Rainbow Park
WATER COMPANY

Grant Success Stories

#12 - The Union Ditch is No. 12, with a priority on the river of No. 10.

#11 - The Titsworth Ditch, Priority No 9 pulls off of Four Mile Creek.

#10 - The Bates Ditch, Priority No 9 (and 6) pulls off of Beaver Creek.

#9 - The Callen Ditch Priority No 8 (and 5) pulls off of Beaver Creek.

#8 - The Peggy Ditch, Priority No 7 pulls off of Beaver Creek.

#7 - The Porter Ditch, Priority No 6 is south of Sumo, is said to pull from the Arkansas, but according to the State website: "Historical structure only - no longer exists or has records, but has historical data".

#6 - The Stephen Frazier Ditch, Priority No 5 pulls off of Beaver Creek, the State website also says this is a historical structure only and is no longer in use.

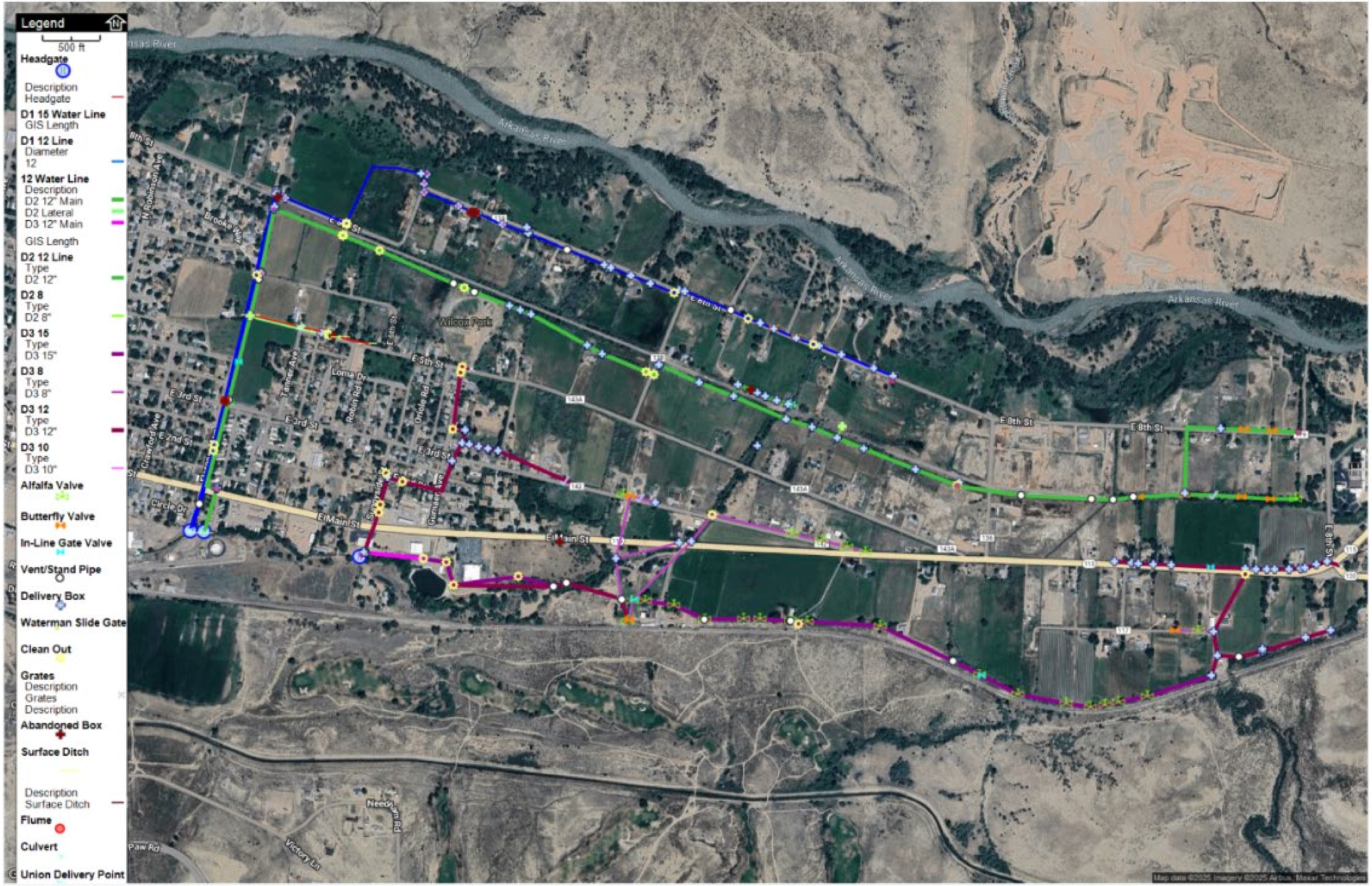
#5 - The Glendale Ditch, Priority No 4, pulled off of Beaver Creek, the State website also says this is a historical structure only and is no longer in use.

#4 - The Green Ditch, Priority No 3, pulled off of Four Mile Creek the State website also says this is a historical structure only and is no longer in use.

#3 - The Burdick Ditch is said to have Priority No. 2 shared with Conley Ditch but this is nowhere to be found on the state website.

#2 - The Conley Ditch shared Priority No 2 with Burdick but is also long gone.

#1 - The Hardscrabble Ditch is Priority No 1 and is still alive and well. This ditch is halfway to Wetmore and pulls off Hardscrabble Creek.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Delivery Box
Waterman Slide Gate
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Map data ©2025 Imagery ©2025 Airbus, Maxar Technologies

COLORADO
CATTLEMEN'S
ASSOCIATION
Advancing the Legacy

Colorado Ag Water Alliance
" Commited to the preservation of agriculture through the wise use of Colorado's water resources"

Grants Received

Grant Title & Goals	Award Agency	Award Date	Deadline	Funding	Cost Share
Cost Sharing Installation of an automatic flume reader. Covers for open boxes	Fremont Conservation District	07/03/2024	07/03/2025 Extended to 12/31/2025	$3,000	50%
80/20 Cost Share Hire a contractor to camera scope buried sections of the ditch to identify and collate a prioritized list of needed repairs and improvements.	Fremont Conservation District		05/31/2026	$3,000	20% of total, $750
Ditch Mapping and Website Development	Colorado Cattlemen's Association via CWCB	04/11/2024	12/11/2026	$9,300	$4,800 Match: $1,200 Cash $3,600 In Kind

rainbowparkwater.com

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(719) 269-6610

Rainbow Park
WATER COMPANY

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Welcome

RAINBOW PARK WATER COMPANY
SHARED WATERS, GROWING PROSPERITY

Rainbow Park Water Company

STEWARDING OUR WATER RESOURCES

Rainbow Park Water Company, established in 1912, is the lifeblood of agricultural prosperity in Florence, Colorado. For over a century, we have been dedicated to providing reliable irrigation water to our shareholders, transforming arid lands into thriving farms and gardens. Our commitment to efficient water management and equitable distribution has been the cornerstone of our service, supporting the growth and sustainability of our local agricultural community.

As stewards of this precious resource, we understand the critical role water plays in the lives of our shareholders and the broader ecosystem. Our team works tirelessly to maintain and improve our extensive network of ditches and pipelines, ensuring that every drop of water is delivered with care and precision.

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Soil salinity: recognition, measurement, effects on crops and reclamation

What is saline soil?

Saline soil is a soil that contains excess soluble cations such as sodium (Na+), potassium (K+), calcium (Ca2+) and magnesium (Mg2+) or anions like chloride (Cl-), sulfate (SO42-), nitrate (NO3-), bicarbonate (HCO3-) and carbonate (CO32-).

Where do salts come from?

Salt comes from two sources:

1. Natural processes, for example reactions of minerals in the soil, rock formation, intrusion of seawater into low-lying areas along coastlines and close by fresh-water aquifers, accumulation of salt from precipitation and, water table rise.
2. Human activities also add salts to the soil through the use of saline water in irrigation and fertilization. Industrial processes, road salting and mining activities add salts to local streams and ground water and eventually onto land.

Where do the salts go?

The salts accumulate in the soils after evapotranspiration (evaporation and transpiration) exceed precipitation and irrigation. Evapotranspiration returns distilled water to the atmosphere and leaves the salts in the surface soil and root zones of plants (Figure 1).

Where do the salts go?

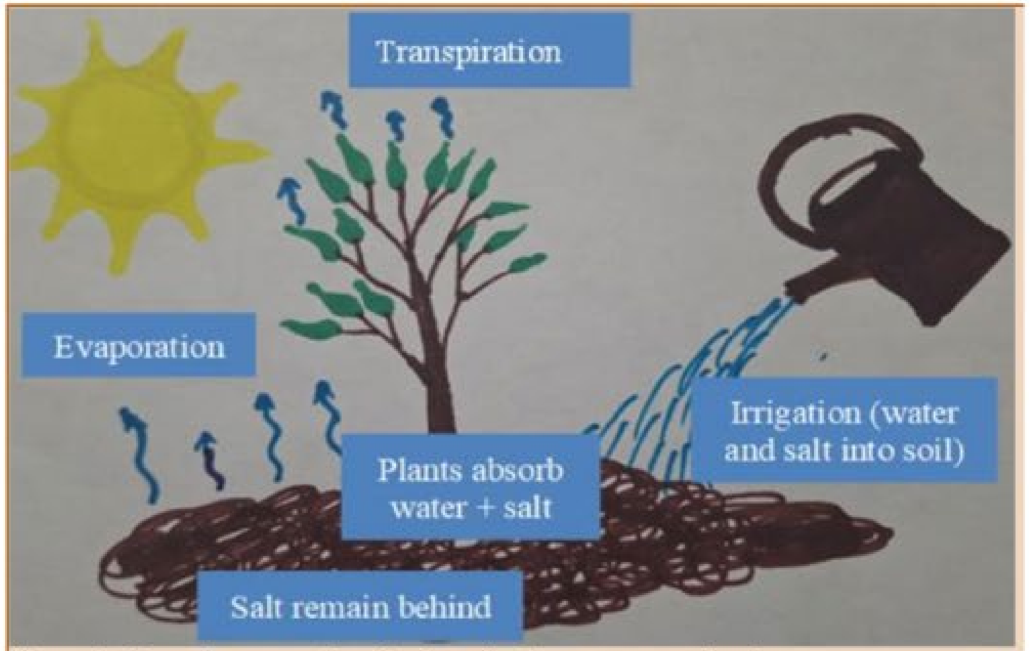

Figure 1: How salt accumulates in the soil after evapotranspiration

What are the effects of soil salinity to plant growth?

1. Reduces water availability for plant use causing physiological drought in the plant. Even when there is adequate water in the soil, the unfavorable osmotic pressure obstructs plant roots from absorbing it. Plants are most affected during germination and early growth stages.
2. Salt cause fine soil particles to bind together thereby reducing drainage capacity.
3. Plant growth is reduced when excess salts enter the plant through the transpiration stream causing injury to the leaf cells. Salt restricts root growth, leaf tip burning/browning, inhibited flowering, and finally reduces vigor and yields.
4. Degradation of ground and surface water and negatively impacts biodiversity.
5. Enhances plant mortality during drought.

How can you recognize salt affected soil?

Salt accumulation in the soil leads to three soil conditions: saline, saline-sodic and sodic soils. Each has well defined characteristics that you can observe in the field to help you diagnose the problem.

Table 1. visible characteristics of salt affected

Problem	**Visible characteristics (symptoms)**	
	Colo and soil condition	**Plant condition**
Saline	White soil	Water-stressed plants. Leaf tip burn.
Sodic	Brownish-black soil with poor drainage.	Inhibit seedling emergence and hinder plant growth
Saline-sodic	Grey-colored soil.	Plants showing water stress.

How can you measure salinity in your land?

You can measure salinity problems in your soil through laboratory testing. Tests include:

1. **Electrical Conductivity (EC)** – a measure of the soil's ability to conduct electricity. It is expressed in decisiemens per meter (ds/m). Increases in soluble salts in the soil result in proportional increases in the solution EC. The U.S. Salinity Laboratory Staff (1954) describes saline soils as those with more than 4 ds/m.

Best irrigation management practices

By Bonface Manono

Manage your irrigation by matching time and amount of water applied in order to:

- ❖ Increase irrigation efficiency and uniformity
- ❖ Reduce contamination of water resources.

Evaluating your system will determine its suitability: An effective system includes:

- ❖ irrigation scheduling
- ❖ equipment modification
- ❖ land leveling
- ❖ tailwater recovery
- ❖ proper tillage and residue management
- ❖ chemigation safety (Figure 1).

Management variables to consider include:

- ❖ Frequency of irrigation
- ❖ Application amount and timing
- ❖ Irrigation systems efficiency
- ❖ Method and timing of chemical application

Site variables to consider include:

- ❖ Soil type
- ❖ Slope
- ❖ Crop root zone and water use
- ❖ Depth of groundwater
- ❖ Chemical/site interaction

Irrigation Scheduling

Decision to irrigate should be based on (i) crop water needs (ii) soil moisture content (ii) economic return. Table 1 has helpful devices and techniques to work this out. The difficulty is to apply enough water to fill the root zone without percolation loss. Hence, preventing water overapplication and maximizing returns. With experience, you can know the time it takes to get water across your fields and to prevent crop stress.

Knowing the following about your field will help in scheduling irrigation effectively.

- ❖ Soil water-holding capacity
- ❖ Current available soil moisture content
- ❖ Crop water use/evapotranspiration
- ❖ Crop sensitivity to moisture stress at current growth stage
- ❖ Irrigation and rainfall received
- ❖ Availability of water supply
- ❖ Length of time it takes to irrigate a

Table 1. Irrigation scheduling methods and tools

Approach	How it works	Tools or parameters used	Advantages/disadvantages
Monitor your soil moisture to know when and how much to irrigate.	❖ Feel soil by hand ❖ Check soil appearance	Hand probe	Requires experience
	❖ Check soil moisture tension	Tensiometers	Good accuracy Requires experience
	❖ Testing soil using electrical resistance tester	Gypsum block	Works over large range Limited accuracy
	❖ Indirect moisture content	Neutron probe/TDR	Expensive, many regulation
	❖ Gravimetric analysis	Oven and scale	Labor intensive
Monitoring crop canopy index – this will tell you when to irrigate but not how much to apply	❖ Visual appearance	Field observation	Variable accuracy Requires experience
	❖ Water stress index	Infrared thermometer	Expensive
Water budget approach (No field work required, but needs periodic calibration since only estimates water use)	❖ Checkbook method	Computer/calculator	Tells you when and how much water to apply
	❖ Refer to evapotranspiration	Weather station data	Requires appropriate crop coefficient
	❖ Atmometer	Weather station data	Requires appropriate crop coefficient

Proper irrigation scheduling:

1. Reduces the number of irrigations
2. Conserves water, labor, and plant nutrients.
3. Avoids the final irrigation of the season. This creates an off-season with a depleted soil profile that leaves space for storage of precipitation in the crop root zone.

Always account for root zone water balance approaches when scheduling irrigation. All inputs and withdrawals of water from soil should be accounted for as by the simple mathematical expression below.

$$I + P = ET + Dr + Ro + (\theta_F - \theta_B)$$

Where

- I = Irrigation water applied
- P = precipitation
- ET = Evapotranspiration (plant use + soil evaporation)
- Dr = drainage or percolation of water below the root zone
- Ro = Runoff
- θ_F = the water content expressed as a depth of water at the end of a time interval
- θ_B = the soil water content (depth) at the beginning of the time interval

The beginning soil water content (θ_B) is estimated as field capacity if the root zone was fully wetted previously.

Drainage (Dr) is estimated as the excess water applied above the field capacity depth. Precipitation is easily measured.

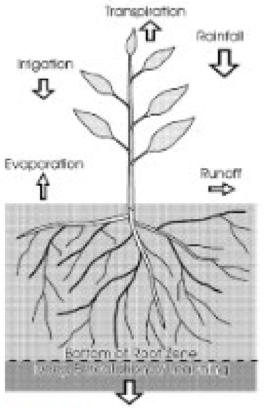

Figure 1. Source and fate of water in the crop system (Weskom, 1994)

Soil and Crop Properties

Soil characteristics influence irrigation management:

- ❖ Water intake rate
- ❖ Available water holding capacity – see Table 2 below
- ❖ Soil erosivity.

Therefore, you should know the soil type in each field receiving irrigation water.






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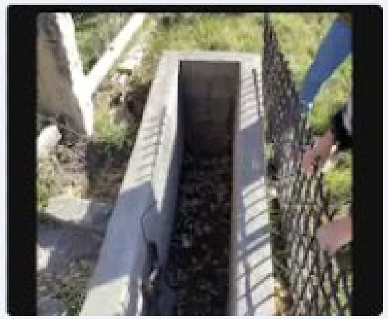

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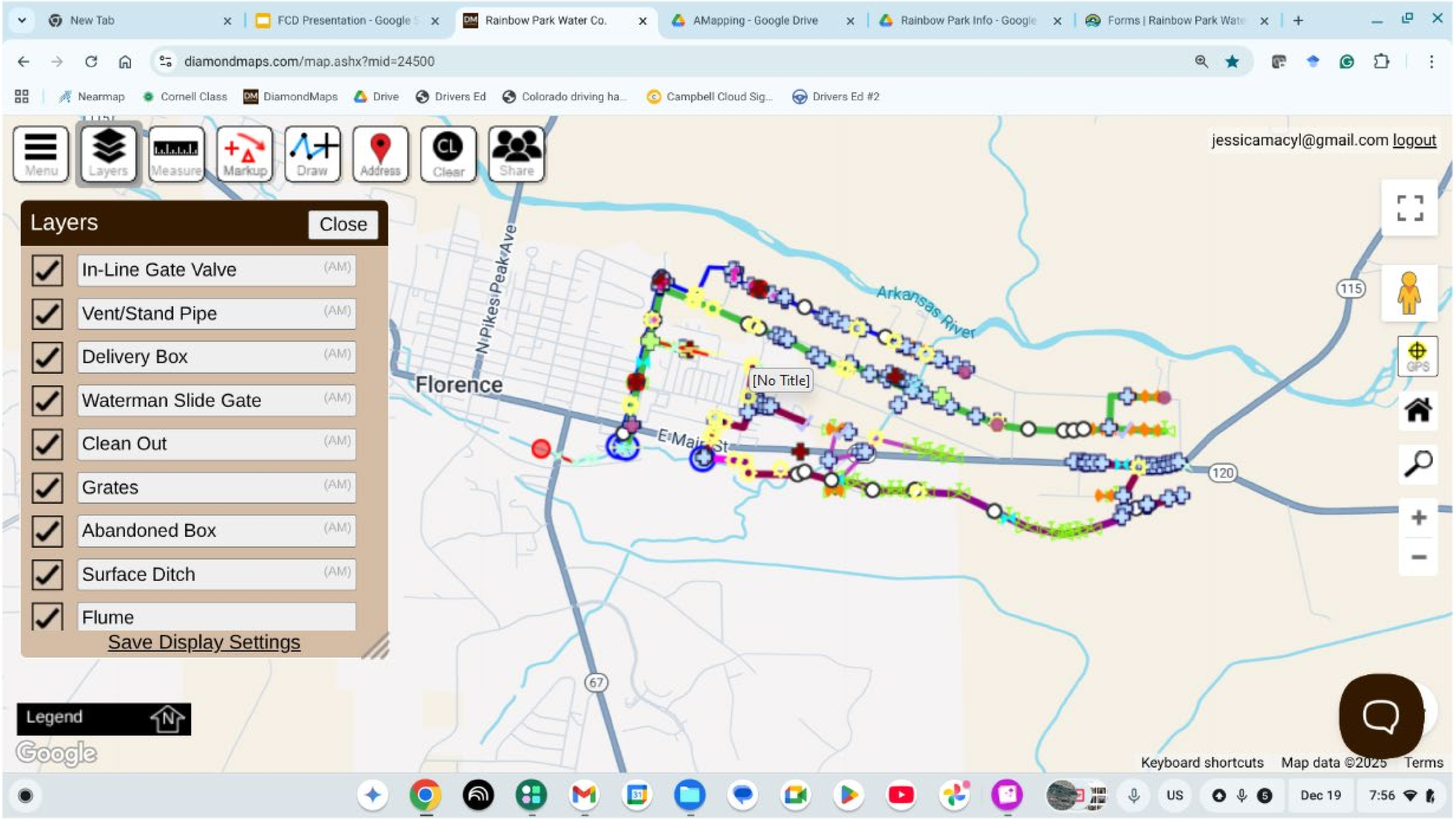
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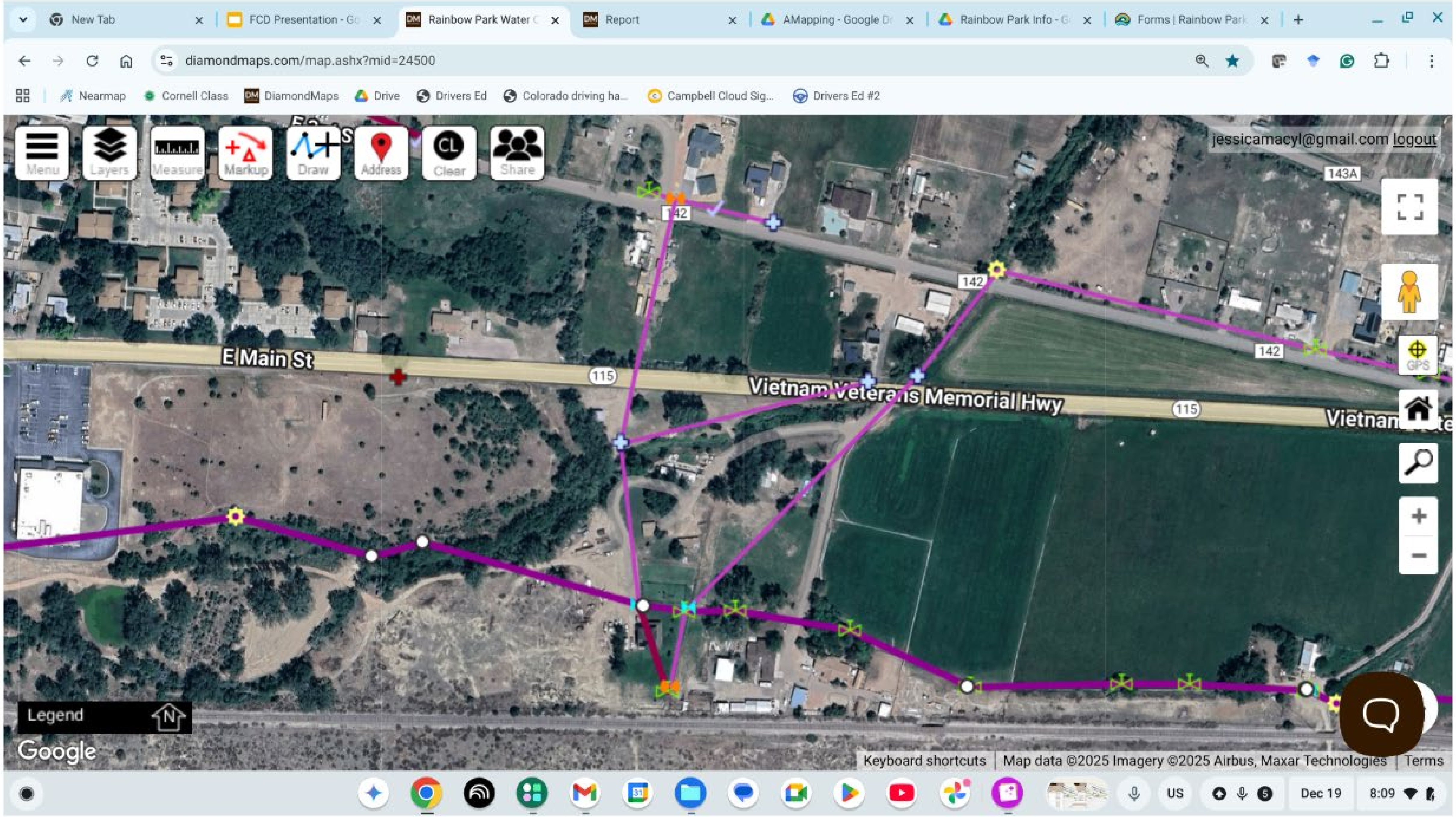
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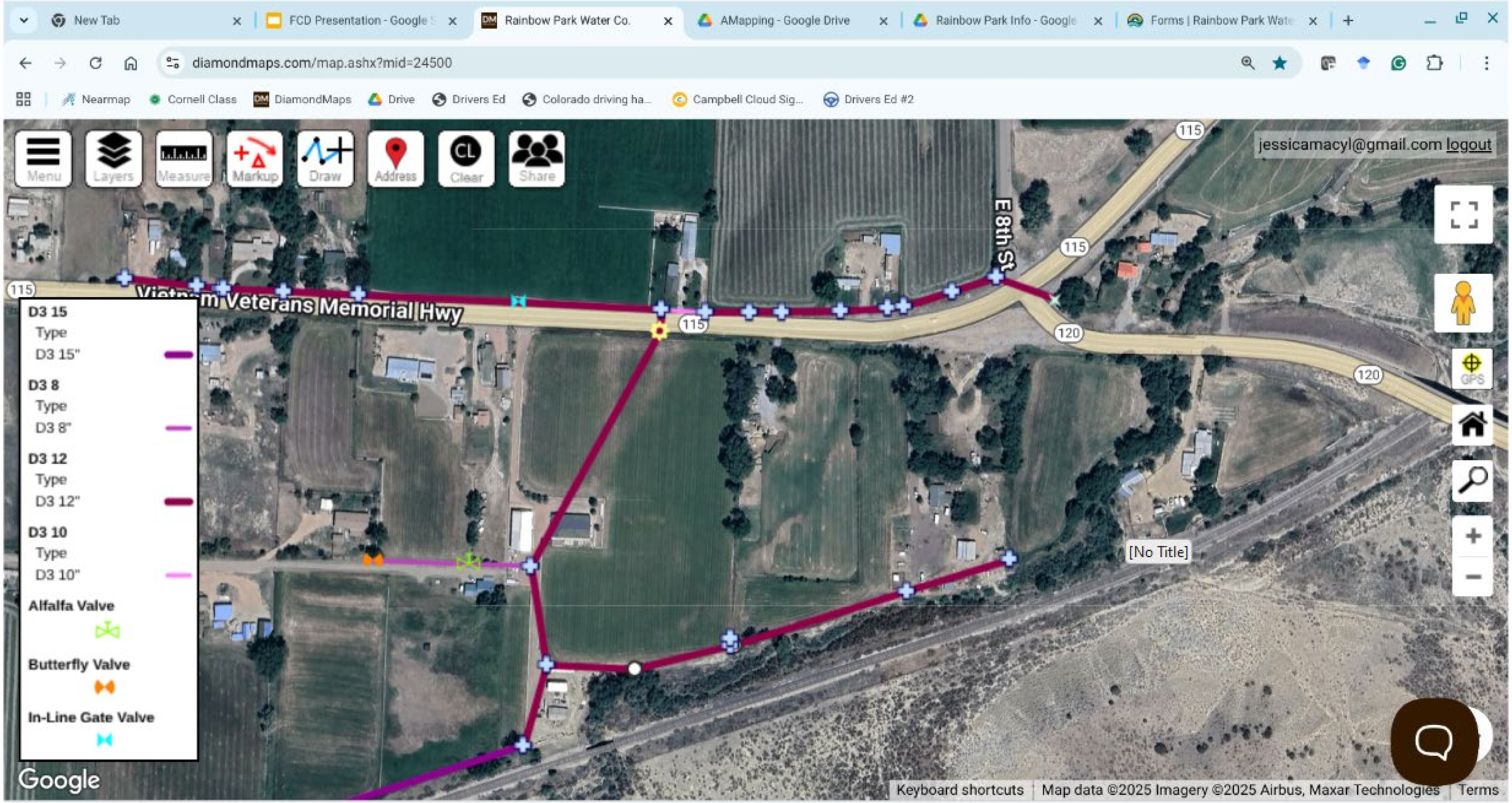

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MWL
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USMH: A west 1
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USMH: A east 1
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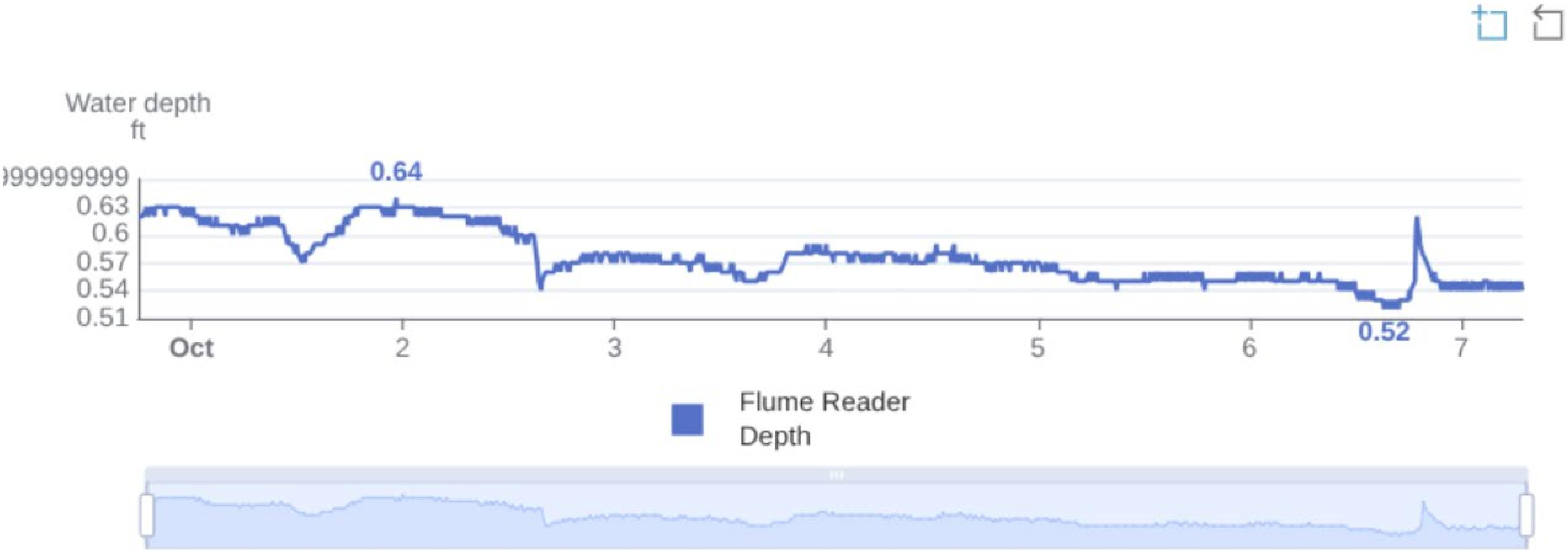

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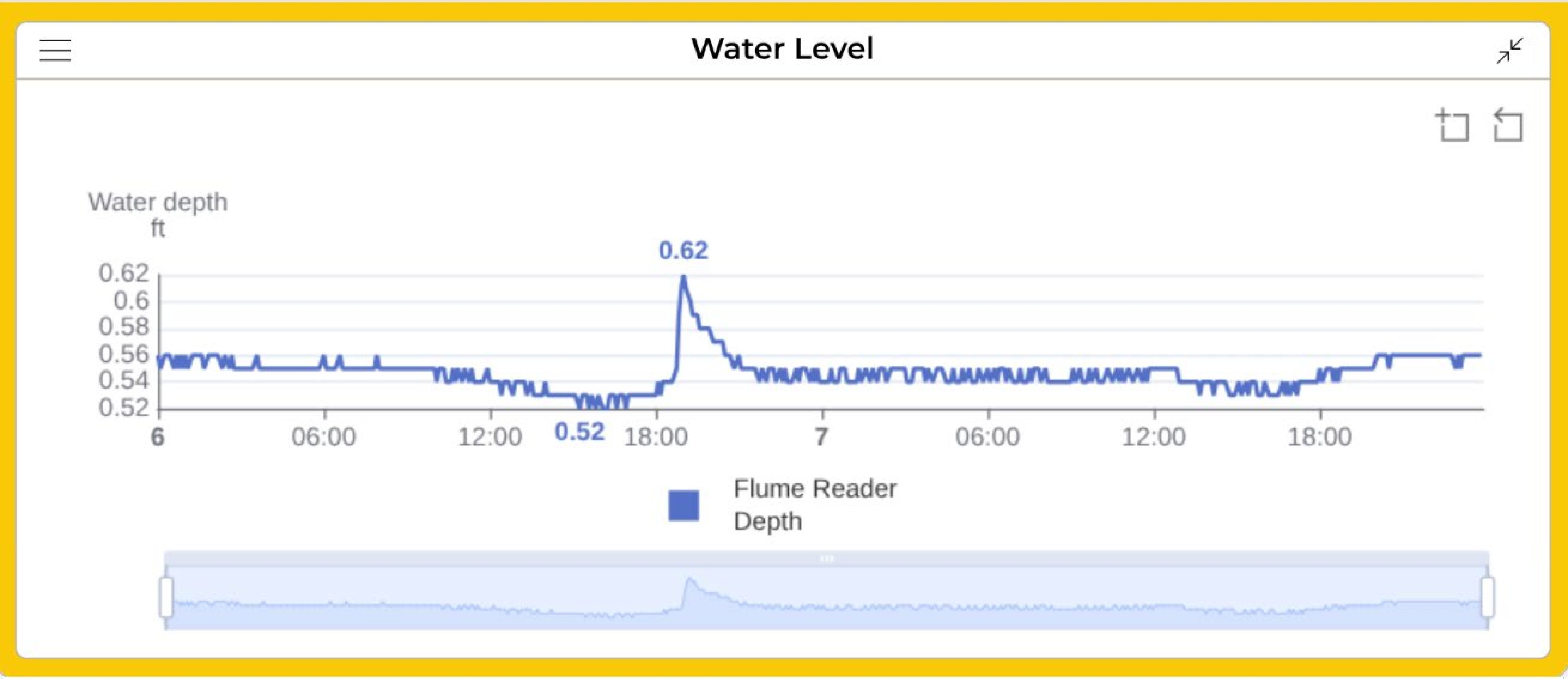
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