

TECHNICAL MEMORANDUM

Date: February 7, 2014
To: Benchmark Resources
Attn: Mr. Andrew White
2515 East Bidwell Street
Folsom, CA 95630
From: North State Resources, Inc.
Subject: Moody Flats Project: Wildlife Movement Corridors.

A wildlife movement corridor is a linear habitat serving to connect two or more significant habitats. Wildlife corridors provide several functions relating to wildlife movement. These functions include providing a location where wide-ranging animals can travel, plants can propagate, genetic exchange can occur, populations can move in response to environmental change and natural disasters, and individuals can recolonize from local extirpations. On a local scale, wildlife movement corridors are established travel routes used by the resident and migratory wildlife species.

The property owned by 3M encompasses approximately 1,900 acres and is located west of Interstate 5, south of Lake Shasta and Mountain Gate, and north of the city of Shasta Lake. The property encompasses the headwaters of Moody and Rancheria Creeks, which flow southwesterly underneath Interstate 5 to West Fork Stillwater Creek. An unnamed tributary in the western portion of the property flows southwesterly into the Churn Creek watershed. The headwaters of Salt Creek also originate within the property. The 3M property is undeveloped except for the north-south trending Union Pacific Railroad corridor near the eastern portion of the property.

The property is situated among natural foothill woodlands, other active existing mines, and rural residential development to the north; natural oak woodland and meadow habitats, and Interstate 5 to the east; natural foothill woodlands and the city of Shasta Lake to the south; and natural foothill woodlands and the Shasta Lake National Recreation Area to the west. A prominent feature of the property is a north-south trending ridgeline located in the northwestern portion of the property. This ridgeline is characterized by natural foothill woodlands and is adjacent to extensive woodlands and forest habitats located in the Shasta Lake National Recreation Area.

Besides localized movement and use by resident species, and periodic use by migratory species, no sign of established resident or migratory wildlife corridors or native wildlife nursery sites have been observed on the property. Potential wildlife corridors in the property include the Moody and Rancheria Creek drainages, which generally run southeasterly through the property, and small drainages occurring in the southwestern portion of the property that flow southerly. These drainages provide natural corridors for species preferring dense woodlands between areas to the east and south of the property to wildlands located to the west and north. Ridgelines between these drainages also serve as natural corridors for movement among the uplands or between drainage corridors.

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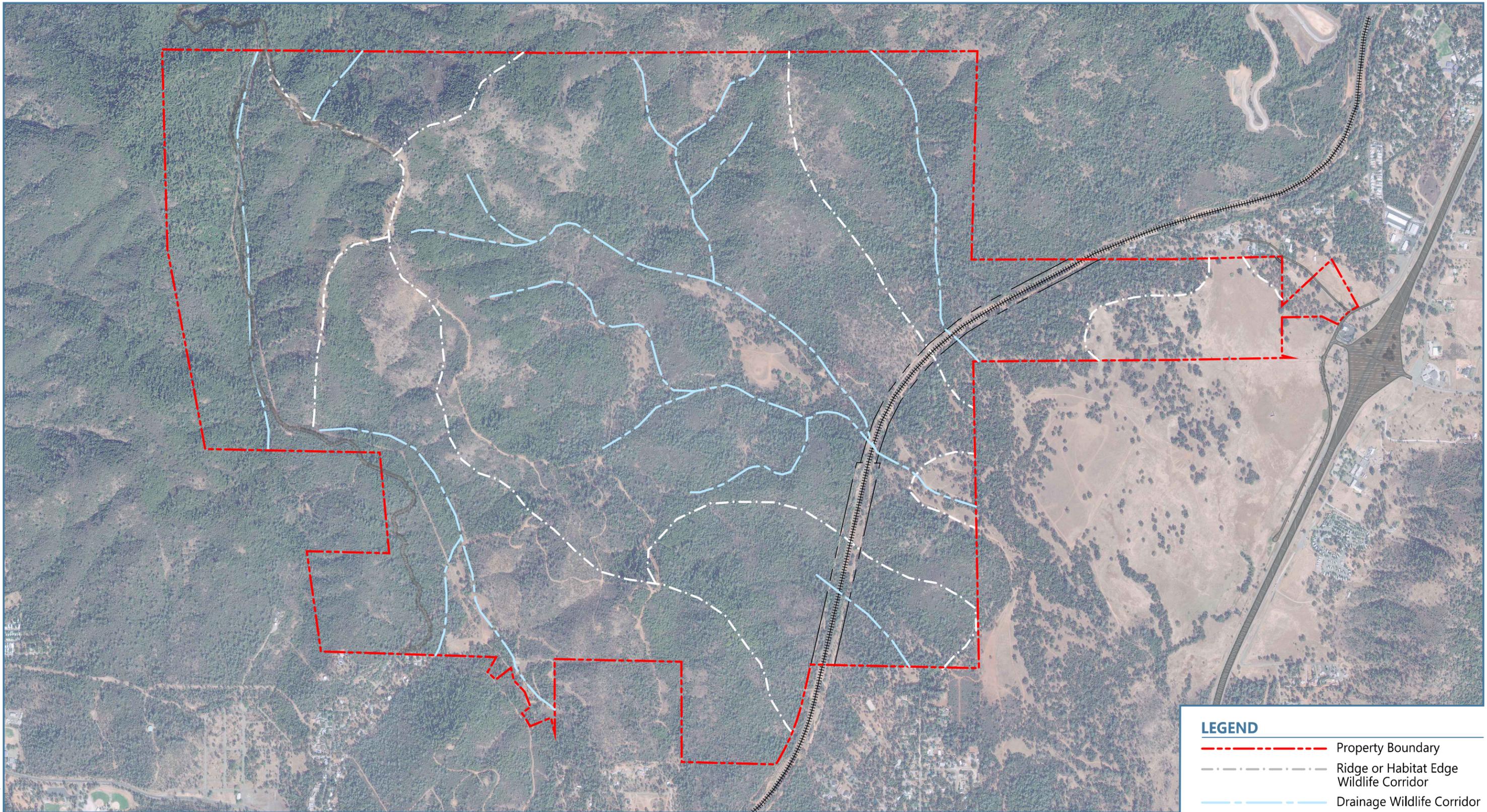
Another likely wildlife corridor is located along the woodlands at the eastern portions of the 3M property, which occur along the edge of a meadow habitat and Interstate 5. This area likely provides a corridor between locations south and north of the 3M property for species preferring a woodland/grassland edge habitat. Locations of likely existing wildlife corridors are shown in Figure 1.

The proposed Moody Flats Quarry project (project) site encompasses approximately 802 acres, or 42 percent of the property. The majority of the project area would consist of the mine and processing areas in the central and eastern portions of the property. The proposed project includes two quarry pits (the South Pit and North Pit), primary and secondary aggregate processing plants, an overburden storage area, a stockpiling and load-out area (including rail siding/spur for rail car loading), and associated infrastructure. An access road would connect the project areas to Interstate 5. Areas to the north, south, and west of the proposed project would remain as open space consisting of natural foothill woodlands.

The proposed project development as described above may create small, localized barriers (i.e., highwalls in the pits, associated mining and mobile equipment activities, unvegetated areas) for some wildlife species; however, the proposed project would not fragment the 3M property and likely would not cause an overall barrier to wildlife movement. Wildlife corridors would still occur north, east, south, and west of the proposed project within and adjacent to the 3M property. Besides the mine development and access road, no other features that would act as even local barriers or hazards to wildlife movement would be part of the project. The areas adjacent to the proposed project would continue to provide habitat for wildlife movement corridors.

The only permanent, localized barrier to overland wildlife movement would be the highwalls in the pits; however, the development of these highwalls would be phased. The 65-acre South Pit would likely be excavated first, and would produce reserves sufficient to last approximately 20 to 30 years before excavations in the 220-acre North Pit either begin or make substantial progress. When quarry activities end in the South Pit, the pit would be reclaimed, reducing the amount of area disturbed at any period of time. The only area that would not be re-vegetated after operations are complete is the secondary and ancillary processing and load-out area; however, this area would include no physical barriers to wildlife. Additionally, the Moody Creek diversion channel, which would border the southwest side of this area, would provide a vegetated habitat around the processing and load-out area. The relationships between likely existing wildlife corridors and mine development areas over time are shown in Figures 2a through 2c.

The proposed project is unlikely to interfere substantially with resident or migratory wildlife movement or impede the use of native wildlife nursery sites because the highwalls would be the only physical permanent barrier to overland wildlife movement, and excavation of the North Pit would not begin for 20 to 30 years after project operations begin (approximately when excavation of the South Pit would end and reclamation of this area would begin) (Figures 2a and 2b). Additionally, more than half of the 3M property would remain as wildlands, and the proposed project is situated within the property such that wildlands would surround the mine development.

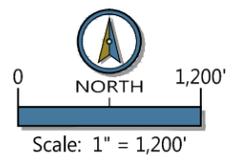


LEGEND

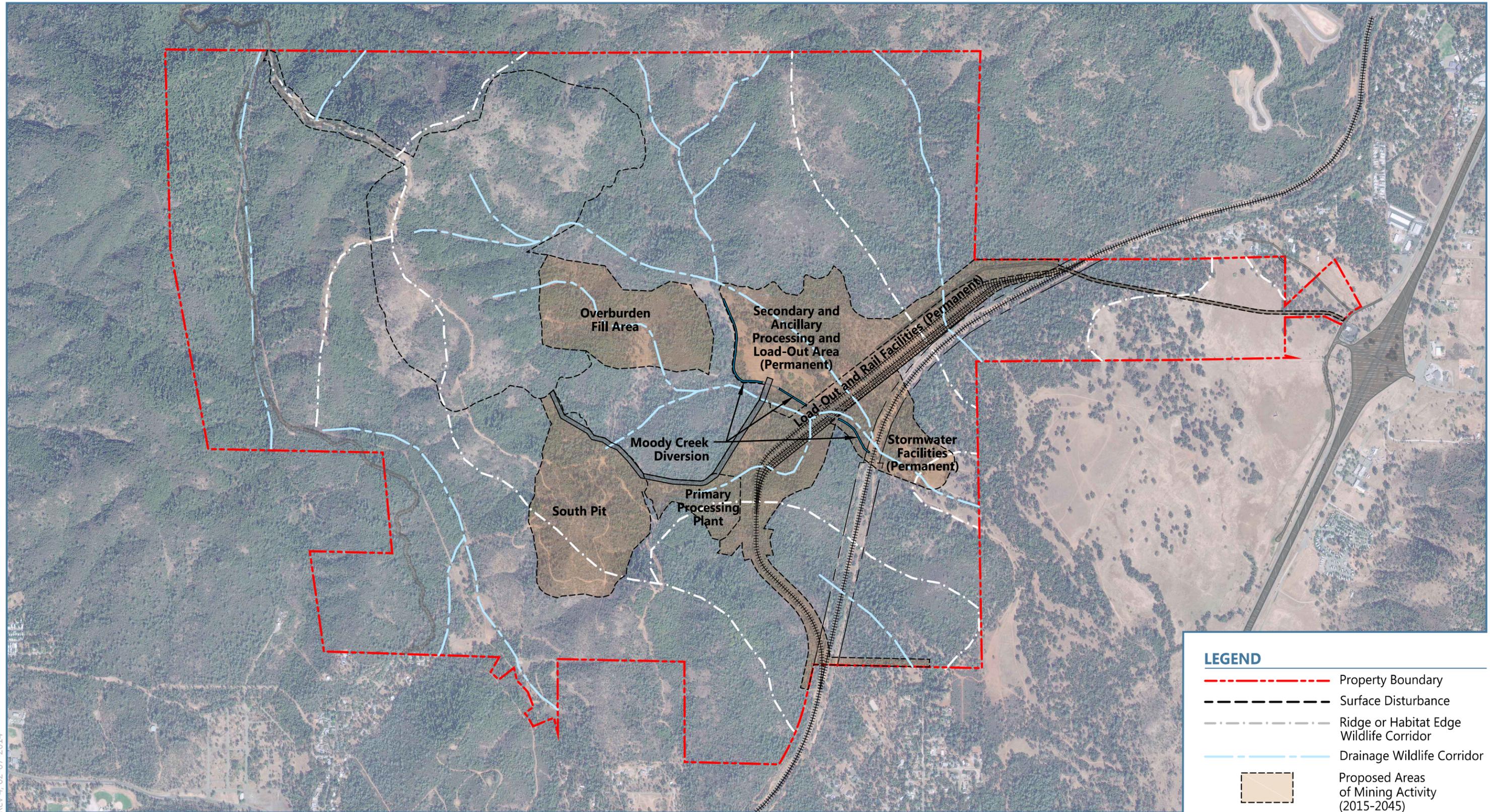
- - - - - Property Boundary
- - - - - Ridge or Habitat Edge Wildlife Corridor
- - - - - Drainage Wildlife Corridor

REV 4, 02-07-2014

SOURCE: GeoEye Solutions, Inc. 2009

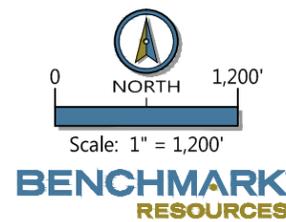


Likely Wildlife Corridors
3M MOODY FLATS QUARRY
Figure 1

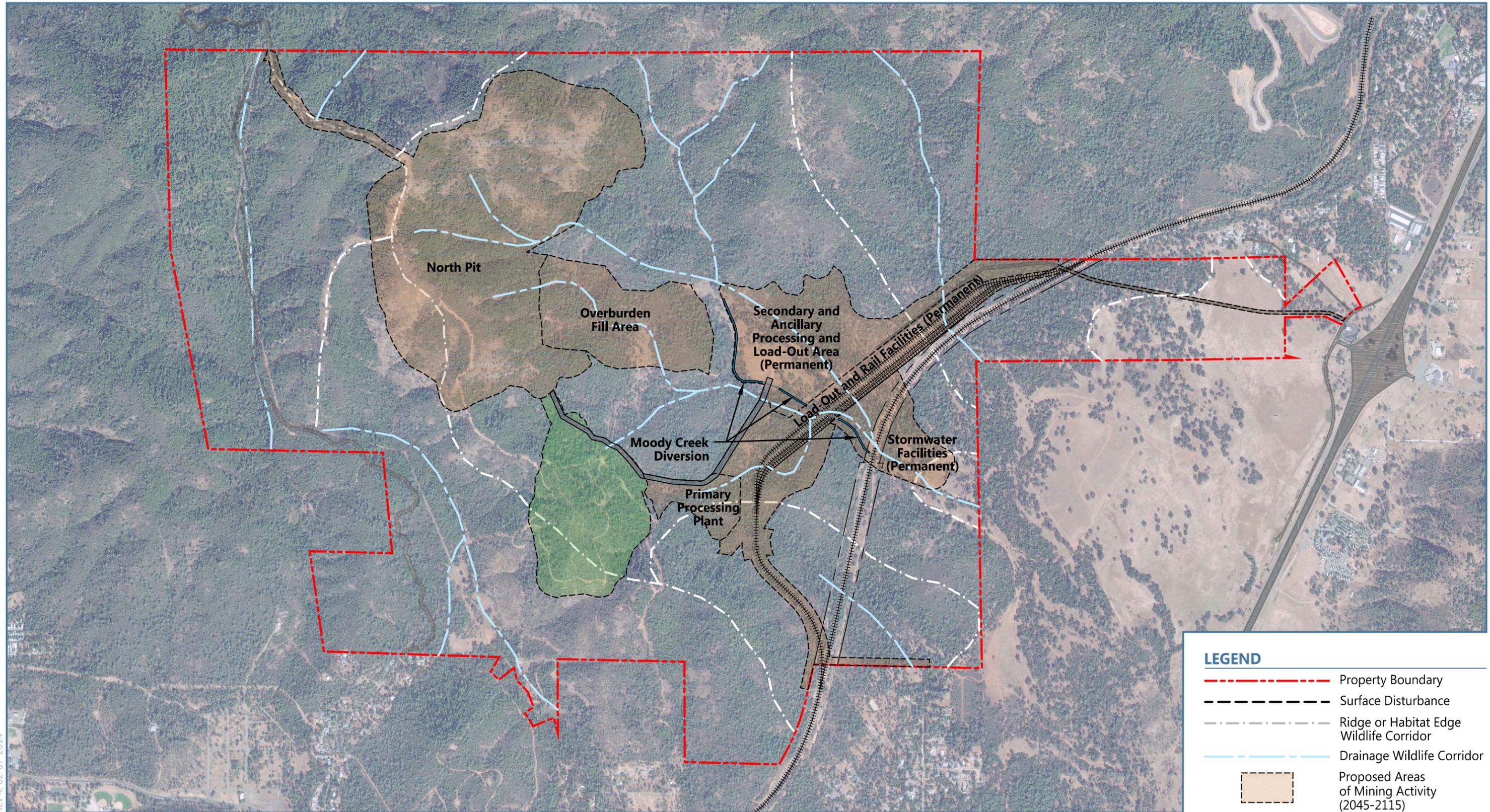


REV 4, 02-07-2014

SOURCE: GeoEye Solutions, Inc. 2009



Likely Wildlife Corridors and Proposed Mining Areas - Phase I
3M MOODY FLATS QUARRY
Figure 2a



REV 4, 02-07-2014

SOURCE: GeoEye Solutions, Inc. 2009

LEGEND

- - - - - Property Boundary
- Surface Disturbance
- Ridge or Habitat Edge Wildlife Corridor
- Drainage Wildlife Corridor
- Proposed Areas of Mining Activity (2045-2115)
- Reclaimed Land

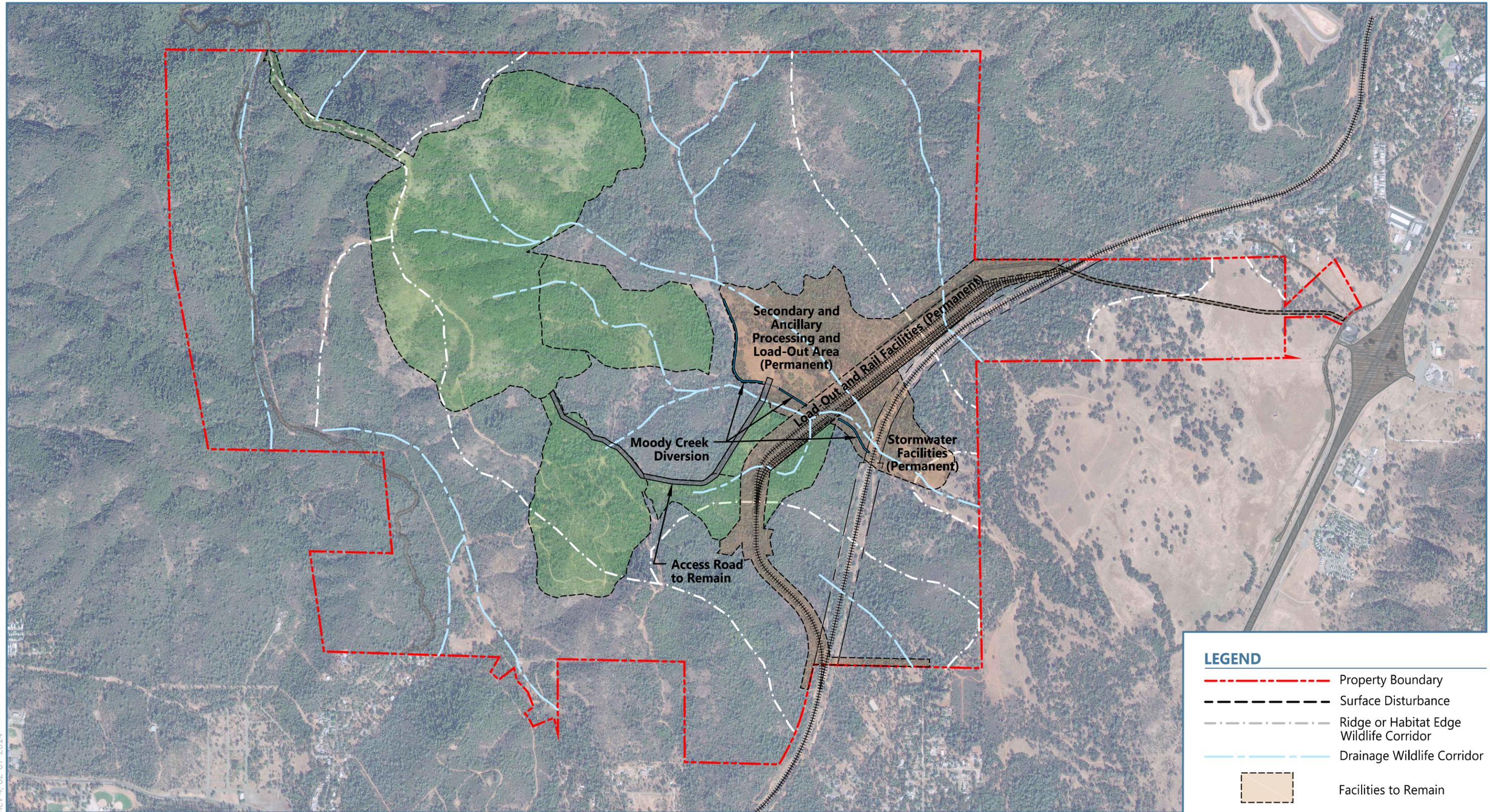
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NORTH

Scale: 1" = 1,200'

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Likely Wildlife Corridors and Proposed Mining Areas - Phase II
3M MOODY FLATS QUARRY
Figure 2b



LEGEND

- - - - - Property Boundary
- - - - - Surface Disturbance
- - - - - Ridge or Habitat Edge
Wildlife Corridor
- - - - - Drainage Wildlife Corridor
- Facilities to Remain
- Reclaimed Land

REV 4, 02-07-2014

SOURCE: GeoEye Solutions, Inc. 2009

0 1,200'
NORTH
Scale: 1" = 1,200'

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Likely Wildlife Corridors and Proposed Mining Areas - Post Project
3M MOODY FLATS QUARRY
Figure 2c