



October 10, 2022

Mr. Frank Alfone  
Mount Werner Water  
3310 Clearwater Trail  
PO Box 880339  
Steamboat Springs, Colorado 80488

**Re: Water Demand Report  
Lot 1, The Knoll Development Rights Withdrawal and Resubdivision Plat  
Area Subject to Development Rights  
Steamboat Grand Resort Hotel, Steamboat Springs, Colorado**

Dear Mr. Alfone:

Landmark Consultants, Inc. (Landmark) is submitting this Water Demand Report for your review. This report is being submitted in conjunction with Lot 1, The Knoll Development Rights Withdrawal and Resubdivision Plat Preliminary Plat Application (Project). The objective of our study is to quantify and present Mt. Werner Water with an estimated Equivalent Residential Unit value. Based on the assumptions described herein, we recommend that **77 EQRs** be considered at this time.

This report has been prepared using information from the City of Steamboat Springs 2020 Water Distribution and Wastewater Collection Infrastructure Master Plan, conceptual design information shared with Landmark, and serves to document the water and sewer impacts associated with the Project. Please note that additional information about the anticipated project may require an update to this report to align assumptions with actual proposed improvements.

If you have any questions during your review process, feel free to contact us.

Sincerely,

Landmark Consultants, Inc.

A handwritten signature in blue ink, appearing to read "Erik Griepentrog".

Erik Griepentrog, P.E.  
Vice-President



## 1.0 INTRODUCTION, LOCATION, AND METHODOLOGY

This letter is an analysis of water and sewer demands anticipated for Lot 1, The Knoll Development Rights Withdrawal and Resubdivision Plat Preliminary Plat application (the Project). This letter includes all the base data, methods, assumptions, and calculations used by Landmark Consultants, Inc. (Landmark). It was prepared in conjunction with the concurrent Preliminary Plat application submitted for the project.

Landmark prepared this letter in accordance with Section 25-78 of the City of Steamboat Springs Municipal Code for the purpose of quantifying the water demanded and the sanitary sewerage produced per the proposal at the time of this letter. This letter may not be used by other parties without the express written consent of Landmark.

The facts and opinions expressed in this letter are based on Landmark's understanding of the project and data gathered from:

- Plans prepared by Landmark
- The City of Steamboat Springs 2020 Water Distribution and Wastewater Collection Infrastructure Master Plan prepared by Baseline, April 2021 (referred herein as **Master Plan**)
- City and County of Denver Department of Public Works Sanitary Design Technical Criteria Manual, latest revision March 2008.
- Mt. Werner Water Water/Sewer System Maps

The subject property is located within the 'Area Subject to Development Rights' as shown on the Second Supplement to the Condominium Map and Plat of the Steamboat Grand Resort Hotel Condominium (File 13510). On this plat, this area is shown being approximately 4.35 acres and is in the Northeast  $\frac{1}{4}$  of Section 28, Township 6 North, Range 84 West of the 6th Principal Meridian, City of Steamboat Springs, Routt County, Colorado.

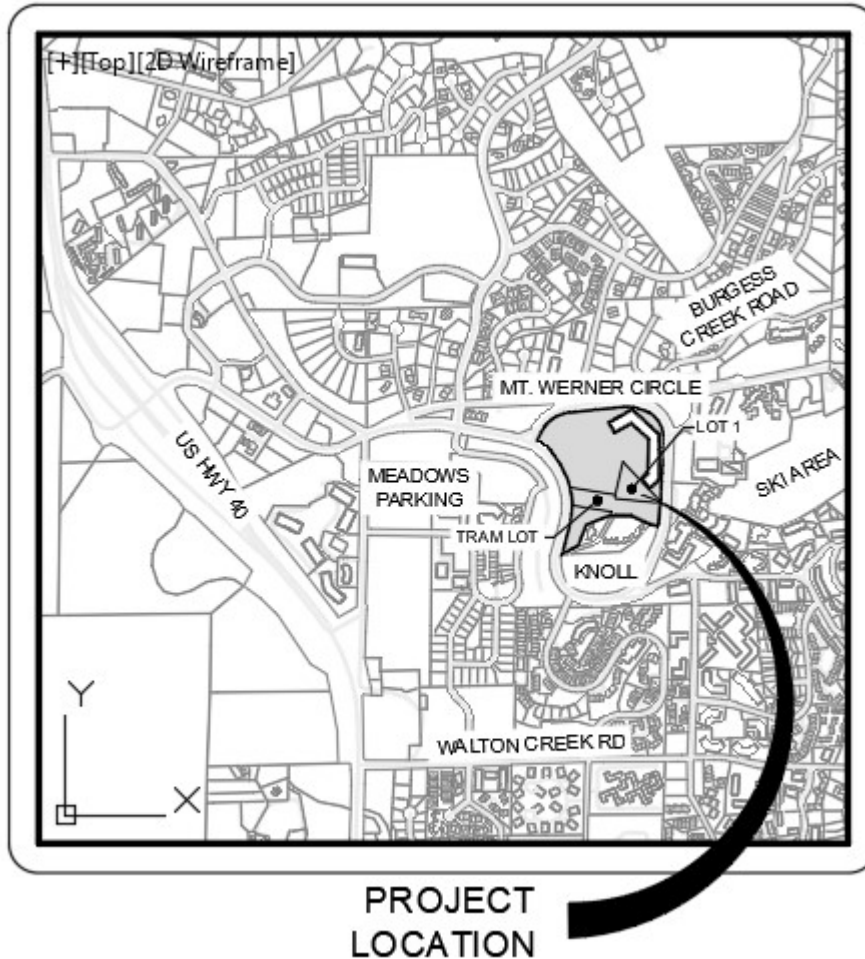
Specifically, the site is located in the center of Mount Werner Circle, south of the Steamboat Grand and north of the West Condominiums. As shown on the accompanying Preliminary Plat, the 'Area Subject to Development Rights' is proposed to be further defined into 2 parcels: Lot 1 and the Tram Lot.

**Lot 1:** This proposed 1.63-acre parcel is zoned RR-1 and is the general location where Phase II of the Grand was anticipated per the approved 1998 Major Development Permit. This vested building approval has since expired. The original 'Area Subject to Development Rights' included an encroachment from a portion of the existing building and underground parking garage. The Preliminary Plat is excluding that encroachment to create a stand-alone development Lot.

**Tram Lot:** The residual portion of the 'Area Subject to Development Rights' is predominately encumbered by an aerial tramway easement (recorded at reception No. 600980). This parcel is being platted to separate it from Lot 1 and will be owned by Steamboat Ski & Resort Corporation (SSRC). Although water and sewer mains are available, utility services are not proposed to be extended to this property, however, irrigation may be requested in the future. Please refer to the **Vicinity Map** for the subject property location:



Figure 1- Vicinity Map



## EQUIVALENT RESIDENTIAL UNIT (EQR) METHODOLOGY

The Master Plan uses the Equivalent Residential Unit (EQR) method as a standard unit of measurement for equating water demands and wastewater flows for different user categories and describes EQR for Steamboat Springs as a 'three-bedroom, 2-bathroom home up to 2,500 sf. (Master Plan, page 9)

For the purposes of this report, Landmark reviewed 2 methods for determining EQRs:

1. Lot area and anticipated density per zoning; and,
2. Information from the developer.

**Method 1:** The property is zoned RR-1. The City of Steamboat Springs' zoning criteria establishes dimensional standards and permitted land-uses. It does not stipulate or regulate density. Based on providing Landmark's experience working in other jurisdictions, we used data from the Town of Windsor's Design Criteria for water and sewer systems that included the following table:

Table 1 – Residential Water Demands\*

## Water Demand Report



Zone	Units per Acre	Max. Day Demand	Peak Hour Demand
E-1	1	0.7 gpm/ac	1.9 gpm/ac
SF-1	6-7	5.0 gpm/ac	13 gpm/ac
SF-2	7-9	6.0 gpm/ac	17 gpm/ac
MF-1	16-18	11 gpm/ac	32 gpm/ac
<b>MF-2**</b>	<b>29-31</b>	<b>20 gpm/ac</b>	<b>57 gpm/ac</b>

\* From Table 1.06.1 Residential Water Demands, Town of Windsor, Colorado

\*\* Closest presumed zoning to RR-1

The Master Plan uses 200 gpd for average day and applies a 2.4 peaking factor to determine max. day, or 480 gpd per EQR.

The following table converts the Town of Windsor Max. Day values to EQRs for this report:

Table 2 – EQRs per Acre

Town of Windsor		
Max Day Demand	Max Day Demand	EQRs (480 GPD)
20 gpm/ac	28,800 GPD/ac	<b>60 EQRs/ac</b>

Lot 1 is proposed to be 1.63-acres, however, there are significant easements that exist, limiting the area to 1.18-acres. To be consistent with the Town of Windsor values, we have not applied lot line setbacks for further reduction in acreage.

Using the adjusted values described in Table 2 and the lot size described above:

1.18-acres x 60 EQR/acre = 70.8. **71 EQRs.**

**Method 2:** Based on preliminary planning efforts, the following unit mix was provided for use in this report:

The Project is proposing a mix of units including 1, 2, 3 and 4 bedrooms (or more) as follows:

Bedroom Type	Proposed Amount	EQR per Master Plan	Resulting EQRs
1 Bedroom	7	1.0 EQR	7
2 Bedroom	20	1.0 EQR	20
3 Bedroom	8	1.0 EQR	8
4 Bedroom (+)	7	1.5 EQR	11
<b>Total EQR</b>			<b>46</b>

For the purposes of site planning, we recommend using the higher of these 2 methods, or **71 EQRs.**



## Irrigation Demands:

According to the Master Plan, “Typical irrigation users like residential and commercial customers account for irrigation demands within the 200 gpd allocation (EQR)” and therefore Landmark applied no additional considerations for Lot 1.

The Tram Lot is unusual in that it is almost entirely encumbered by the Aerial Tramway Easement which may effectively restrict traditional development. We cannot predict the introduction of landscaping or other triggers for an irrigation system and have therefore included considerations if such a request arises.

For the purposes of this report, and in the absence of clear precedent for direction, Landmark used the Town of Windsor’s low-density Estate (E-1) value:

Town of Windsor		
Max Day Demand	Max Day Demand	EQRs (480 GPD)
0.7 gpm/ac	1,008 GPD/ac	<b>2.1 EQRs/ac</b>

The proposed Tram Lot is 2.68-acres:

2.68-acres x 2.1 EQR/acre = 5.6.                      **6 EQRs.**

## Conclusion:

For the purposes of evaluating impacts to the Mt. Werner Water system, we recommend using the following estimated EQR:

Lot 1	71 EQR
Tram Lot	6 EQR
<b>Total:</b>	<b>77 EQR</b>

## LIMITATIONS

This study is intended to estimate anticipated future water and sewer demands that could result from full buildout on the proposed subdivision in order for Mt. Werner Water and the City of Steamboat Springs to evaluate existing infrastructure capacities and review future capital improvements. It does not account for inflow and infiltration.

Landmark’s assumptions, recommendations and opinions are based on the information described herein – discrepancies may exist. If any of the data is found to be inaccurate or the proposed site plan is changed, Landmark should be contacted to review this report and make any necessary revisions.

The data, opinions, and recommendations of this report are applicable to the specific design elements and location that is the subject of this report. This report is not applicable to any other design elements or to any other locations. Any and subsequent users accept all liability resulting from any use or reuse of the data, opinions, and recommendation without the prior written consent of Landmark Consultants, Inc.



Landmark Consultants, Inc. has no responsibility for construction means, methods, techniques, sequences, or procedures, or for safety precautions or programs in connection with the construction, for the acts or omissions of the contractor, or any other person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the Final Construction Drawings and Specifications.

The only warranty or guarantee made by Landmark Consultants, Inc. in connection with the services performed for this project is that such services are performed with the care and skill ordinarily exercised by members of the profession practicing under similar conditions, at the same time, and in the same or similar locality. No other warranty, expressed or implied, is made or intended by rendering such services or by furnishing written reports of the findings.