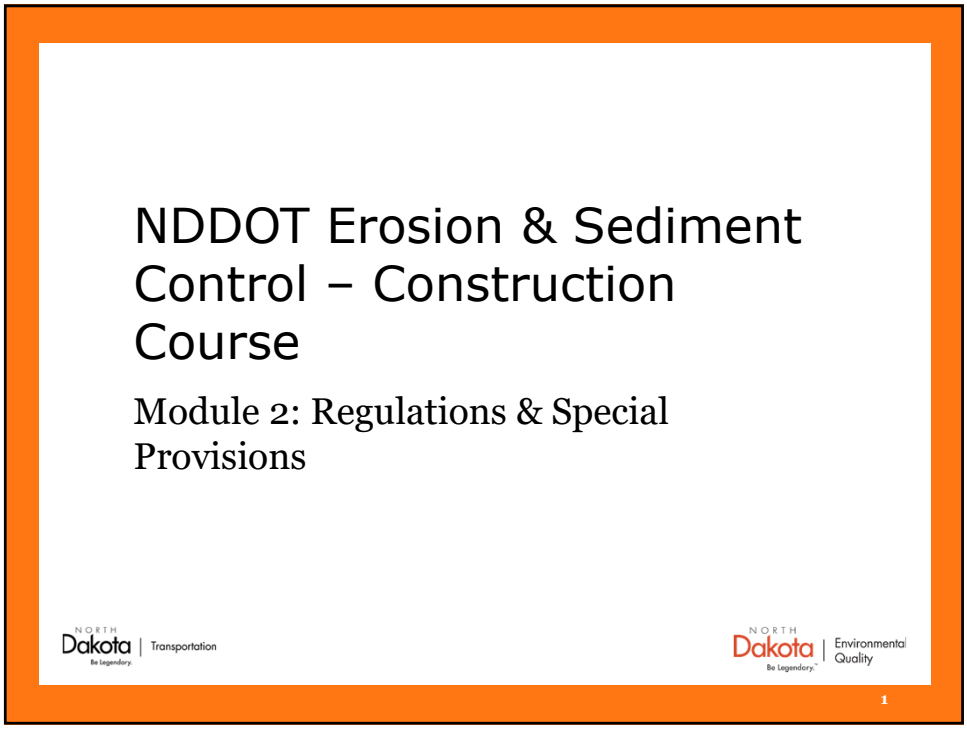
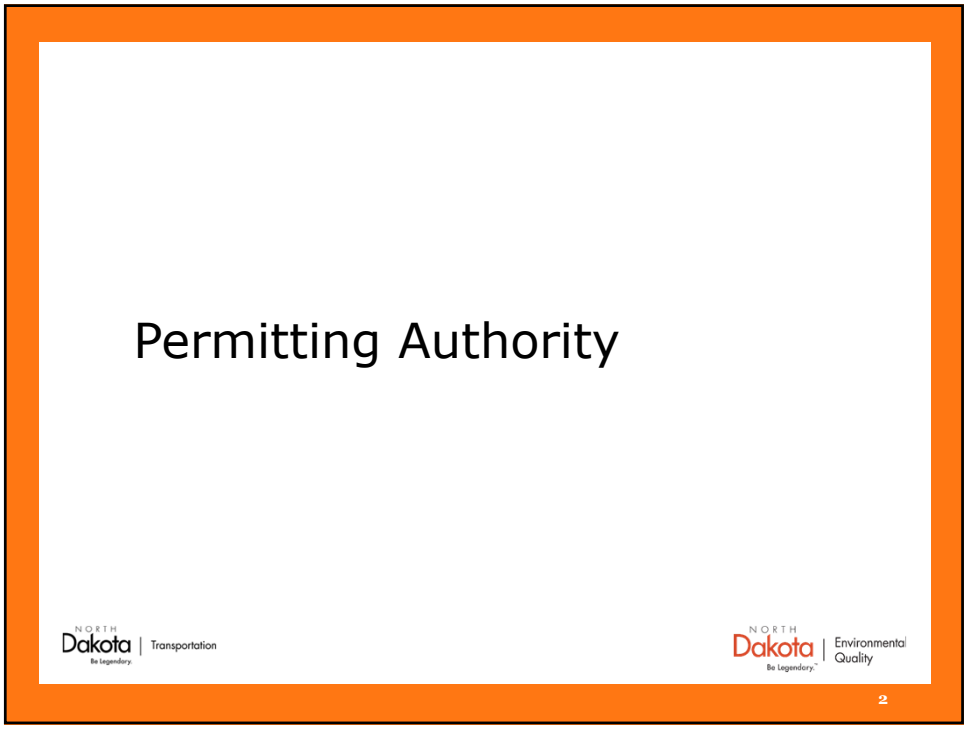

NDDOT Erosion & Sediment Control – Construction Course
Module 2: Regulations & Special Provisions
NORTH Dakota Be Legendary. | Transportation
NORTH Dakota Be Legendary. | Environmental Quality
1

1


Permitting Authority
NORTH Dakota Be Legendary. | Transportation
NORTH Dakota Be Legendary. | Environmental Quality
2

2

Clean Water Act

Section 402

Established the National Pollutant Discharge Elimination System (NPDES)

Allowed for delegation to individual States for waters within their jurisdictions

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

3

3

ND Authority

1975 ND was granted primacy of NPDES

Established NDCC § 61-28 and NDAC § 33.1-16

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

4

4

ND Authority

NDCC § 61-28-06(1)

Makes it unlawful for a person to cause pollution to any waters of the state

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

5

5

ND Authority

NDCC § 61-28-06(2)

Allows the North Dakota Department of Environmental Quality the ability to issue a construction stormwater permit

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

6

6

ND Authority

NDCC § 61-28-08(4)

Establishes the penalty of:

Up to $12,500 per day per violation

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

7

7

State Construction General Permit (NDR11-0000)

NORTH Dakota Be Legendary. | Environmental Quality

Division of Water Quality
(701) 328-5210

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

8

8

Definitions

"Waters of the State"

All waters within the jurisdiction of this state, including all streams, lakes, ponds, impounding reservoirs, marshes, watercourses, waterways, and all other bodies or accumulations of water on or under the surface of the earth, natural or artificial, public or private, situated wholly or partly within or bordering upon the state, except those private waters that do not combine or effect a junction with natural surface or underground waters just defined.

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

9

9

Definitions

"Wastes"

All substances which cause or tend to cause pollution of any waters of the state, including dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radiological materials, heat, wrecked or discarded equipment, *rock, sand, and cellar dirt* and industrial, municipal, and agricultural pollution discharged into any waters of the state.

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

10

10

Definitions

"Pollution"

Manmade or man-induced alteration of the physical, chemical, biological, or radiological integrity of any waters of the state.

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

11

11

State Construction General Permit

Permit # NDR11-0000

Reissued April 1, 2020

Expires March 31, 2025

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

12

12

EPA Construction General Permit

Reissued February 17, 2022

Expires February 16, 2027

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

13

13

State and Federal Authority

North Dakota Department of Environmental Quality (NDDEQ)

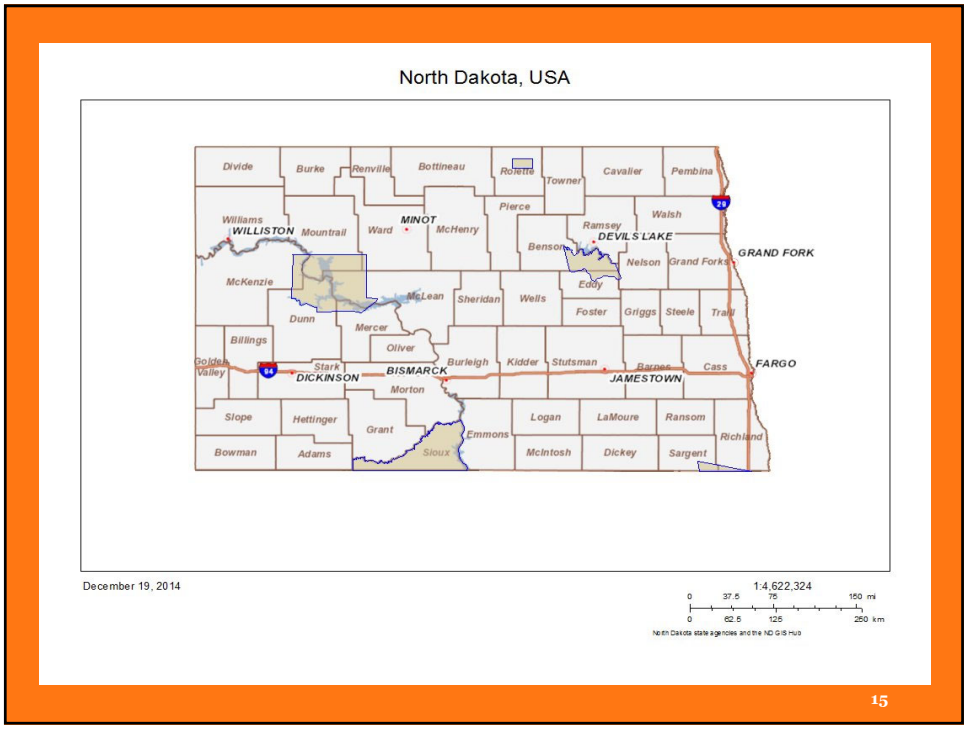
U.S. Environmental Protection Agency (EPA)

NORTH Dakota | Transportation

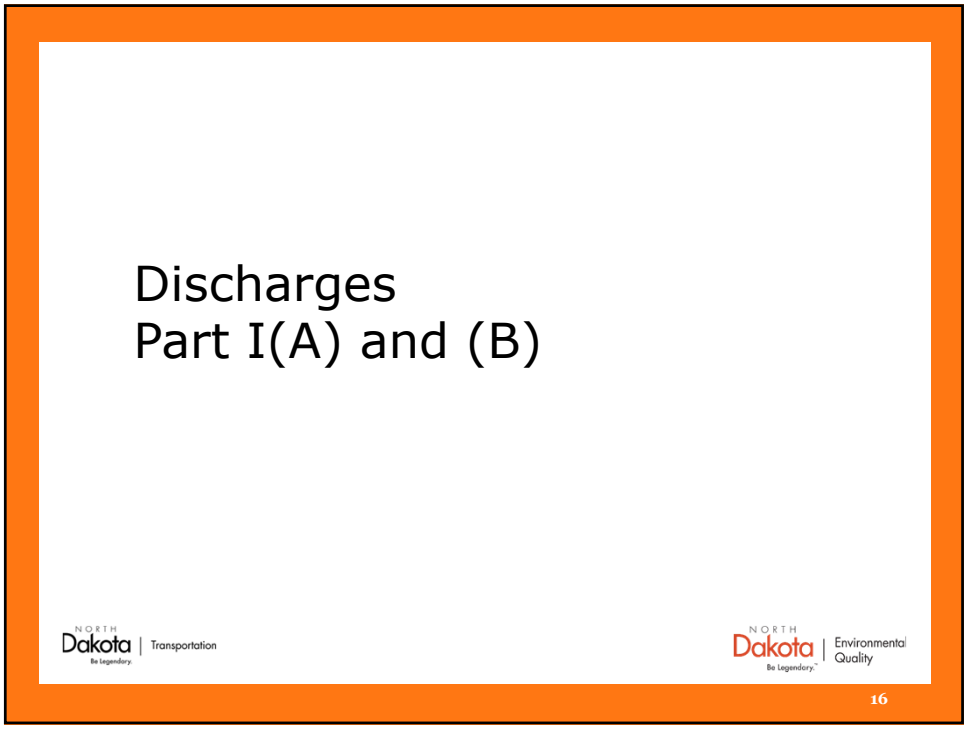
NORTH Dakota | Environmental Quality

14

14


North Dakota, USA
Divide
Burke
Renville
Bottineau
Rolette
Towner
Cavalier
Pembina
Pierce
Walsh
Williams
WILLISTON
Mountrail
Ward
MINOT
McHenry
Ramsey
DEVILS LAKE
Benson
Nelson
Grand Forks
GRAND FORK
McKenzie
McLean
Sheridan
Wells
Eddy
Foster
Griggs
Steele
Traill
Dunn
Mercer
Billings
Oliver
Golden Valley
Stark
DICKINSON
BISMARCK
Burleigh
Kidder
Stutsman
Barnes
JAMESTOWN
Cass
FARGO
Morton
Slope
Hettinger
Grant
Emmons
Logan
LaMoure
Ransom
Richland
Bowman
Adams
Sioux
McIntosh
Dickey
Sargent
December 19, 2014
1:4,622,324
0 37.5 75 150 mi
0 62.5 125 250 km
North Dakota state agencies and the ND GIS Hub
15

15


Discharges
Part I(A) and (B)
NORTH Dakota Be Legendary. | Transportation
NORTH Dakota Be Legendary. | Environmental Quality
16

16

Discharges Covered by the Permit (Part I(A))

Stormwater discharges from construction activity and support activities

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

17

17

Stormwater Discharges from Construction Activity

Sites that disturb 1 acre or more

Sites that disturb less than 1 acre and are part of a larger common plan of development

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

18

18

Stormwater Discharges from Support Activities

Concrete or asphalt batch plants

Equipment staging yards

Material storage areas

Excavated material disposal areas

Borrow areas

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

19

19

Discharges Not Covered by the Permit (Part I(B))

Stormwater from industrial activity

Wastewater discharges

Dredge or fill activity (U.S. Army Corps of Engineers Section 404 permits)

Discharges that cause a water quality standard violation

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

20

20

Permit Responsibility

Owner (NDDOT and their consultants) is responsible for compliance with all terms and conditions of the permit

Operator (prime contractor) has day-to-day supervision of construction activities **and is jointly responsible** for compliance as they pertain to the activities delegated to the operator

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

21

21

Local Authority
Part II(D)

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

22

22

Local Requirements (Part II(D))

Does not take the place of local authority

– City

– County

– NDDOT Specifications

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

23

23

Memorandum of Understanding (MOU)

Agreement between NDDOT and NDDEQ

Identifies responsibilities and coordinates efforts

Outlines termination process

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

24

24

Obtaining Coverage
Part I(C)

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

25

25

Obtaining Coverage

Must fill out Notice of Intent (NOI) electronically

Permit coverage is effective 7 days after the NOI information is submitted to the NDDEQ

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

26

26

Hybrid NOI

Must download to desktop first (cannot be filled out in browser)

Must open with Adobe® software (cannot use another program like Bluebeam®

Fill out, save, email to NDDEQ

Print paper version and get "wet signature" from NDDOT and Prime Contractor

Mail to NDDEQ

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

27

27

Electronic Reporting Information System (ERIS) NOI

Must have permit number in hand in order to use

Must have ND Login account to log in

Must submit subscriber agreement to get access to use ERIS

Login, fill out, submit to NDDEQ

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

28

28

Hybrid NOI vs. ERIS NOI

Highly recommend using Hybrid NOI

A permit number is needed upfront for ERIS

Hybrid NOI allows for NDDOT signature

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

29

29

Application Process
Part I(D)

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

30

30

Application Process

Owner (NDDOT District) information must be included on the NOI

Operator (Prime Contractor) information must be included on the NOI

Operator (Prime Contractor) submits the NOI with signatures of both parties

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

31

31

Application Process

Notices of intent must be signed and certified by:

A responsible corporate officer, a general partner, or a principal executive officer

- NDDOT
- Prime Contractor

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

32

32

Stormwater Pollution Prevention Plan (SWPPP) Part II(C)

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

33

33

SWPPP

All permitted construction projects must develop and implement a SWPPP until final stabilization is achieved

A SWPPP for the project must be prepared and available for review, upon request, by the department at the time of application

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

34

34

SWPPP

A SWPPP must be completed prior to the start of construction

As per the Memorandum of Understanding and the NDDOT Specifications, the Prime Contractor is required to prepare the SWPPP

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

35

35

SWPPP

Identifies potential sources of sediment or other pollution from construction activity

Ensures practices are used to reduce pollution from construction site runoff

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

36

36

SWPPP

A NDDEQ template is available

Company SWPPPs can be used, but must meet the requirements of the permit

Intended to be a "living" document

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

37

37

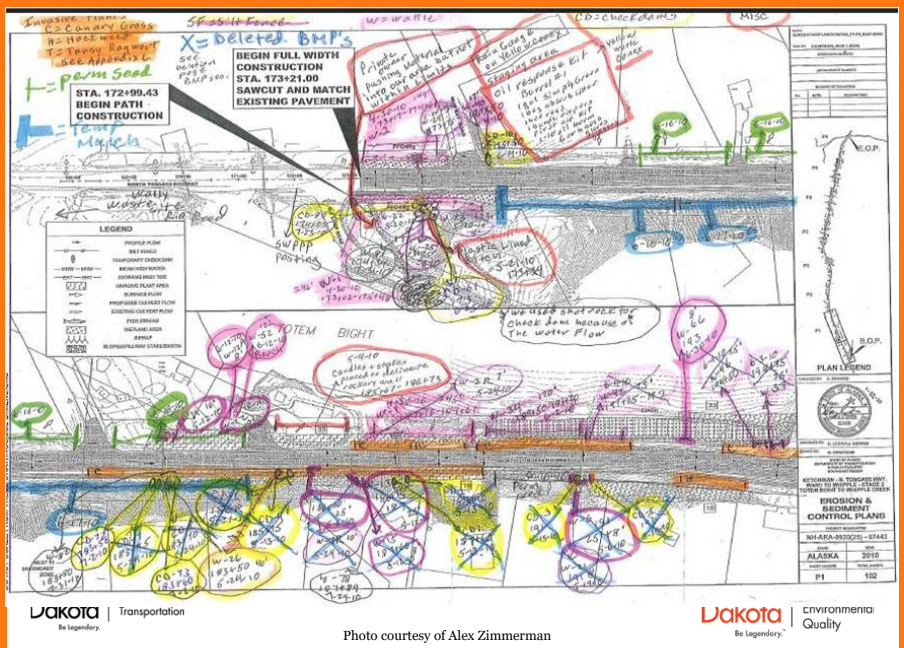
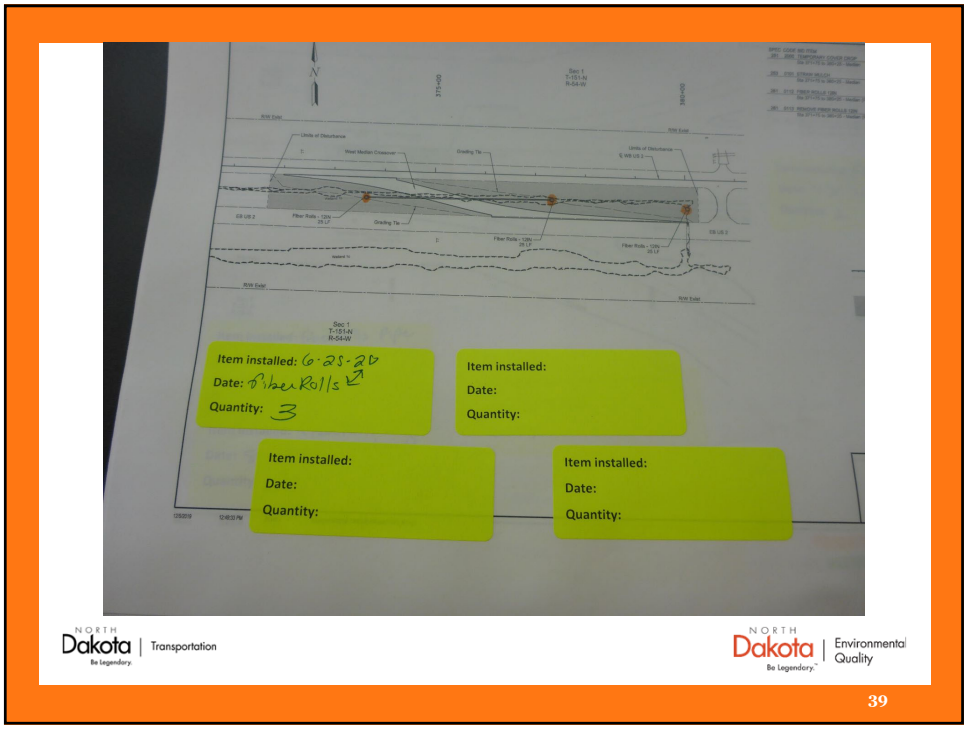


Photo courtesy of Alex Zimmerman

38

38



39

SWPPP Site Description (Part II(C)(1))

Description of overall activity

Proposed timetable/schedule, which includes

– Major phases/stages

– BMP installation and removal

Identify surface waters and municipal systems

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

40

40

SWPPP Site Description (Part II(C)(1))

Soil description within disturbed areas

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

41

41

SWPPP Site Description (Part II(C)(1))

Identify impaired water bodies for sediment, suspended solids, or turbidity

– Identify the water body and impairment

Identify water bodies with a total maximum daily load (TMDL)

– SWPPP must describe and conform to TMDL

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

42

42

SWPPP Site Map

1. Project boundaries
2. Areas of ground disturbance
3. Areas of avoidance
4. Drainage patterns
5. Location of temporary and permanent sediment and erosion controls for each phase

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

43

43

SWPPP Site Map

6. Locate sources of pollution (e.g., portable toilets, dumpsters, barrels, etc.) or identify where sources of pollution cannot be located
7. Location of soil stockpiles
8. Surface waters, including an aerial extent of wetland acreage

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

44

44

SWPPP Site Map

9. Surface water crossings
10. Stormwater discharge points
11. Location of any impervious surfaces upon completion
12. If part of the project, site maps for batch plants, equipment staging areas, borrow sites, and excavated fill disposal sites

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

45

45

Narrative (Part II(C)(2))

Description of the selected operational controls, and sediment and erosion controls

Must include at a minimum:

– Installation, removal (if applicable), and maintenance requirements of selected BMPs

– Rationale for selection

– If BMPs are temporary or permanent

– Any descriptions of infeasibility

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

46

46

SWPPP Operational Controls
Part II(C)(3)

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

47

47

SWPPP Operational Controls

The plan must identify a person knowledgeable and experienced in the application of erosion and sediment control measures

Develop a chain of responsibility with all operators to ensure the SWPPP is implemented

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

48

48

Good Housekeeping

Maintain a clean and orderly site

Handle litter, debris, chemicals and parts properly to minimize exposure to stormwater

49

49

Good Housekeeping

Reduce and remove sediment tracked offsite by vehicles or equipment

Control dust

50

50

Preventive Maintenance

Maintain erosion and sediment control devices and equipment used or stored on site

– Must describe proper inspection procedures for erosion and sediment control devices

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

51

51

Spill Prevention and Response Procedures

Must be developed where spills can occur

Must have adequate leak and spill protection

Specific handling procedures, storage requirements, spill containment, cleanup and disposal procedures (like a Safety Data Sheet)

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

52

52

Employee Training

Personnel must understand the requirements of the permit as it pertains to their role in implementing the SWPPP

– Project specific

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

53

53

Employee Training

At least annually

As new employees are hired or as necessary to ensure compliance with the SWPPP and permit

Individuals responsible for design, installation, maintenance, and repair of BMPs

Individuals responsible for inspections

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

54

54

Employee Training

On-site personnel must know:

–The purpose and requirements of the SWPPP

– How the SWPPP will be implemented

– Location of all BMPs

– Correct installation, function, maintenance, and removal of BMPs

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

55

55

Employee Training

Inspectors must understand:

– When inspections must be conducted

– What must be inspected

– How to record findings

– When to initiate corrective actions

– How to document corrective actions

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

56

56

Employee Training

Maintenance personnel must understand:

– When maintenance must be performed

– What needs to be recorded for corrective actions and maintenance records

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

57

57

Concrete Grindings and Slurry

SWPPP must describe how grindings and slurry will be managed on-site

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

58

58

Wastewater from concrete washout and other building materials

Cannot be discharged to waters of the state or curb and gutter systems

Must be collected in a leak-proof container or leak-proof pit

– Must be designed and maintained so that overflows will not occur

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

59

59

Dewatering

Limited to un-contaminated stormwater, groundwater, and surface water

Operate to minimize the release of sediment

Use BMPs to minimize erosion caused by the discharge

Utilize BMPs which draw from the surface, unless infeasible

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

60

60

Erosion and Sediment Control
Part II(C)(4)

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

61

61

Erosion and Sediment Control Selection Considerations

Expected amount, frequency, intensity, and duration of precipitation events

– You can state selected erosion and sediment controls are industry standards

Channelized flow

Soil types

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

62

62

Nature of run-on and run-off

63

63

Erosion and Sediment Control Selection Considerations

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

64

64

Erosion and Sediment Control Selection Considerations

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

65

65

Temporary Erosion Protection or Permanent Cover

Temporary or permanent erosion protection and stabilization must be initiated immediately, and completed in accordance with Appendix 1(A) of the construction general permit, for all exposed soil areas where activities have been completed or temporarily ceased

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

66

66

67

Erosion & Sediment Controls

– Select, install, and maintain in accordance to manufacturer's specifications

– Can deviate from manufacturer's specifications with documentation

– Must be replaced or modified when used inappropriately or incorrectly

– Changes must be made prior to the next anticipated rainfall event or within 24 hours of discovery or as soon as field conditions allow

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

68

68


69

69


Off-site Accumulations
Must be removed in a manner and frequency to minimize offsite impacts
70

70

Stormwater Controls

Must withstand and function properly during precipitation events of up to the 2-year, 24-hour storm event

– Consider high intensity, short duration events (1-year, 60-minute; etc.)

NORTH Dakota Be Legendary. | Transportation

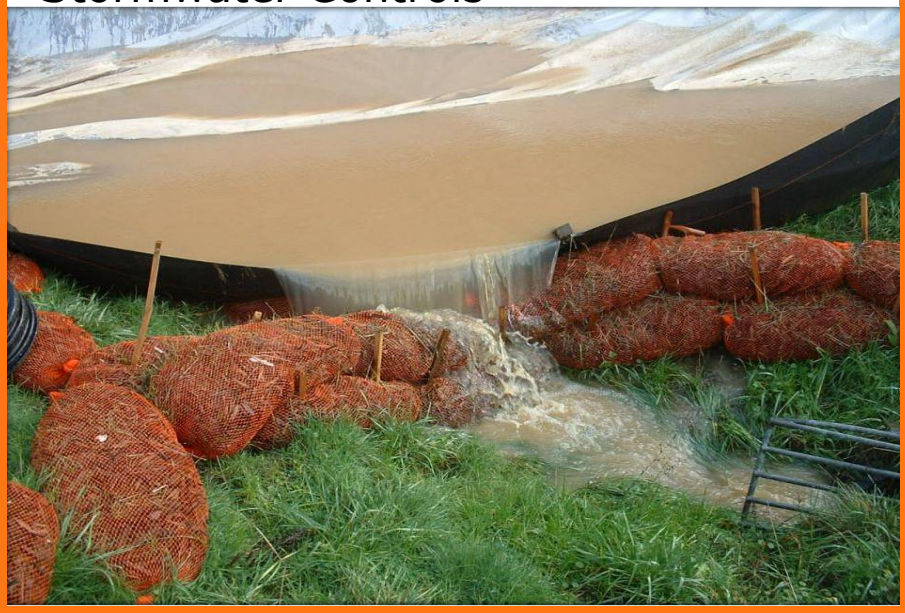
NORTH Dakota Be Legendary. | Environmental Quality

71

71

Stormwater Controls

Photo courtesy of Alex Zimmerman



72

72

Total Maximum Daily Load (TMDL)

If water flows from the site to a TMDL water body, the SWPPP needs to be consistent with the BMP or control requirements of the approved TMDL

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

73

73

Stormwater Management Part II(C)(5)

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

74

74

Stormwater Management

Identify permanent practices or other post-construction stormwater features

Example: stormwater ponds, flow reduction devices, velocity/energy dissipation devices, infiltration areas

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

75

75

Parts II(C)(6)-(8)

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

76

76

Part II(C)(6)

Maintenance

– Erosion and sediment control measures and other BMPs identified in the SWPPP must be maintained in effective operating condition

– SWPPP must indicate maintenance or clean out interval for sediment controls

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

77

77

Part II(C)(7)

Inspections

– Conduct site inspections per Part III of the permit

– Inspection personnel must meet the requirements of Part II(C)(3)(e) of the permit

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

78

78

Part II(C)(8)

SWPPP Review and Revisions

– Must be signed in accordance with signatory requirements (Part IV (A)(6))

– Authorization for a "duly authorized representative" must be kept in SWPPP

– SWPPP must be made available to the department, EPA, or municipality upon request

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

79

79

Part II(C)(8)

SWPPP Review and Revisions

– Must be amended:

Whenever changes to design, construction, operation, maintenance, or BMPs occur

If the plan is found to be ineffective in controlling pollutants

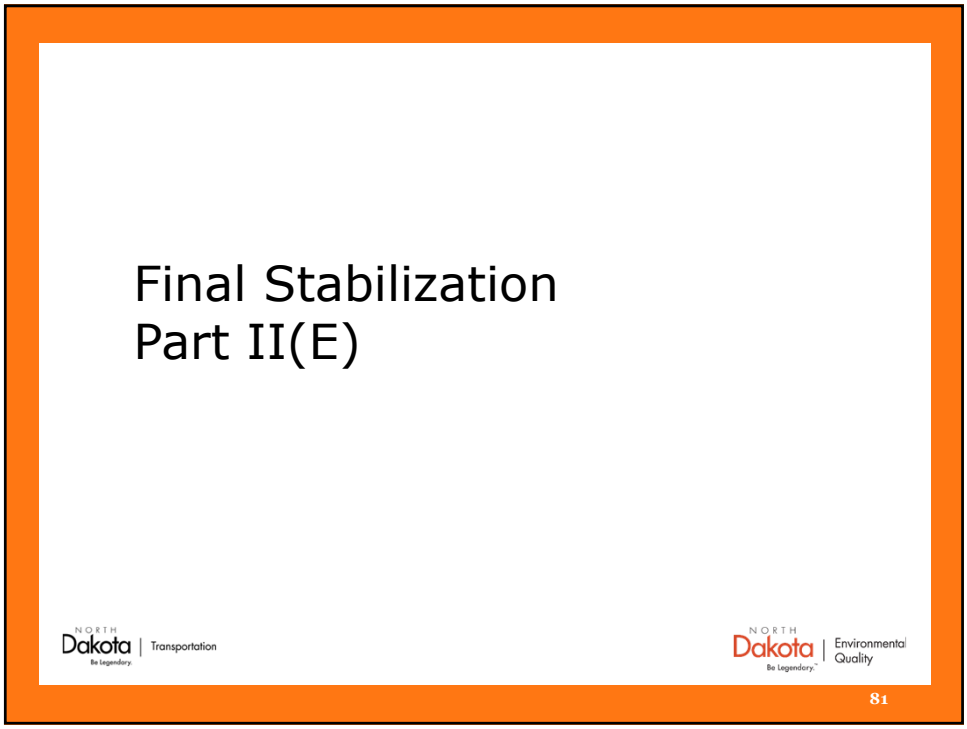
– Must include the amendment process in the SWPPP

NORTH Dakota | Transportation

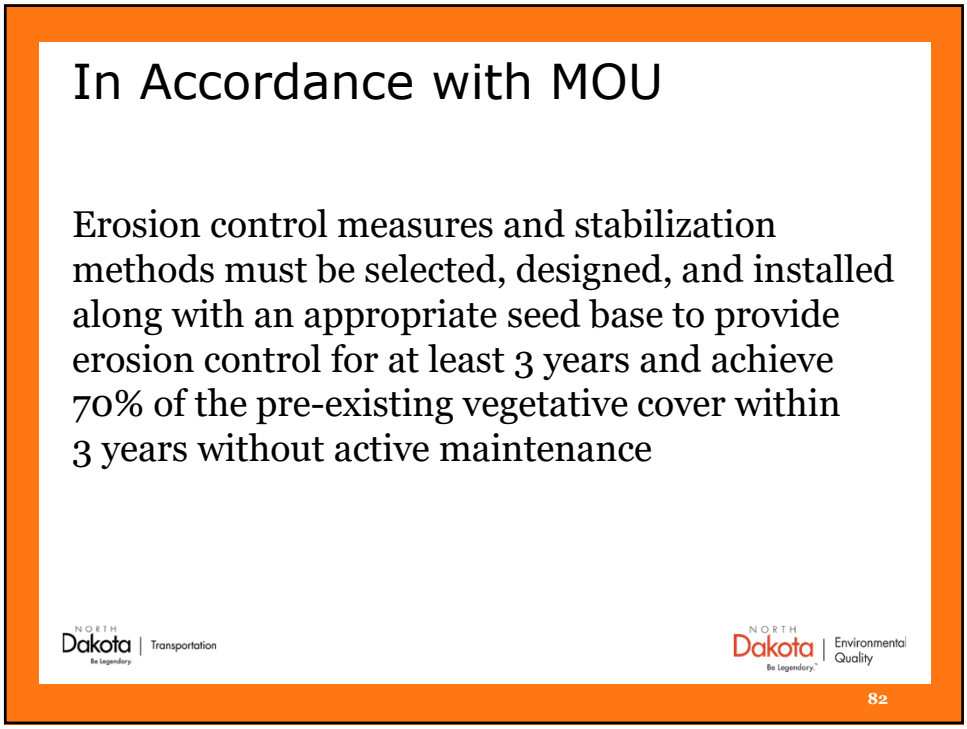
NORTH Dakota | Environmental Quality

80

80


Final Stabilization
Part II(E)
NORTH Dakota Be Legendary. | Transportation
NORTH Dakota Be Legendary. | Environmental Quality
81

81


In Accordance with MOU
Erosion control measures and stabilization methods must be selected, designed, and installed along with an appropriate seed base to provide erosion control for at least 3 years and achieve 70% of the pre-existing vegetative cover within 3 years without active maintenance
NORTH Dakota Be Legendary. | Transportation
NORTH Dakota Be Legendary. | Environmental Quality
82

82

Conditions of Final Stabilization

Soil disturbing activities at the site have been completed

Drainage ditches that drain water from the site have been stabilized to preclude erosion

Temporary erosion and sediment control devices such as silt fence have been removed

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

83

83

Conditions of Final Stabilization

Sediment has been removed from conveyances and permanent water quality basins

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

84

84

Land Used for Agricultural Purposes

Areas which are restored to their pre-construction agricultural use are not subject to the final stabilization criteria

If construction activity removed standing crop, must be restored in accordance with the landowner

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

85

85

Self Inspections
Part III

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

86

86

Inspection Requirements

Once every 14 calendar days and within 24 hours of any storm event greater than 0.25 inches of rain per 24-hour period

Rainfall inspections do not replace once-every-14-day inspections

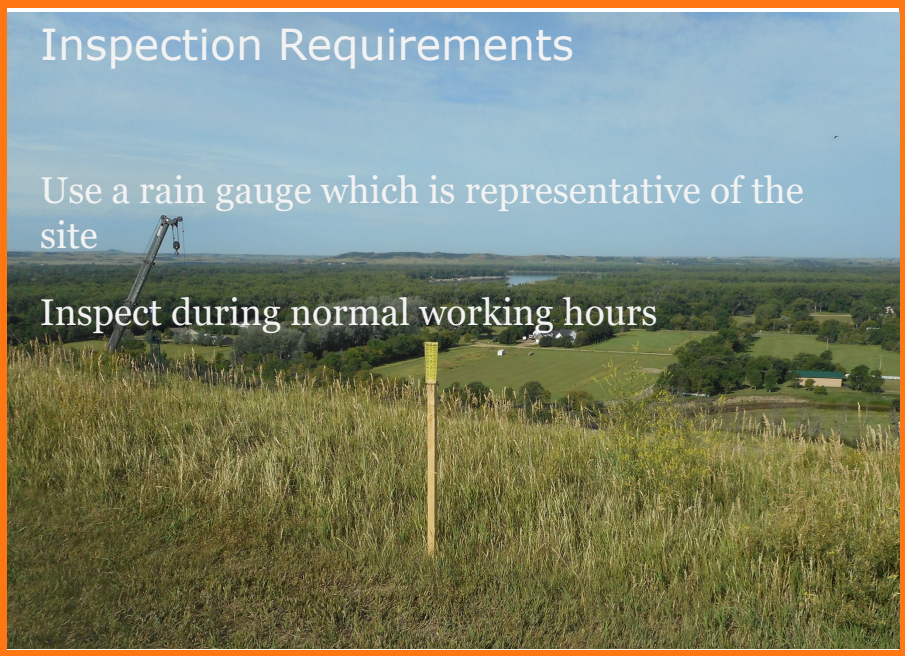
NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

87

87

Inspection Requirements



Use a rain gauge which is representative of the site

Inspect during normal working hours

88

88

Inspection Requirements

Inspect

– Erosion and sediment controls

– Stabilized areas

– Areas used for storage of materials

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

89

89

Inspection Requirements

Inspect

– Permanent stormwater controls

– Vehicle maintenance areas

– Dewatering activities

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

90

90

Records of Each Inspection and Maintenance Activity

All inspections and maintenance activities must be recorded in writing

1. Date of the inspection
2. Name of person(s) conducting the inspection and signature or means to verify the person
3. Findings of the inspection, including recommendations for corrective actions

NORTH Dakota | Transportation — NORTH Dakota | Environmental Quality

91

91

Records of Each Inspection and Maintenance Activity

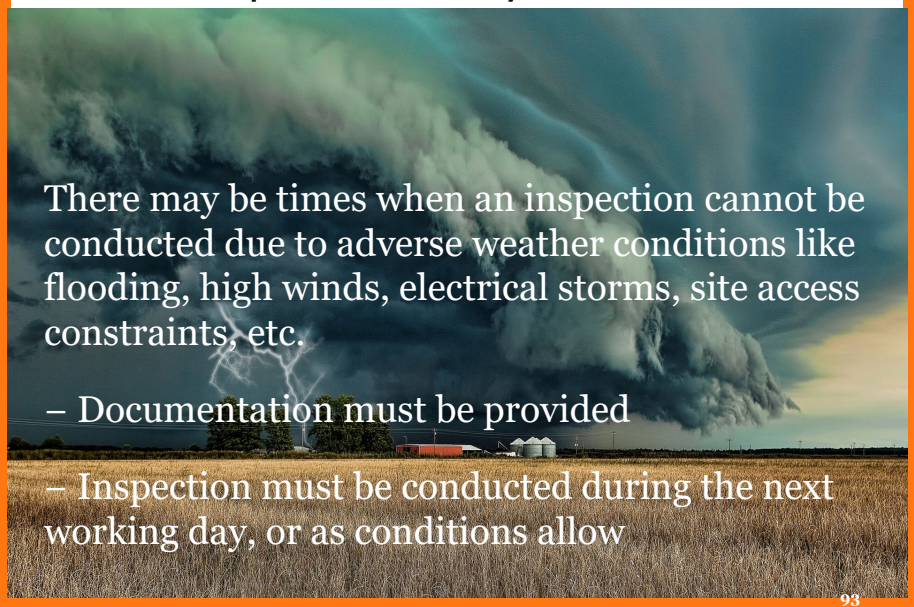
4. Corrective actions taken, if any, including date and party completing maintenance activities
5. Date and amount of rainfall events greater than 0.25 inches within 24 hours
6. Documentation when the SWPPP has been amended

NORTH Dakota | Transportation — NORTH Dakota | Environmental Quality

92

92

When Inspections May Be Put On Hold



There may be times when an inspection cannot be conducted due to adverse weather conditions like flooding, high winds, electrical storms, site access constraints, etc.

– Documentation must be provided

– Inspection must be conducted during the next working day, or as conditions allow

93

93

Reduced Inspections

Completed areas that have been stabilized but do not meet 70% perennial vegetative cover:

– Inspected 1/month

Areas which meet final stabilization requirements (Part II(E)):

– Inspections may be suspended

Update SWPPP to identify these areas

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

94

94

Suspended Inspections

Inspections may be suspended where earthwork has been suspended due to frozen ground conditions

Inspections must resume as soon as runoff occurs or the ground begins to thaw

95

95

Dewatering Inspections

Inspect dewatering activity daily

Must include:

– Dewatering site

– BMPs

– Discharge location

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

96

96

Dewatering Inspection Records

Date

Inspector

Approximate volume

Findings

Corrective Actions

Documentation of SWPPP amendments

Inspector signature or means to verify inspector

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

97

97

Erosion and Sediment Control Requirements Appendix 1

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

98

98

Erosion and Sediment Control Practices Appendix 1(A)

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

99

99

Stabilization

Exposed soil areas must be stabilized

Initiate immediately where activities have permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days (includes winter shutdown)

Complete as soon as possible, but no later than 14 calendar days after initiation of soil stabilization

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

100

100

Stabilization

For slopes with a grade of 3:1 or greater

– Stabilization must be completed as soon as possible, but no later than 7 calendar days after initiation of soil stabilization

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

101

101

Stabilization

The normal wetted perimeter of temporary or permanent drainage ditches which drain water from the site or around the site must be stabilized 200 linear feet from the property edge or point of discharge to a surface water

– Complete before connection to surface water

– Remaining, within 14 calendar days

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

102

102

Stabilization

"Normal wetted perimeter" means the area in contact with water during a once-every-year storm

– Essentially the bottom of the ditch

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

103

103

If Stabilization Requirements Cannot be Met

If vegetative stabilization was planned, install temporary non-vegetated stabilization

Complete all methods of initiating stabilization as soon as conditions or circumstances allow

Conditions must be documented

Permittees are responsible for implementing winter stabilization methods during frozen ground conditions

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

104

104

Stream diversions or temporary permanent drainage ditches or trenches

If they have continuous flow

– Must be stabilized prior to connection with any surface water

– Must be stabilized to bankfull height

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

105

105

Working around surface waters

Sediment and erosion controls must be used above the anticipated level of the surface water

Floating silt curtain does not satisfy the down slope and side slope boundary requirements

– Unless activity is on or below the elevation of the surface water

Floating silt curtain must be as close to shore as possible

Install sediment controls where soils drain to surface water once construction activity is complete

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

106

106

Pipe and culvert outlets

Provide energy dissipation prior to connection with a surface water

– Riprap

– Flared end section

– Scour prevention

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

107

107

Storm Drain Inlets

All storm drain inlets in the immediate vicinity of the construction site must be protected by the appropriate measures during construction

Inlet protection devices are a last line of control

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

108

108

Vegetative Buffers

1 foot of buffer for every 5 feet of disturbed area which drains to the buffer

Slope of buffer should be 5% or less

Slope of the disturbed area draining to the buffer should be 6% or less

Concentrated flows should be minimized

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

109

109

Natural Buffers

50-foot natural buffer or equivalent ESCs must be used when working within 50 feet of a surface water and stormwater flows to the surface water

100-foot natural buffer or equivalent ESCs must be used when working within 100 feet of a surface water impaired for sediment, suspended solids or turbidity

If using equivalent ESCs, document rationale

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

110

110

Chemical treatment of water for sediment removal

Conduct in accordance with manufacturer's specifications

Discharge of chemically treated water may not cause a water quality violation and must meet the dewatering or basin draining requirements of the permit

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

111

111

Steep Slopes

Minimize the duration of exposed soils on steep slopes

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

112

112

Maintenance Considerations
Appendix 1(B)

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

113

113

Inspect All ESC Measures

114

114

Repair or Replace ESC Measures

All nonfunctional ESCs must be repaired or replaced with functional ESCs

Remove nonfunctional ESCs

Corrections must be made prior to the next anticipated rainfall event or within 24 hours of discovery or as soon as field conditions allow

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

115

115

116

116

Repair or Replace ESC Measures

Provide documentation with a plan of action if field conditions do not allow access for performing maintenance

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality
117

117

Repair or Replace ESC Measures

Built-up sediment must be removed from silt fence, fiber rolls, or similar devices when it approaches ½ the above ground capacity

Fiber rolls must be replaced when ½ of the original above ground height is lost due to flattening or other damage

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality
118

118

Repair or Replace ESC Measures

Sediment basins must be cleaned when ½ of the sediment storage volume is lost

Inlet protect devices must be maintained when sediment accumulates, they become clogged, and/or performance is compromised

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

119

119

Surface Waters

Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of sediment deposited by erosion

NORTH Dakota | Transportation

120

120

Removal of Sediment from Surface Waters

Conduct immediately, but no more than 7 days after discovery unless prohibited by legal, regulatory, or physical access constraints

– Removal and stabilization must be conducted immediately, but no more than 7 days after obtaining access

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

121

121

Vehicle Tracking

Vehicle tracking must be minimized by ESCs

Tracked and deposited sediment must be removed by the end of the work day, shift or, if applicable, within a shorter time period specified by a local authority or the NDDEQ

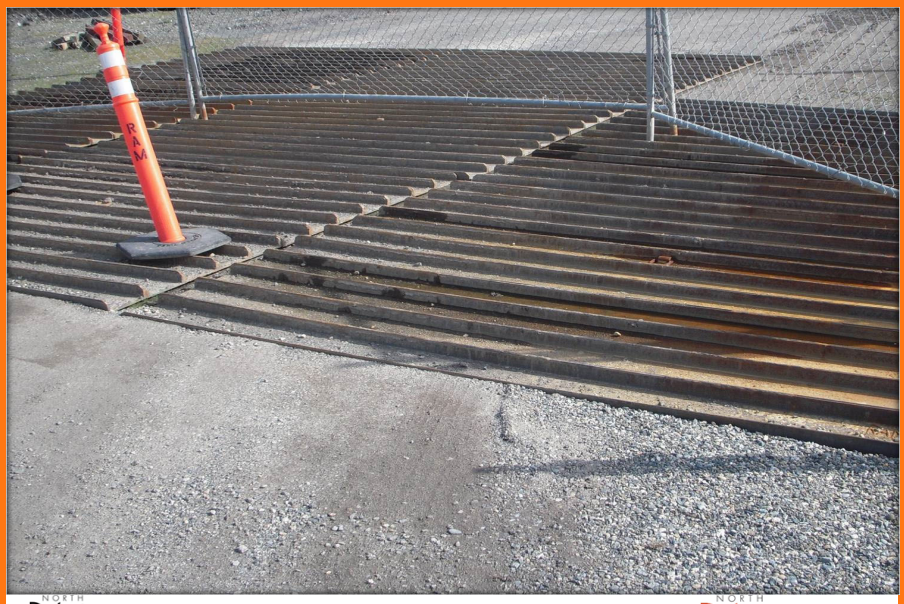
Permittees are responsible for, or making arrangements for, street sweeping and/or scraping if ESCs are not adequate to prevent tracked sediment

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

122

122



NORTH Dakota | Transportation

Photo courtesy of Alex Zimmerman

NORTH Dakota | Environmental Quality

123

123

Vegetative Buffers

Must be inspected for proper flow distribution

Eroded areas must be repaired and stabilized within 24 hours of discovery, or as soon as conditions allow access

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

124

124

Operational Controls
Appendix 1(C)

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

125

125

Properly Handle Construction Debris

Debris and waste must be handled appropriately until disposal

– Collect and store to reduce the potential for wind and water to carry materials off-site or leachate

Properly store liquids and soluble materials

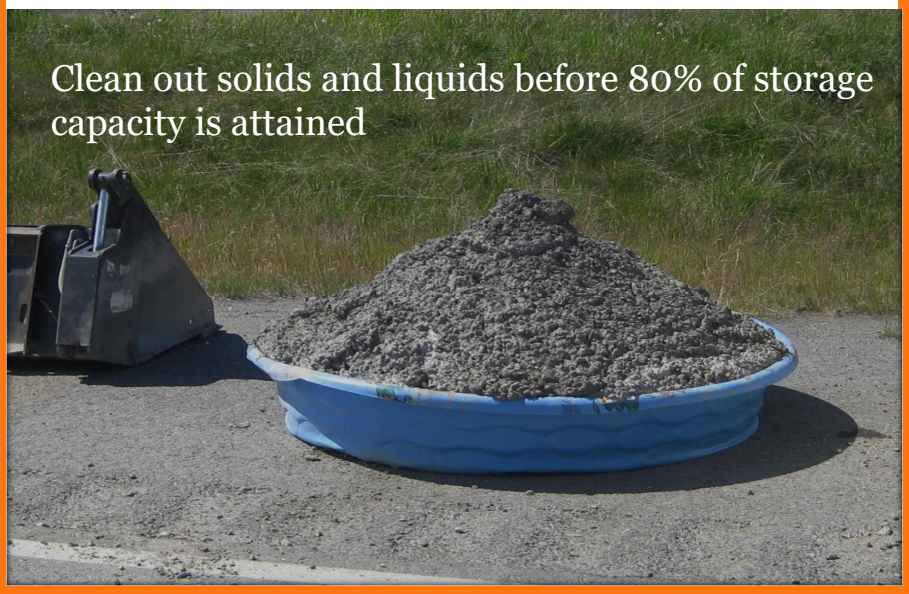
NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

126

126

Wash Water Containments

Photo courtesy of Alex Zimmerman



127

127

BMPs used in Surface Waters

Must be cleaned immediately upon removal from surface waters to prevent the transfer of aquatic nuisance species

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

128

128

Fueling Operations

Manage to minimize spills or leaks

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

129

129

Records
Part III(B)

NORTH Dakota | Transportation
Be Legendary.

NORTH Dakota | Environmental Quality
Be Legendary.

130

130

What records need to be available on site?

1. Copy of NOI
2. Coverage letter from the NDDEQ
3. SWPPP
4. Site inspection and maintenance records
5. The construction general permit, NDR11-0000

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

131

131

Where do records need to be kept?

Field office, trailer, shed, or vehicle that is on-site during normal working hours or other reasonable on-site location or readily available off-site location

Electronic records need to be accessible on site

If the site is inactive, then documents may be stored at a local office

NORTH Dakota | Transportation
NORTH Dakota | Environmental Quality

132

132

Signatory Requirements Part IV(A)(6)

All reports or information submitted to the NDDEQ shall be signed and certified be either:

A responsible corporate officer, a general partner, or a principal executive officer

A duly authorized representative

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

133

133

Termination

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

134

134

In accordance with the MOU

NDDOT will file a NOT with the NDDEQ indicating the project meets the criteria for final stabilization

NDDOT may release a contractor from a contract before submitting a NOT

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

135

135

When project is complete

Contractor may submit a permit modification form to remove themselves from coverage under the permit and keep coverage active for the NDDOT with NDDOT approval

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

136

136

137

State and Tribal Lands

Projects crossing Tribal Boundaries require two permits

- DEQ Construction General Permit
- EPA's Construction General Permit (each must obtain)
  - Owner
  - Operator

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

138

138

EPA's Construction General Permit

https://www.epa.gov/system/files/documents/2022-01/2022-cgp-final-permit.pdf

<u>Required for projects occurring on Tribal Lands</u>

- Fort Berthold
- Spirit Lake
- Standing Rock
- Turtle Mountain
- Lake Traverse (Sisseton-Wahpeton)

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

139

139

One Project
Two EPA Permits

There are two operators associated with an NDDOT project each required to open a permit for a project.

i. NDDOT has operational control over construction plans and specifications. Obtains required information for project signing.

ii. Prime Contractor has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the permit (as defined in CGP Appendix A) of the project).

Subcontractors generally are not considered operators for the purposes of this permit.

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

140

140

EPA Permit Notification Sign – NDDOT Obtained

Must post sign or other notice near project site

Sign must contain:

- Permit # and Contact info.
- SWPPP URL or EPA contact statement
- EPA violation website

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

141

141

EPA Permit Application Process

EPA Electronic Notice of Intent and Low Erosivity Waiver (CGP-Net)

- Contractor will receive an email with instructions to proceed
- Complete the process for permit coverage
- 14 day waiting period after applying

NORTH Dakota Be Legendary. | Transportation

NORTH Dakota Be Legendary. | Environmental Quality

142

142

Site Inspector Training

(CGP (Part 6.3) Requirement Options)

EPA Inspector Course – HIGHLY RECOMMENDED!!!

https://www.epa.gov/npdes/construction-inspection-training-course

Non-EPA training program that covers

- Principles and practices of the ESC's and pollution prevention controls
- Proper installation and maintenance of ESC's and pollution prevention controls
- Performance of inspections, including reports and documentation

Consider taking both courses since the EPA and State Permits are not issued concurrently.

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

143

143

Stabilization Deadlines

EPA requires stabilization within 14 days of ceasing activities on any area of a site with less than 5 acres disturbed at one time

If there are over 5 acres disturbed, the stabilization deadline is cut to 7 days

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

144

144

Dewatering/Turbidity Benchmark Monitoring

https://www.epa.gov/system/files/documents/2022-01/cgp-inspection-and-monitoring-guide-for-dewatering.pdf

Sites dewatering to a sediment impaired water or designated high quality waters (Tier 2, 2.5, or 3).

Collect Samples using permit defined procedures

Compare weekly turbidity average to the 50 NTU benchmark

Follow corrective action in accordance with permit

Report all weekly averages to EPA via NeT-CGP no later than 30 days following the end of each monitoring quarter.

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

145

145

Surface Draw Down from Sediment Basins

EPA requires drawdown from surface

State requires drawdown from surface for sediment basins and dewatering activities

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

146

146

Concrete Wash Water

EPA requires leak-proof container

State requires leak-proof container and clean out prior to 80% capacity

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

147

147

Modifying a Permit

Cannot modify an EPA Construction General Permit

Original operator must submit an NOT

New operator must submit a new NOI

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

148

148

Notice of Termination

To document stabilization measures have been incorporated, photographs must be included (ground or aerial photographs) demonstrating the sites compliance with the stabilization requirements. (representative locations may be used)

- Before and After the site has met the final stabilization criteria
- Clear and in focus, in the original format
- Include date, description of the area of the site captured by the photograph

NORTH Dakota | Transportation

NORTH Dakota | Environmental Quality

149

149

NDDOT SSP 1 Temporary Erosion & Sediment Control Special Provision

NORTH Dakota | Transportation

150

150

What is covered in this section?

Why do we need a Special Provision?

Erosion Control Responsibilities

Temporary versus Permanent Controls

Contractor Controlled Areas

Consequences

Payment

NORTH Dakota | Transportation

151

151

Why?

EPA Consent Agreement:

– NDDOT

– Kansas DOT

– Missouri DOT

NORTH Dakota | Transportation

152

152

Everyone is responsible for erosion and sediment control, pollution prevention and compliance with the regulations pertaining to your project.

NORTH Dakota | Transportation
Be Legendary.

153

153

Definitions

NORTH Dakota | Transportation
Be Legendary.

154

154

Temporary Erosion & Sediment Controls

Installed and maintained before and during

Removed when permanent are installed

NORTH Dakota | Transportation
Be Legendary.

155

155

Permanent Erosion & Sediment Controls

Installed and maintained once an area is completed

Some areas may never have temporary controls (i.e., Pipe Ends)

NORTH Dakota | Transportation
Be Legendary.

156

156

May Be The Same!

Temporary = Permanent

Installed correctly

In functional condition

All accumulated sediment removed

NORTH Dakota | Transportation
Be Legendary.

157

157

Stormwater Pollution Prevention Plan (SWPPP)

Identifies potential pollution sources, not just sediment

Identifies practices used to control and prevent pollution

NORTH Dakota | Transportation
Be Legendary.

158

158

Contractor Controlled Areas

Project Areas not in the contract

Obtained and controlled by Contractor:

– Borrow Sites

– Batch Plants

– Staging Areas, etc.

NORTH Dakota | Transportation

159

159

Maintenance

Action taken to keep ESCMs in working condition

Not just removing sediment

Repairing Failures

NORTH Dakota | Transportation

160

160

Noncompliance

Any action or inaction that violates regulations:

– Permits, SP, or other Contract Documents

Failure of ESCM not always noncompliance:

– Repaired, replaced, supplemented

– No sediment discharged

NORTH Dakota | Transportation

161

161

Contractor Responsibilities

NORTH Dakota | Transportation

162

162

SWPPP

Develop SWPPP specific to project

Include plans and means and methods

Update SWPPP to show changes:

– Work schedules

– Sequence of Construction

– ESCM locations or types

NORTH Dakota | Transportation
Be Legendary.

163

163

Plans Alone Are Not a SWPPP

Plans = Starting point

May need modification

Approve through Engineer

Meet all regulatory requirements

NORTH Dakota | Transportation
Be Legendary.

164

164

Perimeter Controls

First thing done

Should not be the only line of defense

NORTH Dakota | Transportation

165

165

Stabilization ESCMs

Install as soon as possible

Areas of temporary or permanent work stoppage

Follow permit timelines

NORTH Dakota | Transportation

166

166

Coordination of ESCMs

Never a time without protections

Go to permanent ASAP

Remove temporary devices

Maintenance of permanent devices = NDDOT after permit termination

NORTH Dakota | Transportation

167

167

Inspections

Every 14 days

Within 24 hours of ¼ inch rainfall

Document

Prolonged rainfall = 2 inspections

Only during normal business hours

Rain gauge

NORTH Dakota | Transportation

168

168

Inspections

Correct all deficiencies within timelines

Install additional ESCMs

Correct original deficiencies ASAP

Document access issues

Most inspections = maintenance

NORTH Dakota | Transportation

169

169

Record Keeping

Provide Engineer copies:

– Inspections*

– Maintenance*

– Documentation

– Record keeping

– Remedial actions

– Repairs

NORTH Dakota | Transportation

*Within 3 working days

170

170

Record Keeping

At preconstruction conference, provide Engineer proof of NDDOT Erosion and Sediment Control Certification (ESCC) for:

- Prime Contractor's Erosion Control Supervisor
- Any Erosion Control Subcontractor Supervisor
- Engineer will provide a verification of their certification

Certifications must be maintained through the term of the contract

NORTH Dakota | Transportation
Be Legendary.

171

171

SWPPP Changes

Notify Engineer in writing

Engineer reviews and makes final determination

NORTH Dakota | Transportation
Be Legendary.

172

172

Permits

Contractor obtains Permit = Memorandum of Understanding (MOU)

Separate permit for Contractor Controlled Areas:

– Regardless of size

– Contractor = Owner and Operator

– NDDOT = No Responsibility

NORTH Dakota | Transportation

173

173

Permits

Do not commence activities in these areas until after permit coverage has begun.

Provide copies to Project Engineer:

- Completed and signed NOI – Before activities commence
- Permit Coverage Letters – Within 7 days of receipt from regulating agency

NORTH Dakota | Transportation

174

174

Accountability and Enforcement

NORTH Dakota | Transportation
Be Legendary.

175

175

Erosion Control Supervisor

Prime Contractor employee

Familiar with:

– Installation, maintenance and removal of ESCMs

– Requirements of SWPPP, plans, permits, specs, special provisions

– Competent to supervise personnel

– Certified through the NDDOT ESCC Training

NORTH Dakota | Transportation
Be Legendary.

176

176

Duties

Provide ESCMs

Be onsite to supervise

Update SWPPP (narrative and illustrative)

Propose changes

Be onsite within 24 hrs

Submit documentation

NORTH Dakota | Transportation

177

177

Performance

Correct noncompliance within 24 hrs from notification

If not, the Engineer may:

– Contract Price Reduction = $500/day/instance

– Have work done by another Contractor

– Stop work

– Withhold Payment

Applied until corrected

NORTH Dakota | Transportation

178

178

Basis of Payment

NORTH Dakota | Transportation
Be Legendary.

179

179

Pay Items

Temporary = Permanent

Includes labor, materials, equipment, disposal, SWPPP modifications

ESCM removal separate

NORTH Dakota | Transportation
Be Legendary.

180

180

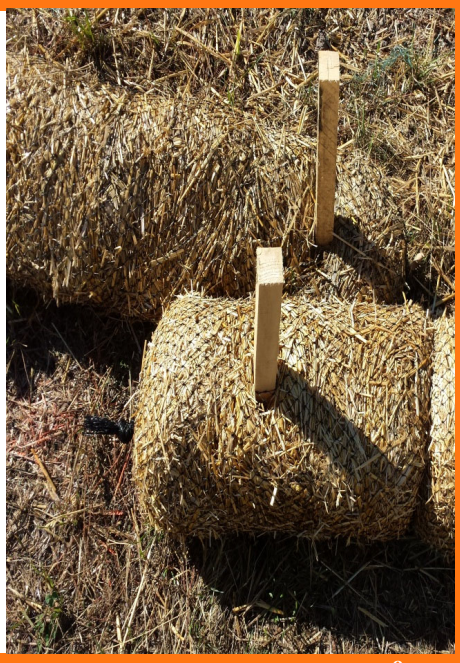
Replacing ESCMs

Replacement paid if:

Installed correctly

No longer effective due to normal deterioration

Engineer directs replacement



NORTH Dakota | Transportation

181

181

ESCM Specific Payment Issues

Moving Flotation Silt Curtain

Removal of sediment = PS-1 schedule

Contractor Controlled Areas ESCM = No payment

NORTH Dakota | Transportation

182

182

183

183

NDDOT Stream Diversion
Special Provision

NORTH Dakota | Transportation
Be Legendary.

184

184

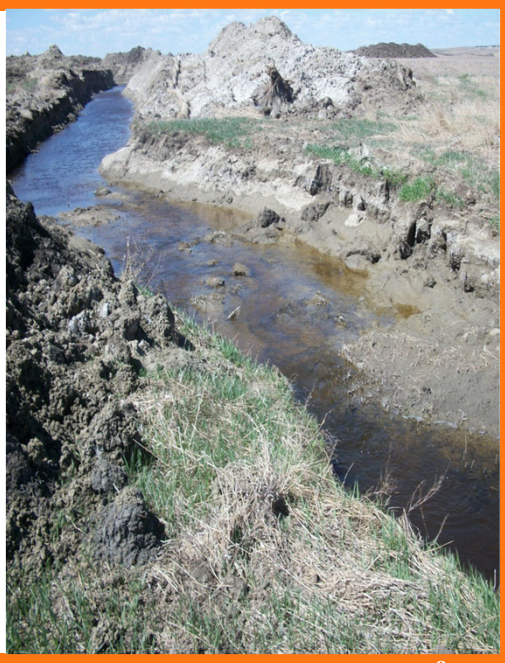
Why?

Extremely environmentally sensitive

Large risk

More consistent bidding

Better understanding of expectations



NORTH Dakota | Transportation

185

185

Why?

Stream Diversion = Stream

Minimize impacts

Negates other work if done wrong

NORTH Dakota | Transportation

186

186

Stream Diversion Special Provision

Project Specific – may change from location to location on project

NORTH Dakota | Transportation
Be Legendary.

187

187

How the SP should be viewed

SP provides specific requirements for pieces of diversions that may be applicable

Contractor develops a plan and design based upon the situation and diversion type

NORTH Dakota | Transportation
Be Legendary.

188

188

General Requirements

Prevent Soil/Water interaction

Stabilize topsoil and excavated material stockpiles ≤ 200 feet away = 24 hours

Ensure permits are obtained

NORTH Dakota | Transportation

189

189

General Requirements

Install diversion first

Isolate work area even when no water is present.

Strip and stockpile topsoil from diversion areas

NORTH Dakota | Transportation

190

190

Plan

Submit a Diversion Plan that includes work drawings with SWPPP

Include provisions for:

– Preventing sediment accumulation

– Concrete waste control

– Construction debris control

NORTH Dakota | Transportation
Be Legendary.

191

191

Design

Withstand 2-year precipitation event

Maintain flow (no flooding or stream degradation)

Upstream water quality = Downstream water quality

Prevent sediment accumulation

NORTH Dakota | Transportation
Be Legendary.

192

192

Diversion Components

Any combination of components detailed in the SP

Methods approved by engineer

NORTH Dakota | Transportation
Be Legendary.

193

193

Dike

Divert stream and isolate the work area

Upstream and Downstream

NORTH Dakota | Transportation
Be Legendary.

194

194

Dike

Prevent soil/water interaction:

– Sandbags

– Sheet pile

– R1 wrapped soil/rock

– Water filled bladders

– Impermeable containers

– Prefabricated dams

NORTH Dakota | Transportation
Be Legendary.

195

195

Work Area Dewatering

Operate and maintain the dewatering system to prevent any change in water quality.

Provide:

– Inlet control system that limits sediment

– Stabilized discharge

NORTH Dakota | Transportation
Be Legendary.

196

196

Inlet Control Systems

Aggregate surrounded perforated containers

Inlet socks

Surface skimmers

Etc.

NORTH Dakota | Transportation

197

197

Stabilized Discharges

Dewatering basin

Sediment bag

Existing vegetation

– Vegetation must be able to withstand flow

NORTH Dakota | Transportation

198

198

Work Area Dewatering

No visible sediment plume

Discharge causes no erosion

Do not discharge directly to stream or diversion

NORTH Dakota | Transportation

199

199

Types of Diversions

Pipe diversion:

– Suspended pipe diversion

– Pipe diversion

Channel diversion

Pump diversion

Existing cell or culvert

NORTH Dakota | Transportation

200

200

Culvert Diversions - General

Provide positive drainage from upstream to downstream

Energy dissipation for outlets

NORTH Dakota | Transportation

201

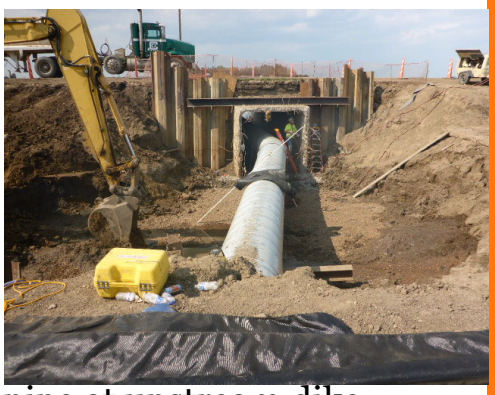
201

Suspended Pipe Diversion

Suspend pipe through existing culvert

Steps:

1. Install a temporary pipe through culvert



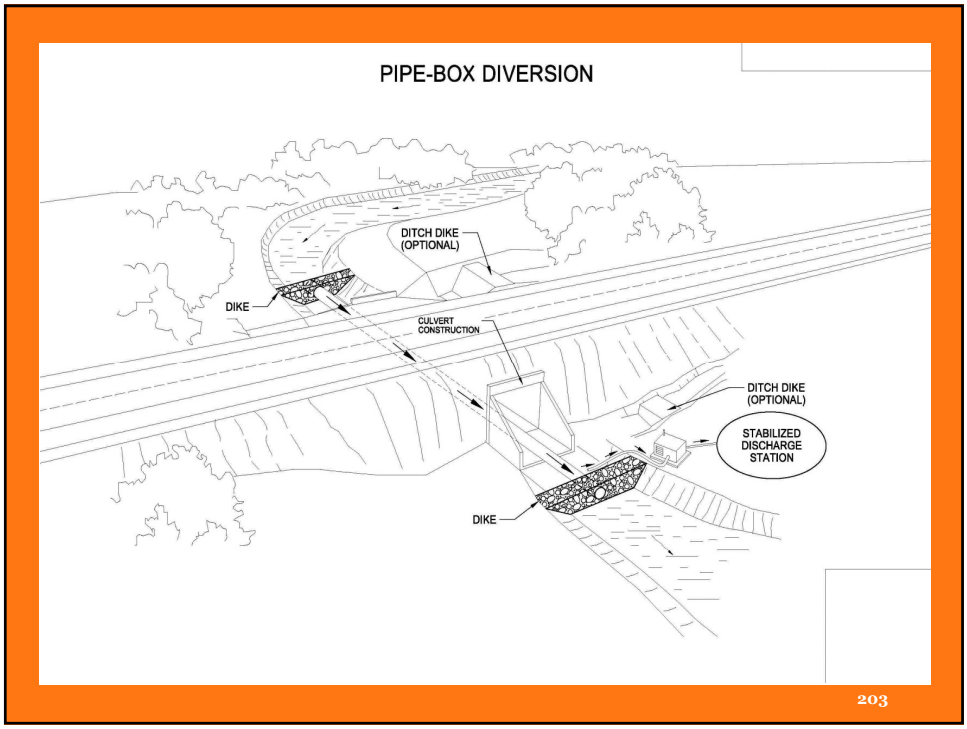
2. Anchor and seal the pipe at upstream dike

3. Extend pipe through downstream dike

NORTH Dakota | Transportation

202

202



203

Pipe Diversion

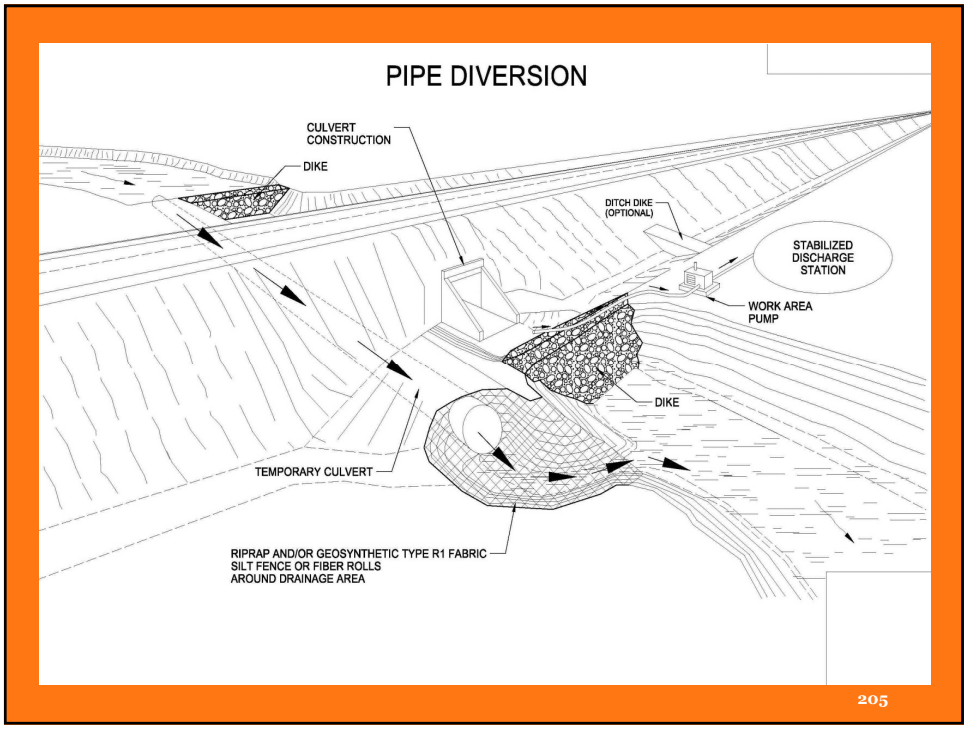
Temporary pipe crossing under roadway near existing culvert

Positive drainage upstream to downstream

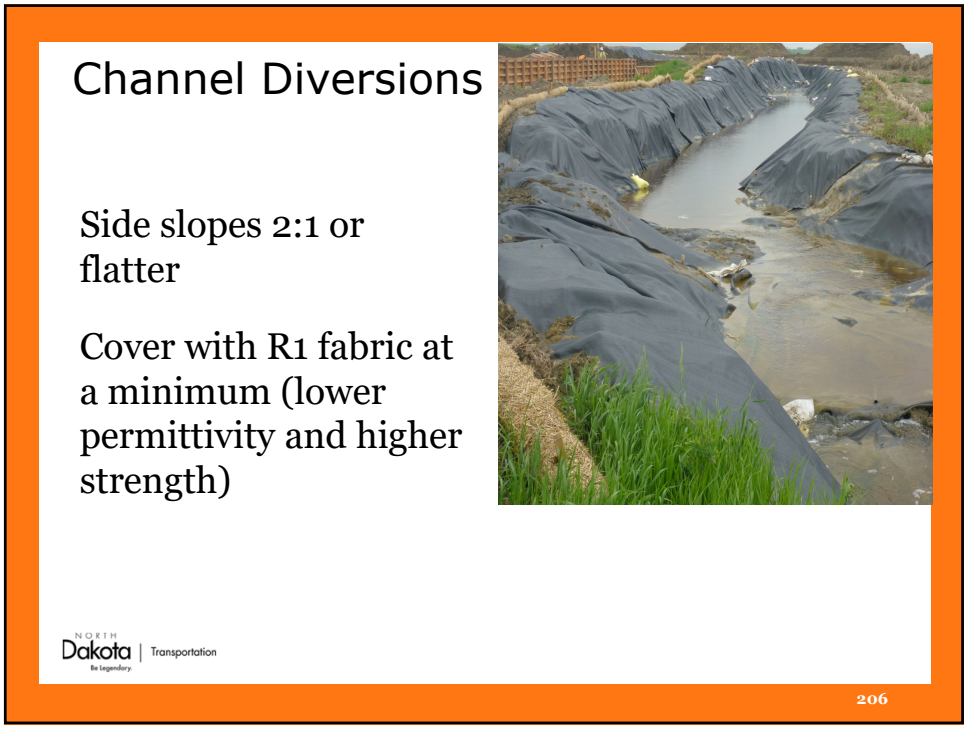
NORTH Dakota | Transportation

204

204


PIPE DIVERSION
CULVERT CONSTRUCTION
DIKE
DITCH DIKE (OPTIONAL)
STABILIZED DISCHARGE STATION
WORK AREA PUMP
DIKE
TEMPORARY CULVERT
RIPRAP AND/OR GEOSYNTHETIC TYPE R1 FABRIC SILT FENCE OR FIBER ROLLS AROUND DRAINAGE AREA
205

205


Channel Diversions
Side slopes 2:1 or flatter
Cover with R1 fabric at a minimum (lower permittivity and higher strength)
NORTH Dakota | Transportation
206

206

Channel Liner

Using R1:

– Splices and Joints = 36 inches minimum

– Secure liner so not disturbed by 2-year flow

– Methods may include:

Staples, Pins, Sandbags, or Riprap

NORTH Dakota | Transportation
Be Legendary.

207

207

Channel Liner

Patch damaged areas with 36 inches minimum

Secure perimeter of the patch

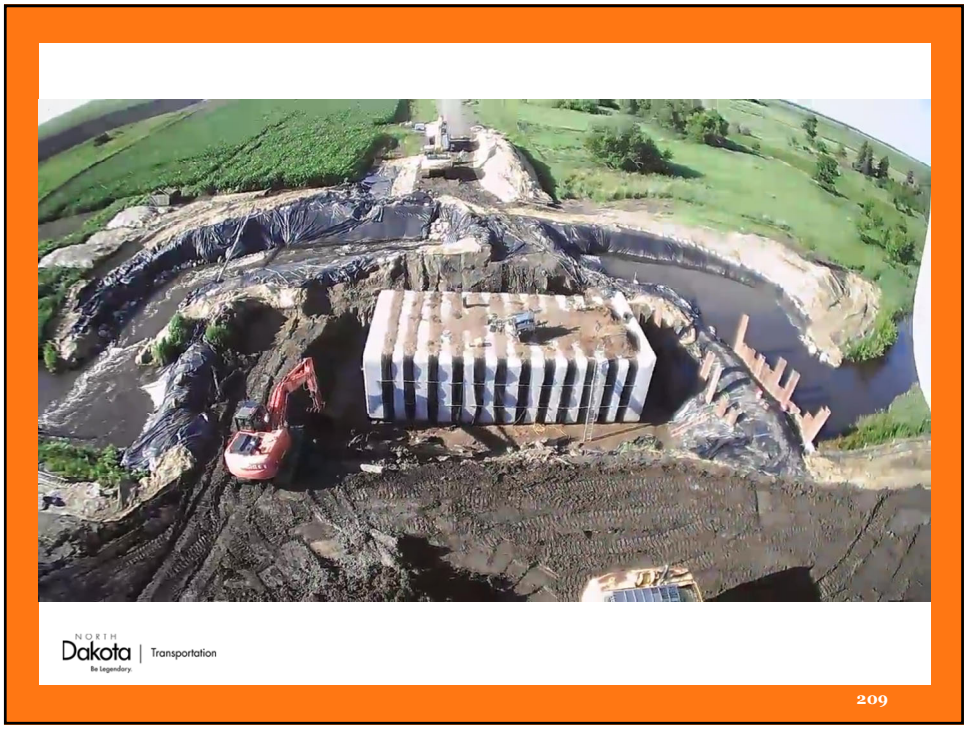
Install fiber rolls or silt fence along channel top

Connect downstream end before upstream end

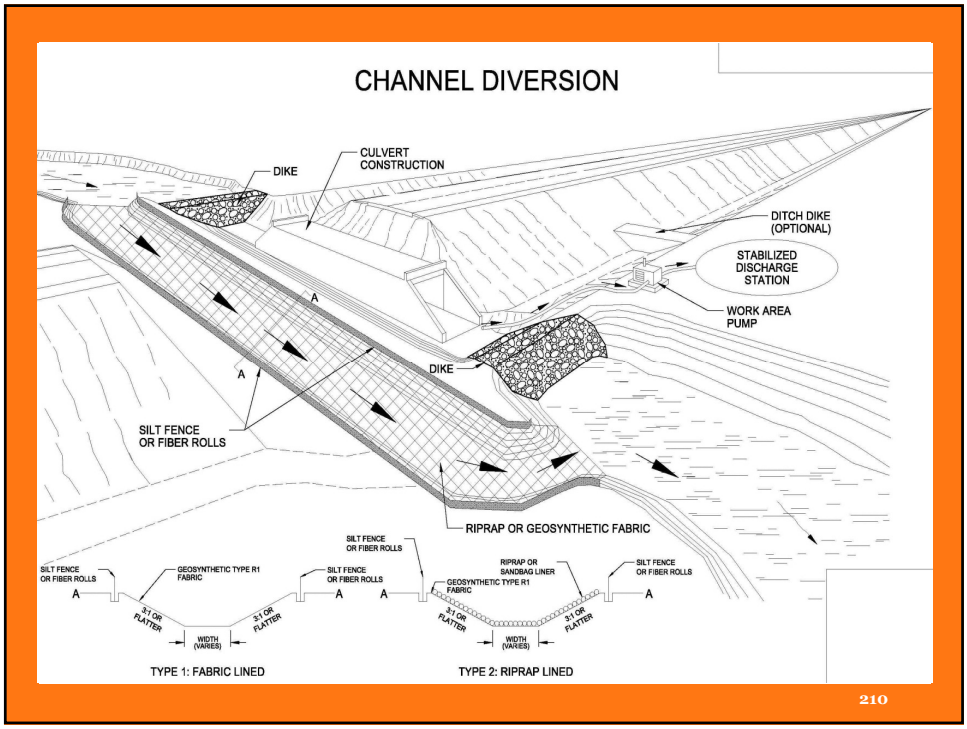
NORTH Dakota | Transportation
Be Legendary.

208

208


NORTH Dakota | Transportation
Be Legendary.
209

209


CHANNEL DIVERSION
DIKE
CULVERT CONSTRUCTION
DITCH DIKE (OPTIONAL)
STABILIZED DISCHARGE STATION
WORK AREA PUMP
DIKE
A
A
SILT FENCE OR FIBER ROLLS
RIPRAP OR GEOSYNTHETIC FABRIC
SILT FENCE OR FIBER ROLLS
GEOSYNTHETIC TYPE R1 FABRIC
3:1 OR FLATTER
WIDTH (VARIES)
RIPRAP OR SANDBAG LINER
TYPE 1: FABRIC LINED
TYPE 2: RIPRAP LINED
210

210

Pump Diversion

Inlet control system at pump inlets:

– Aggregate surrounded perforated containers

– Inlet filter socks

– Surface Skimmers

NORTH Dakota | Transportation
Be Legendary.

211

211

Pump Diversion

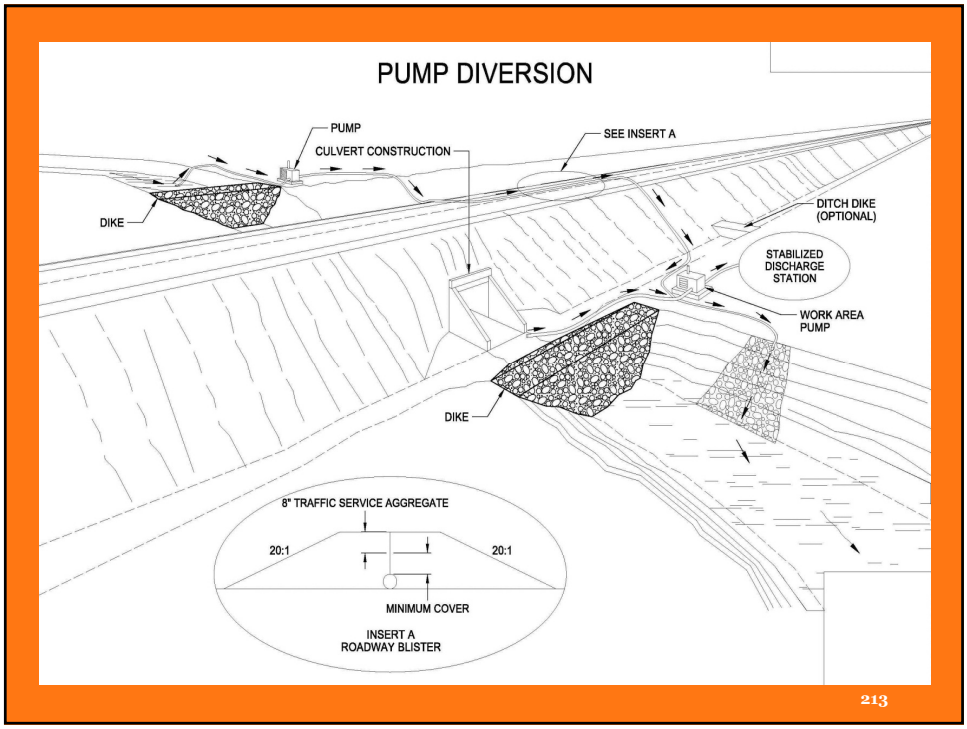
No visible sediment plume

Discharge causes no erosion

NORTH Dakota | Transportation
Be Legendary.

212

212


PUMP DIVERSION
PUMP
CULVERT CONSTRUCTION
SEE INSERT A
DIKE
DITCH DIKE
(OPTIONAL)
STABILIZED
DISCHARGE
STATION
WORK AREA
PUMP
DIKE
8" TRAFFIC SERVICE AGGREGATE
20:1
20:1
MINIMUM COVER
INSERT A
ROADWAY BLISTER
213

213


NORTH
Dakota
Be Legendary.
Transportation
214

214

Diversion Through Existing Structure

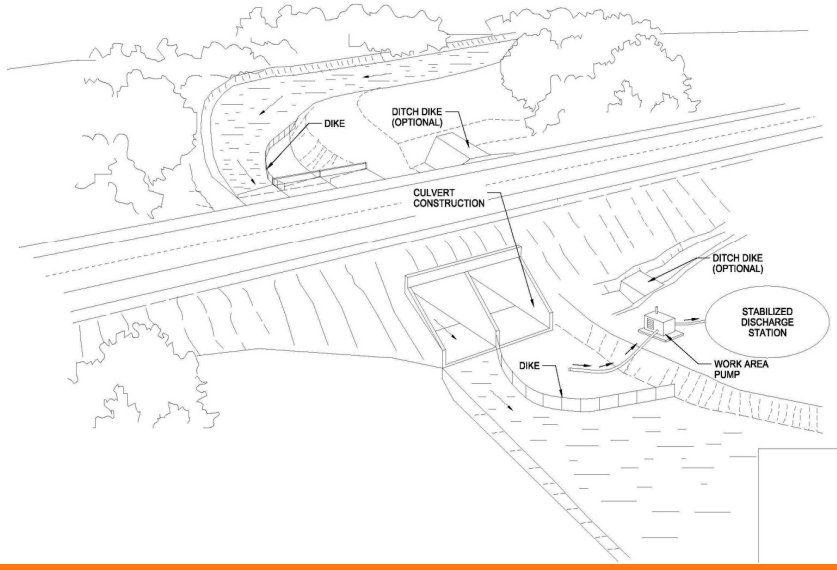
Isolate work area with dikes

NORTH Dakota | Transportation
Be Legendary.

215

215

BOX DIVERSION



216

216

Removal

Permanent ESCMs and flow dissipation before opening to flow

Flow dissipation:

– Riprap

– Cable tied concrete

– Rolled concrete blanket

NORTH Dakota | Transportation
Be Legendary.

217

217

Removal

Do not start removal until complete

Remove all materials used to construct diversion

Do not wait to remove diversion once work within the channel is complete

Restore diversion area to preexisting condition or as identified in the NDDOT plans

NORTH Dakota | Transportation
Be Legendary.

218

218

Removal

Remove downstream dike first and stabilize

Remove upstream dike to restore flow and stabilize

Remove Suspended pipe with upstream dike

NORTH Dakota | Transportation
Be Legendary.

219

219

Removal

Channel and pipe diversions

Remove upstream dike

Construct dike to prevent water from entering diversion

NORTH Dakota | Transportation
Be Legendary.

220

220

Removal

Pipe:

– Remove pipe after restoring stream flow

NORTH Dakota | Transportation
Be Legendary.

221

221

Removal

Channel:

– Backfill and compact

– According to Specifications

NORTH Dakota | Transportation
Be Legendary.

222

222

Basis of Payment

Pay Item = Temporary Stream Diversion

Pay Unit = Each

75% paid upon installation

Last 25% upon removal and restoration

NORTH Dakota | Transportation
Be Legendary.

223

223

Basis of Payment

Include cost of installation, maintenance and removal of ESCMs

SSP 1 does not apply to ESCMs for stream diversions

Payment is for designing, equipment, labor, materials and incidentals to complete work

NORTH Dakota | Transportation
Be Legendary.

224

224


Questions?
NORTH Dakota | Transportation
Be Legendary.
225