Appendix D

Bison's Upland Erosion Control, Revegetation, and Maintenance Plan (Bison's Plan)

Prepared for:
Bison Pipeline LLC

Upland Erosion Control, Revegetation, and Maintenance Plan

AECOM, Inc.
May 2010
Document No.: 60138067

AECOM

Upland Erosion Control, Revegetation, and Maintenance Plan

This document is based on FERC Document: Upland Erosion Control, Revegetation, and Maintenance Plan - 01/17/2003 version, which has been adopted for use in its entirety by Bison with the exception of the modifications identified in the following table. Modifications to this Document since October 2009, including changes in the Rationale, are listed in this table in underlined text. These modifications reflect changes that were not present in this Document during FERC's Final Environmental Impact Statement (EIS) analysis.

Revisions to FERC Document: Upland Erosion Control, Revegetation, And Maintenance Plan		
Found In:	**Information**	**Rationale**
I.A	Added statement that site-specific variations to this Plan may be submitted for review and written approval.	Clarify that site-specific variation to this Plan may be submitted to the relevant agency (ies) for review and written approval.
I.A	Added references to Bison Reclamation Plan, Agricultural Mitigation Plan, and Wetland Restoration Plan.	Bison's Reclamation Plan provides information about BLM-required treatment of BLM lands that conflicts with this Plan. The Agricultural Mitigation and Wetland Restoration Plans provide additional details that are not provided in this plan and that are related to restoration of agricultural lands and wetlands.
II .B. 4	Added "riparian areas" to areas in which will require flagging.	BLM request.
II.B.8	Compaction testing requirement for agricultural and residential lands removed. Decompaction testing requirement added for BLM lands in Wyoming.	Bison will decompact along the entire route: therefore no compaction testing required. BLM Wyoming requested compaction testing on their lands.
IV.A.2	Changed 75 feet to 120 feet.	Bison is requesting a 120 foot Construction ROW.
IV.A.2	Changed "weekly or biweekly construction reports…"	Bison will submit weekly construction reports to FERC.
IV.B.1	Revised text to working side, the trench and a portion of the spoil storage areas (approximately 85 feet of the Construction ROW), with the exception of areas that will be used for topsoil or snow storage, or for a proposed brush beating demonstration area in Carter County, Montana, between approximate MPs 136.16 and 137.33, where the topsoil will only be stripped over the ditch and area of the ditch spoil pile.	Consistent with the Project construction plan.
IV.B.3	Added text describing topsoil segregation practices on lands managed by the North Dakota State Land Department.	North Dakota State Land Department request.
IV.F.1.B	Added that temporary slope breakers could be placed closer together.	Consistent with the Project construction plan.
IV.F.3.b	Montana BLM's requirements regarding mulch limitations added.	BLM request. BLM/landowner request, due to potential adverse effects of binding materials on livestock.
IV.F.3.e	Revised to reflect BLM preference for no fertilizer "BLM does not recommend fertilizer due to enhanced competition from weeds."	BLM request.

Revisions to FERC Document: Upland Erosion Control, Revegetation, And Maintenance Plan		
Found In:	**Information**	**Rationale**
V.A.1	Added the following statement: "Should Bison require site-specific exceptions to this timeframe that would result in a delay of restoration; Bison will submit such exceptions for FERC's review and written approval."	Based upon comments provided by FERC as part of the Final Environmental Impact Statement for the Bison Project, Bison will adhere to the restoration timeframes stated in FERC's Plan, and will request approval for any necessary delays in restoration that may be required on a site-specific basis.
V.A.4	Added "remove excess rock greater than 3 inches in diameter…"	Consistent with the Project construction plan.
V.C.1	Altered language referring to soil compaction testing.	Consistent with Bison's Reclamation Plan.
V.C.2	Altered language referring to soil compaction testing.	Soil compaction mitigation and decompaction procedures have been updated based upon BLM consultations.
V.C.3	Removed "paraplow or other". Revised statement to reflect that Bison will decompact along entire route using a deep tillage implement prior to replacement of segregated topsoil.	Paraplow was removed due to difficulty in trying to find this equipment. Other language added to clarify Bison's plan for decompaction.
V.D.3.a	Revised language regarding seedbed preparation and seeding methods. Added reference to Bison's Reclamation Plan.	Revised to make this plan consistent with Bison's Reclamation Plan. Additional details (not provided in this document) pertaining to revegetation are provided in Bison's Reclamation Plan.
V.D.3.d	Added the following statement: "Should Bison require site-specific exceptions to this timeframe that would result in a delay of restoration; Bison will submit such exceptions for FERC's review and written approval."	Based upon comments provided by FERC as part of the Final Environmental Impact Statement for the Bison Project, Bison will adhere to the restoration timeframes stated in FERC's Plan, and will request approval for any necessary delays in restoration that may be required on a site-specific basis.
V.D.3.g	Deleted redundant information on seed application.	Redundant after additional language inserted into Section V.D.3.a.
VI	Added a site-specific plan for areas where previous projects' restoration has not been deemed successful.	BLM Request.
VIII.A.2	Added language to address restoration on BLM-managed lands. On BLM-managed lands, the requirements of Bison's Reclamation Plan will be used to help define reclamation (revegetation) success.	Refer the reader to the Reclamation Plan to comply with BLM requests.
VIII.A.5	Revised language regarding maintenance of vegetation.	At request of FERC.

The modifications identified above are highlighted with **bolded text** in the body of this report. This document, with the FERC-approved modifications listed, will be known as Bison's Plan.

Upland Erosion Control, Revegetation, and Maintenance Plan

CONTENTS

Upland Erosion Control, Revegetation, and Maintenance Plan (Plan)

I. Applicability

A. **Site-specific variations to this Plan may be submitted for review and written approval.**

The intent of this Plan is to assist applicants by identifying baseline mitigation measures for minimizing erosion and enhancing revegetation. The project sponsors should specify in their applications for a FERC Certificate (Certificate) any individual measures in this Plan they consider unnecessary, technically infeasible, or unsuitable due to local conditions and to fully describe any alternative measures they would use. Applicants should also explain how those alternative measures would achieve a comparable level of mitigation.

Once a project is certificated, further changes can be approved. Any such changes from the measures in this Plan (or the applicant's approved plan) will be approved by the Director of the Office of Energy Projects (Director), upon the applicant's written request, if the Director agrees that an alternative measure:

1. provides equal or better environmental protection;
2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or
3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Any requirements in this Plan to file material with the Secretary of the FERC (Secretary) do not apply to projects undertaken under the provisions of the blanket certificate program. This exemption does not apply to a request for alternative measures.

Project-related impacts on wetland and waterbody systems are addressed in the staff's Wetland and Waterbody Construction and Mitigation Procedures (Procedures).

Please refer to Bison's Reclamation Plan for additional information regarding construction and spacing of temporary and permanent erosion control measures on Bureau of Land Management (BLM) lands, compaction testing methods and decompaction procedures on BLM lands, revegetation procedures on BLM lands, and other specific requirements related to BLM lands. Please refer to Bison's Wetland Restoration Plan for additional details on the monitoring efforts to be applied to wetlands. Please refer to Bison's Agricultural Mitigation Plan for additional details on the monitoring efforts to be applied to agricultural lands.

II. Supervision and Inspection

A. Environmental Inspection

1. At least one Environmental Inspector (EI) is required for each construction spread during construction and restoration (as defined in section V). The number and experience of EIs assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.
2. EIs shall have peer status with all other activity inspectors.
3. EIs shall have the authority to stop activities that violate the environmental conditions of the Certificate, state and federal environmental permit conditions, or landowner requirements; and to order appropriate corrective action.

B. Responsibilities of Environmental Inspectors

At a minimum, the EI(s) shall be responsible for:

1. Ensuring compliance with the requirements of this Plan, the Procedures, the environmental conditions of the Certificate authorization, the mitigation measures proposed by the applicant (as approved and/or modified by the Certificate), other environmental permits and approvals, and environmental requirements in landowner easement agreements.
2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;
3. Verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing;
4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, **riparian areas**, wetlands, or areas with special requirements along the construction work area;
5. Identifying erosion/sediment control and soil stabilization needs in all areas;
6. Ensuring that the location of dewatering structures and slope breakers will not direct water into known cultural resources sites or locations of sensitive species;
7. Verifying that trench dewatering activities do not result in the deposition of sand, silt, and/or sediment near the point of discharge into a wetland or waterbody. If such deposition is occurring, the dewatering activity shall be stopped and the design of the discharge shall be changed to prevent reoccurrence;
8. Ensuring that **all impacted BLM lands in Wyoming be tested to measure compaction and determine the required depth for decompaction**;
9. Advising the Chief Construction Inspector when conditions (such as wet weather) make it advisable to restrict construction activities to avoid excessive rutting of topsoil;
10. Ensuring restoration of contours and topsoil;

11. Verifying that the soils imported for agricultural or residential use have been certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;
12. Determining the need for and ensuring that erosion controls are properly installed, as necessary to prevent sediment flow into wetlands, waterbodies, sensitive areas, and onto roads;
13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:
    a. on a daily basis in areas of active construction or equipment operation;
    b. on a weekly basis in areas with no construction or equipment operation; and
    c. within 24 hours of each 0.5 inch of rainfall;
14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification;
15. Keeping records of compliance with the environmental conditions of the FERC certificate, and the mitigation measures proposed by the project sponsor in the application submitted to the FERC, and other federal or state environmental permits during active construction and restoration; and
16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase.

III. Preconstruction Planning

The project sponsor shall do the following before construction:

A. Construction Work Areas

1. Identify all construction work areas (e.g., construction right-of-way, extra work space areas, pipe storage and contractor yards, borrow and disposal areas, access roads, fuel and maintenance areas, etc.) that would be needed for safe construction. The project sponsor must ensure that appropriate cultural resources and biological surveys have been conducted; and
2. Project sponsors are encouraged to consider expanding any required cultural resources and endangered species surveys in anticipation of the need for activities outside of certificated work areas.

B. Drain Tile and Irrigation Systems

1. Attempt to locate existing drain tiles and irrigation systems;
2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within three years of the authorized construction;

3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction; and
4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available.

C. Grazing Deferment

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. Road Crossing and Access Points

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. Disposal Planning

Determine methods and locations for the disposal of construction debris (e.g., timber, slash, mats, garbage, drilling fluids, excess rock, etc). Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner permission, and mitigation requirements.

F. Agency Coordination

The project sponsor must coordinate with the appropriate local, state, and federal agencies as outlined in this Plan and in the Certificate.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.
2. Develop specific procedures in coordination with the appropriate agency to prevent the introduction or spread of noxious weeds and soil pests resulting from construction and restoration activities.

G. Stormwater Pollution Prevention Plan

Make available on each construction spread the Stormwater Pollution Prevention Plan prepared for compliance with the U.S. Environmental Protection Agency's National Stormwater Program General Permit requirements.

IV. Installation

A. Approved Areas of Disturbance

1. Project-related ground disturbance shall be limited to the construction right-of-way, extra work space areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the Certificate. Any project-related ground disturbing activities outside these Certificated areas, except those needed to comply with the Plan and Procedures (e.g., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) will require prior Director approval. All construction or restoration activities outside of the Certificated areas are subject to all applicable survey and mitigation requirements.
2. The construction right-of-way width for a project shall not exceed **120** feet or that described in the FERC application unless otherwise modified by a Certificate condition. However, in limited, non-wetland areas, this construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (such as side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

   Project use of these additional limited areas is subject to landowner approval and compliance with all applicable survey and mitigation requirements. When such additional areas are used, each one should be identified and the need explained in the weekly construction reports to the FERC, if required. The following material should be included in the reports:

   a. the location of each additional area by station number and reference to a previously filed alignment sheet, or updated alignment sheets showing the additional areas;
   b. identification of where the Commission's records contain evidence that the additional areas were previously surveyed; and
   c. a statement that landowner approval has been obtained and is available in project files.

   Prior written approval of the Director is required when the Certificated construction right-of-way width would be expanded by more than 25 feet.

B. Topsoil Segregation

1. Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from the **working side, the trench and a portion of the spoil storage areas (approximately 85 feet of the Construction ROW); except for the areas that will be used for topsoil or snow storage, or for a proposed brush beating demonstration area in Carter County, Montana, between approximate MPs 136.16 and 137.33, where the**

topsoil will only be stripped over the ditch and the area of the ditch spoil pile, in:

a. actively cultivated or rotated croplands and pastures;

b. residential areas;

c. hayfields; and

d. other areas at the landowner's or land managing agency's request.

2. In residential areas importation of topsoil is an acceptable alternative to topsoil segregation.
3. In deep soils (more than 12 inches of topsoil), segregate at least 12 inches of topsoil. In soils with less than 12 inches of topsoil make every effort to segregate the entire topsoil layer. **On lands managed by the North Dakota State Land Department, the upper 12 inches of soil will be segregated and managed as topsoil, regardless of the actual topsoil thickness/color change.**
4. Where topsoil segregation is required, maintain separation of salvaged topsoil and subsoil throughout all construction activities.
5. Segregated topsoil may not be used for padding the pipe.

C. Drain Tiles

1. Mark locations of drain tiles damaged during construction.
2. Probe all drainage tile systems within the area of disturbance to check for damage.
3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.
4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. Irrigation

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. Road Crossings and Access Points

1. Maintain safe and accessible conditions at all road crossings and access points during construction.
2. If crushed stone access pads are used in residential or active agricultural areas, place the stone on synthetic fabric to facilitate removal.

F. Temporary Erosion Control

Temporary erosion and sediment control measures shall be installed immediately after initial disturbance of the soil, properly maintained throughout construction (on a daily basis), and reinstalled as necessary until replaced by permanent erosion control structures or restoration of the construction right-of-way is complete.

1. Temporary Slope Breakers
    a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.
    b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody**,** wetland, and road crossings at the following spacing (closer spacing may be used at the **direction of the EI or an agency representative**);

Slope (%)	Spacing (feet)
5-15	300
>15-30	200
>30	100

    c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.
    d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive resources.
2. Sediment Barriers
    a. Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments into sensitive resources. They may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.
    b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.
    c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

3. Mulch

   a. Apply mulch on all slopes (except in actively cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.

   b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent. **No wood fiber hydromulch should be applied on BLM lands in Montana. All materials used to bind hay or straw will either be biodegradable or will be collected for proper, off-site disposal.**

   c. Mulch before seeding if:

      (1) final grading and installation of permanent erosion control measures will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or

      (2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

   d. If mulching before seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

   e. If wood chips are used as mulch, do not use more than 1 ton/acre. **BLM does not recommend fertilizer due to enhanced competition from weeds.**

   f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.

   g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies.

   h. Install erosion control fabric on waterbody banks at the time of final bank recontouring. Anchor the erosion control fabric with staples or other appropriate devices.

V. Restoration

A. Cleanup

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (temporary slope breakers and sediment barriers) until conditions allow completion of cleanup. **Should Bison require site-specific exceptions to this timeframe that would result in a delay of**

restoration; Bison will submit such exceptions for FERC's review and written approval.

The project sponsor should file with the Secretary for the review and written approval of the Director, a winterization plan if construction will continue into the winter season when conditions could delay successful decompaction, topsoil replacement, or seeding until the following spring.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F, and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.
3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench should be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.
4. Remove excess rock **greater than 3 inches in diameter** from at least the top 12 inches of soil in all actively cultivated or rotated cropland and pastures, hayfields, and residential areas, as well as other areas at landowner's request. The size, density, and distribution of rock remaining on the construction work area should be similar to adjacent areas not disturbed by construction. The landowner may approve other provisions in writing.
5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.
6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves otherwise.
7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. Permanent Erosion Control Devices

1. Trench Breakers
   a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.
   b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.
   c In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers where required.
   d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland.

2. Permanent Slope Breakers

   a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, sand bags, or some functional equivalent.

   b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, using spacing recommendations obtained from the local soil conservation authority or land managing agency. In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

Slope (%)	Spacing (feet)
5-15	300
>15-30	200
>30	100

   c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.

   d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of way, they are subject to compliance with all applicable survey requirements.

C. Soil Compaction Mitigation

1. **Bison will decompact subsoils on the working side of the trench along the entire Project route, except in locations where the subsoils were not disturbed by grading (i.e. the spoil storage areas and the brush beating demonstration area) and in areas of deep cut and fill. Bison's EIs will identify areas where decompaction is not necessary. Under normal conditions, compaction of subsoils due to construction traffic is expected to be in the order of 8 to 10 inches. As such, decompaction will be completed to a depth up to 18 inches where practical to account for extraordinary conditions.**

   Decompaction of subsoil is proposed to be completed before replacement of topsoil. If decompaction of the subsoil is not performed prior to replacement of topsoil, decompaction shall be accomplished though use of a subsoiling tool that will not mix subsoil and topsoil.

2. **On BLM lands in Wyoming affected by the Project, Bison will perform compaction testing to determine the depth of compaction. Testing will occur after all construction activities have been completed, and will comprise a comparison of the soil density on the ROW to the in situ soil density at an undisturbed location off the ROW, as measured empirically in the field.**

Actual testing methods and intervals will be discussed with and approved by the BLM prior to use, and will be provided at a later date. On BLM lands in Wyoming, Bison will complete soil decompaction to a depth of at least 4 inches below the measured depth of compaction.

3. **Decompact the working side of the entire Construction Right of Way with a deep tillage implement prior to replacement of segregated topsoil.**

   Alternatively, make arrangements with the landowner to plant and plow under a "green manure" crop, such as alfalfa, to decrease soil bulk density and improve soil structure. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

4. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. Revegetation

1. General

   a. The project sponsor is responsible for ensuring successful revegetation of soils disturbed by project-related activities, except as noted in section V.D.1.b.

   b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

   Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as possible after application.

3. Seeding Requirements

   a. **Drill seeding methods will be utilized on disturbed soil areas with slopes of 15 percent or less that are readily accessible by necessary equipment. Broadcast seeding will be used on slopes greater than 15 percent, at double the recommended seeding rates. Soil will be rolled and pitted or chained following broadcast seeding to promote proper seed-to-soil contact and to discourage predation of seed. Other seeding methods may be used upon concurrence with the BLM or other appropriate agency under appropriate conditions. If hydroseeding is used, the seedbed will be scarified to facilitate lodging and germination of seed. Please refer to Bison's Reclamation Plan**.

   b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or as requested by the landowner or land management agency. Seeding is not required in actively cultivated croplands unless requested by the landowner.

   c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary

erosion control measures discussed in section IV.F. and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Lawns may be seeded on a schedule established with the landowner.

d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a-c. **Should Bison require site-specific exceptions to this timeframe that would result in a delay of restoration; Bison will submit such exceptions for FERC's review and written approval**.

e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.

f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).

VI. Site Specific Plans

In recent discussions with BLM reclamation specialists (AECOM 2009), no specific sites have been identified on the project for site-specific soil reclamation plans. However, BLM staff have provided general guidance for areas designated Low Reclamation Potential (LRP), which was primarily based on soil survey data obtained from Soil Survey Geographic (SSURGO) database information. Bison's Reclamation Plan contains locations of LRP areas by milepost and provides methods for reclamation in these areas based on soil characteristics.

For any area of sensitive resources subsequently identified on BLM land, especially those where reclamation by previous pipeline projects has not been deemed successful, the project sponsor shall prepare a site-specific construction plan. The plan shall include:

A. A description of construction techniques to be used; and

B. A dimensioned site plan that shows, as a minimum:

1. **the location of the area of concern in relation to the Project;**
2. **the edge of the new permanent construction right-of-way; and**
3. **other nearby topographical features including landscaping, trees, structures, roads, parking areas, or ditches/streams, etc.**

VII. Off-Road Vehicle Control

To each owner or manager of forested lands, offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

A. Signs;

B. Fences with locking gates;

C. Slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and,

D. Conifers or other appropriate trees or shrubs across the right-of-way.

VIII. Post-Construction Activities

A. Monitoring and Maintenance

1. Conduct follow-up inspections of all disturbed areas after the first and second growing seasons to determine the success of revegetation.
2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful if crop yields are similar to adjacent undisturbed portions of the same field. **On BLM-managed lands, the requirements of the Reclamation Plan will be used to help define reclamation (revegetation) success**. Continue revegetation efforts until revegetation is successful.
3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in active agricultural areas until restoration is successful.
4. Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless requested otherwise by the land owner or land managing agency), revegetation is successful, and proper drainage has been restored.
5. Routine vegetation **maintenance (regular, periodic mowing) will not be performed on the Bison Pipeline ROW. If and when ROW mowing is required in specific areas, FERC will be notified before such mowing takes place**. In no case shall routine vegetation maintenance clearing occur between April 15 and August 1 of any year.
6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and vehicle trails as necessary.

B. Reporting

1. The project sponsor shall maintain records that identify by milepost:
   a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;
   b. acreage treated;
   c. dates of backfilling and seeding;
   d. names of landowners requesting special seeding treatment and a description of the follow-up actions; and
   e. any problem areas and how they were addressed.

2. The project sponsor shall file with the Secretary quarterly activity reports documenting problems, including those identified by the landowner, and corrective actions taken for at least 2 years following construction.

References

AECOM, 2009, Meeting Minutes, Discussion of BLM Soils Reclamation, BLM, Casper Field Office, January 27, 2009.