

February 23, 2023

RE: Notice of Decision - Approval of Application for Surface Drain No. 5362

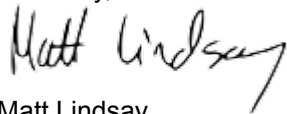
The Department of Water Resources (Department) has reviewed the City of Spiritwood Lake's Application for Surface Drain No. 5362 (Application) for the construction of a surface drain located in the SE 1/4 of Section 31, Township 142 North, Range 062 West, Stutsman County.

The Department has conditionally approved Surface Drain Permit No. 5362 as also approved by the Stutsman County Water Resource District (see Notice of Decision including permit, permit conditions, and technical memorandum enclosed).

Under N.D.C.C. section 61-03-22, any person aggrieved by the DWR's decision has the right to a hearing. The DWR must receive the hearing request within 30 days.

Please contact Matt Lindsay at (701) 328-4949 or mlindsay@nd.gov if you have any questions concerning this correspondence.

Sincerely,



Matt Lindsay
Engineering & Permitting Section Manager

ML/1346

Enclosures: Surface Drain Permit No. 5362
Department Technical Memorandum
Department Exhibits

IN THE MATTER OF:

NOTICE OF DECISION

Surface Drain Application No. 5362
Spiritwood Lake Drain

CERTIFICATE OF SERVICE

On February 23, 2023, I served the NOTICE OF DECISION for Application for Surface Drain No. 5362 by mail or email to the following recipients:

Stutsman County Water Resource District
Abbagail Geroux
PO Box 68
Jamestown, ND 58402-0068
ag@dakotalaw.net
Joel Lees
joel.lees51@icloud.com

City of Spiritwood Lake
Shirly Krapp
PO Box 642
Jamestown, ND 58402-0642
cslauditor2004@gmail.com

N.D. Department of Environmental Quality
Peter Wax
pwax@nd.gov

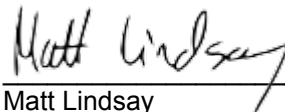
N.D. Department of Game and Fish
Bruce Kreft
bkreft@nd.gov

U.S. Army Corps of Engineers
N.D. Regulatory Office
cenwo-od-rnd@usace.army.mil

U.S. Department of Agriculture
National Resources Conservation Service
N.D. State Office
Jennifer Vetter: jennifer.vetter@nd.usda.gov
Christi Fisher: christi.fisher@nd.usda.gov
James River CDU
darin.hirschhorn@usda.gov

Stutsman County Road Department
Jim Wentland
jwentland@stutsmancounty.gov

1. Electronic copies of this NOTICE OF DECISION, including a cover letter, technical memorandum, map, and the application materials received, were mailed or emailed to all applicable parties per North Dakota Administrative Code § 89-02-01-09.5.
2. Electronic copies of all application documents are available for download via the link provided in the NOTICE OF DECISION email. The link will expire in 30 days.



Matt Lindsay
Engineering & Permitting Section Manager
Department of Water Resources
1200 Memorial Highway
Bismarck, ND 58504
Email: mlindsay@nd.gov

**NOTICE OF DECISION
ON APPLICATION TO DRAIN NO. 5362
Spiritwood Lake Drain**

TAKE NOTICE that Application for Surface Drain No. 5362, submitted by the City of Spiritwood Lake for the Spiritwood Lake Drain, was conditionally approved by the Director of the Department of Water Resources (Department) on 02/09/23. The project consists of construction of approximately 250 linear feet of drain as a hypolementic drawdown for water quality purposes. The project will discharge into Seven Mile Coulee in the SE 1/4 of Section 31, Township 142 North, Range 062 West.

The Director's decision may be viewed on the homepage of the Department's website at www.dwr.nd.gov. A copy may also be requested by writing to the above address or by emailing dwrregpermits@nd.gov.

A hearing may be requested within thirty days of the date of service of the Director's decision. A valid request for a hearing must be received in writing by March 24, 2023; must specifically state facts from which it is evident the person requesting the hearing is factually aggrieved by the Director's decision; and must state what material facts or conclusions are believed to be erroneous and why they are believed to be erroneous (North Dakota Administrative Code § 89-02-01-09.6).

Dated February 23, 2023.



Andrea Travnicek, Ph.D.

Director, N.D. Department of Water Resources

SURFACE DRAIN PERMIT NO. 5362
WATER RESOURCE DISTRICT PERMIT NO. _____

This permit authorizes the permittee to drain a pond, slough, lake, sheetwater, or any series thereof, according to North Dakota Century Code (N.D.C.C.) § 61-32-03 and North Dakota Administrative Code (N.D.A.C.) ch. 89-02-01.

Name of Permittee: **City of Spiritwood Lake**
PO Box 642
Jamestown, ND 58402-0642

Water Resource District: **Stutsman County Water Resource District**

Feature to Be Drained: **Pond, Slough, Lake, Or Any Series Thereof, Low-quality water from Spiritwood Lake**

Purpose of Drainage: **Hypolimnetic drawdown to improve water quality**

Location of Drain (Department of Water Resources Location Map Attached):

Drain Alignment: **SE ¼ of Section 31, Township 142 North, Range 62 West, Montpelier Township, Stutsman County**

Drain Outlet Location: **SE ¼ of Section 31, Township 142 North, Range 62 West, Montpelier Township, Stutsman County**

Stream: **Sevenmile Coulee**

Basin: **Upper James**

Is the proposed drainage of statewide or interdistrict significance?: **YES**

Design Data:

Type of project:	New Drain Construction
Contributing watershed area (approximate):	22,124 Acres
Assessment Drain?:	No
If YES, Name of Drain:	
Type of modification(s) (if applicable):	
Drainage Method:	Gravity

SURFACE DRAIN PERMIT NO. 5362 (CONTINUED)

Drainage Method Information:

Gravity Type:	Pipe	
Length of Drain:	2,250 (approx.)	Feet
Pipe Diameter:	20 - 24	Inches
Pipe Slope:	N/A	

Other Information:

Control Structure:	Yes
Control Description:	Control box with stop logs

SURFACE DRAIN PERMIT NO. 5362 (CONTINUED)

According to North Dakota Century Code § 61-32-03 and North Dakota Administrative Code (N.D.A.C.) ch. 89-02-01, the Department of Water Resources (DWR), and the Stutsman County Water Resource District (District) in their January 5, 2021 Application Approval Letter for Surface Drain No. 5362, approve Surface Drain Permit No. 5362 subject to the below conditions. This document serves to compile all District and DWR conditions attached to Surface Drain Permit No. 5362, for the Spiritwood Lake Hypolimnetic Drawdown (Project) for Application for Surface Drain Application No. 5362.


CONDITIONS TO PERMIT

1. According to N.D.A.C. § 89-02-01-09.11, the project and the rights granted under the permit are subject to modification to protect the public health, safety, and welfare.
2. According to N.D.A.C. § 89-02-01-09.11, construction must be completed within two years from the final approval date or the permit is void. The two-year period does not begin until any appeal is complete.
3. According to N.D.A.C. § 89-02-01-09.11, the Department of Water Resources or water resource district may attach other conditions to the permit if necessary. **These conditions are listed as Special Conditions below.**
4. This permit applies to the specific project and project location described and depicted in the permit application.
5. The Permittee, project owner, project sponsor, landowner, and any associated parties may be liable for all activity conducted and all effects caused by the construction, modification, and operation of the project as described in the application and this permit. Consequently, the receipt of this permit does not relieve the Permittee, project owner, project sponsor, landowner, or any associated parties from liability resulting from the construction, modification, or operation of the project approved under this permit.
6. If prior to or during construction items of substantial archeological value are discovered or a deposit of such items are disturbed, the Permittee shall cease construction activities in the area so affected. The Department of Water Resources must be promptly notified of the discovery and construction must not resume until the Department of Water Resources gives written permission.
7. The Permittee is responsible for obtaining any other local, state, or federal permits or approvals that may be necessary prior to construction.
8. According to N.D.A.C. § 89-02-01-09.11, all highly erodible drainage channels must be seeded to a sod-forming grass.
9. According to N.D.A.C. § 89-02-01-09.11, vegetative cover must be adequately maintained for the life of the project or control structures must be installed.
10. According to N.D.A.C. § 89-02-01-09.11, receipt of a permit does not relieve an applicant from liability for damages resulting from any activity conducted under the permit.

SURFACE DRAIN PERMIT NO. 5362 (CONTINUED)

SPECIAL CONDITIONS TO PERMIT

11. That the project be operated in accordance with an operating plan approved by the District and Department of Water Resources. The operating plan must be reviewed and accepted by the District and Department of Water Resources prior to project operation.
12. That there should be a permanent elevation control that is nonleaking up to the current outlet elevation and the system should have a planned means of stopping flow under high water conditions.
13. There should be an adequate air gap to prevent siphoning conditions.
14. That the proposed structure should be constructed in such a manner to only allow water flow above the elevation of the fish weir.
15. That the City of Spiritwood Lake obtain an Easement with Stutsman County in accordance with the administrative code.
16. The Permittee may freely operate the project when the water surface elevation of Spiritwood Lake is 1444.5 feet NAVD88 or higher but must not operate the project when the water surface elevation of Spiritwood Lake is between 1442.0 feet NAVD88 and 1444.5 feet NAVD88 without prior approval by the District and Department of Water Resources.
17. The Permittee halt project operations when road overtopping on Sevenmile Coulee is observed downstream of the Project.
18. The Permittee must provide the final location and as-built details of the project to the District and the Department of Water Resources within six months after construction is complete.



John Paczkowski, P.E.
State Engineer

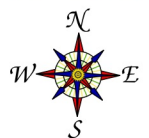
Date: 02/09/2023



Drain Permit Application No. 5362 - City of Spiritwood Lake

Spiritwood Lake Hypolimnetic Drawdown

SE 1/4 Section 31, T141N, R63W, Stutsman County



Date: 12/9/2022
Prepared by: CWN

TECHNICAL MEMORANDUM

DATE: February 6, 2023

TO: Andrea Travnicek, Ph.D., Director
John Paczkowski, P.E., State Engineer

FROM: Aaron Carranza, P.E., Regulatory Division Director
Matt Lindsay, P.E., Engineering & Permitting Section Manager

SUBJECT: Application for Surface Drain Permit No. 5362

The Department of Water Resources (DWR) received the following surface drain application:

Application Number: 5362

Application Received Date: February 10, 2020

Applicant: City of Spiritwood Lake

Project Location: SE ¼ of Section 31, Township 142 North, Range 62 West, Montpelier Township, Stutsman County

New Drain Construction or Modification to Existing Drain: New Drain Construction

Purpose of Drainage: Other - Improve water quality

Feature to be Drained: Pond, Slough, Lake, or Any Series Thereof

Datum of Elevations: NAVD 88

PROJECT BACKGROUND

Surface Drain Application No. 5362 was submitted by the City of Spiritwood Lake for a hypolimnetic drawdown for Spiritwood Lake to improve Spiritwood Lake's water quality (Project). The Project will evacuate low-quality water approximately 50 feet below Spiritwood Lake's water surface elevation. Specifically, the Project proposes a combination of pipe and a single, pre-fabricated, passive stop-log riser within the SE ¼ of Section 31, Township 142 North, Range 62 West, Montpelier Township, Stutsman County. The water control riser will be located adjacent to and along the southwest side of Spiritwood Lake's current surficial outlet, which is located in the SE ¼ of Section 31. From the water control structure, the Project proposes approximately 2,000 feet of pipe entering Spiritwood Lake to the northwest to a lake depth of approximately 50 feet. Additionally, a discharge pipe will extend approximately 250 feet to the southeast from the water control structure. The water control structure will have removable stop logs, which will be operated at elevations of 1444.5 feet, 1442.0 feet, and 1440.0 feet. Details on the Project operation are outlined in a draft 2020 agreement included with the Application, which details a "2020 Draft Plan of Operation" (Draft Plan). Spiritwood Lake naturally discharges to the south into Alkali Lake, and Alkali Lake naturally discharges into Sevenmile Coulee, which is a tributary to the James River and whose confluence is several miles downstream of the City of Jamestown. Spiritwood and Alkali Lakes are within the Sevenmile Coulee watershed (HUC10).

APPLICATION

To date, the Application review has included the following:

1. On February 10, 2020 the Applicant submitted Surface Drain Application No. 5362 to the DWR.
2. Upon review, the DWR issued a drainage of statewide or interdistrict significance determination on September 9, 2020. The Application was forwarded to the Stutsman County Water Resource District (District) for processing.
3. On December 17, 2020 the District held a hearing regarding the Application.
4. The DWR received a letter dated January 5, 2021 to inform the DWR that the District conditionally approved the Application for Surface Drain No. 5362 Spiritwood Lake Drawdown. Receipt of the District's approval prompted DWR for review.
5. The DWR sought clarification on regarding the Application and the District provided further clarification on February 4, 2021.
6. The DWR received correspondence from the District June 18, 2021 of a scheduled meeting for downstream landowners held on July 1, 2021.

These steps are described in more detail below.

DWR Statewide or Interdistrict Significance Review

On September 9, 2020, the DWR determined the proposed Project was of statewide or interdistrict significance (SWID) as the Project constituted partial drainage of a lake as well as "for good cause" under the 2020 interim policy Pending Statewide or Interdistrict Significance Determinations (see file for SWID ROD). The Application was then referred to the District for consideration.

District Special Meeting

In accordance with North Dakota Administrative Code (N.D.A.C.) § 89-02-01-09.1(1), the District held a virtual special meeting regarding the Application on December 17, 2020. The meeting was recorded. During the special meeting, general concerns were raised by several landowners regarding the potential effects from Project discharges to Sevenmile Coulee. Landowners also mentioned concerns of the ability of Spiritwood Lake to be drained below its natural outlet elevation. The District acknowledged the concerns raised during the meeting.

District's Decision

On January 5, 2021, the DWR received a letter from the District conditionally approving (Approval) the Application for the Project. The District forwarded the Application to the DWR for final approval as required under North Dakota Century Code (N.D.C.C.) § 61-32-03 and N.D.A.C. § 89-02-01-09.1(1)(j). An engineering review (Review) of the Application was provided by the District in its Approval. The Review was completed by Daren Paterka, P.E., of Interstate Engineering, Inc. and is titled Engineering Review for Application for Surface Drain Hypolimnetic Drawdown for Spiritwood Lake – Southeast Outlet.

The District's approved Application included the following conditions:

11. That the project be operated in accordance with an operating plan approved by the District and Department of Water Resources. The operating plan must be reviewed and accepted by the District and Department of Water Resources prior to project operation.
12. That there should be a permanent elevation control that is nonleaking up to the current outlet elevation and the system should have a planned means of stopping flow under high water conditions.
13. There should be an adequate air gap to prevent siphoning conditions.
14. That the proposed structure should be constructed in such a manner to only allow water flow above the elevation of the fish weir.

15. That the City of Spiritwood Lake obtain an Easement with Stutsman County in accordance with the administrative code.

The District's approval letter states,

The Board made this determination by reviewing the factors listed in Section 89-02-01-09.2 of the North Dakota Administrative Code in conjunction with the review of Daren Peterka of Interstate Engineering. Significantly, at the meeting Board reviewed the Operating Plan and noted the proposed structure should have no impacts to downstream landowners if the structure is built with the above conditions.

On January 14, 2021, the DWR sought clarification on regarding the Application and the District provided further clarification on February 4, 2021. Specifically, the DWR believed the District's conditions in its approval may have contradicted the Draft Plan from the Application. The District responded February 4, 2021 that they, "approved of the lake to be drawn down to 1444.5 feet. If the City of Spiritwood Lake would like to draw down the elevation of the lake to a lower level, the City would need to obtain approval from the Water Resource Board before doing so. The lowest level the Water Resource Board would approve of any further drainage would be 1442.0 feet." The DWR again sought clarification regarding the District's statements via email on October 4, 2022, and the District responded on October 27, 2022 with an additional letter of clarification. According to the District's last clarification, the District stated,

[t]he Board is willing to allow the City of Spiritwood Lake to draw down the lake to as low as 1442.00 for purposes of this project. The City of Spiritwood Lake would be required to seek out separate board approval prior to doing any drawdown activities lower than 1445.5, but would not be required to make a new drainage application.

With this clarification, the District appears to closely agree with the proposed Draft Plan provided with the Application but would like more control over operations below 1444.5 feet NAVD88 than is currently outlined in the Draft Plan.

DWR REVIEW

N.D.C.C. § 61-32-03 and N.D.A.C. § 89-02-01-09.1(1)(k) require the DWR and Director to give final approval to applications proposing drainage of SWID. According to N.D.A.C. § 89-02-01-09.4,

In the director's evaluation of statewide or interdistrict significance applications, the director must use all relevant documentary information submitted and oral testimony given for the board's consideration at its meeting. The director may use any information in the files and records retained by the department or engineering information developed or obtained through investigation of the project area by the department's staff.

The director may also request information or comment from independent sources, but is not required to delay the decision for more than thirty days from the date of request while waiting for comment from these sources. All information used must be relevant and is part of the record.

The District provided relevant documents and a recording from the hearing to the DWR. The documentation reviewed for the Application includes the following Exhibits:

DWR Exhibit 1 – Applicant's Application and supporting materials
DWR Exhibit 2 – 2020 Draft Spiritwood Lake Plan of Operation
DWR Exhibit 3 – District Engineering Review (Review) of Application For Surface Drain Hypolimnetic Drawdown For Spiritwood Lake – Southeast Outflow – Completed by Interstate Engineering, Inc.
DWR Exhibit 4 – Hearing Recording
DWR Exhibit 5 – District Approval Letter
DWR Exhibit 6 – DWR Request for Clarification on Approval
DWR Exhibit 7 – District Clarification on Approval
DWR Exhibit 8 – DWR Request for Additional Clarification on Approval
DWR Exhibit 9 – District's Additional Clarification on Approval

DWR REVIEW OF APPLICATION

N.D.A.C. § 89-02-01-09.2 lists the factors water resource districts must consider in the evaluation of an application to drain. The DWR must also consider these same factors when evaluating SWID applications. These factors include:

1. The volume of water to be drained and the impact of the flow or quantity of this water upon the watercourse into which the water will be drained.
2. Adverse effects that may occur to the lands of lower proprietors. This factor is limited into the project's hydrologic effects such as erosion, duration of floods, impact of sustained flows, and impact on the operation of downstream water control devices.
3. The engineering design and other physical aspects of the drain.
4. The project's impact on flooding problems in the project watershed.
5. The project's impacts on ponds, sloughs, or lakes having recognized fish and wildlife values.
6. The project's impact on agricultural lands.
7. Whether easements are required.
8. Other factors unique to the project.

The DWR will review the Application in consideration of the District's Review and will also evaluate the same eight factors below.

Factor No. 1: The volume of water to be drained and the impact of the flow or quantity of this water upon the watercourse into which the water will be drained.

According to the Review,

The City has verified that the proposed structure would be constructed to only allow water flow once the water elevation exceeded the current overflow elevation (fish weir overflow). This could be constructed in multiple configurations that would help assure that incidental flow below the current overflow elevation would not occur.

The fish weir overflow has been surveyed so that if an event would disturb or destroy the current outflow conditions, the area could be reconstructed to the same conditions.

Recommend that final location and design details be submitted for concurrence to assure that the structure will not allow outflow below the current overflow elevation.

The Review appears to not to completely align with the District's Decision as the Review states that drainage would only occur once the water elevation exceeded the current overflow elevation and be controlled by the passive discharge system. It is possible, although likely not fully quantifiable, that the scenario of a combination of overflow at the natural outlet and Project discharges.

Given the Project proposes to discharge into Alkali Lake and that Alkali Lake has continued to overflow its outlet in recent years, a reasonable assumption is that the discharges from the Project would contribute to Sevenmile Coulee, albeit indirectly, through additional volume from the Project added to Alkali Lake. To estimate the effect of Project discharges to Sevenmile Coulee under a worst case scenario (i.e., direct discharge), the drainage area of a representative public stream crossing at 29th Street SE within Sevenmile Coulee was analyzed. USGS StreamStats was used to delineate the drainage area (108 square miles) and determine discharges, which are shown and listed in **Figure 1** and **Table 1** below.



Figure 1. USGS StreamStats results for drainage area above 29th Street SE, Stutsman County

Table 1. USGS StreamStats results for drainage area above 29th Street SE, Stutsman County

Annual Exceedance Probability (%)	Recurrence Interval (years)	Discharge (cubic feet per second, cfs)
50-percent	2-year	99
20-percent	5-year	310
10-percent	10-year	524
4-percent	25-year	868

To provide context to these discharge results, other sources of data were referenced to determine a reasonable discharge from Alkali Lake without road overtopping. Firstly, North Dakota Risk Assessment Map Service (NDRAM), was referenced to determine if 29th Street SE overtops and for what return interval. According to NDRAM, 29th Street SE overtops by approximately 0.6 feet

during the 10-year recurrence interval (see **Figure 2**). Secondly, North Dakota Stream Crossing Standards and mapping resources were referenced. It appears 29th Street SE is a county, rural, off-system township road within Rose Township, Stutsman County, thus, requiring the passage of the 10-year recurrence interval discharge within allowable headwater requirements for compliance with Stream Crossing Standards (N.D.A.C. § 89-14-01-03. Design flood frequency). While it may not be fruitful to determine if the existing stream crossing meets Stream Crossing Standards, it is likely reasonable to assume that the Project should not add to or compound existing road overtopping for recurrence intervals when there is already road overtopping, such as the 10-year recurrence interval. Therefore, given that 29th Street SE overtops by only 0.6 feet for the 10-year recurrence interval and the 5-year recurrence interval discharge is almost half that of the 10-year, it could be reasonably assumed that 29th Street SE will not overtop during the 5-year recurrence interval discharge of 310 cfs.

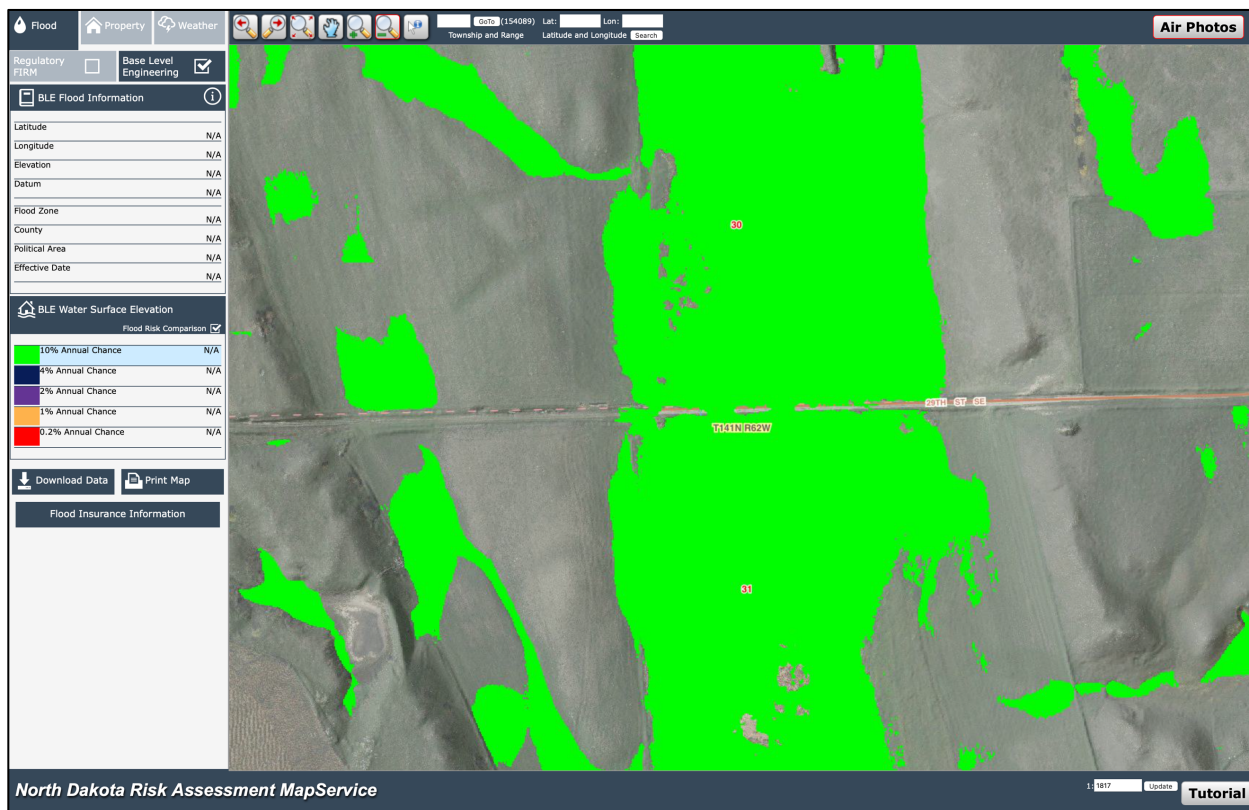


Figure 2. NDRAM 10-year water surface elevation for 29th Street SE, Stutsman County

This assumption was compared against a preliminary study for Spiritwood Lake being completed by the DWR's Investigations Section. The preliminary results from the existing conditions of that study agree with my findings that 27th Street SE, 29th Street SE, 30th Street SE, and 33rd Street SE township roadways, which are the more traveled township roadways downstream of the Project, do not overtop at their intersections of Sevenmile Coulee for the 5-year recurrence interval but do overtop for the 10-year recurrence interval. Given the study is still preliminary at the time of this writing, the results from the pending DWR study were not relied upon as best available data for my analysis of Sevenmile Coulee. Rather, the pending DWR study results were used to verify information obtained from USGS StreamStats and NDRAM data.

The Applicant stated in correspondence with the DWR that the Project will discharge approximately a maximum of 10 to 15 cfs from Spiritwood Lake. Assuming a worst case scenario of 15 cfs discharge from the Project when Alkali Lake is overflowing, 15 cfs would account for less than a 5-percent increase in discharge for Sevenmile Coulee for the 5-year recurrence interval.

Consequently, I do not envision the Project will have a noticeable effect or increase on water surface elevations in Alkali Lake or Sevenmile Coulee discharges. However, given the possibility that roadways crossing Sevenmile Coulee could overtop as frequently as the 10-year recurrence interval, I recommend a condition to an approved permit that will require halting operations of the Project if road overtopping within Sevenmile Coulee is observed.

Factor No. 2: Adverse effects that may occur to the lands of lower proprietors. This factor is limited into the project's hydrologic effects such as erosion, duration of floods, impact of sustained flows, and impact on the operation of downstream water control devices.

According to the Review,

The City has verified that the proposed structure is not intended to increase or decrease the flows through the current southeast outlet area. Therefore, there would be no adverse effects to downstream landowners for those items listed above.

Since this could be accomplished a number of ways, it is recommended that the final location and design details be submitted for concurrence to assure the structure will not measurably increase or decrease the existing outflow characteristics.

While the Applicant's representatives have insisted that the Project will not have increased discharges from Spiritwood Lake, it appears that the discharges from the Project will add additional discharge both while the southeast outlet is at and below Spiritwood Lake's 1444.5 feet southeast outlet elevation. While the Applicant has stated that the Project will discharge approximately a maximum of 10 to 15 cfs, it is unclear how much of that discharge will replace or displace additional surface water discharges at the southeast outlet of Spiritwood Lake. In my professional judgement, I do not anticipate this Project discharging a full 10 to 15 cfs given the siphoning function of the Project will likely not be an efficient method of water removal for full pipe capacity. Additionally, downstream conditions and effects were considered under Factor No. 1. Finally, it is possible in certain scenarios that attenuation of any Project discharges will occur via Alkali Lake, especially if Alkali Lake has some available retention storage.

Factor No. 3: The engineering design and other physical aspects of the drain.

The Project's general concept is to extend a lengthy pipe to the bottom of Spiritwood Lake and siphon poor quality water from the bottom of Spiritwood Lake via a prefabricated water control structure. The water would then discharge into Spiritwood Lake's outlet in the southeast corner, where it would ultimately discharge into Alkali Lake.

According to the Review,

The applicant information included a proposed structure that would act as an "Inline Water Level Structure" TM. In addition, there have been multiple correspondence regarding referenced operating elevations and elevations related to differing sources and datums. No detailed information was provided as to the precise location or detailed drawings of the system components. As such, the engineering review of the design and other physical aspects of the drain are based upon the above referenced concept that the constructed system will only allow water flow once the water elevation exceeds the current overflow elevation.

The design generally includes piping connecting to a prefabricated water control structure, which will act like a weir and have removable weir stoplogs within it. The weir elevation within the control structure will control the siphoning of the approximate 250-foot pipe that is to extend to a depth of approximately 50 feet to the bottom of Spiritwood Lake. While the Applicant provided some general design information, nothing specific was provided with respect to exact dimensions, locations, or materials. Given the design provided lacks detail as to exact specifics and locations, the DWR will be adding a condition to the permit requiring detailed information to the Project's precise location and design after construction, as suggested in the Review.

Factor No. 4: The project's impact on flooding problems in the project watershed.

According to the Review,

Since the proposed control structure would be constructed as to not increase nor decrease the elevation or volume of outflow from the lake, the project would have no flooding impacts on upstream capacity nor the downstream flows.

Since this could be accomplished a number of ways, it is recommended that the final location and design details be submitted for concurrence to assure the structure will not measurably increase or decrease the existing outflow characteristics.

For reasons mentioned in Factor Nos. 1 and 2, the Project will likely not increase flooding problems within the watershed. The DWR recommends the Applicant provide detailed information to the precise location as suggested in the Review.

Factor No. 5: The project's impacts on ponds, sloughs, or lakes having recognized fish and wildlife values.

According to the Review,

Since the proposed control structure would be constructed as to not increase nor decrease the elevation or volume of outflow from the lake, the project would have no hydrologic impacts as there would be no impacts to upstream capacities nor the downstream flows, therefore no impacts on any features having recognized fish and wildlife values.

Since this could be accomplished a number of ways, it is recommended that the final location and design details be submitted for concurrence to assure the structure will not measurably increase or decrease the existing outflow characteristics.

The DWR does not believe the Project will have a measurable effect on Spiritwood Lake's water surface elevations nor on Alkali Lake's water surface elevations downstream of the Project. The Project is designed to mitigate water quality implications for Spiritwood Lake, which is not regulated directly by surface drain permitting and would be subject to the DEQ's water quality regulations and jurisdiction.

Factor No. 6: The project's impact on agricultural lands.

According to the Review,

Since the proposed control structure would be constructed as to not increase nor decrease the elevation or volume of outflow from the lake, the project would have no hydrologic impacts to the upstream capacity nor the downstream flows, therefore there would be no impacts on agricultural lands.

Since this could be accomplished a number of ways, it is recommended that the final location and design details be submitted for concurrence to assure the structure will not measurably increase or decrease the existing outflow characteristics.

Given the Project discharges will be attenuated by Alkali Lake as and will be confined to Sevenmile Coulee, it is not expected that there will be downstream impacts to agricultural lands.

Factor No. 7: Whether easements are required.

According to the Review,

The proposed system would cross properties Owned by Stutsman County which would require an easement.

It is the responsibility of the applicant to obtain any other permits and approval for the project from local, state, or federal agencies.

The Applicant is responsible to obtain any easements, permits, and permissions that are required for the Project. Given the Project discharges will have some existing channel conveyance capacity downstream, that Alkali Lake may at times attenuate any Project flows, and that the operation plan will also mitigate Project operations, the DWR does not recommend downstream flowage easements as a permit requirement.

Factor No. 8: Other factors unique to the project.

The Review did not provide any comment for Factor No. 8. The Project is unique in that the primary purpose of the Project is to improve water quality in Spiritwood Lake and not to improve Spiritwood Lake discharges. Given the Project purpose, a draft agreement was developed by the Applicant to highlight the varying responsibilities of other parties.

The responsibilities of multiple parties are listed below:

1. Department of Environmental Quality (DEQ) Responsibilities

- a. Overall project management and coordination.
- b. Oversight of water quality monitoring of the discharge and lake, to document changes in the chemical composition and trophic state beginning 1 year after operation continuing for five years.
- c. Assist in developing an effective ongoing program for the continued operation and maintenance of the hypolimnetic drawdown.

2. DWR Responsibilities

- a. Oversight and assistance with the permitting process.

3. District Responsibilities

- a. Oversight and assistance during the project.

4. City Responsibilities

- a. Staff during the project period.
- b. Enter into contracts to complete work.
- c. Make payments to contractors upon completion of work.
- d. Apply for and comply with necessary permits.
- e. Develop and maintain a plan for operation and maintenance of the hypolimnetic drawdown.

5. Game and Fish Department (GF) Responsibilities

- a. Assistance and oversight in development and operation of the hypolimnetic drawdown plan.

6. Association Responsibilities

- a. Funds to assist with operation and maintenance of the pumping facilities.

RECOMMENDATION

I believe no further information is required by the DWR to complete final review of Application No. 5362. In evaluating this Application, all information given for the District's consideration and information in the DWR's files and records were considered. Therefore, I believe this Application has been reviewed and investigated in accordance with N.D.C.C. title 61 and N.D.A.C. ch. 89-02-01. As a result of the DWR's investigation, as stipulated in N.D.A.C. § 89-02-01-09.4, the following is a compilation of all conditions, including both District and DWR conditions. I recommend the additional DWR conditions below to further clarify the intent of the District's conditions as explained in their February 5, 2021 response described previously.

District Conditions

11. That the project be operated in accordance with an operating plan approved by the District and Department of Water Resources. The operating plan must be reviewed and accepted by the District and Department of Water Resources prior to project operation.
12. That there should be a permanent elevation control that is nonleaking up to the current outlet elevation and the system should have a planned means of stopping flow under high water conditions.
13. There should be an adequate air gap to prevent siphoning conditions.
14. That the proposed structure should be constructed in such a manner to only allow water flow above the elevation of the fish weir.
15. That the City of Spiritwood Lake obtain an Easement with Stutsman County in accordance with the administrative code.

DWR Conditions

16. The Permittee may freely operate the project when the water surface elevation of Spiritwood Lake is 1444.5 feet NAVD88 or higher but must not operate the project when the water surface elevation of Spiritwood Lake is between 1442.0 feet NAVD88 and

1444.5 feet NAVD88 without prior approval by the District and Department of Water Resources.

17. The Permittee halt project operations when road overtopping on Sevenmile Coulee is observed downstream of the Project.
18. The Permittee must provide the final location and as-built details of the project to the District and the Department of Water Resources within six months after construction is complete.

Based on my review and investigation of the Project, I recommend the DWR approve Application for Surface Drain No. 5362, subject to the above Conditions and Recommendation.