STAR VALLEY ROAD MAINTENANCE MATERIAL SITES

Environmental Assessment OR-030-08-006

Prepared by:
U.S. Department of the Interior
Bureau of Land Management
Jordan Resource Area
100 Oregon Street
Vale, Oregon 97918
September, 2008

BLM
Vale District

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

BLM/OR/WA/AE-08/099+1792

ENVIRONMENTAL ASSESSMENT
Star Valley Road Material Sites

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1 Introduction

1.A Background Information

The Star Valley Road (SVR) was constructed in the early 1970's and is a graded, drained, and largely natural surface, all-weather road. Regular road maintenance has consisted of seasonal surface grading. Several portions of the existing road surface have been maintained in past years by grading and placing gravel in areas prone to deterioration during wet weather.. Only two major upgrades have occurred since construction. The upgrades consisted of culvert replacement at the Tent Creek Cow Camp (T. 40 S., R. 47 E., Section 31 SW¼) and at Tent Creek in T. 41 S., R. 46 E., Section 1 SE¼SW¼. Both culverts were damaged in 2002 by increased water drainage in the area.

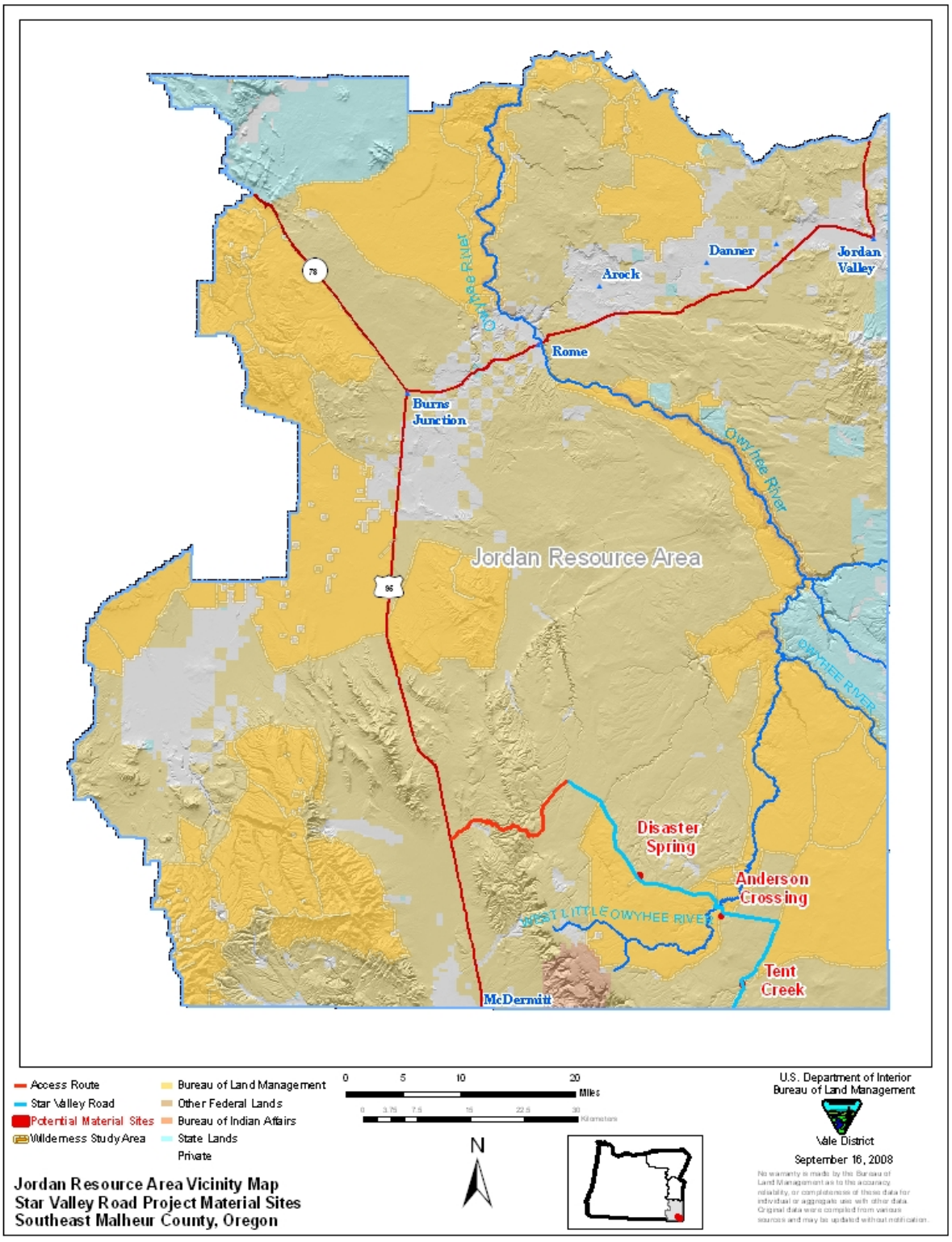
The need to develop new sources of rock aggregate along the SVR to the Nevada border has been known for several years. The need for more local sources of rock aggregate has become increasingly more important as fuel and equipment operating costs continue to rise. The nearest BLM Community pit is at Tent Creek in T. 40 S., R 47 E., Section 31 near the southern end of the SVR. This sand and gravel source has become unusable due to water inflow and will be abandoned. Currently, the nearest existing community pits are Antelope Flat Community Pit (rock aggregate) (T. 38 S., R. 43 E., Section 25) and Santa Reservoir Community Pit No.1 (topsoil) (T. 37 S., R. 44 E., Section 26) which are between 12 and 40 miles from the project areas.

1.B Location of Proposed Action

SVR traverses 40 miles from the junction of the Peacock Lake Road and SVR at Rattlesnake Reservoir #2 and continues in a southerly direction to the Nevada border (See Vicinity Map). It is the primary transportation route that provides access to the southern portion of the Jordan Resource Area for outdoor enthusiasts, upland bird and game hunters, livestock operators, access to private land, and BLM administrative access.

The proposed material sites are located as follows:

Disaster Springs:	T. 39 S., R. 45 E., Section 21, SE¼NW¼
Anderson Crossing:	T. 40 S., R. 46 E., Section 03 SE¼SE¼
Tent Creek:	T. 41 S., R. 46 E., Section 01, SE¼SE¼


Danner
Jordan Valley
Arock
Owyhee River
Rome
Burns Junction
Owyhee River
Jordan Resource Area
OWYHEE RIVER
Disaster Spring
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WEST LITTLE OWYHEE RIVER
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Other Federal Lands
Bureau of Indian Affairs
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Miles
N
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Vale District
September 16, 2008
Jordan Resource Area Vicinity Map
Star Valley Road Project Material Sites
Southeast Malheur County, Oregon

2 Purpose of and Need for the Action

The purpose of the proposed action is to develop three sites with favorable geologic characteristics to provide rock aggregate for maintenance of the SVR. The Vale District BLM is tasked with maintaining the SVR to provide safe public and administrative access to public lands in the southeastern portion of the District. The maintenance of the SVR requires that rock material is available within a reasonable distance to the work area. Existing rock sources from designated community pits are between 12 and 40 miles from the primary road maintenance area. The Vale District BLM needs to develop three material sites along the SVR to allow cost effective and efficient maintenance of BLM transportation plan roads. Increased fuel and equipment maintenance cost would be buffered by reducing the haulage distance of rock materials to a maximum of 6 miles for the road maintenance projects. The material sites would be developed to provide aggregate material for the resurfacing and subsequent maintenance of the SVR and any adjacent roads. The SVR continues south across the Nevada border and the potential exists that a portion of this material would be used by Nevada BLM, Winnemucca District, for maintenance of the SVR into the Quinn River area and the McDermitt Reservation.

3 Conformance with the Land Use Plan

All actions approved or authorized by the BLM must conform to the existing land use plan where one exists (43 CFR 1610.5-3, 516 DM 11.9). Although it is not a NEPA requirement, the BLM includes within all its NEPA documents a statement about the conformance of the proposed action and alternatives with the existing land use plan (LUP). The BLM's planning regulations state that the term "conformity" or "conformance" means that "… a resource management action shall be specifically provided for in the plan, or if not specifically mentioned, shall be clearly consistent with the terms, conditions, and decisions of the approved plan or amendment" (43 CFR 1601.0-5(b)).

The proposed action has been reviewed and found to be in conformance with the multiple use recommendations and alternatives of the Southern Malheur Management Framework Plan (MFP, March 1983). These recommendations and alternatives are cited within:

MFP – Step 1, Minerals Objective M-1 which states: "Allow to expand existing minerals, materials (sand and gravel, cinders, building stone, etc.) pits if required. And continue to use the existing highway material sites for free use of gravels to Government agencies" [*sic*].

MFP – Step 1, Minerals Objective M-2 which states: "Provide for the disposal of common variety minerals in order to meet public demand. Additionally, the objective states that: "Production data are not available for the Southern Planning area, however, the area has the capabilities of supplying mineral materials from public lands to meet the needs of State and local Government, including free use to Government agencies".

The proposed action is also in conformance with the management objectives of the Southeastern Oregon Resource Management Plan (SEORMP, Sept. 2002), General Planning Criteria, cited on page 9 of the RMP. The proposed action conforms to the program-specific objectives of the SEORMP cited on page 31, "Objective 3: Provide for public demand for saleable minerals from public land while protecting sensitive resources. The "Material Act" of 1947, as amended, and

the "Mining and Mineral Policy Act" of 1970 declare that it is the continuing policy of the Federal government to foster and encourage private enterprise in the development of domestic mineral resources. The FLPMA, section 102, directs that public land will be managed in a manner which recognizes the Nation's need for domestic sources or minerals and other resources. BLM mineral policy (1984) states that public land shall remain open and available for mineral exploration and development unless withdrawal or other administrative action is clearly justified in the national interest."

The proposed action is also in accordance with the Vale District Five-Year Noxious Weed Control Plan (ROD, 2006).

The proposed action is consistent with the following laws, regulations and plans:

The Materials Act of 1947, as amended (30 U.S.C. 601, *et seq.')*

This law authorizes the Secretary of the Interior to dispose of mineral materials (e.g., sand & gravel, stone, and common clay) from public lands, either through sale or, in the case of governmental entities or non-profit organizations, through the issuance of free-use permits.

The Mining and Mineral Policy Act of 1970

This law establishes the national policy of encouraging mineral development without undue hindrance.

The Federal Land Policy and Management Act of 1976

This law establishes the environmental protection requirements for the use, occupancy, and development of the public lands. Section 302 of the act directs the Secretary of the Interior to: (1) Manage the public lands under the principles of multiple use and sustained yield in accordance with approved land use plans, (2) To regulate the use, occupancy and development of the public lands, and (3) To prevent unnecessary and undue degradation of the public lands.

The 43 CFR 3600 Regulations

These regulations establish the procedures for mineral material exploration, development and disposal as well as the protection of the public lands under free use permit or sale contract.

Oregon State-wide Planning Goals (1985)

This document outlines the planning goals of the Oregon Department of Land Conservation and Development. The proposed action generally conforms with those goals, and more specifically to Goal 9-Economy of the state.

Malheur County Comprehensive Land Use Plan

This plan contains the official goals and policies of Malheur County concerning land use planning, including a policy of encouraging mineral development where it will improve the economy of the county, consistent with state, federal and environmental laws.

SEORMP 2002

This road maintenance project and subsequent projects would be conducted in accordance with Appendix O, Best Management Practices, Road Design and Maintenance, pages O-1 through O-4.

Vale District priorities for preventive road maintenance have been established as: 1) for the safety of all users, 2) BLM transportation plan roads, 3) roads covered by a reciprocal agreement with the county or road district, 4) resource protection, 5) high use roads, 6) roads requiring preventive maintenance that are grouped together or that are more accessible and, therefore, less costly to maintain, and 7) all other roads.

4 Alternatives Including the Proposed Action

The objective of alternative actions is to provide the most cost effective and logistically efficient way to meet future mineral material requirements for road maintenance in the SVR area. Each alternative focuses on protecting public land resource values consistent with public land management objectives identified in the MFP and the SEORMP. Information pertaining to the SVR maintenance project and the development of the material sites was attained from data collected from June of 2006 through June of 2008. Additionally, the field data, existing file data and conversations with Engineering and Resource Staff were used to formulate alternatives that provide reasonable economic alternatives that focus on resource protection. Four alternate locations were selected for evaluation during the early stages of the project. These sites were eliminated from rigorous evaluation as additional field work yielded data incompatible with the goals of the project.

4.A No Action

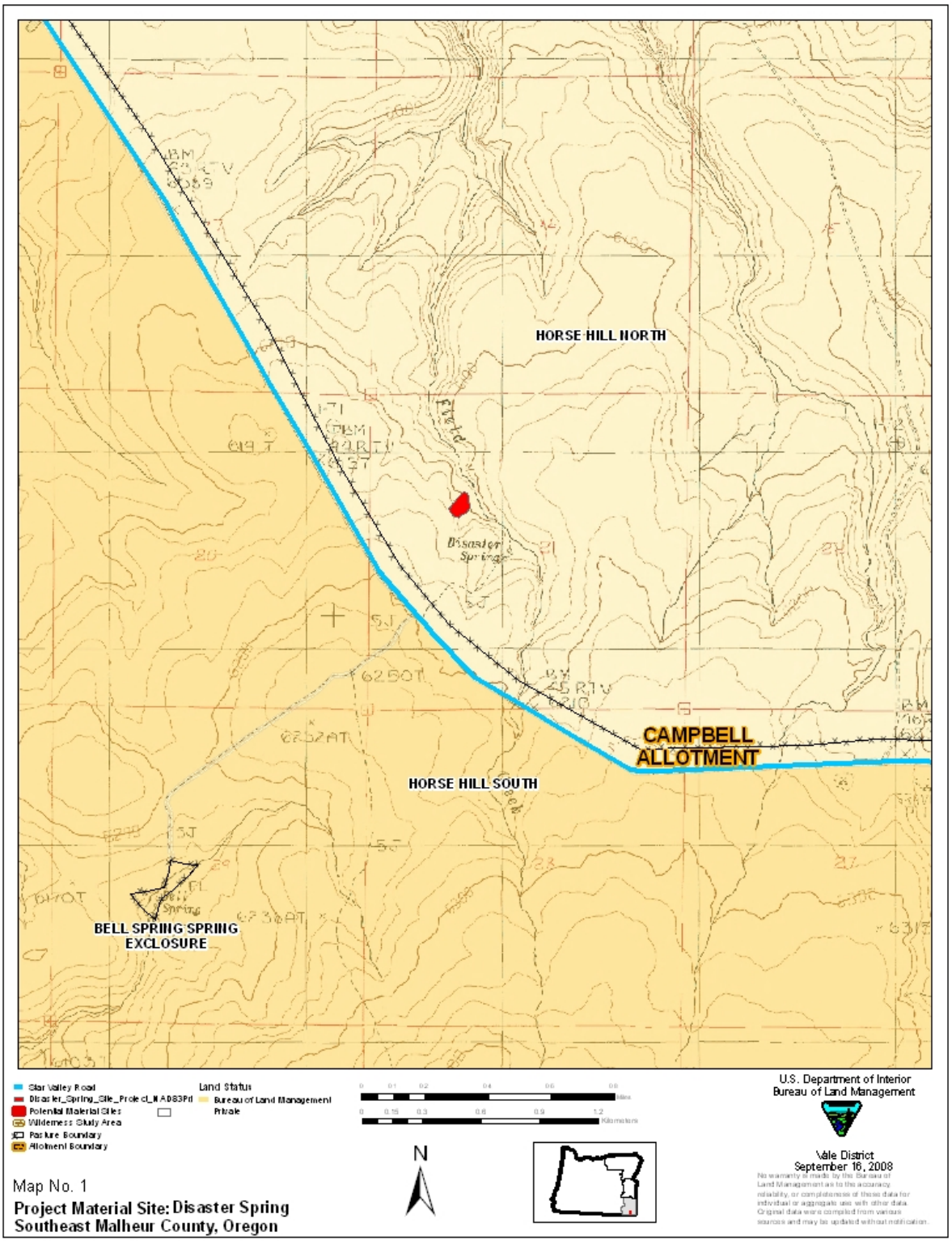
The no action alternative would eliminate the development of additional rock material sites. The SVR maintenance and upgrade project would proceed as planned by obtaining rock from the existing Antelope Flat Community Pit. Drilling, blasting, loading, crushing, and stockpile operations would provide sufficient material for the project. Rock material haulage by dump truck and belly-dump trucks would require traversing Peacock Lake Road to SVR. Approximately 4 miles of Peacock Lake Road would experience extremely heavy vehicle traffic. Haul trucks would traverse a maximum of 80 miles round trip to deliver rock aggregate to the distal portions of the SVR maintenance project. It is estimated that eight additional trucks, for a total of 15 trucks, would be required to completed the haulage needs to complete the SVR

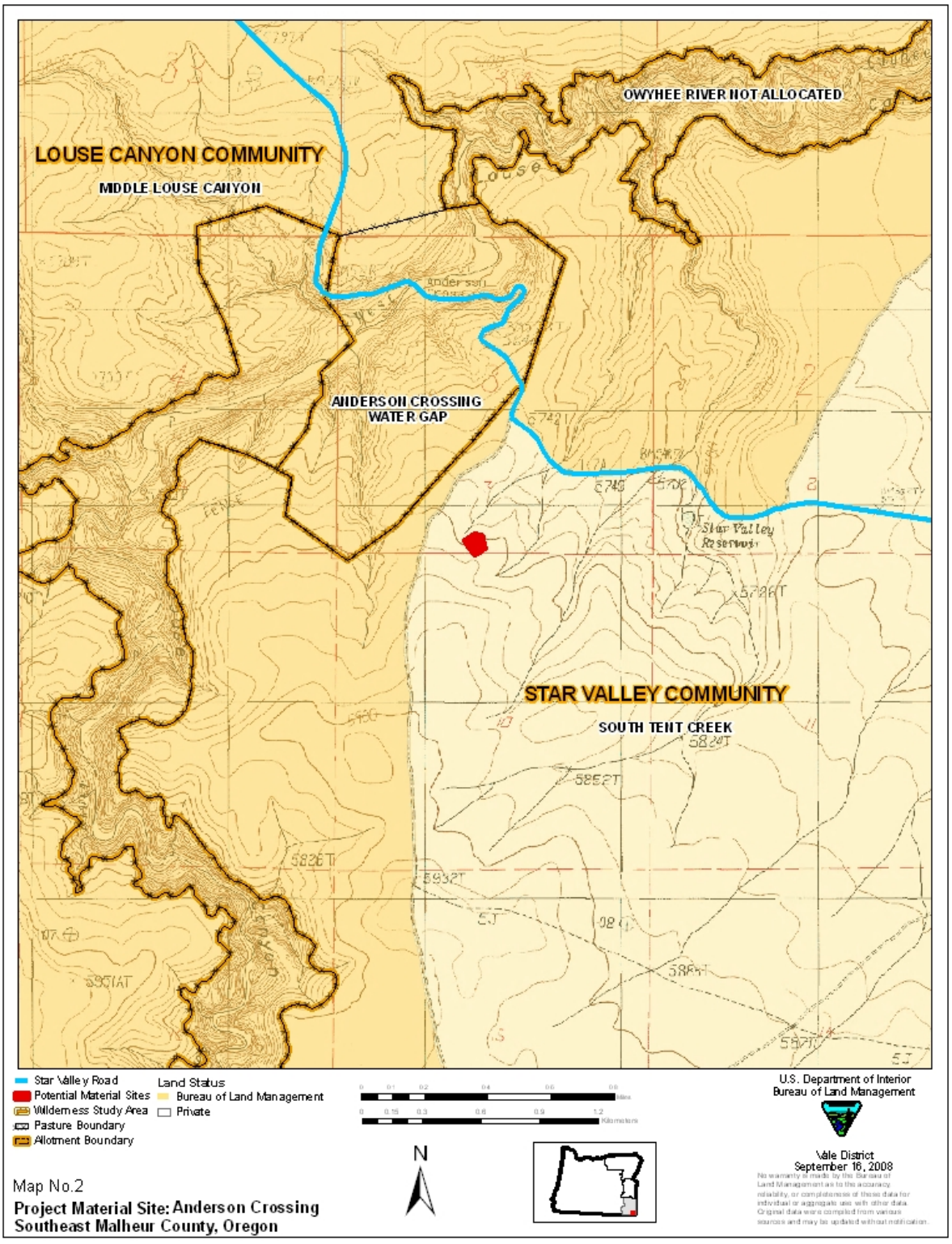
maintenance. An additional drainage culvert will be installed near the Tent Creek Cow Camp as part of the maintenance project.

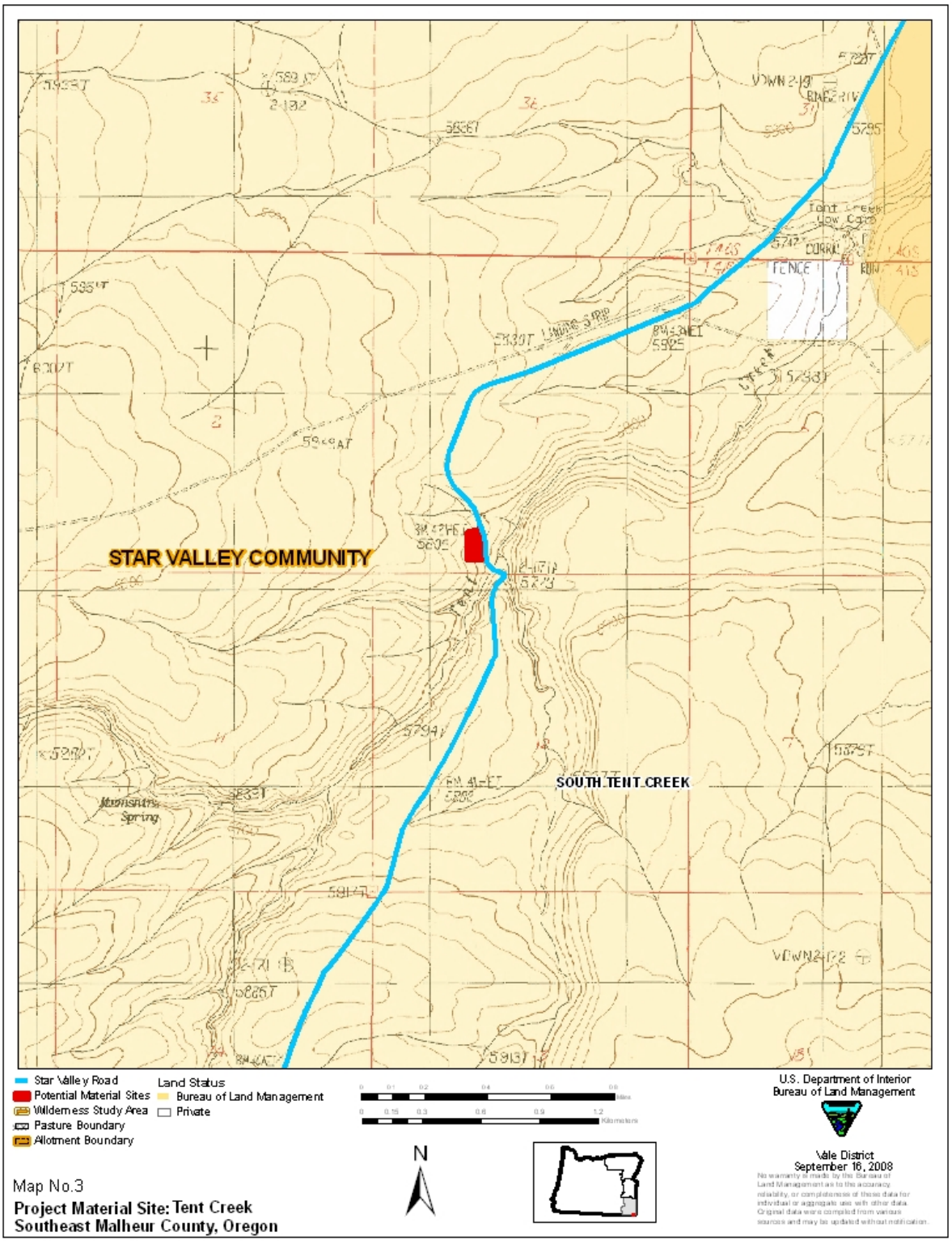
4.B Disaster Spring, Anderson Crossing, and Tent Creek Material Sites (Proposed Action)

The Vale District BLM is proposing to develop three material site locations along the SVR. This action would create material sites not to exceed ten acres of surface disturbance for both the excavation and stockpile operations. The portion of each site designed for rock extraction would be cleared of vegetation and available growth medium would be stockpiled adjacent to the site. An air-track drill rig would be used to construct holes to depths of 20 to 40 feet which would be subsequently loaded with blasting agent. The blasting agent would be ANFO (ammonium nitrate and fuel oil) which would fragment the rock to a size fraction amenable to loading operations (typically 15-18 inches in diameter). The fragmented rock would be pushed by a dozer into a pile and then loaded into a portable crushing unit to reduce the rock material to a size required for the road surfacing and maintenance. All blasting operations would be supervised by an Oregon State-licensed blasting professional. The crushed rock would be stockpiled in two size fractions, 3-inch minus and 1-inch minus, within the material site until needed for road maintenance. The location of these proposed material sites are in close proximity to the SVR to minimize the material haul distance (See Vicinity Maps No.1-No.3). In the future, each site would be designated as a BLM Community pit, as per 43 CFR 3601, allowing access to rock sources for yearly road maintenance.

This action would provide rock aggregate for upgrading the surface of portions of the SVR from a natural surface to a crushed rock surface. An additional drainage culvert will be installed near the Tent Creek Cow Camp as part of the maintenance project.


HORSE HILL NORTH
Disaster Spring
CAMPBELL ALLOTMENT
HORSE HILL SOUTH
BELL SPRING SPRING EXCLOSURE
Star Valley Road
Disaster_Spring_Site_Project_NAD83Pol
Potential Material Sites
Wilderness Study Area
Pasture Boundary
Allotment Boundary
Land Status
Bureau of Land Management
Private
N
U.S. Department of Interior
Bureau of Land Management
Vale District
September 16, 2008
Map No. 1
Project Material Site: Disaster Spring
Southeast Malheur County, Oregon


OWYHEE RIVER NOT ALLOCATED
LOUSE CANYON COMMUNITY
MIDDLE LOUSE CANYON
ANDERSON CROSSING
WATER GAP
STAR VALLEY COMMUNITY
SOUTH TENT CREEK
Star Valley Road
Potential Material Sites
Wilderness Study Area
Pasture Boundary
Allotment Boundary
Land Status
Bureau of Land Management
Private
N
U.S. Department of Interior
Bureau of Land Management
Vale District
September 16, 2008
Map No.2
Project Material Site: Anderson Crossing
Southeast Malheur County, Oregon


STAR VALLEY COMMUNITY
SOUTH TENT CREEK
Star Valley Road
Potential Material Sites
Wilderness Study Area
Pasture Boundary
Allotment Boundary
Land Status
Bureau of Land Management
Private
N
U.S. Department of Interior
Bureau of Land Management
Vale District
September 16, 2008
Map No.3
Project Material Site: Tent Creek
Southeast Malheur County, Oregon

4.C Alternatives Considered but Eliminated from Detailed Analysis

Four alternate material sites were considered as potential rock sources, but were eliminated from consideration after site inspections and resource evaluations were completed. One site near the selected Tent Creek site was considered and eliminated due to potential storm water drainage concerns, safety considerations, and limited rock resource potential. A second site north of the selected Tent Creek site was eliminated upon completion of the cultural resource field investigation. One site east of Disaster Spring was eliminated from the process because of Visual Resource Management (VRM) concerns and a limited rock resource potential. One site near Anderson Crossing at Star Valley Reservoir was considered unsuitable due to the presence of cultural values, estimated impacts beyond reasonable mitigation, and/or proximity to water resources or riparian values.

The alternate sites are located as follows:

Disaster Springs Alternate:	T. 39 S., R. 45 E., Section 22, SE¼NE¼
Anderson Crossing Alternate:	T. 40 S., R. 46 E., Section 02, SW¼SW¼
Tent Creek Alternate:	T. 41 S., R. 46 E., Section 01, SE¼SE¼ (east side of road)
	T. 41 S., R. 47 E., Section 06, SW¼NW¼

5 Affected Environment

This section presents relevant resource components of the existing environment which constitute baseline information.

5.A Vegetation

Vegetation in South Tent Creek Pasture of Star Valley Community Allotment and Horse Hill Pasture of Campbell Allotment consists of shrub steppe plant communities dominated by sagebrush species and bunchgrasses. The vegetation type which covers the majority of the allotments is dominated by Wyoming big sagebrush (*Artemisia tridentata ssp wyomingensis*) with an understory of perennial grass species, primarily bluebunch wheatgrass (*Pseudorogneria spicata*), Sandberg bluegrass (*Poa secunda*), Thurber's needlegrass (*Stipa thurberiana*), *Artemisia arbuscula*, perennial forbs (*Agoseris* spp., *Penstemon speciosus, Lomatium* spp., *Allium* spp., *Lupinus uncialis*), *Poa secunda*, and basin wildrye (*Leymus cinereus*). Some of the area has a degree of invasion by annual species including cheatgrass (*Bromus tectorum*).

Riparian area plants in drainages and areas around the livestock reservoirs and wet meadows consist mainly of sedge and rush species, while a few species of willow can be found sparsely scattered throughout the drainages in the watershed.

5.B Noxious Weeds

Much of the closed plant communities associated with the higher elevation range where the proposed material sites are located are remarkably weed free. Roads are natural conduits for

weed movement and the disturbances common to these vehicle travel routes support a few annual noxious weeds or weedy species. Small infestations of cheatgrass (*Bromus tectorum*) are common where livestock congregate near water sources, bed grounds and salt licks as well as near some of the old homesteads and historical military and freight routes that received heavy grazing as part of the settlement process. Other common annual or biennial weeds associated with these areas include a variety of mustards, such as clasping pepperweed (*Lepidium perfoliatum*), tumble mustard (*Sysymbrium altissimum*), blue mustard (*Chorispora tenella*) and flixweed (*Descurainia sophia*), lambsquarter (*Chenopodium sp*.), kochia (*Kochia scoparia*), Russian thistle (*Salsola iberica*) and prickly lettuce (*Lactuca serriola*).

Russian knapweed (*Acroptilon repens*) and heart-podded and globe-podded whitetop species (*Lepidium sp*.) have been treated near Tent Creek cow camp and along the road near the Tent Creek crossing.

Small, isolated sites of several thistle species exist within the general area. Scotch thistle (*Onapordum acanthium*) has been found and treated along the main roadway, most notably on the west grade into Anderson Crossing. Canada thistle (*Circium arvense*) and bull thistle (*Circium vulgare*) are occasionally found in moister sites and meadow areas associated with riparian or ephemeral stream areas, springs and seeps.

5.C Special Status Plants

No special status plant species are known to occur at or near the Disaster Spring or Tent Creek material sites. Although the area has not been extensively surveyed for rare species known to occur in the Jordan Resource Area, surveys which have been conducted generally fail to find such plants, and this part of the Vale District is not known to support an abundance of special status species. The only occurrence of such plants is in the vicinity of the Anderson Crossing site. Broad fleabane *(Erigeron latus)*, a Bureau Sensitive special status species, is present in the vicinity. The perimeter of the gravel site was cleared and flagged to avoid this area and, therefore, any disturbance to the known population of Broad fleabane on site.

5.D Wildlife and Fish

The BLM's wildlife management focuses on the habitat needs and conditions required to sustain healthy populations of native fish and wildlife. Priority is given to special status species, species of concern, and locally important species.

No Threatened and Endangered species use the habitat within the proposed pit sites and no critical or essential habitat would be affected by this action. Special status species and locally important species that occur within the project area include Sage grouse, pygmy rabbits, pronghorn antelope, and bighorn sheep.

5.E Livestock Grazing

The proposed project areas are located in the Horse Hill Pasture of the Campbell Allotment (#11306) and the South Tent Creek Pasture of the Star Valley Allotment (#01402). Currently

these allotments are being managed under an Interim Grazing Management Plan as a result of decisions following the Louse Canyon Geographic Management Area Revised Environmental Assessment dated March 01, 2005. The Horse Hill Pasture is 42,811 acres and is grazed from 04/01- 07/15. South Tent Creek Pasture is 52,160 acres and is grazed from 06/01- 07/15.

The Disaster Spring Pit would be located in the Campbell Allotment which the Lucky 7 Ranch is the authorized livestock permittee. The current forage allocation is 14,160 active AUMs with 0 AUMs suspended for a total preference of 14,160 AUMs.

The Anderson Crossing and Tent Creek pits would be located in the Star Valley Community Allotment which the Nouque Ranch and Fort McDermitt Stockmans Association are the authorized livestock permittees. Nouque Ranch's current forage allocation is 1,745 active AUMs with 0 AUMs suspended for a total preference of 1,745 AUMs. Fort McDermitt Stockmans Association's current forage allocation is 5,091 active AUMs with 0 AUMs suspended for a total preference of 5,091 AUMs.

5.F Recreation and Visual Resources

Dispersed outdoor recreation in the area of Star Valley Road primarily consists of hunting of big game and as an access for camping at Anderson Crossing on the West Little Owyhee River. The proposed project areas are located within visual resource management (VRM) Class III (Disaster Spring Pit) and IV (Anderson Crossing and Tent Creek Pits). The management objectives of class III and IV are as follows:

> Class III- partially retain the existing character of the landscape. Moderate levels of change are acceptable. Management activities may attract attention but should not dominate the view of a casual observer. Changes should conform to the basic elements of the predominant natural features of the characteristic landscape.
>
> Class IV- provide for management activities that require major modification of the landscape. These management activities may dominate the view and become the focus of viewer attention. However, every effort should be made to minimize the impact of these projects by carefully locating activities, minimizing disturbance, and designing the projects to conform to the characteristic landscape.

5.G Wilderness Study Areas

No Wilderness Study Areas are within the project area and therefore will not be discussed further in the affected environment.

5.H Non-Wilderness Study Area Lands with Wilderness Characteristics

The proposed Tent Creek material site is within the BLM Cairn "C" (OR-036-003) unit which has been determined to contain wilderness characteristics. Wilderness values present include size (9,143 acres), natural conditions, outstanding opportunities for solitude, outstanding opportunities for primitive and unconfined recreation, and supplemental values. Existing human imprints

include 3 developed springs, 6 miles of fence, and 5.9 miles motorized primitive trail. The Disaster Spring and Anderson Crossing proposed material sites are within BLM wilderness characteristic inventory units which have been determined to not meet the criteria for wilderness characteristics. The two units, respectively, are the BLM Field Creek (OR-036-010) and the BLM Twin Butte (OR-036-002).

5.I Cultural Resources

Prehistoric Lifeways

Pre-European contact Native American peoples were extremely well adapted to their environment. Tribal band names for Pre-contact people reflected important or interesting dietary items. The Wadatöka (wada eaters; seed eaters) occupied the area around Malheur and Harney lakes, the Tagötöka (eaters of Lomatium; root eaters), occupied the area south along the Jordan Creek and the three forks of the Owyhee River, and the Koa'aga'itöka (trap salmon eaters) occupied the area to the east at the confluence of the Snake, Payette, Boise and Owyhee Rivers.

The subsistence economy was strongly oriented toward gathering and collecting because plant foods were more abundant and dependable than fowl, fish or mammals. Mammals provided skins, furs, tools and many other by-products of aesthetic and practical value. Insects were often eaten, beetles, grasshoppers, locusts, crickets, ants and caterpillars were consumed, as well as most eggs and larva. Historic documents indicate that several hundred plants were used by the Indians of the Great Basin for medicinal purposes, fiber sources and food.

The Native people of the Great Basin, who practiced the ancestral lifeways into the 19th century were heirs to an extremely ancient cultural tradition with a technology both effective and efficient, with many multi-functional, light-weight and expendable tools. Seasonal round activities are well represented from the archaeological sites in the Great Basin. Gathering activities are attested by digging sticks, carrying baskets, and milling stones; hunting is represented by the atlatl and dart, the bow and arrow, stone projectile points and stone knives and scrapers. Travel and trade has been documented through toolstone which originated along the Owyhee River and was located at the Lost Dunes Site in Burns District, BLM.

From 1821-1846, contact between Native Americans and immigrants increased as the push westward continued. Exploration of new areas for furs, and overland migration routes, posed the first serious problems and formed the basis for more intensive settlement and development. After 1847, use of overland travel routes increased and white settlements appeared for the first time. Mining activities concentrated Euro-Americans in parts of the regions and the Mormons settled into the eastern Great Basin area.

By the early 1860s, the tensions between Euro-Americans and Native Americans erupted into several prolonged conflicts. Euro-American settlement encroached upon and destroyed many of the basic native resources such as wild seeds, roots and game that provided the subsistence base for Native Americans.

Cultural resources associated with the prehistoric use of this project area consists of rock art; rock shelters; rock structures (cairns, alignments, etc.); habitation sites around springs; small camps at stream-side meadows and on alluvial deposits at junctions of tributary streams; quarries of fine-grained basalt, obsidian, chalcedony and jasper; flaking stations on high points with good vantage; and sacred sites.

Historic Lifeways

Exploration into this area began with the expeditions of John Jacob Aster, after he heard the stories from the Lewis and Clark Expedition of 1804-1806 and continued throughout the early 19th century as the Malheur and Owyhee River basins were extensively exploited by both American and British Fur Companies.

The era of the fur trade provided the basis for American families to travel west. American trappers, familiar with the routes were hired as guides and in this part of the country, the Hudson's Bay Company trading posts at Fort Hall and Fort Boise served as supply and rest stops. The year of 1834 marks the first travels of missionaries though Malheur County on what was to become known as The Oregon Trail. For Native Americans, increased use of the Oregon Trail, burdened grazing resource, killed off game, and displaced resident bands.

Another great push for settlement of the west came in 1849 with the rush of gold seekers to California. It drained settlers from Oregon and diverted traffic from the Oregon Trail. Small groups of miners ventured east of the Cascades headed for Malheur County in search of the Blue Bucket mine. By 1864, gold was located in gold-bearing ground just west of Mormon Basin on the high ridge that separated the Burnt River from upper Willow Creek. Gold and silver were also located in Idaho at Silver City, east of Jordan Valley.

Settlement and the development of an early transportation network in southeast Oregon had its beginnings in a gold and silver strike in the Owyhee Mountains of Idaho and communities sprang up to accommodate the miners. At its peak, Silver City supported a population of about 5000. In 1864, an expedition scouted a route from Fort Klamath to the Owyhee region, to link those areas with the California coast. Earlier the same year, a private road company was organized to lay out a road to connect Ruby City in the Owyhee Mining District with Red Bluff, California. As early as 1864, a tri-weekly stage ran between Walla Walla and Boise. Another ran between California, Nevada and Idaho in 1865. To provide fresh horses and transportation across rivers, way stations and ferries were built along the stage routes. By 1866, Ruby Ranch and Sheep Ranch were stage stops along the Skinner Toll Road, in operation between Ruby City and the Owyhee River. The ranches are privately owned and still operating. The federal government encouraged road building by passing land grant acts, giving construction companies title to alternate sections along their newly constructed transportation routes.

In the 1870s, cattle barons, with money and cattle from outside the state, flourished in southeastern Oregon. They acquired huge land holdings through the Oregon Swamp Lands Act, the Desert Land Act, by homesteading, and by the purchase of preemptions and state-owned school lands. Large horse herds were ranged in the Owyhee Breaks by big-scale operators, and were thought to outnumber cattle in the area by 1881. It was during the 1880s that settlers

increasingly came to southeast Oregon, and small communities were established near reliable water sources. By 1884 domestic sheep entered into competition with cattle for grazing land and water. Sheep outfits tended to be small and numerous, while cattle operations were larger and fewer. The homesteader and the sheepman, plus a series of dry and harsh winters, created many problems for the cattlemen. They had resisted intrusion and were slow to adapt to newer methods of husbandry, including feeding cattle during the winter. Eventually the competition for grass and the animosity between the landowners and nomadic livestock operators resulted in environmental degradation. In response, the Taylor Grazing Act of 1934 brought government control of the rangelands to southeastern Oregon. The Taylor Grazing Act along with the Great Depression led to an abrupt and permanent drop in the number of sheep, while fostering a long-term increase in the number of beef cattle, which has continued to the present.

Cultural resources associated with the historic use of this area are tied to landforms as transportation corridors (wagon roads), historic homesteads, early irrigation project features, early mining activity areas, and remains of stage and telegraph stations.

5.J Paleontological Resources

Miocene, Pliocene, and Pleistocene fossil flora and fauna have been located in volcanic tuffs, sandstone and siltstone beds and Pleistocene gravels in areas of southeastern Oregon. Fossil fauna include fish and Miocene mammals. A wide variety of plant species have been identified by leaf fossils of trees, shrubs, herbs and vines.

5.K Air and Atmospheric Quality

The Project area is located within the U.S. Environmental Protection Agency, Region 10, Eastern Oregon Air Quality Control Region. The air quality in the area is generally good and typical of large rural areas within the Great Basin and Owyhee Uplands. Wind measurements for the site have not been recorded. However, data from the Western regional Climate Center (WRCC) of the National Climate Data Center (NCDC) of the National Oceanic and Atmospheric Administration (NOAA) indicates that at site McDermitt 26N, Oregon, 40 miles northwest of the Project area, the wind is from the south or southeast approximately 10 months of the year and the average speed is 7.8 MPH, with a low average speed of 6.8 MPH and a high average speed of 8.8 MPH (WRCC, 2006). Winds may also blow from the north and west. The mean annual precipitation is approximately 9.3 inches while the average annual maximum air temperature is 64.5 degrees F (WRCC, 2005). The principal source of air contaminants in the project area is from wind blown dust, both off dry rangeland in the region and from occasional traffic along dirt roads. During the summer months dust storms and rangeland wildfires may negatively affect air quality.

Climate Change

The temperature of the planet's atmosphere is regulated by a balance of radiation received from the sun and the amount of that radiation absorbed by the earth and atmosphere. Greenhouse gases (e.g., carbon dioxide and methane), as well as water vapor and particulate matter in the atmosphere keep the planet's temperature warmer than it would be otherwise; allowing the planet

to sustain life. While these gasses and particles have occurred naturally for millennia, there has been a marked increase in their atmospheric concentration since the start of the industrial age, contributing to observed climatic variability beyond the historic norm. While global and national inventories are established, regional and state-specific inventories are in varying levels of development. Quantification techniques are in development – for example, there is a good understanding of climate change emissions related to fuel usage; however measuring and understanding the effects of albedo is less comprehensive. Analytical tools necessary to quantify climatic impacts are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined.

Ongoing scientific research has identified the potential impacts of anthropogenic (man-made) greenhouse gas (GHG) emissions and changes in biological carbon sequestration due to land management activities on global climate. Through complex interactions on a regional and global scale, these GHG emissions and net losses of biological carbon sinks cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused CO2(e) concentrations to increase dramatically, and are likely to contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.[6]

Global mean surface temperatures have increased nearly 1.8°F from 1890 to 2006. Models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Northern latitudes (above 24° N) have exhibited temperature increases of nearly 2.1°F since 1900, with nearly a 1.8°F increase since 1970 alone. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the IPCC indicated that by the year 2100, global average surface temperatures would increase 2.5 to 10.4°F above 1990 levels. The National Academy of Sciences has confirmed these findings, but also has indicated there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. Increases in temperatures would increase water vapor in the atmosphere, and reduce soil moisture, increasing generalized drought conditions, while at the same time enhancing heavy storm events. Although large-scale spatial shifts in precipitation distribution may occur, these changes are more uncertain and difficult to predict.

As with any field of scientific study, there are uncertainties associated with the science of climate change. This does not imply that scientists do not have confidence in many aspects of climate change science. Some aspects of the science are known with virtual certainty, because they are based on well-known physical laws and documents trends (EPA 2008).[7]

Several activities contribute to the phenomena of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildfires and activities using combustion engines; changes to the natural carbon cycle; and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over different temporal scales. For example, recent emissions of carbon dioxide can influence climate for 100 years.

It may be difficult to discern whether global climate change is already affecting resources, let alone the Planning or Decision Areas for the RMP. In most cases there is more information about potential or projected effects of global climate change on resources. It is important to note that projected changes are likely to occur over several decades to a century. Therefore many of the projected changes associated with climate change described below may not be measurably discernible within the reasonably foreseeable future.

Existing climate prediction models are global in nature; therefore they are not at the appropriate scale to estimate potential impacts of climate change on the project area.

[6] Intergovernmental Panel on Climate Change (IPCC). 2007a. Climate Change 2007: Synthesis Report (Summary for Policymakers). Cambridge University Press. Cambridge, England and New York, New York. Available online at: http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf .

[7] U.S. Environmental Protection Agency. 2008. "Climate Change – Science – State of Knowledge" webpage. Available online at: http://www.epa.gov/climatechange/science/stateofknowledge.html .

5.L Geology

The SVR is geologically situated in the southeastern edge of the Owyhee Uplands physiographic province. This area is within the transition area of the northern Basin and Range Province, the southern Owyhee Uplands, and the Snake River Plain (Orr and Orr, 1999). This region is characterized by Miocene basaltic (Tb) and rhyolitic (Trh) lava flow rocks generated from faults associated with the Northern Nevada Rift Zone (NNR) and volcanism associated with the McDermitt caldera. The NNR is a northwest trending fault zone extending from southern Nevada and terminating in southeastern Oregon. It has been suggested that the NNR is the southern extension of the north-west trending faults in southeastern Washington that acted as conduits for much of the Miocene Columbia River basalts (John et al, 2000).

Miocene basaltic (Tb) and rhyolitic (Trh) lava flow rocks are the predominate lithologies in the vicinity of the material sites. The presence of a basal basalt assemblage of rocks capped by more silicic, flow-banded rhyolites and interbedded ash-flow tuffs and breccias indicates that the material sites are located in a favorable geologic environment for road aggregate. A relatively consistent blending of the more indurated basalt and rhyolite with the more friable tuffs would provide optimum compaction for a road surface.

There are no active mining claims at or in the vicinity of the proposed material sites.

Table 1: Geologic Rock Units within the Project Area

Province	Rock Unit	Rock Type	Age	Description
Eastern Oregon	Trh, correlative with Tvu in northern Nevada.	Rhyolite and dacite	Pliocene? and Miocene	Ash-flow tuff, lava flows, pumice-lapilli tuff, coarse pumicite, flow breccia, and domal complexes of rhyolitic, rhyodacitic, and dacitic composition; in places includes peralkaline rhyolite and some andesite and andesite breccia. Locally porphyritic with phenocyysts of alkali feldspar, plagioclase, and minor augite, ferro-hedenbergite, hornblende, hypersthene, or biotite. Commonly flow banded; locally glassy. Many of the ash-flow tuffs exhibit flow features and only obscure vitro-clastic textures. In places includes interlayers of silicic volcaniclastic rocks and tuffaceous sedimentary rocks. Includes rhyolite at Owyhee Dam, Jump Creek Rhyolite, and Littlefield Rhyolite, all of Kittleman and others (1965); Dooley Rhyolite Breccia of Gilluly (1937), radiometrically dated at 14.7Â± 0.4 Ma by potassium-argon methods (Fiebelkorn and others, 1983); resurgent domal masses in McDermitt caldera area; and extensive unnamed flows and ash-flow tuffs in the central and southern part of the Owyhee Upland. Also includes isolated masses of dacitic and rhyodacitic flows, breccia, and ash-flow tuff along eastern slope of Cascade Range that are lapped by flows and sediments of the Madras (or Deschutes) Formation. Potassium-argon ages on rocks in unit from southeast Oregon range from about 13 to 16 Ma; lenses of interbedded tuffaceous sedimentary rocks locally contain a Miocene (Barstovian) vertebrate fauna.
Eastern Oregon	Tb, correlative with QTv and Tvu in northern Nevada.	Basalt	upper and middle Miocene	Basalt flows, flow breccia, and basaltic peperite; minor andesite flows; some interbeds of tuff and tuffaceous sedimentary rocks. Basalt is aphyric to moderately porphyritic with phenocrysts of plagioclase and olivine and exhibits both subophitic and diktytaxitic textures. Includes Picture Rock Basalt of Hampton (1964), radiometrically dated by potassium-argon methods as middle(?) and late Miocene in age (see Fiebelkorn and others, 1983), flows of Deer Butte Formation of Kittleman and others (1967), and extensive unnamed flow sequences in the Basin-Range and Owyhee Upland Provinces of southern Lake, Harney, and Malheur Counties that are younger than Steens Basalt, dated at about 15 Ma (Baksi and others, 1967) and the Owyhee Basalt, dated at about 14 Ma (Bottomley and York, 1976; see also Fiebelkorn and others, 1983), and older than 7 or 8 Ma. Partly coeval with the Saddle Mountains Basalt of the Columbia River Basalt Group (Swanson and others, 1979).
Eastern Oregon	Tob	Olivine basalt	Pliocene and Miocene	Thin, commonly open-textured (diktytaxitic), subophitic to intergranular olivine basalt flows, intercalated with and grades laterally through palagonite breccia and tuff into tuffaceous sedimentary rocks (unit Ts). In places includes flows of platy olivine andesite or basaltic andesite. Several potassium-argon ages ranging from about 4 to 7 Ma indicate unit is mostly of early Pliocene and late Miocene age. Includes Shumuray Ranch Basalt and Antelope Rat Basalt of Kittleman and others (1965), Grassy Mountain Basalt of Corcoran and others (1962), Drinkwater Basalt of Bowen and others (1963), basalt formerly assigned to Danforth Formation by Piper and others (1939) (see Walker, 1979), Hayes Butte Basalt of Hampton (1964); Pliocene and upper Miocene basalt flows capping and interstratified with the Madras (or Deschutes) Formation, and basalt flows interstratified in the Dalles Formation of Newcomb (1966; 1969).

5.M Soils and Watershed Resources

Soils

Upland rangeland soils found within the project area were surveyed and described in Oregon's Long Range Requirements for Water 1969, Appendix I-11, Owyhee Drainage Basin.

At the proposed Tent Creek site, the soils are mainly a combination of Classification Units (CU) 77 and 96 soils on slopes varying from twelve to sixty percent. This proposed site also contains smaller amounts of Classification Unit S76 soils.

At the proposed Anderson Crossing site, the soils are mainly a combination of Classification Units (CU) 77 and S76 soils on slopes varying from three to twelve percent.

At the proposed Disaster Spring site, the soils are mainly a combination of Classification Units (CU) 76 and 77 soils on slopes varying from three to twelve percent.

Hydric soils can also be found in isolated areas near the project areas, but were not mapped in detail by this survey. Hydric soils contain a higher level of organic material and are associated with saturated low-gradient stream channel areas, reservoirs, and wet meadows.

CU 76 soils are shallow, clayey, very stony, well drained soils over basalt, rhyolite, or welded tuff. They occur on gently undulating to rolling lava plateaus and some very steep faulted and dissected terrain. The soil profile consists of very stony, silt loam, stony silty clay, to stony and channery, heavy, silty clay loams over fractured bedrock at 18+ inches. Native vegetation consists mostly of bluebunch wheatgrass, Sandberg bluegrass, big and low sagebrush.

CU S76 soils are shallow, extremely stony, well drained soils over basalt, rhyolite, or welded tuff. They occur on gently undulating to steep plateaus. The soil profile by depth consist of stony loam, extremely stony clay loam, extremely stony clay over fractured bedrock at 11+ inches. Native vegetation consists mostly of low sagebrush, Sandberg bluegrass, and bluebunch wheatgrass.

CU 77 soils are very shallow, very stony, rocky, well-drained soils over basalt, rhyolite, or welded tuff. These soils occur on gently undulating to rolling lava plateaus. Native vegetation consists mostly of big sagebrush, low sagebrush, and Sandberg bluegrass. These soils have no potential for rangeland seeding.

CU 96 is a miscellaneous land unit called Rock Land. It consists of rough, steeply sloping areas that are predominantly shallow, very stony soils interspersed with rock outcroppings. Steep Rock land occurs mainly as canyons and escarpments along margins and dissected portions of lava plateaus. These areas are mainly used for wildlife and watershed purposes.

Watershed

The watershed area of the proposed Tent Creek site drains into Tent Creek which consists of intermittently flowing channels with areas of interrupted perennial channel segments. Throughout these channel segments perennial water storage occurs as “pot” or “scour” holes in the stream. Many of the smaller tributary channels to this stream are ephemeral and flow only during spring runoff or in response to the occasional large precipitation events that occur throughout the watershed. Intermittently flowing Tent Creek drains into the Little Owyhee River in Idaho.

The watershed area of the proposed Anderson Crossing site drains into the West Little Owyhee River which is a perennial flowing river. The proposed site is located near a small, ephemeral tributary to this river. Flow only occurs in this tributary during spring runoff or in response to the occasional large precipitation events that occur throughout the watershed.

The watershed area of the proposed Disaster Spring site drains into Field Creek which consists of intermittently flowing channels with areas of interrupted perennial channel segments. Throughout these channel segments perennial water storage occurs as "pot" or "scour" holes in the stream. Many of the smaller tributary channels to this stream are ephemeral and flow only during spring runoff or in response to the occasional large precipitation events that occur throughout the watershed. Intermittently flowing Field Creek drains into Pole Creek which drains into Big Antelope Creek and eventually into the Owyhee River.

Riparian Resources

The proposed Tent Creek site is within one quarter mile of Tent Creek which was assessed as Functioning At Risk with unknown trend in 2000. Approximately, two miles downstream, the rating of Tent Creek becomes Functioning At Risk with downward trend. Inadequate dissipation of stream energy is the largest factor causing Tent Creek at this point not to function properly.

The proposed Anderson Crossing site is located approximately two miles away from the West Little Owyhee River along an ephemeral drainage. The river at the confluence of the tributary is rated as Proper Functioning Condition in 2000.

The proposed Disaster Spring site is located within one quarter mile of Disaster Spring which was rated as Functioning At Risk in 2000. The site is located on the top of a hill between Disaster Spring and an unnamed tributary to Field Creek. The site is also located within 150 feet of Field Creek which was rated as Functioning At Risk with unknown trend in 2000.

5.N Mandatory Elements

The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order and must be considered in all EA's and EIS's:

Table 2: Mandatory Elements of the Human Environment

Element	Relevant Authority	BLM Manual	
Air Quality	The Clean Air Act as amended (42 USC 7401 et seq.)	MS 7300	Not affected
Areas of Critical Environmental Concern	Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.)	MS 1617	Not present
Cultural Resources	National Historic Preservation Act as amended (16 USC 470)	MS 8100	Analyzed in this document
Farm Lands (prime or unique)	Surface Mining Control and Reclamation Act of 1977 (30 USC 1201 et seq.)		Not present
Floodplains	E.O. 11988, as amended, Floodplain Management, 5/24/77	MS 7260	Not present
Native American Religious Concerns	American Indian Religious Freedom Act of 1978 (42 USC 1996)	MS 8100	None known
Threatened or Endangered Species	Endangered Species Act of 1973 as amended (16 USC 1531)	MS 6840	Not present
Wastes, Hazardous or Solid	Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended (42 USC 9615)	MS 9180 MS 9183	Not present and blasting agent will be consumed by the operation. All emergency response procedures will be in accordance with the Burns-Vale Hazardous Materials Management Contingency Plan, 2008
Water Quality Drinking/Ground	Safe Drinking Water Act as amended (42 USC 300f et seq.)	MS 7240 MS 9184	Not affected beyond that identified in the vegetation, soil

	Clean Water Act of 1977 (33 USC 1251 et seq.)		and watershed narratives.
Wetlands/Riparian Zones	E.O. 11990, Protection of Wetlands, of May 24, 1977	MS 6740	Not affected beyond that identified in the water resources narratives.
Wild and Scenic Rivers	Wild and Scenic Rivers Act as amended (16 USC 1271)	MS 8014	Not present
Wilderness and Wilderness Study Areas	Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.) Wilderness Act of 1964 (16 USC 1131 et seq.)	MS 8500	Not present
Environmental Justice	E.O. 12898 of February 11, 1994		Minority populations and low income populations not affected
Actions to Expedite Energy Related Projects	E.O. 13212 of May 18, 2001		Proposed action is not energy related nor would it affect production, transmission, or conservation of energy.

Elements not present or not affected will not be further analyzed within this environmental assessment.

6 Environmental Consequences

This chapter is organized by alternatives to illustrate the differences between the proposed action, alternatives, and the "no action" alternative.

6.A Alternative 1 (No Action Alternative)

6.A.1 Vegetation

Under the no action alternative, riparian and other vegetation associated with the three material sites would remain in its current quantity and condition.

6.A.2 Noxious Weeds

Much of the closed plant communities associated with the higher elevation range where the proposed material sites are located are remarkably weed free. Roads are natural conduits for weed movement and the disturbances common to these vehicle travel routes support a few annual

noxious weeds or weedy species. Small infestations of cheatgrass (*Bromus tectorum*) are common where livestock congregate near water sources, bed grounds and salt licks as well as near some of the old homesteads and historical military and freight routes that received heavy grazing as part of the settlement process. Other common annual or biennial weeds associated with these areas include a variety of mustards, such as clasping pepperweed (*Lepidium perfoliatum*), tumble mustard (*Sysymbrium altissimum*), blue mustard (*Chorispora tenella*) and flixweed (*Descurainia sophia*), lambsquarter (*Chenopodium sp*.), kochia (*Kochia scoparia*), Russian thistle (*Salsola iberica*) and prickly lettuce (*Lactuca serriola*).

Russian knapweed (*Acroptilon repens*) and heart-podded and globe-podded whitetop species (*Lepidium sp*.) have been treated near Tent Creek cow camp and along the road near the Tent Creek crossing.

Small, isolated sites of several thistle species exist within the general area. Scotch thistle (*Onapordum acanthium*) has been found and treated along the main roadway, most notably on the west grade into Anderson Crossing. Canada thistle (*Circium arvense*) and bull thistle (*Circium vulgare*) are occasionally found in moister sites and meadow areas associated with riparian or ephemeral stream areas, springs and seeps. Objective 3 for noxious weeds in the SEORMP would be met (SEORMP, 2002, pg. 41).

6.A.3 Special Status Plants

No special status plant species are known to occur at or near the Disaster Spring or Tent Creek material sites. Although the area has not been extensively surveyed for rare species known to occur in the Jordan Resource Area, surveys which have been conducted generally fail to find such plants, and this part of the Vale District is not known to support an abundance of special status species. The only occurrence of such plants is in the vicinity of the Anderson Crossing site. Broad fleabane *(Erigeron latus),* a Bureau Sensitive special status species, is present in the vicinity. Under the No Action alternative, the site would remain in its current condition.

6.A.4 Wildlife and Fish

Under the No Action alternative existing habitat would remain undisturbed. Local populations of fish and wildlife would remain at existing levels.

6.A.5 Livestock Grazing

The No Action alternative would not alter current grazing activity.

6.A.6 Recreation and Visual Resources

Opportunities for big game hunt and access Anderson Crossing would be unchanged. The visual resources would be unchanged or maintained under the no action alternative.

6.A.7 Non-Wilderness Study Area Lands with Wilderness Characteristics

Wilderness characteristics including the size, natural conditions, outstanding opportunities of solitude, and outstanding opportunities for primitive and unconfined recreation, and supplemental values would be unchanged under this alternative.

6.A.8 Cultural Resources

Under the No Action alternative, there would be no affect to any cultural and/or paleontological resources that might be present in the area.

6.A.9 Soils and Watershed Resources

Soil and water resources would remain unchanged with the No Action alternative.

6.B Alternative 2: Disaster Spring, Anderson Crossing, and Tent Creek Material Sites (Proposed Action)

6.B.1 *Vegetation*

Vegetation in South Tent Creek Pasture of Star Valley Community Allotment and Horse Hill Pasture of Campbell Allotment consists of shrub steppe plant communities dominated by sagebrush species and bunchgrasses. The vegetation type which covers the majority of the allotments is dominated by Wyoming big sagebrush (*Artemisia tridentata ssp wyomingensis*) with an understory of perennial grass species, primarily bluebunch wheatgrass (*Pseudorogneria spicata*), Sandberg bluegrass (*Poa secunda*), Thurber's needlegrass (*Stipa thurberiana*), *Artemisia arbuscula* / perennial forb's (*Agoseris* spp., *Penstemon speciosus, Lomatium* spp., *Allium* spp., *Lupinus uncialis*) / *Poa secunda*, and basin wildrye (*Leymus cinereus*). Some of the area has a degree of invasion by annual species including cheatgrass (*Bromus tectorum*).

Riparian area plants in drainages and areas around the livestock reservoirs and wet meadows consist mainly of sedge and rush species, while a few species of willow can be found sparsely scattered throughout the drainages in the watershed.

6.B.2 *Noxious Weeds*

Much of the closed plant communities associated with the higher elevation range where the proposed material sites are located are remarkably weed free. Roads are natural conduits for weed movement and the disturbances common to these vehicle travel routes support a few annual noxious weeds or weedy species. Small infestations of cheatgrass (*Bromus tectorum*) are common where livestock congregate near water sources, bed grounds and salt licks as well as near some of the old homesteads and historical military and freight routes that received heavy grazing as part of the settlement process. Other common annual or biennial weeds associated with these areas include a variety of mustards, such as clasping pepperweed (*Lepidium perfoliatum*), tumble mustard (*Sysymbrium altissimum*), blue mustard (*Chorispora tenella*) and flixweed (*Descurainia sophia*), lambsquarter (*Chenopodium sp*.), kochia (*Kochia scoparia*), Russian thistle (*Salsola iberica*) and prickly lettuce (*Lactuca serriola*).

Russian knapweed (*Acroptilon repens*) and heart-podded and globe-podded whitetop species (*Lepidium sp*.) have been treated near Tent Creek cow camp and along the road near the Tent Creek crossing.

Small, isolated sites of several thistle species exist within the general area. Scotch thistle (*Onapordum acanthium*) has been found and treated along the main roadway, most notably on the west grade into Anderson Crossing. Canada thistle (*Circium arvense*) and bull thistle (*Circium vulgare*) are occasionally found in moister sites and meadow areas associated with riparian or ephemeral stream areas, springs and seeps.

Oregon Dept of Ag Noxious Weed Policy and Classification System can be found at: http://egov.oregon.gov/ODA/PLANT/weed_index.shtml

Malheur County's noxious policy and weed list can be found at http://www.malheurco.org/weeds

Table 3: Noxious Weeds Existing in the Vicinity of the Project Area

Weed Species: Scientific Name	Weed Species: Common Name	ODA Classification	County Classification	Not Classified
Bromus tectorum	Cheatgrass		C	
Lepidium perfoliatum	Clasping pepperweed			X
Sysymbrium altissimum	Tumble mustard			X
Chorispora tenella	Blue mustard			X
Descurainia sophia	Flixweed			X
Chenopodium sp.	Lambsquarter			X
Kochia scoparia	Kochia		C	
Salsola iberica	Russian thistle			X
Lactuca serriola	Prickly lettuce			X
Circium arvense	Canada thistle	B	B	
Onapordum acanthium	Scotch thistle	B	B	
Circium vulgare	Bull thistle	B	C	
Acroptilon repens	Russian knapweed	B	B	
Lepidium sp (Cardaria)	Whitetop species	B	B	

6.B.3 *Special Status Plants*

No special status plant species are known to occur at or near the Disaster Spring or Tent Creek material sites. Although the area has not been extensively surveyed for rare species known to occur in the Jordan Resource Area, surveys which have been conducted generally fail to find such plants, and this part of the Vale District is not known to support an abundance of special status species. The only occurrence of such plants is in the vicinity of the Anderson Crossing site.

Broad fleabane *(Erigeron latus)*, a Bureau Sensitive special status species, is present in the vicinity. The perimeter of the gravel site was cleared and flagged to avoid this area and, therefore, any disturbance to the known population of Broad fleabane on site.

6.B.4 *Wildlife and Fish*

Less than 10 acres of wildlife habitat would be disturbed at the proposed rock pit locations. The ground at these locations has shallow soils, exposed rock, and vegetation that is relatively sparse, making this habitat marginal for use by wildlife.

Sage grouse use the surrounding area for nesting habitat, but no nesting areas or Leks are known to occur within 1 mile of the proposed pit locations. Best Management Practices (BMP's) would be required during project implementation to minimize effects to Sage Grouse.

Pygmy rabbits may use the project area, but Pygmy rabbits are closely associated with deep soils, suitable for burrowing, and sage brush. The soil at the proposed pit locations is shallow, rocky, and unsuitable for pygmy rabbit burrows.

Sage grouse and pygmy rabbits are unlikely to be affected under this alternative. Beneficial or detrimental effects to other fish and wildlife species, including mule deer, pronghorn antelope, and bighorn sheep would be relatively minor.

6.B.5 *Livestock Grazing*

Under this alternative there would be minimal effect to livestock grazing in the affected pastures. Approximately 0.03% of the total acreage of the pastures would be affected. The rock pit sites are in rocky uplifted areas, where the vegetation is sparse and grazing is limited. No AUMs will be lost to permittees due to the rock pits. Livestock would not be affected during the time of gravel production because it is scheduled to take place in October to November and livestock grazing occurs from April to July.

6.B.6 *Recreation and Visual Resources*

Dispersed outdoor recreation activities would remain unchanged or be slightly enhanced by improving access to the area. Opportunities for hunting of big game would be unchanged. Access to Anderson Crossing, for camping on the West Little Owyhee River, would likely be improved through material placement during maintenance of the SVR. The visual resource management classes III and IV of this area allows for moderate to major modification (respectively) of the landscape. The scope of the proposed project is within the management objectives for VRM classes III and IV. The proposed Tent Creek site, adjacent to the SVR, would be the only material pit that would be readily visible from primary access routes.

6.B.7 Non-Wilderness Study Area Lands with Wilderness Characteristics

The proposed Tent Creek material site is within the Cairn "C" (OR-036-003) wilderness characteristics unit. The size of area would be reduced by approximately 10 acres or less than 0.10% overall. Outstanding opportunities for solitude would be diminished when activity is

occurring at the pit site. The overall natural conditions, outstanding opportunities for primitive and unconfined recreation, and supplemental values would be maintained (minus the 0.10%) as the project area would be adjacent to the existing road (SVR) and the Tent Creek concrete culvert. The project location adjacent to the road would not create a cherry stem effect or bisect the unit thereby minimizing the overall impact to the unit.

6.B.8 *Cultural and Paleontological Resources*

The locations selected as potential rock source locations were surveyed for Cultural Resources on July 5, 2006, May 7, 2008 and July 6, 2008. The survey methodology utilized a Class III pedestrian survey with transects spaced 20m apart. If during the field survey, cultural and/or fossil flora and fauna resources had been located, the project would have been redesigned to avoid the resources or another project location would have been selected. One cultural site was located at in the vicinity of Disaster Spring and will be avoided by the project. No cultural resources were located at the other two proposed project locations. There will be no effect because no paleontological resources were found at any of the potential rock source locations.

6.B.9 *Air and Atmospheric Quality*

As previously stated, the principal source of air contaminants in the project area is from wind blown dust, both off dry rangeland in the region and from occasional traffic along dirt roads. During the summer months dust storms and rangeland wildfires may negatively affect air quality. Project completion under this alternative would reduce the fugitive dust from vehicle operations along SVR. The road surface would be modified from a natural soil material consisting of sand-, silt-, and clay-size particles to a nominal 1-inch rock aggregate. The existing road surface material is more effectively transported by wind and vehicle activities than the coarse-grained rock aggregate that would be present upon project completion. Therefore, some measure of air quality improvement should be realized under Alternative 2.

Climate Change

The temperature of the planet's atmosphere is regulated by a balance of radiation received from the sun and the amount of that radiation absorbed by the earth and atmosphere. Greenhouse gases (e.g., carbon dioxide and methane)(GHG), as well as water vapor and particulate matter in the atmosphere keep the planet's temperature warmer than it would be otherwise; allowing the planet to sustain life. While these gasses and particles have occurred naturally for millennia, there has been a marked increase in their atmospheric concentration since the start of the industrial age, contributing to observed climatic variability beyond the historic norm.

While global and national inventories for GHGs are established, regional and state-specific inventories are in varying levels of development. Quantification techniques are in development – for example, there is a good understanding of climate change emissions related to fuel usage; however measuring and understanding the effects of albedo is less comprehensive. Analytical tools necessary to quantify climatic impacts are presently unavailable. As a consequence, impact assessment of specific effects from anthropogenic activities cannot be determined within the scope of this EA.

6.B.10 *Soils and Watershed Resources*

Soils

Soils on the proposed mineral extraction sites will be altered over the long-term as the proposed sites are to be used in future maintenance of the SVR. Erosional impacts will occur from soil disturbance at the proposed sites during loading and hauling operations. These impacts will be limited or avoided by applying standard design features and best management practices (BMP's) to the proposed sites.

Watershed

Mining operations, like those at the proposed mineral extraction sites, can contribute to adverse watershed effects by increasing overland flow, erosion rates, and sediment transport to riparian conservation areas (RCA's) associated with intermittent and perennial streams. Adverse effects to water quality would be minimized or avoided in this alternative by designing operations to meet water quality standards, incorporating BMP's and adhering to State and Federal laws and regulations.

Water quality would improve upon completion of gravel emplacement on the SVR and by maintaining the gravel surface on the SVR as there would be less sediment runoff than is currently occurring from the dirt surface.

Riparian resources

Riparian soils and vegetation will remain undisturbed and intact as all of the proposed sites are located outside RCA's. By utilizing the guidance listed above to minimize adverse water quality impacts, RCA's would be protected from adverse impacts associated with this alternative.

As identified in the SEORMP BMP's, maintenance of a gravel surface on the SVR would contribute to improving RCA's by decreasing the sediment load delivered to the streams.

7 Best Management Practices (BMP's)

Best management practices (BMP's, Appendix O, SEORMP/ROD) are those land and resource management techniques designed to maximize beneficial results and minimize negative impacts of management actions. BMP's are selected and implemented as necessary, based on site-specific conditions, to meet water, soil, and resource management objectives. BMP's for this proposal are designed to assist in achieving the objectives for maintaining water quality, limiting disturbance to sensitive plants, fish, and wildlife, and reducing the likelihood of noxious weed spread.

Surface-Disturbing Activities

1) Special design and reclamation measures would be required to protect scenic and natural landscape features. This may include mulching and fertilizing disturbed areas and maintaining low-profile stockpiles and berms associated with the material pits to minimize visual contrasts. Surface-disturbing activities would avoid sensitive in-tact sensitive plant communities to reduce the visual effects of the proposal.

2) Blasting will not occur during sage grouse nesting season from March 1 to June 15.
3) Disturbed areas would be contoured to blend with the natural topography. Blending is defined as reducing form, line, and color contrast associated with the surface disturbance. Disturbance in visually sensitive areas would be contoured to match the original topography, matching is defined as reproducing the original topography and eliminating form, line and color caused by the disturbance as much as possible. Re-vegetation of the sites will be completed by using native seed mixtures.
4) Reclamation and site stabilization would be implemented concurrent with construction and site operations to the fullest extent possible to allow for continued operation.
5) Retain vegetation on cut slopes unless it poses a safety hazard or restricts maintenance.
6) Retain adequate vegetation between pits and streams to filter runoff caused by disturbed soils. Should this become an operational restriction, then man-made sediment barriers will be installed. Storm-water run-off from the pit will be contained within the pit.
7) Water consumed in the drilling operation and for dust control during the mining and crushing operation will be obtained from the Tent Creek Community Pit and Anderson Crossing. No modifications will be required for these areas.
8) Avoid soil surface disturbance within riparian areas.
9) Avoid placing overburden or soil in riparian areas or on floodplains.
10) Fill material should be pushed into cut areas and up over back slopes. Depressions should not be left that would trap water or form ponds.
11) Design and locate water crossings in natural drainage channels to accommodate adequate fish passage, provide for minimum impacts to water quality and RCA's, and capable of handling a 100-year event for runoff and floodwaters.
12) All contractors and land-use operators moving surface-disturbing equipment in or out of weed infested areas should clean their equipment before and after use on public land.
13) Control weeds annually in areas disturbed by proposed actions.
14) All seed, mulch, or other vegetation material transported and used on public land weed-free zones for site stability, rehabilitation or project facilitation should be certified by a qualified Federal, State, or county officer as free of noxious weeds and noxious weed seed.
15) It is recommended that all vehicles, including off-road and all-terrain, traveling in or out of weed infested areas should clean their equipment before and after use on public land.
For additional controls on noxious weed management please refer to the "Northwest Area Noxious Weed Control Program" (1987), the associated "Supplemental Environmental Impact Statement" and the "Vale District Fire-Year Noxious Weed Control Program Environment Assessment" (1987) with extensions.
16) Broad fleabane (Erigeron latus), a Bureau Sensitive special status species, is present in the vicinity of the Anderson Crossing material site. The perimeter of the gravel site was botanically evaluated and the Broad fleabane (Erigeron latus) was flagged. Material site operations will avoid this area to eliminate any disturbance of the plant community.

8 Cumulative Effects

The Council on Environmental Quality (CEQ) defines cumulative effects as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-

federal) or person undertakes such other actions (40 CFR 1508.7). A June 2005 CEQ memorandum states:

> The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision making regarding the proposed action. This can occur in two ways:
>
> First, the effects of past actions may warrant consideration in the analysis of the cumulative effects of a proposal for agency action. CEQ interprets NEPA and CEQ's NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for action and its alternatives may have a continuing, additive and significant relationship to those effects. In determining what information is necessary for a cumulative effects analysis, agencies should use scoping to focus on the extent to which information is "relevant to reasonably foreseeable significant adverse impacts," is "essential to a reasoned choice among alternatives," and can be obtained without exorbitant cost (40 CFR 1502.22). Based on scoping, agencies have discretion to determine whether, and to what extent, information about the specific nature, design, or present effects of a past action is useful for the agency's analysis of the effects of a proposal for agency action and its reasonable alternatives. Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined. Agencies retain substantial discretion as to the extent of such inquiry and the appropriate level of explanation (*Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 376-77 [1989]). Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.
>
> Second, experience with and information about past direct and indirect effects of individual past actions may also be useful in illuminating or predicting the direct and indirect effects of a proposed action. However, these effects of past actions may have no cumulative relationship to the effects of the proposed action. Therefore, agencies should clearly distinguish analysis of direct and indirect effects based on information about past actions from a cumulative effects analysis of past actions.

The geographic scope of this analysis considers that this proposed action is a site-specific action where potential impacts to resources are confined to the areas immediately around material sites. All ground disturbing activities would occur within a 10-acre area at the material site.

There are no known past, present, or reasonably foreseeable future actions in the proposed project area that have been, are being, or will be taken by agencies or persons other than the BLM.

Past Actions

The identifiable present effects of past actions result from the use and maintenance of the SVR and light-duty connector roads. Approximately seven ranches and 1,000,000 acres of public land

in Oregon and Nevada are accessed by SVR. This rural transportation route provides access to the southeastern portion of the Jordan Resource Area for outdoor enthusiasts, upland bird and game hunters, livestock operators, access to private land, and BLM administrative access. SVR will continue to be an important access route for the foreseeable future.

Present Actions

Within the geographic scope of this analysis, no known present actions—by the BLM or other parties— were in progress at the time this EA was written. No known actions would be occurring during the period of this proposed action. For this reason, there are no effects from present actions that have a cumulative relationship with the effects of this proposed action.

Reasonably Foreseeable Future Actions

At the time this EA was written, the BLM had no planned or proposed projects within the geographic scope of this analysis. Maintenance of the SVR will continue for the foreseeable future. The development of the rock pits will change the landscape at the location of the pits. Operations following the BMP's will minimize visual impacts and prevent any undue and unnecessary degradation of public land. Vegetation in the immediate vicinity consists of shrub steppe plant communities dominated by sagebrush species and bunchgrasses. In the short-term these plant communities will be eliminated from the material site, but adherence to the BMP's and BLM reclamation standards will provide for reestablishment of the native plant communities. The material extraction sites will remain in use for many years with pit depths of 20-30 feet will be present. The perimeter of each pit will be managed to minimize safety concerns and reduce visual impact. When the rock aggregate site has been exhausted, the pit will be contoured to resemble the surrounding topography and vegetated with a native seed mixture. The one special-status plant species will be mitigated by avoiding any disturbance of the community. Sage grouse and pygmy rabbits are unlikely to be affected under the proposed alternative. Beneficial or detrimental effects to fish or other wildlife species, including mule deer, pronghorn antelope, and bighorn sheep would be relatively minor. The overall natural conditions, outstanding opportunities for primitive and unconfined recreation, and supplemental values in the Cairn "C" Wilderness Characteristics unit would be maintained (minus the 0.10%) as the project area would be adjacent to the existing road and the Tent Creek culvert. No cultural or paleontological resources were located at the proposed project locations. During the development of the material sites, there would be relatively short term degradation of air quality until re-surfacing of the SVR is complete. Some measure of air quality improvement should be realized in the long term under the proposed alternative. A rock aggregate road surface will minimize the powdered dust areas that can degrade air quality. The analytical tools necessary to quantify global climatic impacts as related to the elements of this project are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined. Water quality would improve over the long-term by maintaining a gravel surface on the SVR as there would be less sediment runoff than is currently occurring from the dirt surface. Over the long-term, maintenance of a gravel surface on the SVR would contribute to improving RCA's by decreasing the sediment load delivered to the streams.

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