APPENDIX B

DRAFT

TRANSPORTATION PLAN
FOR
PINEDALE ANTICLINE
OIL AND GAS EXPLORATION AND DEVELOPMENT PROJECT

Prepared by

U.S. Bureau of Land Management
Pinedale Field Office
Pinedale, Wyoming
and
Rock Springs Field Office
Rock Springs, Wyoming

November 1999

TABLE OF CONTENTS

LIST OF MAPS

LIST OF TABLES

ATTACHMENTS

B-1.0 INTRODUCTION

B-1.1 Purpose - This Transportation Plan (TP) supplements a proposal by the Pinedale Anticline oil and gas companies (Operators) to drill new wells in the Pinedale Anticline Project Area (PAPA) (Figures 1-1 and 3-3 of the DEIS), as described in the *Pinedale Anticline Oil and Gas Exploration and Development Project Draft Environmental Impact Statement* (DEIS). The Operators will utilize an extensive road network in the project area, much of which is shared with other road users. Planned expansion of operations, when implemented, would result in the need for additional road and pipeline construction. This document provides an assessment of existing and future road and pipeline development, use and resource management objectives in and around the PAPA; and provides a basis for future oil- and gas-related exploration, development, and production transportation planning within the area. Potential impacts to the existing transportation system are described in the DEIS.

Additional information on road development requirements for this project would be provided in a Transportation Technical Support Document (TTSD) which would be prepared following the release of the Pinedale Anticline EIS Record of Decision (ROD) for this project. Incremental maintenance of the TTSD is an integral part of the TP process. Annual road planning, development, maintenance, and other issues and concerns will be incorporated into the TTSD, as would detailed information (including maps) on existing roads/routes and natural obstacles. The TTSD and associated maps would be updated annually or as necessary as specified in Section B-4 and B-5.

The transportation planning area (TPA) for this project includes the PAPA plus adjacent areas that include roads which may be used to access the PAPA (Map B-1.1). The TPA includes U.S. Highway 191, State Highway 351, and several county, BLM, and undeveloped roads/routes within and adjacent to the area. (More detailed transportation planning maps of the TPA are available for review at the BLM PFO.)

The use of existing roads and proposed road corridors for *collector* and *local* roads are described, in this document, and applicable transportation standards would be used in the localized planning efforts for each new well location and associated access. Annual or incremental operational updates to the TTSD would be made, as necessary, to detail specific localized transportation networks. All new or upgraded roads in the TPA would conform to the general provisions of this planning document.

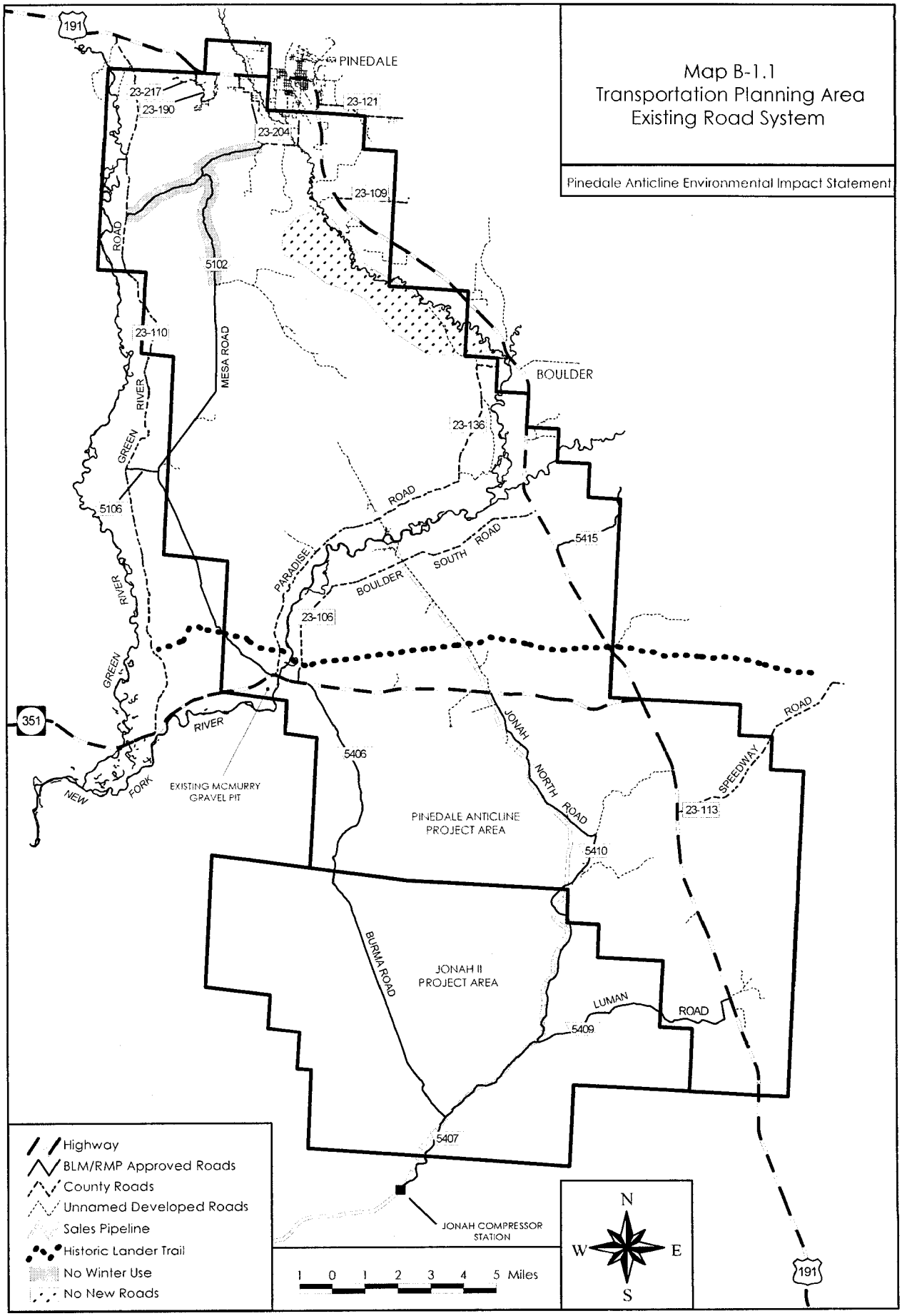
This TP includes discussion of the following:

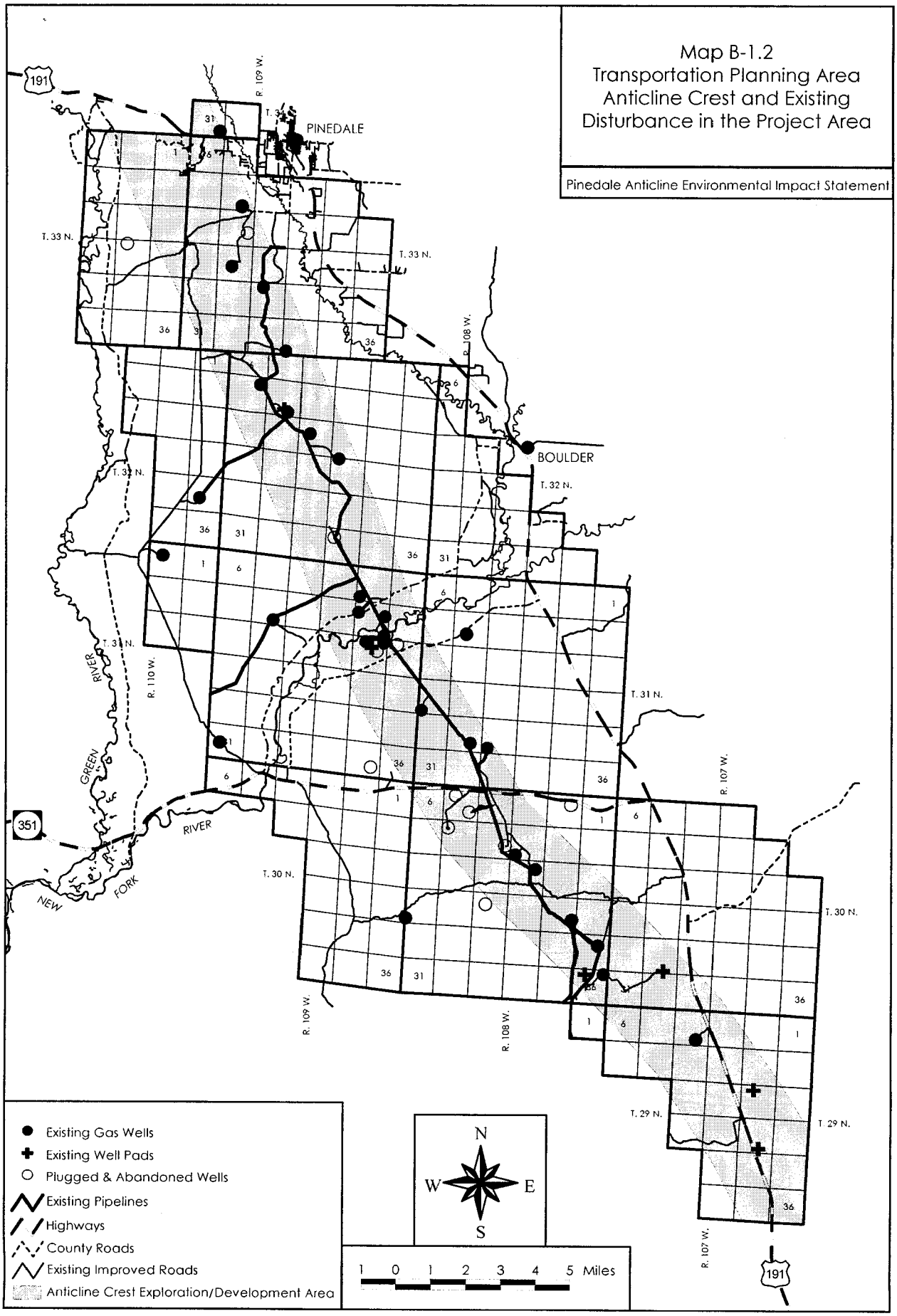
- The TP Process
- Public comment opportunities and the issues/concerns raised during scoping and public workshops.
- Existing roads in the TPA which are preliminarily identified as potential project-required *collector* and *local* roads. These are identified on maps, and resource, two-track, and other unimproved roads are also briefly discussed.
- Existing gathering and trunk pipelines in the TPA are identified and located on maps. The general alignment assumptions of new pipelines is indicated.
- The annual transportation planning/operational update process for the TTSD is described, and this description includes scheduling, roles and responsibilities, and opportunities for continued public input.

B-1.2 Scope - The scope of this plan includes a brief description/presentation of the transportation planning process, assumptions, guidelines, road network (see Map B-1.1), and the identification of proposed high and low traffic volume roads/corridors. Relevant requirements for road construction or reconstruction and the development of agreements for use, rights-of-ways (ROWs), and maintenance will be addressed, identified and outlined in the TTSD following the release of the EIS ROD.

This plan also applies to the transportation of gas, condensate, or water via pipelines and possible electric power transmission (buried power lines) within the PAPA. Pipelines and buried power lines generally would be located adjacent to roads to reduce new surface disturbance. In some instances paralleling roads and lines may lead to increased environmental impacts, in which case pipelines and power lines may be located along alternative routes, and these alternative routes would be evaluated and sited to minimize environmental impacts. Figure 2-9 of the DEIS shows the location of the sales pipeline route and Figure 3-2 shows the existing gathering pipelines within the PAPA. Further detail on proposed pipelines is provided in Section 2.5.6 and 2.5.7 of the DEIS.

Existing roads to and within the PAPA are under the jurisdiction of several agencies (e.g., BLM, state, Sublette County) which approve designs and oversee required maintenance. The use of private roads in the PAPA would require an easement between operators and private landowners and may or may not include maintenance requirements or agreements. Map B-1.1of this TP illustrates the general location of roads in the area. Oil and gas field roads may be under the jurisdiction of government agencies; however, maintenance of these roads would be conducted by the Operators. Maintenance responsibilities would be discussed in detail in the TTSD for this project. Operators would provide the BLM and Sublette County officials with copies of road maintenance agreements that include the name of the Operators' designated contact person. Non-oil-and-gas roads would be maintained as appropriate by the BLM or other ROW holder.


Map B-1.1
Transportation Planning Area
Existing Road System
Pinedale Anticline Environmental Impact Statement
191
PINEDALE
23-217
23-190
23-204
23-121
23-109
ROAD
5102
23-110
MESA ROAD
BOULDER
RIVER
GREEN
23-136
ROAD
5106
SOUTH
ROAD
5415
PARADISE
BOULDER
RIVER
23-106
GREEN
351
RIVER
JONAH
NORTH
ROAD
ROAD
SPEEDWAY
5406
NEW
FORK
EXISTING MCMURRY
GRAVEL PIT
PINEDALE ANTICLINE
PROJECT AREA
23-113
5410
BURMA ROAD
JONAH II
PROJECT AREA
LUMAN
ROAD
5409
5407
JONAH COMPRESSOR
STATION
Highway
BLM/RMP Approved Roads
County Roads
Unnamed Developed Roads
Sales Pipeline
Historic Lander Trail
No Winter Use
No New Roads
1 0 1 2 3 4 5 Miles
N
W
E
S
191


Map B-1.2
Transportation Planning Area
Anticline Crest and Existing
Disturbance in the Project Area
Pinedale Anticline Environmental Impact Statement
191
PINEDALE
BOULDER
351
GREEN RIVER
NEW FORK RIVER
T. 33 N.
T. 32 N.
T. 31 N.
T. 30 N.
T. 29 N.
R. 109 W.
R. 108 W.
R. 107 W.
R. 110 W.
Existing Gas Wells
Existing Well Pads
Plugged & Abandoned Wells
Existing Pipelines
Highways
County Roads
Existing Improved Roads
Anticline Crest Exploration/Development Area
N
W
E
S
1 0 1 2 3 4 5 Miles

B-2.0 TRANSPORTATION PLANNING

B-2.1 Plan Process/Content - This section of the Transportation Plan describes the process by which route planning, location, design, construction, quality control, maintenance and road abandonment would be accomplished during expansion of operations within the project area. Other information relating to engineering design such as soils, drainage, grades, problem areas on existing or proposed roads, anticipated traffic volume and vehicle weights, the need for gravel or other treatment to stabilize road surfaces, and coordination required to meet county/state requirements would be addressed on a case-by-case basis for each road during the annual review process.

This Plan also serves as a design document for the gas pipelines routes within the PAPA. In the future, if condensate and water pipelines or electric power transmission (power lines) are needed, this Plan would assist in their development in the project area. Pipelines generally would be located adjacent to roads to reduce new surface disturbance. However, in some instances paralleling roads and pipelines may lead to increased environmental impacts, in which case pipelines would be located along alternative routes, and these routes would be evaluated and sited to minimize environmental impact.

To facilitate the planning process, a Transportation Planning Committee (TPC) would be established. The TCP would be composed of representatives from the BLM, operators, Sublette County Road and Bridge Department, Wyoming Department of Transportation, Wyoming Game and Fish Department, landowners, grazing permittees, and other interested groups or individuals. The TCP would be responsible for annual plan review to identify issues and concerns such as those raised during scoping. This committee or a subcommittee would be established to resolve site-specific issues that are identified during the review (e.g., operational/compliance issues, individual road maintenance, and construction problems). See Section 6.0 for details on the formation and operation of the TCP.

Transportation planning involves a number of different steps or actions. These include identification of road needs, resource and other issues, road limitations, design and route location, construction and quality control, maintenance needs, road density management, and other associated actions. This section of the TP discusses these important steps.

B-2.2 Road Classification - Four BLM functional classifications for roads are associated with well field development - Arterioles, Collectors, Local, and Resource. The definition of each is as follows:

Arterial Roads - These are State Highways or County roads that provide primary access to the project area. These roads are high traffic volume roads.

Collector Roads - These are BLM roads that provide primary access to large blocks of land, and connect with or are extensions of a public road system. In the PAPA these are two-lane roads that connect to the internal local road access network. Collector roads accommodate mixed traffic and serve many uses. They receive the highest traffic volume of all the roads in the BLM road system. User cost, safety, comfort, and travel time are primary road management considerations. Collector roads usually require application of the highest standards used by the BLM.

Local Roads - These are BLM roads that normally serve a smaller area than collectors, and connect to collectors or public road systems. In the PAPA these are two-lane or single lane roads with inter-visible turnouts that provide the internal access network to multiple well locations within the natural gas field. Local roads receive lower volumes of traffic, carry fewer traffic types, and generally serve fewer uses. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations. Low volume local roads in mountainous terrain, where operating speed is reduced by terrain, may be single lane roads with turnouts. Environmental impacts are reduced through steeper grades, sharper curves, and lower design speeds.

Resource Roads - These BLM roads are normally spur roads that provide point access and connect to local or collector roads. In the PAPA these are the single lane roads to the individual well location. They carry very low volume traffic and accommodate only one or two types of use. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. The location and design of these roads are governed

by environmental compatibility and minimizing BLM costs, with minimal consideration for user cost, comfort, or travel time.

B-2.3 Development Needs/Issues - The overall development needs of the Operators within the project area and the transportation issues raised (listed in Attachments I and II of this TP for the Anticline project) during scoping relating to the proposed action are addressed in the project EIS (Chapters 2, 3, and 4). The EIS chapters address impacts associated with the major arterial routes (state and county routes) which would be used to reach the project area and describe some BLM administered Collector and Local roads which would be used within the project area. An estimate of traffic associated with the development of the project is also provided (see Section B-5.0 of this TP).

A general "Existing and Proposed Road System" map (Map B-1.1) displays existing and new main routes (state, county and BLM administered roads) presently used for access in or near the project area. These, as well as other existing and new field roads needed for field development, would be studied by the operators to determine which routes should be designated as Collector, Local and Resource routes to form a useable transportation system for access to and development of the project area. Transportation Plan Maps (Maps B-5.1 and 5.2) show existing and new routes of access proposed to be used to enter into and access points within the project area. The supplemental narratives address projected traffic for each route and, ultimately for the TTSD, realignment and reconstruction necessary for safety or environmental reasons, and planned new road construction.

B-2.4 Annual Road Plan - To accommodate the uncertainty regarding proposed well locations and associated well productivity, future transportation routes within the PAPA would be developed incrementally as wells are developed in conjunction with the operators' annual drilling programs. An annual transportation update, prepared by the operators' and submitted to the BLM, would address road requirements within the PAPA for the coming field season. Annual road planning would begin in 2000, and annual updates would be available in January each year thereafter until the project is completed or until the transportation system is so well established that further annual planning is not needed.

The annual transportation update would show which roads have been constructed, existing collector and local routes to be improved, and new roads to be constructed in the specific areas of the PAPA where operations are planned for the coming year. Roads scheduled for abandonment within the project area would also be shown on the plan. Changes in access routes (both proposed and existing) necessitated by terrain, environmental factors and for other reasons, would also be identified in the annual transportation update.

B-2.5 Project Plans - Each specific development plan would include one or more USGS quadrangles as appropriate to display the operators' planned road construction program for the area(s) where development is occurring. It would show existing and planned roads by functional classification within each quadrangle and would be prepared as needed while the company drilling program is being implemented. When an APD (Application for Permit to Drill), NOS (Notice of Staking) or application for a right-of-way is submitted, a copy of the plans would be included to show other wells and access roads proposed in the area. Plans for one or more roads or pipelines may be submitted as part of the NOS, APD or right-of-way application.

B-2.6 Access Road Limitations - The construction of safe and environmentally acceptable roads is a primary objective and operator priority within the project area. The operators should make every effort to provide for the safe and environmentally sound location, survey, design and construction of roads on public lands within the PAPA. Company personnel, the BLM and the county, with the involvement of registered engineers and land surveyors, would ensure that all plans and construction meet safety and environmental requirements.

The condition (e.g., road design, upgrading requirements) and maintenance status (e.g., plowed) of existing roads and casual use routes (e.g., two-tracks) in the TPA will be generally identified on maps and incorporated into the TTSD which would be maintained and made available for review at the BLM Pinedale Field Office (PFO). Existing collector roads into parts of the PAPA have been upgraded to meet minimum road standards. Some existing roads may not be passable during inclement weather or during winter months. All additional roads developed and required for this project would need upgrading, and maintenance, and may require winter snow removal. Some roads will

remain closed once snow accumulations close them. Specific road upgrading, snow removal, and maintenance responsibilities would be identified in annual operational updates to the TTSD.

Some existing two-track or other roads within the TPA that cross private lands may not have public access agreements in place. Except those identified as state or county roads, access may require agreements with private landowners.

The transportation network described in this document focuses on *collector* and *local* roads and potential road corridors; however, existing and anticipated low traffic volume *resource* roads and unimproved roads would be identified annually on detailed maps which would be available for review with the TTSD at the BLM PFO.

B-2.7 Design and Route Location - Before routes are selected and road plans are prepared, the operator(s) personnel and their surveying/engineering consultants would review the plans and any available resource and land use data from BLM, the TPC, or other sources specific to the project area. A joint BLM (engineer, resource specialist), operator, TPC, and consultant field review would then be and conducted. Depending upon the complexity of a single road, the joint review team would determine the most feasible access route(s) based on the resource conflicts, soils, drainage considerations, and the terrain and engineering standards for the type of route planned. During the field review, the degree and scope of engineering and construction control required would be specifically defined.

New Roads. A "New road" is a road that is to be constructed where no "crowned and ditched" road has previously been built, except in the case where one may have been built and later obliterated or rehabilitated. To minimize road densities within the PAPA, new roads would be designed to follow existing "two-tracks" or "seismic trails", where technically feasible and engineeringly correct. Roads which are constructed on existing "two-tracks" or "seismic trails" would be considered "new" roads.

Location, design and construction of all new roads in the PAPA would be to the standards derived from BLM Manual 9113. The operators would use the road standards shown in Table B-1.1 unless conditions dictate otherwise.

Existing Roads. A road referred to in this Transportation Plan as an "existing" road is one which has previously been constructed to a standard which required a crowned traveled way and borrow and drainage ditches (except for some roads in the project area which were built without ditches, but met BLM requirements at the time they were constructed). "Seismic Trails" and existing "two-track trails" are not considered existing roads.

Existing roads which are classified as *resource* roads would not normally be upgraded or reconstructed unless it is determined they were not constructed as directed by the BLM at the time they were built.

Existing roads which are identified as being part of a *local* or *collector* route would be reconstructed or upgraded (improved) as necessary to meet the current standards for the appropriate functional classification.

Route Location. During the joint field review, routes would be selected that avoid unnecessary resource conflicts whenever possible. For example, routes would avoid steep slopes and the Mesa "breaks" (crucial deer winter habitat) or other areas where there would be adverse effects to threatened, endangered and other plant and animal species of interest. Proper road alignment would minimize earthwork and balance cut and fills to minimize disturbance, erosion and potential visual impacts.

Particular attention would be given to meeting or exceeding the minimum vertical and horizontal sight distances required during road routing. Surveyors would select horizontal curves to ensure that the minimum radius requirements for the planned design speed are met or exceeded.

Geometric combinations of vertical and/or horizontal curves (such as reverse horizontal curves, broken back curves and horizontal curves superimposed over vertical curves), which create dangerous situations for road users, would be avoided (BLM Manual 9113). When the terrain is such that these combinations cannot be completely eliminated, signs to warn motorists or other mitigation measures would be incorporated into the road plans.

The centerline and locations of structures would be staked, color coded and clearly marked for all new roads, including those designed and constructed on steep, broken or mountainous terrain.

Table B-1.1. Road Standards For The Pinedale Anticline Project Area

	FUNCTIONAL CLASSIFICATION		
DESIGN ELEMENT	**Resource Road**	**Local Road**	**Collector Road**
Design Speed	20 mph (max.)	30 mph	40 mph
Width (traveled way)	14 ft.*	20 ft. (min.)	24 ft. (min.)
Width (subgrade)	18 ft.	24 ft. (min.)	28 ft. (min.)
Minimum Hor. Curve Rad.	220 ft.	460 ft.	820 ft.
Maximum Grade	8 percent	8 percent	8 percent
Minimum Grade	0.5 percent	0.5 percent	0.5 percent
Minimum Stopping Sight Distance	135 ft.	225 ft.	325 ft.
Minimum Intersection Sight Distance	200 ft.	300 ft.	400 ft.
Minimum R/W Width Needed (construction on steep slopes will increase the R/W width needed)	40 ft.	55 ft.	60 ft.
Design Structural Loading	H-20	H-20	H-2

*With turnouts

Construction staking would be done for roads or segments of roads where the BLM or engineer/surveyor determines that slope staking for the control of construction is necessary because of terrain, grade and earth work conditions and/or special construction needs (structures and other features).

Development Plans. All new roads and appurtenances (such as culverts, cattle guards, fences, etc.) would be constructed to the dimensions, slopes and details shown on the attached templates (Attachment III), unless agreed otherwise because of conditions or circumstances.

Surfacing specifications and depths shown on the attached templates may be adjusted because of local soil conditions, or graveling of roads may be waived (with BLM agreement) in instances where gravel is not considered necessary. Dust abatement mitigation with soil treatment additives would be considered on a case-by-case basis and at the annual review.

Plans for all roads would show the horizontal and vertical alignment of the road and the locations of culverts and other features. Typical sections showing the road template, culvert installations, and other features would also be attached. Cross-sections of the roadway and other drawings for special design features would be included as needed.

Designs submitted by a registered civil engineer will bear the stamp and signature of the engineer when submitted to the BLM for review.

Plats and plans prepared by a registered land surveyor (these will require the participation of a BLM engineer during the route selection phase) would bear the stamp and signature of the land surveyor, and a statement that the alignment, grade and other features shown on the plans accurately depict the field conditions surveyed including the

route and features as actually staked in the field. Roads designed by a registered engineer and surveyed by a registered land surveyor would bear the stamp and signature of the engineer, and also the stamp and signature of the surveyor when necessary.

B-2.8 Construction/Quality Control - To meet the objectives of resource enhancement and protection, and conform with the Pinedale RMP, monitoring will be accomplished by BLM and/or required of operators/companies (oil and gas, right-of-way applicants, etc.). Monitoring is a requirement provided for in the Code of Federal Regulations (40 CFR 1505.2(c) and 1503.3). The regulation, in its requirements relative to NEPA and Agency decision making, states "...A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation" (1505.2(c)).

The BLM, in cooperation with the operators/companies, will conduct extensive monitoring inspections of construction, drilling, and rehabilitation operations, through a compliance officer and/or interdisciplinary team, to ensure acceptable attainment of objectives. The monitoring inspections will be based upon the standards listed in the DEIS Appendix A (Standard Practices Applied To Surface Disturbing Activities) as well as the BLM Road Standards (BLM Manual 9113).

All roads constructed or reconstructed within the project area would be built to the approved plans, and would comply with all other applicable requirements and stipulations. The construction would be monitored by the operator's and/or company representatives, their consultants, contractor, or an independent construction inspector as required.

Any changes which may become necessary during construction would be jointly agreed to by the BLM, the design engineer, affected private landowners, and company representative before construction commences. The agreed to changes and the reasons why they are necessary would be documented in writing with copies distributed to all parties.

Within five days after completion of construction of each road, it would be inspected by the operator and/or company personnel, the contractor who performed the construction, and the BLM (at their option). This inspection would be documented on a "Post Construction Inspection Record" form (see Attachment III) and signed by those performing the inspection. Any work which does not comply with the approved plans would be immediately corrected by the contractor.

A registered civil engineer's certification that the construction was completed according to the approved road plans would generally be furnished for those roads that were designed by a registered professional engineer.

B-2.9 Maintenance - Road maintenance would be conducted as required by right-of-way grants and other permits. As a continuing monitoring effort, all existing access roads will be continually evaluated to determine if they are: 1) still necessary, 2) safe, and 3) whether they have erosion problems. The roads will be reclaimed or maintained as is appropriate. It will be the responsibility of the authorized users to conduct preventative and corrective road maintenance, throughout the life of their operations, on the roads permitted for their use. Joint use maintenance agreements among operators within the project area would be developed as necessary and appropriate and remain in effect for the life of the project. If needed, changes in the agreements may be negotiated at the option of the involved parties.

B-2.10 Road Density Management - Road abandonment and rehabilitation would be performed as required by the BLM in cases where roads are determined to no longer be needed. Roads slated for abandonment would be identified during the annual transportation update. Roads that are determined by the BLM, through the TPC, to be of substantial value for access to other resources, for administrative access or for county access needs, would be identified for placement on the BLM or county road system. These roads would be identified during the annual transportation update with their appropriate new designation as soon as it is known.

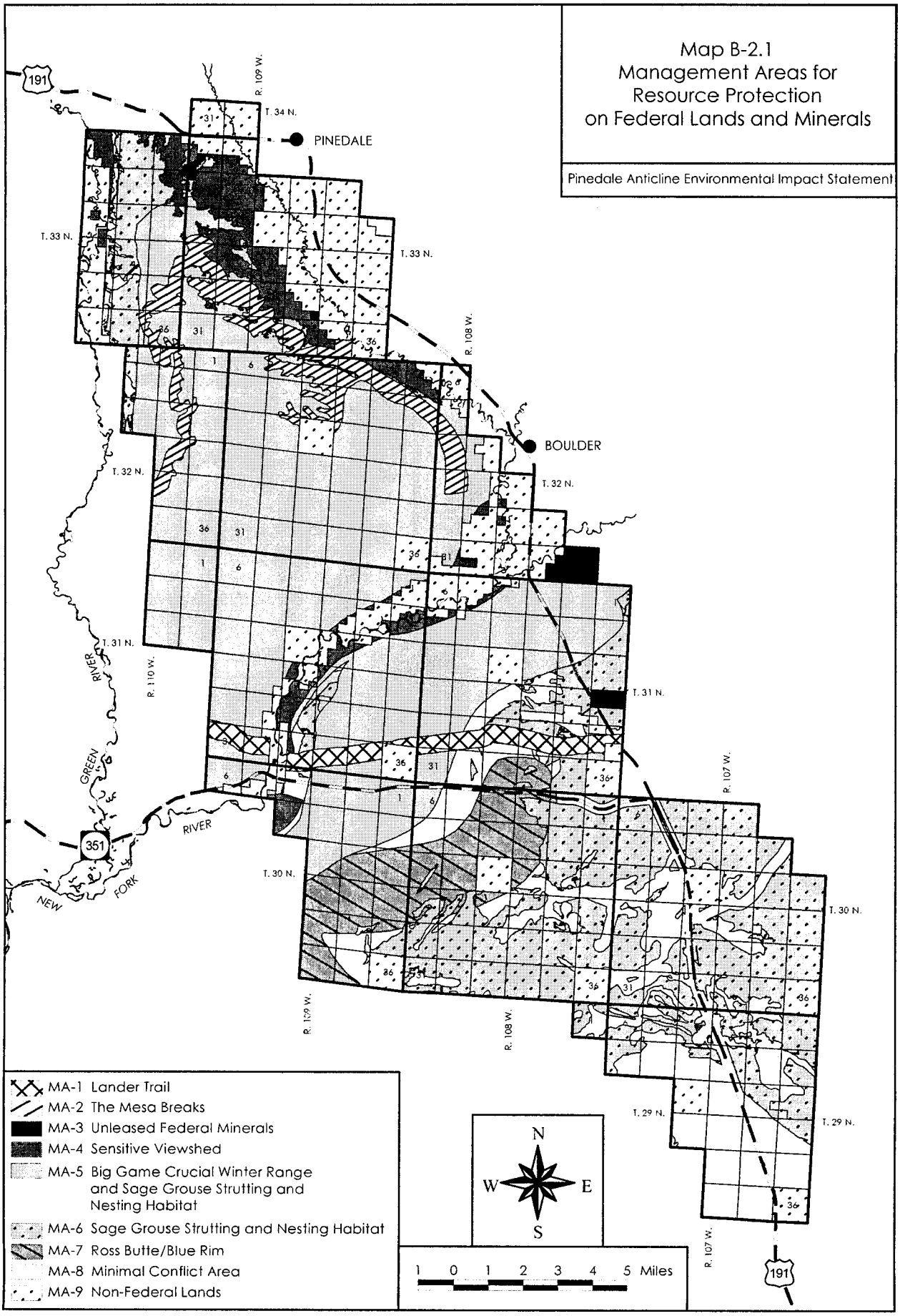
B-3.0 MANAGEMENT AREAS FOR RESOURCE PROTECTION ON FEDERAL LANDS AND MINERALS

The PAPA has been divided into management areas (MAs) (Map B-2.1) based upon sensitive resource management zones identified in Chapter 3 of the DEIS. Transportation planning will require that careful consideration be given the MA objectives identified below in road location, construction and use.

Management Area Number	Name of Management Area and Principal Resource Management Concerns
MA-1	**Historic Lander Trail** - Preservation of the historic trail. No well pads allowed within 1/4-mile of the trail on federal lands. Roads and pipelines may cross where existing disturbances exist. Management objective includes maintenance of the integrity of the TRAIL viewshed within 3-miles of the trail; maintain livestock grazing and trailing operations.
MA-2	**The Mesa Breaks** - Management objective is to maintain the existing high quality and suitability of this deer crucial winter range; protect this area against surface disturbance and increased human activities which would cause deer to leave crucial winter range resulting in mortalities and reduced population levels; roads and pipelines should avoid this area; avoid disturbance on steep slopes and sensitive soils to prevent erosion and visual intrusions; retain existing character of the landscape and sensitive viewshed; protect cultural/Native American respected sites; provide for the development of recreation use such as a bike trail; maintain livestock grazing and trailing operations.
MA-3	**Sensitive Viewshed** - This area includes the "face of the Mesa" and an area of visual resource management Class II. Management objective is to protect this sensitive viewshed by retaining the existing character of the landscape; management activities may be seen but should not attract the attention of the casual observer; roads and pipelines should avoid the "face of the Mesa"; avoid steep slopes and sensitive soils to prevent erosion and visual intrusion; maintain crucial deer winter range; protect cultural/Native American respected sites; provide for the development of recreation use such as a bike, jogging, and/or hiking trail; protect wetland/riparian areas; protect raptor nesting; maintain livestock grazing and trailing operations.
MA-4	**Crucial Winter Range/Strutting and Nesting Habitat** - This area includes the top of the Mesa and slopes west to the Green River and south/southeast to the New Fork River including an area of deer and antelope CWR south of the New Fork and East Fork Rivers. Management objective is to protect this area against excessive surface disturbance and increased human activities which would cause deer and antelope to leave crucial winter range and sage grouse to leave crucial strutting and nesting habitat resulting in mortalities and reduced population levels; protect cultural/Native American respected sites; and maintain livestock grazing and trailing operations. This area also includes a zone on each side of the New Fork and Green Rivers (MA-5) which is classified as visual resource management Class-III. The management objective is to partially retain the existing character of the landscape, i.e., measures should be taken to screen activities and facilities so they do not dominate the view of the casual observer.
MA-5	**Wetland/Riparian Habitat** - This area includes the lands located on either side of the New Fork River, Green River, and East Fork River. Management objective is to maintain, improve, or restore riparian values to provide enhanced forage, habitat, and stream quality; avoid disturbance to scrub shrub or forested wetland types; cooperate with private landowners to avoid impacts to area residences; provide protection for concentrations of nesting raptors; maintain livestock grazing and trailing operations.
MA-6	**Ross Butte/Blue Rim** - This is an area of highly erodible soils and shale beds of Wasatch Formation where erosion has created a badland topography with potential for exposed fossils. This landscape

is known to provide a concentration area for raptor nesting and habitat for several State sensitive plant species. Management objective is to avoid disturbance to the fossil-bearing, sensitive, highly erodible soils; to maintain soil stability and productivity; protect and maintain existing raptor nesting habitat; protect sensitive plant species; protect paleontological fossil resources; maintain livestock grazing and trailing operations.

MA-7 **Minimal Conflict Area** - This area includes parts of the project area located north and south of Highway 351, and east and west of Highway 191. Management objective is to provide for antelope summer range and migration; sage grouse strutting and nesting; protection of the Lander trail viewshed; sensitive soils; and maintain livestock grazing and trailing operations. This area also includes an area on each side of Highway 191 which is classified as visual resource management Class-III. The management objective is to partially retain the existing character of the landscape, i.e., measures should be taken to screen activities and facilities so they do not dominate the view of the casual observer. This area is also managed as an antelope migration corridor by the Wyoming Game and Fish Department. Activities and facilities should avoid impeding the seasonal movement of these animals.


Map B-2.1
Management Areas for
Resource Protection
on Federal Lands and Minerals
Pinedale Anticline Environmental Impact Statement
191
PINEDALE
BOULDER
T. 34 N.
T. 33 N.
T. 32 N.
T. 31 N.
T. 30 N.
T. 29 N.
R. 109 W.
R. 108 W.
R. 110 W.
R. 107 W.
GREEN RIVER
NEW FORK RIVER
351
MA-1 Lander Trail
MA-2 The Mesa Breaks
MA-3 Unleased Federal Minerals
MA-4 Sensitive Viewshed
MA-5 Big Game Crucial Winter Range and Sage Grouse Strutting and Nesting Habitat
MA-6 Sage Grouse Strutting and Nesting Habitat
MA-7 Ross Butte/Blue Rim
MA-8 Minimal Conflict Area
MA-9 Non-Federal Lands
N
W
E
S
1 0 1 2 3 4 5 Miles

B-4.0 PUBLIC INVOLVEMENT IN TRANSPORTATION PLAN SCOPING

Public scoping was initiated on July 9, 1998 with the release of a notice to the news media and distribution of the notice to a list of BLM mailing addresses. Additional input on transportation planning, from potentially affected area users and management agencies, was received during a public meeting on July 14, 1998. Those attending included livestock operators; oil and gas operators; county commissioners; state and county transportation departments; the Wyoming Game and Fish Department; recreation/conservation groups; landowners; and others commenting during scoping for the EIS. Additional input was received during a transportation planning workshop held in Pinedale on August 6, 1999 and a special Pinedale Town Council meeting held on August 18, 1999. Workshop attendees included Wyoming Game and Fish Department, Monarch Wildlife consulting, Mesa Users (grazing permittees), Wyoming Department of Transportation, Wyoming Outdoor Council, City of Pinedale, Sublette County Planning and Zoning Commission, citizens of Pinedale, and the Operators. Town Council attendees included concerned citizens, oil/gas operators, and BLM.

A summary of the concerns and issues discussed at these meetings are found in Attachments IA and II. Other concerns from interested parties will be incorporated into the TP and TTSD following comments on the DEIS and annual operational updates to the TP (see Section B-6.0). Concerns identified during the preparation of past oil and gas development EISs (Attachment IB) in the region (e.g., Stagecoach, Fontenelle, Moxa Arch, Jonah II, and Continental Divide/Wamsutter II Projects) and Green River Basin Advisory Committee (GRBAC) recommendations regarding transportation planning and access road standards (Attachment IC), provide important background for the BLM PFO and the public to consider regarding the transportation needs and concerns for the PAPA and surrounding areas.

B-5.0 EXISTING AND PROPOSED TRANSPORTATION NEEDS

B-5.1 The Existing Network - Access to the PAPA is presently provided via Wyoming Highways 191 and 351. From these highways, unpaved County road access (gravel, aggregate surfaced) is provided by the Green River Road (#23-110), Mesa Road (#23-123), Paradise Road (#23-136), and Boulder South Road (#23-106). Other improved roads providing access to the PAPA include the following BLM roads: Soaphole Basin Road (#5105), Mesa Road (#5102), Sand Draw Road (#5410), Luman Road (#5409), Burma Road (#5406), and Fremont Butte Road (#5415). Most of these roads have some degree of gravel or aggregate surface and are periodically maintained. Some of these unpaved roads become impassable when wet and during winter, and, if these roads are used as access for this project, would require improvements and increased maintenance including snow removal. County roads (arterial roads) are maintained but in many cases there is no snow removal. County roads provide public access across private land; however, BLM roads or other roads which cross private lands may not have legal public access across them. All of the County roads, except the Mesa Road (#23-123), originate at either Wyoming Highway 191 or 351. The Green River, Paradise, and Boulder South County Roads would receive high-volume traffic with implementation of the PAP. The BLM and County roads require ROWs for access and may require improvement or reconstruction before project use. In addition, some realignment of these routes may be necessary to minimize impacts to sensitive resources, ensure safety, and maximize traffic flow efficiency. Maps B-1.2, 5.1, and 5.2 show the existing and proposed locations of high-volume roads and/or corridors within the PAP (i.e., arterial roads and other potential collector and local road routes with high initial traffic volumes).

The existing transportation network within the PAPA is generally shown on Map B-5.1. This system includes state, county, and BLM access roads, most of which originate at Wyoming Highways 191 and 351. Historic use of the roads has been primarily by livestock operators, recreationists, and mineral developers. This use mix will continue with a substantial increase in mineral development traffic.

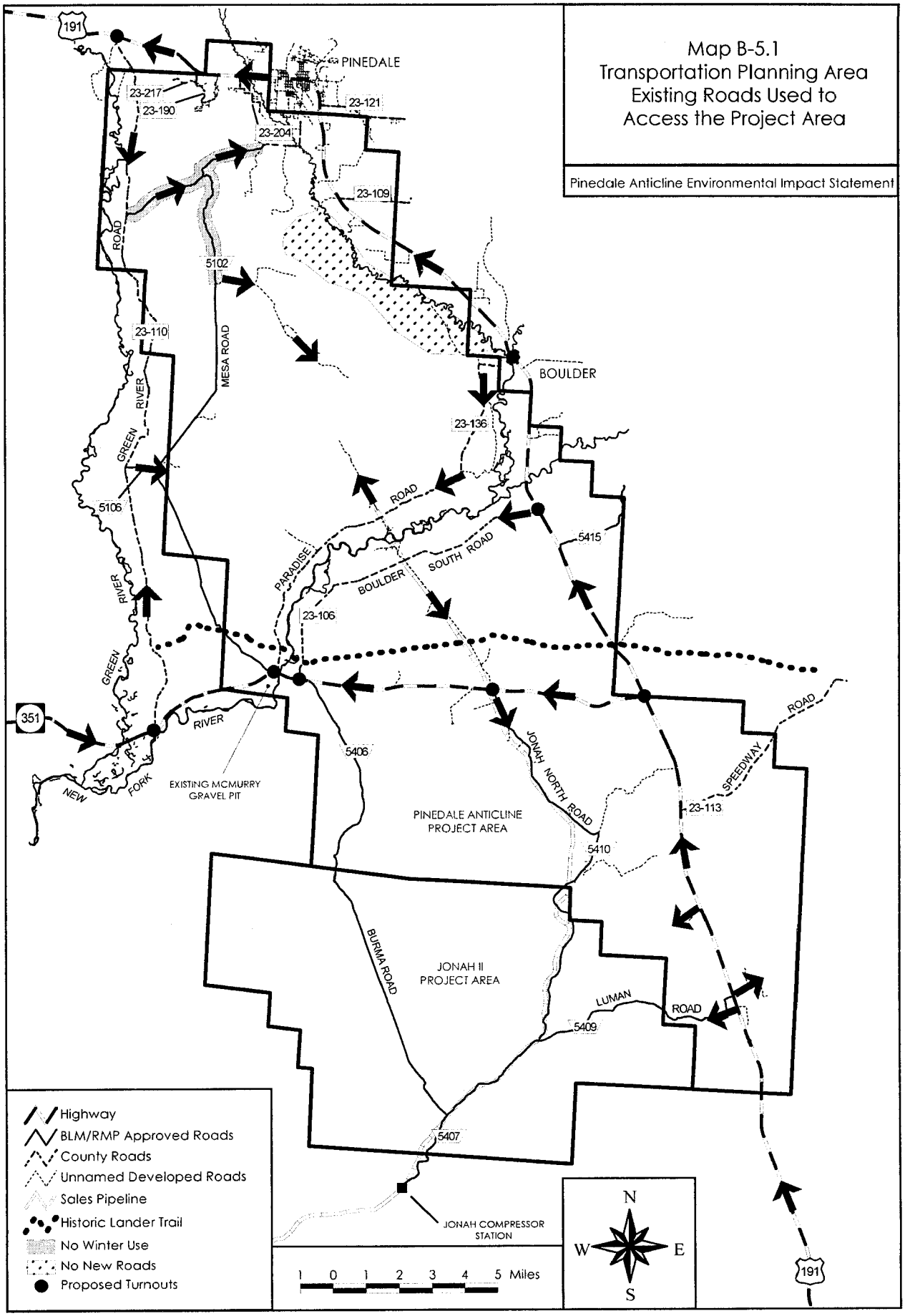
North Access. The north portion of the project area (New Fork River and Paradise Road north to Pinedale/Cora Junction on Highway 191 - Map 5.1) is currently served from Wyoming Highway 191 and 351 by the Mesa Road, East Green River Road and Paradise Road. The Pinedale South Road (Pinedale down Tyler Avenue to the County's Twin Bridges Road)is used by operators and connects the Mesa Road to the Town of Pinedale. The Pinedale South Road is the primary access being used by vehicles and equipment servicing wells being drilled on private and State lands along the New Fork River. The drill rig and other heavy equipment have accessed these well locations by way of Cora Junction-Green River County Road-Mesa Road-and Twin Bridges Road.

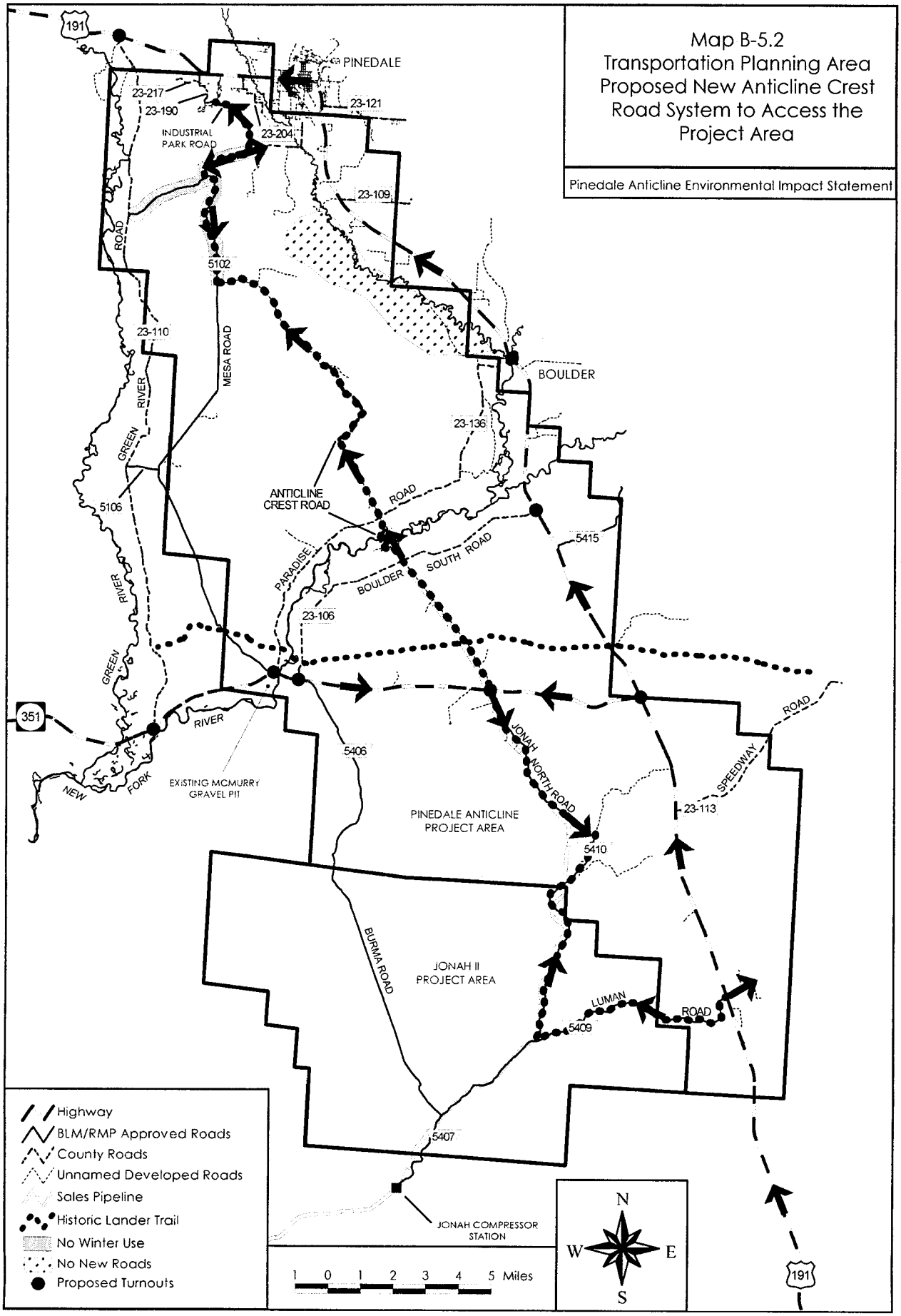
Central Access. The central portion of the project area (New fork River and Boulder South Road south to Wyoming Highway 351- Map 5.1) is accessed from Wyoming Highways 191 and 351 by the Boulder South Road, and the Pipeline Road.

Southern Access. The southern portion of the project area (Wyoming Highway 3512 south to the Jonah project area - Map 5.1) is accessed from Wyoming Highways 191 and 351 by the Jonah North Road and the Luman Road through the Jonah Project Area. There are also a couple of access points west off of Highway 191 to well locations in that area.

B-5.2 Proposed Network Use/Modification - Two new access routes were identified during the public meetings/workshops/Pinedale Town Council meeting (Map 5.2). Residents of the town of Pinedale expressed great concern and opposition (August 18, 1999, the Pinedale Town Council meeting) to operator use of the Tyler Street (Twin Bridges road) as an access route to the north end of the project area. Residents on Tyler reported that the road has become a disaster. Truck traffic is 24 hours a day; dust is high (although it is being watered), and speed is excessive. This road was a funnel for recreational use such as walking, jogging and biking. Pinedale citizens say that It can no longer be used for this purpose because it is unsafe and dusty.

Traffic counter information gathered by the town of Pinedale and Sublette County showed the following use:


Map B-5.1
Transportation Planning Area
Existing Roads Used to
Access the Project Area
Pinedale Anticline Environmental Impact Statement
191
PINEDALE
23-217
23-190
23-204
23-121
23-109
ROAD
5102
23-110
MESA ROAD
RIVER
GREEN
BOULDER
23-136
ROAD
5106
5415
PARADISE
BOULDER
SOUTH ROAD
RIVER
23-106
GREEN
351
RIVER
5406
ROAD
JONAH NORTH ROAD
SPEEDWAY
NEW
FORK
EXISTING MCMURRY
GRAVEL PIT
PINEDALE ANTICLINE
PROJECT AREA
23-113
5410
BURMA ROAD
JONAH II
PROJECT AREA
LUMAN
ROAD
5409
5407
JONAH COMPRESSOR
STATION
Highway
BLM/RMP Approved Roads
County Roads
Unnamed Developed Roads
Sales Pipeline
Historic Lander Trail
No Winter Use
No New Roads
Proposed Turnouts
1 0 1 2 3 4 5 Miles
N
W
E
S
191


Map B-5.2
Transportation Planning Area
Proposed New Anticline Crest
Road System to Access the
Project Area
Pinedale Anticline Environmental Impact Statement
191
PINEDALE
23-217
23-190
INDUSTRIAL
PARK ROAD
23-204
23-121
23-109
ROAD
5102
23-110
MESA ROAD
RIVER
GREEN
BOULDER
23-136
ANTICLINE
CREST ROAD
ROAD
5106
5415
PARADISE
BOULDER
SOUTH ROAD
RIVER
23-106
GREEN
351
RIVER
ROAD
5406
JONAH
NORTH ROAD
SPEEDWAY
NEW
FORK
EXISTING MCMURRY
GRAVEL PIT
PINEDALE ANTICLINE
PROJECT AREA
23-113
5410
BURMA ROAD
JONAH II
PROJECT AREA
LUMAN
ROAD
5409
5407
JONAH COMPRESSOR
STATION
Highway
BLM/RMP Approved Roads
County Roads
Unnamed Developed Roads
Sales Pipeline
Historic Lander Trail
No Winter Use
No New Roads
Proposed Turnouts
1 0 1 2 3 4 5 Miles
N
W
E
S
191

August 12 - 15, 1999 (1 p.m. to 1 p.m.)	
Tyler Street (within City Limits)	2080 vehicles
Twin Bridges Road (County Road)	1329 vehicles
August 16 - 18, 1999 (1 p.m. to 1 p.m.)	
Tyler Street (within City Limits)	1141 vehicles
Twin Bridges Road (County Road)	684 vehicles

The traffic counter information shows that about 62.5 percent of the traffic is going to or coming from the area south of Pinedale City Limits (i.e., the Mesa and/or the two Anschutz wells being drilled between Pinedale and the Mesa. The concerned residents of Pinedale were adamant that an alternate route needed to be identified. It was suggested that a road be constructed between the Industrial Site (west of Pinedale) and the Mesa and/or Twin Bridges Road. This would eliminate the Tyler Street problem.

To avoid impacting residences and resident use of Tyler Street in the Town of Pinedale, one recommended new route and access road is to depart from U.S. Highway 191 at the Pinedale West Industrial Site exit and to construct a new road between this industrial site road and the County Twin Bridges Road (approximately 3 miles new road). Travel along this route would avoid directly impacting residential areas and resident use of Town roads. Routing of this new road would need avoid crucial deer winter range as much as possible. WGFD input during the meetings indicated that this route would be acceptable.

The second new access road identified (Map 5.2) is the Anticline Crest Road. It was recommended that this segment of new road (approximately 6 miles) be constructed to tie the existing North Jonah Road to the Mesa Road. This would require a bridge across the New Fork River and an easement from the private land owner. Construction of this road would eliminate the need for operators to access the field via the Green River County Road (#23-110), the Paradise County Road (#23-136), the Boulder South County Road (#23-106), or the BLM Mesa Road (#5102). Avoiding these other routes would significantly reduce impacts to residents along them and reduce the miles of road that operators would be required to travel to access existing wells and new well sites and reduce annual maintenance costs. Location of the road would avoid drainage ways which are used to trail livestock.

Also, concern and complaints were expressed by residents along the Green River road (County Road 23-110) and the Boulder South Road (County Road 23-106) regarding high levels of dust and road degradation due to gas field traffic.

Additional new access roads may be identified and constructed as specified in the annual operational updates to the TTSD (see Section B-6.0). Where these new roads duplicate existing two-track roads/routes, the existing two-track roads may be reclaimed. At field abandonment, many newly constructed local and resource roads are anticipated to be reclaimed unless there is an identified need for the road by the TPC and other area users. Reclamation activities will be addressed during annual planning and corresponding updates to the TTSD.

B-5.3 Traffic Flow Transition Stages - The traffic flow transition stages of a typical trip into the PAPA transportation system are as follows:

1) Travel via HWY 191 or 351 to project area arterial or collector road turnoff (e.g., workers, supply trucks, drill rigs, etc. with destinations within the well field).

2) Transition from arterial or collector road to local and/or resource road to access a well site or central production facility destination.

The transportation network within the TPA is not anticipated to experience traffic congestion problems at transition points into or within the PA. However, the Wyoming Department of Transportation has recommended the need to evaluate these transition points for turn lane construction from Highways 191 and 351 to ensure public safety. The volume of traffic (Table B-5.1) to more than one or two destinations at the same time within the same area of the

TPA would be low, thus precluding congestion. Development within the PAPA would be dispersed. The seven operators areas of leasehold are distributed such that congestion would be avoided; i.e., Ultra, Questar, and Anschutz at the north end of the PA; McMurry and Yates in the center, Alpine Gas west-central, and Amoco at the southern end.

Although traffic volumes would be low, heavy vehicles would use the roads throughout the life of the project, and, without road upgrades and/or maintenance, inclement weather periods may cause traffic flow problems and increase runoff and stream sedimentation. However, the implementation of this plan would minimize the potential for this problem to occur.

The estimated traffic requirements for each well are provided in Table B-5.1, and examples of potential traffic volumes on resource, local, and collector roads are provided in Table B-5.2. Construction, drilling, and completion activities have the greatest traffic requirements for the proposed project. The typical well on the Anticline would have an estimated 50 heavy vehicles and 34 light-vehicles per day associated with road and location construction, drilling operations, completion and testing, and production site reclamation (702 round trips per well over a 70 to 80 day period - 30 to 35 days to drill the well and another 45 days to complete).

Localized construction and drilling activity would temporarily place heavy demands on road servicing. Traffic demands would be high in areas where drilling and completion activities are occurring, but would be minimal within other areas of the PAPA. Once all wells have been completed, traffic requirements would be minimal for the life of the project. Roads would be used throughout the life of the project and as wells are abandoned, disturbed areas will be reclaimed. Maintenance of roads remaining on the area after abandonment would be conducted by non-oil-and-gas entities.

In the future, un-designated two-track roads/routes may be upgraded and used to access well sites within the project area. These routes are presently used primarily by grazing permittees and recreationists. Grazing permittees use the routes to access water developments. Recreationists use the routes for hunting, sight-seeing, and mountain-biking.

B-5.4 Ultimate Road Disposition - When the Pinedale Anticline field is ready for abandonment (estimated to be 50 years), the transportation network within the TPA would be reclaimed to specifications developed during the annual operational updates. Reclamation protocol are described in the DEIS, Chapter 4, Soils Section 4.14.4 and in Appendix A, Section A@ - Reclamation. Improvements to most existing roads would likely be maintained, and some roads identified as necessary or desirable for other area users (e.g., grazing permittees, recreationists) during annual operational updates would be retained.

County roads would be retained in an upgraded status, as would improvements to BLM roads. All other local/collector roads potentially developed as access routes for this project are likely to be entirely reclaimed or returned to conditions similar to those occurring on the area prior to oil and gas development activities.

Road use following project completion would likely revert to existing uses (i.e., grazing management, casual recreation use, and hunting). Responsibility for maintenance of roads would revert back to Sublette County, private landowners, or BLM. A determination regarding the extent of post-project road maintenance within the Anticline project area cannot be determined at this time since the level of future area use is unknown. Decisions would be made during the later years of the project based on public input received during annual update reviews.

B-5.5 Pipelines - The gas gathering pipeline system would typically consist of a series of 3- to 12-inch diameter buried pipelines. The gathering system would transport gas from individual wells to a central location where the gas would be compressed into a sales pipeline. The design, materials, construction, operation, maintenance and abandonment of the gathering system pipelines would be in accordance with API 1104 and safe and proven engineering practices. Typically, the gathering system would be installed adjacent to existing roads. In most cases, the pipelines would be installed in a 50-foot wide permanent right-of-way, part of which overlaps the adjacent road (see DEIS Section 2.5.6).

The sales pipeline system would follow an existing corridor. Because the number of sales pipelines required to transport the gas is currentlynot known, the EIS assumes that an additional 200-foot wide right-of-way area will be disturbed the entire length ofthe existing 119.9-mile pipeline corridor to Opal and Granger. The sales pipelines would be designed, constructed, operated, and maintained in accordance with applicable Federal and state regulations. Construction would be similar to the techniques described for the gathering system (see DEIS Section 2.5.7).

The sales pipeline transports the natural gas from the project area to processing plants for transport to markets. See DEIS Figure 2-9 and TP Map B-1.1 for the location of the existing sales pipeline corridor. Map B-1.1 shows the locations of existing gathering pipelines in relation to existing access roads within the PAPA. Further detailed information regarding the location of pipelines within the PAPA would be generated and made available for review with the TTSD located in the Pinedale Field Office.

Over the life of the project, pipeline companies (e.g., Jonah Gas, Western Gas, Questar, etc.) could construct a number of pipelines in the existing corridor. The number and diameter of the pipelines constructed would depend on eventual production from the project area and cannot be predicted at this point in time.

Road crossings would comply with requirements of the agency responsible for permitting the road crossing. Roads would be either bored or open-cut. Typically, dirt or gravel surfaced roads would be open-cut and the pipeline installed, the road repaired, and the crossing completed within 1 day. If additional repair of the road is required, final repair would be completed during cleanup. Crossings at paved roads would typically be made by horizontal boring at a minimum depth of 5 feet beneath the surface of the road.

Table B-5.1 Vehicle Characteristics and Estimated Number of Trips Required for Pinedale Anticline Natural Gas Project, Sublette County, 1999.

Truck Type	Average Weight (x 1,000 lbs)	Number of Wheels	Average Speed (mph)	Average Number Round Trips per Location
PROJECT DEVELOPMENT				
Well Location/Road Construction				
Semi	74	18	20	3
Gravel/haul	48	10	20	33
Light Vehicles (Pickup)	7	4	30	47
Drilling Operations				
Semi	60	18	20	22
Fuel and mud	48	10	20	15
Logging and water	20	6	20	23
Light Vehicles (Pickup)	8	4	30	114
Completion and Testing				
Semi	74-80	18	20	26
Fracturing (6 zones per well)	48	6-18	20	186
Light Vehicles (Pickup)	7-8	4	30	170
Production Equipment				
Heavy Vehicles	44	10	20	10
Light Vehicles (Pickup)	7-8	4	30	16
Production Site Reclamation	7-8	4	20	10
Pipeline Construction				
Semi Pipe Haul	44	10	20	3
Welding Trucks	20	6	20	4
Light Vehicles (Pickup)	7-8	4	30	20
Development Total				702
OPERATIONS[1]				
Work-over rig[2]	90	18	20	1
Semi Pipe Haul	48	18	20	1
Pickup	7-8	4	30	5
Operations Total				

[1] Assumes a well life of 30 years.

[2] Workover rig would be largest vehicle required during operations. Assumes workover rig will travel to each well once every 5 years.

Table B-5.2 Example Traffic Volumes Over Life of Project for Selected Resource, Local, and Collector Roads, Pinedale Anticline Natural Gas Exploration and Development Project, Sublette County, 1999.

Road Type (No. Of Wells)	Estimated Number of Round Trips	Estimated Average Daily Traffic
Resource Road (1 Well)	3,688	0.3
Resource Road (10 Wells)	30,688	2.8
Local Road (50 Wells)	184,400	16.8
Collector Road (100 Wells)	306,880	28.0
Collector or Arterial Road (500 Wells)	1,884,000	168.4

B-6.0 ANNUAL PLANNING AND OPERATIONAL UPDATES TO THE TRANSPORTATION TECHNICAL SUPPORT DOCUMENT

Because of the uncertainty regarding the location(s) of wells within the PAPA due to the limited level of exploration that has occurred to date, future transportation routes within the TPA would be developed incrementally as wells are developed and associated information on Operator transportation requirements become available. Annual planning and operational updates to the TTSD for the PAPA would begin in 2000, and annual updates would be available in January each year thereafter until the project is completed or until the transportation system is so well established that further annual planning is not needed.

To facilitate the planning process, a Transportation Planning Committee (TPC) would be established. The TPC would be composed of representatives from the BLM, Operators, Sublette County Transportation and Planning and Zoning, Wyoming Department of Transportation, Wyoming Game and Fish Department, landowners, grazing permittees, and other interested individuals and groups. The TPS would be responsible for overall transportation planning and for identifying and considering issues and concerns, whereas subcommittees/groups would be established for the resolution of site-specific issues (e.g., operational/compliance issues, individual road maintenance, and construction problems).

Annual transportation planning generally would be conducted to determine the location, maintenance, and design criteria for roads developed on the area. This process would involve annual Operator projections for well and ancillary facility developments, public input, and updates on sensitive resources. With this information, the TPC would assist in designing a road network that accommodates Operator and other area user needs, minimizes potential impacts to sensitive environmental resources, and maximizes traffic flow efficiencies commensurate with existing and potential needs.

The existing transportation network in the area is generally suitable for existing uses; however, as areas with natural gas resource potential are identified, changes to the existing network would be required. Therefore, Operators would be required to provide to the TPC annual projections specifying proposed well and facility site locations for associated traffic requirements (e.g., Table B-5.2 and other information such as duration of construction, timing of construction, etc.). This information would be provided to the TPC by approximately mid-December of each year for the life of the project, or until no longer required by the TPC (Table B-6.1). The TPC would evaluate this information, in light of environmental constraints and other known uses of the area, and develop tentative road, pipeline, and power line locations, types, and maintenance information. A draft update with maps would be developed by the TPC and submitted to area Operators and other relevant land users (e.g., grazing permittees, landowners, county and state transportation departments, recreationists) by approximately early January of each year. Meetings would then be held with the TPC and other interested land users to discuss modifications to the proposed update to accommodate Operator and other user concerns. Broad issues potentially affecting most area users would be discussed with the entire TPC to present information and solicit additional comment. All issues associated with annual operational updates would be resolved if possible during the annual TPC meeting. A final update that considers all comments would be prepared and available for review in January of each year. Annual operational updates would be available for review at the BLM Pinedale Field Office.

The Operators would utilize available systems and technologies to assist them in the annual update of the transportation network as appropriate. Maps would be updated to incorporate new sensitive resource locations, proposed roads, wells, pipelines, and ancillary facility locations. Existing roads designated for reclamation also would be identified. This process would result in minimizing the road densities on the area while accommodating all land user requirements.

Information that may be included in annual operational updates include:

- the location of all existing wells, roads, pipelines, power lines, and other man-made features on the area;
- the location of all proposed wells, roads, pipelines, power lines, and other project-required features to be developed within the next year;
- the location of all roads to be reclaimed during the next year;
- the anticipated traffic volumes for all existing and proposed developments;
- identification of existing roads that require upgrades to accommodate existing and proposed traffic requirements (careful planning would be required to ensure roads would be neither under- nor over-designed);

- the identification of existing and required maintenance and associated maintenance, ROW, and cooperative agreements (including scheduling, responsible parties, and activities) for project-required roads;
- surfacing material source locations for road upgrades and maintenance;
- the location of sensitive resources (e.g., drainages, raptor nest and sage grouse lek buffers) and environmental obstacles (e.g., steep slopes, erosive soils). The precise locations of some environmentally sensitive resources (e.g., cultural and paleontological resource sites) may not be presented in updates to avoid unauthorized use; however, the locations of these resources and associated buffers would be considered during the transportation planning process; and
- other identified transportation issues.

Final road location and design criteria for roads which either cross federal lands or are associated with federal wells would be included in Application for Permit to Drill (APD) and/or ROW applications and would be subject to independent environmental analyses (under the *National Environmental Policy Act* (NEPA)) by BLM. Some modification to proposed road locations specified in annual updates likely would occur as a result of these environmental analyses. For example, cultural resource inventories wold be required for all new roads and pipelines, and these inventories may reveal the potential for significant cultural resource concerns in some areas. Roads and/or pipelines may be rerouted to avoid such features. Once a road and/or pipeline has been constructed, its final location would be identified on maps provided in the annual operational updates.

During the later years of the project (years 30 to 50), it is anticipated that annual updates primarily would identify well locations, ROWs, and road routes designated for abandonment and reclamation. The ultimate transportation network on the TPA is anticipated to appear much like the area appeared prior to natural gas development. However, public input received during the annual update process may recommend that some roads developed for the proposed project remain after the life of the project (LOP). New roads that remain after the LOP would become the responsibility of BLM, County, and/or private landowner. In addition, road upgrades of primary access routes would probably remain, and most resource roads developed for this project probably would be reclaimed unless they are determined necessary for other area uses as identified during annual planning.

Table B-6.1 Annual Operational Update Responsibilities and Dates, Pinedale Anticline Natural Gas Exploration and Development Project, Sublette County, 1999.

Action	Responsibility	Approximate Submittal/ Completion Date
Provision of information regarding annual proposed well, road, pipeline, and facility site locations with traffic requirements; wells and roads to be abandoned; major pipeline and power line projects; road upgrades; landowner concerns; and other issues.	Operators, TPC, BLM, other interested parties	Mid-December
Development of agenda; evaluation of proposed plans; preparation of undated maps; and review of updates and other issues.	TPC, BLM, Operators	Late December/Early January
Public meetings to review development plans and associated issues.	TPC, BLM, Operators, other interested parties	Mid-January
resolution of issues by TPC.	TPC, BLM, Operators, other interested parties	Late January
Final update completion/public meetings to discuss resolution measures.	TPC, BLM, Operators, other interested parties	Early February

B-7.0 LITERATURE CITED

Bureau of Land Management. 1985. Bureau of Land Management manual Section 9113 roads.

_____. 1991. Bureau of Land Management manual Section 9113 roads and Wyoming supplement.

_____. 1998. Record of Decision for Jonah Field II Natural Gas Development Project Environmental Impact Statement. Bureau of Land Management, Pinedale and Green River Resource Areas, Rock Springs District, Rock Springs, Wyoming.

_____. 1988. Pinedale Resource Management Plan Record of Decision. Bureau of Land Management, Pinedale Resource Area, Rock Springs District, Rock Springs, Wyoming.

_____. 1997. Record of Decision and Green River Resource Management Plan. Bureau of Land Management, Green river Resource Area, Rock Springs District, Rock Springs, Wyoming.

_____. 1999. Transportation plan for the Continental Divide/Wamsutter II Natural Gas Project. Prepared for the U.S. Department of Interior, Bureau of Land Management, Rawlins District, Great Divide Resource Area, Rawlins, Wyoming, and Rock Springs District, Green River resource Area, Rock Springs, Wyoming by TRC Mariah Associates Inc., Laramie, Wyoming, and Uintah Engineering and Land Surveying, Vernal, Utah.

_____. 1999. Transportation planning technical support document for the Continental Divide/Wamsutter II Natural Gas Project. Prepared for the U.S. Department of Interior, Bureau of Land Management, Rawlins District, Great Divide Resource Area, Rawlins, Wyoming, and Rock Springs District, Green River resource Area, Rock Springs, Wyoming by TRC Mariah Associates Inc., Laramie, Wyoming, and Uintah Engineering and Land Surveying, Vernal, Utah.

GRBAC. 1997. Green River Basin Advisory Committee - Final Report to the Secretary of the Interior. Road Standards Recommendations.

ATTACHMENT I

IA - ISSUES/CONCERNS SPECIFIC TO PINEDALE ANTICLINE
IB - REGIONAL TRANSPORTATION ISSUES/CONCERNS
IC - GREEN RIVER BASIN ADVISORY COMMITTEE-ROAD STANDARD RECOMMENDATIONS

ATTACHMENT I

IA - ISSUES/CONCERNS SPECIFIC TO PINEDALE ANTICLINE

The following issues/concerns were identified by the public (livestock operators, oil/gas operators, general public, state, county, and local agencies, and environmental groups) through scoping letters, input at several public meetings and workshops and are specific to the Pinedale Anticline Natural Gas Exploration and Development Project EIS project. These issues/concerns are specific to access road, pipeline, and road use.

General Comments

- It was suggested that a transportation planning committee be formed modeled after the successful process used for the Wamsutter/Continental Divide area. Neither BLM nor the operators should chair the committee. A county, city, landowner, livestock permittee, or other would chair the Committee.

Road System Concerns

- Burma road is currently not identified a an access route to the Jonah field.
- Wyoming Department of Transportation identified the need for evaluation of intersection improvements such as turn lanes at all access points from U.S. Highway 191 and State Highway 351.
- No access to the Mesa and to the private lands south of Pinedale should be allowed on Tyler Street/Twin Bridges Road through Pinedale. A new route of access was suggested that would tie U.S. Highway 191 and the Mesa Road through the industrial park west of Pinedale. Road should be routed to avoid deer winter range.
- A new access road should be considered that would tie the North Jonah Road to the Mesa Road. Should follow an alignment that approximates the trunk pipeline route. This would require a bridge across the New Fork River.
- WGFD requests that no new road should be built between Boulder and Pinedale along the west side of or crossing the New Fork River including the southern end of the breaks.
- Concerns regarding access to the Mesa should be addressed including the addition of new access points, restricting operator traffic on the Mesa Road south of Pinedale, limiting access to the Mesa to one or two approaches and the need for additional turn lanes from highways.
- Address potential impacts from road development within the Mesa through good design including: limiting road development, graveling all roads, utilization of existing two-tracks, design roads so they cause minimal siltation, concerns of slumping along roadcuts and sediment loading in the Green and New Fork rivers.
- There are already enough main access corridors to the Mesa and there are enough roads on the Mesa - the fewer roads the better.
- Observation has been oil field related travel is much too fast.
- Transportation plan needs to consider Livestock permittee needs.
- Livestock permittee's stated that the Mesa road is a mess and should have been graveled a long time ago. The Wyoming Department of Transportation requests that roads have gravel within approximately 2,000 feet of state highways to eliminate tracking mud onto approach or highway.
- Roads should be graveled before well is allowed to be drilled.
- Directional drilling several wells from one pad would cut down on the number of roads needed to develop gas on the Mesa, especially in the breaks.
- Travel routes should utilize existing two-tracks as much as possible rather than develop new routes.
- Portions of two-tracks not suitable should be reclaimed. If access is an issue (e.g., livestock or wildlife harassment), consider limiting access on some of the roads to only operators by installing locked gates.
- No roads or two-tracks should be reclaimed before input is received from all interested and affected parties to avoid elimination of necessary access.
- Seasonal restrictions on some roads could also be applied to protect livestock or wildlife.
- Livestock permittee's believe that pipelines and roads should parallel each other as much as possible, otherwise hunters and other recreationists start driving the pipelines and create unnecessary roads.
- Maintenance of cattle guards, fences, etc. should be the responsibility of the operator. Cattle guards should be cleaned out each spring. A maintenance agreement, similar to Jonah II, may need to be developed for the Mesa.
- Address concerns over sensitive areas by requiring locked gates to control public access; controlling all oil and gas road access to the public; applying seasonal restrictions to some roads to protect livestock and wildlife; and locating roads and pipelines on top of the Mesa, away from fragile soils, cultural areas and critical habitats along the breaks and bottom of draws on the east side of the Mesa.

- Consideration should be given to closing new roads to public access in the project area. New roads could be open only to service wells. This will avoid public becoming accustomed to traveling these roads and on abandonment of the project not want them closed.
- Identify which roads will remain open after abandonment and which roads would be reclaimed.
- New roads will provide opportunities for ATVs and 4-wheel drive pickups to drive cross country causing impacts to local plant life and erosion.
- Roads on the Mesa should not link up to allow travel from one end of the Mesa to the other and portions of existing two-tracks not suitable for new roads should be reclaimed.

Livestock Trailing Concerns

- BLM should try to coordinate pipeline construction with trailing activity.
- Permittee's need to know by May 1 what activity is planned for the area.
- Trailing occurs up and down all the major draws and thus should be a consideration when laying out roads and pipeline systems. There is a need to let operators know where permittee's do their trailing and when it will occur.
- Permittee's want to know where APDs are located, when the onsite will be held and when construction will begin.

Pipeline Concerns

- Surface pipelines vs. buried - which is most environmentally acceptable?
- Soils along the toe or east side of the Mesa are the most sensitive to erosion.
- A map should be prepared showing all surface pipelines so livestock permittee's and other users can see where they are.
- BLM should let livestock permittee's know when new surface pipelines are proposed and when they are installed.
- Livestock permittee's would prefer that all pipelines are buried.
- No clearing should be necessary for surface pipelines.
- Brush beating is all that is needed to clear pipeline ROWs in most cases.
- Problem of vehicle and livestock access across surface pipelines.
- Cattle will step over a 4" line, but will trail along 6" or greater surface lines.
- Livestock permittee's concerned about pipeline leaks. Western Gas stated that physical observation of pipe done twice/year and telemetry monitors for leaks daily. Also, cathodic protection used on all buried lines.
- All pipeline risers should be fenced to keep cows from rubbing against them.
- Keep pipelines in a corridor so that they don't go all over the countryside.
- Surface pipelines placed along fencelines will reduce livestock trailing along pipelines.
- Mountain Gas Proposal - Pipelines will ultimately be buried.
- Mtn. Gas wants a 12" buried permanent line. Mtn. Gas concerned about the cost of moving lines. Possibility of both an east and west gathering line identified.
- Jonah Gas Gathering will also need a route.
- Issues of fish habitat in New Fork River and erosion control.
- Collection procedures using 4" surface lines: a. staging areas; b. can drag lines - 2000' maximum; c. weld sections together.
- Issue: Will a 12" line be efficient in the future? Answer: Probably if compression/electric drivers are used

Wildlife Concerns

- WGFD wants minimal duplication of roads and reduction in surface disturbance and disturbance caused by human activity during crucial periods of the year (winter, breeding, and nesting).
- Concerned about impacting active sage grouse leks. Sage grouse numbers are currently down and historic leks may be reestablished when and if numbers increase.
- Sage grouse nesting areas should be identified and, once identified, avoided by roads and pipelines.
- New road to the Stewart Point 3-28 well should have limited winter access.
- Options for restricting access:
    a. gating road
    b. signing
    c. use of remote well monitoring devices (telemetry)
    d. no plowing of roads in winter
- Deer mortality studies should be conducted. Ultra deer study on Mesa should continue.

- Raptor nests - Some data has been gathered - more is needed. Need data on Ferruginous hawks, bald eagles, burrowing owls, red-tailed hawks. Proposed routes should be surveyed during nesting season to determine occupation by raptors.
- Mule deer and antelope crucial winter range - the "breaks" should be avoided by roads and well pads.

Cultural Concerns

- Area of concern around burial areas may be 1 to 2 mile radius.
- Native American respected places/sites - protect 1 mile radius around these sites.
- Historic trails - Lander cutoff and historic wagon roads.

Visual Concerns

- Implement the visual management objectives (classes) in the design, location and rehabilitation of access roads and pipelines for the project. Particularly sensitive areas are the face of the Mesa and the viewshed from Highway 191 and the Lander Trail.

Recreation concerns

- Recreation use/concern on the Mesa:
    a. Mountain biking
    b. cross-country skiing
    c. hiking/horseback riding
    d. damage from 4-wheelers
- WGFD wants minimal duplication of roads and reduction in disturbance caused by human activity during crucial periods of the year (winter, breeding, and nesting).
- Need to consider cumulative effects of "use" on Mesa in general.
- Recreational concerns increase as you get closer to town (Pinedale). Bikers use entire area.
- Many 4-wheeler and motor bike erosion damage problems are growing throughout area.
- Total use of the Mesa has really increased in the last few years.

IB - REGIONAL TRANSPORTATION ISSUES/CONCERNS

Many of the transportation planning issues/concerns identified during the scoping and planning process for various oil/gas field development project EISs in the region (southwest Wyoming), were found to be repetitive from one project area to the next. For this reason, and to capitalize on this common phenomenon, the following list[3] is provided to show other considerations given to the development of this TP:

Road Development Concerns

- Road standards and guidelines should be consistent across BLM Field Office boundaries and checkerboard lands
- Roads should not be over designed; build roads to minimum standards to deter use and reduce vehicle speeds.
- Do not fence roads.
- Roads with parallel drainages should be located outside the 100-year floodplain.
- Properly located loop roads can eliminate excessive use of some areas.
- Consider alternative travel corridors and road standards.
- The transportation planning process should includes the state, counties, and all interested parties.
- County involvement is necessary in mainline road development and maintenance.
- County needs to be involved at APD stage.
- Consider a "no net gain" policy for roads.
- Establish limits for road development and maintenance.
- Address private land access issues from new and existing roads and the problems associated with alternative road designs on private lands.
- Implement Green River Basin Advisory Committee (GRBAC) transportation planning recommendations.

[3] This list of issues/concerns is summarized and edited from the Continental Divide/Wamsutter II Draft EIS Transportation Plan.

- Consider all road development and transportation management impacts.
- Consider mineral ownership, this may affect Operator rights to construct roads on private lands.
- Landowners should be contacted prior to any new road construction so that their input and concerns can be addressed up front, and the BLM should not dictate road development activities on private lands.
- All stream crossings should be located in areas and constructed in ways that do not decrease channel stability or increase water velocity.
- Road construction and reconstruction actions should be designed and conducted to minimize soil erosion.
- Road construction costs and area of disturbance are increased when curves are planned for new roads to reduce visual impacts.

Road Use Concerns

- Impacts from increased traffic on all roads, including federal and state highways and local roads, should be addressed in a transportation planning.
- Collector roads should be addressed individually in respect to paving or gravel surfacing to prevent mud from being carried on to existing highways.
- Operators should enforce speed limits, and vehicle speeds should be reduced.
- To avoid increasing areas of surface disturbance, use existing two-track roads to access well locations.
- Avoid improperly located looped roads to avoid increased traffic.
- Identify impacts from fugitive dust.

Road Maintenance Concerns

- Immediately identify the proposed collector roads that currently need maintenance and action.
- County roads should be maintained by the counties since they currently receive funds generated by the Operators; Operators should assist in eliminating problem areas on county roads.
- Operators acquiring ROWs over BLM roads will need to enter into cooperative agreements with each other for road upgrades and maintenance.
- Road maintenance actions require prioritization.
- Appropriate maintenance needs to be provided for cattle guards, wing ditches, and culverts.

Road Reclamation Concerns

- No roads or two-tracks should be reclaimed before input is received from all interested and affected parties to avoid elimination of necessary access.
- Closed roads should be obliterated, reclaimed, and signed as such to inform the public.
- All roads developed for this project should be reclaimed when they are no longer required.
- Existing roads should be eliminated if another road accesses the same area, and Operators should look for opportunities to close and reclaim unused and redundant roads.
- Two-track roads that are not used and which can be reclaimed should be identified.
- Roads need to be reclaimed as soon as possible after abandonment.
- The ultimate road situation (i.e., after the project is completed) should be similar to pre-development (pre-1990).

Wildlife Concerns

- Close coordination of the WGFD, BLM, and Operators is needed for development in crucial wildlife habitat.
- Minimize road densities and total miles of road to minimize impacts to wildlife populations.
- New roads increase access into areas which could increase the probability of wildlife poaching and other forms of mortality (road kills).
- New roads cause habitat loss through direct conversion of habitat to road ROWs, and increased wildlife disturbance (e.g., decreased use of habitats adjacent to roads, increased stress).
- Use locked gates, signs, and seasonal closures to reduce vehicle traffic thereby protecting wildlife by restricting access.
- Field workers should visit wells during mid-day to minimize impacts to wildlife.
- Impose speed limits to reduce big game road kills.
- Consider impacts of roads on big game and upland game.

- All perennial stream crossings should be adequately designed to allow fish passage at all flows.
- Impacts to aquatic resources should be minimized to ensure compliance with Section 404 of the Clean Water Act.
- Plow wildlife/livestock outlets through snow banks along roads in the winter season.
- Habitat fragmentation from roads.
- Requirements are needed to protect wildlife and other resources; avoid duplicate roads on private lands.
- Avoid special features such as raptor nesting areas, sage grouse leks, crucial big game winter range, and associated buffers.
- Impacts of new power lines on sage grouse predation, and avoid power line construction within 0.75 mi of sage grouse leks.
- Identify mitigation measures (e.g., vehicular travel restrictions, existing road realignment) to prevent lek and ferruginous hawk nest abandonment.
- Noise impacts to sage grouse and ferruginous hawks should be considered.
- Pipeline development may improve winter wildlife habitat by removing decadent sagebrush.
- Power line construction should be in accordance with raptor-safe criteria established by the Avian Power Line Interaction Committee.

Interstate 80, Wyoming State Highways, and Other Developed Road Concerns

- No additional access off I-80 will be allowed.
- Height and width restrictions for I-80 underpasses and weight limits on all highways must be observed; fines will be issued for damage and noncompliance.
- A cross-over plan should be developed for the safe and proper use of median cross-overs.
- Space trucks requiring the use of cross-overs at least five minutes apart.
- Trucks should not pull onto or be backed-up on the left shoulder of I-80 prior to turning.
- Pull trucks onto emergency lanes prior to turning onto cross-over.
- Drive to a suitable interchange if cross-overs are not available.
- Operators may be liable for repair of cross-over roads.
- Cross-over use creates safety and liability problems, and cross-over use may be restricted.
- Safety and problem areas along I-80 need to be identified on Transportation Plan maps.
- Approaches off existing highways and county roads will be limited to 2 or 3 per mi per side, and will require cattle guards, paving, and adequate sight distance as appropriate for the classified road use.
- Additional approaches will be restricted.
- Operators are encouraged to use existing approaches.
- Turning lanes will be considered for high traffic-volume approaches.
- Mud on the highway is a safety concern. Surfacing of roads (up to 1 mi from the highway) may be necessary, but should not be mandated for all cases.
- Every highway approach is a conflict point, and permits will be required.
- Cattle guard damage is a problem.
- Overweight loads may damage cattle guards and bridges; construction of gated bypasses may be a solution.
- Counties require notification prior to moving overweight loads.
- Access to permanent facilities needs to be maintained for year-round use and facilities need to be accessible to emergency vehicles.
- Most county roads are not all weather roads, therefore surfacing is needed.
- Access approaches will require permits and should be at 90° angles.
- The term collector roads needs to be defined and a determination needs to be made if all existing county roads should be considered collector roads and if they need to be all weather roads.
- Dust is a problem on existing county roads, and dust abatement measures will be required.
- The County Road Department may not have adequate funds for road graveling and upgrading.

Pipelines and Power Lines Concerns

- Maximize use of existing road and pipeline corridors.
- Pipelines and power lines should parallel roads within the same ROW, and impacts should be identified.
- Avoid development within existing power line ROWs.
- Pipelines and power lines should be buried.
- Build cuts along pipeline routes to discourage unauthorized travel along reclaimed ROWs.
- Pipeline development may improve winter wildlife habitat by removing decadent sagebrush.

- Power line construction should be in accordance with raptor-safe criteria established by the Avian Power Line Interaction Committee or the Raptor Research Foundation, Inc. (for Edison Electric Institute) Suggested Practices For Raptor Protection On Powerlines (1975).
- Pipeline densities could be less if paralleling every road was not the rule.
- Pipelines and power lines cannot be constructed within and parallel to I-80 or state highway ROWs; pipeline and power line crossings of I-80 must be bored under the highway.
- Identify any improvements to utility lines.
- Crossing impacts must be mitigated by Operators.
- No unreasonable restrictions on construction of utility and pipeline facilities.

Recreation Concerns

- Use of roads by the public, public road designations, and public access.
- Landowners should allow recreational use on their lands and avoid posting of lands.
- Increased access will provide increased recreational opportunity.
- Do not fence roads.
- BLM signs should be removed where they encourage unauthorized public use of private roads and lands.
- With reclamation, visual impacts are negligible for new roads.

Other Concerns

- Operators need to do a better job monitoring damage to cattle guards, closing gates, and restricting unauthorized off-road travel along fencelines, two-track trails and pipeline ROWs.
- The transportation planning committee or work force should coordinate the development of the transportation plan and address access issues (e.g., county permits, private lands, drainage, safety, Uniform Fire Code compliance, traffic demands, county access, etc.), construction plans (e.g., permits, construction use, zone changes), and maintenance specifications (e.g., roads, cattle guards, bridges, heavy equipment).
- Difficulties associated with problem-solving by large committees for transportation planning.
- The BLM issues ROWs for all its roads.
- BLM roads are for use, development, protection, and administration of public lands and resources, and are not necessarily always public roads; although public use is generally allowed, roads may be closed or use restricted to fulfill management objectives.

Wyoming/Colorado

GREEN RIVER BASIN ADVISORY COMMITTEE

Final Report to the Secretary of the Interior

GREEN RIVER BASIN ADVISORY COMMITTEE
Wyoming and Colorado
February 3, 1997

Bruce Babbitt
Secretary of the Interior
1849 'C' Street, NW - Room 6156
Washington, D.C. 20240-0001

Dear Secretary Babbitt:

We, the members of the Green River Basin Advisory Committee (GRBAC), as directed by the GRBAC charter, herewith submit our final report. It includes the recommendations reached by full consensus and a description of the eight GRBAC meetings. It is worth noting the considerable public participation in the GRBAC process as indicated by the attendance of approximately 1200 people at the initial meeting and the extensive verbal and written comments received from interested parties who feel very strongly about the issues.

We are confident that these finalized recommendations are consistent with the GRBAC charter to ensure reasonable development of natural gas and oil while protecting environmental and other resource values in the greater Green River Basin. These recommendations are interdependent. In particular, eco-royalty relief is critical to the success of the NEPA streamlining recommendations and the successful mitigation of potential impacts, whether they be direct, indirect, or cumulative. Eco-royalty relief implementation will require your attention and support. Once implemented, these recommendations will create avenues for resolving conflicts collaboratively in a manner that reduces delays, reduces costs, reduces environmental impacts, and provides more certainty to all interested parties.

Mr. Secretary, we ask that you approve these final recommendations in an expeditious manner, and that you exercise the necessary leadership to implement them. In turn, each of us is committed to working together to achieve successful implementation. To aid in continuing cooperation and dialogue, we suggest that Wyoming BLM provide the GRBAC members with periodic status reports on the progress of the recommendations.

As a FACA chartered committee, GRBAC's formal work is completed with transmittal of this final report. However, as individual members, we are committed to remaining available and to assisting you throughout the implementation phase. We appreciate the opportunity to serve on the committee and look forward to your review and implementation of these final recommendations.

Sincerely,

GREEN RIVER BASIN ADVISORY COMMITTEE

Don Basko
Wyoming Oil and Gas Conservation Commission

Terry Belton
Texaco Exploration & Production

Vanessa Cameron
Julander Energy Company

Dan Chu
Wyoming Wildlife Federation

Bill Clark
Colorado Division of Wildlife

Linda Fleming
Carbon County, Wyoming, Commissioner

Rich Griebling
Colorado Oil and Gas Commission

Leonard Hay
Private Landowner

Dan Heilig
Wyoming Outdoor Council

Tim Hopkins
Union Pacific Resources

Susan Hunzie
Conservation Activist

Joe Janosec
Moffat County, Colorado, Commissioner

Jim Magagna
Wyoming Office of Federal Land Policy

Carl Maldonado
Sweetwater County, Wyoming, Commissioner

Dick Pate
Snyder Oil Corporation

Bill Rudd
Wyoming Game & Fish Department

Steve Torbit
National Wildlife Federation Biologist

ROAD STANDARD RECOMMENDATIONS

Preamble

Road construction standards are an area of mutual concern to conservationists, industry, land owners and managers, state and local agencies, and other land users because roads are a significant impact to wildlife habitat, are expensive to construct and maintain, and if over-built are difficult to reclaim. Our goal was to ensure a proper road design standard is selected, consistent with site-specific conditions (e.g., soils, topography, intended use, historic use, etc.) while minimizing impacts to the environment and accommodating the traffic and safety needs of the industry. The main goal was to develop recommendations to ensure that when roads are needed, resource damage is minimized and reclamation times are shortened.

Roads are constructed in the development of oil and gas fields to move drilling equipment into position and then service successful wells. Road development can, among other things, be a significant expense for industry, fragment and remove wildlife habitat from use, increase soil erosion if improperly designed, reduce effectiveness of reclamation, redirect runoff increasing erosion potential, lead to impromptu detours because of improper construction, and increase the length of time required for an area to fully revegetate upon abandonment. There is a perception that roads are currently being designed and built to a higher standard than necessary, thus increasing expenditures for industry and increasing the area and duration of impact to terrestrial habitats. Although roads must be located, designed, and built to meet specific traffic and safety needs and avoid creating erosion problems due to runoff, building roads to a standard higher than necessary is in no one's best interest.

Recommendations

The Green River Basin Advisory Committee believes the existing BLM road standards are not at fault but rather the procedure for implementation and interpretation of the standards seems to have been too rigid. There is an obvious need to increase the level of communication among responsible BLM staff, industry, landowners, road contractors, and consulting engineers. Therefore, we developed the following recommendations:

1. BLM should emphasize that roads are to be designed to an appropriate standard no higher than necessary to accommodate their intended functions adequately. For example, the flexibility inherent in the BLM system for road design standards needs to be more fully utilized in the location, design, and construction of dead-end resource roads (roads to well pads). The emphasis should be to locate and design the road so that it minimizes resource damage, including all factors that could lead to increased damage (resource impacts) both long and short term. BLM should assure the early and continuing involvement of all expertise necessary to address issues and develop a final road development plan.

2. BLM should develop criteria to help resource areas and industry understand and know when road standard for surfacing needs to be ungraded above native

soils. Graveling of roads can be expensive and lengthen time of recovery, such a list of criteria would assist all parties in determining appropriate road construction.

3. BLM should strive for only one required on-site visit to identify final well locations, access road alignments, and pipeline routes. To facilitate this process, we strongly recommended the on-site visit occur as early in the proposal as possible, before surveying. This requires all those attending the on-site visit be thoroughly prepared and knowledgeable so decisions can be made on-site. This will serve the best interests of all involved through early identification of significant issues, minimize revisions, and reduce or eliminate the need for additional site visits.

4. Although the issue of gathering pipelines placed adjacently to access roads may initially appear to be outside the scope of this topic, it affects road design. The method of placing gathering pipelines adjacent to roads is not always the best solution for reducing disturbance. Again, flexibility should be utilized to minimize resource damage, and in many instances this may mean locating pipelines outside of road corridors.

5. A signing system (perhaps color-coded) should be developed by BLM for field developments. Maps with corresponding signs should be developed to delineate:

    1. Main or "collector" roads;
    2. Minor-collector or "local" roads;
    3. Dead-end or "resource" roads; and
    4. Closed roads.

    Signs for dead-end and closed roads could include a decal or description of the reason for closure. For example, reclamation, wildlife habitat protection, soil erosion, etc., could be listed as reasons for closure.

6. In 1992, the Department of Interior proposed new onshore oil regulations; these proposals were never finalized. However, the proposed language contained in Section III A. Surveying, Staking, and Inventories, contradicts Road Standard Recommendation Number 3. The proposed rule states: "*The onsite pre-drill inspection will not occur until after the proposed pad has been surveyed and staked, and any new access has been flagged.*" We recommend the proposed rule language be replaced by the Green River Basin Advisory Committee Recommendation Number 3 to facilitate well pad and road location and minimize resource impact. Finalization of the rule as proposed in the Federal Register Notice would be counter productive to the efforts of the Green River Advisory Committee and would not serve the public interest.

TRANSPORTATION PLANNING RECOMMENDATIONS

Preamble

Transportation planning is critical in understanding and minimizing the environmental impacts associated with resource development in Southwest Wyoming since roads can account for a significant amount of the overall associated surface disturbance. Careful planning is required to minimize the impacts to other resources while still meeting the transportation needs of proposed resource development.

Transportation planning is intended to be more than just a rehash the Department of Interior or ASHTO road design standards. At the same time, transportation planning is not intended to define and design each and every mile of possible road construction. Rather, transportation planning is intended to define the size, frequency, and timing of the anticipated transportation needs, to recognize existing transportation infrastructure, and to establish the preferred corridors to meet the proposed transportation needs. The transportation planning process will provide sound information and opportunities for the exchange of ideas from all sectors (proponent, BLM, state and local governments, landowners, and other affected interests) in order to develop the preferred alternatives that will minimize disturbance, to other resources and still meet the transportation needs of the proposed project.

Recommendations

1) The BLM should prepare (or acquire) and maintain on a continuous basis a comprehensive inventory of road and pipeline rights-of-way in the planning area that takes advantage of the new mapping technologies which will provide opportunities for both visual and statistical analysis. It is also recommended that the BLM work on this effort in close cooperation with local and State governments, and the private sector to maximize the utility of this data and to control costs.

Background: The BLM and the public currently have limited access to road information. Contrary to FLPMA 201, BLM has not prepared and does not "maintain on a continuing basis an inventory of all [roads]" on the public lands in Southwest Wyoming. Utility and transportation rights-of-way granted by BLM across public lands are not recorded in a centralized data base or file system. Although the majority of roads in Southwest Wyoming have been constructed since the late 1970's, coincident with increased oil and gas development activity, the BLM lacks basic, reliable, and most importantly, accessible, information concerning the location, designation (i.e., collector, resource, local), and total miles of roads on BLM-administered public lands.

2) The BLM needs to identify (after consultation with State and local governments, industry, affected interests, etc.) which roads within the existing infrastructure will be incorporated into its District Transportation Plan and preserved and maintained as permanent "system" roads. This plan needs to be reviewed up front with each new proposal to identify the need for additions, upgrades, or abandonments.

3) A transportation plan should be developed for significant resource development projects in Southwest Wyoming based on the following procedures:

A) A reasonable estimate of the transportation needs for the study area should be developed that includes a probable range of vehicle sizes, travel frequency, timing, and geographic concentrations of the anticipated traffic flow.

B) Once overlaid on the existing infrastructure database, the primary transportation corridors for the proposed development should be outlined that meet the transportation needs, minimize resource conflicts, and take advantage of existing infrastructure to the greatest extent possible. This would include analysis of traffic capacities of existing roads to identify which portions of the infrastructure need to be modified to accommodate the proposed uses and while minimizing environmental impacts and resource conflicts.

C) This transportation plan should then be reviewed for consistency with the Resource Management Plan (RMP). This review will identify particular issues or concerns that need further research and discussion to identify the preferred alternatives.

D) Identify which of the newly constructed or improved roads will be added to the transportation plan as permanent "system" roads and those which are to be reclaimed when no longer needed by the proposed development.

ATTACHMENT II

WORKSHOP AND TOWN COUNCIL ISSUES SUMMARY

Pinedale Anticline EIS
Transportation Planning Workshop
August 6, 1999

BLM hosted workshop to address concerns regarding transportation planning in the Pinedale Anticline Project Area. The workshop was attended by members of the general public and representatives of the following organizations:

- Wyoming Game and Fish Department
- Monarch Wildlife Consulting
- Mesa Users (permittees)
- Wyoming Department of Transportation
- Wyoming Outdoor Council
- City of Pinedale
- Sublette County Planning and Zoning Commission
- Operators (Amoco, Questar, Alpine, Ultra, Western Gas, Anschutz, McMurry, and others)

BLM opened the workshop by providing an overview of existing access to the project area. That overview discussed where most of the traffic was currently being routed and attendees identified problems associated with particular routes.

An introduction to the transportation planning process was presented by the BLM. BLM suggested that the group form a transportation planning committee modeled after the successful process used for the Wamsutter/Continental Divide area. Steps in the process were outlined including recommendations on who should participate and what authority the committee should have. Several examples of how the committee could overcome problems with a transportation network in the project area were provided.

BLM suggested that neither BLM nor the operators chair the committee. BLM noted that the Sweetwater Planning and Zoning Department chaired the Wamsutter Committee and this work well.

After the introduction, BLM asked for questions, comments and concerns. The following issues were identified:

Concern was raised about current access to the Jonah II Field and the problems associated with use of the Burma Road. McMurry noted that they have instructed their contractors not to use this road but McMurry cannot police who is using this road. Apparently, the road was bladed last summer and snow was removed last winter. There was confusion as to whether these activities were permitted by BLM and who actually did the work.

The Wyoming Department of Transportation expressed a need to evaluate for improvements, such as turnouts for all the access points from U.S. Highway 191 and State Highway 351. Also, project traffic may require the intersection of U.S. Highway 191 with State Highway 351 to be reconstructed with turning lanes. This could be particularly troublesome because of grade problems. Installing turning lanes from U.S. Highway 191 to the Green River Road west of Pinedale would be problematic because of limited visibility. Other areas where improvements should be evaluated were mapped by Wyoming Department of Transportation for inclusion in the EIS.

McMurry suggested that a new access road be constructed that would tie the North Jonah Road to the Mesa Road. This new road would require a bridge across the New Fork River and would travel the anticline crest in the existing pipeline corridor. The BLM stated that they would not attempt to secure access across the river or on other parcels of private land. That would be the responsibility of the operators. The new anticline road would solve a number of problems including dust, safety and washboarding on the Green River and Paradise Road. Discussion regarding the location of a new bridge across the river occurred but no consensus was reached. The permittees, however, advised against constructing the road in Lovett Draw as this draw is important to trailing.

Caution was suggested about allowing public access on new roads in the project area that BLM would require to be closed upon abandonment of the project. The public becomes accustomed to traveling these roads and will not want them closed. It was suggested that if there is a new anticline crest road that it be private and open for

industry use only. It would be much easier to close this road in the future if the public never has access to this road.

Much discussion centered around project traffic travel through the Town of Pinedale. A representative from the town noted that it was acceptable for traffic to travel through town on the Twin Bridges Road. It was noted that continued access through to the Mesa through town could eliminate a number of environmental issues with traffic on the Mesa Road in the winter. Access to the private wells in the New Fork flood plain would have to continue to use town roads during the winter. Some issues need to be addressed regarding maintenance of roads through town. Others suggested that travel through the residential portions of the town could be very disruptive. Congestion in town is already a problem and it may be necessary to install a traffic light to allow project traffic to turn across U.S. Highway 191. The town representative suggested that additional discussion with the city council was warranted. It may be necessary to conduct a transportation study to better estimate the potential impacts on traffic flow through town.

It was suggested that the EIS identify which roads would be reclaimed after abandonment of the project and which would remain open to the public. It was noted by BLM that the only legal access to the Mesa prior to recent drilling was the Mesa Road. There was no legal access to the Mesa from the south. The Mesa Road north of State Highway 351 crosses private lands and an easement for this road has not been acquired.

Wyoming Game and Fish Department indicated that they don't want to see another road between Boulder and Pinedale along or crossing the New Fork River including the southern end of the breaks.

During review of the maps it was suggested that a new road be evaluated in the EIS that would tie U.S. Highway 191 and the Mesa Road through the industrial park west of town. This road would need to be routed to avoid deer winter range. This road could eliminate the need for traffic to travel through town but it may be difficult to hide the road in a portion of an area that has been identified as visually sensitive. Other recommendations regarding closure of roads during the winter and potential candidates for reclamation were identified by the attendees.

A list of the questions and concerns raised during the public meeting, August 18, 1999, at the Pinedale Town Hall of the Pinedale Anticline Well Field Development and it's impact on the Pinedale community.

1. A concern for the increase of traffic on county road 23-123 going out of Pinedale from Tyler street. The dust and poor condition of the road. Line of site for water trucks. The excess speed of traffic with no law enforcement.
2. It was stated to be a bad idea and unwise to encourage truck use on Tyler street.
3. What would proposed alternate routes of traffic to Mesa be?
4. What is the source of increased traffic?
5. If any, what agreements between town of Pinedale and Sublette County for use of Tyler street?
6. Would any Mesa roads be made county roads?
7. Will county road 23-123 be fixed near curve at the New Fork River to prevent washouts?
8. The need to calculate the future effects of any one particular well site on the Mesa by how many well sites?
9. Is, or will the town of Pinedale and Sublette County be limiting the use of any roads? Are there any ordinances to limit traffic use of roads?
10. What would, (or could) be restrictions concerning private land leases?

(Continuing list of questions and concerns from Pinedale public meeting.) pg. 2

11. Anschutz desires to and would participate in designing alternate routes to Mesa.

12. How to protect historic sites and not create surface disturbance.

13. How to protect our rural character and small town identity.

14. Impact of well field for Emergency Medical Services. Being a volunteer service, what will the needs be to cover the community and the well field?

15. What medical services exist in well field?

16. The noise of equipment and machinery in and toward the well field.

17. Air quality- What are the threats as well as controls?

18. Does Sublette County have authority over traffic issues on county road 23-123?

19. Not enough official (county and state) presence at the meeting. No one from county or state agencies came to meeting. "Do they take us seriously?"

20. "Who runs the show?" was a question asked. This, in response to the fear that the oil companies will do whatever they want regardless to the concerns of the citizen.

21. The purpose of the meetings and the studies being conducted was mentioned in the thought that it is too early to make up our minds about things that we are not fully informed of as yet.

ATTACHMENT III

ROAD, FENCE, CATTLE GUARD STANDARD TEMPLETS

POST CONSTRUCTION INSPECTION RECORD
for
Road Construction

Company: _____

Project Name: _____

Date: _____ Time: _____ Weather: _____

Contractor: _____

Construction Superintendent: _____

CONSTRUCTION CHECKLIST

General	YES	NO	N/A
Does the project look good?	___	___	___
Are sight distances to standards shown on plans?	___	___	___
Is it comfortable to drive at design speed?	___	___	___
Will drainage system take all water away from road?	___	___	___
Are curves constructed as shown on plans?	___	___	___
Has topsoil been replaced on slopes?	___	___	___
Have disturbed/work areas been rehabbed/cleaned up?	___	___	___
Roadway Template			
Are these features as shown on plans?:			
Cut and fill slopes	___	___	___
Shoulder slopes	___	___	___
Subgrade width	___	___	___
Gravel surface width	___	___	___
Gravel surface depth	___	___	___
Borrow ditch depth	___	___	___

Drainage	YES	NO	N/A
Are culverts damaged or obstructed?	___	___	___
Are these as shown on plans?:			
Culvert locations	___	___	___
Culvert lengths and diameters	___	___	___
Inlet basins and ditch blocks	___	___	___
Wing and drain ditches	___	___	___
Riprap	___	___	___
Borrow ditch	___	___	___
Other			
Are these built or installed as designed?:			
Turnouts	___	___	___
Cattleguards	___	___	___
Cattleguard drainage	___	___	___
Fences and gates	___	___	___
Signs	___	___	___
Bridges	___	___	___
Low water crossings	___	___	___
Pipeline or utility crossings	___	___	___
Have shoulder, fill and/or cut slopes been flattened to allow access to sheep wagon or other "two-track" trails?	___	___	___
Permits			
Does construction of the highway approach meet all state highway department permit requirements?	___	___	___
Does construction of the county road intersection meet all county and/or permit requirements?	___	___	___

Comments or additional work needed

_____

_____

_____

_____

_____

_____

_____

_____

I have inspected this project and attest that the construction complies with the road plans, all permit requirements, the surface use plan, and the approved APD and/or right-of-way grant stipulations.

Company's
Representative_____
(Signature and Title)

I have supervised the construction of this project, and attest that all of the construction is in conformance with the plans, specifications and all other permit requirements which apply.

Contractor's
Representative_____
(Signature and Title)

[ ] I have inspected this project, and find that it was constructed in conformance with the approved plans and all other BLM requirements and stipulations which apply.

[ ] I waive the requirement for a BLM representative to be present during the post construction inspection of this project.

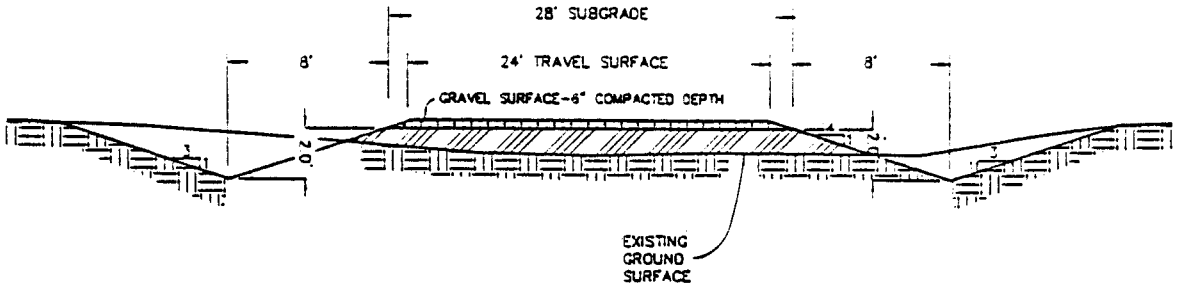
BLM
Representative_____
(Signature and Title)

Others
(Specify)_____

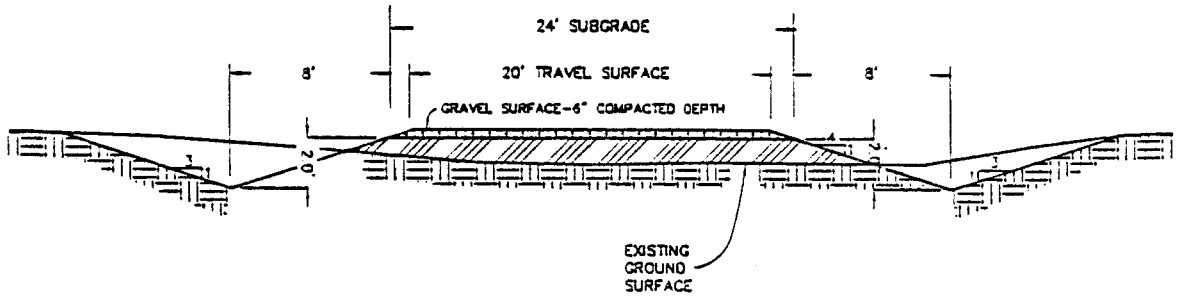
Copies to:

Company
Contractor
BLM
Other_____

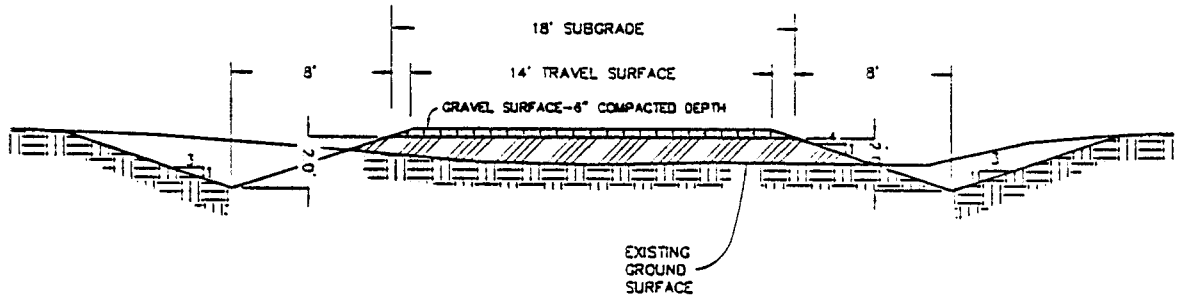
Date_____



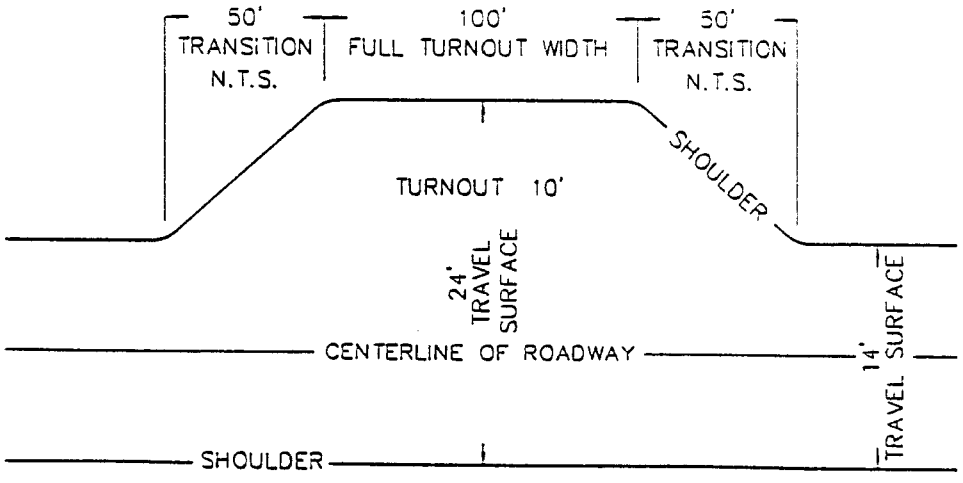
TYPICAL ROADWAY DETAIL
COLLECTOR ROADS



TYPICAL ROADWAY DETAIL
LOCAL ROADS

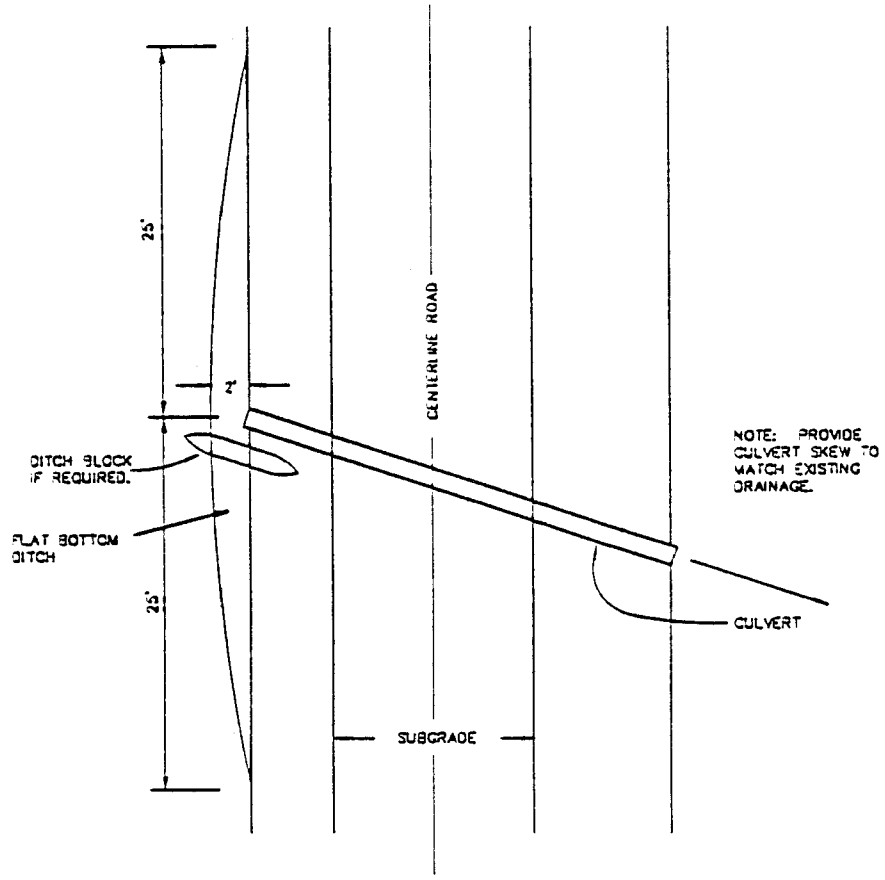


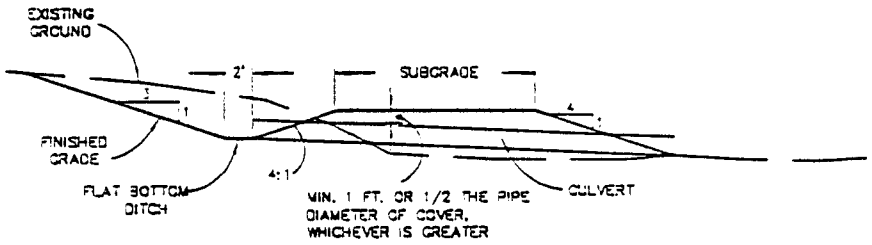
TYPICAL ROADWAY DETAIL
RESOURCE ROADS



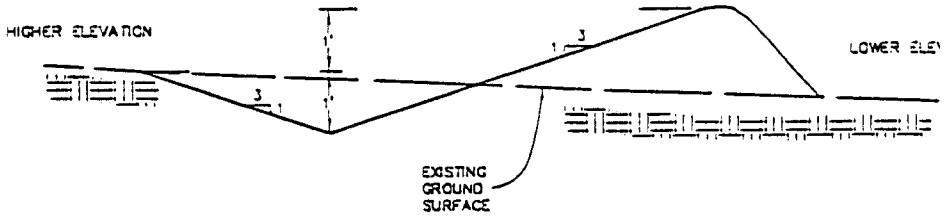
TYPICAL TURNOUT DETAIL

TYPICAL ROADWAY DETAILS





TYPICAL CULVERT DETAIL



TYPICAL WING DITCH DETAIL

TYPICAL DRAINAGE DETAILS

NOTE:
ELEVATION OF CATTLEGUARD SET TO SAME GRADE AS ROAD

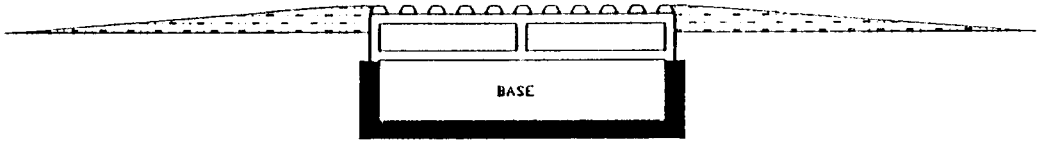
AN H-PANEL WELL BE USED WHEN DISTANCES EXCEED ONE ROD. A WOODEN BRACE BETWEEN CATTLEGUARD AND GATE POST WILL BE USED FOR DISTANCES LESS THAN ONE ROD

IF ROADSIDE DITCH EXISTS, DOUBLE H-PANEL SHALL BE LOCATED OUTSIDE OF DITCH AREA.

CATTLEGUARD

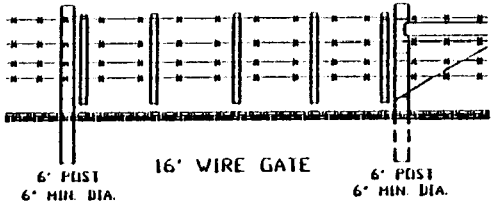
GATE

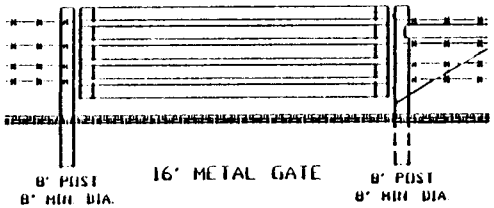
NOTE:
FENCE CONSTRUCTION RELATED WITH EACH CATTLEGUARD INSTALLATION SHALL BE THE SAME AS EXISTING FENCE.



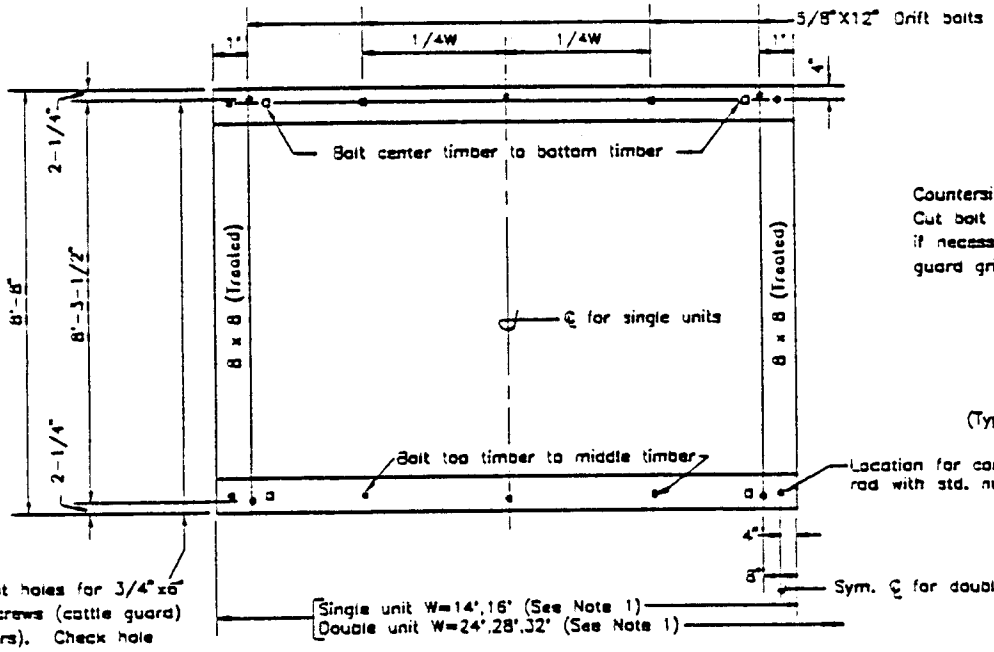
SIDE FRAME

5 - 3' DIA. WOOD STAYS EVENLY SPACED.

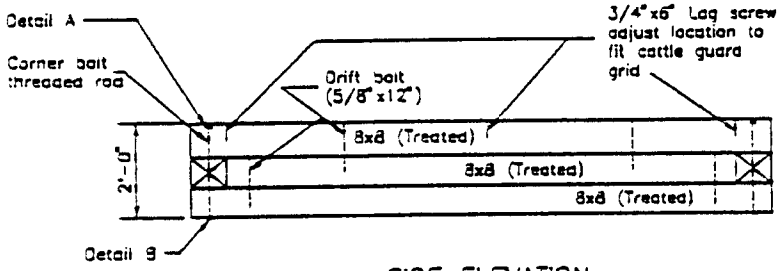




TYPICAL CATTLEGUARD AND GATE INSTALLATION



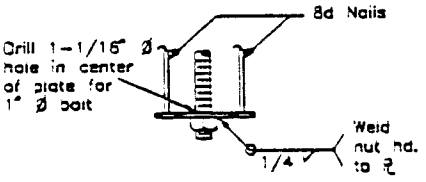
PLAN

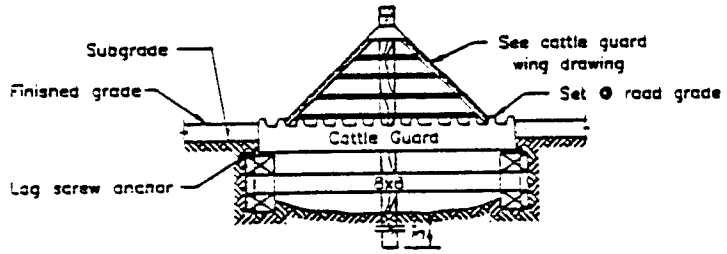


SIDE ELEVATION

WELDING SYMBOL LEGEND

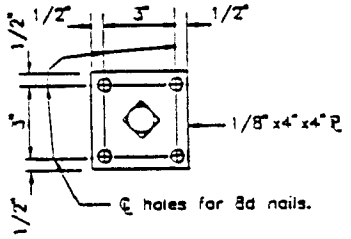
- Weld all around
- Weld this side
- Weld other side





SECTION AT ROAD ℄

(With grid and wings in place)



DETAIL B

(Typ. for 1"x22" corner bolt)

NOTES:

1. See specifications for width (W).
2. Cattle guard anchor angles with 3/4"x6" lag screw with standard washer to be furnished with each single grid.
3. On earth-surfaced roads, set top of cattle guard eight inches above subgrade unless plans or stakes indicate another elevation. Taper fill back from cattle guard approx. 50 ft. in both directions.
4. Dimensions for lumber are nominal unless otherwise noted.

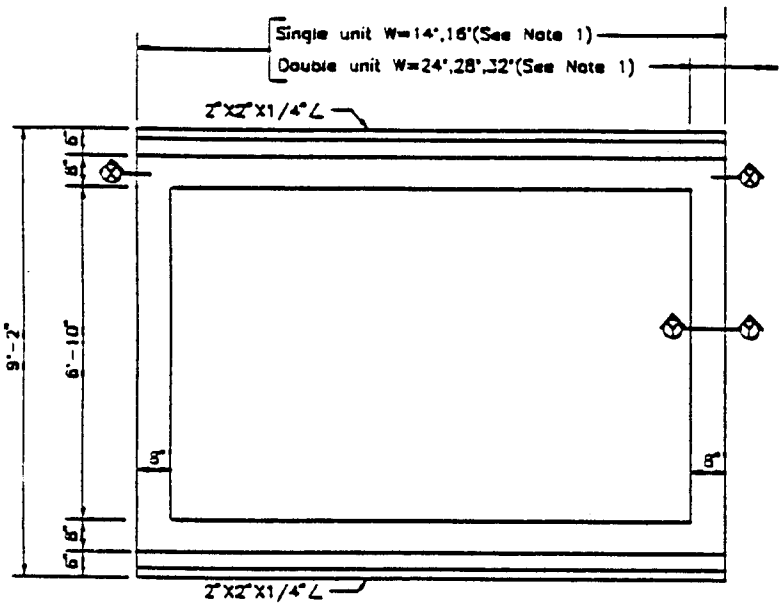
ALWAYS THINK SAFETY

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
DIVISION OF TECHNICAL SERVICES SERVICE CENTER

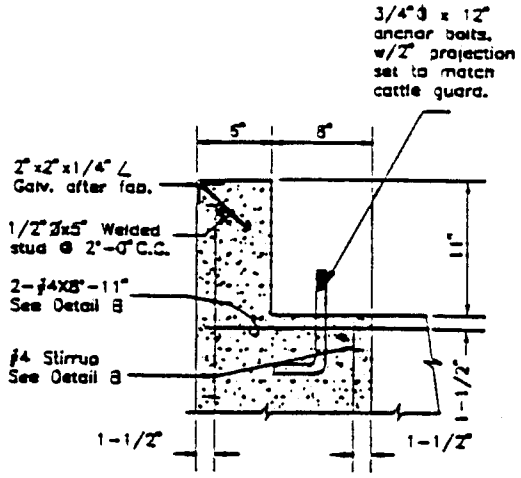
CATTLE GUARD FOUNDATION

(Timber)

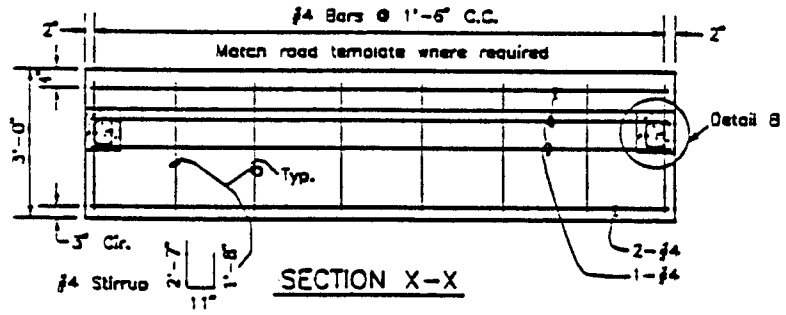
DESIGNED	by others
REVIEWED	
APPROVED	
DRAWN	SCALE NONE
DATE AUGUST 27, 1990	SHEET OF
DRAWING NO. 02881-5	



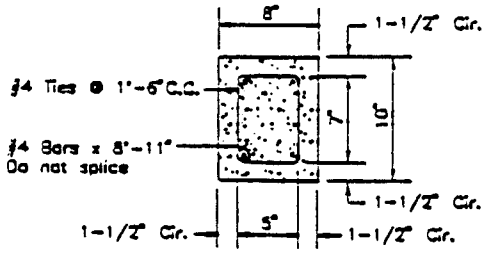
PLAN



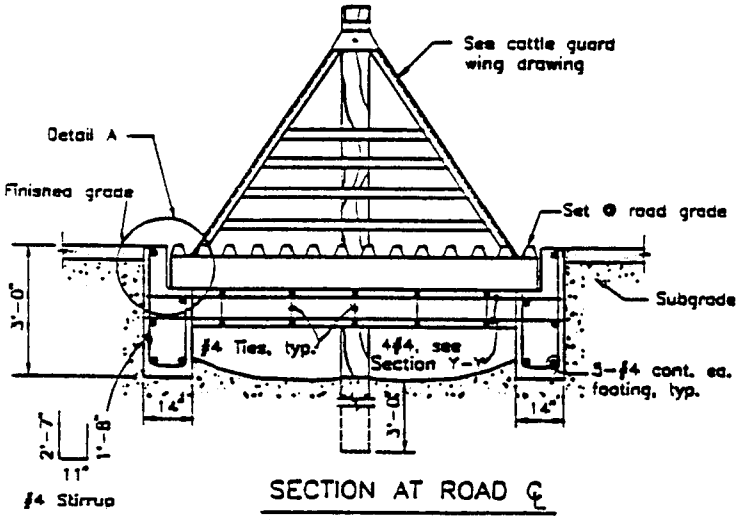
DETAIL A



SECTION X-X



SECTION Y-Y



SECTION AT ROAD ℄

(With grid and wings in place)

NOTES:

1. See specifications for width (W).
2. Cattle guard grid dimensions shall be verified prior to construction.
3. On earth-surfaced roads, set top of cattle guard foundation eight inches above subgrade unless plans or stakes indicate another elevation. Taper fill back from cattle guard approx. 50 ft. in both directions.
4. #4 Reinforcement may be spliced with 24" lap unless prohibited.

ESTIMATED QUANTITIES FOR REINFORCED CONCRETE FOUNDATION					
DESCRIPTION	QUANTITIES				
UNIT WIDTHS	14'	16'	24'	28'	32'
CONCRETE	3.3c.y.	3.7c.y.	5.4c.y.	6.3c.y.	7.1c.y.
#4 REINFORCING STEEL	324 L.F.	355 L.F.	486 L.F.	547 L.F.	618 L.F.
∠2"x2"x1/4"	28 L.F.	32 L.F.	48 L.F.	56 L.F.	64 L.F.

ALWAYS THINK SAFETY

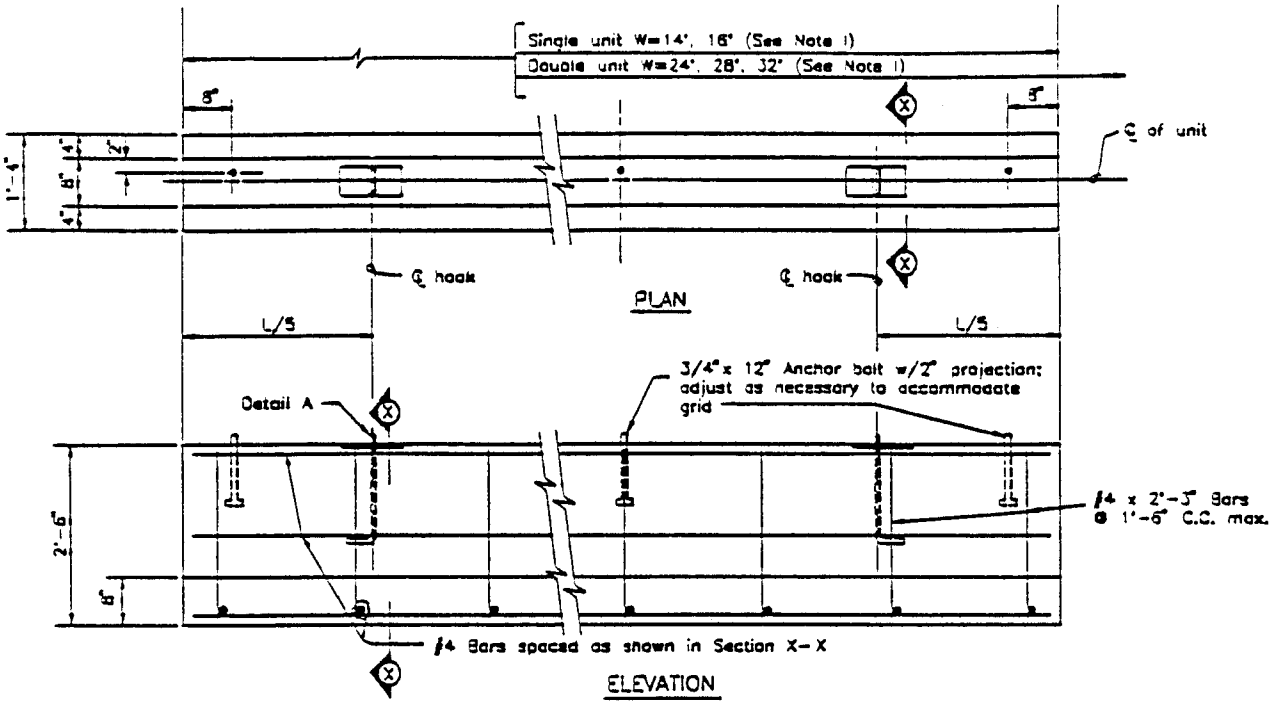
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
DIVISION OF TECHNICAL SERVICES SERVICE CENTER

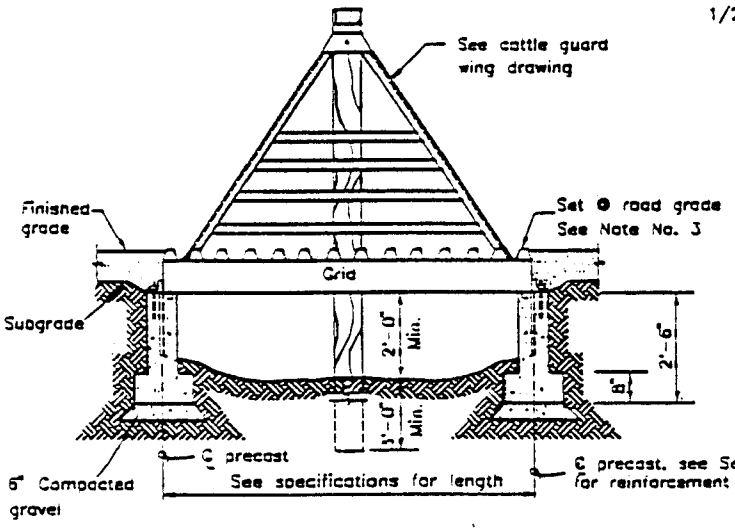
CATTLE GUARD FOUNDATION

(Cast-In-Place Concrete)

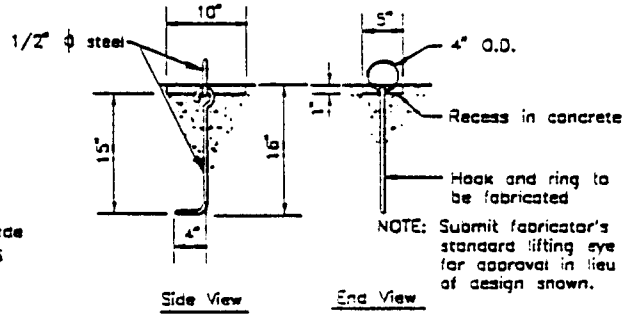
DESIGNED by others
REVIEWED
APPROVED

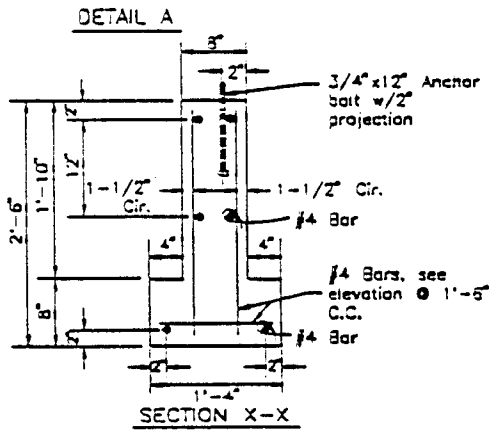
DRAWN
SCALE NONE
DATE AUGUST 24, 1990
SHEET OF
DRAWING NO. 02881-6





SECTION AT ROAD ℄
(With grid and wings in place)





NOTES:

1. See specifications for width (W).
2. Standard nuts & washers shall be furnished with each foundation unit including anchor angles. Weld or bolt anchor angles to cattle guard.
3. On earth-surfaced roads, set top of cattle guard eight inches above subgrade unless plans or stakes indicate another elevation. Taper fill back from cattle guard approx. 50' in both directions.
4. #4 Reinforcement may be spliced with 24" lap unless prohibited.

ESTIMATED QUANTITIES FOR FOUNDATION					
DESCRIPTION	QUANTITIES				
UNIT WIDTHS	14"	16"	24"	28"	32"
CONCRETE	2.2 C.Y.	2.5 C.Y.	3.8 C.Y.	4.4 C.Y.	5.0 C.Y.
#4 REINFORCING STEEL	276 L.F.	311 L.F.	471 L.F.	543 L.F.	624 L.F.

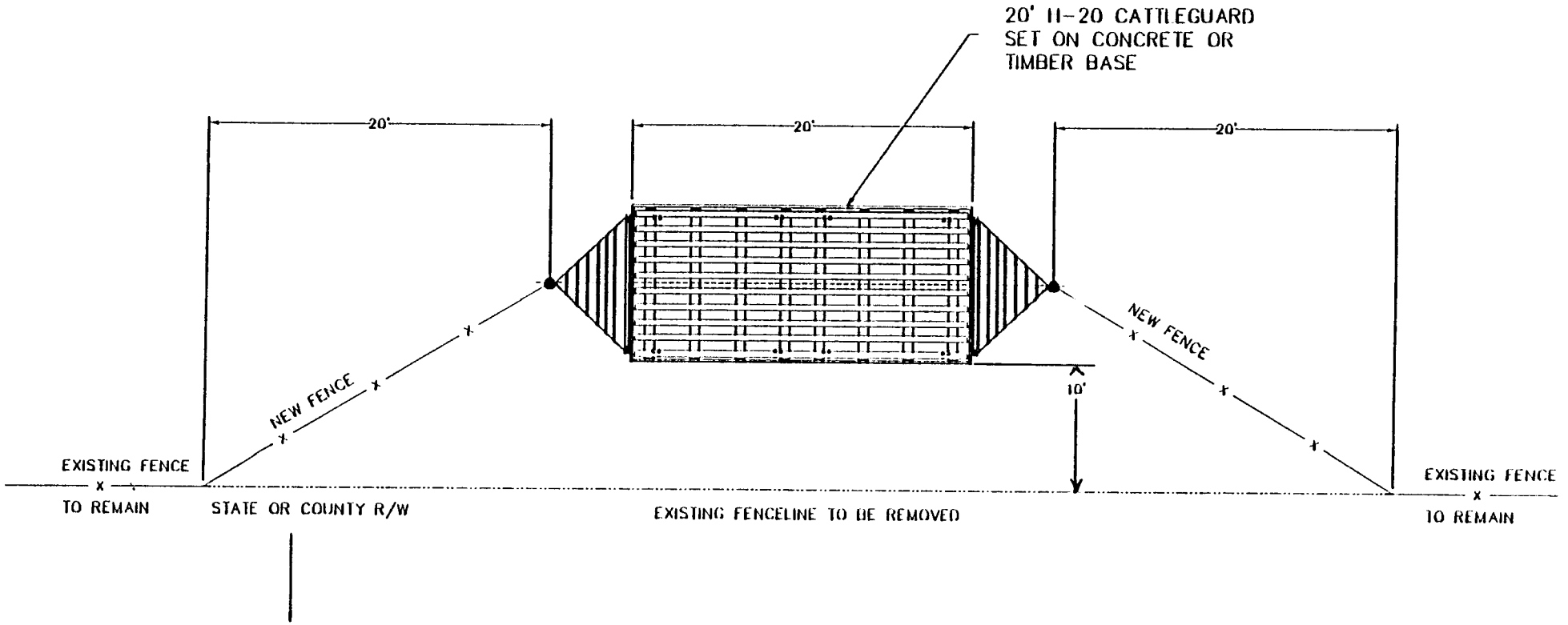
ALWAYS THINK SAFETY

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
DIVISION OF TECHNICAL SERVICES SERVICE CENTER

CATTLE GUARD FOUNDATION
(Precast Concrete)

DESIGNED by others
REVIEWED
APPROVED

DRAWN	SCALE NONE
DATE AUGUST 23, 1990	SHEET OF
DRAWING NO. 02881-7	



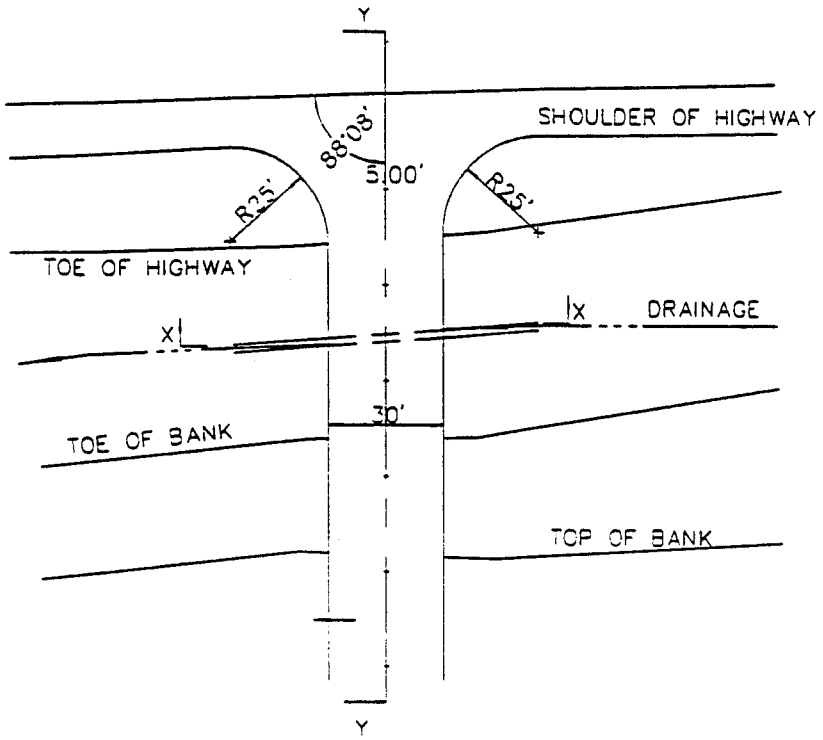
TYPICAL PLAN VIEW

CATTLEGUARD INSTALLATION FOR R/W FENCE

NOT TO SCALE

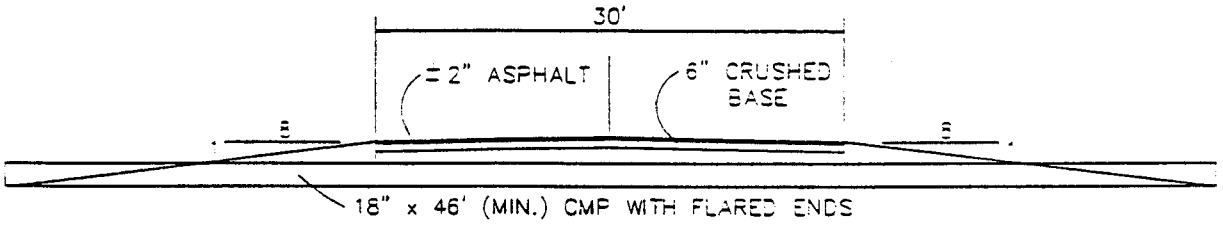
SKETCH FOR ACCESS PERMIT
NUMBER: _____
ACCESS TO

SECTION , TOWNSHIP NORTH,
RANGE WEST.
DATE: _____

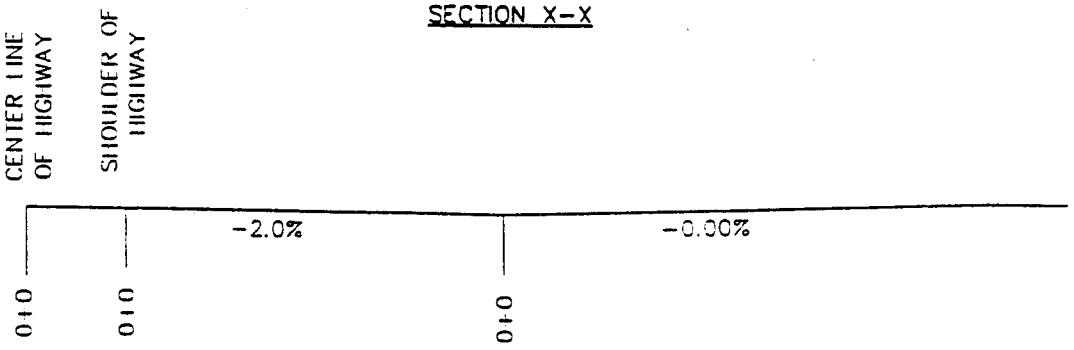


DRAWINGS
NOT TO SCALE

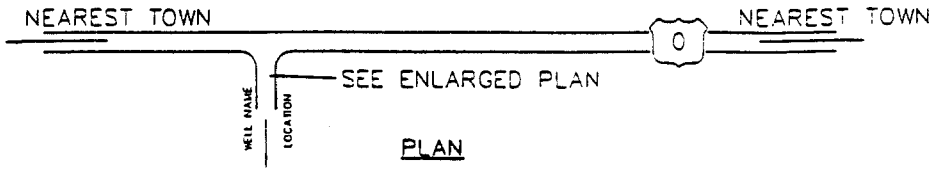
ENLARGED PLAN



SECTION X–X



SECTION Y–Y



PLAN