

Appendix J: Scenery Report
(Lilburn Corporation, 2014)

Scenery Report for Butterfield - Sentinel Quarries Amended Plan of Operations and Reclamation Plan



San Bernardino National Forest

Prepared by:

**Omya California a Division of Omya, Inc.
and**

**Lilburn Corporation
1905 Business Center Drive
San Bernardino, CA 92408**

January 2014

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1.0 INTRODUCTION

1.1 PROJECT BACKGROUND/DESCRIPTION

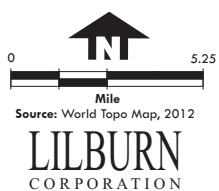
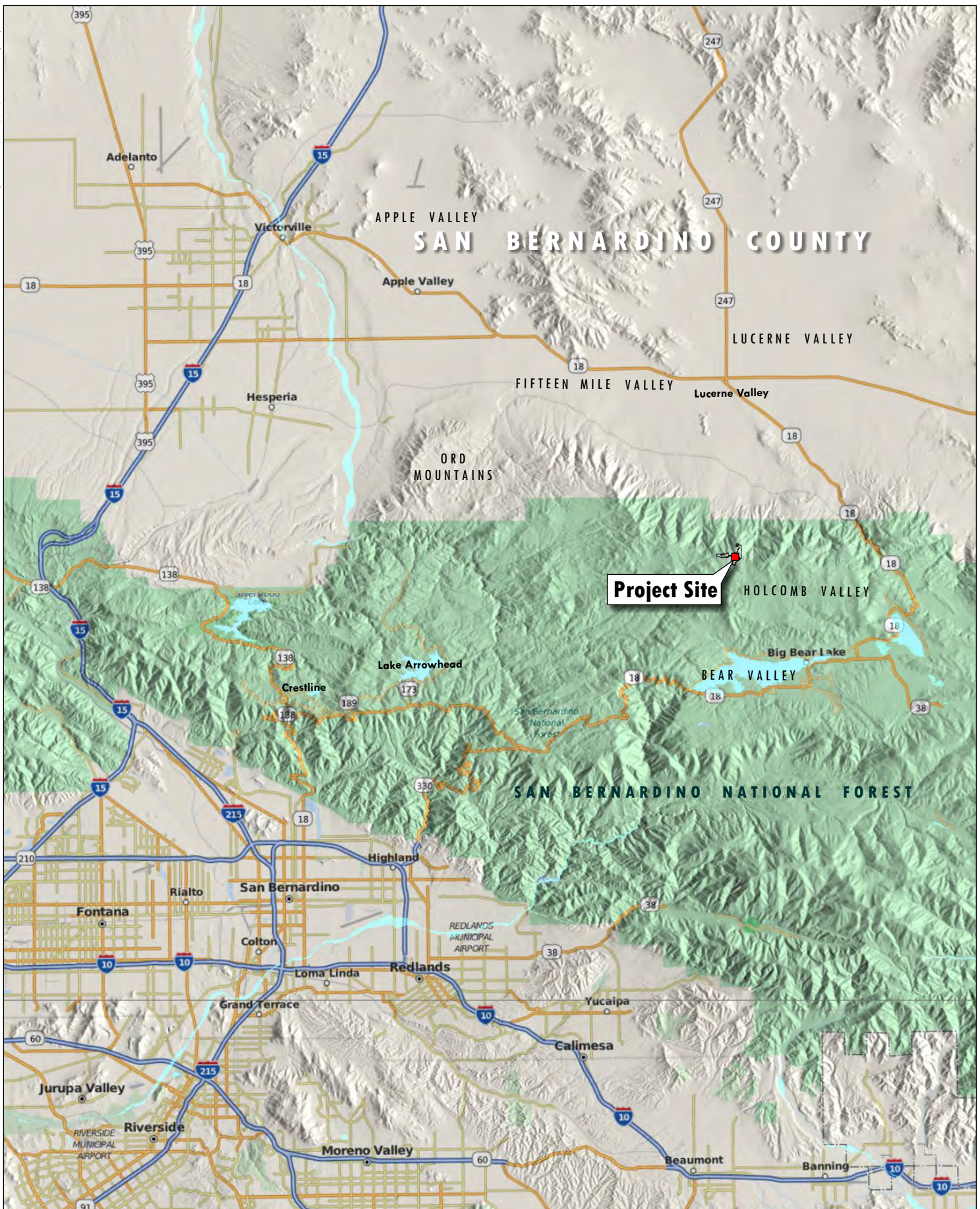
Omya California (Omya), a division of Omya Inc., has submitted an Amended Plan of Operations and Reclamation Plan (Proposed Project or Amended Plan) to the United States Forest Service (Forest Service) within the San Bernardino National Forest (SBNF) for the proposed expansion of the existing Butterfield – Sentinel Quarries. The existing permitted quarries and the proposed expansion area are located on portions of seven unpatented mining claims within the SBNF leased by Omya from Floyd Butterfield and the Sentinel Mining Company.

The project site is located approximately 7.5 miles south of the community of Lucerne Valley and 5 miles north of Big Bear Lake in San Bernardino County, California (see Figures 1 and 2). The project area is within portions of Sections 23, 24, and 25 Township 3 North, Range 1 West, San Bernardino Baseline Meridian (SBBM). This Amended Plan combines the existing and permitted mining and reclamation activities with the Proposed Project expansion. Because these two quarries are adjacent to each other and utilize the same crushing plant and share overburden stockpiles and haul and access roads, the operations and reclamation for these two sites are combined into one Amended Plan of Operations and Reclamation Plan. In addition, the ongoing and future reclamation of the Claudia and Cloudy Quarries and associated haul roads on approximately 57 acres, and of the Crystal Creek Haul Road on approximately 33 acres, approved by the Forest Service and San Bernardino County (County) in 1994 (Reclamation Plan 94M-02), are incorporated into the Amended Plan. The Claudia and Cloudy Quarries are currently inactive and undergoing various stages of reclamation. Effects to scenery from these two quarries are analyzed in conjunction with the Proposed Project expansion under Cumulative Effects.

The Proposed Project includes quarry and overburden expansions, increased operational years and production, additional haul road area, and minor adjustments to existing disturbance and permitted boundaries. The site is accessed via the existing Crystal Creek Haul Road that connects Butterfield and Sentinel Quarries with the processing plant in Lucerne Valley. The total existing permitted operational area is approximately 137.5 acres. The Amended Plan will add approximately 77.3 acres for a total project area for the Butterfield – Sentinel Quarries of approximately 214.8 acres.

In summary, the Amended Plan requests the following overall changes (see Figure 3):

1. an increase of 28.6 acres at the Butterfield Quarry;
2. an increase of 10.8 acres at the Sentinel Quarry
3. an increase in Sentinel Quarry depth by 150 feet;
4. an increase of 22.7 acres at the B5 Pad;
5. modifications to existing and planned overburden stockpile areas and haul roads in the Central Area on approximately 15.2 acres;
6. an increase in average production from 378,000 tons/year to 680,000 tons/year (ore to plant);

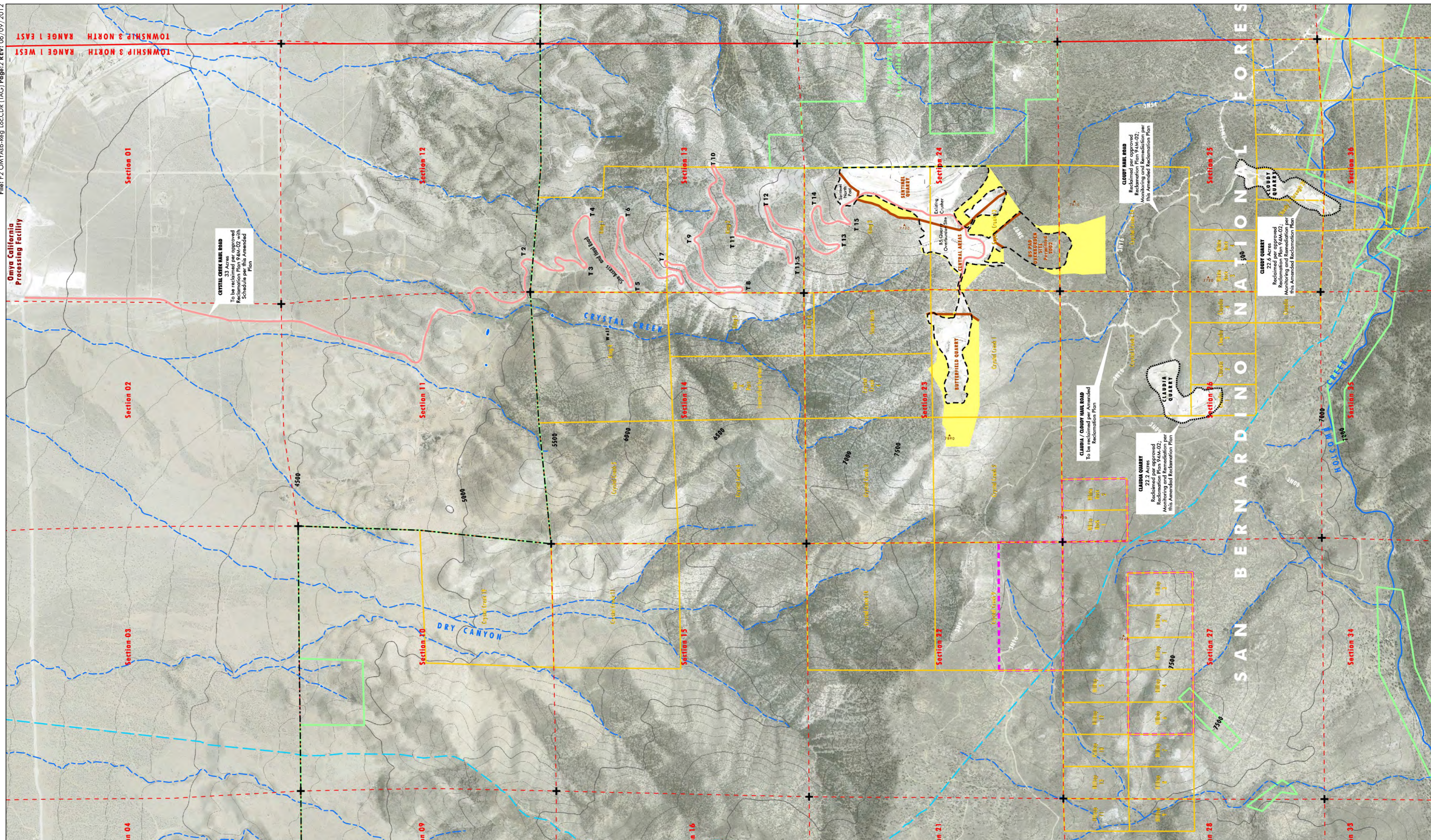


LEGEND

- Project Site Location (Geographic Location)
- California Zone 5 (FIPS 405): 6881064.78 1943854.58
- Lat/Lon: 34° 19' 45.0165" N, 116° 56' 31.3945" W

REGIONAL LOCATION



SCENERY REPORT - BUTTERFIELD and SENTINEL QUARRIES
Amended Plan of Operations and Reclamation Plan
Omya California, San Bernardino National Forest, California



LEGEND

- - - Existing Operating Area
 Amended Operations
 Claims
 T 12 Crystal Creek Turn-out
 Proposed Carbonate Mitigation

- Major Contour
- Minor Contour
- Peak or Ridgeline Elevation
- SBNFS Boundary
- USGS Township
- USGS Section
- Streams
- Drainage

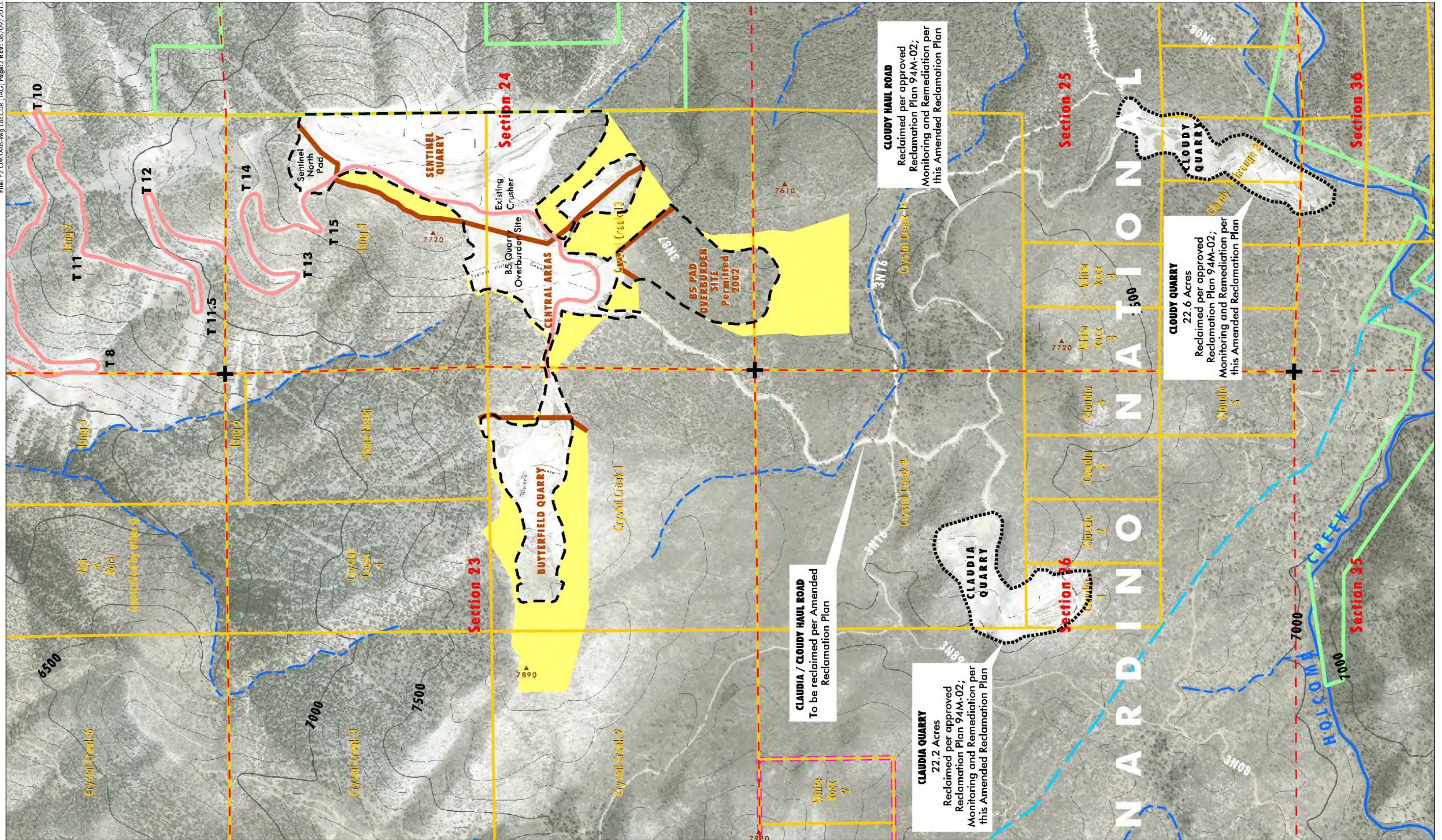
-  Water Body
 Pipeline (not a part of project)



PROJECT VICINITY

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Amended Plan of Operations and Reclamation Plan
 Omya California, San Bernardino National Forest, California





EXISTING QUARRIES and PLANNED OPERATIONS

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Amended Plan of Operations and Reclamation Plan
Omya California, San Bernardino National Forest, California

7. an increase in the length of operations of 40 years at Butterfield (2016 to 2055);
8. an increase in the length of operations of 20 years at Sentinel (2036 to 2055); and
9. an increase in the length of use of the Crystal Creek Haul road of 10 years until 2065 followed by 10 years of reclamation.

There are no new quarries or new overburden sites proposed in this Amended Plan, only the phased expanded development and ultimate reclamation of the existing Butterfield – Sentinel Quarries. Omya is required to comply with both Forest Service Minerals Regulations (36 CFR 228, Subpart A) under the jurisdiction of the SBNF and the State of California Surface Mining and Reclamation Act (SMARA) implemented by the County (Development Code, Chapter 88.03). Therefore, in September 2012, in consultation with the Forest Service and the County, Omya submitted a Plan of Operations for Mining Activities on National Forest System Lands (FS-2800-5) and a Reclamation Plan per the County's Reclamation Plan requirements. This Amended Plan was updated per comments from the California Office of Mine Reclamation (OMR) in June 2013.

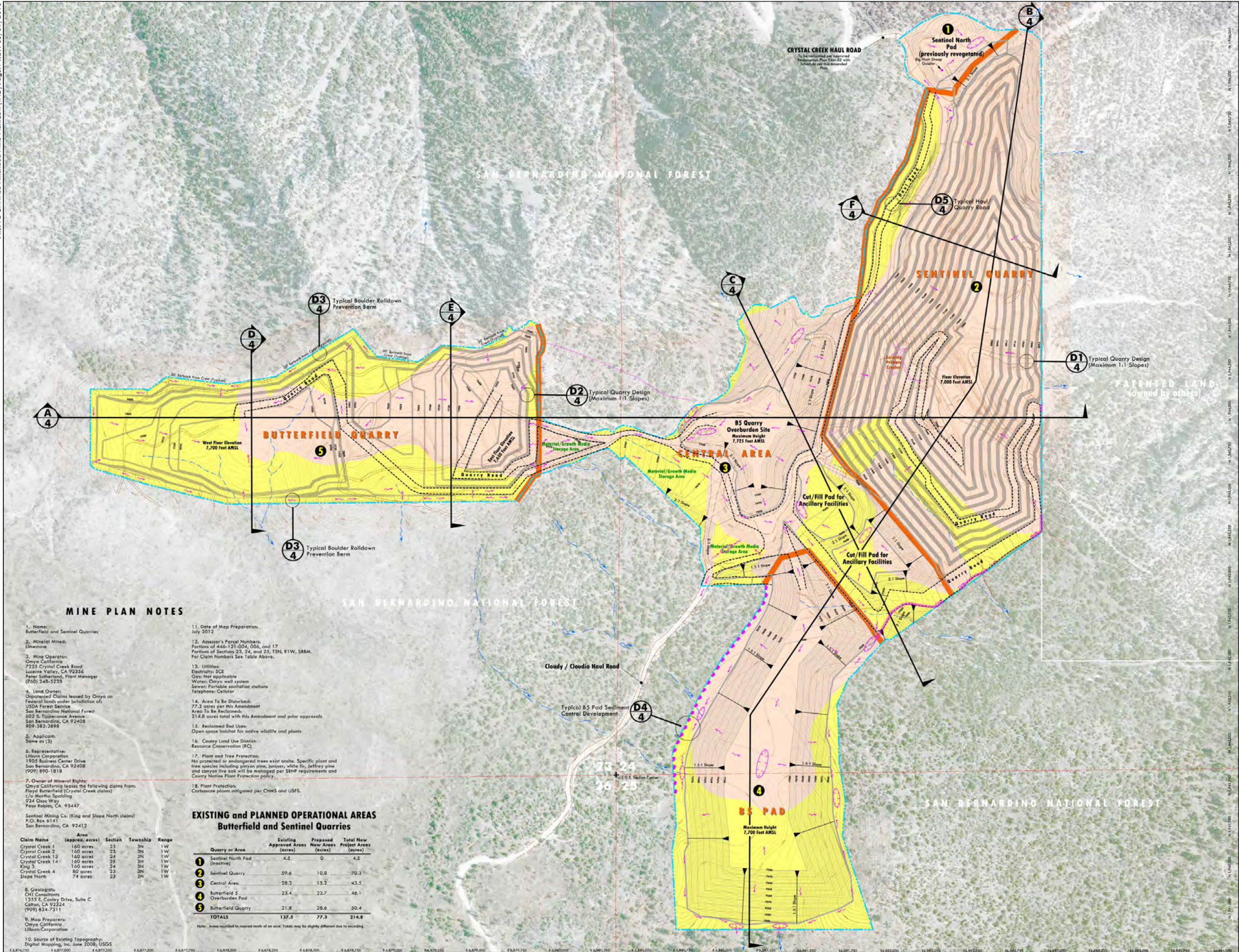
The project site and the immediately surrounding land uses consist of the existing Butterfield 3 Quarry and Sentinel Quarry operations, two other Omya inactive small mining operations within 1.5 miles to the south (Cloudy and Claudia Quarries), an additional quarry to the east not owned by Omya, and mostly vacant public lands administered by the Forest Service elsewhere.

The Butterfield Quarry proposed expansion consists of 28.6 acres. It includes expansion of the existing quarry by approximately 900 feet to the west and 200 feet to the south and north, with partial backfilling of the quarry using overburden in later phases. The overall Butterfield Quarry footprint will consist of a total disturbance area of approximately 50.4 acres.

The Sentinel Quarry revisions consist of an additional 48.7 acres of disturbance. It would include expansion of the quarry (10.8 acres), the Butterfield 5 Overburden Pad (B5 Pad – 22.7 acres), and the Central Area with overburden fill pads, growth media storage, and additional haul road areas (15.2 acres). These areas would all be included into the overall Sentinel Quarry Area footprint for a total disturbance area of approximately 164.4 acres.

Quarry and overburden stockpile development and expansion would be phased. Included in the phased expansion and reclamation is concurrent quarry development and reclamation of equipment-accessible mined-out portions of the quarries. The Amended Plan proposes excavations to be developed in the Butterfield Quarry to a maximum depth of 7,650 feet above mean sea level (amsl) or approximately 200 feet below the quarry rim on the north which is 75 feet deeper than currently permitted (see Figure 4). The Sentinel Quarry will be excavated to a maximum depth of 7,000 feet amsl or approximately 600 feet below the quarry rim on the north and west which is approximately 150 deeper than currently permitted.

Once the final outer limit and bottom of the ore is reached, the quarries will be partly backfilled as the remainder of the quarries is mined out. The Amended Plan allows for substantial backfill to be placed in the mined-out portions of the quarries, and also allows an efficient mining plan, minimum disturbance of new ground, phased incremental disturbance of new ground, and concurrent reclamation of the quarries and overburden stockpiles.



LEGEND

Amended Operations Limits of Disturbance

Existing Permitted Operating Area

Proposed Expansion

Operating Major Contour

Operating Minor Contour

Haul Road

Slope Indicator Top of slope

Toe of slope

Boulder Barrier

RipRap

Design Drainage

Sump

Storm Water Control Berm

Existing Major Contour

Existing Minor Contour

Existing Drainages

0550

FEET

Source: LILBURN CORP., 2012

LILBURN CORPORATION

MINE PLAN NOTES

1. Name:
Butterfield and Sentinel Quarries

2. Mineral Mined:
Limestone

3. Mine Operator:
Omya California
7225 Crystal Creek Road
Lucerne Valley, CA 92356
Peter Sutherland, Plant Manager
(760) 245-5233

4. Land Owner:
Unpatented Claims leased by Omya on
Federal lands under jurisdiction of:
USDA Forest Service
San Bernardino National Forest
662 S. Tippecanoe Avenue
San Bernardino, CA 92408
909-382-2898

5. Applicant:
Same as (3)

6. Representative:
Lilburn Corporation
1905 Business Center Drive
San Bernardino, CA 92408
(909) 890-1818

7. Owner of Mineral Rights:
Omya California leases the following claims from:
Floyd Butterfield (Crystal Creek claims)
c/o Martin Spaulding
234 Quas Way
Paso Robles, CA 93447

Sentinel Mining Co. (King and Slope North claims)
P.O. Box 6141
San Bernardino, CA 92412
11. Date of Map Preparation:
July 2012

12. Assessor's Parcel Numbers:
Portions of 440-121-004, 006, and 17
Portions of Sections 23, 24, and 25, T3N, R1W, S8M.
For Claim Numbers See Table Above.

13. Utilities:
Electricity: SCE
Gas: Not applicable
Water: Omya well system
Sewer: Portable sanitation stations
Telephone: Cellular

14. Area To Be Disturbed:
77.3 acres per this Amendment
Area To Be Reclaimed:
214.8 acres total with this Amendment and prior approvals

15. Reclaimed End Uses:
Open space habitat for native wildlife and plants

16. Coverey Land Use District:
Resource Conservation (RC)

17. Plant and Tree Protection:
No protected or endangered trees exist onsite. Specific plant and
tree species including piñon pine, juniper, white fir, Jeffrey pine
and canyon live oak will be managed per SDNF requirements and
County Native Plant Protection policy.

18. Plant Protection:
Carbonate plants mitigated per CHMS and USFS.

EXISTING AND PLANNED OPERATIONAL AREAS
Butterfield and Sentinel Quarries

Quarry or Area	Existing Approved Areas (acres)	Proposed New Areas (acres)	Total New Project Areas (acres)
1 Sentinel North Pad (inactive)	4.5	0	4.5
2 Sentinel Quarry	59.6	10.8	70.3
3 Central Area	28.3	15.2	43.5
4 Butterfield 5 Overburden Pad	23.4	22.7	46.1
5 Butterfield Quarry	21.8	28.6	50.4
TOTALS	137.5	77.3	214.8

Note: Areas rounded to nearest tenth of an acre. Totals may be slightly different due to rounding.

AMENDED MINE PLAN

SCENERY REPORT
BUTTERFIELD and SENTINEL QUARRIES
Amended Plan of Operations and Reclamation Plan
Omya California, San Bernardino National Forest, California

The Amended Plan includes a site specific approved reclamation and revegetation plan, including growth media salvage, organics placement, seeding and revegetation, seed collection and propagation, irrigation, site cleanup, public safety, rock and fill slope stability, colorization of specific rock slopes, drainage and erosion controls, monitoring and maintenance plan and bond release criteria (see Figure 5). At the conclusion of mining, ten years of active reclamation and revegetation will be implemented followed by monitoring and remediation until revegetation goals are achieved.

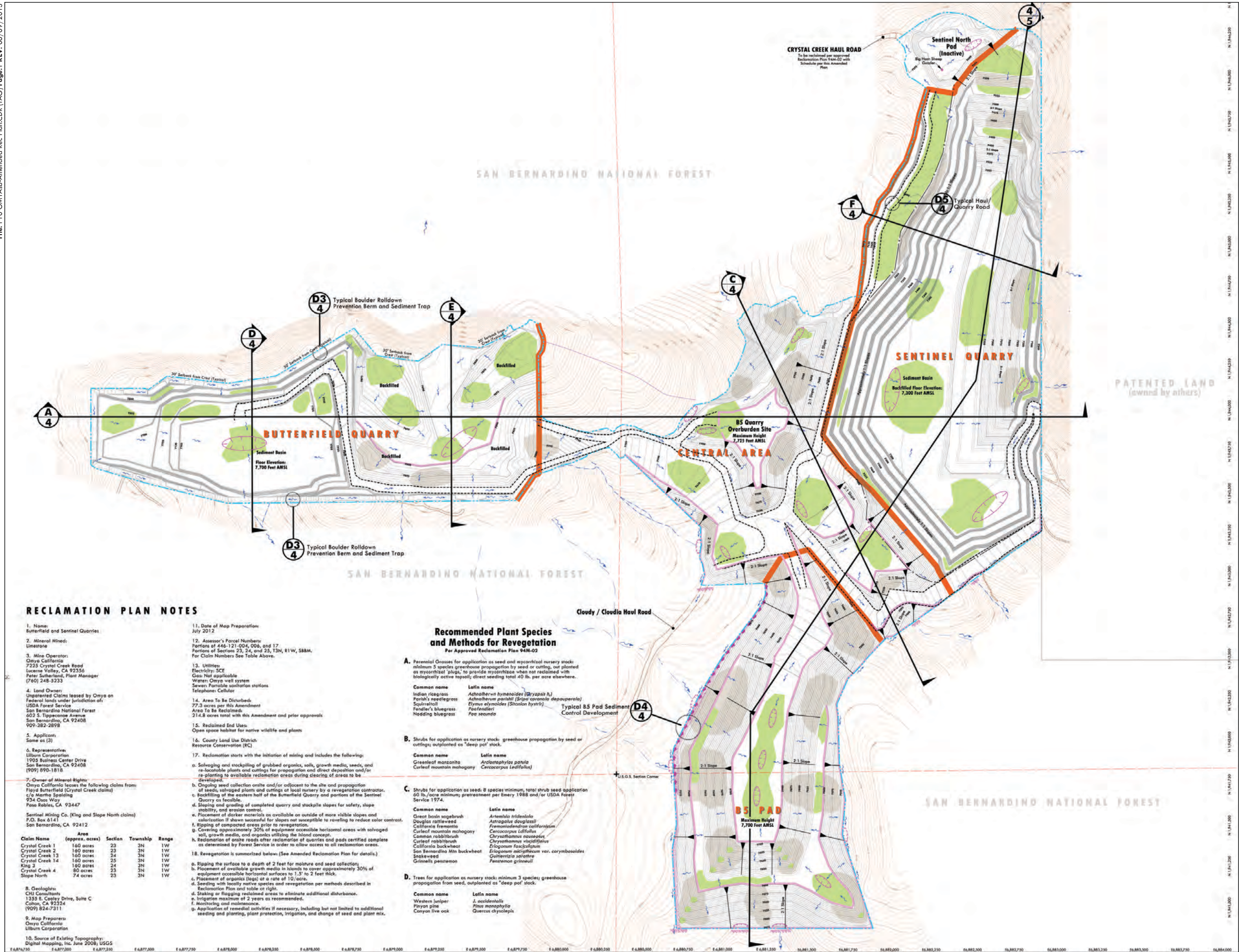
1.2 PROJECT NEED

Omya's Lucerne Valley Plant operations require high brightness, high purity limestone ore (calcium carbonate) of specific quantities and qualities to produce fine ground calcium carbonate for numerous consumer and industrial products discussed below. To meet current and future product demand, Omya requires reliable and economic resources of high quality limestone ore. This has been achieved through the development of three unique limestone deposits, the White Knob Quarry to the west of the plant, and the Butterfield and Sentinel Quarries located to the south and the subject of this Report. The Amended Plan will ensure Omya that it's Lucerne Valley Processing Plant will have the raw limestone resources needed to not only continue producing existing products, but also to be able to respond to future product demand and to invest in future expansion of its plant as necessary.

1.3 PROJECT DESIGN FEATURES TO MINIMIZE SCENERY IMPACTS

The following Project Design Features have been incorporated into the Proposed Project and the project alternatives by Omya to minimize potential adverse impacts to scenery and are incorporated in the scenery assessment in this report:

- Deposit darker waste rock on the lighter slopes of the overburden stockpiles and quarry slopes to reduce contrast;
- Utilize approved color-staining product to darken the visible quarry slopes that are not subject to raveling;
- Limit surface disturbances to areas identified in the Amended Plan. Disturbances outside these areas shall be prohibited;
- Cut or roughen upper slopes that may be visible from southern viewpoints to reduce straight lines as benches are completed;
- Deposit waste rock into and within the quarry footprint as described in the Amended Plan to reduce the area of disturbance outside the quarry rim and to reduce internal slopes to aid in revegetation;
- Implement reclamation and revegetation per the Amended Reclamation Plan on completed benches concurrent with mining;
- Implement Mojave Desert Air Quality Management District (MDAQMD) dust controls to reduce visible dust plumes; and
- Locate replacement crusher or a new mobile crusher system out of viewshed.



- LEGEND**
- Amended Operations Limits of Disturbance
 - Reclaimed Major Contour
 - Reclaimed Minor Contour
 - Roads to Remain
 - Slope Indicator
 - Top of slope
 - Toe of slope
 - Existing Major Contour
 - Existing Minor Contour
 - Existing Drainages
 - Boulder Barrier
 - RipRap
 - Design Drainage
 - Sump (typical)
 - Existing Natural Sump
 - Storm Water Control Berm
 - Sediment Control
 - Berm as Necessary
 - 3-strand Wire Fence (typical)
 - Soil Islands
 - Growth Media (typical)



Source: LILBURN CORP., 2012

LILBURN
CORPORATION

RECLAMATION PLAN NOTES

1. Name:
Butterfield and Sentinel Quarries
2. Mineral Mined:
Limestone
3. Mine Operator:
Omya California
7233 Crystal Creek Road
Lucerne Valley, CA 92356
Peter Sutherland, Plant Manager
(760) 248-5233
4. Land Owner:
Unpatented Claims leased by Omya on
Federal lands under jurisdiction of:
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c/o Martha Spaulding
934 Oaks Way
Paco Robles, CA 92447
Sentinel Mining Co. (King and Slope North claims)
P.O. Box 4141
San Bernardino, CA 92412
8. Geologists:
CHL Consultants
1335 E. Cuddy Drive, Suite C
Colton, CA 92324
(909) 824-7311
9. Map Preparer:
Omya California
Lilburn Corporation
10. Source of Existing Topography:
Digital Mapping, Inc. June 2008; USGS
11. Date of Map Preparation:
July 2012
12. Assessor's Parcel Numbers:
Portions of 446-121-004, 006, and 17
Portions of Sections 23, 24, and 25, T3N, R1W, S88A.
For Claim Numbers See Table Above.
13. Utilities:
Electricity: SCE
Gas: Not applicable
Water: Omya well system
Sewer: Portable sanitation stations
Telephone: Cellular
14. Area To Be Disturbed:
77.3 acres per this Amendment
Area To Be Reclaimed:
214.8 acres total with this Amendment and prior approvals
15. Reclaimed End Uses:
Open space habitat for native wildlife and plants
16. County Land Use District:
Resource Conservation (RC)
17. Reclamation starts with the initiation of mining and includes the following:
a. Salvaging and stockpiling of grubbed organics, soils, growth media, seeds, and re-locatable plants and cuttings for propagation and direct deposition and/or re-planting to available reclamation areas during clearing of areas to be developed.
b. Ongoing seed collection onsite and/or adjacent to the site and propagation of seeds, salvaged plants and cuttings at local nursery by a revegetation contractor.
c. Backfilling of the eastern half of the Butterfield Quarry and portions of the Sentinel Quarry as feasible.
d. Sloping and grading of completed quarry and stockpile slopes for safety, slope stability, and erosion control.
e. Placement of darker materials as available on outside of more visible slopes and colorization if shown successful for slopes not successful to traveling to reduce color contrast.
f. Ripping of compacted areas prior to revegetation.
g. Covering approximately 30% of equipment accessible horizontal areas with salvaged soil, growth media, and organics utilizing the Island concept.
h. Reclamation of onsite roads after reclamation of quarries and pads certified complete as determined by Forest Service in order to allow access to all reclamation areas.
18. Revegetation is summarized below (See Amended Reclamation Plan for details).
a. Ripping the surface to a depth of 2 feet for moisture and seed collection.
b. Placement of available growth media in islands to cover approximately 30% of equipment accessible horizontal surfaces to 1.5' to 2 feet thick.
c. Placement of organics (logs) at a rate of 10/acre.
d. Seeding with locally native species and revegetation per methods described in Reclamation Plan and table at right.
e. Staking or flagging reclaimed areas to eliminate additional disturbance.
f. Irrigation maximum of 2 years as recommended.
g. Monitoring and maintenance.
h. Application of remedial activities if necessary, including but not limited to additional seeding and planting, plant protection, irrigation, and change of seed and plant mix.

**Recommended Plant Species
and Methods for Revegetation**
Per Approved Reclamation Plan 948M-02

- A. Perennial Grasses for application as seed and mycorrhizal nursery stock:** minimum 5 species greenhouse propagation by seed or cutting, not planted as mycorrhizal 'plugs', to provide mycorrhizae when not reclaimed with biologically active topsoil direct seeding total 40 lb. per acre elsewhere.
- | Common name | Latin name |
|----------------------|---|
| Indian ricegrass | <i>Achnatherum hymenoides</i> (Ryegrass h.) |
| Panola's needlegrass | <i>Achnatherum panola</i> (Ryegrass h.) |
| Squirreltail | <i>Pennisetum setaceum</i> (Stolon hystris) |
| Fendler's bluegrass | <i>Poa fendleriana</i> |
| Nodding bluegrass | <i>Poa nodosa</i> |
- B. Shrubs for application as nursery stock:** greenhouse propagation by seed or cuttings outplanted as "deep pot" stock.
- | Common name | Latin name |
|--------------------------|-------------------------------|
| Greenleaf manzanita | <i>Arctostaphylos patula</i> |
| Curlew mountain mahogany | <i>Cercocarpus ledifolius</i> |
- C. Shrubs for application as seed:** 8 species minimum; total shrub seed application 60 lb. (acre minimum) pretreatment per Emery 1988 and/or USDA Forest Service 1974.
- | Common name | Latin name |
|------------------------------|--|
| Great basin sagebrush | <i>Artemisia tridentata</i> |
| Douglas rattlesnake | <i>Atriplex douglasii</i> |
| California tremontia | <i>Fremontodendron californicum</i> |
| Curlew mountain mahogany | <i>Cercocarpus ledifolius</i> |
| Common rabbitbrush | <i>Chrysothamnus nauseosus</i> |
| Curlew rabbitbrush | <i>Chrysothamnus viscidiflorus</i> |
| California buckwheat | <i>Eriogonum fasciculatum</i> |
| San Bernardino Min buckwheat | <i>Eriogonum adpressum</i> var. <i>corymbosoides</i> |
| Snakeweed | <i>Gutierrezia sarothrae</i> |
| Grinnell pentstemon | <i>Penstemon grinnellii</i> |
- D. Trees for application as nursery stock:** minimum 3 species; greenhouse propagation from seed, outplanted as "deep pot" stock.
- | Common name | Latin name |
|-----------------|-------------------------------|
| Western juniper | <i>Juniperus occidentalis</i> |
| Pinyon pine | <i>Pinus monophylla</i> |
| Canyon live oak | <i>Quercus chrysolepis</i> |

**AMENDED
RECLAMATION PLAN**
SCENERY REPORT
BUTTERFIELD and SENTINEL QUARRIES
Amended Plan of Operations and Reclamation Plan
Omya California, San Bernardino National Forest, California

A Forest Service staff member trained in scenic resource management shall review scenery mitigations with the project operator before and during implementation of measures, and shall monitor reclamation and revegetation on completed benches and other disturbed areas, and its effect on scenery as included in a Project Monitoring Form in Appendix C.

1.4 SCENERY MANAGEMENT SYSTEM

This report applies the latest “best science” in National Forest conservation to achieve the direction of the San Bernardino Land Management Plan. Due to the extended timeframe of the Proposed Project and the alternatives brought forward for analysis, the temporal scope of this evaluation is 0-20 years for short term effects and 20 plus years for long term effects. Information used in this analysis includes:

- Field reconnaissance observed in June 2013
- San Bernardino National Forest’s GIS database
- Visual simulations using GIS, site photos, Google Earth and Adobe Photoshop
- Scenery Management System protocols, described in detail below.

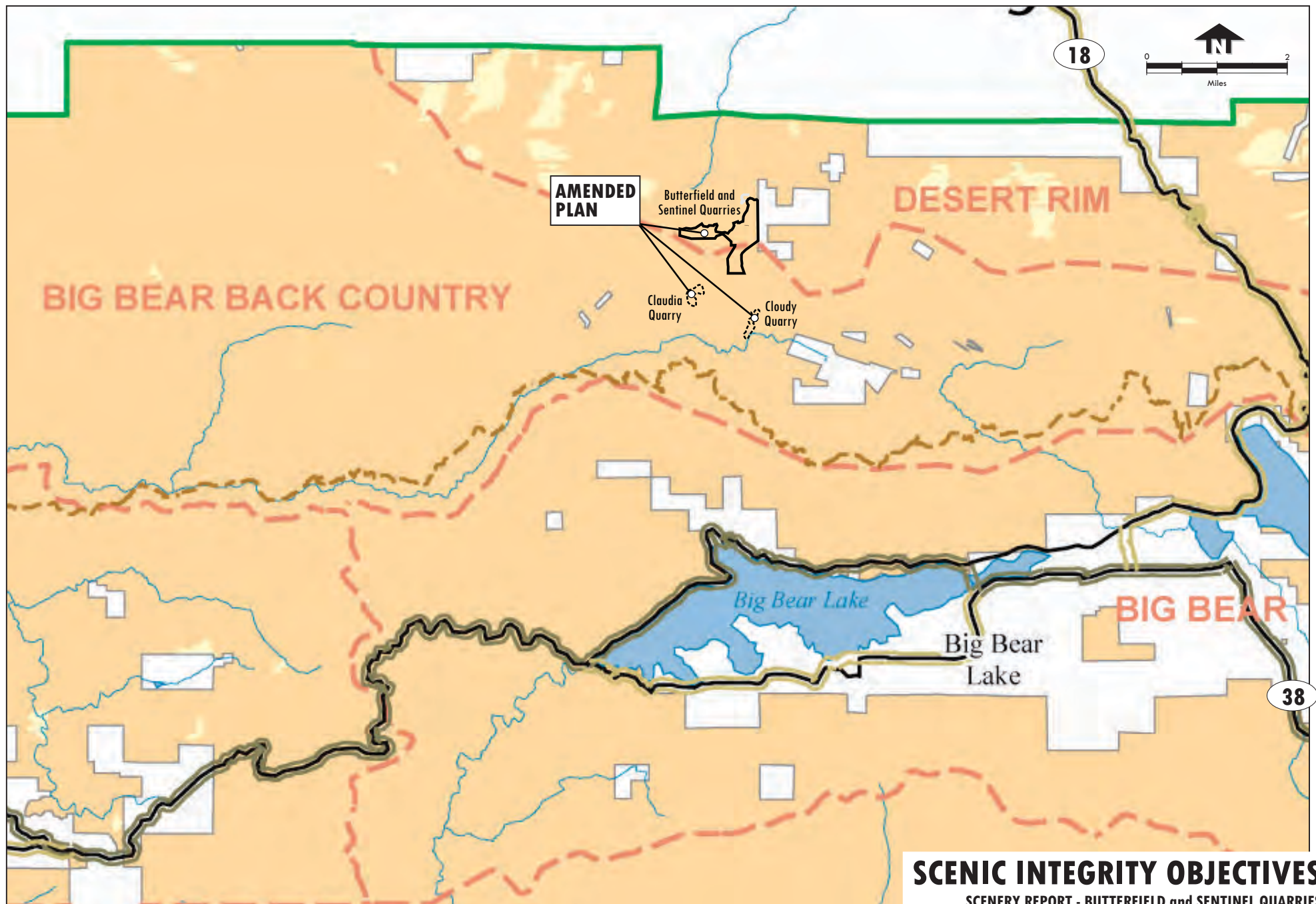
This Scenery Report inventories and analyzes scenery as a manageable resource using the United States Forest Service Scenery Management System. The Scenery Management System (SMS), developed in 1996, presents a systematic approach for determining the relative value and importance of scenery to assist in the establishment of overall resource goals and objectives, monitor the scenic resource, and ensure high-quality scenery for future generations. Appendix A, at the end of this document, includes the SMS viewpoint inventory and analysis summary of five selected viewpoints. SMS operates within the context of ecosystem management to assist in the establishment of overall resource goals and objectives, monitor the scenic resource, and ensure high-quality scenery for future generations. The SMS process is documented in Agricultural Handbook 701-Landscape Aesthetics, by the United States Department of Agriculture and is described in Appendix B at the end of this document.

The forest-wide scenery inventory included in the San Bernardino National Forest Land Management Plan was developed as a coarse-scale overview, with the understanding that it would be refined and expanded via project-level scenery analysis. Through work on the project-scale, sufficient detail is added to the scenery inventory to provide the level of information necessary to achieve stewardship excellence through the project’s development and implementation.

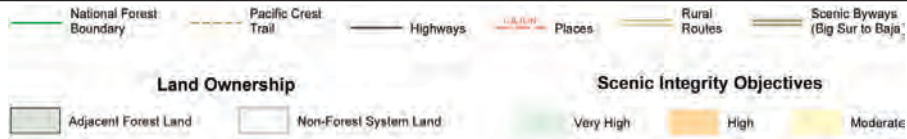
1.5 SAN BERNARDINO NATIONAL FOREST LAND MANAGEMENT PLAN

The San Bernardino National Forest Land Management Plan (LMP) was revised by the U.S. Department of Agriculture, Forest Service in 2005 under the 1982 Planning Rule, and the SMS was incorporated into the revision. The revised plan defines Aesthetic Management Standards (Part 3 Design Criteria for the Southern California National Forests; page 6) as follows:

- S9: Design management activities to meet the Scenic Integrity Objectives (SIO) shown on the Scenic Integrity Objectives Map (see Figure 6).



Source: USDA, Forest Service, Pacific Southwest Region 09/2005.



SCENIC INTEGRITY OBJECTIVES

SCENERY REPORT - BUTTERFIELD and SENTINEL QUARRIES
Amended Plan of Operations and Reclamation Plan
Omya California, San Bernardino National Forest, California

- S10: Scenic Integrity Objectives will be met with the following exceptions:
Minor adjustments, not to exceed a drop of one SIO level, are allowable with the Forest Supervisor's approval. Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.

1.6 SCENIC INTEGRITY OBJECTIVES

Scenic Integrity Objectives (SIO) are prescribed in the LMP and represent the minimally acceptable scenic integrity levels to be achieved, or exceeded, whenever possible. The threshold of effects is exceeded when disturbances to the landscape character do not meet the visual intensity and dominance criteria of the SIO. Scenic integrity levels are divided into five categories described below:

- Very High – the landscape character is expressed in its most natural and unaltered state.
- High – The landscape character appears unaltered; disturbances to the landscape character may be present but are not evident to casual observers.
- Moderate – The landscape character appears slightly altered; disturbances are evident but not dominant to the landscape character.
- Low – The landscape character appears moderately altered; disturbances begin to dominate the landscape character.
- Very Low – The landscape character appears heavily altered; disturbances are dominant over the landscape character.

Characteristics of the landscape character are described below under *2.0 Affected Environment*.

The SIO for the Proposed Project area is designated as High with a few areas of Moderate related to private lands and existing mining areas (refer to Figure 6). For the purposes of this report, the Proposed Project area is considered as having a designated SIO of High. It should be noted that the Proposed Project is located within proximity to scenery impacts from existing mining operations. These impacts are discussed under cumulative effects below.

1.7 ISSUES

According to the National Forest Management Act of 1976, which guided the development of the LMP, landscape aesthetics are treated as a visual resource that, "...shall be inventoried and evaluated as an integrated part of evaluating alternatives in the forest planning process, addressing both the landscape's visual attractiveness and the public's visual expectation". The Proposed Action needs to be executed in a manner consistent with the LMP by preserving the Scenic Integrity of the project area through blending and visually integrating the Butterfield-Sentinel Quarries into the larger landscape. Scenic Integrity refers to the alteration of the landscape created by human activities. Integrity is stated in degrees of change from the landscape character (see Section 2.2 *Landscape Character and Condition*).

Impacts to scenic resources were identified as an issue for the Proposed Project. Measures to address this issue were incorporated into the design features listed above in Section 1.3 and into mitigation where feasible, and are discussed in the analysis.

Issues identified:

- Ability of the Proposed Project to meet the Scenic Integrity Objectives, identified in the LMP.
- Ability of the Proposed Project to meet CFR 36-228.8(d) Scenic Values requirements which states the following: “Operator shall, to the extent practicable, harmonize operations with scenic values through such measures as the design and location of operating facilities, including roads and other means of access, vegetative screening of operations, and construction of structures and improvements which blend with the landscape.”
- Ability of the Proposed Project to meet CFR 36-228.8(g)(4) reclamation requirements for scenic resources during implementation and also during final reclamation including reshaping and revegetation of disturbed areas, where reasonably practicable.

1.8 SUMMARY OF CONCLUSIONS

As included under Section 2.2.1 below, the LMP Part 2 (Forest Service 2005) outlines the desired Landscape Character for the Proposed Project as follows:

The Desert Rim Place is maintained as a modified to natural appearing landscape that functions as a sanctuary for a large number of federally listed native plants and a highly valued area for limestone production. The valued landscape attributes to be preserved over time are the Jeffrey pine, white fir and incense cedar in the shaded aspects of ridges and canyons; intermittent streams and springs with riparian features and white carbonate outcrops. Carbonate habitats are protected from mining impacts in perpetuity within carbonate habitat reserves dedicated and managed as described in the Carbonate Habitat Management Strategy. The Carbonate Habitat Reserve is managed to allow public uses that are compatible with the conservation of the listed carbonate plants. Within the Carbonate Habitat Management Area, carbonate plants are likely to persist indefinitely by managing and maintaining geomorphic and ecological processes of the landscape in large, well-placed blocks of habitat. Destruction or modification of critical habitat is avoided. Listed species are recovered and delisted. Future listing is not needed. Areas disturbed through past activity are restored (LMP Part 2, p. 64).

The Big Bear Backcountry Place is maintained as a historic and natural-appearing landscape that functions as a recreation setting for backcountry rustic road-touring recreation experiences... The valued landscape attributes to be preserved over time are the stands of Joshua Trees and Pinyon juniper, the large montane meadow system and the open high-desert undeveloped character... Carbonate habitats are protected from mining impacts in perpetuity within carbonate habitat reserves and managed as prescribed in the CHMS (LMP Part 2, pgs. 56-57).

The LMP defines Aesthetic Management Standards as follows:

- S9: Design management activities to meet the Scenic Integrity Objectives (SIO) shown on the Scenic Integrity Objectives Map (refer to Figure 6).
- S10: Scenic Integrity Objectives will be met with the following exceptions:
Minor adjustments, not to exceed a drop of one SIO level, are allowable with the Forest Supervisor's approval. Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.

The developed and inhabited areas of Fawnskin, Big Bear City, and the City of Big Bear Lake are screened from the Proposed Project by the high west-to-east ridge to the north of Big Bear Lake. Views of the Proposed Project from the lower elevations of these developed areas would be completely screened. Viewers from Lucerne Valley to the north would not be able to see the Proposed Project due to the project's location on the south side of the steep north ridge of the San Bernardino Mountains as discussed in Section 2.2.2 and mapped in the Overall Viewshed Analysis, Figure 8.

The Proposed Project would be visible from specific views within the SBNF to the south-southwest to southeast as mapped in the Overall Viewshed Analysis, Figure 8. These areas are generally located along FS Road 3N16, in western Holcomb Valley, from the north facing ridges on Delamar Mountain and Bertha Peak including the Pacific Crest Trail, and from ridgelines south of Big Bear Lake including Castle Rocks and the top of the Snow Summit Ski Resort. Five viewpoints were chosen that best represent key views from the SBNF.

The Proposed Project is located in an area with an SIO of High, although current levels of scenic integrity do not consistently meet the SIO and range from Low to High. Viewpoint 1 has an existing scenic integrity level of Low; Viewpoint 2 has an existing scenic integrity of High; Viewpoint 3 has an existing scenic integrity of Moderate; Viewpoint 4 has an existing scenic integrity level of High; and Viewpoint 5 has an existing scenic integrity level of Moderate.

If the No Action Alternative is selected and the Proposed Project does not take place, there would be no additional direct or indirect effects to scenery as viewed from within the SBNF and from Lucerne Valley by the Proposed Project. The currently approved existing and future mining by Omya south of the northern ridgeline would continue to increase during the next 20 years and be visible from SBNF lands, however due to the view distance from sensitive areas and ongoing reclamation, the scenic integrity would remain the same as current levels, and the overall scenic integrity from SBNF lands would continue to be Low during the 20 years of operations as viewed from the Pacific Crest Trail (Viewpoint 1) becoming Moderate following reclamation; Moderate from Viewpoint 3; and High from Viewpoint 2. The project site would not be visible from Viewpoints 4 and 5; therefore the existing scenic integrity from these key viewpoints would not change with implementation of this alternative. This alternative would continue current levels of scenic integrity and not meet the designated SIO of High from Viewpoints 1 and 3 (see Table 2: Summary of Potential Change in Scenic Integrity).

Alternative 2, the Proposed Action, would be visible from four of the five key viewpoints. During implementation, scenic integrity would either remain at current levels or in the case of Viewpoint 5, would decrease by one level. Following reclamation, scenic integrity would continue or resume to current levels or improve by one level in the case of Viewpoint 1. The scenic integrity for Viewpoints 1, 3 and 5 would fall below the SIO of High, while Viewpoints 2 and 4 would meet the established SIO of High as prescribed by the LMP.

If Alternative 3: Partial Implementation is selected, there would be minimal additional direct effects and indirect effects to scenery resources within the SBNF. Scenic integrity would continue at current levels ranging from Low to High during implementation and improving after reclamation, ranging from Moderate to High. For two of the five viewpoints, this would not meet the SIO of High as designated in the LMP.

Alternative 4 would be mined with the same overall excavation plan and project design features as the Proposed Project. Therefore, the potential effects to scenery of the project would be the same as those analyzed under Alternative 2: Proposed Action.

Typical indirect effects include the visual effects of dust. There would be no indirect effects to the future landscape character as viewed from SBNF lands with implementation of the MDAQMD rules and regulations that will minimize the creation of visible dust from the mining operation.

The Proposed Project would incrementally increase cumulative impacts from views in the SBNF from the southwest and southeast. When considered with existing adjacent mining activities and the distance to sensitive viewpoints, the cumulative scenic integrity would not substantially change from current conditions, and the area's scenic integrity would remain at existing levels. This would not meet the established SIO of High as prescribed by the LMP.

The forest-wide scenery inventory included in the LMP was developed as a coarse-scale overview with the understanding that it would be refined and expanded via project-level scenery analysis. SIO's established by the LMP represent a minimum level of scenic integrity to be met or exceeded whenever possible. Current and historic mining is a large part of the cultural values placed on the area, and is part of what gives it its distinct 'sense of place.' According to the LMP, the Desert Rim Place is to be managed as a modified to natural-appearing landscape and the Big Bear Backcountry Place is to be managed as an historic to natural-appearing landscape. Program emphasis for both Places includes incorporating current mining while preserving and managing habitat, recreation, and fire protection among other management activities. Due to the nature of the area's high-contrast calcium carbonate soils, unscreened activities that cause soil disturbance become noticeable to the casual observer at all distances, diminishing the level of scenic integrity. Therefore, any visible soil disturbing activities, such as unscreened mining, could not meet the SIO of High (the landscape character appears unaltered), even following reclamation. To meet the LMP's management direction (which includes continued mining), this analysis recommends an alignment of the project area's SIO with the desired condition expressed in the LMP by changing it to Moderate: disturbances are evident but not dominant to the landscape character.

2.0 AFFECTED ENVIRONMENT

2.1 FOREST AND PLACE

The SBNF has been divided into a series of geographical units called “Places.” The Proposed Project site is located on the boundary straddling the Desert Rim Place and the Big Bear Back Country Place. Each Place has its own identifying landscape character. Landscape character refers to the overall visual and cultural impression of a landscape’s valued attributes. Valued attributes include important information about aesthetic values in conjunction with recreational, spiritual, social, economic, or community values and attachments. Figure 7 shows the Proposed Project site within the Desert Rim Place and the Big Bear Back Country Place.

2.2 LANDSCAPE CHARACTER

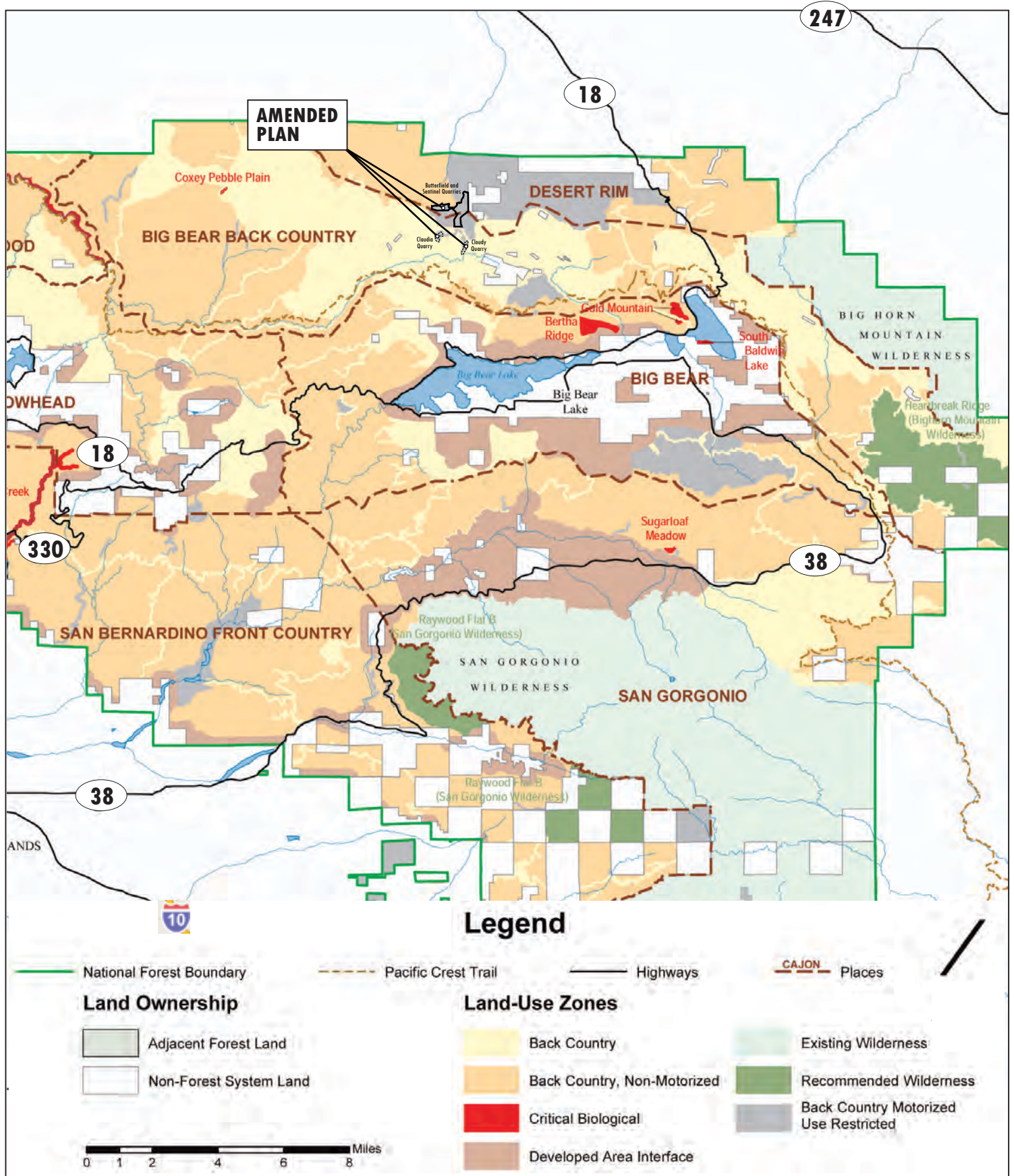
The landscape character is derived from the naturally established landscape, and includes the entire scene being viewed in the landscape setting. The landscape character descriptions are taken from site observation and from the environmental setting description within the LMP Part 2.

Desert Rim Place

The Desert Rim Place is a remote, high desert landscape formed by complex geologic faulting with extensive industrial limestone mining operations. This is the location where the north slope of the San Bernardino Mountains links up with the Mojave Desert. Shaded canyons and ridges of the Desert Rim Place are forested with Jeffrey pine, white fir and incense cedar. As the landscape drops in elevation toward the desert, pinyon-juniper woodlands cover the slopes and valleys and intermix with Joshua tree woodlands and desert scrub. Important wildlife habitat and linkages are also present here. Southwestern willow flycatcher and desert tortoise are present. The Cushenbury herd of Nelson’s bighorn sheep and California spotted owl are present on the Desert Rim. The Desert Rim Place landscape is arid, but contains many intermittent streams and important spring locations.

The area is a popular location for geological exploration. In the 1800s, small amounts of gold, silver, and lead were extracted here. Today, the majority of land is valued for the presence of large quantities of high quality, calcium carbonate deposits used in the production of ground limestone and cement. Three large-scale industrial limestone mines are present, annually producing about three million tons of cement-grade limestone and 1.5 million tons of high-brightness limestone.

These calcium carbonate deposits are also valuable habitat supporting four species of threatened and endangered plants found nowhere else in the world. Some of the largest occurrences of federally listed native plants are found here in the carbonate deposits laid down by ancient inland seas. A large area of critical habitat is designated for the recovery of carbonate endemic plants. In 2003, a collaborate effort led to the development of the Carbonate Habitat Management Strategy (CHMS). The strategy is designed to provide long-term protection for the carbonate endemic plants and also provide for continued mining.



Source: USDA, Forest Service, Pacific Southwest Region 09/2005.

DESERT RIM PLACE within the SAN BERNARDINO NATIONAL FOREST and the AMENDED OPERATIONS

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Access through the Desert Rim Place from the mountains to the desert is via SR 18 west to Lucerne Valley. Ninety miles of road provide access throughout the Desert Rim. Most of the private parcels within the area are utilized for limestone mining operations; no residential uses exist. Utility and transportation rights-of-way occur within the Desert Rim.

Although no developed recreation sites are located within the Desert Rim Place, both primitive and semi-primitive types of recreation experiences can be found here, including hiking, backpacking, horseback riding and hunting opportunities. Other popular activities include driving for pleasure, wildlife viewing, and OHV use along designated routes. No developed recreation sites are located within the Desert Rim.

Big Bear Back Country Place

The Big Bear Back Country Place is biologically diverse with important high desert, mountain meadows, and conifer forest ecosystems. The biological diversity includes montane meadow, pebble plain, carbonate and vernal mesic habitat supporting a large number of threatened, endangered, and Region 5 sensitive and watch-list plants. Critical habitat designated for the listed carbonate endemic plant species is present. The open, temperate, high desert landscape in the eastern portion of the Place is characterized by Joshua tree stands and pinyon -juniper covered hillsides. Jeffrey pine, western juniper, canyon live oak and white fir cover the hillsides here. Vast acreages of desert scrub, chaparral, pinyon -juniper woodland, and Jeffrey pine forest are currently regenerating within the western portion of this Place, recovering from the 1999 Willow Fire. The Place includes aquatic, riparian, and forested habitats which support a large number of birds, fish, and mammals including Nelson's bighorn sheep.

This Place offers a wide variety of dispersed recreational opportunities including hiking, auto touring, rock climbing, cycling, hunting, and wildlife viewing. Numerous developed campgrounds are located in this Place. National Forest System Roads provide access as well as a high number of unclassified roads and trails including the nationally designated Pacific Crest Trail.

Holcomb Valley (with its large montane meadow system) dominates the center of the Place. From 1860 until the early 1900s, Holcomb Valley was the location of southern California's largest gold rush and several mining towns, and now is a California Historic District. The last gold mining operation of any size concluded in 1958. Mining today focuses on carbonate substrates or limestone. Two large mining pits and overburden sites, the Cloudy and Claudia sites, are located in the western Holcomb Valley and are now undergoing reclamation.

2.2.1 Desired Landscape Character and Condition

The LMP Part 2 outlines the desired condition for each Place within the SBNF. The desired Landscape Character and Condition for the Proposed Project area are as follows:

The Desert Rim Place is maintained as a modified to natural appearing landscape that functions as a sanctuary for a large number of federally listed native plants and a highly valued area for limestone production. The valued landscape attributes to be preserved over time are the Jeffrey pine, white fir and incense cedar in the shaded aspects of ridges and

canyons; intermittent streams and springs with riparian features and white carbonate outcrops. Carbonate habitats are protected from mining impacts in perpetuity within carbonate habitat reserves dedicated and managed as described in the Carbonate Habitat Management Strategy. The Carbonate Habitat Reserve is managed to allow public uses that are compatible with the conservation of the listed carbonate plants. Within the Carbonate Habitat Management Area, carbonate plants are likely to persist indefinitely by managing and maintaining geomorphic and ecological processes of the landscape in large, well-placed blocks of habitat. Destruction or modification of critical habitat is avoided. Listed species are recovered and delisted. Future listing is not needed. Areas disturbed through past activity are restored (LMP Part 2, p. 64).

The Big Bear Backcountry Place is maintained as a historic and natural-appearing landscape that functions as a recreation setting for backcountry rustic road-touring recreation experiences... The valued landscape attributes to be preserved over time are the stands of Joshua Trees and Pinyon juniper, the large montane meadow system and the open high-desert undeveloped character... Carbonate habitats are protected from mining impacts in perpetuity within carbonate habitat reserves and managed as prescribed in the CHMS (LMP Part 2, pgs. 56-57).

Program emphasis for both Places includes focusing on the implementation of the CHMS to continue mining while preserving and managing habitat for the four federally listed plants.

2.2.2 Existing Landscape Character

The existing landscape character of the Proposed Project area consists of steep mountain slopes, ridges, and canyons with pinyon-juniper vegetation. Characteristic species include pinyon and juniper trees, mountain mahogany, antelope brush, and shrubby canyon live oak. Vegetation patterns tend to be denser on north slopes and gullies, and more open on south slopes. Vegetation is also more sparse and scrubby toward ridgelines and on calcium carbonate soils, including areas within the project area. Once disturbed, the naturally-occurring calcium carbonate soils are a very bright white color that contrasts strongly with the darker vegetation and surrounding undisturbed soils. This contrast is reduced in the winter due to periodic snow cover.

The existing landscape character includes the impacts of the 2007 Butler Peak fires. These fires burned to the southern limit of the existing Butterfield 3 quarry, and burned off most of the pinyon forest covering the south facing slope below the quarry, leaving only blacked trunks and scorched soils. Removal of the pinyon forest cover revealed the white limestone outcrops formerly obscured by the trees. A significant portion of the proposed Butterfield quarry expansion includes burned area, although the burned area covers a much larger area than the quarry expansion.

The existing views of the Proposed Project area are also affected by two active mines, the Butterfield Quarry and the Sentinel Quarry, which are directly adjacent to, and to the east and north of the proposed expansion areas. The Proposed Project is the expansion of these two quarries and associated overburden stockpiles utilizing the existing processing facility and mobile equipment. Two inactive mines, Claudia and Cloudy, located to the south of the active mine sites and of FS Road 3N16 are currently undergoing various stages of reclamation. The

Cloudy and Claudia Quarries and the Cloudy haul road have been reclaimed and the Forest Service has confirmed that the Cloudy Quarry has been successfully reclaimed (Forest Service correspondence March 19, 2012). Revegetation monitoring and remediation as needed will continue for the Claudia Quarry and Cloudy haul road and the Claudia haul road will be reclaimed after the Claudia Quarry is successfully reclaimed. No mining will occur on these two sites and no changes to the approved reclamation plans are proposed.

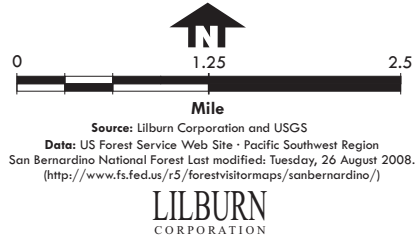
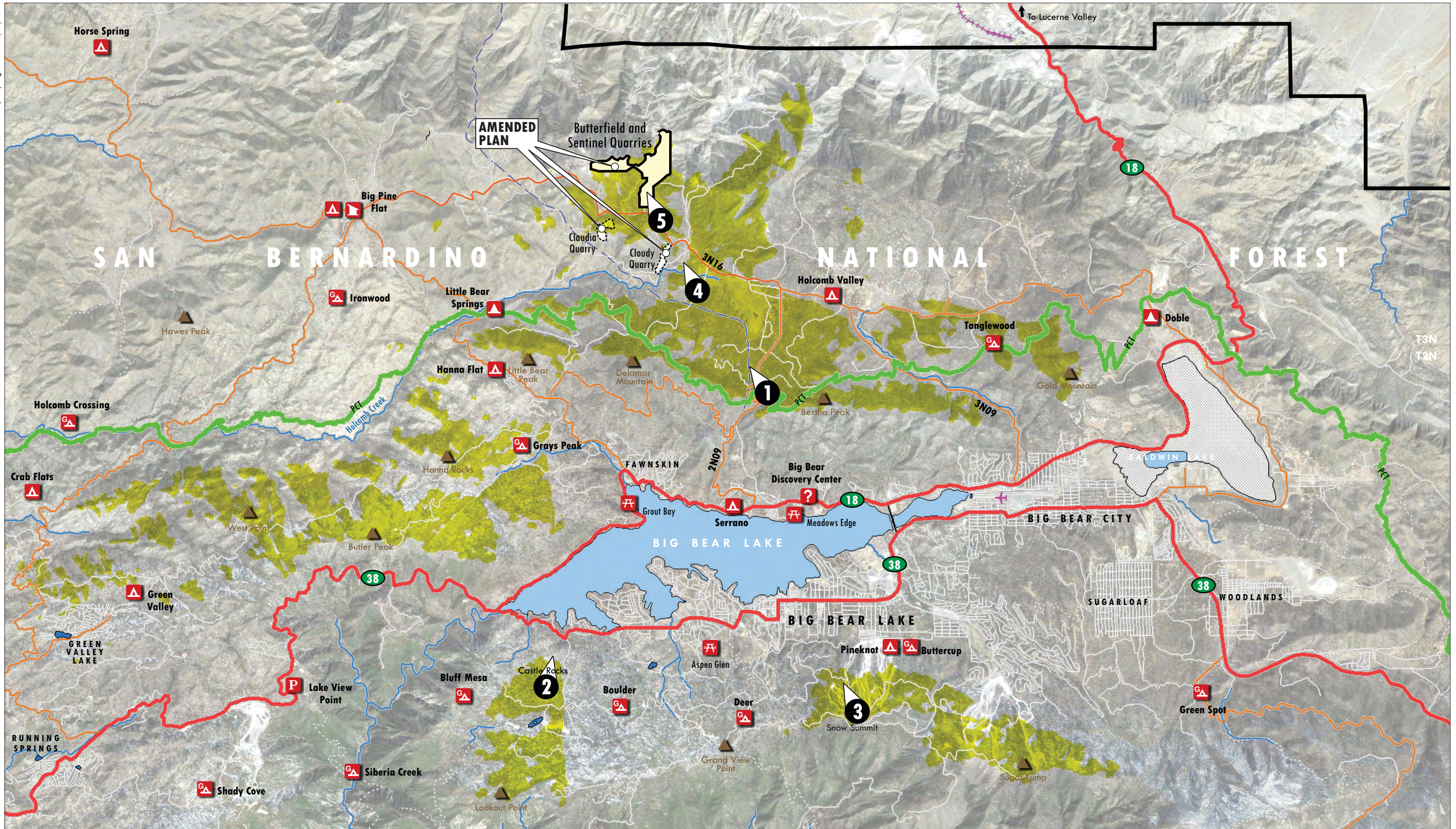
These two quarries are visible as light-colored areas within the generally darker forested landscape. Mining activity, particularly the straight lines created by benching and road construction, has also given the landscape an unnatural appearance in form, line and texture. Reclamation of the sites over time will reduce impacts as revegetation and weatherization of the rocks take place. Views of the Cloudy Quarry are possible from some of the key viewpoints described below under *Viewsheds and Viewpoints*. Impacts of these views are described under *Cumulative Effects* for each alternative.

2.2.3 Public's Visual Expectations

Visual expectations directly influence the relative importance and sensitivity of what is seen and perceived in the landscape. The visual importance given to the landscape is influenced by multiple factors, including distance, duration, existing conditions, and the viewer's intention. The importance of the scenic resource is weighed against other land resources and activities using Scenic Classes, described below.

The Proposed Project site is located in a relatively remote location, however the site is visible from the Pacific Crest Trail, a congressionally designated national scenic trail and it is also located immediately north of FS Road 3N16, a popular recreation access route between Holcomb Valley and Big Pines Flat. Viewers' expectations rise when engaging in recreation and scenery-related activities including hiking and driving for pleasure. Scenic trails have especially high expectations since sequential viewing of scenery at low speeds, such as while hiking, increases the duration of the views and the amount of detail noticed by the viewer.

Figure 8 shows the potential viewshed of the Proposed Project from areas within the SBNF based on USGS topographic elevations of landforms. Key viewpoints were chosen from within the viewsheds as representative views from these and other high-use areas (see *Viewsheds and Viewpoints* below). The overall viewshed analysis identifies areas only to the south of the Proposed Project, as the northern ridge of the San Bernardino Mountains blocks any possible views of the Proposed Project expansion areas from viewers within Lucerne Valley to the north. Potential screening from vegetation has not been considered in the overall viewshed analysis, although screening by existing vegetation as seen on the ground from each key viewpoint was included in the analysis below. Figure 8 shows that elevated areas to the southwest and southeast would potentially have views of the Proposed Project. The project area would be visible from portions of Holcomb Valley and the Pacific Crest Trail, Castle Rocks and the top of Snow Summit. Note that the distances from the project site to the latter two viewpoints are over 7 miles and at these distances, the Proposed Project area makes up a very small portion of the overall view. More distant ridgelines such as Onyx Summit may be able to see the site, but at greater distances the Proposed Project becomes nearly indiscernible within the larger landscape.



LEGEND



Areas of Potential Visibility
Note: The Viewshed Analysis data comprised of only USGS Digital Elevation Models. The data set did not account for trees, houses and other obstructions above ground elevation. Analysis covered a 9 mile radius.



Key Observation Point Location and Direction of View (4 Total)

20



Major Mountain Peaks



Pacific Crest National Scenic Trail (PCT)



San Bernardino National Forest Boundary



San Bernardino National Forest Dirt Roads



Campground



Trail Camp



Group Campground



Guard Station or Work Center



Scenic Point



Picnic Area



Information

OVERALL VIEWSHED ANALYSIS

SCENERY REPORT - BUTTERFIELD and SENTINEL QUARRIES

Amended Plan of Operations and Reclamation Plan

Omya California, San Bernardino National Forest, California



FIGURE 8

The Proposed Project will not be visible from the developed areas surrounding Big Bear Lake (and from the lake itself) including Fawnskin, the City of Big Bear Lake, and Big Bear City due to the intervening ridge located north of the lake and the relatively lower elevations around the lake.

2.3 SCENIC CLASSES

Scenic Classes are used to compare the value of scenery to the value of other resources. They are determined and mapped by combining the measure of scenic attractiveness with landscape visibility.

2.3.1 Scenic attractiveness measures the scenic importance of a landscape. Higher scenic attractiveness occurs in landscapes with a greater degree of naturalness, diversity of features and uniqueness. The relative scenic value of a landscape is classified as: Class A - distinctive; Class B - typical; and Class C - indistinctive. The scenic attractiveness of the Proposed Project area set within the northern ridges of the San Bernardino Mountains is Class B. Note that views from Viewpoint 2, Castle Rocks, are considered Class A due to the unique rock formations and the views of Big Bear Lake.

2.3.2 Landscape visibility is determined using three elements: (1) travel ways and use areas, (2) concern levels, and (3) distance zones. Visibility levels for the SBNF were established in the 2005 LMP scenery analysis process and verified by field observation in 2011- 2012 (refer to Appendix A). Travel ways and use areas were identified within proximity of the project area, and their concern levels and distance zones documented.

Travel ways are linear concentrations of public-viewing, including roads and trails. *Use areas* are locations that receive concentrated public-viewing use. They include vista points, trailheads and other recreation sites. Most landscape viewing occurs from travel ways and use areas.

Concern levels are a measure of the degree of public importance placed on landscapes as viewed from travel ways and use areas. Concern level is a function of both the number of visitors as well as their intent. Three concern levels are used:

Level 1 (High) is the most important. Users have a high level of concern for scenery. It is associated with major highways, areas of concentration such as recreational facilities, special designations such as scenic byways or national recreation/historic trails and cultural sites. Views from Forest Road 3N16, the Pacific Crest Trail, Holcomb Valley, Castle Rocks and Snow Summit are Concern Level 1.

Level 2 (Moderate) areas are of lesser importance such as state highways, county roads, secondary trails, scenic overlooks, summer home tracts etc. Concern Level 2 views are not included in this analysis.

Level 3 (Low) refers to low use areas and low volume roads, trails, waterways or recreation facilities. Concern Level 3 views are not included in this analysis.

Distance zones are measured from key viewpoints described in detail below in *Viewsheds and Viewpoints*. As distance between the viewer and the landscape increases, the level of visible landscape detail decreases. Distance zones are divided into three general categories: Foreground (300 feet to 0.5 miles), Middleground (0.5 to 4 miles), and Background (4 miles to the horizon).

Individual forms are dominant within foreground distances. Texture is largely made up of large branches and visible portions of trunks. People can distinguish small details such as individual shrubs, clumps of wildflowers, and medium-sized animals and birds. This is the case for Viewpoint 5 (Forest Road 3N16) described below.

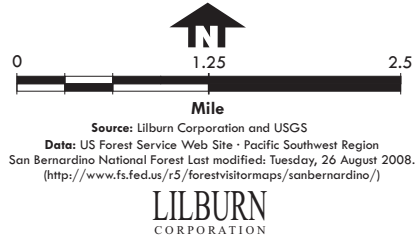
At middleground distances, people can distinguish individual tree forms, small openings in the forest, and small rock outcrops. Form, texture, and color remain dominant, and pattern is important, including that concerning high contrast color. Texture is made up of repetitive tree forms. A middleground landscape having steep topography is often the most critical of all distance zones for scenery management, because the viewer is able to see disturbances in context with the overall landscape. This is the case for Viewpoints 1 (PCT) and 4 (Delmar Mountain Road) described below.

In background views, people can distinguish groves or stands of trees, large openings in the forest, large rock outcrops, and high contrast elements. Texture disappears and colors flatten, but large patterns of vegetation, rock, and in this case, calcium carbonate soils, are still distinguishable. Landform ridgelines and horizon lines are the dominant visual characteristics. As a result, the landscape is simplified, and disturbances are less noticeable. This is the case for Viewpoints 2 (Castle Rocks) and 3 (Snow Summit Ski Resort) described below.

There are no developed use areas within the foreground distance (less than 0.5 miles) to the proposed site. Viewpoints 1 and 4 represent travel ways at middleground distances of 0.5 to 4 miles. Viewpoints 2 and 3 represent use areas with potential background views of the proposed site (4 miles to horizon). Viewpoint 5 represents a travel way within foreground distance of the Proposed Project area (refer to Table 1 below).

2.4 VIEWSHEDS AND VIEWPOINTS

Viewsheds are visible portions of the landscape as seen from viewpoints. Key viewpoints were identified, documented and included as part of this inventory (see Figures 8 and 9). These key viewpoints were selected because they show representative views from the identified travelways and use areas with High Concern Levels within SBNF lands. Each key viewpoint was evaluated based on levels of existing screening by topography, vegetation, and/or development blocking the direct view of the project area. Viewshed visibility was determined by the edge conditions of viewpoint locations. Edge conditions are described as screened, partially screened or open conditions. A screened edge condition would block views of the project area. Partial screening occurs where there are dispersed patterns of vegetation and development. Open edge conditions lack any screening toward the Proposed Project area.



LEGEND

2 Key Observation Point Location and Direction of View (4 Total)

- Major Mountain Peaks
- Pacific Crest National Scenic Trail (PCT)
- San Bernardino National Forest Boundary
- San Bernardino National Forest Dirt Roads

SIMULATION VIEWPOINT LOCATIONS

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Table 1
Viewpoint Locations

Viewpoint	Description	Type	Distance Zone	Visibility	Concern Level
1	Pacific Crest Trail (0.25 miles east of FS Road 2N09 (Polique Canyon Road))	Travel Way	Middleground (3.75 miles southeast of site)	Open to screened by ridges and trees	1 High
2	Castle Rocks (0.5 miles south of SR 18 and 0.75 miles south of Big Bear Lake)	Use Area	Background (7 miles south of site)	Open to partially screened by trees	1 High
3	Snow Summit Ski Resort at top of Chair 1 near View Haus (1.5 miles south of SR 18 and 2 miles south of Big Bear Lake)	Use Area	Background (8.25 miles southeast of site)	Open to partially screened by ridges and trees	1 High
4	Delamar Mountain Road (FS Road 3N12) 0.5 miles south of FS Road 3N16	Travel Way	Middleground (2 miles south of site)	Screened by ridges and trees	1 High
5	FS Road 3N16 (approximately 550 feet south of proposed B5 Pad while traveling north or west)	Travel Way	Foreground (300 to 1,200 feet south of proposed B5 Pad)	Partially screened by ridges and trees	1 High

Table 1 below is a summary of the five viewpoints evaluated for potential scenic resource impacts from the Proposed Project or Proposed Action Alternative and three additional alternatives. These key viewpoints were selected because they are representative views from the identified travel ways and use areas from within SBNF lands. The Proposed Project site is not visible from Lucerne Valley to the north.

2.5 ISSUE INDICATORS

The following indicators will be used to assess the effects of the Proposed Action and a No Action Alternative:

- Compliance with the LMP's Scenic Integrity Objectives and
- Effect on the desired condition of the landscape.

3.0 ENVIRONMENTAL CONSEQUENCES

3.1 EFFECTS ON SCENERY RESOURCES

Four alternatives are analyzed; Alternative 1 - No Action Alternative; Alternative 2 - Proposed Action, Alternative 3 – Butterfield Quarry Expansion Only, and Alternative 4 – Mixed Production. Potential change in scenic integrity was assessed and impacts to scenic resources were analyzed from the key viewpoints. Due to the extended timeframe of the Proposed Action and the alternatives brought forward for analysis, the temporal scope of this evaluation is 0-20 years for short term effects and 20 plus years for long term effects. Table 2 identifies the potential for change in the Scenic Integrity of the existing landscape character as they relate to the four alternatives.

Table 2
Summary of Potential Change in Scenic Integrity

Viewpoint		Visibility ¹	Scenic Integrity Objective ²	Scenic Integrity Level				
				Alt. 1: No Action & Alt. 3: Butterfield Quarry Expansion Only		Alt. 2: Proposed Action & Alt. 4: Mixed Production		
				0 – 20 ³ Years	20+ Years with Reclamation	0 – 20 Years	20 - 40 Years	40+ Years with Reclamation
1	Pacific Crest Trail	Mg	High	Low	Moderate	Low	Low	Moderate
2	Castle Rocks	Bg	High	High	High	High	High	High
3	Top of Snow Summit	Bg	High	Moderate	Moderate	Moderate	Moderate	Moderate
4	Delamar Mountain Road	Mg	High	High	High	High	High	High
5	FS Road 3N16	Fg	High	Moderate	Moderate	Moderate	Low	Moderate

The landscape character of the project area consists of mountain slopes, ridges, and canyons with vegetation characterized as pinyon-juniper-mountain mahogany-rabbit brush woodland. Characteristic species include pinyon and juniper trees, mountain mahogany, antelope brush, and shrubby canyon live oak. Vegetation tends to be denser on north slopes and gullies, and more open on south slopes and along ridges. However, the entire area including the western half of the project site was burned in wildfires in 2007 and vegetation descriptions refer to habitat prior to the fires. Current conditions show barren light tan colored areas with burned vegetation, blackened trunks and dead trees caused by catastrophic wildfire.

The existing quarries and the proposed mine expansion areas are located on the south side of the range crest and are not visible from Lucerne Valley. Scenery disturbances from within SBNF lands looking northward include those created by the active Butterfield and Sentinel Quarries and two inactive quarries south of the Proposed Project. These disturbances consist of open areas of light-colored calcium carbonate soils and unnatural straight lines and forms that contrast with the existing natural landscape. From viewpoints more distant, the existing mine areas make-up a

¹ Visibility: Bg – Background; Mg – Middleground; Fg – Foreground

² Scenic Integrity Level of Project Area as seen from Key Viewpoints
 High = natural landscape appears unaltered; disturbances are not evident to casual observers
 Moderate = landscape appears slightly altered; disturbances are evident but not dominant
 Low = landscape appears moderately altered; disturbances are co-dominant with landscape character

³ This column is consistent with the existing levels of scenic integrity

very small portion of the panoramic views and the two inactive quarries are not visible. The SIO of this area is High and the existing scenic integrity ranges from Low to High.

3.2 ALTERNATIVE 1 – NO ACTION

3.2.1 Direct and Indirect Effects

If the No Action Alternative is selected and the Proposed Project does not take place, there would be no additional direct effects to scenery resources within the SBNF besides those effects previously approved by the Forest Service. Under the No Project Alternative, mining would continue under current approved plans within the existing Butterfield and Sentinel Quarries for approximately 20 years (approximately year 2035) depending on production levels followed by reclamation. This alternative would also have a smaller footprint than Alternative 2 by approximately 77 acres. Mining and reclamation would be conducted as described in the “Umbrella” Plan of Operations and Reclamation Plan (94M-02) approved in 1994 and the Sentinel Quarry Expansion Plan of Operations (approved in 2002/2003). An Environmental Assessment was prepared and the Forest Service issued a Finding of No Significant Impact (FONSI) in April 2002. Figure 4 shows the existing permitted areas in tan shading.

Figure 10A (Viewpoint 1) as seen from the Pacific Crest Trail 3.5 miles to the southeast, shows the viewshed of the existing active Sentinel Quarry, the overburden activities in the old Butterfield 5 Quarry, and a portion of the inactive Cloudy Quarry within the forest area to the southwest. The active Butterfield Quarry is a pit located behind an intervening ridge to the west and is generally not visible. Figure 10B is a simulation depicting the permitted operations that would occur under the No Action Alternative with reclamation of approximately 20 years. The most visible feature is the extension of the B5 Pad extending south from the site and the upper benches of the Butterfield Quarry. The contrast between the natural landforms and the exposed mine features is the extent of alteration to the landscape character. The limestone mines contribute to the impact due to color contrast caused by disturbed soil of the mined areas and to line and form contrasts from the unnatural straight lines of the project. Color contrast is reduced in the winter months due to periodic snow cover.

There would be no additional indirect effects to the future landscape character as viewed from SBNF lands by the No Action Alternative. Again, if the Proposed Project does not take place, there will still be disturbances to the landscape character from plans that are currently approved by the SBNF. The existing approved mining operations by Omya at the two mining areas would continue along the south slopes as described in the existing approved Plans and would incrementally add to the existing scenery impacts.

3.2.2 Cumulative Effects

The No Action Alternative cumulative effects analysis for scenic resources includes analysis within the Desert Rim and Big Bear Back Country Places as well as other active mine sites adjacent to the Proposed Project area. The area of cumulative effects was bounded in this manner to correspond with the overarching ‘sense of place’ and valued landscape character descriptions identified in the LMP. Cumulative effects include the past, existing, and reasonably foreseeable future actions.

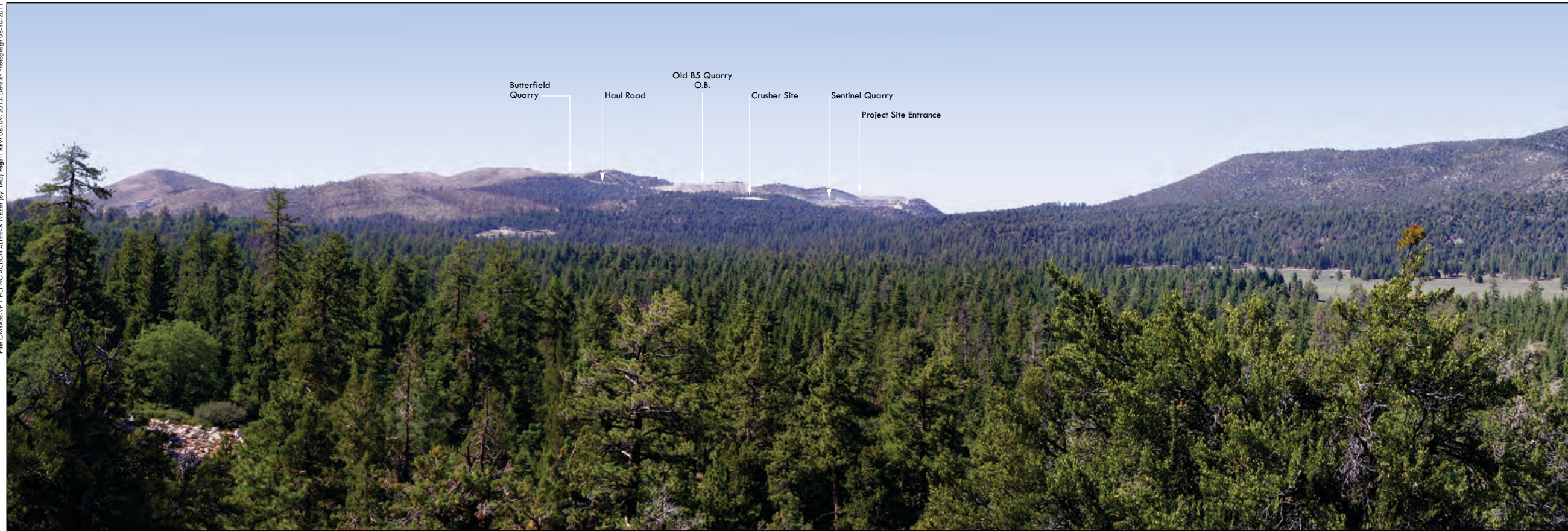


Figure 10A:

Existing Conditions

View from 3.5 miles looking northwest across Holcomb Valley from the Pacific Crest Trail (PCT) toward the existing Project Site.

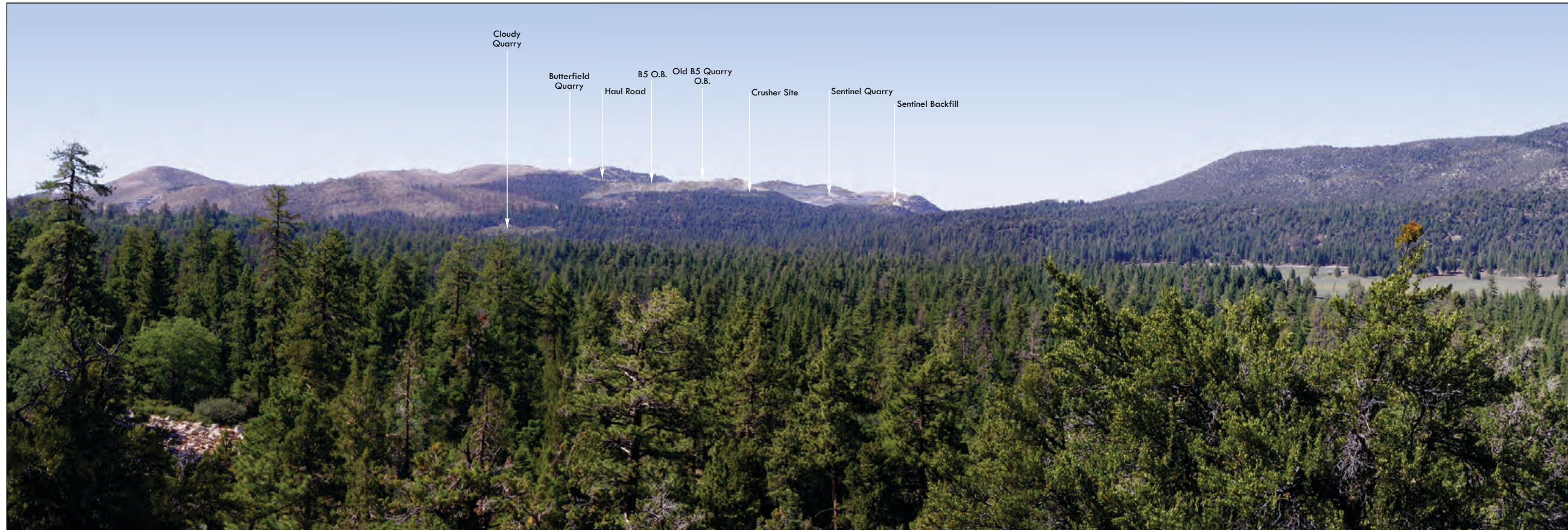


Figure 10B:

Amended Project Buildout with Reclamation

View looking northwest from PCT at the Permitted Quarry buildout with reclamation in place.

VIEWPOINT 1

No Action Alternative

SCENERY REPORT - BUTTERFIELD and SENTINEL QUARRIES
Amended Plan of Operations and Reclamation Plan
Omya California, San Bernardino National Forest, California

The adjacent existing active Sentinel and Butterfield Quarries and the inactive Claudia and Cloudy Quarries south of the Proposed Project have resulted in surface disturbances visible from SBNF areas south of the project site. Mitsubishi Cement Corporation is applying for a new quarry within the Desert Rim Place approximately 5.5 miles east of the Proposed Project. Existing and permitted mining on the north face of the San Bernardino Mountains has resulted in surface disturbances that are visible only from Lucerne Valley. Table 3 lists the existing mining operations located in the region. Disturbances are evident on the mountain slopes due to the generally light-color of the limestone quarries, stockpiles, and haul roads in contrast to undisturbed slopes (refer to Figure 10 as seen from the Pacific Crest Trail). The contrast between the natural landforms and the exposed mine features is the extent of alteration to the landscape character. The active quarries contribute to scenery impacts by disturbing and exposing the light-colored soils that contrast sharply with the darker undisturbed soil and vegetation. This contrast is reduced in the winter due to periodic snow cover. Benching and road construction additionally add unnatural straight lines and forms into the landscape. However, the impacts from the inactive Cloudy and Claudia Quarries would decrease over the next 40 years as revegetation and natural weathering take place.

Table 3
Existing and Foreseeable Actions
and Effects on Cumulative Scenic Integrity
Related to All Alternatives

Mining Company	Project / Location	Description	Status	Cumulative Effects on Scenic Integrity
Specialty Minerals, Inc.	Adjacent to east and 4 miles ENE of Proposed Project - West of Marble Canyon on north-facing slopes	Limestone quarries, stockpiles, haul roads, and processing plant.	Adjacent site active; 4 miles ENE Active	Unchanged
Omya California	Claudia and Cloudy Quarries - 1 to 1.5 miles south of Project	Quarries and haul roads	Closed	Contrasts will decrease with time due to revegetation and weathering
Omya California	<u>North of Ridgeline</u> – Process plant 3.5 miles north of project. White Knob Quarry, 4 miles northwest of project. Quarry and haul roads on north-facing slopes.	Limestone processing plant, quarry, stockpiles, and haul roads.	Active	Unchanged
Cushenbury Sand and Gravel Quarry	6 miles northeast of the project site, west of the junction of SR18 and Camp Rock Rd at lower elevation on alluvial fan in Lucerne Valley.	Sand and gravel mine and processing plant	Active	Unchanged

Mining Company	Project / Location	Description	Status	Cumulative Effects on Scenic Integrity
Crystal Hills Sand and Gravel, Inc.	South of Meridian Rd adjacent to rail line, 3.5 miles NNE of the project site at lower elevation on alluvial fan in Lucerne Valley.	Sand and Gravel Mine	Inactive	Unchanged
Hi-Grade Materials	6 miles north of the project, along Meridian Rd at Azurite Rd at lower elevation on alluvial fan in Lucerne Valley.	Sand and gravel mine and processing plant	Active	Unchanged
Mitsubishi Cement Corporation	5.5 miles northeast and generally at lower elevation than the Proposed Project except for proposed South Quarry. Quarries and access roads on north-facing slopes.	Existing East Pit, developing West Pit, proposed South Quarry, cement plant and haul roads	Active and Pending Expansion	Increase

Note that Mitsubishi's proposed South Quarry (5.5 miles east of the Proposed Project) is within the SBNF and if approved, it would add to scenery disturbances within the Desert Rim Place. The other limestone quarries are on private land or BLM unpatented claims on the north-facing slopes visible from Lucerne Valley only. The sand and gravel mines are located on the alluvial fans north of the north-facing slopes outside of SBNF lands in Lucerne Valley, are generally much less visible due to their lower elevations.

Most of the mining operations along the north face of the San Bernardino Mountains are active and permitted for many decades into the future. Concurrent reclamation upon completion of benches or phases of mining in the form of revegetation, covering of exposed areas with darker material, erosion control, and rock staining is typically required of most mining operations. Final reclamation would not commence until a specific operation or phase is completed.

There would be an incremental increase in cumulative effects to the future landscape character of the area for the No Action Alternative. The existing and approved future mining by Omya adjacent to the proposed expansion south of the north ridge would continue for approximately an additional 20 years. If the No Action Alternative is selected, cumulative effects are expected to increase over time with the approved mining activities and then gradually decrease with implementation of reclamation.

3.2.3 Conclusion

If the No Action Alternative is selected and the Proposed Project does not take place, there would be no additional direct or indirect effects to scenery resources as viewed from within the SBNF and from Lucerne Valley by the Proposed Project. However, the approved existing and future mining by Omya south of the northern ridgeline will increase during the next 20 years and be visible from SBNF lands. Due to the distances from high use areas and ongoing reclamation,

the existing scenic integrity would remain the same and the overall scenic integrity from SBNF lands would still be considered Low during the 20 years of operations as viewed from the Pacific Crest Trail (Viewpoint 1) becoming Moderate following reclamation; Moderate from Viewpoint 3; and High from Viewpoint 2. The project site would not be visible from Viewpoints 4 and 5; therefore the existing scenic integrity from these key viewpoints is not expected to change with implementation of this alternative. This alternative would continue existing conditions and would not meet the designated SIO of High.

3.3 ALTERNATIVE 2 – PROPOSED ACTION

The description of Omya's proposed Amended Plan of Operations and Reclamation Plan is discussed in Section 1.1 above. The proposed quarry expansion of 77.3 acres is located at an average elevation of 7,800 feet amsl on the south side of the north ridge of the San Bernardino Mountains within the SBNF. The site is approximately 8 miles south of the community of Lucerne Valley and approximately 5 to 6 miles northwest of the City of Big Bear Lake in San Bernardino County, California (refer to Figures 1 and 2).

The Proposed Project requests the following overall changes (refer to Figure 3):

- an increase of 28.6 acres at the Butterfield Quarry;
- an increase of 10.8 acres at the Sentinel Quarry
- an increase in Sentinel Quarry depth by 150 feet;
- an increase of 22.7 acres at the B5 Pad; and
- modifications to existing and planned overburden stockpile areas and haul roads in the Central Area on approximately 15.2 acres.

There are no new quarries or overburden sites proposed in this plan, only the phased expanded development and ultimate reclamation of the existing quarries. Operations and reclamation will incorporate the project design features listed in Section 1.3.

Mining is conducted by the typical drill and blast method. Blasted rock will be loaded by front end loaders into 50 to 100-ton off-road haul trucks and hauled to the onsite primary crusher. Overburden will continue to be placed onto the permitted B5 Pad which will be extended south as needed. Backfilling of the mined eastern half of Butterfield Quarry and completed areas of the Sentinel Quarry will occur as shown on the Reclamation Plan sheet (see Figure 5). This will limit impacted areas to the quarry and reduce potential visual and erosion impacts of additional waste rock stockpiles.

3.3.1 Quarry Phasing

Quarry and overburden stockpile development and expansion will be phased in four 10-year operational phases and one 10-year reclamation phase (see Table 4). Included in the phased expansion and reclamation is concurrent quarry development and reclamation of equipment-accessible mined out portions of the quarries. Specific reclamation activities will be concurrent with excavations and throughout the life of the operations such as slope reduction, stockpile management, erosion control, and revegetation as mining areas are completed.

Table 4
Butterfield and Sentinel Quarries
Phased Development Schedule

Phase No.	LOCATIONS	Years	Duration (years)	Cumulative Years
1	<u>Sentinel Quarry</u> – Mine approx. 200 feet into southwest expansion area and west into the B5 Quarry fill. Relocation of waste rock to overburden pads. <u>Butterfield Quarry</u> - Mine east half to approx. 7,750-foot elevation. <u>Central Pads</u> – Slope B5 Quarry fill with Sentinel Quarry pushback. Utilize overburden for road and pad fills. <u>B5 Pad</u> – Phased expansion with placement of material from quarries. <u>Crusher</u> – Locate the new replacement crushing system into service out of viewshed.	2016-2025	10	1-10
2	<u>Sentinel Quarry</u> – Mine approx. 200 feet into southwest expansion area and initiate backfilling on north slope. <u>Butterfield Quarry</u> - Mine east half to approximate final quarry floor depth of 7,650 feet. Initiate mining in western half of quarry. <u>Central Pads</u> - Complete filling and sloping of old B5 Quarry area; initiate reclamation & revegetation. <u>B5 Pad</u> - Phased expansion with placement of material from quarries.	2026–2035	10	11 - 20
3	<u>Sentinel Quarry</u> – Mine approx. 200 feet into southwest expansion area; continue backfilling on north slopes. <u>Butterfield Quarry</u> - Complete eastern half to 7,650-foot depth. Continue mining in western half and initiate placement of overburden in completed east half. <u>Central Pads</u> - B5 Quarry fill completed; ongoing revegetation/monitoring/remediation as needed. <u>B5 Pad</u> - Phased expansion with placement of material from quarries.	2036-2045	10	21 -30
4	<u>Sentinel Quarry</u> – Mine approx. 200 feet into southwest expansion area; complete backfilling on north slopes and initiate slope reduction to 2H:1V. <u>Butterfield Quarry</u> - Complete mining on west half to 7,700 feet. Complete backfilling of eastern half to approximate original contour. <u>Central Pad</u> - B5 Quarry fill; Reclamation completed. <u>B5 Pad</u> - Stockpile completed; initiate reclamation and revegetation.	2046-2055	10	31 -40

Phase No.	LOCATIONS	Years	Duration (years)	Cumulative Years
5	<p>Final Reclamation <u>Remove crusher</u> and other plant equipment (within one year after completion of mining). <u>Sentinel Quarry</u> – Finish sloping of backfill to 2H:1V; revegetate per Plan; maintain erosion control; monitor revegetation progress; and conduct remediation as necessary until success criteria achieved. <u>Butterfield Quarry</u>- Finish sloping of quarry and backfill; revegetate; maintain erosion control; monitor revegetation progress; and conduct remediation as necessary until success criteria achieved. <u>Central Pads</u> - Finish sloping of backfill; revegetate; maintain erosion control; monitor revegetation progress; and conduct remediation as necessary until success criteria achieved. <u>B5 Pad</u> - Ongoing revegetation monitoring & remediation as needed. <u>Crystal Creek Haul Road</u> – Maintained for reclamation and monitoring access to Butterfield – Sentinel Quarries.</p>	2056-2065	10	41-50
5A	<p><u>Crystal Creek Haul Road</u> – Reclaim per approved 1994 Reclamation Plan. Remove outside berm, place at toe of cut, install erosion controls, and revegetate (year 2066). Maintain erosion control; monitor revegetation progress; and conduct remediation as necessary years 2067 to 2075.</p>	2066-2075	10	51-60

Notes: All elevations are above mean sea level (amsl).

Phasing and development of the quarries are dependent on operational parameters and product demand needs. Mining operations may experience unscheduled phasing changes due to various market/economic demands and variation in material quality since the natural deposit is not of uniform quality. The SBNF and the County will be updated in the annual monitoring report on the status of operational phases.

The Reclamation Plan is discussed in detail in Section 2 of the Amended Plan. Final reclamation will occur after 2055 and will include measures for public safety, backfilling, erosion control, colorization, and revegetation. The benches, overburden stockpiles, roads, and ramps will be ripped and approximately 30% of the areas revegetated per the Revegetation Plan. Revegetation will include covering areas with growth media and organics, seeding and planting with nursery stock, and irrigation for up to two years, followed by revegetation monitoring and remediation until revegetation goals are achieved.

3.3.2 Direct and Indirect Effects

Five viewpoints were selected for visual analysis of the Proposed Action. Photo simulations were prepared to show potential representational changes in the landscape caused by the Proposed Project from key viewpoint areas to the south; two viewpoints located north of Big Bear Lake, two viewpoints from the south of Big Bear Lake that have elevated locations capable of seeing the Proposed Project, and one viewpoint directly south of the site on Forest Service Road 3N16 (see Figure 9). Tables 1 and 2 previously described these viewpoints.

The simulations include the existing conditions photographs and simulations of the quarry development at the end of the proposed mining with approximately 20 years of revegetation. Note that the some areas onsite and to the west of the site show the effects of the 2007 wildfires.

Looking from west to east, the proposed expansion of the Butterfield Quarry is essentially a pit along the existing ridgeline; as such the south quarry rim is only slightly lower (average of about 25 feet lower) than the north rim. Thus the views from the viewpoints to the south with slightly lower elevations than the quarry and at substantial distances will only be able to see the upper bench of the north side quarry wall to the west and east. The central portion of this quarry is blocked from view by two natural knolls up to 7,875 feet which would reduce quarry views and help to break up the unnatural straight lines, form, color contrast, and texture of the Butterfield Quarry.

The central portion includes a simulation of the permitted and proposed expansion of the B5 Pad to the south. The eastern areas include the use of the old B5 Quarry area for overburden backfilling and the Sentinel Quarry expansion southward and slightly westward. The deepening of the Sentinel Quarry by 150 feet and the eventual backfilling of the bottom 300 feet will not be seen due to the quarry depth and intervening ridges.

When compared against the existing natural landscape character, the Proposed Action would create a prominent southern expansion area of the B5 Pad with additional contrast in color and also impacts to form and line. Color contrast would occasionally be less in the winter due to snow in the higher elevations. The color difference from the newly exposed limestone rock slopes and overburden and the existing darker undisturbed soils is the main contrasting element from certain background and middleground views, varying over time in intensity due to reclamation, atmospheric conditions, natural weathering, shadowing, clouds, and snowfall. This would be more notable in middleground views looking north from areas around Viewpoint 1 along the Pacific Crest Trail and generally indiscernible from more distant viewpoints. The proposed site would not be seen from Viewpoint 4 due to intervening ridges and pine forests. Views from Viewpoint 5 would be focused on the southern slope of the B5 Pad due to the viewpoint's lower elevation and close proximity to the Pad.

Impacts from the various viewpoint locations are summarized in Table 2 above. During Mining Phases 1 through 4, the quarry benching would create an element that deviates from the form, line, and texture of the natural appearing landscape. With concurrent reclamation and revegetation (see Section 1.3 – Project Design Features), and natural weathering, the lighter color of newly cut slopes would darken over time, as depicted in the simulations, reducing the color contrast and visibility of the cut slopes.

Overburden and waste rock (rock not suitable for products) will continue to be deposited into the B5 Pad and the Butterfield 5 Quarry area and will be extended south as needed. However, approximately 60% or 19 MT of the estimated 32.3 MT of overburden will be backfilled within the eastern portion of the Butterfield Quarry and within the Sentinel Quarry as shown on the Reclamation Plan sheet. The Proposed Project does not plan to develop any additional waste rock stockpiles besides expansion of the B5 Pad. This will limit impacted areas to the quarry and eliminate potential impacts to scenery from additional waste rock stockpiles.

Mining operation haul trucks and equipment generally have higher contrast in form, line, texture, and color because of the increased reflectivity, brighter colors, and angled features compared to the natural landscape. Mining equipment may be seen along the upper north bench at the Butterfield Quarry, along the connecting haul road, on the B5 Pad and within portions of the Sentinel Quarry and then only partially visible from middleground views from Viewpoint 1 due to distance. Views from Viewpoints 2 and 3 at over 8 miles will not be able to discern the vehicles.

The potential change to scenic integrity from each key viewpoint is summarized below including the figures with the existing photographs and simulations. The Viewpoint Inventory and Analysis Summary worksheets are included in Appendix A.

Viewpoint 1 - Pacific Crest Trail (east of Poligue Canyon Road – 2N09)

(Please refer to Figure 11). The Project Site is located approximately 3.75 miles to the northwest as viewed from the Pacific Crest Trail just east of Poligue Canyon Road (FS Road 2N09). The viewshed is occasionally obscured by rock outcrops and vegetation as one hikes along the trail, however open views of the Project Area adjacent to the existing quarry are evident. Middleground views of steep slopes are often the most critical of all distance zones for scenery management because the viewer is able to see disturbances in context with the overall landscape. In this case, viewers using the federally designated National Scenic Trail have high expectations of scenery. From the trail, typical views of the Project Area occur while hiking at slow speeds (~3 mph) and therefore, are of long duration, as opposed to views while traveling in a vehicle on a road or highway. Existing views of the landscape appear moderately altered by recent fire and by current mining activity, and scenic integrity for the area does not currently meet the SIO of High. Disturbances to the natural landscape character begin to dominate the view, making the existing scenic integrity as viewed from the Pacific Crest Trail consistent with a level of Low.

Figure 11A – Existing Conditions shows a panorama view dominated by pine forests in the foreground to the distant ridges. Holcomb Valley is observed as a grassy clearing on the right or east side of the photograph and the 2007 burn area is evident on the ridges on the left or west side of the photograph. The existing Sentinel and Butterfield Quarries are seen in the center of the viewshed on the distant ridgeline as light-colored disturbances within the darker forest creating distinct contrasts in color, line and form.

Figure 11B – Amended Project Build-out with Reclamation shows a simulation of the site 20 years after final reclamation. It shows the expansion of the Butterfield Quarry to the west, expansion of the B5 Pad to the south of the site, and the expansion south of the Sentinel Quarry. The proposed Butterfield Quarry is seen as a rather narrow line depicting the visible northern quarry wall. As discussed above, the remainder of the quarry would not be visible due to the high southern quarry rim and the fact that portions of the quarry are behind and below the south rim and an intervening ridge. The B5 Pad and its connection to the east and north with the expanded Sentinel Quarry create an elongated disturbance area particularly on the southeast of the ridgeline. Impacts to scenery would incrementally increase as the project is implemented, but the disturbances would remain co-dominant to the landscape character, keeping the scenic integrity at a level of Low. The existing and permitted mining operations have created disturbances to the

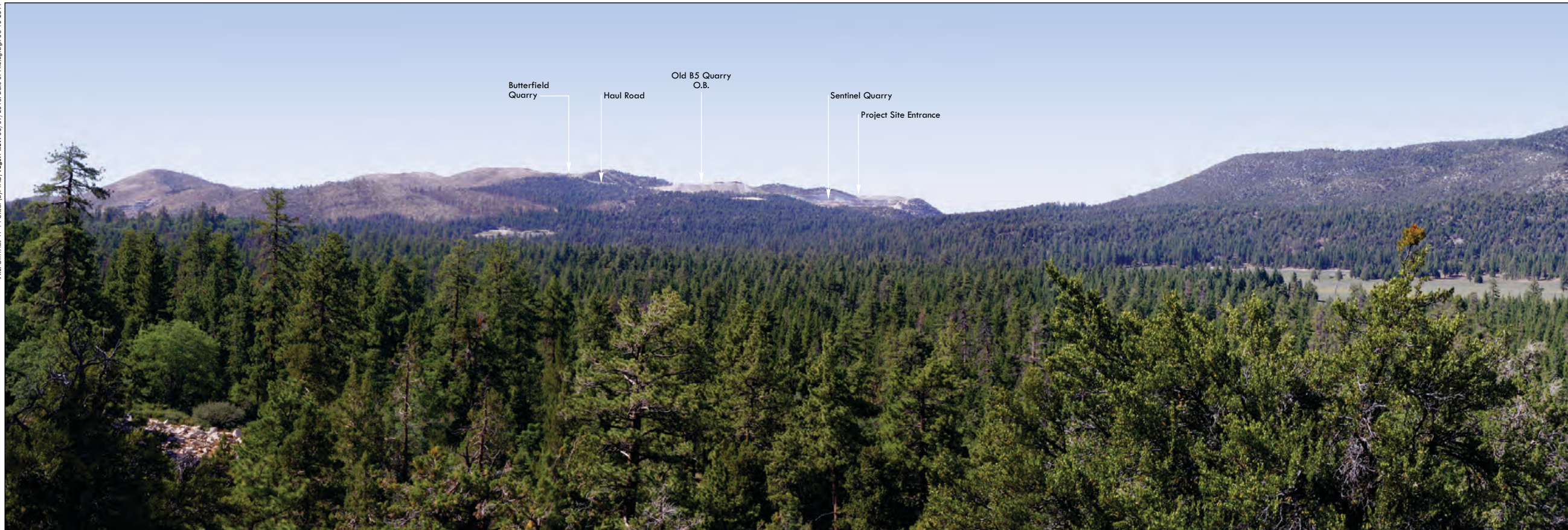


Figure 11A:
Existing Conditions
View from 3.5 miles looking northwest across Holcomb Valley from the Pacific Crest Trail (PCT) toward the existing Project Site.

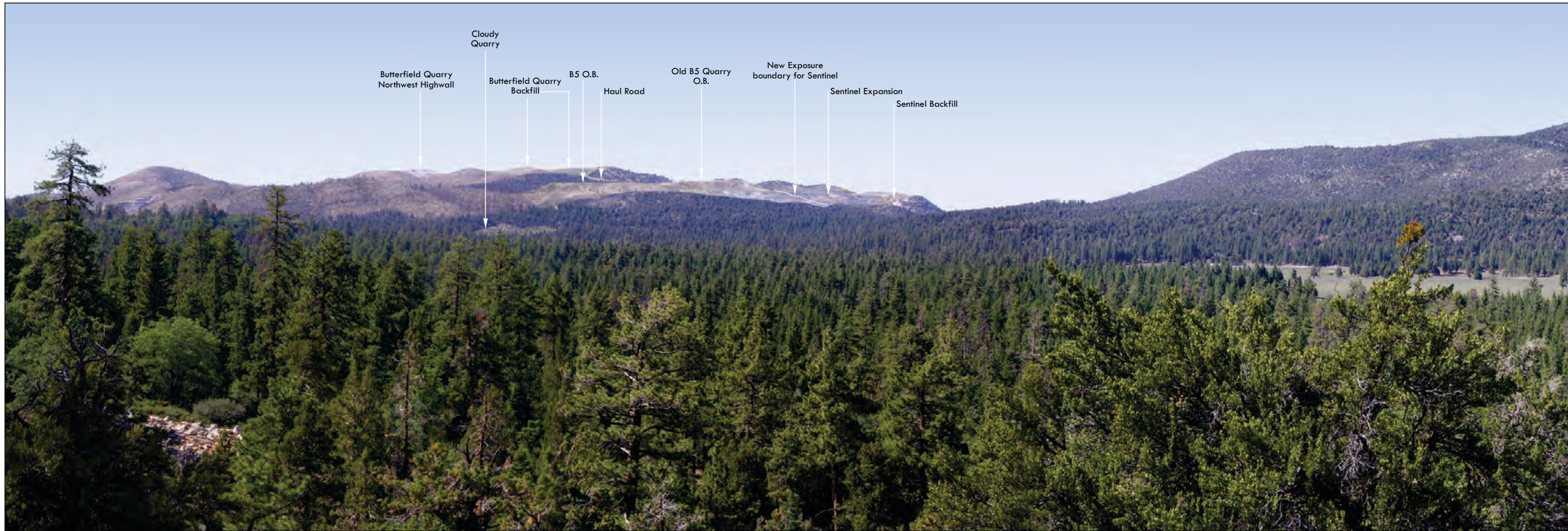


Figure 11B:
Amended Project Buildout with Reclamation
View looking northwest from PCT at the Amended Project buildout with approximately 20 years of concurrent and final reclamation in place.

landscape character for the ridgeline area, and implementation of the Proposed Project would not reduce this level of scenic integrity.

The quarry design features and required concurrent and final reclamation include the roughening of quarry walls, depositing of darker rock on the lighter overburden stockpiles, colorization on rock slopes where raveling is not expected, and revegetation in islands as listed under Section 4 below. The exposed quarry and overburden slope areas have been simulated as darkened slightly due to over 20 years of reclamation and weathering. The color and line contrasts of the site would continue to decrease with time. With reclamation, the scenic integrity of the view would improve to Moderate. The Proposed Project, while adding to the disturbances along the ridgeline, would not substantially decrease the scenic integrity from existing conditions, staying Low throughout project implementation and would improve to Moderate following reclamation. This would not meet the designated SIO of High.

Viewpoint 2 – Castle Rocks

(Please refer to Figure 12). This viewpoint is a popular forest trail and rock climbing area on the west end of Big Bear Lake known for its beautiful views of Big Bear Lake and its distinct rock formations. The Project Site is located approximately 7 miles north on the distant ridgeline shown on the left or west side of *Figure 12A – Existing Conditions*. The site is often screened and is visible only from open areas in the Castle Rocks area through a foreground and middle ground of pine trees and rock formations. The dominant views are of Big Bear Lake. Given the distance to the Proposed Project, disturbances from the existing mining are seen as a slight color contrast in a very small portion in the distant background of the overall scene. These disturbances do not alter the existing overall High scenic integrity of this viewshed.

Figure 12B – Amended Project Build-out with Reclamation shows a simulation of the expansion of the quarry to the west and the additional B5 Pad after 20 years of final reclamation. The quarry design features and required reclamation are listed under Section 4 below. The exposed upper slope areas and the adjacent overburden areas would darken slightly from reclamation and weathering. This will decrease the contrast of the site. The Sentinel Quarry area would be blocked from view due to the intervening ridges. The proposed Butterfield Quarry expansion would be seen as a narrow line depicting the visible northern quarry wall. Due to the distance to the site, no specific features such as quarry walls or equipment would be visible, only a slightly larger area of disturbance and an increase in the existing color contrast. In background views such as this one, the landscape is simplified and disturbances are less noticeable. The remainder of the quarry would not be visible due to the high southern quarry rim and the fact that most of the quarry is behind and below the south rim. Snow cover in winter would further reduce the high color contrast. Disturbances to the landscape character would exist but would not be immediately evident to casual observers. The scenic integrity from this viewpoint during implementation and following reclamation would remain High as the slight increase in contrast on the distant ridgeline would not adversely affect the overall scenic integrity. This would meet the designated SIO of High.



Figure 12A:
Existing Conditions

View from 6.8 miles looking north from Castle Rocks toward the existing Project Site.



Figure 12B:
Amended Project Buildout with Reclamation

View looking north from Castle Rocks toward the Amended Project buildout with approximately 20 years of concurrent and final reclamation in place. NOTE: All other Amended Facilities are hidden by the ridgeline to the east.

Viewpoint 3 – Top of Snow Summit Ski Resort (Chair 1 near View Haus)

(Please refer to Figure 13). This viewpoint is at the top of the Snow Summit ski area and the chairlift is used for sight-seeing, mountain biking, and hiking during the summer. The Project Site is located approximately eight (8) miles northwest on the distant ridgeline through a foreground and middle ground of pine forests. The dominant views are of Big Bear Lake, portions of the surrounding developed areas of the City of Big Bear Lake, and intervening forested ridges on the north side of the lake. The existing scenic integrity for the area is defined as Moderate due to slight but not dominant disturbances evident from the existing mines.

Figure 13A – Existing Conditions shows a panorama view dominated by dense pine forests in the foreground and background and Big Bear Lake in the middle ground. (Note that views slightly to the east of this photograph show the commercial development along Big Bear Lake Boulevard in the eastern part of the City.) The existing Sentinel and Butterfield Quarries are seen in the center of the viewshed on the distant ridgeline as light-colored disturbances within the darker forest creating a distinct color contrast. Foreground views of the chair lift add to disturbances by introducing unnatural lines and forms.

Figure 13B – Amended Project Build-out with Reclamation shows a simulation of the expansion of the Butterfield Quarry to the west, the B5 Pad to the south, and principally from this viewpoint, the expansion of the Sentinel Quarry after 20 years of final reclamation. The proposed Butterfield Quarry is seen as a rather narrow line depicting the visible northern quarry wall. As discussed above, the remainder of this quarry would not be visible due to the high southern quarry rim and the fact that most of the quarry is screened by the south rim. The B5 Pad, while prominent from Viewpoint 1, is substantially hidden from view by an intervening ridge. The Sentinel Quarry is aligned somewhat perpendicular from this viewpoint and is seen as an elongated disturbance expanding to its southwest.

In background views, people can distinguish large openings in the forest and high contrast elements in the landscape, although the overall landscape is simplified and disturbances become less noticeable. Large patterns of vegetation, rock, and in this case, calcium carbonate soils, are still evident, but texture disappears, contrast decreases and colors flatten. The landscape would continue to appear slightly altered by disturbances that would be evident to the casual observer, although the color contrast would be less noticeable in winter with occasional snow cover. These disturbances would not be dominant to the landscape character due to the background viewing distance. Although the amount of disturbance would incrementally increase during and immediately following project implementation, the scenic integrity of this viewpoint at project build-out would remain Moderate. This would not meet the designated SIO of High.

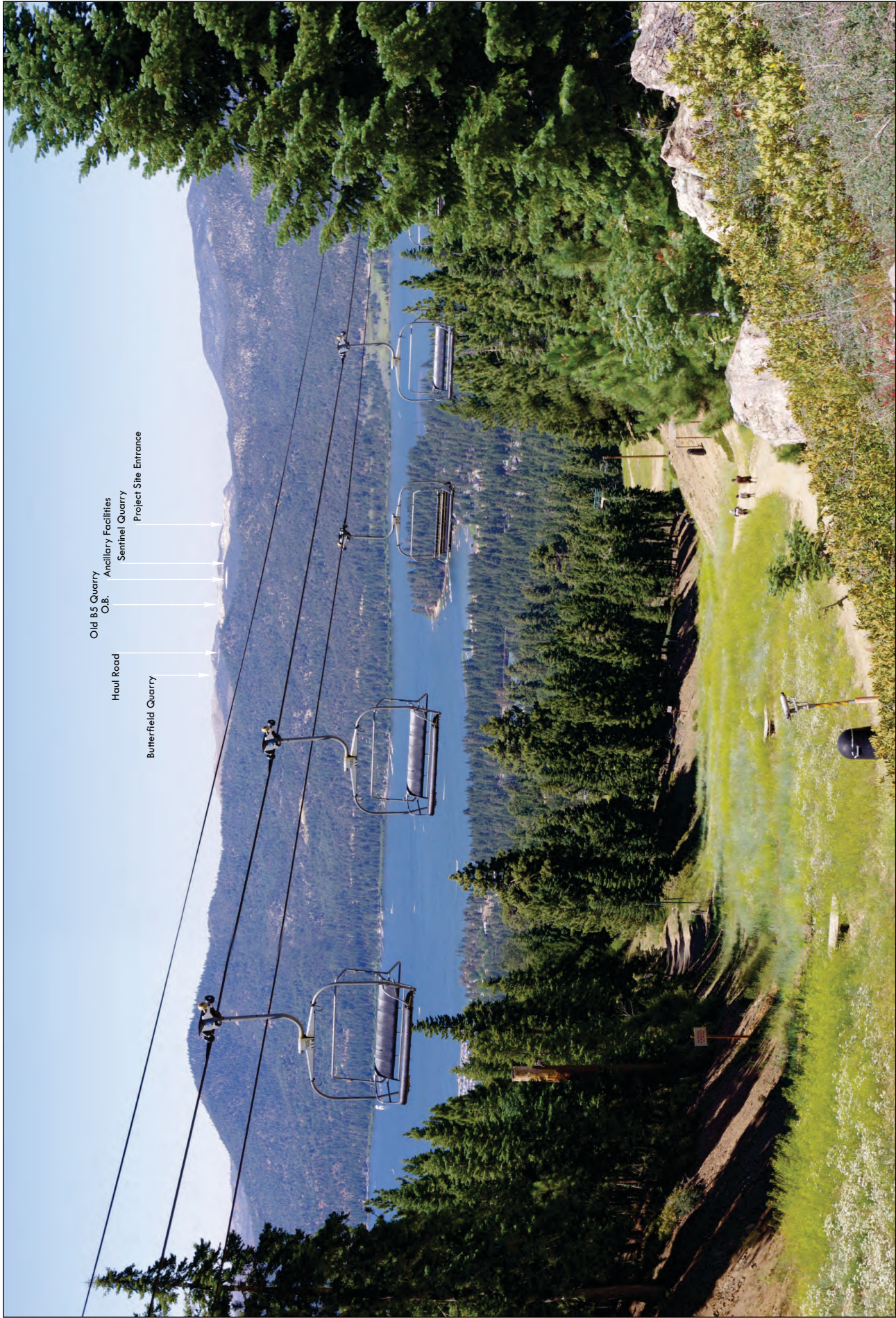


Figure 13A:

Existing Conditions

View from 8.1 miles away looking northwest from Snow Summit ski area, across Big Bear Lake, toward the existing Project Site.

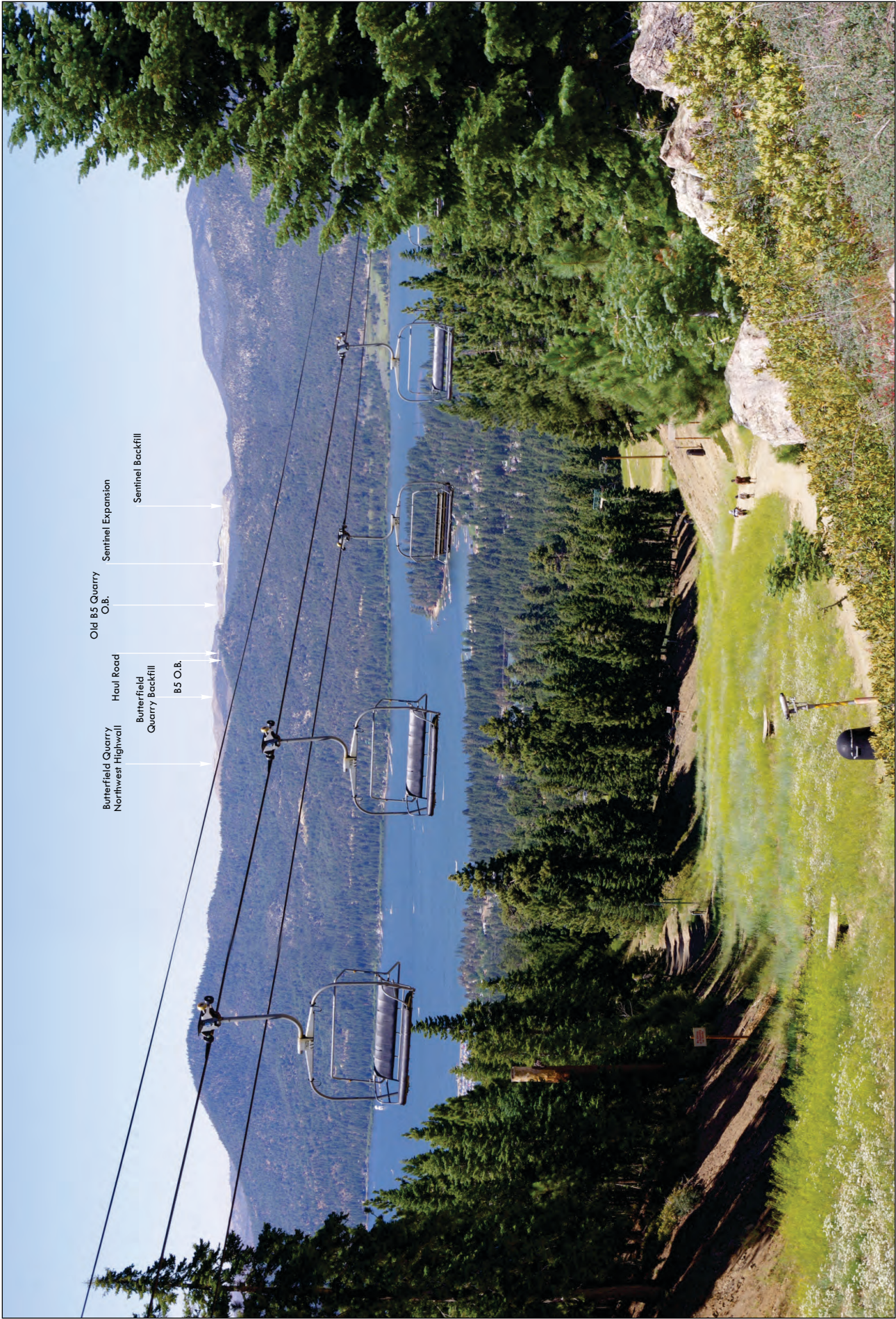


Figure 13B:

Amended Project Buildout with Reclamation

View looking northwest at the Amended Project buildout with approximately 20 years of concurrent and final reclamation in place.

Viewpoint 4 - Western Holcomb Valley on FS Road 3N12 just south of FS Road 3N16

(Please refer to Figure 14). The project area is located approximately 2 miles northwest from this viewpoint in western Holcomb Valley on Delamar Mountain Road (FS Road 3N12) just south of Pine Flat Road (FS Road 3N16). The existing quarries and the Proposed Project would not be visible due to the intervening ridges and pine forest, therefore no simulations were prepared. The public accessed area of Holcomb Valley, including FS Road 3N16, the Holcomb Valley Campground, and most historical areas further east, would not be able to see the existing and proposed mine expansion due to their location along the north side of the valley which is screened by ridges and forest areas. The existing scenic integrity for the area is High and will remain High, meeting the designated SIO, as the project site would not be visible from publicly used areas within the Holcomb Valley.

Viewpoint 5 – Forest Service Road 3N16; 550 Feet South of B5 Overburden Pad Expansion

(Please refer to Figure 15). FS Road 3N16 is a popular access route from Holcomb Valley to Big Pines Flat for recreation and other multiple user groups. The road currently passes approximately 1,500 feet south of the existing B5 Pad development and approximately 1,000 feet from the approved B5 Pad limit. Please refer to Figure 3 to see the location of the road. Viewpoint 5 was located approximately 250 feet to the south on the road looking directly north at the proposed pad expansion area. Note that the black dashed line on Figure 3 is the approved limit of the B5 Pad and corresponds to the No Project Alternative and Alternative 3 Pad limit. The Proposed Action will develop the pad to within 300 feet of the road.

Figure 15A – Existing Conditions shows the two-lane gravel road within a pine forest with numerous ridges. The existing B5 Pad or other quarry areas are not visible to the north. East of the project site while traveling north and west on the road, views are generally of pine covered ridges that limit views past foreground distances. West of the project site while traveling east and south on the road, the area is completely scarred with blackened trunks and dead trees from past fires. The intervening ridges block most views of the existing and proposed mine area. The existing scenic integrity for the area is Moderate due to slight but not dominant alteration evident from the existing Claudia-Cloudy Quarries, the past fire impacts, and the road development itself.

Figure 15B – Amended Project Build-out with Reclamation shows a simulation of the expansion of the B5 Pad to the south within approximately 550 feet of the toe of the Pad or 300 feet from the road where it turns east to west. Views of the Proposed Project would occur sequentially while driving at moderate speeds along the gravel road. The nature of sequential viewing from a moving vehicle is that views are generally of short duration and occur upon approach to the site from either direction. At the closest point of the road to the B5 Pad, one's focus would generally not be directly at the Pad area, but on views ahead or on the road itself. Views of the Proposed Project would be foreground views focused on the southern face of the B5 Pad due to the viewpoint's lower elevation and close proximity. The other portions of the Proposed Project would not be visible from this site due to screening by intervening ridges, and vegetation. Note that the simulation of the slope through over 550 feet of trees, ridges, and shadows was prepared in a conservative manner in order to see the slope.



File: OMYA-VLP-4-Holcom-Flower-01-10-2011-REV-06-09-2013-Date of Photograph: 08-10-2011

Existing Conditions

View from western Holcomb Valley looking north from 2 miles south of the Existing Project Site. Existing Project Site and Amended Project buildout is not visible due to intervening ridges and vegetation.

VIEWPOINT 4

SCENERY REPORT - BUTTERFIELD and SENTINEL QUARRIES
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Figure 15A:

Existing Conditions

View looking northwest from Forest Service Road 3N16 toward the existing Project Site from approximately 1 mile northwest of Holcomb Valley.



Figure 15B:

Amended Project Buildout with Reclamation

View looking northwest from Forest Service Road 3N16 at the Amended Project buildout with approximately 20 years of concurrent and final reclamation in place. B5 Pad (overburden) is visible in the background.

Individual forms are dominant within foreground distances. Texture is largely made up of large branches and visible portions of trunks. People can distinguish small details such as individual shrubs, clumps of wildflowers, and medium-sized animals and birds. Ridges and trees would partially screen the rocky, light-colored slope of the overburden pad, but it would be intermittently visible through the trees and breaks in the forest and over the top of shorter tree areas. The amount of disturbance to the landscape character would increase during and immediately following project implementation, reducing the scenic integrity to Low. The foreground views of incrementally growing, light-colored overburden slopes would make the landscape appear moderately altered, and these disturbances would appear co-dominant with landscape character. This would be slightly alleviated by the type of viewing, namely, sequential, short-duration views while travelling at moderate speeds.

Reclamation of the overburden slopes would reduce color contrast over time, but the form and rocky texture will remain visible through the trees. The landscape would continue to appear slightly altered by disturbances that would be evident to the casual observer. However, with reclamation, these disturbances would diminish and would not be dominant to the landscape character due to the nature of sequential viewing along a road and the speed at which the viewer is moving. Following reclamation, the scenic integrity of this viewpoint would return to a level of Moderate. This would not meet the designated SIO of High.

Indirect Effects

Indirect effects are from onsite activities other than the direct alteration of the landform and contrast. For mines, the most common indirect effect is visible dust plumes. Implementation of the MDAQMD rules and regulations will minimize the creation of visible dust from the mining operation. The distance from most viewing areas would further reduce the likelihood of visual impacts from dust. Dust control measures will include water spraying of haul roads, active mining areas, and waste rock stockpiles and the use of dust suppressants. In addition, other MDAQMD Rules will be implemented as applicable. Therefore the Proposed Project would have negligible effects to scenic resources from dust creation.

3.3.3 Cumulative Effects

The Proposed Action Alternative cumulative effects analysis for scenic resources includes analysis within the Desert Rim and Big Bear Back Country Places as well as other active mine sites adjacent to the Proposed Project area. The area of cumulative effects was bounded in this manner to correspond with the overarching ‘sense of place’ and valued landscape character descriptions identified in the LMP. Cumulative effects include the past, existing, and reasonably foreseeable future actions (refer to Table 3).

There would be an incremental increase in cumulative effects to the future landscape character of the area for the Proposed Action Alternative. Existing and permitted mining on the north face of the San Bernardino Mountains has resulted in surface disturbances that are visible from Lucerne Valley. Table 3 lists the existing mining operations located in the region. Disturbances are evident on the mountain slopes due to the generally light-color soils of the limestone quarries, stockpiles, and haul roads in contrast to undisturbed slopes. Mitsubishi’s proposed South Quarry,

if approved, would add to scenery disturbances within the Desert Rim Place. There would be no cumulative effects within the Big Bear Backcountry Place. The other limestone quarries are on private land or BLM unpatented claims on the north-facing slopes visible only from Lucerne Valley. The sand and gravel mines are located on the alluvial fans north of the north-facing slopes outside of SBNF lands in Lucerne Valley, are generally much less visible due to their lower elevations, and are not visible from the viewpoints used in this assessment.

The adjacent inactive Claudia and Cloudy Quarries south of the Proposed Project have resulted in surface disturbances visible from SBNF areas south of the project site depending on intervening topography and trees. Disturbances are evident due to the generally light-color soils, and unnatural lines and form of the limestone quarries in contrast to undisturbed slopes. The inactive Claudia Quarry is occasionally visible to the south when traveling eastward on FR 3N16. The road passes directly adjacent to an existing overburden stockpile from the Cloudy Quarry with color, texture, form, and line contrasts. The road also crosses the existing haul road from the Cloudy/Claudia Quarries to the south. These sites add incrementally to the cumulative scenery impacts but contrasts are expected to decrease over the years with reclamation and weathering.

The Proposed Project would not substantially change the scenic integrity of the area as discussed under each viewpoint above. Potential changes to the area's landscape character from implementation of the Proposed Project are demonstrated together with other existing and permitted mining activities in Figures 11B, 12B, and 13B following reclamation. The Proposed Project would incrementally increase cumulative impacts. When considered with the existing and permitted onsite mining activities, the cumulative effects to scenic integrity would not substantially change and the area's scenic integrity would remain at current levels.

3.3.4 Conclusion

As included in the LMP, Part 2, the desired landscape condition and management for the Desert Rim and Big Bear Back Country Places are summarized as follows:

The Desert Rim Place is maintained as a modified to natural appearing landscape that functions as a sanctuary for a large number of federally listed native plants and a highly valued area for limestone production. The valued landscape attributes to be preserved over time are the Jeffrey pine, white fir and incense cedar in the shaded aspects of ridges and canyons; intermittent streams and springs with riparian features and white carbonate outcrops. Carbonate habitats are protected from mining impacts in perpetuity within carbonate habitat reserves dedicated and managed as described in the Carbonate Habitat Management Strategy. The Carbonate Habitat Reserve is managed to allow public uses that are compatible with the conservation of the listed carbonate plants. Within the Carbonate Habitat Management Area, carbonate plants are likely to persist indefinitely by managing and maintaining geomorphic and ecological processes of the landscape in large, well-placed blocks of habitat. Destruction or modification of critical habitat is avoided. Listed species are recovered and delisted. Future listing is not needed. Areas disturbed through past activity are restored (LMP Part 2, p. 64).

The Big Bear Backcountry Place is maintained as a historic and natural-appearing landscape that functions as a recreation setting for backcountry rustic road-touring recreation experiences... The valued landscape attributes to be preserved over time are the stands of Joshua trees and Pinyon juniper, the large montane meadow system and the open high-desert undeveloped character... Carbonate habitats are protected from mining impacts in perpetuity within carbonate habitat reserves and managed as prescribed in the CHMS. (LMP Part 2, pgs. 56-57).

The LMP defines Aesthetic Management Standards as follows:

- S9: Design management activities to meet the Scenic Integrity Objectives (SIO) shown on the Scenic Integrity Objectives Map (refer to Figure 6).
- S10: Scenic Integrity Objectives will be met with the following exceptions:
Minor adjustments, not to exceed a drop of one SIO level, are allowable with the Forest Supervisor's approval. Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.

The developed and inhabited areas of Fawnskin, Big Bear City, and the City of Big Bear Lake will not be able to see the Proposed Project due to the high west to east ridge north of the north shore of Big Bear Lake and the lower elevations of these areas. Viewers from Lucerne Valley to the north would not be able to see the Proposed Project due to the project's location on the south side of the steep north ridge of the San Bernardino Mountains

The Proposed Project would be seen from specific views within the SBNF to the south-southwest to southeast as mapped in Figures 8 and 9. These areas are generally located in western Holcomb Valley, the north facing ridges on Delamar Mountain and Bertha Peak ridges including the Pacific Crest Trail, and from ridgelines south of Big Bear Lake including Castle Rocks and the top of the Snow Summit Ski Resort.

Existing levels of scenic integrity range from Low to High. The Proposed Action would be visible from four of the five key viewpoints showing representative views from within the SBNF. During implementation, scenic integrity would either remain at current levels or in the case of Viewpoint 5, would decrease by one level. Following reclamation, scenic integrity would continue or resume to current levels or improve by one level in the case of Viewpoint 1 (see *Table 2: Summary of Potential Change in Scenic Integrity*). The scenic integrity for Viewpoints 1, 3 and 5 would fall below the SIO of High, while Viewpoints 2 and 4 would meet the established SIO of High as prescribed by the LMP.

There would be no indirect effects to the future landscape character as viewed from SBNF lands with implementation of the MDAQMD rules and regulations that will minimize the creation of visible dust from the mining operation.

The Proposed Project would incrementally increase cumulative impacts from views in the SBNF from the southwest and southeast. When considered with existing and permitted mining activities

and the distance to sensitive viewpoints, the cumulative scenic integrity would not substantially change and the area's scenic integrity would remain at existing levels and would not meet the SIO of High as prescribed by the LMP.

3.4 ALTERNATIVE 3 - PARTIAL IMPLEMENTATION; BUTTERFIELD QUARRY EXPANSION ONLY

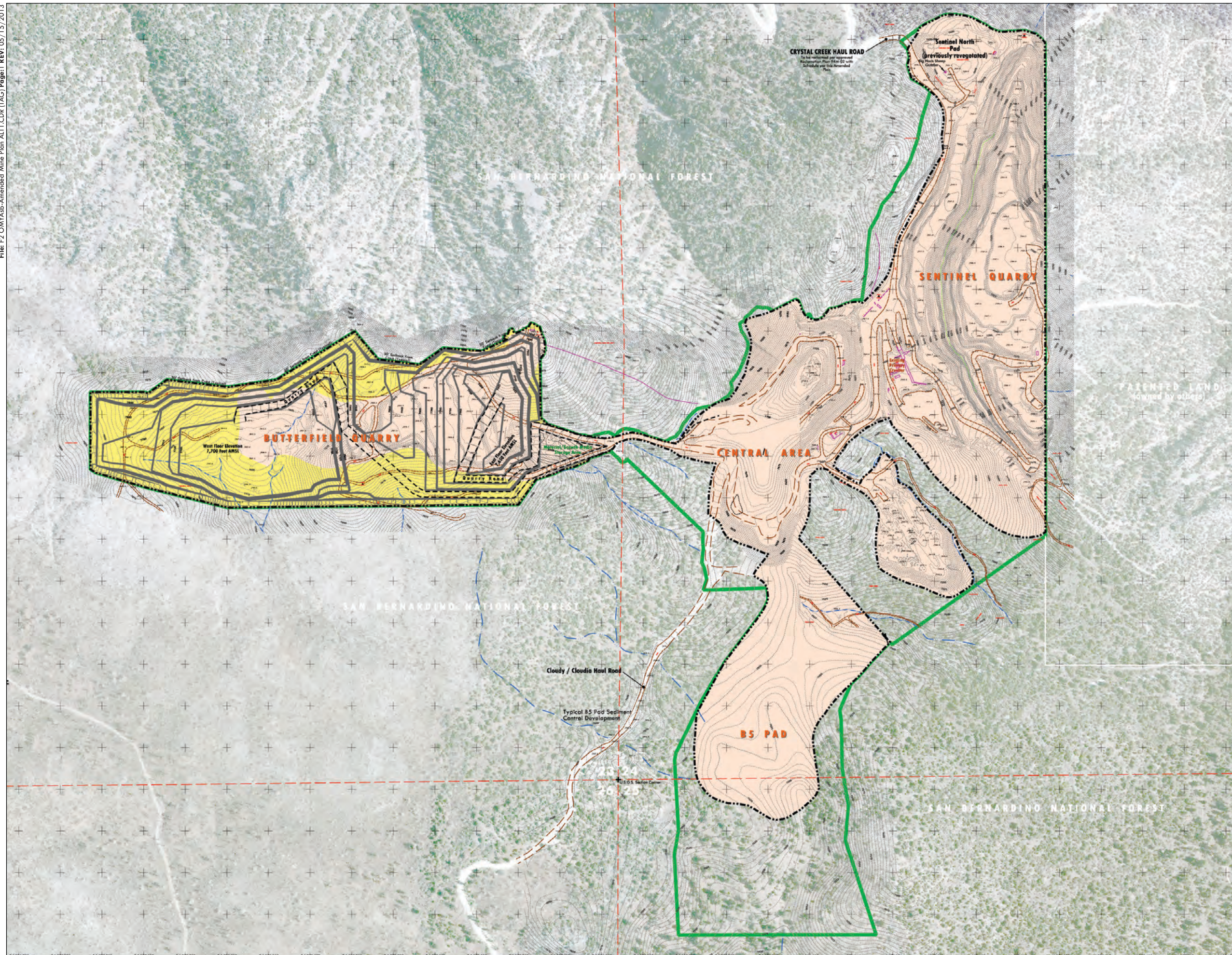
3.4.1 Direct and Indirect Effects

Alternative 3 would allow existing permitted operations and the proposed expansion of the Butterfield Quarry (see Figure 16). The Sentinel Quarry would continue to be mined under its current permit approved in 2003 through the year 2035. The B5 Pad would not be expanded southward an additional 700 feet south from its permitted area. In this alternative, the Butterfield Quarry would have a shorter duration of 20 years through year 2035 instead of 40 years as proposed in Alternative 2. This alternative would also have a smaller footprint than Alternative 2 by approximately 50 acres.

Figure 17A– Existing Conditions (Viewpoint 1) depicts views as seen from the Pacific Crest Trail 3.5 miles to the southeast. It shows the viewshed of the existing active Sentinel Quarry, the overburden activities in the old Butterfield 5 Quarry and the B5 Pad, and a portion of the Cloudy Quarry within the forest area to the southwest. The active Butterfield Quarry is a pit located behind an intervening ridge to the west and is generally not visible.

Figure 17B– Amended Project Build-out with Reclamation is a simulation depicting the permitted operations and the expansion of the Butterfield Quarry that would occur under Alternative 3 following reclamation of approximately 20 years. As discussed previously, the proposed expansion of the Butterfield Quarry is essentially a cut along the existing ridgeline; as such the south quarry rim is only slightly lower (average of about 25 feet lower) than the north rim. Thus the views from Viewpoint 1 as well as Viewpoints 2 and 3 with slightly lower elevations than the quarry and at substantial distances will only be able to see the upper bench of the north side quarry wall to the west and east.

Under this Alternative the B5 Pad would not be fully extended. The project would not be visible from Viewpoints 4 or 5, and would have similar disturbances as the No Project Alternative as seen from Viewpoints 2 and 3. The most visible changes would occur from Viewpoint 1 where the color contrast caused by disturbed soil and the line and form contrasts from the unnatural straight lines of the partial extension of the permitted B5 Pad would be visible. The B5 Pad would extend south from the site by approximately an additional 500 feet from the existing permitted limit. However, the shortened timeframe of this Alternative dictate that final reclamation would begin earlier, and disturbances would be reclaimed twenty years sooner than under the Proposed Action. Following reclamation, the disturbances as seen from Viewpoint 1 would continue to be evident to the casual observer, but would not dominate the landscape character, and scenic integrity would increase from Low to Moderate. Similar to the other Alternatives analyzed, this would not meet the designated SIO of High (see Table 2).



LEGEND

- Proposed Amended Operations Limits of Disturbance
- - - Alternative 3 Amended Operations Limits of Disturbance
- Existing Permitted Operating Area
- Proposed Expansion
- Existing Major Contour
- Existing Minor Contour



ALTERNATIVE 3

Partial Implementation
Butterfield Expansion Only

SCENERY REPORT - BUTTERFIELD and SENTINEL QUARRIES
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FIGURE 16

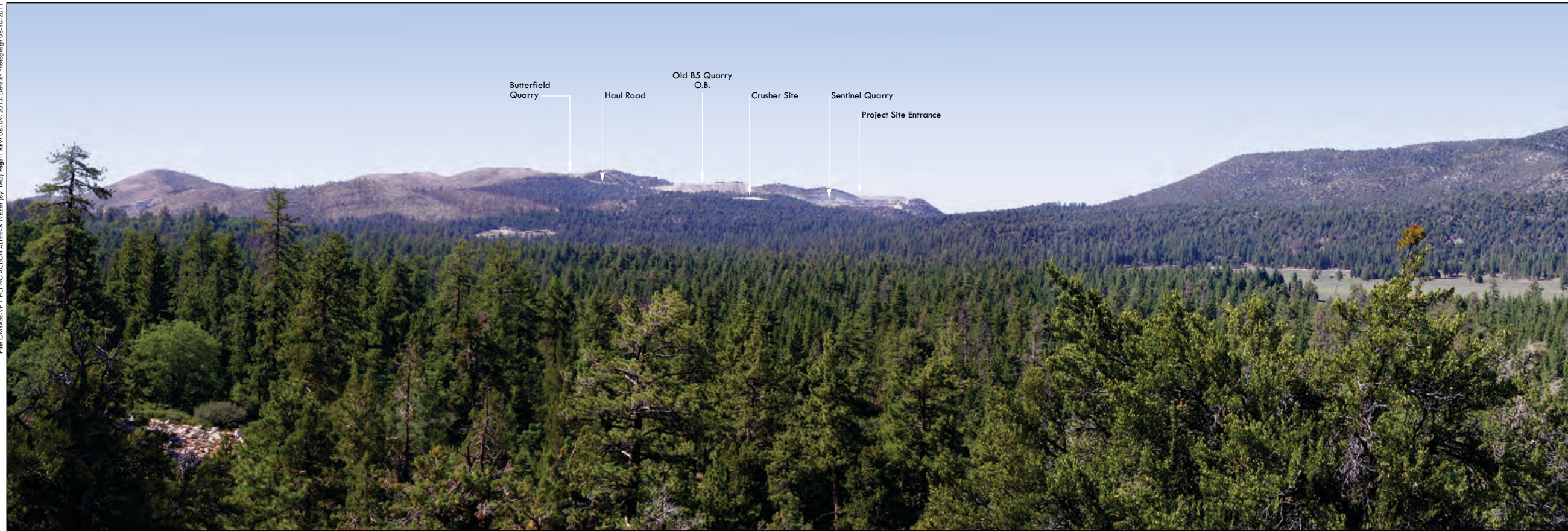


Figure 17A:

Existing Conditions

View from 3.5 miles looking northwest across Holcomb Valley from the Pacific Crest Trail (PCT) toward the existing Project Site.

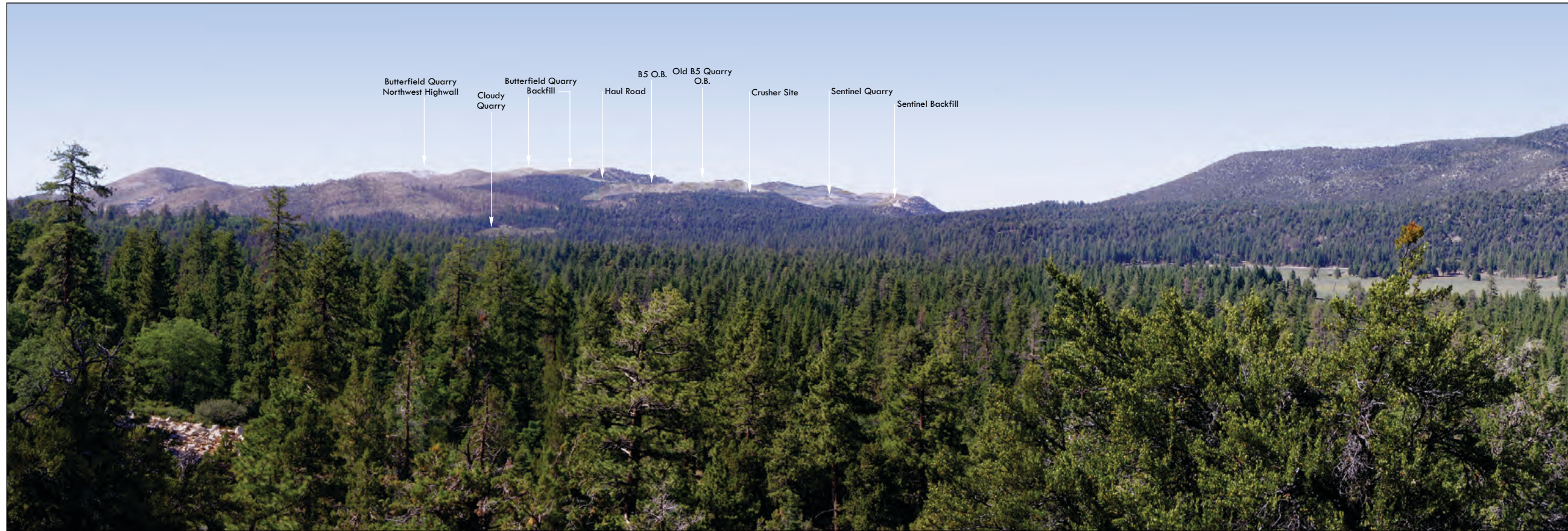


Figure 17B:

Amended Project Buildout with Reclamation

View looking northwest from PCT at the Permitted Quarry buildout with reclamation in place.

VIEWPOINT 1

Alternative 3 - Partial Implementation Butterfield Quarry Expansion Only

If Alternative 3 is selected, there would be minimal additional direct effects to scenery resources within the SBNF besides those effects previously approved by the Forest Service. Scenic integrity would continue at current levels ranging from Low to High during implementation and improving after reclamation from Moderate to High. For two of the five viewpoints, this would not meet the SIO of High as designated in the LMP.

There would be no additional indirect effects to the future landscape character as viewed from SBNF lands by Alternative 3.

3.4.2 Cumulative Effects

The Alternative 3 cumulative effects analysis for scenic resources includes analysis within the Desert Rim and Big Bear Back Country Places as well as other active mine sites adjacent to the Proposed Project area. The area of cumulative effects was bounded in this manner to correspond with the overarching ‘sense of place’ and valued landscape character descriptions identified in the LMP. Cumulative effects include the past, existing, and reasonably foreseeable future actions (refer to Table 3).

There would be an incremental increase in cumulative effects to the future landscape character of the Desert Rim and Big Bear Back Country Places for Alternative 3, although due the shortened timeframe of this alternative, the cumulative effects would be less than those under the Proposed Action. The existing and approved future mining by Omya including the Butterfield Quarry expansion would continue for an additional twenty years. Cumulative effects are expected to increase over time with the approved mining activities and then gradually decrease with implementation of reclamation. When considered with the existing and permitted onsite mining activities and the distance to sensitive viewpoints, the cumulative effect on scenic integrity would not substantially change from the area’s existing levels of scenic integrity. They would remain ranging from Low to High levels.

3.4.3 Conclusion

If Alternative 3 is selected, there would be minimal additional direct effects and indirect effects to scenery resources within the SBNF. Scenic integrity would continue at current levels ranging from Low to High during implementation and improving after reclamation from Moderate to High. For two of the five viewpoints, this would not meet the SIO of High as designated in the LMP.

There would be an incremental increase in cumulative effects to the future landscape character of the Desert Rim and Big Bear Back Country Places for Alternative 3, although due the shortened timeframe of this alternative, the cumulative effects would be less than those under the Proposed Action. Cumulative effects are expected to increase with the currently approved mining activities and then gradually decrease with final reclamation. This would happen twenty years sooner than under the Proposed Action. When considered with the existing and permitted onsite mining activities and the distance to sensitive viewpoints, the cumulative effect on scenic integrity would not substantially change from the area’s existing levels of scenic integrity. They would remain ranging from Low to High levels.

3.5 ALTERNATIVE 4 - MIXED PRODUCTION WITH THE WHITE KNOB QUARRY TO MEET LUCERNE VALLEY PROCESSING PLANT CAPACITY

Historically the limestone ore provided to the Lucerne Valley Processing Plant has been approximately a 60%/40% mix between the Butterfield/Sentinel Quarries and the White Knob Quarry. This alternative would assume that instead of the Butterfield and Sentinel quarries providing 100% (680,000 tons per year) of the ore to the processing plant, a range of more realistic production mixes between the quarries would be evaluated.

Alternative 4 would be mined with the same overall excavation plan and project design features as the Proposed Project. Therefore, the potential effects to scenery of the project would be the same as those analyzed under Alternative 2: Proposed Action.

4.0 REFERENCES

Omya California. 2013. "Amended Plan of Operations and Reclamation Plan, Butterfield and Sentinel Quarries." Updated June 2013.

USDA Forest Service. 2005. San Bernardino National Forest Land Management Plan (LMP).

USDA Forest Service. 2005. Land Management Plan, Part 2 San Bernardino National Forest Strategy.

USDA Forest Service. 1995. Landscape Aesthetics; A Handbook for Scenery Management. Washington D.C.

APPENDIX A
VIEWPOINT INVENTORY AND
ANALYSIS SUMMARY



Source: Lilburn Corporation and USGS
Data: US Forest Service Web Site - Pacific Southwest Region
San Bernardino National Forest Last modified: Tuesday, 26 August 2008.
(<http://www.fs.fed.us/r5/forestvisitorsmaps/sanbernardino/>)

LILBURN
CORPORATION

LEGEND



Key Observation Point Location and
Direction of View (4 Total)



Major Mountain Peaks



Pacific Crest National Scenic Trail (PCT)



San Bernardino National Forest Boundary



San Bernardino National Forest Dirt Roads

SIMULATION VIEWPOINT LOCATIONS

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FIGURE 9

Omya Butterfield - Sentinel Quarries
Expansion
Viewpoint 1 – Pacific Crest Trail (east of
Poligue Canyon Road – 2N09)

Scenic Assessment Ratings:

Landscape Visibility	
Type of Travel Way or Use Area	Travel way - trail
Concern Levels 1, 2 or 3	1
Distance Zone (Proposed Project Site approx. 3.75 miles northwest)	Middleground (Mg)
Landscape Visibility	Mg1

Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	Low
Degree of Deviation from the Landscape Character	Low
Intactness of Landscape Character	Low
Total Scenic Integrity	Low

Scenic Attractiveness	
Variety, Unity, Vividness, Mystery, Intactness, Coherence, Harmony, Uniqueness, Patterns, and Balance	
Scenic Attractiveness Class	B

Landscape Character Description
Foreground (300 feet- 1/2 mile) Scrub forest and rock formations
Middleground (1/2 mile-4 miles) Forest views, Holcomb Valley, and mountain ridges. Existing mines visible to northwest.
Background (4 miles to horizon) Ridgeline view, scenic backdrop, mines visible.

IMPACT ANALYSIS FROM VIEWPOINT

Proposed Action Alternative Potential Magnitude of Change	
Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	Low
Degree of Deviation from the Landscape Character	Low
Intactness of Landscape Character	Low
Total Scenic Integrity	Low to Moderate with future reclamation

Comments:

The Project Site is located approx. 3.75 miles to the northwest as viewed from the Pacific Crest Trail. The viewshed is occasionally obscured by rocks and vegetation, however, open views of the Project area adjacent to the existing quarry are evident. The existing scenic integrity for the area (Low due to high expectations (national trail) and longer duration of views from hikers, and moderate alteration evident but not dominant) would remain Low upon project implementation ((through 40 years). Since previous mining operations adjacent to the Project Site have created an existing altered landscape character for the ridgeline area, and quarry design and reclamation will reduce contrasts and lines to Moderate after approx. 20 years of reclamation.

HIERARCHY OF CONCERN LEVELS						
	Interest in Scenery					
	High		Moderate		Low	
Primary Travelway/Use Area High Use	1		2		2	
Primary Travelway/Use Area Moderate Use	1		2		2	
Scenic Integrity Summary						
Criteria for Scenic Integrity of the L.C. Image/Sense of Place	(VII) Very High	(II) High	(M) Moderate	(I) Low	(VI) Very Low	(UL) Unacceptably Low
<u>Dominance</u> Landscape Character vs. Deviation	Landscape Character	Landscape Character	Landscape Character	Deviation	Deviation	Deviation
<u>Degree of Deviation</u> From the Landscape Character	None	Not Evident	Evident but not dominant	Dominant	Very Dominant	Extremely Dominant
Intactness of the Landscape Character	Landscape Character Fully Expressed	Landscape Character Largely Expressed	Slightly Altered and Character Expression Moderate	Altered and Low Expression of Character	Heavily Altered and Very Low Expression of Character	Extremely Altered

Omya Butterfield - Sentinel Quarries
Expansion
Viewpoint 2 – Castle Rocks

Scenic Assessment Ratings:

Landscape Visibility	
Type of Travel way or Use Area	Trail & Viewpoint
Concern Levels 1, 2 or 3	1
Distance Zone (Project Site approx. 7 miles north)	Background (Bg)
Landscape Visibility	Bg1

Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	High
Degree of Deviation from the Landscape Character	High
Intactness of Landscape Character	High
Total Scenic Integrity	High

Scenic Attractiveness	Variety, Unity, Vividness, Mystery, Intactness, Coherence, Harmony, Uniqueness, Patterns, and Balance
Scenic Attractiveness Class	A

Landscape Character Description
<p>Foreground (300 feet to ½ mile) Pine forest and distinct rock formations</p> <p>Middleground (1/2 mile to 4 miles) Pine forest, rock formations, Big Bear Lake, and mountain ridges.</p> <p>Background (4 miles to horizon) Distant ridgeline view, existing mines evident. Proposed Project site would be in background distance adjacent to existing mine.</p>

IMPACT ANALYSIS FROM VIEWPOINT

Proposed Action Alternative Potential Magnitude of Change	
Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	High
Degree of Deviation from the Landscape Character	High
Intactness of Landscape Character	High
Total Scenic Integrity	High

Comments:

This viewpoint is a popular forest trail on the west end of Big Bear Lake known for its beautiful views of Big Bear Lake and its distinct rock formations. The Project Site is located approx. 7 miles north in the distant ridgeline through a foreground and middleground of pine forests, rock formations and the dominant views of Big Bear Lake. The Project Site would be visible only from open areas from viewpoints. Given the distance to the Proposed Project, alterations from the existing mine, quarry design and mitigation, and the dominance of the foreground and middleground scenic integrity, the overall scenic integrity for the area would not change and would remain High under the Proposed Action Alternative.

	HIERARCHY OF CONCERN LEVELS		
	High	Interest in Scenery Moderate	Low
Primary Travelway/Use Area High Use	1	2	2
Primary Travelway/Use Area Moderate Use	1	2	2
Primary Travelway/Use Area Low Use	1	2	3
Secondary Travelway/Use Area High Use	1	2	2
Secondary Travelway/Use Area Moderate Use	1	2	3
Secondary Travelway/Use Area Low Use	1	2	3

Scenic Integrity Summary						
Criteria for Scenic Integrity of the L.C. Image/Sense of Place	(VH) Very High	(H) High	(M) Moderate	(L) Low	(VL) Very Low	(UL) Unacceptably Low
Dominance: Landscape Character vs. Deviation	Landscape Character	Landscape Character	Landscape Character	Deviation	Deviation	Deviation
Degree of Deviation From the Landscape Character	None	Not Evident	Evident but not dominant	Dominant	Very Dominant	Extremely Dominant
Intactness of the Landscape Character	Landscape Character Fully Expressed	Landscape Character Largely Expressed	Slightly Altered and Character Expression Moderate	Altered and Low Expression of Character	Heavily Altered and Very Low Expression of Character	Extremely Altered

**Omya Butterfield - Sentinel Quarries
Expansion
Viewpoint 3 – Top of Snow Summit Ski
Resort (Chair 1 near View Haus)**

Scenic Assessment Ratings:

Landscape Visibility	
Type of Travel Way or Use Area	Winter ski resort and summer sight seeing
Concern Levels 1, 2 or 3	2
Distance Zone (Project Site approx. 8.25 miles northwest)	Background (Bg)
Landscape Visibility	Bg2

Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	Moderate
Degree of Deviation from the Landscape Character	Moderate
Intactness of Landscape Character	Moderate
Total Scenic Integrity	Moderate

Scenic Attractiveness (existing landscape character) Variety, Unity, Vividness, Mystery, Intactness, Coherence, Harmony, Uniqueness, Patterns, and Balance	
Scenic Attractiveness Class	B

Landscape Character Description
Foreground (300 feet to 1/2 mile) Shrubs, residential structure, utility poles
Middleground (1/2 mile to 4 miles) Desert vegetation and existing mines and stockpiles generally to west or right of view.
Background (4 miles to horizon) Ridgeline view, existing mines evident from this location and viewpoint direction. Proposed Project Site would be in background distance in center.

IMPACT ANALYSIS FROM VIEWPOINT

Proposed Action Alternative Potential Magnitude of Change	
Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	Moderate
Degree of Deviation from the Landscape Character	Moderate
Intactness of Landscape Character	Moderate
Total Scenic Integrity	Moderate

Comments:

This viewpoint is at the top of a popular winter ski area and the chairlift is used for sight-seeing, mountain biking, and hiking during the summer. The Project Site is located approx. 8 miles northwest on the distant ridgeline adjacent to an existing mine through a foreground and middle ground of pine forests, the dominant views of Big Bear Lake and the surrounding developed areas of the City of Big Bear Lake, and intervening ridges on the north side of the lake. The Project Site would be visible only from open areas not blocked by the pine forest and would be seen as a small alteration on a distant ridgeline due to the distance. Given the distance to the Proposed Project, alterations from the existing mine, quarry design and mitigation, and the dominance of the foreground and middle ground (City and lake) the overall scenic integrity would not change and would remain Moderate under the Proposed Action Alternative. In addition, snow during the winter months when this site is heavily used would make the proposed and existing mines indistinguishable.

	HIERARCHY OF CONCERN LEVELS		
	High	Interest in Scenery Moderate	Low
Primary Travelway/Use Area High Use	1	2	2
Primary Travelway/Use Area Moderate Use	1	2	2
Primary Travelway/Use Area Low Use	1	2	3
Secondary Travelway/Use Area High Use	1	2	2
Secondary Travelway/Use Area Moderate Use	1	2	3

Scenic Integrity Summary

Criteria for Scenic Integrity of the I.C. Image/Sense of Place	(VII) Very High	(II) High	(M) Moderate	(I) Low	(VI) Very Low	(UI) Unacceptably Low
Dominance Landscape Character vs. Deviation	Landscape Character	Landscape Character	Landscape Character	Deviation	Deviation	Deviation
Degree of Deviation From the Landscape Character	None	Not Evident	Evident but not dominant	Dominant	Very Dominant	Extremely Dominant
Intactness of the Landscape Character	Landscape Character Fully Expressed	Landscape Character Largely Expressed	Slightly Altered and Character Expression Moderate	Altered and Low Expression of Character	Heavily Altered and Very Low Expression of Character	Extremely Altered

**Omya Butterfield - Sentinel Quarries
Expansion
Viewpoint 4 – Western Holcomb Valley on
FS Road 3N12 just south of FS Road 3N16**

Scenic Assessment Ratings:

Landscape Visibility	
Type of Travel Way or Use Area	FS roadways & Holcomb Valley area
Concern Levels 1, 2 or 3	1
Distance Zone (Project Site approx. 2 miles northwest)	Middleground (Mg)
Landscape Visibility	Mg1

Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	High
Degree of Deviation from the Landscape Character	High
Intactness of Landscape Character	High
Total Scenic Integrity	High

Scenic Attractiveness	
Variety, Unity, Vividness, Mystery, Intactness, Coherence, Harmony, Uniqueness, Patterns, and Balance	
Scenic Attractiveness Class	B

Landscape Character Description
Foreground (300 feet - 1/2 mile) Holcomb Valley meadow area and scattered pine trees
Middleground (1/2 mile to 4 miles) Ridges with scattered pine trees and burn area evident. Existing and proposed mine sites not visible due to intervening ridgelines and trees.
Background (4 miles to horizon) Same as middleground

IMPACT ANALYSIS FROM VIEWPOINT

Proposed Action Alternative Potential Magnitude of Change	
Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	High
Degree of Deviation from the Landscape Character	High
Intactness of Landscape Character	High
Total Scenic Integrity	High

Comments:

The project area is located approx. 2 miles northwest from this viewpoint in Holcomb Valley. The existing and proposed project would not be visible due to the intervening ridges and pine forest. The public accessed area of Holcomb Valley including FS Road 3N16, the Holcomb Valley Campground, and most historical areas further east, would not be able to see the existing and proposed mines due to their location along the north side of the valley due to ridges and forest areas. The existing scenic integrity for the area is High and will remain High as the site is not visible from most used areas within the Valley.

	HIERARCHY OF CONCERN LEVELS Interest in Scenery		
	High	Moderate	Low
Primary Travelway/Use Area High Use	1	2	2
Primary Travelway/Use Area Moderate Use	1	2	2
Primary Travelway/Use Area Low Use	1	2	3
Secondary Travelway/Use Area High Use	1	2	2
Secondary Travelway/Use Area Moderate Use	1	2	3
Secondary Travelway/Use Area Low Use	1	2	3

Scenic Integrity Summary						
Criteria for Scenic Integrity of the L.C. Image/Sense of Place	(VII) Very High	(H) High	(M) Moderate	(L) Low	(VI.) Very Low	(UI.) Unacceptably Low
Dominance Landscape Character vs. Deviation	Landscape Character	Landscape Character	Landscape Character	Deviation	Deviation	Deviation
Degree of Deviation from the Landscape Character	None	Not Evident	Evident but not dominant	Dominant	Very Dominant	Extremely Dominant
Intactness of the Landscape Character	Landscape Character Fully Expressed	Landscape Character Largely Expressed	Slightly Altered and Character Expression Moderate	Altered and Low Expression of Character	Heavily Altered and Very Low Expression of Character	Extremely Altered

**Omya Butterfield - Sentinel Quarries
Expansion
Viewpoint 5 – FS Road 3N16 approx. 550
feet south of proposed B5 Overburden Pad
Traveling West or North**

Scenic Assessment Ratings:

Landscape Visibility	
Type of Travel Way or Use Area	FS roadway
Concern Levels 1, 2 or 3	2
Distance Zone (Project Site approx. 2 miles northwest)	Foreground (Fg)
Landscape Visibility	Fg2

Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	Moderate
Degree of Deviation from the Landscape Character	Moderate
Intactness of Landscape Character	Moderate
Total Scenic Integrity	Moderate

Scenic Attractiveness	
Variety, Unity, Vividness, Mystery, Intactness, Coherence, Harmony, Uniqueness, Patterns, and Balance	
Scenic Attractiveness Class	B

Landscape Character Description
Foreground (300 feet - 1/2 mile) Pine trees, ridges and forestry road.
Middleground (1/2 mile to 4 miles) Pine trees, ridges and forestry road. Fire effects (especially further west) and past mining stockpile and haul road along forestry road. Existing mine site not visible due to intervening ridgelines and trees.
Background (4 miles to horizon) Not applicable

IMPACT ANALYSIS FROM VIEWPOINT

Proposed Action Alternative Potential Magnitude of Change	
Scenic Integrity (see table below)	
Dominance: Landscape Character vs. Deviation	Moderate
Degree of Deviation from the Landscape Character	Moderate
Intactness of Landscape Character	Moderate
Total Scenic Integrity	Moderate

Comments:

FS Road 3N16 is popular access route from Holcomb Valley to Big Pines Flat for recreation and other multiple user groups. The road currently passes approx. 1,500 south of the existing B5 Pad and 1,000 feet from the approved B5 Pad limit (No Project Alternative and Alternative 3 Pad limit). The Proposed Action will develop the pad to within 300 feet of the road. The road is a two-lane dirt and gravel road within a pine forest and numerous ridges. West of the site traveling east and south, the area is completely scarred from past fires and the intervening ridges block most views of the existing and proposed mine. The inactive Claudia Quarry is occasionally visible traveling eastward. The road crosses the existing haul road from the inactive Cloudy/Claudia mines to the south. East of the site traveling north and west, views are generally of pine covered ridges that limit views past foreground distances. The road passes directly adjacent to an existing overburden stockpile from the Cloudy Quarry. VP 5 was located approx. 250 feet to the south looking directly north at the proposed overburden stockpile expansion area which would be approx. 550 feet total distance. Ridges and trees will partially obscure the rocky, light colored slope of the stockpile but it will be seen through the trees and breaks in the forest and over the top of shorter tree areas. The duration of this view would be short due to driving speed (not walking) and the turn of the road to the west, which will turn viewers' eyes back to the road and forest ahead to the west away from the stockpile.

The existing scenic integrity for the area is considered Moderate and will remain Moderate. Reclamation of the slopes may reduce contrast but the rocky texture will remain visible.

HIERARCHY OF CONCERN LEVELS

	High	Interest in Scenery Moderate	Low
Primary Travelway/Use Area High Use	1	2	2
Primary Travelway/Use Area Moderate Use	1	2	2
Primary Travelway/Use Area Low Use	1	2	3
Secondary Travelway/Use Area High Use	1	2	2
Secondary Travelway/Use Area Moderate Use	1	2	3
Secondary Travelway/Use Area Low Use	1	2	3

Scenic Integrity Summary

Criteria for Scenic Integrity of the L.C. Image/Sense of Place	(VII) Very High	(II) High	(M) Moderate	(L) Low	(VI) Very Low	(UI) Unacceptably Low
Dominance Landscape Character vs. Deviation	Landscape Character	Landscape Character	Landscape Character	Deviation	Deviation	Deviation
Degree of Deviation From the Landscape Character	None	Not Evident	Evident but not dominant	Dominant	Very Dominant	Extremely Dominant
Intactness of the Landscape Character	Landscape Character Fully Expressed	Landscape Character Largely Expressed	Slightly Altered and Character Expression Moderate	Altered and Low Expression of Character	Heavily Altered and Very Low Expression of Character	Extremely Altered

APPENDIX B

METHODOLOGY

Visual Inventory Study Methods

Scenery Management System

The purpose of the visual resources inventory was to identify and document landscape scenery and views of the proposed project area. The visual resources inventory consisted of a detailed evaluation of the proposed project area. The inventory is consistent with the principles of the Scenery Management System established by the U.S. Forest Service (1995).

The Scenery Management System measures the degree of scenic integrity, or human-caused deviation in the landscape. Research has shown that high-quality scenery related to natural appearing forests improves the viewer's physiological well-being.

The inventory was conducted in 2011 - 2012. Studies included field observations and meeting with Omya and Forest Service personnel to review key issues, management strategies and inventory requirements. Data was collected through agency contacts, existing mapped data, and aerial photography interpretation. In addition, extensive ground reconnaissance and photography was conducted in support of these efforts.

Scenery Impact Assessment Methods

Impacts on visual resources were assessed by determining the potential for change to the views of landscape scenery. This section describes criteria, methods, and models used to assess visual impacts of the proposed project. Key components of the assessment include Landscape Character goals, Scenic Integrity Objectives and predictions of potential effects on scenery for each alternative evaluated. The existing Landscape Character serves as a baseline from which to judge deviation in a landscape.

Existing and Desired Landscape Character

An existing landscape character description was determined for the project area. This was developed by describing distinct elements in the landscape that create a unique visual and cultural image. It consists of a combination of physical, biological, climatic and cultural attributes that make the area identifiable. It serves as a baseline for determining existing scenic integrity.

The desired landscape character for the project area was identified from the "Place" descriptions within the 2005 San Bernardino National Forest Land Management Plan (LMP). It expresses the most optimal combination of socially-valued scenery attributes that can be sustained in the specified Place. This inventory's primary focus was on the effect of the project proposal on the desired Landscape Character and Scenic Integrity Objectives as established in the LMP.

Scenic Integrity

Dominance indicates which element has the strongest visual weight within the Landscape Character and assesses the amount of divergence from it. Scenic Integrity is a measure of the degree of deviation or visual contrast in the landscape. It refers to the amount of perceptible change that would occur (with reference to form, line, color, and/or texture) as a result of the Proposed Action. Two major components that contribute to the degree of deviation include the addition of structural elements in the landscape and removal of vegetation. Intactness of the landscape also helps evaluate the impacts to scenery.

Visual contrast includes potential vegetation contrast that would result from the clearing of vegetation for road, structures and utilities. Vegetation contrast was determined through an evaluation of the proposed fuel treatment area. Existing scenic integrity is determined by evaluating the landscape based upon deviation or alterations of the existing Landscape Character.

Scenic Integrity Objectives

Scenic Integrity Objectives are prescribed by forest land management plans. They determine the overall importance of scenic resources and set minimum acceptable levels of natural landscape character. Levels of scenic integrity are described below:

- *Very High*—unaltered
- *High*—appears unaltered
- *Moderate*—slightly altered
- *Low*—moderately altered
- *Very Low*—heavily altered

Scenic Classes

Scenic Classes are used to compare the value of scenery to the value of other resources, and are derived from combining the visibility mapping and the scenic attractiveness mapping. A suitability map is created that is used by land managers in forest planning. Scenic Classes 1 through 7 identify a public value that can be tied to the landscape. The higher the Scenic Class, the more important it is to maintain the highest scenic value. GIS data layers were referenced in mapping the Scenic Classes.

Scenic Attractiveness

Scenic attractiveness measures the scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, water, vegetation patterns and cultural features. Higher scenic attractiveness occurs in landscapes with a greater degree of naturalness, diversity of features and

uniqueness. The relative scenic value of lands within a particular Landscape Character are classified as; class A- distinctive, class B- typical, and class C- indistinctive.

Landscape Visibility

Landscape visibility is a function of many interconnected considerations such as the context of viewers, the duration of view, the number of viewers and the degree of discernable detail. Landscape visibility is determined using three elements:

Travelways and Use Areas

Concern Levels

Distance Zones

As part of this inventory, travelways and use areas were identified within the proximity of the project area, and their concern levels and distance zones documented.

Most landscape viewing occurs from travelways and use areas. Travelways are defined as liner concentrations of public-viewing, including freeways, highways, roads, railroads, trails, commercial flight paths, rivers, canals, and other waterways. Use Areas are locations that receive concentrated public-viewing use. They include vista points, trailheads, campgrounds, swim beaches, parks, ski resorts, and other recreation sites.

Concern levels are a measure of the degree of relative importance the public places on a landscape being viewed from a particular travelway or use area. Concern level is a function of both the number of visitors as well as their intent. Three (3) concern levels are used:

Level 1 is the most important. Users have a high level of concern for scenery. It is associated with major highways, areas of concentration such as recreation facilities, special designations such as scenic byways or national recreation/historic trails and cultural sites. These can be roads, trails or waterways.

Level 2 areas are areas of lesser importance such as state highways, county roads, secondary trails, scenic overlooks, summer home tracts etc.

Level 3 refers to low use areas and low volume roads, trails, waterways or recreation facilities.

Distance zones are measured from key viewpoints. As distance between the viewer and the landscape increases, the level of visible landscape detail decreases. The zones are divided into three general categories:

Foreground - 300 feet to ½ mile

Middleground - ½ to 4 miles

Background - 4 miles to horizon

Foreground distance zones have a high level of detail, yet commonly allow more opportunities for screening. Middleground designations usually reveal deviations in the landscape related to form, line, color and/or texture, but have less discernable detail overall. Background designations usually increase scenic value as the terrain allows people to have longer views.

Viewsheds

Visibility to and from developed areas and travel routes was determined by the edge conditions bordering individual areas. Edge conditions are described as screened, partially screened or open conditions. For example, a screened edge condition refers to a situation where views of the project area are blocked by topography, vegetation, and/or development. Partial screening occurs where there are dispersed patterns of vegetation and development. Open edge conditions do not have anything blocking views of the project area, hence they lack screening.

Impact Assessment

In general, significant visual impacts in High Scenic Integrity landscape settings are the result of high to moderate visibility (foreground and middleground views) from sensitive viewing areas. Significant visual impacts can be any, or a combination of the following:

- Dominance of deviation over landscape character

- Deviations from landscape character are evident but not dominant

- The intactness of the landscape character becomes altered, resulting in a change scenic integrity

Potentially significant impacts in High Scenic Integrity areas occur when the project would be noticeable in moderate visibility location. A moderate visibility location is characterized by partially screened or intermittent foreground views toward the project area or as noticeable from open views, but at a greater distance (1.0 mile, middleground view) from the project area.

Where views are located in conditions that do not attract attention or are seldom seen, impacts are visually non-significant. These include areas where the views are generally beyond 1.0 mile or screened by vegetation in a middleground setting.

Mitigation

Initial impact levels were determined based on the description of the Proposed Action. Selective mitigation was considered to reduce visual impacts. The effectiveness of mitigation techniques in conjunction with the Landscape Character and visibility can be best determined at the project design stage. Selective mitigation that would reduce visual impacts includes measures presented in Section 4.0 *Mitigation*.

APPENDIX C

MONITORING

Project Level Monitoring

Project Level Monitoring should be done to identify key scenery conservation issues most pertinent to the Forest situation. Projects monitored should be representative of forest management activities that have most influence on scenic quality, and should be documented to include information as listed on the sample project monitoring form below. A summary of this information should be integrated into annual Forest LMP Monitoring Reports.

SMS PROJECT MONITORING FORM

Project Level Scenery Monitoring Report

San Bernardino National Forest

Project Name: Butterfield – Sentinel Quarries

Place:

Report by:

Ranger District:

Date:

Photo Record: (Y/N)

Forest Plan Management Area(s):

Landscape Character

Existing Landscape Character (include at least the valued scenery attributes, per constituent analysis, that are pertinent and potentially affected by the project):

Desired Landscape Character (pertinent valued attributes and achievement schedule):

Achieved Landscape Character (pertinent valued attributes, achievement dates, degree of attainment & effectiveness of project methods to achieve Desired Scenic Character):

What opportunities remain to further achieve Desired Landscape Character ? (changes in scenic pattern, structure, distribution, composition and diversity, project methods, scheduling, mitigations, etc):

Scenic Integrity

Existing Scenic Integrity (Current Scenic Integrity Level as viewed from specified viewpoints/viewsheds/distance zones):

Desired Scenic Integrity (Forest Plan's SIO direction, constituent analysis preferences, and project SIO per decision maker, SIO achievement schedule):

Achieved Scenic Integrity (SIOs as viewed from specified viewpoints/distance zones, achievement dates)

What opportunities remain to achieve higher Scenic Integrity ? (changes in form, line, color, texture, pattern, distribution, magnitude, project methods, scheduling, mitigations, etc):

----- End of Project Level Scenery Monitoring Report -----