demand ("source capacity"), to be able to provide 400 gallons per ERC of storage for indoor use ("storage capacity"), and to be able to provide average yearly indoor demand which is 0.45 acre-feet per ERC based on water rights. Additional source capacity, storage, and water rights are required if the system provides water for outdoor use. The water system component with the least capacity determines the allowable number of connections.

Source Capacity

The District has the following approved drinking water sources and approved safe yields:

Source Number	Source Name	Safe Yield (gallons per minute)
WS001	Big Well	900
WS002	Small Well	500
WS003	Weber Basin WCD Consecutive Connection	2,000
	Total	**3,400**

The District provides outside irrigation water for some of their connections. The attached capacity calculation worksheet estimates the required source capacity is 1,113.3 gpm for indoor use and 1419.7 gpm for outdoor use. Based on the source capacity of 3,400 gpm listed above, the District has excess source capacity. It appears that the District has adequate source capacity to serve the 12 new service connections in the Henry Flats Cluster Subdivision.

Storage Capacity

The District has the following approved storage tanks in service:

Tank Number	Tank Name	Volume (gallons)
ST001	Million Gallon Tank	1,000,000
ST002	2 Million Gallon Tank	2,000,000
ST003	250 K Gallon Tank	250,000
	Total	**3,250,000**

The attached capacity calculation worksheet estimates the required storage capacity is 1,942,608 gallons. This is based on a reserve of 120,000 gallons of water storage for fire suppression, and the balance of the storage being available for indoor and outdoor use storage. It appears the District has excess storage capacity, and has adequate storage capacity to serve the 12-lot Henry Flats Cluster Subdivision.

Water Rights

The District has the following water rights for their sources:

Water Right Number	Amount (acre-feet)
35-1613	788.45
35-11723	930.77
Weber Basin WCD	465.3
Total	2184.52

Our rough estimate of the water rights needed for this water system's indoor and outdoor uses is 1,572.20 acre-feet. It appears that the District has adequate water rights to serve the Henry Flats Cluster Subdivision. However, please consult with Division of Water Rights for detailed interpretation and verification concerning water rights issues.

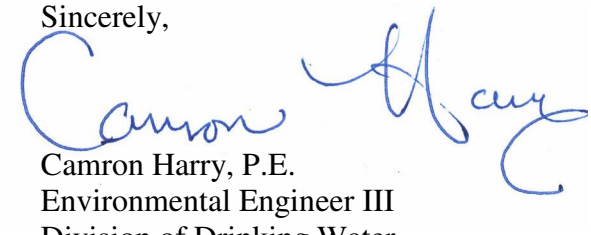
Summary

It appears that the District has adequate capacities in source, storage and water rights to provide drinking water service to the 12-lot Henry Flats Cluster Subdivision.

The District submitted a Project Notification Form on April 11, 2016, and obtained a Plan Review Waiver for this subdivision. The Division has concurred that the construction of this subdivision may proceed once approval is granted by Weber County.

If you have any questions regarding this letter, you can contact me either by phone at (801) 536-0087 or e-mail caharry@utah.gov

Sincerely,



Camron Harry, P.E.
Environmental Engineer III
Division of Drinking Water

Enclosure — Taylor-West Weber WID Capacity Calculation Dated April 12, 2016

cc: Louis Cooper, Env. Director, Weber-Morgan Health Department, lcooper@co.weber.ut.us
Sean Wilkinson, Weber County Planner, swilkinson@co.weber.ut.us
Jared Andersen, P.E., Weber County Engineer, jandersen@co.weber.ut.us
Camron Harry, P.E., Division of Drinking Water, caharry@utah.gov
Dan White, P.E., Gardner Engineering, dan@gardnerengineering.net
Val Surrage, Taylor-West Weber Water, taylorwestweberwater@msn.com

DDW-2016-009134.docx

Division of Drinking Water — Water System Capacity Calculation Sheet (Last Update 2/12/2016)

Enter the green cells only

System Name: Taylor West Weber WID (April 12, 2016) System Number: 29019

1.1 Indoor Water Use

Convert "Number of other connections" (Cell E9) to ERCs here. *[ERCs of other connections = peak day demand of other connections in gal per day / 800 gpd]*

Number of residential connections: 1,985

Number of other connections: 19

ERCs of other connections: 19.0 (Example: water use of 2 factories equals to water use of 55 homes.)

Enter number of non-residential connections, e.g., 2 industrial connections.

Total Equivalent Residential Connections (ERCs): **2,004.0**

MINIMUM REQUIREMENTS FOR INDOOR WATER USE					
Source		Storage		Water Rights	
gpd/ERC	Total (gpm)	Gallons/ERC	Total (gallons)	ac-ft/yr/ERC	Total (ac-ft/yr)
800	**1,113.3**	400	**801,600**	0.45	901.80

1.2 Outdoor Water Use

Enter estimated irrigated acre

Is the drinking water used for outdoor irrigation? ☑ Yes ☐ No

Residential ERCs using drinking water for irrigation: 470

Percentage of Residential ERCs using DW for irrigation: 24%

Average irrigated acreage **per residential connection**: 0.75

Total irrigated acreage of **other connections** (park, school, etc.): 6.00

Enter **total** irrigated acres of **other connections** here.

Irrigation zone: 4

Select Irrigated Zone # **from the pick list**. See "Irrigation Demands & Map" tab on the bottom of the screen.

MINIMUM REQUIREMENTS FOR IRRIGATION USE					
Source		Storage		Water Rights	
gpd/ERC	Total (gpm)	Gallons/ERC	Total (gallons)	ac-ft/yr/ERC	Total (ac-ft/yr)
4,277	**1,419.7**	2,136	**1,021,008**	1.40	670.40

1.3 Fire Flow Water Use

Enter fire flow in gpm.

Does the water system provide fire protection? ☑ Yes ☐ No

Maximum fire **flow** demand (in gpm) for *water system* or *pressure zone*: 1,000

Maximum fire suppression **duration** (in hours) for *water system* or *pressure zone*: 2

Required Fire Suppression Storage (in gallons): **120,000**

Enter duration in hours.

(Verify req'd fire flow and duration with local fire code officials. *Enter notes here, e.g. fire official contact info or comments.)*

2. Summary of Water System Capacity Requirements

MINIMUM CAPACITY REQUIREMENTS FOR WATER SYSTEM					
Source (indoor + outdoor)		**Storage** (indoor + outdoor + fire)		**Water Rights** (indoor + outdoor)	
gpd/ERC	Total (gpm)	Gallons/ERC	Total (gallons)	ac-ft/yr/ERC	Total (ac-ft/yr)
5,077	**2,533.0**	2,536	**1,942,608**	1.85	1,572.20

2.1 Does this system have adequate source capacity (per R309-510-7)?

This source capacity assessment is a general overall system calculation. It may not reflect the variations in individual areas or pressure zones.

Required Source Capacity	2,533.0	***gpm***	Autolink to 2 "Total Source" cell above.
Existing Source Capacity	3,400.0	***gpm***	Autolink to 4.2 "Total Existing Source Capacity" cell below.
Source Capacity Deficit	**None**	***gpm***	Source deficit indicates that: (1) additional source capacity is needed, and (2) source deficiency should be assessed.
Existing % of Total Req'd	**134.2%**		Less than 100% indicates: (1) additional source capacity is needed, and (2) source deficiency should be assessed.

2.2 Does this system have adequate storage capacity (per R309-510-8)?

This storage capacity assessment is a general overall system calculation. It may not reflect the variations in individual areas or pressure zones.

Total Required Storage	1,942,608	***gal***	Autolink to 2 "Total Storage" cell above.
Existing Storage Capacity	3,250,000	***gal***	Autolink to 4.3 "Total Existing Storage Capcity" cell below.
Storage Capacity Deficit	**None**	***gal***	Storage deficit indicates that: (1) additional storage volume is needed, and (2) storage deficiency should be assessed.
Required Fire Storage	120,000	***gal***	
Is storage deficiency solely due to fire storage?	**Not Applicable**		If NO, answer one of question set 2.01 to 2.05 in ESS. If YES, answer one of question set 2.06 to 2.10 in ESS.
Existing % of Total Req'd	**167.3%**		Less than 100% indicates: (1) additional storage capacity is needed, and (2) storage deficiency should be assessed.

3. Transient PWS Indoor Water Use — ERC Calcuation *(See R309-510, Tables 510-1, 2, & 4 for other facility types.)*

Facility Type	MINIMUM REQUIREMENTS FOR INDOOR USE: Source GPD/person*	Source GPD/site or pad	Storage Gallons/person	Storage Gallon/site or pad	ERC/site or pad	Total # of sites/pads	ERCs
Modern Recreation Camp	60	240	30	120	**0.30**	*8*	**2.4**
Semi-Developed Camp *w/ flush toilets*	20	80	10	40	**0.10**	*25*	**2.5**
Semi-Developed Camp *w/o flush toilets*	5	20	2.5	10	**0.03**	*20*	**0.5**
RV Park	N/A	100	N/A	50	**0.13**	*15*	**1.9**

Number of people per camp site *4* ← If applicable, enter number of people per camp site here.

	Source (GPD/vehicle)	Storage (Gal./vehicle)	ERC/1000 vehicles served	Vehicles served/day	ERCs
Roadway Rest Stop *w/ flushometer valves*	7	3.5	8.8	*800*	**7.0**

If applicable, use this number in cell I8 or cell I9 on Page 1.

4. Data Input for Calculating ERCs, Source and Storage

Taylor West Weber WID (April 12, 2016)

4.1 Projected ERCs Calculation (optional)

Total Projected ERCs	**2,103**
Existing Residential Connections	*1985*
Obligated **Future** ERCs *(enter below)*	118

Blue Acres Subdivision	*9*
Winslow Farr Jr Farm Subdivision	*74*
Jacquelyn Estates	*19*
Russel Place Phase 2	*4*
Henry Flats Cluster	*12*

Use this number in Cell I8 ("Number of residential connections") on Page 1 to calculate PROJECTED demand & req'ts (including both existing & future connections).

Per the DDW's database, Taylor-West Weber WID has 1,985 existing residential connections, 7 commercial connections, and 12 agricultural connections. There are 118 new connections in five new subdivisions.

4.2 Summary - Existing Sources *(enter in green cells below)*

Total Existing Source Capacity (in gpm) **3,400**

WS001	*Big Well*	*900*
WS002	*Small Well*	*500*
WS003	*Weber Basin WCD CC*	*2000*

Maximum ERCs (assuming indoor use only) *6120*

Diaphragm or air pressure tanks shall NOT be considered effective storage volume for (1) community systems, or (2) NTNC with significant demand UNLESS an exception has been granted.

4.3 Summary - Existing Storage Tanks *(enter below)*

Total Existing Storage Cap. (in gallons) **3,250,000**

ST001	*Million Gallon Tank*	*1,000,000*
ST002	*2 Million Gallon Tank*	*2,000,000*
ST003	*250 K Gallon Tank*	*250,000*