PRELIMINARY ENGINEERING REPORT

HIDDEN LAKE ASSOCIATION WATER SYSTEM

PREPARED FOR
HIDDEN LAKE ASSOCIATION

November 14TH, 2022

Prepared By:

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1. PROJECT PLANNING

The proposed project consists of several improvements to the existing water system serving the Hidden Lake Association community. Improvements include distribution pipeline improvements, installing a new Well source and furnishing a new tank to provide potable water service to the Hidden Lake Association community.

1.1. LOCATION

The Hidden Lake Association Water System (HLAWS) is located in Summit County, Utah approximately 6.5 miles east of the town of Oakley along Weber Canyon Road. The water system consists of approximately 127 connections over an area of approximately 175 acres. The project area is shown in the following Figure 1.

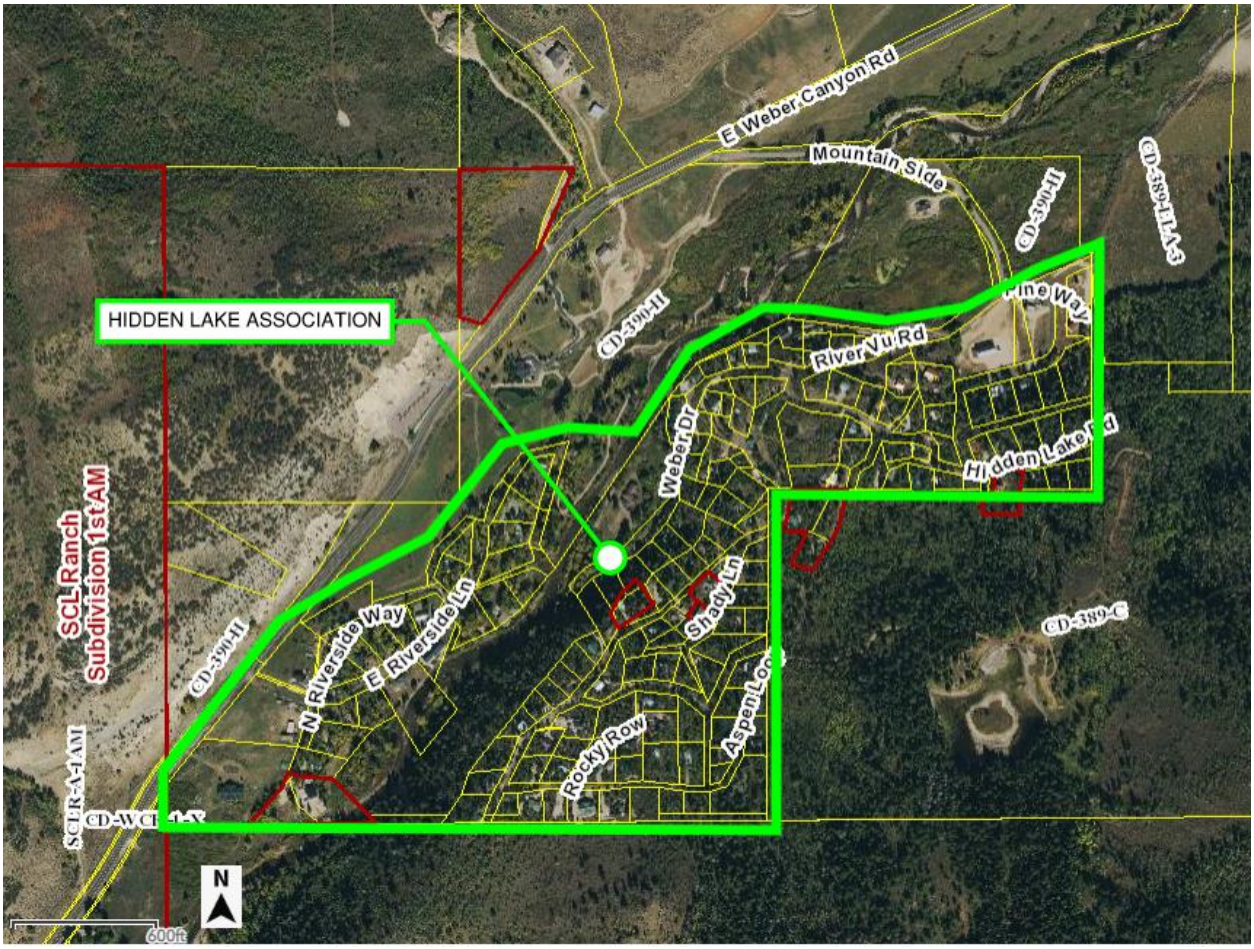


Figure 1: Hidden Lake Association Subdivision Boundary

1.2. ENVIRONMENT RESOURCES PRESENT

The environment resources that are present around the mountainous community include Hidden Lake in the higher elevation and the Weber River at the lower elevation. Environmental impact of this project is minimal as the project will replace existing infrastructure in areas that have previously been disturbed when the water system was originally constructed.

1.3. POPULATION TRENDS

The Hidden Lake Association community has no addition capacity for development within the service area boundary of the system and there are no plans for additional development. The community is a private area therefore data collection for population isn't conducted as many of the residents are seasonal.

1.4. COMMUNITY ENGAGEMENT

The community incorporates a volunteer Homeowner Association which helps govern the decision-making process for the community. A yearly meeting is held to discuss and report on vital items affecting the community. Essential Information is broadcast onto the Hidden Lake Association website to notify all residents.

2. EXISTING FACILITIES

The Hidden Lake Association community was established in the 1960's and consists of approximately 127 cabins. The cabins are currently supplied with culinary water by two active water sources, Riverside Spring (WS002) and Hidden Lake Well #2 (WS004). Water from the Riverside Spring is collected and stored in a 6,000 gallon stainless steel tank (ST007) and Well #2 pumps water uphill to two 15,000 gallon buried tanks (ST001, ST002) located on the north side of Hidden Lake.

The system consists of a network of distribution piping ranging in size from ¾-inch to 4-inch diameter with materials including galvanized steel, polyethylene and PVC. The system is currently divided into three pressure zones.

Table 1: Existing Water Source Facilities

Source	Approximate Location	Remarks	Reliable Capacity
Upper Springs	-	Inactive	-
Middle Spring	40° 46.060' Lat 111° 11.835' Long	Inactive/Abandoned	-
Riverside Spring (WS002	-	Active	5 gpm
Hidden Lake Well #2 (WS004)	-	Active	35 gpm
Total Source Capacity			**40 gpm**

Table 2: Existing Water Storage Facilities

Facility Name	Approximate Location	Primary Supply Sources	Equipped Capacity (Gallons)
Riverside Tank (ST007)	-	Riverside Spring	6,000
Tank 1 (ST001)	40° 45.891' Lat 111° 12.004' Long	Hidden Lake Well #2	15,000
Tank 2 (ST002)	40° 45.891' Lat 111° 12.004' Long	Hidden Lake Well #2	15,000
Total Storage Capacity			**36,000**

Table 3: Existing Water Distribution Lines

Pipe Material	Nominal Diameter (in)	Approximate Length (ft)
PVC	3/4	627
Galvanized	3/4	434
PVC	1	582
PVC	2	4,917
Polyethylene	2	5,818
Galvanized	2	4,915
PVC	4	12,165
Total Piping	**Varies**	**17,293**

2.1. LOCATION MAP

Refer to Appendix A – "Existing System" for a map illustrating the layout and configuration of the existing conditions and elements.

2.2. HISTORY

The history of the Hidden Lake Association Water System dates to the 1960's. There are several individual private shallow wells scattered throughout the area but overtime the community developed a distribution system allowing residents to connect to truck lines and distribution lines. Due to lack of detailed record keeping, the history of the system is limited.

In the year 2020 to determine anticipated water demand per Equivalent Residential Connection (ERC), AQUA Engineering completed a study of the community to determine the level, type and duration of occupancy of the homes/cabins. As part of the study, a mailer was distributed to the homeowners polling them on the use of their structures and if they were full-time or seasonal residents. The finding of the poll indicated that at least 50% of the homes/cabins located within the community are used recreationally and are not inhabited year-round.

It was concluded that the community, in general, meets the requirements of a "Recreational Home Development". To support this conclusion, AQUA Engineering on behalf of HLAWS, requested and was granted an exception to the source sizing rule for a period of 5-years so that the system could install source meters to prove out that the actual source demand of the system is within the requirements for a Recreational Home Development, or 400 gpd/ERC or less.

It is anticipated that the community will meet this requirement, however until substantial data is furnished this report will be based upon the required standard of 800 gpd/ERC for Residential indoor use per R309-510-7(2).

2.3. CONDITIONS OF EXISTING FACILITIES

The Riverside Spring has a history of testing positive for coliform but when it's clear of coliform is a valuable source. The Riverside Spring is currently active at this time. There are not any issues with the Well #2 and it is deemed suitable for continued use at this time. Middle Spring has previously been deemed as inactive and abandoned. The system's sources have a combined current total production of 40 gpm which yields to 57,000 gpd. The system has 127 connections to the water system; with a unit peak day demand of 800 gpd/ERC a minimum total of 70.5 gpm is required which yields to 101,600 gpd Per UAC R309-510-7. Therefore, the current sources are deficient, and a new source is needed. The Hidden Lake Well #2 pump is the system's only energy consuming facility.

The existing system storage capacity consists of the Riverside Tank, Tank 1, and Tank 2. The system has a combined current active storage capacity of 36,000 gallons. See Table 2 for individual volume capacities. The system will need a total required minimum of 50,800 gallons of storage capacity to become compliant per UAC R309-510.

The existing distribution lines range from the assumed 1960's first installation to the current metering installation in the year 2020. See Table 3 for the existing water distribution system pipe material, size and length. The distribution system's pipes that are under 4-inch diameter are currently out of compliance per UAC R390-550-5(4).

2.4. FINANCIAL STATUS OF ANY EXISTING FACILITIES

Due to insufficient record keeping the financial status of any of the existing facilities and infrastructure is limited. The system has maintained a working budget which will be further described in Chapter 6 of this report. Refer to Appendix C for the Owners financial documents of the most recent fiscal year.

The HLAWS currently requires an annual membership fee of $250 and a water service connection charge of $350 for unlimited water use. The HLAWS doesn't have any debts nor required reserve accounts at this time.

2.5. WATER/ENERGY/WASTE AUDITS

There have not been any water, energy or waste audits conducted for the Hidden Lakes Association over the existence of the community therefore this section is not applicable.

3. NEED FOR PROJECT

The project is required for the water system to become compliant with the Division of Drinking Water's Rules and Regulations. Hidden Lake Association Water System needs to upsize all distribution lines to a minimum diameter of 4-inch to come into compliance with UAC R309-550-5(4) which requires all distribution piping for systems not having fire hydrants be 4-inch minimum.

HLAWS currently does not meet the required for storage capacity as set for in UAC R309-510. A new tank is required and with a new design of the system it is recommend the new tank be sized to accommodate the entire community water demands. Per the new design of the water system and to minimize costs, the existing tanks would be abandoned. The new tank would be size per the demand of 800 gpd/ERC which yields to the minimum required storage of 50,800 gallons.

To meet source requirements per UAC R309-510-7 a new well source is required to supply the community with adequate source capacity.

3.1. HEALTH, SANITATION, AND SECURITY

The current delivery of clean, potable water to the community is threatened by a few factors. One factor is the risk of contamination due to leaks and breaks in the pipelines which are direct results of the aging infrastructure. This proposed project would replace all undersized piping increasing the life span of the water system and lower the risk of future leaks. Another factor is the shortage of active storage currently available. The system is currently non-compliance for active storage. This proposed project will provide a safe reliable source of water to prevent serious illness among the residents of Hidden Lake Association.

3.2. AGING INFRASTRUCTURE

The current distribution lines are prone to leaks due to the age of the system. It is difficult to determine the true age of the entire water system, but the area began development in the 1960's.

3.3. REASONABLE GROWTH

As previously mentioned, the community is currently "built out" and there are no anticipated future connections nor does the system have the ability to service any connections outside of the water system boundary.

4. ALTERNATIVES

There are two alternatives that have been explored for the Hidden Lake Association Water System. These alternatives are namely: 1. Replace Undersized Pipes, Furnish a 50,800 Gallon Storage Tank, and Drill a new Well source. 2. Do Nothing (null alternative) These alternatives are described in detail below.

4.1. ALTERNATIVE #1 – REPLACE UNDERSIZED PIPES, FURNISH A 50,800 GALLON STORAGE TANK AND NEW WELL SOURCE

The first alternative proposed consists of replacing the system's piping that is undersized or smaller than 4-inch diameter to come into compliance with UAC R309-550-5(4). In addition to replacement of non-compliant undersized piping, a 50,800-gallon Concrete tank will be incorporated with this alternative to come into compliance with UAC R309-510. A new Well source will also be drilled to meet UAC R309-510-7 source sizing requirements. This alternative will bring the HLAWS into compliance.

4.1.1. Design Criteria

4.1.1.1. Source

To meet Source requirements per UAC R309-510-7 a new Well source will be drilled and established as part of this alternative. It is desired that this Well shall provide 75 gpm. Refer to Appendix B for the proposed location of the new well source. The proposed location is near the existing Hidden Lake Well #2 to minimize additional piping and long runs of power infrastructure to keep building cost lower. The current Hidden Lake Well #2 would remain in service but would only supplement the new design.

4.1.1.2. Storage

In this alternative it is proposed to provide a new Tank with an active storage capacity of 50,800 gallons. The existing storge tanks (Tank#1 & Tank#2) would be abandoned due to the large costs associated with incorporating them into the new design. The Riverside tank due to the history of this source testing positive for coliform has not been incorporated into the system. Because of the temporary abandonment at numerous times due to coliform issues, it is possible the Riverside Tank will be abandoned entirely in the future. Therefore, it's active storage capacity will not be included in the new design. The System total is calculated with minimum total of 50,800 gallons as based on 127 connections at 800 gpd/ERC. This improvement would meet the minimum requirement as set forth in UAC R309-510 and provided a total of 50,800 gallons of active storage for the HLAWS. See Table 4 below for the proposed systems active water storage capacity.

Table 4: Active Water Storage Capacity

Storage Type	Storage (Gallons)
Current Active Storage =	36,000 To Be Abandon
Proposed Active Storage =	50,800
Total System Active Storage =	**50,800**

4.1.1.3. Conveyance

As briefly mentioned earlier the current system has several pipe diameters of less than 4-inches. This alternative will incorporate the replacement of the HLAWS distribution/transmission piping under the size of 4-inch diameter to come into compliance with UAC R390-550-5(4) which requires all distribution piping for systems not having fire hydrants be 4-inch minimum. Due to the mountainous terrain at the site's location, it is proposed to install 4-inch HDPE piping. HDPE pipe material is choice for such applications to allow the ease of construction and installing. See Table 5 for proposed piping replacement summary. As part of the conveyance improvements new valving would be established to facilitate maintenance needs in the future. Per the new proposed design, a new PRV and associated valving configuration would be required in the existing manhole PRV vault. In addition to improve the conveyance of the system, new pipelines would be established to improve the water systems looping.

Table 5: Proposed Piping Replacement Summary

Pipe Material	Diameter (in)	Length (ft)
Existing PVC (Not Replaced) =	4	12,165
HDPE (Proposed Piping) =	4	17,936
HDPE (Proposed Piping) =	8	587

The HLAWS was approved prior to January 1, 2007 and has not expanded its service into new areas of new subdivisions. For the purposes of this report "normal operation" per UAC R309-510-9 is assumed to be the system peak day demand and has been used as a minimum criterion for both source and distribution system sizing. There is no fire flow requirement associated with the water system as the system currently doesn't have any fire hydrants. Therefore, as part of this alternative there will not be any hydrants incorporated into the design.

4.1.2. Map

Refer to Appendix B – "Proposed System" for a map illustrating the layout and configuration of this alternative.

4.1.3. Environment Impacts

All of the piping will be installed in areas that have previously been disturbed from the original piping being installed therefore its environment impacts would be minimal. The river crossing pipe would need to be replaced to allow the new tank to serve the residents located on the western side of the river.

It is assumed that the new minimum required size of 50,800-gallon tank will be approximately 20 ft wide x 30 ft long x 12 ft tall yielding in actual volume of 53,856 Gallons. Excavation impact on the previously disturbed ground will be approximately 10 feet around the tank perimeter and will equate to an area of approximately 2,000 square feet. This area would be cleared and grubbed to facilitate construction of the buried concrete tank.

Construction activities would need to comply with Utah Stats SWPPP or National Pollutant Discharge Elimination System (NPDES) regulation for storm water pollution prevention and control to mitigate impacts to the surface waters in the area.

4.1.4. Land Requirements

Hidden Lake Association will not need to acquire additional land for the proposed project improvements. Replacement of the undersized piping will reside in the current location of existing piping therefore easements and/or right-of-way should already be established. The new tank will be located uphill from the existing buried tanks near Hidden Lake and will not require any new land to be purchased by the Hidden Lake Association.

4.1.5. Potential Construction Problems

The project site is a relatively remote area. It is anticipated that the material and labor market in this area of the state will cause the project costs to be elevated as compared to a location closer to a metropolitan area. The project site is located at approximately 7,272 feet above sea level. At this elevation, the winter-time weather will have a definite impact on the construction season. The project would be constrained to warmer summer months. It is anticipated that pipe installation will encounter mountainous terrain which could be more challenging based on factors such as bad weather, rocky excavation conditions, etc. Additionally, a section of pipe to be replaced will require pipe to cross Weber Canyon Road. This will require detailed traffic control, permitting and among other coordination items.

4.1.6. Sustainability Considerations

4.1.6.1. Water and Energy Efficiency

The project will be designed and constructed using modern standards and practices. This will translate to a highly water and energy efficient drinking water system.

4.1.6.2. Green Infrastructure

This section is not applicable to this alternative or any of the proposed project alternatives.

4.1.6.3. Other

The project will be designed and developed with efficiency and simplicity in mind. This is a private water system, therefore its desired to require minimal personnel and effort to operate and maintain the proposed water system.

4.1.7. Cost Estimates

At this early stage of design and understanding of the project requirements, it is estimated that this alternative would cost approximately $3,837,655.00 for the design, pipeline replacement, storage tank construction, new Well source, construction management and start-up services. A full detailed breakdown of the Engineer's Opinion of Probably Construction (EOPC) costs can be found in Table 6.

Table 6: Alternative #1 – Replace Undersized Pipes, Furnish 50,800 Gallon Storage Tank and New Well Source EOPC

a. Legal

ITEM	DESCRIPTION	QUANITIY	UNIT	UNIT COST	COST
1a	Bonding (5% of construction cost)	1	LS	$147,274	$147,274
2a	Water Rights				$0
3a	Rights of Way & Easements				$0
4a	Other				$0
	Subtotal a				$147,274

b. Administrative

ITEM	DESCRIPTION	QUANITIY	UNIT	UNIT COST	COST
1b	Financial Consultant (1% of construction cost)	1	LS	$29,455	$29,455
2b	Environmental Clearances				$0
3b	Other				$0
	Subtotal b				$29,455

c. Engineering

ITEM	DESCRIPTION	QUANITIY	UNIT	UNIT COST	COST
1c	Planning (5% of construction cost)	1	LS	$147,274	$147,274
2c	Design (10% of construction cost)	1	LS	$294,547	$294,547
3c	Construction Management Services (8% of construction cost)	1	LS	$235,638	$235,638
4c	Other				$0
	Subtotal c				$677,459

d. Construction

ITEM	DESCRIPTION	QUANITIY	UNIT	UNIT COST	COST
1d	Water Source(s)	1	LS	$341,500	$341,500
2d	Transmission Lines(s)				$0
3d	Treatment Facility(s)				$0
4d	Storage Tank(s)	1	LS	$147,940	$147,940
5d	Pump Station(s)				$0
6d	Distribution Lines	1	LS	$1,965,120	$1,965,120
7d	Other				$0
	Subtotal				$2,454,560
	Facility Construction Contingency (20%)	1	LS	$490,912	$490,912
	Subtotal d				$2,945,472

e. DDW Administrative Expenses

ITEM	DESCRIPTION	QUANITIY	UNIT	UNIT COST	COST
1e	DDW Administrative Expenses (1% of final Loan Amount)	1	LS	$37,997	$37,997
	Subtotal e				$37,997
	Project Grand Total				**$3,837,655**

4.2.ALTERNATIVE #2 – DO NOTHING (NULL ALTERNATIVE)

The second alternative, the null alternative is that the Hidden Lakes Association do nothing. The null alternative would continue to keep the system out of compliance. This approach would continue to put the existing water system and associated users at risk.

4.2.1. Design Criteria

Not applicable.

4.2.1.1. Source

Not applicable.

4.2.1.2. Storage

Not applicable.

4.2.1.3. Conveyance

Not applicable.

4.2.2. Map

Refer to Appendix A – "Existing System" for a map illustrating the layout and configuration of this alternative showing the existing layout and system elements.

4.2.3. Environment Impacts

This alternative would have the least environmental impact compared to Alternative #1.

4.2.4. Land Requirements

No land, right of way, or easement acquisitions would be required as part of this alternative.

4.2.5. Potential Construction Problems

Not applicable.

4.2.6. Sustainability Considerations

4.2.6.1. Water and Energy Efficiency

Not applicable for this alternative.

4.2.6.2. Green Infrastructure

Not applicable for this alternative.

4.2.6.3. Other

Not applicable for this alternative.

4.2.7. Cost Estimates

There is no capital expense for this alternative. Any system expenses would remain as is. Per the Owners records annual operation and maintenance cost for the existing system has been provided in Table 4.

Table 7: Alternative #2 – Do Nothing (null alternative)

ITEM	DESCRIPTION	UNIT	EST. QTY	UNIT PRICE	COST
1	Annual Operation and Maintenance Cost of Existing System	LS	1	$ 102,872.47	$ 102,872.47
				Project Total	**$ 102,872.47**

5. SELECTION OF AN ALTERNATIVE

The selection of an alternative is straight forward in if the system is to be compliant with the rules and regulations or not. This decision will be based on implementing the best scenario for Hidden Lake Association Water System to mitigate risks. This process will build upon a selection that will prolong a sustainable and reliable potable drinking water system for the community.

5.1. LIFE CYCLE COST ANALYSIS

The life cycle cost analysis for the considered alternatives can be seen below in Table 6. The life cycle cost analysis has been prepared using a discount rate of 1.5% (per www.whitehouse.gov), an estimated salvage value of 25%, and a 20-year planning period.

Table 8: Alternatives Life Cycle Cost Analysis

	Alternative #1 Well at New Site	Alternative #4 Do Nothing
Initial Capital	$ (3,837,655.00)	$ -
Future Salvage (25%)	$ 959,413.75	$ -
PV of O&M	$ (118,127.04)	$ (76,379.77)
Present Salvage Value	$ 712,336.33	$ -
Net Present Value	$ (2,284,031.97)	$ (76,379.77)

5.2. NON-MONETARY FACTORS

Since each of the proposed alternatives is essentially the same, the non-monetary factors associated with each alternative is also the same. Therefore, non-monetary factors do not contribute to the selection of a recommended alternative.

6. PROPOSED PROJECT (RECOMMENDED ALTERNATIVE)

Based on the evaluation of the alternatives in section 4 (above) and from the discussion of the selection of alternatives in section 5, it is recommended that the proposed project be the one described as **Alternative #1 – Replace Undersized Pipes, Furnish a 50,800 Gallon Storage Tank and New Well Source**

6.1. PRELIMINARY PROJECT DESIGN

To implement Alternative #1 this would include removal and replacement of approximately 17,293 linear feet of pipe sized at a diameter of less than 4-inches consisting of various materials throughout the community. New HDPE pipe with the minimum required diameter of 4-inches will be placed and installed. Work would also include an 8-inch diameter HDPE pipe to the new tank for supply/distribution. The work would include legal disposal of existing non-compliant pipe, excavation/trenching, pipe, fittings, appurtenances, fill materials, placement, and compaction. This improvement will bring the distribution piping into compliance with UAC R309-550-5(4).

Preliminary project design of Alternative #1 would also include furnishing and installing a 50,800-gallon concrete storage tank. This tank would be sized to bring the active storage capacity into compliance with the rules and regulations per UAC R309-510. Work would incorporate all clearing, grubbing, excavation, hauling, bedding material, and concrete tank completed with piping, fittings, and appurtenances. This shall connect to the existing system to provide the required active storage capacity.
As part of Alternative #1 the preliminary project design would include a new Well source to be drilled. It's desired that this new Well source would be capable of delivering 75 gpm. Work would include the drilling, developing, construction of a pump house that is complete with associated piping, valving, and controls.

Appendix B indicates the general locations of the proposed improvements.

6.2. PROJECT SCHEDULE

The following is a preliminary schedule for the proposed project, the schedule is subject to change based on availability of funding and the construction and bidding climate.

Financing Applications*	11/15/2022
Commence Design	5/1/2023
Complete Design	10/31/2023
DDW Plan Approval	12/1/2023
Bidding	12/15/2023
Bid Opening	1/15/2024
Begin Construction	5/1/2024
Finish Construction	12/31/2024
DDW Operating Permit	1/31/2025

**TBD pending selection of a funding mechanism and associated review process of the Preliminary Engineering Report and Environmental Report.*

6.3. PERMIT REQUIREMENTS

The following is a list of potential permits required to facilitate the project:

1. Utah Division of Environmental Protection – Approval of a Water Project
2. Utah Division of Water Resources – Water Right Application – Change
3. Summit County – Building Permit (Distribution Piping and Storage Tank)

6.4. SUSTAINABILITY CONSIDERATIONS

The recommended project will not add to or take away from the overall efficiency of the potable water system. At this preliminary stage it is difficult to determine the exact metrics of efficiency of the proposed system (kilowatt hours per million gallons produced, or total non-revenue water). The efficiency metrics of this project will be developed as the project is designed.

6.4.1. Water and Energy Efficiency

The project will be designed and constructed using modern standards and practices. This will translate to a highly water and energy efficient drinking water system.

6.4.2. Green Infrastructure

This section is not applicable to this alternative or any of the proposed project alternatives.

6.4.3. Other

The project will be designed and developed with efficiency and simplicity in mind. As there are minimal staff resources available to manage the system, it is in the Owners best interest to consolidate facilities where possible to reduce the effort needed to operate and maintain the proposed water system.

6.5. TOTAL PROJECT COST ESTIMATE (ENGINEER'S OPINION OF PROBABLE COST)

For the total project cost estimate refer to section 4.7.1 for the Engineer's opinion of probable cost for the recommended alternative #1.

6.6. ANNUAL OPERATING BUDGET

The following section describes the adopted fiscal year (May-April) for the year 2021. For a detailed budget document refer to Appendix C of the owner's finance documents.

6.6.1. Income

The Hidden Lake Association has several sources of income. These sources of income are described below and are per the fiscal year of 2021.

Table 9: Income Summary

Description	Income Amount
HOA Annual Fee Income	$123,937.50
Interest Income	$2,679.12
Other Income	$1,775.00
TOTAL	**$128,391.62**

The Hidden Lake Association Water System generates annual income through the Homeowners Association (HOA) ownership fees and connection fees. The system has 127 Owners and 127 connections. See Table 10 for itemized HOA annual fee rate schedule.

Table 10: HOA Annual Rate Schedule

Description	Amount
General Membership	$250
Water Service Connection	$350

6.6.2. Annual O&M Costs

The annual operation and maintenance (O&M) costs as generated below are based on the fiscal year of 2021 which spans from May 2021 to April 2022. For reference see Appendix C of the owner's finance documents. The Annual O&M cost includes items such as maintenance, utilities, taxes, administration cost associated in keeping the system running.

The following table details the anticipated annual and O&M expenses for the preferred alternative, which is a modified version of the 2021 Budget.

Table 11: Anticipated O&M Budget for the Preferred Alternative

Operating Expense	Budgeted Cost	Current Actual Cost
Bridge Related	$1000	$0.00
Business Taxes	$0	$2,003.83
Fire Mitigation Day	$1,200	$0.00
General HLA Business	$6,300	$7,804.18
*General Maintenance	$17,400	$9,587.59
Lake	$1,000	$921.50
**Lakes Special Project	$50,000	$4263.50
President's Reserve	$3,000	$0.00
Social Day	$1,200	$1001.42
***Water	$50,000	$35,157.69
Water Special Project	$28,000	$42,132.76
TOTAL	**$159,100**	**$102,872.47**

*Note that General Maintenance includes gate maintenance, road maintenance, roads special project, snow plow, and work day as shown on owner's finance documents per appendix C.

** Note that this is not a typical item budgeted for from year to year however it's been included due to it being the most current data available.
***It is proposed that an estimated $50,000 be account for operating and maintenance cost be included. This amount is to account for the new Well source and its associated annual expenses for operation and maintenance of the improvements.

6.6.3. Debt Repayments

The Hidden Lake Association currently doesn't have any debt repayments associated with other projects at this time.

The proposed project would require approximately $3.8M in additional provisions from the funding agency. Based upon a current market interest rate and dependent on the number of years the loan is locked in at would be in addition to the budget as outlined in section 6.6.2.

6.6.4. Reserves

Reserves should be acquired to address typical maintenance for items that are likely to require replacement at approximately 20 years from installation. The total amount of money held in the debt service reserve fund is $0.00 for the preferred alternative.

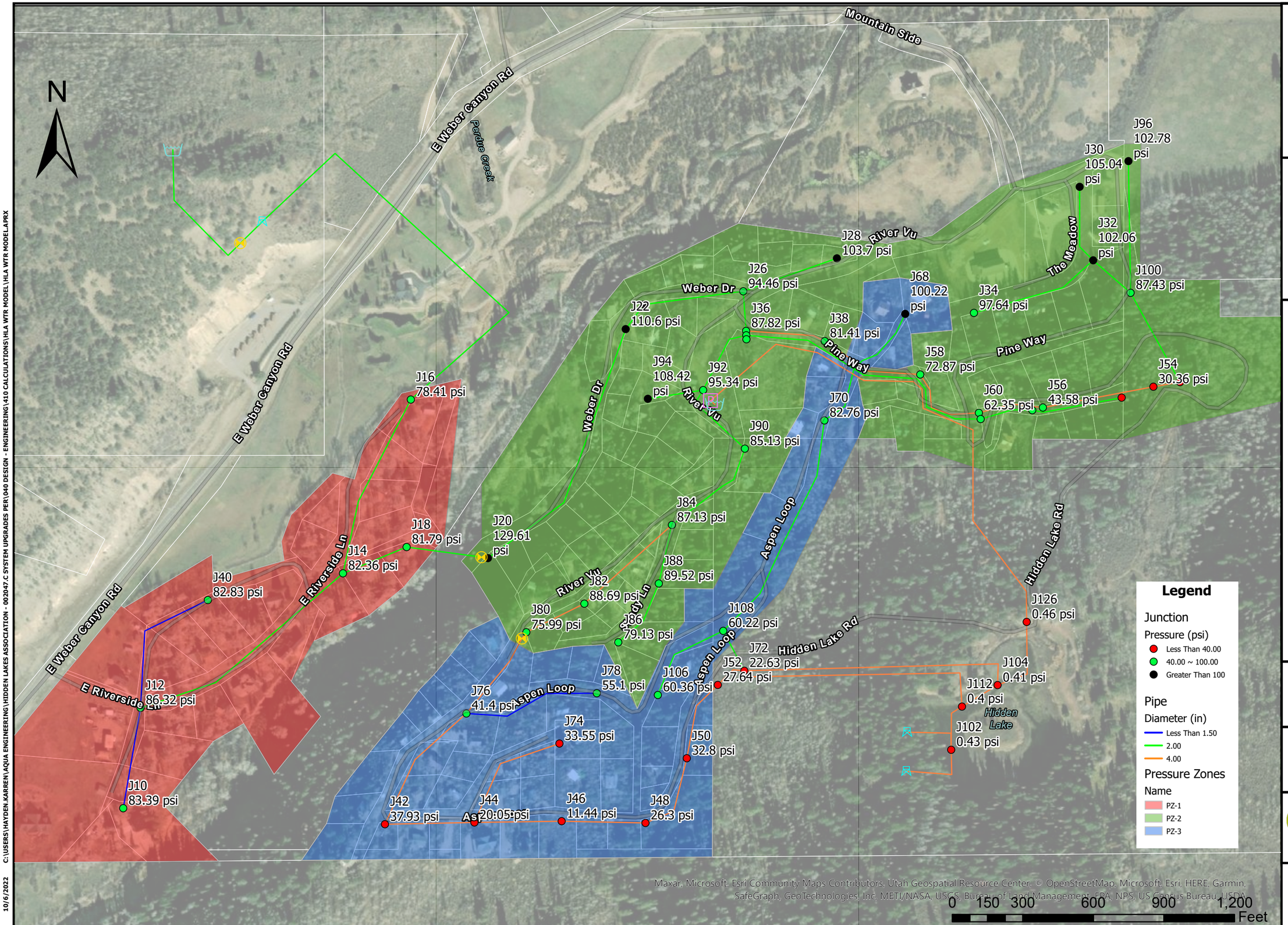
6.6.4.1. Short-Lived Assets

Due to insufficient recording keeping the inventory of short-lived assets is minimal. Historically it has been the typical practice that equipment is run to the end of its life span and replacement costs have become absorbed into the O&M budget.

7. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the recommendation is to Replace the undersized pipes, furnish a 50,800 gallon tank, and provide a new well source to bring the HLAWS into compliance. This will provide the area a reliable water system for its future needs.

APPENDIX A



HIDDEN LAKE ASSOCIATION
002047.C SYSTEM UPGRADES PER

EXISTING SYSTEM PEAK DAY DEMAND

AQUA ENGINEERING
533 W 2600 S, Suite 275, Bountiful, UT 84010
Phone 801.299.1327

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APPENDIX B

N

E Weber Canyon Rd

Perdue Creek

Mountain Side

J16
82.09 psi

J18
86.19 psi

J14
86.76 psi

J40
88.15 psi

J12
91.28 psi

J10
93.27 psi

J20
136.09 psi

Proposed New Well Source

J94
112.85 psi

J92
99.77 psi

J90
87.89 psi

J84
87.13 psi

J88
89.55 psi

J82
88.69 psi

J80
75.99 psi

J86
79.17 psi

J76
59.73 psi

J78
73.6 psi

J74
51.59 psi

J42
56.09 psi

J44
38.08 psi

J46
29.3 psi

J48
43.99 psi

J22
116.91 psi

J26
100.43 psi

J28
109.67 psi

J36
93.61 psi

J38
87.21 psi

J70
100.21 psi

J68
117.69 psi

J58
78.67 psi

J60
68.15 psi

J56
49.38 psi

J54
36.16 psi

J34
103.54 psi

J30
110.93 psi

J96
108.66 psi

J32
107.94 psi

J100
93.3 psi

J108
77.47 psi

J106
77.5 psi

J72
39.87 psi

J52
44.96 psi

J50
50.3 psi

J126
17.76 psi

J104
17.67 psi

J112
17.63 psi

Hidden Lake

Proposed 50,800 Gallon Tank

Weber Dr
River Vu
Pine Way
The Meadow
Aspen Loop
Hidden Lake Rd
Sandy Ln
E Riverside Ln

Legend

Junction

Pressure (psi)
- less than 40.00
- 40.00 ~ 100.00
- greater than 100

Pipe

Diameter (in)
- 4
- 8

Pressure Zone

Name
- PZ-1
- PZ-2
- PZ-3

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0 150 300 600 900 1,200 Feet

HIDDEN LAKE ASSOCIATION
002047.C SYSTEM UPGRADES PER

FUTURE SYSTEM PEAK DAY DEMAND

AQUA ENGINEERING
533 W 2600 S, Suite 275, Bountiful, UT 84010
Phone 801.299.1327

10/7/2022 C:\USERS\HAYDEN.KARREN\AQUA ENGINEERING\HIDDEN LAKES ASSOCIATION - 002047.C SYSTEM UPGRADES PER\040 DESIGN - ENGINEERING\410 CALCULATIONS\HLA WTR MODEL\HLA WTR MODEL.APRX

APPENDIX C

Hidden Lake Association
Profit & Loss Budget vs. Actual
May 2021 through April 2022

	May '21 - Apr 22	Budget	$ Over Budget	% of Budget
Income				
HOA Annual Fee Income	123,937.50			
Interest Income	2,679.12			
Other Income	1,775.00			
Total Income	128,391.62			
Gross Profit	128,391.62			
Expense				
Bridge Related	0.00	1,000.00	-1,000.00	0.0%
Business Taxes	2,003.83			
Fire Mitigation Day	0.00	1,200.00	-1,200.00	0.0%
Gate Maintenance	5,250.92	2,000.00	3,250.92	262.55%
General HLA Business	7,804.18	6,300.00	1,504.18	123.88%
General Maintenance	0.00	0.00	0.00	0.0%
Lake	921.50	1,000.00	-78.50	92.15%
Lake Special Project	4,263.50	50,000.00	-45,736.50	8.53%
President's Reserve	0.00	3,000.00	-3,000.00	0.0%
Roads Maintenance	3,162.52	6,000.00	-2,837.48	52.71%
Roads Special Project	0.00	4,000.00	-4,000.00	0.0%
Snow Plow	0.00	4,200.00	-4,200.00	0.0%
Social Day	1,001.42	1,200.00	-198.58	83.45%
Water	35,157.69	16,200.00	18,957.69	217.02%
Water Special Project	42,132.76	28,000.00	14,132.76	150.47%
Work Day	1,174.15	1,200.00	-25.85	97.85%
Total Expense	102,872.47	125,300.00	-22,427.53	82.1%
Net Income	**25,519.15**	**-125,300.00**	**150,819.15**	**-20.37%**

Hidden Lake Association
Profit & Loss Budget vs. Actual
May 2021 through April 2022

	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	TOTAL
Income													
HOA Annual Fee Income	123,878.50	-500.00	0.00	0.00	559.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	123,937.50
Interest Income	275.48	267.14	276.60	243.16	217.64	225.32	218.46	207.84	198.12	179.30	192.30	177.76	2,679.12
Other Income	75.00	0.00	125.00	1,000.00	300.00	0.00	225.00	0.00	0.00	50.00	0.00	0.00	1,775.00
Total Income	124,228.98	-232.86	401.60	1,243.16	1,076.64	225.32	443.46	207.84	198.12	229.30	192.30	177.76	128,391.62
Gross Profit	124,228.98	-232.86	401.60	1,243.16	1,076.64	225.32	443.46	207.84	198.12	229.30	192.30	177.76	128,391.62
Expense													
Business Taxes	0.00	0.00	0.00	0.00	477.04	478.41	-360.95	931.00	350.00	0.00	0.00	128.33	2,003.83
Gate Maintenance	46.34	45.33	46.25	46.63	45.72	46.22	3,719.25	47.22	48.46	49.42	1,062.58	47.50	5,250.92
General HLA Business	125.00	589.28	135.00	1,610.00	125.00	178.00	125.00	250.00	337.50	432.40	3,672.00	225.00	7,804.18
Lake	921.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	921.50
Lake Special Project	0.00	0.00	0.00	0.00	0.00	10,373.40	-6,109.90	0.00	0.00	0.00	0.00	0.00	4,263.50
Roads Maintenance	0.00	1,512.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,650.00	0.00	0.00	3,162.52
Social Day	0.00	0.00	0.00	1,001.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,001.42
Water	2,467.27	2,321.98	5,135.31	259.87	10,017.75	213.89	2,978.68	246.75	275.83	902.58	269.91	10,067.87	35,157.69
Water Special Project	18,123.42	17,588.09	0.00	0.00	0.00	0.00	0.00	4,280.00	0.00	0.00	2,141.25	0.00	42,132.76
Work Day	0.00	1,174.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,174.15
Total Expense	21,683.53	23,231.35	5,316.56	2,917.92	10,665.51	11,289.92	352.08	5,754.97	1,011.79	3,034.40	7,145.74	10,468.70	102,872.47
Net Income	**102,545.45**	**-23,464.21**	**-4,914.96**	**-1,674.76**	**-9,588.87**	**-11,064.60**	**91.38**	**-5,547.13**	**-813.67**	**-2,805.10**	**-6,953.44**	**-10,290.94**	**25,519.15**

Hidden Lake Association
Profit & Loss Budget vs. Actual
May 2021 through April 2022

	Apr 30, 22
ASSETS	
Current Assets	
Checking/Savings	
Chase Checking	79,966.34
MACU CD 5-year S0010	14,629.77
MACU CD 5-year S0025	39,517.10
MACU CD 5-year S0026	7,315.38
MACU CD 5-year S0029	39,459.07
MACU CD 5-year S0030	15,784.15
MACU CD 5-year S0031	7,892.62
MACU CD 5-year S0033	7,203.68
MACU Primary Shares S0001	11,394.11
Total Checking/Savings	223,162.22
Total Current Assets	223,162.22
TOTAL ASSETS	**223,162.22**
LIABILITIES & EQUITY	
Liabilities	
Current Liabilities	
Other Current Liabilities	
Deferred Revenue	26,955.00
Total Other Current Liabilities	26,955.00
Total Current Liabilities	26,955.00
Total Liabilities	26,955.00
Equity	
Retained Earnings	170,688.07
Net Income	25,519.15
Total Equity	196,207.22
TOTAL LIABILITIES & EQUITY	**223,162.22**