APPENDIX I:

WET-SEASON EROSION CONTROL INSPECTION REPORTS

Memorandum

To: Greg Knapp, Lehigh Hanson
Cc: Scott Renfrew, Lehigh Hanson

From: Sean Avent
avent@wra-ca.com
ext. 112

Date: January 28, 2012
Subject: Permanente Quarry – Erosion Control Inspection

Per COA 78 of the Final Conditions of Approval, the Mine Operator shall:

> "…regularly inspect all stormwater and erosion controls, especially before and following qualifying rain events. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately." And
>
> "Ensure that all stormwater, erosion, and sediment control BMPs are installed, inspected, maintained, and repaired under the direction of either a California certified engineer, geologist, or landscape architect, a registered professional hydrologist, or a certified erosion control specialist."

WRA has been actively managing the inspections of stormwater, erosion, and sediment control BMPs in the RPA. WRA regularly reports on the inspections of the various BMP's to include:

- Check dams on the haul roads
- Erosion control blankets, straw wattle, and silt fence installations within the PCRA treatment areas.
- Berms where limestone fines or stockpiles are placed

On January 23rd, 2012, Sean Avent, WRA scientist, inspected the site for erosion control deficiencies. Deficiencies and erosion controls in good condition were recorded on the Erosion Controls Checklist (Appendix A). Deficiencies are also recorded on Figures 1a -1g and 2a and 2b (Appendix B) and are cross-referenced with photographs in Appendix C.

Generally, most erosion controls are intact and do not need repair (e.g., photograph 2). Deficiencies include damage to the silt fence in the WMSA at the soil stockpile (photograph 1) , EMSA at the organics pile (photograph 7), and a slide occurring in Subarea 6 which toppled roughly 50 feet of silt fence (photographs 3 - 5). The deficiency within the EMSA below C-Station for the non-limestone berm break noted in the December 2012 report was repaired (photograph 6). Rock berms along the haul road in the WMSA and the Rock Plant were starting to accumulate fill and require fines removal as necessary (photographs 8 and 9). In addition, haul road check dams located above Subarea 3 were absent, most probably due to recent grading of the haul road.

Attention to all noted deficiencies should be given as soon as feasible. Generally, with the exception of the rock slide damage in Subarea 6, all silt fence repairs can utilize existing materials. The silt fence in Subarea 6 must be reinstalled as new with new materials.
The following actions should be completed:

1) Repair silt fence at WMSA soil stockpile
2) Remove boulders from slit fence in Subareas 5 and 6 and assure correct installation of silt fence
3) Replace silt fence in Subarea 6 knocked down by rock slide
4) Repair silt fence at EMSA organics stockpile
5) Remove sediment from rock check dams along haul road and near rock plant.
6) Replace rock check dams on the haul road above Subarea 3.

If you have any questions regarding this inspection or the actions that should be taken, please do not hesitate to contact me or other WRA staff at your convenience.

APPENDIX A

EROSION CONTROLS CHECKLIST

Permanente Quarry Erosion Controls Checklist

Per COA 78, inspections of BMPs should be conducted before and following qualifying rain events to ensure their integrity. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately.

This checklist should be used to inspect the BMPs installed through the PCRA areas as listed in the RPA and will serve as documentation for reporting purposes. Photo documentation should accompany both sufficient and deficient BMPs.

For erosion control measures (BMP's) installed in the PCRA, a map is produced on an annual basis at the end the fall season and may be used to determine the locations of the various BMP installations. This map can be marked up in the field with identification numbers that reflect the deficiencies.

Inspection Information				
Date and Time of Inspection: JAN 23, 2013 11AM-4PM		Date Report Written: 1/28/2013		
Area Inspected (PCRA Subarea, WMSA, EMSA, Rock Plant, etc.): ALL				
Inspection Type: (Circle one)	Monthly	Pre-Storm	During Rain Event	Post-Storm

Inspector/Reviewer Information	
Inspector Name: SEAN AVENT	Inspector Title: SCIENTIST
Inspector Signature:	Date: 1/23/2013
Reviewer Name: Megan Stromberg	Reviewer Title: Landscape Architect/QSD
Reviewer Signature:	Date: 1/29/2013

Weather	
Estimate storm beginning: (date and time) NONE	Estimate storm duration: (hours) N/A
Estimate time since last storm: (days or hours) ~25 days	Rain gauge reading and location for last storm (in): N/A
Is a "Qualifying Event" predicted or did one occur (i.e., 0.5" rain in 24 hours)? (Y/N)	
If yes, summarize forecast: NONE PREDICTED LAST STORM: DECEMBER 27-29, 2012	

Silt Fencing

No Yes

☐ ☒ Are any sections of the silt fence split, torn, slumping or undercut?

Map ID/photo numbers: 1, P1 ; 2, P3 P4 P5 ; 4, P7

☐ ☒ Do any sections of the silt fence have weathered fabric?

Map ID/photo numbers: See Above

☒ ☐ Do any sections of the silt sediment have sediment accumulation which reaches one-third of the barrier height?

Map ID/photo numbers: _____

☒ ☐ Are areas upgradient of the silt fence permanently stabilized?

Map ID/photo numbers: _____

☒ ☐ Are there any other areas in need of silt fencing?

Map ID/photo numbers: _____

Geotextiles and Mats

☒ ☐ Is erosion or scouring evident around or under matting?

Map ID/photo numbers: _____

☒ ☐ Do any areas of the installed blankets have washouts or breakage or are otherwise damaged?

Map ID/photo numbers: _____

☒ ☐ Are blankets uniformly in contact with the soil areas?

Map ID/photo numbers: Expected condition given landscape - no fix

☐ ☒ Are blanket lap joints secure where they exist?

Map ID/photo numbers: _____

☐ ☒ Are blanket staples or pins flush with the ground?

Map ID/photo numbers: _____

☒ ☐ Are there additional areas that need further installation of erosion control blankets?

Map ID/photo numbers: _____

Fiber Rolls

No Yes

☒ ☐ Are there any split, torn, unraveling, or slumping fiber rolls?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there any washouts or breakages of fiber rolls?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there any rills or gullies adjacent to, along, or under fiber rolls?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are any portions of the fiber rolls where sediment has accumulated to one-third the designated sediment storage depth?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Hydromulch and Seeding

☒ ☐ Are hydroseeded areas scoured, disturbed, or otherwise have erosion?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☐ ☒ Do hydroseeded areas have constant cover?

Map ID/photo numbers: Good cover in combination with natural veg

☒ ☐ Do any other areas require further hydroseeeding?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Other Measures

☒ ☐ Are there any stockpiles that have uncontrolled run-on or run-off?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there any breaks in the haul road berm allowing water to run into the PCRA or Permanente Creek Slopes?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are any sediment catchment ponds overflowing?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are any ditches or water conveyances damaged?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

BMP Deficiency Descriptions	
Deficiency ID Number	**Deficiency Description**
1. P1	Silt Fence at WMSA Stockpile is partly slumped
2. P3-P5	Slide down slope toppled Silt fence - needs to be replaced. (50 feet)
3. P6	Repair of berms in EMSA below C-Station is still intact, but filling
4. P7	Silt fence at organics pile in EMSA needs small repair. Slumping
5. P8, 9	Check Dams in WMSA, Quarry, and Rock Plant are filling in with sediment and need to be cleaned.
6.	Haul Road check dams are missing above Subarea 3 - from Quarry west to Subarea 2.
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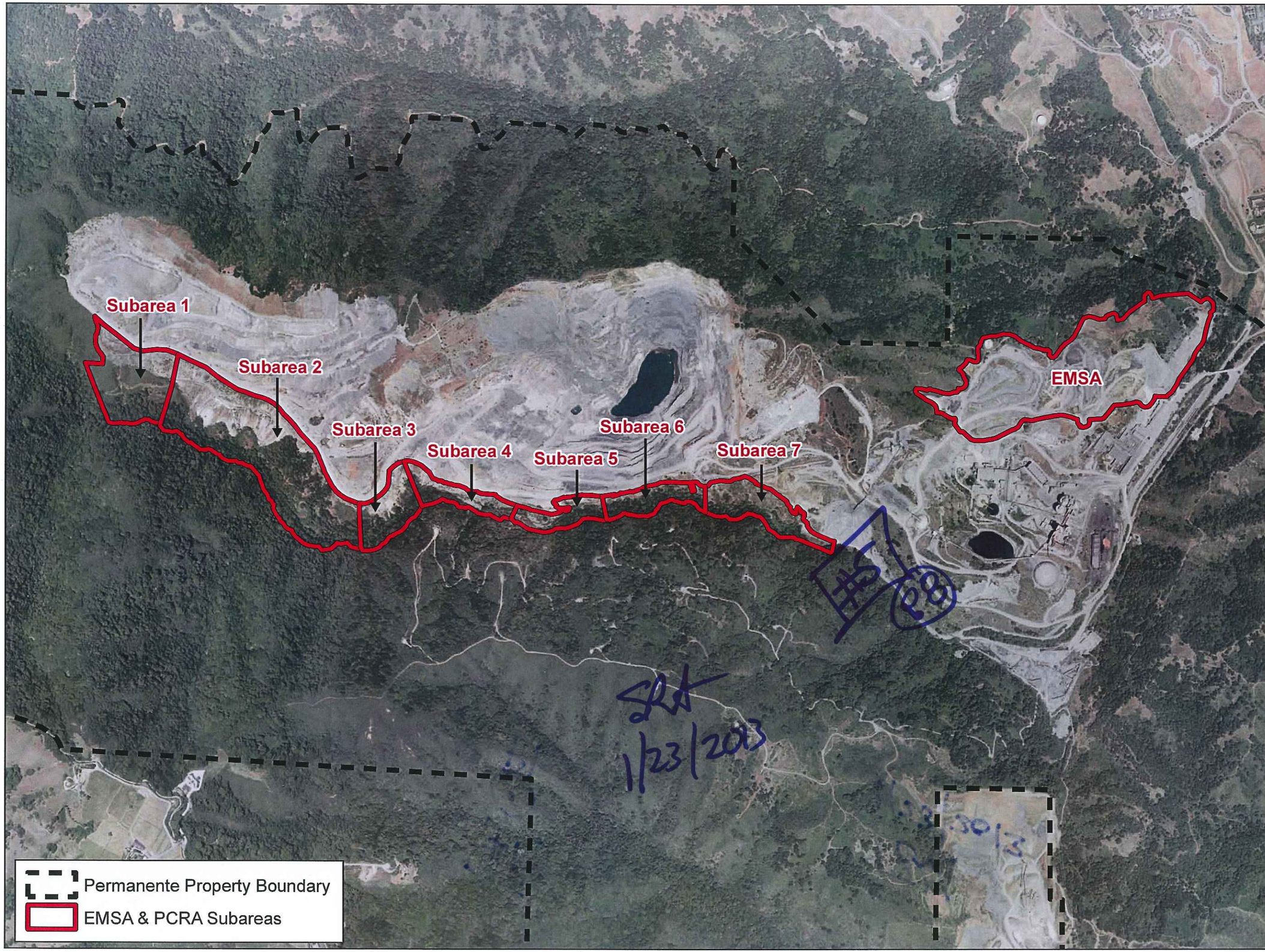
APPENDIX B

EROSION CONTROL CHECKLIST MAPS



wra
ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

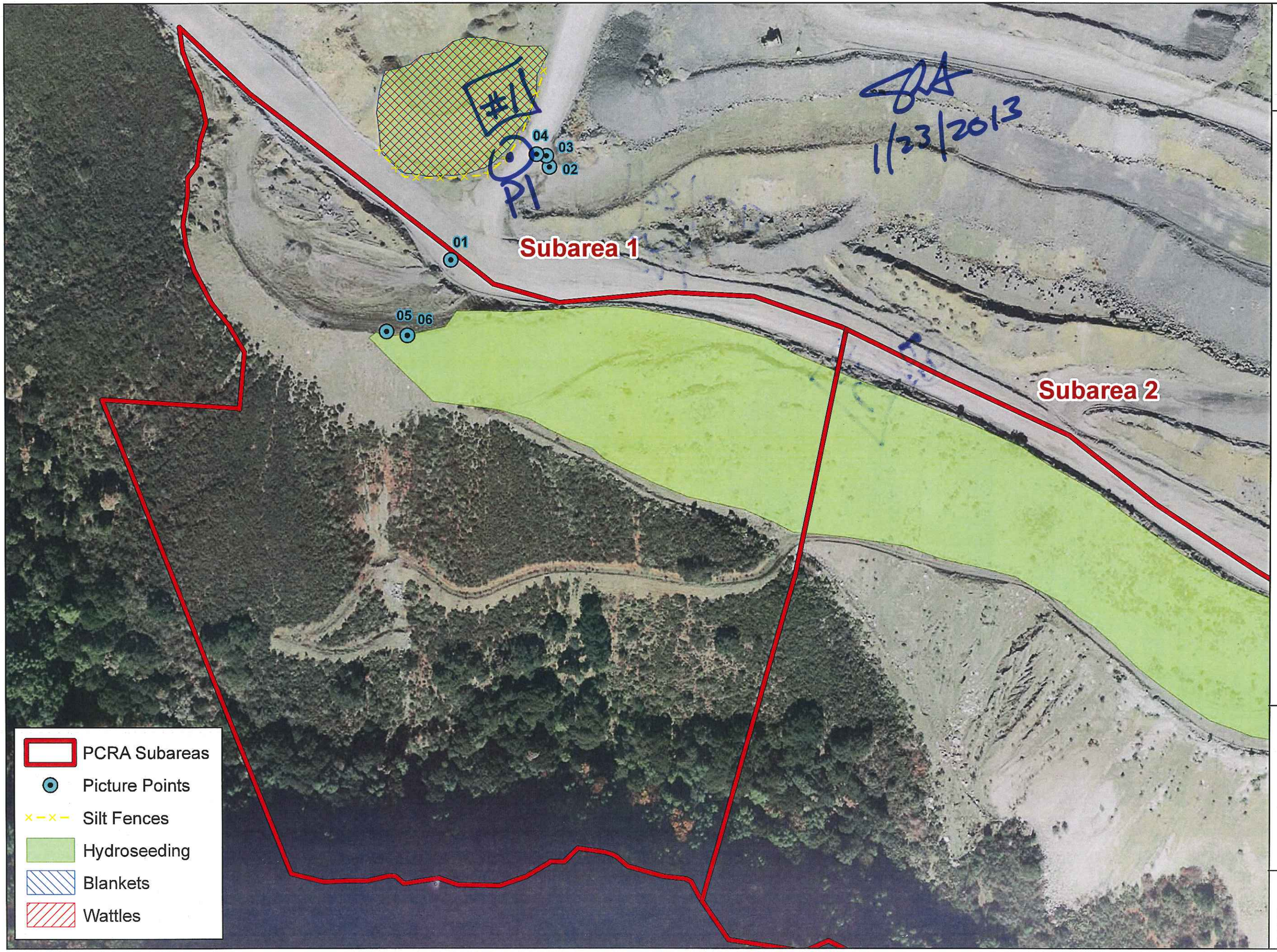
Overview

N
W E
S

0 500 1,000 2,000
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Overview.mxd



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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1a.

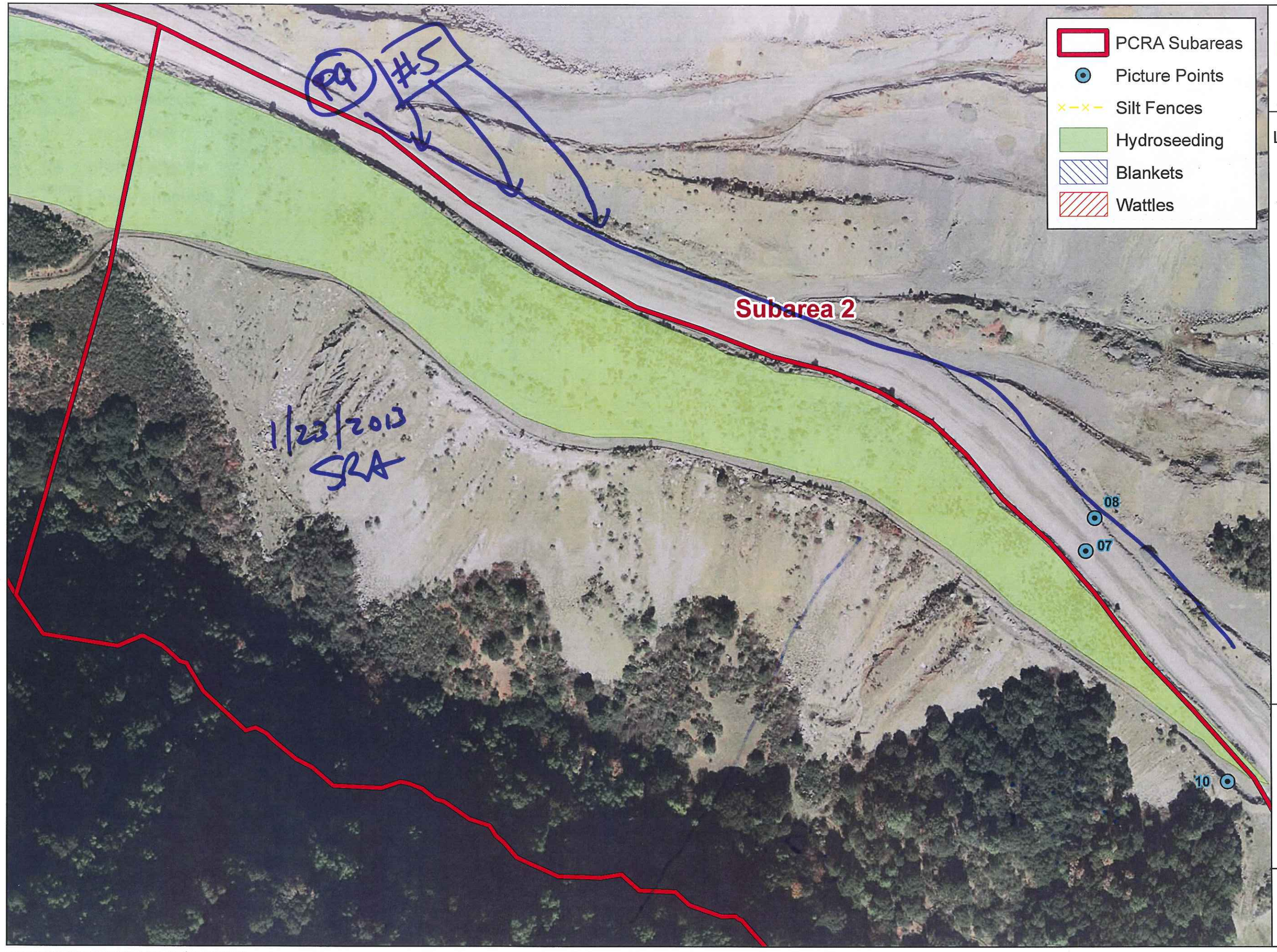
PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1a.mxd



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ENVIRONMENTAL CONSULTANTS

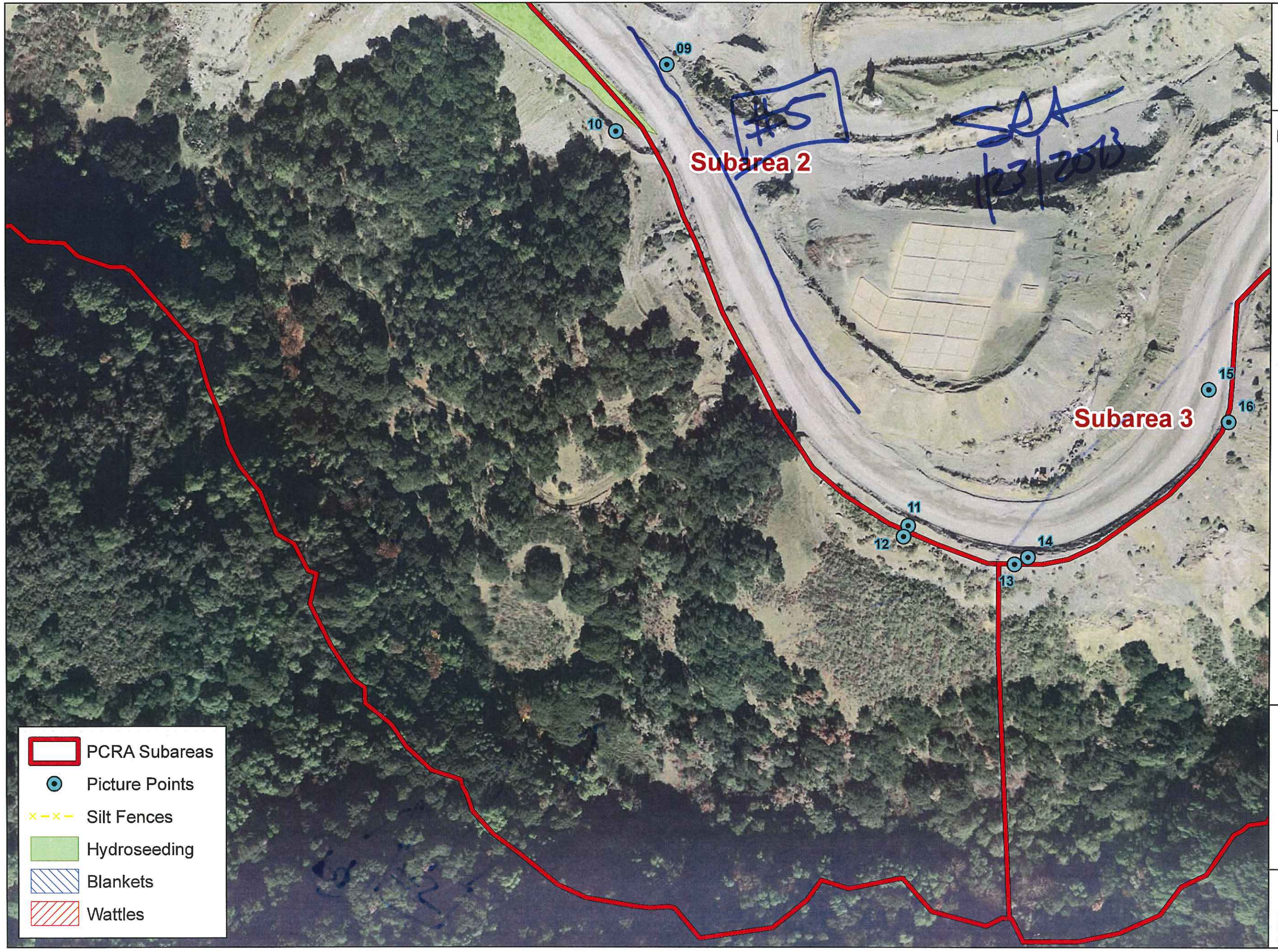
Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1b.

PCRA
Erosion Control
Installation Areas
and Picture Points

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1b.mxd



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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1c.

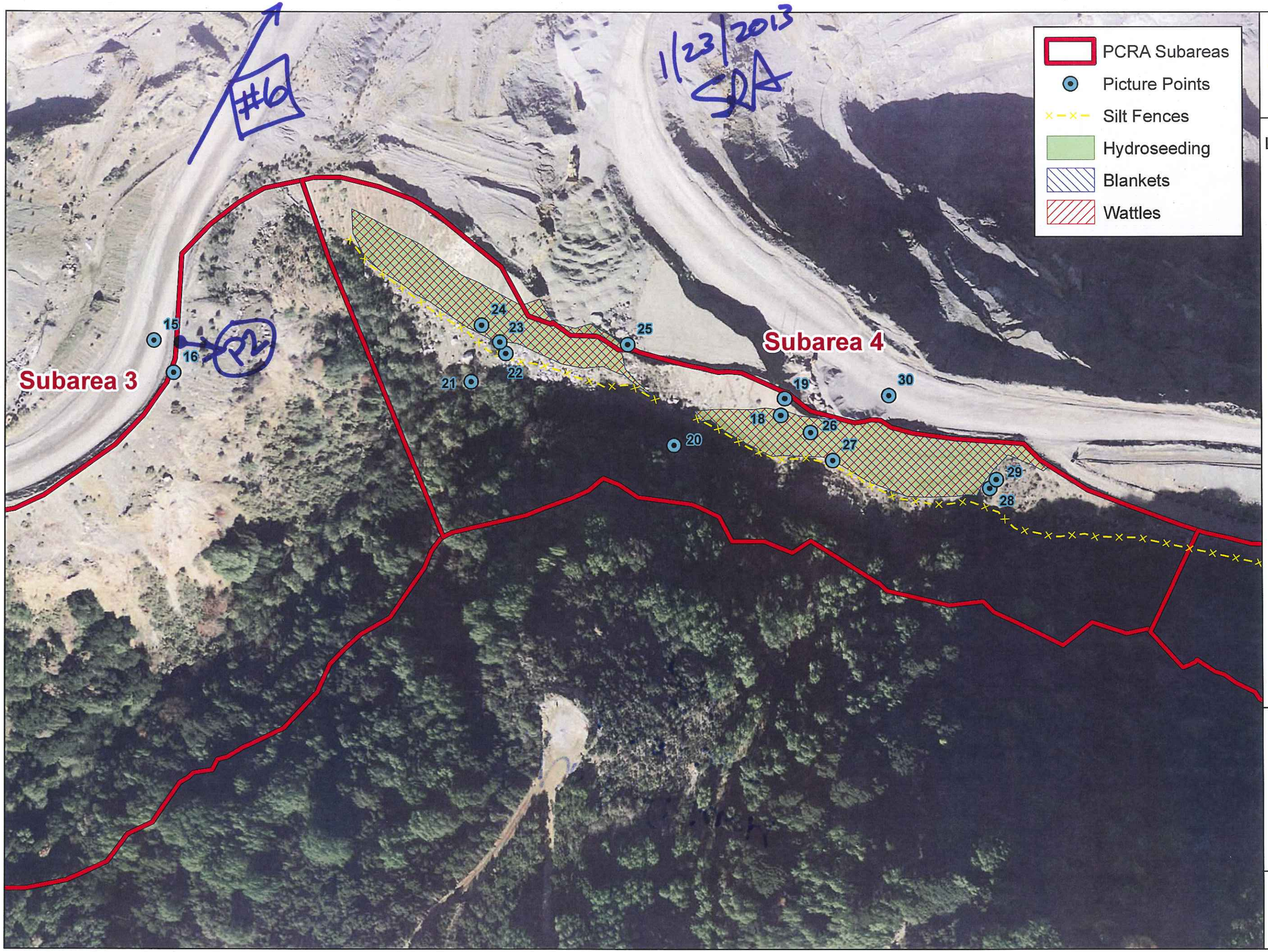
PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1c.mxd



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ENVIRONMENTAL CONSULTANTS

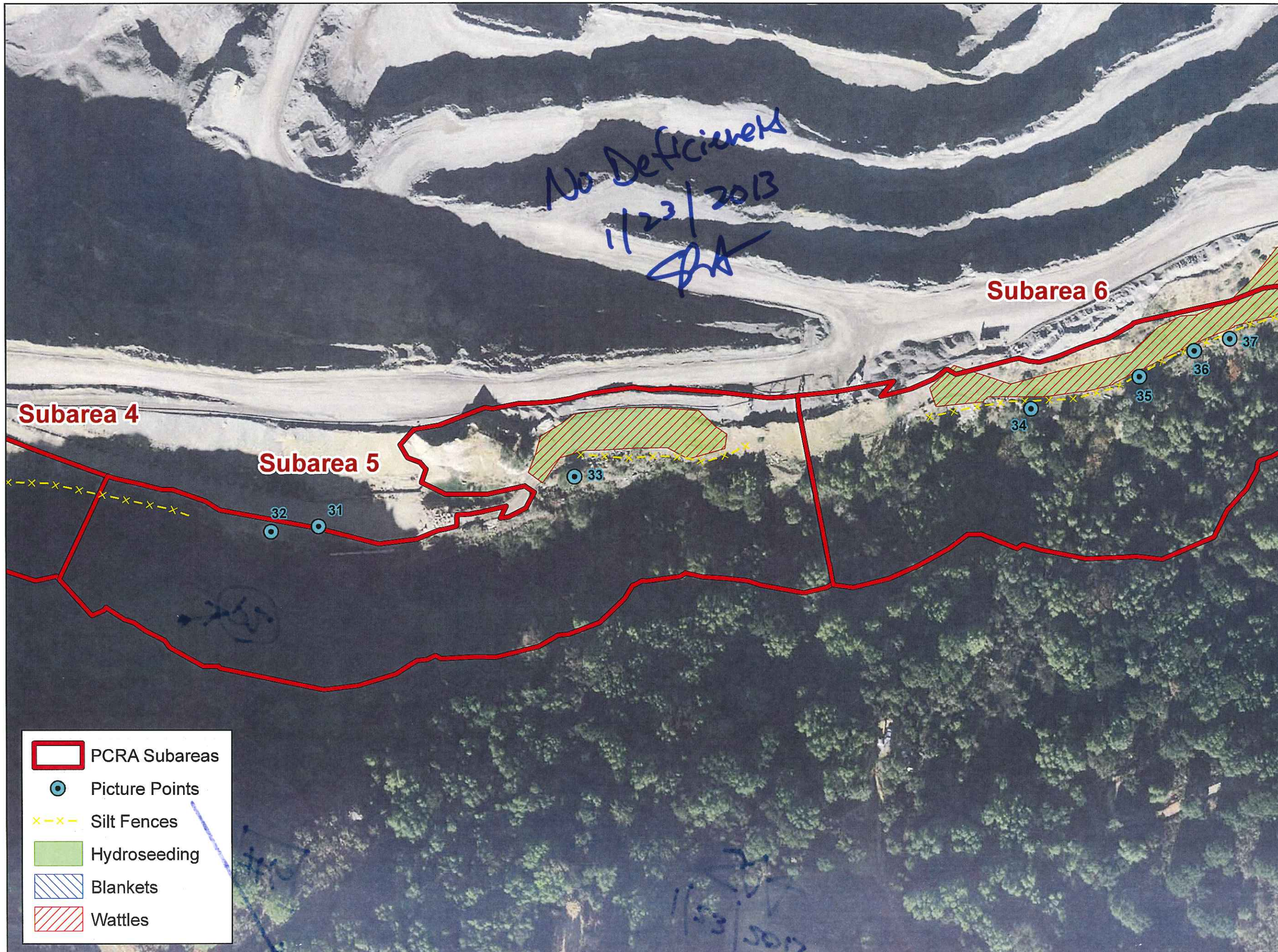
Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1d.

PCRA
Erosion Control
Installation Areas
and Picture Points

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP_Photo Maps\Fig 1d.mxd



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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1e.

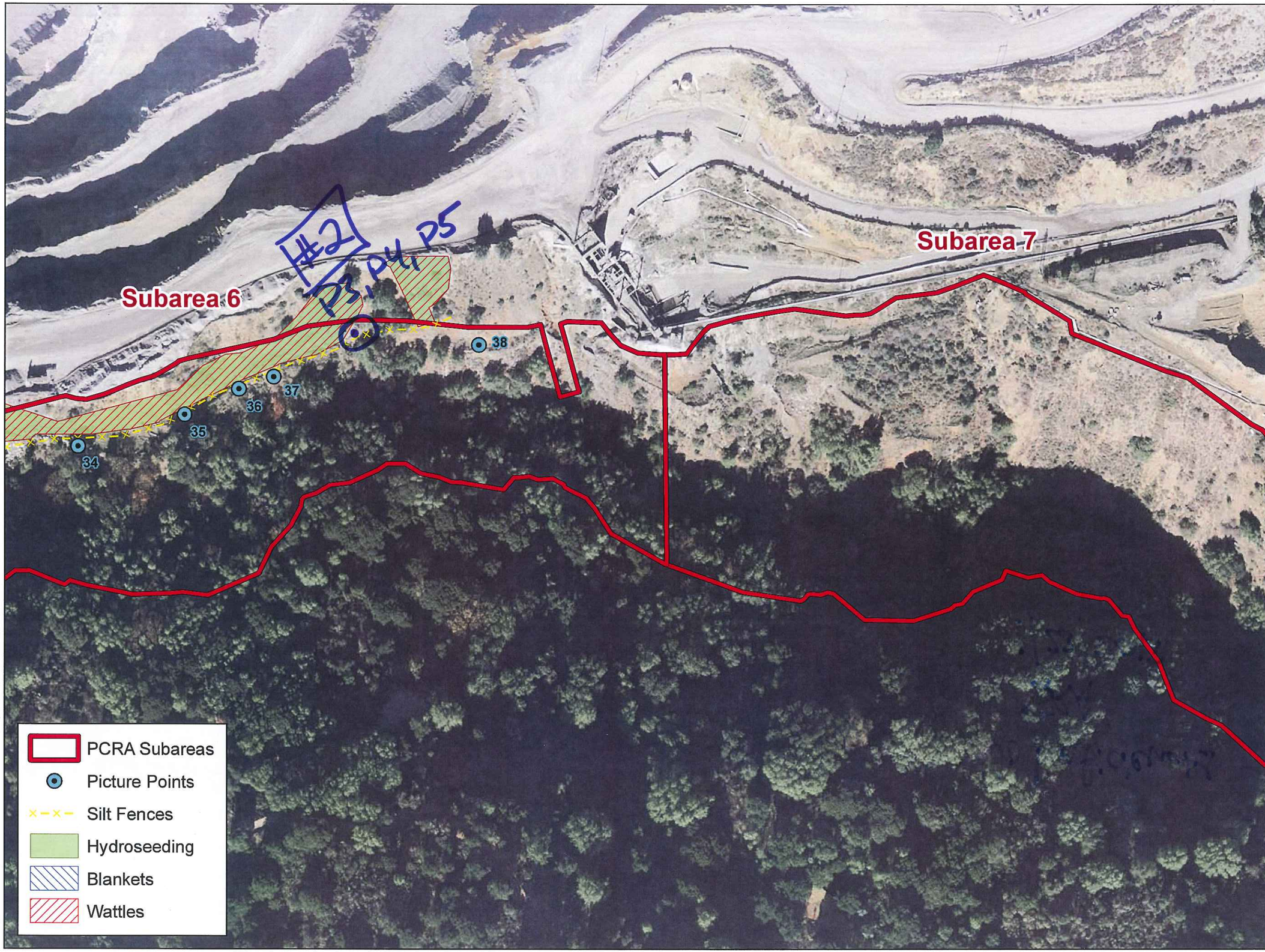
PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1e.mxd



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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1f.

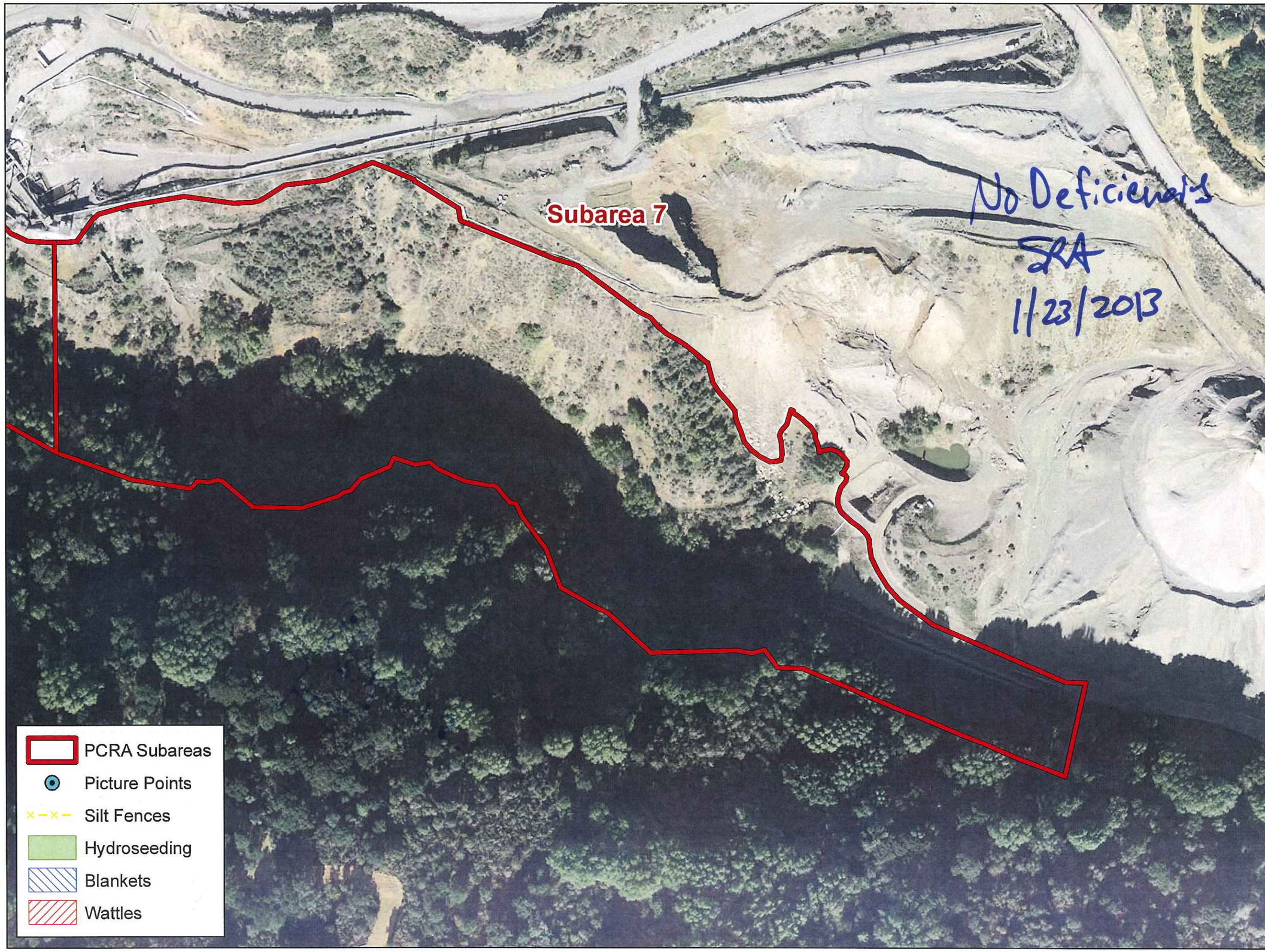
PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1f.mxd



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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1g.

PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1g.mxd

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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 2a.

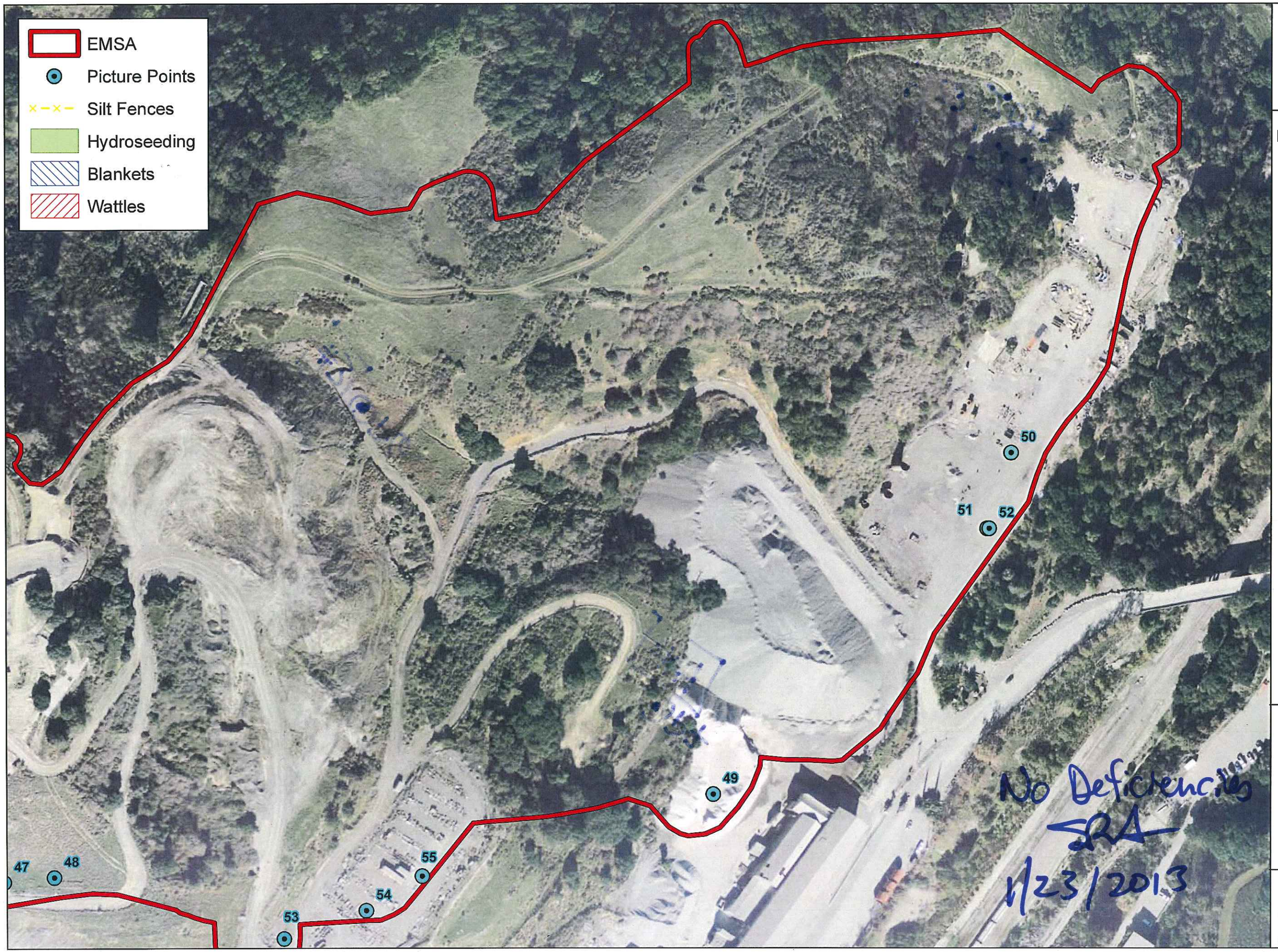
EMSA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 2a.mxd



wra
ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 2b.

EMSA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

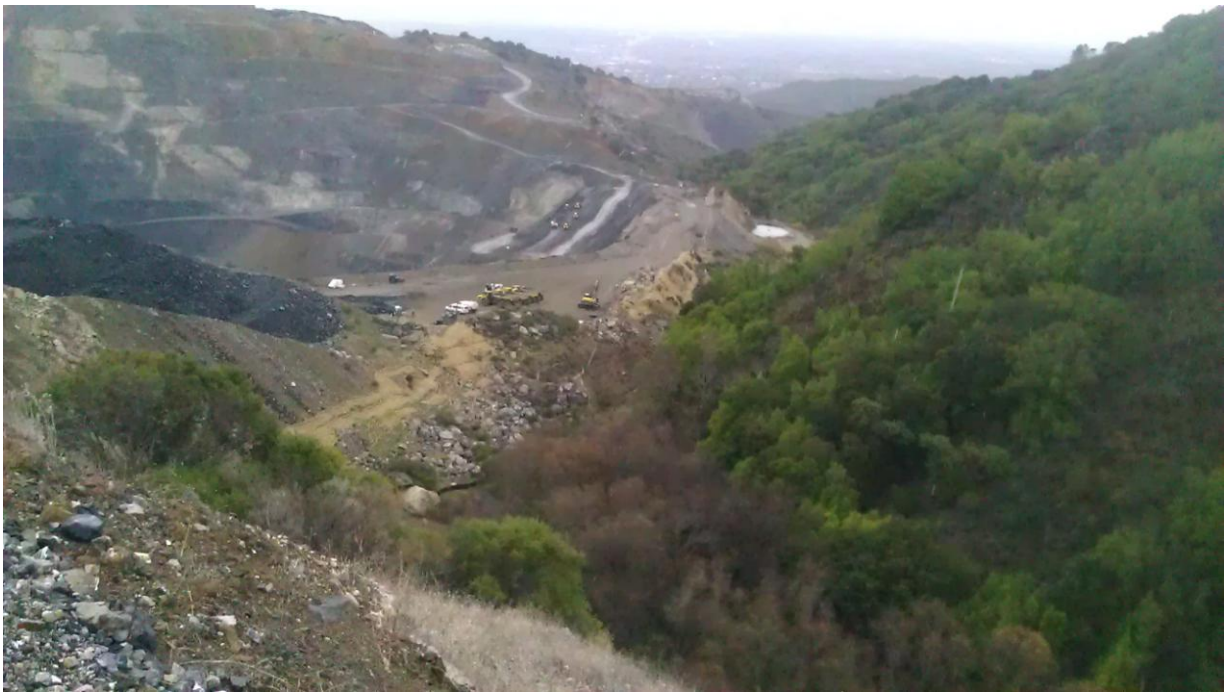
0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 2b.mxd

APPENDIX C

PHOTOGRAPHIC EVIDENCE



Figures 1 and 2. Permanente Erosion Control Inspection Photographic Evidence
Photograph 1 (Top): Silt fence at WMSA soil stockpile slumping
Photograph 2 (Bottom): Erosion controls in Subarea 4 are intact.

Photos taken January 23, 2013

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Figures 3. Permanente Erosion Control Inspection Photographic Evidence

Photograph 3. Slide scar in Subarea 6 above impacted silt fence.

Photos taken January 23, 2013

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Figures 4 and 5. Permanente Erosion Control Inspection Photographic Evidence
Photograph 4 (Left): Silt fence in Subarea 6 needs replacement and pipe is broken
Photograph 5 (Right): Slide scar in Subarea 6 above impacted silt fence.

Photos taken January 23, 2013

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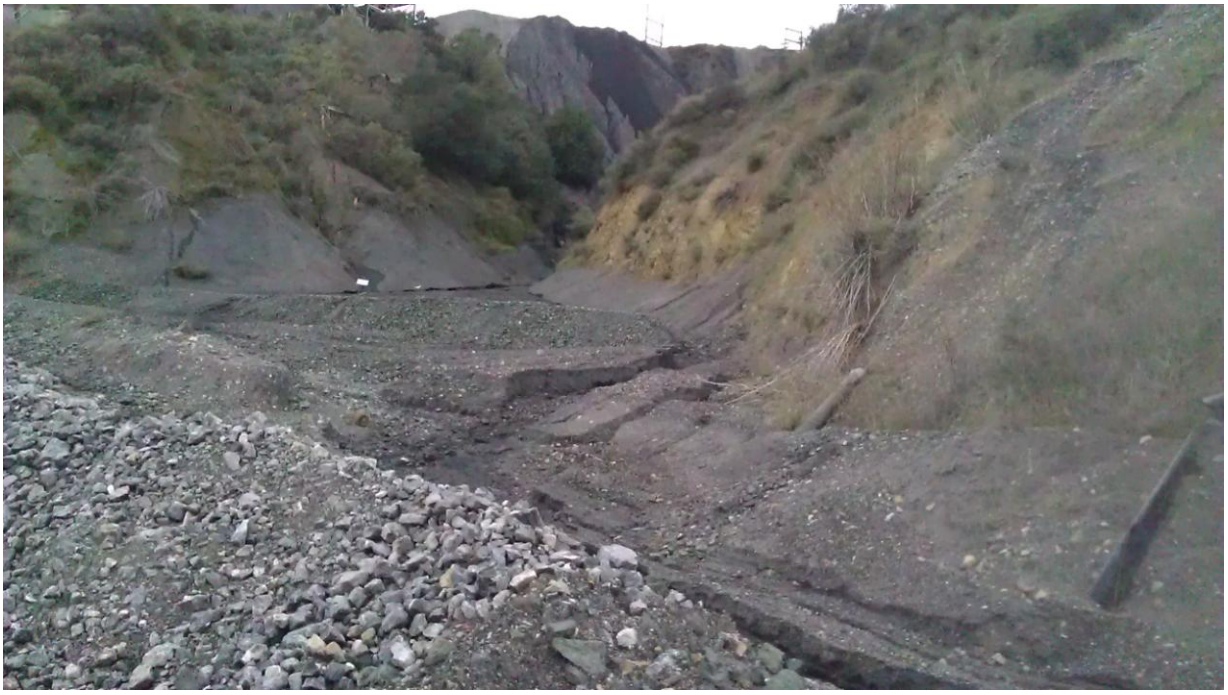

Figures 6 and 7. Permanente Erosion Control Inspection Photographic Evidence
Photograph 6 (Top): Berms repaired below Station C in EMSA.
Photograph 7 (Bottom): Silt fence in need of repair at organics pile in EMSA

Photos taken January 23, 2013

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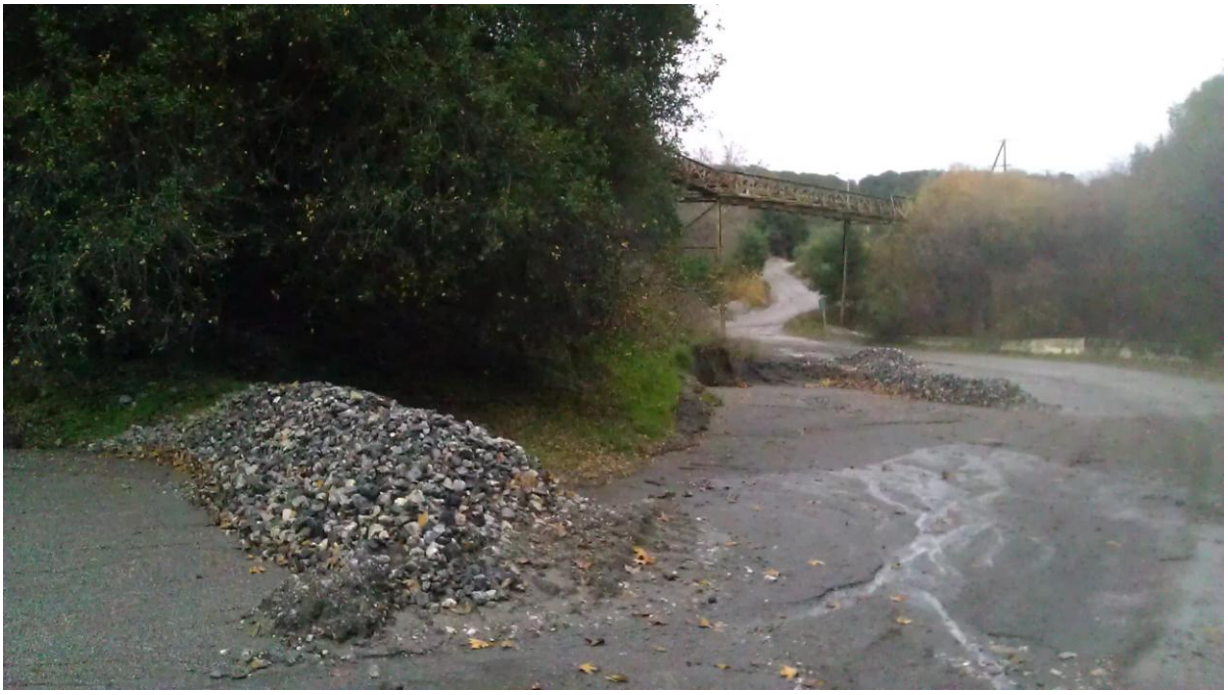


Figures 8 and 9. Permanente Erosion Control Inspection Photographic Evidence
Photograph 8 (Top): Check dams near Rock Plant are filling in with sediment
Photograph 9 (Bottom): Check dams along haul road are filling in with sediment

Photos taken January 23, 2013

wra
ENVIRONMENTAL CONSULTANTS

Memorandum

To: Greg Knapp, Lehigh Hanson
Cc: Scott Renfrew, Lehigh Hanson

From: Sean Avent
avent@wra-ca.com
ext. 112

Date: December 27, 2012
Subject: Permanente Quarry – Erosion Control Inspection

Per COA 78 of the Final Conditions of Approval, the Mine Operator shall:

> "…regularly inspect all stormwater and erosion controls, especially before and following qualifying rain events. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately." And
>
> "Ensure that all stormwater, erosion, and sediment control BMPs are installed, inspected, maintained, and repaired under the direction of either a California certified engineer, geologist, or landscape architect, a registered professional hydrologist, or a certified erosion control specialist."

WRA has been actively managing the inspections of stormwater, erosion, and sediment control BMPs in the RPA. WRA regularly reports on the inspections of the various BMP's to include:

- Check dams on the haul roads
- Erosion control blankets, straw wattle, and silt fence installations within the PCRA treatment areas.
- Berms where limestone fines or stockpiles are placed

On December 19th, 2012, Sean Avent, WRA scientist inspected the site for erosion control deficiencies. Deficiencies and erosion controls in good condition were recorded on the Erosion Controls Checklist (Appendix A). Deficiencies are also recorded on Figures 1a -1g and 2a and 2b (Appendix B) and are cross-referenced with photographs in Appendix C.

Generally, most erosion controls are intact and do not need repair as shown in photographs 1-3 and 9-13. Deficiencies include erosional undercutting of the silt fence in Subareas 4 (photograph 4), and damage to the silt fence in Subareas 5 and 6 caused by the installation of a pipe (photographs 5 and 8) and by falling boulders (photographs 6 and 7). Within the EMSA, the only deficiency observed was a washing out of non-limestone ditches and berms (photographs 9 and 10). The non-limestone ditch and berm in the EMSA was in the process of being repaired during the site inspection.

Attention to all noted deficiencies should be given as soon as feasible.

APPENDIX A

EROSION CONTROLS CHECKLIST

Permanente Quarry Erosion Controls Checklist

Per COA 78, inspections of BMPs should be conducted before and following qualifying rain events to ensure their integrity. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately.

This checklist should be used to inspect the BMPs installed through the PCRA areas as listed in the RPA and will serve as documentation for reporting purposes. Photo documentation should accompany both sufficient and deficient BMPs.

For erosion control measures (BMP's) installed in the PCRA, a map is produced on an annual basis at the end the fall season and may be used to determine the locations of the various BMP installations. This map can be marked up in the field with identification numbers that reflect the deficiencies.

Inspection Information				
Date and Time of Inspection: 12/19/2012 0900-1330h			Date Report Written: 12/27/2012	
Area Inspected (PCRA Subarea, WMSA, EMSA, Rock Plant, etc.): PCRA Subareas 1-7, EMSA, WMSA				
Inspection Type: (Circle one)	Monthly	Pre-Storm	During Rain Event	Post-Storm

Inspector/Reviewer Information	
Inspector Name: SEAN AVENT (WRA)	Inspector Title: Scientist
Inspector Signature:	Date: 12/19/2012
Reviewer Name: MEGAN STROMBERG	Reviewer Title: EROSION CONTROL SPECIALIST
Reviewer Signature:	Date: 1/2/2013

Weather	
Estimate storm beginning: (date and time) LAST STORM 12/21/2012	Estimate storm duration: (hours) 24h
Estimate time since last storm: (days or hours) 12/2/2012	Rain gauge reading and location: (in) 0.84
Is a "Qualifying Event" predicted or did one occur (i.e., 0.5" rain with 48-hrs or greater between events)? (Y/N) 1.2 inches on 12/21/2012 Predicted If yes, summarize forecast:	

Silt Fencing

- [x] Are any sections of the silt fence split, torn, slumping or undercut?

  Map ID/photo numbers: 4, P4 5, P5 6, P6 & P7 7, P8 _____ _____

- [ ] Do any sections of the silt fence have weathered fabric?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] Do any sections of the silt sediment have sediment accumulation which reaches one-third of the barrier height?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] Are areas upgradient of the silt fence permanently stabilized?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] Are there any other areas in need of silt fencing?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Geotextiles and Mats

- [ ] Is erosion or scouring evident around or under matting?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] Do any areas of the installed blankets have washouts or breakage or are otherwise damaged?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] Are blankets uniformly in contact with the soil areas?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] Are blanket lap joints secure where they exist?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] Are blanket staples or pins flush with the ground?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] Are there additional areas that need further installation of erosion control blankets?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Fiber Rolls

- ☐ Are there any split, torn, unraveling, or slumping fiber rolls?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are there any washouts or breakages of fiber rolls?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are there any rills or gullies adjacent to, along, or under fiber rolls?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are any portions of the fiber rolls where sediment has accumulated to one-third the designated sediment storage depth?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Hydromulch and Seeding

- ☐ Are hydroseeded areas scoured, disturbed, or otherwise have erosion?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Do hydroseeded areas have constant cover?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Do any other areas require further hydroseeeding?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Other Measures

- ☐ Is there any stockpiles that have uncontrolled run-on or run-off?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are there any breaks in the haul road berm allowing water to run into the PCRA or Permanente Creek Slopes?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are any sediment catchment ponds overflowing?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Other Notes: EMSA Non-Limestone lined ditches need repair.

MAP ID / Photo numbers: #8, Photos 9-10

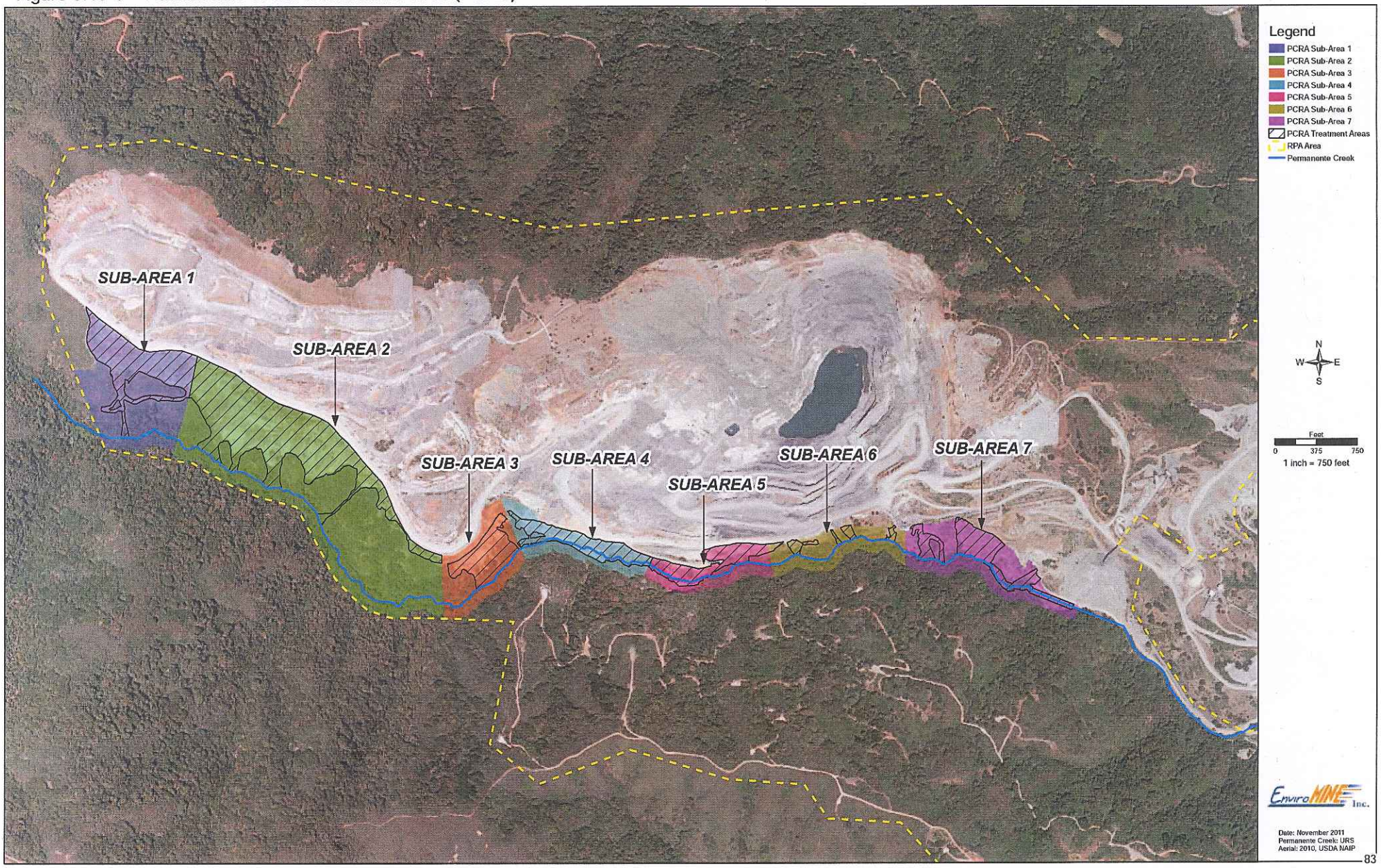
BMP Deficiency Descriptions	
Deficiency ID Number	**Deficiency Description**
1.	TOPSoil Stockpile — NO Deficiency - Looks Good (1938)
2.	SubArea 4 — NO DEFICIENCY - LOOKS Good (1953) ~~(1958)~~
3.	SUBAREA 4 - NO Deficiency - LOOKS Good (1958)
4.	SUBAREA 4 - Silt fence is undercut 3' section. (1966)
5.	SUBAREA 6 - Pipe installed over Silt fence - needs to have addition silt fence installed (1972)
6.	SubArea 6 - Boulders on silt fence (1981, 1983)
7.	SUBAREA 6 - Pipe installed over silt fence - needs to have addition silt fence installed (1977)
8.	EMSA - Below C-Station: Silt/Water washed out non-limestone Berm. Actively being repaired. (1987)(1990)
9.	EMSA - Organics pile - NO DEFICIENCY - LOOKS GOOD (1994)
10.	EMSA - Non Limestone ditches - NO DEFICIENCY - LOOKS Good! 2000 2005 2006 2010
11.	
12.	
13.	
14.	
15.	
16.	

APPENDIX B

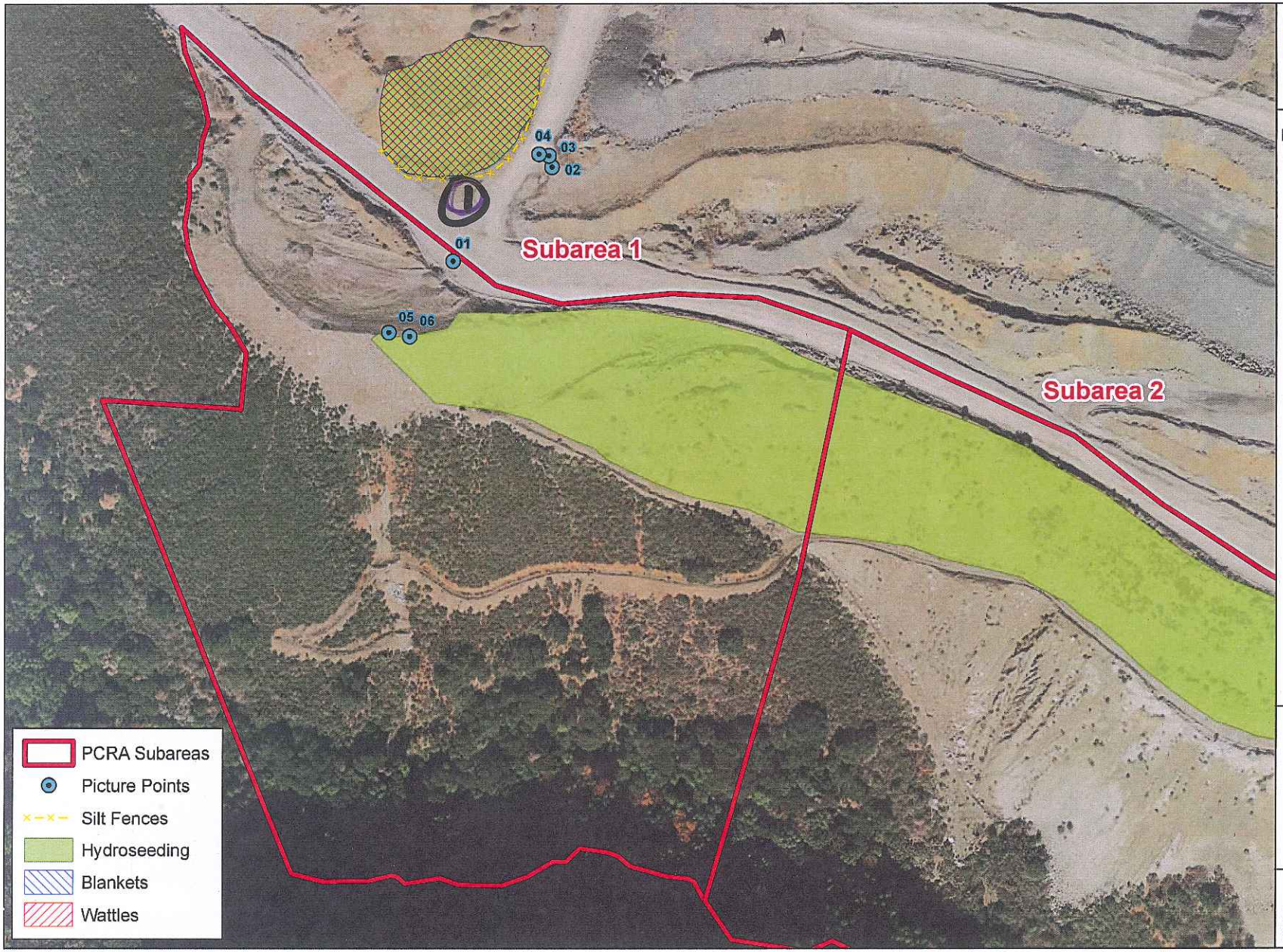
EROSION CONTROL INSTALLATION MAPS

12/19/2012
SRA

Figure 3.19-0 Permanente Creek Reclamation Area (PCRA)



12/19/2012
SRA



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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1a.

PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

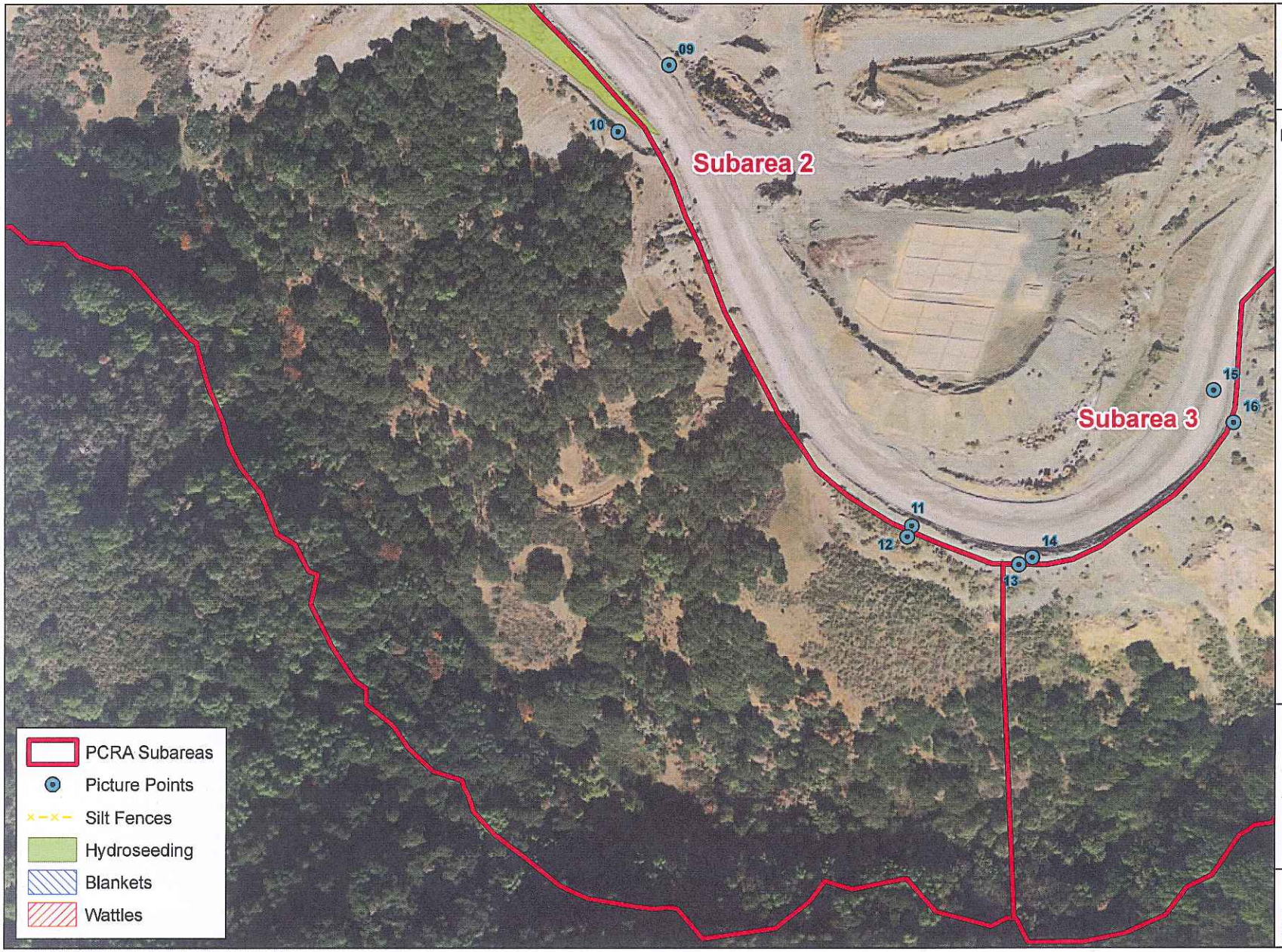
0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gislarcmap\2012\BMP_Photo Maps\Fig 1a.mxd

Silt Fences
Hydroseeding
Blankets
Wattles
12/15/2012
SRA
Subarea 2
No Deficiencies
08
07
10

12/19/2012 - None SRA



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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1c.

PCRA
Erosion Control
Installation Areas
and Picture Points

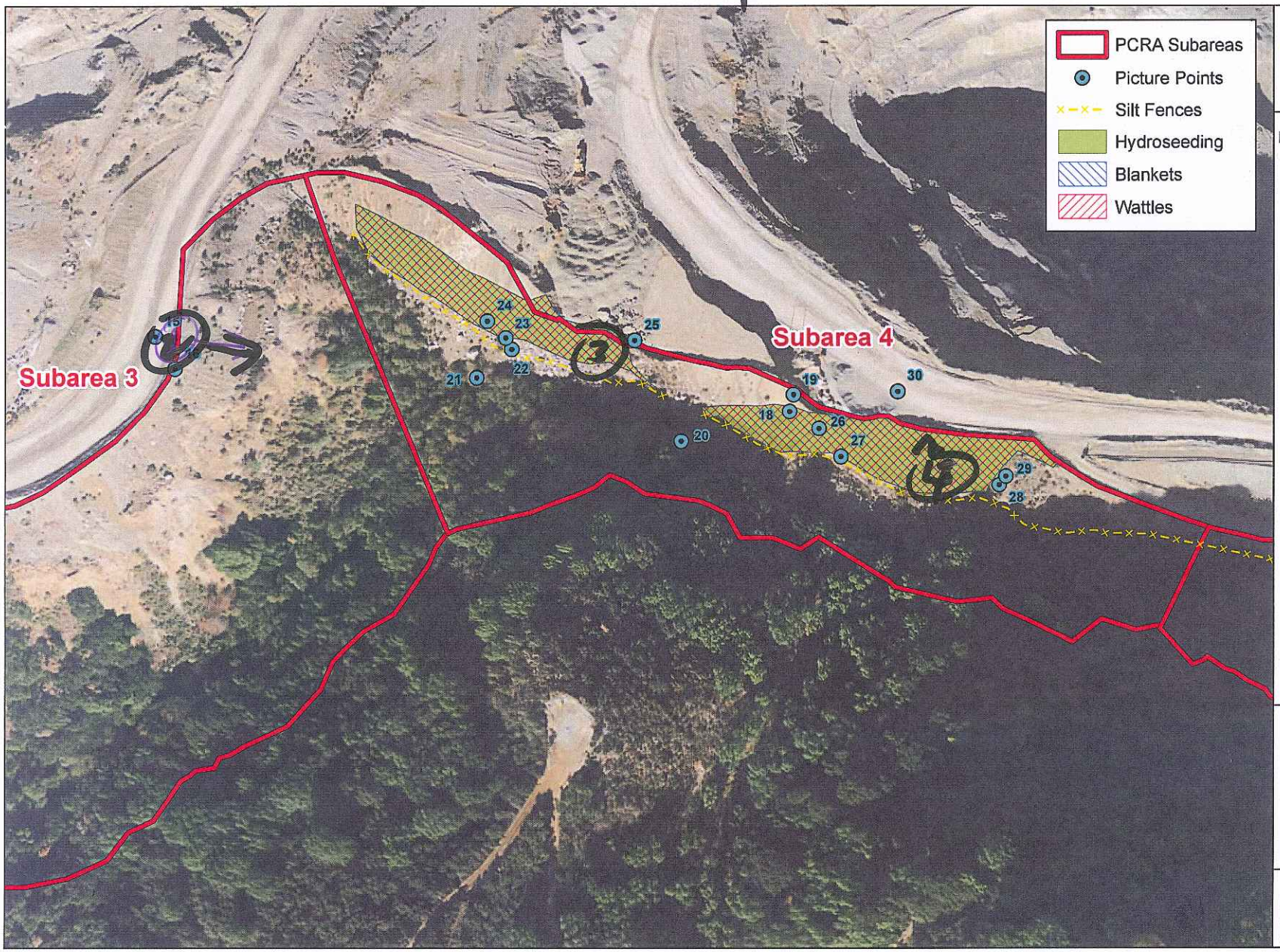
N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\18000\6143\gis\arcmap\2012\BMP_Photo Maps\Fig 1c.mxd

12/19/2012 SRA



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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

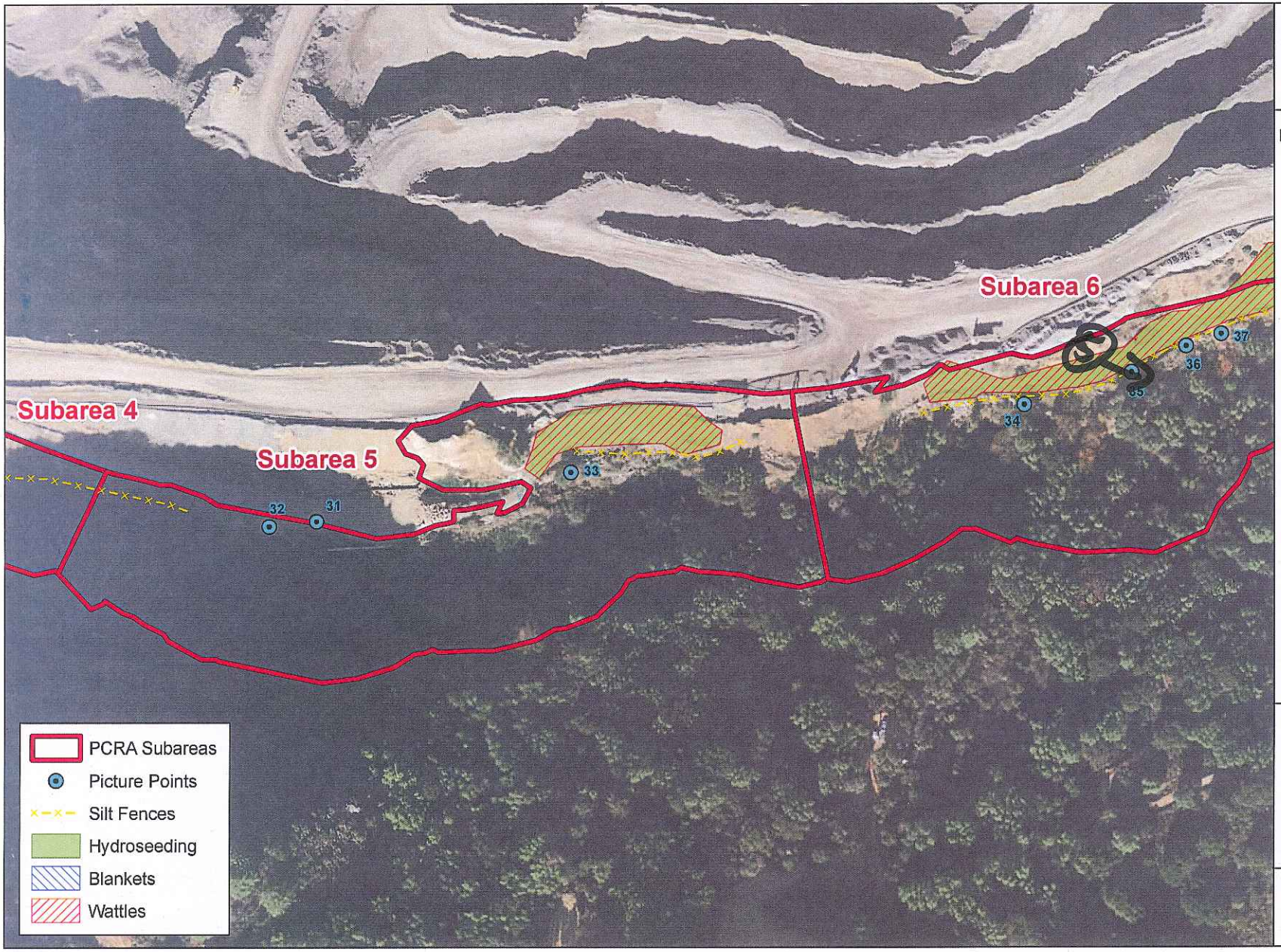
Figure 1d.

PCRA
Erosion Control
Installation Areas
and Picture Points

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2009 Files\16000\16143\gis\arcmap\2012\BMP_Photo Maps\Fig 1d.mxd

12/19/2012 SRL



wra
ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1e.

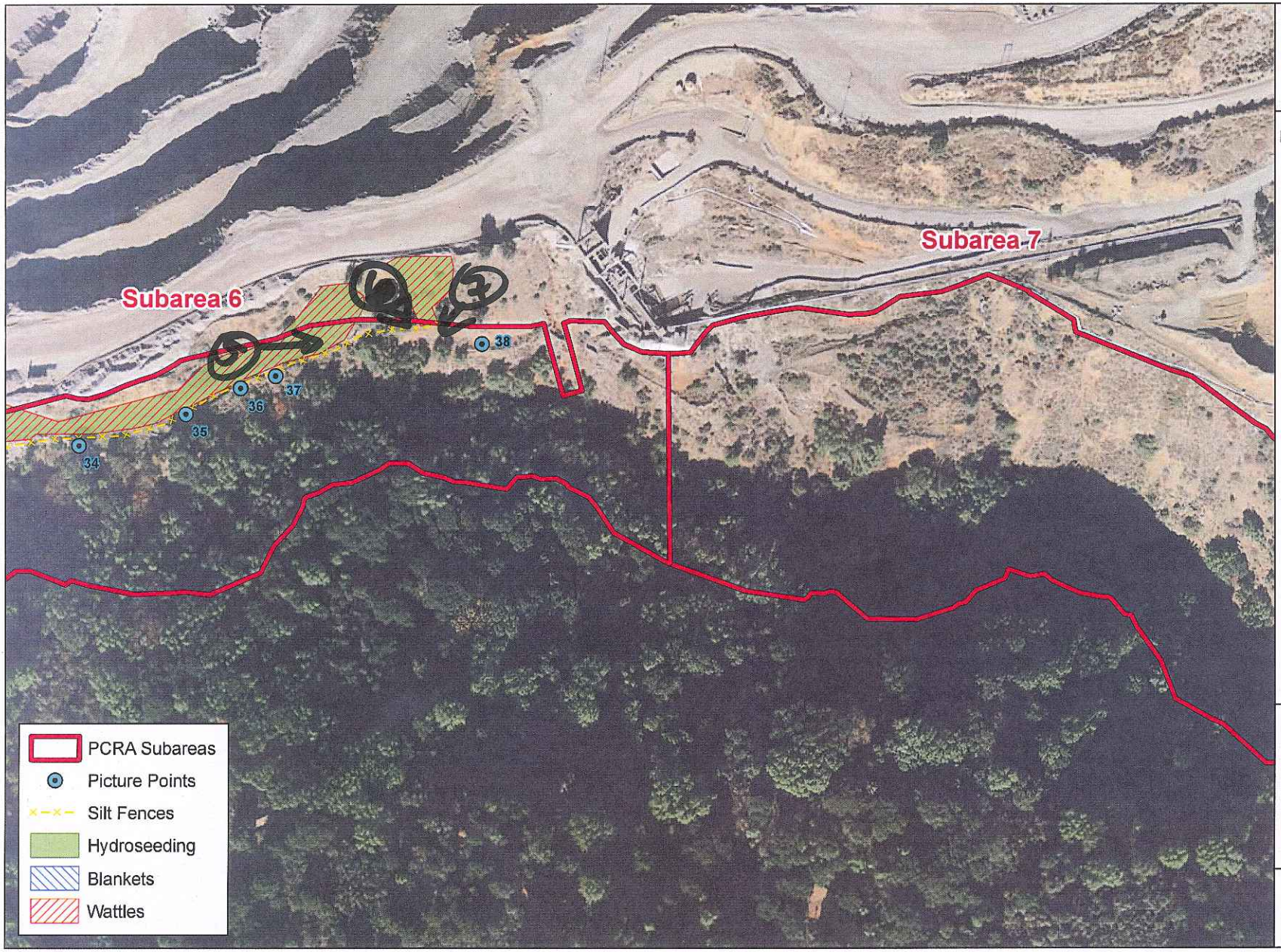
PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\18000\18143\gis\arcmap\2012\BMP_Photo Maps\Fig 1e.mxd



wra
ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1f.

PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\18000\16143\gis\arcmap\2012\BMP_Photo Maps\Fig 1f.mxd

12/19/2012 SRA

wra
ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1g.

PCRA
Erosion Control
Installation Areas
and Picture Points

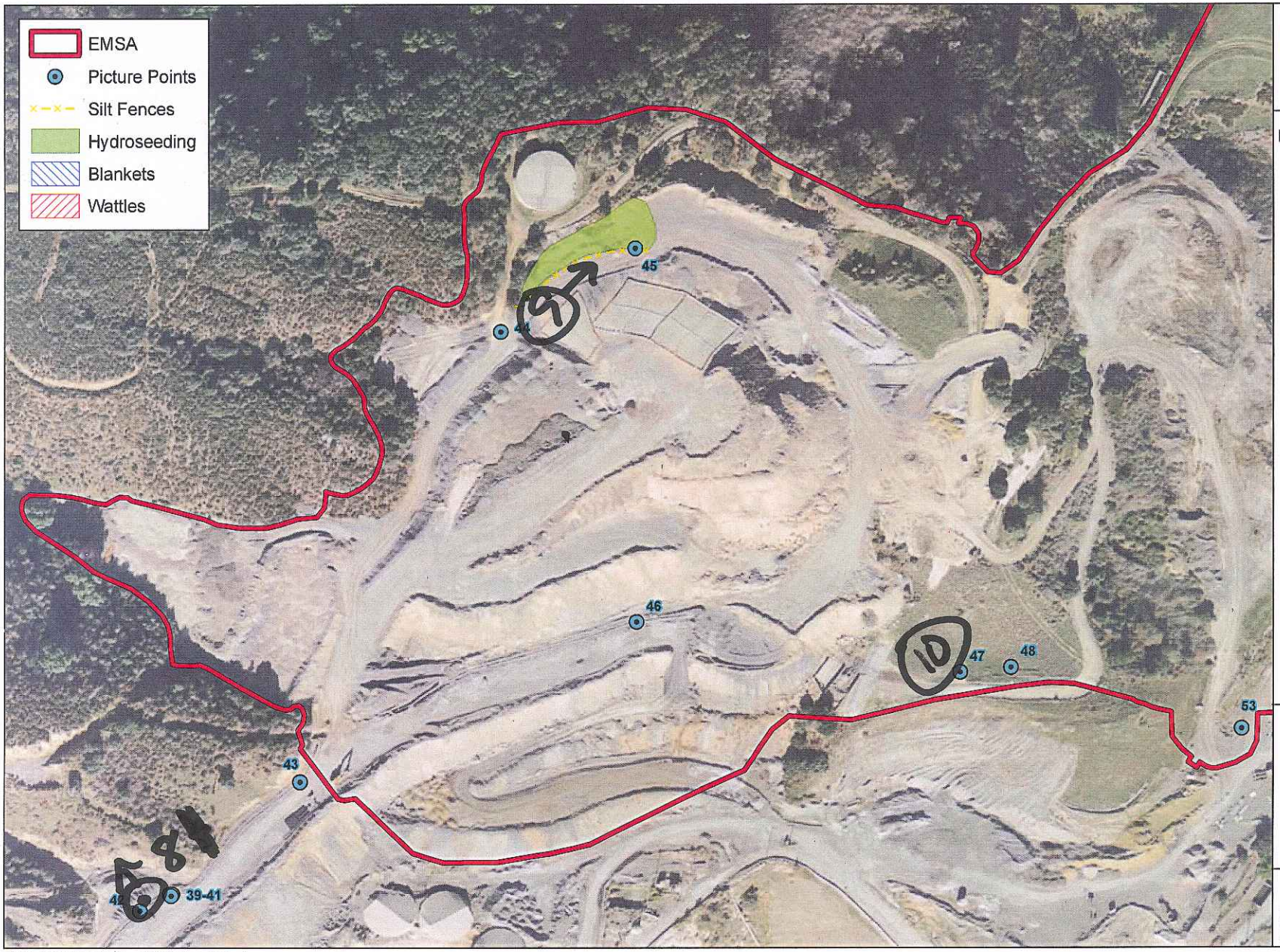
N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP_Photo Maps\Fig 1g.mxd

12/19/2012 SPA



wra
ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 2a.

EMSA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP_Photo Maps\Fig 2a.mxd

12/19/2012
SRA

wra
ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 2b.

EMSA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP_Photo Maps\Fig 2b.mxd

APPENDIX C

EROSION CONTROL INSPECTION PHOTOGRAPHS

Figures 1 and 2. Permanente Erosion Control Inspection Photographic Evidence

Photograph 1 (Top): Installation of BMP's on WMSA Topsoil Stockpile – No Deficiency

Photograph 2 (Bottom): Installation of BMP's in PCRA Subarea 4 – No Deficiency.

Photos taken December 19, 2012

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ENVIRONMENTAL CONSULTANTS

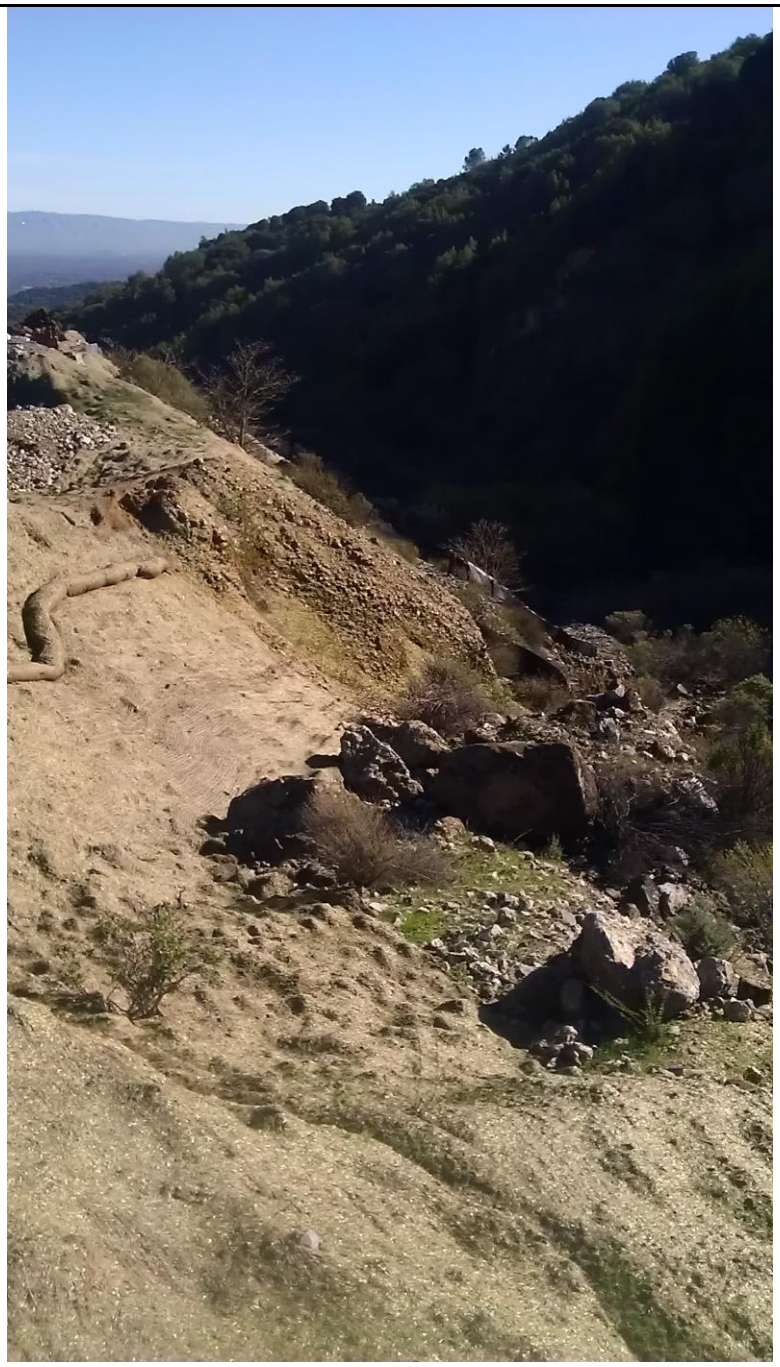
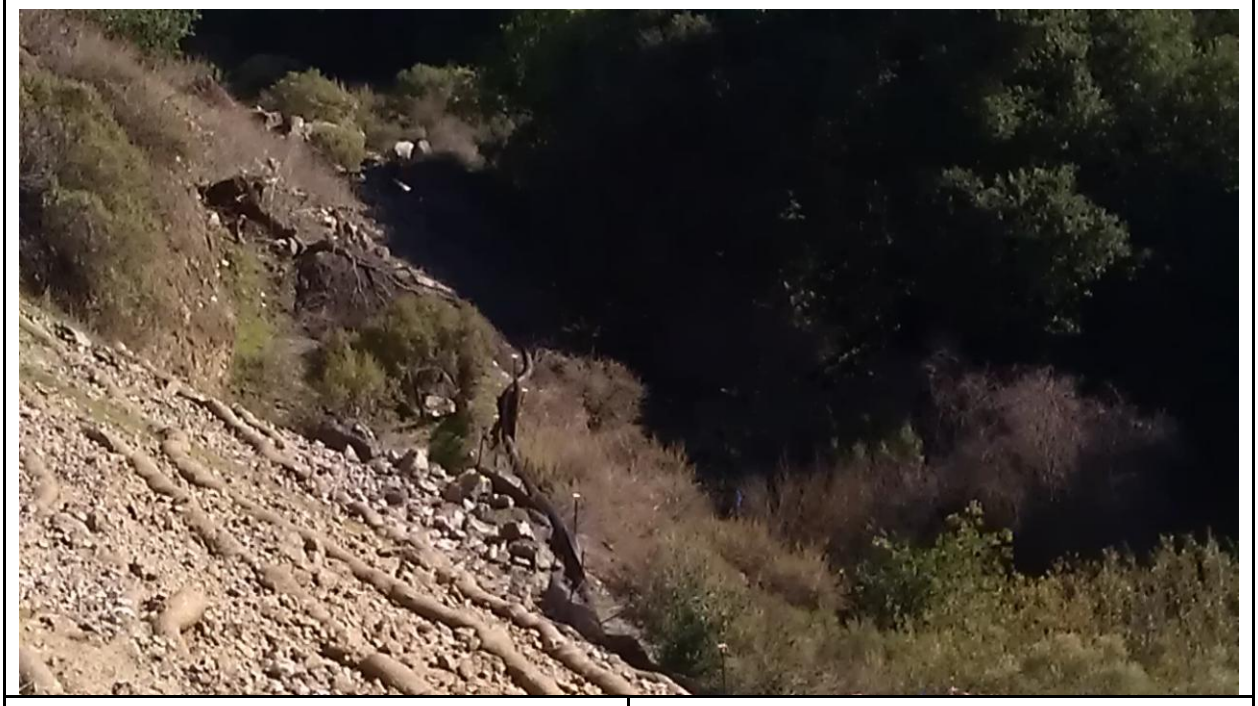


Figure 3. Permanente Erosion Control Inspection Photographic Evidence

Photograph 3: Installation of BMP's in PCRA Subarea 4 – No Deficiency.

Photos taken December 19, 2012

wra
ENVIRONMENTAL CONSULTANTS



Figures 4 and 5. Permanente Erosion Control Inspection Photographic Evidence

Photograph 4 (Top): Silt fence in Subarea 4 being undercut

Photograph 5 (Bottom): Silt fence in Subarea 6 knocked down by installation of pipe.

Photos taken December 19, 2012

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Figure 6. Permanente Erosion Control Inspection Photographic Evidence

Photograph 6: Silt fence in Subarea 6 impacted by boulder fall.

Photos taken December 19, 2012

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ENVIRONMENTAL CONSULTANTS

Figure 7. Permanente Erosion Control Inspection Photographic Evidence

Photograph 7: Silt fence in Subarea 6 impacted by boulder fall.

Photos taken December 19, 2012

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ENVIRONMENTAL CONSULTANTS

Figures 8 and 9. Permanente Erosion Control Inspection Photographic Evidence

Photograph 8 (Top): Silt fence in Subarea 6 knocked down by installation of pipe.

Photograph 9 (Bottom): Active repair of non-limestone berms and ditch in EMSA below C-station.

Photos taken December 19, 2012

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Figures 10 and 11. Permanente Erosion Control Inspection Photographic Evidence

Photograph 10 (Top): Active repair of non-limestone berms and ditch in EMSA below C-station

Photograph 11: Silt fence and hydroseeding in EMSA at organics stockpile – No Deficiency.

Photos taken December 19, 2012

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Figures 12 and 13. Permanente Erosion Control Inspection Photographic Evidence

Photograph 12 (Top): Non-limestone ditches and berms in EMSA – No Deficiencies.

Photograph 13 (Bottom): Non-limestone ditches and berms in EMSA – No Deficiencies.

Photos taken December 19, 2012

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Figure 14. Permanente Erosion Control Inspection Photographic Evidence

Photograph 14: Non-limestone ditches and berms in EMSA – No Deficiencies.

Photos taken December 19, 2012

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Figure 15. Permanente Erosion Control Inspection Photographic Evidence

Photograph 15: Non-limestone ditches and berms in EMSA – No Deficiencies.

Photos taken December 19, 2012

wra
ENVIRONMENTAL CONSULTANTS

Memorandum

To: Greg Knapp, Lehigh Hanson
Cc: Scott Renfrew, Lehigh Hanson

From: Sean Avent
avent@wra-ca.com
ext. 112

Date: January 3, 2013
Subject: Permanente Quarry – Erosion Control Inspection

Per COA 78 of the Final Conditions of Approval, the Mine Operator shall:

> "regularly inspect all stormwater and erosion controls, especially before and following qualifying rain events. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately."
>
> and
>
> "Ensure that all stormwater, erosion, and sediment control BMPs are installed, inspected, maintained, and repaired under the direction of either a California certified engineer, geologist, or landscape architect, a registered professional hydrologist, or a certified erosion control specialist."

Lehigh and WRA have been actively managing the installation of stormwater, erosion, and sediment control BMPs in the RPA, including in the WMSA, the PCRA, the Quarry, the Rock plant and the WMSA. This memo outlines the baseline conditions for the RPA erosion control BMP's that have been installed.

The Permanente Quarry Reclamation Plan Amendment and Conditions of Approval - Fall 2012 Compliance Actions Report (November 2012) describes the various requirements of the COA related to erosion control measures. It also describes which erosion control measures were required for the different portions of the RPA. Rather than repeating the information, we reference this document.

On October 24, Megan Stromberg, Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer/Practitioner (QSD/QSP) and Landscape Architect, and Sean Avent, Scientist, performed a site visit to inspect the installation methods and final work of the 90 percent complete installations. The inspections revealed that given the terrain, including the steep slopes, and the and variable substrate composition of dirt, sand, rock, boulders and bedrock, the installations of the erosion control materials was performed to the best feasible level.

On November 9, 2012, Sean Avent, WRA scientist, inspected the installed erosion controls at the Lehigh Permanente RPA site. The condition of erosion controls were recorded on the Erosion Controls Checklist (Appendix A). All erosion controls measures were intact and did not need repair as evidenced in the Permanente Quarry Reclamation Plan Amendment and Conditions of Approval - Fall 2012 Compliance Actions Report (November 2012).

Lehigh or its qualified contractors will continue to produce regular monthly reports on the inspections of the various BMP's within the RPA and throughout the rainy season to include:

- Check dams on the haul roads
- Erosion control blankets, straw wattle, and silt fence installations within the PCRA treatment areas.
- Berms where limestone fines or stockpiles are placed

APPENDIX A

EROSION CONTROLS CHECKLIST

Permanente Quarry Erosion Controls Checklist

Per COA 78, inspections of BMPs should be conducted before and following qualifying rain events to ensure their integrity. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately.

This checklist should be used to inspect the BMPs installed through the PCRA areas as listed in the RPA and will serve as documentation for reporting purposes. Photo documentation should accompany both sufficient and deficient BMPs.

For erosion control measures (BMP's) installed in the PCRA, a map is produced on an annual basis at the end the fall season and may be used to determine the locations of the various BMP installations. This map can be marked up in the field with identification numbers that reflect the deficiencies.

Inspection Information				
Date and Time of Inspection: NOV 9 2012 1000-1400			Date Report Written: NOV 9 2012	
Area Inspected (PCRA Subarea, WMSA, EMSA, Rock Plant, etc.): All Areas				
Inspection Type: (Circle one)	Monthly BASELINE	Pre-Storm	During Rain Event	Post-Storm

Inspector/Reviewer Information	
Inspector Name: SEAN AVENT	Inspector Title: Scientist
Inspector Signature:	Date: NOV 9 2012
Reviewer Name: Megan Stromberg	Reviewer Title: Landscape Architect / QSD
Reviewer Signature:	Date: Nov. 9 2012

Weather	
Estimate storm beginning: (date and time) NONE	Estimate storm duration: (hours) 24 h
Estimate time since last storm: (days or hours) 11/1/2012 8 days	Rain gauge reading and location: (in) 0.25"
Is a "Qualifying Event" predicted or did one occur (i.e., 0.5" rain with 48-hrs or greater between events)? (Y/N) (Y) If yes, summarize forecast:	

Silt Fencing

NONE

- ☐ Are any sections of the silt fence split, torn, slumping or undercut?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Do any sections of the silt fence have weathered fabric?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Do any sections of the silt sediment have sediment accumulation which reaches one-third of the barrier height?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are areas upgradient of the silt fence permanently stabilized?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are there any other areas in need of silt fencing?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Geotextiles and Mats

No Deficiencies

- ☐ Is erosion or scouring evident around or under matting?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Do any areas of the installed blankets have washouts or breakage or are otherwise damaged?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are blankets uniformly in contact with the soil areas?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are blanket lap joints secure where they exist?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are blanket staples or pins flush with the ground?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are there additional areas that need further installation of erosion control blankets?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

No Deficiencies

Fiber Rolls

- ☐ Are there any split, torn, unraveling, or slumping fiber rolls?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are there any washouts or breakages of fiber rolls?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are there any rills or gullies adjacent to, along, or under fiber rolls?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are any portions of the fiber rolls where sediment has accumulated to one-third the designated sediment storage depth?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Hydromulch and Seeding

- ☐ Are hydroseeded areas scoured, disturbed, or otherwise have erosion?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Do hydroseeded areas have constant cover?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Do any other areas require further hydroseeeding?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Other Measures

No Deficiencies

- ☐ Is there any stockpiles that have uncontrolled run-on or run-off?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are there any breaks in the haul road berm allowing water to run into the PCRA or Permanente Creek Slopes?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- ☐ Are any sediment catchment ponds overflowing?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

BMP Deficiency Descriptions	
Deficiency ID Number	**Deficiency Description**
1.	No Deficiencies -
2.	
3.	See NOV 2012 FALL Report for
4.	
5.	photo grapts & map.
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	

Memorandum

To: Greg Knapp, Lehigh Hanson
Cc: Scott Renfrew, Lehigh Hanson

From: Sean Avent
avent@wra-ca.com
ext. 112

Date: February 21, 2012
Subject: Permanente Quarry – Erosion Control Inspection

Per COA 78 of the Final Conditions of Approval, the Mine Operator shall:

> "…regularly inspect all stormwater and erosion controls, especially before and following qualifying rain events. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately." And
>
> "Ensure that all stormwater, erosion, and sediment control BMPs are installed, inspected, maintained, and repaired under the direction of either a California certified engineer, geologist, or landscape architect, a registered professional hydrologist, or a certified erosion control specialist."

WRA has been actively managing the inspections of stormwater, erosion, and sediment control BMPs in the RPA. WRA regularly reports on the inspections of the various BMP's to include:

- Check dams on the haul roads
- Erosion control blankets, straw wattle, and silt fence installations within the PCRA treatment areas.
- Berms where limestone fines or stockpiles are placed

On February 20rd, 2012, Sean Avent, WRA scientist, inspected the site for erosion control deficiencies. Deficiencies and erosion controls in good condition were recorded on the Erosion Controls Checklist (Appendix A). Deficiencies are also recorded on Figures 1a -1g and 2a and 2b (Appendix B) and are cross-referenced with photographs in Appendix C.

Most erosion controls are intact and do not need repair (e.g., Photographs 1, 4-7, 10). The deficiencies that were noted in the January 2013 report were mainly taken care of with the exception of the haul road check dams.

- The silt fence at the EMSA organics pile was repaired (Photograph 10)
- The silt fence at the WMSA soil stockpile was repaired (Photograph 1)
- The toppled silt fence occurring from a slide occurring in Subarea 6 was also repaired (Photograph 7)
- Silt fencing in Subareas 4 and 5 were also repaired and reinforced as necessary.

- Straw wattles in Subareas 4 and 5 were also repaired and reinforced as necessary.
- Boulders were removed from the slit fence in Subareas 4, 5, and 6.
- Sediments were removed from the check dams near the rock plant and the check dams were renewed (Photograph 11).

The non-limestone rock berms and ditches in the EMSA below C-Station noted in the December 2012 and January 2013 reports were repaired and in good condition, although the area behind the berms are filling rapidly and may exceed the capacity of the berm in short time (Photographs 8 and 9).

Although the hydroseeding is still apparent on most of the areas that were treated, for the most part the seed did not take. Exceptions include areas where depressions exist and sediments have been collected and are in direct contact with the seed (Photographs 4-6). Hydroseeding on slopes has not been successful.

Deficiencies in erosion control measures were limited to damage to the erosion control netting on the WMSA soil stockpile and check dams on the haul road requiring maintenance and replacement.

A small area, roughly 2 x 5 feet, of the erosion control netting on the WMSA soil stockpile is slumping (Photograph 1). Although the deficiency is present, it is small and will not immediately pose a significant threat to erosion. It should be kept track of to assure that the deficiency is not increasing in size.

Non-limestone rock check dams along the haul road in the WMSA and the Rock Plant have accumulated sediment fill and require fines removal (Photograph 2). In addition, haul road check dams located above Subarea 3 were absent, most probably due to recent grading of the haul road or due to a slide from above covering the check dams (Photograph 3). Although waters may be migrating around the check dams that are deficient, in every case, those waters ultimately end up in the bottom of the quarry pit and are treated. None of the waters on the haul roads lead directly to the creek without prior treatment.

Attention to all noted deficiencies should be given as soon as feasible. Plans were made to maintain and replace check dams on the haul road by the Permanente Quarry staff and work is expected to be completed by March 1, 2013.

The following actions should be completed:

1) Remove sediment from rock check dams along haul road and near rock plant.
2) Replace rock check dams on the haul road above Subarea 3.

If you have any questions regarding this inspection or the actions that should be taken, please do not hesitate to contact me or other WRA staff at your convenience.

APPENDIX A

EROSION CONTROLS CHECKLIST

Permanente Quarry Erosion Controls Checklist

Per COA 78, inspections of BMPs should be conducted before and following qualifying rain events to ensure their integrity. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately.

This checklist should be used to inspect the BMPs installed through the PCRA areas as listed in the RPA and will serve as documentation for reporting purposes. Photo documentation should accompany both sufficient and deficient BMPs.

For erosion control measures (BMP's) installed in the PCRA, a map is produced on an annual basis at the end the fall season and may be used to determine the locations of the various BMP installations. This map can be marked up in the field with identification numbers that reflect the deficiencies.

Inspection Information				
Date and Time of Inspection: 2/20/2013 1200-1600h			Date Report Written: 2/21/2013	
Area Inspected (PCRA Subarea, WMSA, EMSA, Rock Plant, etc.): 1-7				
Inspection Type: (Circle one)	Monthly	Pre-Storm	During Rain Event	Post-Storm

Inspector/Reviewer Information	
Inspector Name: Sean Avent	Inspector Title: Scientist
Inspector Signature:	Date: 2/20/2013
Reviewer Name: Megan Stromberg	Reviewer Title: QSD
Reviewer Signature:	Date: 2/22/2013

Weather	
Estimate storm beginning: (date and time) 2/19/2013 - 2/20/2013	Estimate storm duration: (hours) 24h
Estimate time since last storm: (days or hours) > 15 days	Rain gauge reading and location for last storm (in): 0.34"
Is a "Qualifying Event" predicted or did one occur (i.e., 0.5" rain in 24 hours)? (Y/N)	
If yes, summarize forecast: None predicted - only 0.34" for this rain event	

Silt Fencing

No Yes

- [x] [ ] Are any sections of the silt fence split, torn, slumping or undercut?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [x] [ ] Do any sections of the silt fence have weathered fabric?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [x] [ ] Do any sections of the silt sediment have sediment accumulation which reaches one-third of the barrier height?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [x] [ ] Are areas upgradient of the silt fence permanently stabilized?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [x] [ ] Are there any other areas in need of silt fencing?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Geotextiles and Mats

- [x] [ ] Is erosion or scouring evident around or under matting?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] [x] Do any areas of the installed blankets have washouts or breakage or are otherwise damaged?

  Map ID/photo numbers: #1, p1 _____ _____ _____ _____ _____ _____

- [ ] [x] Are blankets uniformly in contact with the soil areas?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] [x] Are blanket lap joints secure where they exist?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [ ] [x] Are blanket staples or pins flush with the ground?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

- [x] [ ] Are there additional areas that need further installation of erosion control blankets?

  Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Fiber Rolls

No Yes

☒ ☐ Are there any split, torn, unraveling, or slumping fiber rolls?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there any washouts or breakages of fiber rolls?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there any rills or gullies adjacent to, along, or under fiber rolls?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are any portions of the fiber rolls where sediment has accumulated to one-third the designated sediment storage depth?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Hydromulch and Seeding

☒ ☐ Are hydroseeded areas scoured, disturbed, or otherwise have erosion?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☐ ☒ Do hydroseeded areas have constant cover?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Do any other areas require further hydroseeeding?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Other Measures

☒ ☐ Are there any stockpiles that have uncontrolled run-on or run-off?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there any breaks in the haul road berm allowing water to run into the PCRA or Permanente Creek Slopes?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are any sediment catchment ponds overflowing?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☐ ☒ Are any ditches or water conveyances damaged?

Map ID/photo numbers: #5, p2-9; #4, p2-3; #2 p2 _____ _____

BMP Deficiency Descriptions	
Deficiency ID Number	**Deficiency Description**
1. / Photo 1	WMSA Soil stockpile erosion control netting has small sag (2x5') - not significant
2. / photo 2	Check dams on haul road between WMSA & SA 4 need repair
3. /	Hydroseeding has not been established yet
4. / photo 3	Check dams above SA 3 need to be installed.
5. / photo 8-9	C-Station ditch is filled with fines (EMSA)
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	

APPENDIX B

EROSION CONTROL CHECKLIST MAPS

wra
ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

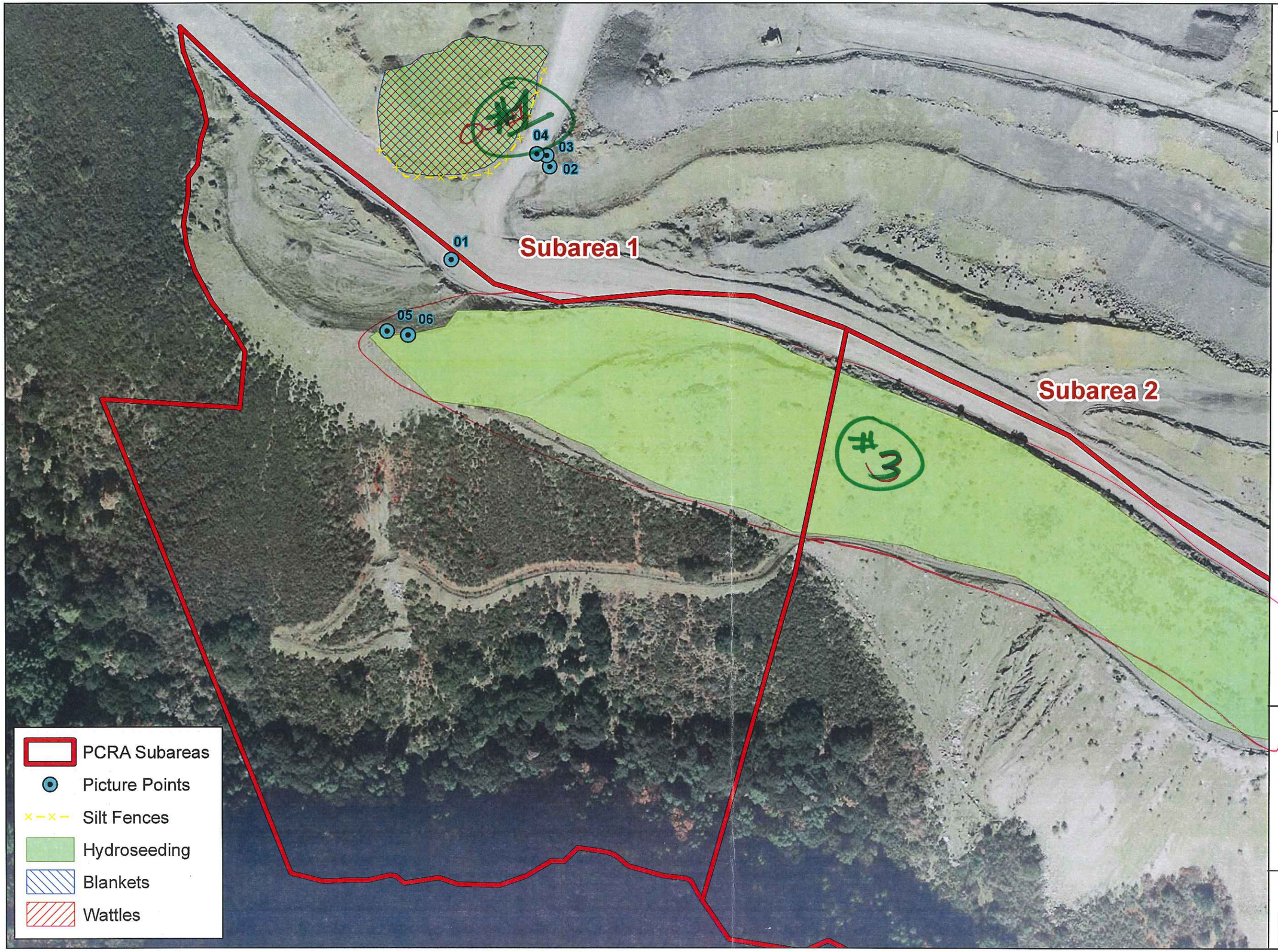
Overview

N
W E
S

0 500 1,000 2,000
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Overview.mxd



wra
ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1a.

PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
S

0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

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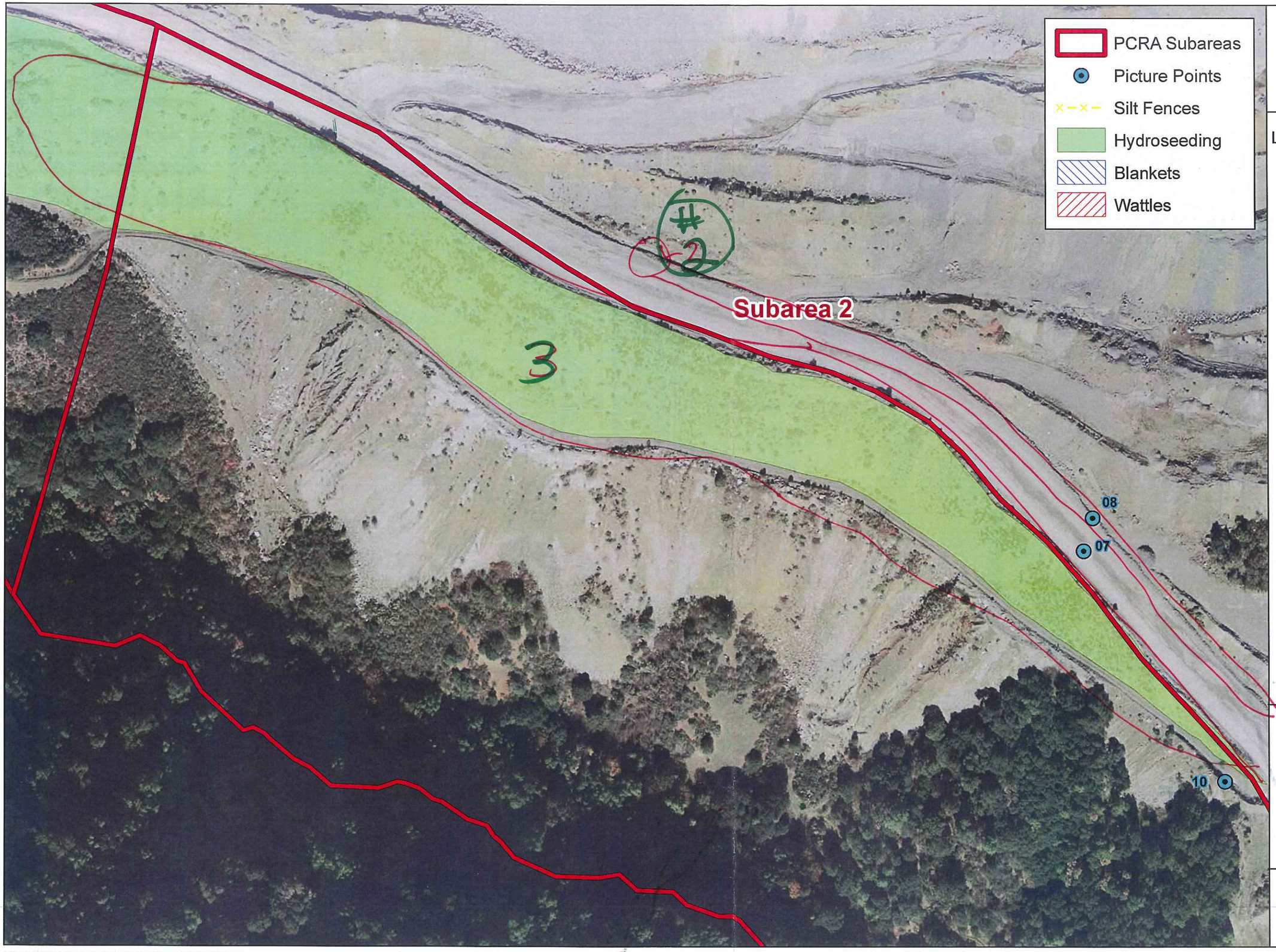

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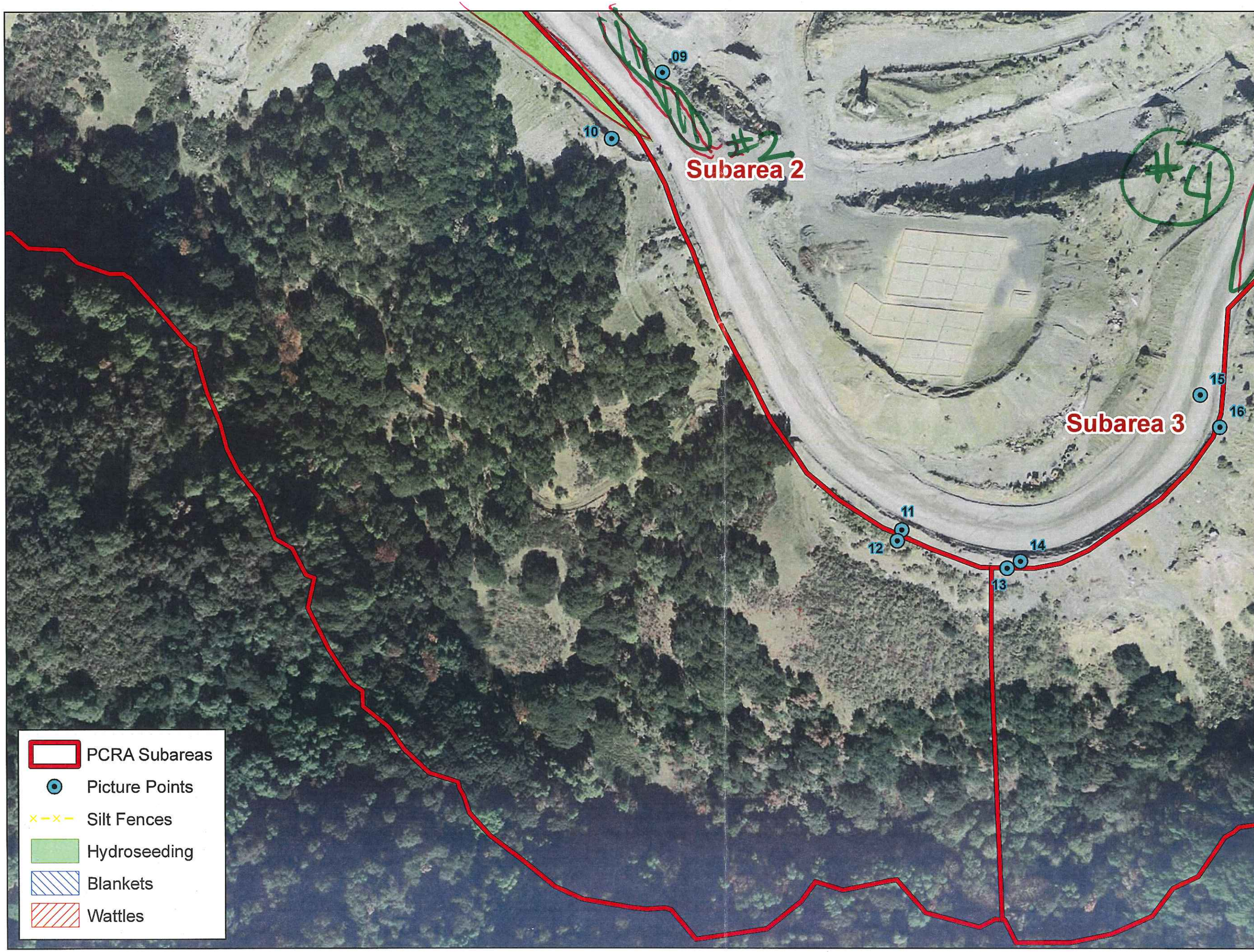
Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1b.

PCRA
Erosion Control
Installation Areas
and Picture Points

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1b.mxd



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Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1c.

PCRA
Erosion Control
Installation Areas
and Picture Points

N
W E
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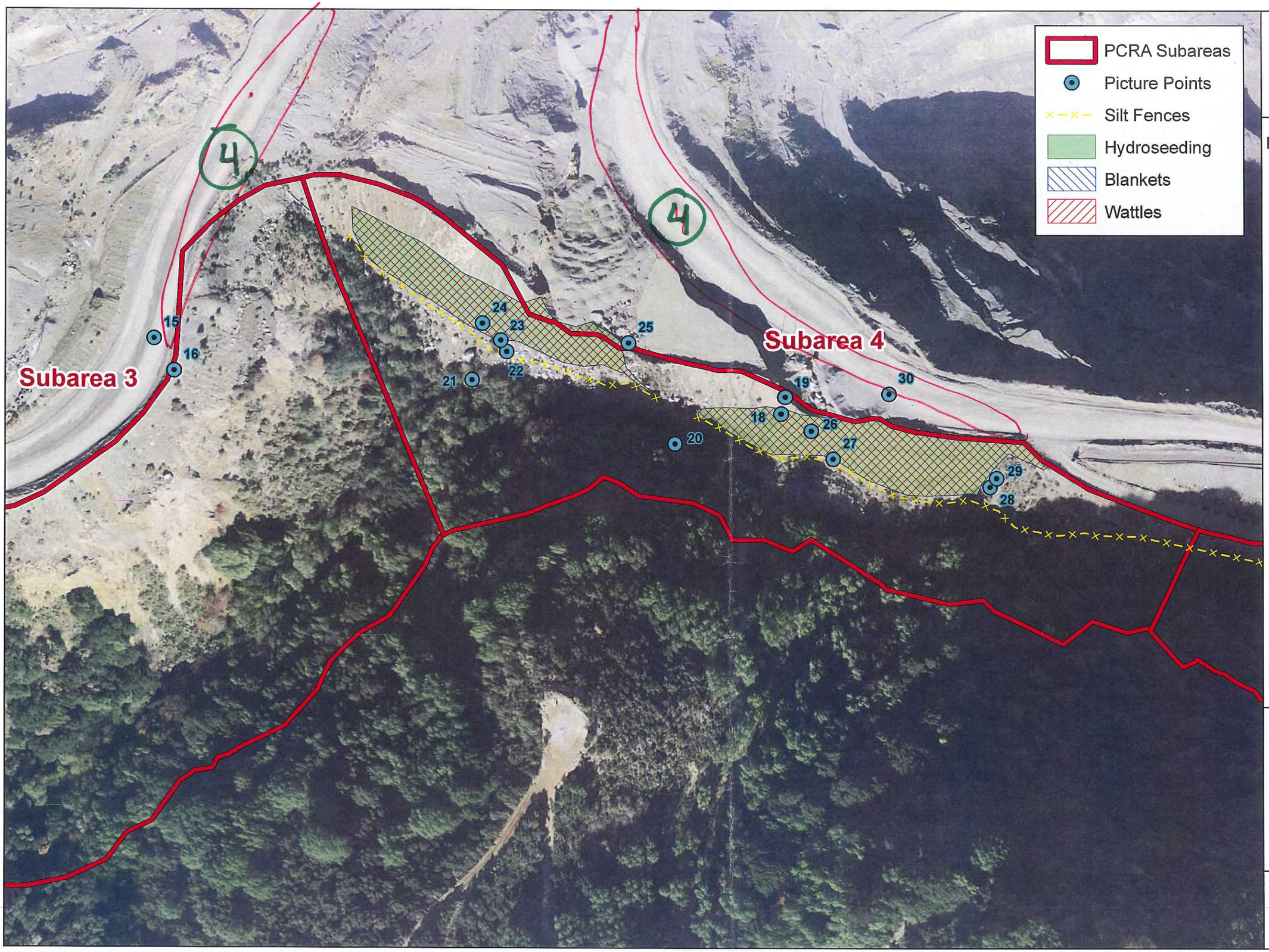
0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1c.mxd



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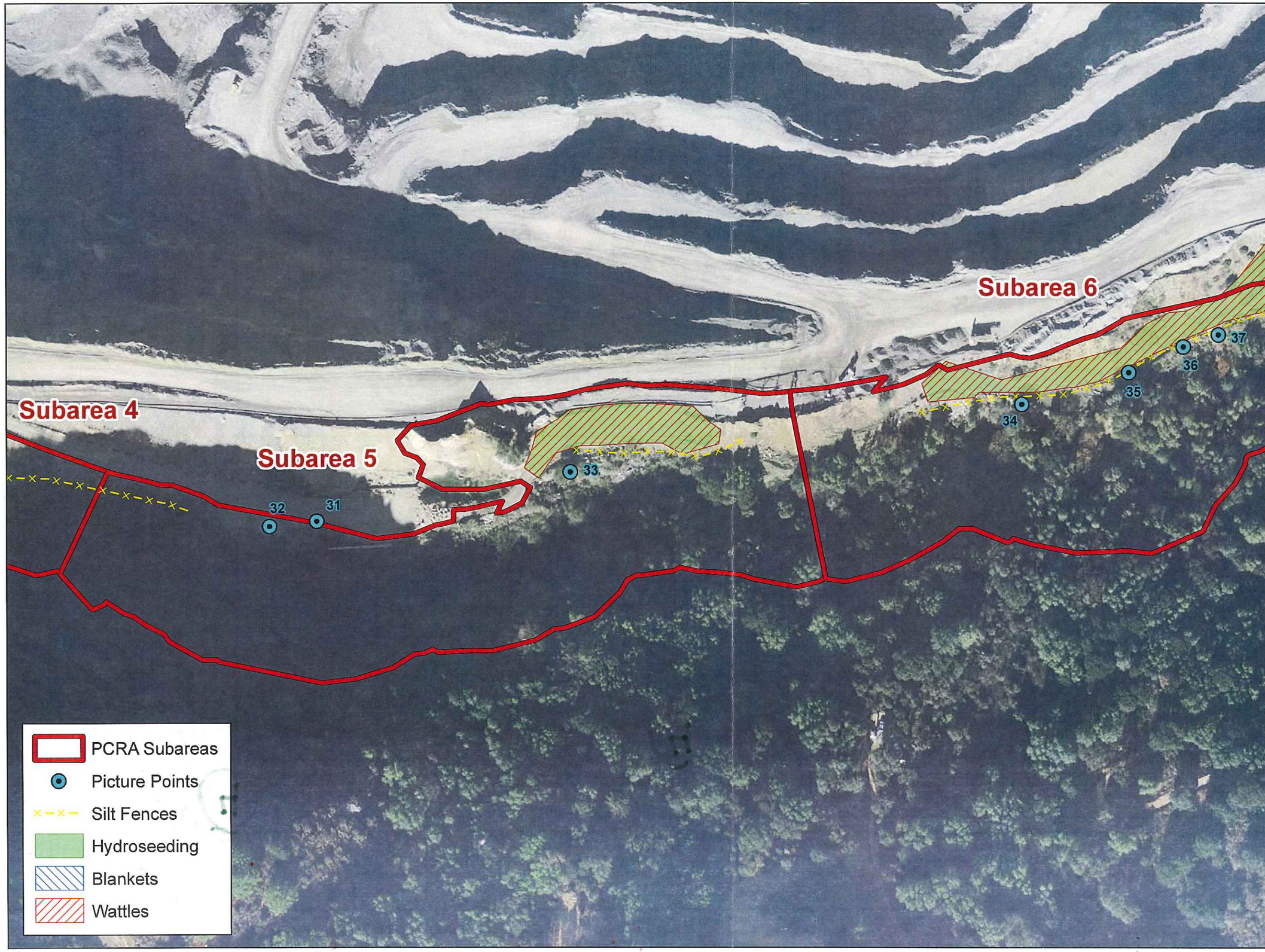
Santa Clara County,
California

Figure 1d.

PCRA
Erosion Control
Installation Areas
and Picture Points

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1d.mxd



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Santa Clara County,
California

Figure 1e.

PCRA
Erosion Control
Installation Areas
and Picture Points

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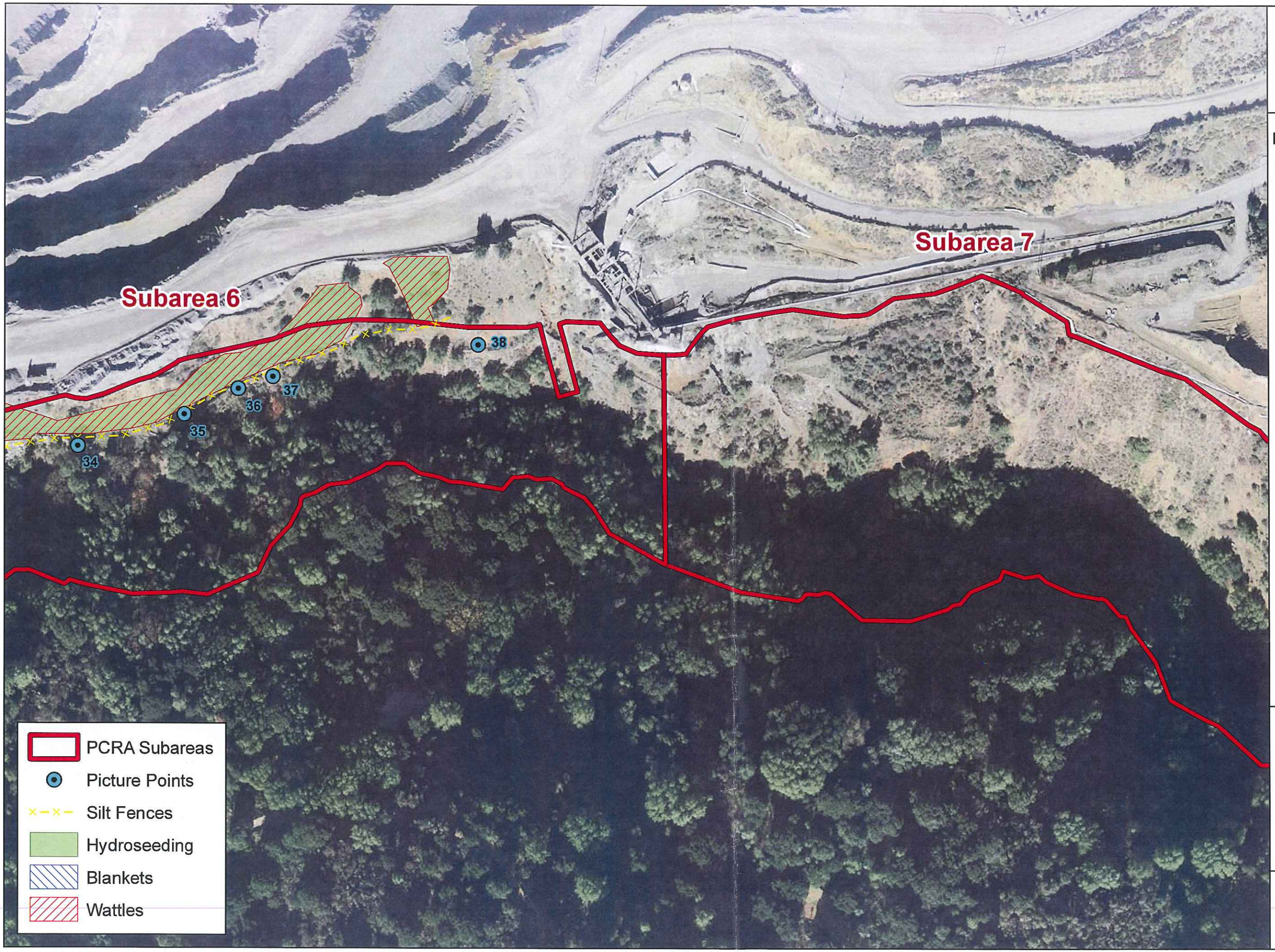
0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1e.mxd



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Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1f.

PCRA
Erosion Control
Installation Areas
and Picture Points

N
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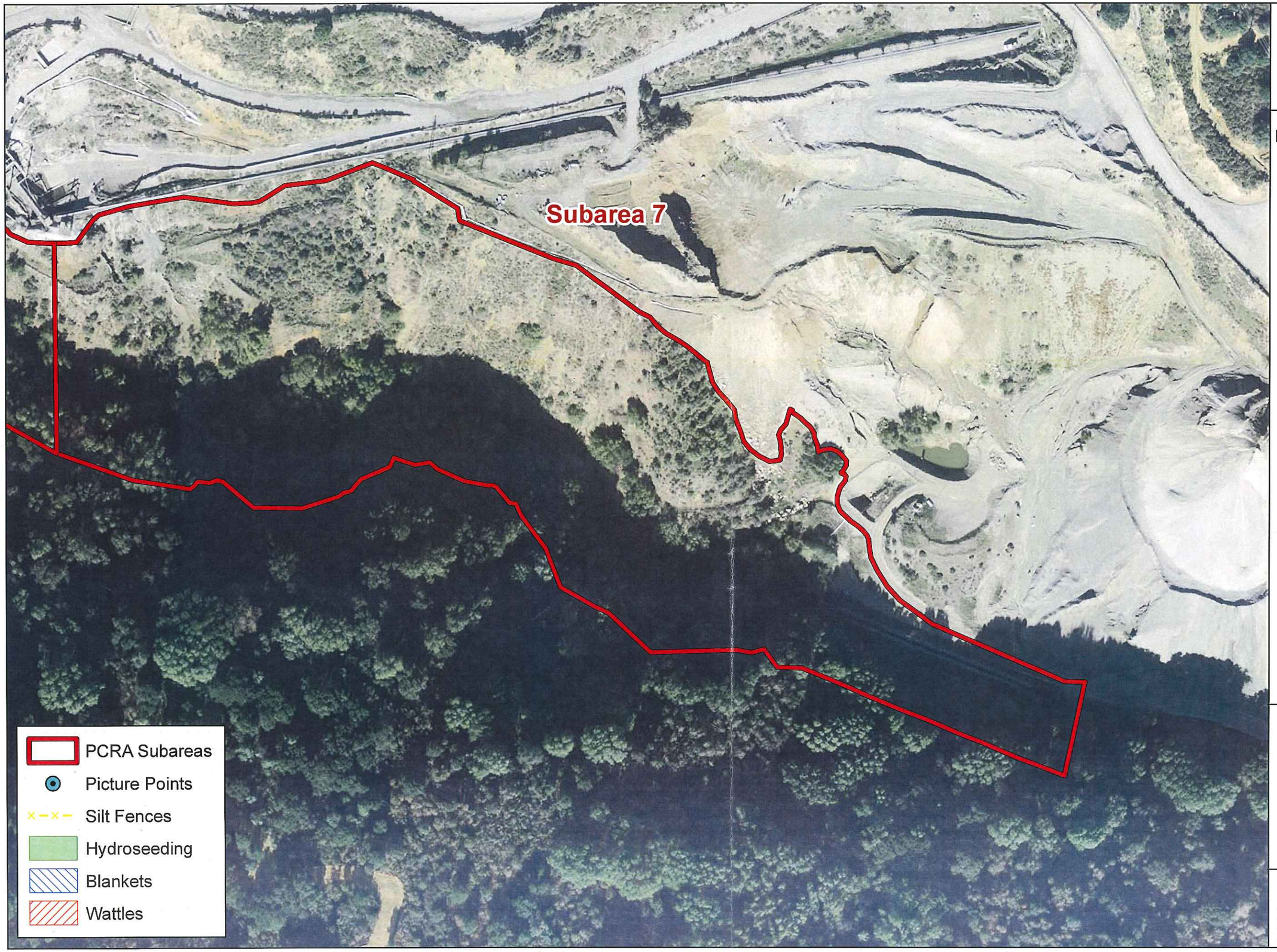
0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1f.mxd



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Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1g.

PCRA
Erosion Control
Installation Areas
and Picture Points

N
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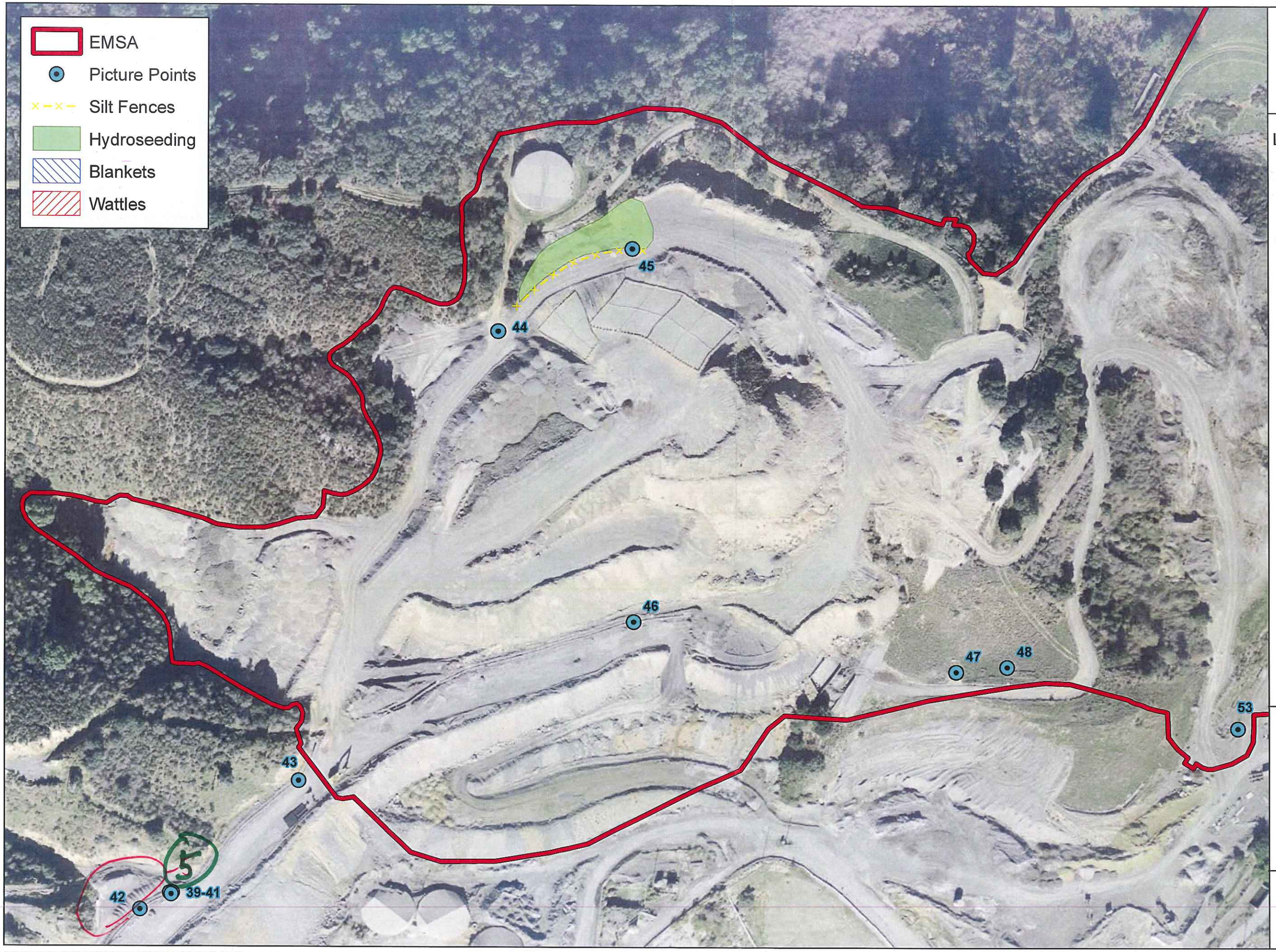
0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1g.mxd



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Santa Clara County,
California

Figure 2a.

EMSA
Erosion Control
Installation Areas
and Picture Points

N
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0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP_Photo Maps\Fig 2a.mxd

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Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 2b.

EMSA
Erosion Control
Installation Areas
and Picture Points

N
W E
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0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 2b.mxd

APPENDIX C

PHOTOGRAPHIC EVIDENCE

Figures 1 and 2. Permanente Erosion Control Inspection Photographic Evidence

Photograph 1 (Top): WMSA soil stockpile erosion control netting slumping (mid-photo) and silt fence repaired

Photograph 2 (Bottom): Haul road rock check dams filled with sediment.

Photos taken February 20, 2013

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Figures 3 and 4. Permanente Erosion Control Inspection Photographic Evidence

Photograph 3 (Top). Haul road check dams are missing and need to be replaced above Subarea 3.

Photograph 4 (Bottom). Erosion controls in Subareas 4 and 5 are intact.

Photos taken February 20, 2013

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Figure 5. Permanente Erosion Control Inspection Photographic Evidence

Photograph 5. Erosion controls in Subarea 4 is intact. Hydroseed has taken hold in flat areas and depressions.

Photos taken February 20, 2013

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Figures 6 and 7. Permanente Erosion Control Inspection Photographic Evidence

Photograph 6 (Top): Erosion controls in Subarea 5 are intact. Hydroseed is only partially successful.

Photograph 7 (Bottom): Silt fence in Subarea 6 have been repaired and replaced.

Photos taken February 20, 2013

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Figures 8. Permanente Erosion Control Inspection Photographic Evidence

Photograph 8 (Top): Ditch below C-Station is filling with sediment.

Photos taken February 20, 2013

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Figures 9 and 10. Permanente Erosion Control Inspection Photographic Evidence

Photograph 9 (Top): Berms below C-Station are nearly full with sediment.

Photograph 10 (Bottom): Silt fence repaired at organics pile in EMSA.

Photos taken February 20, 2013

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Figure 11. Permanente Erosion Control Inspection Photographic Evidence

Photograph 11: Non-limestone check dams near the Rock Plant have been maintained and renewed.

Photos taken February 20, 2013

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Memorandum

To: Greg Knapp, Lehigh Hanson
Cc:

From: Sean Avent
avent@wra-ca.com
ext. 112

Date: March 11, 2013
Subject: Permanente Quarry – Erosion Control Inspection

Per COA 78 of the Final Conditions of Approval, the Mine Operator shall:

> "…regularly inspect all stormwater and erosion controls, especially before and following qualifying rain events. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately." And
>
> "Ensure that all stormwater, erosion, and sediment control BMPs are installed, inspected, maintained, and repaired under the direction of either a California certified engineer, geologist, or landscape architect, a registered professional hydrologist, or a certified erosion control specialist."

WRA has been actively managing the inspections of stormwater, erosion, and sediment control BMPs in the RPA. WRA regularly reports on the inspections of the various BMP's to include:

- Check dams on the haul roads
- Erosion control blankets, straw wattle, and silt fence installations within the PCRA treatment areas.
- Berms where stockpiles are placed

On March 8, 2013, 0.3 inch of rain fell on the Permanente Quarry, and while such a small amount of precipitation is not a "qualifying event" to ensure the integrity of the BMPs Sean Avent, WRA scientist, inspected the site for erosion control deficiencies. Deficiencies were recorded on the Erosion Controls Checklist (Appendix A). Deficiencies are also recorded on Figures 1a -1g and 2a and 2b (Appendix B) and are cross-referenced with photographs in Appendix C.

Most erosion controls are intact and do not need repair (Photograph 1). The deficiencies that were noted in the February 2013 report were taken care, including the maintenance of the haul road check dams. Although the slumping of the netting at the WMSA topsoil stockpile remains, it is not increasing, is still relatively small, and the underlying substrate is stable and therefore a repair at this time is not recommended as other portions of the netting may be damaged in the process..

Deficiencies in erosion control measures were limited to damage to the erosion control netting on the WMSA soil stockpile, a minor repairs as needed to silt fence, non-limestone rock berms and ditches in the EMSA below C-Station, breakouts of water flow from ditches in the EMSA, and check dams on the haul road requiring maintenance and replacement.

The non-limestone rock berms and ditches in the EMSA below C-Station noted in the December 2012 and January 2013 reports were repaired in February and in good condition, but the areas behind the berms and in the ditches downstream are now at capacity with sediment and in need of excavation (Photographs 2-8).

The rubber-lined ditch above the haul road in the EMSA and downstream of the above-mentioned ditch has broken through and stormwater now is conveyed into the haul road where it pools and is contained. The ditch should be cleaned out of sediments and relined with the rubber matting or non-limestone materials.

The stormwater ditch just upstream of Pond 30 is receiving sediment inflow from the haul road and parking areas above it (emanating from water flowing down the EMSA haul road). This ditch should be cleaned out and relined with non-limestone rock. A preventative measure to keep sediment from entering the ditch would be to place straw wattles or hay bales along the boulders that act as a haul road berm.

The outfall from Pond 30 was overlooked in the original effort to replace all limestone rock in stormwater conveyances. The limestone rock should be removed and replaced with non-limestone rock.

The access road that is located in Subareas 1 and 2 and creek side of the WMSA haul road berm currently allows flowing stormwater to flow downhill at the invert of the road. Hay bales and/or straw wattle should be placed at that site to catch any sediments where feasible.

Although the hydroseeding is still apparent on most of the areas that were treated, for the most part the seed did not take. Exceptions include areas where depressions exist and sediments have been collected and are in direct contact with the seed (Photographs 9 and 10). Hydroseeding on slopes has not been successful.

A small area, roughly 2 x 5 feet, of the erosion control netting on the WMSA soil stockpile is slumping (Photograph 11). Although the deficiency is present, it is small and will not immediately pose a significant threat to erosion. It should be kept track of to assure that the deficiency is not increasing in size.

Attention to all noted deficiencies should be given as soon as feasible. Plans were made to maintain and replace check dams on the haul road by the Permanente Quarry staff and work is expected to be completed by March 15, 2013.

The following actions should be completed:

1) Remove sediment from rock check dams along haul road and near rock plant.
2) Replace rock check dams on the haul road above Subarea 3.

If you have any questions regarding this inspection or the actions that should be taken, please do not hesitate to contact me or other WRA staff at your convenience.

APPENDIX A

EROSION CONTROLS CHECKLIST

Permanente Quarry Erosion Controls Checklist

Per COA 78, inspections of BMPs should be conducted before and following qualifying rain events to ensure their integrity. Inspections shall be documented and periodically reported. Any violations shall be corrected immediately.

This checklist should be used to inspect the BMPs installed through the PCRA areas as listed in the RPA and will serve as documentation for reporting purposes. Photo documentation should accompany both sufficient and deficient BMPs.

For erosion control measures (BMP's) installed in the PCRA, a map is produced on an annual basis at the end the fall season and may be used to determine the locations of the various BMP installations. This map can be marked up in the field with identification numbers that reflect the deficiencies.

Inspection Information				
Date and Time of Inspection: March 8, 2013		Date Report Written: March 9, 2013		
Area Inspected (PCRA Subarea, WMSA, EMSA, Rock Plant, etc.): All areas				
Inspection Type: (Circle one)	Monthly	Pre-Storm	During Rain Event	Post-Storm

Inspector/Reviewer Information	
Inspector Name: Sean Avent	Inspector Title: Scientist
Inspector Signature:	Date: 3/8/2013
Reviewer Name: Megan Stromberg	Reviewer Title: QSD
Reviewer Signature:	Date: 3/9/2013

Weather	
Estimate storm beginning: (date and time) 3/7/2013	Estimate storm duration: (Not qualifying) (hours) 36
Estimate time since last storm: (days or hours) > 7 days	Rain gauge reading and location for last storm (in): 0.33 in
Is a "Qualifying Event" predicted or did one occur (i.e., 0.5" rain in 24 hours)? (Y/N)	
If yes, summarize forecast: No qualifying rain event	

Silt Fencing

No Yes

☒ ☒ Are any sections of the silt fence split, torn, slumping or undercut?

Map ID/photo numbers: 408 _____ _____ _____ _____ _____ _____

☒ ☐ Do any sections of the silt fence have weathered fabric?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Do any sections of the silt sediment have sediment accumulation which reaches one-third of the barrier height?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are areas upgradient of the silt fence permanently stabilized?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there any other areas in need of silt fencing?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Geotextiles and Mats

☒ ☐ Is erosion or scouring evident around or under matting?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☐ ☒ Do any areas of the installed blankets have washouts or breakage or are otherwise damaged?

Map ID/photo numbers: 408 _____ _____ _____ _____ _____ _____

☐ ☒ Are blankets uniformly in contact with the soil areas?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☐ ☒ Are blanket lap joints secure where they exist?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☐ ☒ Are blanket staples or pins flush with the ground?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there additional areas that need further installation of erosion control blankets?

Map ID/photo numbers: Subarea 3 may need some next year

Fiber Rolls

No Yes

☒ ☐ Are there any split, torn, unraveling, or slumping fiber rolls?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there any washouts or breakages of fiber rolls?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are there any rills or gullies adjacent to, along, or under fiber rolls?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are any portions of the fiber rolls where sediment has accumulated to one-third the designated sediment storage depth?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Hydromulch and Seeding

☒ ☐ Are hydroseeded areas scoured, disturbed, or otherwise have erosion?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☐ ☒ Do hydroseeded areas have constant cover?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Do any other areas require further hydroseeeding?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

Other Measures

☐ ☒ Are there any stockpiles that have uncontrolled run-on or run-off?

Map ID/photo numbers: 357 _____ _____ _____ _____ _____ _____

☒ ☐ Are there any breaks in the haul road berm allowing water to run into the PCRA or Permanente Creek Slopes?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☒ ☐ Are any sediment catchment ponds overflowing?

Map ID/photo numbers: _____ _____ _____ _____ _____ _____ _____

☐ ☒ Are any ditches or water conveyances damaged?

Map ID/photo numbers: 360 363 364 367 369 383 385

BMP Deficiency Descriptions	
Deficiency ID Number	**Deficiency Description**
1. 2408	WMSA Soil Stockpile silt fence need to be secured
2. 2408	WMSA Stockpile Netting Slumping Slightly - OK
3. 357	Stockpile at EMSA entrance Rd need a ditch
4. 367 369	Ditch above Haul Road in EMSA needs repair. Flow has broken out and into Haul road.
5. 360 363 364	C-Station Ditch and valley are filled with sediment, Berms and ditch need to be cleaned out.
6. 383 385	Drainage Ditch above POND 30 needs to be cleaned. Recommend Wattle along boundis to keep out sediment.
7. 388	Outfall from POND 30 is still limestone — needs to be replaced.
8. 2407	The access road requires hay bales and/or straw wattles to prevent flow down hill.
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	

APPENDIX B

EROSION CONTROL CHECKLIST MAPS

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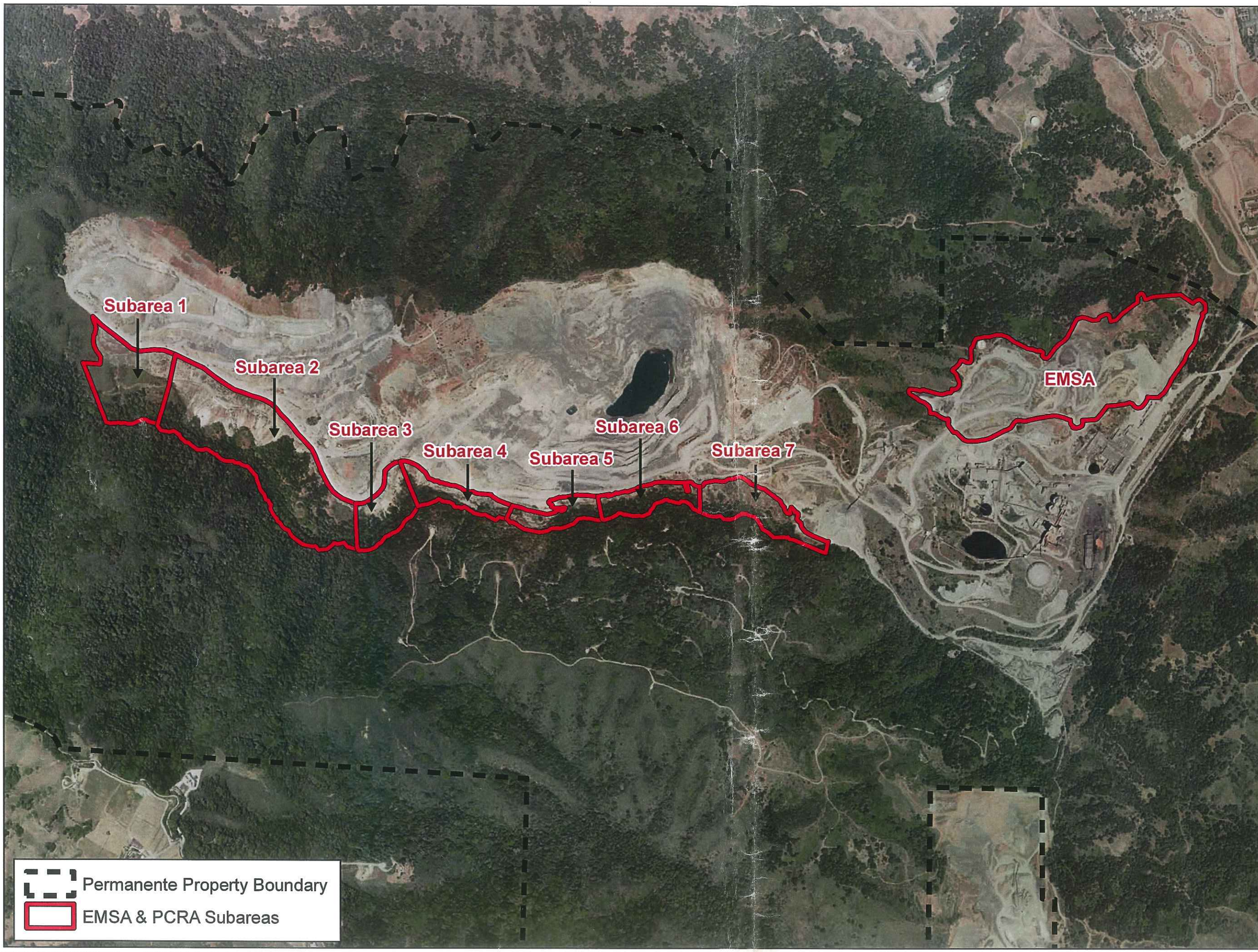
Lehigh Permanente Quarry,
Santa Clara County,
California

3/8/2013
SRA

Overview



N
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0 500 1,000 2,000
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

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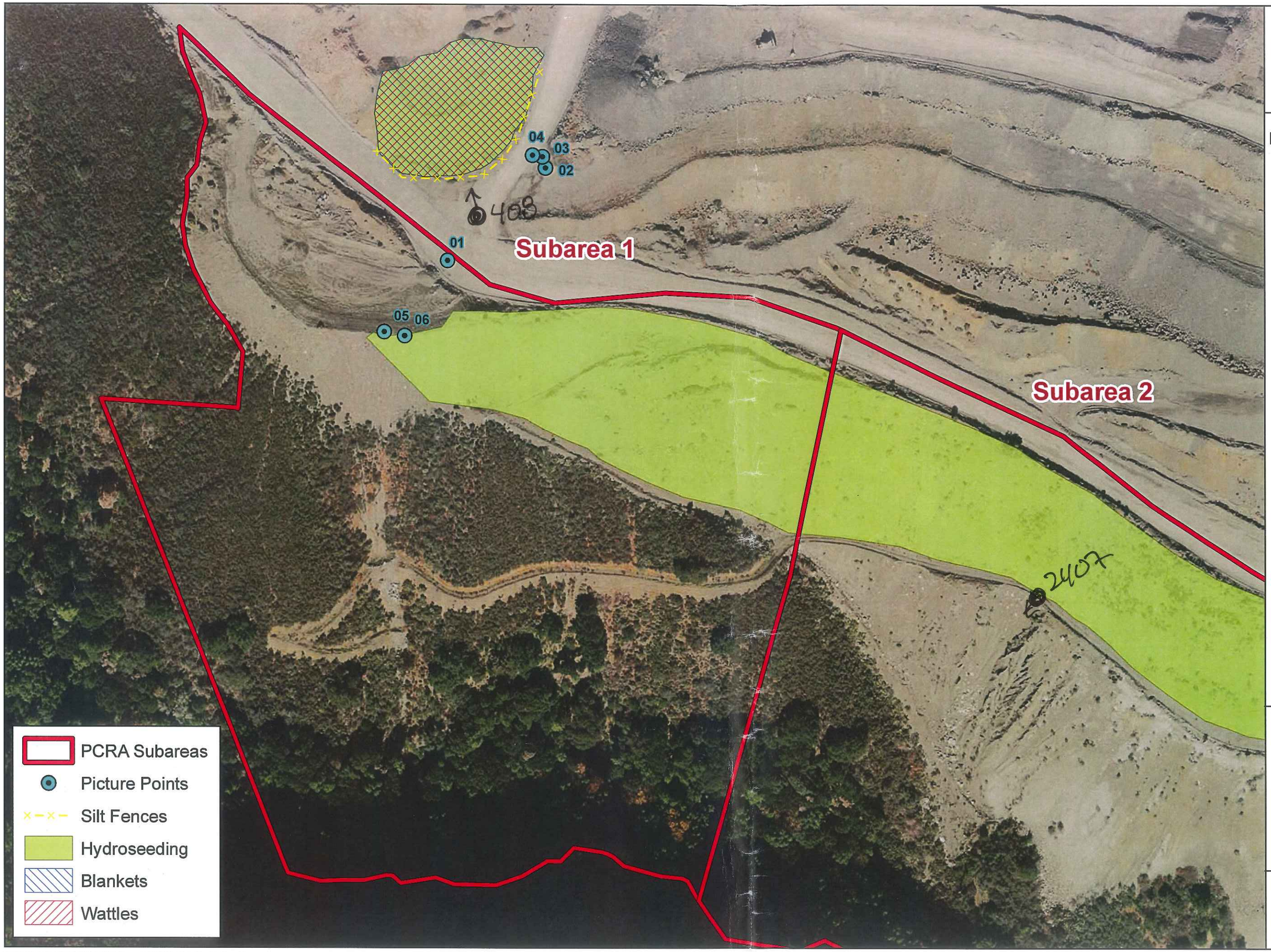

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Lehigh Permanente Quarry,
Santa Clara County,
California

3/8/2013
SRA

Figure 1a.

PCRA
Erosion Control
Installation Areas
and Picture Points

N
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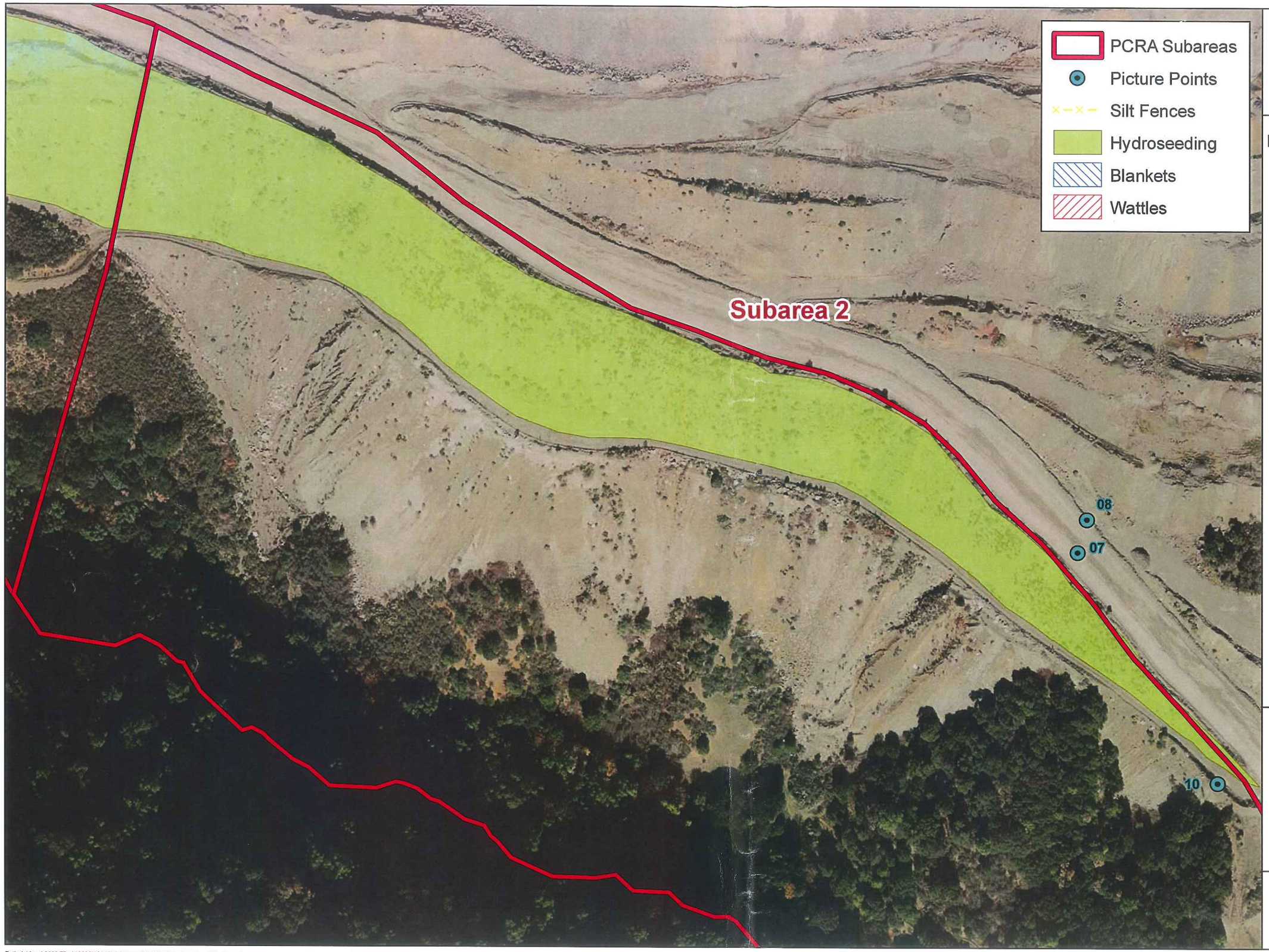
0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1a.mxd



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Lehigh Permanente Quarry,
Santa Clara County,
California

3/8/2013
SRA

Figure 1b.

PCRA
Erosion Control
Installation Areas
and Picture Points

No deficiencies

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1b.mxd

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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

3/8/2013

SRA

Figure 1c.

PCRA
Erosion Control
Installation Areas
and Picture Points

N
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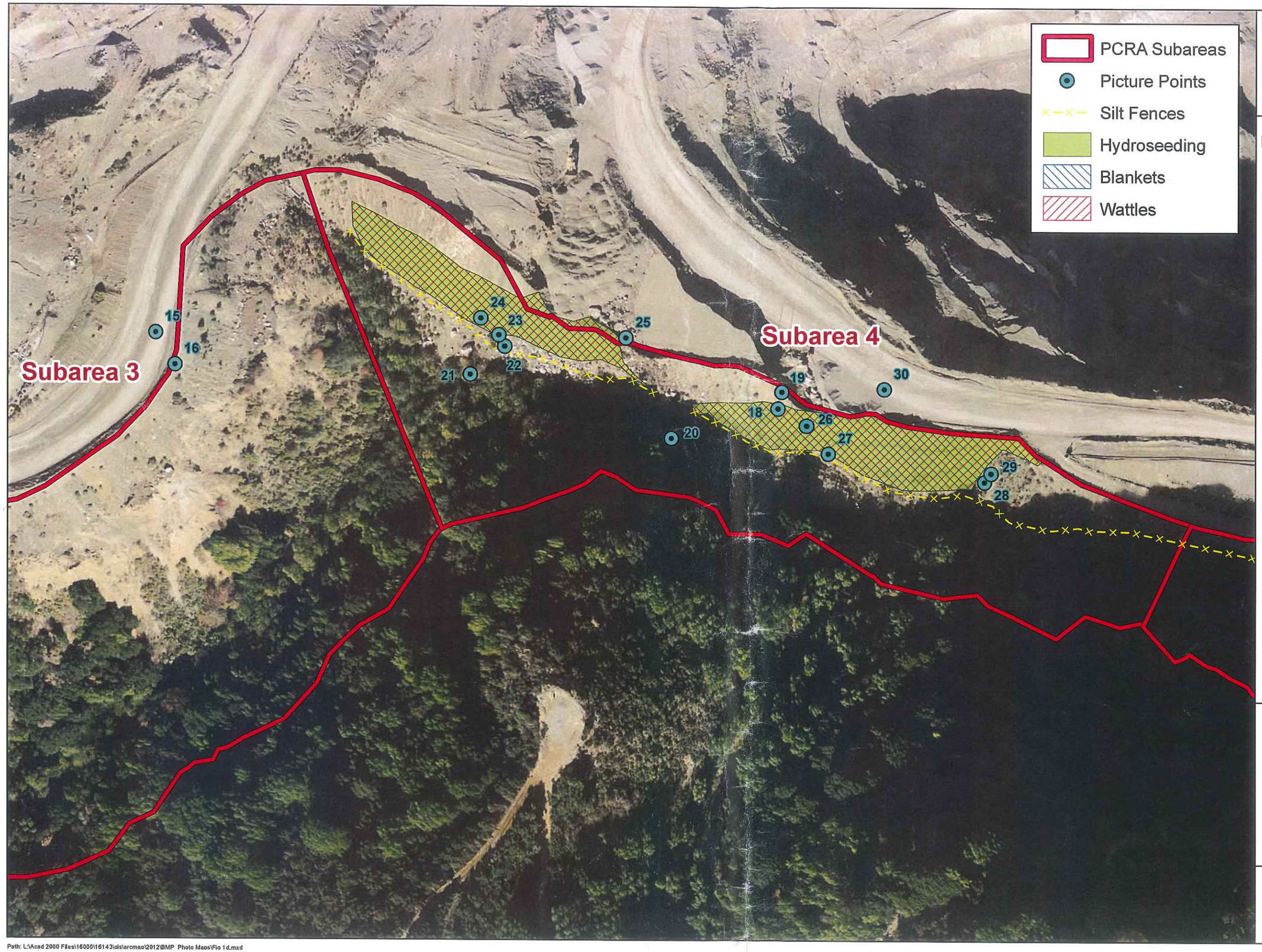
0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1c.mxd



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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1d.

PCRA
Erosion Control
Installation Areas
and Picture Points

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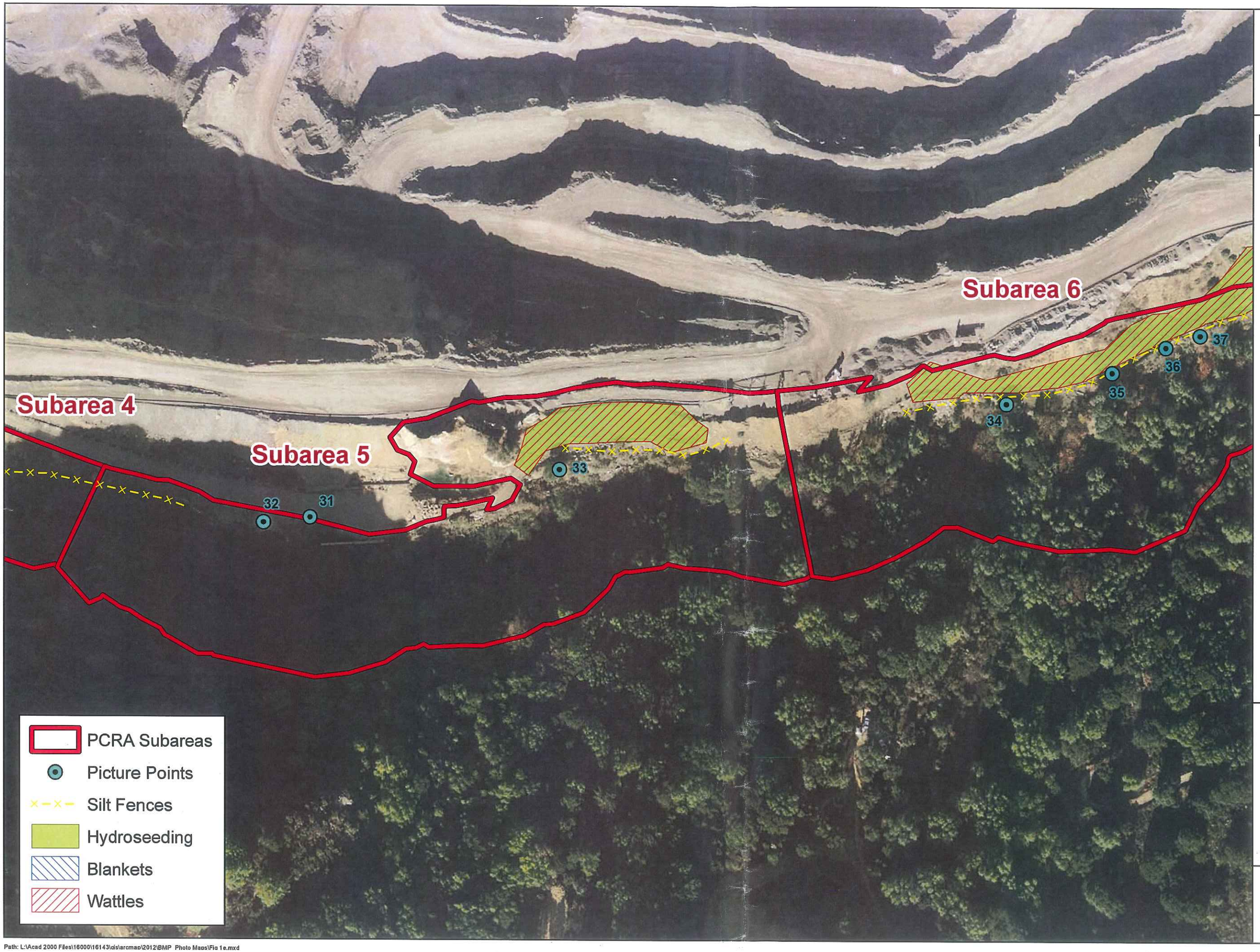
0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1d.mxd



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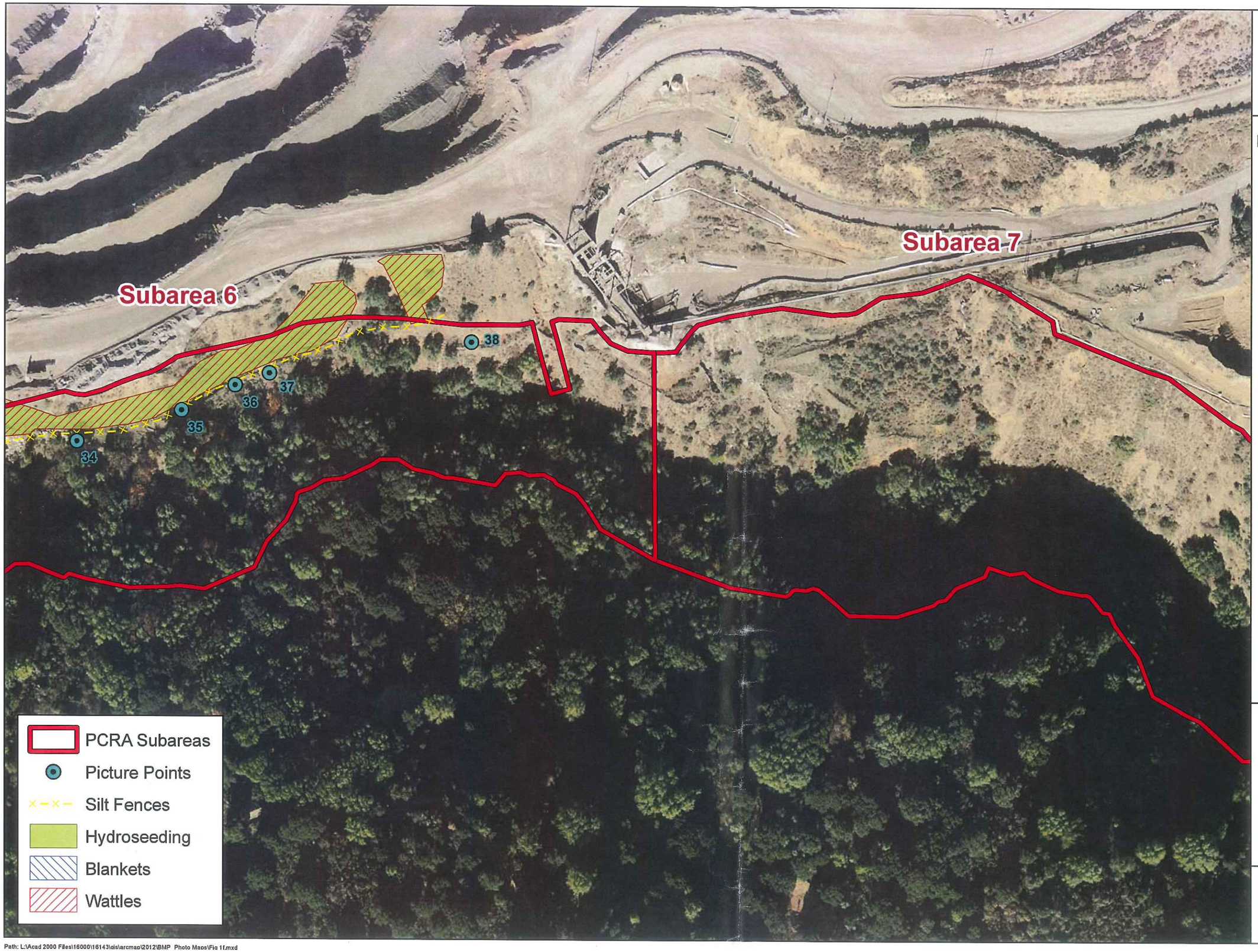
Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1e.

PCRA
Erosion Control
Installation Areas
and Picture Points

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1e.mxd



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Lehigh Permanente Quarry,
Santa Clara County,
California

Figure 1f.

PCRA
Erosion Control
Installation Areas
and Picture Points

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Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 1f.mxd

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Lehigh Permanente Quarry,
Santa Clara County,
California

3/8/2013

SRA

Figure 2a.

EMSA
Erosion Control
Installation Areas
and Picture Points

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0 50 100 200
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 2a.mxd

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ENVIRONMENTAL CONSULTANTS

Lehigh Permanente Quarry,
Santa Clara County,
California

3/8/2013

SRA

Figure 2b.

EMSA
Erosion Control
Installation Areas
and Picture Points

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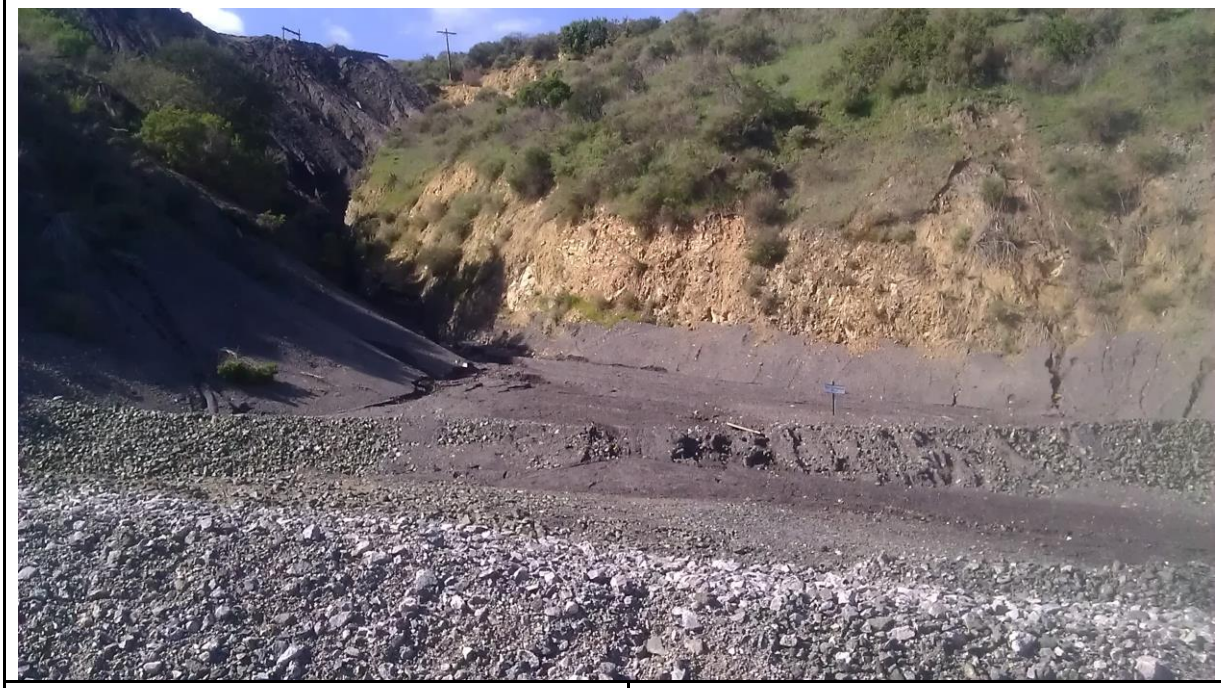
Feet

Date: November 2012
Map By: Michael Rochelle
Aerial: USGS 2008

Path: L:\Acad 2000 Files\16000\16143\gis\arcmap\2012\BMP Photo Maps\Fig 2b.mxd

APPENDIX C

PHOTOGRAPHIC EVIDENCE



Figures 1 and 2. Permanente Erosion Control Inspection Photographic Evidence

Photograph 1 (Top): Erosion control intact.

Photograph 2 (Bottom): (Photo 360) Damaged ditch/ water conveyance

Photos taken March 8, 2013

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Figures 3 and 4. Permanente Erosion Control Inspection Photographic Evidence
Photograph 3 (Top): (Photo 363) Damaged ditch/ water conveyance
Photograph 4 (Bottom): (Photo 364) Damaged ditch/ water conveyance

Photos taken March 8, 2013

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Figures 5 and 6. Permanente Erosion Control Inspection Photographic Evidence

Photograph 5 (Top): (Photo 367) Damaged ditch/ water conveyance
Photograph 6 (Bottom): (Photo 369) Damaged ditch/ water conveyance

Photos taken March 8, 2013

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Figures 7 and 8. Permanente Erosion Control Inspection Photographic Evidence

Photograph 7 (Top): (Photo 383) Damaged ditch/ water conveyance

Photograph 8 (Bottom): (Photo 385) Damaged ditch/ water conveyance

Photos taken March 8, 2013

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Figures 9 and 10. Permanente Erosion Control Inspection Photographic Evidence

Photograph 9 (Top). Hydroseed has only taken hold in flat areas and depressions.

Photograph 10 (Bottom). Hydroseed has only taken hold in flat areas and depressions.

Photos taken March 8, 2013

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Figures 11 and 12. Permanente Erosion Control Inspection Photographic Evidence

Photograph 11: (Photo 408) Soil stockpile, and erosion blanket with limited slumping.

Photograph 12: (Photo 357) Soil stockpile with uncontrolled run-on and run-off

Photos taken March 8, 2013

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Figures 6 and 7. Permanente Erosion Control Inspection Photographic Evidence

Photograph 6 (Top): Erosion controls in Subarea 5 are intact. Hydroseed is only partially successful.

Photograph 7 (Bottom): Silt fence in Subarea 6 have been repaired and replaced.

Photos taken February 20, 2013

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Figures 8. Permanente Erosion Control Inspection Photographic Evidence

Photograph 8 (Top): Ditch below C-Station is filling with sediment.

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Figures 9 and 10. Permanente Erosion Control Inspection Photographic Evidence

Photograph 9 (Top): Berms below C-Station are nearly full with sediment.

Photograph 10 (Bottom): Silt fence repaired at organics pile in EMSA.

Photos taken February 20, 2013

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Figure 11. Permanente Erosion Control Inspection Photographic Evidence

Photograph 11: Non-limestone check dams near the Rock Plant have been maintained and renewed.

Photos taken February 20, 2013

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