

**OVERLAND PASS PIPELINE PROJECT
STREAM CROSSING AND WETLAND PROTECTION PLAN**

DRAFT

Prepared by:
Natural Resource Group, Inc.

August 2006, Rev. 2

**OVERLAND PASS PIPELINE PROJECT
 STREAM CROSSING AND WETLAND PROTECTION PLAN
 TABLE OF CONTENTS**

| <u>Section</u> | <u>Page</u> |
|--|---|
| 1.0 INTRODUCTION | 1 |
| 2.0 DEFINITIONS..... | 1 |
| 3.0 PRECONSTRUCTION | 1 |
| 4.0 WATERBODY CROSSINGS | 3 |
| 4.1 Notification | 3 |
| 4.2 Installation | 3 |
| 4.2.1 Crossing Methods | 4 |
| 4.2.1.1 Dry-Ditch Crossings | 4 |
| 4.2.1.2 Wet-Ditch Crossings..... | 6 |
| 4.3 Interim Erosion and Sediment Control | 6 |
| 4.4 Trench Dewatering | 7 |
| 4.5 Restoration | 7 |
| 4.6 Post-Construction Maintenance..... | 7 |
| 5.0 WETLAND CROSSINGS..... | 8 |
| 5.1 Installation | 8 |
| 5.2 Interim Erosion and Sediment Control..... | 9 |
| 5.3 Trench Dewatering | 10 |
| 5.4 Restoration..... | 10 |
| 5.5 Post-Construction Maintenance..... | 10 |
| ATTACHEMENTS | |
| Attachment A | Figures [Provided in March 2006] |
| Figure 1 | Typical Dam and Pump Crossing Method |
| Figure 2 | Typical Flume Crossing Method |
| Figure 3 | Typical Open-Cut Crossing Method |
| Figure 4 | Typical Dewatering Measures Well Vegetated Upland |
| Figure 5 | Straw Bale Dewatering Structure |
| Figure 6 | Straw Bale Dewatering Structure Geotextile Fabric Apron |

1.0 INTRODUCTION

Overland Pass Pipeline Company LLC (Overland Pass) has developed this plan as a project-specific mitigation construction plan based on consultation with federal, state, and local agencies, as well as private landowners affected by the project. Overland Pass has also developed a site-specific Plan of Development (POD), as required by BLM. Both sets of documents have been integrated to the extent possible to maximize the efficiency of Overland Pass' Best Management Practices (BMPs).

This Stream Crossing and Wetland Projection Plan has been developed for the Overland Pass Pipeline Project to describe pre-construction preparation activities, proper handling and storage of hazardous materials, required workspace setbacks, and timing restrictions to construction based on the presence of threatened and endangered fish or other sensitive aquatic species. The plan also includes requirements for dry trench and open-cut crossing methods, and a description of the crossing of wetlands under dry, standing water, or saturated soil conditions. In addition, the plan describes erosion control and restoration methods to be used at waterbody crossings.

The intent of this plan is to identify baseline mitigation measures for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies.

2.0 DEFINITIONS

"Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes. Factors such as agricultural use, propagation of fish and wildlife, industrial use, human consumption, recreational use, and scenic value may dictate the crossing method Overland Pass will use to cross a waterbody. If the waterbody has no perceptible flow at the time of the crossing, Overland Pass will use upland construction techniques to cross the area. Waterbodies are classified as follows:

- "minor waterbody" includes all waterbodies less than 10 feet wide at the water's edge at the time of crossing;
- "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing; and
- "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of crossing.

"Wetland" includes any area that satisfies the requirements of the current federal methodology for identifying and delineating wetlands.

3.0 PRECONSTRUCTION

Prior to construction, Overland Pass will coordinate with and obtain permits from the appropriate federal, state, and local agencies, and conduct waterbody and wetland surveys of the areas to be disturbed by construction. These surveys will be completed in compliance with any applicable agency survey requirements and, as necessary, submitted as part of Overland Pass' permit applications (e.g., U.S. Army Corps of Engineers Section 401 Water Quality Certification permit).

Based on the results of field surveys, Overland Pass will prepare the following:

- a wetland delineation report;

- a schedule identifying when trenching or blasting will occur within each waterbody greater than 10 feet wide, or within any designated coldwater fishery. Changes may be made to this list during construction, but must be approved by Overland Pass at least 48 hours in advance of the activity; and
- site-specific construction plans for:
 - major or sensitive waterbody crossings; and
 - horizontal directional drill (HDD) crossings of wetlands or waterbodies that:
 - show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;
 - describe how an inadvertent release of drilling mud would be contained and cleaned up; and
 - include a contingency plan for crossing the waterbody or wetland in the event the directional drill is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

Additionally, to promote protection of waterbody and wetland resources, Overland Pass will prepare and have available in the field on each construction spread a Stormwater Pollution Prevention (SWPP) Plan and Spill Prevention, Containment, and Countermeasure (SPCC) Plan. The SWPP Plan will comply with the U.S. Environmental Protection Agency's National Stormwater Program General Permit requirements. The SPCC Plan will meet the requirements of state and federal agencies, and will include the guidelines for handling fuels and other hazardous materials, refueling and concrete coating locations, containment and cleanup of spills, and agency notification. Specific to waterbodies and wetlands, Overland Pass will ensure that:

- **on non-federally-managed land, all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary; 200 feet from private water wells; and 400 feet from public water supply wells.** These activities can occur closer only if the Environmental Inspector finds, in advance, no reasonable alternative and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;
- **on federally-managed land, all equipment is parked overnight and/or fueled at least 500 feet from a waterbody or water wells or in an upland area at least 500 feet from a wetland boundary.** These activities can occur closer only if the Environmental Inspector finds, in advance, no reasonable alternative and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;
- hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 500 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas; and
- concrete coating activities are not performed within 500 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use.

Overland Pass will employ at least one Environmental Inspector having knowledge of the wetland and waterbody conditions of the project area for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread will be appropriate for the length of the construction spread and the number/significance of resources affected. The Environmental Inspector's responsibilities are outlined in Overland Pass' Soil Stabilization and Restoration Plan.

4.0 WATERBODY CROSSINGS

4.1 Notification

Overland Pass will provide written notification to the authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in a waterbody, or as otherwise specified by that authority. Additionally, Overland Pass will notify the appropriate state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in state permits.

4.2 Installation

Unless expressly permitted or further restricted by the appropriate state agency in writing on a site-specific basis, instream work, except that required to install or remove equipment bridges, the following timing windows will be adhered to by Overland Pass for waterbody crossings:

- coldwater fisheries - June 1 through September 30;
- warmwater fisheries - June 1 through November 30;
- Green River – August 1 through September 15;
- Hams Fork and Blacks Fork Rivers and Bitter Creek – August 1 through September 30; and
- South Platte River – August 1 through November 30.

Prior to construction, the Environmental Inspector will clearly mark in the field with signs and/or highly visible flagging the waterbody buffers (e.g., extra workspace area setbacks, refueling restrictions). These signs and/or flagging will remain in place until construction-related ground disturbing activities are complete at the waterbody crossing.

The size of extra workspace areas will be limited to that needed to construct the waterbody crossing. **On federally-managed lands, Overland Pass will locate all extra workspace areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge of perennial and intermittent waterbodies that are flowing at the time of construction.** All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 50 feet from the water's edge or in the additional extra workspaces. Sediment barriers will be used to prevent the flow of spoil or heavily silt-laden water into any waterbody. **On non-federally-managed lands, Overland Pass will locate all extra workspace areas at least 10 feet away from the water's edge of perennial and intermittent waterbodies that are flowing at the time of construction, unless site-specific conditions require further setback.**

Clearing of vegetation will be limited between the extra workspace areas and the edge of the waterbody to the approved construction right-of-way. Additionally, if the pipeline parallels a waterbody, Overland

Pass will attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way.

Overland Pass will construct waterbody crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit. Where waterbodies meander or have multiple channels, the pipeline will be routed to minimize the number of waterbody crossings.

All waterbodies greater than 30 feet wide that are flowing at the time of construction will have an approved crossing structure for construction equipment. Temporary culverts, rock fills or equipment bridges will be used. Clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. The number of such crossings will be limited to one pass per piece of clearing equipment. Bridge types and locations will be identified on the construction alignment sheets.

Equipment bridges will be constructed so as to maintain unrestricted flow and to prevent soil from entering the waterbody. Examples of bridges include:

- equipment pads and culvert(s);
- equipment pads or railroad car bridges without culverts;
- clean rock fill and culvert(s); and
- flexi-float or portable bridges.

Bridges will be designed and maintained to withstand and pass the highest flow expected to occur while the bridge is in place, and to prevent soil from entering the waterbody. Culverts will be aligned to prevent bank erosion or streambed scour. If necessary, energy dissipating devices will be installed downstream of the culverts.

Overland Pass will remove equipment bridges as soon as possible after permanent seeding unless the COE or its delegated agency authorizes it as a permanent bridge. If there will be more than 1 month between final cleanup and the beginning of permanent seeding, and reasonable alternative access to the right-of-way is available, equipment bridges or other crossing structures will be removed as soon as possible after final cleanup.

4.2.1 Crossing Methods

The types of waterbody crossing methods are generally categorized as either dry ditch or wet ditch. Dry-ditch crossings are those methods that will prevent water from flowing into the pipeline trench during pipe installation. Wet-ditch (i.e., open cut) crossings allow water flow to continue during pipeline installation and are typically limited to minor waterbodies. **On Pawnee National Grasslands (PNG) lands, Overland Pass will cross all intermittent waterbodies on or that flow onto the PNG using the flume or the dam and pump method if water is present at the time of construction.** For all waterbody crossings, Overland Pass will maintain adequate flow rates to protect aquatic life and prevent the interruption of existing downstream uses. If a waterbody has no perceptible flow at the time of the crossing, Overland Pass will use upland construction techniques to cross the area.

4.2.1.1 Dry-Ditch Crossings

Overland Pass will install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies wider than 30 feet with perceptible flow at the time of construction.

Dam and Pump Method

The dam and pump method may be used for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage (see figure 1). Overland Pass will meet the following performance criteria during implementation of the dam-and-pump crossing method:

- sufficient pumps, including on-site backup pumps, will be used to maintain downstream flows;
- dams will be constructed with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
- pump intakes will be screened;
- streambed scour at the pump discharge will be prevented; and
- the dam and pumps will be monitored to ensure proper operation throughout the waterbody crossing.

Flume Crossing Method

As shown on figure 2, Overland Pass will implement the following steps during implementation of the flume crossing method:

- flume pipe will be installed after blasting (if necessary), but before any trenching;
- sand bags, sand bag and plastic sheeting diversion structures, or equivalent will be used to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required in to achieve an effective seal);
- flume pipe(s) will be properly aligned as to prevent bank erosion and streambed scour;
- flume pipe will not be removed during trenching, pipelaying, or backfilling activities, or initial streambed restoration efforts; and
- all flume pipes and dams will be removed that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

Horizontal Directional Drill (HDD) Method

As discussed in section 3.0, Overland Pass will prepare site-specific construction plans for HDD crossings of waterbodies that:

- show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;
- describe how an inadvertent release of drilling mud would be contained and cleaned up (also discussed in the Horizontal Directional Drilling Inadvertent Release Control Plan); and
- include a contingency plan for crossing the waterbody or wetland in the event the directional drill is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

4.2.1.2 Wet-Ditch Crossings

Crossings of Minor Waterbodies

Minor waterbodies may be crossed using the open-cut crossing method, as shown on figure 3, with the following restrictions:

- except for blasting and other rock breaking measures, instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) will be completed within 24 hours. Streambanks and unconsolidated streambeds may require additional restoration after this period; and
- use of equipment operating in the waterbody will be limited to that needed to construct the crossing.

Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

- instream construction activities (not including blasting and other rock breaking measures) will be completed within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;
- use of equipment operating in the waterbody will be limited to that needed to construct the crossing; and
- all other construction equipment must cross on an equipment bridge as specified in section 4.2.

Crossings of Major Waterbodies

Before construction, Overland Pass will prepare detailed, site-specific construction plans and scaled drawings identifying all areas to be disturbed by wet-ditch construction for each major waterbody crossing. This plan(s) will be developed in consultation with the appropriate state and federal agencies, and will include extra work areas, spoil storage areas, sediment control structures, etc.

The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

4.3 Interim Erosion and Sediment Control

Overland Pass will install sediment barriers (as defined in section 4.2 of the Soil Stabilization and Restoration Plan) immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers will be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Interim erosion and sediment control measures are addressed in more detail in the Soil Stabilization and Restoration Plan; however, the following specific measures will be implemented at waterbody crossings:

- sediment barriers will be installed across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. In the travel lane, these may consist of removable sediment barriers or

drivable berms. Removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;

- where waterbodies are adjacent to the construction right-of-way, sediment barriers will be installed along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way; and
- trench plugs will be used at all waterbody crossings, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

4.4 Trench Dewatering

The trench will be dewatered off the construction right-of-way in a manner that does not cause erosion and does not result in heavily silt laden water flowing into any waterbodies or over the top of known cultural resource sites. Trench water will be pumped at a controlled rate onto a well-vegetated or stable upland site, or into a dewatering structure or filter bag to minimize erosion as shown on figures 4, 5, and 6. The dewatering structures will be removed as soon as possible after the completion of dewatering activities.

4.5 Restoration

During backfilling, clean gravel or native cobbles may be used for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries. Immediately following backfilling, Overland Pass will commence cleanup and restoration operations. For open-cut crossings, the waterbody banks will be stabilized and interim sediment barriers will be installed within 24 hours of completing instream construction activities. For dry-ditch crossings, streambed and bank stabilization will occur before returning flow to the waterbody channel. All waterbody banks will be restored to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.

Application of riprap for bank stabilization must comply with the COE, or its delegated agency, permit terms and conditions. Unless otherwise specified by state permit, the use of riprap will be limited to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric. **On federally managed land, riprap will consist of rock only.**

Disturbed riparian areas will be revegetated with conservation grasses and legumes or native plant species, preferably woody species.

A permanent slope breaker(s) will be installed across the construction right-of-way at the top of the slope and the base of slopes leading to a waterbody as indicated in section 5.2 of the Soil Stabilization and Restoration Plan, to prevent sediment transport into the waterbody. All slopes leading to a waterbody will have erosion control fabric installed to minimize sedimentation. In addition, sediment barriers will be installed as outlined in section 4.2 of the Soil Stabilization and Restoration Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

4.6 Post-Construction Maintenance

During operations, Overland Pass will limit vegetation maintenance adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. In most

areas, routine vegetation clearing over the 50-foot-wide permanently maintained right-of-way will occur every 3 years. However, in riparian areas, a corridor centered on the pipeline and up to 10 feet wide may be maintained in an herbaceous state to facilitate periodic pipeline corrosion/leak surveys. **On land managed by the PNG, tree clearing in riparian areas will be limited to a 10-foot-wide strip centered on the pipe centerline annually and tree clearing in all other areas will be limited to a 25-foot-wide strip centered on the pipe centerline every 3 years.** Post-construction maintenance activities will provide the same level of protection to waterbodies as during construction.

5.0 WETLAND CROSSINGS

Overland Pass has conducted wetland delineations using the current federal methodology and identified:

- by milepost all wetlands that would be affected;
- the National Wetlands Inventory (NWI) classification for each wetland;
- the crossing length of each wetland in feet; and
- the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

Overland Pass has attempted to avoid impacts on wetlands by routing the pipeline to avoid wetland areas to the maximum extent possible; limiting the width of the construction right-of-way to 75 feet or less; and avoiding locating aboveground facilities in any wetlands except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

Similar to waterbody crossings, wetland boundaries and buffers will be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

5.1 Installation

The size of extra workspace areas will be limited to that needed to construct the wetland crossing. **On federally-managed land, Overland Pass will locate all extra workspace areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries.** All spoil from wetland, must be placed in the construction right-of-way at least 50 feet from the wetland's boundary or in the additional extra workspaces. Sediment barriers will be used a necessary to prevent the flow of spoil or heavily silt-laden water into any wetland. **On non-federally-managed lands, Overland Pass will locate all extra workspace areas at least 10 feet away from wetland boundaries, unless site-specific conditions require further setback.**

Clearing of vegetation will be limited between the extra workspaces areas and the edge of the wetland to the approved construction right-of-way.

The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats). In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing will use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, all other construction equipment will be limited to one pass through the wetland using the construction right-of-way.

The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modification and no impact on the wetlands.

During wetland crossings, Overland Pass will:

- comply with COE, or its delegated agency, permit terms and conditions;
- ensure that if crossing measures specific to a waterbody can not be met because of the location of wetlands adjacent to a waterbody, adjacent wetlands will be incorporated into site-specific waterbody plans;
- assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe;
- use "push-pull" or "float" techniques to place the pipe in the trench where water and other site conditions allow;
- minimize the length of time that topsoil is segregated and the trench is open;
- limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way;
- cut vegetation just above ground level, leaving existing root systems in place, and remove it from the wetland for disposal;
- limit pulling of tree stumps and grading activities to directly over the trenchline. Stumps or root systems will not be graded or removed from the rest of the construction right-of-way in wetlands unless the Environmental Inspector determines that safety related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way;
- segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated or frozen. Immediately after backfilling is complete, the segregated topsoil will be restored to its original location;
- not use rock, soil imported from outside the wetlands, tree stumps, or brush riprap to support equipment on the construction right-of-way;
- use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats if standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands;
- not cut trees outside of the approved construction work area to obtain timber for riprap or equipment mats;
- attempt to use no more than two layers of timber riprap to support equipment on the construction right-of-way; and
- remove all project-related material used to support equipment on the construction right-of-way upon completion of construction.

5.2 Interim Erosion and Sediment Control

Overland Pass will install sediment barriers (as defined in section 4.2 of the Soil Stabilization and Restoration Plan) immediately after initial disturbance of the wetland or adjacent upland. Sediment barriers will be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below, sediment barriers will be maintained until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Interim erosion and

sediment control measures are addressed in more detail in the Soil Stabilization and Restoration Plan; however, the following specific measures will be implemented at wetland crossings:

- sediment barriers will be installed across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetlands;
- where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetlands, sediment barriers will be installed along the edge of the construction right-of-way as necessary to prevent sediment flow into the wetlands; and
- sediment barriers will be installed along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. These sediment barriers will be removed during right-of-way cleanup.

5.3 Trench Dewatering

The trench will be dewatered off the construction right-of-way in a manner that does not cause erosion and does not result in heavily silt laden water flowing into any wetland or over the top of known cultural resource sites. Trench water will be pumped at a controlled rate onto a well-vegetated or stable upland site, or into a dewatering structure or filter bag to minimize erosion (see figures 4, 5, and 6). The dewatering structures will be removed as soon as possible after the completion of dewatering activities.

5.4 Restoration

As part of restoration, Overland Pass will construct trench breakers and/or seal the trench bottom as necessary to maintain the original wetland hydrology where the pipeline trench may drain a wetland.

For each wetland crossed, a trench breaker will be installed at the base of slopes near the boundary between the wetland and adjacent upland areas. A permanent slope breaker will be installed across the construction right-of-way at the base of slopes as indicated in section 5.2 of the Soil Stabilization and Restoration Plan, or as needed to prevent sediment transport into the wetland. In addition, sediment barriers will be installed as outlined in the Soil Stabilization and Restoration Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

Overland Pass will not use fertilizer, lime, or mulch in wetlands unless required in writing by the appropriate land management or state agency.

Overland Pass will consult with the appropriate land management or state agency to develop measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of undesirable exotic species (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts.

Interim sediment barriers located at the boundary between wetland and adjacent upland areas will be removed after upland revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section 6.2 of the Soil Stabilization and Restoration Plan.

5.5 Post-Construction Maintenance

During operations, Overland Pass will monitor disturbed wetlands to promote successful revegetation with wetland herbaceous and/or woody plant species. The success of wetland revegetation will be

monitored for the first 5 years after construction (in July, first, third, and fifth growing seasons) or until wetland revegetation is successful. Wetland revegetation will be considered successful if the cover of herbaceous and/or woody species is at least 80 percent of the type, density, and distribution of the vegetation in adjacent wetland areas that were not disturbed by construction. If revegetation is not successful at the end of 5 years, Overland Pass will develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate the wetlands. Overland Pass will continue such efforts until wetland revegetation is successful.

Overland Pass will not conduct vegetation maintenance over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in an herbaceous state. **In addition, on land managed by the PNG, tree clearing in riparian areas will be limited to a 10-foot-wide strip centered on the pipe centerline annually, and in all other areas tree clearing will be limited to a 25-foot-wide strip centered on the pipe centerline every 3 years.** Post-construction maintenance activities will provide the same level of protection to wetlands as during construction.

DRAFT

ATTACHMENT A

FIGURES

[Provided in March 2006]

DRAFT