

WATER RESOURCES REPORT

for

***PT Overlook, LLC
Overlook Subdivision***

EPC Parcels #: 4122000005, 4100000255, 4100000256

**November 2023
(revised January 2024)**

Prepared By:



PT Overlook, LLC
OVERLOOK SUBDIVISION
Elbert Road

EPC PARCELS # 4122000005, 4100000255, 4100000256

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November 2023
(revised January 2024)

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The purpose of this report is to address the specific water needs of a proposed subdivision of Parcel # 4122000005, 4100000255, 4100000256 in El Paso County, CO.

EXECUTIVE SUMMARY: The proposed water rights and augmentation plan would be sufficient to meet the needs of sixty-two (62) residential lots proposed for the subdivision on a 300-year basis.

2.0 PROJECTED LAND USES

2.1 *Projected Land Uses*

This report pertains to the existing three parcels totaling 350.811 acres, that are proposed to be divided into sixty two (62) residential lots. Please refer to the *Land Use Exhibit* in *Appendix A*.

3.0 WATER NEEDS AND PROJECTED DEMANDS

3.1 *Water Demand Summary*

It is anticipated that the proposed sixty two (62) residences will use approximately 31.0 AF/year for domestic (0.26 AF/year/residence), irrigation (assuming 3,463 ft² of lawn and garden), and stock water applications. All water demands are anticipated to be met using residential wells drilled into the not nontributary Upper Dawson aquifer. These demand estimates are based upon information provided by the replacement plan included in recorded decree #4638-RP for the PT Overlook, LLC, located in *Appendix C*. Also note that approximately 235 acres of the property lies within the boundary of the Upper Black Squirrel Creek Designated Basin, with the remaining approximate 115 acres being located within the Kiowa Bijou Designated Ground Water Basin. Estimated water demands and wastewater loads are shown Table 3 1 below:

Table 3-1: Summary of Expected Water Demands & Wastewater Loads

Water							Wastewater
Basin	# of SFEs	Annual Indoor Use 0.26 (AF/YR/SFE)	Average Daily Indoor Use (GPD)	Irrigation 0.0566 (AF/1,000 ft ²)	Domestic Watering 0.011 (AF/Horse/Yr)	Total Indoor, Watering, & Irrigation (AF)	ADF (@ 90% Indoor Use) (GPD)
Kiowa Bijou	20	<i>Note 1</i> 5.200	4642	<i>Note 2</i> 3.920	<i>Note 3</i> 0.880	10.00	4,178
Upper Black Squirrel	42	10.920	9749	8.232	1.848	21.00	8,774
Total		16.120				31.00	12,952

Note 1: Per 8.4.7(B)(7)(d) of the EPC Land Development Code general residential use

Note 2: Assuming 0.0566 per 1000 ft² per EPC LDC at 3,463 SF of lawn/garden/trees

Note 3: Assuming for 4 horses per unit

3.2 Unit Water User Characteristics

Unit water user characteristics are counted on a *single-family equivalent* (SFE) basis. All single family homes are counted as one SFE, and user characteristics were based on information provided in the *El Paso County Land Development Code*, Chapter 8.

3.3 Demand versus Supply

An overall demand of 31.0 acre feet for the proposed subdivision is less than the amount of supply proposed out of the not nontributary Upper Dawson Aquifer. There is an existing well on the property under permit # 157064 A, which will be re permitted to facilitate use out through the approved replacement plan decreed in court case number 4638 RP. Total annual allocations out of the not nontributary Dawson Aquifer total 245.18 AF/year on a 100 year basis, and 81.73 AF/year on a 300 year basis according to decree Nos. 4638 BD and 4638 RP. This 300 year supply is more than enough to meet the estimated demands for the proposed subdivision. All Denver Basin allocations are shown in Table 4 1 in conjunction with their approved decrees.

4.0 WATER RIGHTS AND SUPPLY

4.1 Water Rights

Water rights, determinations, and replacement plan have been decreed as included in *Appendix C*. Table 4-1 below summarizes the information from said decrees as included in *Appendix C*.

Table 4-1: Water Rights Summary

Overlook Subdivision

Estimated Annual Water Appropriations

Basin	Land Formation/ Aquifer	Determination	Tributary Status	Area	Total Approp. Water	Annual Allocation 100-Year	Annual Allocation 300-Year
				(Acres)	(AF)	(AF/Year)	(AF/Year)
Kiowa- Bijou Designated Basin	Dawson ¹	4638-BD	NNT	116.11	8,115	81.15	27.05
	Denver	4637-BD	NT	116.11	5,922	59	20
	Arapahoe	4636-BD	NT	116.11	4,145	41	14
	Laramie-Fox Hills	4635-BD	NT	116.11	3,570	36	12
Upper Black Squirrel Creek Designated Basin	Dawson ¹	4638-BD	NNT	234.7	16,403	164.03	54.68
	Denver	4637-BD	NT	234.7	11,970	120	40
	Arapahoe	4636-BD	NT	234.7	8,379	84	28
	Laramie-Fox Hills	4635-BD	NT	234.7	7,217	72	24
Total Legal Supply						657.20	219.07
						<i>100-Year</i>	<i>300-Year</i>

¹ Dawson aquifer allocations are reduced by previous usage out of Well Permit 157064-A

**Beneficial
Uses:** Domestic Indoor, Commercial
Indoor & Outdoor Irrigation

As described in *Appendix C*, the following conditions are allowed for the subject property:

- Water may be withdrawn through the existing well on site (Permit # 157064 A), as well as allowing up to sixty one (61) new additional wells (all new and existing wells will be allotted 0.50 AF/year per residential well). Existing and new wells will be drilled into the Upper Dawson Aquifer and will be developed on the subject property. The original permit number to operate the existing well is contained in *Appendix C*.

- Existing wells (Permit # 157064 A) must be re permitted as described in decree No 4638 BD.
- Each residential well can use 0.26 AF/year for in house use and 0.24 AF/year for other uses, which include the irrigation of up to 3,463 square feet per lot of landscape and/or limited crops and up to four heads of livestock. Total water allotted per well is 0.50 AF/year and a total of 31.0 AF/year for the subdivision.
- All wells are to be drilled to the Dawson aquifer. All wells to be metered.
- The type of use to which the Dawson water pumped must be used for domestic indoor use, indoor and outdoor irrigation, pursuant to the augmentation plan.

4.2 *Adequacy of Water Rights*

Current water rights are adequate for buildout demands of sixty two (62) residential lots to meet 2040 and 2060 buildout projections on a 300 year basis.

The proposed Overlook Subdivision is partially located within the Kiowa Bijou Designation Basin, and partially within the Upper Black Squirrel Creek Designated Basin. Of the formations located below the Overlook Subdivision, only the Dawson is considered not nontribuary while the Arapahoe, Denver, and Laramie Fox Hills aquifers are considered non tributary. The applicant has rights to withdrawal water from all four (4) formations, though only the use from the Dawson requires an augmentation and replacement plan for all uses. Decree No. 4638 RP defines required return flows to augment depletions from the alluvium through pumping of the not nontributary Dawson Aquifer. As this proposed subdivision has 20 proposed residences that sit within the Kiowa Bijou Designated Basin, and 42 proposed residences that sit within the Upper Black Squirrel Creek Designated Basin, the replacement plan addresses both basins. All associated applications, forms, and documentation are included in ***Appendix C***:

- There is estimated to be a total of 81.73 AF/year available on a 300 year supply basis out of the Upper Dawson Formation, which is greater than the estimated annual demand of 31.0 AF year for all sixty two (62) residential lots. These demands will be served by Denver Aquifer wells as needed. The twenty (20) lots located within the Kiowa Bijou designated basin are estimated to demand 10 AF/year, while the forty two (42) lots located within the Upper Black Squirrel Designated Basin are estimated to demand 21 AF/year.
- Assuming a 0.26 AF/yr domestic use per resident for indoor uses (*per 8.4.7(B)(7)(d) of the EPC Land Development Code*) with 90% return flows through the non evaporative septic system per resident, this results in a 0.234 AF/yr return flow back through the septic system per residence, or 14.508 AF/year total for the sixty two residences. This equates to 9.828 AF/year of return flows for the 42 residences within the Upper Black Squirrel Designated Basin, and 4.68 AF/year of return flows for the 20 residences in the Kiowa

Bijou Designated Basin available to replace maximum depletions to the alluvium. However, the proposed replacement plan application has estimated a conservative domestic residential use of 0.2 AF/year. This results in a 0.18 AF/yr return flow back through the septic system per residence, or 11.16 AF/year total for the sixty two residences. This equates to 7.56 AF/year of return flows for the 42 residences within the Upper Black Squirrel Designated Basin, and 3.6 AF/year of return flows for the 20 residences in the Kiowa Bijou Designated Basin available to replace maximum depletions to the alluvium.

- Assuming annual pumping of 31.0 AF/year out of the Upper Dawson formation at full build out, annual depletions to the alluvium are expected to reach 1.44 AF/year. Of this estimated depletion volume, approximately 1.39 AF/year is estimated to come out of the Kiowa Bijou Designated Basin (or 4.474% of the projected 31.0 AF/year pumped from both basins). Additionally, of this estimated depletion volume, approximately 0.05 AF/year is estimated to come out of the Upper Black Squirrel Designated Basin (or 0.090% of the projected 31.0 AF/year pumped from both basins). The estimated 7.56 AF/year of return flows generated from the forty two (42) homes located within the Upper Black Squirrel Designated Basin are sufficient to replace the estimated 0.05 AF/year of depletions from the Upper Dawson Aquifer. The estimated 3.6 AF/year of return flows generated from the twenty (20) homes located within the Upper Black Squirrel Designated Basin are sufficient to replace the estimated 1.39 AF/year of depletions from the Upper Dawson Aquifer. These estimates are included in the approved decree No. 4638 RP. The documents are included in **Appendix C**.

Conclusion:

The proposed water rights, once acquired following approval of all water rights applications, will be adequate to meet the estimated overall demand and resulting alluvial depletions of 1.44 acre-feet/year for sixty-two (62) residential lots.

4.3 *Description of Proposed Water Rights*

The subject area's proposed water rights involve non renewable supplies in the Denver Basin, further discussed below.

Non Renewable Denver Basin Supply

The Denver Basin is a vast, deep rock aquifer that stretches from southeast of Colorado Springs to Greeley, and from the base of the front range to the eastern end of Elbert County. Rights granted in the Denver basin are based on the ownership of the surface property – the larger the parcel, the larger the allocation.

Denver Basin water is considered finite and therefore non renewable. In the subject area, there are four main formations that make up the Denver Basin: Dawson, Denver, Arapahoe, and Laramie Fox Hills (LFH), described from shallowest to deepest.

5.0 WATER SYSTEM FACILITIES AND PHYSICAL SUPPLY

5.1 *Source of Supply*

Supply for the sixty two (62) residential lots be met with future or existing wells completed in the Upper Dawson aquifer. There is one existing well (Permit # 157064 A) that is currently drilled into the Upper Dawson formation. Any new wells will be drilled, screened, test pumped, and completed in accordance with the Colorado Division of Water Resources rules and regulations.

5.2 *Water Treatment*

Water from the well located in EPC parcel number 4122000005 was tested on 06/12/23 for constituents required by El Paso County regulations for a confined aquifer. Any desired treatment of existing and future wells will rely on the individual homeowners as this is not considered a *Community System* by the Colorado Department of Public Health and Environment.

5.3 *Water Storage*

Water storage (other than potential individual cisterns or pressure tanks) will not be constructed. Therefore, a central water system with treatment and fire flow capabilities will not be provided. The residents of each subdivided lot will be made aware of this since it will be included on the subdivision plat.

5.4 *Distribution, Pumping, and Transmission Lines*

Since there is no central water system proposed for this subdivision, no distribution, pumping, or transmission lines will be constructed.

5.5 *Water Quality*

The water quality in the Upper Dawson aquifer in this area has typically been suitable for residential potable use. Water samples were obtained from the existing well located in EPC parcel number 4122000005, (well permit # 157064 A) obtained via an exterior tap on the existing house on this property. Water samples were obtained from this tap on 06/12/2023, with water quality testing performed by Colorado Analytical Laboratories and Hazen Research, Inc., per the El Paso County Land Development Code section 8.4.7(B). The results from this water quality testing can be found in *Appendix D*. All results were found to be below primary and secondary Maximum Contaminant Limits (MCLs) except for Total Coliform which was found to be present. A second sample was collected from the same location on 08/10/23 and a standard bacteriological test was performed by El Paso County Public Health Laboratory. This second test also showed the presence of Total Coliform. It is suspected that the outdoor tap used for the sample collection was contaminated and that the well and aquifer are not the source of the presence of Total Coliform.

Because of the absence of E. Coli and all other sampled and analyzed constituents were below all primary and secondary standards, the proposed water source emanating from the Dawson Aquifer is deemed safe for public consumption.

6.0 EL PASO COUNTY MASTER PLANNING ELEMENTS

6.1 *County Water Master Plan 2040 and 2060 Projections*

The subject property lies on the dividing line between two El Paso County Water Master Planning areas, with the north portion of the property in Region 4a and the southern portion of the property in Region 4c.

6.2 *Buildout (Including 2040 and 2060 Buildout):*

Expected buildout of the subject property are sixty two (62) total lots. Demands for the entire subdivision are listed in Section 3.0 of this report, which include a total demand of 31.0 AF/year as described in the approved decree No. 4638 RP.

6.3 *Description of Long-Term Planning and Future Sources of Supply*

Per El Paso County criteria, the 300 year supply of water for the subject property appears to be more than adequate for full buildout, which would include both the 2040 and 2060 scenarios. However, the proposed supply in the Upper Dawson aquifer is based on non renewable sources.

If needed beyond the 300 year supply, the subdivision has applied for nontributary water rights in the Arapahoe and Laramie Fox Hills formations. In addition, the Overlook Subdivision may also elect to connect the existing Park Forest District for Central Water System supplies if the existing not nontributary Dawson Aquifer does not have sufficient water to meet projected full build out demands.

6.4 *Water System Interconnects*

The closest source for a potential interconnect is the Park Forest Water District—approximately 8.52 miles to the southwest. Park Forest Water District does include central water service which is sized to serve the existing demands within its service area.

It is not anticipated (and Park Forest Water District has not been contacted) that an interconnect is needed or warranted to supply water to the Overlook Subdivision. However, if Denver basin supplies are not sufficient to provide adequate water supply to the Overlook Subdivision, an interconnect with the Park Forest Water District may be considered.

7.0 CONCLUSION

The subject property has adequate water supply to meet the needs of the proposed subdivision on a 300-year basis.