LOWER PLATTE SOUTH
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Memorandum

Date: November 10, 2021

To: Each Director

From: Paul D. Zillig, General Manager

RE: Water Resources Subcommittee Meeting Minutes.

The Water Resources Subcommittee met at 5:30 p.m. on Tuesday, November 9, 2021 in the NRD Office in Lincoln. Subcommittee members participating included Larry Ruth, Chelsea Johnson, John Yoakum, Vern Barrett, Ken Vogel, and Gary Hellerich. Other Directors participating included Deborah Eagan. And others participating included Steve Seglin, Corey Wasserburger, Dick Ehrman, David Potter, Tracy Zayac, Chris Witthuhn, Mike Murren, Steve Herdzina, and myself.

Chair Ruth opened the meeting and welcomed those in attendance. The first item on the agenda was to have an overview of the Groundwater Management Plan approved in 1995 (GWMP) and the Groundwater Rules and Regulations (GW R&R). Ehrman reviewed the GWMP portion of the attached handout and answered questions from the Subcommittee. The Subcommittee didn't have any concerns at this time, they may wish to discuss it further at a future meeting.

Chair Ruth then asked Ehrman to review the GW R&R portion of the attached handout. The review moved quickly to Section C (Well Permits) and good discussion followed concerning the well permitting process experience with Monolith. The Subcommittee members had several observations and suggestions that need to be discussed further concerning the steps for the well permitting process, the State Statute requirements and how we coordinate the Statute requirements with our permitting process, several observations on the legal process as we determine when a permit application is complete, administrative findings, who should be responsible for the required tests/studies, impacts on future users, improvements on timing of submittals, adding an additional "Class" of wells for large water users, and additional definitions for "adverse", "detrimental", "significant", etc. The Subcommittee will pick up on this topic at a future meeting and complete their review of the GW R&R.

The final agenda item was to consider closing out the Oak-Middle 82-B Watershed Rehabilitation Project. I reviewed with the Subcommittee the attached handout summarizing the project (funding, contractor, costs, etc). It was moved by Vogel, seconded by Yoakum, and unanimously approved by the Subcommittee to go into closed session to protect the public interest concerning potential litigation due to certain actions

related to enforcing provisions in the Oak-Middle 82-B construction contract. Ruth reminded the Subcommittee of the limitations of the subject matter while in closed session.

It was moved by Vogel, seconded by Yoakum to return to open session. This motion was unanimously approved.

It was moved by Vogel, seconded by Barrett to **recommend the Board of Directors follow NRD Legal Counsel's recommended negotiations for the final payment for construction of the Oak-Middle 82-B Watershed Rehabilitation Project.**

There being no additional business the meeting adjourned at 7:20 pm.

PDZ/pz

cc: Steve Seglin & Corey Wasserburger

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT
Overview of Groundwater Management Plan and Groundwater Rules and Regulations
October 2021

GROUNDWATER MANAGEMENT PLAN (GWMP)

- Each NRD is required to have an approved GWMP in place
- Completed and approved by the Nebraska Department of Water Resources (now Department of Natural Resources (NDNR)) in 1995
- The overall intent of the Board was to establish a Ground Water Management Area (Phase 1) over the entire NRD and require well permits for all new wells. For Phase 1 the focus would be limited to "education" and improved management, if monitoring showed additional declines in quantity/quality the area of management would move to Phase 2 and the District would offer additional "incentives" in an effort to correct or stabilize the situation, if the problem was not corrected or stabilized in Phase 2 with "incentives" then the area would move to a Phase 3 area and the District would need to establish "regulations" to address the problem.
- Built on goals and objectives from original Master Plan from the 1970s, including
  - Protect groundwater from point and non-point sources of pollutants
  - Manage groundwater quantity and quality levels
  - Manage groundwater for effective long-term conservation and utilization
  - Reduce potential for contamination from chemigation through irrigation systems
  - Work collectively with other agencies to evaluate groundwater quantity and quality data
- NRDs have statutory authority to deal only with *nonpoint sources* of contamination—i.e., widespread, dispersed sources of pollution such as application of fertilizer or animal waste to crop ground. *Point sources* of contamination (spills, leaks, etc.) fall under the Nebraska Department of Environment and Energy (NDEE; formerly DEQ).

Groundwater Management Area

- Designated the entire District as Phase 1 in 1996
- Three different types of areas for managing groundwater, based on the District's varying geology (see Figure 1):
  - **Groundwater Reservoirs (GWRs):** groundwater supplies are generally adequate for most domestic, agricultural, and industrial uses. Five identified GWRs (shown in blue on Figure 1):
    - Missouri River Valley (MRV)
    - Platte River Valley (PRV)
    - Waverly (now known as Lower Salt Creek (LSC))
    - Dwight-Valparaiso (DV)
    - Crete-Princeton-Adams (CPA)
  - **Community Water System Protection Areas (CWSPAs):** areas surrounding the approximately 30 cities/towns/villages in LPSNRD from which those communities withdraw groundwater. Correspond to Wellhead Protection Areas (WHPAs) delineated by NDEE. Shown in purple cross-hatching on Figure 1.
  - **Remaining Area (RA):** portions of the District not in either a GWR or CWSPA. Characterized by highly variable geology and groundwater availability, and includes some areas where groundwater is practically nonexistent. Shown in off-white on Figure 1.

GWMP Phases

- Specifies various "triggers" or conditions which require LPSNRD to take certain actions where groundwater pollution is occurring and/or groundwater levels are declining
- All phases require an annual review of Phase effectiveness
  PHASE I includes
  - Establishing educational programs
  - Promoting adoption of & establishing cost-share for Best Management Practices (BMPs)
  - Implementing groundwater monitoring networks & reporting results to appropriate entities

- *Requires* permits for all new wells designed to pump more than 50 gallons per minute (gpm)

PHASE II

- **Groundwater Quality:** reached when at least 50% of the wells monitored by LPSNRD in a given area are at or above 50% of the federal Maximum Contaminant Level (MCL) for a given contaminant.
  - Example: The most widespread groundwater contaminant in LPSNRD is nitrate-nitrogen from land application of fertilizers and animal waste. The MCL for nitrate is 10 parts per million (ppm), so the Phase II trigger would be 50% of that MCL, or 5 ppm.
  - Once trigger is reached, LPSNRD initiates a minimum two-year Verification Study to gather more information on the levels of contamination, the source(s) of contamination, and any other contributing factors, with the goal of establishing how much of the contamination is from nonpoint sources. Typically involves soil sampling and analysis, vadose zone (the unsaturated zone between the soil and water table) sampling and analysis, and installation and monitoring of dedicated groundwater monitoring wells.
  - Additional phase requirements:
    1. Additional promotion of BMP cost-share programs
    2. Require educational certification programs for landowners/operators using, applying, and storing the contaminant(s)
  - Current Phase II GWMAs (shown in orange on Figure 2)
    - Lower Salt Creek GWR
    - Seven CWSPAs (Valparaiso, Davey, Pleasant Dale, Hickman, Otoe County RWD #3, Weeping Water, and Union)
- **Groundwater Quantity:** reached when spring static groundwater levels in 30% of the wells monitored by LPSNRD in an area decline by a set percentage of saturated thickness for a consecutive two-year period.
  - For all GWRs and the RA, triggered when 30% of the monitored wells decline by 8% of saturated thickness, except for the Lower Salt Creek GWR (required decline is 15%)

PHASE III

- **Groundwater Quality:** reached when, in a given area, at least 80% of the wells monitored by LPSNRD are at or above 80% of the applicable MCL.
  - Once that trigger is reached, LPSNRD will undertake a verification study.
  - Additional requirements:
    1. Require implementation of BMPs (e.g., soil sampling and analysis and adjusting fertilizer application accordingly, reporting of sampling to LPSNRD, no fall fertilization, etc.)
  - Current Phase III GWMA: Elmwood CWSPA (shown in red on Figure 2)
    - Also completing verification studies in four additional CWSPAs (Waverly, Greenwood, Ashland, and Raymond)
- **Groundwater Quantity:** reached when spring static groundwater levels in 50% of the wells monitored by LPSNRD in an area decline by a set percentage of saturated thickness for a consecutive two-year period.
  - For all GWRs and the RA, triggered when 50% of the monitored wells decline by 15% of saturated thickness, except for the Lower Salt Creek GWR (required decline is 30%)

DWIGHT-VALPARAISO-BRAINARD SPECIAL MANAGEMENT AREA (DVB SMA)

- Designated in 2014
- Intended to address significant in-season declines in groundwater levels related to the confined aquifer system in that specific area (Figure 3)
- Groundwater levels have not declined enough to exceed either Phase II or Phase III triggers
- Includes the following requirements:
  1. Required irrigation management certification training for irrigators operating in the SMA
  2. No new irrigated acres will be certified in the SMA

3. Applied irrigation water is limited to a three-year rolling allocation of 21 acre-inches for all certified irrigated acres in the SMA, and applied irrigation water cannot exceed 9 acre-inches in any one year

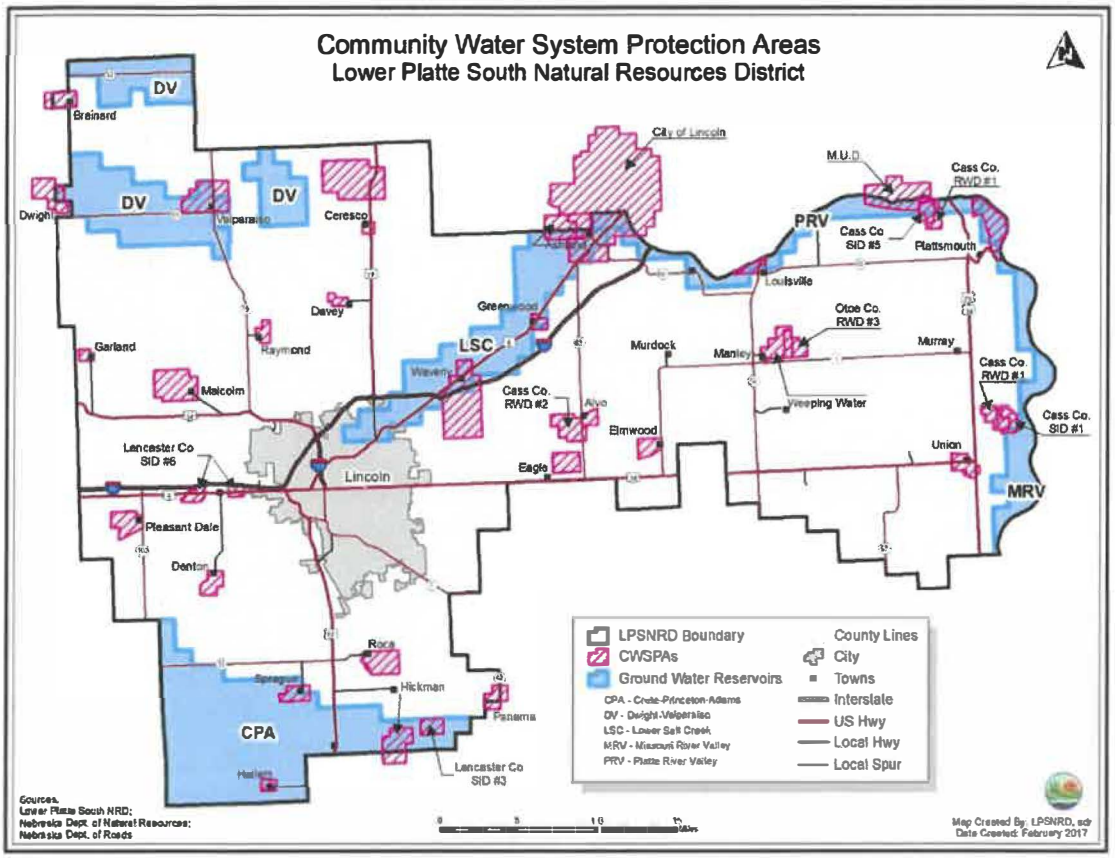

Figure 1. Groundwater Reservoirs, Community Water System Protection Areas, and Remaining Area in the Lower Platte South Natural Resources District.

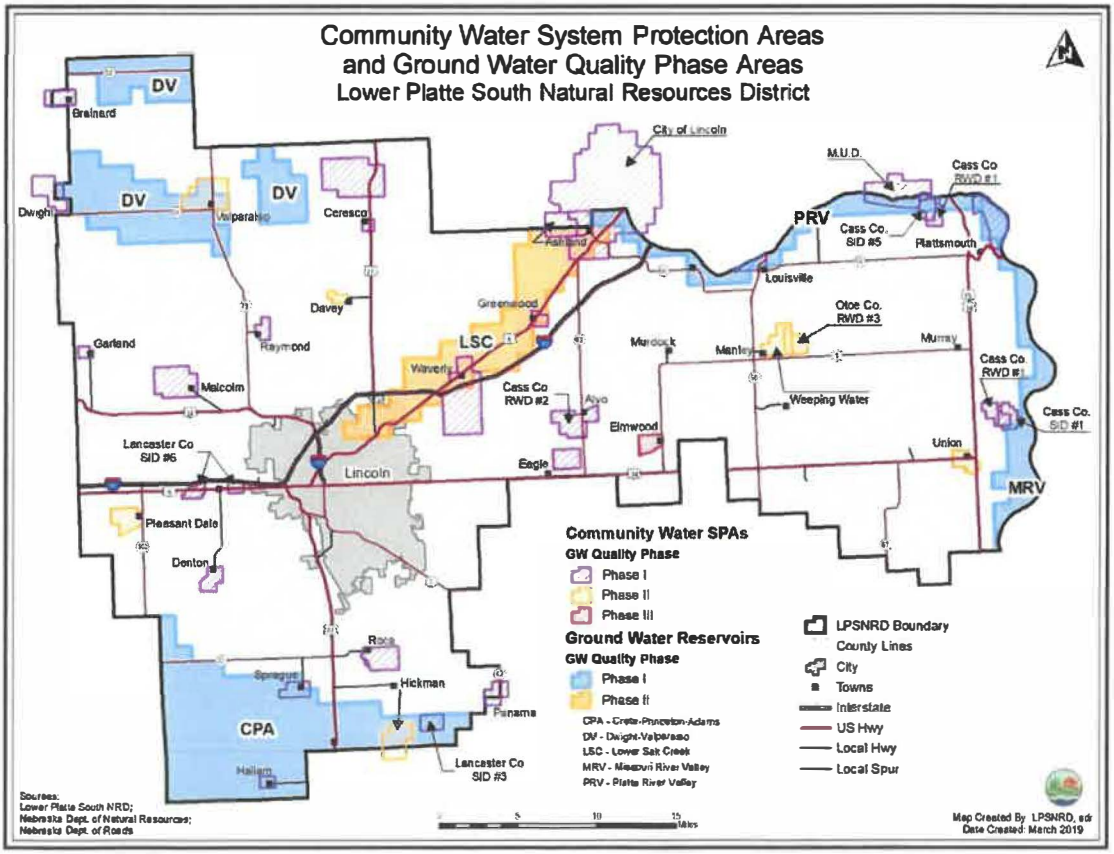

Figure 2. Phase II and Phase III GWMAs for groundwater quality in LPSNRD.

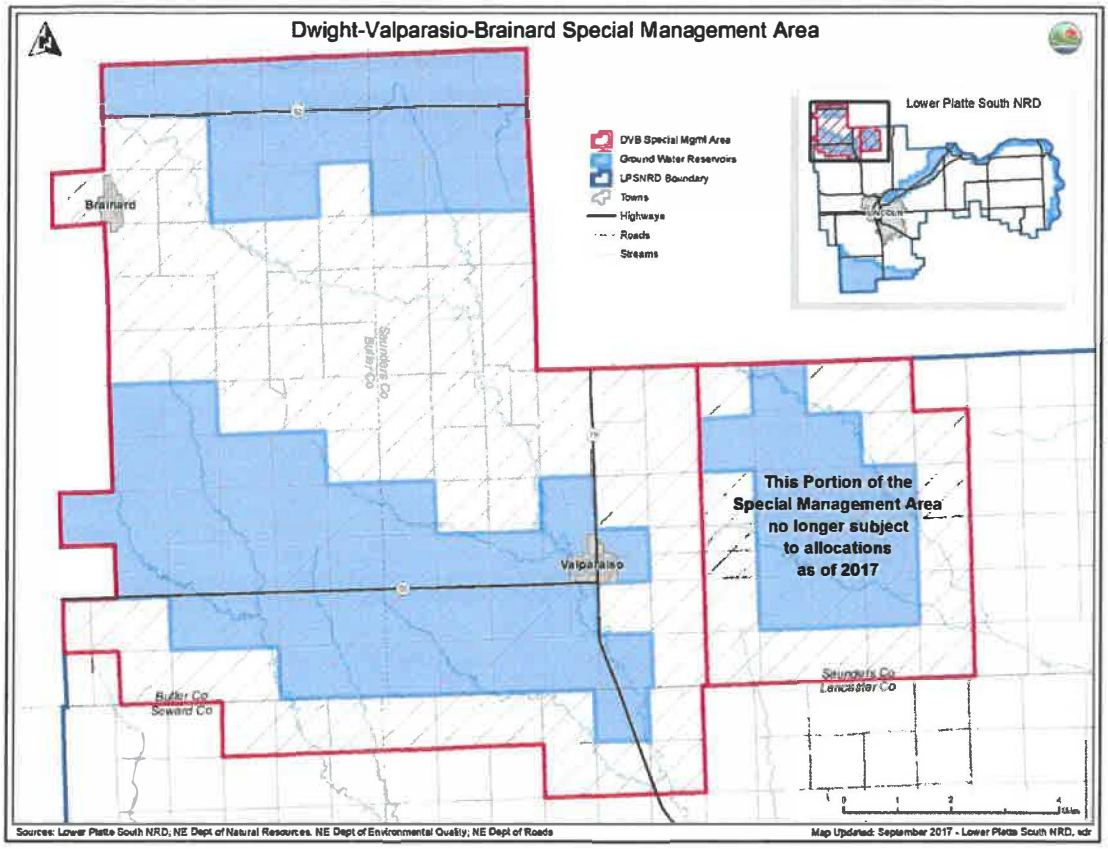

Figure 3. Dwight-Valparaiso-Brainard Special Management Area for in-season groundwater level declines.

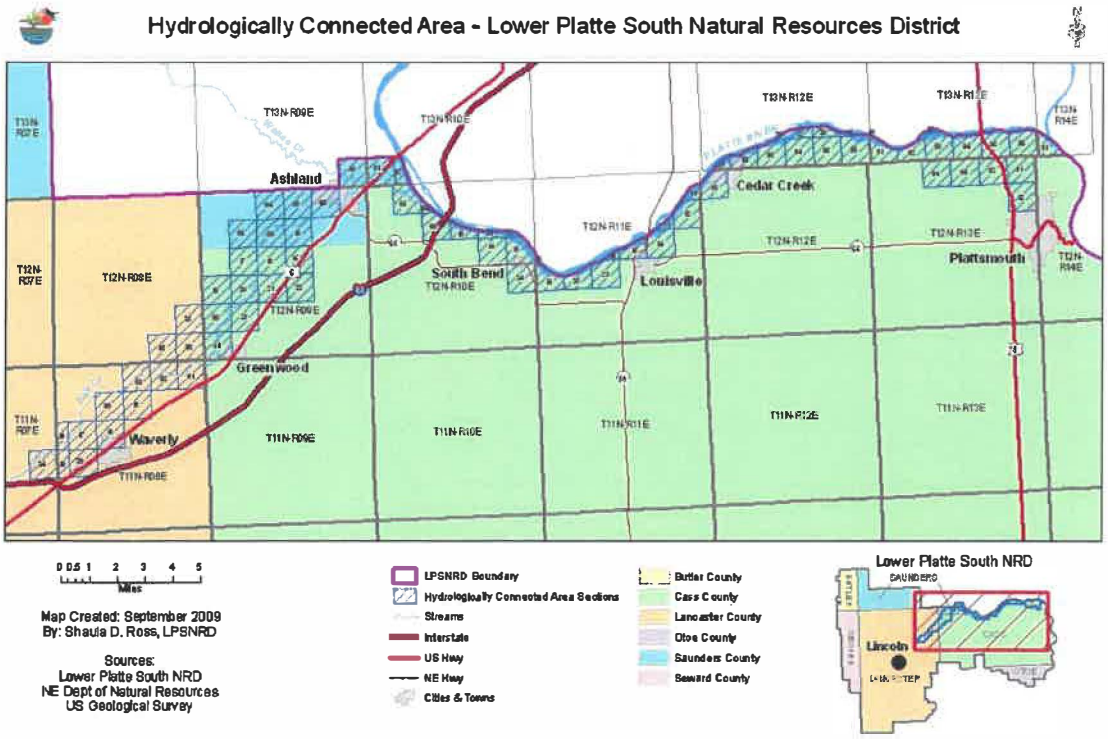

Figure 4. Hydrologically Connected Area (HCA) in LPSNRD.

GROUNDWATER RULES AND REGULATIONS

- First adopted in 1996 for implementing its groundwater management programs under the Act
- Have been revised several times
- Most current version of the Groundwater Rules and Regulations took effect on January 15, 2020

Authority and Purpose

- References statutory authority granted in the Act
- Acknowledges the existing preferences for groundwater use (domestic first, then agriculture, then commercial/industrial uses).

Section A—Definitions: Defines specific terms as used in the regulations.

Section B—Groundwater Management Area

- Overview of the statutory authority and requirements for establishment of a Groundwater Management Area
- Outlines various areas of management (GWRs, CWSPAs, and RA)

Section C—Water Well Permits

- Details the information requirements for well permits
- Sets out five different classes or types of well permits:
  - Class 1 Permit: any proposed well located in a GWR and designed to pump more than 50 gpm but less than 1000 gpm *and* less than 250 acre-feet of water per year. Additional requirement:
    - Water quality analyses for sodium, chloride, and total dissolved solids (TDS) taken after a 24-hour pumping test
  - Class 2 Permit: any proposed well located in a GWR and designed to pump 1000 gpm or more *or* 250 acre-feet or more per year. Additional requirements:
    - Same water quality analysis as required for Class 1 permit
    - Copy of the well log
    - Accurate static water level measurement
    - Aquifer test supervised by a licensed professional geologist or engineer with experience in such analysis
    - Hydrogeologic analysis report considering the effect of the proposed well over a minimum 20-year period, also prepared by a licensed professional geologist or engineer
  - Class 3 Permit: any proposed well located in the RA and designed to pump more than 20 gpm and less than 250 gpm *and* less than 25 acre-feet per year (except for domestic wells designed to pump 50 gpm or less). Must include same water quality analysis required for Class 1 permit.
  - Class 4 Permit: any proposed well located in the RA and designed to pump 250 gpm or more *or* 25 acre-feet or more per year. Must include the same information required for Class 2 permits.
  - Salt Water Well Permit: any proposed well designed to pump salt water for a beneficial use. For purposes of LPSNRD's regulations, "salt water" is defined as groundwater containing TDS concentrations of 2500 ppm or more. Must include the information described for Class 1, 2, 3, or 4 Permits, depending on the intended volume of production, and submit analyses for sodium, chloride, and TDS collected at various times during a 24-hour pumping test.
- Specifies certain conditions under which permit may be denied, including the following:
  - Not using groundwater for a beneficial use
  - Proposed water well would have adverse effects on the aquifer or pre-existing wells of a higher beneficial use

  - Potential for salt water intrusion
  - Non-cooperation with other LPSNRD requirements
- Provides details on fees and additional requirements of well permit approval (e.g., use of new wells for LPSNRD groundwater monitoring, completion timeframe after approval, replacement wells, well spacing).

Section D—Required Water Well Flow Meters

- Requires flow meter on all new and replacement wells requiring a well permit, as well as all existing wells capable of pumping more than 50 gpm
- Owners of such wells shall report water usage to the District on an annual basis

Section E—Phases for Designated Areas of Management: Designates Phase I for groundwater quality and quantity District-wide; Phase II emphasizes BMP cost-share and requires education; and Phase III establishes regulatory requirements for quality and quantity.

Section F—Groundwater Monitoring Networks: Establishes groundwater quality and quantity monitoring networks for GWRs, CWSPAs, and the RA.

Section G—Groundwater Phase Triggers: Describes the triggers for Phase actions for both groundwater quality and quantity.

Section H—Salt Water Intrusion: Commits the District to investigating intrusion of salt water from underlying bedrock units into freshwater supplies and developing an action plan and rules and regulations if intrusion does occur.

Section I—Groundwater Verification Studies for Management Phase Determination: states that the District will conduct two-year verification studies when either Phase II or Phase III groundwater quality triggers have been reached.

Section J—Groundwater Phase Management Actions

- Requires annual District review of Phase actions by March 1
- Phase I actions
  - Requires certification of all irrigated acres in the District
  - Establishes incentive and educational programs
  - Recognizes the need for integrated management plans for hydrologically connected areas
- Phase II additional actions
  - Establish citizens' advisory groups
  - Develop requirements for educational certification
- Phase III additional actions
  - Require implementation of BMPs and reporting

Section K—Phase II Rules and Regulations

- Designates and provides legal descriptions of the land affected by Phase II groundwater quality management areas for nitrate-nitrogen (see Figure 2)
- Continues Phase I rules; requires educational certification; and conditions under which Phase II may be suspended

Section L—Phase III Rules and Regulations

- Designates and provides legal descriptions of the land affected by Phase III groundwater quality management areas for nitrate-nitrogen (see Figure 2)

- Continues Phase I and II rules; requires soil sampling, consideration in fertilizer applications, and reporting of those results; prohibits fertilizer application between harvest and March 1 of any crop year; and conditions under which Phase III may be suspended

Section M—Improper Irrigation Runoff

- Implements NRD's statutory directive to minimize improper groundwater irrigation runoff
- Includes possible remedial actions; promotes utilization of runoff by other landowners; considers *de minimis* runoff.

Section N—Transfer of Groundwater

- States the District's policy on transfer of groundwater from a remedial action plan
- Other statutory allowances for groundwater transfer
- Prohibits transfer of groundwater from a GWR to land outside that GWR

Section O—Enforcement Procedures for the Nebraska Ground Water Management and Protection Act: Outlines procedures for investigating and taking enforcement actions against individuals or entities who have violated the District's regulations or provisions of the Act.

Section P—Request for Variance: Requirements, fees, and procedures for individuals or entities seeking a variance from any District rule or regulation.

Section Q—Hydrologically Connected Area

- Provides a legal description of the land included in the Hydrologically Connected Area (HCA), a portion of the NRD in which the NDNR has determined that groundwater and surface water are hydrologically connected (Figure 4)
- Provides allowances for expansion of irrigated acres in the HCA

Section R—Special Management Area

- Provides authority for the designation of the Dwight-Valparaiso-Brainard Special Management Area (DVB SMA) and a legal description of the land enclosed in that area
- Lists the regulations in force for the SMA

Oak-Middle Watershed Structure 82-B
(located 5 miles north of Garland)

Designed by NRCS/USDA (Soil Conservation Service)
Built in 1963.
Local Sponsor: Seward County Soil Conservation District until 1972 when the Lower Platte South NRD was established and assumed O&M responsibilities.

Watershed Rehabilitation Project:

Designed by NRCS/USDA
Local Sponsor: LPSNRD
Cost-share:

- **65% NRCS/USDA (not to exceed 100% of construction costs) and**
- **35% LPSNRD.**

LPSNRD purchased principal spillway pipe for project.
Date bids opened: September 12, 2019
Bids received:

- **Goes Construction LLC, Talmage, NE - $485,078.40**
- **High Plains Enterprises, Inc. $693,546.25**

Contractor awarded the project: Goes Construction LLC
Subcontractors: (Tim Sisco Construction, Terracon, Vision Underground & Broening Construction, Jorgensen Surveying)
Modifications: 5 (increase of $146,168.08 due to changes from quantities bid)
Estimated total cost: $631,246.48
Payments made to date: $461,150.54
Final payment: $170,095.94

Oak-Middle 82-B – looking south across the auxiliary (emergency) spillway. Note the dam, wetland mitigation area, and that the lake has not completely filled.