February 2017

MIDDLE NIOBRARA NATURAL RESOURCES DISTRICT

EROSION AND SEDIMENT CONTROL PROGRAM

RULES AND REGULATIONS

Proposed by the Board of Directors – February 2017

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MIDDLE NIOBRARA NATURAL RESOURCES DISTRICT
RULES AND REGULATIONS FOR IMPLEMENTING
EROSION AND SEDIMENT CONTROL ACT

1. AUTHORITY

These rules and regulations are adopted pursuant to the authority granted in Section 2-4605, R.R.S. 1948, as amended.

2. PURPOSE

The purpose of these rules and regulations is to provide an orderly method for implementing the Erosion and Sediment Control Act, sections 2-4601 et. seq. R.R.S. 1943, as amended to provide for the conservation and preservation of the land, water and other resources of the District, and to thereby:

(a) reduce damages caused from wind erosion,
(b) reduce storm water runoff and the danger of flooding,
(c) reduce sediment damage to lands within the District,
(d) reduce non-point pollution from sedimentation and related pollutants.00
(e) preserve the value of land and its productive capability for present and future generations, and
(f) safeguard the health, safety and welfare of the District's citizens,

3. APPLICABILITY

These rules and regulations apply to all lands within the District except to those lands which lie within the respective jurisdiction of a county or municipality which has adopted and is implementing erosion and sediment control regulations in substantial conformance with the state erosion and sediment control program. Some non-agricultural land-disturbing activities are also excluded and are identified in Rule 4, Section (i), sub-sections (2), (3), (4) and (5).

4. DEFINITIONS

(a) Alleged violator means the owner of record and the operator, if any, of land which is the subject of a complaint filed in accordance with Rule 8.

(b) Board means the Board of Directors of the Middle Niobrara Natural Resources District.

(c) Committee means the Operations Committee of the Middle Niobrara Natural Resources District.

(d) Conservation agreement means an agreement between the owner and operator, if any, of a farm unit and the District in which the owner and operator, if any, agrees to implement all or a portion of a farm unit conservation plan or erosion and sediment control plan. The agreement shall include a schedule for implementation and may be conditioned on the District or other public entity furnishing technical, planning or financial assistance in the establishment of the soil and water conservation or erosion and sediment control practices necessary to implement the plan or portion of the plan.

(e) District means the Middle Niobrara Natural Resources District.

(f) Excess erosion means the occurrence of erosion in excess of the applicable soil-loss tolerance level which causes or contributes to an accumulation of sediment upon the

lands of any other person to the detriment or damage of such other person.

(g) Farm unit conservation plan means a plan jointly developed by the owner and, if appropriate, the operator of a farm unit and the District. Such plan shall be based on the determined conservation needs of the farm unit and identification of practices which may be expected to prevent soil loss by erosion to the applicable soil-loss tolerance level. The plan may also, if practicable, identify alternative practices by which such objective may be attained.

(h) Erosion and Sediment Control Plan means a plan, developed for a parcel of land used for non-agricultural purposes, which identifies the permanent or temporary practices which may be expected to either prevent sediment from leaving that parcel or prevent soil loss / erosion from that parcel in excess of the applicable soil-loss tolerance level.

(i) Non-agricultural land-disturbing activity means a land change including, but not limited to, tilling, clearing, grading, excavating, transporting, or filling land which may result in soil erosion from wind or water and the movement of sediment and sediment-related pollutants into the waters of the state or onto lands in the state, but shall not include:

(1) Activities related directly to the production of agricultural, horticultural or silvicultural crops, including, but not limited to, tilling, planting, or harvesting of such crops;

(2) Installation of aboveground public utility lines and connections, fence posts, sign posts, telephone poles, electric poles, and other kinds of posts or poles;

(3) Emergency work to protect life or property; and

(4) Activities related to the construction of housing, industrial, and commercial developments on sites under two acres in size; and

(5) Activities related to the operation, construction, or maintenance of industrial or commercial public power district or public power and irrigation district facilities or sites when such activity is conducted pursuant to state of federal law or is part of the operational plan for such facility or site.

(j) Sediment damage means:

(1) the economic or physical damage to the land or other property of one person resulting from the deposition of sediment, by water or wind, or soil eroded from the lands of another person;

(2) the degradation of water quality and/or the reduced beneficial use of the water in the stream or lake involved resulting from soil sedimentation or the deposition of chemical laden sediments. For the purpose of this program, chemicals shall include, but is not limited to, any agricultural, municipal, or industrial chemicals or waste deposited on the soil. Physical effects to land or property which are relatively short term in nature and which cause no economic damage and no lasting physical damage shall not constitute sediment damage for the purpose of these rules and regulations.

(k) Soil-loss tolerance level means the maximum amount of soil loss due to erosion by wind or water, expressed in terms of tons per acre per year, which is determined to be acceptable in accordance with the Erosion and Sediment Control Act. Soil loss from water erosion may include:

(1) sheet and rill erosion which includes relatively uniform soil loss across the entire field slope which may leave small channels located at regular intervals across the slope and

(2) ephemeral gully erosion which occurs in well-defined depressions or natural

drainageways where concentrated overland flow results in the convergence of rills forming deeper and wider channels.

(l) T value means the average annual tons per acre soil loss that a given soil may experience and still maintain its productivity over an extended period of time.

5. SOIL-LOSS TOLERANCE LEVEL

USDA Soil Survey data provides values of soil loss tolerance (T) for various soil series across the District and are described as Soil-Loss Tolerance Levels in the NRCS TECHNICAL GUIDES. These soil-loss tolerance levels for the soils of the District have been adopted by the Board and are attached hereto as Appendix A. Each soil series listed may contain one or more soil mapping units-referred to in Rule 10. The permitted soil-loss tolerance levels for particular lands may not exceed the T value noted in Appendix A.

6. ADMINISTRATION

(a) The Board delegates the responsibility for administering these rules and regulations to the District manager except to the extent Board action is specifically required by these rules and regulations or by law. The following duties shall be performed by or under the direction of the District manager.

(1) Keep an accurate record of all complaints received, investigations made, and other official actions.

(2) Investigate all complaints made in writing to the District office relating to the application of these rules and regulations and report in writing all alleged violations to the Board.

(3) Monitor compliance with all approved farm unit conservation plans, erosion and sediment control plans, and administrative orders issued by the Board.

(b) Except to the extent jurisdiction has been assumed by a municipality or county in accordance with section 2-4606, and after a written and signed complaint has been made, the District manager and such staff as he or she shall designate shall have the following powers and responsibilities:

(1) At any reasonable time, after notice to the owner and operator, if any, to enter upon any public or private lands within the area affected by these rules and regulations for the purpose of investigating complaints and to make inspections to determine compliance. The owner, operator, if any, and any other necessary technical personnel and representatives of the District may accompany the inspector.

(2) Upon reasonable cause, to report to the Board any violations of any administrative order issued by the Board pursuant to Section 2-4608, R.R.S. 1943, as amended, and these rules and regulations,

(3) At the direction of the Board, and in accordance with Rule 13 (e) and 18, was Rule 19th, to commence any legal proceedings necessary to enforce these rules and regulations and any order issued pursuant to them.

7. VIOLATION

A violation of these rules and regulations exists if:

(a) sediment damage is occurring;

(b) average annual soil losses on the land which is the source of that sediment are exceeding

the soil-loss tolerance level adopted in rule 5;

(c) the activity causing the soil loss is not an exempted non-agricultural land-disturbing activity (Rule 4(i) (2) to (5); and

(d) the land which is the source of the damage is not in strict compliance with a conservation agreement approved by the District,

8. COMPLAINT

A complaint alleging that soil erosion is occurring in excess of the soil loss tolerance level or that sediment damage is occurring, may be filed in the District office by:

(a) any owner or operator of land damaged by sediment,

(b) any authorized representative of a state agency or political subdivision whose roads or other public facilities are being damaged by sediment,

(c) any authorized representative of a state agency or political subdivision with responsibility for water quality maintenance if it is alleged that the soil erosion complained of is adversely affecting water quality, or

(d) any District staff member, or other person authorized by the Board to file complaints.

Complaints shall be made in writing and signed on a form provided by the Director of Department of Natural Resources.

In an attempt to avoid the filing of a written complaint, the district will offer assistance to communicate with all parties involved and attempt to solve the matter in an agreeable manner. The district will make all parties aware of any assistance or programs which might be utilized to solve the problem. At no time will a complainant be denied the right to file a written complaint.

If the alleged violation involved land in two or more NRDs, the Middle Niobrara NRD is only allowed to enforce the rules and regulations of the erosion and sediment act on land which lies in the district. The district will work with the other NRDs involved to help provide the best possible solution to the problem.

The flow chart for handling a complaint is found in Appendix C.

9. INVESTIGATION OF COMPLAINT

Upon receipt of a properly filed complaint, a representative of the District shall notify the alleged violator within ten (10) days that a complaint has been filed and that an investigation will be initiated to determine whether a violation of these rules and regulations has occurred. The investigation shall take place as soon as possible after the complaint has been filed and notice given. The alleged violator shall be given an opportunity to accompany the person conducting the investigation.

If a farm unit conservation plan or erosion and sediment control plan previously approved by the District is being implemented and maintained in strict conformance with a conservation agreement including the land subject to the complaint, the complaint shall be dismissed. The alleged violator, complainant, and Board shall be notified.

Upon completion of the investigation, the investigator shall file a report of his or her findings

with the Committee and shall provide copies to the alleged violator and the complainant. The report shall include:

(a) the location and estimated acreage involved in the alleged violation;

(b) the investigator's conclusions concerning the existence of any sediment damage and a description of the location and nature of any sediment damage identified; and

(c) the location of land(s) which the investigator concludes are the source of the sediment, the nature of the land use on such lands, and the estimated average annual soil losses from such land(s).

The investigator may utilize the services of professional staff, consultants, or technicians of other state or federal agencies, if necessary.

10. DETERMINATION OF SOIL LOSS

Soil losses shall be determined by using the applicable portions of the then current version of the United States Department of Agriculture, Natural Resources Conservation Service Field Office Technical Guide to estimate the average annual sheet and rill erosion, ephemeral erosion or wind erosion.

The soil losses normally will be calculated on a soil survey mapping unit basis. If it is determined that soil loss in excess of the applicable soil loss tolerance level is occurring in the portion of one or more mapping units under the ownership and control of the alleged violator, they may not be averaged with other non-violating units for the purpose of determining overall soil loss. If it is determined that the sediment damage complained of is resulting from erosion from a land parcel smaller than the soil mapping unit, the soil loss equation in the Field Office Tech. Guide may be applied to such smaller portion only if such portion is two acres or greater. Was two (2) acres or greater

The cover and crop management factor, "C", used in calculating erosion may incorporate a cropping history of up to five years. Crop rotation patterns longer than five years but not more than ten years may be used for the purpose of planning future compliance with soil loss tolerance levels but exceeding the limits may not be planned for more than two consecutive years. Soil losses from irrigation and gully erosion may also be determined by using acceptable scientific procedures and may, if deemed appropriate by the Board, be added to soil losses for sheet and rill, ephemeral and wind erosion. Soil losses from streambank erosion shall not be calculated and these rules and regulations are not applicable to this type of erosion. Application of the soil loss equation formulas will be made by someone whose qualifications to make such determinations can be supported in court.

11. COMMITTEE AND BOARD ACTION ON COMPLAINT

The committee shall assist the District staff in administering these rules and regulations and make determinations as to whether a probable violation of these rules and regulations has or has not occurred. Such determination shall be based upon the investigator's report completed pursuant to Rule 9 and an on-site inspection by the committee, if warranted. The committee may also request that both the alleged violator and the complainant appear before them to discuss the complaint. The committee shall report its findings to the Board, the alleged violator and the complainant with a recommendation of further action as follows:

(a) If the staff and committee determine that no violation of these rules and regulations has

occurred, it shall recommend and the Board may approve dismissal of the complaint. The complainant shall be given the opportunity to appear before the entire Board before the Board acts on the recommendation.

(b) If the committee determines that a farm unit conservation plan previously approved by the District is being implemented and maintained in strict conformance with a conservation agreement including the land subject to the complaint, it shall recommend and the Board may approve dismissal of the complaint.

(c) If the committee determines that the land which is identified in the complaint is being used for non-agricultural purposes, and is under an erosion and sediment control plan that has been approved by the District, is in conformance with any NPDES (National Pollution Discharge Elimination System) permit issued by the Nebraska Department of Environmental Quality (NDEQ), or any political subdivision of the state designated by NDEQ to issue such permits, it shall recommend and the Board may approve dismissal of the complaint.

(d) If the committee determines that a probable violation of these rules and regulations has occurred, it shall proceed in accordance with Rule 12.

12. VARIANCE

The committee may recommend and the board may approve a variance from the soil loss limit established in Rule 5 if it determines that a limit of T cannot reasonably be applied to land which is the subject of a complaint. The soil loss permitted, however, may in no case exceed 2T. In making any such determination, the committee or the board shall consider the judgment of local professional soil conservationists and the economic consequences and feasibility of requiring conservation measures necessary to reduce soil losses to the T-value.

12. NOTICE OF VIOLATION

If the committee determines that a probable violation of these rules and regulations has occurred, the alleged violator shall be informed of its findings by letter delivered in person or sent by registered or certified mail. The letter shall specify the options available to the alleged violator, including:

(a) The alleged violator shall be given an opportunity to contact the District within ten days after receipt of notice concerning the development of a plan and schedule for eliminating excess erosion and sedimentation from the land that generated the complaint. If appropriate at this time, alternative practices for inclusion in a plan may be suggested. Information on cost-share programs and an indication of whether cost-share money is available may also be supplied.

(b) The alleged violator shall be given an opportunity to contest the committee's findings at a regularly scheduled Board meeting or, if desired, a Board hearing to be held no sooner than fifteen days after receipt of notice. Notice of the date shall be given. The alleged violator may request a formal public hearing within ten (10) days of receipt of notice. The District's rules for formal adjudicatory hearings shall govern the conduct of all such hearings.

(c) The alleged violator shall be further notified that if he or she does not respond to the notice and does not appear at the Board meeting for which notice was given, the Board shall proceed in accordance with Rule 15 in his or her absence to make a final determination on the complaint and issue an administrative order if the Board concludes

that a violation has occurred.

13. DEVELOPMENT AND APPROVAL OF PLAN FOR COMPLIANCE

(a) If the alleged violator contacts the District pursuant to Rule 12 (a) and indicates a desire to jointly develop either a farm unit conservation plan or an erosion and sediment control plan for eliminating excess erosion on or sedimentation from the land that generated the complaint, Board action on the complaint shall be delayed until further action is taken by the committee pursuant to (b) or (d) of this Rule. The District manager and the alleged violator shall promptly secure the assistance of the Natural Resources Conservation Service (NRCS) or such other professional resource planners as are deemed necessary to assist in preparation of such a plan and shall attempt to prepare a mutually acceptable plan in accordance with the NRCS Field Office Technical Guide. Any plan developed in accordance with this section shall identify, as applicable, the soil and water conservation practice(s) or erosion and sediment control practice(s) to be applied or utilized and shall be accompanied by a proposed conservation agreement setting forth a schedule for compliance.

(b) Any plan developed by the alleged violator and the District manager shall be presented to the committee. If the committee agrees to the proposed plan and to the accompanying conservation agreement, the Board may thereafter approve such plan and agreement. The complainant shall be notified of such action and shall be provided copies of the approve plan and conservation agreement. In considering the schedule for compliance contained within the conservation agreement, the Board may approve a longer time for compliance than would be permissible if an order were issued pursuant to Rule 15, but shall not do so without consideration of the nature and extent of any additional sediment damages the complainant is likely to suffer until the plan has been fully implemented.

(c) Strict conformance with a plan and agreement approved pursuant to this Rule shall be deemed compliance with these rules and regulations for the lands which are subject to the agreement.

(d) If no mutually acceptable plan and conservation agreement have been prepared by the alleged violator and the District manager within an acceptable time period or if the committee concludes at any time that progress is not being made and is no longer likely on preparation of such a plan, the complaint shall be again referred to the Board and the alleged violator shall be so notified in person or by registered or certified mail and shall be given the information and option described in Rule 12(b). For purposes of this rule, acceptable time period shall mean (1) 90 days for alleged violations involving agricultural, horticultural, or silvicultural activities and (2) 15 days for alleged violations involving a non-agricultural land-disturbing activity.

(e) Following refusal of a landowner to discontinuing an activity causing erosion which constitutes a violation in Rule 7, and to establish a plan and schedule for eliminating excess erosion pursuant to these rules, and if the immediate discontinuance of such activity is necessary to reduce or eliminate damage to neighboring property, the District may petition the District court for an order to the owner and, if appropriate, the operator, to immediately cease and desist such activity until excess erosion can be brought into conformance with the soil-loss tolerance level or sediment resulting from excess erosion is prevented from leaving the property.

14. PRACTICES

Practices designed to reduce or control soil erosion and/or sediment damage may be approved in developing a plan under Rule 13 and may be required by the District in an administrative order pursuant to Rule 15.

(a) Soil and water conservation practices, applicable only to land used for agricultural, horticultural, or silvicultural purposes, may include:
(1) permanent practices, such as the planting of perennial grasses, legumes, shrubs, or trees, the establishment of grassed waterways, the construction of terraces, grade control structures, tile outlets, and other practices approved by the District.
(2) temporary soil and water conservation practices, such as the planting of annual or biennial crops, use of strip-cropping, contour planting, conservation tillage or residue management system, and other cultural practices approved by the District.

The District shall maintain a complete list of approved permanent and temporary soil and water conservation practices as part of its local erosion and sediment control program. See Appendix B.

(b) Erosion and sediment control practices, which are applicable to activities other than agricultural, horticultural, or silvicultural activities, may include:
(1) the construction or installation and maintenance of permanent structures or devices necessary to carry to a suitable outlet away from any building site, any commercial or industrial development or any publicly or privately owned recreational or service facility not served by a central storm sewer system, any water which would otherwise cause erosion in excess of the applicable soil-loss tolerance level and which does not carry or constitute sewage or industrial or other waste to a suitable outlet away from any development or facility not served by a central storm sewer system;
(2) the use of temporary devices or structures, temporary seeding, mulching (including fiber mats, plastic, straw), diversions, silt, fences, sediment traps, or other measures adequate either to prevent erosion in excess of the applicable soil loss tolerable levels or to prevent excessive downstream sedimentation from land which is the site of or is directly affected by any non-agricultural land-disturbing activity; or
(3) the establishment and maintenance of vegetation upon the right-of-way of any completed portion of any public street, road, highway or the construction or installation thereon of permanent structures or devices or other measures adequate to prevent erosion on the right-of-way in excess of the applicable soil-loss tolerance level.

The District shall maintain a complete list of approved erosion and sediment control practices as part of its local erosion and sediment control program. See Appendix B.

15. ADMINISTRATIVE ORDER

If, after Board consideration of the complaint at a meeting or hearing for which the alleged violator has been given notice in accordance with Rule 12, the Board finds that sediment damage has occurred, that average annual erosion on the land which is the source of the damage is occurring in excess of the applicable soil-loss tolerance level(s), and that a conservation plan or erosion and sediment control plan has not been developed nor is being implemented according to

a conservation agreement, it shall issue an administrative order to the violator stating:

- **a)** the date of the order,
- **b)** the identity of the source of the violation and its location;
- **c)** the authority of the Board to issue such order;
- **d)** the specific findings, including (i) the estimated average annual soil loss and the extent to which erosion exceeds the applicable soil-loss tolerance level and, (ii) the nature of the sediment damage or water quality impairment resulting from such excessive erosion;
- **e)** if desired by the Board, the alternative soil and water conservation practices or erosion and sediment control practices required to bring the land into conformance with these rules and regulations. When the erosion is the result of agricultural, horticultural, or silvicultural activities, the soil and water conservation practices required shall be those necessary to bring the land into conformance with the applicable soil-loss tolerance level. Where the erosion complained of is the result of a non-agricultural land-disturbing activity, the Board may authorize the violator to either bring the land into conformance with applicable soil loss tolerance level or to prevent sediment resulting from excessive erosion from leaving the land;
- **f)** any requirements concerning the operation, utilization, or maintenance of the alternative practices identified;
- **g)** the deadlines for commencing and completing work necessary to comply with this order.
    a. The time for initiating work needed to establish the necessary soil and water conservation practices shall not exceed six months after service or mailing of the order to the violator and shall be completed no later than one year after service or mailing of the order to the violator unless and extension has been granted upon a showing of good cause
    b. A reasonable time for initiating work needed to establish erosion and sediment control practices for nonagricultural land-distributing activities shall not exceed five days after service or mailing of the order. Temporary practices shall be completed not longer than fifteen days after service or mailing of the order and permanent practices shall be completed no longer than forty-five (45) days after service or mailing of the order unless an extension has been granted upon a showing of good cause. An extension shall only be granted after review and affirmative action of the Board.
- **(h)** the action to be taken by the Board if the violator does not comply.

A copy of the dismissal or administrative order shall be delivered to the owner and to the operator, if any, of the land in question by personal service or certified or registered mail.

16. COST-SHARE ASSISTANCE

To prevent excess erosion and sediment from leaving the land due to any agricultural or nonagricultural land-disturbing activity, cost-share assistance may be available from the District. Such assistance, if available, may be used for any erosion or sediment control practice. The lack of available cost-sharing assistance does not offset the requirement that the owner and, if appropriate, the operator of such land comply with the terms of an approved plan of compliance or an administrative order.

17. SUPPLEMENTAL ORDERS

The Board may issue supplemental orders, as necessary, to extend the time of compliance with an administrative order if, in its judgment, the failure to commence or complete work as required by the administrative order is due to factors beyond the control of the person to whom the order is directed and the person can be relied upon to commence and complete the necessary work at the earliest possible time.

18. NON-COMPLIANCE

Subject to any limitations imposed by the Board, the District manager may cause the District to commence legal proceedings by filing a petition in the name of the District in the District court in which a majority of the land is located requesting a court order requiring immediate compliance with the administrative order or any supplemental order issued previously, if he or she has reasonable cause to believe after inspection that an administrative order issued previously by the Board is not being complied with because:

(1) the work necessary to comply with the order is not commenced on or before the date specified in the order or in any supplemental orders;

(2) the work is not being performed with due diligence, is not satisfactorily completed by the date specified in the order, or is not being operated, utilized, or maintained in accordance with requirements set forth in the order;

(3) the work is not of a type or quantity specified by the District, and when completed, it will not or does not reduce soil loss to within the applicable soil-loss tolerance level for the identified land or, in the case of non-agricultural land-disturbing activity, will not or does not prevent sediment resulting from excessive erosion from leaving the land involved, or

(4) the person to whom the order is directed informs the District that he or she does not intend to comply.

APPENDIX A

Soil-Loss Tolerance Levels & Erosion Factors

The following pages summarize the various soil types, soil-loss limits and erosion factors of soils by county, for each of the counties which make up the Middle Niobrara Natural Resources District. Each soil is listed by its old Soil Survey abbreviation symbol and the new NRCS assigned numerical symbol for that soil type. Note that some newer soils identified do not have an older abbreviation symbol.

Soil erosion factors are listed as follows:

T – Soil-loss tolerance levels

I – Wind erodibility index

K – Soil erodibility measured under a standard condition

The Frozen Factors listed remain the same for all soils listed.

C – Cover management number

R – Climatic erosivity

See Soils Tables on accompanying pages.

Brown County, Nebraska
Frozen Factors 1997
C Factor = 30
R Factor = 100

Old Symbol	New Symbol	Soil Map Unit Name	T	I	K
IdB	2331	Inavale loamy fine sand, rarely flooded	5	134	0.2
IkB	2348	Inavale sand, channeled, occasionally flooded	5	220	0
In	2350	Inavale-Barney complex, channeled, occasionally flooded	5	134	0.2
Bo	3156	Brocksburg loam, 0 to 2 percent slopes	3	56	0.3
Jn	3180	Jansen fine sandy loam, 0 to 2 percent slopes	3	86	0.2
JnC	3181	Jansen fine sandy loam, 2 to 6 percent slopes	3	86	0.2
Jo	3183	Jansen loam, 0 to 2 percent slopes	3	56	0.4
JoC	3184	Jansen loam, 2 to 6 percent slopes	3	56	0.4
Jr	3189	Jansen-Meadin complex, 0 to 2 percent slopes	3	86	0.2
JtB	3194	Jansen-Sandose complex, 0 to 2 percent slopes	3	134	0.2
Jw	3200	Johnstown fine sandy loam, 0 to 2 percent slopes	4	86	0.2
JwB	3200	Johnstown fine sandy loam, 0 to 2 percent slopes	4	86	
Jy	3201	Johnstown loam, 0 to 2 percent slopes	4	56	0.4
JyB	3201	Johnstown loam, 0 to 2 percent slopes	4	56	
JyC	3202	Johnstown loam, 2 to 6 percent slopes	4	56	0.4
LcG	3225	Labu-Sansarc silty clays, 11 to 40 percent slopes	3	56	0.2
MeB	3252	Meadin sandy loam, 0 to 2 percent slopes	5	86	0.2
MeF	3255	Meadin sandy loam, 2 to 30 percent slopes	2	86	0.2
Oe	3260	O'Neill fine sandy loam, 0 to 2 percent slopes	3	86	0.2
On	3264	O'Neill loam, 0 to 2 percent slopes	3	56	0.3
OsC	3274	O'Neill-Meadin sandy loams, 2 to 6 percent slopes	3	86	0.2
OsD	3275	O'Neill-Meadin sandy loams, 6 to 11 percent slopes	3	86	0.2
RtB	3313	Ronson-Longpine fine sandy loams, 0 to 2 percent slopes	3	86	0.2
RtC	3314	Ronson-Longpine fine sandy loams, 2 to 6 percent slopes	3	86	0.2
RtD	3315	Ronson-Longpine fine sandy loams, 6 to 11 percent slopes	3	86	0.2
Ae	4201	Almeria fine sandy loam, occasionally flooded	5	86	0.2
Aa	4204	Almeria loamy fine sand, occasionally flooded	5	134	0.2
	4205	Almeria loamy fine sand, channeled, frequently flooded	5	48	0.2
Af	4208	Almeria-Histosols complex, channeled, frequently flooded	5	86	0.2
Bd	4220	Bolent fine sandy loam, occasionally flooded	5	86	0.2
	4233	Calamus loamy fine sand, calcareous, rarely flooded	5	134	0.2
Es	4351	Elsmere loamy fine sand, rarely flooded	5	134	0.2
	4364	Ipage fine sand, terrace, 0 to 3 percent slopes	5	250	0
LfB	4370	Libory loamy fine sand, 0 to 3 percent slopes	5	134	0.2

DuB	4485	Dunday loamy fine sand, 0 to 3 percent slopes	5	134	0.1
DuD	4490	Dunday loamy fine sand, 3 to 9 percent slopes	5	134	0.1
	4521	Els fine sand, 0 to 3 percent slopes	5	250	0
Eo	4533	Els loamy sand, 0 to 3 percent slopes	5	134	0.1
EpB	4545	Els-Ipage fine sands, 0 to 3 percent slopes	5	250	0
	4561	Elsmere-Loup complex, 0 to 3 percent slopes	5	134	0.2
	4563	Els-Tryon complex, 0 to 3 percent slopes	5	134	0.1
Gn	4575	Gannett fine sandy loam, 0 to 1 percent slopes	3	86	0.2
IpB	4641	Ipage fine sand, 0 to 3 percent slopes	5	250	0
IsB	4650	Ipage loamy sand, 0 to 3 percent slopes	5	134	0.2
Lo	4662	Loup fine sandy loam, 0 to 1 percent slopes	5	86	0.2
Lp	4669	Loup fine sandy loam, frequently ponded	5	86	0.2
LtB	4675	Loup-Els complex, 0 to 3 percent slopes	5	134	0.2
Ma	4683	Marlake fine sandy loam, frequently ponded	5	86	
	4704	McKelvie-Fishberry-Rock outcrop complex, 11 to 60 percent slopes	5	134	0.2
McG	4706	McKelvie-Longpine-Ronson complex, 17 to 70 percent slopes	5	86	0.2
PtB	4721	Pivot loamy sand, 0 to 3 percent slopes	5	134	0.1
ScB	4730	Sandose loamy fine sand, 0 to 3 percent slopes	5	134	0.2
	4740	Tryon fine sandy loam, 0 to 3 percent slopes	5	86	0.1
	4743	Tryon fine sandy loam, frequently ponded	5	86	0.2
Tn	4746	Tryon loamy fine sand, 0 to 3 percent slopes	5	134	0.1
To	4751	Tryon loamy fine sand, frequently ponded	5	134	0.1
TpB	4754	Tryon-Els complex, 0 to 3 percent slopes	5		
VaB	4781	Valentine fine sand, 0 to 3 percent slopes	5	250	0
VaD	4791	Valentine fine sand, 3 to 9 percent slopes	5	250	
VaE	4807	Valentine fine sand, rolling	5	250	0
VaF	4810	Valentine fine sand, rolling and hilly	5	250	0
VbB	4814	Valentine loamy fine sand, 0 to 3 percent slopes	5	134	0.2
VbD	4818	Valentine loamy fine sand, 3 to 9 percent slopes	5	134	0.2
VfD	4861	Valentine-Els fine sands, 0 to 9 percent slopes	5	250	0
VhD	4867	Valentine-Libory complex, 0 to 9 percent slopes	5	250	0
VpD	4868	Valentine-Pivot complex, 0 to 9 percent slopes	5	250	0
	4872	Valentine-Sandose complex, 0 to 9 percent slopes	5	250	0
VrD	4873	Valentine-Sandose loamy fine sands, 0 to 9 percent slopes	5	134	0.2
VsG2	4880	Valentine-Simeon complex, 9 to 40 percent slopes, eroded	5	250	0
VtE	4883	Valentine-Longpine complex, 3 to 17 percent slopes	5	250	0
VwE	4887	Valentine-Tryon complex, 0 to 17 percent slopes	5	250	0
	4889	Valentine-Tryon fine sands, 0 to 24 percent slopes	5	250	0
	5281	Vetal fine sandy loam, 0 to 3 percent slopes	5	86	0.2
VxB	5286	Vetal loam, 1 to 3 percent slopes	5	56	0.2

Ba	6311	Barney fine sandy loam, frequently flooded	5	86	0.2
BrD	6658	Brunswick fine sandy loam, 3 to 11 percent slopes	3	86	0.2
SkB	8925	Simeon loamy sand, 0 to 3 percent slopes	5	134	0.1
SkD	8928	Simeon loamy sand, 3 to 11 percent slopes	5	134	0.1
	8939	Simeon-Valentine complex, 0 to 9 percent slopes	5	220	0
SvD	8942	Simeon-Valentine fine sands, 0 to 11 percent slopes			
An	9001	Anselmo fine sandy loam, 0 to 1 percent slopes	4	86	0.2
AnC	9004	Anselmo fine sandy loam, 3 to 6 percent slopes	4	86	0.2
AnD	9006	Anselmo fine sandy loam, 6 to 11 percent slopes	4	86	0.2
AtF	9016	Anselmo-Brunswick fine sandy loams, 11 to 30 percent slopes	5	86	0.2
Fe	9903	Fluvaquents, sandy, frequently flooded	5	0	
GP	9983	Gravel pit			
Pg	9983	Gravel pit			
M-W	9986	Miscellaneous water, sewage lagoon			
W	9999	Water			

Cherry County, Nebraska
Frozen Factors 1997
C Factor = 40
R Factor = 75

Old Symbol	New Symbol	Soil Map Unit Name	T	I	K
DaB	1545	Dailey loamy fine sand, 0 to 3 percent slopes	5	48	0.37
DaD	1546	Dailey loamy fine sand, 3 to 9 percent slopes			
Lh	1661	Lodgepole silt loam, frequently ponded	5	48	0.37
SnB	1809	Satanta fine sandy loam, 1 to 3 percent slopes	4	86	0.32
He	3167	Hennings fine sandy loam, 0 to 3 percent slopes	4	86	0.2
Ht	3170	Holt fine sandy loam, 0 to 2 percent slopes	3	86	0.24
HuC	3172	Holt-Longpine fine sandy loams, 2 to 6 percent slopes	3	86	0.24
HuD	3173	Holt-Longpine fine sandy loams, 6 to 11 percent slopes	3	86	0.24
HyC	3176	Holt-Vetal fine sandy loams, 0 to 6 percent slopes	3	86	0.24
Jn	3180	Jansen fine sandy loam, 0 to 2 percent slopes	3	86	0.2
MxB	3249	Meadin loamy sand, 0 to 2 percent slopes	5	134	0.05
MxF	3251	Meadin loamy sand, 2 to 30 percent slopes	5	134	0.05
FbC	3351	Fishberry fine sandy loam, 0 to 6 percent slopes	2	86	0.32
FcF	3352	Fishberry-Duda loamy fine sands, 6 to 30 percent slopes	2	86	0.32
FdG	3353	Fishberry-Rock outcrop complex, 30 to 60 percent slopes	2	86	0.32
Ae	4201	Almeria fine sandy loam, occasionally flooded	5	86	0.17
Af	4203	Almeria fine sandy loam, wet, occasionally flooded	5	86	
Ad	4205	Almeria loamy fine sand, channeled, frequently flooded	5	48	0.15

Bn	4221	Bolent fine sandy loam, rarely flooded	5	86	0.2
	4226	Bolent-Almeria complex, channeled, frequently flooded	5	134	0.15
Bm	4224	Bolent loamy fine sand, channeled, occasionally flooded	5	134	0.15
Bp	4228	Bolent-Calamus, calcareous loamy fine sands, occasionally flooded	5	134	0.15
Ic	4231	Calamus fine sand, calcareous	5	250	0.02
Id	4233	Calamus loamy fine sand, calcareous, rarely flooded	5	134	0.15
	4237	Calamus-Bolent loamy fine sands, channeled, occasionally flooded	5	134	0.15
Or	4243	Ord loam, rarely flooded	3	86	0.32
LfB	4370	Libory loamy fine sand, 0 to 3 percent slopes	5	134	0.24
	4390	Natkick sand, 0 to 3 percent slopes	5	220	0.1
BcG	4450	Blown-out land-Valentine complex, 0 to 60 percent slopes	4	250	0.02
Cr	4455	Crowther loam, 0 to 1 percent slopes	4	86	
Cs	4456	Crowther mucky peat	5	86	
Cv	4462	Cullison loam, 0 to 1 percent slopes	5	86	
Cx	4463	Cullison mucky peat	5	86	
Cy	4467	Cutcomb mucky peat	2	56	
Dg	4470	Doughboy fine sandy loam, 0 to 3 percent slopes	5	86	0.2
DfB	4471	Doughboy loamy fine sand, 0 to 3 percent slopes	5	134	0.15
DtB	4476	Duda-Fishberry loamy fine sands, 0 to 3 percent slopes	2	134	0.2
DuB	4485	Dunday loamy fine sand, 0 to 3 percent slopes	5	134	0.15
DuD	4490	Dunday loamy fine sand, 3 to 9 percent slopes	5	134	0.15
Ec	4521	Els fine sand, 0 to 3 percent slopes	5	250	0.02
Em	4536	Els, calcareous-Hoffland complex, 0 to 3 percent slopes	5	250	0.02
En	4540	Els, calcareous-Selia fine sands, 0 to 3 percent slopes	5	250	0.02
EfB	4545	Els-Ipage fine sands, 0 to 3 percent slopes	5	250	0.02
Es	4553	Elsmere loamy fine sand, 0 to 3 percent slopes	5	134	0.15
Et	4556	Elsmere loamy fine sand, calcareous, 0 to 3 percent slopes	5	134	0.2
Ew	4561	Elsmere-Loup complex, 0 to 3 percent slopes	5	134	0.15
Eh	4563	Els-Tryon complex, 0 to 3 percent slopes	5	134	0.05
Ga	4576	Gannett loam, 0 to 1 percent slopes	3	86	0.2
Gb	4579	Gannett mucky peat	5	48	
Gc	4590	Gus clay loam, 0 to 1 percent slopes	5	48	
Gf	4591	Gus mucky peat	5	48	
HeC	4596	Hennings fine sandy loam, 3 to 6 percent slopes	4	86	0.2
HeD	4597	Hennings fine sandy loam, 6 to 11 percent slopes	4	86	0.2
HgE	4598	Hennings-Anselmo fine sandy loams, 11 to 20 percent slopes	4	86	0.2
Hr	4635	Hoffland fine sandy loam, 0 to 1 percent slopes	5	86	
Hs	4636	Hoffland fine sandy loam, frequently ponded	5	56	
IgB	4641	Ipage fine sand, 0 to 3 percent slopes	5	250	0.02

IhB	4643	Ipage fine sand, calcareous, 0 to 3 percent slopes	5	250	0.02
IpB	4646	Ipage loamy fine sand, 0 to 3 percent slopes	5	134	0.15
ItB	4655	Ipage-Tryon complex, 0 to 3 percent slopes	5	250	0.02
Lo	4662	Loup fine sandy loam, 0 to 1 percent slopes	5	86	0.2
Lp	4670	Loup mucky peat	5	86	
Ma	4683	Marlake fine sandy loam, frequently ponded	5	86	
McB	4700	McKelvie loamy fine sand, 0 to 3 percent slopes	5	134	0.15
McD	4701	McKelvie loamy fine sand, 3 to 9 percent slopes	5	134	0.15
McF	4702	McKelvie loamy fine sand, 9 to 30 percent slopes	5	134	0.15
MdF	4703	McKelvie-Fishberry loamy fine sands, 9 to 30 percent slopes	5	134	0.15
MeG	4704	McKelvie-Fishberry-Rock outcrop complex, 11 to 60 percent slopes	5	134	0.17
MfG	4705	McKelvie-Rock outcrop complex, 30 to 60 percent slopes	5	134	0.15
MgG	4707	McKelvie-Ustorthents complex, 30 to 60 percent slopes	5	134	0.15
NfB	4711	Nenzel loamy fine sand, calcareous, 0 to 3 percent slopes	5	134	0.1
NeB	4712	Nenzel loamy fine sand, 0 to 3 percent slopes	5	134	0.15
OsD	4713	Orpha loamy fine sand, 3 to 9 percent slopes	5	134	0.1
OtF	4717	Orpha-Niobrara loamy fine sands, 9 to 30 percent slopes	5	134	0.1
OxG	4718	Orpha-Rock outcrop complex, 30 to 60 percent slopes	5	134	0.1
PtB	4720	Pivot loamy fine sand, 0 to 3 percent slopes	5	134	0.1
SfB	4730	Sandose loamy fine sand, 0 to 3 percent slopes	5	134	0.2
ShB	4733	Sandose-Hennings loamy fine sands, 0 to 3 percent slopes	5	134	0.2
ShC	4734	Sandose-Hennings loamy fine sands, 3 to 6 percent slopes	5	134	0.2
ShD	4735	Sandose-Hennings loamy fine sands, 6 to 11 percent slopes	5	134	0.2
Tn	4740	Tryon fine sandy loam, 0 to 3 percent slopes	5	86	0.1
To	4743	Tryon fine sandy loam, frequently ponded	5	86	0.2
	4771	Valentine-Mullen complex, 0 to 9 percent slopes	5	250	0.02
VcF	4780	Valentine complex, rolling and hilly			
VkF	4780	Valentine complex, rolling and hilly			
VcB	4781	Valentine fine sand, 0 to 3 percent slopes	5	250	0.02
VkB	4781	Valentine fine sand, 0 to 3 percent slopes	5	250	0.02
VcD	4791	Valentine fine sand, 3 to 9 percent slopes	5	250	0.02
VkD	4791	Valentine fine sand, 3 to 9 percent slopes	5	250	0.02
VcG	4800	Valentine fine sand, hilly	5	250	0.02
VkG	4800	Valentine fine sand, hilly	5	250	0.02
VcE	4807	Valentine fine sand, rolling	5	250	0.02
VkE	4807	Valentine fine sand, rolling	5	250	0.02
	4810	Valentine fine sand, rolling and hilly	5	250	0.02
VmB	4814	Valentine loamy fine sand, 0 to 3 percent slopes	5	134	0.15
VdD	4818	Valentine loamy fine sand, 3 to 9 percent slopes	5	134	0.15
VmD	4818	Valentine loamy fine sand, 3 to 9 percent slopes	5	134	0.15

	4851	Valentine-Birdwood complex, 9 to 80 percent slopes	5	250	0.02
VnD	4856	Valentine-Duda complex, 3 to 9 percent slopes	5	250	0.02
VgD	4861	Valentine-Els fine sands, 0 to 9 percent slopes	5	250	0.02
VoD	4861	Valentine-Els fine sands, 0 to 9 percent slopes	5	250	0.02
VpD	4867	Valentine-Libory complex, 0 to 9 percent slopes	5	250	0.02
VnF	4870	Valentine-Duda complex, 9 to 24 percent slopes	5	250	0.02
VsD	4872	Valentine-Sandose complex, 0 to 9 percent slopes	5	250	0.02
	4875	Valentine-Dunday complex, 0 to 9 percent slopes	5	250	0.02
VwF	4889	Valentine-Tryon fine sands, 0 to 24 percent slopes	5	250	0.02
VhF	4889	Valentine-Tryon fine sands, 0 to 24 percent slopes	5	250	0.02
WeB	4894	Wildhorse fine sand, 0 to 3 percent slopes	5	250	0.02
BsD	5121	Busher fine sandy loam, 6 to 9 percent slopes	4	86	0.24
BvF	5141	Busher-Tassel fine sandy loams, 9 to 30 percent slopes	4	86	0.24
Ke	5188	Keya loam, 0 to 2 percent slopes	5	48	0.24
TwC	5266	Tuthill fine sandy loam, 3 to 6 percent slopes	3	868	0.2
TwD	5267	Tuthill fine sandy loam, 6 to 9 percent slopes	3	86	0.2
Vz	5281	Vetal fine sandy loam, 0 to 3 percent slopes	5	86	0.17
VyB	5288	Vetal loamy fine sand, 0 to 3 percent slopes	5	134	0.1
SoB	8929	Simeon sand, 0 to 3 percent slopes	5	220	0.02
SvD	8939	Simeon-Valentine complex, 0 to 9 percent slopes	5	220	0.02
SvF	8941	Simeon-Valentine complex, 11 to 30 percent slopes	5	220	0.02
An	9001	Anselmo fine sandy loam, 0 to 1 percent slopes	4	86	0.2
AnC	9004	Anselmo fine sandy loam, 3 to 6 percent slopes	4	86	0.2
AnD	9006	Anselmo fine sandy loam, 6 to 11 percent slopes	4	86	0.2
AmB	9012	Anselmo loamy fine sand, 0 to 3 percent slopes	5	134	0.15
AmC	9013	Anselmo loamy fine sand, 3 to 6 percent slopes	5	134	0.15
AuF	9019	Anselmo-Longpine fine sandy loams, 9 to 30 percent slopes	5	86	0.2
Fe	9903	Fluvaquents, sandy, frequently flooded	5	0	
Mz	9936	Medihemists	5	0	
LD	9967	Sanitary landfill			
INT	9970	Aquolls	5		
AED	9971	Arents, earthen dam			
MP	9975	Mine or Quarry		0	
GP	9983	Gravel pit			
M-W	9986	Miscellaneous water, sewage lagoon			
W	9999	Water			0

Keya Paha County, Nebraska
Frozen Factors 1997
C Factor = 30
R Factor = 100

Old Symbol	New Symbol	Soil Map Unit Name	T	I	K
Bo	2100	Boel fine sandy loam, occasionally flooded	5	86	0.2
IhB	2110	Inavale loamy fine sand, occasionally flooded	5	134	0.2
IgB	2322	Inavale fine sand, channeled, frequently flooded	5	250	0
IfD	2325	Inavale fine sand, 3 to 11 percent slopes	5	250	0
Mu	2360	Munjor fine sandy loam, rarely flooded	4	86	0.2
Bt	3156	Brocksburg loam, 0 to 2 percent slopes	3	56	0.3
Tu	3167	Hennings fine sandy loam, 0 to 3 percent slopes	4	86	0.2
Ho	3170	Holt fine sandy loam, 0 to 2 percent slopes	3	86	0.2
HoC	3171	Holt fine sandy loam, 2 to 6 percent slopes	3	86	0.2
HtC	3172	Holt-Longpine fine sandy loams, 2 to 6 percent slopes	3	86	0.2
HtD	3173	Holt-Longpine fine sandy loams, 6 to 11 percent slopes	3	86	0.2
MfC	3177	Holt variant fine sandy loam, 3 to 6 percent slopes	4	86	0.2
MaB	3178	Holt variant loamy fine sand, 0 to 3 percent slopes	4	134	0.2
MaC	3179	Holt variant loamy fine sand, 3 to 6 percent slopes	4	134	0.2
Ja	3180	Jansen fine sandy loam, 0 to 2 percent slopes	3	86	0.2
Jn	3183	Jansen loam, 0 to 2 percent slopes	3	56	0.4
JnC	3184	Jansen loam, 2 to 6 percent slopes	3	56	0.4
JoB	3192	Jansen-Meadin loams, 0 to 2 percent slopes	3	56	0.3
TaF	3213	Longpine loamy fine sand, 3 to 30 percent slopes	2	134	0.2
TdE	3214	Longpine-Duda complex, 3 to 15 percent slopes	2	86	0.3
TrG	3215	Longpine-Ronson-Duda complex, 15 to 70 percent slopes	3	86	0.2
LaD	3221	Labu silty clay, 6 to 11 percent slopes	3	86	0.2
LcF	3225	Labu-Sansarc silty clays, 11 to 30 percent slopes	3	86	0.2
MkG	3239	Mariaville-Keota silt loams, 11 to 60 percent slopes	2	86	0.4
	3240	Mariaville-Paka loams, 11 to 40 percent slopes	2	86	0.3
MnF	3244	Meadin gravelly sandy loam, 2 to 30 percent slopes	5	56	0.1
Oe	3260	O'Neill fine sandy loam, 0 to 2 percent slopes	3	86	0.2
OeC	3261	O'Neill fine sandy loam, 2 to 6 percent slopes	3	86	0.2
OeD	3263	O'Neill fine sandy loam, 6 to 11 percent slopes	3	86	0.2
OaB	3265	O'Neill loamy fine sand, 0 to 2 percent slopes	5	134	0.2
OhB	3269	O'Neill-Meadin fine sandy loams, 0 to 2 percent slopes	3	86	0.2
OkD	3277	O'Neill-Valentine complex, 2 to 11 percent slopes	3	86	0.2
Pf	3283	Paka fine sandy loam, 0 to 2 percent slopes	4	86	0.2
	3284	Paka fine sandy loam, 2 to 6 percent slopes	4	86	0.2
Ph	3285	Paka loam, 0 to 2 percent slopes	4	56	0.4
PhB	3285	Paka loam, 0 to 2 percent slopes	4	56	0.4
PmC	3291	Paka-Mariaville loams, 2 to 6 percent slopes	4	56	0.4
PmF	3292	Paka-Mariaville loams, 11 to 30 percent slopes	4	56	0.4
RaB	3298	Ree loam, 0 to 2 percent slopes	4	48	0.2

Rb	3299	Ree loam, clayey substratum, 0 to 2 percent slopes	4	48	0.2
ReC	3305	Reliance silt loam, 2 to 6 percent slopes	4	48	0.3
RoD	3311	Ronson-Anselmo fine sandy loams, 6 to 11 percent slopes	3	86	0.2
RoF	3312	Ronson-Anselmo fine sandy loams, 6 to 30 percent slopes	3	86	0.2
RtB	3313	Ronson-Longpine fine sandy loams, 0 to 2 percent slopes	3	86	0.2
SaG	3320	Sansarc silty clay, 20 to 40 percent slopes	2	86	0.4
Ve	3325	Verdel silty clay loam, 0 to 2 percent slopes	5	48	0.4
VeB	3325	Verdel silty clay loam, 0 to 2 percent slopes	5	48	0.4
VeC	3326	Verdel silty clay loam, 2 to 6 percent slopes	5	48	0.4
WeB	3340	Wewela fine sandy loam, 0 to 2 percent slopes	3	86	0.3
WeC	3341	Wewela fine sandy loam, 2 to 6 percent slopes	3	86	0.3
	4204	Almeria loamy fine sand, occasionally flooded	5	134	0.1
Bc	4215	Blackloup loam, rarely flooded	2	48	0.2
Bd	4216	Blackloup loam, occasionally flooded	5	48	0.2
Op	4240	Ord fine sandy loam, rarely flooded	3	86	0.2
	4241	Ord fine sandy loam, occasionally flooded	3	86	0.2
Or	4248	Ord-Loup fine sandy loams, 0 to 1 percent slopes	3	86	0.2
DdB	4474	Duda loamy fine sand, 0 to 3 percent slopes	3	134	0.2
DdC	4475	Duda loamy fine sand, 3 to 6 percent slopes	3	134	0.2
	4476	Duda-Fishberry loamy fine sands, 0 to 3 percent slopes	2	134	0.2
DuB	4485	Dunday loamy fine sand, 0 to 3 percent slopes	5	134	0.2
DxB	4502	Dunday-Duda loamy fine sands, 0 to 3 percent slopes	5	134	0.2
Eo	4521	Els fine sand, 0 to 3 percent slopes	5	134	0
Es	4553	Elsmere loamy fine sand, 0 to 3 percent slopes	5	150	0.2
IpB	4646	Ipage loamy fine sand, 0 to 3 percent slopes	5	134	0.2
Lo	4662	Loup fine sandy loam, 0 to 1 percent slopes	5	86	0.2
Lp	4669	Loup fine sandy loam, frequently ponded	2	86	0.2
Mm	4687	Marlake loamy fine sand, frequently ponded	5	86	
MpB	4700	McKelvie loamy fine sand, 0 to 3 percent slopes	5	134	0.2
	4702	McKelvie loamy fine sand, 9 to 30 percent slopes	5	134	0.2
	4704	McKelvie-Fishberry-Rock outcrop complex, 11 to 60 percent slopes	5	134	0.2
	4705	McKelvie-Rock outcrop complex, 30 to 60 percent slopes	5	134	0.2
	4791	Valentine fine sand, 3 to 9 percent slopes	5	250	0
VaG	4800	Valentine fine sand, hilly	5	250	0
VaF	4807	Valentine fine sand, rolling	5	250	0
	4810	Valentine fine sand, rolling and hilly	5	250	0
VbD	4827	Valentine loamy fine sand, gently rolling	5	13	0.2
	4838	Valentine loamy sand, 0 to 3 percent slopes	5	134	0.1
	4856	Valentine-Duda complex, 3 to 9 percent slopes	5	250	0
VcF	4884	Valentine-Longpine complex, rolling	5	250	0

VdC	4892	Valentine-Wewela loamy fine sands, 3 to 6 percent slopes	5	134	0.2
VdF	4893	Valentine-Wewela loamy fine sands, 6 to 30 percent slopes	5	134	0.2
On	5220	Onita silt loam, 0 to 1 percent slopes	5	48	0.3
ScF	5252	Schamber gravelly sandy loam, 9 to 30 percent slopes	5	56	0
Vo	5281	Vetal fine sandy loam, 0 to 3 percent slopes	5	86	0.2
Vt	5285	Vetal loam, 0 to 1 percent slopes	5	56	0.3
VtB	5286	Vetal loam, 1 to 3 percent slopes	5	56	0.3
VtC	5287	Vetal loam, 3 to 6 percent slopes	5	56	0.3
Ba	6311	Barney fine sandy loam, frequently flooded	5	86	0.2
	6319	Barney-Boel complex, channeled	5	86	0.2
Bb	6321	Barney-Bolent complex, channeled, occasionally flooded	5	86	0.2
Ab	7710	Albaton silty clay, occasionally flooded	4	86	0.2
Cb	8435	Cass loam, rarely flooded	4	56	0.3
CcB	8437	Cass loam, channeled, frequently flooded	4	56	0.3
SmF	8935	Simeon-Holt variant-Ronson complex, 6 to 17 percent slopes	5	134	0.1
SvF2	8943	Simeon-Valentine fine sands, 6 to 17 percent slopes, eroded	5	250	0
SwB	8945	Simeon-Valentine loamy sands, 0 to 3 percent slopes	5	134	0.1
	8946	Simeon-Valentine loamy sands, 0 to 6 percent slopes	5	134	0.1
An	9001	Anselmo fine sandy loam, 0 to 1 percent slopes	4	86	0.2
AnC	9004	Anselmo fine sandy loam, 3 to 6 percent slopes	4	86	0.2
AmB	9012	Anselmo loamy fine sand, 0 to 3 percent slopes	5	134	0.2
	9903	Fluvaquents, sandy, frequently flooded	5	0	
Fu	9905	Fluvaquents, sandy-Fluvaquents, loamy complex, frequently flooded	5	0	0.2
Ft	9905	Fluvaquents, sandy-Fluvaquents, loamy complex, frequently flooded	5	0	0.2
AED	9971	Arents, earthen dam			
M-W	9986	Miscellaneous water, sewage lagoon			
W	9999	Water			

Rock County, Nebraska
Frozen Factors 1997
C Factor = 30
R Factor = 100

Old Symbol	New Symbol	Soil Map Unit Name	T	I	K
	2350	Inavale-Barney complex, channeled, occasionally flooded	5	134	0.2
JsB	3195	Jansen loamy sand, 0 to 2 percent slopes	5	134	0.2
LcG	3226	Labu-Sansarc silty clays, 11 to 40 percent slopes	3	86	
MeB	3252	Meadin sandy loam, 0 to 2 percent slopes	4	86	0.2
	3260	O'Neill fine sandy loam, 0 to 2 percent slopes	3	86	0.2
Oe	3267	O'Neill sandy loam, 0 to 2 percent slopes	5	86	0.2

OeC	3268	O'Neill sandy loam, 2 to 6 percent slopes	5	86	0.2
	3274	O'Neill-Meadin sandy loams, 2 to 6 percent slopes	3	86	0.2
OhD	3275	O'Neill-Meadin sandy loams, 6 to 11 percent slopes	5	86	0.2
WeC	3341	Wewela fine sandy loam, 2 to 6 percent slopes	3	86	0.3
	4200	Almeria fine sandy loam, channeled, frequently flooded	5	86	0.2
	4204	Almeria loamy fine sand, occasionally flooded	5	134	0.2
	4216	Blackloup loam, occasionally flooded	5	48	0.2
Or	4243	Ord loam, rarely flooded	3	86	0.3
	4364	Ipage fine sand, terrace, 0 to 3 percent slopes	5	250	0
	4365	Ipage loamy fine sand, terrace, 0 to 3 percent slopes	5	134	0.2
LfB	4370	Libory loamy fine sand, 0 to 3 percent slopes	5	134	0.2
DuB	4485	Dunday loamy fine sand, 0 to 3 percent slopes		134	
Eo	4533	Els loamy sand, 0 to 3 percent slopes	5	134	0.1
EpB	4542	Els-Ipage complex, 0 to 3 percent slopes	5	250	0
	4545	Els-Ipage fine sands, 0 to 3 percent slopes	5	250	0
ErC	4548	Els-Ipage-Tryon loamy sands, 0 to 6 percent slopes	5	134	0.1
Es	4553	Elsmere loamy fine sand, 0 to 3 percent slopes	5	134	0.2
ExB	4562	Elsmere-Selia loamy fine sands, 0 to 3 percent slopes	5	134	0.2
	4641	Ipage fine sand, 0 to 3 percent slopes	5	250	0
IgB	4650	Ipage loamy sand, 0 to 3 percent slopes	5	134	0.2
Lo	4662	Loup fine sandy loam, 0 to 1 percent slopes	5	86	0.2
Lp	4669	Loup fine sandy loam, frequently ponded	5	86	0.2
	4683	Marlake fine sandy loam, frequently ponded	5	86	
Ma	4687	Marlake loamy fine sand, frequently ponded	5	86	
TdG	4706	McKelvie-Longpine-Ronson complex, 17 to 70 percent slopes	5	86	0.2
PtB	4721	Pivot loamy sand, 0 to 3 percent slopes	5	86	0.1
PvD	4723	Pivot-Valentine complex, 0 to 9 percent slopes	5	134	0.1
	4730	Sandose loamy fine sand, 0 to 3 percent slopes	5	134	0.2
Tn	4746	Tryon loamy fine sand, 0 to 3 percent slopes	5	134	0.1
To	4751	Tryon loamy fine sand, frequently ponded	5	134	0.1
TpB	4756	Tryon-Els loamy sands, 0 to 3 percent slopes			
	4758	Tryon-Ipage complex, 0 to 3 percent slopes	5	134	
VaB	4781	Valentine fine sand, 0 to 3 percent slopes	5	134	0.1
VaD	4791	Valentine fine sand, 3 to 9 percent slopes	5	250	0
VaE	4807	Valentine fine sand, rolling	5	250	0
VaG	4810	Valentine fine sand, rolling and hilly			
VbB	4814	Valentine loamy fine sand, 0 to 3 percent slopes	5	134	0.2
VbD	4818	Valentine loamy fine sand, 3 to 9 percent slopes	5	134	0.2
VdD	4852	Valentine-Boelus fine sands, 0 to 9 percent slopes	5	250	0
VfD	4861	Valentine-Els fine sands, 0 to 9 percent slopes	5	250	0
	4868	Valentine-Pivot complex, 0 to 9 percent slopes	5	250	0

	4880	Valentine-Simeon complex, 9 to 40 percent slopes, eroded	5	250	0
VoB	5286	Vetal loam, 1 to 3 percent slopes	5	56	0.3
Ba	6319	Barney-Boel complex, channeled	5	86	0.2
BpB	6640	Boelus loamy sand, 0 to 3 percent slopes	5	134	0.1
BtF	6662	Brunswick-Longpine fine sandy loams, 11 to 40 percent slopes	3	86	0.2
BrD	6664	Brunswick-Longpine loamy sands, 3 to 11 percent slopes	3	134	0.1
Bm	8420	Boel loamy fine sand, occasionally flooded	5	134	0.2
SkB	8925	Simeon loamy sand, 0 to 3 percent slopes	5	134	0.1
	8928	Simeon loamy sand, 3 to 11 percent slopes	5	134	0.1
SmD	8936	Simeon-Meadin complex, 0 to 9 percent slopes	5	134	0.1
SvG2	8947	Simeon-Valentine sands, 11 to 60 percent slopes, eroded	5	220	0
LD	9967	Sanitary landfill			
GP	9983	Gravel pit			
M-W	9986	Miscellaneous water, sewage lagoon			
W	9999	Water			

Appendix B

Recommended Practices for Controlling Erosion and Sedimentation

The following practices are listed in three general categories: permanent agricultural, temporary agricultural, and non-agricultural. The lists are not mutually exclusive in that some practices are on more than one list. All practices on the lists are deemed to be suitable under proper circumstances, for controlling erosion and sedimentation within the District. Many are potential components of resource management systems for lands in the District. Actual application depends on the particular circumstances and needs being addressed. NRCS has plans, specifications, or technical guides for most of these practices.

1. Permanent Soil and Water Conservation Practices for Controlling Erosion and Sedimentation on Agricultural Lands

Permanent soil and water conservation practices are activities which often are part of an on-going (longer than one year) resource management system and may be recommended and adopted as part of a conservation plan. For those practices found on both this list and the "Temporary Soil and Water Conservation Practices" lists, the District will determine on a case by case basis whether the practice is required as a permanent or temporary measure.

Channel Vegetation
Critical Area Planting
Diversions
Field Borders
Field Windbreaks
Gabions
Grade Stabilization Structures
Grassed Waterways or Outlets
Pasture and Hayland Planting
Sediment Retention Basins
Terraces
Tree Plantings
Underground Outlets
Water and Sediment Control Structures

2. Temporary Soil and Water Conservation Practices for Controlling Erosion and Sedimentation on Agricultural Lands

Temporary soil and water conservation practices range from one-time only actions to activities which could continue for a number of years. Those on-going activities generally involve management decisions where a practice may be maintained, modified, or eliminated on an annual basis, rather than practices involving more permanent construction or installation activities. These practices generally require no, or lower, capital investments, and the availability of cost share assistance is not required.

Conservation Cropping Systems
Conservation Tillage Systems
Contour Farming
Cover and Green Manure Crop
Crop Residue Management
Livestock Exclusion
Mulching
Pasture and Hayland Management
Contour Strip Cropping

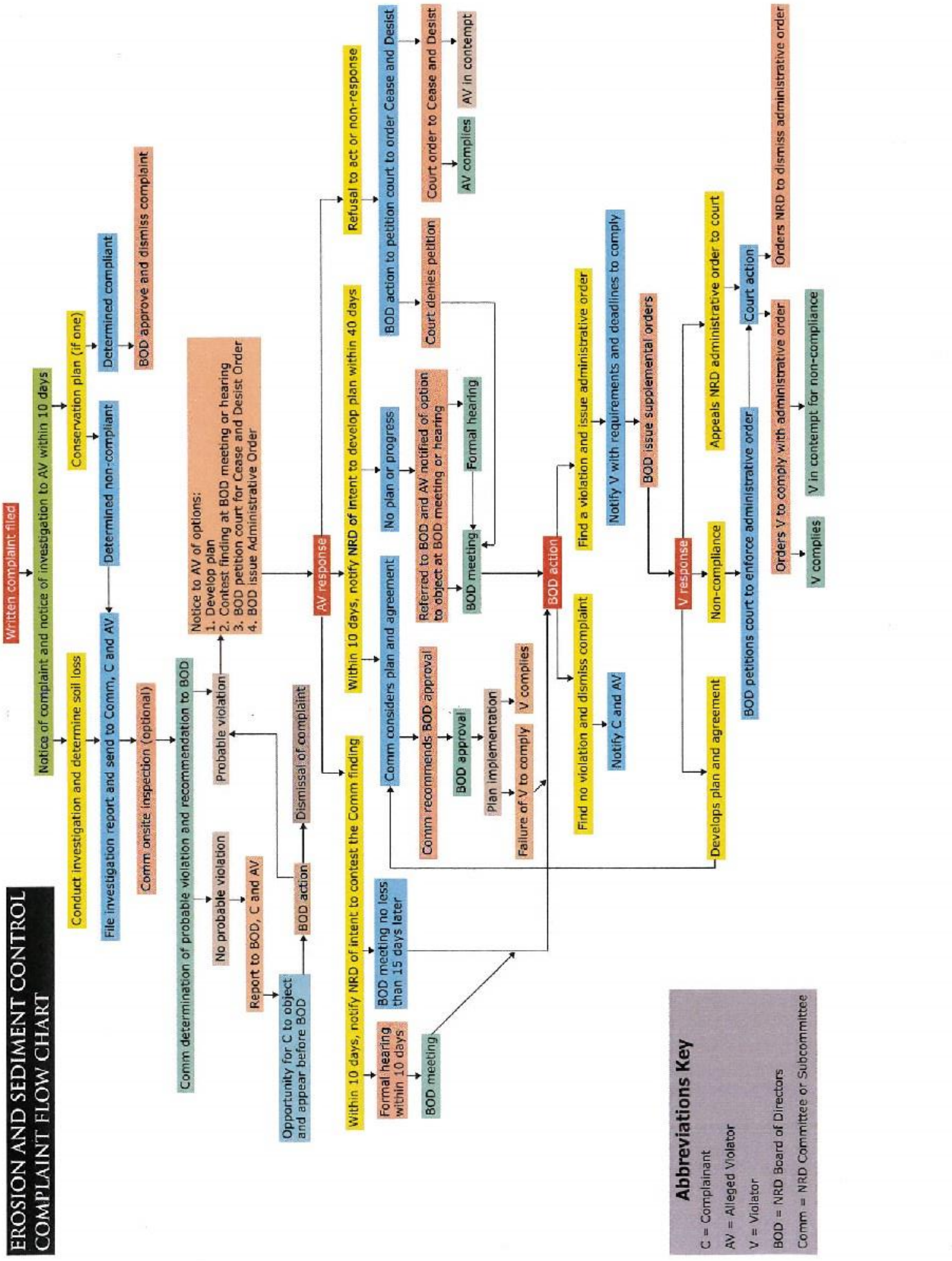
3. Erosion and Sediment Control Practices for Controlling Erosion and Sedimentation on Land Not used for Agriculture, Horticulture, or Silvicultural Purposes

There are many land disturbing activities which, are not related to agriculture, horticulture, or silviculture. Erosion and sedimentation as a result of these activities can be a significant problem. The following practices include permanent and temporary structure and devices that may be required to treat erosion on, *and* sedimentation from, these lands, but cost share assistance need not be made available.

Channel Vegetation
Check Dams
Chutes/Flumes
Cover Crops
Critical Area Planting
Dams
Dikes
Diversions
Gabions
Grade Stabilization Structures
Grassed Waterways or Outlets
Interceptor or Perimeter Swales
Lining of Waterways or Outlets
Mulching
Riprap
Roadside Seeding
Sandbag Sediment Barriers
Silt Fences
Straw Bale Sediment Barriers
Stream Channel Stabilization
Terraces
Tree Plantings
Underground Outlets
Water and Sediment Control Structures

Appendix C

Complaint Flow Chart



Complaint Process on Agricultural and Nonagricultural Land

Explanation of Flow Chart

1. Source(s) of erosion must be identifiable and damage must be recognizable for valid complaint.

2. Complaints may be filed with the MNNRD by:
   a) any owner or operator of land damaged by sediment;
   b) any state agency or political subdivision whose roads or facilities are being damaged by sediment;
   c) any state agency or political subdivision with responsibility for water quality if soil sediment is adversely affecting water quality; or
   d) MNNRD authorized staff member or other agent for the District.

3. Within ten days after the complaint has been filed, excluding Saturdays, Sundays and Holidays, the MNNRD shall provide the alleged violator with a copy of the complaint and notice of the time scheduled for a field inspection.

4. MNNRD field inspection will be made as soon as possible after the complaint has been filed and notice given. The alleged violator may accompany the inspection team which may include MNNRD officials and staff, NRCS personnel, NDEQ personnel (where water quality is concerned), or other professional consultants, as necessary.

5. If a farm unit conservation plan previously approved by the District is being implemented and maintained in strict conformance with a conservation agreement including the land subject to the complaint, the complaint shall be dismissed and the alleged violator, complainant and board notified of the dismissal.

6. The report shall include 1) the investigator's conclusions regarding the existence of and a description of the location and nature of any sediment damage identified, 2) the location of lands the investigator concludes to be the source of the sediment, and 3) the calculated average annual soil losses from this land.

   Average annual soil loss rates are to be determined by using the applicable portions of the then current version of the United States Department of Agriculture, Natural Resources Conservation Service Field Office Technical Guide. Ephemeral and gully erosion estimates will be included. The technician making the determination is expected to have sufficient professional qualifications for determinations to be supported, if necessary, in court.

   Sediment damage is defined in the MNNRD rules and regulations as any economic or physical damage to the land or other property of one person resulting from the deposition of sediment by water or wind of soil eroded from the lands of another person. Soil

erosion is adversely affecting water quality if the beneficial uses of that water are impaired because of sediment or chemical deposition in the stream or lake involved. Physical effects to land or property which are relatively short term in nature and which cause no economic damage and no lasting physical damage shall not constitute sediment damage.

7. If the committee finds that either no sediment damage has occurred or soil loss does not exceed established limits for the land in question, it shall dismiss of the complaint. If the committee finds that sediment damage has occurred and soil loss exceeds established limits, it shall issue a notice of probable violation to the alleged violator.

8. The alleged violator and complainant shall be informed by letter of the committee's recommendation to dismiss the complaint. The complainant shall be given an opportunity to appear before the entire board before it acts on the committee's recommendation.

9. Notice of a probable violation shall be sent to the alleged violator by registered or certified mail, stating the options available to the alleged violator. These include 1) an opportunity to develop with the District a plan and schedule for eliminating excessive erosion and sedimentation from the land that generated the complaint, or 2) an opportunity to contest the committee's findings at a hearing before the board.

9a. Voluntary compliance is encouraged as long as possible in the process. The alleged violator contacts the district within 10 days of receipt of notice and voluntarily develops a conservation plan & schedule to addressing the erosion.

9b. The alleged violator contacts the district within 10 days of receipt of notice and requests a board hearing contesting the committees findings.

10. If a plan and a conservation agreement cannot be concluded within 90 days for alleged violations involving agricultural, horticultural, or silvicultural activities or within 15 days for alleged violations involving nonagricultural lands or if the committee concludes that no progress is being made and is no longer likely, the alleged violator shall be so notified and given the option of a hearing before the board.

11. The alleged violator shall have an opportunity to contest the committee's findings at a hearing before the board scheduled not sooner than 15 days after notice to the alleged violator of this option.

12a. If the board finds after the hearing that either no sediment damage has occurred or that soil losses do not exceed established limits, it shall dismiss the complaint.

12b. If the board finds that sediment damage has occurred and that soil loss limits have been exceeded, it shall issue an administrative order to the violator to bring the land that was subject to the complaint into conformance with the established soil loss limits.

13. Administrative order issued by the board stating among other items, the deadlines for complying with the order. With regards to permanent erosion and sediment control practices, work must be initiated within six months of the order and shall be completed within one year unless an extension is granted by the board. Work on temporary erosion and sediment control practices must commence within a reasonable time and must be completed within forty-five days from the date of the order.

14. Compliance by the alleged violator, after the District Board issues an administrative order, is to begin within six months and be completed within one year.

15. The alleged violator may appeal to the District Court in the county where a majority of the land is located within 30 days of service of an administrative order. Attachment B A-12.

16. If the recipient of the order indicates no intent to comply or if the order is not otherwise complied with as to timeliness or quality of work, the MNNRD shall petition the District Court for an order requiring immediate compliance.

17. The District has the burden of proof in court action to show that soil erosion is occurring in excess of the soil loss limits and that conservation practices have not been established or maintained as required in the District's order.

18. If the District Court rules in favor of the MNNRD, the court is to issue an order directing compliance with the administrative order as previously issued by the MNNRD or as modified by the court.

19. If the District Court rules against the MNNRD, it may 1) dismiss the complaint or 2) remand the case to the MNNRD for further action in accordance with the court's decision.

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

Pete Ricketts, Governor

June 20, 2017

Mike Murphy, General Manager
Middle Niobrara NRD
303 East Highway 20
Valentine, NE 69201

Dear Mr. Murphy: Mike

Thank you for filing the Middle Niobrara NRD's amended Erosion and Sediment Control program. After review, the Nebraska Natural Resources Commission, on June 20th, 2017, recommended approval.

My staff and I have also reviewed your district's program and I find it to be reasonable, attainable, and in conformance with the state Erosion and Sediment Control program. Therefore, in accordance with § 2-4605 I hereby approve the Middle Niobrara NRD's amended Erosion and Sediment Control program.

Sincerely,

Jeff

Gordon W. Fassett
Director

Gordon W. "Jeff" Fassett, P.E., Director
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