WELLHEAD PROTECTION PLAN FOR THE

City of Bird Island

This plan is in effect from:
June 10, 2019 to June 10, 2029

Forward

This document presents the wellhead protection (WHP) plan for the City of Bird Island that will help provide for an adequate and safe drinking water supply for community residents. It contains the following components:

- Assessment of the data elements used to prepare the plan;
- Delineation of the wellhead protection area;
- Delineation of the drinking water supply management area;
- Assessments of well and drinking water supply management area vulnerability;
- Impact of land and water use changes on the public water supply well(s) used by the water supplier;
- Issues, problems, and opportunities affecting the well(s), well water, and the drinking water supply management area;
- Wellhead protection goals for this plan;
- Objectives and plan of action for achieving the wellhead protection goals;
- Evaluation program for assessing the effectiveness of this plan; and
- Contingency strategy to address an interruption of the water supply.

Water Supply Wells Included in This Plan

Unique Number	Well Name or Number	Use/Status[1]
148788	Bird Island Well #5	P
773363	Bird Island Well #8	P
209492	Bird Island Well #7	E

[1]P = Primary Water Supply Well, E = Emergency Backup Well, S = Seasonal Well

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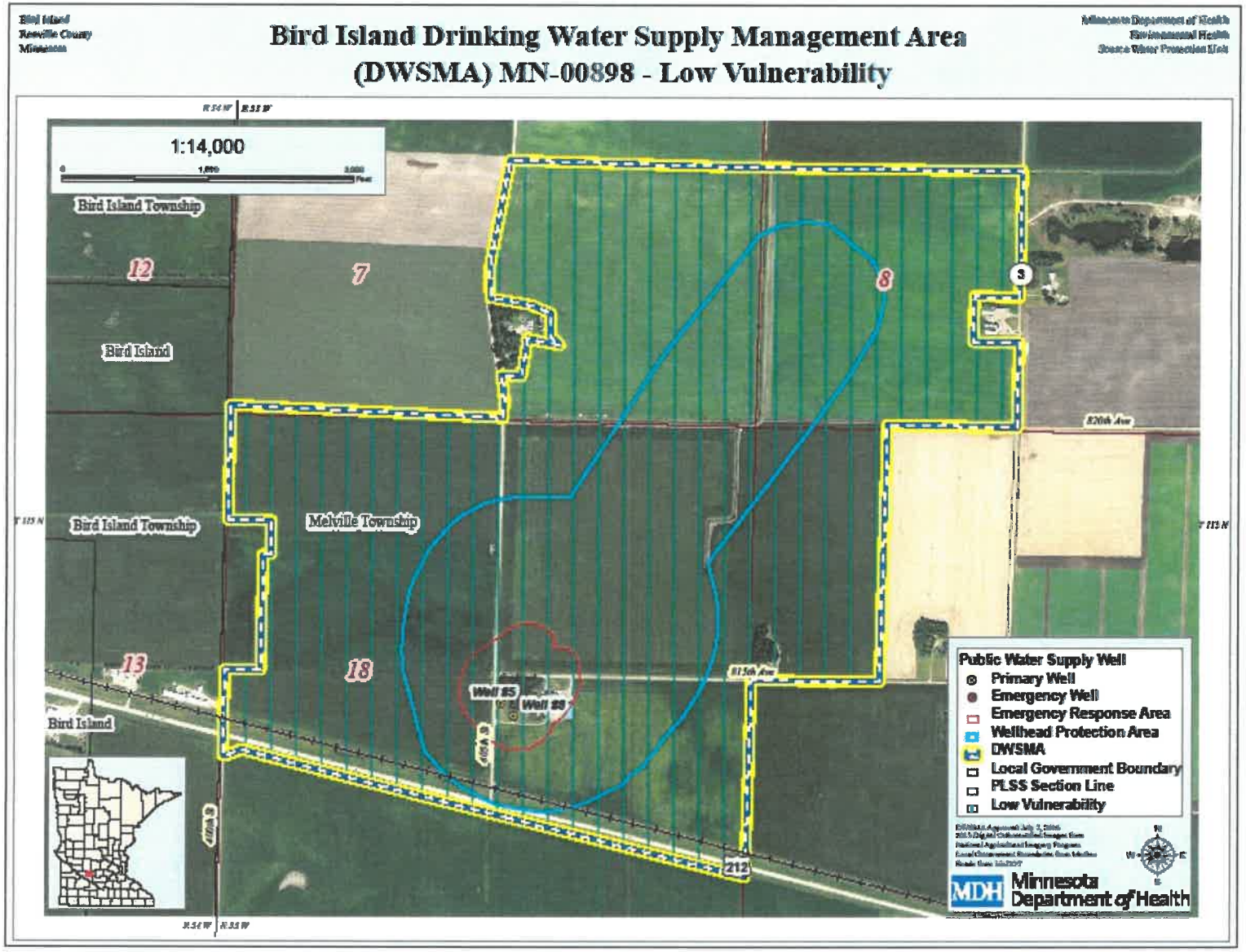


Chapter 1 - Introduction

1.1 Background

The wellhead protection (WHP) plan for the City of Bird Island was prepared in cooperation with the Minnesota Department of Health (MDH). It contains specific actions that the city will take to fulfill WHP requirements that are specified under Minnesota Rules, part 4720.5510 to 4720.5590. Also, the support that Minnesota state agencies, federal agencies, Renville County, and others will provide is presented to identify their roles in protecting the city's drinking water supply. The plan is effective for 10 years after the approval date specified by MDH and the city is responsible for implementing its WHP plan of action, as described in Table 8 of this report. Furthermore, the city will evaluate the status of plan implementation at least every two-and-one-half years to identify whether its WHP plan is being implemented on schedule.

1.2 Plan Appendices

Much of the technical information that was used to prepare this plan is contained in the appendices but is summarized in the main body of this plan. In particular:

- Appendix I contains the first part of the plan, consisting of the delineation of the wellhead protection area (WHPA), the drinking water supply management area (DWSMA), and the vulnerability assessments for the public water supply well(s) and the DWSMA. This part of the plan is summarized in Chapter 3.
- Appendix II contains the inventory of potential contamination sources. This inventory is discussed in Chapter 4 in terms of assigning risk to the city's water supply and is also discussed in Chapter 6, relating to issues, problems or opportunities.
- Appendix III contains the Inner Wellhead Management Zone (IWMZ)-Potential Contaminant Source Inventory (PCSI) Reports for Wells 5 & 8, which is referenced in Chapter 3.
- Appendix IV contains the Scoping Meeting notices and summaries of those meetings with MDH on September 20, 2011 and September 12, 2016, which are referenced in Chapter 2.
- Appendix V contains old municipal well reports.
- Appendix VI contains municipal well logs.
- Appendix VII contains the contingency strategy via the City's DNR Water Supply Plan which provide for alternatives if there is a disruption caused by contamination or mechanical failure. This information is discussed in Chapter 11.
- Appendix VIII contains a map of the DWSMA parcels

Chapter 2 - Identification and Assessment of the Data Elements Used to Prepare the Plan

The data elements that are included in this plan were used to 1) delineate the WHPA and the DWSMA and to assess DWSMA and well vulnerability and 2) document the need for the WHP measures that will be implemented to help protect the city's water supply from potential sources of contamination. The city met with representatives from MDH on two occasions to discuss data elements that are specified in Minnesota Rules, part 4720.5400, for preparing a WHP plan.

The first scoping meeting, held on September 20, 2011, addressed the data elements that were needed to support the delineation of the WHPA, the DWSMA, and the well(s) and DWSMA vulnerability assessments. The second scoping meeting, held on September 12, 2016, discussed the data elements required to 1) identify potential risks to the public water supply and 2) develop effective management strategies to protect the public water supply in relation to well and DWSMA vulnerability. The results of each meeting were communicated to the city by MDH through a formal scoping decision notice and are presented in Appendix IV. Not all of the data elements listed in the WHP rule had to be addressed in the WHP plan because of the nonvulnerable nature of the city's source of drinking water.

The following table presents the data element assessment results relative to the overall impact that each data element has on the four items listed.

Table 1 is the assessment of the present and future implications of the data elements on the four planning activities. The data elements that are marked high (H) are considered to have a direct implication or impact on the activity. Data elements that have an indirect or marginal impact on an activity are shown as moderate (M). A data element that has little if any impact is shown as low (L). The source of the data is shown under "Data Source." The entire land area of the DWSMA is located within Renville County, Melville Township and the Hawk Creek Watershed. None of the DWSMA is located within the city limits of Bird Island. Land Use and Zoning are noted in Figures 2 through 5. Zoning is 100 percent Agriculture, and Land Use is predominantly Agriculture. The following data elements were reviewed by the WHP team and ranked for prioritization of plan implementation.

Table 1 - Assessment Results for the Data Elements

Data Element	Present and Future Implications				Data Source
	Use of the Well (s)	Delineation Criteria	Quality and Quantity of Well Water	Land and Groundwater Use in DWSMA	
Geology					
Maps and geologic descriptions	M	H	H	H	MGS
Subsurface data	M	H	H	H	MGS, MDH, DNR
Borehole geophysics	M	H	H	H	None available
Surface geophysics	L	L	L	L	None available
Land Use					
Parcel boundaries map	L	H	L	L	Renville County
Political boundaries map	L	H	L	L	MnGEO, City
Public Land Survey map	L	H	L	L	MnGEO

Data Element	Present and Future Implications				Data Source
	Use of the Well (s)	Delineation Criteria	Quality and Quantity of Well Water	Land and Groundwater Use in DWSMA	
Public Utility Services					
Transportation routes and corridors	L	L	L	L	MnDOT, MnGEO
Records of well construction, maintenance, and use	H	H	H	H	MWI, MDH
Groundwater Quantity					
Permitted withdrawals	H	H	H	H	DNR
Groundwater use conflicts	H	H	H	H	DNR
Water levels	H	H	H	M	DNR, MDH, City
Groundwater Quality					
Monitoring data	H	H	H	H	MDH
Isotopic data	H	H	H	H	MDH
Tracer studies					None available

Chapter 3 - Delineation of the Wellhead Protection Area, Drinking Water Supply Management Area and Vulnerability Assessments

A detailed description of the process used for 1) delineating the WHPA and the DWSMA, and 2) preparing the vulnerability assessments of the city water supply well(s) and DWSMA is presented in Appendix I. The City of Bird Island requested that MDH do this work and it was performed by John Woodside and James R Lundy, P.G., Source Water Protection Unit.

3.1 WHPA and DWSMA Delineation

Figure 1 shows the boundaries of the WHPA and the DWSMA. The WHPA was delineated using computer simulations of groundwater movement to generate the underground capture zones for city Wells 5 (Unique No. 148788), and 8 (Unique No. 773363). The WHPA for these water supply wells is shown in Figure 1.

The WHPA for Well 7 (209492) is defined by using a circular area with a 200-foot radius that is called the inner wellhead management zone (IWMZ). This well does not have a formal capture zone because it is pumped for emergency use only. However, the IWMZ is used to protect the well from potential contamination sources that may cause an acute health impact should the well become operational. The map showing the IWMZ for wells 5 & 8, is shown in Appendix III.

The DWSMA boundaries were designated using the following criteria:

- Center-lines of highways, streets, roads, or railroad rights-of-ways;
- Property or fence lines;
- Political boundaries.

3.2 Well Vulnerability Assessment

The construction and water quality obtained from each primary and emergency backup well used by the City of Bird Island is included in the assessment of well vulnerability. The vulnerability of the city wells is considered low because they are constructed so that each well is adequately sealed into the borehole and does not pump water that contains human-caused contaminants.

3.3 DWSMA Vulnerability Assessment

The low vulnerability assigned to the DWSMA (Figure 1) was determined using geologic, soils, and groundwater chemistry information and indicates that at least 10 feet or more of clay-rich geological material covers the source water aquifer.

Chapter 4 - Establishing Priorities and Assigning Risk to Potential Contamination Sources

The types of potential contamination sources that may exist within the DWSMA were derived from the information collected to satisfy the data element requirements (Chapter 2). The impact assigned to each data element as part of the assessment process (Table 1) was used to assess the types of potential contamination sources that may present a risk to the city's drinking water supply. The low vulnerability assessment for the DWSMA indicates that, generally, only wells, other types of boreholes, excavations that may reach the aquifer, and certain types of Environmental Protection Agency Class V Wells are likely to impact the city wells. Excluding city wells 5 & 8, there is only one other active well located within the DWSMA. This well is located on the David Elfering property approximately 280 feet east of city well #8. The unique well number is 209539, the depth is 196 feet, and the well is for farm use only.

4.1 Contaminants of Concern

None of the human-caused contaminants regulated under the federal Safe Drinking Water Act have been detected at levels indicating that any well itself serves to draw contaminants into the aquifer as a result of pumping. The following naturally occurring contaminants have been detected in the city wells.

Well	Date Collected	Tritium (TU)	Deuterium	Oxygen-18	Maximum Nitrate (mg/L)
773363	02/22/2012	<0.8	NA	NA	<0.05
773363	12/30/2011	<0.8	NA	NA	NA
773363	11/04/2010	4.4	-68.8	-9.3	NA
148788	11/04/2010	<0.8	-66.4	-9.5	NA
148788	04/04/2005	NA	NA	NA	1.1

Their presence indicates that the aquifer receives recharge over a long time period and is not likely to be directly impacted by land uses.

4.2 Inventory Results and Risk Assessment

A description of the locations of potential contamination sources is presented in Appendix II. A summary of the results for the IWMZ is listed in Table 2 and Table 3 presents these results for the remainder of the DWSMA. The priority assigned to each type of potential contamination source addresses 1) the number inventoried, 2) its proximity to a city well, 3) the capability of local geologic conditions to absorb a contaminant, 4) the effectiveness of existing regulatory controls, 5) the time required for the City of Bird Island to obtain cooperation from governmental agencies that regulate it, and 6) the administrative, legal, technical, and financial resources needed. A **high (H)** risk potential implies that the potential source type has the greatest likelihood to negatively impact the city's water supply and should receive highest priority for management. A **low (L)** risk potential implies that a lower priority for implementing management measures is assigned.

Table 2 - Potential Contamination Sources and Assigned Risk for the IWMZ

Source Type	Total	Level of Risk
Domestic Well	*0*	-
High-Capacity Well (not a city well)	*0*	-
None identified within 200'		

Table 3 - Potential Contamination Sources and Assigned Risk for the Rest of the DWSMA

Potential Source Type	Total Number	Number Within Emergency Response Area and Level of Risk		Number Within Remainder of the DWSMA and Level of Risk	
Monitoring Well	*0*	*0*	-	*0*	-
Domestic Well <100 feet deep	*0*	*0*	-	*0*	-
Domestic Well >100 feet deep	*1*	*0*	-	*1*	*H*
Public Water Supply Well	*2*	2	H	0	-

Chapter 5 - Impact of Land and Water Use Changes on the Public Water Supply Well(s)

The City estimates that the following changes to the physical environment, land use, surface water, and groundwater-may occur over the 10-year period that the WHP plan is in effect (Table 4). This is needed to determine whether new potential sources of contamination may be introduced in the future and to identify future actions for addressing these anticipated sources. Land and water use changes may introduce new contamination sources or result in changes to groundwater use and quality. The anticipated changes may occur within the jurisdictional authority of the City, although some may not. Table 4 describes the anticipated changes to the physical environment, land use, and surface water or groundwater in relationship to the 1) influence that existing governmental land and water programs and regulations may have on the anticipated change, and 2) administrative, technical, and financial considerations of the City of Bird Island and property owners within the DWSMA.

Table 4 - Expected Land and Water Use Changes

Expected Change (Physical Environment, Land Use, Surface Water, Groundwater)	**Impact of the Expected Change On the Source Water Aquifer**	**Influence of Existing Government Programs and Regulations on the Expected Change**	**Administrative, Technical, and Financial Considerations Due to the Expected Change**
Physical Environment: *No change is anticipated.*	*Does not apply*	*Does not apply*	*Does not apply*
Land Use: Expected to stay Agriculture	*No impact is anticipated. Continued Agricultural Use*	*Does not apply for wellhead protection purposes.*	*Does not apply for wellhead protection purposes.*
Groundwater: *The city is not considering the construction of another water supply well.*	*No impact*	*No influence of programs and regulations expected.*	*Does not apply*

Chapter 6 - Issues, Problems, and Opportunities

6.1 Identification of Issues, Problems and Opportunities

The City of Bird Island has identified water and land use issues and problems and opportunities related to 1) the aquifer used by the city water supply wells, 2) the quality of the well water, or 3) land or water use within the DWSMA. The city assessed 1) input from public meetings and written comments it received, 2) the data elements identified by MDH during the scoping meetings, and 3) the status and adequacy of the city's official controls and plans on land and water uses, in addition to those of local, state, and federal government programs. The results of this effort are presented in the following table, which defines the nature and magnitude of contaminant source management issues in the city's DWSMA. Identifying issues, problems and opportunities, including resource needs, enables the city to 1) take advantage of opportunities that may be available to make effective use of existing resources, 2) set meaningful priorities for source management and 3) solicit support for implementing specific source management strategies.

6.2 Comments Received

There have been several occasions for local governments, state agencies, and the general public to identify issues and comment on the city's WHP plan. At the beginning of the planning process, local units of government were notified that the city was going to develop its WHP plan and were given the opportunity to identify issues and comment. A public information meeting was held to review the results of the delineation of the wellhead protection area, DWSMA, and the vulnerability assessments. The meetings of the city's wellhead protection team were open to the public. Also, a public hearing was held before the completed WHP plan was sent to MDH for state agency review and approval. The following issues were identified during comment periods:

- City has no governmental control within DWSMA
- Uncertainty of water levels in the aquifer
- Concern with adequate security measures

Table 5 - Issues, Problems, and Opportunities

Issue Identified	Impacted Feature	Problem Associated with the Identified Issue	Opportunity Associated with the Identified Issue	Adequacy of Existing Controls to Address the Issue
City has no governmental control within DWSMA; except easement area	Aquifer Well water quality DWSMA	It is hard to implement change/activities when land is not regulated by City.	The City has the opportunity to work with Renville County, Melville Township & landowners to address any problems/concerns.	Renville County has regulatory land use controls in place.
Uncertainty of water levels in the aquifer	Aquifer and its ability to provide an adequate supply of drinking water to the City	Can City provide adequate water in the future?	Work with State agencies in monitoring quantity of water in the aquifer. Research using updated technology to measure well water levels.	City checks active well water levels weekly with solinest tape (#8) and active float/digital (#5)
Concern with adequate security measures	Well water quality	Potential for compromise of the security of wells and treatment plant not in City limits	Seek grants for funding more advanced security measures.	Treatment plant is locked with outside lighting; however is not manned 24 hours a day.

Chapter 7 - Existing Authority and Support Provided by Local, State, and Federal Governments

In addition to its own controls, the City of Bird Island will rely upon partnerships formed with local units of government, state agencies, and federal agencies with regulatory controls or resource management programs in place to help implement its WHP plan. The level of support that a local, state, and federal agency can provide depends on its legal authority, as well as the resources available to local governments.

7.1 Existing Controls and Programs of the City of Bird Island and Renville County

Since the city has no legal authority within the DWSMA, Table 6 shows the departments or programs within Renville County that may be able to assist the city with issues relating to potential contamination sources that 1) have been inventoried or 2) may result from changes in land and water use within the DWSMA:

Table 6 - Controls and Programs of the regulatory authorities within the DWSMA

Government Unit	Name of Control/Program	Program Description
Renville County	Division of Environment and Community Development	Zoning and land use ordinances. Comprehensive land use plan.
Renville County	Soil and Water Conservation District Local Water Planning	Well sealing cost-share Establishes countywide goals and priorities towards protecting water resources.

7.2 State Agency and Federal Agency Support

MDH will serve as the contact for enlisting the support of other state agencies on a case-by-case basis regarding technical or regulatory support that may be applied to the management of potential contamination sources. Participation by other state agencies and the federal government is based on legal authority granted to them and resource availability. Furthermore, MDH 1) administers state regulations that affect specific potential sources of contamination and 2) can provide technical assistance to property owners to comply with these regulations.

The following table identifies the specific regulatory programs or technical assistance that state and federal agencies may provide to the City of Bird Island to support implementation of the WHP plan. It is likely that other opportunities for assistance may be available over the 10-year period that the plan is in effect due to changes in legal authority or increases in funding granted to state and federal agencies. Therefore, the table references opportunities available when the city's WHP plan was first approved by MDH.

Table 7 - State and Federal Agency Controls and Programs

Government Unit	Type of Program	Program Description
MDH	State Well Code (Minnesota Rules, Chapter 4725)	MDH has authority over the construction of new wells and the sealing of wells. MDH staff in the Well Management Program offer technical assistance for enforcing well construction codes, maintaining setback distances for certain contamination sources, and well sealing.
MDH	Wellhead Protection Program	MDH has staff that will help the city identify technical or financial support that other governmental agencies can provide to assist with managing potential contamination sources.
DNR	Water appropriation permitting (Minnesota Rules, Chapter 6115) Water Supply Plan	DNR can require that anyone requesting an increase in existing permitted appropriations, or to pump groundwater, must address concerns regarding the impacts to drinking water if these concerns are included in a WHP plan. Water supply plans are required to help cities implement long term water sustainability and conservation measures; and to develop critical emergency preparedness measures.

7.4 Support Provided by Nonprofit Organizations

The Minnesota Rural Water Association (MRWA) will assist the City of Bird Island with implementing its WHP Plan by providing: 1) referenced educational and outreach materials for land owners, 2) technical assistance for implementing individual WHP action items listed in this Plan, and 3) support to the city for assessing the results of Plan implementation. In addition, the City of Bird Island is a member of the MRWA sponsored MnWARN Program which promotes and supports a statewide response to utility emergencies and disasters through mutual assistance for water, wastewater and storm water utilities.

Chapter 8 - Goals

Goals define the overall purpose for the WHP plan, as well as the end points for implementing objectives and their corresponding actions. The WHP team identified the following goals after considering the impacts that 1) changing land and water uses have presented to drinking water quality over time and 2) future changes that need to be addressed to protect the community's drinking water:

- Maintain a safe and adequate drinking water supply for community residents;
- Prevent contaminants from reaching levels that present a risk to people's health;
- Maintain communication with Renville County on potential land use changes.
- Provide the public with educational materials and other resources to assist with drinking water protection issues such as private well use, maintenance and sealing assistance.

Chapter 9 - Objectives and Plan of Action

Objectives provide the focus for ensuring that the goals of the WHP plan are met and that priority is given to specific actions that support multiple outcomes of plan implementation.

Both the objectives and the wellhead protection measures (actions) that support them are based on assessing 1) the data elements (Chapter 2), 2) the potential contaminant source inventory (Chapter 4), 3) the impacts that changes in land and water use present (Chapter 5) and 4) issues, problems, and opportunities referenced to administrative, financial, and technical considerations (Chapter 6).

9.1 Objectives

The following objectives have been identified to support the goals of the WHP plan for the City of Bird Island:

1. Create public awareness and general knowledge about the importance of WHP for maintaining an adequate and safe drinking water supply.
2. Increase the knowledge base and monitor the quantity of water available-maintain adequate drinking water supply.
3. Gather new information on potential contaminants.
4. Manage potential contaminants.
5. Ensure emergency preparedness of local agencies.
6. Create awareness among LGUs about the importance of protection of the drinking water supply aquifer.
7. Maintain communications with MDH and other agencies able to assist with implementation of this plan.
8. Collect additional data to substantiate information contained within this Plan, and to provide more detail for future Plan amendments.
9. Conduct regular evaluations of Plan implementation and its effectiveness.

9.2 WHP Measures and Action Plan

Based upon the factors, the WHP team has identified WHP measures that will be implemented by the city over the 10-year period that its WHP plan is in effect. The objective that each measure supports is noted as well as 1) the lead party and any cooperators, and 2) the year or years in which it will be implemented.

The following categories are used to further clarify the focus that each WHP measure provides, in addition to helping organize the measures listed in the action plan:

- Public Education and Outreach
- Data Collection
- IWMZ Management
- Land Use Management
- Drinking Water System Integrity and Security
- Potential Contamination Source Management
- Reporting and Evaluation
- Water Use and Contingency Strategy

9.3 Establishing Priorities

WHP measures reflect the administrative, financial, and technical requirements needed to address the risk to water quality or quantity presented by each type of potential contamination source. Not all of these measures can be implemented at the same time, so the WHP team assigned a priority to each. A number of factors must be considered when WHP action items are selected and prioritized (part 4720.5250, subpart 3):

- Contamination of the public water supply wells by substances that exceed federal drinking water standards.
- Quantifiable levels of contamination resulting from human activity.
- The location of potential contaminant sources relative to the wells.
- The number of each potential contaminant source identified and the nature of the potential contaminant associated with each source.
- The capability of the geologic material to absorb a contaminant.
- The effectiveness of existing controls.
- The time needed to acquire cooperation from other agencies and cooperators.
- The resources needed, i.e., staff, money, time, legal, and technical resources.

The City of Bird Island defines a priority for implementing a WHP measure as maintaining the quantity and high quality drinking water they have come to expect. Table 8 lists each measure that will be implemented over the 10-year period that the city's WHP plan is in effect, including the priority assigned to each measure.

Table 8 - WHP Plan of Action

MONITORING, DATA COLLECTION, AND ASSESSMENT:

Description	Objective	Priority	Responsible Party & Cooperators	Implementation Time Frame									
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
WHP Measure #1: Well Locating: This delineation is based on very little well data. If wells are constructed within two-miles of the city or one-mile of the DWSMA, their locations should be verified.	**2/7/8**	H	Bird Island MDH Local Well Drillers		x	x	x	x	x	x	x	x	x
WHP Measure #2: Well Inventory: Wells that are within the city's aquifer, and are between 200 and 400 feet in depth, or have an open hole or screened interval between 900 feet and 700 feet MSL elevation or are completed in the QBAA geologic formation will need to be inventoried.	**3/8**	H	Bird Island MDH Local Well Drillers		x	x	x	x					
WHP Measure #3: Water Quality Monitoring: The standard assessment monitoring package should be analyzed during year six; contingent upon funding assistance from MDH for sampling and analysis. The city may need to collect the samples and ship them to MDH.	2/7/8	H	Bird Island MDH						x				

Table 8 - WHP Plan of Action - Continued

Description	Objective	Priority	Responsible Party & Cooperators	Implementation Time Frame									
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
WHP Measure #4: To further support the vulnerability assessment, chloride and bromide samples should be collected between years five and seven.	3/8	H	Bird Island MDH					x	x	x			
WHP Measure #5: Work in cooperation with MDH to develop static water monitoring procedure to assess aquifer quantity over time. Add SCADA connected transducer or other like water level measuring device to city wells if MDH implementation grants are available.	2/7	H	Bird Island MDH		x	x							

Table 8 - WHP Plan of Action - Continued

WELL AND CONTAMINANT SOURCE MANAGEMENT:

Description	Objective	Priority	Responsible Party & Cooperators	Implementation Time Frame									
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
WHP Measure #6: Review and update the IWMZ survey form for all wells in the system every 5 years.	**3/8**	H	Bird Island MRWA MDH					x					x
WHP Measure #7: Monitor setbacks for all new potential sources of contamination within the IWMZ.	**4**	H	Bird Island MRWA MDH	x	x	x	x	x	x	x	x	x	x
WHP Measure #8: Provide a map of DWSMA to the local Fire, Street and County Highway Departments pointing out the specific location of city wells near roads. Request their awareness and prompt response to accidents, spills and clean-up efforts near the PWS wells.	**5/6**	H	Bird Island Renville County		x								
WHP Measure #9: Verify and locate wells listed in the Old Municipal Well report. Determine sealing status and apply for MDH grant funding to seal unused, unsealed wells.	**4/7**	H	Bird Island MDH		x	x	x						

Table 8-WHP Plan of Action-Continued

Description	Objective	Priority	Responsible Party & Cooperators	Implementation Time Frame									
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
WHP Measure #10: Purchase and install door lock tied to a SCADA system. Apply for MDH SWP Implementation grant funding.	4	H	Bird Island MDH			x							
WHP Measure #11: If unused/unsealed private wells are located in the DWSMA, assist private well owners with funding to seal wells.	4	M	Bird Island MDH	x	x	x	x	x	x	x	x	x	x

Table 8-WHP Plan of Action-Continued

EDUCATION AND OUTREACH

Description	Objective	Priority	Responsible Party & Cooperators	Implementation Time Frame									
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
WHP Measure #12: Post and highlight WHP education information on the city website, including well management and sealing information.	1/4	M	Bird Island MDH				x				x		
WHP Measure #13: Provide educational material on water conservation activities on the City website and facebook page.	1	M	Bird Island MDH MRWA		x	x	x	x	x	x	x	x	x
WHP Measure #14: Develop Wellhead Protection Website page to add to City website.	1	M	Bird Island		x								

Table 8-WHP Plan of Action-Continued

LAND USE AND PLANNING

Description	Objective	Priority	Responsible Party & Cooperators	Implementation Time Frame									
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
WHP Measure #15: Review and update the Emergency/Contingency Plan portion of the City's WHP plan every other year to ensure that it reflects current personnel information and any changes in the water supply system.	**5**	H	Bird Island		x		x		x		x		x

Table 8-WHP Plan of Action-Continued

WHP COORDINATION, REPORTING, AND EVALUATION:

Description	Objective	Priority	Responsible Party & Cooperators	Implementation Time Frame									
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
WHP Measure #16: Every 2 years coordinate an internal meeting with the mayor, city administrator and public works supervisor to discuss WHP Plan implementation and coordination. Discuss funding needs and pursuit of SWP Grant funds to help implement activities identified in the WHP Plan.	9	M	Bird Island		x		x		x		x		x
WHP Measure #17: Maintain a "WHP folder" that contains documentation of WHP activities you have completed and a date that it was done.	9	H	Bird Island	x	x	x	x	x	x	x	x	x	x
WHP Measure #18: Summarize all WHP Plan implementation efforts in a report to MDH in the 8th year.	9	M	Bird Island MDH								x		

9.4 Commitments From Cooperators

The agencies listed in Table 9 have indicated they will support the City of Bird Island with implementing the WHP measure(s) in which they are identified.

Table 9 - Cooperating Agencies List

Agency	Measure	Actions Agency Will Take
MDH	1-7, 9-13 & 18	Assist City with researching possible well locations/inventory/status. Funding assistance and analysis of water samples. Help develop adequate water monitoring procedures. Help with grants for measuring device, security equipment & well sealing. Assist with monitoring setbacks & reviewing/updating IWMZ form. Provide WHP and water conservation educational materials. Review report of plan implementation efforts.
Local Well Drillers	1-2	Research old records for possible location of relevant wells and submit to City.
MRWA	6-7, 13	Assist with monitoring setbacks and reviewing & updating IWMZ form. Provide water conservation materials.
Renville County	8	Awareness of location of wells in the DWSMA.

Chapter 10 - Evaluation Program

Evaluation is used to support plan implementation and is required under Minnesota Rules, part 4720.5270, prior to amending the city's WHP plan. Plan evaluation is specified under Objective 9 and provides the mechanism for determining whether WHP action items are achieving the intended result or whether they need to be modified to address changing administrative, technical, or financial resource conditions within the DWSMA. The city has identified the following procedures that it will use to evaluate the success with implementing its WHP plan:

1. A meeting between the City Mayor, Administrator and Public Works Supervisor every two years will provide the basis for documenting whether each action step for that year was implemented.
2. The city will assess the results of each action item that has been taken every two years to determine whether the action item has accomplished its purpose or whether modification is needed.
3. The city will prepare a written report that documents how it has assessed plan implementation and the action items that were carried out. The report will be presented to MDH at the first scoping meeting held with the city to begin amending the WHP plan.

Chapter 11 - Contingency Strategy

The WHP plan includes a contingency strategy that addresses disruption of the water supply caused by either contamination or mechanical failure. The city has a contingency water supply plan in effect that was approved by the Minnesota Department of Natural Resources and fulfills the contingency planning requirements for wellhead protection. A copy of this plan is available for public review during regular business hours at the city offices and is presented in Appendix VII of this plan.

Chapter 12 - Glossary of Terms

Data Element. A specific type of information required by the Minnesota Department of Health to prepare a wellhead protection plan.

Drinking Water Supply Management Area (DWSMA). The surface and subsurface areas surrounding a public water supply well, including the wellhead protection area, that must be managed by the entity identified in the wellhead protection plan. (Minnesota Rules, part 4720.5100, subpart 13). This area is delineated using identifiable landmarks that reflect the scientifically calculated wellhead protection area boundaries as closely as possible.

Emergency Response Area (ERA). The part of the wellhead protection area that is defined by a one-year time of travel within the aquifer that is used by the public water supply well (Minnesota Rules part 4720.5250, subpart 3). It is used to set priorities for managing potential contamination sources within the DWSMA.

Emergency Standby Well. A well that is pumped by a public water supply system only during emergencies, such as when an adequate water supply cannot be achieved because one or more primary or seasonal water supply wells cannot be used.

Inner Wellhead Management Zone (IWMZ). The land that is within 200 feet of a public water supply well (Minnesota Rules, part 4720.5100, subpart 19). The public water supplier must manage the IWMZ to help protect it from sources of pathogen or chemical contamination that may cause an acute health effect.

Nonpoint Source Contamination. Refers to contamination of the drinking water aquifer that is caused by polluted runoff or pollution sources that cannot be attributed to a specifically defined origin, e.g., runoff from agricultural fields, feedlots, or urban areas.

Point Source Contamination. Refers to contamination of the drinking water aquifer that is attributed to pollution arising from a specifically defined origin, such as discharge from a leaking fuel tank, a solid waste disposal site, or an improperly constructed or sealed well.

Primary Water Supply Well. A well that is regularly pumped by a public water supply system to provide drinking water.

Seasonal Water Supply Well. A well that is only used to provide drinking water during certain times of the year, either when pumping demand cannot be met by the primary water supply well(s) or for a facility, such as a resort, that is closed to the public on a seasonal basis.

Vulnerability. Refers to the likelihood that one or more contaminants of human origin may enter either 1) a water supply well that is used by the public water supplier or 2) an aquifer that is a source of public drinking water.

WHP Area (WHPA). The surface and subsurface area surrounding a well or well field that supplies a public water system, through which contaminants are likely to move toward and reach the well or well field (Minnesota Statutes, part 103I.005, subdivision 24).

WHP Plan Goal. An overall outcome of implementing the WHP plan, e.g., providing for a safe and adequate drinking water supply.

WHP Measure. A method adopted and implemented by a public water supplier to prevent contamination of a public water supply, and approved by the Minnesota Department of Health under Minnesota Rules, parts 4720.5110 to 4720.5590.

WHP Plan Objective. A capability needed to achieve one or more WHP goals, e.g., implementing WHP measures to address high priority potential contamination sources within 5 years.

Chapter 13 - List of Acronyms

DNR	MN Department of Natural Resources
DOT	Department of Transportation
DWSMA	Drinking Water Supply Management Area
FD	Local Fire Department
IWMZ	Inner Wellhead Management Zone
MDA	MN Department of Agriculture
MDH	MN Department of Health
Mg/l	Milligrams per Liter
Mg/y	Million Gallons per Year
MPCA	MN Pollution Control Agency
MRWA	Minnesota Rural Water Association
P&Z	Planning & Zoning
PCSI	Potential Contaminant Source Inventory
PWS	Public Water Supply
SWCD	Soil & Water Conservation District
TOT	Time of Travel
EPA	Environmental Protection Agency
MDA	MN Department of Agriculture
WHP	Wellhead Protection
WHPA	Wellhead Protection Area

Chapter 14 - FIGURES

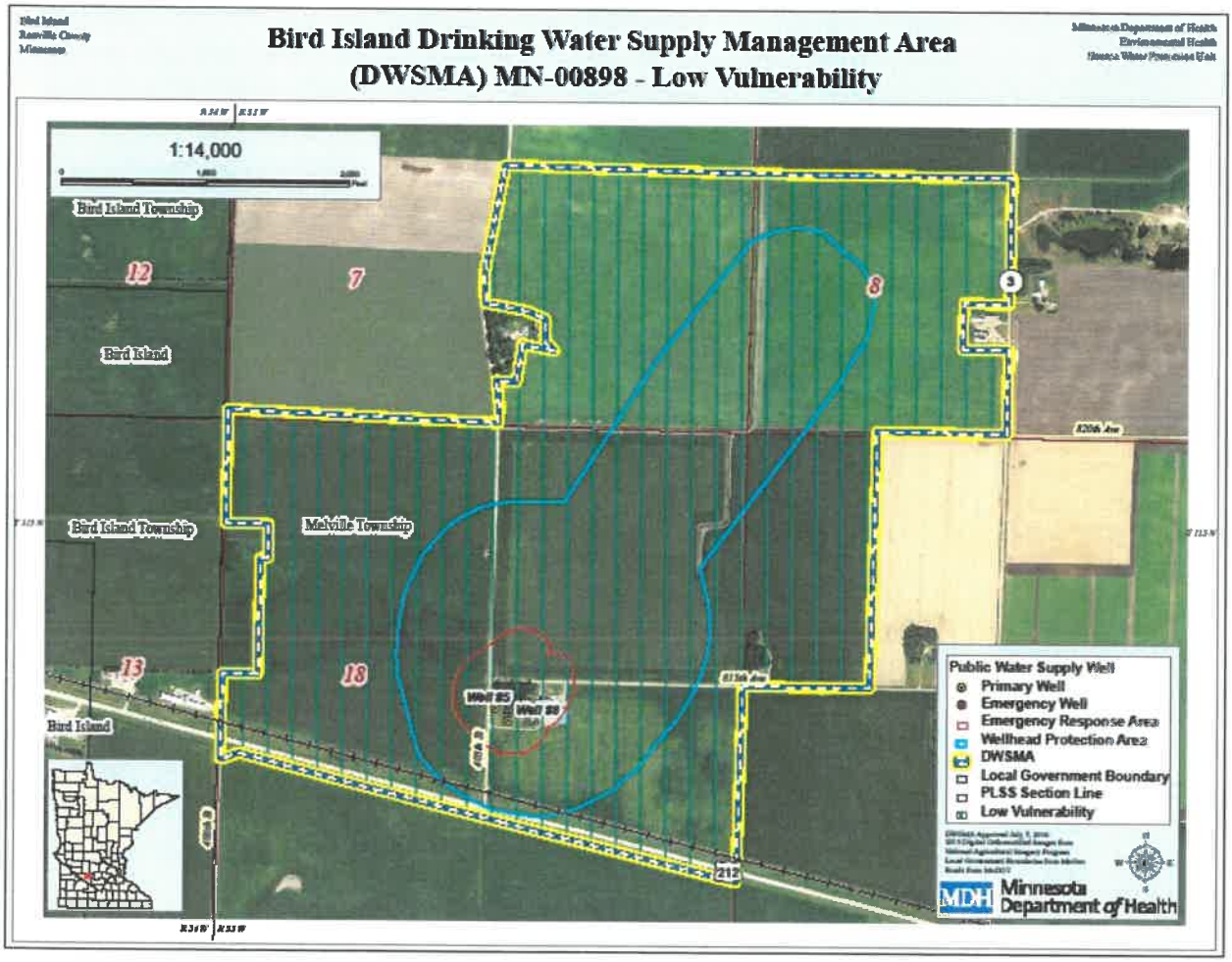
Drinking Water Supply Management Area

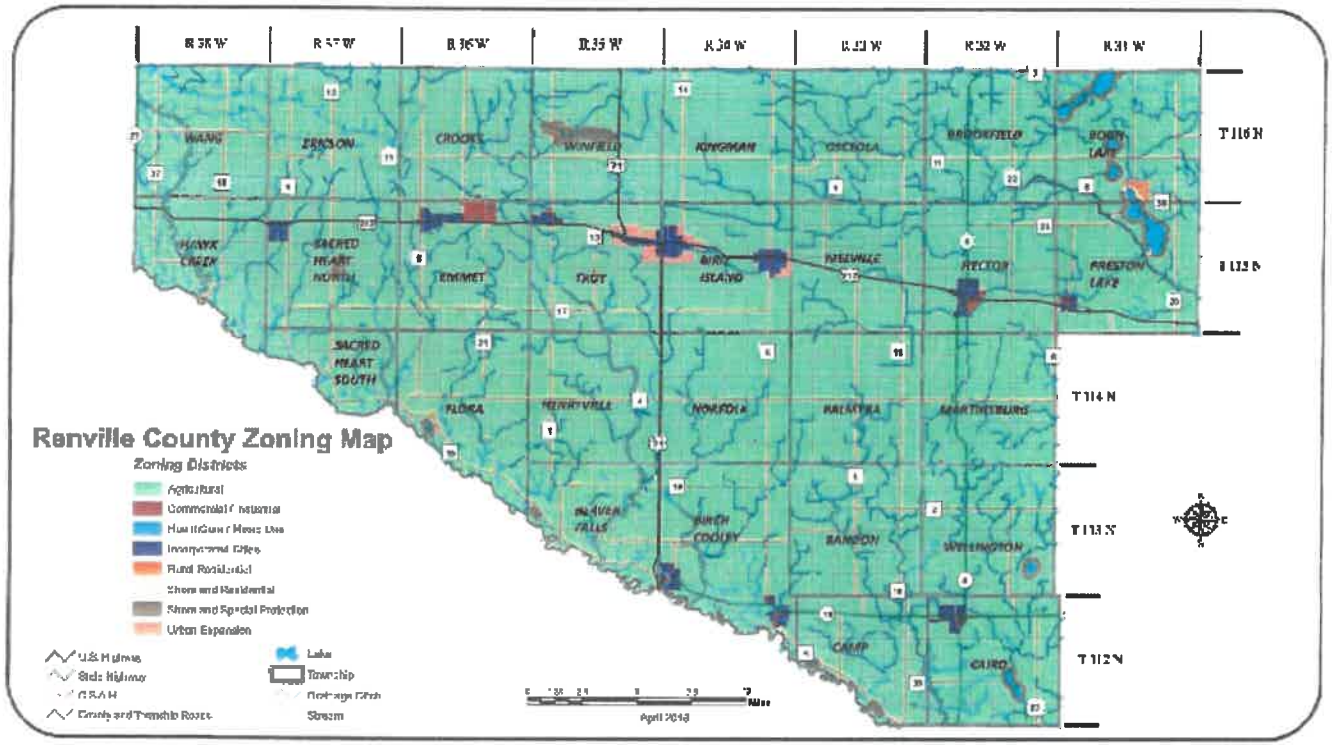
Renville County Zoning Map

Melville Township Zoning Map

City of Bird Island Zoning Map

DWSMA Land Cover Map


Bird Island
Renville County
Minnesota
Bird Island Drinking Water Supply Management Area
(DWSMA) MN-00898 - Low Vulnerability
Minnesota Department of Health
Environmental Health
1:14,000
Bird Island Township
12
7
8
5
Bird Island
Bird Island Township
Melville Township
13
18
Bird Island
Well 23
Well 18
212
Public Water Supply Well
Primary Well
Emergency Well
Emergency Response Area
Wellhead Protection Area
DWSMA
Local Government Boundary
PLSS Section Line
Low Vulnerability
MDH
Minnesota
Department of Health



RENVILLE COUNTY COMPREHENSIVE PLAN
GENERALIZED LAND USE/ZONING MAP
RENVILLE COUNTY, MN

Figure 2

Renville County, MN

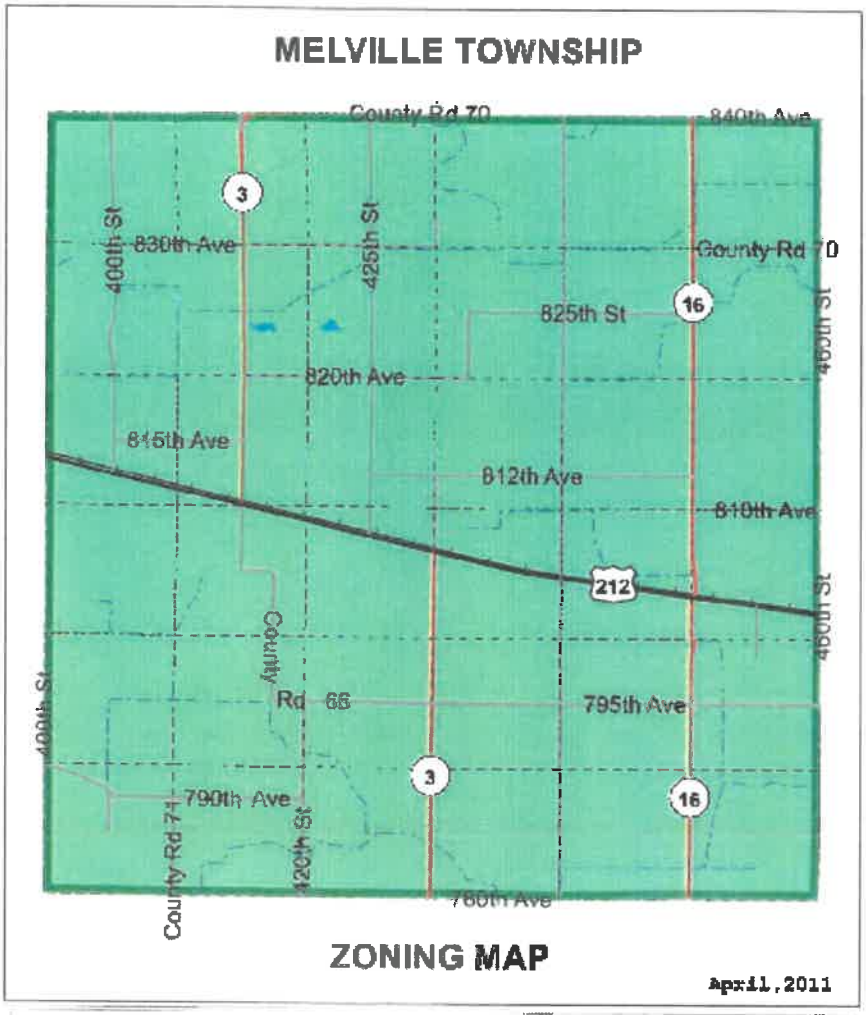


Figure 3

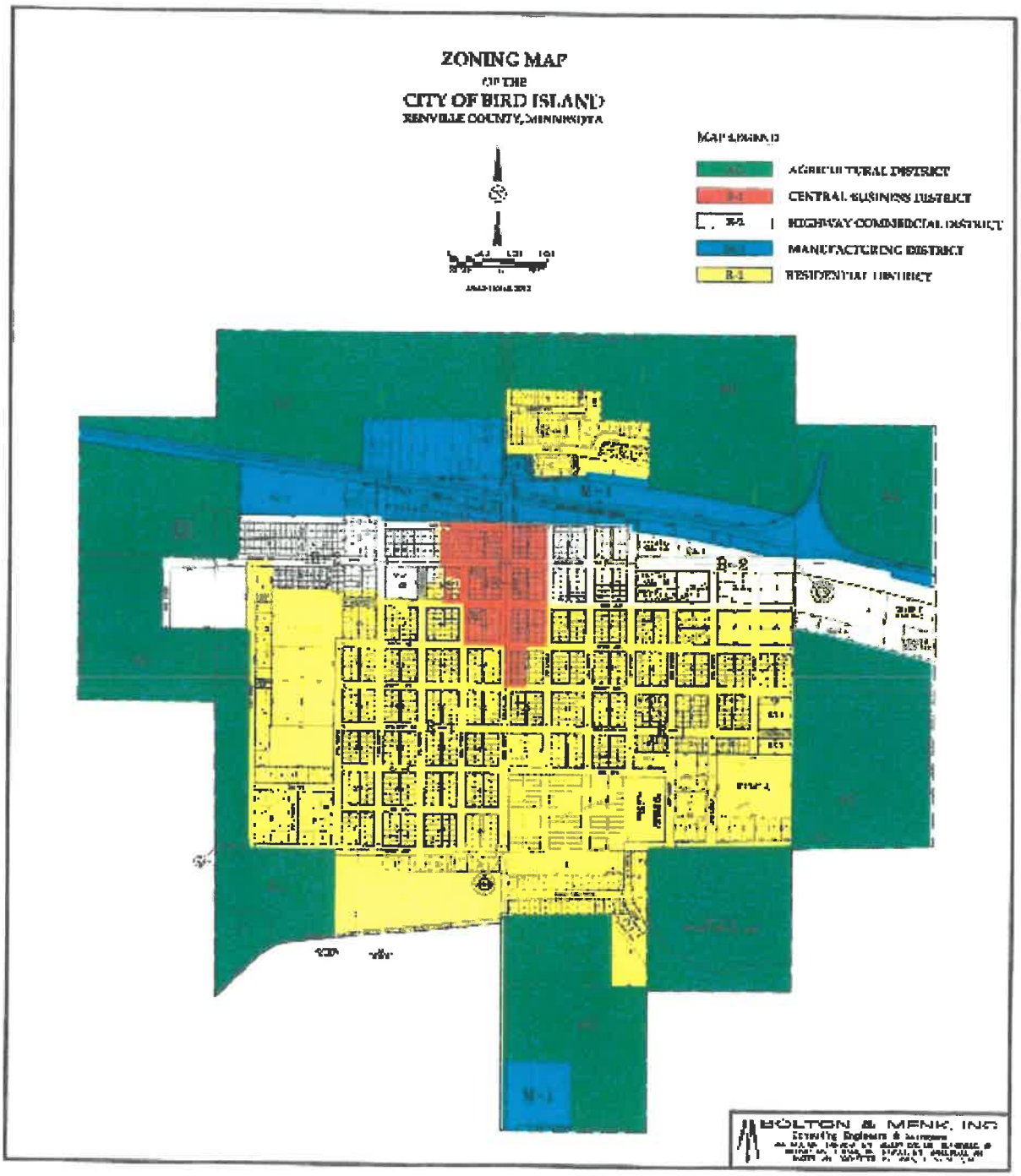

ZONING MAP
OF THE
CITY OF BIRD ISLAND
RENVILLE COUNTY, MINNESOTA
AGRICULTURAL DISTRICT
CENTRAL BUSINESS DISTRICT
HIGHWAY COMMERCIAL DISTRICT
MANUFACTURING DISTRICT
RESIDENTIAL DISTRICT
BOLTON & MENK, INC.

Figure 4

Bird Island
Renville County
Minnesota

Bird Island Drinking Water Supply Management Area (DWSMA) MN-00898 - Land Cover 2011

Minnesota Department of Health
Environmental Health
Source Water Protection Unit

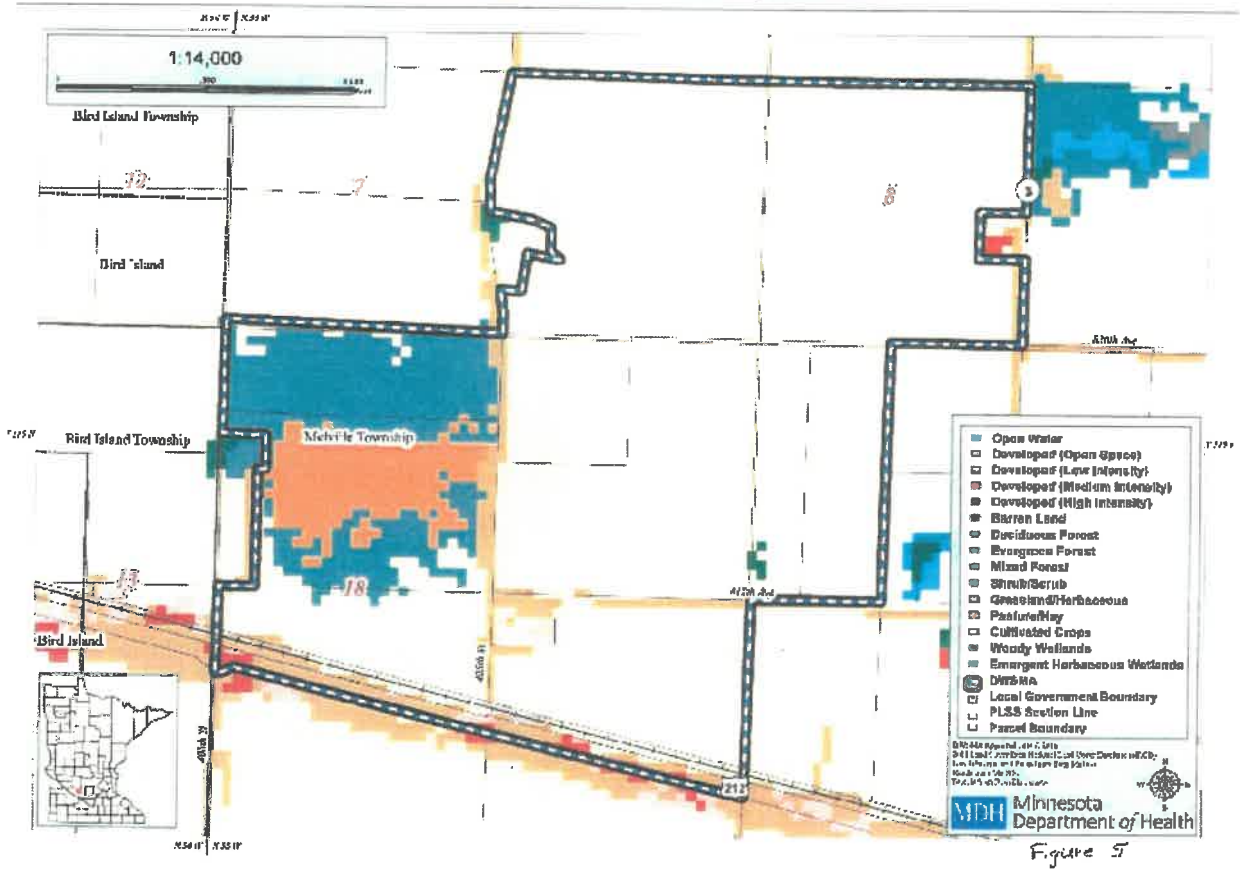


Figure 5