

SYAR INDUSTRIES, INC.

MINING AND RECLAMATION PLAN

NAPA QUARRY

**2301 NAPA-VALLEJO,
NAPA, CA 94558**

Prepared by:

**John F. Perry, R.C.E. #28167
Jennifer Gomez
Yolano Engineers, Inc.**

**September 29, 2012
*Revised November 9, 2015***

TABLE OF CONTENTS

CHAPTER	PAGE
1 INTRODUCTION.....	1
1.1 QUARRY SITE LOCATION.....	1
1.2 HISTORY	1
1.3 AREA AND EXTENT OF CURRENT OPERATIONS.....	2
1.4 TYPES OF RESOURCE MATERIAL FOUND AT THE QUARRY	2
1.5 MINERAL RESOURCE DESIGNATION.....	3
1.6 GENERAL PLAN AND ZONING REGULATIONS.....	3
1.7 VESTED RIGHTS.....	3
1.8 SUMMARY OF PERMIT APPROVAL REQUESTS	4
2 OWNER, OPERATOR AND OPERATOR’S AGENT.....	6
3 DESCRIPTION OF MINING PROPERTY AND ENVIRONMENTS.....	7
3.1 SITE AREA AND AREA SUBJECT TO MINING	7
3.2 LEGAL DESCRIPTION OF NAPA QUARRY	7
3.3 ACCESS	7
3.4 TOPOGRAPHY	7
3.5 PARCEL OWNERSHIP SURROUNDING THE NAPA QUARRY	7
3.6 GENERAL GEOLOGY.....	8
3.6.1 Geology.....	8
3.6.2 Soils	9
3.6.3 Seismicity	9
3.6.4 Landslides	10
3.7 BIOTIC RESOURCES	10
3.7.1 Vegetation	11
3.7.2 Wildlife.....	11
3.8 EXISTING DRAINAGE.....	12
3.9 CULTURAL RESOURCES.....	13
3.10 CLIMATE INFORMATION.....	14
3.11 surface and groundwater information	14
3.11.1 Regional Surface Waters.....	15
3.11.2 Groundwater.....	15
4 MINING PLAN.....	17
4.1 EXISTING MINING AND PROCESSING AREAS.....	17
4.1.1 Starting and Ending Date	17
4.2 ADAPTIVE MANAGEMENT MINING STRATEGY	18
4.3 DESCRIPTION OF THE NAPA QURRY MINING PLAN	18
4.3.1 General Mining Plan	18
4.3.2 Annual Reporting.....	20
4.3.2.1 Annual Mining Report	20
4.3.2.2 Annual Compliance and Assurance Update Report	21
4.3.3 Mining Methods	22
4.3.3.1 Settlement of Filled Areas.....	23
4.3.4 Grading Control and Grading Criteria	23
4.3.5 Topsoil Salvage	23
4.3.6 Harvesting Rock	24
4.3.7 Use of Explosives	24

4.3.8	Dust Control	24
4.3.9	Fencing, Posting and Security	25
4.3.10	On-Site Processing.....	26
4.3.11	Routine Maintenance Procedures.....	26
4.4	OPERATION SCHEDULE AND STATE OF READINESS.....	27
4.4.1	Estimated Mining Dates.....	27
4.5	DETAILED GEOLOGY.....	28
4.5.1	Mineral Commodity Being Mined	28
4.5.2	Anticipated Quantity of Materials to be Mined.....	28
4.5.3	Anticipated Quantity of Overburden.....	29
4.6	DRAINAGE, SEDIMENT AN EROSION CONTROL	29
4.6.1	Drainage.....	29
4.6.2	Sediment and Erosion Control.....	29
4.7	site disposal information	30
5	RECLAMATION PLAN.....	31
5.1	AREAS COVERED BY RECLAMATION.....	31
5.1.1	reclamation phasing (general).....	32
5.2	REVEGETATION OF DISTURBED AREAS.....	32
5.2.1	Revegetation Procedure	32
5.2.2	Resoiling Areas to be Revegetated and Soil Amendments.....	33
5.2.3	Plant Selection.....	34
5.2.4	Review of Past Plant Selection	38
5.3	IRRIGATION	39
5.4	MONITORING & TEST PLOTS – MONITORING AND INSPECTIONS	40
5.5	SEQUENCE OF REVEGETATION ACTIVITIES	40
5.6	POST-MINING MAINTENANCE AND MONITORING PROGRAM.....	41
5.7	ULTIMATE SITE CONDITION/end use	41
5.8	PROPERTY OWNER’S RESPONSIBILITY FOR RECLAMATION AND ACKNOWLEDGEMENT OF END USE	42
6	MONITORING AND MAINTENANCE PROGRAM	43
6.1	MAINTENANCE SCHEDULE.....	43
6.2	DRAINAGE AND SEDIMENT CONTROL	45
6.3	REVEGETATION MONITORING AND CRITERIA	46
6.3.1	Revegetation Monitoring Program	47
6.3.2	Planting Success Criteria.....	47
6.3.2.1	Plant Coverage	48
6.3.2.2	Plant Density.....	48
6.3.2.3	Plant Species - Richness	48
6.3.3	Revegetation Monitoring Log	48
6.3.4	Irrigation System	49
6.3.5	Site Security	49
6.4	MAINTENANCE, MONITORING AND REPORTING PROGRAM	49
6.4.1	Maintenance Schedule and Inspections	49
6.4.1.1	Topography	49
6.4.1.2	Revegetation.....	50
6.4.1.3	Irrigation.....	50
6.4.1.4	Sediment and Erosion Control	50
6.4.1.5	Noxious Weed Monitoring.....	50
6.4.2	Reporting.....	51
7.0	REFERENCES.....	31

FIGURES

- 1 Vicinity Map
- 2 Site Map and Aerial Photograph
- 3aa Site Boundary and Work Area Maps – Index
- 3a Site Boundary and Work Area Map Area 1
- 3b Site Boundary and Work Area Map Area 2
- 3c Site Boundary and Work Area Map Area 3
- 3d Site Boundary and Work Area Map Area 4
- 3e Site Boundary and Work Area map Area 5
- 3f Mining Map
- 4 Geology Map
- 5 Ownership Map
- 6a General Plan
- 6b Zoning
- 7 Existing Drainage Map
- 8 Site Photo of Intermixed Rock Layers
- 9a Mining Treatment at Hillside with Solid Basalt or Rhyolite
- 9b Mining Treatment at Hillside with Tuff on Top of Basalt
- 9c Mining Treatment at Pit with Tuff on Top of Basalt
- 10 Grading Method at Edge of Quarry Property
- 11a Revegetation Method for Typical Oak Tree Planting on Benches
- 11b Revegetation Method for Typical Chaparral Planting on Benches
- 11c Revegetation Method for Typical Planting Treatment on 3:1 and 2:1 Slopes
- 11d Typical Grassland Planting with Oak Trees on Valley Floors
- 12 Revegetation and Drainage Details
- 13 Test Planting Plot Location Map
- 14a Final Grading Plan
- 14b Final Grading Plan Cross-Sections A-D
- 14c Final Grading Plan Cross-Section E-G
- 14d Final Grading Plan with Revegetation Details
- 15 Final Drainage Plan

FORMS (Appendix J)

- A-1 Visual Planting Inspection Form: Quarried Benches and 2:1 Cut and 3:1 Fill Slopes
- A-2 Visual Planting Inspection Form: Reclaimed Valley Floors to Oak Woodland or Grassland
- B-1 Revegetation Monitoring Plot or Test Planting Plot Log No. 1 for Areas Reclaimed to Oak Woodland
- B-2 Revegetation Monitoring Plot or Test Planting Plot Log No. 2 for Areas Reclaimed to Chamise Chaparral
- B-3 Revegetation Monitoring Plot or Test Planting Plot Log No. 3 for Areas Reclaimed to Coyote Brush Chaparral
- B-4 Revegetation Monitoring Plot or Test Planting Plot Log No. 4 for Grassland with Oak Trees at Perimeter of Area
- C-1 Watering Program Inspection Form
- D-1 Sediment and Erosion Control Reporting Form
- E-1 Annual Noxious Weed Control Reporting Form

TABLES (in text)

- 1 Acreage and Intended Uses
- 2 Properties Within 500 Feet of Napa Quarry
- 3 Earthquakes Recorded Within the Area
- 4 Approximate Areas Disturbed by Mining to be Reclaimed or to be Left Undisturbed
- 5 Reclamation Planting List for Oak Woodlands and Chaparral Communities
- 6 Seed Mix for Each Plant Community and Site Condition
- 7 Past Plant Materials in Approved 1982 Reclamation Plan
- 8 Maintenance/Monitoring Inspection Cycles during Mining
- 9 Post-Reclamation Maintenance and Monitoring Inspection Cycles
- 10 Planting Success Criteria

APPENDICES

- A Napa County Use Permit Number U-27374, November 28, 1973, and Amendment to Use permit, September 22, 1981
- B State Mineral Resource Designation and Map (Excerpt)
- C Owner's Statement of Responsibility and Acknowledgement of Future Land Use
- D Legal Description of Property
- E Geologic Report (Kleinfelder, September 21, 2012)
- F Live Oak Associates Reports, Biological Evaluation dated September 17, 2008 and Red Legged Frog Best Management Practices dated September 15, 2008.
- G Hydrology Reports, August 2002 and April 2008, by Carlenzoli and Associates
- H Storm Water Pollution Prevention Plan (Syr Industries, Inc., May 14, 2015)
- I Cultural Resources Studies (LSA and Tom Origer and Associates, 2008) and Evaluation and Documentation of Cultural Resources on the Syar Property, Napa, CA, dated October 4, 2010.
- J Forms for Reclamation and Monitoring
- K Napa Quarry Blasting Plan, 2012

1 INTRODUCTION

The purpose of this Mining and Reclamation Plan (Plan) for the Napa Quarry is to; 1) expand mining operations throughout areas of the property that are contiguous to existing mining pits and hillsides within Syar owned parcels; 2) extend our mining operations into currently non-disturbed areas totaling 106 acres located adjacent to current mining areas; 3) extend the use permit for the mining operation for an additional 35 years; and 4) cap the annual maximum sales at 1.3 million tons of aggregate and aggregate products.

Currently, the areas disturbed by mining at the quarry total approximately 497 acres. The mining methodologies discussed within this plan reflect the varied geologic conditions at the site. The geology at the site consists of either a singular occurrence of either basalt or rhyolite; or a combination of these materials intermixed with lesser quality materials. The unique condition requires a creative, adaptive approach toward mining and reclamation of the site. This Plan provides a general description of how each area, with its own unique geological condition, will be mined and reclaimed. Area specific plans for mining and reclamation will be submitted to Napa County Planning, Building and Environmental Services Department (PBES Department) annually.

1.1 QUARRY SITE LOCATION

Napa Quarry is located approximately 1 mile southeast of the City of Napa on the east side of the Napa-Vallejo Highway (State Route 221) at the intersection with Basalt Road (Figure 1).

1.2 HISTORY

Napa Quarry is the most significant mine in Napa County, being both the largest in acreage and the highest producing facility in terms of volume of material. Mining activities have been taking place on the site, in one form or another, for over a century. When the quarry first opened in the early 1900's, it was called the Basalt Rock Quarry. The Basalt Rock Company acquired the property, consisting of approximately 673 acres, in 1924, and continued to mine the rich basalt rock material through most of the twentieth century. In 1961, Basalt Rock Company leased a 182.2 acre parcel from the State that was contiguous to the quarry. Syar Industries, Inc. purchased the 740 acre property in 1986 and has been actively mining the site since that time.

On November 28, 1973, the Napa County Board of Supervisors approved Use Permit Number U-27374 for the Napa Quarry that brought manufacturing and quarrying activities into compliance with Napa County Zoning Ordinance No. 186. The permit, included in Appendix A, covers all of the properties owned and leased by Basalt Rock Company. On September 22, 1981, the Board of Supervisors approved an amendment to the exiting Use Permit to allow the operator to mine the upper reaches of Grey Rock Quarry in a more efficient manner. The Reclamation Plan was approved on May 27,

1982, and the County determined that Napa Quarry was consistent with the County’s implementing Ordinance No. 693 for the State Surface Mining and Reclamation Act (SMARA).

1.3 AREA AND EXTENT OF CURRENT OPERATIONS

The current size of the Napa Quarry measures approximately 749 acres (plus 121 acres Pasini Property) and is comprised of ten (10) separate parcels as shown on Figure 5. The property is contained with the USGS 7.5 minute Napa Quadrangle and the 7.5 minute Mt. George Quadrangle. The area is further identified as Napa County Assessor Parcel Numbers 045-360-005, 046-370-012, 046-370-013, 046-370-015, 046-370-022, 046-370-025, 046-390-002, 046-390-003 and 046-450-071. The site lies at 38° 15’ 53” North latitude and 122° 15’ 21” West longitude within Township 5 North, Range 4 West and Township 5 North, Range 3 West in the Mount Diablo Meridian. Table 1 lists the current extent of operation. The areas presently disturbed by mining including approximately 497 acres (Figures 3aa – 3e).

**TABLE 1
 ACREAGE AND INTENDED USES**

ASSESSOR PARCEL NUMBERS	TOTAL ACRES	AREAS PRESENTLY DISTURBED BY MINING	UNDISTURBED AREAS OF FUTURE EXPLORATION AND MINING	AREAS OF INTERIM RECLAMATION	AREAS THAT WILL NOT BE DISTURBED BY MINING
045-360-005	749	497	58	20	174
046-370-012					
046-450-071					
046-370-013					
046-370-015					
046-390-003					
046-370-025					
046-390-022					
046-390-002	121	0	48	0	73
Total	870*	497	106	20	247**

* This acreage includes the acreage deemed as “no mining areas”.

** This acreage does not include the areas of interim reclamation.

1.4 TYPES OF RESOURCE MATERIAL FOUND AT THE QUARRY

Napa Quarry consists of two types of rock that are predominately mined: basalt and rhyolite (Figure 4 and 8). Basalt has a high market value and is used for a number of industry and heavy construction applications because of its weight, strength, and durability. A very high quality rhyolite is found throughout the Napa Quarry and sold as rip rap, landscape boulders, construction aggregates and drain rock. To a lesser extent, other rock types found at the site are tuff and scoria which can be sold as engineered fill.

1.5 MINERAL RESOURCE DESIGNATION

According to the California Department of Conservation Division of Mines and Geology in the, “Mineral Land Classification: Aggregate Materials in the San Francisco – Monterey Bay Area Special Report 146, Part III”, the area containing the Napa Quarry was mapped by the State Geologist and designated as Sector H: Sonoma Volcanic Rock. In 1987, the State designated Sector H as Mineral Resources Zone 2 (MRZ-2), meaning those “areas underlain by mineral deposits where geologic data show that significant measured or indicated resources are present”. It is known that the Napa and Mount George Quadrangles contain the Sonoma Volcanics: rhyolite, dacite, basalt and tuff deposits. Most of the aggregate in Sector H is suitable for asphaltic concrete, while other material can be used for road base aggregate.

In addition, the State of California in Special Report 205 designated an additional 513 acres of land adjacent to the existing Napa Quarry as MRZ-2. The description of the State designation is provided in Appendix B.

1.6 GENERAL PLAN AND ZONING REGULATIONS

The Napa County General Plan categorizes the Napa Quarry site as “Mineral Resources” land use under the Industrial, Mineral Resources, Study Area, Agricultural Watershed and Open Space designation (Figure 6a). The General Plan’s Conservation Element, Natural Resources Goals and Policies support the use and promotion of mining and extraction activities of areas containing significant mineral deposits. Policies also state that the County shall apply zoning to mineral resource areas and appropriate surrounding areas to allow for resources management and to anticipate future resource availability.

There are three different zoning classifications within the boundaries of Napa Quarry; “AW” Agricultural Watershed, “AW: AC” Agricultural Watershed: Airport Compatibility, and “I” Industrial (Figure 6b). Aggregate mining and processing activities are allowed in each zone. No surface mining activities in the unincorporated area of the County are allowed unless the operation has a use permit, an approved reclamation plan, an approved reclamation cost estimate, and an approved financial assurance mechanism.

1.7 VESTED RIGHTS

When SMARA was adopted by the State of California in 1976, it provided two primary exceptions to its requirements for a permit to conduct surface mining operations and a reclamation plan for all surface mining operations. Pursuant to SMARA, the Napa County Surface Mining and Reclamation Ordinance (SMARO) include the following exceptions.

The first exception concerns reclamation. SMARA and SMARO generally require that areas which are disturbed by surface mining operations be reclaimed to a productive use. However, there is an exception to the reclamation requirement for areas disturbed by surface mining operations where those operations were concluded or abandoned

prior to January 1, 1976 (California Public Resource Code §2776; Napa County Code 16-12-050(N)). There are areas in the Napa Quarry that were mined prior to January 1, 1976 and have not been subsequently mined. Those areas are identified on Figure 3a. Under this Plan, those areas will not be reclaimed unless they are subject to additional surface mining activities. Areas that are disturbed by additional surface mining will be reclaimed using the methods described in this Plan.

The second exception concerns vested rights. SMARA and the Napa County SMARO generally require a permit to conduct surface mining operations. However, there is an exception for surface mining operations which have vested rights. Under both SMARA and SMARO, “A person shall be deemed a permit or other authorization, if such permit or other authorization was required, diligently commenced surface mining operations and incurred substantial liabilities for the work and materials necessary therefore.” (Public Resources Code §2776; Napa County Code 16-12-540(A)). On January 1, 1976, the Basalt Rock Company held a use permit for and was actively conducting surface mining operations at the Napa Quarry, and therefore had a vested right in that use permit. In 1982, as part of the updating of the reclamation plan for the Napa Quarry, Dillingham (Basalt’s successor-in-interest) state that its vested rights to the Napa Quarry encompassed the entire quarry property owned or controlled by Basalt as of January 1, 1976. To Syar’s knowledge, the County did not contest or dispute the existence or extent of vested rights for the Napa Quarry in 1982.

As a result, Syar understands that it has vested rights for surface mining for the entirety of the Napa Quarry parcels which have active mining or mining activities, which is the same permit that was in effect in 1976 (with some modifications not relevant to the issue of vested rights). The mining described in this plan is consistent with Syar’s vested rights. Nothing in this Plan is intended to limit the exercise of Syar’s vested rights, and Syar is reserving all its rights concerning its vested rights in this Plan and throughout the mining and reclamation plan review approval process and the CEQA process.

In addition to the area covered by Syar’s vested rights, the Plan also provides for partial mining and reclamation of a neighboring parcel, APN 046-390-002 (121 acre Pasini Property), which was not mined historically and so does not have vested rights. For this property Syar is requesting use permit to mining this area.

1.8 SUMMARY OF PERMIT APPROVAL REQUESTS

Syar is requesting the following approvals from Napa County:

- Adopt an Environmental Impact Report to address potential impacts (EIR was certified on October 21, 2015 by the Napa County Planning Commission);
- Approve the proposed Mining Plan for the 870-acres over a 35-year period;
- Approve the proposed Reclamation Plan for the 870-acres and a Financial Assurance Cost Estimate for reclamation of the quarry; and

- Approve the Surface Mining Permit (Napa County Code Chapter 1612) for the 121-acre property identified as the Pasini Property.

2 OWNER, OPERATOR AND OPERATOR'S AGENT

Syar Industries, Inc. is the quarry owner, operator, and applicant for approval of the Mining and Reclamation Plan and associated permits. The operator's Statement of Responsibility and Acknowledgement of Future Land Use following reclamation is included in Appendix C. The owners of all surrounding parcels within 500 feet of the Napa Quarry property are listed in Table 2, and the respective parcels are shown on Figure 5.

Applicant:	Syar Industries, Inc. 2301 Napa-Vallejo Highway P.O. Box 2540 Napa, CA 94558 (707) 252-8711
Name of Mineral Property:	Napa Quarry (State Mine I.D. # 91-28-0004)
Owner of Surface Rights:	See Table 2
Owner of Mineral Rights:	Syar Industries, Inc.
Operator:	Syar Industries, Inc.
Agent of Process:	Jennifer Gomez, Permits Manager Syar Industries, Inc. P.O. Box 2540 Napa, CA 94558 (707) 252-8711
Site Location:	Latitude 38° 15' 53" N, Longitude 122° 15' 21" W (Accessed via State Route 221 (Napa-Vallejo Highway), approximately 1 mile south of Imola Avenue)

3 DESCRIPTION OF MINING PROPERTY AND ENVIRONMENTS

3.1 SITE AREA AND AREA SUBJECT TO MINING

The Napa Quarry is comprised of ten (10) Napa County Assessor Parcel Numbers totaling approximately 870 acres (includes the Pasini parcel). Of the 870 acres, approximately 497 acres have presently been disturbed by mining. There are nine (9) areas that have been disturbed by mining with most of these sites situated on the west side of the property as indicated on the Current Site Boundary and Work Area Maps (Figures 3aa – 3e).

3.2 LEGAL DESCRIPTION OF NAPA QUARRY

The legal description of the Napa Quarry property is included in Appendix D.

3.3 ACCESS

The entrance to Napa Quarry is from Basalt Road, off of the Napa-Vallejo Highway. Napa-Vallejo Highway is the regional name for Highway 221 (SR 221). South of the quarry, Highway 221 splits, with Highway 12 veering off to connect with Interstate 80, about 12 miles east of the quarry site. Highway 29 continues due south through Vallejo connecting with State Route 37 (Figure 2).

3.4 TOPOGRAPHY

The topography of the undisturbed areas of the Napa Quarry property is typical of that found in the surrounding areas: low-lying valleys and steep canyons rising up from numerous drainage ways. It is best described as rolling canyons with clusters of Oaks, Chaparral and naturalized grasses draining in a southwesterly pattern. The site rises to a north-south trending ridge with elevations that range from 150 feet to just over 800 feet. This north-south ridge divides the site into two separate watersheds with seven (7) smaller drainage basins (Figure 7).

The condition of the 497 acres disturbed by mining vary from large flat areas to smoothly contoured slopes with 4:1 gradients to steeply cut rock faces with ½:1 gradient. The existing valleys and hills between the previously mined areas offer a buffer to the rough and irregular shapes that are generally void of vegetation. Other pertinent features within the quarry include numerous drainage courses, several sediment ponds, and various aggregate and overburden stockpiles. A paved access road enters the site from SR 221 to the main office and then numerous unpaved haul roads provide access to the various mining locations on-site.

3.5 PARCEL OWNERSHIP SURROUNDING THE NAPA QUARRY

Surrounding properties are largely undeveloped (Skyline Park Area) with the exception of recreational (i.e. golf course) and industrial properties to the west and Napa State

Hospital Facility to the north. Parcels range from approximately one acre to more than 600 acres. Lands immediately adjacent to the Napa Quarry property on the east, south-east, and south are rolling wooded hillsides. Directly south of the quarry entrance is a developed agricultural business. The properties to the north-west are owned by the State of California and include open space, semi-wooded acreage and the Napa State Hospital. Parcels within 500 feet of the quarry are shown in Figure 5 and are listed below on Table 2.

**TABLE 2
 PROPERITES WITHIN 500 FEET OF THE NAPA QUARRY**

APN	PROPERTY OWNER	LAND USE
460-400-034	Cakebread Properties No. 12 LP	Agricultural
046-370-029	Jonive Vista LLC	Agricultural
045-360-006	Kirkland Cattle Co.	Agricultural
046-370-031	Michael R. & Chyrle S. Crane	Agricultural
046-370-021	Whal Properties LP	Industrial
046-370-024	Boca Company	Institutional
046-450-020	State of California	Institutional
046-450-040	State of California	Institutional
046-450-070	State of California	Institutional
045-350-002	Napa State Hospital	Open Space
045-360-001	Napa State Hospital	Open Space
046-390-001	Napa State Hospital	Open Space
046-450-042	Napa State Hospital	Open Space
046-450-041	State of California	Open Space
046-450-058	City of Napa	Water Storage (Tank)

3.6 GENERAL GEOLOGY

3.6.1 Geology

Napa County is located within the Coast Range Province of California. The Province is characterized by northwesterly parallel mountain ridges and intervening valleys of varying heights and widths. The northern section of the Province consists of the Franciscan Complex made up of a diverse group of igneous, sedimentary, and metamorphic rocks of the Upper Jurassic to Cretaceous age (140 to 165 million years old). Within the vicinity of the Napa Quarry the Franciscan Complex rocks are unconformably overlain by late Miocene to Pliocene age continental and marine sedimentary and volcanic rocks, which are locally overlain by younger Quaternary alluvial and colluvial materials, as well as, landslide deposits. The Sonoma Volcanics are the predominate formation within the quarry property with the rock types consisting of basalt, rhyolite, dacite, tuff, scoria, and breccias. Napa Quarry geologic reports are included in Appendix E.

3.6.2 Soils

According to the, "Soil Survey of Napa County, 1978", by the USDA Soil Conservation Service notes that the soils in the southern part of the valley where the Napa Quarry is located have low production potential. Lands with these soils are used mainly for dryland pasture and for production of oats and hay. Based on interpretive maps presented within the soil survey the Napa Quarry contains two types of soil: the Hambright Series and the Sobrante Series. The majority of the site is mapped as having Hambright soils with 30 to 75 percent slopes and areas of rock outcrops and steep and very steep soils on uplands mainly in the Atlas Peak area. The soils were formed from weathered basalt rock. Runoff on this soil type is rapid to very rapid and the potential for erosion is high. This complex is used for wildlife habitat, recreation, watershed, and limited grazing. A small area of the quarry, approximately 5%, is mapped as the Sobrante series with 5% to 50% slope consisting of well drained soil on uplands. These soils formed from weathered sandstone. The vegetation is mostly annual grasses, scattered oaks, and a few digger pines. Permeability is moderate and effective rooting depth is 25 to 40 inches with the available water capacity is 4 to 6 inches. Sobrante soils are used mostly for grazing; however, a few areas are used for recreation and wildlife habitat.

3.6.3 Seismicity

The Napa Quarry is located in a seismically active region of California. The Napa Quarry is located between two active faults, the West Napa Fault and the Concord-Green Valley Fault. The West Napa fault is located approximately 2 miles west of the quarry and the Concord-Green Valley Fault is located approximately 5 miles east of the quarry. Both faults are capable of generating moderate to major earthquakes which could cause strong ground shaking at the site. Other active faults within the area consist of the following: the Maacama Fault located approximately 33 miles northwest; the Healdsburg-Rodgers Creek Fault located approximately 12 miles west; and the San Andreas Fault located approximately 35 miles west of the site. Table 3 shows historical earthquakes greater than a magnitude 5.0 recorded within the area.

**TABLE 3
 HISTORIC EARTHQUAKES IN REGION GREATER
 THAN MAGNITUDE 5.0**

EARTHQUAKE (OLDEST TO YOUNGEST)	DATE OF EARTHQUAKE	MAGNITUDE	DIRECTION TO EPICENTER ¹
Oakland	June 10, 1836	7.0	South
San Francisco Peninsula	June, 1839	6.8	Southwest
Hayward	October 21, 1868	6.8	Southeast
Vacaville	April 19, 1891	6.4	Southeast
San Francisco	April 18, 1906	7.8	Southwest
Concord	October 24, 1954	5.4	Southeast
Santa Rosa	October 2, 1969	5.7	Northwest
Livermore Valley	January 24, 1980	5.8	Southeast
Livermore	January 27, 1980	5.4	Southeast
Loma Prieta	October 17, 1989	6.9	Southwest
Yountville	September 3, 2000	5.2	Northwest
Napa	August 24, 2014	6.0	Southwest

Source: *Toppozada et. Al., 1994 and USGS, 2000 – “The September 3, 2000, Yountville Earthquake”, online report by U.S. Geological Survey, Earthquake Hazards Program, released December 7, <http://quake.wr.usgs.gov/recent/reports/napa>, SMART EIR 2005.*

¹Direction to epicenter of the earthquake event from the closest point along the proposed project.

3.6.4 Landslides

The Napa Quarry site is determined by the Napa County Planning Department to be an area of moderate landslide occurrence based off an evaluation of maps prepared by the U.S. Geological Survey. To ensure slope stability and a suitable gradient for revegetation, this Plan provides for 25-foot wide benches every 50 vertical feet and final cut slopes with a maximum height and gradient as recommended by Kleinfelder West Inc (Appendix E). Existing slopes that are oversteepened with steeper gradients than recommended will be laid back or filled during final reclamation to attain the required SMARA slope stability factor for safety.

3.7 BIOTIC RESOURCES

Live Oak Associates, Inc. (LOA) prepared a report which describes the biotic resources of the approximately 870-acre property identified as the Napa Quarry. This report evaluates the likely impacts to the biotic resources resulting from continued use and expansion of the quarry. In addition, LOA prepared a Red Legged Frog Best Management Practices report. Each report is included in Appendix F.

Quarry operations can damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, these operations may be regulated by State and Federal agencies, subject to provisions of the California Environmental Quality Act

(CEQA), and/or covered by policies and ordinances of Napa County. This report addresses issues related to: 1.) sensitive biotic resources occurring on the site; 2.) the Federal, State and local laws regulating such resources, and 3.) mitigation measures which may be required to reduce the magnitude of anticipated impacts. As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources;
- Make reasonable inferences about the biological resources that could occur on site based on habitat suitability and the proximity of the site to a species known range;
- Summarize all State and Federal natural resource protection laws that may be relevant to possible future site development;
- Identify and discuss project impacts to biological resources likely to occur on the site within the context of CEQA or any State or Federal laws; and
- Identify avoidance and mitigation measures that would reduce impacts to a less-than-significant level as identified by CEQA and that were generally consistent with recommendations of the resource agencies for affected biological resources.

3.7.1 Vegetation

Existing vegetation within the quarry includes Live Oak Woodlands and Eucalyptus on the lower canyon slopes and mixed sage-brush on the upper slopes, ridges and south facing slopes. The most dominant vegetation in these areas are the valley grasses found throughout the site. Some plants found in and around the exiting mining areas include the following: Poison Oak (*Toxicodendron diversilobum*), California Sage (*Artemisia californica*), Coastal Live Oak (*Quercus agrifolia*), Scrub Oak (*Quercus dumosa*), and Deer Weed (*Lotus scoparius*).

Plants found in the Oak Woodlands include California Bay (*Umbellularia californica*), Coast Live Oak (*Quercus agrifolia*) and Buckeye (*Aesculus californica*). The middle canopy is composed of shrubs including: Toyon (*Heteromeles arbutifolia*), Poison Oak (*Toxicodendron diversiloba*), Coffeeberry (*Rhamnus californica*), Snowberry (*Symphoricarpos* sp.), Ceanothus (*Ceanothus* sp.), Goldenback Fern (*Pityrogramma triangularis*), Maidenhair Fern, Vetch (*Vinca* sp.) and Bedstraw (*Gallium* sp.).

3.7.2 Wildlife

Thirty-two (32) special status animal species occur, or once occurred regionally. With the exception of the California red-legged frog, foothill yellow-legged frog, western pond turtle, Swainson's hawk, white-tailed kite, northern harrier, golden eagle, short-eared owl, black swift, yellow-breasted chat, tricolored blackbird, Townsend's big-eared bat, and pallid bat, all of these species would be absent from or unlikely to occur on the site due to unsuitable habitat conditions. Proposed quarry activities would have no effect on these species because there is little to no likelihood that they are present. The remaining special status animal species listed above may occur more frequently as

regular forgers or may be resident on the site. These species either occur on the site incidental to home range and migratory movements, thus using the site infrequently, or may forage on the site year-round or during migration. The project would have a minimal effect on the breeding success of these species and would, at most, result in a relatively small reduction of foraging and/or roosting habitat that is abundantly available regionally. The Biological Report and Protocol level surveys are included in Appendix F.

3.8 EXISTING DRAINAGE

The existing drainage map (Figure 7) shows the drainage facilities at Napa Quarry that are used to manage the storm water in the numerous drainage basins. No run-off is allowed to flow uncontrolled from disturbed areas of the quarry into any of the off-site drainage courses. Drainage ditches at the active mining areas, along the haul roads to the quarry floors and operation area collect storm water and direct it into one of the sediment ponds on site. Some of the ponds do not discharge while others discharge into Arroyo Creek. The five (5) ponds that discharge off-site typically have a riser with a culvert that daylight onto energy dissipaters (large rocks or rip rap) at the outfall. The sixth discharge point (C-2) discharges artesian water and storm water collected from an underground storm drainage system. There are six (6) outfalls at the facility. The outfalls are identified as Outfall A, Outfall B, Outfalls C-1 and C-2, Outfall D and Outfall E. Each of the six outfalls is described below.

Outfall A is located along the property line, 1,200 feet southeast of the non-active Grey Rock Plant. Outfall A discharges storm water from Storm Water Pond 3 (end of system of ponds 1 and 2), as well as, sheet flow run-off from a quarry road into Arroyo Creek.

Outfall B is located along the property line 300 feet northwest of the non-active Grey Rock Plant. Outfall B discharges water from Storm Water Pond 6, which collects sheet flow run-off from a series of quarry roads, as well as, overflow from Storm Water Pond 5 into Arroyo Creek.

Outfall C-1 and C-2 are located along the property line just southwest of the scale and plant office. Outfall C-1 discharges water from Storm Water Pond 8 which collects water from Pond 7, as well as, sheet flow run-off from the load-out floor, scale house and plant office areas. Outfall C-2 collects artesian water and storm water from an underground drain system and flows into Arroyo Creek.

Outfall D is located along the entrance road discharges storm water from Pond 9 into Arroyo Creek.

Outfall E is located just west of Snake Pit. Outfall E discharges storm water from Storm Water Pond 13, as well as, sheet flow run-off from the quarry road surrounding Snake Pit into Arroyo Creek.

Napa Quarry personnel routinely collects water samples to monitor the amount of sediments in the run-off as it leaves the site as part of the monitoring program in the

quarry's Storm Water Prevention Pollution Plan (SWPPP). The San Francisco Bay Regional Water Quality Control Board annually reviews the SWPPP monitoring program. Best Management Practices (BMP) are employed by the mining operator to ensure that the operation conforms to the objectives of the State Water Quality Control board's NPDES program and the Napa Quarry SWPPP (SWPPP excerpts are included in Appendix H).

The on-site drainage system (primarily swales and drainage ditches) will be modified as the quarry operation continues. During mining activities the on-site drainage basins will remain intact. However, should the integrity of a drainage basin be altered, the site will be graded to detain all storm water run-off on-site before it discharges off-site. Following the commencement of mining the drainage patterns at the site will consist of either detention in basins with no run-off leaving the site (northern portion of the site) or run-off into the direction of Arroyo Creek. The drainage directions are conceptually shown in Figure 15.

3.9 CULTURAL RESOURCES

A cultural resources study was completed for the Napa Quarry by LSA Associates on February 2008. In addition, a Phase II cultural resources report was completed by Tom Origer and Associates (2008). A copy of the reports is included in Appendix I. The results of this study are as follows:

- Two previously recorded cultural resources, CA-NAP-266 (prehistoric archaeological site) and P-28-968 (historic-period stone fence) are within the project area.
- Several historic-period stone fence segments, ranging in length from approximately 200 feet to approximately 2,500 feet were identified as a result of the field survey.
- Hand-carved cave extending 12 feet into bedrock, size approximately 6 feet high and 9 feet wide.
- Historic-period refuse scatter, an animal trough/pen area, a fire pit constructed with mortar and abandoned buildings that may have been associated with the original quarrying headquarters were identified.

The recommendations for the identified cultural resources on site are as follows:

- If the cultural resources cannot be avoided by project activities, they should be evaluated for their California Register of historical resources eligibility. In addition, the resources should be formally recorded on Department of Parks and Recreation 523 forms. If the deposits are not eligible, avoidance is not necessary.
- Project professional should not collect or move any archaeological materials.

- If human remains are encountered during the course of the project, the County Coroner and an archaeologist should be contacted immediately to evaluate the situation. Project personnel should not collect or move any human remains or associated materials.
- If prehistoric or historical archaeological materials are encountered during the project activities, all work activities within 25 feet of the discovery should be redirected and a qualified archaeologist contacted to assess the situation. Project personnel should not collect or move any archaeological materials.
- Prehistoric materials can include flaked-stone tools (e.g. projectile points, knives, choppers), obsidian, chert, basalt or quartzite toolmaking debris, bone tools, culturally darkened soil (i.e. midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, faunal bones, and cultural materials) and stone milling equipment (e.g. mortars, pestles, handstones). Prehistoric sites often contain human remains.
- Historical materials can include wood, stone, concrete, or adobe footings, walls and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal and other refuse.

The findings of the two above referenced reports were that there were four sites which should be further evaluated for their cultural resource significance. The sites are as follows: Toppings Homestead Site, Pasini Barn Site, CA-NAP-266, and Stone Fence Segments (including P-28-000968). Tom Origer and Associates (2010) conducted this evaluation and concluded that each of the above does not meet criteria for inclusion on the California Register of Historical Resources. In the process of evaluating each of the sites, they were documented on appropriate DPR 523 forms (see Origer Report, 2010; Appendix I), and no further work is recommended.

3.10 CLIMATE INFORMATION

The Napa Valley climate is Mediterranean in nature. The January (coolest month) average temperature is a minimum of 37.4 °F to a maximum of 57.7 °F. While July (hottest month) the average temperature is a minimum of 52.2 and a maximum of 82.1. Average annual rainfall is 23.88 inches. The prevailing wind direction is southwestern due to Napa's proximity to the coast.

3.11 SURFACE AND GROUNDWATER INFORMATION

The Napa Quarry drains to the Napa River watershed which is within the San Francisco Bay Area Hydrologic Basin. The San Francisco Bay functions as the drainage outlet for waters of the Central Valley and the greater Bay Area. San Francisco Bay can be divided into distinct water bodies including in the northern area, San Pablo Bay. Freshwater strongly influences environmental conditions in the San Francisco Bay. Over 90 percent of the Bay's freshwater originates from the Sacramento and San Joaquin Rivers and enters the northern reach. In the San Francisco Bay Basin Plan, the Regional Water Quality Control Board (RWQCB) identifies a number of beneficial

uses of surface waters that must be protected. The beneficial uses for San Pablo and San Francisco Bays include estuarine habitat, preservation of rare and endangered species, fish migration, fish spawning, wildlife habitat, navigation, recreation, commercial and sport fishing, and industrial service supply.

3.11.1 Regional Surface Waters

The topography of Napa County consists of a series of parallel northwest-trending mountain ridges and intervening valleys of varying sizes. These parallel northwest-trending mountain ridges subdivide the County into three principal watersheds: Napa River watershed, Putah Creek/Lake Berryessa watershed, and Suisun Creek watershed. The Napa River watershed extends in a northwesterly direction roughly 45 miles from San Pablo Bay to the hills north of Calistoga, and includes primarily a central valley floor and eastern and western mountains to either side of the valley floor. The watershed is contained by Mt. St. Helena to the north, the Mayacamas Mountains to the west, Howell Mountain, Atlas Peak, and Mt. George to the east, and the Napa-Sonoma Marsh to the south. The lowest reaches of the Napa River and tributaries in the lower Napa Valley are tidally influenced due to the proximity to San Pablo Bay. Along the Napa River, the tidal influence is observed northward into the City of Napa.

In general, tributaries to major drainages form canyons in their steeper upstream reaches, where they flow over the more resistant bedrock of the mountainous areas. In terms of geomorphic form, Napa County streams typically descend from steep headwater reaches onto alluvial fan surfaces and then onto valley floors. Some of the upstream reaches of tributaries are intermittent, and others are perennial. The downstream reaches, especially of the larger streams, are generally perennial. Stream flows generally peak in January or February and are lowest from August through November.

3.11.2 Groundwater

The SFWQCB Basin Plan identified the Napa Quarry location as within the San Pablo Hydrologic Basin with respect to surface flow. With respect to groundwater, the Department of Water Resources (DWR) has mapped the majority of the Napa Quarry location to be within the “groundwater-bearing” volcanic area of the Napa-Sonoma Volcanic Highlands (Basin ID 2-23). A small area of the western portion of the Napa Quarry and the adjacent properties to the north and west of the Napa Quarry are located within the Napa Valley Sub-basin (Basin ID 2-2.01). The Napa Valley Sub-basin includes the Milliken-Sarco-Tulucay (MST) aquifer.

However, the California Department of Water Resources does not consider the Napa Quarry as overlying a regionally significant aquifer. The DWR has no groundwater level monitoring locations at the Napa Quarry (DWR California Data Exchange Center 2010). However, the Napa Quarry is bounded to the north, northwest, and west by the MST Zone which has been identified as a significant groundwater basin that is currently in overdraft. The Napa Quarry is bounded to the south by Arroyo Creek which provides surface water and groundwater recharge to the groundwater aquifer adjacent to the Napa River located to the west of the Napa Quarry, the quarry water supply well is

located off-site (southeast corner of the Boca Property APN 046-370-024) which is within the MST zone. This area is part of the Napa Valley Sub-basin (Basin ID 2-2.01).

Information concerning groundwater depth was obtained during the installation of the new well located on site (Figure 3f). This well is presently not being used for quarry operations. According to the well log the depth of water was at approximately 60 bgs (Elevation 46). The static water level was noted at 35 feet bgs. A 6 hour pump test was completed as part of the well installation. The estimated yield for the well was found to be at 800 gallons per minute. Groundwater water quality information is not collected as part of the normal quarry operations.

Surface water quality information is collected as part of our storm water program outlined in our Storm Water Prevention Pollution Plan (SWPPP) included in Appendix H. Storm water quality information has been collected since 2003. The water samples are collected at specified sampling points outlined in the SWPPP. Water samples are analyzed for the following constituents: Total Petroleum Hydrocarbons as motor oil (TPH-mo), TPH-diesel (TPH-d), TPH-gasoline (TPH-g), pH, Total Suspended Solids (TSS), specific conductance (SC), Oil and Grease (O&G), Total Organic Carbon (TOC), LUFT Metals (Aluminum, Copper, Iron, Lead and Zinc), Chromium, Hex-Chromium, Nitrate, Nitrite and Chemical Oxygen Demand (COD).

4 MINING PLAN

4.1 EXISTING MINING AND PROCESSING AREAS

Currently, approximately 497 acres of the 870 acre site has been disturbed by mining. The facility has two rock processing plants, two asphaltic concrete plants, a sand plant, recycling plant, office, scale house, bone yards, laboratory, maintenance and service buildings, as well as, haul roads, and stockpiles of rock products, overburden and topsoil, drainage swales, process water ponds and sediment ponds. All of these areas are shown on Figures 3aa (Index Page) through 3e. These figures break the site into sections so a more detailed look at each section can be shown. The figures also indicate the existing topography, location of structures, drainage facilities, areas currently disturbed by mining and other related items.

The northern most section of the quarry (Figure 3a) includes the currently (or have been mined in the recent past) active mining areas shown as the State Grey Pit, the State Blue Rock Pit, and Eagles Nest. The police firing range is shown on the eastern portion of the identified area. Also shown is the pre-SMARA areas for which reclamation is not necessary if these areas are no disturbed in future mining activities. The western portion of this area was deemed a View Shed under the current permit; no mining has occurred in this area.

The western portion of the quarry area, near the main entrance (Figure 3b) is home to the main processing and administrative areas which includes the following: the main quarry office, the scale house, the Sand Plant, Grey Rock Plant, asphalt plants, and numerous maintenance and service buildings.

The central portion of the site (Figure 3c) includes the following active mining areas: the Snake Pit and Area 1. The AB Plant, including the recycling area is situated in the west portion of this area.

The eastern portion of the quarry area is identified as the Pasini Property (Figure 3d). This area is not currently part of the active quarry. This area has not been mined, though portions of this area are proposed for mining in the future.

The final area is located on the southern side of the quarry property (Figure 3e). This area has not been mined under the current permit.

4.1.1 Starting and Ending Date

The Napa Quarry is an existing, ongoing quarry operation. This quarry will last beyond this Plan's 35 year permit term. It is anticipated that this Plan will be approved on March 2, 2016, with a use permit end date of March 2, 2051.

**TABLE 4
 APPROXIMATE AREAS DISTURBED BY MINING
 TO BE RECLAIMED OR TO BE LEFT UNDISTURBED**

LOCATION	CURRENTLY DISTURBED AREAS SUBJECT TO MINING AND RECLAMATION (ACRES)	CURRENTLY UNDISTURBED AREAS SUBJECT TO MINING AND RECLAMATION (ACRES)	AREAS TO BE LEFT UNDISTURBED OR INTERIM RECLAMATION
Active Mining Areas	497	106	163
Total	497*	106	267

Note: This information is shown on Figure 3f.

* This area consists of pre-SMARA areas that are not subject to reclamation as well as undisturbed areas between disturbed areas that are not subject to reclamation.

4.2 ADAPTIVE MANAGEMENT MINING STRATEGY

Syar intends to use an adaptive management mining strategy at Napa Quarry, because the high-quality basalt and rhyolite rock at the 870 acre site is found in a variety of conditions. In some cases, the high-quality rock is formed as a solid mass while at other times it is intermixed with low-quality materials that have no economic value (Figure 8). The adaptive management mining strategy will allow the operator to use any one of the approved alternative mining methods shown in Figures 9a, 9b and 9c as necessary, depending on the particular geologic conditions found at the extraction site.

Syar’s Adaptive Management Mining Strategy will comply with the County’s Surface Mining Ordinance (Napa County Code Chapter 16.12). The Adaptive Management Mining Strategy consists of a general mining plan (Section 4.3.1), which provides conceptual descriptions of the mining techniques which will be used under this Plan. These conceptual plans will be adapted to specific locations and circumstances through annual mining plans (Section 4.3.2). These annual plans will describe the specific mining methods which will be used at the particular locations which will be mined in the coming mining season. These annual mining plans will be developed by the operator (utilizing third party professionals for technical reports) and reviewed and approved by the County under an administrative process which confirms that the annual mining plan is consistent with the approved Plan. This approach allows the operator the flexibility to mine those areas that have sufficient high-quality resources and to limit disturbance in areas that lack such resources.

4.3 DESCRIPTION OF THE NAPA QURRY MINING PLAN

4.3.1 General Mining Plan

The Adaptive Management Mining Strategy is will be utilized in areas that contain mineable basalt or rhyolite and areas that will be reclaimed. Under this Plan the

operator will extract high-quality rock from the areas already disturbed by mining or the areas deemed as expansion areas. The overall Mining Plan is shown on Figure 3f. Syar anticipates that the maximum depth of mining for the 35 year term is Elevation 50 (Figures 14a-14c). However, the final maximum depth to mining will terminate at a higher elevation due to variations in the regional groundwater elevation.

This Plan describes the general approach to mining the Napa Quarry. It also includes a description of the mining which will occur immediately after the Plan is approved, and provides the type of information which will be included within the annual mining plans. Under the Adaptive Management Mining Strategy, future mining will take place pursuant to approved annual mining plans which will comply with the requirements of this general mining plan. For the purposes of determining the location of future mining and reclamation, the quarry has been segregated into the six areas shown Figure 3f. These areas are:

- Current Mining Area: State Grey Pit, Eagles Nest, and Snake Pit.
- Future quarry Expansion Areas: Pasini and State;
- Areas to be Reclaimed: Area 1, Area 2 and the State Blue Pit;
- Possible Oak Woodland revegetation areas;
- No mining areas.

Syar's general mining approach will include the following:

- Mining activities will continue to take place in State Grey Pit, Eagles Nest and Snake Pit areas (Figure 3f). However, the active mining areas will consist of no more than 25% of the entire 870-acre property at any given time. This 25% coverage will only be followed during normal operation of the quarry. If the aggregate demand increases substantially, such as because of an emergency (i.e. earthquake, fires, flooding, etc.), Syar may request a modification of the annual plan from the County (described in Section 4.3.2).
- Once County approval of this Plan obtained, Syar will begin to mine the areas shown as Expansion Areas consisting of 106 acres (Figure 3f). The specific mining locations and scheduling of that mining will be determined through the annual mining plan process of the Adaptive Management Mining Strategy (See Section 4.3.2).
- Concurrently the active mining areas and the mining expansion areas may be mined as long as the mining area does not exceed 25% of the quarry property area. Syar may utilize investigative activities prior to mining in any given area to assess rock quality. These investigative activities may include geophysical studies, geologic mapping, geotechnical studies and on-site subsurface exploration. The schedule and scope of these investigative efforts will be dependent on the preliminary findings in the area, economic value of the mineral resource being observed, and the quantity of aggregate/rock being mined in other areas of the quarry.

- Due to aesthetic and biological needs for the quarry “no mining areas” are found throughout the 870 acres of the quarry property. These areas will not be included in the investigative and/or mining activities. Existing roads that cross through these areas will continue to be maintained and used by quarry personnel.

The annual mining plans will be consistent with the mining as described in this Mining and Reclamation Plan and the Adaptive Management Mining Strategy, and this consistency will be determined by the County during their review. Where the County determines that an annual mining plan is not consistent, Syar will either modify the annual mining plan to make it consistent or apply for the necessary revisions to the Mining and Reclamation Plan and Adaptive Management Mining Strategy. It is understood by Syar that this change may include a CEQA review for this revision and may also require modifications to permits issued by other local, state, and federal agencies. It is Syar’s intention that this Adaptive Management Mining Strategy will be relevant for the entire length of the 35-year permit term.

4.3.2 Annual Reporting

4.3.2.1 Annual Mining Report

To ensure that the mining activities taking place on site are falling within the guidelines, Syar will submit an annual mining plan to the PBES Department. This annual mining plan will review the mining activities completed in the past 12-months and describe the proposed mining plan for the upcoming 12-months.

The initial annual mining plan will be submitted one month following the approval of this plan, for the remaining portion of the year (anticipated to be 2016). This initial mining plan will not include the previous 12-month mining activity discussion, since these activities were covered under the current permit. The subsequent annual mining plans will be submitted 12 months following the issuance of the use permit. In addition, Syar anticipates that the County will have written comments to the operator within one month of the receipt of the report. The subsequent annual reports will include a pre- and post 12-month period discussion and map.

Below is an abbreviated example of a 12-month mining plan if the permit was issued today. The final annual mining plan will include mining details (i.e. mining depths, acreages affected, specific location, etc.), as well as, other pertinent information. In addition, the annual mining report will also have descriptions of reclamation activities during the next year.

Mining Activities

- Daily, year round mining will occur at the State Grey pit and Snake Pit. Mining activities in these areas will continue for the next 12 months.
- Mining activities will move north from the existing Snake Pit into the Pasini area. Mining activities in these areas will continue for the next 12 months.

Short term (interim reclamation), Mid-Term Final Reclamation and Final Reclamation

- Final reclamation has been completed in the approximately 1.0 acre area labeled R-3. The City of Napa constructed a water tank located to the northwest of this area. As part of this construction project, overburden was pushed over the side of the slope and graded to mimic the topography of the area. Then as part of the City of Napa reclamation plan the slope was reseeded with grasses.
- The area labeled Area 2 (approximately 7 acres), is an area containing a stockpile of overburden originating from the current mining activities at the quarry. Mid-term final reclamation will occur in this area due to this area being within a no mining area. Reclamation will consist of hydroseeding and oak tree planting.
- This area labeled as R-1 (approximately 3 acres) has been seeded and interim reclamation has been completed in this area. The adjacent area labeled Area 1 is a location where Mid-term final reclamation is currently taking place. Once this area is filled with overburden, grading activities will be conducted on Area 1 and finally seeding and the planting of oaks will occur on both R-1 and Area 1.
- The area labeled as R-2 (approximately 9 acres) located southwest of Snake Pit is a former mined out area where overburden material from the Snake Pit was placed. This area was seeded and interim reclamation is complete. This area is also identified on Figure 13 as a test plot location. Following the completion of the test plots Mid-Term Final Reclamation will be completed.

4.3.2.2 Annual Compliance and Assurance Update Report

During the life of this permit, an annual compliance and assurance report will be prepared and submitted to the PBES Department, in conjunction with the annual mining report described above. The compliance report will demonstrate compliance with all the applicable conditions and approval and mitigation measures. This report will include an updated Financial Assurance Cost Estimate (FACE). In addition, to the FACE the following reports and/or requirements will also be submitted to PBES:

- Current Stormwater Pollution Prevention Plan
- Conditions and Mitigation discussion
- Public Liability Policy (first year of permit)
- Blasting logs with wind information
- All technical reporting (groundwater, biological, geological, and noise, or additional reports as applicable)

4.3.3 Mining Methods

The varied terrain and numerous rock types found at the quarry has resulted in the use of multiple mining methods. Some areas have been excavated as pits, while others were excavated in a side hill, multi-bench configuration. Many areas designated under this permit for mining have already been disturbed and cleared of vegetation. However, in new expansion areas, the minimum 50 foot setback from the adjacent properties will be staked, then as necessary vegetation and topsoil will be removed. Areas will not be disturbed (removed of topsoil and vegetation) until mining activities are scheduled. Topsoil, when present, will be stockpiled in the active mining area. Mining activities adjacent to the setback from the property line will be done in incremental stages to lower the slope behind the existing slope that will remain as illustrated on Figure 10.

Typically, overburden is removed using a bulldozer, excavators and front-end loaders. Past and current rock harvesting practices include using heavy ripping equipment to construct steep slopes, or drilling and blasting resulting in the benched configuration. Harvested rock is transported by loader to the appropriate on-site processing plant where it is crushed, classified by size and conveyed to stockpiles. The crushed rock may be directly transferred from the stockpile by a front-end loader to customer's trucks or it may be transported to the asphaltic concrete plants at the quarry to make asphalt.

The cross-sections on Figures 9a, 9b and 9c, illustrate the final profile for the three different mining methods. Areas with a singular occurrence of basalt or rhyolite will be excavated to have an average slope ranging from ¼:1 to 1:1 depending on the condition of the rock and slope height as described by the geologic report (Appendix E). The cut basalt and rhyolite slopes will have 25-foot wide horizontal benches every 50 vertical feet or as indicated on Table A, Figure 9a. At hillsides with a layer of tuff on top of basalt, the tuff will be excavated at a 2:1 gradient and have a maximum slope height of 50 to 100 feet. A 25-foot wide horizontal bench will be cut into the basalt at the toe of the tuff slope. Basalt will be harvested with the same benched configuration described above and then engineered fill will be used to construct an earth buttress against the cut basalt slope. The engineered fill will have 6 to 10 foot wide horizontal benches every 30 vertical feet and 3:1 slope inclination; unless otherwise noted in the geotechnical report or approved by a soils engineer. In some areas the tuff and basalt will be excavated as a pit. The mining criteria will be the same as the conditions describe for Figure 9b; however, there will be the option to either construct a fill buttress against the cut and benched basalt slopes, or to fill the pit with engineered fill. All benches will be back sloped 2% to prevent run-off from flowing over the face of the slope. Ditches at the back of the benches will be constructed to drain with a 1% to 10% lateral slope. An earth catchment basin and drainage ditch will be constructed at the toe of the cut and fill slopes to direct storm water away from the slope. A small earthen berm and drainage ditch will also be constructed at the top of every mining area to prevent storm water from flowing down the quarried slopes.

A more detailed description of the criteria for extracting rock and leaving the cut and fill slopes in a stable condition are in the geologic report by Kleinfelder (Appendix E). This Plan anticipates utilizing the final benching configuration as described on Figure 9a.

This benching configuration satisfies the required slope factor of safety required by the Surface Mining and Reclamation Act (SMARA). The final grading plan (Figure 14a) depicts this configuration throughout the quarry area.

If changes to the Reclamation Plan-Grading Plan need to be made due to the type of rock found in the final slope areas, Syar will make the changes in conjunction with Napa County. Syar understands that any final slope design change may require an amendment to the reclamation plan, especially if the final slopes require steepening. This amendment would also require OMR review. In addition, a registered professional engineer or geologist will inspect the various slopes as they approach the final located and inclination to ensure that the rationale for the final slope design is valid and, if found not to be valid, will recommend any necessary changes to the final slope design. The results of each inspection will be documented in a report and submitted to the county.

4.3.3.1 Settlement of Filled Areas

The areas with final engineered fill slopes will be compacted in conformance with good engineering practices. Depending on the fill slopes or fill buttresses appropriate compaction specification will be utilized and derived by a qualified professional. Compaction specification may include the following: textural requirements; thickness of lifts placed before compaction; water content; compaction effort by heavy machinery; and minimum required density that will be achieved. The Kleinfelder report (Appendix E) includes site specific fill compaction specifications.

4.3.4 Grading Control and Grading Criteria

Grading controls comply with the Napa County Surface Mining Ordinance in Section 16.12, the conditions of approval of the quarry's use permit, and the geotechnical recommendations in the report prepared by Kleinfelder (Appendix E). Mining operations are designed so that no excavation begins closer than 50 feet to the perimeter property line of the Napa Quarry. When mining is to occur near the perimeter property line, the boundaries of the mining area will be staked prior to the beginning of excavation. The proposed setback line is shown on Figures 3f and 14a. Final contours will conform to the alternative mining cross-sections on Figures 9a firstly and secondarily Figures 9b and 9c; including the maximum cut slope height and cut slope inclination as recommended in the geologic report. During the final construction of a slope, a qualified geotechnical engineer or person under the direct supervision of a geotechnical engineer will perform a field assessment during construction of the benches to indicate the appropriate slope design and location for the criteria for rock anchors, as needed, to support potential wedge failures. Additional grading criteria for harvesting final slopes are described in Appendix E.

4.3.5 Topsoil Salvage

Typically, topsoil removal is done at the outset of each mining increment. The layer of topsoil at the site is sparse; consequently there has not been very much topsoil to stockpile. In the past all vegetation and topsoil was removed from the areas currently disturbed by mining (Figures 3a to 3e). As mining proceeds into new areas the topsoil layer, if present, will be removed and stockpiled in the immediate area for later re-use in

resoiling the final benches, used for reclamation, valley floors, fill slopes and/or 3:1 cut slopes. The topsoil will be used in the experimentation of different growth media as part of the test plot program or reclamation to determine which materials or combination of materials are best for successful revegetation. If appropriate, the salvaged topsoil may be mixed with pond fines, overburden, harvested tuff rock, and soil amendments as needed to facilitate revegetation. Signage labeled "Topsoil" will be posted on the stockpiles as to ensure that the topsoil is not used for an unauthorized purpose. If topsoil is stockpiled during any given year a detailed mapping of its location will be included in the annual mining report.

4.3.6 Harvesting Rock

The appropriate sized earth moving equipment will be used to excavate the rock deposits.

4.3.7 Use of Explosives

Rock is harvested utilizing explosives to dislodge the material. Syar follows the Mining Safety and Health (MSHA) and the General Industry Safety Orders (Subchapter 7), Explosive and Pyrotechnics (Group 18), Handling and Use of Explosives – Blasting Operations (Article 116), §5291 Firing of Explosives and §5293. A private contractor delivers the explosives the same day they are detonated by trained and licensed quarry personnel. Explosives are not stored at the Napa Quarry. Syar does store lead lines in the on-site storage magazine. Blasting activities begin when Syar's trained personnel drilling a pattern of 40-foot deep, 5½ inch diameter holes into the rock where the blasting agents and powders are placed. A sequential blasting technique is used to direct blast energy into fracturing the rock.

When a blast is scheduled Syar adheres to blasting between 10am to 3pm, Monday through Friday and not on federal holidays. Blasting will not be done during high wind events that are deemed to occur when the two-minute average wind speed exceeds 20 miles per hour.

Monitoring and recording of wind speeds continually throughout the day during blast events will occur at every blast. In addition, a blast log will also be created for each blast. The blast logs will be maintained for five years and submitted to the PBES Department annually.

Notification of the blast will be done 48 hours in advance of a blast via email to the PBES Department, Skyline Wilderness Park, Napa County Office of Education, Chamberlin High School, Liberty High School, Creekside Middle School, the Napa Preschool Program, the Napa Child Development Center, Napa State Hospital, and any agencies, businesses and local residents requiring or requesting notice. Syar's blasting procedures have been included in Appendix K of this report.

4.3.8 Dust Control

Water for dust control is obtained from numerous sources: a) an existing well (Figure 3aa); b) from the various ponds on the floor of the central operations area; and c) the

more isolated ponds scattered throughout the mining areas. Water trucks are constantly being used throughout the quarry for dust suppression.

Syar implements the following dust control measures at the Napa Quarry:

- All exposed surfaces (e.g. unpaved roadways, extraction and overburden areas, etc.) actively being used are watered a minimum of two times per day.
- All actively worked stockpiles (aggregate, sand, dirt, etc.) is watered twice daily to prevent visible dust from leaving the site.
- Trucks entered or exiting the Napa Quarry will either cover their haul (if haul is made of material that could be dislodged during transport) or maintain at least two feet of freeboard.
- A water spray system is utilized at the rock processing plants.
- If applicable, water will be used to moisten materials on loaded trucks prior to leaving the site.
- All visible mud or dirt track-out onto Highway 221 at the quarry entrance will be removed using wet power vacuum street sweepers at least twice per day.
- All vehicle speeds on unpaved roads are limited to 15 mph. This speed is also posted on signage throughout the quarry property.
- Grading and earthmoving activities shall be suspended when two-minute average wind speed exceeds 20 mph.
- Idling times will be minimized by either shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Clear signage will be posted for drivers at all entrance points.
- All construction equipment will be maintained and properly tuned in accordance with manufacturer's specifications. All equipment is checked by a certified mechanic and a determination is made of its condition prior to returning the vehicle to service. This maintenance practice is done once a year.
- A sign with the telephone numbers and persons to contact the Napa County and the Bay Area Air Quality Management District regarding dust complaints will be visibly posted at the site. This sign will be posed within 30 days of the approval of this permit.

4.3.9 Fencing, Posting and Security

Access to the mining site is restricted by a lockable gate at the entrance to the quarry. Signs are posted at the entry driveway to identify the site as private property and warn unauthorized persons to keep out.

Access to the boundary of the 870 acre site is limited by the vast expanse of open space surrounding the quarry property and a perimeter three strand barbed wire fence.

However, in a few locations where a public trail is immediately adjacent to the northern property line Syar plans to install a new fence to prohibit access onto the site along the north and east property lines by the Skyline Park trail. Syar has already posted warning signs, "No Trespassing" in this area. Syar will inspect the fence and signage annually to ensure that it is intact. To the southwest, there is a fence along the adjacent vineyard properties. Fencing is discussed further in Section 6.3.5 of this report.

4.3.10 On-Site Processing

All excavated rock will be crushed and screened at the existing plants on-site. Imported materials such as sand, aggregate and pea gravel transferred to the site from other Syar facilities are sold or used in the production of asphalt. Imported recycle materials (i.e. concrete and asphalt) are also processed on site at the AB Plant.

4.3.11 Routine Maintenance Procedures

An integral part of the mining operation is the routine removal of any rocks from benches, removal of accumulated sediment from drop inlets, drainage ditches and ponds, and re-grading of the haul roads. A loader or bulldozer is typically used to remove debris from the benches. A backhoe or excavator is used to clean out sediment from the drainage ditches and ponds annually before the winter rains come or when it is observed that a ditch is impacted by accumulated soil or vegetation. A road grader is used to smooth unpaved access roads. Spilled rock or soil is cleaned up by hand or by using a loader.

4.4 OPERATION SCHEDULE AND STATE OF READINESS

The following chart provides the regular hours of operation for the indicated activity. The start and end of “Construction Season” hours are dictated by weather and market conditions, but typical “Construction Season” hours are from June to November, and typical “Off Season” hours are from December to May.

<u>Regular Aggregate and Asphalt Sales Hours</u>
Year Around Monday through Friday, 7:00 a.m. to 3:30 p.m.
<u>Regular Asphalt Plant Operation Hours</u>
Year Around Monday through Friday, 7:00 a.m. to 3:30 p.m.
<u>Regular Aggregate Processing Operation Hours**</u>
Construction Season Monday through Friday, 6 a.m. to 6:00 p.m.
Off Season Monday through Friday, 7:00 a.m. to 3:30 p.m.
<u>Regular Aggregate Mining Operation Hours*</u>
Construction Season Monday through Friday, 6:00 a.m. to 6:00 p.m.
Off Season Monday through Friday, 7:00 a.m. to 3:30 p.m.

* Aggregate mining operations are prohibited on weekends and recognized major federal holidays.

** As necessary to accommodate customer requirements and market conditions, aggregate processing operations and asphalt plant operations (including production, transport and loading) may occur seven (7) days a week 24 hours a day provided the PBES Department is informed at least 48 hours in advance of these activities.

The quarry, unless in emergency situations, will not work 24 hours a day but the flexibility to work portions of a 24 hour day is required for public transportation work. Increasingly, work on transportation infrastructure projects for Caltrans and other government agencies is taking place at night, in order to avoid the traffic impacts and increased energy use during peak times that would result from daytime operations.

Syar’s PG&E contracts also require off peak operation of aggregate processing and other high electricity demand operations when electrical demand is high in the summer months. Weekend hours are sometime necessary in order to maintain critical project schedules, particularly as the rainy season approaches in the fall. In addition, large scale disasters, such as widespread flooding, earthquakes, or landslides, may create short-term extraordinary market demands for aggregate products which can only be satisfied by extended operational hours. In order to satisfy the need for aggregate products for these sorts of critical infrastructure needs, operations outside of the regular hours of operations are necessary.

4.4.1 Estimated Mining Dates

Due to the dynamic nature of obtaining a permit to mine, Syar estimates that a Napa County surface mining will be issued to Syar on March 2, 2016. Mining will continue for

35 years at which time mining will cease in March 2, 2051. At that time either another application for a surface mining permit will be submitted to Napa County or Syar will begin the final reclamation process.

4.5 DETAILED GEOLOGY

There have been three site surveys prepared for Napa Quarry by various geotechnical firms since 1970. The three reports indicate the site is underlain by volcanic rocks including tuff, tuff breccias, rhyolite, dacite, scoria and basalt. Two of the reports indicate that the central and northwestern portions of the site are underlain by rhyolite flows, while the third indicates that those same portions of the site are underlain by porphyritic dacite flows. Basalt is referenced by all three studies to be in the eastern and southern portions of the site and is typically interbedded with tuff and agglomerate. Published references do not indicate that there are landslides or active faults on the quarry or in the immediate area.

According to the Kleinfelder geologic report for the quarry (Appendix E), the quarry is in the Sonoma Volcanic Rock assemblage, characterized by steep topography with some slopes exceeding 75%; and areas with slopes of 30% or less. The Sonoma Volcanics Group has four distinct lithologies at the site: tuff; scoriaceous agglomerate/breccias; basalt; and rhyolite/dacite. The predominant rock type at the quarry is basalt and rhyolite with other smaller deposits scattered around the site. The different rock types are shown on Figure 4. Kleinfelder divided these rocks into two units for engineering purposes to represent the distinct mechanical behaviors of the rock units. The first group includes basalt, scoriaceous agglomerate/breccias and tuff for the stability of this unit in the Rock Mass Rating. The second group includes rhyolite which is influenced by major discontinuity sets that affect the stability of the rock mass. The variations in the rock units and stability will influence how each rock type is harvested as shown on Figures 9a, 9b and 9c.

4.5.1 Mineral Commodity Being Mined

The primary mineral commodities being mined at the Napa Quarry are rhyolite and basalt for use as rip rap, asphaltic aggregates, construction aggregates, landscape materials, sub-base rock and base rock. Recycled materials are also processed at the rock plant and sold as recycled aggregate base or used in the production of recycled asphalt product.

4.5.2 Anticipated Quantity of Materials to be Mined

The anticipated quantity of mined materials over the life of the quarry cannot be accurately calculated, due to the varied and intermixed nature of the high-quality rock and market demand. The mineral resources at Napa Quarry will last beyond the current permit term at the sales rate of 1.3 million (maximum allowed to be sold from the facility annually) per year. Mining operations described in this Plan depict active quarrying and processing at the 870 acre quarry property. The requested 35 year permit will allow mining until 2051. Syar intends to renew the permit in the future if the resource is not exhausted by the end of the new permit term.

4.5.3 Anticipated Quantity of Overburden

Due to the varied geologic conditions at the site, the anticipated quantity of overburden cannot be determined. The adaptive management strategy allows the operator to vary the mining method when there is a layer of tuff over basalt. However, if the overburden is thicker than 50 to 100 feet, the operator may choose not to mine that area because it may not be cost-effective to harvest the basalt or rhyolite at that time.

4.6 DRAINAGE, SEDIMENT AND EROSION CONTROL

4.6.1 Drainage

The existing areas of operation are sloped to achieve positive drainage. Surface water run-off from the operations area and existing mining areas is sloped to drain into drainage ditches and swales that flow into designated sediment ponds (Figure 7). The 2015 Storm Water Prevention Pollution Plan (SWPPP) describes in detail the existing drainage facilities and storm water management practices (Appendix H). The entire SWPPP report was issued to the County under a separate report.

Run-off from the quarry slopes and benches will always be directed down to the quarry floor where it will be collected in ditches that drains into one of the sediment ponds. Storm water on the benches flows into rock-lined V ditches at the back of the benches and often percolates into the fractured rock and does not flow very far. However, some storm water does make its way to the end of the bench and flows down a ditch along the access road which takes the water to ditches at the base of the cut slope. These drainage ditches will be constructed after the final grading configuration of each bench has been achieved. Drainage ditches carrying storm water down from the 2:1 slopes, off of the benches and along steep access roads shall have rock check dams (Figure 12) to slow down the velocity of the storm water run-off. Ditches at the toe of the quarry cut and fill slopes will carry water to the sediment ponds. Some of the existing ponds will be enlarged, modified or filled in and new sediment ponds will be constructed as the quarry expands. The ponds remove sediments from the storm water before the water leaves the site through six designated outfalls described in the SWPPP.

4.6.2 Sediment and Erosion Control

Erosion is controlled by the combination of planned drainage, revegetation improvements and through the use of straw wattles, silt fences and hay bales. Construction of benches and drainage facilities (swales, ditches, etc.) and the use of sediment ponds will reduce the opportunity for run-off to concentrate and cause erosion. Revegetation with grassland, herbaceous species, trees and shrubs will bind the soil particles together and break up the erosion energy of rainfall. Temporary erosion control measures implemented in conjunction with revegetation efforts including the use of straw wattles, silt fences and hay bales will provide effective erosion control while the plants are getting established.

4.7 SITE DISPOSAL INFORMATION

Small amounts of waste material is taken and disposed of off-site. Syar can store hazardous waste material for a term no longer than 90 days. The following are the outside contractors that remove hazardous waste from the Napa Quarry site.

- 1 ENV Environmental International removes the following:
 - Hazardous Wastes: waste oil, waste paints and thinners, unused chemical products no longer used on site, and waste hydrocarbons (diesel and gas).
 - Universal Wastes: used fluorescents, used batteries and light ballasts.
 - Stained soils, absorbents (placed in a Class 2 waste bin).
- 2 Evergreen Environmental removes the following:
 - Used drain oil filters.
 - Used oil.
- 3 Environmental Recovery Systems:
 - Hazardous Wastes: oily sludge, waste paint and thinner, solvent, used diesel, waste grease and oil.
- 4 Tri-C:
 - Waste and recycled tires.

5 RECLAMATION PLAN

5.1 AREAS COVERED BY RECLAMATION

Reclamation work involves the existing and new quarry benches, the cut slopes, the fill slopes, the new valley floors and the floor of the existing operations area (Figures 14a-14d). Reclamation also involves eliminating, reconfiguring or constructing sediment ponds where appropriate. Hydroseeding, broadcast seeding, and/or hand planting of native trees and shrubs will be used to revegetate the areas disturbed by mining. The final slopes will vary from 2:1 cut slopes to 3:1 fill slopes and benched rock slopes with an average slope ranging from ¼:1 to 1:1 as shown on Figures 9a, 9b and 9c and described in Appendix E. All final valley floors and flat open areas will be graded to have positive drainage.

Reclamation is required only in those areas which were disturbed by surface mining since on or after January 1, 1976. Certain areas in the quarry were disturbed by surface mining prior to 1976, as shown in Figure 3a. Under this Plan those areas will not be reclaimed unless the areas are subject to additional surface mining activities. Final reclamation activities under this Plan will begin in 2051 unless a new application for mining is submitted to the County prior to the date of permit expiration. This date may change if the environmental review process extends past March 2, 2016. Reclamation when completed will be monitored and inspected for 5 years into 2056.

As part of the first stages of reclamation, on-site structures will be demolished and removed from the site. Any remaining stockpiles of overburden, top soil will be used in site grading activities. In addition, all mining equipment, processing equipment, storage areas and other miscellaneous materials will be removed from the site. Any subsurface structures not associated or used as part of the main office building will also be removed (i.e. truck scales, etc.). All end slopes throughout the quarry will be inspected by a registered professional engineer or geologist to ensure that the rationale for the final slope design is valid and, if found to not be valid, to recommend any necessary changes to the final slope design. The results of their inspection will be documented in a report submitted to the PBES Department.

There are two groundwater wells associated with the Napa Quarry (Figure 3b). One well is located on an adjacent parcel and is identified as the "Quarry Well". This well is currently used for the quarry operations. A second well identified and the "New Well" is located near the entrance of the quarry and is currently not in operation and maybe used as a back up to the Quarry Well. During reclamation activities the Quarry Well will be capped and left in an operational state, continuing to be associated only with the adjacent parcel and not the quarry property. The New Well will remain capped to be used as a back up to the small water system located on the adjacent Syar parcel located on the west side of the Napa-Vallejo Highway.

5.1.1 RECLAMATION PHASING (GENERAL)

Reclamation activities at the site will consist of three types of reclamation: short term reclamation (interim reclamation), mid-term final reclamation (will occur during the permit term), and final reclamation (following the cessation of mining).

Short term reclamation may be required in the Eagles Nest area. This area can be mined as part of the new use permit and is located at the southern end of the State expansion area. This area will remain as is, until mining begins in the adjacent expansion area. The initial activities in this area will see the completion of mining within the current Eagles Nest area. Following the completion of mining, Syar will move north into the State expansion area. The overburden material found in the adjacent expansion area will be used to buttress and/or fill in the Eagles Nest area to be used for mid-term final reclamation. If the Eagles Nest area is not mined within the first 5 years of the use permit term, Syar will conduct interim reclamation activities that will consist of slope stabilization and grass planting until such time that mining activities begin.

Following the issuance of the use permit Syar will begin mid-term final reclamation within the following three areas: State Blue pit, Area 1 and Area 2 (Figure 3f). The State Blue Mid-Term Final Reclamation Project will begin with the design phase, following the issuance of the use permit. Following the completion of the design work, a qualified biological professional will design the grass and tree planting plan. Syar anticipates that reclamation of the State Blue area will be completed within 5 years of the issuance of the use permit. All plans will be submitted to the county for approval, as required. Other resource agencies may be asked to review the report, for example the Napa County Resource Conservation District (RCD) may be asked to review and concur with the seed and planting plans.

Area 1 and Area 2 are currently being filled with overburden. Once filling is complete the areas will be graded, seeded and planted as designed by a qualified biological professional. Syar anticipates that the Area 1 and Area 2 (this area will be tied in with the interim reclaimed R-1 area) reclamation activities be completed within two years of the issuance of the use permit.

Other areas of the existing quarry will also require reclamation during the permit term. Syar will work with the County to identify additional areas of the quarry and the timing for said reclamation work to occur.

5.2 REVEGETATION OF DISTURBED AREAS

5.2.1 Revegetation Procedure

Disturbed areas will be revegetated using two treatments: a) hydroseeding and/or broadcast seeding and b) installing woody plants. The initial treatment will involve hydroseeding and/or broadcast seeding using one of the grassland seed mixes recommended by a qualified biological professional at the time of seeding. Or a seed mix deemed more appropriate by a qualified professional for a particular reclamation

project. Seeding will occur on quarried benches, valley floors, flat open areas, fill slopes, and 2:1 cut slopes shown on Figures 11a to 11d. Since the site has diverse conditions there are three different seed mixes as shown in Table 6. The basic ingredients in the hydroseed mixture includes: seed, fertilizer, mulch or cellulose, straw and tackifier (binder). The mulch/cellulose, straw and binder will create a layer on top of the seed to protect the seed from being scorched by the sun, or from being carried away by rain, or blown away by wind. Broadcast seeding is placing the seed by hand or other method (other than hydroseeding) and then covering the seed with straw. With hydroseeding or broadcast seeding the layer of straw helps to decrease raindrop impact on the ground surface, prevents run-off concentration, and slows the velocity of run-off so that moisture can be retained in the soil. Seeding activities will be done during the months of October and November when the first winter rains are expected. The Traditional Three-Step Straw Treatment seeding application method will be used. This method is recommended by Pacific Coast Seed Company and Cal Trans because it is effective in providing erosion control until the seeds germinate on the newly graded surfaces and this method also reduces dust production.

The second revegetation treatment involves the planting of shrubs and trees in clusters on the benches, 3:1 fill slopes, 2:1 slopes and valley floors (Figures 11a to 11d and Figure 14d), where appropriate. Massing of the vegetation is planned to accomplish two objectives: 1) to screen the exposed slopes; and 2) to duplicate the massing of the oak woodlands and the massing of chaparral in the surrounding hills. The trees will be a minimum of 1-gallon and the shrubs will be D pot size. The size of the plant materials is small because smaller plants have a better record of rooting and adjusting to climatic conditions. The woody plant materials should be planted between the months of October and February.

Prior to beginning any short term, mid-term final and/or final reclamation planting activities, a qualified professional(s) will assess the area to be reclaimed by identifying the soil type, sun exposure and steepness of the slopes prior to choosing a specific seed/woody plant to be planted in that particular habitat.

5.2.2 Resoiling Areas to be Revegetated and Soil Amendments

Stockpiled topsoils collected during mining and other soil fines, overburden and harvested tuff stockpiled on-site will be used for reuse in the areas to be revegetated. The topsoil will be experimented with different growth media as part of the test plot program (reference Section 5.4) to determine which materials and combinations of materials are best for successful revegetation. Prior to resoiling these soils will be evaluated for their ability to support the plants and seed mixes used to revegetate the site. Amendments recommended in the soil analysis will be added to the soil as appropriate. Before quarried benches are resoiled and planted they will be cleared of accumulated piles of loose rock. A bulldozer or scraper will be used to spread the topsoil. Topsoil or overburden (if appropriate) will be laid over the valley floor, fill slopes and 2:1 slopes to a depth of 6 inches and to a maximum depth of 3 feet on the benches as detailed on Figure 9a.

When topsoil or overburden soils are stored on site an erosion control seed mix will be used to stabilize the soils. Syar will use the following seed mix, given in Pure Live Seed (PLS) per acre (Common Name/Latin Name – PLS): Bell beans/*Vicia faba* – 3; Magnus peas/*Pisum sativum* – 3; Lana vetch/*Vicia dsycarpa* – 3; Purple vetch/*Vicia atropurpurea* – 3; and Blando brome/*Bromus hordeaceus* – 5. This give a total of 17 PLS per acre for the erosion control mix. In addition the topsoil and overburden stockpiles will be clearly identified by signage in the field to prevent inadvertent use.

5.2.3 Plant Selection

The biological resource study completed by Live Oak Associates identified nine biotic habitats on the quarry property. These habitats consist of: Evergreen Oak Woodlands, Oak Woodlands, riparian woodland, Chamise Chaparral, Coyote Brush Chaparral, Sagebrush Chaparral, annual grassland and native grassland and aquatic (Appendix F). Plant materials for reclamation were selected to match the native trees, shrubs, naturalized grasses, annuals, perennials and forbs found on the surrounding hillsides, valleys and ridges.

One-gallon native trees and D pot sized native shrubs will be acquired from local stock and where necessary nursery stock. Due to the adaptive approach to mining the site, there are four typical planting procedures that will be used (Figures 11a to 11d).

All tree and shrub plantings will be conducted between the months of October and February. Since hydroseeding and/or broadcast seeding will occur first, most of the preparation for planting will be done prior to seeding activities to avoid degradation of the seeded surface. Hydroseeding and/or broadcast seeding will be completed following the three-step straw treatment outlined in Table 6. Planting holes will be dug on the benches, fill slopes, 2:1 slopes and valley floors (Figure 12), as appropriate. The irrigation system will be installed and a marker stake posted in each planting hole before seeding. The trees and shrubs will be planted in clusters according to the spacing shown on Figures 11a to 11d.

Soil analysis will be conducted on soil samples taken from the stockpiled topsoil, overburden and soil fines. The analysis will determine which, if any, supplemental nutrients should be added to the soil used in the planting holes to support plant growth. The topsoil will also be used in the test plot program to experiment with different growth media to ensure successful revegetation at the site (Section 5.4). Each planting hole will be backfilled using: local soil or potting soil (one part), mulch (one part), and soil amendments (one part). Fertilizer tablets (Agriform or equal) will be placed in each planting hole about 6 inches from the bottom of the planting hole (2 tablets for trees and 1 tablet for shrubs). The planting medium will be tamped down around the plant so that the crown of the plant is at ground surface, and a shallow watering basin will be formed around each tree and shrub. A two-inch layer of mulch will be placed in each watering basin to help conserve moisture. Plants will be thoroughly watered after planting according to the schedule described in Section 5.3.

Syar has been propagating oak species for approximately 5 years. At this time Syar has approximately 220 trees in 4 gallon pots. The oak species are as follows: *Quercus*

agrifolia, *Quercus douglasii*, *Quercus lobata*, and *Quercus kelloggii*. These trees will be used for mid-term reclamation activities and any other oak planting requirements under the approved use permit.

All planting and seeding completed as part of reclamation activities will be reviewed by the PBES and Napa County RCD.

**TABLE 5
 RECLAMATION PLANTING LIST FOR OAK WOODLANDS
 AND CHAPARRAL COMMUNITIES**

BOTANICAL NAME	COMMON NAME	MINIMUM PLANT SPACING ² (FEET)	PLANTING ZONES ¹
TREES			
Aesculus californica	California Buckeye	50	1
Arbutus menziesii	Pacific Madrone	50	1
Quercus agrifolia	Coast Live Oak	50	1
Quercus douglasii	Blue Oak	50	1
Quercus garryana	Oregon White Oak	50	1
Quercus lobata	Valley Oak	50	1
Umbellularia californica	California Bay	50	1
TREE/SHRUB			
Arctostophylos Manzanita ssp. laevigata	Manzanita	3	2
Heteromeles arbutifolia	Toyon	4.5	2
Quercus kelloggii	California Black Oak	50	1
Rhamnus californica	Coffeeberry	4.5	2
Rhamnus crocea	Redberry	4.5	3
SHRUBS			
Adenostoma fasciculatum	Chamise	4.5	2
Arbutus menziesii	Pacific Madrone	50	1
Arbutus menziesii	Contra Costa madrone	4.5	2
Artemisia californica	Coastal Sagebrush	4.5	3
Baccharis pilularis	Coyote Brush	4.5	3
Diplacus aurantiacus	Stickey Monkeyflower	4	3
Lotus scoparius	Deerweed	4.5	3
Symphoricarpos albus var. laevigatus	Common Snowberry	4.5	1
Symphoricarpos mollis	Creeping Snowberry	4.5	1
VINES			
Lonicera hispidula var. vacillans	Pink Honeysuckle	3	3

Notes:

¹ Oak Woodlands = 1, Chamise Chaparral* = 2 and Coyote Brush Chaparral** = 3.

* Chamise Chaparral often occurs in pure stands on hot, dry, south-facing slopes. They also will be planted on the upper quarry benches. Chamise stands typically do not have very much herbaceous growth.

** Mixed stands of chaparral are found mainly on north-facing slopes and in ravines. They will also be planted on the lower quarry benches. There is more herbaceous growth in stands of Coyote Brush Chaparral than in Chamise Chaparral.

² Some of the shrub and vine plant spacing were taken from the, "State of California Department of Transportation, Plant Setback and Spacing Guide, March 1996".

**TABLE 6
 SEED MIX FOR EACH PLANT COMMUNITY AND SITE CONDITION**

LATIN NAME	COMMON NAME	PLS*
GRASSLANDS (GL)		
Trifolium hirtum	Rose Clover	1
Baccharis pilularis	Coyote bush	1
Lotus scoparius	Deerweed	4
Festuca occidentalis	Western Fescue	5
Bromus carinatus	California Brome	5
Artemisia californica	California Sagebrush	5
Eriogonum fasciculatum	California Buckwheat	5
Nassella pulchra	Purple Needlegrass	5
	TOTAL	31
OAK WOODLAND (OW)		
Melica torryana	Torrey's melica	4
Nemophila menziesii	Baby blue eyes	3
Cardamine californiaca	Milkmaids	3
Lathyrus vestiitus	Pacific Pea	3
Bromus carinatus	California Brome	5
	TOTAL	18
CHAPARRAL (CC)		
Adenostoma fascicule	California Chamise	1
Eriogonum fasciculatum	California buckwheat	2
Eriophyllum confertiflorum	Golden yarrow	3
Helianthemum scoparium	Peak rush rose	1
Heteromeies arbutifolia	Toyon	2
Lotus scoparius	Deerweed	2
Lupinus albifrons	Silver pine lupin	5
Mimulus aurantiacus	Sticky monkeyflower	1
Plantago ovata	Plantain	5
Salvia mellifera	Black sage	2
Vulpia microstachys	Six-week fescue	5
	TOTAL	29

* Pounds per Live Seed per acre.

Note: The Chaparral seed mix identified above will be used for both the Chamise Chaparral and the Coyote Brush Chaparral.

TABLE 6 (Continued)
SEED MIX FOR EACH PLANT COMMUNITY AND SITE CONDITION

SEED SPECIFICATIONS		
Three-Step Straw Treatment		
Step 1	Pounds/Acre	Seed Mix
	500	Cellulose Fiber Mulch
	As Specified	Seed Mix
	150	BioSol Mix 7-2-3 (1)
	60	Mycorrhizal Inoculant – AM 120
Step 2	Pounds/Acre	Blown Straw
	4,000	Rice or Clean Cereal Grain Straw
Step 3	Pounds/Acre	Tackifier
	500	Cellulose Fiber Mulch
	150	M-Binder

(1) Syar will be applying different fertilizers to different test plots to see what is the best for use at the quarry. BioSol is just an example of a fertilizer used. Syar has also been successful using 16-2-10 fertilizer at 100 pounds per acre. The test plots will also test to see if fertilizer is not necessary and will grow well on their own.

5.2.4 Review of Past Plant Selection

Due to the large size of the quarry property and the variety of site conditions there should be several different plant lists representing the nine plant communities on and surrounding the quarry property. In the past, the plant list in Table 7 from the 1982 approved reclamation plan was used to reclaim a few areas on-site. Most of the trees and shrubs on Table 7 are not native. In the 1980's, it was not uncommon to use non-native plant species because the priority was to use plants that grew quickly and created a visual barrier. The Eucalyptus trees, Pine trees and Spanish Broom used to reclaim previously disturbed areas at the quarry have flourished, as attested by past reports. However, since most of the plants are non-native they are not included in the planting lists in this Plan. Syar will not remove these plants from the site at the time of final reclamation unless the plants are being replaced with suitable substitutes.

The seed mix used in the past for erosion control included *Lolium rigidum* (wimmera ryegrass) and *Trifolium hirtum* (rose clover). However, this mix does not reflect the grasses and herbaceous plants in the surrounding grasslands and will be discontinued. This plan calls for several seed mixes to reflect the plant species in each plant community found in the area. The seed in the new seed mixes on Table 6 and the trees and shrubs on Table 5 were observed on the property or adjacent properties during the biological survey included in Appendix F of this report.

**TABLE 7
 PAST PLANT MATERIALS IN APPROVED 1982 RECLAMATION PLAN**

PLANT TYPE	COMMON NAME	BOTANICAL NAME
Tree	Eucalyptus manna Gum	Eucalyptus viminalis
Tree	Eucalyptus Red Gum	Eucalyptus camalduensis
Tree	Calabrian Pine	Pinus brutia
Tree	Coast Live Oak	Quercus agrifolia
Tree / Shrub	Toyon	Heteromeles arbutifolia
Shrub	Spanish Broom	Spartium junceum
Shrub	Rock Rose	Cistus villosus
Shrub	Purple Flower Rockrose ssp.	Cistus ssp. (purple flower)
Shrub	Canary Broom	Cytisus carnariensis
Shrub	Santa Cruz Island Buckwheat	Eriogonum arborescens
Shrub	Sticky Monkey Flower	Diplacus aurantiacus

5.3 IRRIGATION

The trees and shrubs to be planted as part of the reclamation program will be watered using a combination of systems, including spray from the water truck, overhead rain bird sprayers and/or a drip irrigation system. Water for irrigation will be supplied from the existing well(s) and sediment ponds or recycled water (if available at a later date). Where possible, water will be pumped into storage tanks to gravity feed the irrigation system or water will be pumped directly from a nearby water source. Supply lines will extend from the holding tanks or pump at the well or pond and PVC pipes will be installed to each bench, fill slopes, 2:1 slopes, and to the perimeter of the grasslands to supply water to the newly planted trees and shrubs. Water will be delivered to the plants early in the morning to avoid plant damage that could occur later in the day from hot water in the pipes and tubing heated by the sun. The irrigation system will not apply water to the seeded areas because these areas will be planted during the rainy season and will rely on rainfall.

The soil moisture level at each planting area will be checked periodically by quarry personnel throughout the first two years after planting. Routine inspections will ensure that the plants are not over watered or under watered, thereby improving their survival rate. The first two years are critical to the survival of newly planted plants. During the first year the soil moisture in the planting holes for the trees and shrubs will be checked once each month during the rainy season and twice a month during dry season and extended dry periods in the winter. During the second year, the soil moisture will be checked once every six weeks during the rainy season and once every four weeks during the dry season and extended periods of drought. These inspections and moisture levels will be recorded on a Watering Program Inspection Form (Appendix J, Form C-1). The irrigation system will be deactivated after two years, by that time the plants should be sufficiently established to survive on their own.

5.4 MONITORING & TEST PLOTS – MONITORING AND INSPECTIONS

As appropriate, Syar will be conducting short term and mid-term final reclamation within the few five years of the use permit. These areas will be used for test plots or initial monitoring areas for grasses and plant/tree species. Reclamation areas and/or test plots will be used to monitor the success of the revegetation program. Syar could install twelve (12) test (or utilize monitoring areas within active reclamation areas) planting plots at the quarry property to determine the viability and survival rate of the grasses, herbaceous plants, trees and shrubs. Figure 13 depicts possible test plot locations. The monitoring plots will measure 0.5 by 150 meters and each test plot should measure 6 meters square. However, the final number of test plots, size and location of test plots will be decided by a qualified professional at the time of installation. The short term or mid-term final reclamation areas may give ample area to conduct species monitoring over time. The monitoring of the test plots and reclamation areas will determine which plants do not thrive or fail to survive. This data will be used to modify the plant lists so the success of the planting program is improved over time. The success of the revegetation program will be determined by the quantified vegetation success criteria described in Section 6.3.

The criteria used to monitor the plants are described in Section 6.3 (Revegetation Monitoring) and in Section 6.3.2 (Revegetation Criteria).

5.5 SEQUENCE OF REVEGETATION ACTIVITIES

Reclamation will consist of short term reclamation (interim reclamation), mid-term final reclamation (within the permit time frame) and final reclamation (following the cessation of mining). The following bullets describe typical reclamation activities.

- Remove equipment and buildings as appropriate.
- Fill, modify or construct sediment ponds as needed.
- Construct new unpaved access road as appropriate and rip, resoil and seed old access roads that are no longer needed.
- Construct drainage ditches and swales to direct run-off to sediment ponds.
- Install temporary erosion control measures (straw wattles, hay bales and silt fences) prior to revegetation.
- Prior to revegetation, and as appropriate, add soil and rip existing quarry floor(s), larger flat areas and valley floors.
- Install irrigation system to new trees and shrubs as each new area is prepared for reclamation.
- Prepare planting holes as appropriate for each new area that is about to be revegetated.
- Hydroseed and/or broadcast seed to revegetate benches, 3:1 and 2:1 cut and fill slopes.

- Hydroseed and/or broadcast seed the newly created valley floor and large flat areas, and plant trees in clusters around perimeter.
- Inspect and monitor plant growth, watering program and erosion control.
- Maintain irrigation system, drainage facilities and correct areas with evidence of erosion.

5.6 POST-MINING MAINTENANCE AND MONITORING PROGRAM

Syar as the property owner will continue to maintain the reclaimed areas for a 5-year period after mining ceases and all reclamation activities are deemed complete by the PEBS Department and signed off by the Office of Mine Reclamation. During the 5-year post mining period, the operator will conduct routine maintenance on the irrigation systems, drainage facilities and erosion and sediment control system.

In addition, a qualified professional will conduct inspections for the noxious weed control program and the plant monitoring program. Maintenance and repair work will be completed prior to October 15th of each year. The post reclamation period will continue until the 5-year period is up or until the planting success criteria in Section 6.3.2 are satisfied, whichever occurs last.

Section 6 of this Plan describes the specific tasks required during the years leading up to final reclamation of the site and the 5-year post mining period for monitoring and maintenance after mining has ceased. Routine site maintenance and inspection will occur twice a year during the post mining period. Workers will evaluate the progress of revegetation and will re-seed any areas where vegetation has failed to establish and will selectively apply herbicide to any area with weeds. Workers will also inspect the slopes and drainages for evidence of significant erosion and will implement erosion control measures as appropriate. Accumulated sediment will be removed from the sediment ponds and drainage ditches at least once per year prior to the rainy season for a period of 5-years. At the end of the 5-year maintenance and monitoring period, if vegetation has properly established and sediment is no longer evident in site drainage, some of the sediment ponds may be backfilled, resoiled and revegetated.

5.7 ULTIMATE SITE CONDITION/END USE

When mining is complete, the quarry cut and fill slopes will have varying gradients of 1/4:1 to 3:1 or flatter with mid-slope benches. The benched slopes will have cut 25 foot wide horizontal benches with drainage ditches located approximately 50 vertical feet as shown on Figures 9a, 9b and 9c. On the fill slopes, the mid-slope benches with drainage ditches will be 6 to 10 feet wide every approximately 30 feet vertical. All former quarry floors and operation areas will be ripped and regarded to have positive drainage toward an on-site sediment pond. The end use for the quarry will be open space.

5.8 PROPERTY OWNER'S RESPONSIBILITY FOR RECLAMATION AND ACKNOWLEDGEMENT OF END USE

The property owner, Syar Industries, Inc. accepts responsibility for reclamation of the Napa Quarry and acknowledges the potential future use of the site in a letter provided in Appendix C.

6 MONITORING AND MAINTENANCE PROGRAM

6.1 MAINTENANCE SCHEDULE

Several procedures will be followed to ensure that reclamation of the site is successful and that the site is appropriately maintained. Monitoring and maintenance procedures will vary during the life and closure of the quarry. The three different monitoring and maintenance periods are: 1) during mining; 2) after mining ceases and vegetation is getting established; and 3) after reclamation is approved by the County and the State.

During mining the site will be routinely maintained and inspected as shown on Table 8. Annual and semi-annual maintenance inspection will be conducted by Syar personnel prior to September 30th of each year. All maintenance work will be conducted during September and October and will be completed prior to October 15 of each year. Routine maintenance will include the following: repairing the irrigation system if needed, erosion control work, fence repair and sediment removal from ditches and ponds, etc.

**TABLE 8
 MAINTENANCE/MONITORING INSPECTION CYCLES DURING MINING**

INSPECTION TASKS	ANNUAL INSPECTION CYCLE ¹	SAMI-ANNUAL INSPECTION CYCLE ²
Sediment Ponds	X	
Process Water Ponds	X	
Excavated & Fill Slopes	X	
Finished Valley Floors	X	
Drainage Ditches	X	
Drop Inlets	X	
Culverts	X	
Existing Creeks & Drainage Courses	X	
Access Road	X	
Erosion Controls	X	
Irrigation System	X	
Fencing	X	
Hydroseeding		X
Trees & Shrubs		X
Monitoring Plots	X ³	X
Test Planting Plots	X ³	X
Noxious Weed Control	X ⁴	

Notes:

¹ These annual inspections are recorded on the Visual Planting Inspection Form (Figure A-1 and A-2); Revegetation Monitoring Logs (Figures B-1 through B-4); Watering Program Inspection Form (Figure C-1); Sediment and Erosion Control Reporting Form (Figure D-1); and Annual Noxious Weed Control Reporting Form (Figure E-1).

² Reclaimed areas, and monitoring and test plots will be visually inspected semi-annually (twice a year) for two years after planting to observe successes and failures, and to evaluate the survival rate of the trees and shrubs as described in Section 6.3.2 and recorded on Figures A-1 and A-2. Should an area require replanting, the inspection cycle will start over.

³ After the initial 2-year inspection period, the plots will be inspected annually for the remaining 3-years of the 5-year monitoring cycle, and then once every third year until the planting success criteria have been met (Figure B-1 through B-4).

⁴ Inspections for the noxious weed control program are described and recorded on Figure E-1.

After mining ceases and all reclamation activities are completed, the 5-year post mining period begins and the site will be inspected according to the schedule on Table 9. Annual maintenance inspections will be conducted by Syar personnel prior to September 30th of each year and recorded in the logs as shown in Appendix J. These inspections will report on what areas require maintenance including: repairing the irrigation system (if needed), erosion control work, and fence repair and sediment removal from ditches and ponds. All maintenance work will be conducted during September and October and will be completed prior to October 15th of each year. The quarry operator will manage the post mining maintenance program until 5-years after mining ceases or 2-years after human intervention with planting, and after the planting success criteria area achieved, whichever is last. Should the post mining period extend beyond the allotted 5-years period the maintenance inspection cycle will shift from annual inspections to inspections every second year as shown on Table 9. Once the County and State have approved that reclamation is completed per the criteria in this Plan, the responsibility to maintain the site is the duty of the landowner and the formal monitoring and maintenance program described above will no longer be required.

**TABLE 9
 POST-MINING MAINTENANCE AND MONITORING INSPECTION CYCLES**

INSPECTION TASKS	ANNUAL INSPECTION CYCLE DURING 5-YEAR POST-MINING PERIOD	POSSIBLE INSPECTION AND MAINTENANCE CYCLE FOLLOWING COMPLETION OF 5-YEAR POST-MINING PERIOD UNTIL VEGETATIVE SUCCESS CRITERIA IS ACHIEVED (IF NECESSARY)				
		YEAR 7	YEAR 9	YEAR 11	YEAR 13	YEAR 15
Sediment Ponds	X					
Process Water Ponds	X					
Excavated & Fill Slopes	X					
Finished Valley Floors	X					
Drainage Ditches	X					
Drop Inlets	X					
Culverts	X					
Existing Creeks & Drainage Courses	X					
Access Road	X					
Erosion Controls	X					
Irrigation System	X					
Perimeter Fencing & Signage	X					
Hydroseeded Areas	X					
Trees & Shrubs	X					
Monitoring Plots	X					
Noxious Weed Control	X					

6.2 DRAINAGE AND SEDIMENT CONTROL

Currently during mining and during reclamation storm water run-off for the site will be addressed with a NPDES Industrial General Permit and Storm Water Pollution Prevention Plan (SWPPP). A copy of the SWPPP is included in Appendix H. Excavated slopes, drainage ditches, drop inlets, culverts, and ponds will be inspected annually to ensure that they are functioning properly and that there are not any significant signs of erosion. Accumulated silts will be removed from the ponds and drainage ditches to maintain capacity, and evidence of significant erosion will be repaired as described below.

While the sediment ponds have been and any future ponds will be designed to hold 5 to 10 years worth of accumulated sediments the ponds will be inspected annually and after significant storm events. These inspection cycles may change during the 5-year post mining period because after mining ceases and the plants become established the sediment loads will decrease. Maintenance and monitoring of the drainage facilities and slopes will continue until the quarry operator's maintenance program. After reclamation is approved by the County on-going maintenance will be the duty of the landowner.

Straw wattles, hay bales and silt fences will be placed in areas of potential erosion to restrict the concentration of run-off and reduce sedimentation. Erosion will be considered significant when flows exceed 12-inches in depth. When the rills are significant they will be repaired by placing and compacting fill material into them and then reseeding the area with an erosion control seed mix, and/or covering the area with an erosion control blanket and straw wattles as appropriate. The ground surface will be graded to spread run-off and minimize flow concentrations.

A conceptual final drainage plan is shown on Figure 15. The basic final drainage plan is that the northern mining pits will be graded and two lakes formed. One lake will be located in the northwest corner of the property and one in the northeast corner of the property. The remaining southern portions of the site will be graded toward Arroyo Creek located along the southern most border of the project site.

6.3 REVEGETATION MONITORING AND CRITERIA

Revegetation consists of hydroseeding and/or hand planting of trees and shrubs, pursuant to Section 5.2 and as shown on Figures 11a to 11d. Revegetation monitoring will include visually observing and recording the survival rates of newly planted areas, on the Visual Planting Inspection Forms (Appendix J, Figures A-1 and A-2) for a 2-year period. The remaining 3-year of the 5-year Post Mining Monitoring Program will include quantifiable inspections of the designated areas until such time that the planting success criteria is achieved. The inspections will quantify the success of revegetation over time using the following planting success criteria: 1) vegetative coverage; 2) vegetative density and 3) vegetative species-richness (diversity). When an entire isolated mining area has achieved the planting success criteria Syar may ask the PEBS Department to inspect the area and determine that the vegetative success criteria has been achieved. When the area is approved as being reclaimed, the reclamation costs associated for its particular area may be removed from the financial assurance mechanism and the monitoring inspections for revegetation in that specific area will cease.

The planting success criteria for vegetative coverage, density and species-richness are identified and described for the Oak Woodlands, Chamise Chaparral, Coyote Brush Chaparral, and Grassland. Only native and naturalized grasses, annual, perennials, forbs and woody plants will be counted. Failed plantings will be replaced.

6.3.1 Revegetation Monitoring Program

To provide an overview of the planting program, the newly planted areas will be visually inspected twice a year during the first 2-years after planting (Forms provided in Appendix J). The newly planted area will be visually inspected to evaluate for survival rate and dieback rate of woody plant materials, and general overview of vegetative coverage. Replanting will be required if there is less than 25% survival rate of the trees and shrubs. These inspections will be recorded on the Visual Planting Inspection Forms (Figure A-1 and A-2) for each area in the quarry including: 1) quarry benches; 2) 2:1 cut slopes; 3) fill slopes; 4) valley floor areas; and 5) large flat spaces (Figures 11a to 11d). The inspections will occur between May and June and again between October and November of each year.

6.3.2 Planting Success Criteria

The quantifiable planting success criteria that will be used to evaluate the revegetation program (Table 10).

**TABLE 10
PLANTING SUCCESS CRITERIA**

No.	SITE LOCATION	TREE/SHRUB COVERAGE ³	TREE/SHRUB DENSITY ²	TREE and SHRUB / GRASSLAND SPECIES RICHNESS ¹
1	Benches w/ Oak Woodland	47%	20 / 222	75% / 80%
2	Benches w/ Chamise Chaparral	36%	333 / 222	75% / 80%
3	Benches w/ Coyote Brush Chaparral	24%	0 / 222	80% / 80%
4	2:1 Cut Slopes w/ Oak Woodland	47%	18 / 2,150	75% / 80%
5	2:1 Cut Slope w/ Chamise Chaparral	36%	4,840 / 2,150	75% / 80%
6	2:1 Cut Slope w/ Coyote Brush Chaparral	24%	0 / 2,150	80% / 80%
7	2:1 Cut Slope w/ Grassland	80%	n/a	80%
8	Fill Slopes w/ Oak Woodland	47%	18 / 2,150	75% / 80%
9	Fill Slopes w/ Chamise Chaparral	36%	4,840 / 2,150	75% / 80%
10	Fill Slopes w/ Coyote Brush Chaparral	24%	0 / 2,150	80% / 80%
11	Fill Slopes w/ Grassland	80%	n/a	80%
12	Valley Floor w/ Grassland and Oaks	47%	18 / 222	75% / 80%

Note: Tables 5 and 6 identifies the tree/shrub types to be used for each community. The table also shows the specific seed mix to be used for each community. In addition, the grassland seed mixes identified on Table 6 will be used as follows: oak woodland (OW) communities will use the oak woodland grassland mix; the chaparral (coyote bush (CBC) and chamise (CC)) will use the chaparral grassland seed mix; and the grassland (GL) community will use the grassland seed mix.

¹ Species richness % is derived from the tree and seed mix identified on Tables 5 and 6. Communities with trees and/or shrubs the % does not include the grassland. The species richness is shown as (tree and shrub % / grassland %). For the OW community only one or two of the oak types identified will be used in any given area (to be determined by a biologist). There are 5 tree/shrub species in the OW community; 5 species in the CC; 6 species in the CBC. For the grassland seed mixes there are 8 seed types in the GL mix; 5 seed types in the OW mix; and 11 seed types in the CC and CBC mix.

2 The plant density on the benches (Nos. 1-3) are shown as 25,000 square feet or .57 acres. The remaining densities (Nos. 4-12) are for one acre. The density does not include the grassland mixes for the respective areas. The densities given are (tree # / shrub #) derived from Table 5.

3 For plantings on the benches (Nos. 1-3) the % is that of a 1,000 linear foot bench, 25 feet wide. For the remaining (Nos. 4-12) the % is for one acre coverage. Baseline coverage for the OW is 95%, CC is 60%, CBC is 40% and GL is 100%. The coverage % given in Table 10 is an anticipated successful coverage % after revegetation. The % does not include grasslands in the OW, CC or CBC communities.

6.3.2.1 Plant Coverage

Plant coverage, is defined as the vertical projection of the plant over the ground surface, and varies in different areas of the quarry. The criteria for vegetative coverage are shown in Table 10.

6.3.2.2 Plant Density

Plant density, is defined as the number of the individual plants or stems of each native or naturalized plants per a unit area. The criteria for plant density are shown in Table 10. Areas with grasses, such as the seeded slopes, valley floor and large flat areas are not included in this criterion because the density criterion “is best used on shrub and trees and is almost impossible to use on grassland” (Office of Mine Reclamation, Department of Conservation, and Quarterly Newsletter, April-June 1997). However, since there are some forbs in the seed mix, these plants will be counted as part of the plant density criteria.

6.3.2.3 Plant Species - Richness

Plant species – richness criteria, is defined as the number of different plant species in a given area. The plant species included on the plant lists and the seed mixes are representative of the nine plant communities found on-site and adjacent properties. This calculation only includes native perennial plants, naturalized grasses and does not include exotic plant species. The vegetative species-richness criteria are shown on Table 10. The species richness will be 5 species from the each seed mix per 50 square meters.

6.3.3 Revegetation Monitoring Log

A Revegetation Monitoring Log (Figure B-1 through B-4) revegetated area. The inspections will be conducted semi-annually for the first 2- years and then annually for the remaining 3-years of the post mining maintenance period. After the 5-year period is over, the revegetated areas will be monitored once every third year until the vegetative success criteria has been achieved.

Each log will record the observations and measurements regarding plant cover, plant density and plant species-richness. If significant plant dieback has occurred, then adjustment will be made and additional plants will be planted to achieve the planting success criteria. Should the revegetation monitoring program indicate that a certain plant species is failing, that plant will be dropped from the planting list. The plant list will be modified by either adding another similar native or naturalized plant (tree, shrub, forbe, annual or perennial) or by planting more of a plant species already on the plant list that has thrived.

6.3.4 Irrigation System

The irrigation system will be inspected in March of each year, prior to the end of the rainy season and before the dry season when the system is used more frequently. The inspector will check the tanks (if used), pumps, valves, lines, overhead sprayers, and emitters to be sure they are functioning and clear of debris and that the system does not have any leaks. The irrigation inspection will be recorded on Figure C-1.

6.3.5 Site Security

A new fence is proposed to replace the fence along the north and northeast property line by the Skyline Park trail where the current fence is in disrepair. These activities are discussed in Section 4.3.9 of this report. This fence and associated signage will continue to be maintained throughout the reclamation and monitoring activities.

6.4 MAINTENANCE, MONITORING AND REPORTING PROGRAM

The State and Surface Mining and Reclamation Act required that Reclamation Plans include a monitoring program to ensure compliance with the Plan. The monitoring program uses the following specific criteria related to topography, revegetation, and sediment / erosion control. The monitoring program will be conducted by the quarry operator to determine if the reclamation standards are being met during mining, and for the 5-year period after mining ceases. The maintenance tasks during mining are shown on Table 8 and the post mining tasks are shown on Table 9.

6.4.1 Maintenance Schedule and Inspections

Several procedures will be followed to ensure that reclamation of the site is successful and that the site is appropriately maintained. The post mining and reclamation maintenance program ends 5-years after reclamation is completed. All maintenance work will be conducted during March and April, and again in September and October and will be completed prior to October 15 of each year. The annual maintenance inspections will be conducted by an employee of Syar and recorded onto the inspection forms included in Appendix J. These routine maintenance inspections will include repairing the irrigation system if needed, erosion control work, fence repair, and removal of sediments from the drainage system. The irrigation system will also be inspected in March of each year before the system has a higher demand and usage during the dry season. Monitoring of the irrigation system will require monthly inspections to evaluate the soil moisture levels of the planting areas.

The property owner will manage the task of the maintenance program described herein for 5-years or 2-years after human intervention with planting, and after the planting success criteria are met, whichever is last.

6.4.1.1 Topography

Slopes will be inspected and their condition recorded on the Sediment and Erosion Control Report Form (Figure D-1). These inspections will determine if any failure are evident and if any loose material has fallen onto the mid-slope benches. Loose material will be removed, as appropriate and significant erosion rills will be repaired.

6.4.1.2 Revegetation

Approximately 2-years after planting, the following areas will be required to be seeded if the specified conditions apply: 1) benches with exposed areas that have less than 80% plant coverage; 2) exposed areas on the 2:1 cut slopes with less than 80% coverage; 3) exposed areas on the 3:1 fill slopes with less than 80% coverage; and 4) exposed areas on the 2:1 fill slopes with less than 80% coverage. Two years after being planted, the trees and shrubs should have a combined survival rate of 80%. Trees and shrubs are considered to be “surviving” if they have sufficient foliage to sustain themselves. The newly planted areas will be visually inspected semi-annually for 2-years to evaluate the survival rate of the trees and shrubs, and identify areas that require additional plants or reseeded so that the planting success criteria can be achieved during the monitoring and maintenance program. These inspections will be recorded on the Visual Planting Inspection Forms (Figures A-1 and A-2).

6.4.1.3 Irrigation

Inspect the hand planted trees and shrubs to verify that the soil moisture is adequate. The irrigation system inspection will be recorded on Watering Program Inspection Form (Figure C-1).

6.4.1.4 Sediment and Erosion Control

During the duration of the monitoring program the drainage ditches, drop inlets, culverts, and ponds will be inspected and cleaned out annually, or as needed, to ensure that they continue to function properly. All erosion controls measures included straw wattles, hay bales and silt fences will continue to be used and inspected each fall before the rainy season (prior to October 15th) and until such time that the vegetative cover has become established and the newly constructed slopes are stable. Ultimately, the temporary erosion control measures will no longer be necessary.

The ponds were designed to accommodate a 20-year, 24 hour storm event as described in the hydrological report located in Appendix G. While mining continues at Napa Quarry the ponds will be cleaned out annually. Once mining ceases a hydrological report will be prepared at that time to address on-site drainage and sediment control issues. The sediment and erosion control inspections are recorded on the Sediment and Erosion Control Reporting Form (Figure D-1).

6.4.1.5 Noxious Weed Monitoring

The goal of the noxious weed removal program is to eradicate, over the life of the mining permit, those targeted noxious weed species which compete with the native and naturalized plant species found at and surrounding the quarry property. The noxious weed removal program will be incorporated into each reclamation project. Targeted noxious weed species include but not limited to: pampas, grass, scotch broom, Spanish broom and yellow star thistle.

There will be two noxious weed programs identified for this facility. The first program is implemented when an area of the quarry is under short term or mid-term final reclamation, following revegetation activities. The ongoing weed removal program will identify the presence of noxious weed species during annual routine inspections of the

active reclamation project. The findings of these inspections will be recorded on the Annual Noxious Weed Control Inspection Forms (Figure E-1). Weed eradication will occur when 5% coverage of noxious weeds.

The second program is the noxious weed removal to be done as part of the routine maintenance of the former mining areas undergoing final reclamation activities (after the cessation of mining). Revegetation activities will require planting of trees, shrubs and grasslands. Ongoing weed removal will continue annually until the end of the post mining 5-year maintenance period or when the planting success criteria have been achieved.

6.4.2 Reporting

Inspections will be documented on the appropriate forms. When reclamation is being conducted on the site a qualified professional will have the final say on how monitoring will take place and the totality of the forms required.

- Visual Planting Inspection Forms (Figures A-1 and A-2);
- Revegetation Monitoring Plot Log (Figures B-1 through B-4);
- Watering Program Inspection Form (Figure C-1);
- Sediment and Erosion Control Reporting Form (Figure D-1); and
- Annual Noxious Weed Control Reporting Form (Figure E-1).

7.0 REFERENCES

- Carlenzoli and Associates*
Hydrology Study, 2002
- Carlenzoli and Associates*
Hydrology Study, 2008
- Kleinfelder West, Inc*
Geologic Report, March 25, 2008
- Live Oak Associates*
Biological Evaluation, September 17, 2008
- Live Oak Associates*
Red Legged Frog Best Management Practices, September 15, 2008
- LSA*
Cultural Resources Study for the Syar Industries Napa Quarry, 2008
- Syar Industries, Inc*
Storm Water Pollution Prevention Plan, 2008
- Tom Origer*
Cultural Resources Survey, 2008
- Tom Origer*
Evaluation and Documentation of Cultural Resources on the Syar Industries Property, Napa, California, October 4, 2010
- California Geological Survey*
Update of Mineral Land Classification, Special Report 205, 2013
- California Geological Survey*
Update of Mineral Land Classification, Special Report 146, 1987

FIGURE B-1
REVEGETATION MONITORING PLOT OR TEST PLOT LOG NO. 1
AREAS RECLAIMED TO OAK WOODLAND
NAPA QUARRY

Inspector:	Date:
Planting Area (Common Name):	
Monitoring Plot No.:	Test Plot No.:
Date of Initial Planting:	

Additional Notes: _____

TREES					
COMMON NAME	QUANT. PLANTED	NUMBER ALIVE/DEAD	OAK WOODLAND SEED MIX		
			COMMON NAME	QUANT.	STATUS

Monitoring Criteria:

Is replanting required: ___ Yes ___ No, if yes date replanted: _____

FIGURE B-2
REVEGETATION MONITORING PLOT OR TEST PLOT LOG NO. 2
AREAS RECLAIMED TO CHAMISE CHAPARRAL
NAPA QUARRY

Inspector:	Date:
Planting Area (Common Name):	
Monitoring Plot No.:	Test Plot No.:
Date of Initial Planting:	

Additional Notes: _____

TREES/SHRUBS					
COMMON NAME	NO. PLANTED	NUMBER ALIVE/ DEAD	CHAMISE CHAPARRAL SEED MIX		
SHRUBS			COMMON NAME	QUANT.	STATUS
COMMON NAME	NO. PLANTED	NUMBER ALIVE/ DEAD			

Monitoring Criteria:

Is replanting required: ___ Yes ___ No, if yes date replanted: _____

FIGURE B-3
REVEGETATION MONITORING PLOT OR TEST PLOT LOG NO. 3
AREAS RECLAIMED TO COYOTE BRUSH CHAPARRAL
NAPA QUARRY

Inspector:	Date:
Planting Area (Common Name):	
Monitoring Plot No.:	Test Plot No.:
Date of Initial Planting:	

Additional Notes: _____

TREES/SHRUBS					
COMMON NAME	NO. PLANTED	NUMBER ALIVE/ DEAD	COYOTE BRUSH CHAPARRAL SEED MIX		
SHRUBS			COMMON NAME	QUANT.	STATUS
COMMON NAME	NO. PLANTED	NUMBER ALIVE/ DEAD			

Monitoring Criteria:

Is replanting required: ___ Yes ___ No, if yes date replanted: _____

FIGURE B-4
REVEGETATION MONITORING PLOT OR TEST PLOT LOG NO. 4
GRASSLAND WITH OAK TREES AT PERIMETER OF AREA
NAPA QUARRY

Inspector:	Date:
Planting Area (Common Name):	
Monitoring Plot No.:	Test Plot No.:
Date of Initial Planting:	

Additional Notes: _____

COMMON NAME	NO. PLANTED	NUMBER ALIVE/ DEAD	SEED MIX		
COMMON NAME	NO. PLANTED	NUMBER ALIVE/ DEAD	COMMON NAME	QUANT.	STATUS

Monitoring Criteria:

Is replanting required: ___ Yes ___ No, if yes date replanted: _____

FIGURE C-1
WATERING PROGRAM INSPECTION FORM
NAPA QUARRY

Inspector:	Date:
Planting Area (Common Name):	
Bench No.:	Direction: N S E W
Last Date Irrigated:	Time:
Date of Initial Planting:	Date of Last Planting:

Additional Notes: _____

INSPECT EVERY 10TH TREE	SOIL MOISTURE LEVEL (Circle One)			
10 th Tree	Dry	Moist	Wet	Too Wet
20 th Tree	Dry	Moist	Wet	Too Wet
30 th Tree	Dry	Moist	Wet	Too Wet
40 th Tree	Dry	Moist	Wet	Too Wet
50 th Tree	Dry	Moist	Wet	Too Wet
60 th Tree	Dry	Moist	Wet	Too Wet
INSPECT EVERY 10TH SHRUB	SOIL MOISTURE LEVEL (Circle One)			
10 th Shrub	Dry	Moist	Wet	Too Wet
20 th Shrub	Dry	Moist	Wet	Too Wet
30 th Shrub	Dry	Moist	Wet	Too Wet
40 th Shrub	Dry	Moist	Wet	Too Wet
50 th Shrub	Dry	Moist	Wet	Too Wet
60 th Shrub	Dry	Moist	Wet	Too Wet

FIGURE D-1
SEDIMENT AND EROSION CONTROL REPORTING FORM
NAPA QUARRY

Inspector:	Date (by October 15th):
Planting Area (Common Name):	
Mining Area (Common Name) Where Problem Was Found:	
Valley Floor (Circle One): North South East West	
Bench No.:	
Location (Circle One): North South East West	
Intervening 3:1 or 2:1 Slope Between Bench Nos. and	
Location (Circle One): North South East West	
Arroyo Creek or Tributary:	
Pond Number:	
Location (Circle One): North South East West	
Drainage Ditch (Common Name of Area):	
Access Road (Common Name of Area):	

Additional Notes: _____

Condition Found At (Check all that apply):

- _____ Ditch (needs sediment removed or repair)
- _____ Drop Inlets (needs sediment removed or repair)
- _____ Culvert (needs to be cleared of debris or repair)
- _____ Slope (rills evident are deeper than 12" and/or occur more frequently than every 50 feet)
- _____ Bench (rills evident are deeper than 12" and/or occur more frequently than every 50 feet
 – Straw Wattles, Hay Bales, Silt Fencing needs replacement or repair)
- _____ Pond (needs sediment removed or repairs)
- _____ Pond Spillway (needs maintenance or repair)
- _____ Access Road (needs repair)
- _____ Irrigation System (needs repair)
- _____ Other: _____

Action Required: _____

Action Taken: _____
 _____ Date Action Completed: _____

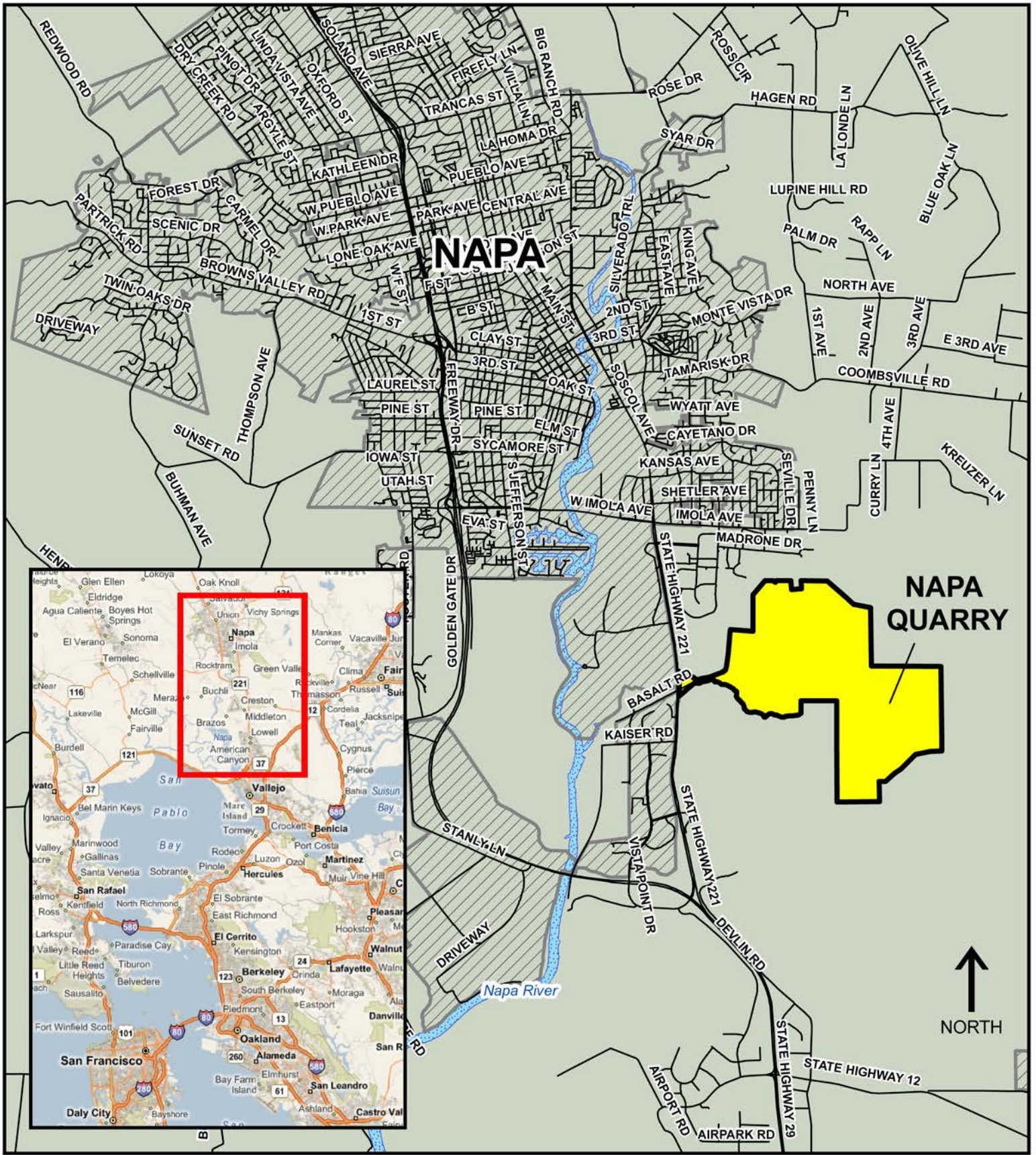
FIGURE E-1
ANNUAL NOXIOUS WEED CONTROL REPORTING FORM
NAPA QUARRY

Inspector:	Date:
Planting Area (Common Name):	
Mining Area (Common Name) Where Weeds Are Found:	
Valley Floor (Circle One): North South East West	
Bench No.:	
Location (Circle One): North South East West	
Intervening 3:1 or 2:1 Slope Between Bench Nos. and	
Location (Circle One): North South East West	
Arroyo Creek or Tributary:	
Pond Number:	
Location (Circle One): North South East West	
Drainage Ditch (Common Name of Area):	
Access Road (Common Name of Area):	

Action Required:

Action Taken: _____

Date Action Completed: _____



Legend

- Napa Quarry
- Napa City Limits
- Roads

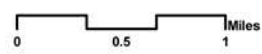
VICINITY MAP

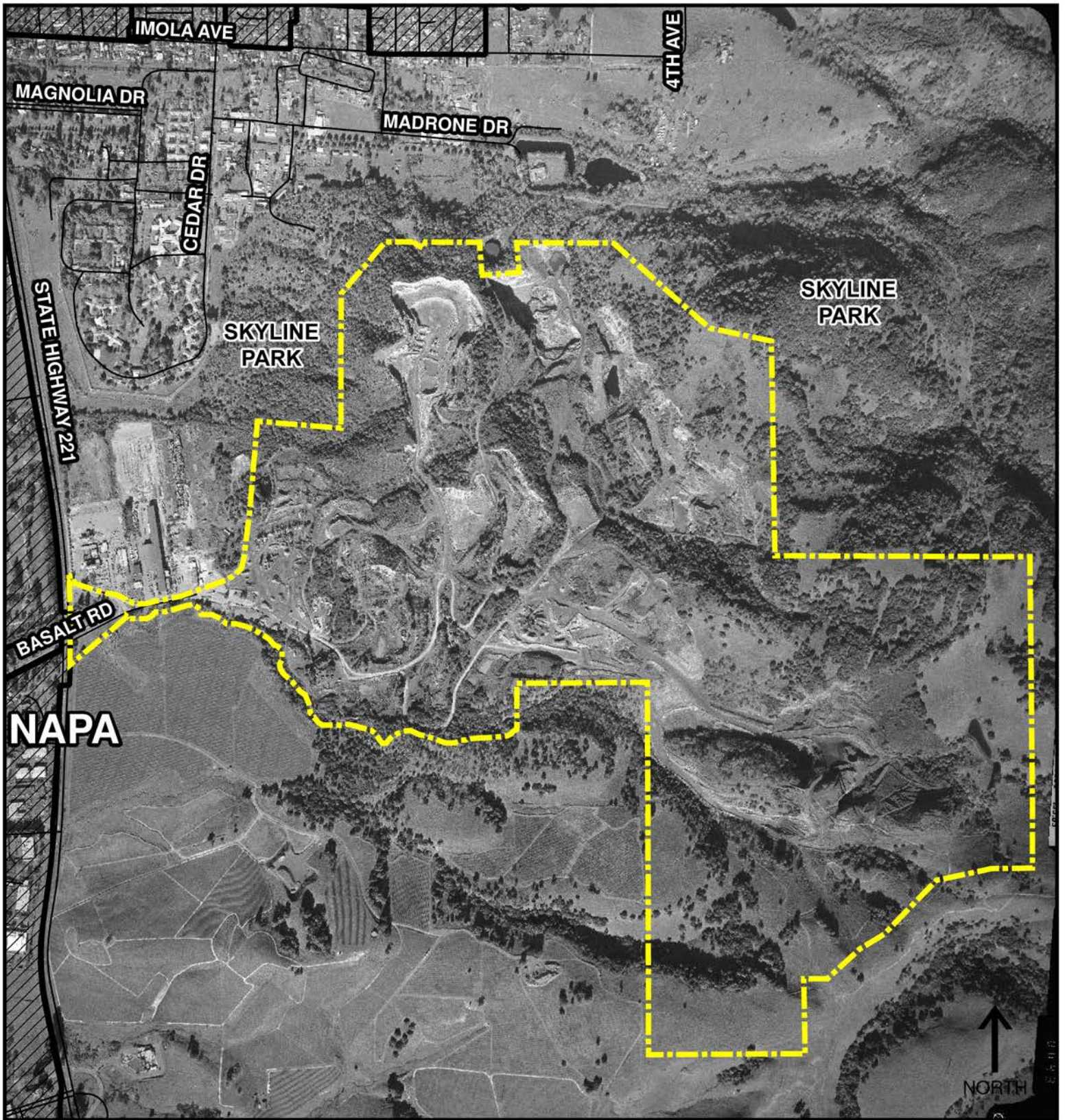
Napa Quarry, Syar Industries, Inc.

1


FIGURE
4/29/2008

Prepared by: LSAAssociates, Inc. 601 Gateway Blvd. Suite 1270
South San Francisco, CA 94080 (650) 238-0015 www.lsa-assoc.com





Legend

-  Napa Quarry Property Line
-  Napa City Limits
-  Roads

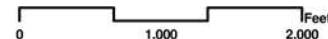
SITE MAP AND AERIAL

Napa Quarry, Syar Industries, Inc.

2

FIGURE
4/29/2008

Prepared by: LSA Associates, Inc. 601 Gateway Blvd. Suite 1270
South San Francisco, CA 94080 (650) 238-0015 www.lsa-assoc.com



NAPA QUARRY



CURRENT SITE BOUNDARY & WORK AREA MAP INDEX SHEET

LEGEND

- PROPERTY LINES
- BUILDINGS
- SEDIMENT PONDS (MAINTAINED)
- PROCESS WATER PONDS
- NO MINING - QUARRY VIEWSHED

NOTE :
 DETAILS FOR EACH SECTION OF THE PROJECT ARE SHOWN ON THE LABELED FIGURE NUMBERS

- NOTES :**
1. AERIAL PHOTO & TOPOGRAPHY FROM NAPA COUNTY G.I.S. 2007, CONTOUR INTERVAL EQUALS 5 FEET.
 2. PROPERTY LINES FROM NAPA COUNTY ASSESSOR MAPS.
 3. STORM WATER MANAGEMENT FACILITIES FROM STORM WATER POLLUTION PREVENTION PLAN, SYAR INDUSTRIES, INC., NAPA FACILITY, FEBRUARY, 2008.

SCALE IN FEET

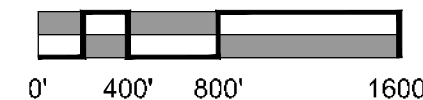
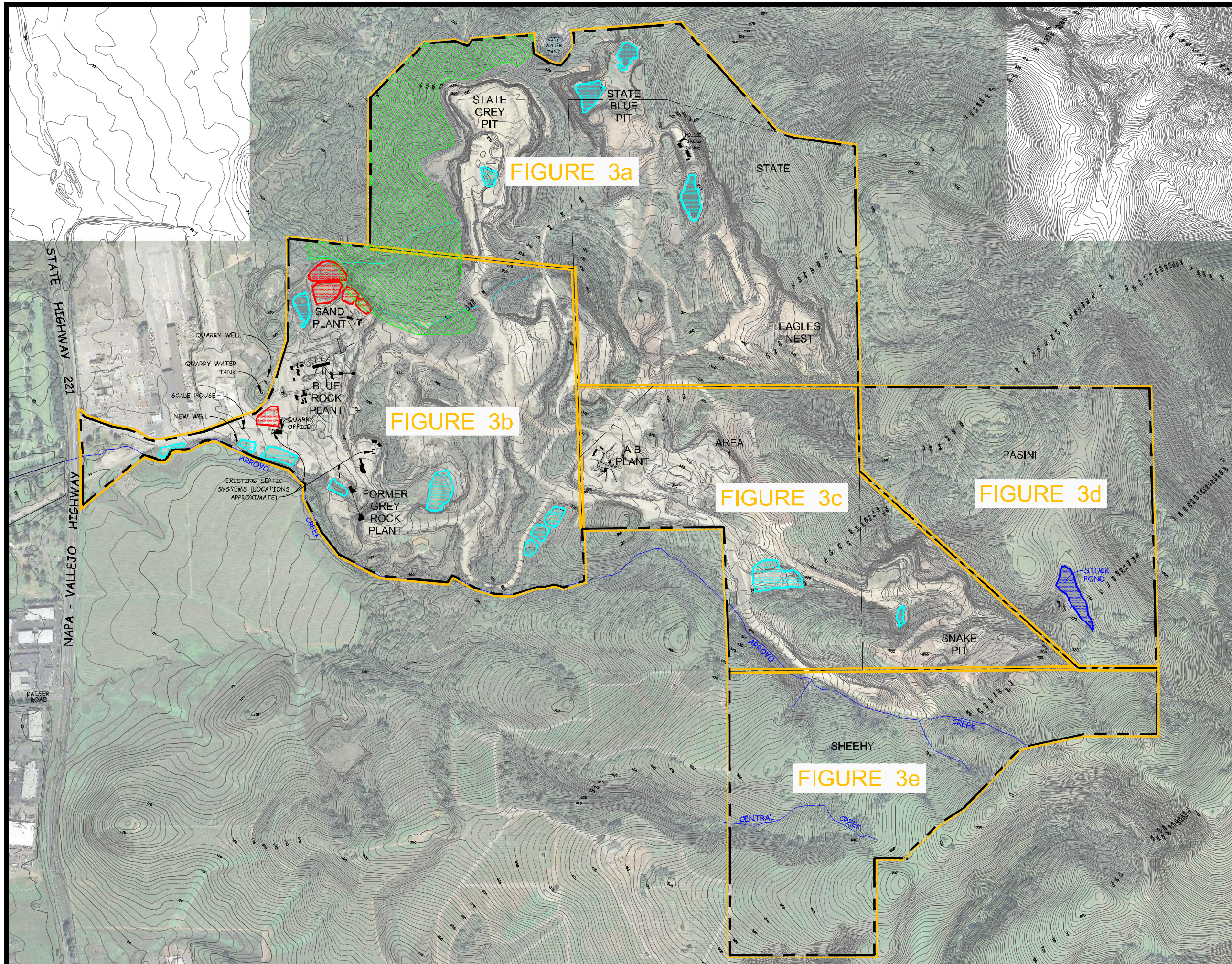


FIGURE
3aa



NAPA QUARRY



CURRENT SITE BOUNDARY & WORK AREA MAP AREA A

LEGEND

- PROPERTY LINES
- BUILDINGS
- SEDIMENT PONDS (MAINTAINED)
- PROCESS WATER PONDS
- PRE - SMARA SLOPES (UN-DISTURBED SINCE 1/1/76)
- INTERIM RECLAMATION
- NO MINING - QUARRY VIEWSHED
- CURRENT MINING AREAS
- SHEET OUTLINE

NOTES:

1. AERIAL PHOTO & TOPOGRAPHY FROM NAPA COUNTY G.I.S. 2007. CONTOUR INTERVAL EQUALS 5 FEET.
2. PROPERTY LINES FROM NAPA COUNTY ASSESSOR MAPS.
3. STORM WATER MANAGEMENT FACILITIES FROM STORM WATER POLLUTION PREVENTION PLAN, SYAR INDUSTRIES, INC., NAPA FACILITY, FEBRUARY, 2008.

SCALE IN FEET

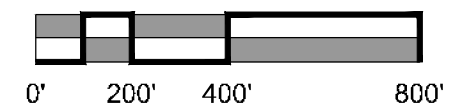
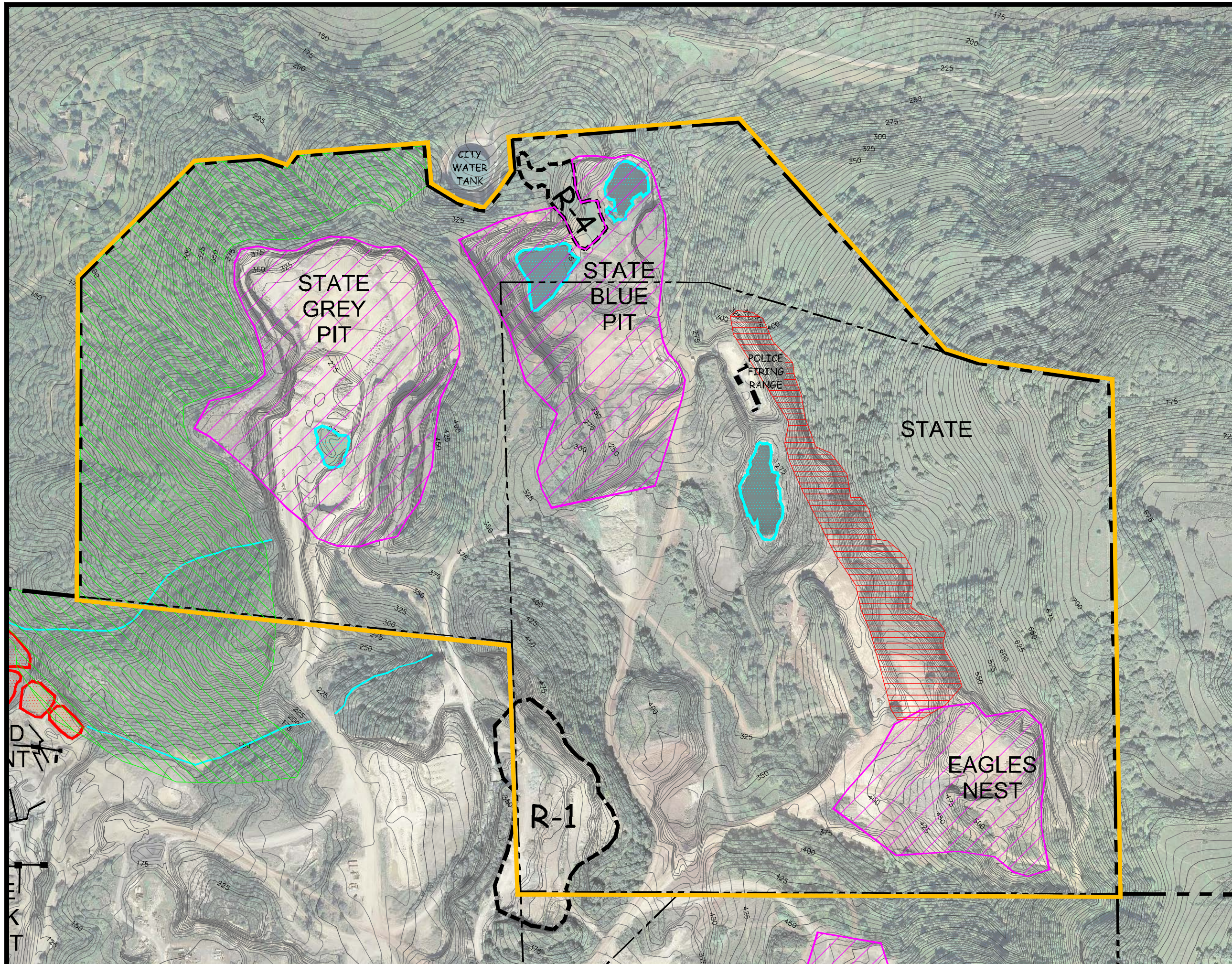
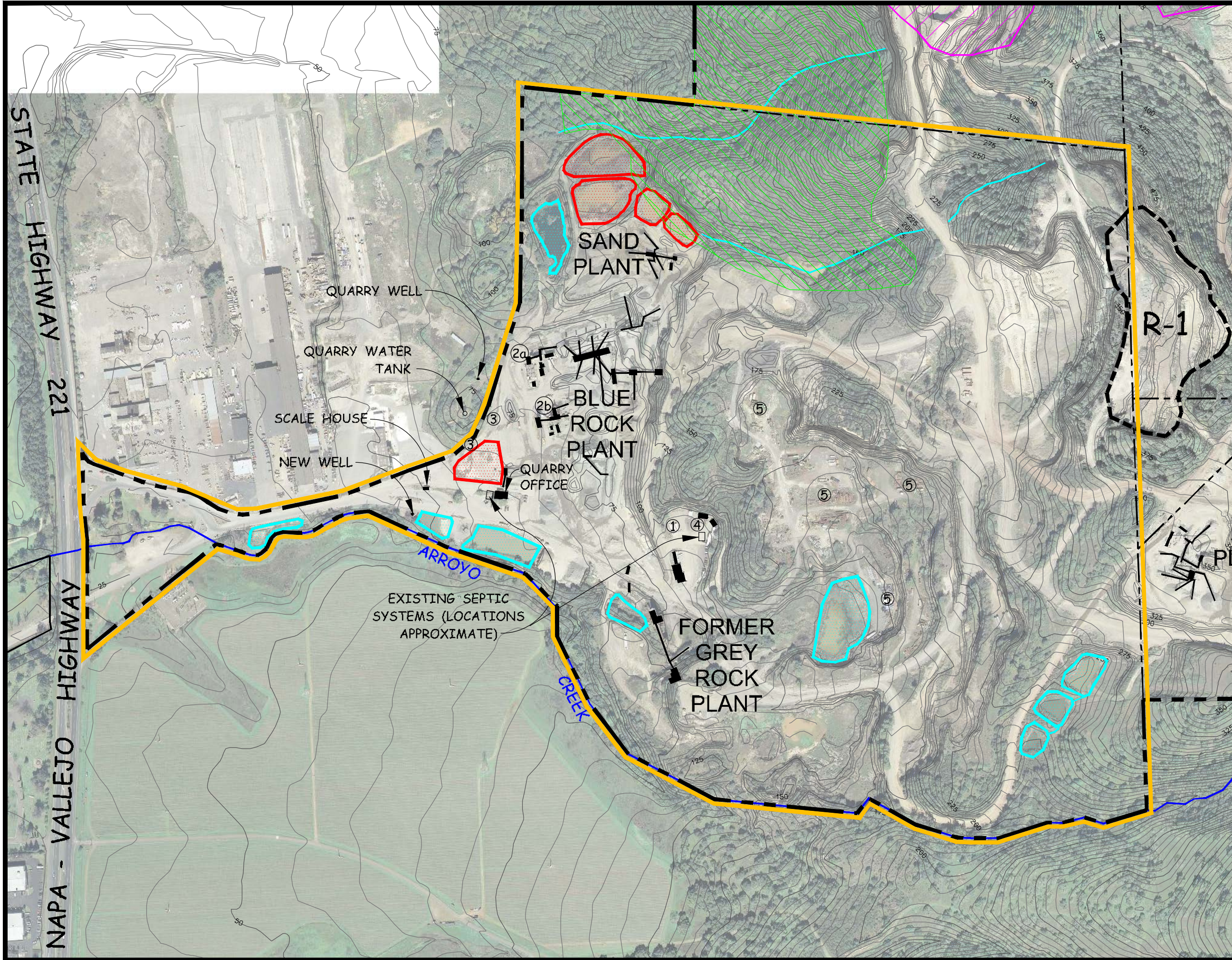


FIGURE 3a





NAPA QUARRY



CURRENT SITE BOUNDARY & WORK AREA MAP AREA B

LEGEND

- PROPERTY LINES
- BUILDINGS
- SEDIMENT PONDS (MAINTAINED)
- PROCESS WATER PONDS
- NO MINING - QUARRY VIEWSHED
- INTERIM RECLAMATION
- CURRENT MINING AREAS
- SHEET OUTLINE

- ① FUEL TANK (WITH SECONDARY CONTAINMENT)
- ②a AC PLANT #1
- ②b AC PLANT #2
- ③ SOY RACK
- ④ QUARRY SHOP
- ⑤ SURPLUS PARTS/EQUIPMENT STORAGE

NOTES:

1. AERIAL PHOTO & TOPOGRAPHY FROM NAPA COUNTY G.I.S. 2007. CONTOUR INTERVAL EQUALS 5 FEET.
2. PROPERTY LINES FROM NAPA COUNTY ASSESSOR MAPS.
3. STORM WATER MANAGEMENT FACILITIES FROM STORM WATER POLLUTION PREVENTION PLAN, SYAR INDUSTRIES, INC., NAPA FACILITY, FEBRUARY, 2008.

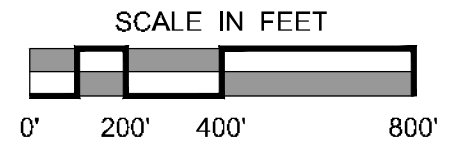


FIGURE 3b

NAPA QUARRY



CURRENT SITE BOUNDARY & WORK AREA MAP AREA C

LEGEND

- PROPERTY LINES
- BUILDINGS
- SEDIMENT PONDS (MAINTAINED)
- INTERIM RECLAMATION
- CURRENT MINING AREAS
- SHEET OUTLINE

NOTES:

1. AERIAL PHOTO & TOPOGRAPHY FROM NAPA COUNTY G.I.S. 2007. CONTOUR INTERVAL EQUALS 5 FEET.
2. PROPERTY LINES FROM NAPA COUNTY ASSESSOR MAPS.
3. STORM WATER MANAGEMENT FACILITIES FROM STORM WATER POLLUTION PREVENTION PLAN, SYAR INDUSTRIES, INC., NAPA FACILITY, FEBRUARY, 2008.

SCALE IN FEET

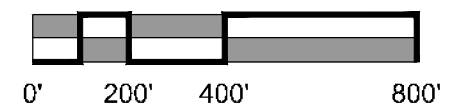
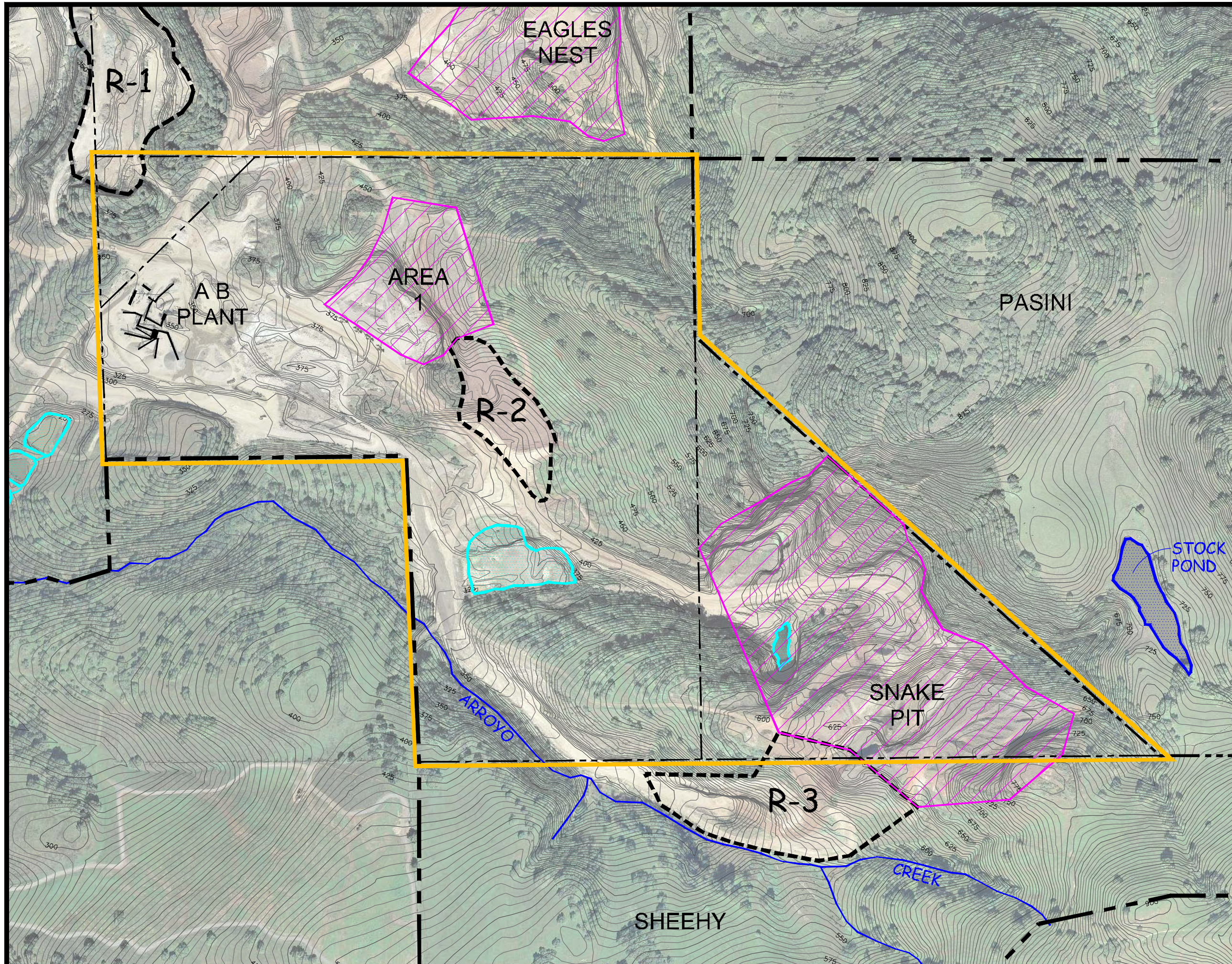


FIGURE 3c



NAPA QUARRY



CURRENT SITE BOUNDARY & WORK AREA MAP AREA D

LEGEND

- PROPERTY LINES
- BUILDINGS
- SEDIMENT PONDS (MAINTAINED)
- INTERIM RECLAMATION (R-1 to R-4)
- CURRENT MINING AREAS
- SHEET OUTLINE

NOTES:

1. AERIAL PHOTO & TOPOGRAPHY FROM NAPA COUNTY G.I.S. 2007. CONTOUR INTERVAL EQUALS 5 FEET.
2. PROPERTY LINES FROM NAPA COUNTY ASSESSOR MAPS.
3. STORM WATER MANAGEMENT FACILITIES FROM STORM WATER POLLUTION PREVENTION PLAN, SYAR INDUSTRIES, INC., NAPA FACILITY, FEBRUARY, 2008.

SCALE IN FEET

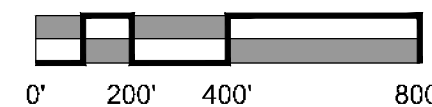
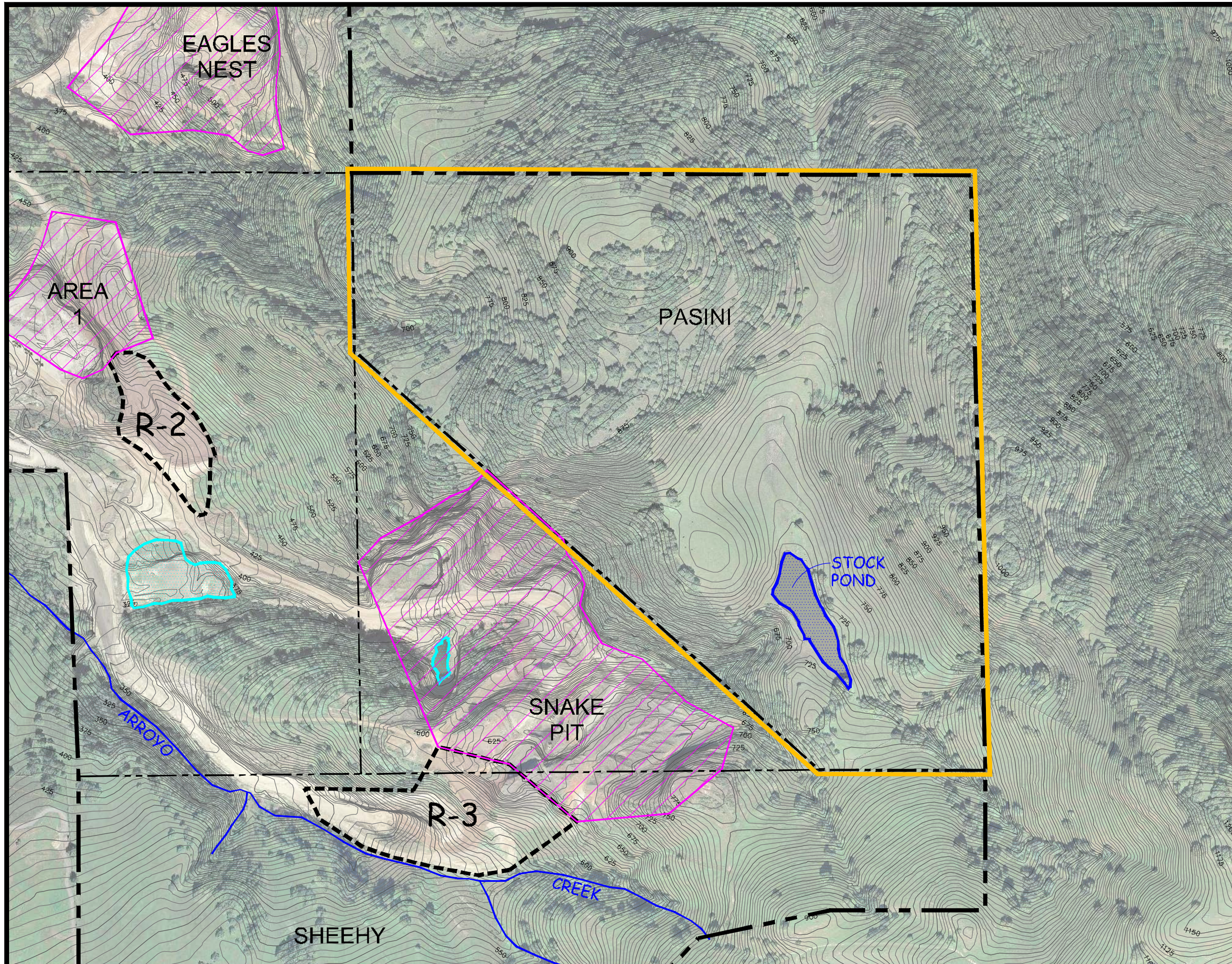


FIGURE 3d



NAPA QUARRY



CURRENT SITE BOUNDARY & WORK AREA MAP AREA E

LEGEND

- PROPERTY LINES
- BUILDINGS
- SEDIMENT PONDS (MAINTAINED)
- R-1 to R-4 INTERIM RECLAMATION
- CURRENT MINING AREAS
- SHEET OUTLINE

NOTES:

1. AERIAL PHOTO & TOPOGRAPHY FROM NAPA COUNTY G.I.S. 2007. CONTOUR INTERVAL EQUALS 5 FEET.
2. PROPERTY LINES FROM NAPA COUNTY ASSESSOR MAPS.
3. STORM WATER MANAGEMENT FACILITIES FROM STORM WATER POLLUTION PREVENTION PLAN, SYAR INDUSTRIES, INC., NAPA FACILITY, FEBRUARY, 2008.

SCALE IN FEET

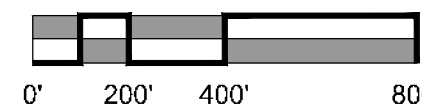
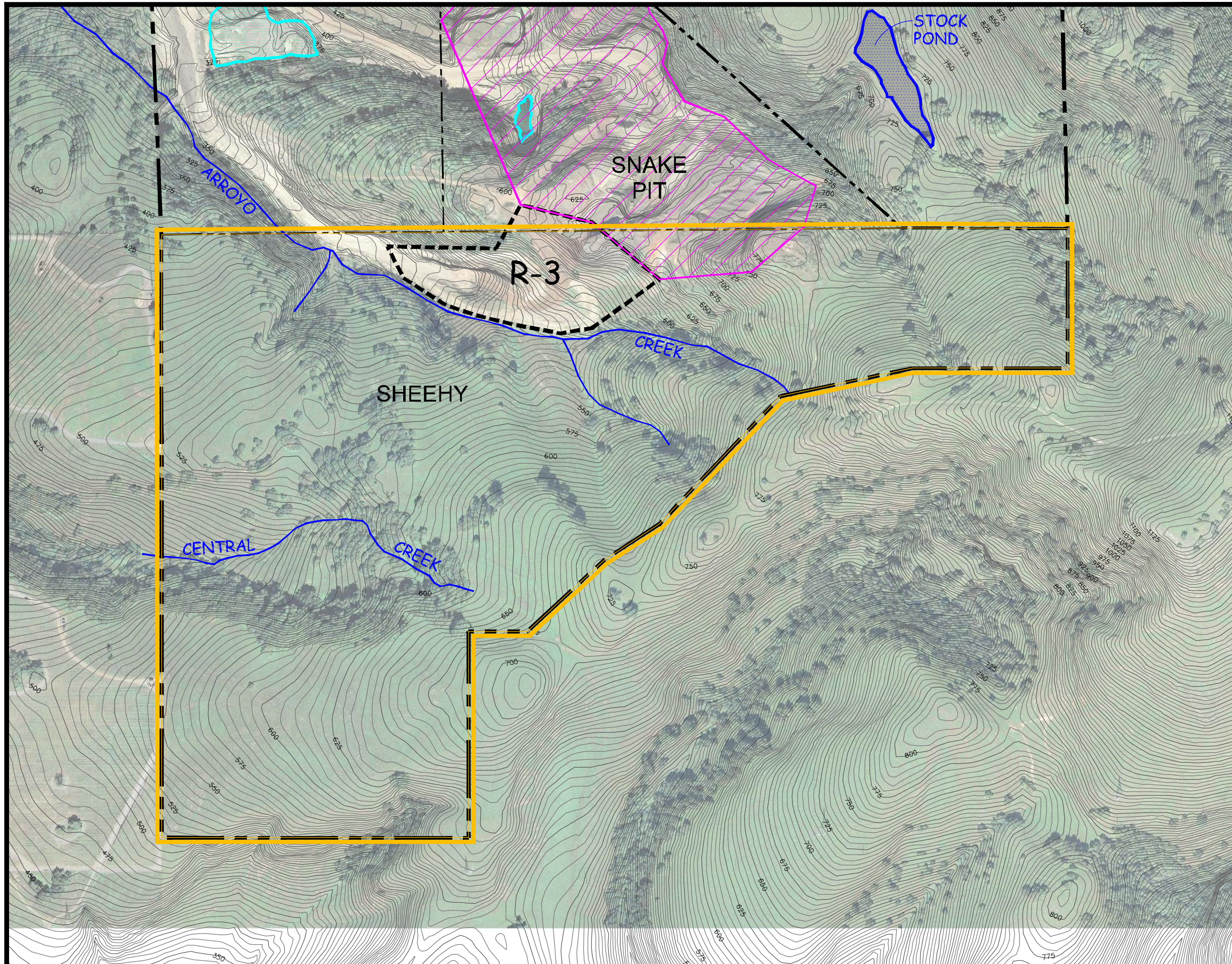


FIGURE
3e



NAPA QUARRY



MINING PLAN

LEGEND

- PROPERTY LINES
- BUILDINGS
- SEDIMENT PONDS (MAINTAINED)
- PROCESS WATER PONDS
- CURRENT MINING AREAS
- MINING EXPANSION AREAS
- RECLAIMED AREAS (R-1 to R-3)
- TO BE RECLAIMED
- NO MINING AREAS
- POTENTIAL OAK PLANTINGS

NOTE :
ALL NON-HATCHED AREAS ARE CLASSIFIED AS CURRENTLY DISTURBED/ACTIVE MINING

- NOTES :**
1. AERIAL PHOTO & TOPOGRAPHY FROM NAPA COUNTY G.I.S. 2007. CONTOUR INTERVAL EQUALS 5 FEET.
 2. PROPERTY LINES FROM NAPA COUNTY ASSESSOR MAPS.
 3. STORM WATER MANAGEMENT FACILITIES FROM STORM WATER POLLUTION PREVENTION PLAN, SYAR INDUSTRIES, INC., NAPA FACILITY, FEBRUARY, 2008.

SCALE IN FEET

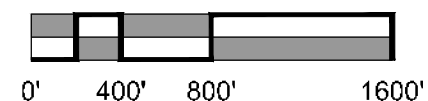
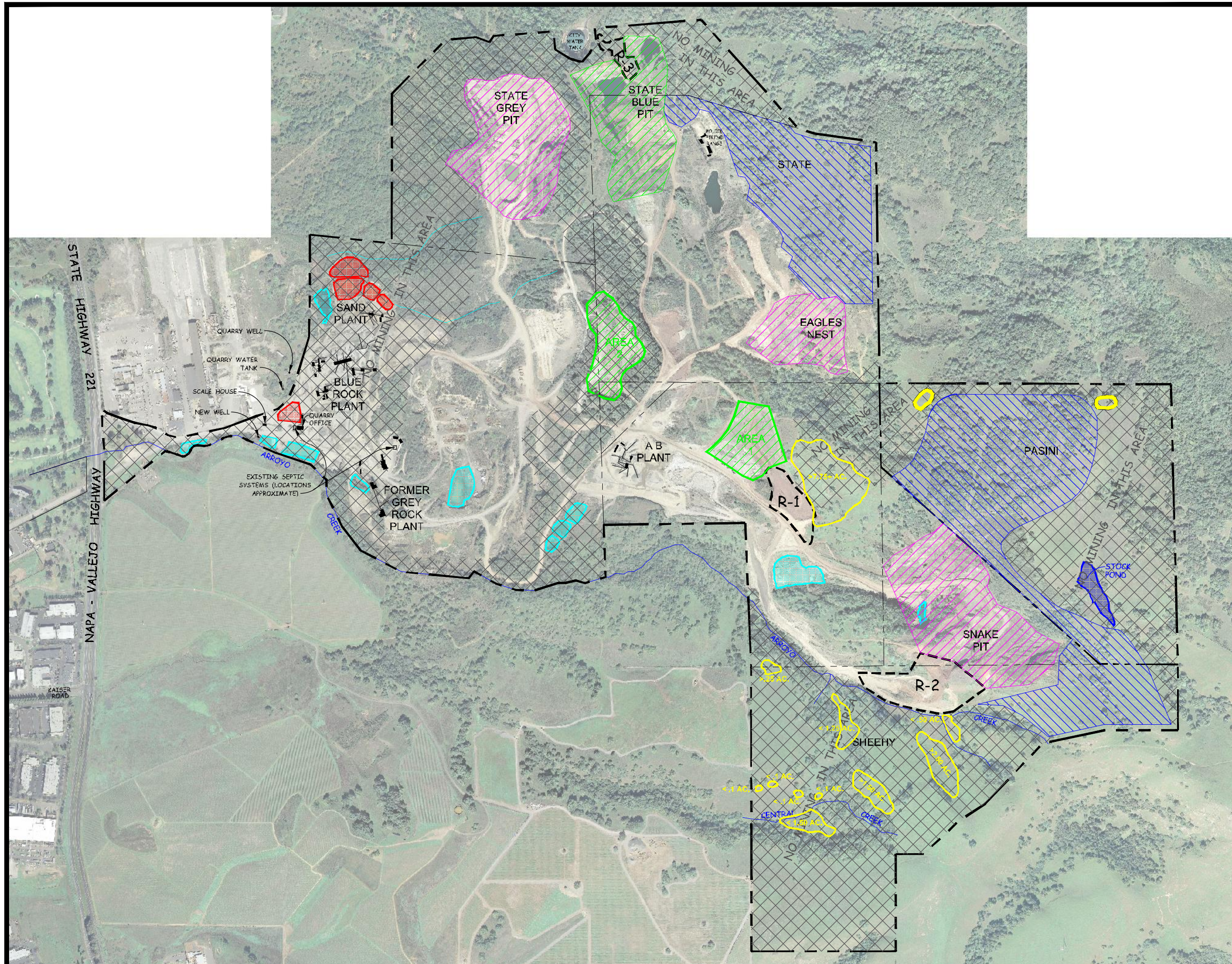


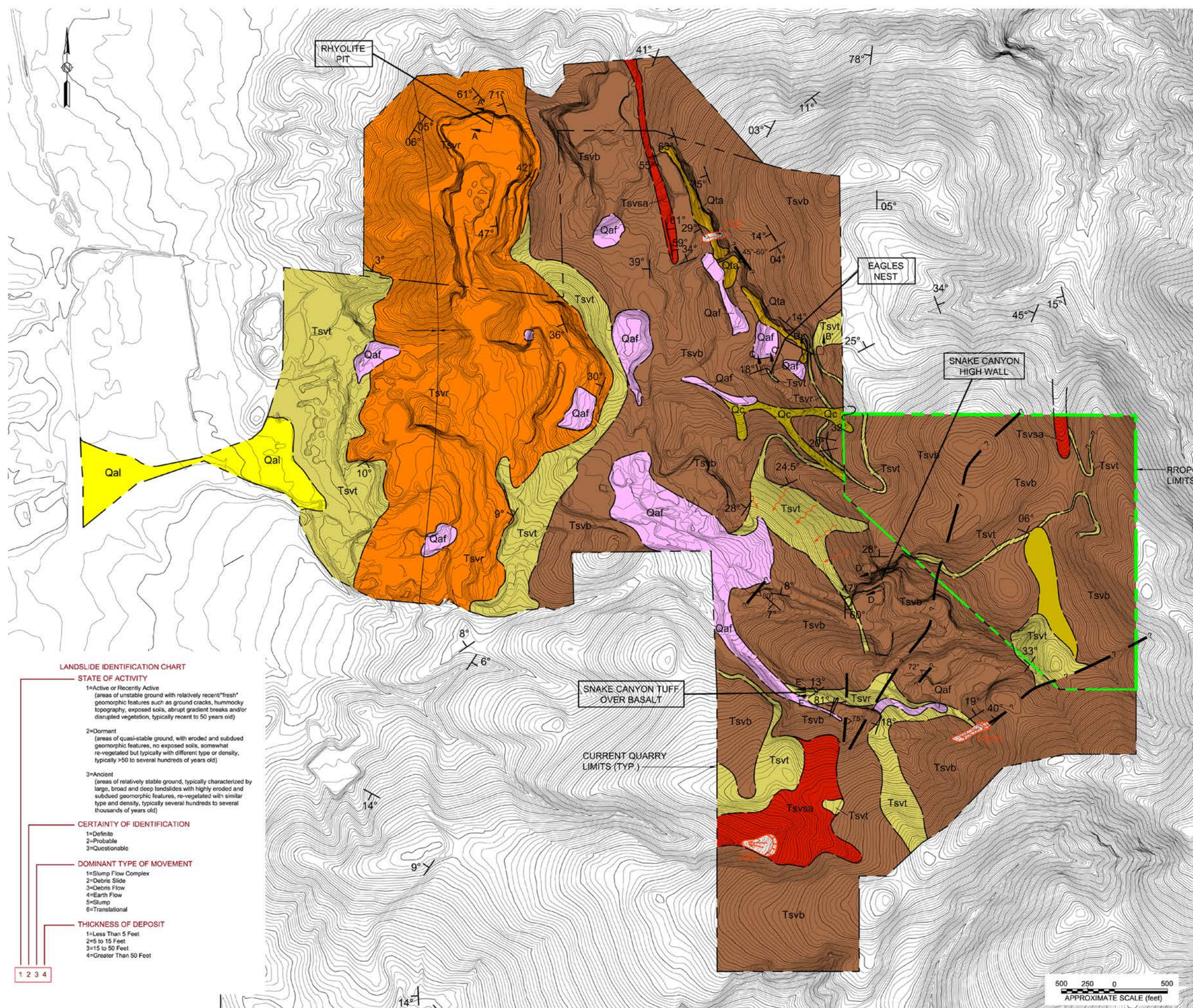
FIGURE
3f



NAPA QUARRY

Syar Industries, Inc.

GEOLOGY MAP



LANDSLIDE IDENTIFICATION CHART

- STATE OF ACTIVITY**
- 1=Active or Recently Active
(areas of unstable ground with relatively recent/"fresh" geomorphic features such as ground cracks, hummocky topography, exposed soils, abrupt gradient breaks and/or disrupted vegetation, typically recent to 50 years old)
 - 2=Dormant
(areas of quasi-stable ground, with eroded and subdued geomorphic features, no exposed soils, somewhat re-vegetated but typically with different type or density, typically >50 to several hundreds of years old)
 - 3=Ancient
(areas of relatively stable ground, typically characterized by large, broad and deep landslides with highly eroded and subdued geomorphic features, re-vegetated with similar type and density, typically several hundreds to several thousands of years old)
- CERTAINTY OF IDENTIFICATION**
- 1=Definite
 - 2=Probable
 - 3=Questionable
- DOMINANT TYPE OF MOVEMENT**
- 1=Slump Flow Complex
 - 2=Debris Slide
 - 3=Debris Flow
 - 4=Earth Flow
 - 5=Slump
 - 6=Translational
- THICKNESS OF DEPOSIT**
- 1=Less Than 5 Feet
 - 2=5 to 15 Feet
 - 3=15 to 50 Feet
 - 4=Greater Than 50 Feet

1 2 3 4

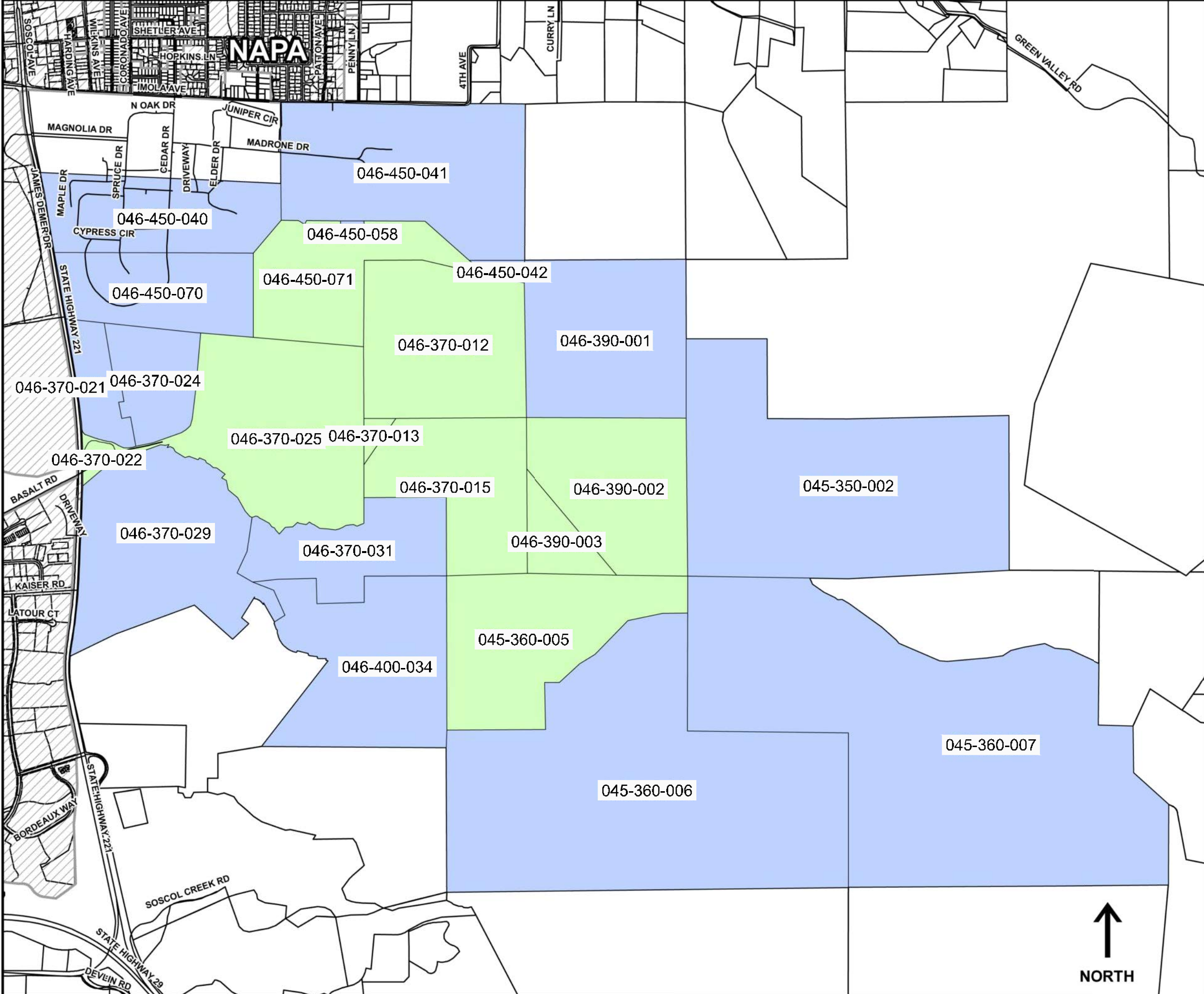
EXPLANATION		
	Artificial Fill:	Soil and rock fragments derived from on site quarry operations
	Alluvium:	Alluvial fan and ephemeral stream deposits; unconsolidated sand, gravel, silt, and clay
	Talus:	Deposit consisting of detrital rock fragments accumulated at the base of near vertical to vertical slopes
	Colluvium:	Deposits of soil and weathered rock on slopes generally greater than 3' thick. Susceptible to down slope creep
	Sonoma Volcanic Group: Tuff	Dominantly moderately weathered waterlain tuffaceous sandstone and partially welded to nonwelded ash fall and pyroclastic tuff flows
	Sonoma Volcanic Group: Scoriaeous Agglomerate / Breccia	Persistent flows masses of highly weathered brecciated, scoriaeous to moderately vesicular basalt
	Sonoma Volcanic Group: Dacite, Rhyolite	Strongly flow banded to massive rhyolite flows with persistent planar jointing; locally peritic
	Sonoma Volcanic Group: Basalt, (locally scoriaeous)	Moderately to slightly weathered basalt and dacite flows; rock is locally vesicular, and contains masses, sills and features of scoriaeous agglomerate (not shown at the map scale utilized)
	Geologic Contact (dashed Where Approximate)	
	Fault: Dip Angle, Direction as Indicated	
	Bedding Orientation	
	Approximate Syndinal Axis	
	Soil Creep	
	Landslide: Hatchures Indicate Scarp Area, Arrows Indicate Direction of Movement.	
	Landslide Identification Number (reference Landslide Identification Chart)	
	Cross Section Location	

Topographic Base: 2005, Napa County
 Geology adapted and modified in the field during this study from geologic maps contained in the following report:
 Woodward - Clyde and Associates, 1970 Geologic Mapping of Napa Quarry, Napa, California

KLEINFELDER

2240 Northpoint Parkway
 Santa Rosa, CA 95407-5009
 PH. 707-571-1883 FAX. 707-571-7813
 www.kleinfelder.com

4
 FIGURE

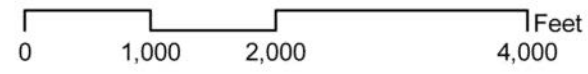


NAPA QUARRY

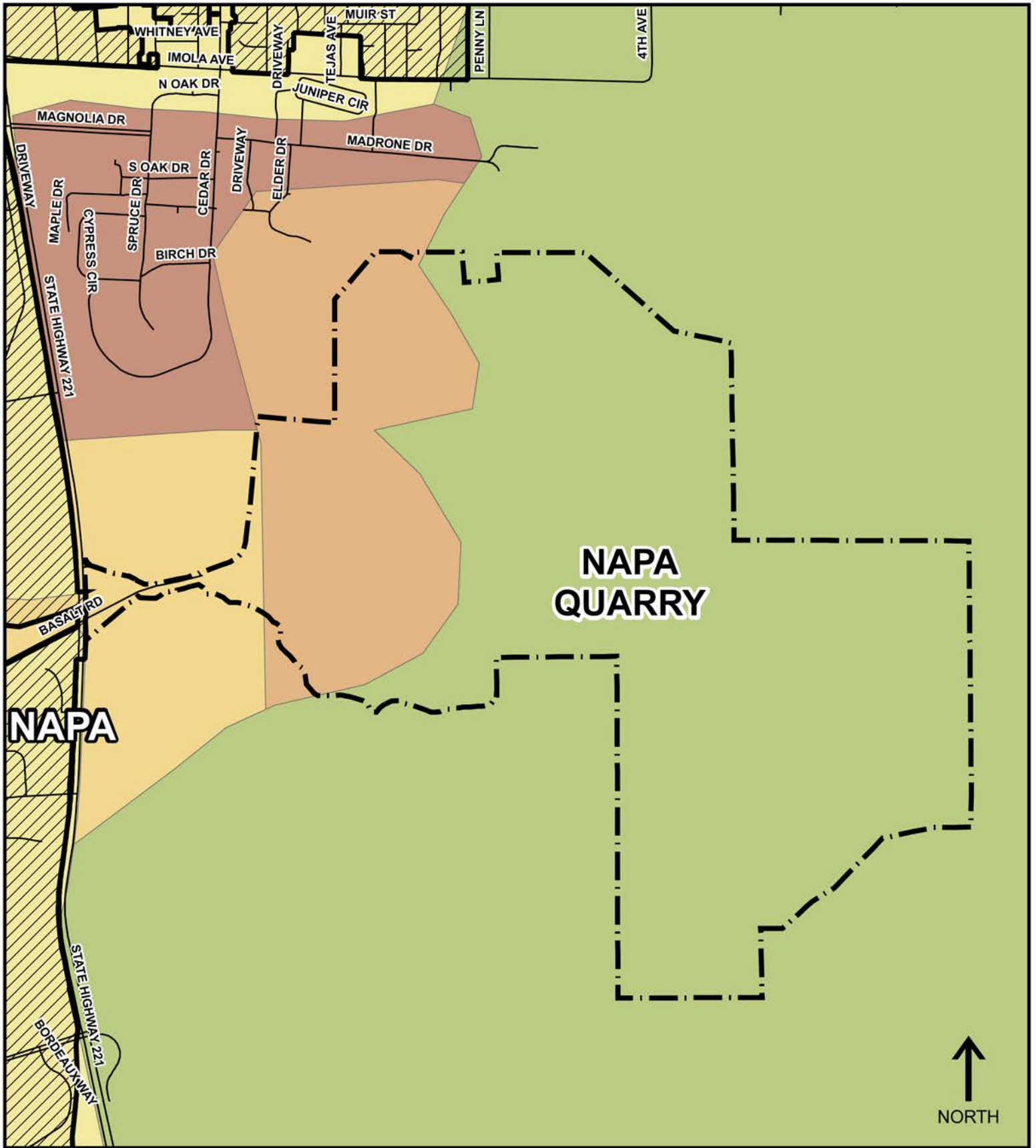
Syar Industries, Inc.

OWNERSHIP MAP



- Legend**
- Napa Quarry Parcels
 - Surrounding Parcels
 - Napa City Limits
 - Napa County Parcels
 - Roads



5
FIGURE








Legend

-  Napa City Limits
-  Napa Quarry Property Line
-  Roads

General Plan

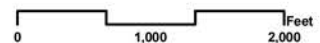
TYPE

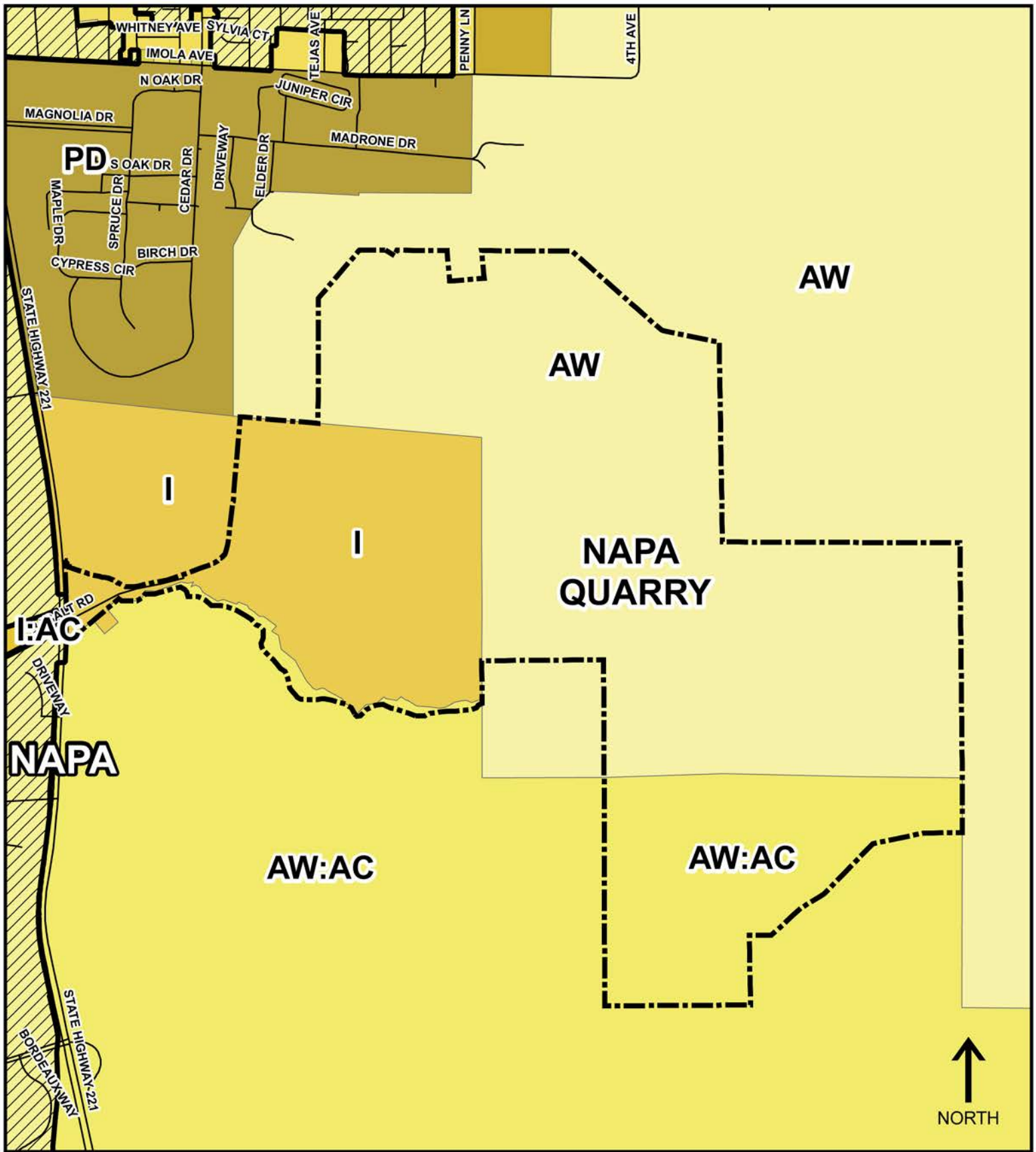
-  AGRICULTURE, WATERSHED AND OPEN SPACE
-  CITIES
-  INDUSTRIAL
-  MINERAL RESOURCES
-  PUBLIC-INSTITUTIONAL

GENERAL PLAN MAP

Napa Quarry, Syar Industries, Inc.

6a
FIGURE





Legend

-  Napa Quarry Property Line
-  Napa City Limits
-  Roads

ZONING:

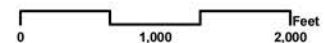
- AC: Airport Compatibility
- AW: Agriculture Watershed
- I: Industrial
- PD: Planned Development

ZONING MAP

Napa Quarry, Syar Industries, Inc.

6b

FIGURE



NAPA QUARRY



EXISTING DRAINAGE MAP LEGEND

- Project Area
- Exclusion and Buffer Areas
- 25 ft Contours
- Creek
- Directional Drainage
- Stormwater Outfall ID and Outfall ID
- Culvert
- Watershed Divide
- Watershed Basin (Typical)
- Constructed Pond
- Non-wetland Quarry Pit
- Perennial Wetland
- Seasonal Wetland
- Constructed Sediment Basin
- Wetland Seep

NOTES:

1. AERIAL PHOTO & TOPOGRAPHY FROM NAPA COUNTY G.I.S. 2007. CONTOUR INTERVAL EQUALS 25 FEET.
2. PROPERTY LINES FROM NAPA COUNTY ASSESSOR MAPS.
3. STORM WATER MANAGEMENT FACILITIES FROM STORM WATER POLLUTION PREVENTION PLAN, SYAR INDUSTRIES, INC., NAPA FACILITY, FEBRUARY, 2008.

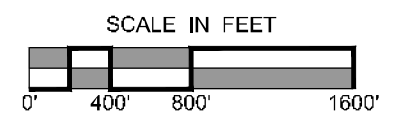
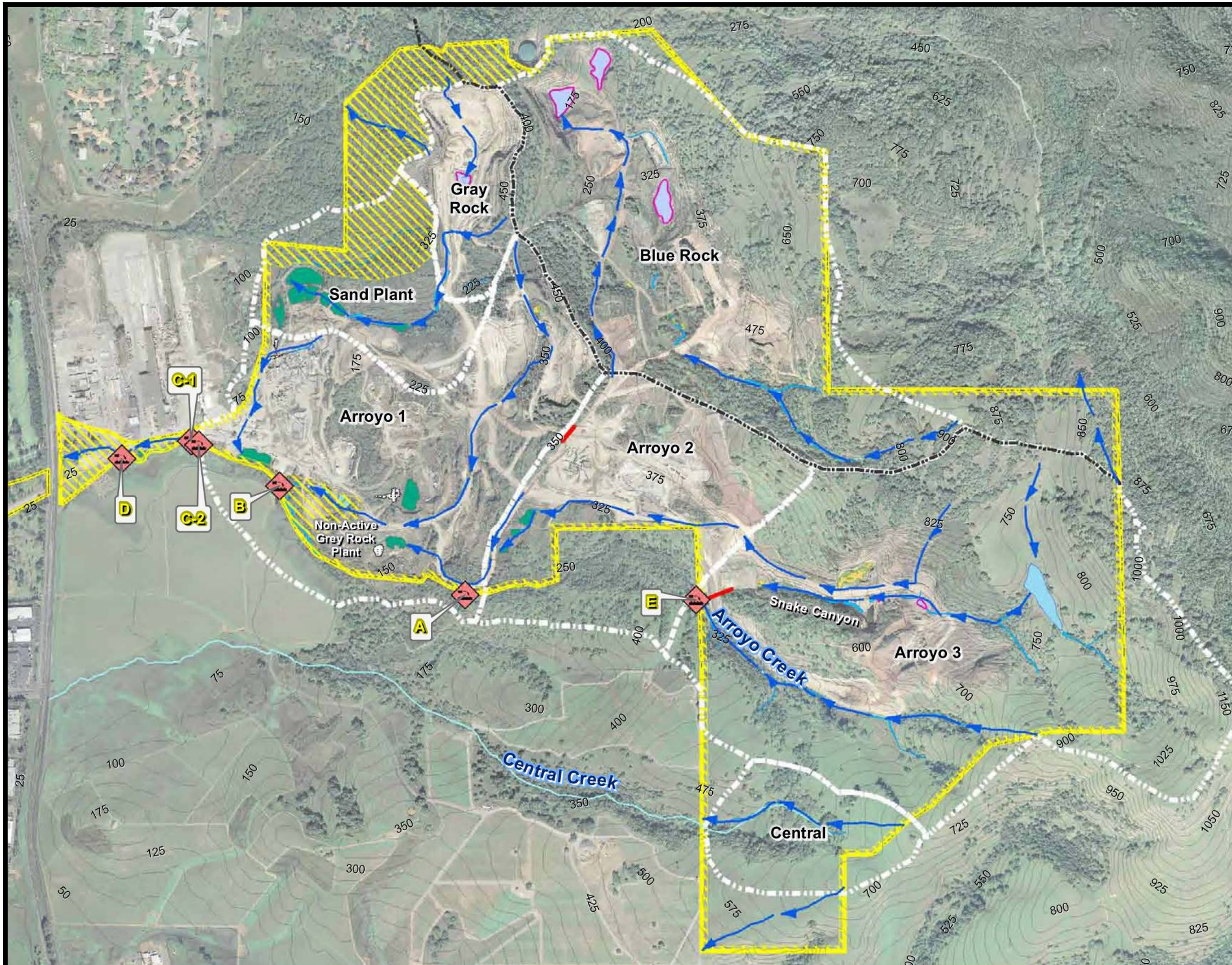
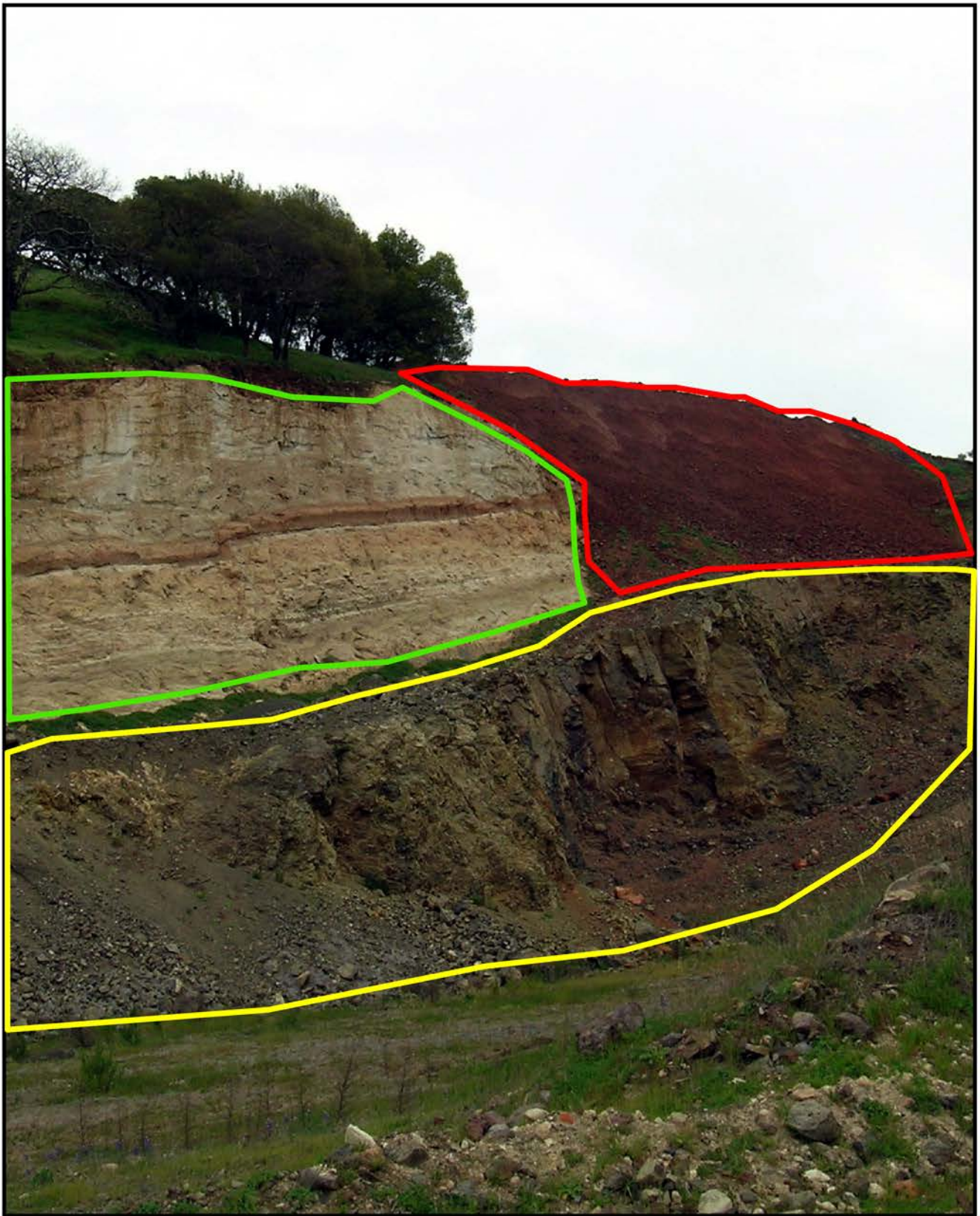


FIGURE 7





Legend

- Tuff
- Red Ash
- Basalt

**SITE PHOTOGRAPH OF
INTERMIXED ROCK LAYERS**

Napa Quarry, Syar Industries, Inc.

8

FIGURE

Table A: SUMMARY OF MAXIMUM CUT SLOPE HEIGHTS

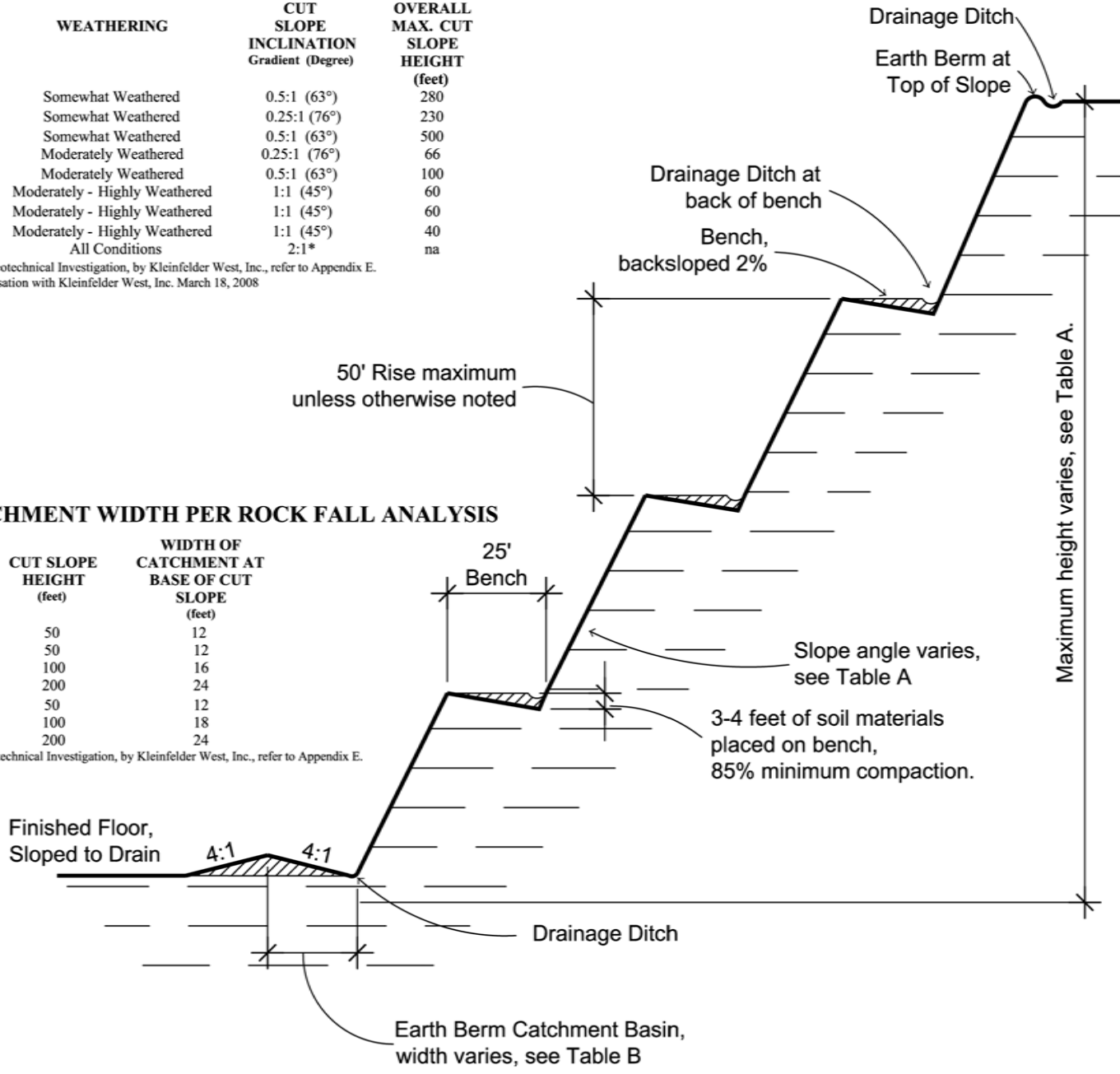
ROCK TYPE	WEATHERING	CUT SLOPE INCLINATION Gradient (Degree)	OVERALL MAX. CUT SLOPE HEIGHT (feet)
Rhyolite	Somewhat Weathered	0.5:1 (63°)	280
Basalt	Somewhat Weathered	0.25:1 (76°)	230
Basalt	Somewhat Weathered	0.5:1 (63°)	500
Basalt	Moderately Weathered	0.25:1 (76°)	66
Basalt	Moderately Weathered	0.5:1 (63°)	100
Vesicular Basalt	Moderately - Highly Weathered	1:1 (45°)	60
Agglomerate/Breccia	Moderately - Highly Weathered	1:1 (45°)	60
Tuff	Moderately - Highly Weathered	1:1 (45°)	40
Tuff	All Conditions	2:1*	na

SOURCE: Draft Geotechnical Investigation, by Kleinfelder West, Inc., refer to Appendix E.
 * Per phone conversation with Kleinfelder West, Inc. March 18, 2008

Table B: CATCHMENT WIDTH PER ROCK FALL ANALYSIS

CUTSLOPE Gradient (Degree)	CUT SLOPE HEIGHT (feet)	WIDTH OF CATCHMENT AT BASE OF CUT SLOPE (feet)
1:1 (45 degree)	50	12
	100	16
0.5:1 (63 degree)	50	12
	100	18
0.25:1 (76 degree)	50	12
	100	18
	200	24

SOURCE: Draft Geotechnical Investigation, by Kleinfelder West, Inc., refer to Appendix E.



NAPA QUARRY

Syar Industries, Inc.

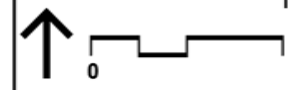
Conceptual Mining Treatment at Hillsides With Solid Basalt, Rhyolite or Tuff

Notes:

- 1) Cut slopes to have average inclination based on rock type and weathering as shown in Table A.
- 2) 25-foot wide benches to be backslope 2% and have lateral slope of 1% to 10%.
- 3) See figures 11a and 11b for typical planting method.
- 4) Refer to excerpts of Geotechnical Investigation in Appendix E for a more detailed description of stability analysis and recommendations.

9a

FIGURE



NAPA QUARRY

Syar Industries, Inc.

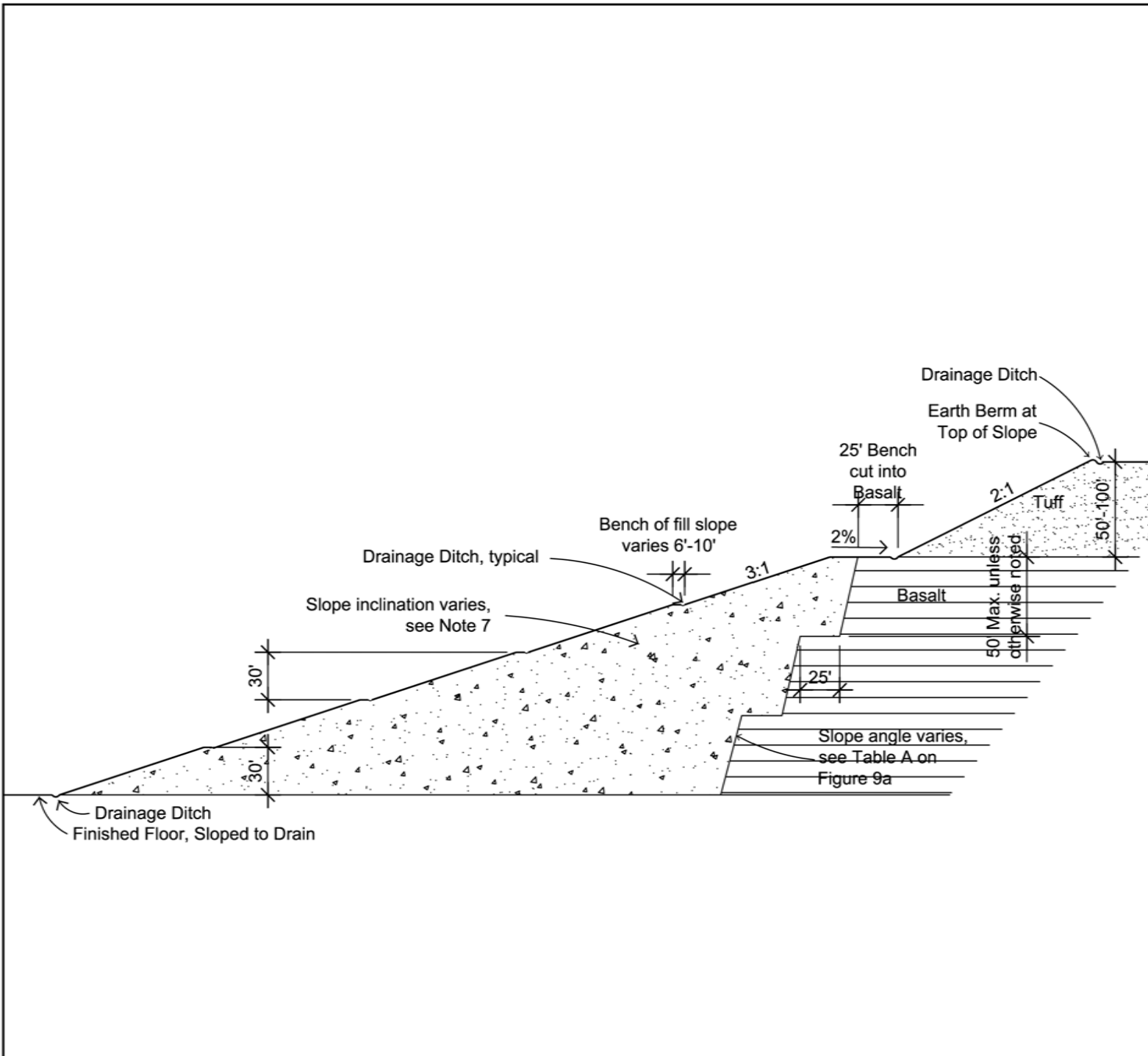
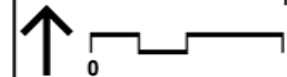
Mining Treatment at Hillside With Tuff on top of Basalt Pit

Notes:

- 1) Tuff used as engineered fill material shall have a gradient of 3:1 unless otherwise recommended by Soil Engineer.
- 2) Fill slopes shall have 6-10 foot wide benches every 30 vertical feet.
- 3) Basalt slope will be cut with 25 feet wide benches every 50 vertical feet for an average slope indicated on Figure 9a.
- 4) All benches to be backsloped 2% and have a lateral slope of 1% to 10%.
- 5) See figures 11a, 11b and 11c for typical planting method.
- 6) Refer to excerpts of Geotechnical Investigation in Appendix E for a more detailed description of stability analysis and recommendations.
- 7) 3:1 slope inclination with Tuff as Engineered Fill; other fill materials may be steeper per geologic report, Appendix E; or as recommended by a geologist.

9b

FIGURE



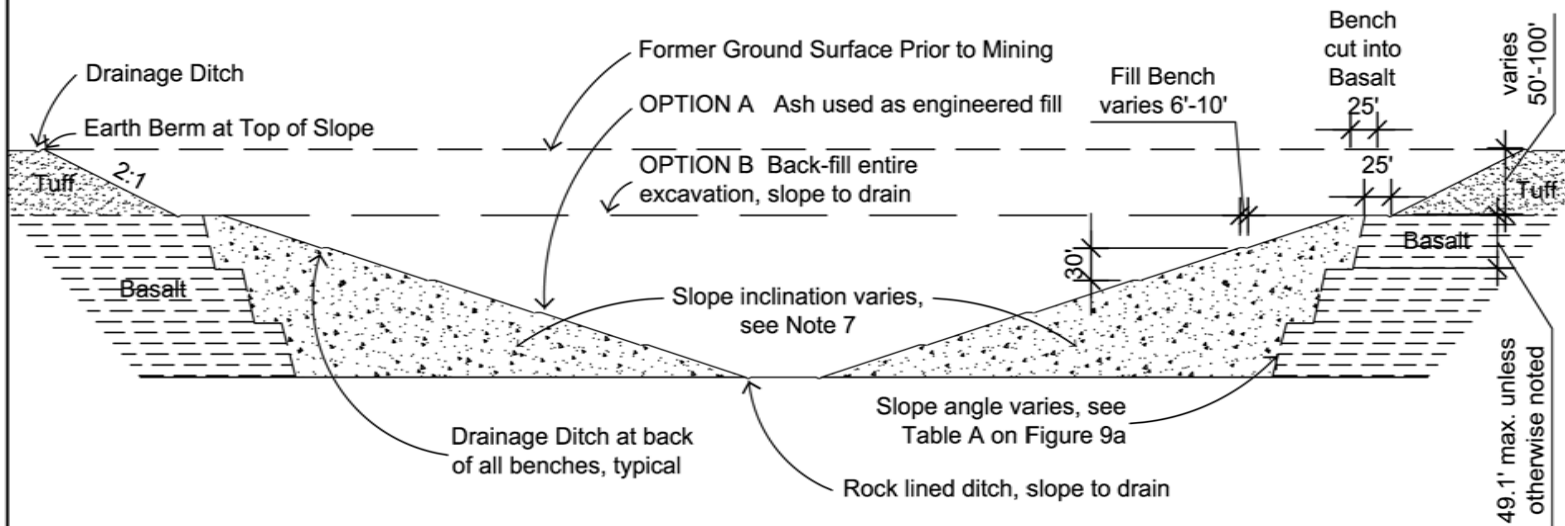
NAPA QUARRY

Syar Industries, Inc.

Mining Treatment at Pit With Tuff on top of Basalt

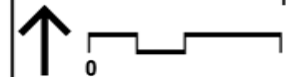
Notes:

- 1) Tuff used as engineered fill material shall have a gradient of 3:1 unless otherwise recommended by Soil Engineer.
- 2) Fill slopes shall have 6-10 foot wide benches every 30 vertical feet.
- 3) Basalt slope will be cut with 25 feet wide benches every 50 vertical feet for an average slope indicated on Figure 9a.
- 4) All benches to be backsloped 2% and have a lateral slope of 1% to 10%.
- 5) See figures 11a, 11b and 11c for typical planting method.
- 6) Refer to excerpts of Geotechnical Investigation in Appendix E for a more detailed description of stability analysis and recommendations.
- 7) 3:1 slope inclination with Tuff as Engineered Fill; other fill materials may be steeper per geologic report, Appendix E; or as recommended by a geologist.



9c

FIGURE



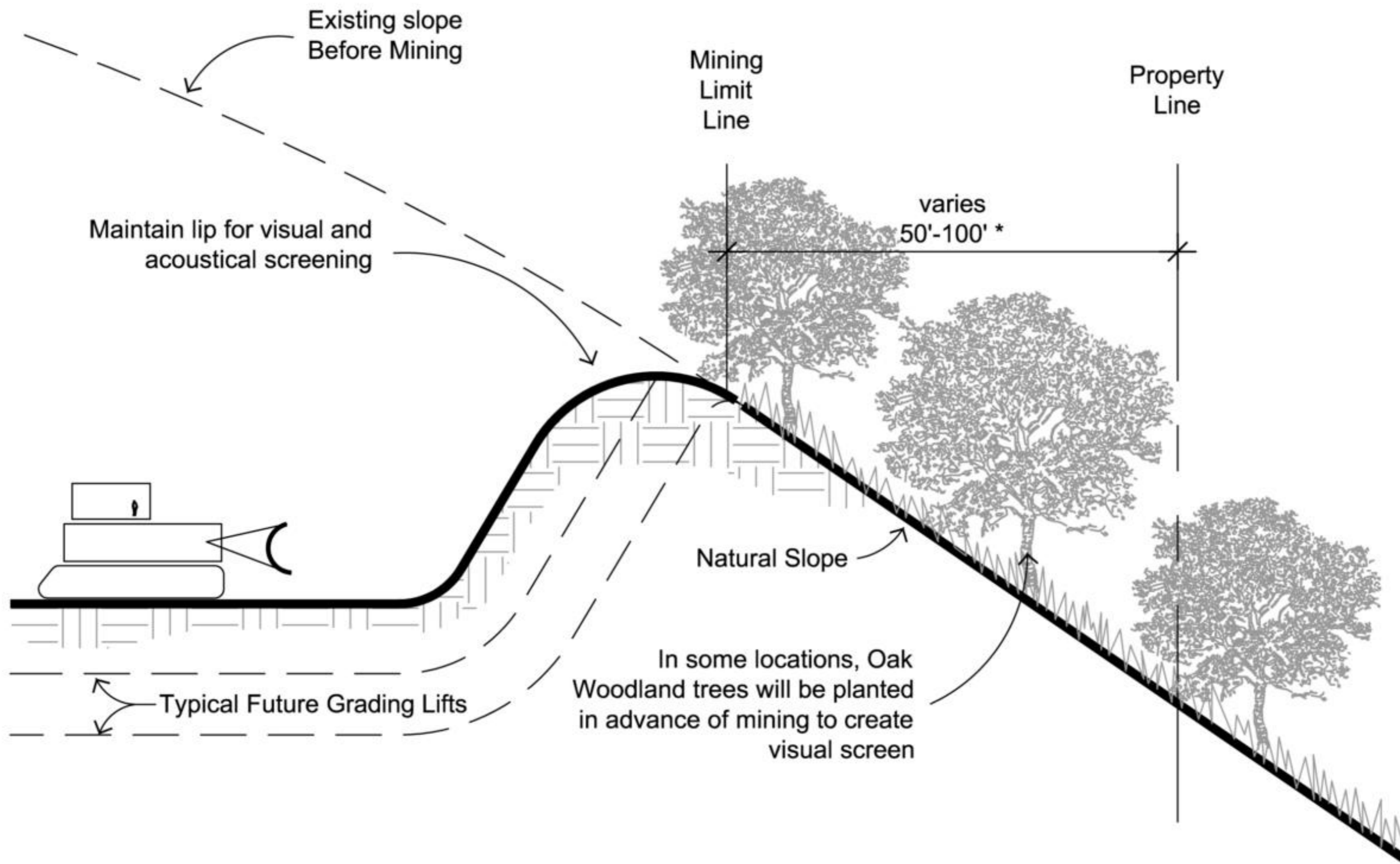
NAPA QUARRY

Syar Industries, Inc.

Grading Method at Edge of Quarry Property

Note:

* Setback varies from 50 to 100 feet at perimeter of property, except as shown on Figure 3f.



10

FIGURE

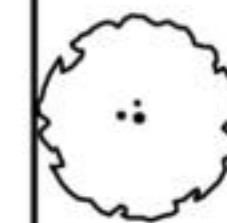


NAPA QUARRY

Syar Industries, Inc.

Revegetation Method for Oak Woodland Planting on Benches

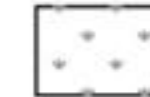
Legend



Oak Woodland trees, 15-25' OC in groups of 4-8 trees. Groupings spaced randomly every 50, 80, 100 feet.



Vine, 40' OC



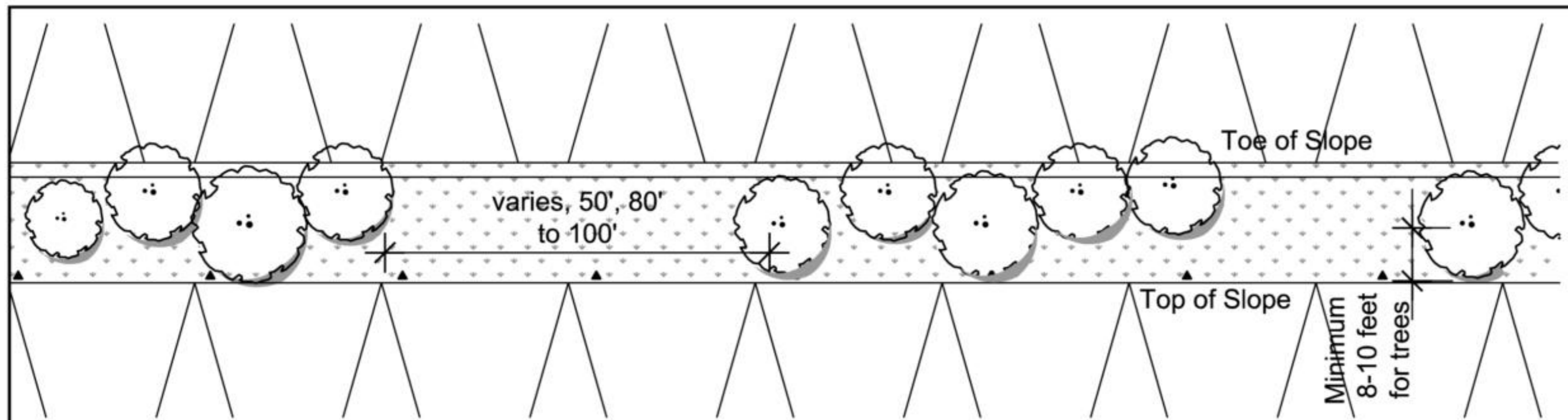
Grassland seed mix

Note:

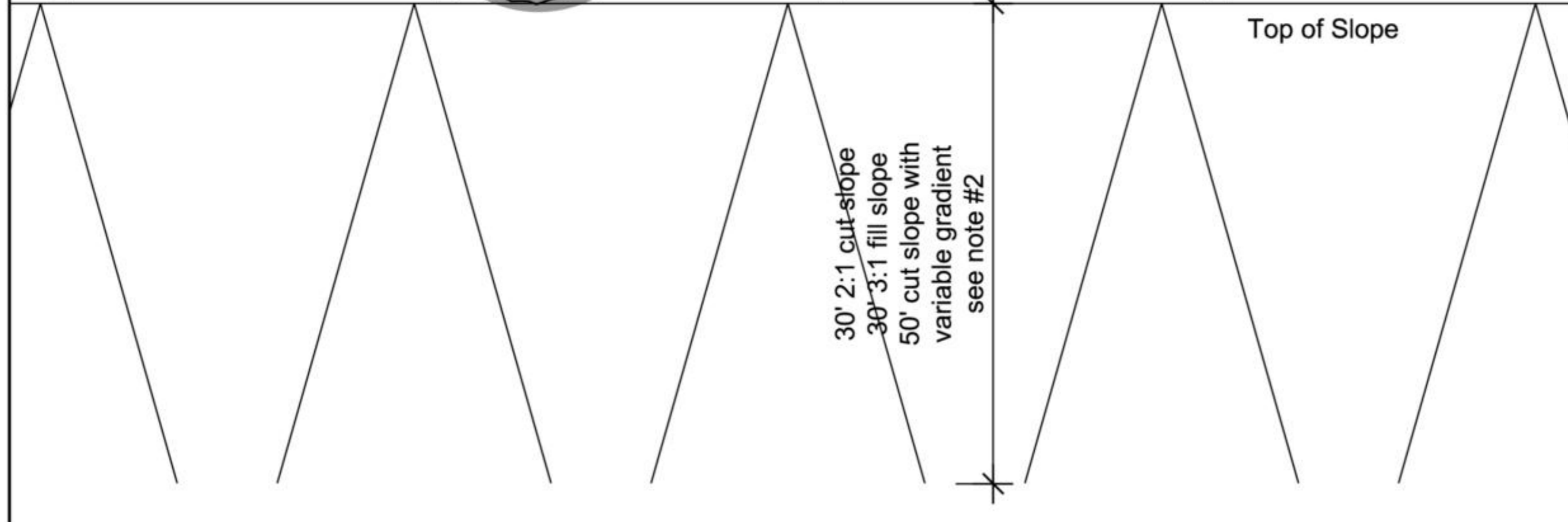
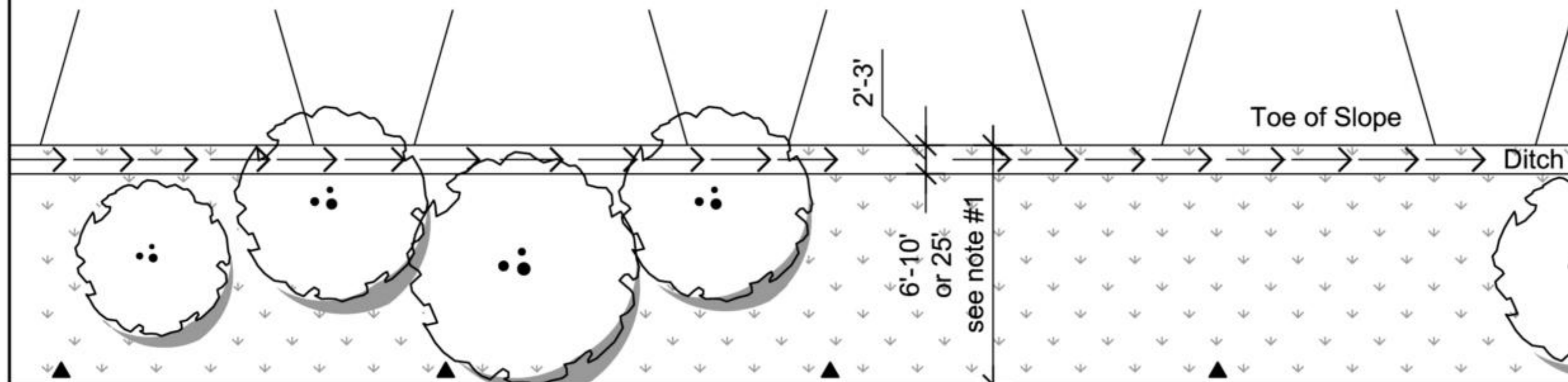
- 1) Bench width varies: 25' wide benches at quarried slopes & 6'-10' wide benches on fill slopes, see Figure 9b.
- 2) Slope height and inclination varies, see Figures 9a, 9b and 9c.
- 3) Refer to Table 6 for hydroseed mix and Table 5 for list of Oak Woodland plants.
- 4) The center of trees must be planted at least 8-10 feet from the edge of the bench.

11a

FIGURE



Plan View Half Scale


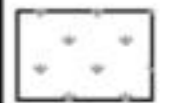


NAPA QUARRY

Syar Industries, Inc.

Revegetation Method for Chaparral Planting on Benches

Legend

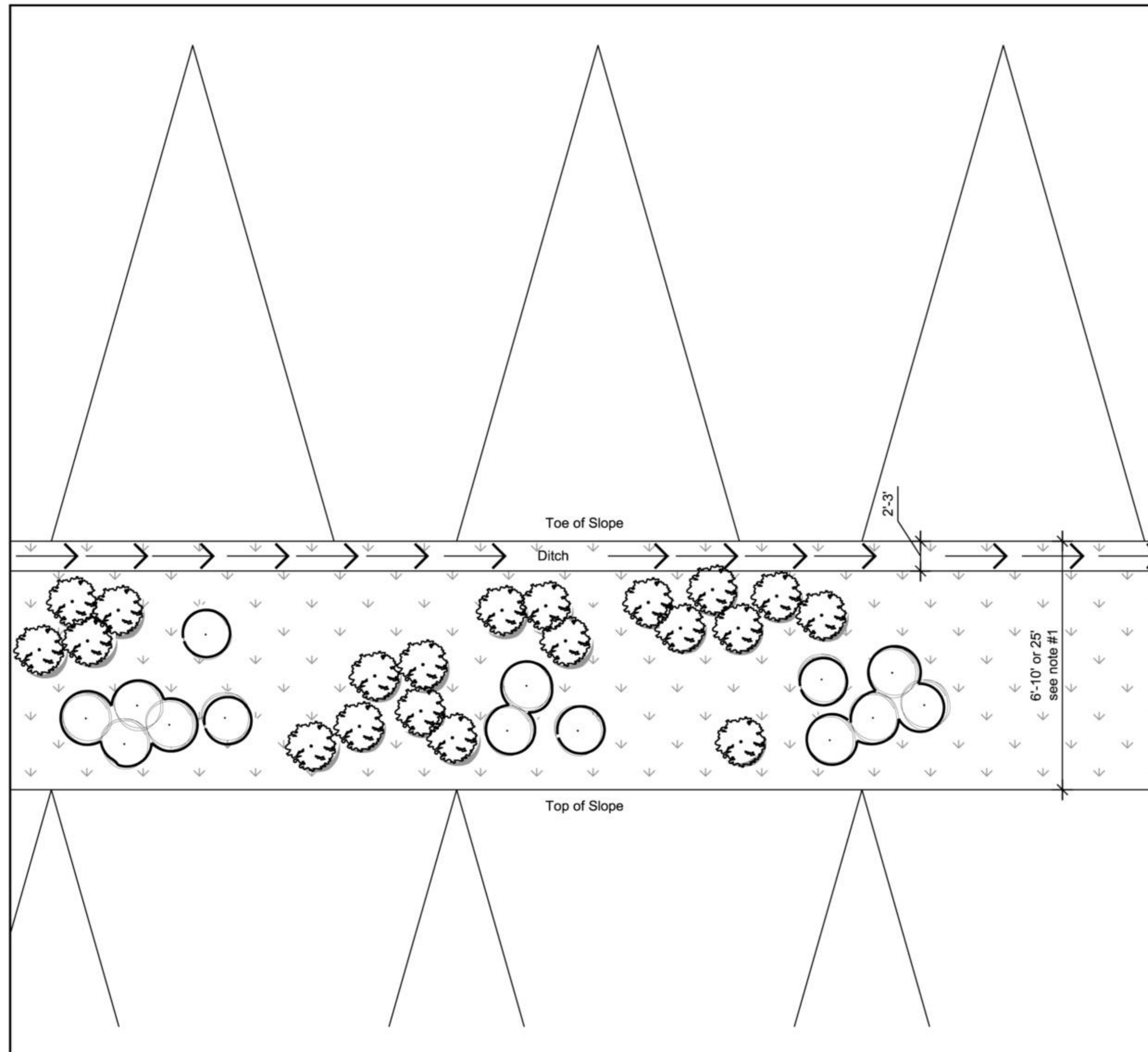
-  Chaparral plant species planted in groupings with 3 to 8 shrubs and an occasional single plant
-  Chaparral Grassland seed mix

Note:

- 1) Bench width varies: 25' wide benches at quarried slopes & 6'-10' wide benches on fill slopes, see Figure 9b.
- 2) Refer to Table 6 for Chaparral hydroseed mixes and Table 5 for Chaparral plants.

11b

FIGURE






NAPA QUARRY

Syar Industries, Inc.

Revegetation Method for Planting Treatment on 2:1 and 3:1 Slopes

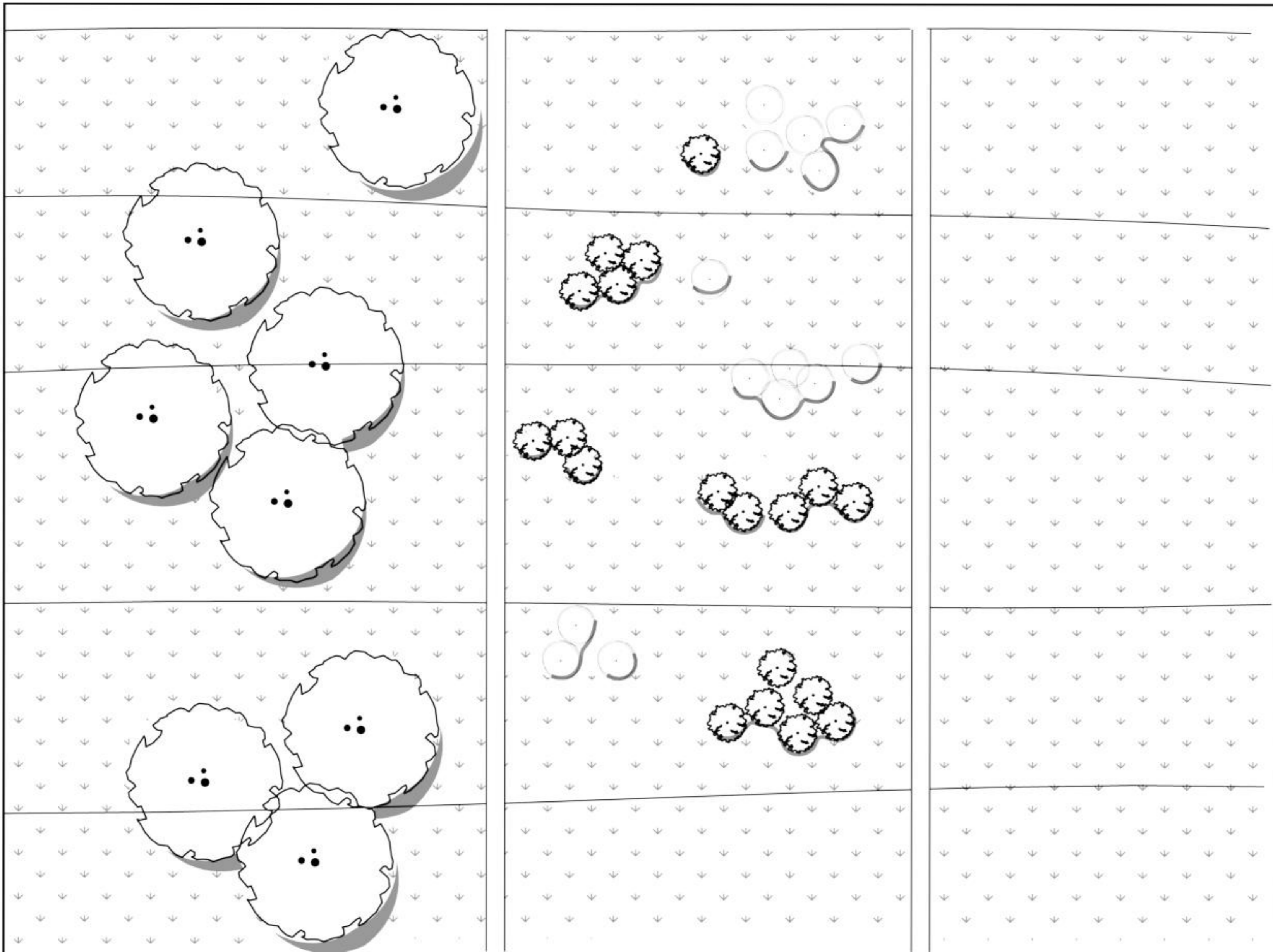
Legend

-  Oak Woodland 2:1 and 3:1 Slopes
-  Chaparral 2:1 and 3:1 Slopes
-  Grassland 2:1 and 3:1 Slopes

Note: See Table 5 for plant list and Table 6 for hydroseed mixes for each plant community.

11c

FIGURE



Oak Woodland on Slope

Chaparral on Slope

Grassland on Slope

NAPA QUARRY

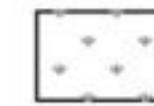
Syar Industries, Inc.

Revegetation Method for Grassland with Oak Trees on Valley Floor

Legend



Oak Trees shall be planted with 20 trees every 1,000 LF in groupings along base of slope.

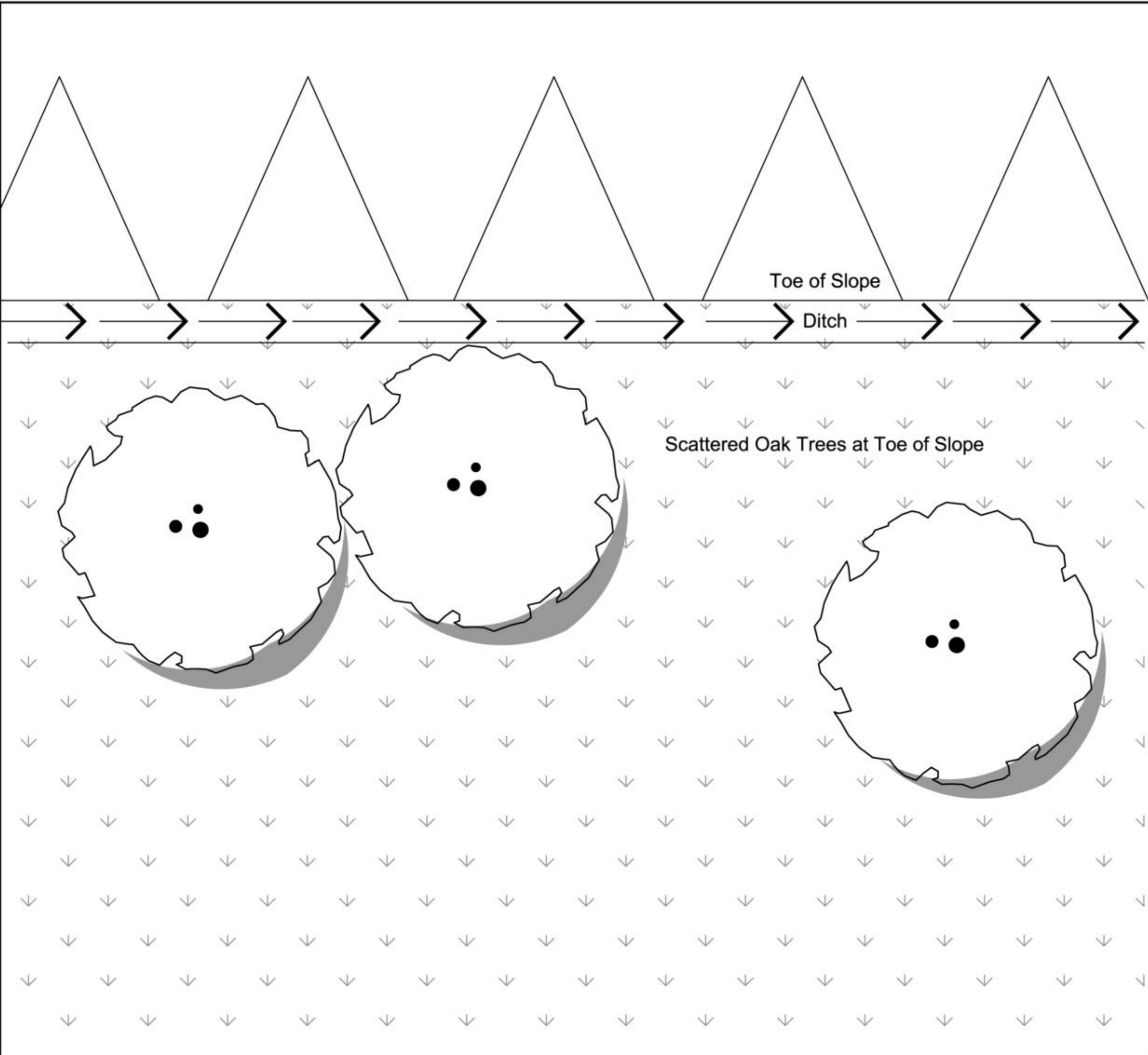


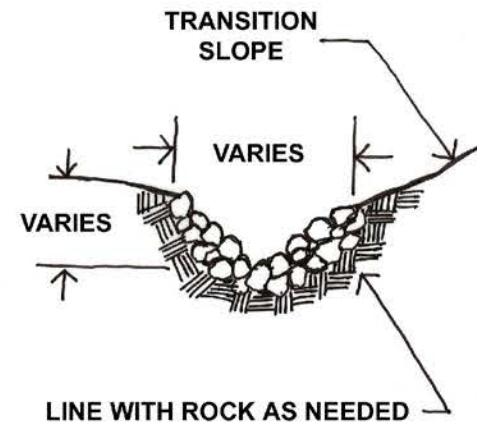
Grassland seed mix

Note:
Refer to Table 6 for
Hydroseed mix and Table 5
for list of Oak Woodland
species.

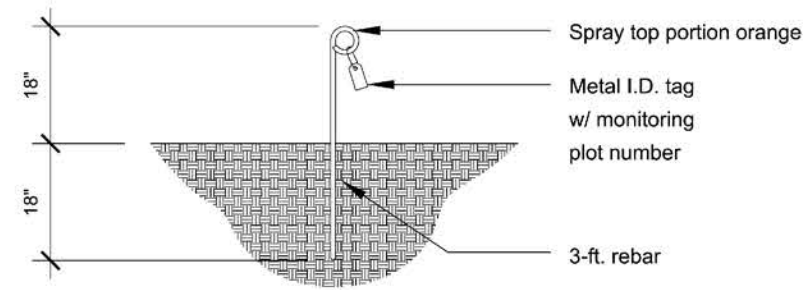
11d

FIGURE

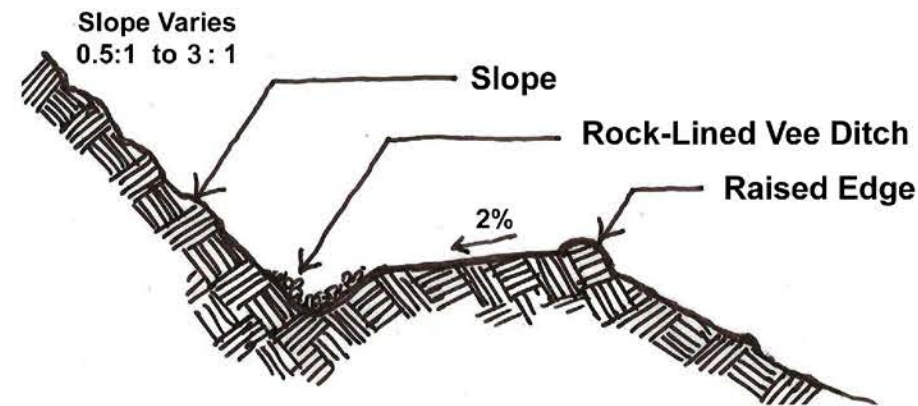




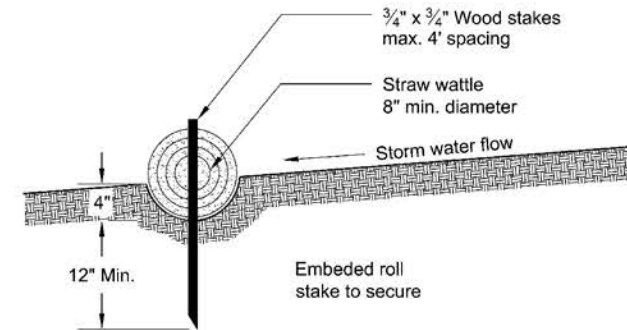
LINED DITCH DETAIL



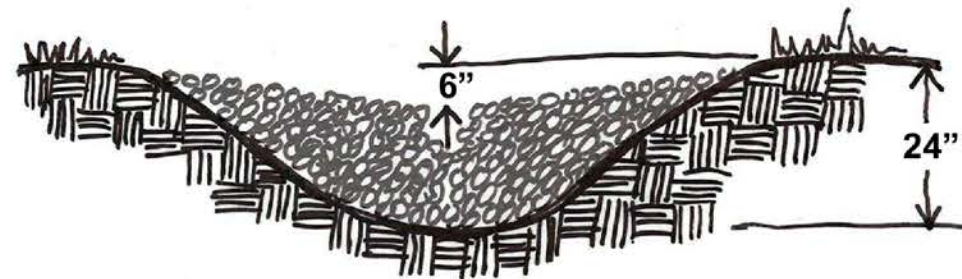
REBAR DETAIL



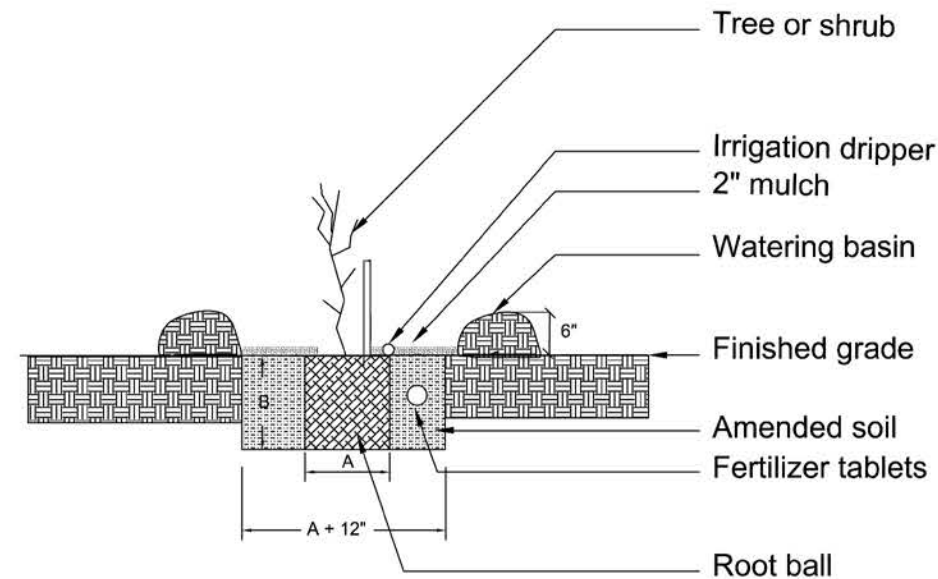
BENCH - VEE DITCH DETAIL



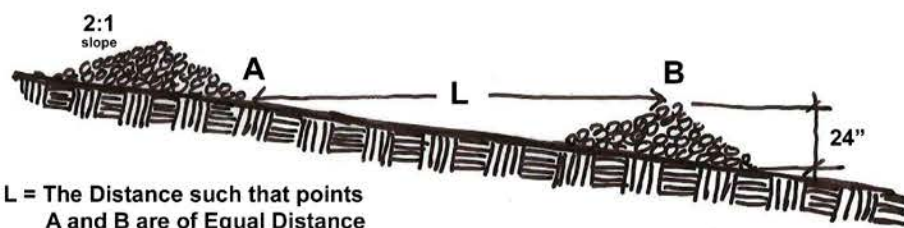
STRAW WATTLE DETAIL



ROCK CHECK DAM DETAIL (see legend notes)



PLANTING HOLE DETAIL



L = The Distance such that points A and B are of Equal Distance

SPACING BETWEEN CHECK DAM DETAIL

NAPA QUARRY

Syar Industries, Inc.

REVEGETATION AND DRAINAGE DETAILS

CHECK DAM NOTES

The following criteria shall be adhered to when using check dams:

1. The maximum height of the check dam shall be 2 feet. The center of the check dam shall be at least 6 inches lower than adjacent ground surface. The maximum spacing between the dams shall be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam, as illustrated in the detail.
2. Stone check dams shall be constructed of 2 to 3 inch stone. The stone shall be placed in the same manner as shown on the detail.

12

FIGURE

NAPA QUARRY



TEST PLANTING PLOT LOCATION MAP

LEGEND

- PROPERTY LINES
- TEST PLANTING PLOTS (WITH IDENTIFICATION #s)
- 12

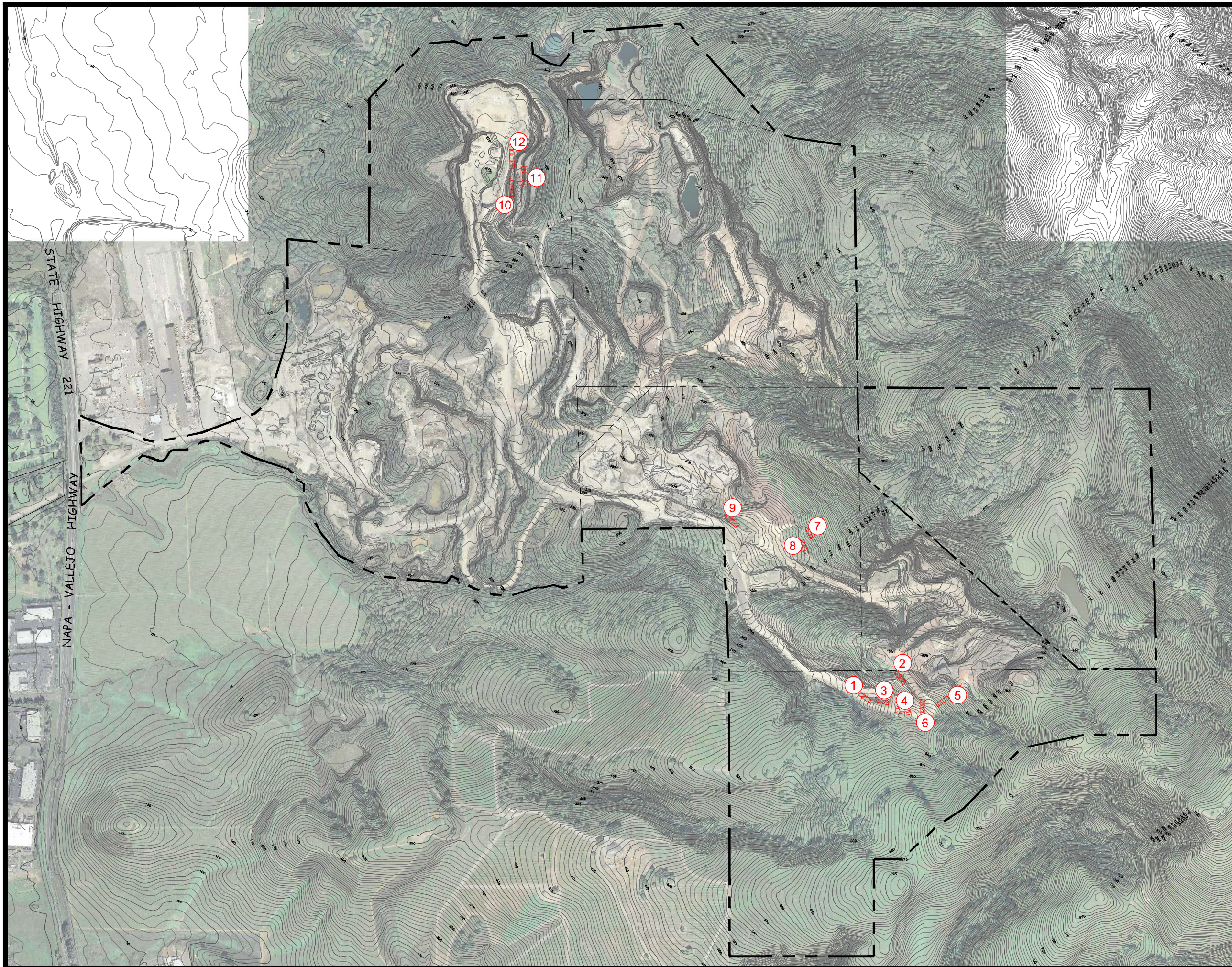
NOTES:

1. TEST PLANTING PLOTS ARE 65 SQUARE FEET.
2. REFER TO TABLE 7 & SECTION 5.400 FOR A DESCRIPTION ABOUT THE PLOTS.
3. SEE TABLES 5 & 6 FOR PLANT IDENTIFICATIONS
4. FOR INSPECTIONS REFER TO SECTION 6.300 AND FIGURES 14 & 15.
5. THE TEST PLANTING PLOTS SHOWN HEREON ARE APPROXIMATE IN SIZE & LOCATION. AREAS SHOWN ARE FOR ASSESSMENT PURPOSES ONLY.
6. AERIAL PHOTO & TOPOGRAPHY FROM NAPA COUNTY G.I.S. 2007. CONTOUR INTERVAL EQUALS 5 FEET.
7. PROPERTY LINES FROM NAPA COUNTY ASSESSOR MAPS.
8. STORM WATER MANAGEMENT FACILITIES FROM STORM WATER POLLUTION PREVENTION PLAN, SYAR INDUSTRIES, INC., NAPA FACILITY, FEBRUARY, 2008.

SCALE IN FEET



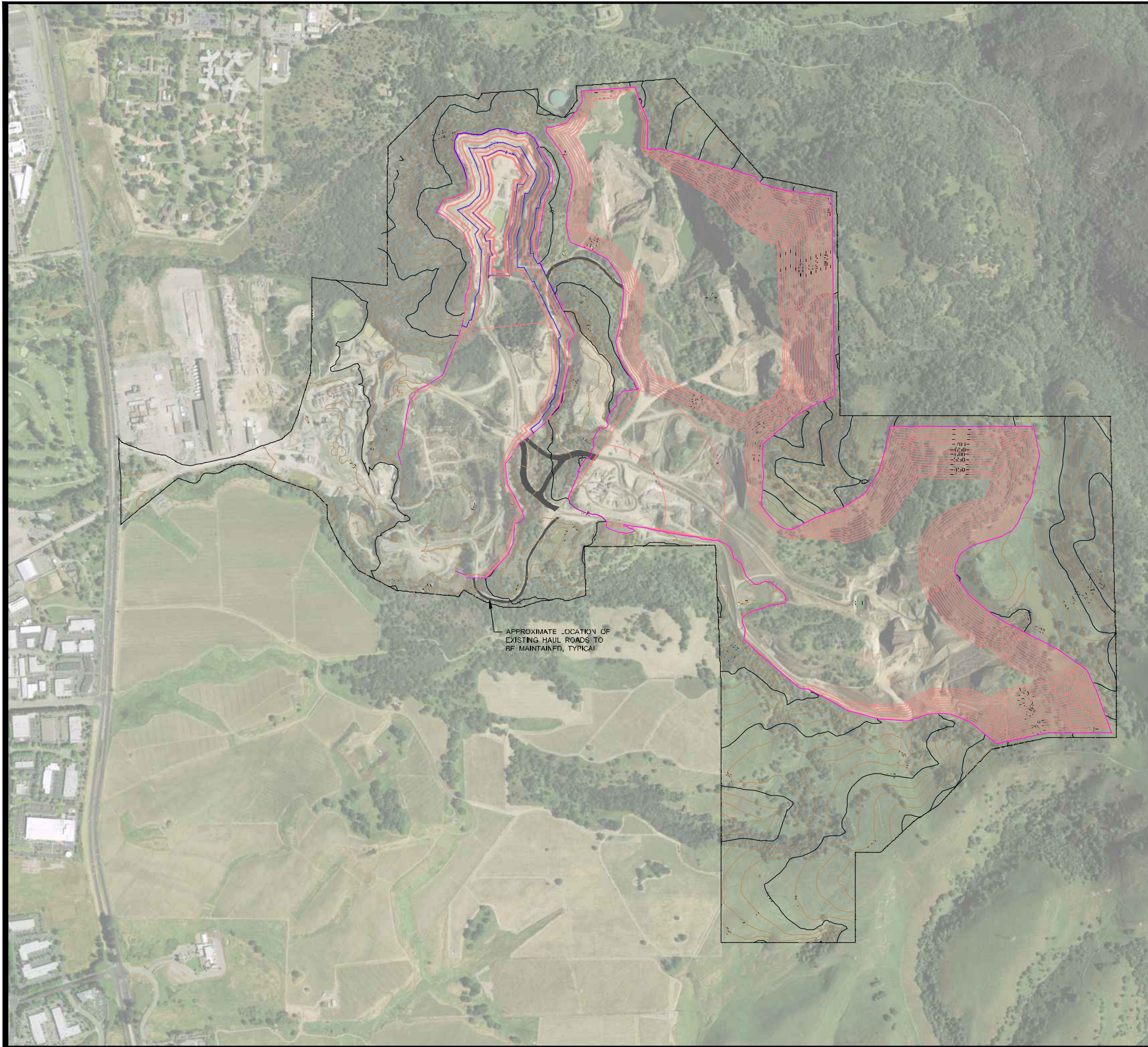
FIGURE 13



NAPA QUARRY



FINAL GRADING PLAN



NOTES:

1. AERIAL PHOTO FROM USGS APR-2011
CONTOUR INTERVAL EQUALS 25 FEET.

SCALE IN FEET

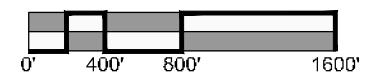
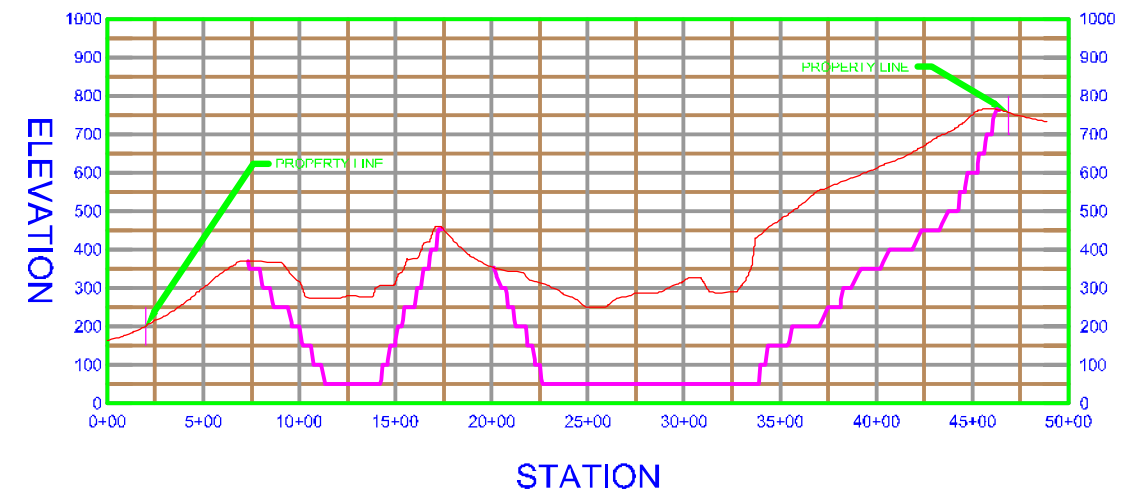
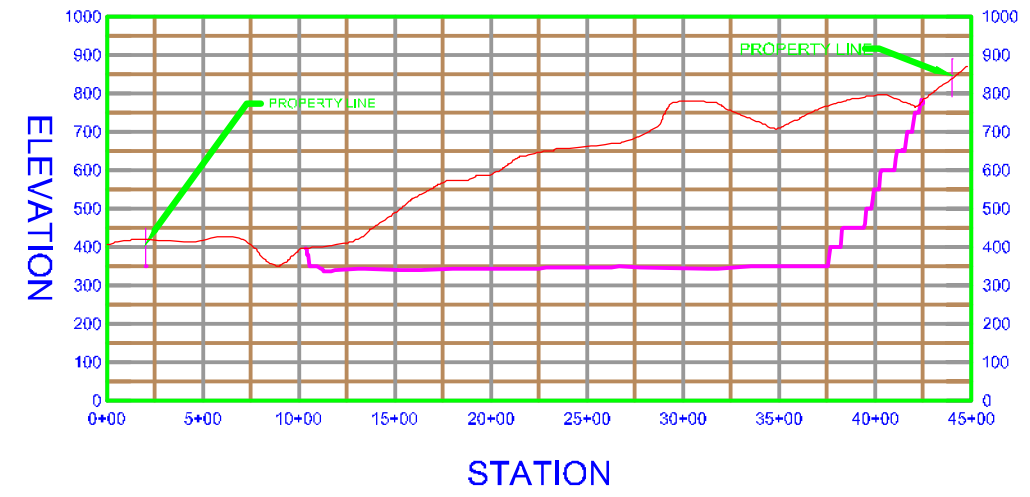


FIGURE
14a

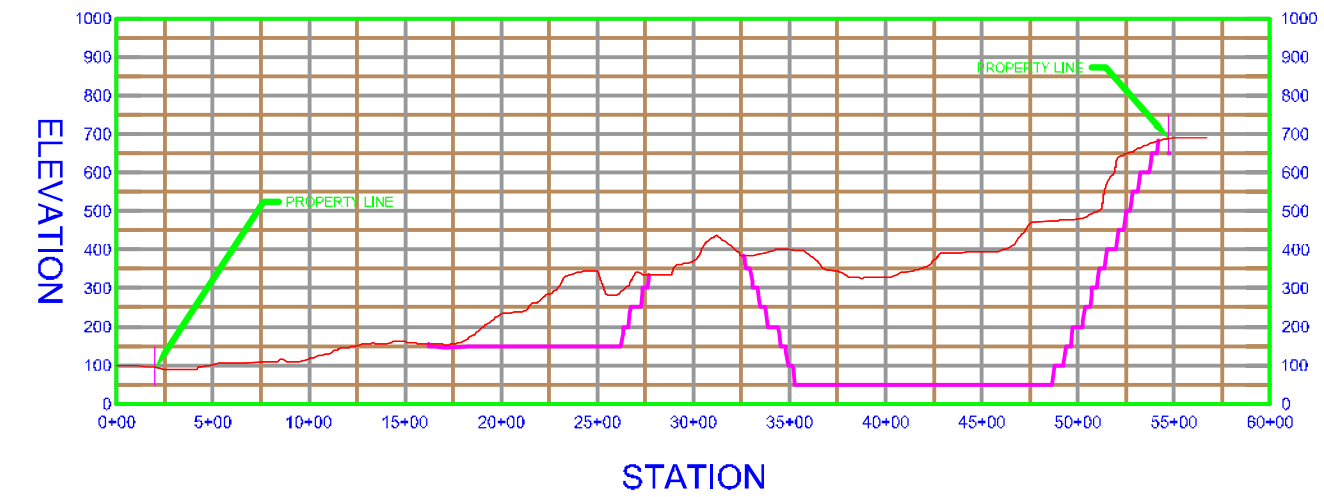
FINAL GRADING SECTIONS



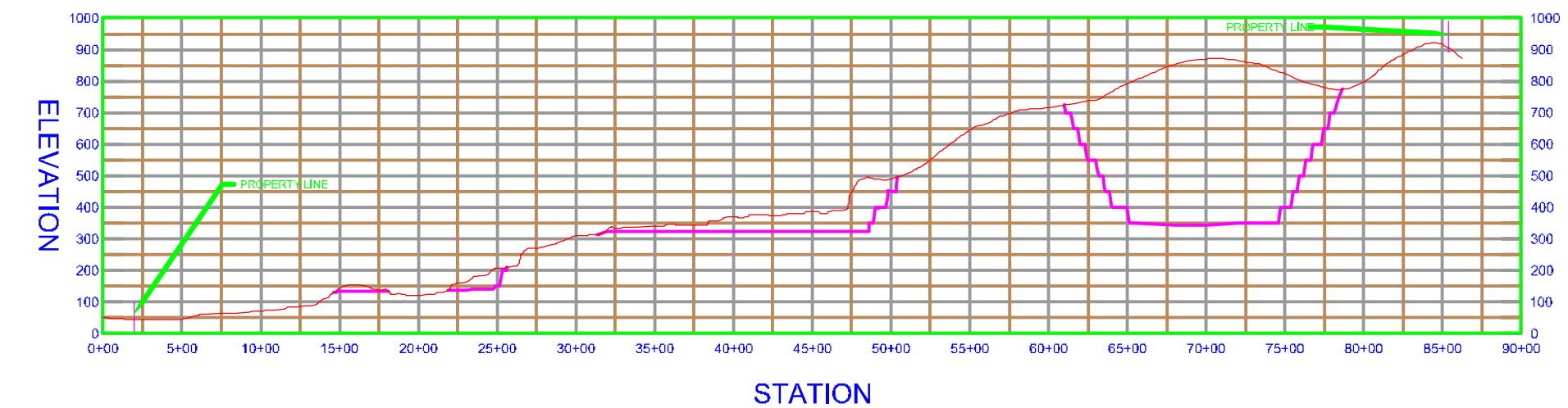
A
1.0
WEST TO EAST LOOKING NORTH



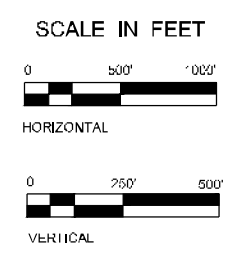
D
1.0
WEST TO EAST LOOKING NORTH



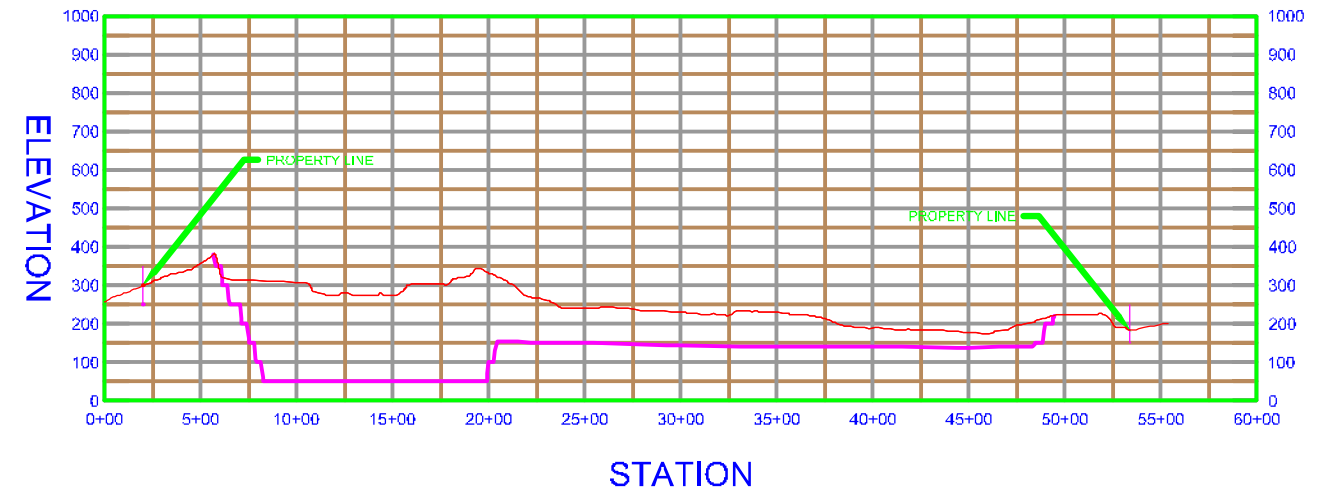
B
1.0
WEST TO EAST LOOKING NORTH



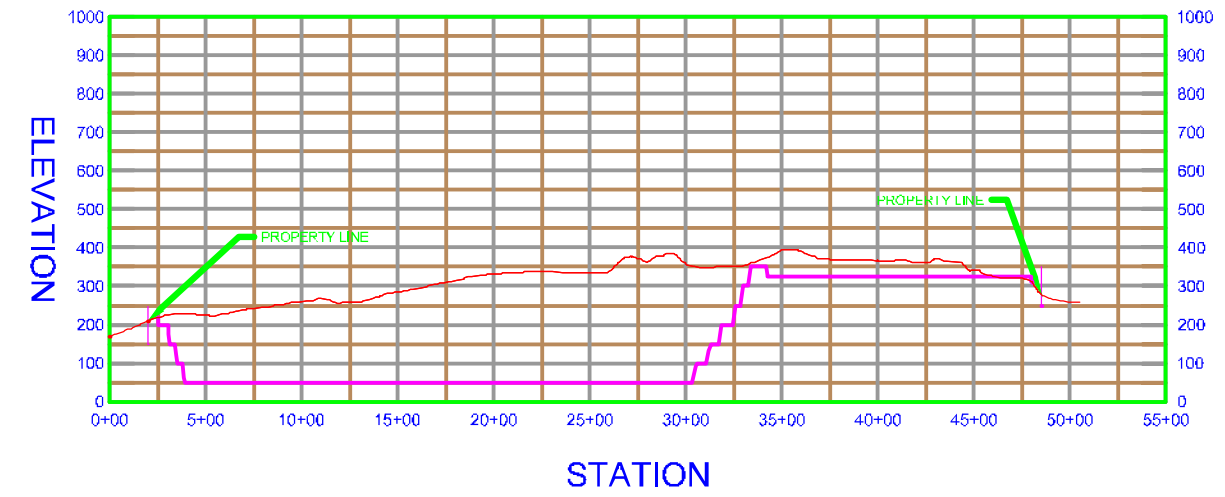
C
1.0
WEST TO EAST LOOKING NORTH



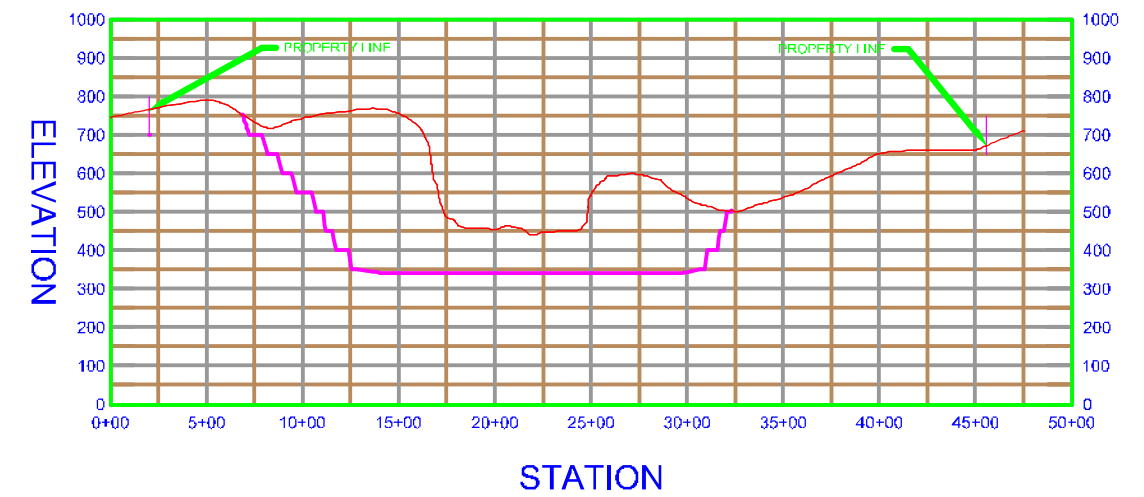
FINAL GRADING SECTIONS



F
1.0
NORTH TO SOUTH LOOKING EAST

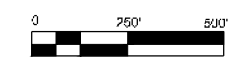
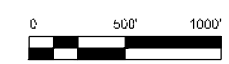


F
1.0
NORTH TO SOUTH LOOKING EAST



G
1.0
NORTH TO SOUTH LOOKING EAST

SCALE IN FEET






NAPA QUARRY



FINAL REVEGETATION PLAN

LEGEND

-  CHAPARRAL PLANTING ON BENCHES (DETAILS SHOWN ON FIGURE 11b)
-  GRASSLAND WITH OAK TREES PLANTING ON VALLEY FLOOR (DETAILS SHOWN ON FIGURE 11d)
-  OAK WOODLANDS PLANTING ON BENCHES (DETAILS SHOWN ON FIGURE 11a)

NOTES:

1. ALL ROADS WILL BE RIPPED & REPLANTED WITH OAK WOODLANDS
2. AERIAL PHOTO FROM NAPA COUNTY G.I.S. 2007. CONTOUR INTERVAL EQUALS 25 FEET.

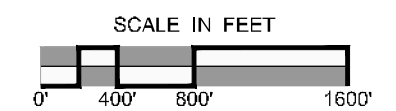
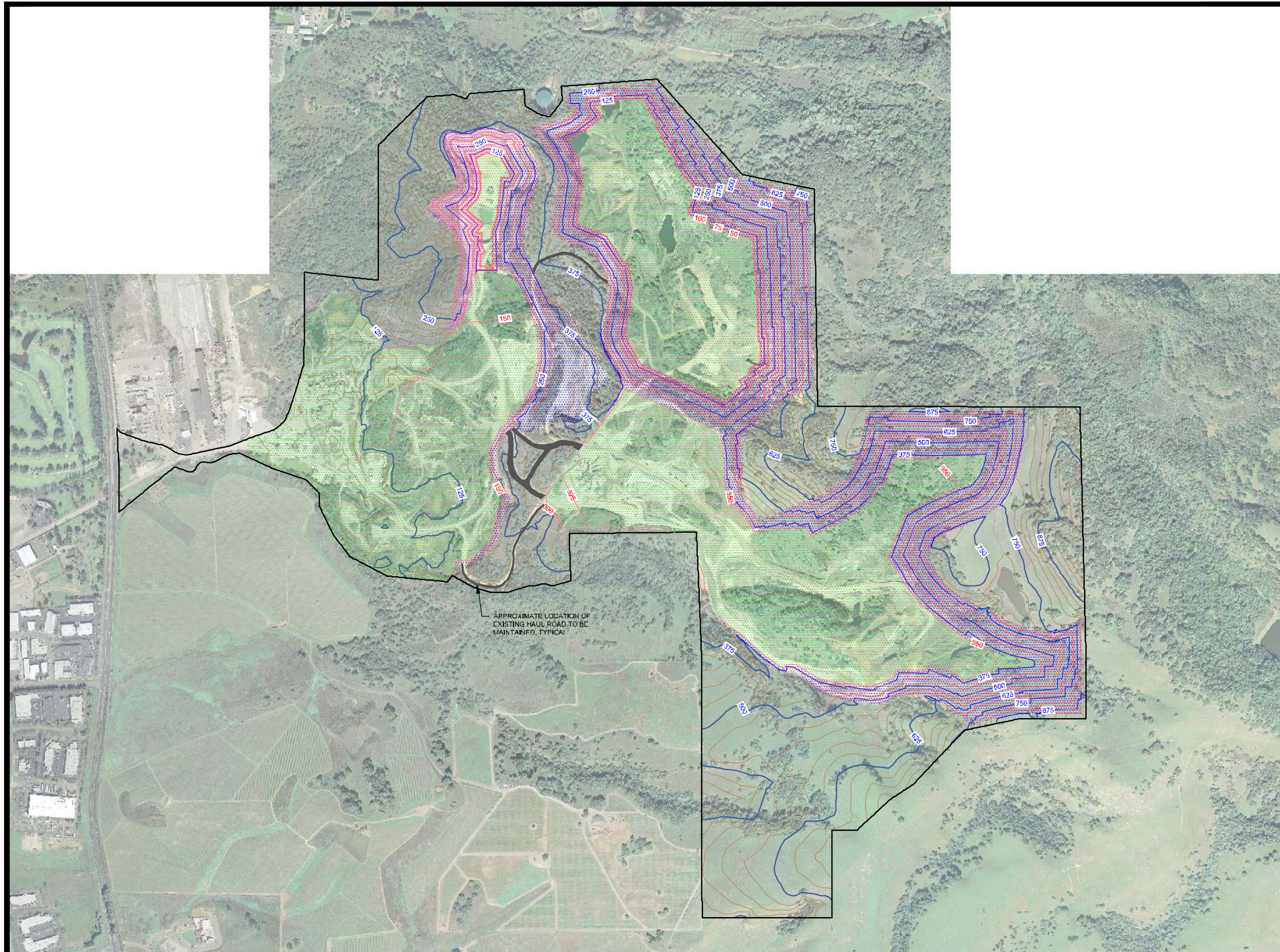


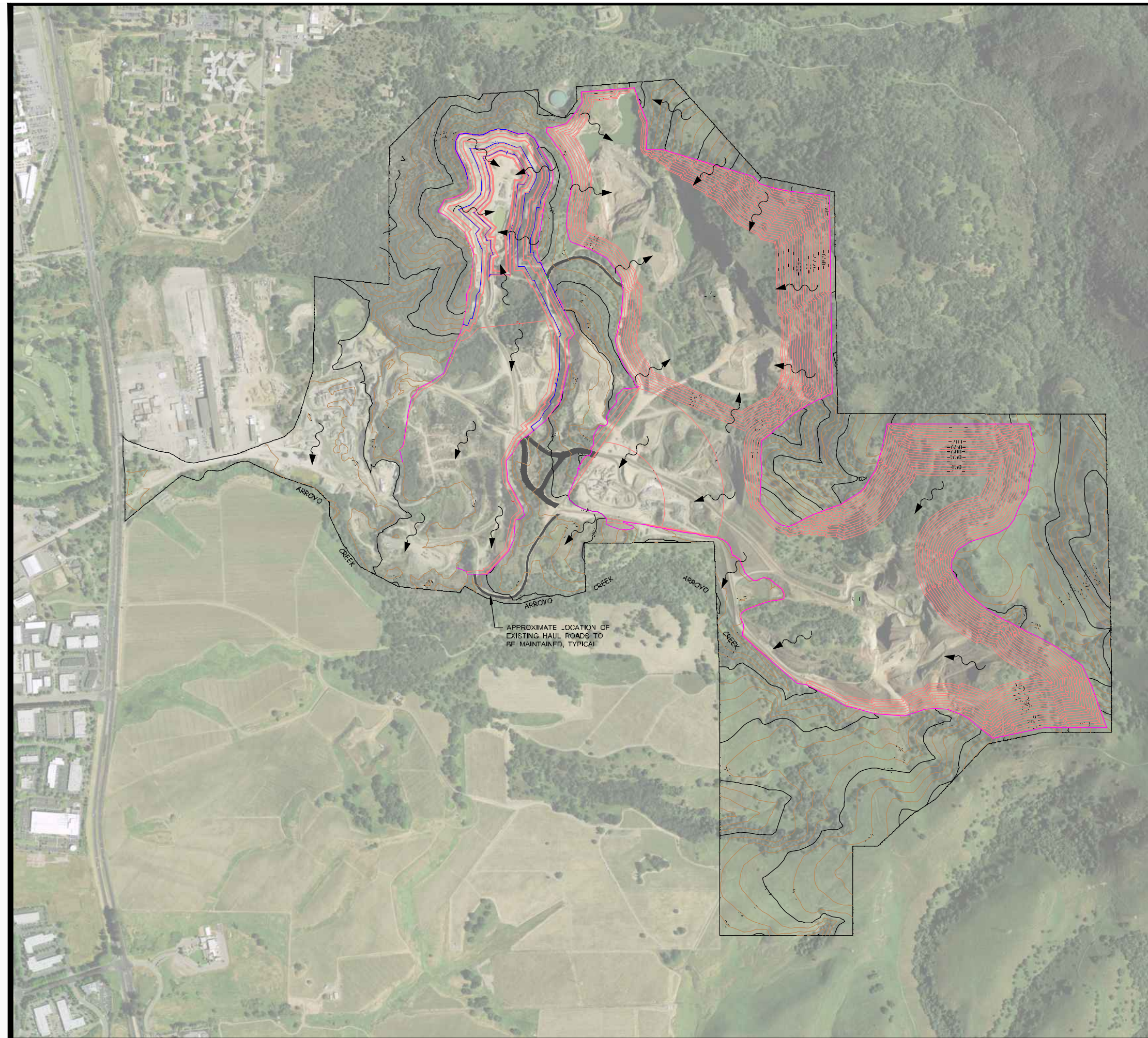
FIGURE 14d



APPROXIMATE LOCATION OF EXISTING HAUL ROAD TO BE MAINTAINED, TYPICAL

NAPA QUARRY

FINAL DRAINAGE PLAN



- GENERAL DRAINAGE FLOW DIRECTION ARROWS

NOTES:

1. THE SOUTHERN HALF OF THE SITE WILL DRAIN INTO ARROYO CREEK.
2. AERIAL PHOTO FROM USGS APR-2011 CONTOUR INTERVAL EQUALS 25 FEET.

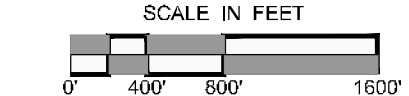


FIGURE 15