State of North Dakota }
County of Towner}
Recorded: 8/11/2020 at 8:50 AM

U.S. Department of Agriculture
Natural Resources Conservation Service

NRCS-LTP-33
10/2017

WARRANTY EASEMENT DEED WITH RESERVATION OF GRAZING RIGHTS

AGRICULTURAL CONSERVATION EASEMENT PROGRAM – WETLAND RESERVE EASEMENT

EASEMENT NO. 5466331701JVR

THIS WARRANTY EASEMENT DEED is made by and between Darrel Manning and Rose Manning, husband and wife of 6727 104th St NE, Rock Lake, ND 58365 (hereafter referred to as the "Landowner"), Grantor(s), and **the UNITED STATES OF AMERICA** and its assigns (hereafter referred to as the "United States"), Grantee. The Landowner and the United States are jointly referred to as the "Parties."

The United States of America is acquiring this property by and through the Commodity Credit Corporation (CCC) and the acquiring agency of the United States is the Natural Resources Conservation Service (NRCS), United States Department of Agriculture.

Witnesseth:

Purposes and Intent. The purpose of this easement is to restore, protect, manage, maintain, and enhance the functional values of wetlands and other lands, and for the conservation of natural values including fish and wildlife and their habitat, water quality improvement, flood water retention, groundwater recharge, open space, aesthetic values, and environmental education. It is the intent of NRCS to give the Landowner the opportunity to participate in the restoration and management activities on the Easement Area.

Authority. This easement deed acquisition is authorized by Subtitle H of Title XII of the Food Security Act of 1985, as amended, for the Agricultural Conservation Easement Program - Wetland Reserve Easement.

NOW THEREFORE, for and in consideration of the terms of these mutual obligations and benefits recited herein to each party and the sum of Thirty Four Thousand Five Hundred Eighty Five 00/100 Dollars ($34,585.00), paid to Grantor(s) subject to commensurate reduction under 7 CFR Part 1400, the receipt of which is hereby acknowledged, Grantor(s) hereby grants and conveys with general warranty of title to the UNITED STATES OF AMERICA and its assigns (Grantee), ☐ in perpetuity or ☑ for a period of 30 years, the lands comprising the Easement Area described in Part I and appurtenant rights of access to the Easement Area, but reserving to the Landowner only those rights, title, and interest in the

lands comprising the Easement Area expressly enumerated in Part II. It is the intention of the Landowner to convey and relinquish any and all other property rights not so reserved. This easement shall constitute a servitude upon the land so encumbered; shall run with the land for the duration of the easement; and shall bind the Grantor(s), their heirs, successors, assigns, lessees, and any other person claiming under them.

SUBJECT, however, to all valid rights of record, if any.

PART I. Description of the Easement Area. The lands encumbered by this easement deed, referred to hereafter as the Easement Area, are described on EXHIBIT A, which is appended to and made a part of this easement deed.

TOGETHER with a right of access for ingress and egress to the Easement Area across adjacent or other properties of the Landowner. Such a right-of-way for access purposes is described in EXHIBIT B, which is appended to and made a part of this easement deed.

PART II. Reservations in the Landowner on the Easement Area. Subject to the rights, title, and interest conveyed by this easement deed to the United States, including the restoration, protection, management, maintenance, enhancement, and monitoring of the wetland and other natural values of the Easement Area, the Landowner reserves:

A. Title. Record title, along with the Landowner's right to convey, transfer, and otherwise alienate title to these reserved rights.

B. Quiet Enjoyment. The right of the Landowner to enjoy the rights reserved on the Easement Area without interference from others.

C. Control of Access. The right to prevent trespass and control access by the general public subject to the operation of State and Federal law.

D. Recreational Uses. The right to undeveloped recreational uses, including undeveloped hunting and fishing and leasing of such rights for economic gain, pursuant to applicable State and Federal regulations that may be in effect at the time. Undeveloped recreational uses may include use of hunting or observation blinds that will accommodate no more than four people and are temporary, nonpermanent, and easily assembled, disassembled, and moved without heavy equipment. Undeveloped recreational uses must be consistent with the long-term protection and enhancement of the wetland and other natural values of the Easement Area.

E. Subsurface Resources. The right to oil, gas, minerals, and geothermal resources underlying the Easement Area, provided that any drilling or mining activities are to be located outside the boundaries of the Easement Area, unless activities within the boundaries are specified in accordance with the terms and conditions of EXHIBIT C which is appended to and made a part of this easement deed, if applicable.

F. Water Rights and Water Uses. The right to water uses and water rights identified as reserved to the Landowner in EXHIBIT D, which is appended to and made a part of this Easement Deed, if applicable.

G. Grazing. The Landowner reserves the limited right to graze the Easement Area in accordance with the terms and conditions of EXHIBIT E, which is appended to and made a part of this Easement Deed.

PART III. Obligations of the Landowner. The Landowner shall comply with all terms and conditions of this Easement, including the following:

A. Prohibitions. Without otherwise limiting the rights of the United States acquired hereunder, it is expressly understood that the rights to carry out the following activities and uses have been acquired by the United States and, unless authorized by the United States under Part IV, are prohibited on the Easement Area:

1. Haying, mowing, or seed harvesting for any reason;
2. Altering of grassland, woodland, wildlife habitat, or other natural features by burning, digging, plowing, disking, cutting, or otherwise destroying the vegetative cover, except for grazing carried out in accordance with EXHIBIT E;
3. Accumulating or dumping refuse, wastes, sewage, or other debris;
4. Harvesting wood or sod products;
5. Draining, dredging, channeling, filling, leveling, pumping, diking, impounding, or related activities, as well as altering or tampering with water control structures or devices, except as specifically set forth in EXHIBIT D, if applicable;
6. Diverting or causing or permitting the diversion of surface or underground water into, within, or out of the Easement Area by any means, except as specifically set forth in EXHIBIT D, if applicable;
7. Building, placing, or allowing to be placed structures on, under, or over the Easement Area, except for individual semi-permanent hunting or observation blinds for undeveloped recreational uses the external dimensions of which will be no more than 80 square feet and 8 feet in height, with the number, locations, and features of blinds approved by NRCS under Part IV;
8. Planting or harvesting any crop;
9. Disturbing or interfering with the nesting or brood-rearing activities of wildlife including migratory birds;
10. Use of the Easement Area for developed recreation. These uses include but are not limited to, camping facilities, recreational vehicle trails and tracks, sporting clay operations, skeet shooting operations, firearm range operations, and the infrastructure to raise, stock, and release captive raised waterfowl, game birds and other wildlife for hunting or fishing;

11. Any activities which adversely impact or degrade wildlife cover or other habitat benefits, water quality benefits, or other wetland functions and values of the Easement Area; and
12. Any activities to be carried out on the Landowner's land that is immediately adjacent to, and functionally related to, the Easement Area if such activities will alter, degrade, or otherwise diminish the functional value of the Easement Area.

B. Noxious Plants and Pests. The Landowner is responsible for noxious weed control and emergency control of pests as required by all Federal, State, and local laws. A plan to control noxious weeds and pests must be approved in writing by the NRCS prior to implementation by the Landowner.

C. Fences. Except for establishment cost incurred by the United States and replacement cost not due to the Landowner's negligence or malfeasance, all other costs involved in maintenance of fences and similar facilities to exclude livestock are the responsibility of the Landowner. The installation or use of fences which have the effect of preventing wildlife access and use of the Easement Area are prohibited on the Easement Area, easement boundary, or on the Landowner's land that is immediately adjacent to, and functionally related to, the Easement Area.

D. Restoration. The Landowner shall allow the restoration and management activities NRCS deems necessary for the Easement Area.

E. Access Maintenance. The Landowner is responsible to maintain any non-public portions of the access route described in Exhibit B such that the access route can be traversed by a standard four-wheel all-terrain vehicle at least annually.

F. Use of Water for Easement Purposes. The Landowner shall use water for easement purposes as set forth in EXHIBIT D, which is appended to and made a part of this Easement Deed, if applicable.

G. Protection of Water Rights and Water Uses. As set forth in EXHIBIT D, if applicable, the Landowner shall undertake actions necessary to protect any water rights and water uses for easement purposes.

H. Taxes. The Landowner shall pay any and all real property and other taxes and assessments, if any, which may be levied against the land.

I. Reporting. The Landowner shall report to the NRCS any conditions or events which may adversely affect the wetland, wildlife, and other natural values of the Easement Area.

J. Survival. Irrelevant of any violations by the Landowner of the terms of this Easement Deed, this easement survives and runs with the land for its duration.

K. Subsequent Conveyances. The Landowner agrees to notify NRCS in writing of the names and addresses of any party to whom the property subject to this Easement Deed is to be transferred at or prior to the time the transfer is consummated. Landowner and its successors and assigns shall specifically refer to this Easement Deed in any subsequent lease, deed, or other instrument by which any interest in the property is conveyed.

PART IV. Compatible Uses by the Landowner.

A. General. The United States may authorize, in writing and subject to such terms and conditions the NRCS may prescribe at its sole discretion, the temporary use of the Easement Area for compatible economic uses, including, but not limited to, managed timber harvest, periodic haying, or grazing.

B. Limitations. Compatible use authorizations will only be made if, upon a determination by NRCS in the exercise of its sole discretion and rights, that the proposed use is consistent with the long-term protection and enhancement of the wetland and other natural values of the Easement Area. The NRCS shall prescribe the amount, method, timing, intensity, and duration of the compatible use. Compatible use authorizations do not vest any rights in the Landowner (including grazing) and can be revoked by NRCS at any time.

PART V. Rights of the United States. The rights of the United States include:

A. Management Activities. The United States has the right to enter the Easement Area to undertake, on a cost-share basis with the Landowner or other entity as determined by the United States, any activities to restore, protect, manage, maintain, enhance, and monitor the wetland and other natural values of the Easement Area. The United States may apply to or impound additional waters, in accordance with State water law, on the Easement Area in order to maintain or improve wetland and other natural values.

B. Access. The United States has a right of reasonable ingress and egress to the Easement Area over the Landowner's property, whether or not the property is adjacent or appurtenant to the Easement Area, for the exercise of any of the rights of the United States under this Easement Deed. The authorized representatives of the United States may utilize vehicles and other reasonable modes of transportation for access purposes. To the extent practical, the United States shall utilize the access identified in EXHIBIT B. The United States may, in its discretion, conduct maintenance activities on the access route identified in Exhibit B to obtain physical access to the Easement Area for the exercise of any of the rights of the United States under this Easement Deed. The United States also has the right of reasonable ingress and egress across the Easement Area to other adjacent or appurtenant property in which the United States holds real property rights acquired by and through NRCS.

C. Easement Management. The Secretary of Agriculture, by and through the NRCS, may delegate all or part of the management, monitoring or enforcement responsibilities under this Easement Deed to any Federal or State agencies authorized by law that the NRCS determines to have the appropriate authority, expertise, and resources necessary to carry out such delegated responsibilities. State or Federal agencies may utilize their general statutory authorities in the administration of any delegated management, monitoring or enforcement responsibilities for this easement. The authority to modify, subordinate, exchange, or terminate this easement under Subtitle H of Title XII of the Food Security Act of 1985 is reserved to the Secretary of Agriculture in accordance with applicable law. If the United States at some future time acquires the underlying fee title in the property, the interest conveyed by this Easement Deed will not merge with fee title but will continue to exist and be managed as a separate estate.

D. Violations and Remedies – Enforcement. The Parties, Successors, and Assigns, agree that the rights, title, interests, and prohibitions created by this Easement Deed constitute things of value to the United States and this Easement Deed may be introduced as evidence of same in any enforcement proceeding, administrative, civil or criminal, as the stipulation of the Parties hereto. If there is any failure of the Landowner to comply with any of the provisions of this Easement Deed, the United States or other delegated authority shall have any legal or equitable remedy provided by law and the right:

1. To enter upon the Easement Area to perform necessary work for prevention of or remediation of damage to wetland or other natural values; and,

2. To assess all expenses incurred by the United States (including any legal fees or attorney fees) against the Landowner, to be owed immediately to the United States.

PART VI. General Provisions.

A. Successors in Interest. The rights granted to the United States shall accrue to any of its agents or assigns. All obligations of the Landowner under this Easement Deed shall also bind the Landowner's heirs, successors, agents, assigns, lessees, and any other person claiming under them. All the Landowners who are parties to this Easement Deed shall be jointly and severally liable for compliance with its terms.

B. Rules of Construction and Special Provisions. All rights in the Easement Area not reserved by the Landowner shall be deemed acquired by the United States. Any ambiguities in this Easement Deed shall be construed in favor of the United States to effect the wetland and conservation purposes for which this Easement Deed is being acquired. The property rights of the United States acquired under this easement shall be unaffected by any subsequent amendments or repeal of the Agricultural

Conservation Easement Program. If the Landowner receives the consideration for this easement in installments, the Parties agree that the conveyance of this easement shall be totally effective upon the payment of the first installment.

C. Environmental Warranty. "Environmental Law" or "Environmental Laws" means any and all Federal, State, local or municipal laws, orders, regulations, statutes, ordinances, codes, guidelines, policies, or requirements of any governmental authority regulating or imposing standards of liability or standards of conduct (including common law) concerning air, water, solid waste, hazardous materials or substance, worker and community right-to-know, hazard communication, noise, radioactive material, resource protection, subdivision, inland wetlands and watercourses, health protection, and similar environmental health, safety, building, and land use as may now or at any time hereafter be in effect.

"Hazardous Materials" means any petroleum, petroleum products, fuel oil, waste oils, explosives, reactive materials, ignitable materials, corrosive materials, hazardous chemicals, hazardous wastes, hazardous substances, extremely hazardous substances, toxic substances, toxic chemicals, radioactive materials, infectious materials, and any other element, compound, mixture, solution or substance which may pose a present or potential hazard to human health or the environment.

Landowner warrants that it is in compliance with, and shall remain in compliance with, all applicable Environmental Laws. Landowner warrants that there are no notices by any government authority of any violation or alleged violation of, non-compliance or alleged non-compliance with or any liability under any Environmental Law relating to the operations or conditions of the Easement Area. Landowner further warrants that it has no actual knowledge of a release or threatened release of Hazardous Materials on, beneath, near, or from the Easement Area.

D. General Indemnification. Landowner shall indemnify and hold harmless the United States, its employees, agents, and assigns for any and all liabilities, claims, demands, losses, expenses, damages, fines, fees, penalties, suits, proceedings, actions, and cost of actions, sanctions asserted by or on behalf of any person or government authority, and other liabilities (whether legal or equitable in nature and including, without limitation, court costs, and reasonable attorneys' fees and attorneys' fees on appeal) to which the United States may be subject or incur relating to the Easement Area, which may arise from, but is not limited to, Landowner's negligent acts or omissions or Grantor's breach of any representation, warranty, covenant, or agreements contained in this Easement Deed, or violations of any Federal, State, local or municipal laws, including all Environmental Laws.

TO HAVE AND TO HOLD, this Warranty Easement Deed is granted to the United States of America and its assigns forever. The Landowner covenants that he, she, or they are vested with good title to the Easement Area and will warrant and defend the same on behalf of the United States against all claims and demands. The Landowner covenants to comply with the terms and conditions enumerated in this document for the use of the Easement Area and adjacent lands for access, and to refrain from any activity not specifically allowed or that is inconsistent with the purposes of this Easement Deed.

Dated this 7 day of July, 2020.

Landowner(s): Darrel Manning

Darrel Manning

Rose Manning

Rose Manning

ACKNOWLEDGMENT

STATE OF North Dakota

COUNTY OF Towner

On this 14 day of July, 2020, before me, the undersigned, a Notary Public in and for said State personally appeared Darrel Manning and Rose Manning, known or proved to me to be the person(s) described in and who executed the foregoing instrument, and acknowledged that Darrel Manning and Rose Manning executed the same as their free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal the day and year first above written.

Notary Public for the State of North Dakota
Residing at Rocklake, Towner County
My Commission Expires

Cynthia Swanson

CYNTHIA SWANSON
Notary Public
State of North Dakota
My commission expires Oct 16, 2023

ACCEPTANCE BY GRANTEE:

I Todd A. Schwagler, Acting State Conservationist, being the duly authorized representative of the United States Department of Agriculture Natural Resources Conservation Service, do hereby accept this Warranty Easement Deed with respect to the rights and duties of the United States of America, Grantee.

Dated this 3 day of August, 2020.

Todd A. Schwagler

Acting State Conservationist
Title

This instrument was drafted by the Office of General Counsel, U.S. Department of Agriculture, Washington, DC 20250-1400.

NONDISCRIMINATION STATEMENT

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (1202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW., Washington, DC 20250-9410 or call (800) 705-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

PRIVACY ACT STATEMENT

The above statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. Section 522a). Furnishing this information is voluntary; however, failure to furnish correct, complete information will result in the withholding or withdrawal of such technical or financial assistance. The information may be furnished to other USDA agencies, the Internal Revenue Service, the Department of Justice, or other State or Federal law enforcement agencies, or in response to orders of a court, magistrate, or administrative tribunal.

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EXHIBIT A

MANNING W.R.E. (WETLAND RESERVE EASEMENT)
#5466331701JVR

PARCEL "A"

A CONSERVATION EASEMENT IN, OVER AND UPON A TRACT OF LAND LOCATED IN THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 163 NORTH, RANGE 67 WEST OF THE FIFTH PRINCIPAL MERIDIAN, TOWNER COUNTY, NORTH DAKOTA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 12; THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER, SOUTH 00°13'37" WEST A DISTANCE OF 1249.63 FEET TO A POINT 75.00 FEET NORTH OF THE SOUTH LINE OF SAID SOUTHWEST QUARTER; THENCE ALONG A LINE 75.00 FEET NORTH OF AND PARALLEL WITH THE SOUTH LINE OF SAID SOUTHWEST QUARTER, NORTH 89°52'45" WEST A DISTANCE OF 2601.67 FEET TO A POINT 33.00 FEET EAST OF THE WEST LINE OF SAID SOUTHWEST QUARTER; THENCE ALONG A LINE 33.00 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF SAID SOUTHWEST QUARTER, NORTH 00°09'20" EAST A DISTANCE OF 2578.71 FEET TO A POINT ON THE NORTH LINE OF SAID SOUTHWEST QUARTER; THENCE ALONG SAID NORTH LINE, SOUTH 89°46'41" EAST A DISTANCE OF 1285.81 FEET TO THE NORTHWEST CORNER OF THE NORTHEAST QUARTER OF SAID SOUTHWEST QUARTER; THENCE ALONG THE WEST LINE OF SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER, SOUTH 00°11'06" WEST A DISTANCE OF 1325.65 FEET TO THE SOUTHWEST CORNER OF THE NORTHEAST QUARTER OF SAID SOUTHWEST QUARTER; THENCE ALONG THE SOUTH LINE OF SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER, SOUTH 89°49'43" EAST A DISTANCE OF 1318.08 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 113.86 AC. OF LAND MORE OR LESS.

SUBJECT TO A 20 FOOT ACCESS EASEMENT

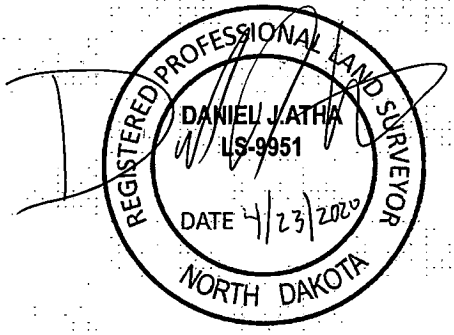


Exhibit A 2 of 4

CERTIFICATE OF SURVEY

PLAT OR DESCRIPTION OF NRCS CONSERVATION EASEMENT
NRCS AGREEMENT: 5466331701JVR
ON LANDS OF DARREL AND ROSE MANNING
PREPARED FOR USDA-NATURAL RESOURCES CONSERVATION SERVICE
SECTION 12 T.163 N., R.67W., 5TH P.M., TOWNER COUNTY, ND

BEARINGS AND DISTANCES

BEARINGS ARE GRID BEARINGS.

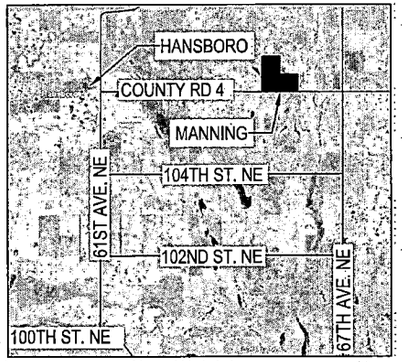
UTM WITH NAD83 DATUM, ZONE 14, US FOOT; CENTRAL MERIDIAN 99° W, WAS USED FOR THE PROJECT. THE DISTANCES SHOWN ARE GROUND DISTANCES, TO OBTAIN THE GRID DISTANCE MULTIPLY THE SHOWN DISTANCES BY THE AVERAGED COMBINED FACTOR OF 0.99953412

ACCURACY STATEMENT

SURVEY PERFORMED USING A JAVAD TRIUMPH-1M GPS BASE STATION AND A JAVAD TRIUMPH-LS ROVER. FIELD ACCURACY SPECIFICATION AND POSITION TOLERANCE ARE IN ACCORDANCE WITH NORTH DAKOTA RURAL AREA SURVEYS.

PARENT PARCEL DESCRIPTION

SW1/4 OF SECTION 12, TOWNSHIP 163 NORTH RANGE 67 WEST OF THE FIFTH PRINCIPAL MERIDIAN, TOWNER COUNTY, NORTH DAKOTA.



VICINITY MAP
NOT TO SCALE

SURVEYOR'S CERTIFICATION

THIS IS TO CERTIFY THAT THIS SURVEY, DONE BY THE UNDERSIGNED, WAS DONE ON THE GROUND IN ACCORDANCE WITH THE MOST RECENT MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS AS SET FORTH BY THE STATE OF NORTH DAKOTA BOARD FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS. THE ACCURACY AND POSITION TOLERANCE ARE ALSO IN ACCORDANCE WITH THE RURAL SURVEYS AND HAS BEEN MADE IN STRICT CONFORMITY WITH THE NATURAL RESOURCES CONSERVATION SERVICE EASEMENT PROGRAMS LAND SURVEY SPECIFICATIONS.

FIELD SURVEY COMPLETED
AUGUST 2018

DANIEL J. ATHA P.L.S.
CERTIFICATE #LS-9951

REGISTERED PROFESSIONAL LAND SURVEYOR
DANIEL J. ATHA
LS-9951
DATE 4/23/2020
NORTH DAKOTA

W.R.E. INFORMATION: CONTRACT # 5466331701JVR
AREA: 113.86 ACRES
CLIENT: USDA NRCS

SURVEY COMPANY: COFFMAN ENGINEERS
10 NORTH POST STREET, SUITE 500
SPOKANE, WA 99201

PROPERTY OWNER:
DARREL AND ROSE MANNING

PARTY CHIEF:	*SHEET #*
JUSTIN ANDERSON	1 OF 3

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CERTIFICATE OF SURVEY
PLAT OR DESCRIPTION OF NRCS CONSERVATION EASEMENT
NRCS AGREEMENT: 5466331701JVR
ON LANDS OF DARREL AND ROSE MANNING
PREPARED FOR USDA-NATURAL RESOURCES CONSERVATION SERVICE
SECTION 12 T.163 N., R.67W., 5TH P.M., TOWNER COUNTY, ND

LEGAL DESCRIPTIONS

PARCEL "A"

A CONSERVATION EASEMENT IN, OVER AND UPON A TRACT OF LAND LOCATED IN THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 163 NORTH, RANGE 67 WEST OF THE FIFTH PRINCIPAL MERIDIAN, TOWNER COUNTY, NORTH DAKOTA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

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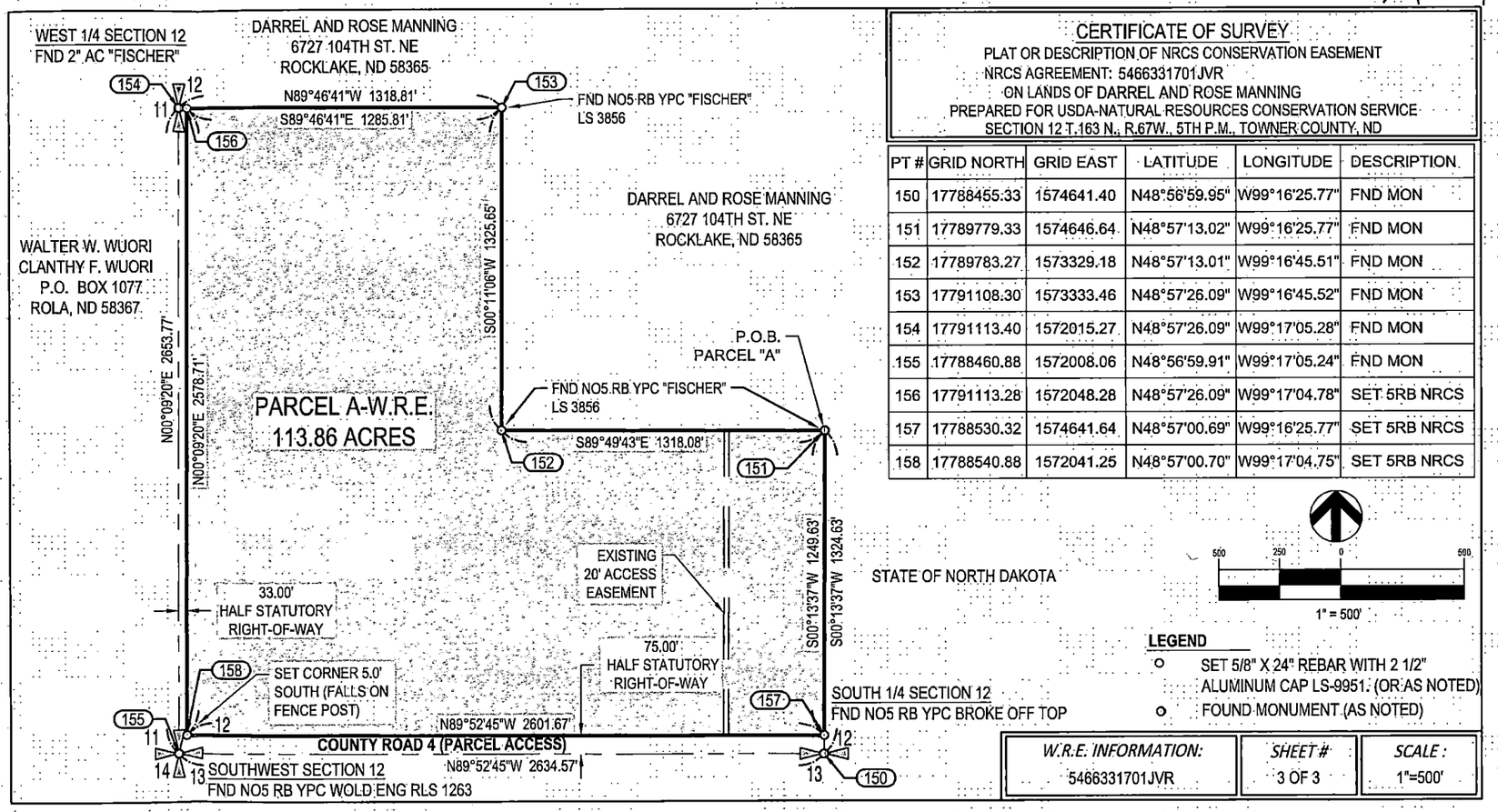
CONTAINING 113.86 AC. OF LAND MORE OR LESS.

SUBJECT TO A 20 FOOT ACCESS EASEMENT (SEE MAP)

ACCESS TO SAID EASEMENT IS PROVIDED FROM THE PUBLIC RIGHT OF WAY ALONG THE SECTION LINE ADJACENT TO SAID PARCEL ON THE SOUTH (COUNTY ROAD 4)

W.R.E. INFORMATION:	*SHEET #*	*SCALE :*
5466331701JVR	2 OF 3	N.T.S

Exh. 6.7 A 4 of 4



CERTIFICATE OF SURVEY

PLAT OR DESCRIPTION OF NRCS CONSERVATION EASEMENT
NRCS AGREEMENT: 5466331701JVR
ON LANDS OF DARREL AND ROSE MANNING
PREPARED FOR USDA-NATURAL RESOURCES CONSERVATION SERVICE
SECTION 12 T.163 N., R.67W., 5TH P.M., TOWNER COUNTY, ND

PT #	GRID NORTH	GRID EAST	LATITUDE	LONGITUDE	DESCRIPTION
150	17788455.33	1574641.40	N48°56'59.95"	W99°16'25.77"	FND MON
151	17789779.33	1574646.64	N48°57'13.02"	W99°16'25.77"	FND MON
152	17789783.27	1573329.18	N48°57'13.01"	W99°16'45.51"	FND MON
153	17791108.30	1573333.46	N48°57'26.09"	W99°16'45.52"	FND MON
154	17791113.40	1572015.27	N48°57'26.09"	W99°17'05.28"	FND MON
155	17788460.88	1572008.06	N48°56'59.91"	W99°17'05.24"	FND MON
156	17791113.28	1572048.28	N48°57'26.09"	W99°17'04.78"	SET 5RB NRCS
157	17788530.32	1574641.64	N48°57'00.69"	W99°16'25.77"	SET 5RB NRCS
158	17788540.88	1572041.25	N48°57'00.70"	W99°17'04.75"	SET 5RB NRCS

LEGEND

- ○ SET 5/8" X 24" REBAR WITH 2 1/2" ALUMINUM CAP LS-9951. (OR AS NOTED)
- ○ FOUND MONUMENT (AS NOTED)

W.R.E. INFORMATION:	SHEET #	SCALE :
5466331701JVR	3 OF 3	1"=500'

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EXHIBIT B
LEGAL LAND SURVEY (INGRESS/EGRESS)

The right of way for purposes of accessing the Easement Area is described on Exhibit A.

EXHIBIT C
SUBSURFACE RESOURCE RIGHTS

Subsurface exploration activities and/or removal of minerals or oil and gas by the Grantors, or their successors, agents, or assigns within the boundaries of the Easement Area may only take place upon authorization by NRCS and only in accordance with a plan developed by the Grantors, NRCS and USFWS. The plan must contain provisions which minimize adverse impacts to the wetland functions and values and will be in compliance with all Federal, State and local laws and regulations governing disturbance of wetlands. Such authorization can only be provided, if, upon a determination of NRCS, in the exercise of its sole discretion and rights, that the proposed activity is not inconsistent with the long-term protection and enhancement of the wetland and other natural values of the Easement Area. If authorization is granted, NRCS shall prescribe the amount, method, timing, intensity, and/or duration of the authorized activity.

EXHIBIT D: WATER USES AND WATER RIGHTS

I. Water Uses and Water Rights Reserved to the Grantor ("Landowner")

(Warranty Easement Deed Part II.F.)

A. Identify with specificity each water use[1] that the NRCS determines the Landowner may continue on, across, or under the easement area without harming the purposes of the easement.

The Landowner may continue existing water uses on, across, under, or in the vicinity of the easement area so long as those uses do not drain, deplete, or add pollutants or excessive water quantities to the easement area, or otherwise conflict with the terms of the Warranty Easement Deed or purposes of the wetland easement.

B. For each water use described above, identify the water right[2], or portion of a water right, that is associated with that use. These are the only water rights, or portions of water rights, that the Landowner reserves for continuing agricultural or other uses. All details of each reserved water right, or reserved portion of a water right, must be specified, including the water right number, priority date or date of appropriation, date of permit or adjudication, source, flow, volume, point of diversion, place of use, period of use, means of conveyance and purpose of use.

The landowner has identified no water rights to be reserved that are associated with existing water uses on, across, under, or in the vicinity of the easement area.

C. For each water right identified above, the Landowner retains the right to maintain, repair and reconstruct any existing water facilities associated with the right unless that activity would adversely impact the conservation values of the easement, as determined by NRCS in

[1] For purposes of this exhibit, the term "water use" means activities that control water or the use of water instream or in situ. The term includes, but is not limited to, diverting water from its natural source; conveying water in canals, ditches, laterals, flumes, or pipelines; storing water in reservoirs, impoundments, or ponds; pumping or otherwise controlling groundwater; developing springs; and intentionally leaving a quantity of water instream or in situ for a particular purpose.

[2] For purposes of this exhibit, the term "water right" means an instrument, filing, or document that is associated with a particular water use. The term "water right" may include, but is not limited to water permits, water shares or stock certificates, water reservations, water allotments, or water contracts.

its sole judgment. The Landowner must obtain approval from the United States prior to commencing any substantial maintenance, repair, or reconstruction of existing facilities. "Substantial maintenance, repair, or reconstruction" means all activities that may adversely affect the purposes of the easement and includes, but is not limited to, the lining of irrigation works and the piping of water.

D. Any use other than stated above for water rights the Landowner reserves requires the consent of NRCS following its determination that the action will not be inconsistent with the purposes of the easement or the protection of the conservation values. This includes, but is not limited to, changing a water right to any new use (including municipal, industrial or commercial use); selling, leasing, transferring, or encumbering the water right; and changing the point of diversion or type or place use.

E. The Landowner reserves no other water rights or uses of water on, across, or under the easement area.

II. **Encumbered Water Uses and Water Rights for Easement Purposes** (Warranty Easement Deed, Part III.F.)

A. Describe with specificity water uses that the NRCS determines are necessary to accomplish the purposes of the easement.

Water currently present on the easement area is necessary for the purposes of the easement.

B. For each water use described in II.A. above, identify any associated existing water right or portion of a water right. These water rights are encumbered by the Warranty Easement Deed[3] for easement purposes, together with any associated rights-of-way, water conveyance and diversion structures, and water use equipment. Specify below details of each encumbered water right, or portion of a water right, including the water right number, priority date or date of appropriation, date of permit or adjudication, source, flow, volume, point of diversion, place of use, period of use, means of conveyance and purpose of use.

[3] By its terms, the Warranty Easement Deed also encumbers any water right appurtenant to the easement area that, for whatever reason, is not identified in this Exhibit D.

The Warranty Easement Deed encumbers any existing water rights that may exist and that are necessary or associated with maintaining current water levels on the easement area.

III. PROTECTION OF ENCUMBERED WATER RIGHTS
(Warranty Easement Deed Part III.G.)

The Landowner shall protect the encumbered water uses and rights identified in II.A. and II.B. above by—

A. Continuing to use the water for easement purposes so as to not abandon or forfeit any water rights by action or inaction.
B. Providing NRCS with any reports provided by or to state water officials, of water diversions and evidence of use, such as records of dates of impoundment.
C. Providing NRCS with all notices concerning water rights, including notices of abandonment or forfeiture, from state water officials.
D. Allowing NRCS to enter property to continue use of the water right to prevent abandonment or forfeiture.
E. Attempting to administratively prevent abandonment or forfeiture.
F. Never changing the water right(s) to another use, including sale or transfer of such water right, or conversion to another conservation use.

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EXHIBIT E
RESERVATION of GRAZING RIGHTS

Major Land Resource Area 53A, Northern Dark Brown Glaciated Plains and Major Land Resource Area 53B, Central Dark Brown Glaciated Plains and Major Land Resource Area 55A, Northern Black Glaciated Plains and Major Land Resource Area 55B, Central Black Glaciated Plains and Major Land Resource Area 56, Red River Valley of the North and Major Land Resource Area 102A, Rolling Till Prairie

Grazing rights are reserved for this Agricultural Conservation Easement Program – Wetland Reserve Easement (ACEP-WRE) site located within the area depicted on the January 2010 ND MLRA map included in this Exhibit.

This Exhibit E authorizes the Landowner to reserve grazing rights provided the NRCS determines that the reservation of the grazing right is:

- compatible with the land subject to the ACEP-WRE easement; and
- consistent with the long-term wetland protection and enhancement goals for which the easement is being established
- Meets NRCS 528 Standards and Specifications

The six aforementioned Major Land Resource Areas constitute approximately two-thirds of North Dakota; the area north and east of the Missouri River.

Ecosystem Description

Historic plant community for most of the area was mixed grass prairie, dominated by native, perennial grasses including green needlegrass and western wheatgrass. MLRA 56 was primarily tall grass prairie, dominated by Big bluestem, Indiangrass and switchgrass.

Wetland hydrology is primarily influenced by snowmelt and less significantly by rain and groundwater. Wetland types range from wet meadow to shallow-water marshes to open-water lakes. Wetlands provide many functions, including wildlife habitat, improved water quality and aquifer recharge. These functions are maximized by restoring and maintaining healthy ecosystems, starting with healthy soils and more readily recognized with vigorous, diverse native plant communities occupying the wetlands and associated uplands. Vigorous, diverse native plant communities can only be maintained with managed use. Non-use quickly leads to decline of the native plant community and reduced soil biology, facilitating the invasion of non-native, cool-season grass species. The resulting monocultures have greatly reduced plant species diversity, reduced hydrology and nutrient cycling, and provide lower quality wildlife habitat.

Wildlife habitat is a primary function provided by these wetland complexes. Many waterfowl, shorebirds and other wetland-dependent birds, including the federally endangered whooping crane utilize these wetlands as they migrate through the region. The region is also an important nesting and brooding area for many waterfowl species including Canada geese, mallard, teal,

pintail, and redheads. Wetlands buffered by vigorous, upland grasses filter run-on and subsurface discharge to improve water quality. The association of surface water and groundwater provides quality recharge and discharge to aquifers.

DESCRIPTION OF COMPATIBLE EFFECTS OF MANAGED GRAZING

The historic ecosystem was a grassland-dominated landscape that evolved under the influences of grazing by ungulates (bison, deer, pronghorn, and elk) as well as fire, pest infestations, drought, flood and other climatic forces. Grazing by livestock in these prairie landscapes replicates a natural process and can be prescribed to maximize wetland functions and values by maintaining a healthy mix of wetland habitats, including early successional and emergent wetland plants, open water, and mud flats, as well as native upland grasslands providing a diversity of vegetative structure and species. Grazing effects include both what the grazer eats and trampling effects from hoof action. As a result, it can be a tool to help control invasive vegetation which is often a significant threat to wetland functions. Grazing also maintains grassland structure (both height and density of vegetation) which can be used to provide habitat for targeted wildlife species. On some sites, residual cover from the previous growing season averaging 8-16 inches in height in April through July may be necessary to attract grassland nesting bird species. Conversely, short vegetation averaging less than 2 inches in height in May through September may be appropriate near wetlands to allow migrating shorebirds ready access to mud flats for feeding. Considerations should be evaluated to the relationship between the timing and intensity of grazing and the primary nesting season (April 15 – August 1).

Habitat improvement and maintenance gained from grazing according to an NRCS approved prescription as laid out in Attachment 1: ACEP-WRE Grazing Rights Reserved Prescribed Grazing Management Plan will have long-term benefits to grassland nesting bird species.

Specific grazing management requirements may vary and will be prescribed in the Attachment 1: ACEP-WRE Grazing Rights Reserved Prescribed Grazing Management Plan for the easement area. In general, high stock densities and short grazing periods with an adequate recovery period between grazing events is the preferred grazing strategy. Timing should vary from year-to-year to accommodate a diversity of plant species. As a result, grazing management in these areas may be used to maintain a vigorous, diverse composition of native herbaceous plants while providing varied habitat structure across the landscape. This strategy best resembles the historic grazing of large ungulates that helped this landscape evolve for thousands of years.

Monitoring of species composition and plant condition will weigh into modifications of the grazing plan. Any grazing allowed beyond that documented in the grazing plan agreed to at easement closing will require a compatible use authorization (CUA) from NRCS and is not a right reserved to the landowner. Each upland and wetland ecological site (wet meadow, shallow water marsh, upland prairie, etc.) has the potential to support different wildlife species, ranging from migratory birds to amphibians and pollinators. Long-term management of these sites should strive to maintain or improve the ecological processes while augmenting those potentials.

The Parties hereby agree that the grazing of the easement area is a necessary management tool to achieve and maintain desired wetland and upland plant community diversity and vigor. The Landowner agrees to apply the grazing management in accordance with the terms and conditions identified in this Exhibit and Attachment 1: ACEP-WRE Grazing Rights Reserved Prescribed Grazing Management Plan which is a component of the Wetland Reserve Easement Plan of Operations (WRPO) developed with NRCS. The WRPO will identify the different wetland and upland habitat that are to be maintained or restored on the easement area, and thus guide the grazing management requirements necessary to manage these habitats.

To use grazing as a vegetation management tool, Attachment 1: ACEP-WRE Grazing Rights Reserved Prescribed Grazing Management Plan must include the location, timing, intensity, frequency, and duration of grazing necessary to achieve the desired plant community phase which best maintains the wetland and upland functions and values of the WRE easement area as described herein. In particular, the grazing management plan will:

a. contain the provisions necessary to further the identified habitat and species goals and objectives described in the ACEP-WRE easement and this Exhibit herein;
b. be compatible with the identified habitat and species goals and objectives, as described under NRCS practice standard Wetland Wildlife Habitat Management (644) and/or Upland Wildlife Habitat Management (645);
c. include any livestock watering facilities or fencing. This infrastructure will include considerations for wildlife movement; and
d. include a plan map depicting grazing units, infrastructure (existing and proposed fence), and livestock watering facilities (existing and proposed locations) and the effects analysis for the infrastructure;
e. include monitoring criteria to evaluate the effect grazing has on the plant communities and desired habitat. Include the flexibility to make annual adjustments in the location, timing, intensity, frequency, and duration of grazing to account for seasonal climatic factors that result in changes in forage production and subsequent impacts of stocking rates on the desired habitat conditions;
f. include annual monitoring of the effects of grazing on fish and wildlife functions/services and plant community goals. NRCS may require changes to the grazing management plan to address appropriate habitat features such as nesting, open water, invasive species control, or other factors that were not adequately addressed in the original grazing management plan but are necessary to achieve the goals and objectives of the ACEP-WRE easement and this Exhibit.

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EXIHIBIT E ATTACHEMNENT 1

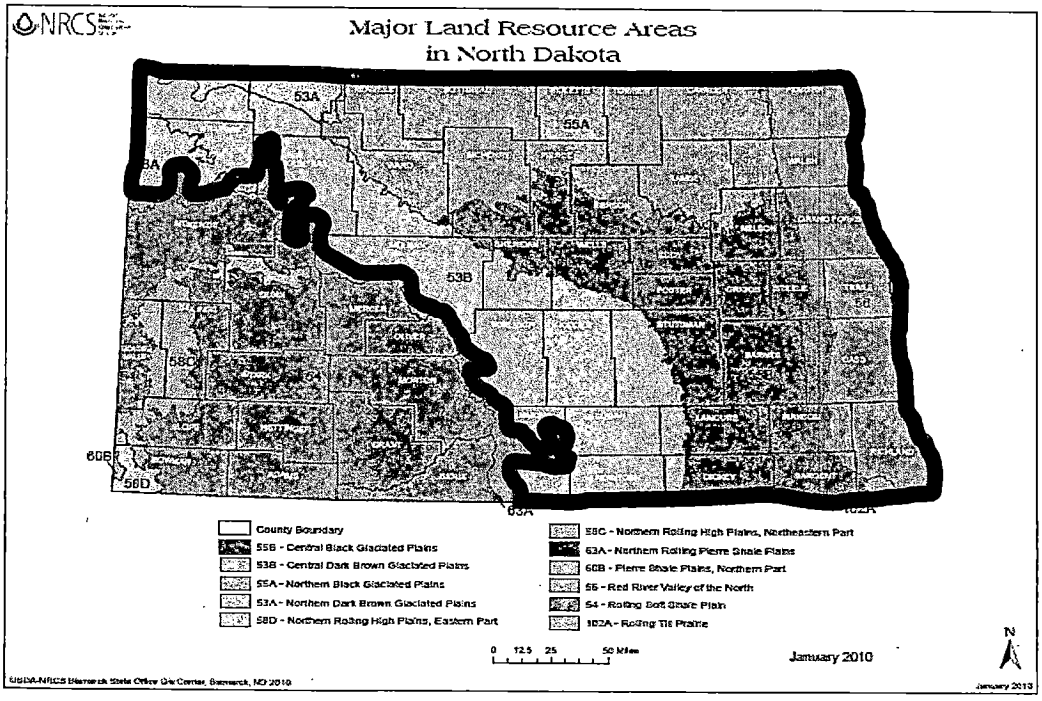
ACEP-WRE GRAZING RIGHTS RESERVED PRESCRIBED GRAZING MANAGEMENT PLAN

WRE Easement Number: 5466331701JVR

Prepared by:

Name: Dustin Brodina

Date: 8/12/2019



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Chapter 1: Overview

This grazing management plan is specifically developed for the WRE Grazing Rights Reserved Easement **5466331701JVR**. Grazing will be done to accomplish specific conservation objectives as laid out in Chapter 2. The grazing management plan is developed following ND NRCS Conservation Practice 528 Prescribed Grazing Standard and Specification. Any adjustments (e.g. grazing schedule, length of grazing season, etc.) to this grazing management plan must be based on site conditions and approved through the Compatible Use Authorization (CUA). Chapter 5 Attachments are considered progressive documents that may change due to fluctuations in site conditions and associated changes in management objectives.

The owner of the land subject to WRE Grazing Rights Reserved Easement **5466331701JVR** agrees to the grazing management plan as laid out in this document.

Dan Manning	7-14-2020
Participant Signature	Date
Rose Manning	07-14-2020
Participant Signature	Date
Participant Signature	Date
Participant Signature	Date

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Chapter 2: Habitat and Species Goals and Objectives

A grazing management plan that alters season of use on native vegetation, provides adequate recovery periods (as laid out in the NRCS Conservation Practice Specification 528 Prescribed Grazing), and maintains a maximum utilization (degree of use) of 50% will have long term benefits to the primary objective listed below. These principles can be adjusted based on specific objectives and expected outcomes.

NRCS will provide initial carrying capacities for the easement. A change in stocking levels may result in adjustments to the principles of the grazing management plan. The participant will notify NRCS in changes to stocking levels.

Primary Objective:
Wildlife habitat is a primary function provided by these wetland complexes. Many waterfowl, shorebirds and other wetland-dependent birds, including the federally endangered whooping crane utilize these wetlands as they migrate through the region. The region is also an important nesting and brooding area for many waterfowl species including Canada geese, mallard, teal, pintail, and redheads. Wetlands buffered by vigorous, upland grasses filter run-on and subsurface discharge to improve water quality. The association of surface water and groundwater provides quality recharge and discharge to aquifers.

Additional Objectives:
The site is dominated by Saline, Ecological Site Descriptions. The invasion of introduced species has altered the natural range of variability for this ecological site.This state still has a strong component of warm and cool-season native grass species.The warm- and coolseason co-dominated community is maintained with grazing systems that allow for adequate recovery periods following grazing events. Based on information gatherd in the field a grazing system will improve our similarity index and bring the current community phase toward the Reference State community phase.

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Chapter 3 Monitoring Plan

NRCS conservation practice specification 528 Prescribed Grazing requires a monitoring plan be implemented with the prescribed grazing plan. This chapter provides the different types of monitoring methods the participant can select. Vegetation monitoring along with grazing records can help determine adjustments to the principals of the grazing management plan as laid out in Chapter 2.

Prescribed Grazing Monitoring

Grazing land monitoring is the orderly collection, analysis, and interpretation of resource information which can be used to make both short- and long-term management decisions. Monitoring provides the information needed to determine if current management is moving the resource toward or away from the desired condition and/or goal.

The participant may choose any of the following monitoring methods to track results from the prescribed grazing plan

- Photo Points
- Proper Grazing Use (Form ND CPA 414 Proper Grazing Use)
- Estimated Utilization Key Area - Key Species (From ND CPA 414A Estimated Utilization Key Area – Key Species)
- Estimated Utilization Landscape Appearance (Form ND CPA 415 Estimated Utilization Landscape Appearance)

The following tables and diagrams provide information useful for determining utilization levels on key species and recommended leaf lengths for initiating and ending grazing periods. Instructions on the establishment of photo point monitoring are also included. Many other monitoring techniques are available. Each technique varies as to the type of information collected, intensity of data collection, and amount of time required to collect the data.

TABLE 1. Percent Weight Removed as a Relationship to Percent Height Removed

Species	10	20	30	40	50	55	60	65	70	75	80	85	90	95
Big Bluestem	2	6	11	17	23	30	35	41	46	54	62	71	79	89
Blue Grama	2	4	6	9	13	15	17	20	25	28	35	42	53	75
Buffalograss	2	5	7	11	18	21	32	35	38	45	53	62	71	77
Crested Wheatgrass	2	4	7	11	18	24	29	33	38	44	53	60	68	83
Green Needlegrass	2	4	6	11	16	20	25	30	36	44	52	61	71	85
Kentucky Bluegrass	1	3	5	9	14	16	20	26	34	40	47	57	71	85
Little Bluestem	1	4	9	15	23	27	32	37	41	47	53	61	70	82

Needleandthread	1	2	4	6	10	12	15	19	24	29	36	46	56	73
Wetland Sedge	2	5	9	13	18	21	26	31	39	46	54	62	73	86
Prairie Junegrass	2	4	6	9	13	16	18	21	25	30	35	42	55	69
Prairie Sandreed	2	6	11	17	23	30	35	41	46	54	62	71	79	89
Prairie Threeawn	2	6	11	17	26	30	36	42	46	53	61	70	78	89
Sandberg Bluegrass	1	2	4	8	11	14	16	19	24	30	37	46	56	75
Sand Dropseed	1	3	5	8	12	17	21	25	30	35	46	56	68	83
Sideoats Grama	1	3	5	9	14	18	23	27	32	39	47	56	66	80
Slender Wheatgrass	2	6	9	12	17	21	27	31	36	42	51	59	69	80
Smooth Bromegrass	3	6	11	15	19	27	32	37	45	52	58	63	82	92
Switchgrass	2	5	9	13	20	26	30	36	42	50	59	58	76	89
Upland Sedge	2	4	6	10	15	17	21	27	34	41	48	59	73	86
Western Wheatgrass	2	6	11	17	26	32	37	44	50	58	66	74	82	91

To use this table, first calculate the percent of the height of the plant removed by grazing. Find this figure on the top line of the table and then follow that column down to the appropriate species. This figure represents an **estimate** of the percent of the weight removed.

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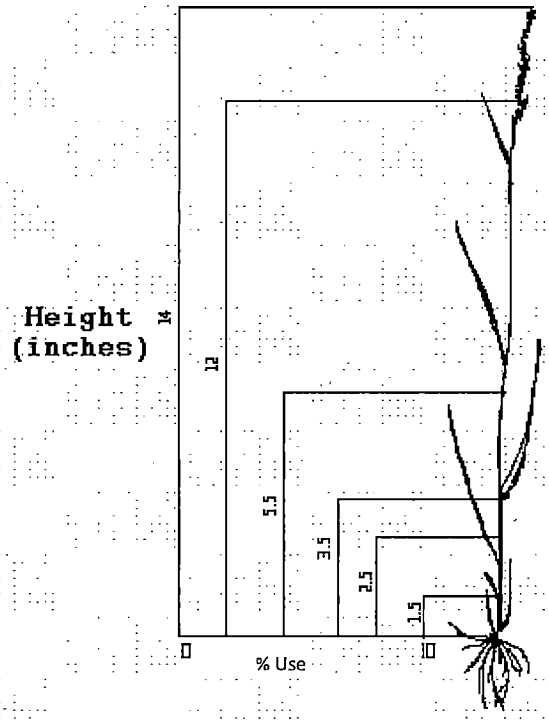

Figure 1. Western wheatgrass.[1]

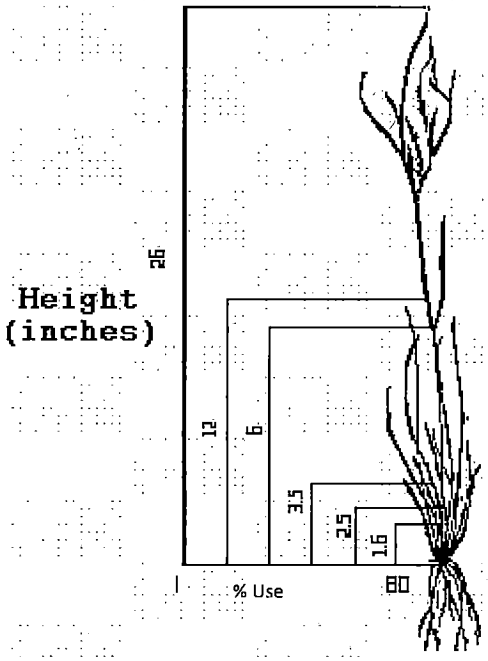

Figure 2. Needle-and-thread.[1]

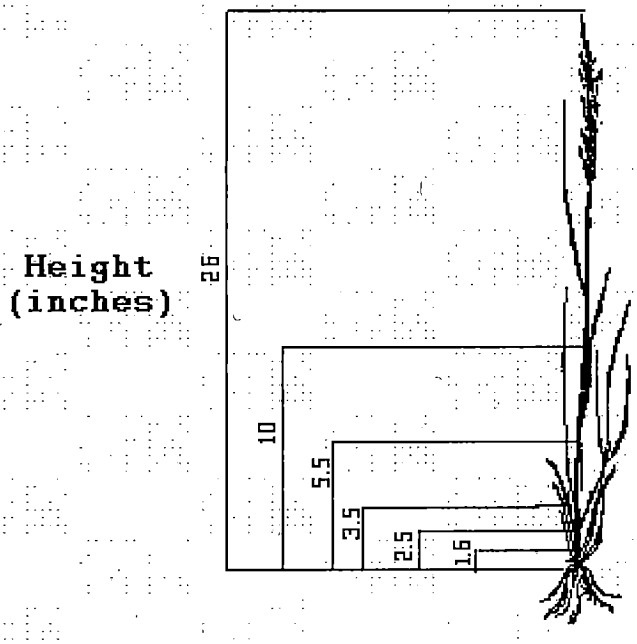

Figure 3. Green needlegrass.[1]

1 *"Monitoring Montana Rangeland". Montana State University Extension Service. 1999.*

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TABLE 2. Minimum Heights of Pasture Species for Initiating and Terminating Grazing

	Begin Grazing		End Grazing	
Species	Minimum & Optimum Height of Vegetative Growth in Inches	Approximate Date	Minimum Stubble Height in Inches	Minimum Regrowth Before Killing Frost in Inches
Alfalfa	6 – 10	May 15	3	8
Biennial sweetclover	6 – 10	May 1	2	-
Big & Sand bluestem	8 – 14	July 1	6	6
Creeping foxtail	8 – 10	May 7	3	6
Crested wheatgrass	4 – 6	April 20	3	4
Green needlegrass	6 – 8	May 15	3	5
Indiangrass	8 – 14	July 1	6	6
Intermediate wheatgrass	8 – 14	May 15	4	6
Kentucky bluegrass	4 – 6	May 7	2	4
Little bluestem	4 – 6	July 1	3	4
Orchardgrass	6 – 10	May 15	4	6
Pubescent wheatgrass	8 – 14	May 15	4	6
Prairie sandreed	8 – 14	June 20	4	6
Reed canarygrass	8 – 8	May 7	4	6
Russian wildrye	4 – 4	May 7	3	4
Sideoats grama	4 – 6	June 20	2	4
Slender wheatgrass	6 – 12	May 7	3	6
Smooth brome	8 – 14	May 7	4	6
Switchgrass	12 – 20	June 20	8	10
Tall wheatgrass	8 – 14	May 7	4	6

Timothy	6 – 10	June 1	3	5
Western wheatgrass	6 – 10	May 15	4	5

Grass and legume mixtures should be grazed in a manner that favors the dominant or desired species.

Height is the average height when **leaves** are lifted in a vertical position.

PERMANENT PHOTO-POINT MONITORING [1]

Repeated photographs taken at permanent locations are an effective and efficient method for long-term monitoring. When using this method, it is important to: 1) use similar techniques, 2) identify the date and location within the picture, 3) take the picture during the same stage of plant growth, 4) include the same skyline in the landscape picture, and 5) carefully relocate the photo points each time. It is also important to maintain consistency in camera type (lens size), film, timing, and associated documentation.

Repeated landscape scale photographs can provide basic documentation of range trend. Landscape photos should be taken from the same designated point at approximately the same time of year. Photographs that include a distinctive landmark in the background or on the horizon are easier to relocate. It is very difficult to locate previously established photo points without a portion of the horizon in the photograph. Previous photographs (or photocopies) can also be helpful in "framing" the photo consistently from year to year.

Equipment:

- Baseline Information Form and Photo Point Transect form.
- Two, six foot folding carpenter rulers or other suitable device to provide a reference scale.
- A metal or plastic stake, approximately 24 inches in length, for marking the photo point.
- Camera (digital or 35mm with print film) and Photo Information Sheet.

Procedure:

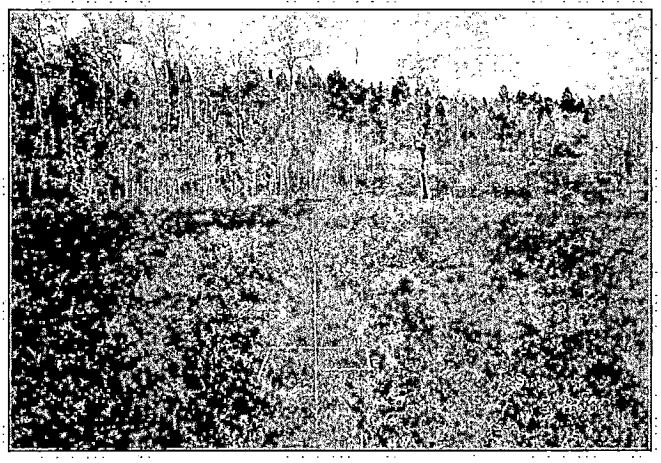
- Establish the photo point, install a permanent marker stake. Stake should be driven into the soil to a depth at which it can be located but will not attract animals, injure an animal or puncture a tire. If available, record GPS coordinates to assist in re-location of the point.
- Complete the Baseline Information Form for the site.
- Using the two carpenters rulers, create a 3 ft. x 3 ft. square frame and lay it next to the marking stake or within a few feet of the stake (if the area adjacent to the stake has been disturbed by livestock) in the direction you will be taking the landscape photo. Standing over the frame, take a photograph looking down at the framed section. Try to avoid casting a shadow across the frame when taking this photo.
- From behind the stake, take a landscape photograph towards a re-locatable bearing point **(This photo is illustrated on the following page).**
- Use the **Photo Information Sheet** in all photographs, if possible. **You will have a total of 2 photos per point.**

Notes:

- **A single photograph** from a permanently marked site (fence post, rock, etc.) of a stream crossing, gully, headcut or other impacted site can be very effective in demonstrating resource recovery or the need to modify current management.
- Finding the location of an old photograph (scenery, fishing trip with a stream in the background, etc.) and retaking it can provide good information on past use and trend of a site.

Things to remember

- Take photos of the plot and of the general view.
- If retaking photos, try to match the plot frame size used previously.
- If the photo plot is difficult to locate use a witness post. Make sure the photo plot is at least 20 feet away from the post. For all photo points consistently document the photo plot location with respect to the witness post.
- Include the Photo Information Sheet in the photo. Colored paper works best as white is too bright. Photo information sheets need to be large enough to be legible in the photo.
- The photo should usually be taken from the north side of the plot to avoid casting a shadow into the photo.
- Photos should be repeated annually, at the same time of the growing season.



Sample of a general landscape monitoring photo

[1] *"Wyoming Rangeland Monitoring Guide". August 2001.*

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Photo Information Sheet

(example)

Transect ID: ___#1__ Date: __9-30-03_ Observer: __Joe_____

Pasture name or number: _____Pasture #6_____

Period(s) of use: __5/21__ to ___5/31_; __8/10_ to __8/21_; _____ to _____

Photo point location: ____SWNE 10-129-38_____

GPS coordinates: ____GPS-UTM 5191148 N. 627345 E._____

Direction photo was taken: _____Southeast_____

Photo subject: ____General landscape_____

Purpose of photo: ___prescribed grazing documentation for 2003_____

Photo Information Sheet

Transect ID: _____ Date: _____ Observer: _____

Pasture name or number: _____

Period(s) of use: _____ to _____; _____ to _____; _____ to_____

Photo point location:_____

GPS coordinates: _____

Direction photo was taken: _____

Photo subject: _____

Purpose of photo: _____

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Sample photo information sheet

Pasture Name: _____

Transect ID: _____

Observer: _____

Date: _____

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Proper Grazing Use

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Cooperator _____

Grazing Unit	Acres	Species of Grazing Animal	Season of Use	Location of Key Grazing Area	Key Plant(s) for Judging Proper Grazing Use	Recommended percent use on key species at end of grazing season	Percent of weight removed[1] Year	Year	Year	Year	Year
						Initials of Conservationist assisting with applications					
						Dates of Application Checks					

_____ _____
Name of Planner Date

[1] Degree of use will be determined using one of the methods described in the documentation section of the Prescribed Grazing (528) DIG.

Figure 1. ND CPA 414 Proper Grazing Use

Instructions for CPA 414 Proper Use

Proper Grazing Use

Grazing Unit: Enter in this column the name of the pasture or field used by the cooperator or the number from the conservation plan map.

Acres: Enter in this column the acreage of the grazing unit.

Species of Grazing Animal: Enter in this column the species and class of livestock being grazed such as: dry cows, cow-calves, ewes and lambs, yearling cattle, 2-year steers, yearling sheep, goats, deer, horses, elk, etc.

Season of Use: Enter in this column the season that unit will be grazed such as: fall, winter, spring, summer, or by months: Sept. - Oct, Nov. - Mar., May - Jul., etc.

Location of Key Grazing Area: Enter in this column a description of the key grazing area. This may be an ecological site, it may be a portion of a site, or it might be a particular location within the grazing unit such as: S-W portion of grazing unit starting about 200 yards from pond to fence.

Key Plant(s) for Judging Proper Grazing Use: Enter in this column the species by common name on which you and the cooperator decide proper grazing use will be judged. There may be occasion when you will select two species, in this case enter the name of both species.

Recommended percent use on key species at end of grazing season: Enter in this column, the percent by **weight**, of the current year's growth of the key species that may be removed as still meet the client's resource objectives. See "Utilization Guidelines" table in the Prescribed Grazing (528) DIG for further guidance.

Percent of weight removed: Enter in this column, by calendar year, the actual percent by weight of the selected key species, by weight, removed. This measurement should be based on the key species on the key grazing area, at or near the end of the grazing period or season. Actual degree of use will be determined using one of the methods described in the documentation section of the Prescribed Grazing (528) DIG.

1 See National Range and Pasture Handbook, Chapter 4, Part 600.0401(e) and Chapter 5, Part 600.0500(c) for further guidance.

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Estimated Utilization - Key Area - Key Species [1]

Client: _____ Key and/or Class of Animal: _____

Reviewer: _____ Key species: _____

Date: _____ Pasture Name or #: _____

Period of Use: _____

Location of key area: _____

(A) Class (Midpoint)	(B) Dot Tally	(C) Total # of Hits	(D) Midpoint Value X Total # of Hits	Description of Key Species Appearance
0 - 20% (10.0%)				**Class 1.** Less than 50% of the **height** of the key species has been removed by grazing. The other herbaceous forage plants may be topped or slightly used.
21 - 40% (30.0%)				**Class 2.** 50 to 65% of the **height** of the key species has been removed. The low value herbaceous plants are ungrazed. Fewer than 50% of the young plants are grazed. The rangeland may be topped, skimmed or grazed in patches.
41 - 60% (50.0%)				**Class 3.** 65 to 80% of the **height** of the key species have been removed. No more than 10% of the number of low-value herbaceouse forage plants have been utilized. The rangeland appears entirely covered as uniformly as natural features and facitilites allow.
61 - 80% (70.0%)				**Class 4.** Greater than 80% of the **height** of the key species has been removed. Tillers of rhizomatous grasses have been grazed below the point of bottom leaf attachment.
81 - 100% (90.0%)				**Class 5.** Key species appear to have been heavily or completely utilized. There are indications of repeated use. The remaining stubble is utilized to the soil surface.
	Totals			
Average Utilization (% equals D total ÷ C total)				

Observations and Comments:

[1] Adapted from "Utilization Studies and Residual Measurements." Interagency Technical Reference. 1996.

Figure 2. ND CPA 414A Estimated Utilization Key Area- Key Species

Example ND CPA 414A

USDA United States Department of Agriculture

Estimated Utilization - Key Area - Key Species [1]

Client

Reviewer

Date

Key and/or Class of Animal:

Key species:

Pasture Name or # :

Period of Use:

Location of key area:

(A) Class (Midpoint)	(B) Dot Tally	(C) Total # of Hits	(D) Midpoint Value X Total # of Hits	Description of Key Species Appearance
0 - 20% (10.0%)	8	8	0.8	**Class 1.** Less than 50% of the **height** of the key species has been removed by grazing. The other herbaceous forage plants may be topped or slightly used.
21 - 40% (30.0%)	24	24	7.2	**Class 2.** 50 to 65% of the **height** of the key species has been removed. The low value herbaceous plants are ungrazed. Fewer than 50% of the young plants are grazed. The rangeland may be topped, skimmed or grazed in patches.
41 - 60% (50.0%)	26	26	13	**Class 3.** 65 to 80% of the **height** of the key species have been removed. No more than 10% of the number of low-value herbaceouse forage plants have been utilized. The rangeland appears entirely covered as uniformly as natural features and facitilites allow.
61 - 80% (70.0%)	34	34	23.8	**Class 4.** Greater than 80% of the **height** of the key species has been removed. Tillers of rhizomatous grasses have been grazed below the point of bottom leaf attachment.
81 - 100% (90.0%)	8	8	7.2	**Class 5.** Key species appear to have been heavily or completely utilized. There are indications of repeated use. The remaining stubble is utilized to the soil surface.
	Totals	**100**		
Average Utilization (% equals D total ÷ C total)				

Observations and Comments:

[1] Adapted from "Utilization Studies and Residual Measurements." Interagency Technical Reference. 1996.

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ND CAP 414A Instructions

Estimated Utilization - Key Area - Key Species [1]

At each observation point, record a "tick" mark in this column next to the category which best describes the utilization level at that point. An observation point is the immediate area visible to the examiner when standing at a particular location along the transect. The examiner should strive to record 100 points along a transect which adequately covers the area to be examined.

C

R

D

Key and/or Class of Animal: _____

Key species: _____

Pasture Name or # : _____

Pe

Indicate total number of hits recorded for this category (total number of hits).

Multiply total number of hits (column C) by the midpoint number for this description class (the midpoint is the number shown in the "( )" in column A).

(A) Class (Midpoint)	(B) Dot Tally	(C) Total # of Hits	(D) Midpoint Value X Total # of Hits	ppearance
0 - 20% (10.0%)		8	0.8	**Class 1.** Less than 50% of the **height** of the key species has been removed by gra ts may be topped or slight
21 - 40% (30.0%)		24	7.2	**Class 2.** 50 to as been removed. The l d. Fewer than 50% of the you y be topped, skimmed or gra
41 - 60% (50.0%)		26	13	**Class 3.** 65 to ave been removed. No m herbaceouse forage plants ha s entirely covered as unif llow.
61 - 80% (70.0%)		Enter total for this column.	.8	**Class 4.** Greater than 80% of the **height** of the key species has been removed. Tillers of rhizomatous grasses have been grazed below the point of bottom leaf attachment.
81 - 100% (90.0%)		8	7.2	**Class 5.** Ke ve been heavily or completely utilized. The peated use. The remaining stubble is utilized to
	Totals	**100**		
Average Utilization (% equals D total ÷ C total)				

Enter total for this column.

At each observation point along the transect, estimate the utilization class using the written description of the classes. In those cases where part of a class description does not apply, judge utilization based on those parts of the description that do apply. Mathamatically determine % height removed by measuring the average height of several ungrazed key species plants and comparing them to average grazed height of several grazed key species plants.

Divide the total of Column D by the total of Column C. This is your overall utilization rating for the area being

Record relevant observation. Digital photos are also useful documentation.

Observations and Comments:

[1] Adapted from "Utilization Studies and Residual Measurements." Interagency Technical Reference. 1996.

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Estimated Utilization - Landscape Appearance (Rangeland)[1]

Client | Pasture Name or Number

Reviewer | Kind and/or Class of Animal

Date | Pasture Use Dates ____ to ____ ; ____ to ____ ; ____ to ____

(A) Class (Midpoint)	(B) Dot Tally	(C) Total # of Hits	(D) Midpoint Value X Total # of Hits	Description of Landscape Appearance
0 - 20% (10.0%)				**Class 1.** The immediate area shows no evidence of grazing or has the appearance of very light grazing. The grazed plants may be topped or slightly used with less than 50% of herbaceous plant **height** removed.
21 - 40% (30.0%)				**Class 2.** The immediate area may be topped, skimmed or grazed in patches. 50 to 65% of the **height** of the grazed plants has been removed. Fewer than 50% or the young plants are grazed. The low value (unpalatable) herbaceous plants are ungrazed.
41 - 60% (50.0%)				**Class 3.** The immediate area appears entirely covered as uniformly as natural features and facilities will allow. 65 to 80% of the **height** of grazed plants has been removed. No more than 10% of the number of low-value (unpalatable) herbaceous forage plants have been utilized.
61 - 80% (70.0%)				**Class 4.** The immediate area has the appearance of complete search for forage. Majority of the palatable plants are completely utilized with greater than 80% of the **height** removed. Shoots of rhizomatous grasses are missing and tillers have been grazed below the point of bottom leaf attachment. Greater than 10% of the number of low-value herbaceous forage plants have been utilized.
81 - 100% (90.0%)				**Class 5.** The immediate area has a mown appearance and there are indications of repeated coverage. Herbaceous forage species are completely utilized. The remaining stubble of preferred grasses is grazed to the soil surface. More than 50% of the low-value (unpalatable) herbaceous plants have been utilized.
	Totals			
Average Utilization (% equals D total ÷ C total)				

Observations and Comments:

[1] Adapted from "Utilization Studies and Residual Measurements." Interagency Technical Reference. 1996.

Figure 3. ND CPA 415 Estimated Utilization – Landscape Appearance

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ND CPA 415 Example

Estimated Utilization - Landscape Appearance (Rangeland)[1]

Client _____ Pasture Name or # _____

Reviewer _____ Kind and/or Class of Animal _____

Date _____ Pasture Use Dates _____ to _____ to _____ to _____

(A) Class (Midpoint)	(B) Dot Tally	(C) Total # of Hits	(D) Midpoint Value X Total # of Hits	Description of Landscape Appearance
0 - 20% (10.0%)	𝍸 |||	8	0.8	**Class 1.** The immediate area shows no evidence of grazing or has the appearance of very light grazing. The grazed plants may be topped or slightly used with less than 50% of herbaceous plant **height** removed.
21 - 40% (30.0%)	𝍸 𝍸 𝍸 |	24	7.2	**Class 2.** The immediate area may be topped, skimmed or grazed in patches. 50 to 65% of the **height** of the grazed plants has been removed. Fewer than 50% or the young plants are grazed. The low value (unpalatable) herbaceous plants are ungrazed.
41 - 60% (50.0%)	𝍸 𝍸 𝍸 |	26	13	**Class 3.** The immediate area appears entirely covered as uniformly as natural features and facilities will allow. 65 to 80% of the **height** of grazed plants has been removed. No more than 10% of the number of low-value (unpalatable) herbaceous forage plants have been utilized.
61 - 80% (70.0%)	𝍸 𝍸 𝍸 |||	34	23.8	**Class 4.** The immediate area has the appearance of complete search for forage. Majority of the palatable plants are completely utilized with greater than 80% of the **height** removed. Shoots of rhizomatous grasses are missing and tillers have been grazed below the point of bottom leaf attachment. Greater than 10% of the number of low-value herbaceous forage plants have been utilized.
81 - 100% (90.0%)	𝍸 ||	8	7.2	**Class 5.** The immediate area has a mown appearance and there are indications of repeated coverage. Herbaceous forage species are completely utilized. The remaining stubble of preferred grasses is grazed to the soil surface. More than 50% of the low-value (unpalatable) herbaceous plants have been utilized.
	Totals	**100**	**52**	
Average Utilization (% equals D total ÷ C total)			**52%**	

Observations and Comments:

[1] Adapted from "Utilization Studies and Residual Measurements." Interagency Technical Reference. 1996.

ND CPA 415 Instructions

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Estimated Utilization - Landscape Appearance (Ra

Enter name or number of pasture being evaluated.

Client: _____ Enter client's name.

Pasture Name or #: _____

Reviewer: _____ Enter evaluator's name.

Date: _____ Enter date of evaluation.

Kind and/or Class of Animal: _____ Enter kind (i.e. cattle, sheep, goats) and/or class (i.e. yearling steer, cow/calf) of animal grazing the pasture.

Pasture Use Dates: _____ to _____ Enter dates of grazing period. I.e. 6/15 to 7/1.

_____ to _____

_____ to _____

(A) Class (Midpoint)	(B) Dot Tally	(C) Total # of Hits	(D) Midpoint Value X Total # of Hits	Description of Landscape Appearance
0 - 20% (10.0%)				**Class 1.** The immediate area shows no evidence of grazing or has the appearance of very light grazing. The grazed plants may be topped or slightly used with less than 50% of herbaceous plant **height** removed.
21 - 4 (30.0				e immediate area may be topped, skimmed or grazed in patches. 50 to 65% of the **height** of the ts has been removed. Fewer than 50% or the young plants are grazed. The low value (unpalatable) plants are ungrazed.
41 - 6 (50.0				**Class 3.** d as uniformly as **natural fe** the height of **grazed pl** of the number of **low-value** ve been utilized.
61 - 8 (70.0				**Class 4.** The imme plete search for forage. Majority of the palatable plants are completely utiliz ht removed. Shoots of rhizomatous grasses are missing and tillers. H ottom leaf attachment. Greater than 10% of the number of low-value herbace
81 - 100% (90.0%)				**Class 5. The imm ce and there are indications of repe e species are completely utilized. The remaining stubble of preferred grasses is grazed to the soil surface. More than 50% of the low-value (unpalatable) herbaceous plants have been utilized.**
	Totals	(E)	(F)	
	Average Utilization (% equals D total + C total)			

Indicate total number of hits recorded for this category (total number of hits).

At each observation point, record a "tick" mark in this column next to the category which best describes the utilization level at that point. An observation point is the immediate area visible to the examiner when standing at a particular location along the transect. The examiner should strive to record 100 points along a transect which adequately covers the area to be examined.

Multiply total number of hits (column C) by the midpoint number for this description class (the midpoint is the number shown in the "( )" in column A).

At each observation point along the transect, estimate the utilization class using the written description of the classes. In those cases where part of a class description does not apply (example: percentage of seedstalks remaining), judge utilization based on those parts of the description that do apply.

Enter total for this column.

Enter total for this column.

Observations:

Record relavent observations. Digital photos are also useful documentation.

[1] Adapted from "Utilization Studies and Residual Measurements." Interagency Technical Reference. 1996.

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Chapter 4 Drought Management

PRESCRIBED GRAZING DROUGHT MANAGEMENT CONTINGENCY PLAN[1]

The purpose of a drought contingency plan is:

1. Describe the drought indicators and response triggers that will be used to determine if drought response actions are needed.
2. Provide land owners and managers with a range of management options that will allow for a flexible and rapid response to drought.

The timing, intensity and duration of every drought event is unique and will impact the resources of each operation in a unique manner. As a result, the drought contingency plan is meant to be adapted and adjusted in a manner that will ensure livestock management during drought does not impact the natural resources adversely and compromise the land manager's ability to meet the fundamentals of grassland management.

Drought is a constant and normal part of the rangeland environment. It is not a question of whether drought will occur, but when and how severe. In the North Dakota, ranchers are always in some phase of drought management. Ranchers who understand the need to prepare for, endure, and recover rapidly form drought will survive the guaranteed, but unpredictable drought cycles.

There is no special prescription for drought management. **Good grazing land management is good drought management.** This embodies utilizing a good prescribed grazing system which permits control of grazing frequency and intensity and provides proper recovery periods after grazing, proper livestock distribution, season of use, and stocking rate as well as kind and class of livestock. **During a drought, there are no tricks to compensate for past overgrazing.**

A basic understanding of the potential capabilities and limitations of all ranch resources is fundamental to sound management. High levels of plant vigor and range health are critical for the endurance of and rapid recovery from drought. It is equally important to know which practices optimize livestock performance, and minimize risk of financial loss. Drought considerations must be incorporated into each year's management plan.

Management Preparation for Drought

Drought will challenge the mental toughness of even the best of managers. Diverse practices can be used to maintain ownership of cows under drought conditions. Some ranches will liquidate or relocate part or all of their breeding stock. The value of keeping breeding herds on the ranch must be weighed against the additional costs that are probable when drought continues. Recovery of additional production costs will depend upon: (1) productivity of livestock, (2) productivity of grazing lands, and (3) livestock market prices during and following drought. Additional items to consider which may help you determine how much risk you can afford to accept:

- Revisit family and ranch goals.
- Evaluate short- and long-term family needs.
- Re-evaluate current financial position, including financial assets and obligations.
- Evaluate working relationship with your banker.
- Willingness to accept the additional stress of added risk.
- Ability to recover losses incurred during and following drought.

Desperation caused by financial problems can lead to the use of excessive stocking rates that reduce animal performance and cause dramatic reductions in plant vigor. Overgrazed land is also worth less to future buyers or renters. If serious financial problems exist before drought, it may be best to sell before remaining equity is lost or additional debt is incurred. Even when range livestock operations are solvent, it may be prudent to liquidate or relocate part or all of the breeding herd to avoid additional production costs or to avoid damaging range and pastureland. Under severe or prolonged drought conditions the cost of replacement livestock is almost always less that the cost of long-term reductions in grazing land productivity.

Herd Management

The best alternative for drought management is to reduce total forage requirements. Reducing stocking rates during drought pays dividends in terms of:

- Optimized animal performance
- Reduced supplemental and winter feeding costs
- Minimized damage to forage resources, and
- Enhanced range and pasture recovery following drought

Sell or relocate livestock as soon as shortages in forage and feed resources are anticipated because market value tends to be highest at the beginning of a regional drought. If additional shortages in forage occur, calculate the additional costs associated with keeping cows on the ranch (feed, interest, labor, etc.) or transporting the cows to another location with adequate feed or forage. If your calculations show an unreasonable high cost of producing a weaned calf, it may be prudent to sell or relocate part or the entire cow herd. The following practices can help to minimize liquidation of the breeding herd:

- Early weaning can extend the forage base
- Practice early and heavy culling of less productive cows such as late calving cows and older cattle
- Remove yearlings from summer pastures early
- Consider curtailing production of replacement heifers for one year
- Bulls may need to be supplemented earlier than other classes of livestock to be in acceptable condition when the breeding season begins
- Maintain a percentage of the livestock as a readily marketable class of stock, such as yearlings or stockers

Past and Future Stocking Rates

Grazing management during years proceeding drought is a major factor in range vegetation response to drought. Managers may have assumed that no change in stocking rate has occurred on their ranches because they have not increased livestock numbers. The amount of forage consumed in a pasture depends upon animal size as well as animal numbers and days of grazing. The average size of cows, calves and yearlings has increased on many ranches over the past 10 years. A 10 to 40 percent increase in average animal weight should be equated to 7 to 28 percent increase in stocking rate. Inadvertent increases in stocking rates may lead to overgrazing and reduced plant vigor before drought. All range livestock producers need to critically evaluate their animal weights and use an appropriate animal unit (AU) equivalent when calculating stocking rates. Inadvertent overstocking may reduce animal performance and will damage the forage resource.

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Drought Management Plans

A drought plan should minimize financial hardships and hasten vegetation recovery after drought. Plans identify action to be taken at the first sign of drought as well as with continued indications of pending forage shortages. Plans for stocking rate adjustments need to be specific in terms of method and date. The timing of actions should be based upon seasonal check points. Critical evaluation dates at which livestock requirements are balanced with available forage and feed resources are:

April 15 – 30

- Review the previous year's records for pasture condition and adjust the grazing dates accordingly for the upcoming season.
- Assess livestock water quality and quantity, especially recharge in stock ponds. Create an emergency livestock water plan and test water quality.
- Determine soil moisture and precipitation amounts, adjust accordingly (below normal precipitation, <70% of normal, will impact cool season grass production). Grazing days available may be negatively impacted, consider delaying turnout and extending feeding periods to balance estimated forage availability and livestock intake. Develop an emergency feeding plan (sourcing feed and alternative feedstuffs).
- Consider a cool season annual forage to help extend grazing days.

May 1 – 31

- Continue to monitor soil moisture and precipitation amounts, if the precipitation is <70% of normal drought conditions exist, forage production will be reduced by 10% or more.
- Revisit management strategies and consider optional plans to: to remove cattle earlier, reduce stocking rates, weaning calves early, and update emergency feeding plan. Consider moving to tame pastures, post-easement Conservation Reserve Program lands, or moving into heavily invaded bluegrass or smooth brome grass rangeland.
- Check all pastures for grazing readiness prior to turnout (third leaf stage) and have a monitoring plan to measure utilization and prevent overgrazing.
- Revisit the emergency livestock water plan and water sources.

  Note: Estimate probable stocking rates and alternative (annual) forages based upon April through May precipitation to compensate for forage production shortfalls on pasture and rangeland.

  Cool season grasses produce 30% to 40% of their total annual production during the month of May while warm season grasses produce 10% to 20% of their total annual production during this same period.

June 1 – 30

- Continue to monitor soil moisture and precipitation amounts, if the precipitation is <70% of normal drought conditions exist, forage production will be reduced by 20% or more.
- Revisit management strategies and consider optional plans to: remove cattle earlier, reduce stocking rates, weaning calves early, and culling cows. Assess the establishment and stand quality of summer annual forages and soil moisture conditions.
- Consider grazing those pastures with unreliable water sources during this time, saving those pastures with reliable water sources later in the summer.
- Be on the lookout for algae blooms in water sources. Consider water tests, restricting livestock access, or treating those water sources that are suspected of having toxic conditions.

- Nitrate poisoning can become an issue, refer to NDSU Extension publication "Nitrate Poisoning of Livestock, V839".
- Maintain a monitoring plan to measure utilization and to avoid over use.
- If hayland production is significantly reduced consider grazing those acreages versus harvesting for dry feed.

  Note: Most plant growth in North Dakota occurs in June. If drought conditions have occurred in May and continue into June, forage production will be dramatically reduced for the season irrelevant to the amount of moisture received after June 30. Serious consideration should be given to stocking rate reductions and herd management as discussed in the "Herd Management" section.

  Cool season grasses produce 70% to 80% of their total annual production during the months of May and June while warm season grasses produce 50% to 60% of their total annual production during this same period.

July 1 – 30

- Continue to monitor soil moisture and precipitation amounts, if the precipitation is <70% of normal drought conditions exist, forage production will be reduced by 30% or more.
- Revisit management strategies and consider optional plans to: remove cattle earlier, culling cows, weaning calves early, or moving them to alternative forages or crop residue earlier than planned.
- Assess establishment and stand quality of late planted summer annual forages and soil moisture conditions.
- Maintain a monitoring plan to measure utilization and to avoid over use.
- Forage quality may become limiting, consider supplementing protein if needed.

  Note: Plant production beyond this period will be slight to none, with existing plant production making up the current years forage base.

August 1 – 30

- Continue to monitor soil moisture and precipitation amounts, if the precipitation is <70% of normal drought conditions exist, forage production will be reduced by 40% or more. Plant growth will cease earlier than normal and standing forage will be reduced.
- Maintain a monitoring plan to measure utilization and to avoid over use.
- Assess the current-year and carryover winter feed inventory, source and purchase additional hay if necessary.

  Note: The diet quality of annual forages declines dramatically after the soft dough stage. If maximum tonnage is the objective, then harvesting after the soft dough stage may be desirable. If high forage quality is the objective, harvest at the late boot to soft dough stage.

September 1 – 30

- Make a final assessment of yield of annual forages grown for late season grazing.
- Inventory other harvested feed and determine the quantity of crop residue on cropland.
- Estimate amount of forage in winter pastures (if applicable).
- Maintain a monitoring plan to measure utilization and to avoid over use.

October 1 – 30

- Use September through October precipitation to predict stocking rates for the next summer.

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- Maintain a monitoring plan to measure utilization and to avoid over use.
  Note: Caution must be exercised. The color green can have profound psychological effects on range livestock producers. Even a small amount of spring or fall green-up can cause a false sense of security and delay of prudent management decisions. Premature, aggressive restocking can cause serious economic loss because of long-term reductions in the rate of vegetation recovery. If vegetation recovery is slow or restricted by continued drought, a destocking plan will be needed.

Additional information related to drought management may be found at:

http://www.ag.ndsu.nodak.edu/drought/drought.htm

[1] *The majority of the information in this section was obtained from "Strategies for Managing Drought in the Norther Plains"; North Dakota State University Extension Publication R1819. A copy of this publication can be found at the following web site: https://www.ag.ndsu.edu/publications/livestock/strategies-for-managing-drought-in-the-northern-plains/r1819.pdf*

Chapter 5 Attachments

Grass Bundle

- Cover Sheet
- ND CPA 1 Livestock Forage Balance
- Soils Summary
- ND CPA 19 Grazing Land Forage Inventory
- CPA 20 Similarity Index
- CPA 31 Apparent Trend
- CPA 32 Pasture Condition Scoring
- CPA 556 Grazing Schedule years 1-3

Mapping

- WRE Boundary
- Pasture layout (size and number)
- Fence Locations (planned and existing)
- Watering Locations (planned and existing)
- Additional Structures (e.g. livestock crossings, etc.)
- Soils Maps and Ratings (MUSYM, Hydric Soils, Ecological Sites, and Forage Suitability Groups)

Grassland Resource Assessment SpreadSheet (GRASS) Oct. 2015

Cover Sheet

Producer's Name	Darrel Manning
County	Towner
Date	6/26/2018
Planned/Assisted/Completed by	DJB

Web Soil Survey

Cover Sheet

CPA-1 Livestock Forage Balance

Summary of Soil Data -
(used to fill out ND-CPA-19)

CPA-19 Grazing Land Forage Inventory

CPA-20 Rangeland Similarity Index

CPA-30 Preference Based Stocking Rate

CPA-31 Rangeland Apparent Trend

CPA-32 Dryland Pasture Condition Score

CPA-33 Forage Production Clipping Worksheet

CPA-556 Prescribed Grazing Schedule

Rangeland Health Assessment Worksheet

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United States Department of Agriculture
Natural Resources Conservation Service

ND-CPA-1
Revised June 2007

LIVESTOCK - FORAGE BALANCE WORKSHEET

Name: Darrel Manning Location: Benson Date: 6/26/2018

TABLE 1. LIVESTOCK INVENTORY AND FORAGE REQUIREMENTS FOR CALENDAR YEAR

Planned Numbers						Usual Feeding & Grazing Practices			
						Grazing		*Feeding*	
Class	Animal Numbers	Animal Unit equivalent	Months on Unit	AUMs		Months	AUMs	Months	AUMs
1000# Cow/calf	20	1	5	100.0		5	100		
Bull	1	1.35	5	6.8					
Totals	21	Head		106.75	AUMs	Totals	100	Totals	
						AUMs Needed for Grazing		AUMs Needed for Feeding	

TABLE 2. AVAILABLE FORAGE RESOURCES

Grazing				
Type	Acres		Total AUMs	Season of Use
Rangeland				
Tame Grass	118.4		102	SU
Annual Pasture				
Crop Aftermath (below)		AUMs per acre		
Corn Stalks				
Small Grains				
Totals	118.4	Acres	102	AUMs

Harvested Roughage					
Type	Acres	Ton Prod.	Convsn Factor	Hay Eq Ton	X3 = AUMs
Native Hay			1		
Tame Hay			1		
Annual Hay			1		
Alfalfa			1		
Corn Silage			0.3		

Use space below if you know the tons of hay harvested.

Type	Tons		Convsn Factor	Hay Eq Ton	
			1		
Totals		Acres		Totals	AUMs

OPERATIONS SUMMARY

	Planned	Hay Equivalent		
Operation	AUMs	AUMs	Tons of Forage	
Available	102			tons
Required	100			tons
Difference =	2			tons

POTENTIAL OPERATION ESTIMATES FOR PRODUCTION HERD ONLY

For Grazing ----------> 102 AUMs by 11.241 months 9.07375 AU's

For Feeding ----------> AUMs by months AU's

Summary of Soil Data - Used to fill out ND-CPA-19

DATA ENTERED BY USER

NOTE: ONLY ENTER A SINGLE MAPUNIT ONCE PER FIELD

Pasture/Field 1

MLRA	Range / Pasture / Hay	Mapunit	Acres
55A	Pasture	F12A	23.6
55A	Pasture	F119A	11.9
55A	Pasture	F304B	23.4

GENERATED REPORT

Field	E/F	ESD/FSG	Combined Acres
1	FSG	Saline	17
1	FSG	Very Droughty Loam	11
1	FSG	Not suited	10
1	FSG	Very Shallow to Gravel	8
1	FSG	Wet	7
1	FSG	Subirrigated	3
1	FSG	Sand	1
1	FSG	Clayey Subsoil	1
1	FSG	Droughty Loam	1
1	FSG	Loam	0
2	FSG	Saline	37
2	FSG	Wet	7
2	FSG	Not suited	4
2	FSG	Subirrigated	4
2	FSG	Loam	3
2	FSG	Clayey Subsoil	3
2	FSG	Limy Upland	1
2	FSG	Overflow	0
ZZZZ			
ZZZZ			

Summary of Soil Data - Used to fill out ND-CPA-19

NOTE: ONLY ENTER A SINGLE MAPUNIT ONCE PER FIELD

Pasture/Field 2

MLRA	Range / Pasture / Hay	Mapunit	Acres
55A	Pasture	F12A	5
55A	Pasture	F119A	51
55A	Pasture	F144B	3.6

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Natural Resources Conservation Service

ND-CPA-19
Revised June 2007

Grazing Land Forage Inventory Summary

Page 1 of 4

Grazing Unit (Field #)	FSG/ ESD	Response Unit (FSG or ESD)	Acres	Pasture Condition or Range Similarity Index & Trend	Initial Stocking Rate AUMs/Ac	Total AUMs
1	FSG	Saline	16.8		0.86	14
1	FSG	Very Droughty Loam	11.5		0.86	10
1	FSG	Not suited	9.7		0.86	8
1	FSG	Very Shallow to Gravel	7.7		0.86	7
1	FSG	Wet	7.0		0.86	6
1	FSG	Subirrigated	2.9		0.86	3
1	FSG	Sand	1.4		0.86	1
1	FSG	Clayey Subsoil	0.7		0.86	1
1	FSG	Droughty Loam	0.7		0.86	1
1	FSG	Loam	0.5		0.86	0
		Totals ---------->	59		Totals ---------->	51

Enter comments below:

Cooperator	Darrel Manning	Field Office	
Purpose		Date	6/26/2018
Survey by		Title	

United States Department of Agriculture
Natural Resources Conservation Service

ND-CPA-19
Revised June 2007

Grazing Land Forage Inventory Summary

Grazing Unit (Field #)	FSG/ ESD	Response Unit (FSG or ESD)	Acres	Pasture Condition or Range Similarity Index & Trend	Initial Stocking Rate AUMs/Ac	Total AUMs
2	FSG	Saline	36.5		0.86	31
2	FSG	Wet	6.8		0.86	6
2	FSG	Not suited	4.2		0.86	4
2	FSG	Subirrigated	4.0		0.86	3
2	FSG	Loam	3.4		0.86	3
2	FSG	Clayey Subsoil	3.2		0.86	3
2	FSG	Limy Upland	1.4		0.86	1
2	FSG	Overflow	0.1		0.86	0
		Totals ---------->	60		Totals ---------->	51

Enter comments below:

Cooperator	Darrel Manning	Field Office	
Purpose		Date	6/26/2018
Survey by		Title	

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-32
Revised June 2007

Pasture Condition Score Sheet - Standard for Dryland Pasture < 25" Precipitation

Cooperator	Darrel Manning	**Date**	6/26/20218
Conservationist	DJB		
Forage Suitability Group	Saline (Sl)	**Pasture Number(s)**	1,2

Current Years Precipitation (check one) Above Normal ☐ Normal ☒ Below Normal ☐

Evaluate the site and rate each indicator based upon your observations. Scores for each indicator may range from 1 to 5. Sum the points to determine overall pasture condition score.

Indicator/Weight	1 Point	2 Points	3 Points	4 Points	5 Points	Points
Percent Desirable Plants (Plants rated "Good" on FSG)	Desirable species <20% of stand by weight. Annual weeds and/or perennial weedy species dominate.		40 - 60% desirable forage species by weight. Grazing resistant forage species with lower production potential make up a substantial portion of the stand. Undesirable broad-leaf weeds and annual weedy grasses invading.		Desirable species exceed 80% of plant community by weight.	1.0
Live Plant Cover	Very poor stand relative to FSG potential. Photosynthetic area very low due to very thin stand or severe overgrazing. Very little desirable plant cover to moderate soil temperatures and slow or stop runoff.		Moderate stand relative to potential. Moderate leaf area to intercept sunlight and raindrops. Bare areas may be common.		Excellent stand relative to potential. Forages maintained in leafy condition for best photosynthetic activity. Very thick stand, slow or no runoff.	3.0
Plant diversity (may be considered across several pastures if they are grazed in rotation)	One forage species with a short growing season. Non-productive and of low quality through most of the grazing season.		2 or more forage species from 1 or more functional groups with similar growth periods resulting in low forage production and quality through a significant portion of the grazing season.		2 or more forage species from two or more functional groups with complimentary growth periods resulting in high forage quality throughout the grazing season.	2.0
Plant Residue	Very little litter present on soil surface to buffer soil temperatures and intercept and retain moisture, OR litter present in extreme amounts, reducing tillering and suppressing stand.		Surface litter present in amounts moderately more or less than what would be expected for the site, **AND/OR** standing dead plants causing moderate reductions in forage intake and quality.		Litter present in amounts considered normal for the site and in contact with soil surface.	3.0
Plant Vigor	Yellowish green leaves. Productivity less than 40% of the high production potential for the site and species due to overuse, low fertility, insects, or diseases. Little or no regrowth.		Productivity at 60 % to 80% of the high production potential for the site and species. Urine/dung patches dark green in contrast to rest of plants. Regrowth commonly a week later than would be expected.		Healthy green color. Yields at the high production potential for the site and species. Species adapted to the site's soil and climate. Rapid regrowth.	4.0
Percent Legume (5 pts. if no legumes are rated good for the FSG)	< 10% legumes in cool season pasture or > 50% bloat causing legume by weight.		20 to 30% legume by weight in cool season pasture.		40-50% legume by weight.	1.0
Uniformity of Use	Urine and dung spots ungrazed. Remainder of pasture appears to be consistently grazed below proper stubble heights.		Spot or patch grazing evident across much of the pasture indicating selectivity by grazing animals. **OR** Zone grazing with significant areas lightly or not grazed by livestock. Grazed areas frequently grazed below proper ending heights.		Rejected areas only at urine and dung patches. No forage species rejection.	5.0
Livestock Concentration Areas	Livestock concentration areas cover > 10% of pasture, or all convey contaminated runoff directly into water bodies or streams.		Isolated livestock concentration areas and trails are 2.5 - 5 % of pasture, or one close to water channel and drains into it unbuffered.		No more than .5 % of the pasture including both water and feeding areas show livestock concentration. None drain directly into a water channel or body.	5.0
Soil Compaction	Infiltration capacity reduced. Probe unable to penetrate soil without extreme effort. Excessive livestock traffic killing desirable forage species over wide areas.		Infiltration capacity somewhat reduced. Soil more obviously resistant to probe entry at one or more depths within 6 inches of soil surface than at pasture fence line.		Infiltration capacity and surface runoff are equal to that expected for the site. Soil probe entry into the vegetated pasture soil same as under pasture fence line.	3.0
Erosion	Severe wind and/or water erosion readily apparent. Streambank or pond shoreline erosion caused by livestock is evident.		Moderate erosion. Litter dams, pedestaled plants or signs of wind erosion evident.		No active erosion visible.	5.0

Overall Pasture Condition Score	Individual Indicator Score	Management Change Suggested	Overall Pasture Condition Score	32.0
45 to 50	5	No changes in management needed at this time.		
35 to 45	4	Minor changes would enhance, do most beneficial first.		
25 to 35	3	Improvements would benefit productivity and/or environmnet.		
15 to 25	2	Needs immediate management changes, high return likely.		
10 to 15	1	Major effort required in time, management and expense.		

Comments/Notes

All Kentucky Bluegrass and smooth bromegrass. Area has not been grazed. No legumes, erosion on site. Very low, saline and wet area.

617

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-33
Revised June 2007

Forage Production Clipping Worksheet

Name: Darrel Manning **County:** Towner **Date:** 6/18/2018 **Assisted by:** DJB

Current Year's Precipitation (choose one) Below Normal

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Field No. / Trans ID	ESD, FSG or Annual Forage Type	Total Clipped Wet (Grams)	Bag Weight (Grams)	Total Forage Weight (Grams) (C - D)	Percent Dry Matter*	Total Dry Matter (E x F)	Frame Size Factor **	Pounds of Forage per Acre (G x H)	Growth Curve Adjustment Factor	Adjusted Production lbs/ac (I / J)	Grazing Adjustment Factor	Final Adjusted Production lbs/ac K/(1-L)	Harvest Efficiency Factor ***	Lbs of Grazeable Forage Allowed (M x N)	AUM per Acre (O / 913)	Grazing Days per Acre (P x 30.5)
Example	CySu	70	6	64	0.35	22.4	50	1120	0.6	1867	0.3	2667	0.35	933	1.02	31.2
	NS															
1	Sb	76	6	70	0.45	31.5	50	1575	0.7	2250	0	2250	0.35	788	0.86	26.3
2	Sb	76	6	70	0.45	31.5	50	1575	0.7	2250	0	2250	0.35	788	0.86	26.3

* Refer to exhibit 4-2 of the National Range and Pasture Handbook

** For a 1.92 square foot frame, multiply weight in grams by 50. See Chapter 4, Part 600.0401(c) of the National Range and Pasture Handbook for additional frame sizes and conversion factors.

*** Rangeland Pastures: 25%. Tame pastures: 35-50% depending on level of grazing management

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-556
Revised June 2007

Prescribed Grazing Schedule

Name Darrel Manning **County** Towner **Year** 2020 **Herd Name** 1

Client Objectives and Goals **Actual Herd Size (number)** 21 **Animal Unit Equivalents for Herd** 22

To utilize the WRE acreage to graze cattle. Graze the heavily infested kentucky bluegrass and smooth bromegrass stand to rejuvenate the area and stimulate native plant growth.

Pastures	Grazing Days (GD) Available	Acres	Forage Type
1	1545	59	Cool Season Tame Grasses
2	1563	60	Cool Season Tame Grasses

return to instructions

Grazing Season Dates	
From	6/1
To	10/1
Total Days	122

Total Grazing Days Needed
2684

Total Grazing Days Available
3108

Recovery Period Guidelines		
MLRA:	55A	
	Fast growth	Slow growth
Range	minimum 30	minimum 45
Pasture	minimum 15	minimum 25

Practice Certification

1. Were recovery periods adequate for each pasture?
2. Was season of use changed for each pasture, as appropriate?
3. Was monitoring data collected and reviewed with the client?
4. Based on monitoring data, did degree of use meet the client's goals?
5. The grazing system as applied, meets Prescribed Grazing (528) certification requirements.

Comments:

Planned by Date

Certified by Date

619

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-556
Revised June 2007

Prescribed Grazing Schedule

Name Darrel Manning **County** Towner **Year** 2020 **Herd Name** 1

Client Objectives and Goals **Actual Herd Size (number)** 21 **Animal Unit Equivalents for Herd** 22

To utilize the WRE acreage to graze cattle. Graze the heavily infested kentucky bluegrass and smooth bromegrass stand to rejuvenate the area and stimulate native plant growth.

1st Rotation

	Planned							Applied			
	Total GD Available	Herd Size in AU	Herd Days Available	Days Used	Grazing Period From	Grazing Period To	Herd Days Remaining	Herd Size in AU	Grazing Period From	Grazing Period To	Days Used
1	1545	22	70	35	1-Jun	5-Jul	35				
2	1563	22	71	35	6-Jul	9-Aug	36				

Comments:

620

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-556
Revised June 2007

Prescribed Grazing Schedule

Name Darrel Manning **County** Towner **Year** 2020 **Herd Name** 1

Client Objectives and Goals **Actual Herd Size (number)** 21 **Animal Unit Equivalents for Herd** 22

To utilize the WRE acreage to graze cattle. Graze the heavily infested kentucky bluegrass and smooth bromegrass stand to rejuvenate the area and stimulate native plant growth.

2nd Rotation

	Total GD Available	Planned								Applied				
		Herd Size in AU	Herd Days Available	Days Used	Grazing Period From	Grazing Period To	Herd Days Remaining	Grazing Days Remaining	Days Recovery	Herd Size in AU	Grazing Period From	Grazing Period To	Days Used	Days Recovery
1	774.947	22	35	35	10-Aug	13-Sep	0	5	36					0
2	793.308	22	36	36	14-Sep	19-Oct	0	1	36					0

19-Oct

Comments:

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-556
Revised June 2007

Prescribed Grazing Schedule

Name Darrel Manning **County** Towner **Year** 2021 **Herd Name** 1

Client Objectives and Goals **Actual Herd Size (number)** 21 **Animal Unit Equivalents for Herd** 22

To utilize the WRE acreage to graze cattle. Graze the heavily infested kentucky bluegrass and smooth bromegrass stand to rejuvenate the area and stimulate native plant growth.

Pastures	Grazing Days (GD) Available	Acres	Forage Type
1	1545	59	Cool Season Tame Grasses
2	1563	60	Cool Season Tame Grasses

return to instructions

Grazing Season Dates	
From	6/1
To	10/1
Total Days	-244

Total Grazing Days Needed
-5368

Total Grazing Days Available
3108

Recovery Period Guidelines		
MLRA:	55A	
	Fast growth	Slow growth
Range	minimum 30	minimum 45
Pasture	minimum 15	minimum 25

Practice Certification

1. Were recovery periods adequate for each pasture?
2. Was season of use changed for each pasture, as appropriate?
3. Was monitoring data collected and reviewed with the client?
4. Based on monitoring data, did degree of use meet the client's goals?
5. The grazing system as applied, meets Prescribed Grazing (528) certification requirements.

Comments:

Planned by Date

Certified by Date

622

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-556
Revised June 2007

Prescribed Grazing Schedule

Name Darrel Manning **County** Towner **Year** 2021 **Herd Name** 1

Client Objectives and Goals **Actual Herd Size (number)** 21 **Animal Unit Equivalents for Herd** 22

To utilize the WRE acreage to graze cattle. Graze the heavily infested kentucky bluegrass and smooth bromegrass stand to rejuvenate the area and stimulate native plant growth.

1st Rotation

		Planned						Applied			
	Total GD Available	Herd Size in AU	Herd Days Available	Days Used	Grazing Period From	Grazing Period To	Herd Days Remaining	Herd Size in AU	Grazing Period From	Grazing Period To	Days Used
2	1563	22	71	36	1-Jun	6-Jul	35				
1	1545	22	70	35	7-Jul	10-Aug	35				

Comments:

10-Aug

623

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-556
Revised June 2007

Prescribed Grazing Schedule

Name Darrel Manning **County** Towner **Year** 2021 **Herd Name** 1

Client Objectives and Goals **Actual Herd Size (number)** 21 **Animal Unit Equivalents for Herd** 22

To utilize the WRE acreage to graze cattle. Graze the heavily infested kentucky bluegrass and smooth bromegrass stand to rejuvenate the area and stimulate native plant growth.

2nd Rotation

	Total GD Available	Planned								Applied				
		Herd Size in AU	Herd Days Available	Days Used	Grazing Period From	Grazing Period To	Herd Days Remaining	Grazing Days Remaining	Days Recovery	Herd Size in AU	Grazing Period From	Grazing Period To	Days Used	Days Recovery
2	771.308	22	35	35	11-Aug	14-Sep	0	1	36					0
1	774.947	22	35	35	15-Sep	19-Oct	0	5	36					0

19-Oct

Comments:

624

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-556
Revised June 2007

Prescribed Grazing Schedule

Name Darrel Manning **County** Towner **Year** 2022 **Herd Name** 1

Client Objectives and Goals **Actual Herd Size (number)** 21 **Animal Unit Equivalents for Herd** 22

To utilize the WRE acreage to graze cattle. Graze the heavily infested kentucky bluegrass and smooth bromegrass stand to rejuvenate the area and stimulate native plant growth.

Pastures	Grazing Days (GD) Available	Acres	Forage Type
1	1545	59	Cool Season Tame Grasses
2	1563	60	Cool Season Tame Grasses

return to instructions

Grazing Season Dates	
From	6/1
To	10/1
Total Days	122

Total Grazing Days Needed
2684

Total Grazing Days Available
3108

Recovery Period Guidelines		
MLRA:	55A	
	Fast growth	Slow growth
Range	minimum 30	minimum 45
Pasture	minimum 15	minimum 25

Practice Certification

1. Were recovery periods adequate for each pasture?
2. Was season of use changed for each pasture, as appropriate?
3. Was monitoring data collected and reviewed with the client?
4. Based on monitoring data, did degree of use meet the client's goals?
5. The grazing system as applied, meets Prescribed Grazing (528) certification requirements.

Comments:

Planned by Date

Certified by Date

625

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-556
Revised June 2007

Prescribed Grazing Schedule

Name Darrel Manning **County** Towner **Year** 2022 **Herd Name** 1

Client Objectives and Goals **Actual Herd Size (number)** 21 **Animal Unit Equivalents for Herd** 22

To utilize the WRE acreage to graze cattle. Graze the heavily infested kentucky bluegrass and smooth bromegrass stand to rejuvenate the area and stimulate native plant growth.

1st Rotation

	Total GD Available	Planned						Applied			
		Herd Size in AU	Herd Days Available	Days Used	Grazing Period From	Grazing Period To	Herd Days Remaining	Herd Size in AU	Grazing Period From	Grazing Period To	Days Used
1	1545	22	70	35	1-Jun	5-Jul	35				
2	1563	22	71	36	6-Jul	10-Aug	35				

Comments:

10-Aug

626

U.S. Department of Agriculture
Natural Resources Conservation Service

ND-CPA-556
Revised June 2007

Prescribed Grazing Schedule

Name Darrel Manning **County** Towner **Year** 2022 **Herd Name** 1

Client Objectives and Goals **Actual Herd Size (number)** 21 **Animal Unit Equivalents for Herd** 22

To utilize the WRE acreage to graze cattle. Graze the heavily infested kentucky bluegrass and smooth bromegrass stand to rejuvenate the area and stimulate native plant growth.

2nd Rotation

	Total GD Available	Planned								Applied				
		Herd Size in AU	Herd Days Available	Days Used	Grazing Period From	Grazing Period To	Herd Days Remaining	Grazing Days Remaining	Days Recovery	Herd Size in AU	Grazing Period From	Grazing Period To	Days Used	Days Recovery
1	774.947	22	35	35	11-Aug	14-Sep	0	5	37					0
2	771.308	22	35	35	15-Sep	19-Oct	0	1	36					0

19-Oct

Comments:

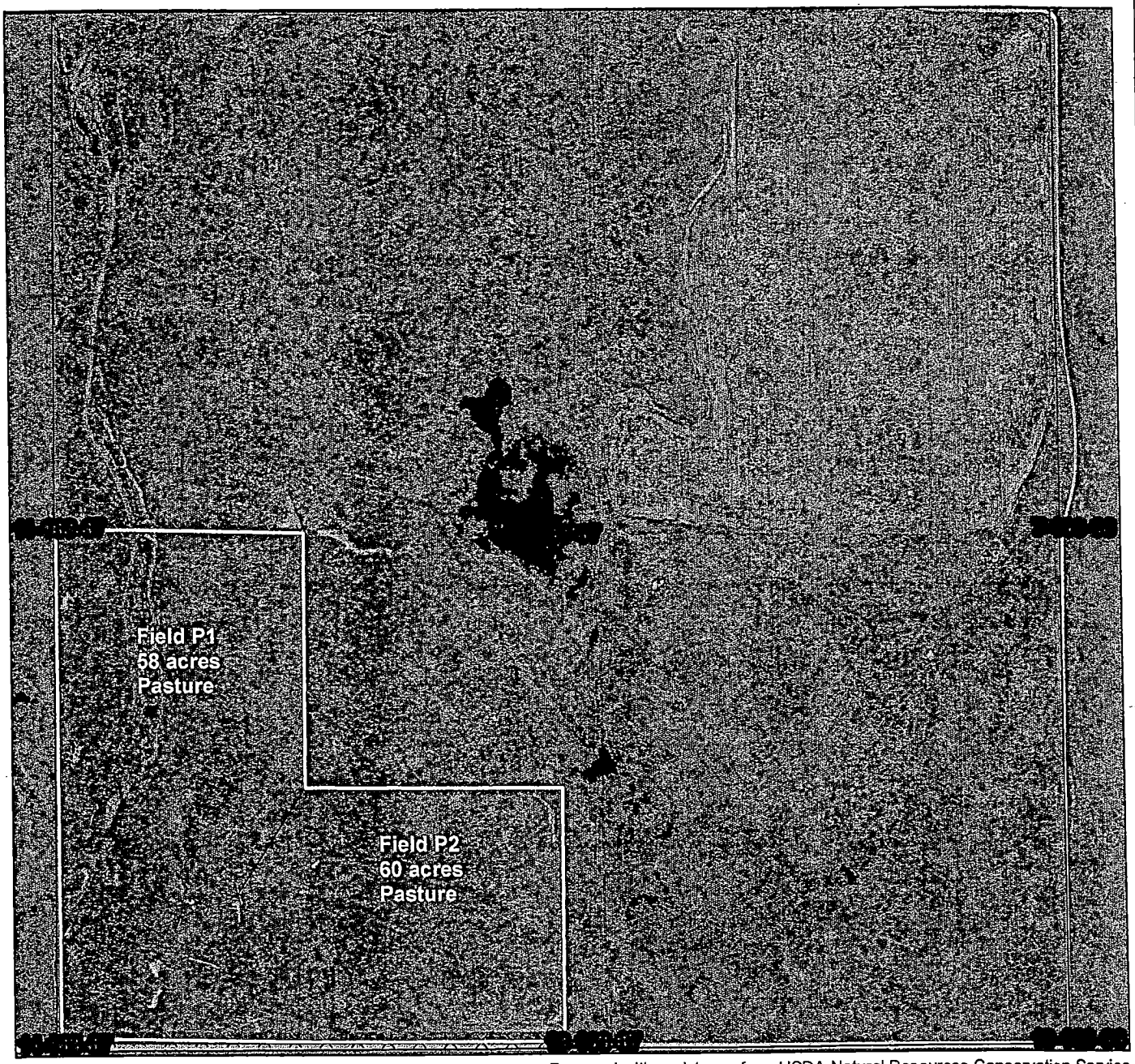
627

WRE Plan Map

Customer(s): DARREL MANNING

Field Office: CANDO SERVICE CENTER
Agency: USDA-NRCS
Assisted By: DUSTIN BRODINA

Approximate Acres: 118.4
Legal Description: SW 12-163-67



Prepared with assistance from USDA-Natural Resources Conservation Service

Legend

WRE_17

Existing Fences

Towner PLSS

450 0 450 900 1,350 1,800 Feet

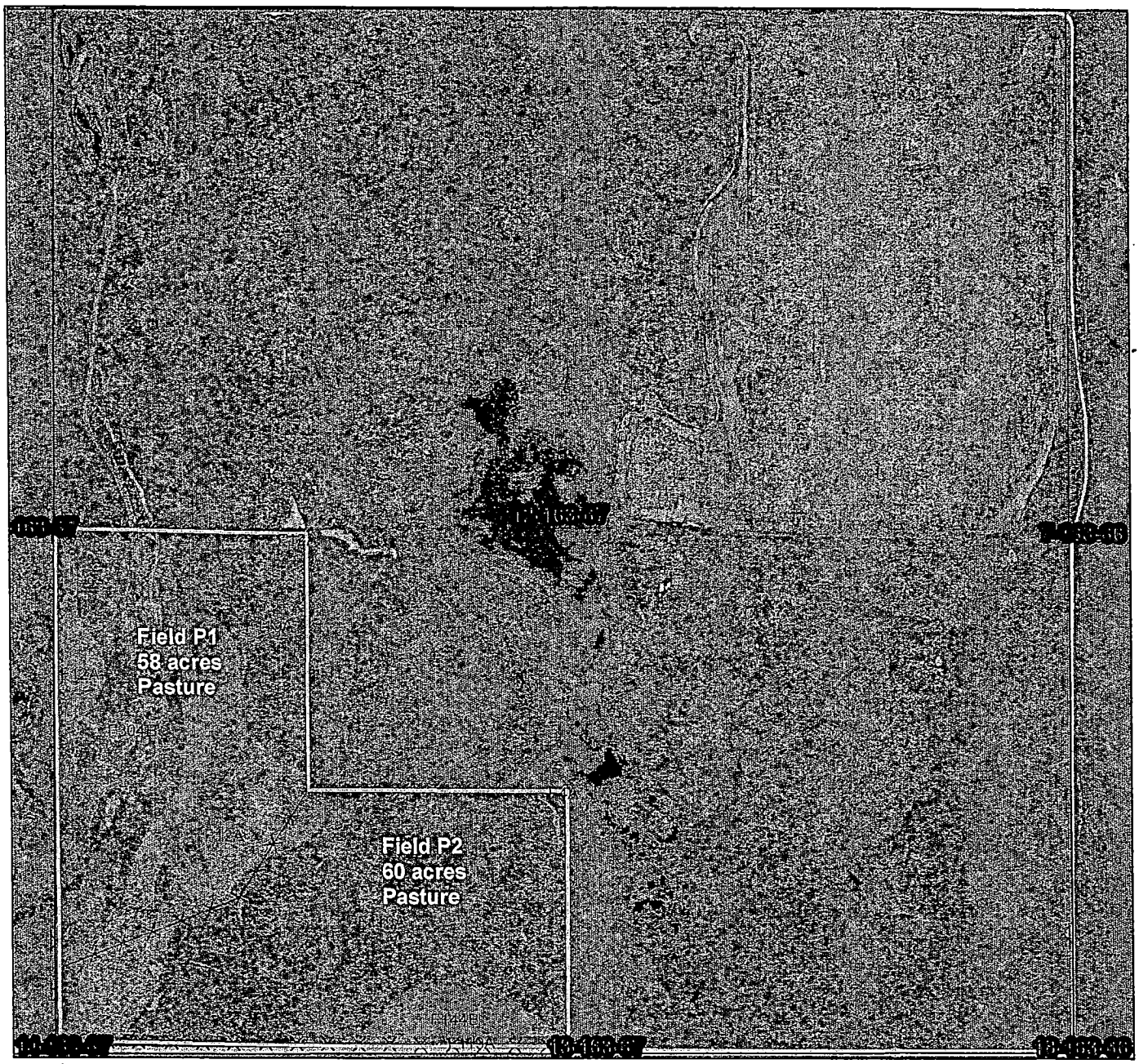
N

WRE Plan Map

Customer(s): DARREL MANNING

Field Office: CANDO SERVICE CENTER
Agency: USDA-NRCS
Assisted By: DUSTIN BRODINA

Approximate Acres: 118.4
Legal Description: SW 12-163-67



Prepared with assistance from USDA-Natural Resources Conservation Service

Legend
- <all other values>

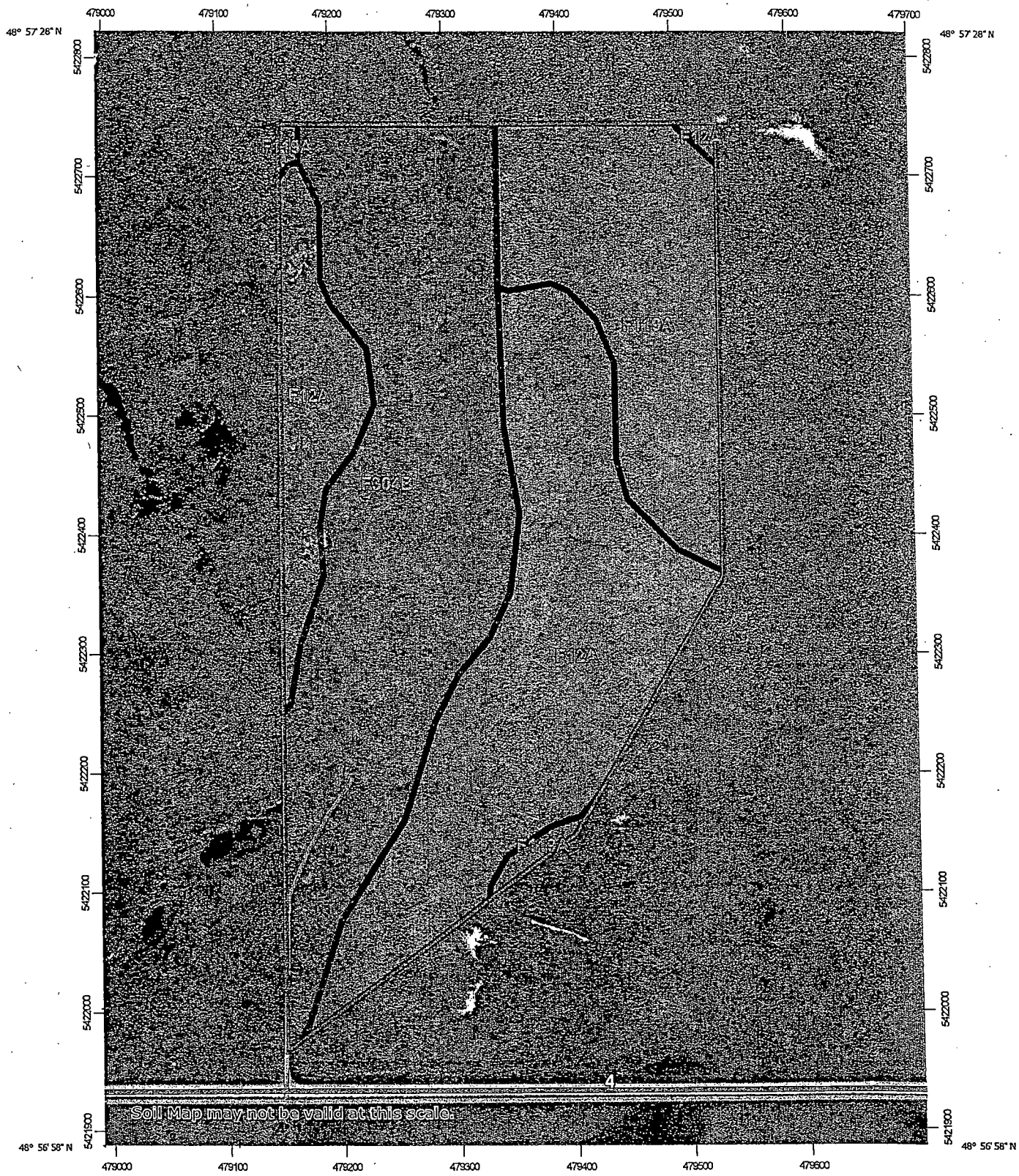
MUSYM
- F119A
- F12A
- F144B
- F304B
- F4A

WRE_17
- Existing Fences
- Towner PLSS

450 0 450 900 1,350 1,800 Feet

N

All Ecological Sites -- Rangeland—Towner County, North Dakota
(P1)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- R055AY042ND
- R055AY046ND
- Not rated or not available

Soil Rating Lines
- R055AY042ND
- R055AY046ND
- Not rated or not available

Soil Rating Points
- R055AY042ND
- R055AY046ND
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Towner County, North Dakota
Survey Area Data: Version 21, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

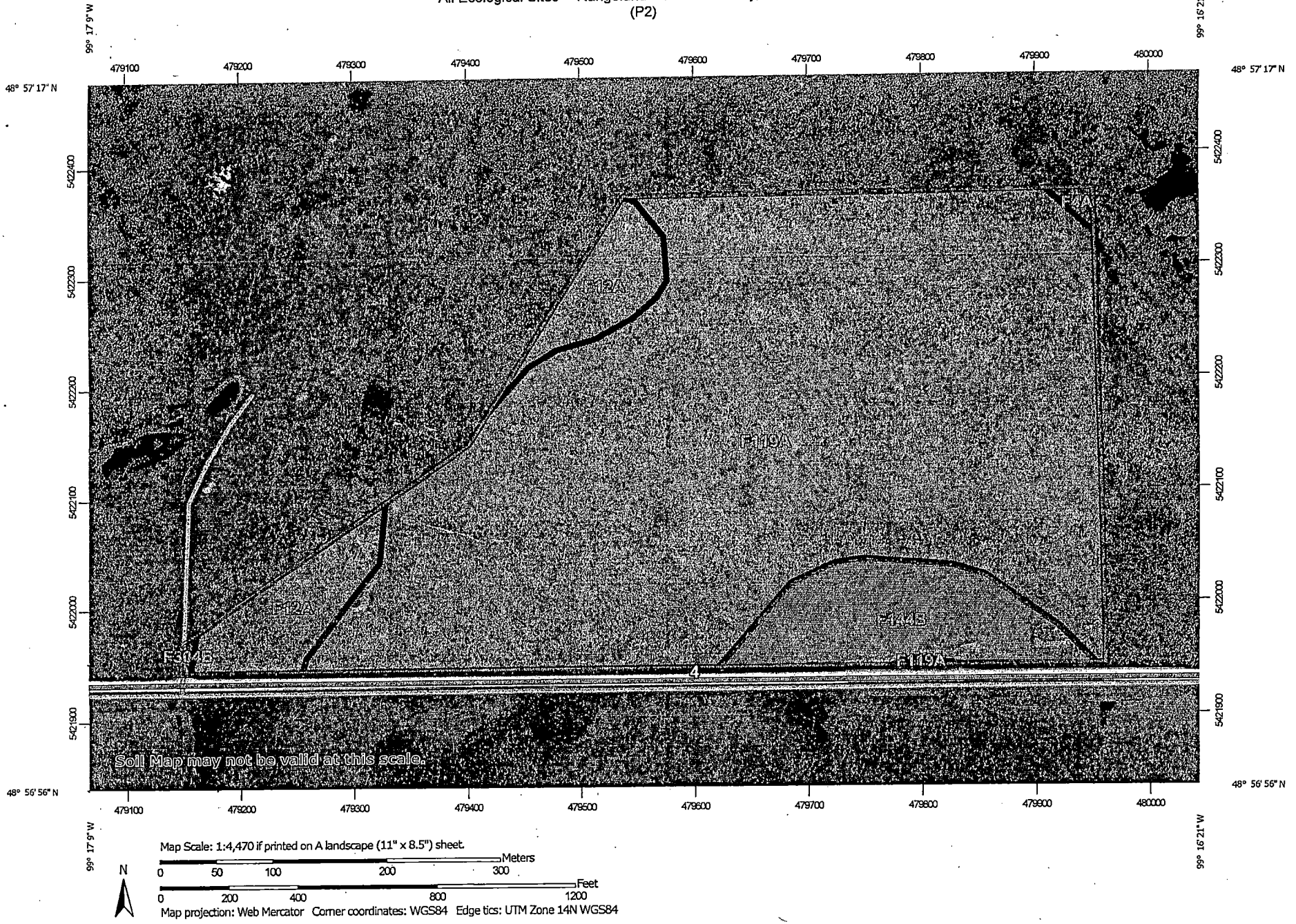
Date(s) aerial images were photographed: Jul 16, 2009—Sep 16, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

All Ecological Sites — Rangeland

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
F12A	Vallers, saline-Parnell complex, 0 to 1 percent slopes	Vallers, moderately saline (40%)	R055AY042ND — Saline Lowland	23.6	40.0%
		Parnell (27%)	R055AY054ND — Shallow Marsh		
		Hamerly, moderately saline (11%)	R055AY042ND — Saline Lowland		
		Tonka (7%)	R055AY055ND — Wet Meadow		
		Manfred (5%)	R055AY042ND — Saline Lowland		
		Southam (4%)	R055AY999ND — Non-Site		
		Easby (3%)	R055AY042ND — Saline Lowland		
		Wyard (3%)	R055AY048ND — Subirrigated		
F119A	Vallers-Hamerly loams, saline, 0 to 3 percent slopes	Vallers, moderately saline (45%)	R055AY042ND — Saline Lowland	11.9	20.2%
		Hamerly, moderately saline (31%)	R055AY042ND — Saline Lowland		
		Hamerly (7%)	R055AY040ND — Limy Subirrigated		
		Cresbard (6%)	R055AY038ND — Clayey		
		Svea (4%)	R055AY047ND — Loamy		
		Tonka (3%)	R055AY055ND — Wet Meadow		
		Easby (2%)	R055AY042ND — Saline Lowland		
		Parnell (2%)	R055AY054ND — Shallow Marsh		
F304B	Binford-Coe complex, 2 to 6 percent slopes	Binford (37%)	R055AY046ND — Shallow Gravel	23.4	39.8%
		Coe (33%)	R055AY053ND — Very Shallow		
		Brantford (6%)	R055AY046ND — Shallow Gravel		
		Lohnes (6%)	R055AY043ND — Sands		

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
		Walum (6%)	R055AY049ND — Subirrigated Sands		
		Marysland, shaly (3%)	R055AY055ND — Wet Meadow		
		Tolna (3%)	R055AY048ND — Subirrigated		
		Vang (3%)	R055AY047ND — Loamy		
		Wyrene, shaly (3%)	R055AY040ND — Limy Subirrigated		
Totals for Area of Interest				**58.9**	**100.0%**


99° 17' 9" W
99° 16' 21" W
48° 57' 17" N
48° 56' 56" N
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479200
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479700
479800
479900
480000
5422400
5422300
5422200
5422100
5422000
5421900
F12A
F119A
F314B
F114B
4
Soil Map may not be valid at this scale.
Map Scale: 1:4,470 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 200 400 800 1200
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- R055AY042ND
- R055AY046ND
- R055AY052ND
- R055AY999ND
- Not rated or not available

Soil Rating Lines
- R055AY042ND
- R055AY046ND
- R055AY052ND
- R055AY999ND
- Not rated or not available

Soil Rating Points
- R055AY042ND
- R055AY046ND
- R055AY052ND
- R055AY999ND
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Towner County, North Dakota
Survey Area Data: Version 21, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 16, 2009—Sep 16, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

All Ecological Sites — Rangeland

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
F4A	Southam silty clay loam, 0 to 1 percent slopes	Southam (68%)	R055AY999ND — Non-Site	0.2	0.3%
		Vallers, moderately saline (9%)	R055AY042ND — Saline Lowland		
		Arveson (8%)	R055AY055ND — Wet Meadow		
		Water, intermittent (5%)	R055AY999ND — Non-Site		
		Parnell (4%)	R055AY054ND — Shallow Marsh		
		Manfred (3%)	R055AY042ND — Saline Lowland		
		Mauvais (3%)	R055AY048ND — Subirrigated		
F12A	Vallers, saline-Parnell complex, 0 to 1 percent slopes	Vallers, moderately saline (40%)	R055AY042ND — Saline Lowland	5.0	8.2%
		Parnell (27%)	R055AY054ND — Shallow Marsh		
		Hamerly, moderately saline (11%)	R055AY042ND — Saline Lowland		
		Tonka (7%)	R055AY055ND — Wet Meadow		
		Manfred (5%)	R055AY042ND — Saline Lowland		
		Southam (4%)	R055AY999ND — Non-Site		
		Easby (3%)	R055AY042ND — Saline Lowland		
		Wyard (3%)	R055AY048ND — Subirrigated		
F119A	Vallers-Hamerly loams, saline, 0 to 3 percent slopes	Vallers, moderately saline (45%)	R055AY042ND — Saline Lowland	51.0	82.7%
		Hamerly, moderately saline (31%)	R055AY042ND — Saline Lowland		
		Hamerly (7%)	R055AY040ND — Limy Subirrigated		
		Cresbard (6%)	R055AY038ND — Clayey		
		Svea (4%)	R055AY047ND — Loamy		

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
		Tonka (3%)	R055AY055ND — Wet Meadow		
		Easby (2%)	R055AY042ND — Saline Lowland		
		Parnell (2%)	R055AY054ND — Shallow Marsh		
F144B	Barnes-Buse loams, 3 to 6 percent slopes	Barnes (28%)	R055AY047ND — Loamy	5.4	8.7%
		Buse (27%)	R055AY052ND — Thin Loamy		
		Balaton (14%)	R055AY052ND — Thin Loamy		
		Svea (14%)	R055AY041ND — Loamy Overflow		
		Tonka (5%)	R055AY055ND — Wet Meadow		
		Langhei (4%)	R055AY052ND — Thin Loamy		
		Cresbard (3%)	R055AY038ND — Clayey		
		Parnell (3%)	R055AY054ND — Shallow Marsh		
		Renshaw (2%)	R055AY046ND — Shallow Gravel		
F304B	Binford-Coe complex, 2 to 6 percent slopes	Binford (37%)	R055AY046ND — Shallow Gravel	0.1	0.1%
		Coe (33%)	R055AY053ND — Very Shallow		
		Brantford (6%)	R055AY046ND — Shallow Gravel		
		Lohnes (6%)	R055AY043ND — Sands		
		Walum (6%)	R055AY049ND — Subirrigated Sands		
		Marysland, shaly (3%)	R055AY055ND — Wet Meadow		
		Tolna (3%)	R055AY048ND — Subirrigated		
		Vang (3%)	R055AY047ND — Loamy		
		Wyrene, shaly (3%)	R055AY040ND — Limy Subirrigated		
Totals for Area of Interest				**61.7**	**100.0%**

OFFICE OF COUNTY RECORDER BK- Misc 86 PG-565
State of North Dakota)
County of Towner)

I hereby certify that the within instrument was filed in this office for record on 8/11/2020 at 8:50 AM. and was duly recorded as Document Number 157994

Recorder

By Deputy

Fee: $212.00 Towner County Abstract Co.
PO Box 305 Cando, ND 58324

OFFICE OF COUNTY RECORDER TOWNER —SEAL— COUNTY STATE OF NORTH DAKOTA