# APPENDIX D
# DESIGN CRITERIA

# Design Criteria for Lower Valley Energy Natural Gas Pipeline Project

Design criteria are specific project design features that are incorporated within the proposed project. They provide specific guidance on project implementation, and become part of the decision made and the project implementation plan. Design criteria for the Alternative B – Proposed Action are presented below.

## Design Criteria for Alternative B

### *General*

1. Pipeline activities will include the use of designated access to the project location, pipeline construction activities within the designated pipeline construction corridor, activities within designated temporary work areas (TWAs), reclamation activities, control of noxious weeds and invasive species, water use, pipeline maintenance activities, and monitoring activities along the pipeline route.

2. All pipeline activities will be conducted in accordance with the special use authorization for the project. The special use authorization will contain documentation of the engineering specifications for the project, proposed alignment, schematic drawings of proposed facilities, reclamation requirements (including seed mix), monitoring requirements, and a written plan for the Camp Creek Saddle area.

3. Specific engineering design criteria have been evaluated by a qualified independent engineer to ensure that the proposed design meets or exceeds all applicable safety codes and regulations. An independent engineering design review was conducted for the Wyoming Department of Transportation (WYDOT) by PB Energy Storage Services, Inc. (2005). The results of this review are being addressed in the final engineering designs for the proposed project, in consultation with WYDOT. Engineering specifications for the project will be documented in the special use authorization for the project and other permits and authorizations, as appropriate.

4. To facilitate safe highway operations along the pipeline route and enhance the responsiveness of LVE to One-Call of Wyoming procedures, as agreed to between LVE and WYDOT, an inspector representing LVE will be onsite when excavation activities associated with WYDOT's highway operations near the pipeline are in progress, provided LVE receives 24 hours advance notice during normal business hours.

5. The need for a risk assessment to be conducted after the pipeline is operational will be addressed in a timely manner in consultation with authorizing agencies and in accordance with 49 CFR 192. An operational risk assessment would consider factors which may negatively impact pipeline integrity and identify methods to reduce the risks to pipeline integrity.

6. All project activities must comply with Food Storage Order Number 04-00-104 (December 12, 2004). This Order is effective March 1 through December 1, annually.

### *Designated Access*

1. Construction traffic will be limited to designated existing access U.S. Highway and Forest Development Roads (FDRs) shown in **Table D-1**. The footprint of existing roads will not be improved, upgraded, or modified: however, access roads will be repaired and maintained, as needed, to pre-construction conditions.

## TABLE D-1 DESIGNATED ACCESS

| Road or Highway | Surface Ownership |
|---|---|
| U.S. 89/191 | Private, State of Wyoming |
| U.S. 189/191 | Private, National Forest |
| Game Creek Road (FDR 30455) | Private, National Forest |
| Porcupine-Squaw Creek Plateau Road | Private |
| Porcupine Creek Road (FDR 30457) | Private, National Forest |
| Eagle Ranch Road | Private |
| Horse Creek Road (FDR 30458) | Private, National Forest |
| Camp Creek Road (FDR 30461) | National Forest |
| Bull Creek Road (FDR 30497) | National Forest |
| Cliff Creek Road (FDR 30530) | National Forest |
| FDR 30686 | National Forest |
| FDR 30461 | Private, National Forest, Wyoming Game and Fish |

2. Access roads will be used for transporting personnel, equipment, and materials to the pipeline construction corridor. In locations where the pipeline route deviates from existing road corridors, the pipeline construction corridor will be used to provide access along the pipeline route.

3. No temporary or permanent roads will be constructed.

4. Designated access roads will be identified in the field with "Authorized Project Access" signs. Other roads that could be used for access to the Project Area but have not been authorized will be posted with "No Project Access" signs.

5. Any needed turnaround areas will be identified as TWAs during pre-construction surveys and included in the special use authorization for the project.

6. Existing roads will be maintained as specified in the special use authorization for the project.

### *Pipeline Construction Activities*

1. All pipeline construction activities will occur within a surveyed and staked 75-foot-wide pipeline construction corridor and designated TWAs. Construction activities at the gas processing facility site will occur within the surveyed and staked construction work area.

2. Activities within designated TWAs will occur in accordance with the special use authorization for the project.

3. The incidental removal of trees in association with pipeline installation will include the following actions. Shrubs and trees will be cut to near ground level and cleared only from the construction corridor and designated TWAs. Overhanging branches may be trimmed as necessary for pipe installation and safety reasons. Cut trees will be temporarily stockpiled at the edge of the construction corridor. Timber will be cruised and sold to Lower Valley Energy (LVE) for disposal as authorized by the Forest Service in a settlement sale.

4. Topsoil would be conserved subject to agreements with affected landowners and agencies. Unless otherwise specified, the top six to twelve inches of topsoil, as available, would be salvaged from

the trench line, spoil storage areas, cut and fill areas, and all other disturbance areas within the construction corridor and TWAs. Spoil material and topsoil from the trench would be segregated. The topsoil will be windrowed on the non-working side of the construction corridor, where possible, or stockpiled and protected in designated TWAs in a manner that protects it from water and wind erosion and prevents mixing with spoils or disturbance by construction activities.

5. Subsoil will be graded within the construction corridor to provide a safe and level working surface. Excess subsoil will be stored in designated TWAs as needed.

6. Excess spoils from construction in Hoback Canyon will be stockpiled within the construction corridor and outside the highway clear zone, or in TWAs.

7. Grading and spoil storage will occur in a manner that minimizes interference with existing natural drainages.

8. Spoil from sidehill cuts will be graded on the downhill side to form a level work pad and minimize the width of the disturbance area. Sidehill cuts will be two-toned, where possible, to minimize the width of the work pad.

9. Trench spoils will be stockpiled adjacent to the trench on the non-working side of the construction corridor, separated from the topsoil storage, or in designated TWAs.

10. To slow the movement of subsurface water along the trench, trench breakers consisting of sand or spoil-filled bags or polyurethane foam will be installed in the trench, as described in **Table D-2**.

## TABLE D-2 TRENCH BREAKER DESIGN

| Slope (percent) | Maximum Distance Apart (feet) |
|---|---|
| 0 - 4 | None |
| 5 - 10 | 500 |
| 11 - 20 | 300 |
| 21 - 40 | 100 |
| 41 (+) | 50 |

11. To cover and protect the pipeline and coating, the pipe will be padded with rock-free fill material consisting of original trench spoils or imported fill. Topsoil will not be used as padding or backfill material.

12. In upland areas, the pipeline will be buried at a depth that meets or exceeds U.S. Department of Transportation (DOT) requirements for cover (36 inches in soil and 18 inches in consolidated bedrock).

13. Construction dewatering will be conducted in a manner that does not cause erosion or result in sediment flow into wetlands and streams.

## Block Valves

1. Pipeline construction activities will include the installation of mainline isolation valves (block valves) within the construction corridor at the five locations listed in **Table D-3**.

### TABLE D-3 VALVE LOCATIONS

| Valve Number | Location | Land Ownership | Comment |
|---|---|---|---|
| B-1 | T.37N. R.112W. Sec. 30 NE NE | USFS | Located south of Highway 191 ROW fence at about mile marker 137.0 |
| B-2 | T.38N. R.113W. Sec. 33 NW NW | USFS | Located south of Highway 191 ROW fence at about mile marker 144.0 |
| B-3 | T.38N. R.114W. Sec. 5 NW NW | USFS | Located on the north side of Highway 191 in the old highway roadbed at about mile marker 153.5 |
| B-4 | T.39N. R.115W. Sec. 32 NW SE | USFS | Located north of Highway 191 ROW at approximately mile marker 159.6 |
| B-5 | T.40N. R.116W. Sec. 27 SW SE | USFS | Located south of Game Creek Road and just east of the Wyoming Game and Fish Department's property fence |

## Temporary Work Areas

1. Designated TWAs, identified in **Table D-4**, will be used along the pipeline route for construction activities requiring additional work space.

### TABLE D-4 DESIGNATED TEMPORARY WORK AREAS

| Location | Description | Surface Ownership |
|---|---|---|
| Bondurant | Contractor yard/equipment storage | Private |
| Cliff Creek | Contractor yard/equipment storage | Private/National Forest |
| Granite Creek | Contractor yard/equipment storage | Private/National Forest |
| Highway 26/89 #2, NW SW 21 T40N R116W | Road crossing, staging area, and spoil storage | Private |
| South Park Feedgrounds Rd NE SE 28 T40N R116W | Road crossing, staging area, and spoil storage | Private/State of Wyoming |
| Highway 26/89 #1, SE SW 27 T40N R116W | Road crossing, staging area, and spoil storage | Private |
| FDR 30455, SW SE 27 T40N R116W | Road crossing, staging area, and spoil storage | National Forest |
| Game Creek, SW SE 27 T40N T116W | Stream crossing, staging area, and spoil storage | National Forest |
| Squaw Creek, Tops of adjoining hills SW SW 35 T40N R116W | Stream crossing, staging area, and spoil storage | Private |
| Top of slope SW NE 2 T39N R116W | Road crossing, staging area, and spoil storage | Private |

| Location | Description | Surface Ownership |
|---|---|---|
| FDR 30457 (Porcupine Cr Rd)<br>NE SE 2 T39N R116W | Road crossing, staging area, and spoil storage | Private |
| Porcupine Creek,<br>NE SE 2 T39N R116W | Stream crossing, staging area, and spoil storage | Private |
| Porcupine – Squaw Creek Rd<br>SE SE 2 T39N R116 W | Road Crossing, staging area, and spoil storage | Private |
| Eagle Ranch Road<br>SE SW 1 T39N R116 W | Road Crossing, staging area, and spoil storage | Private |
| Top of slope<br>NW NW 18 T39N R115W | Staging area and spoil storage | State of Wyoming |
| Base of slope<br>NE NW 18 T39N R115 W | Staging area and spoil storage | State of Wyoming |
| Horse Creek,<br>NE NW 18 T39N R115W | Stream crossing, staging area, and spoil storage | State of Wyoming |
| FDR 30458 (Horse Creek Rd)<br>SE NW 18 T39N R115W | Road crossing, staging area, and spoil storage | State of Wyoming |
| Top of Camp Creek Saddle<br>N2 NW 29 T39N R115W | Staging area and spoil storage | National Forest |
| Base of Camp Creek Saddle<br>NE SW 29 T39N R115W | Staging area and spoil storage | National Forest |
| Highway 189/191 #15,<br>NE NW 4 T38N R115W | Road crossing, staging area, and spoil storage | WYDOT |
| Hoback River crossing #9 and nearby upland area,<br>SE NE 4 T38N R115W | River crossing, spoil storage, staging area, equipment storage, traffic control, and site security for canyon operations | National Forest |
| Pullout area near Hoback River crossing #9<br>SW NW 3 T38N R115 W | Staging area and spoil storage | National Forest |
| Highway 189/191 #14,<br>SW SW 2 T38N R115W | Road crossing, staging area, and spoil storage | National Forest |
| Hoback River #8,<br>SW SW 2 T38N R115W | Stream crossing, staging area, and spoil storage | National Forest |
| Abandoned highway<br>NE SE 1 T38N R115W | Staging area and spoil storage | National Forest |
| Hoback River #7,<br>NE SE 1 T38N R115W | Stream crossing, staging area, and spoil storage | National Forest |
| Highway 189/191 #13,<br>NE SE 1 T38N R115W | Road crossing, staging area, and spoil storage | National Forest |
| Red Creek,<br>NW SW 6 T38N R114W | Stream crossing, staging area, and spoil storage | National Forest |
| Hoback River #6,<br>NE NE 6 T38N R114W | Stream crossing, staging area, and spoil storage | National Forest |
| Highway 189/191 #12,<br>NW NW 5 T38N R114W | Road crossing, staging area, and spoil storage | National Forest |
| FDR 30497, NW NE 5 T38N R114W | Road crossing, staging area, and spoil storage | National Forest |
| Bull Creek,<br>NW NE 5 T38N R114W | Stream crossing, staging area, and spoil storage | National Forest |
| Highway 189/191 #11,<br>NE SW 4 T38N R114W | Road crossing, staging area, and spoil storage | National Forest |
| Hoback River #5,<br>NE SW 4 T38N R114W | Stream crossing, staging area, and spoil storage | National Forest |
| Pullout area<br>NE SW 4 T38N R114W | Staging area and spoil storage | National Forest |
| Highway 189/191#10,<br>NE NE 9 T38N R114W | Road crossing, staging area, and spoil storage | National Forest |
| Hoback River #4,<br>NE NE 9 T38N R114W | Stream crossing, staging area, and spoil storage | National Forest |
| FDR 30527<br>SW NW 10 T38N R114W | Road crossing, staging area, and spoil storage | National Forest |

| Location | Description | Surface Ownership |
|---|---|---|
| Hoback River #3,<br>NW SW 10 T38N R114W | Stream crossing, staging area, and spoil storage | National Forest |
| Highway 189/191 #9,<br>NW SW 10 T38N R114W | Road crossing, staging area, and spoil storage | National Forest |
| Pullout area<br>SW SW 10 T38N R114W | Staging area | National Forest |
| Pullout area<br>NE SE 10 T38N R114W | Staging area and spoil storage | National Forest |
| FDR 30530<br>NE NW 23 T38N R114W | Road crossing, staging area, and spoil storage | National Forest |
| WYDOT Reroute #2, West End,<br>Highway Milepost 149.72 | Road crossing, staging area, and spoil storage | National Forest |
| WYDOT Reroute #2, East End,<br>Highway Milepost 148.84 | Road crossing, staging area, and spoil storage | National Forest |
| Cliff Creek,<br>N/2 NW 28 T38N R114W | Stream crossing, staging area, and spoil storage | National Forest |
| WYDOT Reroute #1, West End,<br>Highway Milepost 148.36 | Road crossing, staging area, and spoil storage | National Forest |
| WYDOT Reroute #1, East End,<br>Highway Milepost 148.26 | Road crossing, staging area, and spoil storage. May require design modification in consultation with WYDOT/Forest Service. | National Forest |
| Pullout area<br>NW NE 23  T38N R114W | Staging area | National Forest |
| Highway 189/191 #8,<br>SW NW 24 T38N R114W | Road crossing, staging area, and spoil storage | National Forest |
| Hoback River #2,<br>SW NW 24 T38N R114W | Stream crossing, staging area, and spoil storage | National Forest |
| Pullout area<br>NE NW 24 T38N R114W | Staging area | National Forest |
| Highway 189/191 #7,<br>SE NW 19 T38N R113W | Road crossing, staging area, and spoil storage | Private |
| Hoback River #1,<br>NW NW 29 T38N R113W | Stream crossing, staging area, and spoil storage | National Forest |
| FDR 30576, NW NW 33 T38N R113W | Road crossing, staging area, and spoil storage | National Forest |
| Stream crossing<br>NE SW 33 T38N R114W | Stream crossing, staging area, and spoil storage | Private |
| Highway 189/191 #6,<br>NE NE 9 T37N R113W | Road crossing, stream crossing, staging area and spoil storage | Private |
| Upper Hoback River,<br>NE SE 23 T37N R113W | Stream crossing, staging area, and spoil storage | Private |
| Muddy Creek,<br>NW SW 24 T37N R113W | Stream crossing, staging area, and spoil storage | Private |
| Fisherman Creek #3,<br>NW SW 24 T37N R113W | Stream crossing, staging area, and spoil storage | Private |
| Highway 189/191 #5,<br>SE SW 20 T37N R112W | Road crossing, staging area, and spoil storage | National Forest |
| N. Fork Fisherman Creek,<br>SE SE 20 T37N R112W | Stream crossing, staging area, and spoil storage | National Forest |
| Highway 189/191 #4,<br>SW SW 21 T37N R112W | Road crossing, staging area, and spoil storage | National Forest |
| FDR 30650<br>SE NW 21 T37N R112W | Road crossing, staging area, and spoil storage | National Forest |
| Sand Rock Creek,<br>NW NE 28 T37N R112W | Stream crossing, staging area, and spoil storage | National Forest |
| FDR 30670<br>NW NW 27 T37N R112W | Road crossing, staging area, and spoil storage | National Forest |
| Highway 189/191 #3,<br>SW NE 27 T37N R112W | Road crossing, staging area, and spoil storage | National Forest |

| Location | Description | Surface Ownership |
|---|---|---|
| Fisherman Creek #2,<br>SW NE 27 T37N R112W | Stream crossing, staging area, and spoil storage | National Forest |
| FDR 30686 and Turnaround<br>SW NE 27 T37N R112W | Road crossing, staging and turn around area | National Forest |
| Drainage<br>NE SW 26 T37N R112W | Drainage crossing, staging area, and spoil storage | National Forest |
| FDR 30687, SW SW 25 T37N R112W | Road crossing, staging area, and spoil storage | National Forest |
| Fisherman Creek #1,<br>SW NE 36 T37N R112W | Stream crossing, staging area, and spoil storage | National Forest |
| Staging and access area<br>SE NE 36 T37N R112W | Access from highway and staging area | National Forest |
| Drainage<br>SE NE 31 T37N R111W | Drainage crossing, staging area, and spoil storage | National Forest |
| Highway 189/191 #2,<br>SW NW 32 T37N R111W | Road crossing, staging area, and spoil storage | National Forest |
| Highway 189/191 #1,<br>NW SE 32 T37N R111W | Road crossing, staging area, and spoil storage | Private |
| North Beaver Creek #2,<br>NW NW 12 T36N R112W | Stream crossing, staging area, and spoil storage | Private |
| North Beaver Creek #1,<br>C W/2 25 T36N R112W | Stream crossing, staging area, and spoil storage | Private |
| Crooked Creek,<br>SW NW 34 T36N R112W | Stream crossing, staging area, and spoil storage | Private |
| Staging area<br>NW NW 34 T36N R112W | Staging and assembly area | Private |

## Wetland Construction

1. Construction staging areas will be located outside riparian areas.

2. Baseline conditions of affected wetlands will be established prior to disturbance, as specified by the Forest Service.

3. A wetlands mitigation plan will identify wetland mitigation sites, and a process for wetland restoration and enhancement for impacted wetlands where reclamation of temporary disturbance areas is not successful in maintaining or restoring wetland function and hydrology. Mitigation plans will focus on restoration and enhancement activities in the immediate vicinity of disturbance areas rather than creation of new wetland areas. Mitigation of effects on willow wetlands will be emphasized. No overall loss of wetlands is projected, based on the engineering design for the pipeline and the wetlands inventory completed for the project. All wetland crossings will be conducted in accordance with conditions specified by the U.S. Army Corps of Engineers (COE).

4. The incidental removal of trees and shrubs in association with pipeline installation will include the following actions. Trees and shrubs will be cut to near ground level, leaving the root systems in place, and cuttings will be removed from wetland areas for disposal, as directed by the Forest Service. Removal of root systems and grading will be limited to the trench line only. Stump removal or grading may be allowed on the working side of the construction corridor for safety-related construction constraints.

5. Topsoil will be stripped and stockpiled to improve the potential for successful reclamation. Topsoil will be removed from the trench line and sidecast on top of the wetland vegetation, within the construction corridor on the non-working side of the trench line. Topsoil salvage will not be required in saturated or inundated wetlands if salvage would increase wetland disturbance. The segregated topsoil will be restored to original locations immediately following backfill operations.

6. Subsoil (spoils) will be excavated from the trench line and will be placed in the wetland within the construction corridor and separate from the topsoil.

7. The trench will be dewatered in a manner that does not cause erosion or result in sediment flow into wetlands and streams.

8. The pipe will be buried at a depth sufficient to provide 36 inches of cover in unconsolidated material or 18 inches in consolidated bedrock between the pipe and the wetland surface.

9. Compacted trench breakers or trench bottom seals will be installed in a manner that maintains the original wetland hydrology.

## Drainage Crossings

1. Crossings involving Waters of the U.S. will be conducted in accordance with all permit terms and conditions specified by the U.S. Army Corps of Engineers (COE).

2. Construction staging areas will be located outside riparian areas.

3. Trench dewatering will be conducted in a manner that does not cause erosion or result in sediment flow into wetlands and streams.

4. Sediment barriers will be installed at crossings to prevent sediment flow into streams and rivers. Barriers will be installed across the construction corridor at the edges of streams immediately following clearing and grading activities in adjacent upland areas.

5. All spoil materials from crossings will be placed in an upland area of the construction corridor or in TWAs. Sediment barriers will be installed to prevent spoil and silt-laden water from entering waterways.

6. Disturbance will be minimized by selecting the narrowest crossing, limiting equipment trips across a stream during construction, and minimizing the number and size of work areas.

7. The pipeline shall not be assembled in the stream crossing area.

8. Drainage crossings, including river and stream crossings, are identified in **Table D-5**.

9. Following pipeline installation streambanks will be restabilized, as needed, in accordance with applicable Forest Plan management guidance and as specified by the Forest Service.

## Roads and Highways

1. Paved roads will be crossed in accordance with authorizations from the Wyoming Department of Transportation (WYDOT) and local authorities.

2. Unpaved roads will be open-cut.

3. Roads and highways will remain passable during pipeline construction and reclamation. Traffic control or a bypass will be available to keep traffic flowing through construction zones. Steel plates would be installed, as needed.

4. All road surfaces will be kept free of construction debris.

5. Spoils will be stockpiled outside the highway clear zone within the construction corridor or in designated TWAs.

6. During construction, the contractor will post temporary "Caution Construction Zone Ahead" or appropriate signage where activities are ongoing in proximity to highway corridors or other public or private roadways. Workers with flags will be stationed during pipeline construction in these areas, as needed.

7. Roadside brushing will occur on paved roadways, where needed, to keep road surfaces free of vegetative materials or debris that could be hazardous to the public.

8. Designated road and highway crossings are identified in **Table D-6**.

## Camp Creek Saddle Landslide Area

1. The pipeline will be installed by surface-lay through the Camp Creek Saddle landslide area.

2. A written plan for the Camp Creek Saddle area will be incorporated in the special use authorization for the project.

## TABLE D-5 DRAINAGE CROSSINGS (EAST TO WEST)

| | Crossing Name | High Water Width | Water Type | Crossing Type | Comment |
|---|---|---|---|---|---|
| 1 | Crooked Creek | 4' | Creek | Open Cut | Immediately east of Williams tie-in |
| 2 | Drainage | 3' | Ephemeral | Trench | |
| 3 | Drainage | 3' | Ephemeral | Trench | |
| 4 | North Beaver Creek | 5' | Creek | Open Cut | |
| 5 | North Beaver Creek Drainage | 3' | Ephemeral | Open Cut | |
| 6 | North Beaver Creek Drainage | 3' | Ephemeral | Open Cut | |
| 7 | North Beaver Creek | 3' | Creek | Open Cut | |
| 8 | Drainage | 3' | Dry Wash | Trench | |
| 9 | Drainage | 3' | Dry Wash | Trench | |
| 10 | Wetland Area | 160' | Wetland | Trench | |
| 11 | Fisherman Creek Drainage | 3' | Ephemeral | Trench | |
| 12 | Drainage | 3' | Dry Wash | Trench | |
| 13 | Fisherman Creek | 12' | Creek | Open Cut | |
| 14 | Sandrock Creek | 3' | Creek | Open Cut | |
| 15 | North Fork Fisherman Creek | 6' | Creek | Open Cut | |
| 16 | Fisherman Creek | 12' | Creek | Open Cut | |
| 17 | Muddy Creek | 8' | Creek | Open Cut | |
| 18 | Upper Hoback River | 100' | River | Open Cut | 84' downstream of bridge piers |
| 19 | Drainage | 3' | Ephemeral | Trench | |
| 20 | Drainage | 3' | Ephemeral | Trench | |
| 21 | Drainage | 3' | Creek | Bore | Creek will be bored with Highway 189 crossing |
| 22 | Drainage | 3' | Creek | Trench | By old cabins |
| 23 | Drainage | 3' | Ephemeral | Trench | |
| 24 | Drainage | 3' | Ephemeral | Trench | |
| 25 | Hoback River #1 Elkhorn Cafe | 55' | River | Open Cut | 219' downstream of bridge piers |
| 26 | Garden Creek | 3' | Ephemeral | Trench | |
| 27 | Wetland area | 150' | Wetland | Trench | |

## TABLE D-5 DRAINAGE CROSSINGS (EAST TO WEST) CONTINUED

| | Crossing Name | High Water Width | Water Type | Crossing Type | Comment |
|---|---|---|---|---|---|
| 28 | Hoback River #2 - East Canyon Entrance | 90' | River | Open Cut | 44' downstream of bridge piers |
| 29 | Drainage | 3' | Ephemeral | Open Cut | Crossing under flume in old Highway ROW |
| 30 | Cliff Creek | 30' | Creek | Open Cut | |
| 31 | Hoback River #3 Kozy Campground | 140' | River | Open Cut | Open country crossing |
| 32 | Hoback River #4 Battle Mountain East | 55' | River | Open Cut | 39' downstream of bridge piers |
| 33 | Hoback River #5 Granite Creek Confluence | 115' | River | Open Cut | 97' downstream of bridge piers |
| 34 | Bull Creek | 12' | Creek | Open Cut | |
| 35 | Cow Creek | 5' | Creek | Open Cut | |
| 36 | Hoback River # 6 Highway Pullout Crossing | 165' | River | Open Cut | 75' upstream of bridge piers |
| 37 | Red Creek | 6' | Creek | Open Cut | |
| 38 | Hoback River #7 Old Highway Diversion | 130' | River | Open Cut | 68' upstream of bridge piers |
| 39 | Hoback River #8 Camp Area Crossing | 80' | River | Open Cut | 69' downstream of bridge piers |
| 40 | Hoback River #9 Stinking Springs Area | 120' | River | Open Cut | 630' downstream of bridge piers |
| 41 | Poison Creek | 5' | Dry wash | Trench | Spring runoff from hills |
| 42 | Camp Creek Drainage | 250' | Grassy Drainage | Trench | Grass field flow area |
| 43 | Little Horse Creek | 3' | Creek | Open Cut | Drainage through elk feedground |
| 44 | Horse Creek | 5' | Creek | Open Cut | Drainage through elk feedground |
| 45 | Porcupine Creek | 3' | Creek | Open Cut | Creek parallels road |
| 46 | Squaw Creek | 3' | Ephemeral | Open Cut | Drainage from plateau |
| 47 | Game Creek | 3' | Creek | Open Cut | Creek parallels road |
| 48 | Irrigation Head Ditch | 6' | Irrigation Drain | Bore | Irrigation supply ditch |
| 49 | Irrigation Head Ditch | 6' | Irrigation Drain | Bore | Irrigation supply ditch |
| 50 | Wilson Drainage | 3' | Dry Wash | Trench | Dry wash south of LVE facility |

Note: 3' is the minimum width assigned to any water/drainage crossing.

## TABLE D-6 ROAD AND HIGHWAY CROSSINGS (EAST TO WEST)

| | Crossing Name | Highway Milepost | Agency | Length | Road Surface | Type | Comment |
|---|---|---|---|---|---|---|---|
| 1 | N. Beaver Road (Loop) | - | Private Dr | - | Gravel | Open Cut | General Landowner Access |
| 2 | Rim Road | - | Private Dr | - | Gravel | Open Cut | Summer Home Access |
| 3 | Sargent Lane | - | Private Dr | - | Gravel | Open Cut | Summer Home Access |
| 4 | Highway 189 / 191 (WYDOT #1) | 129.22 | WYDOT | 212 | Pavement | Boring | Upper Rim Crossing |
| 5 | Highway 189 / 191 (WYDOT #2) | 129.90 | WYDOT | 119 | Pavement | Boring | Lower Rim Crossing |
| 6 | Highway 189 / 191 (WYDOT #3) | 134.04 | WYDOT | 172 | Pavement | Boring | Fisherman Creek Crossing |
| 7 | Highway 189 / 191 (WYDOT #4) | 135.64 | WYDOT | 160 | Pavement | Boring | North Fork Fisherman Creek- East Approach |
| 8 | Highway 189 / 191 (WYDOT #5) | 137.21 | WYDOT | 160 | Pavement | Boring | North Fork Fisherman Creek-West Approach |
| 9 | Highway 189 / 191 (WYDOT #6) | 142.17 | WYDOT | 123 | Pavement | Boring | Bondurant School |
| 10 | Highway 189 / 191 (WYDOT #7) | 146.46 | WYDOT | 121 | Pavement | Boring | Elkhorn Inn West |
| 11 | Highway 189 / 191 (WYDOT #8) | 147.90 | WYDOT | 110 | Pavement | Boring | East Canyon |
| 12 | Highway 189 / 191 (WYDOT #9) | 148.26 | WYDOT | 129 | Pavement | Open Cut | Noname |
| 13 | Highway 189 / 191 (WYDOT #10) | 148.39 | WYDOT | 145 | Pavement | Boring | Cliff Creek East |
| 14 | Cliff Creek (USFS Road 30530) | - | USFS | 40 | Gravel | Open Cut | Cliff Creek Access |
| 15 | Highway 189 / 191 (WYDOT #11) | 148.88 | WYDOT | 197 | Pavement | Boring | Cliff Creek West |
| 16 | Highway 189 / 191 (WYDOT #12) | 149.46 | WYDOT | 218 | Pavement | Boring | Shoal Creek Slide East |
| 17 | Highway 189 / 191 (WYDOT #13) | 150.74 | WYDOT | 127 | Pavement | Boring | Kozy Campground - Hoback River #3 |
| 18 | Highway 189 / 191 (WYDOT #14) | 151.38 | WYDOT | 74 | Pavement | Open Cut | Battle Mountain East |
| 19 | Highway 189 / 191 (WYDOT #15) | 152.11 | WYDOT | 93 | Pavement | Bored | Granite Creek |
| 20 | Highway 189 / 191 (WYDOT #16) | 153.60 | WYDOT | 92 | Pavement | Open Cut | Cow Creek West |
| 21 | Highway 189 / 191 (WYDOT #17) | 154.78 | WYDOT | 127 | Pavement | Boring | Red Creek West |
| 22 | Highway 189 / 191 (WYDOT #18) | 156.65 | WYDOT | 142 | Pavement | Boring | Camp Area |
| 23 | Highway 189 / 191 (WYDOT #19) | 158.53 | WYDOT | 156 | Pavement | Boring | Stinking Springs West |
| 24 | Horse Creek (USFS 30458) | - | Private | 40 | Dirt | Open Cut | Horse Creek Access Road |
| 25 | Porcupine Squaw Creek Plateau Road | - | Private | 40 | Gravel | Open Cut | South Crossing of Subdivision Road |
| 26 | Porcupine Squaw Creek Plateau Road | - | Private | 40 | Gravel | Open Cut | North Crossing of Subdivision Road |
| 27 | Porcupine Creek Road (USFS 30457) | - | Private | 90 | Pavement | Boring | Main Subdivision Access Road |
| 28 | Highway 89 (WYDOT #20) | 146.73 | WYDOT | - | Pavement | Boring | Game Creek |
| 29 | South Park Feedgrounds Road | - | Private | 125 | Pavement | Boring | Feedground Access |
| 30 | Gravel Pit Road | - | Private | 70 | Pavement | Boring | Gravel Pit Access |
| 31 | Highway 89 (WYDOT #21) | 148.72 | WYDOT | - | Pavement | Boring | South Park Loop Rd |

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## *Reclamation*

1. All reclamation activities will be accomplished as directed by the Forest Service.

2. Adequacy of progress toward successful revegetation with an acceptable mix of species and cover will be determined by the Forest Service on an annual basis until all areas disturbed during pipeline installation have been recovered in accordance with Forest Plan management guidance. The need for reseeding will also be considered on an annual basis until all areas disturbed during pipeline installation have been recovered in accordance with Forest Plan management guidance.

3. When needed, compaction of subsoil or topsoil in work areas will be relieved as directed by the Forest Service. Methods could include ripping, discing, or chisel plowing.

4. When backfilling, the stored subsoil (B-horizon) shall be placed back into the trench first followed by the topsoil (A-horizon). The soil shall be replaced within the trench and mounded above the predominant grade so that after settling occurs, the topsoil's original depth and contour (with allowance for settling) will be restored.

5. To minimize the erosive effects of water and wind, discing or other means of tilling will parallel the contours of slopes where possible.

6. Slope breakers (waterbars) will be constructed to divert and dissipate surface runoff, at the same spacing as and downslope of trench breakers (**Table D-2**).

7. All disturbed areas will be revegetated as specified in the special use authorization for the project. Revegetation will be initiated as soon as possible, or within 1 month after completion of ground-disturbing activities, whichever is shorter. Rehabilitation plans shall identify quantities of topsoil (A and B horizons) to be reserved for stockpiling prior to project initiation. Seeding shall be done on slopes greater than 25 percent, in areas with low initial herbaceous cover, on all areas in a dry year, and in all areas where there is resource damage potential (e.g. upslope of stream). The Forest soil scientist or reclamation specialists shall be consulted immediately prior to construction activities to determine those areas that will not require seeding. Where the re-establishment of desired species of native vegetation is likely to occur without seeding, this revegetation process is preferred over seeding. Where seeding is required, it shall be applied directly at a competitive density during the fall. Forest Service recommended seed mixes specific to the community type shall be used. Seeded areas on slopes greater than 40 percent shall be mulched with certified weed-free hay at a rate of 2 tons per acre. Hay shall be crimped into the soil surface. Woody nursery stock shall be used where revegetation limitations are severe and the pre-disturbance community is composed of woody vegetation. Species selected and spacing of woody nursery stock will be as specified by the Forest Service or other affected landowner.

8. Mulching aides, tackifying agents, or erosion control blankets, will be used alone or in combination, as needed, to stabilize areas exposed to wind, unstable slopes, or sensitive soils. Certified weed-free straw or hay will be used as mulch. Mulch will be anchored to the ground with a crimper or disc.

9. Wood debris from clearing operations will be distributed across disturbed areas to provide added protection, as specified in the special use authorization for the project.

10. The construction corridor will be reseeded with mixtures of pure live seed containing only native species or species that will not prevent the eventual establishment of native vegetation. The final seed mix will be applied in accordance with the special use authorization for the project.

11. Seed will be applied by drill seeding. Broadcast seeding at twice the drill seed rate will be employed only in areas where drill seeding cannot be performed.

12. A 20-foot-wide maintenance corridor centered on the pipeline will be revegetated with only herbaceous vegetation.

### *Noxious Weeds and Invasive Species*

1. Effective management of noxious weeds will be accomplished by cooperating with the county weed control districts and following Bridger-Teton National Forest (BTNF) procedures for noxious weed control and technical guidelines. No toxic chemicals will be applied that will adversely affect non-target species. Prior to the use of herbicides, the Operator will obtain written approval from the Forest Service Weed Coordinator and Forest Service Authorized Officer.

2. LVE will be responsible for control of noxious weeds and invasive species in disturbance areas along the pipeline route for a minimum of five years following pipeline installation. All noxious weed infestations occurring on NFS lands in the pipeline corridor and facility sites will be inventoried prior to start of construction. All infestations identified will be treated as specified in the special use authorization for the project.

3. All earth-moving and earth-hauling equipment will be pressure-washed prior to mobilization into the Project Area. Accumulations of mud will be knocked off equipment prior to transport from one site to another within the Project Area.

4. Appropriate measures will be taken to prevent track-off of sediment and vegetation from infested areas. Operation of equipment and vehicles will be restricted in infestation areas to the minimum equipment required to complete the construction activity. Equipment will be power-washed in a contained wash-down area located within the infestation area prior to leaving the site.

5. Certified weed-free straw or hay will be used for all identified project needs.

### *Water Use and Hydrostatic Testing*

1. Appropriated water will be used for pipeline hydrostatic testing and dust abatement during construction. All water use will be authorized through a Water Use Agreement with the Wyoming State Engineer and negotiations with water rights owners. Water will be withdrawn only from the Hoback River drainage from source locations identified in water appropriation permits.

2. Intake and discharge of hydrostatic test water will be conducted in accordance with federal and state permits or authorizations.

3. Hydrostatic test water discharge procedures will be designed to protect water quality and stream flows. All Wyoming Department of Environmental Quality (WDEQ)-required water quality sampling will be conducted as directed by WDEQ and the results will be reported to WDEQ and the Forest Service. Test water will be discharged to the ground or directly to receiving waters only at WDEQ-authorized discharge points (outfalls). The discharge rate will be regulated, and appropriate Best Management Practices (BMPs) will be used to prevent erosion, streambed scour,

suspension of sediment, and excessive stream flows.

4. To minimize impacts from water use and discharge, test water will be re-used where possible to test each section of pipeline.

5. Construction of the pipeline stream crossings shall not interfere with the use of the water by the water right owners.

6. No additives that inhibit rust will be added to the test water. Discharge water samples will be collected and analyzed in accordance with National Pollutant Discharge Elimination System (NPDES) permit conditions established by WDEQ.

### *Pipeline Monitoring and Maintenance Activities*

1. Pipeline facilities will be operated and maintained in accordance with DOT regulations (49 CFR 192) and all other applicable federal and state regulations. Winter access is limited to designated routes shown in **Table D-1** on page D-2. Remote monitoring is encouraged to reduce snow compaction.

2. LVE will follow its manual of operation, maintenance, and emergency response procedures.

3. LVE will continuously monitor the pipeline system pressure.

4. The pipeline and ancillary facilities will be inspected regularly for pipeline integrity in accordance with DOT requirements. Any monitoring of the pipeline will follow the pipeline corridor, either on land or by air.

5. LVE will maintain records of all operation and maintenance activities.

6. Pipeline markers and signs will be inspected and maintained or replaced, as necessary, to ensure that the pipeline location is visible from the ground, as required under DOT regulations.

7. A 20-foot-wide permanent pipeline corridor, centered on the pipeline, will be maintained in an herbaceous state to facilitate periodic surveys to detect leaks and monitor corrosion, evaluate slope and soil stability, and control noxious weeds.

### Camp Creek Saddle Area

1. The monitoring program will include a minimum of three visual inspections each year. It is anticipated that these inspections will occur in early spring (after April 30), late spring, and late fall (before November 15).

2. A minimum of two strain gage sets will be installed on the pipeline. The location for the gages will be determined during construction and will be based on the as-installed location of the pipeline.

3. LVE will follow its written contingency plan for intervention that will include excavating the pipeline to free the pipe of impinging soil mass; or taking the pipeline out of service temporarily to reposition the pipe to relieve excessive strain.

## *Additional Design Criteria by Resource*

### Air

1. Control measures will be implemented in construction areas, as needed, to control fugitive dust.

### Streams and Watersheds

1. Pipeline crossings of rivers and streams will comply with COE permit terms and conditions.
2. Crossings will be constructed as close to perpendicular to the stream channel axis as engineering and routing conditions allow.
3. Crossings of streams and rivers will be accomplished by open-cutting wherever boring is not feasible or would result in greater disturbance or risk to water quality and fisheries.
4. Grading activities will not interfere with or obstruct existing natural drainages.
5. Crossings of the Hoback River will occur no closer than 50 feet away from highway bridges in an upstream direction.
6. Temporary equipment bridges will not be used. Equipment will cross the river on the adjacent highway bridges. Only equipment necessary for the actual construction in the river will be allowed into the water.
7. Equipment needed to construct the crossings will operate instream only where the width of the crossing exceeds the reach of the equipment.
8. Stream banks will be restored to preconstruction contours and stabilized as specified by the Forest Service or landowner, as appropriate, within 24 hours of completing instream construction activities.
9. Native vegetation will be maintained at 80 percent of its potential natural condition in accordance with Forest Plan guidance (Forest Plan Guideline, page 126).
10. Native vegetation will be left undisturbed outside a 20-foot-wide trench working area. Equipment staging and spoil storage for the stream crossing will be located a minimum of 25 feet away from the streambank. Where feasible, vegetation will be crushed or sheared rather than removed.
11. Native vegetation that provides greater stability because of rooting structure, such as woody nursery stock, will be planted during the revegetation of channel banks following construction.
12. Following construction, the stream channel will be returned to original width, depth, gradient, and curvature.
13. Structural bank stabilization techniques shall be used where high velocities, steep banks, soil types, or limited water availability prevents establishment of adequate vegetative cover.
14. At least 90 percent of the natural bank stability of streams that support a fishery; particularly threatened, endangered, or sensitive species; and all trout species, will be maintained. Native vegetation will be maintained to 80 percent of its potential natural condition or an HCI rating of 85 or greater (Forest Plan Guideline, page 126).

15. No concrete coating, storage of hazardous material (including chemicals, solvents, fuels and lubricating oils), or refueling of equipment will occur within 100 feet of streams and rivers, or if feasible, within 150 feet. If refueling must occur closer, appropriate steps (including adequate spill kits and secondary containment) will be taken to prevent spills and provide prompt cleanup in the event of a spill. Adequate spill response kits will be on hand at each crossing to ensure prompt and effective spill response. Hazardous materials (more than 5 gallons) will be stored on impermeable surfaces.

## Geology and Soils

1. Surface-disturbing activities will be conducted in a manner that minimizes sediment discharge into streams and wetlands.

2. Soil erosion will be minimized using short- and long-term erosion control techniques, such as surface roughening, mulching, erosion control fabric, revegetation, and installation of surface drainage systems. Sediment control shall take into account drainage density, slope position and configuration, and subsurface flow conditions. Sediment controls, such as silt fencing and rock or straw bale check dams, shall also be implemented. Slopes greater than 40 percent shall be furrowed on the contour. The higher-level erosion control designs shall be applied in all areas adjacent to streams and sensitive soils. Project site erosion shall be reduced by 50 percent in the first year and 95 percent 5 years after disturbance. Erosion control measures would be installed in accordance with LVE's Storm Water Pollution Prevention Plan (SWPPP), which must be prepared to meet the requirements of the Clean Water Act and approved by the WDEQ before construction begins.

3. Disturbed areas will be reclaimed promptly after the trench is backfilled to prevent resource damage and invasion of noxious weeds.

4. Disturbed areas will be reclaimed in a timely manner and will be monitored to achieve 70 percent cover (as compared with nearby undisturbed areas). Seed mixtures and mulches will be certified weed-free. To prevent soil erosion, non-persistent, non-native perennials or sterile perennials may be used while native perennials become established. The Forest Service must approve any seed mixtures used by cooperators or contractors prior to implementation.

5. In marginally unstable areas and landslide areas, special design considerations identified through geotechnical investigation will be incorporated, as needed, to control the risk of mass wasting and sedimentation.

6. Topsoil will be stripped and stockpiled to improve the potential for successful reclamation. Appropriate sediment and erosion control measures will be used, as needed, to protect stockpiles.

7. Topsoil will not be used as padding or backfill material and will remain protected and segregated during backfilling operations.

8. Soil compaction will be minimized by limiting the number of vehicle passes on snow or frozen or saturated soil conditions. Heavy equipment will not be used when soil conditions are wet enough to rut, displace, or bury organic material. In addition, disturbed areas shall be scarified following soil replacement and prior to reseeding. A minimum of 80 percent of the total operating area shall be left in a condition of acceptable soil productivity potential for trees and other managed vegetation following land management activities.

9. For construction dewatering, the discharge rate will be regulated and appropriate BMPs will be used to prevent erosion, streambed scour, suspension of sediment, and excessive stream flows.

10. The following general soil segregation, storage, and redistribution design criteria guidelines shall be followed:

    - Remove and replace soil as soon as practical.
    - Separately segregate, temporarily store, and redistribute the A horizon.
    - Separately segregate, temporarily store, and redistribute the B horizon, where applicable, unless directed otherwise by the Forest Service.
    - Temporary storage locations shall be outside the influence of pipeline construction activities.
    - The A and B horizons shall not be temporarily stored in or immediately adjacent to drainages.
    - Store soil in a location were full retrieval of the stored soil is feasible.
    - Store soil in a manner that minimizes depth and maximizes surface area.
    - Mulch existing vegetation into soil if possible for a source of plant seedlings and organic matter.
    - Apply surface mulch or other comparable erosion control practices to the stored soil to reduce erosion losses during pipeline construction activities.
    - Install sediment controls (e.g. silt fences, straw bales, berms, sediment traps) to prevent sediment transport to undisturbed lands, streams, rivers, and drainages.
    - Redistribute soil evenly.
    - Maximize the roughness of the soil surface.

## Vegetation

1. The incidental cutting of trees associated with pipeline installation will include the following actions, as specified by the Forest Service. Merchantable timber on National Forest System (NFS) lands within the construction corridor will be purchased by LVE from the Bridger-Teton National Forest (BTNF). Timber will be cut and disposed of as specified by the Forest Service. Provisions that allow LVE's contractor to use specific areas as landings or staging areas, lop and scatter debris that will not create excessive fuel loads, stack firewood in specified quantities and locations, or haul logs from the area when required, will be specified by the Forest Service when the timber is purchased.

## Fire and Fuels

1. LVE shall be responsible for the prevention and suppression of fires on public lands caused by its employees, contractors, or subcontractors. During conditions of extreme fire danger, project operations may be either limited or suspended in specific areas, or additional measures may be required by the Forest Service Authorized Officer.

2. Prior to initiating project implementation, LVE will file a Fire Prevention and Suppression Plan with the Forest Service that provides for the prevention and suppression of fires caused by project operations. The Plan will include a detailed list of personnel and equipment at LVE's disposal for implementing the Plan.

3. Standards and practices in the project Fire Prevention and Suppression Plan will be followed to minimize the risk of fire danger and provide for immediate response in case of fire.

## Wetland and Riparian Areas

1. Pipeline crossings of wetlands will comply with COE permit terms and conditions.

2. All wetlands crossed by the pipeline will be delineated, and wetland boundaries will be clearly marked with flagging or signage prior to construction.

3. To prevent sediment flow into wetlands, sediment barriers will be installed across the construction corridor at wetland boundaries. To contain spoil and sediment within the construction corridor through wetlands, sediment barriers will be installed as needed in the wetland along the edge of the construction corridor.

4. Saturated wetland soils will be protected from traffic impacts. Work areas will be stabilized with timber or clean prefabricated equipment mats. No rock, soil imported from outside the wetland, tree stumps, or brush will be used to stabilize work areas.

5. The wetland surface will be restored as near as practicable to pre-construction elevations.

16. No concrete coating, storage of hazardous material (including chemicals, solvents, fuels and lubricating oils), or refueling of equipment will occur within 100 feet of wetlands or riparian areas, or if feasible, within 150 feet. If refueling must occur closer, appropriate steps (including adequate spill kits and secondary containment) will be taken to prevent spills and provide prompt cleanup in the event of a spill. Adequate spill response kits will be on hand at each crossing to ensure prompt and effective spill response. Hazardous materials (more than 5 gallons) will be stored on impermeable surfaces.

## Wildlife and Fisheries

1. Project activities will be limited or prohibited during periods of use by big game and special status species (proposed, threatened, or endangered species, sensitive species, and management indicator species), as specified in the special use authorization for the project. The need for site-specific mitigation measures will be addressed in the special use authorization for the project.

2. No construction activity will occur in crucial big game winter range from November 15 through April 30 unless specifically authorized in writing.

3. No construction activity or monitoring will occur in elk calving areas from May 15 to June 30 unless specifically authorized in writing.

4. No instream construction is authorized from March 15 through July 31 to minimize impacts to spawning trout.

5. No construction activity will be allowed in Management Zones I or II of active bald eagle nest sites from February 1 through August 15. Management of bald eagles in the Snake Population Unit is directed by the Greater Yellowstone Bald Eagle Management Plan, which includes the following guidelines for management zones intended to protect eagle nests from unnecessary human disturbances during the nesting season (February 1 to August 15).

Zone I is defined as the area within 400 meters (m), or about 0.25 miles, of any active nest **(FEIS Figure 2-4)**. The following seasonal restrictions on human activities are recommended within Zone I (USFS 2001):

- Only minimal levels of human activity permitted from February 1 through August 15.
- Only light levels of human activity permitted from August 16 through January 31.
- Habitat alteration restricted to projects designed to maintain or improve bald eagle habitat (such projects restricted to September through January).
- Activity restrictions may be relaxed in some years.

Under minimal human activity levels, all activities are excluded except: existing patterns of ranching and agricultural activities, nesting surveys and banding by biologists, and river boat traffic that travels at the speed of the main current and is infrequent. Light human activity is defined as day use and low-impact activities such as boating, fishing, and hiking, but at low densities and frequencies. Activities that do not meet the light-level criteria include: heavy construction, timber harvest, seismic exploration, blasting, concentrated use at recreation centers, low-flying aircraft, and permanent housing (USFS 2001).

A large percentage of eagle activity (perching, foraging, etc.) occurs within 800 m of the nest, or about 0.5 miles. Therefore, the primary use area (Zone II) is defined as the area within 800 m of any active nest **(FEIS Figure 2-4)**. The following seasonal restrictions on human activities are recommended within Zone II (USFS 2001):

- Only light levels of human activity permitted from February 1 through August 15.
- Only moderate levels of human activity are permitted from August 16 through January 31.
- Habitat alteration should be designed to maintain components of nesting and foraging habitat.
- Developments that may increase human activity and use patterns should not be allowed.
- Avoid construction of structures that have the potential to increase mortalities.

Moderate human activity levels include those described for light use, but intensity is not limited. Activities such as construction, seismic exploration, blasting, and timber harvest should be designed to avoid disturbance (USFS 2001).

Zone III is defined as all potential foraging habitats within 4 kilometers (km), or about 2.5 miles, of any active nest. This zone is designed to provide sufficient foraging habitat and maintain habitat integrity of Zones I and II. **FEIS Figure 2-4** shows the 4 km buffer, but does not specifically delineate foraging habitat. The following seasonal restrictions on human activities are recommended within this 4 km buffer (USFS 2001):

- Only moderate levels of human activity permitted year-round.
- Habitat alterations should be designed to maintain components of nesting and foraging habitat.
- Permanent developments that are suitable for human habitation should be avoided.
- Developments that may increase human activity levels and use patterns should be carefully designed.
- Limit potential for collisions with utility lines.
- Avoid pesticide use within the home range.

6. If active peregrine falcon eyries or hack sites are discovered, no construction activity will occur within 0.5 miles of active peregrine falcon eyries from March 1 through July 31 or within 0.5 miles of hack sites from July 1 through September 15.

7. If important greater sage grouse breeding habitat (leks, nesting, or brood rearing habitat) is discovered, no project-related disturbance to habitat will occur between March 1 and June 30.

8. If effects on any management indicator species (MIS) or migratory birds, nests, or eggs are observed during construction activities, the Forest Service will be notified and specific mitigation measures directed at that species will be implemented under direction of the Forest Service.

9. If nesting migratory birds are identified during construction activities, the timing of project activities in that area will avoid the nesting period, which varies by species but is generally from March to June.

10. No construction activity will occur in State of Wyoming wildlife habitat management areas (WHMAs) from November 15 through April 30.

11. Aerial pipeline monitoring will maintain a 0.5-mile horizontal and vertical line of sight no-fly buffer around all known active bald eagle nest sites to provide spatial separation between helicopter noise and nesting eagles during the critical nesting period.

12. Aerial pipeline patrols in the vicinity of elk feedgrounds and WHMAs will avoid flying directly over wintering big game and will consist of one overflight above the pipeline every 2 weeks to satisfy DOT regulations for pipeline monitoring.

13. LVE is encouraged to coordinate all monitoring activities in the vicinity of WHMAs with the feedground supervisor at least five working days in advance of the anticipated inspection, and provide the WGFD with the opportunity to accompany inspectors during the elk feeding period.

14. Activities will be strictly controlled or prohibited within bald eagle nest site management zones (Zones 1, 2, or 3, as described below) during the nesting season from February 1 through August 15.

## Heritage Resources

1. Heritage staff will designate protection zones around significant heritage resources within the construction corridor, TWAs, and gas processing facility site. All areas identified will require protection and avoidance using a physical boundary.

2. Construction, reclamation, and maintenance will conform to any required mitigation measures contained in the archaeological clearances or special use authorization for the project.

3. Any areas within the pipeline corridor requiring heritage resource monitoring during construction activities will be identified in consultation with the Forest Service or other authorizing agency. Within these designated areas, an archaeologist will be present and monitor all surface disturbing and excavation activities to ensure that there are no adverse impacts to known cultural resources and to assess any unanticipated discoveries. The archaeologist will be a cultural resource specialist authorized by the Forest Service or a qualified archaeologist under the supervision of that cultural resource specialist. The archaeologist will be informed of the anticipated schedule and actual progress of construction in the vicinity these designated monitoring areas, and will be notified at least 48 hours prior to commencement of construction in designated areas. No surface disturbance or excavation will take place in these areas unless the archaeologist is present. The archaeologist will inspect the excavated pipeline trench in these designated areas for evidence of buried cultural materials. If cultural materials or features are visible in the pipeline trench wall, construction will be stopped in the vicinity of the discovery. These materials will be documented.

If these cultural materials do not include human remains, construction will be allowed to continue after the materials have been documented. If there are human remains, applicable procedures will be followed. Forest Service guidance, including prompt notification of the authorized agency contact, will be followed at all times for unanticipated discoveries on NFS lands.

## Recreation

1. Implementation of construction activities will include measures to minimize impacts to recreationists.

2. Signs will be posted to keep recreationists out of construction work areas when project activities are occurring.

3. Recreationists using the Hoback River for boating or other activities during instream construction would be warned of the need to avoid crossing areas. Safe upstream take-out areas and downstream put-in areas would be identified.

## Designated Wilderness

1. No pipeline construction activities are planned within or immediately adjacent to the Gros Ventre Wilderness, a designated wilderness. A boundary survey of the Gros Ventre Wilderness is not planned, but would be accomplished immediately upon request of the Forest Service.

## Scenic Resources

1. River segments and a corridor at least ¼ mile wide on either side that have been determined to be eligible for inclusion in the Wild and Scenic River system will be managed to protect or enhance their outstanding values.

2. For areas adjacent to the scenic byway and within the foreground of potential Wild and Scenic Rivers, VQOs of Retention in the foreground and Retention to Partial Retention in the middle ground will be met.

3. Resource protection measures proposed for erosion control, vegetation, and wildlife will be used to mitigate impacts to visual quality.

4. Exposed soils resulting from clearing and grading activities can create strong color, form, and line contrasts. These contrasts can be reduced by re-establishing vegetation on the exposed soil. Re-establishment of vegetation in the reclaimed construction corridor will restore the landscape to a natural appearance.

5. Where possible, the visual contrast of construction corridor clearing on the landscape, particularly in middle to background distance zones as viewed from sensitive viewpoints, will be reduced by creating irregular or indistinct edges.

6. Woody debris from construction activities will be removed to the extent practicable because it creates undesirable textural contrasts with the landscape. Debris left in foreground distance zones of viewing areas, such as recreational sites and trails, will be removed as soon as is practicable. Forest Plan guidance regarding coarse woody debris will be met.

7. Paint and vegetative screening will be used, where appropriate, to limit the visual impact of block

valve locations. Only herbaceous species will be used for screening within the 20-foot-wide pipeline maintenance corridor.

## Monitoring

Monitoring will be conducted on a regular basis during project implementation to ensure that design criteria are followed and are adequate. The following monitoring requirements will apply to the proposed project and will support the design criteria listed in the preceding section.

1. Monitoring will be conducted to verify compliance with design criteria on a regular basis during construction and reclamation of the project.

2. Monitoring will be conducted to verify that staging areas are not located in riparian areas.

3. For 5 years after completion of project-related construction activities, or longer as specified by the Forest Service, LVE will be responsible for the monitoring and treatment of new infestations of noxious weeds along the pipeline construction corridor and at the gas processing facility site in accordance with federal, state, and county requirements. Any treatments of noxious weeds will be documented at the time of the treatment. The effectiveness of measures designed to control noxious weeds and invasive species in the vicinity of the pipeline corridor will be monitored on an annual basis for a minimum of five years following pipeline installation.

4. Stream health will be monitored at locations specified by the Forest Service, using methods approved by the agency. Frequency and duration of stream health monitoring will be specified by the Forest Service, based on the changed conditions following pipeline installation. On an annual basis, the Forest Service will determine whether stream health recovery following pipeline installation is acceptable or identify actions to be taken to restore stream reach(es) affected by pipeline installation.

5. The construction corridor and TWAs will be monitored to determine whether excessive or detrimental soil compaction is occurring and determine whether these areas should be ripped to a depth of 12 to 18 inches after use.

6. An archaeologist will monitor all construction activities on Holocene and Pleistocene terrace settings near creeks, and in the vicinity of all recorded historic properties.

7. Field monitoring during project implementation will ensure that mechanical equipment can be walked across the Camp Creek Saddle area with no adverse effect on slope stability.

8. Monitoring will be conducted to verify that concrete coating, storage of hazardous material (including chemicals, fuels and lubricating oils), or refueling of equipment does not occur within 100 feet of streams, rivers, wetlands, or riparian areas, or within 150 feet if feasible. If refueling must occur closer, monitoring will be conducted to verify that appropriate mitigation measures are in place to prevent spills and provide prompt cleanup in the event of a spill.

9. Monitoring of erosion control measures and reclamation performance in the pipeline corridor and temporary work areas will occur on a regular basis throughout construction and for 3 years following project completion, or longer, as needed. The effectiveness of recontouring and revegetation measures will be monitored on a regular basis during reclamation activities and until disturbed areas are successfully reclaimed. Disturbed areas will be monitored to ensure achievement of 70 percent cover (as compared with nearby undisturbed areas). Wetland coverage will be at least 90 percent within 3 years unless a valid reason can be determined for not

achieving this value.

The following activities would be included.

- Monitor erosion and sediment delivery in treated areas to evaluate the effectiveness of BMPs. The effectiveness of measures designed to control overland or subsurface water flow, erosion, and sedimentation in the vicinity of the pipeline trench will be monitored on a weekly basis during construction activities.
- Monitor the success of reclamation activities on disturbed areas within 6 months after activities have concluded, and then again after the first growing season following completion of reclamation.
- Monitor erosion control measures 1 and 3 years following installation. Unsuccessful sites shall be re-evaluated for the need to replace or improve erosion control measures.
- Monitor the condition of reclaimed areas for evidence of soil erosion and transport to stream channels and wetlands. If resource damage is apparent, consider more effective measures.

10. Monitoring will be conducted to ensure that stream channels are returned to original width, depth, gradient, and curvature. Monitoring of streambank restoration in the pipeline corridor and temporary work areas would occur for 3 years following project completion, or longer as specified by the Forest Service. The following activities would be included.

    - Monitor affected streambanks for stability, especially during high flows.
    - Monitor the streambeds at crossings for the effectiveness of pipeline burial.
    - Monitor the condition of restored streambanks for evidence of soil erosion and transport to stream channels. If resource damage is apparent, consider more effective measures.

11. Construction of wetland and stream crossings will be monitored to ensure that construction procedures are in compliance with the COE permit terms and conditions, the Forest Plan, ROD, and Executive Order 11990 for wetlands. The effectiveness of measures designed to reduce the effects of pipeline installation in the vicinity of drainage crossings will be monitored on a weekly basis during construction activities.

12. The effectiveness of wetlands mitigation plans and measures designed to maintain or restore wetland hydrology and function in the vicinity of the pipeline trench will be monitored on a weekly basis during construction activities, and as needed, following reclamation. Monitoring of the success of trench breakers and bottom seals to maintain wetland hydrology will be included.