

**Adeles Acres Subdivision
Irrigation Design Report
1024 19 Rd. Fruita, CO 81521
2697-153-00-181**

The source of irrigation water for the Adeles Acres Subdivision is from the Grand Valley Irrigation Company Headgate ML440, delivered to the property via the Compton lateral and series of ditches. The lateral is a pipeline that serves both residential and agricultural users. This irrigation water has been available historically to the proposed development and surrounding area for decades.

The property owner currently holds 20 shares for the development, with a legal supply rate of 93 gallons per minute. Since this development consists of 1.33 shares per acre, storage will be required. Each lot will be allowed 33% of the total area to have turf equivalent plantings. Water requirements for a 5-hour water window, 3 days per week per lot, at a gross application rate of 3 inches of water / week (City of Fruita standards), result in a flow rate of 15 gallons per minute per lot and a storage requirement of approximately 7,000 gallons. This water window is conservative and allows for additional fill/refill when water availability is not consistent, which typically happens irrigation supply infrequently each season. If users from other properties pull water at disproportionate rates, irrigation water may be unavailable from time to time at this location. Drought tolerant plantings and xeriscape are recommended to accommodate the potential for intermittent water availability.

Irrigation water enters the property in the northeast corner of the proposed subdivision. The existing ditch paralleling J 2/10 will be piped with 16" C900 PVC. Adeles Acres water will be conveyed from the connection point on the northwest corner of the property in a new PVC pipeline to a new or relocated flowmeter in a structure before flowing to an electrically actuated fill control valve, also in a structure. The control valve will fill/refill a storage/settling structure. The control valve will be installed in a manhole or structure with a lid, and will consist of a ductile iron butterfly valve. The actuator on the control valve will be controlled by a 120-volt relay tied to float valves installed in the storage/settling structure that will send signals to open and close the control valve as needed. The storage/settling structure will have a safety cover over the top. The storage structure shall be placed at an elevation that in case of an emergency, overflow water will discharge into the stormwater pond.

Irrigation water will be conveyed to the lots from the storage structure through a pumped, filtered, pressurized system. The pumphouse will reside on the structure and will convey pressurized irrigation water to a distribution pipeline that will run to each lot in a looped system in the back of each lot in. Common areas will also be irrigated by this system on separate controls that operate when lots are not being watered. Due to the closed nature of this system, irrigation tailwater/wastewater

from the supply will not exist, and will not need conveyance from the subdivision or through other subdivisions. Isolation valves, air vents, and a drain valve allow for flushing, maintenance, and seasonal drainage of the mainline.

There are no recorded easements or known wastewater crossings on the proposed subdivision property.

Irrigation water will be paid by the HOA directly to the Grand Valley Irrigation Company through annual billings.

The proposed irrigation system will be maintained by the HOA of the Adeles Acres Subdivision.

Design Calculations

Item	Description				
1	Irrigation System Supply Pressure (estimated)	15	psi		
2	Flow Per Lot		15	gpm	
3	Average Lot Size	9527	sf		
4	Average Irrigated Area Per Lot	3143.91	sf	0.07	acres
5	Weekly Peak Use Per Lot	786	cubic feet	5879	gallons
6	Days Watering (5)	3	days		
7	Hours Watering (5)	2.6	hours		
8	Flow Required	13	gpm/lot		
10	Lots Watering Concurrently	8	lots		
11	Flow Required	100	gpm total		
12	Flow provided	20	93	shares/gpm	
13	Flow deficiency/Storage Required	7	gpm	6568	gallons