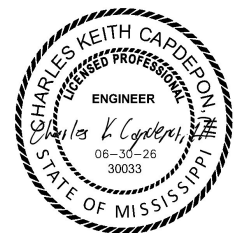
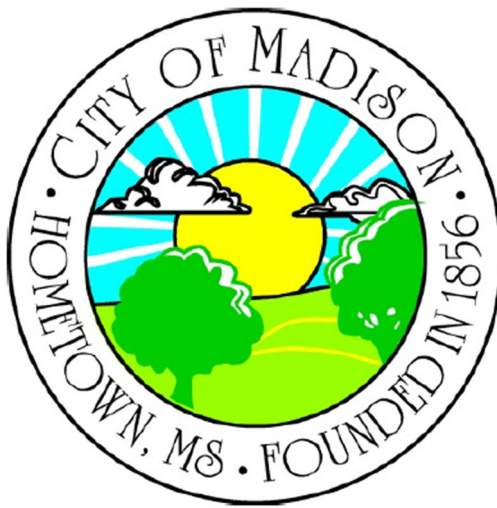


City of Madison

Water System Facilities Plan Update

DRAFT



Pickering Firm, Inc.

June 2026

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I. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The City of Madison provides water service to the majority of commercial and residential services located within the city limits. Some of the residents in the city limit receive water service from Bear Creek Water Association and the Pearl River Water Supply District. Several projects have been completed to improve the existing distribution system to meet the demand from the growing population.

This plan presents a phased approach to improve the water storage, water supply, and distribution system to safe and adequate water service to residential, commercial, and industrial customers, over the planning period. Feasible solutions were developed by evaluating the components of the existing water system.

The proposed plan includes the construction of a 1,500,000-gallon elevated storage tank at the Cotton Hill Rd, a booster pump station with a capacity of 700gpm, and approximately 2,000 linear feet of 12-inch water transmission line. Complete implementation of the plan will increase the water systems design capacity to allow for the water system to provide water service to existing residents, future residents, and businesses for the years ahead. The estimated cost of Phase I, including engineering fees, property acquisition, and other costs, is approximately \$ 8.7 million.

II. PURPOSE AND NEED FOR THE PROJECT

The existing water system operates two (2) pressure Zones with independent controls due to the difference in ground elevation within the service area. This prevents each side of the water system from sharing benefits from the water utility assets of the other zone. This limits the design capacity of the water system. The West pressure zone is currently at a lower percentage design capacity used, but the projected growth within the service area will outpace the capabilities to provide adequate water service. In order to keep up with the projected growth an elevated storage tank is proposed to be constructed in the West /High pressure zone. This added volume will allow for an increase in design capacity of the West System.

In order to address the two separate pressure zones a booster pump station is proposed. A booster pump station will be able move water from the East zone to the West zone allowing the water utility assets of the East zone to benefit the West Zone.

Another issue of the West zone will need to contend with is the Cotton Hill water supply well. During the construction of this water supply well the casing was installed with a slight bend in it. This bend will not allow the pump in the well be lowered any further thus decreasing the service life of the water supply well as the water table drops. To supplement the water supply that will be lost when this well reaches it service life an additional water supply well is a part of this facilities plan. Both options will allow more of the proposed elevated water storage volume be applied to the design capacity.

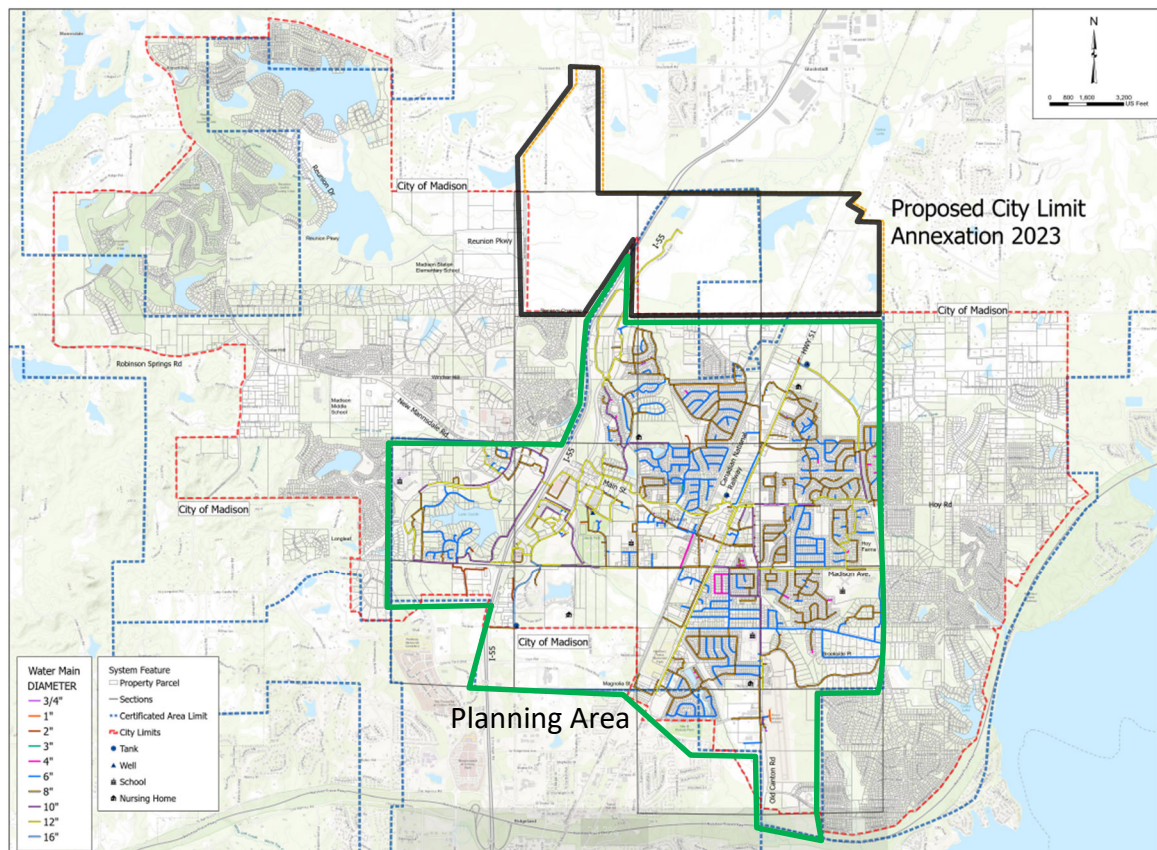
The City of Madison public water system is maintaining satisfactory standing with the MSDH in terms of technical, managerial, and financial capacity. The proposed project will allow the City of Madison to have a sufficient water storage system to comply with growing water demand in the long term. Further, the proposed improvements will allow the City of Madison to combine the pressure zones in a cost-effective way, increase the water supply, and improve and maintain fire safety for the existing water service area.

III. EXISTING SITUATION

A. General Environment

The planning area for this project is the central area of the City of Madison and incorporates Rice Road from the US Highway 51 to the intersection of Highland Colony Parkway to New Mannsdale Road. Bear Creek Water Association provides water service for the residents beyond the boundary of the City of Madison Water System. Figure III-1 shows a map of the planning area for this project. The planning area in this plan does not include the potential water service area in the proposed 2023, city annexation limit.

Figure III-1. Project Planning Area



B. Existing Drinking Water Facilities

The existing water system (MSDH PWS:0450010) utilizes four (4) supply wells with total flow rate as approximately 3,800 gpm. The system components are shown in the Table III-1 below. The total storage of the current system is 1,600,000 Gallons with three (3) elevated water storage tanks distributed West and East sides of the city. More detailed information regarding system components can be found in the Public Water Supply Report from the Mississippi State Department of Health (MSDH) in Appendix 1.

A fifth water supply well is under construction at the Hoy Rd site. This will increase the water supply for the East zone and preemptively supplement the water supply lost when Well 2 reaches the end of its service life.

Table III-1: System Components of the Existing Water System

Water System Components					
Water Supply specifications					
No.	Name	Operation Control	Aquifer	Flow Rate	Current Status
Well 2	Hoy Rd	Supply Water to Hoy Rd Tank	Cockfield	670 gpm	Active
Well 3*	Cotton Hill	Supply Water to Cotton Hill Tank	Sparta	525 gpm	Inactive
Well 4	Tisdale	Supply Water to Tisdale Tank	Sparta	1,825 gpm	Active
Well 5	Liberty	Supply Water to Cotton Hill Tank	Sparta	791 gpm	Active
Well 6	Hoy Rd, 2	Supply Water to Cotton Hill Tank	Sparta	1250 gpm	Under Construction
Tank specifications					
Tank	Type	Volume (MG)	Ground Elevation (Feet)	Overflow Elevation (Feet)	
Hoy Rd	Elevated	0.3	345	475	
Tisdale	Elevated	1	318	479	
Cotton Hill	Elevated	0.3	387	542	

* Note : Well No.3 is currently inactive, but assumed to be active in the hydraulic analysis for alternative scenarios.

Due to the difference in ground elevation in the service area, the existing water system operates two (2) pressure Zones independently. The existing system has an emergency connection with the Bear Creek Water Association (MSDH PWS:0450002 & 0450021) on

the East and West sides. Certified Water Areas near the water system are shown in Appendix 2.

Considering the variation of water usage by individual buildings, the Health Department classifies the high users to adjust their equivalent connections to evaluate the total design capacity of the existing system. Schools and nursing homes in the existing water system are selected to estimate the total equivalent connections. In the West Zone, one (1) school and two (2) nursing homes are located. To equalize the large number of beds at nursing homes and higher water usage at the school, the adjusted connection for these users is 730. Based on available information, the total number of connections for the West zone is 1,310. In the East Zone, four (4) schools and two (2) nursing homes are shown with the equivalent connections of 380. The total adjusted connection in the East Zone is 4,871. Thus, the impact of high users on the water system is higher in the West Zone (56 %) than in the East Zone (8%).

To estimate the design capacity of each Zone, the total number of connections is utilized with the assumed water demand for each connection as 1 gallon per minute. Overall, the City of Madison occupies 61% of the total design capacity, with a total of 6,182 equivalent connections. The list of design capacities for each Zone can be found in Table III-2 below.

Table III-2: Design capacity of Water System

West Zone Design Capacity			
Total Storage	Total Supply	Total Connection	Design capacity
0.3 MG	1,316 gpm	1,311	58%
East Zone Design Capacity			
Total Storage	Total Supply	Total Connection	Design capacity
1.3 MG	2,485 gpm	4,871	62%
Total Design Capacity			
Total Storage	Total Supply	Total Connection	Design capacity
1.6 MG	3,801 gpm	6,182	61%

*Note: Only the usable volume of storage is applied to calculate the Design capacity by the Mississippi State Department of Health

The City of Madison experienced an estimated water loss of 17.5% over the observational period between September 2024 and November 2025. The majority of this loss was observed to

occurred during winter of 2024 and the summer months of 2025. This could suggest an increase in water leaks due to colder than average conditions for the winter losses and unmetered irrigation for the summer losses.

IV. FUTURE ENVIRONMENT

Over the past 15 years, the City of Madison has experienced a consistent population growth, but the observed growth has overwhelmingly occurred within the boundaries of the West Zone, with population levels surging by nearly 150%. With this growing rate, an increase in the potable water demand will be exerted in the service area placing additional burden on the existing infrastructure. If no action is taken to improve the West system, the future demand will approach the design capacity of this part of the City of Madison's water system.

Further, coupled with the growing water demand from the population, water loss is also a challenging issue in operating the existing water system. EPA and American Water Works Association encourage to public water systems to keep water loss between 10 and 15 percent of the total water production. During the last year, the existing water system has shown a water loss 17.5% monthly. While this loss percentage is not far outside of the EPA/AWWA recommendation it is crucial not to ignore the issue and allow it to get worse. Not only the water leakage from the aged water distribution system components, but also the unmetered water consumption, such as unauthorized consumption (theft), administrative errors, data handling errors, and metering inaccuracies or failure, can cause the water loss. If no action is taken to improve the existing water distribution system, the lost water revenue will be a considerable financial stress to the City of Madison.

V. DEVELOPMENT OF WATER DEMANDS

A. Population Projections

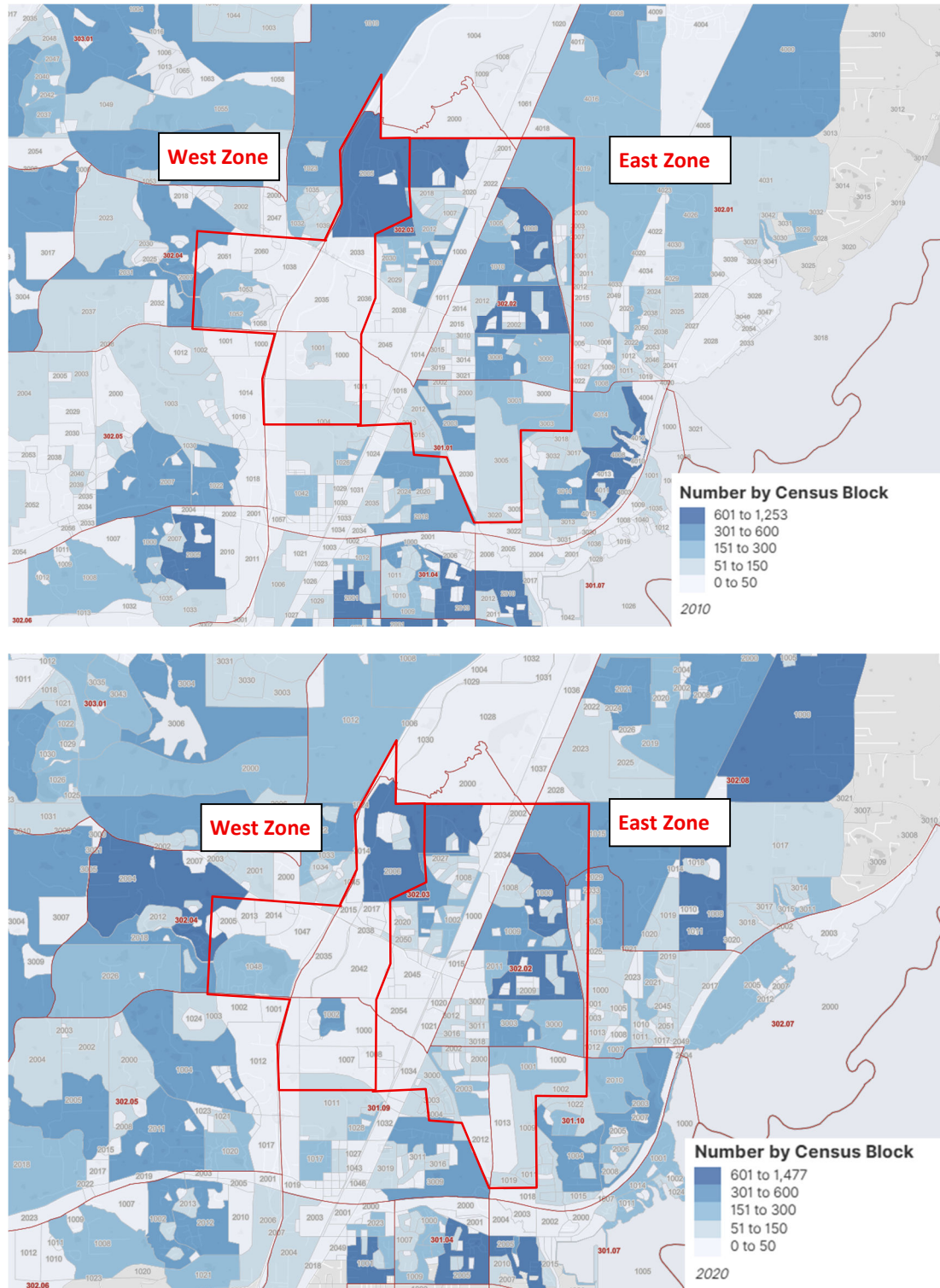
The population data of the City of Madison have been estimated using data from the US Census Bureau. 2010 & 2020 data were selected to estimate the basis population for these projections. The annual growth rate is estimated for population projection for 2025, 2030, and 2035. The population of the City of Madison grew from 24,149 in 2010 to 29,743 in 2025, with an annual about 2% growth rate.

To specify the water demand for each pressure zone, the population is estimated by location. The total population in the existing water service area recorded 12,281 in 2025; however, the East Zone shows about 4 times more population than the West Zone. Table V-1 describes the historic population data in the service area. Over the last 15 years, the growth rate of population was a relatively slow 4.5 % at the East Zone and 125.2% at the West Zone. Although minor migration of population in the East Zone was found, a significant increase was detected in the West Zone as shown in Figure V-1.

Table V-1: Population Growth in Service Area

Population projection for the City of Madison				
Year	Entire City	Within Service	West Zone	East Zone
2010	24,149	10,424	1,151	9,273
2020	27,747	11,526	1,977	9,549
2025	29,743	12,281	2,591	9,690
2030	31,881	13,229	3,396	9,833
2035	34,174	14,429	4,450	9,979

Figure V-1. Water Service Area Population Growth



*Note: Population data is limited within the service area, not the whole city

To evaluate the feasibility of the dramatic population growth in the west zone, the area in each pressure zone was classified by the primary usage of the properties. The Zoning map of the City of Madison can be found in Appendix 3. The residential (yellow) & agricultural (green) properties are significant in the East Zone. The ordinance of the zoning is described in Table V-2 below. Due to the concentrated residential area located in the East Zone, the demand from population growth has been saturated. In contrast, the West Zone is predominantly characterized by commercially properties (red), creating significant potential for future development. Consequently, the West Zone is expected to experience the most substantial population growth and infrastructure expansion over the next decades.

Table V-2 : Description of Zoning Ordinance

Code	Description
A-1	Agricultural District
RE-A	Residential Estate District
RE-B	Residential Estate District
R-1	Single Family Residential District
R-1 (PUD)	Single Family Residential Planned Unit Development District
R-2	Single Family Residential District
R-2 (PUD)	Single Family Residential Planned Unit Development District
R-3	Townhouse Residential District
R-4	Patio Home District
R-4 (PUD)	Patio Home Planned Unit Development District
PUD	Planned Unit Development District
C-PUD	Commercial Planned Unit Development District
C-1	Business Office Park Commercial District
C-1 PUD	Business Office Park Commercial District Planned Unit Development District
C-2	General Commercial District
C-3	Major Thoroughfares Commercial
I-1	Limited Industrial District
OM	Old Madison Station District
Depot Sub	Core of Old Madison Station & Residences, Businesses
S-1	Retirement Village Special Use
S-2	Airport Special Use

B. Water Demand Projections

According to the EPA Statistics, the average daily water usage per person is 100 gallons, including indoor and outdoor residential water usage. The peak water usage varies by climate and irrigation effect, but 150 gallons per day is used for this evaluation. Due to the variation of water usage of the commercial and/or industrial demand, these users are assumed to be residential demand as well.

Most of the residential demand is located in the East zone; however, the noticeable population growth for the last 10 years has been shown in the West Zone. Using the population projection in Table V-1 and the estimated daily average water demand above, the total water demand was developed for the targeting area in Table V-3. In order to specify the demand for each zone, the population data was applied separately.

Table V-3: Historical and Projected Water Demand – Project Service Area

Average Water Demand (gpd)				
Year	Entire City	Within Service	West Zone	East Zone
2010	2,414,900	1,042,400	115,100	927,300
2020	2,774,700	1,152,600	197,700	954,900
2025	2,974,300	1,228,100	259,100	969,000
2030	3,188,100	1,322,900	339,600	983,300
2035	3,417,400	1,442,900	445,000	997,900
Peak Water Demand (gpd)				
Year	Entire City	Within Service	West Zone	East Zone
2010	3,622,350	1,563,600	172,650	1,390,950
2020	4,162,050	1,728,900	296,550	1,432,350
2025	4,461,450	1,842,150	388,650	1,453,500
2030	4,782,150	1,984,350	509,400	1,474,950
2035	5,126,100	2,164,350	667,500	1,496,850

C. System Hydraulic Analysis

Pickering firm assisted the City of Madison with conducting a hydraulic analysis to evaluate the existing water system. The main goal of the hydraulic analysis is to tackle the deficiencies of the water distribution system with adequate fire flow to secure fire safety throughout the City of Madison water system by evaluating pressure, supply, storage, and fire flow. Geospatial information was referenced by DEM (Digital Elevation Model) from MARIS (Mississippi Automated Resource Information System). The map of existing water system was developed by utilizing data provided from the city and applied to develop hydraulic analysis model.

The existing water distribution system consists of approximately 505,410 ft of water main, ranging from ¾ inches to 16 inches. To comply with the minimum diameter for the hydraulic analysis of 4 inches from the Mississippi State Department of Health (MSDH), smaller water mains are generalized as less than 4 inches, as shown in Table V-4 below. Considering almost 99% of water distribution mains were applicable for the hydraulic analysis, the impact of the skeletonized water main was negligible.

Table V-4: Water Distribution System Components

Diameter (inches)	Length (ft)	Length (%)
<4	7,254	1.44%
4	7,589	1.50%
6	151,267	29.93%
8	198,077	39.19%
10	44,519	8.81%
12	92,518	18.31%
16	4,186	0.83%
Total	505,410	100%

Water system operational data were collected from City of Madison, Public Water Supply Report from the Mississippi State Department of Health (MSDH), and other documents provided by City of Madison. The hydraulic analysis was limited to water demand from residential areas because of a lack of accessible commercial or industrial data. Control sets for the system operations are based on supervisory control and data acquisition (SCADA) data. Overall information of City of Madison water system can be found in Appendix 4.

The base scenario evaluates the water security of the existing water system to meet the demand from residential areas throughout the City of Madison without any extraneous water demand from commercial, industrial, and fire flow. As discussed on previous sections, the base demand was developed by the average daily water demand per person (100 gallons per day per capita). Since the minimum water supply diameter for a fire hydrant is more than 6", the Fire flow analysis was conducted independently.

In the base scenario, two distinct pressure Zones were analyzed in parallel from the hydraulic model. In the West Zone, the operating pressure ranged from approximately 58 - 116 psi. Considering the highest elevation of this project area, assumed 407 ft, the minimum pressure was expected around 55 psi. The analysis result showed the East Zone ranged from approximately 45 - 80 psi, with the majority of pressures in the East Zone residing in the 50 - 70 psi range. The lowest pressure was found at the Crosscreek

subdivision, the East side of the West Zone, ranging 45 - 50 psi. The pressure contour map can be found in Appendix 5.

In addition to evaluating the residual pressure, fire flow was analyzed as an independent scenario. Due to the limited fire flow availability at the hydrant, the Mississippi State Department of Health (MSDH) recommends using a pipe larger than 4 inches for connection to the fire hydrant. Considering the discrepancy of field data with applied geospatial information to hydraulic analysis, the model was calibrated by comparing the analysis result with the fire hydrant test. The fire hydrant list utilized for calibration are shown in the map in Appendix 6. Certain parameters (Pipe materials, Hazen Williams Coefficient, and water demand etc.) are adjusted to optimize the accuracy of hydraulic analysis for City of Madison Water system. Overall the hydraulic analysis shows 85% of the similarity of fire flow test on field. Considering the threshold of water control sets for the momentum pressure (closed valve, water elevation at the tank, etc.), the result placed in the acceptable range. The result of calibration are shown in the table V-5 below.

Table V-5: Calibration Result of Fire Flow Analysis

Test No.	Fire flow test			Hydraulic analysis		
	Fire Hydrant Location	Flow rate on-site (gpm)	Residual Pressure (Psi)	ID	Flow rate Applied (gpm)	Estimated Pressure (Psi)
1	Oak Park Drive & Hwy 51	950	50	79	950	55
2	Behind Sam's Club	1279	76	216	1280	83
3	Behind Wal-Mart	1113	70	142	1100	83
4	Keifer's & 500 ft South	1186	68	104	1200	77
5	Behind Jason Deli	949	70	586	950	88
6	241 Heritage Drive	1034	58	416	1032	51

Approximately 750 fire hydrants were applied in this analysis, and their latitude and longitude are included in a table in Appendix 7. The dead end created by closed valves is not considered in this model. Generally, the required fire flow will vary by the construction type, occupied area, distance between buildings, the presence of sprinkler systems, etc. Fire flow requirement can be calculated by the tool referencing the Insurance Service Office (ISO) methods and the International Building Code. The minimum required fire flow is 500 gpm with 20 psi for 1 hour. The maximum fire flow limit was set as 5,000 gpm to avoid the pressure impact on the water system from unrealistically high fire flow demand. The residual pressure threshold was set as 20 psi to meet the requirement from MSDH. The result of fire flow analysis can be found in Appendix 8.

Most of the fire hydrants in the West Zone have available fire flow of more than 1,500 gpm with 20 psi for 1 hour, except the subdivision near Lake Castle. These low available flows exist due to dead ends and small diameter lines. In the East Zone, most of the fire hydrants show availability of fire flow of more than 1,500 gpm with 20 psi for 1 hour. One fire hydrant failed to deliver 500 gpm with adequate residual pressure at Post Oak Road in the East Zone due to the small diameter of the water main. The fire hydrants at the southeast side of the City of Madison water system (beyond the city limit) present inadequate residual pressure at the 1,500 gpm.

VI. DEVELOPMENT OF ALTERNATIVES

A. Elevated Storage

As discussed in the previous sections, the fast phase of population growth was found in the West Zone. Accordingly, additional storage is needed on the West Zone (High pressure) to accommodate the increasing water demand, coupled with the population growth and the developing infrastructure. To avoid the issue of potential low pressure for the existing water distribution system and fire flow event, the overflow elevation of the proposed elevated tank is recommended to be the same as before.

B. Pressure Zone Equalization

To simplify the operational complexity of two (2) independent systems, combining two pressure zones is recommended by two (2) feasible options: utilizing a booster pump station or adjusting the proposed and existing elevated tank overflow elevations to equalize the pressure zones.

The ground elevation difference of two (2) pressure zones is an obstacle to supplying water from the East Zone (Low pressure) to the West Zone (High pressure). To tackle this issue, 700 gpm booster pump station can be recommended on the Madison Ave. (Parcel ID: 072D-18A-004/00.00).

Lowering the proposed tank on the West Zone (high pressure) can be applicable to equalize pressures to combine. On the other hand, the lower overflow elevation of the water storage may impact the water service in terms of residual pressure in the residential area during a fire flow event, available fire flow rate within an adequate pressure. Furthermore, the outreach of the local community is needed as well.

Raising the existing tank in the East Zone (Low pressure) can be feasible to combine the pressures by matching the overflow elevation of the storage tank. On the other hand, the lifted operating pressure may cause loss of potable water from the damaged water pipes and joints due to increased system pressure. To alleviate the pressure from the increased water system operating pressure, pressure-reducing valves would be needed to be provided to individual connections vulnerable to the increased system pressure. Public outreach also needs to inform the pressure modification about the future water system operation. In addition, the modification of water storage operational elevation may impact the performance of the existing water pump condition.

C. Water Supply

To increase the design capacity of the water system, an additional water supply is needed in the West Zone (High pressure) to increase the usable volume of the larger elevated tank and to supplement anticipated supply lost from the Cotton Hill Well. As discussed in the previous section, the proposed booster pump station is a feasible option to transmit water from the East Zone (Low pressure) to West Zone (High pressure). Although the supply system has a minor pressure loss in an acceptable range (up to 10 psi) in the East Zone, the proposed booster pump station relieves a burden for the West Zone (High Pressure) water system to supply water to the proposed water storage.

To operate the two (2) independent systems without water transmission, a new water well is required to supply water to the proposed water storage tank, complying with the operational limitation from the Mississippi State Department of Health. The existing water system is utilizing Cockfield formation and Sparta aquifer as ground water source. The required production rate from the proposed well is approximately 700 gpm.

D. Distribution System

The aged water distribution system causes financial burden, with concerns for public health, causing additional water treatment to supply water of adequate quality. Recently, the city of Madison improved the water transmission main near the city center. However, the water distribution main on Madison Ave. is also recommended to be replaced as this water main is one of the older water mains still in service and has a history of water main breaks due to age. In addition, in the combined system with a boost pump station, this water main plays a key role as a connecting point of two (2) independent pressure zones. Considering the impact on the existing and proposed supply system, approximately 2,000 LF of water main is recommended to be replaced.

E. No action

The no action alternative consists of the continued operation of existing water systems without any improvement. The existing system does not have sufficient water supply and storage to accommodate the future water demand based on estimated population growth. The aged water infrastructure also raises concerns for public water security. Thus, no action cannot be recommended for the current water system.

VII. SELECTED PLAN

A. General Information

As discussed in the previous sections, the City of Madison is recommended to improve its existing water system to enhance water security. The proposed improvements can be found in Appendix 9. Implementation of the phase I below is estimated to cost of approximately \$8.7 million. To permit a greater degree of financial flexibility, the proposed project has been separated into three (3) phases.

Phase 1 consists of upsizing the existing elevated water tank on Cotton Hill Road from 300,000 gallon to 1,500,000 gallon. A detailed cost for each component is presented in the Table VII-1 below.

Phase 2 consists of improvements to the water supply system with two (2) alternatives. The cost for each alternative with the related appurtenances is shown in the Table VII-2 and VII-3 below.

Phase 3 of the project includes the construction of approximately 2,000 linear feet of 12-inch water distribution main on Madison Avenue, with Various drilling methods as needed. Table VII-4 shows the detailed cost for the proposed water main with related appurtenances.

The total cost of all phases is estimated to be \$17.5 million.

Table VII-1: Proposed Project Opinion of Probable Construction Cost – Phase I

Phase I - Water Storage System Improvement					
<i>Engineers Estimate of Probable Construction Cost</i>					
<i>June 18, 2026</i>					
Item	Description	Measure	Unit Cost	Estimated Quantity	Total Cost
1	Mobilization	LS	\$ 650,000.00	1	\$ 650,000.00
2	Clear & Grubb	LS	\$ 50,000.00	1	\$ 50,000.00
3	Sitework	LS	\$ 340,000.00	1	\$ 340,000.00
4	Gravel Access Road	LS	\$ 150,000.00	1	\$ 150,000.00
5	Seed, fert, & Mulch	AC	\$ 10,000.00	1	\$ 10,000.00
6	Existing Tank Demo	LS	\$ 500,000.00	1	\$ 500,000.00
7	Fence	LF	\$ 75.00	1200	\$ 90,000.00
8	Process Piping	LS	\$ 125,000.00	1	\$ 125,000.00
9	Water Main Tie-in	EA	\$ 10,000.00	1	\$ 10,000.00
10	Electrical	LS	\$ 100,000.00	1	\$ 100,000.00
11	Controls/SCADA	LS	\$ 125,000.00	1	\$ 125,000.00
12	1.5 M Gallon Elevated Tank	LS	\$ 5,000,000.00	1	\$ 5,000,000.00
Construction Subtotal:					\$ 7,150,000.00
Contingency:					\$ 715,000.00
Total Construction Costs:					\$ 7,865,000.00
Estimated Project Planning and Design Services:					\$ 500,000.00
Estimated Construction Services:					\$ 350,000.00
Total:					\$ 8,715,000.00

Table VII-2: Proposed Project Opinion of Probable Construction Cost – Phase II - A

Phase II - A Water Supply System Improvement					
<i>Engineers Estimate of Probable Construction Cost</i>					
<i>June 18, 2026</i>					
Item	Description	Measure	Unit Cost	Estimated Quantity	Total Cost
1	Mobilization/Demobilization	LS	\$ 138,500.00	1	\$ 138,500.00
2	Site Work: Demolition, Clearing, and Grubbing	LS	\$ 50,000.00	1	\$ 50,000.00
3	Site Work: Site Grading	LS	\$ 75,000.00	1	\$ 75,000.00
4	Site Work: 610 Limestone	CY	\$ 250.00	140	\$ 35,000.00
5	Booster Pump Station, 700 gpm	LS	\$ 650,000.00	1	\$ 650,000.00
6	Site Water Process Piping, Valves, and Fittings	LS	\$ 75,000.00	1	\$ 75,000.00
7	Controls and Instrumentation	LS	\$ 150,000.00	1	\$ 150,000.00
8	Electrical: Site Distribution	LS	\$ 75,000.00	1	\$ 75,000.00
9	Electrical: Stand-by Generator	LS	\$ 250,000.00	1	\$ 250,000.00
10	Site Fence	LS	\$ 25,000.00	1	\$ 25,000.00
Construction Subtotal:					\$ 1,523,500.00
Contingency:					\$ 152,350.00
Total Construction Cost:					\$ 1,675,850.00
Estimated Project Planning and Design Services:					\$ 117,192.31
Estimated Construction Services:					\$ 82,034.62
Total:					\$ 1,875,076.92

Table VII-3: Proposed Project Opinion of Probable Construction Cost – Phase II - B

Phase II - B Water Supply System Improvement					
<i>Engineers Estimate of Probable Construction Cost</i>					
<i>June 18, 2026</i>					
Item	Description	Measure	Unit Cost	Estimated Quantity	Total Cost
1	Mobilization/Demobilization	LS	\$ 384,000.00	1	\$ 384,000.00
2	Site Work: Demolition, Clearing, and Grubbing	LS	\$ 75,000.00	1	\$ 75,000.00
3	Site Work: Site Grading	LS	\$ 50,000.00	1	\$ 50,000.00
4	Site Work: 610 Limestone	CY	\$ 250.00	140	\$ 35,000.00
5	Potable Water Well 18" Casing 1100'	LS	\$ 2,200,000.00	1	\$ 2,200,000.00
6	Site Water Process Piping	LS	\$ 50,000.00	1	\$ 50,000.00
7	Pre-Fab Water Treatment Shelter	LS	\$ 75,000.00	1	\$ 75,000.00
8	Chemical Feed Equipment	LS	\$ 175,000.00	1	\$ 175,000.00
9	Chemical Feed Piping	LS	\$ 20,000.00	1	\$ 20,000.00
10	Instrumentation	LS	\$ 500,000.00	1	\$ 500,000.00
11	Electrical: Site Distribution	LS	\$ 255,000.00	1	\$ 255,000.00
12	Electrical: Strand-by Generator	LS	\$ 300,000.00	1	\$ 300,000.00
13	Site Restoration	LS	\$ 75,000.00	1	\$ 75,000.00
14	Site Fence	LS	\$ 30,000.00	1	\$ 30,000.00
Construction Subtotal:					\$ 4,224,000.00
Contingency:					\$ 422,400.00
Total Construction Cost:					\$ 4,646,400.00
Estimated Project Planning and Design Services:					\$ 324,923.08
Estimated Construction Services:					\$ 227,446.15
Total:					\$ 5,198,769.23

Table VII-4: Preliminary Opinion of Project Construction Cost – Phase III

Phase III Madison Water Distribution System Improvement					
<i>Engineers Estimate of Probable Construction Cost</i>					
<i>June 18, 2026</i>					
Item	Description	Measure	Unit Cost	Estimated Quantity	Total Cost
1	Mobilization/Demobilization	LS	\$ 119,100.00	1	\$ 119,100.00
2	12-Inch Water Main	LF	\$ 120.00	900	\$ 108,000.00
3	12-Inch Gate Valve	EA	\$ 6,000.00	10	\$ 60,000.00
4	12-Inch HDPE HDD	LF	\$ 600.00	900	\$ 540,000.00
5	12-Inch Jack & Bore w/ 24" Steel Casing	LF	\$ 1,200.00	200	\$ 240,000.00
6	Fire Hydrant Assembly	EA	\$ 6,000.00	2	\$ 12,000.00
7	Tie-in Existing Water Main	EA	\$ 9,000.00	4	\$ 36,000.00
8	Seeding	AC	\$ 6,300.00	1	\$ 6,300.00
9	Flowable Fill	CY	\$ 390.00	10	\$ 3,900.00
10	Solid Sod	SY	\$ 24.00	200	\$ 4,800.00
11	Ductile Iron Fittings	Lbs	\$ 18.00	10000	\$ 180,000.00
Construction Subtotal:					\$ 1,310,100.00
Contingency:					\$ 131,010.00
Total Construction Cost:					\$ 1,441,110.00
Estimated Project Planning and Design Services:					\$ 100,776.92
Estimated Construction Services:					\$ 70,543.85
Total:					\$ 1,612,430.77

B. Special Environmental Considerations

Although the proposed project does include distribution mains located within the 100-year flood hazard boundary as shown in the Appendix 11, these mains are not adversely impacted due to flooding and their installation within the 100-year flood hazard boundary does not alter the location of the boundary itself. An adequate drilling method is applied to avoid impact on wetland and 100-year flood hazard zone. No other elements of the proposed project are located in the 100-year flood hazard boundary.

The evaluation of the potential impact on archaeological, cultural, natural, and other protected resources was conducted by the Intergovernmental agencies. A copy of the letter from each agency can be found in Appendix 11.

VIII. FINANCIAL ANALYSIS

The estimated total cost for the proposed project is \$17,401,277. To facilitate greater flexibility in project execution, the overall project has been segmented into four (4) phases.

Funding for the initial phase is pursued through the US Army Corps of Engineers (USACE)'s Continuing Authorities Program and the Mississippi Department of Health's Drinking Water State Revolving Loan Fund Program. A DWSRF Loan in the amount of \$2,178,750 would be utilized to construct the first phase identified in the previous section. A loan in this amount would result in an annual debt retirement of approximately \$132,603.14, assuming an interest rate of 1.95 percent and a term of 20 years. To address the resulting operation, maintenance, depreciation, and debt service associated with these improvements, the City's water rate will be reviewed with each phase of improvement.

The Financial Capability Summary, existing water and sewer rate structure, and adopted fiscal year 2026 budget are provided in Appendix 10. The estimated annual revenue shown in the Financial Capability Summary was taken from the City's revised budget. In general, the City's budgeted numbers for revenue from various sources, such as user charges and connection fees, were obtained by reviewing the actual revenue generated during the year and annualized over the total budget period.

The Financial Capability Summary also indicates existing debt service to be paid by the City of Madison. Existing debt service for the City of Madison is estimated to comprise the United States Department of Agriculture - Rural Utilities Service and SRF Loan, considering the water revenue from the total collection. The annual operation, maintenance and replacement costs are estimated to \$1,425,758. As noted in the financial capability Summary, the annual debt service associated with the USDA-RUS Bond & State Revolving Fund is approximately \$201,554.85.

X. APPENDICES

Appendix 1 – City of Madison 2022 Report of Inspection Drinking Water Supply



MISSISSIPPI STATE DEPARTMENT OF HEALTH

REPORT OF INSPECTION OF DRINKING WATER SUPPLY

PWS: 0450010 Class: C

An inspection of the CITY OF MADISON water supply in MADISON county was made on 01/26/2022. Present at the time of inspection was JASON L CROCKER, OPERATOR; ZACH FLOYD; WRITER. Official MARY HAWKINS BUTLER Address P O BOX 40 MADISON MS 39130 W.W. Operator JASON L CROCKER Address 137 E. SOWELL ROAD CANTON MS 39046 No. Connections 6112 No. Meters Population Served 16035 Field Chemical Analysis: pH 7.8 Cl₂(free) 1.2 Cl₂(total) H₂S N/A Iron Fluoride Point of Sampling HOY ROAD PLANT Water Rates This inspection included a sanitary survey for compliance with the Ground Water Rule.

COMMENTS

Technical: 5 Managerial: 5 Financial: 5

OVERALL CAPACITY RATING: 5.0 / 5.0

1. This annual inspection also served as the system's Sanitary Survey as required under the Ground Water Rule. No significant deficiencies were noted during the Survey.
2. The City is conducting triggered monitoring to comply with the Ground Water Rule. They also have continuous chlorine monitors at all wells.
3. Since the last inspection the City has installed new chlorine monitors at four of the five wells.
4. At the time of inspection Mr. Crocker reported that the City was out of fluoride and did not know when they would be able to obtain more. All saturators were offline.
5. With the amount of growth the City has seen over the past 10 years, we are greatly in favor of the City developing and maintaining a hydraulic model.

6. Under the Lead and Copper Rule, Mr. Crocker should continue monitoring alkalinity at the treatment plant because soda ash is added. At the time of inspection the alkalinity was 120 mg/L as recorded at the treatment plant.
7. The City has a contract to routinely inspect, clean, and paint the steel storage facilities on the system. All tanks have been inspected and cleaned within the last two years.
8. There are generators at Wells #3, #4, and #5. The system also has emergency tie-ins with Bear Creek Water Association (MS0450002 & MS0450021).

*** GENERAL & REMINDER COMMENTS ***

9. As a reminder, sample sites for monthly bacteriological samples should be rotated and the locations of those samples should be identified by their physical addresses. Also when collecting bacteriological samples, the Operator should measure and record free & total chlorine on the sample cards. Ideally, the System Operators should not take all of the monthly routine bacteriological samples that are required under the Total Coliform Rule in one day.
10. Whenever system pressure is lost, even for brief periods of time, contaminants may be introduced to the system through back flow or back-siphonage. When this occurs, Officials should notify all customers in the affected area to boil their drinking water until clear bacteriological samples have been obtained.
11. All dead-end water lines should be flushed on a routine schedule to clear the lines of sediment and stagnant water.
12. When repairs are made on the water distribution system, all lines affected should be properly chlorinated and flushed before they are placed back in service.
13. To prevent unauthorized entrance, Officials should ensure that all gates, doors, latches on tanks, etc. are kept locked at all times.

Completed by Amy L. McLeod, E.I. on 02/02/2022.

Reviewed by Greg Caraway, P.E. on 02/03/2022.

If you have any questions, please call (601)576-7518.

pc:

MARY HAWKINS BUTLER, OFFICIAL
JASON L CROCKER, OPERATOR

Mississippi State Department of Health Bureau of Public Water Supply

FY 2022 Public Water System Capacity Assessment Form

NOTE: This form must be completed whenever a routine sanitary survey of a public water system is conducted by a regional engineer of the Bureau of Public Water Supply

PWS ID#: 0450010 Class: C Survey Date: 01-26-2022 County: MADISON

Public Water System: CITY OF MADISON Conn: 6112

Certified Waterworks Operator: JASON L CROCKER Pop: 16035

CAPACITY RATING DETERMINATION

Technical (T) Capacity Rating: [5] Managerial (M) Capacity Rating [5] Financial (F) Capacity Rating [5]

$$\text{Capacity Rating} = \frac{T + M + F}{3} = \frac{15}{3} = 5$$

Overall Capacity Rating = 5.0

Completed by Amy L. McLeod, E.I. on 02/02/2022

Reviewed by Greg Caraway, P.E. on 02/03/2022

Comments: _____

Technical Capacity Assessment	Point Scale	Point Award
[T1] Does the water system have any significant deficiencies? [<u>Y</u> <u>(N)</u>]	N - 1pt. Y - 0pt.	1
[T2] 1) Was the water treatment process functioning properly? [<u>Y</u> <u>(N)</u>] (i.e. Is pH, iron, chlorine, fluoride, etc. within acceptable range?) 2) Was needed water system equipment in place and functioning properly at the time of survey? [<u>Y</u> <u>(N)</u>] (NOTE: Equipment deficiencies must be identified in survey report.) 3) Were records available to the regional engineer clearly showing that all water storage tanks have been inspected and cleaned or painted (if needed) within the past 5 years? [<u>Y</u> <u>(N)</u> <u>NA</u>] (NOTE: All YESs required to receive point)	All Y - 1 pt. Else - 0 pt.	1
[T3] 1) Was the certified waterworks operator or his/her authorized representative present for the survey? [<u>Y</u> <u>(N)</u>] 2) Was PWS Operations record up to date and properly maintained? [<u>Y</u> <u>(N)</u>] (Are minimum days being met based on system classification) 3) Was the water system properly maintained at the time of survey? [<u>Y</u> <u>(N)</u>] 4) Did operator/system personnel satisfactorily demonstrate to the regional engineer that he/she could fully perform all water quality tests required to properly operate this water system? [<u>Y</u> <u>(N)</u>] (NOTE: All YESs required to receive point)	All Y - 1 pt. Else - 0 pt.	1
[T4] 1) Does water system routinely track water loss and were acceptable record available for review? [<u>Y</u> <u>(N)</u>] 2) Is water system overloaded? (i.e. serving customers in excess of MSDH approved design capacity)? [<u>Y</u> <u>(N)</u>] 3) Was there any indication that the water system is/has been experiencing pressure problems in any part(s) of the distribution system? [<u>Y</u> <u>(N)</u>] (based on operator information, customer complaints, MSDH records, other information) 4) Are well pumping tests performed routinely? [<u>Y</u> <u>(N)</u> <u>NA</u>] (NOTE: YES FOR #1 & YES OR N/A FOR #4 AND NOs FOR #2 & #3 required to receive point)	1)Y - pt. 2)N - pt. 3)N - pt. 4)Y - pt.	1
[T5] 1) Does the water system have the ability to provide water during power outages? (i.e. generator, emergency tie-ins, etc.) [<u>Y</u> <u>(N)</u>] 2) Does the water system have a usable backup source of water? [<u>Y</u> <u>(N)</u>] (NOTE: Must be documented on survey report)	All Y - 1 pt. Else - 0 pt.	1
TECHNICAL CAPACITY RATING = [<u>5</u>] (Total Points)		

Managerial Capacity Assessment	Point Scale	Point Award
[M1] Were all SDWA required records maintained in a logical and orderly manner and available for review by the regional engineer during the survey? <u>(Y)N</u>	Y - 1pt. N - 0pt.	1
[M2] 1) Have acceptable written policies and procedures for operating this water system been formally adopted and were these policies available for review during the survey? <u>(Y)N</u> 2) Have all board members (in office more than 12 months) completed Board Member Training? <u>(Y)N NA</u> 3) Does the Board of Directors meet monthly and were minutes of Board meetings available for review during the survey? (NOTE: Quarterly meetings allowed if system has an officially designated full time manager) <u>(Y)N NA</u> (NOTE: ALL YESs or NAs required to receive point. NA - Not Applicable)	All Y - 1 pt. Else - 0 pt.	1
[M3] Has the water system had any SDWA violations since the last Capacity Assessment? <u>Y(N)</u>	N - 1pt. Y - 0pt.	1
[M4] Has the water system developed a long range improvements plan and was this plan available for review during the survey? <u>(Y)N</u>	Y - 1pt. N - 0pt.	1
[M5] 1) Does the water system have an effective cross connection control program in compliance with MSDH regulations? <u>(Y)N</u> 2) Was a copy of the MSDH approved bacti site plan and lead/copper site plan available for review during the survey and do the bacti results clearly show that this approved plan is being followed? <u>(Y)N</u> (NOTE: All YESs required to receive point)	All Y - 1 pt. Else - 0 pt.	1
MANAGERIAL CAPACITY RATING = [<u>5</u>] (Total Points)		

Financial Capacity Assessment	Point Scale	Point Award
[F1] Has the water system raised water rates in the past 5 years? <u>(Y)N</u> (NOTE: Point may be awarded if the water system provides acceptable financial documentation clearly showing that a rate increase is not needed, i.e. revenue has consistently exceeded expenditures by at least 10%, etc.)	Y - 1pt. N - 0pt.	1
[F2] Does the water system have an officially adopted policy requiring that water rates be routinely reviewed and adjusted as appropriate and was this policy available for review during the survey? <u>(Y)N</u>	Y - 1pt. N - 0pt.	1
[F3] Does the water system have an officially adopted cut-off policy for customers who do not pay their water bills, was a copy of this policy available for review by the regional engineer, and do system records (cut-off lists, etc.) <u>clearly</u> show that the water system effectively implements this cut-off policy? <u>(Y)N</u>	Y - 1pt. N - 0pt.	1
[F4] Was a copy of the water system's officially adopted annual budget available for review by the regional engineer and does the water system's financial accounting system clearly and accurately track the expenditure and receipt of funds? <u>(Y)N</u>	Y - 1pt. N - 0pt.	1
[F5 - Municipal Systems] 1) Was a copy of the latest audit report available for review at the time of the survey? <u>(Y)N</u> 2) Does this audit report clearly show that water and sewer fund account(s) are maintained separately from all other municipal accounts? <u>(Y)N</u> (NOTE: Yes answer to all questions required to receive point.)	All Y - 1 pt. Else - 0 pt.	1
[F5 - Rural Systems] 1) Was the latest financial report / audit report available for review? <u>Y(N)</u> 2) Does the latest financial report show that receipts exceeded expenditures? <u>Y(N)</u> (NOTE: Yes answer to both questions required to receive point)	All Y - 1 pt. Else - 0 pt.	
FINANCIAL CAPACITY RATING = [<u>5</u>] (Total Points)		



MISSISSIPPI STATE DEPARTMENT OF HEALTH

**MISSISSIPPI DEPARTMENT OF HEALTH
BUREAU OF PUBLIC WATER SUPPLY
DESIGN CAPACITY SHEET**

System: **CITY OF MADISON**

ID: **0450010** Class: **C** County: **MADISON**

Date Completed: **02/02/2022**

Connections - Actual: **6112** Equivalent: **6182**

Design Capacity: **10090** Percent Design Capacity: **6182/10090 = 61.3%**

****The City operates under two pressure zones based on elevation. The zones are tied together but operate independently.****

WEST SIDE

Well capacity:

Well #3 - 525 GPM (April 2021 pump test)

Well #5 - 791 GPM (April 2021 pump test)

Storage capacity:

Elevated tank at Well #3 - 300,000 gal (usable = $525 \times 360 = 189,000$ gal)

West Side Design Capacity:

$1316 \text{ GPM} + (189,000 \text{ gal} / 200 \text{ min}) = 2261 \text{ GPM}$

High users include schools and nursing homes:

Notes: Twice the Average Daily Usage are used in the calculations for peak usage

Schools with cafeterias = 40 gpd

Schools with cafeterias and showers = 50 gpd

Madison Central High School

Total Enrollment = 1317; number of meters = 12; The school has a cafeteria and showers

Adjusted Connections = $[(1317 \text{ people} \times 50 \text{ gpd/person}) / 400 \text{ gpd (peak)}] - 12$
= 153 connections

CALCULATE ADJUSTED CONNECTIONS FOR THE NURSING HOMES:

Notes: Twice the Average Daily Usage are used in the calculations for peak usage

300 gpd/bed

Sunny Brook

Maximum number of beds = 109

Adjusted Connections = $[(109 \text{ beds} \times 300 \text{ gpd/bed}) / 400 \text{ gpd (peak)}]$
= 82 connections

St Catherine's

14 Stand Alone Homes

206 Apartment Units

459 Beds at Assisted Living

Adjusted connections = $[(459 \text{ beds} \times 300 \text{ gpd/bed}) / 400 \text{ gpd (peak)}] + 14 + 206 \times 2/3$
= $344 + 14 + 137$
= 495 connections

Total adjusted connections for schools & nursing homes = $153 + 82 + 495 = 730$

Total equivalent connections = metered connections + adjusted connections

Total equivalent connections = $581 + 730 = 1311$

THEREFORE, THE SYSTEM IS AT $1311 / 2261 \times 100\% = 58\%$ CAPACITY

**MISSISSIPPI DEPARTMENT OF HEALTH
BUREAU OF PUBLIC WATER SUPPLY
DESIGN CAPACITY SHEET**

CITY OF MADISON 02/02/2022

EAST SIDE

Treatment Plant Capacity:

Well #1 - ABANDONED

Well #2 - Pumps to plant - 670 GPM (April 2021 pump test)

Aerator - 500 GPM

Therefore, the limiting factor = 500 GPM

Clearwell - 200,000 gallons

Service pumps - 584 GPM + 635 GPM = 1219 GPM (Feb. 2017 pump test)

Usable service pump capacity = 500 GPM + 200,000 gal/200 min = 1500 GPM, which exceeds 1219 GPM, so overall treatment plant capacity = 1219 GPM.

Well capacity:

Well #4 - 1825 GPM (April 2021 pump test)

Storage capacity:

Elevated tank at treatment plant = 300,000 gal (all usable)

Elevated tank at Well #4 (Hwy 51) = 1,000,000 gal (usable = $1825 \times 360 = 657,000$)

Usable elevated storage = 957,000 gallons

East Side Design Capacity:

$1219 \text{ GPM} + 1825 \text{ GPM} + (957,000 \text{ gal}/200 \text{ min}) = 7829 \text{ GPM}$

High users include schools and nursing homes:

Notes: Twice the Average Daily Usage are used in the calculations for peak usage

Schools with cafeterias = 40 gpd

Schools with cafeterias and showers = 50 gpd

Madison Avenue Lower Elementary

Total Enrollment = 484; number of meters = 2; The school has a cafeteria;

Adjusted Connections = $[(484 \text{ people} \times 40 \text{ gpd/person})/400 \text{ gpd (peak)}] - 2$
= 46 connections

Madison Avenue Upper Elementary

Total Enrollment = 555; number of meters = 2; The school has a cafeteria

Adjusted Connections = $[(555 \text{ people} \times 40 \text{ gpd/person})/400 \text{ gpd (peak)}] - 2$
= 53 connections

Rosa Scott 9th Grade School

Total Enrollment = 443; number of meters = 2; The school has a cafeteria and showers

Adjusted Connections = $[(443 \text{ people} \times 50 \text{ gpd/person})/400 \text{ gpd (peak)}] - 2$
= 53 connections

MRA

Total Enrollment = 1065; number of meters = 6; The school has a cafeteria and showers

Adjusted Connections = $[(1065 \text{ people} \times 50 \text{ gpd/person})/400 \text{ gpd (peak)}] - 6$
= 127 connections

CALCULATE ADJUSTED CONNECTIONS FOR THE NURSING HOMES:

Notes: Twice the Average Daily Usage are used in the calculations for peak usage

300 gpd/bed

Nichols Center

Maximum number of beds = 60

Adjusted Connections = $[(60 \text{ beds} \times 300 \text{ gpd/bed})/400 \text{ gpd (peak)}]$
= 45 connections

Bond Home

Maximum number of beds = 75

Adjusted Connections = $[(75 \text{ beds} \times 300 \text{ gpd/bed})/400 \text{ gpd (peak)}]$
= 56 connections

Total adjusted connections for schools & nursing homes = $46 + 53 + 53 + 127 + 45 + 56$

**MISSISSIPPI DEPARTMENT OF HEALTH
BUREAU OF PUBLIC WATER SUPPLY
DESIGN CAPACITY SHEET**

CITY OF MADISON 02/02/2022

= 380 connections

Total equivalent connections = metered connections + adjusted connections
Total equivalent connections = 4491 + 380 = 4871

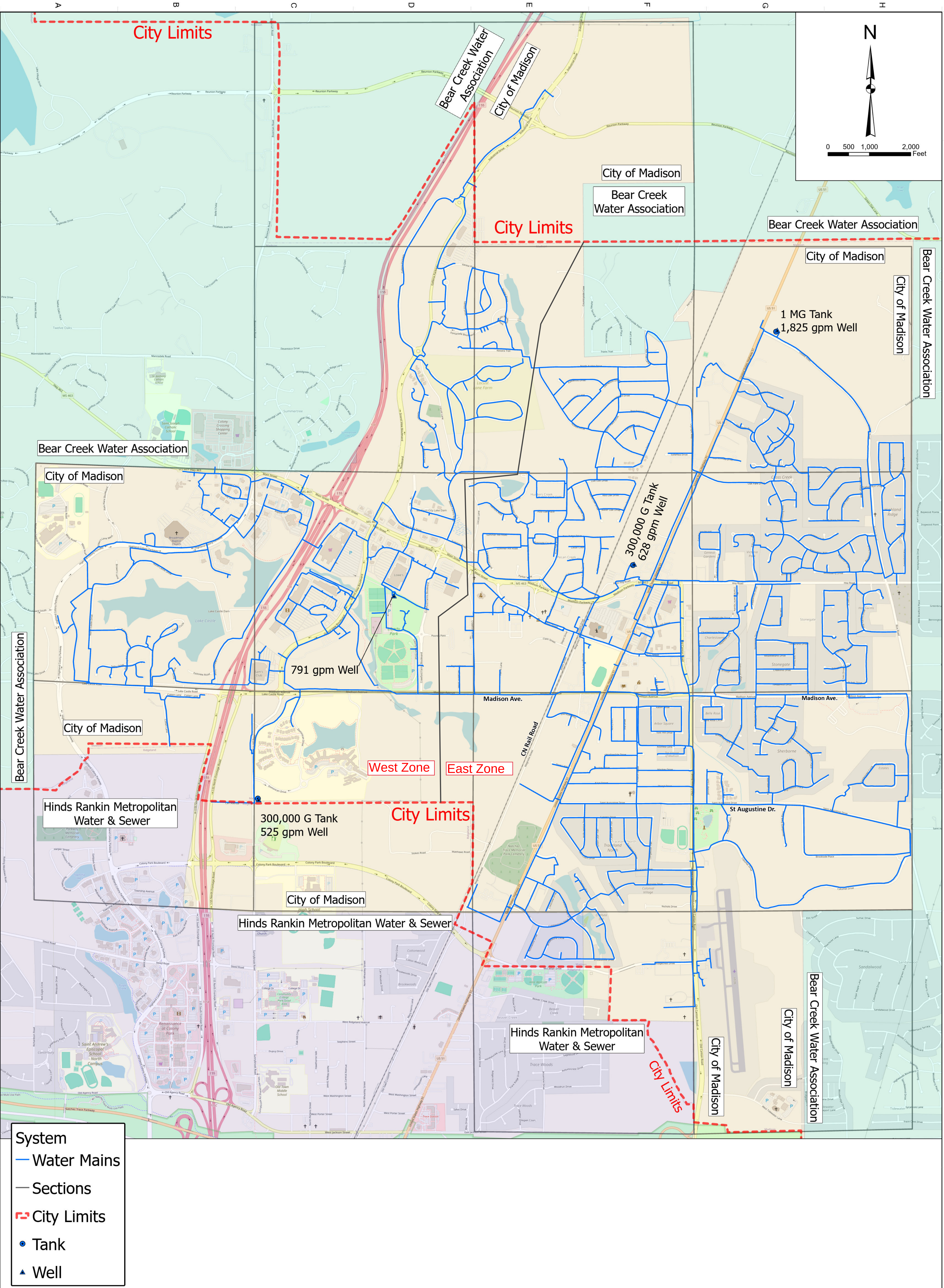
THEREFORE, THE SYSTEM IS AT $4871/7829 * 100\% = 62\%$ CAPACITY

OVERALL, THE CITY OF MADISON IS AT $6182/10,090 * 100\% = 61\%$ CAPACITY

GROUND WATER RULE CALCULATIONS:

The system is conducting triggered monitoring to comply with the Ground Water Rule.

Appendix 2 – Existing Certified Water Area



**CITY OF MADISON
CERTIFIED WATER AREA**

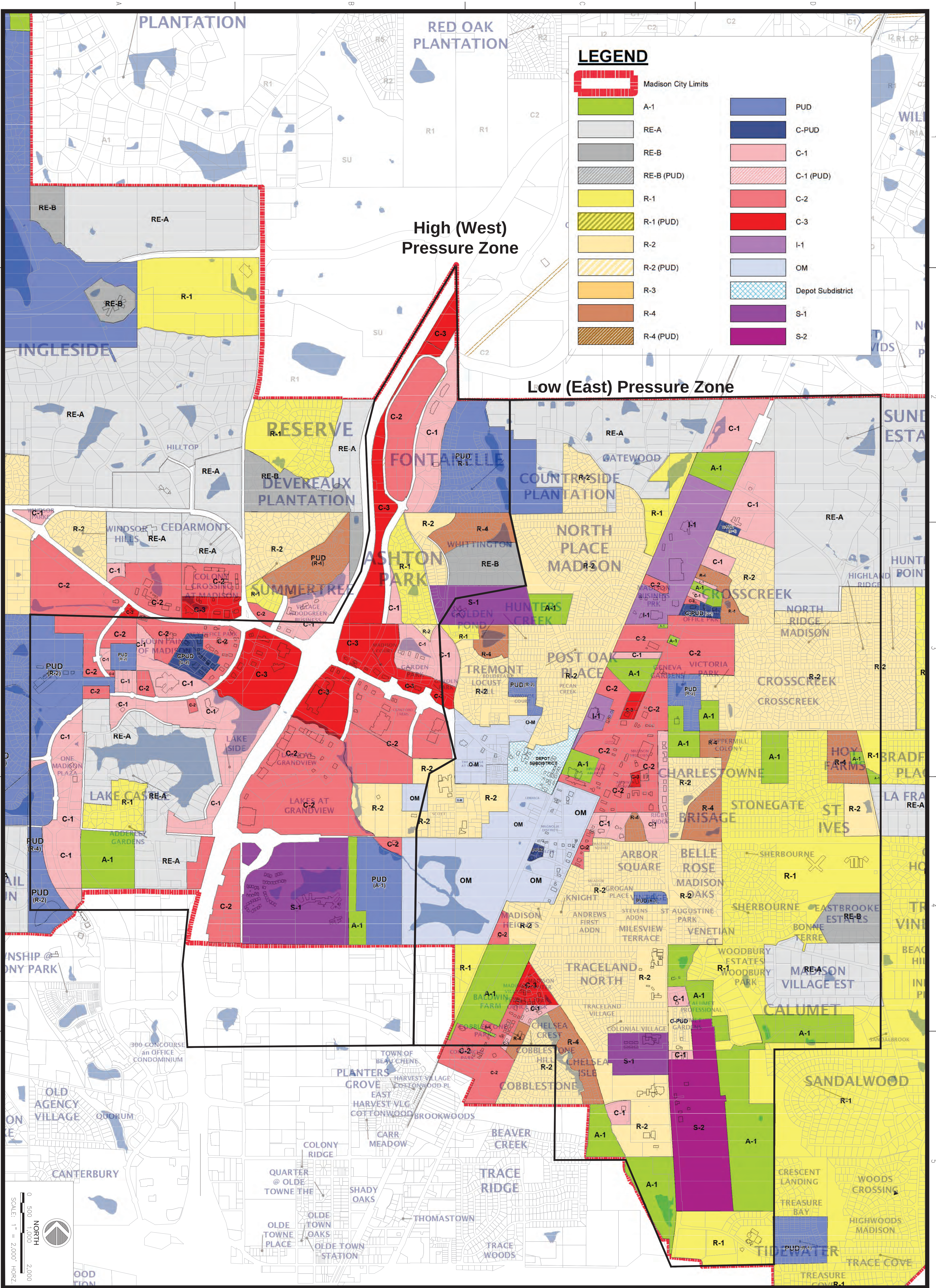
Madison County, MS

DATE: 2026-02-02

DRAWN BY: JYC

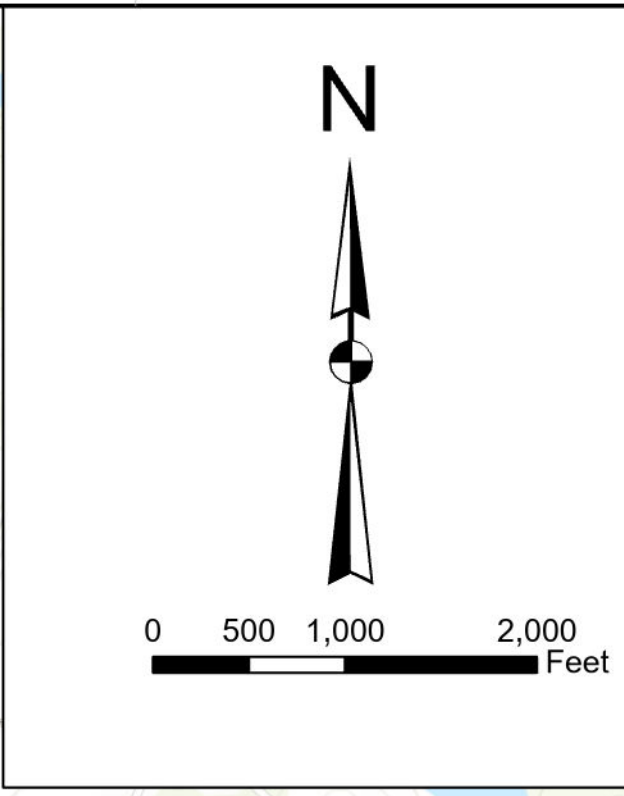
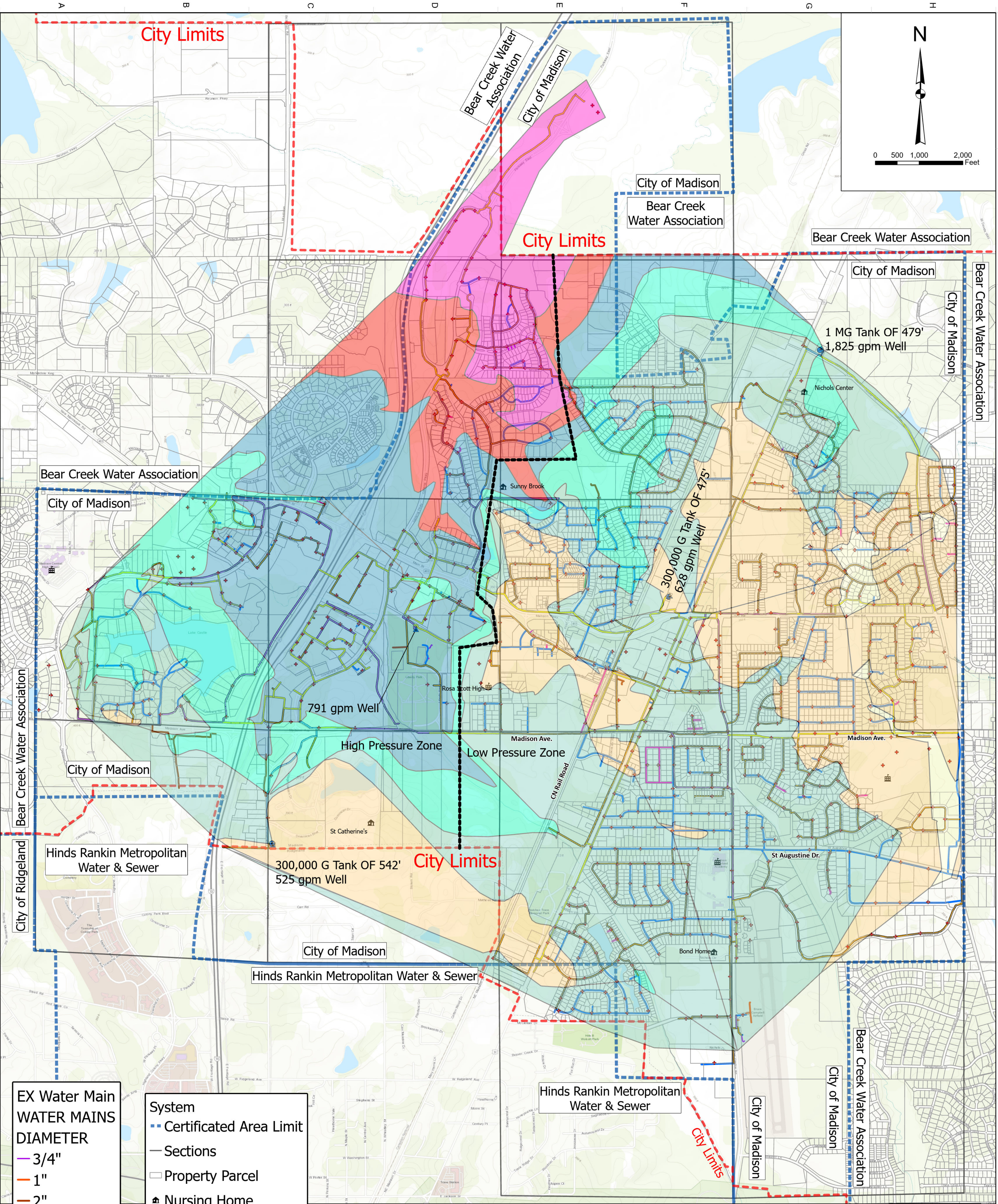


Appendix 3 – City of Madison Zoning Map



Appendix 4 – Existing Water System Map

Appendix 5 – Pressure Analysis Map



**EX Water Main
WATER MAINS
DIAMETER**

- 3/4"
- 1"
- 2"
- 3"
- 4"
- 6"
- 8"
- 10"
- 12"
- 16"

System

- Certificated Area Limit
- Sections
- Property Parcel
- Nursing Home
- School
- Fire Hydrant
- Well
- Tank
- Rail Road
- City Limits

High Pressure Zone
Number of Meter : 729
Max Pressure : 115 psi

Low Pressure Zone
Number of Meter : 4,371
Min Pressure : 40 psi

Pressure (psi)

- 40 - 50
- 51 - 60
- 61 - 70
- 71 - 80
- 81 - 90
- 91 - 100
- 101 - 114

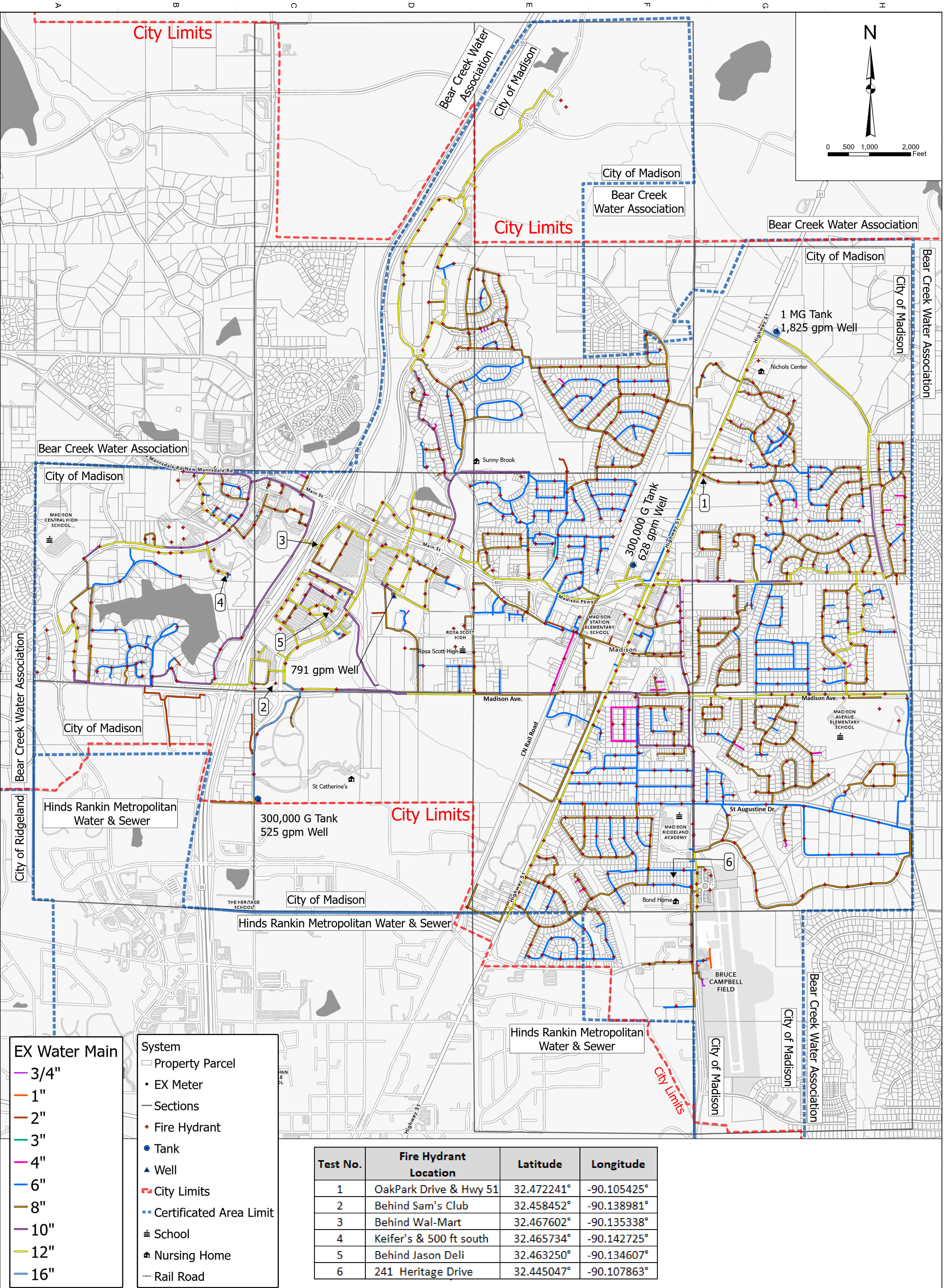
**CITY OF MADISON
WATER SYSTEM**
Madison County, MS

DRAWN BY: JYC



Pickering Firm, Inc.
Flowood, MS

Appendix 6 – Fire Hydrant Calibration



**CITY OF MADISON
WATER SYSTEM**

Madison County, MS

DATE: 2023-11-27
DRAWN BY: JYC



Appendix 7 – Fire Hydrant List

City of Madison Hydrant		
ID	Latitude	Longitude
0	32.469152	-90.093274
1	32.469317	-90.094640
2	32.469165	-90.095700
3	32.469171	-90.097191
4	32.470195	-90.095835
5	32.470273	-90.096992
6	32.472117	-90.097249
7	32.472719	-90.097058
8	32.472290	-90.095419
9	32.471441	-90.096205
10	32.471245	-90.097055
11	32.471089	-90.095076
12	32.471711	-90.094139
13	32.471932	-90.093083
14	32.472675	-90.093343
15	32.472701	-90.094471
16	32.471246	-90.093034
17	32.470115	-90.092965
18	32.470821	-90.094028
19	32.469935	-90.094642
20	32.471513	-90.091505
21	32.473229	-90.089856
22	32.474306	-90.089874
23	32.474331	-90.090928
24	32.473941	-90.091714
25	32.472572	-90.091662
26	32.471941	-90.090588
27	32.473183	-90.090888
28	32.469730	-90.091424
29	32.468825	-90.091367
30	32.467568	-90.090830
31	32.465547	-90.090382
32	32.466542	-90.089671
33	32.467864	-90.089738
34	32.469402	-90.089684
35	32.470722	-90.089666
36	32.472038	-90.089725
37	32.468230	-90.092789
38	32.472790	-90.099788
39	32.472867	-90.098776

City of Madison Hydrant		
ID	Latitude	Longitude
40	32.473761	-90.098389
41	32.474995	-90.099209
42	32.474434	-90.100107
43	32.473562	-90.100837
44	32.472895	-90.101761
45	32.472932	-90.100400
46	32.474176	-90.099426
47	32.474928	-90.098676
48	32.467023	-90.093656
49	32.467800	-90.093929
50	32.467220	-90.094930
51	32.466270	-90.096871
52	32.465759	-90.095811
53	32.465778	-90.094017
54	32.466667	-90.094536
55	32.466804	-90.092438
56	32.465801	-90.093008
57	32.465680	-90.092063
58	32.466574	-90.097727
59	32.465706	-90.098923
60	32.466624	-90.098995
61	32.467873	-90.097919
62	32.468038	-90.096559
63	32.468292	-90.094995
64	32.468381	-90.099190
65	32.467322	-90.099822
66	32.466468	-90.100284
67	32.468292	-90.100578
68	32.469143	-90.099455
69	32.469363	-90.100500
70	32.469244	-90.098198
71	32.470485	-90.099264
72	32.470973	-90.099719
73	32.470236	-90.100186
74	32.470547	-90.098401
75	32.471804	-90.100149
76	32.471726	-90.101217
77	32.471737	-90.102688
78	32.471814	-90.104300
79	32.472226	-90.105431

City of Madison Hydrant		
ID	Latitude	Longitude
80	32.477145	-90.098344
81	32.476283	-90.098785
82	32.475015	-90.101485
83	32.475772	-90.103305
84	32.475690	-90.100716
85	32.475689	-90.100716
86	32.476570	-90.099928
87	32.477591	-90.100973
88	32.477598	-90.101906
89	32.477428	-90.099552
90	32.478349	-90.101575
91	32.464676	-90.133884
92	32.459778	-90.138217
93	32.464209	-90.134544
94	32.455059	-90.140456
95	32.458062	-90.136911
96	32.464457	-90.108438
97	32.463314	-90.109102
98	32.463523	-90.107489
99	32.464583	-90.135308
100	32.482010	-90.100994
101	32.465443	-90.116266
102	32.465759	-90.115060
103	32.465723	-90.142724
104	32.465910	-90.143450
105	32.466570	-90.144059
106	32.467338	-90.143799
107	32.467569	-90.152755
108	32.466761	-90.153995
109	32.467148	-90.148127
110	32.467117	-90.147192
111	32.467148	-90.146321
112	32.467809	-90.144358
113	32.468130	-90.141444
114	32.468977	-90.140648
115	32.469840	-90.140102
116	32.469997	-90.139012
117	32.469906	-90.138087
118	32.469664	-90.136894
119	32.469103	-90.137094

City of Madison Hydrant		
ID	Latitude	Longitude
120	32.468953	-90.136616
121	32.469534	-90.142568
122	32.469078	-90.143021
123	32.468632	-90.142574
124	32.469615	-90.143809
125	32.469924	-90.144337
126	32.470407	-90.144691
127	32.471008	-90.144635
128	32.471703	-90.144905
129	32.472232	-90.145341
130	32.471923	-90.146592
131	32.472521	-90.146216
132	32.468060	-90.146171
133	32.467841	-90.147120
134	32.468841	-90.147313
135	32.468804	-90.146218
136	32.469608	-90.141637
137	32.470689	-90.141132
138	32.470928	-90.142694
139	32.471688	-90.143125
140	32.471421	-90.141841
141	32.468827	-90.134020
142	32.467602	-90.135339
143	32.466392	-90.135588
144	32.466980	-90.133904
145	32.467696	-90.133459
146	32.463610	-90.135779
147	32.466426	-90.148376
148	32.465585	-90.146436
149	32.462388	-90.117865
150	32.461980	-90.116536
151	32.461856	-90.115666
152	32.461795	-90.115436
153	32.462824	-90.115164
154	32.465650	-90.119155
155	32.467285	-90.119193
156	32.471944	-90.113778
157	32.478464	-90.110835
158	32.478473	-90.109514
159	32.478473	-90.108268

City of Madison Hydrant		
ID	Latitude	Longitude
160	32.480527	-90.108836
161	32.480326	-90.109796
162	32.481510	-90.109899
163	32.479394	-90.110524
164	32.467004	-90.101570
165	32.468115	-90.101509
166	32.468253	-90.102694
167	32.467813	-90.103072
168	32.465402	-90.104358
169	32.466690	-90.104248
170	32.468117	-90.104162
171	32.468418	-90.105532
172	32.467327	-90.105523
173	32.463585	-90.101738
174	32.464019	-90.091453
175	32.464485	-90.092474
176	32.463570	-90.092941
177	32.462783	-90.093106
178	32.461944	-90.092931
179	32.461776	-90.091660
180	32.461792	-90.090538
181	32.458411	-90.094311
182	32.458667	-90.092700
183	32.479406	-90.112139
184	32.479417	-90.113491
185	32.479421	-90.115051
186	32.479420	-90.116606
187	32.479350	-90.118265
188	32.478435	-90.117869
189	32.477549	-90.117216
190	32.478160	-90.116451
191	32.478584	-90.114651
192	32.478196	-90.113247
193	32.478461	-90.112127
194	32.459540	-90.123445
195	32.479802	-90.101132
196	32.479188	-90.102024
197	32.475244	-90.104078
198	32.473897	-90.104777
199	32.458658	-90.092699

City of Madison Hydrant		
ID	Latitude	Longitude
200	32.459741	-90.092735
201	32.460872	-90.092847
202	32.461017	-90.093925
203	32.462063	-90.094166
204	32.462437	-90.094949
205	32.463392	-90.094198
206	32.464359	-90.094222
207	32.464544	-90.095900
208	32.463379	-90.096046
209	32.461403	-90.096172
210	32.462826	-90.096192
211	32.460295	-90.095334
212	32.459332	-90.096040
213	32.459741	-90.094430
214	32.458529	-90.096068
215	32.458415	-90.101349
216	32.458452	-90.138981
217	32.460814	-90.137296
218	32.472717	-90.096258
219	32.458368	-90.099673
220	32.458384	-90.097355
221	32.459365	-90.097340
222	32.459347	-90.100369
223	32.460313	-90.101350
224	32.461099	-90.098528
225	32.461112	-90.101355
226	32.462379	-90.101015
227	32.464175	-90.100343
228	32.463405	-90.099324
229	32.462234	-90.099501
230	32.458232	-90.104384
231	32.458278	-90.102954
232	32.459277	-90.102733
233	32.460287	-90.102707
234	32.459230	-90.104234
235	32.458836	-90.105920
236	32.460369	-90.105877
237	32.461016	-90.104330
238	32.462022	-90.103018
239	32.462694	-90.103853

City of Madison Hydrant		
ID	Latitude	Longitude
240	32.463094	-90.102802
241	32.464204	-90.103081
242	32.457667	-90.091276
243	32.457660	-90.092931
244	32.457651	-90.095965
245	32.457645	-90.097208
246	32.457634	-90.098552
247	32.457652	-90.100173
248	32.456980	-90.104910
249	32.456359	-90.105522
250	32.456009	-90.104652
251	32.456785	-90.104064
252	32.457371	-90.103408
253	32.458042	-90.134221
254	32.452417	-90.140699
255	32.455346	-90.102567
256	32.454486	-90.103094
257	32.453602	-90.103571
258	32.452986	-90.102492
259	32.455039	-90.104360
260	32.455042	-90.105364
261	32.456930	-90.098977
262	32.456725	-90.099382
263	32.456000	-90.099899
264	32.455063	-90.100640
265	32.455787	-90.101549
266	32.456821	-90.100953
267	32.454366	-90.101038
268	32.453635	-90.100962
269	32.454364	-90.099825
270	32.455762	-90.098298
271	32.454678	-90.098469
272	32.453708	-90.097068
273	32.453191	-90.096966
274	32.451710	-90.096863
275	32.452291	-90.095716
276	32.451569	-90.098303
277	32.451731	-90.099242
278	32.453201	-90.098985
279	32.451156	-90.101424

City of Madison Hydrant		
ID	Latitude	Longitude
280	32.451130	-90.100384
281	32.452225	-90.100344
282	32.457655	-90.109111
283	32.458777	-90.109281
284	32.450572	-90.105244
285	32.451721	-90.105238
286	32.452684	-90.105228
287	32.451152	-90.094439
288	32.452990	-90.091460
289	32.452519	-90.092461
290	32.451556	-90.092186
291	32.452249	-90.090568
292	32.447047	-90.091822
293	32.447024	-90.093901
294	32.447003	-90.095709
295	32.448066	-90.097630
296	32.450200	-90.097649
297	32.450156	-90.099082
298	32.449066	-90.099232
299	32.447954	-90.099117
300	32.447976	-90.104038
301	32.449610	-90.103633
302	32.447796	-90.103079
303	32.446825	-90.102318
304	32.445792	-90.101539
305	32.444627	-90.101381
306	32.444250	-90.097786
307	32.445024	-90.096020
308	32.444878	-90.094240
309	32.445089	-90.092408
310	32.445731	-90.090376
311	32.457477	-90.110834
312	32.455692	-90.112588
313	32.455678	-90.111775
314	32.456837	-90.110574
315	32.456727	-90.109643
316	32.455212	-90.109430
317	32.455710	-90.107237
318	32.456701	-90.107237
319	32.456696	-90.108569

City of Madison Hydrant		
ID	Latitude	Longitude
320	32.455687	-90.110600
321	32.454199	-90.110712
322	32.454281	-90.109152
323	32.454281	-90.107799
324	32.455034	-90.107794
325	32.453726	-90.107805
326	32.453764	-90.110564
327	32.449448	-90.114815
328	32.449486	-90.116312
329	32.463536	-90.110519
330	32.462973	-90.111657
331	32.462642	-90.111240
332	32.461143	-90.111336
333	32.461536	-90.110349
334	32.462387	-90.110683
335	32.463428	-90.110145
336	32.464922	-90.109381
337	32.463204	-90.107279
338	32.462332	-90.109150
339	32.475150	-90.109437
340	32.475436	-90.110911
341	32.475023	-90.113078
342	32.474617	-90.112399
343	32.473945	-90.111455
344	32.473560	-90.110239
345	32.472760	-90.111079
346	32.472914	-90.112558
347	32.472764	-90.113753
348	32.474108	-90.113601
349	32.475711	-90.112674
350	32.476931	-90.112851
351	32.476231	-90.113656
352	32.475346	-90.114459
353	32.471944	-90.113776
354	32.471934	-90.112394
355	32.471609	-90.110784
356	32.470880	-90.111156
357	32.469883	-90.111655
358	32.469207	-90.111976
359	32.469346	-90.113493

City of Madison Hydrant		
ID	Latitude	Longitude
360	32.469986	-90.113659
361	32.470012	-90.112588
362	32.470870	-90.114195
363	32.470969	-90.112627
364	32.471714	-90.114581
365	32.471311	-90.115706
366	32.470543	-90.115493
367	32.469269	-90.114934
368	32.471094	-90.116150
369	32.472473	-90.116137
370	32.470741	-90.117119
371	32.471307	-90.118524
372	32.471853	-90.117111
373	32.469714	-90.116163
374	32.469519	-90.118735
375	32.469886	-90.117412
376	32.468274	-90.116847
377	32.468151	-90.112551
378	32.468081	-90.113524
379	32.467208	-90.113510
380	32.465941	-90.113758
381	32.468148	-90.114624
382	32.464728	-90.115201
383	32.465759	-90.115060
384	32.466641	-90.115010
385	32.467520	-90.116012
386	32.467520	-90.114823
387	32.468162	-90.115924
388	32.467681	-90.117295
389	32.467686	-90.118609
390	32.450415	-90.114994
391	32.448255	-90.114805
392	32.448101	-90.115817
393	32.447086	-90.114986
394	32.446880	-90.113572
395	32.448252	-90.113891
396	32.449463	-90.113881
397	32.449476	-90.112823
398	32.448070	-90.112828
399	32.446877	-90.112351

City of Madison Hydrant		
ID	Latitude	Longitude
400	32.447150	-90.111067
401	32.448136	-90.111757
402	32.449476	-90.111746
403	32.449468	-90.110701
404	32.448480	-90.110730
405	32.447575	-90.109720
406	32.448327	-90.109671
407	32.449408	-90.109559
408	32.446102	-90.109863
409	32.445995	-90.107057
410	32.445951	-90.110827
411	32.445752	-90.113009
412	32.444718	-90.112401
413	32.443814	-90.111753
414	32.445011	-90.110845
415	32.445014	-90.109442
416	32.445019	-90.107870
417	32.444879	-90.106524
418	32.443565	-90.106023
419	32.444311	-90.106015
420	32.445071	-90.106053
421	32.445795	-90.106012
422	32.446018	-90.105407
423	32.445637	-90.104948
424	32.444658	-90.105017
425	32.443592	-90.119959
426	32.442294	-90.118407
427	32.441052	-90.119064
428	32.440276	-90.119196
429	32.440378	-90.118169
430	32.441483	-90.117436
431	32.441421	-90.115726
432	32.440158	-90.115446
433	32.440140	-90.116747
434	32.440124	-90.114121
435	32.440247	-90.112566
436	32.441377	-90.113153
437	32.443131	-90.113772
438	32.444110	-90.114261
439	32.444786	-90.114873

City of Madison Hydrant		
ID	Latitude	Longitude
440	32.445370	-90.115307
441	32.443415	-90.114808
442	32.441038	-90.114277
443	32.442115	-90.114884
444	32.442735	-90.116041
445	32.442303	-90.117262
446	32.443893	-90.116409
447	32.443572	-90.117732
448	32.444571	-90.117205
449	32.444887	-90.117620
450	32.445233	-90.118042
451	32.445728	-90.117216
452	32.445204	-90.118421
453	32.475890	-90.115906
454	32.476530	-90.114957
455	32.477354	-90.114226
456	32.477354	-90.114226
457	32.477460	-90.115348
458	32.476696	-90.116572
459	32.477597	-90.111952
460	32.477599	-90.110888
461	32.477535	-90.109297
462	32.477099	-90.108283
463	32.476031	-90.108988
464	32.476401	-90.110218
465	32.476391	-90.111937
466	32.468346	-90.118285
467	32.466762	-90.116964
468	32.462385	-90.117863
469	32.463142	-90.119295
470	32.463804	-90.121005
471	32.467890	-90.125376
472	32.465908	-90.121975
473	32.467087	-90.122473
474	32.468366	-90.122344
475	32.468363	-90.121234
476	32.468025	-90.119757
477	32.467453	-90.120760
478	32.467481	-90.124371
479	32.470329	-90.122134

City of Madison Hydrant		
ID	Latitude	Longitude
480	32.469507	-90.121172
481	32.469704	-90.120418
482	32.469133	-90.119806
483	32.471746	-90.122377
484	32.471516	-90.123715
485	32.470905	-90.121359
486	32.472141	-90.119725
487	32.472447	-90.125740
488	32.473280	-90.125853
489	32.472784	-90.127155
490	32.473968	-90.127167
491	32.474004	-90.126174
492	32.474004	-90.126174
493	32.475322	-90.126613
494	32.477735	-90.128291
495	32.478633	-90.127721
496	32.477631	-90.127292
497	32.476893	-90.127570
498	32.475934	-90.127386
499	32.469448	-90.125741
500	32.469607	-90.126953
501	32.470061	-90.128245
502	32.468093	-90.125911
503	32.468323	-90.126855
504	32.453605	-90.112420
505	32.452742	-90.113295
506	32.452470	-90.114598
507	32.452739	-90.111753
508	32.452614	-90.109342
509	32.452606	-90.108051
510	32.452607	-90.106784
511	32.451771	-90.115260
512	32.451753	-90.113632
513	32.451734	-90.112035
514	32.451561	-90.110752
515	32.451521	-90.107687
516	32.453903	-90.115032
517	32.455638	-90.114127
518	32.455099	-90.113536
519	32.449128	-90.091788

City of Madison Hydrant		
ID	Latitude	Longitude
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521	32.449896	-90.095647
522	32.450337	-90.100603
523	32.450404	-90.107228
524	32.450404	-90.108841
525	32.450402	-90.110582
526	32.450411	-90.113116
527	32.450417	-90.114991
528	32.450557	-90.116753
529	32.446884	-90.118396
530	32.446760	-90.117804
531	32.446876	-90.117240
532	32.444561	-90.119988
533	32.445541	-90.119451
534	32.446333	-90.119029
535	32.447979	-90.118020
536	32.452472	-90.115787
537	32.456560	-90.113710
538	32.468795	-90.128641
539	32.469615	-90.129686
540	32.470437	-90.130598
541	32.469273	-90.131302
542	32.472112	-90.136482
543	32.464676	-90.133884
544	32.465197	-90.134879
545	32.465555	-90.135750
546	32.465383	-90.137176
547	32.464656	-90.137651
548	32.463610	-90.135779
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550	32.465024	-90.136255
551	32.464311	-90.136665
552	32.459771	-90.114712
553	32.458109	-90.114796
554	32.457819	-90.116477
555	32.458324	-90.117185
556	32.460065	-90.116389
557	32.464663	-90.123491
558	32.463443	-90.123488
559	32.462247	-90.124236

City of Madison Hydrant		
ID	Latitude	Longitude
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561	32.460496	-90.123475
562	32.457919	-90.123443
563	32.459548	-90.124593
564	32.457894	-90.124584
565	32.460779	-90.128861
566	32.459601	-90.127430
567	32.460866	-90.124910
568	32.466956	-90.128684
569	32.466014	-90.128446
570	32.464881	-90.129013
571	32.464981	-90.130250
572	32.466046	-90.129967
573	32.466837	-90.129496
574	32.466652	-90.131513
575	32.467664	-90.130351
576	32.467574	-90.130619
577	32.468296	-90.131545
578	32.463066	-90.136296
579	32.463439	-90.137438
580	32.462831	-90.137884
581	32.462929	-90.138922
582	32.463435	-90.138521
583	32.463953	-90.138118
584	32.462509	-90.138343
585	32.462071	-90.138607
586	32.463241	-90.134592
587	32.464209	-90.134544
588	32.462217	-90.146687
589	32.459862	-90.149484
590	32.459761	-90.149901
591	32.458971	-90.149428
592	32.459516	-90.151831
593	32.459279	-90.152961
594	32.460911	-90.150407
595	32.461994	-90.151528
596	32.460852	-90.149162
597	32.459610	-90.150604
598	32.460948	-90.153439
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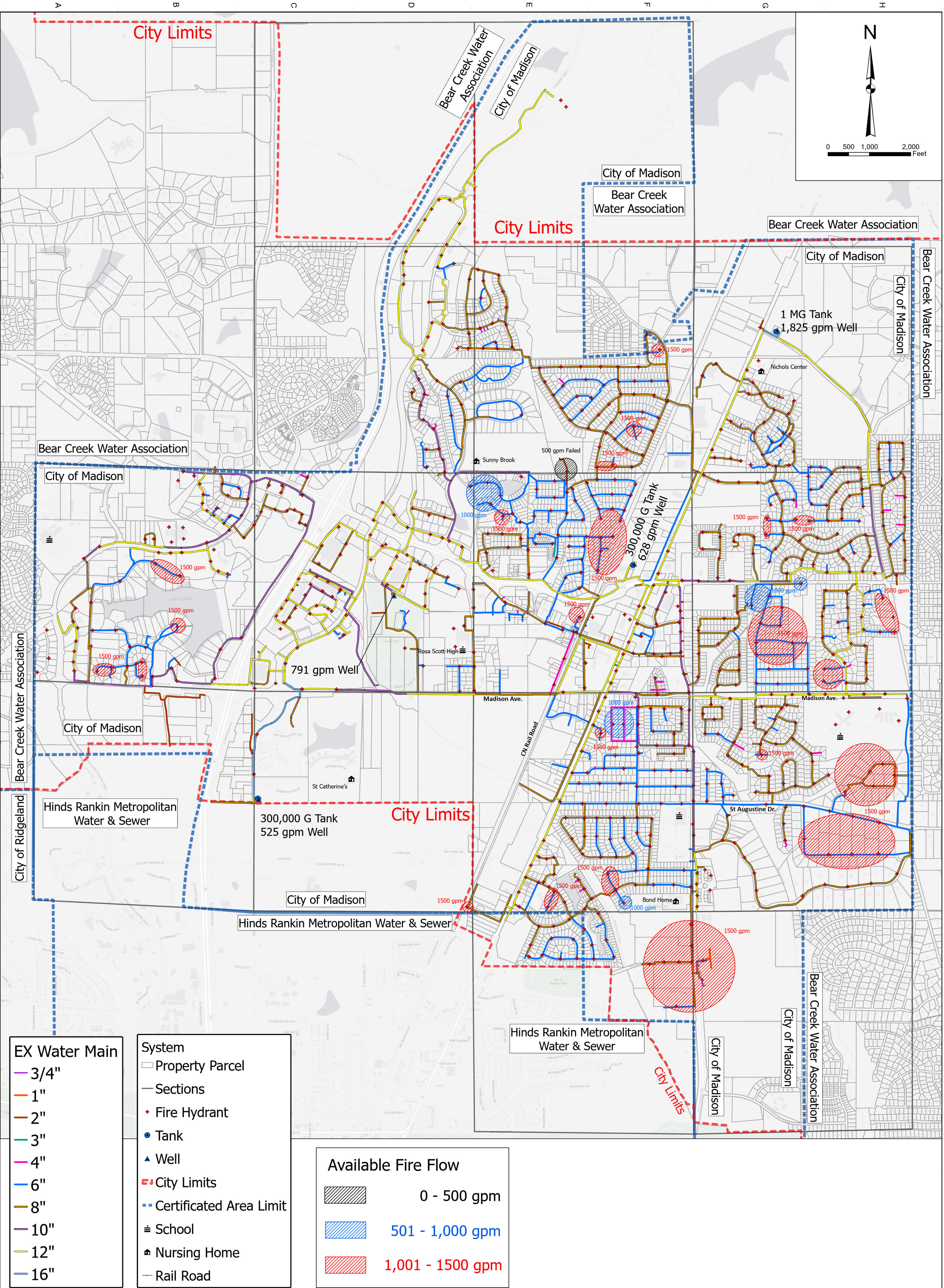
City of Madison Hydrant		
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603	32.487564	-90.125535
604	32.486841	-90.125949
605	32.486071	-90.126248
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609	32.480538	-90.127421
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615	32.455877	-90.090207
616	32.462754	-90.090613
617	32.465008	-90.097817
618	32.465225	-90.103413
619	32.465193	-90.105865
620	32.465232	-90.107144
621	32.463210	-90.107280
622	32.461830	-90.107270
623	32.462448	-90.107391
624	32.460485	-90.107243
625	32.459042	-90.107023
626	32.457801	-90.106630
627	32.456625	-90.106597
628	32.454278	-90.106646
629	32.442396	-90.106505
630	32.440964	-90.106479
631	32.439907	-90.108635
632	32.439758	-90.109762
633	32.439905	-90.107459
634	32.439895	-90.106487
635	32.436977	-90.107682
636	32.439991	-90.105555
637	32.448306	-90.106289
638	32.449052	-90.106350
639	32.450583	-90.106302

City of Madison Hydrant		
ID	Latitude	Longitude
640	32.451622	-90.106302
641	32.453866	-90.106286
642	32.457468	-90.113192
643	32.458422	-90.112728
644	32.460382	-90.108075
645	32.460370	-90.109377
646	32.460202	-90.108729
647	32.460398	-90.110981
648	32.460350	-90.111774
649	32.459250	-90.112328
650	32.461142	-90.111337
651	32.461543	-90.110351
652	32.462384	-90.110684
653	32.463424	-90.110145
654	32.465689	-90.109018
655	32.467180	-90.108258
656	32.473393	-90.104589
657	32.473329	-90.103311
658	32.473158	-90.102524
659	32.473901	-90.104778
660	32.459314	-90.154760
661	32.459897	-90.154829
662	32.460607	-90.154750
663	32.461284	-90.154615
664	32.462164	-90.154481
665	32.462590	-90.154839
666	32.463461	-90.154639
667	32.482284	-90.125846
668	32.481653	-90.123796
669	32.482002	-90.122941
670	32.482308	-90.121980
671	32.483390	-90.120873
672	32.484447	-90.121140
673	32.485522	-90.121464
674	32.486298	-90.124987
675	32.482213	-90.120877
676	32.480738	-90.120424
677	32.480669	-90.122703
678	32.481072	-90.121731
679	32.480648	-90.121588

City of Madison Hydrant		
ID	Latitude	Longitude
680	32.480650	-90.124703
681	32.480638	-90.123868
682	32.458110	-90.140633
683	32.458780	-90.143748
684	32.460715	-90.143304
685	32.461485	-90.141673
686	32.459478	-90.147142
687	32.458635	-90.146722
688	32.458926	-90.148648
689	32.490527	-90.125282
690	32.490542	-90.126133
691	32.489913	-90.126712
692	32.489205	-90.127236
693	32.488506	-90.127749
694	32.487102	-90.128719
695	32.486353	-90.128942
696	32.485546	-90.128885
697	32.484944	-90.128910
698	32.464603	-90.133947
699	32.461912	-90.105889
700	32.465858	-90.126583
701	32.466353	-90.127700
702	32.462802	-90.114161
703	32.478829	-90.105522
704	32.497116	-90.116561
705	32.496678	-90.116156
706	32.470936	-90.136862
707	32.479600	-90.104458
708	32.470936	-90.136862
709	32.469968	-90.137480
710	32.450847	-90.103986
711	32.451734	-90.104113
712	32.450954	-90.103178
713	32.468056	-90.148516
714	32.468045	-90.149175
715	32.470083	-90.143571
716	32.485257	-90.123748
717	32.485146	-90.122669
718	32.484023	-90.122860
719	32.485895	-90.123083

City of Madison Hydrant		
ID	Latitude	Longitude
720	32.460500	-90.161010
721	32.459738	-90.161583
722	32.459285	-90.160621
723	32.460288	-90.159327
724	32.461137	-90.158656
725	32.459369	-90.159223
726	32.459225	-90.157654
727	32.460152	-90.156750
728	32.460150	-90.156753
729	32.462019	-90.156899
730	32.463568	-90.127290
731	32.464383	-90.127270
732	32.465227	-90.127165
733	32.466039	-90.126437
734	32.465483	-90.125492
735	32.471608	-90.139474
736	32.471608	-90.139474
737	32.471570	-90.138428
738	32.471105	-90.138552
739	32.476934	-90.124405
740	32.464719	-90.124628
741	32.477493	-90.125492
742	32.478518	-90.126302
743	32.478433	-90.124465
744	32.476208	-90.125200
745	32.443576	-90.124042
746	32.443576	-90.124042
747	32.461659	-90.133679
748	32.462968	-90.133444
749	32.476226	-90.119699

Appendix 8 – Available Fire Flow



CITY OF MADISON WATER SYSTEM

Madison County, MS

DATE: 2023-11-27

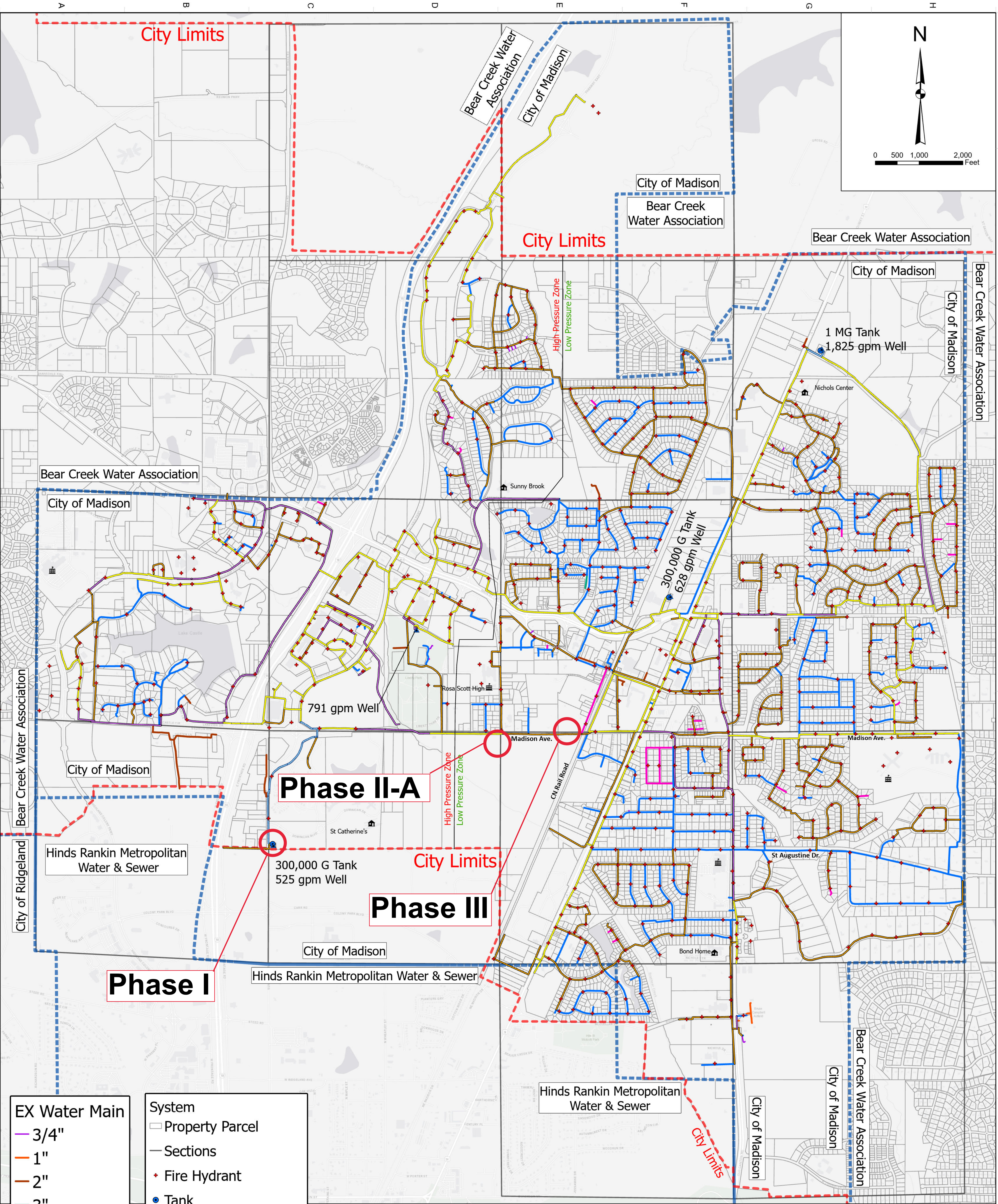
DRAWN BY: JYC



500 gpm		
GIS ID	Hyd No.	Flow Rate (gpm)
369	221	500
1,000 gpm		
GIS ID	Hyd No.	Flow Rate (gpm)
312	2128	1000
173	2010	1000
617	2249	1000
483	272	1000
484	273	1000
485	274	1000
313	2129	1000
227	2045	1000
479	268	1000
413	2168	1000
1,500 gpm		
GIS ID	Hyd No.	Flow Rate (gpm)
226	2044	1500
228	2046	1500
229	2047	1500
588	343	1500
635	2267	1500
380	232	1500
636	2268	1500
635	2267	1500
632	2264	1500
631	2263	1500
633	2265	1500
480	269	1500
147	147	1500
148	148	1500
212	2033	1500
214	2035	1500
593	348	1500
411	2166	1500
412	2167	1500
290	2106	1500
288	2104	1500
291	2107	1500
289	2105	1500
268	2084	1500

1,500 gpm		
GIS ID	Hyd No.	Flow Rate (gpm)
480	269	1500
225	2043	1500
223	2041	1500
224	2042	1500
226	2044	1500
228	2046	1500
229	2047	1500
340	192	1500
447	2202	1500
180	2017	1500
295	2111	1500
358	210	1500
519	2223	1500
520	2224	1500
521	2225	1500
294	2110	1500
293	2109	1500
292	2108	1500
287	2103	1500
3	4	1500
70	62	1500
69	61	1500
67	59	1500
377	229	1500
160	161	1500
745	2-2256	1500
746	2-2257	1500
632	2264	1500
174	2011	1500
379	231	1500
346	198	1500
347	199	1500
518	2222	1500
153	153	1500
310	2126	1500
359	211	1500
591	346	1500
347	199	1500

Appendix 9 – Proposed Improvement



- Proposed Improvement List**
- Phase I : 1.5 MG Elevated Water Tank**
 - Phase II-A* : 700 gpm Pump Station**
 - Phase III : Approximately 2,000 LF 12" Water Main**

*Note : The location of Phase II-B (water well) will be determined by the City of Madison.



Appendix 10 – Financial Analysis

Financial Capability Summary
City of Madison
Water System Facilities Plan
Phase I - Water Storage System Improvement

1. Estimated Construction Costs (Phase I ONLY):

	Total	Eligible
Consolidation	\$ -	\$ -
Supply	\$ -	\$ -
Treatment	\$ -	\$ -
Storage	\$ 7,150,000.00	\$ 7,150,000.00
Distribution	\$ -	\$ -
Land Acquisitions	\$ -	\$ -
Planning & Design Phase Services	\$ 500,000.00	\$ 500,000.00
Construction Phase Services	\$ 350,000.00	\$ 350,000.00
Construction Contingency	\$ 715,000.00	\$ 715,000.00
Other	\$ -	\$ -
Subtotal	\$ 8,715,000.00	\$ 8,715,000.00
DWSIRLF Administrative Fee:	\$ -	\$ -
a. Total	\$ 8,715,000.00	\$ 8,715,000.00

2. Estimated Annual Operation, Maintenance, and Replacement (OM&R) Costs

Annual OM&R (New Facilities)	
Personnel	\$ 260,704.92
Supplies	\$ 138,180.00
Other Services & Charges	\$ 389,674.74
Debt Service	\$ 167,217.96
Operating Transfers Out	\$ 52,500.00
Mero Sewer Charge	\$ 416,850.00
Capital Outlay	\$ 630.00
TOTAL OM&R	\$ 1,425,757.62

3. Funding Sources

Total Construction Costs (From 1.a)	\$ 8,715,000.00
(-) DWSIRLF Funding	\$ (2,178,750.00)
(-) Grants	\$ (6,536,250.00)
(-) Other Loans	\$ -
(-) Bonds	\$ -
(-) Other	\$ -

4. Long Term Financing

Financing Method	Amount	Interest Rate, %	Term of Maturity, years	Annual Debt Payment
DWSIRLF Loan	\$ 2,178,750.00	1.95%	20	\$ 132,603.14
Other Loan	\$ -			
Bonds	\$ -			
Other	\$ -			
			a. Total	\$ 132,603.14

5. Total Estimated Annual Costs**Existing Debt Service**

REFUNDING BONDS (52% of total)	\$	20,748.00
REFUNDING BONDS (Split with G.O .)	\$	59,220.00
UTILITY BONDS	\$	14,700.00
GO Refunding Bonds, Series 2020 (23% of total)	\$	53,340.00
2022 REFUNDING BONDS	\$	26,972.40
2022B REFUNDING BONDS	\$	1,050.00
SRF LOAN 2013	\$	20,725.95
Water Pollution Control Revolving Loan Fund	\$	4,798.50
New Facilities Debt Service (From 4.a)	\$	132,603.14
Total Annual OM&R (from 2.c)	\$	1,425,757.62
a. Total Annual Costs	\$	1,759,915.61

6. User Charges

	No. Users	Revenue (\$/Mo)	
Water Revenue:			
Residential Water	5,100	\$ 89,913.00	
Commercial Water		\$ -	
Annual TOTAL	\$ 1,078,956.00		

7. Source of Funding for Annual Drinking Water Facilities Costs

User Charges (6.c. TOTAL)	\$	1,078,956.00	
Tie-on Fees	\$	13,650.00	
Interest Earned	\$	2,310.00	
Miscellaneous Income	\$	229,425.00	
Fund Balance	\$	479,210.76	
TOTAL (must exceed 5 TOTAL)	\$	1,803,551.76	OK

8. Annual Cost per Household

Total Annual Cost (From 5.a)	\$	1,759,915.61	
Non-residential share of Total	\$	-	
Residential share of total	\$	1,759,915.61	
Existing households to be served		5,100	
a. Average Annual Systemwide Cost Per Household	\$	345.08	

9. High Cost Comparison

a. Annual Cost Per Household (from 8.a)	\$	345.08	
b. Median Household Income	\$	83,441.00	
c. Percentage (a/b * 100)		0.41%	
d. High Cost Threshold		1.50%	
IS THIS A HIGH COST PROJECT (Is 9.c greater than 9.d)?	NO		

6. User Charges

Existing Monthly Rates

Usage (1,000 gal)	Class 1 - Residential	Class 2 - Commercial (<2 ")	Class 3 - Commercial (> 2")	Class 3 - Wholesale
First <u>1,000</u> gallons (or Flat Fee)	\$6.65			
<u>1,000</u> to <u>Unlimited</u>	1.5 \$/1,000 gal	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal
<u> </u> to <u> </u>	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal
Over <u>10,000</u> gallons	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal

Proposed Monthly Rates (if increase is proposed)

Usage (1,000 gal)	Class 1	Class 2	Class 3	Class 3
First <u> </u> (or Flat Fee)				
<u> </u> to <u> </u>	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal
<u> </u> to <u> </u>	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal
Over <u> </u>	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal	\$/1,000 gal

Proposed Revenue

Average Use (1,000 gal/mo)	Avg. Bill (\$/mo)	No. of Users	Revenue (\$/mo)
Class 1 <u>Residential</u>	\$17.63	5100	\$89,913.00
Class 2 <u>Commercial</u>			\$0.00
Class 3 <u>Commercial</u>			\$0.00
Subtotal			\$89,913.00
ANNUAL TOTAL (Revenue Subtotal x 12)			\$ 1,078,956.00

Total User Charge based on revenue collected from Retail Residential and Commercial Sewer Services. See JCUA Rate Schedule in Appendix B for detail regarding residential and commercial sewer rates.

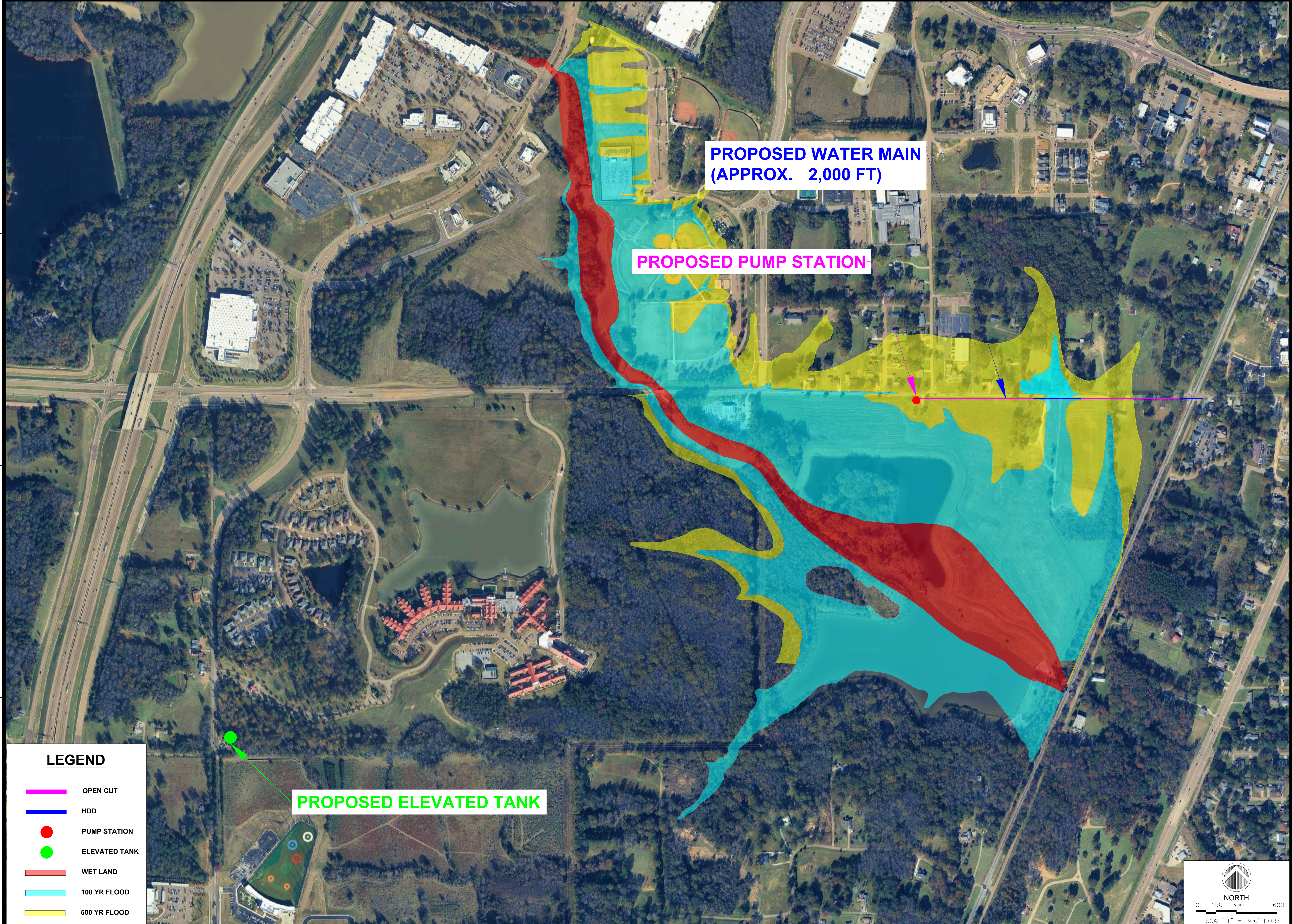
WATER AND SEWER FUND
FISCAL YEARS 2025 & 2026

	<u>2025 ORIGINAL</u>	<u>2025 REVISED</u>	<u>2026 BUDGET</u>
REVENUES:			
Collections	\$ 4,718,500	\$ 5,106,000	\$ 5,156,000
Tie-on Fees	80,000	65,000	65,000
Interest Earned	110,000	110,000	110,000
Loan Proceeds	-	-	-
Miscellaneous	<u>1,039,500</u>	<u>1,092,500</u>	<u>1,092,500</u>
TOTAL	<u>5,948,000</u>	<u>6,373,500</u>	<u>6,423,500</u>
Beginning Fund Balance	<u>2,050,386</u>	<u>2,593,678</u>	<u>2,281,956</u>
TOTAL	<u><u>\$ 7,998,386</u></u>	<u><u>\$ 8,967,178</u></u>	<u><u>\$ 8,705,456</u></u>
EXPENDITURES:			
Personnel	\$ 1,229,571	\$ 1,226,794	\$ 1,241,452
Supplies	493,000	653,000	658,000
Other Services & Charges	1,788,094	1,878,594	1,855,594
Debt Service	1,083,834	1,083,834	796,276
Operating Transfers Out	125,000	125,000	250,000
Metro Sewer Charge	1,400,000	1,715,000	1,985,000
Capital Outlay	<u>11,000</u>	<u>3,000</u>	<u>3,000</u>
TOTAL	<u>6,130,499</u>	<u>6,685,222</u>	<u>6,789,322</u>
Ending Fund Balance	<u>1,867,887</u>	<u>2,281,956</u>	<u>1,916,134</u>
TOTAL	<u><u>\$ 7,998,386</u></u>	<u><u>\$ 8,967,178</u></u>	<u><u>\$ 8,705,456</u></u>

City of Madison
 LT Debt Schedule
 9/30/2025

DESCRIPTION	INTEREST RATE	ISSUE DATE	BALANCE 09/30/24	ADDITIONS	REPAID	Refunding Adjustment	BALANCE 09/30/25
<u>GENERAL OBLIGATION BONDS (W/S PORTION):</u>							
REFUNDING BONDS (52% of total)	2.00%	Dec-12	743,600	-	98,800	-	644,800
REFUNDING BONDS (Split with G.O.)	2.48%	Apr-15	282,000	-	282,000	-	-
UTILITY BONDS	2.60%	Nov-18	375,000	-	70,000	-	305,000
GO Refunding Bonds, Series 2020 (23% of total)	2.24%	Jan-20	793,000	-	254,000	-	539,000
2022 REFUNDING BONDS	1.85%	Mar-22	949,000	-	128,440	-	820,560
2022B REFUNDING BONDS	2.13%	May-22	<u>1,081,000</u>	<u>-</u>	<u>5,000</u>	<u>-</u>	<u>1,076,000</u>
							<u>3,385,360</u>
<u>NOTE/LOANS PAYABLE:</u>							
SRF LOAN 2013	1.95%	Aug-13	1,199,003	-	98,695	-	1,100,308
Water Pollution Control Revolving Loan Fund	1.75%	Dec-15	<u>311,767</u>	<u>-</u>	<u>22,850</u>	<u>-</u>	<u>288,917</u>
			<u>1,510,770</u>	<u>-</u>	<u>121,545</u>	<u>-</u>	<u>1,389,225</u>
Grand Totals			<u>\$ 40,872,770</u>	<u>\$ -</u>	<u>\$ 4,885,545</u>	<u>\$ -</u>	<u>\$ 4,774,585</u>

Appendix 11 – Intergovernmental Review of Potential Impact



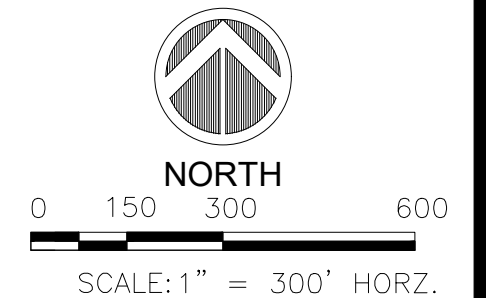
LEGEND

- OPEN CUT
- HDD
- PUMP STATION
- ELEVATED TANK
- WET LAND
- 100 YR FLOOD
- 500 YR FLOOD

PROPOSED ELEVATED TANK

PROPOSED WATER MAIN
(APPROX. 2,000 FT)

PROPOSED PUMP STATION



REVISIONS:

△		
△		
△		
△		

PROJECT #:	27228.00
DATE:	JUNE 2026
DRAWN BY:	JYC
DESIGNER:	JYC
CHECKED BY:	CKC

Pickering
Pickering Firm, Inc.
Facility Design • Civil Engineering • Surveying •
Transportation • Natural / Water Resources
2001 Airport Drive, Suite 201
Flowood, MS 39232
601.956.3663

MADISON WATER FACILITIES PLANS
MADISON COUNTY, MISSISSIPPI

SEAL:

SHEET NUMBER:
EX.02

DESCRIPTION:

June 9, 2026

Mr. JaeYoung Choi
Pickering Firm
2001 Airport Rd
Flowood, Mississippi 39232

RE: Proposed Tank and Pump Station Improvements, Madison, (EPA)
MDAH Project Log #06-024-26, Madison County

Dear Mr. Choi:

We have reviewed the request for cultural resource assessment, received on June 2, 2026, for the above referenced project in accordance with our responsibilities under Section 106 of the National Historic Preservation Act and 36 CFR Part 800. After reviewing the information provided, it is our determination that no cultural resources are likely to be affected. Therefore, we have no objection with the proposed undertaking.

Should there be additional work in connection with the project, or any changes in the scope of work, please let us know in order that we may provide you with appropriate comments in compliance with the above referenced regulations. If you have any questions, please do not hesitate to contact us at section106@mdah.ms.gov.

Sincerely,



Roger Walker
Review and Compliance Staff

FOR: Katie Blount
State Historic Preservation Officer



Mississippi Department of Wildlife, Fisheries, and Parks

Sam Polles, Ph.D.
Executive Director

June 09, 2026

Pickering Firm Inc
2001 Airport Rd
Flowood, AL 39232

Re: City of Madison
Facility Plans
Cotton Hill Rd Tank
Madison County,
MS

Project # 272280.00
Internal Id 37876

To JaeYoung Choi:

In response to your request for information dated **June 03, 2026**, we have searched our database for occurrences of state or federally listed species and species of special concern that occur within 2 miles of the site of the proposed project. Please find our concerns and recommendations below.

The following species of concern may occur within 2 miles of the proposed project area:

Scientific Name	Common Name	Federal Status	State Status	State Rank
<i>Asclepias hirtella</i>	Green Milkweed			S2
<i>Baptisia nuttalliana</i>	Nuttall's Wild Indigo			S1
<i>Fimbristylis puberula</i> var. <i>puberula</i>	Hairy Fimbry			S3S4
<i>Perimyotis subflavus</i>	Tri-colored Bat		C	S3
<i>Quercus oglethorpensis</i>	Oglethorpe's Oak			S2
<i>Sabatia campestris</i>	Prairie Pink			S2

State Rank

S1 - Critically imperiled in Mississippi because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it vulnerable to extirpation.

S2 - Imperiled in Mississippi because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it vulnerable to extirpation.

S3 - Rare or uncommon in Mississippi (on the order of 21 to 100 occurrences).

State and Federal Status**LE Endangered** - A species which is in danger of extinction throughout all or a significant portion of its range.**LT Threatened** - A species likely to become endangered in foreseeable future throughout all or a significant portion of its range.**Recommendations:**

As listed above, there are 6 species of concern in our database within a 2-mile radius of the proposed 'City of Madison Facility Plans Cotton Hill Rd Tank' project set to take place in Madison, Madison County, MS (32.450759, -90.140261). As outlined in your request, the proposed project will include upsizing the volume of the existing elevated tank on Cotton Hill Road. Of the species listed above, the Tri-colored Bat is currently under review for state listing. It should also be noted that the proposed project occurs near multiple patches of remnant Jackson Prairie habitat. Many of the state's rare and listed species are on the decline because of degradation or destruction of essential habitat needed to support them. As this project occurs in an already disturbed / altered landscape, concerns for this project are primarily regarding the possibility of asbestos, lead, sediment deposition, turbidity, exhaust runoff from roads, increased herbicide and pesticide load, and other unintentional introduction of pollutants being introduced to nearby properties and bodies of water. These factors may negatively impact habitat conditions by detrimentally affecting respiration, feeding, and reproduction of amphibians, bats, birds, crayfishes, fishes, insects, turtles, and vegetation. Furthermore, maintenance of natural floodplain vegetation and hydrology are important factors contributing to the survival of these species. Tri-colored Bats are one of the smallest bats in North America. During the spring, summer, and fall, they are found in forested habitats where they roost in trees, primarily among leaves. During the winter they are found in caves and mines, though in the south, they are mostly in road-associated culverts. Bridges and culverts also provide an important artificial habitat for birds and bats. Tri-color Bats was once a wide-ranging species occurring from Canada to Central America. Since the first observation of white-nose syndrome, it has led to a 90-100% decline in winter colonies at sites impacted by the disease. Bats will hibernate as early as October to April. Maternity season for bats starts in April and ends towards late July/early August. If bats are present, please contact MS Department of Wildlife, Fisheries and Parks Biologist, Katelin Cross, at (601) 576-6013 or at Katelin.Cross@mmns.ms.gov. According to our data, this proposed project site is located within 2-miles of historical prairie habitat and may have some potential for restoration. Less than 1% of native prairies exist in Mississippi today. Prairies are often less than 100 acres in size but can harbor exceptionally high numbers of plant species and sustain a wide range of insect and bird diversity. Threats to prairies are development, cultivation, fire suppression, changes to hydrology, and land use changes. Due to the nature of this proposed project, impacts to remnant Jackson Prairie habitat should be minimal if BMPs are followed. We would also like to suggest using native plant species for ground cover and erosion control around the tank if applicable. Should this project be approved, we recommend that best management practices such as streamside management zones (SMZs) and other BMPs be properly implemented, monitored, and maintained for compliance, specifically measures that will prevent suspended silt and contaminants from leaving the site in storm water run-off as this may negatively affect water quality and habitat conditions within nearby streams and waterbodies (<https://www.mfc.ms.gov/forest-health/water-quality-and-forestry-best-management-practices/>). Please check MS Department of Environmental Quality for other BMP. (<https://www.mdeq.ms.gov/water/surface-water/nonpoint-source-pollution-program/stormwater-runoff-management-manual/>) In addition, should any impacts to streams or wetlands occur as a result of the proposed project, we ask that serious consideration be given to the cumulative impacts of stream and wetland disturbance and elimination, and that appropriate, in-kind mitigation be provided.

Please feel free to contact us if we can provide any additional information, resources, or assistance that will help minimize negative impacts to the species and/or ecological communities identified in this review. We are happy to work with you to ensure that our state's precious natural heritage is conserved and preserved for future Mississippians.

Completed by Marinee Humphries

The Mississippi Natural Heritage Program (MNHP) has compiled a database that is the most complete source of information about Mississippi's rare, threatened, and endangered plants, animals, and ecological communities. The quantity and quality of data collected by MNHP are dependent on the research and observations of many individuals and organizations. In many cases, this information is not the result of comprehensive or site-specific field surveys; most natural areas in Mississippi have not been thoroughly surveyed and new occurrences of plant and animal species are often discovered. Heritage reports summarize the existing information known to the MNHP at the time of the request and cannot always be considered a definitive statement on the presence, absence or condition of biological elements on a particular site.



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET NW
WASHINGTON DC 20314

06/03/2026

Regulatory Vicksburg District

JaeYoung Choi
2001 Airport Rd, Suite 201
Flowood, MS 39232
Via Email: jchoi@pickeringfirm.com

Dear Choi:

This is an automated response from the U.S. Army Corps of Engineers' Regulatory Request System to your request for confirmation that a Department of the Army (DA) permit is not required for your proposed project. The project/review area is located at 444 Cotton Hill Rd, Madison, MS 39110. The project has been assigned a Regulatory Request System Tracking Number 51388. This number should be referenced in all communication concerning this project.

Based on the information you have provided, your work as proposed is not a regulated activity pursuant to Section 10 of the Rivers and Harbors Act of 1899 (RHA) and/or Section 404 of the Clean Water Act (CWA), and therefore, does not require a Department of the Army permit unless new information (including changes to project plans) warrants revision.

This letter does not obviate the requirement to obtain permits from other Federal, State, or local authorities that may be necessary for your project. Additionally, if your project is located in the vicinity of a federal project, approval from the U.S. Army Corps of Engineers (USACE) may be required under Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 408, "Section 408") to alter or occupy a USACE federally authorized project. It is your responsibility to contact the appropriate District to determine whether Section 408 authorization is required. Additional information about Section 408 can be found at <https://www.usace.army.mil/Missions/Civil-Works/Section408/>.

This letter does not address or include any consideration of geographic jurisdiction of aquatic resources and may not be interpreted as such. Should you desire an official USACE determination that jurisdictional "waters of the United States," or "navigable waters of the United States" are either present or absent on the project site, you may

submit a Request for Jurisdictional Determination / Aquatic Resource Delineation through the Regulatory Request System at: <https://rrs.usace.army.mil/rrs>.

This determination is based solely on the information you provided as of 06/03/2026 and has not been verified by the USACE. It is your responsibility to ensure no unauthorized work in “navigable waters of the United States” or discharges of dredged or fill material into “waters of the United States” occur as part of the proposed project. Performing such an action without obtaining the requisite authorization may be considered a violation of the Rivers and Harbors Act of 1899 and/or the Clean Water Act and may result in enforcement action. Your electronic request and associated responses will be retained by the Corps and may be used for enforcement purposes.

If you have any questions concerning this correspondence, please contact the Vicksburg District at 601-631-7071 or you may visit the District’s website at <http://www.mvk.usace.army.mil/Missions/Regulatory.aspx> for additional information concerning the regulatory program. Please reference this Tracking Number 51388 in all comments and/or inquiries relating to this project.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mississippi Ecological Services Field Office
6578 Dogwood View Parkway, Suite A
Jackson, MS 39213-7856
Phone: (601) 965-4900



In Reply Refer To:

06/03/2026 16:02:04 UTC

Project code: 2026-0097874

Project Name: City of Madison Facility Plan Cotton Hill Rd Tank

Federal Nexus: yes

Federal Action Agency (if applicable): Madison city

Subject: Record of project representative's no effect determination for 'City of Madison Facility Plan Cotton Hill Rd Tank'

Dear JaeYoung Choi:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on June 03, 2026, for 'City of Madison Facility Plan Cotton Hill Rd Tank' (here forward, Project). This project has been assigned Project Code 2026-0097874 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the **Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey)**, invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat and/or Tricolored Bat

Based upon your IPaC submission and a standing analysis, your project has reached the following effect determinations:

Species	Listing Status	Determination
---------	----------------	---------------

Tricolored Bat (*Perimyotis subflavus*)Proposed
Endangered

No effect

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action *may affect* a listed species. Tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can *confer* under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Alligator Snapping Turtle *Macrochelys temminckii* Proposed Threatened
- Gulf Sturgeon *Acipenser oxyrinchus (=oxyrhynchus) desotoi* Threatened
- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the species covered by this key. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location

of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the Mississippi Ecological Services Field Office and reference Project Code 2026-0097874 associated with this Project.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mississippi Ecological Services Field Office
6578 Dogwood View Parkway, Suite A
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If you have any questions regarding this letter or need further assistance, please contact the Mississippi Ecological Services Field Office and reference Project Code 2026-0097874 associated with this Project.

Appendix 12 – EPA4700-4 Form

Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance

Note: Read Instructions before completing form.

This collection of information is approved by OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. (OMB Control No. 2030-0020). Responses to this collection of information are required to obtain an assistance agreement (40 CFR Part 30, 40 CFR Part 31, and 40 CFR Part 33 for awards made prior to December 26, 2014, and 2 CFR 200, 2 CFR 1500, and 40 CFR Part 33 for awards made after December 26, 2014). An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The public reporting and recordkeeping burden for this collection of information is estimated to be 0.5 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden to the Regulatory Support Division Director, U.S. Environmental Protection Agency (2821T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

I. A. Applicant/Recipient (Name, Address, City, State, Zip Code)

Name:

Address:

City:

State: Zip Code:

B. Unique Entity Identifier (UEI):

C. Applicant/Recipient Point of Contact

Name: Phone: Email:

Title:

II. Is the applicant currently receiving EPA Assistance? ☐ Yes ☒ No

III. List all pending civil rights lawsuits and administrative complaints filed under federal law against the applicant/recipient that allege discrimination based on race, color, national origin, sex, age, or disability. (Do not include employment complaints, unless covered by 40 C.F.R. Parts 5 and 7.)

None

IV. List all civil rights lawsuits and administrative complaints decided against the applicant/recipient within the last year that alleged discrimination under federal law based on race, color, national origin, sex, age, or disability and enclose a copy of all decisions. Please describe all corrective actions taken. (Do not include employment complaints, unless covered by 40 C.F.R. Parts 5 and 7.)

None

V. List all civil rights compliance reviews of the applicant/recipient conducted under federal nondiscrimination laws by any federal agency within the last two years and enclose a copy of the review and any decisions, orders, or agreements based on the review. Please describe any corrective action taken. (40 C.F.R. § 7.80(c)(3))

None

VI. Is the applicant requesting EPA assistance for new construction? If no, proceed to VII; if yes, answer (a) and/or (b) below.

☒ Yes ☐ No

a. If the grant is for new construction, will all new facilities or alterations to existing facilities be designed and constructed to be readily accessible to and usable by persons with disabilities? If yes, proceed to VII; if no, proceed to VI(b).

☒ Yes ☐ No

b. If the grant is for new construction and the new facilities or alterations to existing facilities will not be readily accessible to and usable by persons with disabilities, explain how a regulatory exception (40 C.F.R. 7.70) applies.

N/A, New facilities will be accessible to and usable by person with disabilities.

VII. Does the applicant/recipient provide initial and continuing notice that it does not discriminate on the basis of race, color, national origin, sex, age, or disability in its program or activities? (40 C.F.R. 5.140 and 7.95)

☒ Yes ☐ No

a. Do the methods of notice accommodate those with impaired vision or hearing?

☒ Yes ☐ No

b. Is the notice posted in a prominent place on the applicant's/recipient's website, in the offices or facilities or, for education programs and activities, in appropriate periodicals and other written communications?

☒ Yes ☐ No

c. Does the notice identify a designated civil rights coordinator?

☒ Yes ☐ No

- VII. Does the applicant/recipient maintain demographic data on the race, color, national origin, sex, age, or disability status of the population it serves? (40 C.F.R. 7.85(a)) ☒ Yes ☐ No
- VIII. Does the applicant/recipient have a policy/procedure for providing meaningful access to services for persons with limited English proficiency? (Title VI, 40 C.F.R. Part 7, *Lau v Nichols* 414 U.S. 563 (1974)) ☒ Yes ☐ No
- X. If the applicant is an education program or activity, or has 15 or more employees, has it designated an employee to coordinate its compliance with 40 C.F.R. Parts 5 and 7? Provide the name, title, position, mailing address, e-mail address, fax number, and telephone number of the designated coordinator.

N/A

- XI. If the applicant is an education program or activity, or has 15 or more employees, has it adopted grievance procedures that assure the prompt and fair resolution of complaints that allege a violation of 40 C.F.R. Parts 5 and 7? Provide a legal citation or applicant's/recipient's website address for, or a copy of, the procedures.

N/A

For the Applicant/Recipient

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. I assure that I will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized Official

B. Title of Authorized Official

C. Date

For the U.S. Environmental Protection Agency

I have reviewed the information provided by the applicant/recipient and hereby certify that the applicant/recipient has submitted all preaward compliance information required by 40 C.F.R. Parts 5 and 7; that based on the information submitted, this application satisfies the preaward provisions of 40 C.F.R. Parts 5 and 7; and that the applicant has given assurance that it will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized EPA Official

B. Title of Authorized Official

C. Date

General. Recipients of Federal financial assistance from the U.S. Environmental Protection Agency must comply with the following statutes and regulations.

Title VI of the Civil Rights Acts of 1964 provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. The Act goes on to explain that the statute shall not be construed to authorize action with respect to any employment practice of any employer, employment agency, or labor organization (except where the primary objective of the Federal financial assistance is to provide employment). Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act provides that no person in the United States shall on the ground of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under the Federal Water Pollution Control Act, as amended. Employment discrimination on the basis of sex is prohibited in all such programs or activities. Section 504 of the Rehabilitation Act of 1973 provides that no otherwise qualified individual with a disability in the United States shall solely by reason of disability be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. Employment discrimination on the basis of disability is prohibited in all such programs or activities. The Age Discrimination Act of 1975 provides that no person on the basis of age shall be excluded from participation under any program or activity receiving Federal financial assistance. Employment discrimination is not covered. Age discrimination in employment is prohibited by the Age Discrimination in Employment Act administered by the Equal Employment Opportunity Commission. Title IX of the Education Amendments of 1972 provides that no person in the United States on the basis of sex shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance. Employment discrimination on the basis of sex is prohibited in all such education programs or activities. Note: an education program or activity is not limited to only those conducted by a formal institution. 40 C.F.R. Part 5 implements Title IX of the Education Amendments of 1972. 40 C.F.R. Part 7 implements Title VI of the Civil Rights Act of 1964, Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act, and Section 504 of The Rehabilitation Act of 1973.

Items "Applicant" means any entity that files an application or unsolicited proposal or otherwise requests EPA assistance. 40 C.F.R. §§ 5.105, 7.25.

"Recipient" means any State or its political subdivision, any instrumentality of a State or its political subdivision, any public or private agency, institution, organizations, or other entity, or any person to which Federal financial assistance is extended directly or through another recipient, including any successor, assignee, or transferee of a recipient, but excluding the ultimate beneficiary of the assistance. 40 C.F.R. §§ 5.105, 7.25.

"Civil rights lawsuits and administrative complaints" means any lawsuit or administrative complaint alleging discrimination on the basis of race, color, national origin, sex, age, or disability pending or decided against the applicant and/or entity which actually benefits from the grant, but excluding employment complaints not covered by 40 C.F.R. Parts 5 and 7. For example, if a city is the named applicant but the grant will actually benefit the Department of Sewage, civil rights lawsuits involving both the city and the Department of Sewage should be listed. "Civil rights compliance review" means: any federal agency-initiated investigation of a particular aspect of the applicant's and/or recipient's programs or activities to determine compliance with the federal non-discrimination laws. Submit this form with the original and required copies of applications, requests for extensions, requests for increase of funds, etc. Updates of information are all that are required after the initial application submission. If any item is not relevant to the project for which assistance is requested, write "NA" for "Not Applicable." In the event applicant is uncertain about how to answer any questions, EPA program officials should be contacted for clarification.