Widefield
Water and Sanitation District

8495 Fontaine Boulevard, Colorado Springs, Colorado 80925

October 22, 2026

TO: **Heath A. Herber**
Westerra Development Company LLC
2727 Glen Arbor Drive
Colorado Springs, CO 80920

CC: **Jessica McCallum, PE (CO)**
Kimley-Horn
2 North Nevada Avenue, Suite 900
Colorado Springs, CO 80903

REF: Request to Phase Commercial Filing

Mr. Herber,

Thank you for attending the Board meeting on October 20, 2026, and addressing the Board of Directors regarding your development. As we have previously discussed, Widefield Water and Sanitation District (District) does not generally allow phased developments without all of the required offsite infrastructure upgrades being constructed.

Even though the District has not had the best experience with phased commercial developments, the District Board will allow you to construct your first two lots and to phase your commercial development based on the following conditions:

1. Provide a copy of the El Paso County Subdivision Improvement Agreement to the District.
2. The District will require an executed development agreement between you and the District, detailing the phasing approach and conditions described in this letter. This agreement will be recorded against the remaining lots on our commercial development.
3. A letter from Security Fire Department confirming that 1500 GPM is the required fire flow for the first two lots of your development.
4. You will be required to pay for the two water system upgrades. These upgrades are detailed in the attached memos, Exhibit A.
    a. 10 inch upsized to a 16 inch
    b. 12 inch connection between the homes on Blue River Way.

5. The District will obtain the property rights for the 12 inch connection on Blue River Way (this is expected to require the purchase of a home along Blue River Way). This cost will not be paid by you.
6. The District will design, construct, and install the 12-inch connection. However, you will be required to reimburse the District for these costs (of the pipeline design, construction, and installation, not the home) upon issuance of a first building permit for the remaining phases of your development.
7. You will be required to complete the 10 inch upsize to a 16 inch waterline upgrade in accordance with the District's standard process for offsite improvements as a prerequisite to obtaining service for the remaining phases of your development.
8. The District estimates these costs for both upgrades to be $3,750,000.
9. You will be required to provide a surety in the form of a bond or letter of credit, acceptable to the District, for the amount of $1,000,000.

The District Board requires execution of the development agreement noted above before moving forward. You noted in the meeting that you have 9 total lots to be developed including the current two lots of the 7-Eleven and the veterinarian clinic. The development agreement and the above conditions will apply to the remaining 7 lots of your development, not the 7-Eleven or the veterinarian clinic. Please see Exhibit B attached for the preliminary plot denoting the lots mentioned above.

Additionally, the development agreement will be time bound. The improvements and upgrades noted above must be completed within 5 years of the date of the agreement or on the timeline based on the El Paso County Subdivision Improvement Agreement.

If you agree with the information above, I will move forward with drafting the development agreement.

Best Regards,

Lucas Hale
District Manager
p. 719.955.7121
e. Lucas@wwsdonline.com

Exhibit A

EXTERNAL MEMORANDUM

To: Lucas Hale
District Manager
Widefield Water and Sanitation District
8495 Fontaine Blvd.
Colorado Springs, CO 80925

cc: W0202.26143 - WWSD-General Engineering 2026
002 - Task 2 - Modeling

From: Troy Montague, PE
Gwen Dall, PE
RESPEC
5540 Tech Center Drive, Suite 100
Colorado Springs, CO 80919

Date: October 8, 2026

Subject: Trails at Aspen Ridge Pump Station Fire Flow

This memorandum summarizes RESPEC's evaluation of required upgrades for the Trails at Aspen Ridge Pump Station to have adequate inlet pressure and provide commercial fire flow requirements.

Based on the hydraulic modeling results, RESPEC recommends constructing a cross connection at 6735 Blue River Way, and that approximately 752 LF of 10" AC pipe be replaced with 16" PVC pipe.

BACKGROUND INFORMATION

RESPEC designed the Trails at Aspen Ridge Pump Station (TARPS) to serve Pressure Zone 7A (PZ 7A) ahead of development within the northern portion of the district. The design memorandum, which outlines required infrastructure upgrades to serve PZ 7A, is included in **Attachment A**.

As development within PZ 7A progresses, further hydraulic modeling has been performed to evaluate current infrastructure's ability to serve development within PZ 7A, as well as future demands of PZ 7A. On Wednesday September 9th, 2026, members of the Widefield Water and Sanitation District (WWSD), RESPEC, Kimley-Horn, and Matrix Design group met to discuss looping within PZ 7A, and future planned developments. Within this conversation, Kimley-Horn stated that they are tentatively noting required fire flow at the Waterview East

5540 TECH CENTER DRIVE
SUITE 100
COLORADO SPRINGS, CO 80919
719.227.0072

Commercial development at 2,500 gallons per minute (GPM). The Security Fire Protection Department will provide a final fire flow requirement, but the basis of this analysis utilizes the tentative value of 2,500 GPM fire flow.

Per direction from WWSD, evaluation for recommended upgrades is based on the goal to achieve 3,500 GPM fire flow within PZ 7A, to accommodate a wide range of potential commercial development in the future.

DEMAND AND SFES

PZ 7A is created by the TARPS receiving water from existing Pressure Zone 4, which is served by the elevated tank located at the Goldfield Tank Site, and then pumping the water to higher elevations within PZ 7A to achieve adequate service pressures. Table 1 below displays the total SFEs and projected unit demands for these SFEs based on planning level factors, including considering PZ 7A at full buildout. PZ 7A demands were determined by summing the number of lots for Trails at Aspen Ridge Filings 1-5, and water committed to the Waterview East Commercial Development, totaling 881 SFEs.

Additionally, it is estimated that 600 SFEs from the City of Fountain (COF) are connected to the Elevated Tank.

Table 1: Future Maximum Daily Demands Served by the Elevated Tank

Location	SFEs	MDD (gpm)
Pressure Zone 4 Existing	2063	998
PZ 7A	881	427
COF	600	300
Peaceful Ridge	242	117
Total	**4006**	**1,949**

MODEL DATA

The WWSD hydraulic model includes scenarios representing both the existing system conditions and future phased development, as previously described. Existing demands within the model are calibrated using consumption meter demand data from July of 2026. When July 2026 consumption data is converted to GPM, WWSD averages 0.267 GPM per SFE, with Pressure Zone 4 averaging 0.235 GPM per SFE. These demands closely correlate to WWSD planning factors of 0.22 GPM for average daily flow. In order to create a max day flow demand scenario, an additional 0.217 GPM was assigned to each meter to reach the 0.484 max day flow, as outlined in the 2021 Master Plan.

The future condition model builds upon these demands by incorporating projected maximum day demands for future development and using a planning-level demand factor of 0.484 gpm per SFE. Because PZ 7A is still developing and does not have full buildout meter data, the 0.484 gpm per SFE was assigned to all 881 SFEs.

Hydraulic grade lines within the model are established by the existing ground storage tanks, the elevated storage tank serving Pressure Zone 4, and pumps serving Pressure Zone 7A.
Pressure Zone 4:

- 0.75 MG Elevated Tank at Goldfield Tank Site
- Tank Finished Floor Elevation: 5898 ft
- Assumed Maintained Water Level in Elevated Tank: 6,015 ft (32 ft in tank)
- Elevated Tank Overflow Elevation: 6018 ft

Pressure Zone 7A - TARPS:

- 2 High Capacity Pumps
  - 125 HP Motor
  - 200' Total Dynamic Head (TDH)
  - 1,750 GPM
- 1 Large Distribution Pump
  - 15 HP Motor
  - 94' TDH
  - 333 GPM
- 2 Medium Distribution Pumps
  - 5 HP Motor
  - 104' TDH
  - 111 GPM

All pumps in TARPS have a pump centerline of 5,880.58' and are set in the model accordingly.

Elevations and pipe routing for the proposed Waterview East Commercial, and Trails at Aspen Ridge Filings 1-5 were derived from developer submitted final plans, and preliminary development plans. The high point within PZ 7A is located within the Waterview East Commercial, with a corresponding elevation of 5,962 feet. Figure 1 below shows elevations within the proposed commercial district, and pipe routing according to the Waterview East Commercial Preliminary Grading Plan produced by Kimley-Horn. This high point also corresponds with the area that is anticipated to have the highest fire flow requirements due to the commercial development.

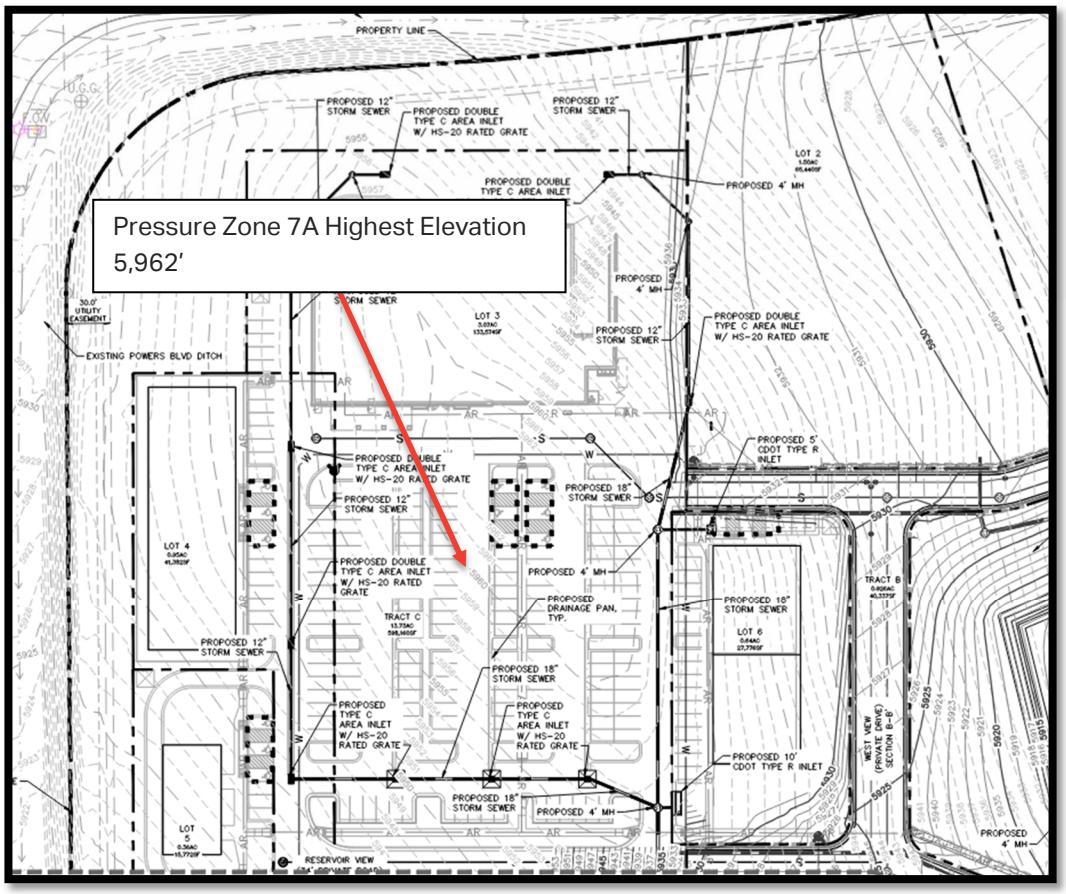


Figure 1 – Proposed Commercial District

MODEL RESULTS

Under the existing conditions of 2026 meter demand, with an additional 0.217 GPM demand to achieve the max day demand, the approximate inlet pressure to TARPS at buildout of Pressure Zone 7A is 57.4 PSI. This pressure is representative of the existing system without any improvements. During max day flows the station has adequate inlet pressure to serve the entirety of PZ 7A. Residual pressures at the high point within PZ 7A achieve 60 PSI, as does a set point for the large distribution pump within the model. Figure 2 below shows approximate pressures within this region.

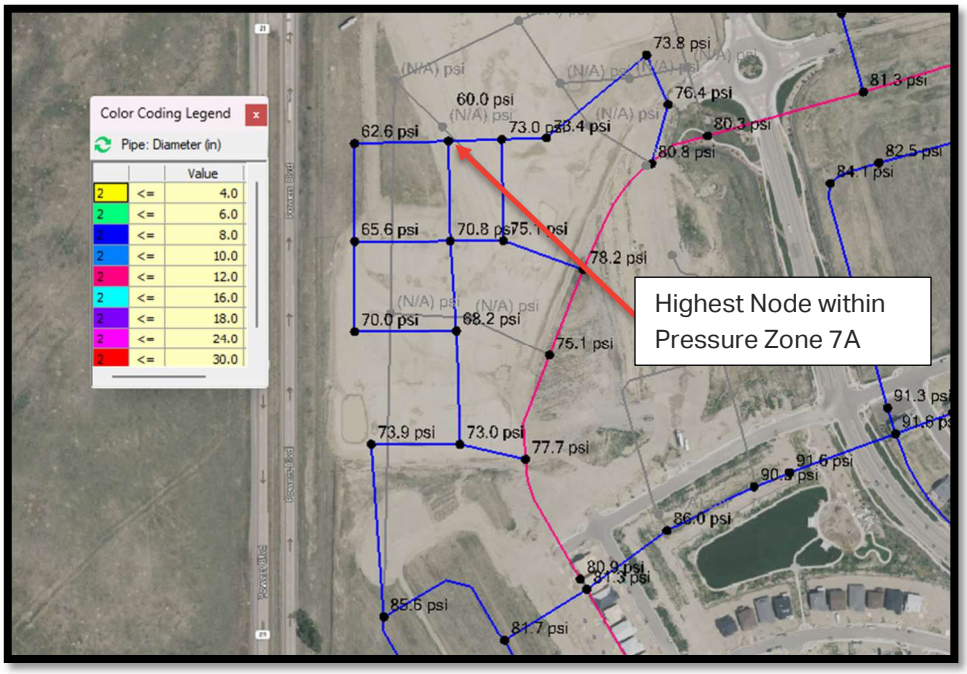


Figure 2 - High Elevation Pressures in PZ 7A

As noted by WWSD, the goal design fire flow through the system based on the wide range of potential commercial development is 3,500 GPM. When a 3,500 GPM fire flow is simulated at the highest node in PZ 7A under previously described existing conditions, plus having PZ 7A full buildout, results show a negative inlet pressure to TARPS. Figure 3 below depicts the inlet pressure to TARPS under 3,500 GPM fire flow. The negative inlet pressure is a consequence of high headloss experienced across the system before reaching TARPS. The 3,500 GPM fire flow, plus 427 GPM of max day demand flow, must flow from the Elevated tank to the inlet at TARPS. As water travels, one of the primary constricting points is the existing 10" AC main located on Fontaine Blvd. north of Brook Forrest Drive. This main accounts for 61.08 feet (26.44 PSI) of headloss across approximately 753 feet of pipe. This 10" AC main is the single support line for all water delivery east of Powers Blvd. Figure 4 below depicts headloss through this line.

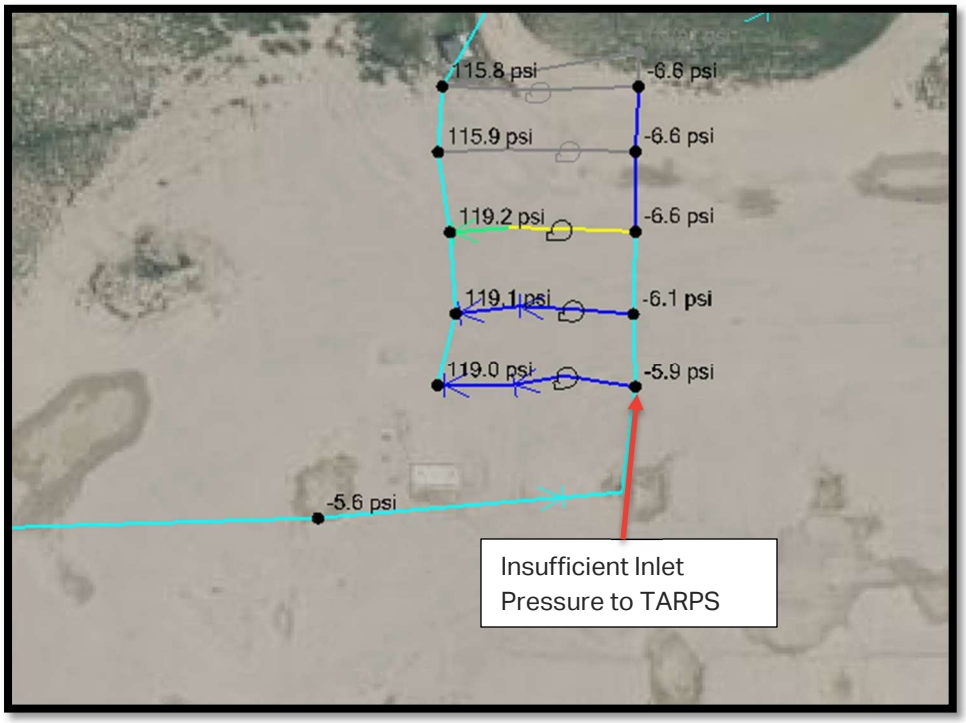


Figure 3 - Inlet Pressure at TARPS under 3,500 GPM Fire Flow, 10" AC Line Along Fontaine

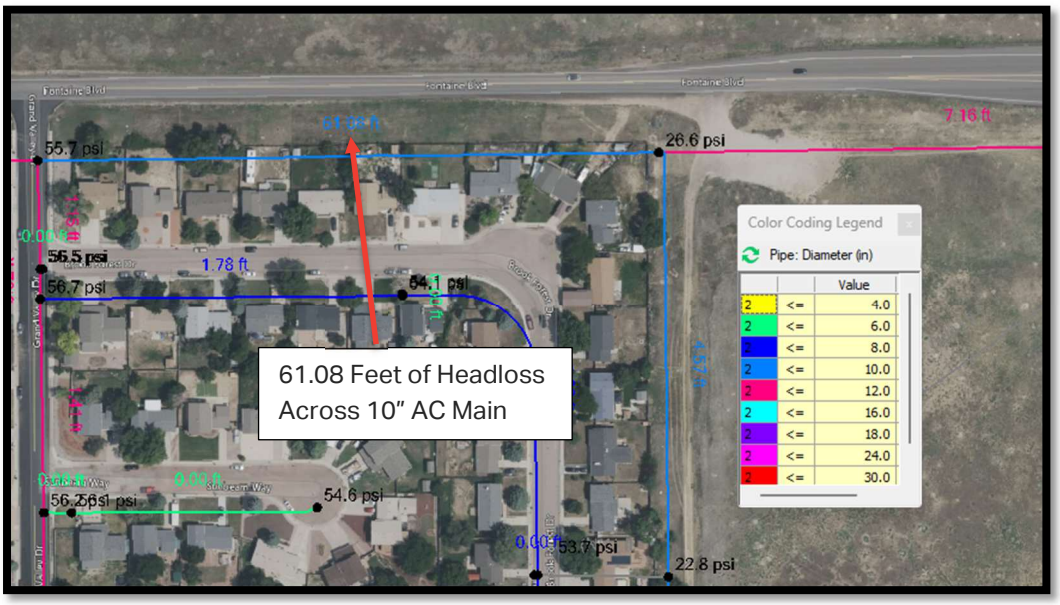


Figure 4 - Headloss in 10" AC Main Along Fontaine Blvd.

If this segment of 10" AC main was upsized to16" PVC, it would increase inlet pressures at TARPS to 9.4 PSI but would result in lower portions of Trails at Aspen Ridge not meeting 20 PSI residual pressure during the 3,500 GPM fire flow. Figure 5 below shows inlet pressure with the 10" AC line upsized to a 16" PVC line, and Figure 6 below displays residual pressures within southern portions of the Trails at Aspen Ridge which are below the required 20 PSI residual pressure.

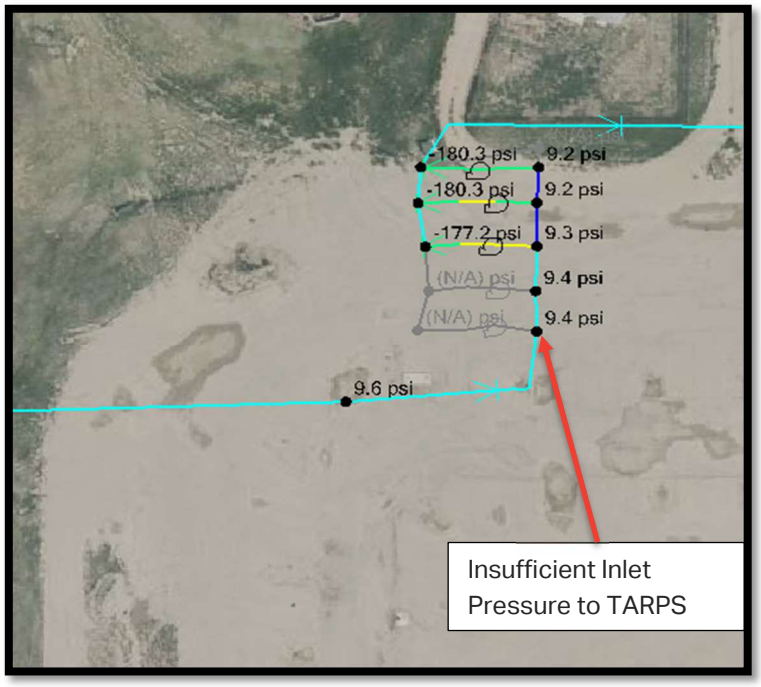


Figure 5 – Inlet Pressure at TARPS under 3,500 GPM Fire Flow, 16" PVC Line Along Fontaine Blvd.

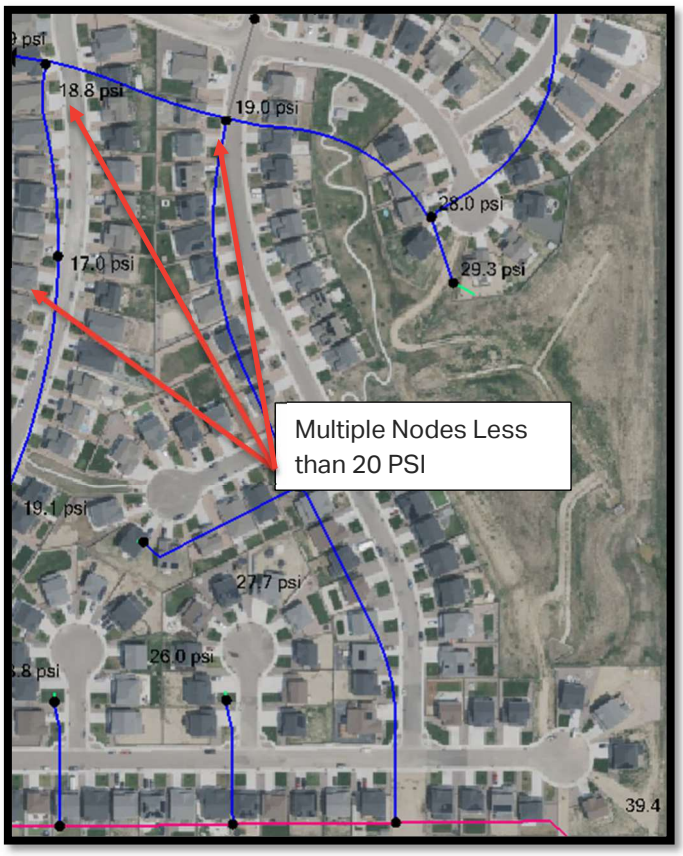


Figure 6 - Residual Pressures in Lower Area of Trails at Aspen Ridge

As previously described in the TARPS Modeling Memo, which can be found in attachment A, an additional cross connection located on Blue River Drive is required to meet fire flow requirements in PZ

7A. A home has been identified at 6735 Blue River Way, Colorado Springs, CO that would be an ideal crossing point to provide redundancy and looping within the system. Figure 7 below shows the proposed 12" PVC line crossing through this property and connecting with the existing 12" PVC line.

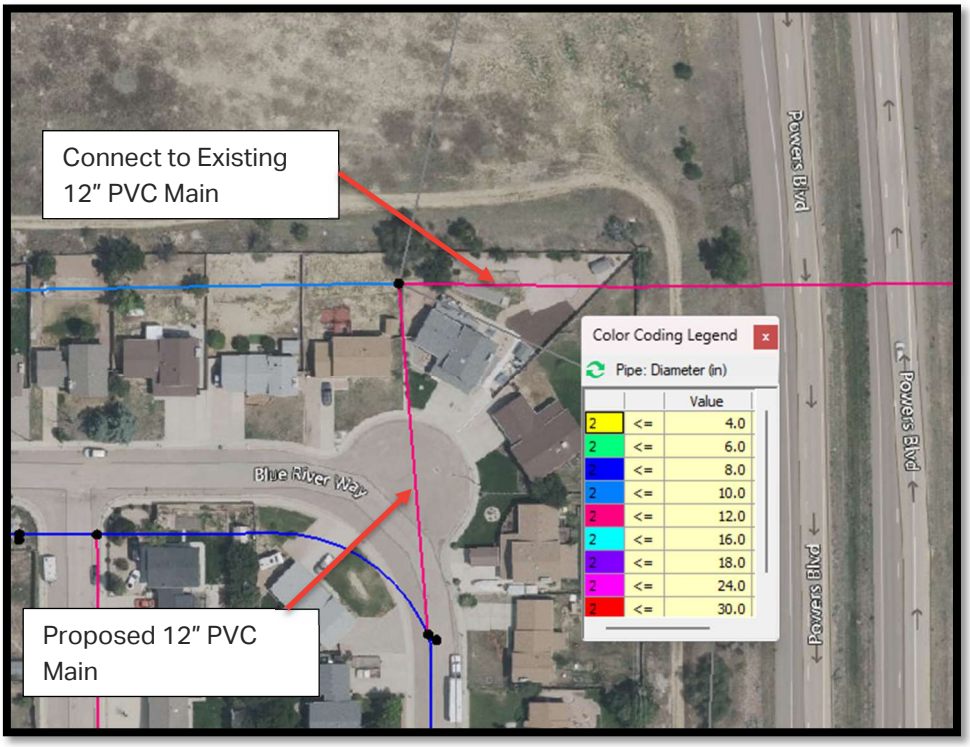


Figure 7 - Proposed 12" PVC Crossing

The result of this cross connection, plus upsizing the existing 10" AC main to a 16" PVC main, under 3,500 GPM fire flow produces an inlet pressure at TARPS of 19.6 PSI. This pressure is above the minimum operating pressure of 15 PSI for the station. Figure 8 below shows the inlet pressure to TARPS with the proposed improvements implemented, and a 3,500 GPM fire flow at the high point of PZ 7A.

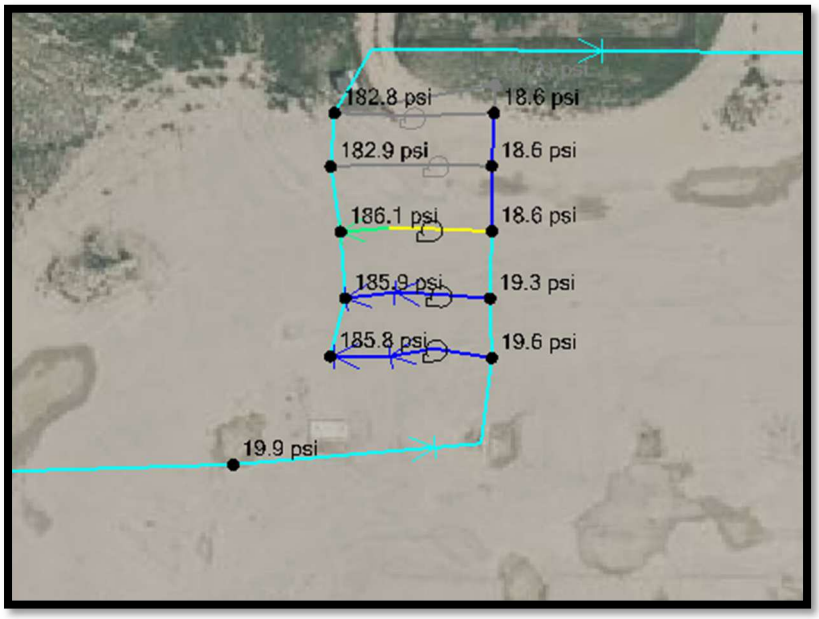


Figure 8 - Inlet Pressure at TARPS under 3,500 GPM Fire Flow, With Improvements

Residual pressures within the southern portion of the Trails at Aspen Ridge are also above the required 20 PSI residual pressure with these upgrades during a 3,500 GPM fire flow, as seen in Figure 9 below.

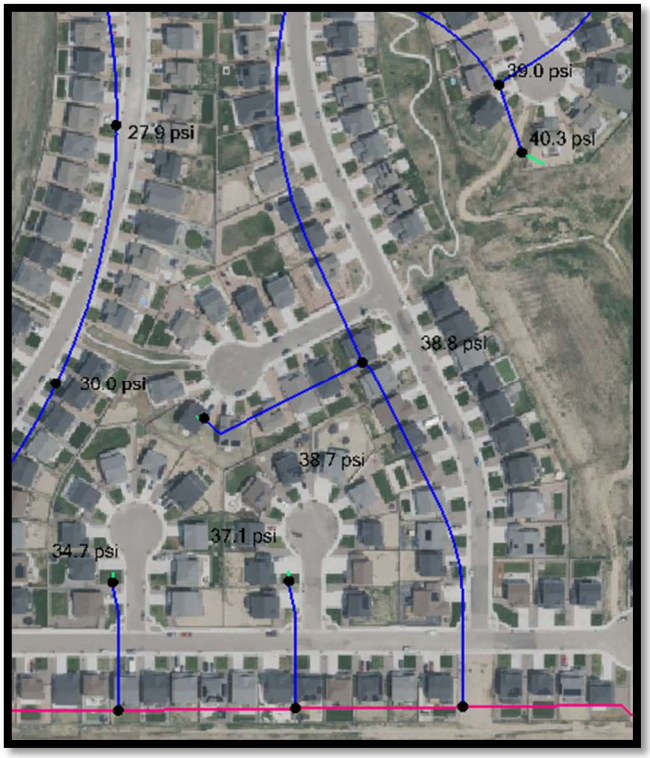


Figure 9 - Residual Pressures in Lower Area of Trails at Aspen Ridge

The combination of the large distribution pump and both fire flow pumps provides adequate flow and head to meet minimum service pressure requirements at the simulated fire flow node. In Figure 10

below, both fire flow pumps are active along with the large distribution pump, which has a target pressure of 45 PSI at the simulated fire flow node.

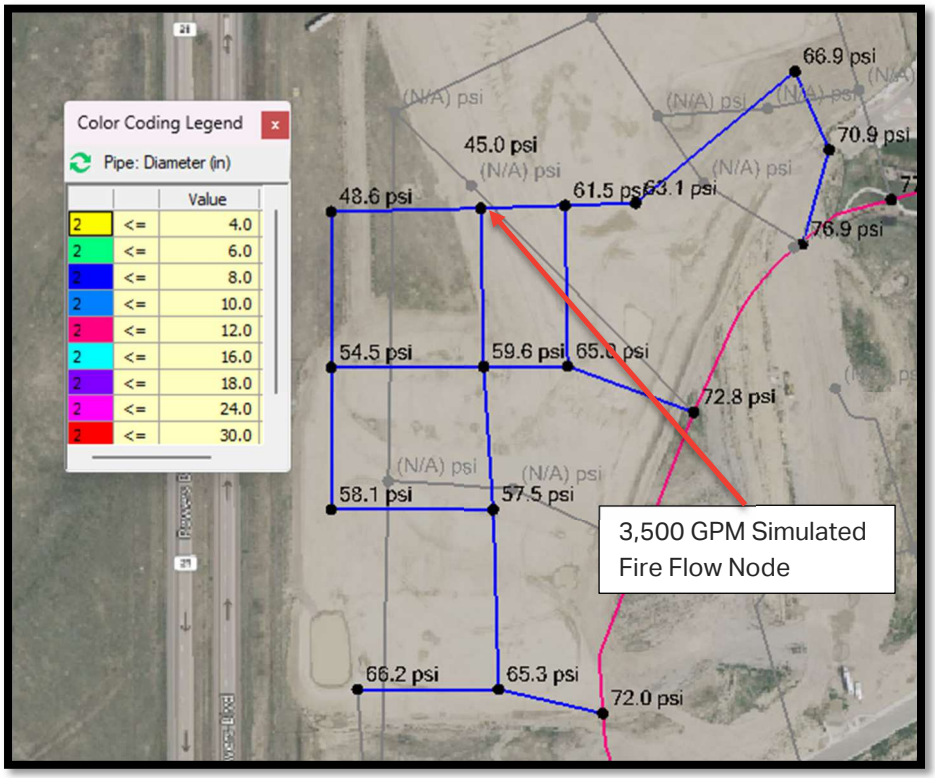


Figure 10 - Resulting Fire Flow Pressures With Improvements

CONCLUSIONS

With existing infrastructure, TARPS has adequate inlet pressure to maintain service pressure for max day flows. However, to accommodate a 3,500 GPM fire flow, upgrades must be made to the existing system. The existing 10" AC Main along Fontaine Blvd. should be upgraded to a 16" PVC line to reduce headloss. In addition, a 12" cross connection should be built at 6735 Blue River Way to increase redundancy and reliability in the system.

The 12" cross connection at 6735 Blue River Way should be constructed first. When this line is constructed, it can support max day demands while the 10" AC main is under construction. If the 10" AC main were to be constructed first, then all water users east of Powers Blvd., including those in PZ 7A, will lose water service. The 12" cross connection can support max day demands with an inlet pressure to TARPS of 58.5 PSI. The cross connection cannot however support the 3,500 GPM fire flow alone, and requires the 10" AC main to be upsized to a 16" PVC main. Figure 11 below shows these recommended system improvements.

Upon submission of proposed piping layouts from developers, looping and velocity calculations will be confirmed throughout the Waterview East Commercial district.

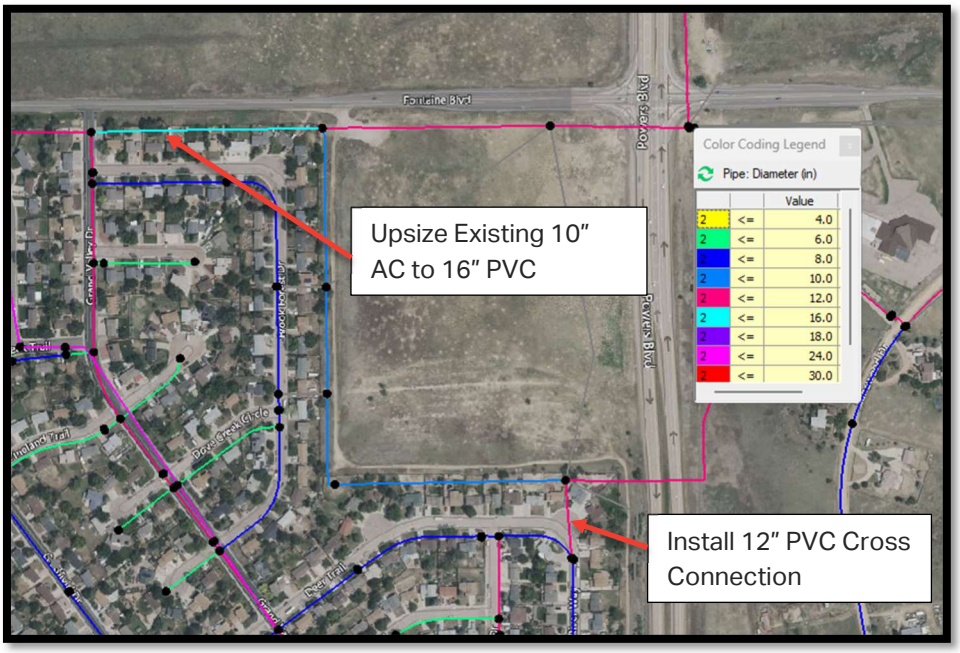


Figure 11 - Recommended Improvements

APPENDIX A

WATERCAD MODELING RESULTS MEMO

COLA: TRAILS AT ASPEN RIDGE

ISSUED NOVEMBER 25, 2019

Modeling Results

COLA: Trails at Aspen Ridge – Pressure Zone 4
Widefield Water and Sanitation District

I. Summary

This water modeling analysis was completed for the Trails at Aspen Ridge development to determine connections and/or required upgrades to the Widefield Water and Sanitation District's (WWSD) existing water system required to provide water supply to the development. The water service pressure of the planned lots, fire flow availability at hydrants, and water age were also considered. Future development that will be served by the planned booster pump station was also considered.

The Trails at Aspen Ridge development will be served by Pressure Zone 4 of the WWSD system. Pressure for Zone 4 is provided by the elevated tank at the Goldfield site that is jointly owned by WWSD and the City of Fountain. Water is pumped from the 4 MG joint storage tank into the elevated tank. Filing 1 of the development can be served by the elevated tank but additional filings with service taps above 5870 feet in elevation will require the addition of a booster pump station to provide adequate service pressure. Upgrades to the WWSD water system required to serve the full build out of the Trails at Aspen Ridge development include:

- install a second 12-inch water main from the existing system to create a loop,
- replace the existing 6-inch water line in the northern portion of Lonewood Drive with a 12-inch water main,
- replace the existing elevated booster station pumps with larger pumps to provide redundancy.

II. Model Data

A. EXISTING FACILITIES

WWSD's Pressure Zone 4 has two water sources, surface water from the Fountain Valley Authority (FVA) and groundwater from wells in the Widefield aquifer. Both sources can move water to a 4 MG ground storage tank on the Goldfield Tank Site that is jointly owned by WWSD and the City of Fountain. A booster pump station located inside the stem of the elevated tank then boosts water from the 4 MG tank to the elevated tank. Both the elevated tank booster station and the elevated tank are jointly owned by WWSD and the City of Fountain. Specifics on each facility are noted below.

Jointly Owned Elevated Tank

Volume = 0.75 MG, approximated in model as 65.25 ft diameter with 35 ft height
Ground Elevation = 5893.50
MIN HGL = 5983 ft
MAX HGL = 6018 ft
Assumed Fire Flow Tank Level = 15 feet (HGL of 5998 ft)
Assumed Typical Tank Level = 30 ft (HGL of 6013 ft)
Maximum Service Elevation Assumed by Trails at Aspen Ridge = 5870 ft

Jointly Owned Ground Storage Tank (Water Supply to Elevated Tank Booster)

Volume = 4 MG
Diameter = 150 ft
Finished Floor Elevation = 5893 ft
MAX HGL = 5933 ft
Assumed Maintained Tank Level = 25 ft providing an assumed HGL of 5918 ft

Elevated Tank Booster Station (Jointly owned by WWSD and City of Fountain)

Currently it consists of two constant speed 50 HP units which turn on and off as needed to transfer water from the 4.0 MG ground storage into the elevated. The pumps themselves are over-sized so that if/when needed, larger impellers can be installed and the drivers increased to 75 HP for a maximum flowrate of 2600 gpm.

Finished Floor Elevation = 5893 ft

Existing Pumps: Pentair Aurora 410-HSC, Size 8x8x11B
Impeller Diameter = 10.375 in
Design Point 1300 gpm, 100 ft TDH
Motor 50 HP, 230/460 Volt, 3 Phase

B. EXISTING DEMANDS AND USER CHARACTERISTIC DEFINITION

The number of parcels within the existing service area for Pressure Zone 4 is estimated as 1791. The commercial taps in the existing zone are King Elementary School with an estimated 645 students, Sunrise Elementary School with an estimated 650 students and Fountain Valley school with an estimated 240 students, of which 170 live on campus. The demand from each elementary was assumed as 14 SFEs and the Fountain Valley School as 95 SFEs. Actual water use records from the schools should be evaluated to confirm SFE estimates. Based on these assumptions, the existing SFEs in Pressure Zone 4 was defined as 1914 SFEs.

A meter is installed on the effluent of the elevated tank for both Widefield and the City of Fountain. The totals, averages and max day from the daily meter readings on the effluent meter specific to Widefield are included in the table below. This indicates the existing demand for Pressure Zone 4. The average flowrate is increasing as additional development occurs within the zone. There is heavy construction water use within Pressure Zone 4 due to development but for planning purposes, this demand will not be deducted.

Table B-1: WWSD Elevated Tank Effluent (Existing Pressure Zone 4 Demands)

Year	Total Acre Feet of Water Used in Zone 4	Average Flowrate (gpm)	Max Day (gallons per day)	Max Day (gpm)	Construction Water Used (acre-feet)
2017	536	332	1140352	792	
2018	589	365	1289511	**895**	
2019 (thru August)	413	384	1223166	849	20
Average		**360**			

The average daily demand (ADD) of the system is calculated as 0.19 gpm by dividing 360 gpm by the estimated 1914 SFEs. WWSD uses a planning number for average daily demand of 0.35 AF/SFE or 0.22 gpm/SFE. The planning number is utilized for the calculations moving forward and gives an ADD of 421 gpm for the existing system. The maximum daily demand (MDD) is calculated as 0.47 gpm by dividing 895 gpm by 1914 SFEs.

The effluent meter readings from the elevated tank for City of Fountain are included in Table 2 below. The totals, averages and max day from the daily meter readings on the effluent meter specific to the City of Fountain are included in Table 2 below. The average flowrate for the City of Fountain is 170 gpm.

Using the ADD planning user characteristic for WWSD of 0.22 gpm, this represents 774 SFEs. The MDD of 370 gpm with 774 SFEs closely matches the 0.47 gpm use characteristic for WWSD so the same MDD factor was utilized.

The peak hour flow (PHF) for both WWSD and the City of Fountain was estimated at 0.70 gpm per SFE which yields an existing PHF of 1882 gpm.

Table B-2: City of Fountain Elevated Tank Effluent Meter

Year	Total Acre Feet of Water Used in Zone 4	Average Flowrate (gpm)	Max Day (gallons per day)	Max Day (gpm)
2017	247	153	415498	289
2018	306	190	532572	**370**
2019 (thru August)	181	168	462819	321
Average	245	**170**		

The existing demands are summarized below. The existing demand for the Elevated Tank Booster Station includes the demand for the City of Fountain that is also supplied by the station.

Existing Demand - WWSD Pressure Zone 4
Total SFEs = 1914 SFEs
ADD = 1914 SFEs x 0.22 gpm = 421 gpm
MDD = 1914 SFEs x 0.47 gpm = 900 gpm
PHF = 1914 SFEs x 0.70 gpm = 1340 gpm

Existing Demand – Elevated Tank Booster Pump Station
Total SFEs = 1914 (WWSD) + 774 (City of Fountain) = 2688 SFEs
ADD = 2688 SFEs x 0.22 gpm = 591 gpm
MDD = 2688 SFEs x 0.47 gpm = 1264 gpm Current Max Day
PHF = 2688 SFEs x 0.70 gpm = 1882 gpm

C. FUTURE DEMANDS

The proposed Trails at Aspen Ridge development includes 167.4 acres and proposes a total of 786 lots. The 181 new lots in Filing 1 will float off the existing elevated tank in Pressure Zone 4. The additional 605 lots will require a booster pump station to provide adequate service pressure. The new pressure zone that will be created by the booster station will be referred to as Pressure Zone 4A for the purpose of this report.

Demand for future development on additional land that is included in the District but currently undeveloped was also considered. Per the Inclusion and Service Agreement between Widefield Water and Sanitation District and Rankin Holdings, LP, dated February 20, 2015 parcels depicted on Figure C-1 were included in the District's water service area. Parcel B includes the proposed Trails at Aspen Ridge development and a 26-acre parcel to the north that is currently zoned as CS (Commercial Service) and could accommodate retail, wholesale or service commercial uses that serve the general public. Parcels A, C and D are currently zoned as A-5 for agricultural use. The 320-acre parcel to the south of the proposed Trails at Aspen Ridge development is currently owned by the State Land Board and is and is also zoned as A-5. The parcel owned by the State Land Board is currently not included in the District boundaries but it is assumed that it will be served by Widefield in the future. For the purposes of future planning, it was assumed that Parcel A and

the State Land Board parcel would be developed at the average density of 4 SFEs per acre. It was assumed that no development would occur in Parcels C and D since they lay in the flight path for the Colorado Springs Airport.

Three phases were considered for future development defined as: Phase 1 – Filing 1 of Trails at Aspen Ridge built, Phase 2 – All Filings of the Trails at Aspen Ridge built, Phase 3 – Buildout or all future development in Pressure Zones 4 and 4A built.

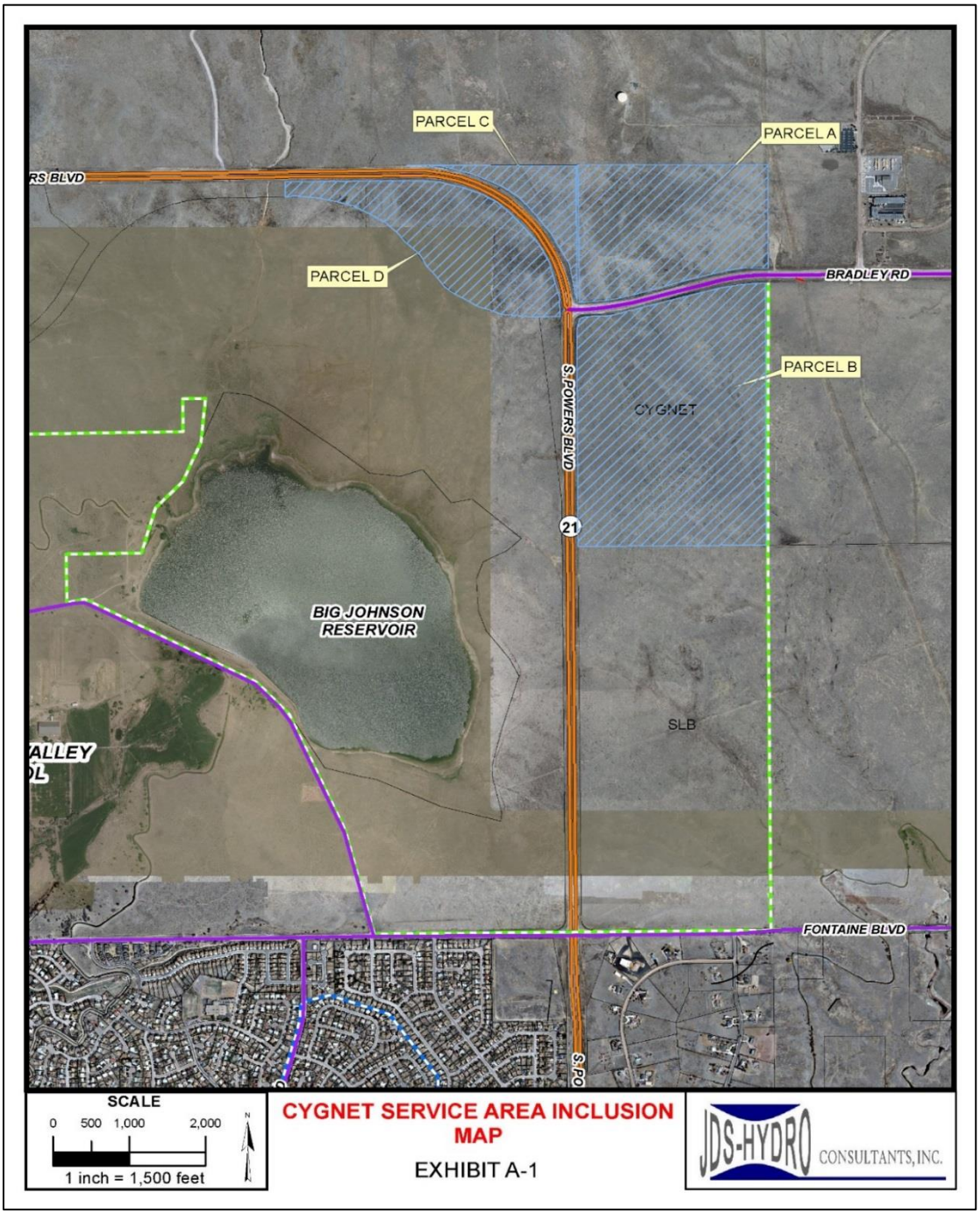


Figure C-1 – Future Parcels Served by Pressure Zone 4 and 4A

Table C-1: Assumed Future SFEs in Pressure Zone 4A (served by booster station)

Parcel	Current Landowner	Schedule #	Land Area (acres)	Demand Density (SFEs per gross acre)	SFEs	Pressure Zone
A	Rankin Holdings East	5500000414	100	4	400	4A
B	CPR Entitlements LLC (Assumed Commercial)	5500000413	26	4	104	4A
D	Rankin Holdings West	5500000333	73	0	0	4A
C	Rankin Holdings East	5500000332	17	0	0	4A
B	Trails at Aspen Ridge – Future Filings	5500000412	111	5.45	605 *(as shown on preliminary plan)*	4A
TOTAL			**327**		**1109**	

Table C-2: Assumed Future SFEs to be added to Existing Pressure Zone 4

Parcel	Current Landowner	Schedule #	Land Area (acres)	Demand Density (SFEs per gross acre)	SFEs	Pressure Zone
B	Trails at Aspen Ridge – Filing 1	5500000412	56	3.23	181 *(as shown on preliminary plan)*	4
Marked as SLB	State Land Board	5500000015	320	4	1280	4
TOTAL			**376**		**1461**	

Pressure Zone 4A Demands – Future Buildout

Based on Table 2 and the user characteristic developed based on existing demands, the future demand for the proposed pressure zone 4A served by a booster station is as follows:

ADD = 1109 SFEs x 0.22 gpm = 244 gpm
MDD = 1109 SFEs x 0.47 gpm = 521 gpm
PHF = 1109 SFEs x 0.70 gpm = 776 gpm

Pressure Zone 4 Demands – Future Buildout

The total SFEs that would be served by Pressure Zone 4 include the existing SFEs, future SFEs as noted in Table 3 and those served by the proposed Pressure Zone 4A since the booster station supply would come from the elevated tank. Therefore, the future demand for Pressure Zone 4 is as follows:

Total Future SFEs = 1914(existing)+1461(future)+1109(Pressure Zone 4A) = 4484 SFEs
ADD = 4484 SFEs x 0.22 gpm = 986 gpm
MDD = 4484 SFEs x 0.47 gpm = 2107 gpm
PHF = 4484 SFEs x 0.70 gpm = 3139 gpm

Elevated Booster Tank Demands - Future

The total SFEs that would be served by the Elevated Tank Booster Pump Station would include City of Fountain demands and all SFEs in Pressure Zone 4 and 4A. The future demand for the Elevated Tank Booster Pump Station is as follows:

Phase 1 – Filing 1 Trails at Aspen Ridge
Total SFEs = 1914(existing) + 181 (Filing 1) + 774 (City of Fountain) = 2869 SFEs
ADD = 2869 SFEs x 0.22 gpm = 631 gpm
MDD = 2869 SFEs x 0.47 gpm = 1348 gpm
PHF = 2869 SFEs x 0.70 gpm = 2008 gpm

Phase 2 – All of Trails at Aspen Ridge Completed
Total SFEs = 1914(existing) + 786 (All Filings) + 774 (City of Fountain) = 3474 SFEs
ADD = 3474 SFEs x 0.22 gpm = 764 gpm
MDD = 3474 SFEs z 0.47 gpm = 1633 gpm
PHF = 3474 SFEs x 0.70 gpm = 2432 gpm

Phase 3 – All Future SFEs added including SLB
Total SFEs = 1914(existing) + 1109 (Pressure Zone 4A Future) + 1461 (Future) + 774 (City of Fountain) = 5258 SFEs
ADD = 5258 SFEs x 0.22 gpm = 1157 gpm
MDD = 5258 SFEs x 0.47 gpm = 2471 gpm
PHF = 5258 SFEs x 0.70 gpm = 3681 gpm

D. FUTURE FACILITIES AND TRAILS AT ASPEN RIDGE PIPING ARRANGEMENT

The elevated tank can provide a hydraulic grade (HGL) of 6013 ft. Standard service pressure for WWSD is 60 psi (or 140 ft). Considering 3 ft of head loss, the maximum service elevation for the elevated tank 5870 ft. A booster pump station will be required to serve properties above 5870 ft in elevation. Both the future distribution system and the future booster pump station should be designed to accommodate all future demand for the parcels currently included in the WWSD boundaries. The rough design outline for the booster pump station is outlined below.

Proposed Trails at Aspen Ridge Booster Pump Station Ultimate Buildout
Finished Floor = 5875 ft
Max Service Elevation of Area within Existing WWSD Service Area = 6000 ft
Expected Inlet HGL = 6010 ft
HGL Required = 6000 ft + 140 ft (or 60 psi) + 3 ft (headloss) = 6143 ft
Max Distribution Flowrate = 776 gpm (equal to PHF for Pressure Zone 4A)
Residential High Capacity Flowrate = 1500 gpm (fire flow) + 244 gpm (ADD for PZ 4A) = 1744 gpm
Commercial High Capacity Flowrate = 3500 gpm (fire flow) + 244 gpm (ADD for PZ 4A) = 3744 gpm

The piping to and from the booster station needs to be designed to accommodate expected future development to the north of the Trails at Aspen Ridge development. If commercial fire flow of 3500 gpm is required for properties to the north of the Trails at Aspen Ridge, a 16-inch inlet line to the booster station is required. A 12-inch mainline and future connection for an 8" loop is required on the outlet. The assumed location for the booster pump station and piping arrangement and size are shown in Figure D-1.

Parcels 76-89 in Filing 1 of the Trails at Aspen Ridge are above 5870 ft in elevation and will likely not have 60 psi service pressure. It is recommended that a parallel 8-inch line be installed next to the 12-inch trunk line. The hydrants should remain on the 12-inch line and the service taps are to be connected to the 8-inch line. Isolation valves should be installed to allow the 8-inch service line to be switched to the higher-pressure zone once the Trails at Aspen Ridge Booster Pump station is operational. All parcels that are part of additional filings should be served from the higher-pressure zone 4A. Figure D-1 outlines the assumed piping arrangement for additional filings at the Trails at Aspen Ridge. Figure D-2 shows the 5870 ft elevation line based on the existing and proposed grade for the Trails at Aspen Ridge.

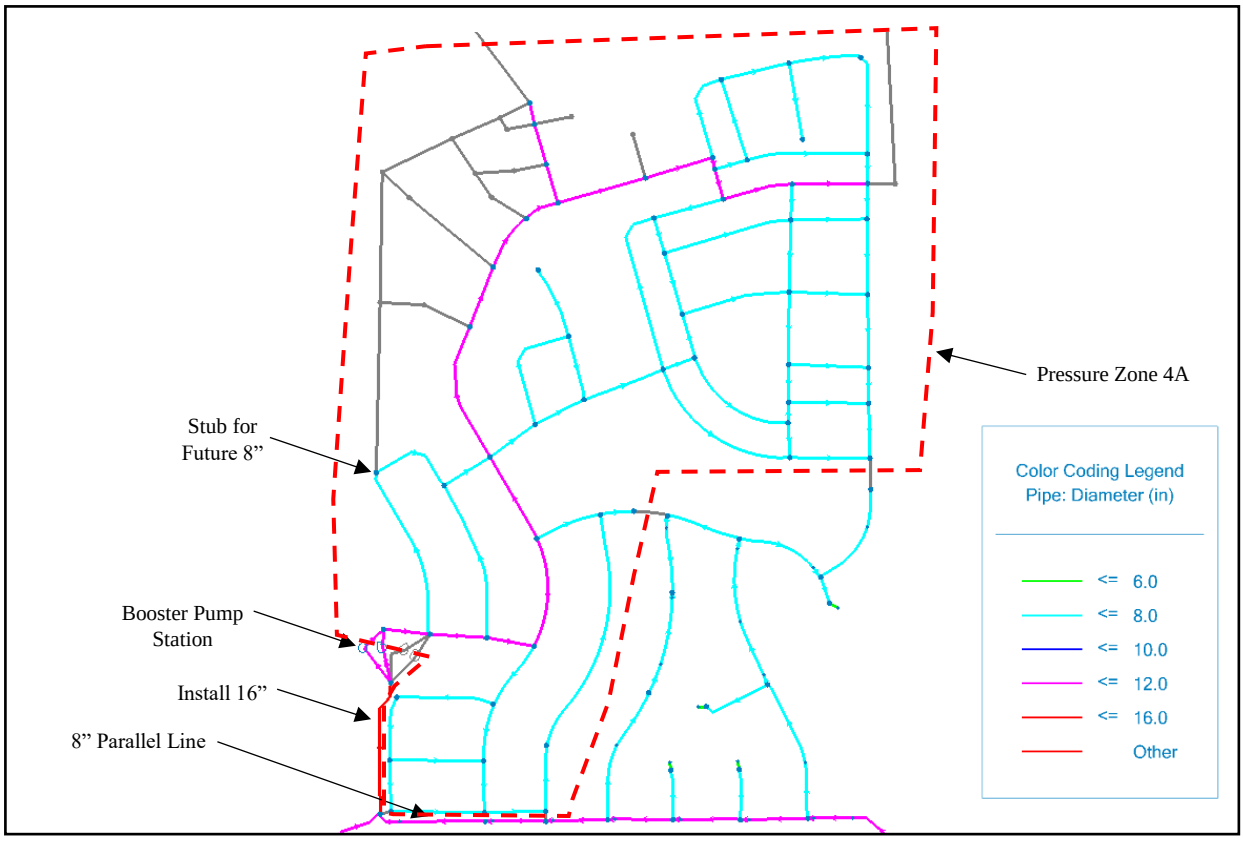


Figure D-1: Piping Arrangement for additional filings for the Trails at Aspen Ridge

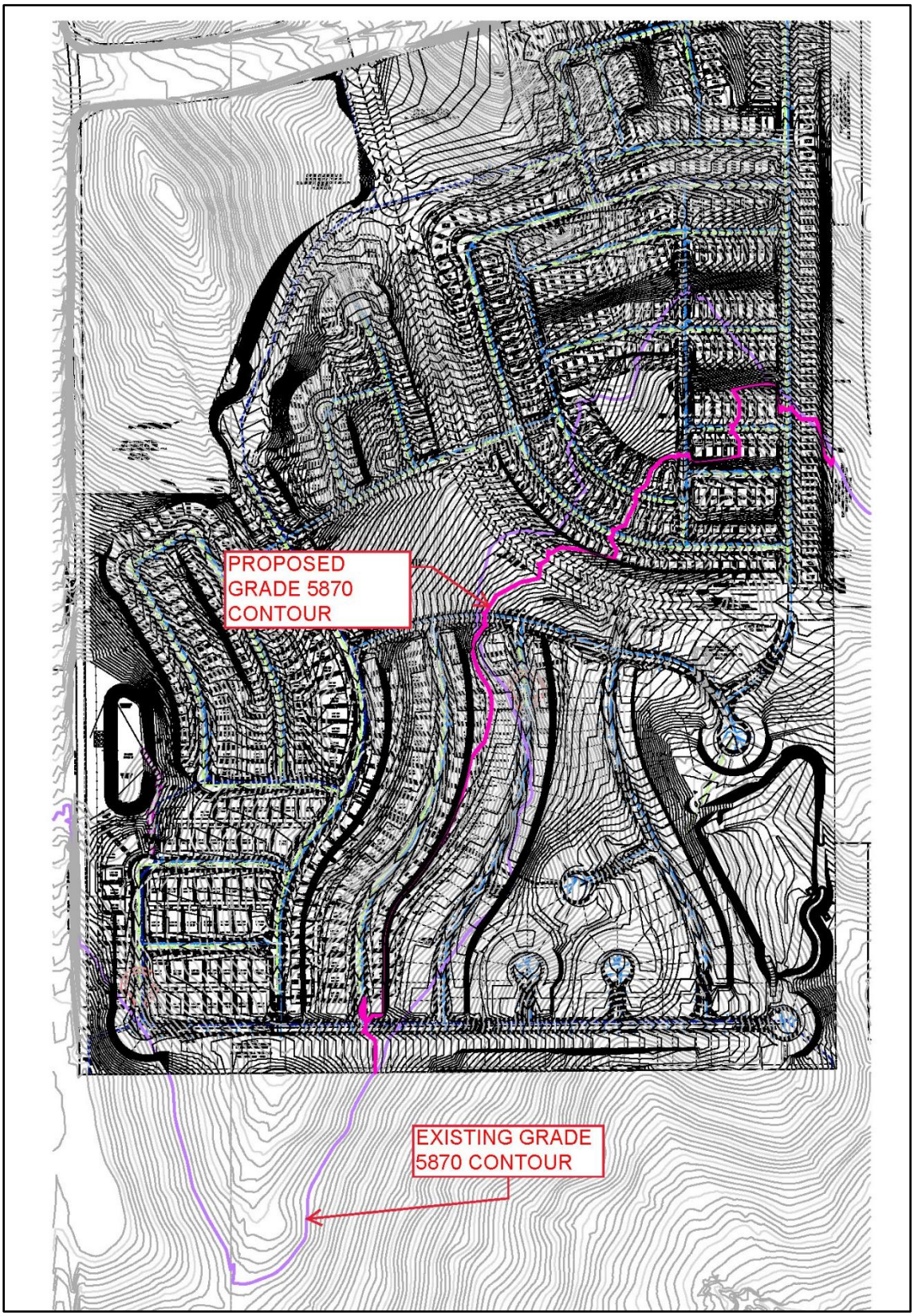


Figure D-2: Service Area for Elevated Tank (assumed as 5870 ft and below)

E. ELEVATED TANK BOOSTER PUMP STATION

Existing Piping at Elevated Tank

The as-builts of the piping arrangement for the 4 MG tank and the elevated storage tank were reviewed and pipe lengths and form losses were estimated as depicted in Figure E-1 and outline in Table E-1.

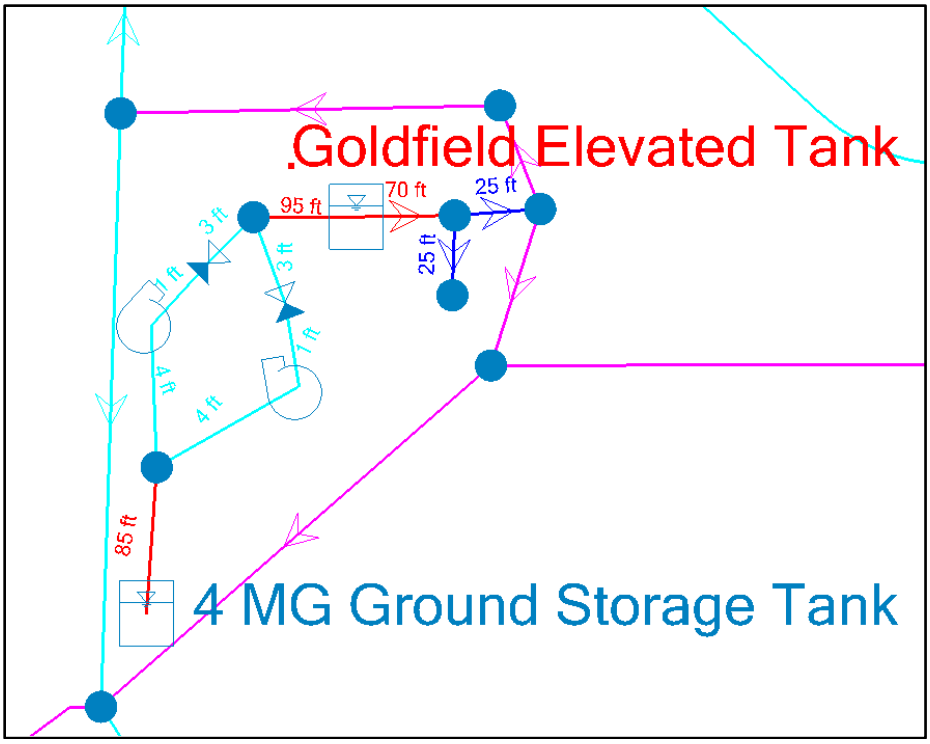


Figure E-1: Elevated Tank Booster Pump Station Piping Arrangement

Table E-1: Form Losses Assumed for Goldfield Facilities

Fitting/Valve	Size	Quantity
Butterfly Valve	24”	1
Tee – Branch Flow	24”	2
90 Degree Bend	8”	6 (2 per inlet pipe, 1 per outlet)
Butterfly Valve	8”	2 (1 per inlet pipe)
Pump Control Valve - Head Loss Curve per Original Submittal	8”	2 (1 per outlet pipe)
Tee – Branch Flow	16”	2 (1 on inlet, 1 on outlet)
Butterfly Valve	16”	1
90 Degree Bend	10”	4 (2 per outlet line)
Butterfly Valve	10”	4 (2 per outlet line)
Reducer	12” x 10”	2 (1 per outlet line)

Elevated Tank Booster Station Pump Upsizing

As noted in section A, the existing pumps at the Elevated Tank Booster Pump station have a design point of 1,300 gpm. The actual existing MDD based on the past three years is 895 + 370 gpm = 1264 gpm (see tables B-1 and B-2 presented in section B). Pump run times were evaluated for the past three years for the months of May through August as shown in Table E-2.

Table E-2: Pump Run Times for Elevated Tank Booster Pump Station

Time Period	Average Pump Run Time (hours/day)		
	2017	2018	2019
Averages			
May	16	16	11
June	12	16	13
July	10	13	14
August	12	11	13
May-August	12	14	13
Maximums			
Max Day	24	24	21
Max Week	19	20	18
Max Month	16	16	14

The pumps are running an average of 12-14 hours per day but do occasionally run 24 hours a day during high demand periods (this corresponds to actual zone use records). We would note that the Max Week requires a pump run time of 19 to 20 hours/day which is about 81% usage, which also indicates that the pump station is approaching capacity. With new growth now expected to begin taking place in Zones 4 and 4A it is a reasonable time to begin considering upsizing the pumping units. For the purposes of this report, we are suggesting that the units be upsized at or about the time that the new Zone 4A pump station goes into service. It should be noted that with the larger pump sizes, unit power costs will increase due to higher electrical charges on the instantaneous demand side. Since the pumps were originally over-sized so that if/when needed, larger impellers could be installed and the drivers increased to 75 HP to provide a maximum flowrate of 2300 gpm per pump. The smaller impellers and drivers were used to reduce power costs on the instantaneous demand charge. This upgrade would meet the needs of phase 1 and 2 of the future demand and a large part of phase 3.

Estimated Flowrate of Elevated Tank Booster Station
Phase 1 – Filing 1 of the Trails at Aspen Ridge Complete, MDD = 1342 gpm
Phase 2 – All of Trails at Aspen Ridge Completed, MDD 1626 gpm
Phase 3 – All possible Future SFEs added, MDD = 2465 gpm

F. UPGRADES TO WWSD DISTRIBUTION SYSTEM

In order to provide adequate pressure and flow when future filings of the Trails at Aspen Ridge are built, improvements need to be made to the WWSD system. These improvements could be phased as additional service taps are added. Improvements are shown in Figure D-2.

Phase 1 – Trails at Aspen Ridge Filing 1

- No improvements necessary.

Phase 2 – Trails at Aspen Ridge, Additional Filings

- Build Trails at Aspen Ridge Booster Pump Station. If a fire flow of 3500 gpm is required for properties to the north, upsize the inlet piping of the station to 16" as shown in Figure D-1.
- Install future stub at the intersection of Herd Hollow Path and Blue Miner Street to allow a future 8" loop to support commercial demand to the north.
- When a total of 470 SFEs have been added to the area served by the 12 inch water main running north from Fontaine on Powers, install a second 12" water main to create a loop to the east of the State Land Board parcel and replace existing 6" Perma-Strand line segment south of the State Land Board Parcel.
- Suggested timing to upgrade pumps at Elevated Tank Booster Station. *(Will cause higher unit power costs on instantaneous demand side)*

Phase 3 – Commercial Development

- Upgrade Trails at Aspen Ridge Booster Pump Station to provide higher commercial fire flow
- Add connection between 8-inch and 10-inch pipes to create a loop. (Note that commercial development southwest of Powers and Bradley Rd **or** southeast of Fontaine and Powers will require this connection as well.)

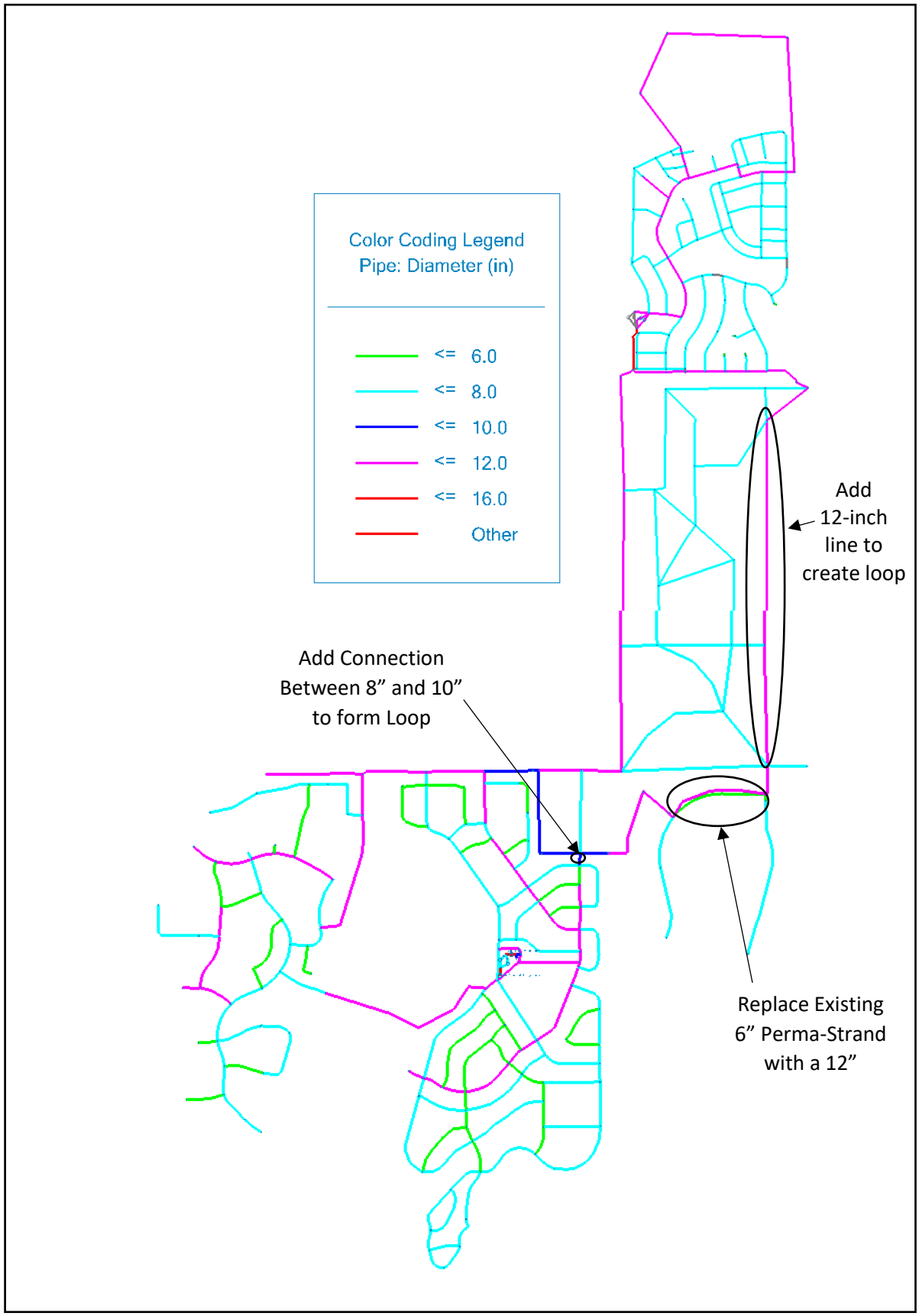


Figure F-1: WWSD System Improvements Needed

G. FIRE FLOW

Fire Flow Results – Phase 1: Trails at Aspen Ridge Filing 1 Built

The piping arrangement considered is shown in Figure G-1 and G-2. Figure G-1 shows the hydrant locations and ground elevations considered and Figure G-2 shows the existing pressure zone 4 piping arrangement and diameters. All hydrants in Filing 1 had acceptable fire flow and pressure available when the following initial conditions exists:

- Initial level in the elevated tank is 15 feet or an HGL of 5998 ft
- Demand = ADD = 631 gpm, Fire flow added to ADD for analysis
- Minimum Flow Required: 1500 gpm
- Minimum Pressure Required: 20 psi
- Elevated Booster Pumps off

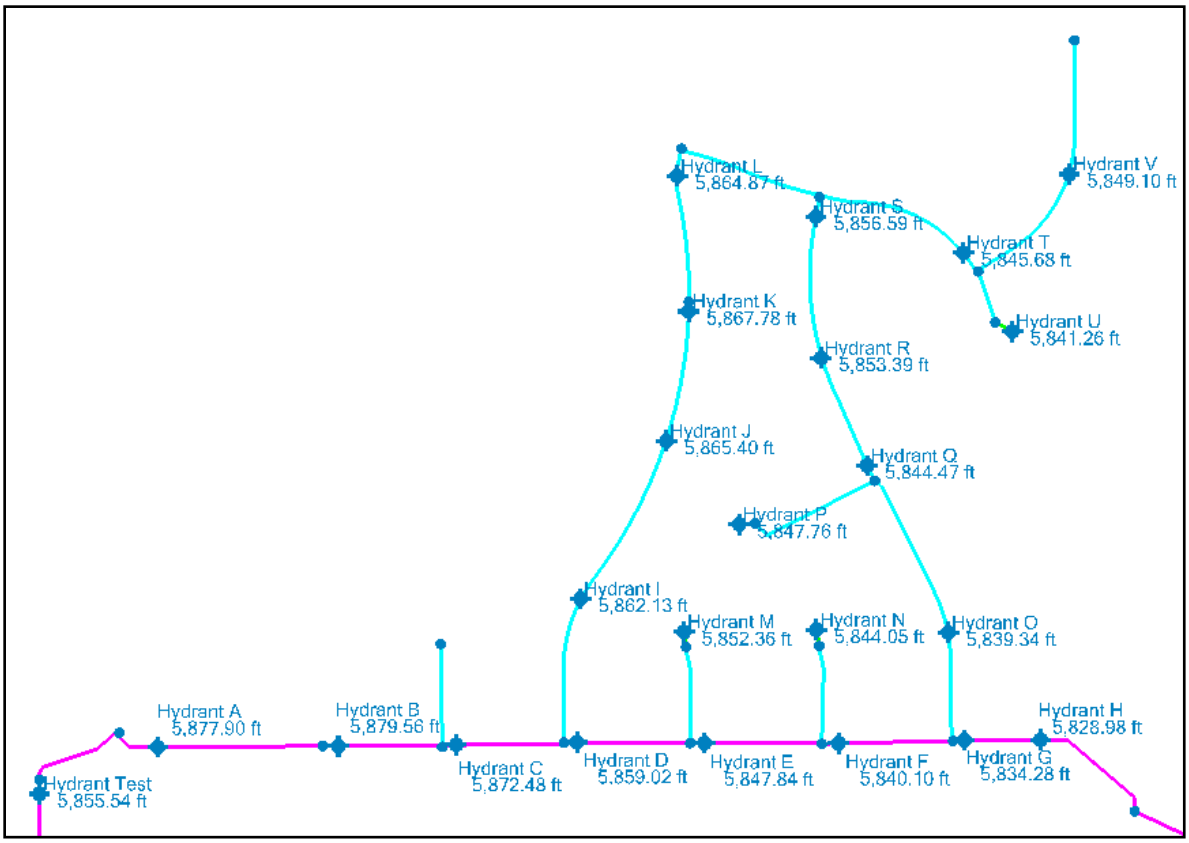


Figure G-1: Filing 1, Trails at Aspen Ridge Hydrant Locations and Ground Elevation

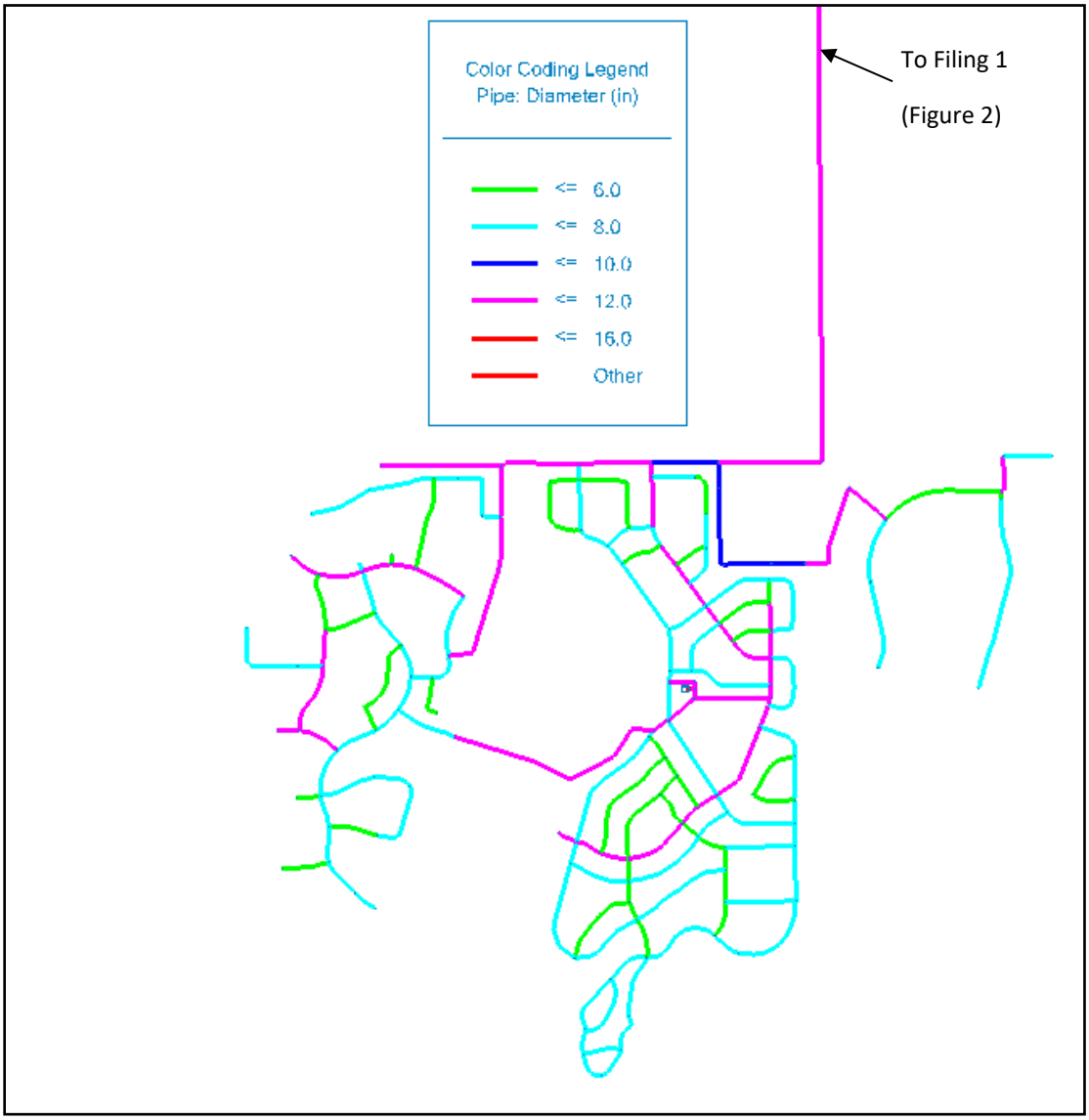


Figure G-2: Existing Pressure Zone 4

Operations performed a hydrant test on the hydrant located southwest of the Trails at Aspen Ridge at the end of the existing 12-inch line and reported a flowrate of 850 gpm at a pressure of 65 psi in March of 2019. A demand of 850 gpm was added to the same hydrant in the model with an initial tank level of 15 ft assumed. The resulting pressure was 54.4 psi. When the tank level was set at 6013 ft, the resulting pressure was 61 psi which indicates that the model is a conservative estimate of the fire flow and pressure available.

Fire Flow Results – Phase 2: All of Trails at Aspen Ridge Built

The piping arrangement considered includes the additional 12-inch loop from the WWSD system and replacement of the existing 6" AC line segment south of the State Land Board Parcel as noted in Figure F-1. All nodes had acceptable fire flow and pressure available when the following initial conditions exists:

- Initial level in the elevated tank is 15 feet or an HGL of 5998 ft
- Demand = ADD = 764 gpm, Fire flow added to ADD for analysis
- Minimum Fire Flow Required: 1500 gpm
- Minimum Pressure Required: 20 psi
- Trails at Aspen Ridge Booster Station Built and Active
- High capacity pump and distribution pump on to provide 2,264 gpm

Fire Flow Results – Phase 3: Buildout, All Future Demands Added

The piping arrangement considered assumed that all WWSD system improvements as shown in Figure F-1 (including the 16-inch booster station inlet line) were complete and that the following initial conditions exists:

- Initial level in the elevated tank is 30 feet or an HGL of 6013 ft
- Demand = ADD = 1157 gpm, Fire flow added to ADD for analysis
- Fire Flow Required: 3500 gpm
- Minimum Pressure Required: 20 psi
- Trails at Aspen Ridge Booster Station Built and Active, Pumps upgraded to meet 3500 gpm fire flow
- Elevated Tank Booster Pumps upsized to 2300 gpm each with both running

To simulate worst case condition for fire flow, a demand of 3500 gpm was added to the highest elevation in Parcel A of 6000 ft for a duration of 3 hours. All nodes with the exception of the inlet to the Trails at Aspen Ridge Booster Pump Station stayed above 20 psi. The inlet node dropped to 19 psi. If the inlet pipe is upsized to 24 inches, the inlet pressure to the station remains above 20 psi.

H. WATER AGE

Water age simulations were run for Filing 1 of the Trails at Aspen Ridge and the full buildout of the development. The water age at the 4 MG ground storage tank was taken as zero for the purpose of the simulation. The dead-end lines planned for Big Johnson Drive and Falling Rock Drive may require flushing during low demand times. The simulation at average daily demand showed a maximum water age (added to the initial water age in the tank) of 8.5 days when just Filing 1 is constructed and 8 days when all filings are constructed. Figures H-1 and H-2 below show snapshots from the simulations.

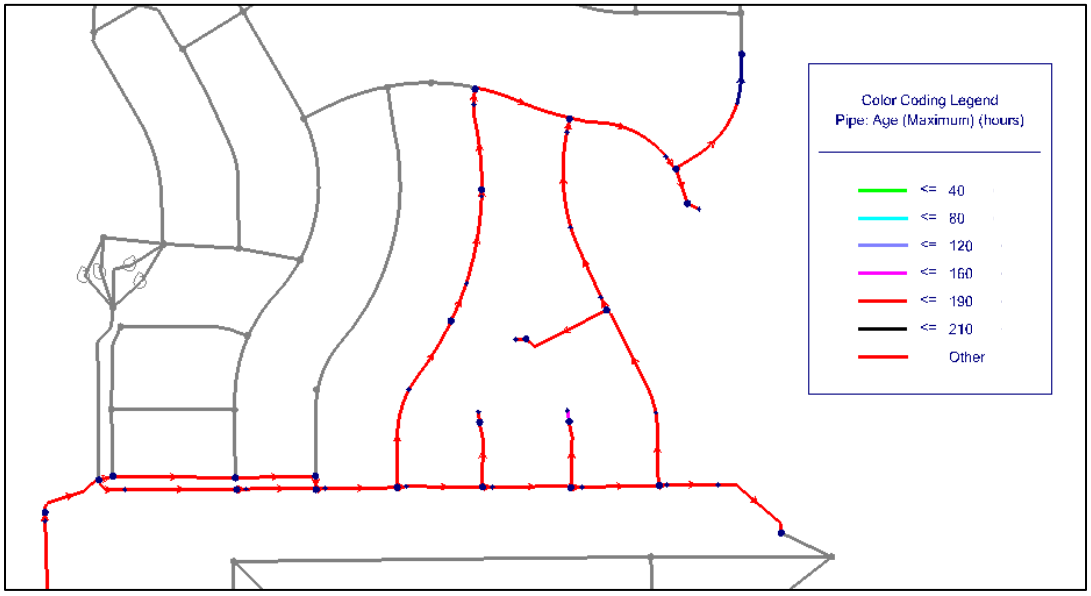


Figure H-1: Maximum Water Age in Trails at Aspen Ridge Filing 1

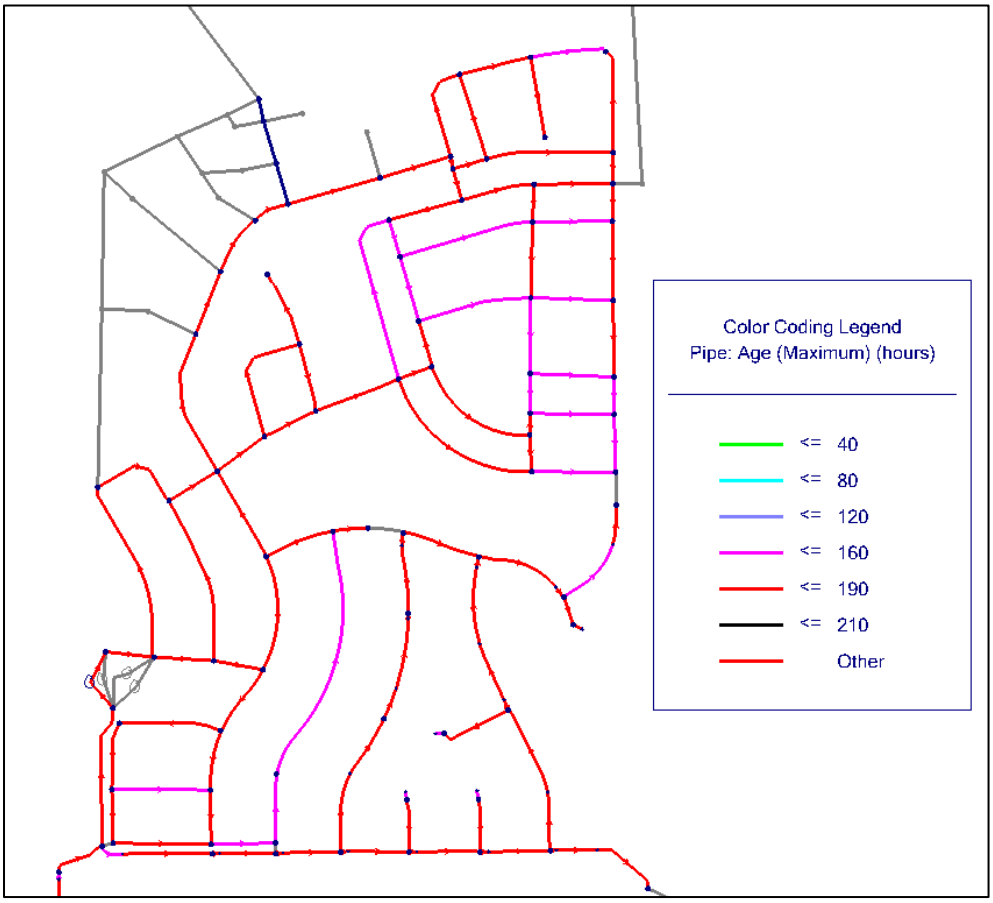


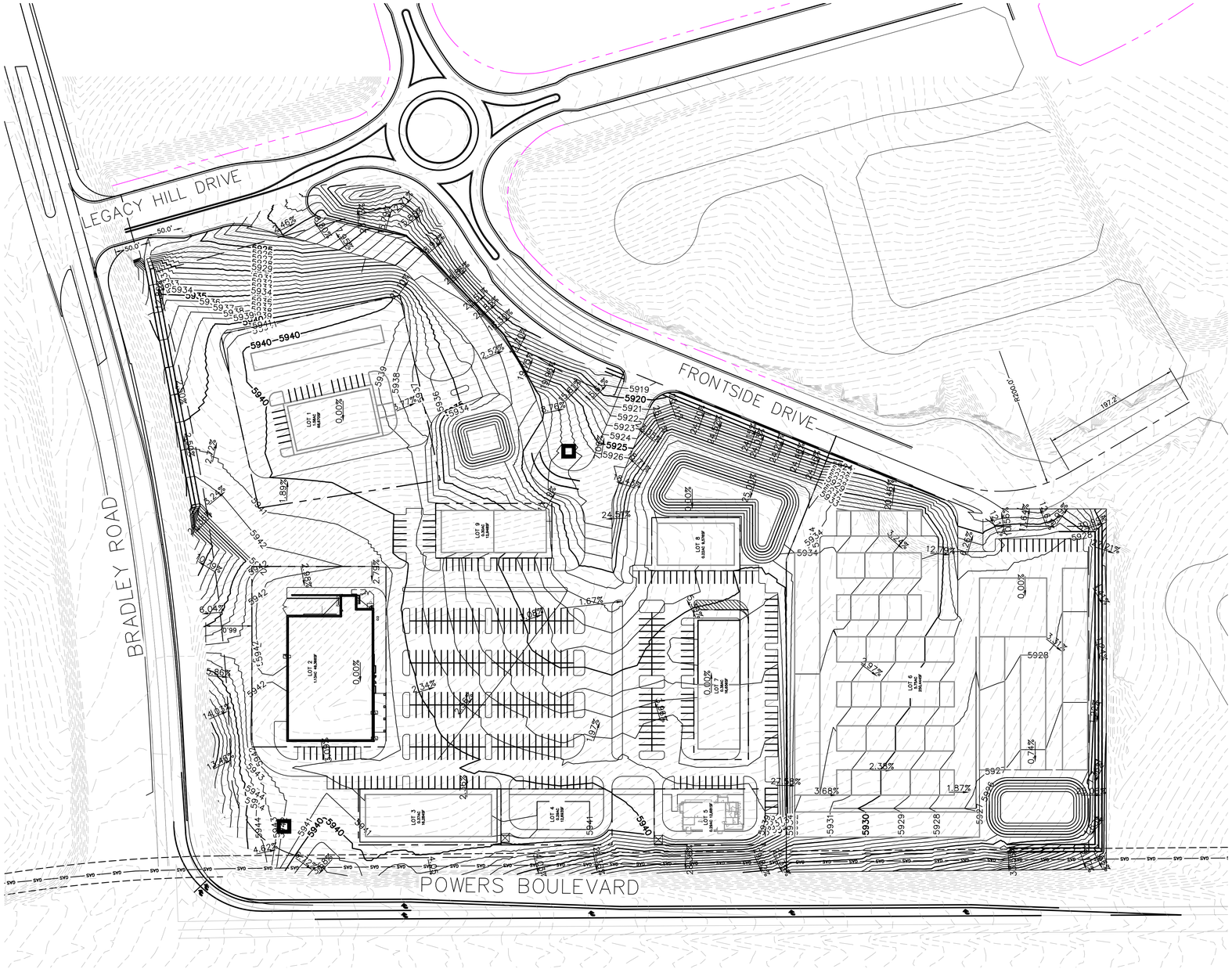
Figure H-2: Maximum Water Age in Trails at Aspen Ridge – All Filings

WATERVIEW EAST-COMMERCIAL

PRELIMINARY PLAN

SITUATED IN THE WEST HALF OF SECTION 9, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH P.M.,
CITY OF COLORADO SPRINGS, COUNTY OF EL PASO, STATE OF COLORADO

Exhibit B



LOT DATA	
LOT	SF/AC±
1	68,670/1.58
2	49,366/1.13
3	16,284/0.37
4	12,693/0.29
5	12,681/0.29
6	250,444/5.75
7	16,656/0.38
8	9,576/0.22
9	12,948/0.30

TRACT DATA	
TRACT	SF/AC
A	395,960/9.09

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

Kimley»Horn

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2 NORTH NEVADA AVENUE, SUITE 300
COLORADO SPRINGS, COLORADO 80903 (719) 453–0180

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