
**Staff Analysis of Proposed Amendment to the
Dane County Water Quality Plan,
Revising the Sewer Service Area Boundary and Environmental Corridors
in the Central Urban Service Area (Middleton / Belle Farms)**

History of Middleton Amendments to the Central Urban Service Area

The Central Urban Service Area was established in 1971 with the adoption of the first sewer service plan and originally included about 29,000 acres. The first Middleton amendment to the Central Urban Service Area occurred in 1987. There have been 115 amendments to this service area since its creation totaling roughly 8,700 acres of developable land and 4,000 acres of Environmental Corridor. The most recent amendment of the service area by the City was recommended by the Commission and approved by the WDNR in 2020.

Existing Conditions

Land Use

The City of Middleton is requesting amendment to the Central USA. The requested amendment area is in the northeastern corner of the Central USA and contiguous along three sides to the existing USA. The area is adjacent the Town of Springfield (north) and is bounded by Parmenter Street (west) and Springton Court (south). It is bounded to the east/southeast by Graber Pond and surrounding green space and to the north by the Foxfire Trail subdivision in the Town. The amendment area is around 44 acres, 17 of which will be placed in Environmental Corridor.

Land use in the requested amendment area is predominantly mixed-use commercial with residential. The development plan for the area transitions from existing single-family detached development to the north and northeast and commercial uses west and southwest of the amendment area. The development proposal includes single-family detached, single-family attached (i.e. townhomes), and mixed residential/commercial. Potential commercial uses including retail (sales and service), restaurant, and hotel uses.

Surrounding Planned Land Uses Include:

- North: Rural residential and planned (C. of Middleton) residential
- West: Hwy 12 right-of-way, agricultural
- South: Commercial
- East: City of Middleton residential

**Table 1
Existing and Planned Land Use**

Land Use Category	Existing Land Use Acres (see Map 3)	Proposed Land Use Acres (see Map 4)
Agriculture	27.4	
Low-Density Residential		8.5
Mixed Commercial/Residential		10.5
Open Land	7.7	13.8
Parks and Recreation		3.0
Transportation		8.7
Woodland	9.4	
Total	44.5	44.5

Cultural and Historic Sites

The Wisconsin Historical Society (WHS) has been contacted regarding the presence of any known archaeological sites or cemeteries within the amendment area. There are four identified archaeological sites in the amendment area. The sites were recorded as surface finds during survey for road construction. Much of the amendment area, however, has not been surveyed and there is a high probability that there are additional sites because of the proximity to a water source. WHS recommends survey of the area prior to development. (Attachment 1).

Natural Resources

The proposed amendment area is in the Pheasant Branch watershed (HUC 12: 070900020603; Map 5). There are delineated wetlands but no mapped floodplains within the amendment area.

Wastewater from the amendment area will be treated at the Madison Metropolitan Sewerage District (MMSD) Wastewater Treatment Facility. The treated effluent is discharged to Badfish Creek and Badger Mill Creek, bypassing the Yahara chain of lakes.

Wetlands

DNR’s Wisconsin Wetland Inventory (WWI) shows one forested/emergent area associated with Graber Pond within the amendment area (Map 5). The 2008 Dane County Wetlands Resource Management Guide ([link to report](#)) classifies Graber Pond as a Group III wetland. Group III wetlands do not currently have outstanding values but do serve as support systems for those which do.

A wetland delineation ([link to report](#)) was conducted within the amendment area by Heartland Ecological Group, Inc., a DNR-qualified assured delineator in September 2021. The site investigation and field delineation determined that there were two wetlands totaling 4.4 acres along Graber Pond (Map 11). Wetland 1 (W-1) is described as a complex of wet meadow and shrub carr that covers approximately 4.4 acres adjacent to Graber Pond in the southeastern portion of the amendment area. The dominant vegetation observed in this wetland was reed canary grass (*Phalaris arundinacea*), sandbar willow (*Salix interior*), and cottonwood (*Populus deltoides*). Wetland 2 (W-2) is described as a wet meadow depression that covers approximately 0.02-acre. This wetland appears to be artificially excavated and is isolated. The dominant vegetation observed in this wetland was reed canary grass. These wetlands with a minimum 75’

vegetated buffer are required to be designated as environmental corridor per the adopted policies and criteria for environmental corridors ([link to document](#)).

Graber Pond

The WDNR Surface Water Data Viewer classifies Graber Pond (WBIC 873950 / WATERS ID 11697) as a 10 acre seepage lake. The Wisconsin wetland inventory identifies 12.6-acres of open water surrounded by about 4.7 acres of emergent wet meadow wetland. According to the City's Graber Pond Master Plan (2006), the area of open water at Graber Pond decreased to about 6.5 acres in 2005. The decrease in area of open water correlated to the termination of discharge of cooling water from Springs Industries in the late 1990's. An aerial photo from 1957 shows that little to no open water existed in the glacial depression at that time. Graber Pond is an example of one of many kettles that formed in this till plain region after the last glaciation. A kettle pond is a small, closed basin that has no surface outlet under average rainfall conditions. From a hydrologic perspective, closed basins often possess significant seasonal and inter-annual variability in water levels. The only mechanisms for water to leave the basin under average rainfall conditions are by infiltration and evapotranspiration. These two processes can be quite slow compared to watershed runoff entering the basin. For example, it might take weeks for the pond to infiltrate and evaporate runoff from a single storm event that may have lasted only several hours. The vegetation communities that often inhabit these glacial depressions, which are wet in many years but dry up during periods of drought, are sometimes referred to as prairie pothole communities.

Pheasant Branch Creek

While the Graber Pond watershed is a closed basin, the ultimate discharge of any overflow or pumping would be to the Pheasant Branch watershed. Pheasant Branch Creek ([WBIC 805900](#) / WATERSID 11696) is 9.1 miles long and flows through the northwestern portion of the City of Middleton, ultimately draining east into Lake Mendota. The 22.7 square mile watershed encompasses predominantly agricultural lands until its confluence with the South Fork at the western edge of the city of Middleton and Highway 12. The existing biological use of the first mile of Pheasant Branch between Lake Mendota and the Pheasant Branch Marsh is designated a warmwater sport fishery. Above the confluence with the channel coming in from the west, the Marsh is designated as a coldwater fishery. Pheasant Branch is included on the state 303d list of impaired waters for degraded habitat and low dissolved oxygen due to sediment and phosphorus. It is also included in the Rock River Basin Total Maximum Daily Load (TMDL) project for these same pollutants. Pheasant Branch Creek has cool-cold and cool-warm headwater natural communities.

There has been a Rock River Coalition / Yahara WINs monitoring location on Pheasant Branch Creek at the County Highway M east bridge ([Station ID 133313](#)) since 2015. Field measurements from 2021 indicated dissolved oxygen levels of 5.8 to 12.8 mg/L, and transparency of 55 to 120 cm. Laboratory analysis of samples from 2021 showed ammonia (NH₃) levels from 0.58 to 0.91 mg/L, total phosphorus (P) from 0.09 to 0.17 mg/L, and total suspended solids (TSS) from no detect to 14.6 mg/L. The active USGS baseflow monitoring station ([USGS 05427948](#)) in this watershed indicated chloride levels ranging from 99.9 to 116 mg/L in 2018.

Springs

The Wisconsin Geological and Natural History Survey (WGNHS) maintains an inventory of springs in Dane County, and throughout the state. There are no known springs in the proposed amendment area. From 2014 and 2017, the WGNHS surveyed springs statewide that were expected to have flow rates at least 0.25 cubic feet per second (cfs). The Lake Mendota-Yahara River Watershed contains one inventoried spring located at Pheasant Branch Conservancy, Dane County Spring #7 (Map 5). This spring is well known locally as Frederick Springs and has been studied by the USGS ([link to report](#)) It was surveyed in 2014 with a discharge rate of 2.72 cfs, specific conductance of 881 µS/cm, temperature of 50° F, and a pH of 5.81. Springs represent groundwater discharge visible to the casual observer.

Groundwater

Groundwater modeling, using the 2016 Groundwater Flow Model for Dane County developed by the WGNHS ([link to website](#)), shows that baseflow in Pheasant Branch Creek at Century Ave. (see location on Map 5) has decreased from 12.3 cfs during pre-development conditions (no well pumping) to 7.2 cfs in 2010 (Table 4). This decrease is due to the combined impacts of high capacity well groundwater withdrawals contributing to reduced stream baseflow.

In 2012, the WGNHS published a report, *Groundwater Recharge in Dane County, Wisconsin, Estimated by a GIS-Based Water-Balance Model*, ([link to report](#)) estimating the existing groundwater recharge rates in Dane County based on the soil water balance method. The study estimates that the existing groundwater recharge rate in the proposed amendment area ranges from 9 to 10 inches per year.

Endangered Resources

The WDNR Bureau of Endangered Resources maintains a database representing the known occurrences of rare plants, animals, and natural communities that have been recorded in the Wisconsin Natural Heritage Inventory ([link to website](#)). A screening review of this database conducted by Regional Planning Commission staff for species designated as endangered, threatened, or of special concern identified several special concern species: one mammal, one fish, one amphibian, two reptile, one insect, and one plant species; one endangered insect and one endangered plant species; and three natural communities within a 1 to 2-mile radius of the amendment area. A 1-mile buffer was considered for terrestrial and wetland species and a 2-mile buffer for aquatic species. An Endangered Resources Review was completed on November 10, 2021, by the WDNR Bureau of Natural Heritage Conservation. Required actions must be taken regarding two species and actions are recommended for seven species identified in the Review (see Attachment G of application).

The amendment area is within the High Potential Zone (species likely present) for the federally endangered Rusty Patched Bumble Bee ([link to web map](#)). Section 7 of the Endangered Species Act requires consultation with the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service when any action that is carried out, funded, or permitted by a federal agency may affect a federally listed endangered or threatened species. The WDNR typically recommends that projects within the High Potential Zone include native trees, shrubs, and flowering plants; plants that bloom spring through fall; and the removal and control of invasive species in any habitat used for foraging, nesting, and overwintering. The USFWS developed a list of plants favored by Rusty Patched Bumble Bee ([link to list](#)). Implementing these conservation measures should be coordinated with the WDNR Endangered Resources Review Program, as needed.

Soils and Geology

The amendment area is located within the Waunakee Moraines and West Johnstown-Milton Moraines Land Type Associations of Wisconsin. The Waunakee Moraines Association classifies the surficial geology of this area as rolling till plain and irregular drumlins with scattered bedrock knolls, lake plains, and outwash plains. The West Johnstown-Milton Moraines Association classifies the surficial geology of this area as rolling hummocky moraine and outwash plain complex with scattered bedrock knolls.

Surface elevations within the amendment area range from around 904 feet to 1004 feet. There are three small, isolated areas of steep (> 12%) slopes. Two of the areas are associated with a wooded area south of the Cherry Hill neighborhood and a small hill near the southwestern corner of the amendment area (Map 6). These small areas of steep slopes are not riparian and do not require inclusion in environmental corridors. An additional area of steep slopes is associated with Graber Pond.

According to the Natural Resource Conservation Service (NRCS) Soil Survey of Dane County, the majority of the soils in amendment area are in the Batavia – Houghton - Dresden association. These soils are well drained and poorly drained, deep and moderately deep silt loams and mucks that are underlain by silt, sand, and gravel. A portion of the amendment area

is in the Dodge – St. Charles – McHenry association. These soils are well drained and moderately well drained, deep silt loams. Table 2 shows detailed classification for soils in the amendment area (Map 7) while Table 3 shows important soil characteristics for the amendment area.

There is one hydric soil within the amendment area, the Orion soil (the Os map units) makes up 0.4% of the area (see Map 7). Hydric soils are good indicators of existing and former (drained) wetlands.

According to the Soil Survey Geographic data for Dane County developed by the USDA Natural Resources Conservation Service ([link to web soil survey](#)), the Batavia and Troxel soils (the BbB, BbA and TrB map units) are not hydric, but they do have a seasonal (April to June) zone of water saturation within 5 feet of the ground surface. These soils are all classified as moderately well drained or well drained and therefore do not pose a limitation for buildings with basements.

**Table 2
Soils Classification**

Soil	% of Area	General Characteristics
<i>Dresden Silt Loam; DsC2</i>	25.6	Well drained, gently sloping to steep slopes on benches in stream valleys. Soils have medium fertility, low permeability, and a moderate to severe hazard of erosion. Poses slight to moderate limitations for development due to slope.
<i>Troxel Silt Loam, TrB</i>	25.3	Deep, well-drained and moderately well drained, gently sloping soils in draws, on fans, and in drainageways. Soils have high fertility, moderate permeability, and a moderate hazard of erosion. Poses severe limitations for development due to low bearing capacity.
<i>Boyer Sandy Loam; BoD2</i>	12.9	Well drained, gently sloping to moderately steep soils on benches in valleys. Soils have low fertility, moderately rapid to rapid permeability, and a severe hazard of erosion. Poses severe limitations for development due to slope.
<i>Dodge Silt Loam; DnC2</i>	10.8	Deep, well drained, gently sloping and sloping soils on glaciated uplands. Soils have high fertility, moderate permeability, and a severe hazard of erosion. Poses moderate limitations for development due to slope, shrink/swell potential, and low bearing capacity.
<i>Batavia Silt Loam, BbB</i>	9.4	Deep, well drained, nearly level to sloping soils on high benches. Soils have high fertility, moderate permeability, and a moderate hazard of erosion. Poses moderate limitations for development due to shrink/swell potential.
<i>Dresden Silt Loam; DrD2</i>	7.8	Well drained, gently sloping to steep soils on benches in stream valleys. Soils have medium fertility, moderate permeability, and a very severe hazard of erosion. Poses severe limitations for development due to slope.
<i>McHenry Silt Loam; MdD2</i>	2.4	Deep, well drained, gently sloping to moderately steep soils on glaciated uplands. Soils have medium fertility, moderate permeability, and a very severe hazard of erosion. Poses severe limitations for development due to slope.
<i>Batavia Silt Loam, BbA</i>	1.4	Deep, well drained, nearly level to sloping soils on high benches. Soils have high fertility, moderate permeability, and no hazard of erosion. Poses moderate limitations for development due to shrink/swell potential.

Source: Soil Survey Geographic data for Dane County developed by the USDA Natural Resources Conservation Service

**Table 3
Soils Characteristics**

Characteristic	Soil Map Symbols (see Map 7)	% of Area
Prime Agricultural Soils	TrB, BbB, BbA	36.0
Hydric Soils (Indicates Potential / Restorable Wetlands)	None	0
Poorly Drained Soils with Seasonal High Water Table (< 5')	None	0
Soils Associated with Steep Slopes (> 12%)	BoD2, DrD2, MdD2	23.1
Soils Associated with Shallow Bedrock (< 5')	None	0
Best Potential for Infiltration in Subsoils	DsC2, BoD2, DnC2, BbB, DrD2, MdD2, BbA	70.3

Source: Soil Survey Geographic data for Dane County developed by the USDA Natural Resources Conservation Service

According to WGNHS data, bedrock within the northwestern portion of the amendment area is in the Trempleau Group. Bedrock in the Trempealeau Group is quartz sandstone, dolomitic siltstone, silty dolomite, and sandy dolomite, consists of two formations including the Jordan and underlying St. Lawrence Formations, which were combined as one mapping unit. Thickness is about 75 feet, where not eroded. The west-central portion of the amendment area is in the Tunnel City Group. Bedrock in the Tunnel City Group is medium to very fine-grained quartz sandstone, locally very glauconitic, and consists of two formations including the Lone Rock and Mazomanie Formations. Thickness is up to 150 feet. The southwestern portion of the amendment area is in the Wonewoc Formation. Bedrock in the Wonewoc Formation is quartz sandstone, medium grained, brownish yellow to white, with medium- to large-scale cross bedding commonly seen in outcrop. Thickness is up to 165 feet. According to WGNHS data, the depth to bedrock in the amendment area ranges from less than 10 feet to 100-400 feet, with the shallowest depths being in the northeast and deepest depths being in the southwest of the amendment area (see Map 8).

As is common throughout much of the upper Midwest, karst features such as enlarged bedrock fractures are prevalent in the local dolomite uplands. Karst features such as vertical fractures and conduits provide primary pathways for groundwater movement and can dramatically increase groundwater susceptibility when present. The location of karst features is difficult to predict, and the thickness and type of the overlying soil greatly affects how much water drains into them. Where clay soils are thick, infiltration rates are likely to be very low. However, where bedrock fractures are near the surface infiltration rates can be very high. Based on the WGNHS karst potential data, karst features may be encountered in the northeastern part of the amendment area at depths ranging from about 9 to 72 feet. Stormwater management practices are not proposed in areas of shallow karst potential. The Wisconsin Department of Natural Resources Conservation Practice Standard 1002 - Site Evaluation for Stormwater Infiltration requires field verification for areas of the development site considered suitable for infiltration. This includes a site assessment for karst features in this area. If shallow karst features are found, adequate protection measures are required to address any potential for groundwater contamination.

There is no minimum separation distance for roofs draining to surface infiltration practices. However, the Dane County ordinance requires infiltration practices to be located so that the separation distance between the bottom of the infiltration system and the elevation of seasonal high groundwater or the top of bedrock is at least 5 feet for residential arterial roads and 3 feet for other impervious surfaces. Soil test pits are required as part of the stormwater management

plan to assure that infiltration practices are sited in locations that will not adversely affect groundwater quality.

Proposed Urban Services

Parks and Open Space

There is a neighborhood park, dog park, and recreational open spaces proposed as part of the amendment area, totaling 9.1 acres. There is a 3.0-acre stormwater management area proposed in the southeastern part of the amendment area (see Map 4).

Wastewater

Sanitary sewer service will be provided to the amendment area by connection to the City's sanitary sewer collection and treatment system. The proposed lots will be served by individual sewer laterals and 8-inch gravity sanitary sewer main. The sewer main will connect at multiple locations to the existing 18-inch, City-owned Pheasant Branch Interceptor (PBI) sewer which runs within an easement through the amendment area (see Map 9). From the City's system, wastewater will flow via the Madison Metropolitan Sewerage District's (MMSD's) West Interceptor sewer to Pumping Station 15, then eventually to the MMSD Nine Springs Treatment Facility. In 2022, the City conducted a formal assessment of anticipated impacts the proposed Belle Farms development will have on the existing water distribution and sewer collection systems. The results of the assessment are documented in the report titled *Belle Farm Development—Impacts to the Water and Sewer Utility Systems*, by Strand Associates, Inc., dated January 12, 2022 (hereinafter, *2022 Impacts Report*).

The proposed development within the amendment area consists of 8.2 acres of single-family residential lots (detached and attached, totaling 150 housing units) and 10.6 acres of mixed-use buildings (totaling 730 housing units) contributing to wastewater flows. Based on the *2022 Impacts Report*, the City estimates that the amendment area will generate an annual average of 220,000 gallons per day (gpd) of wastewater, or approximately 152 gallons per minute (gpm). This assumes 2.8 persons per single-family dwelling unit, 2.1 persons per multi-family dwelling unit, and an average wastewater generation rate of 100 gallons per capita per day (gpcd) for residential land uses; and approximately 2,330 gpd per acre (gpd/ac) for commercial land uses. Utilizing a peaking factor of 4 for residential areas and 2.5 for commercial areas, it is estimated that the amendment area will generate a daily peak flow of 611 gpm. This estimate is consistent with typical design wastewater generation rates for the proposed residential and commercial lots.

The proposed 8-inch sanitary sewer mains within the amendment area will each have a minimum capacity of 332 gpm, based on a design slope of 0.40% (minimum allowable per NR 110) and Manning's value (n) of 0.013; although, the initial design will provide a capacity of 403 gpm in each sewer main. The amendment area will be broken up into smaller sub-sewersheds based on the final capacity of each sewer main and multiple connections will be made to the existing PBI. The limiting section of the PBI has a capacity of 4,219 gpm, according to the *2022 Impacts Report* and currently receives a peak flow of 489 gpm. Based on the estimated wastewater loading and capacities of proposed and existing sewers, and as stated in the *2022 Impacts Report*, the receiving sewers appear to have sufficient capacity to handle the anticipated peak flows from the amendment area.

Wastewater Treatment Facility

Madison Metropolitan Sanitary District (MMSD) will provide wastewater treatment for the amendment area. The Nine Springs wastewater treatment facility (WWTF) is located on Moorland Road, Madison, WI, and discharges treated effluent to Badfish Creek within the Badfish Creek Watershed (Lower Rock River Basin) and Badger Mill Creek within the Upper Sugar River Watershed (Sugar-Pecatonica Basin). The rated monthly design flow capacity of the facility is 56.0 MGD and the maximum daily design flow capacity is 68.6 MGD. In the year 2020, the facility received an average monthly influent hydraulic loading of 41.9 MGD (75% of the 56.0 MGD design capacity), including infiltration and inflow, according to the 2020

Compliance Maintenance Annual Report (CMAR) ([link to 2020 CMAR](#)). It is expected to reach 90% of current hydraulic design capacity around 2026 based on current projected growth rate assumptions. This already occurs on occasion, although average flows did not exceed 90% design capacity for any month in 2020. MMSD has completed a long-range plan that evaluated various options for expanded treatment capacity to serve its current and future service area. For the 20-year planning period, treatment for this area is expected to remain at the existing wastewater treatment facility location with expanded capacity of the system as the need is foreseen.

MMSD has not had issues meeting its WPDES permit limits for the quality of effluent discharged to Badfish Creek and Badger Mill Creek, according to their 2020 CMAR. Effluent quality summarized here refers to Badfish Creek, where approximately 95% of discharge is released. Below is a summary of the major effluents reported on in the 2020 CMAR:

- The biological oxygen demand (BOD) effluent quality for 2020 was below the monthly average limit, with a monthly average of 4.3 mg/L (22% of the limit) and a maximum of 10 mg/L (53% of the limit) for the months of January and February.
- The total suspended solids (TSS) effluent quality for 2020 was well below the monthly average limit, with a monthly average of 4.5 mg/L (23% of the limit) and a maximum of 6 mg/L (30% of the limit) for the month of January.
- The ammonia (NH₃) effluent quality for 2020 was below the monthly average limits (limits vary by month), with a monthly average of 0.50 mg/L (3-74% of the limit) and a maximum of 1.34 mg/L (74% of the limit) for the month of August.
- The phosphorus (P) effluent quality for 2020 was well below the monthly average limits (limits vary by month), with a monthly average of 0.36 mg/L (23-51% of the limit) and a maximum of 0.53 mg/L (35% of the limit).

Badfish Creek is a tributary to the Rock River, and thus the WPDES permit includes phosphorus and TSS limits to comply with the Total Maximum Daily Load (TMDL) developed for the Rock River Basin to protect and improve water quality. In addition to the TMDL limits, future water quality-based effluent limits (WQBEL) have been considered in the WPDES permit. The monthly limits to comply with the TMDL for TSS are easily met by MMSD, and in some cases, the current WPDES permit limits are more stringent than the TMDL limits. The interim limit for phosphorus is a 1.0 mg/L monthly average required beginning May 2020 (previous limit was 1.5 mg/L), with a final WQBEL of 0.225 mg/L. Additionally, an interim limit of 0.6 mg/L, expressed as a six-month average (May through October and November through April) is required beginning May 2020, with a final WQBEL of 0.075 mg/L. To meet the WQBEL for phosphorous, MMSD has implemented a Watershed Adaptive Management (WAM) approach, leading a diverse group of partners called Yahara Watershed Improvement Network (Yahara WINS) in implementing phosphorus reducing practices in the Yahara Watershed ([link to Yahara WINS website](#)).

The Nine Springs WWTF does not remove chloride from influent. A 2015 study completed by AECOM determined that while possible, treatment would be cost-prohibitive, energy intensive, and involve other environmental impacts ([link to report](#)). MMSD has been granted a variance from the chronic water quality standard for chloride required by NR 105. With this variance, the WPDES permit sets interim limits for winter and summer months and requires MMSD to implement chloride source reduction measures. One such source reduction initiative which MMSD participates in is the Wisconsin Salt Wise Partnership ([link to Salt Wise website](#)).

Water System

Water will be provided to the amendment area by connection to the City's municipal water system. Middleton Municipal Water Utility provides municipal water through a public water distribution system which includes approximately 493,406 lineal feet of water main, 11 booster pumps, and six active high-capacity groundwater wells within the City. Three of the wells pump directly into the distribution system and three pump into reservoirs. The active wells are at depths ranging from approximately 330 to 856 feet with an average capacity of 350 to 1,550 gallons per minute (gpm). In total, the gross capacity of the municipal wells is 6,975 gpm

(10.04 million gallons per day, MGD). The firm capacity (with the largest well assumed to be out of service) is approximately 5,425 gpm (7.81 MGD), although the City also maintains backup equipment on standby in the event of failure. The City has two ground-level reservoirs and two elevated tanks, with a combined storage capacity of 2.35 million gallons.

According to the 2020 Annual Report to the Public Service Commission of Wisconsin ([link to 2020 Annual Report](#)), the City pumped an average of 1,368 gpm or 1,969,304 gpd (1.97 MGD) in 2020, approximately 25% of its firm pumping capacity. The City sells a portion of the total water pumped to customers outside of the distribution system—this accounted for 244,000 gallons, or an average of 668 gpd in 2020. In 2020, the maximum amount pumped in any one day was 3.38 MGD. The City estimates the current average daily water demand within the system is 1,640 gpm or 2.36 MGD, with an estimated peak hourly demand of 4,560 gpm, based on historical information and as reported in the 2022 *Impacts Report*.

Water losses in the City's distribution system was an average of 87,099 gpd (0.09 MGD) in 2020, which accounted for 4% of the net water supplied in 2020. Approximately 6% of this was due to unreported and background leakage, with the remaining due to reported leaks. In 2020, there were 10 main breaks and 7 service break which were repaired. Water losses in the City's distribution system was 4% in 2019 and 3% in 2018. The Wisconsin Administrative Code PSC 185.85(4)(b) requires a utility with more than 1,000 customers to submit a water loss control plan to the Public Service Commission (PSC) if the utility reports its percentage of water losses exceeds 15%.

Water supply within the amendment area will be provided by connection to an existing 12-inch water main located on Parmenter Street. Additionally, water main will be connected to the existing 12-inch water main on Belle Fontaine Boulevard to create a loop of the public water supply system as well as provide redundancy within the amendment area. Water main will be extended throughout the development and individual service connections will be provided to each proposed lot (see Map 9).

The annual average daily water demand for the amendment area is anticipated to be 220,000 gallons per day (gpd) or approximately 152 gpm. This assumes 2.8 persons per single-family dwelling unit, 2.1 persons per multi-family dwelling unit, and an average water demand of 100 gallons per capita per day (gpcd) for residential land uses; and approximately 2,330 gpd per acre (gpd/ac) for commercial land uses. The estimated peak daily demand is 440,000 gpd or 304 gpm (0.44 MGD), based on a peak daily factor of 2.0. The estimated peak hourly demand is 420 gpm, based on the City's peak hourly demand factor of 2.78. This peak hourly demand factor (ratio of maximum hour to average hour) is derived from the maximum hourly water usage data from the maximum daily demand in 2018. The estimated average daily water demand and peak hourly demand represent an increase of approximately 11% and 9%, respectively, of the current demands on the system; however, the water distribution system appears to have sufficient capacity to handle the additional demand from the proposed amendment area. Additionally, as reported in the 2022 *Impacts Report*, the new development will maintain adequate fire flow conditions.

Stormwater Management System

The City of Middleton stormwater management and performance standards are contained within Chapter 26 of the City of Middleton Code of Ordinances. Dane County Code of Ordinances, Chapter 14, contains stormwater management and performance standards which apply to all areas of Dane County. The amendment area will be required to follow the more stringent standards contained within the respective ordinances, as well as Wisconsin DNR requirements contained in NR 151 and NR 216.

The proposed amendment area is within the internally drained watershed of Graber Pond, which is a glacial kettle (closed topographic depression) located southeast of the amendment area and north of Graber Road. The amendment area generally flows from west to east and north to south, into Graber Pond. Internally drained watersheds, also referred to as closed basins, require developing stormwater management systems that avoid unintended impacts on

surrounding properties and water resources, as they lack a defined drainageway or stream outlet and the only mechanisms for water to leave the basin under average annual rainfall conditions are by infiltration and evapotranspiration. Thus, the natural water level of a glacial kettle typically varies seasonally and from year to year, often creating a dynamic balance of open water and surrounding wetland communities (referred to as prairie pothole communities), as is the case for Graber Pond. Changes to the watershed resulting in increased volumes of runoff (e.g., from an increase in impervious surfaces) can potentially impact surrounding and downstream properties and water resources if the volume increase is not mitigated. The City of Middleton has taken a proactive approach to managing Graber Pond and the surrounding watershed, participating in several hydraulic studies and planning efforts over the years. Two of these include the *Graber Pond Hydrologic Study and Management Plan*, by Montgomery Associates Resource Solutions, dated December 2010 (hereinafter, *2010 Graber Pond Hydrologic Study*), and the *Graber Pond Master Plan*, by Ken Saiki Design, et al, dated December 5, 2006 (hereinafter, *2006 Graber Pond Master Plan*). An overarching goal of these two reports is to preserve the existing prairie pothole vegetation community through appropriate stormwater management practices, and possibly restore it to pre-settlement conditions.

The maximum inundation depth of water within the kettle is approximately 7 feet, based on the *2010 Graber Pond Hydrologic Study*. Once the water level reaches an elevation of approximately 905', it flows overland to the northeast and into the adjacent thermally sensitive subwatershed. The flow of stormwater passes through greenspace containing wetlands and stormwater management features within the adjacent neighborhood development, and then crosses beneath High Road and enters the Town of Springfield. East of High Road, stormwater flows through a mapped intermittent stream and network of wetlands. The unnamed intermittent stream flows into the Town of Middleton approximately 1,600 ft east of Graber Pond, then flows east along the border of the Town of Middleton and City of Middleton before turning south and entering the City of Middleton approximately 4,700 ft east of Graber Pond. The stream continues southward, meandering through wetlands, before joining with Pheasant Branch Creek shortly before discharging into Lake Mendota approximately 1.5 miles to the southeast of Graber Pond. Altogether, stormwater runoff from the amendment area leaves the City of Middleton and crosses into two adjacent municipalities before re-entering the City of Middleton at Lake Mendota.

In the proposed conditions, the amendment area will continue to drain to Graber Pond, matching existing conditions. To meet all stormwater management requirements, the conceptual stormwater management plan for the amendment area consists of underground detention, permeable pavers, planter boxes, and green/blue roofs at the multifamily/mixed-use sites; decentralized pervious pavement, bioretention basins, and other smaller infiltration practices on a site-level basis; and two regional dry detention basins and one large bioretention basin adjacent to Graber Pond (see Map 9). The majority of runoff from the proposed amendment area will flow to the respective stormwater facilities through a combination of overland flow and storm sewer pipes for treatment and peak flow attenuation prior to ultimate discharge to Graber Pond. Runoff from offsite lands upstream from the amendment area, which currently drains through the amendment area to Graber Pond, will be routed through the development within storm sewer, bypassing the proposed stormwater management features and continue to drain to Graber Pond. It is advised that proper overland flow routes be established for storm events which will exceed the capacity of the site storm sewer. All proposed stormwater management facilities will be owned and maintained privately by individual property owners or the Homeowners Association, through provisions outlined in recorded maintenance agreements, Belle Farm covenants, and deed restrictions.

City of Middleton ordinances require new development within a closed watershed to include practices to infiltrate 100% of the average annual predevelopment infiltration volume, regardless of the effective area of the infiltration system. The *2010 Graber Pond Hydrologic Study* further recommends that the infiltration requirement be met without paying fees in lieu of compliance. Preliminary stormwater modeling results for the amendment area provided with the application indicate that the proposed conceptual stormwater management plan will meet

the 100% infiltration (stay-on) requirement for the amendment area. The 2010 *Graber Pond Hydrologic Study* concluded—based on modeling of generalized development in the Graber Pond watershed—that meeting the 100% infiltration (stay-on) requirement appears to be effective at maintaining hydrologic conditions within Graber Pond, and thus, would contribute to preservation of the prairie pothole community. The conceptual stormwater management plan anticipates meeting all current stormwater management standards; together with meeting the above infiltration requirements, no significant adverse impacts to Graber Pond or downstream properties and conveyances are anticipated for storm events up to the 200-year, 24-hour design storm event.

A detailed stormwater management plan review and approval is required prior to beginning any development construction. The plan will be required to meet all stormwater management and performance standards of the City of Middleton, as well as those of Dane County and Wisconsin DNR.

Performance Standards

The City of Middleton proposes stormwater management performance measures to meet or exceed standards required by the State of Wisconsin (NR 151), Dane County (Chapter 14), and City of Middleton (Chapter 26) stormwater regulations, as follows:

1. Require post-construction sediment control (reduce total suspended solids leaving the site by at least 80%, with a minimum of 60% of that control occurring in a retention pond prior to infiltration for residential land uses and a minimum of 80% occurring prior to infiltration for commercial, industrial, and institutional land uses) for the 1-year, 24-hour design storm. This is consistent with the standards currently required by Dane County and City of Middleton ordinances.
2. Require post-construction peak runoff rate control for the 1-, 2-, 10-, 100-, and 200-year, 24-hour design storms (using NRCS MSE4 storm distributions) to match predevelopment peak runoff rates. This is consistent with the standards currently required by Dane County. The City of Middleton requires lower “pre-development” runoff curve numbers than the Dane County Ordinance.
3. Require post-development infiltration (stay-on) volume of at least 100% of the pre-development infiltration (stay-on) volume for the average annual rainfall, regardless of the effective area of the infiltration system and without ability to pay fees in lieu of compliance. This is consistent with the standards currently required by City of Middleton ordinances for closed basins.
4. Maintain predevelopment groundwater annual recharge rate of 9 to 10 inches per year as estimated by the Wisconsin Geological and Natural History Survey in a 2012 report titled “Groundwater Recharge in Dane County, Wisconsin Estimated by a GIS-Based Water Balance Model.” This is consistent with the standards currently required by Dane County and City of Middleton ordinances.
5. Treat the first one-half inch of runoff to provide oil and grease control using the best available technology for commercial or industrial land uses and any other uses where the potential for pollution by oil or grease, or both, exists. This is consistent with the standards currently required by Dane County and City of Middleton ordinances.

Impacts and Effects of Proposal

Environmental Corridors

The proposed amendment area includes approximately 16.9 acres of environmental corridor (See Map 12). W-1 is proposed to be designated as environmental corridor with a 100’ buffer per the 2006 Graber Pond Master Plan ([link to plan](#)). This exceeds the minimum 75’ buffer requirement per the adopted policies and criteria for environmental corridors ([link to](#)

[document](#)). The proposed public park, open space, and stormwater management areas within the amendment area have also been designated as environmental corridors.

WDNR Water Regulation and Zoning staff have reviewed the unnamed intermittent waterway (WBIC 5034943) mapped in the WDNR Surface Water Data Viewer in the amendment area. They issued a determination that it does not meet the State's definition of a navigable waterway (defined bed/bank and the ability to float a personal watercraft on a reoccurring basis) and is therefore determined to be non-navigable and not required to be preserved and included in environmental corridor.

Protection areas are areas required for inclusion in environmental corridors when those areas are added to the urban service area. Protection areas include natural resources features such as the 1% annual chance floodplain; waterbodies, streams and wetlands plus their required vegetative buffers; riparian steep slopes; existing public lands, parks, and conservancy areas; and existing stormwater management facilities. Protection areas are mapped based on regionally available information. Map 12 shows some protection areas mapped for wetland based on Wisconsin Wetland Inventory data. As is standard practice for designating environmental corridor, the wetland delineation conducted by Heartland Ecological Group, Inc which provides more precise, site specific, wetland location information data and was used to map the environmental corridor instead of the Wisconsin Wetland Inventory data.

The 2050 Regional Development Framework (RDF) is designed to serve as a guide for local communities as they plan for future growth and development. One of the three goals of the RDF is to foster regional development that conserves water resources and natural areas. The RDF objective to achieve this goal is to enhance stewardship and natural resource areas. Stewardship areas are advisory areas to consider for inclusion in environmental corridors above the minimum requirements. The stewardship area recommendations include natural resources features such as the 0.2% annual chance floodplain, potentially restorable wetlands, internally drained areas, hydric soils, current/potential Ice Age Trail Corridor, and Natural Resource Area boundaries identified in the Dane County Parks and Open Space Plan. The proposed amendment area includes 5.5 acres mapped as stewardship area for potentially restorable wetland and internally drained area, 2.6 acres of which are proposed to be designated as environmental corridor by this amendment (Map 12).

Meeting Projected Demand

Interim CARPC projections (draft) for 2050 suggest that an additional 114,000 residents, 59,000 housing units, and 72,000 jobs can be expected in the Central Urban Service Area over the next 30 years. Modeling in Urban Footprint for the Regional Development Framework placed a community center south of the intersection of Century Avenue and Parmenter Street (south of the amendment area) and corridors running along both roads. While the amendment request does not contribute to the strategies of directing growth to centers in corridors as they are currently mapped, development in the proposed amendment area are continuations of the Parmenter Street corridor and community center. The amendment area is less than 0.33 miles from these features.

Phasing

The requested amendment is less than 100 acres. A phasing plan is not required.

Surface Water Impacts

Development creates impervious surfaces (i.e., streets, parking areas, and roofs) and typically alters the natural drainage system (e.g., natural swales are replaced by storm sewers). Without structural best management practices (i.e., detention basins and infiltration basins) this would result in increased stormwater runoff rates and volumes, as well as reduced infiltration. Without structural best management practices for erosion control, development would also cause substantial short-term soil erosion and off-site siltation from construction activities. Scientific research has well documented that without effective mitigation measures, the potential impacts of development on receiving water bodies can include the following:

- Flashier stream flows (i.e., sudden higher peaks)
- Increased frequency and duration of bankfull flows
- Reduced groundwater recharge and stream base flow
- Greater fluctuations in water levels in wetlands
- Increased frequency, level (i.e., elevation), and duration of flooding
- Additional nutrients and urban contaminants entering the receiving water bodies
- Geomorphic changes in receiving streams and wetlands

Natural drainage systems attempt to adapt to the dominant flow conditions. In the absence of mitigation measures, the frequency of bank-full events often increases with urbanization, and the stream attempts to enlarge its cross section to reach a new equilibrium with the increased channel forming flows. Higher flow velocities and volumes increase the erosive force in a channel, which alters streambed and bank stability. This can result in channel incision, bank undercutting, increased bank erosion, and increased sediment transport. The results are often wider, straighter, sediment laden streams, greater water level fluctuations, loss of riparian cover, and degradation of shoreland and aquatic habitat.

Since 2002, there have been stormwater management standards in effect at the state, county, and local level to require stormwater management and erosion control plans and structural best management practices designed to address the impacts of development on water quality, runoff volumes, peak flows, water temperature, and groundwater recharge. In 2011, county and local standards for runoff volume control were increased beyond state standards to further address the potential stormwater impacts of development. Since 2010 many communities adopted even higher standards for volume control through their own ordinances or as part of USA amendment agreements. In 2017, State statute 281.33(6)(a)(1) was changed to limit the ability of local governments to adopted higher standards for runoff volume through local ordinances. In response to climate change, the City of Madison adopted peak rate control for the 200-year storm event in their ordinance in June 2020. Dane County adopted this same peak rate control requirement as well as requirements for closed basins in November 2021, which made these requirements universal to all of the communities in Dane County.

The City of Middleton proposes to mitigate the urban nonpoint source impacts of the proposed development by requiring the implementation of various stormwater best management practices that are designed and constructed to meet current Dane County standards for pollutant reduction, runoff volumes, peak flows, water temperature, and groundwater recharge to address the potential water quality impacts of stormwater runoff from the proposed development on the receiving waters.

Regional partners are actively working to address chlorides through the Wisconsin Salt Wise Partnership. Participation in the chloride reduction trainings provided by WI Salt Wise is open to any municipality and private winter maintenance professional in the region. City of Middleton staff have regularly attended salt certification class for winter road maintenance.

Groundwater Impacts

Without effective mitigation practices, as natural areas are converted to urban development, the ground/surface water balance in streams and wetlands shifts from a groundwater-dominated system to one dominated more and more by surface water runoff. This can result in subsequent reductions in stream quality and transitions to more tolerant biological communities.

Groundwater modeling indicates that the cumulative effects of well withdrawals have resulted in a 5.1 cfs decrease in baseflow in Pheasant Branch Creek at Century Avenue (see location Map 5) from predevelopment (no pumping) to 2010 (Table 4). An additional 0.2 cfs decline compared to 2010 conditions is anticipated for the year 2040, according to modeling, reducing the baseflow to 7.0 cfs.

Stream	No Pumping	2010	2040
<i>Pheasant Branch Creek</i>	<i>12.3 cfs</i>	<i>7.2 cfs</i>	<i>7.0 cfs</i>

The loss of baseflow from the cumulative effects of well water pumping is a regional issue, beyond the boundaries of a single USA Amendment or even a single municipality. This issue is discussed along with potential management options in the updated *Dane County Groundwater Protection Planning Framework* ([link to report](#)). Maintaining pre-development groundwater recharge by infiltrating stormwater runoff helps to replenish groundwater, maintain baseflow, and mitigate this impact.

Comments at the Public Hearing

A public hearing was held on the proposed amendment at the March 10, 2022, meeting of the Capital Area Regional Planning Commission. Representatives of City of Middleton and the development team registered in favor of the amendment. There were no registrants opposed to the amendment. There were no questions from Commissioners.

Conclusions and Staff Water Quality Recommendations

There is sufficient existing treatment plant system capacity at MMSD to serve the proposed amendment area. There is also sufficient existing or planned wastewater collection system capacity to serve the proposed amendment area.

Since 2002, there have been stormwater management standards in effect at the state, county, and local level to require stormwater management and erosion control plans and structural best management practices designed to address the impacts of development on water quality, runoff volumes, peak flows, water temperature, and groundwater recharge. In 2011, county and local standards for runoff volume control were increased beyond state standards to further address the potential stormwater impacts of development. Since 2010 many communities adopted even higher standards for volume control through their own ordinances or as part of urban service area amendment agreements. In 2017, State statute 281.33(6)(a)(1) was changed to limit the ability of local governments to adopted higher standards for runoff volume through local ordinances. In response to climate change, the City of Madison adopted peak rate control for the 200-year storm event in their ordinance in June 2020. Dane County adopted this same peak rate control requirement as well as requirements for closed basins in November 2021, which made these requirements universal to all of the communities in Dane County.

The City of Middleton proposes to mitigate the urban nonpoint source impacts of the proposed development by requiring the implementation of stormwater best management practices that are designed and constructed to meet current Dane County standards for pollutant reduction, runoff volumes, peak flows, water temperature, and groundwater recharge to address the potential urban nonpoint source impacts of the proposed development on the receiving waters.

It is the Regional Planning Commission staff's opinion that the proposed amendment is consistent with water quality standards under Wis. Stat. § 281.15, and the adopted Policies and Criteria for the Review of Sewer Service Area Amendments to the *Dane County Water Quality Plan*, with the existing state and local requirements identified below. Additional actions

have also been recommended below to further improve water quality and environmental resource management.

State and Local Requirements

Regional Planning Commission staff recommends approval of this amendment, based on the land uses and services proposed, and in recognition of the state and local requirements for the following:

1. State and local review and approval of stormwater management plan(s) is required, including Regional Planning Commission staff review and approval as part of the sewer extension review process.
 - a. Stormwater and erosion control practices are required to be installed prior to other land disturbing activities. Infiltration practices are required to be protected from compaction and sedimentation during land disturbing activities.
 - b. Peak rates of runoff are required to be controlled for the 1-, 2-, 10-, 100-, and 200-year 24-hour design storms to “pre-development” levels, in accordance with the City of Middleton and Dane County Stormwater Ordinances.
 - c. Sediment control is required that achieves at least 80% sediment control for the amendment area based on the average annual rainfall, with a minimum of 60% of that control occurring prior to infiltration, in accordance with the City of Middleton and Dane County Stormwater Ordinances.
 - d. Runoff volume control is required that maintains the post development stay-on volume to at least 100% of the pre-development stay-on volume for the average annual rainfall period, in accordance with the City of Middleton Stormwater Ordinance requirements for closed basins.
 - e. Oil and grease control are required that treats the first 0.5 inches of run-off using best management practices at commercial and industrial sites, in accordance with the City of Middleton and Dane County Stormwater Ordinances.
 - f. Maintaining pre-development groundwater recharge rates from the Wisconsin Geological and Natural History Survey’s 2012 report, *Groundwater Recharge in Dane County, Wisconsin, Estimated by a GIS-Based Water-Balance Model* (a range of 9 to 10 inches/year for the amendment area or by a site specific analysis, when required by the City of Middleton and Dane County Stormwater Ordinances.
2. Easements and perpetual legal maintenance agreements with the City, to allow the City to maintain stormwater management facilities if owners fail to do so, are required for any facilities located on private property.
3. Environmental corridors are required to be delineated to meet the Environmental Corridor Policies and Criteria adopted in the *Dane County Water Quality Plan*. A 100’ buffer is being provided for wetland W-1 per the 2006 Graber Pond Master Plan.

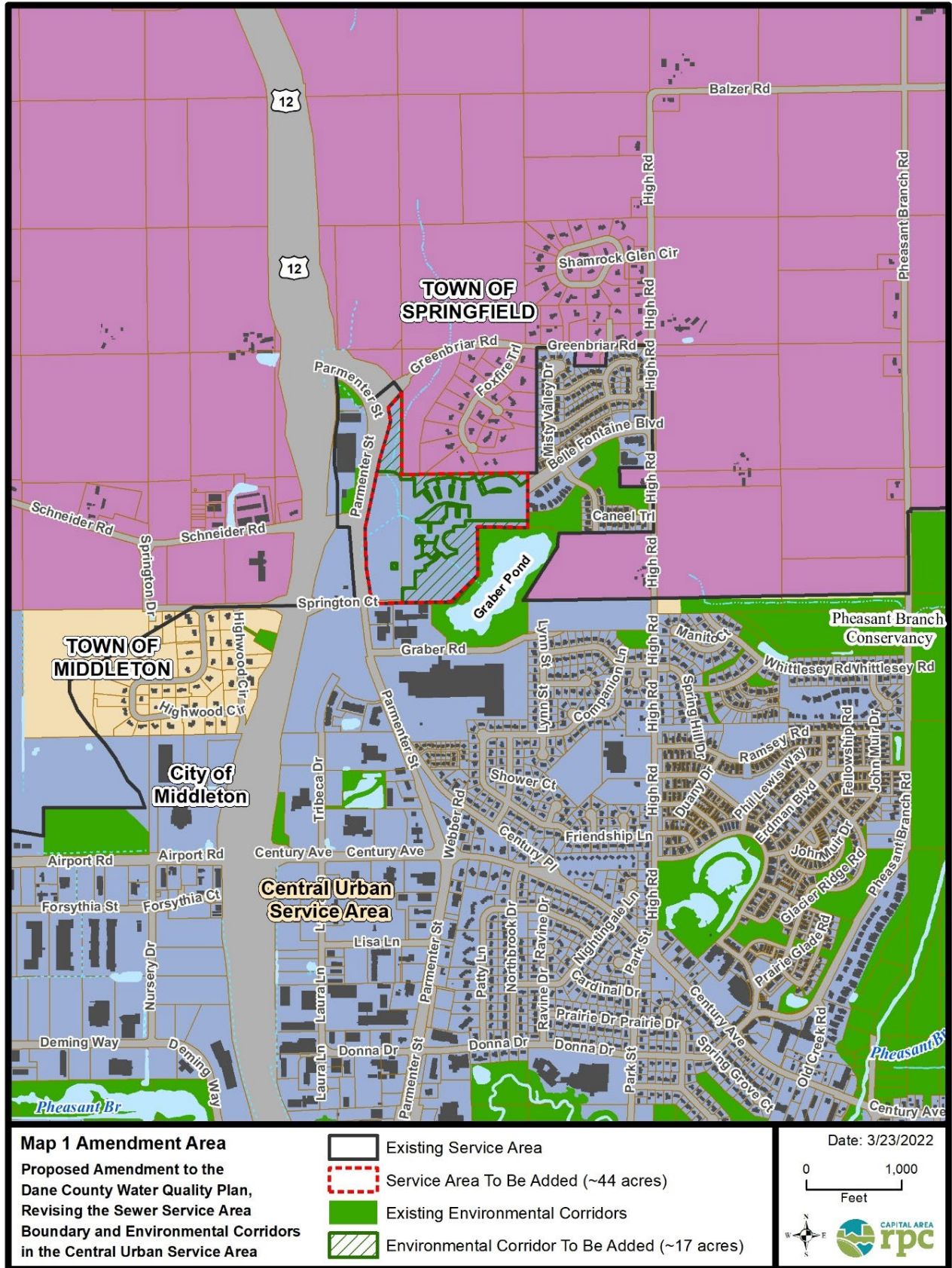
Recommendations

It is recommended that the City of Middleton pursue the following to further improve water quality and environmental resource management:

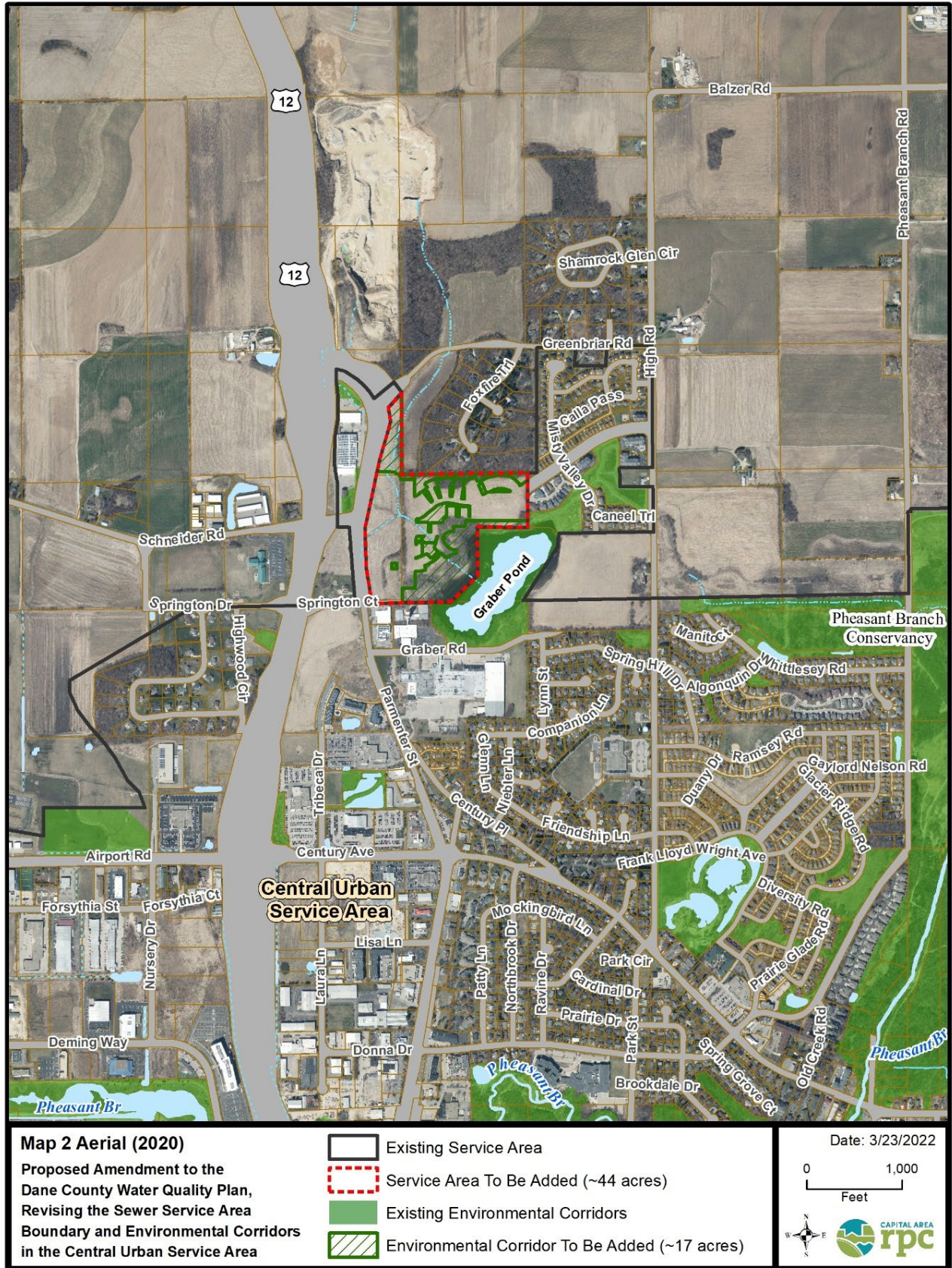
1. Require an archaeological survey be performed by a qualified archaeologist for the amendment area as recommended by the Wisconsin Historical Society (see attached letter) and take necessary protection measures if artifacts are found.

2. Implement the recommended and required actions listed in the WDNR Bureau of Natural Heritage Conservation's Endangered Resources Review to protect any occurrences of rare plants, animals, and natural communities.
3. Encourage the use of native flora favored by the Rusty Patched Bumble Bee in landscaping to provide suitable habitat for this pollinator, where appropriate.
4. Continue to foster the responsible use of chlorides by collaborating with Wisconsin Salt Wise.

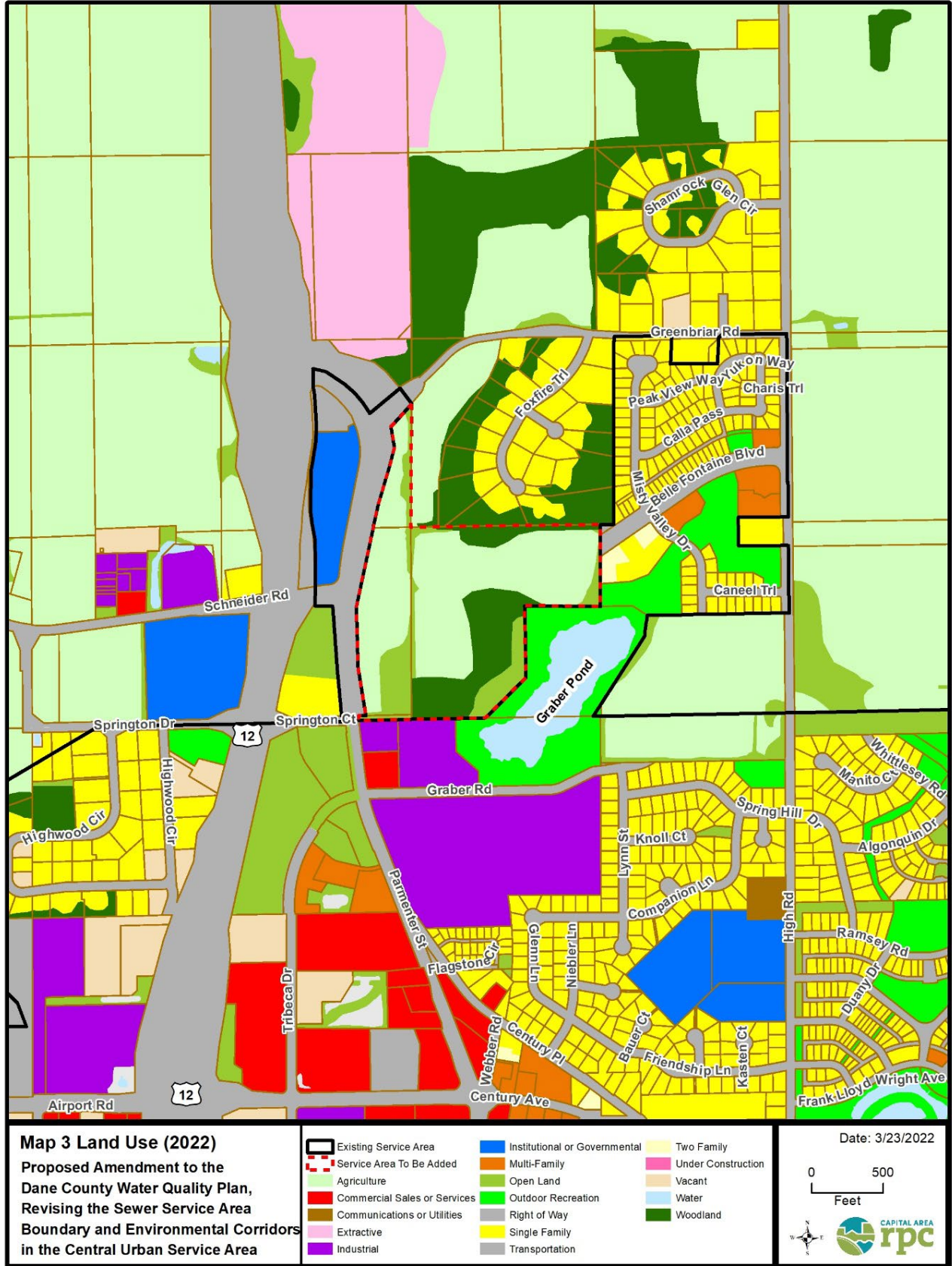
Map 1 - Amendment Area



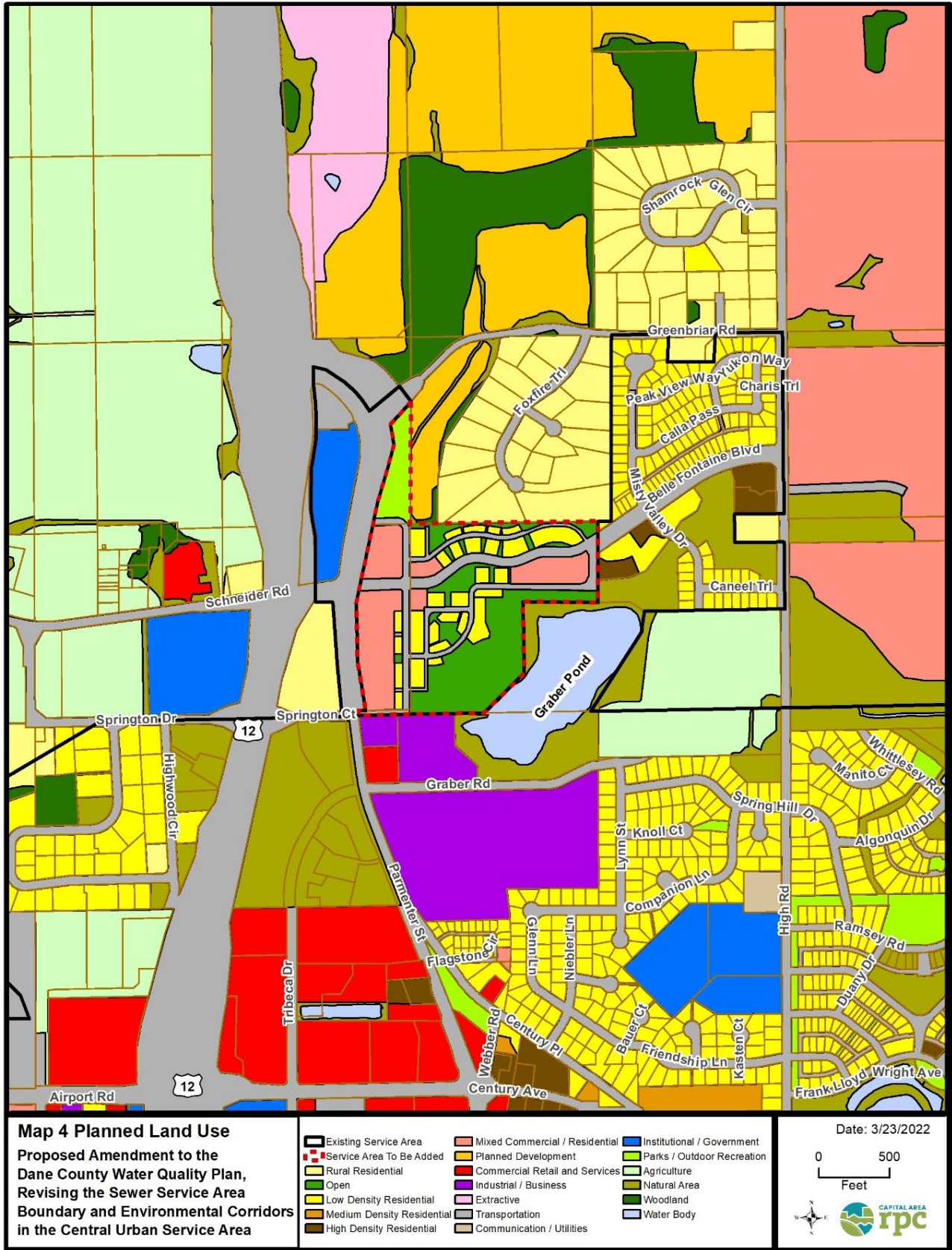
Map 2 – Aerial



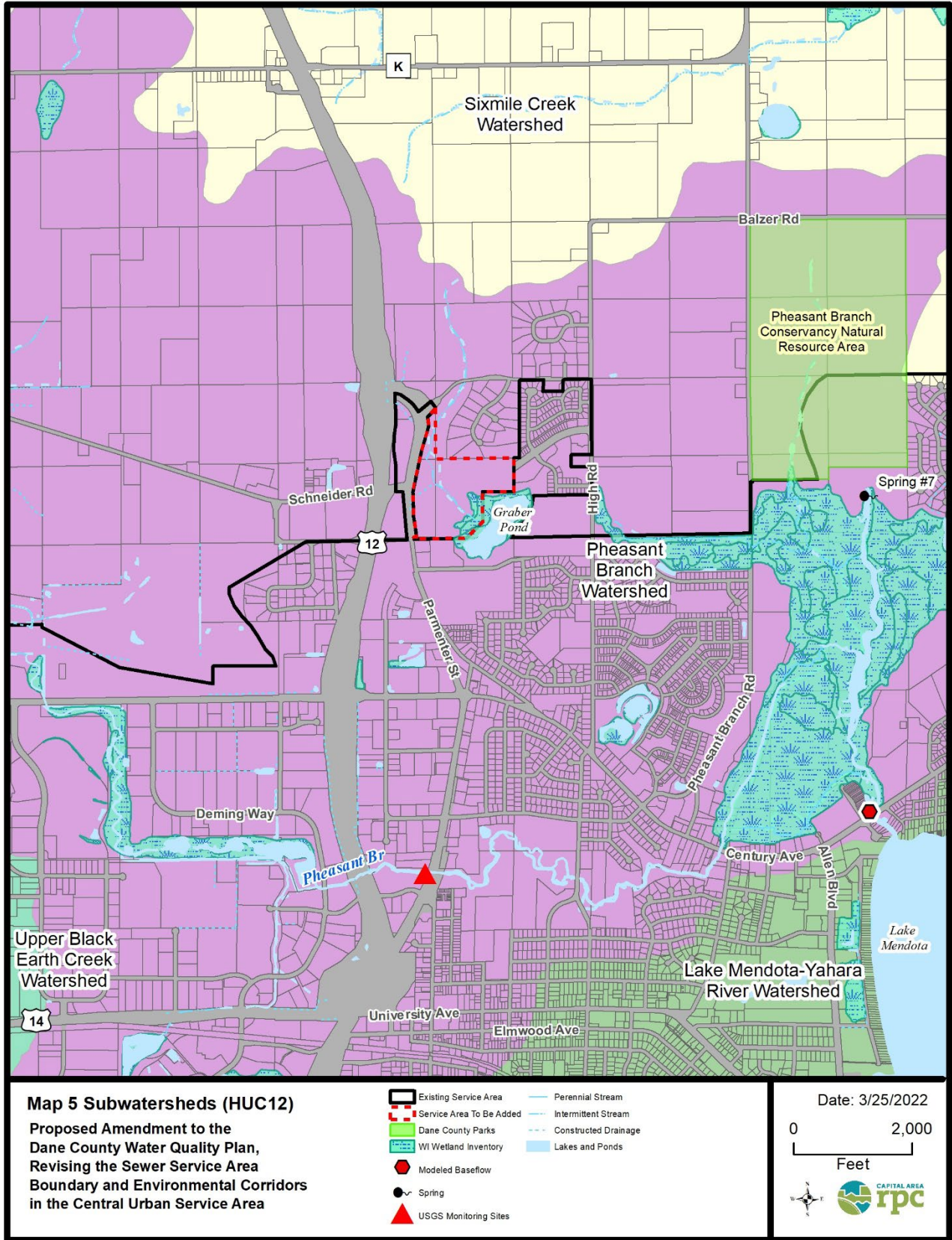
Map 3 – 2022 Land Use



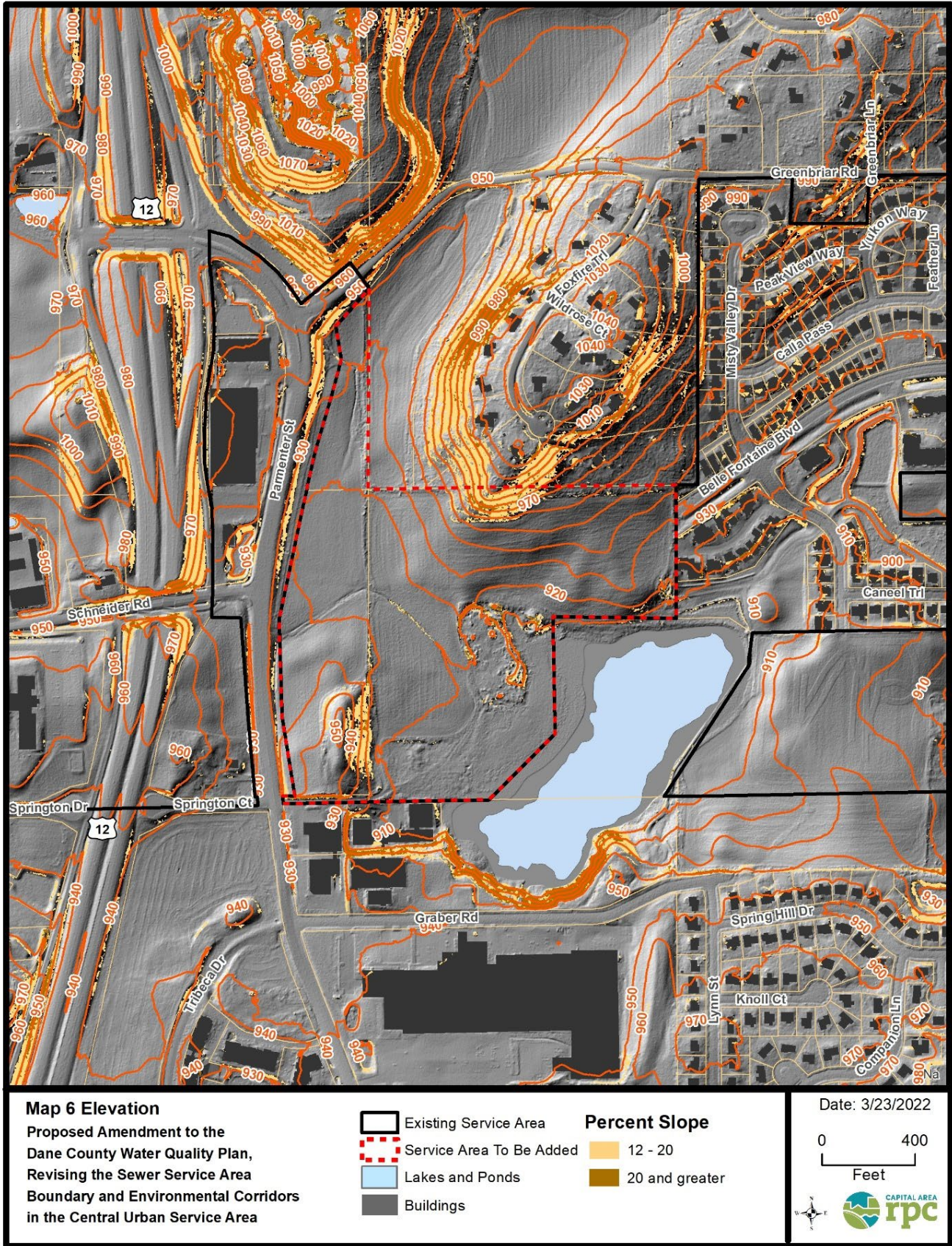
Map 4 – Planned Land Use



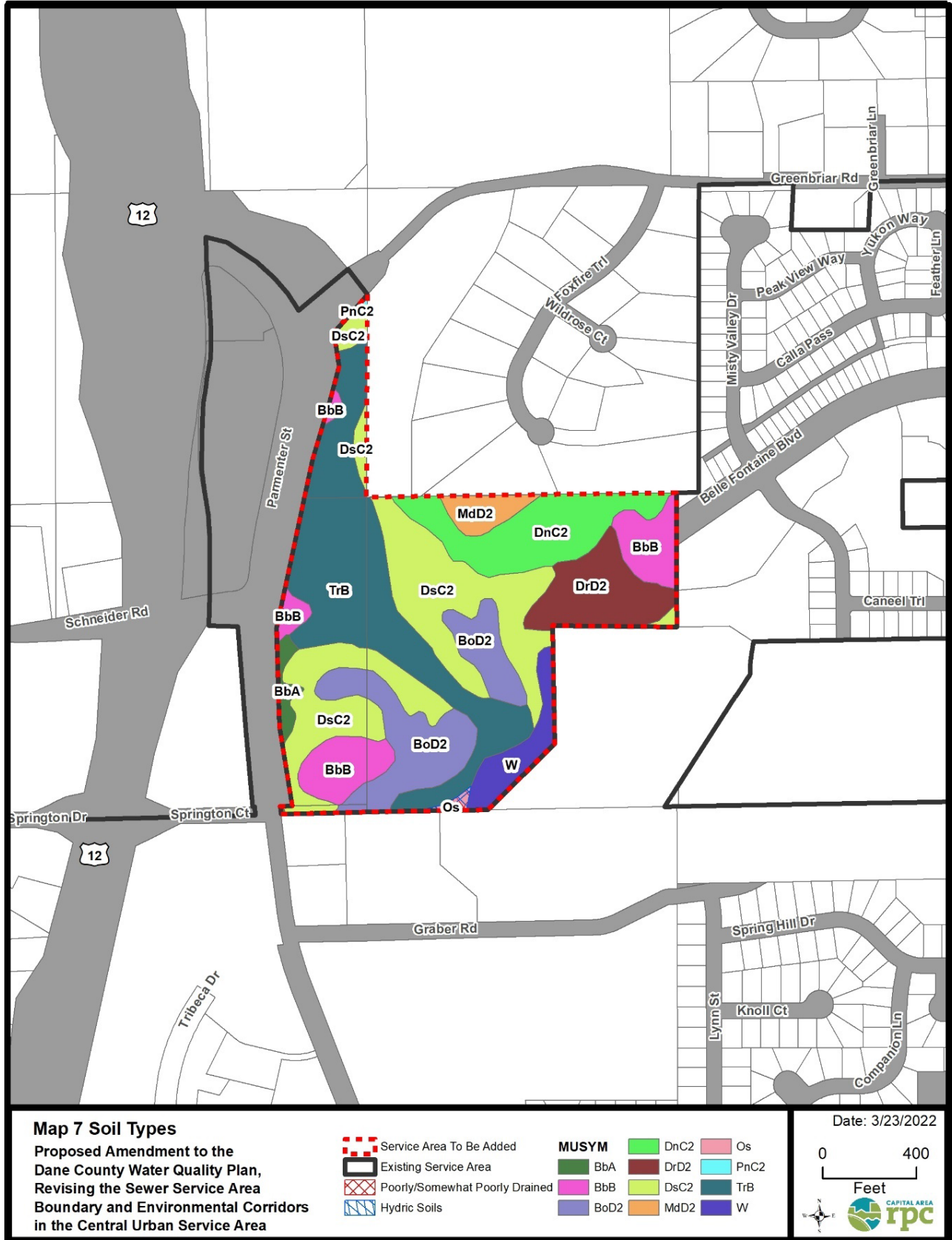
Map 5 – Subwatersheds



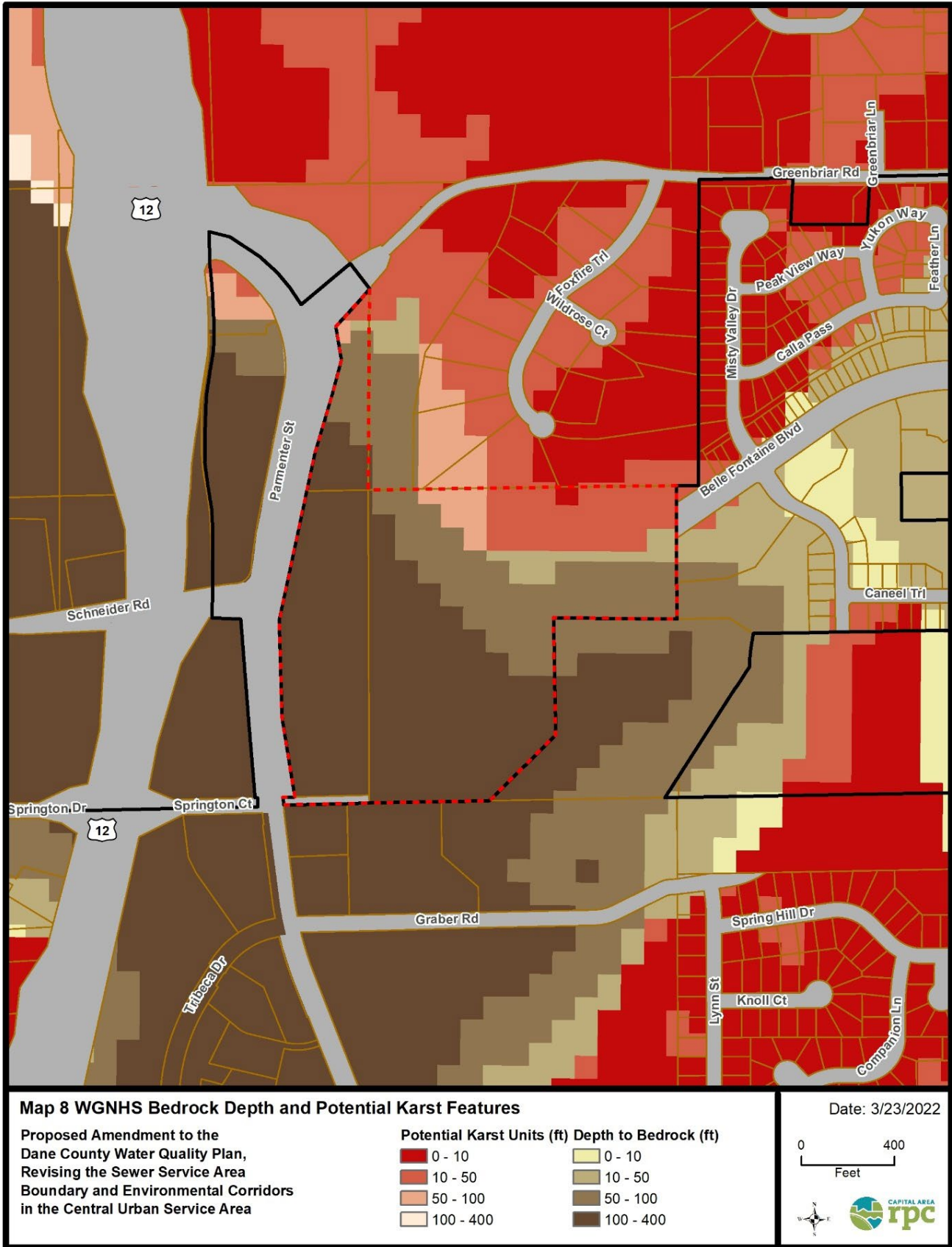
Map 6 – Elevations



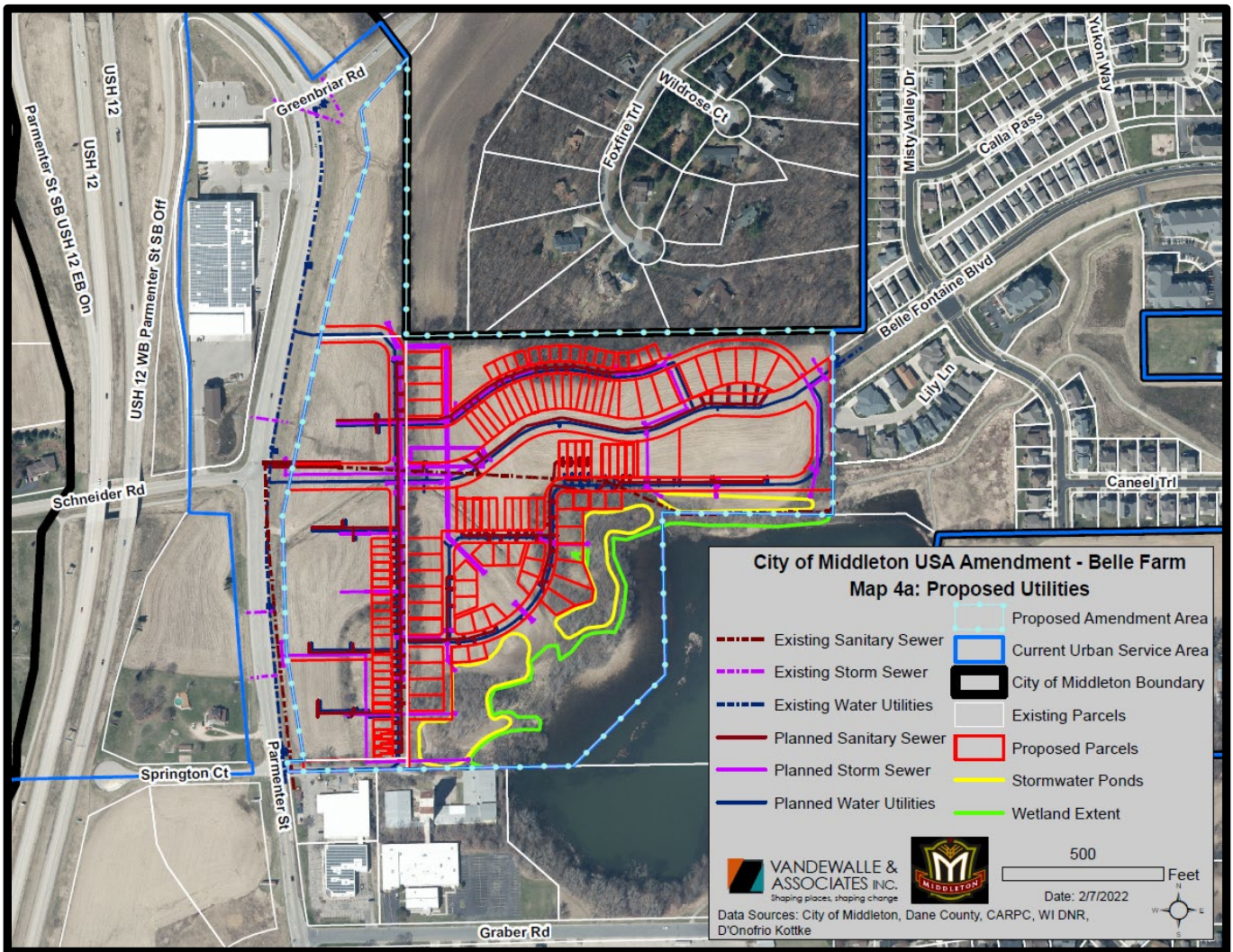
Map 7 – Soil Type



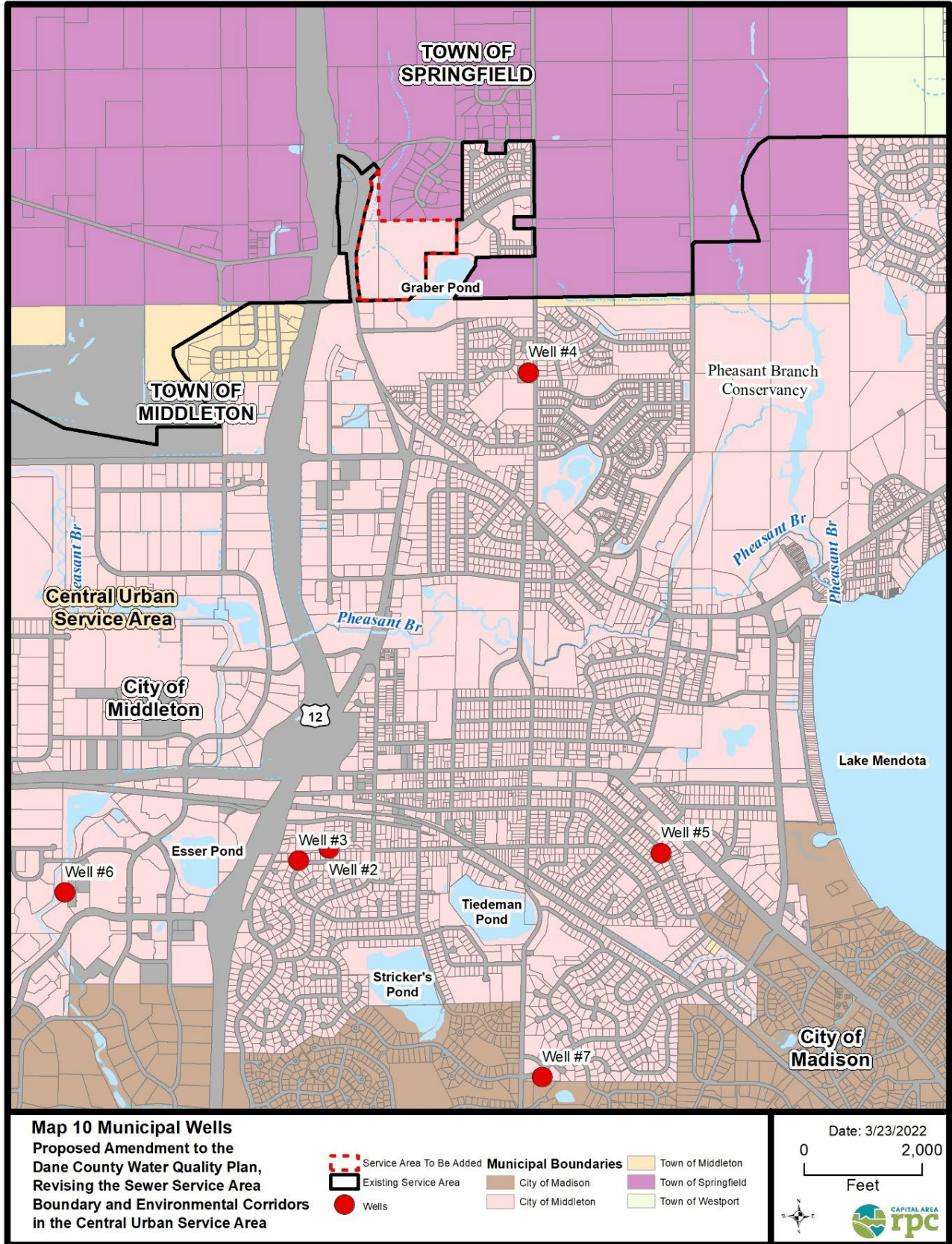
Map 8 – WGNHS Bedrock Depth and Potential Karst Features



Map 9 – Proposed Utilities & Stormwater Basins



Map 10 – Municipal Wells





- Study Area (44.54 ac)
 - 1 Dane Co 1' Contours
 - Field Delineated Wetlands (4.43 ac)
 - Approximate Offsite Wetland Boundary
- Sample Points**
- Upland
 - Wetland



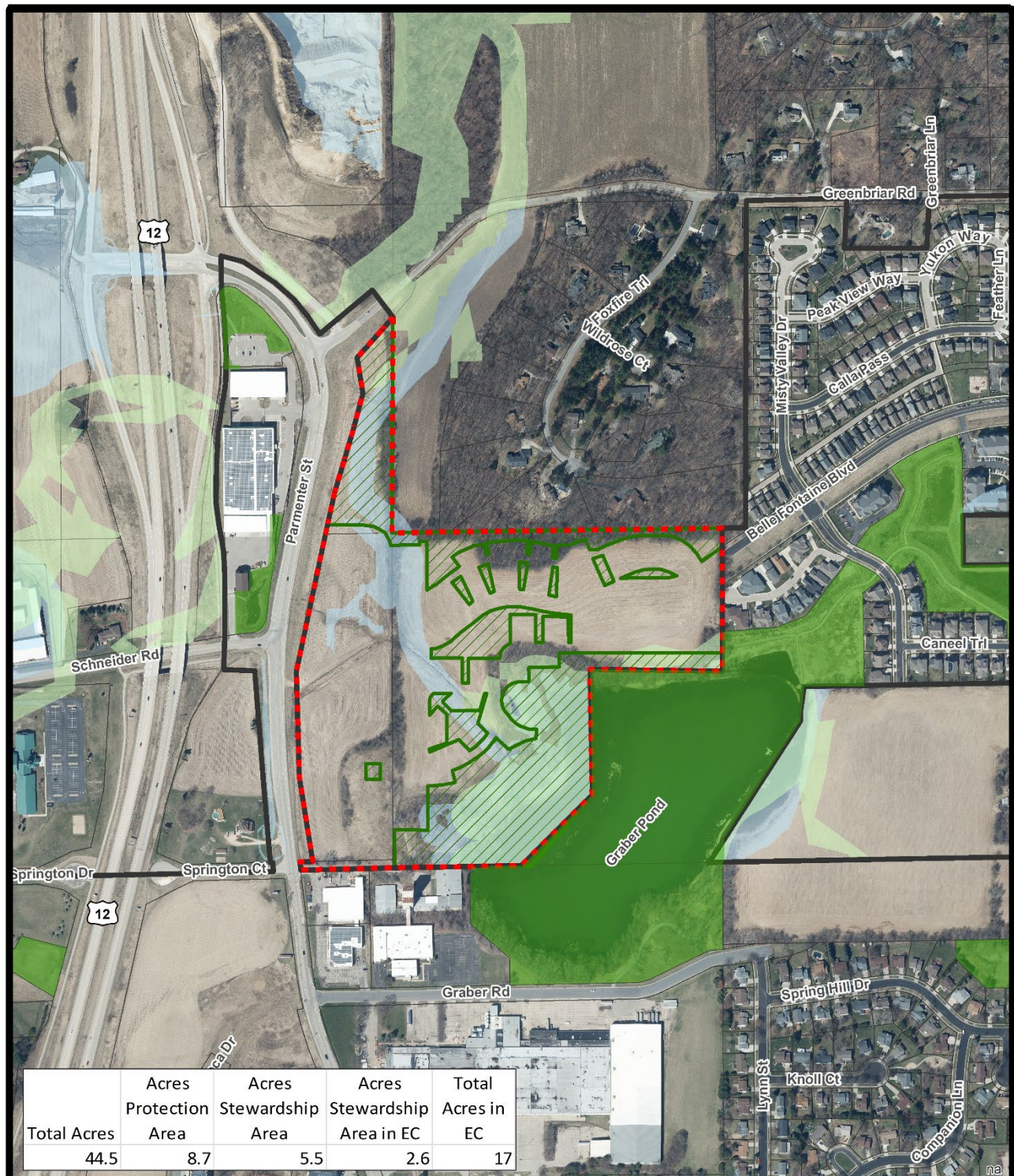
Heartland
ECOLOGICAL GROUP INC

Figure 6. Field Delineated Wetlands

Belle Farm
Project #20210543
T8N, R8E, S35
C Middleton, Dane Co

2020 NAIP
Dane Co, HEG

Map 12 – Proposed Environmental Corridor



Map 12 Proposed Environmental Corridor

Proposed Amendment to the Dane County Water Quality Plan, Revising the Sewer Service Area Boundary and Environmental Corridors in the Central Urban Service Area

- Existing Environmental Corridor
- Environmental Corridor to Be Added
- Protection Area
- Stewardship Area
- Existing Service Area
- Service Area To Be Added

Date: 3/30/2022

0 400



Attachment 1 – Wisconsin Historical Society Letter

Sean Higgins

From: Office of the State Archaeologist <statearchaeologist@wisconsinhistory.org>
Sent: Wednesday, February 9, 2022 1:08 PM
To: Sean Higgins; Office of the State Archaeologist
Subject: RE: Upcoming Amendments

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Sean,

The amendment area referred to below has Madison YHNDP near Femrite Road contains the Schimming Mound (DA-0034; BDA-0314), which was first identified in 1914. More recent investigations over the years have found that the linear mound on top of the drumlin has eroded to the point that it was no longer visible. However, in 2020 an archaeologist was monitoring the removing of the drumlin sediment for fill and a large pit feature was discovered. Such a feature at the base of or near a mound often contains human remains. Worked stopped in the immediate area as burials are protected under state law. Further monitoring away from the mound did not uncover any additional features. Any work/disturbance in the area must avoid the burial feature. If you are not aware of the location of the feature for purposes of your planning, I can provide it. Besides this feature there are no recorded archaeological material in the amendment area.

The amendment area referred to as Middleton CUSAA, has four archaeological sites in the amendment area: DA-0739, DA-0738, DA-0971, and DA-0987. The sites were recorded as surface finds during survey for road construction. Much of the amendment area, however, has not been surveyed and there is a high probability that there are additional sites because of the proximity to a water source. I would recommend survey of the area prior to development.

The third amendment area referred to NEN CUSAA has no recorded cultural material.

If you have questions or want additional information, please let me know.

Jim

James M. Skibo, Ph.D.
State Archaeologist

Wisconsin Historical Society
816 State St
Madison WI 53706
608-264-6496(o)
Email: james.skibo@wisconsinhistory.org

From: Sean Higgins <seanh@capitalarearpc.org>
Sent: Wednesday, February 9, 2022 9:04 AM
To: Office of the State Archaeologist <statearchaeologist@wisconsinhistory.org>
Subject: Upcoming Amendments

Good Morning Jim,

Below are links to documents describing three upcoming Sewer Service Area amendment requests. We'll be drafting our staff analysis in the coming weeks and would appreciate WHS input.